

Integrated Cultural Resources Management Plan (ICRMP) FY 2024–2029

NASA Kennedy Space Center (KSC)

November 2024 (Updated January 2026)

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Document Change Log

Date	Section	Change Made
1/21/2026	Footers	Removed “Internal Use Only, Not for Public Distribution” designation.
1/21/2026	Section 2.3, Appendix D, Appendix M/M-4	Added references to 2025 NASA-Wide Programmatic Agreement (NPA), which replaces the 2009 Programmatic Agreement.
1/21/2026	Chapter 3	Updated goals and objectives of the CRM Program.
1/21/2026	Section 3.2, Table 3-6	Updated table of CRM projects.
1/21/2026	Section 4.2, Appendix H	Updated Native American and Consulting Party information.
1/21/2026	Chapter 5, Table 5-4	Updated list of archaeological surveys.
1/21/2026	Chapter 6	Updated SOPs to reflect process changes required under the 2025 NPA.
1/21/2026	Appendix E	Updated CRM contact information.
1/21/2026	Appendix M, Tables M-1, M-2, and M-3	Added new information.
1/21/2026	Appendix O	Added Appendix O containing the 2025 KSC version of the NPA.

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Signature Page

NASA Kennedy Space Center (KSC), Integrated Cultural Resources Management Plan

FY 2024–2029

This Integrated Cultural Resources Management Plan (ICRMP) meets the requirements for ICRMPs set forth in NASA Procedural Requirement (NPR) 8510.1A *Cultural Resources Management.*

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Executive Summary

This Integrated Cultural Resources Management Plan (ICRMP) has been prepared for the National Aeronautics and Space Administration (NASA) Kennedy Space Center (KSC) as an internal compliance and management tool that integrates the NASA Cultural Resources Management Program (CRM Program) with mission activities at KSC. The KSC CRM Program provides the policies and procedures to identify, evaluate, and protect historic properties in compliance with federal laws and regulations (see Appendix B) and NASA policies and procedures (see Appendix C).

The ICRMP is updated and renewed every five years, or as needed if project activities and programs change. This ICRMP is intended for use by KSC staff members who make decisions about planning efforts, especially the Center's Cultural Resources Manager (CRM). Outside agencies and tenants/lessees who lease KSC facilities will also be subject to the ICRMP's standard operating procedures (SOPs) per Chapter 6 as directed.

KSC is located on Merritt Island, Florida, in Brevard and Volusia Counties, with facilities on the grounds of Cape Canaveral Space Force Station (CCSFS, formerly known as Cape Canaveral Air Force Station (CCAFS)), the Merritt Island National Wildlife Refuge (MINWR), and the Canaveral National Seashore (CNS). The operational area of KSC geographically covers approximately 46,813 acres (ac), primarily in the central portion of Merritt Island. The remaining portions of KSC are managed by the United States (U.S.) Fish and Wildlife Service (FWS) as MINWR and the National Park Service (NPS) as CNS through interagency agreements (see Chapter 2 and Appendix C-4). The KSC CRM acts as a point of contact (POC) regarding cultural resources subject to such interagency agreements.

KSC is responsible for the implementation of this ICRMP and for the stewardship of all historic properties included in its real property inventory. NASA maintains limited real property assets within MINWR and CNS. KSC is also adjacent to and has limited real property assets and interests within CCSFS.

The ICRMP is applicable to any KSC institutional project or activity regardless of location, including work within CCSFS, MINWR, or CNS. Should a KSC institutional project or activity be conducted on lands managed by MINWR or CNS, or on KSC real property assets or interests within CCSFS, KSC would follow the requirements of this ICRMP for those projects. Projects sponsored by MINWR, CNS, or CCSFS within their management jurisdictions are subject to those agencies' CRM Program policies and procedures, unless specifically directed otherwise by a tenant/lessee agreement.

KSC currently manages 83 historic properties that are listed in, or eligible for listing in, the National Register of Historic Places (NRHP), including seven historic districts, as well as one National Historic Landmark. A comprehensive account of historic properties can be found in Appendix J (Buildings/Structures Table). Information on these resources can be found in Section 5.2. KSC has 211 known archaeological sites, 39 of which are in KSC's operational area. Information on these resources can be found in Section 5.4. KSC also has 5 historic cemeteries which are outside of the operational area, and 9 known archaeological sites which contain human remains, 3 of which are within KSC's operational area. Information on these resources can be found in Section 5.4.

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Chapter 1: Introduction

1.1 KSC Information

The National Aeronautics and Space Administration (NASA) Kennedy Space Center (KSC) occupies more than 140,000 acres (ac) and has more than 850 real property assets on Merritt Island, in Brevard and Volusia Counties, Florida. As work progresses under the 2012–2032 KSC Master Plan, KSC's operational footprint is expected to change in order to meet current operational needs and continue to accommodate commercial tenants as KSC further develops into a multi-user spaceport per the Commercial Space Launch Act. A current KSC map can be seen in Figure 1-1. For additional information about KSC, see Kennedy Space Center - NASA.

Current Land Use

KSC developed a Land Use Plan in 1999 and participated in the development of a Master Plan for the Cape Canaveral Spaceport, in cooperation with the 45th Space Wing of the U.S. Air Force and the Florida Space Authority. Both the land use and Master Plan provided an overall context for future land uses on KSC (NASA KSC 2007:26). The current Master Plan covering the years 2012 to 2032 was developed for the transitional phase between the Space Shuttle and Space Launch System (SLS) Programs and provides the necessary framework to support both NASA and commercial launch operations (KSC Master Plan 2012). Further, in 2020, KSC developed a Vision Plan (Public NEPA Documents (nasa.gov)) and defined seven Spaceport Growth Boundaries or planning districts, where future growth and development is proposed within defined geographic boundaries.

Operational Areas

Today, KSC maintains operational control of approximately 46,813 ac of the KSC land area (KSC Master Plan 2012). Additionally, the State of Florida dedicated exclusive rights to state owned submerged lands to the United States. These areas comprise KSC's operational area, or secure area. The major areas for NASA facilities include the Industrial Area, the LC-39 Area, the LLF Area (formerly the Shuttle Landing Facility (SLF) Area), and the NASA-owned CCSFS Industrial Area. The operational areas are situated south of Beach Road.

The **Industrial Area**, also known as the Central Campus, was developed to support administrative and technical functions. This area, located mostly east of Kennedy Parkway South and south of NASA Parkway East, includes the KSC Central Campus Headquarters Building (M7-0301), Neil Armstrong Operations and Checkout Building (M7-0355), Space Station Processing Facility (M7-0360), and the Kennedy Data Center (M6-0547). The **Central Campus** expansion consolidated NASA operations into a smaller, cost-effective operational footprint, and only includes non-hazardous operations in support of NASA missions and programs. Additional land area is designated for research and development and includes **Exploration Park** and areas adjacent to Central Campus. Exploration Park provides tenants with an opportunity to conduct research and develop new technologies and applications in state-of-the-art facilities near KSC and its launch sites.

West of the Industrial Area is the KSC **Visitor Complex**, a popular tourist destination. The Visitor Complex features displays, memorabilia, historic spacecraft (Rocket Garden and Early Space Exploration Exhibit), IMAX (Image Maximum) theaters, bus tours, a simulated ride into space, and the Space Shuttle Atlantis exhibit. The Visitor Complex also includes the

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Apollo/Saturn V Center located along the shores of the Banana River, east of Kennedy Parkway North; the LC-39 Observation Gantry along Saturn Causeway; and a Pad Viewing area along Samuel C. Phillips Parkway.

The **LC-39 Area** was developed primarily to support launch vehicle operations and related launch processing activities. It contains the LC-39 Area (K6-0848), Launch Control Center (LCC) (K6-0900), OPF 1 & 2 (K6-0894), Launch Complexes 39A (J8-1708) and 39B (J7-0337), Solid Rocket Booster (SRB) processing facilities, and other support facilities.

The **LLF Area**, formerly the SLF Area, is located west of Kennedy Parkway North, between Banana Creek to the south and Beach Road to the north. This area contains the LLF Runway (UK-0027), LLF operations buildings, and landing aids systems support facilities. During the Space Shuttle Program, LLF facilities supported space shuttle landings, Mate-Demate operations, Shuttle Carrier Aircraft operations, and astronaut flight training activities. Future operations and development at the LLF will accommodate commercial spaceflight programs, horizontal launch and landing activities, testing of unpiloted aerial vehicles, testing of experimental spacecraft, and ground-based research and training.

NASA-Owned Properties within the CCSFS Industrial Area are located along the Banana River south of NASA Causeway East. The manned and unmanned spaceflight missions of NASA and the Air Force have overlapping histories, and a number of buildings have changed hands between the two agencies. Current NASA-Owned properties include the Missile Assembly Building (Hangar) AE (60680), SRB Paint Building (66310), Multi-Media Blast Facility (66340), High Pressure Wash Facility (66240), and the TVC Deservicing Building (66249). The functions for these facilities range from engineering and administration to vehicle processing in support of the Expendable Launch Vehicle Program. These buildings will continue to support NASA's next space missions. NASA also owns properties outside of the CCSFS Industrial Area including Launch Complex 5/6 (01207) which currently serves as the Cape Canaveral Space Force Museum.

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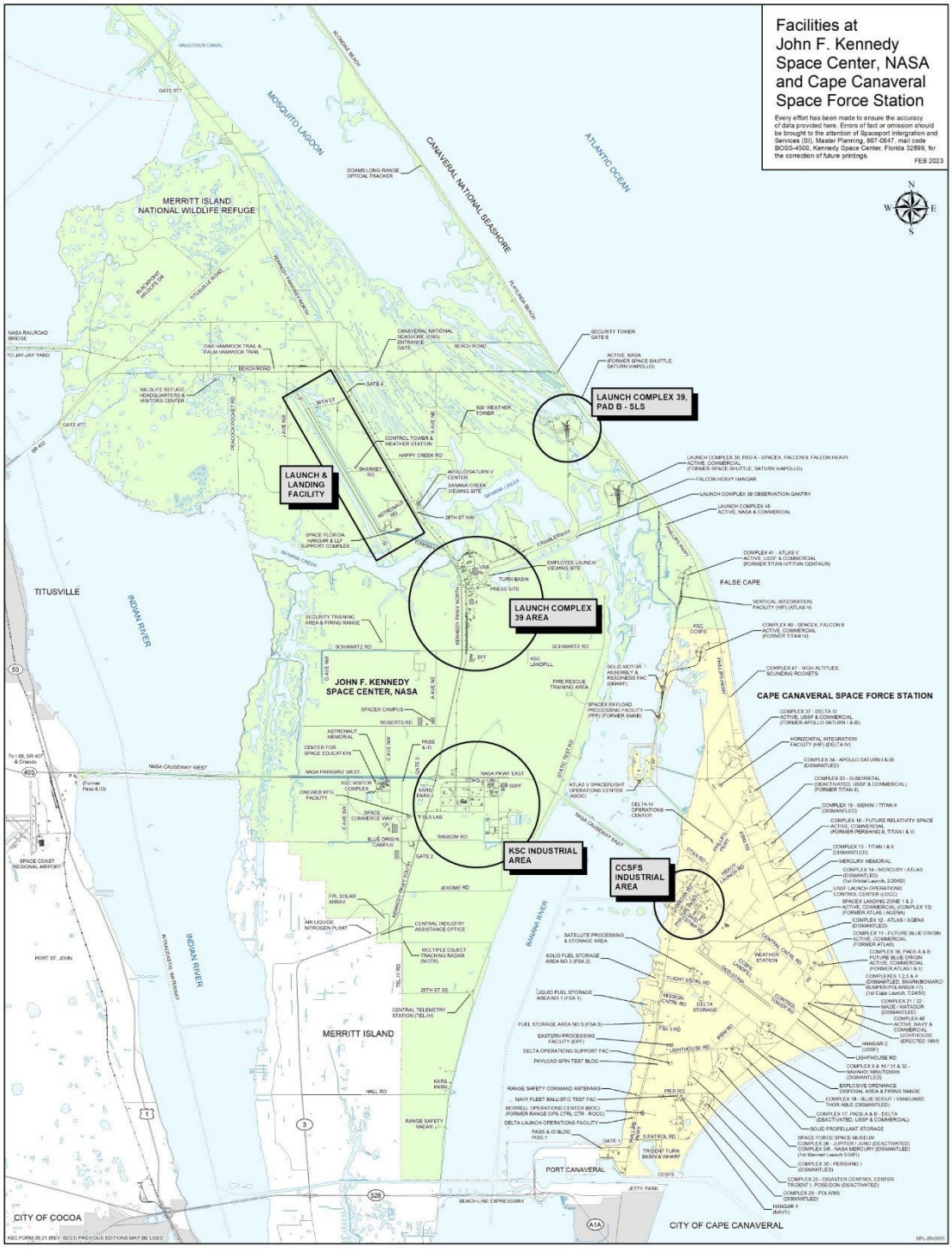
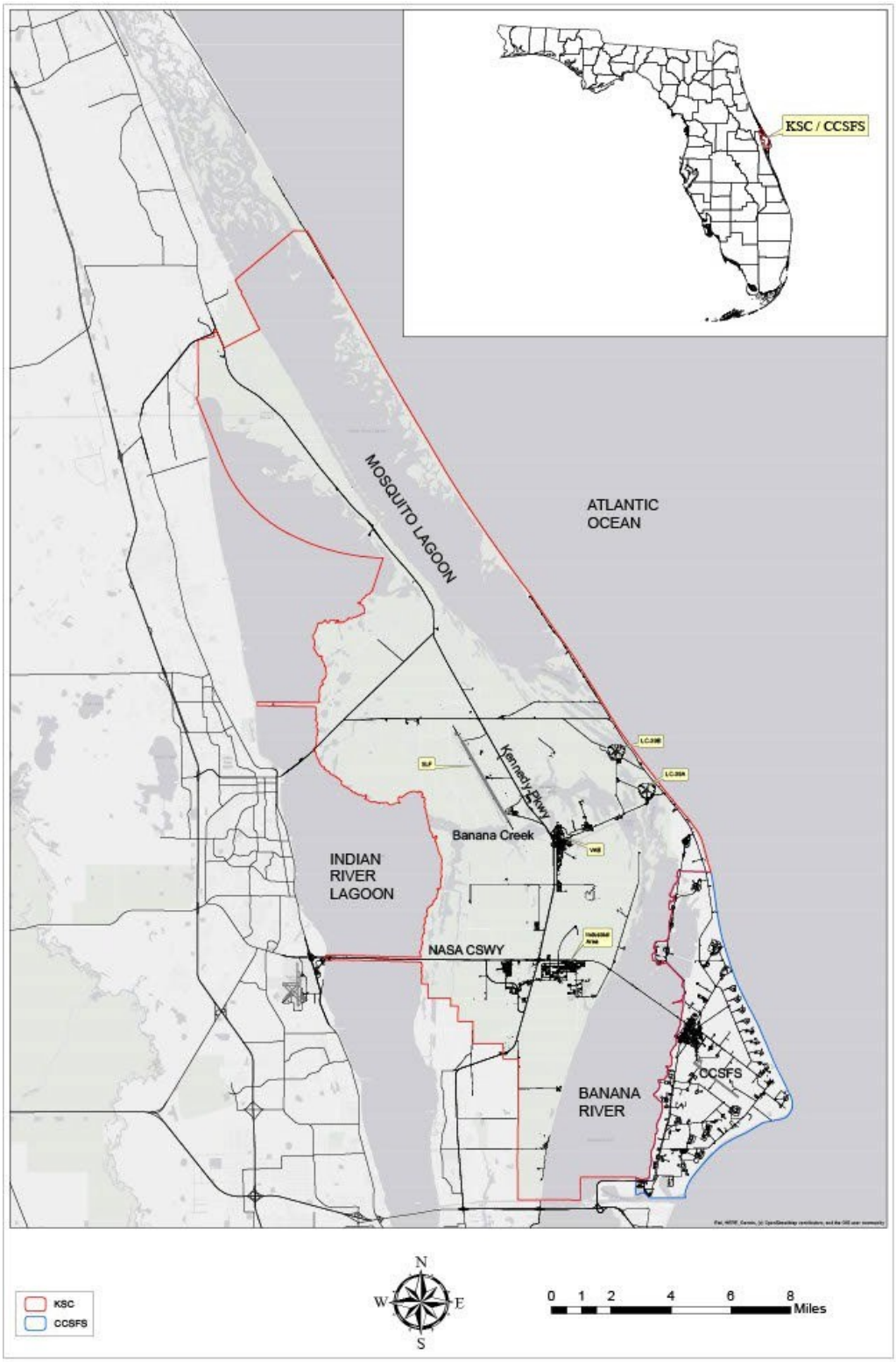


Figure 1-1: Kennedy Space Center and Cape Canaveral Space Force Station Area Map

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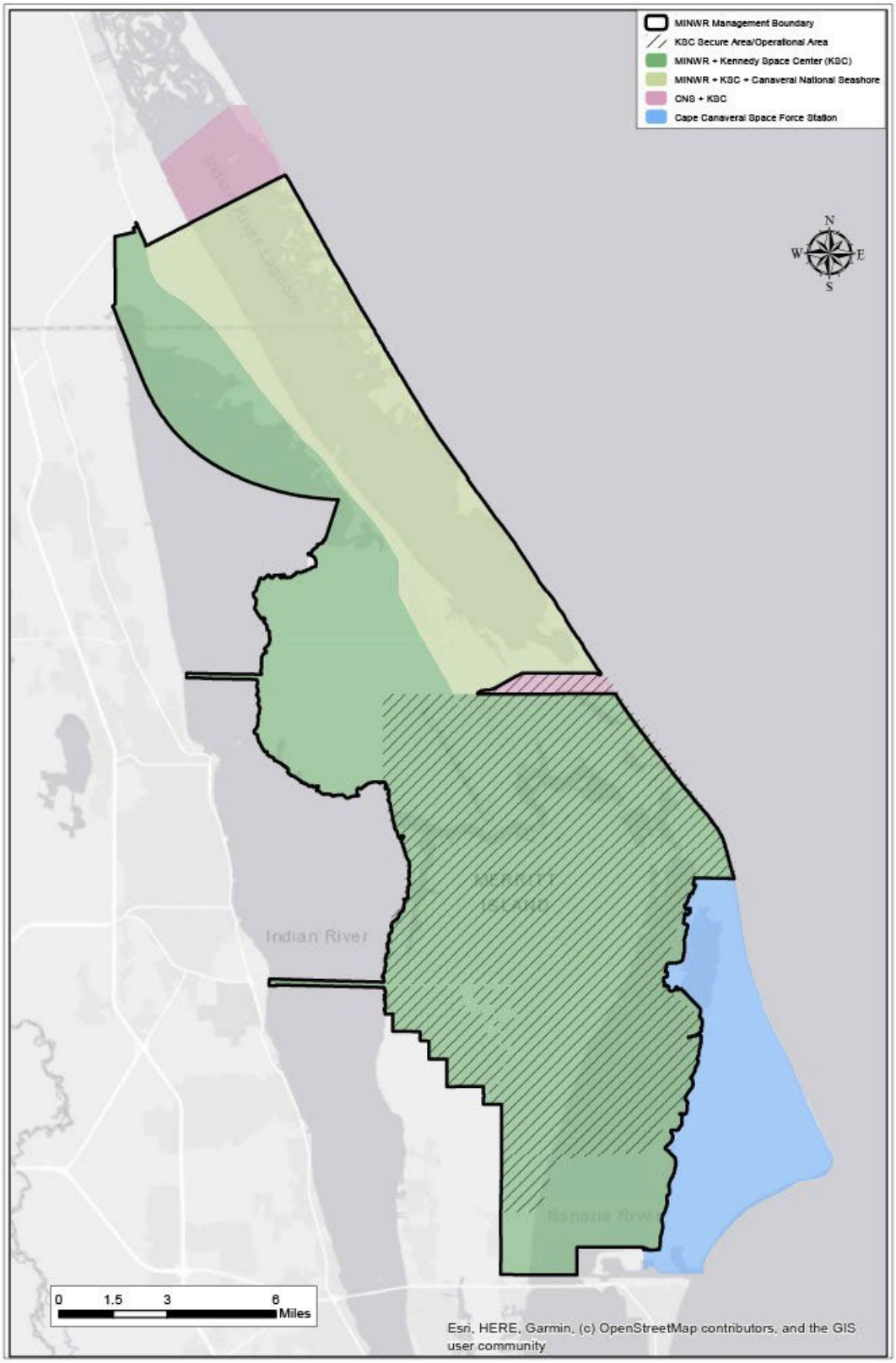


Figure 1-2: KSC Property Boundary and Secure Area/Operational Area

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Undeveloped Lands

Approximately 95% of KSC land is undeveloped and serves as a buffer zone for the hazards associated with launching and landing space vehicles. This undeveloped acreage is managed for KSC, through an agreement, with the FWS as the Merritt Island National Wildlife Refuge (MINWR), and by the NPS as a portion of the Canaveral National Seashore (CNS). The FWS and NPS "exercise management control over agricultural, recreational, and environmental programs within their respective jurisdictions" (NASA KSC 2007:26). Commercial fishing for oysters, shrimp, and other river fish species is permitted within MINWR and CNS areas. Both areas also support active recreational uses, including swimming, hunting, sport fishing, bird watching, and boating.

MINWR was established in 1963. U.S. Department of Interior (DOI) agreements maintain that all KSC land is a wildlife refuge unless specifically reserved for KSC use. KSC can withdraw land from MINWR at any time. NASA and FWS have an interagency agreement (KCA-1649 Rev. B) and a Prescribed Burn MOU (KCA-4205 Rev. B). Additionally, MINWR's 2007 Comprehensive Conservation Plan outlines MINWR, CNS, and KSC's joint resource management responsibilities within MINWR-managed lands. The FWS maintains administrative control of the lagoons and river islands, and adjacent wetland areas and impoundments. Currently MINWR manages 51,885 ac of KSC property, in addition to jointly managing 34,434 ac with CNS.

MINWR is maintained, as close as possible, to a natural habitat. Strict construction limits are imposed to protect threatened and endangered fauna and flora. When MINWR was first established, the FWS managed 2,500 ac of citrus groves (FWS 2008). These groves predate the government's purchase of KSC's property and were maintained for cultivation. The FWS administered leases allowing government-owned groves to be cultivated by Florida citrus farmers. However, once a grove failed, the land reverted to a natural state. In 2008, all the leases for the groves at KSC expired. At that time only about 700 ac were being managed on KSC.

MINWR personnel also regulate hunting, oversee commercial fishing rights, and issue recreational permits as well as encourage other public recreational activities. MINWR also has responsibility for habitat management activities, including prescribed burning, control of exotic vegetation, water level management, and planting and harvesting trees.

In 1975, **Canaveral National Seashore** was created from part of MINWR when the coastal strand and Mosquito Lagoon areas, north of Beach Road, became a new National Park. DOI delegated administration of 41,000 ac of coastal Brevard and Volusia counties to the NPS. In addition to the beach property, CNS was given title to 1,088 ac originally purchased by KSC, on the west bank of Mosquito Lagoon. More property has since been purchased by NPS, which extends this preserve northward about 7.5 mi (12.0 km) beyond the KSC boundary. Within the larger area of CNS, 6,358 ac is KSC property. CNS maintains administrative responsibility for the beach areas (e.g., Playalinda Beach) and recreation services, as well as public facilities along the seashore. MINWR assists CNS by managing wetland areas around the Mosquito Lagoon, which is part of the Indian River Lagoon system. CNS and MINWR jointly manage 34,434 ac.

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KSC Mission

KSC is NASA's primary Center for supporting the processing, launch, and landing of spacecraft as well as supporting the International Space Station (ISS). KSC is shifting from a single-user facility to a multi-user spaceport, enabling research, processing and launch site operations for government and commercial customers.

KSC Operations

Some current programs include:

- **Commercial Crew Program:** Facilitates the development of a U.S. commercial crew space transportation capability to achieve safe, reliable, and cost-effective access to and from the ISS and low-Earth orbit. (https://www.nasa.gov/exploration/commercial/crew/index.html)
- **Deep Space Logistics:** Leads the commercial supply chain in deep space by procuring services for transporting cargo, equipment, and consumables to enable exploration of the Moon and Mars. (https://www.nasa.gov/content/about-gateway-deep-space-logistics)
- **Exploration Ground Systems:** Develops and operates the systems and facilities needed to process and launch government and commercial rockets and spacecraft as well as their assembly, launch, and recovery. (https://www.nasa.gov/exploration/systems/ground/index.html)
- **Launch Services Program:** Matches spacecraft with rockets, manages the launch process, and provides support from pre-mission planning to post-launch. (https://www.nasa.gov/centers/kennedy/launchingrockets/index.html)
- **Exploration Research and Technology:** Develops technology to enable human deep space exploration, as well as improve life on Earth. (https://www.nasa.gov/centers/kennedy/exploration/researchtech/index.html)
- **Commercial Resupply:** Delivers critical science, hardware, and supplies to the ISS. (https://www.nasa.gov/mission_pages/station/structure/launch/index.html)

1.2 Purpose

National Historic Preservation Program Overview

The National Historic Preservation Program was established to provide oversight to ensure that federal programs and projects consider their impact on important historic and cultural places and objects. This oversight is conducted using Federal (Appendix B) and State cultural resource laws (Appendix D). The National Historic Preservation Act (NHPA) and National Environmental Policy Act (NEPA) are the laws most frequently cited.

The NHPA established the Advisory Council on Historic Preservation (ACHP), which is a cabinet-level body that advises the President and Congress on national historic preservation policy and administers the requirements of Section 106 of the NHPA. Per the NHPA, a Federal agency is required to designate a Federal Preservation Officer to coordinate its agency's compliance with the NHPA. The NHPA also establishes SHPOs to administer the provisions of the NHPA at the state level. On tribal lands, Tribal Historic Preservation Officers (THPOs) may be designated in lieu of a SHPO. In general, the ACHP, Federal Preservation Officer (FPO) and their agency, as well as the SHPO/THPO consult and coordinate on compliance with this law.

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NASA Historic Preservation Program

NASA's Historic Preservation Program was created as part of the requirements of Section 110 of NHPA. It requires NASA to consider how its activities impact cultural resources and historic properties. The CRM Program establishes agency policies and procedures that govern how the program is structured and how cultural resources are managed within the agency. For a complete list of applicable NASA cultural resources, policies, and procedures, see Appendix C..

KSC Cultural Resources Management Program

KSC's CRM Program is operated through the Environmental Management Branch (EMB) of the Medical and Environmental Services Division, which is part of the Spaceport Integration and Services Organization. The CRM Program oversees all cultural resources reviews for KSC and maintains information about the types and locations of cultural resources within KSC. For a list of KSC's CRM contacts, see Appendix E.

1.3 ICRMP Overview of Requirements

This ICRMP serves as a guide to KSC's CRM Program. Pursuant to Section 110 of the National Historic Preservation Act (NHPA), the ICRMP outlines KSC's cultural resources management practices and procedures. The ICRMP outlines procedures that KSC follows for maintenance and emergency activities, real estate actions, construction projects, and planning to ensure that the cultural resources stewardship responsibilities of the Agency are considered in accordance with relevant laws, Executive Orders (EOs), and Presidential Memoranda (PMs). In addition, the ICRMP memorializes KSC's cultural resources management practices, documenting processes such as identification of historic properties, tribal consultation processes, management of archaeological collections, and implementation of agreement documents. Finally, the ICRMP documents processes for coordination with other NASA divisions (e.g., facilities/real estate, planning). See Appendix A (Glossary and Acronyms) for definitions of terms used in this document.

1.4 ICRMP Purpose

This ICRMP provides a baseline inventory of the status of knowledge about historic and cultural resources present at KSC, the regulations and policies that apply to their management, procedures for implementing KSC's CRM Program, and a series of standard operating procedures (SOPs) that guide actions subject to NHPA Section 106 review.

The ICRMP serves as an operational control to enable NASA to meet its environmental objectives as guided by the Environmental Management System (NASA Procedural Requirements [NPRs] 8553.1C). This ICRMP provides the Agency and the Center with guidance and requirements for the CRM (formerly the Historic Preservation Officer (HPO)) and their designees to achieve and maintain regulatory compliance.

Ultimately, the ICRMP is a tool that outlines practical means for KSC and its tenants/lessees to appropriately incorporate cultural resource considerations into project planning and comply with cultural resource management legal requirements. It focuses on specific actions NASA must take to be compliant with applicable laws and regulations (see Appendix B: Cultural Resources Laws and Regulations; Appendix C: NASA Policy Directives (PDs) and NPRs; and Appendix D:

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State, Local, or Other Applicable Laws, PDs, and PRs) and specific actions to help avoid and minimize potential effects to historic properties.

Review of all KSC projects and plans should be initiated through the submittal of an Environmental Checklist, Excavation Permit, or Site Plan to determine if a cultural resource may be affected by a proposed action (see Figure 1-3, Table 1-1, and SOP #1). Project types with the potential for cultural resource concerns are outlined below and specified in individual SOPs. A list of SOPs that apply to each user group is in Table 1-2. Specific actions and events that may impact cultural resources and trigger SOPs are listed in Table 1-3.

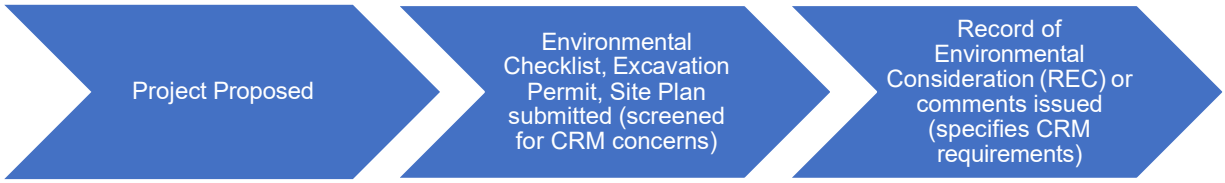


Figure 1-3: Project Initiation Flowchart

Table 1-1: Environmental and Safety Review Project Type List

Project	Type
Facility and Infrastructure	• Infrastructure Installation/Upgrade • Installation of Equipment • Demolition Projects • Repair/Renovation/Replacement • New Construction • Routine/Recurring Site Activities and Maintenance Projects
Operational and Field Activities	• Environmental Sampling/Monitoring • Emergency Actions (e.g., Stabilization of Infrastructure)
Other	• Grants, Cooperative Agreements, etc. • Real Property Transactions (Transfer, Acquisition, Disposal, Leases) • Tenant/Lessee Actions

1.5 ICRMP Users

The following list includes the most relevant ICRMP users:

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Table 1-2: User Groups and Links to Associated SOPs

User Group	Applicable SOPs	Assists with SOP Implementation
Center Planning and Development: • Master Planning • Partnership Development Managers	SOP #1	SOP #2 SOP #4 SOP #8
CNS/MINWR/CCSFS	SOP #1 SOP #5 SOP #6 SOP #8	SOP #2 SOP #7 SOP #11
Construction of Facilities	SOP #1 SOP #5 SOP #6	SOP #2 SOP #7 SOP #8 SOP #11
Contractors for Operations and Maintenance (KSC)	SOP #1 SOP #5 SOP #6	SOP #2 SOP #7 SOP #8 SOP #11
Damage Assessment and Recovery Team (DART)	SOP #5 SOP #6	SOP #7 SOP #8
Environmental Assurance Branch	SOP #1 SOP #5 SOP #6	SOP #2 SOP #8 SOP #11
Freedom of Information Act (FOIA) Intake Officer (KSC)	SOP #8	
Facility Managers	SOP #1 SOP #5 SOP #6	SOP #7
Geographic Information System (GIS) Managers	SOP #8	
Office of General Counsel (KSC)		SOP #2 SOP #4
Office of Protective Services	SOP #5	SOP #8
Public Affairs		SOP #9
Real Property (KSC)	SOP #6	SOP #2 SOP #4 SOP #8
Spaceport Integration: • Agreements Manager • Customer Service Advocates • Technical Integration Manager	SOP #1 SOP #5 SOP #6	SOP #4 SOP #8
Tenants/Lessees	SOP #1 SOP #5 SOP #6	SOP #2 SOP #4 SOP #7 SOP #8 SOP #11

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Table 1-3: Actions and Events that May Impact Cultural Resources and Trigger SOPs

General Type of Work	Examples of Actions and Events that Trigger SOPs	Most Likely Associated SOPs
Maintenance and Repair of Existing Assets	• Building maintenance and repair (interior/exterior) • Door and threshold repair • Painting and corrosion control • Replacement, upgrades or repair to HVAC, plumbing, electrical, lighting or fire systems	SOP #1 SOP #3 SOP #4 SOP #6
	• Window, roof, and siding repair or replacement	SOP #1 SOP #3 SOP #4 SOP #6
	• Road resurfacing • Roadwork (Repair) • Sidewalk modifications	SOP #1 SOP #3 SOP #5
	• Landscape and grounds replacement • Clearing and grubbing • Clearing and vegetation replacement	SOP #1 SOP #3 SOP #4 SOP #5
	• Modification to address issues or to meet changing mission needs	SOP #1 SOP #3 SOP #4 SOP #6
	• Any undertakings that may modify a NASA NHL	SOP #1 SOP #3 SOP #4 SOP #6
Tenant/Lessee Activities	• Execution of tenant/Lessee agreements and use permits • Tenant/lessee activities that alter a KSC building, structure, historic district, or that involves ground-disturbing activities	SOP #1SOP #4SOP #11
Inadvertent Discoveries, Unanticipated Effects to Historic Buildings, and Emergency Actions	• Construction mishaps • Unanticipated effects to historic buildings or structures • Discovery of previously unknown historic features	SOP #6
	• Unanticipated discoveries (known or likely human remains, unmarked graves, Native American or historical artifacts, archaeological features, paleontological remains, etc.)	SOP #5
	• Emergencies such as wildfires, hurricanes, tornadoes, and flooding that affect historic buildings or archaeological sites	SOP #7
Real Estate Actions	• Out-grants • In-grants • Property transfer/disposal • Lease/use of NASA real property by non-NASA entities • Transfer of NASA real property to another federal agency • Transfer of NASA real property to a non-federal entity • Mothballing	SOP #2 SOP #3 SOP #4 SOP #11
Planning Actions	• Center Master Plan development/revision	SOP #2 SOP #8 SOP #9 SOP #10

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Table 1-3: Actions and Events that May Impact Cultural Resources and Trigger SOPs

General Type of Work	Examples of Actions and Events that Trigger SOPs	Most Likely Associated SOPs
Construction Actions *See also Ground-Disturbing Activities	• New construction and infrastructure • Greenfield construction	SOP #1 SOP #2 SOP #3 SOP #4 SOP #5 SOP #9 SOP #10 SOP #11
	• Partial or total demolition • Renovation/upgrades/remodeling • Interior or exterior modifications • Additions, including Americans with Disabilities Act (ADA) compliance actions	SOP #1 SOP #2 SOP #3 SOP #4 SOP #6 SOP #9
	• Installation of utilities • New utility corridors, substations, and solar farms	SOP #1 SOP #2 SOP #3 SOP #4 SOP #5 SOP #9 SOP #10 SOP #11
	• Temporary Facilities • Creation of laydown yards	SOP #1 SOP #3 SOP #5
Ground-Disturbing Activities *See also Construction Actions	• Utility work (repair)	SOP #1 SOP #3 SOP #5
	• Road Widening	SOP #1 SOP #3 SOP #5
	• Activities such as digging and bulldozing	SOP #1 SOP #2 SOP #3 SOP #4 SOP #5 SOP #9 SOP #10 SOP #11
	• Remediation Activities • Installation of sparge systems	SOP #1 SOP #2 SOP #3 SOP #4 SOP #5 SOP #9 SOP #10 SOP #11
Data Management	• FOIA request	SOP #8

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Table 1-3: Actions and Events that May Impact Cultural Resources and Trigger SOPs

General Type of Work	Examples of Actions and Events that Trigger SOPs	Most Likely Associated SOPs
	• Sharing archaeological site locations with internal and external stakeholders for construction or planning activities	

1.6 ICRMP Organization

Chapter 1: This chapter introduces the purpose of the ICRMP, its users, and its organization.

Chapter 2: This chapter provides an overview of KSC's CRM Program that includes information on the organization of the CRM Program, tools used by the CRM Program, and data management.

Chapter 3: This chapter presents NASA's KSC-specific program management plan that includes information on the goals and objectives of the CRM Program (both program-wide and KSC-specific), program updates for KSC, and the five-year plan for KSC.

Chapter 4: This chapter provides information on consultation processes and activities performed by KSC.

Chapter 5: This chapter provides the status of knowledge concerning the prehistory and history of KSC, and the Center's cultural resources inventory.

Chapter 6: This chapter contains the SOPs for NASA and other personnel specifically at KSC, for such activities as Project Review, Section 106 consultation, and the inadvertent discovery of archaeological properties.

Chapter 7: This chapter contains a list of the references used to produce this ICRMP.

Appendices: The appendices provide detailed supporting information for the ICRMP, including a glossary and list of acronyms; applicable laws and regulations; a list of relevant CRMs, Center consulting parties, and federally recognized Indian tribes; annual reporting information; historic contexts; historic property listings and maps; cultural survey maps; cultural sensitivity maps; and information related to Section 106 and Section 110 consultations, agreement documents, and mitigation plans.

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Chapter 2: NASA KSC CRM Program Overview

NASA's CRM Program was created under NPR 8510.1A and is responsible for the management of NASA's historic properties under that policy. NPD 8500.1C establishes the CRM Program roles and responsibilities for program and project managers, Center Directors, and the KSC CRM. It also outlines the requirement for developing an ICRMP for each Center and implementing NASA CRM and stakeholder engagement practices.

2.1 KSC CRM Program Organization

The KSC CRM Program is operated through the Environmental Management Branch (EMB) of the Medical and Environmental Services Division, which is part of the Spaceport Integration and Services Organization. The KSC CRM is embedded within the EMB and is designated to oversee and implement both NASA and KSC cultural resources requirements.

2.2 KSC CRM Program

KSC's CRM is responsible for compliance with the NHPA and all other applicable Federal, state, and local laws and regulations and oversight of activities that may impact cultural resources. The KSC CRM has delegated authority from the Director of Spaceport and Integration Services. The KSC CRM may delegate any tasks not essentially restricted to government-to-government communication to a technical expert, that may be a government employee or contractor.

The KSC CRM administers cultural resource review and compliance activities under the NHPA and other federal, state, and local laws and regulations. As part of this duty, the KSC CRM is responsible to determine if an undertaking has the potential to affect historic properties and to resolve adverse effects. The KSC CRM is also responsible for conducting official communications between KSC and external regulatory and review agencies including the SHPO, the ACHP, and federally recognized Indian tribes.

In addition to historic preservation activities in KSC's operational area, the KSC CRM acts as the primary POC with personnel at MINWR, CNS, and CCSFS for all cultural resource matters. KSC has real property and other interests within the boundaries of CCSFS (and vice versa), as well as MINWR and CNS. Additionally, per MINWR's 2007 Comprehensive Conservation Plan, KSC takes the lead for CRM oversight on MINWR-managed lands within KSC's operational area. The KSC CRM ensures that projects are reviewed for cultural resources concerns, and Cultural Resource Assessment Surveys (CRAS) for buildings, structures, and archaeological sites are conducted appropriately.

The specific roles and responsibilities of the KSC CRM include, but are not limited to:

- **CRM Program Management:** Ensures KSC's compliance with the NHPA (specifically Section 106 and 110), Archaeological Resources Protection Act (ARPA), Native American Grave Protection and Repatriation Act (NAGPRA), and all other cultural resource laws and regulations.
- **Project Review and Planning:** Reviews projects and participates in planning activities to ensure the appropriate consideration is given to cultural resources (e.g., Environmental Checklist, Environmental Assessment (EA) or Environmental Impact Statement (EIS), Center Master Plan development, partnership agreements, excavation

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permit requests, and site plans). Coordinates with CCSFS, MINWR, and CNS as needed.

- **Consultation:** Serves as KSC's primary POC with NASA's FPO, ACHP, SHPO, federally recognized Indian tribes, consulting parties, and the public regarding cultural resources.
- **Reporting:** Completes reports related to KSC's historic properties and CRM activities (e.g., NASA HQ Data calls, Programmatic Agreement Annual Report).
- **Resource Protection:** Engages in activities that promote the protection and knowledge of KSC's historic assets (e.g., media requests, historic property tours, special presentations).
- **NASA HQ Support:** Supports NASA HQ's implementation of the CRM Program (e.g., NASA Environmental Tracking System [NETS], reporting, Energy and Environmental Functional Review).
- **Records Management:** Maintains KSC's list of historic properties and their associated records and repositories (e.g., Sustainable Environment Management System [SEMS], NETS, KSC CRM GIS, EMB website).
- **Training**: Disseminates information about KSC's cultural resources and regulatory requirements.
- **Policy and Guidance:** Ensures KSC policy, procedures, and guidance appropriately considers and represents cultural resources (e.g., KDP, KCA, ICRMP).

2.3 CRM Program Tools

Tools to assist in the protection of cultural resources at KSC are varied. Below are some of the major center-level reference documents and surveys which include contexts for KSC's precontact, historic, and Space Age periods. This is not a comprehensive list of available resources. Some relevant surveys have been conducted by CCSFS, CNS, and MINWR. Additionally, facility- or location-specific surveys are also available.

Agency-Wide Studies

- Historic context to assist in the identification of historic properties less than 50 years old. See the NASA Agency-Wide Approach for the Management of Resources Less than 50 Years of Age.
- Inventory of NASA's Highly Technical or Scientific Facilities. See the ACHP report "Balancing Historic Preservation Needs with the Operations of Highly Technical or Scientific Facilities".

KSC-Specific Historic Contexts and Surveys

- Major Architectural Assessment Surveys which provide center-level overviews include:
  - Survey and Evaluation of NASA-owned Historic Facilities and Properties in the Context of the U.S. Space Shuttle Program
  - Survey and Evaluation of NASA Facilities within the CCAFS
  - Architectural Survey and Evaluation of NASA-owned Facilities at CCAFS

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    - 45–50 Year Historic Surveys: Multiple survey reports have evaluated KSC facilities as they've reached 45-50 years. Surveys were conducted annually from 2011 to 2016.

- Historic American Buildings Survey (HABS); Historic American Engineering Record (HAER) Documentation; and scans of the original Headquarters' Building
- Major Archaeological Assessment Surveys, which provide Center-level overviews include:
    - Historic Context and Historic Period Archaeological Site Location Predictive Model
    - Archaeological Survey to Establish Zones of Archaeological Potential in the Launch Complex Area (Option 1)
    - Archaeological Survey to Establish Zones of Archaeological Potential (ZAPs) in the Shuttle Landing and KSC South Area (Option 2)
    - Archaeological Survey to Establish ZAPs in the KSC North Area (Option 3)
    - Archaeological Survey to Establish Zones of Archaeological Potential in the KSC North Area (east of SR-3) (Basic Contract Area)
    - Archaeological Survey to Establish ZAPs in the LC-39 Area and Industrial Area
    - Archaeological Survey of the KSC Spaceport Growth Boundaries Districts 1, 2, 3, and 4
    - Historic Properties Survey Cape Canaveral Air Force Station

Programmatic Agreements

- 1989 agency-wide PA with the ACHP and National Conference of State Historic Preservation Officers (NCSHPO). Streamlines consultation on maintenance, compatible new construction, and minor hardware replacement at NASA's National Historic Landmarks (NHLs)
- 2009 Programmatic Agreement among NASA, SHPO, and ACHP for Management of Historic Properties at KSC (2009 PA) (KCA-4185; PAM #17844) (terminated in October 2025)
- 2025 Programmatic Agreement among NASA, ACHP, and the NCSHPO Regarding the Management of NASA Centers (2025 NPA) (KCA-4833; PAM #44435). Contact KSC CRM to obtain a copy of the 2025 NPA.

Advisory Council on Historic Preservation Program Comments and Exemptions

- Program Comment to Exempt Consideration of Effects to Rail Properties within Rail Rights-of-Way (https://www.achp.gov/digital-library-section-106-landing/program-comment-exempt-consideration-effects-rail-properties)
- Exemption From Historic Preservation Review for Electric Vehicle Supply Equipment (https://www.achp.gov/digital-library-section-106-landing/exemption-historic-preservation-review-electric-vehicle-supply)
- Program Comment for Actions Affecting Post-1945 Concrete and Steel Bridges (Program Comment for Actions Affecting Post-1945 Concrete and Steel Bridges | Advisory Council on Historic Preservation (achp.gov)

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2.4 CRM Program Data Management

KSC manages and accesses CRM data in multiple ways. Some data is accessible to the EMB and their designees only due to the sensitivity of the information. Below is a list of the types of CRM files available and how they can be accessed:

- **Paper files** are maintained by the KSC CRM in the Logistics building. Paper files generally date between 1967 to approximately 2017 when a transition to electronic files occurred. Paper files are considered reference material only. All paper records were formally copied and sent to the National Archives and Records Administration (NARA) in 2019.
- **Electronic filing systems** are maintained by the KSC CRM and include files from 1967 to present. These include:
  - NETS
  - KSC SEMS
- **KSC Cultural Resources Geographic Information System (KSC CRM GIS)** includes the historic status of built assets, historic district boundaries, archaeological site boundaries, areas surveyed for cultural resources, and ZAPs. Complete data is maintained by the NASA Environmental and Medical Contract (NEMCON) on behalf of EMB.
- **External online repositories**
  - KSC's Cultural Resources Overview website includes links to some of the above resource and agreement documents as well as information on KSC's historic properties, requirements and regulations, recordation efforts, and current Section 106 consultations open for public review. This site is accessible to the public and does not contain confidential information or information that is Export Controlled.
  - Florida Master Site File is the State of Florida's official inventory of historical cultural resources. It includes records on archaeological sites, historical structures, historical cemeteries, historical bridges, and historic districts. The site file also maintains copies of archaeological and historical survey reports and other manuscripts relevant to history and historic preservation in Florida. This site is maintained, and access is granted by, the State of Florida.

2.5 CRM Program Data Confidentiality

In accordance with Section 9 of the ARPA and Section 304 of the NHPA, information regarding the location and nature of traditional cultural properties and the location of archaeological sites will not be released to the public. This information is Freedom of Information Act (FOIA) exempt and protected from public disclosure. KSC does not provide location data for archaeological sites on any of its publicly accessible GIS Web maps and omits the location and nature of traditional cultural properties, and certain archaeological site information, from all nonconfidential documents. The KSC CRM, and their designees, have sole access to, and discretion over, the release of this information.

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Chapter 3: NASA KSC Program Management Plan

3.1 Goals and Objectives of the CRM Program

NASA is committed to be a steward of cultural resources, and the CRM Program is intended to ensure the responsible management of cultural resources and maintain their significance to NASA's mission, communities, and the history of the United States of America. The following goals and objectives will enable KSC personnel to identify and/or protect historic properties while continuing to support KSC's operational objectives. Ultimately, the KSC CRM is responsible for identifying, evaluating, managing, and protecting cultural resources. Primary goals and associated objectives of NASA's CRM Program are summarized in Table 3-1.

Table 3-1: NASA's Primary Goals and Associated Objectives

Goal	Objectives
1. Reduce Risk	• Reduce instances of noncompliance with federal, state, or local requirements. • Address environmental considerations early and efficiently in program and project planning. • Identify, evaluate, and mitigate environmental risk to NASA programs and projects.
2. Improve Efficiency and Effectiveness	• Reduce environmental management program costs. • Improve operations and performance management using Enterprise solutions. • Streamline, standardize, and optimize environmental management processes.
3. Provide Value to Stakeholders	• Strengthen partnerships with our internal stakeholders. • Achieve a high level of customer satisfaction for environmental services. • Improve NASA's environmental image and credibility to external stakeholders.
4. Develop Environmental Management Enterprise (EME) Workforce	• Staff the EME to meet the mission needs. • Develop a qualified EME workforce. • Retain a diverse, high-performing EME workforce.

KSC-specific goals and objectives, as well as action items for each goal, are listed in Table 3-2 through Table 3-4.

KSC Goal 1: Reduce Risk for KSC. This will be accomplished through compliance with Section 106 and 110 regulatory requirements. It will also be accomplished by increasing the KSC workforce's knowledge of historic properties and cultural resource laws and requirements.

Table 3-2: KSC Goal 1, Reduce Risk for KSC

Objective	Action Item	Task(s)	Anticipated Start Date	Anticipated End Date
Regulatory compliance	Comply with Section 106 of the NHPA	Identify and evaluate historic properties, as necessary	Routine	Ongoing
	Comply with Section 110 of the NHPA	Survey and inventory NASA Real Property	2026-2027	2027, then every 10 years

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Table 3-2: KSC Goal 1, Reduce Risk for KSC

Objective	Action Item	Task(s)	Anticipated Start Date	Anticipated End Date
		built environment resources		
Increase knowledge of cultural resource regulations, compliance requirements, and procedures	Provide technical assistance to SOP users		Routine	Ongoing
	Provide training to SOP users	1. Develop training 2. Conduct training	Routine	
	Integrate CRM considerations into RECs, Excavation Permits, Site Plans, and Real Property Transactions		Routine	
Increase awareness of historic properties	Integrate historic property information into EMB materials and events	1. Coordinate with event POC 2. Provide information	Routine	Ongoing
	Update and disseminate Historic Property Booklet	Update 2017 content	In process	Ongoing
		Post on public-facing CRM website		Ongoing
		Distribute information during New Employee Orientation (NEO)		Ongoing
	Develop presentations, tours, and placards	1. Webinars and special topic presentations 2. Archaeology Month Event (March) 3. Historic Preservation Month Event (May) 4. Cultural resource tours	Routine	Ongoing
		Historic property signage and placards	As funding is identified	

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KSC Goal 2: Improve the efficiency and effectiveness of KSC's CRM program. This will be accomplished by streamlining regulatory compliance and maintaining accurate records of historic properties and regulatory compliance activities.

Table 3-3: KSC Goal 2, Improve the efficiency and effectiveness of KSC's CRM Program

Objective	Action Item	Task(s)	Anticipated Start Date	Anticipated End Date
Streamline CRM Compliance Processes	Implement 2025 NASA-wide Programmatic Agreement (2025 NPA)	1. Complete training requirements per 2025 NPA 2. Train staff on KSC CRM GIS Data	2026	2026; Routine
	Integrate cultural resources management with other environmental requirements	Integrate the Section 106 process into the NEPA process using NEPA forms and procedures	Routine	Ongoing
CRM Data Management	Records Management	1. Organize paper files 2. Scan and upload missing records in NETS 3. Correct records in NETS and FMSF, as discovered	Routine	Ongoing
	Maintain NETS	1. Upload new and missing data 2. Correct incomplete or inaccurate data	Routine	Ongoing
	Maintain KSC CRM GIS Data	Obtain FMSF updates on bi-annual basis	November 2026	Ongoing
		Actively update KSC CRM GIS data, including ZAP data, every 6 months	Routine	Ongoing

KSC Goal 3: Promote value to stakeholders at KSC. This will be accomplished by integrating the CRM Program with KSC facility-wide plans, projects, and programs. Coordination will be initiated early in the planning process to avoid project delays and foster good relationships with external stakeholders and the community.

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Table 3-4: KSC Goal 3, Promote value to stakeholders at KSC

Objective	Action Item	Task(s)	Anticipated Start Date	Anticipated End Date
Preserve and protect cultural resources	Protect archaeological sites from damage and vandalism	1. Monitor significant archaeological sites 2. Increase knowledge of Unexpected Discovery Protocols	Routine	Ongoing
	Identify risks (human and natural) to known archaeological sites in KSC's operational area	Conduct survey to determine current condition of sites and identify risks	Routine; funding dependent	Survey completed in 2024; Recommended every 5 years
		Implement protection strategies	Once funding is identified	As needed based upon 2024 survey management recommendations; Ongoing
	Provide guidance for the maintenance of historic buildings and structures	1. Integrate CRM considerations into RECs, Excavation Permits, Site Plans, and Real Property Transactions 2. Provide technical assistance regarding the Secretary of the Interior Standards	Routine	Ongoing
Support Center Master Planning	Support Center Master Plan Update and Area Development Plans	1. Ensure CRM considerations are integrated 2. Ensure CRM Stakeholders are engaged at the appropriate time	In Process	2026
	Support goals of 2020 KSC Vision Plan for KSC to function as a multi- user spaceport by NASA and private partners	Conduct archaeological surveys in remaining KSC-controlled Spaceport Growth Boundaries as defined in the Vision Plan to assist with informed planning decisions. This includes the SLF District, the Space Commerce District, the Mosquito Lagoon District, and unsurveyed areas or areas not previously identified as developable.	Once funding is identified	Unknown
Consult with SHPO, tribes, consulting parties, and the public	Initiate consultation early in the planning process to allow for avoidance or minimization of adverse effect to cultural resources		Routine	Ongoing

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3.2 CRM Program Updates

Since the last ICRMP (October 2014), several CRM Program projects have been conducted at KSC. Most projects can be found in the NEPA Checklist Database (Kennedy Long Term Ecological Portal (nasa.gov). The projects listed below are only those that required consultation with SHPO or other parties.

Table 3-6: KSC CRM Program Projects

Project	Description	Status
In-house Survey of NASA-owned Facilities Built in the 1970s	28 facilities were determined ineligible for the NRHP.	Concurrence from SHPO (January 29, 2015).
Launch Control Center (LCC) (8BR1685)/Inventory of Equipment in Firing Room 2	Submitted inventory of equipment in LCC Firing Room 2 to fulfill mitigation measures for the proposed modifications to all 4 firing rooms. Inventory included a history of the LCC and firing rooms, floor plans, console responsibilities, and photographs.	Concurrence from SHPO (September 22, 2015) Mitigation plan complete.
Hangar S (8BR3070)/Demolition	Adverse effect re: demolition of Hangar S. NASA determined No Adverse Effect to the NASA-owned CCAFS Industrial Area Historic District. A Mitigation Plan was developed including HAER Level II documentation, development of a Hangar S website, and salvage of historic artifacts, if present.	Concurrence from SHPO (September 30, 2015) Note: SHPO did not concur with NASA's No Adverse Effect determination for the CCAFS Industrial Area.
2016 In-House Survey of 292 Unevaluated Properties	292 properties were determined ineligible for the NRHP.	Concurrence from SHPO (September 28, 2016).
Press Site: Clock and Flagpole (8BR1690)/Update FMSF Form	Updated FMSF form was provided due to Clock being moved to the Visitor Complex.	Acceptance of FMSF Form by SHPO (October 25, 2016).
LC-34 (8BR2279)/Air Sparging Interim Measure	A Phase I archaeological survey was completed with negative findings. No Historic Properties Affected.	Concurrence from SHPO (April 9, 2018).
LC-34 (8BR2279)/Soil Removal Interim Measure	No Adverse Effect to the NHL.	Concurrence from SHPO (August 10, 2018).
Ammonia Vapor Containment Building (Contributing to Space Station Processing Facility (SSPF) (No BR#)/Building Addition	No Adverse Effect.	Concurrence from SHPO (April 9, 2019).

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Table 3-6: KSC CRM Program Projects

Project	Description	Status
Vehicle Assembly Building (8BR1684), LCC (8BR1685), and LC-39B (8BR1687), Mobile Launcher Platform 3 (8BR2021) and Booster Fabrication Facility (BR1996)/Leasing Historic Properties to Commercial Customers	Adverse effect adequately mitigated through existing HAER documentation.	SHPO responded on May 15, 2019, that they had insufficient information to concur regarding effects. SHPO requested specific details on proposed modifications to specific historic properties. (See row below.)
Mobile Launcher Platform 3 (MLP-3) (8BR2021) and Vehicle Assembly Building (8BR1684)/ Leasing Historic Properties to Commercial Customers	KSC provided further information to the SHPO. Adverse effects adequately mitigated through existing HAER documentation.	Concurrence from SHPO (October 2, 2019).
LC-34 (8BR2279)//Removal of Torus Ring on the Launch Pedestal	Adverse Effect. Mitigation Plan developed.	Concurrence from SHPO (December 20, 2019)
Neil Armstrong Operations and Checkout Building (8BR1693)/Altitude Chamber Demolition and Replacement of 30-ton Crane	Adverse Effect adequately mitigated through existing HAER documentation.	Concurrence from SHPO (April 1, 2021)
LC-41/Remove Contaminated Soil at Cape Canaveral Air Force Station (CCAFS)	No Historic Properties Affected.	Concurrence from SHPO (November 19, 2020)
Crawlerway (8BR1689)/Construct New Road across the Crawlerway Northeast of the Vehicle Assembly Building (VAB)	No Adverse Effect.	Concurrence from SHPO (April 16, 2020)
NASA Causeway/SR-405 Roadway and Infrastructure Improvements	A Phase I CRAS was completed with negative findings. No Historic Properties Affected.	Concurrence from SHPO (June 6, 2020)
VAB (8BR1684)/Modification and Demolition Activities to High Bay 1	Adverse Effect adequately mitigated through existing HAER documentation.	Concurrence from SHPO (June 2, 2020)
Raise Orsino/C-5 Transmission Lines near NASA/Kennedy Pkwy Interchange Bridge	A Phase I CRAS was completed with negative findings. No Adverse Effect.	Concurrence from SHPO (September 9, 2020) Note: SHPO stated No Historic Properties Affected.
Install Roberts Road Site FP&L Feeder Line	A Phase I CRAS was completed with negative findings. No Adverse Effect.	Concurrence from SHPO (March 21, 2021) Note: SHPO stated No Historic Properties Affected.
Exploration Park North Expansion	A Phase I CRAS was completed. Two new resources were recorded (8BR4364/Granite Rock Homestead, 8BR4367/Howe Grove Road) and determined ineligible for the NRHP. No Adverse Effect (no historic properties were present).	Concurrence from SHPO (January 25, 2022).

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Table 3-6: KSC CRM Program Projects

Project	Description	Status
Launch Dragonfly Mission with a Single Multi-mission Radioisotope Thermoelectric Generator and up to 43 Radioisotope Heater Units	No Adverse Effect to NRHP-listed or eligible sites at CCSFS or KSC under normal operating conditions (i.e., successful launch). If there was a launch mishap, NASA would follow the stipulations outlined in KSC's 2009 Programmatic Agreement, VII Emergency Situations.	Concurrence from SHPO (April 29, 2022).
Roberts Road North Expansion Area and NASA Parkway Connector	A Phase I CRAS was completed. Two new resources were recorded and determined ineligible for the NRHP (8BR4443/Roberts Road Footbridge, 8BR4444/KSC Communications Tower). Three previously recorded historic properties were present (8BR2931/NASA Railroad, 8BR2932/NASA KSC Railroad System Historic District, 8BR1998/SRB ARF Manufacturing Building). No Adverse Effect.	Concurrence form SHPO (November 3, 2022).
LCC (8BR1685)/Mitigation Plan Among NASA and SHPO Regarding Public Interpretation of the Launch Control Center and Firing Rooms		Concurrence from SHPO (December 23, 2022) Mitigation Plan complete
Mission Control Center (MCC) (aka Administration Building) (8BR2590) /Memorandum of Agreement (MOA) Among NASA, SHPO, ACHP, and NPS Regarding the Demolition of the Mission Control Center at CCAFS		Concurrence from SHPO (November 17, 2022) and NPS (March 3, 2021). MOA is complete.
LC-34 (8BR2279)/MOA Between NASA and SHPO Regarding the Launch Pedestal Hazard Abatement at LC-34, at the CCAFS		Concurrence from SHPO (December 2, 2022) and NPS (July 14, 2023). MOA is complete.
Indian River Bridge (aka NASA Causeway Bridge) (8BR2956) /FDOT Mitigation Plan [DHR Project File No. 2019-1535C]	FDOT is the lead federal agency for this Mitigation Plan. The only NASA-specific commitment was to post the HAER and FMSF for public interpretation on the NASA KSC website. Information was posted on January 20, 2023 completing KSC's actions.	Concurrence from SHPO (October 11, 2022 via email).

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Table 3-6: KSC CRM Program Projects

Project	Description	Status
Modifications to LCC (8BR1685)/Office Space Modernization within First Floor Spaceport Integration and Console Rooms (1R33-37 and 1R40)	No Adverse Effect.	Concurrence from SHPO (March 23, 2023).
Temporary Modification to the Crawlerway (8BR1689) and Notification Regarding Demolition of Mobile Launcher Platform 3 (MLP-3) (8BR2021)	No Adverse Effect to Crawlerway. Adverse Effect to MLP-3 adequately mitigated through existing HAER documentation.	Concurrence from SHPO (April 4, 2023).
Lease of VAB (8BR1684) High Bay 1 to a Commercial Provider and Resulting Modifications to High Bay 1 and the Crawlerway (8BR1689); and NASA's Modifications to High Bay 2 for the SLS	Adverse Effect adequately mitigated through existing HAER documentation.	Concurrence from SHPO (April 19, 2023).
Construct New FP&L Saturn Substation and Distribution Lines	A Phase I CRAS was completed. One site was revisited and remains ineligible for the NRHP (8BR169/South Access Road). Three historic properties were present (8BR1986/SLF Area Historic District, 8BR2931/NASA Railroad, or 8BR2932/NASA KSC Railroad Historic District). No Adverse Effect.	Concurrence from SHPO (August 8, 2023).
Creation of 3 Wetland Mitigation Sites	A combination of a due diligence review and a Phase I CRAS was completed with negative findings. No Historic Properties Affected.	Concurrence from SHPO (September 26, 2023).
Demolition of KSC Visitor Center (KSCVC) Administration Buildings and Construction of New Exhibit Building	A building survey was completed. No historic district was identified. One historic property was present (8BR1690/Countdown Clock and Flagpole). No Adverse Effect.	Concurrence from SHPO (November 21, 2023 and March 18, 2024).
Construction of KSC Visitor Center Warehouse	A Phase I CRAS was completed with negative findings. No Historic Properties Affected.	Concurrence from SHPO (December 6, 2023).
Missile Assembly Building AE (Hangar AE) (8BR2976)/External Stair Tower Addition	No Adverse Effect with conditions that the stair tower is painted to match the existing building.	Concurrence from SHPO (January 3, 2024).
Demolition of the TVC Deservicing Building (8BR2008), the Drum Storage Building, and the Tank Farm Area	Adverse Effects which were adequately mitigated through 2011 HAER FL-8-11-S.	Concurrence from SHPO (April 24, 2024).
Shoreline Restoration at KSCVC Apollo/Saturn V Center	No Adverse Effect with archaeological monitoring of site 8BR170/Opposite Futch Cove.	Concurrence from SHPO (June 5, 2024)

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Table 3-6: KSC CRM Program Projects

Project	Description	Status
Archaeological Survey of KSC Spaceport Growth Boundaries Districts, 1, 2, 3, and 4	A Phase I archaeological survey of 4,298.38 acres within the Central Campus District, the Central Processing District, the Vehicle Assembly (VAB) District, and the Exploration Launch District was completed. One archaeological site (8BR4587/ Platform Site) and two resource groups (8BR4588/Lunar Surface Training Area, 8BR4628/ Drainage Ditch) were newly recorded. One previously recorded site (8BR217/20th-Century Historic Deposit) was revisited. All were determined ineligible for the NRHP.	Concurrence from SHPO (July 3, 2024).
Phase I CRAS within the KSC Visitor Center Programmatic Environmental Assessment Boundary	A Phase I archaeological survey of 310 acres was completed. Five new resources were recorded and determined ineligible for the NRHP (8BR4631/Spoil Bank Ditch, 8BR4632/KSC Ditch 1, 8BR4633/KSC Ditch 2, 8BR4634/KSC Ditch 3, 8BR4635/KSC Pond). No Historic Properties Affected for ground disturbing activities. Section 106 consultation for above-ground resources will occur separately, as required.	Concurrence from SHPO (August 23, 2024).
Phase I CRAS along Schwartz Road	A Phase I archaeological survey of 178 acres slated for commercial development was completed. One archaeological site was revisited (8BR582/Dune and Swale). Four new resources were recorded (8BR4597/Survey Marker T22SR37, 8BR4598/Universal Camera Pad #18, 8BR4628/Drainage Ditch, 8BR4629/Access Road). All were determined ineligible for the NRHP. No Historic Properties Affected.	Concurrence from SHPO (August 15, 2024).

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Table 3-6: KSC CRM Program Projects

Project	Description	Status
Phase I Archaeological Survey of 28.4 Acres (NOTU)	A Phase I archaeological survey of 28.4 acres to be leased to and developed by NAVFAC SE was completed. No new resources were identified. Historic resources within the APE include 8BR2931 (NASA KSC Railroad Track) which is not individually eligible for the National Register of Historic Places and the portion of railroad within the APE is a non-contributing resource to 8BR2932 (NASA KSC Railroad System Historic District). No Historic Properties Affected.	Concurrence from SHPO (June 5, 2025).
SpaceX Falcon 9 Increased Cadence and Construction of a Landing Zone adjacent to LC-39A	A Phase I archaeological survey was completed. Previously recorded archaeological site 8BR2364 (Bottle Dump) was revisited and its boundaries expanded. However, the site remains ineligible for the NRHP. No other cultural resources were identified. No Adverse Effect.	Concurrence from SHPO (August 29, 2025).
SpaceX Starship Super Heavy Launch and Reentry Vehicles at LC-39A Including Associated Construction and Operations	A Programmatic Agreement was executed on November 19, 2025 regarding the assessment of adverse effects to historic properties as a result of SpaceX Starship Super Heavy operations at LC-39A. Commitments include the additional identification of historic properties; an archaeological site monitoring program; and a historic structures monitoring program. There are additional administrative commitments.	Concurrence from SHPO (November 19, 2025).

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Table 3-6: KSC CRM Program Projects

Project	Description	Status
Programmatic Environmental Assessment (PEA) for NASA KSC's Center Master Plan	The Center Master Plan (CMP) addresses the most reasonably foreseeable actions in three planning districts at KSC within a 20-year planning horizon. The actions listed in the PEA are for long-term planning purposes and do not commit NASA to funding these actions in the future. Once a project from the CMP is approved, licensed, or permitted by KSC, KSC will follow the process outlined in the 2025 NPA governing Section 106 review, including the resolution of adverse effects, in consultation with the SHPO, Tribal Nations, and consulting parties, as required.	No SHPO response received.

3.3 Five-Year KSC CRM Program Plan

KSC's CRM Program will support KSC's Mater Planning efforts and regulatory compliance reviews to support activities at KSC. There is no comprehensive list of projects expected to occur at KSC in the next five years. However, there are three relevant master plans that may provide insight into some of the activities that may occur. These include:

- KSC's Area Development Plans
- 15-Year Development Plan at the KSC's Visitor Complex and Launch Complex 39 Viewing Gantry
- Space Florida's Space Commerce District – Area Development Plan

Other anticipated projects will focus on:

- Maintenance
- Renovation
- Lease, grant, or demolition of buildings with no identified use by KSC
- Construction activities in support of NASA and partner projects
- Infrastructure and utility upgrades
- Creation of wetland mitigation sites
- Partner projects

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Chapter 4: Consultation

4.1 Existing Partnerships with SHPO(s)/Consulting Parties

The KSC CRM coordinates and consults with external entities to include the SHPO, federally recognized Indian tribes, and consulting parties using the Consulting Parties Directory and per the Section 106 regulations. If necessary, the KSC CRM will request consultation with the ACHP, which requires prior notification to the FPO (per NPR 8510.1A). Consultation is initiated as early as possible in the project planning process to prevent delays and minimize costs. When conducting consultation, the KSC CRM develops an administrative record.

4.2 Native American Consultation

The following federally recognized Indian tribes[1] have indicated that they have a religious or cultural interest in KSC's lands (subject to change) and are consulted under Section 106 of the NHPA:

- Miccosukee Tribe of Indians of Florida
- Seminole Tribe of Florida
- Seminole Nation of Oklahoma
- Thlopthlocco Tribal Town

When a precontact resource or an identified area of tribal sensitivity may be affected by an undertaking, tribes will be involved in all phases of the Section 106 review process, including the advance notification process under NEPA; identification and evaluation of archaeological sites, historic areas, and historic properties; assessment of effects; and the resolution of adverse effects, including alternatives analysis. Tribes will also be consulted in the event of an inadvertent discovery of cultural materials or human remains (see SOP #5) that may be of tribal origin.

The KSC CRM acts as the primary point of contact with the tribes, unless otherwise requested by a tribe, and will conduct consultation according to tribal preferences. Contact information for the tribes is in Appendix H (Consulting Parties Directory) and is subject to change. Updated information may be found in the Bureau of Indian Affairs' Tribal Leaders Directory, HUD's Tribal Directory Assessment Tool (TDAT (hud.gov), or via tribal communications and/or tribal websites.

Specific legislation and NASA-specific regulations governing tribal consultation may be found in Appendix B (Cultural Resources Laws and Regulations) and Appendix C (NASA PDs and NPRs).

4.3 Consulting Parties Consultation

The KSC CRM also coordinates and consults with other external entities to include representatives of local governments (36 Code of Federal Regulations [CFR] Part 800.2(c)(3)),

[1] On March 7, 2024, the Poarch Band of Creek Indians of Alabama indicated that KSC is outside of their area of interest. On June 19, 2025, the Muscogee (Creek) Nation indicated that KSC is outside of their area of interest. Therefore, both were removed from the list of consulting tribes.

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applicants for federal assistance, permits, licenses and other approvals (36 CFR Part 800.2(c)(4)), and individuals and organizations with a demonstrated interest in the undertaking (36 CFR Part 800.2(c)(5)), such as local interest groups. Consulting parties for KSC have been identified and their contact information is in Appendix H (Consulting Parties Directory). Consulting parties may vary from project to project, and additional consulting parties may be added on a project-specific basis or to the established consulting party list.

4.4 Public Notification

As part of consultation and in addition to coordination with consulting parties, the KSC CRM provides public notice regarding actions that may impact cultural resources by posting materials to the KSC CRM public website (Section 106 – Environmental (nasa.gov)). Methods of outreach may also include notification in local newspapers, announcements on the KSC website, and workshops and public hearings as part of the NEPA process. Further information on supporting legislation and NASA-specific protocols may be found in Appendix B (Cultural Resources Laws and Regulations) and Appendix C (NASA PDs and NPRs).).

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Chapter 5: Status of Knowledge

5.1 Historic Context Themes

NASA-Wide Context Themes

There are several NASA-Wide Contexts available:

- The Man in Space National Historic Landmark Theme Study (NASA, 1973) looked at NASA field Centers, former NASA installations, contractor sites, and Air Force facilities. The study relates resources to four subthemes:
  - technical foundations before 1958;
  - the effort to land a man on the Moon;
  - exploration of the planets and solar system; and
  - the role of scientific and communications satellites.
- The NASA-wide Survey and Evaluation of Historic Facilities in the Context of the U.S. Space Shuttle Program: Roll-Up Report (NASA, 2008) looked at 335 facilities at 13 NASA Centers and component facilities, including KSC.
- The NASA Agency-Wide Approach for the Management of Resources Less than 50 Years of Age (NASA, 2022) is an Agency-wide context study of significant achievements by NASA in the last 50 years.

KSC-Specific Context Themes

Detailed context themes for KSC are in Appendix I (KSC Precontact and Historic Contexts) of this document. In addition, Brewer's *An Archaeological and Ethnohistorical Assessment of Mosquito Lagoon at Canaveral National Seashore, Florida* (1991) and Austin and Layman's *Archaeological Site Inventory and Management Plan for Volusia County, Florida* (1989) should be considered. Archaeological and historical periods pertinent to KSC are listed in Table 5-1.

Table 5-1: Summary of Precontact and Historic Contexts

Period/Date	Distinguishing Traits, Events, and Persons
Paleo-Indian 11,000–8000 BC	Migratory hunters and gatherers; dry climate; lower sea level; fresh water scarce. Clovis, Suwannee and Simpson type projectile points; and unifacial tools.
Early Archaic 8000–6000 BC	Sea level rise; hunting and gathering; less nomadic; increased use of coastal resources; stemmed points including Wacissa, Arredondo, Hamilton, and Kirk types; and burials in wet environment cemeteries (e.g., Windover Site).
Middle Archaic/Mt. Taylor 6000–2000 BC	First occupation of the St. Johns River Valley; large freshwater shell middens; increased sedentism; shellfish becomes an increasingly important part of the diet; more evidence for coastal occupation; stemmed, broad-bladed projectile points; steatite; fired clay objects; and burials in pond or slough cemeteries and middens.
Orange/Late Archaic 2000–1000 BC	Increased occupation of the coastal lagoons; appearance of first pottery (fiber-tempered); first coastal-estuarine shell middens (predominantly coquina). Shift to coastal shellfish and fishing subsistence. Increased sedentism. Virtual absence of oysters and heavy use of coquina imply a different environment than today.
Florida Transitional 1200–500 BC	First semi-fiber-tempered pottery; St. Johns Incised ceramic; increased use of sand temper; regionalism begins; and greater dependence on coastal and lagoon resources. Increase in population size, socio-political complexity, and territorial range.

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Table 5-1: Summary of Precontact and Historic Contexts

Period/Date	Distinguishing Traits, Events, and Persons
St. Johns I/ Malabar I 500 BC–AD 750	Rise in sea level brings wetter conditions; shift in dominance from clams to oysters reflect environmental change in Mosquito Lagoon; continuation of hunting/fishing/gathering way of life; first use of burial mounds; villages and camps located adjacent to freshwater and coastal resources. St. Johns Plain and Incised pottery, Dunns Creek Red, Glades Plain, Belle Glade Plain, and Sand Tempered Plain. Increased influence of Weeden Island appears late; central pit burials within the mounds. Trade is evidenced by exotic materials within the burial mounds.
St. Johns II/ Malabar II AD 750–1565	First appearance of St. Johns Check-Stamped pottery; increase in size and number of villages reflect larger populations; increased use of burial mounds; increase in the variety of burial patterns; and platform mounds make their appearance at some of the ceremonial complexes. Mississippian influences. European artifacts in burial mounds and middens at some sites (A.D. 1513-1565). 16th century peoples are various Timucuan-speaking groups, including the Ais, non-agriculturalists living along the Atlantic coastal lagoons and inlets, and the semi-agricultural Surruque to the north. Severe population reductions due to European diseases in the 16th century.
First Spanish AD 1565–1763	Limited Spanish settlement. European artifacts include Spanish metal, glass, and pottery (majolica, olive jar, and other coarse earthenwares). French Huguenots led by Jean Ribault massacred in 1565 by Menendez, founder of St. Augustine. Alvaro Mexia sent (1605) by the Spanish Governor to visit the Ais Indians on a diplomatic mission. His Derrotero contains descriptions of a number of Indian villages, possibly located within KSC: Surruque (near Ross Hammock); Urruya (Haulover Canal area); and Suyagueche (near Max Hoeck Creek). 1696 shipwreck of the Jonathan Dickinson party. Decline of the Ais population.
British AD 1763–1783	Turnbull's New Smyrna Colony (1767-1783) established along the northern Indian River. Establishment of Ross' Plantation at Ross Hammock. The Elliot's Plantation complex, located within KSC, was established in the 1760s and destroyed in 1779; it contained a sugar works factory, distillery, overseers homes, and a slave village. Construction of the King's Road, 1770-1774. General extent of British development in the area was not great.
Second Spanish AD 1783–1821	Spanish land grants include the 480-hectare (ha) (1200 ac) H.M. Gomez grant (1803); the 400 ha (1000 ac) Francisco Reyes grant (1804); the 1821 Lucas Crayon grant (originally the Reyes grant); and the 1822 Antelm Gay grant (120 ha [300 ac]) within the Gomez grant).
American Territorial and Early Statehood AD 1821–1861	Florida becomes a U.S. Territory in 1821. Sparse white settlements. 1820s–30s—height of local sugar cane production. All local sugar plantations destroyed during the Second Seminole War (1835–1842). Douglas Dummett establishes the first orange grove in the KSC area in the 1840s; Fort Ann established to protect the Haulover, then abandoned in 1838; and the "Old" Haulover Canal completed in 1854.
American Civil War, Reconstruction, and Late 19th century AD 1861–1899	Civil War (1861–1865). Dummett groves, the largest in the state by 1867, were the beginning of the Indian River citrus fruit industry. In 1869, Nicole Tamajo built an octagonal-shaped house next to Dummett's grove. During the 1880s, KSC lands purchased as part of the 1.6 million ha (4.0 million ac) Disston purchase. "New" Haulover Canal constructed in 1887, one mile north of the old. Chester Shoals House of Refuge/Coast Guard Station constructed in 1884 and in use for 50 years. Canaveral Club established in 1890 along Banana Creek and post office established at Cape Canaveral in the same year. 1870s through 1890s establishment of communities of Shiloh, Clifton, Haulover, Allenhurst, Audubon, Heath, and Courtenay.
American 20th century AD 1900+	1910s establishment of communities at Wilson and Orsino. First bridge to Merritt Island constructed in 1921. CCAFS established in the 1940s. America enters the

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Table 5-1: Summary of Precontact and Historic Contexts

Period/Date	Distinguishing Traits, Events, and Persons
	Space Age on July 24, 1950, with the first launch from the Cape. NASA begins operations at Cape Canaveral in 1958, with initiation of the Manned Space Program. In 1961, the Merritt Island Spaceflight Tracking and Data Network, known as MILA, was created. Property was acquired for KSC in the early 1960s. VAB and LC-39 constructed between 1962 and 1968. MINWR established in 1963. Apollo 11 marks first lunar landing in 1969. CNS created in 1975. Launch of Columbia in 1981 is the first mission of the Space Shuttle Program. The last mission of the Space Shuttle Program was flown in 2011.

5.2 Architectural Resources

Previous Surveys and Evaluations

Since the initial eligibility determination of LC-39 for the NRHP in 1972, a range of architectural surveys and NRHP-nominations for KSC's assets and NASA-owned facilities at CCSFS have been carried out, assessing more than 800 structures and objects. At present, KSC has 31 historic properties that are either individually listed or are eligible for the NRHP, while a further 59 are considered contributing elements to seven historic districts that are individually listed or eligible for the NRHP. Table 5-2 summarizes the architectural surveys conducted within the KSC operational area.

KSC's seven historic districts are:

- LC-39 Pad A Historic District
- LC-39 Pad B Historic District
- SLF Historic District
- Orbiter Processing Historic District
- SRB Disassembly and Refurbishment Complex Historic District
- NASA KSC Railroad System Historic District
- NASA-owned CCAFS Industrial Area Historic District

For a listing of structures at KSC and their NRHP status, refer to Appendix J (Buildings/Structures Table). Built environment surveys conducted within KSC's operational area under Section 110 of the NHPA can be found in the KSC CRM's files, NETS and SEMS.

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Table 5-2: Architectural Surveys Conducted within KSC's Operational Area

Title	Author	Year	FMSF Report Number	Resources	Overview/Survey Summary	Eligibility Recommendations	SHPO Concurrence
NRHP Nomination Cape Kennedy – Launch Complexes 5/6-26	Patrick Air Force Base	1976	N/A	8BR174	Eventually listed in the NRHP as a National Historic Landmark (NHL) as part of a larger resource group – the NHL Cape Canaveral Air Force Station - on April 16,1984	Eligible	N/A
Survey and Evaluation of the Historic Facilities within the Industrial, Launch Complex 39 (LC-39), Vehicle Assembly Building (VAB), and Shuttle Landing Facility (SLF) Areas of the John F. Kennedy Space Center (KSC), Brevard County, Florida, Including a Reassessment of the Existing National Register of Historic Places LC-39 Site (8BR172)	ACI	1998	5474 11239	8BR172 8BR1684-1693	Survey of 812 facilities. Resulted in Multiple Property Listing and a reassessment of 1972 NRHP Nomination to include properties specifically constructed between 1961 and 1975 under the context of the Apollo Program including the Manned Lunar Landing Program, Skylab Space Station, and the Apollo-Soyuz Test Project.	1972 LC-39 Site boundary removed. New boundaries established around each individually eligible property instead. 8 facilities determined Individually Eligible; 2 Individually eligible Historic Districts (LC-39 A and B) with 47 contributing elements identified. Removed Launch Umbilical Towers and Mobile Service Structure (MSS) from original 1972 NRHP listing.	August 27, 1998 (Project File No. 985701)
Survey and Evaluation of NASA Facilities Within the CCAFS	ACI	2001	N/A	N/A	Survey of 106 NASA-owned facilities on CCAFS. Due to security restrictions	N/A	N/A

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Table 5-2: Architectural Surveys Conducted within KSC's Operational Area

Title	Author	Year	FMSF Report Number	Resources	Overview/Survey Summary	Eligibility Recommendations	SHPO Concurrence
					the team was unable to fully assess the structures, and the report was never submitted to FL SHPO. Re-evaluation recommended when majority of structures reach 50 years of age.		
Survey and Evaluation of NASA-owned Historic Facilities and Properties in the Context of the U.S. Space Shuttle Program	ACI	2007	16909	8BR1684-1691 8BR1693 8BR1986-1998 8BR2000-2010 8BR2014-2017 8BR2019-2021 8BR2094-2133	Survey of 112 facilities identified and evaluated in the context of the Space Shuttle Program. An additional 104 facilities were evaluated in 2011.	2007 result: 76 Properties Eligible or Listed; 40 Properties Ineligible; 4 new Historic Districts Identified (SLF, Orbiter Processing, SRB Disassembly and Refurbishment, and Hypergol Maintenance and Checkout Area Historic Districts). 2011 result: 104 Properties ineligible. Note: SHPO did not concur with all findings and recommended additional survey and evaluation for 6 resources.	May 27, 2008 (Project File No. 2007-9035) June 28, 2011 (Project File No. 2011-1980)
Historical Survey and Evaluation of the Space Station Processing Facility	ACI	2010	18046	8BR2671	Survey and evaluation of the Space Station Processing Facility.	Individually Eligible	December 7, 2010 (Project File No. 2010-5387)

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Table 5-2: Architectural Surveys Conducted within KSC's Operational Area

Title	Author	Year	FMSF Report Number	Resources	Overview/Survey Summary	Eligibility Recommendations	SHPO Concurrence
Demolition of Facilities, Design Package One (FY 2012)	KSC CRM	2010	N/A	N/A	Survey of 19 facilities.	Ineligible	November 18, 2010 (Project File No. 2010-5379)
Demolition of Facilities, Design Package Two (FY 2011)	KSC CRM	2010	N/A	N/A	Survey of 24 facilities.	Ineligible	November 18, 2010 (Project File No. 2010-5378)
Demolition of Additional Facilities at KSC, Design Package One (FY 2012)	KSC CRM	2011	N/A	N/A	Survey of 22 facilities.	Ineligible. Note: SHPO did not concur with all findings and recommended additional survey and evaluation for 1 resource.	November 22, 2011 (Project File No. 2011-5026)
Internal Evaluation and Historic Survey of NASA-owned Real Properties that Have Reached the Age of 45-50 Years	KSC CRM	2011	N/A	N/A	Survey of 116 facilities.	116 Properties Ineligible. Note: SHPO did not concur with all findings and recommended additional survey and evaluation for 36 resources	October 14, 2011 (Project File No. 2011-4475)
Historical Survey and Evaluation of the Jay Jay Bridge, Railroad System, and Locomotives	ACI	2012	19482	8BR2906-2932 8BR3042-3044	Survey of the Jay Jay Railroad Draw Bridge, the Locomotive Maintenance Facility, and the Railroad system consisting of 3 locomotives, 75 railcars, and 38 miles of railroad track.	Three locomotives, 2 skirt cars, the Jay Jay Railroad Draw Bridge, and 19 miles of railroad track identified as contributing elements to the Eligible KSC Railroad System Historic District. Note that only a portion of the railroad track contributes to the historic district.	January 4, 2013 (Project File No. 2012-4670-B)

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Table 5-2: Architectural Surveys Conducted within KSC's Operational Area

Title	Author	Year	FMSF Report Number	Resources	Overview/Survey Summary	Eligibility Recommendations	SHPO Concurrence
						6 buildings/ancillary features and 73 pieces of rolling stock ineligible.	
Historical Survey and Evaluation of Facility 49635/Environmental Health/Health Physics Facility (BOSU), CCAFS	ACI	2012	N/A	8BR2905	Survey and evaluation of the BOSU as mitigation for demolition.	Individually Eligible	July 30, 2012 (Project File No. 2012-2030-B)
History Survey and Evaluation, Hypergol Module Processing South (M7-1212) and Boresight Control Building (M7-0867)	New South Associates	2012	N/A	8BR2015 8BR1993	Survey and evaluation of the hypergolic fuel testing facility and the boresight facility. In 2012, additional consultations involved the demolition of facilities within the HMCA Historic District, eventually leading to the loss of the district in 2014. Hypergolic Module Processing (HMP) south was not demolished and remained individually eligible.	Hypergol Module Processing Eligible as a contributing element to HMCA Historic District; previously determined individually eligible under SSP survey; HMCA Historic District boundary modified; Boresight Facility Ineligible	March 30, 2012 (Project File No. 2012-1277 (2011-1980)) August 8, 2012 (Project File No. 2012-3498 (2012-1277 and 2011-1980)) October 9, 2012 (Project File No. 2012-3498-B) March 30, 2013 (Project File No. 2011-1980) September 22, 2014 (Project File No. 2014-4293)
Architectural Survey and Evaluation of 45 Facilities That Have Reached the Age of 45-50 Years	New South Associates	2012/ 2013/ 2014	20744	8BR2969 8BR2976 8BR2990 8BR2955 8BR2956	Survey of 45 facilities. Surveys and consultation between KSC and SHPO started in 2012 when	6 of 45 buildings Eligible – Engineering Development Laboratory, Missile Assembly Building	November 18, 2013 (Project File No. 2013-4869 (2012-4870))

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Table 5-2: Architectural Surveys Conducted within KSC's Operational Area

Title	Author	Year	FMSF Report Number	Resources	Overview/Survey Summary	Eligibility Recommendations	SHPO Concurrence
				8BR2957 8BR2986	SHPO found the initial reports insufficient.	AE, Beach House, Banana River Bridge, Indian River Bridge, Haulover Canal Bridge, Barge Terminal Facility (contributing to VAB District)	
Architectural Survey and Evaluation of NASA-owned Facilities on CCAFS	New South Associates	2014	20760	8BR2001-2009 8BR2190 8BR2961 8BR2972-77 8BR3069-3072	Survey and evaluation of 12 NASA-owned facilities in the CCAFS Industrial Area.	1 eligible Historic District (NASA-owned CCAFS Industrial Area Historic District) comprised of 16 contributing elements (2 of which are individually eligible); 3 non-contributing resources	March 3, 2014 (Project File No. 2014-0521)
In-House Survey of NASA-owned Facilities/Structures Built in the 1970s at the KSC	KSC CRM	2015	N/A	N/A	Survey of 28 facilities.	Ineligible	January 29, 2015 (Project File No. 2015-0205)
In-House Survey of NASA-Owned Real Property Located at Kennedy Space Center and the Cape Canaveral Air Force Station	KSC CRM	2016	N/A	N/A	Survey of 292 facilities owned or managed by KSC built between 1955 and 2010.	Ineligible	September 28, 2016 (Project File No. 2016-4014)

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Summary of NRHP-Listed or Eligible Buildings/Structures

At KSC, historic properties have been found NRHP-eligible or listed in the context of the Project Mercury, Apollo, Space Shuttle, Expendable Launch Vehicle (ELV), and ISS programs. For a complete listing of extant NRHP-eligible historic properties at KSC and their relevant programs, see Appendix J (Buildings/Structures Table). The majority of NRHP-eligible or -listed resources (including historic districts and their associated contributing elements) pertain to the Space Shuttle context (68), followed by the Apollo context (51), with multiple resources listed under both (40). The ELV (2), Mercury (1), and ISS (4) programs also have NRHP-eligible or -listed resources, but in fewer quantity. Two properties are eligible under the Apollo, Space Shuttle, and ISS programs as a group.

KSC has one National Historic Landmark (NHL) in its real property inventory which is part of the CCAFS NHL. This NHL is Launch Complex 5/6 and twenty (20) associated buildings, structures, and infrastructure features. This NHL currently houses the Cape Canaveral Space Force Museum.

Due to NASA's changing programs which require modification to historic properties, especially those associated with Apollo, Space Shuttle, and SLS, all KSC's historic properties were documented through HABS or HAER between 2006 and 2014 as mitigation for adverse effects. Per Stipulation V.A.2 of KSC's 2009 Programmatic Agreement, only one of multiple assets of the same property type that are 95% identical was recorded. This applies to KSC's Bridges (Haulover Canal Bridge, Indian River Bridge, and the Banana River Bridge), Launch Complex 39 Pads A and B, and the Orbiter Processing Facility (High Bays 1-3). The only historic properties that do not have HABS/HAER are Launch Complex 5/6, as well as Hangar N and the Little N Storage Building; Hangar N and the Little N Storage Building were transferred to CCSFS in 2015.

Multiple historic properties have been demolished, disposed, transferred out of NASA ownership, or transferred to another federal agency. This includes the:

- Headquarters Building (8BR1691)
- Central Instrumentation Facility (8BR1692)
- Parachute Refurbishment Facility (8BR2014)
- Payload Canister 1 & 2 (8BR2017)
- Retrieval Ships (8BR2019 and 8BR2020)
- Mobile Launcher Platforms (2 & 3) (8BR2021)
- Bioastronautics Operations Support (BOSU) (8BR2905)
- Indian River Bridge (8BR2956)
- Contributing Elements to the LC-39 Pad A Historic District:
    - Electrical Equipment Building No. 3 (8BR2110)
    - Hypergol Oxidizer Facility (8BR2112)
    - Azimuth Alignment Station (J8-1858, No BR #)

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- Contributing Elements to the LC-39 Pad B Historic District:
  - High Pressure GH2 Facility (8BR2115)
  - Hypergol Oxidizer Facility (8BR2130)
  - Hypergol Fuel Facility (8BR2132)
  - Electrical Equipment No. 3 (8BR2131)
  - Electrical Equipment No. 4 (8BR2133)
- Contributing Elements to the SLF Historic District:
  - Mate-Demate Device (8BR1989)
- Contributing Elements to the SRB Disassembly and Refurbishment Complex Historic District:
  - Hangar AF (8BR2001)
  - High Pressure Gas Facility (8BR2002)
  - First Wash Building (8BR2004)
  - SRB Recovery Slip (8BR2005)
  - Robot Wash Building (8BR2007)
- Contributing Elements to the NASA KSC Railroad System Historic District:
  - 70-Ton Aft Skirt Car (8BR3042)
  - Locomotives 1, 2, and 3 (8BR2923, 8BR3043, 8BR3044)
- Contributing Elements to the NASA-owned CCSFS Industrial Area Historic District (also see SRB Disassembly and Refurbishment Complex Historic District):
  - Hangar N (8BR3069)
  - Little N Storage Building (8BR2190)
  - Hangar M Annex (8BR2972)
  - Solar Array Test Building (8BR2977)
  - E&O Building (8BR2975)
  - Hangar S (8BR3070)

5.3 Artifacts (Non-Archaeological)

As defined here, artifacts are unique objects that document the history of the science and technology of aeronautics and astronautics. Their significance and interest stem mainly from their relation to the following: historic flights, programs, activities, or incidents; achievements or improvements in technology; our understanding of the universe; and important or well-known personalities (see NPR 4310.1A). When programmatic utility to NASA has been exhausted, they are typically disposed of by the agency. The process for disposition is as follows:

1. The Center declares an asset as excess.

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2. KSC's Property Disposal Office, located within the Logistics Branch, consults with the KSC CRM, and other subject matter experts, to determine whether the item is a potential artifact.
3. Items identified as potential artifacts are registered with NASA HQ's Logistics Management Division (LMD) which oversees the donation of artifacts to eligible organizations including NASA internal organizations, the National Air and Space Museum (NASM), other federal agencies, museum and non-profits organizations, K-12 schools, and Universities. NASA Centers and NASM are given first right of refusal.
4. Artifacts are then offered to authorized recipients via the NASA Artifact Module Artifact (nasa.gov).

Artifacts may be eligible for the NRHP and their disposal subject to Section 106. National Register Bulletin #15 *How to Apply the National Register Criteria for Evaluation* emphasizes that small objects not designed for a specific location are typically ineligible for the NRHP. Additionally, the guidance emphasizes the importance of setting and location, especially for moveable objects, when considering eligibility. Therefore, consideration should be given to any object that is defined as real property within NASA's inventory during the disposal process. However, given the strong emphasis on a geographic or physical association, the majority of NASA's personal property is eliminated from NRHP-eligibility consideration; this is also true of equipment and objects that have traveled to space and returned to Earth. If personal property is eligible for the NRHP, it is generally identified as a contributing element to a NRHP- eligible or -listed historic district.

5.4 Archaeological Resources

Previous Surveys and Evaluations

Prior to 1973, most archaeological work carried out in the vicinity of KSC focused on academic inquiry. Among the early explorations of the area was J. Francis LeBaron's investigation of sand mound and shell midden sites in 1877 and 1878 while constructing the Lake Harney-Titusville tramway (LeBaron 1884). During the 1930s, survey work funded by Harvard University's Peabody Museum was carried out by Gene M. Stirling near Cape Canaveral, and from 1933 to 1934, site excavations were undertaken by the Civil Works Administration Program (Stirling 1934; Rouse 1951: 64). From the mid-1940s to the late-1950s, a variety of survey and excavation projects were conducted, including work under Dr. Irving Rouse as part of Yale University's Caribbean Anthropological Program. This research established initial definitions for culture periods for the Indian River area, which have only recently been superseded by Goggin's St. Johns sequence, developed under the same project. Finally, in 1963 George Long conducted evaluations of more than 50 precontact and historic period sites at KSC and Cape Canaveral (Long 1967). Although many of these sites had been noted previously in a variety of sources, Long's assessments formed a foundational dataset for future research and constitutes a key source for the area.

Since 1973, more than 50 archaeological investigations have been completed within KSC's operational area, as listed in Table 5-3 and Table 5-4.

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Table 5-3: Archaeological Predictive Models for KSC

Survey Name	Author(s)	Year	Location(s)	FMSF Report Number	Site Numbers	Acreage	Survey Methodology	SHPO Response or Concurrence
Archaeological Survey to Establish Zones of Archaeological Potential (ZAPs) in the VAB and Industrial Areas of the Kennedy Space Center	ACI	1990	KSC	2471	8BR206 8BR582	8,000	Reconnaissance & Subsurface Testing	August 29, 1990 (Project File No. 902439)
Archaeological Survey to Establish ZAPs in the Launch Complex Area (Option 1) of the Kennedy Space Center	ACI	1991	KSC	2992	8BR79 8BR170 8BR773 8BR774 8BR910-917	20,000	Reconnaissance & Subsurface Testing	December 10, 1991 (Project File No. 913192)
Archaeological Survey to Establish ZAPs in the Shuttle Landing and KSC South Area (Option 2) of the Kennedy Space Center	ACI	1992	KSC	3447	8BR60 8BR62 8BR150 8BR157 8BR159 8BR161 8BR169/183 8BR171 8BR540-543	50,000	Reconnaissance & Subsurface Testing	February 6, 1992 (Project File No. 920151)
Archaeological Survey to Establish ZAPs in the KSC North Area (Option 3) of the Kennedy Space Center	ACI	1992	KSC MINWR CNS	3271	8BR1617-1633 8VO4371-4374	25,000	Reconnaissance & Subsurface Testing	January 12, 1993 (Project File No. 923635)

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Table 5-3: Archaeological Predictive Models for KSC

Survey Name	Author(s)	Year	Location(s)	FMSF Report Number	Site Numbers	Acreage	Survey Methodology	SHPO Response or Concurrence
Archaeological Survey to Establish Zones of Archaeological Potential in the KSC North Area (East of State Road 3) (Basic Contract Area) of the Kennedy Space Center	ACI	1996	CNS	16157	8BR139 8BR142-146 8BR151 8BR186 8BR188 8BR191 8BR1632 8BR1633 8BR1664-1680 8VO129-131 8VO143 8VO213 8VO2569 8VO6785 8VO6786	4,400	Reconnaissance & Subsurface Testing	March 7, 2011 (Project File No. 2010-04874)
Historic Context and Historic Period Archaeological Site Location Predictive Model for KSC	ACI	2008	KSC CNS MINWR	20238	N/A		Archival Research; Reconnaissance	February 2, 2010 (Project File No. 2009-07626)
An Archaeological Survey of the Kennedy Space Center Spaceport Growth Boundaries Districts 1, 2, 3, and 4	SWCA	2023	KSC	30141	8BR217 8BR4587 8BR4588 8BR4628	4,298.38	Reconnaissance & Subsurface Testing	July 3, 2024 (Project File No. 2024-1195)

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Table 5-4: Archaeological Surveys Conducted within KSC's Operational Area

Survey Name	Author(s)	Year	Location(s)	KSC Grid	FMSF Report No.	Site Numbers	Acreage	Survey Methodology	SHPO Response or Concurrence
Indian and Historic Sites	Long	1967	KSC CNS MINWR CCSFS		610	8VO129-131 8VO141 8VO143 8VO148-152 8VO160 8BR62 8BR77-79 8BR87-89 8BR137 8BR142-161	88,000	Reconnaissance	N/A
Antiquities Resources: John F. Kennedy Space Center, Archaeological and Historical Sites	Long	1967	KSC CNS MINWR CCSFS		16263	8BR62 8BR77-79 8BR137 8BR141-151 8BR155 8BR156-160 8VO129-131 8VO143 8VO148 8VO160	Unknown	Reconnaissance	N/A
Archaeological Survey Report: NASA Space Shuttle Runway Project on Merritt Island, Florida	Smith	1973	SLF/LLF	H5 J5 J6 K5 K6	261 14021	8BR169-171 8BR540-544	@ 800-1000	Reconnaissance	N/A
Archaeological Survey Report: NASA Space Shuttle Solid Rocket Booster Facility Site on Merritt Island, Florida	Smith	1974	Bounded by Kennedy Pkwy, NASA Cswy and Schwartz Rd	L6 L7 K6 K7	961	8BR77-78 8BR155 8BR170/181 8BR183/169 8VO130-131 8VO143	@ 1500	Reconnaissance	N/A

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Table 5-4: Archaeological Surveys Conducted within KSC's Operational Area

Survey Name	Author(s)	Year	Location(s)	KSC Grid	FMSF Report No.	Site Numbers	Acreage	Survey Methodology	SHPO Response or Concurrence
Off Loading Facility for Recovery Disassembly of Space Shuttle Solid Rocket Boosters	Marrinan	1976	NASA-Owned Industrial Area at CCSFS	L8 M8 N8	596	N/A	Unknown	Reconnaissance; Subsurface Testing	N/A
Cultural Resource Assessment, Field and Documentary Studies Conducted in Support of the Hypergol Logistics Facility Preliminary Engineering Report, KSC, Brevard County, Florida	Martinez	1977	Fluid Service Rd; Off Kennedy Pkwy N	H5 K7	422	8BR172	9	Reconnaissance; Subsurface Testing	N/A
Cultural Resource Assessment, Field and Documentary Studies Conducted in Support of the Chemical Waste Disposal Facilities Preliminary Engineering Report	Martinez	1977	10 sites, various locations at KSC, CCSFS	K6 K7 L7 M8 M9 N8	421	8BR172 8BR197	32+	Reconnaissance; Subsurface Testing	N/A
Archaeological Survey of the SRB Facility Site	Water and Air Research, Inc.	1983	Building/ Booster Fabrication Facility	L6 L7	N/A	N/A	Unknown	Reconnaissance; Subsurface Testing	N/A

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Table 5-4: Archaeological Surveys Conducted within KSC's Operational Area

Survey Name	Author(s)	Year	Location(s)	KSC Grid	FMSF Report No.	Site Numbers	Acreage	Survey Methodology	SHPO Response or Concurrence
			(BFF) Facility						
Phase II Archaeological Investigations at the Opposite Futch Cove Site (8BR170), Brevard County, Florida	Water and Air Research, Inc.	1988	Apollo/ Saturn V KSCVC	J6	1934	8BR170	Unknown	Subsurface Testing	May 30, 1989 (Project File No. 890922)
A Cultural Resource Survey of Three Project Areas at Merritt Island National Wildlife Refuge	NPS	1988	MINWR; Wetland Impound-ments south of LC-39A	G3 G4 H3 H4 J8 K8	1676	8BR160	Unknown	Reconnaissance	July 21, 1988 (Project File No. 881527)
An Archaeological Survey of the Proposed Space Station Facilities Site and Child Care Facility Site	Johnson	1989	Current location of SSPF; Intersection of A Ave SE and 5th St SE	M6 M7	N/A	N/A	39	Reconnaissance; Subsurface Testing	N/A
Archaeological Survey of the Following Areas of NASA KSC Facility: Proposed "S" Band Antenna Site, Existing "S" Band Antenna Site, Schwartz Road Borrow Area Expansion	Johnson	1989	West of Banana River Dr between 2nd St NE and Universal Camera Pad 2; Off E Ave SW; At intersection of Schwartz Rd and	L6 L7 M5 M7	N/A	N/A	170.3	Reconnaissance; Subsurface Testing	N/A

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Table 5-4: Archaeological Surveys Conducted within KSC's Operational Area

Survey Name	Author(s)	Year	Location(s)	KSC Grid	FMSF Report No.	Site Numbers	Acreage	Survey Methodology	SHPO Response or Concurrence
			Kennedy Pkwy N						
Archaeological Site Assessment Survey of the Proposed NASA State Road 3 Expansion Project	Johnson and Ashley	1990	West shoulder of SR3 for 2.5 miles starting at the northern boundary of KSC property	M6 N6	N/A	N/A	@ 60	Reconnaissance; Subsurface Testing	N/A
Archaeological Survey of the VIP Launch Viewing Area	ACI	1991	Apollo/ Saturn V KSCVC	J6	2689	8BR170 8BR773 8BR774	20-30	Reconnaissance; Subsurface Testing	N/A
Phase III Archaeological Investigation of the Futch Cove Site, 8BR170, KSC, Florida	Florida Archaeo-logical Services, Inc.	1992	Apollo/ Saturn V KSCVC	J6	N/A	8BR170	Unknown	Data Recovery	N/A
Cultural Resources Assessment Survey of a 65-Acre Proposed Landfill Site, KSC, Brevard County, Florida	ACI	1993	KSC Landfill south of Schwartz Rd	L7	3664	N/A	65	Reconnaissance; Subsurface Testing	March 30, 1993 (Project File No. 930691)
Technical Memorandum Archaeological Support for Apollo/Saturn V	ACI	1995	Apollo/ Saturn V KSCVC	J6	N/A	8BR170	Unknown	Monitoring	N/A

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Table 5-4: Archaeological Surveys Conducted within KSC's Operational Area

Survey Name	Author(s)	Year	Location(s)	KSC Grid	FMSF Report No.	Site Numbers	Acreage	Survey Methodology	SHPO Response or Concurrence
Building Construction									
The Tea Hammock West Site Archaeological Survey	Penders	1995	At corner of Schwartz Road and Static Test Road	K7 K8	N/A	8BR1659	Unknown	Reconnaissance	N/A
Archaeological Survey of the Orbiter GSE Storage Facility Area	ACI	1996	Between Kennedy Pkwy N and the Apollo/ Saturn V KSCVC	J6	4491	8BR773 8BR1663	Unknown	Reconnaissance; Subsurface Testing	May 23, 1996 (Project File No. 961396)
Archaeological Survey of the Spoil Site 2B Construction Area	ACI	1996	At corner of Schwartz Road and Static Test Road	K7 K8	4598	8BR1659	88	Reconnaissance; Subsurface Testing	June 21, 1996 (Project File No. 962062)
Archaeological Survey of Two Areas	ACI	1998	Acoustic Sensor @ 30th St NW; Mosquito Control Impound-ment west of C5 Substation	J6 K6	N/A	N/A	Unknown	Reconnaissance; Subsurface Testing	N/A
Cultural Resource Assessment Survey of the Proposed International Space Research Park (ISRP)	ACI	2003	Two areas off Space Commerce Way; One area off Kennedy Pkwy S	M6 N6	28954	8BR1850	Unknown	Reconnaissance; Subsurface Testing	March 2, 2004 and August 12, 2004 (Project File No. 2004-936/2004-7055)

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Table 5-4: Archaeological Surveys Conducted within KSC's Operational Area

Survey Name	Author(s)	Year	Location(s)	KSC Grid	FMSF Report No.	Site Numbers	Acreage	Survey Methodology	SHPO Response or Concurrence
Section 106 Assessment (FCC Form 620) of the KSC Telecommunications Tower Site (Verizon Wireless Site Number 082525-1), Brevard County, Florida	Florida Archaeo-logical Consulting Inc.	2006	Off Kennedy Pkwy S and South of Ransom Road	M6	14073	N/A	<1 acre	Subsurface Testing	June 9, 2006 (Project File No. 2006-3715)
Cultural Resource Assessment Survey of the Proposed Commercial Vertical Launch Complex (CVLC)	ACI	2008	CNS; off Phillips Pkwy north of LC-41	G5 J8 K8	15932	8BR915 8BR916	460	Reconnaissance; Subsurface Testing	October 17, 2008 (Project File No. 2008-05830)
An Archaeological and Historical Survey of the 10019999 – NASA Traffic Tower in Brevard County, Florida (FCC Form 620)	Bland and Associates Inc.	2008	Instrumenta-tion Road, Southern terminus	K7	15892	N/A	0.345	Subsurface Testing	December 15, 2008 (Project File No. 2008-6971)
Archaeological Survey and Evaluation of the Bottle Dump Site (8BR2364)	ACI	2009	North of LC-39A	J8	17178	8BR2364	1	Reconnaissance; Subsurface Testing	March 22, 2010 (Project File No. 2010-00809)
Archaeological Survey and Evaluation for the Post-Hurricane	ACI	2013	Dune	J8	24494	8BR79	66	Reconnaissance; Subsurface Testing	November 4, 2013 (Project File No. 2013-

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Table 5-4: Archaeological Surveys Conducted within KSC's Operational Area

Survey Name	Author(s)	Year	Location(s)	KSC Grid	FMSF Report No.	Site Numbers	Acreage	Survey Methodology	SHPO Response or Concurrence
Sandy Dune Repair Project									4869 and 2012-4670B)
Cultural Resource Assessment Survey of the Proposed FPL Mars Substation	ACI	2015	Along Ransom Rd between Space Commerce Way and Kennedy Pkwy S	M6	22465	N/A	0.8	Reconnaissance; Subsurface Testing	December 3, 2015 (Project File No. 2015-5883)
Cape Canaveral Air Force CCAFS Launch Complex 34 Hot Spot Area 6 Cultural Resource Assessment Survey	Tetra Tech, Inc.	2018	LC-34/ CCSFS	M9	25006	N/A	3.98	Subsurface Testing	April 19, 2018 (Project File No. 2018-1500)
Cultural Resource Assessment Survey of the Discovery Solar Energy Center	ACI	2019	North of NASA Pkwy and west of Kennedy Pkwy N	L6 M6	26810	N/A	508	Reconnaissance; Subsurface Testing	February 5, 2020 (Project File No. 2019-4132)
Cultural Resource Assessment Survey of the NASA Causeway Bridge PD&E Study	Janus Research	2019	Bridge span and approaches	M3 M4	25880	N/A	325.9 (includes historic resources survey)	Reconnaissance; Subsurface Testing	March 28, 2019 (Project File No. 2019-1535)
Cultural Resources Assessment Survey Prior to Contaminated Soil Removal at	SEARCH, Inc.	2020	LC-41	K8	27494	N/A	0.28	Subsurface Testing	November 19, 2020 (Project File No. 2020-6711-A)

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Table 5-4: Archaeological Surveys Conducted within KSC's Operational Area

Survey Name	Author(s)	Year	Location(s)	KSC Grid	FMSF Report No.	Site Numbers	Acreage	Survey Methodology	SHPO Response or Concurrence
CCAFS Launch Complex 41									
Cultural Resource Assessment Survey of Transmission Corridor T21584	ACI	2020	Intersection of Kennedy Pkwy N and NASA Pkwy W	M6	N/A	N/A	Unknown	Reconnaissance; Subsurface Testing	N/A
A Cultural Resources Assessment Survey of Five Improvement Locations on NASA Causeway	AECOM	2020	NASA Causeway between Space Commerce Way and Kennedy Pkwy	M5 M6	28952	N/A	1.01	Reconnaissance; Subsurface Testing	June 6, 2020 (Project File No. 2020-1339-B)
A Cultural Resource Assessment Survey for the Proposed Roberts Road Site Florida Power & Light (FP&L) Feeder Line	Atkins	2020	Two areas along Kennedy Pkwy	L6 M6	N/A	N/A	@ 21.5	Subsurface Testing	March 12, 2021 (Project File No. 2021-991)
Cultural Resources Assessment Survey, City Point to South Cape Transmission Line Pole Locations 87F11A/F11, 88F3A and 89F10A/F10	SouthArc, Inc.	2020	Audubon Road along Trans-mission Corridor; Outside KSC property boundary	Q6	27093	N/A	.5	Subsurface Testing	October 14, 2020 (Project File No. 2020-5225-B)

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Table 5-4: Archaeological Surveys Conducted within KSC's Operational Area

Survey Name	Author(s)	Year	Location(s)	KSC Grid	FMSF Report No.	Site Numbers	Acreage	Survey Methodology	SHPO Response or Concurrence
Phase I Cultural Resources Assessment Survey of Exploration Park North Expansion EA	LG2	2021	Exploration Park	M6	28108	8BR4364 8BR4367	63.1	Reconnaissance; Subsurface Testing	January 25, 2022 (Project File No. 2022-0036)
Cultural Resource Assessment Survey of the Roberts Road North Expansion Area and NASA Parkway Connector at Kennedy Space Center	SEARCH, Inc.	2022	SpaceX Campus	L5 L6	29422	8BR1988 8BR2931 8BR2932 8BR4443 8BR4444	80	Reconnaissance; Subsurface Testing	November 3, 2022 (Project File No. 2022-6435)
Cultural Resource Assessment Survey for Space Commerce Way from NASA Parkway West to Kennedy Parkway	Janus Research	2022	Space Commerce Way	M5 M6	28010	N/A	89	Reconnaissance; Subsurface Testing	March 7, 2022 (Project File No. 2022-1271)
Cultural Resource Assessment Survey Saturn Substation and Distribution Project	ACI	2023	SLF/LLF Area and along Kennedy Pkwy N	H5 J5 J6 K6	28963	8BR169	237	Reconnaissance; Subsurface Testing	August 8, 2023 (Project File No. 2023-2624-B)
Cultural Resource Assessment Survey, Wetland Mitigation Sites	Common-wealth Heritage Group	2023	North of Static Test Rd Camera Pad along the Banana	L7 N5 N6 P6	29636	N/A	121	Reconnaissance; Subsurface Testing	September 26, 2023 (Project File No. 2022-7243)

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Table 5-4: Archaeological Surveys Conducted within KSC's Operational Area

Survey Name	Author(s)	Year	Location(s)	KSC Grid	FMSF Report No.	Site Numbers	Acreage	Survey Methodology	SHPO Response or Concurrence
			River; North of Jerome Road; South of 28th Street						
Phase I Cultural Resources Assessment Survey of the DNC Retail Warehouse Pre-Con Site	LG2	2023	KSCVC	M6	29098	8BR4572 8BR4573	15	Subsurface	December 6, 2023 (Project File No. 2023-6603)
Phase I Cultural Resource Assessment Survey of the Schwartz Road Property	SEARCH, Inc.	2024	Corner of Contractors Road and Schwartz Road	K6 K7	30031	8BR582 8BR4597 8BR4598 8BR4628 8BR4629	178	Reconnaissance; Subsurface	August 15, 2024 (Project File No. 2024-0849)
Phase I Cultural Resource Assessment Survey of the KSC Visitor Complex Programmatic Environmental Assessment (PEA) Boundary Site	LG2	2024	KSCVC	M5 M6	N/A	8BR4631 8BR4632 8BR4633 8BR4634 8BR4635	310	Reconnaissance; Subsurface	August 23, 2024 (Project File No. 2024-4283)
Technical Memorandum: Results of the Relocation of Previously Recorded	TRC	2024	KSC Secure Area	H7 J5 J6 K5 K6 K7 K8	N/A	8BR60 8BR61 8BR62 8BR84 8BR150 8BR161 8BR170	N/A	Reconnaissance	N/A

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Table 5-4: Archaeological Surveys Conducted within KSC's Operational Area

Survey Name	Author(s)	Year	Location(s)	KSC Grid	FMSF Report No.	Site Numbers	Acreage	Survey Methodology	SHPO Response or Concurrence
Archaeological Sites at KSC				L5 L7 M7 N6		8BR171 8BR206 8BR217 8BR540 8BR544 8BR774 8BR913 8BR914 8BR4532			
Archaeological Survey for the LC-39A Landing Zone Project	SEARCH, Inc.	2024	LC-39A	J8	N/A	8BR2364	28	Subsurface	August 29, 2025 (Project File No. 2025-3312-B)
Phase I Archaeological Resources Survey of 28.4 Acres at KSC	Brockington and Associates, Inc.	2025	Kennedy Pkwy N between NASA Parkway and Roberts Road	L6	N/A	N/A	28.4	Subsurface	June 5, 2025 (Project File No. 2025-3589)

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In addition to surveys conducted in areas actively managed by KSC, several investigations have been conducted at CNS (Ehrenhard 1976), MINWR (Griffin and Miller 1978), and CCSFS (Levy et al. 1984). Aside from the overview studies noted below, additional surveys may be found in the KSC CRM files (both paper and electronic), FMSF, and through coordination with the respective CRM at the other federal agencies. Project-specific surveys of note include Elliot Plantation, Clifton Schoolhouse, NCAR Radar Site, Space Coast Trail, and Soil Remediation at Launch Complex 34.

Table 5-5: Archaeological and Historic Site Overviews Outside of KSC's Operational Area

Survey Name	Author	Year	Location	FMSF Report Number	Site Numbers
Canaveral National Seashore: Assessment of Archaeological and Historical Resources	SEAC	1976	CNS	1339	62 sites in both Volusia and Brevard Counties
Cultural Resource Reconnaissance of Merritt Island National Wildlife Refuge	Cultural Resource Management, Inc.	1978	MINWR	260	90 sites in both Volusia and Brevard Counties
An Archaeological Survey of CCAFS, Brevard County, Florida	Resource Analysts, Inc.	1984	CCSFS	2410, 1150	8BR82-83 8BR85-86 8BR88-89 8BR158 8BR219-243 CC01 CC13 CC26 CC38
Historic Property Survey, Cape Canaveral Air Force Station	New South Associates	1994	CCSFS; Includes KSC-owned Properties at CCSFS	3820, 14138	8BR82 8BR82A&B 8BR83 8BR85-88 8BR88A-C 8BR89 8BR158 8BR212 8BR219-238 8BR238A-D 8BR239-243 8BR557 8BR558 8BR1636-1642
A Beach-Face Magnetometer Survey at Canaveral National Seashore	SEAC	1998	CNS	22210	N/A
Canaveral National Seashore Historic Resource Study	NPS	2008	CNS	N/A	8BR78 8BR85 8BR90 8BR188
Trip Report for an Archaeological Survey	SEAC	2009	CNS	16703	8BR2412-2416 8VO8923-8954

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Table 5-5: Archaeological and Historic Site Overviews Outside of KSC's Operational Area

Survey Name	Author	Year	Location	FMSF Report Number	Site Numbers
of Mosquito Lagoon, Canaveral National Seashore					8VO8969-8980
Summary of Phase II Archaeological Survey of Selected Sites in Mosquito Lagoon, Canaveral National Seashore	SEAC	2010	CNS	N/A	8VO149 8VO153 8VO171 8VO174 8VO176 8VO177 8VO8926 8VO8931 8VO8934 8VO8935 8VO8943 8VO8944 8VO8952 8VO9276-9279
Canaveral National Seashore Archaeological Overview and Assessment	SEAC	2013	CNS	20915	125 sites in both Volusia and Brevard Counties
Canaveral Cemetery Recording Project	Thomas	2014	MINWR CNS	22203	8BR1624 8BR1626 8BR1631 8BR1676
The Search for the Lost French Fleet of 1565: Report on 2014 Archaeological Investigations	Meide, Turner, Burke, McDaniel	2014	CNS	21747	N/A
A Cultural Resources Assessment Survey of Land Management Units 50 and 166, Cape Canaveral Air Force Station	Penders	2014	CCSFS	20929	8BR222 8BR223 8BR2355 8BR2356 8BR2513 8BR2514 8BR2363
Cultural Resource Assessment Survey of the Space Coast Trail Within the Merritt Island National Wildlife Refuge and the Canaveral National Seashore	ACI	2019	MINWR CNS	26641	8BR188 8BR1617 8BR1618 8BR1625 8BR1630 8BR2229 8BR3912 8BR3913 8VO9406 8VO9407

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Table 5-5: Archaeological and Historic Site Overviews Outside of KSC's Operational Area

Survey Name	Author	Year	Location	FMSF Report Number	Site Numbers
Phase I Archaeological Survey of 2138.3 Acres at Cape Canaveral Air Force Station	New South Associates	2019	CCSFS	27738	8BR86 8BR227 8BR229 8BR230 8BR235 8BR2077 8BR2256 8BR4001-4014
Phase I Cultural Resources Assessment Survey of Land Management Units 13-17, Cape Canaveral Space Force Station	University of South Florida	2020	CCSFS	28260	8BR82 8BR83 8BR3557 8BR4028-4039

Archaeological Sites

There are a total of 211 known archaeological sites within KSC's land holdings, of which 39 are within KSC's operational area. Fifteen of these are eligible for, or of unknown eligibility for, the NRHP. Table 5-6 is a listing of archaeological sites recorded within KSC's operational area and their NRHP eligibility status. Archaeological sites can be found in NETS or through FMSF. Geospatial data onsite locations can be found in the KSC CRM GIS.

A 2024 archaeological reconnaissance survey conducted by TRC, entitled *Relocation of Previously Recorded Archaeological Sites at Kennedy Space Center,* revisited sixteen (16) sites from Table 5-6. Sites that were already determined ineligible for the NRHP were not included with the exception of 8BR217. Only 3 of the 16 sites could be relocated; this included 8BR62, 8BR170, and 8BR206. Notes in Table 5-6 represent the most up-to-date information. TRC's 2024 archaeological reconnaissance technical memo contains the most up-to-date management recommendations.

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Table 5-6: Archaeological Sites Identified within KSC's Operational Area

Site Number	Site Name	Resource Type	Human Remains	Date	KSC NRHP Eligibility Recommendation*	SHPO NRHP Eligibility Concurrence	Management Recommendation/ Notes
8BR60	None	Noncultural, Other	N	Unknown	N/A	N/A	Site unable to be relocated in 1992 and 2024. Delete site from FMSF (Report #3447). No further action.
8BR61	None	Noncultural, Other	N	Unknown	N/A	N/A	Site unable to be relocated in 2024. No further action.
8BR62	Moore Mound	Mound, Midden	Y	St. Johns	N/A	N/A	Relocated and remapped in 2024. Avoidance; archaeological monitoring inclusive of the shoreline.
8BR79	Titusville Beach: Chester Shoals	Shell Midden, Historic Refuse	N	Archaic, Orange, St. Johns I, St. Johns II, 1st Spanish, 19th and 20th Century	Ineligible	11/4/2013	No Further Action
8BR84	None	Historic fort and shipwreck	N	1st Spanish, French	N/A	N/A	Site unable to be relocated in 2024. No further action.
8BR150	Oyster Creek Prong Mound	Burial Mound	Y	Precontact	N/A	N/A	Site inaccessible in 2024. Avoidance; pedestrian survey; periodic site checks.
8BR157	KARS Park	Artifact Scatter		St. Johns	Ineligible	02/06/1992	No Further Action
8BR161	Cocoa Beach Mound	Artifact Scatter	Y	St. Johns	N/A	N/A	Avoidance; archaeological monitoring extending along West Oyster Prong Trail.

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Table 5-6: Archaeological Sites Identified within KSC's Operational Area

Site Number	Site Name	Resource Type	Human Remains	Date	KSC NRHP Eligibility Recommendation*	SHPO NRHP Eligibility Concurrence	Management Recommendation/ Notes
8BR169/183	South Access Road	Artifact Scatter Campsite	N	Malabar, Orange, St. Johns I, St. Johns II	Ineligible	02/06/1992	No Further Action
8BR170	Opposite Futch Cove	Midden, Historic Refuse	N	Archaic, Orange, St. Johns I, St. Johns II, 19th Century	Eligible	03/19/1988	Part of the site was subject to Phase III Data Recovery and part of the site is preserved in place. Avoidance; archaeological monitoring; shoreline protection measures.
8BR171	Stony Island	Isolated Find	N	Orange	Not Significant/Not Eligible	N/A	Site unable to be relocated in 1992 and 2024. Avoidance; additional pedestrian survey.
8BR197/2081	Brock/Bittersweet	Historic Artifact Scatter	N	Malabar I, St. Johns, St. Johns II, 19th and 20th Century	Ineligible	03/12/2007	No Further Action. Within CCSFS.
8BR206	Pepper Hammock	Artifact Scatter, Historic Refuse	N	Precontact, St. Johns II, 20th Century	Potentially Eligible	N/A	Eroding out of Banana River shoreline. Avoidance; site delineation; shoreline protection measures.
8BR217	20th Century Historic Deposit	Historic Refuse	N	19th and 20th Century	Ineligible	07/03/2024	No further Action
8BR235	Cloisters	Historic Refuse	N	19th and 20th Century	Ineligible	02/17/2019	No Further Action
8BR540	Daigle Place	Historic Refuse	N	19th and 20th Century	Not Significant/Not Eligible	N/A	Reported as destroyed by SLF construction (Report

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Table 5-6: Archaeological Sites Identified within KSC's Operational Area

Site Number	Site Name	Resource Type	Human Remains	Date	KSC NRHP Eligibility Recommendation*	SHPO NRHP Eligibility Concurrence	Management Recommendation/ Notes
							#3447). Unable to be relocated in 2024. No further action.
8BR541	Hughes Places	Historic Refuse	N	20th Century	Ineligible	02/06/1992	No Further Action
8BR542	Parsons Place	Historic Refuse	N	19th and 20th Century	Ineligible	02/06/1992	No Further Action
8BR543	Griffith Place	Historic Refuse	N	20th Century	Ineligible	02/06/1992	No Further Action
8BR544	Lopez Orchard	Historic Refuse	N	20th Century	Not significant	N/A	Unable to be relocated in 2024. No further action.
8BR582	Dune and Swale	Lithic Scatter	N	Precontact	Ineligible	08/29/1990	No Further Action
8BR773	VIP West	Lithic Scatter	N	Precontact	Ineligible	05/23/1996	No Further Action
8BR774	Astronaut Road	Artifact Scatter Campsite	N	Orange, Precontact	Potentially Eligible	12/10/1991	Avoidance; site delineation.
8BR910	Scorching Machete Site	Artifact Scatter Campsite	N	St. Johns I	Ineligible	12/10/1991	No Further Action
8BR911	Happy Creek One	Artifact Scatter Campsite	N	St. Johns	Ineligible	12/10/1991	No Further Action
8BR912	Rotten Dock	Artifact Scatter Campsite	N	St. Johns	Ineligible	12/10/1991	No Further Action
8BR913	Landfill South	Artifact Scatter Campsite	N	St. Johns	Potentially Eligible	12/10/1991	Avoidance; site delineation.
8BR914	LC 41 South	Midden Campsite	N	St. Johns II	Potentially Eligible	12/10/1991	Avoidance; site delineation.
8BR915	Titusville Beach West 1	Artifact Scatter Campsite	N	St. Johns	Ineligible	10/17/2008	No Further Action
8BR916	Titusville Beach West 2	Midden Campsite	N	Unknown	Ineligible	10/17/2008	No Further Action
8BR917	Gator Hole	Artifact Scatter Campsite	N	St. Johns	Ineligible	12/10/1991	No Further Action
8BR1608	KARS Park North	Artifact Scatter Campsite	N	St. Johns I	Ineligible	02/06/1992	No Further Action. Mistakenly referred to as 8BR1606 in CRAS Reports.

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Table 5-6: Archaeological Sites Identified within KSC's Operational Area

Site Number	Site Name	Resource Type	Human Remains	Date	KSC NRHP Eligibility Recommendation*	SHPO NRHP Eligibility Concurrence	Management Recommendation/ Notes
8BR1663	Orbiter Storage	Artifact Scatter Shell Midden	N	Precontact	Ineligible	05/23/1996	No Further Action
8BR1659	Tea Hammock West	Shell Midden Campsite	N	Precontact	Ineligible	06/21/1996	No Further Action
8BR1850	Bull Snake Ridge Site	Single Artifact	N	St. Johns II	Ineligible	03/02/2004	No Further Action. Not recorded in FMSF.
8BR2364	Bottle Dump Site	Historic Refuse	N	19th and 20th Century	Ineligible	03/22/2010	No Further Action
8BR4364	Granite Rock Homestead	Historic Refuse Homestead	N	20th Century	Ineligible	01/25/2022	No Further Action
8BR4367	Howe Grove Road	Historic Road	N	19th and 20th Century	Ineligible	01/25/2022	No Further Action
8BR4532	None	Historic homestead	N	20th Century	TBD	N/A	Avoidance; site delineation.

*KSC NRHP Eligibility Recommendation listed is according to KSC records and may not reflect information contained in the FMSF.

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Archaeological Collections

When generated, KSC deposits archaeological materials and appropriate field and research notes, maps, and drawing and photographic records collected as part of either intentional archaeological investigations, or from unexpected discoveries with a facility that meets the requirements in 36 CFR Part 79, Curation of Federally Owned and Administered Archaeological Collections, to ensure stable long-term storage of the materials. Currently, KSC's archaeological materials are curated at both the Southeast Archaeological Center and the CNS (CANA) repositories, which meet the requirements of 36 CFR Part 79. Loan agreements are renewed on a 10-year cycle. Archaeological collections from KSC are also housed at the Florida Museum of Natural History and the Florida Bureau of Archaeological Research as part of their permanent collections. A listing of archaeological materials recovered from KSC, and their current curatorial facilities is provided in Appendix L.

KSC's current practice is to curate newly generated archaeological collections with CANA. Any CRM firm conducting a CRAS on behalf of KSC or a tenant/lessee should prepare artifacts for curation per 36 CFR Part 79 and return them to the KSC CRM who arranges for long-term curation. Artifacts shall not be curated outside of the State of Florida.

Any isolated finds collected by the KSC CRM during a walk over, site visit, or monitoring activity or provided to the KSC CRM via an inadvertent discovery of cultural materials (not collected as part of a CRAS), may be labeled with provenience information, securely stored, and used as part of a teaching collection.

For collections containing human remains, NAGPRA requires federal agencies and federally funded museums to inventory collections of human remains and certain cultural items in their possession or control, and to identify the federally recognized Indian tribes and/or closest lineal descendants who are likely to be culturally affiliated with the human remains and cultural items. Further, NAGPRA calls for these remains and cultural items to be made available for return to the respective native groups or closest lineal descendants, if they so request. The summary, inventory, and repatriation of human remains and cultural items defined in NAGPRA will occur in accordance with NAGPRA (43 CFR Part 10, Section 10.5-10.7). Currently, collections in the custody of the KSC CRM, SEAC and CANA do not contain identified tribal human remains or associated cultural items. SEAC and CANA repatriated all human remains noted in Appendix L in 2016.

Point of Contact Information for Curatorial Facilities

The POC for archaeological collections at CANA and SEAC is Kristin Kneifl, Resource Management Specialist with CNS.

5.5 Traditional Cultural Properties and Sacred Sites

To date, no traditional cultural properties or sacred sites have been identified by tribes within KSC's operational area.

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Chapter 6: Standard Operating Procedures

The SOPs provided in this ICRMP summarize cultural resource procedures and requirements and provide basic guidance for the most common situations that have the potential to impact cultural resources. The SOPs should be one of several tools distributed to NASA personnel, tenants, and contractors to help them identify those actions that can impact cultural resources, demonstrate the consequences of conducting actions without appropriate review by the KSC CRM, and highlight the appropriate process for coordination. Guidance for the KSC CRM is provided in *Guidance for Implementation of NASA Cultural Resources Management Requirements as Defined in NASA Procedural Requirements 8510.1A*.

SOPs should be made available to all personnel, including any tenants/lessees and contractors.

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6.1 SOP #1 Project Review for Undertakings

Scope: This SOP outlines the steps to be taken prior to any KSC institutional project or KSC tenant/lessee projects involving KSC real property whether within KSC's operational area or on properties managed by MINWR or CNS or located at CCSFS.

Users: It is intended for all KSC stakeholders, contractors, and tenants/lessees who propose, manage, or oversee projects (i.e., the "project proponent").

Applicability: This SOP is applicable to any project that constitutes an undertaking and has the potential to affect a historic property owned or controlled by NASA, including those leased to tenants. An undertaking is defined as a project or activity funded in whole, or in part, under the direct or indirect jurisdiction of NASA, including those carried out by, or on behalf of, NASA or with NASA's financial assistance, and/or those requiring a NASA permit, license or approval (36 CFR Part 800.16(y)). All tenant-driven or -funded activities that may alter KSC real property and land are undertakings subject to Section 106 review, unless otherwise specified in a Partnership Agreement. This SOP is also applicable to NASA classified actions that are undertakings and subject to Section 106 review per 14 CFR Part 1216.310(a).

Action Type	Categories of Work That Trigger This SOP	Examples of Projects
Maintenance and Repair	• Building maintenance and repair (interior and exterior) • Utility and communication systems upgrade, maintenance, and repair • Infrastructure maintenance and repair • Groundskeeping maintenance	• Window, roof, and siding repair or replacement • Door and threshold repair • Painting and corrosion control • Replacement, upgrades or repair to HVAC, plumbing, electrical, lighting or fire systems • Road resurfacing • Sidewalk modification for ADA compliance • Culvert repair
Real Estate and Planning Actions	• Master Plan development/revision • Out-grants • In-grants • Property transfer/disposal • Mothballing	• Center Master Plan development • Lease/use of NASA real property to non-NASA entities • Transfer of NASA real property to another federal agency • Transfer of NASA real property to a non-federal entity • Prep for facility inactivation/abandonment
Construction Actions	• New construction • Interior/exterior modifications and/or renovations • Additions, including ADA compliance actions • Temporary facilities	• Greenfield construction • New utility corridors, substations, and solar farms • Renovation/upgrades/remodeling • Partial or total demolition (interior or exterior) • Reconfiguration of and new construction at launch complexes • Creation of laydown yards and installation of temporary trailers • Clamshell building construction

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Action Type	Categories of Work That Trigger This SOP	Examples of Projects
Ground-Disturbing Activities	• New construction • Utilities (new or existing) • Landscaping and grounds maintenance • Roadwork • Remediation activities	• Install new concrete pads • Install new utility lines (including directional boring) • Clearing and grubbing • Vegetative clearing and replanting • Creating lines of sight • Construction of maintenance roads • Road widening • New sidewalk installation • Installation of air sparge systems • Groundwater well installation • Environmental site investigations • Soil removal

Review Time:

All projects must be submitted and reviewed by EMB prior to work commencing.

Procedures:

1. **Project proponent submits an Environmental Checklist, Excavation Permit, or Site Plan:** The project proponent completes an Environmental Checklist see Figure SOP 1-2), Excavation Permit, or Site Plan and submits it with all required maps, project scope, and descriptions prior to project implementation.
2. **EMB reviews the Environmental Checklist, Excavation Permit, or Site Plan:** Once submitted, EMB reviews the Environmental Checklist, Excavation Permit, or Site Plan to determine if there are cultural resource concerns. Cultural resource concerns include buildings, structures or historic districts that are listed or eligible for listing in the NRHP; buildings or structures that are 50 years or older; archaeological sites; a ZAP or historic area; and ground-disturbing activities.
3. **EMB issues a Record of Environmental Consideration or Comments:** If an Environmental Checklist is submitted, EMB issues a Record of Environmental Consideration (REC) to the project proponent. If an Excavation Permit or Site Plan is submitted, EMB provides comments and/or directs the project proponent to submit an Environmental Checklist. If relevant, the REC, Excavation Permit, or Site Plan includes cultural resource information or requirements that must be followed. Sample outcomes are:
    a. The project may proceed. No historic property or archaeological concerns or requirements are identified.
    b. The project may proceed adhering to any specified requirements. Historic property or archaeological comments indicate the presence of a cultural resource, *and* the project activity is excluded from further review by a Programmatic Agreement or a previously completed Section 106 consultation.
    c. The project may not proceed until Section 106 consultation is complete. Historic property or archaeological comments indicate that consultation with the SHPO and/or a CRAS is required prior to project implementation. Coordinate with the KSC

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CRM who will initiate and complete Section 106 consultation on behalf of NASA or a tenant/lessee (see SOP #2).

4. **Project proponent implements the project:**
   a. If the scope of the project changes or the REC, Excavation Permit, or Site Plan expires, the project proponent must resubmit the project and it may trigger additional review by EMB.
   b. If during project implementation, unanticipated effects occur to a historic property (see SOP #6) or archaeological materials, or human remains are inadvertently discovered (see SOP #5), contact the KSC CRM immediately, and follow the procedures outlined in the relevant SOP.

Contact:

Katherine Zeringue, KSC CRM
Telephone (321) 867-8454
E-mail: katherine.s.zeringue@nasa.gov

Statutory and Procedural References:

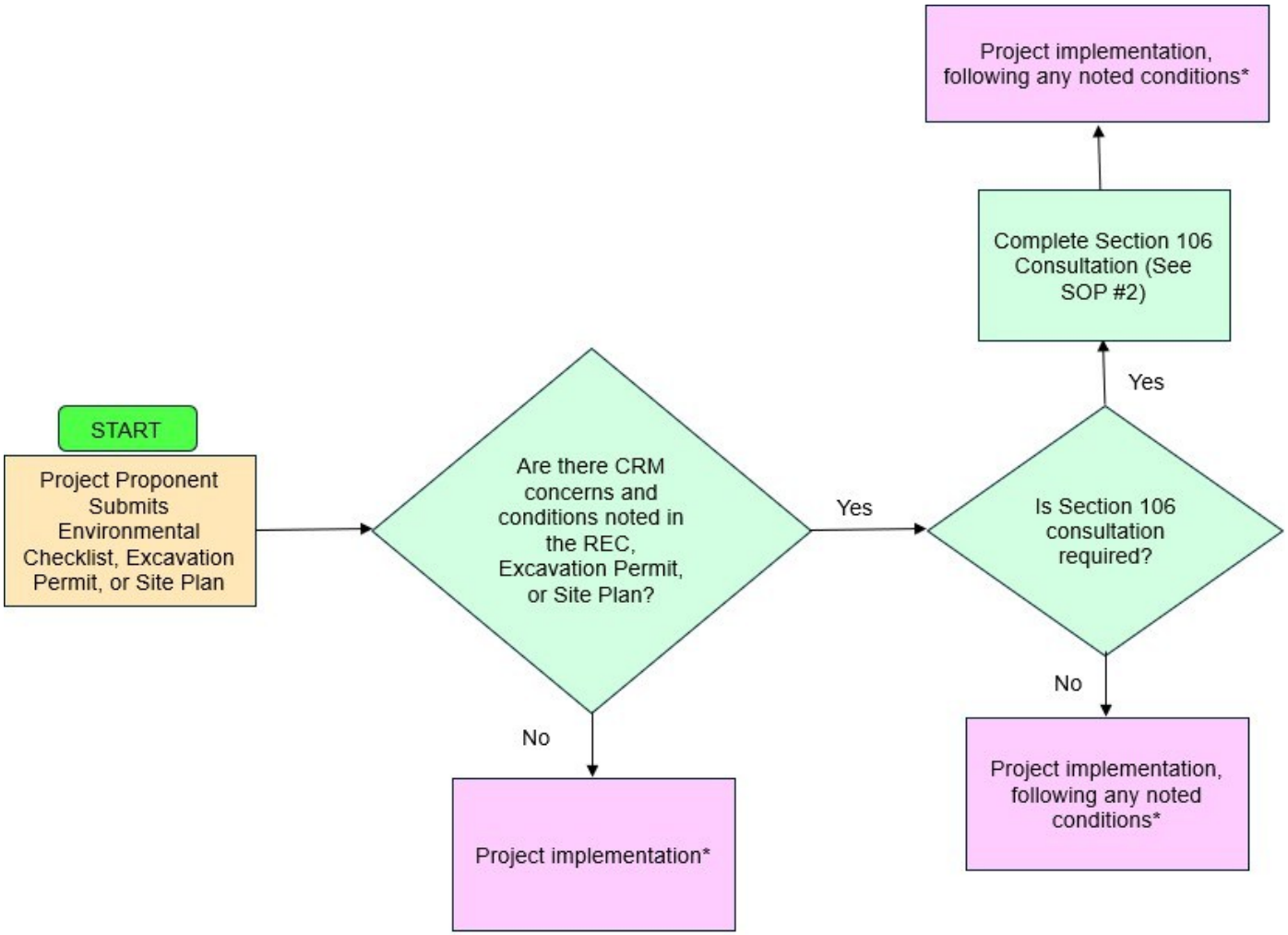
- NHPA and its implementing regulation (36 CFR Part 800)
- NPR 8510.1A NASA Cultural Resources Management
- NPD 8500.1C NASA Environmental Management
- NPR 8820.2E Design and Construction of Facilities
- KDP-P-1727
- KDP-P-1733

Policy and Guidance:

- Procedures covered herein apply to in-house work, contracted work, and, to the extent required for tenants/lessees to comply with the law, work conducted by outside agencies or tenants/lessees to NASA facilities.

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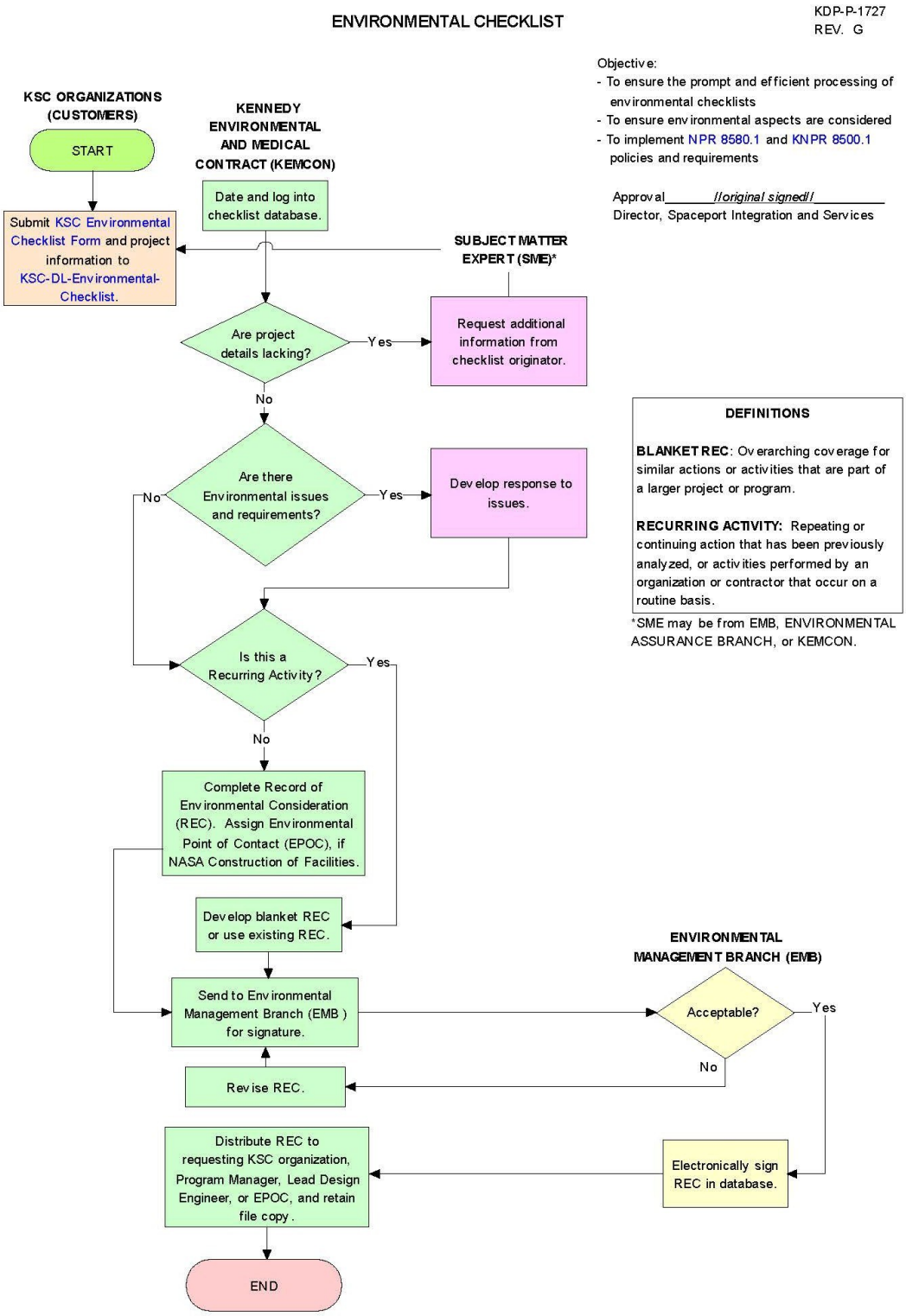
Figure SOP 1-1: Flow Chart for New Undertakings



*If any unanticipated effects or inadvertent discoveries occur, report to the CRM immediately. See SOP #5 and #6.

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Figure SOP 1-2: Environmental Checklist Flow Chart



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6.2 SOP #2 Standard Section 106 Consultation

Scope: This SOP outlines the steps to be taken prior to any KSC institutional project or KSC tenant/lessee project involving KSC real property (whether within KSC's operational area or on properties managed by MINWR or CNS or located at CCSFS) that requires Section 106 consultation.

Users:

Personnel who conduct Section 106 consultation:

- Cultural Resources Manager
- Environmental Management Branch

Personnel who assist in facilitating Section 106 consultation:

- Center Planning and Development
- CNS/MINWR/CCSFS
- Construction of Facilities
- Environmental Assurance Branch
- KSC Contractors for Operations and Maintenance
- KSC Office of General Counsel
- KSC Real Property
- Tenants/Lessees

Applicability: This SOP is applicable when the KSC CRM determines Section 106 consultation is required. It is triggered when a project activity has the potential to affect a cultural resource and the project is not excluded from Section 106 consultation by a Programmatic Exclusion under the 2025 NPA. If an existing agreement document (e.g., Programmatic Agreement, Memorandum of Agreement, or mitigation plan) outlines an alternative Section 106 consultation process, the process in the existing agreement document takes precedence. If the NPA 2025 is not applicable, Section 106 consultation follows the regulatory process outlined in 36 CFR Part 800.

Action Type	Categories Of Work That Trigger This SOP	Examples of Projects
Real Estate and Planning Actions	• Master Plan development/revision • Out-grants • Property transfer/disposal	• Center Master Plan development • Lease/use of NASA real property to a non-NASA entity • Transfer of NASA real property to a non-federal entity
Construction Actions	• New construction • Additions, including ADA compliance actions	• Greenfield construction • New utility corridors, substations, and solar farms • Partial or total demolition
Ground-Disturbing Activities	• New construction • Utilities (new) • Infrastructure Upgrades • Remediation Activities	• Greenfield construction • Install new utility lines (including directional boring) • Construction of new roads

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Action Type	Categories Of Work That Trigger This SOP	Examples of Projects
		• Construction of stormwater management systems or wetland mitigation sites • Installation of an air sparge system

Review Time:

- For undertakings that will not adversely affect historic properties or for which adverse effects have been previously mitigated, anticipate up to 60 days.
- For undertakings that will adversely affect historic properties for which resolution of adverse effects is required, anticipate up to 3 months.
- Section 106 consultation must be complete prior to work commencing, except in the case of emergency actions (see SOP #7), an inadvertent discovery (see SOP #5), or an unanticipated effect to a historic property (see SOP #6).

Procedures:

Section 106 consultation is a 4-step process (see Figure SOP 2-1 and Figure SOP 2-2). The steps are described as follows:

Step 1: Initiate Section 106 Consultation

1. The KSC CRM initiates the process on behalf of NASA and any tenant/lessee. The KSC CRM works with the project proponent to gather the necessary information to develop consultation materials and facilitate the consultation process.
2. The KSC CRM ensures that the Section 106 review is coordinated with other reviews required under any other relevant laws (e.g., NEPA and NAGPRA).

Step 2: Identify and Evaluate Historic Properties:

1. Establish the Area of Potential Effects (APE). The KSC CRM establishes the APE for the undertaking. The APE is defined as the subject asset and areas of ground disturbance.
2. Identify and Evaluate Historic Properties. The KSC CRM and/or a Secretary of the Interior Qualified professional determines if any historic properties eligible for or listed in the NRHP (including buildings, structures, districts, sites or objects) are located within the APE. If the APE has not been surveyed, the KSC CRM works with the project proponent to gather relevant information or to complete a CRAS (see SOP #11). The KSC CRM may assume a resource is eligible for the NRHP, without formal evaluation.
3. If there are no historic properties present in the APE, the KSC CRM makes a finding of "**No Historic Properties Affected**." The KSC CRM provides documentation of this finding to SHPO as set forth in the 2025 NPA copying the consulting parties and federally recognized Indian tribes. If no objections are received within 30 days, KSC's responsibilities under Section 106 are fulfilled and project implementation may proceed.
4. If the KSC CRM determines that historic properties are present in the APE, the Section 106 process continues to Step 3.

Step 3: Assess Adverse Effects:

1. Apply Criteria of Adverse Effect. The KSC CRM determines if the proposed project will adversely affect historic properties in the APE.

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2. If the proposed undertaking or action does not meet the Criteria of Adverse Effect and will not adversely affect historic properties, the KSC CRM makes a finding of "**No Adverse Effect**." The KSC CRM provides documentation of this finding to SHPO as set forth in the 2025 NPA copying the consulting parties and federally recognized Indian tribes. If no objections are received within 30 days, KSC's responsibilities under Section 106 are fulfilled and project implementation may proceed.
3. If the KSC CRM finds that the proposed undertaking will result in adverse effects to historic properties, the Section 106 process continues to Step 4.

Step 4: Resolve Adverse Effects:

1. If adverse effects are occurring to an NHL, follow SOP #3.
2. Continue Consultation. The KSC CRM continues consultation in coordination with the project proponent, the SHPO, consulting parties, and federally recognized Indian tribes to develop and evaluate alternatives or modifications to the proposed undertaking that could avoid and minimize adverse effects to historic properties.
3. Alternatives to Avoid or Minimize Adverse Effects:
    a. The KSC CRM, in coordination with the project proponent, provides the results of the alternatives analysis to all parties, demonstrating how NASA considered viable alternatives (see Figure SOP 2-2 and NPD 8820 for information on the alternatives analysis requirement).
    b. Design Alternatives. Depending on the urgency of the undertaking, KSC may redesign or consider alternatives to the proposed undertaking to avoid adverse effects, considering feasibility and economic analyses. If the undertaking is modified or conditions are imposed such that adverse effects are avoided, the KSC CRM makes a "**No Adverse Effect**" finding. If no objections are received, KSC's responsibilities under Section 106 are fulfilled and project implementation may proceed in accordance with any documented conditions. If objections are received, continue consultation.
4. Mitigation Plan
    a. If KSC determines that an "**Adverse Effect**" cannot be avoided, the KSC CRM provides documentation of this finding to SHPO as set forth in the 2025 NPA copying the consulting parties and federally recognized Indian tribes. The notification includes a proposed mitigation plan or indicates if adverse effects were previously mitigated (i.e., completion of HABS/HAER). If no objections are received within 30 days, KSC's responsibilities under Section 106 are fulfilled. Mitigation must be completed and project implementation may proceed. If objections are received, continue consultation.
    b. Once all terms and stipulations of the mitigation plan are complete, the KSC CRM notifies SHPO and/or the consulting parties and federally recognized Indian Tribes.

Contact:

Katherine Zeringue, KSC CRM
Telephone (321) 867-8454
E-mail: katherine.s.zeringue@nasa.gov

Statutory and Procedural References:

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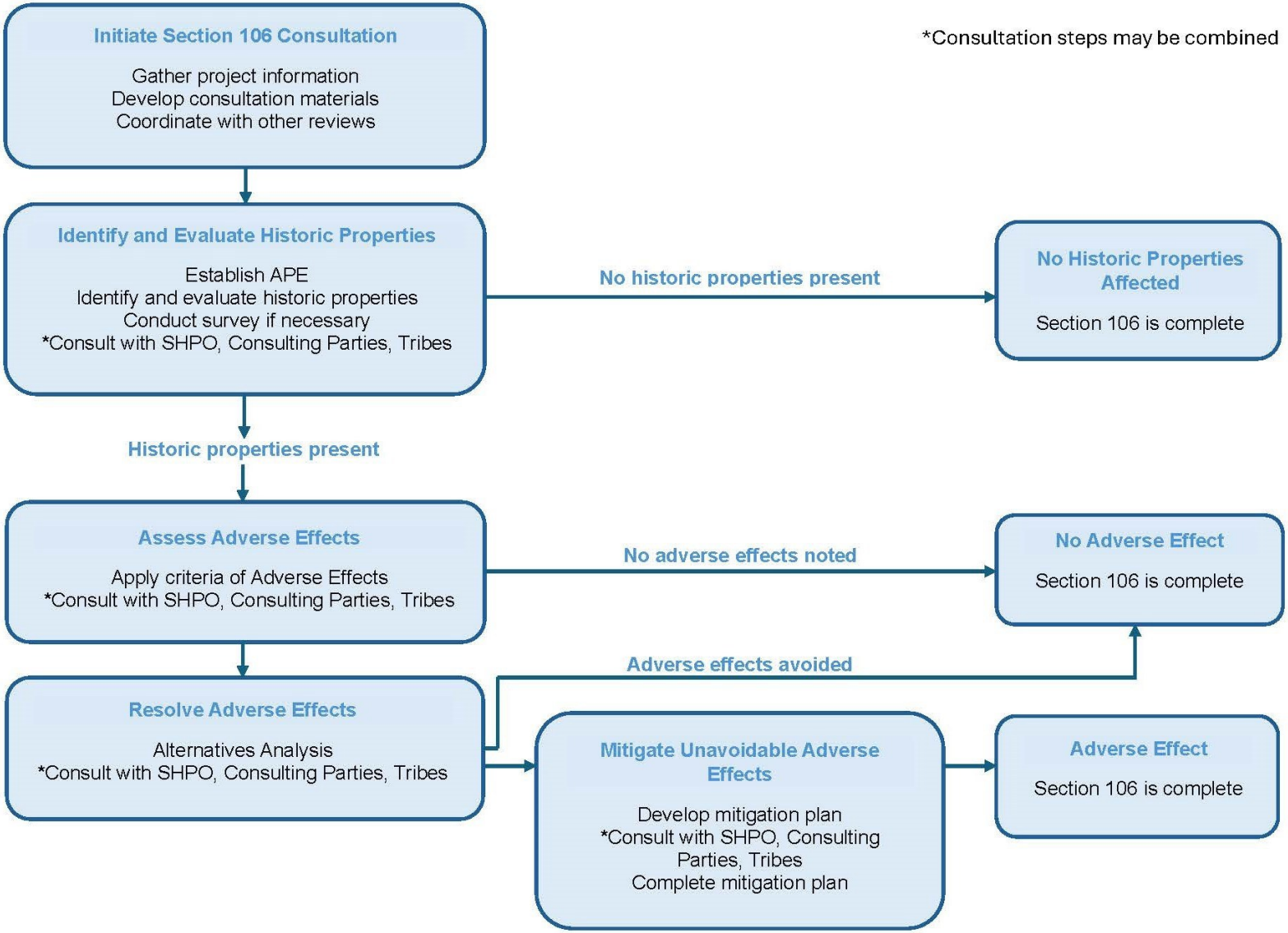
- NHPA and its implementing regulation (36 CFR Part 800)
- KDP-P-1733
- 2025 Programmatic Agreement among NASA, ACHP, and the NCSHPO Regarding the Management of NASA Centers (2025 NPA) (KCA-4833)
- Programmatic Agreement among the National Aeronautics and Space Administration, the National Conference of State Historic Preservation Officers, and the ACHP (1989)

Policy and Guidance:

- KSC may confer with SHPO and the consulting parties on multiple steps in the process at the same time to reduce the time involved to comply with Section 106.
- KSC will ensure a reasonable and good faith effort is made to identify resources (Meeting the "Reasonable and Good Faith" Identification Standard in Section 106 Review | Advisory Council on Historic Preservation (achp.gov)). The level of effort may be determined in consultation with SHPO and federally recognized Indian tribes.
- Professionals who meet the Secretary of Interior's Professional Qualification Standards in 36 CFR Part 61, Appendix A, will perform all identification and NRHP evaluation efforts.
- Technical information regarding undertakings and cultural resources must be provided to the SHPO/THPOs in a timely manner.
- Efforts to identify, evaluate, and treat historic properties will consider personal property, either individually or as a contributing element to a property.
- Built resources more than 50 years old and archaeological sites that have not been evaluated for NRHP eligibility, recommended "potentially eligible" for listing in the NRHP, or require additional study to determine eligibility will be treated as eligible until formal evaluation has been completed with SHPO concurrence.

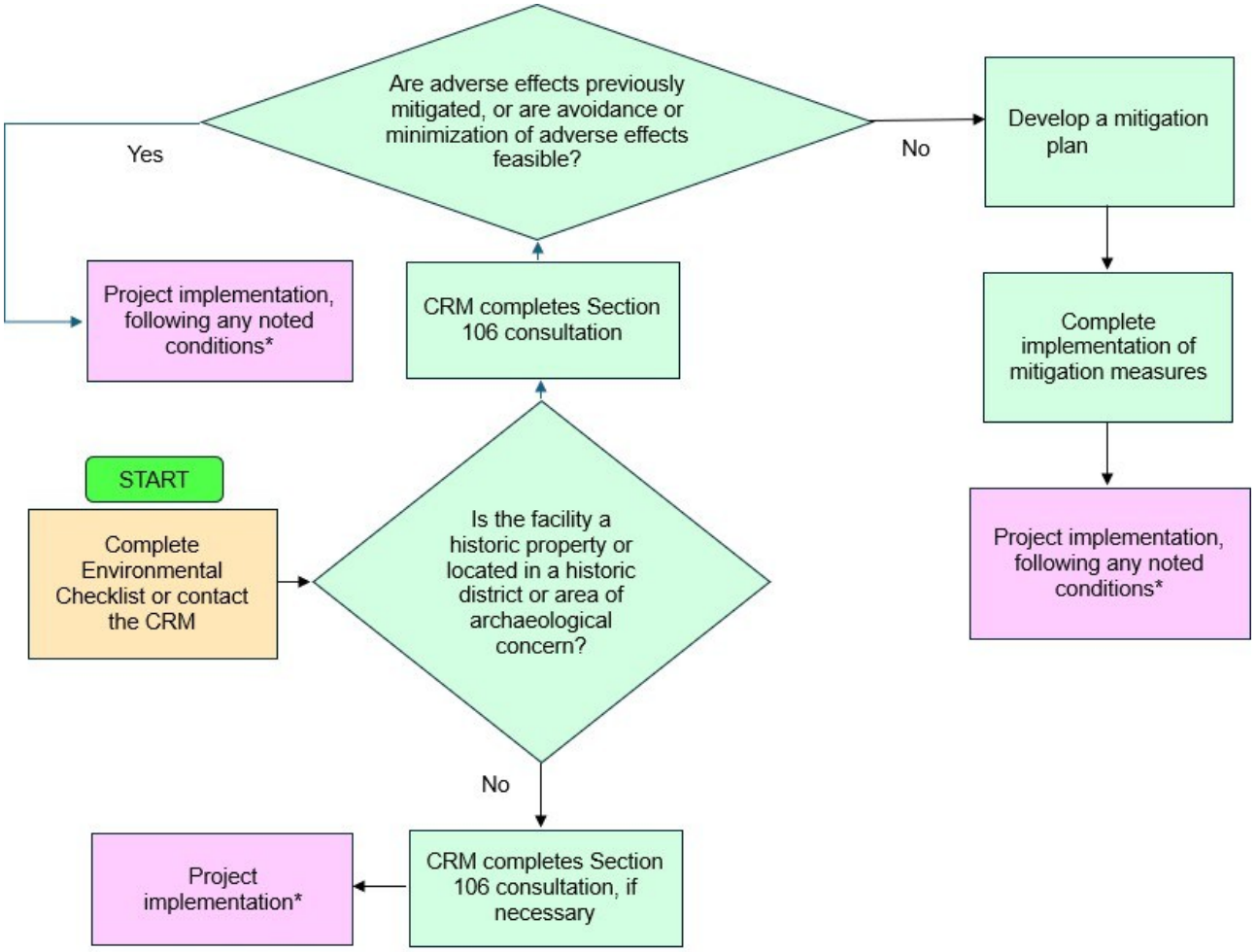
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Figure SOP 2-1: Section 106 Consultation Flow Chart



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Figure SOP 2-2: Flow Chart for New Construction, Demolition, or Disposal of Excess Property to a Non-Federal Entity



*If any unanticipated effects or inadvertent discoveries occur, report to the CRM immediately. See SOP #5 and #6.

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6.3 SOP #3 Applying a Programmatic Agreement

Scope: This SOP outlines how a Programmatic Agreement is used by KSC to govern Section 106 review. It is intended for personnel who conduct Section 106 reviews.

Users:

Personnel who conduct Section 106 reviews:

- Cultural Resources Manager or designee
- Environmental Management Branch

Applicability: A Programmatic Agreement is the primary document governing KSC's compliance with 36 CFR Part 800. It defines how the KSC CRM completes Section 106 review for all KSC institutional projects or KSC tenant/lessee projects involving KSC real property whether within KSC's operational area or on properties managed by MINWR or CNS or located at CCSFS. Any exceptions to the usage of a Programmatic Agreement are specified in the document.

6.3.1 Applying the KSC Programmatic Agreement

Applicability: This SOP is applicable for most projects at KSC. It is not applicable if an undertaking involves a NASA NHL or is governed by a project-specific agreement document.

Review Time:

- When activities are covered by Programmatic Exclusions, no additional time is required.
- For projects that will not adversely affect a historic property, anticipate up to 60 days.
- For projects that will adversely affect a historic property, anticipate up to 3 months.

Procedures:

1. **Apply Programmatic Exclusions:** The KSC CRM consults the list of Programmatic Exclusions to determine the scope of work elements excluded from Section 106 consultation. The KSC CRM may request additional information regarding the scope of work from the project proponent to make this determination.
    a. If the entire scope of work is excluded from further review by one or more Programmatic Exclusions, review is complete. The REC, Excavation Permit, or Site Plan will note the relevant Programmatic Exclusions and include cultural resource information or requirements that must be followed to remain in compliance with Section 106, if applicable.
    b. If any scope of work element is not excluded from further review, then Section 106 consultation is required. No work may begin until the KSC CRM has completed the necessary Section 106 consultation.
2. **Complete Section 106 Consultation:** Once the KSC CRM determines that Section 106 consultation is required, the KSC CRM follows the consultation process specified in the Programmatic Agreement.
3. **Unanticipated Effects or Inadvertent Discoveries**: If during project implementation, cultural materials are inadvertently discovered or unanticipated effects occur to a historic property, the KSC CRM follows the procedures specified in the Programmatic

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Agreement. If no procedures are specified, follow SOP #5 (for the inadvertent discovery of archaeological materials or human remains) or SOP #6 (for unanticipated effects on historic properties).

4. **Annual Reporting:** The KSC CRM logs all activities reviewed under the KSC Programmatic Agreement in an Annual Report. The KSC CRM follows the review process for annual reporting specified in the Programmatic Agreement.

6.3.2 Applying the National Historic Landmark (NHL) Programmatic Agreement

Applicability: This SOP is applicable when an undertaking involves a NASA NHL.

Typical actions that trigger this SOP
• Partial or complete demolition • Replacement or removal of historic elements • New construction within or adjacent to the NHL • Modification to address issues or to meet changing mission needs • Changes in function, purpose, or use

Review Time:

- For exempt actions (Category C), no additional time is required.
- For nonexempt actions (Category A or B) that will not adversely affect the NHL, anticipate a minimum of 45 days.
- For nonexempt actions (Category A or B) that will adversely affect the NHL, anticipate up to 6 months.

Procedures:

1. **Determine if Project is Excluded from Section 106 Consultation:** The KSC CRM determines what scope of work elements are excluded from further Section 106 review per the Categories of Activities listed in Stipulation I of the NHL PA. The KSC CRM may request additional information regarding the scope of work from the project proponent to make this determination.
   a. If the entire scope of work is excluded from further review per Category C, review is complete. The REC, Excavation Permit, or Site Plan will note the relevant exempt action category and include cultural resource information or requirements that must be followed to remain in compliance with Section 106, if applicable.
   b. If any scope of work element is not excluded from further review and includes activities specified in Categories A or B, then Section 106 consultation is required. No work may begin until the KSC CRM has completed the necessary Section 106 consultation.
2. **Complete Section 106 Consultation:** If Section 106 consultation is required, the KSC CRM follows the Consultation Process specified in Stipulation II of the NHL PA. Any required mitigation measures must be completed prior to project initiation.
3. **Report Use of NHL PA:** The KSC CRM provides the following information to NASA's FPO for the NHL PA annual report. The KSC CRM may request this information from the project proponent if the following is not provided:
   a. A detailed description of the project (including specific actions that were taken);

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b. The duration of the project (the start and end dates, or “ongoing”);

c. The justification for the project (i.e., routine maintenance, repair, modification to meet changing mission needs); and

d. The mission(s)/program(s) the NHL is supporting.

4. **Unanticipated Effects or Inadvertent Discoveries**: If during project implementation, cultural materials are inadvertently discovered or unanticipated effects occur to a historic property, the KSC CRM follows SOP #5 (for the inadvertent discovery of archaeological materials or human remains) or SOP #6 (for unanticipated effects on historic properties).

Contact:

Katherine Zeringue, KSC CRM
Telephone (321) 867-8454
E-mail: katherine.s.zeringue@nasa.gov

Statutory and Procedural References:

- NHPA and its implementing regulation (36 CFR 800)
- 2025 Programmatic Agreement among NASA, ACHP, and the NCSHPO Regarding the Management of NASA Centers (2025 NPA) (KCA-4833)
- Programmatic Agreement among the National Aeronautics and Space Administration, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation (1989)
- Other resources providing additional exemptions to Section 106 review include the following ACHP’s Program Comment and Exemptions:
  - Program Comment to Exempt Consideration of Effects to Rail Properties within Rail Rights-of-Way | Advisory Council on Historic Preservation (achp.gov)
  - Exemption From Historic Preservation Review for Electric Vehicle Supply Equipment | Advisory Council on Historic Preservation (achp.gov)
  - Program Comment for Actions Affecting Post-1945 Concrete and Steel Bridges | Advisory Council on Historic Preservation (achp.gov)

Policy and Guidance:

- A Programmatic Agreement allows for a deviation from the standard Section 106 process.
- ACHP’s Program Comments on Rail Properties within Rail Rights-of-Way, and Post-1945 Concrete and Steel Bridges, and the exemption for Electric Vehicle Supply Equipment, may also be applied, similar to a Programmatic Agreement’s Programmatic Exclusions.

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6.4 SOP #4 Coordination for Tenant/Lessee Projects

Scope: This SOP addresses KSC's obligations to ensure Section 106 regulations are addressed for any Enhanced Use Lease or Agreement involving a Tenant or Lessee.

Users:

Personnel who represent CRM concerns in Tenant/Lessee projects:

- Cultural Resources Manager
- Environmental Management Branch

Personnel who assist in facilitating the consideration of CRM concerns in Tenant/Lessee projects:

- Center Planning and Development (Master Planning, Partnership Development Managers)
- KSC Office of General Counsel
- KSC Real Property
- Spaceport Integration (Agreements Manager, Customer Service Advocates, Technical Integration Manager)
- Tenants/Lessees

Applicability:

All Enhanced Use Leases or Agreements for NASA real property or land used by non-KSC entities should include stipulations for the ongoing management and protection of cultural resources.

Review Time:

- Dependent upon real estate agreement timeframes

Procedures:

1. **CRM Language Included in EUL or Agreement**: The Partnership Agreement representative includes language regarding historical and cultural resources in every Enhanced Use Lease or Agreement for the use of NASA facilities by non-KSC entities, unless specifically directed otherwise by the Environmental Management Branch (EMB) or SI designee. Language is provided below.
2. **Complete Section 106 for EUL/Agreement Action**: If necessary, the KSC CRM coordinates with the Partnership Agreement representative to complete any required Section 106 consultation triggered as a result of executing an Enhanced Use Lease or Agreement.
3. **Project proponent submits an Environmental Checklist, Excavation Permit, or Site Plan**: Once the Partnership Agreement is finalized, the tenants/lessees submits an Environmental Checklist, Excavation Permit, or Site Plan (see SOP #1) prior to altering KSC real property or land. The resulting REC, Excavation Permit, or Site Plan may include cultural resource information or requirements that must be followed. The tenant/lessee is responsible for adhering to and completing any specified cultural resource conditions. Additionally, if unanticipated effects occur to a historic property (see

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SOP #6), or archaeological materials or human remains are inadvertently discovered (see SOP #5), the tenant/lessee contacts the KSC CRM immediately, and follows procedures in the relevant SOP.

Contact:

Katherine Zeringue, KSC CRM
Telephone (321) 867-8454
E-mail: katherine.s.zeringue@nasa.gov

Statutory and Procedural References:

- NPR 8800.15C - main (nasa.gov) – Real Estate Management Program
- NHPA and its implementing regulation (36 CFR 800)
- NPR 8510.1A NASA Cultural Resources Management
- NPD 8500.1C NASA Environmental Management
- KDP-P-1727
- KDP-P-1733
- 2025 Programmatic Agreement among NASA, ACHP, and the NCSHPO Regarding the Management of NASA Centers (2025 NPA) (KCA-4833)
- Programmatic Agreement among the National Aeronautics and Space Administration. The National Conference of State Historic Preservation Officers, and the ACHP (1989)

Policy and Guidance:

- Avoidance of adverse effects for some NRHP-eligible historic buildings will be proactively incorporated into the planning process.
- Section 111 leases should be considered when the Enhanced Use Lease or Agreement involves a historic property, including historic districts and archaeological sites, that are listed in or eligible for listing in the NRHP. Section 111 leases allow NASA and KSC to retain more lease proceeds and use those proceeds to defray the cost of administration, maintenance, repair, and related expenses incurred by NASA with respect to the historic property or other historic properties at NASA. See Section 111 Leasing and Exchange Questions and Answers | Advisory Council on Historic Preservation (achp.gov).
- Once a real estate action is completed, tenant-driven or funded activities that may alter KSC real property are undertakings that remain subject to Section 106 review, unless specified otherwise in the agreement.

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KSC Partnership Agreement Language Regarding Historical and Cultural Resources

Historical and Cultural Resources

Tenant shall not remove or disturb, or cause or permit to be removed or disturbed, any historical, archaeological, architectural, or other cultural artifacts, relics, vestiges, remains, or objects of antiquity, unless specifically authorized by NASA. In the event such items are discovered at the Property, Tenant shall cease its activities, immediately notify the NASA Environmental Office, and protect the site from further disturbance until NASA gives clearance to proceed, following the processes outlined in the Inadvertent Discovery of Archaeological Resources chapter of the Integrated Cultural Resources Management Plan (ICRMP). Any costs resulting from this delay shall be the responsibility of Tenant. Tenant shall comply with procedures and requirements outlined in the most recent ICRMP regarding the management of historic properties at the Center.

Tenant and NASA acknowledge that certain activities proposed under this Lease may have the potential to affect historic properties (as defined under 36 C.F.R. Part 800), including archaeological sites, and may be subject to National Historic Preservation Act (NHPA) Section 106 review. NASA, in coordination with Tenant, will consult with the State Historic Preservation Officer (SHPO) on all activities proposed by Tenant that constitute an "undertaking" requiring consultation under 36 C.F.R. Part 800. Tenant shall not begin work affecting any historic property prior to completion of the requirements contained in 36 C.F.R. Part 800, including any requirements outlined in a Programmatic Agreement, if any, among NASA, the Advisory Council on Historic Preservation, and the SHPO regarding management of historic properties at the Center. All work shall be conducted at Tenant's expense.

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6.5 SOP #5 Inadvertent Discovery of Cultural Materials

Scope: Unknown archaeological or historic sites are occasionally discovered during construction projects or other ground-disturbing activities regardless of whether the project area has been subject to a cultural resource survey or is already developed. This SOP outlines the steps to be taken when unknown cultural resources, human remains, burial sites or funerary objects are inadvertently discovered.

Users: It is intended for all KSC stakeholders, contractors, and tenants/lessees who propose, manage, or oversee projects (i.e., the "project proponent").

Applicability: This SOP is applicable for any work involving KSC institutional projects or KSC tenant/lessee projects involving KSC real property whether within KSC's operational area or on properties managed by MINWR or CNS or located at CCSFS.

Categories of Work That Trigger This SOP	Examples of Cultural Resources
• Construction and maintenance • Ground-disturbing activities such as digging, bulldozing, clearing, or grubbing • General observations (i.e., eroded areas, gullies, trails, evidence of looting)	• Indian or historical artifacts such as pottery, ceramics, projectile points, and metal implements • Building foundations or materials • Skeletal remains • Unmarked graves or cemeteries • Archaeological features • Paleontological remains

Review Time:

- Depending upon the nature of the discovery, anticipate 3 – 30 days
- For projects requiring compliance with NAGPRA, 30+ days at a minimum

6.5.1 Inadvertent Discovery of Cultural Materials

Applicability: These procedures are applicable when cultural materials that do not contain human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered.

Procedures:

1. **Cease Activities and Protect the Discovery:** Stop all ground-disturbing activities within 50 feet of the discovery, leave cultural materials in place, and protect the discovery from further disturbance until inspection by the KSC CRM occurs.
2. **Notify the CRM:** Immediately notify the KSC CRM or member of the EMB.
3. **CRM Inspection:** The KSC CRM (or designee) inspects the area to determine if the deposits are natural or cultural in origin.
    a. If the deposits are natural or not significant (i.e., fossils, natural stones, concretions, modern debris, or other such items that are sometimes mistaken for archaeological materials), the KSC CRM provides written approval for the project to proceed.
    b. If the inspection reveals the deposits are cultural, the KSC CRM gathers the following data, to the greatest extent feasible, to consult with SHPO:
        i. Photographs of the discovery;

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ii. A description of the number and type of cultural materials exposed;

iii. The depth of the deposits;

iv. A determination of age and cultural affiliation;

v. An evaluation of the extent of the damage; and

vi. An assessment of site significance to the extent possible.

c. If the deposits are suspected to contain human remains, funerary objects, or sacred objects, proceed to section 6.5.2.

4. **Expedited Section 106 Consultation:** Within 48 hours, the KSC CRM contacts SHPO by telephone or e-mail and notifies the FPO to report the discovery and initiate expedited Section 106 consultation. If precontact resources are found, the KSC CRM also coordinates with federally recognized Indian tribes. If the project can be relocated and/or construction can continue without further disturbance to the discovery, the KSC CRM may provide written approval for the project to proceed if the KSC CRM determines it will not interfere with the Section 106 consultation process. Outcomes of expedited consultation may be:

   a. The KSC CRM and SHPO agree that the discovery is not significant. The KSC CRM prepares a summary memo for the file.

   b. The KSC CRM and SHPO agree to defer Section 106 consultation because the site is not affected by current project activities. The KSC CRM records the site and submits a Florida Master Site File (FMSF) to SHPO. Section 106 is conducted when a future project is proposed at the site (see SOP # 2).

   c. Existing information is insufficient to make an NRHP determination of eligibility, and an emergency testing plan is developed by the KSC CRM in coordination with SHPO. The testing plan will be carried out by or under the supervision of a professional archaeologist*. The KSC CRM may treat the site as eligible for purposes of the project without implementing an emergency testing plan.

      i. If the site is determined ineligible because of the emergency testing plan, the KSC CRM records the site and submits an FMSF to SHPO.

      ii. If the site is determined (or treated as) eligible, or if the KSC CRM and SHPO cannot agree on NRHP eligibility, the KSC CRM implements the following alternative actions, depending on the urgency of the action being delayed by the discovery:

         a) Relocate the project to avoid adverse effects; or

         b) Proceed with data recovery under a Mitigation Plan. The Mitigation Plan will specify the scope and level of effort of data recovery required to mitigate the adverse effects to the site; or

         c) Develop a plan of action that takes the effects of the undertaking into account. The KSC CRM notifies and requests comments from the ACHP, SHPO, and federally recognized Indian tribes, if relevant, who have 48 hours to respond. KSC takes any comments received into account prior to implementing its action plan.

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5. **CRM Approval to Proceed**: Once expedited Section 106 consultation is complete, the KSC CRM provides written approval for the project to proceed noting any conditions that must be followed and informs the excavation foreperson(s) of the possibility and nature of additional discoveries that would require immediate notification of the KSC CRM.

6.5.2 Inadvertent Discovery of Human Remains, Burial Sites, or Funerary Objects

Applicability: These procedures are applicable if human remains, burial sites, and/or funerary objects are discovered at KSC.

Procedures:

1. **Cease Activities and Protect the Discovery:** Immediately cease all ground-disturbing activities within 50 feet of the discovery and protect the discovery from further disturbance until inspection by the KSC CRM (or designee) occurs. Leave all remains in place and treat them with dignity. Do not photograph or distribute information about the remains.
2. **Notify the CRM and KSC Protective Services:** Immediately notify the KSC CRM or member of the EMB and KSC's Protective Services.
3. **Coordinate with Local Authorities:** KSC's Protective Services notifies the District Medical Examiner (DME).
4. **Identify Remains:** The DME determines whether the remains are under their jurisdiction (i.e., the remains may be involved in a legal investigation or represent the burial of an individual who has been dead less than 75 years) or that of the State Archaeologist.
    a. If the remains are under the jurisdiction of the State Archaeologist, the State designates an archaeologist and human skeletal analyst to examine the remains and report their cultural and biological characteristics within 15 days. If requested, KSC arranges for examination by a human skeletal analyst.
    b. If the remains are:
        i. Not of human origin, follow procedures in 6.5.1.
        ii. Not of Native American origin, consult with SHPO regarding disposition.
        iii. Of Native American origin, notify and consult with tribes per the requirements of NAGPRA - 43 CFR Part 10.
5. **Consultation**:
    a. **SHPO Consultation:** The KSC CRM consults with SHPO regarding the final disposition of the human remains and submits a site file. Any additional steps necessary to comply with Section 106 or Florida State Law 872.05 will be determined through consultation.
    b. **NAGPRA Compliance**: If applicable, the KSC CRM notifies federally recognized Indian tribes and the SHPO within one working day and initiates consultation per 43 CFR Part 10. Work in the vicinity of the remains is suspended for at least 30 days to allow the KSC CRM to complete consultation as required by NAGPRA; a safe working distance from the remains will be determined through consultation. Prior to any removal of the remains, the KSC CRM ensures that an inventory of the remains

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is prepared. If, after consultation, the remains are removed, the remains are treated and interred in accordance with the plan of action determined through consultation.

6. **CRM Approval to Proceed:** The KSC CRM provides written approval for the project to proceed noting any conditions that must be followed and advises the excavation foreperson(s) of the possibility and nature of additional discoveries that would require immediate notification of the KSC CRM.

Contact:

Katherine Zeringue, KSC CRM
Telephone (321) 867-8454
E-mail: katherine.s.zeringue@nasa.gov

Statutory and Procedural References:

- NHPA and its implementing regulation (36 CFR Part 800); 36 CFR Part 800.13 – Post-review discoveries
- Florida State Law 872.05
- NAGPRA and its implementing regulation (43 CFR Part 10)
- ARPA (16 U.S.C. 470aa-470mm)
- NPR 8510.1A NASA Cultural Resources Management
- ACHP's Policy Statement on Burial Sites, Human Remains, and Funerary Objects: Burial Sites, Human Remains, and Funerary Objects | Advisory Council on Historic Preservation (achp.gov)

Policy and Guidance:

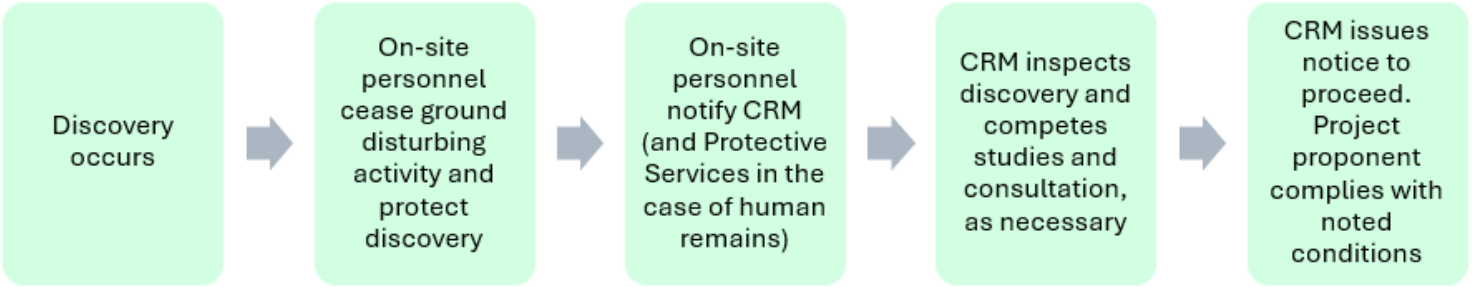
- Cultural resources may include:
  - Precontact archaeological material: flaked stone tools (projectile point, biface, scraper, etc.), debitage (flakes), groundstone milling tools and fragments (mortar, pestle, handstone, millingstone, etc.), faunal bones, fire-affected rock, and midden deposits.
  - Historic archaeological material: cut nails and other metal hardware, glass fragments, ceramic or stoneware fragments, milled or split lumber, structural remains, and trash dumps.
  - Ground surface concentrations of shells, including clam, oyster, whelk, and coquina, with or without artifacts and/or animal bones.
  - Buried layers of darkened soil containing visible inclusions of shells, artifacts, and/or animal bones.
  - Unusual and patterned stains in the soil, which may represent aboriginal hearths, refuse pits, or the remnants of structural features.
  - Rectangular stains in the soil containing the remains of wood planks and nails which may represent historic burials.

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- *A professional archaeologist who meets the Secretary of Interior's Professional Qualifications Standards (U.S. National Park Service) (nps.gov), will perform or supervise all identification and NRHP evaluation efforts.
- Any site recommended "potentially eligible" for listing on the NRHP, or requiring additional study to determine eligibility, will be treated as eligible until formal evaluation has been completed with SHPO concurrence.
- Procedures covered herein apply to in-house work, contracted work, and, to the extent required for tenants/lessees to comply with the law, work conducted by outside agencies or tenants/lessees of NASA facilities and land.
- Standard language will be placed in contracts requiring contractors to notify the KSC CRM or EMB immediately upon discovery of possible archaeological deposits.
- Information about the location or character of archaeological sites will be released only to NASA staff or individuals external to NASA on a need-to-know basis and by explicit authorization of the KSC CRM or EMB staff. Care will be taken with any such disclosure of information to minimize the risk of harm to the historic property and to avoid impeding the use of traditional religious sites by practitioners. See SOP #8.
- An ARPA permit may be necessary for work located on land managed by MINWR or CNS outside of KSC's operational area.
- For Human Remains:
    - Discovery of human remains, of whatever nature, is a serious issue. In Florida, it is illegal to willfully and knowingly disturb human remains or memorials associated with a burial.
    - Coordination with MINWR Law Enforcement should occur if remains are discovered on lands within KSC's Operational Area that are managed by MINWR.
    - To the extent feasible, human remains under the jurisdiction of the State Archaeologist and associated grave goods or funerary objects should be left in place and not removed from their location of origin, unless agreed upon by SHPO and/or tribes through consultation.

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Figure SOP 5-1: Flow Chart for the Inadvertent Discovery of Cultural Materials



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6.6 SOP #6 Unanticipated Effects on Historic Properties

Scope: This SOP outlines the steps to be taken when known historic properties, including archaeological sites, are unintentionally affected during use, construction, or maintenance activities.

Users: It is intended for all KSC stakeholders, contractors, and tenants/lessees who propose, manage, or oversee projects (i.e., the "project proponent").

Applicability:

Typical actions that trigger this SOP
• Construction mishaps • Operational mishaps • Discovery of previously unknown historic features during work

Review Time:

- Anticipate 3 – 30 days.

Procedures:

1. **Cease Activities and Protect the Property from Further Damage:** Make all reasonable efforts to cease activities in the area of the unanticipated effect until inspection by the KSC CRM (or designee) occurs.
2. **Notify the CRM:** Immediately notify the KSC CRM or member of the Environmental Management Branch (EMB). The KSC CRM determines if the activities are excluded from Section 106 consultation per Programmatic Exclusions within the 2025 NPA or existing programmatic agreement.
3. **Implement Emergency Stabilization Measures:** If necessary, and in coordination with the KSC CRM, implement emergency stabilization measures to protect the historic property from further damage. To the greatest extent feasible, emergency stabilization measures should be short-term and reversible without resulting in harm to historic materials or features.
4. **Expedited Consultation:** If necessary, within 48 hours, the KSC CRM notifies the FPO, the SHPO, the ACHP, and federally recognized Indian tribes, if relevant. The notification includes details regarding the property's National Register eligibility, describes effects to the historic property and its historic features, and provides a plan of action that takes the effects of the undertaking into account. The KSC CRM notifies and requests comments from the SHPO, ACHP and tribes, if relevant, who have 48 hours to respond. KSC takes any comments received into account prior to implementing its action plan. The KSC CRM provides a report of the actions when they are completed.
5. **CRM Approval to Proceed:** The KSC CRM provides written approval for the project to proceed noting any conditions that must be followed.

Contact:

Katherine Zeringue, KSC CRM
Telephone (321) 867-8454
E-mail: katherine.s.zeringue@nasa.gov

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Statutory and Procedural References:

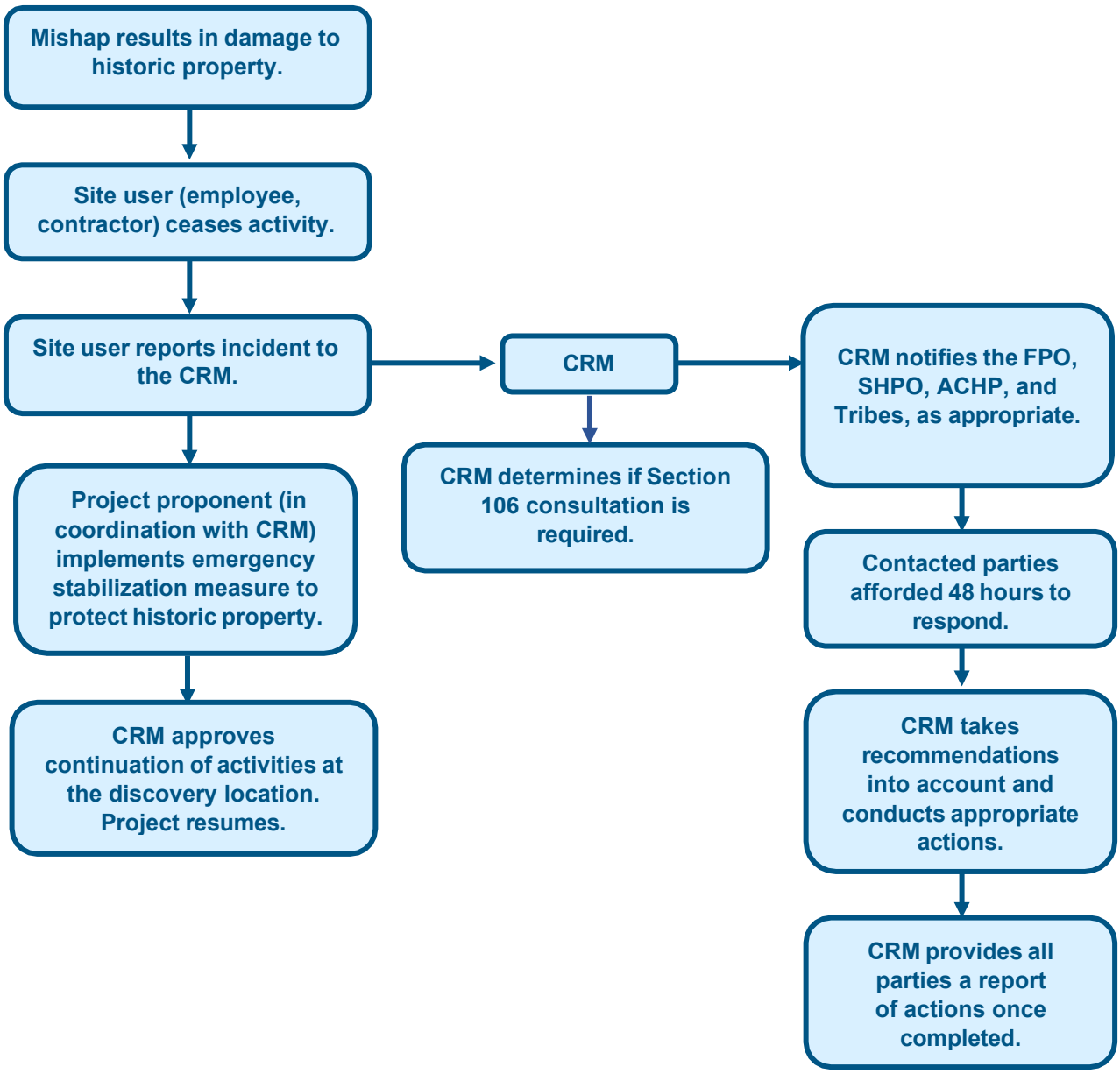
- NHPA and its implementing regulation (36 CFR Part 800); 36 CFR Part 800.13 – Post-review discoveries
- NEPA and its implementing regulation (40 CFR Parts 1500-1508)
- Secretary of the Interior's Standards and Guidelines for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings
- NPR 8510.1A NASA Cultural Resources Management
- ARPA (16 U.S.C. 470aa-470mm)
- 2025 Programmatic Agreement among NASA, ACHP, and the NCSHPO Regarding the Management of NASA Centers (2025 NPA) (KCA-4833)

Policy and Guidance:

- Procedures covered herein apply to in-house work, contracted work, and, to the extent required for tenants/lessees to comply with the law, work conducted by outside agencies or tenants/lessees on NASA real property or land.
- Immediate rescue and salvage operations conducted to preserve life or property are exempt from the provisions of the NHPA (see SOP #7).
- Built resources more than 50 years old and archaeological sites whose NRHP eligibility is unknown (i.e., not evaluated, recommended "potentially eligible", or require additional study to determine eligibility for the NRHP) will be treated as eligible until formal evaluation is complete and SHPO concurrence is received.

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Figure SOP 6-1: Flow Chart for Unanticipated Effects on Historic Properties



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6.7 SOP #7 Emergency Actions

Scope: This SOP outlines the steps taken during emergency response to a health or safety hazard when events alter or affect the structural stability of a historic building, structure, or archaeological site.

Users:

Personnel who lead Section 106 for Emergency Actions:

- Cultural Resources Manager
- Environmental Management Branch

Personnel who assist with Section 106 for Emergency Actions are:

- Construction of Facilities
- Damage Assessment and Recovery Team (DART)
- KSC Contractors for Operations and Maintenance
- KSC Facility Managers
- Tenants/Lessees

Applicability:

This SOP is applicable to any activity that has the potential to affect historic properties during emergency response to a disaster or emergency (such as wildfires, hurricanes, tornadoes, and flooding) declared by the President or Governor of the State of Florida or imminent threats to life or property, including operational mishaps. This SOP is applicable for KSC institutional project or KSC tenant/lessee projects involving KSC real property whether within KSC's operational area or on properties managed by MINWR or CNS or located at CCSFS.

Review Time:

- Immediate response to an imminent threat to life or property is exempt from Section 106 and can occur immediately. Activities should be reported as soon as possible to the KSC CRM after the incident.
- When response to an emergency can be delayed (to allow notification and some manner of Section 106 consultation) without endangering people's lives or property, anticipate a minimum of 17 days. Timeframes can be shortened depending upon the circumstances of the emergency response.

Procedures:

1. **Determine if Historic Properties are Present:** Contact the KSC CRM or DART Emergency Support Function (ESF) 11 member immediately to determine if any known historic properties, including archaeological sites, are present within the affected area.
2. **If a historic property or cultural resource is present, coordinate further with the CRM**:
    a. Communicate how the property was, or will be, affected by emergency response activities, including any inadvertent discovery of archaeological materials; or

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b. Determine ways to avoid historic properties during emergency response, including archaeological sites if ground-disturbing activities are necessary (e.g., creation of fire breaks).

3. **Implement Emergency Stabilization Measures:** If necessary, and in consultation with the KSC CRM, implement emergency stabilization measures to protect the historic property from further damage. To the greatest extent feasible, emergency stabilization measures should be short-term and reversible without resulting in harm to historic materials or features.
6. **Expedited Notification:** The KSC CRM determines if the activities are excluded from Section 106 consultation per Programmatic Exclusions within the 2025 NPA or existing programmatic agreement. If necessary, the KSC CRM notifies SHPO, and relevant federally recognized Indian tribes, as soon as practicable within 10 days of any emergency action affecting historic properties or cultural resources. The KSC CRM will include information on its proposed response action, the potential effects to historic properties, and a description of the avoidance, minimization, or mitigation measures, if any, for the effects of its undertaking. Notification may be verbal, then followed by written communication. SHPO and federally recognized Indian tribes have 7 days to provide comment. If circumstances do not permit 7 days for comment, the KSC CRM will define the time available.

Contact:

Katherine Zeringue, KSC CRM
Telephone (321) 867-8454
E-mail: katherine.s.zeringue@nasa.gov

Statutory and Procedural References:

- NHPA and its implementing regulations (36 CFR Part 800); 36 CFR Part 800.12 – Emergency situations
- 2025 Programmatic Agreement among NASA, ACHP, and the NCSHPO Regarding the Management of NASA Centers (2025 NPA) (KCA-4833)

Policy and Guidance:

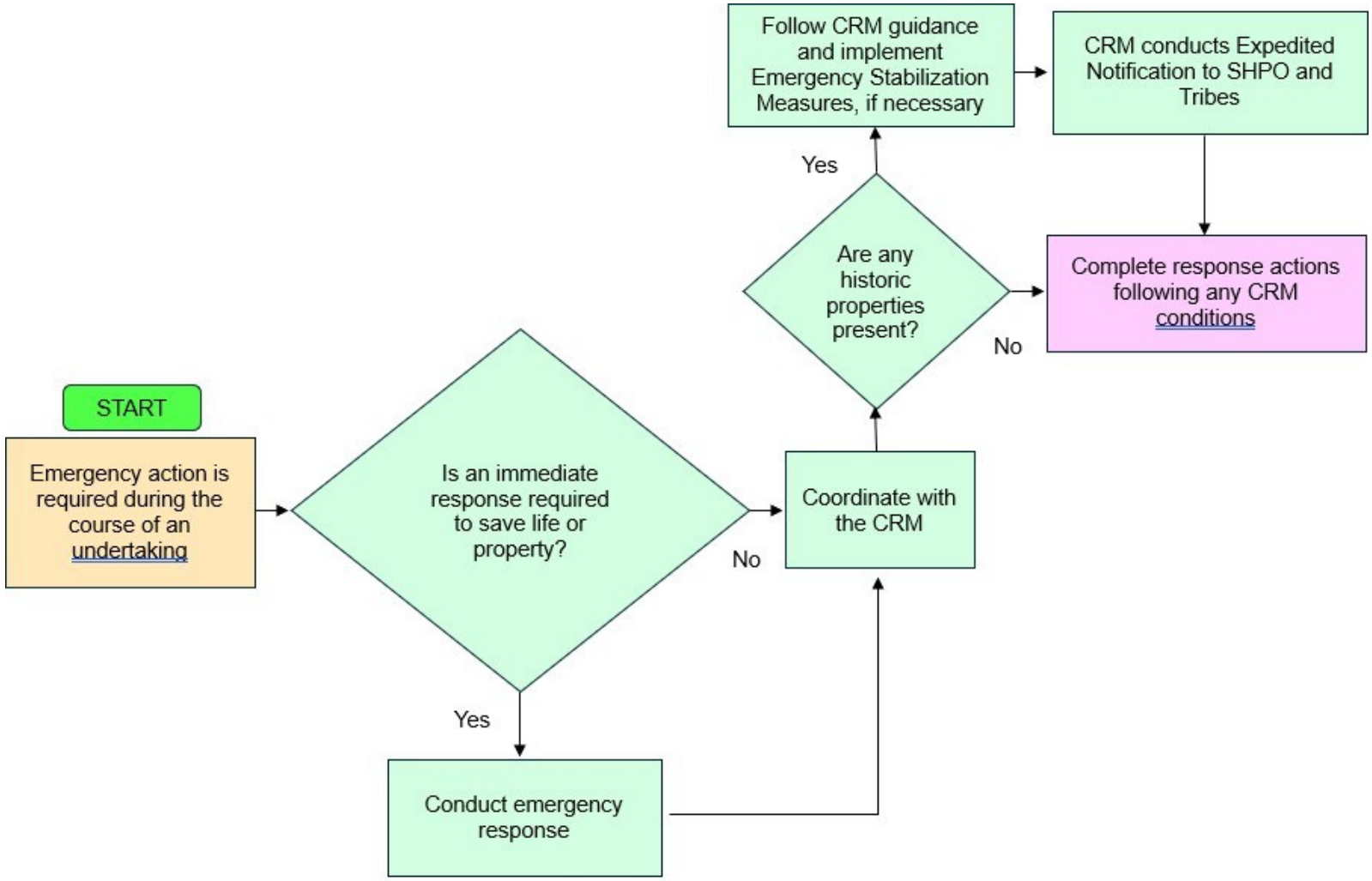
- Within the DART team, cultural resource considerations fall under Emergency Support Function (ESF) 11 which focuses on Agricultural and Natural Resources.
- Immediate rescue and salvage operations conducted to preserve life and property, regardless of whether there has been a declared disaster or emergency, are exempt from the provisions of Section 106 (36 CFR Part 800.12(d)). However, once emergency response actions are over, the KSC CRM must complete Section 106 review to mitigate any adverse effects to cultural resources resulting from the action.
- Under Section 106, KSC must consider the effects on historic properties that result, directly or indirectly, from actions carried out, funded, or approved by NASA to respond to the disaster or emergency, but not those effects caused by the disaster or emergency itself.
- All reasonable efforts should be made to avoid or minimize disturbance of significant cultural resources during emergency operations.

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- The NHPA provides for expedited review of actions proposed by an agency within 30 days of an emergency declaration, which is defined as “a disaster or emergency declared by the president, a tribal government, or the governor of a state in response to other imminent threats to life or property.” KSC may request an extension of the 30-day expedited review period from ACHP prior to expiration.

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Figure SOP 7-1: Flow Chart for Emergency Actions



*If any unanticipated effects or inadvertent discoveries occur, report to the CRM immediately. See SOP #5 and #6.

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6.8 SOP #8 Safeguarding Sensitive Cultural Resource Data

Scope: This SOP outlines the steps to ensure information about the location and nature of sensitive cultural resources is protected when: 1) personnel have access to or manage cultural resources data; 2) GIS data or other location data is provided to facilitate work or planning activities; or 3) data is requested from KSC under a FOIA request.

Users: It is intended for all personnel who have access to or manage cultural resources data.

Personnel who manage data are:

- Cultural Resources Manager
- Environmental Management Branch
- GIS Managers
- KSC FOIA Intake Officer

Personnel who may be given sensitive data are:

- Center Planning and Development
- CNS/MINWR/CCSFS
- Construction of Facilities
- DART Team Members
- Environmental Assurance Branch
- KSC Contractors for Operations and Maintenance
- KSC Real Property
- Office of Protective Services
- Spaceport Integration (Agreements Manager, Customer Service Advocates, Technical Integration Manager)
- Tenants/Lessees

Applicability:

This SOP is applicable primarily to the disclosure of the location and/or nature of archaeological sites or areas of tribal sensitivity. Information about buildings, structures, objects and historic districts is not considered sensitive information, unless subject to export control.

Procedures:

1. **Information Request Regarding Cultural Resources:** The KSC CRM and Environmental Management Branch (EMB) have sole access to and control the distribution of information related to sensitive cultural resources at KSC. An information request for cultural resource information is done in the following ways:
    a. Environmental Checklist, Excavation Permit, or Site Plan Submittal (see SOP #1). If applicable, information regarding cultural resources present in the project area is noted in a REC, Excavation Permit, or Site Plan.
    b. Technical Assistance Request. A project proponent requests information from the KSC CRM to ensure the consideration of cultural resources in project planning

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activities or to facilitate Environmental Studies or Cultural Resource Assessment Surveys.

c. FOIA Request: Non-sensitive cultural resource information may be shared in response to a FOIA request. However, the specific location of sensitive cultural resources at KSC is considered privileged and confidential information, and not for public distribution. Specifically, site location information is prohibited from FOIA requests under Section 9 of ARPA and Section 304 of NHPA.

2. **Data Sharing Permissions**: The KSC CRM or EMB approves the release of all maps or information containing sensitive cultural resource information on a need-to-know basis. Sensitive cultural information should be limited in geographic scope and not be shared beyond intended recipients or with members of the public without permission from the KSC CRM. All messaging containing sensitive cultural information will indicate these restrictions.
3. **General Data Sharing Protocols**:
   a. If sensitive cultural information needs to be shared with parties external to NASA such as contractors, consulting parties or members of the public, it is conveyed in a manner that does not facilitate potential harm to the property (see 36 CFR Part 800.11(c) and (d)). The project proponent works with the KSC CRM to identify sensitive cultural information that is sharable, relevant to the user, and addresses the intended purpose of informational need. Acceptable sharable information is generally limited to:
      i. Project area
      ii. FMSF Site Number (not including site forms)
      iii. Resource Name
      iv. General Descriptor of the site or resource (i.e., precontact midden, campsite, homestead)
      v. Maps showing general areas of cultural sensitivity within the project area. Maps should not include the exact location or boundaries of sensitive cultural resources including archaeological sites or tribal resources.
   b. Sensitive Tribal Information:
      i. Sensitive tribal information conveyed to the KSC CRM or KSC official is not shared unless tribal permission is specifically granted.
      ii. The KSC CRM may communicate to a project proponent that sensitive tribal resources are present within the project area and provide recommendations on how to avoid those resources without disclosing the location or nature of those resources.
   c. Cultural Resource Assessment Surveys: When sensitive cultural information is contained in a CRAS:
      i. It is provided as is to the SHPO, ACHP, federally recognized Indian tribes, representatives of federal agencies, and the project proponent.
      ii. Maps and locational information, including information within associated site forms, are redacted from Environmental Documents (such as an EA or EIS) or

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Section 106 consultation provided to consulting parties or the public. If a redacted version cannot be provided, the CRAS should not be included in the document.

iii. The KSC CRM may, at their discretion, provide the information to a consulting party (i.e., an archaeological society) who specifically requests the information and demonstrates a professional capability to interpret and safeguard the data.

Contact:

Katherine Zeringue, KSC CRM
Telephone (321) 867-8454
E-mail: katherine.s.zeringue@nasa.gov

Statutory and Procedural References:

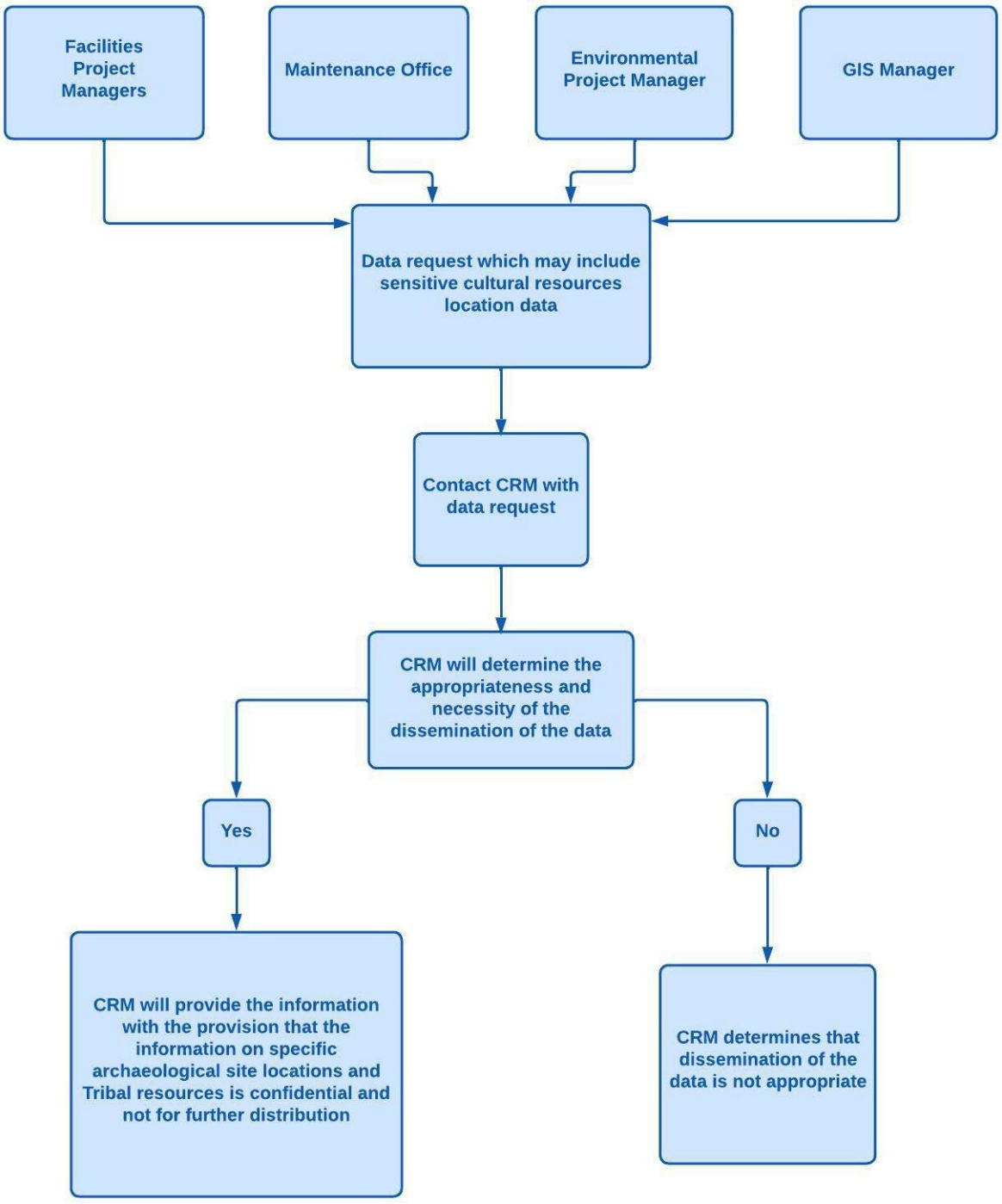
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- ARPA (16 U.S.C. 470aa-470mm)
- NAGPRA (43 CFR Part 10)
- 2025 Programmatic Agreement among NASA, ACHP, and the NCSHPO Regarding the Management of NASA Centers (2025 NPA) (KCA-4833)

Policy and Guidance:

- KSC has entered into data sharing agreements with CNS and CCSFS that may further limit the sharing or representation of sensitive cultural resources data within their jurisdictional areas.
- KSC is responsible for protecting sensitive information about historic properties from disclosure to the public when such disclosure could result in damage to the historic property or impede the use of a traditional religious site by practitioners.

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Figure SOP 8-2: Flow Chart for Safeguarding Sensitive Cultural Resources



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6.9 SOP #9 Consulting Party and Public Participation in the Section 106 Consultation Process

Scope: This SOP applies when Section 106 consultation is required (see SOP #2 and SOP #3) or when an environmental document (i.e., EA or EIS) is disseminated for public review.

Users: It is intended for personnel who conduct or support Section 106 consultation or public review of NEPA documents.

Personnel who conduct Section 106 consultation or public review of NEPA documents:

- Cultural Resources Manager
- Environmental Management Branch

Personnel who assist:

- Public Affairs

Applicability:

The implementing regulations of the NHPA identify both consulting parties and the public as participants in the Section 106 review process. The goal of consulting party and/or public participation is to assist KSC in the identification of historic properties and effects to them. The regulations differentiate each group's involvement in the process and allow the Federal Agency to determine their level of participation in consideration of the scale of the undertaking, the effects to historic properties, the likely interest of the public, confidentiality concerns, and the scope of federal involvement.

6.9.1 Consulting Parties

This procedure is specific to those identified as consulting parties in the Section 106 process (see Appendix H).

Procedures:

1. **Distribute Section 106 Materials to Consulting Parties:** The KSC CRM copies consulting parties (see Appendix H) on the Section 106 consultation package submitted to SHPO (see SOP #2 and SOP #3). If Section 106 is coordinated with NEPA, consulting parties will be electronically notified of their ability to review and comment on NEPA materials, as determined by the Environmental Program Manager.
    a. Consulting parties receive all materials electronically. If they request a hard copy of the materials, the KSC CRM may provide this at their discretion.
    b. The KSC CRM may limit materials sent to consulting parties subject to export control or confidentiality concerns (e.g., materials containing maps of archaeological sites).
    c. Consulting parties are not included on tribal correspondence.
2. **Consulting Party Review and Comment Period:** Consulting parties are given the opportunity to provide comments within the same timeframe as the SHPO.
3. **Consulting Party Participation in the Resolution of Adverse Effects**: Consulting parties are given the opportunity to participate in Section 106 consultation meetings related to the resolution of adverse effects.

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4. **Consideration of Consulting Party Comments**: The KSC CRM takes any relevant comments received by consulting parties into consideration during Section 106 consultation.

6.9.2 Members of the Public

This procedure is specific to including members of the public in the Section 106 process.

Procedures:

1. **Public Participation Plan**: The KSC CRM determines specific public engagement triggers and develops a public participation plan.
2. **Posting of Section 106 Materials**: The KSC CRM posts Section 106 consultation documents to the KSC CRM website for review and comment (Section 106 – Environmental (nasa.gov)) excluding those documents subject to Export control and confidentiality concerns.
3. **Public Outreach**: Additional public outreach may be planned depending on the public's interest in the undertaking and should be coordinated with Public Affairs. The public may be notified through:
    a. Notification in local newspapers (e.g., Florida Today and the Daytona Beach News Journal).
    b. Announcements on the KSC website created for the project. In addition to the initial public notification regarding the purpose and need for the project, cultural resource documents such as survey reports, and agreement documents can be made available on the website for review by interested parties.
    c. Letters, emails, or telephone calls to individuals and groups.
    d. Workshops and public hearings as part of the NEPA process. Public input is generally solicited during scoping and on a draft EA or EIS.
4. **Consideration of Public Comments**: The KSC CRM takes any relevant comments received by the public into consideration during the Section 106 or NEPA process.
5. **Consulting Party Requests**: If the KSC CRM receives a request from a member of the public to become a consulting party:
    a. Any member of the public can request consulting party status. The KSC CRM will consider the request and decide based on the requestor's demonstrated interest in the historic property or their legal or economic interest in the project.
    b. Members of the media are not granted consulting party status and receive information as a member of the public or through their Public Affairs POC.

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Statutory and Procedural References:

- NHPA and its implementing regulations (36 CFR Part 800)

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- NEPA (40 CFR Parts 1500-1508)
- Protecting Historic Properties | Advisory Council on Historic Preservation (achp.gov)
- 2025 Programmatic Agreement among NASA, ACHP, and the NCSHPO Regarding the Management of NASA Centers (2025 NPA) (KCA-4833)

Policy and Guidance:

- Compliance with the Section 106 public involvement requirements may be coordinated with NEPA.
- KSC does not consider the submittal of a NEPA document solely through the Florida State Clearinghouse as a sufficient means of completing Section 106 consultation.
- Consulting party and public engagement is an opportunity for KSC to enhance the decision-making process, minimize project delays, and foster community support.

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6.10 SOP #10 Native American Consultation

Scope: This SOP is used to comply with Federal laws, EOs, and regulations that require consultation with federally recognized Indian tribes that attach religious and cultural significance to archaeological sites, historic areas, and historic properties that may be affected by an undertaking or other circumstances.

Users:

Personnel who conduct Native American Consultation:

- Cultural Resources Manager

Applicability:

When a precontact resource or an identified area of tribal sensitivity may be affected by an undertaking, tribes will be included in:

- All phases of the Section 106 review process;
- The advance notification process under NEPA; and/or
- Situations involving the inadvertent discovery of cultural materials or human remains (see SOP #5).

Review Time:

- For undertakings that require Section 106 consultation and will not adversely affect historic properties, anticipate up to 60 days.
- For undertakings that require Section 106 consultation and will adversely affect historic properties, anticipate up to 3 months.

Procedures:

1. **Develop Consultation Materials**: The KSC CRM develops a consultation package for each federally recognized Indian tribe identified in Appendix H as set forth in the 2025 NPA or existing Programmatic Agreement.
    a. Consultation materials are like those provided to SHPO, if relevant, and should include:
        i. A clear statement identifying applicable law(s) triggering the consultation (e.g., Section 106 of the NHPA);
        ii. A statement that the letter is intended to initiate project-specific consultation between KSC and the tribe;
        iii. A request for information related to resources of importance to the tribe, and comments from the tribe, including a deadline for response; and
        iv. The name(s) of the KSC contact person(s).
    b. The letter(s) is prepared and signed by the KSC CRM.
    c. If at any time a tribe requests that a senior-level official consult on behalf of the Agency, the letter will be signed by the Center Director or designated official.

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2. **Submit Consultation Materials to the Tribe:** Consultation materials will be submitted to a tribe via their preferred methods as indicated in Appendix H, or as specified by a tribe at any time during consultation.
    a. The consultation package is addressed to the THPO or historic preservation representative. If a tribe requests the Chief/Chair to receive the materials, the consultation package is addressed to the Chief/Chair and the THPO or historic preservation representative is copied.
    b. If a tribe requests hard copies of consultation materials the consultation package should be sent via expedited means and in a way that tracks delivery. Separate consultation packages should be sent to the Chief/Chair and the THPO/tribal historic preservation representative, if relevant.
3. **Follow-Up with the Tribe:** The KSC CRM follows up with the THPO or historic preservation representative during the consultation period to ensure receipt of materials and to discuss any concerns.
4. **Record Tribal Response:**
    a. Written correspondence (i.e., letter or e-mail) is filed with associated Section 106 consultation materials.
    b. If a tribal response is a verbal response, the KSC CRM writes a memorandum for the record including the name of the tribal representative, date of discussion, and pertinent information.

Contact:

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Statutory and Procedural References:

Federal Laws

- NHPA of 1966, as amended
- American Indian Religious Freedom Act (AIRFA) of 1978
- NAGPRA of 1990
- ARPA of 1979

Executive Orders (EOs)

- Executive Memorandum, April 29, 1994: Government-to-Government Relations with Native American Tribal Government
- EO 13007: Indian Sacred Sites, May 24, 1996
- EO 13175: Consultation and Coordination with Indian Tribal Governments, 2000

Regulations

- ACHP, “Protection of Historic Properties” (36 CFR Part 800)
- NAGPRA Regulations (43 CFR Part 10)

Policy and Guidance:

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- The process outlined in this SOP would be followed for Section 110 consultation efforts, however regulatory timeframes may not apply.

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6.11 SOP #11 Cultural Resource Assessment Survey (CRAS)

Scope: This SOP is used when a CRAS is required to comply with Section 106 or Section 110 of the NHPA, and specifically addresses the identification and evaluation of historic properties for the NRHP.

Users: It is intended for all personnel who fund, manage, or oversee a CRAS (i.e., the "project proponent").

Personnel who oversee a CRAS are:

- Cultural Resources Manager
- Environmental Management Branch

Personnel who help facilitate a CRAS are:

- CNS/MINWR/CCSFS
- Construction of Facilities
- Environmental Assurance Branch
- KSC Contractors for Operations and Maintenance
- Tenants/Lessees

Applicability: A CRAS is conducted to determine the presence/absence of cultural resources within a proposed project area and to identify and evaluate the significance of cultural resources that are present. It is focused on structures, buildings, districts, sites and objects. The types and goals of a CRAS vary, but are generally described as:

- *CRAS (Phase I)* – an intensive survey which focuses on both archaeological sites and historic resources and their associated features. It should locate, identify, and evaluate cultural resources within a project's APE.
- *Archaeological Test Excavation (Phase II)* – excavation conducted on an archaeological site when a CRAS (Phase I) does not provide sufficient data to determine eligibility for the NRHP.
- *Archaeological Mitigation, Including Mitigative Excavation (Phase III)* – data recovery used as mitigation when a project cannot avoid adverse effects to an archaeological site that is eligible for or listed in the NRHP.

Review Time:

- Anticipate 6+ months

Procedures:

1. **CRM Determines the Need for a CRAS**: The KSC CRM determines if a CRAS is required once an Environmental Checklist is submitted (see SOP #1) or technical assistance is requested. The KSC CRM specifies the type and goal of CRAS to be completed and provides a sample Performance Work Statement (PWS) to the project proponent to facilitate contracting and workflow.
2. **CRM Reviews Work Plan**:

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a. The project proponent drafts a work plan using information specified in the sample PWS and submits it to the KSC CRM for review prior to the start of survey.

b. The KSC CRM ensures that the goals of the CRAS will be achieved and that the project proponent has all relevant information to inform the survey (e.g., ZAPs, past survey information, and archaeological sites). The KSC CRM may request edits.

3. **Project Proponent Completes Survey:**

   a. The project proponent completes a "Utility Locate/Excavation Permit Request" at least five days prior to the start of the CRAS and follows all conditions set forth within it. A Utility Locate/Excavation Permit Request is made by one of the following methods:

      i. Calling the Customer Helpline at 321-867-2406

      ii. Online application: http://epr.ksc.nasa.gov/Home/

      iii. For offsite personnel, on-line application: KSC's Excavation Permit Requests.

   b. The survey is completed per KSC's requirements (specified in the work plan) and following the *Florida Division of Historic Resources' Module Three Guidelines for Use by Historic Preservation Professionals*.

4. **CRM Reviews CRAS Report:** Once the survey is complete, the draft CRAS report is forwarded to the KSC CRM for review. The KSC CRM may request edits.

5. **CRM Submits CRAS to SHPO:**

   a. Once the KSC CRM approves the CRAS, the KSC CRM prepares a consultation package following SOP #2, SOP #3, and/or SOP #10.

   b. The KSC CRM submits the CRAS to SHPO, and other relevant consulting parties and the public (see SOP #9), for their review and comment on behalf of the project proponent.

   c. SHPO may request additional information or require changes to the CRAS before it is deemed sufficient and considered final. The project proponent assists the KSC CRM in responding to the SHPO's request for information.

6. **SHPO Concurrence and Project Commencement**:

   a. Once SHPO deems the report sufficient and concurs with the CRAS conclusions, the project proceeds following any conditions specified in SHPO response and/or management recommendations in the CRAS.

   b. If an adverse effect will occur to a historic property, a Mitigation Plan following the procedures in the 2025 NPA (SOP #2 or SOP #3) will be followed. If an archaeological site will be adversely affected, mitigation including a Mitigative Excavation (Phase III) may be required. The steps of this SOP will be repeated for the resulting report.

   c. If applicable, the project proponent, or their contractor, will return all artifacts and associated records (e.g., field notes, maps, artifact analysis and inventory sheets, photographs, and other associated records) to the KSC CRM within 60 days of SHPO's acceptance of the final report. The KSC CRM arranges for long-term curation with CNS, a facility that meets the standards established in 36 CFR Part 79.

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Statutory and Procedural Reference:

- NHPA and its implementing regulations (36 CFR Part 800)
- NEPA compliance
- Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation
- Chapter 1A-46, Florida Administrative Code (Archaeological Report Standards and Guidelines)
- Florida Division of Historic Resources' Module Three Guidelines for Use by Historic Preservation Professionals
- 36 CFR Part 79
- 2025 Programmatic Agreement among NASA, ACHP, and the NCSHPO Regarding the Management of NASA Centers (2025 NPA) (KCA-4833)

Policy and Guidance:

- Permits:
  - Special Use Permits, ARPA permits, or other permits may be required by MINWR or CNS for work on lands within their respective agency's jurisdiction.
  - KSC does not issue ARPA permits for NASA-led or approved projects within its secure area. Compliance with ARPA is satisfied through KSC's review and approval of the work plan.
- KSC does not consider the submittal of a NEPA document solely through the Florida State Clearinghouse as a sufficient means of completing Section 106 consultation.
- All archaeological work must be consistent with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation, as well as Chapter 1A-46, Florida Administrative Code (Archaeological Report Standards and Guidelines).
- The intensity of subsurface testing should be guided by the ZAPs on file with the KSC CRM and any new, relevant information.
- Human remains should not be collected or intentionally disturbed. If any human remains are found during the archaeological survey, work must cease and the KSC CRM notified, in accordance with SOP #5.
- For a CRAS that is distributed to consulting parties or public repositories, figures depicting the locations of archaeological sites and locational information shall be redacted. Federal law (ARPA Section 9a and NHPA Section 304) protects information on the nature and location of archaeological resources, including disclosure of such information through the FOIA request.

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Sample CRAS PWS:

Performance Work Statement (PWS)

Cultural Resource Assessment Survey (CRAS)

The contractor shall conduct a Cultural Resource Assessment Survey (CRAS) in up to [x] acres within [location]. See Figure 1 [provide testing area map].

Purpose

This proposal is in direct support of [insert project name]. The CRAS will facilitate NASA's KSC compliance with federal regulatory requirements, assess impacts of the project to cultural resources at KSC, and inform project planning activities.

Justification

NASA must comply with federal regulatory requirements including Section 106 of the NHPA and its implementing regulation 36 CFR Part 800 (aka Section 106). NASA procedural requirements to comply with this regulation are found in NASA's NPR 8510.I.A (Cultural Resources Management) and KSC's KSC-PLN-1733 (Integrated Cultural Resources Management Plan). A CRAS is required to satisfy federal regulatory requirements and consultation with the Florida SHPO. [Company] shall prepare a CRAS on behalf of NASA; the KSC's CRM will use the CRAS to complete federal regulatory requirements.

Goal

The goal of the CRAS is to identify the presence or absence of cultural resources within the project area, including archaeological resources and historic structures. If cultural resources are identified, their eligibility for the NRHP must be evaluated. The CRAS shall be conducted according to the Florida Division of Historical Resources (FDHR) *Module Three Guidelines for Use by Historic Preservation Professionals.* The CRAS report shall meet the FDHR *sufficiency checklist* and be accepted by SHPO to be considered finalized.

Scope of Work

1. Development of a Work Plan

[Company] shall submit a work plan to the KSC CRM for review and comment prior to the commencement of the CRAS. The KSC CRM will review the work plan to verify that the proposed survey is conducted in accordance with the *Module Three Guidelines for Use by Historic Preservation Professionals* and that all relevant cultural resource information is accounted for.

The work plan should include:

- the project area;
- the proposed methodology for the identification and evaluation of cultural resources;
- historic properties recorded in the FMSF (excluding destroyed properties);
- previous CRAS conducted within the project area both recorded in the FMSF and on file with KSC CRM;
- protocols for the discovery of human remains in alignment with KSC-PLN-1733;

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- the proposed schedule;
- if relevant, reference to any special transportation needs to access the project area (i.e., boat); and
- if relevant, a plan for vegetation removal (including non-invasive mechanical cutting in densely vegetated areas).
- Archaeological testing should be conducted in areas:
- that have not undergone previous archaeological subsurface testing;
- where previous archaeological subsurface testing did not meet the FDHR's minimum archaeological survey standards;
- where management recommendations from archaeological survey reports indicate further testing is needed; and/or
- where the NRHP eligibility of a recorded archaeological site is unknown or potentially eligible.

The *Module Three Guidelines for Use by Historic Preservation Professionals* establishes systematic subsurface archaeological testing intervals for high, moderate, and low probability zones. The [Company] should use the ZAPs on file with the KSC CRM, which are probability zones, as well as other relevant information, to define the testing interval(s) required for the project area.

[Company] shall submit an Checklist and Excavation Permit (EPR: (nasa.gov) prior to the commencement of the CRAS.

2. Cultural Resource Assessment Survey

The [Company] shall conduct a CRAS according to the FDHR guidelines for Cultural Resource Assessment Surveys specified in *Module Three Guidelines for Use by Historic Preservation Professionals.*

Historic Structures Survey shall identify and evaluate any undocumented structures, buildings, or landscape features in the project area (examples: foundation, slab, pedestal, survey markers, etc.) that are not accounted for in the KSC's Real Property Management System.

Archaeological fieldwork activities shall include reconnaissance survey and systematic subsurface testing. Conduct judgmental subsurface testing and Phase II Archaeological Test Excavation as required per the *Module Three Guidelines for Use by Historic Preservation Professionals*. Additional KSC-specific criteria are:

- Conduct small interval testing, using either 5-meter intervals or judgmentally placed shovel tests based upon the topography, in small maritime hammocks or at historic period archaeological sites.
- In the event a site is located, conduct additional testing to determine site boundaries, internal structure, and cultural affiliation. Conduct testing in the four cardinal directions at a minimum of 10 meters until two consecutive sterile shovel tests are documented.
- Record the center and boundaries of any sites.
- In the event an isolated find or archaeological occurrence is identified, document its location with GPS; specify the site center and boundaries within the project area, if applicable.

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- Record all site locations and shovel test locations using GPS, in addition to FDHR recordation guidelines.

Highly redundant objects that yield little in the way of significant cultural information (e.g., native shell, brick, tabby, cinder, coal, slag, etc.) should be left in the field, discarded, or sampled but should be properly documented in field documentation. This decision shall be made by the Principal Investigator. Collect any human-made or -altered artifact; any unusual artifact type such as worked shell or non-native shell; and all fire-cracked rock.

Human Remains: In the event human remains are discovered within the project area all work must stop immediately. The KSC CRM will assume responsibility for all notifications including those per the requirements of NAGPRA. Work may only resume after notification by the KSC CRM.

3. Artifacts, Associated Records, and Curation

[Company] shall analyze, properly handle, and label all collected artifacts according to the *Module Three Guidelines for Use by Historic Preservation Professionals*. Analyzing a percentage of the sample collected is not acceptable.

Artifacts are the property of KSC. [Company] shall return all artifacts and associated records to the KSC CRM at the completion of the project in curation quality containers and prepared for curation in a facility that is compliant with 36 CFR 79. KSC will handle arrangements for long-term curation.

4. CRAS Report

Upon completion of the historic research, field work and laboratory analysis, [Company] shall submit a draft report with the *FMSF Survey Log* and relevant *FMSF* site forms to the KSC CRM for review and comment. The CRAS report shall meet the criteria specified in *Archaeological Report Standards and Guidelines, Chapter 1A-46, Florida Administrative Code* and the *Module Three Guidelines for Use by Historic Preservation Professionals.* FMSF forms shall meet all relevant FMSF guidelines found here: Documents & Forms - Division of Historical Resources - Florida Department of State. KSC references the FDHR's *Sufficiency Checklist* when reviewing all CRAS conducted on their lands.

The report should be a detailed, organized, and illustrated document divided into sections. Explanations for any areas where the survey was not conducted or was not warranted should be clearly justified with supporting documentation (such as land use history, maps, and current photographs of field conditions).

All FMSF forms should include a USGS map showing site boundaries; photograph of the site (black and white if a structure); site map; and if possible, an aerial photograph with site location indicated. The form should also include a brief narrative on the site since the forms will be filed separately from the survey report at FMSF.

The KSC CRM will handle all formal consultation with the FL SHPO, and federally recognized Indian tribes if relevant. The KSC CRM will submit electronic versions of the final report to the parties for review, comment and/or concurrence. Some consulting parties require hard copy reports. As directed by the KSC CRM, [Company] shall handle physical mailing of printed copies to FL SHPO, and federally recognized Indian tribes as specified, on behalf of KSC.

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SHPO must accept the report, through written correspondence, for this deliverable to be complete. If SHPO or tribes submit questions or requests for information during the Section 106 consultation process, the KSC CRM will direct the [Company] to provide information or amend the CRAS report as needed to gain SHPO acceptance.

Deliverables

[Company] will provide the following:

- Environmental Checklist Submission
- Excavation Permit Request Submission
- Work Plan prior to the commencement of field surveys
- Optional: [Transportation]
- Optional: [Non-invasive vegetation removal]
- Draft CRAS Report: Electronic file for KSC CRM review
- Final CRAS Report: Electronic file. Up to 5 printed copies shall be mailed on an expedited basis with delivery receipt confirmation
- FMSF Survey and Site Forms: Two sets delivered to the FMSF per SHPO submittal guidelines
- Information to the KSC CRM to respond to SHPO or tribal questions
- Electronic copies of all field notes, maps, drawings, photographs, field specimen logs, artifact catalogs, GPS and GIS data
- All artifacts and records properly prepared, stored, and labeled in curation quality containers

KSC will provide the following:

- Record of Environmental Consideration
- Excavation Permit
- ZAPs and associated GIS files
- Historic Contexts
- CRAS information not on file with FMSF and associated GIS files
- A listing of all KSC's Real Property recorded in the project area
- LiDAR data, if requested
- Review and comment on the work plan, Draft CRAS Report, FMSF Survey and Site Forms
- Formal submittal of electronic materials to SHPO and tribes
- Long-term curation

Applicable Documents:

- FDHR Guidelines and Requirements (found here: Regulations & Guidelines - Division of Historical Resources - Florida Department of State and Documents & Forms - Division of Historical Resources - Florida Department of State):
    - Module 3: Guidelines for Use by Historic Preservation Professionals

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    - Archaeological Report Standards and Guidelines, Chapter 1A-46, *Florida Administrative Code*
    - Professional Qualification Standards (48 FR 44716, September 29, 1983)
    - FMSF: Documents & Forms - Division of Historical Resources - Florida Department of State
- Environmental Checklist: NEF Search (nasa.gov)
- Excavation Permit: EPR: (nasa.gov)

Land area included in this study:

Figure 1. [insert]

RELEASED - Printed documents may be obsolete; validate prior to use.

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ACI. (2003). *Cultural Resource Assessment Survey of the Proposed International Space Research Park (ISRP) at the John F. Kennedy Space Center, Brevard County, Florida*. On file, NASA, KSC.

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RELEASED - Printed documents may be obsolete; validate prior to use.

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Appendix A: Glossary and Acronyms

A.1 Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
ac	Acre
ADA	Americans with Disabilities Act
AIRFA	American Indian Religious Freedom Act
APE	Area of Potential Effects
ARPA	Archaeological Resources Protection Act
BFF	Booster Fabrication Facility
BOSU	Bioastronautics Operations Support
CCAFS	Cape Canaveral Air Force Station (now Cape Canaveral Space Force Station)
CCSFS	Cape Canaveral Space Force Station (formerly Cape Canaveral Air Force Station [CCAFS])
CNS	Canaveral National Seashore
CRAS	Cultural Resource Assessment Survey
CRM	Cultural Resource Manager
CRM Program	Cultural Resources Management Program
DART	Damage Assessment and Recovery Team
DME	District Medical Examiner
DOI	United States Department of the Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
ELV	Expendable Launch Vehicle
EMB	Environmental Management Branch
EME	Environmental Management Enterprise
EO	Executive Order
FOIA	Freedom of Information Act
FPO	Federal Preservation Officer
FWS	United States Fish and Wildlife Service
FY	Fiscal Year
GIS	Geographic Information System
ha	Hectare
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HMP	Hypergolic Module Processing
HPO	Historic Preservation Officer
HQ	Headquarters
ICRMP	Integrated Cultural Resource Management Plan
IT	Information Technology
km	Kilometer
KSC	Kennedy Space Center
KSCVC	Kennedy Space Center Visitor Complex
LC-39	Launch Complex 39
LCC	Launch Control Center
LLF	Launch and Landing Facility
LOX	Liquid Oxygen
MCC	Mission Control Center

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mi	Mile
MINWR	Merritt Island National Wildlife Refuge
MLP	Mobile Launcher Platform
MOA	Memorandum of Agreement
NAGPRA	Native American Graves Protection and Repatriation Act
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NETS	NASA Environmental Tracking System
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
NPS	National Park Service
NRHP	National Register of Historic Places
PA	Programmatic Agreement
PD	Policy Directive
PM	Presidential Memorandum
POC	Point of Contact
SEMS	Sustainable Environment Management System
SHPO	State Historic Preservation Officer
SLF	Shuttle Landing Facility
SLS	Space Launch System
SOP	Standard Operating Procedure
SR	State Road
SRB	Solid Rocket Booster
SSPF	Space Station Processing Facility
THPO	Tribal Historic Preservation Officer
U.S.	United States
VAB	Vehicle Assembly Building
ZAP	Zone of Archaeological Potential

A.2 Definitions

Adverse effect. An effect thought to cause degradation of a property to such an extent that it would be rendered ineligible for the NRHP.

Advisory Council on Historic Preservation. The independent federal agency charged by the NHPA to advise the President, Congress, and federal agencies on matters related to historic preservation. The Council also administers Section 106 of the NHPA through 36 CFR Part 800, Protection of Historic Properties.

Area of Potential Effects. The geographic area or areas within which an undertaking may cause direct or indirect alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

Archaeological Artifact. An object, component of an object, fragment, or sherd of an object that was made or used by humans. An archaeological artifact also can be a soil, botanical, or other sample of archaeological interest.

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Archaeological Resources. Material remains of human life or activities that can provide understanding of behavior and cultural adaptation through the application of scientific or scholarly techniques such as controlled observation, contextual measurement, controlled collection, analysis, interpretation, and explanation.

Building. As defined by the NRHP program, can be a house, barn, church, hotel, or similar construction that is created principally to shelter human activity. The term "building" also can refer to a historically and functionally related unit, such as a courthouse and jail or a house and barn.

Burial Site. Any natural or prepared physical location, whether originally below, on, or above the surface of the Earth, into which as a part of the death rite or ceremony of a culture, individual human preservation remains are deposited.

Center Cultural Resources Manager. The KSC CRM was formerly called the HPO. A NASA employee who is designated by the KSC Director and given the responsibility to manage cultural resources at the KSC or Component Facility, if any, pursuant to the NHPA, ARPA, NAGPRA, and other legal authorities.

Consultation. A reasonable and good faith effort to involve affected parties in the findings, determinations, and decisions made during the Section 106 of the NHPA process and other processes required under NAGPRA, NEPA, ARPA, and other statutes and regulations. Consultations with federally recognized Indian tribes will be on a government-to-government level to respect tribal sovereignty and to recognize the unique legal relationship between the U.S. Government and federally recognized Indian tribes set forth in the U.S. Constitution, treaties, statutes, and court decisions.

Cultural Affiliation. A relationship of shared group identity that can be reasonably traced historically or prehistorically between a present-day Indian tribe or Native Hawaiian organization and an identifiable earlier group.

Cultural Items. Defined under the NAGPRA as human remains and also as the following items:

- *Associated funerary objects. O*bjects that are part of the death rite or ceremony of a culture and are placed with individual human remains either at the time of death or later, in cases when both the human remains, and the funerary objects are in the possession or control of the federal agency or museum.
- *Unassociated funerary objects*. Objects that are part of the death rite or ceremony of a culture and are placed with individual human remains either at the time of death or later, in cases when the human remains are not in the possession or control of the federal agency or museum.
- *Sacred objects.* Specific ceremonial objects that are needed by traditional Native American religious leaders for the practice of traditional Native American religions.
- *Cultural patrimony.* Any object having ongoing historical, traditional, or cultural importance central to the Native American group or culture itself, rather than property owned by an individual Native American.

Cultural Objects. Defined under the NAGPRA, these items have "historical, traditional, or cultural importance" to Native American groups or cultures, and may include human remains, funerary or sacred objects, and objects of "cultural patrimony."

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Consulting Parties. Those agencies, governments, and organizations identified in 36 CFR 800 as having consultative roles in the Section 106 process. These parties include the State HPO, Indian tribes and Native Hawaiian organizations, the Tribal Historic Preservation Officer, representatives of local governments, and applicants for federal assistance. Additional consulting parties may include certain individuals and organizations with a demonstrated interest in the undertaking and may include the public.

Cultural Resources. Archaeological, Native American, and built resources including, but not limited to, buildings, structures, objects, districts, and sites.

Cultural Resource Professional. A person who meets qualifications in anthropology, archaeology, history, historical architecture, preservation planning, or other preservation specialties set forth in Section 112 of the NHPA, Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines, and 36 CFR Part 61.

District. As defined by the NRHP, possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united by past events, or aesthetically by plan or physical development.

Effect. Alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register.

Enhanced Use Lease. The authority in the Space Act (42 U.S.C. § 2459j) that gives the Administrator the opportunity to lease NASA real property to other federal agencies and non-federal entities at fair market value, to use the amounts collected to cover the full costs to NASA in connection with the lease, and to use the net proceeds of the lease for other purposes.

Federal Agency. Any department, agency, or instrumentality of the United States.

Federal Lands. Any land other than tribal lands, which are controlled or owned by the United States, including lands selected by but not yet conveyed to Alaska Native Corporations and groups organized pursuant to the Alaska Native Claims Settlement Act of 1971.

Federal Preservation Officer. The agency official that the NHPA charges with coordinating the agency preservation program including interactions with the other agencies, states, Indian tribes, NPS, ACHP, and others.

Heritage Asset. Property, plant, or equipment that is unique for its historical or natural significance; cultural, educational, or artistic importance; and/or significant architectural characteristics. Consists of (1) collection types such as objects gathered and maintained for exhibition, for example, museum collections, art collections, and library collections; or (2) non-collection types such as parks, memorials, monuments, and buildings. It is reported in agency financial statements in accordance with the Federal Accounting Standards Advisory Board (FASAB), Statement of Federal Financial Account Standards 29, Heritage Assets and Stewards Land. Heritage assets are defined in FASAB 29, Heritage Assets and Stewardship Land. NASA's heritage assets include real properties that also are historic properties. These are reported by the Office of the Chief Financial Officer in NASA's annual financial report.

Historic Preservation. Section 300315 (formerly 301(8)) of the NHPA, 54 U.S.C. Section 300101 et seq., states that historic preservation includes identification, evaluation, recordation, documentation, curation, acquisition, protection, management, rehabilitation, restoration,

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stabilization, maintenance, research, interpretation, conservation, and education and training regarding cultural resources. The *Secretary of the Interior's Standards for the Treatment of Historic Properties* (https://www.nps.gov/tps/standards.htm) defines historic preservation as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of a historic property.

Historic Property or **Historic Resource**. Any precontact or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties.

Indian tribe. An Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian tribe pursuant to the Federally Recognized Indian Tribe List Act of 1994, 25 U.S.C. 479a.

Integrated Cultural Resources Management Plan. A plan that defines the policies and SOPs for managing cultural resources at a NASA Center or Component Facility and is integrated into property management and other applicable agency plans.

Memorandum of Agreement. A legally binding form of agreement document, as described in 36 CFR Part 800.6, to mitigate adverse effects on historic properties.

Mitigation. The actions taken to reduce, minimize, or alleviate adverse effects resulting from a federal undertaking.

NASA Artifacts. Unique objects that document the history of the science and technology of aeronautics and astronautics. Their significance and interest stem mainly from their relation to the following: historic flights, programs, activities, or incidents; achievements or improvements in technology; our understanding of the universe; and important or well-known personalities (see NPR 4310.1A).

NASA Environmental Tracking System. A set of relational databases that houses environmental data across the agency. The CRM module tracks cultural resources data and also connects to the Cultural Resources GIS.

National Historic Landmark. A nationally significant historic place designated by the Secretary of the Interior because the property or site possesses exceptional value or quality in illustrating or interpreting the heritage of the United States. NHLs are managed, in part, by the NPS's NHL Program. All NHLs are considered historic properties or sites.

National Park Service. The federal agency within the U.S. Department of the Interior tasked with overseeing the NRHP and NHL Programs. The NPS contains the offices of the Departmental Consulting Archaeologist, which provide technical assistance to federal agencies and coordinate the Federal Archaeology Program.

National Register Criteria. Criteria for established by the Secretary of the Interior for evaluation of eligibility of properties for inclusion on the NRHP (36 CFR Part 60). The criteria include properties:

- **Criterion A:** That are associated with events that have made a significant contribution to the broad patterns of our history; or

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- **Criterion B:** That are associated with the lives of significant persons in our past; or
- **Criterion C:** That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- **Criterion D:** That has yielded or may be likely to yield, information important in history or prehistory.

National Register of Historic Places. The U.S. Government's official list of buildings, structures, districts, sites, and objects that are significant in American history, architecture, archaeology, engineering, or culture and are thereby considered for preservation. The NRHP is administered by the NPS.

Native Americans. For the purposes of this document, the term—Native Americans—refers to Alaska Native Organizations, Alaska Natives, Native North Americans, and Native Hawaiian organizations.

No Effect, Effect or **No Adverse Effect**. Determinations made on a proposed undertaking based upon The Secretary of the Interior's Standards for Rehabilitation (Department of Interior, 36 CFR Part 67) as described in Appendix B. This determination can have one of three results:

- the undertaking will not affect historic properties-no effect;
- the undertaking will affect a historic property, but the effect will not be harmful- no adverse effect; or
- the undertaking will have a harmful effect on a historic property-adverse effect.

Object. As defined by the NRHP program, is used to distinguish from buildings and structures those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed. Objects can include sculptures, monuments, and fountains, among others.

Personal Property. Any property except real property.

Planning Level Survey. Refers to a summary of the status of the completion of cultural resources investigations, including archaeological and architectural surveys, that are known. The planning level survey is based on a review of existing literature, records, and data.

Predictive Model. A mapping tool for modeling the areas of low, medium, and high archaeological potential.

Programmatic Agreement. A legally binding document that records the terms and conditions agreed upon to mitigate the adverse effects associated with complex or phased undertakings when the full range of historic properties that may be affected are not known or in other situations specified in 36 CFR Part 800.14(b).

Real Property. As defined in NPD 8800.14E, Policy for Real Estate Management, is land and facilities, including buildings and other structures, that are owned, leased, or otherwise managed by NASA and improvements thereto.

Site. The location of a significant event, a precontact or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished. The National Register program further defines a site where the location itself possesses historic, cultural, or archaeological

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value, regardless of the value of any existing structure. Sites can include funerary sites, rock shelters, campsites, designed landscapes, and land areas having cultural significance, among other examples.

State Historic Preservation Officer. The official appointed by the Governor of each State and territory to carry out the functions defined in the NHPA and to administer the State Historic Preservation Program.

Structure. As defined by the NRHP program, is used to differentiate from buildings those functional constructions made usually for purposes other than creating human shelter. Examples of structures can include bridges, tunnels, fire towers, turbines, and dams, among other resources.

Tribal Historic Preservation Officer. The official appointed by an Indian tribe in accordance with the NHPA to administer a Tribal Historic Preservation Program and assume duties and functions for tribal lands similar to those that the State Historic Preservation Officer has for State lands.

Undertaking. A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including:

- Those carried out by or on behalf of the agency;
- Those carried out with federal financial assistance;
- Those requiring a federal permit license, or approval; and
- Those subject to state or local regulation administered pursuant to a delegation or approval by a federal agency.

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Appendix B: Cultural Resources Laws and Regulations

B.1 Introduction

Laws and regulations regarding cultural resources are summarized below. They establish the stewardship role of federal agencies in the preservation of cultural resources. This section also discusses compliance procedures and the penalties for noncompliance.

Requirements set forth in NEPA, NHPA, ARPA, AHPA, NAGPRA, 36 CFR Part 79, EO 13007, EO 13175, and their implementing regulations define the NASA's compliance responsibilities for management of cultural resources. The KSC and all NASA Centers must comply with the following applicable laws, regulations, and EOs related to cultural resources management.

B.2 Federal Laws and Regulations

B.2.1 National Historic Preservation Act of 1966

The NHPA (PL 89-655, as amended through 2006; 54 U.S.C. 300101 et. seq.) establishes the Federal Government's policy to provide leadership in the preservation of historic properties and to administer federally owned or controlled historic properties in a spirit of stewardship.

Section 101 prescribes how state, local, and Indian tribal governments participate in the National Historic Preservation Program, establishes how the NRHP is maintained and expanded, and directs the Department of the Interior to promulgate various standards and guidelines, including regulations requiring federal agencies to place recovered artifacts and any records in institutions that have adequate long-term curatorial capabilities.

Section 106 requires federal agencies to consider the effects of their activities and programs on historic properties. The regulation that affects NASA's planning at KSC the most is 36 CFR Part 800, Protection of Historic Properties, which implements Section 106. This regulation requires compliance through a process of identification; consultation with the SHPO, relevant THPOs, and other concerned parties; and execution and implementation of agreements about how adverse effects will be addressed. It must be followed in planning any activity and in the ongoing management of Centers. The federal agency should consult the SHPO, THPOs, and, if necessary, ACHP before beginning any undertaking that might affect historic properties. All consulted parties must be afforded a reasonable opportunity to comment. Under Section 106 of the NHPA, NASA will manage and treat historic properties affected by undertakings.

Section 110 requires federal agencies to designate qualified FPOs, to locate and inventory historic properties, to give preference to the use of historic properties for mission purposes, and to establish and implement a historic preservation program that includes identification of historic properties, planned management of such properties, and specific procedures for compliance with Section 106. Under Section 110, NASA will also identify, evaluate, and nominate historic properties throughout KSC for listing in the NRHP.

Section 111 requires federal agencies to "establish and implement alternatives for historic properties, including adaptive use," and leasing or exchanging historic property, to "ensure the preservation of the historic property."

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Section 112 requires a federal agency's employees or contractors to meet professional qualification standards published by the Secretary of the Interior.

Section 304 allows federal agencies, in consultation with the Secretary of the Interior, to withhold from disclosure to the public information relating to the location or character of historic resources when it is determined that such information would result in a significant violation of privacy; endanger the ability of a Native American group to exercise its religion; or create a substantial risk of harm, theft, or destruction. This section most frequently applies to archaeological sites and places of traditional religious value to Native Americans; however, locations are not universally withheld, and the need to withhold them must be balanced against the need of regulatory agencies and the public to know such locations to participate in project review under Section 106, NEPA, and other authorities.

The NRHP was authorized under the NHPA to identify, evaluate, and protect historic and archaeological resources. The NRHP is the official list of the Nation's historic places worthy of preservation. To be eligible for the register, the property must meet criteria related to age, integrity, and significance. All nominations to the register are reviewed by the SHPO.

The NRHP is maintained by the NPS under the Secretary of the Interior and includes districts, sites, buildings, structures, architecture, archaeology, engineering, culture, and objects of significance in American history. A property may be listed in the NRHP if it meets criteria for evaluation defined in 36 CFR Part 60.4.

B.2.2 National Environmental Policy Act, 1969

NEPA (PL 91-190; 42 U.S.C. 4371 et seq.; 40 CFR Parts 1500-1508), requires federal agencies to consider the environmental effects of their proposed programs, projects, and actions prior to initiation. Pursuant to NEPA and the Council on Environmental Quality regulations (40 CFR Parts 1500–1508), and NASA's policies and procedures for the early integration of environmental considerations into planning and decision making as promulgated at 14 CFR Part 1216.3, the proponents of NASA actions will ensure that cultural resources are fully considered when preparing NEPA documents. NEPA documents will include, or refer to, an assessment of the impacts of proposed NASA actions or activities on cultural resources. However, compliance with NEPA for a specific action does not relieve NASA of the independent compliance procedures associated with applicable cultural resources requirements, like Section 106 consultation, for example. Information and findings obtained through compliance with cultural resources statutes, regulations, EOs, and PMs should be integrated concurrently with NEPA compliance process and documents.

Impact assessments under NEPA must consider the effects of proposed federal actions on cultural resources and the effects on Native American tribes, Native Hawaiian organizations, Native Alaskan entities, and other ethnic and social communities to whom the cultural resources may have importance. The information needed to make such impact assessments may be acquired from information developed because of compliance with cultural resources statutes, regulations, and EOs. Impact evaluation procedures as specified by NHPA Section 106 are currently the most acceptable process for dealing with cultural resources in a NEPA study.

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B.2.3 Archaeological Resources Protection Act of 1979

Like the 1906 Antiquities Act, ARPA (PL 96-515; 16 U.S.C. 470aa-470mm) prohibits the excavation, collection, removal, and disturbance of archaeological resources (as defined by ARPA) and objects of antiquity (as referenced in the Antiquities Act) on federally owned property without a permit issued by the appropriate federal agency. Those permitted must be qualified individuals, and proposed recovery of archaeological resources must be undertaken strictly for the purpose of furthering archaeological knowledge. Permits must also require that the excavated archaeological artifact collection and associated records be permanently curated in a facility that meets the requirements of 36 CFR Part 79, Curation of Federally Owned and Administered Archaeological Collections. Permits are not necessary for archaeological work conducted in support of mission requirements (e.g., in compliance with NHPA Section 106). Violation of ARPA may result in the assessment of civil or criminal penalties and forfeiture of vehicles and equipment that were used in connection with the violation.

Federal agencies may withhold any information pertaining to the location of archaeological sites if the agency determines that disclosing such information would put the resource at risk. ARPA specifically excludes such information against a FOIA filing that includes all archaeological resources, not just those that are NRHP-listed or eligible. Federal agencies must develop plans for surveying lands not scheduled for specific undertakings, record and report archaeological violations, and develop public awareness programs.

As indicated above, ARPA regulations (43 CFR Part 7, Protection of Archaeological Resources) for the ultimate disposition of materials recovered as a result of permitted activities state that archaeological resources excavated on public lands remain the property of the United States. However, under NAGPRA, materials may be the property of a culturally affiliated tribe and those materials excavated from Indian lands remain the property of the Indian or Indian tribe having rights of ownership of such resources.

B.2.4 Archaeological and Historic Preservation Act of 1974

AHPA (also known as the Moss-Bennett Act, or the Archaeological Data Preservation Act) (PL 93-291 and 16 U.S.C.469-469c) requires federal agencies to arrange for the “preservation of historical and archaeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of…any Federal construction project or Federally licensed activity or program.”

B.2.5 Antiquities Act of 1906

The Antiquities Act of 1906 (PL 59-209; 16 U.S.C. 431, 432, and 433) allows the President of the United States to set aside Federal lands as historic landmarks. It also allows the Federal Government to acquire private land for historic preservation. The Act requires that qualified individuals conduct excavation of archaeological sites on Federal land under federally issued permits and requires permanent preservation of artifacts and objects recovered from these excavations in museums.

The Act establishes penalties for any person who excavates, injures, or destroys any historic property in Federal land without permission from the appropriate federal agency. Instructions for

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seizure of illegally acquired archaeological objects are provided in implementing regulation 43 CFR Part 3.

B.2.6 NHPA Section 106 Implementing Regulations, Protection of Historic Properties, 36 CFR Part 800

These are the implementing regulations for Section 106 of the NHPA that requires federal agencies to consider the effects of their undertakings on historic properties. Consultation early in the planning process allows identification of properties potentially affected by the undertaking and the development of measures to avoid, minimize, and mitigate adverse effects on historic properties.

The 36 CFR Part 800 regulations, implementing Section 106, require considerable consultation with the SHPO, Indian tribes, and interested members of the public throughout the process. The four principal steps are as follows:

1. Initiate the Section 106 process;
2. Identify historic properties and resources eligible for inclusion in the NRHP;
3. Assess the effects of the undertaking on historic properties in the area; and
4. Resolve adverse effects.

B.2.7 Protection of Archaeological Resources, 43 CFR Part 7

43 CFR Part 7 are the implementing regulations for ARPA that set uniform definitions, standards, and procedures to be followed by all federal land managers in providing protection for archaeological resources, located on public lands and Indian lands of the United States. These regulations enable federal land managers to protect archaeological resources, taking provisions of the AIRFA (92 Statute 469; 42 U.S.C. 1996) into consideration:

IV. Through permits authorizing excavation and/or removal of archaeological resources

V. Through civil penalties for unauthorized excavation and/or removal

VI. Through provisions for the preservation of archaeological resource collections and data

VII. Through provisions for ensuring confidentiality of information about archaeological resources when disclosure would threaten the archaeological resources

B.2.8 Curation of Federally Owned and Administered Archaeological Collections, 36 CFR Part 79

The effective and efficient care of archaeological collections generated by public projects is a responsibility of many federal and other public agencies. Regulations found in 36 CFR Part 79, Curation of Federally-Owned and Administered Archeological Collections establish the definitions, standards, procedures, and guidelines to follow in preserving collections of precontact and historic remains.

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The federal agency will ensure that all "collections," as defined in 36 CFR Part 79.4(a), are processed, maintained, and curated in accordance with the requirements of 36 CFR Part 79. However, as noted above, NAGPRA cultural items and human remains in the possession and control of a federal agency will be disposed of in a manner consistent with the requirements of NAGPRA and 43 CFR Part 10, NAGPRA Regulations.

NASA archaeological collections may be processed, maintained, and curated on and by NASA; by another federal agency, state agency, or other outside institution or nongovernmental organization, in cooperative repositories maintained by, or on behalf of, multiple agencies; or in other facilities, under contract, cooperative agreement, or other formal funding and administrative arrangement provided that the standards of 36 CFR Part 79 are met. Generally, NASA should not establish archaeological curation facilities at individual Centers due to the permanent recurring costs and personnel requirements to maintain such repositories to the minimum standards in 36 CFR Part 79 in perpetuity. Prior to NASA's approval of the establishment of an onsite archaeological curation facility, a cost analysis will be conducted and included as a primary factor in the decision. The cost analysis will include factors such as professional curatorial personnel costs for the facility; initial facility infrastructure start-up costs to establish the facility; and facility costs for annual operation, materials, maintenance, and repair. These cost factors should be compared with similar costs associated with curating the materials in an outside facility, such as at a state museum or other federal or state agency, or with a nongovernmental organization.

The KSC CRM will establish procedures to minimize the amount of archaeological "material remains" (as defined in 36 CFR Part 79.4[a] [1]) that are collected during archaeological inventory and site excavation and that are permanently curated. Such procedures will be integrated into any SOPs, contracts, or commitments and agreements for such activities and will serve to reduce the long-term costs associated with archaeological materials curation requirements. Per NPR 8510.1A, *Centers and Component Facilities*, will "serve as the Federal Agency Official, as defined in 36 CFR Part 79, with management authority over the KSC or Component Facility's archaeological collections" (NPR 8510.1A.3e). The KSC or Component Facility is responsible for ensuring that "funding is available to coordinate the disposition of archaeological collections and associated records in curation facilities that comply with the requirements in 36 CFR Part 79, NHPA, ARPA, and other applicable regulations" (NPR 8510.1A.3f). Archaeological material remains recovered during field inventory and site identification efforts should be analyzed and recorded but should be evaluated prior to accessioning into the permanent center archaeological collection. For artifacts recovered from more extensive excavations (e.g., site evaluation for NRHP eligibility and data recovery excavations/mitigation), some classes of material remains may be analyzed and recorded, but not permanently accessioned into the center collection. Permanent curation should be reserved for diagnostic artifacts and other significant and environmentally sensitive material that will add important information to site interpretation. Evaluation of materials for curation should be carried out in consultation with SHPO.

B.2.9 Executive Order 13287, Preserve America

EO 13287, *Preserve America,* dated March 3, 2003, establishes a national policy for Federal Government leadership in preserving America's heritage through active advancement of the protection, enhancement, and contemporary use of the historic properties owned by the Federal

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Government. This order also promotes intergovernmental cooperation and partnerships for the preservation and use of historic properties. Through specific steps and deadlines, EO 13287 reemphasizes current requirements for assessment of the status of agency-controlled historic properties (under Section 110 of the NHPA) and management needs and suitability of these historic properties for contributing to community economic development initiatives, including heritage tourism.

B.2.10 Executive Order 11593, Protection and Enhancement of the Cultural Environment

EO 11593, *Protection and Enhancement of the Cultural Environment,* dated May 13, 1971, establishes a national policy to preserve and maintain the historic and cultural environment of the United States. The EO directs federal agencies to administer historic properties under their control to preserve the resources for future generations. This EO was incorporated into the 1980 amendments to the NHPA as Section 110 and was further revised during the 1992 amendment to the NHPA. Federal agencies must locate, inventory, and nominate all potentially eligible sites, buildings, districts, and objects under their control to the Secretary of the Interior for listing in the NRHP. The federal agencies must also take precautions to prevent the sale, transfer, or demolition of historic properties. Any property that will be damaged because of a federal undertaking must be fully assessed and documented before it is impacted. The agencies must report their efforts to the Secretary of the Interior.

B.2.11 Native American Graves Protection and Repatriation Act of 1990

NAGPRA (PL 101–601; 25 U.S.C. 3001–3013) protects the rights of Native American lineal descendants, Native American tribes, and Native Hawaiian organizations with respect to the treatment, repatriation, and disposition of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony, referred to collectively in the statute as cultural items, with which they can show a relationship of lineal descent or cultural affiliation. NAGPRA sets forth rules for intentional excavation and removal of Native American cultural items and for inadvertent discovery of such items. The intent of NAGPRA is to identify proper ownership and to ensure the rightful disposition of human remains and specific cultural items (defined in Section 2 of NAGPRA) that are in federal possession or control.

The three primary participants involved in executing NAGPRA are federal agencies, all museums receiving federal funds, and Indian tribes and Native Hawaiian organizations. The Secretary of Interior is responsible for oversight of these three organizations and must provide guidance for proper implementation of NAGPRA.

The primary purpose is to require federal agencies and museums receiving federal funds to inventory Native American human remains and funerary objects and provide written documentation for other cultural items. Agencies and museums must consult with Native American tribes and Native Hawaiians organizations to attempt to reach agreements on the repatriation or other disposition of remains and objects. Once lineal descent or cultural affiliation has been established, and in some cases, the right of possession has been demonstrated, lineal descendants, affiliated tribes, or affiliated Native Hawaiian organizations normally make the final determination about the disposition of cultural items. Under NAGPRA, Section 3(d), an

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agency must wait a mandatory 30 days before resuming a project even if the items found are minor or insignificant.

NAGPRA requires that Indian tribes or Native Hawaiian organizations be consulted whenever archaeological investigations encounter, or are expected to encounter, Native American cultural items or when such items are unexpectedly discovered on federal or tribal lands (Section 3). Excavation or removal of any such items also must be done under procedures required by ARPA (Section 3 [c] [1]). In-situ preservation of archaeological sites containing burials or protected cultural items is strongly encouraged. Under NAGPRA, Section 3(d), an agency must wait a mandatory 30 days before resuming a project even if the items found are minor or insignificant.

Other provisions of NAGPRA include:

- Stipulations that illegal trafficking in human remains and cultural items may result in criminal penalties (Section 4);
- Authorization for the Secretary of Interior to administer grant programs to assist museums and Native American tribes in complying with NAGPRA requirements (Section 10);
- Requirement for the Secretary to establish a Review Committee to advise and assist in carrying out key provisions (Section 8);
- Authorization for the Secretary to penalize museums that fail to comply with NAGPRA; and
- Direction for the Secretary to develop regulations in consultation with the Review Committee.

B.2.12 American Indian Religious Freedom Act of 1978

Under AIRFA (PL 95-341 and 1994 Amendments), NASA will develop and implement procedures to protect and preserve the Alaska Native Organizations, American Indian, and Native Hawaiian right of freedom to believe, express, and exercise their traditional religions, including, but not limited to, access to sacred sites, use and possession of sacred objects, and freedom to worship through ceremonials and traditional rites. Federal agencies will also establish procedures to facilitate consultation with federally recognized Indian tribes and Native Hawaiian organizations, as appropriate.

B.2.13 Executive Order 13175, Consultation and Coordination with Indian Tribal Governments

EO 13175 of November 6, 2000, *Consultation and Coordination with Indian Tribal Governments*, charges all executive departments and agencies with engaging in regular, meaningful, and robust consultation with tribal officials in the development of federal policies that have tribal implications. Tribal consultation under this order strengthens the Nation-to-Nation relationship between the United States and tribal nations. The policy to prepare and periodically update a detailed plan of action to implement the policies and directives of EO 13175 was reiterated in a Presidential Memorandum (PM) dated January 26, 2021.

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B.2.14 Executive Order 13007, Indian Sacred Sites

EO 13007, *Indian Sacred Sites,* dated May 24, 1996, requires federal agencies to allow access to and ceremonial use of sacred Indian sites by Indian religious practitioners of federally recognized Indian tribes. Agencies will maintain confidentiality regarding the location of such sacred sites and will avoid adversely affecting their integrity.

B.2.15 43 CFR Part 10, Native American Graves Protection and Repatriation Regulations

43 CFR Part 10 carries out provisions of NAGPRA. These regulations develop a systematic process for determining the rights of lineal descendants and Indian tribes and Native Hawaiian organizations to certain Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony with which they are affiliated.

B.2.16 Presidential Memorandum, Government-to-Government Relations with Native American Tribal Governments

The PM, *Government-to-Government Relations with Native American Tribal Governments*, dated April 29, 1994, requires that the consultation occur between a federal agency and federally recognized Indian tribes on a government-to-government basis and in an open and candid manner.

Consultation with federally recognized Indian tribes on a government-to-government basis occurs formally and directly between NASA and heads of federally recognized Indian tribal governments. Center Directors establish government-to-government relations with federally recognized Indian tribes by means of formal, written letters to the heads of tribal governments. Such letters should designate a NASA Center Coordinator for Native American Affairs who is authorized to conduct follow-on consultations with designated representatives of the tribal government. Any final decisions on the Center's plans, projects, programs, or activities that have been the subject of government-to-government consultation will be formally transmitted from the NASA Center Director to the head of the tribal government.

This PM also requires that the NASA Center directors assess the impact of their plans, projects, programs, and activities on tribal trust resources and ensure that tribal government rights and concerns are considered during the development of such plans, projects, programs, and activities.

B.2.17 25 U.S.C. 479a, Federally Recognized Indian Tribe List Act of 1994

Federally Recognized Indian Tribe List Act of 1994, 25 U.S.C. 479a publishes the current list of tribal entities recognized by and eligible for funding and services from the Bureau of Indian Affairs by virtue of their status as Indian tribes.

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Appendix C: NASA Policy Directives (PDs) and NASA Procedural Requirements (NPRs)

NASA's policies are established in directives and procedural requirements for its programs and facilities. An NPD outlines policy, and an NPR establishes the process for complying with NASA policy. Some NPDs and NPRs are Center-specific. Compliance is mandatory. NPDs, NPRs and other relevant NASA documents pertaining to cultural resources management include:

- NPR 4310.1A, Identification and Disposition of NASA Artifacts
- NPD 8500.1C, NASA Environmental Management
- NPR 8510.1A, NASA Cultural Resources Management
- NPR 8580.1A, Implementing NEPA and EO 12114
- NPD 8800.14E, Policy for Real Estate Management
- NPR 8800.15C, Real Estate Management Program
- NPD 8820.2E, Design and Construction of Facilities
- NPR 8820.2G, Facility Project Requirements

The most relevant NPD and NPRs are further described below.

C.1 NPR 4310.1A: Identification and Disposition of NASA Artifacts

Under NPR 4310.1A, the NASM, which is administered by the Smithsonian Institution, is responsible for the custody, protection, preservation, exhibition, and loan of artifacts received from government agencies. Repositories for NASA artifacts are identified with the assistance of NASM to effectively inform the public regarding NASA's endeavors. Artifacts are offered to NASM when programmatic utility to NASA has been exhausted.

C.2 NPD 8500.1C: NASA Environmental Management

NPD 8500.1C (effective December 2, 2013, expires December 2, 2023) is an internal directive to NASA employees regarding environmental management policy, including compliance with historic preservation laws and cultural resources management regulations, under the authority of NEPA and the NHPA. Environmental management is intended to support NASA's missions, protect mission resources, and mitigate environmentally driven mission risks, while maintaining environmental stewardship of assets, controls over environmental responsibilities, and compliance with applicable legal and other requirements. Section 110 of the NHPA requires federal agencies to designate an agency FPO to develop, execute, and manage a CRM Program. NASA's CRM Program establishes the position of the Center CRM at each NASA Center and Component Facility to manage NHPA compliance activities.

NPD 8500.1C identifies the principles of environmental management within the NASA Strategic Plan, and the policy and applicability of environmental management. The policy covers:

- Compliance with federal and state laws and regulations, EOs, and interagency agreements (Appendix C-4);
- Incorporation of risk reduction and sustainable practices in projects, plans, and activities;

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- Consideration of environmental factors throughout the life cycle of programs, projects, and activities, including consideration of environmental impacts as required by NEPA and the NHPA;
- Inclusion of potential environmental impacts of programmatic activities and the use of particular materials and the costs of mitigating such impacts in the life cycle analysis of costs;
- Application of NASA's scientific expertise and products to create climate-resilient NASA Centers;
- Fostering and actively supporting environmentally related technology transfers through domestic, international, and commercial collaborative partnerships;
- Communication, coordination, and cooperation to develop collaborative and effective partnerships to efficiently use resources, materials, and processes in support of environmental requirements, to manage goals, including preventing pollution, reducing waste generation, and managing cultural and natural resources;
- Establishment of the Environmental Management System to address all environmental aspects of internal NASA operations and activities; and
- Ensuring that environmental liabilities and compliance are addressed appropriately within Space Act Agreements, and tenant, customer, or similar arrangements.

NPD 8500.1C also outlines the responsibilities of all NASA employees, NASA organizational elements, the Assistant Administrator for Strategic Infrastructure (responsible for NASA Environmental Management), the Environmental Management Division Director, Associate Administrators, Assistant Administrators, Chiefs, Directors of Mission Directorates and Mission Support Offices, program and project managers, Center Directors, and Center and Component Facility environmental managers to fulfill these policies.

C.3 NPR 8510.1A: NASA Cultural Resources Management

NPR 8510.1A implements CRM requirements across NASA as indicated under NPD 8500.1C. It applies to NASA Headquarters, all NASA Centers, Component Facilities, Jet Propulsion Laboratory, contractors, grant recipients, licensees, and parties to agreements.

NPR 8510.1A establishes the CRM Program roles and responsibilities for program and project managers, Center or Component Facility Directors, and Center CRMs (formerly called the HPO). It also outlines the requirement for developing an ICRMP for each Center as a key component of a Center's management responsibilities. Each NASA Center and Component Facility is responsible for implementing NASA CRM and stakeholder engagement practices, as described in a Center or Component Facility ICRMP.

The current NPR under review contains two major updates to the implementation of CRM Program. There are more procedures for early and continued coordination between Center CRMs, NEPA Managers, and project managers for projects requiring Section 106 consultation.

NASA Mission Directorates are to reference NPR 8510.1A in policy and guidance affecting NASA's cultural resources, including the requirement to fund programs and projects to meet NHPA compliance requirements. The NPR reflects NASA's commitment to be a steward of

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cultural resources, and implementation of the NPR will ensure preservation of their significance to NASA's mission, communities, and the history of the United States.

C.4 KSC Interagency Coordination

NASA shares a complex land ownership and management history with the FWS and the NPS, both agencies of the DOI. On August 28, 1963, NASA and FWS (also known as the Refuge) entered into a cooperative agreement to establish the MINWR. In this agreement, KCA-1649, Rev. B, (Exhibit 5-2), amended July 2012, NASA transferred management authority to the Refuge for a portion of KSC's land and water. By 1972, the area managed by FWS was expanded to include all nonoperational areas of the Center. On April 2, 1975, Congress established the CNS (also known as the Seashore) as a unit of the NPS. This Act transferred management responsibility of Playalinda Beach and about 405 hectare (ha) (1,000 ac) north of the Gomez Grant line to the NPS. An agreement between NASA and the DOI (KCA-4307) for use of property at KSC as a part of the CNS has been in place since April 2, 1975. The Seashore was established partially as an overlay of KSC on lands and waters already managed as part of the MINWR. Congress outlined that most of the overlay area, consisting of 13,899 ha (34,345 ac), would be managed as a refuge (FWS 2008). MINWR's 2007 Comprehensive Conservation Plan identifies responsibilities for CRM management for all of KSC's landholdings, including those within KSC's operational area, MINWR, and CNS. It designates KSC as the lead for CRM oversight on MINWR-managed lands within KSC's operational area.

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Appendix D: State, Local, or Other Applicable Laws, PDs, and PRs

D.1 State, Local, or Other Applicable Laws

D.1.1 Chapter 267, F.S. (Florida Historical Resources Act)

D.2 Procedural Requirements and Policy Directives

D.2.1 KNPD 8500.1 Kennedy NASA Policy Directive/KSC Environmental Management

D.2.2 KDP-P-1733 Review of Potential Effects to Historic Properties

D.2.3 KCA-4833 Programmatic Agreement among NASA, ACHP, and the NCSHPO Regarding Management of NASA Centers

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Appendix E: CRM Contact Information

E.1 NASA

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***KSC CRM**
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Spaceport Integration & Services
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E.2 Florida Department of Historic Resources/SHPO

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E.3 ACHP

Office of Federal Agency Programs

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Submit materials to ACHP using the **e106 form**.

E.4 NPS and Canaveral National Seashore

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E.5 Merritt Island National Wildlife Refuge

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*Richard S. Kanaski, Regional HPO and Regional Archaeologist
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E.6 Cape Canaveral Space Force Station

*Tom Penders, CRM
Cape Canaveral Space Force Station

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45th Civil Engineer Squadron
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*Denotes primary POC.

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Appendix F: Annual Update Forms for Interim Years

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NASA KENNEDY SPACE CENTER (KSC), INTEGRATED CULTURAL RESOURCES MANAGEMENT PLAN (ICRMP) ANNUAL REPORT

Annual Report on Implementation Status of the NASA KSC ICRMP and Cultural Resources Management Program

Date

January 21, 2026

Reporting Period

November 2024 – January 2026

Program Overview

During the reporting period, KSC staff initiated and completed various projects requiring CRM consultation. These projects included two archaeological surveys, and the development of a plan for SpaceX Starship Super Heavy Launch and Reentry Vehicles at LC-39A.

Projects Requiring Consultation and Their Status Since Issuance of 2024 ICRMP

Table 1 contains information on projects requiring Section 106 consultation, including their status as of January 2026.

Table 1. KSC CRM Projects Requiring Consultation

Project Title	Project Description	Project Type	CRM Review Status
Phase 1 Archaeological Survey of 28.4 Acres (NOTU)	Lease of an @ 29 acres parcel to NAVFAC SE and associated construction	No Historic Properties Affected. A Phase I archaeological survey was completed with negative findings. Historic resources within the APE included 8BR2931 (NASA KSC Railroad Track) which is not individually eligible for the National Register of Historic Places (NRHP) and the portion of railroad within the APE is a non-contributing resource to 8BR2932 (NASA KSC Railroad System Historic District).	Concurrence from SHPO (June 5, 2025). DHR Project File No. 2025-3589
SpaceX Falcon 9 Increased Cadence Landing Zone	Falcon 9 - Increased launch cadence and construction of a landing zone adjacent to LC-	No Adverse Effect. A Phase I archaeological survey was completed. Previously recorded	Concurrence from SHPO (August 29, 2025). DHR Project File No. 2025-

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	39A	archaeological site 8BR2364 (Bottle Dump) was revisited and its boundaries expanded. However, the site remains ineligible for the NRHP. No other cultural resources were identified.	3312-B
SpaceX Starship Super Heavy Launch and Reentry Vehicles at LC-39A Including Associated Construction and Operations	Construction of launch support infrastructure within LC-39A; launching of the SSH from LC-39A; landing of the Starship and the Super Heavy Booster at LC-39A; landing of the Starship and the Super Heavy Booster on droneships in the Atlantic Ocean, soft-water or hard-water landing with expending or recovery in the Atlantic Ocean, Pacific Ocean, or Indian Ocean; and static fire activities.	Identification, Evaluation and Effects: The consultation package defined the methods for identification and evaluation of historic properties; presented identification results and eligibility determinations; discussed potential effects; defined the need for a Programmatic Agreement; and identified the formally recognized consulting parties.	SHPO Response: We concur with NASA KSC's determination that the undertaking's effects to historic properties cannot be definitively determined at this time and their proposal for the development of a programmatic agreement pursuant to 36 CFR Part 800.14(b)(1)(ii). We will provide comments or concurrence with the NRHP eligibility recommendations provided in the CRS via separate letter. DHR Project File No. 2024-3285-C
Programmatic Environmental Assessment (PEA) for the NASA KSC Center Master Plan	The Center Master Plan addresses the most reasonably foreseeable actions in three planning districts at KSC within a 20-year planning horizon. The actions listed in the PEA are for long-term planning purposes and do not commit NASA to funding these actions in the future.	For comment only. Once a project from the Center Master Plan is approved, licensed, or permitted by KSC, KSC will follow the process outlined in the 2025 NASA-Wide PA governing Section 106 review, including the resolution of adverse effects, in consultation with the SHPO, Tribal Nations, and consulting parties, as required.	No response received from SHPO. No significant comments received from Consulting Parties or Tribes.

Projects Proposed for Next Reporting Period

As noted in the ICRMP, there is no comprehensive list of projects expected to occur at KSC CRM project in the upcoming reporting period. However, KSC's CRM Program will support KSC's Master Planning efforts and regulatory compliance reviews to support activities at KSC. There are three relevant master plans that may provide insight into some of the activities that may occur. These include:

- KSC's Area Development Plans
- 15-Year Development Plan at the KSC's Visitor Complex and Launch Complex 39 Viewing Gantry

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- Space Florida's Space Commerce District – Area Development Plan

Updates to Consulting Party/Native American Contact Information

The following Native American contact was added to the Appendix H in the ICRMP:

Thlopthlocco Tribal Town
Mr. David Frank, THPO
Thlopthlocco Tribal Town THPO Office
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Phone: (918) 560-6163
E-mail: thpo@tttown.org

Mr. Ryan Morrow, Town King
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Okemah OK 74859
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The following Native American contacts were removed from Appendix H in the ICRMP:

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E-mail: section106@muscogeenation.com; thunt@muscogeenation.com
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Mr. David Hill, Principal Chief
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The following Native American contact information from Appendix H was updated:

Seminole Nation of Oklahoma
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Wewoka OK 74884
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E-mail: TBD
Submission Preference: TBD. Hard copy to 36645 U.S.-270, Wewoka, OK 74884

Ms. Sena Yesslith, Chief
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Wewoka OK 74884
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E-mail: chief@sno-nsn.gov

The below Consulting Party was added to Appendix H:

City of Titusville
555 South Washington Avenue
Titusville FL 32796
Mr. Brad Parrish, Community Development Director
Phone: (321) 567-3776
Email: Brad.Parrish@titusville.com
https://titusville.com/

Tribal Consultation Program

During the reporting period, KSC included Center consulting Tribes in all Section 106 consultations.

In December 2024, the KSC CRM assisted the Canaveral National Seashore (CNS) in the reporting of an unexpected discovery of human remains within CNS lands and coordination with the Seminole Tribe of Florida on their NAGPRA Plan of Action.

Throughout 2025, KSC staff consulted with all Center consulting Tribes in the development of a Programmatic Agreement Among NASA, FAA, SpaceX, and the Seminole Tribe of Florida Regarding the Assessment of Adverse Effects for SpaceX Starship-Super Heavy Operations at Launch Complex 39A at KSC. KSC met with the Seminole Tribe of Florida in person and on-site at KSC three times on November 6, 2024 and April 8 and April 9, 2025 to discuss the project. KSC also met with the Seminole Nation of Oklahoma in person and on-site at KSC twice on January 21 and August 14, 2025.

Between May 21-22, 2025, the KSC CRM engaged with the Seminole Tribe of Florida and the Miccosukee Tribe of Indians of Florida at the Florida Department of Historic Resources CRM Summit.

Newly Identified NRHP-eligible Resources Since Issuance of 2024 ICRMP

KSC did not identify any new NRHP-eligible resources during this reporting period.

Number and Names of Newly Identified NRHP-eligible or -listed Historic Resources Since Issuance of 2024 ICRMP

N/A

NRHP-eligible or -listed Resources that were Disposed/Demolished or Delisted/Determined Ineligible Since Issuance of 2024 ICRMP

No NRHP eligible resources were demolished or disposed of during the reporting period.

Percent of Historic (NRHP-eligible/listed) Buildings/Structures that are Vacant or Underutilized at the Center

No changes since issuance of 2024 ICRMP.

Acres at the Center that have been Surveyed for Archaeological Resources

Two archaeological surveys, totaling 56.4 acres, were completed during the reporting period and are listed in table 5-4. They consist of the following surveys.

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- *Archaeological Survey for the LC-39A Landing Zone Project*, conducted by SEARCH, Inc.
- *Phase I Archaeological Resources Survey of 28.4 Acres at KSC,* conducted by Brockington and Associates, Inc.

Other Process Changes Since Issuance of 2024 ICRMP

The NASA-wide Programmatic Agreement (NPA), signed in late FY2025, has resulted in changes to the Standard Operating Procedures (SOPs) for cultural resource management at KSC. These changes are now reflected in the text of Chapter 6 of the 5-year ICRMP.

NASA, KSC, and CRM Program goals, within Chapter 3 of the 5-year ICRMP, were updated. The Office of Strategic Infrastructure (OSI) is currently in the process of updating its objectives and goals, which may result in process changes for the management of cultural resources at KSC. Any process changes resulting from OSI's update will be reflected in the next (FY27) annual ICRMP update.

Historic (NRHP-eligible/listed) Buildings/Structures Summary and Updates

The most up-to-date asset list developed for the 2025 NPA is now located in Appendix O.

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Appendix G: Budgeting Plan

There is no dedicated funding for CRM activities at KSC. Therefore, KSC conducts Section 106 reviews on a case-by-case basis, and any costs associated with a specific project to comply with regulatory requirements are funded by the project proponent and/or project funds. Furthermore, the previous 2014–2018 ICRMP noted that appropriations were not sufficient to enable the policies outlined in the ICRMP, nor to support staffing and contractor activities necessary to support its goals. Section 110 Center-wide CRM planning activities, as well as any non-regulatory historic preservation activities, must be funded with special funding opportunities or grants.

Table G-1: KSC Five-Year CRM Program Plan Projects

Project	Projected Start/End Dates	Resources Needed
Complete Systematic Phase I & II Archaeological Testing in Remaining 3 Spaceport Growth Boundary Districts	Unknown	Project proponent funding is needed to hire SOI-Qualified Staff to complete surveys and a report.
Implement Management Plan to Protect Threatened Archaeological Sites based upon 2024 survey.	Unknown	Funding is needed. Coordinate with CNS and MINWR.
Create archaeological teaching collection	Unknown	Funding is needed.
Install Florida State Historic Markers or other historic designation marker at historic properties	Unknown	Funding is needed.
Update G2G Architectural Surveys	2026-2027	Surveys will be coordinated through HQ EMD.
Records Management Initiative	Unknown	Detailee, volunteer, intern or contractor support needed.

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Appendix H: Consulting Parties Directory

H.1 Other Consulting Parties

Apollo One Memorial Foundation, Inc.
P.O. Box 115
Cape Canaveral, Florida 32920-0115
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https://www.apollo1.org/

Brevard County Historical Commission
308 Forest Avenue
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Mr. Michael Boonstra
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E-mail: mboonstra@brev.org
http://www.brevardcounty.us/HistoricalCommission

Cape Canaveral Space Force Museum
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Cape Canaveral SFS, FL 32925
Mr. James Draper, Museum Director
Phone: (321) 853-9171
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www.ccspacemuseum.org

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Historical Society of North Brevard
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Pierre Alix, President

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Indian River Anthropological Society
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North Brevard Heritage Foundation
P.O. Box 653
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South Brevard Historical Society
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Melbourne, Florida 32902
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https://www.facebook.com/southbrevardhistory/

H.2 Federally Recognized Indian Tribes

Miccosukee Tribe of Indians of Florida
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Submission Preference: Electronic. Express mail and Package Delivery to Tamiami Station, Miami, Florida 33144

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Seminole Tribe of Florida
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Submission Preference: Electronic – submit to thpocompliance@semtribe.com; include both Ms. Osceola and Ms. Simon

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Information was compiled from the following sources and is subject to change: NATHPO THPO Tribal Directory available at https://grantsdev.cr.nps.gov/THPO_Review/index.cfm; DOI BIA Tribal Leaders Directory available at https://www.bia.gov/service/tribal-leaders-directory; and the tribes' websites.

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Appendix I: KSC Precontact and Historic Contexts

I.1 Precontact Context

I.1.1 Introduction

In general, archaeologists summarize the culture history of a given area (i.e., the archaeological region) by outlining the sequence of archaeological cultures through time. Archaeological cultures are defined largely in geographical terms, but also reflect shared environmental and cultural factors. KSC is located within the East and Central Lakes archaeological region, as defined by Milanich and Fairbanks (1980) and Milanich (1994). Geographically, this region included the northern and central portions of the St. Johns River, its tributaries, the adjacent coastal barrier island - salt marsh - lagoon system, and the Central Florida Lake District (Milanich 1994). The sequence of cultural development for the east and central region was pan-regional during the earliest periods of human occupation. However, after about 500 B.C. distinctive regional cultures had developed and are often distinguished in the archaeological record by differences in ceramic styles and decorations. The Paleo-Indian, Archaic, Formative, Mississippian, and Acculturative stages have been defined based on unique sets of material culture traits such as characteristic stone tool forms and ceramics, as well as subsistence, settlement, and burial patterns. These broad temporal units are further subdivided into culture horizons, phases or periods: Paleo-Indian, Early Archaic, Mount Taylor, Orange, St. Johns I/Malabar I, St. Johns Ia, St. Johns Ib, and St. Johns IIa, IIb, and IIc/Malabar II. A brief summary of these periods is provided in the following sections.

I.1.2 Paleo-Indian

The Paleo-Indian stage is the earliest cultural manifestation in Florida, dating from roughly 11,000 to 8000 B.C. (Austin 2001; Milanich 1994). The majority of Paleo-Indian sites are associated with the rivers in the north-central portion of Florida (Dunbar and Waller 1983). At that time, the climate was cooler and drier. Vegetation was typified by xerophytic species with scrub oak, pine, open grassy prairies, and savannas being the most common (Milanich 1994:40). The sea level was 80 to 130 m (262 to 427 ft) lower than present and the coast extended approximately 161 km (100 mi) seaward on the Gulf coast. This lowering had a direct effect on the water table and it appears that major surface rivers and many seasonal ponds were non-existent in South Florida. Potable water was obtainable at sinkholes where diverse plant and animal life, including precontact period groups, congregated (Milanich and Fairbanks 1980:38-40; Milanich 1994:40).

Thus, the prevailing environmental conditions were largely uninviting to human habitation during the Paleo-Indian period (Griffin 1988:191). Given the inhospitable climate, it is not surprising that the population was sparse with sites of this time uncommon in South Florida. The most readily available information about Florida's earliest inhabitants has been uncovered by underwater excavations at both the Little Salt Spring (Clausen et al. 1979) and Warm Mineral Springs (Clausen et al. 1979; Cockrell and Murphy 1979) sites in Sarasota County. Also, work at the Cutler Fossil Site in Dade County (Carr 1986) has yielded two projectile points, associated with a hearth area, radiocarbon dated to the Paleo-Indian period (ca. 7760 B.C.). In Brevard County, the Helen Blazes Site (8BR27) (Bense and Mattick 1994; Edwards 1954), as well as the Melbourne Golf Course Site (8BR44) and Singleton Site (8BR47) (Rouse 1951) have

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a reported Paleo-Indian component. There is some evidence that the offshore site, the Douglass Beach Site (8SL17) in St. Lucie County, may date to the Paleo-Indian period (FMSF).

In general, the Paleo-Indian period is characterized by small populations, which relied on a hunting and gathering mode of subsistence. The scarce permanent sources of water, or "watering holes" (Neill 1964), were very important in settlement selection (Daniel and Wisenbaker 1987). This settlement model, often referred to as the Oasis Hypothesis (Milanich 1994:41), has a high correlation with geologic features in southern Florida such as deep sinkholes like those noted in Sarasota and Dade Counties. Additionally, fossil beds in the Vero Beach and Melbourne areas have produced human remains in context with Pleistocene fauna (Murphy 1990; Rouse 1951). The geological formation in which these materials are found, the Melbourne Bone Bed, occurs in the area of the Haulover isthmus, and is exposed at both the new and Old Haulover Canals (Brewer 1991). Sites of this period are most readily identified on the basis of distinctive lanceolate-shaped stone projectile points, including those of the Simpson and Suwannee types (Bullen 1975). The tool assemblage also included items manufactured of bone and wood and very likely leather as well as plant fibers (Clausen et al. 1979).

I.1.3 Archaic

The succeeding Archaic tradition is divided into three temporal periods: the Early Archaic (ca. 7000 to 5000 B.C.), Middle Archaic (ca. 5000 to 2000 B.C.) and the Late Archaic (ca. 2000 to 500 B.C.). During the Early Archaic period, freshwater snails were first exploited in the east and central region. Since sea levels were lower during the Early Archaic period, many Early Archaic sites are now probably submerged along the Atlantic coast. At approximately 4500 B.C., environmental changes occurred. These had a profound influence upon human settlement and subsistence practices. Among the landscape alterations were rises in sea and water table levels, which resulted in the creation of more available surface water. It was during this time that Lake Okeechobee and the Everglades were created, the St. Johns River took on its present form, and the Caloosahatchee and Peace Rivers flowed with fresh water. In addition to changed hydrological conditions, this period is characterized by the spread of mesic forests and the beginnings of modern vegetation communities, including pine forests and cypress swamps (Widmer 1988; Griffin 1988; Miller 1998).

While the Paleo-Indians depended more heavily upon the Pleistocene megafauna and the relatively limited number of freshwater sources, Archaic populations hunted smaller game and learned to effectively exploit their changing environment. The gradual environmental changes led in part to the extinction of the Pleistocene fauna as well as resulted in the change in composition and distribution of various vegetative communities (Miller 1998).

Early Archaic populations established camps around water resources, which had become larger and more numerous than in the Paleo-Indian period. These groups could sustain larger populations, occupy sites for longer periods, and perform long-term activities (Milanich 1994:67). This change is reflected in the archaeological record with more and larger sites, a greater range of tools, and sites with a significant number of burials.

Milanich (1994:64) notes that there are no well-documented Early Archaic coastal or riverine shell midden sites. This may be due to sea level rise as opposed to avoidance of these areas. Most Early Archaic sites are small campsites. This type of site may suggest that small bands moved periodically in search of food. The Early Archaic tool assemblages are more diverse than

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the preceding Paleo-Indian tool kits and include specialized stone tools for performing a variety of tasks (Milanich and Fairbanks 1980). Early Archaic sites are recognized by the presence of Greenbriar and Bolen points as well as Kirk, Hardee Beveled, Hamilton, Arredondo, Sumter, and Thonotosassa varieties (Bullen 1975).

The Windover Pond Site in Brevard County is an extraordinary Early Archaic burial site, which has provided unprecedented information about the people at this site 7000 to 8000 years ago. Windover Pond is on the edge of the Atlantic Coastal Ridge about 8 km (5 mi) from Cape Canaveral. About 6000 B.C., Early Archaic peoples began visiting the pond, at that time a woody marsh, to bury their dead in the peat deposits. Each body was wrapped in fabric, which was then staked to the soft peat in or on the bottom of the pond, apparently to keep the body submerged. Archaeological excavations recovered 168 bodies, including 91 preserved brains (Doran and Dickel 1988). Each individual was buried within 48 hours after death because brain and other soft tissues were preserved and recovered during archaeological excavations (Milanich 1994:72).

The peat also preserved artifacts and samples of plant and animal remains that were placed with the burials or had inadvertently fallen into the pond. The artifacts include textiles, stone and bone tools, and wooden objects. The pond was used for interments for at least 1000 years, until about 5000 B.C. Archaeological investigations at the Windover Pond Site suggest that for several years a single social group used the pond to bury their dead, placing bodies in one small area of the pond and later, another group, presumably descendants of the previous group, again used the pond for burials (Milanich 1994). After about 5000 B.C., wetter local conditions filled the pond with too much water and made it difficult to inter bodies on the pond bottom, and thus, burials ceased.

During the Middle Archaic, wetter conditions prevailed, sea levels began to rise, and pine forests and swamps began to emerge (Watts et al. 1996). The climate was changed to one of more pronounced seasonality with warmer summers and colder winters; by 4000 B.C., the climate became essentially the same as that of today (Watts et al. 1996:29). Settlement became focused within coastal and riverine locales (Milanich 1994:64). The Mount Taylor period has been identified for the time between roughly 5000-2000 B.C. (Milanich 1994). Subsistence was based on hunting, fishing, shellfish collecting, and plant gathering. Sites are generally located along the Atlantic coast or along the upper reaches of the St. Johns River and the Ocklawaha and Wekiva Rivers. Miller (1998:68) suggests that when sea levels reached their current positions, the St. Johns River changed its riverine characteristics to become similar to a lake in the upper reaches and more estuarine in the lower reaches.

About 4000 B.C., present-day vegetation patterns became established; hammocks of broad-leafed mesic trees, pine forests on uplands, and bayhead and cypress swamps became significant plant communities (Watts 1971). It is believed that populations combined hunting and gathering into a productive subsistence strategy, and as a result, occupation became more sedentary, and village life began (Milanich and Fairbanks 1980:147-152). Middens of mystery snail, apple snail, and mussel provide evidence of occupation and resource exploitation along the rivers of east and central Florida.

The type site for this period is the Mount Taylor Site in Volusia County (Moore 1893). The artifact inventory of the Mount Taylor people, as evidenced at the Groves' Orange Midden (8VO2601) and the Lake Monroe Outlet Midden, includes stone projectile points, tools, and

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microliths, as well as tools and decorative items of shell, bone, and wood (ACI/Janus 2001; Purdy 1994; Wheeler and McGee 1994a, 1994b). Numerous shell and bone items recovered from these sites indicate contact with the coast.

According to Milanich and Fairbanks (1980:151), one of the most interesting aspects of the Mount Taylor culture is evidence for mass burial interments in specially prepared areas within shell middens. The burial mound at Tomoka (8VO51) is one of the earliest in Florida (Piatek 1994). The Tomoka Site (8VO81) consists of nine mounds and a surrounding village midden. Occupants of this site used estuarine and coastal resources as evidenced by extensive use of coquina (coast) and oysters (estuary). No ceramics have been recovered from any of the excavations conducted at this site complex (Douglass 1882; Piatek 1992, 1994). The Tick Island Site, located in the St. Johns River Basin west of Lake Woodruff, contained 175 burials in a freshwater shell midden. As Milanich describes, “the burial ritual began with the scraping of a shallow depression on top of an existing freshwater shell midden. Bodies, each wrapped in a flexed position, were placed in the depression in a cluster and covered with a mound of sand” (Milanich 1994:82-83). The Gauthier Site is another burial site dating to the Middle to Late Archaic and is located in Brevard County near the coast, about 9.6 km (6 mi) inland from the Atlantic. The Gauthier Site contained approximately 110 individuals, which were interred in shallow depressions in soil, rather than in shell as in Tick Island. The bodies were laid one on top of the other in the depressions (Milanich 1994:83). Artifacts recovered with the burials included limestone throwing-stick weights, projectile points, stone tools, shell beads, bone tools and ornaments, and worked sharks’ teeth (Milanich 1994:83).

In general, the diagnostic stone tool types of the Middle and Late preceramic Archaic period were large stemmed projectile points, especially the Newnan type. Other common point types include Hillsborough, Levy, Putnam, Alachua, and Marion (Bullen 1975). In addition, silicified coral was more prevalent as a lithic tool raw material (Milanich 1994) and thermal alteration of the stone became more common (Ste. Claire 1987).

Interior sites include the smaller lithic scatter campsites that were most likely used for hunting or served as special use extractive sites for such activities as gathering nuts or other botanical materials (Ste. Claire 1989, 1990). Nut collecting stations would have been used seasonally.

By about 2000 B.C., the firing of clay pottery made its appearance in Florida. The first ceramic types had fibers (Spanish moss or palmetto) as the tempering agents within the clay. These wares are referred to as the Orange series. The Orange period was divided into subperiods based on a variety of ceramic attributes (Bullen 1955, 1972; Milanich 1994). Initially it was thought that the ceramics lacked decoration until about 1650 B.C. Recent research, however, has questioned the entire Orange chronology (Sassaman 2003). Based on a series of accelerator mass spectrometry (AMS) dates on soot from Orange Incised sherds from the Middle St. Johns Valley and from radiocarbon dates on oyster and charcoal in association with Orange ceramics near the mouth of the river, all the various Orange ceramic types occur within the time span of roughly 4100-3600 years ago. In addition, research by Cordell (2004) has documented the presence of sponge spicules in the Orange ceramic paste (the diagnostic trait of St. Johns wares), which suggest that the St. Johns ceramic tradition extends back to the beginning of the ceramic technology in the region (Sassaman 2003:11).

Orange settlements were primarily located near wetland locales. The abundance of resources located in and near the wetlands permitted larger settlements. This change in settlement

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patterns may be related to environmental changes resulting from the establishment of current sea levels. By the end of the Middle Archaic, the climate closely resembled that of today; vegetation changed from those species that preferred moist conditions to pines and mixed forests (Watts and Hansen 1988). The adaptation to this environment allowed for a wider variety of resources to be exploited and greater variability in settlement patterns. Shellfish, fish, and other food sources were now available from coastal and freshwater wetlands resulting in an increase in population size.

Several sites recorded (8BR82A, -86, -87, -88C, -89, -221, -227, and -231), within the CCAFS have Orange period components (Bellamo 1996; Cantley et al. 1994a; Cantley et al. 1994b; Deming and Horvath 1999). Sites within KSC and MINWR include 8BR79, -82, -163, -166, -169, -171, -774, and -1619 (ACI 1990, 1991, 1992a, 1992b, 1996; Griffin and Miller 1978; Long 1967; Smith 1973).

Bridging the close of the Archaic stage and the beginning of the Formative is the Florida Transitional period, circa 1200 to 500 B.C. In general, this time was characterized by increased regionalism, population growth, and socio-cultural complexity (Bullen 1959, 1970). Exploitation of shellfish, fish, and wild plants, as well as a reliance on hunting, was continued and limited horticulture may have been engaged in at this time (Milanich and Fairbanks 1980). The Florida Transitional period is identified by the presence of St. Johns Incised ceramics (Bullen 1955b, 1972; Milanich 1994; Miller 1998). Bullen hypothesized that during the Florida Transitional period, the diffusion of culture traits, resulting from the movements of small groups of people, led to the spread of several ceramic and tool traditions (Bullen 1959). The major changes in post-Transitional cultures cannot be attributed to environmental changes, but rather appear to be the result of social, political, religious, and technological innovations introduced from elsewhere in the eastern United States (Miller 1998:76). A few sites within the CCAFS (BR86, 087, 232) date from this period (Cantley et al. 1994b; Deming and Horvath 1999). In addition, the Zabski Site (Atkins and MacMahan 1967; Bullen 1972) on Merritt Island in Brevard County has been attributed to this period.

I.1.4 Formative

The period from about 500 B.C. until A.D. 750 in the East and Central Lakes Region is referred to as St. Johns I/Malabar I, which has been divided into three temporal subperiods: St. Johns I (500 B.C. – A.D. 100), St. Johns Ia (A.D. 100 – 500), and St. Johns Ib (A.D. 500 – 750) based primarily on characteristic ceramic types (Milanich 1994:247). There are regional variants of this basic cultural tradition: the St. Marys to the north and the Indian River to the south. The St. Marys Region is located at the mouth of the St. Johns and extends northward into Georgia (Russo 1992). Sites in this area contain a mixture of Georgia ceramics as well as St. Johns ceramics.

At the southern end of the East and Central Lakes Region is the Indian River Region, which was first defined by Rouse (1951). There is a much higher prevalence of sand-tempered wares in this region. Malabar I is coeval with St. Johns I. Malabar II occurs at the same time as St. Johns II and both are defined based on the presence of St. Johns Check-Stamped pottery. Cordell's ceramic analysis has helped to better define the cultural sequences in this more southern area (Sigler-Eisenberg et al. 1985).

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Settlement patterns during this time were virtually the same as that seen for the earlier Mount Taylor and Orange periods, i.e., along the coastal estuaries and larger rivers. However, there was also a tremendous increase in the number of archaeological sites. An apparent trend from St. Johns I through Ib times was a population shift into the northern part of the St. Johns River Valley, possibly due to the need for more arable land (Milanich and Fairbanks 1980:158).

Village wares were almost all St. Johns Plain throughout this period. St. Johns Incised is associated with the early St. Johns I period. Deptford and Swift Creek pottery are occasionally present in St. Johns I and Ia subperiods. St. Johns Cordmarked ceramics are associated with the St. Johns Ia period while Dunns Creek Red is associated with the St. Johns Ia and Ib periods. Cordell notes that through time, the St. Johns Plain ceramics become sandier due to increased use of quartz sand as an aplastic agent (Russo et al. 1989:68).

Evidence of the continuous use of burial mounds begins at this time. Many of the burials were found in large central pits, probably the result of secondary interments. Some changes in the burial practices include the possible use of log tombs during the St. Johns Ia period as well as inclusion of Hopewellian-Yent complex exotic trade items (Milanich 1994:261). Much of the information on St. Johns I period burial practices has been obtained from the Ross Hammock Site in Volusia County (Bullen et al. 1967). This site complex consists of two large burial mounds and an extensive village midden located on the west shore of Mosquito Lagoon. Year-round occupation of the coast and along the rivers occurred with special use-activity sites located in other locales and short-term campsites on the coast.

I.1.5 Mississippian/Acculturative

The St. Johns II/Malabar II period has also been subdivided into three subperiods: St. Johns IIa (A.D. 750 – 1050), St. Johns IIb (A.D. 1050 – 1513), and St. Johns IIc (A.D. 1513 – 1565) (Bense and Mattick 1994; Milanich 1994). The St. Johns II periods are marked by the presence of St. Johns Check-Stamped pottery. “St. Johns II carries on the tradition and is marked only by the introduction of check-stamped pottery” (Goggin 1952:70). Within the Malabar IIb period, in addition to the St. Johns Check-Stamped pottery, we see the addition of Safety Harbor and Fort Walton trade wares from the Gulf Coast and Panhandle of Florida (Bense and Mattick 1994). In addition, Southeastern Ceremonial Complex status and ritual items are occasionally found within the burial mounds. The inclusion of European items into the Malabar material culture is the marker for sites associated with the Malabar IIc period. Occupation of riverine and coastal shell middens continued, although Miller (1998:80) notes that there is a relative increase in the number of non-riverine and non-coastal sites, perhaps as the result of locating sites in more agriculturally suited locales.

Milanich and Fairbanks (1980) suggest that hunting and gathering remained important, but the dependence upon cultivated crops such as maize, squash, and gourds increased. The use of gourds as domesticates is still being studied as there is no evidence for cultivation even though gourds and squashes have been around for thousands of years prior to this period (Newsom et al. 1993). Sigler-Eisenberg and her colleagues (1985) suggest that in the Upper St. Johns Basin, the practice of horticulture was not adopted. Russo (1984) and Sigler-Eisenberg (1984) further indicate that the wetland ecology and subsistence strategies were different.

There was an increase in the number and size of villages during the St. Johns IIa period suggesting population expansion. A ranked society evolved as evidenced by the differential

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burial customs. No longer were all people interred in burial mounds. Deagan (1978:109) notes that around A.D. 1000, a population shift from the more southern and southwestern areas into the northern areas is evidenced by changes in relative frequencies of burial mounds in the areas over time.

The St. Johns IIb period is characterized by the adoption of some Mississippian traits into the ceremonial system as well as the presence of St. Johns Simple Stamped ceramics. The Mississippian lifestyle, however, never became dominant, possibly because the soils were not suitable for full agricultural pursuits. A more complex socio-political organization is suggested by the presence of platform mounds at the ceremonial centers including the Shields Mound, Mount Royal, and the Thursby Mound (Ashley 2005a, 2005b; Moore 1894a, 1894b).

The St. Johns IIc period is marked by the introduction of European artifacts in some of the mounds. The historic aboriginal occupants of the region were the Timucua, Mayaca, and the Ais. The Timucuans shared a common language, but cannot be considered as a specific cultural group, because the range of the Timucuan speakers "... was crosscut by dialect, techno-environmental, ceremonial, political and geographical differences" (Deagan 1978:89). The project area lies within the extreme northern section of the Ais territory (Hann 2003; Milanich 1995). Although these Indians apparently continued the St. Johns tradition, they did not share the same Timucuan language as many of the other St. Johns historic counterparts (Milanich 1995).

The arrival of the Europeans in the 1500s began a period of extensive social and cultural upheaval. Many of the traditional ways of life were destroyed or abandoned. Warfare and European diseases brought an end to the aboriginal inhabitants and their cultures. Due to the attempts of the Spanish military and missionaries to alter the traditional lifeways, by the end of the 17th century these aboriginal populations were virtually extinct. Raids in the early 18th century by Indian groups allied with the English drove many of the Mayaca and Timucuans to seek refuge near St. Augustine where most perished in warfare or because of epidemics (Hann 1993:133; Milanich 1995). By the first half of the 18th century, the native populations had all but vanished (Neill 1968) and groups of Creek Indians, who came to be known as Seminoles, moved into Florida. What few Timucua survived were transported to Cuba with the Spaniards of St. Augustine when Spain surrendered to Britain (Hann 1993:324).

I.2 Historic Context

I.2.1 First Spanish Period

The cultural traditions of the native Floridians ended with the advent of European expeditions to the New World. The initial events, authorized by the Spanish Crown in the 1500s, ushered in devastating European contact. On Ponce de Leon's first voyage to "La Florida," his initial landing site has long been suspected as north and in the general vicinity of Cape Canaveral (Milanich 1995:108). It is likely that he anchored offshore one of the Native American villages in the territory of the Ais, the Native American group living in the area at the time of European contact (Rouse 1951:48). After Ponce de Leon's journey in 1513, Spanish explorations were confined to the West Coast of Florida (Narvaez in 1528; DeSoto in 1539) and European contact along the East Coast was left to a few shipwrecked sailors from treasure ships, which by 1551, sailed through the Straits of Florida on their way to Spain. This changed when the French established a colony near the mouth of the St. Johns River. The Spanish, viewing this as an

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intrusion into Spanish Florida, responded by sending Pedro Menéndez de Avilés, commissioned Adelantado, or royal governor, of Spanish Florida to head off the relief fleet of Ribault and remove the French from Florida.

In an attempt to attack the newly established colony in St. Augustine, Ribault assembled his ships and most of his soldiers for battle and headed southward. Near the Cape Canaveral area, a landmark known to early explorers and sailors, they were forced ashore. Here they constructed a fort, a “rough earthwork surmounted by six bronze cannon from the Trinité,” and began building a boat (Lyon 1976:128). Indians, friendly to the Spanish, related this information to Menendez, who captured all but one French captain and a few soldiers who decided to risk their fortunes with the Indians rather than the Spanish Catholics. The location of the French fort may be the Oyster Bay Site (8VO3128), located less than .8 km (.5 mi) north of the KSC property boundary. Here, European artifacts in various stages of re-manufacture and showing evidence of technology beyond protohistoric Native Americans have been recovered. Sixteenth century artifacts, like those recovered from the Oyster Bay Site have also been recovered from the Pistol Point Site (8VO3129) (Brewer and Horvath 2004), located approximately .8 km (.5 mi) south of the northern KSC boundary.

After burning the French fort, destroying the boat, and burying the cannons, Menendez proceeded southward (Lyon 1976), passing a number of villages from which the Indian inhabitants had fled. He left mirrors, knives, scissors, and bells as a sign of good will and received hospitality and food in return from the Ais who lived near the Indian River inlet (Barcia 1923:91 in Rouse 1951). Menendez remained four days, arranging for 200 of his men under Juan Velez de Medrano to settle nearby while he continued to Havana for supplies and to turn over the French prisoners. However, upon his departure, the Ais attacked the soldiers and Medrano moved the survivors to the southern end of the Indian River where the more friendly Guacata Indians, and a better supply of food, could be found. He named the new settlement Santa Lucia, or St. Lucie (Barrientos 1902:96-97 in Rouse 1951; Menendez 1893:111 in Rouse 1951).

During Spain's first period of occupancy (1565-1763), no permanent settlements were established within what today are the KSC property boundaries. Located on the fringe of Spanish activity centered in St. Augustine, Indian River was too far removed for Spain to exert political control (Milanich and Fairbanks 1980). While a system of Catholic missions along the Atlantic coast and in the interior of Florida had been established in the early years, many of the inhabitants were frequently relocated and consolidated often moving to areas around St. Augustine. Many land grants were issued to Spanish citizens although often these were not occupied. Spanish cattle ranches were present in La Florida, the largest situated in present-day Alachua County, and citrus groves in the vicinity of St. Augustine produced some exports, as did the naval stores industry. St. Augustine, though, was primarily a military outpost, supported by the Spanish government (HSAPB 1985).

From the 1570s into the 1700s, there are references to Spanish contact with the Ais (Rouse 1951:50-56). Most accounts describe the encounters as hostile, but others are described as hospitable (Rouse 1951:53-53). Alvaro Mexia, a young soldier, visited and described the area in 1605 while on a diplomatic mission. His first-hand observation and accompanying map of the area from St. Augustine to south of Cape Canaveral provide detail about the environment and Native American villages (Higgs in Rouse 1951:265-274). Included is the town of Surruque (near Ross Hammock), Surruque Mound (Mt. Tucker or Turtle Mound), Lake or Lagoon

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Surruque (Mosquito Lagoon), Urruya (area of Haulover Canal), and the Lagoon of Savovoche (Banana River). However, the most important description of the Ais in the 17th century was recorded by Jonathan Dickinson who, with his family and other members of his party, was shipwrecked in September 1696 while en route from Port Royal, Jamaica, to Philadelphia. The group walked from the coast of the Jeaga territory, thought to be located to the south of the Ais, northward to St. Augustine. Although the party spent only a brief time among the Indians, Dickinson left a vivid account of Ais appearance, dress, subsistence, ceremonies, and other customs (Andrews and Andrews 1975).

After the establishment of St. Augustine, Native American groups living in the general area of the Cape sometimes exchanged shipwrecked or captured individuals to the Spanish in exchange for manufactured goods such as beads, cloth, and metal tools (Lyon 1995 in Parker 2002). Such items, including a European silver pendant with a Native American design, have been found in archaeological sites in the Indian River area (8BR90, Fuller Mound; 8BR85, Burns Mound). It is likely that the Ais population sharply declined during the 17th century. The number of villages mentioned by Mexia, and the number mentioned by Dickinson are in contrast; even though they traveled through the same areas some 90 years apart.

I.2.2 British Period

By the early 1700s, the native populations were largely gone - ravaged by conquest, disease, and the typical effects of European contact. The area that now constitutes the State of Florida was ceded to England in 1763 after two centuries of Spanish possession. Britain divided its possession into two parts, East and West Florida with seats of government in each part. St. Augustine was the capital of East Florida. Soon after taking possession of Florida, the governor of East Florida, Col. James Grant, announced that a road (Old King's Road) would be built from Georgia, through Jacksonville, St. Augustine, and Flagler County, to New Smyrna (Clegg 1976; HPA 1987). A section was also built from New Smyrna southward ". . . on to Eliot's plantation at Stobbs" (Schafer 2001:164). Constructed between 1770 and 1774, the King's Road linked the British colonies of the Carolinas and Georgia with East Florida.

England, and the governor of East Florida, Col. James Grant, desired to populate Florida lands quickly and implemented a system of land grants. Many entrepreneurs took advantage of this and promised to import labor for the plantations that they envisioned on their lands. One of the largest and well-known is New Smyrna, located to the north of KSC. Over 1250 Minorcans, Corsicans, Italians, and Greeks, indentured to Dr. Andrew Turnbull and his British partners, arrived in 1768. The New Smyrna Colony was one of the most ambitious agricultural enterprises undertaken during the British occupation of East Florida. Despite the construction of numerous houses, workshops, storehouses, a church, wharves, and canals, the settlement was not prosperous. In 1777, the New Smyrna colonists moved en masse to St. Augustine.

The documentation for the plantations south of New Smyrna was, until recently, limited. Recent research conducted by Schafer and others has provided a more complete picture of the British era plantations in Florida, and especially in this region of the state. A 1769 coastal map of East Florida, based on William Gerard de Brahm's work, shows the "carrying place" (the Haulover) and "Cape Round Creek" on Merritt Island. The areas of Merritt Island near the water are described as "water mangrove swamp" or "saltwater mangrove swamp" and the southern portion are shown as "pine." No structures or grant lands are shown (Lewis and Lewis 1769). The de Brahm map (1769) shows the 10,000-acre Thomas Bradshaw grant on the west side of

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Indian River across from the Haulover and the 20,000-acre William Faucitt grant at the head of Indian River. Both Bradshaw and Faucitt are listed as inhabitants of East Florida (Griffin and Miller 1978).

An undated map indicates that a grant at the head of the Indian River on or near the Faucitt grant was made to William Elliot and a grant to the north of this property was made to Captain Robert Bissett (Griffin and Miller 1978). Bissett's plantation is believed to be located north of Oak Hill and Elliot's on the KSC property in the area known as Ross' Hammock. This area also appears on maps as the Creyon and Gomez grants of the Second Spanish Period (Griffin and Miller 1978). Both Bissett and Elliot developed plantations, and in Bissett's claim to the Crown, after the retrocession of Florida to Spain, he notes the presence of "Mr. Elliot's Plantation" a few miles to the south. Here, sugar was planted "with tolerable success" (Griffin and Miller 1978; Siebert 1929). Additional information about Elliot's Plantation is known through correspondence from Grant (Schafer 2001:164), Turnbull (1769, 1774, 1778), Laurens (1773), and Moultrie (1773) where it was noted that Elliot was experimenting with and producing sugar cane and indigo (Schafer 2008). During the year 1774, according to correspondence of the time, between 60 and 70 acres of cane had been planted (Moore 2008b; Schafer 2008). Plantation maps indicate several "negro houses" and other structures present on the 12,000-acre Elliott grant (Moore 2008b). Evidently, unlike others, Elliot did not petition the Crown for his claim at the end of British occupation, as no records have been found (Griffin and Miller 1978).

The names "Ross' Plantation" or "Ross' Old Place," are frequently found in the documentation of the time and refer to the Elliot Plantation. Additionally, the term "Stobbs" is found in several references and likely refers to the plantation's name (Schafer in Moore 2008b; Schafer 2001:101, 164, 165). John Ross worked as an agent for Elliot, arriving in East Florida probably in late 1767 aboard the "Aurora" (Moore 2008b). His name is mentioned in several pieces of correspondence of the time including Laurens (1773), Mulcaster (1772), Turnbull (1769) and in Romans (1775) (Schafer 2008). Additionally, it is believed that Michaux (1788) was referring to Ross' Plantation (Elliot's Plantation) when he mentioned "I crossed the swamp which once formed this habitation on which sugar cane had been cultivated and finally towards midday, we came to the Indian River" (Taylor and Norman 2002:54). It has been suggested that "Roger" may be a misprint for "Ross" (Griffin and Miller 1978; Taylor and Norman 2002). According to Griffin and Miller (1978) the inconsistencies among the maps and the documentary information make it difficult to distinguish the amount of local British plantation activity, although new and ongoing research is adding to the general knowledge of the area. In general, the British adaptation produced greater exports than the Spanish, although the majority of the plantations had failed by the time the land was returned to Spain (Griffin and Miller 1978:145).

Recent archaeological investigation of the Elliot Plantation Site, including the complex at Ross Hammock (8VO2569) and the "sugar mill ruins" (8VO160), determined that all sites date to the 1773-1783 East Florida British Period (Schwadron 2008b). At Ross Hammock, the previously interpreted Confederate Salt Works (8VO213) is "likely the ruins of one of Jon Ross' first settlement, dating to around 1763" (Schwadron 2008b). The structure may have been the overseer's main house. In the Ross Hammock site area a potential slave village area with artifacts suggestive of an 18th century domestic occupation was found. Investigation of the Sugar Mill Ruins Site (8VO160) revealed structures and associated artifacts dating to 1750s-1780s. Also discovered at this location was another component, the Elliot Slave Village (Schwadron 2008b).

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I.2.3 Second Spanish Period

England governed Florida until 1783 when the Treaty of Paris returned Florida to Spain; however, Spanish influence was nominal during this second period and land ownership was open to non-Spanish people under certain stipulations. Many of the large plantations were divided into smaller land grants. Early in the period, the governor was authorized to grant land on the condition of settlement or improvement, but a second royal order allowed the granting of land as a concession for military service. Once it was recognized that the region was eventually to become an American Territory, many grants were made for the primary purpose of ensuring property rights that would be honored by the next government (Tebeau 1980:103). The earliest was an 1801 grant to Lewis Mattair for 300 acres in the vicinity of the English settlement called Ross' Plantation. An 1809 plat showed cleared land, an orange grove, a dock, and a canal. Mattair raised cotton and corn and possessed slaves. In 1822, Mattair sold the grant to Antelm Gay (Griffin and Miller 1978).

In 1803, John H. McIntosh obtained a land grant from the Spanish Crown for today's Merritt Island. In his memorial written to claim the land, McIntosh wrote that he was prepared to move his family and 250 slaves to the island. However, his move was never made and instead a man named Merritt was apparently sent by McIntosh to look after the property. Merritt made improvements to the land by planting citrus. The name "Marratt's Island" appears on an 1817 plat and the name Merritt's Island appears on the Tanner map of 1823 (Olausen 1991:3).

In 1804, land was granted to Francisco Reyes. Whether Reyes occupied the land is unknown, although unlikely since Reyes served in the militia from March of 1812 to January of 1813. Additionally, few plantations in the region were occupied during this period due to the East Florida Rebellion. In May of 1817, Reyes petitioned for title to the land and it was granted. Florida's Second Spanish Period ended in 1819, when Florida became a territory of the United States. Reyes' land was later sold to Lucas Creyon in 1821 for 1000 pesos (Griffin and Miller 1978).

I.2.4 Territorial Period and Early Statehood

Prior to the American colonial settlement of Florida, portions of the Creek Nation and remnants of other Indian groups from Alabama, Georgia, and South Carolina moved into Florida and began to repopulate the vacuum created by the dissemination of the aboriginal inhabitants. The Seminoles, as these migrating groups of Indians became known, formed, at various times, loose confederacies for mutual protection against the new American Nation to the north (Tebeau 1971:72). Adair (1930:489 in Rouse 1951:58) records a band of Creek Indians on a raid into South Florida, who traveled up the St. Johns River to its headwaters and portaged through Ais territory to the Indian River.

The bloody conflict between the Americans and the Seminoles over Florida first came to a head in 1818 and was subsequently known as the First Seminole War. As a result of the war and the Adams-Onis Treaty of 1819, Florida became a United States Territory in 1821. Andrew Jackson, named provisional governor, divided the territory into St. Johns and Escambia Counties. At that time, St. Johns County encompassed all of Florida lying east of the Suwannee River, and Escambia County included the land lying to the west. In the first territorial census in 1825, some 5,077 persons reportedly lived east of the Suwannee River; by 1830 that number had risen to 8,956 (Tebeau 1971:134).

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Even though the First Seminole War was fought in north Florida, the Treaty of Moultrie Creek in 1823, at the end of the War, was to affect the settlement of all Florida. The Seminoles relinquished their claim to the whole peninsula in return for occupancy of approximately four million acres of reservation south of Ocala and north of Charlotte Harbor (Mahon 1967:46-50). The treaty never satisfied the Indians or whites. The inadequacy of the reservation and the desperate situation of the Seminoles living there, plus the mounting demand of the whites for their removal, soon produced another conflict.

By 1835, the Second Seminole War was underway. Mosquito County, which encompassed present-day Brevard County, was sparsely occupied with mostly sugar plantations along the rivers near the coast. Seminoles ransacked or burned 16 of these plantations on the northern Mosquito Lagoon by January 1836 (Eriksen 1994:36). The Commanding General, Thomas Jesup, launched a plan to surround the Seminoles within the Everglades. From northern Mosquito County he ordered four main columns to form a staggered front to begin marching south (Eriksen 1994:36). Fort Ann, Fort Pierce, Fort Taylor, Fort Christmas, and Fort Bassinger were a few of the forts established during this period on the eastern side of the peninsula.

Fort Ann was constructed at the Haulover, on the Indian River side of the crossing, within Township 20 South, Range 36 East. The intent was to erect a fortified depot that would serve as a place to supply troops continuing down the Indian River. Construction of the fort was completed between December 26 and December 30, 1837. At the time, approximately 900 troops were situated at the Haulover, likely living in tents readying to embark on a major military offensive against the Seminoles. While two first-hand reports of life at the fort exist, they give little detail about the fort construction techniques. It is not until 1880, when J. Francis LeBaron surveyed the area that a sketch of the fort appears in the documentation (Paterno 2003). By this time, the Haulover Canal, located to the north of the Old Haulover, had been completed (HPA 1987). The presence of bastions, glacis, ditch, and terraplein are shown on the map (Figure 9-1). There are no documented accounts of Fort Ann under attack, nor any for Fort Hernandez which existed on the western side of the Indian River. However, there are accounts of troops returning to Fort Ann several times to obtain provisions (Paterno 2003). The fort was abandoned in 1838 by the Army, but accounts of its use during the Civil War as a Union camp (Kjerulff 1972; Paterno 2003) and as a station for the U.S. Schooner Beauregard to prevent trafficking along the inland waterway exist (Department of the Navy 1971 in Parker 2002). In 1880, LeBaron described the Haulover Canal as 20 feet wide (State of Florida 1880:185) and provides a sketch of the canal in his field notes (State of Florida 1880:217). Additionally, LeBaron describes a Fort Ann parapet as being 3 to 4 feet high and a ditch about 8 feet wide on the north side of the fort (State of Florida 1880:185). He also described a 12 by 20 foot, one-story house, an orange grove, and a “small agreeable garden” around the house within the fort walls. The house was owned by W.E. Futch (Paterno 2003; State of Florida 1880:199). In his notes, LeBaron credits the assistance of Daniel L. Futch (“chainman”), Leonard Griffis (“chainman”), and Shelby Revels (“axeman and moundman”) (State of Florida 1880:175).

The Second Seminole War lasted until 1842, when the Federal Government decided to end the conflict by withdrawing troops from Florida. Some of the battle-weary Seminoles were persuaded to migrate west where the Federal Government had set aside land for Native American inhabitation. However, those who were adamant about remaining were allowed to do so, but were pushed further south into the Everglades and Big Cypress Swamp. This area became the last stronghold for the Seminoles. The surveys and maps of the Florida peninsula

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and the establishment of improvements such as trails and forts resulting from the war provided invaluable assistance in the settlement of Florida (Mahon 1967:321).

Encouraged by the passage of the Armed Occupation Act in 1842, which was designed to promote settlement and protect the Florida frontier, Anglo-American pioneers and their families moved south through Florida. The Act made available 200,000 acres outside the already developed regions south of Gainesville to the Peace River, barring coastal lands and those within a two-mile radius of a fort. The Armed Occupation Act stipulated that any family or single man over 18 years of age able to bear arms could earn title to 160 acres by erecting a habitable dwelling, cultivating at least five acres of land, and living on it for five years. During the nine month period the law was in effect, 1184 permits were issued totaling some 189,440 acres (Covington 1961:48; Dunn 1989:24-25). Prospective settlers filed 112 patents for land along the Indian River between Merritt Island and Lake Worth. These settlements collectively received the name of the Indian River Colony (Shofner 1995:45).

Although the boundaries of Brevard County underwent many changes, in 1844, it became Florida's twenty-fifth county (Morris 1986). A year later, Florida was admitted to the Union with Tallahassee as the capital. It was during this time that the U.S. Government began land surveys. Most of the exterior boundary lines of the Townships and Ranges included within today's KSC property were surveyed in 1843 and 1844 by H. Washington (DEP 1843a, 1843b, 1843c, 1843d, 1844a, 1844b, 1844c, 1844d, 1844e, 1844f, 1844g, 1844h, 1844i, 1844j) while others were surveyed by W. S. Harris in 1860 (DEP 1860a, 1860b, 1860c, 1860d, 1860e, 1860f, 1860g). The private Spanish Land Grant claims of Antelm Gay, the heirs of N. Gomez, and Lucas Crayon, were surveyed by D.H. Burr in 1850 (DEP 1850). The resulting plats for the private claims show several features on the properties such as the "Road to the Haulover," the "Old Road" between the three properties, two canals, several "old fields," a "mound," and an "orange grove" (DEP 1852a) (Figure 9-2). The field notes for the Burr survey also mention the road and the "old field of canals," but also include an orange grove, the site of an "old home," and an "old chimney" (DEP 1850:202, 209-211, 214-216). Interestingly, the Gomez land grant is situated within the Gay grant.

The plats for the remainder of KSC's property are descriptive in terms of environmental features, but no man-made features other than the "Haulover" and the "Old trail leading from the Haulover to Smyrna" are noted (DEP 1848). "Meritts Island," the Indian River, Mosquito Lagoon, Banana River, the "West Channel," the "Main or Middle Canal," the "East Channel," and the direction of water flow in these waterways are easily identified on the plats (DEP 1845, 1846, 1859, 1860e, 1860f). In one case "Hillsboro River or Mosquito South Lagoon" is used (DEP 1852b). "Palmetto scrub," "Savanna," "scrub," "inundated marsh," "mangrove," and "hammock" are all used to describe the land on the plat maps (DEP 1845, 1846, 1859, 1860e, 1860f).

One important development during these early years prior to the Civil War was the opening of the first Haulover Canal. Recommendations for the construction of a canal began as early as 1824. An appropriation was passed in 1844 and the canal was completed in 1854. It measured approximately one-third of a mile in length, 10 to 12 feet in width, and three feet in depth. One of the first major man-made improvements to the inland waterway system, it allowed shallow draft vessels to cross from Mosquito Lagoon into the Indian River (HPA1987; Lincoln 1882).

Throughout the intervening years between the Second and Third Seminole Wars, tensions erupted periodically between settlers and Seminoles. For example, in 1849, a renegade group

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of Seminoles attacked the Indian River Colony established by the Armed Occupation Act. As a result, the remaining settlers abandoned their land to flee to the safety of St. Augustine (Shofner 1995:52). Then, in December of 1855, the Third Seminole War, or Billy Bowlegs War, started as the result of pressure placed on Native Americans remaining in Florida to move west (Covington 1982). This war started in present-day Collier County when Seminole Chief Holatter-Micco, Billy Bowlegs, and 30 warriors attacked an Army camp killing four soldiers and wounding four others. The attack was in retaliation for damage done by several artillerymen to property belonging to Billy Bowlegs. This hostile action renewed state and federal interest in the final elimination of the Seminoles from Florida. As a result, several regional military posts were established (Tebeau 1966).

Military action was not decisive during the war; therefore, in 1858, the U.S. Government resorted to monetary persuasion to induce the remaining Seminoles to migrate west. Chief Billy Bowlegs accepted $5,000 for himself and $2,500 for his lost cattle, each warrior received $500, and $100 was given to each woman and child. On May 4, 1858, the ship Grey Cloud set sail from Fort Myers with 38 Seminole warriors and 85 Seminole women and children. Stopping at Egmont Key, 41 captives and a Seminole woman guide were added to the group. This made a total of 165 Seminoles migrating west. On May 8, 1858, the Third Seminole War was declared officially over (Covington 1982:78-80).

The 1860 census counted only 267 individuals living in Brevard County. Slaves comprised a third of the population and many of them were owned by farmers of little means. Most of the settlers in the Indian River area grew subsistence crops, but, according to the 1860 census taker, no individual or firm yielded any product, which was valued above $500 per year. Cattle ranching composed the largest industry in the county; 39 people owned cattle with five of those owning more than 3,000 head (Shofner 1995:65-66).

In addition to subsistence crops, citrus was commercially grown in the region as early as the 1820s. Col. Thomas Dummett and son, Captain Douglas Dummett, acquired 3,000 acres on the northern end of Merritt Island in 1818. By 1828, barrels of fruit were commercially shipped from the Dummett groves in cypress logs poled by slaves. One vessel, the shallow draft Minorcan Sailor could hold as many as 50 crates of oranges and was used for many years. In addition to the groves, the Dummetts were involved in many endeavors in the region. Col. Dummett had served in the British Royal Marines and had been a planter on Barbados before fleeing the island to settle in Florida.

Captain Douglas Dummett was the customs house officer at New Smyrna and had been active during the First Seminole War and, as a result, received land in payment for his service. He was an officer with the “Mosquito Roarers,” a militia organized by Mosquito County residents prior to the Second Seminole War (Hellier 1965; HPA 1987:5-7). Douglas Dummett took advantage of the 1842 Armed Occupation Act and acquired the lands near Fort Ann on March 16, 1843; this land would later become known as Dummett Grove (Griffin and Miller 1978:84, 114). He lived on the property with his common-law wife Leandra Fernandez and his three daughters, Louisa, Kate, and Mary. Dummett’s sparsely-furnished house was a single room with a large coquina fireplace. Structures around the house included a storehouse elevated on posts, an open kitchen structure, and a boathouse. When Dummett died in 1873, he was not present on the property (ACI 1992a:28; Griffin and Miller 1978:116-120). He was a pioneer citrus grower and was the first state representative from the Titusville area following statehood (Hellier 1965:5-7; HPA 1987). Budwood from his citrus grove was sold to many other growers in the general area

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(HPA 1987). His daughter, Kate, married Andrew Jackson, one of the original settlers in the Clifton/Haulover area (Eriksen 1994:136; Shofner 1995). Remains associated with the Dummett home and grove (8BR78) have been documented on KSC's property (ACI 1992a:28; Griffin and Miller 1978:113-122), and it is likely that additional remains associated with the Dummett enterprises are present (Brewer 1991:79-81).

I.2.5 Civil War and Reconstruction

In 1861, Florida followed South Carolina's lead and seceded from the Union in a prelude to the American Civil War. Florida had much at stake in this war as evidenced in a report released from Tallahassee in June of 1861. It listed the value of land in Florida's 35 counties as $35,127,721 and the value of the slaves in the state at $29,024,513 (Dunn 1989:59). The population of Brevard County was only 264 in 1860 (Olausen 1991). Even though the coast of Florida experienced a naval blockade during the war, the interior of the state saw very little military action. In fact, the blockade had little effect on many of the self-sufficient individuals of inland Florida (Parker 2002). One of the major contributions of the state to the war effort was in the supplying of beef to the Confederate Government. The Confederate Government estimated that three-fourths of the cattle, which Florida supplied to the Confederacy, originated from Brevard and Manatee Counties (Shofner 1995:72). In addition to beef, salt, as a necessity for food production, became an important commodity. Union officials saw the elimination of the Confederacy's sources of salt as an important step in shortening the war. Several locations along Florida's coast were used for Civil War salt production, including Cedar Key, St. Marks, Apalachicola, and Key West. While local histories describe the destruction of a salt works in the general area of today's KSC, there is no mention of the disabling of a salt works in the correspondence of S.F. Dupont, an officer involved in the Union Blockade of the inland waters off Mosquito Inlet (Parker 2002). The Civil War lasted until 1865 when General Robert E. Lee surrendered to General U.S. Grant at Appomattox Courthouse in Virginia.

Immediately following the war, the South underwent a period of "Reconstruction" to prepare the Confederate States for readmission to the Union. The program was administered by the U.S. Congress and on July 25, 1868, Florida officially returned to the Union (Tebeau 1971:251). During this Reconstruction period, Florida's financial crisis, born of pre-war railroad bonded indebtedness, led Governor William Bloxham to search for a buyer for an immense amount of state lands. Bloxham's task was to raise adequate capital in one sale to free, from litigation, the remainder of state lands, for desperately needed revenue. In 1881, Hamilton Disston, a Philadelphia investor and friend of Governor Bloxham, purchased four million acres, including property within today's KSC, from the State of Florida in order to clear the State's debt. This transaction, which became known as the Disston purchase, enabled the distribution of large land subsidies to railroad companies, inducing them to begin extensive construction programs for new lines throughout the state. Hamilton Disston and the railroad companies, in turn, sold smaller parcels of land to developers and private investors. Complete sections of property were purchased by the Florida Coast Line Canal and Transit Company beginning as early as 1885, with most land purchased in 1906. The Jacksonville, Tampa, and Key West Railway Company also purchased numerous lots within today's KSC as early as 1880.

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I.2.6 Initial Settlement of the Area

The Civil War stimulated growth in the Indian River area in two ways: many Southerners sought new homes to escape the unrest in the neighboring ex-Confederate states, and the war brought prosperity to a large number of Northerners who sought vacation homes in warmer climates (Shofner 1995:83). In an 1879 itinerary from St. Augustine to Miami, Sand Point, today's Titusville, is described as having a post office and two stores. Merritt (or Merritt's at the time) Island is described as "mostly pine land and has not a half dozen settlers on it" (Unknown 1940:214). Also mentioned in the account are the "canal," Dummett's summer house, and several orange groves in the area (Unknown 1940:214). At the end of the 1870's, 21 one-room schools existed in Brevard County and functioned on a budget of $2,500 (Stone 1988).

One of the newcomers to the area after the Civil War was Ecole (Ercole, Nicole) Tamajo, a rumored Italian nobleman known as Duc de Castellucio (Duke of Castalucci). After Dummett's death in 1872, he bought what was left of the Dummett land in 1881. Much of the property had been given to Dummett's slaves upon his death. De Castellucio, who was married to Jenny Anheuser of the American beer-making family, expanded the estate to 30 acres and, in 1881, built the three-story, 20-room "Duke's Castle," also known as "Dummett's Castle," from a wrecked vessel (Parrish et al. 2001) (Photo 1). Purchased in the 1960s by the Brevard County Historical Society, the structure later was moved to a site on the causeway near Titusville for use as a museum and was subsequently destroyed by a fire after its transfer (ACI 1992a:30; Mote 1977:42). In 1873, the Sand Point Post Office was changed to Titusville and the town continued to grow. Thus, by 1880, 1497 individuals resided in Brevard County and by 1885, Titusville had a population of 250 (HPA 1987).

Improvements in the transportation systems played a major role in fostering growth within the area. By the early 1880s, steamboats regularly serviced the Indian River communities. An 1875 account described how a party could be "hauled over" by sailboat to Titusville, through the Haulover, "thence to the St. Johns River by land, thence by steamer to Palatka. Time four days cost $10.00 to Jacksonville" (Hellier 1965:21). Publications in popular magazines such as Harper's New Monthly Magazine and pamphlets extolled the area's recreational attractions and noted places to visit. Dummett's orange groves, the abundant wildlife seen from the steamers, and the Haulover are frequently described (Barbour 1884; Henshall 1884). Alternately, northern visitors could enter Florida by train to Jacksonville and then board a steamer that carried them to the shores of Lake Poinsett. From there they traveled to Rockledge by wagon where they could continue south on the Indian River (Shofner 1995:97-100). A second overland route began at Enterprise and included travel by horse or wagon to Titusville. Mail and freight traveled down the St. Johns via steamboat to Sanford where it was transferred by smaller boat to Salt Lake and from there overland to Titusville (HPA 1987).

LeBaron's 1880 description of the Haulover Reservation summarizes the area as scrub, oak, and palmetto. He describes the soil as "generally bright reddish yellow and is underlaid with coquina rock." He describes the land as "admirably adapted for the cultivation of pineapples . . . oranges, lemons, limes" (State of Florida 1880:215). Lots owned by homesteaders R.U. Wright, Charles H. Nauman, and Andrew Jackson, are mentioned in his survey notes, as are the fences, sweet orange groves, pineapple patch, bananas, and kitchen garden of Henry D. Sykes. LeBaron also mentions the one-story, unfinished home and wharf of Sykes, all located south of the Haulover Canal (DEP 1880:182-194, 215) (Photo 2). In a January 1882 letter from the Secretary of War, a history of the U.S. Government involvement with the Haulover and a

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detailed description of LeBaron's survey "with a view to opening a passage to Mosquito Harbor, by way of the Haulover . . ." is found (Lincoln 1882). Figure 9-3 is the chart that accompanies this report and Figure 9-4 is the plan of the canal and reservation.

LeBaron also offers many interesting comments and notes in his 1882 report on the precontact sites of Florida for the Board of Regents of the Smithsonian Institution. While discussing the numerous precontact mounds and shell heaps, or kjökkenmöddings as LeBaron called them, of the Mosquito Lagoon and the Indian and Banana Rivers, he mentions several home sites as a way of identifying the precontact site locations. These include the wharf, headquarters, and office of Captain Swift near site 8VO129, a wild orange grove and canal he believed to be the work of Turnbull's colonists at sites VO130/131, Mr. Nauman's house 200 feet east of mound site 8BR77, and the home site of P.E. Wager about 300 feet from the east bank of the Indian River at the river's head (LeBaron 1884).

Beginning in the 1870s several houses of refuge were situated along the Florida coastline to rescue and shelter shipwrecked sailors. In 1882, an Act of Congress authorized the construction of several more houses, including the Chester Shoals House of Refuge (Voss 1968). According to Mote (1977:59), "in 1884 specifications for five houses of refuge for the Florida Coast were drawn up by the U.S. Life Saving Service (which combined in 1915 with the U.S. Lighthouse Service to form the U.S. Coast Guard)." From 1886 until 1915, this facility had a single keeper, Mr. Orlando Quarterman. The station was in use until 1934, and in 1949, it was turned over to the U.S. Department of the Interior. Chester Shoals continued to be used as a Coast Guard Station and training station until World War II (Nolen 2004:82; U.S. Coast Guard 2008). The Chester Shoals station house, like all those built during the period 1875 to 1885, was designed by Francis W. Chandler (Parrish et al. 2001) (Photo 3). Chester Shoals station had a large wood frame main building constructed on piers, having a side-gated roof, chimney at the north end, and wrap-around porch with diagonal porch-support braces. Two outbuildings, a garage, and bathhouse were located a short distance to the south (ACI 1991:26).

In 1886, the Atlantic coast, St. Johns, and Indian River Railroad ran a spur line from Enterprise to Titusville. Shortly thereafter, the line was leased to the Jacksonville, Tampa, and Key West Railroad (JTKW) (Shofner 1995:106-113). The same year, a 1,500-foot dock that extended into the Indian River was built. Track was laid on the dock so the trains could connect with the Indian River Steamboat Company boats, an extension of the JTKW (Foster 2007). By 1892, the JTKW entered into receivership while Henry M. Flagler busily extended his Florida East Coast (FEC) railroad south to the Indian River area. Flagler, a partner with John D. Rockefeller in Standard Oil, visited Florida in 1878, and decided to build a hotel in St. Augustine and a railroad to reach it from Jacksonville. Eventually, this developed into a string of hotels and a railroad, which ran the length of the East Coast of Florida. The railroad had an immediate impact on the entire Indian River Region. It allowed the rapid entry of tourists and permanent settlers while facilitating the export of products to northern markets. The railroad also helped to foster the growth of businesses directly and indirectly associated with the tourist and fruit industries such as ice plants, packing houses, and canneries (Shofner 1995:106-113).

In 1881, a survey reported that 204 orange groves located along the Indian River had produced 14,000 boxes of fruit that year (Shofner 1995:180). Although the orange industry suffered from a freeze in 1886 and repeated freezes in the 1894-95 season, area groves rebounded. Indian River oranges became famous nationwide and brought from 50 cents to one dollar per box above other brands in northern markets. Because of this popularity, some growers were

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marketing their own fruit under fraudulent Indian River labels. To protect their reputation and trademark, orange growers in the area formed the Indian River Orange Growers Association in 1892 (Shofner 1995:183). Of the 3,000,000 boxes of fruit produced in 1890 in Florida, 60,000 came from the Indian River Region (Tebeau 1971). Other industries, such as commercial fishing, lumbering, naval store production, and pineapple and vegetable farming, continued to develop as well.

By the 1880s, there were several settled towns and communities within today's KSC property boundaries. The northernmost was **Shiloh**. It was settled beginning in the 1880s by the Kuhl, Griffis, Taylor, and Pattillo families (Shofner 1995:136-137). John Kuhl purchased several portions of Sections 33 and 34 of Township 19 South, Range 35 East in 1884 from the government (State of Florida n.d.-a:75). Originally from Golconda, Illinois, Kuhl, along with his son George and daughter Hattie, arrived using various means of travel including stage, sailboat, and mule team. First living in a "palmetto shack of two rooms and a hall", the family later moved to a "new home of eleven rooms, one mile east of . . . the post office" (Unknown 2007:17-18). George Kuhl owned and operated the *Golden Rule*, a sailboat that traveled along the Indian River utilizing the Old Haulover Canal. The merchandise to be sold had to be loaded onto a barge and the sailboat would be pushed through the canal. His daughter, Hattie, married John Griffis in 1896 (USCB 1900).

Manning Griffis, his wife, and seven children arrived in the area in 1876. After living for four years in a "palmetto shanty," they built a home in part from scavenged lumber from a wrecked schooner. The house was still occupied in 1925 by Jerry Griffis, the first child born in the area (Unknown 2007:23). Like many in the Shiloh area, the Griffis family was involved in growing citrus (Photo 4) and, soon after moving to the area, established a nursery (Thompson 2008a, 2008b).

In 1889, J.E. Pattillo, his wife, and three children moved to Shiloh and lived in a one-room home. His original 25-acre grove froze in 1895, but within a few years the Pattillo Groves were flourishing. By 1925, the year J.E. Pattillo died, he lived on 300 acres with a home for both he and his son (Crawford Pattillo) with electricity supplied by a Delco Plant, several machine shops, garages, and tenant homes. More than 150 acres were planted in citrus and banana (Unknown 2007:19).

The Taylor family, James, Ollie, and three children, arrived in Shiloh in 1893. Beginning with 5 acres of grove, he slowly added to his acreage and at one time owned 1,500 acres. In 1925, James Taylor had 120 acres in groves, was President of the Shiloh Packing Company (Photo 5) and was supervisor of the Shiloh School (Photo 6). The Taylor family had a Delco Plant-lighted home and a store on the Island (Unknown 2007:20-21).

Others purchasing land in the general area of Shiloh included F.W. Sams and John McLane in 1876, Cephas B. Magruder in 1882, Frederick D. Lenk in 1882, John D. Sears in 1883, and Henry D. Futch in 1885 (DEP n.d.-a:75). A post office was established in the town in 1884 (Photo 7) and in 1886 George C. Kuhl, an orange grower with 10 acres of groves, became the postmaster in the town's only general store (Bradbury and Hallock 1962) (Photo 8). This same year, Shiloh had 35 residents, including W.F. Locky, a schoolteacher (Parker 2002). By 1934, a detailed Intracoastal Waterway map shows several structures and numerous orange groves in the area (Dunn 1934).

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Further to the south were the communities of **Clifton** and **Haulover**. Clifton is located approximately two miles north of the Old Haulover Canal. In 1886, Charles H. Nauman became the postmaster of Haulover and mail was delivered daily. A post office had been established in the area as early as 1882, but had experienced several openings and closings (Bradbury and Hallock 1962:136; Shofner 1995:136). Mr. Nauman, originally from Lancaster, Pennsylvania, was the executor of the Dummett estate and was a nephew of Douglas Dummett (Parker 2002). Other residents in town were J. S. Vann, who had a store and restaurant; Wade Holmes; and the William Watton family (Shofner 1995:136). E.D. Seabrook was the schoolteacher (Parker 2002). An 1889 Florida encyclopedia describes Haulover with a population of 100, as sandy land, "adapted to orange, pineapple, banana, and lemon growing. Land can be bought at $5.00 per acre" (Elliott 1889). Haulover was renamed Clifton in 1889, and a new postmaster, Thomas R. Crook, was appointed (Shofner 1995:136).

Butler Campbell, a former slave, purchased 60 acres of land in the Clifton area from the state in 1875 (Shofner 1995; DEP n.d.-c: 77). Born in Anderson, South Carolina, on October 26, 1848, he settled in Clifton in 1872. He died on June 16, 1922, of a self-inflicted gunshot wound at the age of 73. He is buried in the Campbell/Jackson Cemetery along with his wife, Lucy Warren Campbell, who died in 1900, and a few of their children (Cleveland 1983).

Others purchasing property in the racially-mixed Clifton area included Juliet Fairbanks in 1875, Henry and William Watton in 1876, Thomas Bassnett in 1881, and Manning Griffis in 1883 (DEP n.d.-c:76-77). Andrew Jackson, married to Kate Dummett Jackson, the daughter of Douglas Dummett, developed an orange grove on property purchased from Butler Campbell. Jackson and Campbell decided their children should attend a proper school, and in 1890-91, the "colored school", with M. R. Mahaffey as the teacher, was built (Foster 2006; Shofner 1995:136-137). The school was a 12-by-16 foot pine structure, resting on hand-cut coquina block, approximately one foot off the ground (Foster 2008) (Photo 9). In 2008, remnants of the structure were dismantled for eventual restoration and Reconstruction (Penders 2008b). Andrew Jackson died in 1921; his wife, Kate Dummett Jackson, predeceased him in 1918 (ACI 1996:31). Both are buried in the cemetery north of the Haulover Canal (Parker 2002). A hand-drawn map of Clifton dating to the 1928-1930 shows the layout of the town (Figure 9-5).

In 1888, the New Haulover Canal had replaced the old canal and the community of **Allenhurst** had been established at the new location. The United States Coast Survey recommended the new site for the canal after the Florida Coast Line Canal and Transportation Company had failed to maintain the old canal, despite receiving over a million acres for its improvement and the construction of an additional 263 miles of canal in the state (Parker 2002). The name Allenhurst appears on several 19th and 20th century maps, including the 1920 U.S. Railroad Administration map and the 1934 Intracoastal Waterway map (Dunn 1934). The town was platted and surveyed in 1913 by C. H. Greenwood and is listed as property of the Indian River Fruit Company (Figure 9-6). With its headquarters in Madison, Wisconsin, the Indian River Fruit Company advertised Allenhurst as "the place that's different" (Shofner 1995:248). In 1907, the Indian River Haulover and Outing Club was established on property obtained from Mr. J. Allen; the club claimed a membership of 30 from Madison alone (Shofner 1995:237-237). A post office was established in the town in 1914, despite the presence of one two miles to the north at Clifton (Shofner 1995:248). A 1900s photograph of the *Eclectic* vessel docked in Allenhurst shows several structures in the town (Photo 10). The *Eclectic* was owned by the James Heddon and Sons Fishing Tackle Company of Dowagiac, Michigan, and was used to experiment with

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lures and tackle manufactured by the company (Florida Memory Project 2007). A copy of a postcard, probably dating to the early to mid-1950s, shows the town and canal (Photo 11).

According to the 1900 U.S. Federal Census, 82 individuals resided in the Haulover precinct (Precinct 16 of District 23, Brevard County). The 15 households enumerated were headed by 11 white and 4 black males; a 16th household was comprised of a group of fisherman, aged 13 to 39, who rented a house together. With the exception of this group of fisherman, the recorded occupation for all heads of household was farmer. Among the heads of household listed in the 1900 Census were Thomas Crook, William Watton, Henry Watton, Andrew Jackson, James Taylor, Manning Griffis, Wade Holmes, Butler Campbell, Charles Nauman, and Henry Futch. Ben Childs, a 24 year old black male, was the school teacher. He and his family were boarders in the household of Andrew Jackson.

By 1920, the population of the Haulover precinct (now Precinct 12 of District 7) stood at 138 individuals, with 46 heads of household. Families who continued to reside in the Haulover area included those of Charles Nauman, Thomas Cook, William Watton, James Taylor, John and Jerry Griffis, Butler Campbell, Andrew Jackson, and Max Hoeck. Most people worked as citrus farmers, general farmers, and fishermen. John Griffis managed the family-owned citrus nursery.

The town of **Wilson** (Figure 9-7) or **Wilson's Corner,** named after President Woodrow Wilson, was located further to the south on the northern portion of Merritt Island at the junction of Max Brewer Memorial Parkway and Kennedy Parkway North. Land in the area was first deeded by the State in the early 20th century. Early land purchasers included Thomas J. Austin in 1916; and Guy Austin, Alvis R. Hardin, William E. Wheeler, Jane Ellen Nelson, Ralph A Scott, and William Shackleford in 1923 (DEP n.d.-e:221, 222). Early purchasers, such as the Austins from Chicago, advertised the Wilson lots for sale in the Midwest (Holzman 2003). During the 1920s through 1940s, the Wilson School was a center for public activities for those living in the area (Nolen 2004:84). A 1926-27 directory listed Rev. Robert Porter as the pastor of the Wilson Community Church; W. F. Wheeler as the postmaster; Alma Michleau as the teacher of the Wilson Public School; and Capt. George Quarterman as the caretaker of the Canaveral Club House (Parrish et al. 2001:13). Other occupations listed for inhabitants of the community include farmer, fisherman, and fruit grower (Parrish et al. 2001:13). Cattle raising is also assumed during the 1930's, as a cattle dip vat is listed as operating in Wilson in 1931, according to the records of the State Livestock Board (Florida Department of Natural Resources 2008).

Along the north side of Banana Creek, a small community developed in the Happy Creek area (Figure 9-8). Early homesteaders included Henry and Carolina Benecke. Originally from Germany, Henry Benecke first visited the area with a friend whose uncle, Max Hoeck, had settled approximately two and one-half miles to the north (Nolen 2004). On October 19, 1895, Benecke was deeded 160 acres of land under the 1862 Homestead Act (in Section 31, T21S, R37E) (Nolen 2004:20; DEP n.d.-f: 70). Six children were raised in the Benecke family home (Photo 12). Son Herman worked for the Canaveral Club and daughter Lillie submitted articles to *Hunter, Trader, Trapper* under the pseudonym Uncle Dudley. The articles described the hunting and fishing expeditions, filled with adventure, of guests guided by her father (Nolen 2004). The Benecke Lodge at Happy Creek continued to be a popular hunting and fishing spot into the 1950s and early 1960s after additional property was purchased by descendants of Henry Benecke. It operated until 1962 when the land was sold to the U.S. Government to become part of KSC (Nolen 2004:72).

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Midway on Merritt Island, at the junction of today's NASA Parkway and Kennedy Parkway South, was the town of **Orsino** (Figure 9-7). Early land purchasers included Dick Rudesill and William Elliot in 1919; Howard H. Elliot in 1922; and Charles A. David in 1926 (DEP n.d.-h: 227; n.d.-i:76; n.d.-k:77). Much of the area around Orsino was planted in citrus; some of the groves were owned by individuals living in the immediate area and others living in Titusville (Gross 2008). By the mid-1920s, a road had been constructed to the town, making the shipment of fruit from the numerous groves in the area much easier. A 1926-27 directory lists 48 residents, a school with J. E. Bridgewater as the teacher, and a Community Church with Reverend C. B. Poland as pastor (Parrish et al. 2001:18). By 1930, the Hutzler store was present in Orsino and the 1st through 9th grade Orsino School was taught by Mrs. Lillian Hutzler. On Sundays, the school house also served as a church for visiting pastors (Photo 13) (Carter 1996). In addition to the store, the Hutzler's ran a gas station and the post office (Dean-Masters 2008).

The community of **Heath,** named for the manager of the Dummett Grove property, was located on the east bank of the Indian River, just north of Banana Creek (Shofner 1995:136-137). In 1887, the community had a post office and weekly mail delivery. F. B. Sackett was the postmaster and had an apiary. An 1889 Florida encyclopedia describes Heath as "on the line of the JTKW Railway." Hammock land in the town sold for $15-$50 per acre, and tropical fruits and vegetables were grown successfully. At the time of the publication, the population was 75 and included the camp brothers, who grew vegetables; M. Bates, a teacher; and eight orange growers (Elliott 1889). At some point, the post office was closed and later reopened in 1891 as **Mortonhurst**, with George W. Morton as postmaster (Shofner 1995:136-137).

William D. Owens purchased property in the area of **Audubon** (Figure 9-7) in 1891, and A. Fortenberry in 1918 (DEP n.d.-k: 80). The Audubon Post Office was established on September 11, 1914, and closed on June 30, 1932 (Parrish et al. 2001:91). The town, said to have been established to honor naturalist John James Audubon, was situated on the west shore of the Banana River. A planing mill was located in the town ca. 1926-27 and Ms. Edith S. Kelley was the postmaster. Fifty-six residents are listed in the directory from the same years (Parrish et al. 2001:90). From 1936 to 1940, the mail was delivered to the community of five or six families by Paul S. Roberts (Roberts 1997). Mr. Roberts became the mail carrier after successfully bidding on the route from outside the state (Harrell 2008). The Audubon Post Office had previously been located in the A. Fortenberry residence. The approximately three-mile road to the town was built by Mr. Fortenberry using a narrow gauge railroad track to carry the marl from a pit to the road bed. The road was completed in 1939. A small school house had been present in the community for a few years and was used as a community center and voting precinct from 1936 to 1940. A dairy, operated by the Curtis family, was also present in the community (Roberts 1997).

A post office was established in the community of **Courtenay** (Figure 9-7) in 1895. John Houston had the mail contract and Milledge B. Sams was the postmaster, in addition to being a dentist. Originally called Island City, an earlier 1885 post office served an estimated 50 people, and the town included a community house, a school, and an Episcopal church. The LaRoche brothers, the Sams family, and E. P. Porcher were early settlers of the community (Shofner 1995:136-137).

The natural resources of the Indian River/Merritt Island area were well-known and attracted many famous individuals. Numerous gun and fishing clubs were established around the turn of the century, including the Indian River Haulover and Outing Club, noted previously, and the

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Canaveral Club. The Canaveral Club, formed in 1890, was composed entirely of members of the Harvard University class of the same year. Each of the 15 members contributed $5,000, which was used to eventually purchase 18,000 acres of oceanfront and property along Banana Creek. The 22-room clubhouse had a concrete swimming pool, golf course, and stables and hosted dignitaries such as Presidents Benjamin Harrison and Grover Cleveland (Gross 2008; Shofner 1995) (Photos 14 and 15). It is likely that the presence of the club contributed to the construction of the "hump back" bridge across Banana Creek, built to allow boats passage under it (Penders 2008a). The bridge was replaced around 1937 (Nolen 2004:42). Careful records of mammal, fish, fowl, and reptile seen and shot, as well as expenses incurred during the season, were kept in the Canaveral Club ledger. Entries in 1909 included a bear seen on the beach and a notation that "coons or possums are caught almost nightly by the assistant cook in trap over on the beach side" (Anon. 1909).

I.2.7 20th Century

The turn of the century prompted optimism and excitement over growth and development. With increased financial resources and machinery, extensive reaches of the county's lands were now available for development. In most cases, the land required intensive drainage for agricultural development and settlement. Drainage systems reclaimed for settlement consisted of large sections of swamp land between Melbourne and Vero Beach, and led to an improved road system and an increasing population. Two large developments, Roseland Park and Fellsmere Farms, were started in the 1890s. Both developments were responsible for draining much of the wetlands in Brevard County. Fellsmere Farms, located in the southern part of the county, was one of the largest and most comprehensive privately-funded reclamation projects in Florida. Along with the Indian River Farms Company in Vero Beach and the Palm Beach Farms Company, Fellsmere Farms was responsible for draining large areas of Florida's East Coast (Shofner 1995:241-242).

The first twenty years of the new century witnessed the advent of progressivism in which governments expanded their services beyond traditional limits of the previous century. During this time the automobile, telephone, and electricity transformed Brevard County from isolation into a county linked with the rest of the state and the nation. Two roads significantly opened up the communities along the Indian River: Dixie Highway and Cheney Highway. Dixie Highway, completed through Brevard County in September 1916, eventually linked Chicago and Miami. By late September, newspapers described the tourist traffic as "very brisk" with 50 to 60 automobiles every day (Shofner 1995:227-228). Cheney Highway, today's State Road 50, linked the Indian River area with Orlando. It was started in 1916 and eventually completed in 1925 (Eriksen 1994:168; Shofner 1995:228). In 1916, the American Telephone and Telegraph Company obtained a franchise to operate in Titusville, Miami, and Key West, providing the first significant long distance service (Shofner 1995:229). According to the September 1919 TriCounty Phone Directory of the Brevard County Telephone Company, approximately 36 telephone numbers were listed on Merritt Island, mostly in Courtenay (Brevard County Telephone Company 1919). Around this time, at Orsino, the Blue Hammock Civic Association was advertising for settlers (Shofner 1995:249). In 1917, the first bridge to span the Indian River was constructed. This Cocoa to Merritt Island Bridge, located south of Courtenay, provided a link to numerous communities on Merritt Island and to the "little resort" of Cocoa Beach (Eriksen 1994:153). Thus, by the end of World War I in 1919, Brevard County was prepared for the boom of the 1920s.

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The boom, which originated in the 1910s, exploded in the 1920s. By 1920, the county population numbered more than 8,500, a 90% increase over the 4,717 residents of 1910. Several sources prompted the boom, including the mild winters, the growing number of tourists, and larger use of the automobile, the completion of roads, the prosperity of the 1920s, and the promise by the state legislature never to pass state income or inheritance taxes. Dixie Highway, now U.S. 1, stretched the length of the East Coast and was rebuilt in Brevard County in 1923. Other improvements included the construction of bridges across the Indian River, which provided easy access to the beaches (Eriksen 1994:164-168). Much of the development in Brevard County during the 1920s occurred in and around Cocoa, then heralded by the Cocoa Tribune as the largest city in Brevard County with a population of 1,445, compared with 1361 residents for Titusville (Eriksen 1994:166). Cocoa was home to the “ultra modern” Aladdin Theatre, the Brevard Hotel, and several new subdivisions. As the boom peaked in 1925, oceanfront casinos became popular (Eriksen 1994:167). A small, temporary casino was built at DeSoto Beach, approximately eight miles north of the Canaveral lighthouse in 1925. The casino, built by a corporation headed by P. E. Studebaker, was intended to draw buyers to the as yet undeveloped resort city. A few years earlier, the Playa Linda Development Corporation had advertised their 8000 quarter acre lots east of Titusville as “the greatest beach development north of Miami” (Eriksen 1994:167).

By 1926-27, the bottom fell out of the Florida real estate market. Massive freight car congestion from hundreds of loaded cars sitting in railroad yards caused the FEC Railway to embargo all but perishable goods in August of 1925 (Curl 1986:84-84). The embargo spread to other railroads throughout the state, and, as a result, most construction halted. The 1926 real estate economy was based upon such wild land speculation that banks could not keep track of loans or property values (Eriksen 1994:172). By October, rumors were rampant in northern newspapers concerning fraudulent practices in the real estate market in south Florida. To counteract the reports, T. Coleman du Pont, chairman of the Mizner Development Corporation of Palm Beach County, held an open meeting to try and convince the public that the increase in property values represented real worth. However, the next week du Pont and several other board members resigned in a public letter to the *New York Times*. Du Pont brought stability to the Corporation during the development of Boca Raton in Palm Beach County. After the public letter, confidence in the Florida real estate market quickly diminished, investors could not sell lots, and the Great Depression hit Florida earlier than the rest of the nation (Curl 1986:84-84).

To make the situation even worse, two hurricanes hit south Florida in 1926 and 1928. Neither hurricane caused much damage to Brevard County, but destroyed confidence in Florida as a tropical paradise and created a flood of refugees fleeing northward. Soon after, the collapse of the Florida Land Boom, the October 1929 stock market crash, and the onset of the Great Depression left the Brevard area in a state of stagnation. Residents managed to survive on fish, oranges, deer, and turtles. By the mid-1930s, federal programs, implemented by the Roosevelt administration, started employing large numbers of construction workers, helping to revive the economy of the state. The programs were instrumental in the construction of parks, bridges, and public buildings. In Brevard County, some of these projects included the construction of the Melbourne Airport, the Intracoastal Waterway, the repairing of schools, paving roads, and the preparation of detailed maps of the county (Eriksen 1994:181-190).

By 1938, recovery from the Great Depression was imminent with the population of Brevard County approaching 16,000 in 1940, an increase from 13,283 in 1930 (Eriksen 1994:186-189).

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Development, which would irreversibly alter the county, was beginning. In 1939, Cocoa was described by the Federal Writers' Project as a "citrus shipping center, with groves bordering some of its principal thoroughfares. Orange trees in nearby hammocks have borne fruit, it is said, since 1868" (FWP 1939). The Haulover was described as "a narrow channel dug to connect Mosquito Lagoon with upper Indian River." The description goes on to say that "formerly small schooners were hauled almost a half mile across by use of rollers and skids" (FWP 1939:306).

Two months after Hitler invaded Austria in March 1938, Congress passed the Naval Expansion Act, established the Hepburn Board, and charged it with determining sites for future naval expansion. In March 1939, the Board chose the peninsula below Cocoa Beach as the site for the Banana River Naval Air Station. The Federal Government acquired approximately 1,900 acres and land owners received around $58.00 per acre. (Eriksen 1994:191). With the new air station, improved roadways and bridges became top priority for Brevard County. The base opened in 1940, and the first plane landed in 1941. The incoming servicemen renewed the area economy and the same year a new concrete bridge and causeway was completed, connecting Cocoa to Merritt Island over the Banana River (Eriksen 1994:193). One of the main tasks of the Banana River Station personnel was to patrol for German submarine activity along the coast (Parker 2002). In 1942, a Navy scouting squadron was assigned to act as an airborne escort service to ships in the nearby shipping lanes. They were to function as a defensive measure against the German U-boat attacks that had been taking place along the coast. In addition, several small airstrips were constructed throughout the county, beach patrols were established with orders to shoot any suspicious characters seen on the beach at night, and occasional blackouts took place along the coast. During 1942, the Federal Government spent $8 million on defense-related projects in Brevard County (Eriksen 1994:190-196). When the war ended in 1945, the population of the county numbered 19,000, not including 500 military personnel (Eriksen 1994:200).

As World War II ended, the military presence in the county decreased. Bases were generally closed or maintained by the skeleton crew. The Banana River Naval Air Station was deactivated as a Navy support base in August 1947, and subsequently transferred in September 1948, from the Navy to the Air Force (Eriksen 1994:205). Following a series of name changes, the former Banana River Naval Air Station became Patrick Air Force Base in August of 1950.

The post-war development of Brevard County is like that of the rest of America: increasing numbers of automobiles and asphalt, an interstate highway system, suburban sprawl, and strip development along major state highways. The county, like most of Florida, experienced a population boom in the 1950s. While Florida's population increased from 1,897,414 in 1949 to 2,771,305 in 1950, the number of Brevard County residents increased by more than 10,000 between 1940 and 1950 (Tebeau 1980:431; Eriksen 1994:200, 228). Many who had served at Florida's military bases during World War II returned with their families to live. As veterans returned, the trend in new housing focused on the development of small tract homes in new subdivisions. In Brevard County, many of these subdivisions were built on dredged lands (Eriksen 1994:213-214).

When President Kennedy initiated the Man-to-the-Moon project, new land was required to support the expanded launch structures. Merritt Island, a relatively undeveloped area west and north of Cape Canaveral, was selected for acquisition, and in 1961, the Merritt Island Launch Area (MILA) was established (NASA 1992:3.1). In 1962, NASA KSC was authorized by

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Congress to purchase 125 square miles of property. The U.S. Army Corps of Engineers acted as agent for purchasing land, which took place between 1962 and 1964. NASA KSC began gaining title to the land in late 1962, taking over 83,900 acres by outright purchase. The purchase of land included the towns of Orsino, Wilson, Heath, and Audubon, and many farms, citrus groves, and several fish camps (Shofner 1995:169). Also included were several subdivisions, including Allenhurst, Atlantic Beach Heights, Haulover Heights No. 1 and 2, Myrtle Park Shoals, North Indian River Shores, Satellite Estates, and South Indian River Shores. In many instances, the subdivisions had not yet been developed (Unknown n.d.). Some of the buildings were moved at NASA's expense to new locations, while others were abandoned in place; a few dozen buildings were given to the Brevard County schools to be used as temporary classrooms and others were used by NASA KSC (Shofner 1996:169). In 1963, sand from the bottom of the Banana River was dredged and used to build a causeway between today's KSC and the mainland. Now called the NASA Causeway, construction was completed in 1966 (Shofner 1995:196).

The American program to put a man in space and land on the Moon now proceeded rapidly. The Manned Space Program, initiated in 1958, was executed in less than five years. In 1964, Project Gemini was the intermediate step toward achieving a manned lunar landing, bridging the gap between the short-duration Mercury flights and the long-duration mission proposed for the Apollo Program (Butowsky 1981:5). In 1969, an estimated 500,000 saw the Apollo 11 mission lift-off, which was the culmination of the Apollo lunar landing program (Anon. 1994:89-90). This increased exposure of the Brevard County area through the use of televised lift-offs increased tourism to the area. The space race also demanded civilian and military personnel to work at the installation and at the technological industries created to support KSC. By the late 1960s, at the peak of the Apollo Program, Brevard County relied heavily upon space-related employment. This reliance created an acute problem when the county underwent a recession in the early 1970s. In addition, many KSC, CCAFS, and related industry workers lost their jobs at the conclusion of the Apollo Program (Tebeau 1980:464). The economy eventually stabilized by the late 1970s and continued to diversify in the 1980s, relying on increased industry and tourism (Stone 1988). In 1983, KSC increased its holdings when the FEC Railway requested a buy-out of its property east of Titusville, including the Jay Jay rail yard. NASA acquired 74.9 ha (185.1 ac) as the result of this purchase.

In 1993, Brevard County had a population of 427,035, making the county the ninth largest in the state (Purdum 1994:10). In 2006, the population was estimated to be more than 534,000, a more than 12% increase since 2000 (USCB 2008).

I.3 The Space Age Context

I.3.1 Introduction

In October 1949, President Harry S. Truman established the Joint Long-Range Proving Ground (currently known as the Air Force Eastern Test Range), a vast overwater military rocket test range that now extends over 8,047 kilometers (km) (5,000 miles [mi]) down the Atlantic coast from CCAFS to Ascension Island (NASA n.d.:5). CCAFS was ideal for testing missiles. Virtually uninhabited, it enabled personnel to inspect, fuel, and launch missiles without danger to nearby communities. The area's climate also permitted year-round operations. The first launch from CCAFS, conducted by a military-civilian team on July 24, 1950, was of a modified German V-2

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rocket with an attached upper stage. Facilities for both intercontinental ballistic missiles (ICBMs) and intermediate range ballistic missiles were constructed at Cape Canaveral. Throughout the early and mid-1950s, the focus of activities remained on missile development for defense against the Soviets.

In 1955, President Eisenhower announced that the United States would launch an unmanned satellite as part of the nation's participation in the International Geophysical Year, which extended from July 1957 through December 1958. When the Soviets launched the satellite Sputnik I in October of 1957, public attention turned to space exploration. The following month, the Soviets placed the Sputnik II satellite carrying a dog into orbit around the Earth. The launch caused a furor among Americans, who feared that the U.S. was losing the "space race." The President initially assigned responsibility for the U.S. Space Program to the Department of Defense. Explorer I, America's first scientific satellite, was launched on January 31, 1958, from CCAFS, by a military-civilian team of the Army's Missile Firing Laboratory (MFL). This group, under the direction of Kurt H. Debus, a key member of the famed Dr. Wernher von Braun rocket team, later formed the nucleus of KSC (NASA n.d.:6).

Realizing that the military's involvement in the Space Program would jeopardize the goal of using space for peaceful purposes, the President's Science Advisory Committee urged that a centralized agency be created to oversee the scientific exploration of space. On October 1, 1958, the new civilian agency, the NASA, was formed with the mission of carrying out scientific aeronautical and space exploration, both manned and unmanned. The Department of Defense, especially the Air Force, would continue with defense-related missile and satellite development. Soon after the creation of NASA, the California Institute of Technology's Jet Propulsion Laboratory, affiliated with the Army, was transferred to NASA. Also, President Eisenhower officially transferred a large portion of the Army's Development Operations Division, with the team led by von Braun, to NASA in March 1960. The President named the Huntsville, Alabama, NASA installation the Marshall Space Flight Center and designated the MFL at Cape Canaveral as the Launch Operations Directorate (LOD) of NASA. The LOD, led by Dr. Debus, managed the overall integration, testing, and launch operations of NASA (Benson and Faherty 2001:15). Several Army facilities plus various offices and hangars at CCAFS were transferred to NASA, including Launch Complexes (LC) 5, 6, 26, and 34.

One of NASA's first goals was to put a man in orbit around the Earth. At its creation, the Air Force's manned space projects were transferred to NASA, which NASA combined under the name Project Mercury in 1958. NASA selected the first seven astronauts for the Manned Space Program in April 1959. The goals of Project Mercury included sending a man into space to orbit the Earth, testing his ability to perform in a weightless environment, and recovering both man and capsule (Spires 1998:39). The program included two manned suborbital flights powered by a modified Redstone missile and four manned orbital flights powered by an Atlas missile topped by the Mercury capsule. The first suborbital flight occurred on January 31, 1961, with the launch of Ham, a chimpanzee. The U.S. was upstaged when the Soviet Union launched Vostock I with cosmonaut Uri Gagarin to orbit the Earth in April 1961. The launch of Alan Shepard the following month on a Mercury suborbital flight proved anticlimactic (Butowsky 1981:4).

Realizing the impact of the Soviet advancements on the American psyche, President John F. Kennedy appointed Vice President Lyndon Johnson, in cooperation with representatives from NASA and the associated industries, to develop a space program that would surpass the Soviet program. The panel recommended a 10-year phased approach, which would include manned

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space flight, planetary exploration, and the development of new rockets and satellites. Accepting the recommendations, on May 25, 1961, President Kennedy proposed the following historic goal before a joint session of Congress:

> *Now is the time to take longer strides--time for a great new American enterprise, time for this nation to take a clearly leading role in space achievement, which in many ways may hold the key to our future on Earth...I believe this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to the Earth. No single space project in this period will be more impressive to mankind, or more important for the long-range exploration of space, and none will be so difficult or expensive to accomplish* (Butowsky 1981:4).

With widespread support, the public and Congress embraced the goal and the program proceeded rapidly. Circling the Earth three times, John Glenn completed the first manned orbital flight of the United States on February 20, 1962, in a capsule propelled by an Atlas rocket from LC-14 at CCAFS. Followed by three more manned orbital flights, the Mercury Program concluded as a success on May 15, 1963.

NASA initiated planning for Project Gemini in late 1961 as the intermediate step in sending a man to the Moon. Officially announced in 1962, the project was operational by 1964. The goals of Project Gemini included testing man's performance during extended periods in space, both within and outside of the spacecraft, development of rendezvous and docking techniques, and perfection of controlled reentry and landing techniques. The larger, more maneuverable capsule, designed to hold two men, was propelled by a Titan II rocket. Following the first unmanned Gemini launch on April 8, 1964, Gemini 3 was the first manned flight of the program in March 1965. Gemini 12, launched in November 1966, successfully completed the program.

I.3.2 Project Mercury: 1958-1963

Project Mercury was NASA's first manned spaceflight program and was active from December 1958 through May 1963. The goals of the project were to "(1) Place a manned spacecraft in orbital flight around the Earth. (2) Investigate man's performance capabilities and his ability to function in the environment of space. (3) Recover the man and the spacecraft safely" (Williams, et al. 1963:2). Over the course of Project Mercury, NASA successfully designed a vehicle that could survive the conditions of space, as well as atmospheric reentry; hired and trained the first U.S. astronauts; developed a worldwide tracking network; created Mission Control procedures that became the protocol for all future programs; and launched twenty-six missions (manned and unmanned) between August 1959 and May 1963.

All twenty-six missions launched as part of Project Mercury occurred between August 1959 and May 1963. Each of these flights fell into one of three mission categories: research and development, qualification, or manned. Of the twenty-six missions, seven were considered research and development, thirteen were classified as qualification, and six were manned flights. Nine missions from the research and development and qualification categories lifted off from Wallops Island, Virginia; the remaining seventeen missions, including all of the manned

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flights, launched from CCAFS. Two research and development flights, Little Joe (LJ)-1B on January 21, 1960, and LJ-6 on October 4, 1959, carried rhesus monkeys, “Miss Sam” and “Sam,” respectively. Mercury-Redstone (MR)-2, a qualification flight, carried a chimpanzee named “Ham” to study how a human would perform in space and the effects of spaceflight on humans.

Of the six manned missions in Project Mercury, the first two were suborbital ballistic flights. On May 5, 1961, Alan Shepard became the first American in space with the launch of mission MR-3 from Pad 5 at LC-5/6. His 15.5-minute flight successively met the mission objectives of (1) launching a man into space, and (2) determining his capabilities in a zero-G environment (Grimwood 1963; Swenson, et al. 1966). On July 21, 1961, Virgil “Gus” Grissom became the second American in space with his flight, MR-4. Originally scheduled to launch on July 16, weather postponed the flight, and on July 19, NASA experienced its first scrubbed mission, i.e., the first time an astronaut was in his capsule poised for flight when it got cancelled. When it successfully launched, Grissom’s flight lasted just over 15.5 minutes and proved to be a successful repeat of Shepard’s. Unfortunately, as Grissom was awaiting the recovery forces, the capsule’s explosive hatch blew and the capsule took on water and eventually sank; Grissom was successfully rescued by a second helicopter (Grimwood 1963; Swenson, et al. 1966).

The other four manned missions were orbital flights. On February 20, 1962, John Glenn became the first American to orbit the Earth in his spacecraft. His flight, designated MA-6, launched from LC-14, with the objectives of: placing a man in orbit, observing his actions in a zero-G environment, and bringing him home safely. Glenn orbited the Earth three times for a distance of 75,679 statute miles. MA-7, launched May 24, 1962 and crewed by Scott Carpenter, essentially was a repeat of Glenn’s flight with additional scientific experimentations performed during orbit. The next mission was MA-8, which flew on October 3, 1962, carrying Wally Schirra. Schirra orbited the Earth six times, traveling for a total distance of 143,983 statute miles and a total duration of just over nine hours. Project Mercury ended with MA-9, the 34-hour flight of L. Gordon Cooper. Launched on May 15, 1963, Cooper orbited the Earth twenty-two times and became the first American to sleep in space (Grimwood 1963; Swenson, et al. 1966).

I.3.3 Project Gemini: 1959-1966

Project Gemini unofficially got its start in May 1959, when NASA Headquarters’ Research Steering Committee for Manned Space Flight, commonly known as the Goett Committee after its leader Harry Goett, met for the first time to examine follow-up programs for Project Mercury (Grimwood and Hacker 1969; Brooks, et al. 2009). Initial ideas included a two-man capsule, extended duration flights (up to two weeks), a manned lunar expedition, and a manned orbiting laboratory. Although lunar exploration became the major focus, the Goett Committee noted that there should be an intermediate step between Project Mercury and a lunar mission (Hacker and Grimwood 1977). By the time Project Gemini officially was announced in December 1961, it had become the intermediate step between Project Mercury and the Apollo Program (Grimwood and Hacker 1969).

As the intermediate step between Project Mercury and the Apollo Program, the primary objective of Project Gemini was to prepare for a lunar landing. Its established goals were to keep a two-man crew in space for up to fourteen days; rendezvous and dock with orbiting vehicles and maneuver the combination; and to perfect methods of entering the atmosphere and landing (NASA KSC 2000). In addition, NASA desired to gain more information on the

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effects of weightlessness on humans; and the Flight Operations Division planned on honing new skills in mission planning and control.

Altogether, Project Gemini flew twelve missions, all of which launched from LC 19 at CCAFS. The first two missions were unmanned development flights. The focus of Gemini I, launched April 8, 1964, was to prove that the Titan II could successfully launch the Gemini spacecraft and put it in orbit (Hacker and Grimwood 1977). Gemini II, which occurred on January 19, 1965, had as its major objectives demonstrating the adequacy of the spacecraft reentry module's heat protection, the structural integrity of the spacecraft from lift-off through reentry, and the satisfactory performance of spacecraft systems (Grimwood and Hacker 1969).

The first manned mission, Gemini III, occurred on March 23, 1965, with astronauts Virgil I. “Gus” Grissom as command pilot and John W. Young as pilot. This three-orbit mission focused on testing the maneuverability of the spacecraft, as Grissom and Young changed the shape of their orbit, shifted from their orbital plane, and dropped to a lower altitude by firing the vehicle’s thrusters (Grimwood and Hacker 1969). The launch of Gemini IV on June 3, 1965, marked the beginning of the first four-day flight of the U.S. Manned Space Program. Initially, the astronauts, James A. McDivitt and Edward H. White II, were to fly in formation with the second stage of the Titan II booster after separation. The attempt was unsuccessful, as the astronauts proved that the intended method, aiming the thrusters towards the target, would not work. However, during the mission, White successfully completed the first extravehicular activity (EVA), or spacewalk, by an American.

Gemini V, launched August 21, 1965, was an eight-day mission conducted by L. Gordon Cooper, Jr. and Charles “Pete” Conrad, Jr. Scheduled to perform a practice rendezvous with a “pod,” electrical problems forced a cancellation of the experiment. Instead, Cooper and Conrad maneuvered the vehicle to a predetermined position, in effect completing a “phantom rendezvous” (Grimwood and Hacker 1969). The goal of Gemini VI, scheduled to launch in October 1965, was to be the first rendezvous and docking mission of the program. The mission plan called for the launch of an unmanned Agena target vehicle by an Atlas rocket, followed by the launch of the manned Gemini vehicle. The astronauts, Walter M. Schirra, Jr. and Thomas P. Stafford, Jr., would catch up to the Agena target from a lower orbit and then manipulate their vehicle for rendezvous. On October 25, 1965, the Agena/Atlas combination was launched from LC 14 at CCAFS; however, shortly afterwards, Mission Control lost all telemetry signals from Agena and cancelled the launch of Gemini VI. Although the mission was considered a failure, three days later with the approval of the White House, NASA announced that the mission would be redesignated Gemini VI-A and would rendezvous with another manned vehicle, Gemini VII (Grimwood and Hacker 1969; Hacker and Grimwood 1977).

On December 4, 1965, Gemini VII launched with astronauts Frank Borman and James A. Lovell, Jr. for a fourteen-day mission, meant to solve problems of long-duration spaceflight. For eleven days, Borman and Lovell performed various in-flight experiments, including the evaluation of a new, lightweight spacesuit. On December 15, Gemini VI-A launched from CCAFS and proceeded to track down the orbiting Gemini VII vehicle. Rendezvous was completed that afternoon, when Schirra piloted his capsule to within 1 foot of the other, and the two flew in formation around each other for five hours. Gemini VI-A landed on December 16, followed two days later by Gemini VII (Grimwood and Hacker 1969).

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Gemini VIII, with astronauts Neil A. Armstrong and David R. Scott, launched on March 16, 1966; less than six hours after launch, it became the first vehicle to rendezvous and dock to a prelaunched Agena target vehicle. Unfortunately, one of Gemini's thrusters became stuck causing the docked vehicles to roll continuously. Armstrong undocked his vehicle from the Agena, but could only fix the thruster by using the reentry control thrusters; thus, Gemini VIII was forced to make an emergency return to Earth just ten hours after launch. Gemini IX, which launched with Thomas P. Stafford, Jr. and Eugene A. Cernan on June 3, 1965, was supposed to have docked with a modified Agena, but the failed release of its protective shroud caused a cancellation of the objective (Grimwood and Hacker 1969).

Gemini X launched on July 18, 1966, carrying astronauts John W. Young and Michael Collins. During their four-day mission, Young and Collins rendezvoused and docked with their Agena target in low orbit and then maneuvered their spacecraft to a higher orbit to rendezvous with the Agena target from Gemini VIII. Gemini XI, with Charles "Pete" Conrad, Jr. and Richard F. Gordon, Jr., launched on September 12, 1966. The astronauts rendezvoused and docked with their target vehicle eighty-five minutes after launch. Gemini XII, the last mission of the program, launched on November 11, 1966, with astronauts James A. Lovell, Jr. and Edwin E. "Buzz" Aldrin, Jr. The four-day mission incorporated a rendezvous and docking task with an Agena and three EVAs (Grimwood and Hacker 1969).

I.3.4 Apollo Program: 1971-1975

The Apollo Program had unofficially begun on February 5, 1959, when NASA established the Working Group on Lunar Exploration to formulate a lunar exploration program. Subsequently, a Research Steering Committee was created, which included personnel from the various NASA Centers. At its first meeting in May 1959, the committee prioritized various aspects of a space program, which included a manned lunar landing and return to Earth. The concept was further discussed at the committee's second meeting (June 1959) and at its third meeting (December 1959). By the following January (1960), enough progress had been made to bring about the suggestion of a formal name, "Apollo," for the new program, with the goal of landing astronauts on the Moon and returning them safely to Earth. T. Keith Glennan, NASA Administrator, approved the name on July 25, 1960, and it was subsequently announced at the first NASA-Industry Program Plans Conference three days later. On September 1, 1960, the STG officially created the "Apollo Project Office" (Ertel and Morse 1969).

Altogether, the Apollo Program flew thirty-two missions, including the initial research/development and qualification flights, the lunar flights, the Skylab application, and the Apollo-Soyuz Test Project. Three different launch complexes were used: LC 34 (seven launches) and LC 37 (eight launches) at CCAFS, and LC 39 (seventeen launches; twelve from Pad A and five from Pad B) at KSC. Of the total thirty-two flights, fifteen were manned, and of the seven attempted lunar landing missions, six were successful. No major launch vehicle failures of either the Saturn IB or Saturn V occurred; however, there were two major Command/Service Module (CSM) failures, one on the ground (Apollo 1) and one on the way to the Moon (Apollo 13) (NASA 1994).

The first four test flights of the Apollo Program (Saturn/Apollo [SA]-1 through SA-4) were launched from LC 34 and flew suborbital trajectories using the Saturn I Block I vehicle. These flights verified the aerodynamics and structure of the launch vehicle, performed scientific experiments known as Project High Water I and Project High Water II, and tested an "engine-

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out" contingency, in which the fuel was rerouted from the failed engine to the seven remaining engines (Godwin 2006a; Ertel and Morse 1969; Morse and Bays 1973).

The next phase of testing used the Block II configuration of the Saturn I vehicle. All six of these flights were launched from LC 37, since LC 34 was being modified for the assembly, checkout, and launch of the larger, more powerful Saturn IB vehicle. The first flight, SA-5, launched on January 29, 1964, was the first orbital flight of the Apollo Program, as well as the first to test a fully-fueled second stage. The next two flights, SA-6 (May 28, 1964) and SA-7 (September 18, 1964), carried boilerplate CSMs to test telemetry and various systems, as well as the Launch Escape System. Due to the success of these two flights, the next three were used to carry satellites into space (Godwin 2006a; Morse and Bays 1973; Brooks and Ertel 1973).

The first test flight using the Saturn IB vehicle, designated Apollo/Saturn 201 (AS-201), launched from LC 34 on February 26, 1966, carrying the first true spacecraft on a suborbital flight to test its heat shield. Two more unmanned flights followed to test the instrumentation unit and the behavior of the fuel in the vehicle's second stage. AS-202 also subjected the Command Module to the full force of reentry for the first time. The fourth scheduled flight, set to launch from LC 34 in February 1967, was to be the first manned mission of the Apollo Program. During a countdown simulation on January 27, 1967, the Command Module caught fire on the launch pad, killing astronauts Virgil I. "Gus" Grissom, Edward H. White II, and Roger B. Chaffee. The event was later commemorated as Apollo 1 (Godwin 2006a; Ertel and Newkirk 1978).

Following the fire and subsequent modifications to the spacecraft, NASA conducted three additional unmanned Earth orbital missions to continue verification testing of the Apollo-Saturn combination, and to begin testing of the Lunar Module. Apollo 4 was launched on November 9, 1967. This flight was the first to use the Saturn V vehicle, and thus, the first to launch from the new LC 39, Pad A, at KSC. Apollo 5 launched on January 22, 1968, from LC 37 carrying the first Lunar Module into space for verification tests. Apollo 6 was the final unmanned mission of the Apollo Program; it launched on April 4, 1968, from LC 39, Pad A (Godwin 2006a; Ertel and Newkirk 1978).

Although still considered part of the Apollo Program's testing phase, the October 11, 1968, Apollo 7 launch from LC 34 was the first manned mission, which placed astronauts into an Earth orbit for ten days using a Saturn IB vehicle. The crew, Walter M. Schirra, Jr., Donn F. Eisele, and Walter Cunningham, tested the CSM and their guidance and control systems, the instrument unit, the spacecraft lunar adapter, the new spacesuit design, food supplies, and work routines. During this flight, the astronauts separated the CSM from the second stage in order to practice rendezvous operations with the booster. The spacecraft and astronauts returned to Earth on October 22, after successfully completing all goals of the mission (Godwin 2006a; Ertel and Newkirk 1978).

The next mission, designated Apollo 8, launched on December 21, 1968, from LC 39, Pad A, and became the first manned flight to use the Saturn V vehicle. It was the first mission to reach the Moon, which it orbited ten times before returning to Earth. Apollo 9, which launched on March 3, 1969, from LC 39, Pad A, remained in a low-Earth orbit, where its crew, James A. McDivitt, Russell L. "Rusty" Schweickart, and David R. Scott, performed the first EVA of the Apollo Program and the first docking of the Lunar and Command Modules. Apollo 10 was the "final dress rehearsal" for landing on the Moon. Launched on May 18, 1969, from LC 39, Pad B, it reached the Moon, which it orbited thirty-one times. While in orbit, the crew jettisoned the

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Lunar Module and allowed it to come within 50,000 feet of the Moon's surface, prior to initializing the ascent stage for its return to the Command Module (the descent stage was left to fall onto the Moon; the ascent stage would be jettisoned into a solar orbit) (Godwin 2006a; Ertel and Newkirk 1978).

On July 16, 1969, Apollo 11 launched from LC 39, Pad A, carrying its crew, astronauts Neil A. Armstrong, Edwin E. "Buzz" Aldrin, Jr., and Michael Collins, into a lunar orbit just over three days later. On July 20, 1969, as Collins remained in the Command Module, Armstrong and Aldrin climbed into the Lunar Module and descended to the Moon's surface. Landing at 4:17 p.m., Eastern Standard Time (EST), Armstrong reported to Mission Control, "Houston, Tranquility Base here. The Eagle has landed" (NASA MSC 1969). Armstrong and Aldrin completed one EVA to collect lunar surface material for scientific analysis. Just over twenty-one hours after landing, the Lunar Module ascent stage lifted off to successfully dock with the CSM in lunar orbit, and the two astronauts rejoined their colleague in the Command Module, prior to jettisoning the ascent stage. The three astronauts landed in the Pacific Ocean on July 24, 1969, at roughly 12:50 p.m. EST, officially accomplishing the goal set by President John F. Kennedy on May 25, 1961 (NASA KSC 2003; Godwin 2006b; Ertel and Newkirk 1978).

Four months later, Apollo 12 launched from LC 39, Pad A, for its rendezvous with the Moon. Essentially a repeat of Apollo 11, the crew remained in lunar orbit for one extra day to take photographs. On April 11, 1970, the ill-fated Apollo 13 lifted off from LC 39, Pad A. Approximately fifty-six hours after launch, Oxygen Tank No. 2 ruptured, also causing a failure in Oxygen Tank No. 1. The three-man crew of James A. Lovell, Jr., Fred W. Haise, Jr., and John L. "Jack" Swigert, Jr., remained in limbo within the Lunar Module as the ground controllers in Mission Control at the Manned Spacecraft Center frantically worked to bring them home safely. On April 17, they landed on Earth proving the ingenuity of the ground controllers. The event would have repercussions though, as two Apollo flights were removed from the program (Godwin 2006b; Ertel and Newkirk 1978).

The next mission, Apollo 14, was launched on January 31, 1971. Astronauts Alan B. Shepard, Jr., and Edgar D. Mitchell spent just over thirty-three hours on the Moon's surface and conducted two EVAs while Stuart A. Roosa remained in the Command Module. Apollo 15, which launched on July 26, 1971, was the first mission to use the Lunar Rover, an electric-powered, four-wheel drive vehicle, to traverse around the lunar surface. The crew spent just under sixty-seven hours on the Moon collecting lunar samples, including one dubbed the "Genesis Rock." The next mission, Apollo 16, was essentially a repeat of Apollo 15, albeit with a different lunar landing site. Apollo 17, which launched on December 7, 1972, was the final lunar mission and the only one to carry a scientist-astronaut, Harrison H. "Jack" Schmitt, to the Moon (Godwin 2006b; Ertel and Newkirk 1978).

Skylab, an application of the Apollo Program, served as an early type of space station. With 360 cubic meters (m^3) (12,700 cubic feet [ft^3]) of work and living space, it was the largest habitable structure ever placed in orbit. Skylab was 36 m (117 ft) long, 27 m (90 ft) wide across its solar panels, and had a mass of 90,605 kg (199,750 lbs) with the CSM attached. The station achieved several objectives: scientific investigations in Earth orbit (astronomical, space physics, and biological experiments); applications in Earth orbit (Earth resources surveys); and long-duration spaceflight. Saturn V and Saturn IB rockets were used. Skylab 1 orbital workshop was inhabited in succession by three crews launched in modified Apollo CSMs (Skylab 2, 3 and 4). The crews traveled 112.8 million km (70.5 million mi), circled the Earth 2,476 times, and lived in

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space for 171.5 days, spending more than 3,000 hours conducting experiments. Data returned included 175,047 frames of solar observation film and 46,146 frames of Earth observation film. Actively used until February 1974, Skylab 1 remained in orbit much longer, until July 11, 1979, when it re-entered Earth's atmosphere over the Indian Ocean and western Australia after completing 34,181 orbits (Anon. 1994:91; NASA 1980:V-32).

The Apollo-Soyuz Test Project (ASTP) of 1975, the final application of the Apollo Program, marked the first international rendezvous and docking in space. The ASTP was the first major cooperation between the only two nations engaged in manned spaceflight. As the first meeting of two manned spacecraft of different nations in space, first docking, and first visits by astronauts and cosmonauts into the others' spacecraft, the ASTP was highly significant. The ASTP established workable joint docking mechanisms, taking the first steps toward mutual rescue capability of both Russian and American manned missions in space (Anon. 1994:96).

This five-year program was conducted to establish space rescue techniques for the U.S. and Soviet Union, conduct scientific experiments, and study the feasibility of more ambitious joint programs in the future. The Soyuz lifted off first on July 15, 1975. The Apollo spacecraft "chased" the Soyuz in orbit, docking with it on July 17. The two spacecraft remained attached, conducting joint experiments and meals, and holding press conferences with the news media of the world, until undocking on July 19. The spacecraft then docked again, for practice, and separated for the last time. Soyuz landed in Russia on July 21. The Americans stayed aloft for three more days conducting a series of experiments. The ASTP proved that American and Russian space programs could cooperate and perform joint missions in space. All major objectives were achieved (NASA 1980:V-36). Following completion of the ASTP in 1975, the facilities of KSC were modified to support the nation's newest launch vehicle, the reusable Space Shuttle.

I.3.5 Space Shuttle Program: 1969-2011

A "new era for the U.S. Space Program" began on February 13, 1969, when President Richard Nixon established the Space Task Group (STG). The purpose of this committee was to conduct a study to recommend a future course for the U.S. Space Program. Three years later, on January 5, 1972, the Space Shuttle Program was initiated in a speech delivered by President Nixon. During this speech, Nixon outlined the end of the Apollo era and the future of a reusable spaceflight vehicle providing "routine access to space." By commencing work at this time, Nixon added, "we can have the Shuttle in manned flight by 1978, and operational a short time after that" (Lindroos 2000). The STG presented three choices of long-range space plans. All included an Earth–orbiting space station, a Space Shuttle, and a manned Mars expedition (NASA History Office 1969). Although none of the original programs presented was eventually selected, NASA implemented a program, shaped by the politics and economic realities of its time, that served as a first step toward any future plans for implementing a space station (Jenkins 2001:99).

Phase A and Phase B Development

The conceptual origins of NASA's Space Shuttle began in the mid to late 1950s, when the Department of Defense and NASA independently began to explore the feasibility of reusable launch vehicles in space for military operations (Williamson 1999:162). Programs such as the U.S. Air Force's X-20 Dynamic Soaring (Dyna-Soar), Precision Recovery Including Maneuvering Entry, and Aerothermodyamic/Elastic Structural Systems Environmental Tests (ASSET),

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ultimately would provide the basis for the design of the Space Shuttle (Williamson 1999:162; Guilmartin, Jr. and Mauer 1988).

The definition of the Space Shuttle took shape largely between 1969 and early 1972. Feasibility and concept studies (Phase A) were succeeded by definition studies (Phase B), conducted by both NASA and industry contractors. For the contractors, these studies were carried out in an environment of changing baseline requirements, largely influenced by the needs of the Air Force and tempered by the economic realities of the time (Jenkins 2001:78). The Phase A studies began with the consideration of a broad range of concepts, including straight versus Delta wings; internal versus external propellant tanks; manned versus unmanned boosters; liquid versus solid propellant boosters; and sequential burn versus parallel burn solid rocket motors. NASA's preferred shuttle configuration at this time was a fully reusable, two-stage vehicle that concentrated on economy and safety as opposed to optimal payload performance (Jenkins 2001:78).

Prior to the submittal of the final Phase A study reports, NASA initiated the Phase B definition program, which included the preliminary design of a fully reusable two-stage Space Shuttle vehicle. Both straight-winged and Delta-winged designs were studied. Shortly after Phase B studies were initiated, NASA selected industry contractors to complete "Extended Phase A" studies, which examined alternate Shuttle design concepts to answer the basic question of whether there was a lower cost Shuttle option than the two-stage fully reusable system, such as a partially reusable configuration. The shift from a fully reusable to partially reusable vehicle reflected NASA's pragmatism in the face of funding obstacles (U.S. House 1981:452). Thus, on January 5, 1972, because of the studies, President Nixon authorized NASA to proceed with the design and building of a partially reusable Space Shuttle consisting of a reusable orbiter, three reusable main engines, two reusable solid rocket boosters, and one non-reusable external tank for propellant.

Phases C/D: Design, Development, Test, and Evaluation

With the design of the Space Shuttle determined, NASA proceeded to Phases C/D, Design, Development, Test, and evaluation. While Phases A and B considered the design of the overall vehicle, Phases C/D divided the different elements into separate contracts. NASA's Lyndon B. Johnson Space Center (JSC) in Houston, Texas (then, the Manned Spacecraft Center), which had been designated as the lead Center for Shuttle Program management, was tasked with overseeing overall engineering and systems integration, and basic performance requirements for the Shuttle, as well as for development and testing of the orbiter. The George C. Marshall Space Flight Center (MSFC) in Huntsville, Alabama, was given the responsibility for the development of the Space Shuttle main engines, the solid rocket boosters, the external tank, and for all propulsion-related tasks. KSC was assigned the responsibility for designing the launch and recovery facilities and developing methods for shuttle assembly, checkout, and launch operations (Ezell 1988:121-124, table 2-57; Williamson 1999:172-174).

Between April 1972 and June 1974, JSC and MSFC awarded the contracts for their designated elements. The Space Division of North American Rockwell Corporation (Rockwell) of Downey, California, was selected as the prime contractor responsible for design, development, and production of the orbiter vehicle and for integration of all elements of the Space Shuttle system (Ezell 1988:121-124, table 2-57; Whalen and McKinley 1988:21, 26). The contract for the development and production of the engines went to North American Rockwell's Rocketdyne

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Division (later, Pratt & Whitney Rocketdyne) in Canoga Park, California (Dunar and Waring 1999:288). Martin Marietta (later, Lockheed Martin Space Systems Company) of New Orleans, Louisiana, was awarded the contract for the external tank, and the Thiokol Chemical Company (later, ATK-Thiokol) of Promontory, Utah, was selected as the contractor for the motor segments of the solid rocket boosters Whalen and McKinley 1988:26, 29).

In June 1974, Rockwell began construction on the orbiter prototype, *Enterprise;* final assembly was completed in March 1976. Slated to be named *Constitution* in honor of the Bicentennial, as the result of a massive letter campaign, on September 8, 1976, Orbiter Vehicle (OV)-101 was officially designated *Enterprise* after the Star Trek television program starship. The rollout of *Enterprise* on September 17, 1976, was attended by thousands, including Star Trek actors Leonard Nimoy, George Takei, and DeForest Kelly (Heppenheimer 2002b:100-101). As a prototype/test article, *Enterprise* featured numerous substitute components as placeholders for the equipment found in vehicles built for actual spaceflight. In the weeks before its official rollout, *Enterprise* was used in a horizontal ground vibration test at Palmdale to verify structural dynamics data for a full-sized orbiter (Heppenheimer 2002b:100, 251-252). Additionally, *Enterprise* was used in the Approach and Landing Test Program at Edwards Air Force Base in California, which was completed in four phases between February and October 1977. The first phase consisted of high-speed taxi tests to "assess directional stability and control, elevator effectiveness during rotation prior to takeoff, airplane response in pitch, thrust reverser effectiveness, use of the 747's brakes, and airframe buffet" (Heppenheimer 2002b:106). The second phase of "captive-inert" tests served to qualify the shuttle carrier aircraft (SCA) for ferry operations, as well as the orbiter's unpowered landing capabilities. The "captive-active" tests, phase three of the program, entailed powering up the orbiter while it was attached to the SCA. The final phase of the program consisted of five test free flights to provide both operational experience as well as "benchmarking data for the flight simulators that were the working tools of day-to-day astronaut training" ((Heppenheimer 2002b:121).

Between November 1975 and February 1978, Rockwell assembled a high-fidelity test structure that was comprised of a replica orbiter airframe and crew module, but not equipped for actual spaceflight. This test structure, which was later transformed into the Orbiter *Challenger*, was subjected to various simulated stress levels provided by the Space Shuttle main engines that duplicated the launch, ascent, on-orbit, reentry, and landing phases of flight (Jenkins 2001:241). Heating and cooling simulations were also conducted using gaseous nitrogen to simulate the cold of space and heating blankets to simulate ascent and reentry heating (Heppenheimer 2002b:252-256). While these tests were being conducted, *Enterprise* was at MSFC for a series of Mated Vertical Ground Vibration Tests, the objective of which was to determine the structural integrity of the shuttle vehicle, with an emphasis on the period of flight just prior to booster separation (Dunar and Waring 1999:314). After the Mated Vertical Ground Vibration Tests, *Enterprise* was moved to KSC where it was used at LC 39, Pad A, to verify the correct locations of maintenance platforms, and to check crew escape procedures (Jenkins 2001:216).

Orbital Test Flights: 1981-1982

In November 1977, Rockwell began final assembly of the first orbiter intended for spaceflight, *Columbia*. It was completed in March 1979, carried overland to Edwards Air Force Base, and ferried by the SCA to the KSC. Originally scheduled for lift-off in late 1979, the launch date was delayed by problems with both the main engine components as well as the thermal protection system. Upon its arrival at Kennedy, the orbiter was missing thousands of tiles that came off

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during the ferry flight. Additionally, *Columbia* arrived from Rockwell without its main engines, auxiliary power units, onboard computers, and fuel cells installed. About six months of assembly work needed to be done. As the result of changed requirements for increased tile strength ("densification"), for twenty months technicians at KSC worked three shifts per day, six days per week installing, testing, removing, and reinstalling approximately 30,000 tiles. *Columbia* spent 610 days in the Orbiter Processing Facility, another 35 days in the Vehicle Assembly Building, and 105 days at LC 39, Pad A, before its maiden launch.

Commanded by John W. Young and piloted by Robert L. Crippen, STS-1, the first orbital test flight and first mission of the Space Shuttle Program, lifted off at 7:00 a.m. on April 12, 1981 (see Tables 9-1 and 9-2 for a tabulation of all Space Shuttle missions). *Columbia* returned on April 14, completing her historic mission at Edwards Air Force Base. This initial mission, lasting two days, six hours, 20 minutes, and 53 seconds, demonstrated *Columbia's* ability to fly into orbit, conduct on-orbit operations, and return safely. *Columbia* flew three additional test flights in 1981 and 1982, all with a crew of two. On March 30, 1982, at the completion of STS-3, *Columbia* made its landing at White Sands Missile Range (at NASA's White Sands Space Harbor) in New Mexico because of flooding at Edwards. This event marked the only time in the history of the Space Shuttle Program that the orbiter landed at White Sands, or anywhere other than Edwards Air Force Base or KSC. The Orbital Test Flight Program ended in July 1982 following STS-4, with 95 percent of its objectives completed, including complete biomedical flight test requirements (Jenkins 2001).

Operational Flights

STS-5, which began with the lift-off of *Columbia* on November 11, 1982, marked the first operational flight of the Space Shuttle Program. The mission, which lasted 122 hours and 14 minutes, ended on November 16 with a landing at Edwards Air Force Base. *Challenger* was added to the Shuttle fleet in 1982, and made its first flight (STS-6) in April 1983. *Discovery* and *Atlantis* were delivered to KSC in November 1983 and April 1985, respectively. *Discovery* lifted off for her maiden flight (STS-41D) on August 30, 1984; the first launch of *Atlantis* (STS-51J) occurred on October 3, 1985.

Between 1982 and 1985, *Columbia*, *Challenger*, *Discovery*, and *Atlantis* collectively flew 20 missions, averaging four to five launches per year. Despite the 1970s projections of a maximum of sixty launches per year the nine flights in 1985 were a record for the Space Shuttle Program. All the launches, from 1982 through 1985, were made from Launch Complex 39, Pad A, and all but six missions ended with landings at Edwards AFB. Highlights from these years include two dedicated Department of Defense flights and five Spacelab missions.

The *Challenger* Accident and Aftermath

On January 28, 1986, 73 seconds after the launch of *Challenger*, the spacecraft was destroyed, and all seven astronauts, Commander Francis R. Scobee; Pilot Michael J. Smith; Mission Specialists Ellison S. Onizuka, Judith A. Resnik, and Ronald E. McNair; Payload Specialist George B. Jarvis; and the first teacher selected to fly in space, Sharon Christa McAuliffe, perished. Following this tragedy, NASA and President Reagan formed a thirteen-member Commission to investigate the cause of the accident. The Presidential Commission on the Space Shuttle Challenger Accident, popularly known as the Rogers Commission after its chairman, William P. Rogers, was tasked with reviewing the images (video, film and still photography), telemetry data, and debris evidence. The Commission concluded that the "loss of

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the Space Shuttle Challenger was caused by a failure in the joint between the two lower segments of the right Solid Rocket Motor" (Jenkins 2001:279).

In addition to identifying the cause of the *Challenger* accident, the Rogers Commission report, issued on June 6, 1986, included a review of the Space Shuttle Program. The report concluded "that the drive to declare the Shuttle operational had put enormous pressures on the system and stretched its resources to the limit" (CAIB 2003:25). In addition to mechanical failure, the Commission noted a number of NASA management failures that contributed to the catastrophe. Nine basic recommendations were made. Among the tangible actions taken were extensive redesign of the solid rocket boosters; upgrading of the Space Shuttle tires, brakes, and nose wheel steering mechanisms; and the addition of a drag chute to help reduce speed upon landing. Other changes involved reorganization and decentralization of the program. Experienced astronauts were placed in key NASA management positions, all documented waivers to existing flight safety criteria were revoked and forbidden, and a policy of open reviews was implemented (Lethbridge 2001). Also, in response to the Presidential Commission Recommendation VIII regarding flight rate, NASA implemented several actions to achieve a flight level consistent with program resources and the addition of a fourth orbiter to the fleet. In cooperation with the Department of Defense, NASA adopted a new mixed-fleet concept comprised of ELVs in addition to the Shuttle and reassigned the deployments of military payloads from the Shuttle to those expendable vehicles (Rogers Commission 1986a:164-177, 1986b:71-78, 1986d:75).

In the aftermath of the *Challenger* accident and following the recommendation of the Rogers Commission for organizational change, NASA moved the management of the Space Shuttle Program from Johnson Space Center to NASA Headquarters, with the aim of preventing communication deficiencies (CAIB 2003:101). In addition, an exhaustive investigation by a Senate subcommittee resulted in the cancellation of Department of Defense plans to activate the Vandenberg Launch Site in California, leaving the United States without a manned polar launch capability.

In July 1987, NASA awarded a contract to Rockwell for construction of *Endeavour* to replace *Challenger*. To build the new orbiter, Rockwell used structural spares previously constructed between 1983 and 1987 under contract with NASA. Assembly of *Endeavour* was completed in July 1990, and the orbiter was delivered to KSC in May 1991; she launched on her maiden flight (STS-49) on May 7, 1992.

The launch of *Discovery* (STS-26) from Kennedy's LC 39, Pad B, on September 29, 1988, marked a Return to Flight after a 32-month hiatus in manned spaceflight following the *Challenger* accident. STS-26 carried a crew of five and a Tracking and Data Relay Satellite (Williamson 1999:186). Designated as a test flight, this mission featured the first use of the redesigned solid rocket boosters. In addition, the astronauts donned new partial-pressure flight suits and practiced using the new emergency escape system (Rumerman 2007:46).

The years following the STS-26 flight "were among the most productive in the Shuttle's history, as a long backlog of payloads finally made it to the launch pad" (Reichardt 2002:65). Between 1988 and 2002, a total of 87 missions launched from KSC, averaging five to six yearly missions; from 1992 through 1997, there were seven or eight yearly missions. On February 3, 1995, a program milestone was reached when *Discovery* (STS-63) became the first orbiter to complete twenty missions. Significant accomplishments from these years included the deployment of the

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Hubble Space Telescope and four of its servicing missions, twenty-three Spacelab missions, eight dedicated Department of Defense flights, and the early construction of the ISS.

Additionally, the joint U.S./Russian Shuttle-*Mir* Program occurred during this time. The Program was initiated in 1995 as a precursor to construction of the ISS, although the Russian *Mir* had been launched in February 1986 (Reichhardt 2002:85). The first Space Shuttle approach and flyaround of *Mir* took place on February 3, 1995 (STS-63); the first *Mir* docking was in June 1995 (STS-71). During the three-year Shuttle-*Mir* Program the Space Shuttle docked with *Mir* nine times and seven U.S. astronauts served tours on *Mir* (Dr. Norman Thagard was the first). Many of the missions involved Earth science experiments and the program prepared U.S. astronauts for living and working in space, including the performance of many activities they would later use to construct the ISS (Rumerman and Garber 2000:3).

Columbia Accident and Aftermath

On January 16, 2003, *Columbia* (STS-107) launched from LC 39, Pad A, carrying a crew of seven, including the first Israeli astronaut. The landing was set for February 1, following a sixteen-day mission. Sixteen minutes prior to its scheduled touchdown at KSC, the spacecraft broke apart during reentry over eastern Texas. All members of the crew, Commander Rick D. Husband; Pilot William C. McCool; Mission Specialists David M. Brown, Kalpana Chawla, Michael P. Anderson, and Laurel Clark; and Israeli Payload Specialist Ilan Ramon, were killed.

Following the accident, a seven-month investigation ensued, including a four-month search to recover debris. The Columbia Accident Investigation Board (CAIB) determined that the physical cause of the accident was a breach in the thermal protection system on the leading edge of the left wing. This resulted from a piece of insulating foam, which separated from the ramp section of the external tank after launch and struck the wing in the vicinity of reinforced carbon-carbon panel number 8 (CAIB 2003:9). NASA spent more than two years researching and implementing safety improvements for the orbiters, solid rocket boosters, and external tank.

In the aftermath of the *Columbia* accident, the Space Shuttle fleet was grounded and construction on the ISS was placed on hold. *Discovery's* first post-*Columbia* Return to Flight mission (STS-114) launched on July 26, 2005 (Launius 2003:214-216). The flight marked the first time a shuttle launch was extensively documented with new and upgraded ground-based cameras, radar systems, and airborne cameras mounted to high-altitude aircraft. It also was the first mission to use the new orbiter boom sensor system to scan the orbiter's exterior once in orbit. In addition, the space station crew photographed different areas of the vehicle to look for possible damage caused by loosened thermal protection system materials. *Discovery* also flew with sensors embedded in her wings to perform an analysis of her thermal protection system. Her STS-121 mission, which launched on July 4, 2006, served as the second test flight following the *Columbia* accident, continuing the analysis of the vehicle's safety improvements (Rumerman 2007:72-73). During this mission, astronauts conducted the first spacewalk that demonstrated techniques for repairing thermal protection system components in orbit.

In the meantime, on January 14, 2004, President George W. Bush announced that in 2010, following completion of the ISS, the Space Shuttle would be retired after nearly thirty years of service (WCPD 2004). Following the President's speech, NASA released *The Vision for Space Exploration*, which outlined the Agency's approach to the new direction in space exploration (NASA HQ 2004). In 2006, NASA announced the start of the Constellation Program, which included development of the Crew Exploration Vehicle (CEV), named *Orion*, and a launch

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vehicle to place the CEV into space. As part of this initiative, NASA decided to use the Space Shuttle to complete assembly of the ISS. The Constellation Program, and its vehicles, would then take over transporting humans to the ISS and eventually carry both crew and cargo on missions to explore the Moon, Mars, and beyond. Twenty of the 22 post-*Columbia* accident flights were devoted to finishing the construction of the ISS. The other two missions completed the final servicing of the Hubble Space Telescope (STS-125) and carried supplies to the ISS (STS-135).

On October 11, 2010, President Barack Obama signed the *National Aeronautics and Space Administration Authorization Act of 2010,* which redefined the future direction of NASA. As part of this Act, the Moon-oriented Constellation Program was cancelled in favor of a manned mission to an asteroid by 2025, followed by a manned mission to Mars in the 2030s. The CEV, however, was retained to serve as an escape capsule for the ISS and, potentially, a deep space vehicle. The plan also extended operations on the ISS to the year 2020, calling for private American companies to develop spacecraft for carrying astronauts to the station (FoxNews.com 2010).

Transition and Retirement

On April 12, 2011, the thirtieth anniversary of the maiden launch of the Space Shuttle Program, NASA Administrator Charles Bolden announced that the Space Shuttle fleet would be displayed permanently at institutions across the country. *Enterprise* would be moved from the Smithsonian's NASM's Steven F. Udvar-Hazy Center in Chantilly, Virginia, to the Intrepid Sea, Air & Space Museum in New York. The Udvar-Hazy Center would become the new home for *Discovery*. *Endeavour* would go to the California Science Center in Los Angeles, California, and *Atlantis* would be displayed at the KSC Visitor Complex in Florida (Weaver 2011).

Following their final flights and prior to their relocation, each orbiter underwent a series of processing activities to transform her from a spaceflight vehicle into a museum display. Included in the effort was a streamlined version of the standard post-mission processing; cleansing the orbiters of hazardous components and removing classified hardware; removing selected components for study by NASA engineers/technicians, for use in future programs, or as requested by other groups (e.g., the Russian Space Agency); and preparing the orbiter for display (NASA JSC 2010; Roberts 2010:6).

Discovery was the first Shuttle orbiter to complete Transition and Retirement processing; *Endeavour* was the second, and *Atlantis* was the last. *Discovery* made her final ferry flight on April 17, 2012, from the SLF at the KSC to the Dulles International Airport (Taylor 2011; Gebhardt 2011). After the delivery of *Discovery,* the SCA conveyed *Enterprise* to New York on April 27, 2012, and *Endeavour* from Florida to the Los Angeles Airport in September 2012 (Bergin 2011). *Atlantis* was moved to the KSC Visitor Complex in November 2012.

I.3.6 International Space Station

Following World War II, the concept of an orbiting space station gained widespread interest among the American public, due in large part to the efforts of Dr. Wernher von Braun, a German rocket scientist who had emigrated to the U.S. after the war as part of Project Paperclip. Through several articles for *Collier's* magazine, appearances on popular television variety/talk shows and Walt Disney television specials, he detailed his ideas for space travel, which would

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ultimately lead to the construction of a permanently inhabited space station to be used to conduct scientific experiments and to serve as a base camp for launching missions to the Moon, Mars, and eventually other planets (Launius 2003:25-29). His ideas inspired young engineers, such as Heinz H. Koelle, Darrell C. Romick, and Krafft A. Ehricke, to develop their own concepts for space stations. For example, Ehricke, with the support of his employer, General Dynamics, proposed a "Minimum Manned Satellite" to the U.S. Air Force. Von Braun's team, now stationed at the Army Ballistic Missile Agency in Huntsville, Alabama, continued researching a large wheel-like station, named Project Horizon, that would serve as a refueling point for Moon-bound vehicles (Launius 2003:37-38). These concepts and designs, among others, were soon overshadowed by the work at Langley Research Center (LaRC) in Hampton, Virginia, an outpost of the newly created NASA.

Less than one year after the formation of NASA, LaRC engineers held an in-house conference (July 1959), with the aim of "concentrating research efforts on developing the technology to build, launch and operate" a space station (Newkirk and Ertel 1977). Subsequently, throughout the early 1960s, they researched six different station concepts, ultimately developing a design for a modular space station that included large rigid modules linked by inflatable connectors. Using a low rotational velocity to simulate gravity, the outer portions of a non-rotating hub would provide a place for shuttle docking and a laboratory for experimentation (Launius 2003:40-43). In the meantime, von Braun's group in Huntsville, now part of the MSFC, continued to develop Project Horizon (Launius 2003:45-50). However, although President Kennedy's May 1961 challenge to land a man on the Moon by the end of the decade pulled NASA's focus towards the Apollo Program, proponents for a space station continued their studies, shifting their emphasis to developing a smaller and more economical station that built on the technological systems developed for Apollo. Engineers at LaRC, for example, furthered a station concept named the Manned Orbital Research Laboratory (MORL), which would support one astronaut full time for a year, with other crewmembers joining for shorter periods (Launius 2003:50-66). At JSC, engineers proposed a Large Orbiting Research Laboratory, or Olympus, which was roughly seven times the size of MORL and could carry a crew of 24 astronauts. Outside of NASA, other groups also pursued the idea of a manned orbiting satellite, including the U.S. Air Force, whose proposed Manned Orbiting Laboratory, was very similar to the MORL (Launius 2003:67-69).

By 1968, development of a space station had become NASA's leading post-Apollo goal, and in 1969, after the successive Apollo 11 Moon-landing mission, NASA's new space station paradigm, Space Base, was conceived. This permanent space station, envisioned as a home port to launch people and supplies to the Moon, was to be a laboratory for scientific and industrial experiments (NASA JSC 1997a). Scheduled for completion in 1975, it was designed for a 10-year operating life staffed by 50 to 100 engineers and technologists of varying background and nationality. However, given the projected project costs, especially those associated with using expendable rockets to resupply the station, NASA turned to an alternate plan - the development of a reusable spacecraft, which became the Space Shuttle. However, while development of the shuttle proceeded, NASA continued research into a scaled-down version of a space station.

Two key events occurred within U.S. politics between November 1980 and July 1981, which would ultimately set the country toward the goal of a permanent space station. First, while Ronald Reagan was preparing to take over as President of the U.S. following the 1980 election, George M. Low, a former NASA administrator and head of Reagan's space policy transition

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team, reported that NASA was “in an untenable position. ..... This unhealthy state of affairs can only be rectified by a conscious decision. Continuation of the prior administration’s low level of interest and lack of clear direction would result in an unconscionable waste of human and financial resources” (Launius 2003:117). The second key moment came on June 1, 1981, when James M. Beggs was nominated by the President to be the new NASA administrator and officially entered the office on July 10. Although Low did not directly advocate for a space station, Beggs firmly stated during his confirmation hearings, “it seems to me that the next step is a space station” (Launius 2003:114).

Beggs, and many of his Chief lieutenants, spent the next three years laying the foundation work for the approval of a space station program. He first tried to convince the administration’s Senior Interagency Group for Space of the value of a station but found that most of the members would not support it. Beggs then turned to the President and had the issue placed on the agenda for the December 1983 Cabinet Council on Commerce and Trade meeting. By circumventing the standard political channels, Beggs effectively appealed to Reagan’s well-known belief that the Soviet Union, or “evil empire,” was a serious threat to the U.S. and democracy. At the time, various versions of the small Russian station, *Salyut*, had been orbiting around Earth for seven years. Subsequently, in his January 25, 1984, State of the Union Address, President Reagan directed NASA to develop a permanently manned space station and to do it within a decade. As a result, the U.S. Space Station Program officially began in January 1984. The program would be managed by a Space Station Program Office at JSC, established in April 1984, and overseen by the NASA Office of Space Station in Washington, D.C. (Launius 2003:118-121). The formal design work was divided between MSFC, JSC, Goddard Space Flight Center in Greenbelt, Maryland, and Lewis (later renamed Glenn) Research Center in Cleveland, Ohio, with each Center responsible for designing specific elements of the station (*Spaceport News* 1984).

While the Space Program had the approval of the President, others, including the Secretary of Defense, had reservations about the cost and the impact the diversion of funds would have on the Space Shuttle Program. Cost estimates for the new Space Station Program ranged from highs of $12 to $20 billion. However, Beggs responded with an $8 billion dollar figure noting that since the program was modular, once the necessary pieces were in place, other sections of the station could be added as funds became available. While NASA was directed to stay within the budget, it was unable to do so and within five years the projected program costs had more than tripled (Launius 2003:121-123).

Although pressure from Congress to reduce the budget was constant, and the funds were never fully sufficient to support the project, designs for a space station were developed. Out of several initial design concepts, in April 1984, the Space Station Program Office at JSC produced the first baseline configuration, called the “Power Tower.” It featured a central keel with a cluster of five modules at the lower end and a set of solar arrays at the upper end (Smith 2001:9-12). According to Launius, this concept “offered the most latitude to design a workable space station given political, funding, and technical limitations. [It also satisfied] the broadest range of scientific requirements and it offered the potential to minimize development costs” (Launius 2003:124).

By the spring of 1985, Japan, Canada, and the European Space Agency, each signed a Memorandum of Understanding with the United States to participate in the Space Station Program. Subsequently, the partners reached agreement on their hardware contributions

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(NASA JSC 1997a). As program costs continued to rise, and a broad public, scientific, and governmental consensus in support of the program still failed to be achieved, Congress directed NASA to redesign the space station. Although the new design cut $8.3 million from the cost estimate, the U.S. House of Representatives held its first floor vote on whether to terminate the program in 1991. The program managed to survive, as it would for twenty-one additional Congressional votes held through the year 2000 (Smith 2001).

In the meantime, in February 1986, Russia launched its next generation space station, *Mir,* which would remain in orbit until March 2001. In 1991, President George H. W. Bush and Russian Premier Mikhail Gorbachev agreed that an American astronaut would reside on *Mir* and a Russian cosmonaut would fly on the Space Shuttle as part of the Manned Flight Joint Working Group (Launius 2003:155, 158-159; Reichardt 2002:85). The following year, a second agreement was made between the space agencies of the two countries, which outlined a plan for a U.S. Space Shuttle to dock with *Mir* and leave an American astronaut on board the station for a set period.

In 1993, NASA received a directive to develop once again a simpler design for the space station. The resultant design was a medium-sized, modular station that, in the words of President William Clinton, was chosen to "enhance and expand the opportunities for international participation in the Space Station Program, so that the space station can serve as a model of nations coming together in peaceful cooperation" (Launius 2003:179). In September 1993, President Clinton invited Russia to participate as a partner in the U.S. Space Station Program. Both countries signed an agreement, after which the station became known as the International Space Station (ISS) (NASA JSC 1997a).

A proposed three-phase approach for the new ISS Program resulted from the summit. The first phase was the joint U.S./Russian, Shuttle-*Mir* Program, which was initiated with NASA's STS-60 mission, when Sergei Krikalev became the first Russian cosmonaut to fly on a Shuttle. During the Shuttle-*Mir* Program, the orbiter docked with *Mir* nine times. In 1995, Norman E. Thagard, M.D., became the first American astronaut to live aboard the Russian space station. Over the next three years, six more U.S. astronauts served tours on *Mir*. The Shuttle-*Mir* Program, which ended June 2, 1998, served to acclimate the astronauts to living and working in space, and many of the activities carried out on *Mir* were types they would perform on the ISS (Rumerman 2000:3).

The second phase of the ISS Program officially began with the commencement of the station's on-orbit assembly in November 1998, when *Zarya,* built by Russia and financed by the United States, was launched by a Russian Proton rocket from the Baikonur Cosmodrone in Kazakhstan (Launius 2003:185-187; NASA JSC 1999a). The U.S.-built *Unity* Node 1 connecting module, along with two pressurized mating adapters, was launched from KSC aboard *Endeavour* (STS-88) in December 1998. *Unity* was connected to the orbiting *Zarya* by the *Endeavour*'s crew on December 6, 1998. As noted by Ray A. Williamson, delivery of the first U.S.-built element to the station marked, "at long last the start of the Shuttle's use for which it was primarily designed – transport to and from a permanently inhabited orbital space station" (Williamson 1999:191). The twenty-sixth flight of *Discovery* (STS-96), launched on May 27, 1999, was the first mission to dock with the ISS.

A 19-month construction hiatus followed the mating of *Zarya* and *Unity,* because of Russian delays in building the *Zvezda* Service Module. Until delivery and installation of this key module,

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the ISS could not be inhabited without a Shuttle present. *Zvezda* finally was launched on July 11, 2000, and mated with *Zarya* and *Unity* on July 25th (NASA JSC 1999b). In October 2000, the crew of *Discovery* (STS-92) delivered and connected the Zenith Port Truss and the third pressurized mating adapter. Following this, the station was officially declared ready for occupancy. One month later, the Port 6 Truss, fitted with the first set of solar arrays, was launched by *Endeavour* (STS-97). The Port 6 Truss was temporarily installed on top of the Z-1 Truss to provide power to the station while the remainder of the integrated truss system was completed.

The next major component, the U.S.-built *Destiny* Laboratory Module, arrived in February 2001, aboard *Atlantis* (STS-98). The astronaut crew arriving aboard *Discovery* (STS-102) in March 2001, attached and unloaded the first Multipurpose Logistics Module, a pressurized compartment that carried equipment, experiments, and supplies to and from the station aboard the Shuttle. *Endeavour* (STS-100) delivered the Canadarm-2 in April 2001. Three months later, the Joint Airlock *Quest* arrived, which enabled the U.S. astronauts to perform spacewalks without the Space Shuttle present. On September 15, 2001, the Russian *Pirs* Docking Compartment was launched aboard a Russian spacecraft, and two Starboard Trusses were delivered aboard *Atlantis* (STS-110 and STS-112) in April and October 2002, respectively. These deliveries were followed by Port 1 Truss in November 2002. At this point, approximately 45 percent of the station had been delivered and assembled.

Following the *Columbia* accident in February 2003, all access to and from the station was by way of the Russian-built Soyuz capsule. During the two-year period spanning 2003 to 2005, Russia flew fourteen resupply and crew rotation missions until STS-114 in 2005. Just over two years later, on March 2, 2006, the international partners approved a new assembly sequence for the ISS, which dedicated sixteen remaining Shuttle flights to launching space station elements. Three Port Truss and three Starboard Truss segments were delivered in 2006 and 2007. *Discovery* (STS-120) launched on October 23, 2007, carrying the Italian-built *Harmony* Node 2. The Japanese *Kibo* Experiment Module and European Space Agency-built *Columbus* Laboratory, as well as the Canadian-built robotic device *Dextre* arrived at the station in early 2008. The last major U.S. truss segment and the final pair of power-generating solar array wings were delivered to the station aboard *Discovery* (STS-119) in March 2009. The same year, the *Kibo* Japanese Experiment Module Exposed Facility and Experiment Logistics Module Exposed Section were delivered aboard *Endeavour* (STS-127).

In February 2010, the *Tranquility* Node 3 and its cupola, built by the Italian company Thales Alenia Space, were delivered aboard *Endeavour* (STS-130). By April 2010, following the conclusion of *Discovery's* (STS-131) mission, the non-Russian segment of the ISS was virtually complete. In May, *Atlantis* (STS-132) delivered the Russian-built Mini-Research Module 1 *Rassvet*; Mini-Research Module 2 *Poisk* was delivered earlier, in November 2009, aboard a Russian spacecraft. In February and May 2011, *Discovery* (STS-133) and *Endeavour* (STS-134) delivered the final space station components: the permanent Multipurpose Module *Leonardo* and the Express Logistic Carrier 4 (STS-133), and the Express Logistic Carrier 3 and Alpha Magnetic Spectrometer 2 (STS-134). On July 21, 2011, *Atlantis* rolled to a stop at the KSC, marking the end of the final mission of the thirty-year old Space Shuttle Program. During mission STS-135, *Atlantis,* for the last time, delivered supplies and spare parts to sustain space station operations.

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I.3.7 Unmanned Space Programs

The Navy personnel and facilities associated with Project Vanguard were reassigned to NASA's planned space projects Center in Greenbelt, Maryland. On May 1, 1959, NASA announced this new Center would be designated as the Goddard Space Flight Center (Goddard). Twenty of these employees formed the Vanguard Group, which was responsible for launch operations of the vehicle at CCAFS. With the establishment of Goddard, this team became the Florida Launch Operations Division and remained here to oversee the remainder of the Vanguard launches. In May 1960, the group supported the launch of NASA's Delta-1, the first official Goddard-developed launch vehicle. This team, headed by Dr. Robert H. Gray, "provided the management and technical direction of the field efforts" for launch operations of various spacecraft; they also monitored and directed launch vehicle preparations and coordinated spacecraft checkout (NASA 2010).

Between its establishment and September 30, 1965, Goddard's Launch Operations Division oversaw fifty-five unmanned rocket launches at CCAFS, forty-seven of which were considered successful. Vehicles used included Vanguard; Thor-Able I, II, III, and IV; Delta; Delta A, B, C, and D; Atlas-Agena B and D; Atlas-Antares; Atlas-Centaur; and Titan III-C. The type of launch vehicle used was based on the weight of the payload, its orbital destination, and its purpose (Lethbridge 2014). Notable missions from this time include:

1. Explorer VI was launched from LC 5/6, Pad 5, August 7, 1959, aboard a Thor-Able III booster. Goddard considers this their first satellite, as all others up to this point were the "result of pre-NASA programs." Experiments and instrumentation aboard this spacecraft studied the Van Allen radiation belts, the Earth's magnetic field and cloud cover, micrometeoroids, and very low-frequency radio signals (Lethbridge 2014; Rosenthal 1968:79-80, 82).

2. Tiros I was launched from LC 17, Pad A, on April 1, 1960, atop a Thor-Able II booster. It was the first U.S. meteorological satellite. During its seventy-eight-day life, Tiros I took over 20,000 photographs depicting the Earth's cloud cover. Atmospheric characteristics such as jet streams, warm and cold fronts, and thunderstorms were depicted in many of the images (Lethbridge 2014; Rosenthal 1968:88- 89; NASA 2010).

3. Ariel I was launched from LC 17, Pad A, on April 26, 1962, aboard a Delta rocket. It was a joint project of the U.S. and the United Kingdom, this first international satellite was equipped with instrumentation and experiments to study the solar atmosphere and ionosphere. It transmitted data to NASA through November 1963 (Lethbridge 2014; Rosenthal 1968:109-110).

4. Telstar 1 was launched from LC 17, Pad B, on July 10, 1962, atop a Delta booster. It was the first active communications satellite, a product of the American Telephone and Telegraph Company (AT&T), and soon led to a debate in the U.S. Congress as to how such satellites would operate, by private industry, public utility, or governmental agency. Ultimately, this debate led to the "Communications Satellite Act of 1962," signed by President Kennedy on August 31 (Lethbridge 2014; Rosenthal 1968:79-80, 82).

5. Mariner 2 was launched from LC 12, on August 27, 1962, aboard an Atlas-Agena B rocket. It was the first successful U.S. planetary probe. The probe came within 22,000 miles of Venus and provided the first scan of a planet other than Earth (Lethbridge 2014; NASA 2010).

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6. The Ranger 7 spacecraft, was launched from LC 12, July 28, 1964, atop an Atlas-Agena D. It was the first U.S. vehicle to impact the Moon. Prior to its landing, the spacecraft took over 4,000 photographs of the lunar surface, which NASA would use to plan its Apollo lunar landings (Lethbridge 2014; NASA 2010).

On October 1, 1965, NASA's east and west coast unmanned launch activities were formally transferred to KSC and consolidated as the Unmanned LOD. While the management of the various unmanned programs remained at different NASA Centers, this action effectively placed KSC in control of all NASA launches except for the Scout rockets. The group operated under the name Unmanned Launch Operations until 1985. During this twenty-year period, the team continued its mission of launching lunar and planetary spacecraft, and scientific, meteorological, and communications satellites. NASA's unmanned vehicles also helped maintain a U.S. presence in space during the void between the Apollo and Space Shuttle Programs. In the early years of the Space Shuttle Program, NASA's intent was to use the shuttle for all satellite launches, although this never happened (Barton and Levy 1984:20-27; NASA, Public Affairs 1991). Some of the notable missions from this period include (unless otherwise noted, the specified launch complex/launch pad is at CCAFS):

1. Surveyor 1 was launched from LC 36, Pad A, on May 30, 1966, aboard an Atlas-Centaur booster. This was the first U.S. spacecraft to make a soft landing on the Moon's surface; it relayed thousands of photographs to Earth, which NASA could use to plan the Apollo lunar landings (Lethbridge 2014; NASA 2010).
2. LANDSAT 1 was launched from Space Launch Complex-2 West at Vandenberg Air Force Base (VAFB), California, on July 23, 1972, atop a Delta rocket. It was the first satellite to conduct a major assessment of the Earth's resources, such as agricultural, forest, mineral, and water, from space. NASA turned off the satellite in January 1978 (NASA 2010).
3. Helios 1 was launched from LC 41, on December 10, 1974, aboard a Titan III-E Centaur. The satellite flew within the outer corona of the Sun to measure its density, temperature, velocity, and magnetic field. It continued to transmit data to NASA until 1985 (Lethbridge 2014; NASA 2010).
4. The Viking 1 spacecraft was launched from LC 41 on August 20, 1975, atop a Titan III-E Centaur booster. This vehicle carried an orbiter, which it placed in orbit around Mars, and a lander that it sent to the planet's surface. The key goal was to find life on Mars (Lethbridge 2014; NASA 2010).
5. The Pioneer Venus Orbiter was launched from LC 36, Pad A, on May 20, 1978, aboard an Atlas-Centaur rocket. This was the first satellite to orbit Venus. It studied the planet's atmosphere and surface, and compiled radar maps of its surface features (Lethbridge 2014; NASA 2010).
6. The Infrared Astronomical Satellite was launched from Space Launch Complex-2 West at VAFB, on January 25, 1983, atop a Delta rocket. It was the satellite to conduct a detailed infrared examination of the universe. Results from its ten-month mission included the discovery of new stars being born and evidence of the possible evolution of new planetary systems (Lethbridge 2014; NASA 2010).

In 1985, the Unmanned LOD became the Expendable Vehicle Operations Directorate; the group continued to fall under the jurisdiction of KSC. Its mission remained the same, and over the next several years the team would begin to provide launch services for commercial vehicles and

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payloads. In January 1983, President Ronald Reagan's administration had begun to encourage private industry to manufacture ELVs to deliver commercial payloads; Government launch facilities at KSC and VAFB would be made available for their use. Commercial development of space vehicles received a further boost following the Space Shuttle *Challenger* accident in January 1986, when NASA decided that the Space Shuttle would no longer deploy commercial satellites (NASA, Public Affairs 1991). The Expendable Vehicle Operations Directorate would operate as such until 1997. Some of the notable missions from this period are as follows:

1. The Solar and Heliospheric Observatory satellite was launched from LC 36, Pad B, on December 3, 1995, aboard an Atlas IIAS-Centaur booster. This spacecraft gathered data on the internal structure and outer atmosphere of the Sun, as well as the origin of the solar wind (Lethbridge 2014; NASA 2010).
2. The NEAR (Near Earth Asteroid Rendezvous) Shoemaker was launched from LC 17, Pad B, on February 17, 1996, atop a Delta II rocket. It was the first satellite to conduct a long-term, close-up examination of an asteroid's surface; its mission lasted one year (NASA 2010).
3. The Mars Pathfinder vehicle was launched from LC 17, Pad B, on December 4, 1996, aboard a Delta II rocket. The vehicle carried a small robotic rover, the *Sojourner*, to Mars so it could study the planet's surface and record data about its ancient rocks (Lethbridge 2014; NASA 2010).
4. The Cassini spacecraft was launched from LC 40, on October 15, 1997, atop a Titan IV-B booster. Cassini performed gravity-assisted flybys of Venus and Jupiter, before arriving at Saturn in July 2004 to observe the planet and its moons. This vehicle also carried the European Space Agency's Huygens probe, which was deployed to Titan, Saturn's largest moon (Lethbridge 2014; NASA 2010, 2013).

In 1997, NASA consolidated its ELV Program at KSC, naming it the lead Center for the acquisition and management of ELV launch services. Per this announcement, KSC assumed the role of coordinating the requirements for all ELV customers, in addition to continuing to conduct launch operations. In 1998, the ELV Program merged with the Payload Carriers Program as a single program office at KSC; at this time, an ELV Launch Services Division was created. In 2003, the ELV & Payload Carriers Program Office was renamed the Launch Services Program; it retained its core functions of acquiring and managing ELV missions. Circa 2014, the Launch Services Program was using a mixed fleet of vehicles, some developed by private contractors (Pegasus XL, Falcon 1, Falcon 9, and Taurus XL), and others that are upgraded versions of old NASA/military rockets (Delta and Atlas) (NASA 2012, 2013). Some of the notable missions since 1998 include:

1. The Mars Exploration Rovers *Spirit* and *Opportunity* were launched from LC 17, Pad A, on June 10, 2003, and from LC 17, Pad B, on July 6, 2003, respectively, atop Delta II rockets. These two vehicles landed at different locations on Mars and have provided additional data about the planet's surface (Lethbridge 2014; NASA 2010).
2. The Space Infrared Telescope Facility (Spitzer Space Telescope) was launched from LC 17, Pad B, on August 25, 2003, aboard a Delta II rocket booster. This telescope was the fourth of NASA's "Great Observatories," the others being Hubble Space Telescope, the Compton Gamma Ray Observatory, and the Chandra X-Ray Observatory, and the only one delivered to space by an expendable vehicle; the others were carried aboard one of the Space Shuttles. The mission of this telescope is to obtain images through the

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detection of infrared energy (heat) radiated by objects in space (Lethbridge 2014; NASA 2010).

3. The MESSENGER spacecraft was launched from LC 17, Pad B, on August 3, 2004, aboard a Delta II rocket. It is the first vehicle to orbit and map Mercury (Lethbridge 2014; NASA 2010).
4. The New Horizons vehicle launched from LC 41 on January 19, 2006, atop an Atlas V rocket, is traveling to the edge of our solar system. Its goal is to explore the composition of Pluto and its moon (Charon), and study the Kuiper Belt, which consists of ancient icy bodies that orbit beyond Neptune (Lethbridge 2014; NASA 2010).
5. The Kepler spacecraft was launched from LC 17, Pad B, on March 6, 2009, aboard a Delta II booster. Its mission is to search for Earth-size and smaller planets that orbit around other stars. The focus is on the habitable zone, where liquid water may exist on the surface of such planets (Lethbridge 2014; NASA 2010).
6. The Mars Science Laboratory, carrying the *Curiosity* rover, was launched from LC 41, on November 26, 2011, atop an Atlas V rocket. The goals of the mission, which is part of the Mars Exploration Program, are to help determine if life ever existed on Mars, characterize the climate and geology of the planet, and prepare for human exploration (Lethbridge 2014; NASA, Jet Propulsion Laboratory 2014).

The MAVEN spacecraft was launched from LC 41, on November 18, 2013, aboard an Atlas V booster, is part of the Mars Exploration Program. The spacecraft will study the planet's upper atmosphere. Scientists hope to use the data to explain how Mars' climate has changed due to the loss of atmospheric gases (Lethbridge 2014).

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Appendix J: Buildings/Structures Table

A listing of architectural resources can also be found in NETS. Please confirm accuracy of NETS information with the KSC CRM prior to use.

Table J-1. KSC Architectural Resources per 2024 Listing of Historic Properties

Facility Number	FMSF Number	Resource Name	Historic Context Significance	NRHP Status (I=Individually Eligible; C=Contributing)	NRHP Criterion/Criteria Consideration	Construction Date	Status
OV-0104	No BR #	Orbiter Atlantis	SSP	Eligible, I	A, C, and G	1984	This was originally a JSC asset. It was transferred to KSC for display at KSCVC.
K6-0848	8BR1684	Vehicle Assembly Building	Apollo SSP	Listed, I Eligible, I	A, C, and G	1962-66	
K6-0947	8BR3150	VAB Utility Annex	Apollo	Listed, C (to VAB)	A, C, and G	1966	
K7-1005	8BR2986	Barge Terminal Facility	Apollo SSP	Eligible, C (to VAB) Eligible, C	A	1965	
K6-0900	8BR1685	Launch Control Center	Apollo SSP	Listed, I Eligible, I	A, C, and G	1966	
UK-0008	8BR1689	Crawlerway	Apollo SSP	Listed, I Eligible, I	A, C, and G	1963-65	
CT-1, CT-2	8BR1688	Crawler Transporter 1 & 2	Apollo SSP	Listed, I Eligible, I	A, C, and G	1965	
M6-0409X	8BR1690	Press Site: Clock and Flag Pole	Apollo SSP	Listed, I Eligible, I	A and G	1969	Clock moved to KSCVC in 2016.
M6-0399	8BR1691	Headquarters Building	Apollo	Listed, I	A, C, and G	1965	Demolished
M7-0355	8BR1693	Neil Armstrong Operations and Checkout Building	Apollo	Listed, I	A, C, and G	1964	
M6-0342	8BR1692	Central Instrumentation Facility	Apollo	Listed, I	A, C, and G	1965	Demolished
L6-0247	8BR1998	Manufacturing Building/Booster Fabrication Facility (BFF)	SSP	Eligible, I	A and G	1986	
M7-0657	8BR2014	Parachute Refurbishment Facility	SSP	Eligible, I	A and G	1964	Demolished
M7-0777	8BR2016	Canister Rotation Facility (aka Launch Abort System Facility)	SSP	Eligible, I	A, C, and G	1993	
	8BR2017	Payload Cannister 1 & 2	SSP	Eligible, I	A, C, and G	1978	Disposed
	8BR2019	Retrieval Ship, Liberty Star	SSP	Eligible, I	A and G	1980-81	Transferred out of NASA Ownership

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Table J-1. KSC Architectural Resources per 2024 Listing of Historic Properties

Facility Number	FMSF Number	Resource Name	Historic Context Significance	NRHP Status (I=Individually Eligible; C=Contributing)	NRHP Criterion/Criteria Consideration	Construction Date	Status
	8BR2020	Retrieval Ship, Freedom Star	SSP	Eligible, I	A and G	1980-81	Transferred out of NASA Ownership
MLP-1, MLP-2, MLP-3	8BR2021	Mobile Launcher Platforms (1, 2 & 3)	SSP	Eligible, I	A, C, and G	1963-68	MLP 1 Mothballed; MLP 2 & 3 Demolished
K6-0494	8BR1997	Rotation/Processing Facility	SSP	Eligible, I	A, C, and G	1984	
M7-0360	8BR2671	Space Station Processing Facility	ISS	Eligible, I	A, C, and G	1992	
M7-0361A	No BR #	Ammonia Vapor Containment Building	ISS	Eligible, C (to SSPF)	A and G	2006	
49635	8BR2905	Bioastronautics Operations Support Unit (BOSU)	Apollo	Eligible, I	A and G	1965	Demolished
K8-1699	8BR2990	Beach House	Apollo SSP	Eligible, I Eligible, I	A and B	1962	
M7-0409	8BR2969	Engineering Development Lab	Apollo	Eligible, I	A and B	1966	
M3-0003	8BR2956	Indian River Bridge	Apollo SSP ISS	Eligible, I Eligible, I Eligible, I	A and C	1964	Demolished
E4-2414	8BR2957	Haulover Canal Bridge	Apollo SSP ISS	Eligible, I Eligible, I Eligible, I	A and C	1965	
M7-1150	8BR2955	Banana River Bridge	Apollo SSP ISS	Eligible, I Eligible, I Eligible, I	A and C	1964	
	8BR1686	**Launch Complex 39 Pad A Historic District**	Apollo SSP	Listed Eligible	A, C, and G	1967-85	Leased
J8-1708	8BR1995	Launch Complex 39 Pad A	Apollo SSP	Listed, I Eligible, I, C	A, C, and G	1963-65	Leased
J8-1462	8BR2094	High Pressure GH2 Facility	Apollo SSP	Listed, C Eligible, C	A, C, and G	1968	Leased
J8-1502	8BR2095	Liquid Oxygen (LOX) Facility	Apollo SSP	Listed, C Eligible, C	A, C, and G	1966	Leased
J8-1503	8BR2096	A-1 Operations Support Building	Apollo SSP	Listed, C Eligible, C	A, C, and G	1966	Leased

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Facility Number	FMSF Number	Resource Name	Historic Context Significance	NRHP Status (I=Individually Eligible; C=Contributing)	NRHP Criterion/Criteria Consideration	Construction Date	Status
J8-1614	8BR2102	A-2 Operations Support Building	Apollo SSP	Listed, C Eligible, C	A, C, and G	1966	Leased
J8-1512	8BR2097	Camera Pad No. 1	Apollo SSP	Listed, C Eligible, C	A, C, and G	1966	Leased
J8-1714	8BR2105	Camera Pad No. 2	Apollo SSP	Listed, C Eligible, C	A, C, and G	1965	Leased
J8-1961	8BR2107	Camera Pad No. 3	Apollo SSP	Listed, C Eligible, C	A, C, and G	1965	Leased
J8-1956	8BR2106	Camera Pad No. 4	Apollo SSP	Listed, C Eligible, C	A, C, and G	1965	Leased
J8-1554	8BR2100	Camera Pad No. 6	Apollo SSP	Listed, C Eligible, C	A, C, and G	1965	Leased
J8-1513	8BR2098	LH2 Facility	Apollo SSP	Listed, C Eligible, C	A, C, and G	1966	Leased
J8-1563	8BR2101	Electrical Equipment Building No. 1	Apollo SSP	Listed, C Eligible, C	A, C, and G	1965	Leased
J8-1553	8BR2099	Electrical Equipment Building No. 2	Apollo SSP	Listed, C Eligible, C	A, C, and G	1965	Leased
J8-1811	8BR2110	Electrical Equipment Building No. 3	SSP	Eligible, C	A, C, and G	1979	Demolished
J8-1856	8BR2111	Electrical Equipment Building No. 4	SSP	Eligible, C	A, C, and G	1979	Leased
J8-1703	8BR2103	Slidewire Termination Facility	Apollo SSP	Listed, C Eligible, C	A, C, and G	1965	Leased
J8-1707	8BR2104	Water Chiller Building	Apollo SSP	Listed, C Eligible, C	A, C, and G	1968	Leased
J8-1610	8BR2108	Water Tank	SSP	Eligible, C	A, C, and G	1980	Leased
J8-1611	8BR2109	Flare Stack	SSP	Eligible, C	A, C, and G	1985	Leased
J8-1906	8BR2113	Hypergol Fuel Facility	SSP	Eligible, C	A, C, and G	1979	Leased
J8-1862	8BR2112	Hypergol Oxidizer Facility	SSP	Eligible, C	A, C, and G	1979	Demolished
J8-1564	8BR3046	Foam Building	Apollo	Listed, C	A, C, and G	1965	Leased
J8-1565	No BR #	Pump House	Apollo	Listed, C	A, C, and G	1964	Leased
J8-1659	No BR #	Compressed Air Building	Apollo	Listed, C	A, C, and G	1965	Leased
J8-1753	No BR #	Remote Air Intake Building	Apollo	Listed, C	A, C, and G	1965	Leased
J8-1858	No BR #	Azimuth Alignment Station	Apollo	Listed, C	A, C, and G	1965	Demolished

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Facility Number	FMSF Number	Resource Name	Historic Context Significance	NRHP Status (I=Individually Eligible; C=Contributing)	NRHP Criterion/Criteria Consideration	Construction Date	Status
	8BR1687	**Launch Complex 39 Pad B Historic District**	Apollo SSP	Listed Eligible	A, C, and G	1967-85	
J7-0337	8BR2010	Launch Complex 39 Pad B	Apollo SSP	Listed, I Eligible, I, C	A, C, and G	1964-68	
J7-0132	8BR2114	B-1 Operations Support Building	Apollo SSP	Listed, C Eligible, C	A, C, and G	1967	
J7-0243	8BR2122	B-2 Operations Support Building	Apollo SSP	Listed, C Eligible, C	A, C, and G	1967	
J7-0140	8BR2115	High Pressure GH2 Facility	Apollo SSP	Listed, C Eligible, C	A, C, and G	1967	Demolished
J7-0182	8BR2116	LOX Facility	Apollo SSP	Listed, C Eligible, C	A, C, and G	1967	
J7-0191	8BR2118	Camera Pad B No. 1	Apollo SSP	Listed, C Eligible, C	A, C, and G	1968	
J7-0342	8BR2124	Camera Pad B No. 2	Apollo SSP	Listed, C Eligible, C	A, C, and G	1967	
J7-0589	8BR2127	Camera Pad B No. 3	Apollo SSP	Listed, C Eligible, C	A, C, and G	1968	
J7-0584	8BR2126	Camera Pad B No. 4	Apollo SSP	Listed, C Eligible, C	A, C, and G	1968	
J7-0183	8BR2117	Camera Pad B No. 6	Apollo SSP	Listed, C Eligible, C	A, C, and G	1968	
J7-0192	8BR2119	LH2 Facility	Apollo SSP	Listed, C Eligible, C	A, C, and G	1967	
J7-0241	8BR2121	Electrical Equipment Building No. 1	Apollo SSP	Listed, C Eligible, C	A, C, and G	1967	
J7-0231	8BR2120	Electrical Equipment Building No. 2	Apollo SSP	Listed, C Eligible, C	A, C, and G	1967	
J7-0331	8BR2123	Slidewire Termination Facility	Apollo SSP	Listed, C Eligible, C	A, C, and G	1967	Mothballed
J7-0240	8BR2128	Flarestack	SSP	Eligible, C	A, C, and G	1985	
J7-0385	8BR2125	Water Chiller Building	Apollo SSP	Listed, C Eligible, C	A, C, and G	1968	
J7-0288	8BR2129	Water Tank	SSP	Eligible, C	A, C, and G	1981	

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Facility Number	FMSF Number	Resource Name	Historic Context Significance	NRHP Status (I=Individually Eligible; C=Contributing)	NRHP Criterion/Criteria Consideration	Construction Date	Status
J7-0242	No BR #	Foam Building	Apollo	Listed, C	A, C, and G	1968	Mothballed
J7-0490	8BR2130	Hypergol Oxidizer Facility	SSP	Eligible, C	A, C, and G	1981	Demolished
J7-0534	8BR2132	Hypergol Fuel Facility	SSP	Eligible, C	A, C, and G	1981	Demolished
J7-0491	8BR2131	Electrical Equipment No. 3	SSP	Eligible, C	A, C, and G	1981	Demolished
J7-0535	8BR2133	Electrical Equipment No. 4	SSP	Eligible, C	A, C, and G	1981	Demolished
J7-0338	No BR #	Compressed Air Building	Apollo	Listed, C	A, C, and G	1967	
J7-0537	No BR #	Azimuth Alignment Station	Apollo	Listed, C	A, C, and G	1967	Mothballed
J7-0432	No BR #	Remote Air Intake Building	Apollo	Listed, C	A, C, and G	1967	
	8BR1986	**Shuttle Landing Facility (SLF) Historic District**	SSP	Eligible	A, C, and G		
UK-0027	8BR1987	Shuttle Landing Runway	SSP	Eligible, I, C	A, C, and G	1976	Leased
J6-2313	8BR1988	Landing Aids Control Building	SSP	Eligible, I, C	A, C, and G	1976	Leased
J6-2262	8BR1989	Mate-Demate Device	SSP	Eligible, I, C	A, C, and G	1977-78	Demolished
	8BR1990	**Orbiter Processing Historic District**	SSP	Eligible	A, C, and G		
K6-0894	8BR1991	Orbiter Processing Facility (OPF)	SSP	Eligible, I, C	A, C, and G	1977	Leased
K6-0696	8BR1992	Orbiter Processing Facility High Bay 3 (includes the Space Shuttle Main Engine Processing Facility)	SP	Eligible, I, C	A, C, and G	1987	Leased
K6-0794	8BR1994	Thermal Protection System Facility	SSP	Eligible, I, C	A, C, and G	1988	
	8BR1996	**Solid Rocket Booster (SRB) Disassembly and Refurbishment Complex Historic District***	SSP	Eligible	A and G		
66250	8BR2001	Hangar AF*	SSP	Eligible, C	A and G	1962	Federal Transfer
66251	8BR2002	High Pressure Gas Facility*	SSP	Eligible, C	A and G	1963	Federal Transfer
66240	8BR2003	High Pressure Wash Facility*	SSP	Eligible, C	A and G	1979	
66242	8BR2004	First Wash Building*	SSP	Eligible, C	A and G	1979	Demolished
66244	8BR2005	SRB Recovery Slip*	SSP	Eligible, C	A and G	1979	Federal Transfer
66310	8BR2006	SRB Paint Building*	SSP	Eligible, C	A and G	1984	
66320	8BR2007	Robot Wash Building*	SSP	Eligible, C	A and G	1987	Demolished
66249	8BR2008	Thrust Vector Control Deservicing Building*	SSP	Eligible, C	A and G	1985	Mothballed
66340	8BR2009	Multi-Media Blast Facility*	SSP	Eligible, C	A and G	1992	

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Facility Number	FMSF Number	Resource Name	Historic Context Significance	NRHP Status (I=Individually Eligible; C=Contributing)	NRHP Criterion/Criteria Consideration	Construction Date	Status
	8BR2932	**NASA KSC Railroad System Historic District**	SSP	Eligible	A and G		
UK-0022	8BR2931	Railroad Track	SSP	Eligible, C	A and G		
H2-1198	8BR2906	Jay Jay Bridge	SSP	Eligible, C	A and G		
NLAX170	8BR2908	70-Ton Aft Skirt Car	SSP	Eligible, C	A and G		
NLAX171	8BR3042	70-Ton Aft Skirt Car	SSP	Eligible, C	A and G		Transferred out of NASA Ownership
	8BR2923	Locomotive 1	SSP	Eligible, C	A and G		Transferred out of NASA Ownership
	8BR3043	Locomotive 2	SSP	Eligible, C	A and G		Transferred out of NASA Ownership
	8BR3044	Locomotive 3	SSP	Eligible, C	A and G		Transferred out of NASA Ownership
	8BR2015	**Hypergolic Maintenance and Checkout Area Historic District**	SSP	Determined ineligible due to loss of historic properties	A		
M7-0961	8BR1993	Hypergol Module Processing North	SSP	Eligible, I, C	A and G	1964	Demolished
M7-1212	8BR2933	Hypergol Module Processing South	SSP	Eligible, I, C	A and G	1964	Demolished
M7-1061	8BR2000	Hypergol Support Building	SSP	Eligible, C	A and G	1964	Demolished
	8BR3073	**NASA-owned Cape Canaveral Air Force Station Industrial Area Historic District**	Mercury ELV SSP	Eligible Eligible Eligible	A and C		
01728	8BR3069	Hangar N	SSP	Eligible, C	A and C	1958	Federal Transfer
54928	8BR2190	Little N Storage Building	SSP	Eligible, C	A and C	1958	Federal Transfer
55005	8BR2972	Hangar M Annex	SSP	Eligible, C	A and C	1963	Demolished
60540	8BR2977	Solar Array Test Building	ELV	Eligible, C	A and C	1966	Demolished
60650	8BR2975	E&O Building	Mercury ELV	Eligible, C Eligible, C	A and C	1961	Federal Transfer
60680	8BR2976	Missile Assembly Building AE	ELV	Eligible, I, C	A	1959	
01726	8BR3070	Hangar S	Mercury	Eligible, I, C	A, B, and C	1959	Federal Transfer

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Table J-1. KSC Architectural Resources per 2024 Listing of Historic Properties

Facility Number	FMSF Number	Resource Name	Historic Context Significance	NRHP Status (I=Individually Eligible; C=Contributing)	NRHP Criterion/Criteria Consideration	Construction Date	Status
		National Historic Landmarks (NHLs) Designated NASA-Controlled Facilities at CCSFS					
	BR3074	LC 5/6 consisting of:	Manned and Unmanned Space Program	Listed		1955	
1207A		Blockhouse					
1207B		Launch Pad 5					
1207C		Launch Pad 6					
1207E		Pad Services Building					
1207F		Electrical Distribution Building					
1207G		Ready Building					
1207H		High Pressure Air Building					
1207J		Generator Building					
1207M		Emergency Power Building					
1207S		Septic Tank					
1207W		Water Well N/Pot					Demolished
1207AA		Camera Pads					
1207BB		Secondary Overhead					Demolished
1207CC		Secondary Underground					
1207DD		Roads					
1207EE		Security Fence					
1207FF		Sewage Disposal System					
1207GG		Storm Drainage System					
1207HH		Vehicle Parking					
1207II		Water Distribution System					

*All resources within the **SRB Disassembly and Refurbishment Complex Historic District** are also contributing resources to the **NASA-owned CCAFS Industrial Area Historic District.**

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Appendix K: Buildings/Structures Maps

For a map of all building and structures in KSC's Real Property database, please visit Facility Search (nasa.gov)

For a map of historic buildings and structures, consult the KSC CRM GIS or consult with the KSC CRM.

Always consult the KSC CRM for the most up-to-date information.

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Appendix L: Archaeological Information and Surveys

The KSC CRM controls access to information related to KSC's areas of archaeological sensitivity and archaeological sites, including maps. Archaeological information and surveys can be found in the:

- KSC CRM Paper files
- Electronic filing systems including
    - NETS
    - KSC SEMS
- KSC CRM GIS
- Florida Master Site File

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Appendix M: Florida State Historic Preservation Office (SHPO) Concurrence Letters and Other Agreements

M.1 Florida State Historic Preservation Office (SHPO) Documentation

Florida SHPO concurrence letters, HABS/HAER documentation for CCSFS Facilities, and other documents can be found at the following:

- NETS
- SEMS (restricted access)
- Florida Master Site File

M.2 HABS/HAER Recordation

Table M-1: HABS/HAER

Historic Property	KSC Facility Nos.	Documentation Includes:	Document-ation Level	Mitigation Trigger	Documentation Accepted by NPS/ SHPO
Barge Terminal Facility (8BR2986)	K6-0947 K7-1005	VAB Utility Annex (8BR1684)	HAER Level II	Preemptive mitigation measure	HAER FL-8-11-B Addendum NPS – 8/15/2014 SHPO – 6/6/2014
Beach House (8BR2990)	K8-1699		HABS Level II	Preemptive mitigation measure	HABS FL-583-B NPS 10/23/2014 SHPO – 12/1/2014
Canister Rotation Facility (8BR2016)	M7-0777		HAER Level II	Exterior/interior mods (2010)	HAER FL-8-11-K NPS – 8/25/2011 SHPO – 6/7/2010
Central Instrumentation Facility (8BR1692)	M6-0342		HABS Level II	• Demolition and relocation of historic labs (2012) • Demolition (2017/2018)	HABS FL-581-B NPS – 4/15/2013 SHPO – 2/6/2013
Crawler Transporters (8BR1688)			HAER Level II	Preemptive mitigation measure	HAER FL-8-11-C NPS – 11/13/2009 SHPO – 12/8/2009
Crawlerway (8BR1689)	UK-0008		HAER Level II	• Construction of Horizontal Integration	HAER FL-8-11-P

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Historic Property	KSC Facility Nos.	Documentation Includes:	Document-ation Level	Mitigation Trigger	Documentation Accepted by NPS/ SHPO
				Facility (reference LC39A) (2014) • Modification to Crawlerway outside of HB1 by tenant (2023)	NPS – 11/27/2012 SHPO – 10/19/2012
Engineering and Operations (E&O) Building (8BR2975)	60650		HABS Level II	Transfer of property to the United States Air Force (USAF) in 2014	HABS FL-583-C NPS – 2/19/2015 SHPO – 12/1/2014
Environmental Health/Health Physics Facility (aka Bioastronautics Operations Support Unit/BOSU) (8BR2905)	49635		HABS Level II	Demolition (2013)	HABS FL-583-A NPS – 11/7/2013 SHPO – 5/3/2013
Flight Crew Training Building (Engineering Development Laboratory) (8BR2969)	M7-0409		HABS Level II	Preemptive mitigation measure	HABS FL-581-C NPS – 8/15/2014 SHPO – 6/6/2014
Hangar M Annex (8BR2972)	55005		HABS Level II	Demolition (2014)	HABS FL-583-F NPS – 4/14/2015 SHPO – 5/7/2015
Hangar S (8BR3070)	01726		HABS Level II	Proposed demolition (2012/2014)	HABS FL-583-D NPS – 2/19/2015 SHPO – 1/14/2015
Haulover Canal Bridge (8BR2957)	E4-2414 M7-1150 M3-0003	• Banana River Bridge (8BR2955) • Indian River Bridge (8BR2956)	HAER Level II	• **NOTE:** Bridges were considered multiple assets under Stipulation V.2 of 2009 PA. • Preemptive mitigation measure • Demolition and replacement of Indian River Bridge (2021/2023)	HAER FL-8-C NPS – 8/15/2014 SHPO – 6/6/2014

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Historic Property	KSC Facility Nos.	Documentation Includes:	Document-ation Level	Mitigation Trigger	Documentation Accepted by NPS/ SHPO
Headquarters Building (8BR1691)	M6-0399		HABS Level II	• Mods to administrative areas (2004) • Demolition (2011/2019/2022)	HABS FL-581-A NPS- 1/17/2013 SHPO – 12/13/2012
Hypergol Maintenance and Checkout Area Historic District (8BR2015)	M7-0961 M7-1212 M7-1061	• HMP North (8BR1993) • Hypergol Module Processing South (HMP South) (8BR2933) • Hypergol Support Building (8BR2000)	HAER Level II	• Demolition of HMP North and Hypergol Support Building and proposed lease agreement for HMP South (2013) • Demolition of HMP South (2017/2018/2019)	HAER FL-8-11-T NPS – 10/23/2014 SHPO – 9/26/2014
LC-34 Engineering Support Building (8BR2091)	21900H		HAER Level II	Demolition (2007)	HAER FL-8-AN NPS – 6/9/2009 SHPO – 7/17/2008
LC-39 Pad A Historic District (8BR1686)	J8-1708 J8-1610 J8-1703 J8-1502 J8-1563 J8-1553 J8-1811 J8-1856 J8-1503 J8-1614 J8-1462 J8-1513 J8-1611 J8-1862 J8-1906 J8-1707 J8-1512 J8-1714 J8-1961 J8-1956 J8-1554 J8-1564 J8-1565 J8-1659 J8-1753 J8-1858	• Launch Pad (8BR1995) • Water Tank (8BR2108) • Slidewire Termination Facility (8BR2103) • LOX Facility (8BR2095) • Electrical Equipment Building No. 1 (8BR2101) • Electrical Equipment Building No. 2 (8BR2099) • Electrical Equipment Building No. 3 (8BR2110) • Electrical Equipment Building No. 4 (8BR2111) • A-1 Operations	HAER Level II	• **NOTE:** LC-39A and B were considered multiple assets under Stipulation V.2 of the 2009 PA. <u>LC-39A</u> • Removal and storage of emergency egress baskets and slide wire system, doghouse structures on camera pads, relocation of photo optical control system camera terminal cabinet and tracker control cabinet from camera pads (2012) • Demolition of 5 contributing resources (2012) • Abandonment and removal of historic elements (arms, clean room, etc.) (2013)	HAER FL-8-11-F (4 Volumes) NPS – 10/13/2010 SHPO – 9/08/2010

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Historic Property	KSC Facility Nos.	Documentation Includes:	Document-ation Level	Mitigation Trigger	Documentation Accepted by NPS/ SHPO
		Support Building (8BR2096) • A-2 Operations Support Building (8BR2102) • High Pressure GH2 Facility (8BR2094) • LH2 Facility (8BR2098) • Flare Stack (8BR2109) • Hypergol Oxidizer Facility (8BR2112) • Hypergol Fuel Facility (8BR2113) • Water Chiller Building (8BR2104) • Camera Pad No. 1 (8BR2097) • Camera Pad No. 2 (8BR2105) • Camera Pad No. 3 (8BR2107) • Camera Pad No. 4 (8BR1956) • Camera Pad No. 6 (8BR2100) • Foam Building (8BR3046) • Pump House (No BR #) • Compressed Air Building (No BR #)		• Construction of a Horizontal Integration Facility (2014) • Demolish Liquid Hydrogen Facility and Operations Support Building #2 (2017) • Demolish Electrical Equipment Building #3 and other modifications (2019) • Retrofit LH2 Sphere and other modifications/additions (2021) • Reactivate LH2 Facility, Pumphouse, OPS Support Building (2021) • Construct Air Separation Unit and other hypergol storage areas, and general modifications (2022) • Construct radar tower (2024) • Remove Hypergol Fuel Facility Roof (2023/2024) • Construct Powerhub/Mega Pack System, LOX System, Wastewater Capture and Recycle System, new launch mount (2024) • Install LN2 tank (2024/2025) • Construct Helium/Nitrogen Recharger Plants (2024) • Demolish heritage hydrogen system and Flare Stack (2025) <u>LC-39B</u> • Demolition of High Pressure GH2	

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Historic Property	KSC Facility Nos.	Documentation Includes:	Document-ation Level	Mitigation Trigger	Documentation Accepted by NPS/ SHPO
		• Remote Air Intake Building (No BR #) • Azimuth Alignment Station (No BR #)		Facility, Foam Building and Azimuth Alignment Station (2017/2024/2025) • Abandon Slidewire Termination Facility (2017) • Construct Emergency Egress System for SLS (2020) • General modifications (2021) • Install LN2 System (2022/2024/2025) • Demolish Slidewire Termination Facility (2024/2025) • Upgrade LH2 system and demolish GH2 facility (2025)	
Launch Control Center (8BR1685)	K6-0900		HAER Level II	• Modifications to FR #1 (2006) • Removal of Sun louvers and replacement of windows and bow trusses (2007) • Proposed removal and storage of consoles from LCC FR #2 and mods to FR #4 (2012) • Mods to FR #3 (2012) • FR #2 Bubble Room Renovation and Upgrades (2017) • Lease and modification of FR #4 to/by commercial customer (2019)	HAER FL-8-11-A NPS – 4/1/2009 SHPO – 3/26/2010
Missile Assembly Building AE (Hangar AE) (8BR2976)	60680		HAER Level II	Preemptive mitigation measure	HAER FL-8-B NPS – 10/23/2014 SHPO – 12/1/2014
Mission Control Center (8BR2590)	01385		HAER Level II	Demolition (2010)	HAER FL-8-AV NPS – 9/2/2010 SHPO – 8/20/2010

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Historic Property	KSC Facility Nos.	Documentation Includes:	Document-ation Level	Mitigation Trigger	Documentation Accepted by NPS/ SHPO
Mobile Launcher Platforms (8BR2021)			HAER Level II	• Mods to MLP-1 (2006) • Disposal of all MLPs (2010) • Demolish MLP-1 (2018) • Abandon/demolish MLP-2 (2019/2020) • Lease and modification of MLP-3 to/by commercial customer (2019) • Demolish MLP-3 (2023)	HAER FL-8-11-D NPS – 1/5/2010 SHPO – 12/8/2009
NASA KSC Railroad System Historic District (8BR2932)	UK-0022 H2-1198 NLAX170 NLAX171	• Railroad Track (8BR2931) • Jay Jay Bridge (8BR2906) • 70-Ton Aft Skirt Cars (8BR2908 and 8BR3042) • Locomotive 1 (8BR2923) • Locomotive 2 (8BR3043) • Locomotive 3 (8BR3044)	HAER Level II	Excess and transfer of railroad systems (2013)	HAER FL-8-A NPS – 11/7/2013 SHPO – 5/3/2013
Operations and Checkout Building (8BR1693)	M7-0355		HAER Level II	• Proposed high bay changes to support the Orion Program, removal of contributing elements (2009) • Mods to the Administrative office areas (2004) • New Visitor Viewing Gallery (2009) • Mods to the exterior back, side and front entrances (2013) • Altitude chamber demolition and replacement of 30-ton crane (2019/2020)	HAER FL-8-11-E (Addendum) NPS – 11/7/2013 SHPO – 5/3/2013

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Historic Property	KSC Facility Nos.	Documentation Includes:	Document-ation Level	Mitigation Trigger	Documentation Accepted by NPS/ SHPO
Operations and Checkout Altitude Chambers (8BR1693)	M7-0355		HAER Level II	• Proposed mods (2009) • Demolition of East Altitude Chamber (2021/2025)	HAER FL-8-11-E NPS – 1/28/2010 SHPO – 3/02/2010
Operations and Checkout Low Bay (8BR1693)	M7-0355		HAER Level II		No Official HAER No. NPS – N/A SHPO – 8/26/2009
Orbiter Payload Canisters (8BR2017)			HAER Level II	Demolition (2010)	HAER FL-8-11-I NPS – 9/28/2011 SHPO – 9/21/2011
Orbiter Processing Facility High Bay No. 3 (8BR1990)	K6-0696 K6-0894	• Space Shuttle Main Engine (SSME) Processing Facility • Orbiter Processing Facility (8BR1991)	HAER Level II	• **NOTE:** OPF-High Bays 1- 3 were considered multiple assets under Stipulation V.2 of 2009 PA. • Implementation of Use Permit (including demolition) for OPF-3/SSME (2011) • Lease agreement with commercial entity for OPF-High Bay 1 & 2 (including demolition) (2012) • Renovation of overhead door (2022)	HAER FL-8-11-O NPS – 4/30/2012 SHPO – 2/23/2012
Parachute Refurbishment Facility (8BR2014)	M7-0657		HAER Level II	Disposal of equipment in PRF and demolition (2012)	HAER FL-8-11-Q NPS – 8/15/2014 SHPO – 4/12/2013
Press Site: Clock and Flag Pole (8BR1690)	M6-0409X		HAER Level II	Replacement of clock (2014)	HAER FL-8-11-N NPS – 4/30/2012 SHPO – 2/23/2012
Rotation Processing & Surge Facility (8BR1997)	K6-0494		HAER Level II	Preemptive mitigation measure	HAER FL-8-11-G NPS – 10/31/2011 SHPO – 9/21/2011

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Historic Property	KSC Facility Nos.	Documentation Includes:	Document-ation Level	Mitigation Trigger	Documentation Accepted by NPS/ SHPO
Shuttle Landing Facility Historic District (8BR1986)	UK-0027 J6-2313 J6-2262	• Shuttle Landing Runway (8BR1987) • Mate-Demate Device (8BR1989) • Landing Aids Control Building (8BR1988)	HAER Level II	• Demolition of Mate-Demate Device (2011) • Expansion of the SLF support area for NASA and commercial entities (2012)	HAER FL-8-11-J NPS – 12/08/2011 SHPO – 6/7/2011
Solar Array Test Building (8BR2977)	60540		HABS Level III	Demolition (2014)	HABS FL-583-E NPS – 4/14/2015 SHPO – 5/7/2015
Solid Rocket Booster Assembly and Refurbishment Facility (SRB ARF) Manufacturing Building (8BR1998)	L6-0247		HAER Level II	Preemptive mitigation measure	HAER FL-8-11-R NPS – 1/30/2014 SHPO – 4/12/2013
Space Station Processing Facility (8BR2671)	M7-0360 M7-0361A	Ammonia Vapor Containment Building (No BR #)	HAER Level II	Disposal of payload equipment in SSPF (2011)	HAER FL-8-11-M NPS – 11/30/2011 SHPO – 11/21/2011
SRB Disassembly and Refurbishment Complex Historic District (Hanger AF Complex) (8BR1996)	66250 66244 66242 66249 66240 66320 66340 66251 66310	• Hangar AF (8BR2001) • SRB Recovery Slip (8BR2005) • First Wash Building (8BR2004) • Thrust Vector Control (TVC) Deservicing Building (8BR2008) • High Pressure Wash Building (8BR2003)	HAER Level II	• Mods to Hangar AF Slip (2006) • Proposed demolition of 3 contributing resources (2012) • Disposal of Shuttle lift at SRB Slip area (2012) • Proposed demolition of TVC Deservicing Building (2024/2025)	HAER FL-8-11-S NPS – 2/6/2014 SHPO – 11/18/2013

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Historic Property	KSC Facility Nos.	Documentation Includes:	Document-ation Level	Mitigation Trigger	Documentation Accepted by NPS/ SHPO
		• Robot Wash Building (8BR2007) • Multi-Media Blast Facility (8BR2009) • High Pressure Gas Building (8BR2002) • SRB Paint Building (8BR2006)			
Thermal Protection System Facility (8BR1994)	K6-0794		HAER Level II	Preemptive mitigation measure	HAER FL-8-11-L NPS – 8/25/2011 SHPO – 6/7/2011
Vehicle Assembly Building (8BR1684)	K6-0848		HAER Level II	• Damage to VAB (2004) • Removal of High Bay 3 platforms (2006) • Demolition and new construction in High Bay 4 (2013/2025) • Lease and modification of High Bay 2 by commercial customer (2019) • Modification to HB1 for SLS (2020) • Modification to HB3 for SLS (2022) • Modification to HB2 for SLS (2023/2024/2025) • Lease and modification to HB1 (2023)	HAER FL-8-11-B NPS – 8/10/2009 SHPO – 10/2/2009
VAB Utility Annex (8BR1684)	K6-0947 K7-1005	Barge Terminal Facility (8BR2986)	HAER Level II	• Proposed mods and construction of a new addition to the Annex (2012) • Upgrade to original utility systems and construction of addition to house equipment (2012/2017)	HAER FL-8-11-B Addendum NPS – 8/15/2014 SHPO – 6/6/2014

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Table M-2: HABS/HAER Generated by Other Federal Agencies

Historic Property	Documentation Level	Notes	HABS/HAER No.
Space Transportation System, Motor Vessels Liberty Star & Freedom Star (8BR2019, 8BR2020)	HAER Level III	• Generated by JSC • Ships excessed by JSC (2012)	HAER TX-116-M
Space Transportation System, Orbiter *Atlantis* (No BR #)	HAER	• Generated by JSC	HAER TX-116-B
Launch Complex 34 (8BR2279, 8BR2280-2300)	HAER Level II	• Generated by CCSFS • KSC interests are related to remediation activities • KSC has digitally recorded modifications to the launch mount as a result of remediation activities	HAER FL-8-6 HAER FL-8-AN
Launch Complex 31/32 (8BR2535)	HAER Level II	• Generated by CCAFS • KSC Real Property interests are 11750/Launch Silo 31-B and 17751/Launch Silo 32-B (storage facility for *Challenger* debris)	HAER FL-8-12
Launch Complex 19 (8BR2405)	HAER Level II	• Part of the CCAFS NHL • Generated by CCSFS • KSC transferred property to CCSFS in 2014 • 19015/Nitrogen Tube Bank Fill Station (Demolished)	HAER FL-8-4
Indian River Bridge	HAER Level II	• Generated by FDOT • Demolition (2023)	HAER FL-45

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M.3 List of Project-Specific Programmatic Agreements, MOAs, Mitigation Plans, and Conditional No Adverse Effects

Table M-3: Memoranda of Agreements (MOAs), Mitigation Plans, and Conditional No Adverse Effects

Historic Property	Trigger	Document Name	Execution/ Completion Date	Mitigations	Notes
LC-39	Modifications for Space Shuttle Program including interior/exterior modifications to VAB; reconfiguration of LCC Firing Rooms 1 and 2; modifications to MLPs; modifications to LC-39A and LC-39B; disposal of Mobile Service Structure (MSS); construction of SLF; construction of Orbiter Processing Facility; and construction of Solid Rocket Booster Facility.	A Joint Memorandum Concerning Modifications/Additions to LC-39 (A National Register Site) for the Space Shuttle System	March 12, 1974/ N/A	• Enhancement of historical value and interest • Continued public access via Visitor's Center and bus tours	
8BR170/ Opposite Futch Cove	Construction of VIP Viewing Facility	Section 106 Consultation Re: Phase II Archaeological Investigations/ Conditional No Adverse Effect	March 19, 1988 and May 30, 1989/ Complete (date unknown)	• Phase III Data Recovery • Preservation in Place (1 ft. cap)	
Engineering Support Building, LC-34	Demolition	MOA Between NASA and SHPO Regarding the Demolition of LC-	October 5, 2006/ June 9, 2009	• HAER Level II • Building survey to identify artifacts for preservation	

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Historic Property	Trigger	Document Name	Execution/ Completion Date	Mitigations	Notes
		34, Engineering Support Building, at CCAFS			
LCC	Removal of Sun Louvers and Window Replacement	MOA Between NASA and SHPO Regarding Removal of the Sun Louvers and Replacement of the Windows on the LCC (Building K6-0900) at KSC	July 15, 2008/ March 26, 2010	• HAER Level II including Firing Rooms, 2, 3 and 4 • Development of Programmatic Agreement to govern management of historic properties at KSC	Some historic windows and bow trusses were repurposed in 2010 for LEED project at Propellants North facility
MCC	Demolition	MOA Among KSC, SHPO, ACHP, DOI/NPS Regarding the Demolition of the Mission Control Center at CCAFS	February 13, 2009/ November 7, 2022	• HAER Level II • ESE Exhibit at KSC Visitor Complex • MCC Website • Artifact Identification and Collection • State Historic Marker • DVD/Video Documentation • Development of Programmatic Agreement to govern management of historic properties at KSC	
Space Transport Systems	Retirement of STS (Orbiters) and contributing elements (Solid Rocket Boosters, External Tanks, Space Shuttle Main Engines)	MOA Among NASA, ACHP, and AL SHPO, CA SHPO, SHPO and TX SHPO for the Retirement of the Space Shuttle Orbiters from Service	September 29, 2011/ Complete (date unknown)	• Preservation and public display (Orbiters) • Recordation, historical narrative, and public interpretation • HAER drawings of Discovery • NHL Nomination	NASA HQ led compliance with the terms of the MOA
Launch Control Center	Modifications to Firing Rooms #2 and #3	Mitigation Plan Among KSC and SHPO Regarding Public Interpretation of the Launch Control	August 29, 2012/ December 23, 2022	• HAER Level II • Website Development • Virtual Tour of LCC and Firing Rooms	Mitigation intended to address modifications for all 4

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Historic Property	Trigger	Document Name	Execution/ Completion Date	Mitigations	Notes
		Center and Firing Rooms		• KSC Visitor Complex Console Display • LCC Lobby Console Display • Artifact identification/inventory of Firing Room Consoles • Creation of Firing Room Model (optional)	Firing Rooms. KSC Visitor Complex Console Display: Consoles are in KSCVC storage with no firm date for display. However, other excessed consoles are on display in 2 museums. Optional creation of Firing Room Model was not completed
Hangar S	Demolition	Section 106 Consultation Regarding Demolition of Hangar S (8BR3070)	September 30, 2015/ Complete (date unknown)	• HABS Level II • FMSF Form • Website development • Salvage of historic artifacts	
Indian River Bridge (NASA Parkway Bridge)	Demolition of existing bridge and construction of new bridge	FL DOT Section 106 Mitigation of Adverse Effects Plan	February 5, 2020/ January 20, 2023 (NASA commitment only)	• HAER Level II • Public Interpretation via KSC website • State Historic Marker	FL DOT is lead for Section 106. NASA's only commitment was public interpretation
LC-34	Hazard Abatement	MOA Between NASA and SHPO Regarding the Launch Pedestal Hazard Abatement at LC-34 at CCAFS	March 23, 2020/ July 14, 2023	• FMSF submittal of surveys, Historic Structure Forms, historic photographs and original construction drawings • Maintenance of historic information	

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Historic Property	Trigger	Document Name	Execution/ Completion Date	Mitigations	Notes
				at KSC and CCAFS • High-definition laser scan posted on public website maintained by the Digital Heritage and Humanities Collections at USF • HAER Level II • Before/after digital photographs	
Various	SpaceX Starship-Super Heavy Operations	PA Among NASA, FAA, SpaceX, and the Seminole Tribe of Florida Regarding the Assessment of Adverse Effects for SpaceX Starship-Super Heavy Operations at Launch Complex 39A at KSC	November 19, 2025/ In Process	TBD	The PA commits to additional identification of historic properties, an archaeological site monitoring program, and a historic structures monitoring program. See KCA-4832 and PAM #44433. (Internal link, available from KSC CRM upon request.

M.4 Programmatic Agreement Among NASA, ACHP, and the NCSHPO Regarding the Management of NASA Centers (2025)

This PA can be found via KSC's Tech Doc at the following link: Internal to NASA and on the KSC Cultural Resources Overview website. The 2009 *Programmatic Agreement Among NASA KSC, ACHP, and FL SHPO Regarding Management of Historic Properties at KSC* was replaced by this 2025 NPA, now found in Appendix O.

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Appendix N: Archaeological Collections from KSC Sites (Current as of February 2026)

RELEASED - Printed documents may be obsolete; validate prior to use.

Site No. Site Name	Collector/ Donor	Repository	Acc. No.	Cat. No.	Specimens	Cubic Feet	No. Boxes/ Bags	Human Remains
8BR62 MOORE MOUND	Long 1965	FLMNH	4595; 4605	103719; 103790	61 Abo. Sherds, 3 Shell Tools	0.235	3 boxes	NO
	Griffin and Miller 1978	BAR	93A.512		5 Abo. Sherds	*(1)	1 bag	NO
	Ehrenhard 1976	SEAC	SEAC-191 (CANA-1)	CANA 000092	15 Pcs. Human Remains (MNI= 1)	*(2)		NO *(7)
8BR77B NAUMANS PLACE MIDDEN	ACI 1992	SEAC	SEAC-1744 (CANA-97)		45 Abo. Sherds	*(3)	1 bag	NO
8BR78 DUMMETT'S PLACE	Long 1965; McMullen 1973	FLMNH	4595; 73-13	103720; A3701	37 Abo. Sherds	0.037	2 boxes	NO
8BR78A DUMMETT MIDDEN	ACI 1992	SEAC	SEAC-1744 (CANA-97)		3 Abo. Sherds, 50 Pcs. Animal Bone	*(3)	1 bag	NO
8BR78B DUMMETT HMSTD	Griffin and Miller 1978	BAR	93A.514		Abo. Sherds. Hist. Metal, Glass frag.	*(1)	1 bag	NO
8BR79 TITUSVILLE BEACH; CHESTER SHOALS	Long 1965; McMullen 1973	FLMNH	4595; 73-13	103721; A3702	445 Abo. Sherds, 8 Hist. Sherds, 4 Stone Tools	0.312	6 boxes	NO
	ACI 1991	SEAC	SEAC-1744 (CANA-97)		4 Abo. Sherds, Hist. Glass, ceramics, metal, brick	*(3)	1 bag	NO
8BR139 DUMMIT GROVE NE	Pat McMullen	FLMNH	73-13	A3714	5 Shell Tools, Abo. Sherds, 1 Pc. Animal Bone			NO
	ACI 1996	SEAC	SEAC-1745 (CANA-98)		363 Abo. Sherds, 2 Lithics, 1 Shell Tool, 1194 Pcs. Animal Bone	0.25	3 bags	NO
8BR141 ONION ISLAND	Long 1965	FLMNH	4595	103728	11 Abo. Sherds, 6 Pcs. Human Remains	0.030	1 box	NO *(7)

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Site No. Site Name	Collector/ Donor	Repository	Acc. No.	Cat. No.	Specimens	Cubic Feet	No. Boxes/ Bags	Human Remains
8BR142 BUTLER CAMPBELL'S MOUND	Ehrenhard 1976	SEAC	SEAC-191 (CANA-1)	CANA 000094	4 pcs. Human Remains (MNI= 1)	*(2)		NO *(7)
				CANA 000061	1 pc. Human Remains (MNI= 1)	*(2)		NO *(7)
8BR143 RAGIN MIDDEN	Long 1965, 1967	FLMNH	4595, 4605	103794-103801	43 Abo. Sherds, 1 Shell Tool	1.366	11 (variable sizes)	NO
	ACI 1996	SEAC	SEAC-1745 (CANA-98)		184 Abo. Sherds, 1057 Pcs. Animal Bone	0.50	5 bags	NO
	Ehrenhard 1976	SEAC	SEAC-191 (CANA-1)		78 Abo. Sherds, 10 Shell, 2 Bone	*(2)		NO
8BR144 NO NAME	Long 1965	FLMNH	4595	103730	1 Abo. Sherd	0.007	1 box	NO
8BR145 CLARK SLOUGH	Long 1965	FLMNH	4595	103731	95 Abo. Sherds, 1 Lithic, Animal Bone	0.062	1 box	NO
	ACI 1996	SEAC	SEAC-1745 (CANA-98)		109 Abo. Sherds, 1 Lithic, 1129 Pcs Animal Bone	0.25	3 bags	NO
	Ehrenhard 1976	SEAC	SEAC-191 (CANA-1)	CANA 000028	10 Pcs. Human Remains (MNI=1), Abo. Sherds	*(2)		NO *(7)
8BR146 BULL CAMP MIDDEN	Long 1965	FLMNH	4595	103732	17 Abo. Sherds, Shell	0.030	1 box	NO
	ACI 1996	SEAC	SEAC-1745 (CANA-98)		14 Abo. Sherds, Shell	*(4a)	1 bag	NO
	Brewer 1991	SEAC	SEAC-963 (CANA-22)			*(6)		NO
8BR147 NO NAME	Long 1965	FLMNH	4595		12 Abo. Sherds			NO
	Brewer 1991	SEAC	SEAC-963 CANA-53		3 Abo. Sherds, 2 Pcs. Bone, 1 Metal Fragment, Shell			NO
8BR148	Long 1965	FLMNH	4595	103733	20 Abo. Sherds	0.030	1 box	NO

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Site No. Site Name	Collector/ Donor	Repository	Acc. No.	Cat. No.	Specimens	Cubic Feet	No. Boxes/ Bags	Human Remains
NO NAME	Brewer 1991	SEAC	SEAC-963 (CANA-55)			*(6)		NO
8BR149 NO NAME	Long 1965	FLMNH	4595	103734		0.062	1 box	NO
	Brewer 1991	SEAC	SEAC-963 (CANA-56)			*(6)		NO
8BR151 NO NAME	Long 1965	FLMNH	4595	103735		0.007	1 box	NO
	Ehrenhard 1976	SEAC	SEAC-191 (CANA-1)		32 Abo. Sherds, 2 Shell Tools, 6 Pcs. Bone	*(2)		NO
	Brewer 1991	SEAC	SEAC-963 (CANA-54)			*(6)		
8BR153 PARDON	Long 1965	FLMNH	4595	103736	12 Abo. Sherds, 2 Shell Tools, Coquina	0.062	1 box	NO
	Ehrenhard 1976	SEAC	SEAC-191 (CANA-1)			*(2)		NO
8BR154 EDDY CREEK	Long 1965	FLMNH	4595	103737	13 Abo. Sherds	0.007	1 box	NO
	Ehrenhard 1976	SEAC	SEAC-191 (CANA-1)			*(2)		NO
8BR155 GRANNY COVE	Long 1965	FLMNH	4595	103738		0.007	1 box	NO
	Griffin and Miller 1978	BAR	93A.511		Abo. Sherds, Hist. Sherds, Animal Bone, Metal Frag.	*(1)	2 bags	NO
	ACI 1992	SEAC	SEAC-1744 (CANA-97)		50 Abo. Sherds	*(3)	1 bag	NO
8BR157 KARS PARK	Long 1965	FLMNH	4595; 73-13	103739; A3704	14 Abo. Sherds	0.092	2 boxes	NO
	ACI 1991	SEAC	SEAC-1744 (CANA-97)		Abo. Sherds, Lithics, Animal Bone, Shell	*(3)		NO
8BR159 NO NAME (VANN'S ISLAND)	Long 1965	Unknown			7 Abo. Sherds			NO

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Site No. Site Name	Collector/ Donor	Repository	Acc. No.	Cat. No.	Specimens	Cubic Feet	No. Boxes/ Bags	Human Remains
8BR169 SOUTH ACCESS ROAD	Smith 1973	Unknown			132 Abo. Sherds			NO
	ACI 1991	SEAC	SEAC-1744 (CANA-97)		58 Abo. Sherds	*(3)		NO
8BR170 OPPOSITE FUTCH COVE	Smith 1973	Unknown			125 Abo. Sherds, Hist. Sherds, Glass, & Metal			NO
	Ste. Claire and Johnson 1988	SEAC	SEAC-1743 (CANA-96)		Phase II: 8,225 Abo. Sherds; 94 Lithic Flakes; 30 Stone, Bone, Shell Tools, & Ornaments; 23,878 Pcs. Animal Bone; Hist. Sherds		60 boxes	NO
8BR170 OPPOSITE FUTCH COVE	Johnson 1992	SEAC	SEAC-1743 (CANA-96)		Phase III: 12,251 Abo. Sherds; Animal Bones; Shell Tools; Bone Tools; Flotation Samples			
8BR171 STONY ISLAND	Dennis English	BAR	77A.96		Abo. Sherds, Animal Bone	*(1)	2 bags	NO
	Smith 1973	Unknown			1 Abo. Sherd			NO
8BR175 FORT ANN	Griffin and Miller 1978	BAR	93A.515		Hist. Household Items, Glass Frag.	*(1)	1 bag	NO
8BR183 PARDON ISLAND	Griffin and Miller 1978	BAR	93A.516		Abo. Sherds, Animal Bone	*(1)	1 bag	NO
8BR205 MAX HOECK MOUND AND MIDDEN *originally 8BR137	Long 1965	FLMNH (as 8BR137)	4595-4605	103727, 103791-103793	12 Abo. Sherds, 1 Shell Tool	0.152	4 boxes	NO
	Ehrenhard 1976	SEAC	SEAC-191 (CANA-57)			*(2)		NO
	Brewer 1991	SEAC	SEAC-963 (CANA-22)			*(6)		NO
8BR206 PEPPER HAMMOCK *originally 8BR158	ACI 1991	SEAC	SEAC-1744 (CANA-97)		287 Abo. Sherds, Animal Bone, 11 Lithics, Shell	*(3)		NO

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Site No. Site Name	Collector/ Donor	Repository	Acc. No.	Cat. No.	Specimens	Cubic Feet	No. Boxes/ Bags	Human Remains
8BR217 20TH CENTURY HISTORIC DEPOSIT	Water and Air 1983	BAR	93A.171		Hist. Metal and Glass Frags.	*(1)	2 bags	NO
8BR540 DAIGLE PLACE	Smith 1973	Unknown			4 Hist. Glass Frags.			NO
8BR541 HUGHES PLACE	ACI 1991	SEAC	SEAC-1744 (CANA-97)		Hist. sherds, brick, and glass	*(3)		NO
8BR542 PARSONS PLACE	Smith 1973	Unknown			Hist. sherds, metal and glass			NO
	ACI 1991	SEAC	SEAC-1744 (CANA-97)		Hist. sherds, glass	*(3)		NO
8BR543 GRIFFITH PLACE	ACI 1991	SEAC	SEAC-1744 (CANA-97)		Hist. sherds, brick, glass, and metal	*(3)		NO
8BR555 EDDY CREEK BOAT LAUNCH AREA	Bryne 1989	SEAC	SEAC-835 (CANA-35)		Abo. Sherds	*(5)		NO
8BR556 PLAYALINDA BEACH PARKING AREA NO. 8	Bryne 1989	SEAC	SEAC-835 (CANA-35)		Abo. Sherds	*(5)		NO
8BR582 DUNE AND SWALE	ACI 1990	SEAC	SEAC-1744 (CANA-97)		2 Lithics	*(3)		NO
8BR773 VIP WEST	ACI 1991	SEAC	SEAC-1744 (CANA-97)		Lithics (waste flakes)	*(3)		NO
	ACI 1996	SEAC	SEAC-1745		10 Abo. Sherds, 2 Lithics	*(4)		NO

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Site No. Site Name	Collector/ Donor	Repository	Acc. No.	Cat. No.	Specimens	Cubic Feet	No. Boxes/ Bags	Human Remains
			(CANA-98)					
8BR774 ASTRONAUT RD	ACI 1991	SEAC	SEAC-1744 (CANA-97)		66 Abo. Sherds, 1 Steatite (worked), 1 Lithics, 21 Pcs. Animal Bone	*(3)		NO
8BR910 SCORCHING MACHETE	ACI 1991	SEAC	SEAC-1744 (CANA-97)		58 Abo. Sherds	*(3)		NO
8BR911 HAPPY CREEK ONE	ACI 1991	SEAC	SEAC-1744 (CANA-97)		32 Abo. Sherds	*(3)		NO
8BR912 ROTTEN DOCK	ACI 1991	SEAC	SEAC-1744 (CANA-97)		30 Abo. Sherds	*(3)		NO
8BR913 LANDFILL SOUTH	ACI 1991	SEAC	SEAC-1744 (CANA-97)		22 Abo. Sherds, 19 Pcs. Animal Bone	*(3)		NO
8BR914 LC 41 SOUTH	ACI 1991	SEAC	SEAC-1744 (CANA-97)		18 Abo. Sherds, 1 Shell Tool, 32 Pcs. Animal Bone	*(3)		NO
8BR915 TITUSVILLE BEACH WEST #1	ACI 1991	SEAC	SEAC-1744 (CANA-97)		7 Abo. Sherds	*(3)		NO
8BR917 GATOR HOLE	ACI 1991	SEAC	SEAC-1744 (CANA-97)		15 Abo. Sherds	*(3)	1 bag	NO
8BR1608 KARS PARK NORTH	ACI 1991	SEAC	SEAC-1744		19 Abo. Sherds	*(3)	1 bag	NO

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Site No. Site Name	Collector/ Donor	Repository	Acc. No.	Cat. No.	Specimens	Cubic Feet	No. Boxes/ Bags	Human Remains
			(CANA-97)					
8BR1617 DUMMIT PLACE SOUTH	ACI 1992	SEAC	SEAC-1744 (CANA-97)		8 Abo. Sherds	*(3)	1 bag	NO
8BR1618 MINUTE FLAKE	ACI 1992	SEAC	SEAC-1744 (CANA-97)		1 Lithic	*(3)	1 bag	NO
8BR1619 DUMMIT CREEK NORTH MIDDEN	ACI 1992	SEAC	SEAC-1744 (CANA-97)		6 Abo. Sherds, 5 Pcs. Animal Bone	*(3)	1 bag	NO
8BR1620 SE OF NAUMANS PLACE	ACI 1992	SEAC	SEAC-1744 (CANA-97)		56 Abo. Sherds	*(3)	1 bag	NO
8BR1621 GRANNY COVE NORTH	ACI 1992	SEAC	SEAC-1744 (CANA-97)		8 Abo. Sherds	*(3)	1 bag	NO
8BR1622 ALLENHURST MIDDEN	ACI 1992	SEAC	SEAC-1744 (CANA-97)		27 Abo. Sherds	*(3)	1 bag	NO
8BR1623 DUCKROOST COVE	ACI 1992	SEAC	SEAC-1744 (CANA-97)		4 Abo. Sherds	*(3)	1 bag	NO
8BR1625 DIKE ACCESS RD	ACI 1992	SEAC	SEAC-1744 (CANA-97)		11 Abo. Sherds, 1 Hist. Sherd	*(3)	1 bag	NO
8BR1627 PATILLO CREEK	ACI 1992	SEAC	SEAC-1744		1 Abo. Sherd	*(3)	1 bag	NO

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Site No. Site Name	Collector/ Donor	Repository	Acc. No.	Cat. No.	Specimens	Cubic Feet	No. Boxes/ Bags	Human Remains
			(CANA-97)					
8BR1628 LOST IN THE GRASS	ACI 1992	SEAC	SEAC-1744 (CANA-97)		21 Abo. Sherds	*(3)	1 bag	NO
8BR1629 FALLOW GROVE	ACI 1992	SEAC	SEAC-1744 (CANA-97)		2 Abo. Sherds	*(3)	1 bag	NO
8BR1630 SHILOH SAND HILLS	ACI 1992	SEAC	SEAC-1744 (CANA-97)		104 Abo. Sherds	*(3)	1 bag	NO
8BR1632 EDGAR/CAMPBELL MIDDEN	ACI 1992	SEAC	SEAC-1744 (CANA-97)		15 Abo. Sherds, 1 Hist. Sherd, 4 Shell Tools	*(3)	1 bag	NO
	ACI 1996	SEAC	SEAC-1745 (CANA-98)		210 Abo. Sherds, 4 Hist. Sherds, 1 Shell Tool, 218 Pcs. Animal Bone	*(4b)	2 bags	NO
8BR1633 APIARY 53	ACI 1992	SEAC	SEAC-1744 (CANA-97)		9 Abo. Sherds. 4 Shell Tools	*(3)	1 bag	NO
	ACI 1996	SEAC	SEAC-1745 (CANA-98)		114 Abo. Sherds, 50 Pcs. Animal Bone	*(4b)	2 bags	NO
8BR1663 ORBITER STORAGE	ACI 1996	SEAC	SEAC-1745 (CANA-98)		2 Abo. Sherds	*(4b)	1 bag	NO
8BR1664	ACI 1996	SEAC	SEAC-1745		4 Lithics	*(4b)	1 bag	NO

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Site No. Site Name	Collector/ Donor	Repository	Acc. No.	Cat. No.	Specimens	Cubic Feet	No. Boxes/ Bags	Human Remains
ARCHAIC SURFACE SCATTER			(CANA-98)					
8BR1665 OLD CANAL MIDDEN	ACI 1996	SEAC	SEAC-1745 (CANA-98)		2 Abo. Sherds, Midden Shell	*(4b)	1 bag	NO
8BR1666 MARSH CROSSING	ACI 1996	SEAC	SEAC-1745 (CANA-98)		15 Abo. Sherds	*(4b)	1 bag	NO
8BR1667 THIN SAND RIDGE	ACI 1996	SEAC	SEAC-1745 (CANA-98)		1 Abo. Sherd	*(4b)	1 bag	NO
8BR1668 CERAMIC SURFACE CLUSTER	ACI 1996	SEAC	SEAC-1745 (CANA-98)		5 Abo. Sherds	*(4b)	1 bag	NO
8BR1669 SPOONBILL	ACI 1996	SEAC	SEAC-1745 (CANA-98)		26 Abo. Sherds	*(4b)	1 bag	NO
8BR1670 HAULOVER CANAL MIDDEN	ACI 1996	SEAC	SEAC-1745 (CANA-98)		8 Abo. Sherds, 2 Hist. Sherds	*(4b)	1 bag	NO
8BR1671 HAULOVER ARTIFACT SCATTER	ACI 1996	SEAC	SEAC-1745 (CANA-98)		13 Abo. Sherds	*(4b)	1 bag	NO
8BR1672 HAULOVER POND MIDDEN	ACI 1996	SEAC	SEAC-1745 (CANA-98)		6 Abo. Sherds, 1 Lithic, Animal Bone	*(4b)	1 bag	NO
8BR1673	ACI 1996	SEAC	SEAC-1745		84 Abo. Sherds, 7 Shell Tools, 75 Pcs. Animal Bone	*(4b)	1 bag	NO

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Site No. Site Name	Collector/ Donor	Repository	Acc. No.	Cat. No.	Specimens	Cubic Feet	No. Boxes/ Bags	Human Remains
HAULOVER SAND MOUND AND MIDDEN			(CANA-98)					
8BR1674 76TH ST NW MIDDEN	ACI 1996	SEAC	SEAC-1745 (CANA-98)		1 Abo. Sherd, 1 Shell Tool	*(4b)	1 bag	NO
8BR1675 LITTLE SHELL POINT	ACI 1996	SEAC	SEAC-1745 (CANA-98)		1 Abo. Sherd	*(4b)	1 bag	NO
8BR1677 CAMPBELL/JACKSON SHEET MIDDEN	ACI 1996	SEAC	SEAC-1745 (CANA-98)		8 Abo. Sherds, 3 Shell Tools, 20 Pcs. Animal Bone	*(4b)	1 bag	NO
8BR1678 FRIABLE SHERDS	ACI 1996	SEAC	SEAC-1745 (CANA-98)		11 Abo. Sherds	*(4b)	1 bag	NO
8BR1679 DIFFUSE CERAMIC SCATTER	ACI 1996	SEAC	SEAC-1745 (CANA-98)		5 Abo. Sherds	*(4b)	1 bag	NO
8BR1680 RELIC GROVE	ACI 1996	SEAC	SEAC-1745 (CANA-98)		89 Abo. Sherds, 2 Stone Tools, 17 Pcs. Animal Bone	*(4b)	1 bag	NO
8BR2364 BOTTLE DUMP SITE	ACI 2009	CNS	CANA-00289		80 Artifacts, mixed selectivity, ceramic – non-aboriginal, glass, metal – nonprecious		1 box	NO
8V0129 SCOBEY PLACE/ BILL'S HILL	Long 1965	FLMNH	4595	103741	20 Abo. Sherds			NO
	Ehrenhard 1976	SEAC	SEAC-191 (CANA-1)	CANA 000007	3 Pcs. Human Remains (MNI=1)	*(2)		YES
8VO130 ROSS HAMMOCK MIDDEN	Bullen, Bullen, and Bryant 1963	FLMNH	4388	98328-98342	Abo. Sherds, Shell Tools			NO

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Site No. Site Name	Collector/ Donor	Repository	Acc. No.	Cat. No.	Specimens	Cubic Feet	No. Boxes/ Bags	Human Remains
	Bullen, Bullen, and Bryant 1963	FLMNH	4227	96339	Coquina			NO
	Ehrenhard 1976	SEAC	SEAC-191 (CANA-1)		20 Abo. Sherds	*(2)		NO
			SEAC-921 (CANA-1)		16 Pcs. Human Remains			NO
8V0131 ROSS HAMMOCK BURIAL MOUNDS	Bullen, Bullen, and Bryant 1963	FLMNH	4211	95914	Abo. Sherds			NO
	Ehrenhard 1976	SEAC	SEAC 01000	CANA 000105	5 Pcs. Human Remains (MNI= 1)			YES
	Unknown	SEAC	SEAC 01001	CANA 00104	5 Pcs. Human Remains (MNI= 1)			YES
8VO131A ROSS HAMMOCK BURIAL #1	Bullen, Bullen, and Bryant 1963	FLMNH	4388	98388-98344; 98396-98442	Human Remains (MNI= 81) Abo. Sherds, Hist. Sherds, glass, metal, and nails			YES
8VO131B ROSS HAMMOCK BURIAL #2	Bullen, Bullen, and Bryant 1963	FLMNH	4388	98382-98387	Abo. Sherds			NO
8V0143 MCCARTY PLACE	ACI 1996	KSC			Abo. Sherds, 1 Hist. Sherd, 35 Pcs. Animal bone, Metal	*(4a)	1 bag	NO
8V0160 SUGAR MILL RUINS	Jones 1973	BAR	74A.296		Abo. Sherds	*(1)	1 bag	NO
8V04371 SHILOH GROVE	ACI 1992	SEAC	SEAC-1744 (CANA-97)		1 Abo. Sherd	*(3)	1 bag	NO
8V04372 ONE SHERD	ACI 1992	SEAC	SEAC-1744 (CANA-97)		1 Abo. Sherd	*(3)	1 bag	NO

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Site No. Site Name	Collector/ Donor	Repository	Acc. No.	Cat. No.	Specimens	Cubic Feet	No. Boxes/ Bags	Human Remains
8V04373 LITTLE CREEK	ACI 1992	SEAC	SEAC-1744 (CANA-97)		13 Abo. Sherds	*(3)	1 bag	NO
8V04374 MICRO FLAKE	ACI 1992	SEAC	SEAC-1744 (CANA-97)		1 Lithic	*(3)	1 bag	NO
8V06785 SPIKE POINT	ACI 1996	SEAC	SEAC-1745 (CANA-98)		1 Lithic Tool	*(4a)	1 bag	NO
8VO6786 KUHL MIDDEN	ACI 1996	SEAC	SEAC-1745 (CANA-98)		413 Abo. Sherds, 1655 pcs. Animal Bone	*(4a)	5 bags	NO

*(1) BAR collection contains material from 8 sites and totals 1 cu. ft.
*(2) SEAC-191 contains material from 10 sites and totals 1 cu. ft.
*(3) SEAC-1744 (ACI 1990-1992) collection contains material from 39 sites and totals 2 cu. ft.
*(4a) SEAC-1745 (ACI 1996) contains material from 4 sites and totals 1 cu. ft.
*(4b) ACI 1996 contains material from 17 sites and totals 1 cu. ft.
*(5) SEAC-835 collection contains material from 2 sites and totals 0.5 cu. ft.
*(6) SEAC-963 collection contains material from 5 sites and totals 1 cu. ft.
*(7) Human remains repatriated in 2016
NOTE: 3 loan agreements are in place between NASA and CNS for transfer of collections (Accession Nos. CANA-00096, CANA-00097, and CANA-00098).

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Appendix O: 2025 KSC Programmatic Agreement and Asset List

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PROGRAMMATIC AGREEMENT
AMONG
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
AND THE
NATIONAL CONFERENCE OF STATE HISTORIC PRESERVATION OFFICERS
REGARDING
THE MANAGEMENT OF NASA CENTERS

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PROGRAMMATIC AGREEMENT
AMONG
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
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AND THE
NATIONAL CONFERENCE OF STATE HISTORIC PRESERVATION OFFICERS
REGARDING
THE MANAGEMENT OF NASA CENTERS

RECITALS

WHEREAS, in 2015 the Office of Management and Budget released the *National Strategy for the Efficient Use of Real Property* and the companion policy *Reduce the Footprint*, which requires Federal agencies to aggressively dispose of surplus properties, make more efficient use of the Government's assets, and reduce the total square footage of its domestic office and warehouse inventory relative to an established baseline; and

WHEREAS, to meet Agency needs and Federal real property directives, the National Aeronautics and Space Administration (NASA) is applying a strategy for an Agency-wide, mission-driven, and affordable real property portfolio based upon an evaluation of mission relevance, future need, sustainment costs, and condition of each of its real property assets to determine whether to sustain, invest, outgrant, or divest them. Examples of these activities include modification and reuse by NASA, lease to an outside entity, transfer to another Federal agency, and/or placing an asset on standby or mothball status. The decision to sustain, invest, outgrant, or divest assets is substantially determined years in advance during a Center's master planning process; and

WHEREAS, NASA has determined that it has property management responsibilities under Sections 106 and 110 of the National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. §§ 300101 et seq.), and property management activities constitute undertakings requiring review pursuant to the regulations implementing Section 106, 36 CFR Part 800 (Section 106); and

WHEREAS, NASA Centers are active research institutions that were built to support highly technical or scientific facilities (HTSF), which enable NASA's mission in the areas of aeronautics research, human exploration and operations, science, and space technology for the peaceful benefit of all mankind; and

WHEREAS, in order to meet national objectives established by the President and Congress of the United States, NASA must routinely modify, upgrade, reconfigure, cannibalize, or replace HTSF to support the Nation's technological development and support the advancement of scientific and engineering knowledge; and

WHEREAS, NASA recognizes the potential for its HTSF to be exceptionally important under National Register of Historic Places (NRHP) Criteria Consideration G (CCG); and

WHEREAS, the unique and specialized purpose of NASA Centers and its HTSF poses a challenge for NASA compliance with Section 106 utilizing traditional historic preservation approaches and the Secretary of the Interior's (SOI) Standards for the Treatment of Historic Properties; and

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WHEREAS, the Advisory Council on Historic Preservation (ACHP) was tasked by Congress to provide guidance to agencies utilizing HTSF on balancing the preservation of physical reminders of the scientific legacy of the United States and the ongoing operation and upgrading of scientific and technical research facilities, resulting in the publication of *Balancing Historic Preservation Needs with the Operations of Highly Technical or Scientific Facilities* (1991); and

WHEREAS, one major tenet of this publication is the need to enhance public access to and understanding of HTSF; and

WHEREAS, another major tenet of this publication is that continued modification enables the continuity of the original function of HTSF, upon which their integrity relies, and thus NASA's approach to historic preservation is reuse of its historic properties with modification where feasible; and

WHEREAS, NASA Centers contain cultural resources, including archaeological sites, that pre-date NASA ownership and are not HTSF, and NASA recognizes that a more traditional historic preservation compliance approach may be utilized in the management of these historic properties; and

WHEREAS, NASA developed this NASA-wide Programmatic Agreement (NPA) for Agency programs pursuant to 36 CFR § 800.14(b)(2), and in accordance with 36 CFR § 800.14(b)(1)(i) due to its multi-state scope; § 800.14(b)(1)(ii), as effects on historic properties may not be fully determined prior to approval of an undertaking; § 800.14(b)(1)(iv), due to the volume of routine management activities undertaken at NASA Centers; and § 800.14(b)(1)(v), due to the presence of both HTSF and non-HTSF at NASA Centers, which warrants a departure from the normal Section 106 process; and

WHEREAS, the NPA allows NASA to formally incorporate ACHP's guidance on HTSF into its compliance processes; accommodate different Section 106 approaches for HTSF and non-HTSF historic properties; foster more meaningful integration of historic properties into NASA's project planning and cultural resources management programs; and expand public access to information about historic properties at NASA Centers complementing NASA's robust public outreach via visitor centers and public programming; and

WHEREAS, the NPA includes processes for the identification and evaluation of historic properties, assessment of adverse effects, and the resolution of adverse effects as required by 36 CFR Part 800, prioritizing the consideration of effects to exceptionally important HTSF, in addition to archaeological sites and cultural resources that pre-date NASA's usage; and

WHEREAS, NASA has assigned each Asset (see Appendix B – Definitions) a Management Category that determines a specific review process in the NPA that varies in the level of consideration given to the avoidance and minimization of adverse effects, as well as to the engagement of consulting parties; and

WHEREAS, this tiered Section 106 process focuses the engagement of NASA, the State Historic Preservation Officers (SHPOs), Indian Tribes, and external stakeholders on those projects that have the potential to adversely affect the most significant historic properties; and

WHEREAS, NASA acknowledges that this prioritization allows for adverse effects without consideration of avoidance and minimization alternatives for some Assets, as well as the potential for cumulative effects, and in order to resolve these adverse effects, NASA has committed to programmatic mitigation

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measures that will give the public greater access to information about historic properties at NASA Centers; and

WHEREAS, NASA consulted with the National Conference of State Historic Preservation Officers (NCSHPO) and SHPOs in states where NASA Centers are located in the development of initial Center Asset Lists assigning each Asset a Management Category and Section 106 review process pathway under the NPA, and the assignment of Management Categories was determined using the results of previous NRHP evaluations, a predictive model for properties less than 50 years of age, and/or a NASA Facility Classification Coding System (FCCS, see Appendix B – Definitions); and

WHEREAS, NASA Centers also contain NRHP listed or eligible historic districts defined by contributing resources that are HTSF; and

WHEREAS, the NPA establishes discrete, special management areas of buildings or structures that exhibit a shared design, architectural style, and cohesive theme that is distinct from the predominant HTSF utilitarian character of NASA Centers, and for which the SOI Standards for the Treatment of Historic Properties will be applied. These are defined as Heritage Zones (see Appendix B – Definitions); and

WHEREAS, NASA consulted with the respective SHPOs to identify the presence or absence of Heritage Zones at NASA Participating Centers (see Appendix B – Definitions), establishing three Heritage Zones—one at Johnson Space Center (JSC), and two at Ames Research Center (ARC); and

WHEREAS, NASA initiated consultation with the ACHP and NCSHPO on February 11, 2022, pursuant to 36 CFR Part 800, and has had regular consultation meetings with the ACHP and NCSHPO throughout the development of this NPA; and

WHEREAS, NASA held consultation meetings with the SHPOs throughout the development of this NPA, including general consulting party meetings on November 15, 2022, May 25, 2023, December 13, 2023, and October 16, 2024, and six targeted consulting party work sessions held between December 2023 and February 2024; has provided five drafts of the NPA for review on April 20, 2022, November 21, 2022, May 22, 2023, December 21, 2023, and June 25, 2025; thoroughly considered and responded to written comments received; and has met with SHPOs individually since March 2024 to develop Center Asset Lists and Heritage Zones for the Centers in their state; and

WHEREAS, pursuant to 36 CFR § 800.14(f), NASA invited federally recognized Indian Tribes (Tribes), as defined by the U.S. Department of Interior Bureau of Indian Affairs as "American Indian or Alaska Native tribal entity that is recognized as having a government-to-government relationship with the United States, with the responsibilities, powers, limitations, and obligations attached to that designation, and is eligible for funding and services from the Bureau of Indian Affairs" (Appendix C – Federally Recognized Indian Tribes Invited to Consult on the NPA), to consult on the development of this NPA through the initiation of government-to-government consultation with Tribal leaders and Tribal Historic Preservation Officers (THPOs) in April 2022; held two consultation meetings for the Tribes on May 3, 2022 and January 25, 2024 in addition to the four general Consulting Party meetings held between November 2022 and October 2024 and the six Consulting Party work sessions; and provided five drafts of the NPA for review on April 20, 2022, November 21, 2022, May 22, 2023, December 21, 2023, and June 25, 2025; and

WHEREAS, NASA acknowledges and honors the original inhabitants of the land on which NASA Centers are located and seeks meaningful partnership in the stewardship and protection of their cultural

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resources; and is committed to continuing consultation with potentially affected Tribes in order to incorporate, to the maximum extent practicable, indigenous knowledge (Indigenous Knowledge) into Agency decision-making per the *Advisory Council on Historic Preservation Policy Statement on Indigenous Knowledge and Historic Preservation* (March 21, 2024), and *Guidance for Federal Departments and Agencies on Indigenous Knowledge* (November 30, 2022); and

WHEREAS, pursuant to 36 CFR Part 800, NASA invited the National Trust for Historic Preservation (NTHP) and the National Association of Tribal Historic Preservation Officers (NATHPO) to consult on the development of this NPA; and provided five drafts of the NPA to these parties for review on April 20, 2022, November 21, 2022, May 22, 2023, December 21, 2023, and June 25, 2025; and

WHEREAS, NASA provided opportunities for public review and comment through formal public notice of availability in the Federal Register (FR) on December 22, 2023, and through the NASA Environmental Management Division Cultural Resources Management web page since April 2022; and

WHEREAS, the NPA does not invalidate NASA's other programmatic agreements, including the *Programmatic Agreement Among the National Aeronautics and Space Administration, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation* (1989), project-specific memoranda of agreement (MOAs), or any other applicable Section 106 agreements; and

NOW, THEREFORE, NASA, ACHP, and NCSHPO agree that all NASA undertakings to which the NPA applies will be implemented in accordance with the following stipulations to take into account the effect of the undertakings on historic properties.

STIPULATIONS

NASA will ensure the following stipulations are carried out for any undertaking for which this NPA is used to comply with Section 106.

I. GOALS

There are five main goals of the NPA:

Goal 1: To integrate the consideration of historic properties early into NASA's facilities planning activities at both the Agency and the Center level. Opportunities to consider feasible alternatives to adverse effects at early planning stages during the development of a Center Master Plan (CMP) will be considered in advance of the implementation of such plan.

Goal 2: To focus the engagement of NASA, SHPOs, Tribes, and external stakeholders on those Projects that have the potential to adversely affect the most significant historic properties.

Goal 3: To establish processes consistent with the NHPA and the Section 106 implementing regulations 36 CFR Part 800 Protection of Historic Properties that can be applied by Center Cultural Resource Managers (CRMs), including those who do not meet the SOI Professional Qualifications Standards (PQS) (48 FR 44738-9).

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Goal 4: To standardize survey and NRHP evaluation methodology across the Agency, ensure surveys and evaluations are conducted by persons meeting the SOI PQS in the appropriate field, and establish consistency in the Section 106 process at NASA Centers across multiple states.

Goal 5: To provide the public with information on NASA's historic properties, which are generally not physically accessible to the public due to safety and security concerns.

II. APPLICABILITY

A. Participating Centers

The NPA is applicable to undertakings at Participating Centers (Appendix D – Participating Centers). Participating Centers are those that do not have an executed Center-wide programmatic agreement for the management of historic properties. Procedures for Centers opting in to the NPA after its execution are provided in Stipulation XVII (Adoptability).

Participating Centers who are tenants of another Federal agency and/or have existing agreements in place with another Federal agency for the management of historic properties will work with their partner agencies to determine the appropriate Section 106 path forward when a NASA undertaking has the potential to affect historic properties.

B. Undertakings

Undertakings (Projects) to which the NPA applies will fall into one or more of the types listed below. Project types are described in Appendix E (Project Types).

- Repair and Maintenance
- Interior Modification
- Exterior Modification Within Asset Envelope
- New Construction
- Other Ground Disturbing Activities
- Mothballing
- Demolition
- Outgrant
- Transfer

C. National Historic Landmarks (NHLs)

The NPA shall not apply to effects to NHLs or undertakings exclusively affecting NHLs, which are governed by the 1989 *Programmatic Agreement Among the National Aeronautics and Space Administration, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation* (NHL PA), so long as that agreement remains in effect. Projects confined entirely to individual NHLs and occurring entirely within the boundaries of an NHL will be managed under the NHL PA, and NASA will have no requirements with respect to those Projects under the NPA.

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D. Use of the NPA

If a potential conflict arises between the NPA and another Section 106 agreement, NASA's Federal Preservation Officer (FPO) will determine the appropriate path forward. NASA may, with the approval of the FPO, elect to follow the steps in 36 CFR §§ 800.3 through 800.6 for an undertaking, including resolution of adverse effects through MOAs or programmatic agreements pursuant to 36 CFR § 800.14(b)(3).

III. ROLES AND RESPONSIBILITIES

A. NASA

1. NASA Headquarters

a. Agency Official

The Agency Official is designated by the NASA Administrator to fulfill the roles specified in 36 CFR § 800.2(a) and is the final decision-maker for the Agency with respect to Section 106 and on amendments or disputes arising from the NPA. The Agency Official may delegate its responsibilities under the NPA to a Center Director or to the FPO. Delegated authority is documented in the NASA Procedural Requirement (NPR) for Cultural Resources Management (8510.1).

b. Federal Preservation Officer

NASA's Cultural Resource Management Program is directed by the FPO, providing guidance to the Center CRMs. The FPO oversees the implementation of the NPA, including completion of programmatic mitigation, and is responsible for NPA monitoring and Agency-level reporting. The FPO will serve as NASA's liaison to the ACHP and the NCSHPO for the purposes of NPA implementation.

The FPO will respond to Center-level questions regarding the applicability of the NPA and may be called to assist in resolving objections at the Center level.

In cases where the Agency Official has delegated such authority, the FPO will fulfill roles specified in 36 CFR § 800.2(a), including representing NASA in government-to-government consultation with Tribes, in the event a concern is elevated above the Center level.

c. Project Personnel

Project personnel at the Headquarters level are loosely defined as personnel who oversee projects defined as undertakings, including personnel in the Facilities and Real Estate Division (FRED), which oversees the Design and Construction, Operations and Maintenance, Master Planning, and Real Estate Planning functions.

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d. Agency-wide SOI-Qualified Cultural Resource Managers

Agency-wide CRMs that meet the SOI PQS are responsible for supporting Section 106 efforts at all NASA Centers. Agency-wide SOI-qualified Cultural Resource Managers may support Center CRMs by providing technical assistance and training, providing guidance and advice, reviewing Section 106 findings and determinations, and making effects determinations.

2. NASA Centers

a. Center Directors

In cases where the Agency Official has delegated such authority, Center Directors will fulfill roles specified in 36 CFR § 800.2(a). Center Directors represent NASA in cases of government-to-government consultation with Tribes.

b. Center Cultural Resource Managers

The Center CRM is responsible for implementing NASA's Cultural Resource Management Program at the Centers, for reviewing NASA Projects under the NPA, and for carrying out the terms of the NPA at the Center level. The Center CRM will participate in Center master planning efforts, coordinate with Center Construction of Facilities (CoF) Program Managers and Facilities Project Managers (FPMs) on the requirements of the NPA and complete the NASA Center Annual Report.

The Center CRM is the primary point-of-contact between NASA and the SHPO, Center Consulting Parties, and Center Consulting Tribes (see Stipulation III.B – Consulting Parties). The Center CRM will ensure that the identification and management of historic properties at the Centers are carried out in a manner consistent with the terms of the NPA. The Center CRM is also responsible for ensuring that NRHP evaluations are carried out by personnel meeting the SOI PQS in the appropriate technical field, and for entering, updating, and maintaining accurate data in relevant NASA data management systems.

c. Project Personnel

Project personnel at the Center level are defined as personnel responsible for planning and executing projects defined as undertakings, including Center master planners, Center CoF Program Managers, Center FPMs, and Center Maintenance Managers.

B. Consulting Parties

1. NPA Consulting Parties

The NPA Consulting Parties are the ACHP, NCSHPO, NATHPO, the NTHP, and Tribes (Appendix C – Federally Recognized Indian Tribes Invited to Consult on the NPA). The

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NPA Consulting Parties will consult with respect to the major provisions of the NPA but will not participate in consultation at the Center level, unless specifically called to do so under the terms of the NPA.

2. Center Consulting Parties

Center Consulting Parties are consulting parties with a demonstrated interest in cultural resources at a Participating Center, with whom NASA will consult under the applicable terms of the NPA. Center Consulting Parties will include the SHPO for the state in which the Participating Center is located, and other parties consistent with 36 CFR § 800.2. All references to SHPO in subsequent sections and processes of this NPA shall be interpreted to mean the SHPO for the respective state in which the Participating Center is located. The Center CRM will maintain a list of Center Consulting Parties and their contact information.

3. Center Consulting Tribes

Center Consulting Tribes are Tribes with religious or cultural interest in cultural resources at a Participating Center. Center Consulting Tribes, as keepers of Indigenous Knowledge, will be consulted regarding the identification, evaluation, and treatment of historic properties during NPA implementation. Center Consulting Tribes may, at any time during NPA implementation, request government-to-government consultation with NASA.

C. Advisory Council on Historic Preservation

At any time, any of the parties described in Stipulation III.A (NASA) or III.B (Consulting Parties) may request ACHP involvement or comment on the implementation of the NPA in general or on Projects governed by the procedures set forth in the NPA. Such a request for ACHP involvement will be in writing, copying all Signatories and the relevant SHPO(s). The ACHP may elect to participate in consultation under the NPA at its discretion.

IV. PLANNING LEVEL TOOLS FOR THE IDENTIFICATION AND MANAGEMENT OF HISTORIC PROPERTIES

To facilitate early planning and efficient execution of the Project Review process as stipulated in this NPA, NASA Participating Centers will utilize the following planning-level surveys and property management tools. These tools include formal survey and NRHP evaluation, management overlays, and modeling.

A. Built Environment Identification and Management Tools

Center CRMs will utilize the following tools to identify and manage built environment Assets at Participating Centers. These management tools also pre-define a Project Review process for each Asset. All formal identification and evaluation of Assets for the NRHP will be completed by a SOI-qualified Architectural Historian.

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1. Gate-to-Gate (G2G) Surveys

Within 5 years of entry into the NPA, and every 10 years thereafter, NASA Participating Centers will perform a G2G Survey per the requirements of NPA Standard Operating Procedure (SOP) #1 Scope and Methodology for Conducting G2G Surveys (Appendix H – Planning-Level Standard Operating Procedures).

a. Review of G2G Survey Reports

The Center CRM will submit G2G Survey Reports to the SHPO, copying the Center Consulting Parties and Center Consulting Tribes, as identified consistent with Stipulations III.B.2 (Center Consulting Parties) and III.B.3 (Center Consulting Tribes), for a 60-day review period. During this review period, the SHPO may request a site visit to aid in their review of the G2G Survey Report.

If the SHPO objects to the findings of the G2G Survey, the objection will be resolved per Stipulation IX (Resolving Objections).

b. G2G Surveys Performed Prior to Entry into the NPA

If a Participating Center has conducted a G2G Survey within 10 years prior to its entry into the NPA, then the Participating Center will use the survey to fulfill this requirement, provided the methodology is not in conflict with NPA SOP #1. In this case, NASA will engage an SOI-qualified Architectural Historian to prepare the Center Asset List per Stipulation IV.A.4 (Center Asset Lists) based upon the findings of the G2G Survey.

2. Management Categories

NASA will assign one of the following Management Categories to each Asset:

a. Category 1. Assets that are individually listed in the NRHP, or that are known or likely to be individually eligible for listing in the NRHP;

b. Category 2. Assets listed in the NRHP as contributing resources to a historic district, or that are known or likely to be eligible for listing in the NRHP as such;

c. Category 3. Assets known or likely to be ineligible for listing in the NRHP; and

d. Eval. Assets that have not been evaluated for individual NRHP eligibility since turning 50 years of age, but that NASA considers likely to be eligible based on NASA's Asset probability model (NPA SOP #2: Categorization of Unevaluated Assets in Appendix H – Planning-Level Standard Operating Procedures).

For those Assets that have been formally evaluated for NRHP eligibility, NASA will assign Management Categories based upon the results of that evaluation. The SHPO may

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request copies of previous survey reports on which the assignment of Management Categories is based. For those Assets that have not been evaluated for individual NRHP eligibility, NASA will assign Management Categories based upon NASA's Asset probability model, outlined in NPA SOP #2: Categorization of Unevaluated Assets (Appendix H – Planning-Level Standard Operating Procedures).

3. Heritage Zones

A Heritage Zone is a discrete, special management area of buildings or structures that exhibit a shared design, architectural style, and cohesive theme that is distinct from the predominant HTSF utilitarian character of NASA Centers, and for which the SOI Standards for the Treatment of Historic Properties will be applied (see Appendix B – Definitions).

a. NASA may propose a new Heritage Zone or revisions to an existing Heritage Zone boundary, and will consider establishing a new Heritage Zone, or revising an existing Heritage Zone boundary, if requested to do so by the respective SHPO in writing. The Center CRM, in coordination with the FPO, will consider the proposal and may elect to convene a consultation meeting with the SHPO, Center Consulting Parties, and Center Consulting Tribes to discuss the proposed action.

If NASA and the SHPO reach agreement on establishing a new Heritage Zone, or revising an existing Heritage Zone boundary, the Center CRM will update Appendix J (Center Asset List), and send a copy to the FPO, SHPO, Center Consulting Parties, and Center Consulting Tribes.

4. Center Asset Lists

Center CRMs will maintain an Asset list for the Center that indicates the Management Category assigned to each Asset. If a Heritage Zone is present, the Center Asset List will also include a list of Assets located within the Heritage Zone, and a map of the Heritage Zone boundaries. The Center Asset List will be appended to the NPA, and Participating Centers will refer to the Center Asset List to determine the appropriate procedures for Project Review under the NPA.

NASA will revise a Center Asset List when one of the following occurs:

a. A Participating Center conducts a Gate-to-Gate (G2G) Survey as described in Stipulation IV.A.1 (Gate-to-Gate (G2G) Surveys);

b. A Participating Center evaluates an Asset during Project Review (Stipulation VI – Project Review);

c. A Participating Center establishes a new Heritage Zone, or makes revisions to an existing Heritage Zone boundary; or

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d. The Center CRM and SHPO agree to do so.

Once revised, the Center CRM will send a dated copy of the new Appendix J (Center Asset List) to the SHPO, copying the FPO, Center Consulting Parties, and Center Consulting Tribes.

B. Archaeology Management Tools

Center CRMs may utilize one or more of the following management tools to support the consideration of archaeological resources under the NPA: Archaeological Survey Exemption Zones, Archaeological Exempted Activities, and/or an Archaeological Probability Model. If a Participating Center does not have a SOI-qualified Archaeologist, the Center CRM will consult with one, consistent with Stipulation XIV (Qualifications for Historic Property Identification), when developing any of the following management tools.

1. Archaeological Survey Exemption Zones

Participating Centers may create Archaeological Survey Exemption Zones to define discrete areas that have a reasonable probability of containing no archaeological resources and/or to define areas that may be subject to archaeological monitoring in lieu of survey. These areas will be managed solely utilizing the NPA inadvertent discoveries protocols (Stipulation XV – Inadvertent Discoveries).

The Archaeological Survey Exemption Zones will be documented in a GIS-based map and will be accompanied by a report detailing the methodology and final results.

The Center CRM will include the factors considered and methodology utilized to develop the Archaeological Survey Exemption Zones for review under Stipulation IV.B.4 (Review of Archaeology Management Tools).

If an inadvertent discovery occurs within an Archaeological Survey Exemption Zone or new information comes to light that warrants reconsideration of the presence of archaeological resources, the Center CRM will revise the Archaeological Survey Exemption Zones in consultation per Stipulation IV.B.4 (Review of Archaeology Management Tools).

2. Archaeological Exempted Activities

To expand the list of existing Programmatic Exclusions for ground disturbing activities (Appendix F – Programmatic Exclusions), Participating Centers may develop a list of additional ground disturbing activities that have little potential to affect archaeological resources and do not require archaeological survey. Archaeological Exempted Activities are those activities that are not likely to result in adverse effects to archaeological resources due to the minimal nature and limited geographic extent of ground disturbance generated by the activity. NASA will develop these additional Archaeological Exempted Activities in consultation per Stipulation IV.B.4 (Review of Archaeology Management Tools) and manage these activities solely utilizing the NPA inadvertent discoveries protocols (Stipulation XV – Inadvertent Discoveries).

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3. Archaeological Probability Models

Archaeological Probability Models may be used to assist the Center CRMs in making a reasonable and good-faith effort to determine the level of consideration afforded ground disturbing activities and the identification of archaeological resources. Probability models may also define zones or areas that are subject to archaeological monitoring in lieu of survey.

a. Existing Archaeological Probability Model

A Participating Center with an existing Archaeological Probability Model in place at NPA execution will continue to use the model to inform Section 106 review under the NPA, with no additional consultation required. A model in progress at the time of NPA execution will be used once finalized in consultation.

b. New Archaeological Probability Model

A Participating Center without an Archaeological Probability Model may elect to create one. The Archaeological Probability Model will be documented in a GIS-based map with an accompanying report describing the factors and methodology used to identify low, moderate, and high areas of archaeological probability. The model may propose areas for no survey or archaeological monitoring in lieu of survey. It will clearly identify areas exempted from the study, if relevant.

The Center CRM will submit a plan detailing the study area, as well as the factors and methodology used to identify archaeological probability at the Participating Center, for review under Stipulation IV.B.4 (Review of Archaeology Management Tools).

c. Revisions to Archaeological Probability Model

If a Center CRM seeks to revise an Archaeological Probability Model—for example, an inadvertent discovery occurs or new information comes to light that warrants reconsideration—they will submit the proposed revisions for review per Stipulation IV.B.4 (Review of Archaeology Management Tools).

A Participating Center may revise an Archaeological Probability Model to reflect archaeological survey results without consultation if the survey findings were subject to consultation with the SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate, and no objections remain unresolved.

4. Review of Archaeology Management Tools

The Center CRM will consult with SHPO, Center Consulting Parties, and Center Consulting Tribes regarding the proposed methodology and factors used to develop management tools prior to formal development. Once drafted, the Center CRM will

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submit the Archaeological Survey Exemption Zones, Archaeological Exempted Activities, and/or Archaeological Probability Model to SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate, for a 60-day review period. NASA may also shorten the review period to 30 days for revisions to existing Archaeology Management Tools. At the end of the review period, if no party has submitted an objection to the Center CRM, then NASA will consider the Archaeology Management Tools final.

If SHPO, a Center Consulting Party, or Center Consulting Tribe objects to any part of an Archaeology Management Tool, the objection will be resolved per Stipulation IX.B (Objections to Other Submitted Materials).

C. Historic Properties of Religious and Cultural Significance to Indian Tribes (HPRCSIT)

Consistent with its commitment to incorporate, to the maximum extent practicable, Indigenous Knowledge into Agency decision-making, NASA will conduct activities under the NPA consistent with the following provisions:

1. Any Indian Tribe may notify NASA of an area of concern with respect to HPRCSIT, and NASA will incorporate that information into its records, appropriately protected, such that the area of concern may be fully considered in Project planning and execution.

2. NASA's preferred method of capturing HPRCSIT will be through GIS with restricted access. However, decisions regarding storage of and access to any information provided to NASA by Center Consulting Tribes will be made in consultation with that Tribe and consistent with, to the extent feasible, Tribal requests. NASA will protect information on HPRCSIT consistent with Stipulation XIX (Handling of Sensitive Information), and in consultation with the affected Tribe(s).

3. The Center CRM will ensure that the Center Consulting Tribe having identified HPRCSIT is directly, and if preferred, separately invited to consult on Projects that may affect that area of concern.

4. If, through consultation, a Center Consulting Tribe requests that a Tribal monitor be present during ground disturbance, NASA will consider this request, taking security, mission, and timing requirements into consideration, and will ensure Tribal monitors are present to the greatest extent feasible.

V. INCORPORATION OF HISTORIC PRESERVATION IN CENTER PLANNING

NASA will make a reasonable and good-faith effort to identify feasible alternatives to adverse effects in the early stages of Project planning. For Projects within identified Heritage Zones, NASA will, in consultation with the SHPO, afford special consideration to the preservation of identified character-defining features (CDF, see Appendix B – Definitions) and, to the extent possible while meeting mission requirements, ensure Projects do not diminish those characteristics. Demolition of historic properties within Heritage Zones will be deemed an action of last resort after a thorough evaluation of alternatives.

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A. Center Master Plan (CMP)

CMPs will integrate information about historic properties and Heritage Zones. Heritage Zones will be identified as areas of heightened design sensitivity subject to consultation under the NPA.

NASA Center personnel will engage the SHPO, Center Consulting Parties, and Center Consulting Tribes during the development and/or update of the CMP to allow for discussion of alternatives to avoid adverse effects to historic properties. The Center CRM will ensure draft CMP materials are submitted to the SHPO, Center Consulting Parties, and Center Consulting Tribes, who will have 30 days to review and comment.

The Center CRM and relevant project personnel will review input received from SHPO, Center Consulting Parties, and Center Consulting Tribes during Center master planning, and may initiate further discussion with the parties. The Center CRM will maintain a record of potential adverse effects to historic properties considered during CMP development and NASA will actively consider feasible alternatives prior to Project Review (Stipulation VI).

B. Integrated Cultural Resources Management Plans (ICRMPs)

Participating Centers review and update ICRMPs annually to include information relevant to the NPA, including: 1) a copy of the executed NPA, or link to its location; 2) current Center Asset List for the Center; 3) maps and descriptions of Heritage Zones, if relevant; 4) a list of Center Consulting Parties and Center Consulting Tribes; 5) SOP for G2G Surveys under the NPA; and 6) applicable Archaeology Management Tools.

C. Heritage Zone Design Guidelines

Participating Centers that have an identified Heritage Zone may elect to develop Heritage Zone Design Guidelines, in consultation with the SHPO, to define appropriate treatments for Assets within the Heritage Zone such that Project activities may be excluded from review per Appendix F (Programmatic Exclusions), Sections B.2 (Interior Modification) and B.3 (Exterior Modification Within Asset Envelope). Heritage Zone Design Guidelines will be reviewed and concurred upon in writing by the SHPO before they can be used in NPA implementation.

Participating Centers with historic district design guidelines developed prior to NPA execution may utilize them as Heritage Zone Design Guidelines with written concurrence of the SHPO. A Participating Center may use the SOI Standards for the Treatment of Historic Properties in lieu of Heritage Zone Design Guidelines with written concurrence of the SHPO.

VI. PROJECT REVIEW

The Center CRM will determine whether the Project has the potential to affect historic properties and will initiate the appropriate process to be followed under the NPA as early as possible during Project planning (see Appendix G – Project Review Flow Chart).

For Outgrant Projects, the Center CRM will either: 1) define the Outgrant of the property as a single finite undertaking and resolve reasonable and foreseeable adverse effects in conjunction with the execution of the partnership agreement; or 2) maintain oversight of the Asset throughout the duration

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of the partnership agreement and individually review proposed Projects affecting the Asset when initiated by the tenant.

A. Defining the Area of Potential Effects

The Project Area of Potential Effects (APE) will be, as applicable, the subject Asset(s) and/or the associated Areas of Disturbance (AOD). For multi-component Projects, the APE will be the aggregate of all component APEs.

If the APE is limited exclusively to an NHL or occurring entirely within the boundaries of an NHL, NASA will adopt the review process as outlined in the NHL PA and will have no further requirements under the NPA.

B. Screening for Programmatic Exclusion

The Center CRM will evaluate the Project to determine if it or any of its components qualify for exclusion pursuant to Appendix F (Programmatic Exclusions). If all components of the Project qualify for exclusion, the Center CRM will document this determination in the NASA Center Annual Report per Stipulation XII.A (Center Annual Reports) and notify NASA project personnel that the Project may proceed without consultation under the NPA unless an inadvertent discovery is made.

If Programmatic Exclusion applicability cannot be determined, because the APE contains an unevaluated Asset or area that has not been considered for archaeological resources or HPRCSIT, the Center CRM will continue to Stipulation VI.C (Identification of Properties within the APE). After identification efforts are completed, the CRM will evaluate the Project for Programmatic Exclusion applicability per this Stipulation and proceed to Stipulation VI.D (Determination of Effects for Non-Excluded Projects), if appropriate.

If there are components of the Project not excluded from further review per the Programmatic Exclusions, the Center CRM will continue to Stipulation VI.D (Determination of Effects for Non-Excluded Projects).

C. Identification of Properties Within the APE

1. <u>Built Environment</u>

If the Center Asset List indicates that an Asset must be evaluated for NRHP eligibility (i.e., a Management Category of "Eval"), then the Center CRM will either:

a. Assume the Asset is individually eligible (i.e., a Category 1 Asset) and proceed with Project review as appropriate; or

b. Conduct standard evaluation for NRHP eligibility and submit a determination to the SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate, for a 30-day review period. The determination may be submitted concurrent with the Consultation Letter (Stipulation VI.D – Determination of Effects for Non-Excluded Projects), as applicable. If the SHPO

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objects to the finding, that objection will be resolved through Stipulation IX.A (Objections to NRHP Determinations of Eligibility).

2. Archaeology

If the presence of archaeological sites within the APE is unknown, or if a site has been identified within the APE but not yet been evaluated for eligibility, the Center CRM will consult with an SOI-qualified Archaeologist to determine the steps necessary for identification/evaluation. The Participating Center may use an existing Archaeological Probability Model, if relevant, to determine a reasonable and good-faith identification effort.

a. Archaeological Survey

If an archaeological survey is required to determine the presence or absence of historic properties or a recorded archaeological site requires NRHP evaluation, the Center CRM will submit the survey report to the SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate, for a 30-day review period and pursuant to Stipulation XIX (Handling of Sensitive Information). The Center CRM will prepare and submit survey reports and associated site recordation documents consistent with any applicable state standards. The survey report may be submitted concurrent with the Consultation Letter (Stipulation VI.D – Determination of Effects for Non-Excluded Project), as applicable.

The Center CRM may assume a recorded archaeological site is individually eligible for listing in the NRHP rather than complete additional survey and proceed with Project Review as appropriate.

If NASA receives an objection to its findings, that objection will be resolved through Stipulation IX.A (Objections to NRHP Determinations of Eligibility).

b. Monitoring

If not already defined in an Archaeological Survey Exemption Zone or Archaeology Probability Model, the Participating Center may conduct archaeological monitoring in lieu of survey if agreed upon in consultation with the SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate.

c. Areas with Land Use Controls or Unsafe Conditions

In areas where extenuating circumstances preclude the use of a standard survey methodology, such as the presence of contamination, hazardous materials, deep stratification, or unsafe conditions, the Participating Center may conduct archaeological monitoring, spot checks, and/or use the NPA Inadvertent Discoveries protocols (Stipulation XIV – Inadvertent Discoveries) in lieu of archaeological survey if agreed upon in consultation with the SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate.

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c. HPRCSIT

If HPRCSIT is present in the APE, the Center CRM will consult Center Consulting Tribes, as identified consistent with Stipulation III.B.3 (Center Consulting Tribes), to determine methods to identify, evaluate, and/or protect such resources during Project Review.

D. Determination of Effects for Non-Excluded Projects

1. Impacts to Heritage Zones

For Projects that are located, in part or in whole, inside the boundaries of a Heritage Zone, the CRM will consider whether the Project has the potential to affect the setting within the Heritage Zone as part of the consideration of effects.

2. Consultation

The Center CRM will send a Consultation Letter to the SHPO, copying the Center Consulting Parties and Center Consulting Tribes, as appropriate, with the following information:

- A description of the Project and the schedule, if known, with plans as available;
- For multi-component Projects, identification of any components that fall under a Programmatic Exclusion pursuant to Appendix F (Programmatic Exclusions);
- A map of the APE and environs that shows the Assets in the APE with their corresponding Management Category, their NRHP eligibility information, if the Assets have been formally evaluated, and the boundaries of Heritage Zone(s), if applicable;
- A description of the archaeological resources in the APE or archaeological management approach as determined in Stipulation IV.B (Archaeology Management Tools) and/or Stipulation VI.C.2 (Archaeology);
- Whether or not a HPRCSIT has been identified in the APE;
- NASA's determination of effects with a brief explanation of the basis for the finding; and
- NASA's intended path forward per the NPA.

In the event of a likely adverse effect, NASA will consider whether the Project can be feasibly altered to avoid or minimize adverse effects. In that case, the Consultation Letter will also include the following:

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- A summary of the avoidance alternatives considered by NASA;
- How those alternatives were considered and, if applicable, the reasons for their rejection; and
- NASA's proposed mitigation measures per Stipulation VIII (Treatment Measures).

All parties will have 30 days to review the Consultation Letter and provide comments in writing to the Center CRM. If NASA makes a determination of adverse effect, the parties may offer recommendations for additional ways to avoid or minimize adverse effects.

If NASA receives no objection to the Consultation Letter, the Center CRM will proceed with Stipulation VI.D.3 (No Adverse Effects) or VI.D.4 (Adverse Effects) as applicable. If objections are received, the Center CRM will first resolve those objections per Stipulation IX.A (Objections to Determinations of NRHP Eligibility) and/or Stipulation IX.B (Objections to Other Submitted Materials), as applicable, and then proceed with Stipulation VI.D.3 (No Adverse Effects) or VI.D.4 (Adverse Effects) as applicable.

3. No Adverse Effects

The Center CRM will document the finding of No Adverse Effect in the Center Annual Report and notify NASA project personnel that the Project may proceed without further consultation under the NPA unless an inadvertent discovery is made.

4. Adverse Effects

For findings of adverse effect, the Center CRM will proceed as follows:

a. Within a Heritage Zone: for Interior Modification, Exterior Modification within the Asset Envelope, New Construction, Demolition, and other Projects that will affect the setting within the Heritage Zone, the Center CRM will proceed to Stipulation VII (Additional Consultation for Adverse Effects within Heritage Zones).

b. For all other projects, including effects to archaeological resources, regardless of location, the Center will complete the appropriate mitigation measures in accordance with Stipulation VIII.B (Project Mitigation).

VII. ADDITIONAL CONSULTATION FOR ADVERSE EFFECTS WITHIN HERITAGE ZONES

For non-excluded Projects, NASA will continue consultation to identify ways to avoid and minimize effects to historic properties in the Heritage Zone (see Appendix G – Project Review Flow Chart). If at any time, after consultation with the SHPO, Center Consulting Parties, and Center Consulting Tribes, NASA determines that avoidance of an adverse effect is infeasible, the Center CRM may proceed to Stipulation VII.C (Resolution of Adverse Effects).

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A. Consideration of Alternatives

During Concept Development, the Center CRM will invite the SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate, to an in-person or virtual consultation meeting that will be attended by Center personnel with Project decision-making authority and the Center CRM. If the Project proponent is a tenant, a representative of the tenant with decision-making authority will be present. The FPO, ACHP, and additional relevant Center personnel will be notified of the consultation meeting and invited to attend.

The consultation meeting will include a detailed presentation of the Project purpose and need, Project details, and alternatives. After the consultation meeting, the consulting parties will have 15 days to offer practical suggestions of ways to avoid or minimize adverse effects in writing. NASA will consider input received and at the end of the review period, the Center CRM will proceed with Stipulation VII.B (Project Revisions) or Stipulation VII.C (Resolution of Adverse Effects).

B. Project Revisions

If NASA elects to revise the Project, then the Center CRM will prepare a formal Addendum to the Consultation Letter prepared under Stipulation VI.D (Determinations of Effects for Non-Excluded Projects) with a revised Project description and determination of effects. The Center CRM will send the Addendum to the SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate, and, if participating, the FPO and ACHP.

The consulting parties will have 15 days to notify the Center CRM of an objection to the Addendum in writing. If no objection to the Addendum is received, the Center CRM will proceed with Stipulation VI.D.3 (No Adverse Effects) or Stipulation VII.C (Resolution of Adverse Effects), as applicable.

If NASA receives an objection to the revised determination of effects, the Center CRM may elect to continue consultation to revise the Project, resolve objections per Stipulation IX.B (Objections to Other Submitted Materials), or change NASA's determination to an adverse effect and mitigate per Stipulation VII.C (Resolution of Adverse Effects).

C. Resolution of Adverse Effects

If NASA determines that it cannot avoid adverse effects within the Heritage Zone, then NASA will complete mitigation per Stipulation VIII.B.3 (Heritage Zone Mitigation Plan).

VIII. TREATMENT MEASURES

A. Programmatic Mitigation

1. Virtual Tour

NASA will create a public website where it will maintain an interactive Virtual Tour for each Participating Center. The Virtual Tour will reflect the Participating Center's current condition, identify extant Category 1 Assets, historic districts, and other cultural

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resources of interest, and link to image, video, and textual resources that describe the historical use and significance of the highlighted cultural resources. The Virtual Tour will show current satellite imagery, with georeferenced documentary/historic aerials and maps that depict the Centers during key time periods, one of which will be during or immediately after the Center's initial build-out. The Virtual Tour will serve as an intuitive online portal to existing and archived data such as documentary/historic photography, Historic American Buildings Survey (HABS) and Historic American Engineering Record (HAER) recordation, architectural survey reports, primary resource material such as videos and oral history interviews, and other resources as appropriate. NASA will ensure that referenced resources and the components used to comprise the map are properly archived for preservation and are reusable and retrievable in the future.

2. Virtual Tour Implementation Plan

NASA will have three years from the execution of the NPA to complete the initial build-out of the Virtual Tour. Within one year of NPA execution, the FPO will submit an implementation plan to the Signatories, copying the NPA Consulting Parties, for review. The Signatories and NPA Consulting Parties will have 30 days to review the implementation plan and provide comments to the FPO. The FPO may elect to have a consultation meeting with the parties to discuss the implementation plan prior to finalizing it.

Once the initial build-out is complete, NASA will update and add to the Virtual Tour as documentation of Assets under the NPA and other relevant historical information becomes available. NASA will report on development of the Virtual Tour annually under Stipulation XXI (NPA Monitoring Period) and will provide the Signatories, respective SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate, the opportunity to review and comment on the Virtual Tour on an annual basis, including ways to enhance the product and maximize public exposure.

NASA will maintain the Virtual Tour for the duration of the NPA. The Virtual Tour will be regularly archived to record its changes over time, as appropriate. Prior to the anticipated termination or expiration of the NPA, the FPO will consult with the Signatories to develop a plan for the long-term maintenance of the Virtual Tour by NASA or another entity, or if no such entity is identified, a plan for the permanent curation of the information contained in the Virtual Tour.

B. Project Mitigation

1. Recordation of Category 1 Assets

NASA will complete digital photographic recordation of affected Asset(s) prior to commencing on-site work. Photography will conform to the most recent National Park Service (NPS) NRHP photograph policy and technical requirements for digital images and storage. The number of views will be sufficient to capture the exterior CDF and, if feasible, interior CDF of the subject Asset, and will include the following views:

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- Exterior Views
    - Ten views of the Asset within its larger context;
    - Eight views of the entire Asset such that all sides are documented; and
    - Details of CDFs.
- Interior Views (if feasible)
    - Multiple views of each primary public space (e.g., lobbies, lecture halls or auditoria);
    - Representative views of major circulation spaces (e.g., hallways);
    - Multiple views of functionally significant work spaces (e.g., laboratories, clean rooms, test chambers), including equipment and instruments; and
    - Representative views of administrative spaces (e.g., offices, meeting rooms).

NASA will provide photographic recordation accompanied by a written photo log that meets the NPS photograph policy and provides the name of the resource, date of construction, architect or engineer (if known), original function, and basic contextual information. If appropriate, NASA will provide a photo key map showing the photos by numbers corresponding to the photo log.

As technology advances, if other forms of recordation are available and approved for NPS use to adequately depict the current condition and illustrate CDF of the Asset, such as 3D digital scanning and modeling, they may be used to supplement, enhance, or comprise the recordation package.

Upon completion, the Center CRM will submit an electronic copy of the final recordation package to the SHPO and will link the electronic version of the recordation package to the Virtual Tour.

NASA will not be required to document an Asset under this stipulation if it has been previously recorded to these or higher standards, such as HAER Level 1 or Level 2 recordation, and has not been substantially altered since that time. If the Asset has been previously recorded to HABS/HAER or higher standards, then NASA will make the package available via the Virtual Tour and thereafter will have no further requirements under this stipulation.

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2. Archaeology Mitigation Plan

If mitigation of an NRHP listed, eligible, or potentially eligible archaeological site or HPRCSIT is necessary, then NASA will engage an SOI-qualified Archaeologist to develop a written Archaeology Mitigation Plan (AMP) that outlines measures to resolve adverse effects to the site(s). The Center CRM will submit a draft AMP to the SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate, pursuant to Stipulation XIX (Handling of Sensitive Information).

The AMP may include data recovery or other mitigation measures that contribute towards the public's understanding of the significance of the affected site, and/or to the preservation of the site. The AMP will include a scope of work with sufficient detail that can be used to solicit bids from qualified contractors.

The parties will have 30 days to review the draft AMP and provide written comments to the Center CRM. If the SHPO, a Center Consulting Party, or Center Consulting Tribe objects to the AMP, then the Center CRM will resolve those objections per Stipulation IX.B (Objections to Other Submitted Materials).

3. Heritage Zone Mitigation Plan

NASA will consult with the SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate, to develop a Heritage Zone Mitigation Plan (HZMP).

a. No Mitigation

If NASA, SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate, reach consensus that the effects are such that no HZMP is necessary, then NASA will notify the parties of the consensus and its intent to proceed with the Project.

b. Development of Heritage Zone Mitigation Plan

NASA will develop an HZMP with proposed measures addressing historic properties within the Heritage Zone. The plan will reflect the scale and extent of anticipated adverse effects, taking into consideration avoidance and minimization measures that were incorporated into the Project based upon comments received during Project consultation.

The Center CRM will submit a proposed HZMP to the SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate. The parties will have 30 days to review the draft HZMP and to provide written comments. If the SHPO or a Center Consulting Party, or Center Consulting Tribe objects to the HZMP, then the Center CRM will resolve the objection per Stipulation IX.B (Objections to Other Submitted Materials).

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IX. RESOLVING OBJECTIONS

In the implementation of the NPA, NASA will, in good faith, consider objections received in writing during the specified consulting party review periods. NASA will consider objections received outside of the review period as feasible, given Project planning and execution schedules.

A. Objections to NRHP Determinations of Eligibility

If, within the NPA-specified review period, the SHPO or a Center Consulting Party or Center Consulting Tribe objects to NASA's findings with respect to NRHP eligibility, then it will inform the Center CRM of the objection in writing, copying the SHPO, Center Consulting Parties, and Center Consulting Tribes, indicating the evaluation that is in dispute. The Center CRM will either accept the objection and revise the findings or consult for a period not to exceed 30 days to resolve the objection.

If, after the 30-day period, the Center CRM determines that consensus cannot be reached, the Center CRM will notify the FPO, copying the SHPO, Center Consulting Parties, and Center Consulting Tribes. The FPO will determine whether additional consultation to reach consensus is warranted, and if so, the length of the additional consultation period. If consensus is still not reached at the end of that consultation period, the FPO will request a decision from the Keeper of the National Register (Keeper) per 36 CFR Part 63. The Center CRM will forward a copy of the Keeper's decision to the SHPO, Center Consulting Parties, and Center Consulting Tribes, and update the Center Asset Lists and/or survey reports accordingly.

B. Objections to Other Submitted Materials

If, within an NPA-specified review period, the Center CRM receives written objection from the SHPO, a Center Consulting Party, or Center Consulting Tribe, NASA will do one of the following:

1. Revise its position on the matter in dispute and proceed with the appropriate next steps per the NPA;

2. Revise the subject (e.g., Project, mitigation plan) of the dispute to address consulting party concerns and resubmit for 30-day consulting party review; or

3. Consult to resolve the objection for a period not to exceed 15 days.

If, at the end of the consultation period, the Center CRM determines that the objection cannot be resolved, the Center CRM will confer with the FPO to decide if additional consultation is warranted, and if so, the length of the additional consultation period.

If the objection remains unresolved at the end of the consultation period, the FPO will notify the ACHP of the failure to reach agreement, copying the SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate, and request ACHP's opinion on the dispute. The ACHP will have 30 days to review the materials and provide its comments to the Agency Official. The Agency Official will consider the input of the ACHP and consulting parties and render a final decision. The decision will be documented in a formal letter from the Agency Official to the

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ACHP, copying the FPO, Center CRM, SHPO, Center Consulting Parties, and Center Consulting Tribes.

ADMINISTRATIVE CLAUSES

X. GENERAL PROVISIONS

A. The definitions in 36 CFR Part 800 are applicable to the NPA and are incorporated by reference herein. Definitions specific to the NPA are listed in Appendix B (Definitions).

B. Anything "written" and "in writing" refers to hardcopy or electronic communication. All communications, submissions, and reporting will be in writing and delivered electronically, unless a specific request for a hardcopy is made to the issuing party in writing.

C. Unless otherwise indicated, "days" will mean calendar days.

D. Any consulting party review period may be extended, at NASA's discretion, upon written request from a consulting party.

XI. NPA WEBSITE

For the duration of the NPA, NASA will maintain a public website (NPA Website) where a current version of the NPA and appendices will be posted, along with contact information for the FPO and Center CRMs.

XII. ANNUAL REPORTING

A. Center Annual Reports

In the first quarter of each calendar year, Participating Center CRMs will prepare an annual report (Center Annual Report) covering activities during the previous calendar year and distribute it to the SHPO, Center Consulting Parties, and Center Consulting Tribes. The Center Annual Report will include:

- A list of Projects excluded from review under the NPA pursuant to the Programmatic Exclusions (Appendix F – Programmatic Exclusions), citing the applicable exclusion(s);
- A list of Projects reviewed under Stipulation VI (Project Review) or VII (Additional Consultation for Adverse Effects within Heritage Zones) and final NASA determination of effects;
- A list and brief description of Projects resulting in mitigation under Stipulation VIII (Treatment Measures), and the status of the mitigation;
- A summary of G2G Surveys completed in the reporting year, a current Center Asset List, and a current map of Heritage Zone(s), if applicable;

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- Whether the Center has developed Archaeological Survey Exemption Zones, Archaeological Exempted Activities, or Archaeological Probability Models during the reporting period;

- A summary of inadvertent discoveries per Stipulation XV (Inadvertent Discoveries);

- A summary of emergency actions taken under Stipulation XVI (Emergency Situations); and

- Any identified challenges with NPA implementation and recommendations for resolution.

The SHPO, Center Consulting Parties, and Center Consulting Tribes will have 30 days to review and provide comments on the draft Center Annual Report, and the implementation of the NPA at the respective Center, including challenges, concerns, and suggested improvements. The Center CRM will consider requests from the SHPO and Center Consulting Tribes for an on-site meeting to discuss NPA implementation. Within 30 days of the end of the review period, Center CRMs will incorporate input received into the final Center Annual Report and submit it to the FPO.

B. NPA Annual Reports

Within three months of the finalization of the Center Annual Reports, the FPO will prepare a rollup report (NPA Annual Report) for submission to the NPA Consulting Parties. This Report will include a general summary and assessment of NPA implementation with any recommended improvements or amendments. Within 60 days of receipt of the NPA Annual Report, a Signatory may request that the FPO convene a meeting among the NPA Consulting Parties to review the implementation of the NPA, problems encountered, disputes and objections received, and suggestions for improvements and/or amendments to the NPA.

XIII. TRAINING

Relevant NASA personnel, including Participating Center CRMs, Center master planners, and Center project personnel, will receive training and a certificate documenting completion of training in the use and implementation of the NPA.

A. Within three months of the execution of the NPA, NASA will develop training materials, in consultation with the ACHP, NCSHPO, and NATHPO.

B. The FPO, in consultation with ACHP, NCSHPO, and NATHPO will maintain and update training materials as needed to ensure it provides sufficient, accurate, and up-to-date information.

C. The FPO will make NPA training materials developed for NASA staff available on the NPA Website.

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XIV. QUALIFICATIONS FOR HISTORIC PROPERTY IDENTIFICATION

A. NRHP evaluations carried out in the execution of the NPA will be performed by or under the direct supervision of a person who meets the appropriate SOI PQS in an applicable discipline.

B. The consideration of Indigenous Knowledge is critical to the identification and evaluation of historic properties. The Section 106 regulations at 36 CFR § 800.4(c)(1) and the A*CHP Policy Statement on Indigenous Knowledge and Historic Preservation* (March 21, 2024) require Federal agencies to acknowledge the special expertise of Indian Tribes in evaluating and, by extension, identifying HPRCSIT. The regulations further acknowledge that the passage of time, changing perceptions of significance, or incomplete prior evaluations may require the reevaluation for the presence of historic properties (36 CFR § 800.4(c)(1)). This is particularly important in planning for identification, because past identification and evaluation efforts may not have included the Indigenous Knowledge held by Indian Tribes.

NASA recognizes that all Tribal participants and knowledge need not conform to the SOI's standards and acknowledges that Tribal Nations possess special expertise in identifying, assessing the eligibility of, evaluating Project effects on, and developing mitigation for historic properties that may possess religious and cultural significance to Tribal Nations, pursuant to 36 CFR 800.4(c)(1).

XV. INADVERTENT DISCOVERIES

In the event of an inadvertent discovery or unanticipated effects to historic properties during an undertaking, NASA will treat the affected resource as NRHP eligible until such time as it has been evaluated by an SOI-qualified individual and will be avoided insofar as possible.

Upon discovery, work must cease, the Center CRM must be notified, and an SOI-qualified individual must be consulted. Thereafter, the Center CRM will respond as directed in the Center ICRMP SOP for the Inadvertent Discovery of Cultural Materials.

NASA will make all reasonable efforts to avoid disturbing gravesites, including those containing indigenous human remains and associated funerary artifacts. If previously unidentified human remains are discovered during ground disturbing activities, NASA will respond as directed in the Center ICRMP SOP and the *ACHP Policy Statement on Burial Sites, Human Remains, and Funerary Objects* (March 1, 2023).

NASA will abide by the requirements of the Native American Graves Protection and Repatriation Act (NAGPRA, Pub. L. 101-601, 25 U.S.C. 3001 et seq.) with respect to the notification, treatment, disposition, and repatriation of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony.

XVI. EMERGENCY SITUATIONS

Should an Emergency Situation occur that represents an essential and immediate response to a disaster or emergency declared by the President or the Governor of a State, or another immediate threat to life or property, NASA will respond to the emergency or hazardous condition in the following manner:

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A. Excluded Activities

In the event that NASA must undertake emergency response activities that are covered under the Programmatic Exclusions, as determined by the Center CRM, then NASA will document this decision in the NASA Center Annual Report per Stipulation XII.A (Center Annual Reports) and proceed with those activities without further action under the NPA, unless an inadvertent discovery is made.

B. Non-Excluded Activities

Upon notification by Project personnel, the Center CRM will immediately notify the SHPO, Center Consulting Parties, and Center Consulting Tribes, as appropriate, of the Emergency Situation and the measures NASA has taken to respond. Should the parties desire to provide technical assistance to NASA, they will respond to the Center CRM in writing within 48 hours from notification, if the nature of the emergency or hazardous condition allows for such coordination. If NASA determines that its response to the Emergency Situation will adversely affect a Category 1 Asset; historic properties in a Heritage Zone; a NRHP listed, eligible, or potentially eligible archaeological site; or HPRCSIT, then the Center CRM will proceed with mitigation under the applicable NPA Project Review stipulation—i.e., Stipulations VI (Project Review) and VII (Additional Consultation for Adverse Effects within Heritage Zones), if applicable.

XVII. ADOPTABILITY

A. Center Adoption After NPA Execution

1. Process for Center Entry into the NPA

Should a Center Director seek to become a Participating Center, the Center CRM will notify the FPO, Signatories, SHPO, Center Consulting Parties, and Center Consulting Tribes, of its intent no less than 60 days prior to entry.

The Center CRM will consult with the parties regarding the Center Asset List and the presence or absence of Heritage Zone(s) as described in Stipulation IV.A (Built Environment), and NASA's plan for programmatic mitigation under Stipulation VIII.A (Programmatic Mitigation). The ACHP and NCSHPO will be invited to participate in this consultation.

After the end of the 60-day period, NASA will modify Appendix D (Participating Centers) and Appendix J (Center Asset List) per Stipulation XXII (Modification of Appendices).

2. Requirements for Center Entry into the NPA

Upon entry to the NPA, the Center CRM for the Participating Center will have in place the Center Asset List and personnel will have completed training per Stipulation XIII (Training).

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Within one year of a Participating Center's entry into the NPA, NASA will update the Virtual Tour with information for the Participating Center comparable to that developed for other Participating Centers under Stipulation VIII.A.1 (Virtual Tour).

B. Federal Agency Adoption of the NPA

In the event that another Federal agency not initially a party to or subject to this NPA is responsible for an undertaking that directly affects a NASA Participating Center, that agency may fulfill its Section 106 responsibilities by stating in writing it concurs with the terms of this NPA; notifying NASA, NCSHPO, and the ACHP that it intends to do so; and completing the training requirements per Stipulation XIII (Training). Such agreement will be evidenced by filing the executed agreement with the ACHP, and implementation of the terms of this NPA. Agreements executed under this stipulation will be attached to the NPA as Appendix I (Federal Agency NPA Adoption Agreements). As a condition of adoption, the Federal agency will coordinate with the relevant Center CRM when following the terms of the NPA to implement undertakings at a Participating Center.

XVIII. ANTI-DEFICIENCY ACT

NASA's future efforts to execute requirements arising from the stipulations of the NPA are subject to the provisions of the Anti-Deficiency Act. If compliance with the Anti-Deficiency Act alters or impairs NASA's ability to implement the stipulations of the NPA, NASA will consult in accordance with the Stipulation XXIV (Amendments) or Stipulation XXV (Termination). No provision of the NPA will be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, Title 31 U.S.C. Part 1341.

XIX. HANDLING OF SENSITIVE INFORMATION

In the performance of this Agreement, the non-NASA parties may have access to U.S. Government data, the use and dissemination of which must be consistent with Federal Government laws, regulations, directives, and policies on handling of sensitive data, including, but not limited to NPR 2810.7 *Controlled Unclassified Information*, and NPR 2190.1 *NASA Export Control Program.*

To the extent authorized by Federal law (including Section 304 of the NHPA; 36 CFR § 800.11(c)(1); 54 U.S.C. § 307103; Section 9 of the Archaeological Resources Protection Act; 16 U.S.C. § 470hh); and the Freedom of Information Act, 5 U.S.C. 552), NASA, the ACHP, and the NCSHPO will withhold from public disclosure information about the nature or location of cultural resources, including archaeological resources, historic properties, and HPRCSIT. NASA will consult with the SOI pursuant to the ACHP's regulations at 36 CFR § 800.11(c)(1) as necessary to withhold information covered by Section 304 of the NHPA.

XX. DURATION

The NPA will remain in full force and effect for 15 years after the date of the last Signatory's signature. During the 14th year of the NPA's duration, the FPO will convene a meeting of the Signatories to consult on an extension of this Agreement. Should the Signatories agree to extend the duration of the NPA for an additional period, they will do so per Stipulation XXIV (Amendments).

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XXI. NPA MONITORING PERIOD

The FPO will facilitate opportunities for input on NPA implementation from the NPA Consulting Parties, relevant SHPOs, Center Consulting Parties, and Center Consulting Tribes, as appropriate, for a period of 30 months following the execution of the NPA (Monitoring Period). The NPA Website will provide an opportunity for the public to comment during the Monitoring Period.

A. Quarterly Monitoring Calls

During the Monitoring Period, the FPO will hold quarterly teleconference calls with the Signatories to review the progress of NPA implementation; discuss feedback from Participating Center CRMs, SHPOs, other consulting parties and the public; and consider short-term actions that may be taken to support NPA implementation.

B. Annual Meetings

Following the submittal of each NPA Annual Report, the Signatories will meet to discuss the report and to determine whether amendments to the NPA are necessary. NASA will make the results of the annual meetings publicly available via the NPA Website.

XXII. DISPUTE RESOLUTION

Should any Signatory to the NPA object at any time to any actions proposed or the manner in which the terms of the NPA are implemented, the NASA Agency Official will consult with such party to resolve the objection. If the Agency Official determines that such objection cannot be resolved, the Agency Official will:

A. Forward all documentation relevant to the dispute, including NASA's proposed resolution, to the ACHP. The ACHP will provide the Agency Official with its advice on the resolution of the objection within 30 days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the Agency Official will prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP and NCSHPO and provide them with a copy of this written response. NASA will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the 30-day time period, the Agency Official may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the Agency Official will prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and provide them with a copy of such written response.

C. NASA's responsibility to carry out all other actions pursuant to the terms of the NPA that are not the subject of the dispute will remain unchanged.

XXIII. MODIFICATION OF APPENDICES

NASA may modify Appendices A through H without amendment to the NPA upon written agreement of the Signatories. The FPO will distribute the modified appendix to the NPA Consulting Parties, SHPOs,

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Center Consulting Parties, and Center Consulting Tribes, and will post it on the NPA Website. If the Signatories do not agree in writing to modification without amendment, then NASA will utilize Stipulation XXIV (Amendments) to modify the appendix.

Participating Centers may make modifications to Appendices I (Federal Agency NPA Adoption Agreements) and J (Center Asset List) at the Center level; such modifications will not require an amendment to the NPA. NASA will document modifications made to Appendices I and J in the Center Annual Reports and the NPA Annual Reports. Each Center CRM will maintain a record of modifications to Appendices I and J.

XXIV. AMENDMENTS

NASA may amend the NPA when such an amendment is agreed to in writing by the Signatories. No less than 60 days prior to the execution of the amendment, the FPO will notify the NPA Consulting Parties and SHPOs, Center Consulting Parties, and Center Consulting Tribes, as appropriate, of the proposed amendment. NASA will post the proposed amendment and an invitation to comment on the NPA Website. The amendment will be effective on the date a copy signed by all Signatories is filed with the ACHP. The ACHP will distribute a fully executed copy of the amendment to the Signatories. The FPO will subsequently distribute the executed amendment to the other NPA Consulting Parties, SHPOs, Center Consulting Parties, and Center Consulting Tribes, and will post it on the NPA Website.

XXV. TERMINATION

If any Signatory to the NPA determines that the terms will not or cannot be carried out, that party will consult with the other Signatories to attempt to develop an amendment per Stipulation XXIV (Amendments). If within 90 calendar days (or another time period agreed to by all Signatories) an amendment cannot be reached, any Signatory may terminate the NPA upon written notification to the other Signatories. If the NPA is terminated, NASA will comply with the provisions of 36 CFR Part 800, Subpart B, for all Projects for which review under the NPA has not concluded.

XXVI. EXECUTION AND IMPLEMENTATION

Execution of the NPA by NASA, the ACHP, and the NCSHPO, and implementation of its terms evidence that NASA has taken into account the effects of the undertakings to which the NPA applies on historic properties and afforded the ACHP an opportunity to comment.

APPENDIX A **Acronyms**
APPENDIX B **Definitions**
APPENDIX C **Federally Recognized Indian Tribes Invited to Consult on the NPA**
APPENDIX D **Participating Centers**
APPENDIX E **Project Types**
APPENDIX F **Programmatic Exclusions**
APPENDIX G **Project Review Flow Chart**
APPENDIX H **Planning-Level Standard Operating Procedures (SOPs)**
APPENDIX I **Federal Agency NPA Adoption Agreements**
APPENDIX J **Center Asset List**

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SIGNATORIES

National Aeronautics and Space Administration

Denise Thaller

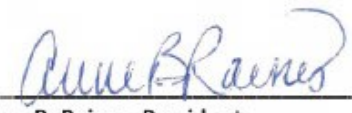
Date: 10/7/2025

Denise Thaller, Acting Assistant Administrator,
Office of Strategic Infrastructure

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SIGNATORIES

National Conference of State Historic Preservation Officers



Date: 10/2/2025

Anne B. Raines, President
Board of Directors

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SIGNATORIES

Advisory Council on Historic Preservation

_____ Date: 10/21/2025

Travis Voyles, Vice Chair

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APPENDIX A – Acronyms

ACHP	Advisory Council on Historic Preservation
AOD	Areas of Disturbance
ARC	Ames Research Center
CCG	Criteria Consideration G
CDF	Character-Defining Features
CMP	Center Master Plan
CoF	Construction of Facilities
CRM	Cultural Resources Manager
FCCS	Facility Classification Coding System
FPM	Facilities Project Manager
FPO	Federal Preservation Officer
FR	Federal Register
FRED	Facilities and Real Estate Division
G2G	Gate-to-Gate Survey
GIS	Geographic Information System
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HPRCSIT	Historic Properties of Religious and Cultural Significance to Indian Tribes
HTSF	Highly Technical or Scientific Facility
ICRMP	Integrated Cultural Resources Management Plan
JSC	Johnson Space Center
MOA	Memorandum of Agreement
NASA	National Aeronautics and Space Administration
NATHPO	National Association of Tribal Historic Preservation Officers
NCSHPO	National Conference of State Historic Preservation Officers
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NPA	NASA-wide Programmatic Agreement
NPD	NASA Procedural Directive
NPR	NASA Procedural Requirement
NPS	National Park Service
NRHP	National Register of Historic Places
NTHP	National Trust for Historic Preservation
OSI	Office of Strategic Infrastructure
PQS	Professional Qualification Standards
RPMS	Real Property Management System
RSF	Resource Significance Framework
SAA	Space Act Agreement
SHPO	State Historic Preservation Officer
SOI	Secretary of the Interior
SOP	Standard Operating Procedure
USC	United States Code

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APPENDIX B – Definitions

- "Areas of Disturbance (AOD)" is the area, both horizontally and vertically, within which Project activities may physically disturb earth, including staging areas.

- "Assets" are NASA owned or controlled built resources within the United States. Assets include real property enumerated in Real Property Management System (RPMS) in Facility Classification Coding System (FCCS) Facility Classes 1 through 8 (see definition of FCCS). Assets also include landscape features and personal property that have been listed in the NRHP or formally evaluated and found to be eligible for listing in the National Register of Historic Places (NRHP). Archaeological sites are not considered Assets for the purposes of the NPA.

- "Centers" will be understood to mean NASA's primary Centers, as well as component facilities and technical and service support centers in the United States, thus constituting all NASA owned real property in the United States.

- "Character-Defining Features (CDF)" are those aspects—materially and visually—that convey the National Register of Historic Places significance of a historic property.

- "Emergency Situation" will refer to a situation that represents an imminent threat to public health or safety or creates a hazardous condition. Emergency Situations will also include formal declarations of emergency by government officials at the Federal, state, or local level.

- "Envelope" refers to all Asset components that separate the interior from the exterior, including exterior walls, foundations, roof, windows, and doors, and the space that they enclose.

- "Excluded" and "Non-Excluded" refers to Projects that do not (excluded) or do (non-excluded) require Project Review under the NPA, as defined in Appendix F (Programmatic Exclusions).

- "Facility Classification Coding System (FCCS)" is a hierarchical scheme, represented by numerical codes, of real property types and functions that serves as the framework for identifying, categorizing, and analyzing NASA's inventory of land and facilities. NASA's FCCS is used by the Facilities and Real Estate Division to categorize real property assets in the RPMS. Based on numerical codes, the FCCS serves as the framework for identifying, categorizing, and analyzing the Agency's inventory of facilities around the world, and consists of Facility Class (level 1, see table below), Category Group (level 2), Basic Category (level 3), and NASA Code. Ten Facility Classes are subdivided into 42 Category Groups, 79 Basic Categories, and 321 NASA Codes that together provide a great deal of specificity on Asset use.

Facility Class	Description
1	Operational, including Tracking and Data Acquisition and Training
2	Maintenance and Production
3	Research, Development, and Test
4	Supply
5	Hospital and Medical
6	Administrative
7	Housing and Community

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Facility Class	Description
8	Utility and Ground Improvements
9	Land
10	Leasehold Improvements

- "Footprint" is the horizontal ground surface occupied by an Asset.

- "Heritage Zone" is a discrete, special management area of buildings or structures that exhibit a shared design, architectural style, and cohesive theme that is distinct from the predominant highly technical or scientific facility (HTSF) utilitarian character of NASA Centers, and for which the Secretary of the Interior (SOI) Standards for the Treatment of Historic Properties will be applied. Heritage Zones may be found within the administrative core of a NASA Center, or they may be areas whose construction predates NASA. A Heritage Zone may be located within an NRHP listed or eligible historic district significant under Criterion C for architecture, landscape architecture, or planning. NASA has determined that undertakings within Heritage Zones warrant greater consideration due to a higher potential for visual, indirect, or cumulative adverse effects. A Heritage Zone will possess all or some of the following characteristics:

    - It conveys a distinct sense of time and place through intact historic setting, design, and feeling;
    - It has a cohesive design, such as use of similar materials, forms, or plans, and/or represents a collective design intent;
    - It is comprised of built resources, landscape, open space, and viewsheds; and
    - It is recognized as having symbolic importance and/or broad intangible value to NASA or the public.

- "Indigenous Knowledge" is a body of observations, oral and written knowledge, innovations, practices, and beliefs developed by Indian Tribes, Native Hawaiians, and indigenous peoples through interaction and experience with the environment as described in the *Advisory Council on Historic Preservation Policy Statement on Indigenous Knowledge and Historic Preservation* (March 21, 2024).

- "In-Kind" means that the result of the work shall closely match the physical and visual aspects of existing materials, including design, form, color, finish, texture, workmanship, and to the greatest extent possible, the materials.

- "Management Categories" are a management tool used in the NPA that categorizes NASA Assets based upon known or probable historical significance and physical integrity.

- "Participating Center" will mean a NASA Center, including component facilities, to whom the NPA applies per Stipulation II.A (Applicability). A list of Participating Centers is contained in Appendix D (Participating Centers).

- "Project" is a Section 106 undertaking comprised of one or more of the activities described in Appendix E – (Project Types).

- "Real Property Management System (RPMS)" is NASA's comprehensive inventory of NASA assets maintained by the Office of Strategic Infrastructure's (OSI) Facilities and Real Estate Division (FRED).

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- "SOI-Qualified" means a person who meets the Secretary of the Interior (SOI) Professional Qualifications Standards (PQS) for the appropriate discipline as published in the Federal Register (FR), Volume 48, No. 190, Thursday, September 29, 1983, pages 44738-9.

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APPENDIX C – Federally Recognized Tribes Invited to Consult on the NPA

Indian Tribes that elected to consult on the NPA are indicated with an (*) asterisk.

Absentee-Shawnee Tribe of Oklahoma
Alabama-Coushatta Tribe of Texas
Alabama-Quassarte Tribal Town
Bad River Band of Lake Superior Tribe of Chippewa
Bay Mills Indian Community of Michigan
Big Pine Paiute Tribe of Owens Valley
Bishop Paiute Tribe*
Catawba Indian Nation*
Cayuga Nation of Indians
Chemehuevi Indian Tribe
Cherokee Nation
Chickahominy Indian Nation
Chickahominy Indians Eastern Division
Chickasaw Nation of Oklahoma*
Chippewa-Cree Indians
Choctaw Nation of Oklahoma*
Citizen Potawatomi Nation
Colorado River Indian Tribes
Comanche Nation of Oklahoma
Coushatta Tribe of Louisiana
Death Valley Timbisha Shoshone Band of California
Delaware Nation
Delaware Tribe of Indians*
Eastern Band of Cherokee Indians
Eastern Shawnee Tribe of Oklahoma
Fond du Lac Band of Lake Superior Chippewa
Forest County Potawatomi Community of Wisconsin*
Fort Independence Reservation*
Fort Mojave Indian Tribe
Fort Sill Apache Tribe of Oklahoma*
Grand Portage Band of Chippewa
Grand Traverse Band of Ottawa & Chippewa Indians of Michigan
Hannahville Indian Community of Michigan
Hopi Tribe
Isleta Pueblo
Jena Band of Choctaw Indians
Keweenaw Bay Indian Community
Kialegee Tribal Town
Kickapoo Tribe in Kansas
Kickapoo Tribe of Oklahoma
Kiowa Indian Tribe of Oklahoma
Lac Courte Oreilles Band of Lake Superior Chippewa Indians
Lac du Flambeau Band of Lake Superior Chippewa Indians
Lac Vieux Desert Band of Lake Superior Chippewa Indians*

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Little River Band of Ottawa
Little Traverse Bay Band of Odawa
Lone Pine Paiute Shoshone Reservation*
Match-e-be-nash-she-wish Band of Potawatomi
Mescalero Apache Tribe*
Miami Tribe of Oklahoma*
Miccosukee Tribe of Indians of Florida*
Mille Lacs Band of Ojibwe*
Minnesota Chippewa Tribe (Executive Committee)
Mississippi Band of Choctaw Indians*
Monacan Indian Nation
Morongo Band of Mission Indians*
Muscogee (Creek) Nation*
Nansemond Indian Nation
Navajo Nation
Nottawaseppi Huron Band of the Potawatomi
Ohkay Owingeh (San Juan) Pueblo
Oneida Nation of Wisconsin
Onondaga Nation
Ottawa Tribe of Oklahoma
Pamunkey Indian Nation*
Poarch Band of Creek Indians
Pokagon Band of Potawatomi Indians*
Prairie Band of Potawatomi
Pueblo of Laguna*
Pueblo of Tesuque
Rappahannock Nation
Red Cliff Band of Lake Superior Chippewa*
Red Lake Band of Chippewa
Sac & Fox Nation of Missouri in Kansas and Nebraska
Sac & Fox Nation, Oklahoma
Sac & Fox Tribe of the Mississippi in Iowa
Saginaw Chippewa Indian Tribe of Michigan
San Manuel Band of Mission Indians*
Sandia Pueblo
Sault Ste. Marie Tribe of Chippewa
Seminole Nation of Oklahoma*
Seminole Tribe of Florida*
Seneca Nation of Indians
Seneca-Cayuga Tribe of Oklahoma
Shawnee Tribe*
Sokaogon Chippewa Band of Lake Superior Chippewa
St. Croix Chippewa Indians of Wisconsin
St. Regis Mohawk Tribe*
Thlopthlocco Tribal Town*
Timbisha Shoshone Tribe*
Tonawanda Band of Seneca Nation
Tule River Indian Tribe

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Tunica-Biloxi Tribe of Louisiana*
Turtle Mountain Band of Chippewa
Tuscarora Nation
United Keetoowah Band of Cherokee Indians in Oklahoma
Upper Mattaponi Indian Nation
White Earth Nation*
White Mountain Apache Tribe
Wyandotte Nation
Ysleta Del Sur Pueblo
Yuhaaviatam of San Manuel Nation

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APPENDIX D – Participating Centers
(as of August 2025)

Acronym	Name	Location
ARC	Ames Research Center	California
AFRC	Armstrong Flight Research Center	California
ATF	Armstrong Test Facility (component facility of GRC)	Ohio
	Columbia Scientific Balloon Facility (component facility of GSFC)	Texas
GRC	Glenn Research Center	Ohio
GSFC	Goddard Space Flight Center	Maryland
GDSCC	Goldstone Deep Space Communication Complex (component facility of JPL)	California
JPL	Jet Propulsion Laboratory	California
JSC	Johnson Space Center	Texas
KSC	Kennedy Space Center	Florida
MSFC	Marshall Space Flight Center	Alabama
MAF	Michoud Assembly Facility (component facility of MSFC)	Louisiana
	Launch Complex 36 (component facility of GSFC), White Sands Missile Range (WSMR)	New Mexico
SSC	Stennis Space Center	Mississippi
	Table Mountain Observatory (component facility of JPL)	California
WFF	Wallops Flight Facility (component facility of GSFC)	Virginia
WSTF	White Sands Test Facility (component facility of JSC)	New Mexico
WSC	White Sands Complex (component facility of GSFC, located within WSTF)	New Mexico

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APPENDIX E – Project Types

A. Repair and Maintenance

Repair and Maintenance activities are those carried out on a routine or regular basis to sustain an Asset for its continued use. NASA defines "repair" as facility work required to restore a facility or component to a condition substantially equivalent to its originally intended and designed capacity, efficiency, or capability. It includes the substantially equivalent replacements of utility systems and collateral equipment necessitated by incipient or actual breakdown. It includes restoration of function, usually after failure. "Maintenance" is defined as the recurring day-to-day work required to preserve facilities (buildings, structures, grounds, utility systems, and collateral equipment) in such condition that they may be used for their designated purpose over an intended service life. Maintenance minimizes or corrects wear and tear and, thereby, forestalls major repairs. Facilities maintenance includes activities such as preventive maintenance, predictive testing and inspection, grounds care, programmed maintenance, repair, trouble calls, replacement of obsolete items, and service requests. Facilities maintenance does not include new work, work on non-collateral equipment, or maintenance performed in the Central Plant by plant operations personnel.

Repair and Maintenance Projects are generally localized, small-scale and in-kind actions affecting an Asset, but may also include larger-scale activities affecting a substantial portion of an Asset carried out in response to sudden damage (e.g., weather, accidental) or structural and/or material failure. Repair and Maintenance Projects generally do not alter the physical appearance of an Asset or diminish its historical integrity. Repair and Maintenance includes activities such as: exterior painting; repair of windows and doors, including caulking and weather stripping; repair of roof cladding and sheathing, flashing, gutters, soffits, and downspouts with no change in roof pitch or configuration; routine road maintenance, repair, and resurfacing where work is confined to previously maintained surfaces; and repair and upgrades to water systems such as water wells, cooling water systems, potable water systems, storm sewers, waste water treatment systems, plant drainage, and plumbing within existing corridors. For additional context on this Project type, see NPD 8831.1E *Maintenance and Operations of Institutional and Program Facilities and Related Equipment.*

B. Interior Modification

Interior Modification is any activity physically affecting an Asset or the contents therein and occurring entirely within the Asset envelope. Interior Modifications generally have no impact on the exterior features of an Asset and require no ground disturbance. Interior modification includes activities such as reconfiguring floor plans; replacing mechanical systems; removing equipment, furniture, and other personal property; renovating bathrooms and kitchens; and seismic retrofits.

C. Exterior Modification Within Asset Envelope

Exterior Modification Within Asset Envelope includes changes to the exterior of an Asset that do not extend beyond the existing Asset envelope, do not result in additional square footage horizontally or vertically, and do not require ground disturbance beyond the existing footprint. Exterior Modification Within Asset Envelope includes activities such as: removal and

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replacement of exterior materials (e.g., roof sheathing); changes in fenestration (e.g., creating a new window opening or door); removal, replacement, or addition of exterior features (e.g., window replacement, addition of solar shades, removal of entrance canopy, addition of a vent); application of new materials to exterior walls (e.g., synthetic stucco); and replacement of utility lines within an existing utility corridor.

D. New Construction

New Construction includes changes to an Asset outside of the existing envelope, footprint, and utility corridors, resulting in additional square footage horizontally or vertically, an increase in interior space, greater overall mass and/or size (i.e., additions), or expansion of the Asset footprint. It also includes construction of entirely new built Assets. New Construction includes activities such as raising a roof, adding rooms or stories, and enclosing exterior spaces to increase usable space; constructing a building in a former parking lot adjacent to an existing Asset; constructing new sources of power such as a solar farm or substation; new construction on a previously undeveloped and/or undisturbed site; construction of a new utility line; expansion of a paved surface (e.g., apron, parking lot, road). This Project type usually involves ground disturbance.

E. Other Ground Disturbing Activities

Other Ground Disturbing Activities are those that are not associated with New Construction. This may include activities such as environmental site investigations; environmental testing, monitoring, and remediation; ground water well installation; soil relocation; and vegetation removal such as that required to create lines-of-sight.

F. Mothballing

Mothballing may be undertaken on Assets that are temporarily not in use and have an anticipated reactivation period of more than 36 months. Aimed at maintaining structural stability and preventing significant deterioration, Mothballing includes such activities as: preparation of utility systems and collateral equipment for long-term inactivation; equipment of the interior with appropriate environmental controls; removal of hazardous materials; maintenance of the integrity and appearance of the exterior shell; and assessment of personal property contained therein to determine if it should remain with the facility, be reutilized, or be disposed. Mothballing provides the least level of maintenance required to maintain functionality for possible future use.

G. Demolition

Demolition is defined as eliminating or reducing underutilized and obsolete real property or equipment no longer required for Agency missions. Demolition may apply to part of an Asset or the total Asset. This Project type may include ground disturbance.

H. Outgrant

Outgrant is the non-permanent transfer of real property rights from NASA to others by means of lease (or any other form of acceptable legal instrument that recognizes NASA as the landlord and

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another entity as the tenant); permit; easement; right-of-way; license; incidental use agreement such as a Space Act Agreement (SAA); or concessionaire agreement. The most common Outgrant for NASA Assets is a lease, such as an Enhanced Use or an NHPA Section 111 lease, which may or may not include restrictions relating to the Asset's historic status. Outgrant may result in activities such as shared use of a facility; sole use of a facility; granting of new utility easements; or tenant construction of buildings on vacant land. This Project type may include ground disturbance.

I. Transfer

Transfer is the permanent transfer of real property rights from NASA to others. Transfer may result in real property transfer to another Federal entity with Section 106 responsibilities; or divestment of real property to a non-Federal entity.

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APPENDIX F – Programmatic Exclusions

Activities that do not require Project-specific consultation under the NPA are described below. Projects that involve ground disturbance must also meet all the conditions of the Ground Disturbance Exclusions (i.e., A or B, plus C). All other Projects will be reviewed under Stipulations VI (Project Review) and VII (Additional Consultation for Adverse Effects within Heritage Zones), as applicable.

A. Projects Outside of a Heritage Zone

The following Projects for which the entirety of the APE contains no portion of a Heritage Zone will be excluded from Project consultation, provided they also meet the Ground Disturbance Exclusions.

1. Repair and Maintenance
2. Interior Modification
3. Exterior Modification within Asset Envelope
4. New Construction
5. Mothballing
6. Demolition of Category 2 and Category 3 Assets
7. Outgrant, where the tenant is required to adhere to the terms of the NPA
8. Transfer to a Federal agency

B. Projects Inside of a Heritage Zone

The following Projects for which any portion of the APE is inside the boundaries of a Heritage Zone will be excluded from Project-specific consultation, provided they also meet the Ground Disturbance Exclusions.

1. Repair and Maintenance
2. Interior Modification:
    - Where significant public interiors (identified in the Center Asset List) are not affected; or
    - Where work to significant public interiors (identified in the Center Asset List) is consistent with approved Heritage Zone Design Guidelines or the SOI Standards, as applicable.

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3. Exterior Modification within Asset Envelope:

- Category 1 and 2 Assets, where work is consistent with approved Heritage Zone Design Guidelines or the SOI Standards, as applicable; and

- Category 3 Assets, where work is in-kind.

4. Mothballing

5. Demolition (Category 3 Assets)

6. Outgrant

- Where the tenant is required to adhere to the terms of the NPA.

7. Transfer to a Federal agency

C. Ground Disturbance Exclusions

1. All activities substantially conform to the original footprint, occur within previously disturbed soils, or no archaeological investigation is required per Stipulation IV.B (Archaeology Management Tools). Previously disturbed soils are defined as soils that have been identified by an SOI-qualified Archaeologist as not likely to possess intact and distinct soil horizons and have the reduced likelihood of possessing historic properties within their original depositional context in the area and to the depth to be excavated; and

2. No known NRHP listed, eligible, or potentially eligible archaeological sites, including pictographs or petroglyphs, are recorded in the APE; and

3. No HPRCSIT are present in the APE.

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Summary of Programmatic Exclusions

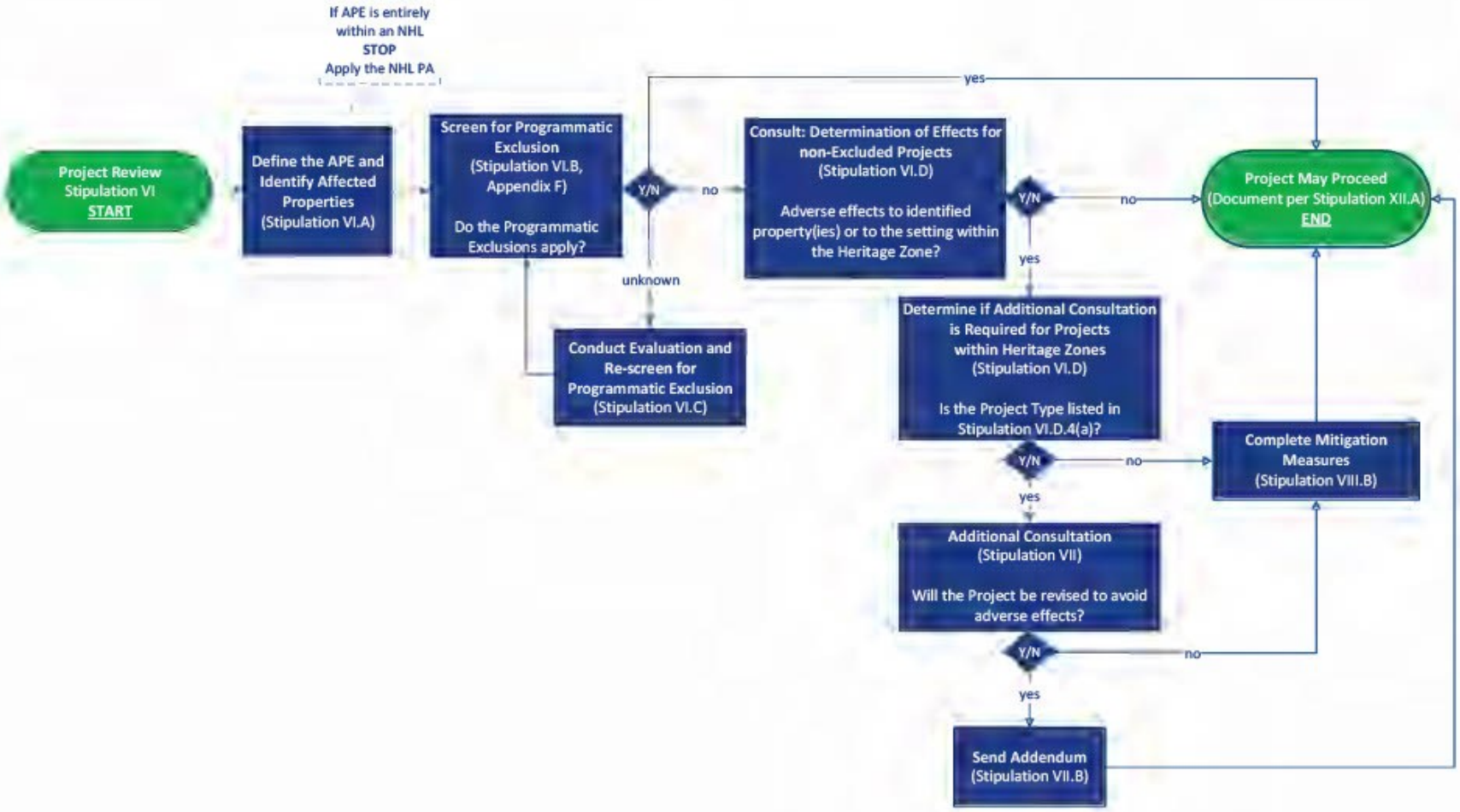
Contingent Upon Meeting the Ground Disturbance Exclusions

Project Type	Project Location A. Outside Heritage Zones	Project Location B. Inside Heritage Zones
Repair and Maintenance	Excluded	Excluded
Interior Modification	Excluded	Excluded, with Conditions (B.2)
Exterior Modification Within Asset Envelope	Excluded	Excluded, with Conditions (B.3)
New Construction	Excluded	Non-Excluded
Other Ground Disturbing Activities	Excluded	Excluded
Mothballing	Excluded	Excluded
Demolition	Excluded, Category 2 and 3 Assets	Excluded, Category 3 Assets
Outgrant	Excluded, with Conditions (A.7)	Excluded, with Conditions (B.6)
Transfer	Excluded, with Conditions (A.8)	Excluded, with Conditions (B.7)

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APPENDIX G – Project Review Flow Chart



APPENDIX H – Planning-Level Standard Operating Procedures

I. NPA SOP #1 – Scope and Methodology for Conducting Gate-to-Gate (G2G) Surveys

A. Scope of Surveys

NASA will prioritize Asset evaluation based upon age and potential to be NRHP eligible as informed by the Facility Classification Coding System (FCCS) and Resource Significance Framework (RSF) Model. FCCS is defined in NPA Appendix B (Definitions), and the Facility Classes referenced in this SOP are shown in the table below for ease of reference.

1. Unevaluated Assets 40 years of age or older, that are identified in the Agency's Real Property Management System (RPMS) as falling within Facility Classes 1, 2, 3 and 6 will be the priority in G2G Surveys.

2. NASA will not evaluate Assets in Facility Classes 4, 5, 7 or 8, except as contributing resources to a newly identified or updated historic district. These Assets will automatically be managed as Category 3 Assets unless otherwise evaluated in G2G Surveys.

3. NASA will not consider Assets less than 40 years of age under Criteria A and B and Criteria Consideration G (CCG), as this preliminary identification has already been completed in the RSF Study.

FCCS Facility Class Codes

Facility Class	Description
1	Operational, including Tracking and Data Acquisition and Training
2	Maintenance and Production
3	Research, Development, and Test
4	Supply
5	Hospital and Medical
6	Administrative
7	Housing and Community
8	Utility and Ground Improvements
9	Land
10	Leasehold Improvements

B. Methodology of G2G Surveys

1. Assets will be evaluated as individual resources within the historic contexts most likely to be relevant to the Asset, and as resources that contribute to a historic district. If found individually eligible, the level of significance (i.e., national, state, and/or local) will be determined.

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2. Assets over 40 years of age will be evaluated under the standard NRHP Criteria (i.e., they will not be required to meet exceptional importance under CCG). If found NRHP eligible under the standard criteria, NASA will manage them accordingly.

3. Assets less than 40 years of age that have not been considered under NRHP CCG and Criterion C for exceptional architectural design will be preliminarily identified in G2G Surveys. This need not be a full NRHP evaluation; rather, it is intended only to inform the assignment of a Management Category until a formal NRHP evaluation is performed.

C. G2G Survey Reports

G2G Survey Reports will include a table of all Center Assets with the following information.

1. Building number, building name, date of construction, and FCCS Facility Class Code.

2. State Historic Preservation Office (SHPO) resource or site number, if applicable.

3. Individual NRHP evaluation status, applicable Criteria, relevant historic context(s), and level of significance.

4. Contributing or non-contributing status within an identified historic district and the name of the historic district.

5. For Assets evaluated prior to the current survey effort, the date of their evaluation, and date of SHPO concurrence, if known. If SHPO concurrence was not received, the lack of SHPO objection will be noted.

6. Assets preliminarily identified under Criteria C and CCG for architecture per Section I.B.3 of this SOP.

7. The assigned Management Category under which the Asset will be managed. Any changes to previously assigned Management Categories will be noted.

8. If applicable, Assets located within a Heritage Zone, and the name of the Heritage Zone.

G2G Survey reports will include maps that show the location of all Assets coded according to Management Category, and the boundaries of Heritage Zones and historic districts, as applicable.

II. NPA SOP #2: Categorization of Unevaluated Assets

Assets that have not been evaluated for individual NRHP eligibility will be considered "unevaluated" for the purposes of assigning NPA Management Categories.

A. Unevaluated Assets less than 50 years of age will be assigned a Management Category based on NASA's RSF Model rating.

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1. Assets with an RSF Model rating below 2.0 will be assigned Management Category 1.

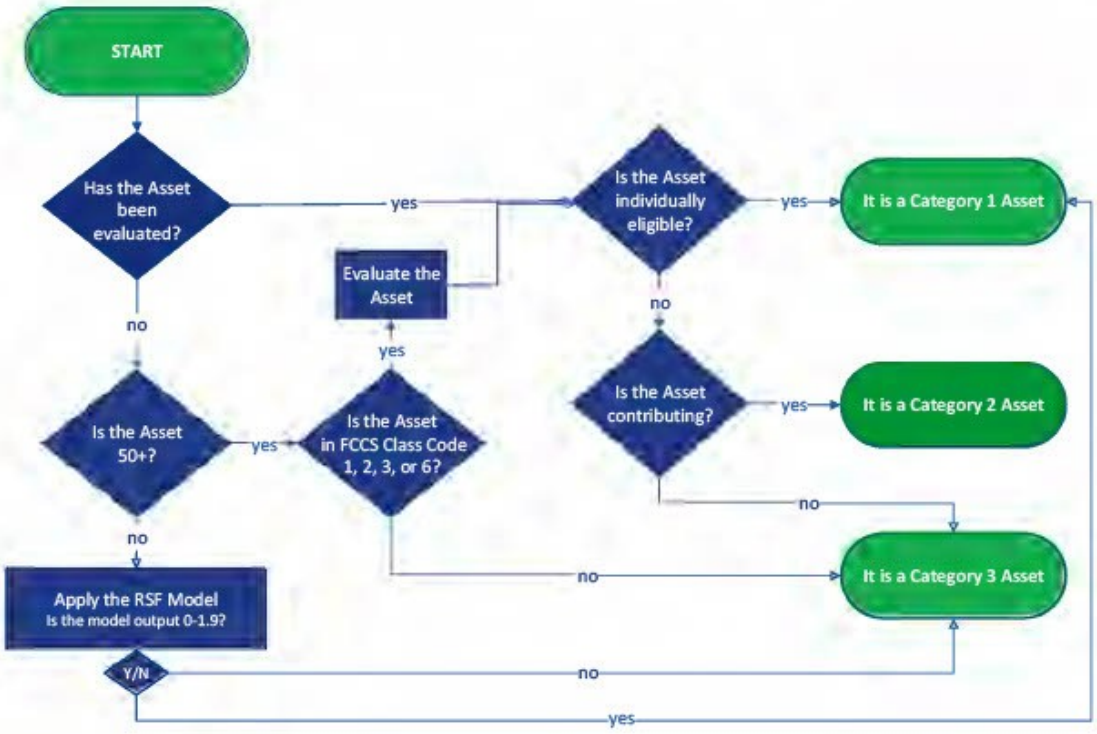
2. All other Assets will be assigned Management Category 3, unless they have been found to contribute to an NRHP-listed or eligible historic district, in which case they will be assigned Management Category 2.

B. Unevaluated Assets that have reached 50 years of age will be categorized based on their FCCS Facility Class Code.

1. Assets in Facility Classes 1, 2, 3, or 6 are considered the most likely to be individually eligible for listing in the NRHP and will not be assigned a Management Category until they are formally evaluated, either as part of a G2G Survey, or at such time as they are within the APE of a Project as identified under NPA Stipulation VI (Project Review).

2. Assets in Facility Classes 4, 5, 7 or 8 will be assigned Management Category 3, unless they have been found to contribute to a NRHP-listed or eligible historic district, in which case they will be assigned Management Category 2.

Asset Categorization Process



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APPENDIX I – Federal Agency NPA Adoption Agreements

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APPENDIX J – Center Asset List

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Kennedy Space Center (KSC) Asset List
2025

Center	Asset No.	Asset Name	Management Category
KSC	77801	MMH TRAILER PARKING	3
KSC	1040C	DRUM STORAGE/STAGING FACILITY	3
KSC	1050A	CALIBRATION LABORATORY	3
KSC	1207A	BLOCKHOUSE	NHL
KSC	1207AA	CAMERA PADS	NHL
KSC	1207B	LAUNCH PAD 5	NHL
KSC	1207C	LAUNCH PAD 6	NHL
KSC	1207CC	SECONDARY UNDERGROUND	NHL
KSC	1207DD	ROADS	NHL
KSC	1207E	PAD SERVICE BUILDING	NHL
KSC	1207EE	SECURITY FENCE	NHL
KSC	1207F	ELECTRICAL DISTRIBUTION BLDG.	NHL
KSC	1207FF	SEWAGE DISPOSAL SYSTEM	NHL
KSC	1207G	READY ROOM	NHL
KSC	1207GG	STORM DRAINAGE SYSTEM	NHL
KSC	1207H	HIGH PRESSURE AIR BLDG.	NHL
KSC	1207HH	VEHICLE PARKING	NHL
KSC	1207II	WATER DISTRIBUTION SYSTEM	NHL
KSC	1207J	GENERATOR BUILDING	NHL
KSC	1207M	EMERGENCY POWER BUILDING	NHL
KSC	1207S	SEPTIC TANK	NHL
KSC	17750	LAUNCH SILO 31-B	2
KSC	17751	LAUNCH SILO 32-B	2
KSC	25201	GHE METERING STATION	3
KSC	29181	GN2 METERING STATION BUILDING	3
KSC	33014	GN2 METERING STATION BUILDING	3
KSC	41905	GN2 METERING STATION BUILDING	3
KSC	5603	GN2 METERING STATION BUILDING	3
KSC	60631	BLAST WALL	3
KSC	60640	PAYLOAD CONT. & GSE STOR. BLDG.	3
KSC	60674	BACKUP GENERATORS	3
KSC	60675	DIESEL FUEL TANK	3
KSC	60677	ANTENNA STRUCTURE	3
KSC	60678	ANTENNA STRUCTURE	3
KSC	60679	ANTENNA STRUCTURE	3
KSC	60680	MISSILE ASSEMBLY BLDG. AE	1
KSC	60683	BACKUP GENERATOR SHELTER	3
KSC	60686	ANTENNA	3
KSC	66240	HIGH PRESSURE WASH BLDG. (SRB)	2
KSC	66249	TVC DESERVICING BUILDING	2
KSC	66266	DRUM STORAGE BUILDING	3
KSC	66267	TANK FARM AREA	3
KSC	66310	SRB PAINT BUILDING	2
KSC	66311	SUBSTATION	3
KSC	66330	WAREHOUSE	3
KSC	66336	WASTE STORAGE FACILITY	3
KSC	66340	MULTI-MEDIA BLAST FACILITY	2
KSC	73019	OPERATIONS BUILDING	3
KSC	73024	TRACTOR/EQUIPMENT PARKING	3
KSC	73026	CAMERA TOWER	3
KSC	73720	HOT MOBILE MAINTENANCE FACILITY	3

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Kennedy Space Center (KSC) Asset List
2025

Center	Asset No.	Asset Name	Management Category
KSC	77600	CAMERA PAD	3
KSC	77608	GUARD SHACK	3
KSC	77610	EQUIPMENT STORAGE AND MOBILE EQUIPMENT WASH RACK F	3
KSC	77611	HYPERGOLIC FUEL DRUM STORAGE/OPERATIONS FACILITY	3
KSC	77612	FUEL FARM 1 TANKER PARKING	3
KSC	77800	HYPERGOLIC FUEL TANKER STORAGE/OPERATIONS FACILITY	3
KSC	77802	GAS STORAGE AREA	3
KSC	80520	HYPERGOLIC OXIDIZER STORAGE/OPERATIONS FACILITY	3
KSC	80541A	GN2 STORAGE VESSELS	3
KSC	80541B	GN2 STORAGE VESSELS	3
KSC	805A	COMMUNICATIONS HUT	3
KSC	80800	HYPERGOLIC OXIDIZER TANKER PARKING	3
KSC	80801	WASTE ALODINE TANKER PARKING (90 DAY SITE)	3
KSC	836A	ANTENNA	3
KSC	836B	ANTENNA	3
KSC	836C	ANTENNA	3
KSC	8BR1688	Crawler Transporters (2)	1
KSC	8BR2021	Mobile Launcher Platforms (3)	1
KSC	8BR2908	70-ton Aft Skirt Cars (2) "Carnival Cars"	2
KSC	C2-1060A	KSC NORTH RADIO TOWER EQUIPMENT BUILDING	3
KSC	C2-1060B	KSC NORTH RADIO TOWER	3
KSC	C2-1409	UNIVERSAL CAMERA SITE #29	3
KSC	C2-1410	LIGHTNING MAPPING ARRAY SITE 4	3
KSC	E3-1120	PUMP HOUSE	3
KSC	E3-1133	MID-COURSE RADAR FACILITY	3
KSC	E3-1138	30 FT C-BAND RADAR EQUIPMENT PAD	3
KSC	E3-1140A	LIGHTNING PROTECTION TOWERS	3
KSC	E3-1141	X-BAND RADAR EQUIPMENT PAD	3
KSC	E3-1145	PARTS WAREHOUSE	3
KSC	E3-1146	MAINTENANCE SHOP	3
KSC	E4-2414	HAULOVER CANAL BRIDGE	1
KSC	E4-2414A	GENERATOR BUILDING	3
KSC	G5-0961	EQUIPMENT BLDG. (WT NO. 11)	3
KSC	G5-1011	UNIVERSAL CAMERA PAD NO. 11	3
KSC	H2-1141	LIGHTNING MAPPING ARRAY SITE 5	3
KSC	H2-1198	JAY-JAY RAILROAD BRIDGE	2
KSC	H2-1245	GENERATOR BUILDING	3
KSC	H4-1725	UNIVERSAL CAMERA PAD NO. 13	3
KSC	H5-1434	MAINTENANCE BUILDING	3
KSC	H5-1434E	SUPPLY STORAGE BUILDING	3
KSC	H5-1630	COMMUNICATION BUILDING/TERMINAL	3
KSC	H5-2139	GUARD GATE 4 PUMP HOUSE	3
KSC	H5-2140	GUARD HOUSE 4	3
KSC	H5-2145	GATE 4 ELECTRONIC SIGN	3
KSC	H5-2146	GUARD OVERWATCH (GATE 4)	3
KSC	H5-2176	ALS SUBSTATION 15	3
KSC	H5-2274	ELECTRICAL EQUIPMENT SITE 1 R/W 33	3
KSC	H7-1632	LIGHTNING MAPPING ARRAY SITE 3	3
KSC	H7-1681	LIFEGUARD BUILDING (NPS)	3
KSC	H7-1682	BEACH MAINTENANCE GARAGE	3
KSC	H7-1684	OBSERVATION TOWER	3

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Kennedy Space Center (KSC) Asset List
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Center	Asset No.	Asset Name	Management Category
KSC	H7-1986	UNIVERSAL CAMERA PAD NO. 4	3
KSC	J5-0132	METEOROLOGICAL SITE #5	3
KSC	J5-0341	ASCENT WIND PROFILER SITE	3
KSC	J5-0386	IFLOT CAMERA SITE NO. 5	3
KSC	J5-0440	TACAN SITE	3
KSC	J5-0441	TACAN STORAGE SITE	3
KSC	J5-0583	ELECTRICAL EQUIPMENT SITE 2 R/W 15	3
KSC	J5-0677	TV TOWER NO. 2	3
KSC	J5-0677A	TV EQUIPMENT BUILDING	3
KSC	J5-1144	METEOROLOGICAL SITE #3	3
KSC	J5-1196	SLF MEDIA OPERATIONS BUILDING	3
KSC	J5-1197	SLF CONTROL TOWER	3
KSC	J5-1198	RUNWAY VIEWING MOUND & REFLECTION POND	3
KSC	J5-1198A	SLF NEWS BUILDING	3
KSC	J5-1199	UTILITY CONTROL SHELTER	3
KSC	J5-1244	OPTICAL TRACKER SITE B	3
KSC	J5-2000	ELECTRICAL EQUIPMENT SITE 3 R/W 33	3
KSC	J6-0393	UNIVERSAL CAMERA PAD NO. 16	3
KSC	J6-0490	500 FT. WEATHER TOWER EQUIP BLDG	3
KSC	J6-0490A	500 FT. WEATHER TOWER	3
KSC	J6-0490B	60 FT. WEATHER TOWER	3
KSC	J6-0490C	EQUIPMENT SHELTER	3
KSC	J6-0553	TRACKING STATION	3
KSC	J6-0553A	EMERGENCY GENERATOR BLDG.	3
KSC	J6-1725	UNIVERSAL CAMERA PAD NO. 6	3
KSC	J6-1808	TV TOWER NO. 1	3
KSC	J6-1808A	TV EQUIPMENT BUILDING	3
KSC	J6-1860	LIGHTNING MAPPING ARRAY SITE 1	3
KSC	J6-1874	SUPPORT BUILDING	3
KSC	J6-1876	SUPPORT BUILDING	3
KSC	J6-1924	APOLLO/SATURN V CENTER	3
KSC	J6-1974	APOLLO SATURN V CONCESSION BLDG	3
KSC	J6-2024	GUARD HOUSE	3
KSC	J6-2025	REST ROOM (LAUNCH VIEWING AREA)	3
KSC	J6-2026	OFFICE BUILDING	3
KSC	J6-2076	LAUNCH VIEWING AREA	3
KSC	J6-2126	REST ROOM (LAUNCH VIEWING AREA)	3
KSC	J6-2312	GATE HOUSE	3
KSC	J6-2313	LANDING AIDS CONTROL BLDG.	1
KSC	J6-2313A	ANTENNA	3
KSC	J6-2327	CLAMSHELL #4	3
KSC	J6-2361	ELECTRIC SUBSTATION	3
KSC	J6-2362	AIRCRAFT GROUND EQUIPMENT SHED	3
KSC	J6-2362A	EQUIPMENT SHED	3
KSC	J6-2363	LIGHTING VAULT	3
KSC	J6-2370	FIRE STATION NO. 2	3
KSC	J6-2409	METEOROLOGICAL SITE #4	3
KSC	J6-2428	COMM CROSS CONCT TERMINAL CXT NO. 3	3
KSC	J6-2463	COMM CROSS CONNECT TERMINAL #7	3
KSC	J6-2465	FLIGHT VEHICLE SUPPORT BLDG.	3
KSC	J7-0132	OPERATIONS SUPPORT BLDG. B-1	2

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KSC	J7-0132A	LOX OFFICE BUILDING	3
KSC	J7-0182	LOX FACILITY	2
KSC	J7-0183	CAMERA PAD NO. 6	2
KSC	J7-0191	CAMERA PAD NO. 1	2
KSC	J7-0192	LIQUID HYDROGEN FACILITY	2
KSC	J7-0231	ELECTRIC EQUIP. BLDG. NO. 2 (LOX)	2
KSC	J7-0240	FLARESTACK	2
KSC	J7-0241	ELECTRICAL EQUIP BLDG NO. 1 (RP-1)	2
KSC	J7-0242	FOAM BUILDING	2
KSC	J7-0243	OPERATIONS SUPPORT BLDG. B-2	2
KSC	J7-0243B	LH2 OFFICE BUILDING	3
KSC	J7-0255	LIGHTNING PROTECTION TOWERS 1,2,3	3
KSC	J7-0286	ENVIRONMENTAL CONTROL & LIFE SUPPORT SYSTEM	3
KSC	J7-0288	WATER TANK	2
KSC	J7-0289	LIQUID HYDROGEN SEPARATOR TANK	3
KSC	J7-0331	SLIDEWIRE TERMINATION FACILITY	2
KSC	J7-0337	LAUNCH PAD 39B	1
KSC	J7-0337G	RAINSHELTER	3
KSC	J7-0338	COMPRESSED AIR BUILDING	2
KSC	J7-0338A	EQUIPMENT SHELTER	3
KSC	J7-0342	CAMERA PAD NO. 2	2
KSC	J7-0384A	SEWAGE LIFT STATION	3
KSC	J7-0384B	SEWAGE EQUIPMENT BUILDING	3
KSC	J7-0385	WATER CHILLER BUILDING	2
KSC	J7-0432	REMOTE AIR INTAKE BUILDING	2
KSC	J7-0537	AZIMUTH ALIGNMENT STATION	2
KSC	J7-0540	LAUNCH PAD 39C	3
KSC	J7-0584	CAMERA PAD NO. 4	2
KSC	J7-0585	ELECTRICAL EQUIPMENT BUILDING	3
KSC	J7-0588	COMMUNICATIONS BUILDING	3
KSC	J7-0589	CAMERA PAD NO. 3	2
KSC	J7-0637A	RAINSHELTER	3
KSC	J7-0686	GATE HOUSE	3
KSC	J7-0688	PAD B LOGISTICS FACILITY	3
KSC	J7-0689	PAD B OPERATIONS SUPPORT BUILDING	3
KSC	J7-0986	REPEATER BUILDING NO. 6	3
KSC	J7-1286	GUARD SHACK	3
KSC	J7-1338	SCAPE BUILDING	3
KSC	J7-1339	FIRE STATION #3	3
KSC	J7-1387	GROUND WATER STORAGE TANK	3
KSC	J7-1388	INDUSTRIAL WATER PUMP STATION	3
KSC	J7-1388B	HAZARDOUS WASTE STAGING BUILDING/PORTABLE	3
KSC	J7-1389	GROUND WATER STORAGE TANK	3
KSC	J7-1736	REPEATER BUILDING NO. 5	3
KSC	J7-1886	WEATHER TOWER	3
KSC	J7-2112	PNEUMATIC TESTING AREA	3
KSC	J7-2112A	PNEUMATIC TESTING CONTROL FACILITY	3
KSC	J8-0755	TOUR BUS PAD VIEWING AREA	3
KSC	J8-0906	GUARD SHACK	3
KSC	J8-1462	HIGH PRESSURE GH2 FACILITY	2
KSC	J8-1502	LOX FACILITY	2

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Center	Asset No.	Asset Name	Management Category
KSC	J8-1503	OPERATIONS SUPPORT BLDG. A-1	2
KSC	J8-1503A	STORAGE BUILDING	3
KSC	J8-1503B	LOX ENGINEERING OFFICE BUILDING	3
KSC	J8-1512	CAMERA PAD NO. 1	2
KSC	J8-1513	LIQUID HYDROGEN FACILITY	2
KSC	J8-1553	ELECTRIC EQUIP. BLDG. NO. 2 (LOX)	2
KSC	J8-1554	CAMERA PAD NO. 6	2
KSC	J8-1554A	CAMERA PAD 6 METEOROLOGICAL TOWER - 60 FT	3
KSC	J8-1563	ELECTRIC EQUIP. BLDG. NO. 1 (RP-1)	2
KSC	J8-1564	FOAM BUILDING	2
KSC	J8-1565	PUMPHOUSE (RP-1)	2
KSC	J8-1567	CABLE TERMINAL BUILDING	3
KSC	J8-1610	WATER TANK	2
KSC	J8-1611	FLARESTACK	2
KSC	J8-1614	OPERATIONS SUPPORT BLDG. A-2	2
KSC	J8-1614A	LH2 ENGINEERING OFFICE BUILDING	3
KSC	J8-1659	COMPRESSED AIR BUILDING	2
KSC	J8-1659A	EQUIPMENT SHELTER	3
KSC	J8-1703	SLIDEWIRE TERMINATION FACILITY	2
KSC	J8-1704	EQUIPMENT SHELTER	3
KSC	J8-1705A	SEWAGE LIFT STATION	3
KSC	J8-1705B	SEWAGE EQUIPMENT BUILDING	3
KSC	J8-1707	WATER CHILLER BUILDING	2
KSC	J8-1708	LAUNCH PAD 39A	1
KSC	J8-1714	CAMERA PAD NO. 2	2
KSC	J8-1753	REMOTE AIR INTAKE BUILDING	2
KSC	J8-1768	ENVIRONMENTAL CONTROL & LIFE SUPPORT SYSTEM	3
KSC	J8-1821	IFLOT CAMERA SITE NO. 1	3
KSC	J8-1856	ELECTRIC EQUIP. BLDG. NO. 4 (FUEL)	2
KSC	J8-1862	TEMPORARY STAGING AREA- EAST PAD	3
KSC	J8-1862A	STORAGE BUILDING	3
KSC	J8-1906	HYPERGOL FUEL FACILITY	2
KSC	J8-1906A	STORAGE BUILDING	3
KSC	J8-1956	CAMERA PAD NO. 4	2
KSC	J8-1957	SWITCH SHELTER	3
KSC	J8-1959A	RAINSHELTER	3
KSC	J8-1961	CAMERA PAD NO. 3	2
KSC	J8-1961A	CAMERA PAD 3 METEOROLOGICAL TOWER - 60 FT	3
KSC	J8-2008	GATE HOUSE	3
KSC	J8-2009	PAD A LOGISTICS FACILITY	3
KSC	J8-2075	GUARD SHACK	3
KSC	J8-2109	FALCON SUPPORT BUILDING	3
KSC	J8-2204	REPEATER BUILDING NO. 4	3
KSC	K6-0015	CONVOY VEHICLE ENCLOSURE	3
KSC	K6-0261	ALS SUBSTATION 33	3
KSC	K6-0309	ELECTRICAL EQUIPMENT SITE 4 R/W 15	3
KSC	K6-0345	SURGE BUILDING NO. 2	3
KSC	K6-0446	SHOP/STORAGE BUILDING	3
KSC	K6-0492	RPSF OPERATIONAL SUPPORT BUILDING	3
KSC	K6-0494	ROTATING/PROCESSING BUILDING	1
KSC	K6-0494A	MIX ROOM	3

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Center	Asset No.	Asset Name	Management Category
KSC	K6-0495	SUPPORT BUILDING	3
KSC	K6-0496	GATE HOUSE	3
KSC	K6-0497	SURGE BUILDING NO. 1	3
KSC	K6-0544	RESTROOM, MLP AREA	3
KSC	K6-0545	GENERAL WAREHOUSE	3
KSC	K6-0546	MLP PARKING AREA	3
KSC	K6-0547	MLP BREAK ROOM	3
KSC	K6-0548	OIS BUILDING	3
KSC	K6-0588	KENNEDY PKWY N. BOX CULVERT	3
KSC	K6-0588A	KENNEDY PKWY S. BOX CULVERT	3
KSC	K6-0589	RAILROAD BRIDGE BOX CULVERT	3
KSC	K6-0595	MLP PARKING AREA #1	3
KSC	K6-0597	MLP PARKING AREA #2	3
KSC	K6-0696	COMMERCIAL CREW & CARGO PROCESSING FACILITY	1
KSC	K6-0696A	GUARD HOUSE	3
KSC	K6-0696B	TURNSTILE SHELTER	3
KSC	K6-0696D	ENVIRONMENTAL CONTROL BUILDING	3
KSC	K6-0696E	TURNSTILE BUILDING	3
KSC	K6-0696F	CHILLED WATER PUMP HOUSE	3
KSC	K6-0696G	SEWAGE LIFT STATION	3
KSC	K6-0696K	HAZARDOUS WASTE STAGING FACILITY	3
KSC	K6-0699	POL	3
KSC	K6-0742	HAZARDOUS WASTE STAGING AREA	3
KSC	K6-0743	CRAWLER TRANSPORT MAINT BLDG	3
KSC	K6-0743A	HAZARDOUS WASTE STAGING BUILDING/PORTABLE	3
KSC	K6-0743B	HAZARDOUS WASTE STAGING BUILDING/PORTABLE	3
KSC	K6-0743C	HAZARDOUS WASTE STAGING BUILDING/PORTABLE	3
KSC	K6-0743D	HAZARDOUS WASTE STAGING BUILDING/PORTABLE	3
KSC	K6-0743E	HAZARDOUS WASTE STAGING BUIDLING/PORTABLE	3
KSC	K6-0746	CRAWLER ENGINEERING OFFICE	3
KSC	K6-0791	INSTITUTIONAL TRAINING FACILITY	3
KSC	K6-0792	SEWAGE LIFT STATION	3
KSC	K6-0792C	AERATED SURGE TANK	3
KSC	K6-0793	CRAWLER TRANSPORT SVC BLDG.	3
KSC	K6-0794	THERMAL PROTECTION SYSTEM BUILDING	1
KSC	K6-0794A	POL	3
KSC	K6-0794B	POL	3
KSC	K6-0794C	CONEX BOX	3
KSC	K6-0794D	CONEX BOX	3
KSC	K6-0797	GUARD SHACK	3
KSC	K6-0799	TURNSTILE SHELTER	3
KSC	K6-0844	ECLSS/HYDRAULICS SUPPORT BUILDING #1	3
KSC	K6-0848	VEHICLE ASSEMBLY BUILDING	1
KSC	K6-0851	ELECTRICAL EQUIPMENT BUILDING	3
KSC	K6-0893	ECLSS/HYDRAULICS SUPPORT BUILDING #2	3
KSC	K6-0894	ORBITER PROCESSING FACILITY (OPF)	1
KSC	K6-0894A	ECS BUILDING (EAST)	3
KSC	K6-0894B	ECS BUILDING (WEST)	3
KSC	K6-0894D	OPF/GSE STORAGE BUILDING	3
KSC	K6-0894H	HAZARDOUS WASTE STAGING BUILDING/PORTABLE	3
KSC	K6-0894I	HAZARDOUS WASTE STAGING BUILDING/PORTABLE	3

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Center	Asset No.	Asset Name	Management Category
KSC	K6-0895	PUMPHOUSE (OPF)	3
KSC	K6-0896	WATER PUMP STATION	3
KSC	K6-0896A	HYDROPNEUMATIC TANK	3
KSC	K6-0897	SEWAGE LIFT STATION	3
KSC	K6-0899	TURNSTILE SHELTER	3
KSC	K6-0900	LAUNCH CONTROL CENTER	1
KSC	K6-0900A	BATTERY ROOM	3
KSC	K6-0943	HAZARDOUS WASTE STAGING AREA	3
KSC	K6-0946	GROUND WATER STORAGE TANK	3
KSC	K6-0947	UTILITY ANNEX	2
KSC	K6-0947A	POL	3
KSC	K6-0947B	COOLING TOWER	3
KSC	K6-0947C	STORAGE BUILDING	3
KSC	K6-0947D	EQUIPMENT BUILDING	3
KSC	K6-0947E	CONDENSER WATER TREATMENT BUILDING	3
KSC	K6-0949	VAB F GATE HOUSE	3
KSC	K6-0950	F GATE SUPPORT BUILDING	3
KSC	K6-0993	GROUND WATER STORAGE TANK	3
KSC	K6-0995	GROUND STORAGE RESERVOIR	3
KSC	K6-0996	STORAGE BUILDING	3
KSC	K6-0996A	MAINTENANCE SHOP	3
KSC	K6-0998	HAZARDOUS WASTE STAGING BLDG.	3
KSC	K6-0999	TURNSTILE SHELTER	3
KSC	K6-1091	EMERGENCY POWER STATION	3
KSC	K6-1094	PROCESSING CONTROL CENTER	3
KSC	K6-1096	OPERATIONS SUPPORT BUILDING	3
KSC	K6-1141	POWER SUBSTATION	3
KSC	K6-1141A	SWITCHGEAR BUILDING	3
KSC	K6-1145	MULTI-FUNCTION BUILDING	3
KSC	K6-1145A	SUBSTATION	3
KSC	K6-1193	REPEATER BUILDING	3
KSC	K6-1246	UTILITY SHOPS FACILITY	3
KSC	K6-1247	LAUNCH EQUIPMENT SHOP	3
KSC	K6-1249	OPERATIONS SUPPORT BUILDING II	3
KSC	K6-1255	SEWAGE LIFT STATION	3
KSC	K6-1345	VAB GAS STATION	3
KSC	K6-1345A	FUEL TANK E-85	3
KSC	K6-1346	PNEUMATICS SHOP	3
KSC	K6-1347	HAZARDOUS WASTE STAGING AREA	3
KSC	K6-1347F	FLAMMABLE STORAGE FACILITY	3
KSC	K6-1348	OPERATIONS SUPPORT BUILDING	3
KSC	K6-1350	CONTRACTORS ROAD STORAGE FACILITY	3
KSC	K6-1395	RESTROOM, LES AREA	3
KSC	K6-1397	PAINT SHOP	3
KSC	K6-1397D	POL	3
KSC	K6-1397G	POL	3
KSC	K6-1446	GENERATOR OPERATIONS SHOP	3
KSC	K6-1446D	BASE ELECTRIC SHOP	3
KSC	K6-1446F	GENERATOR STORAGE SHED	3
KSC	K6-1446H	SECURITY STORAGE SHED	3
KSC	K6-1446K	ELECTRICAL MAINTENANCE FACILITY	3

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KSC	K6-1446M	POL	3
KSC	K6-1449	GENERAL WAREHOUSE	3
KSC	K6-1547	LOGISTICS BUILDING	3
KSC	K6-1547A	POL	3
KSC	K6-1547B	BARREL SHED	3
KSC	K6-1547C	SUPPORT BUILDING	3
KSC	K6-1547E	90-DAY WASTE FACILITY	3
KSC	K6-1547F	LOADING DOCK	3
KSC	K6-1547G	STORAGE SHED	3
KSC	K6-1647	GROUNDWATER EXTRACTION AND TREATMENT SYSTEM	3
KSC	K6-1696	COMPONENT REFURB & CHEMICAL ANALYSIS FAC.	3
KSC	K6-1696A	WASTEWATER TREATMENT PLANT	3
KSC	K6-1696B	SOLVENT DISTILLATION CANOPY	3
KSC	K6-1696C	LAB EQUIPMENT SHED	3
KSC	K6-1696D	LAB EQUIPMENT SHED	3
KSC	K6-1697	GAS/DM WATER PROCESSING PLANT	3
KSC	K6-1697A	SUPPORT BUILDING	3
KSC	K6-1697B	STORAGE SHED	3
KSC	K6-1745	COMM CROSS CONCT TERMINAL CXT NO. 4	3
KSC	K6-1747	HYPERGOL DECONTAMINATION BUILDING	3
KSC	K6-1748	DRY CHEMICAL STORAGE BUILDING	3
KSC	K6-1748A	HAZARDOUS WASTE STORAGE BUILDING	3
KSC	K6-1748C	HAZARDOUS WASTE BSE	3
KSC	K6-1748D	HAZARDOUS WASTE STAGING FACILITY	3
KSC	K6-1844	LOCOMOTIVE MAINTENANCE FACILITY	3
KSC	K6-1844A	HAZARDOUS MATERIAL STAGING AREA	3
KSC	K6-1844B	ABRASIVE RECOVERY BUILDING	3
KSC	K6-1844D	LOCOMOTIVE OFFICE BUILDING	3
KSC	K6-1844E	LOCOMOTIVE STORAGE BUILDING	3
KSC	K6-1844F	FLAMMABLE STORAGE UNIT	3
KSC	K6-1844G	MEK RECYCLE UNIT STORAGE BUILDING	3
KSC	K6-1847	GENERATOR MAINT SHOP	3
KSC	K6-1847A	GENERATOR OFFICE	3
KSC	K6-1847B	GENERATOR CHECKOUT SHED	3
KSC	K6-1847C	GENERATOR STORAGE SHED	3
KSC	K6-1847D	POL SHED	3
KSC	K6-1847E	EQUIPMENT WASH AREA	3
KSC	K6-1847F	HAZARDOUS WASTE STAGING BUILDING/PORTABLE	3
KSC	K6-1847G	FUEL STORAGE	3
KSC	K6-1847H	CONEX BOX	3
KSC	K6-1896	CONTRACTOR SUPPORT BLDG. NO. 8	3
KSC	K6-1896A	COVERED WORK AREA	3
KSC	K6-1896B	WASTE STAGING SHELTER	3
KSC	K6-1896C	STORAGE BUILDING	3
KSC	K6-1896E	STORAGE BUILDING	3
KSC	K6-1995	HEAVY EQUIP/GENERATOR MAINT SHOP	3
KSC	K6-1995A	HAZARD MATERIAL STORAGE SHED	3
KSC	K6-1996D	STAGING BUILDING NO. 1	3
KSC	K6-1996F	CONTROLLED WASTE STAGING AREA	3
KSC	K6-1996G	ELECTRICAL SHOP	3
KSC	K6-1996H	HEAVY EQUIPMENT OFFICE BUILDING	3

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Center	Asset No.	Asset Name	Management Category
KSC	K6-1996K	COVERED EQUIPMENT STORAGE	3
KSC	K6-1996N	STORAGE BUILDING	3
KSC	K6-1997	ASTRONAUT VAN GARAGE	3
KSC	K6-2026	PUMP HOUSE N14	3
KSC	K6-2045	HIGH CREW STORAGE BUILDING	3
KSC	K6-2046	HURRICANE STORAGE SHELTER	3
KSC	K6-2047	SANDBAGS SHELTER	3
KSC	K6-2096	CONTRACTOR SUPPORT BLDG. NO. 6	3
KSC	K6-2197	VEHICLE SHED	3
KSC	K6-2358	QUALIFICATION RANGE	3
KSC	K6-2359	SECURITY TRAINING CENTER	3
KSC	K6-2359A	DRILL TOWER	3
KSC	K6-2360	LIVE FIRE BUILDING	3
KSC	K6-2361	ARMORY MODULAR FACILITY	3
KSC	K6-2496	SECURITY PATROL HEADQUARTERS	3
KSC	K6-2496B	CANINE KENNEL BUILDING	3
KSC	K6-2496D	STORAGE CONTAINER	3
KSC	K6-2497	LIGHTNING PROTECTION TOWER	3
KSC	K7-0043	GUARD SHACK	3
KSC	K7-0089	REPEATER BUILDING NO. 3	3
KSC	K7-0114	HAZARDOUS WASTE STAGING BLDG.	3
KSC	K7-0115	HAZARDOUS WASTE STAGING BLDG.	3
KSC	K7-0140	LC-39 TOUR STOP	3
KSC	K7-0140A	GUARD HOUSE	3
KSC	K7-0141	LC-39 OBSERVATION TOWER	3
KSC	K7-0142	LC-39 TOUR STOP CONCESSION BUILDING	3
KSC	K7-0163	LH2 STORAGE SHED	3
KSC	K7-0164	HAZARDOUS WASTE STORAGE BUILDING	3
KSC	K7-0165	HAZARDOUS WASTE STAGING BLDG.	3
KSC	K7-0168	LOADING RAMP	3
KSC	K7-0187	MSS PARK SITE ELEC INTERF BLDG	3
KSC	K7-0188	MOBILE SERVICE STRUCT. PARK SITE	3
KSC	K7-0188A	GFE STORAGE SHOP	3
KSC	K7-0188B	SWITCHING STATION	3
KSC	K7-0255	MAGAZINE NO. 1 (ORDNANCE STORAGE)	3
KSC	K7-0287A	FUEL STORAGE TANK PAD	3
KSC	K7-0288	MARINE PATROL FACILITY	3
KSC	K7-0306	MAGAZINE NO. 2 (ORDNANCE STORAGE)	3
KSC	K7-0314	DRUM STORAGE	3
KSC	K7-0314A	LN2 DEWARS BUILDING	3
KSC	K7-0315	AMMONIA CYLINDERS STORAGE BATTERY	3
KSC	K7-0356	MAGAZINE NO. 3 (ORDNANCE STORAGE)	3
KSC	K7-0405	MAGAZINES NO. 4, 5 AND 6 (ORDNANCE STORAGE)	3
KSC	K7-0412	HIGH PURITY OXYGEN AREA	3
KSC	K7-0413	LO2 STORAGE SHED	3
KSC	K7-0415	CYLINDER TEST AND FILL FACILITY	3
KSC	K7-0415A	SEWAGE LIFT STATION	3
KSC	K7-0415B	BREATHING AIR STORAGE BATTERY	3
KSC	K7-0415C	GN2 CGT FILL STATION	3
KSC	K7-0416	OPERATIONS BUILDING NO. 1	3
KSC	K7-0417	POL	3

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Center	Asset No.	Asset Name	Management Category
KSC	K7-0418	ADMINISTRATION BUILDING	3
KSC	K7-0418A	MAINTENANCE FACILITY	3
KSC	K7-0422	COMM CROSS CONNECT TERMINAL #2	3
KSC	K7-0465	SOLAR PANEL CHARGING STATION	3
KSC	K7-0467	CCF STORAGE SHED	3
KSC	K7-0468	CONVERTER/COMPRESSOR BUILDING	3
KSC	K7-0469	GN2 METERING STATION BUILDING	3
KSC	K7-0506	ORDNANCE LAB NO. 1	3
KSC	K7-0517	HAZARDOUS WASTE STAGING BLDG.	3
KSC	K7-0517A	K-BOTTLE STORAGE FACILITY	3
KSC	K7-0559	ORDNANCE OPERATIONS FACILITY	3
KSC	K7-0560	COMPONENTS CLEANING FACILITY (CCF) REMEDIAL SYSTEM	3
KSC	K7-0569	CONVERTER/COMPRESSOR OPNS. BLDG.	3
KSC	K7-0569B	HAZARDOUS WASTE STAGING AREA	3
KSC	K7-0569C	HAZARDOUS WASTE STAGING BLDG.	3
KSC	K7-0570	POL	3
KSC	K7-0617	NDE OFFICE BUILDING	3
KSC	K7-0618	NON-DESTRUCTIVE EVALUATION BLDG.	3
KSC	K7-0619	SAND & EQUIPMENT STORAGE FAC. NO. 1	3
KSC	K7-0623	PREFAB STORAGE FACILITY (STEELMASTER)	3
KSC	K7-0667	CONEX BOX	3
KSC	K7-0709	REPEATER BUILDING NO. 1	3
KSC	K7-0806	GUARD SHACK	3
KSC	K7-0853	HIGH PRESSURE GAS STORAGE BLDG.	3
KSC	K7-0901	MATERIAL DISTRIBUTION/MAINTENANCE BUILDING	3
KSC	K7-0905	LC39 EMPLOYEE VIEWING SITE	3
KSC	K7-0955	LCC GUARDHOUSE E-GATE	3
KSC	K7-0956	TURNSTILE SHELTER	3
KSC	K7-1005	BARGE TERMINAL FACILITY	2
KSC	K7-1052	HELIPAD	3
KSC	K7-1153A	STORAGE BUILDING	3
KSC	K7-1203	EMERGENCY GENERATOR BUILDING	3
KSC	K7-1204	PRESS SITE MEDIA OVERFLOW BUILDING	3
KSC	K7-1205A	COMM CONT BLDG	3
KSC	K7-1205B	CABLE TERMINAL BUILDING	3
KSC	K7-1205C	TRANSFORMER BUILDING	3
KSC	K7-1205F	NEWS FACILITY	3
KSC	K7-1206	REST ROOMS	3
KSC	K7-1207	NASA NEWS CENTER	3
KSC	K7-1607	COMMUNICATION TOWER	3
KSC	K7-1607A	CROSS CONNECT TERMINAL #14	3
KSC	K8-0237	CORROSION TEST AREA	3
KSC	K8-0600	CORROSION ATMOSPHERIC EXPOSURE FACILITY	3
KSC	K8-0600A	STORAGE SHED	3
KSC	K8-0741	BEACH TRACKING SITE, SOUTH	3
KSC	K8-1699	BEACH HOUSE	1
KSC	K8-1700	LIGHTNING MAPPING ARRAY SITE 2	3
KSC	L5-0033	PUMP HOUSE N13	3
KSC	L6-0043	RECHLORINATION BUILDING	3
KSC	L6-0093	WATER QUALITY ANALYZER FACILITY	3
KSC	L6-0146	ENGINEERING & ADMIN. BLDG.	3

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Center	Asset No.	Asset Name	Management Category
KSC	L6-0147	CHILLER BUILDING	3
KSC	L6-0196	GUARD HOUSE	3
KSC	L6-0247	MANUFACTURING BLDG.	1
KSC	L6-0248	SERVICE BUILDING	3
KSC	L6-0249	GSE REPAIR/WASH BUILDING	3
KSC	L6-0295	HAZARDOUS STORAGE AREA	3
KSC	L6-0297	STORAGE BUILDING	3
KSC	L7-0071	WEIGH STATION	3
KSC	L7-0072	LANDFILL MODULAR SCALEHOUSE	3
KSC	L7-0073	SOLAR PANELS	3
KSC	L7-0202	POL	3
KSC	L7-0251	AFT SKIRT TEST BUILDING	3
KSC	L7-0888	FIRE RESCUE TRAINING AREA	3
KSC	L7-0889	FIRE & RESCUE DRILL TOWER	3
KSC	L7-0989	TDL REMOTE BURN FACILITY	3
KSC	L7-1507	ELECTRICAL EQUIPMENT AREA	3
KSC	L7-1508	KENNEDY UPLINK STATION	3
KSC	L7-1509	COMM CROSS CONNECT TERMINAL #13	3
KSC	L7-1559	ANTENNA SITE	3
KSC	L7-1758	PERMANENT AIR MONITORING STATION (PAMS)	3
KSC	L7-2242	OBSERVATION PAD	3
KSC	M3-0008	COMM CROSS CONNECT TERMINAL #12	3
KSC	M3-0147	EMERGENCY GENERATOR BLDG.	3
KSC	M5-0792	TOWER	3
KSC	M5-1586	PUMP HOUSE N8	3
KSC	M5-1586A	PUMP HOUSE N9	3
KSC	M6-0039	COMM ENGINEERING SUPPORT BUILDING	3
KSC	M6-0039A	GENERATOR BUILDING	3
KSC	M6-0136	CD&SC GUARD HOUSE	3
KSC	M6-0138	COMMUNICATIONS DIS/SWITCH CTR	3
KSC	M6-0139	GENERATOR BUILDING	3
KSC	M6-0213	SHUTTLE LAUNCH EXPERIENCE FACILITY	3
KSC	M6-0218	ROCKET DISPLAY PAD	3
KSC	M6-0220	GUARD OVERWATCH (GATE 3)	3
KSC	M6-0223	SECURITY GATE 3	3
KSC	M6-0224	PASS & IDENTIFICATION BUILDING	3
KSC	M6-0224A	BADGING OFFICE ENTRANCE SIGN	3
KSC	M6-0225	GATE 3 ELECTRONIC SIGN	3
KSC	M6-0232	NASA KENNEDY PKWAY INTG BRIDGE	3
KSC	M6-0310	COMFORT STATION	3
KSC	M6-0319	CHILLER PLANT	3
KSC	M6-0336	ELECTROMAGNETIC LAB	3
KSC	M6-0337	PLATFORM	3
KSC	M6-0338	PLATFORM	3
KSC	M6-0362	GUARD HOUSE	3
KSC	M6-0407	VOYAGES RETAIL BUILDING	3
KSC	M6-0408	TURNSTILE ENTRY	3
KSC	M6-0409	SPACEPORT CENTRAL	3
KSC	M6-0409C	FOOD SERVICE BUILDING	3
KSC	M6-0409D	CAFETERIA	3
KSC	M6-0409E	SPACE FLIGHT EXHIBIT BUILDING	3

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Center	Asset No.	Asset Name	Management Category
KSC	M6-0409F	KENNEL	3
KSC	M6-0409G	SOUVENIR SALES BUILDING	3
KSC	M6-0409H	RECEIVING BUILDING	3
KSC	M6-0409I	THEATER COMPLEX	3
KSC	M6-0409K	SKY FRAME PAVILION	3
KSC	M6-0409M	PLAYGROUND DOME	3
KSC	M6-0409P	KODAK BUILDING	3
KSC	M6-0409R	TICKET BOOTH #1	3
KSC	M6-0409S	TICKET BOOTH #2	3
KSC	M6-0409U	TICKET KIOSK	3
KSC	M6-0409V	MEMORIAL WATER FEATURE	3
KSC	M6-0409W	NASA LOGO SPHERE	3
KSC	M6-0409X	HISTORIC COUNTDOWN CLOCK DISPLAY	1
KSC	M6-0410	ADMINISTRATION BUILDING	3
KSC	M6-0411	FIRST AID STATION	3
KSC	M6-0454	MAIN CAMPUS STORAGE WAREHOUSE	3
KSC	M6-0455	TOUR BUS SERVICING BUILDING	3
KSC	M6-0455A	BUS WASH FACILITY	3
KSC	M6-0455B	MAINTENANCE SHOP BUILDING	3
KSC	M6-0455C	MAINTENANCE SHOP BUILDING	3
KSC	M6-0455D	STORAGE SHED	3
KSC	M6-0455E	MAINTENANCE SHOP BUILDING	3
KSC	M6-0455F	FUEL TANK	3
KSC	M6-0457	EARLY SPACE EXPLORATION BLDG	3
KSC	M6-0457A	GUARD HOUSE	3
KSC	M6-0458	COMMISSARY WAREHOUSE BUILDING	3
KSC	M6-0459	DUMPSTER/COMPACTOR AREA	3
KSC	M6-0486	BASE SUPPORT	3
KSC	M6-0486A	LOADING DOCK	3
KSC	M6-0486J	STORAGE BUILDING	3
KSC	M6-0486M	FUELING STATION	3
KSC	M6-0486N	CMT ROOF CREW STORAGE SHED	3
KSC	M6-0486P	BATTERY STORAGE BUILDING	3
KSC	M6-0489	NASA TECHNICAL RECORD CENTER	3
KSC	M6-0490	LIFE SUPPORT FACILITY	3
KSC	M6-0490A	OXYGEN STORAGE	3
KSC	M6-0493	INDUSTRIAL AREA SUPPORT BLDG	3
KSC	M6-0493C	EMERGENCY GENERATOR BUILDING	3
KSC	M6-0495	DISPENSARY	3
KSC	M6-0495A	HELIPAD	3
KSC	M6-0495B	MEDICAL SUPPLY STORAGE BUILDING	3
KSC	M6-0495D	EMERGENCY GENERATOR BLDG.	3
KSC	M6-0495E	MODULAR BOILER BUILDING	3
KSC	M6-0504	MAINTENANCE/EXHIBIT BUILDING	3
KSC	M6-0507	CHILLER PLANT	3
KSC	M6-0508	HAZARDOUS WASTE STORAGE FACILITY	3
KSC	M6-0509	FLAMMABLE STORAGE BUILDING	3
KSC	M6-0510	FUELING STATION	3
KSC	M6-0534	HEAVY EQUIPMENT WASH FACILITY	3
KSC	M6-0536A	POL BUILDING	3
KSC	M6-0539	STORAGE SHED	3

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Center	Asset No.	Asset Name	Management Category
KSC	M6-0540	STORAGE BUILDING	3
KSC	M6-0547	KENNEDY DATA CENTER	3
KSC	M6-0552	ARTIFACT STORAGE WAREHOUSE	3
KSC	M6-0553	EXHIBIT MAINTENANCE BUILDING	3
KSC	M6-0553A	DUMPSTER ENCLOSURE	3
KSC	M6-0554	EQUIPMENT STORAGE BUILDING	3
KSC	M6-0556	STORAGE BUILDING	3
KSC	M6-0570	KENNEDY LEARNING INSTITUTE	3
KSC	M6-0588	CUSTODIAL SUPPORT BUILDING	3
KSC	M6-0589	SUPPORT BUILDING	3
KSC	M6-0595D	SUPPORT BUILDING	3
KSC	M6-0639	FILM STORAGE BUILDING	3
KSC	M6-0687	PROPELLANTS MAINTENANCE FACILITY	3
KSC	M6-0688	PROPELLANTS SHOP	3
KSC	M6-0689	TRANSPORTATION STORAGE BUILDING.	3
KSC	M6-0695	FIRE STATION #1	3
KSC	M6-0698	SUPPLY WAREHOUSE NO. 2	3
KSC	M6-0709	PARKING PLAZA	3
KSC	M6-0737	HAZARDOUS WASTE STAGING AREA	3
KSC	M6-0744	CENTRAL SUPPLY	3
KSC	M6-0744B	PUMP HOUSE	3
KSC	M6-0785	SOURCE EVALUATION BOARD BUILDING	3
KSC	M6-0787	SOURCE EVALUATION FACILITY	3
KSC	M6-0790	COMM CROSS CONNECT TERMINAL #5	3
KSC	M6-0791	COMM MAINTENANCE & STORAGE	3
KSC	M6-0791C	CARDBOARD BAILER BLDG.	3
KSC	M6-0791D	RADIO TOWER	3
KSC	M6-0792	CABLE STORAGE SHED	3
KSC	M6-0794	SUPPLY WAREHOUSE NO. 1	3
KSC	M6-0794A	PUMP HOUSE	3
KSC	M6-0798	HEAVY EQUIPMENT STORAGE AREA	3
KSC	M6-0798A	HEAVY EQUIPMENT STORAGE SHED	3
KSC	M6-0883	KSC CHILD DEVELOPMENT CENTER	3
KSC	M6-0891	SUPPLY WAREHOUSE NO. 3	3
KSC	M6-0894	POL	3
KSC	M6-0894B	STORAGE SHED	3
KSC	M6-0894C	GAS CYLINDER STORAGE	3
KSC	M6-0894D	GAS CYLINDER STORAGE	3
KSC	M6-0895	SEWAGE PLANT OFFICE & LAB	3
KSC	M6-0895B	SEWAGE TREATMENT PLANT NO. 1	3
KSC	M6-0895C	AERATED SURGE TANK	3
KSC	M6-0895D	SAND FILTER TREATMENT TANK	3
KSC	M6-0895E	CHLORINE CONTACT CHAMBER	3
KSC	M6-0895F	CLARIFIER # 1	3
KSC	M6-0895G	CLARIFIER #2	3
KSC	M6-0895H	SEWAGE LIFT STATION #1A	3
KSC	M6-0899	SOLAR PANELS	3
KSC	M6-0899A	ELECTRICAL EQUIPMENT BUILDING #1	3
KSC	M6-0899B	ELECTRICAL EQUIPMENT BUILDING #2	3
KSC	M6-0900	SOLAR PANELS PHOTOVOLTAIC ARRAY	3
KSC	M6-0958	VISTOR COMPLEX SIGN	3

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Center	Asset No.	Asset Name	Management Category
KSC	M6-0996	POWER SUBSTATION	3
KSC	M6-1022	SEWAGE LIFT STATION	3
KSC	M6-1070	ELECTRICAL EQUIPMENT AREA	3
KSC	M6-1267	EXPLORATION PARK SIGN	3
KSC	M6-1623	RIGGING AND STORAGE BUILDING	3
KSC	M6-1624	EQUIPMENT STAGING BUILDING	3
KSC	M6-1625	ADMINISTRATION/PAINT BUILDING	3
KSC	M6-1626	HAZARDOUS WASTE STAGING FACILITY	3
KSC	M6-1627	BLAST BUILDING NO. 2	3
KSC	M6-1628	BLAST BUILDING NO. 1	3
KSC	M6-1629	COMPRESSOR BUILDING	3
KSC	M6-1630	HAZARDOUS WASTE STAGING BUILDING/PORTABLE	3
KSC	M6-1631	HAZARDOUS WASTE STAGING BUILDING/PORTABLE	3
KSC	M6-1632	STORAGE SHED	3
KSC	M6-1633	WASH BASIN	3
KSC	M6-1671	REUTILIZATION, RECYCLING & MARKETING FACILITY	3
KSC	M6-1671A	SEWAGE LIFT STATION	3
KSC	M6-1671B	GFE STORAGE SHELTER	3
KSC	M6-1671C	NON-HAZARDOUS MATERIAL STAGING BUILDING	3
KSC	M6-1671D	RANSOM ROAD TRUCK SCALE	3
KSC	M6-1724	SECURITY GATE 2	3
KSC	M6-1730	GATE 2 ELECTRONIC SIGN	3
KSC	M6-1731	GUARD OVERWATCH (GATE 2)	3
KSC	M7-0301	KSC CENTRAL CAMPUS HEADQUARTERS BUILDING	3
KSC	M7-0301A	KSC CENTRAL CAMPUS HEADQUARTERS SIGN	3
KSC	M7-0335	EQUIPMENT SHELTER (54 WT NO. 2)	3
KSC	M7-0351	AUDITORIUM & TRAINING BUILDING	3
KSC	M7-0355	NEIL ARMSTRONG OPERATIONS & CHECKOUT BUILDING	1
KSC	M7-0355B	EQUIPMENT BUILDING	3
KSC	M7-0355D	ELECTRICAL MOTOR CONTROL BUILDING	3
KSC	M7-0355E	GUARD HOUSE	3
KSC	M7-0360	SPACE STATION PROCESSING FACILITY	1
KSC	M7-0361	EQUIPMENT STORAGE BUILDING	3
KSC	M7-0361A	AMMONIA VAPOR CONTAINMENT BUILDING	2
KSC	M7-0362	OPERATIONS SUPPORT BUILDING #2	3
KSC	M7-0404	HIGH PRESSURE GAS STORAGE	3
KSC	M7-0407	INDUSTRIAL AREA CHILLER PLANT	3
KSC	M7-0407A	COOLING TOWER (O&C)	3
KSC	M7-0407C	CHILLED WATER THERMAL ENERGY STORAGE TANK	3
KSC	M7-0407D	COOLING TOWER	3
KSC	M7-0409	ENGINEERING DEVELOPMENT LAB.	1
KSC	M7-0409A	EQUIPMENT BUILDING	3
KSC	M7-0409B	STORAGE BUILDING	3
KSC	M7-0409F	SWITCH GEAR BUILDING	3
KSC	M7-0411	SSPF SCIENCE ANNEX	3
KSC	M7-0452	SEWAGE LIFT STATION #1C	3
KSC	M7-0453	PAYLOAD MAINTENANCE FACILITY	3
KSC	M7-0457	STORAGE SHELTER	3
KSC	M7-0459	EDL SUPPORT BUILDING	3
KSC	M7-0460	STORAGE BUILDING	3
KSC	M7-0460A	STORAGE BUILDING	3

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Center	Asset No.	Asset Name	Management Category
KSC	M7-0505	PAYLOAD SUPPORT BUILDING	3
KSC	M7-0505A	LAUNCH EQUIPMENT TEST FACILITY	3
KSC	M7-0505D	LETF - SHIPPING/RECEIVING	3
KSC	M7-0505E	LETF CRYOGENICS SUPPORT FACILITY	3
KSC	M7-0505F	LETF CONEX	3
KSC	M7-0505G	STORAGE SHED	3
KSC	M7-0505H	PROOF LOAD FIXTURE - 600 TON	3
KSC	M7-0505J	VEHICLE MOTION SIMULATOR 2	1
KSC	M7-0505K	TOWER D TEST STAND	3
KSC	M7-0505L	TOWER C TEST STAND	3
KSC	M7-0505M	LIQUID NITROGEN TANK #2	3
KSC	M7-0505N	LIQUID NITROGEN TANK #1	3
KSC	M7-0505P	VEHICLE SUPPORT POST TEST FIXTURE	3
KSC	M7-0505Q	VENT STACK WEST	3
KSC	M7-0505R	VENT STACK EAST	3
KSC	M7-0505S	TOWER B TEST STAND	3
KSC	M7-0505T	VEHICLE MOTION SIMULATOR 1	1
KSC	M7-0507	STORAGE SHELTER	3
KSC	M7-0507A	FLAMMABLE STORAGE BUILDING	3
KSC	M7-0508	LETF OFFICE BUILDING	3
KSC	M7-0531	BANANA RIVER REPEATER STATION	3
KSC	M7-0554	POL	3
KSC	M7-0555	WATER AND WASTE SUPPORT BUILDING	3
KSC	M7-0555A	EQUIPMENT SHELTER	3
KSC	M7-0555B	STORAGE SHED	3
KSC	M7-0555D	STORAGE SHED	3
KSC	M7-0556	HAZARDOUS WASTE STAGING AREA	3
KSC	M7-0556B	POL	3
KSC	M7-0556C	POL	3
KSC	M7-0557	CRYOGENIC TEST LABORATORY	3
KSC	M7-0581	PROTOTYPE SHOP	3
KSC	M7-0609	FIRE PUMPING STATION	3
KSC	M7-0660	GN2 METERING STATION BUILDING	3
KSC	M7-0776A	POL BUILDING	3
KSC	M7-0776B	STORAGE BUILDING	3
KSC	M7-0777	LAUNCH ABORT SYSTEM FACILITY	1
KSC	M7-0809	COMM CROSS CONNECT TERMINAL #1	3
KSC	M7-0867	BORESITE CONTROL BUILDING	3
KSC	M7-0912	GENERAL WAREHOUSE	3
KSC	M7-1011	GSE STORAGE BUILDING	3
KSC	M7-1059	HYPERGOLIC MAINT FACILITY SUPPORT BLDG #2	3
KSC	M7-1098	BANANA RIVER PUMP STATION	3
KSC	M7-1104	MULTI-PAYLOAD PROCESSING FAC.	1
KSC	M7-1104A	FUEL TRANSFER AREA	3
KSC	M7-1104B	MIX CRIB	3
KSC	M7-1104C	GUARD SHACK	3
KSC	M7-1104D	GUARD SHACK	3
KSC	M7-1104E	UNIVERSAL COOLING TRANSPORT SYSTEM SHELTER	3
KSC	M7-1104F	FIRE DELUGE VALVE CANOPY	3
KSC	M7-1104G	WASH DOWN AREA	3
KSC	M7-1150	BANANA RIVER BRIDGE	1

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Center	Asset No.	Asset Name	Management Category
KSC	M7-1160	BOAT DOCK	3
KSC	M7-1213	GN2 STORAGE AREA	3
KSC	M7-1303	POL	3
KSC	M7-1354	PAYLOAD HAZARDOUS SVC FACILITY	1
KSC	M7-1354A	OXIDIZER AREA	3
KSC	M7-1354B	FUEL TRANSFER BUILDING	3
KSC	M7-1354C	PUMP HOUSE	3
KSC	M7-1355	TRANSPORTER SHED	3
KSC	M7-1356	TURNSTILE SHELTER	3
KSC	M7-1357	MULTI-OPERATION SUPPORT BUILDING	3
KSC	M7-1357A	ANTENNA	3
KSC	M7-1362	FIREX PUMP STATION	3
KSC	M7-1362A	WATER STORAGE TANK	3
KSC	M7-1412A	EQUIPMENT SHELTER	3
KSC	M7-1469E	COMM CROSS CONNECT TERMINAL #11	3
KSC	M7-1470	ANTENNA ARRAY PADS 1, 2, 3	3
KSC	M7-1470A	ANTENNA EQUIPMENT SHELTER	3
KSC	M7-1472	RTG FACILITY	3
KSC	M7-1472A	GUARD HOUSE	3
KSC	M7-1509	CONE CALORIMETER BUILDING	3
KSC	M8-2220	LAUNCH VIEWING AREA	3
KSC	M8-2230	NASA CSWY E RELIEF BRIDGE	3
KSC	N6-1007	WATER PUMP STATION	3
KSC	N6-1007A	CHEMICAL FEED BUILDING	3
KSC	N6-1009	PASS & ID BUILDING GATE NO. 2	3
KSC	N6-1118	SOUTH REPEATER BUILDING	3
KSC	N6-2148	LIGHTNING MAPPING ARRAY SITE 6	3
KSC	OV-104	Orbiter Atlantis	1
KSC	P6-1435	INDOOR RANGE & CLUB HOUSE	3
KSC	P6-1638	RECREATION BUILDING	3
KSC	P6-1638A	RECREATION BUILDING	3
KSC	P6-1638B	RECREATION BUILDING	3
KSC	P6-1738	ARTS & CRAFTS BUILDING	3
KSC	P6-1789	STORAGE BUILDING	3
KSC	TR1-610	BOXCAR	3
KSC	TR1-710	BOXCAR	3
KSC	TR1-759	TEMPORARY BUILDING	3
KSC	TRM-054	TEMPORARY BUILDING (2T)	3
KSC	TRM-055	TEMPORARY BUILDING (2T)	3
KSC	TRM-056	TRAILER (3T)	3
KSC	UK-001	ACID DRAINAGE	3
KSC	UK-002	AIRFIELD LIGHTING	3
KSC	UK-003	BITUMINOUS PARKING	3
KSC	UK-004	BITUMINOUS ROADS	3
KSC	UK-005	COMMUNICATIONS & ELECTRICAL DUCT BANK	3
KSC	UK-006	COMPRESSED AIR DISTRIBUTION SYSTEM	3
KSC	UK-007	CONCRETE	3
KSC	UK-008	CRAWLERWAY	1
KSC	UK-009	CULVERTS	3
KSC	UK-010	CURB & GUTTER	3
KSC	UK-011	FENCE, ALUMINUM/PICKET	3

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Kennedy Space Center (KSC) Asset List
2025

Center	Asset No.	Asset Name	Management Category
KSC	UK-012	FENCE, BARBED WIRE	3
KSC	UK-013	FENCE, CHAIN LINK	3
KSC	UK-014	GROUND IMPRVMTS & LANDSCAPING	3
KSC	UK-015	HEATING SYSTEM	3
KSC	UK-018	PAVED DITCH	3
KSC	UK-019	PRIMARY AERIAL	3
KSC	UK-020	PRIMARY UNDERGROUND	3
KSC	UK-021	GN2 LINE - NITROGEN	3
KSC	UK-022	RAILROAD	2
KSC	UK-023	RIP RAP	3
KSC	UK-024	SECONDARY AERIAL	3
KSC	UK-025	SECONDARY UNDERGROUND	3
KSC	UK-026	SEWAGE SYSTEM	3
KSC	UK-027	SHUTTLE RUNWAY	1
KSC	UK-028	SIDEWALKS	3
KSC	UK-029	STABILIZED AREAS	3
KSC	UK-030	WATER (CHILLED SYSTEM)	3
KSC	UK-031	WATER SYSTEM	3
KSC	UK-032	FLOOD LIGHTING SYSTEM	3
KSC	UK-033	TRAFFIC CONTROL LIGHTING	3
KSC	UK-034	FIREX SYSTEM	3
KSC	UK-035	GN2 LINE - NITROGEN	3
KSC	UK-036	GHE LINE - HELIUM	3
KSC	UK-037	COMPRESSED AIR DISTRIBUTION SYSTEM	3
KSC	UK-038	FENCE, SECURITY	3
KSC	UK-041	BITUMINOUS PARKING	3
KSC	UK-043	WATER SYSTEMS	3
KSC	UK-046	COMMUNICATIONS	3
KSC	UK-049	SECONDARY UNDERGROUND	3
KSC	UK-052	GHE LINE - HELIUM	3
KSC	UK-053	FIRE PROTECTION WATER MAINS	3
KSC	UK-054	NATURAL GAS LINE	3
KSC	UK-055	FLOOD LIGHTING	3
KSC	UK-056	LANDSCAPING	3
KSC	UK-057	SEWAGE SYSTEM	3
KSC	UK-058	SIDEWALKS	3

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