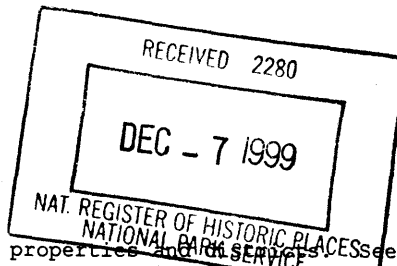


United States Department of the Interior
National Park Service



1025

National Register of Historic Places
Registration Form

This form is for use in nominating or requesting for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by Marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPA Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Central Instrumentation Facility
other names/site number CIF/8BR1692

2. Location

street & number NASA, John F. Kennedy Space Center not for publication
city or town Kennedy Space Center vicinity
state Florida code FL county Brevard code 009 zip code 32899

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this X nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property X meets does not meet the National Register criteria. I recommend that this property be considered significant X nationally statewide locally. (See continuation sheet for additional comments.)

Kenneth M. Rumov, NASA FEDERAL PRESERVATION OFFICER; NOV. 19, 1999
Signature of certifying official/Title Date

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
State of Federal agency and bureau

In my opinion, the property X meets does not meet the National Register criteria. (See continuation sheet for additional comments.)

Greg W. Perry, SHPO 8/20/98
Signature of certifying official/Title Date

Florida State Historic Preservation Office, Division of Historical Resources
State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:
 entered in the National Register. Signature of the Keeper Date of Action 1/21/2000
 See continuation sheet.
 determined eligible for the National Register.
 See continuation sheet.
 determined not eligible for the National Register.
 removed from the National Register.
 other, (explain:)

Central Instrumentation Facility
Name of Property

Brevard, FL
County and State

5. Classification

Ownership of Property (Check as many boxes as apply.)	Category of Property (Check only one box.)	Number of Resources within Property (Do not include previously listed resources in the count.)	
<input type="checkbox"/> private	<input checked="" type="checkbox"/> building(s)	Contributing	Noncontributing
<input type="checkbox"/> public-local	<input type="checkbox"/> district	<u>1</u>	<u>0</u> buildings
<input type="checkbox"/> public-State	<input type="checkbox"/> site	<u>0</u>	<u>0</u> sites
<input checked="" type="checkbox"/> public-Federal	<input type="checkbox"/> structure	<u>0</u>	<u>0</u> structures
	<input type="checkbox"/> object	<u>0</u>	<u>0</u> objects
		<u>1</u>	<u>0</u> Total

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing.)
John F. Kennedy Space Center

Number of contributing resources previously listed in the National Register
0

6. Function or Use

Historic Functions
(Enter categories from instructions.)
instructions.)
GOVERNMENT: government office
DEFENSE: aerospace facility
INDUSTRY/PROCESSING/EXTRACTION
communications facility

Current Functions
(Enter categories from
GOVERNMENT: government office
DEFENSE: aerospace facility
INDUSTRY/PROCESSING/EXTRACTION
communications facility

7. Description

Architectural Classification
(Enter categories from instructions.)
MODERN MOVEMENT:
International Style

Materials
(Enter categories from instructions.)
foundation CONCRETE
walls CONCRETE
roofs ASPHALT
other _____
other _____

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

Central Instrumentation Facility

Brevard, FL

Name of Property

County and State

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualify the property for National Register Listing.)

- A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B** Property is associated with the lives of persons significant in our past.
- C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D** Property has yielded, or is likely to yield, information important in prehistory or history.

Areas of Significance

(Enter categories from instructions.)

OTHER: SPACE EXPLORATION
COMMUNICATIONS
ARCHITECTURE

Period of Significance

1965-1975

Significant Dates

1965

Significant Person

(Complete if Criterion B is marked above.)

N/A

Cultural Affiliation

N/A

Architect/Builder

UNKNOWN

Criteria Considerations

(Mark "x" in all the boxes that apply.)

- A** owned by a religious institution or used for religious purposes.
- B** removed from its original locations.
- C** a birthplace or grave.
- D** a cemetery.
- E** a reconstructed building, object or structure.
- F** a commemorative property.
- G** less than 50 years of age or achieved significance within the past 50 years.

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

Bibliography

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey # _____
- recorded by Historic American Engineering Record # _____

Primary location of additional data:

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other

Name of repository:

NASA: Kennedy Space Center

Central Instrumentation Facility
Name of Property

Brevard, FL
County and State

10. Geographical Data

Acreege of Property approximately 1.3 acres

UTM Reference

(Place additional UTM references on a continuation sheet.)

1	<u>17</u>	<u>533640</u>	<u>3155130</u>	3	_____	_____	_____
	Zone	Easting	Northing		Zone	Easting	Northing
2	_____	_____	_____	4	_____	_____	_____
	Zone	Easting	Northing		Zone	Easting	Northing

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Daniel Delahaye and Kimberly Hinder, Architectural Historians
organization Archaeological Consultants, Inc. date March 1997
street & number P.O. Box 5103 telephone (941) 925-9906
city or town Sarasota state FL zip code 34277

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative black and white photographs of the property.

Additional items

(Check with the SHPO or FPO for any additional items.)

Property Owner

(Complete this item at the request of SHPO or FPO.)

name _____
street & number _____ telephone _____
city or town _____ state _____ zip code _____

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as Amended (16 U.S.C. 470 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instruction, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Service Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork reductions Projects (1024-0018), Washington, DC 20503.

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Section number 7 Page 1

Narrative Description Central Instrumentation Facility

Year built: 1965

Facility name: Central Instrumentation Facility (CIF)

Facility number: M6-342

Narrative Description of Facility Capabilities & Functions: The CIF was originally the hub of instrumentation and data processing operations. It provided instrumentation to receive, monitor, process, display and record information received from the space vehicle during test, launch, and flight. Today, the CIF remains as the hub of instrumentation and data processing operations (NASA 1967a:n.p.).

Summary

The Central Instrumentation Facility (CIF) is a three-story 136,378 square foot structure located west of the Headquarters Building in the NASA Industrial Area on Merritt Island. When constructed in 1965, this facility consisted of the main building and an auxiliary antenna building of 7,800 square feet located approximately one mile north of the Industrial Area. Following the completion of the Apollo program, the auxiliary antenna building was modified for its present function as the Environmental Health Building (NASA 1967b:10-45; NASA 1974:9-35; NASA nd:3).

The CIF was designed to house the Assistant Director for Instrumentation and the majority of his organization. It contained all of the offices, laboratories, and test stations required to accomplish the following responsibilities:

- ground instrumentation systems for telemetry and on-board flight television operations and development,
- special tracking systems research, development, and operations,
- environmental facility and special purpose measuring systems,
- general instrumentation support laboratories,
- timing correlation and distribution,
- coordination and resolution of all NASA frequency problems,
- instrumentation systems reliability,
- analytical studies and analyses relating to instrumentation systems,
- overall instrumentation planning and coordination, both for long range and for each mission,

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Section number 7 Page 2

Narrative Description

Central Instrumentation Facility

- and processing data and fulfilling test and flight data requirements for KSC and other data users (NASA 1967b:10-46; NASA 1974:9-35; NASA n.d.).

Historic Functions

The calibration laboratory was located on the first floor and had a net area of 875 square feet. It supported Skylab and unmanned launch operations in close-tolerance calibration of testing and operational instrumentation for ground support and spacecraft equipment (NASA 1974:9-35).

The electromagnetic laboratory occupied 9,485 square feet of the second floor in CIF. It was used to check antennas and radiation patterns. The Class 100 clean rooms were located on the first floor of the CIF. The net area of the horizontal, laminar-flow clean area was 1,168 square feet. The standards laboratory was located on the first floor and had a net area of approximately 410 square feet. It supported calibration requirements for weights and measures of extremely critical tolerance (NASA 1974:9-36).

The central computation complex was located on the first and second floors of the CIF. It had a total area of 14,855 square feet. Centralized computation and quick-look data reduction were provided as follows: administration, preflight data reduction, scientific planning and analysis, preflight simulation and subsystem evaluation, real-time telemetry data monitoring, post-flight quick-look data reduction, prelaunch test support, and AF Eastern Test Range real-time tracking data recording. This large-scale computing system, together with a high-speed plotter, magnetic tape data transmission equipment, and computer peripheral equipment, provided the capability to support simultaneously two tests requiring real-time data capture and processing (NASA 1974:9-37).

The telemetry station was located on the second floor of the CIF. It had a total area of 8,637 square feet. It was a multipurpose facility that received and processed telemetry data from space flight vehicles during prelaunch and launch tests. This telemetry station performed the following functions:

- acquired radiated telemetered information by reception of off-the-air signals at the CIF,
- acquired radiated telemetered information from land-line connections to other nearby telemetry receiving facilities,
- acquired nonradiated telemetered information from land-line connections to various launch complexes,

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National Register of Historic Places Continuation Sheet

Section number 7 Page 3

Narrative Description

Central Instrumentation Facility

- acquired special instrumentation data such as meteorological radar data from land-line connections to AF Eastern Test Range sources,
- received rf signals in currently authorized VHF telemetry bands with limited capability in the S-band (UHF), processed PAM, PDM and PCM time division signals in authorized telemetry band,
- processed FM/FM (analog) and single sideband frequency division signals in the authorized telemetry bands,
- recorded all telemetry data acquired by the station, both predetection and post-detection, on magnetic tape,
- converted telemetry data to computer-compatible digital format for real-time computer reduction of data to engineering units for real-time display and hard-copy printouts,
- converted data to digital format for transmission to other centers, and
- recorded processed data on strip-chart recorders (NASA 1974:9-37-38).

The data display system, located on the second floor, had a net area of 1,583 square feet. It was an advanced technique developed for spacecraft-related data display at the command console and at each remote display area. A display request panel on the command console of the system and at each remote display area permitted selection of the format and the channel to be monitored on the television screens of the systems (NASA 1974:9-38).

The data presentation and evaluation room on the third floor had a net area of 5,975 square feet. Information such as computer-processed telemetry data, television from on-board or ground cameras, and preflight data profiles was displayed in this room. Equipment in the facility included video monitors, strip-chart recorders, rear screen TV projectors, and timing and countdown indicators. Controls which allowed the user to select those data to be displayed on the monitors and strip-chart recorders were provided. Video data using an alpha-numeric page format or a graphic presentation could be displayed (NASA 1974:9-39).

Additional coverage was provided by four rear screen TV projectors capable of displaying operations TV, commercial TV, and computer-processed telemetry data. This capability was augmented by two slide projectors used to display mission-related reference data (NASA 1974:9-39).

Current Functions

The CIF remains as the hub of instrumentation and data processing operations. The Communications and Instrumentation Directorate continues to function out of the CIF. The facility still houses offices, laboratories, and test

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Section number 7 Page 4

Narrative Description

Central Instrumentation Facility

stations. Systems receive, monitor, process, display and record information received from space vehicles during test, launch, flight, and landing. The structure also retains the main calibration labs and the KSC administration computers. Timing signals continue to be controlled by the Communications and Instrumentation Directorate. Timing systems provide generation, transmission, and distribution of synchronized time-of-day signals in Inter-range Instrumentation Group (IRIG) code formats, bi-polar repetition rates, and sine waves. The Countdown System signals also continue to be generated by the Communications Directorate. This system consists of equipment which generates, transmits, and distributes countdown timing signals (NASA 1992:8.7; Anon. 1994:24-25).

Physical Description

The CIF was designed in the International Style. The International Style originated in Europe in the late 1920s with architects Walter Gropius, Ludwig Mies van der Rohe, and Le Corbusier. Popular in the 1930s, the style lost favor in the 1940s but regained acceptance in the late 1960s and 1970s with a group known as the New York Five (Charles Gwathmey, Michael Graves, John Hejduk, Richard Meier, and Peter Eisenman). This style is recognized by:

a complete absence of ornament and by forms in which effects of mass and weight are minimized for the sake of an effect of pure volume; compositionally, a balance of unlike parts is more often than not substituted for axial symmetry. Flat roofs, smooth and uniform wall surfaces, windows with minimal exterior reveals...and windows that turn the corner of the building are among the means by which the effect of volume is obtained. Skeleton construction of steel or reinforced concrete is typical...Much use is made of the cantilever principle...Horizontalities - most marked in the ribbon window - and rectilinearity predominate (Whiffen 1992:247-249).

The CIF displays the lack of ornament, effect of volume, flat roof, ribbon windows, skeleton construction of reinforced concrete, cantilevered porch roof, and horizontalities which are hallmarks of the International Style. However, the CIF is symmetrical and features an accentuated concrete skeletal frame, two attributes uncommon in the International Style. Moreover, the CIF was designed specifically to house computers and computer related technology at the dawn of the computer age. Special construction features necessary to properly house electronic instrumentation and laboratory equipment were utilized including: dropped acoustic ceilings, composition tiled floors, elevated floors in areas requiring extensive cabling; interfloor cable ducts;

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Continuation Sheet**

Section number 7 Page 5

Narrative Description

Central Instrumentation Facility

incandescent lighting to minimize electro-magnetic interferences; and a high order of temperature and humidity control to safeguard the instrumentation equipment and to provide the correct environment for instrument calibration and repair. The building itself has remained essentially unaltered, except for small, ca. 1970 one-story room additions on the south and east (NASA 1967b:10-45; NASA 1974:9-35; NASA n.d.).

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Narrative Statement of Significance Central Instrumentation Facility

The CIF contributes to the Historic Cultural Resources of the John F. Kennedy Space Center, Florida, multiple property nomination under the historic context Apollo Program 1961-1975 and each of its three subcontexts under property type F. 5, Communication Facilities. It is significant at the national level under NRHP Criterion A in the area of space exploration and communications. The CIF is also significant under Criterion C under architecture. Because this structure has achieved significance within the past 50 years and is of exceptional importance in the areas of space exploration, communications, and architecture, Criteria Consideration G applies.

Constructed in 1965, the CIF is exceptionally important in its association with space exploration, communications and architecture due to its historic function as the communications center of KSC and Launch Complex 39. As the building designed especially to house and control the computer and communications networks of the Apollo program, it was essential to the continuing mission and success of the Apollo program and KSC. The integrity of the auxiliary antenna building has been compromised by its modification for use as the Environmental Health Building. Therefore, it does not contribute to the significance of the CIF. Physically, it lies approximately one-half mile to the north, outside the CIF site boundary.

The CIF has retained its integrity of design, materials, workmanship, feeling, setting, location, and association. Although modified with updated technology, the Communications and Instrumentation Directorate is still located in the structure, and the initial layout with specialized features designed to house computers remains intact. At the dawn of the computer age, the CIF, created especially to house computers and communications equipment, was innovative in its use of modern building technologies.

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Bibliography

Central Instrumentation Facility

Anon.

1994 Facts: John F. Kennedy Space Center.

National Aeronautics and Space Administration (NASA)

n.d. Facilities Descriptions. KSC Library Archives, File 90-23, Box 1, LOC 45B.7.

1967a John F. Kennedy Space Center: America's Spaceport. KSC Office of Public Affairs. September 1.

1967b Technical Facilities Catalog Volume II [NHB 8800.5 (II)]. March.

1967c Master Plan: John F. Kennedy Space Center.

1974 Technical Facilities Catalog Volume II [NHB 8800.5A (II)]. October.

1992 Master Plan: John F. Kennedy Space Center (Volume 1). October.

1995 Facility Utilization Charts: NASA Facilities at KSC, CCAFS, and PAFB. July 1.

Whiffen, Marcus

1992 American Architecture Since 1780: A Guide to the Styles. Revised ed. MIT Press, Cambridge, Massachusetts.

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**National Register of Historic Places
Continuation Sheet**

Section number 10 Page 1

**Verbal Boundary Description
Central Instrumentation Facility**

The boundary extends from and parallel to the footprint of the CIF approximately 10 feet.

Boundary Justification

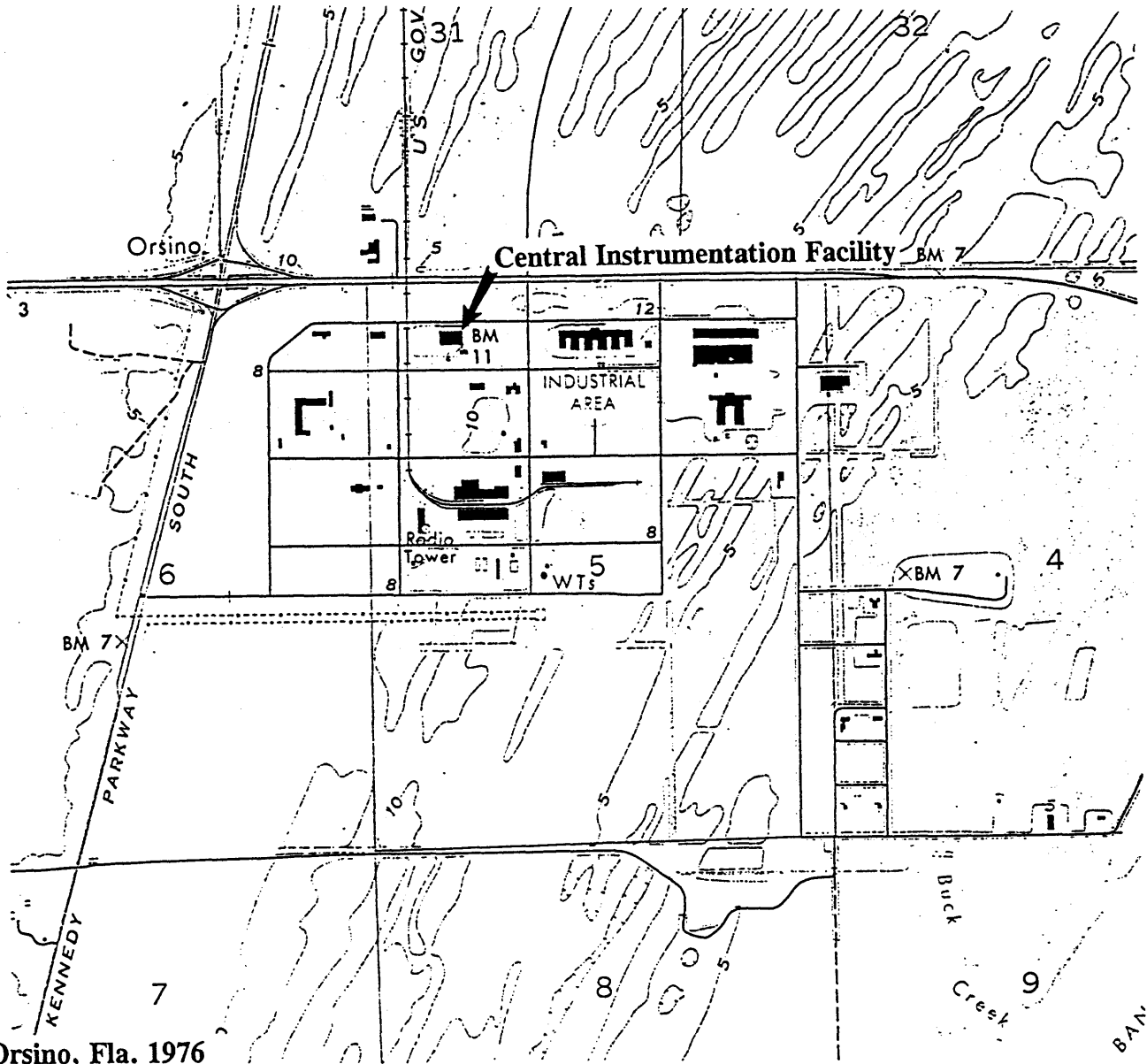
The boundary encompasses that portion of the CIF which has maintained its integrity, was vital to the success of the Apollo program at KSC, and, therefore, has achieved national significance.

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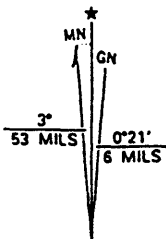
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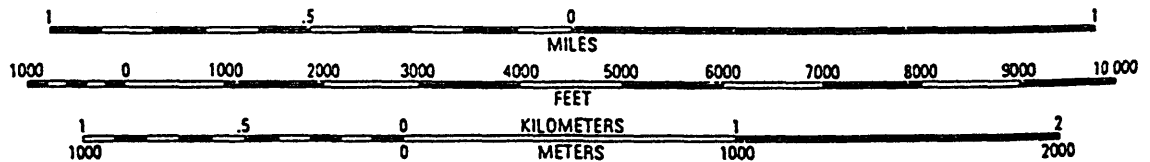
USGS Map Central Instrumentation Facility



USGS Orsino, Fla. 1976



SCALE 1:24 000



UTM GRID AND 1988 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

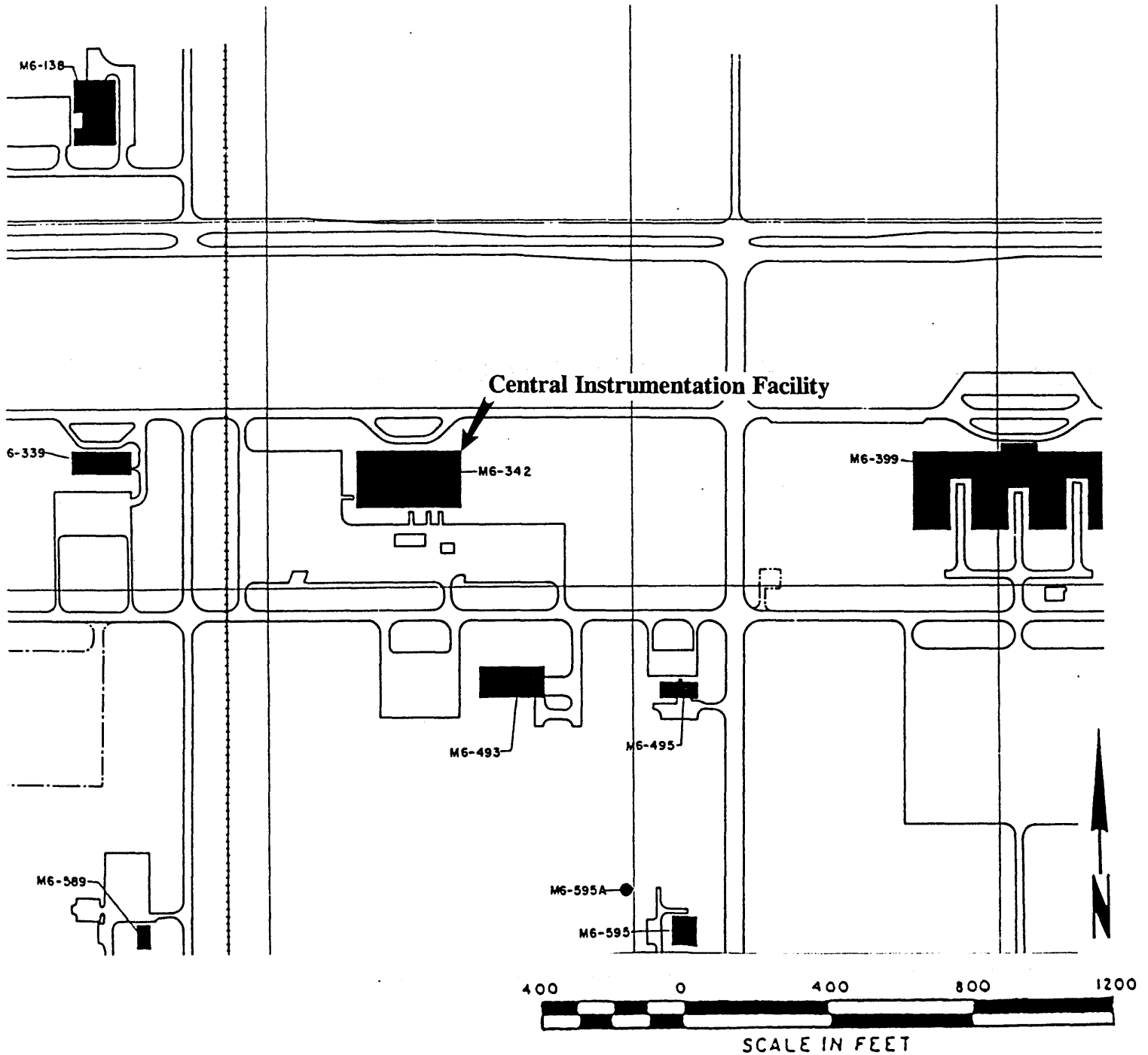
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Section number 11 Page 2

Site Plan

Central Instrumentation Facility (1967)



Source: NASA Master Plan, Sheet no. 11-4-B1, 1967.

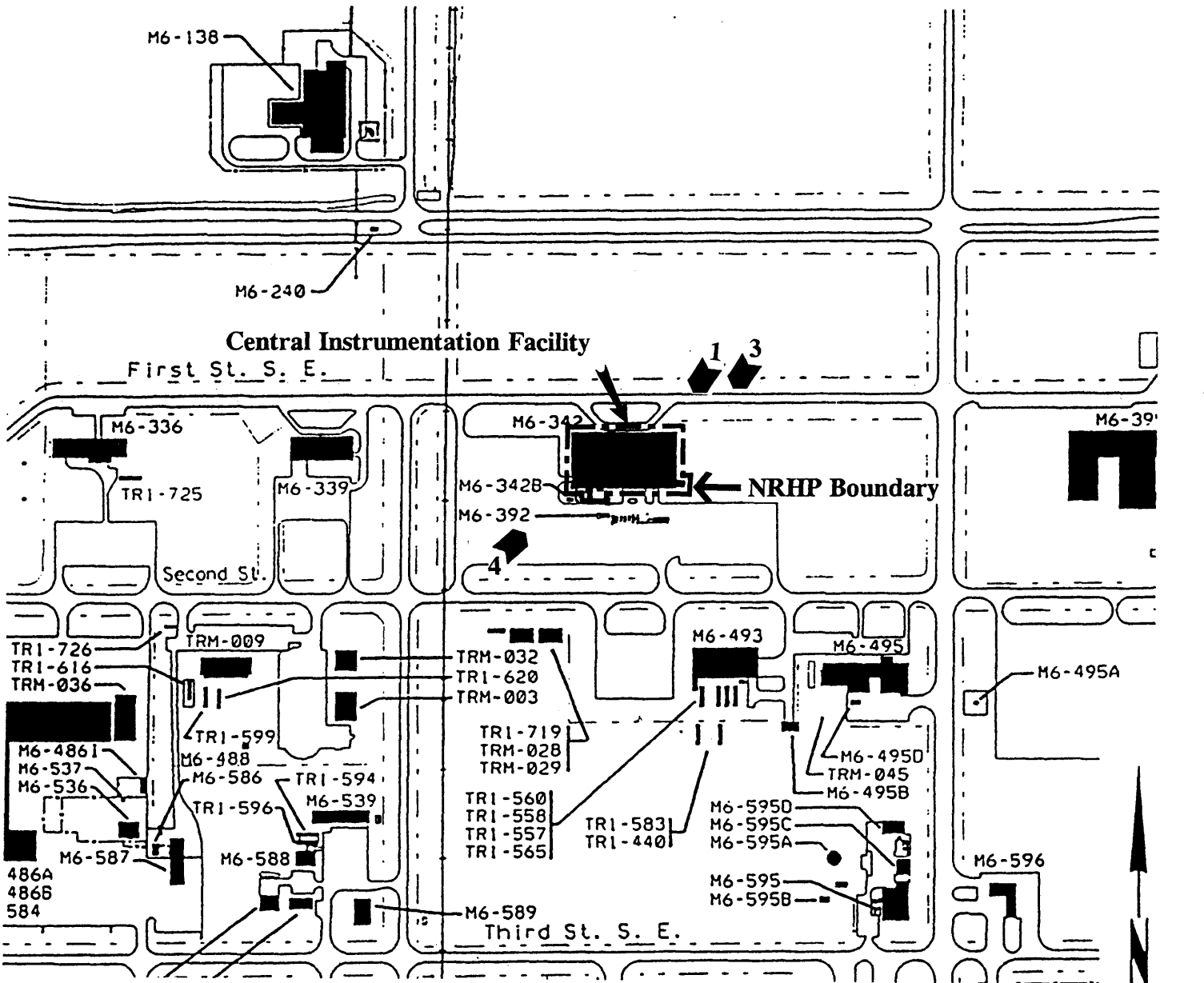
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Section number 11 Page 3

Site Plan

Central Instrumentation Facility (1995)



➤ # = photo number and direction



Source: NASA Facility Utilization Charts, Chart K, July 1, 1995.

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Section number 11 Page 4

List of Photographs

Central Instrumentation Facility

1. Central Instrumentation Facility (CIF)
2. Brevard County, Florida
3. Kennedy Space Center
4. May 1965
5. Kennedy Space Center
6. CIF, aerial north and east elevations, looking southwest (100-KSC-65C-2996)
7. 1 of 4

1. CIF
2. Brevard County, Florida
3. Kennedy Space Center
4. May 1970
5. Kennedy Space Center
6. CIF, interior, Instrumentation System (107-KSC-70-1497)
7. 2 of 4

1. CIF
2. Brevard County, Florida
3. Daniel Delahaye & Kimberly Hinder
4. November 1996
5. Archaeological Consultants, Inc.
6. CIF, north and east elevations, looking southwest
7. 3 of 4

1. CIF
2. Brevard County, Florida
3. Daniel Delahaye & Kimberly Hinder
4. November 1996
5. Archaeological Consultants, Inc.
6. CIF, south and west elevations, looking northeast
7. 4 of 4