

United States Department of the Interior
National Park Service

For NPS use only

National Register of Historic Places
Inventory—Nomination Form

received

date entered

See instructions in *How to Complete National Register Forms*

Type all entries—complete applicable sections

1. Name

historic Propulsion and Structural Test Facility

and/or common Solid Motor Structural Test Facility

2. Location

street & number George C. Marshall Space Flight Center

not for publication

city, town Huntsville

vicinity of

congressional district

state Alabama

code 01

county Madison

code 089

3. Classification

Category	Ownership	Status	Present Use
<input type="checkbox"/> district	<input checked="" type="checkbox"/> public	<input type="checkbox"/> occupied	<input type="checkbox"/> agriculture
<input type="checkbox"/> building(s)	<input type="checkbox"/> private	<input type="checkbox"/> unoccupied	<input type="checkbox"/> commercial
<input checked="" type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> work in progress	<input type="checkbox"/> educational
<input type="checkbox"/> site	Public Acquisition	Accessible	<input type="checkbox"/> entertainment
<input type="checkbox"/> object	<input type="checkbox"/> in process	<input checked="" type="checkbox"/> yes: restricted	<input checked="" type="checkbox"/> government
	<input type="checkbox"/> being considered	<input type="checkbox"/> yes: unrestricted	<input type="checkbox"/> industrial
		<input type="checkbox"/> no	<input type="checkbox"/> military
			<input type="checkbox"/> museum
			<input type="checkbox"/> park
			<input type="checkbox"/> private residence
			<input type="checkbox"/> religious
			<input checked="" type="checkbox"/> scientific
			<input checked="" type="checkbox"/> transportation
			<input checked="" type="checkbox"/> other: Space Exploration

4. Owner of Property

name National Aeronautics and Space Administration (NASA)

street & number

city, town Washington

vicinity of

state D.C. 20546

5. Location of Legal Description

courthouse, registry of deeds, etc. National Aeronautics and Space Administration (NASA)

street & number Real Property Management Office Code NXG

city, town Washington

state D.C. 20546

6. Representation in Existing Surveys

title Historic Properties Report (Draft) has this property been determined eligible? yes no

date July 1983

federal state county local

depository for survey records U.S. Army Redstone Arsenal

city, town Huntsville

state Alabama

7. Description

Condition

excellent
 good
 fair

deteriorated
 ruins
 unexposed

Check one

unaltered
 altered

Check one

original site
 moved date _____

Describe the present and original (if known) physical appearance

The Solid Rocket Motor Structural Test Facility (Building # 4572) was constructed in 1957. It is in the East Test Area of the Marshall Space Flight Center. This facility is a two-position test stand with a concrete foundation, reinforced concrete load frame, and steel structural frame. The test stand is 175 feet high and 20 feet x 30 feet at its base. The support shop, office space, and terminal room occupy 13,360 square feet of area. The test stand is equipped with a 100-ton overhead crane and a 45-ton gantry crane (Building #4573). Control and instrumentation are provided by the East Test Area Blockhouse and Cable Tunnels (Building #4570), with connections to the computer-controlled data acquisition system in the Structures and Mechanics Laboratory.

One position of the test stand can static fire 1.6-million pounds of thrust stages for engines utilizing LOX/kerosene propellants and can accommodate stages 82 feet x 22 feet. The other position has been modified to accommodate solid rocket booster static testing. Modifications included enlarging and enclosing the west flame trench to accept the test booster.

The Solid Rocket Test Facility is active and is expected to provide continued support to the development and testing of new advanced rocket motors and vehicles for years to come.

8. Significance

Period	Areas of Significance—Check and justify below			
<input type="checkbox"/> prehistoric	<input type="checkbox"/> archeology-prehistoric	<input type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law	<input type="checkbox"/> science
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature	<input type="checkbox"/> sculpture
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> architecture	<input type="checkbox"/> education	<input checked="" type="checkbox"/> military	<input type="checkbox"/> social/ humanitarian
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input checked="" type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> theater
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> transportation
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input type="checkbox"/> industry	<input type="checkbox"/> politics/government	<input checked="" type="checkbox"/> other (specify) Space Exploration
		<input type="checkbox"/> invention		

Specific dates 1957-Present **Builder/Architect** U.S. Army

Statement of Significance (in one paragraph)

The Solid Motor Structural Test Facility was built by the United States Army in 1957 to support testing of the Redstone and other rockets then under development by the Army Ballistic Missile Agency at Redstone Arsenal. After the establishment of the National Aeronautics and Space Administration the Solid Motor Structural Test Facility was transferred to NASA's George C. Marshall Space Flight Center within the boundaries of the Redstone Arsenal. During the next few years the Marshall Space Flight Center became the primary NASA Center responsible for the development of large launch vehicles and rocket propulsion systems. During the 1960s, under the leadership of Dr. Werner von Braun, the Marshall Space Flight Center developed the Saturn Family of launch vehicles. The Saturn I was the launch vehicle for the Pegasus meteoroid detection satellite. The Saturn I-B was used for Apollo spacecraft development and orbital maneuvers and for the Skylab and Apollo-Soyuz missions. The Saturn V was the launch vehicle for the Earth orbital missions and eventual moon landing missions.

The Solid Rocket Motor Structural Test Facility is one of the oldest rocket motor test facilities at the Marshall Space Flight Center. It has supported testing of the Army Redstone Rocket, the Saturn S-1B vehicle, and F-1 engine of the Saturn I-C vehicle employed in the Apollo program. After the completion of the Saturn development program one position of the test stand was modified to accommodate static testing for the Solid Rocket booster currently used in the Space Shuttle Program. The Solid Rocket Motor Structural Test Facility, through its continual use and development over the years since 1957, has played a part in the testing of every important rocket developed by the Redstone Arsenal and later the Marshall Space Flight Center. Through its continual use and modification to meet the demands of new programs, it is illustrative of the primary mission assigned to the Army Ballistic Missile Agency and the George C. Marshall Space Flight Center--the development of large launch vehicles and propulsion systems needed to support the American Space Program. The launch of the Apollo missions to the moon were spectacular, but without the support provided by the Marshall Space Flight Center and the years of testing of rocket boosters at the Solid Rocket Motor Test Facility, the American Space Program would never have succeeded.

9. Major Bibliographical References

See continuation sheets

10. Geographical Data

Acreeage of nominated property Less than 1 acre

Quadrangle name Madison

Quadrangle scale 1:24,000

UMT References

A

1	16	5	3	1	3	0	0	3	8	3	1	3	6	1	0
Zone	Easting				Northing										

B

Zone	Easting				Northing										

C

Zone	Easting				Northing										

D

Zone	Easting				Northing										

E

Zone	Easting				Northing										

F

Zone	Easting				Northing										

G

Zone	Easting				Northing										

H

Zone	Easting				Northing										

Verbal boundary description and justification

The boundary of the Propulsion and Structural Test Facility is defined by the outside perimeter of Building 4572 at the Marshall Space Flight Center.

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
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state	code	county	code
-------	------	--------	------

11. Form Prepared By

name/title Harry A. Butowsky

organization National Park Service

date May 15, 1984

street & number Division of History

telephone (202) 343-8168

city or town Washington, D.C. 20240

state

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

national state local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature

title _____ date _____

For NPS use only

I hereby certify that this property is included in the National Register

date _____

Keeper of the National Register

Attest:

Chief of Registration

date _____

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Continuation sheet

Item number 9

Page 1

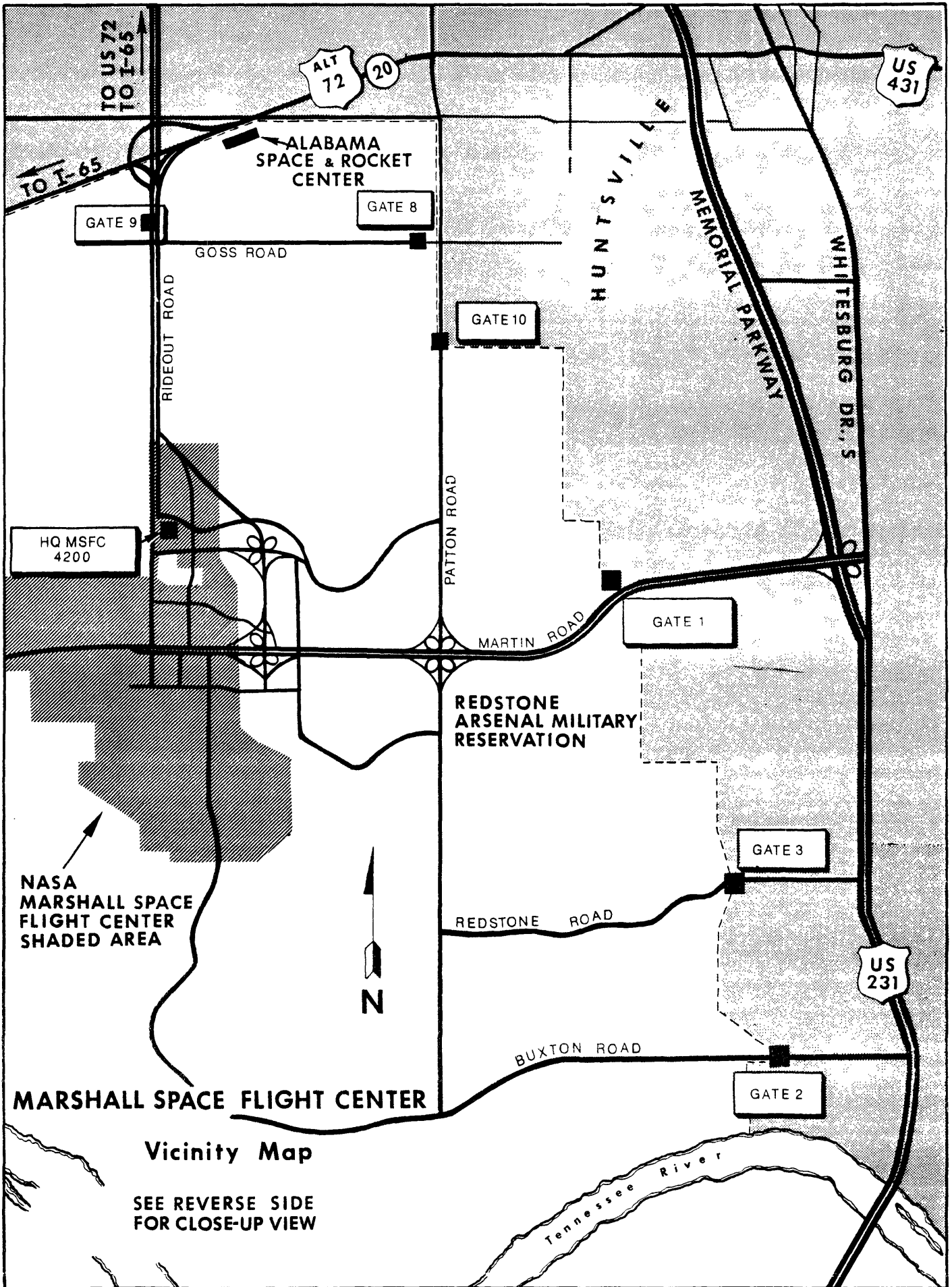
Bibliography

Bilstein, Roger B. Stages to Saturn: A Technological History of the Apollo Launch Vehicle. Washington, D.C.: National Aeronautics and Space Administration, 1980.

Brooks, Courtney G., Grimwood, James M. and Swenson, Loyd S. Chariots for Apollo: A History of Manned Lunar Spacecraft. Washington, D.C.: National Aeronautics and Space Administration, 1979.

Draft Historic Properties Report Redstone Arsenal, Alabama with the George C. Marshall Space Flight Center. Silver Spring, Maryland: Building Technology Incorporated, 1983.

Technical Facilities Catalog Vol. 111. Washington, D.C.: National Aeronautics and Space Administration, 1974.



MARSHALL SPACE FLIGHT CENTER, ALABAMA

FACILITIES SITE MAP

4700 AREA

- 4702 Shop Building
- 4703 Storage Building
- 4704 Hydraulic Press Fac.
- 4705 Machine Shop & Neutral Buoyancy Simulator
- 4707 Shop & Assembly Building
- 4708 Engr. & Development Lab.
- 4711 Developmental Processes Lab.
- 4712 Office Building
- 4714 Mech. Equip. Building
- 4715 Storage Building
- 4716 Test Control Building
- 4723 Training Fac.
- 4727 Shop & Office Building
- 4728 Shop & Storage Building
- 4731 Storage Building
- 4732 Bisonic Wind Tunnel Fac.

- 4733 Impulse Base Flow Fac.
- 4734 Vacuum Pump House
- 4738 Fabrication Dev. Building
- 4740 Water Pollution Contr. Fac.
- 4744 Compressed Air Fac.
- 4746 Office Bldg.
- 4747 Air Compressor Bldg.
- 4752 Multipurpose High Bay Fac.
- 4755 High Bay Assembly Fac.
- 4759 Model Shop Building
- 4760 Surface Treatment Facility
- 4764 Chemical Storage Bldg.
- 4767 Heat Treatment Fac.
- 4774 Storage Building
- 4775 High Reynolds Fac.
- 4776 Experimental Acoustic Test Fac.

4200 AREA

- 4200 Office Building
- 4201 Office Building
- 4202 Office Building
- 4207 Communications Facility
- 4241 Shop & Storage Bldg.
- 4244 Storage Building
- 4249 Office Building
- 4250 Office & Shop Bldg.
- 4251 Equipment Shed

4300 AREA

- 4306 Office Building
- 4312 MSFC Security Hq
- 4313 Shop Building
- 4347 Solar Magnetograph Fac.
- 4348 Storage Building
- 4353 Photo Lab.
- 4373 Laboratory Building (Assigned to Army)

4400 AREA

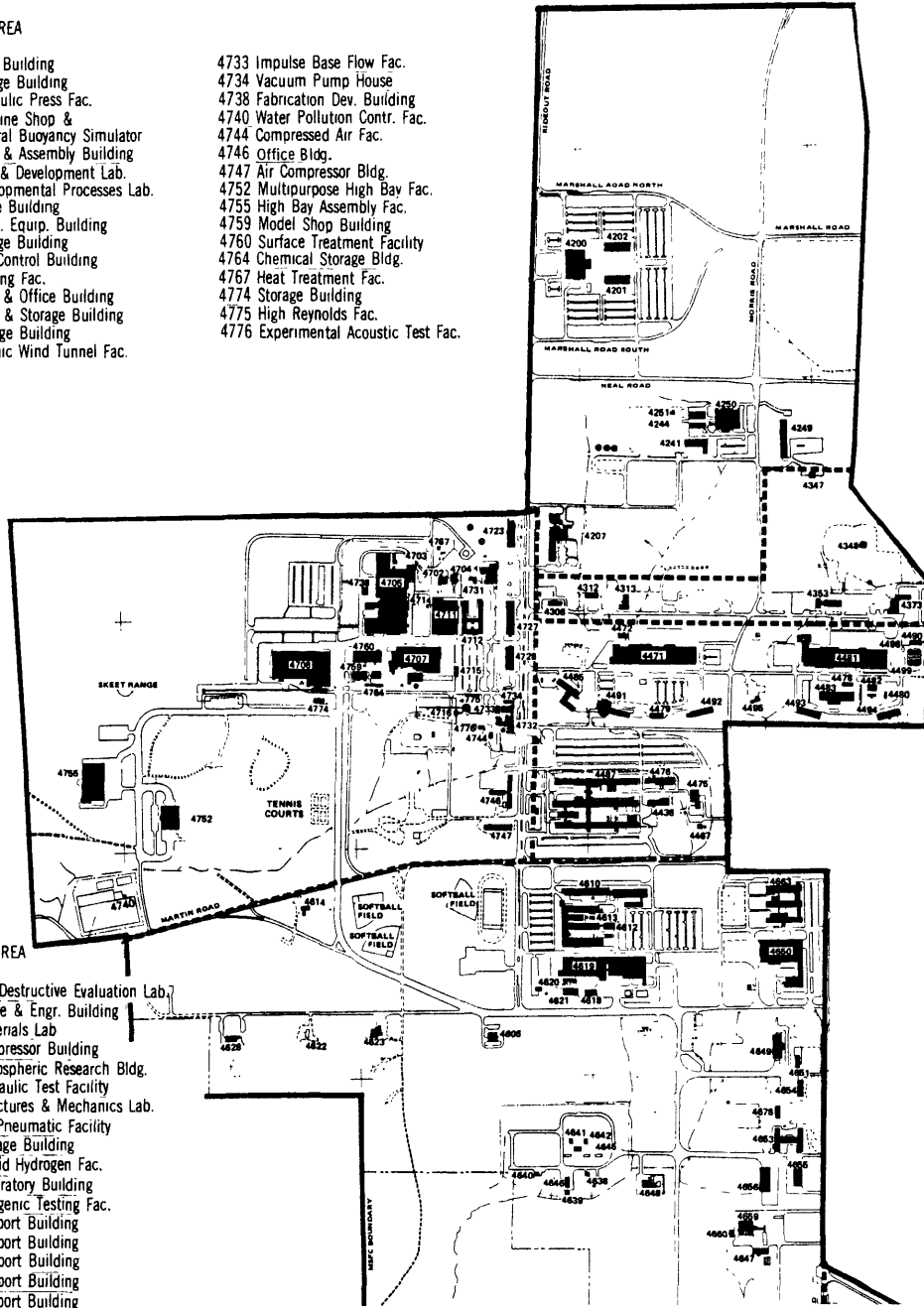
- 4436 Storage
- 4467 Celestial & Optical Sensors Fac.
- 4471 Storage & Office Bldg.
- 4472 Shop Building
- 4475 Hazardous Operations Lab.
- 4476 Environmental Test Fac.
- 4478 Equipment Shed
- 4479 Storage Shed
- 4480 Paint Shop
- 4481 Space Sciences Lab.
- 4482 Transportation Support Bldg.
- 4483 Vehicle Maint. Shop
- 4485 Office Building
- 4487 Laboratory & Ofc. Bldg.
- 4490 Storage Shed
- 4491 Documentation Repository
- 4492 Elec. Sys. Lab Bldg. (On Loan to Army)
- 4493 Shop & Storage Bldg.
- 4494 Center Activities Bldg.
- 4495 Shop Bldg.
- 4498 Storage Building
- 4499 Storage Building

4500 AREA

- 4514 Propulsion Sys. Test Std.
- 4516 LOX Storage Fac.
- 4517 LH₂ Storage Facility
- 4518 Hydrogen Transfer Control House
- 4519 LOX Transfer Control House
- 4522 Propulsion Sys. Component Test Std.
- 4523 Test Stand Terminal Bldg.
- 4525 LOX Transfer Control House
- 4526 LH₂ Transfer Control House
- 4527 LH₂ Storage Tank
- 4530 Propulsion Sys. Component Test Std.
- 4540 Model Propulsion Sys. Test (Acoustic)
- 4541 Test Stand Control Bldg.
- 4549 Deionized Water Plant
- 4550 Structural Test Fac.
- 4551 Struct. Test Fac. Terminal Bldg.
- 4552 Water Reservoir
- 4553 Test Fac. Terminal Bldg.
- 4554 Test Fac. Support Bldg.
- 4557 Structural Test Fac.
- 4558 Structural Test Fac. Terminal Bldg.
- 4561 Shop & Lab Bldg.
- 4562 Water Reservoir
- 4566 Office Building (On Loan to Army)
- 4567 Pump and Boiler House
- 4570 Blockhouse and Cable Tunnels
- 4572 Propulsion & Struct. Test Fac.
- 4583 Test & Data Recording Fac.
- 4588 Cold Calibration Test Stand

4600 AREA

- 4605 Non-Destructive Evaluation Lab.
- 4610 Office & Engr. Building
- 4612 Materials Lab
- 4613 Compressor Building
- 4614 Atmospheric Research Bldg.
- 4618 Hydraulic Test Facility
- 4619 Structures & Mechanics Lab.
- 4620 HP Pneumatic Facility
- 4621 Storage Building
- 4622 Liquid Hydrogen Fac.
- 4623 Laboratory Building
- 4628 Cryogenic Testing Fac.
- 4638 Support Building
- 4639 Support Building
- 4640 Support Building
- 4641 Support Building
- 4642 Support Building
- 4645 Hydraulic Equip. Support Bldg.
- 4646 Blockhouse
- 4647 Compressor Bldg.
- 4648 HP Test Facility
- 4649 Multipurpose High Bay Fac.
- 4650 Shop & Calibration Lab
- 4651 Shop Bldg.
- 4653 Components Service Bldg.
- 4654 Office Building
- 4655 Multipurpose High Bay Fac.
- 4656 Hydraulic Equip. Dev. Fac.
- 4657 LH₂ Vaporization Fac.
- 4659 HP GN₂ Facility
- 4660 Boiler Plant
- 4663 Computer Fac.
- 4665 Historic Redstone Test Site
- 4666 Office Building
- 4667 Pump House
- 4668 Water Reservoir
- 4669 Water Reservoir
- 4670 Propulsion & Struct. Test Fac.
- 4671 Test Facility Support Bldg.
- 4672 Cryogenics Storage Fac.
- 4673 Fuel Tank
- 4674 Blockhouse
- 4678 Office & Storage Bldg.
- 4692 Cross-Connect Bldg (Assigned To Army)
- 4696 Propulsion Test Fac.
- 4697 Observation Bunker
- 4699 Structural Test Fac.



Propulsion and Structural Test Facility
 Building 4572
 16/531300/3831360

