

3732 CHARTER PARK DRIVE
SUITE A
SAN JOSE, CA 95136
TEL: 408.448.7594
TOLL FREE: 800.988.7424
FAX: 408.448.3849

ASBESTOS SURVEY REPORT

Bachelors Enlisted Quarters (ID: Building 512)

NASA-AMES
Moffett Field
Mt. View, CA

BUILDING INSPECTIONS

ENVIRONMENTAL ENGINEERING


SPECIALIZED TRAINING

CONTRACT MANAGEMENT

Prepared for:
NASA - AMES (PAI CORPORATION)
Nasa-ames Research Center
Moffett Field, CA 94035-1000


Prepared by:
Benchmark Environmental Engineering
November 16, 2001
Project Number: **E01-448-A-SU**

Prepared By:



Terri MacFarlane
a California Certified Asbestos Consultant
90-2747

Reviewed By:



Terri MacFarlane
a California Certified Asbestos Consultant
90-2747

Table of Contents

Section:

	Executive Summary
1	Introduction
2	Description of Building Construction and Systems
3	Summary of Findings for Suspect Materials
4	Material Information Tables
5	Removal Cost Estimate Summary

Appendices:

A	Definitions of Terms and Assessment Criteria
B	Bulk Sampling Protocol and Analytical Methods
C	Laboratory Bulk Sampling Reports
D	Summary of Regulatory Requirements
E	AHERA Building Inspector Certifications
F	Drawings Indicating Material Locations

Executive Summary

Benchmark Environmental Engineering (Benchmark) was retained by NASA - Ames (PAI Corporation) to perform an Asbestos Hazard Emergency Response Act (AHERA) style asbestos survey of the Bachelors Enlisted Quarters (Building ID: Building 512), to determine the locations of accessible and to the extent feasible, inaccessible friable and non-friable asbestos containing building materials (ACBM).

This inspection included the interior and exterior spaces. Pre-existing survey data was used to help provide a picture of existing condition of this building. Benchmark collected additional samples of the construction material to help supplement existing data, to contradict existing data or to provide additional data of materials not perviously identified.

No friable asbestos-containing materials were observed in the building.

Asbestos was detected in the following non-friable materials:

- Floor Tile
- Mastic
- Roofing Material
- Transite Panel

The following materials were assumed to contain asbestos:

- Fire Door

Section 1 Introduction

Benchmark Environmental Engineering (Benchmark) performed an Asbestos Hazard Emergency Response Act (AHERA) style asbestos survey of the Bachelors Enlisted Quarters located at Moffett Field, Mt. View, CA, to identify ACBM. This report identifies the locations and asbestos content of friable and non-friable ACBM, provides assessment of the friable ACBM in relation to the material's hazard potential to building occupants and provides removal cost estimates.

This inspection included the interior and exterior spaces. Pre-existing survey data was used to help provide a picture of existing condition of this building. Benchmark collected additional samples of the construction material to help supplement existing data, to contradict existing data or to provide additional data of materials not perviously identified.

All identified suspect asbestos-containing materials are summarized in Section 3. Materials testing positive for asbestos including material assessments, recommended response actions, and quantities are described in Section 4. Removal cost estimates for asbestos-containing materials are included in Section 5.

Removal cost estimates (Section 5) are for budgeting purposes only and should not be used as a quote for removal of the materials. It is not our recommendation to remove these materials unless they are beyond repair, or planned demolition or renovation activities will disturb the materials. Estimates are based on recent pricing we have received from contractors performing similar work and may vary from actual prices obtained due to the actual scope of work, quantity of material removed, control measures specified and contractor work loads.

On Tuesday, July 10, 2001 Terri MacFarlane (90-2747) , a California Certified Asbestos Consultant and Roy J. Mabus (92-0191) , a California Certified Asbestos Consultant, from Benchmark, performed an asbestos survey of the building(s) in accordance with the Asbestos Hazard and Emergency Response Act of 1987 (AHERA).

DISCLAIMER

This report is prepared for the express use and benefit of NASA - Ames (PAI Corporation), its agents and employees. The information in this report or portions thereof may be required to be included in notifications to employees, contractors or other visitors to the building(s). This report is not intended to be used as a specification or work plan for any of the work suggested or recommended in this report.

This report is based upon conditions observed at the property and information made available to the surveyor. This report does not intend to identify all hazards or unsafe

conditions, nor to indicate that other hazards or unsafe conditions do not exist at the premises.

Section 2 Description of Building Construction and Systems

Number of Floors: 3

Year Built: 1970

Total Square Footage: 47,328

Structural components consist of:

Concrete Foundation

Exterior Wall construction components consist of: Concrete

Interior Wall construction components consist of: Drywall

Interior ceiling components consist of: Ceiling Tile

Roofing construction components consist of: Rolled Composite

Building Description/Comments:

This facility has two barrack buildings with a building in between. It has a concrete frame over a concrete foundation with a gray exterior. It has a flat composite roof. This building is unoccupied because of earthquake damage.

Comments:

There was a previous asbestos inspection done on June 22, 1993 by Tetra Tech, Inc.

Section 3 Summary of Findings for Suspect Materials

The following table is a list of all materials at this building which were tested for the presence of asbestos or were assumed to contain asbestos along with overall sample results. Complete information on asbestos containing materials is included in Section 4 of this report.

Each unique material within the building is assigned a unique HM number by the surveyor at the time the survey is performed.

Section 3 and Section 4 are organized by building, surfacing, thermal systems insulation, flooring, walls, ceilings, roofing and miscellaneous materials.

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)
Moffett Field
Mt. View, CA

Survey Performed By

Benchmark Environmental Engineering

Inspector

Terri MacFarlane

Inspection Date

Tuesday, July 10, 2001

Job Number

E01-448-A-SU

Client Information

NASA - Ames (PAI Corporation)
NASA-Ames Research Center
Moffett Field, CA 94035-1000

<i>Suspect Material</i>	<i>Category</i>	<i>HM Number</i>	<i>Material Location(s)</i>	<i>Asbestos Present?</i>
12" White Ceiling Tile	Ceilings	CT-1	THROUGHOUT THE BULDING	No
Ceiling Tile Adhesive	Ceilings	CM-2	1ST FLOOR	No
Baseboard Adhesive	Flooring	BA-3	1ST FLOOR	No
Wallboard		WLBD-4	THROUGHOUT THE BULDING	No
Floor Tile Mastic	Miscellaneous	MASTIC-6	THROUGHOUT THE BULDING	Yes
Concrete Wall - Coating	Walls	WLCT-7	1ST AND 2ND FLOOR	No
Fire Door	Miscellaneous	FD-8	1ST FLOOR	Yes
12" Tan Floor Tile	Flooring	FT-9	2ND AND 3RD FLOOR	Yes
12" Brown Floor Tile	Flooring	FT-10	1ST FLOOR	No
Roofing Material	Roofing	RM-14	EXTERIOR	Yes
Transite Panel	Miscellaneous	TP-16		Yes
1" Pipe Insulation, Elbows/Valves/Fittings, Fiberglass		2A2B-15		No

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)
 Moffett Field
 Mt. View, CA

Client Information

NASA - Ames (PAI Corporation)
 NASA-Ames Research Center
 Moffett Field, CA 94035-1000

Survey Performed By

Benchmark Environmental Engineering

Inspector

Terri MacFarlane

Inspection Date

Tuesday, July 10, 2001

Job Number

E01-448-A-SU

<i>Material Description</i> 12" White Ceiling Tile			<i>Material Number</i> CT-1	<i>Asbestos Present?</i> No
<i>Material Category</i> Ceilings	<i>Friable Classification</i> Friable	<i>EPA Category</i> Friable	<i>Total Quantity</i> 3,000	<i>Unit of Measure</i> Square Feet
<i>General Condition</i>	<i>Damage Category</i>	<i>Overall Material Assessment</i> No Assessment, Non-asbestos	<i>Recommended Response</i>	
<i>General Material Comments</i>				

Material Location(s)
 THROUGHOUT THE BULDING

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
ct-1-512-H01-C			Yes	0%	1) Ceiling Tile 2) 3)	Non Detected
ct-1-512-H01-D			Yes	0%	1) Ceiling Tile 2) 3)	Non Detected
ct-1-512-H01-E			Yes	0%	1) Ceiling Tile 2) 3)	Non Detected

<i>Material Description</i> Ceiling Tile Adhesive			<i>Material Number</i> CM-2	<i>Asbestos Present?</i> No
<i>Material Category</i> Ceilings	<i>Friable Classification</i> Non-Friable	<i>EPA Category</i> Needs Determination	<i>Total Quantity</i> 3,000	<i>Unit of Measure</i> Square Feet
<i>General Condition</i>	<i>Damage Category</i>	<i>Overall Material Assessment</i> No Assessment, Non-asbestos	<i>Recommended Response</i>	
<i>General Material Comments</i>				

Material Location(s)
 1ST FLOOR

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
cm-2-01-4589-512A-1	1st Floor, Suite A110, Lobby		Yes	0%	1) Adhesive 2) 3)	Non Detected
cm-2-01-4590-512A-2	3rd Floor, Suite A330, Lobby		Yes	0%	1) Adhesive 2) 3)	Non Detected
cm-2-01-4591-512A-3	3rd Floor, Suite A330, Lobby		Yes	0%	1) Adhesive 2) 3)	Non Detected

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Tuesday, July 10, 2001

Material Description Baseboard Adhesive			Material Number BA-3	Asbestos Present? No
Material Category Flooring	Friable Classification Non-Friable	EPA Category Category I	Total Quantity 2,750	Unit of Measure Linear Feet
General Condition	Damage Category	Overall Material Assessment No Assessment, Non-asbestos	Recommended Response	

General Material Comments

Material Location(s)

1ST FLOOR

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
ba-3-01-4592-512A-4	1st Floor, Suite A110, Lobby		Yes	0%	1) Adhesive 2) 3)	Non Detected
ba-3-01-4593-512A-4	1st Floor, Suite A110, Room 112		Yes	0%	1) Adhesive 2) 3)	Non Detected
ba-3-01-4594-512A-6	3rd Floor, Suite A330, Room 336		Yes	0%	1) Adhesive 2) 3)	Non Detected

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Tuesday, July 10, 2001

Material Description Wallboard			Material Number WLBD-4	Asbestos Present? No
Material Category	Friable Classification Non-Friable	EPA Category Category II	Total Quantity 46,000	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment No Assessment, Non-asbestos	Recommended Response	

General Material Comments

Material Location(s)

THROUGHOUT THE BULDING

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
WLBD-4-512-H04-E			Yes	0%	1) Drywall 2) 3)	Non Detected
WLBD-4-512-H04-F			Yes	0%	1) Drywall 2) 3)	Non Detected
WLBD-4-512-H04-G			Yes	0%	1) Drywall 2) 3)	Non Detected
WLBD-4-512-H04-H			Yes	0%	1) Drywall 2) 3)	Non Detected
WLBD-4-512-H04-I			Yes	0%	1) Drywall 2) 3)	Non Detected
WLBD-4-512-H04-J			Yes	0%	1) Drywall 2) 3)	Non Detected

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Tuesday, July 10, 2001

Material Description Floor Tile Mastic			Material Number MASTIC-6	Asbestos Present? Yes
Material Category Miscellaneous	Friable Classification Non-Friable	EPA Category Category II	Total Quantity 5,060	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment Not Assessed under AHERA	Recommended Response Abate Prior to Demolition	

General Material Comments

Material Location(s)

THROUGHOUT THE BULDING

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
MASTIC-6-01-4595-512A-7	1st Floor, Suite A110, Lobby		Yes	0%	1) Mastic 2) 3)	Non Detected
MASTIC-6-01-4596-512A-8	1st Floor, Suite A110, Lobby		Yes	0%	1) Mastic 2) 3)	Non Detected
MASTIC-6-01-4597-512A-9	1st Floor, Suite A110, Lobby (Tile Only)		Yes	8%	1) Mastic 2) 3)	8 % Chrysotile
MASTIC-6-01-4941-512A-1	3rd Floor Hallway		Yes	8%	1) Mastic 2) 3)	8 % Chrysotile
MASTIC-6-01-4942-512A-2	3rd Floor, Suite A330		Yes	8%	1) Mastic 2) 3)	8 %

Material Description Concrete Wall - Coating Unspecified			Material Number WLCT-7	Asbestos Present? No
Material Category Walls	Friable Classification Non-Friable	EPA Category Category II	Total Quantity 2,100	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment No Assessment, Non-asbestos	Recommended Response	

General Material Comments

Material Location(s)

1ST AND 2ND FLOOR

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
WLCT-7-512-H07-C			Yes	0%	1) Top Coat 2) 3)	Non Detected
WLCT-7-512-H07-D			Yes	0%	1) Top Coat 2) 3)	Non Detected
WLCT-7-512-H07-E			Yes	0%	1) Top Coat 2) 3)	Non Detected

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Tuesday, July 10, 2001

Material Description Fire Door			Material Number FD-8	Asbestos Present? Yes (assumed)
Material Category Miscellaneous	Friable Classification Non-Friable	EPA Category Category II	Total Quantity 3,600	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment Not Assessed under AHERA	Recommended Response Abate Prior to Demolition	
General Material Comments				
Material Location(s) 1ST FLOOR				

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
--------------	--------------------	-------	----------	----------------	--------------------------	------------------

Material Description 12" Tan Floor Tile			Material Number FT-9	Asbestos Present? Yes
Material Category Flooring	Friable Classification Non-Friable	EPA Category Category I	Total Quantity 4,750	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment Not Assessed under AHERA	Recommended Response Abate Prior to Demolition	
General Material Comments				
Material Location(s) 2ND AND 3RD FLOOR				

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
ft-9-01-4598-512A-10	3rd Floor, Suite A330, Lobby		Yes	5%	1) Floor Tile 2) 3)	5 % Chrysotile
ft-9-01-4599-512A-11	3rd Floor, Hallway, Suite A330 (RT)		Yes	5%	1) Floor Tile 2) 3)	5 % Chrysotile
ft-9-01-4600-512A-12	3rd Floor, Suite A330, Room 333		Yes	5%	1) Floor Tile 2) 3)	5 % Chrysotile

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Tuesday, July 10, 2001

Material Description 12" Brown Floor Tile			Material Number FT-10	Asbestos Present? No
Material Category Flooring	Friable Classification Non-Friable	EPA Category Category I	Total Quantity 260	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment No Assessment, Non-asbestos	Recommended Response	

General Material Comments

Material Location(s)

1ST FLOOR

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
ft-10-01-4601-512A-13	1st Floor, Suite A110, Lobby		Yes	0%	1) Floor Tile 2) 3)	Non Detected
ft-10-01-4602-512A-14	1st Floor, Suite A110, Lobby		Yes	0%	1) Floor Tile 2) 3)	Non Detected
ft-10-01-4603-512A-15	1st Floor, Suite A110, Lobby		Yes	0%	1) Floor Tile 2) 3)	Non Detected

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Tuesday, July 10, 2001

Material Description Roofing Material			Material Number RM-14	Asbestos Present? Yes
Material Category Roofing	Friable Classification Non-Friable	EPA Category Category I	Total Quantity 28,050	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment Not Assessed under AHERA	Recommended Response Abate Prior to Demolition	

General Material Comments

Material Location(s)

EXTERIOR

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
rm-14-01-4606-512A-16	Roof Core		Yes	0%	1) Roofing core 2) 3)	Non Detected
rm-14-01-4607-512A-17	Roof Core		Yes	0%	1) Roofing core 2) 3)	Non Detected
rm-14-01-4608-512A-18	Roof Flashing		Yes	50%	1) Flashing mastic 2) 3)	50 % Chrysotile
rm-14-01-4609-512A-19	Roof Flashing		Yes	30%	1) Flashing mastic 2) 3)	30 % Chrysotile
rm-14-01-4610-512A-20	Roof Penetration		Yes	25%	1) Roof penetration 2) 3)	25 % Chrysotile
rm-14-01-4611-512A-21	Roof Penetration		Yes	30%	1) Roof penetration 2) 3)	30 % Chrysotile
rm-14-01-4612-512A-22	Roof Patch		Yes	0%	1) Roofing material 2) 3)	Non Detected

Material Description 1" Pipe Insulation, Elbows/Valves/Fittings, Fiberglass			Material Number 2A2B-15	Asbestos Present? No
Material Category	Friable Classification Friable	EPA Category Friable	Total Quantity 2	Unit of Measure Each
General Condition	Damage Category	Overall Material Assessment No Assessment, Non-asbestos	Recommended Response	

General Material Comments

Material Location(s)

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
2A2b-15-512-H15-A			Yes	0	1) Pipe Insulation 2) 3)	Non Detected

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Tuesday, July 10, 2001

Material Description Transite Panel			Material Number TP-16	Asbestos Present? Yes
Material Category Miscellaneous	Friable Classification Non-Friable	EPA Category Category II	Total Quantity 25	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment Not Assessed under AHERA	Recommended Response Abate Prior to Demolition	

General Material Comments

Material Location(s)

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
tp-16-01-4604-542A-23	Exterior		Yes	20%	1) Transite	20 % Chrysotile
					2)	
					3)	
tp-16-01-4605-512A-24	Exterior		Yes	20%	1) Transite	20 % Chrysotile
					2)	
					3)	

Section 5 Removal Cost Estimate Summary

These estimates are for budgeting purposes only and should not be used as a quote for removal of the materials. It is not our recommendation to remove these materials unless they are beyond repair, or planned demolition or renovation activities will disturb the materials. Estimates are based on recent pricing we have received from contractors performing similar work and may vary from actual prices obtained due to the actual scope of work, quantity of material removed, control measures specified and contractor work loads, etc.

Building Bachelors Enlisted Quarters				QTY. Units Removal Costs (low to high)
HM	EPA Category	Suspect Material	Material Location	
6	Category II	Floor Tile Mastic	THROUGHOUT THE BULDING	5,060 Square Feet \$5060 to \$10120
8	Category II	Fire Door	1ST FLOOR	3,600 Square Feet \$540000
9	Category I	12" Tan Floor Tile	2ND AND 3RD FLOOR	4,750 Square Feet \$7125 to \$9500
14	Category I	Roofing Material	EXTERIOR	28,050 Square Feet \$28050 to \$56100
16	Category II	Transite Panel		25 Square Feet \$500
Total Removal Costs:			\$580,735	to \$616,220

Building	Floor	Sample #	Sample Location	Room	Material Sampled	%/Type
512	1	01-4589-512A-1	1st Floor, Suite A110, Lobby	110	Ceiling Tile Adhesive	Non Detected
512	3	01-4590-512A-2	3rd Floor, Suite A330, Lobby	330	Ceiling Tile Adhesive	Non Detected
512	3	01-4591-512A-3	3rd Floor, Suite A330, Lobby	330	Ceiling Tile Adhesive	Non Detected
512	1	01-4592-512A-4	1st Floor, Suite A110, Lobby	110	Baseboard Adhesive	Non Detected
512	1	01-4593-512A-4	1st Floor, Suite A110, Room 112	110	Baseboard Adhesive	Non Detected
512	3	01-4594-512A-6	3rd Floor, Suite A330, Room 336	330	Baseboard Adhesive	Non Detected
512	1	01-4595-512A-7	1st Floor, Suite A110, Lobby	110	Floor Tile Mastic	Non Detected
512	1	01-4596-512A-8	1st Floor, Suite A110, Lobby	110	Floor Tile Mastic	Non Detected
512	1	01-4597-512A-9	1st Floor, Suite A110, Lobby (Tile Only)	110	Floor Tile Mastic	8% Chrysotile
512	3	01-4598-512A-10	3rd Floor, Suite A330, Lobby	330	12" Tan Floor Tile	5% Chrysotile
512	3	01-4599-512A-11	3rd Floor, Hallway, Suite A330 (RT)	330	12" Tan Floor Tile	5% Chrysotile
512	3	01-4600-512A-12	3rd Floor, Suite A330, Room 333	330	12" Tan Floor Tile	5% Chrysotile
512	1	01-4601-512A-13	1st Floor, Suite A110, Lobby	110	12" Brown Floor Tile	Non Detected
512	1	01-4602-512A-14	1st Floor, Suite A110, Lobby	110	12" Brown Floor Tile	Non Detected
512	1	01-4603-512A-15	1st Floor, Suite A110, Lobby	110	12" Brown Floor Tile	Non Detected
512	Roof	01-4606-512A-16	Roof Core	Roof	Roofing Material	Non Detected
512	Roof	01-4607-512A-17	Roof Core	Roof	Roofing Material	Non Detected
512	Roof	01-4608-512A-18	Roof Flashing	Roof	Roofing Material	50% Chrysotile
512	Roof	01-4609-512A-19	Roof Flashing	Roof	Roofing Material	30% Chrysotile
512	Roof	01-4610-512A-20	Roof Penetration	Roof	Roofing Material	25% Chrysotile
512	Roof	01-4611-512A-21	Roof Penetration	Roof	Roofing Material	30% Chrysotile
512	Roof	01-4612-512A-22	Roof Patch	Roof	Roofing Material	Non Detected
512	Ext.	01-4604-542A-23	Exterior	Ext.	Transite Panel	20% Chrysotile
512	Ext.	01-4605-512A-24	Exterior	Ext.	Transite Panel	20% Chrysotile
512	3	01-4941-512A-1	3rd Floor Hallway	330	Floor Tile Mastic	8% Chrysotile
512	3	01-4942-512A-2	3rd Floor, Suite A330	330	Floor Tile Mastic	8% Chrysotile
Pre-Existing Survey Information						
512		512-H15-A			1" Pipe Insulation, Elbows/Valves/Fitti	Non Detected
512		512-H01-C			12" White Ceiling Tile	Non Detected
512		512-H01-D			12" White Ceiling Tile	Non Detected
512		512-H01-E			12" White Ceiling Tile	Non Detected
512		512-H04-E			Wallboard	Non Detected
512		512-H04-F			Wallboard	Non Detected
512		512-H04-G			Wallboard	Non Detected
512		512-H04-H			Wallboard	Non Detected
512		512-H04-I			Wallboard	Non Detected

Building	Floor	Sample #	Sample Location	Room	Material Sampled	%Type
512		512-H04-J			Wallboard	Non Detected
512		512-H07-C			Concrete Wall - Coating Unspecified	Non Detected
512		512-H07-D			Concrete Wall - Coating Unspecified	Non Detected
512		512-H07-E			Concrete Wall - Coating Unspecified	Non Detected

Appendix A
Definitions of Terms and Assessment Criteria

Definitions of Terms and Assessment Criteria

This survey report organizes information on each suspect ACBM identified in tables located in Section 4. This section describes how to interpret the data found on materials listed in Section 4.

Material description contains the description of the suspect homogeneous asbestos containing building material.

Material Serial Number is used to reference the material for reinspections, etc..

Asbestos type and content describes the type of asbestos and its percentage in the material.

Asbestos Results for positive materials are shown as a percentage. Samples having less than 1% asbestos are reported as containing "Trace" amounts of asbestos and samples with no detected asbestos are reported as "BLD" or below limit of detection.

Sample number(s) identifies a particular material sample obtained from a specific sample location. Sample numbers are used primarily for laboratory identification.

Sample Location identifies where the samples of this material were obtained.

Material Category categorizes each material as surfacing, TSI or miscellaneous.

Surfacing Materials - Asbestos containing materials that are sprayed-on, trowled-on or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

Thermal Systems Insulation (TSI) - Asbestos containing materials applied to pipes, fittings, boilers, breaching, tanks, ducts or other interior structural components to prevent heat loss or gain or water condensation.

Miscellaneous Materials - Asbestos containing materials applied to or a part of building components that are not classified as surfacing materials or thermal systems insulation.

Quantity & Units reports approximate total quantity per unit of measure for each material.

Building(s) & Floor(s) specifies where a material is located.

Material Location describes where the material is found throughout the building.

Material Condition identifies the material as Friable, Non-friable or Jacketed (for thermal systems insulation only) if asbestos is present.

Friable - An asbestos containing material that can be crumbled, pulverized or reduced to powder, when dry, by hand pressure, such as spray applied fireproofing on structural steel members, spray applied acoustical ceiling materials or damaged thermal systems insulation. Friable materials are of greatest concern due to their potential fiber release.

Non-Friable - An asbestos containing material where the asbestos is bound tightly in a matrix or sealed by a protective layer. Non-friable materials can become friable by being rendered to a crumbled, pulverized or powdered state, when dry, by crushing, sanding, sawing, shot-blasting, severe weathering or by other mechanically induced means. Common examples of non-friable materials are adhesives, floor tiles, transite and roofing materials.

Jacketed - An asbestos containing material applied to thermal systems insulation and "jacketed" with a protective outer layer such as canvas or metal to keep the material in good condition. Undamaged jacketed ACBM is considered non-friable. If the jacketing is damaged, the material is considered friable.

Damage Category describes the type of damage, if any, to the material. The following damage categories are used: None, Physical, Air, and Water.

Material Assessment identifies the condition of the material in relation to physical and water damage, delamination of the material from its substrate, the extent of the damage and the potential for damage from building conditions, such as, accessibility by building occupants, influence of vibration, etc. The six standard assessment categories ranked by hazard potential, with the first being the lowest hazard are as follows: 1) Potential for Damage, 2) Potential for Significant Damage, 3) Damaged, 4) Damaged with Potential for Damage, 5) Damaged with Potential for Significant Damage, and 6) Significantly Damaged. Only friable materials are assessed under AHERA regulations. Non-friable materials, unless damaged, are not assessed and can be assumed to be in good condition.

Damaged - The damage or deterioration of the material results in inadequate cohesion or adhesion with crumbling, blistering, water stains, marring or otherwise abraded over less than one-tenth (1/10) of the surface if the damage is evenly distributed or one-fourth (1/4) if the damage is localized.

Significant Damage - The damage or deterioration of the material results in inadequate adhesion or cohesion and the damage is extensive and severe with one or more of the following characteristics: 1) Crumbling or blistering over at least one-tenth (1/10) of the surface if evenly distributed, one-fourth (1/4) if the damage is localized; 2) Areas of the material hanging from the surface, delaminated, or showing adhesive failure; 3) Water stains, gouges or marred.

Recommended Response suggests the appropriate options for controlling or maintaining ACBM in a safe manner. There are four options used:

Operations & Maintenance (O&M) - A program designed to "manage" asbestos in-place. As long as asbestos containing materials remain in a building, an O&M program should be instituted to alert maintenance personnel, custodial workers and outside vendors of the existence and location of these materials and to set a policy for the maintenance of these materials. The material is usually only required to be removed if it is significantly damaged, prior to demolition of the building or if it will be disturbed by renovation activities.

Repair - The restoration of damaged or deteriorated asbestos containing building materials to an intact condition. Once the intact condition is established, the material should be included in an O&M program. The material is usually only required to be removed if it is significantly damaged, prior to demolition of the building or if it will be disturbed by renovation activities.

Abate Due to Condition - This material is significantly damaged and is unsafe in its current condition. The access to the area should be restricted to personnel equipped with appropriate personal protection. This material should be properly removed by a licensed contractor using workers trained in the safe removal of asbestos.

Abate Prior to Renovation - This material should be properly removed prior to planned renovation activities by a licensed contractor using workers trained in the safe removal of asbestos. This recommendation is usually made only on survey reports prepared prior to planned renovation activities.

Comments & Damage Description contains any additional information and or specific details of material damage are noted here.

EPA Category provides the appropriate material category as outlined in the NESHAPS regulation. The four options are friable, Category 1, Category 2, and needs determination.

Friable - Materials containing greater than 1% asbestos are always considered Regulated Asbestos Containing Materials (RACM) that require removal prior to building renovation or demolition activities that impact the material.

Category 1 - Materials that are bituminous non-friable and contain more than 1% asbestos that become RACM and require removal only when will be subject to grinding, cutting, sanding or abrading.

Appendix B
Bulk Sampling Protocol and Analytical Methods

Bulk Sampling Protocol and Analytical Methods

Bulk samples of suspect asbestos containing building materials were obtained using standard industrial hygiene techniques including wetting the material to minimize fiber release. Our personnel wore half-face air purifying respirators equipped with high efficiency particulate (HEPA) filters while obtaining samples

Our sampling strategy for suspect friable surfacing materials was based on the guidelines outlined in the EPA publication Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials, and the procedures outlined in 40 CFR 763, Subpart E (ASHERA). For non-friable suspect materials, ASHERA requires the building inspector to determine the appropriate number of samples to obtain and analyze. Usually one to three samples of non-friable materials are collected.

For each homogeneous material identified by visual inspection as suspect material, random samples are obtained. A single bulk sample is randomly selected from each homogeneous material for first-round testing. If the sample is positive, the remaining samples are not analyzed; if the sample is negative, the other samples are submitted for study. Every sample must be reported negative if the material is to be considered non-asbestos containing.

The bulk samples were delivered to an independent laboratory that participates in the bulk sample proficiency analysis program conducted by the United States Environmental Protection Agency and is accredited by the National Voluntary Laboratory Program (NVLAP). The samples were analyzed using Polarized Light Microscopy (PLM) with dispersion staining to estimate the percent of asbestos composition by volume. Samples with no observable asbestiform minerals are designated as None-Detected. Samples in which asbestiform minerals are observed, but exist in concentrations of less than one percent (<1%), are designated as present in Trace amounts; all other samples are designated as asbestos containing with the appropriate percent of asbestos noted.

Appendix C
Laboratory Bulk Sampling Reports

SCHNEIDER LABORATORIES

INCORPORATED

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • (FAX) 804-353-6928

Excellence in Service and Technology

AIHA/ELLAP 100527, NVLAP 1150, NYELAP 11413, CAELAP 2078, NC 593, SC 93003

LABORATORY ANALYSIS REPORT

Asbestos Identification by EPA Method 600/R-93/116

ACCOUNT: 2541-01-29
CLIENT: Benchmark
ADDRESS: 3732 Charter Park Drive
San Jose, CA 95136

DATE COLLECTED:
DATE RECEIVED: 7/20/2001
DATE ANALYZED: 7/23/2001
DATE REPORTED: 8/27/2001

PO NO.:
PROJECT NAME:
PROJECT NO.: E01-448-ASU
JOB LOCATION: Parcel 5 Bldg. 512A

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	Asbestos Detected (Yes/No)	Sample Description
01-4589-512A-1	1994163 Layer 1: 100% Non-Asbestos	1st flr suite A110 Mastic	No	Brown, Brittle MINERAL/GLASS WOOL < 1%, NON FIBROUS MATERIAL 95%, TALC 5%
01-4590-512A-2	1994164 Layer 1: 100% Non-Asbestos	3rd flr suite A330 Mastic	No	Brown, Brittle MINERAL/GLASS WOOL < 1%, NON FIBROUS MATERIAL 95%, TALC 2%, WOLLASTONITE 3%
01-4591-512A-3	1994165 Layer 1: 100% Non-Asbestos	3rd flr suite A330 Mastic	No	Brown, Brittle NON FIBROUS MATERIAL 95%, TALC 3%, WOLLASTONITE 2%
01-4592-512A-4	1994166 Layer 1: 100% Non-Asbestos	1st flr suite A110 Mastic	No	Brown, Brittle NON FIBROUS MATERIAL 95%, WOLLASTONITE 5%
01-4593-512A-5	1994167 Layer 1: 100% Non-Asbestos	1st flr suite A110 Mastic	No	Yellow, Soft NON FIBROUS MATERIAL 100%

AMENDED REPORT *

Samples analyzed by the EPA Test Method are subject to the inherent limitations of light microscopy including interference by matrix components. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials. For calibrated visual estimate, 1% is the concentration at which there is a quantitative uncertainty. This report relates only to the items tested, must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other government agency endorsement.

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	Asbestos Detected (Yes/No)	Sample Description
01-4594-512A-6	1994168	3rd flr suite A330		
	Layer 1:	Mastic 100% Non-Asbestos	No	Brown, Brittle NON FIBROUS MATERIAL 100%
01-4595-512A-7	1994169	With sample 13		
	Layer 1:	Mastic 100% Non-Asbestos	No	Yellow, Soft CELLULOSE FIBER < 1%, NON FIBROUS MATERIAL 100%
01-4596-512A-8	1994170	With sample 14		
	Layer 1:	Mastic 100% Non-Asbestos	No	Yellow, Soft NON FIBROUS MATERIAL 100%
01-4597-512A-9	1994171	With sample 10		
	Layer 1:	Mastic 8% Asbestos 92% Non-Asbestos	Yes	Black, Bituminous CHRYSOTILE 8% NON FIBROUS MATERIAL 92%
01-4598-512A-10	1994172	3rd flr suite A330		
	Layer 1:	Floor Tile 5% Asbestos 95% Non-Asbestos	Yes	Beige, Organically Bound CHRYSOTILE 5% NON FIBROUS MATERIAL 95%
01-4599-512A-11	1994173	3rd flr hallway		
	Layer 1:	Floor Tile 5% Asbestos 95% Non-Asbestos	Yes	Beige, Organically Bound CHRYSOTILE 5% NON FIBROUS MATERIAL 95%
01-4600-512A-12	1994174	3rd flr suite A330		
	Layer 1:	Floor Tile 5% Asbestos 95% Non-Asbestos	Yes	Black, Bituminous CHRYSOTILE 5% NON FIBROUS MATERIAL 95%
01-4601-512A-13	1994175	1st flr suite A110		
	Layer 1:	Floor Tile 100% Non-Asbestos	No	Brown, Organically Bound NON FIBROUS MATERIAL 100%
01-4602-512A-14	1994176	1st flr suite A110		
	Layer 1:	Floor Tile 100% Non-Asbestos	No	Brown, Organically Bound NON FIBROUS MATERIAL 100%

*** AMENDED REPORT ***

Samples analyzed by the EPA Test Method are subject to the inherent limitations of light microscopy including interference by matrix components. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials. For calibrated visual estimate, 1% is the concentration at which there is a quantitative uncertainty. This report relates only to the items tested, must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other government agency endorsement.

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	Asbestos Detected (Yes/No)	Sample Description
01-4603-512A-15	1994177 Layer 1: 100% Non-Asbestos	1st flr suite A110 Floor Tile	No	Brown, Organically Bound NON FIBROUS MATERIAL 100%
01-4606-512A-16	1994178 Layer 1: 100% Non-Asbestos	Core Roofing	No	Black, Bituminous CELLULOSE FIBER 10%, NON FIBROUS MATERIAL 90%
01-4607-512A-17	1994179 Layer 1: 100% Non-Asbestos	Core Roofing	No	Black, Bituminous CELLULOSE FIBER 12%, NON FIBROUS MATERIAL 88%
01-4608-512A-18	1994180 Layer 1: 50% Asbestos 50% Non-Asbestos	Flashing Flashing	Yes	Black, Fibrous CHRYSTOTILE 50% CELLULOSE FIBER 10%, NON FIBROUS MATERIAL 40%
01-4609-512A-19	1994181 Layer 1: 30% Asbestos 70% Non-Asbestos	Flashing Flashing	Yes	Black, Fibrous CHRYSTOTILE 30% CELLULOSE FIBER 20%, MINERAL/GLASS WOOL 5%, NON FIBROUS MATERIAL 45%
01-4610-512A-20	1994182 Layer 1: 25% Asbestos 75% Non-Asbestos	Penetration Penetration	Yes	Black/Gray, Bituminous CHRYSTOTILE 25% NON FIBROUS MATERIAL 75%
01-4611-512A-21	1994183 Layer 1: 30% Asbestos 70% Non-Asbestos	Penetration Penetration	Yes	Black/Gray, Bituminous CHRYSTOTILE 30% NON FIBROUS MATERIAL 70%
01-4612-512A-22	1994184 Layer 1: 100% Non-Asbestos	Patch Patch	No	Black, Bituminous CELLULOSE FIBER 30%, NON FIBROUS MATERIAL 70%
01-4604-512A-23	1994185 Layer 1: 20% Asbestos 80% Non-Asbestos	Ext. panel Transite	Yes	Gray, Hard CHRYSTOTILE 20% NON FIBROUS MATERIAL 80%

*** AMENDED REPORT ***

Samples analyzed by the EPA Test Method are subject to the inherent limitations of light microscopy including interference by matrix components. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials. For calibrated visual estimate, 1% is the concentration at which there is a quantitative uncertainty. This report relates only to the items tested, must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other government agency endorsement.

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	Asbestos Detected (Yes/No)	Sample Description
01-4605-512A-24	1994186 Layer 1: 20% Asbestos 80% Non-Asbestos	Ext. panel Transite	Yes	Gray, Hard CHRYSTILE 20% NON FIBROUS MATERIAL 80%
01-4941-512A-1	2027773 Layer 1: 8% Asbestos 92% Non-Asbestos	Mastic W/Sample11 Mastic	Yes	Black, Bituminous CHRYSTILE 8% NON FIBROUS MATERIAL 92%
01-4942-512A-2	2027774 Layer 1: 8% Asbestos 92% Non-Asbestos	Mastic W/Sample 12 Mastic	Yes	Black, Bituminous CHRYSTILE 8% NON FIBROUS MATERIAL 92%

ANALYST: KATHERINE M. CHARLES

Total no. of pages in report = 4


 REVIEWED BY
*** AMENDED REPORT ***

Samples analyzed by the EPA Test Method are subject to the inherent limitations of light microscopy including interference by matrix components. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials. For calibrated visual estimate, 1% is the concentration at which there is a quantitative uncertainty. This report relates only to the items tested, must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other government agency endorsement.

Appendix D
Summary of Regulatory Requirements

Appendix D Summary of Regulatory Requirements

This appendix provides a summary of building owner and manager requirements under various asbestos regulations promulgated by the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) to protect building occupants and employees from exposure to asbestos.

Survey Requirements

Prior to any renovation activity, OSHA and EPA regulations require that a complete asbestos survey be performed to determine if asbestos is present in any suspect asbestos containing material that will be present in the construction or work area. This survey report addresses accessible materials. It is recommended that prior to renovation activities, inaccessible areas that could contain asbestos materials be inspected.

Notification and Posting Requirements

Regulatory agencies feel that the building owner or manager should be responsible for knowing and communicating the locations of asbestos in their buildings to building employees, outside contractors and tenants to prevent exposure to asbestos.

Under the California Health and Safety Code, building owners and managers are required to provide annual notifications regarding known asbestos containing materials in their buildings to building employees, tenants, vendors and outside contractors. Therefore, specific information contained in this survey report is required to be included in the notification.

OSHA requires building employees, outside contractors, vendors and construction contractors bidding on or performing work in buildings be provided with notification regarding asbestos containing materials in their work areas. OSHA also requires that asbestos warning signs be posted in mechanical rooms.

Removal Requirements

Under EPA regulations, asbestos containing materials must be properly removed by licensed asbestos abatement contractors prior to renovation or demolition activities that would disturb friable materials or cause non-friable materials to become friable and a regulated material.

Repair of Damaged Materials and Cleanup of Debris

OSHA requires that asbestos containing debris be immediately cleaned up. It is recommended that damaged materials that may release fibers be repaired as soon as possible to prevent fiber release and potential exposures.

Training Requirements

OSHA requires employers whose employees are likely to or required to disturb asbestos to receive an asbestos training course. Refresher training is required to be provided annually.

Appendix E
AHERA Building Inspector Certifications

State of California
Division of Occupational Safety and Health

Certified Asbestos Consultant

Terri A. MacFarlane



Name

Certification No. 90-2747

Expires on 5/3/2002

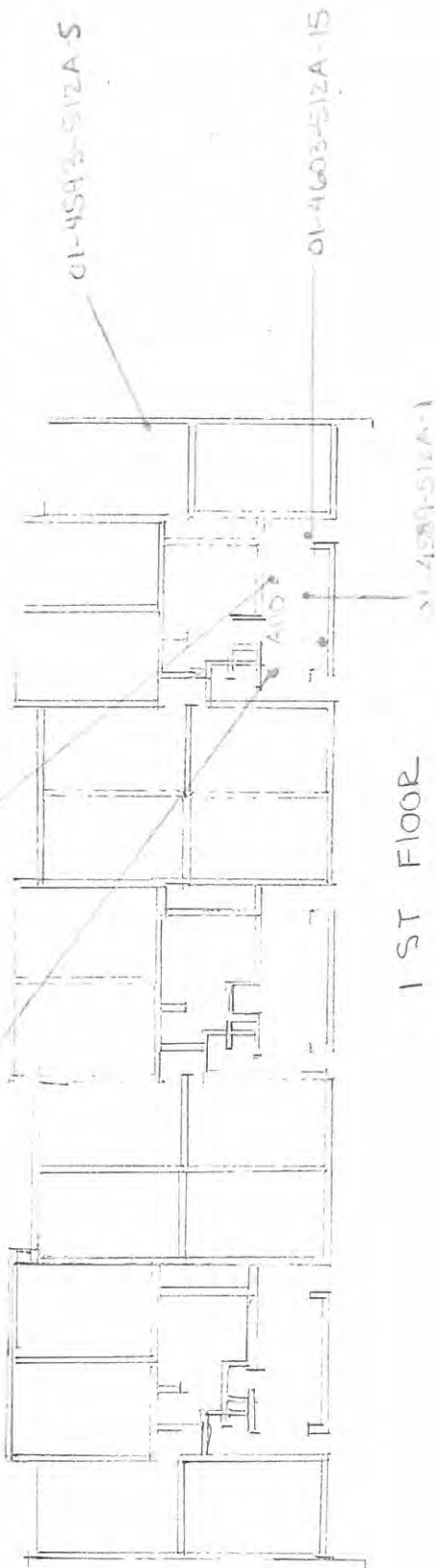
This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7100 et seq. of the Business and Professions Code.

Appendix F
Drawings Indicating Sampling Locations

ASBESTOS SAMPLE LOCATIONS

01-4595-S12A-1
 01-4603-S12A-13

01-4596-S12A-8
 01-4601-S12A-14



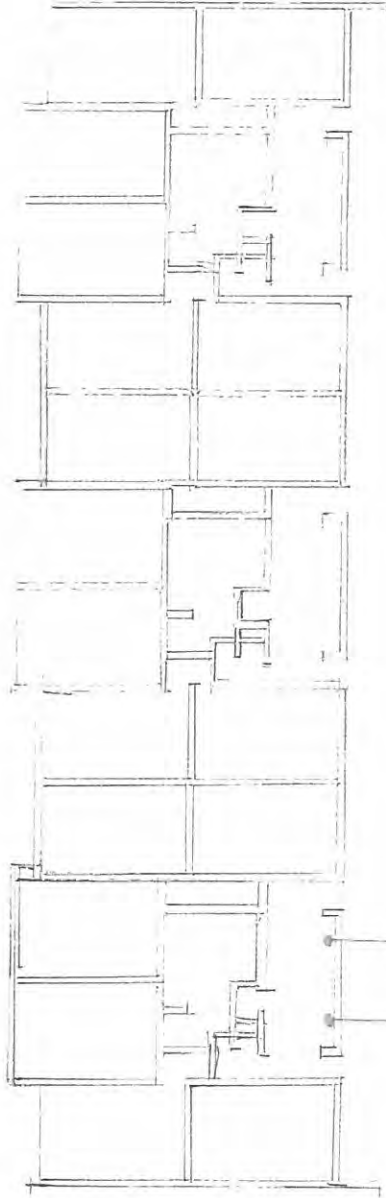
DRAFT PERSON:	DATE:	DWG. No.
WLM	10/7/50	1
PROJECT NO.		201-3478-AL-50

PROJECT NAME:
 NASA-AMES
 PARCELS
 BLDG 512A

Property Inspections - Environmental Engineering
 Specialized Training - Contract Management
 3732 - A Charter Park Drive
 San Jose, CA 951366
 Phone: (408) 448-7594 - Fax: (408) 448-3849



ASBESTOS SAMPLE
LOCATIONS



2ND FLOOR

01-41605-S1ZA-74

01-41604-S1ZA-73



Property Inspections - Environmental Engineering
 Specialized Training - Contract Management
 3732 - A Charter Park Drive
 San Jose, CA 951366
 Phone: (408) 448-7594 - Fax: (408) 448-3849

PROJECT NAME:
 NASA-AMES
 PARCELS
 BUILDING A

DRAFT PERSON:
 WLM

DATE:
 10/15/00

DWG. No.
 Z

PROJECT NO.
 201-2470-A1-50

ASBESTOS SAMPLE
LOCATIONS

01-4591-S12A-3
01-4597-S12A-9
01-4598-S12A-10

01-4606-S12A-12

01-4608-S12A-18

01-4606-S12A-16

01-4610-S12A-20

01-4611-S12A-21

01-4607-S12A-17

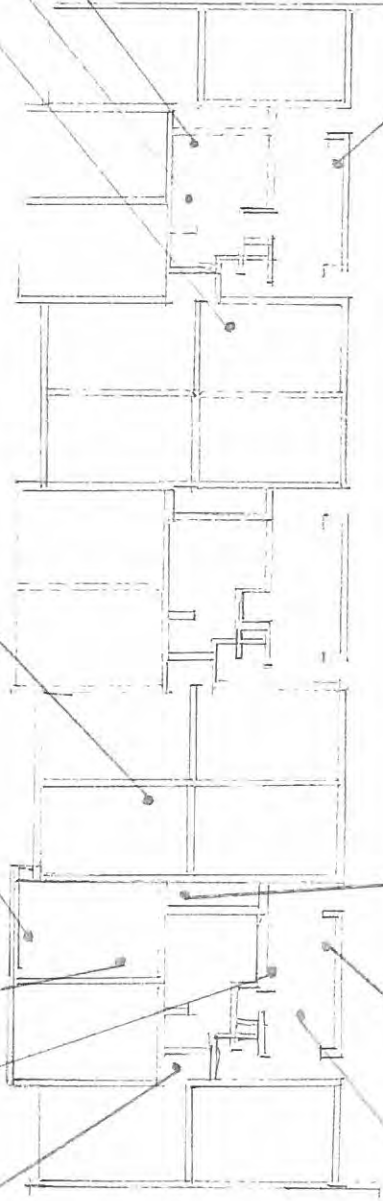
01-4609-S12A-19
(ROOF)

3RD FLOOR

01-4599-S12A-11

01-4594-S12A-6

01-4596-S12A-2



PROJECT NAME:
NASA-AMCS
PARCELS
BUD 412A

Property Inspections - Environmental Engineering
Specialized Training - Contract Management
3732 - A Charter Park Drive
San Jose, CA 951366
Phone: (408) 448-7594 - Fax: (408) 448-3849



DRAFT PERSON: WLM
DATE: 10/50
DWG. No. 3
PROJECT No. 01-4598-AL-50