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NAVAL AIR SYSTEMS COMMAND
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WASHINGTON, DC 20361-4220

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Ser AIR-4223E/3010

14 JAN 1988

From: Commander, Naval Air Systems Command

Subj: REQUEST FOR REVIEW OF DRAFT BELL-BOEING SITE EVALUATION REPORT FOR MCAS
NEW RIVER, NC

Encl: (1) Subject Report

1. The draft of the subject report is forwarded as enclosure (1) for review and comment. It is requested that review comments be forwarded to reach NAVAIRHQ, Attn: Code 4223E by 18 March 1988.
2. The NAVAIRHQ POC is Mr. L. Lussier, Code 4223E, at AV 222-0797, COMM 202-692-0797.

J. W. Kerpelman

J. W. KERPELMAN
By direction

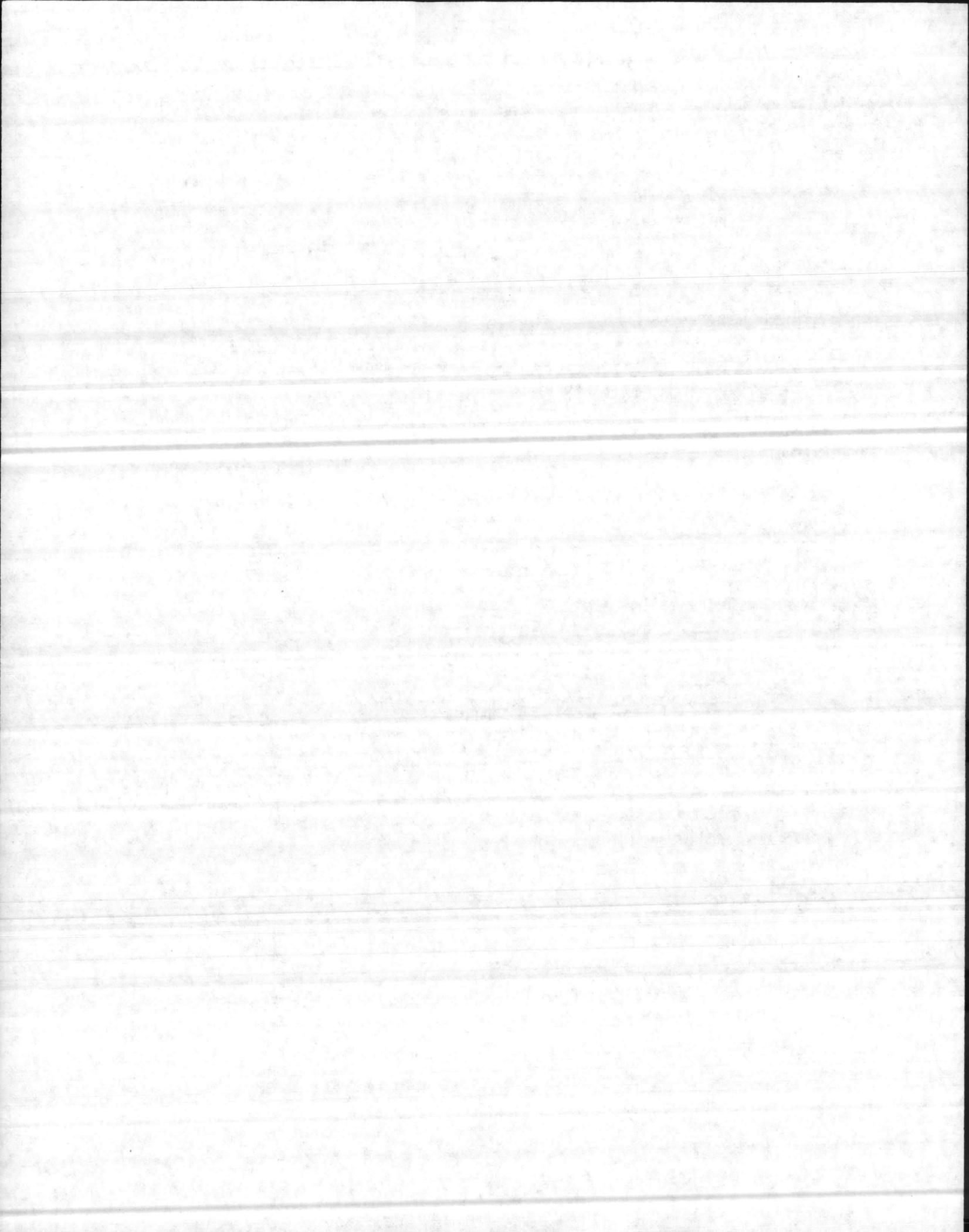
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COMCABEAST

CO MCAS NEW RIVER (S-4)

CMC (LFF-1, ASL-42)

Site survey Review was
conducted on 16 June 88
with Larry Lussier &
Pat Peters. They marked
up a copy of this
Report





FSCM NO. 62851

NUMBER 901-999-638

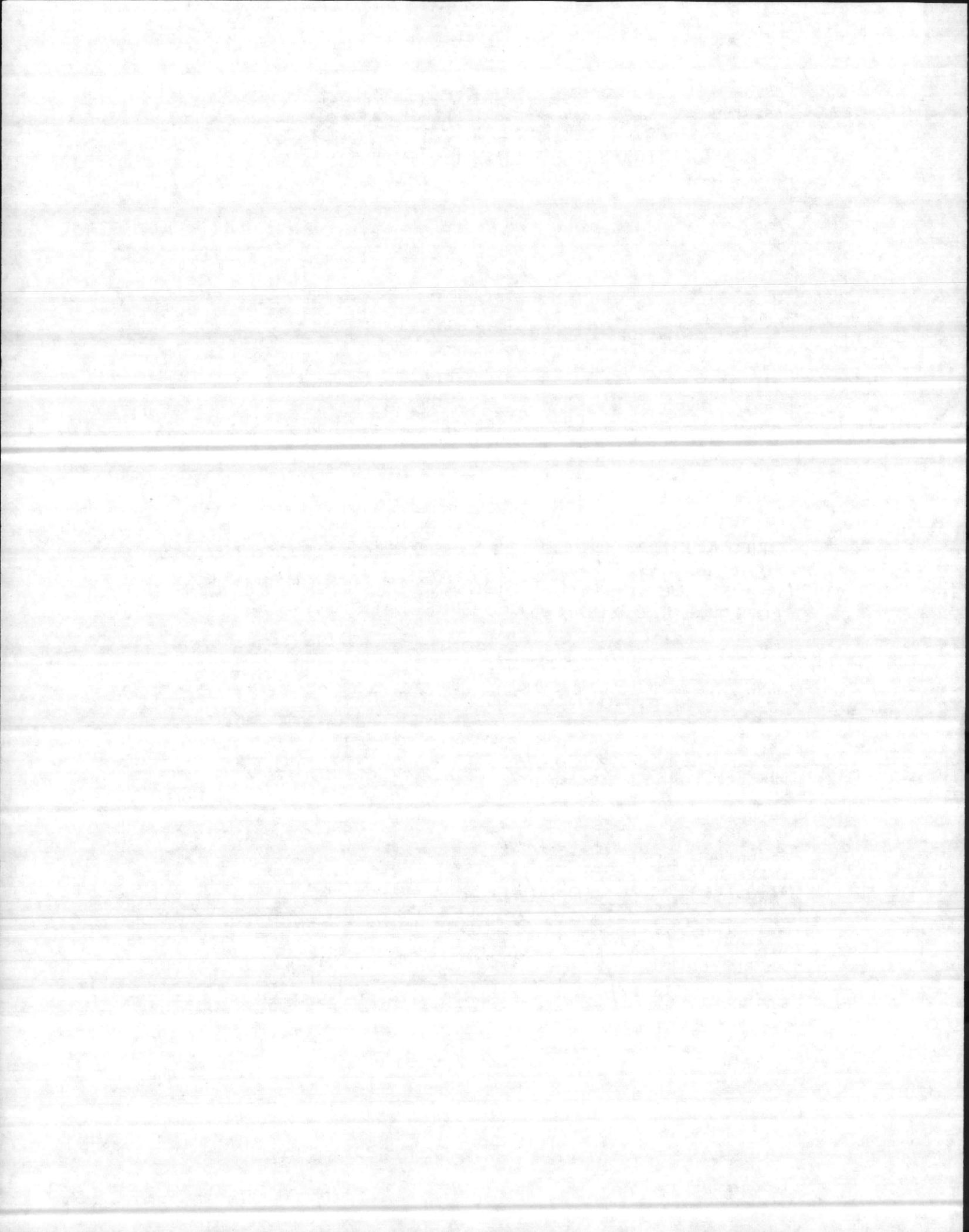
TITLE SITE EVALUATION REPORT - MCAS NEW RIVER, N.C.

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MODEL 901 CONTRACT N00019-85-C-0145

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PREPARED BY	<u><i>Thomas C. Jones</i></u>	DATE	<u>12 NOV 87</u>
PREPARED BY	<u><i>Loy A. Jato</i></u>	DATE	<u>20 NOV. 87</u>
PREPARED BY	<u><i>Ken Seigle</i></u>	DATE	<u>12-11-87</u>
APPROVED BY	<u><i>Robert Cowley</i></u>	DATE	<u>12/11/87</u>
APPROVED BY	<u><i>[Signature]</i></u>	DATE	<u>12-1-87</u>
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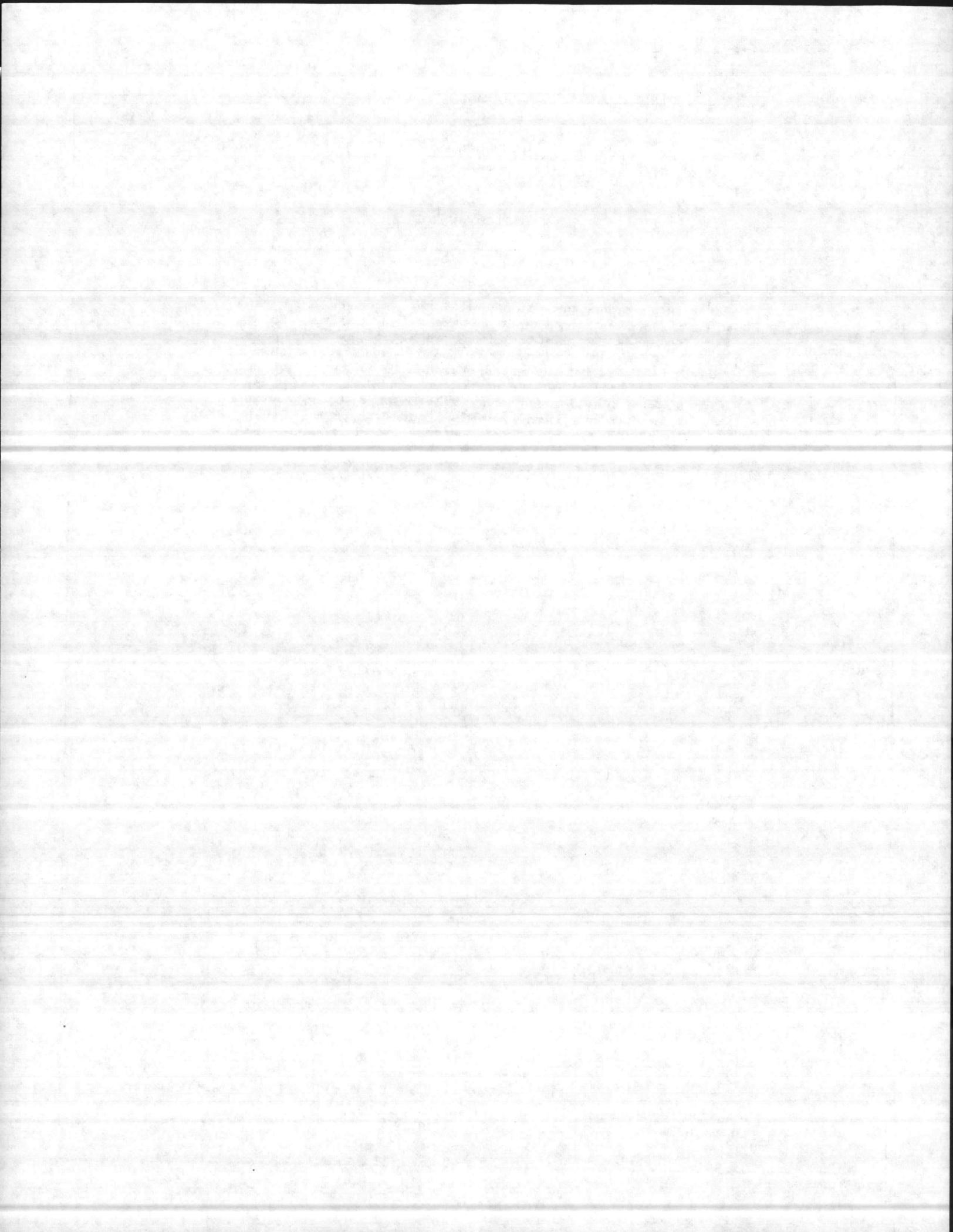
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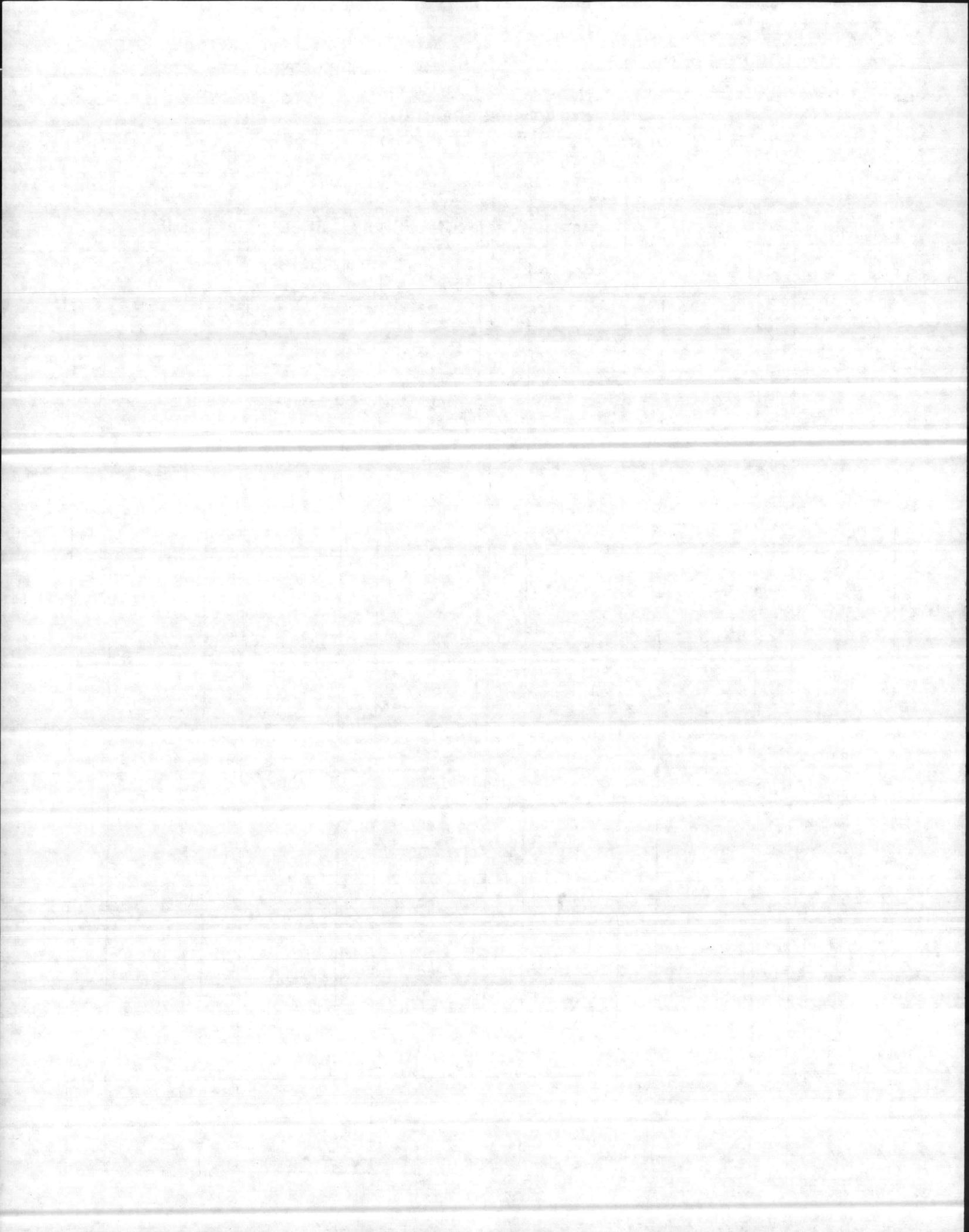
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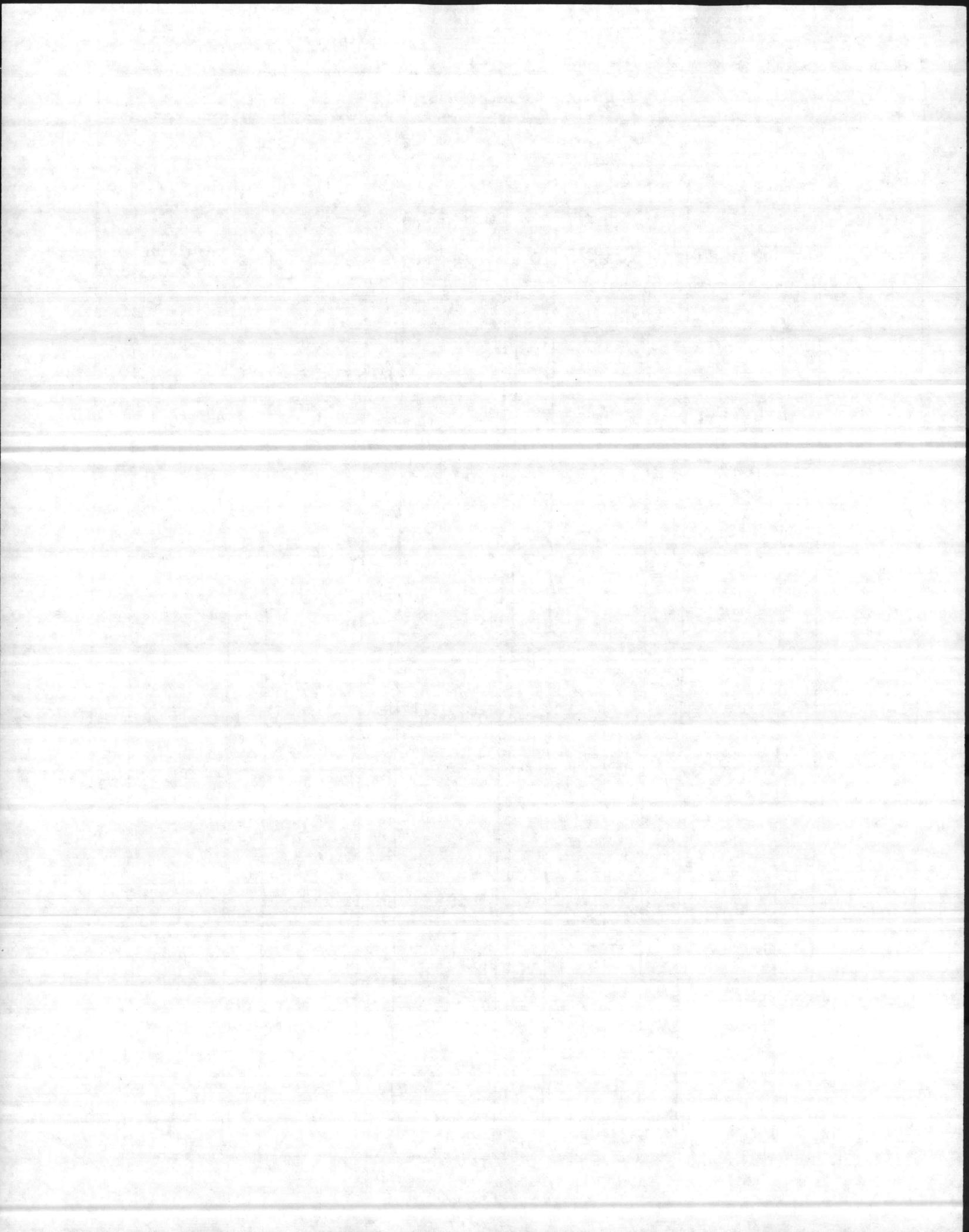


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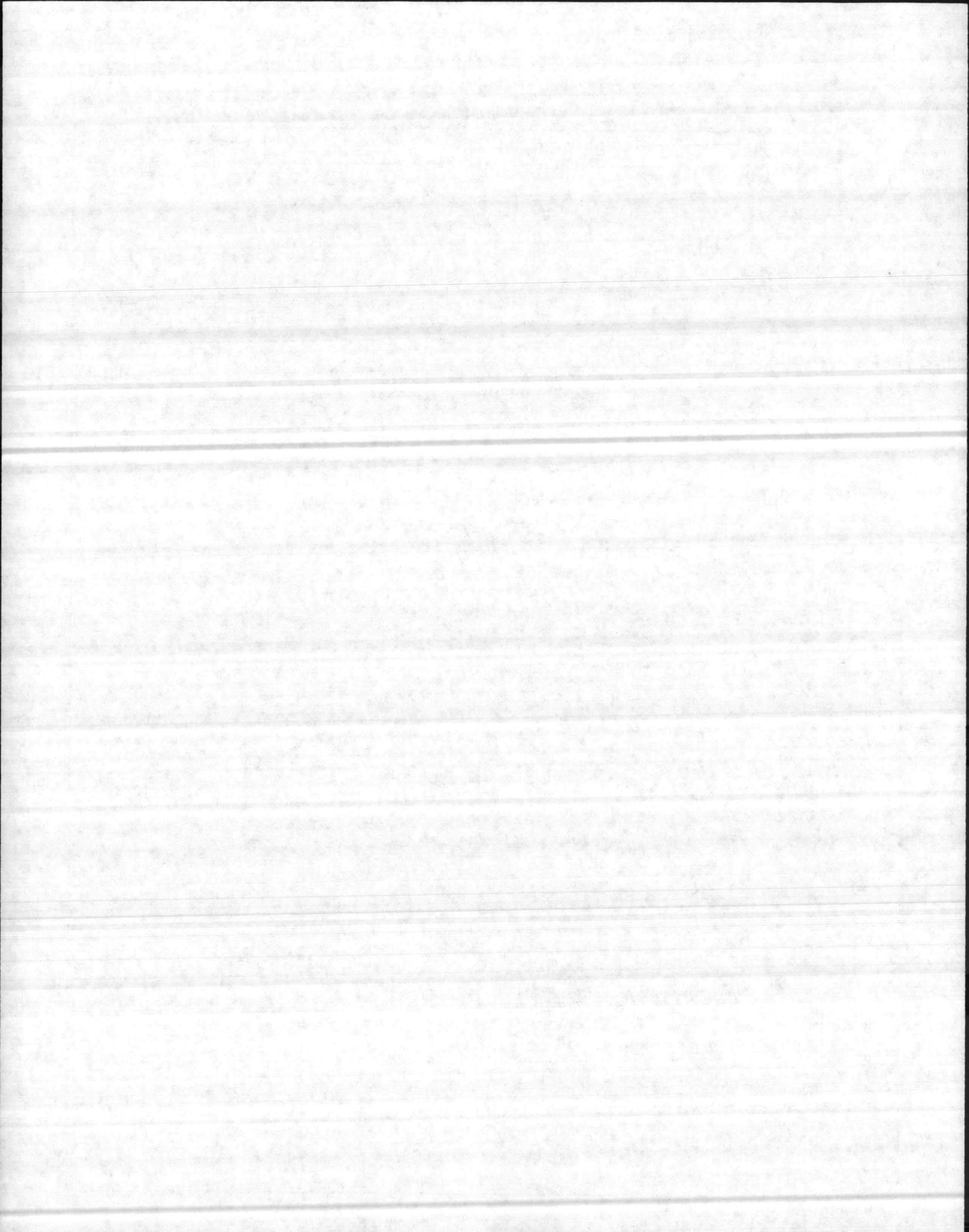


TABLE OF CONTENTS

<u>Paragraph Number</u>	<u>Title</u>	<u>Page</u>
1.0	Background	11
2.0	Project Data/Location	12
2.1	Baseline Considerations	12
2.2	Operational Concept	12
2.2.1	Marine Corps Air Station New River	14
2.2.1.1	Aircraft Squadrons	15
2.2.1.2	Support Environment Overview	15
2.3	Site Assessment Summary	16
3.0	Site Assessment-MCAS New River	23
3.1	Operational Facilities	
3.1.1	111 10/15 Runways	23
3.1.2	112 10 Taxiways	23
3.1.3	113 20 Aircraft Parking Apron	24
3.1.4	113 40 Aircraft Access Apron	25
3.1.5	116 10 Aircraft Washrack Pavement	28
3.1.6	116 15 Aircraft Rinse Facility	28
3.1.7	116 20 Aircraft Compass Calibration Pad	30
3.1.8	116 45 Line Vehicle Parking	32
3.1.9	116 50 Towway	32
3.1.10	121 10 Direct Refueling Station	33
3.1.11	124 30 Aircraft Ready Fuel Storage	33
3.1.12	141 87 Liquid Oxygen/Nitrogen Facility	35
3.1.13	143 78 Operational Hazardous/Flammable Storage	35
3.2	Training Facilities	
3.2.1	Fleet Readiness Squadron	36
3.2.1.1	171 10/20 Applied Instruction Building	37
3.2.1.2	171 35 Operational Trainer Facility	51
3.3	Organizational Maintenance Activities	
3.3.1	211 05 Maintenance Hangar - OH Space	51
3.3.2	211 06 Maintenance Hangar - 01 Space	61
3.3.3	211 07 Maintenance Hangar - 02 Space	64
3.4	Intermediate Maintenance Activities	
3.4.1	211 08 Airframes Shop	66
3.4.1.1	Tire and Wheel Shop	66
3.4.1.2	Hydraulics Shop	67
3.4.1.3	Welding Shop	69
3.4.1.4	Structures Shop	70
3.4.1.5	Cleaning/Vacu-Blast Shop	71
3.4.1.6	Composite Repair Shop	72

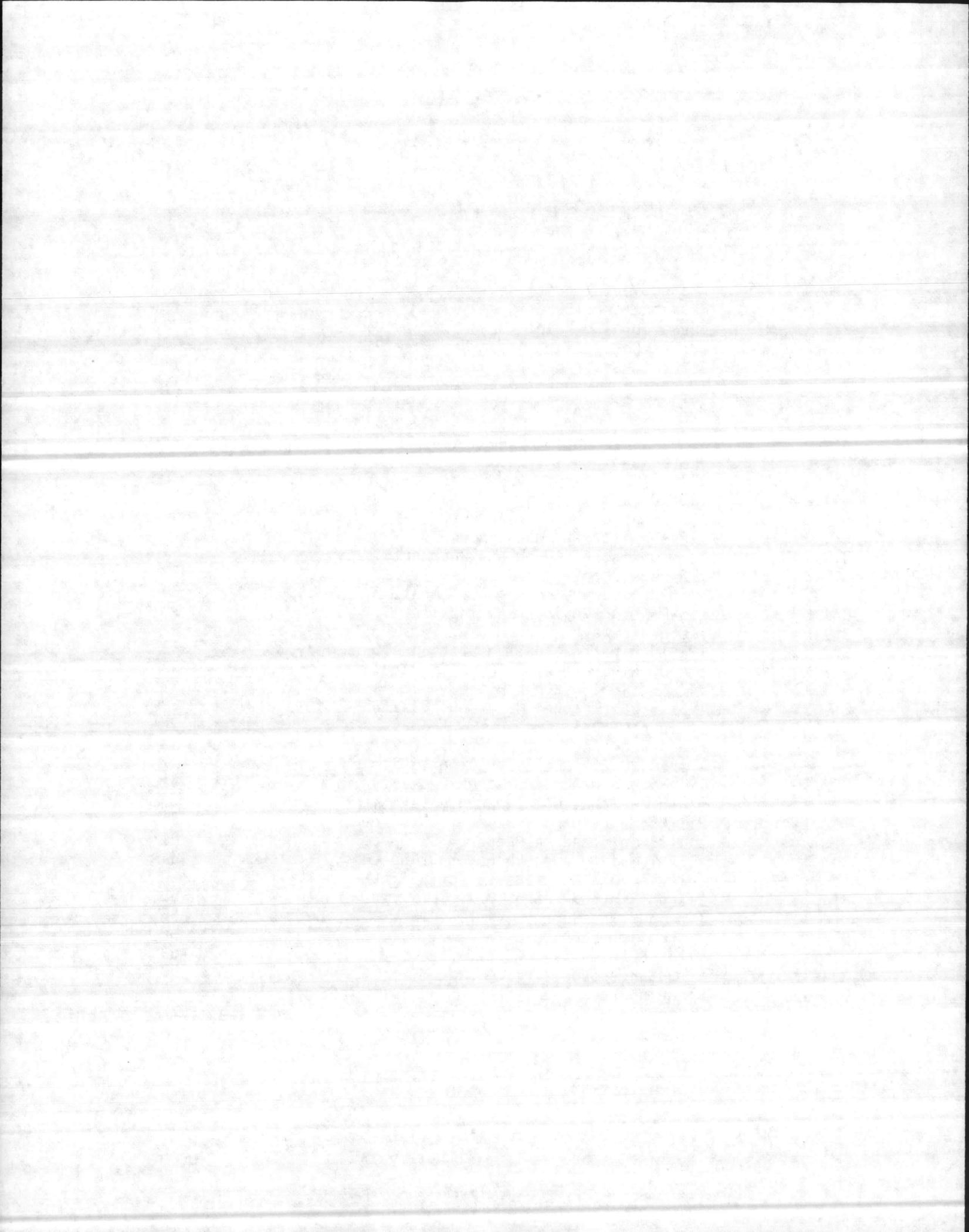
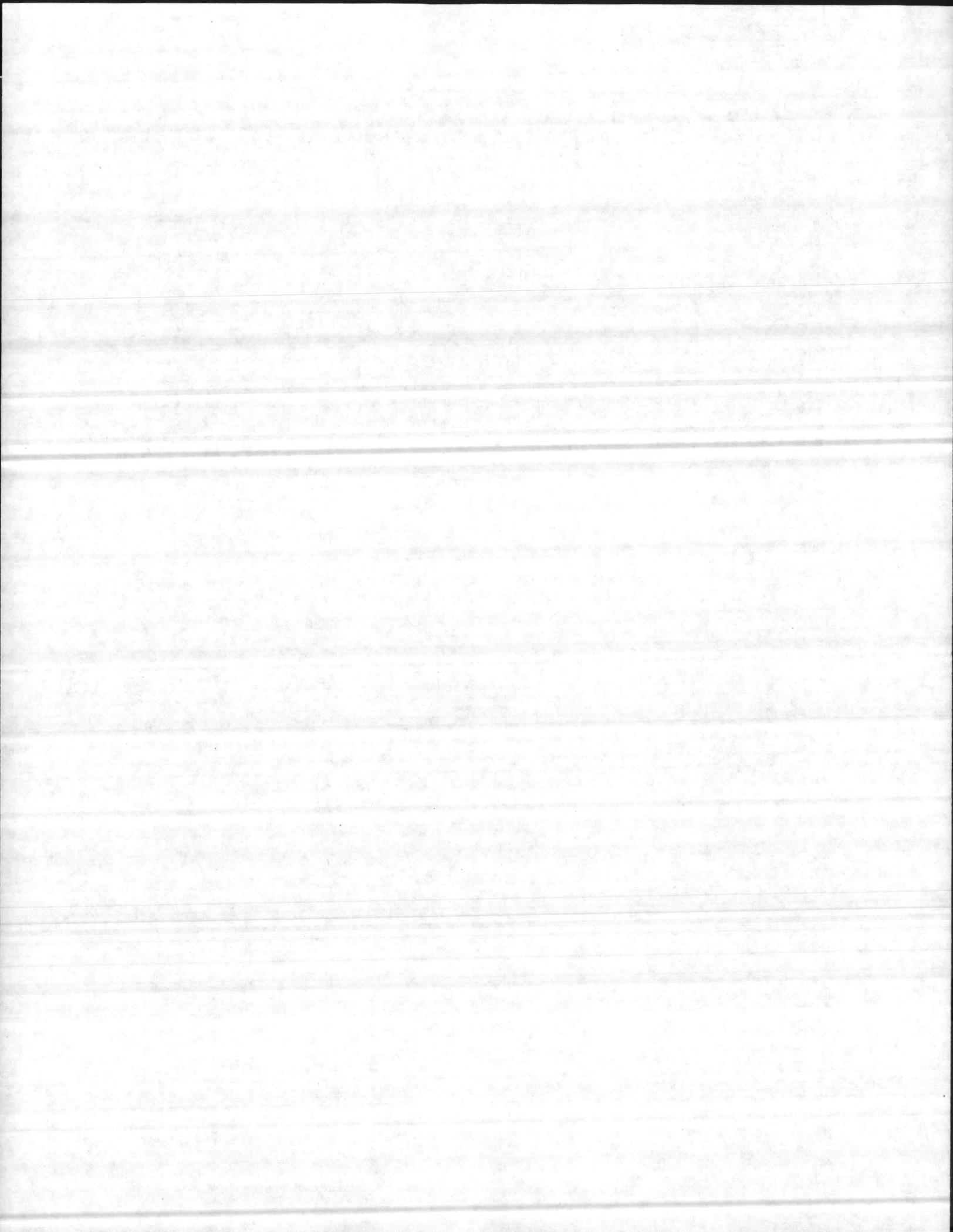


TABLE OF CONTENTS, (continued)

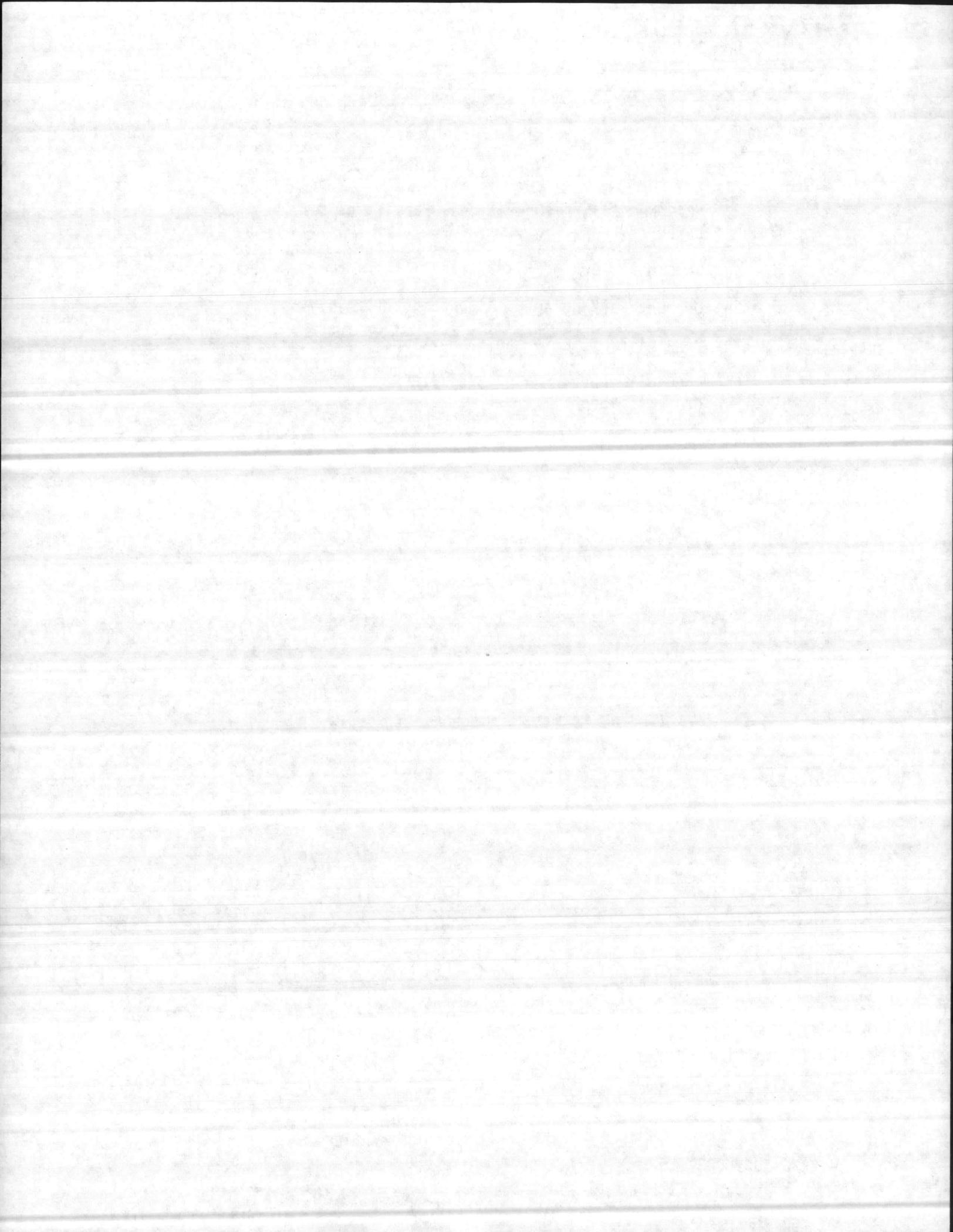
<u>Paragraph Number</u>	<u>Title</u>	<u>Page</u>
3.4.1.7	Paint Shop	73
3.4.1.8	Non-Destructive Inspection Shop	74
3.4.1.9	Machine Shop	75
3.4.1.10	Rotor Dynamics Shop	76
3.4.2	211 45 Avionics Shop	76
3.4.3	211 75 Survival Equipment Shop	77
3.4.4	218 45 Instrument Calibration Shop	78
3.4.5	218 50 Battery Shop	79
3.4.6	218 60 Ground Support Equipment Shop	81
3.4.7	218 61 Ground Support Equipment Holding Shed	82
3.4.8	411 10 Supply Warehouse	83

~~441~~ -10
-441



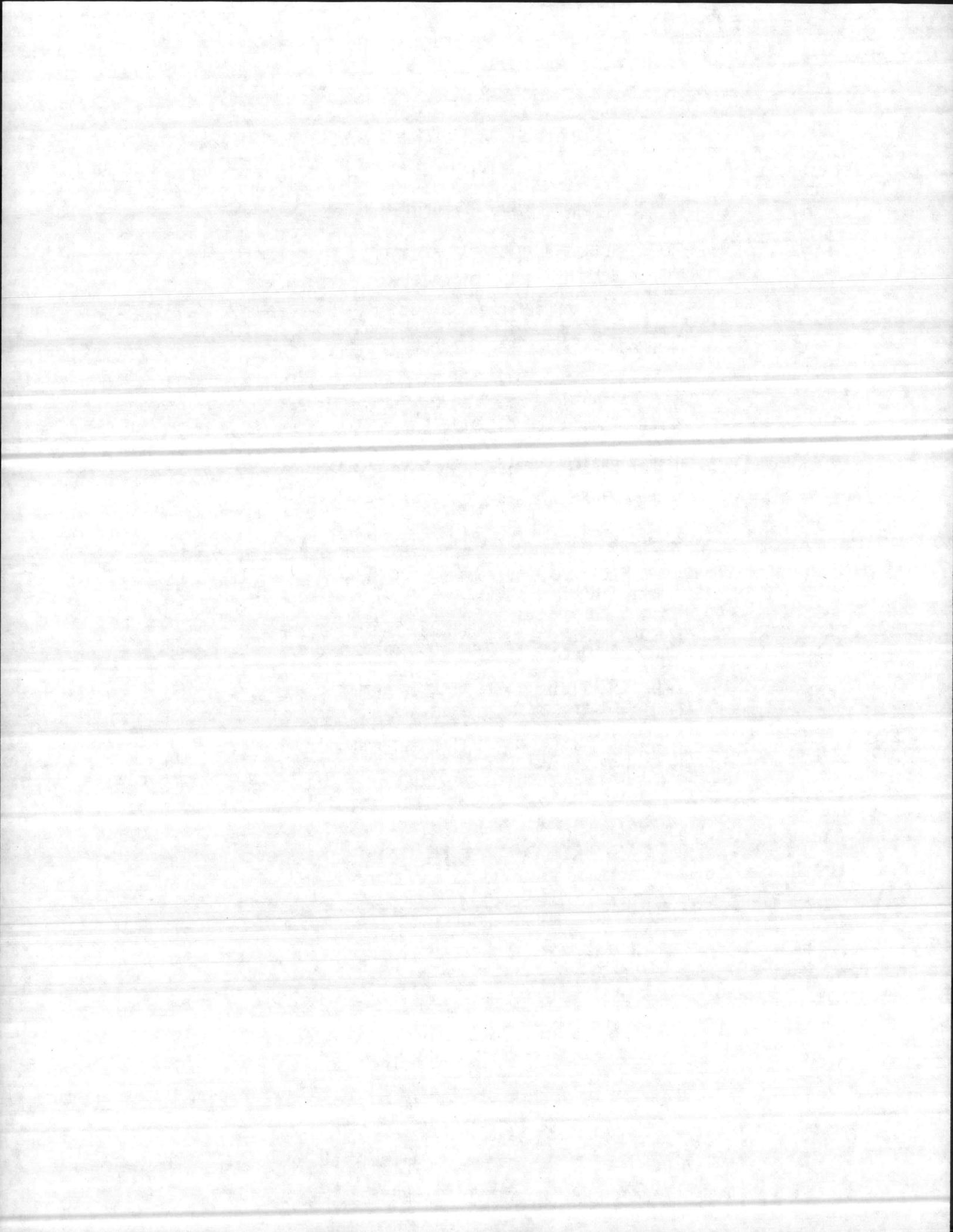
LIST OF FIGURES

<u>Figure</u>	<u>Title</u>	<u>Page</u>
1	MCAS New River - Operational Facilities Layout	13
2	Candidate Parking Plan	26
3	Current Parking Apron Arrangement	27
4	V-22 Aircraft Orientation Markings	31
5	Candidate Parking Plan and MILCON Project P-545	34



LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page</u>
1	Site Assessment Summary - New River	17
2	Current Facilities - 116 10 Aircraft Washrack Pavement	29
3	V-22 FRS Space Requirements	38
4	V-22 FRAMP Facility Requirements	41
5	V-22 FRAMP Support Space Requirements	48
6	V-22 FRAMP Requirements Summary	49
7	Facility Design Constraints	50
8	MCAS New River Operator Training Facility	52
9	V-22 OFT/AST Facility Space Requirements	53
10	OFT/AST Facility Requirements for MV-22A Operator Training	55
11	Current Facilities - 211 05 Maintenance Hangar - OH Space	58
12	Current Facilities - 211 06 Maintenance Hangar - 01 Space	62
13	Current Facilities - 211 07 Maintenance Hangar - 02 Space	65

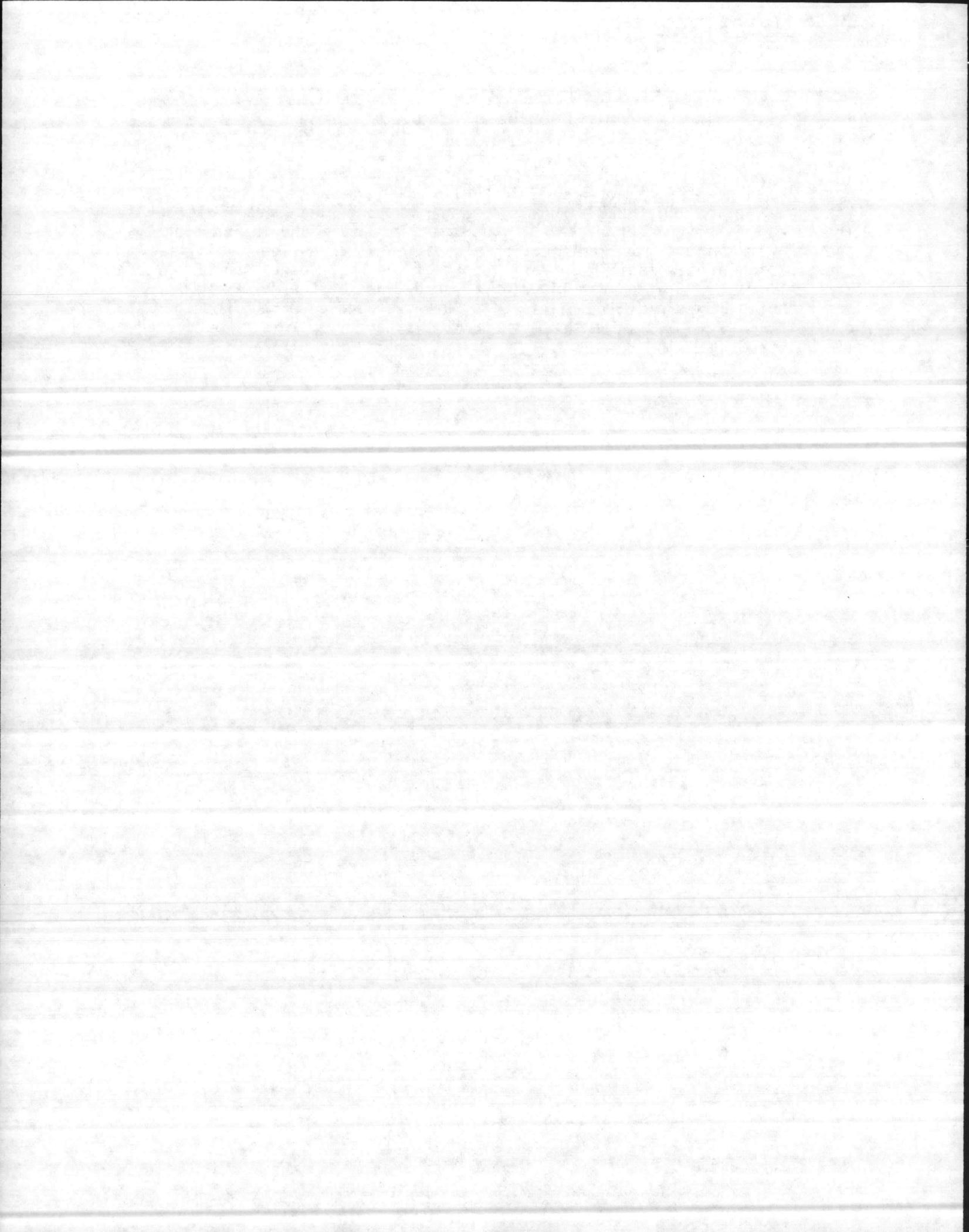


ABSTRACT

This site evaluation report has been prepared in accordance with the V-22 Full Scale Development Contract N00019-85-C-0145, CDRL Sequence Number L004, Data Item Description UDI-P-21038. This report, based on best available data at the time the survey took place, is narrative in nature and includes analysis and recommendations for modification/alteration of existing facilities and construction of new facilities for support of the V-22 Operational Program at Marine Corps Air Station New River, N.C. as defined by the MV-22A Weapon System Planning Document (WSPD). This Site Survey conducted 22-26 September 1986 constitutes the first of a maximum ten (10) site surveys to be performed by the Bell-Boeing Team.

KEY WORDS

V-22
Site Survey
Site Evaluation Report



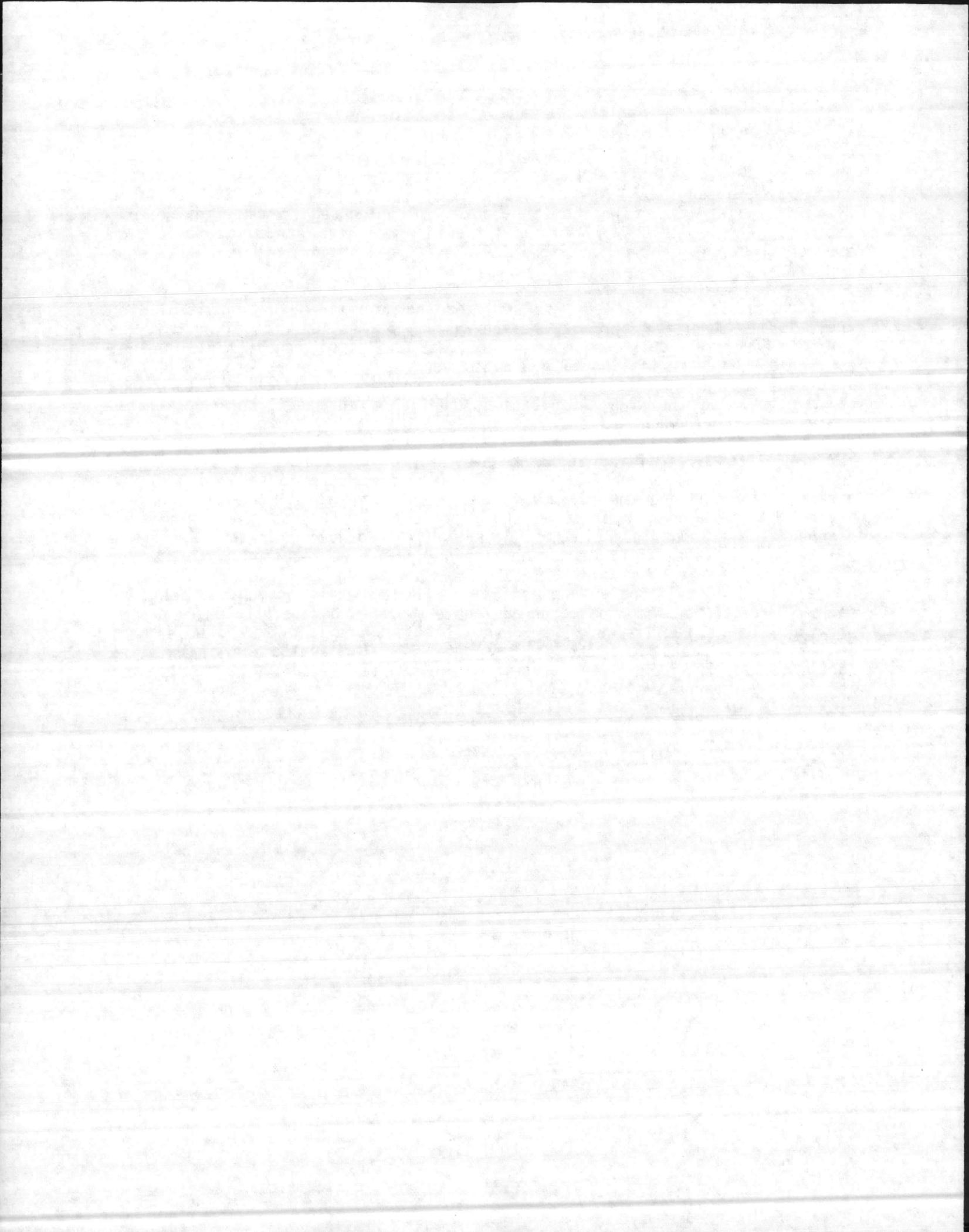
1.0 BACKGROUND

The primary purpose of the New River, N.C. site survey was to evaluate Marine Corps Air Station (MCAS) New River's ability to support the V-22 aircraft so as to facilitate determination of budgetary planning requirements for modifications, alterations and/or new facilities in ample time to allow for design and construction of long lead items for operational support of the V-22 Weapon System.

Although specific facilities were analyzed and determined to be suitable for operational support of the V-22 Weapon System, it must be recognized that the LSA/LSAR approved data which will include facilities requirements is not available for determination of WRA maintenance as related to organizational, intermediate and depot levels. The data contained herein is subject to change as the approved LSA/LSAR data becomes available and additional facilities analyses are performed.

Marine Helicopter Training Squadron 204 (HMT-204) at MCAS New River will be the first unit to receive the MV-22A. Marine Air Group 26 (MAG-26) will be parent to HMT-204 and the first tactical MV-22A squadron (HMM-~~263~~ 264). The New River, N.C. site survey provided the opportunity to assess the current and planned facility configurations to determine the adequacy for support of the MV-22A Weapon System in order to identify new resources required.

A draft of the preliminary V-22 Facilities Requirements Document (which contains limited information based on available LSA/LSAR data and released design drawings) and a Facilities Site Survey Checklist provided by the Government facilities engineers were the primary data used for evaluation of existing facilities at MCAS New River for determining the site's adequacy for supporting the V-22 Weapon System.



2.0 PROJECT DATA/LOCATION

Military Construction Project Data, New River Marine Corps Air Station, North Carolina, MAG-26 and MAG-29. Figure 1 shows key buildings and operational areas.

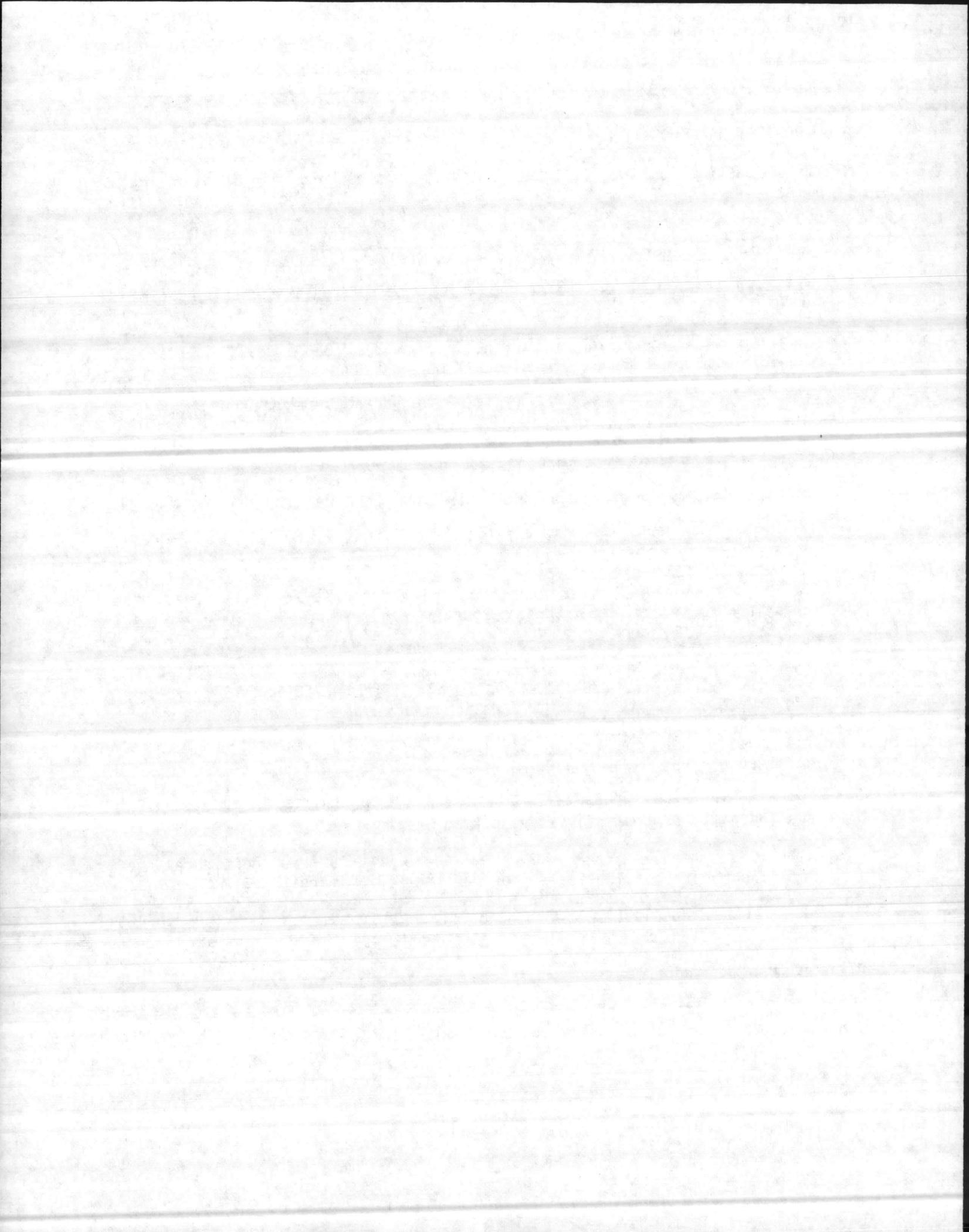
2.1 Baseline Considerations

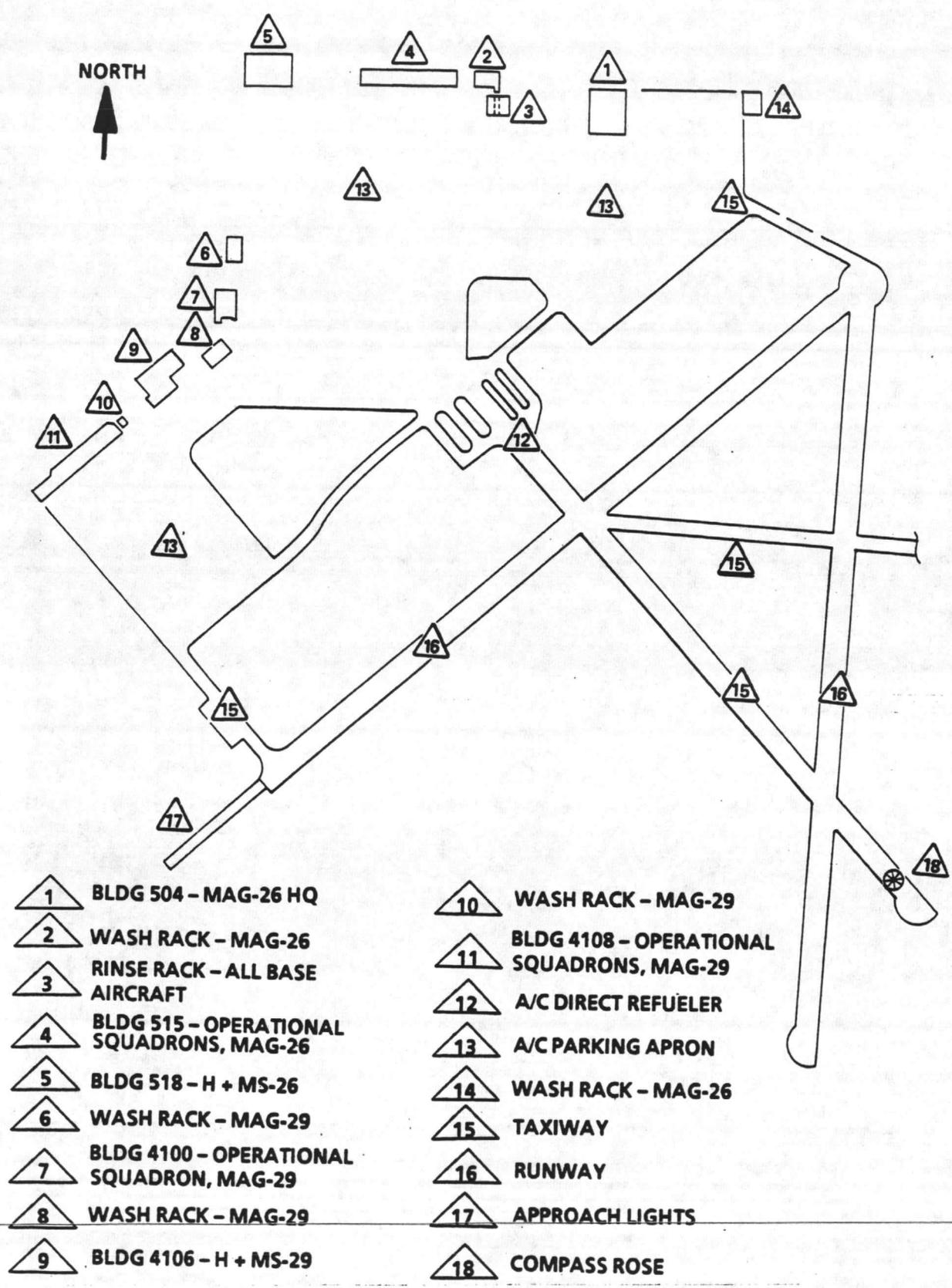
The following baseline considerations were used in the preparation of this report:

- MAG-26 and MAG-29 will be assigned three (3) V-22 Aircraft operational squadrons each; ~~fifteen (15)~~ ^{twelve (12)} aircraft per squadron.
- MAG-26 will also include a training squadron (HMT-204) consisting of twenty-seven (27) V-22 Aircraft.
- A total of ~~seventy-two (72)~~ ^{Sixty-Three (63)} V-22 Aircraft will be assigned to MAG-26.
- A total of ~~forty-five (45)~~ ^{Thirty-Six (36)} V-22 Aircraft will be assigned to MAG-29.
- The first nine (9) V-22 Aircraft will be delivered in GFY 1992 and will be assigned to HMT-204.
- The ~~seventy-two (72)~~ ⁶³ V-22 Aircraft assigned to MAG-26 will replace the existing forty-six (46) CH-46 Aircraft assigned to HMT-204, HMM-261, HMM-264, and HMM-266.
- The ~~forty-five (45)~~ ³⁶ V-22 Aircraft assigned to MAG-29 will replace the existing thirty-six (36) CH-46 Aircraft assigned to HMM-162, HMM-263, and HMM-365.
- The existing CH-53, UH-1N, AH-1J/T, and OV-10 aircraft squadrons will be retained at MAG-26 and MAG-29.
- Existing Aircraft Intermediate Maintenance Activities (IMA) will be available for support of V-22 Aircraft.
- All existing facilities at MAG-26 and MAG-29 are candidates for modification/renovation for support of the V-22 Aircraft.
- H&MS will accomplish first degree IMA (I1) repair of the T406-AD-400 Engine. (MAG-26 I1 & I2 I1 I2)
What is definition of First Degree

2.2 OPERATIONAL CONCEPT

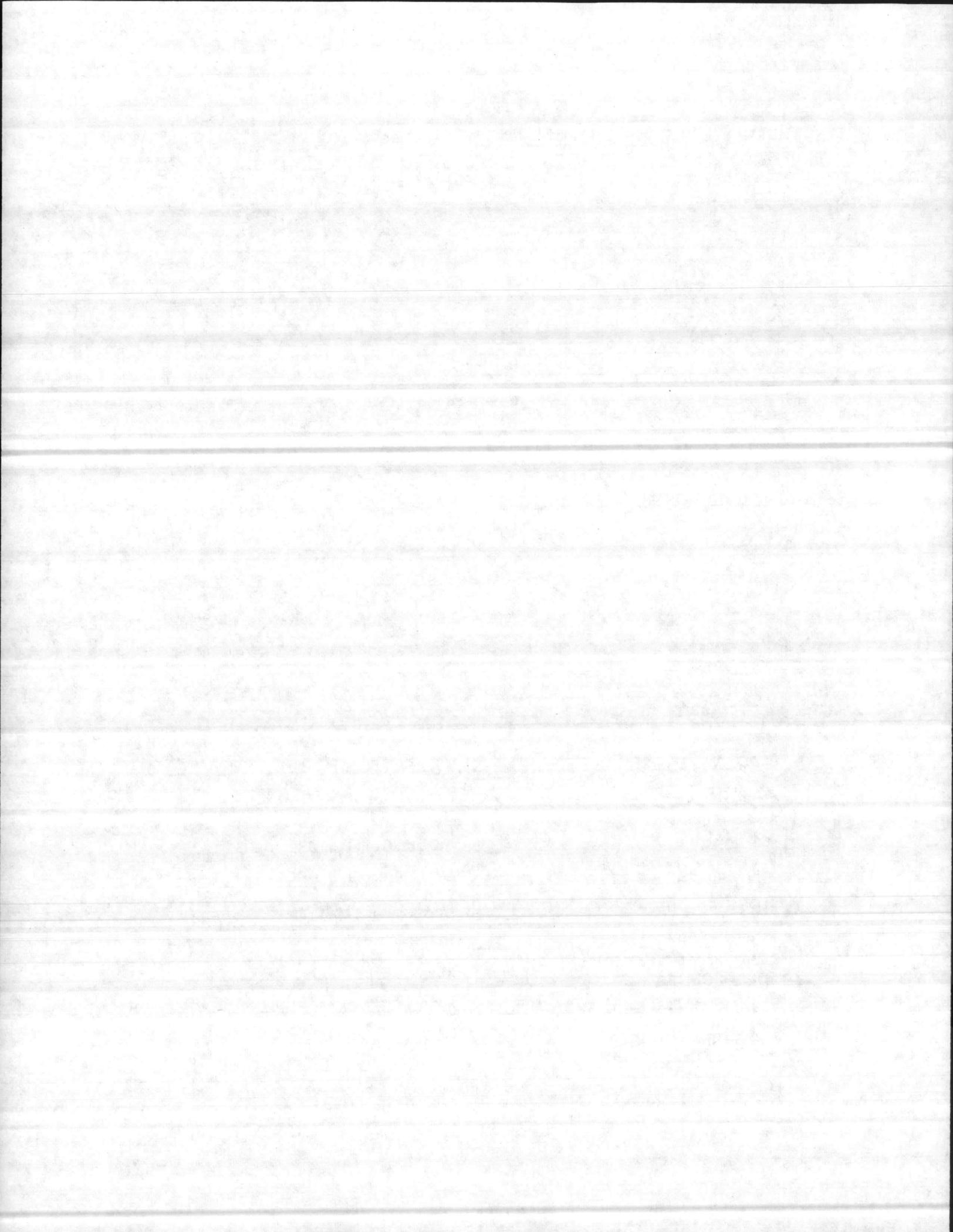
The Marine Corps MV-22 will replace all medium-lift CH-46 helicopters beginning in 1992. The Marine Corps medium-assault troop transport is required to





- | | | | |
|-----|--|------|---|
| ▲ 1 | BLDG 504 - MAG-26 HQ | ▲ 10 | WASH RACK - MAG-29 |
| ▲ 2 | WASH RACK - MAG-26 | ▲ 11 | BLDG 4108 - OPERATIONAL SQUADRONS, MAG-29 |
| ▲ 3 | RINSE RACK - ALL BASE AIRCRAFT | ▲ 12 | A/C DIRECT REFUELER |
| ▲ 4 | BLDG 515 - OPERATIONAL SQUADRONS, MAG-26 | ▲ 13 | A/C PARKING APRON |
| ▲ 5 | BLDG 518 - H + MS-26 | ▲ 14 | WASH RACK - MAG-26 |
| ▲ 6 | WASH RACK - MAG-29 | ▲ 15 | TAXIWAY |
| ▲ 7 | BLDG 4100 - OPERATIONAL SQUADRON, MAG-29 | ▲ 16 | RUNWAY |
| ▲ 8 | WASH RACK - MAG-29 | ▲ 17 | APPROACH LIGHTS |
| ▲ 9 | BLDG 4106 - H + MS-29 | ▲ 18 | COMPASS ROSE |

FIGURE 1. MCAS NEW RIVER - OPERATIONAL FACILITIES LAYOUT



be mission-configured to internal/external cargo equipment, medevac, and search and rescue roles. MAG-26 and MAG-29 are aviation units organized for relatively independent operations without outside assistance except for supply support. Each Marine Air Group (MAG) is task organized for the mission assigned and the facilities from which it will operate. The primary mission of each MAG is to conduct assault support operations. The MAG provides helicopter support for helicopter-borne operations in support of the Fleet Marine Forces and such other air operations as may be directed.

2.2.1 Marine Corps Air Station New River.

MCAS New River is the home of MAG-26 and MAG-29 which are organized and supported similarly except for a training squadron (HMT-204) assigned to MAG-26. HMT-204 serves as a Fleet Readiness Squadron (FRS) to train fleet-ready CH-46 and CH-53 pilots. MAG-26 and MAG-29 are organized and supported as follows:

MAG-26

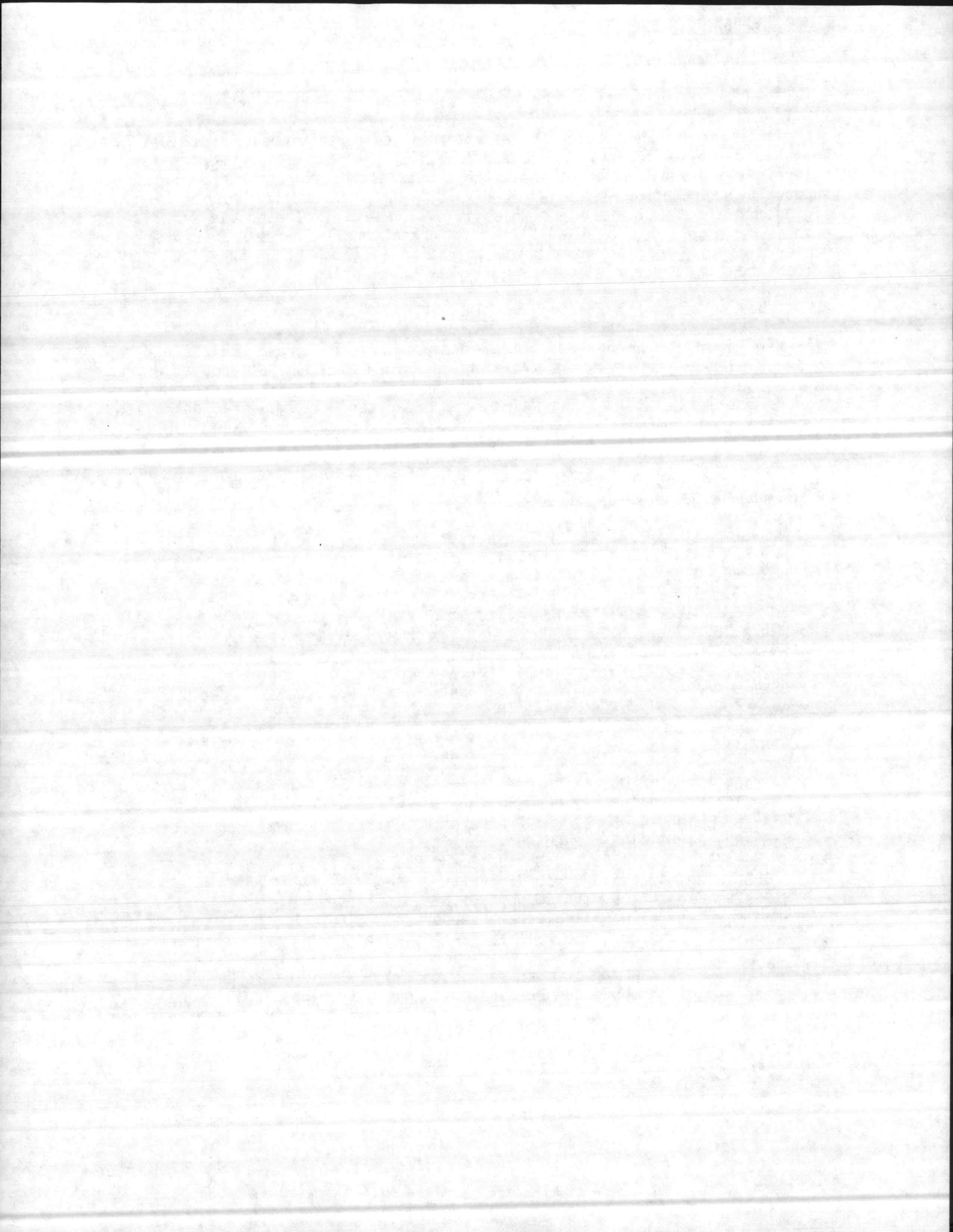
HMT-204 in Bldg. 504 houses 10 CH-46 and 10 CH-53 FRS aircraft and will be the FRS on the East Coast for the V-22.

HMH-362, Bldg. 504, 16 CH-53 aircraft — *date to 6*
HMH-461, Bldg. 504, 16 CH-53 aircraft
HMM-266, Bldg. 515, 12 CH-46 aircraft
HMM-261, Bldg. 515, 12 CH-46 aircraft
HMM-264, Bldg. 515, 12 CH-46 aircraft
HML/A-167, Bldg. 515, 12 UH-1N and 12 AH-1J/T aircraft
H&MS-26, Bldg. 518, IMA Support all aircraft
Supply, Bldg. 424/525, all aircraft support
GSE, Bldg. 4146, all aircraft support
Avionics, Bldg. 4142, all aircraft support

MAG-29

HMH-464, Bldg. 4100, 16 CH-53E aircraft
HMM-365, Bldg. 4108, 12 CH-46 aircraft
HMM-263, Bldg. 4108, 12 CH-46 aircraft
HMM-162, Bldg. 4108, 12 CH-46 aircraft
HML/A-269, Bldg. 4108, 12 UH-1N/12 AH-1J/T aircraft
VMO-1, Bldg. 4108/518 OV-10 aircraft *3 deployed West Pac*
H&MS-29, Bldg. 4106, IMA Support of all aircraft
Supply, Bldg. 4110, all aircraft support
Avionics, P/O Bldg. 4106, all aircraft support

MCAS New River is in the coastal region of North Carolina. The operational environment is of moderate temperature, high humidity, loose soil (sand), with frequent flights near salt water, making corrosion control a significant effort.



2.2.1.1 Aircraft Squadrons

Aircraft squadrons within MAG-26 and MAG-29 are comprised of the following:

HMM (Helicopter Marine Medium) - Mission of the HMM is to provide helicopter transport of personnel, supplies, and equipment for the landing force during ship-to-shore movement and within an objective area. The MV-22A will be fielded to these tactical HMM Squadrons currently equipped with CH-46s.

HMH (Helicopter Marine Heavy) - Mission of the HMH is to provide helicopter transport of heavy supplies, equipment, and personnel for the landing force during ship-to-shore movement and within an objective area (CH-53).

HML (Helicopter Marine Light) - Mission of the HML is to provide utility combat helicopter support to the landing force in the ship-to-shore movement and in subsequent operations ashore (UH-1N).

HMA (Helicopter Marine Attack) - Mission of the HMA is to provide close-in fire support and fire support coordination in aerial and ground escort operations during the ship-to-shore movement and within an objective area (AH-1J) (AH-1T) (AH-1W).

VMO (Marine Observation Squadron) - The mission of the VMO is to support fixed wing and helicopter operations. The VMO also performs aerial reconnaissance, observation, and forward air control operations in support of ground troops (OV-10).

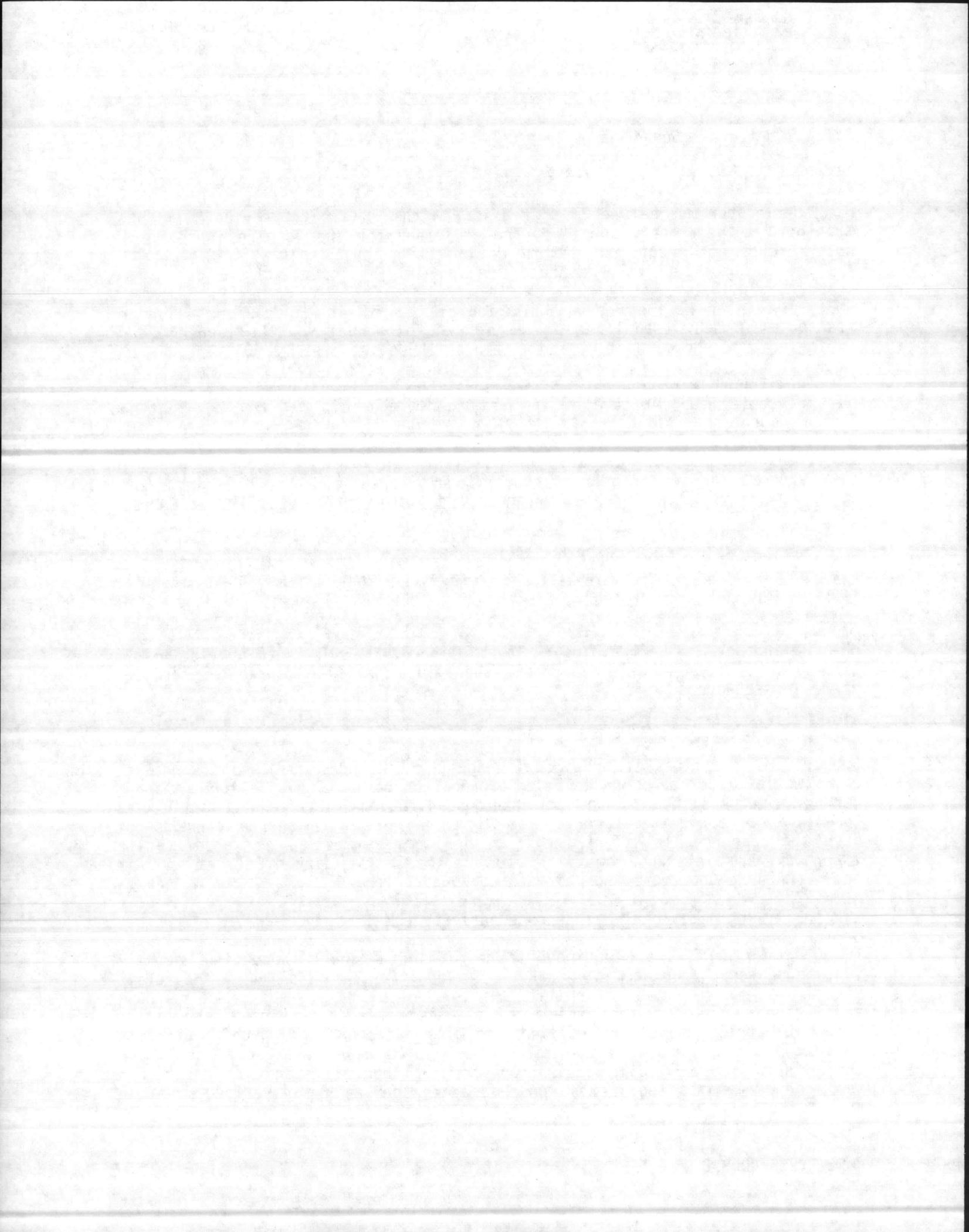
HMT (Helicopter Marine Training) - The mission of the HMT is to provide flight training in specific type aircraft, supplying qualified pilots to tactical operating squadrons.

2.2.1.2 Support Environment Overview

Support of operations is provided through a three-level maintenance concept, with two levels of maintenance being provided on base. Organizational maintenance is accomplished by the squadron organizational maintenance activities (OMA). If a repair is categorized as IMA repairable or, when the OMA does not have the resources to effect repair of an item, it must be forwarded to the intermediate maintenance activity (IMA). The IMA is part of the Marine Air Group (MAG) Headquarters and Maintenance Squadron (H&MS).

2.2.1.2.1 Organizational Maintenance Activity (OMA)

The OMA work centers are equipped to perform on-aircraft inspection, servicing, and repair/replacement tasks. In addition, a limited off-aircraft airframe component repair capability exists. At New River, the squadrons possess hangars, however, most maintenance is accomplished outside on the flight line. Electrical power is supplied by the on-board APU, or a mobile electric power plant for line maintenance. The mechanics have no personal tools and there is no standard USMC general-purpose tool box. Instead the squadron's tool room maintains tool boxes, pouches and/or cabinets for various maintenance tasks.



2.2.1.2.2 Intermediate Maintenance Activity (IMA)

The IMA work centers are tasked to perform maintenance beyond the capability of the OMA. IMA maintenance includes:

- Repair of aircraft and support equipment repairable components, including overhaul of selected items.
- Test and check of aircraft and support equipment components with the use of test stands/cells not available to the OMA.
- Manufacture of replacement fluid lines.

The IMA is also responsible for conducting training to qualify personnel in the use of support equipment.

2.3 Site Assessment Summary

Table 1 summarizes, by Category Code, the Bell-Boeing assessment for MCAS New River.

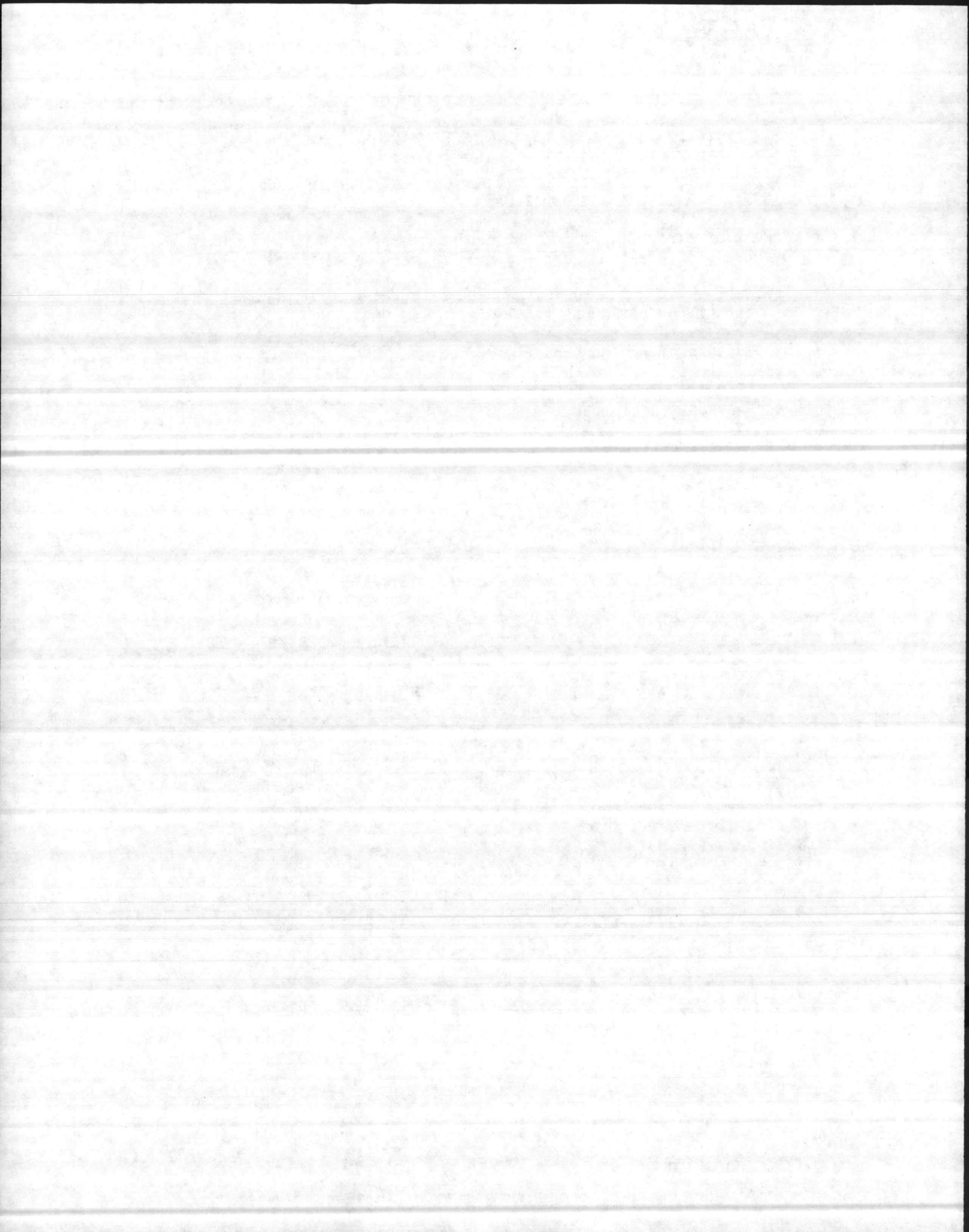


TABLE 1
SITE ASSESSMENT SUMMARY - NEW RIVER
PAGE 1 OF 6

CATEGORY CODE	NOMENCLATURE	ADEQUATE	MODIFICATION RECOMMENDED	NEW CONSTRUCTION RECOMMENDED	NATURE OF CHANGE
111 10/15	Runways	X			
112 10	Taxiways		X		Expand taxiways with 12.5 foot shoulders. P.536 will satisfy
113 20	Aircraft Parking Apron	X			
113 40	Aircraft Access Apron	X			
116 10	Aircraft Washrack Pavement	X			
116 15	Aircraft Rinse Facility			X	Adequate if MILCON Project what P-594 is executed. vs P-594
116 20	Aircraft Compass Calibration Pad		X		Construct a V-22 rinse facility.
116 45	Line Vehicle Parking			X	Add V-22 peculiar orientation markings.
116 50	Towway	X			Construct 948 square yards ^{where} of parking area.
121 10	Direct Refueling Station		X		
124 30	Aircraft Ready Fuel Storage	X			Modify MILCON Project P-545 to expand refuel lane width to 120 feet vice 100 feet. Why do we need 120' A/C is only 85' ± The Remt for R/W (923) is only 100'

V-22/E/205/0053.0.0

17

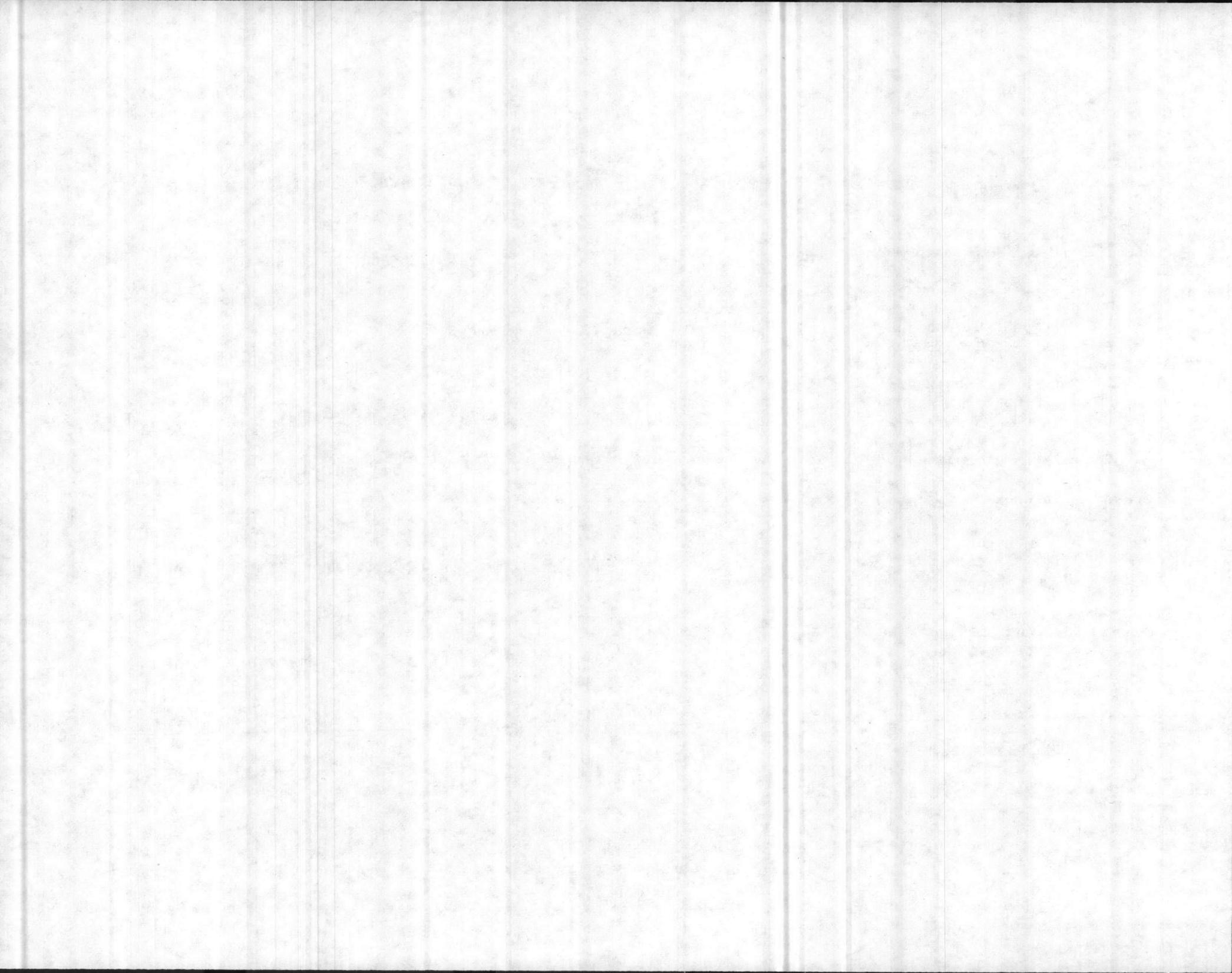


TABLE 1
SITE ASSESSMENT SUMMARY - NEW RIVER
PAGE 2 OF 6

CATEGORY CODE	NOMENCLATURE	ADEQUATE	MODIFICATION RECOMMENDED	NEW CONSTRUCTION RECOMMENDED	NATURE OF CHANGE
141 87	Liquid Oxygen/Nitrogen Facility	X			
143 78	Operational Hazardous/Flammable Storage	X			
171 10/20	Applied Instruction Building		X		Expand Building 504 by approximately 31,506 square feet.
18 171 35	Operational Trainer Facility			X	Construct a ^{41,000} 35,000 square foot facility. P-521
211	Maintenance Hangar			X	Execute MILCON Projects P-404, P-543, P-451, and P-507.
211 05	Maintenance Hangar - OH space		X		Building 515 and 4108 - Upgrade utilities to provide 440-480 VAC/100A/60 Hz, 115 VAC/3 Ph/400 Hz/60 KVA, 100 psi shop air, and a 2,000 pound hoist capability (Bldg. 515 only).
211 06	Maintenance Hangar - 01 space		X		Bldg. 515 and 4108 - Provide 6,750 sq. ft. of additional shop space. Upgrade utilities to include 120V/60 Hz/20A,

Don't understand where this change from where New building will be built

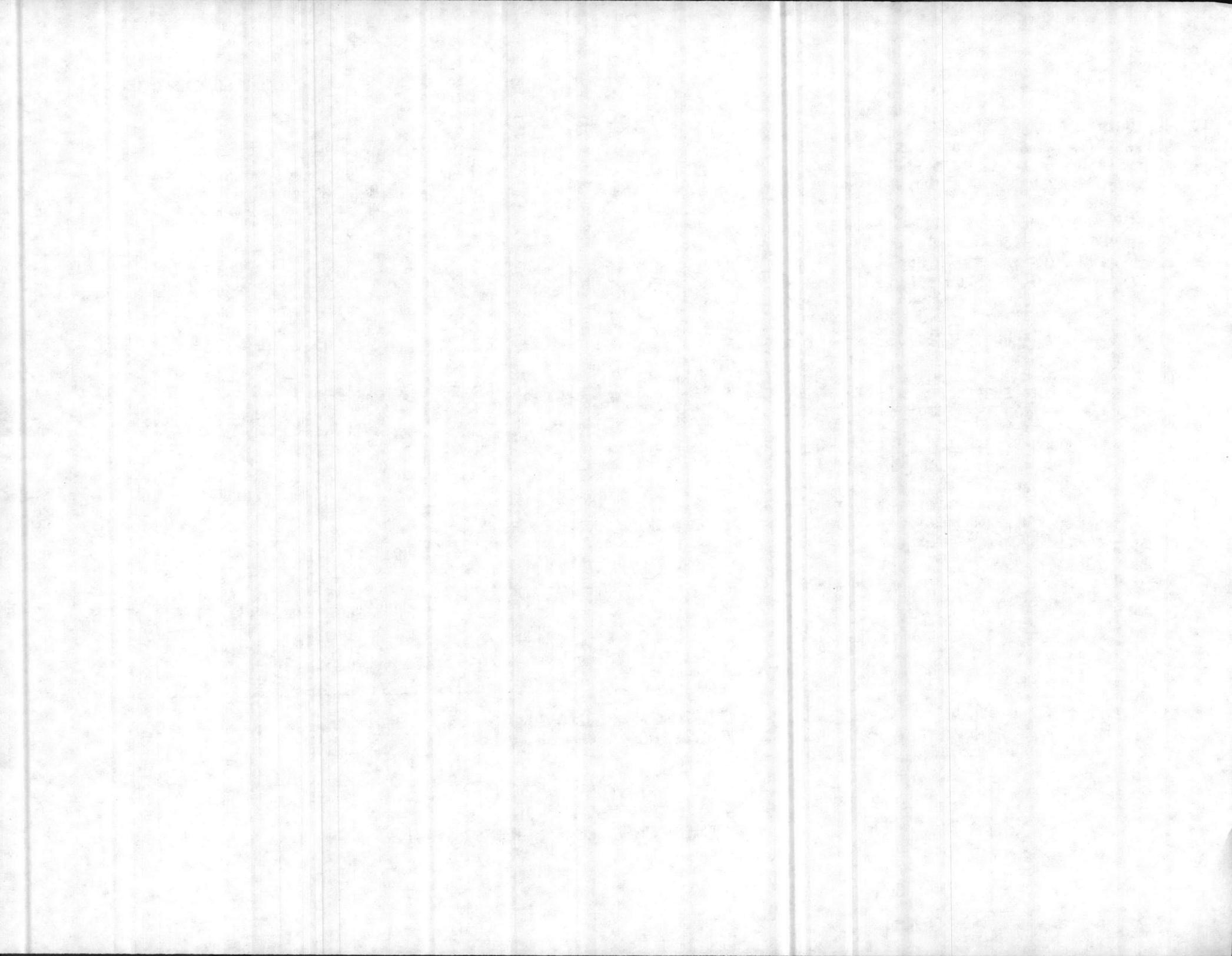


TABLE 1
SITE ASSESSMENT SUMMARY - NEW RIVER
PAGE 3 OF 6

19

CATEGORY CODE	NOMENCLATURE	ADEQUATE	MODIFICATION RECOMMENDED	NEW CONSTRUCTION RECOMMENDED	NATURE OF CHANGE
211 07	Maintenance Hangar - 02 space		X		and 125 psi shop air (Bldg. 515 only). Bldg. 515 - provide 6,600 square feet of additional 02 space.
211 08	Airframes Shop Tire and Wheel Shop			X	Bldg. 4108 - provide ⁷³²⁰ 11,430 square feet of additional 02 space. Bldg. 518 - Relocate from Hydraulics Shop - 465 square feet required. Upgrade utilities to provide 240V/3Ph/60 Hz. Bldg. 4106 - 400 square feet of additional space required. Upgrade utilities to provide 240V/3 Ph/60 Hz.
	Hydraulics Shop			X	Provide shop air at 100-125 psi.
	Welding Shop	X			

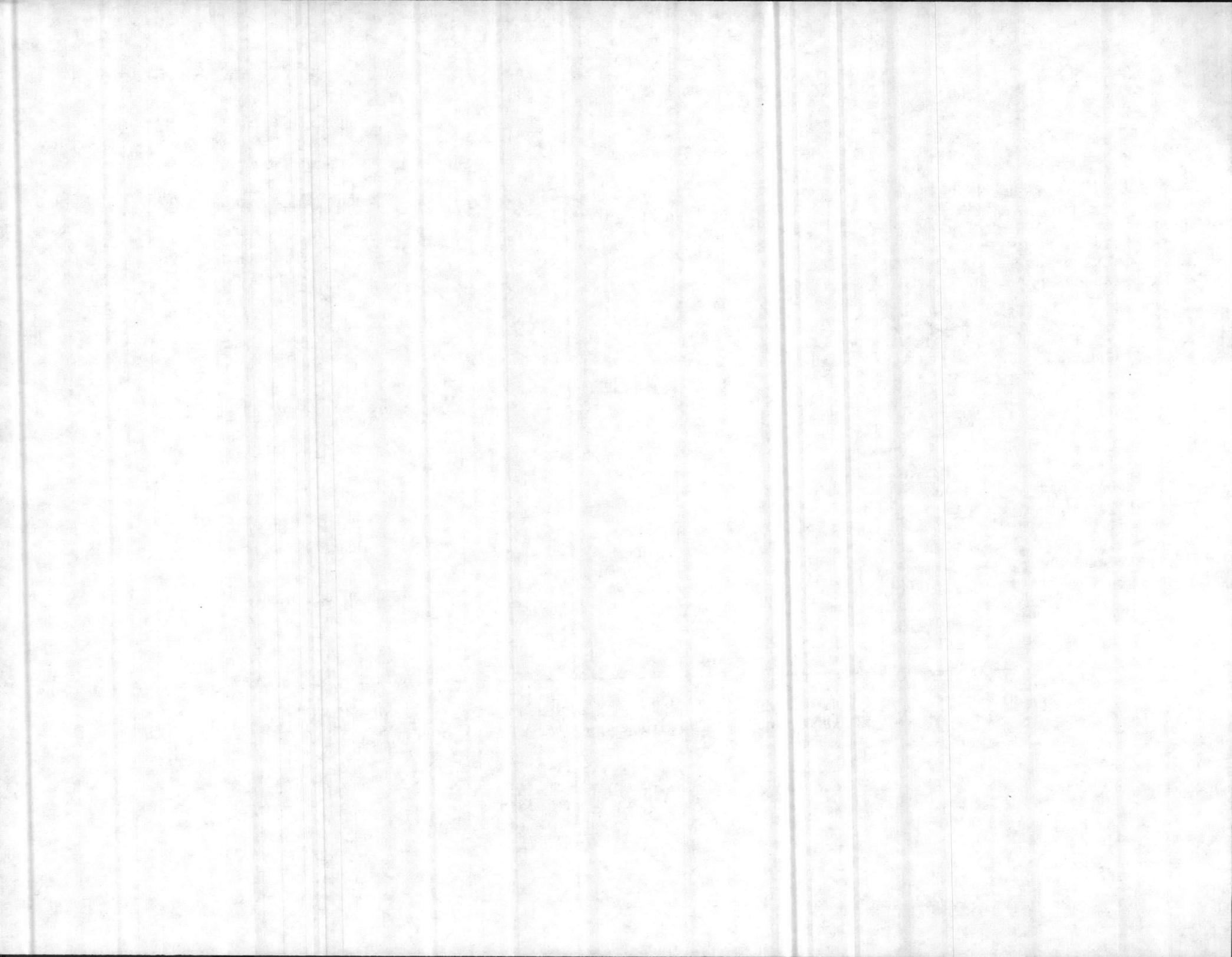


TABLE 1
SITE ASSESSMENT SUMMARY - NEW RIVER
PAGE 4 OF 6

CATEGORY CODE	NOMENCLATURE	ADEQUATE	MODIFICATION RECOMMENDED	NEW CONSTRUCTION RECOMMENDED	NATURE OF CHANGE
	Structures Shop		X		Bldg. 518 - Upgrade utilities to provide 240/460V, 3 Ph, 60 Hz and 100-125 psi shop air. Bldg. 4106 - Upgrade utilities to provide 240/460V, 3 Ph, 60 Hz.
	Cleaning/Vacu-Blast Shop		X		Bldg. 4106 - Upgrade utilities to provide 230V, 1 Ph, 60 Hz.
	Composite Repair Shop	X	<i>explain</i>		
	Paint Shop		X		Bldg. 518 - Upgrade utilities to provide 480V, 3 Ph, 60 Hz. Bldg. 4106 - Upgrade utilities to provide 240V, 1 Ph, 60 Hz and 480 V, 3 Ph, 60 Hz.
	NDI Shop		X		Bldg. 518 - Upgrade utilities to provide 480V, 1 Ph, 60 Hz and 480V, 3 Ph, 60 Hz. Bldg. 4106 - Upgrade utilities to provide 480V, 1 Ph, 60 Hz and 480 V, 3 Ph, 60 Hz.

20

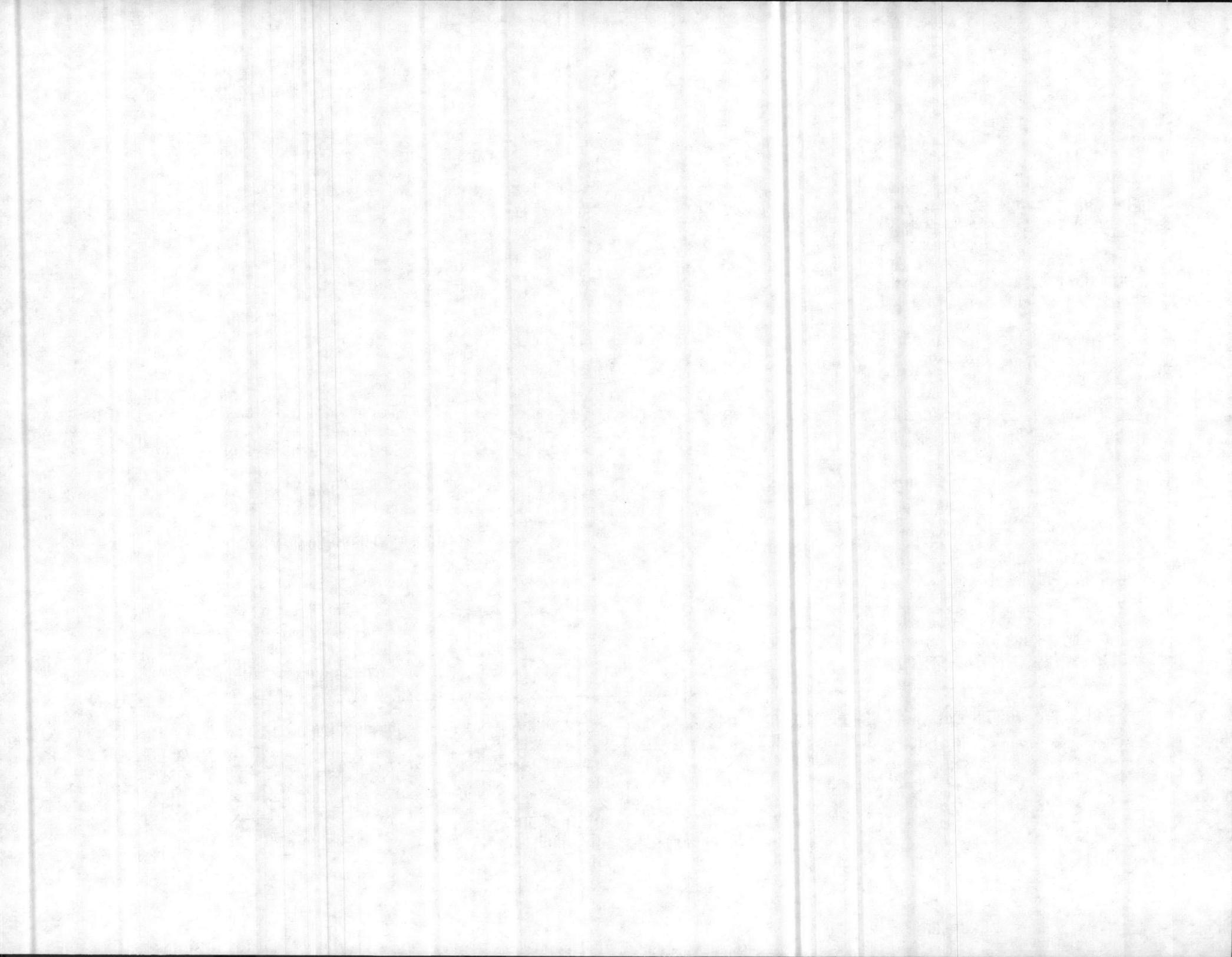


TABLE 1
SITE ASSESSMENT SUMMARY - NEW RIVER
PAGE 5 OF 6

CATEGORY CODE	NOMENCLATURE	ADEQUATE	MODIFICATION RECOMMENDED	NEW CONSTRUCTION RECOMMENDED	NATURE OF CHANGE
	Machine Shop		X		Bldg. 518 - Upgrade utilities to provide 240V, 3 Ph, 60 Hz and 480V, 3 Ph, 60 Hz. Bldg. 4106 - Provide an additional 327 square feet of working space. Upgrade utilities to include 480V, 3 Ph, 60 Hz.
21	Rotor Dynamics Shop				<i>Needs to consider some</i> See Allison Site Evaluation Report. <i>A Union is not doing</i>
211 45	Avionics Shop	X			
211 75	Survival Equipment Shop			X	Bldg. 518 - Consolidate MAG-26 survival equipment functions to one location - 4,080 square feet of shop space required. Bldg. 4106 - Provide an additional 1,894 square feet of shop space. Upgrade utilities to include 440V, 3 Ph, 60 Hz.
218 45	Instrument Calibration Shop			X	MAG-26 - Construct a 975 square feet facility with required utilities.

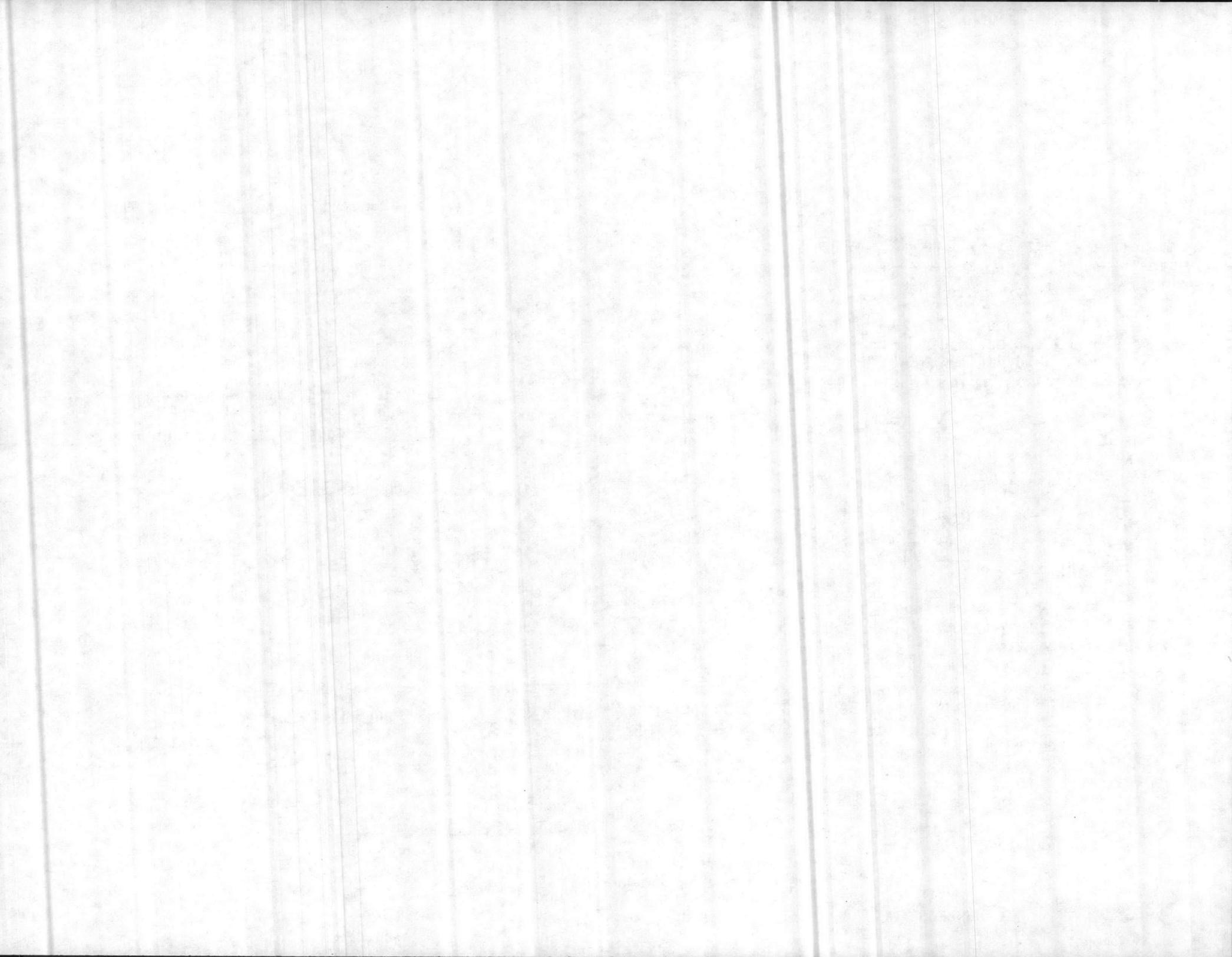
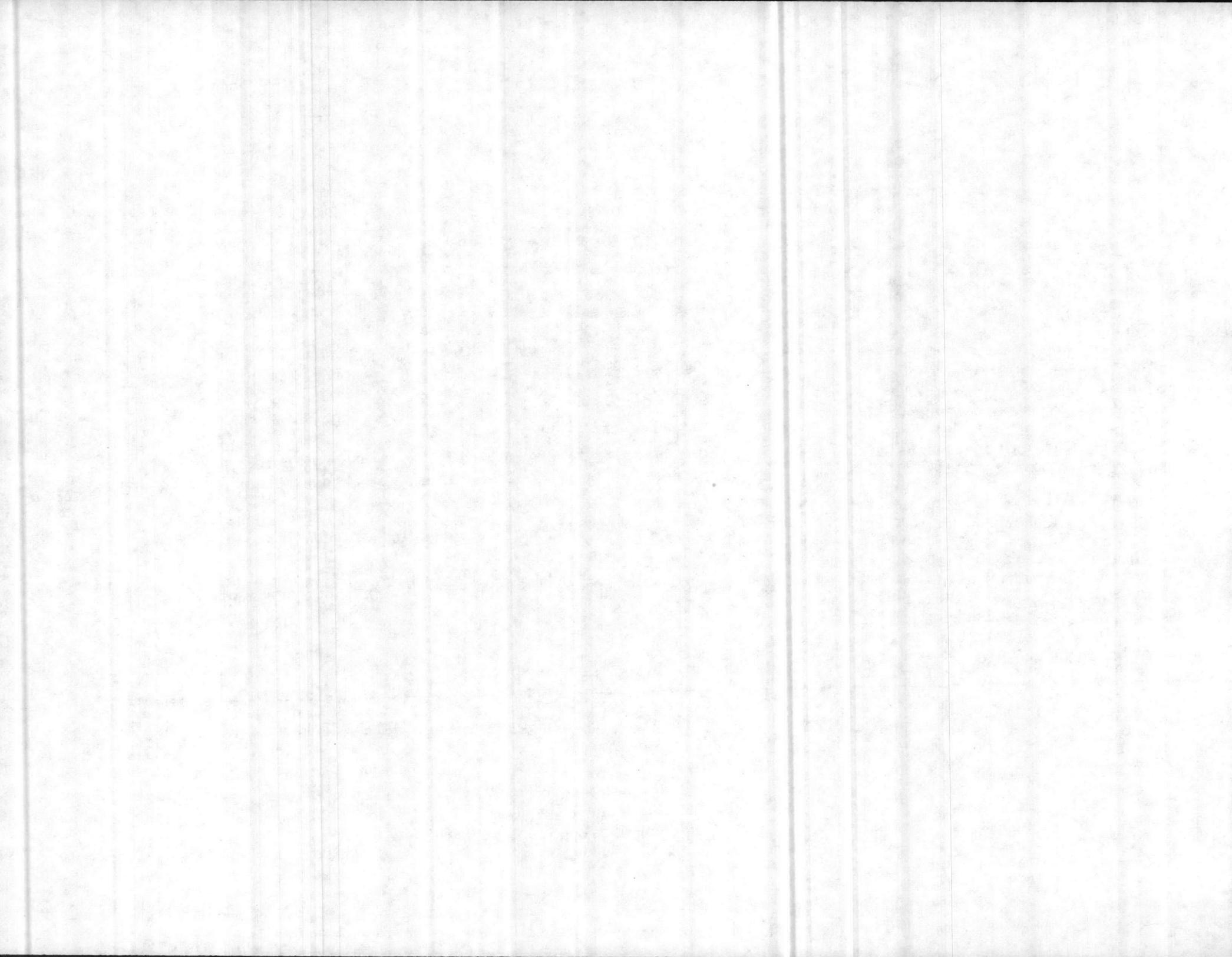


TABLE 1
SITE ASSESSMENT SUMMARY - NEW RIVER
PAGE 6 OF 6

22

CATEGORY CODE	NOMENCLATURE	ADEQUATE	MODIFICATION RECOMMENDED	NEW CONSTRUCTION RECOMMENDED	NATURE OF CHANGE
218 50	Battery Shop	X			MAG-29 (Bldg. 4106) - Provide an additional 572 square feet of shop space.
218 60	Ground Support Equipment Shop	X			MAG-29 - Adequate if MILCON Project P-211 is executed.
218 61	Ground Support Equipment Holding Shed			X	MAG-29 - Adequate if MILCON Project P-211 is executed.
441 10	Supply Warehouse	X			Construct a securable 14,625 square foot holding shed. Adequate if MILCON Projects P-185 and P-357 are executed. <i>WU-22 Adequate</i>



3.0 SITE ASSESSMENT MCAS NEW RIVER

3.1 Operational Facilities

3.1.1 111 10/15 Runways (3.1.2)

Current Facilities

<u>Runway No.</u>	<u>Length (feet)</u>	<u>Width (feet)</u>	<u>Construction</u>
5/23	5,000	150	Asphalt-Concrete
18/36	5,000	150	Asphalt-Concrete

stable over which

V-22 Requirements

Dimensions

Width: 100 feet
 Length: 2400 feet based on calculated acceleration/stopping distances.

Load Bearing Capacity: Based on maximum design take-off weight (42,600 pounds), foot print pressure of the V-22 nose wheel is estimated at 206 psi. *single wheel load must be parallel*

Assessment

Adequate; both runways exceed V-22 requirements.

Recommendations

None

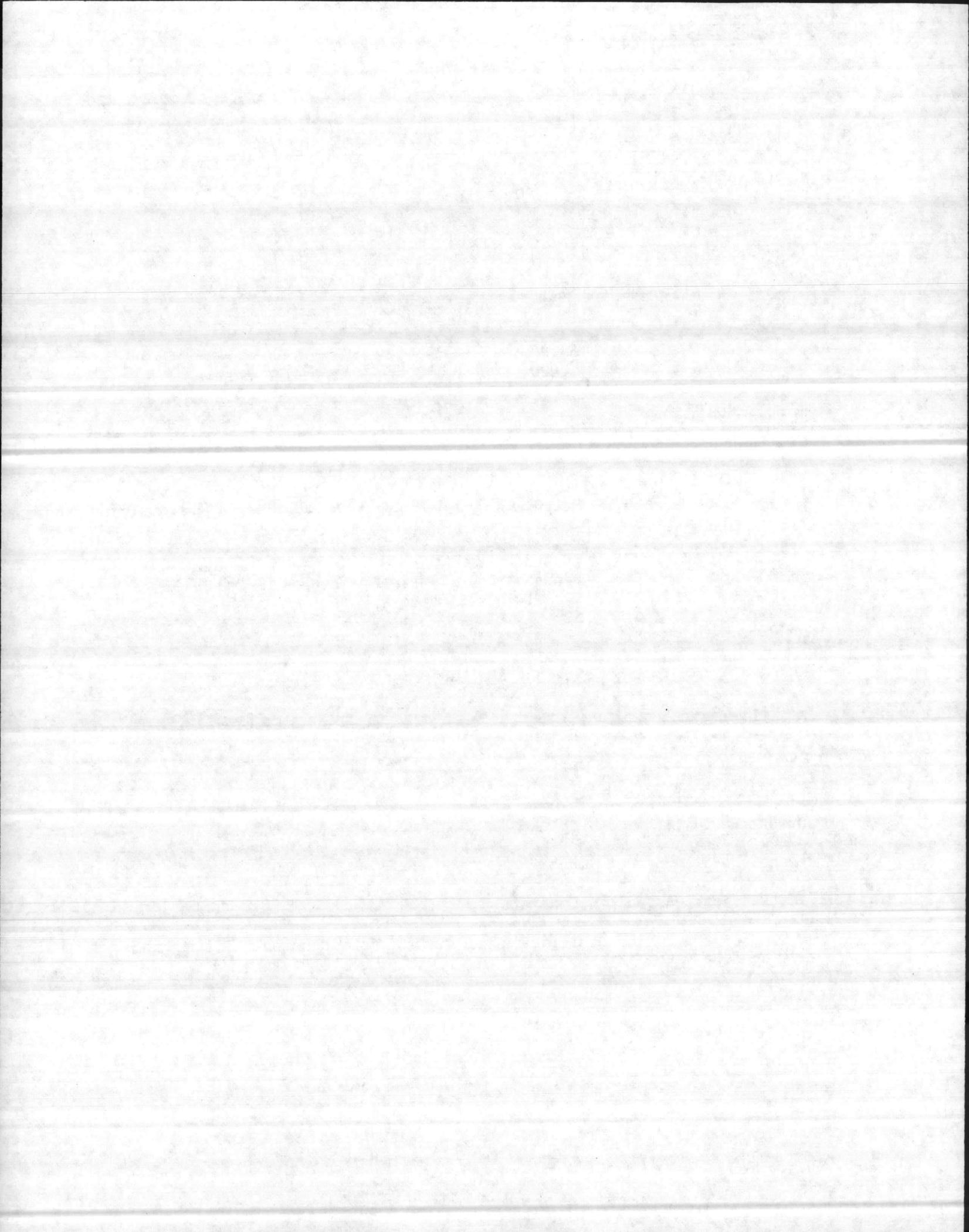
3.1.2 112 10 Taxiways (3.1.4)

Current Facilities

Dimensions: 75 feet wide

Construction: Asphalt - Concrete

MILCON Project P-536 identifies a requirement to widen the existing taxiways by ~~forty~~ feet. *Project should end up with 100' taxiway*



V-22 Requirements

Dimensions: 40 feet wide with 30 feet wide non-load bearing shoulders. Pavement joints should be sealed for FOD prevention.

Foot Print Pressure: 206 psi

Assessment

Existing taxiways do not meet V-22 minimum criteria and require expansion to a width of 100 feet. MILCON Project P-536 will correct this deficiency.

Recommendations

Add 12.5 feet (minimum) non-load bearing shoulders. Seal pavement joints as a FOD preventative measure. Execution of MILCON Project P-536 will satisfy this requirement.

3.1.3 113 20 Aircraft Parking Apron (3.1.5)Current Facilities

Dimensions: 696,151 square yards

Construction: Concrete

Load Bearing Capability: Currently supports CH-53E.

Tiedown Spacing: 12.5 feet x 15 feet.

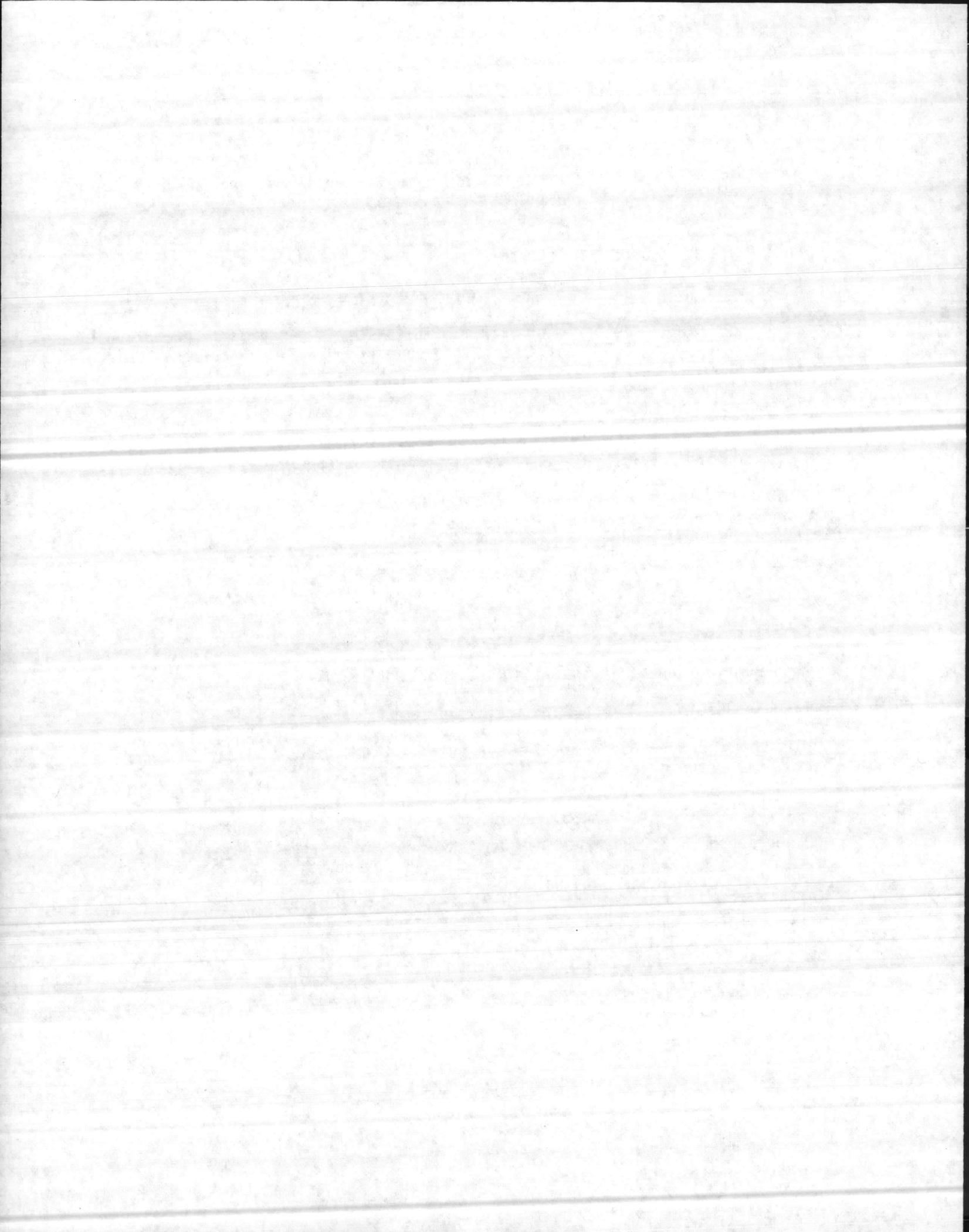
MILCON Project P-536 identifies a requirement to expand the parking apron by 76,194 square yards.

V-22 Requirements

Dimensions: 3,203 square yards (127 feet x 227 feet) per aircraft x
66 81 aircraft spots = 259,443 square yards (peripheral taxi
lanes not included).

Foot Print Pressure: 206 psi

Tiedowns: 12.5 feet x 15 feet per DM-21 and ~~DM-21.1~~.



Assessment

Figure 2 illustrates a candidate aircraft parking arrangement. The numbers of parking spaces, based on Government direction, by aircraft type are listed below. As shown in Figure 2, these aircraft may be accommodated using the existing parking apron. Restriping the apron will be necessary. Figure 3 shows the current parking apron.

Type Aircraft	Deployed	Hangared	Parking Spaces	Total
MV-22	15 <i>12</i>	21 <i>17</i>	81 70	117 99
CH-53	4	10 <i>7</i>	32 <i>21</i>	46 32 <i>45</i>
AH/UH-1	6	11 <i>10</i>	33 <i>32</i>	50 <i>48</i>
OV-10	0	4	13 <i>-</i>	17

The proposed hangar space cannot accommodate the number MC in a working position

Recommendations

Modify the current parking plan and restripe accordingly. *Do not agree*

3.1.4 113 40 Aircraft Access Apron (3.1.6)

Current Facilities

Dimensions: 50 feet

Construction: Concrete

V-22 Requirements

Minimum Width: 50 feet

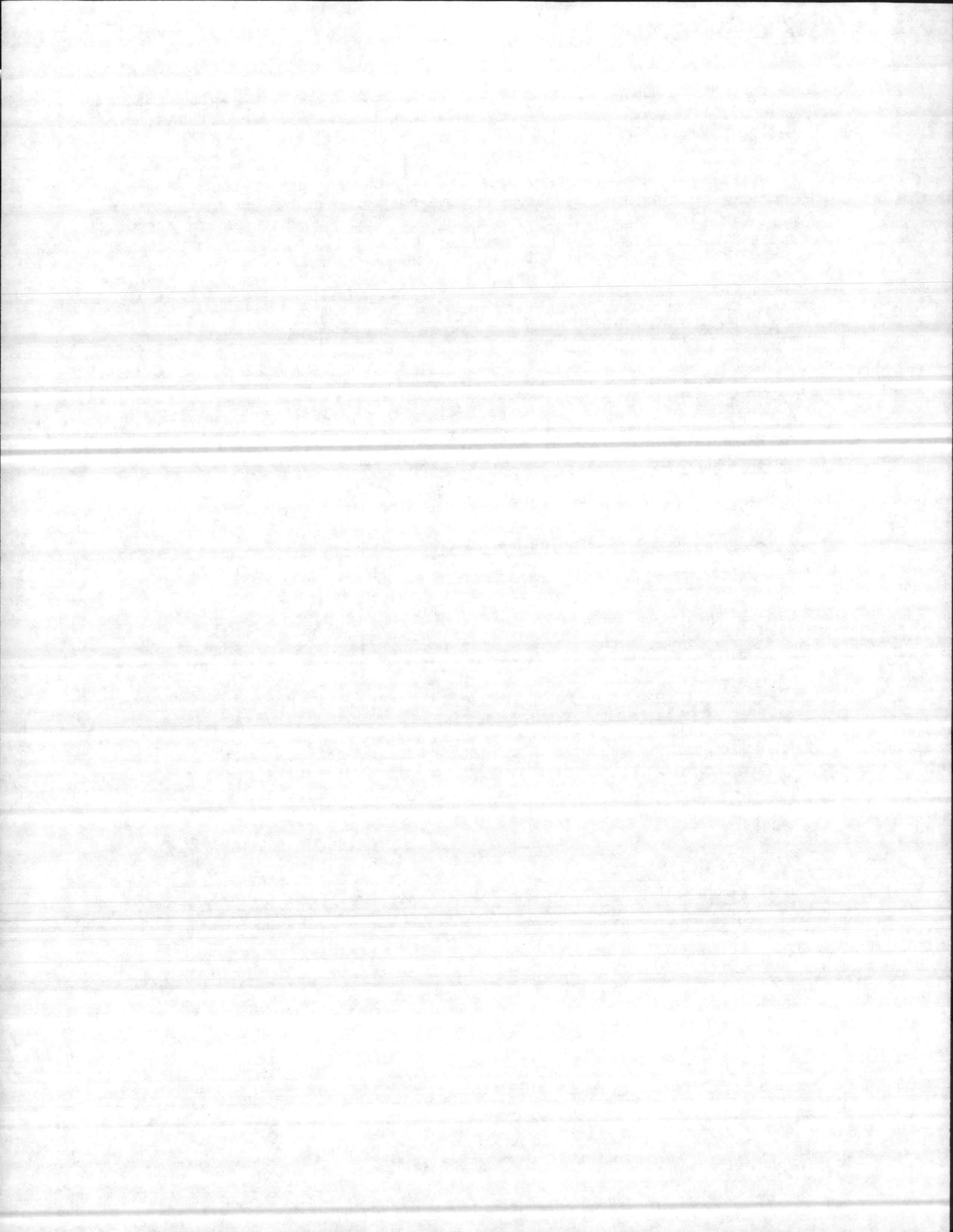
Minimum Length: Width of maintenance hangar doorway

Assessment

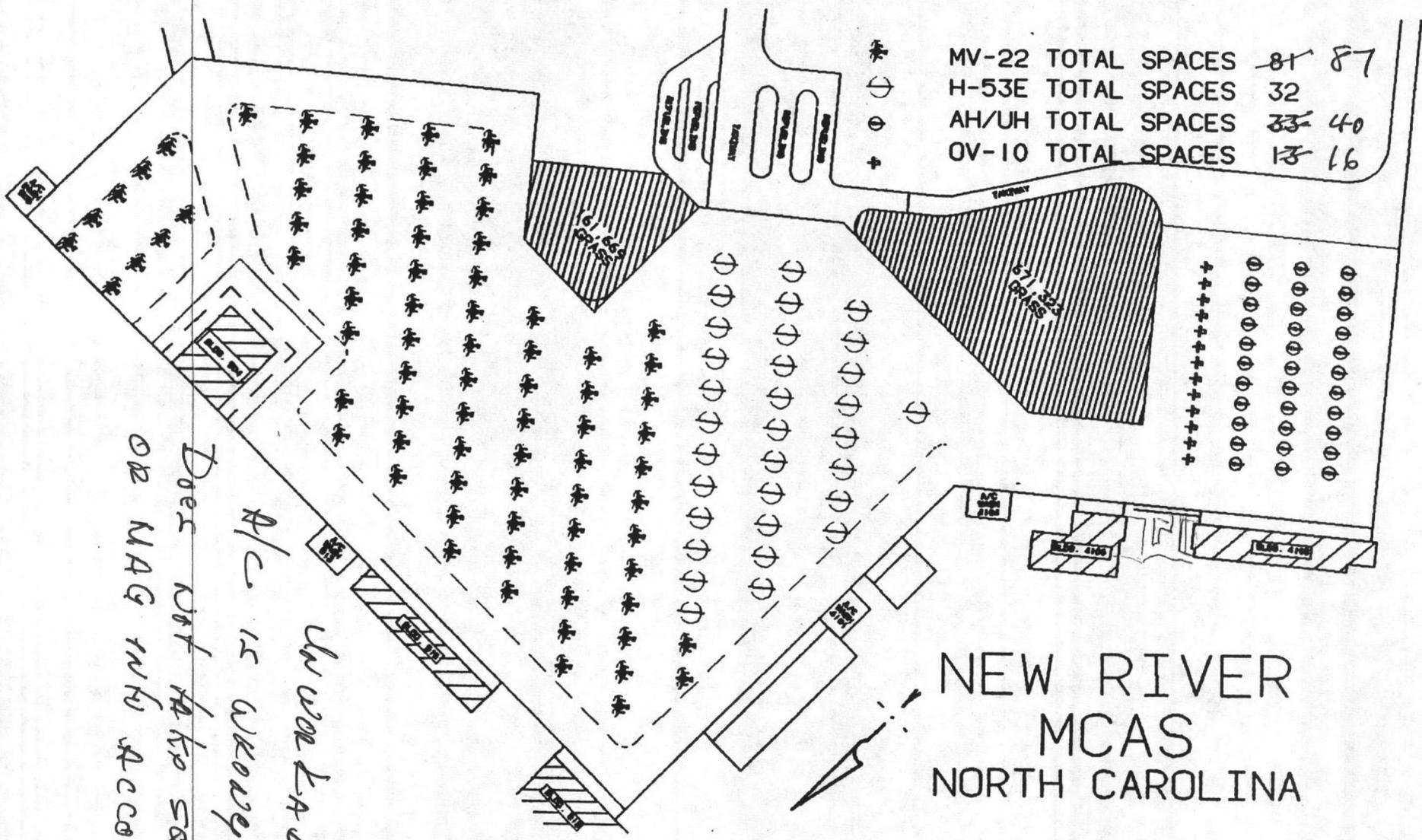
Adequate.

Recommendations

None.



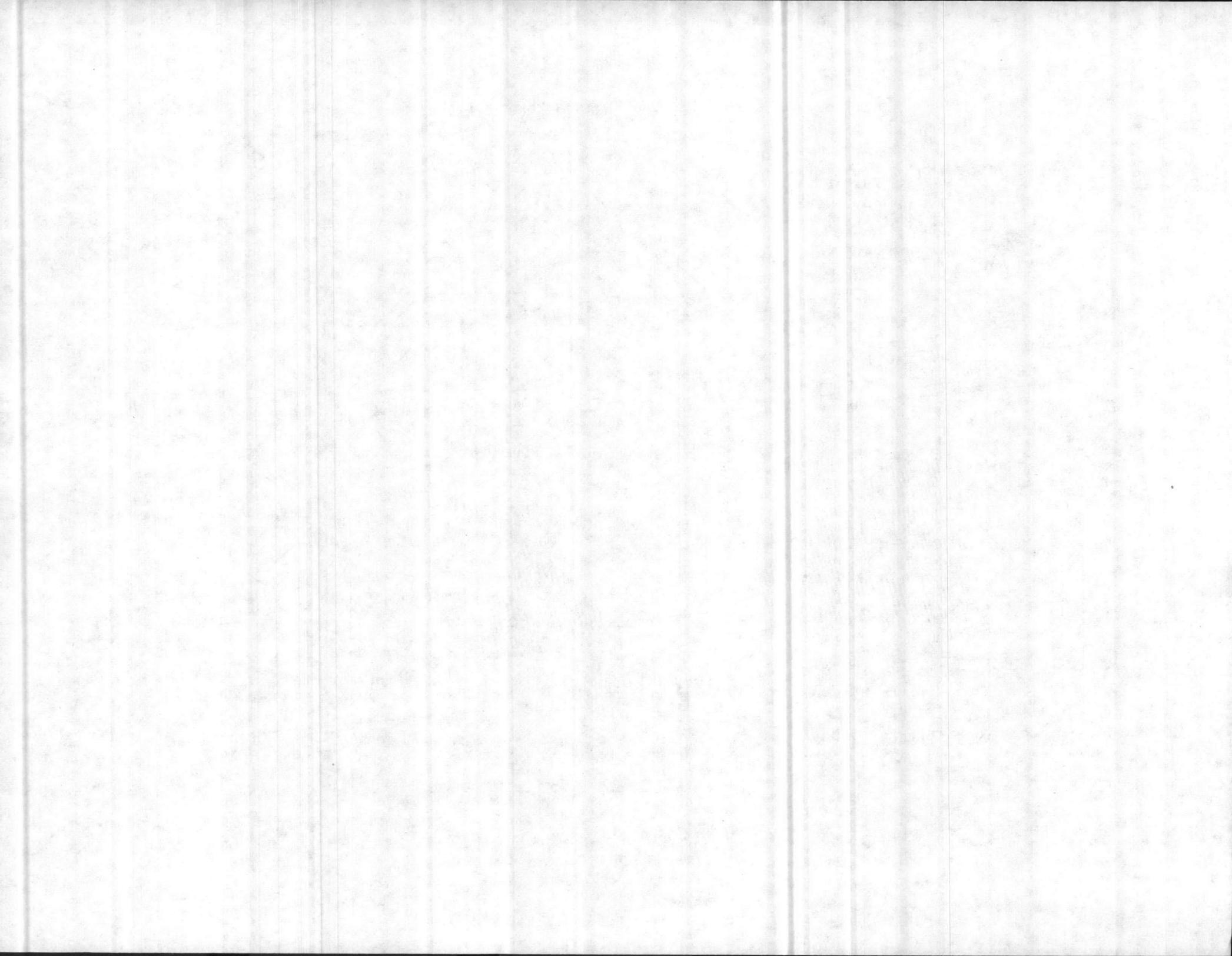
⊕	MV-22 TOTAL SPACES	81	87
⊖	H-53E TOTAL SPACES	32	
⊙	AH/UH TOTAL SPACES	33	40
+	OV-10 TOTAL SPACES	13	16



NEW RIVER
MCAS
NORTH CAROLINA

FIGURE 2. CANDIDATE PARKING PLAN

*Does not take SAGU
OR MAG into account
A/C is already.
We use LA 6p.*



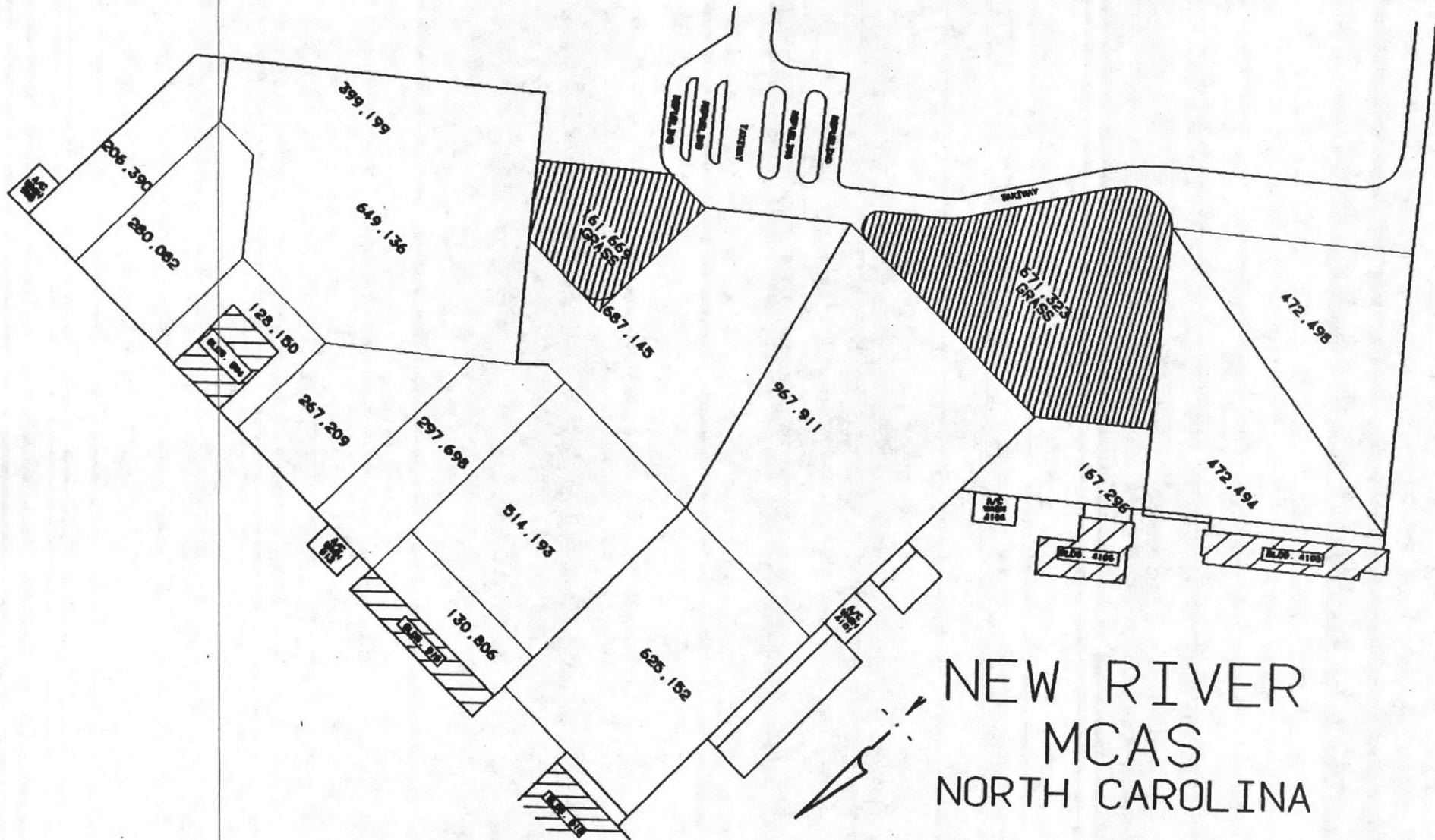
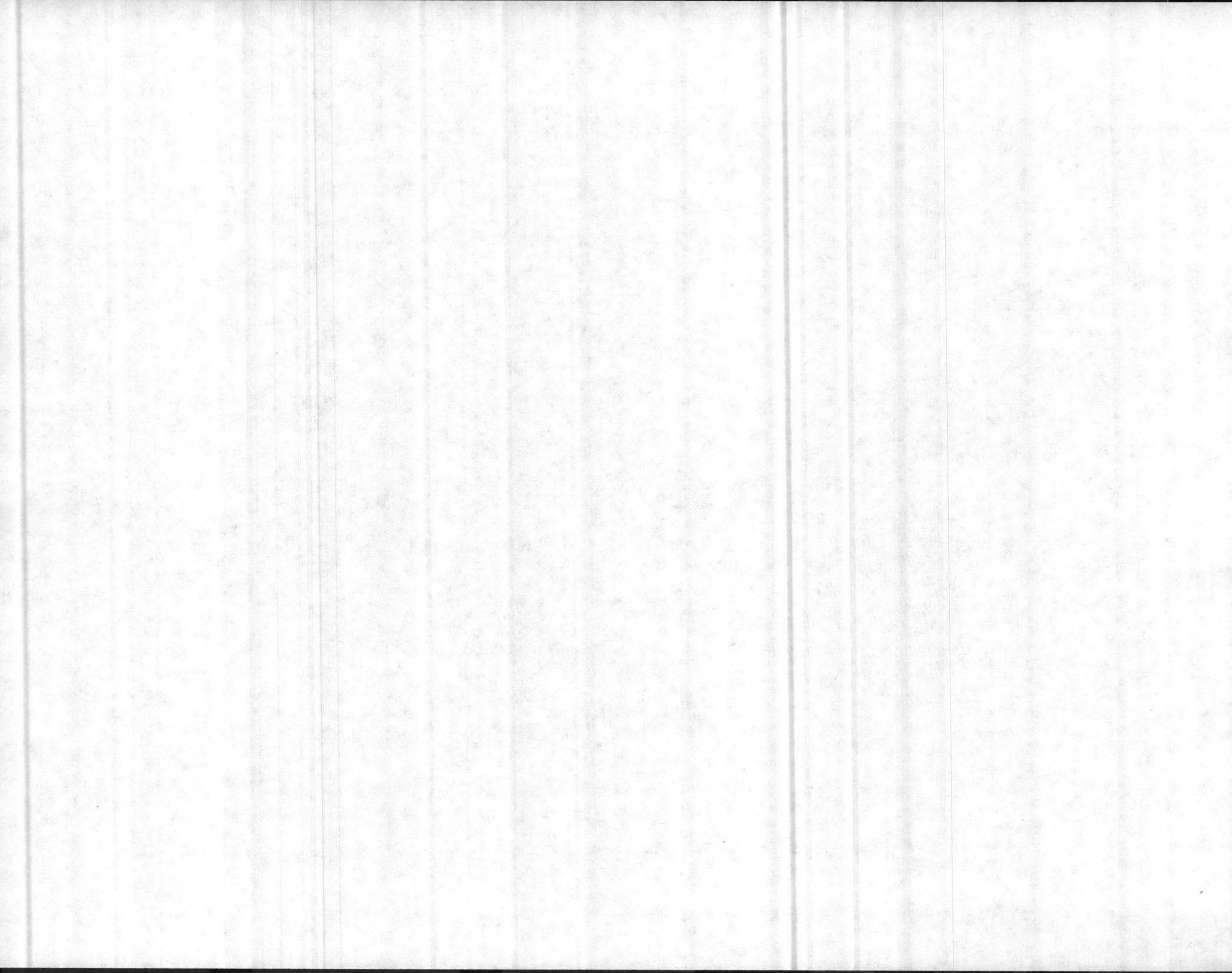


FIGURE 3. CURRENT PARKING APRON ARRANGEMENT



3.1.5 116 10 Aircraft Washrack Pavement (3.1.7)

Current Facilities

See Table 2.

V-22 Requirements

Dimensions: 115 feet wide x 85 feet deep

Utilities: Pressurized water/soap - minimum 3 hoses per aircraft wash station with water at 60 psi and 10-12 gpm per hose.

Oil/water separation

Design Criteria: Type "A" washrack as defined in NAVFAC P-80 and definitive drawing # 1291729 contained in NAVFAC P-272 modified to a width of 115 feet.

Assessment

Five (5) washracks are available at the air station (2 @ MAG 26, 3 @ MAG 29). Four (4) of the washracks are adequate for V-22 washdown; because of its size, the washrack located in the area of Hangar 4108 (MAG-29) is inadequate for washing the V-22 aircraft.

only 4 washracks exist

This has been denuded by P-451

Recommendations

None. The two (2) washracks in MAG-29 and washrack AS 4101 and AS 4104 are adequate for supporting the V-22.

3.1.6 116 15 Aircraft Rinse Facility (3.1.8)

Current Facilities

Location: Adjacent to Bldg. 515 (MAG-26 area).

Dimensions: Approximately 75' wide x 100' long.

Construction: Concrete.

Utilities: Fresh water, pressure variable approximately 150-300 psi.

MILCON Project P-528 identifies a requirement to construct a Type I Rinse Facility in the MAG-29 area.

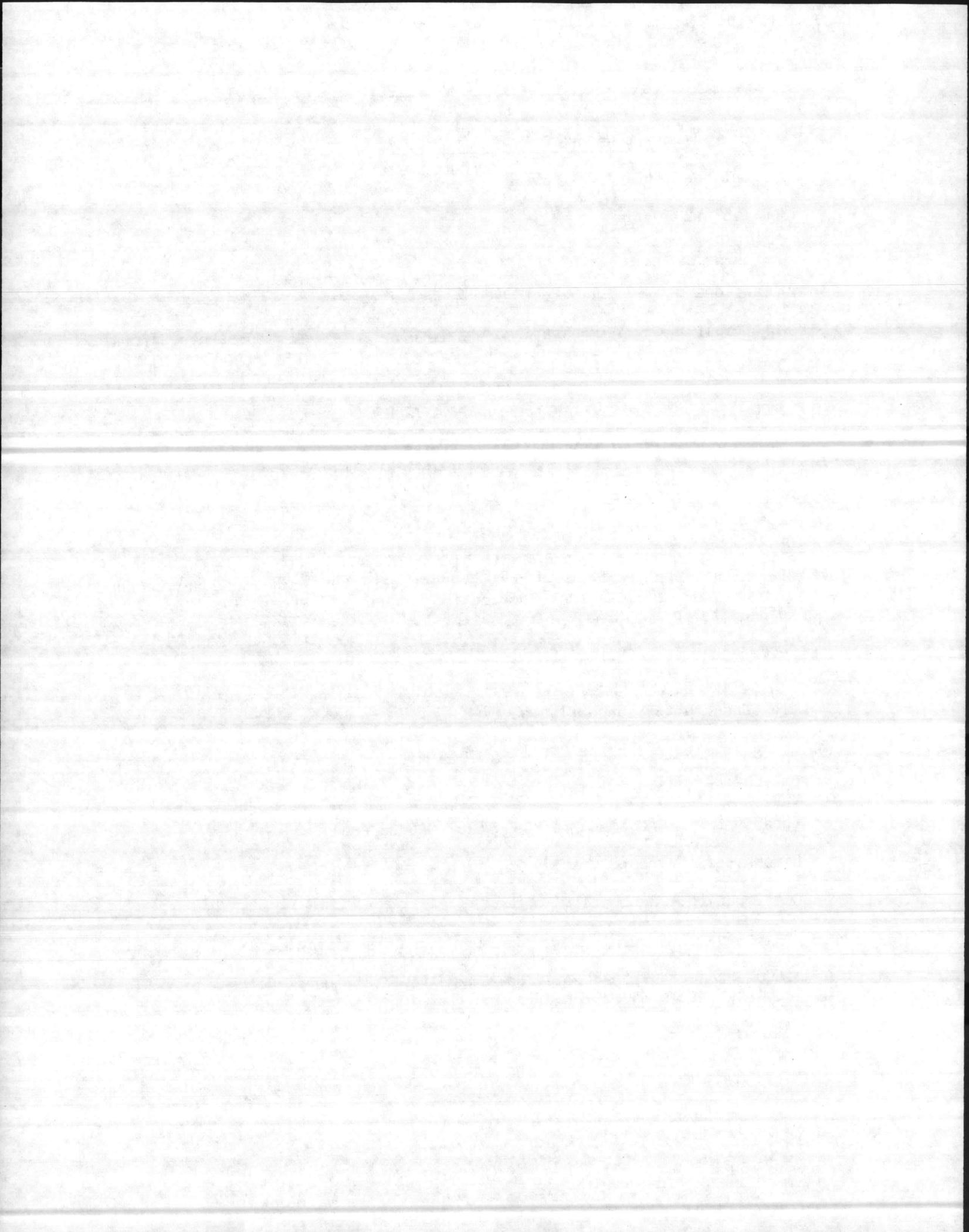
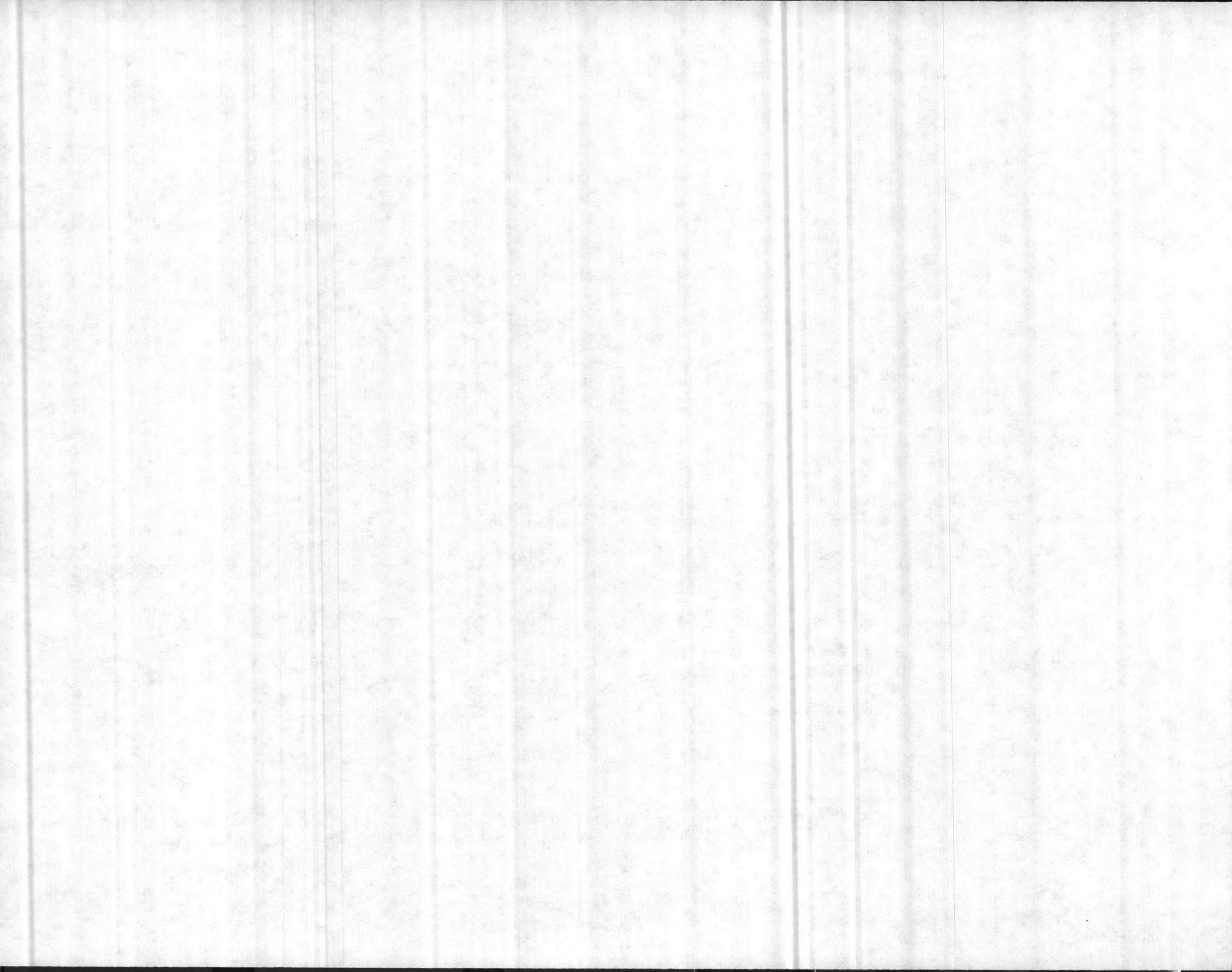


TABLE 2

Current Facilities - 116 10 Aircraft Washrack Pavement

Washrack Designation	AS 505	AS 513	AS 4101	AS 4104	AS 4108
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Location	Adjacent to Bldg. 504	Adjacent to Bldg. 515	Adjacent to Bldg. 4100	Adjacent to Bldg. 4106	Adjacent to Bldg. 4108
Dimensions	160' wide x 110' deep	160' wide x 110' deep	160' wide x 110' deep	160' wide x 109.5' deep	60' wide x 50' deep
Construction	Concrete	Concrete	Concrete	Concrete	Concrete
Utilities	Fresh Water	Fresh Water	Air/Water	Fresh Water	Fresh Water



V-22 Requirements

A rinse facility as defined in the V-22 FRD will service the V-22 which requires a facility measuring a minimum 110 feet wide by 95 feet deep.

Assessment

Observation of the existing Type I rinse facility in operation for rinsing a CH-46 aircraft while taxiing indicated an effective rinse would not be applied to the top surface of the wing and blade of the V-22 aircraft. The water pressure was insufficient for rinsing the rotor blades. The downwash of the blades appeared to suppress the water spray. In addition to an ineffective rinse, the two (2) rows of nozzles which are located at each end of the nozzle enclosure, located within the ground, do not provide for adequate clearance allowing water to enter into the V-22's engine exhaust.

Recommendations

Construct a new rinse facility satisfying the design criteria identified in the V-22 FRD.

Bell-Boeing should provide some design help

3.1.7 116 20 Aircraft Compass Calibration Pad (3.1.9)

Current Facilities

Dimensions: 120 foot diameter.

North-South lines marked on taxiway located in the MAG-29 area.

V-22 Requirements

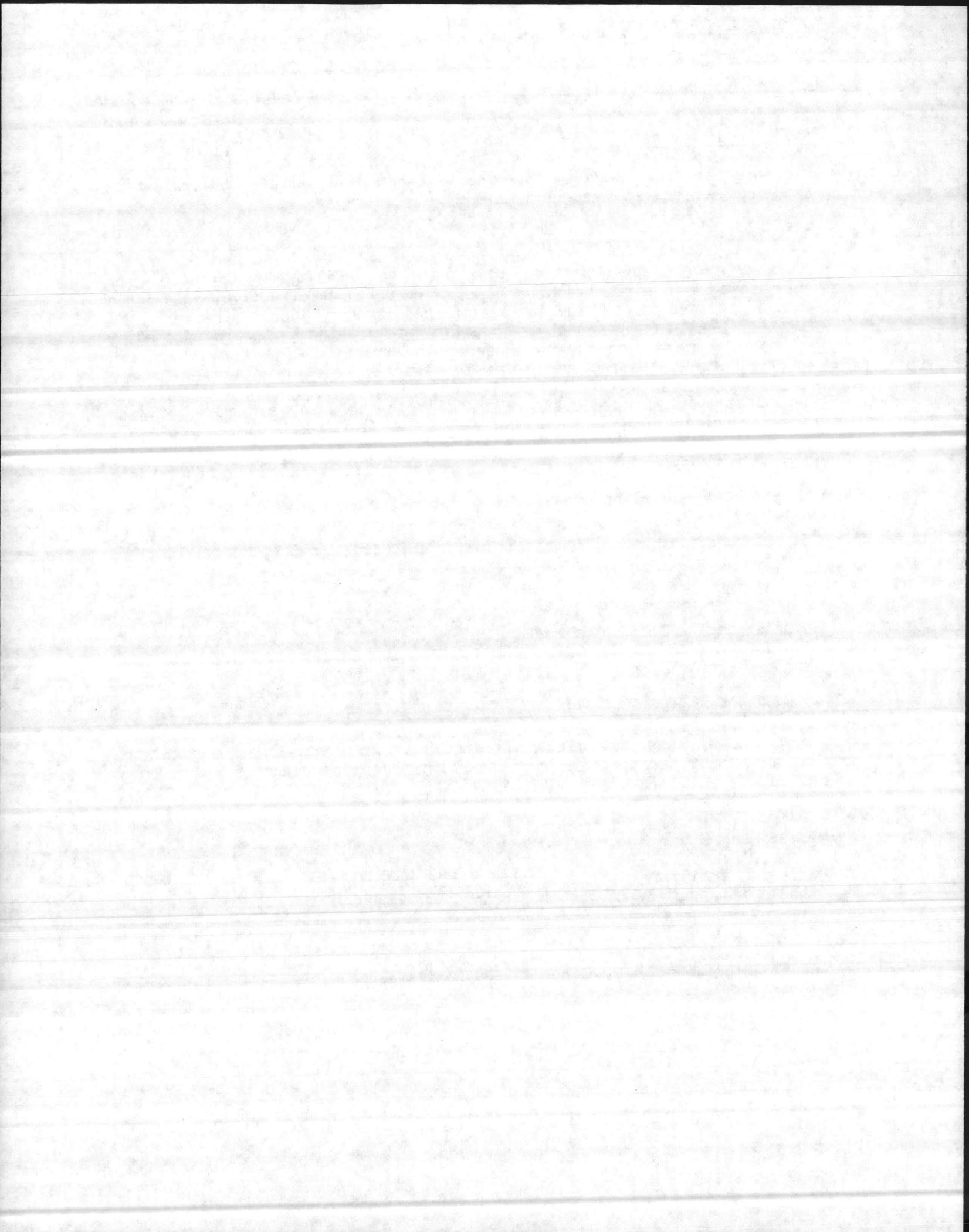
The V-22 will require flux valve calibration. Facilities required to perform this operation are a North-South line in accordance with NAVFAC DM-21, Type I. Figure 4 illustrates the required V-22 peculiar aircraft orientation markings.

Assessment

Existing facilities are adequate. V-22 peculiar markings per Figure 5 should be added for use of the North-South line. ✓

Recommendations

Add V-22 orientation markings to the taxiway area.



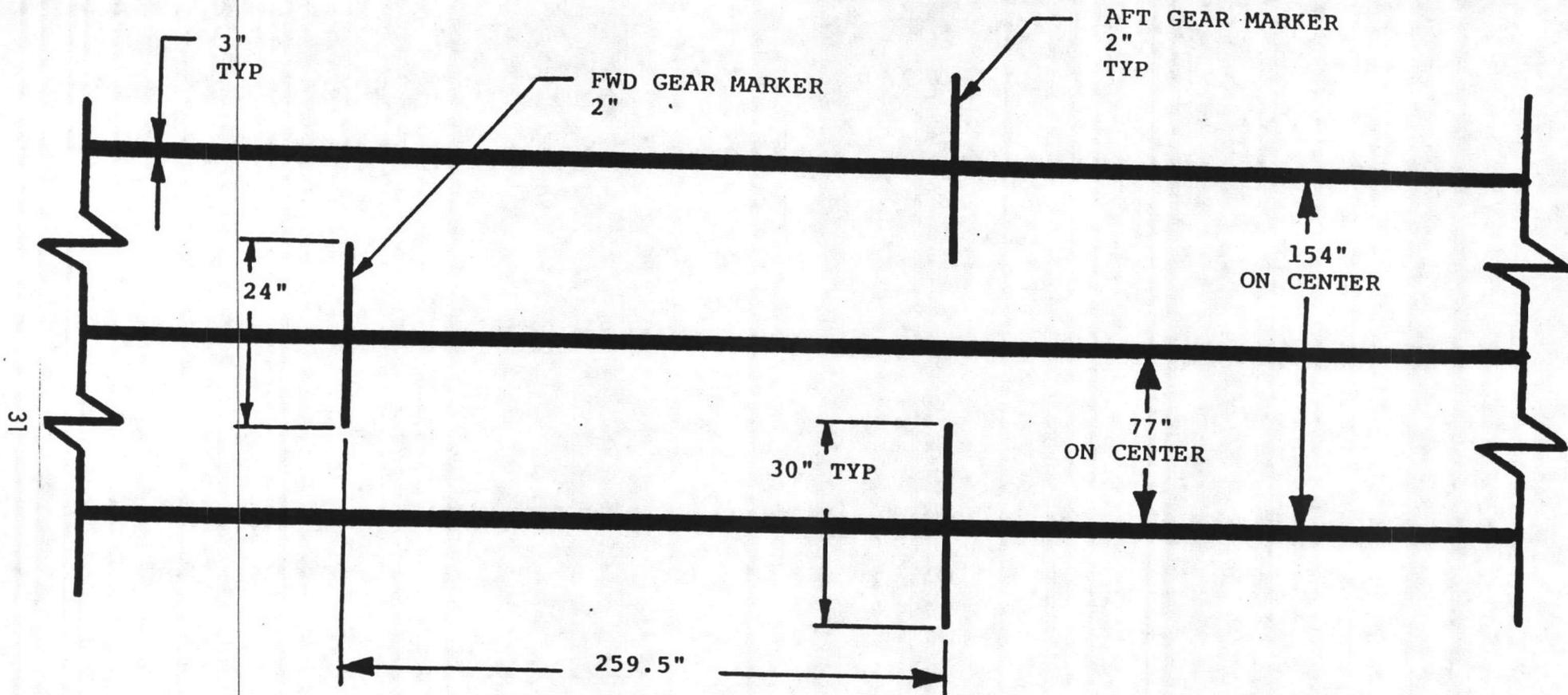
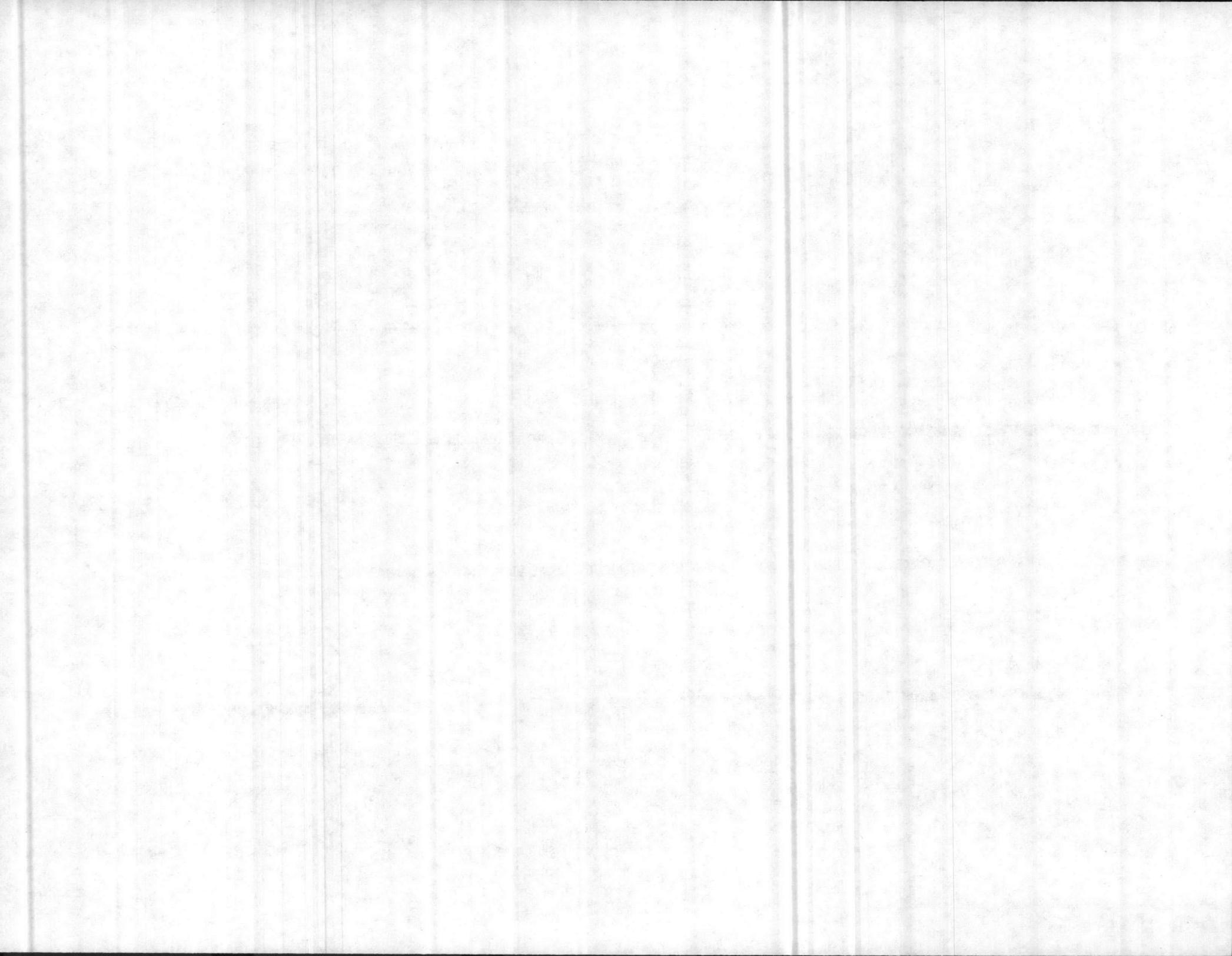


Figure 4. V-22 Aircraft Orientation Markings



3.1.8 116 45 Line Vehicle Parking (3.1.10)

Current Facilities

No dedicated parking areas. Support equipment located in and around the maintenance hangars.

V-22 Requirements

Dimensions: 120 square yards per squadron x 7.9 squadrons = 948 square yards.

Construction: Flexible or rigid pavement meeting the design criteria in DM-21.

Assessment

Dedicated line vehicle parking areas should be provided for each squadron per the requirements of NAVFAC P-80.

Recommendations

Construct a total of 948 square yards of line vehicle parking area satisfying the design criteria in DM-21.

We'll look into this in contact with Rehab Projects & new hangar construction

3.1.9 116 50 Towway (3.1.11)

Current Facilities

None on site.

V-22 Requirements

Clearance: 55 feet on both sides of the centerline (lateral) and 30 feet vertically.

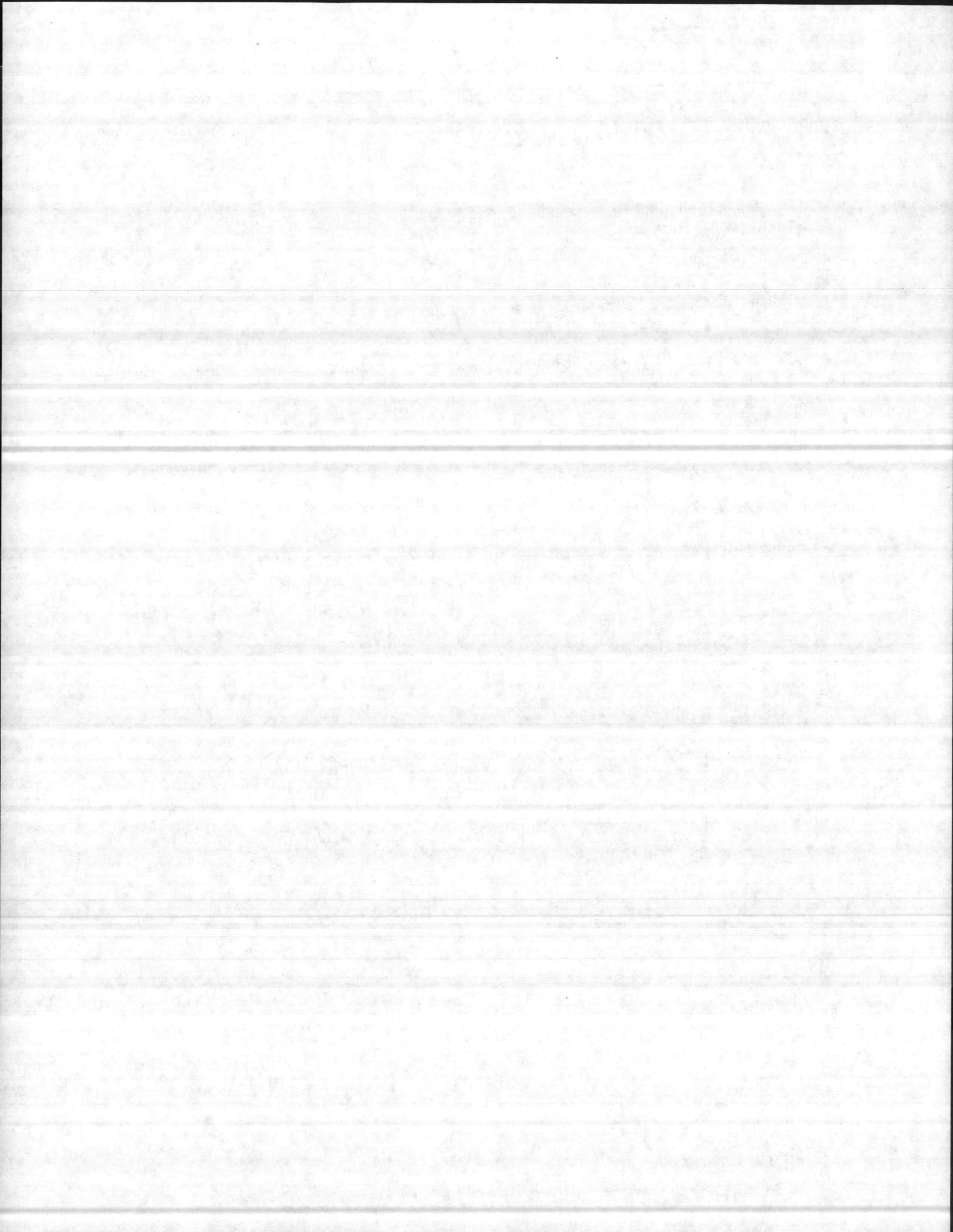
Minimum Dimension: 35 feet wide

Assessment

None required.

Recommendations

None.



3.1.10 121 10 Direct Refueling Station (3.1.12)

Current Facilities

Dimensions: 75 feet wide.

Construction: Asphalt. *or concrete*

MILCON Project P-545 identifies a requirement for four (4) new hot refueling pits. The refueling lanes will measure 100 feet wide.

V-22 Requirements

Dimensions: 120 feet wide (minimum) with associated taxilanes into and out of the refueling station 100 feet wide (minimum).

The V-22 will be capable of "hot" refueling. The pressure refueling points are located on the port side aft sponsons.

Assessment

Current fueling stations are too narrow. MILCON Project P-545 pavements measure 100 feet wide and do not meet the minimum 120 feet required for safe refueling of the V-22. MILCON Project P-545 should be modified to provide 120 feet wide pavements. As shown in Figure 5, this project will not impact the Aircraft Parking Apron discussed in paragraph 3.1.3.

Recommendations

Redesign MILCON Project P-545 to reflect a minimum refueling lane width of 120 feet.

*do not agree unless
120' includes
dividers*

3.1.11 124 30 Aircraft Ready Fuel Storage (3.1.14)

Current Facilities

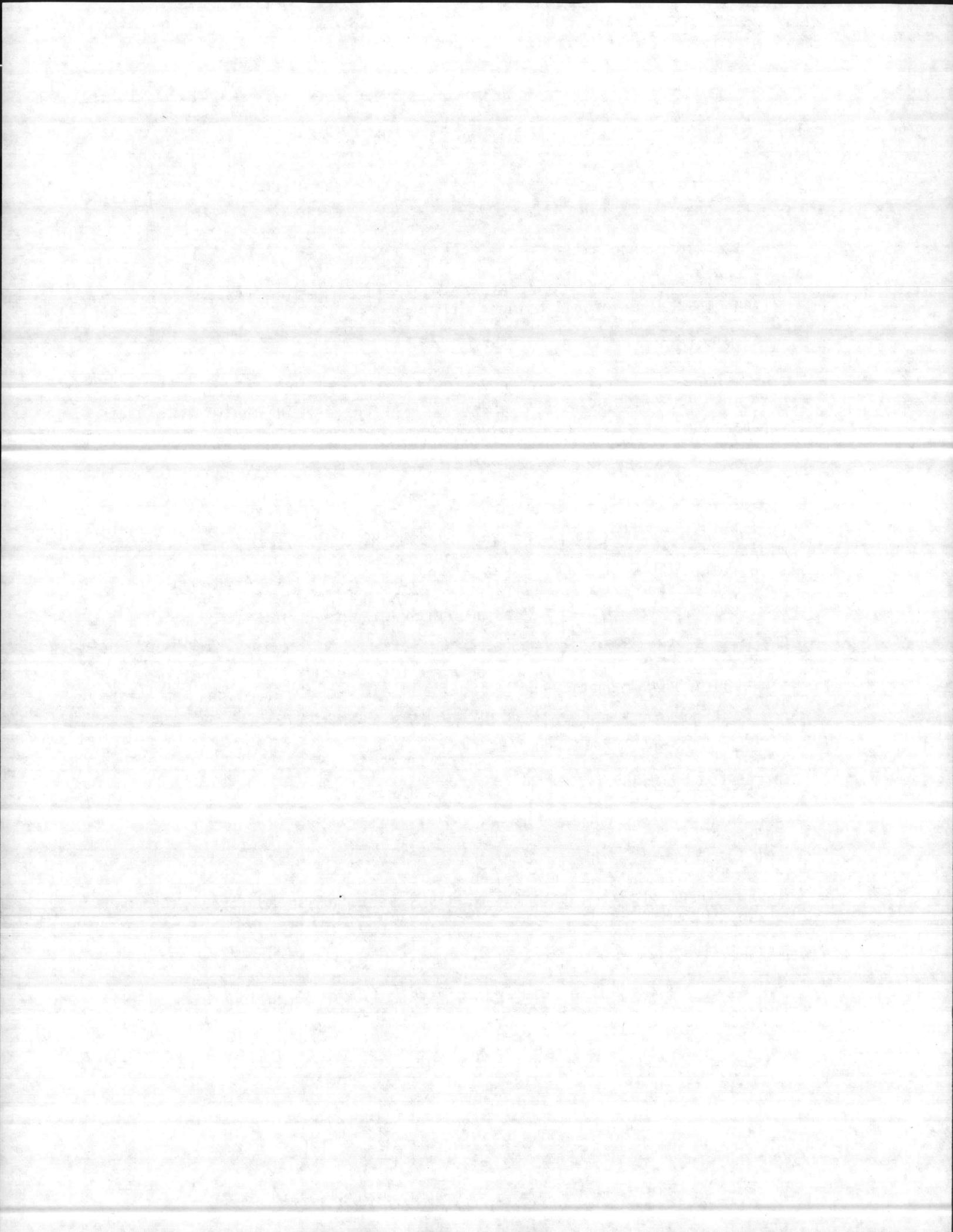
Capacity: 575,000 gallons

Fuel Type: ~~JP-4~~ JP-5 *only JP-5*

MILCON Project P-476 identifies a requirement for an additional 420,000 gallon storage capacity.

V-22 Requirements

The 117 aircraft will consume approximately 1,685,502 gallons of fuel per month (117 acft x 35 flt hrs/mo x 2 engines/acft x 1,400 pounds JP-5/engine flt hrs x .147 gal/pound).



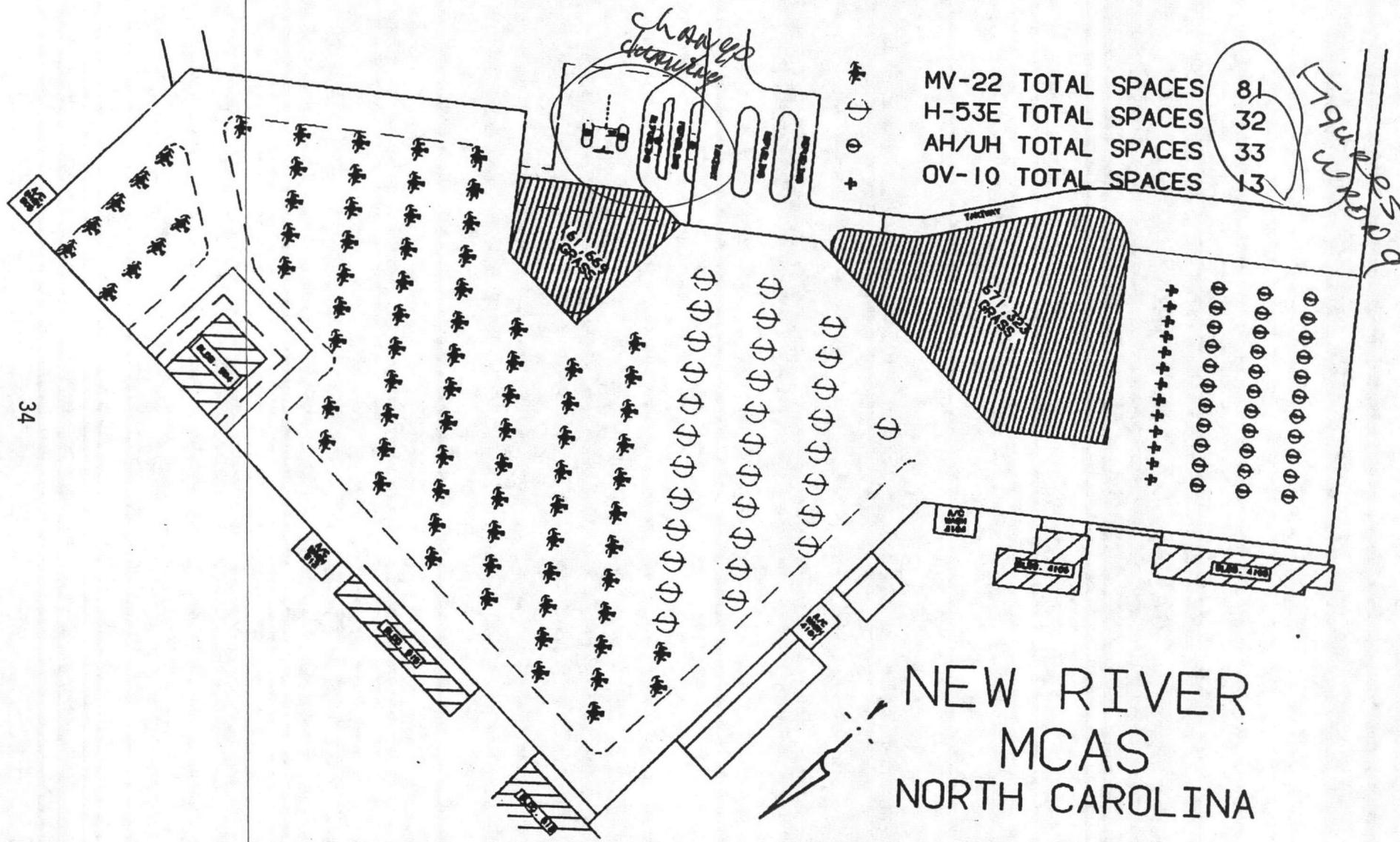
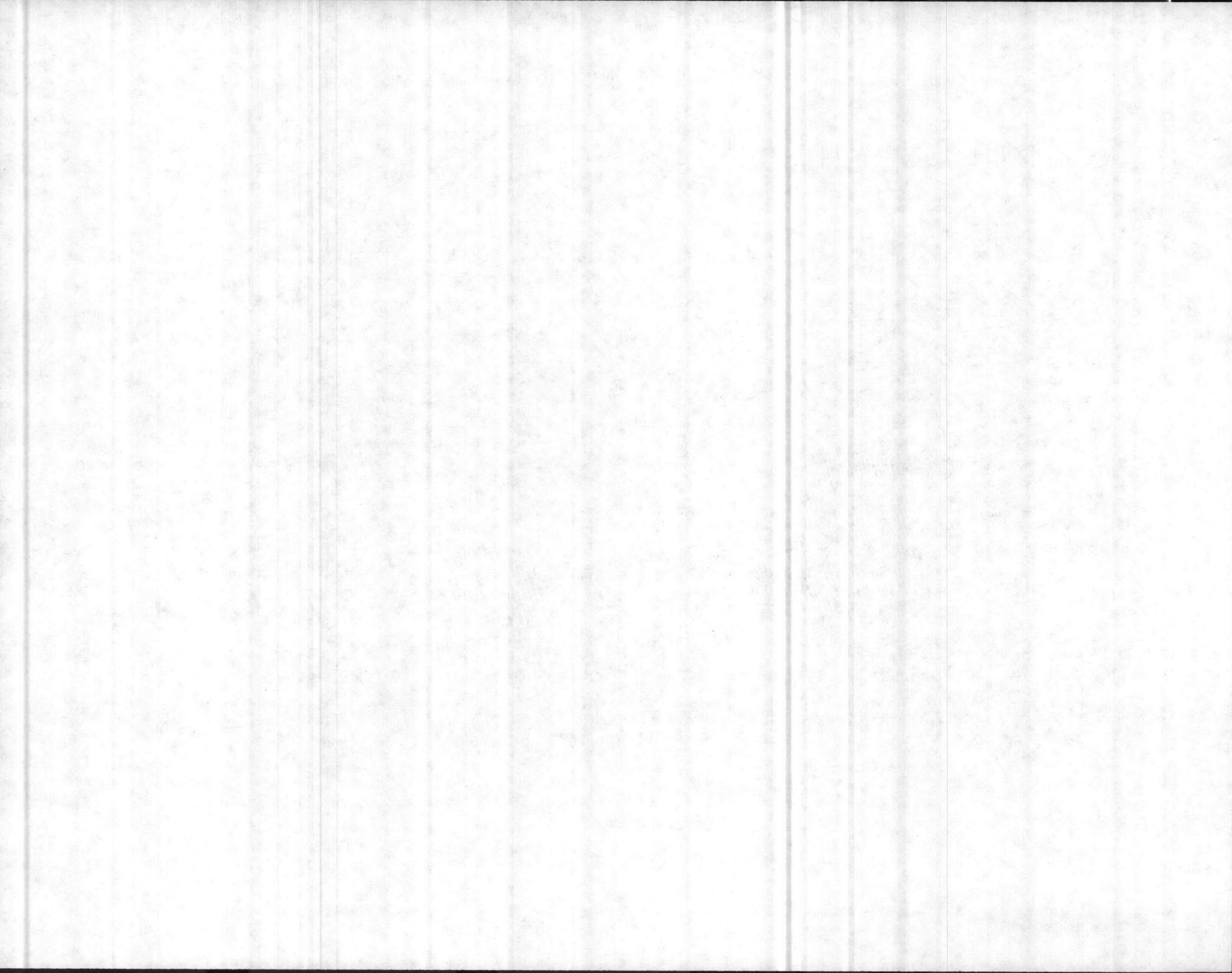


FIGURE 5. CANDIDATE PARKING PLAN AND MILCON PROJECT P-545



Assessment

Existing capacity provides storage of approximately a 10 day supply of fuel which will support V-22 operations. Base planners should ensure P-476 will satisfy fuel requirements for other stationed aircraft.

Recommendations

Review P-476 for adequacy. ✓

3.1.12 141 87 Liquid Oxygen/Nitrogen Facility (3.1.15)Current FacilitiesMAG-26

Storage Tank in GSE holding area. 500 gal. capacity nitrogen only. No requirement for oxygen.

MAG-29

Dedicated storage area located approx. 50' from MAG-29 IMA. Contractor supplied bottled nitrogen and oxygen.

V-22 Requirement

The V-22 imposes no unique requirements to justify a requirement for an oxygen/nitrogen facility. V-22 requirements may be satisfied by on-site or off-site activities.

Assessment

Adequate.

Recommendations

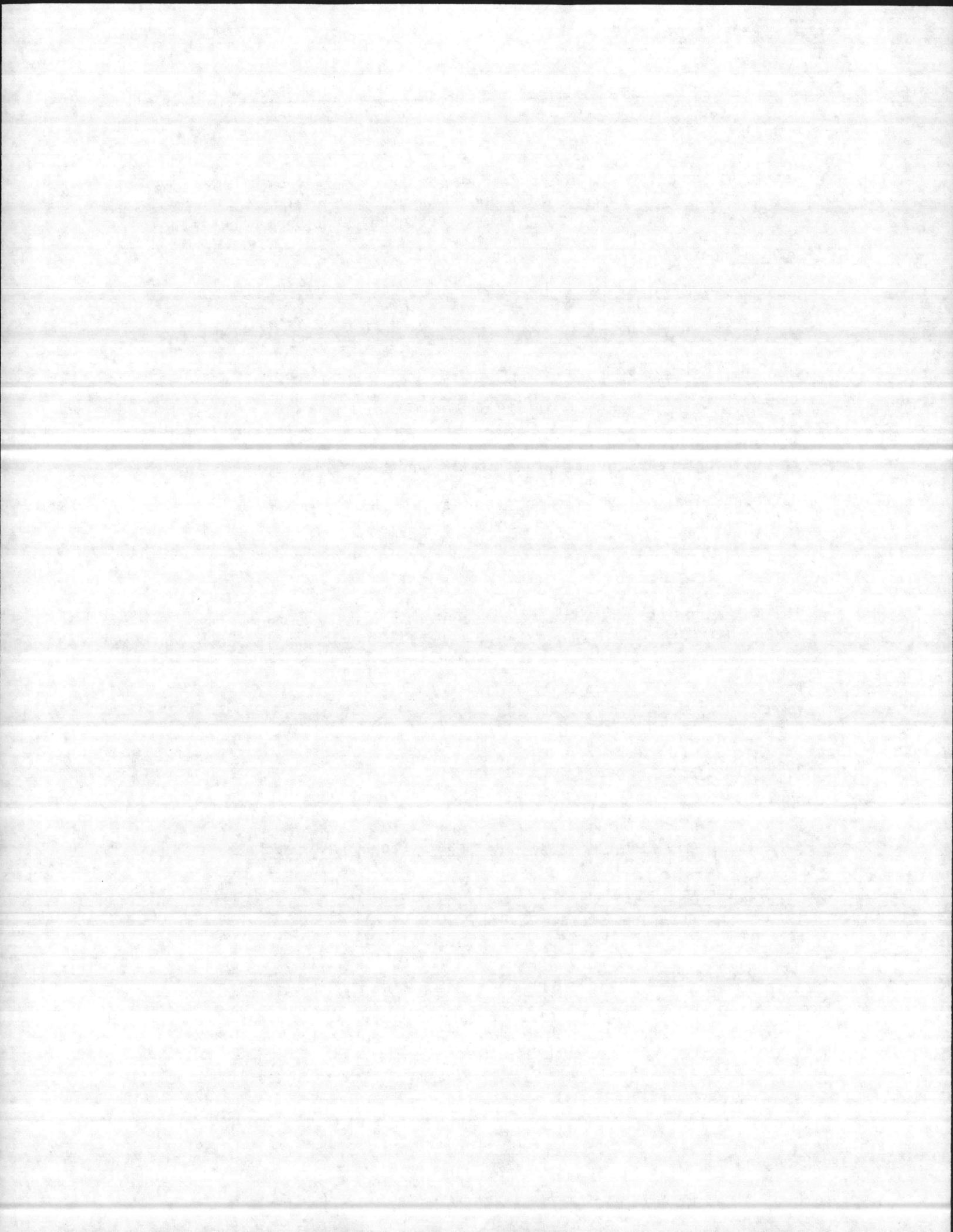
None.

3.1.13 143 78 Operational Hazardous/Flammable Storage (3.1.17)Current Facilities

Dedicated, separate storage available at both MAG-26 and MAG-29. The storage is located away from the maintenance hangar(s).

V-22 Requirements

Dimensions: 150 square feet per squadron/450 square feet for the GSE shop. Building should be no closer than 50 feet from any other structures. Only required when adequate fire resistant storage inside the maintenance hangar is not available.



Assessment

Present method and location of flammable/hazardous material will be acceptable for V-22 requirements.

Recommendations

None.

3.2 Training Facilities3.2.1 Fleet Readiness SquadronCurrent Facilities

Building 504 has been identified as a candidate for housing the East Coast MV-22 FRS including V-22 Fleet Replacement Pilot (FTP)/Fleet Replacement Naval Flight Officer (FRNFO)/Fleet Replacement Air Crew (FRAC) training and Fleet Readiness Aviation Maintenance Program (FRAMP) training (see para. 3.2.1.1 for FRAMP requirements).

Space Available:

01/02 spaces	67,200 sq. ft.
OH spaces	<u>38,400 sq. ft.</u>
Total	105,600 sq. ft.

Utilities:

Electrical

01/02 115V, 1 Ph, 60 Hz
220V, 1 Ph, 60 Hz

OH 115V, 1 Ph, 60 Hz
220V, 1 Ph, 60 Hz

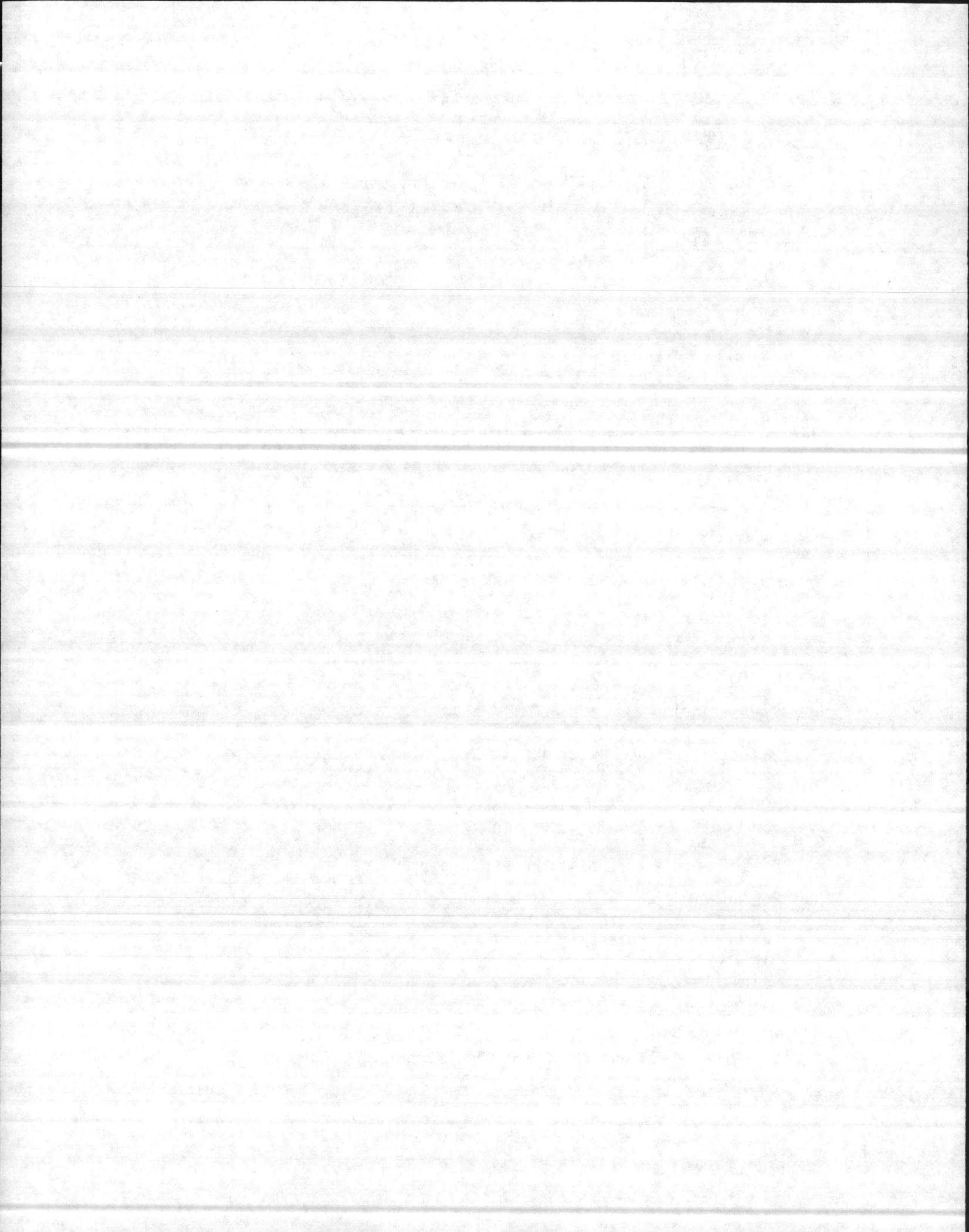
Air 75 psi shop air

Ceiling Height:

01/02 15 feet

OH 28 feet

MILCON Project P-507 identifies a requirement to renovate Building 504. Project P-305 identifies a requirement to renovate quarters suitable for housing MAG-26 Headquarters currently located in Building 504.



V-22 FRS Facility Requirements

Table 3 identifies the V-22 FRS requirements to support aircrew training, FRS aircraft maintenance, and cadre administration.

Space Required:

01 spaces	8,433 sq. ft.
02 spaces	8,931 sq. ft.
0H spaces	40,080 sq. ft.
	<u>57,444 sq. ft.</u>

Utilities: Standard utilities identified for a NAVFAC P-80 Type I hangar module. Electrical utilities modified to provide 115 VAC, 3 Ph, 400 Hz, 60 KVA to each connector of a dual Class "L" receptacle enclosure. One power service point for every two aircraft positions.

Assessment

In addition to housing HMT-204, Building 504 currently hosts two CH-53D squadrons, MAG-26 Headquarters, and an IMA Parachute Shop. To accommodate a "one school house" concept, this building needs to be dedicated to the V-22 FRS. The CH-53D squadrons and IMA parachute shop need to be relocated to facilities identified by base planners.

Adequate space is available to satisfy the space requirements identified in Table 3. The hangar bay utilities require upgrading to provide 115 VAC, 3 Ph, 400 Hz, 60 KVA to each of the dual Class "L" connectors in a power service point.

Recommendations

Execute MILCON Project P-305 to relocate MAG-26 headquarters. Ensure MILCON Project P-305 will upgrade hangar deck utilities to provide 115V, 3 Ph, 400 Hz, 60 KVA and 100 psi shop air. Execute MILCON Project P-188 consolidating parachute and survival equipment maintenance functions. *check P-305 NO P-188*

3.2.1.1 171 10/20 Applied Instruction Building (3.2.1.2.1)

Current Facilities

Location:	Building 222	Building 312
Floor Space:	7,866 sq.ft. in seven (7) training rooms (4,144 sq.ft.) and support spaces (3,722 sq.ft.)	10,283 sq.ft. in 13 training rooms (9,069 sq.ft.) and support spaces (1,214 sq.ft.)

Total available space = 18,149 sq.ft.

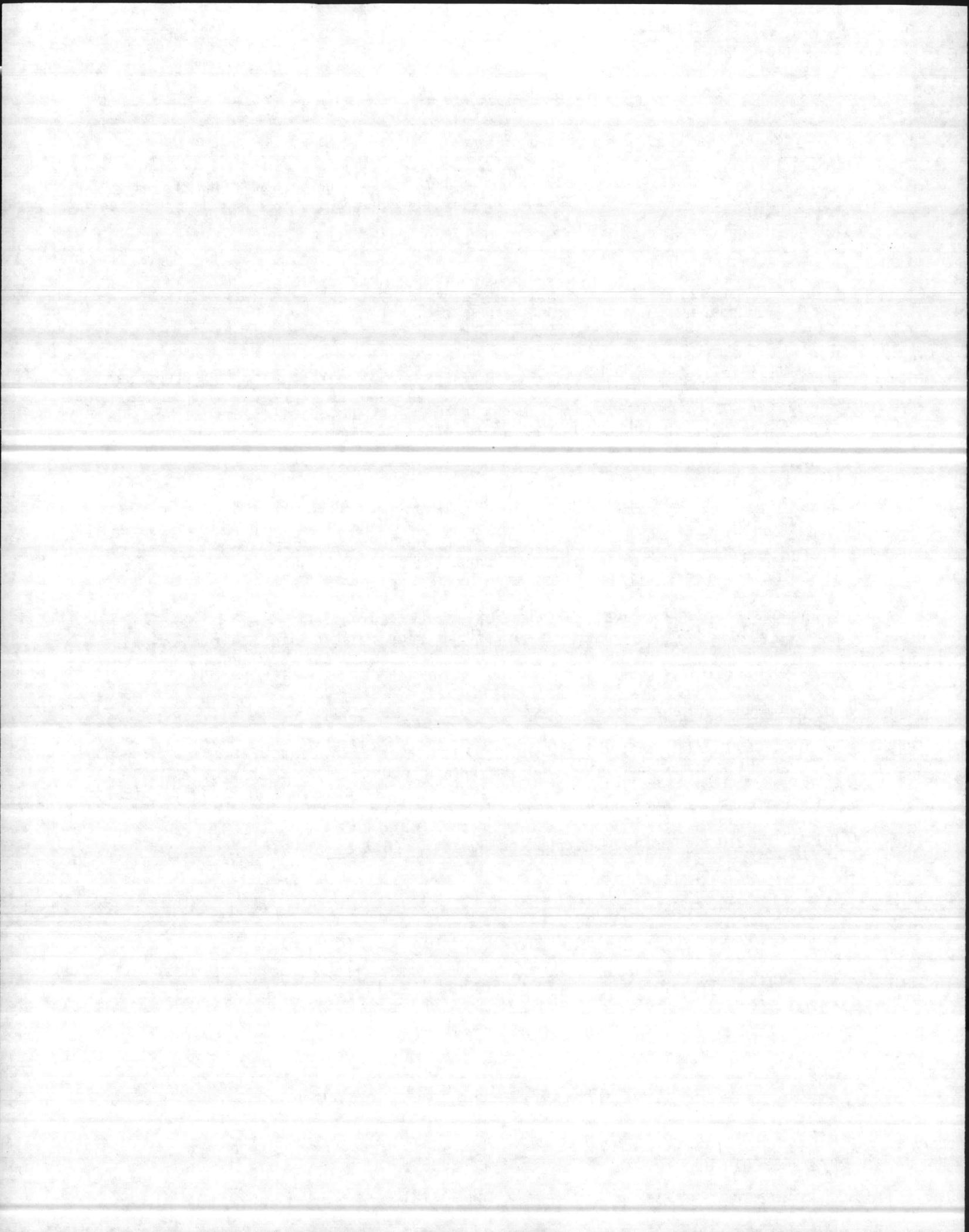


TABLE 3

V-22 FRS SPACE REQUIREMENTS

*Bobish looked over
& indicates the sq. ft
is satis. with
numbers*

01 SPACES

NOMENCLATURE	L	X	W	X	H	SQ. FT
Maintenance Officer	12'		12'		10'	144
Assistant Maintenance Officer	10'		10'		10'	100
Maintenance Chief	12'		12'		10'	144
Maintenance Control	15'		20'		10'	300
Material Control	12'		12'		10'	144
Tool Control	12'		12'		10'	144
Quality Assurance Division	15'		20'		10'	300
ADPE	10'		10'		10'	100
Maintenance Administration	12'		15'		10'	180
Shared Office Aircraft Division	12'		15'		10'	180
Airframes Officer						
Airframes Chief						
Phase Branch	15'		20'		10'	300
Structures Branch	20'		30'		12'	600
Hydraulics Branch	15'		20'		12'	300
Corrosion Control Branch	12'		20'		12'	240
Aviator Equipment Branch	20'		30'		10'	600
Shared Office Avionics Division	12'		15'		10'	180
Avionics Officer						
Avionics Chief						
Shared Avionics Work Center	20'		30'		12'	600
Electrical						
Comm/Nav/Ident/ECM						
Radar/FLIR						
Ordnance Branch	12'		15'		10'	180
Shared Office Line Division	12'		15'		10'	180
Line Officer						
Line Chief						
Flight Line Branch	30'		30'		12'	900
GSE Work Center	15'		15'		12'	225
Technical Publication Library	15'		20'		10'	300
Circulation						<u>2,092</u>
Total 01 Space Requirements						8,433

02 SPACES

Commanding Officer	15'		15'		10'	225
Executive Officer	12'		12'		10'	144
Sergeant Major's Office	12'		12'		10'	144

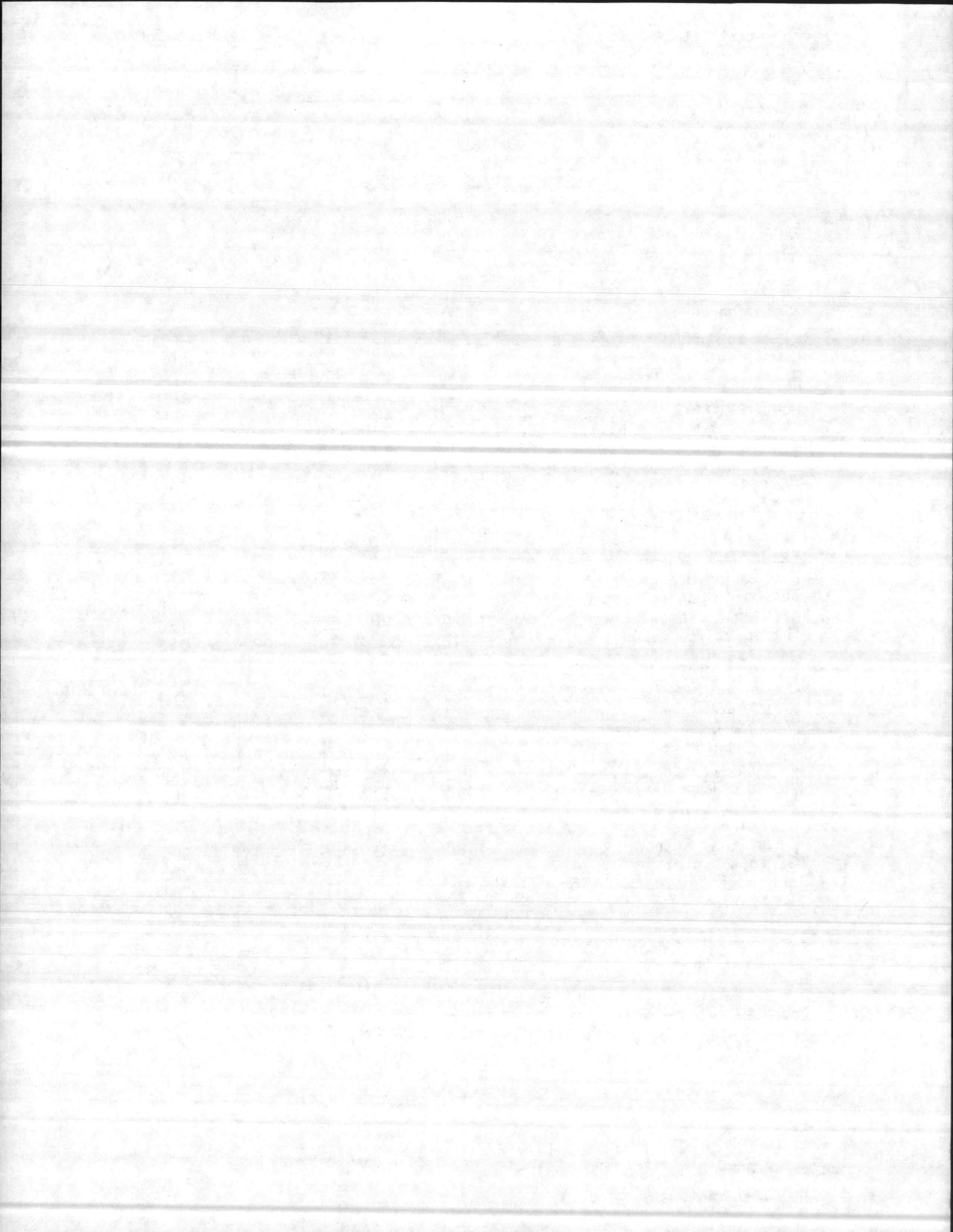
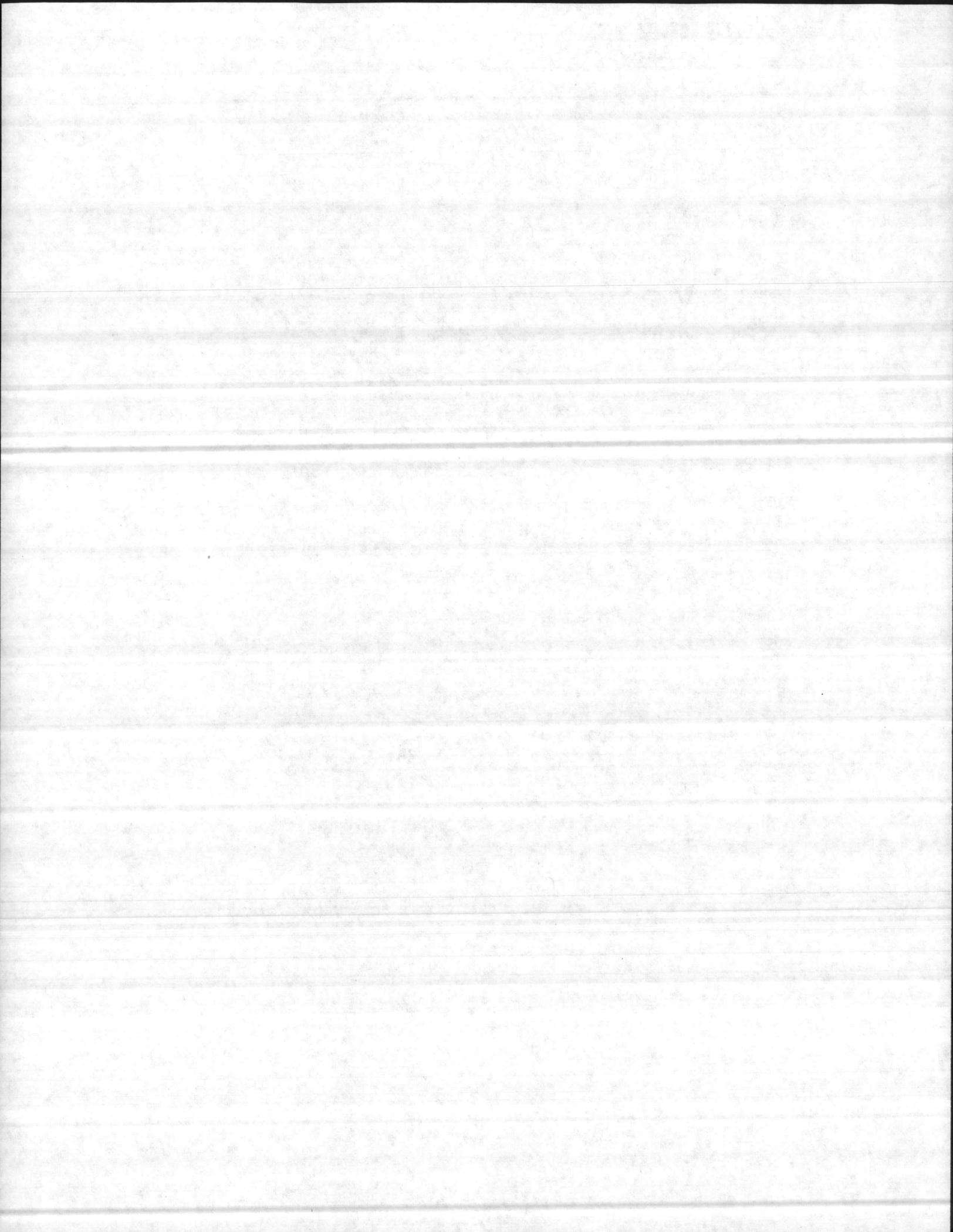


TABLE 3 (CONTINUED)

O2 SPACES (CONTINUED)

NOMENCLATURE	L	X	W	X	H	SQ. FT
Administrative Office	15'		20'		10'	300
Operations Office	15'		20'		10'	300
Security Office	15'		15'		10'	225
NATOPS Office	15'		15'		10'	225
Training Office	15'		20'		10'	300
Material Office	15'		20'		10'	300
ISD Office	15'		20'		10'	300
Career Planner Office	12'		12'		10'	144
Legal Office	12'		12'		10'	144
CMCC Office	10'		10'		10'	100
CMS Office	10'		10'		10'	100
REPRO Office	10'		12'		10'	120
Storage Room	12'		12'		10'	144
USN Office	15'		20'		10'	300
Classrooms (4) @	20'		20'		10'	1,600
Ready Room	30'		40'		10'	1,200
Crew Comfort Room w/Shower	20'		20'		10'	400
Circulation						<u>2,216</u>
Total O2 Space Requirements						8,931
OH SPACE						
Hangar Bay	167'		240'		30'	40,080
Total OH, O1, O2 Space Required						57,444
OTHER REQUIRED SPACES TO SUPPORT THE FLEET READINESS SQUADRON						
Flammable Storage Area	12'		12'		10'	144



Floor Loading Capability:	600 psi	600 psi
Utilities:	115V, 1 Ph, 60 Hz 220V, 1 Ph, 60 Hz 28 VDC	115V, 1 Ph, 60 Hz 220V, 1 Ph, 60 Hz 115V, 400 Hz 28 VDC 3,000 psi @ 15 gpm (hydraulic)
Ceiling Height:	9 feet	9 feet (11 rooms) and 20 feet (2 rooms)

MILCON Project P-525 identifies a requirement to construct a 44,000 square foot facility to accommodate V-22 training.

V-22 FRAMP Facilities Requirements

Space Required: 81,342 square feet (see Tables 4, 5 and 6).

Utilities: See Tables 4 and 5.

V-22 FSD Contract N00019-85-C-0145, CDRL L002, Maintenance Trainer Equipment Facilities will identify detailed facilities requirements based on maintenance trainer design. Table 7 identifies facility design constraints applicable to this facility.

Assessment

Buildings 222 and 312 are inadequate in all areas and should not be considered for use to support V-22 training. *Substandard without upgrading*

Building 504, after allocating space for the V-22 FRS and relocating the current tenants as recommended in paragraph 3.2.1, would have approximately 49,836 square feet of 01/02 space available to support FRAMP training leaving a 31,506 deficiency.

Recommendations

Dedicate Building 504 for use as an MV-22 training facility. Relocate current tenants (except HMT-204) and execute MILCON Project P-305. Construct an additional 31,506 (minimum) square feet of training/administrative area satisfying the V-22 requirements identified above. MILCON Project P-525 should be reviewed for adequacy to satisfy this deficiency. *Redo*

~~Alternatively, Building 504 could house HMT-204 and the two (2) H-53 squadrons. This would require increasing the scope of MILCON Project P-525 to approximately 82,000 square feet to satisfy V-22 Applied Instruction Building requirements.~~ *Delete*

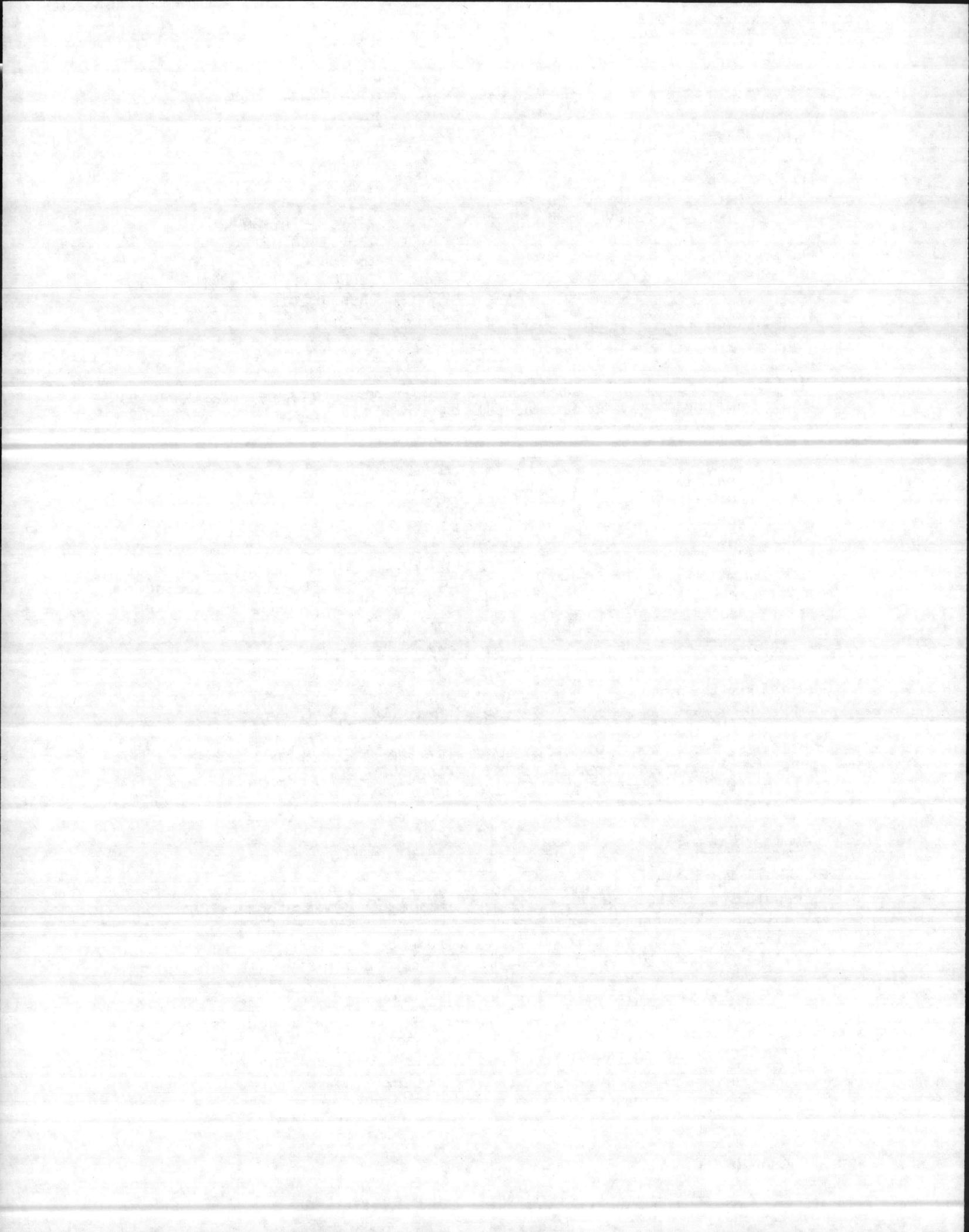


TABLE 4
V-22 FRAMP FACILITY REQUIREMENTS
PAGE 1 OF 7

SUPPORT FUNCTION	TYPE	AREA (SQ. FT.)	UTILITIES	CEILING HEIGHT (FT)	FLOOR LOAD (PSI)	DOOR SIZE (W X H) (FT)
Airframes/Structures	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)
	Laboratory	1,080	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A 0-120 psi shop air	12	600	10x10 (to hangar bay)
Hydraulic Systems	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	10x8 (to lab) 3x7 (to hallway)
	Laboratory	900	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A 0-120 psi shop air	12	600	10x10 (to hangar bay)
Environmental/Safety Equipment	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)
	Laboratory	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A 28 VDC, 20 A 0-120 psi shop air	12	600	10x8 (to hangar bay)
Power Plants/Rotors and Related Systems	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)

41

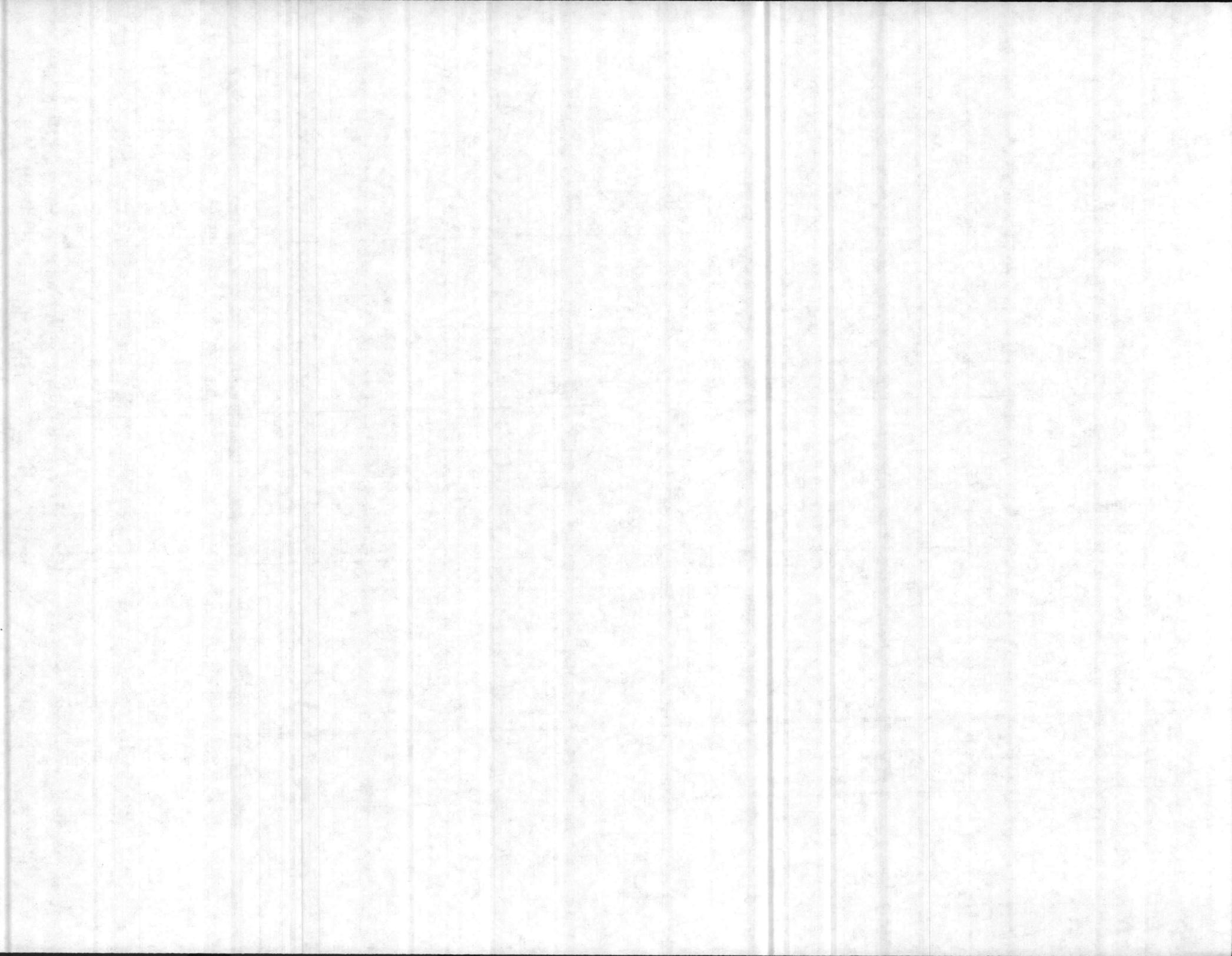


TABLE 4
V-22 FRAMP FACILITY REQUIREMENTS
PAGE 2 OF 7

SUPPORT FUNCTION	TYPE	AREA (SQ. FT.)	UTILITIES	CEILING HEIGHT (FT)	FLOOR LOAD (PSI)	DOOR SIZE (W X H) (FT)
	Laboratory	900	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A 28 VDC 1,000 pound full travel hoist rail system 0-120 psi shop air	12	1,500	10x10 (to hangar bay)
Corrosion Control	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway)
Electrical Systems/ CMDS	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)
	Laboratory	3,000	115 V, 60 Hz, 20 A 115 V, 400 Hz, 60 KVA 220 V, 60 Hz, 30 A 28 VDC, 20 A	20	600	30x20 (to hangar bay)
Flight Controls (PFCS/AFCS)	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)
	Laboratory	3,600	115 V, 60 Hz, 20 A 115 V, 400 Hz, 60 KVA	20	1,000	50x20 (to hangar bay)

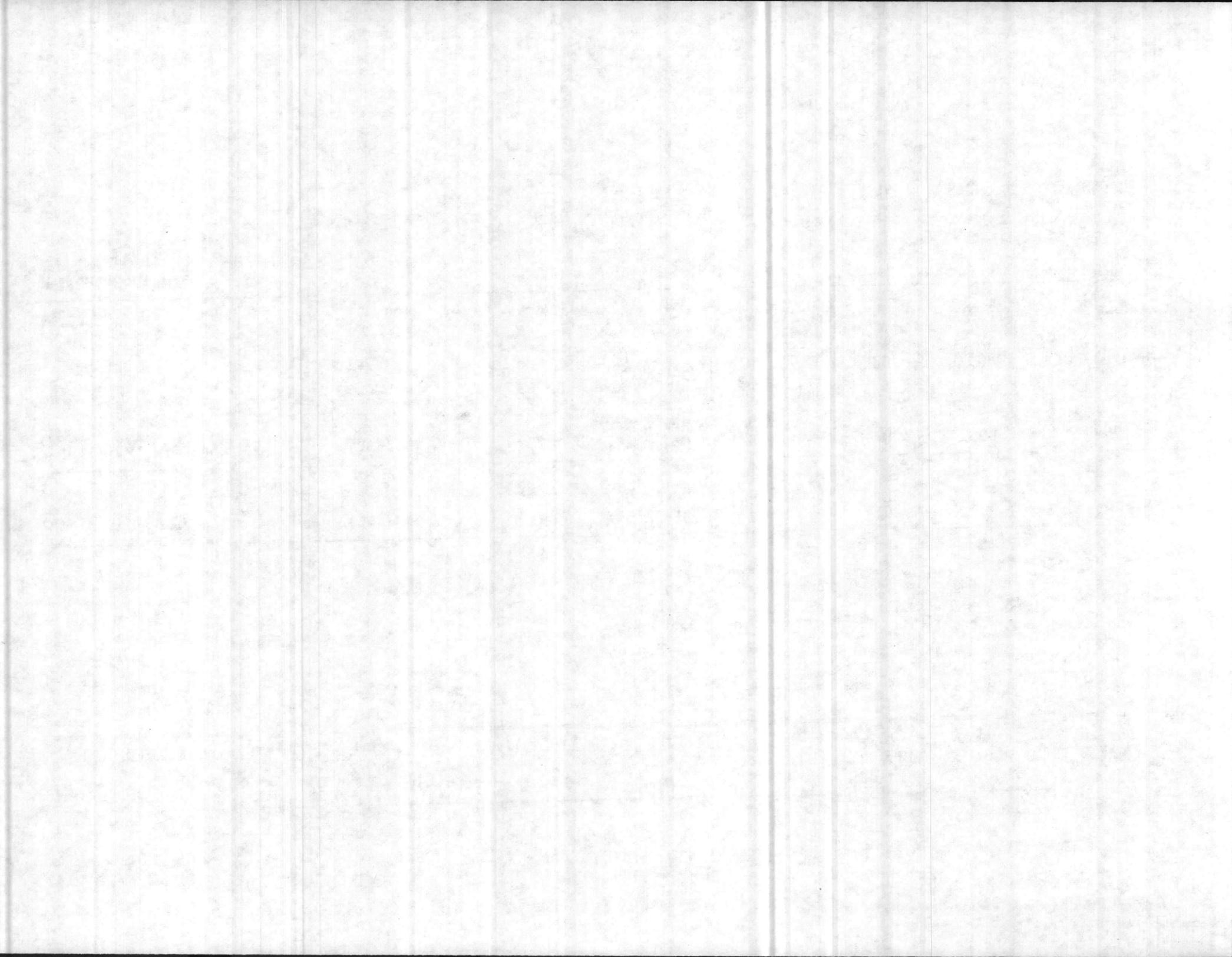


TABLE 4
V-22 FRAMP FACILITY REQUIREMENTS
PAGE 3 OF 7

SUPPORT FUNCTION	TYPE	AREA (SQ. FT.)	UTILITIES	CEILING HEIGHT (FT)	FLOOR LOAD (PSI)	DOOR SIZE (W X H) (FT)
			220 V, 60 Hz, 30 A 28 VDC, 20 A 5,000 psi @ 35 GPM (hydraulic)			
COMM/NAV/IDENT/ECM	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)
	Laboratory	900	115 V, 60 Hz, 20 A 115 V, 400 Hz, 60 KVA 220 V, 60 Hz, 30 A 28 VDC, 20 A	12	500	15x10 (to hangar bay)
Radar/FLIR/NVG	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)
	Laboratory	1,600	115 V, 60 Hz, 20 A 115 V, 400 Hz, 60 KVA 220 V, 60 Hz, 30 A 28 VDC, 20 A	20	500	15x15 (to hangar bay)
Aircrew Training	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7

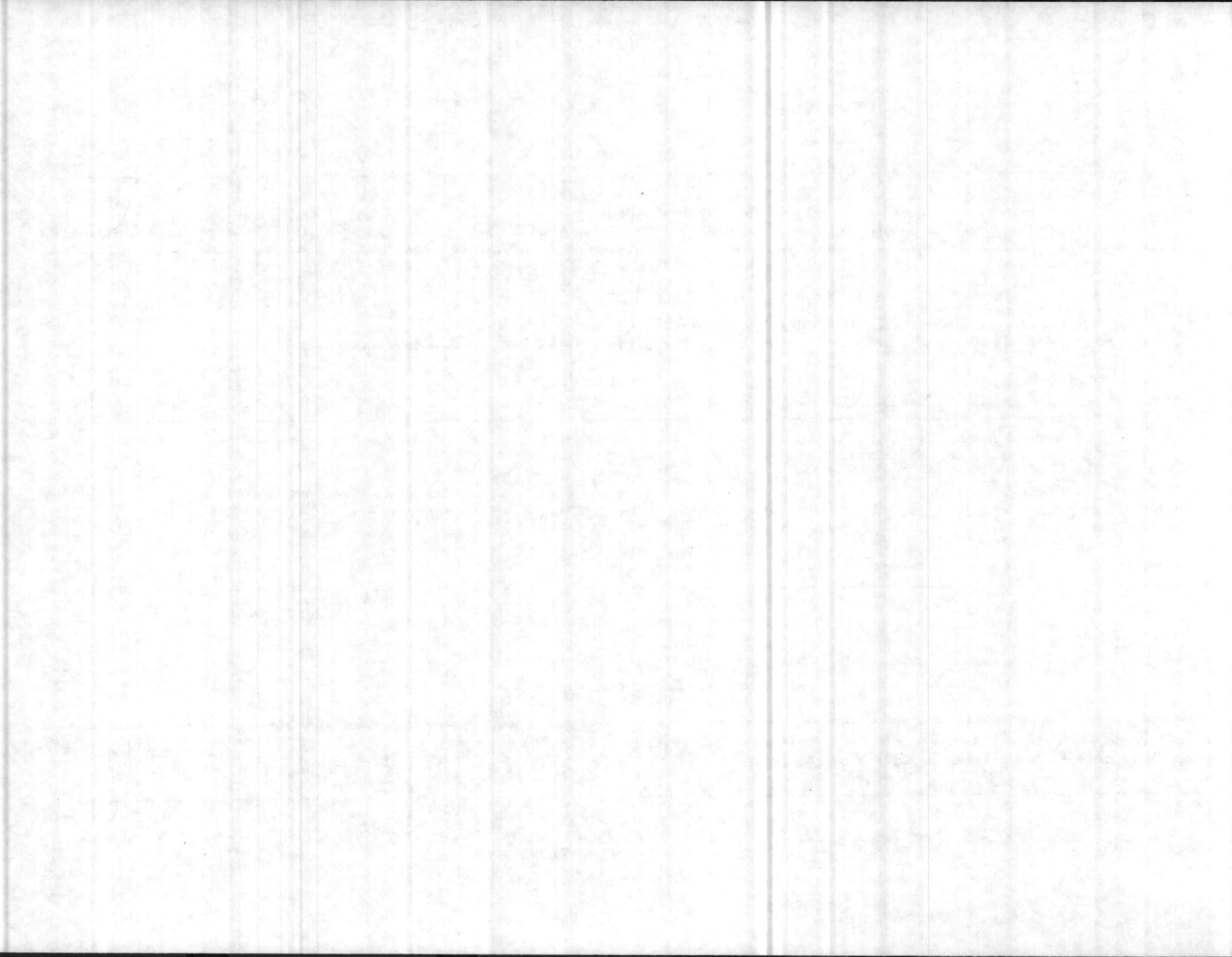


TABLE 4
V-22 FRAMP FACILITY REQUIREMENTS
PAGE 4 OF 7

SUPPORT FUNCTION	TYPE	AREA (SQ. FT.)	UTILITIES	CEILING HEIGHT (FT)	FLOOR LOAD (PSI)	DOOR SIZE (W X H) (FT)
Composite Maintenance Trainer	Hangar Bay	10,215	115 V, 60 Hz, 20 A 115 V, 400 Hz, 60 KVA 220 V, 60 Hz, 30 A 28 VDC, 20 A 5,000 psi @ 35 GPM (hydraulic) 2,000 pound full travel hoist rail system	30	6,000	100x25 (to outside) Note: Door may have a 3x7 inset door.
44 Power Train Trainer	Laboratory	4,318	115 V, 60 Hz, 20 A 115 V, 400 Hz, 60 KVA 220 V, 60 Hz, 30 A 28 VDC, 20 A 2,000 pound full travel hoist rail system	30	1,500	70x25 Note: Door may have a 3x7 inset door.
Fuel Systems Trainer	Laboratory	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	10x8
Aircraft Familiarization	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7
T406 Engine Repair (IMA)	Classroom	522	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)

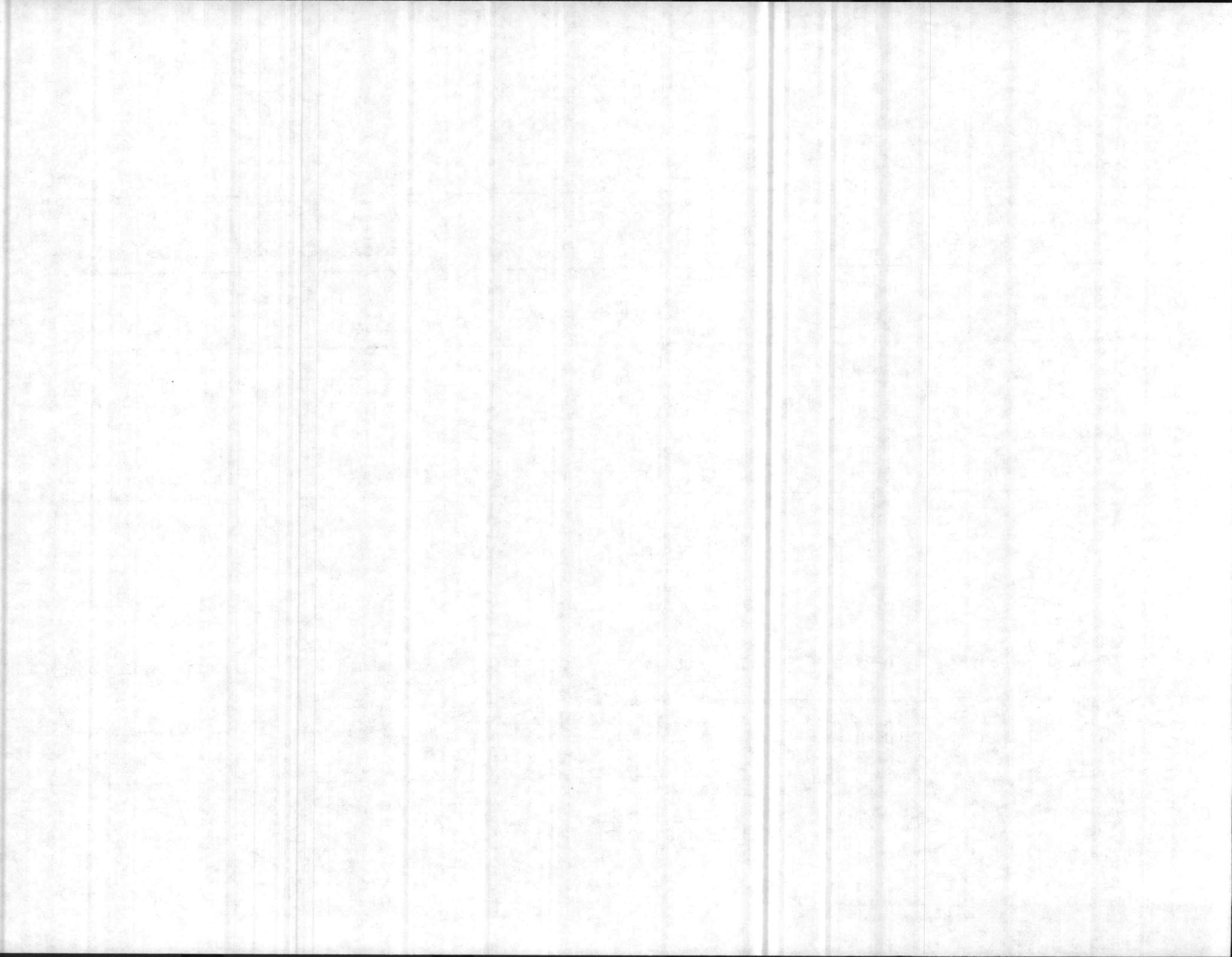


TABLE 4
V-22 FRAMP FACILITY REQUIREMENTS
PAGE 5 OF 7

SUPPORT FUNCTION	TYPE	AREA (SQ. FT.)	UTILITIES	CEILING HEIGHT (FT)	FLOOR LOAD (PSI)	DOOR SIZE (W X H) (FT)
	Laboratory	735	115 V, 60 Hz, 20 A 115 V, 400 Hz, 30 A 220 V, 60 Hz, 30 A, 3 Ph 28 VDC, 20 A	20	600	10x7 (to hangar bay) Note: Door may have a 3x7 inset door
45 Airframes (IMA)	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)
	Laboratory	1,080	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A 0-120 psi shop air	12	600	10x10 (to hangar bay) Note: Door may have a 3x7 inset door
Composite Repair (IMA)	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)
	Laboratory	1,080	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A 0-120 psi shop air	12	600	10x10 (to hangar bay)
Electrical (IMA)	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)

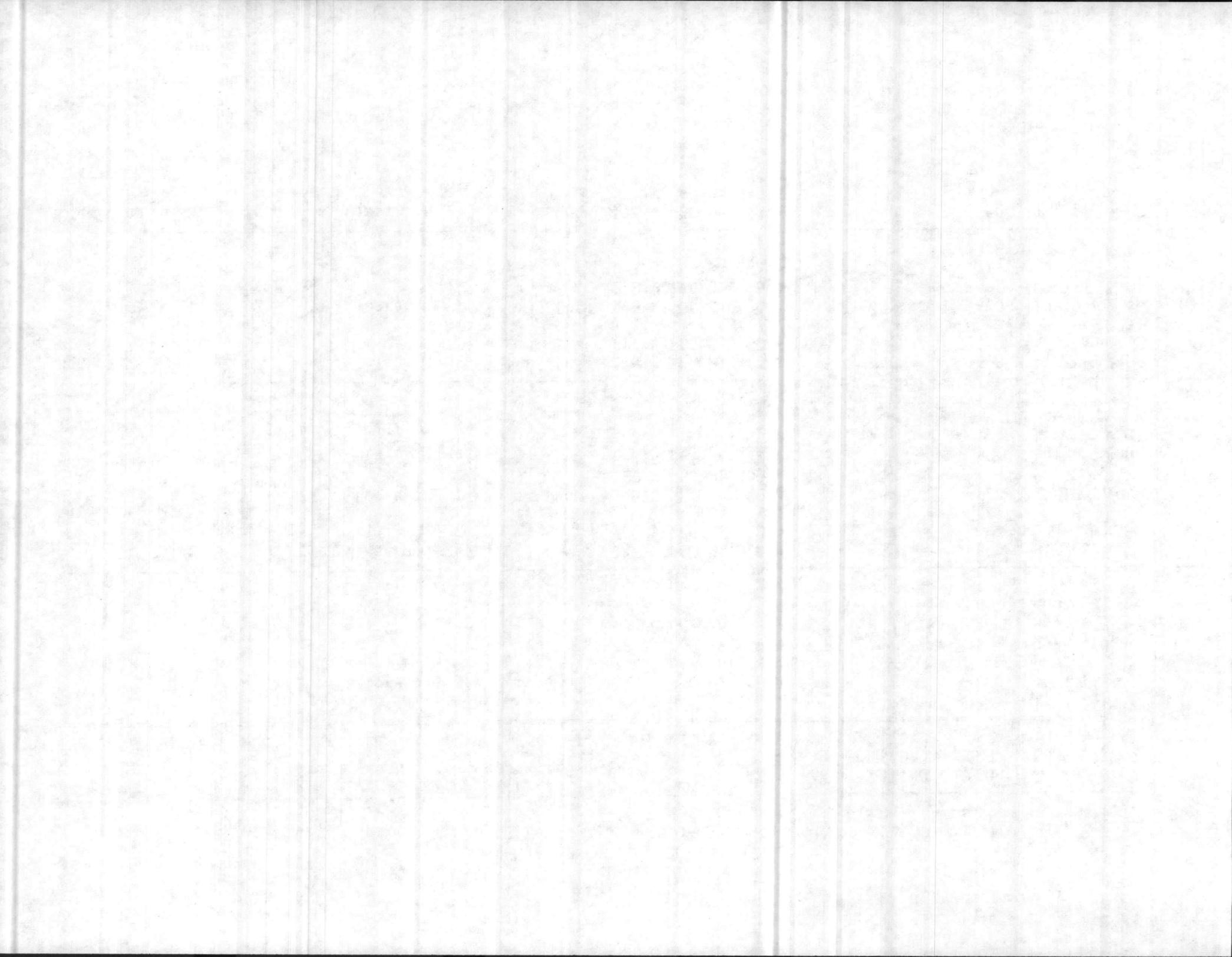


TABLE 4
V-22 FRAMP FACILITY REQUIREMENTS
PAGE 6 OF 7

SUPPORT FUNCTION	TYPE	AREA (SQ. FT.)	UTILITIES	CEILING HEIGHT (FT)	FLOOR LOAD (PSI)	DOOR SIZE (W X H) (FT)
	Laboratory	500	115 V, 60 Hz, 20 A 115 V, 400 Hz 220 V, 60 Hz, 30 A 28 VDC, 20 A	10	600	3x7 (to hangar bay)
46 COMM/NAV/IDENT/ECM (IMA)	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)
	Laboratory	500	115 V, 60 Hz, 20 A 115 V, 400 Hz 220 V, 60 Hz, 30 A 28 VDC, 20 A	10	600	3x7 (to hangar bay)
Component Repair (IMA)	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)
	Laboratory	500	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A 0-120 psi shop air 1,500 pound full travel hoist rail system	12	600	10x10 (to hangar bay)
Radar/FLIR (IMA)	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)

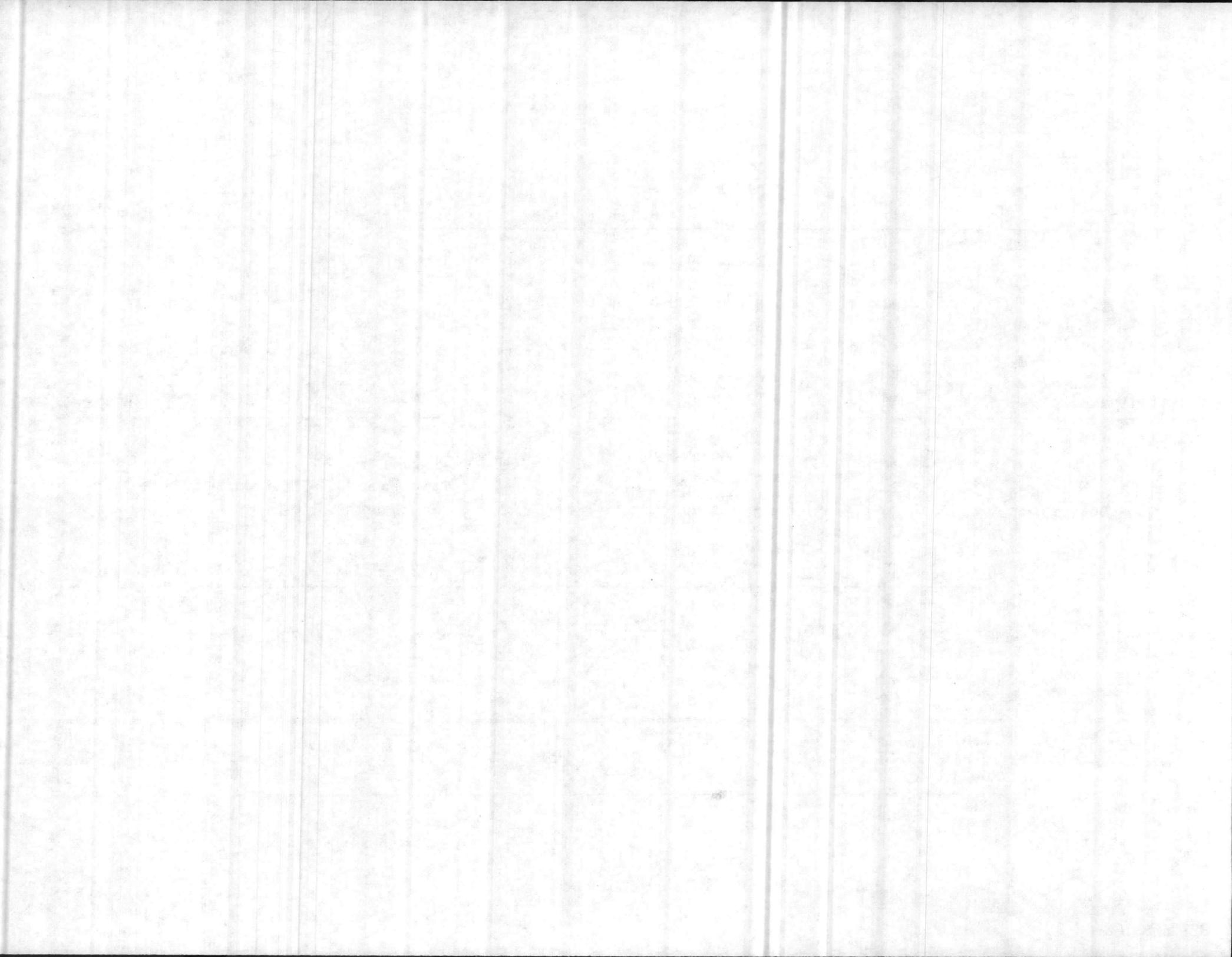


TABLE 4
V-22 FRAMP FACILITY REQUIREMENTS
PAGE 7 OF 7

SUPPORT FUNCTION	TYPE	AREA (SQ. FT.)	UTILITIES	CEILING HEIGHT (FT)	FLOOR LOAD (PSI)	DOOR SIZE (W X H) (FT)
	Laboratory	600	115 V, 60 Hz, 20 A 115 V, 400 Hz 220 V, 60 Hz, 30 A 28 VDC, 20 A	10	600	3x7 (to hangar bay)
Hydraulic (IMA)	Classroom	600	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A	10	600	3x7 (to hallway and lab)
	Laboratory	900	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A 0-120 psi shop air	12	600	10x10 (to hangar bay)
Aircraft Parking	Hangar Bay	8,000	115 V, 60 Hz, 20 A 220 V, 60 Hz, 30 A 115 V, 400 Hz, 60 KVA 28 VDC, 20 A 2,000 pound full travel hoist rail system	30		100x25 (hangar door)
GSE/IMRL Storage		400				
Tool Control	Tool Crib	400	115 V, 60 Hz, 20 A	12		3x7 (to hallway, dutch door to hangar)

NOTE: HVAC for personnel comfort only.

V-22/E/205/0069.0.0

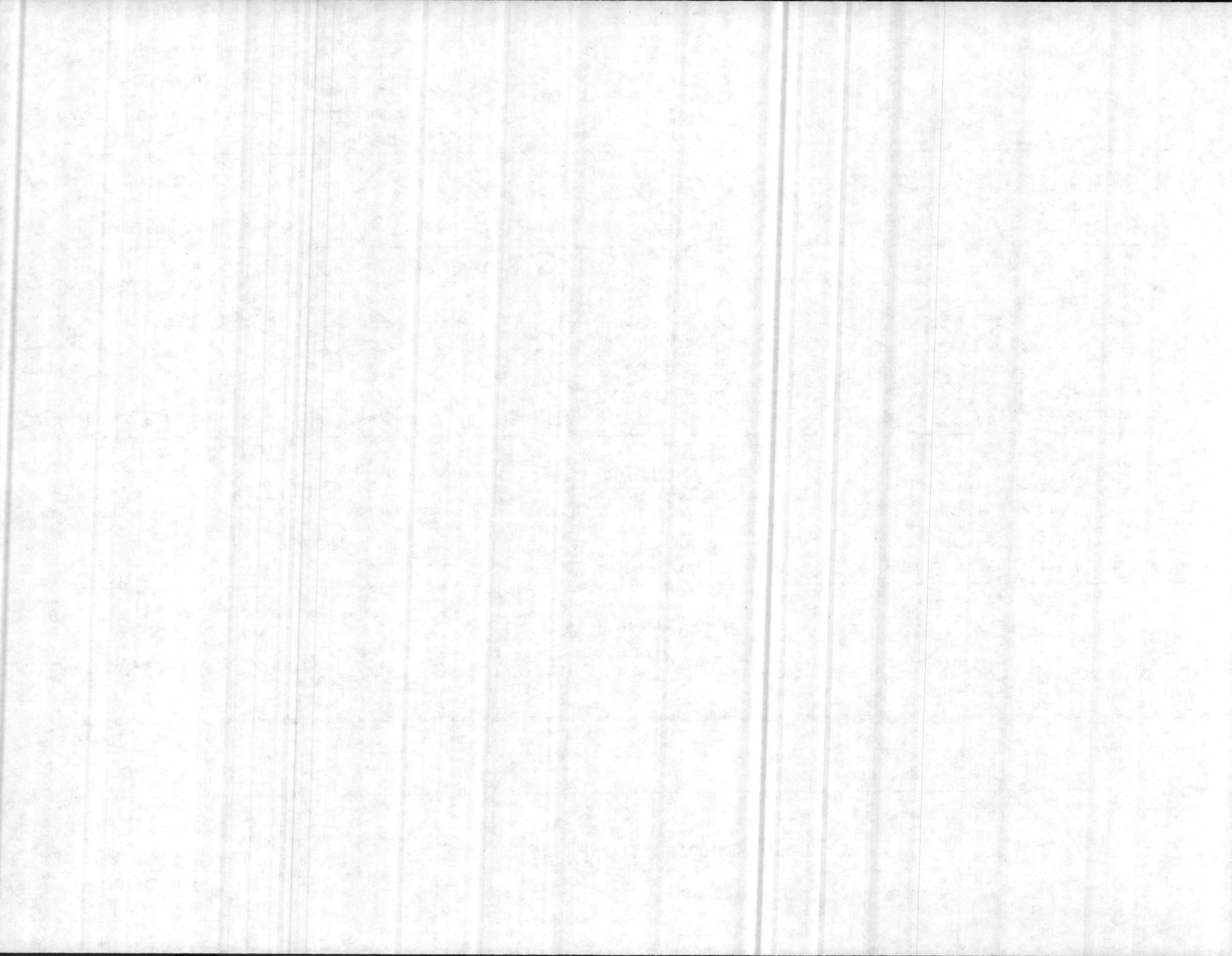


TABLE 5

V-22 FRAMP SUPPORT SPACE REQUIREMENTS

	<u>LENGTH (FT.)</u>	<u>WIDTH (FT.)</u>	<u>HEIGHT (FT.)</u>	<u>AREA (SQ. FT.)</u>
ADMINISTRATIVE SPACES				
Officer in Charge	10	10	10	100
Assistant Officer in Charge	10	10	10	100
NCOIC	10	10	10	100
Chief Instructor	10	9	10	90
Training NCOIC	10	9	10	90
Schedule Coordinator	10	9	10	90
Supervisors (8x90 sqft)				720
Personnel Chief	10	9	10	90
Clerical (6x60 sqft)				360
MISCELLANEOUS SPACES				
File Space (10x6 sqft)				60
Reception Area (60 sqft + 4x10 sqft)				100
Conference Room	20	25	10	500
ISD (6x60 sqft)				360
Computer Support	10	10	10	100
Classified Storage Area (4 ft x 5 ft)				20
NTEC Field Office (2)	10	10	10	200
SPECIAL SUPPORT SPACES				
Hydraulic Supply Room	15	20	10	300
Electrical Supply Room	15	20	10	300
Pneumatic Supply Room	15	10	10	150
SUPPORT SPACES				
Instructor Work Area	46	47	10	2,162
Instructor Lounge	20	22	10	440
Student Lounge	15	30	10	450
Technical Library	20	22	10	440
			Total	7,292

NOTE: All support spaces require standard utilities and doorways. Utilities for the Special Support Spaces will be identified after the Maintenance Trainer Devices are designed.

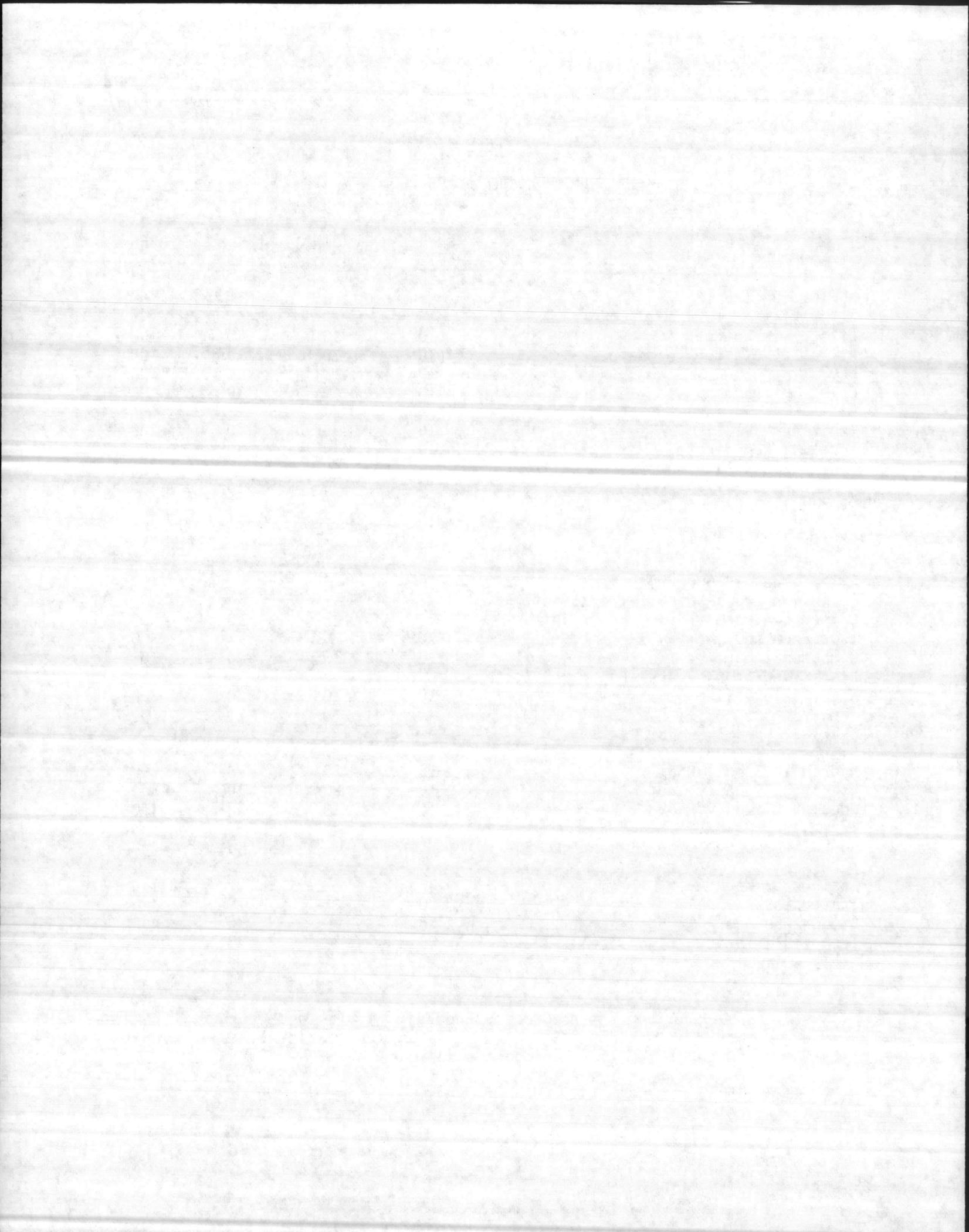


TABLE 6V-22 FRAMP REQUIREMENTS SUMMARY

Maintenance Training Classrooms/Laboratories	53,730 sq. ft.
Support Spaces	<u>7,292 sq. ft.</u>
Sub-total	61,022 sq. ft.
Circulation and Service Area (@ 33% IAW P-80 Table 171-D)	<u>20,320 sq. ft.</u>
Total	81,342 sq. ft.

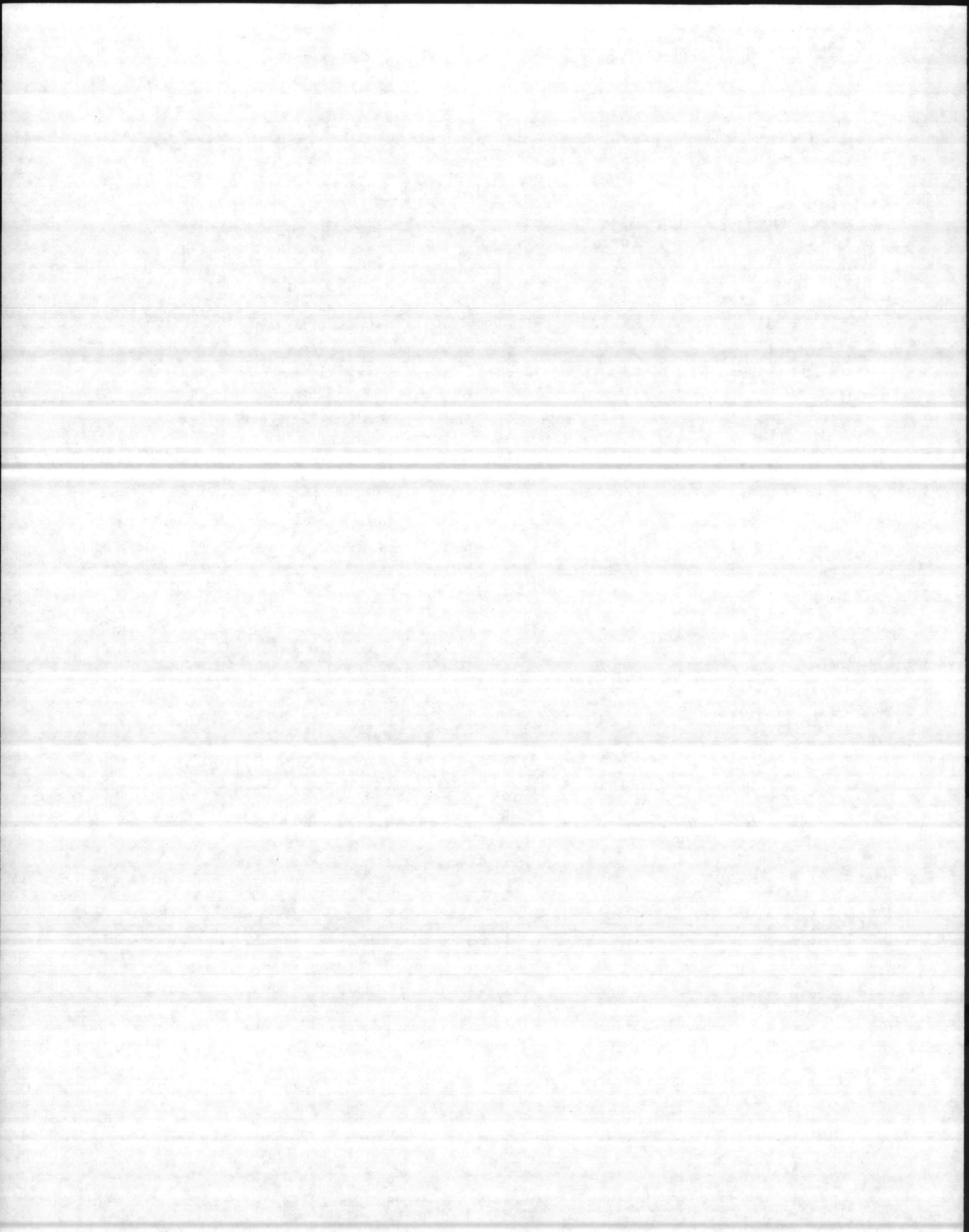


TABLE 7
FACILITY DESIGN CONSTRAINTS

A. ARCHITECTURAL

MILITARY BOOK 1027

The new construction must be designed to meet ~~NAVFAC DM-27~~ architectural requirements for modernization of existing training buildings.

B. STRUCTURAL

MIL HANDBOOK 1027

The new construction must be designed to meet ~~NAVFAC DM-27~~ criteria for structural requirements of modernization of existing training buildings.

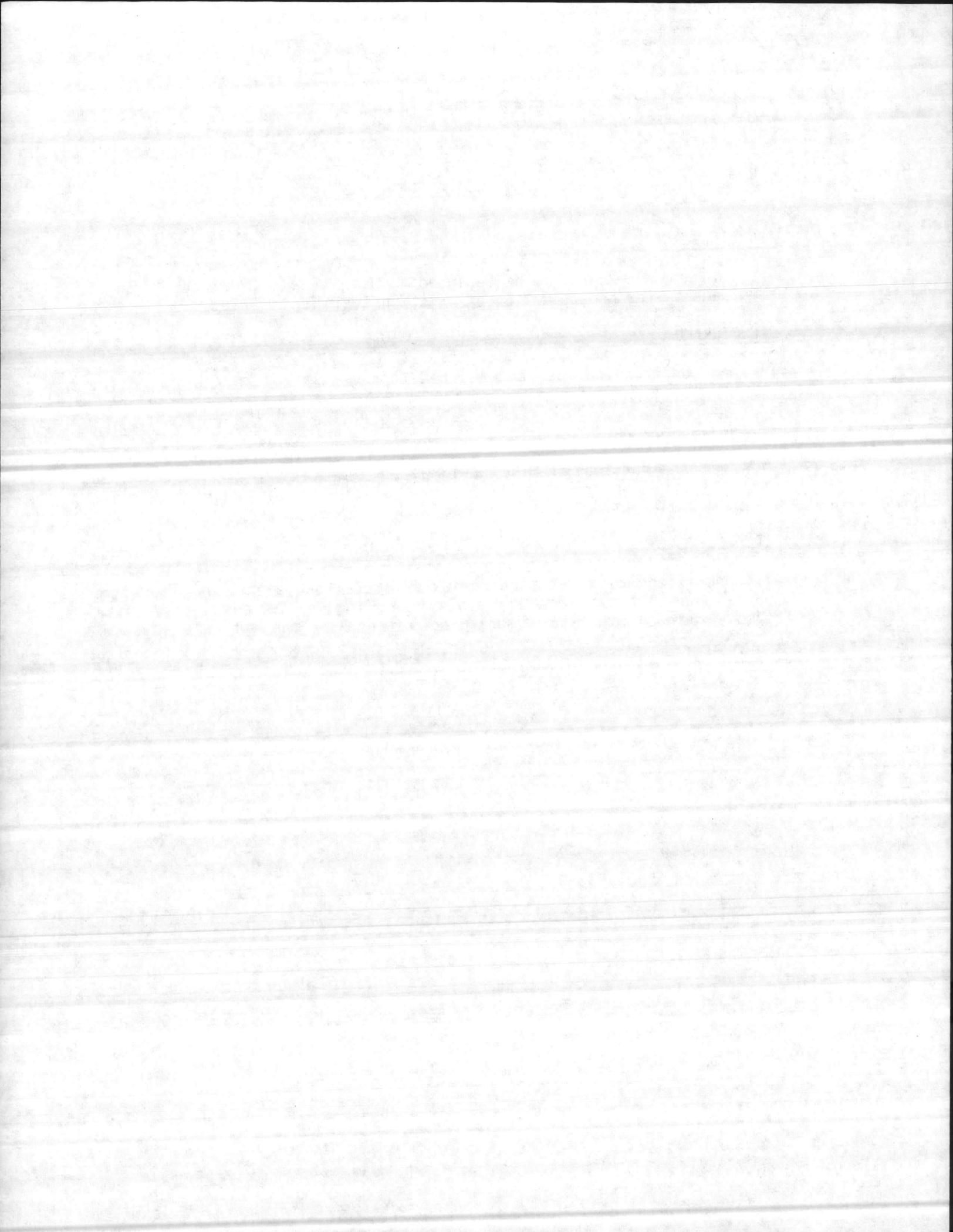
C. MECHANICAL

MIL HANDBOOK 1027

The new construction must be designed to meet ~~NAVFAC DM-27~~ and NAVFAC DM-3 criteria for mechanical requirements for modernization of existing training buildings.

D. FIRE PROTECTION

All spaces require a wet pipe sprinkler system and alarms or HALON fire suppression system. The fire system must remove electrical power from affected areas prior to discharging water from the sprinkler system.



3.2.1.2 171 35 Operational Trainer Facility (3.2.5)

Current Facilities

Location: Flight Simulator Building

Dimensions: 11,303 square feet (see Table 8).

MILCON Project P-520 identifies a requirement for a new ^{41,000}~~39,000~~ square feet Operational Trainer Facility.

V-22 Requirements

Space Required: ^{41,000}~~35,100~~ square feet to house three (3) OFTs and one (1) AST; Tables 9 and 10 identify facility requirements. For all other facilities (i.e., offices, classrooms, etc.) not covered in Table 10, the utilities required are 115/208 VAC, 60 Hz, 1 Ph electrical power and standard heating, cooling, and fluorescent lighting.

V-22 FSD Contract N00019-85-C-0145, CDRL L003, Operational Trainer Facilities Report identifies detailed facility requirements.

Assessment

Existing facility will not support V-22 OFT/AST training. Deficiencies exist in all areas including space, ceiling clearances, and utilities. MILCON Project P-520 will correct these deficiencies.

Recommendations

Execute MILCON Project P-520 ensuring the facility design meets V-22 OFT/AST design criteria.

3.3 Organizational Maintenance Activities

Four MILCON Projects are currently in planning to renovate existing facilities and/or construct new facilities to reduce the overcrowded conditions presently found at MCAS New River. MILCON Projects P-404 and P-543 identify a requirement to construct a 121,620 square feet (total) hangar to accommodate three (3) squadrons. Project P-451 identifies a requirement to modify Buildings 515, 518, 4106 and 4108 to provide adequate organizational and intermediate maintenance hangar space for two (2) Marine Air Groups. And Project P-507 (discussed in paragraph 3.2.1) which identifies a requirement to modify Building 504.

3.3.1 211 05 Maintenance Hangar - OH Space (3.3.1)

Current Facilities

See Table 11.

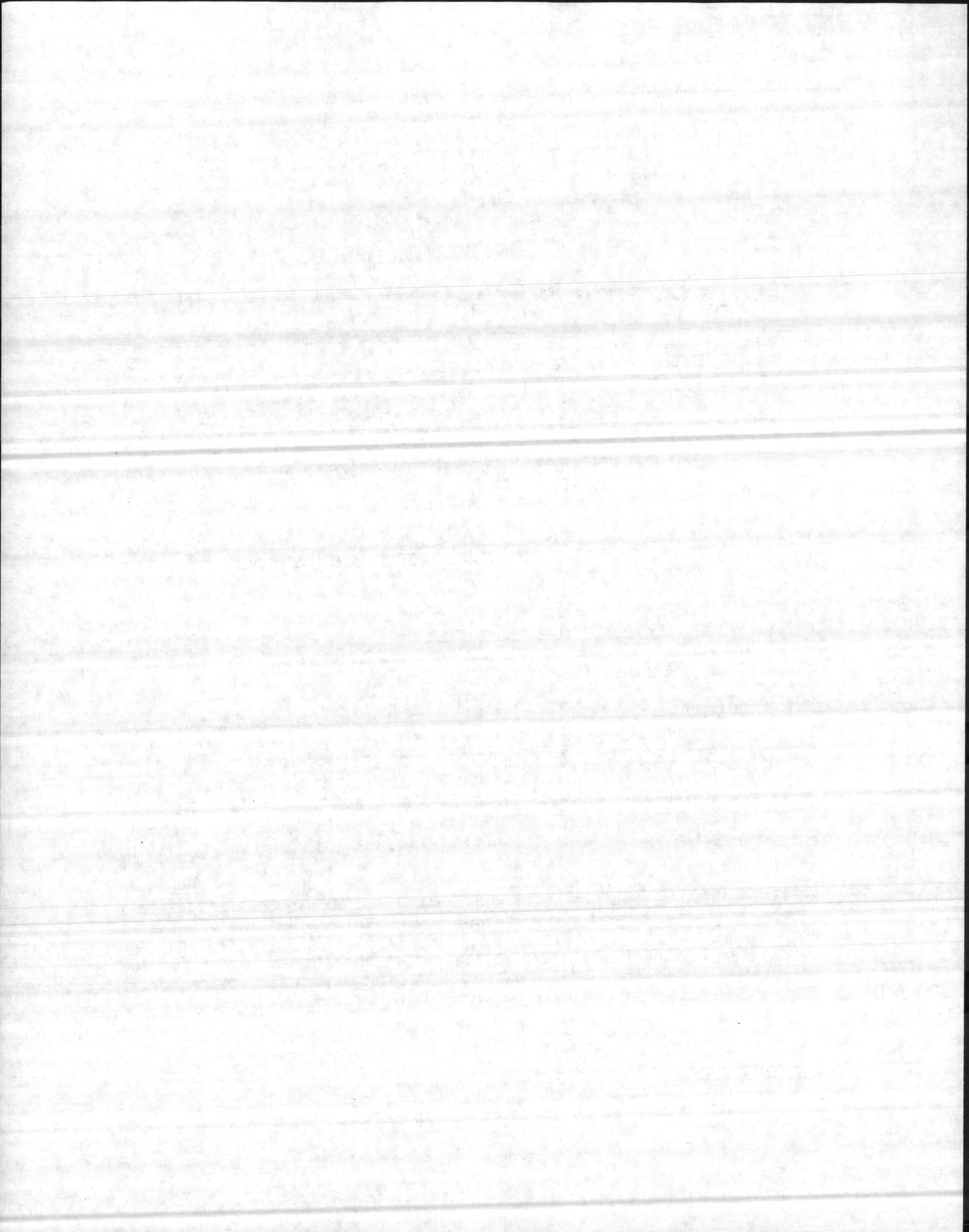


TABLE 8

MCAS NEW RIVER OPERATOR TRAINING FACILITY

SIMULATOR BAYS

<u>ROOM</u>	<u>FLOOR SPACE</u>
CH-53D CH-46E	2,310 sq. ft.
CH-53E	<u>1,596 sq. ft.</u>
Total	3,906 sq. ft.

COMPUTER ROOMS

Room No. 1	1,575 sq. ft.
Room No. 2	<u>760 sq. ft.</u>
Total	2,335 sq. ft.

SUPPORT SPACES

Offices

No. 1	100 sq. ft.
No. 2	100 sq. ft.
No. 3	160 sq. ft.
No. 4	252 sq. ft.

Supply	480 sq. ft.
Tool	112 sq. ft.
Tech. Library	254 sq. ft.
Coffee Mess	380 sq. ft.
Instructors' Lounge	176 sq. ft.
Heads (Rest Rooms)	238 sq. ft.
Electrical Maintenance	336 sq. ft.
Electrical	416 sq. ft.
Hydraulics	720 sq. ft.
Circulation and Support	<u>1,338 sq. ft.</u>

Total 5,062 sq. ft.

TOTAL SPACE IN PLACE AT NEW RIVER

Simulator Bays	3,906 sq. ft.
Computer Rooms	2,335 sq. ft.
Support Spaces	<u>5,062 sq. ft.</u>
Total	11,303 sq. ft.

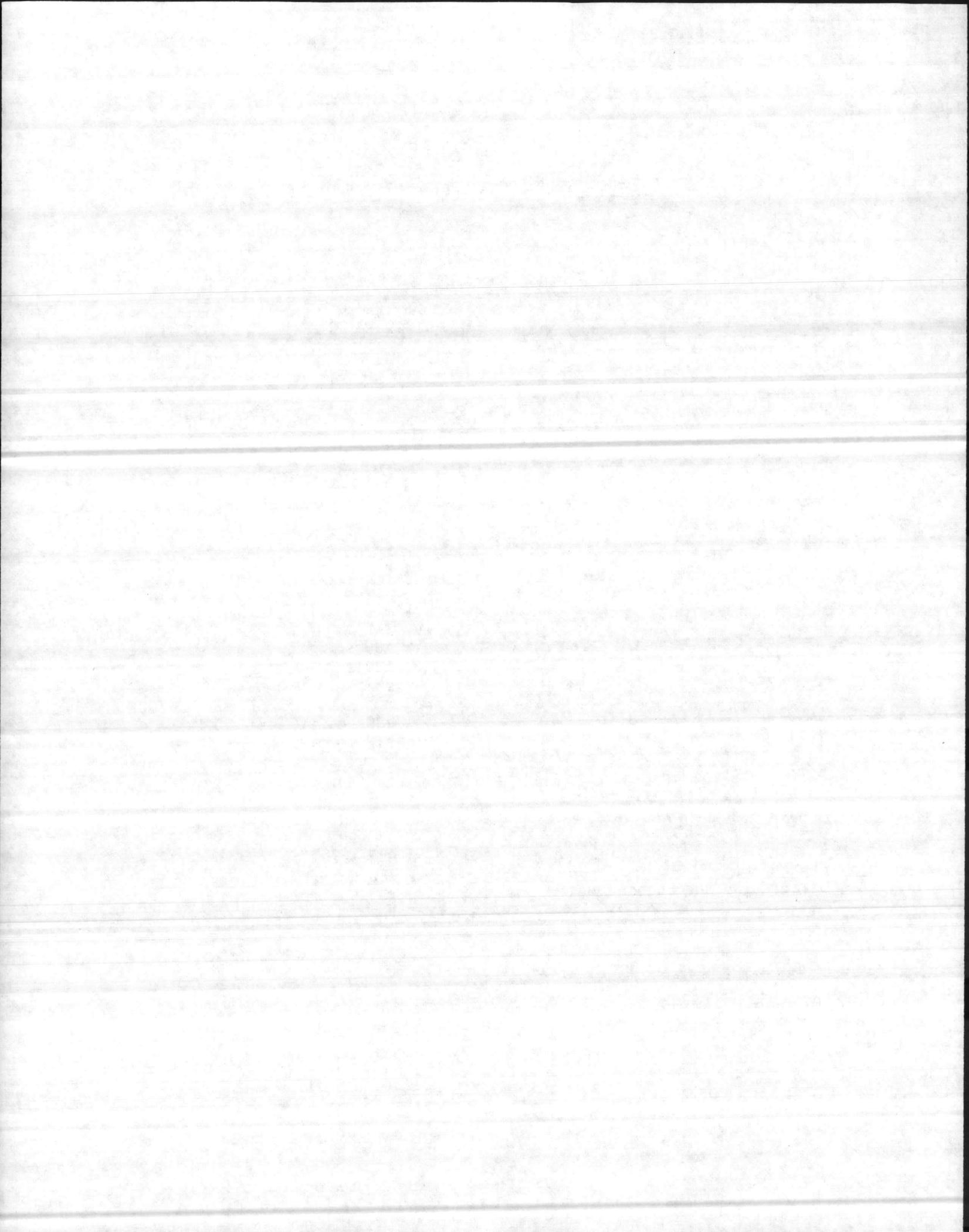


TABLE 9
V-22 OFT/AST FACILITY SPACE REQUIREMENTS

<u>Rooms</u>	<u>Qty</u>	<u>Space (Sq. Ft.)</u>
Dir of Trng (@ 150 sq.ft.)	1	150
Scrty/Typist (@ 60 sq.ft.)	1	60
Supervisor (@ 90 sq.ft.)	1	90
Admin. Clerks (@ 60 sq.ft.)	2	120
Maint. Officer (@ 100 sq.ft.)	1	100
Field Engineer (@ 100 sq.ft.)	2	<u>200</u>
SUB-TOTAL:		720
Instructors (@ 60 sq.ft.)	12	720
Instructor Lounge (@450 sq.ft./10 Instr)	1	450
Student Lounge (@ 6 sq.ft./Stu)	12	72
Library		
Reading Area (@ 25 sq.ft./Stu)	4	100
Stack Area (6.6 sq.ft./Vol)	3	20
Film/Video Storage (@ 9 sq.ft./50 reels)	1	9
Film/Video Viewing (fixed @ 200 sq.ft.)	1	200
Staff Area (10% of Library Net)	-	33
Training Aids Storage (@1.5 sq.ft./Stu Annually)	168	252
Classrooms (@ 400 sq.ft.)	4	<u>1600</u>
SUB-TOTAL:		3456
OFT Trainer Room (1 @ 2500 sq.ft.)	3	7500
AST Trainer Room (@ 1600 sq.ft.)	1	1600
Briefing Room (8 Stu x 20 sq.ft.)	4	640
Maintenance Shop (@ 300 sq.ft./Trainer)	2	600
Mechanical/Electrical (@ 300 sq.ft./Trainer)	2	<u>600</u>
SUB-TOTAL		10,940
Additional Support Space		
OFT Computer Rooms (@ 1600 sq.ft.)	3	4800
AST Computer Room (@ 300 sq.ft.)	1	300
Learning Center Room	-	500
Software Development (TSSA)	1	3000
Maintenance Technicians (@ 50 sq.ft./Technician)	8	400
Hydraulics Room (@ 225 sq.ft.)	3	675
Maintenance/Supply Storage/Test Equipment	1	1500
Wash/Shower Area (@ 100 sq.ft.)	1	<u>100</u>
SUB-TOTAL:		11,275
TOTAL:		26,391
Circulation and Service Area (@ 33% IAW Table 171-D)		<u>8,709</u>
		<u>35,100</u>

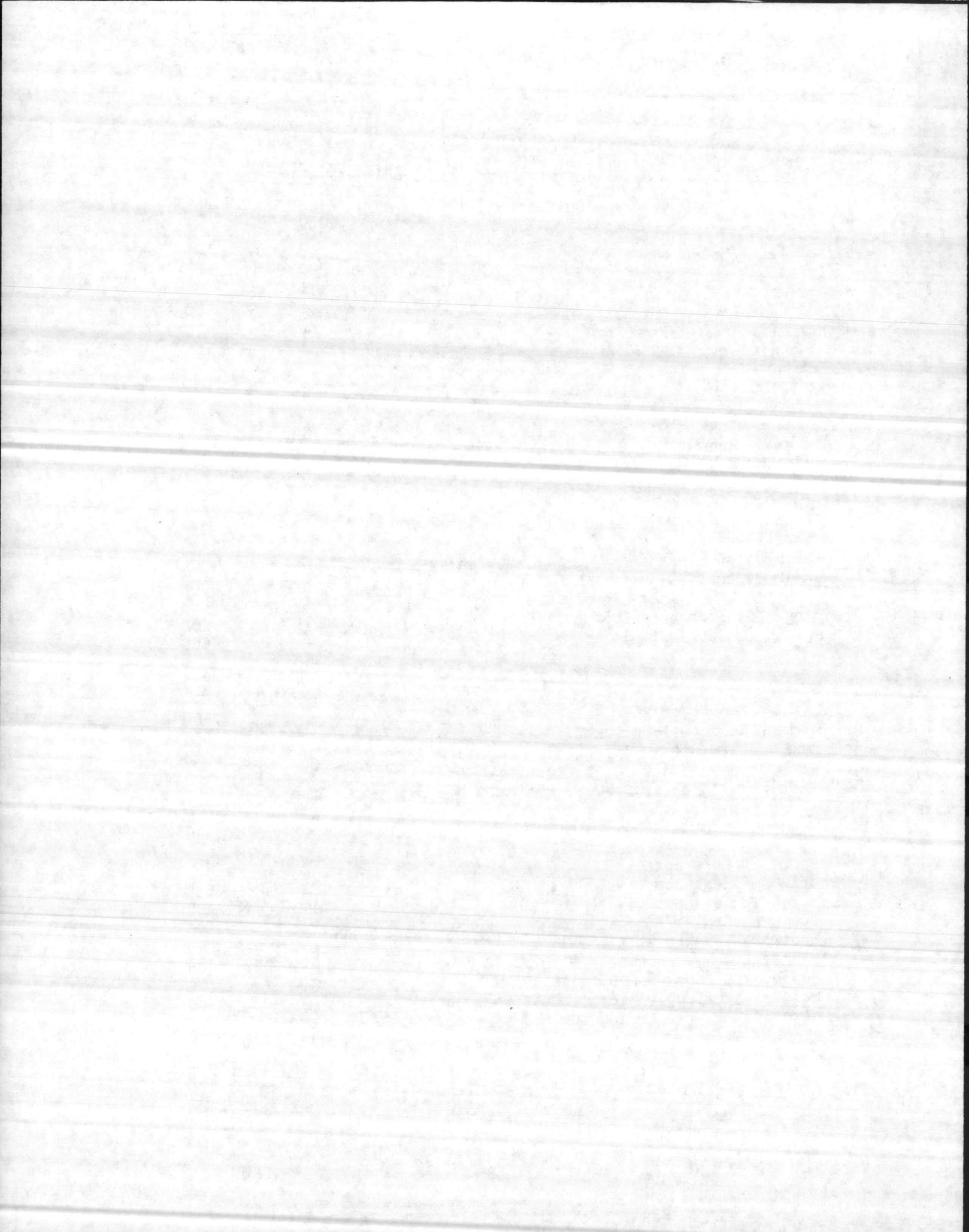


TABLE 9 (continued)OFT HighbayCeiling Height

OFT Trainer: 50 feet minimum (Trainer height plus clearance during movement).

AST Trainer: ¹⁵~~20~~ feet minimum.

Power RequirementsElectrical

115/208 VAC, 60 Hertz, 3-phase, 4-wire, wye connected
277/480 VAC, 3-phase 60 Hertz, 4-wire, wye connected

Hydraulics

1500 psi at 25 gpm to operate the motion base.

Floor Loading

The OFT and AST floors must be constructed of 3000 psi (minimum strength) reinforced concrete, and must be sealed to prevent dusting. The OFT motion base reaction pads must be constructed of 7 feet by 7 feet square by 4 feet deep must be level to within 1/8-inch from pad to pad.

Special Requirements

- a. Flashing red warning lights in close proximity of the OFT trainer to indicate OFT engagement.
- b. A red and white chain fence barrier installed around the OFT with a gate that deactivates the OFT system when open.
- c. Battery backup safety lights within OFT and exit areas.
- d. A door opening is required for the installation/removal of the OFT/AST systems. The opening for the OFT should measure 20 feet by 20 feet. The AST opening should measure 10 feet high by 12 feet wide.
- e. If the OFT has a dome-type visual system, a hoist will be required for maintenance personnel to perform the appropriate maintenance functions (2,000 pound full travel rail system).
- f. Computer room floors for the OFT and AST must be raised approximately 18 inches to allow for necessary cable routing between the various system components. This can also act as a plenum for air conditioning of the computer systems.

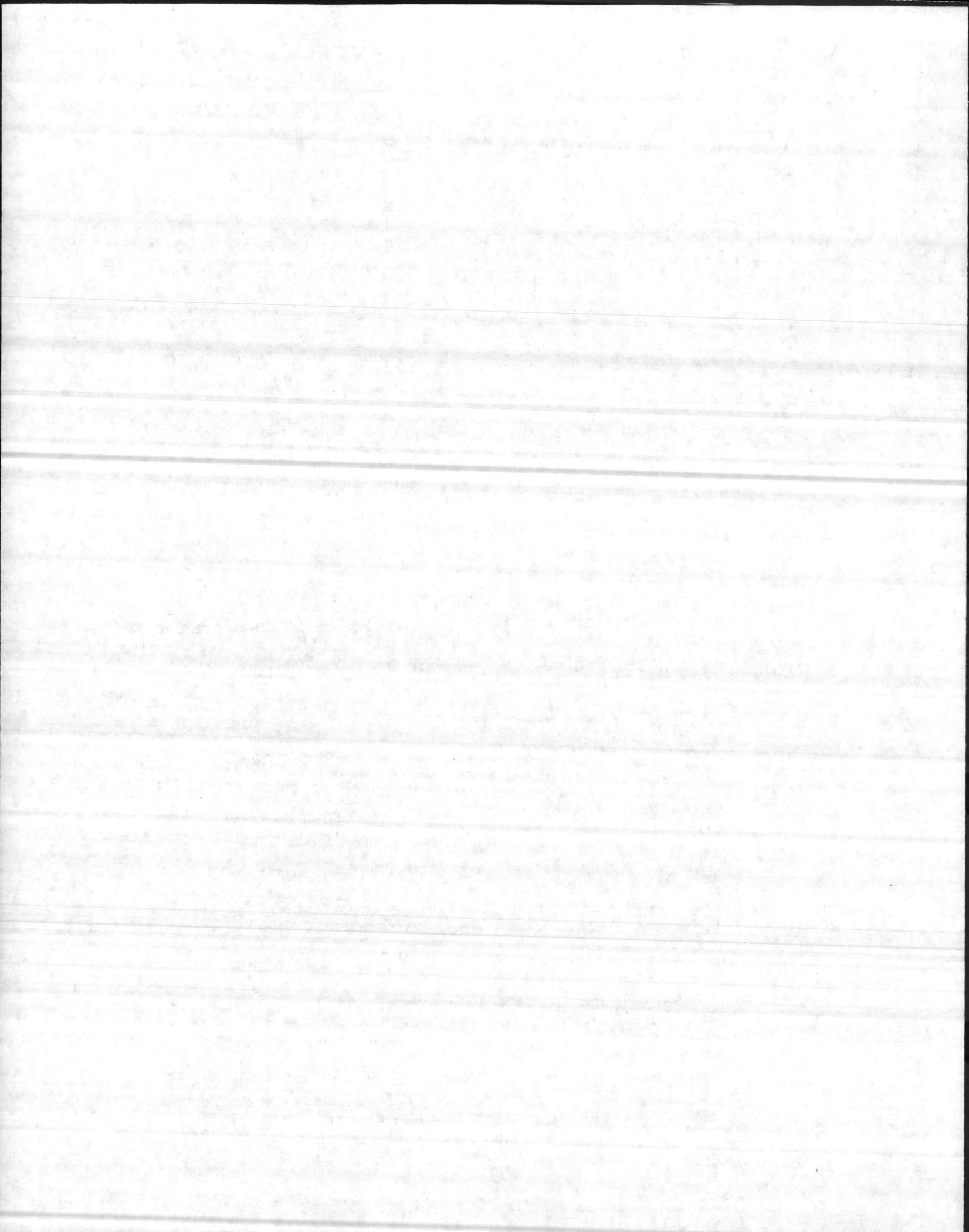


TABLE 10
OFT/AST FACILITY REQUIREMENTS FOR
MV-22A OPERATOR TRAINING
PAGE 1 OF 3

TYPE	TITLE	CLASSROOM SIZE	TOTAL REQ. SF	TRAINER AREA L X W X H	REMARKS, FLOOR LOADING, POWER REQUIREMENTS HOIST, UTILITIES, SECURITY, ETC.
55 Simulator	OFT	2500 SF	2500 SF	50 X 50 X 50 (each OFT)	<p>Floor Loading: 3000 psi minimum. Reaction pads must be 7 ft x 7 ft x 4 ft reinforced concrete</p> <p>Power - Electrical: 4-wire, wye-connected 3-phase, 60 Hertz, 120/208VAC and 277/480 VAC</p> <p>Hydraulics: 1500 psi at 25 gpm</p> <p>Cooling/Heating: Maintain a temperature of 75 ±10 degrees and the humidity at 50 ± 5 percent</p> <p>Door: 20 ft. high x 20 ft. wide</p> <p>Hoist: 2,000 pound full travel rail system</p>
Simulator	AST			40 X 40 X 15 (each AST)	<p>Floor Loading: 3000 psi minimum.</p> <p>Power - Electrical: 4-wire, wye-connected, 3-phase, 60 Hertz, 115/208VAC and 277/480 VAC</p> <p>Cooling/Heating: Maintain a temperature of 75 ± 10 degrees and the humidity at 50 ± 5 percent</p> <p>Door: 20 ft. high x 20 ft. wide</p>
Academic	Pilot Training (OFT/AST)	400 SF (each)			<p>Power - Electrical: 115/208VAC, 60 Hz</p> <p>Cooling/Heating: Maintain a temperature of 75 ± 10 degrees and the humidity at 50 ± 5 percent</p> <p>Lighting: Variable or switched in banks.</p>

V-22/E/205/0070.0.0

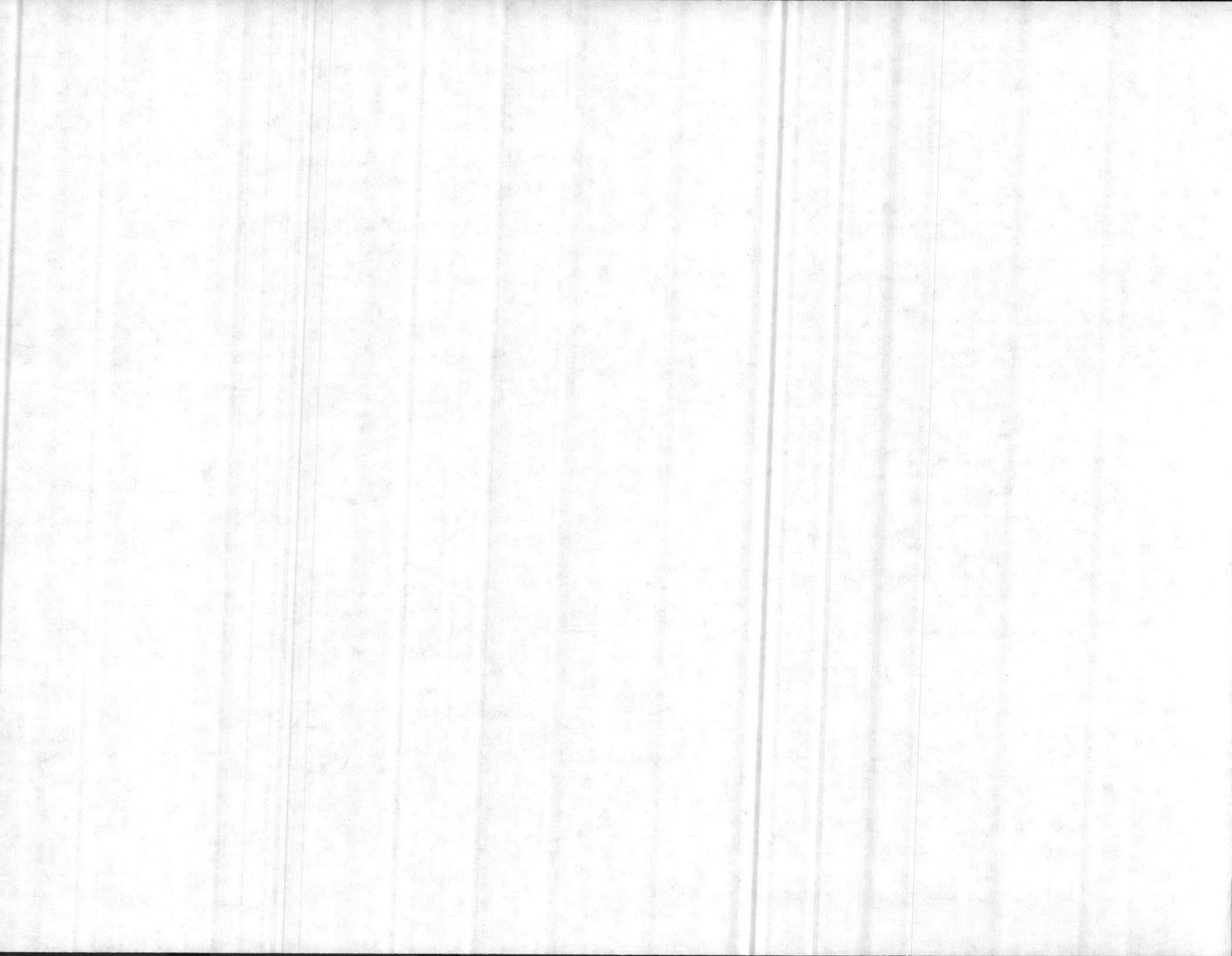


TABLE 10
OFT/AST FACILITY REQUIREMENTS FOR
MV-22A OPERATOR TRAINING
PAGE 2 OF 3

TYPE	TITLE	CLASSROOM SIZE	TOTAL REQ. SF	TRAINER AREA L X W X H	REMARKS, FLOOR LOADING, POWER REQUIREMENTS HOIST, UTILITIES, SECURITY, ETC.
Brief/Debrief	Pilot Training (OFT/AST)	160 SF (each)			Power - Electrical: 115/208 VAC, 60 Hz Cooling/Heating: Classrooms maintained at approximately 70 to 78 degrees. Computer equipment will be located in these rooms. Lighting: Variable or switched in banks.
Computer Rooms	OFT	1600 SF	1600 SF (each)		Power - Electrical: 115/208 VAC, 60 Hz Floors: Must be elevated 18 inches to allow for cable routing between computer system components and the OFT/AST. Lighting: Variable or switched in banks. Cooling/Heating: Class rooms maintained at approximately 70 to 78 degrees. Systems need to have electronic filtering.
56	AST	300 SF	300 SF (each)		Power - Electrical: 115/208 VAC, 60 Hz, single phase Lighting: Variable or switched in banks. Cooling/Heating: Maint. Shop maintained at approximately 70 to 78 degrees. Computer equipment will be located in these rooms.
Maintenance Shop	OFT/AST	300 SF			

V-22/E/205/0071.0.0

901-999-638

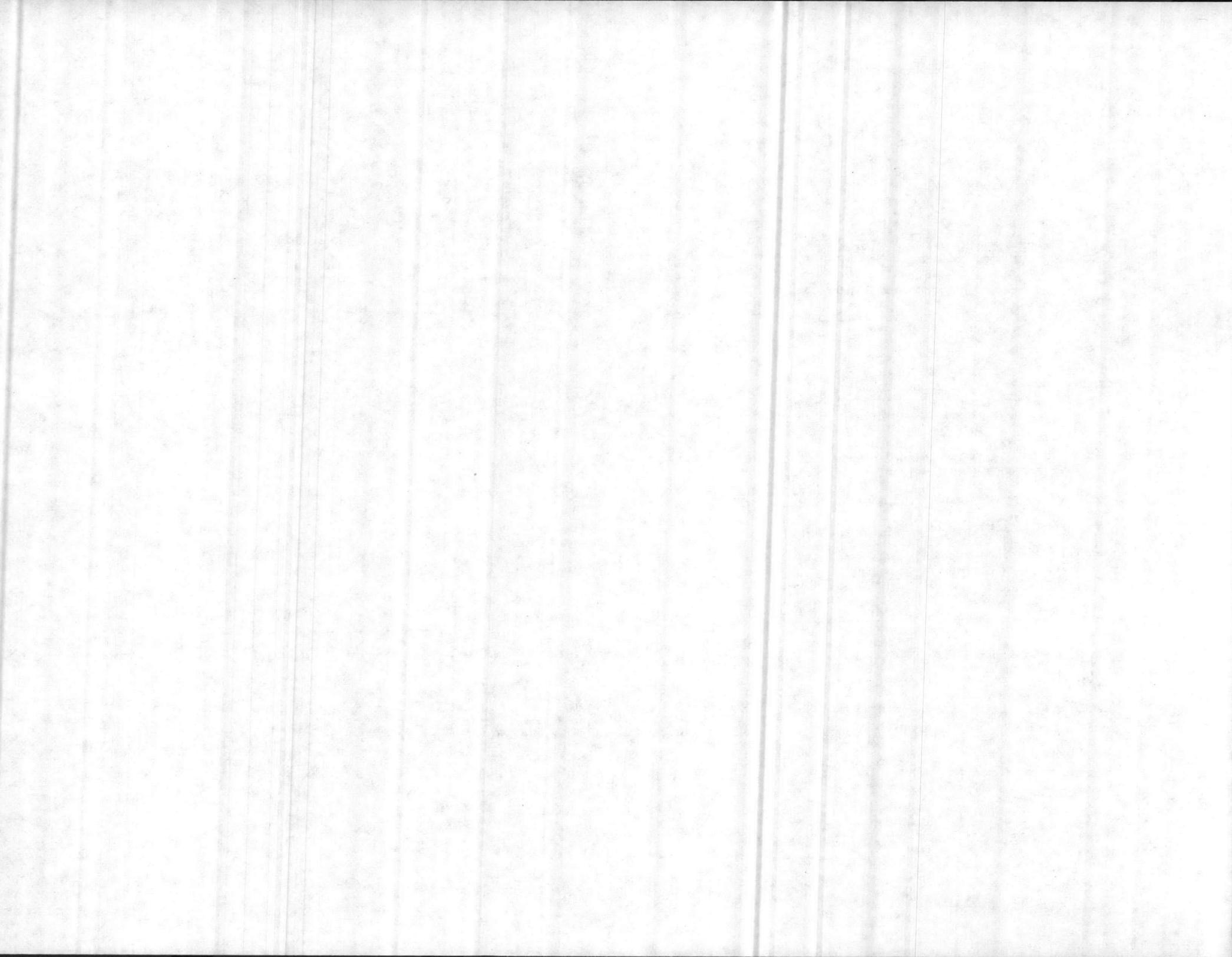


TABLE 10
 OFT/AST FACILITY REQUIREMENTS FOR
 MV-22A OPERATOR TRAINING
 PAGE 3 OF 3

TYPE	TITLE	CLASSROOM SIZE	TOTAL REQ. SF	TRAINER AREA L X W X H	REMARKS, FLOOR LOADING, POWER REQUIREMENTS HOIST, UTILITIES, SECURITY, ETC.
Maintenance Supply/Test Equipment/Storage	Storage	1000 SF			Power - Electrical: 115/208 VAC, 60 Hz Cooling/Heating: Room maintained at a temperature less than 80 degrees F.

57

V-22/E/205/0072.0.0

901-999-638

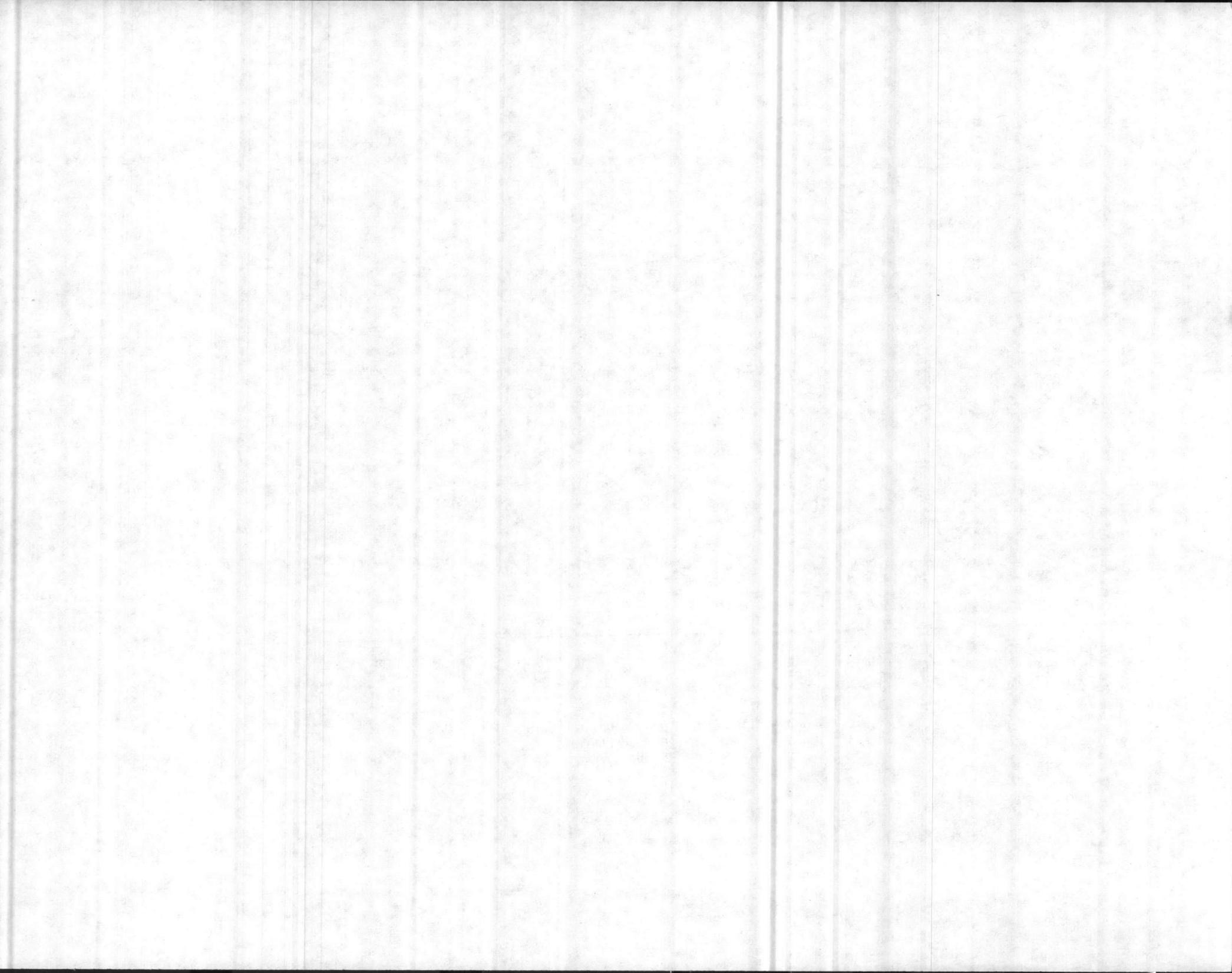
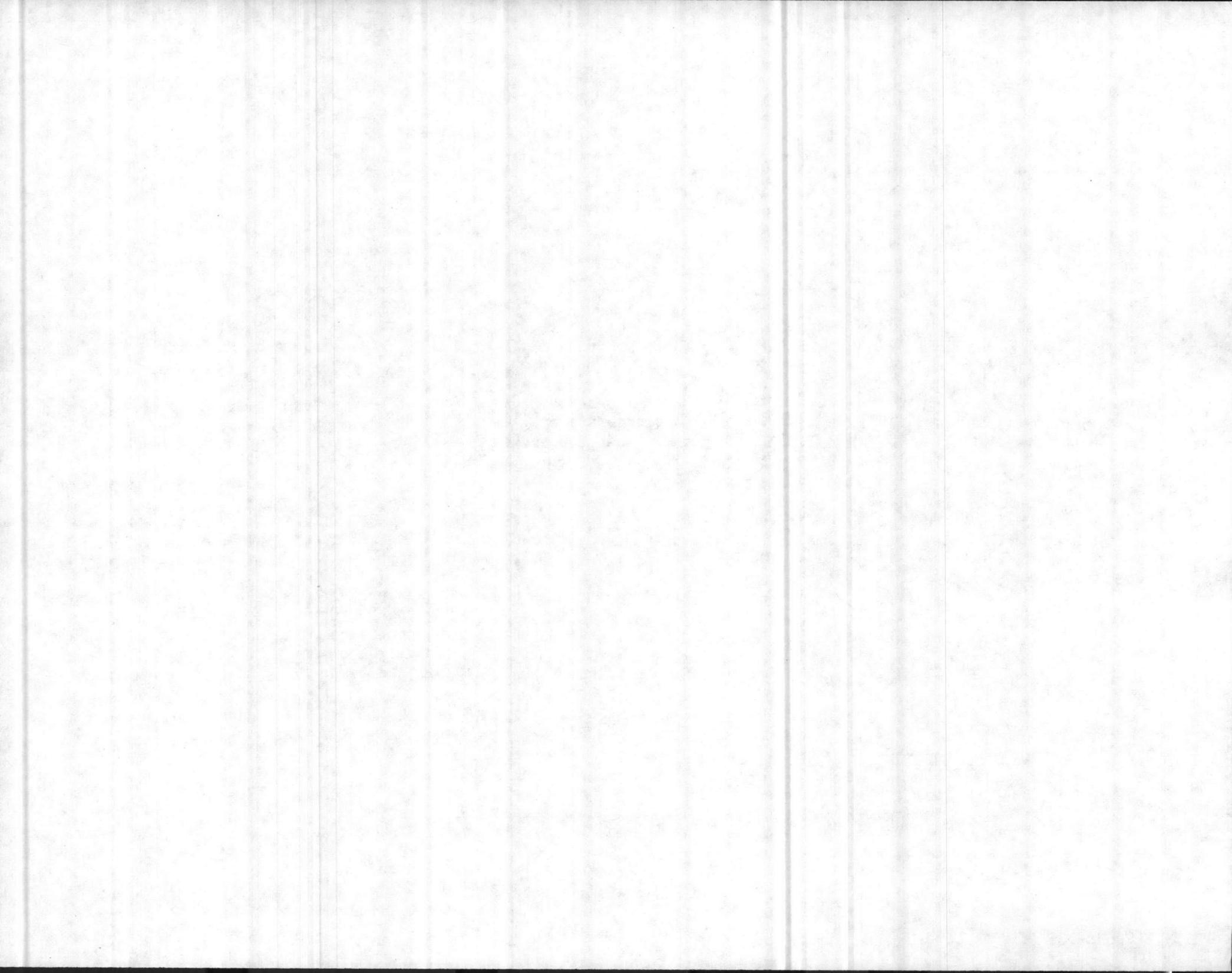


TABLE 11

Current Facilities - 211 05 Maintenance Hangar - OH Space

Building #	<u>MAG-26</u>		<u>MAG-29</u>	
	504	515	4100	4108
Dimensions	Data pertaining to this bldg. contained in paragraph 3.2.1 on FRAMP/FRS	78' x 644'	100' x 192'	90' x 642'
Ceiling Hgt.		42'	30'	42'
Door Hgt.		36'	28'	36'
Utilities				
Electrical		None Available (Receptacles are not powered)	480V, 100A, 60 Hz	115V, 1Ph, 60 Hz
Compressed Air		75 psi	90 psi	90 psi
Hoist Capability		None	10,000 lb. monorail	4,000 lb.

58



V-22 Requirements

NAVFAC P-80 requirements direct planning to reflect 25% of squadron aircraft to be located in the hangar for maintenance. Hangar size requirements are therefore based on four (4) aircraft (1 spread, 3 stowed) per squadron.

Space required (3 squadrons at MAG-26, 3 squadrons at MAG-29).

NOTE: Analysis considers 3 squadrons located in one hangar module.

Length:

Three Spread - Nine Stowed

	<u>Feet</u>
• Three Spread (3 A/C x 85 ft. per A/C)	255
• Nine Stowed (9 A/C x 18.5 ft. per A/C)	166.5
• Two Firelanes (2 x 10 ft.)	20
• Nine A/C Clearances (9 x 7 ft.)	63
• Two Sidewall Clearances (2 x 5 ft.)	10
	<u>514.5</u>

Depth:

	<u>Feet</u>
• A/C Length	63
• Firelane - Rearwall	10
• Firelane - Doors	5
	<u>78</u>

Utilities:

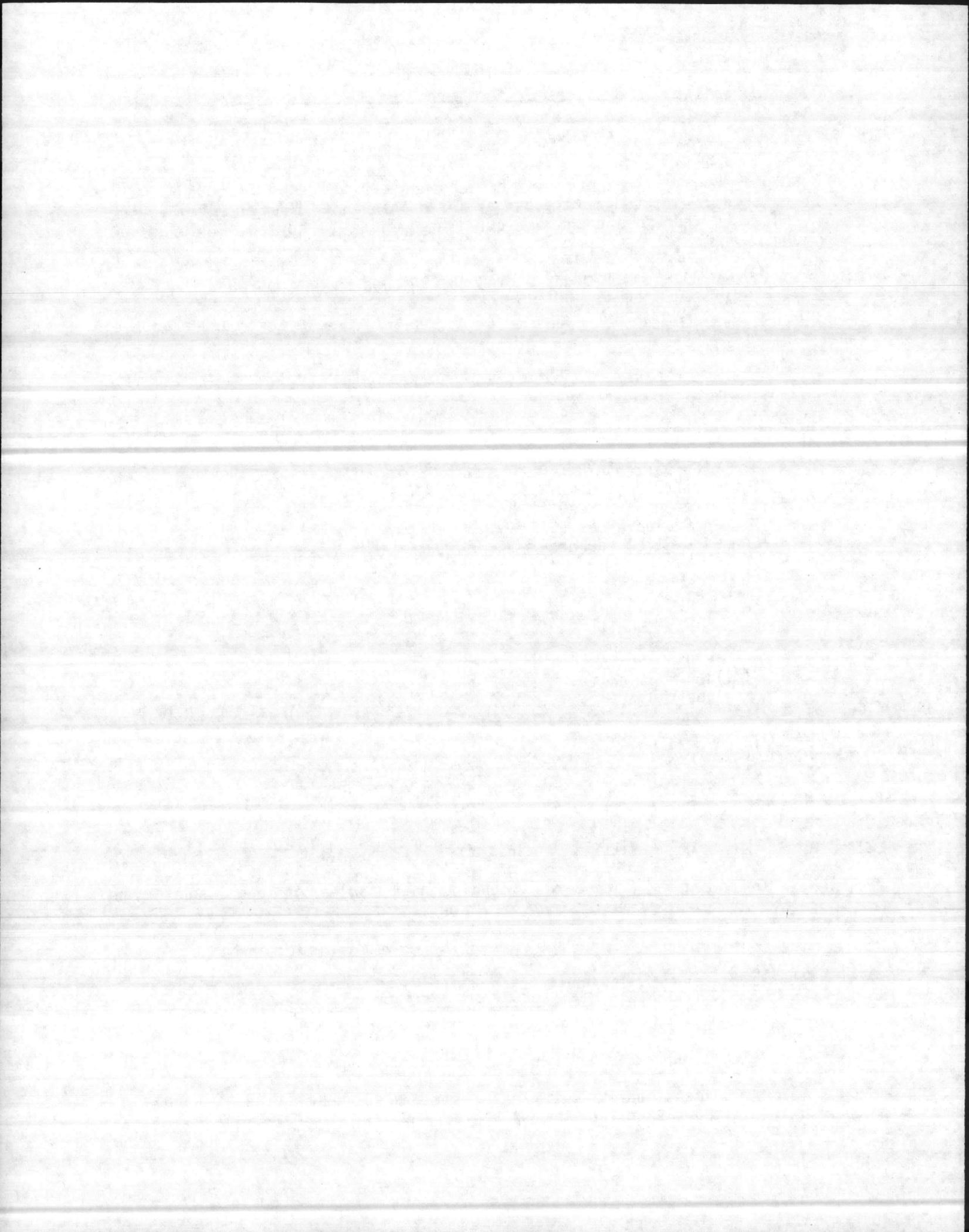
Electrical	440-480 VAC, 3 Ph, 60 Hz, 100 amp 115 VAC, 3 Ph, 400 Hz, 60 KVA
Air	110 psi (minimum)
Grounding	Standard grounding receptacles in accordance with DM-21.1
Hoisting	2,000 pound capacity, 24 foot clearhook height

Assessments and Recommendations (by Building)

MAG-26 Bldg. 515

Assessment

- Dimensionally suitable to meet the hangaring requirements of the V-22 (3 squadrons/45 aircraft).



- Adequate door and ceiling height available.
- Electrical power not available.
- Insufficient air pressure available.
- Overhead hoist not available.
- Adequate A/C grounding receptacles.

Recommendations

Execute MILCON Projects P-404, P-451 and P-543 to accomplish the following:

- Provide 1 Power Service Point (PSP) (rated at 440 V, 100A, 60 Hz and 115V, 3 Ph, 400 Hz, 60 KVA) for every two A/C.
- Increase air pressure capability to provide 110 psi (minimum).
- Provide hoist for component removal (2,000 lb. capacity).
- Relocate the UH-1/AH-1 aircraft.

MAG-29, Bldg. 4100

Assessment

- Typical Type I hangar with associated utilities and support. Suitable for supporting (1) one squadron of 15 V-22s. Currently supports (1) one CH-53E squadron. *(2)*

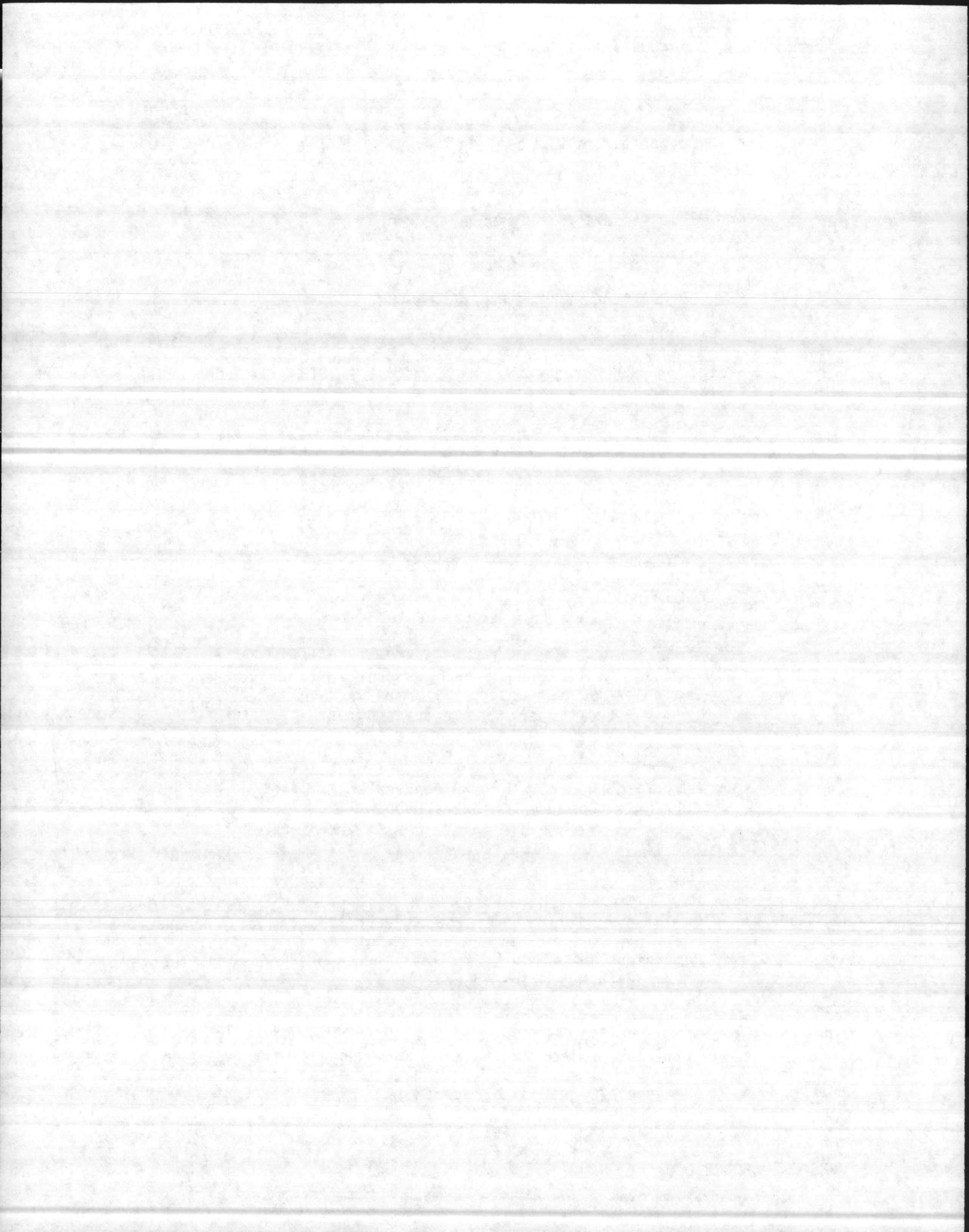
Recommendations

- None - to support a MV-22 squadron would require relocating the currently supported CH-53E squadron.

MAG-29, Bldg. 4108

Assessment

- Building currently overcrowded supporting five (5) squadrons.
- Dimensionally suitable to meet the hangaring requirements of the V-22 (3 squadrons/45 ac). *34*
- Adequate door and ceiling height available.
- Utilities (electrical/air) not adequate for V-22 support.
- Adequate A/C grounding receptacles.
- 4,000 lb. monorail available.



Recommendations

Execute MILCON Project P-404, P-451, and P-543 to accomplish the following:

- Provide 1 power service point (PSP) (rated at 440V, 100 A, 60 Hz and 115V, 3 Ph, 400 Hz, 60 KVA) for every two A/C.
- Increase air pressure capability to 110 psi (minimum).
- Relocate UH-1/AH-1 and OV-10 aircraft.

3.3.2 211 06 Maintenance Hangar - 01 Space (3.3.2)

Current Facilities

See Table 12.

V-22 Requirements

Space Required: 8690 square feet per squadron x 3 squadrons = 26,070 square feet (3 squadrons [15 A/C per sqdn] at MAG-26, 3 squadrons [15 A/C per sqdn] at MAG-29) - developed from criteria for type and sizes of spaces identified for a NAVFAC P-80 Type I hangar module. Definitive Drawing #1291710 defines these work areas and their corresponding space requirements.

The V-22 will require a dedicated area within the maintenance administration section in the 01 space for aircraft data collection and down loading associated with ECAMS/FIRMS. A 10 foot by 10 foot area will be required to house the ECAMS.

The ECAMS requires 115-120 VAC/30 AMPS/60 Hz input power to the control panel. The unit should be in an environmentally-controlled area not to exceed 92°F.

Utilities: Standard utilities identified for a Type I hangar module.

Assessments and Recommendations (by Building)

MAG-26, Bldg. 515

Assessment

- Currently supporting a total of four (4) squadrons (3 CH-46, 1 AH/UH-1).
- Four module units supporting squadron activities. Work spaces typical.

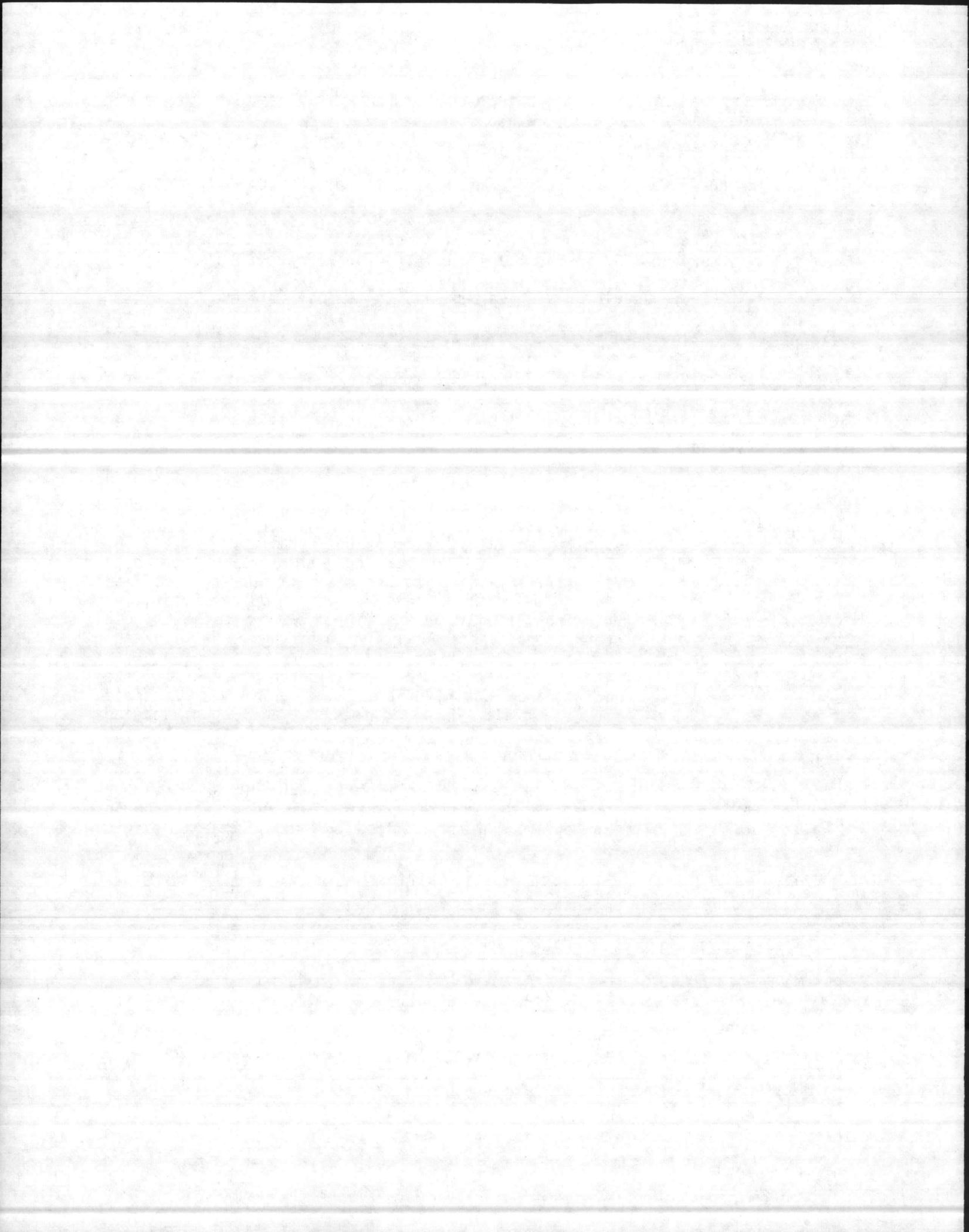
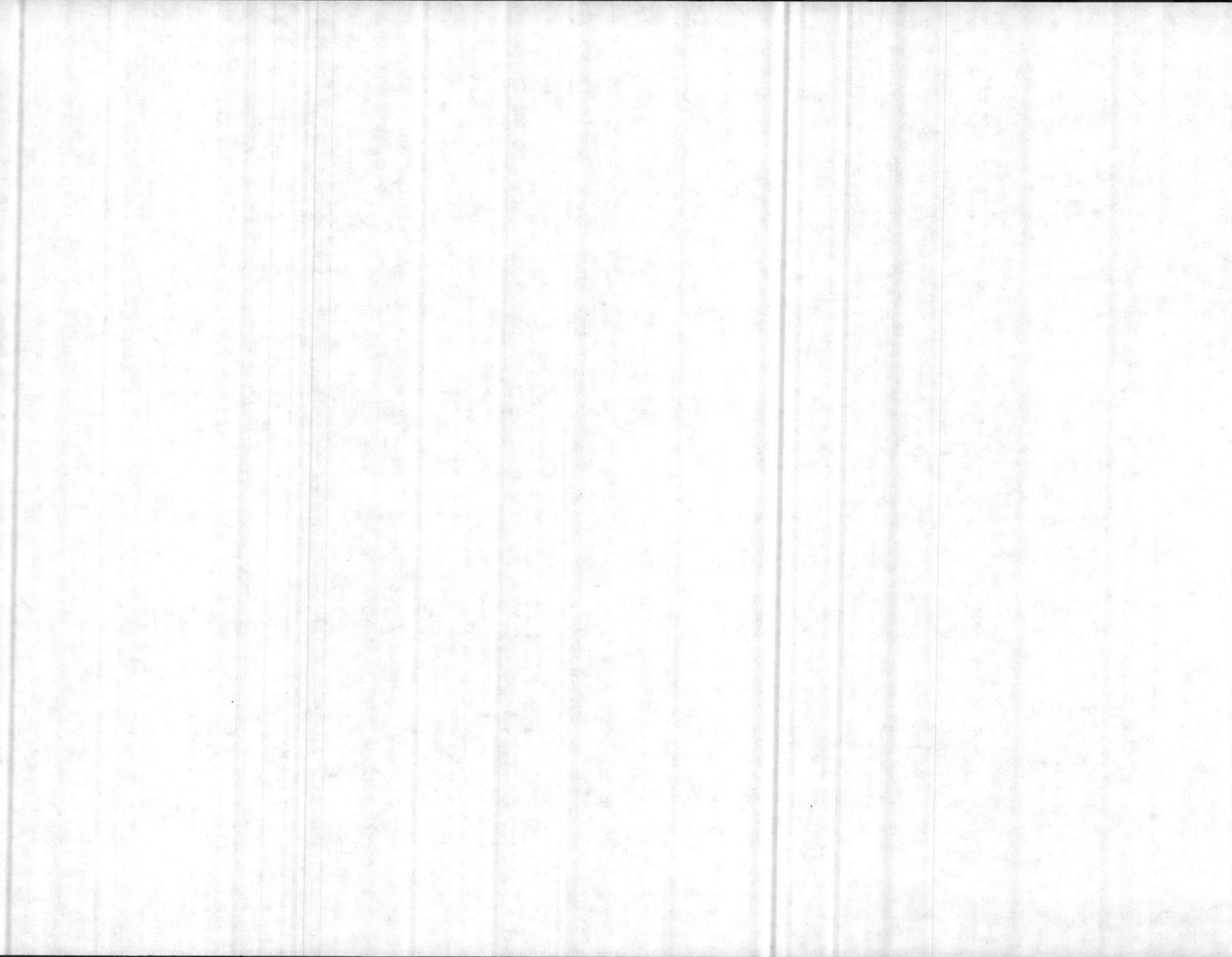


TABLE 12

Current Facilities - 211 06 Maintenance Hangar - 01 Space

Building #	<u>MAG-26</u>		<u>MAG-29</u>	
	504	515	4100	4108
Area (1 module)	Data pertaining to this building contained in paragraph 3.2.1 on FRAMP/FRS	161' x 30' (4,830 ft ²)	192' x 45' (8,640 ft ²)	160.5' x 30' (4,815 ft ²)
Total Area (4 modules)		4 x 4,830 ft ² (19,320 ft ²)	N/A	4 x 4,815 ft ² (19,260 ft ²)



- Insufficient air supply (75 psi).
- Total (01) space required for three (3) MV-22 aircraft is 26,070 square feet. Total available = 19,320 square feet. *sanadrous*

Recommendations

Execute MILCON Projects P-404, P-451, and P-543 to accomplish the following:

- Provide an additional 6,750 square feet of shop space to adequately support MV-22 requirements.
- Electrical utilities to conform to *MIL HANDBOOK 1028/1* NAVFAC DM-28.1.
- Upgrade air supply to 125 psi.
- Relocate AH-1/UH-1 aircraft.

MAG-29 Bldg. 4100

Assessment

- Standard type I hangar module in accordance with definitive drawing #1291710.
- Utilities - Standard in accordance with *MIL HANDBOOK 1028/1* DM-28.1.
- Currently supporting one (1) CH-53E squadron.
- Capable of supporting a single *15* aircraft squadron of MV-22s.

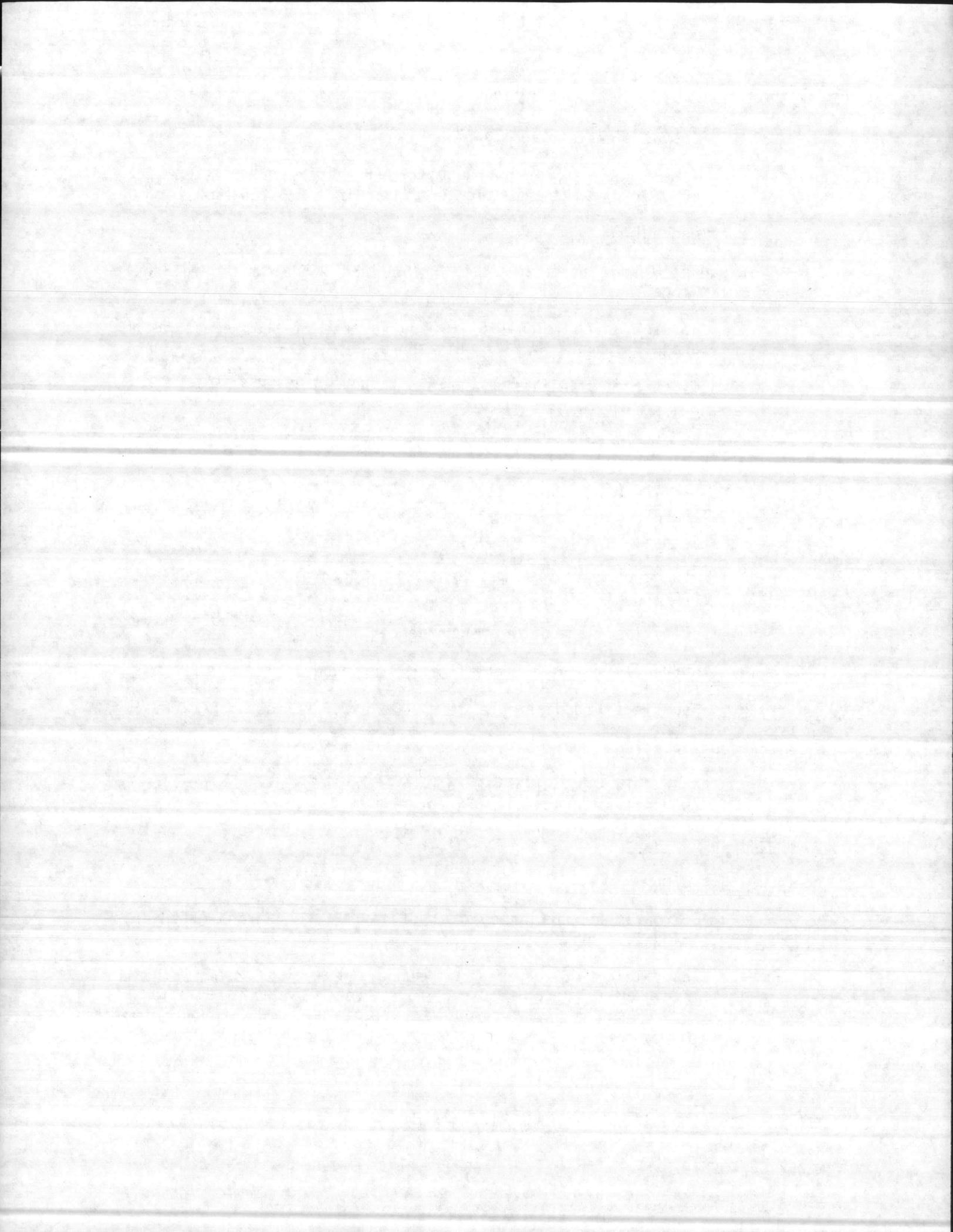
Recommendations

- None - To support a MV-22 squadron would require relocating the currently supported CH-53E squadron.

MAG-29, Bldg. 4108

Assessment

- Currently supporting a total of five (5) squadrons (3 CH-46, 1 AH/UH-1, 1 OV-10).
- Insufficient 01 spaces to support existing hangar loading. Total (01) space required for three (3) MV-22 aircraft is 25,920 square feet. Total available = 19,260 square feet.
- Adequate shop air available.



Recommendations

Execute MILCON Projects P-404, P-451, and P-543 to accomplish the following:

- Provide an additional 6,660 square feet of shop space to adequately support MV-22 requirements.
- Electrical utilities to conform to NAVFAC DM-28.1.
- Relocate AH-1/UH-1 and OV-10 aircraft.

3.3.3 211 07 Maintenance Hangar - 02 Space (3.3.3)

Current Facilities

See Table 13.

V-22 Requirements

Space Required: 8640 square feet per squadron x three (3) squadrons = 25,920 square feet developed from criteria for types and sizes of offices identified for a NAVFAC P-80 Type I hangar module. The V-22 will not introduce any unique requirements.

Utilities: Standard utilities identified for a Type I hangar module.

Assessments and Recommendations (by Building)

MAG-26, Bldg. 515

Assessment

- Currently supporting a total of 4 squadrons. Four module units supporting squadron administration. Total (02) space required for (3) three MV-22 aircraft is 25,920 square feet. Total available = 19,320 square feet.

Recommendation

- Provide an additional 6,600 square feet of (02) space to adequately support MV-22 requirements. Execute MILCON Projects P-404, P-451, and P-543.

MAG-29, Bldg. 4100

Assessment

- Currently supporting one (1) CH-53E squadron. Standard type I hangar module IAW definitive drawing #129170 will adequately support one (1) MV-22 squadron.

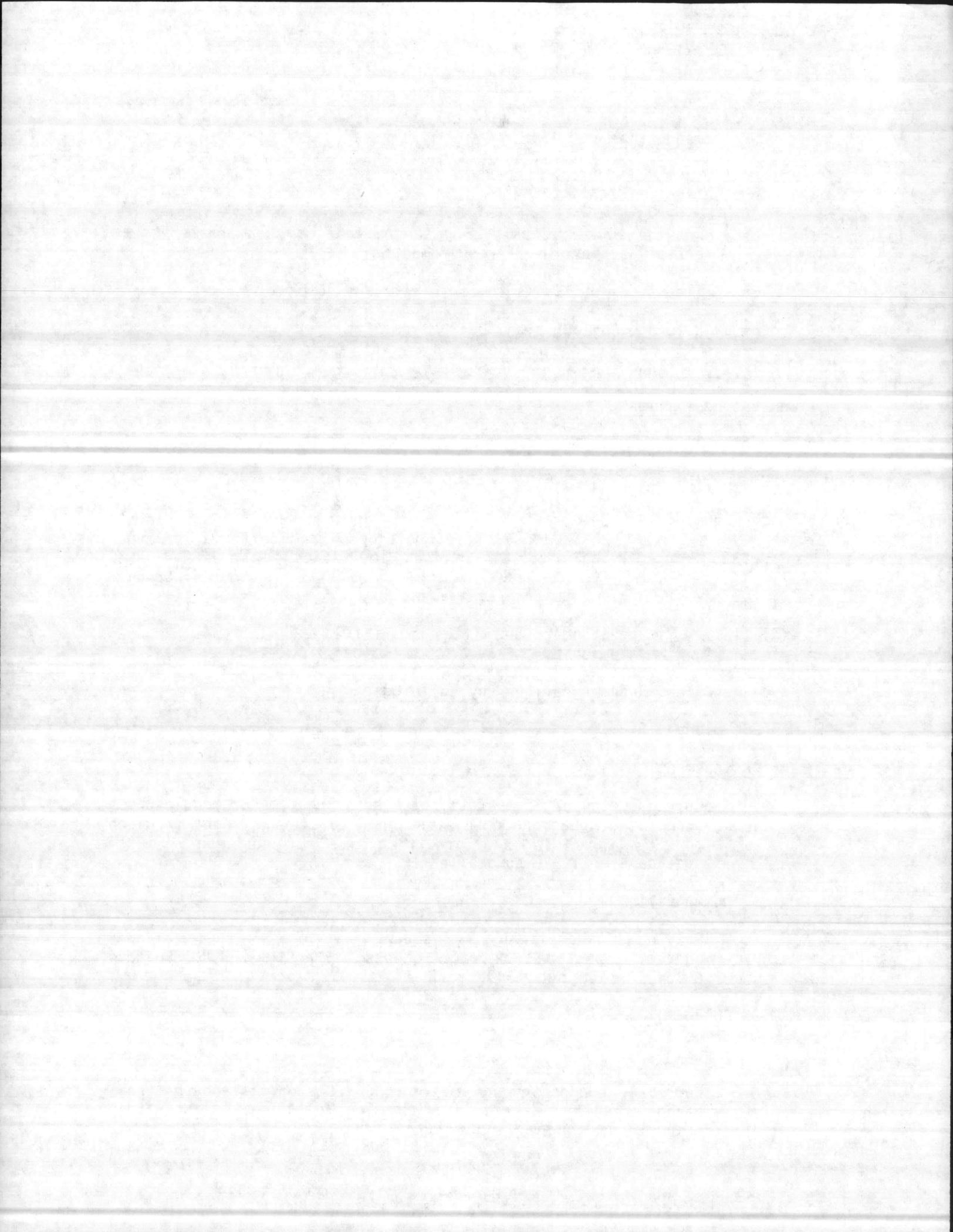
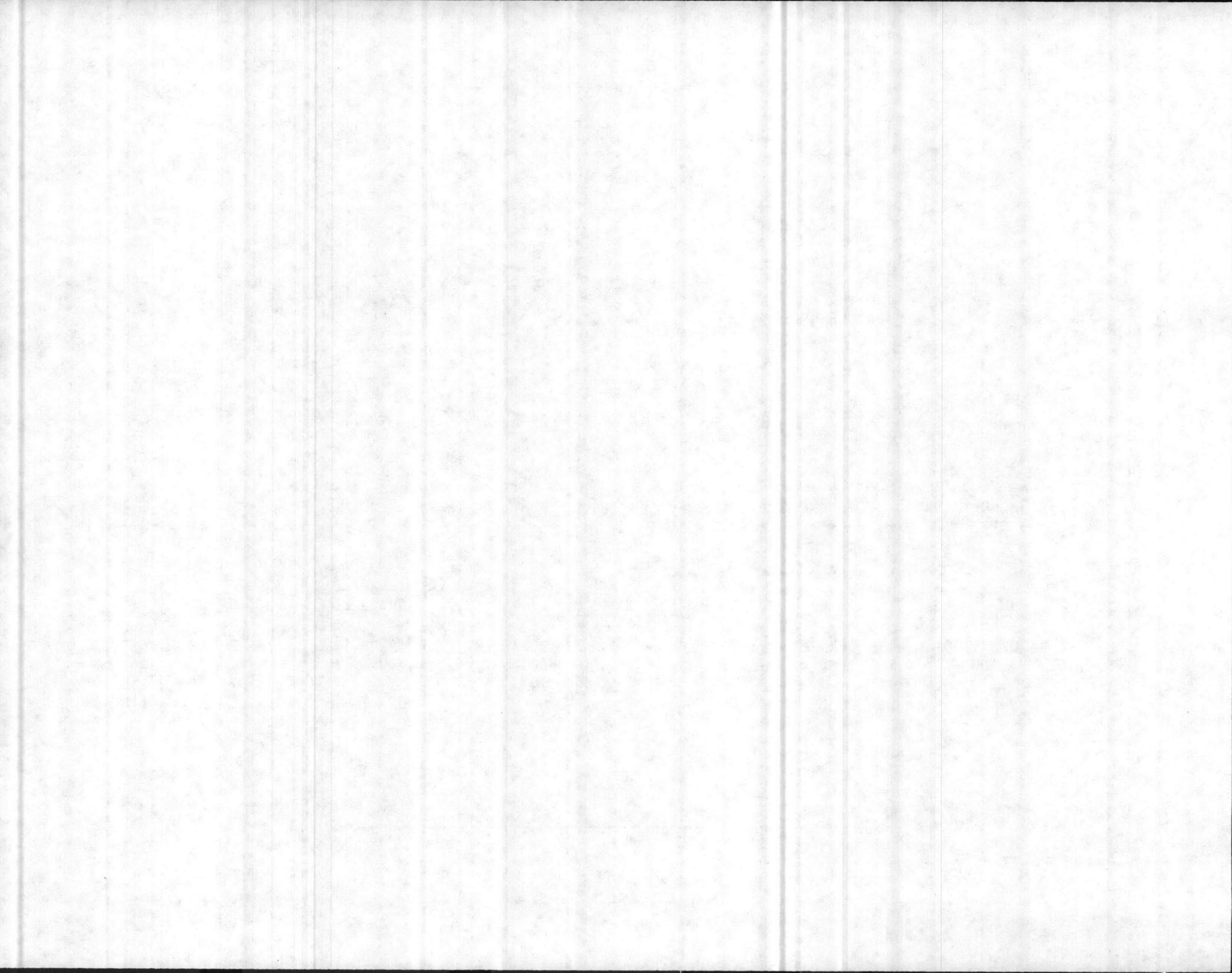


TABLE 13

Current Facilities - 211 07 Maintenance Hangar - 02 Space

Building #	<u>MAG-26</u>		<u>MAG-29</u>	
	504	515	4100	4108
Area (1 module)	Data pertaining to this building contained in paragraph 3.2.1 on FRS require- ments	161' x 30' (4,830 ft ²)	192' x 45' (8,640 ft ²)	160.5' x 30' (4,830 ft ²)
Total Area (4 modules)		4 x 4,830 ft ² (19,320 ft ²)	N/A	4 x 4,830 ft ² (14,490 ft ²)

65



Recommendations

- None.

Bldg. 4108

Assessment

- Currently supporting a total of five (5) squadrons. Three module units supporting squadron administration. Insufficient space available to support existing activities. Total (02) space required for three (3) MV-22 aircraft is 25,920 square feet. Total available = 14,490 square feet. *See above*

Recommendations

- Provide an additional 11,430 square feet of (02) space to adequately support MV-22 requirements. Execute MILCON Projects P-404, P-451, and P-543. *Protect execution will not satisfy*

3.4 Intermediate Maintenance Activities

3.4.1 211 08 Airframes Shop

3.4.1.1 Tire and Wheel Shop (3.4.2.1.1)

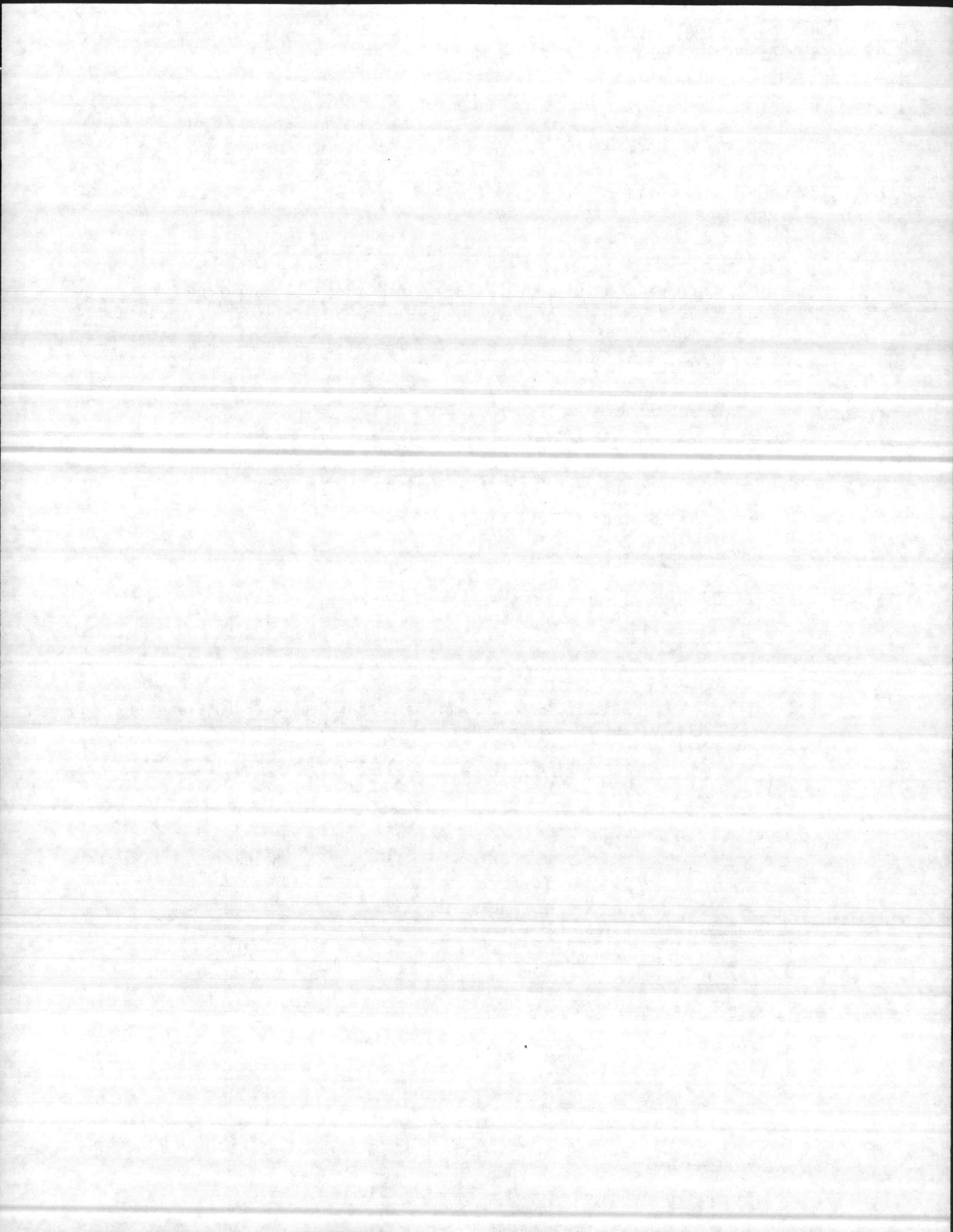
Current Facilities

	<u>MAG-26</u>	<u>MAG-29</u>
Location:	Building 518 (Co-located in Hydraulics Shop)	Building 4106 (Co-located in Structures Shop)
Dimensions:	135 square feet (9' x 15')	200 square feet (8' x 25')
Utilities:		
Electrical	110V, 1 Ph, 60Hz 220V, 1 Ph, 60 Hz	110V, 1 Ph, 60 Hz 220V, 1 Ph, 60 Hz
Air	125 psi	125 psi
Door Size:	6.75' x 7'	10' x 10'

V-22 Requirements

Space Required: 600 square feet

Door Width: 8 feet minimum



Utilities:

Electrical 120V, 1 Ph, 60 Hz
 240V, 3 Ph, 60 Hz

Air 90-125 psi

Assessment

MAG-26

- Storage rack for tire/wheels presently located in the Hydraulics Shop could expose tire/hydraulic components to contamination.
- Insufficient area available.
- Door size does not satisfy V-22 criteria.

MAG-29

- Area location adequate for V-22 requirements.
- Additional space/storage requirements can be satisfied with available space in structure shop.

Recommendations

MAG-26

- Provide an additional 465 square feet of space for tire and wheel storage and shop area.
- Relocate shop away from Hydraulics Shop. *where*
- Upgrade utilities to provide 240V, 3 Ph, 60 Hz.

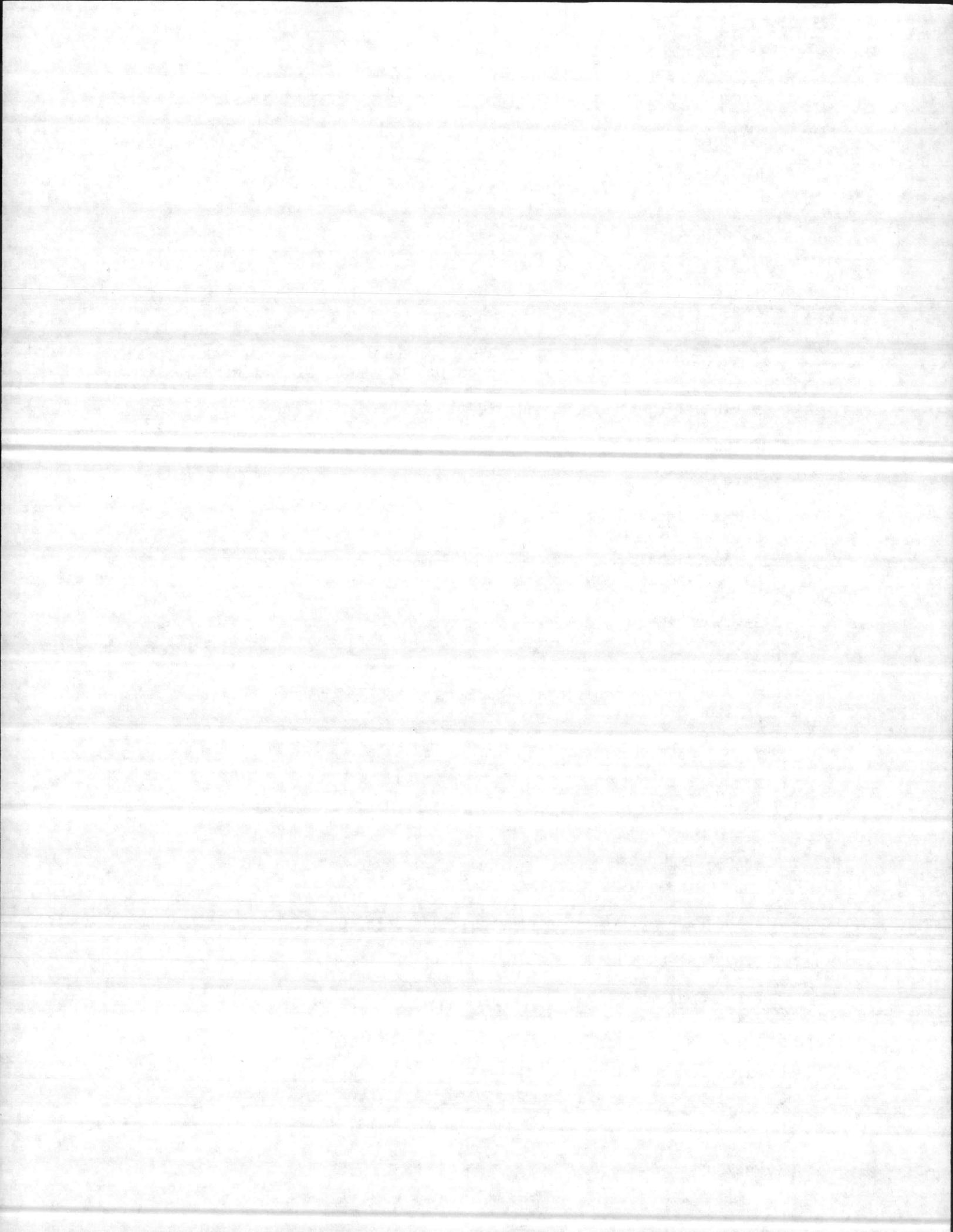
MAG-29

- Consider providing additional 400 square feet of space for V-22 requirements.
- Upgrade utilities to provide 240V, 3 Ph, 60 Hz.

3.4.1.2 Hydraulics Shop (3.4.2.1.2)

Current Facilities

	<u>MAG 26</u>	<u>MAG-29</u>
Location:	Building 518	Building 4106



Dimensions:	38 ft x 43 ft (1634 sq. ft.)	31 ft x 41 ft (1271 sq. ft.)
Door Size:	6.75 feet x 7 feet	10' x 10'
Utilities:		
Electrical	110V, 1 Ph, 60 Hz 220V, 1 Ph, 60 Hz 220/440V, 3 Ph, 60 Hz, 125 KVA	110/240V, 1 Ph, 60 Hz 220/440V, 1 Ph, 60 Hz 220/440V, 3 Ph, 60 Hz 125 KVA
Air	90 psi	80 psi

V-22 Requirements

Space Required: 1204 square feet which includes 312 square feet dedicated for hydraulic test equipment (HCT-10).

Door Width: 8 feet minimum

Utilities:

Electrical	120V, 1 Ph, 60 Hz 480V, 3 Ph, 60 Hz
Air	100 - 125 psi

Assessment

MAG-26

Shop air capability is inadequate.

MAG-29

Shop air capability is inadequate.

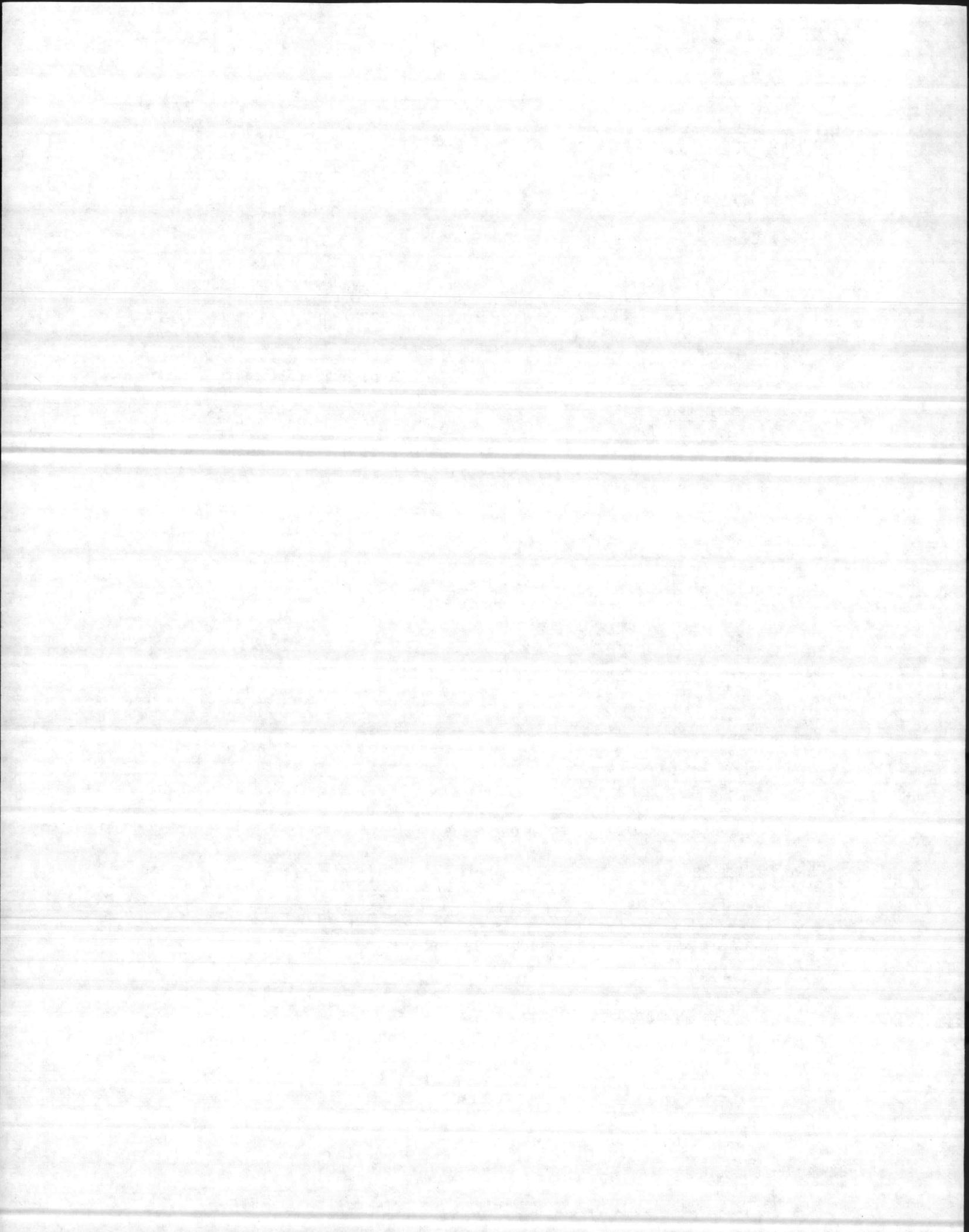
Recommendations

MAG-26

Provide air pressure at 100 - 125 psi.

MAG-29

Provide air pressure at 100 - 125 psi.



3.4.1.3 Welding Shop (3.4.2.1.3)

Current Facilities

	<u>MAG-26</u>	<u>MAG-29</u>
Location:	Building 518	Building 4106
Dimensions:	850 square feet (17' x 50')	675 square feet (25' x 27')
Door Sizes:	10 feet x 16 feet (1 ea.) 6 feet x 7 feet (1 ea.) 3 feet x 7 feet (1 ea.)	8' x 10'
Utilities:		
Electrical	115V, 1 Ph, 60 Hz 220V, 1 Ph, 60 Hz	110/220V, 1 Ph, 60 Hz
Air	100 psi	
Hoist:	4,000 pound	None

V-22 Requirements

The V-22 program does not presently identify a requirement for an "I" level Welding Shop. The Ground Support Equipment (GSE) Shop will weld any maintenance equipment requiring repair.

Assessment

MAG-26

Adequate.

MAG-29

Adequate.

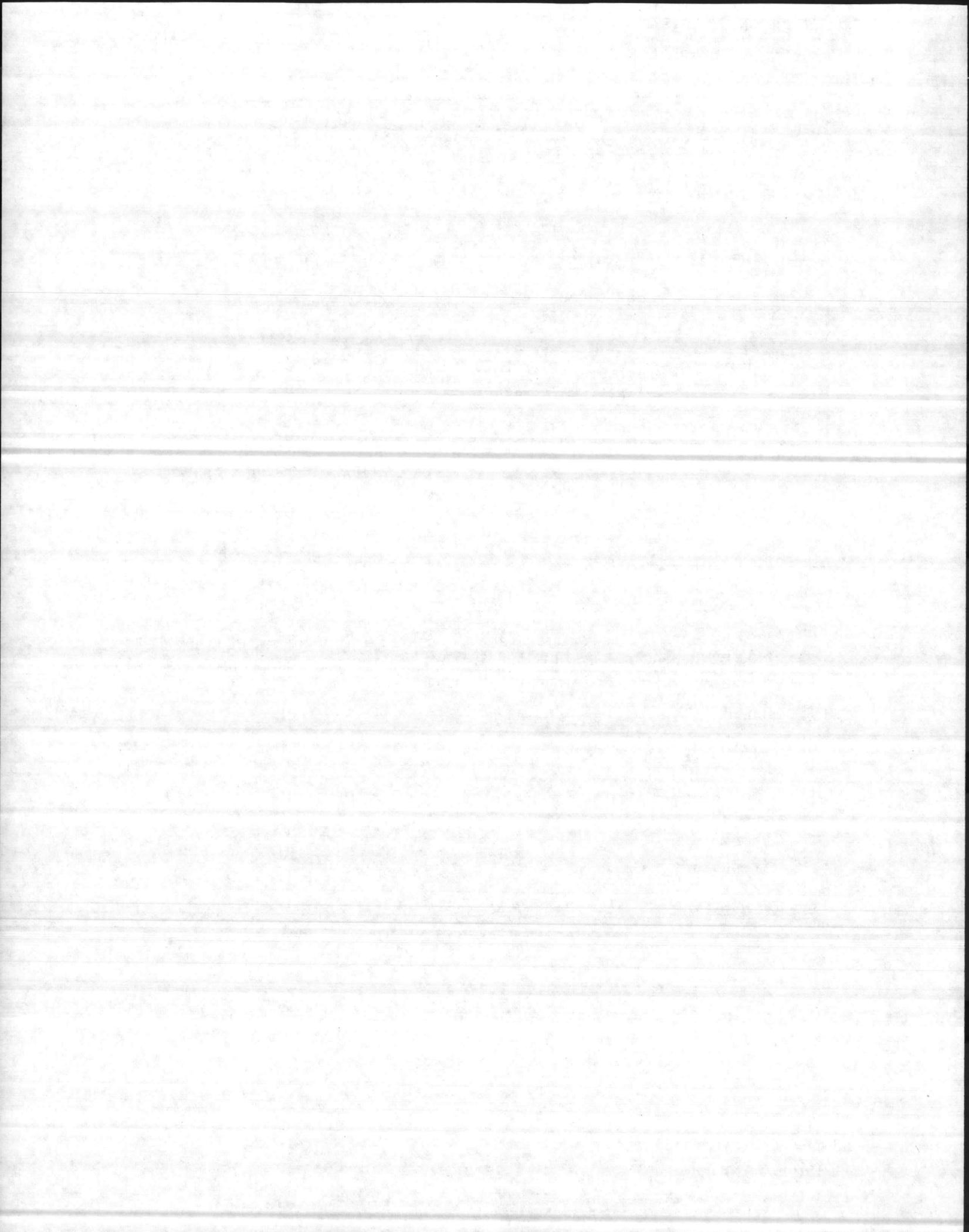
Recommendations

MAG-26

None.

MAG-29

None.



3.4.1.4 Structures Shop (3.4.2.1.4)

Current Facilities

	<u>MAG-26</u>	<u>MAG-29</u>
Location:	Building 518	Building 4106
Dimensions:	5,346 square feet (54' x 99')	3,312 square feet (46' x 72')
Door Sizes:	10 feet x 13.5 feet (1 ea.) 10 feet x 20 feet (2 ea.) 3 feet x 7 feet (2 ea.) 6 feet x 7 feet (1 ea.)	10 x 10 (3 ea.) 8 x 10 (2 ea.)
Utilities:		
Electrical	115V, 1 Ph, 60 Hz 220V, 1 Ph, 60 Hz	115V, 1 Ph, 60 Hz 220V, 1 Ph, 60 Hz
Air	75 psi	Regulated/Max. Pressure ≤ 185 psi

This shop (Building 518) has a 14 foot x 26 foot paint booth with a 8.5 foot x 9.5 foot entry door.

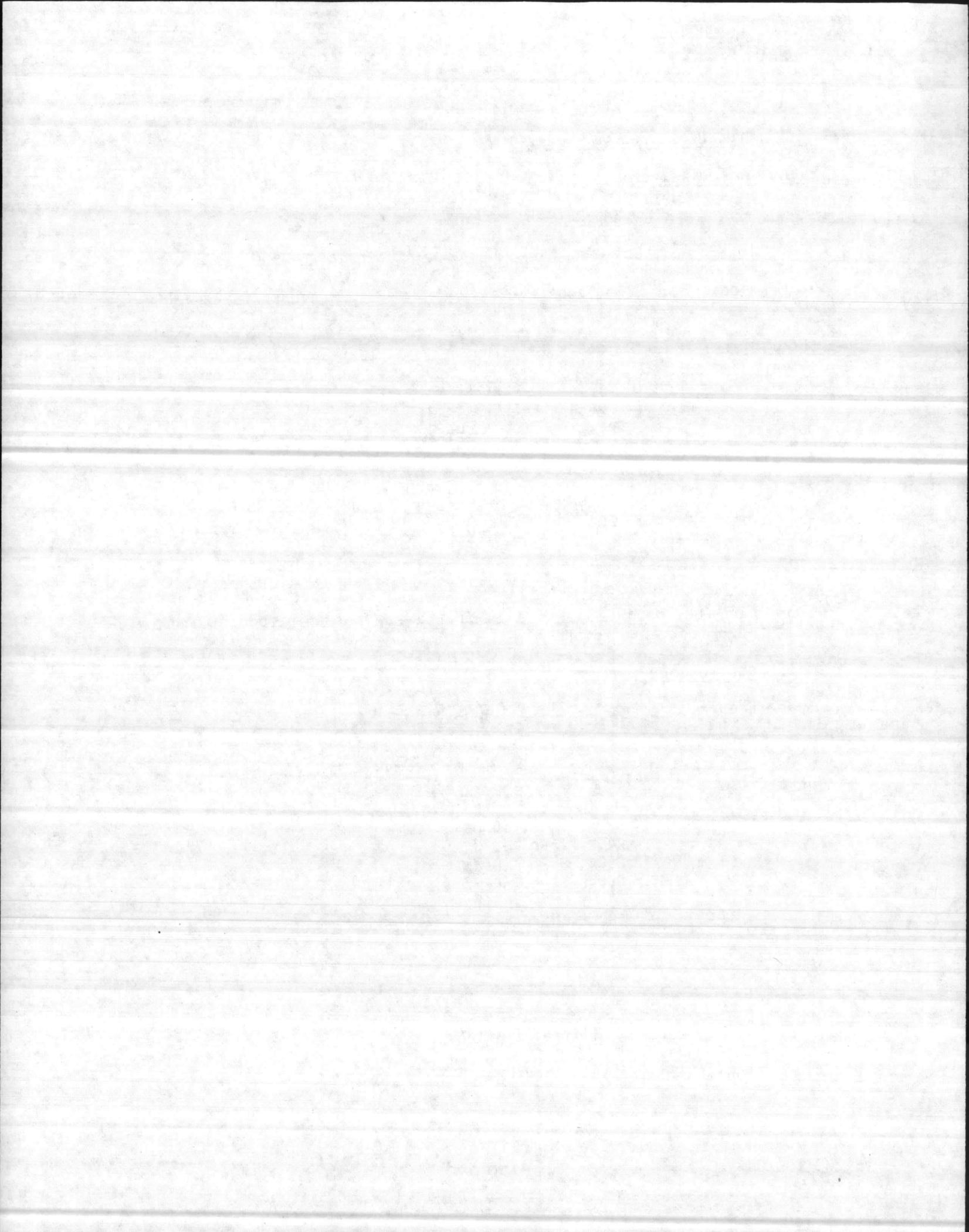
V-22 Requirement

Space Required:	1292 square feet
Door Width:	8 feet (minimum), roll-up type
Utilities:	
Electrical	120V, 1 Ph, 60 Hz 240V, 1 Ph, 60 Hz 240V, 3 Ph, 60 Hz 460V, 3 Ph, 60 Hz
Air	100 - 125 psi

Assessment

MAG-26

- Inadequate utilities available.
- Insufficient air pressure.



MAG-29

- Inadequate utilities available.

Recommendations

MAG-26

- Upgrade utilities to include 240/460V, 3 Ph, 60 Hz.
- Provide capability for 100 - 125 psi.

MAG-29

- Upgrade utilities to include 240/460V, 3 Ph, 60 Hz.

3.4.1.5 Cleaning/Vacu-Blast Shop (3.4.2.1.5)

Current Facilities

	<u>MAG-26</u>	<u>MAG-29</u>
Location:	Building 518 Located in Air Frames Shop	Building 4106
Dimensions:	N/A ?	880 square feet (20' x 44')
Utilities:		
Electrical	115V, 60 Hz 115V, 400 Hz 220 VAC	115V, 3 Ph, 60 Hz
Air	75 - 125 psi	120 psi

V-22 Requirements

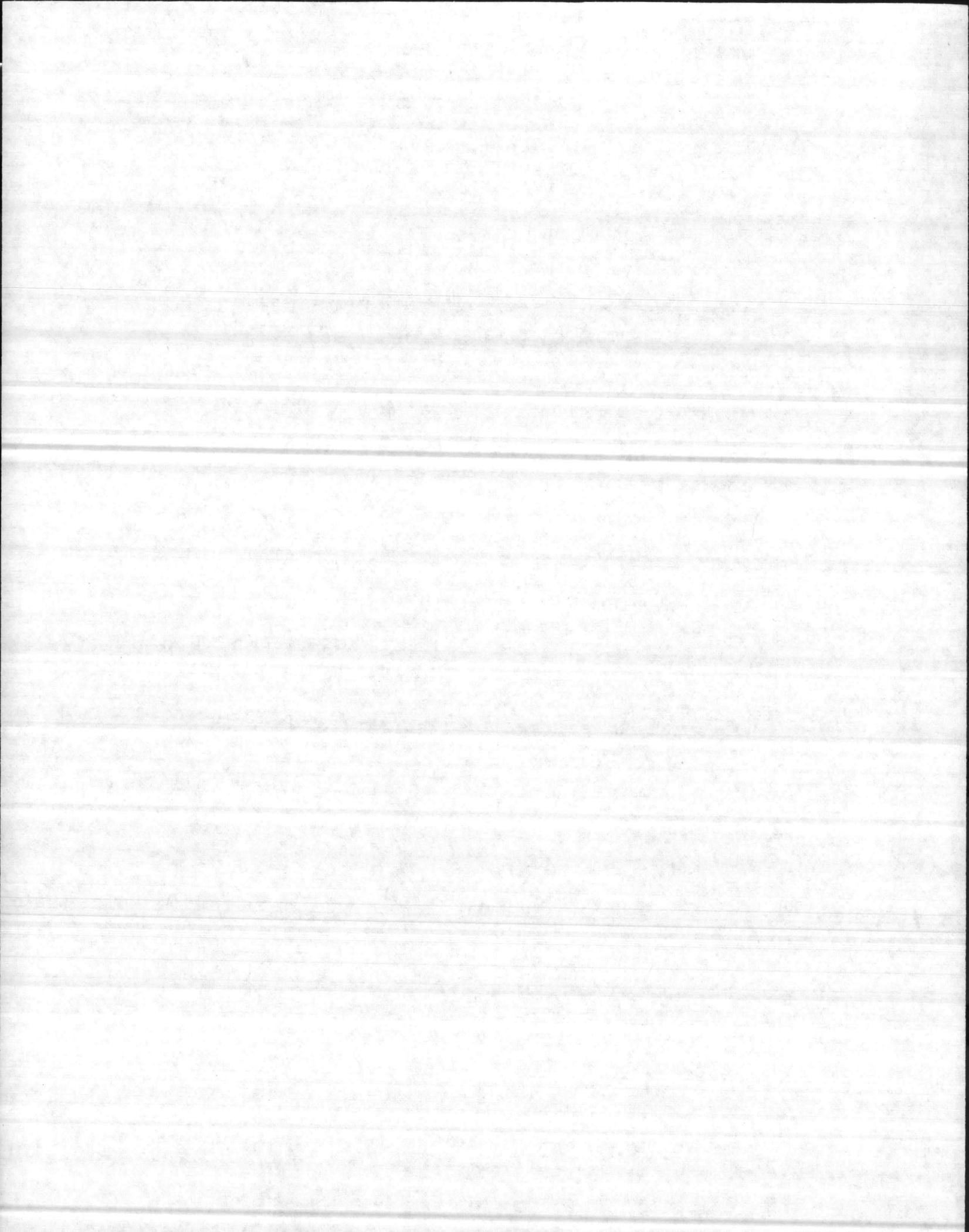
Space Required: 576 square feet

Door Size: 8 feet (minimum)

Utilities:

 Electrical 120V, 1 Ph, 60 Hz
 230V, 1 Ph, 60 Hz

 Air 100 - 125 psi



AssessmentMAG-26

Adequate.

MAG-29

Insufficient electrical power available.

RecommendationsMAG-26

None.

MAG-29

Upgrade utilities to include 230V, 1 Ph, 60 Hz.

3.4.1.6 Composite Repair Shop (3.4.2.1.6)Current Facilities (MAG-26 and MAG-29)

None on site, fiberglass repair performed in Structures Shop.

V-22 Requirements

Space Required: 30 feet x 36 feet (1080 square feet) (see V-22 FRD figure 3.4-7 for details)

Utilities:

Electrical 120V, 1 Ph, 60 Hz)
240V, 3 Ph, 60 Hz) Dust-proof electrical connectors.

Air 100-125 psi

Water Fresh water @ 15 GPM (Hot & Cold)

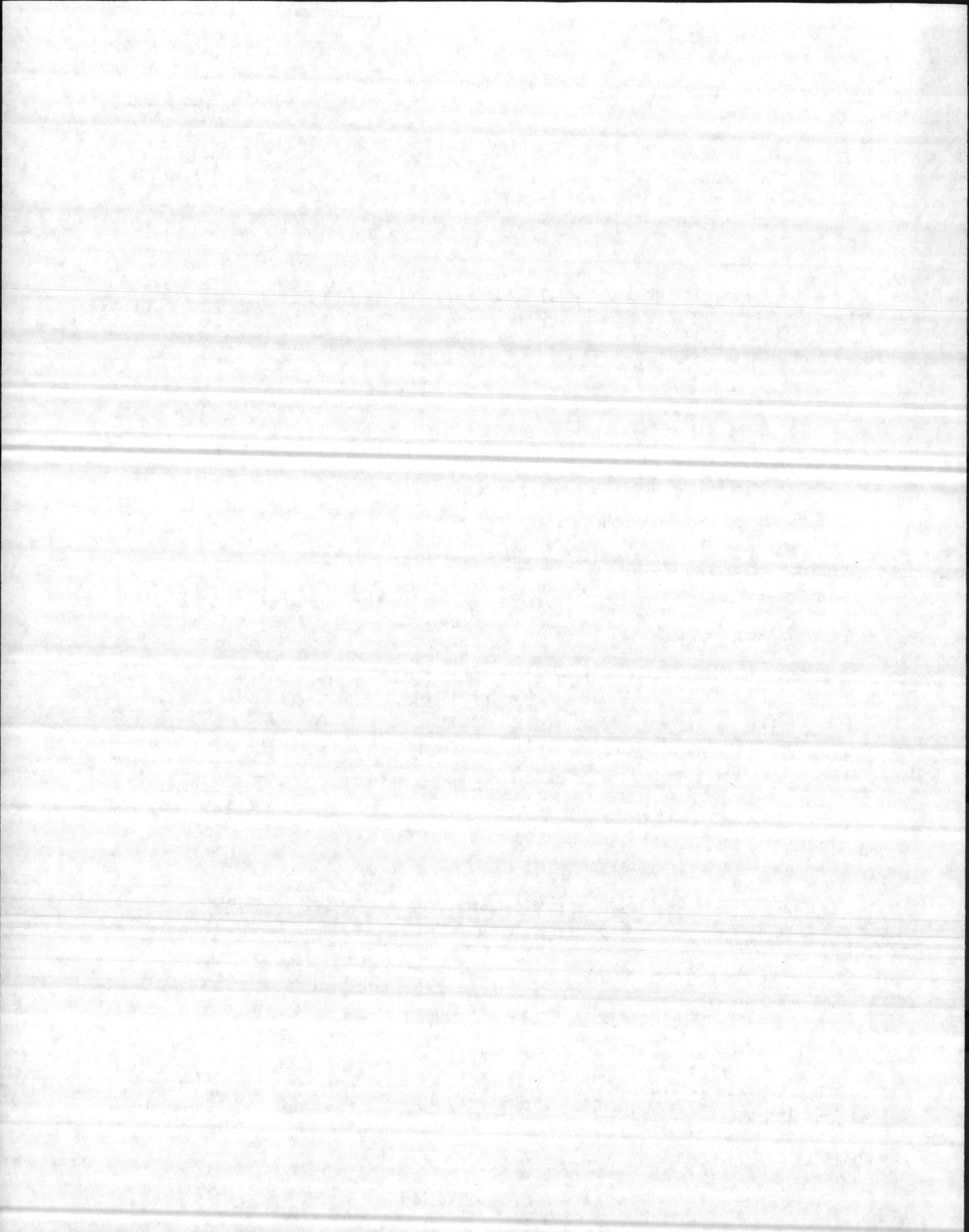
Environmental Controls: < 50% humidity @ 6 airchanges per hour.

AssessmentMAG-26 and MAG-29

Current procedure acceptable.

Recommendations

Provide capability for composite repair at both MAG-26 and MAG-29 meeting criteria defined under V-22 requirements.



3.4.1.7 Paint Shop (3.4.2.1.7)

Current Facilities

	<u>MAG-26</u>	<u>MAG-29</u>
Location:	Building 518	Building 4106
Dimensions:	486 square feet (18' x 27')	880 square feet (20' x 44')
Door Sizes:	6 feet x 7 feet	8 feet x 7 feet
Utilities:		
Electrical	115V, 1 Ph, 60 Hz 220V, 1 Ph, 60 Hz	115V, 1 Ph, 60 Hz
Air	125 psi	120 psi
Water	Hot and Cold	Hot and Cold
Ventilation	1 overhead fan (5 Hp draw)	

V-22 Requirements

Space Required: 520 square feet
Door Width: 8 feet (minimum)

Utilities:

 Electrical 120V, 1 Ph, 60 Hz
 240V, 1 Ph, 60 Hz
 480V, 3 Ph, 60 Hz

 Air 100 - 125 psi

Assessment

MAG-26

Utilities do not satisfy V-22 requirements.

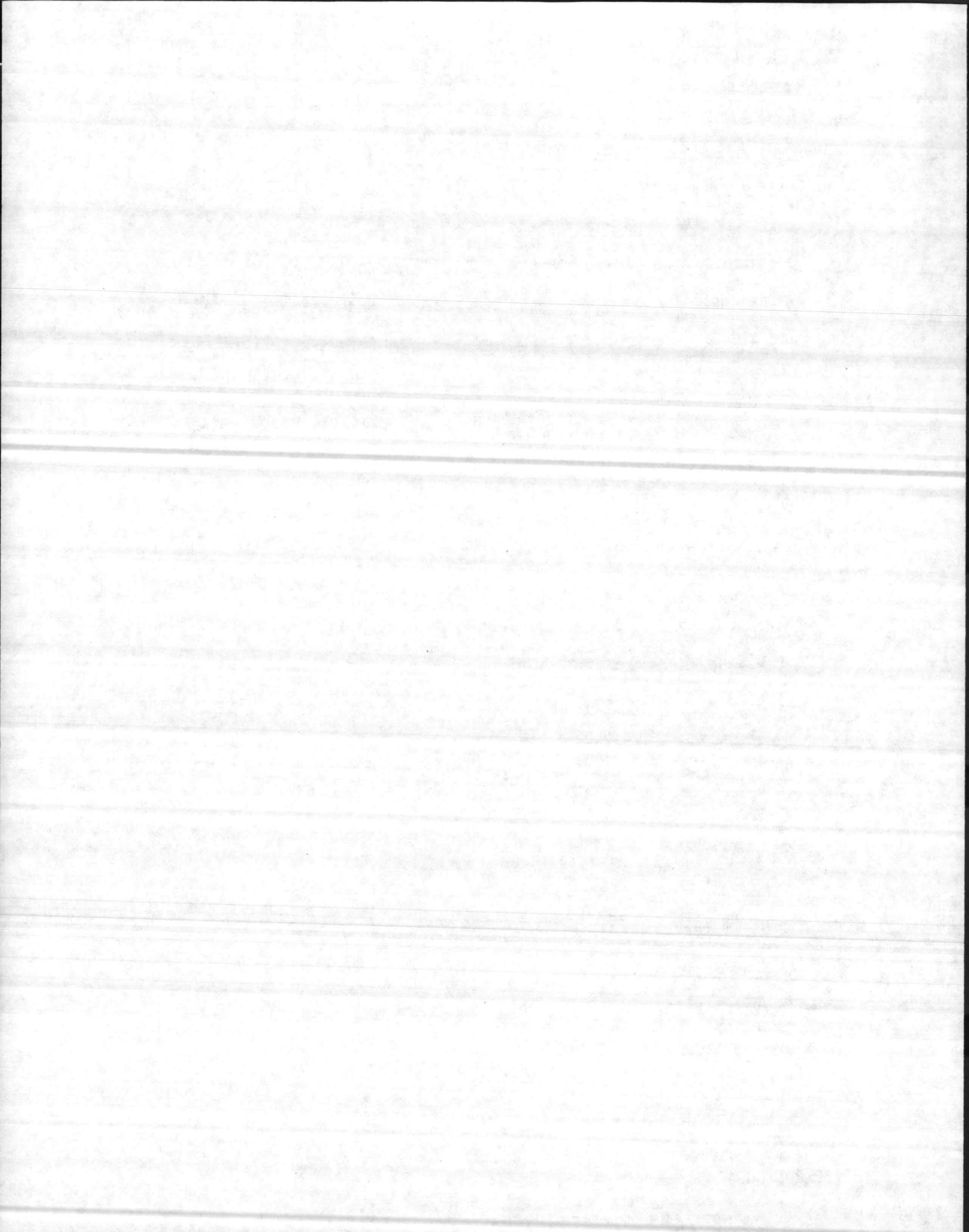
MAG-29

Utilities do not satisfy V-22 requirements.

Recommendations

MAG-26

Upgrade utilities to include 480V, 3 Ph, 60 Hz.



MAG-29

Upgrade utilities to include 240V, 1 Ph, 60 Hz and 480V, 3 Ph, 60 Hz.

3.4.1.8 Non-Destructive Inspection (NDI) Shop (3.4.2.1.8)

Current Facilities

	<u>MAG-26</u>	<u>MAG-29</u>
Location:	Building 518 (18' x 20' + 10' x 10')	Building 4106 (16' x 31')
Dimensions:	460 square feet	496 square feet
Door Size:	6 feet x 7 feet	8 feet x 10 feet
Utilities:		
Electrical	115V, 1 Ph, 60 Hz 220V, 1 Ph, 60 Hz	115V, 1 Ph, 60 Hz 220V, 1 Ph, 60 Hz
Air	125 psi	120 psi

V-22 Requirements

Space Required: 520 square feet
 Door Site: 8 feet x 8 feet (minimum), roll-up type

Utilities:

 Electrical 120V, 1 Ph, 60 Hz
 240V, 1 Ph, 60 Hz
 480V, 1 Ph, 60 Hz
 480V, 3 Ph, 60 Hz

 Air 100 - 125 psi

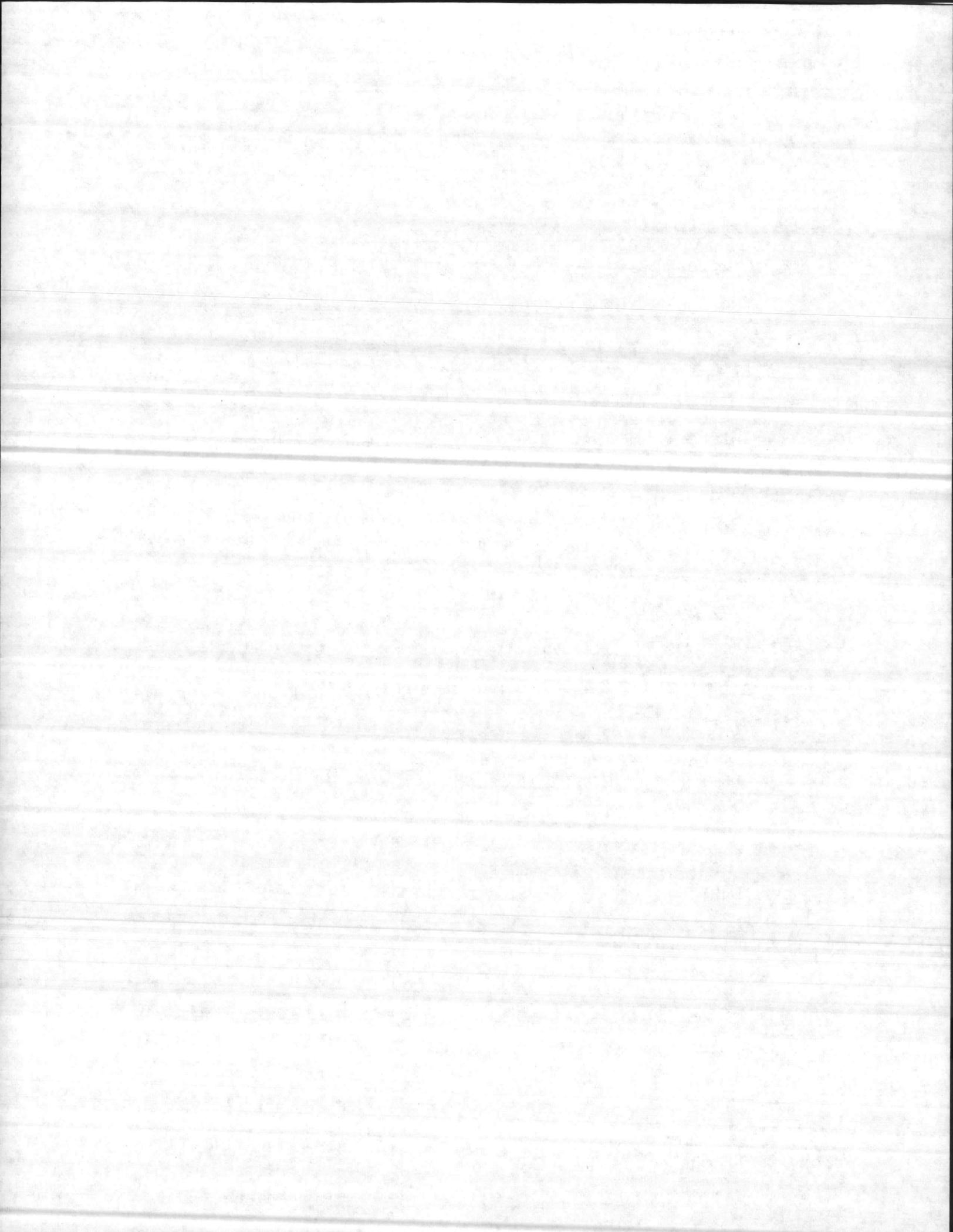
Assessment

MAG-26

Utilities do not satisfy V-22 requirements.

MAG-29

Utilities do not satisfy V-22 requirements.



Recommendations

MAG-26

Upgrade utilities to include 480V, 1 Ph, 60 Hz. and 480V, 3 Ph, 60 Hz.

MAG-29

Upgrade utilities to include 480V, 1 Ph, 60 Hz and 480V, 3 Ph, 60 Hz.

3.4.1.9 Machine Shop (3.4.2.1.9)

Current Facilities

	<u>MAG-26</u>	<u>MAG-29</u>
Location:	Building 518	Building 4106
Dimensions:	1292 square feet (34' x 38')	625 square feet (25' x 25')
Door Size:	6 feet x 7 feet	8 x 8
Utilities:		
Electrical	115V, 1 Ph, 60 Hz 220V, 1 Ph, 60 Hz	110/220V, 1 Ph, 60 Hz 240V, 3 Ph, 60 Hz
Air	125 psi	120 psi

V-22 Requirements

Space Required: 952 square feet

Door Width: 8 feet (minimum)

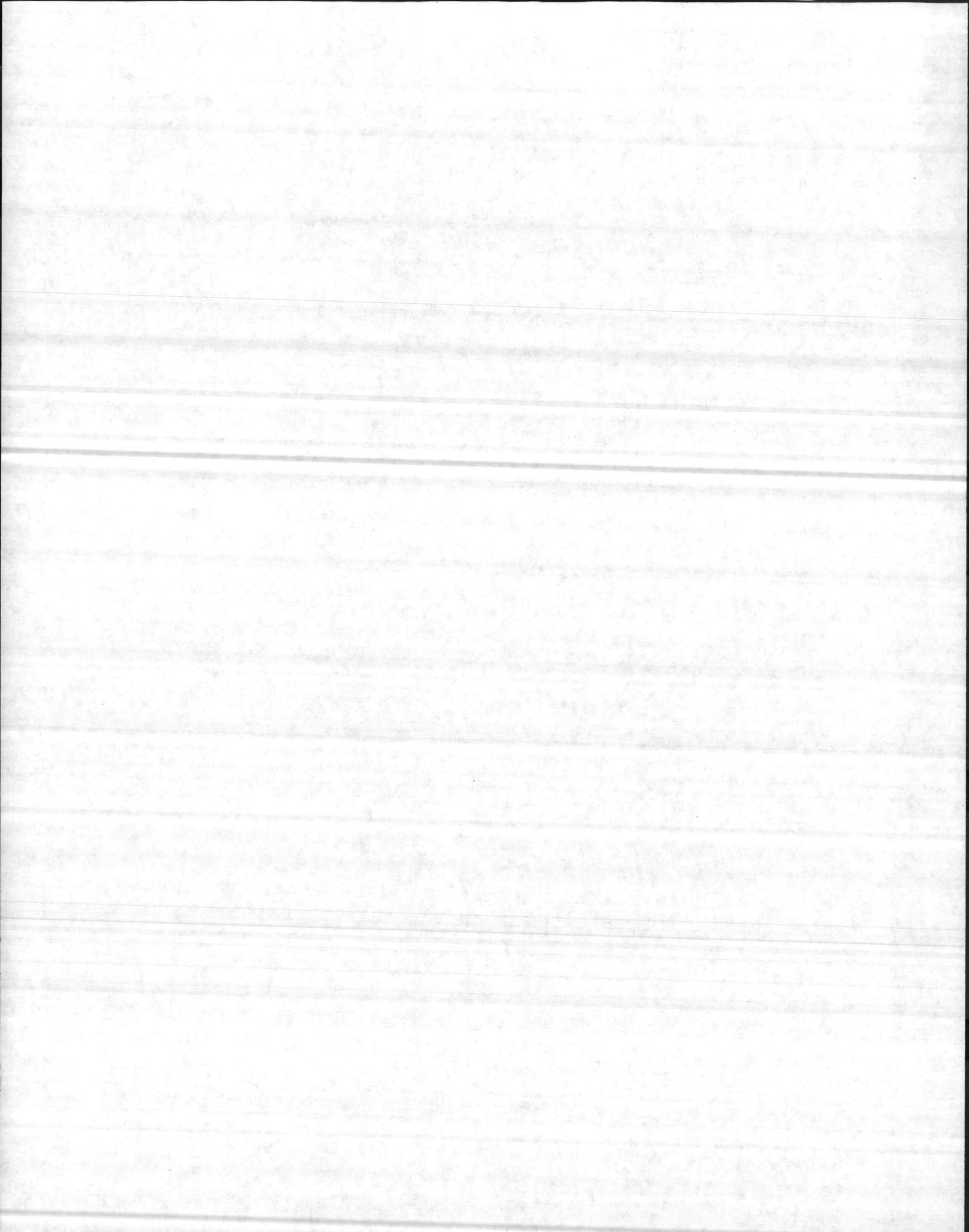
Utilities:

 Electrical 120V, 1 Ph, 60 Hz
 240V, 1 Ph, 60 Hz
 240V, 3 Ph, 60 Hz
 480V, 3 Ph, 60 Hz

Assessment

MAG-26

Adequate utilities not available.



MAG-29

- Does not meet the area requirement defined for MV-22 support.
- Insufficient electrical utilities available.

Recommendations

MAG-26

Upgrade utilities to provide 240V, 3 Ph, 60 Hz and 480V, 3 Ph, 60 Hz.

MAG-29

- Provide an additional 327 square feet of working area.
- Upgrade utilities to include 480V, 3 Ph, 60 Hz

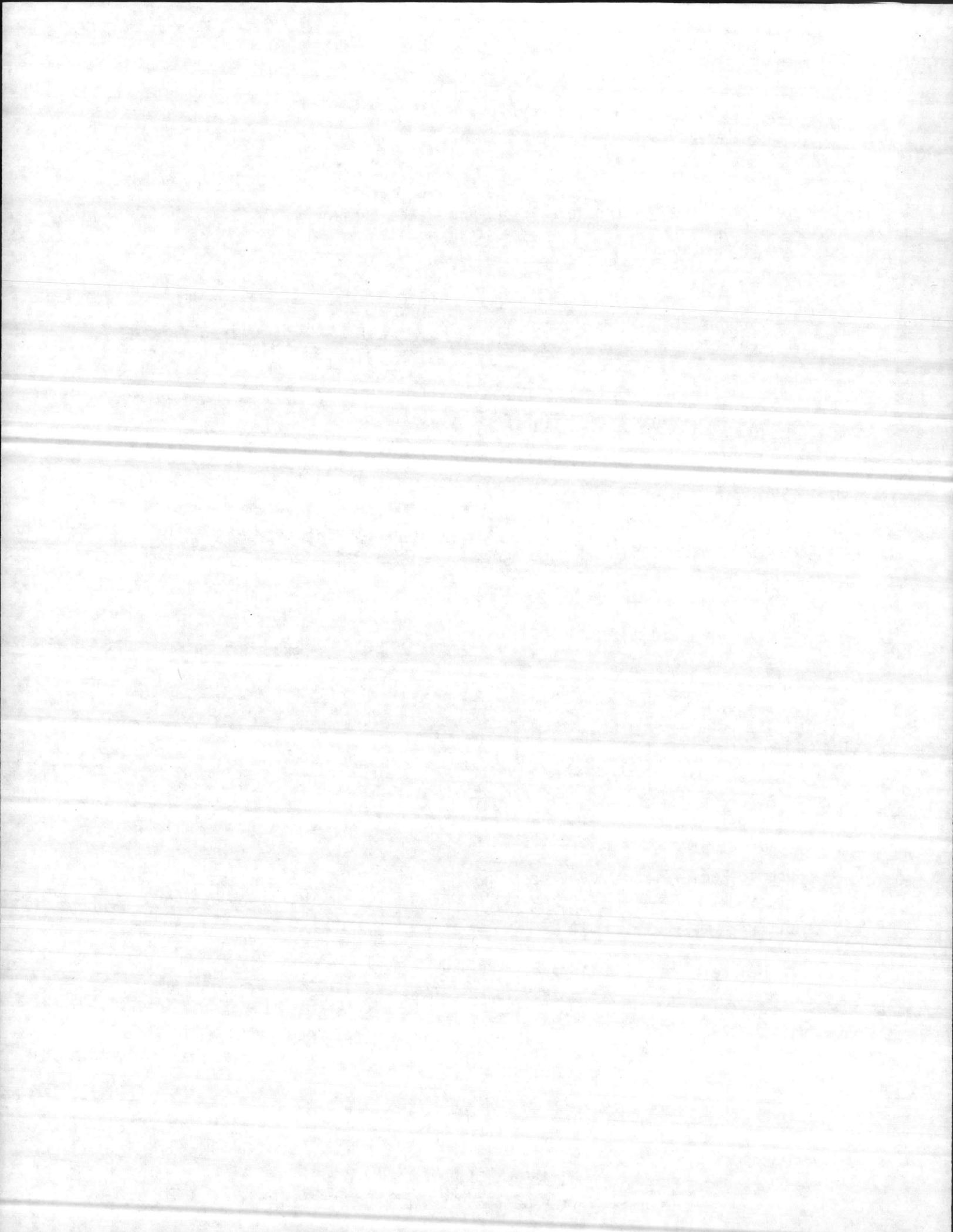
3.4.1.10 Rotor Dynamics Shop

This requirement is identified in the Allison Site Evaluation Report (Document No. TBD) under Category Code 211-11 Engine Maintenance Shop.

3.4.2 211 45 Avionics Shop (3.4.4)

Current Facilities

	<u>MAG-26</u>	<u>MAG-29</u>
Location:	Bldg 4141	Van complex adjacent to building 4106
Dimensions:		
Compound	205' x 250' (51,250 sq. ft.)	
Hard Site	50' x 100' (5,000 sq. ft.)	Total van count unknown
Mobile Facilities (MFs)	17 in compound (not counting INU's)	
Utilities:		
Hard Site	110/220V, 1 Ph, 60 Hz 220/440V, 3 Ph, 60 Hz	28 VDC 115 VAC, 60 Hz 115 VAC, 400 Hz 220/440 VAC



MFs	28 VDC 115 VAC, 60 Hz 115 VAC, 400 Hz 220/440 VAC	28 VDC 115 VAC, 60 Hz 115 VAC, 400 Hz 220/440 VAC
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V-22 Requirements

Space Required: 4,269 sq. ft.

Utilities:

Electrical 28 VDC
120V, 60 Hz, 1 Ph
120/208V, 400 Hz, 3 Ph

Assessment

MAG-26

- Adequate area available for support of V-22.
- Electrical utilities adequate.

MAG-26 also
←

MAG-29

- No fixed facility available.
- Evaluation of MF support to be provided at later date.

Recommendation

MAG-26

None.

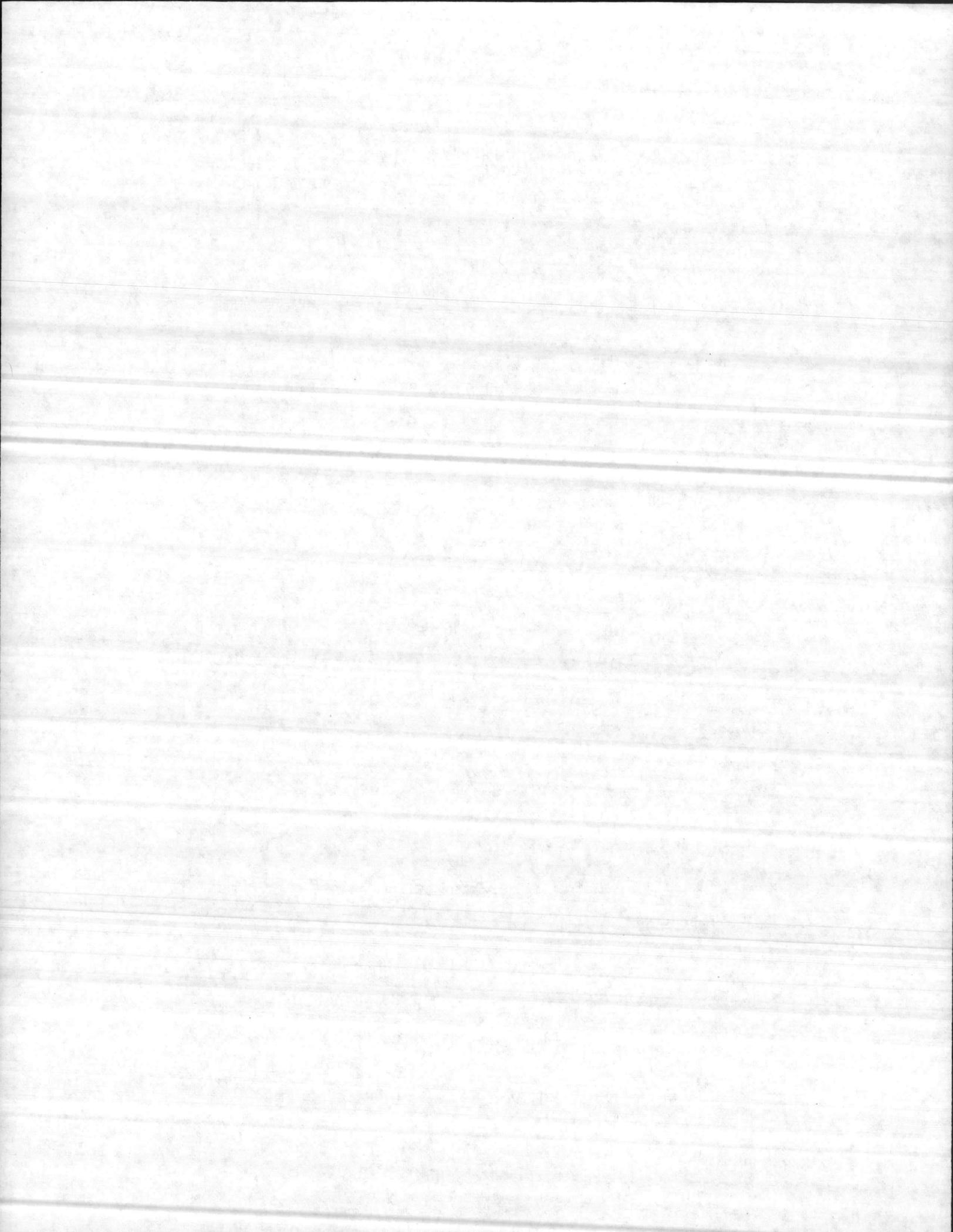
MAG-29

None.

3.4.3 211 75 Survival Equipment Shop (3.4.5)

Current Facilities

	<u>MAG-26</u>	<u>MAG-29</u>
Location:	Building 518	Building 4106
Dimensions:	two (2) rooms 18' x 18' (total - 648 sq. ft.) Bldg. 504 28 x 46' (1288 sq. ft.)	56 feet x 31 feet - Shop (1736 sq. ft.) 25 feet x 18 feet-0 ₂ N ₂ S.E. (450 sq. ft.)



Utilities:

Electrical	115V, 1 Ph, 60 Hz	115V, 1 Ph, 60 Hz
	220V, 1 Ph, 60 Hz	220V, 1 Ph, 60 Hz

Air	_____	100 psi
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V-22 Requirements

Space Required: 4080 square feet

Utilities:

Electrical	115V, 1 Ph, 60 Hz
	220V, 3 Ph, 60 Hz
	440V, 3 Ph, 60 Hz

Air	25 psi
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Assessment

MAG-26

- Total area = 1,936 square feet, insufficient for V-22.
- Inadequate electrical utilities.

MAG-29

- Total area = 2,186 square feet insufficient for V-22.

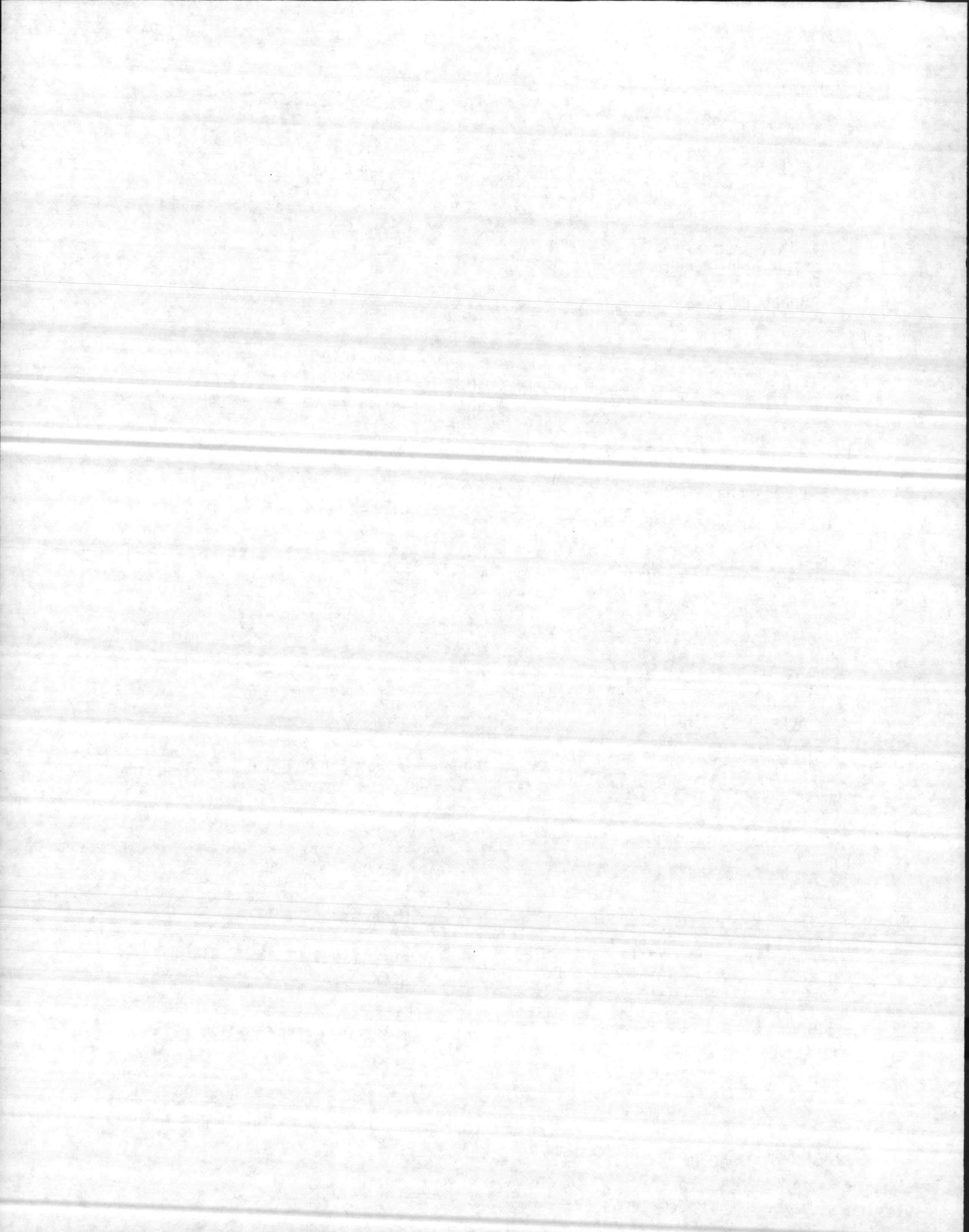
Recommendations

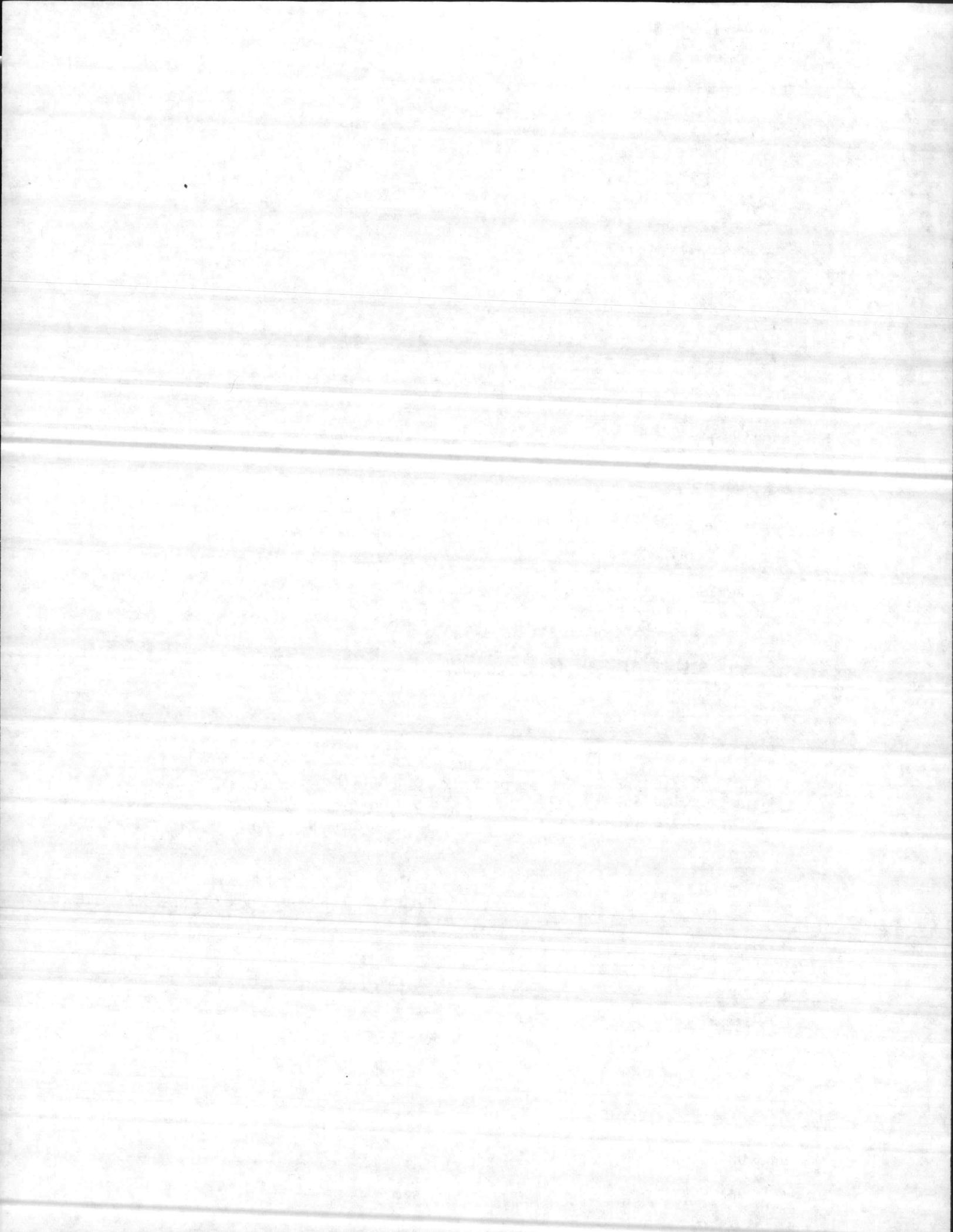
MILCON Project P-188 identifies a requirement to construct a 9,000 square foot facility which will satisfy V-22 requirements for both MAG-26 and MAG-29.

3.4.4 218 45 Instrument Calibration Shop (3.4.4.5)

Current Facilities

	<u>MAG-26</u>	<u>MAG-29</u>
Location:	Mobile facilities attached to Building 4146	Building 4106
Dimensions:	N/A	403 square feet (13' x 31')





Dimensions: 56 square feet (7' x 8') 80 square feet (8' x 10')

Utilities:

Electrical 115/220V, 1 Ph, 60 Hz 115/220V, 1 Ph, 60 Hz
Eye wash/water deluge Eye wash

V-22 Requirements

Space Required: 64 square feet.

Utilities:

Electrical 115/220V, 1 Ph, 60 Hz
Eye wash and deluge shower.

Assessment

MAG-26

- Adequate area available for support of V-22.
- Electrical/Safety provisions adequate.

MAG-29

- Area co-located in the calibration area of Building 4106. Should be separately located due to corrosive nature of lead-acid batteries. MILCON Project P-211 will provide a Battery Shop as part of the Ground Support Equipment Shop.
- Electrical/Safety provisions adequate.

Recommendations

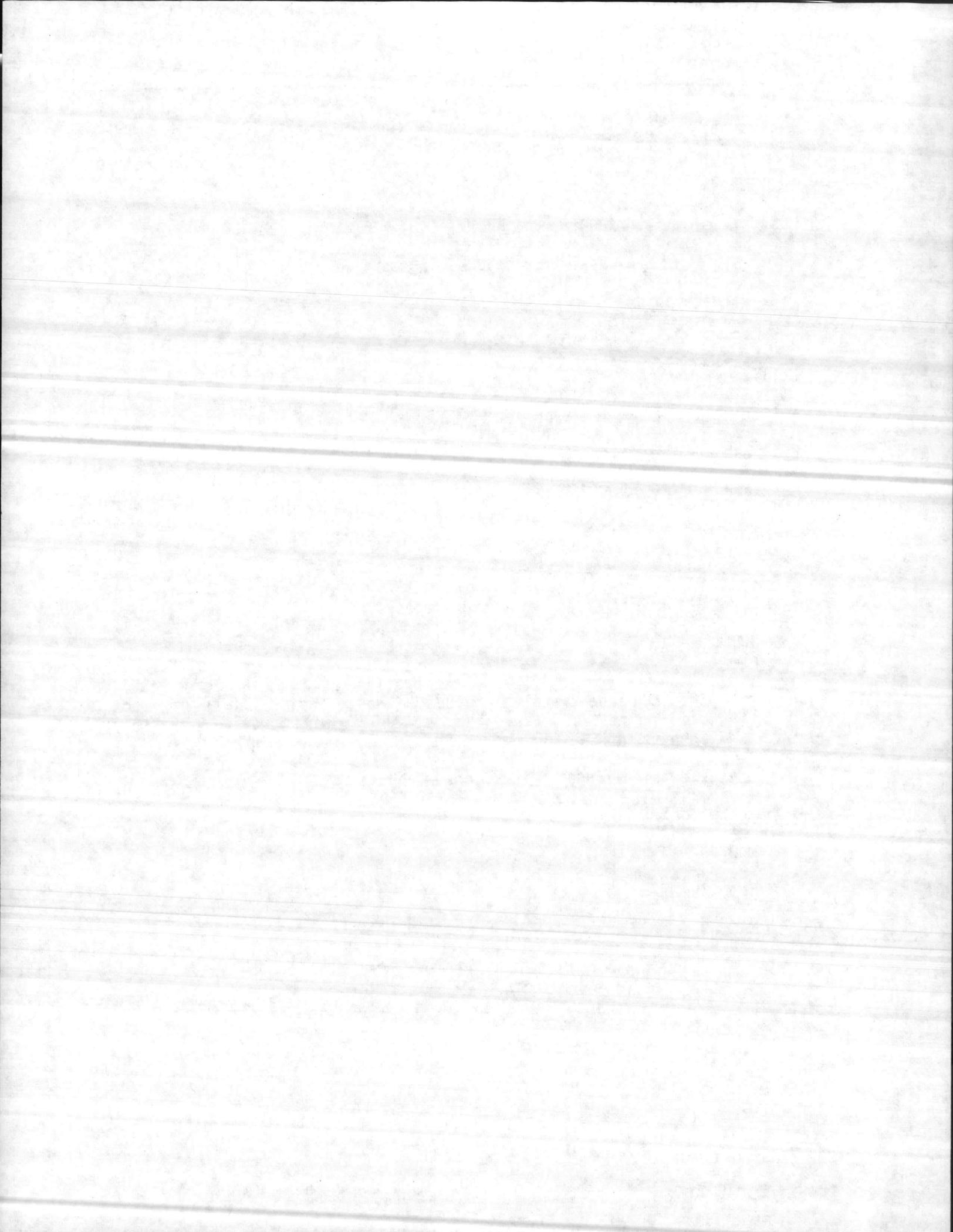
MAG-26

None.

MAG-29

- Execution of MILCON P-211 will provide for battery support typical in MAG-26

26



3.4.6 218 60 Ground Support Equipment Shop (3.4.8)
Current Facilities

	<u>MAG-26</u>	<u>MAG-29</u>
Location:	Building 4146	No dedicated facility
Dimensions:	9,000 square feet (90' x 100')	N/A
Door Sizes:	12' x 12'	N/A
Utilities:		
Electrical	115, 1 Ph, 60 Hz 220/440, 3 Ph, 60 Hz	N/A
Air	100 psi	N/A

MILCON Project P-211 identifies a requirement for construction of a 15,500 square feet facility

V-22 Requirements

Space Required: 9,400 square feet. Specific design criteria contained in NAVFAC P-272 (Part IV).

Utilities:

 Electrical 115V, 1 Ph, 60 Hz
 230V, 3 Ph, 60 Hz
 460V, 3 Ph, 60 Hz

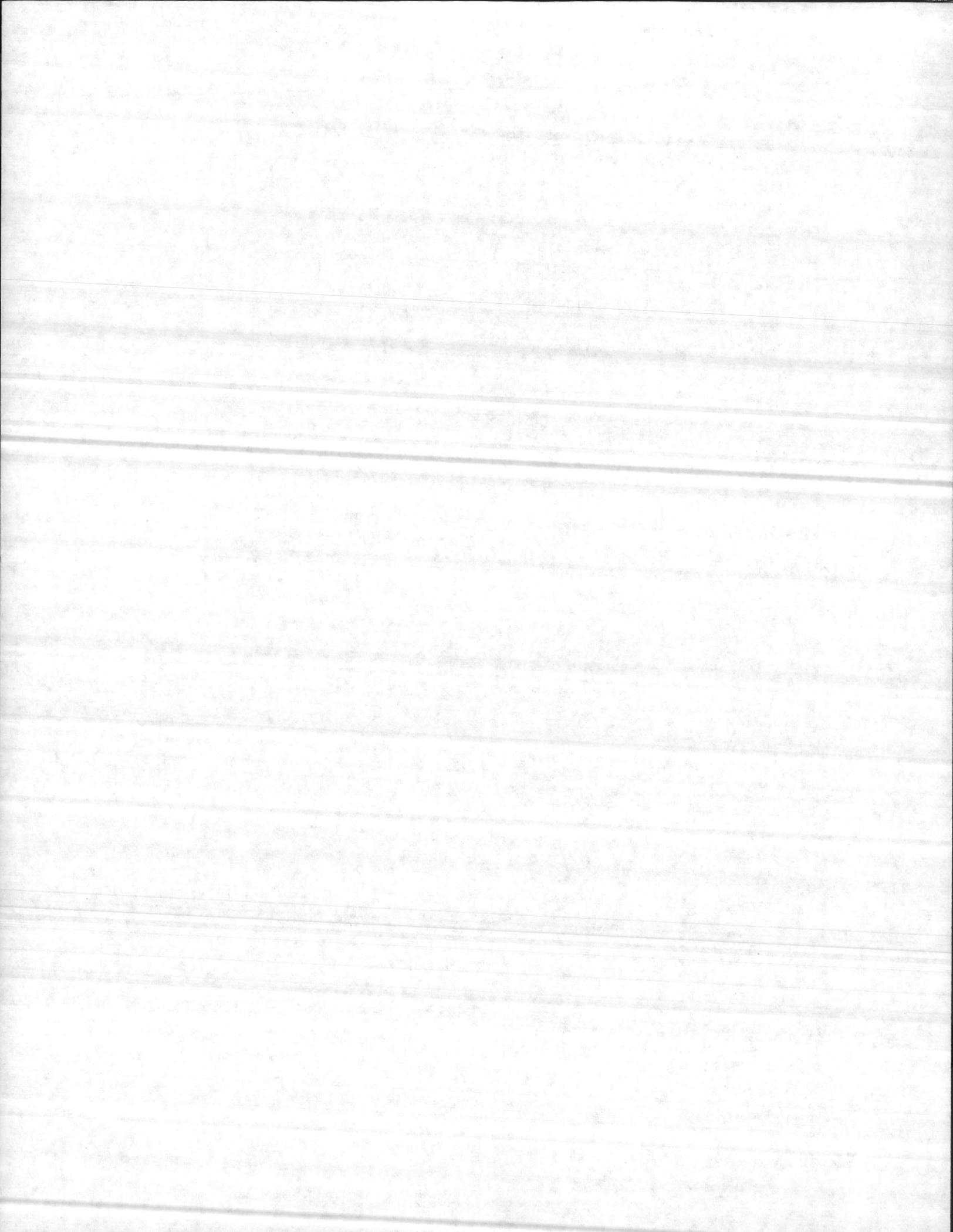
 Air 100 - 125 psi

Assessment
MAG-26

Adequate.

MAG-29

Located in hangar area of building 4106 which is inadequate. A dedicated shop is required to adequately support V-22 and base operations.



Recommendations

MAG-26

None.

MAG-29

Execute MILCON P-211.

3.4.7 218 61 Ground Support Equipment Holding Shed (3.4.9)

Current Facilities

MAG-26

MAG-29

Location:	Building 4146	No dedicated facility.
Dimensions:	13,375 square feet	MILCON Project P-211 identifies a requirement to construct an 11,000 square feet holding shed.

V-22 Requirements

Space Required: 14,625 square feet (securable)

Assessment

MAG-26

Adequate.

MAG-29

Unacceptable; MAG-29 rates a holding shed per NAVFAC P-80 criteria.

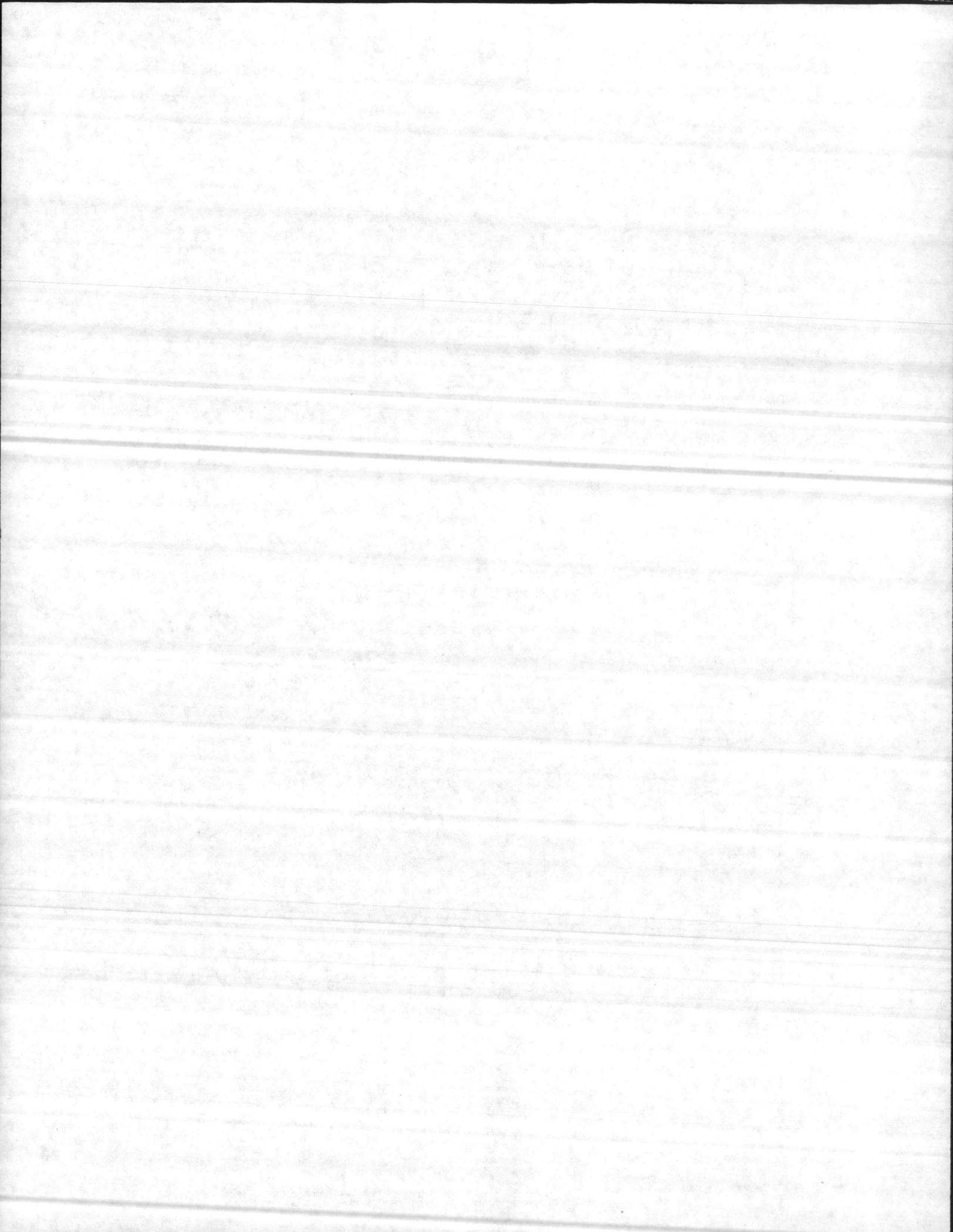
Recommendations

MAG-26

None.

MAG-29

Increase the holding shed requirements identified in MILCON Project P-211 by a minimum 3,625 square feet.



3.4.8 441 10 Supply Warehouse (3.4.10)

Current Facilities

	<u>MAG-26</u>	<u>MAG-29</u>
Location:	Building 424	Building 4110
Dimensions:		
Inside	40,000 square feet	24,000 square feet
Outside		600 square feet
	MILCON Project P-185 proposes new construction of a 60,000 square foot warehouse.	MILCON Project P-357 proposed new construction of one (1) 30,000 square foot warehouse and one (1) 60,000 square feet warehouse.

V-22 Requirements

Space Required: Prior to MSD, bonded storage is required

	<u>MAG-26</u>	<u>MAG-29</u>
Inside	10,800 square feet	8,400 square feet
Outside	10,675 square feet	6,300 square feet

Assessment

Currently available storage space is filled to capacity and will be unable to support the V-22.

Recommendations

Execution of MILCON Projects P-185 and P-357 will satisfy V-22 supply storage requirements.

