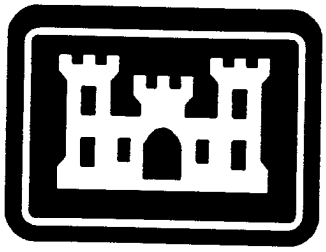
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U.S. ARMY CORPS
OF ENGINEERS
Toxic and Hazardous
Materials Agency

CAMERON STATION
REMEDIAL INVESTIGATION

FINAL ASBESTOS SURVEY REPORT

Delivery Order 0001
Total Environmental
Program Support
Contract No. DAAA15-90-D-0010

February 1992

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DTIC QUALITY INSPECTED 5

This asbestos survey report was performed in a manner consistent with that level of care and skill exercised by members of the professional community currently practicing under similar conditions and was in accordance with currently accepted engineering principles and practices.

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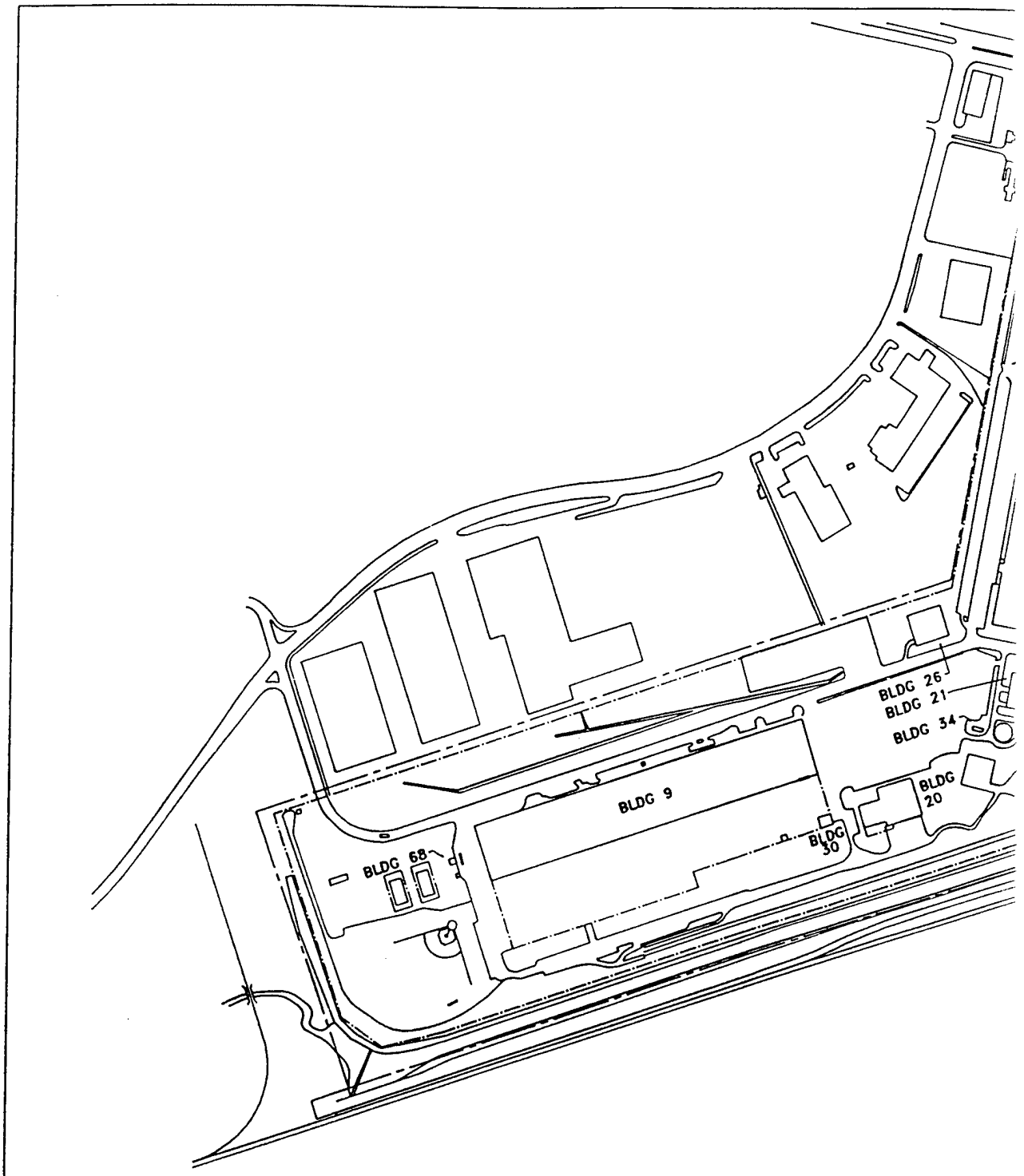
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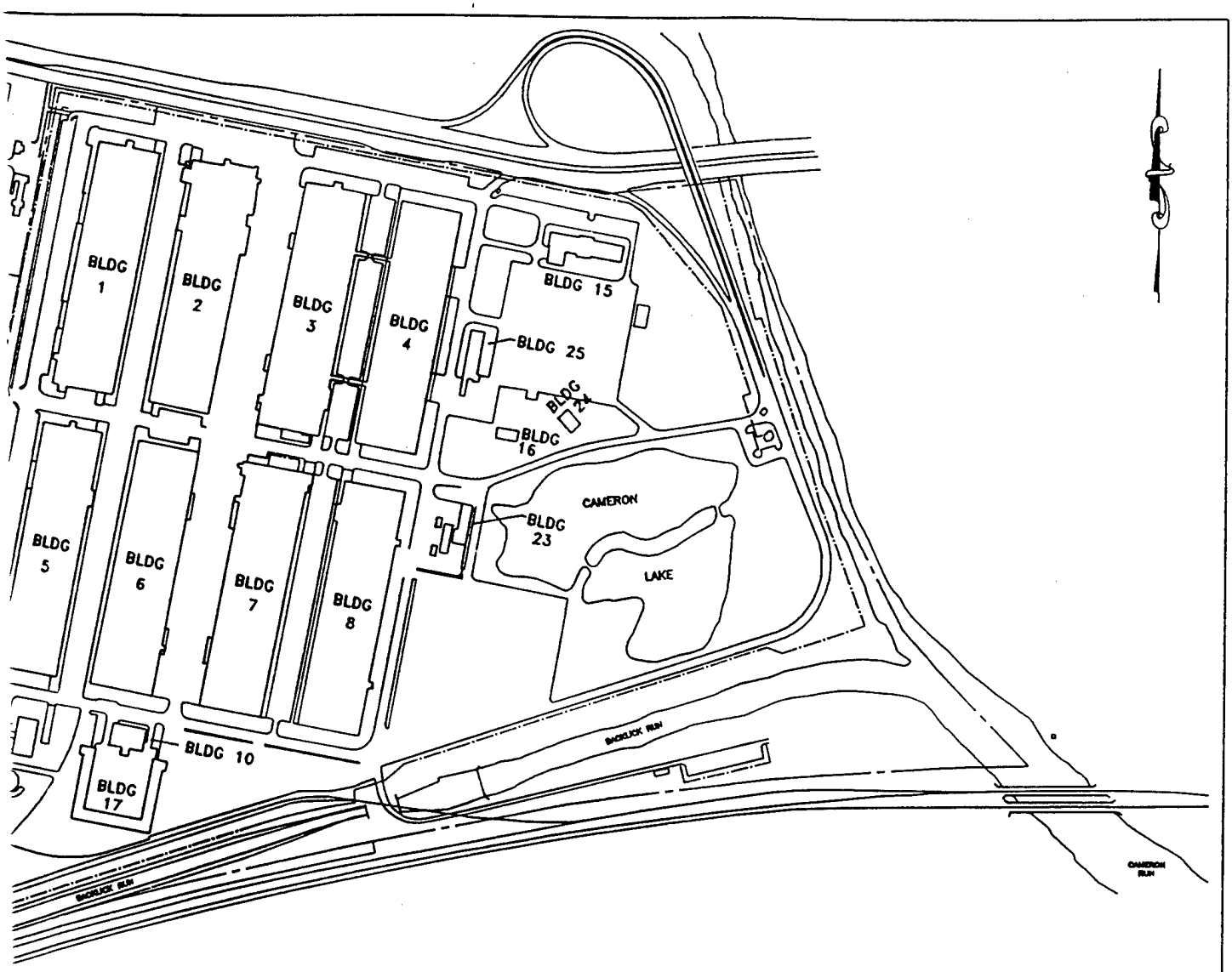
Table 4. Quantity of Friable Asbestos by Building 11



LEGEND

FENCE

PROPERTY LINE



200 0 200 400 600

SCALE IN FEET

INTRODUCTION

Woodward-Clyde Federal Services (WCFS) conducted a comprehensive asbestos survey of the facilities at Cameron Station (see figure 1, Site Plan) as part of its contract with the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) to perform a remedial investigation and feasibility study (RI/FS) at the base. The purpose of the survey which was initiated August 23, 1990 in response to the Base Realignment And Closure Environmental Restoration Strategy (BRAC), was to identify friable and non-friable asbestos-containing material (ACM), provide options for abatement of asbestos, provide cost estimates for both abatement and operations and maintenance costs, and identifying actions requiring immediate action in Cameron Station's 24 buildings. BRAC states that only friable asbestos which presents a threat to health and safety shall be removed; non-friable asbestos or friable asbestos which is encapsulated or in good repair shall be left in place and identified to the buyer per GSA agreement. The investigation followed protocols that met or exceeded the requirements of 40 CFR 763, the EPA regulations promulgated under the Asbestos Hazard Emergency Response Act (AHERA).

This report summarizes the results of the asbestos survey and includes the quantity of friable asbestos by building and category.

SURVEY METHODOLOGY

Building surveys were performed by an AHERA-accredited inspection team. Each building investigation consisted of three tasks:

- Records review;
- Walkthrough; and
- Sampling and analysis.

Records Review

In conducting a records review, the inspectors examined documents relating to previous asbestos activities, including the results of past surveys, and reviewed building drawings and finishing schedules if available. Previous survey data alerted the inspection team to areas of known asbestos.

Walkthrough

The team conducted a walkthrough of each building, visually inspecting all accessible interior areas, including offices, hallways, shops, mechanical rooms and attics. Inspections and sampling

were not conducted of the roofs. All roofing materials were assumed to contain asbestos. Prior to demolishing the buildings, additional sampling of the roofs will be required to determine if asbestos is present. At the time of the survey, roof mounted equipment such as air handlers with woven vibration isolators were also assumed to contain asbestos. Installation personnel have indicated that after the survey was completed, asbestos was removed from some of the roof mounted equipment. Any area to which access could not be gained is noted in the individual building report. The types of materials considered included surfacing materials, thermal system insulation and miscellaneous building materials such as floor and ceiling tile. The purpose of the walkthrough was to identify materials suspected to be ACM and to classify them into homogeneous areas for sampling purposes. (A homogeneous area is defined as an area of material that is similar in appearance and texture throughout a building).

For this phase of the inspection, information about the homogeneous areas was recorded on walkthrough survey sheets and floor plans. Quantities were later estimated using either scaled drawings or data provided by the Defense Logistics Agency (DLA) for areas under their occupancy. Information on building history and current occupants was also obtained during the walkthrough.

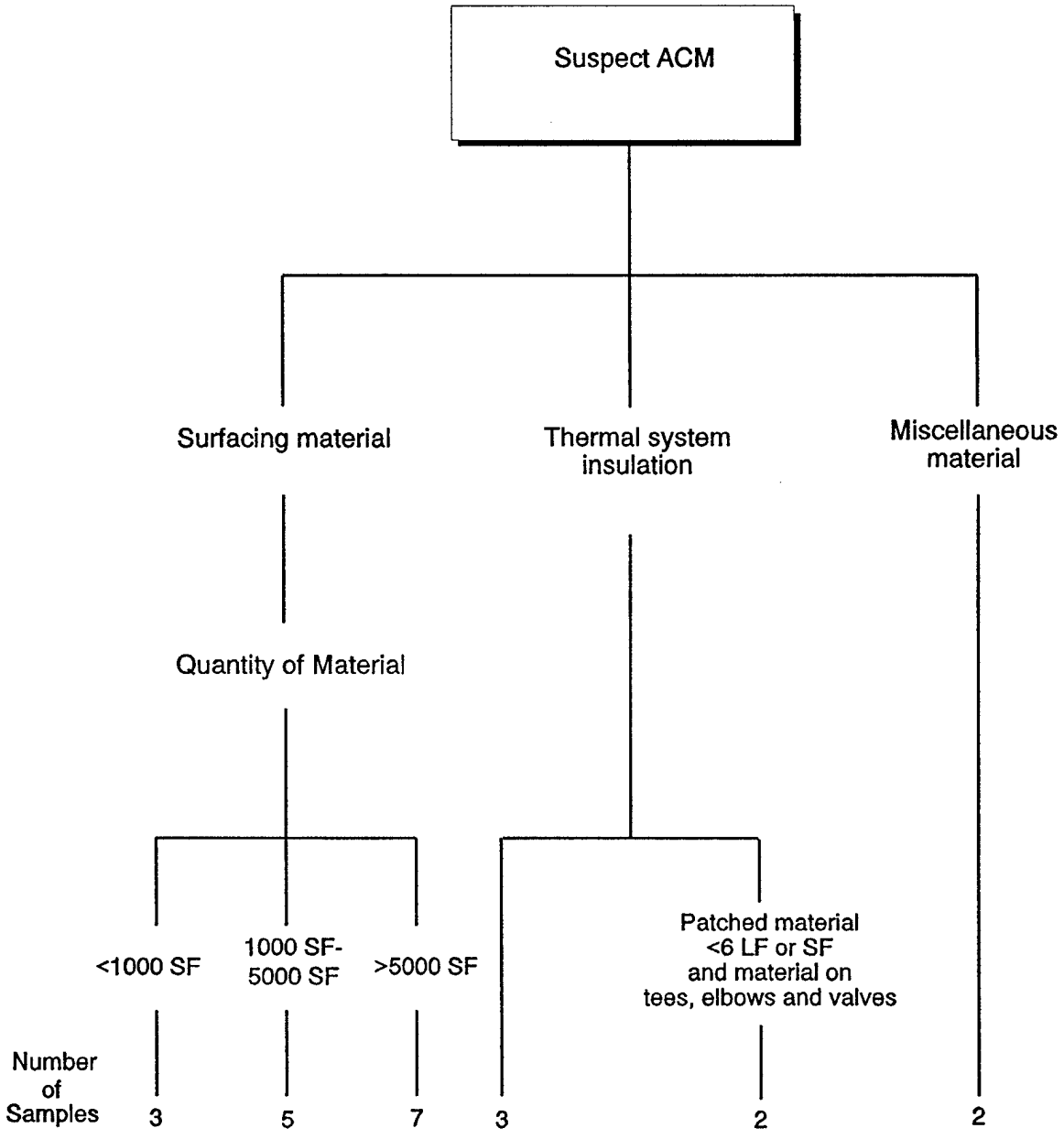
Sample Collection and Analysis

For the third phase of the inspection, the survey team collected 755 bulk samples of suspect materials. Each bulk sample was placed in a container and labeled with a unique sample identification number; the location of each sample was recorded on a building floor plan. Information on the friability and condition of each homogeneous area from which the samples were obtained was also recorded.

The number of samples collected for each homogeneous area was dependent on how it was categorized, i.e., as surfacing, thermal system or miscellaneous material. Sampling requirements are summarized in Exhibit 1 (following page), Sample Collection Requirements By Category. In general, a minimum of two bulk samples per homogeneous area were collected and analyzed. However, at Building 4, only one sample taken from the premolded pipe and tank insulation was submitted to the laboratory. If analysis yielded positive results (i.e., greater than one percent asbestos), the material was listed as asbestos-containing, and no additional samples were analyzed.

For this survey, the inspectors included plaster and gypsum board in the surfacing category in addition to the sprayed- and trowelled-on materials described in the AHERA regulations. Inclusion of these materials under the surfacing classification is in accordance with current industry interpretation of AHERA.

Exhibit 1. Sample Collection Requirements by Category



Thermal system insulation includes material applied to pipes, pipe fittings, boilers, tanks, ducts or other interior structural components to prevent heat loss or gain or water condensation.

The miscellaneous category covers building materials other than surfacing and thermal system insulation and includes items such as floor, ceiling and wall tile.

No destructive sampling was conducted for this survey, i.e., no wall material or thermal system insulation was removed to locate inaccessible materials. Carpet covering was rolled back to determine if floor tile was underneath; however, no attempt was made to determine if more than one layer of tile was present.

Bulk samples were delivered under chain-of-custody requirements to AMA Analytical Services, a laboratory certified by the National Institute of Standards and Technology under the National Voluntary Laboratory Accreditation Program (NVLAP) to perform bulk asbestos analysis by polarized light microscopy (PLM). In addition the laboratory is accredited by the American Industrial Hygiene Association (AIHA).

All bulk samples were analyzed using PLM. As part of its internal quality control (QC) program, the laboratory analyzed all samples by PLM two times using two different microscopists. A certificate of analysis summarizing sample results by building was provided by the laboratory and contained the following information:

- Date analyzed;
- Sample ID number;
- Type(s) and percentage of asbestos found (e.g., 1-5% chrysotile);
- Type(s) and percentage of other fibrous material; and
- Analyst's name.

A second NVLAP-certified laboratory, operated by Dynamac Corporation, was used at the start of this project to analyze three bulk samples using PLM. Certificates of analysis for these samples were provided by the Dynamac laboratory.

To monitor the accuracy of the laboratory's analytical program, the WCFS inspection team submitted QC samples along with the regular samples. (A QC sample is one taken from an area abutting a regular sample. A minimum of one QC sample per building, or one every twenty samples, was submitted.) The laboratory was given no indication which were the QC samples. In no instance was there any discrepancy in the analysis of side-by-side samples.

The laboratory, in addition to analyzing all bulk samples using PLM, reanalyzed 10% of the floor tile samples, identified as negative by PLM, by a second method, transmission electron microscopy (TEM). This was done because the very small asbestos fibers typically used in floor tile may be below the resolution capabilities of PLM. Organic binder materials found in floor tile can also contribute to asbestos identification problems by PLM. The transmission electron microscope provides more conclusive results by showing the sample's structure as well as chemical and refractive properties.

Materials Assumed To Contain Asbestos

In lieu of sampling and analysis, certain building materials such as roofing felt/tar and the ventilation duct vibration dampening cloth found on some air handling units were assumed to contain asbestos. (The roofing materials will require additional sampling to determine if asbestos is present prior to demolishing the buildings. Installation personnel have indicated that after the survey was completed, asbestos was removed from some of the air handling units.) The inspectors made these assumptions based on their past experience with similar materials. In addition, it was determined that sampling these articles would require destructive methods that could compromise the integrity of the roof and cloth. Assuming a material to be asbestos-containing is permitted under AHERA regulations.

SURVEY RESULTS

Table 1 summarizes the inspection data for the approximately 1.4 million square feet of building space surveyed at Cameron Station. In all, 24 buildings were inspected and 295 homogeneous sampling areas were identified. A total of 752 bulk samples, including 43 QC samples, were analyzed using PLM; seven floor tile samples were analyzed a second time using TEM. The survey determined that 19 buildings contain ACM. Of these, 14 buildings contain both friable and non-friable ACM; five buildings contain only non-friable ACM. None of the buildings contain only friable ACM. A material is considered to be ACM if it contains more than one percent asbestos.

Building-by-building survey data, including sample results, sample location drawings, walkthrough survey information, QC sample numbers, laboratory certificates of analysis and chain-of-custody forms are in the individual building reports which follow this introductory discussion.

Table 1. Summary of Survey Findings by Building

Building No.	Number of Homogeneous Areas	Number of Samples Collected	Does Building Contain ACM	
			Friable	Nonfriable
1	30	61	YES	YES
2	22	51	YES	YES
3	20	57	YES	YES
4	20	59	YES	YES
5	21	54	YES	YES
6	26	66	YES	YES
7	26	69	YES	YES
8	14	45	YES	YES
9	19	47	YES	YES
10	6	14	YES	YES
11	0	0	NO	NO
15	19	56	YES	YES
16	4	8	NO	YES
17	23	49	YES	YES
20	3	13	NO	NO
21	18	52	YES	YES
22	5	10	NO	YES
23	4	12	NO	NO
24	0	0	NO	NO
25	9	18	YES	YES
26	1	0	NO	YES
30	0	0	NO	NO
34	3	8	NO	YES
68	2	3	NO	YES

HAZARD ASSESSMENT

WCFS inspectors followed the "Guide For Asbestos Hazard Assessment in U.S. Army Facilities" to characterize the extent of damage/risk and exposure potential for friable ACM identified at Cameron Station.

They completed the two-part checklist included in the "Guide" for each location with friable ACM and, using totals derived from the checklist, determined the appropriate assessment index and corrective action. For example, a location containing friable thermal system insulation was rated 6 for damage/risk and 15 for exposure; the assessment index was listed as "Priority C" and the recommendation was "Planned Action" (see Exhibit 2 and Tables 2 and 3 which follow).

Only two locations with friable ACM are recommended for immediate action. They are:

- Building 7, Bay 3, pipe fitting insulation on the domestic hot water line in the men's restroom. (Installation personnel have indicated that this area was remediated in January 1992.)

- Building 5, Bay 3, breech insulation, pipe fittings and joint sealant in the mechanical room (Room 5B352). (Installation personnel have indicated that this area was remediated in November 1991.)

The remaining areas with friable ACM fall either under Priority B (Action As Soon As Possible, 15 areas) or Priority C (Planned Action, 10 areas). Refer to pages 11 - 25 of the Friable Asbestos section for a review of hazard assessments and recommendations for specific functional spaces within each building. Because it was not within the scope of this contract, nonfriable asbestos-containing materials, such as floor tile, were not assessed. These materials generally pose little hazard; however, as ACM they should be included in an Operations and Maintenance (O&M) Program, which covers a variety of activities (e.g., periodic inspection, repair, proper cleaning) that are directed toward maintaining ACM in an undamaged state.

Exhibit 2. Friable Asbestos Assessment Checklist

Friable Asbestos Assessment Checklist

Cameron Station Building 1 Inspector Banco / Guarisco 2/26/91

Homogeneous Sample Area #(s) 4 Material Type(s) Pipe fitting insulation 3"-6" w insulation

Functional Space 1-1 attic areas Bldg 4 5 & 6

Part 2: Exposure

- Friability: 6 High; 3 Moderate; (1) Low
- Amount of Visible Friable Material: 0 < 10 ft²; 1 10 ≤ ft² < 100; (2) 100 ≤ ft² < 1000; 3 ≥ 1000 ft²
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low

  Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or troweled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  (1) ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; 4 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total (1.5)

Woodward-Clyde Federal Service

Exhibit 2. Friable Asbestos Assessment Checklist (continued)

Friable Asbestos Assessment Checklist

Cameron Station Building 1 Inspector Barnes/Guarlia 2/26/91

Homogeneous Sample Area #(s) 4 Material Type(s) pipe fittings, insulated 3"-6" w/ insulation

Functional Space 1-1 attic area, Bldgs 4, 5 & 6

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; 4 Moderate; 2 Low; (1) Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

  A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance

  B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls

...ential for Contact based on material proximity to area occupants:

.. < 10 ft: 8 High; 5 Medium; (2) Low

B. ≥ 10 ft: 5 High; 3 Medium; 0 Low

- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 536, 537, 538

Damage/Risk Total (6)

Woodward-Clyde Federal Service:

November 19, 199(

Table 2. Determination of an Assessment Index

		Exposure Total (From Checklist)			
		43-26	25-17	16-8	7-4
Damage/Risk Total (From Checklist)	28-17	A	A	A	B
	16-11	A	B	C	D
	10-5	A	B	C	E
	4-1	A	C	D	F

Table 3. Hazard Assessment

Assessment Index	Recommended Management Corrective Action
Priority	
A	Immediate Action - Isolate area and restrict access to qualified personnel*. Schedule an immediate corrective action (often removal) to reduce the risk of exposure to asbestos fibers.
B	Action as Soon as Possible - Immediately initiate an O&M Program**. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
C	Planned Action - Initiate an O&M Program**. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
D	Repair - Initiate an O&M Program**. Repair damaged areas so as to contain fiber release. Take preventive measures to reduce further damage. Schedule removal when practical and cost effective.
E	Monitoring - Initiate an O&M Program**. Take measures to prevent damage. Routinely monitor the condition of all ACM. Schedule removal to coincide with major renovation to or demolition of the building.
F	No Immediate Action - Initiate an O&M Program**. Schedule removal to coincide with major renovation to or demolition of the building.
*Qualified personnel are those persons who have training in the specific areas for which they will be responsible.	
** An O&M Program covers a variety of activities (e.g., periodic inspection,repair proper cleaning) that are directed toward maintaining asbestos-containing material in an undamaged state. O&M also includes partial removal of ACM required for renovation, replacement, or repair of other building systems or materials.	

FRIABLE ASBESTOS

Table 4, Quantity Of Friable Asbestos, summarizes the quantity of friable asbestos-containing material by category located in each building. (Only those Buildings where friable asbestos-containing material is located are listed.) The following tables review the friable ACM assessment/recommendation for each building.

TABLE 4

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
1		220 MF	100 MF
2		5050 SF TSI 100 MF	575 MF 200 LF TSI
3		6 MF *	
4		18 MF 8 SF TSI *	< 10 SF TSI
5	5000 SF TSI 100 MF		200 MF
6		100 MF	
7	40 LF PI 12 MF	> 115 MF 260 SF TSI	
8			75 LF PI
9		50 SF TSI	34 MF 70 LF PI
10			24 LF PI
15		460 LF PI 32 MF	
17		320 LF PI	
21		2774 SF TSI 651 LF PI	
25		20 LF PI	

TSI = THERMAL SYSTEM INSULATION
MF = MUDDED FITTINGS
PI = PIPE INSULATION
* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

Friable ACM Assessment/Recommendation for Building 1

		Material Description					
Functional Space Building - Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
1-1 Bay 5, Mechanical Room	4	TSI	Pipe fitting insulation	16	24	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
1-1 Bays 4, 5 & 6, Attic areas	4	TSI	Pipe fitting insulation	6	15	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.

Friable ACM Assessment/Recommendation for Building 2

		Material Description					
Functional Space Building-Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
2-1 Bay 1, boiler room	6, 7	TSI	Pipe fitting insulation; corrugated paper pipe insulation	10	16	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
2-2 Bay 1, attic	7	TSI	Corrugated paper pipe insulation	5	18	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
2-3 Bay 2, attic	3, 5, 6, 7	TSI	Tank insula-tion; trowelled-on duct insula-tion; pipe insulation	12	20	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
2-4 Bay 4, mechanical room	6	TSI	Pipe fitting insulation	5	16	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
2-5 Bay 6, attic	6, 7	TSI	Pipe fitting insulation; corrugated paper pipe insulation	5	16	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.

Friable ACM Assessment/Recommendation for Building 3.

		Material Description					
Functional Space Building-Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
3-1 Bays 2, 5 & 6	3	TSI	Debris	16	22	B	Action as Soon As Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
3-2 Bay 6, mechanical room	4	TSI	Pipe fitting insulation	16	23	B	Action as Soon As Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable ACM Assessment/Recommendation for Building 4.

		Material Description					
Functional Space Building - Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
4-1 Bays 3, 4, 5, & 6 Attic areas	3, 4, 5, 6	TSI	Premolded pipe insulation, tank insulation, pipe fitting insula-tion, debris	16	22	**B**	Action as Soon As Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule correction action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
4-2 Bay 6, Rm 4B687	5	TSI	Pipe fitting insulation	5	13	**C**	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.

Friable ACM Assessment/Recommendation for Building 5

		Material Description					
Functional Space Building - Space	Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
5-1 Bay 3, Room 5B352, mechanical room	4, 5, 6	TSI	Breech insulation, pipe fitting insulation, joint sealant	19	23	A	Immediate Action - Isolate area and restrict access to qualified personnel. Schedule an immediate corrective action (often removal) to reduce the risk of exposure to asbestos fibers.
5-2 Bays 1, 2, & 3, attic areas	7	TSI	Pipe fitting insulation	6	15	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.

Friable ACM Assessment/Recommendation for Building 6

		Material Description					
Functional Space Building - Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
6-1 Bays 1, 2 and 3, attic areas	4	TSI	Pipe fitting insulation	7	17	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable ACM Assessment/Recommendation for Building 7

		Material Description					
Functional Space Building - Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
7-1 Bay 1, attic	3	TSI	Pipe fitting insulation	14	23	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
7-2 Bay 1, mechanical room	5, 7	TSI	Boiler insulation, pipe fitting insulation	12	25	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
7-3 Bay 3, restroom, domestic hot water line	9	TSI	Pipe fitting insulation	23	19	A	Immediate Action - Isolate area and restrict access to qualified personnel. Schedule an immediate corrective action (often removal) to reduce the risk of exposure to asbestos fibers.

Friable ACM Assessment/Recommendation for Building 8

		Material Description					
Functional Space Building - Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
8-1 Bay 1, attic, north wall	5	TSI	Corrugated paper pipe insulation	3	19	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.

Friable ACM Assessment/Recommendation for Building 9.

Functional Space Building - Space	Homogeneous Sample Area #	Material Description: Category (surfacing TSI or misc.)	Material Description: Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
9-1 Bay 5, along east wall and above office area	2	TSI	Pipe fitting insulation	10	14	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
9-2 Bay 1, attic area above Door 8, restroom and storage area	2, 4	TSI	Pipe fitting insulation, corrugated paper pipe insulation	10	14	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
9-3 Bay 1, inside Door 8	3	TSI	Trowelled-on duct insulation	13	19	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable ACM Assessment/Recommendation for Building 10

		Material Description					
Functional Space Building - Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
10-1	2	TSI	Corrugated paper pipe insulation	10	14	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.

Friable ACM Assessment/Recommendation for Building 15.

		Material Description					
Functional Space Building - Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
15-1 Basement reproduction work area	2, 3	TSI	Corrugated paper pipe insulation; pipe fitting insulation	16	22	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
15-2 First floor corridor	2	TSI	Corrugated paper pipe insulation	6	19	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable ACM Assessment/Recommendation for Building 17.

		Material Description					
Functional Space Building - Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
17-1	3	TSI	Premolded pipe insulation	15	19	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable ACM Assessment/Recommendation for Building 21.

		Material Description					
Functional Space Building - Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
21-1	2, 5, 6, 7, 8, 9, 10, 11, 12, 14	TSI	Trowelled-on, blanket, premolded, and corrugated paper pipe insulation	15	24	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable ACM Assessment/Recommendation for Building 25.

		Material Description					
Functional Space Building - Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
25-1 Food preparation area adjacent to steam room	3	TSI	Corrugated paper pipe insulation	7	17	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

REPORT FORMAT

The remainder of this document consists of the following three attachments:

- Attachment 1 is a list of acronyms and abbreviations used throughout the report;

- Attachment 2 includes the certificates of accreditation for the analytical laboratories and the inspection team; and

- Attachment 3 includes the results of the asbestos investigation on a building-by-building basis and is divided into 24 sections. Each building report contains a short introduction and, depending on the survey findings, also contains one or more of the following seven appendices:

  - Appendix A, ACM Survey Results. This appendix, which consists of a table summarizing survey results, is included if the inspection team identified any suspect ACM, either friable or nonfriable, in the building.

  - Appendix B, Assessments/Recommendations for Friable ACM. This appendix is included if the inspection team identified friable ACM in the building. It consists of a table summarizing the recommended corrective action for each location with friable ACM and is followed by the assessment checklists used to determine these recommendations.

  - Appendix C, Building Drawings. Drawings are included to show bulk sample locations and, in the larger buildings, to indicate where different types of floor tile and ceilings were found. If no samples were collected in the building, this appendix is omitted.

  - Appendix D, Walkthrough Survey Data Sheets. All building reports contain this appendix. These data sheets list the results of the inspection team's walkthrough survey and indicate whether or not any suspect ACM was identified.

  - Appendix E, Laboratory Certificates of Analysis. Signed certificates of analysis using PLM are included for each building in which bulk samples were collected. If any analysis using TEM was performed, a letter certifying the results is also included in this appendix.

- Appendix F, Chain-of-Custody Forms. These forms are included for each building in which bulk samples were collected.

In the individual building reports these appendices are designated by the building number in addition to the letter (e.g., Appendix 16-A refers to Building 16, ACM Survey Results).

ATTACHMENT 1

ACRONYMS AND ABBREVIATIONS

ACRONYMS AND ABBREVIATIONS

The following is a list of acronyms and abbreviations used throughout this document:

• AAFES	Army and Air Force Exchange Service
• ACM	Asbestos-containing material(s)
• AHERA	Asbestos Hazard Emergency Response Act
• AHU	Air handling unit
• CFR	Code of Federal Regulations
• DLA	Defense Logistics Agency
• DTIC	Defense Technical Information Center
• EA,CA	Engineering Activity, Capital Area
• EPA	Environmental Protection Agency
• GAHA	Guide For Asbestos Hazard Assessment
• HEPA	High efficiency particulate air
• HVAC	Heating, ventilation and air conditioning
• MDW	Military District of Washington
• NESHAP	National Emission Standards for Hazardous Air Pollutants
• O&M	Operations and maintenance
• PLM	Polarized light microscopy
• RI/FS	Remedial investigation/feasibility study
• TEM	Transmission electron microscopy
• TSI	Thermal system insulation
• USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
• VAT	Vinyl asbestos tile
• WCFS	Woodward-Clyde Federal Services

ATTACHMENT 2

CERTIFICATES OF ACCREDITATION

AMA Analytical Services, Inc.

AMERICAN INDUSTRIAL HYGIENE ASSOCIATION

AMA Analytical Services, Inc.

Lanham, MD

has fulfilled AIHA criteria for
Industrial Hygiene Laboratory Accreditation
since March 1, 1984.

This accreditation shall be effective until
the 1st day of March 1993
subject to continued compliance with
AIHA accreditation criteria.

Chairman
Labortary Accreditation
Committee

President
American Industrial Hygiene
Association

244
Accreditation Number

March 1, 1991
Date

United States Department of Commerce
National Institute of Standards and Technology

NVLAP

Certificate of Accreditation

AMA ANALYTICAL SERVICES, INC.
LANHAM SEABROOK, MD

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 7 Code of Federal Regulations. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

April 1, 1992
Effective until

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

Nancy M. Dalton
For the National Institute of Standards and Technology

NVLAP LAB CODE: 1143

Dynamac Corporation

United States Department of Commerce
National Institute of Standards and Technology

NVLAP

Certificate of Accreditation

DYNAMAC INTERNATIONAL
ROCKVILLE, MD

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 7 Code of Federal Regulations. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

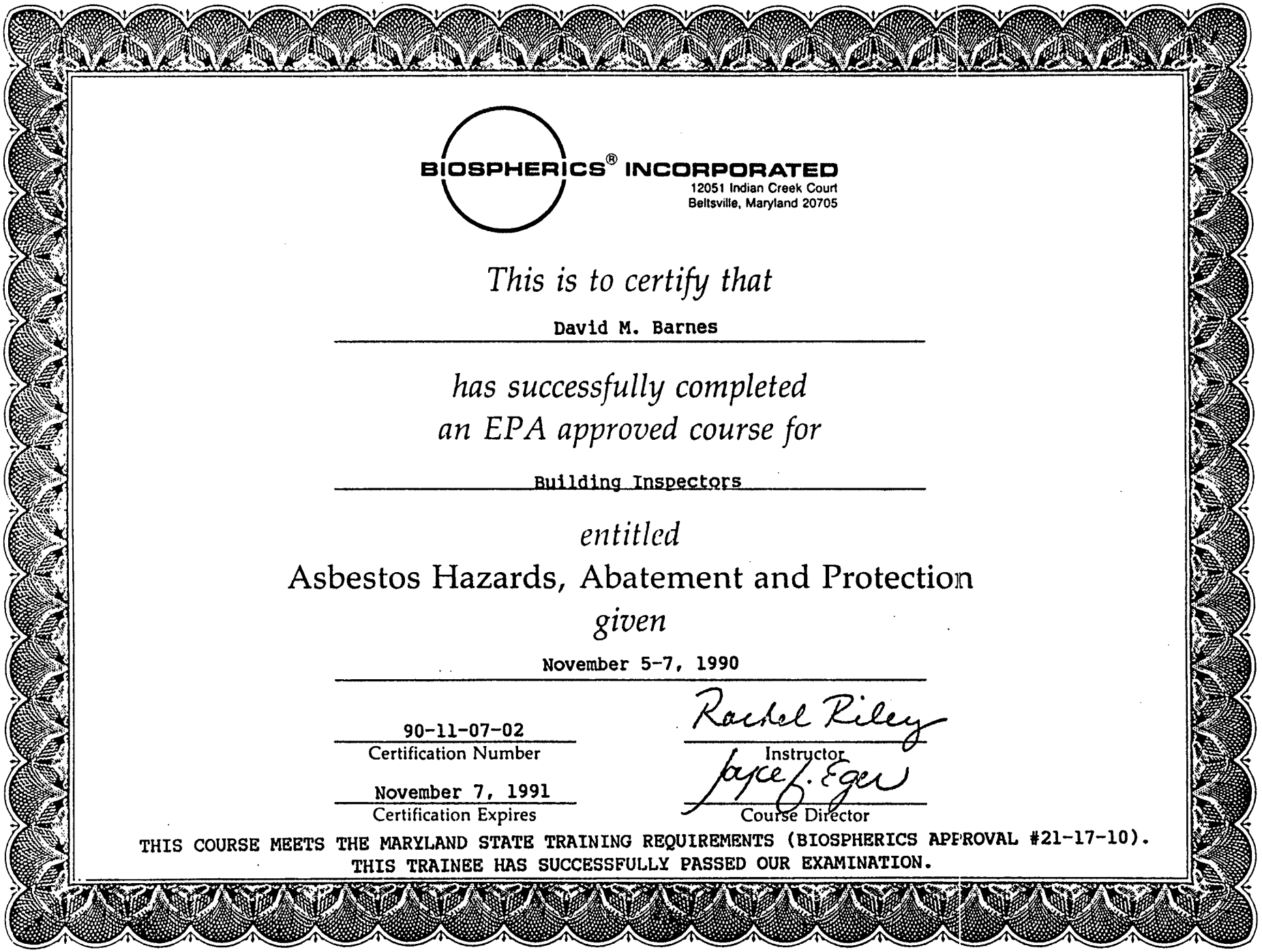
January 1, 1992
Effective until

DEPARTMENT OF COMMERCE • UNITED STATES OF AMERICA •

Nancy M. Dorsey
For the National Institute of Standards and Technology

NVLAP LAB CODE: 1843

Building Inspectors



BIOSPHERICS® INCORPORATED
12051 Indian Creek Court
Beltsville, Maryland 20705

This is to certify that

David M. Barnes

has successfully completed
an EPA approved course for

Building Inspectors

entitled

Asbestos Hazards, Abatement and Protection

given

November 5-7, 1990

90-11-07-02
Certification Number

November 7, 1991
Certification Expires

Rachel Riley
Instructor

Joyce J. Eger
Course Director

THIS COURSE MEETS THE MARYLAND STATE TRAINING REQUIREMENTS (BIOSPHERICS APPROVAL #21-17-10).
THIS TRAINEE HAS SUCCESSFULLY PASSED OUR EXAMINATION.

DYNAMAC
CORPORATION

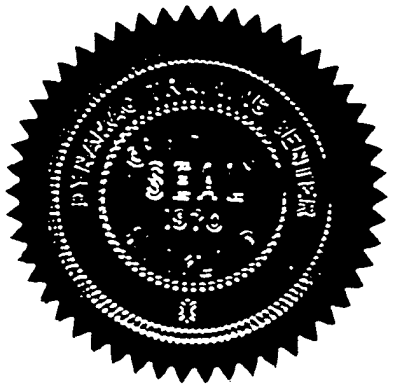
DYNAMAC TRAINING CENTER

THIS CERTIFIES THAT:

F.B. SALLY GUARDIA

has completed a four-hour AHERA/EPA-approved
annual refresher course for

Inspecting Buildings for Asbestos-Containing Materials



Course Date: October 2, 1990
Expiration Date: October 2, 1991

ID Number: 213-38-6726-90

Director

DYNAMAC
CORPORATION

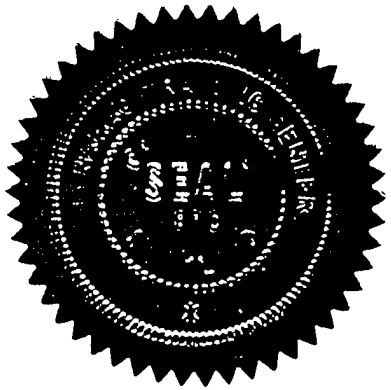
DYNAMAC TRAINING CENTER

THIS CERTIFIES THAT:

F.B. SALLY GUARDIA

has completed a four-hour AHERA/EPA-approved
annual refresher course for

Managing Asbestos in Buildings



Course Date: October 2, 1990
Expiration Date: October 2, 1991

ID Number: 213-38-6726-90

Director

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF COMMERCE

3600 West Broad Street, Richmond, VA 23230

Telephone: 1 (804) 367-8500

VIRGINIA ASBESTOS LICENSE
INSPECTOR LICENSE

EXPIRES
09-30-91

NUMBER
3303
001230

F B SALLY GUARDIA

100 NEW MARK ESPLANADE

ROCKVILLE, MD 20850

Milton K. Brown, Jr.
Milton K. Brown, Jr., Director

(SEE REVERSE SIDE FOR NAME AND/OR ADDRESS CHANGE)

3303001230

(POCKET CARD) (DETACH HERE)

COMMONWEALTH OF VIRGINIA — DEPARTMENT OF COMMERCE — 3600 West Broad Street Richmond, Virginia 23230

VIRGINIA ASBESTOS LICENSE
INSPECTOR LICENSE

NUMBER 3303001230
EXPIRES 09-30-91

F B SALLY GUARDIA

100 NEW MARK ESPLANADE

ROCKVILLE, MD 20850

(FOLD)

ATTACHMENT 3

BUILDING REPORTS

BUILDING 1

1.1 DESCRIPTION

Building 1 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof, typical of buildings at Cameron Station, is constructed of tar, felt and gravel over wood. The building is divided into six bays by masonry firewalls. Originally designed as a warehouse, it has been partially converted to office and retail space with overhead areas that house the HVAC system. Building materials typically found on the main floor include carpet over floor tile, ceiling tile and gypsum board. A cementitious board is on the ceiling of a locked storage room in Bay 3. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

Current occupants are:

- Joint Personal Property Shipping Office (JPPSO)
- Army and Air Force Exchange Service (AAFES) Class VI Store
- Post Exchange
- Institute of Heraldry

1.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 1-A through 1-F. A summary of this data is presented below.

1.2.1 Suspect Friable ACM

Two homogeneous areas of suspect friable ACM were identified and seven bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the pipe fitting insulation in the attic areas of Bays 4, 5 and 6 and the mechanical room, Bay 5.

This material was found in two functional spaces and was assessed as follows:

- Assessment of the pipe fitting insulation in the attic areas indicates a damage factor of 6 and an exposure factor of 15. According to the GAHA Index, this material ranks as Priority C.

- Assessment of the pipe fitting insulation in the mechanical room indicates a damage factor of 16 and an exposure factor of 24. According to the GAHA Index, this material ranks as Priority B.

1.2.2 Suspect Nonfriable ACM

Twenty-two homogeneous areas of suspect nonfriable ACM were identified and fifty-four bulk samples, including two QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following eleven materials:

- Joint Sealant
- FT 1 12" x 12" green floor tile and mastic.
- FT 2 12" x 12" black floor tile and mastic
- FT 3 9" x 9" brown floor tile and mastic
- FT 4 12" x 12" white with streaks floor tile and mastic
- FT 5 9" x 9" gray floor tile and mastic
- FT 6 9" x 9" white floor tile and mastic
- FT 9 9" x 9" dark brown floor tile and mastic
- FT 11 12" x 12" brown floor tile and mastic
- FT 16 9" x 9" orange floor tile and mastic
- Cement board

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

1.2.3 Material Assumed To Contain Asbestos

The following six homogeneous areas are assumed to be ACM.

- Tar and felt roofing material
- Vibration cloth
- FT 12 9" x 9" light green floor tile and mastic
- FT 13 9" x 9" dark green floor tile and mastic
- FT 14 9" x 9" black floor tile and mastic
- FT 15 9" x 9" light brown floor tile and mastic

The floor tiles are assumed to be ACM (rather than sampled) because they are interspersed, in limited amounts, with another tile that contains asbestos. No assessment of these materials was performed. However, as ACM they should be included in an O&M Program.

1.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

1.4 AREAS NOT ACCESSED

The following area in Building 1 was not accessed.

- Bay 3, unnumbered room along west wall near storage area

1.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
1		220 MF	100 MF

TSI = THERMAL SYSTEM INSULATION
PI = PIPE INSULATION
MF = MUDDED FITTINGS
* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

1.6 REPORT APPENDICES

The following appendices apply to this building.

Appendix 1-A ACM Survey Results
Appendix 1-B Assessments/Recommendations for Friable ACM
Appendix 1-C Building Drawings
Appendix 1-D Walkthrough Survey Data Sheets
Appendix 1-E Laboratory Certificate of Analysis
Appendix 1-F Sample Chain-of-Custody Forms

APPENDIX 1-A

ACM SURVEY RESULTS

ACM Survey Results for Building 1

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	130000	SF	Assume ACM	Assume ACM	
2	Misc.	Vibration cloth	Bays 4, 5 and 6, on AHU's in attic areas	Non	Good	60	SF	Assume ACM	Assume ACM	
3	TSI	Pipe fitting insulation	Bay 6, Mechanical room and attic	High	Poor	6	# of fittings	535 553 554	None detected None detected None detected	16"-18" fittings with insulation and 2' x 3' expansion tank
4	TSI	Pipe fitting insulation	Bays 4, 5, 6, attic areas Bay 5, mechanical room	Low High	Good Poor	320	# of fittings	536 537 538 570	5-10% chrysotile 15-20% chrysotile 5-10% chrysotile 85-90% chrysotile	3"-6" fittings with insulation Sample 538 is a QC for Sample 537.
5	TSI	Joint sealant	Bays 4, 5, 6, attic areas	Non	Good	28000	SF	830 831	1-5% chrysotile 1-5% chrysotile	This material is found on ends and seams of fiberglass-insulated pipes and ducts. The estimated amount is based on the quantity of insulation on which it is located.

ACM Survey Results for Building 1 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
6	Misc.	Ceiling tile	See Drawings 1/1-CT 1/2-CT 1/3-CT 1/4-CT 1/5-CT 1/6-CT	Non	Good	83000	SF	543 545	None detected None detected	CT 1 2' x 4' white w/fissures
7	Misc.	Ceiling tile	See Drawings 1/1-CT 1/6-CT	Non	Good	930	SF	546 555 556	None detected None detected None detected	CT 2 12" x 12" white w/random holes Sample 556 is a QC for sample 555.
8	Misc.	Ceiling tile	See Drawing 1/6-CT	Non	Good	475	SF	541 551	None detected None detected	CT 3 2' x 4' white, smooth
9	Misc.	Ceiling tile	See Drawing 1/6-CT	Non	Good	1000	SF	540 542	None detected None detected	CT 4 2' x 2' rough w/small holes

ACM Survey Results for Building 1 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
10	Misc.	Floor tile & mastic	See Drawing 1/1-FT	Non	Good	8000	SF	576 582	1-5% chrysotile 5-10% chrysotile	FT 1 12" x 12" green floor tile
11	Misc.	Floor tile & mastic	See Drawing 1/2-FT	Non	Good	8000	SF	579 581	1-5% chrysotile 1-5% chrysotile	FT 2 12" x 12" black floor tile
12	Misc.	Floor tile & mastic	Bay 1, Ladies Restroom See Drawing 1/1-FT	Non	Good	260	SF	585 586	1-5% chrysotile 1-5% chrysotile	FT 3 9" x 9" brown floor tile
13	Misc.	Floor tile & mastic	See Drawings 1/3-FT 1/4-FT 1/5-FT 1/6-FT	Non	Good	50000	SF	548 569	None detected 1-5% chrysotile	FT 4 12" x 12" white w/streaks floor tile
14	Misc.	Floor tile & mastic	Bay 6 Employee lounge See Drawing 1/6-FT	Non	Good	1000	SF	549 560	None detected None detected	FT 4a 12" x 12" white w/speckles floor tile. It covers FT 4 in most areas in the employee lounge.

ACM Survey Results for Building 1 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
15	Misc.	Floor tile & mastic	See Drawing 1/6-FT	Non	Good	1080	SF	565 566	1-5% chrysotile <1% chrysotile	FT 5 9" x 9" gray floor tile
16	Misc.	Floor tile & mastic	See Drawing 1/6-FT	Non	Good	1080	SF	567 568	5-10% chrysotile 1-5% chrysotile	FT 6 9" x 9" white floor tile
17	Misc.	Floor tile & mastic	See Drawing 1/6-FT	Non	Good	220	SF	561 562	None detected None detected	FT 7 12" x 12" white & brown marbled floor tile
18	Misc.	Floor tile & mastic	See Drawing 1/2-FT	Non	Good	6225	SF	591 592	None detected None detected	FT 8 12" x 12" brown floor tile
19	Misc.	Floor tile & mastic	See Drawing 1/2-FT	Non	Good	400	SF	593 594	1-5% chrysotile 1-5% chrysotile	FT 9 9" x 9" dark brown floor tile

ACM Survey Results for Building 1 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
20	Misc.	Floor tile & mastic	See Drawings 1/5-FT 1/6-FT	Non	Good	6500	SF	563 564	None detected None detected[1] <1% chrysotile[2]	FT 10 12" x 12" brown w/speckles floor tile
21	Misc.	Floor tile & mastic	Bay 1, Computer room See Drawing 1/1-FT	Non	Good	300	SF	573 574	1-5% chrysotile 5-10% chrysotile	FT 11 12" x 12" brown floor tile
22	Misc.	Floor tile & mastic	Bay 1, Computer room See Drawing 1/1-FT	Non	Good	<50	SF	Assume ACM	Assume ACM	FT 12 9" x 9" light green replacement floor tile
23	Misc.	Floor tile & mastic	Bay 1, Computer room See Drawing 1/1-FT	Non	Good	<50	SF	Assume ACM	Assume ACM	FT 13 9" x 9" dark green replacement floor tile

[1] Using PLM
[2] Using TEM

ACM Survey Results for Building 1 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
24	Misc.	Floor tile & mastic	Bay 1, Computer room See Drawing 1/1-FT	Non	Good	<50	SF	Assume ACM	Assume ACM	FT 14 9" x 9" black replacement floor tile
25	Misc.	Floor tile & mastic	Bay 1, Computer room See Drawing 1/1-FT	Non	Good	<10	SF	Assume ACM	Assume ACM	FT 15 9" x 9" lt. brown replacement floor tile
26	Misc.	Floor tile & mastic	Bay 1, Men's restroom See Drawing 1/1-FT	Non	Good	260	SF	587 588	1-5% chrysotile 1-5% chrysotile	FT 16 9" x 9" orange-brown floor tile
27	Misc.	Floor tile & mastic	Bay 1, Entrance See Drawing 1/1-FT	Non	Good	100	SF	589 590	None detected None detected	FT 17 12" x 12" off-white floor tile

ACM Survey Results for Building 1 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
28	Misc.	Cement board	Bay 3, ceiling of locked storage room See Drawing 1/3-CT	Non	Fair	700	SF	577 578	30-35% chrysotile 30-35% chrysotile	Gray 4' x 8' x 1/8" board
29	Surfacing	Plaster	Bay 6, Restrooms	Non	Good	<1000	SF	539 544 547 550 552	None detected None detected None detected None detected None detected	
30	Surfacing	Regular gypsum board	**Walls:** Throughout Building **Ceiling:** See Drawings 1/3-CT 1/6-CT	Non	Good	80000	SF	558 559 571 572 575 580 583 584	None detected None detected None detected None detected None detected None detected None detected None detected	 Sample 584 is a QC for sample 583.

APPENDIX 1-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 1

Functional Space	Homogeneous Sample Area #	Material Description: Category (surfacing TSI or misc.)	Material Description: Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
1-1 Bays 4, 5 & 6, Attic areas	4	TSI	Pipe fitting insulation	6	15	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
1-2 Bay 5, Mechanical Room	4	TSI	Pipe fitting insulation	16	24	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable Asbestos Assessment Checklist

Cameron Station Building 1 Inspector Barnes / Blanchard 2/26/91

Homogeneous Sample Area #(s) 4 Material Type(s) Pipe fitting insulation 3"-6" w insulation

Functional Space 1-1 attic areas Bays 4 5 & 6

Part 2: Exposure

- Friability: 6 High; 3 Moderate; (1) Low
- Amount of Visible Friable Material: 0 < 10 ft²; 1 10≤ ft² < 100; (2) 100 ≤ ft ² < 1000; 3 ≥ 1000 ft_2
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  (1) ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; 4 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 15

Friable Asbestos Assessment Checklist

Cameron Station Building 1 Inspector Barnes/Giardina 2/26/91

Homogeneous Sample Area #(s) 4 Material Type(s) pipe fittings, insulation 3"-6" w/ insulation

Functional Space 1-1 attic area, Bays 4, 5 & 6

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; 4 Moderate; 2 Low; (1) Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: 8 High; 5 Medium; (2) Low
  - B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 536, 537, 538

Damage/Risk Total 6

Friable Asbestos Assessment Checklist

Cameron Station Building 1 Inspector Barrio / Guardia 2/26/91

Homogeneous Sample Area #(s) 4 Material Type(s) pipe fitting insulation

Functional Space 1-2 Mechanical Room 3"-6" w/ insulation

Part 2: Exposure

- Friability: (6) High; 3 Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft_2
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  (5) High (constant vibration); 2 Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total ~~26~~ 24

Friable Asbestos A ...ment Checklist

Cameron Station Building 1

Inspector/Date Barnes / Guardia 2/26/91

Homogeneous Sample Area #(s) 4

Material Type(s) pipe fitting insulation 3"-6" w/ insulation

Functional Space 1-2 mechanical room Bays

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; (4) Moderate; 2 Low; 1 Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

  A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance

  B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance

- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls

- Potential for Contact based on material proximity to area occupants:

  A. < 10 ft: 8 High; (5) Medium; 2 Low

  B. ≥ 10 ft: 5 High; 3 Medium; 0 Low

- Asbestos content: Use percentage for material with highest probability for becoming airborne:

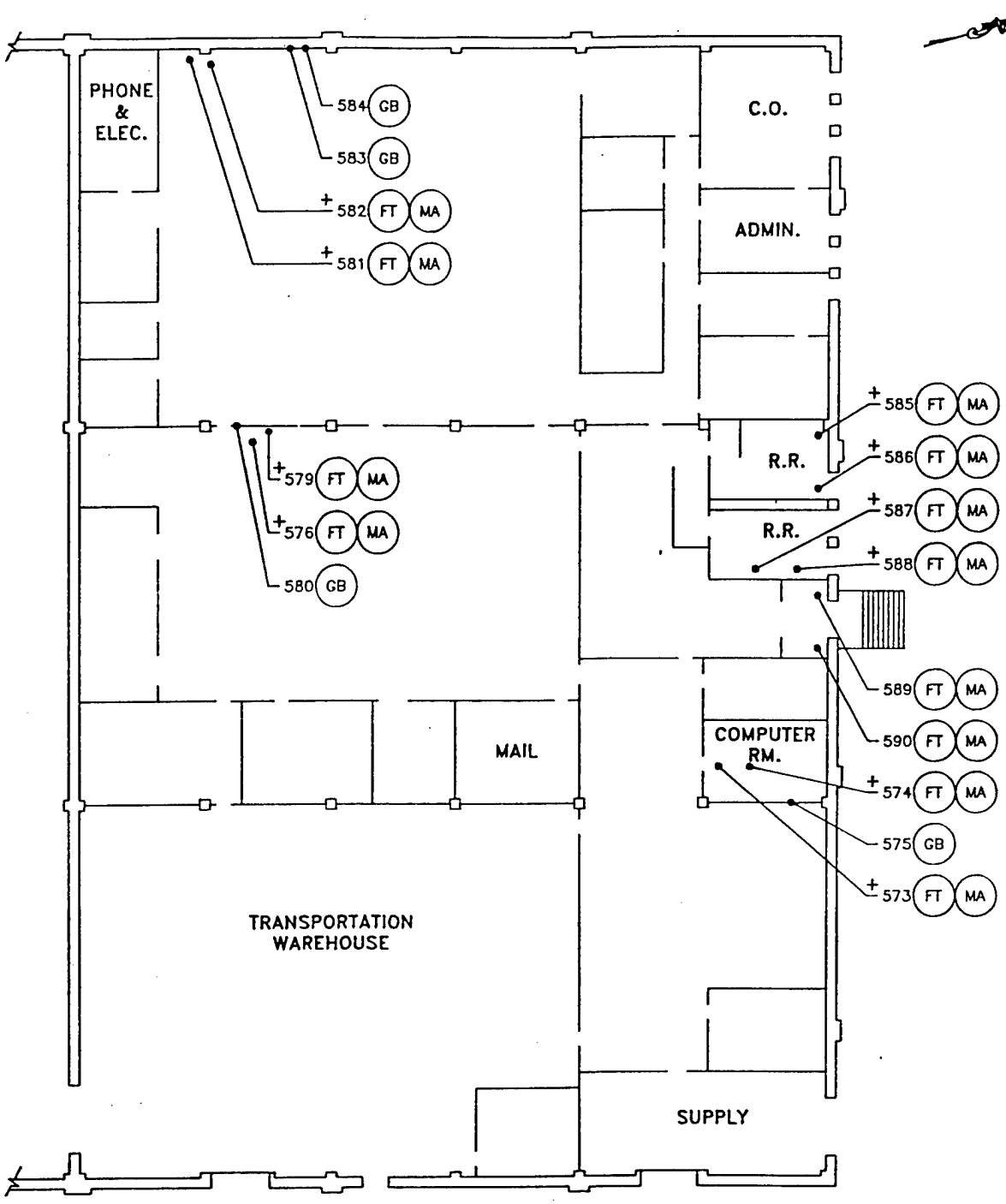
  1 1< % ≤ 30; 3 30 < % ≤ 50; (5) > 50%; NO HAZARD Samples contain no asbestos

- Sample Numbers: 570

Damage/Risk Total 16

APPENDIX 1-C

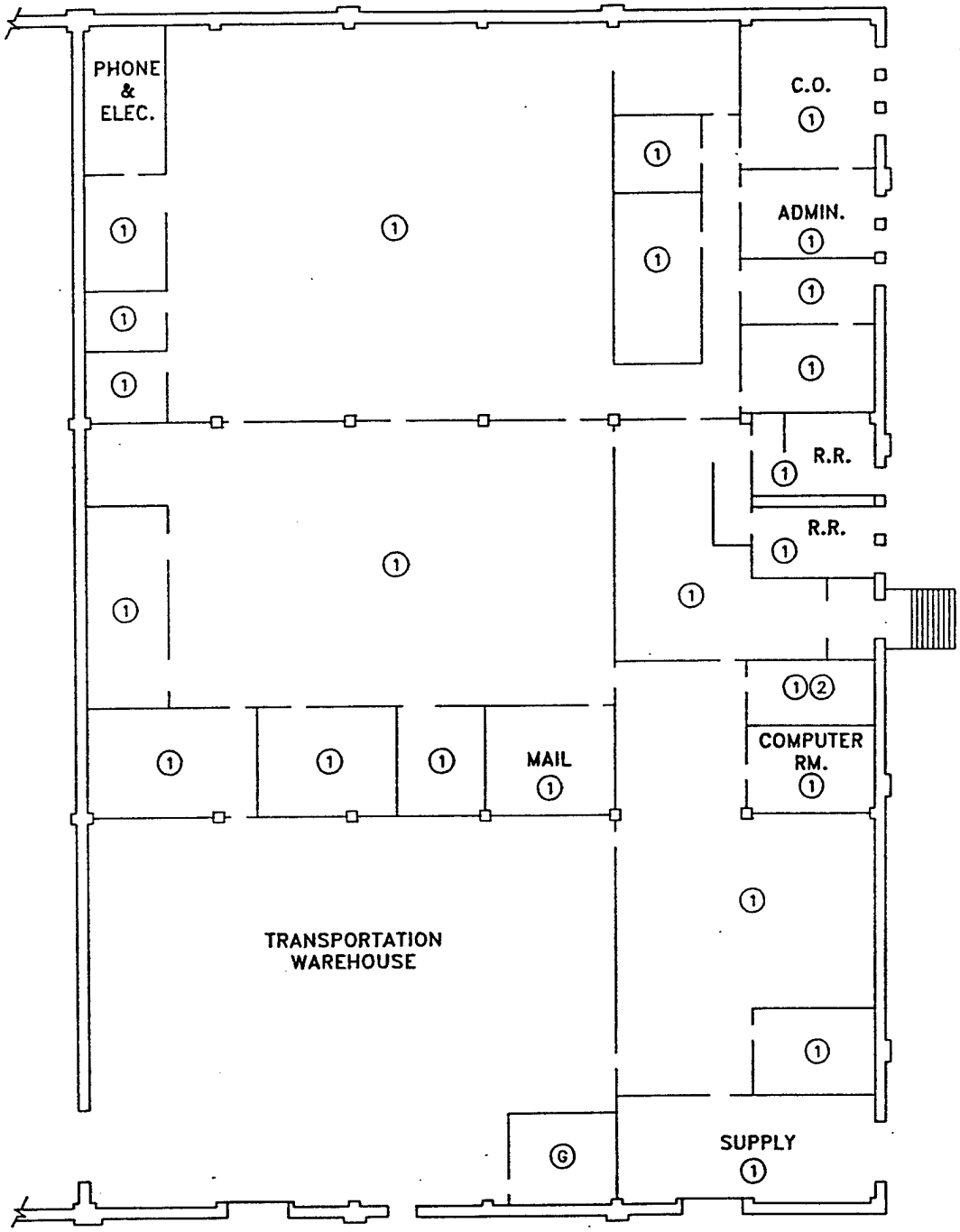
BUILDING DRAWINGS



LEGEND

- (FT) FLOOR TILE
- (MA) MASTIC
- (GB) GYPSUM BOARD
- \+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 1 – BAY 1 SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. / CHECKED BY: F.B.C. / DATE: 5–22–91 / SCALE: N.T.S. / DWG. NO. 1/1–SL



LEGEND

(1) 2' x 4' FISSURED TILE
(2) 12" x 12" RANDOM HOLE TILE
(G) GYPSUM BOARD

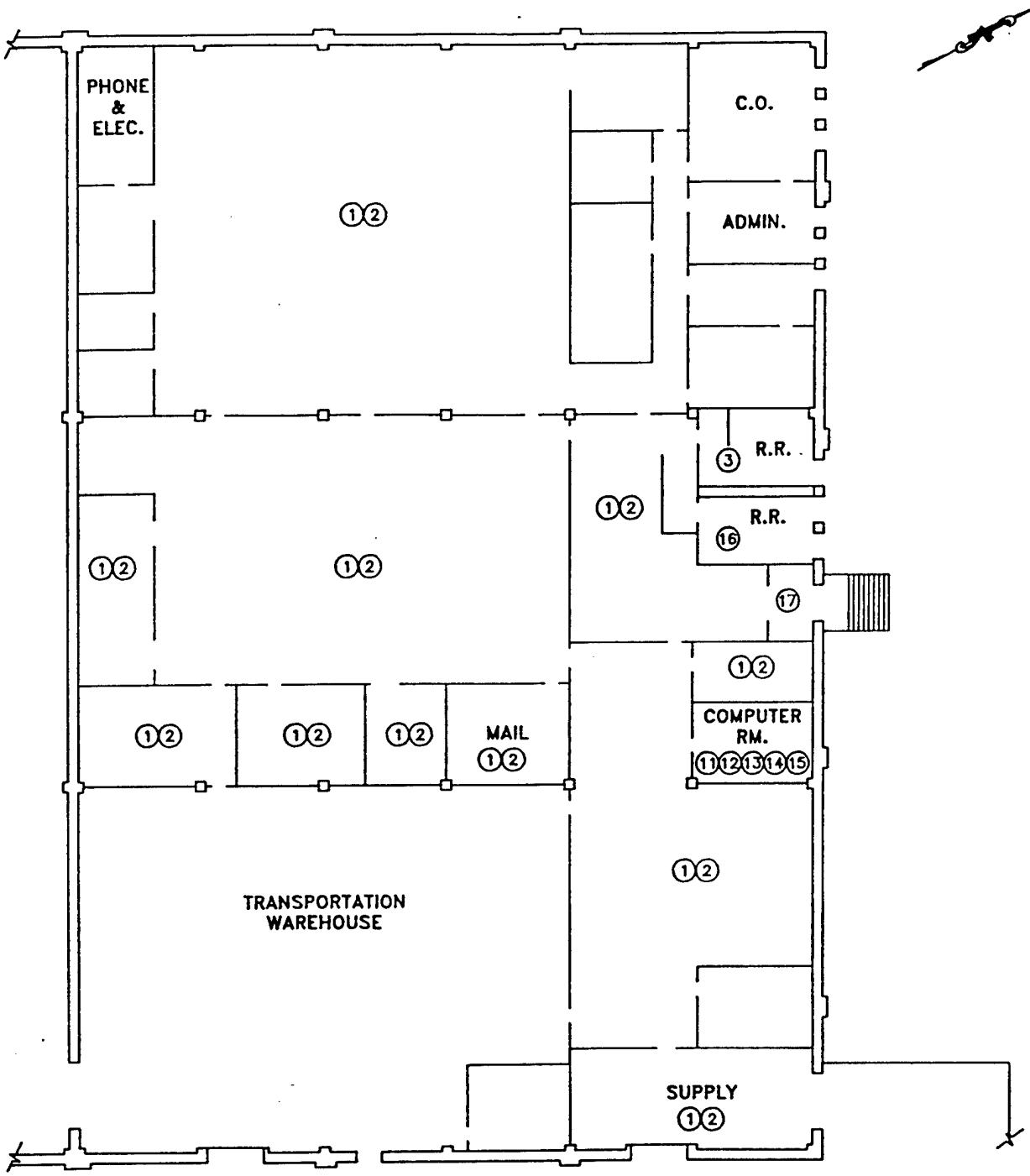
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 1 – BAY 1
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/1–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 12" x 12" GREEN	(13) 9" x 9" DK. GREEN
(2) 12" x 12" BLACK	(14) 9" x 9" BLACK
(3) 9" x 9" BROWN	(15) 9" x 9" LT. BROWN
(11) 12" x 12" BROWN	(16) 9" x 9" ORANGE–BROWN
(12) 9" x 9" LT. GREEN	(17) 12" x 12" OFF–WHITE

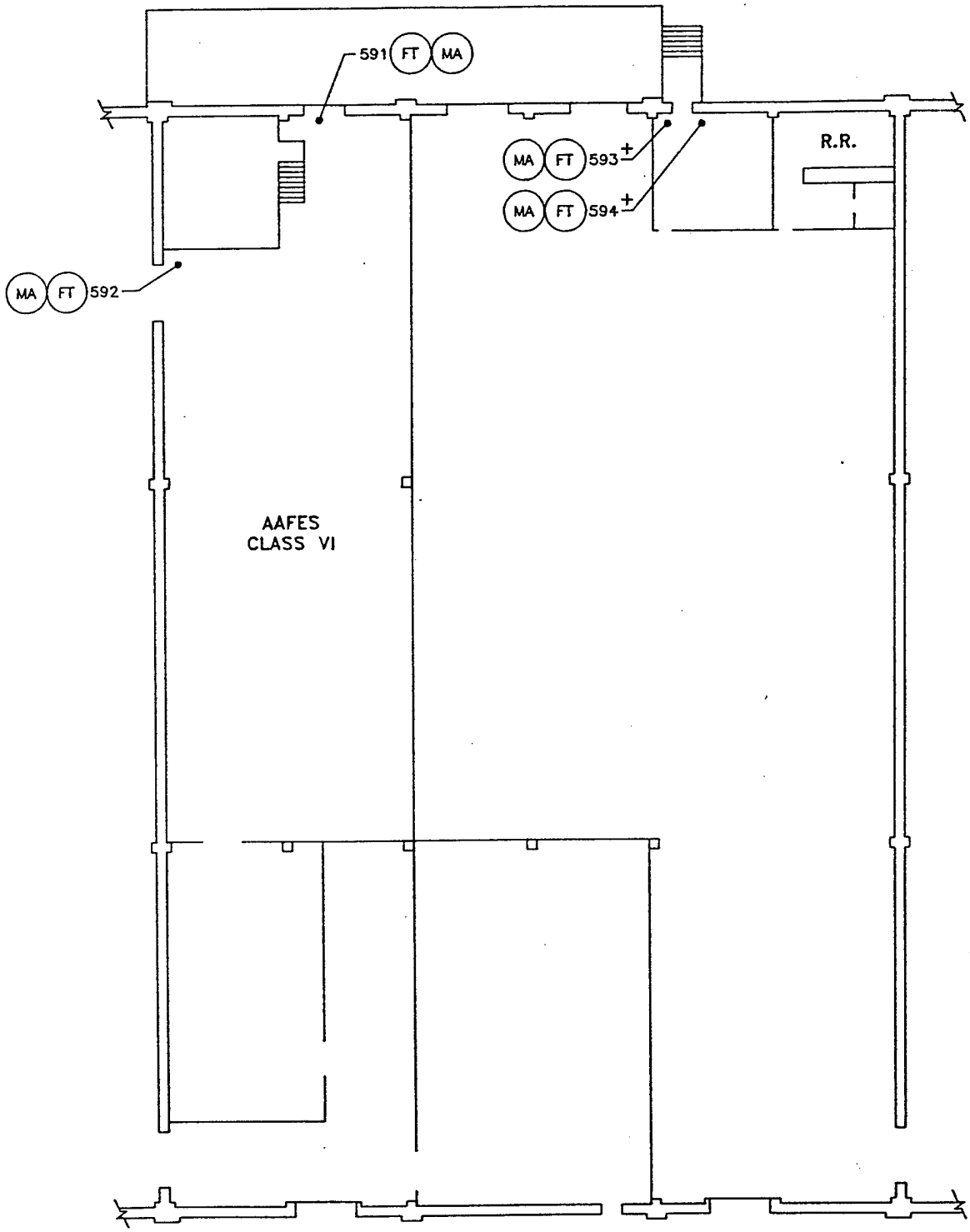
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 1 – BAY 1
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/1–FT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

FT FLOOR TILE

MA MASTIC

\+ DENOTES POSITIVE RESULTS

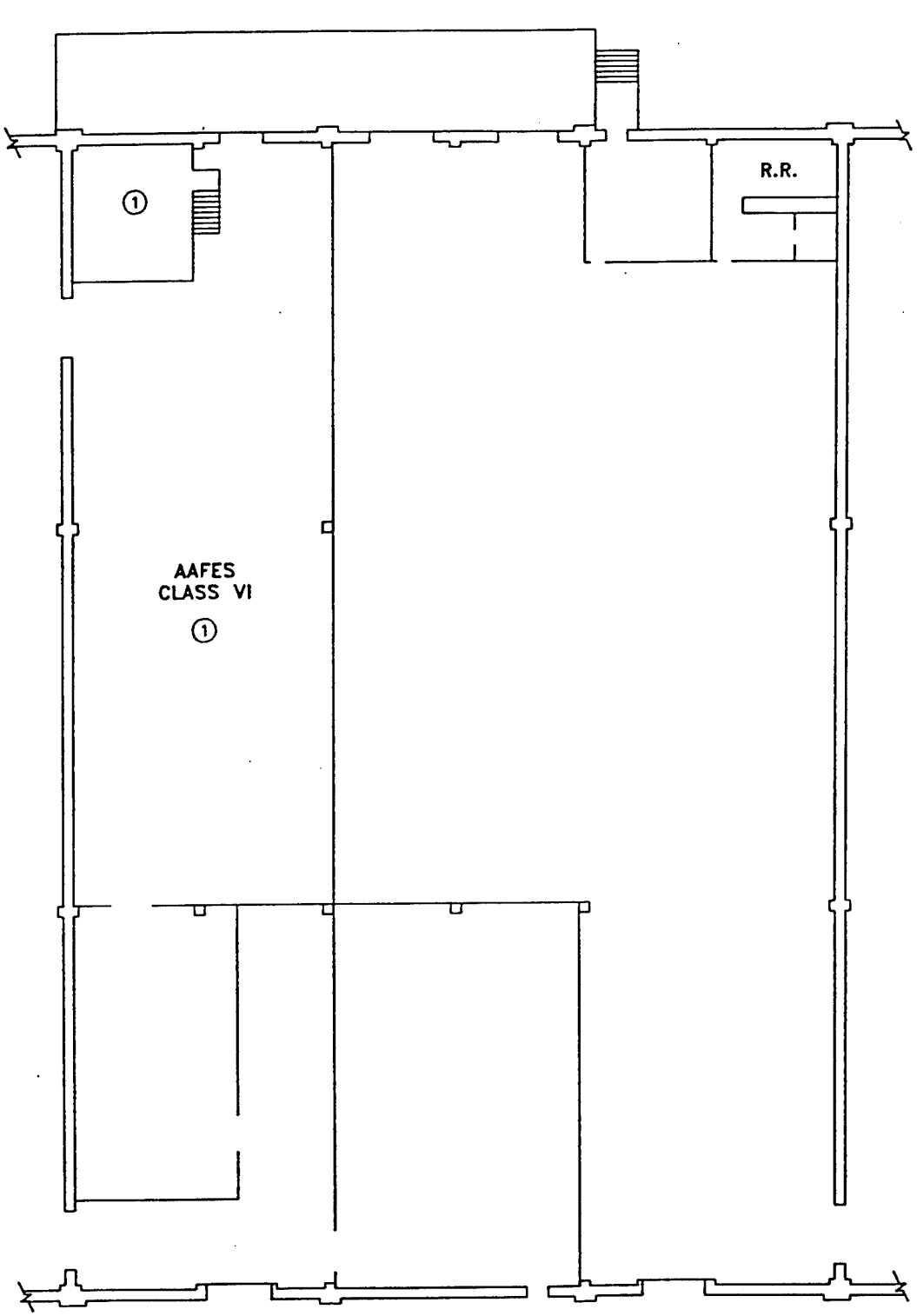
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 1 – BAY 2
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/2–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

1 2' x 4' FISSURED TILE

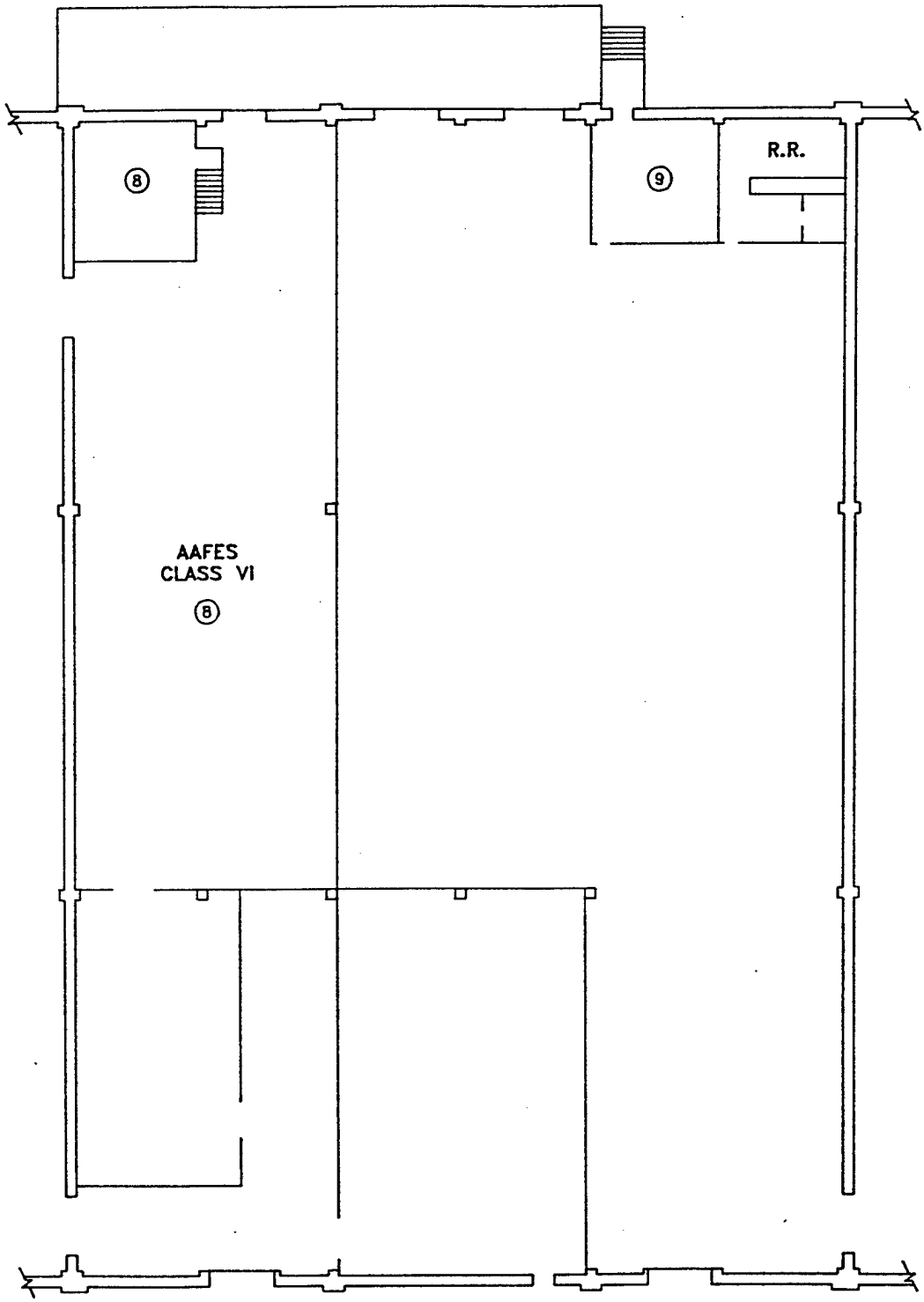
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 1 – BAY 2
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/2–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

⑧ 12" x 12" BROWN

⑨ 9" x 9" DK. BROWN

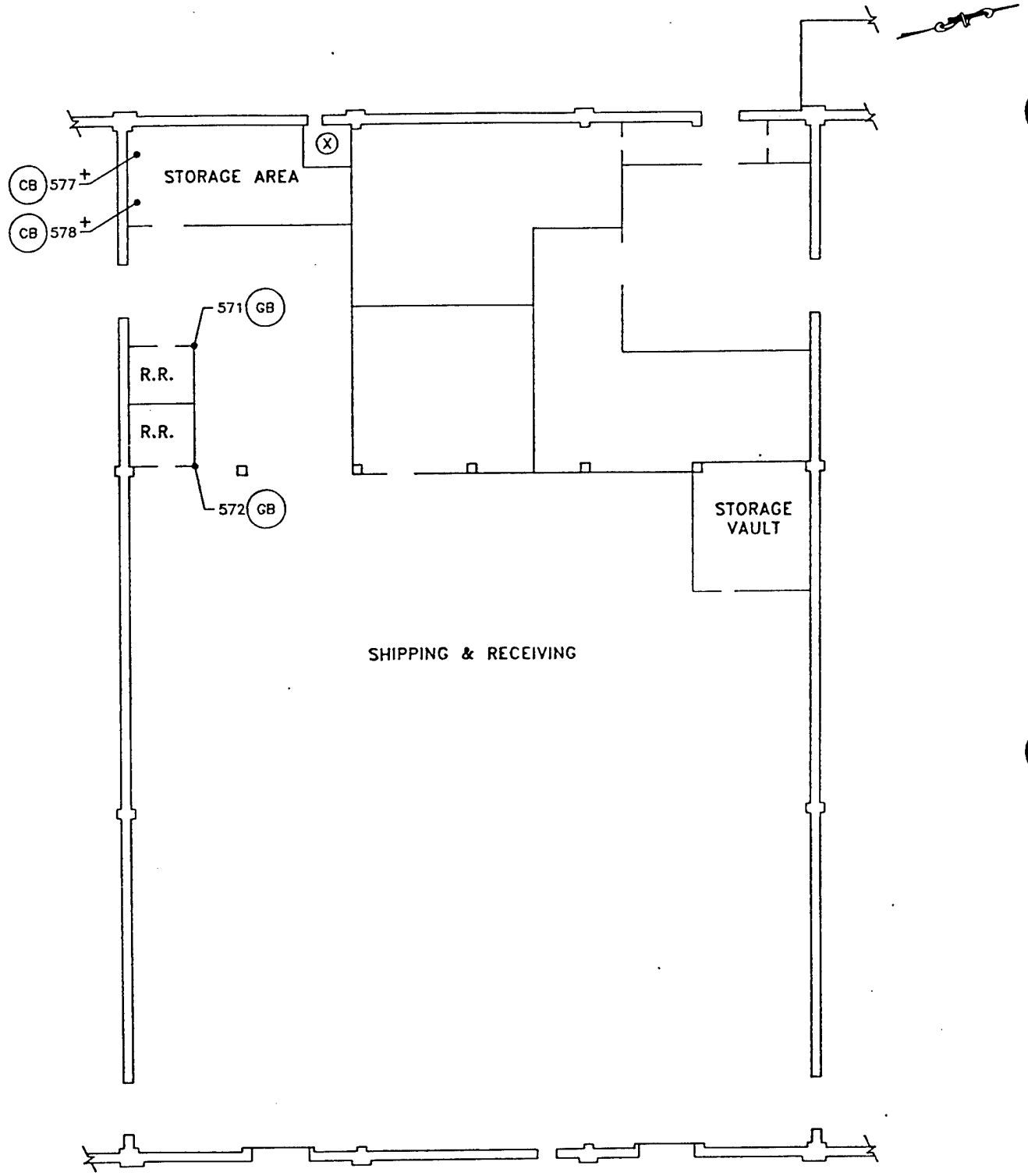
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 1 – BAY 2
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/2–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

- GB — GYPSUM BOARD
- CB — CEMENT BOARD
- X — AREA NOT ACCESSED
- \+ — DENOTES POSITIVE RESULTS

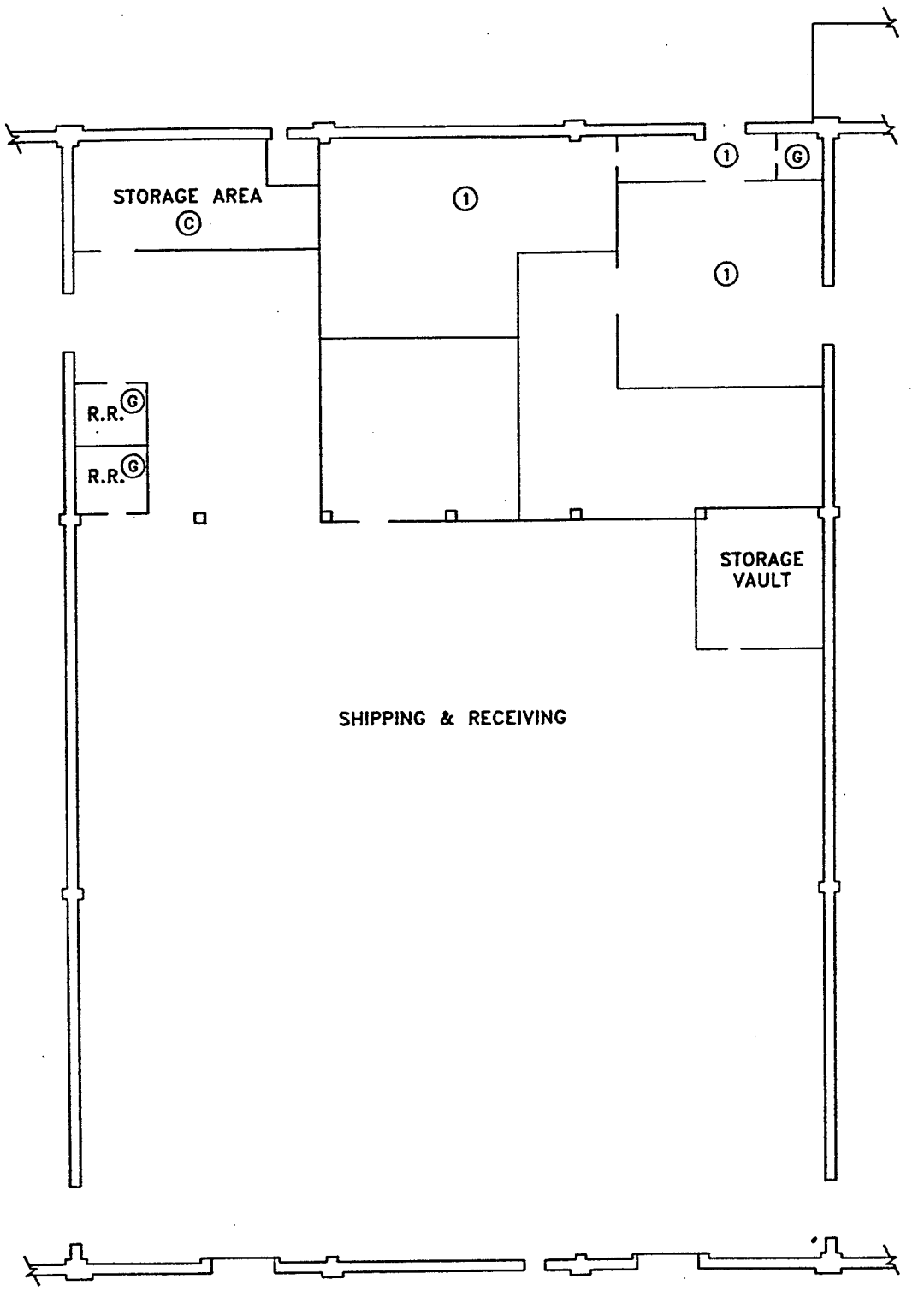
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 1 – BAY 3 SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/3–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 2" x 4" FISSURED TILE
(G) GYPSUM BOARD
(C) CEMENTITIOUS BOARD

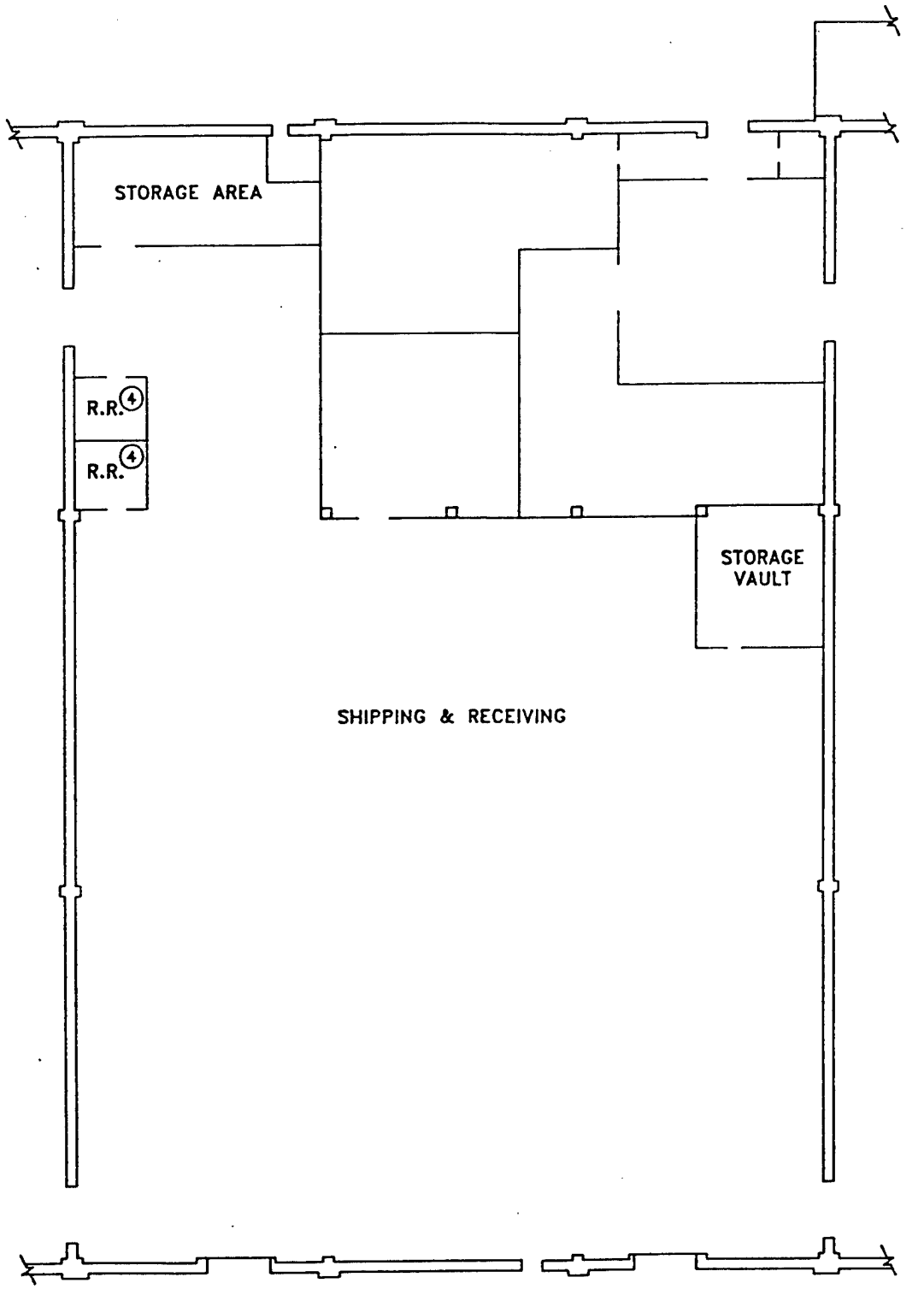
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 1 – BAY 3
CEILING TYPE LOCATIONS

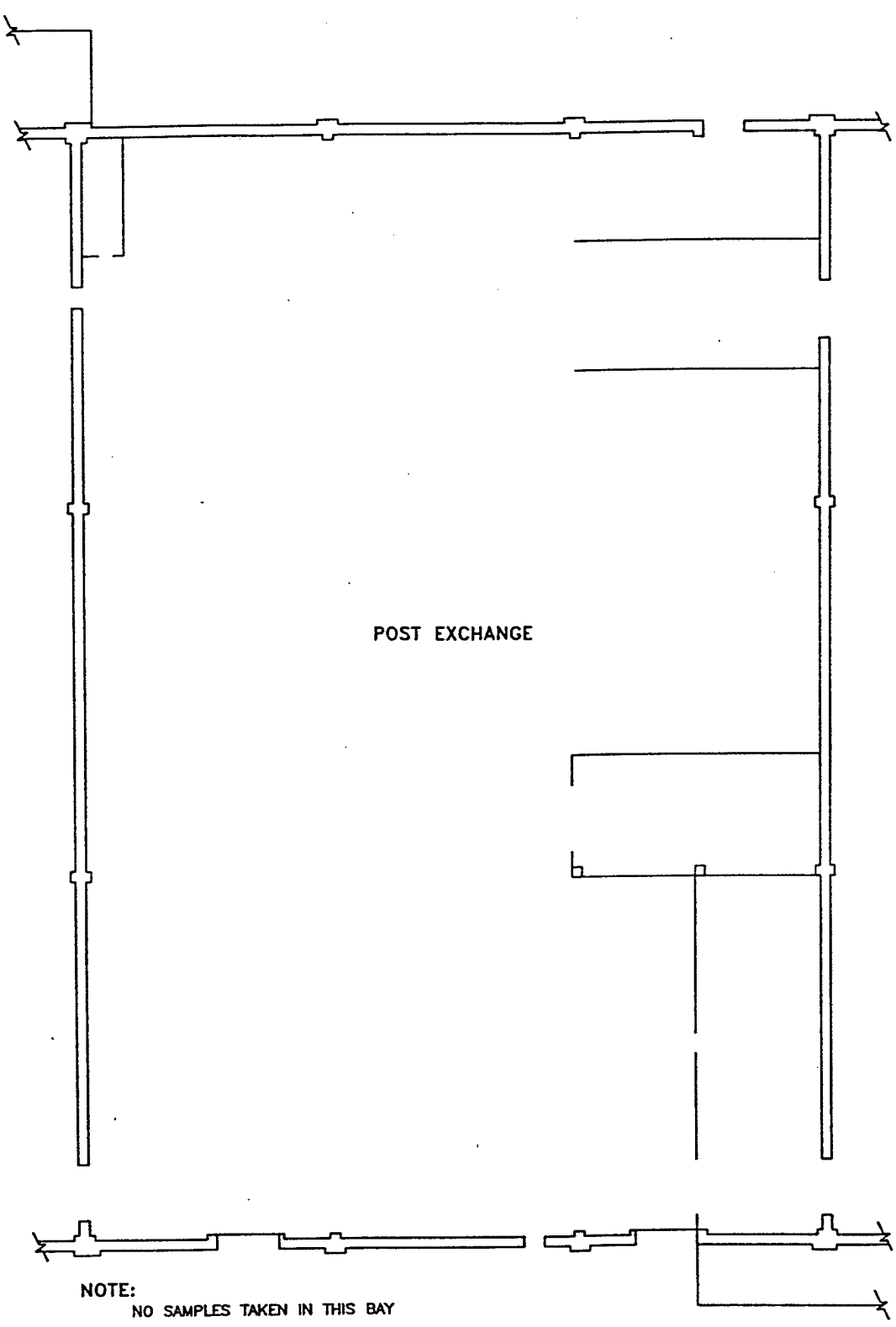
PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/3–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(4) 12" x 12" WHITE

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 1 – BAY 3 FLOOR TILE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. / CHECKED BY: F.B.G. / DATE: 5–22–91 / SCALE: N.T.S. / DWG. NO. 1/3–FT



NOTE:
NO SAMPLES TAKEN IN THIS BAY

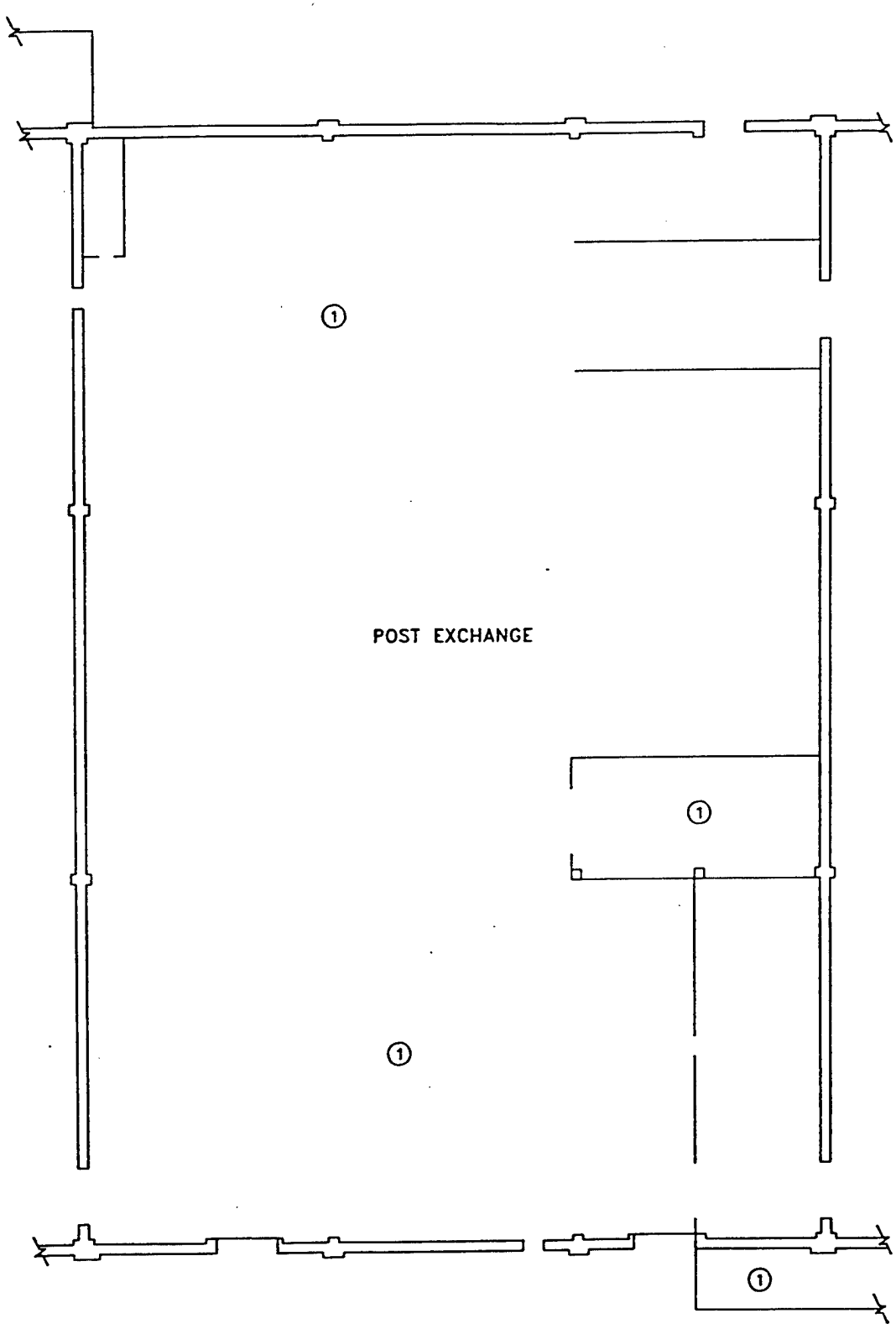
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 1 – BAY 4
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/4–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' FISSURED TILE

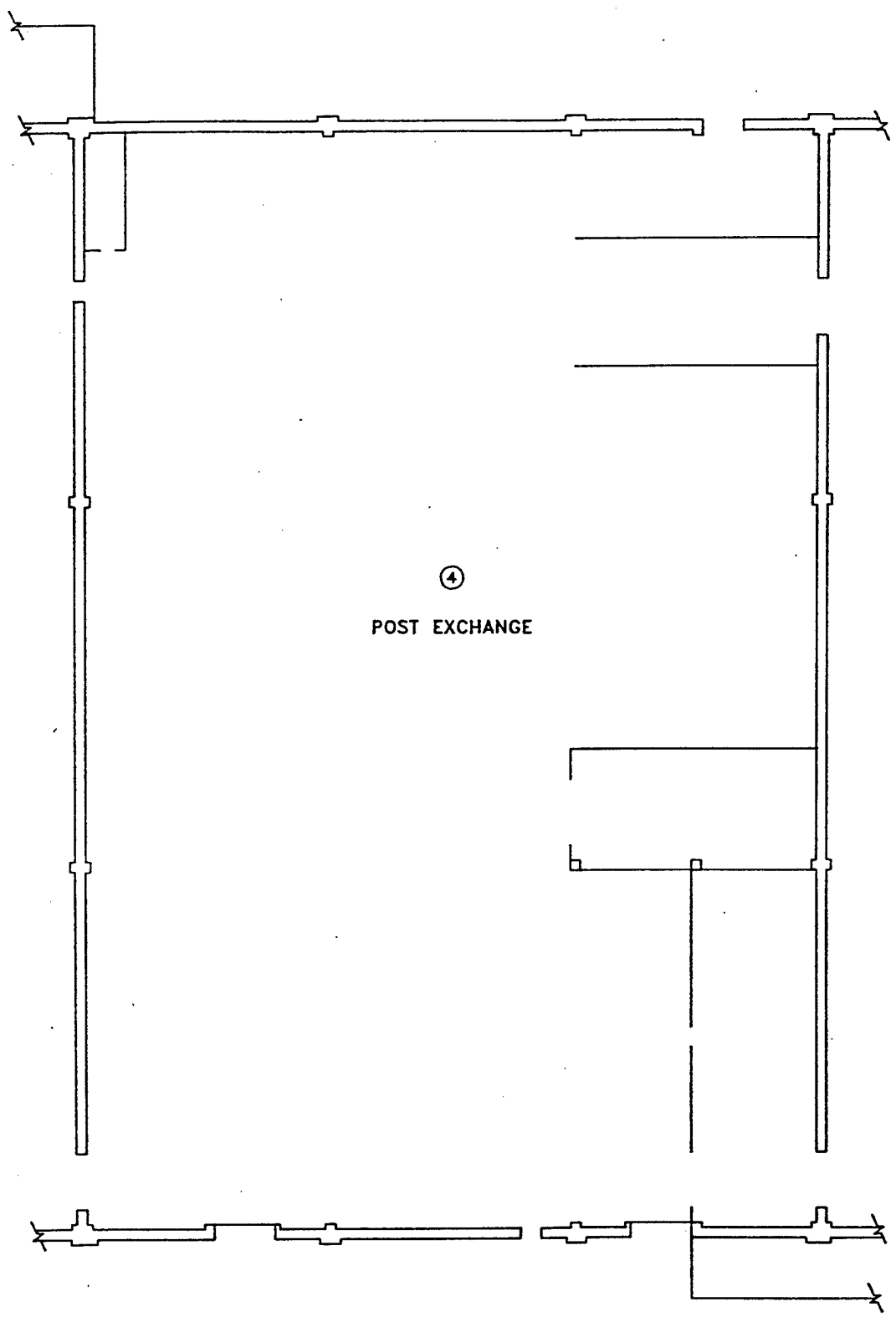
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 1 – BAY 4
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/4–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

④ 12" x 12" WHITE

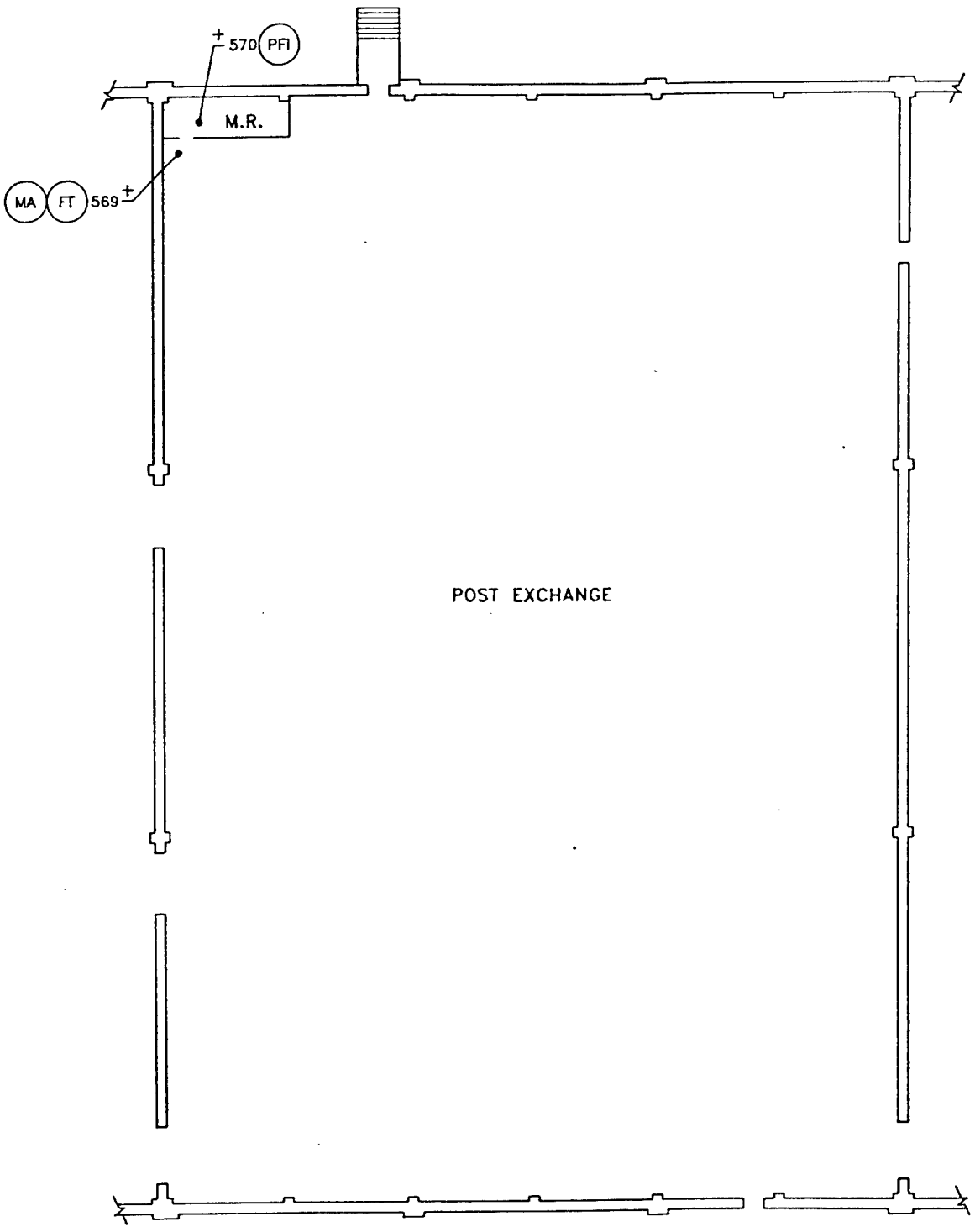
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE
BUILDING 1 – BAY 4
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/4–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

FT	FLOOR TILE	PFI	PIPE FITTING INSULATION
MA	MASTIC	+	DENOTES POSITIVE RESULTS

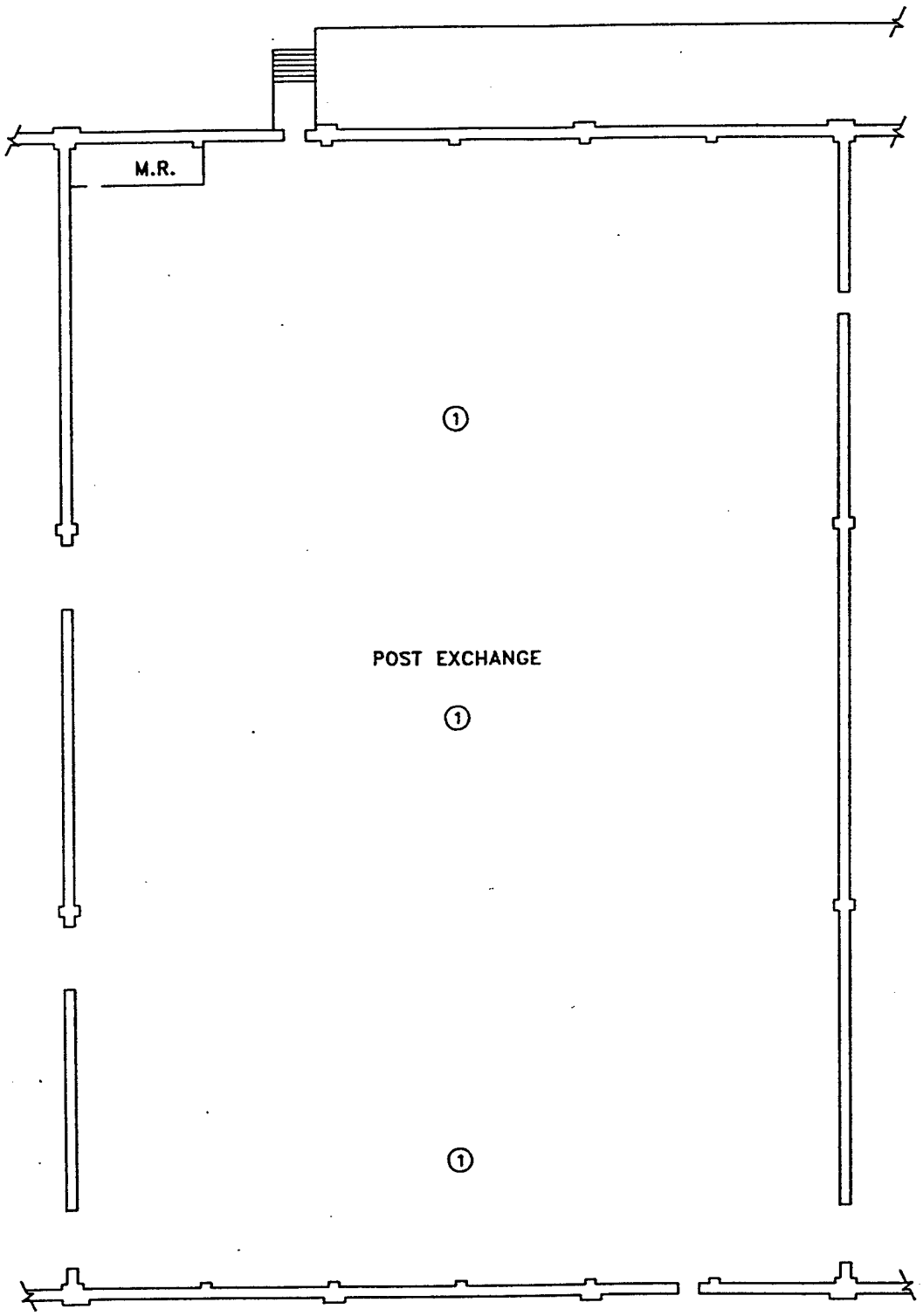
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 1 – BAY 5
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/5–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' FISSURED TILE

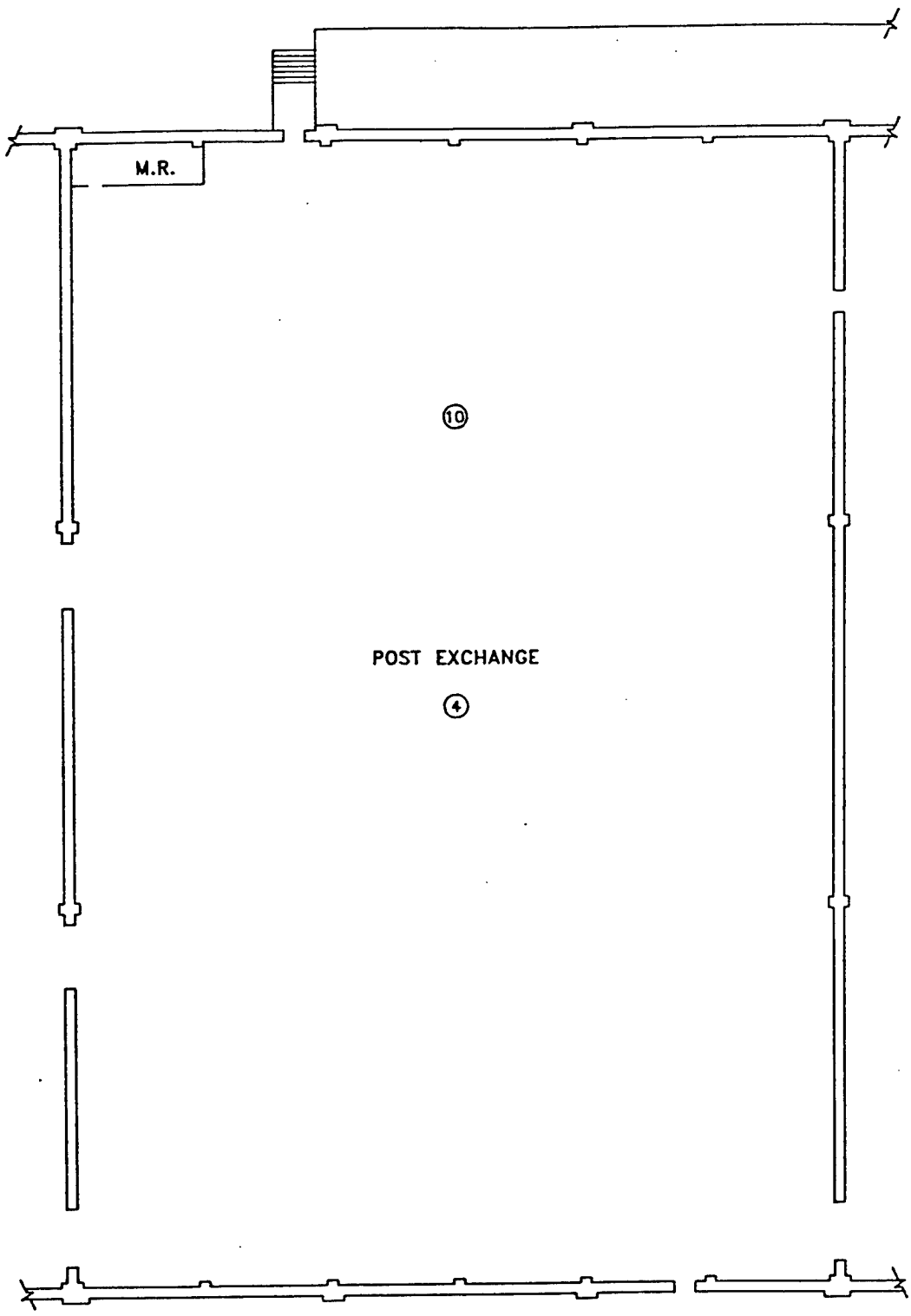
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 1 – BAY 5
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:		DATE:		DWG. NO.
3001–210	CHECKED BY:	F.B.G.	SCALE:	N.T.S.	1/5-CT



LEGEND

④ 12" x 12" WHITE

⑩ 12" x 12" BROWN SPECKLED

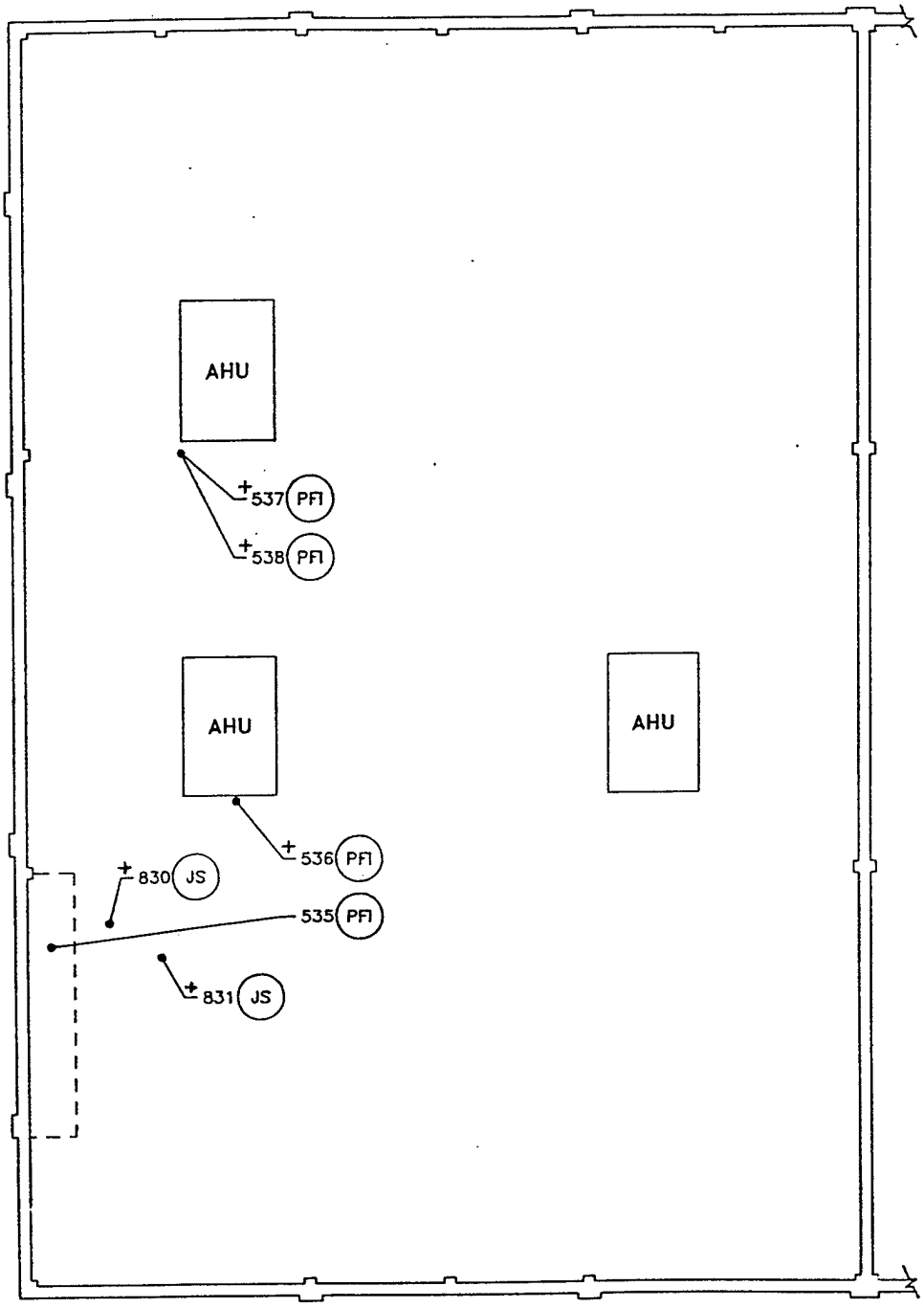
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 1 – BAY 5
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/5–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

AHU	AIR HANDLING UNIT
(PFI)	PIPE FITTING INSULATION
+	DENOTES POSITIVE RESULTS
(JS)	JOINT SEALANT

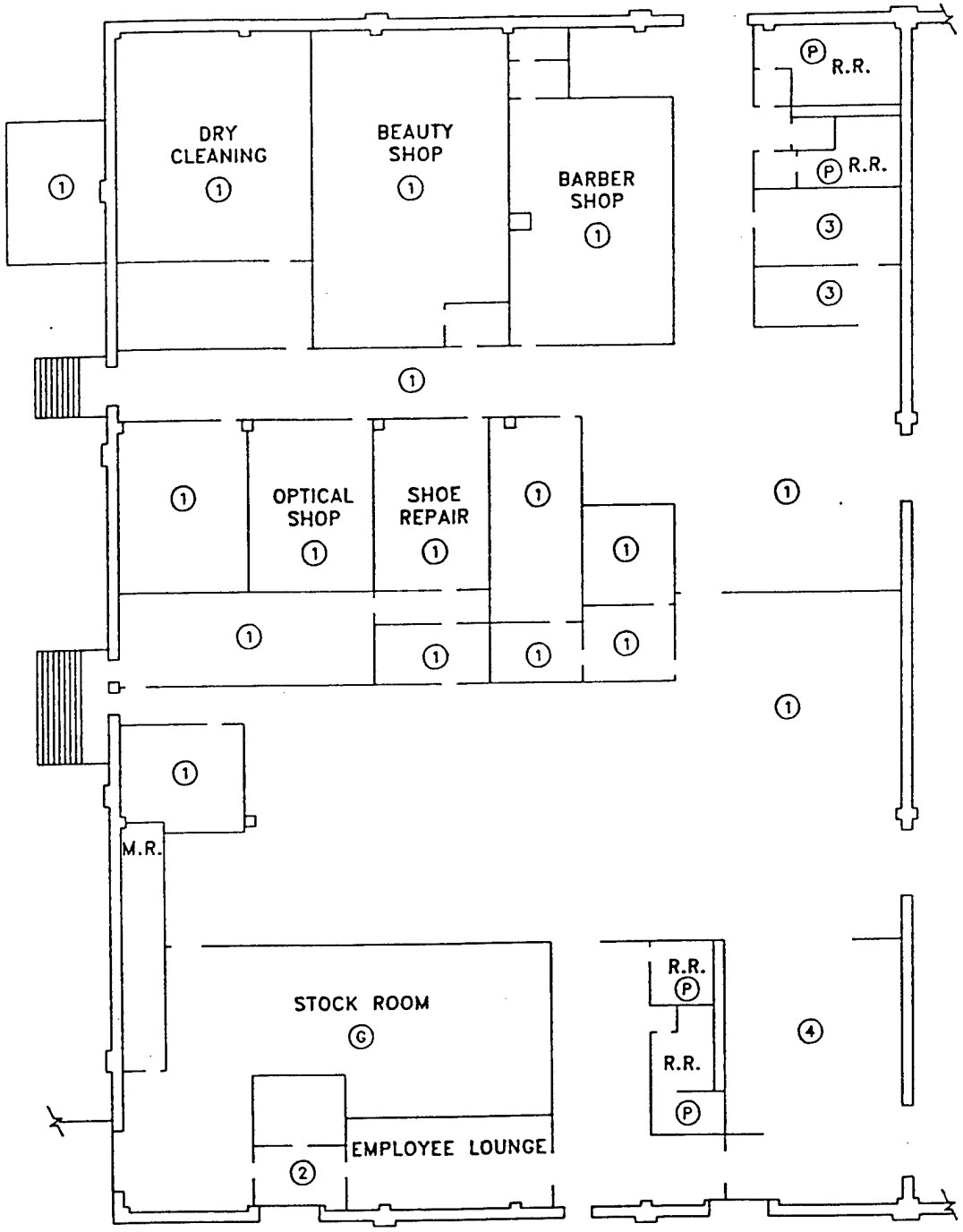
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 1 – BAY 6 ATTIC SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/6A–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' FISSURED TILE
(2) 12" x 12" RANDOM HOLE TILE
(3) 2' x 4' SMOOTH TILE
(4) 2' x 2' ROUGH TILE
(G) GYPSUM BOARD
(P) PLASTER

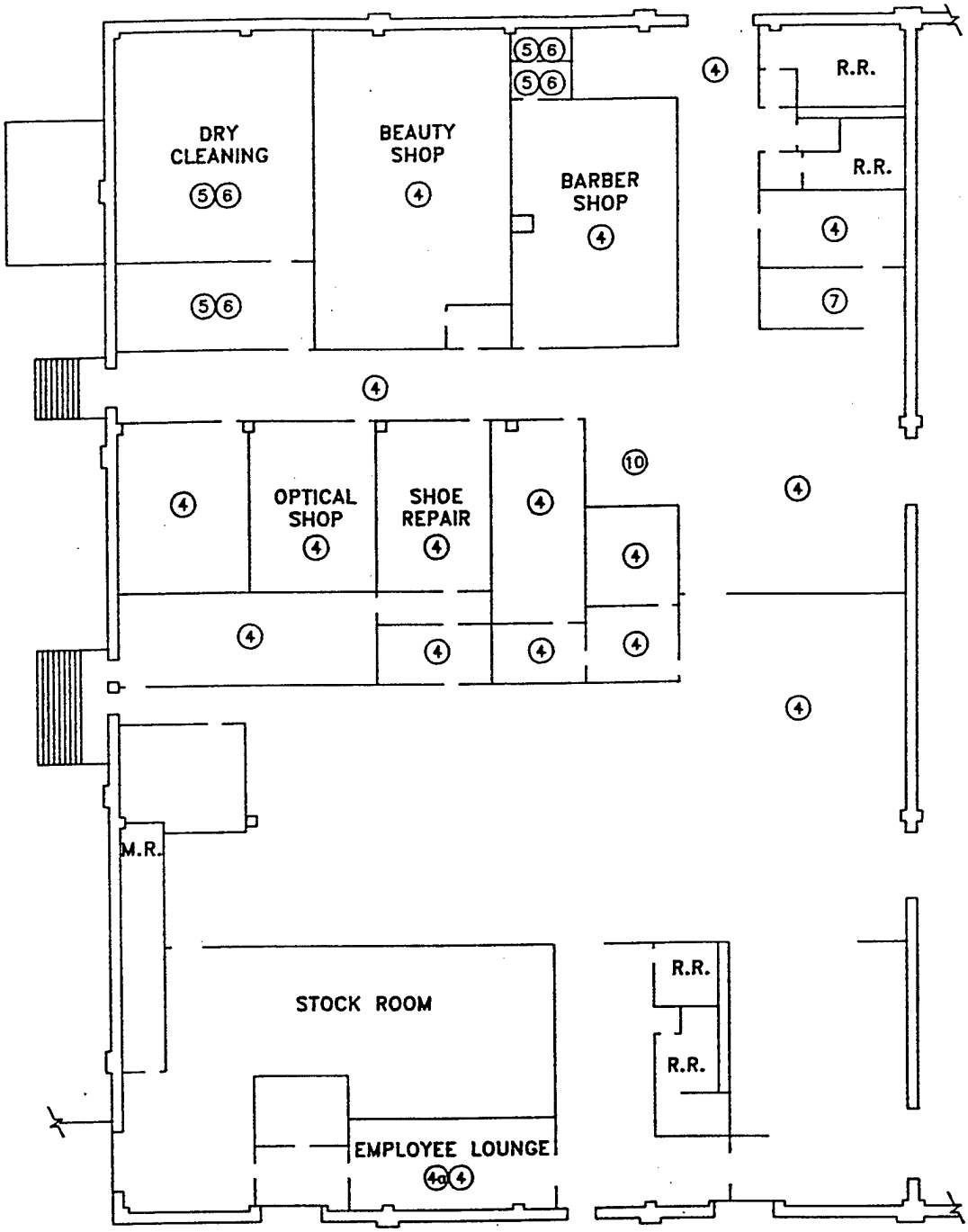
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 1 – BAY 6
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	1/6–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

- (4) 12" x 12" WHITE STREAKED
- (4a) 12" x 12" WHITE SPECKLED
- (5) 9" x 9" GRAY
- (6) 9" x 9" WHITE
- (7) 12" x 12" WHITE & BROWN MARBLED
- (10) 12" x 12" BROWN SPECKLED

CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward-Clyde Federal Services

TITLE BUILDING 1 – BAY 6
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001-210	L.A.L.	5-22-91	1/6-FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	

APPENDIX 1-D

WALKTHROUGH SURVEY DATA SHEETS

Building #1 JPPSO, OFFEJ, Heralding PX

EXTERIOR

Inspector Date 1/8/91

Guardian/Clarus

Exterior Siding

Masonry ☒ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y (N) _____ Condition G F P Quantity _____ SF

Roof

Assume ACM

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☒ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition G F P Quantity 130,000 SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☒	Y (N)	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☒	Y (N)	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☒ Steel Joists/Beams ☒ Wood Columns ☒ Steel Column ☒ Concrete Column ☒

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☒ Firedoor ☐

Sample Y (N) Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building #1 N/A Inspector/Date: 1/8/91, Evandro/Barnes

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

HVAC

Building 1 Inspector/Date:

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe & insulation
Duct								
Pipe								
Fittings	Bay 4, 5, 6 attic	Y	mud	Y	G - P	320	#	3"-6"
	and mech room Bay 5							
~~Other~~ Fittings	Bay 6 attic	Y	"	"	P	6	"	16"-18"
	and mech room							2'x3'
								expansion
								tank
Vibration	Bays 4 5 6			Assume		60		
cloth	attic							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 1

Inspector/Date: 1/8/91

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
CT 1 2x4	white/textured	see drawing	Y	G	83000
2 12"x12"	" /random holes	"	"	"	930
3 2'x4'	" smooth w/sm holes	"	"	"	475
4 2x2	rough w small holes	"	"	"	1500

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building _____ Inspector/Date: _____

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
FT 1 12"x12"	green	See drawing	Y	G	8000
2 12 x 12	black	"	"	"	8000
3 9 x 9	brown	"	"	"	260
4 12" x 12	white	"	"	"	50,000
5 9" x 9"	gray	"	"	"	1080
6 9" x 9"	white	"	"	"	1080
7 12" x 12"	white & brown marbled	"	"	"	220
8 12" x 12"	brown	"	"	"	6225
9 9" x 9"	DK brown	"	"	"	400
10 12" x 12"	brown w speckles	"	"	"	6500
FT 4a 12" x 12"	white w/ speckles	over FT 4 in employee lounge	"	"	1000

*Material
Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 1

Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity	
FT 11 12"x12"	brown	Bay 1 computer rm	Y	G	300	
12 9"x9"	lt green	" replacement	N	"	<50	Assume
13 9x9	dk green	" "	N	"	<50	"
14 9x9	black	" "	N	"	<50	"
15 9x9	lt brown	" "	N	"	<10	"
16 9x9	orange	Bay 1 mini RR	Y	"	260	
17 12"x12"	off white	" Entrance	Y	"	100	

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building # 1 Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
Gypsum board		Throughout	Y	G	80,000
Plaster		Bedroom - Bay 6	Y	G	1000
Cement board	gray 4x8x½" board	Bay 3 - ceiling locked storage area	Y	G	700

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

APPENDIX 1-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

[illegible] and Diverse [illegible] Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 1
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91
Date Analyzed : 03/06/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %					
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
535	N	-----	-----	-----	-----	-----	-----	30-35	-----	-----	-----	65-70	AS	
536	P	05-10	-----	-----	-----	-----	-----	30-35	-----	-----	-----	55-65	AS	
537	P	15-20	-----	-----	-----	-----	-----	30-35	-----	-----	-----	45-55	AS	
538	P	05-10	-----	-----	-----	-----	-----	35-40	-----	-----	-----	50-60	AS	
539	N	-----	-----	-----	-----	-----	-----	-----	<1	-----	-----	100	AS	
540	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
541	N	-----	-----	-----	-----	-----	-----	35-40	-----	30-35	-----	25-35	AS	
542	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
543	N	-----	-----	-----	-----	-----	-----	50-55	-----	15-20	-----	25-35	AS	
544	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
545	N	-----	-----	-----	-----	-----	-----	50-55	-----	15-20	-----	25-35	AS	
546	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
547	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
548	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

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AMA Analytical Services, Inc.

NVLAP (#1143) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 1
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91
Date Analyzed : 03/06/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
549	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AS	
550	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
551	N	-----	-----	-----	-----	-----	-----	40-45	-----	25-30	-----	25-35	AS	
552	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
553	N	-----	-----	-----	-----	-----	-----	30-35	-----	<1	-----	65-70	AS	
554	N	-----	-----	-----	-----	-----	-----	30-35	-----	-----	-----	65-70	AS	
555	N	-----	-----	-----	-----	-----	-----	-----	-----	90-95	-----	05-10	AS	
556	N	-----	-----	-----	-----	-----	-----	-----	-----	90-95	-----	05-10	AS	
558	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AS	
559	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AS	
560	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AS	
561	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
562	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
563	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

NVLAP (#1143) and AIHA (#141) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 1
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91
Date Analyzed : 03/06/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	ASBESTOS % CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	OTHER FIBROUS MATERIAL % MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
564	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
565	P	01-05	-----	-----	-----	-----	-----	-----	-----	05-10	-----	85-94	AS	
566	P	<1	-----	-----	-----	-----	-----	-----	-----	-----	10-15	85-90	AS	
567	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	05-10	80-90	AS	
568	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	05-10	85-94	AS	
569	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
570	P	85-90	-----	-----	-----	-----	-----	-----	-----	-----	-----	10-15	AS	
571	N	-----	-----	-----	-----	-----	-----	-----	-----	25-30	-----	70-75	AS	
572	N	-----	-----	-----	-----	-----	-----	-----	<1	15-20	-----	80-85	AS	
573	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
574	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	-----	90-95	AS	
575	N	-----	-----	-----	-----	-----	-----	-----	01-05	20-25	-----	70-79	AS	
576	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
577	P	30-35	-----	-----	-----	-----	-----	-----	-----	-----	-----	65-70	AS	

COMMENTS: * P = ASBESTOS PRESENT
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AMA Analytical Services, Inc.

[illegible] and EPA Lead (#1163) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 1
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91
Date Analyzed : 03/06/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
578	P	30-35	-----	-----	-----	-----	-----	-----	-----	-----	-----	65-70	AS	
579	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
580	N	-----	-----	-----	-----	-----	-----	-----	-----	15-20	-----	80-85	AS	
581	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
582	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	-----	90-95	AS	
583	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AS	
584	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AS	
585	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	01-05	90-98	AS	
586	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	01-05	90-98	AS	
587	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
588	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	
589	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	<1	100	AS	
590	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
591	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 1
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91
Date Analyzed : 03/06/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
592	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
593	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
594	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AS	
830	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AB	
831	P	01-05	-----	-----	-----	-----	-----	-----	05-10	01-05	-----	85-89	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

Andreas Saldivar (AS)

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AMA Analytical Services, Inc.

May 15, 1991

Woodward-Clyde Federal Services
One Chruch Street, Suite 404
Rockville, MD 20850

RE:	TEM Bulk Analysis Cameron Station
JOB SITE:	Bldg. 1
JOB LOCATION:	Cameron Station
PROJECT NUMBER:	3001

Attention Sally Guardia:

This is the final report for transmission electron microscopy (TEM) analysis performed on your floor tile sample. The sample was submitted by Sally Guardia of Woodward-Clyde Federal Services to AMA Analytical Services, Inc. on April 16, 1991. Analytical results were reported to Sally Guardia of Woodward-Clyde Federal Services by telefax and telephone, on April 23, 1991.

The sample set consisted of one (1) sample. One (1) sample was prepared and analyzed following Dr. Eric J. Chatfield's revised TEM protocol (submitted to the ASTM Committee 022.05.07.007 in 1988).

The result of the TEM analysis is shown below:

SAMPLE	TEM ASBESTOS CONC.	ORGANIC MATERIAL	DOLOMITE/ CALCITE	NON FIBROUS MINERALS
564	<1%	21%	62%	17%

4475 Forbes Blvd. • Lanham, MD 20706 • 301-459-2640; 800-346-0961 • FAX: 301-459-2643

The asbestos detected in the sample was chrysotile, and was identified by selected area electron diffraction (SAED) and energy dispersive X-ray analysis (EDXA).

Sample Preparation

A representative portion of the sample is placed into a preweighed porcelain crucible. The sample weight is recorded. The sample is then placed into a muffle furnace at 480 degrees Celsius for a minimum of 12 hours. The weight of the residual ash is then calculated and recorded.

A quantity of the residual material is suspended in ethanol in a glass vial and treated ultrasonically . A drop of the suspension is placed onto a carbon-coated copper grid and allowed to dry. If, upon TEM observation, an excess of calcite/dolomite is present in the ashed material, these carbonates are then extracted using hydrochloric acid; the asbestos is not extracted by this process. The acid-treated sample is then prepared for analysis, as above.

Analytical Methodology

Analysis is conducted using a JEOL 100CXII transmission electron microscope equipped with either a Kevex (Delta Class) or EG&G Ortec energy dispersive x-ray analyzer. The sample grid is examined at 100X to determine the quality of the sample preparation. A screen magnification of 15,000X is then used for the analysis of 5 grid openings.

Structures having aspect ratios $\geq$ 5:1 and a 0.5 micrometer minimum length are examined in detail. Structure morphology, selected area electron diffraction (SAED) and EDXA are used to differentiate asbestos from non-asbestos structures. Photographic documentation of representative asbestos structures, as well as EDXA data, is recorded for each asbestos containing sample.

Results

The percentage of ashed material identified as asbestos is estimated within a lower and upper range. The percentage of asbestos present in the entire sample is calculated. If acid extraction is used, the percentage of calcite/dolomite is also calculated.

AMA Analytical Services, Inc. thanks Woodward-Clyde Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely,
AMA ANALYTICAL SERVICES, INC.

Luis H. Bustillos
Electron Microscopist

Robert M. Powell
Laboratory Director

LHB/kec

APPENDIX 1-F

SAMPLE CHAIN-OF-CUSTODY FORMS

WCFS Project No: J1

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: FBG

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

BLDG1

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe									Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19							
FBG		DSB 001	535																						1											1
FBG		DSB001	536																						1											1
FBG		DSB001	537																						1											1
FBG		DSB001	538																						1											1
FBG		DSB001	539																						1											1
FBG		DSB001	540																						1											1
FBG		DSB001	541																						1											1

Relinquished by: Woodward–Clyde Federal Services

Date: 2/26/91 Time: 1125 Signature: D. Burns

Accepted by: AMA Analytical Services, Inc.

Date: 2-26-91 Time: 11:30 Signature: L. Mancuso

Total No. of Containers

Comments:

3/20 1000 L Mancuso fed ex final

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: Project Scientist

WCFS Project [redacted]0001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted]eral Services

CHAIN OF CUSTODY RECO[redacted] – USATHAMA SAMPLES

COC By: F I B I G

Field Office: Woodward–Cl[redacted] Federal Services
Building [redacted]
Door 2
Cameron St[redacted]
Alexandria, VA [redacted]2304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

BLDG 1

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM06	UM06	UM06	UH21	LH19	HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		DSB001	542																												
FBG		DSB001	543																												
FBG		DSB001	544																												
FBG		DSB001	545																												
FBG		DSB001	546																												
FBG		DSB001	547																												
FBG		DSB001	548																												

Relinquished by: Woodward–Clyde Federal Services

Date: 2/26/91 Time: 1125 Signature: [redacted]

Accepted by: AMA Analytical Services, Inc.

Date: 2-26-91 Time: 11:30 Signature: [redacted]

Total No. of Containers

Comments:

[redacted]

White & Yellow: AMA Analytical Services, Inc. Pink: W[redacted] Project File Gol[redacted]FS Project Scientis

WCFS Project N: .01

nstallation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward-Clyde F ral Services

CHAIN OF CUSTODY RECOR - USATHAMA SAMPLES

COC By: F B G

Field Office: Woodward-Cl ederal Services
Building 17
Door 2
Cameron Stat.
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

B L061

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1) / Sample Flag Code (1) / Sample QC Code (1) / TEST NAME / CODE	VOC / UM05	SVOC / LM05	Pest / UM06	Pest / LM06	(OCP/PCBs (gc/ec)) / UH21	Herbicides / LH19	Rotenone / HPLC	TAL Metals / SS15	CYN / JS14	TPHC (IR) / TY03	SO4 / KY04	CL / E418.1	NIT / E418.1	TCLP / SW1311	Asbest	TCDD / SW8290	PCB Wipe / SW8290	LH19	Number of Containers
FBG		DSB001	549																						
FBG		DSB001	550																						
FBG		DSB001	551																						
FBG		DSB001	552																						
FBG		DSB001	553																						
FBG		DSB001	554 ~~554~~																						
FBG		DSB001	555																						

Relinquished by: Woodward-Clyde Federal Services

Date: 2/26/91 Time: 1125 Signature: D.M. Barnes

Accepted by: AMA Analytical Services, Inc.

Date: 2.26.91 Time: 11:30 Signature: L. Marmon

Total No. of Containers

Comments:

3/29 fax copy L Mar fol up final

White & Yellow: AMA Analytical Services, Inc. Pink: WC ject File Gol Project Scientist

WCFS Project [redacted] 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted] eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F B G

Field Office: Woodward [redacted] Federal Services
Building [redacted]
Door 2
Cameron Stat[redacted]
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

by LOG 1

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Number of Containers
FBG		BSB001	556				1
FBG		~~BSB001~~	~~557~~ N/A				1
FBG		BSB001	558				1
FBG		BSB001	559				1
FBG		BSB001	560				1
FBG		BSB001	561				1
FBG		BSB001	562				1

Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec))	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe							
			CODE	UM05	UM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			

Relinquished by: Woodward–Clyde Federal Services

Date: 2/26/91 Time: 1125 Signature: D.M. Barnes

Accepted by: AMA Analytical Services, Inc.

Date: 2-26-91 Time: 11:30 Signature: L. Maureen

Total No. of Containers

Comments:

2/28 '91 1000 L. Maureen 2nd copy found

White & Yellow: AM Analytical Services, Inc. Pink: WC [redacted] oject File Gold [redacted] S Project Scientist

WCFS Project 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F B G

Field Office: Woodward Federal Services
Building
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

B1061

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19			HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		BSB001	563																					/						
FBG		BSB001	564																					/						
FBG		BSB001	565																					/						
FBG		BSB001	566																					/						
FBG		BSB001	567																					/						
FBG		BSB001	568																					/						
FBG		BSB001	569																					/						

Relinquished by: Woodward–Clyde Federal Services
Date: 2/26/91 Time: 1125 Signature: M. Bann

Accepted by: AMA Analytical Services, Inc.
Date: 2/26/91 Time: 11:30 Signature: L. Maureen

Total No. of Containers

Comments:

3/[illegible]/91 1000 federal express L. Maureen

White & Yellow: AMA Analytical Services, Inc. Pink: Project File WCFS Project Scientist

WCFS Proje[redacted] 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde[redacted]deral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F | B | G

Field Office: Woodwa[redacted] Federal Services
Building [redacted]
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

BLDG 1

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe				Number of Containers
										CODE	UM05	UM06	UM06	UM06	UH21	LH19	HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB001	570																						/							
FBG		ASB001	571																						/							
FBG		ASB001	572																						/							
FBG		ASB001	573																						/							
FBG		ASB001	574																						/							
FBG		ASB001	575																						/							
FBG		ASB001	576																						/							

Relinquished by: Woodward–Clyde Federal Services
Date: 2/26/91 Time: 1125 Signature: [signature]

Accepted by: AMA Analytical Services, Inc.
Date: 2-26-91 Time: 11:30 Signature: [signature]

Total No. of Containers

Comments:

3/12 - 1/91 1000 L. Mann fed exp for 0

White & Yellow: AM[redacted]nalytical Services, Inc. Pink: WCFS [redacted]roject File Gold: WCFS Project Scientist

WCFS Project 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: FBG

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

B1061

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe										Number of Containers
										CODE	UM05	UM05	UM06	UM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19						
FBG		BSB001	577																						\												
FBG		BSB001	578																						\												
FBG		BSB001	579																						\												
FBG		BSB001	580																						\												
FBG		BSB001	581																						\												
FBG		BSB001	582																						\												
FBG		BSB001	583																						\												

Relinquished by: Woodward–Clyde Federal Services
Date: 2/24/91 Time: 1125 Signature: D. Burns

Accepted by: AMA Analytical Services, Inc.
Date: 2-26-91 Time: 11:30 Signature: L. Mauren

Total No. of Containers

Comments:

3/28 1000 L. Mauren faxed up final

WCFS Project [redacted] J01

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted]eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F B G

Field Office: Woodward–[redacted]ederal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

BLDG 1

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
									CODE		UM05	UM06	UM06	UM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		DSB001	584																												1
FBG		DSB001	585																												1
FBG		DSB001	586																												1
FBG		DSB001	587																												1
FBG		DSB001	588																												1
FBG		DSB001	589																												1
FBG		DSB001	596																												1

Relinquished by: Woodward–Clyde Federal Services
Date: 2/26/91 Time: 1125 Signature: D. Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 2-26-91 Time: 11:30 Signature: L. Maureen

Total No. of Containers

Comments:
3/28/91 1050 L. Maureen faxed copy

White: L. Y. Hsiao, AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project [illegible]001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde F[illegible]eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F | B | G

Field Office: Woodward–C[illegible]Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

BUDG1

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe						Number of Containers
										CODE	UM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19					
FBG		DSB001	591																						/								
FBG		DSB001	592																						/								
FBG		DSB001	593																						/								
FBG		DSB001	594																						/								
~~FBG~~		~~DSB001~~																															
~~FBG~~		~~DSB001~~																															
~~FBG~~		~~DSB001~~																															

Relinquished by: Woodward–Clyde Federal Services
Date: 2/26/92 Time: 1125 Signature: M. Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 2-26-91 Time: 11:30 Signature: L. Maurice

Total No. of Containers

Comments:

3/28/91 1000 L Mau Lab up fund

White & Yellow: AMA [illegible]ytical Services, Inc. Pink: WCFS [illegible]ject File Gold: WC[illegible] Project Scientist

WCFS Project [redacted] J01

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted] ral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F B G

Field Office: Woodward-[redacted] deral Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (ge/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe							Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19			HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19						
FBG		DSB001	830																						/								
FBG		DSB001	831																						/								

Relinquished by: Woodward–Clyde Federal Services
Date: 5/10/91 Time: 1045 Signature: M. Bruce

Accepted by: AMA Analytical Services, Inc.
Date: 5-13-91 Time: 1050 Signature: L. Manna

Total No. of Containers

Comments: Please analyze only paint layer

White & Yellow: AMA [illegible]tical Services, Inc. Pink: WCFS [illegible]ct File Gold: WC[illegible] Project Scientist

BUILDING 2

2.1 DESCRIPTION

Building 2 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof is constructed of tar felt and gravel over wood. It is divided into six bays by masonry firewalls. Originally built as a warehouse, it has been partially converted to office and retail space with separate overhead attic areas. Building materials typically found on the main floor include carpet over floor tile, ceiling tile and regular and fire code gypsum board. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

Current occupants are the Commissary, Soldiers Magazine, MDW Communications and Electronics, Field Maintenance Shop, U.S. Army Aeronautical Services Agency and the Credit Union.

2.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 2-A through 2-F. A summary of this data is presented below.

2.2.1 Suspect Friable ACM

Four homogeneous areas of suspect friable ACM were identified and thirteen bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following three materials:

- Trowelled-on duct insulation
- Pipe fitting insulation
- Corrugated paper pipe insulation

These three materials, along with the tank insulation located in the attic of Bay 2 which is assumed to be friable ACM, were found in five functional spaces and were assessed as follows:

- Pipe fitting insulation and corrugated paper pipe insulation in Bay 1 boiler room. Assessment of these materials indicates a damage factor of 10 and an exposure factor of 16. According to the GAHA Index, these materials rank as Priority C.

- Corrugated paper pipe insulation in Bay 1 attic. Assessment of this material indicates a damage factor of 5 and an exposure factor of 18. According to the GAHA Index, this material ranks as Priority B.

- Tank insulation, trowelled-on duct insulation, pipe fitting insulation, and corrugated paper pipe insulation in Bay 2 attic. Assessment of these materials indicates a damage factor of 12 and an exposure factor of 20. According to the GAHA Index, these materials rank as Priority B.

- Pipe fitting insulation on Bay 4 mechanical room. Assessment of this material indicates a damage factor of 5 and an exposure factor of 16. According to the GAHA Index this material ranks as Priority C.

- Pipe fitting insulation and corrugated paper pipe insulation in Bay 6 attic. Assessment of these materials indicates a damage factor of 5 and an exposure factor of 16. According to the GAHA Index, these materials rank as Priority C.

2.2.2 Suspect Nonfriable ACM

Fourteen homogeneous areas of suspect nonfriable ACM were identified and 48 bulk samples, including three QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following seven materials.

- FT 1 12" x 12" white floor tile and mastic
- FT 3 9" x 9" gray floor tile and mastic
- FT 4 9" x 9" brown floor tile and mastic
- FT 5 9" x 9" beige floor tile and mastic
- FT 6 12" x 12" brown floor tile and mastic

- FT 7 9" x 9" green floor tile and mastic
- FT 8 white sheet flooring and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

2.2.3 Material Assumed to Contain Asbestos

The following three homogeneous areas are assumed to be ACM:

- Tar and felt roofing material (nonfriable)
- Vibration cloth (nonfriable)
- Tank insulation. This material is assumed to contain friable asbestos; the tank, which is anchored to the attic ceiling in Bay 2, was inaccessible for sampling.

No assessment of the two nonfriable materials was performed. However, as ACM they should be included in an O&M Program. Assessment of the friable tank insulation is provided in Section 2.2.1.

Note: Two bulk samples were taken from the roofing material and analyzed. One of the samples detected no ACM and the other detected less than 1% ACM. These two samples are not of a sufficient quantity to state that the roof is not asbestos containing. The roof is therefore still assumed to contain ACM.

2.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection the following materials originally noted in the walkthrough survey as suspect ACM were examined more closely and identified as nonsuspect:

- CT 1 2' x 4' fiberglass ceiling tile; and
- CT 4 12" x 12" fiberglass ceiling tile.

No bulk samples of these materials were collected, and they were deleted as homogeneous sample areas from the final survey data.

2.4 AREAS NOT ACCESSED

All main level areas in Building 2 were accessed. Access to the overhead spaces in Bay 1 and Bay 2 was limited to the areas that could be reached through the boiler room and stairs.

2.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
2		5050 SF TSI 100 MF	575 MF 200 LF TSI

TSI = THERMAL SYSTEM INSULATION PI = PIPE INSULATION

MF = MUDDED FITTINGS * = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

2.6 REPORT APPENDICES

The following appendices apply to this building:

Appendix 2-A ACM Survey Results

Appendix 2-B Assessments/Recommendations for Friable ACM

Appendix 2-C Building Drawings

Appendix 2-D Walkthrough Survey Data Sheets

Appendix 2-E Laboratory Certificate of Analysis

Appendix 2-F Sample Chain-of-Custody Forms

APPENDIX 2-A

ACM SURVEY RESULTS

ACM Survey Results for Building 2

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and Felt	Roof	Non	Good	130000	SF	753 754 755	< 1% None detected None detected	Sample 755 is a QC for 754
2	Misc.	Vibration cloth	Bay 3, AHU, lunch room Bay 2, AHU, attic	Non	Good	35	SF	Assume ACM	Assume ACM	
3	TSI	Tank insulation, unknown type	Bay 2, attic, expansion tank	Unknown, assume low	Good	50	SF	Assume ACM	Assume ACM	Tank, which is anchored to attic ceiling, was inaccessible for sampling
4	TSI	Trowelled-on boiler insulation	Bay 1, boiler room	Low	Fair	200	SF	430 431 432	None detected None detected None detected	
5	TSI	Trowelled-on duct insulation	Bay 2, attic, duct work	Mod.	Fair	5000	SF	439 440 441	20-25% chrysotile 35-40% chrysotile 20-25% chrysotile	

ACM Survey Results for Building 2 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
6	TSI	Pipe fitting insulation	Bay 1, boiler room Bay 2, attic Bay 4, mech. room Bay 6, attic	Mod.	Fair	75	# of fittings	438 442 443	20-25% chrysotile 15-20% chrysotile 20-25% chrysotile	3" - 6" fittings with insulation
7	TSI	Corrugated paper pipe insulation	Bay 1, boiler room on lst floor; attic along north wall Bay 2, attic Bay 6, attic	Mod.	Good	600	LF	415 416 417 418	20-25% chrysotile 15-20% chrysotile 20-25% chrysotile 20-25% chrysotile	Sample 416 is a QC for sample 415
8	Misc.	Ceiling tile	See Drawing 2/2-CT	Non	Good	450	SF	456 457 458	None detected None detected None detected	CT 2 2' x 4' white w/12" x 12" rectangular pattern Sample 457 is a QC for sample 456.
9	Misc.	Ceiling tile	See Drawing 2/3-CT 2/4-CT 2/6-CT	Non	Good	19500	SF	419 420	None detected None detected	CT 3 2' x 4' white w/fissures

ACM Survey Results for Building 2 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
10	Misc.	Ceiling tile	See Drawing 2/2-CT	Non	Good	1100	SF	460 461	None detected None detected	CT 5 12" x 12" white w/fissures
11	Misc.	Floor tile and mastic	See Drawing 2/1-FT 2/2-FT 2/3-FT 2/6-FT	Non	Good	34000	SF	433 445	None detected 1-5% chrysotile	FT 1 12" x 12" white floor tile
12	Misc.	Floor tile and mastic	See Drawing 2/1-FT 2/2-FT 2/3-FT	Non	Good	3050	SF	436 437	None detected None detected[1] None Detected[2]	FT 2 12" x 12" orange floor tile
13	Misc.	Floor tile and mastic	See Drawing 2/1-FT 2/2-FT	Non	Good	1650	SF	434 435	1-5% chrysotile 1-5% chrysotile	FT 3 9" x 9" gray floor tile
14	Misc.	Floor tile and mastic	See Drawing 2/3-FT 2/4-FT 2/6-FT	Non	Poor	11200	SF	422 423	5-10% chrysotile 1-5% chrysotile	FT 4 9" x 9" brown floor tile Approximately 5,000 SF badly damaged

[1]using PLM
[2]using TEM

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
15	Misc.	Floor tile and mastic	See Drawing 2/3-FT 2/4-FT 2/5-FT	Non	Poor	7300	SF	448 449	1-5% chrysotile 1-5% chrysotile	FT 5 9" x 9" beige floor tile Approximately 5,000 SF badly damaged
16	Misc.	Floor tile and mastic	See Drawing 2/3-FT	Non	Good	150	SF	453 454	1-5% chrysotile 5-10% chrysotile	FT 6 12" x 12" brown floor tile
17	Misc.	Floor tile and mastic	See Drawing 2/2-FT 2/3-FT 2/4-FT	Non	Good	750	SF	427 428	1-5% chrysotile 1-5% chrysotile	FT 7 9" x 9" green floor tile
18	Misc.	Sheet flooring and mastic	See Drawing 2/2-FT	Non	Good	800	SF	462 463	30-35% chrysotile 30-35% chrysotile	FT 8 white sheet flooring
19	Misc.	Floor tile and mastic	See Drawing 2/6-FT	Non	Poor	4600	SF	421 424	None detected None detected	FT 9 12" x 12" light brown floor tile

ACM Survey Results for Building 2 (continued)

	Material Description					Quantity				
Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure-ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
20	Surfacing	Regular gypsum board	**Walls:** throughout building **Ceilings:** See Drawing 2/1-CT 2/2-CT 2/3-CT 2/4-CT 2/5-CT 2/6-CT	Non	Good	90000	SF	425 426 429 444 446 447 455 459	None detected None detected None detected None detected None detected None detected None detected None detected	Sample 426 is a QC for Sample 425
21	Surfacing	Fire code gypsum board	Hallways and entry ways throughout building	Non	Good	<5000	SF	450 451 452 464 465	None detected None detected None detected None detected None detected	

APPENDIX 2-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 2

Functional Space	Homogeneous Sample Area #	Material Description: Category (surfacing TSI or misc.)	Material Description: Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
2-1 Bay 1, boiler room	6, 7	TSI	Pipe fitting insulation; corrugated paper pipe insulation	10	16	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
2-2 Bay 1, attic	7	TSI	Corrugated paper pipe insulation	5	18	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
2-3 Bay 2, attic	3, 5, 6, 7	TSI	Tank insulation; trowelled-on duct insulation; pipe fitting insulation; corrugated paper pipe insulation	12	20	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
2-4 Bay 4, mechanical room	6	TSI	Pipe fitting insulation	5	16	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
2-5 Bay 6, attic	6, 7	TSI	Pipe fitting insulation; corrugated paper pipe insulation	5	16	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.

Friable Asbestos Assessment Checklist

Cameron Station Building 2 Inspector/Date Barros / Gumula 2/15/91

Homogeneous Sample Area #(s) 6, 7 Material Type(s) pipe. fitting, insulation, corrugated paper pipe insulation

Functional Space 2-1 Bay 1, boiler room

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; 4 Moderate; (2) Low; 1 Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: 8 High; (5) Medium; 2 Low
  - B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 438, 442, 443, 415, 416, 417, 418

Damage/Risk Total 10

Friable Asbestos Assessment Checklist

Cameron Station Building 2 Inspector/Date Barnes / Gaudin 2/15/91

Homogeneous Sample Area #(s) 6, 7 Material Type(s) pipe fitting insulation / cement asbestos / paper pipe insulation

Functional Space 2-1 Bay / Boiler Rm

Part 2: Exposure

- Friability: 6 High; (3) Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; 1 10≤ ft² < 100; (2) 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: (5) Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  (1) ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; 4 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 16

Friable Asbestos A[illegible]sment Checklist

Cameron Station Building 2 Inspector/Date Barnes / Guarda 2/15/91

Homogeneous Sample Area #(s) 7 Material Type(s) corrugated paper pipe insulation

Functional Space 2-2 Bay 1 attic

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; 4 Moderate; 2 Low; 1 Minimal; (0) None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: 8 High; 5 Medium; (2) Low
  - B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 415, 416, 417, 418

Damage/Risk Total 5

Friable Asbestos Assessment Checklist

Cameron Station Building 2 Inspector/Date Barnes/Granlie 2/15/91

Homogeneous Sample Area #(s) 7 Material Type(s) Corrugated paper pipe insulation

Functional Space 2-2 Bay 1 attic

Part 2: Exposure

- Friability: 6 High; (3) Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 18

Friable Asbestos A[illegible]sment Checklist

Cameron Station Building 2

Inspector/Date Barnes / Guarnaccia 2/15/91

Homogeneous Sample Area #(s) 3, 5, 6, 7

Material Type(s) roof insulation, trowelled-on duct insulation, pipe fitting insulation, corrugated paper pipe insulation

Functional Space 2-3 Bay 2 attic

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; 4 Moderate; (2) Low; 1 Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: 8 High; (5) Medium; 2 Low
  - B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  1 1< % ≤ 30; (3) 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 439, 440, 441, 438, 442, 443, 415, 416, 417, 418

Damage/Risk Total 12

Friable Asbestos Assessment Checklist

Cameron Station Building 2

Inspector/Date Barnes / Guanlao 2/15/91

Homogeneous Sample Area #(s) 3, 5, 6, 7

Material Type(s) tank insulation, trowelled on duct insulation, pipe fitting insulation corrugated paper pipe insulation

Functional Space 2-3 Bay 2 attic

Part 2: Exposure

- Friability: 6 High; (3) Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; 1 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; (3) ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 20

Friable Asbestos A..ssment Checklist

Cameron Station Building 2

Inspector/Date Barnes / Guanlao 2/15/91

Homogeneous Sample Area #(s) 6

Material Type(s) pipe fitting insulation

Functional Space 2-4 Bay 4, mechanical room

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; 4 Moderate; 2 Low; 1 Minimal; (0) None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

  A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance

  B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance

- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls

- Potential for Contact based on material proximity to area occupants:

  A. < 10 ft: 8 High; 5 Medium; (2) Low

  B. ≥ 10 ft: 5 High; 3 Medium; 0 Low

- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos

- Sample Numbers: 438, 442, 443

Damage/Risk Total 5

Friable Asbestos A: .sment Checklist

ameron Station Building 2 Inspector/Date Barnes / Guarda 2/15/91

lomogeneous Sample Area #(s) 6 Material Type(s) Pipe fitting insulation

unctional Space 2-4 B/4 Mechanical Room

Part 2: Exposure

- Friability: 6 High; 3 Moderate; (1) Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  (5) High (constant vibration); 2 Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  (1) ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; 4 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 16

Friable Asbestos A[illegible]ment Checklist

Cameron Station Building 2

Inspector/Date Barnes / Guardia 2/15/91

Homogeneous Sample Area #(s) 6, 7

Material Type(s) pipe fittings insulation, corrugated paper pipe insulation

Functional Space 2-5 Bay 6 attic

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; 4 Moderate; 2 Low; 1 Minimal; (0) None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

  A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance

  B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance

- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls

- Potential for Contact based on material proximity to area occupants:

  A. < 10 ft: 8 High; 5 Medium; (2) Low

  B. ≥ 10 ft: 5 High; 3 Medium; 0 Low

- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos

- Sample Numbers: 438, 442, 443, 415, 416, 417, 418

Damage/Risk Total 5

Friable Asbestos Assessment Checklist

Cameron Station Building 2 Inspector/Date Barrios/Guardia 2/15/91

Homogeneous Sample Area #(s) 6, 7 Material Type(s) Pipe fitting insulation; corrugated paper type insulation

Functional Space 2-5 Bays 6 attic

Part 2: Exposure

- Friability: 6 High; (3) Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; 1 10≤ ft² < 100; (2) 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

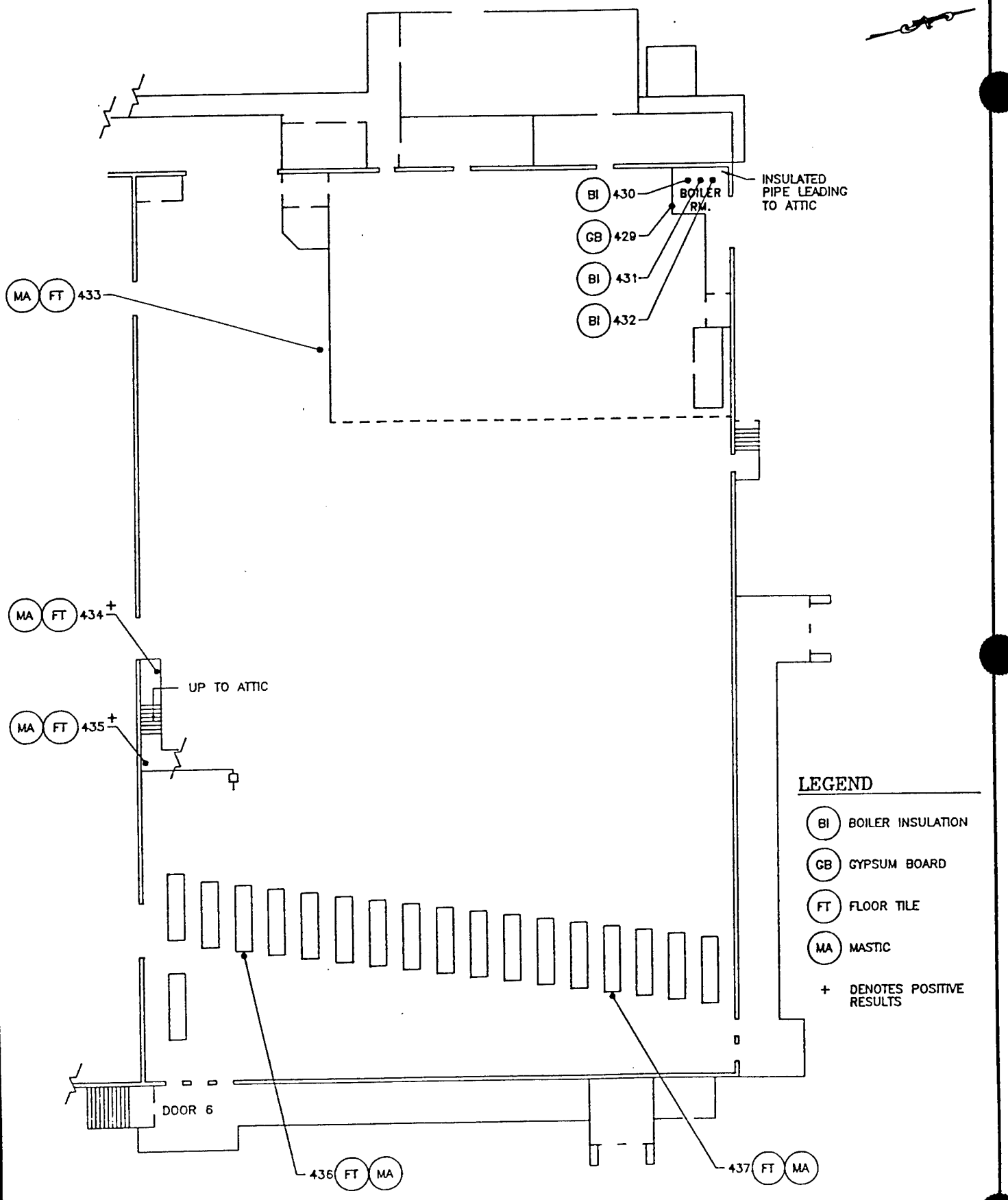
  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  (1) ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; 4 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 16

APPENDIX 2-C

BUILDING DRAWINGS



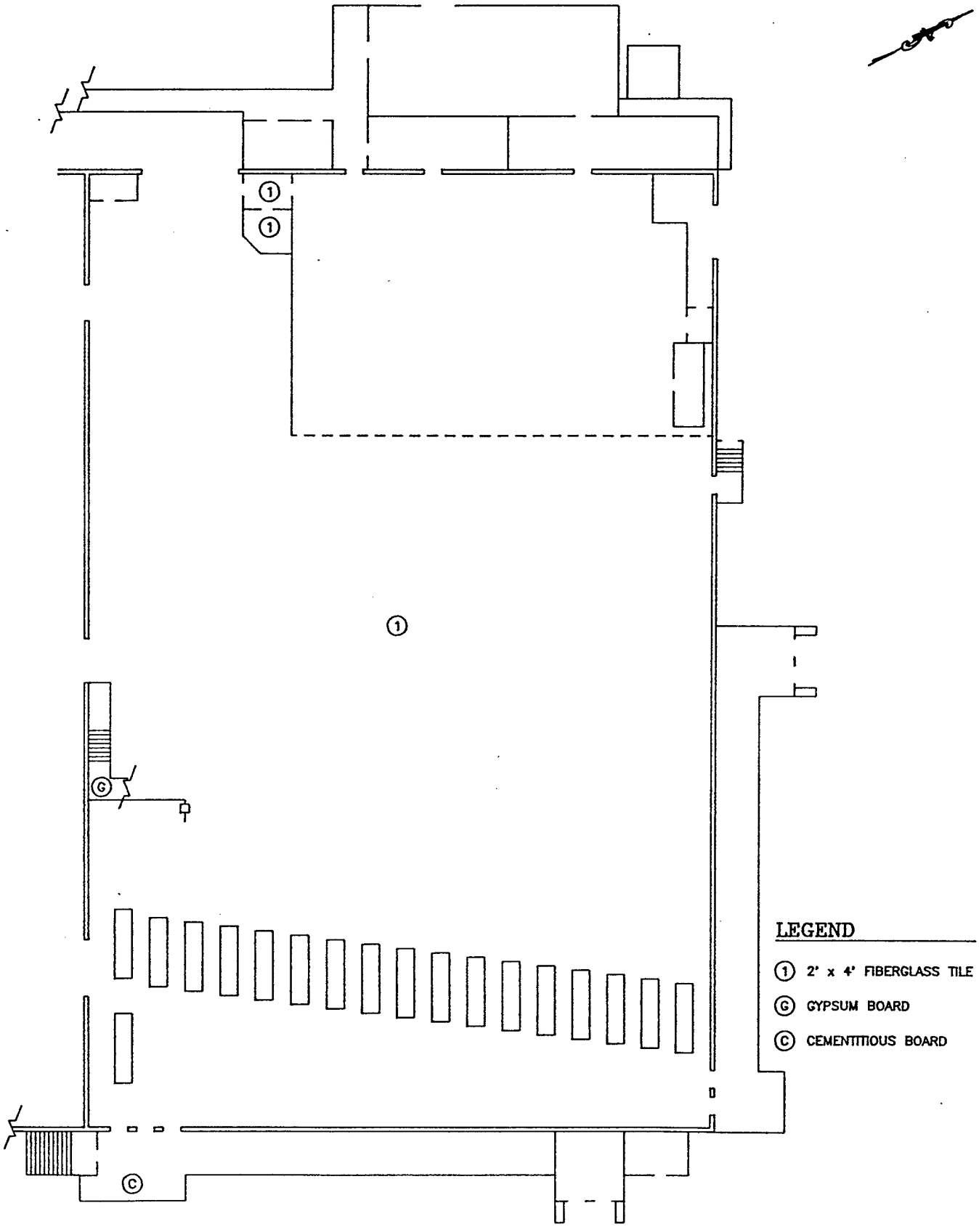
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 2 – BAY 1
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001–210	L.A.L.	6–4–91	2/1–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' FIBERGLASS TILE

(G) GYPSUM BOARD

(C) CEMENTITIOUS BOARD

CLIENT USATHAMA

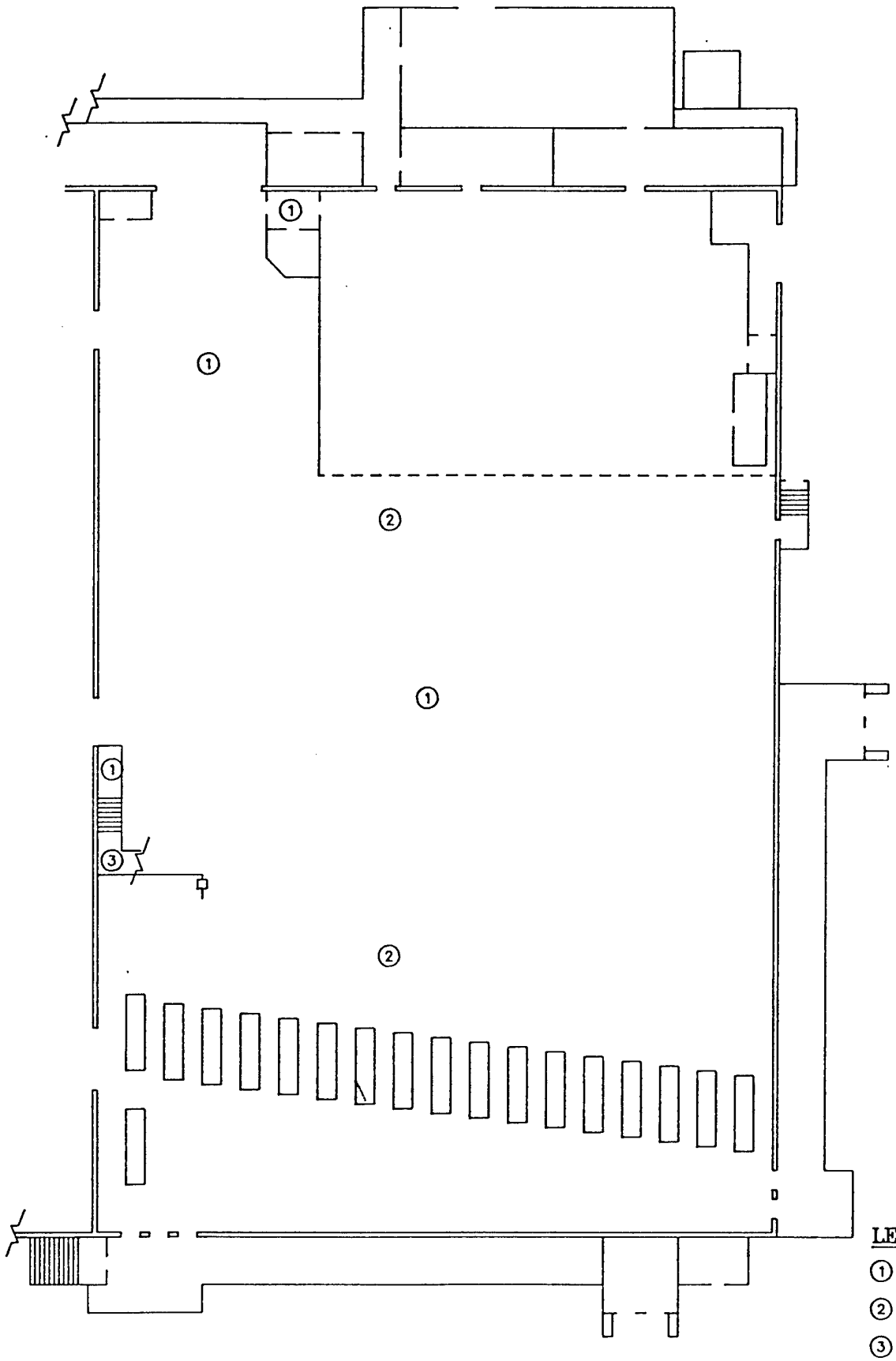
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 2 – BAY 1
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	2/1–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

1. 12" x 12" WHITE
2. 12" x 12" ORANGE
3. 9" X 9" GRAY

JENT USATHAMA

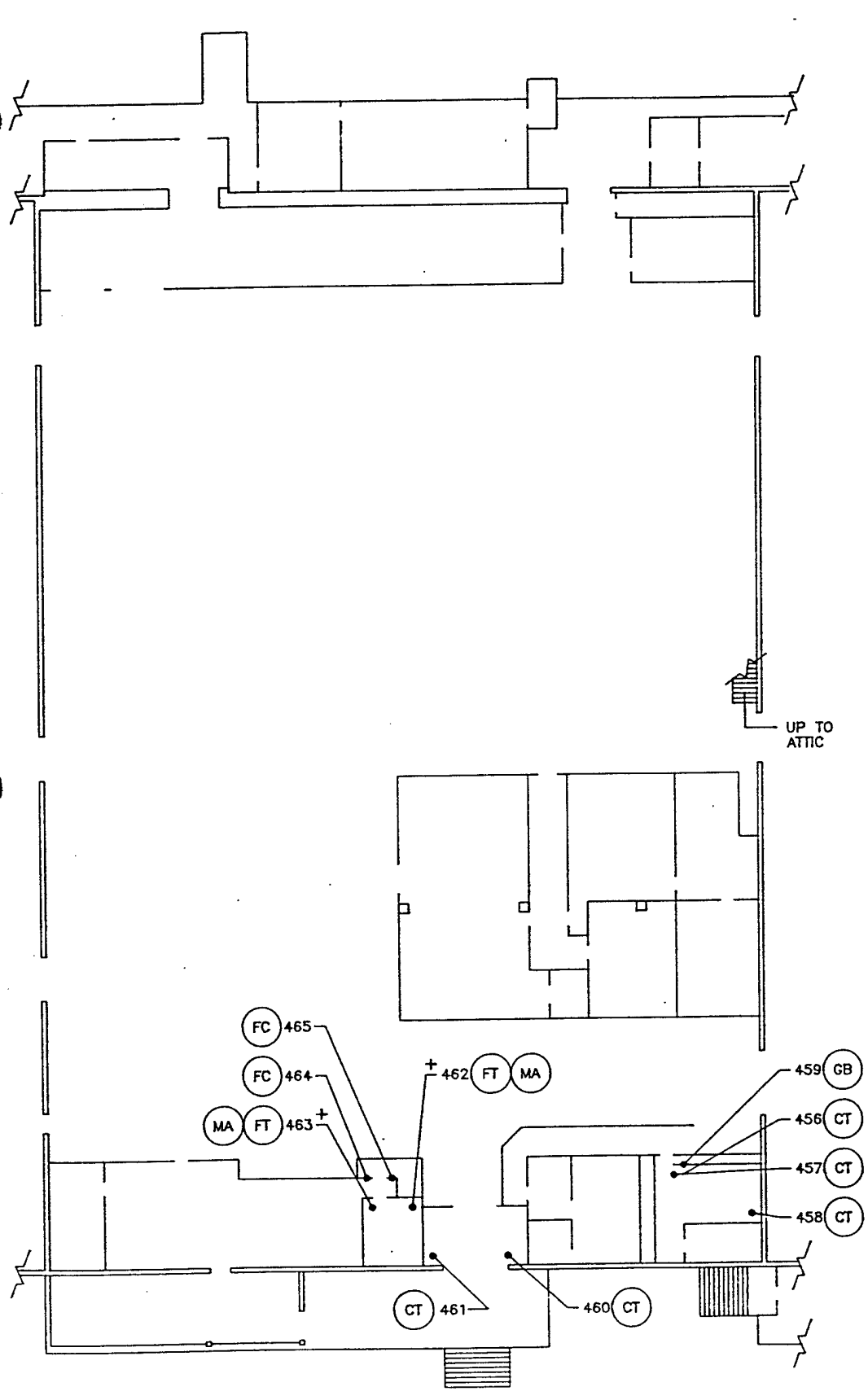
Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE

BUILDING 2 – BAY 1
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001-210	L.A.L.	6-4-91	2/1-FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

- CT — CEILING TILE
- FC — FIRE CODE GYPSUM BOARD
- GB — GYPSUM BOARD
- FT — FLOOR TILE
- MA — MASTIC
- \+ — DENOTES POSITIVE RESULTS

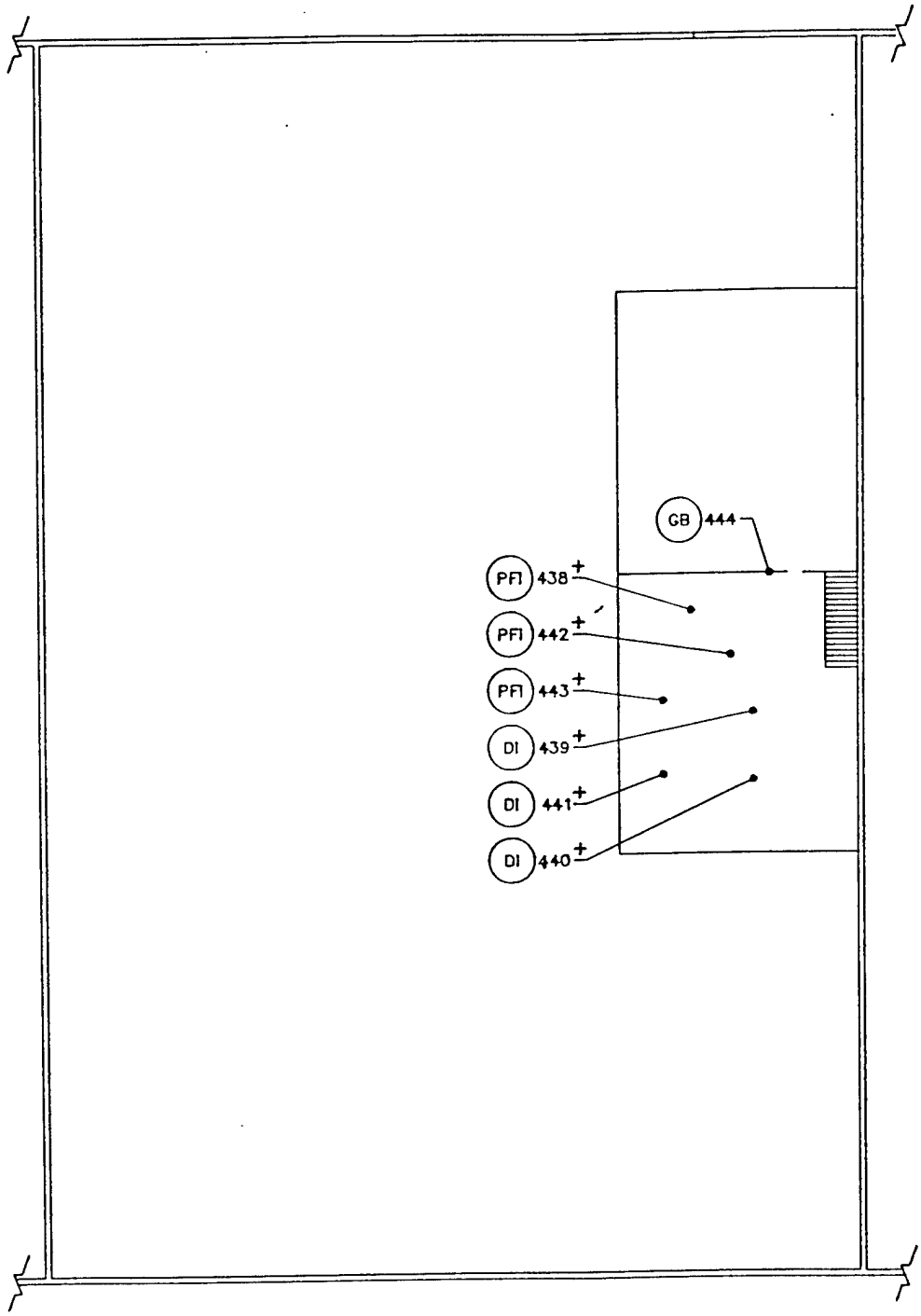
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE: BUILDING 2 – BAY 2 SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001–210	L.A.L.	6–4–91	2/2–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

DI	DUCT INSULATION	GB	GYPSUM BOARD
PFI	PIPE FITTING INSULATION	+	DENOTES POSITIVE RESULTS

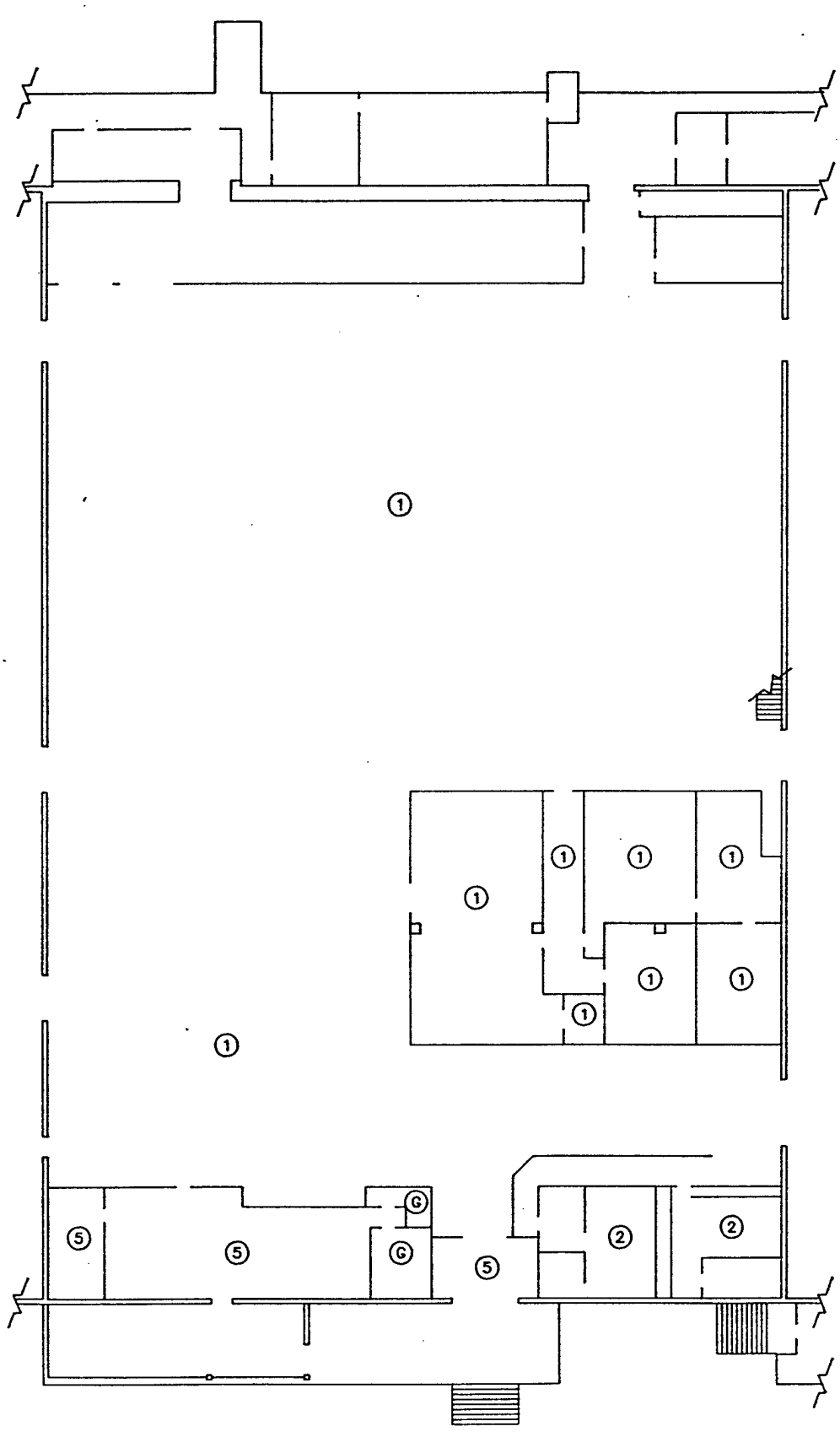
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 2 – BAY 2 ATTIC SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001-210	L.A.L.	8-4-91	2/2A-SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' FIBERGLASS TILE

(2) 2' X 4' RECT. PATTERN TILE

(5) 12" x 12" FISSURED TILE

(G) GYPSUM BOARD

CLIENT USATHAMA

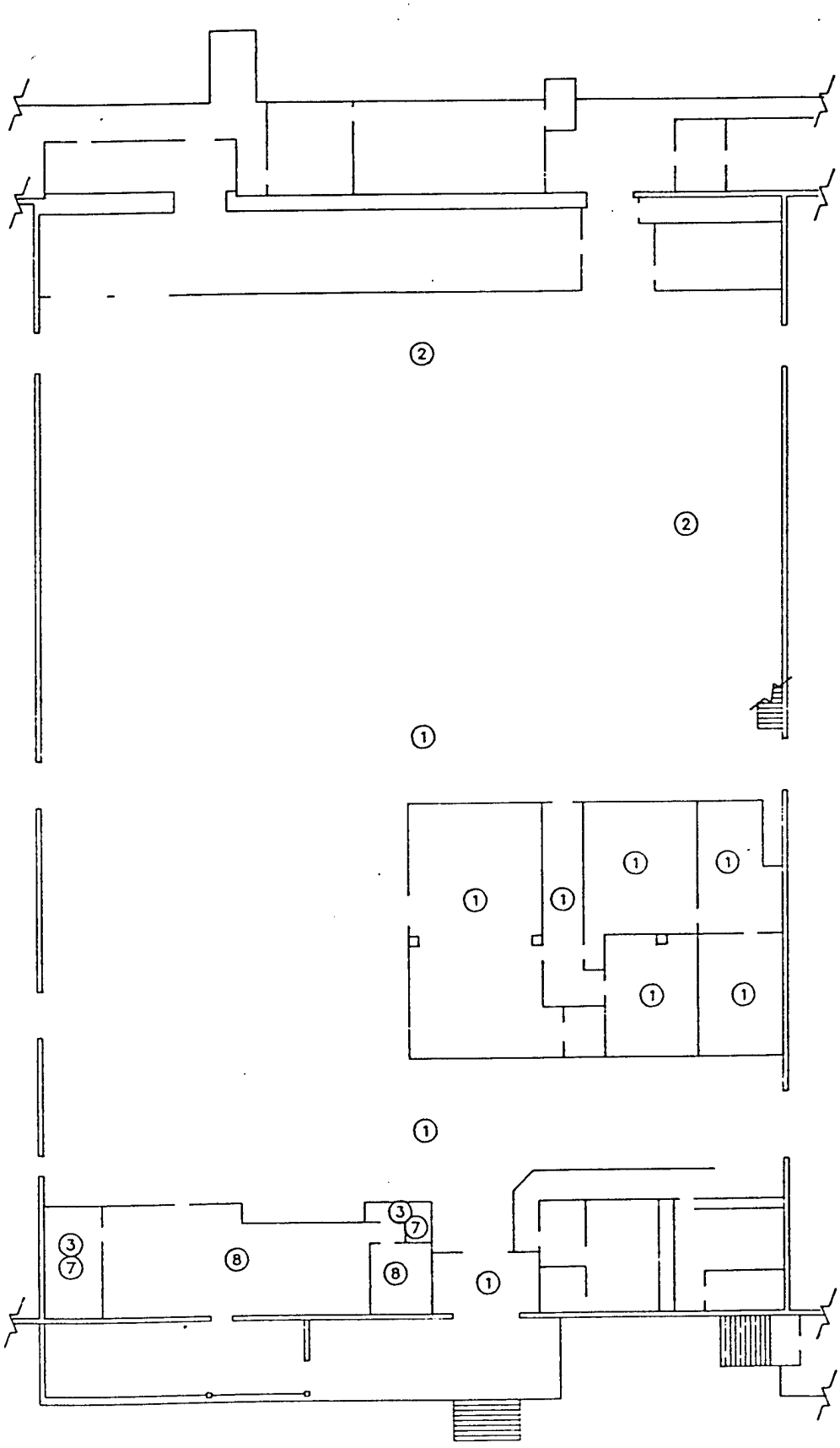
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 2 – BAY 2
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	2/2–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

① 12" x 12" WHITE

② 12" x 12" ORANGE

③ 9" X 9" GRAY

⑦ 9" x 9" GREEN

⑧ WHITE SHEET FLOORING

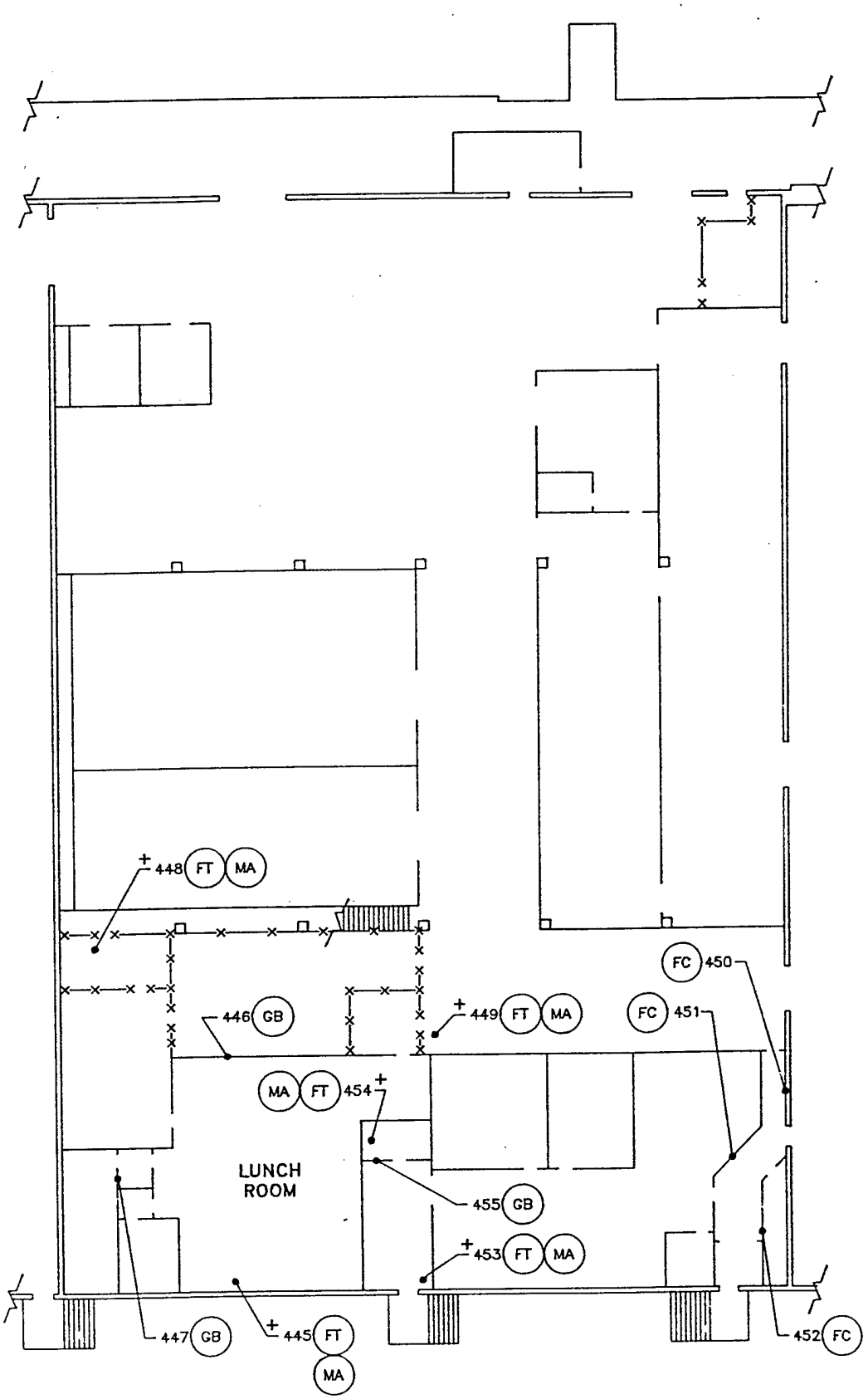
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 2 – BAY 2
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	L.A.L.	DATE:	6-4-91	FIG.
3001-210	CHECKED BY:	F.B.C.	SCALE:	N.T.S.	2/2-FT



LEGEND

- FC — FIRE CODE GYPSUM BOARD
- GB — GYPSUM BOARD
- FT — FLOOR TILE
- MA — MASTIC
- \+ — DENOTES POSITIVE RESULTS

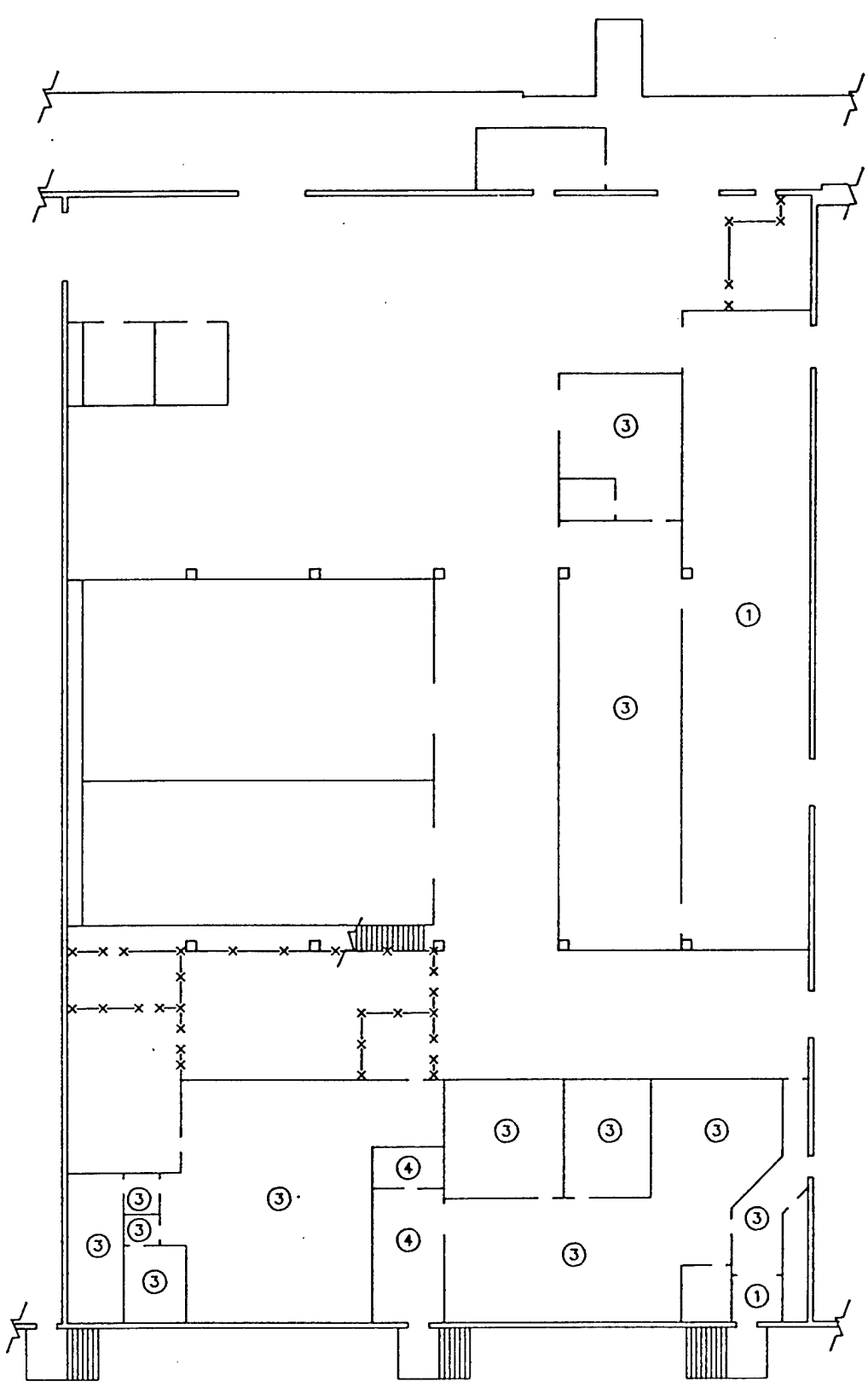
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 2 – BAY 3
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001–210	L.A.L.	6–4–91	2/3–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

① 2' x 4' SMALL HOLE TILE

③ 2' x 4' FISSURED TILE

④ 12" x 12" FIBERGLASS TILE

CLIENT USATHAMA

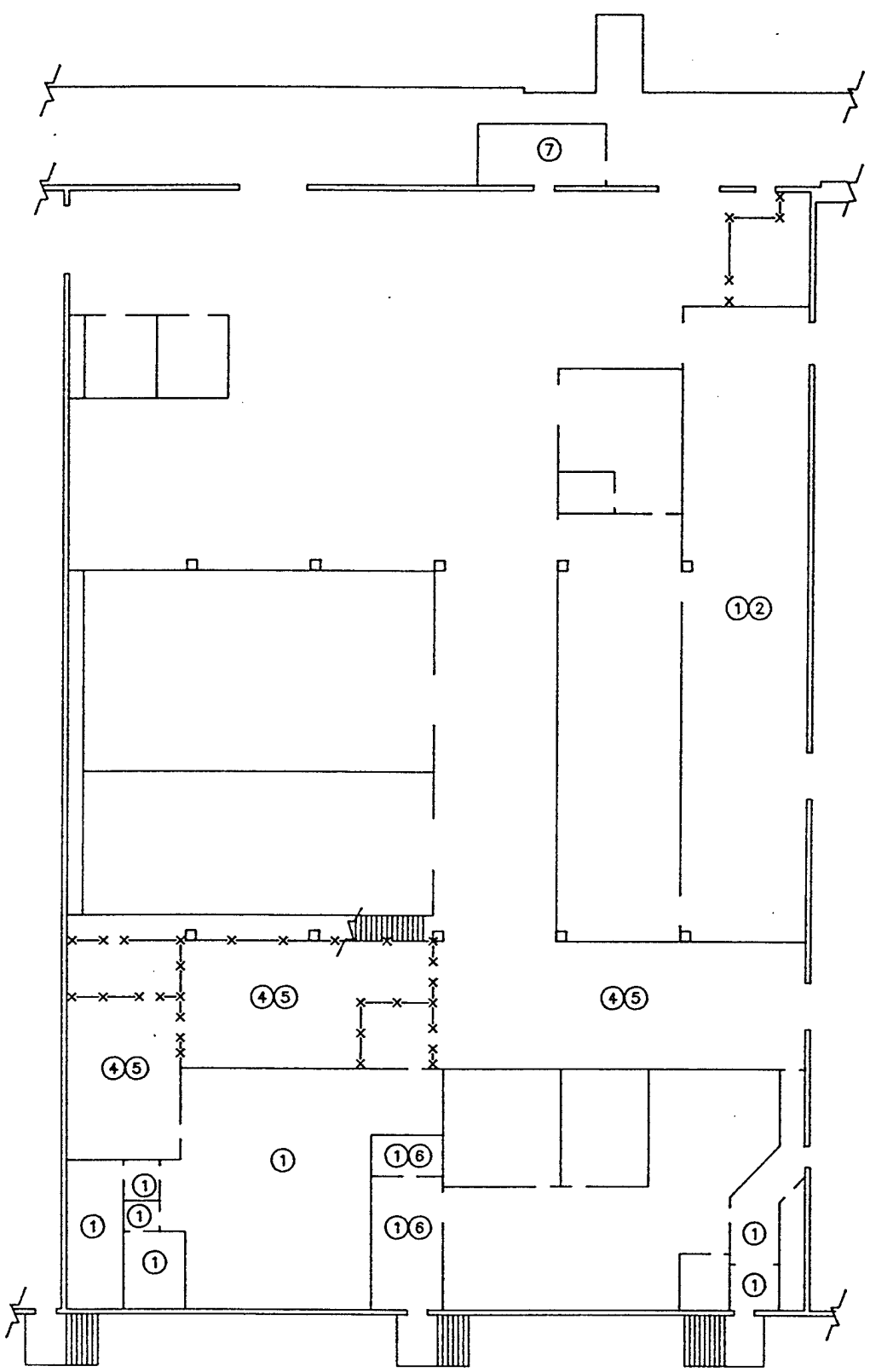
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 2 – BAY 3
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	2/3–CT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

1. 12" x 12" WHITE
2. 12" x 12" ORANGE
4. 9" x 9" BROWN
5. 9" x 9" BEIGE
6. 12" x 12" BROWN
7. 9" x 9" GREEN

CLIENT USATHAMA

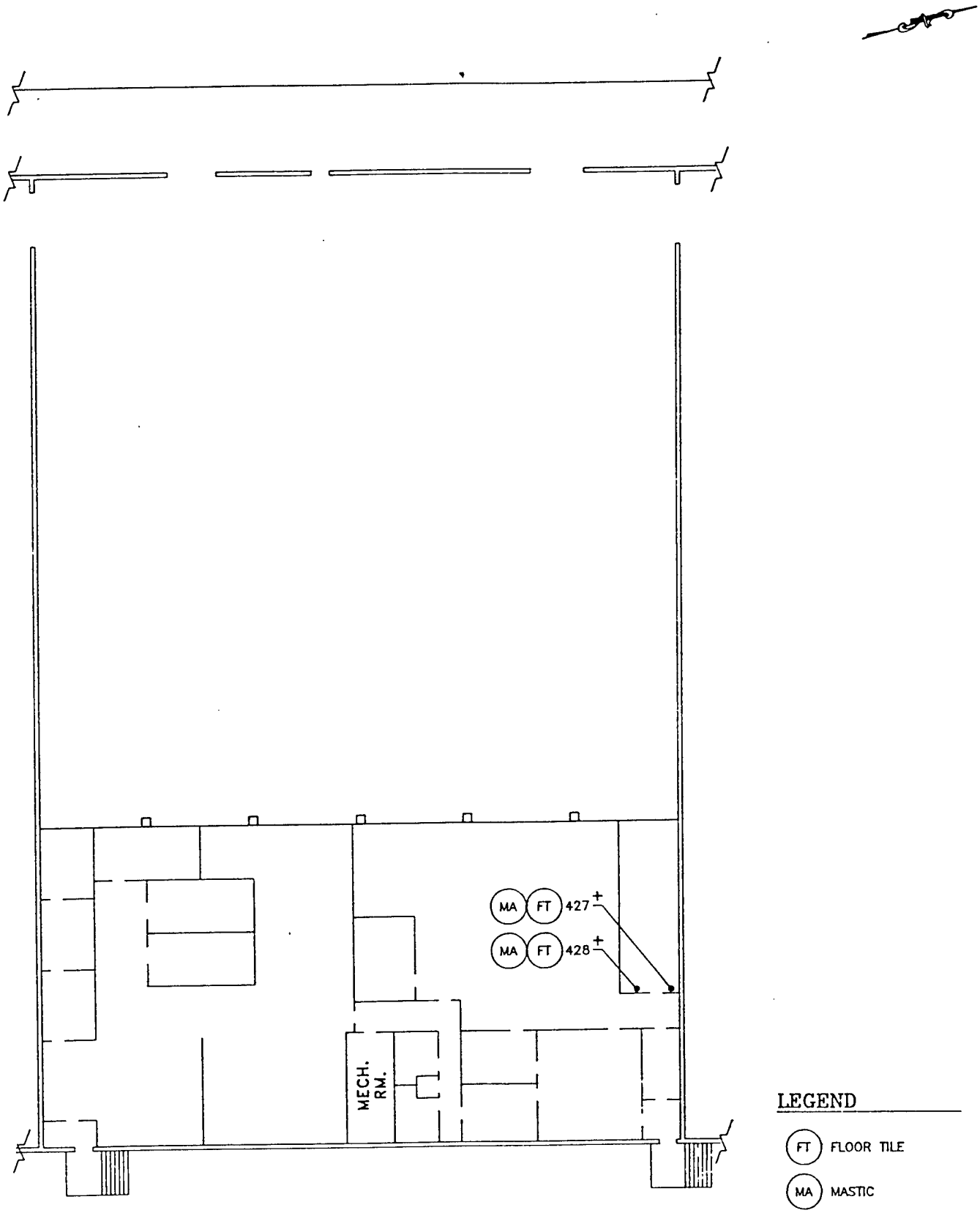
Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE

BUILDING 2 – BAY 3
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	2/3–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

FT FLOOR TILE

MA MASTIC

\+ DENOTES POSITIVE RESULTS

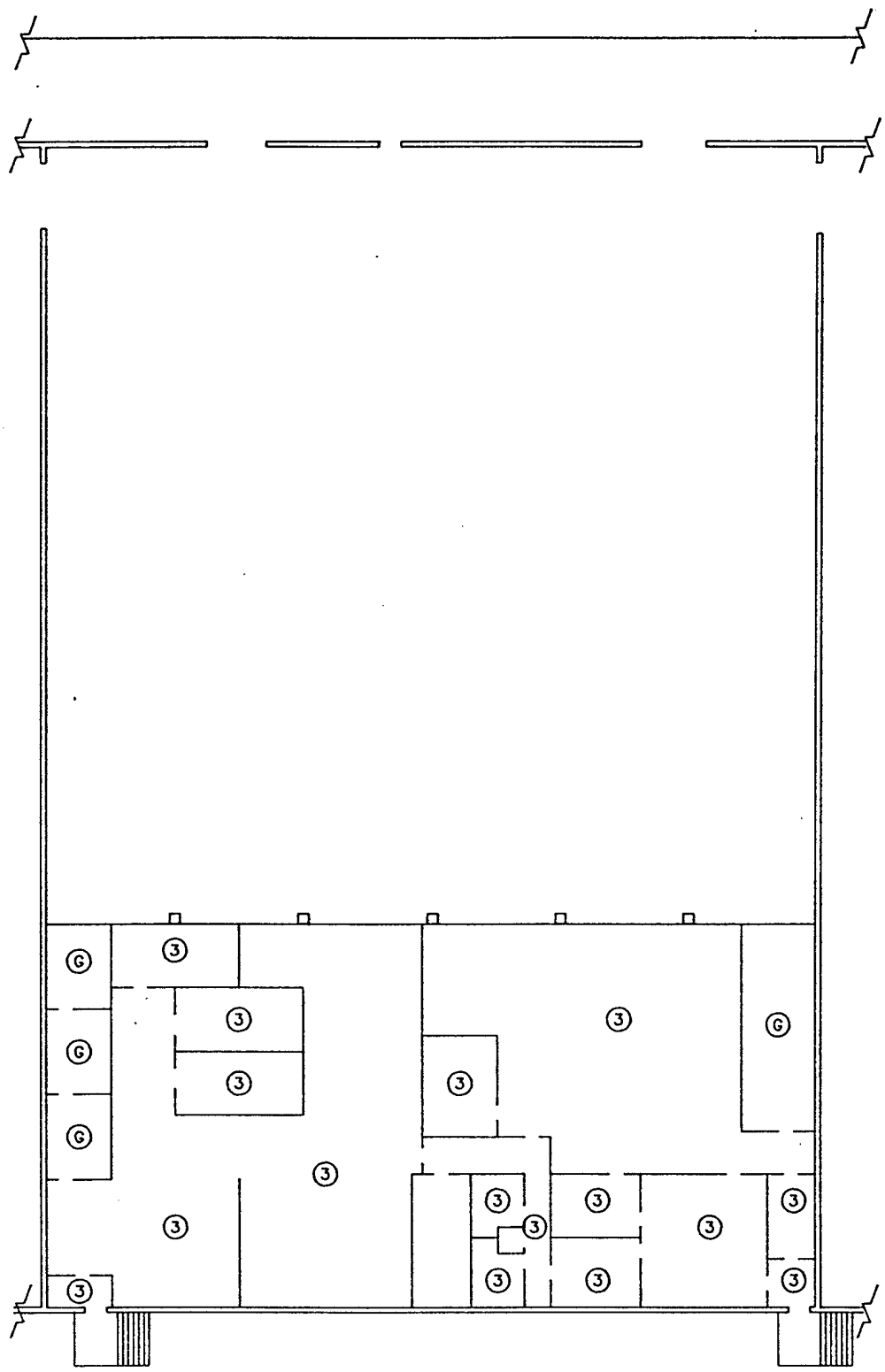
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 2 – BAY 4
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001–210	L.A.L.	6–4–91	2/4–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(3) 2' x 4' FISSURED TILE

(G) GYPSUM BOARD

CLIENT USATHAMA

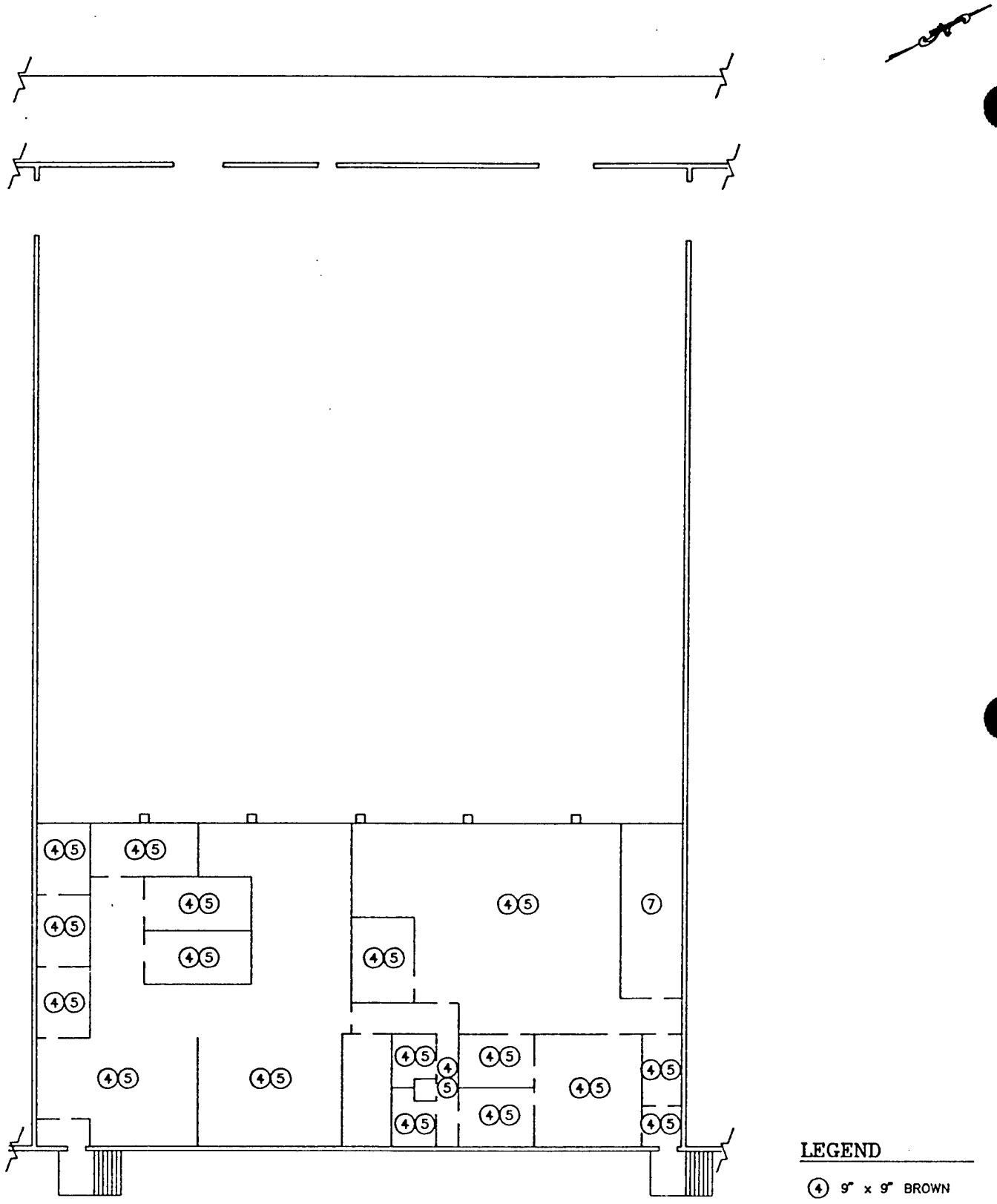
Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE

BUILDING 2 – BAY 4
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	8–4–91	2/4–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(4) 9" x 9" BROWN

(5) 9" x 9" BEIGE

(7) 9" x 9" GREEN

CLIENT USATHAMA

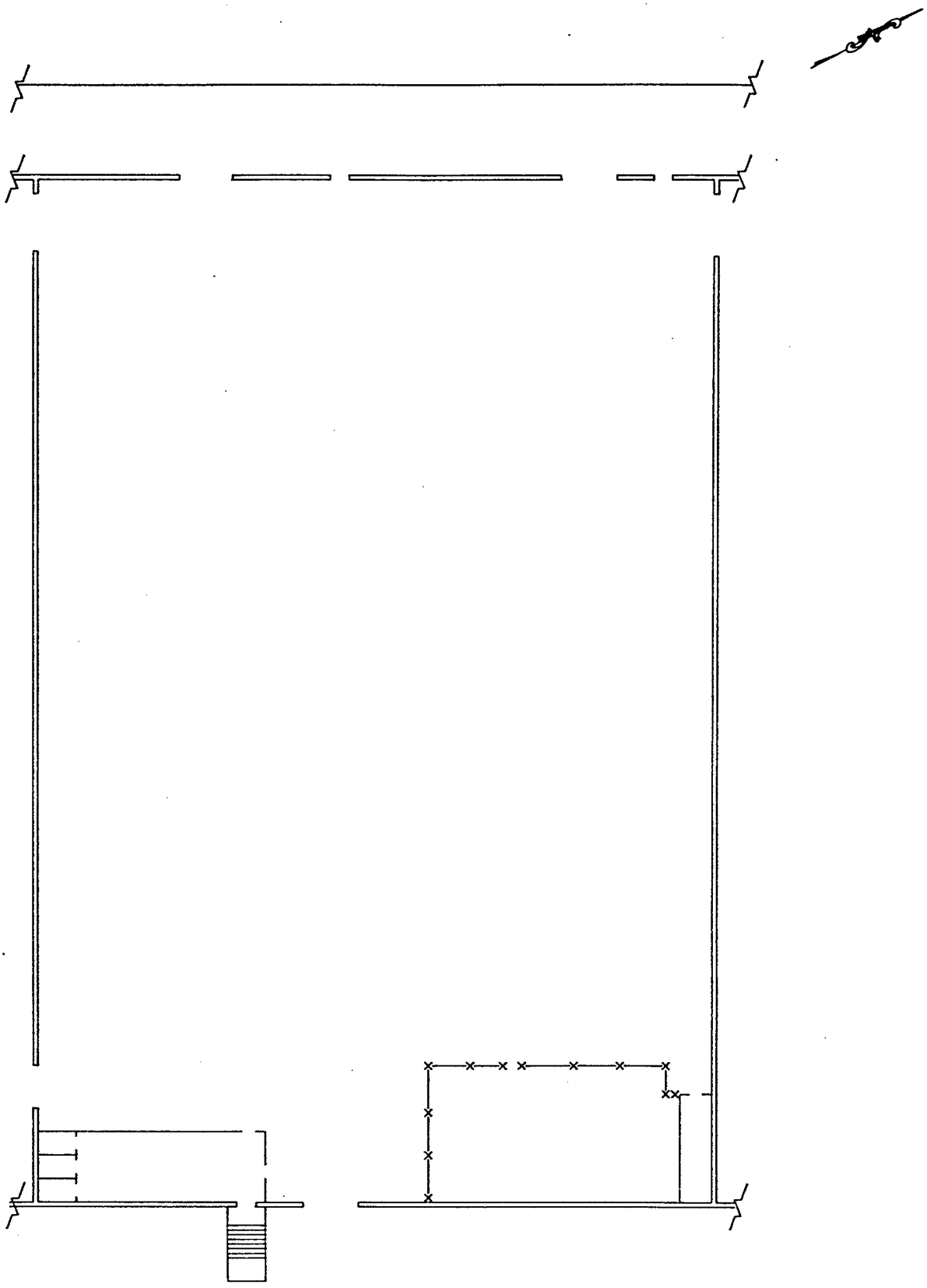
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 2 – BAY 4
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	LAL	6–4–91	2/4–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



NOTE:
NO SAMPLES WERE COLLECTED IN THIS BAY

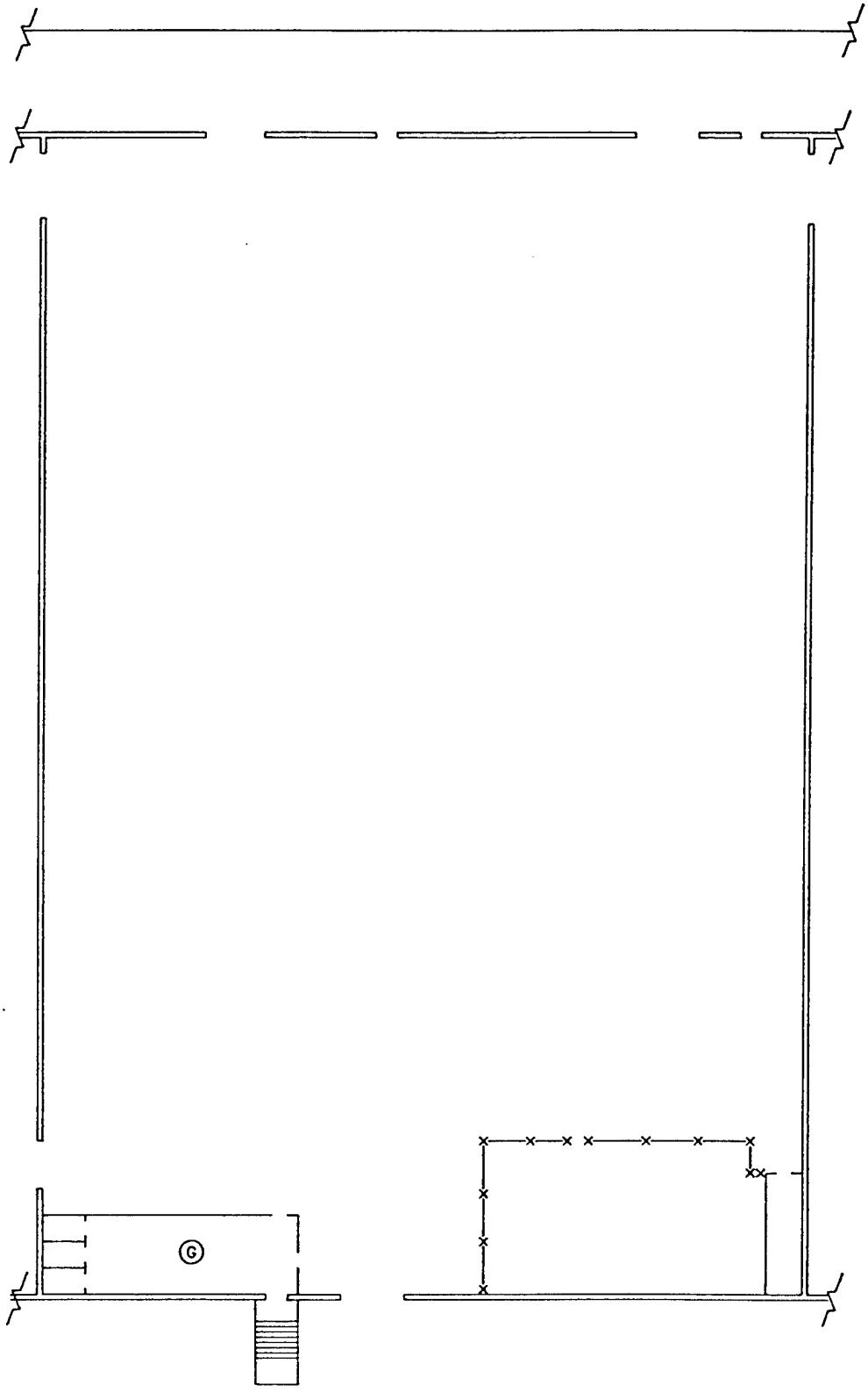
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE
BUILDING 2 – BAY 5
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	2/5–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

Ⓖ GYPSUM BOARD

CLIENT USATHAMA

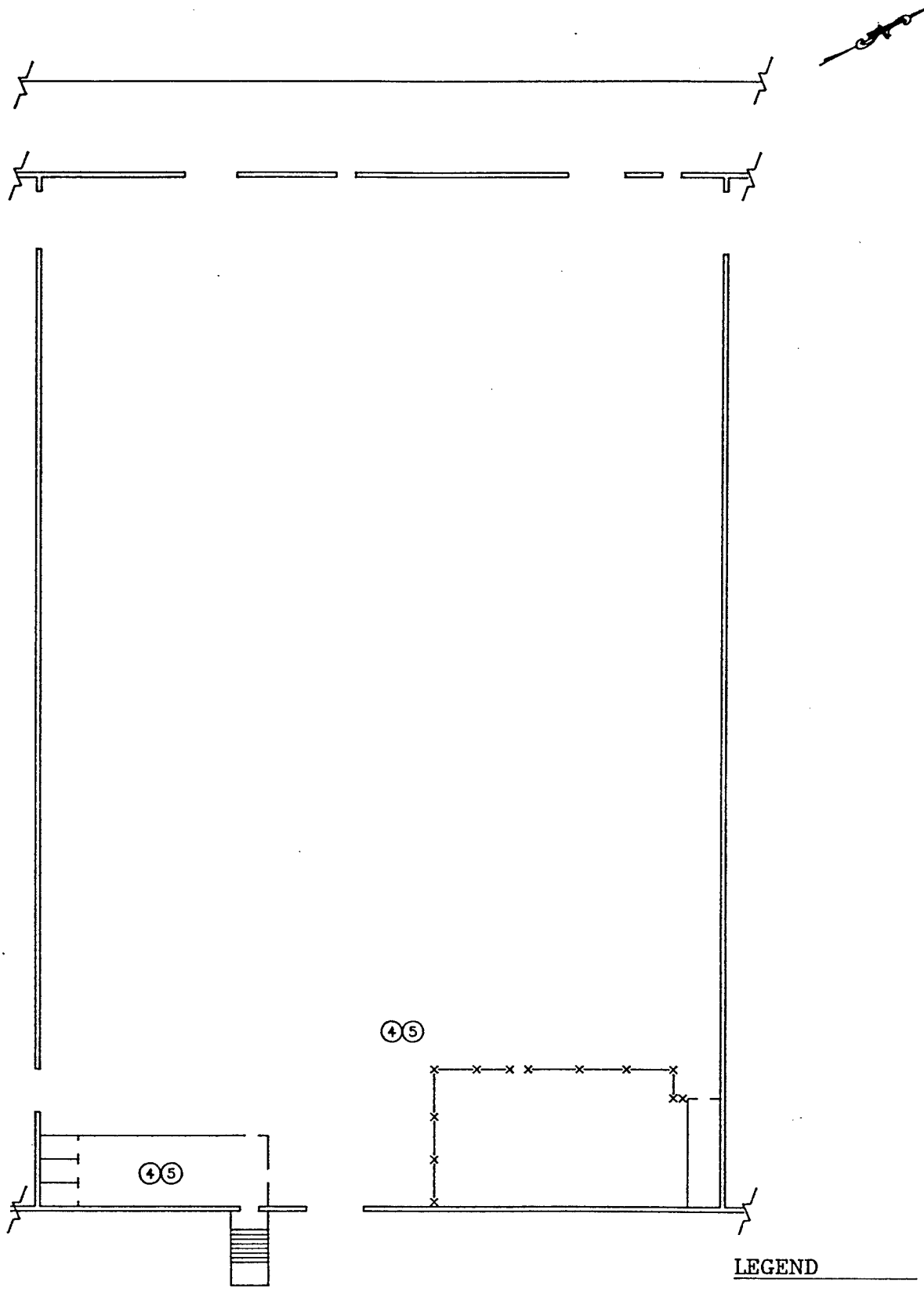
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 2 – BAY 5
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001-210	L.A.L.	8-4-91	2/5-CT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(4) 9" x 9" BROWN

(5) 9" x 9" BEIGE

CLIENT USATHAMA

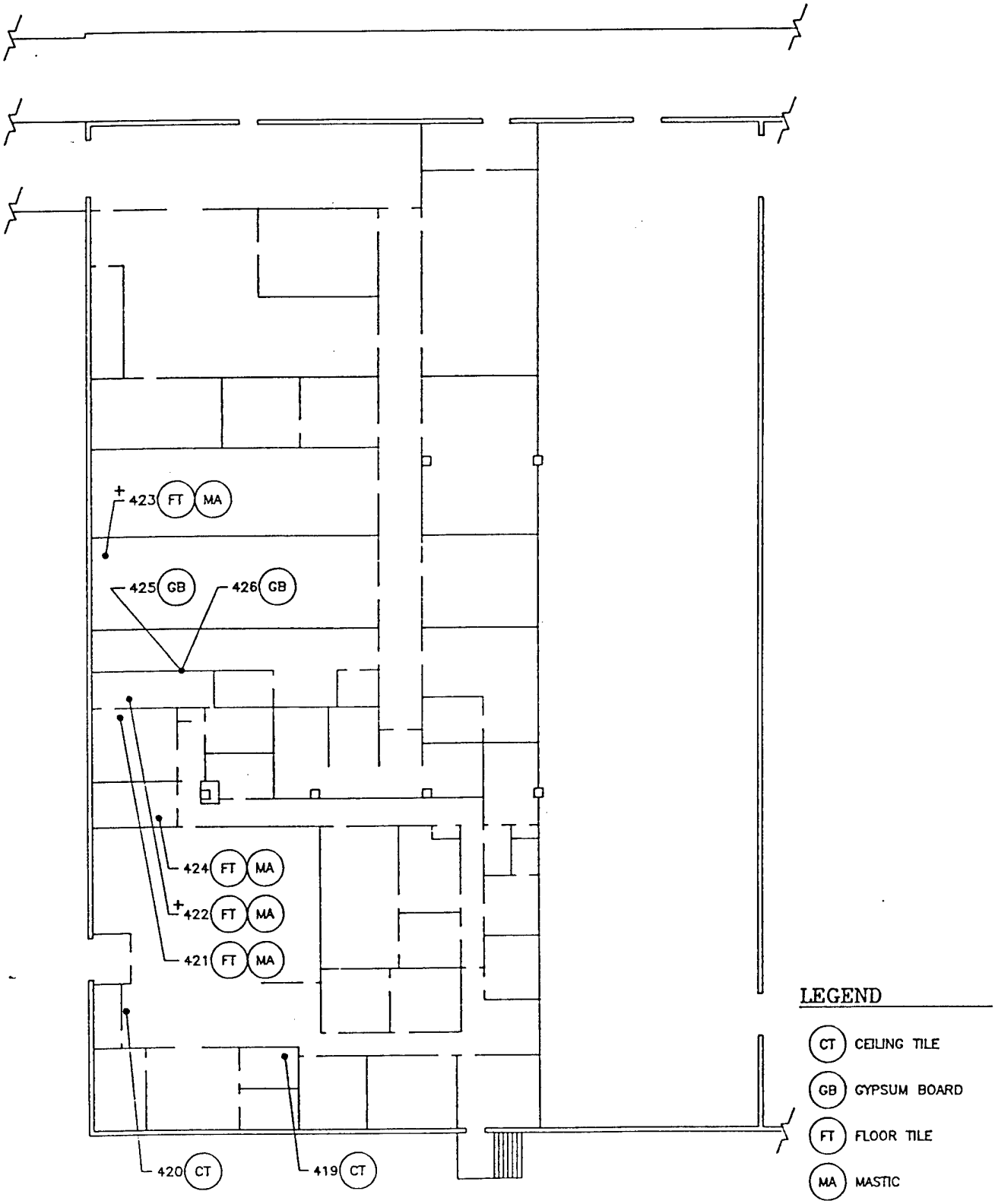
Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE

BUILDING 2 – BAY 5
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	2/5–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



CLIENT USATHAMA

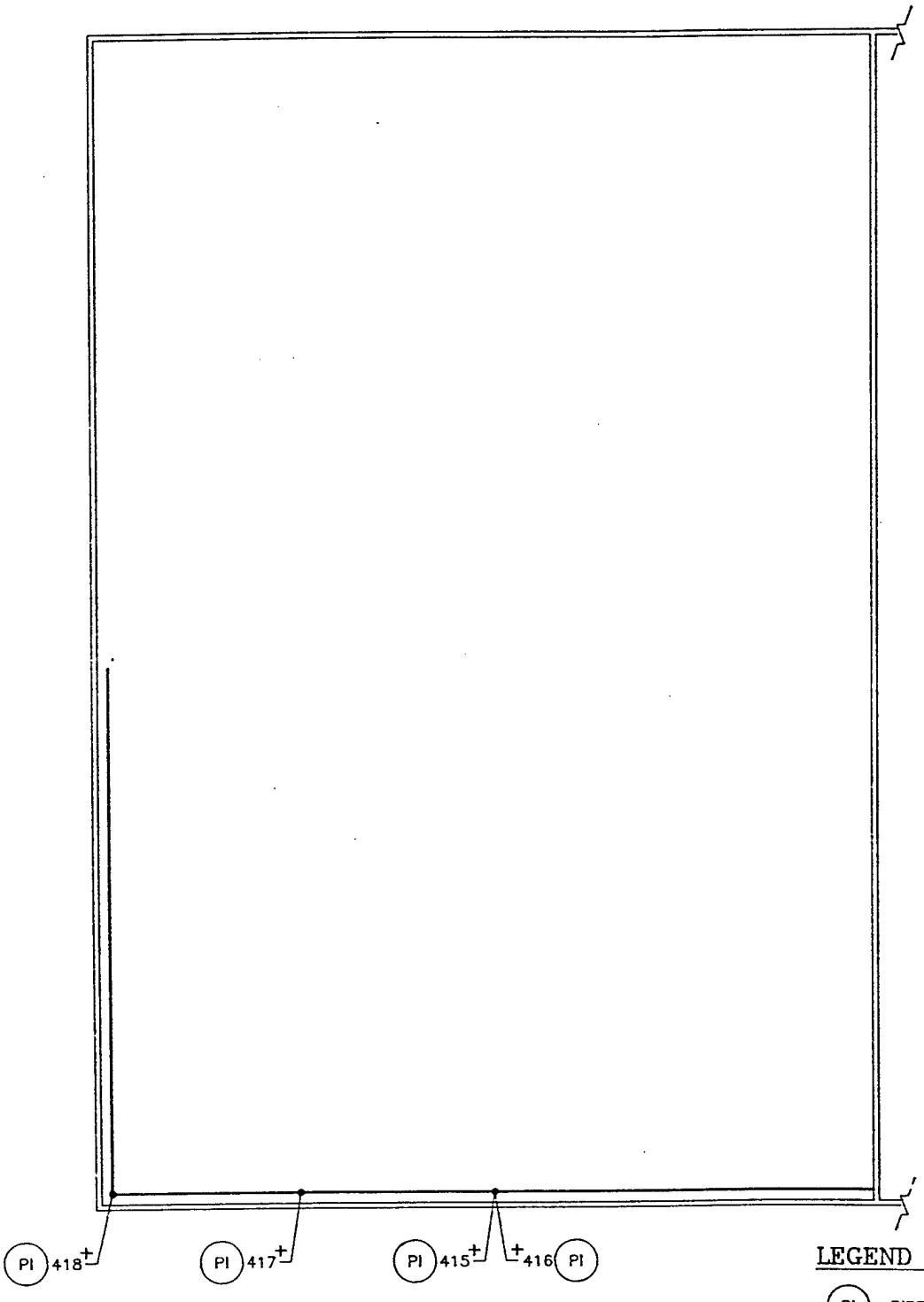
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 2 – BAY 6
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001–210	L.A.L.	6–4–91	2/6–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(PI) PIPE INSULATION

\+ DENOTES POSITIVE RESULTS

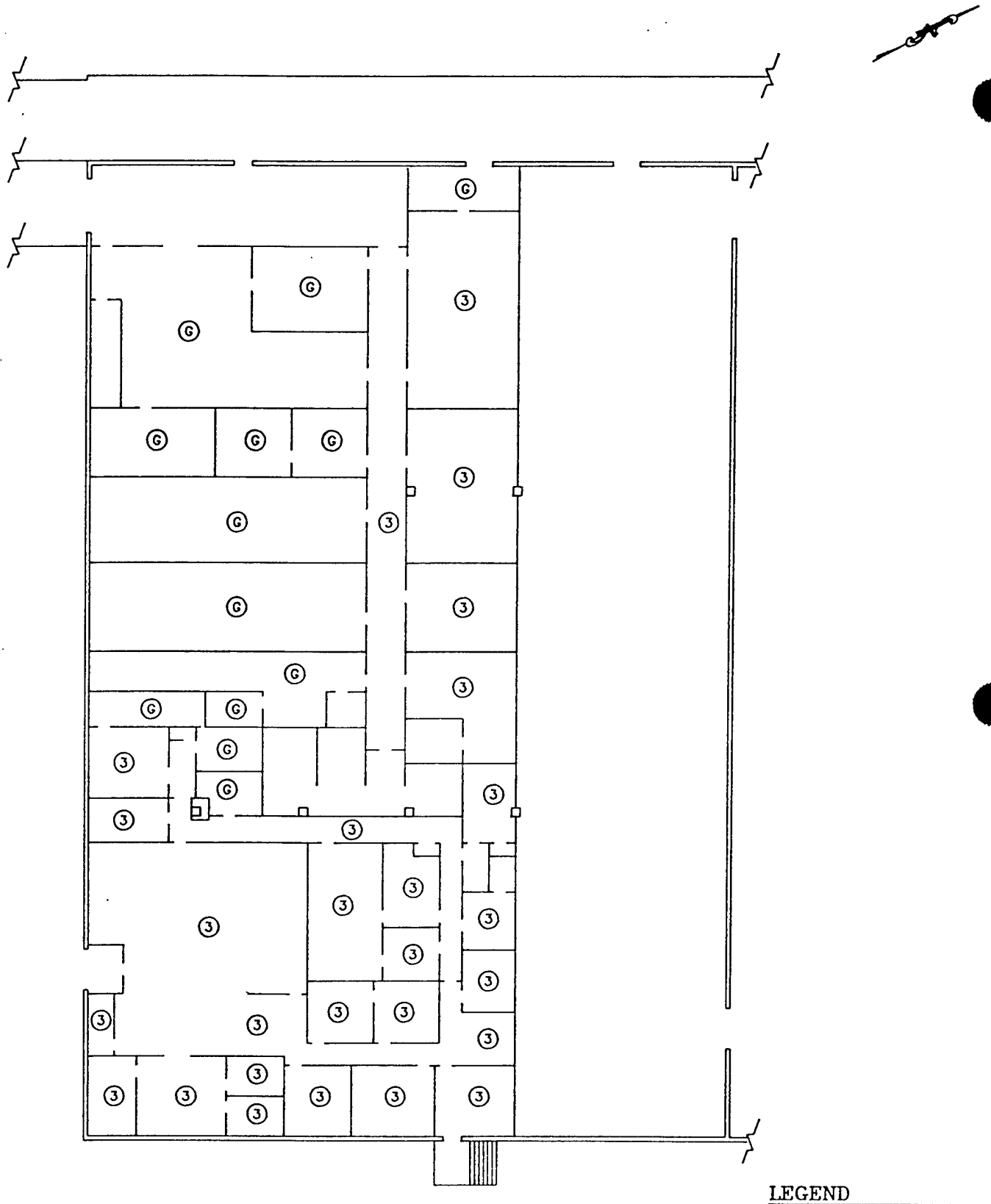
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 2 – BAY 6 ATTIC SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001–210	L.A.L.	6–4–91	2/6A–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(3) 2' x 4' FISSURED TILE

(G) GYPSUM BOARD

CLIENT USATHAMA

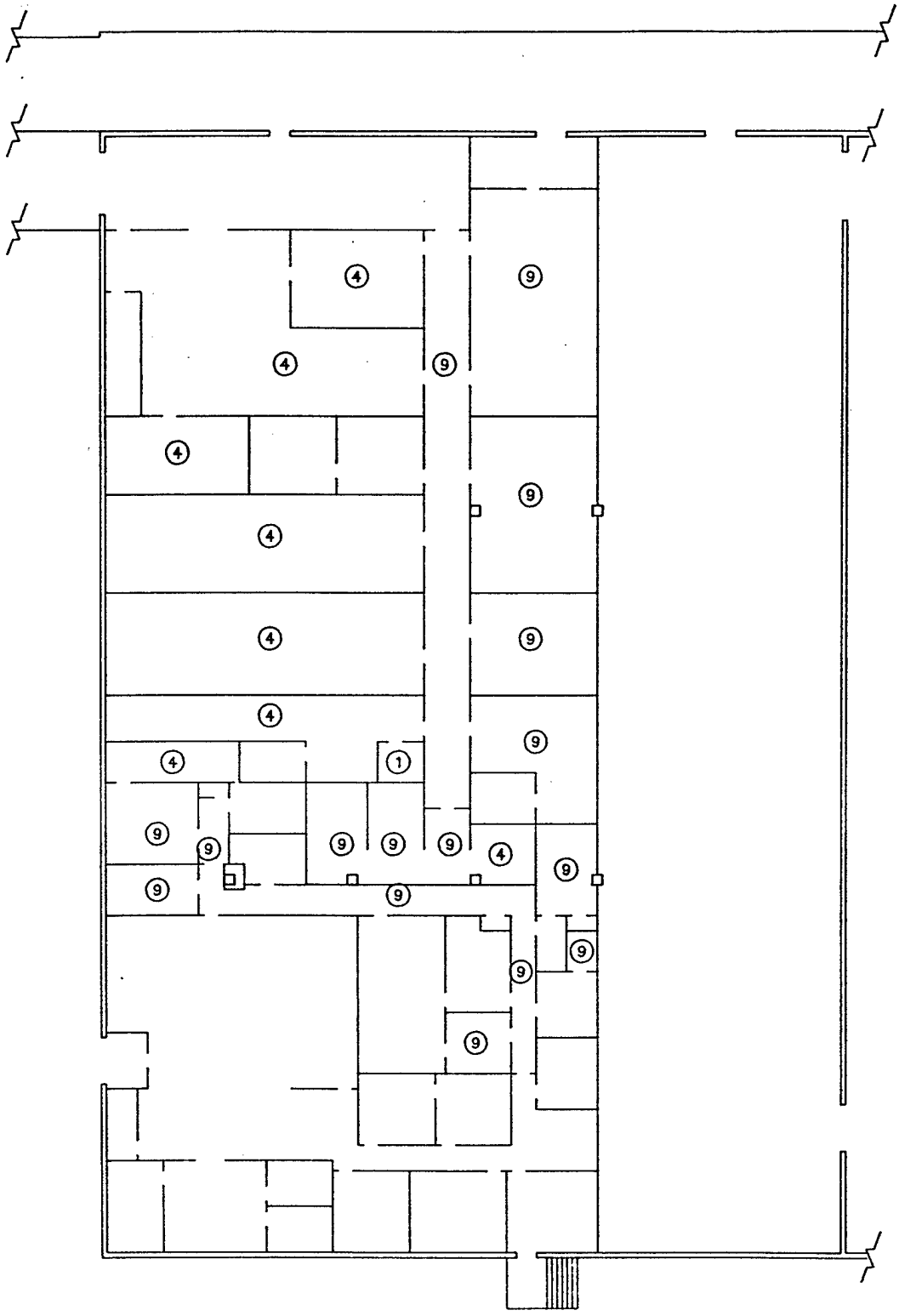
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 2 – BAY 6
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	2/6–CT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(1) 12" x 12" WHITE

(4) 9" x 9" BROWN

(5) 12" x 12" LT. BROWN

CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 2 – BAY 6
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	2/6–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	

APPENDIX 2-D

WALKTHROUGH SURVEY DATA SHEETS

Building #2 EXTERIOR Inspector Date 1/4/91

Exterior Siding

Masonry ☑ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y (N) _____ Condition G F P Quantity _____ SF

Roof

Assume ACM

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☑ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition G F P Quantity _____ SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☑	Y (N)	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☑	Y (N)	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☑ Steel Joists/Beams ☑ Wood Columns ☐ Steel Column ☑ Concrete Column ☑

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y (N) Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☑ Firedoor ☐

Sample Y (N) Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building 2 Inspector/Date:

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Bay1 - Boiler Rm		Y		TO	Y	Fair	2.00 sf
Breeching							
Furnace							
Tanks/Vessels							
Expansion tank		Y		?			
Bay2 attic				can't reach	N-Assume	G	5000
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

HVAC

Building ~~5~~ 2 Inspector/Date: 1/4/91

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	approx amt Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	TOP OF STAIRWAY ACCESS TO Bay #2	yes	Trowelled-on	yes	fair	≥ 5000	SF	—
Pipe	~~South side of fire wall separating Bay #1 & Bay 2~~	yes	Air Cell	yes	fair	600	LF	3"-6"
	Bay 1 - Attic Boiler Rm		(corrugated paper)					
	Bay 2 Attic							
	Bay 6 "							
Fittings	Bay 1 Boiler Rm	yes	mudded	yes	fair	75	± fittings	3"-6"
	2 Attic							
	4 MR							
Other	6 Attic							
Vibration cloth	Bay 2 attic			Non-friable	G	30	SF	
	3 Lunch room							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 2 Inspector/Date:

	Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity	
FT 1	12" x 12"	white	See drawing	Y	G	34000	R.
2	"	orange	"	"	"	3050	R
3	9 x 9	gray	"	"	"	1650	R
4	"	brown	"	"	"	11200	R
5	"	beige	"	"	"	7300	R
6	12 x 12	brown	"	"	"	150	
7	9 x 9	green	"	"	"	750	
8	sheet	white	"	"	"	800	
9	12 x 12	H brown	"	"	"	4600	R

~ 5 cases ea building damaged

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 2

Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
~~CP1 2x4~~	~~wh.te/sm holes~~	~~see drawing~~	~~Y~~	~~G~~	~~38 000~~ C. NO FG
2 2x4	" /12x12 rect pattern	"	Y	G	450
3 2x4	" fissured	"	Y	G	1950 R
~~4 12"x12"~~	~~" "~~	~~"~~	~~Y~~	~~G~~	~~300~~ NO FG
5 12"x12"	" "	"	Y	G	1100

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 2 — Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity	
Reg gyp board		Throughout	Y	G	85000 SF	combine
Vinyl covered gyp board		meat cutting & vegetable areas	Y	G	5000	
FC gyp board		Halls, entrys	Y	G	< 5000	
Cementitious board	gray	Porch ceiling - Door 6	Y	G	300	N/A Sample, Covered

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

APPENDIX 2-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 2
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/15/91
Date Analyzed : 02/21/91
Person Submitting: Sally Guardia

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
415	P	20-25	-----	-----	-----	-----	-----	-----	-----	55-60	-----	15-25	AS	
416	P	15-20	-----	-----	-----	-----	-----	-----	-----	60-65	-----	15-25	AS	
417	P	20-25	<1	-----	-----	-----	-----	-----	-----	40-45	-----	30-40	AS	
418	P	20-25	-----	-----	-----	-----	-----	-----	-----	50-55	-----	20-30	AS	
419	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
420	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
421	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
422	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	-----	90-95	AS	
423	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	
424	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
425	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AS	
426	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AS	
427	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	
428	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.
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AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 2
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/15/91
Date Analyzed : 02/21/91
Person Submitting: Sally Guardia

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	ASBESTOS % CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	OTHER FIBROUS MATERIAL % MINERAL WOOL	GLASS	FIBROUS ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
429	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AS	
430	N	-----	-----	-----	-----	-----	-----	30-35	-----	<1	-----	65-70	AS	
431	N	-----	-----	-----	-----	-----	-----	30-35	-----	<1	-----	65-70	AS	
432	N	-----	-----	-----	-----	-----	-----	30-35	-----	-----	-----	65-70	AS	
433	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
434	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	
435	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AS	
436	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
437	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
438	P	20-25	-----	-----	-----	-----	-----	30-35	-----	-----	-----	40-50	AS	
439	P	20-25	-----	-----	-----	-----	-----	30-35	-----	-----	-----	40-50	AS	
440	P	35-40	-----	-----	-----	-----	-----	15-20	-----	-----	-----	40-50	AS	
441	P	20-25	-----	-----	-----	-----	-----	20-25	-----	-----	-----	50-60	AS	
442	P	15-20	-----	-----	-----	-----	-----	35-40	-----	-----	-----	40-50	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 2
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/15/91
Date Analyzed : 02/21/91
Person Submitting: Sally Guardia

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
443	P	20-25	-----	-----	-----	-----	-----	35-40	-----	-----	-----	35-45	AS	
444	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AS	
445	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AS	
446	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AS	
447	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
448	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	
449	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
450	N	-----	-----	-----	-----	-----	-----	-----	01-05	01-05	-----	90-98	AS	
451	N	-----	-----	-----	-----	-----	-----	-----	<1	01-05	-----	95-99	AS	
452	N	-----	-----	-----	-----	-----	-----	-----	01-05	01-05	-----	90-98	AS	
453	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
454	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	-----	90-95	AS	
455	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AS	
456	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 2
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/15/91
Date Analyzed : 02/21/91
Person Submitting: Sally Guardia

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
457	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
458	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
459	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AS	
460	N	-----	-----	-----	-----	-----	-----	60-65	-----	<1	-----	35-40	AS	
461	N	-----	-----	-----	-----	-----	-----	60-65	-----	01-05	-----	30-39	AS	
462	P	30-35	-----	-----	-----	-----	-----	-----	-----	01-05	<1	60-69	AS	
463	P	30-35	-----	-----	-----	-----	-----	-----	-----	01-05	-----	60-69	AS	
464	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AS	
465	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

Andreas Saldivar (AS)

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WOODWARD CLYDE
BULK ANALYSIS SHEET

PAGE OF

BUILDING NO: 2

PROJECT NO: 3001

ANALYST: Lisa Mannca

COMPLETION DATE: 12/18/91

SAMPLE ID	ASBESTOS %				OTHER FIBROUS MATERIAL %				NON-FIBROUS MATERIAL %		PHYSICAL APPEARANCE OR LOCATION
	CHRYSOTILE	AMOSITE	CROCIDOLITE	OTHER	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PART.	OTHER	
X1	<1						50-55		45-50		roof
<2							50-55		45-50		↓
<3							50-55		45-50		↓

AMA Analytical Services, Inc.

An AIHA and NVLAP Accredited Laboratory

May 29, 1991

Woodward-Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850

RE:	TEM Bulk Analysis
JOB SITE:	Cameron Station
JOB LOCATION:	Building 2
JOB NUMBER:	3001

Attention: Sally Guardia

This is the final report for transmission electron microscopy (TEM) analysis performed on your floor tile sample. The sample was submitted by Sally Guardia of Woodward-Clyde Federal Services to AMA Analytical Services, Inc. on May 14, 1991. Analytical results were reported to Sally Guardia of Woodward-Clyde Federal Services, by telefax, on May 21, 1991.

The sample set consisted of one (1) sample. One (1) sample was prepared and analyzed following Dr. Eric J. Chatfield's revised TEM protocol (submitted to the ASTM Committee 022.05.07.007 in 1988).

The result of the TEM analysis is shown below:

SAMPLE	ASBESTOS CONC.	ORGANICS	DOLOMITE/ CALCITE	NON-FIBROUS MATERIAL
437	NAO	21%	76%	3%

NAO = NO ASBESTOS OBSERVED

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Sample Preparation

A representative portion of the sample is placed into a preweighed porcelain crucible. The sample weight is recorded. The sample is then placed into a muffle furnace at 480 degrees Celsius for a minimum of 12 hours. The weight of the residual ash is then calculated and recorded.

A quantity of the residual material is suspended in ethanol in a glass vial and treated ultrasonically . A drop of the suspension is placed onto a carbon-coated copper grid and allowed to dry. If, upon TEM observation, an excess of calcite/dolomite is present in the ashed material, these carbonates are then extracted using hydrochloric acid; the asbestos is not extracted by this process. The acid-treated sample is then prepared for analysis, as above.

Analytical Methodology

Analysis is conducted using a JEOL 100CXII transmission electron microscope equipped with either a Kevex (Delta Class) or EG&G Ortec energy dispersive x-ray analyzer. The sample grid is examined at 100X to determine the quality of the sample preparation. A screen magnification of 15,000X is then used for the analysis of 5 grid openings.

Structures having aspect ratios $\geq$ 5:1 and a 0.5 micrometer minimum length are examined in detail. Structure morphology, selected area electron diffraction (SAED) and EDXA are used to differentiate asbestos from non-asbestos structures. Photographic documentation of representative asbestos structures, as well as EDXA data, is recorded for each asbestos containing sample.

Results

The percentage of ashed material identified as asbestos is estimated within a lower and upper range. The percentage of asbestos present in the entire sample is calculated. If acid extraction is used, the percentage of calcite/dolomite is also calculated.

AMA Analytical Services, Inc. thanks Woodward-Clyde Federal Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely,
AMA ANALYTICAL SERVICES, INC.

Luis H. Bustillos
Electron Microscopist

Robert M. Powell (wmc)

Robert M. Powell
Laboratory Director

LHB/kec

APPENDIX 2-F

SAMPLE CHAIN-OF-CUSTODY FORMS

WCFS Project [redacted] 3001

Installation (2): CM
Sample Program (3): BE
Laboratory (2):

Woodward–Clyde [redacted] eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F B G

Field Office: Woodward-[redacted] Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe							Number of Containers
										CODE	UM05	UM05	UM06	UM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19						
FBG		ASB002	415																						✓								1
FBG		ASB002	416																						✓								1
FBG		ASB002	417																						✓								1
FBG		ASB002	418																						✓								1
FBG		ASB002	419																						✓								1
FBG		ASB002	420																						✓								1
FBG		ASB002	421																						✓								1

Relinquished by: Woodward–Clyde Federal Services
Date: 2/6/91 Time: 10 am Signature: F/B/Graves

Accepted by: AMA Analytical Services, Inc.
Date: 2-15-91 Time: 10:15 Signature: L. Mauricio

Total No. of Containers: 7

Comments:
3/28/91 con L Mauricio follow up final

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project 3001

Installation (2): CM
Sample Program (3): BE
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: FBG

Field Office: Woodward Federal Services
Building 1,
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flog Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM06	UM06	UM06	UH21		HPLC	SS15	TY03	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		ASB002	422								LM05	LM06	LM06	LM06	LH19			JS14	KY04	E418.1										
FBG		ASB002	423																						/					
FBG		ASB002	424																						/					
FBG		ASB002	425																						/					
FBG		ASB002	426																						/					
FBG		ASB002	427																						/					
FBG		ASB002	428																						/					

Relinquished by: Woodward–Clyde Federal Services
Date: 2/15/91 Time: 10:00 Signature: FB Brandon

Accepted by: AMA Analytical Services, Inc.
Date: 2-15-91 Time: 10:15 Signature: L Mauricio

Total No. of Containers: (7)

Comments:

3/28 1000 L Mauricio del esp final

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project [redacted] 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted]deral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: FBG

Field Office: Woodward–[redacted]ederal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		ASB 002	429																						✓						
FBG		ASB 002	430																						✓						
FBG		ASB 002	431																						✓						
FBG		ASB 002	432																						✓						
FBG		ASB 002	433																						1						
FBG		ASB 002	434																						1						
FBG		ASB 002	435																						✓						

Relinquished by: Woodward–Clyde Federal Services
Date: 2/15/91 Time: 10:00 am Signature: FB Brandon

Accepted by: AMA Analytical Services, Inc.
Date: 2-15-91 Time: 10:15 Signature: L. Mancuso

Total No. of Containers: 7

Comments:

3/28/91 1000 L. Mancuso added up final

White & Yellow: AMA Aanlytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Projec[t] 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [Fed]eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: FBG

Field Office: Woodward[-Clyde] Federal Services
Building 1,
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(009/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe				Number of Containers
									CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19				
FBG		ASB 002	436																						\							
FBG		ASB 002	437																						\							
FBG		ASB002	438																						\							
FBG		ASB002	439																						\							
FBG		ASB002	440																						\							
FBG		ASB002	441																						\							
FBG		ASB002	442																						\							

Relinquished by: Woodward–Clyde Federal Services
Date: 2/15/91 Time: 10 [illegible] Signature: FB Brandon

Accepted by: AMA Analytical Services, Inc.
Date: 2-15-91 Time: 10:15 Signature: L. Maureen

Total No. of Containers: 7

Comments:
3/28/91 1000 L. Maureen added per [illegible]

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project No: 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F B G

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1) / Sample Flag Code (1) / Sample QC Code (1) / TEST NAME / CODE	VOC / UM05	SVOC / UM06	Pest / UM06	Pest / LM06	(OCP/PCBs (pc/ec)) / UH21	Herbicides / LH19	Rotenone / HPLC	TAL Metals / SS15	CYN / JS14	TPHC (IR) / TY03	SO4 / KY04	CL / E418.1	NIT / E418.1	TCLP / SW1311	Asbest	TCDD / SW8290	PCB Wipe / SW8290	UH19	Number of Containers
FBG		BSB002	443																			✓				
FBG		BSB002	444																			✓				
FBG		BSB002	445																			✓				
FBG		BSB002	446																			✓				
FBG		BSB002	447																			✓				
FBG		BSB002	448																			✓				
FBG		BSB002	449																			✓				

Relinquished by: Woodward–Clyde Federal Services
Date: 2/15/91 Time: 10:15 AM Signature: F B Branch

Accepted by: AMA Analytical Services, Inc.
Date: 2-15-91 Time: 10:45 Signature: L Maurice

Total No. of Containers: (7)

Comments:
3/28/91 10:30 L Maurice fed up final

Pink: WCFS Project File

Gold: WCFS Project Scientist

WCFS Project: 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F B G

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
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703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19			HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB002	450																						1					1
FBG		ASB002	451																						1					1
FBG		ASB002	452																						1					1
FBG		ASB002	453																						1					1
FBG		ASB002	454																						1					1
FBG		ASB002	455																						1					1
FBG		ASB002	456																						1					1

Relinquished by: Woodward–Clyde Federal Services
Date: 2/15/91 Time: 10 AM Signature: F B Granda

Accepted by: AMA Analytical Services, Inc.
Date: 2-15-91 Time: 10:15 Signature: L Hamrick

Total No. of Containers: 7

Comments:

2/15/91 1000 L. Hamrick left Lunch

Pink: WCFS Project File

Gold: WCFS Project Scientist

WCFS Project [redacted]3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted]eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: FBG

Field Office: Woodward[redacted] Federal Services
Building [redacted]
Door 2
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Alexandria, VA 22304
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Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe						Number of Containers
									CODE		UM05	UM06	UM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19						
FBG		ASB002	457																						1								
FBG		ASB002	458																						1								
FBG		ASB002	459																						1								
FBG		ASB002	460																						1								
FBG		ASB002	461																						1								
FBG		ASB002	462																						1								
FBG		ASB002	463																						1								

Relinquished by: Woodward–Clyde Federal Services
Date: 2/15/91 Time: 10 15 Signature: FB Branch

Accepted by: AMA Analytical Services, Inc.
Date: 2-15-91 Time: 10:15 Signature: L Maurice

Total No. of Containers: 7

Comments:
3/28/91 1000 L. Maurice 2nd sup Lunal

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project No: 3001

Installation (1): FM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: FBG

Field Office: Woodward–Clyde Federal Services
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Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/cc)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe					Number of Containers
										CODE	UM05	UM06	UM06	LM06	UH21		HPLC	SS15	TY03	E418.1				SW1311		SW8290	LH19					
FBG		ASB002	464																					↘								1
FBG		ASB002	465																					↘								1

Relinquished by: Woodward–Clyde Federal Services
Date: 2/15/91 Time: 10:15 Signature: FB Saunders

Accepted by: AMA Analytical Services, Inc.
Date: 2-15-91 Time: 10:15 Signature: L Mauricio

Total No. of Containers: 2

Comments:
3/22/91 1000 L. Mauricio dedup found

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

BUILDING 3

3.1 DESCRIPTION

Building 3 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof, typical of buildings at Cameron Station, is constructed of tar, felt and gravel over wood. The building is divided into six bays by masonry firewalls. Originally designed as a warehouse, it was converted to one floor of offices and attic space more than twenty years ago. Building materials on the main floor include carpet over floor tile, ceiling tile, regular and fire code gypsum board, plaster (in the restrooms and auditorium) and wall tile (in some secure areas). The overhead areas, which may be accessed through ladders in the custodial/phone closets, house the building's HVAC system. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

The Defense Logistics Agency is the current occupant of Building 3.

3.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 3-A through 3-F. A summary of this data is presented below.

3.2.1 Suspect Friable ACM

Two homogeneous areas of suspect friable ACM were identified and six bulk samples were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following two materials:

- Debris
- Pipe fitting insulation

These friable materials were found on two functional spaces and were assessed as follows:

- Debris in attic areas. Assessment of this material indicates a damage factor of 16 and an exposure factor of 22. According to the GAHA Index, this material ranks as a Priority B.

- Pipe fitting insulation in the mechanical room of Bay 6. Assessment of this material indicates a damage factor of 16 and an exposure factor of 23. According to the GAHA Index, this material ranks as a Priority B.

3.2.2 Suspect Nonfriable ACM

Sixteen homogeneous areas of suspect nonfriable ACM were identified and fifty-one bulk samples, including three QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following six materials:

- FT 1 9" x 9" brown floor tile and mastic
- FT 2 12" x 12" white floor tile and mastic
- FT 3 9" x 9" black w/white and green swirls floor tile and mastic
- FT 4 9" x 9" green floor tile and mastic
- WT 1 2' x 2' white wall tile
- Joint sealant

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

3.2.3 Material Assumed To Contain Asbestos

Two homogeneous areas, the tar and felt roofing material and vibration cloth, are assumed to be ACM. No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

3.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection the following materials originally identified in the walkthrough survey as suspect ACM were examined more closely and reclassified as nonsuspect:

- CT 1 1' x 2' fiberglass ceiling tile
- CT 2 2' x 4' plastic ceiling tile
- CT 3 2' x 2' fiberglass ceiling tile
- CT 6 2' x 4' fiberglass ceiling tile
- FT 5 2' x 2' formica floor tile

No bulk samples of these materials were collected, and they were deleted as homogeneous sample areas from the final survey data.

3.4 AREAS NOT ACCESSED

The following areas in Building 3 were not accessed:

- Room 3B115
- Bay 2, attic section over Command and Control area.

3.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
3		6 MF *	

TSI = THERMAL SYSTEM INSULATION
PI = PIPE INSULATION
MF = MUDDED FITTINGS
* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

3.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 3-A ACM Survey Results

Appendix 3-B Assessments/Recommendations for Friable ACM

Appendix 3-C Building Drawings

Appendix 1-D Walkthrough Survey Data Sheets

Appendix 3-E Laboratory Certificate of Analysis

Appendix 3-F Sample Chain-of-Custody Forms

APPENDIX 3-A

ACM SURVEY RESULTS

ACM Survey Results for Building 3

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	130000	SF	Assume ACM	Assume ACM	
2	Misc.	Vibration cloth	Bays 1, 2, 3, 4, 5 & 6, on AHUs in attic areas	Non	Good	160	SF	Assume ACM	Assume ACM	
3	Misc.	Debris	Bays 2, 5 & 6, on AHUs and by catwalks in attic areas	High	Poor	Unknown	--	743 744 745	5-10% chrysotile 5-10% chrysotile 5-10% chrysotile	
4	TSI	Pipe fitting insulation	Bay 6, mechanical room	High	Fair	6	# of fittings	740 741 742	None detected None detected 85-90% chrysotile	
5	TSI	Joint sealant	Bays 1, 2, 3, 4, 5, 6	Non	Good	42000	SF	815 826	1-5% chrysotile 1-5% chrysotile	This material is found on ends and seams of fiberglass-insulated pipes and ducts. The estimated amount is based on the quantity of insulation on which it is located.
6	Misc.	Ceiling tile	See Drawings 3/1-CT 3/2-CT 3/3-CT 3/4-CT 3/5-CT 3/6-CT	Non	Good	3600	SF	707 715	None detected None detected	CT 4 1' x 1' white w/fissures Replacement tile interspersed with CT 1

ACM Survey Results for Building 3 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
7	Misc.	Ceiling tile	See Drawings 3/2-CT 3/3-CT 3/4-CT 3/5-CT 3/6-CT	Non	Good	16250	SF	723 724 725	None detected None detected None detected	CT 5 2' x 4' white w/fissures Sample 725 is a QC for sample 723.
8	Misc.	Ceiling tile	See Drawing 3/3-CT	Non	Good	900	SF	728 729	None detected None detected	CT 7 2' x 4' white w/random holes
9	Misc.	Ceiling tile	Room 3B206 Command Conference Room See Drawing 3/2-CT	Non	Good	2100	SF	746 747 748	None detected None detected None detected	CT 8 2' x 2' white w/fissures Sample 748 is a QC for sample 747.
10	Misc.	Ceiling tile	Auditorium See Drawing 3/1-CT	Non	Good	1500	SF	703 704	None detected None detected	CT 9 2' x 4' fabric covered acoustical tile
11	Misc.	Ceiling tile	Projection Room See Drawing 3/1-CT	Non	Good	600	SF	700 701	None detected None detected	CT 10 2' x 2' smooth w/random holes

ACM Survey Results for Building 3 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
12	Misc.	Floor tile & mastic	See Drawings 3/1-FT 3/2-FT 3/3-FT 3/4-FT 3/5-FT	Non	Good	46000	SF	705 706	5-10% chrysotile 5-10% chrysotile	FT 1 9" x 9" brown floor tile
13	Misc.	Floor tile & mastic	Corridors See Drawings 3/1-FT 3/2-FT 3/3-FT 3/4-FT 3/5-FT 3/6-FT	Non	Good	15000	SF	710 714	1-5% chrysotile 1-5% chrysotile	FT 2 12" x 12" white floor tile
14	Misc.	Floor tile & mastic	See Drawings 3/1-FT 3/2-FT 3/3-FT 3/4-FT 3/5-FT 3/6-FT	Non	Good	36000	SF	708 735	5-10% chrysotile 1-5% chrysotile	FT 3 9" x 9" black w/white and green swirls floor tile
15	Misc.	Floor tile & mastic	See Drawings 3/3-FT 3/6-FT	Non	Good	5225	SF	726 727	1-5% chrysotile 5-10% chrysotile	FT 4 9" x 9" green floor tile

ACM Survey Results for Building 3 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
16	Misc.	Wall tile	See Drawings 3/2-WT 3/6-WT	Non	Good	2000	SF	738 739	35-40% chrysotile 25-30% chrysotile	WT 1 2' x 2' white w/uniform holes
17	Surfacing	Fire code gypsum board	Hallways & entrances	Non	Good	>110000	SF	711 713 722 730 731 732 733	None detected None detected None detected None detected None detected None detected None detected	
18	Surfacing	Regular gypsum board	Interior walls: throughout building Ceilings: custodial closets & restrooms	Non	Good	>130000	SF	702 709 712 719 734 736 737	None detected None detected None detected None detected <1% chrysotile None detected None detected	

ACM Survey Results for Building 3 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
19	Surfacing	Plaster See Drawing 3/2-CT 3/4-CT	Restrooms	Non	Good	5000	SF	716 717 718 720 721	None detected None detected None detected None detected None detected	
20	Surfacing	Plaster See Drawing 3/1-CT	Auditorium and lobby ceiling	Non	Good	5000	SF	749 750 751 752 753 754	None detected None detected None detected None detected None detected None detected	Sample 754 is a QC for sample 753.

APPENDIX 3-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 3.

Functional Space	Homogeneous Sample Area #	Material Description: Category (surfacing TSI or misc.)	Material Description: Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
3-1 Bays 2, 5 & 6	3	TSI	Debris	16	22	B	Action as Soon As Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
3-2 Bay 6, mechanical room	4	TSI	Pipe fitting insulation	16	23	B	Action as Soon As Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable Asbestos Assessment Checklist

Cameron Station Building 3 Inspector Barnes / Guarda 3/13/91

Homogeneous Sample Area #(s) 3 Material Type(s) debris

Functional Space 3-1 Bays 2, 5 & 6 attic areas

Part 1: Damage/Risk

- Visible evidence of physical damage: (5) High; 4 Moderate; 2 Low; 1 Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

  A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance

  B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:

  A. < 10 ft: (8) High; 5 Medium; 2 Low

  B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 743, 744, 745

Damage/Risk Total 16

Friable Asbestos Assessment Checklist

Cameron Station Building 3 Inspector Barnes/Guarda 3/13/91

Homogeneous Sample Area #(s) 3 Material Type(s) debris

Functional Space 3-1 Bays 2,5 & 6 attic areas

Part 2: Exposure

- Friability: (6) High; 3 Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 22

Friable Asbestos Assessment Checklist

Cameron Station Building 3 Inspector Barnes/Guard Inc. 3/13/91

Homogeneous Sample Area #(s) 4 Material Type(s) pipe fitting insulation

Functional Space 3-2 Bay 6, mechanical room

Part 1: Damage/Risk

- Visible evidence of physical damage: **5** High; (4) Moderate; **2** Low; **1** Minimal; **0** None
- Water damage: **3** Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: **3** <1 ft. or ceiling panel contaminated; **2** 1≤ ft <5; **1** ≥5 ft; **0** ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: **3** Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; **0** No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; **3** HVAC; **4** Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: **8** High; (5) Medium; **2** Low
  - B. ≥ 10 ft: **5** High; **3** Medium; **0** Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  1 1< % ≤ 30; **3** 30 < % ≤ 50; (5) > 50%; **NO HAZARD** Samples contain no asbestos
- Sample Numbers: 740, 741, 742

Damage/Risk Total 16

Friable Asbestos Assessment Checklist

Cameron Station Building 3 Inspector Barna/Garcia 3/13/91

Homogeneous Sample Area #(s) 4 Material Type(s) pipe fitting insulation

Functional Space 3-2 Bay 6 mechanical room

Part 2: Exposure

- Friability: (6) High; 3 Moderate; 1 Low
- Amount of Visible Friable Material: (0) < 10 ft^2; 1 10≤ ft^2 < 100; 2 100 ≤ ft^2 < 1000; 3 ≥ 1000 ft_2
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  (5) High (constant vibration); 2 Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

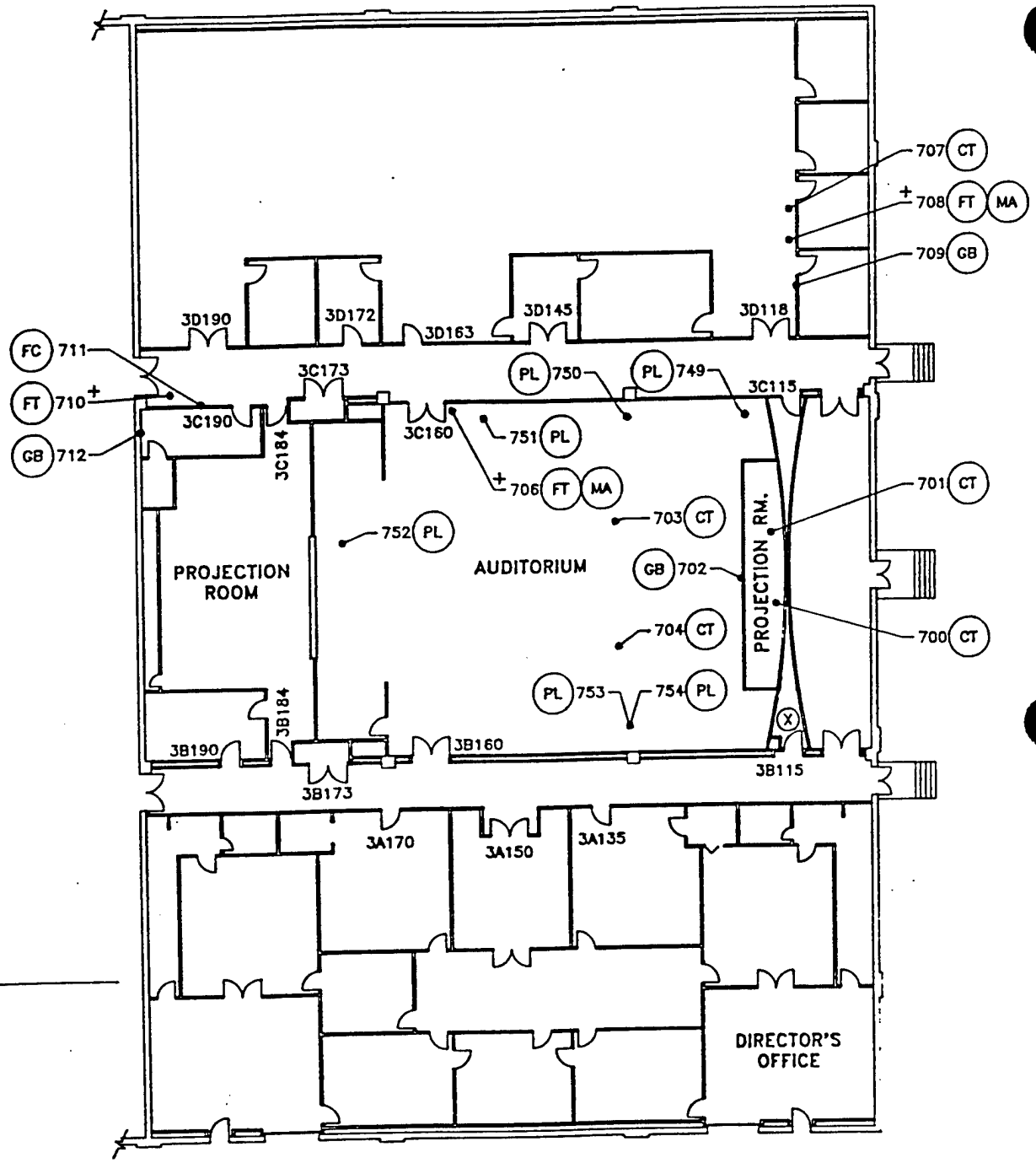
  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 23

APPENDIX 3-C

BUILDING DRAWINGS



LEGEND

- CT — CEILING TILE
- FT — FLOOR TILE
- MA — MASTIC
- GB — GYPSUM BOARD
- FC — FIRE CODE GYPSUM BOARD
- PL — PLASTER
- X — AREA NOT ACCESSED
- \+ — DENOTES POSITIVE RESULTS

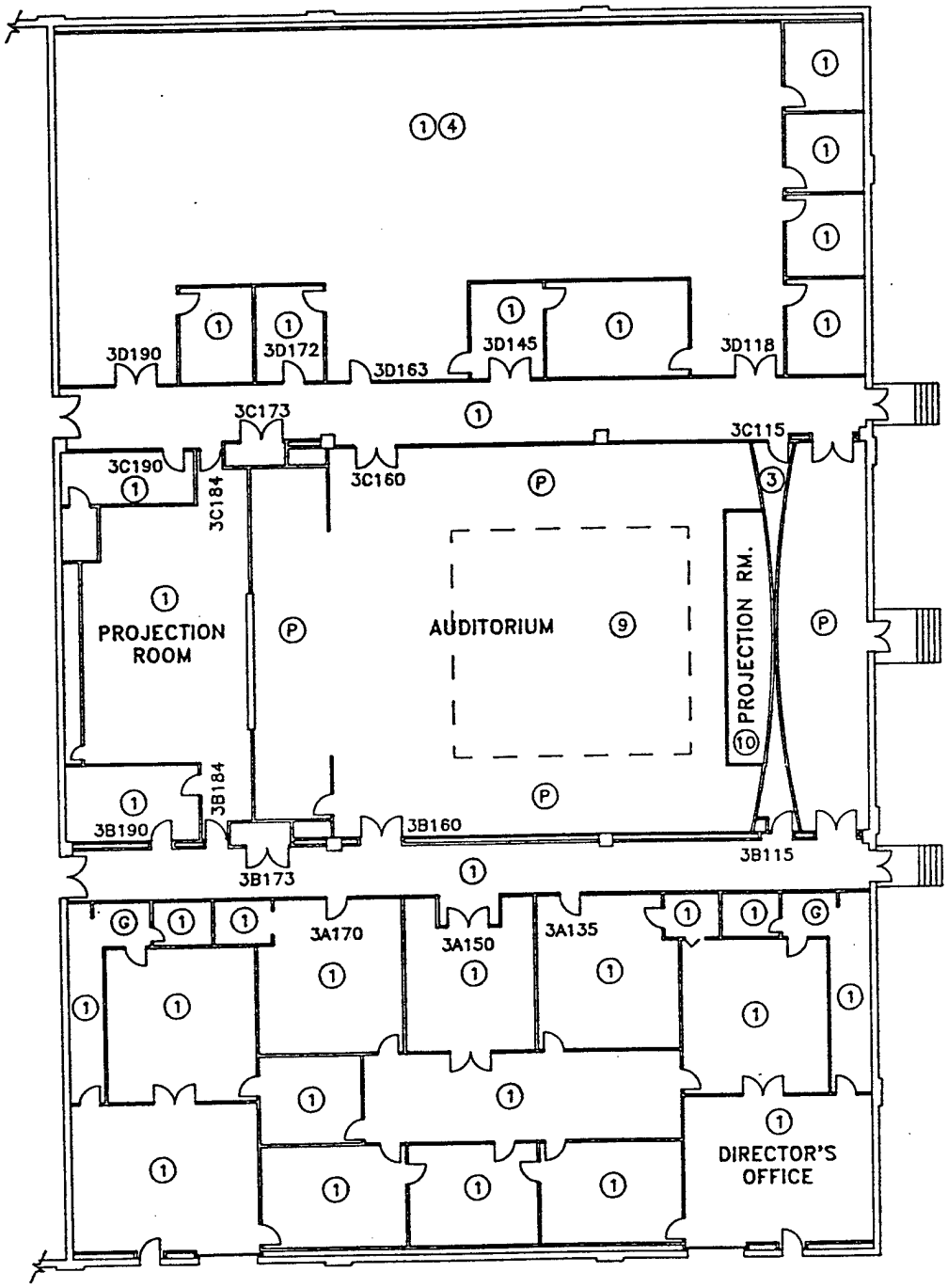
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE: BUILDING 3 – BAY 1 SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE	FIG.
3001–210	L.A.L.	6–3–91	3/1–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(1) 1" x 2" GROOVED FIBERGLASS TILE

(3) 2" x 4" PLASTIC TILE

(4) 1" x 1" FISSURED TILE

(9) 2" x 4" FABRIC COVERED ACOUSTICAL TILE

(10) 2" x 2" SMOOTH WITH RANDOM HOLES

(G) GYPSUM BOARD

(P) PLASTER

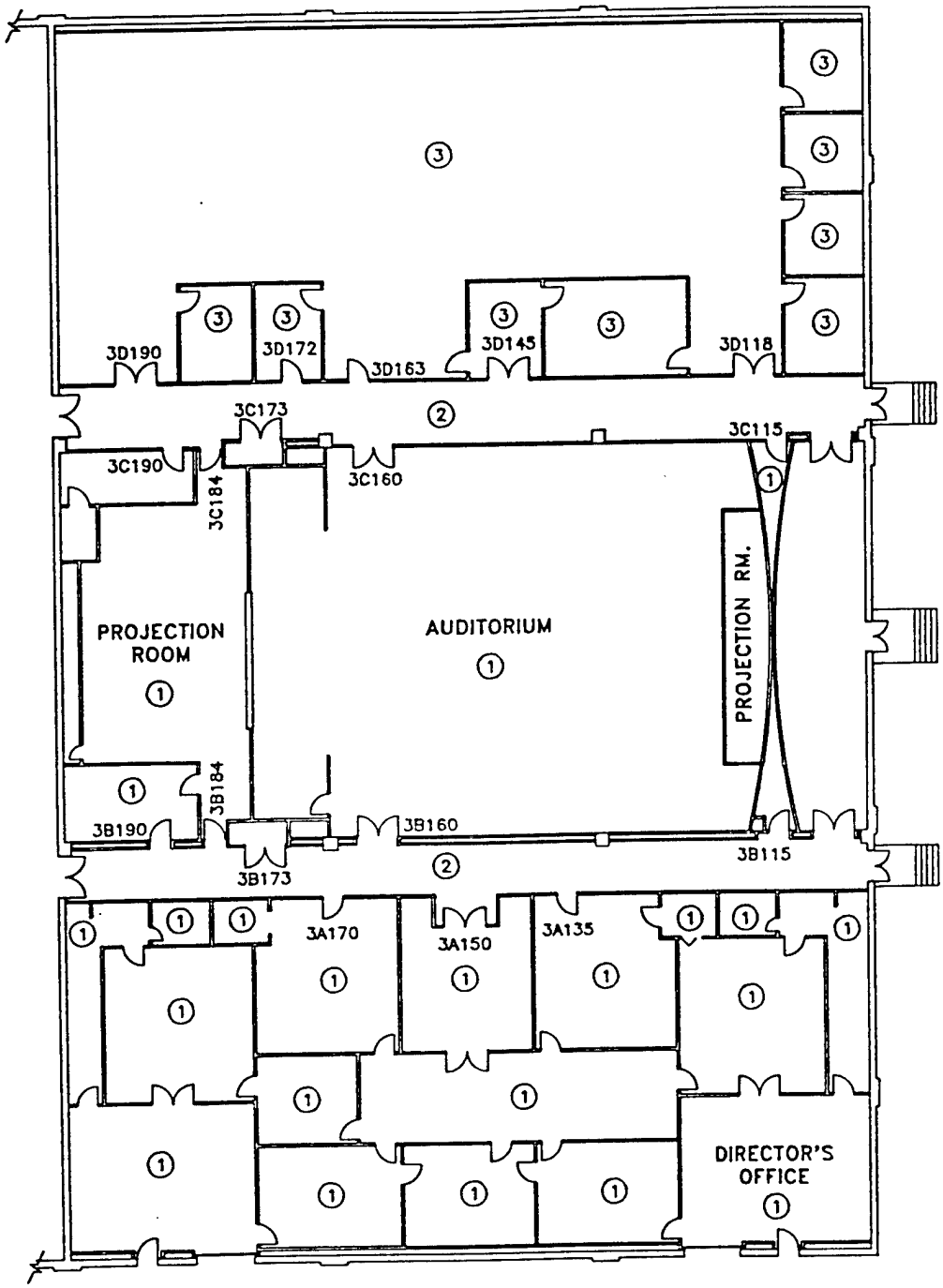
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 3 – BAY 1
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	L.A.L.	DATE:	6-3-91	FIG.	3/1-CT
3001-210	CHECKED BY:	F.B.G.	SCALE:	N.T.S.		



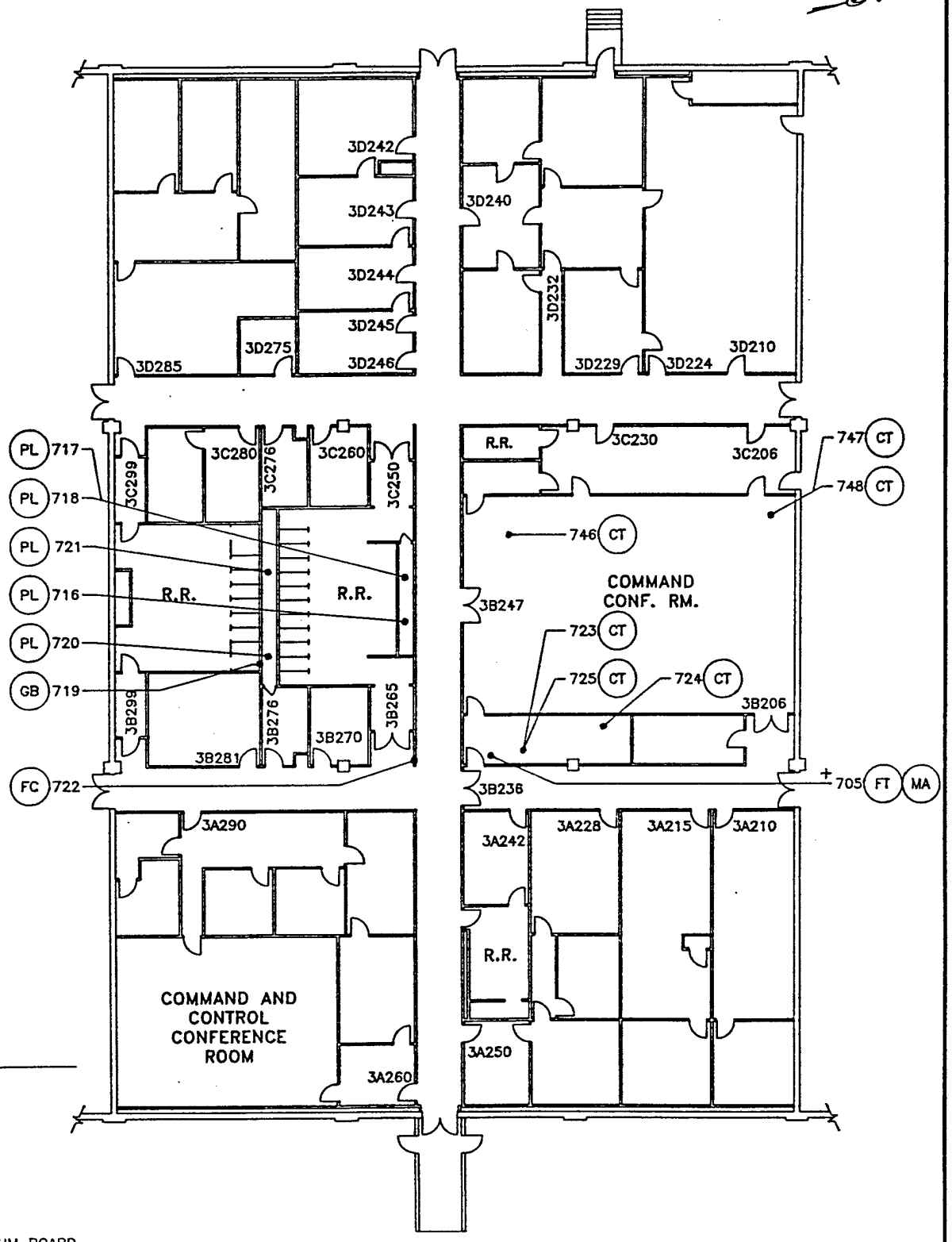
LEGEND

(1) 9" x 9" BROWN

(2) 12" x 12" WHITE

(3) 9" x 9" BLACK

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 1 FLOOR TILE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. CHECKED BY: F.B.Q. DATE: 6–3–91 SCALE: N.T.S. FIG. 3/1–FT



LEGEND

- CT — CEILING TILE
- FT — FLOOR TILE
- MA — MASTIC
- FC — FIRE CODE GYPSUM BOARD
- PL — PLASTER
- \+ — DENOTES POSITIVE RESULTS

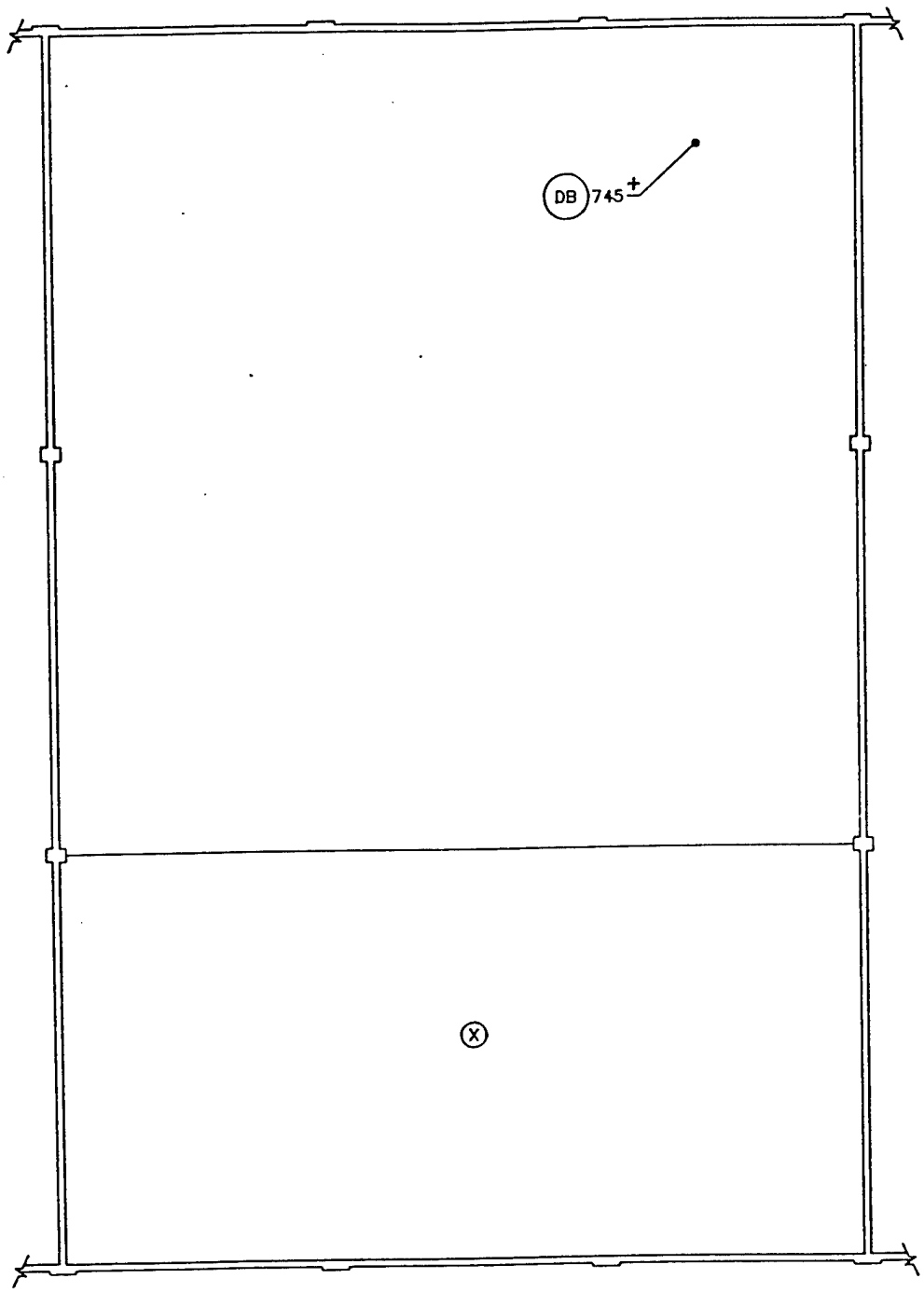
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 3 – BAY 2
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001–210	L.A.L.	8–3–91	3/2–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



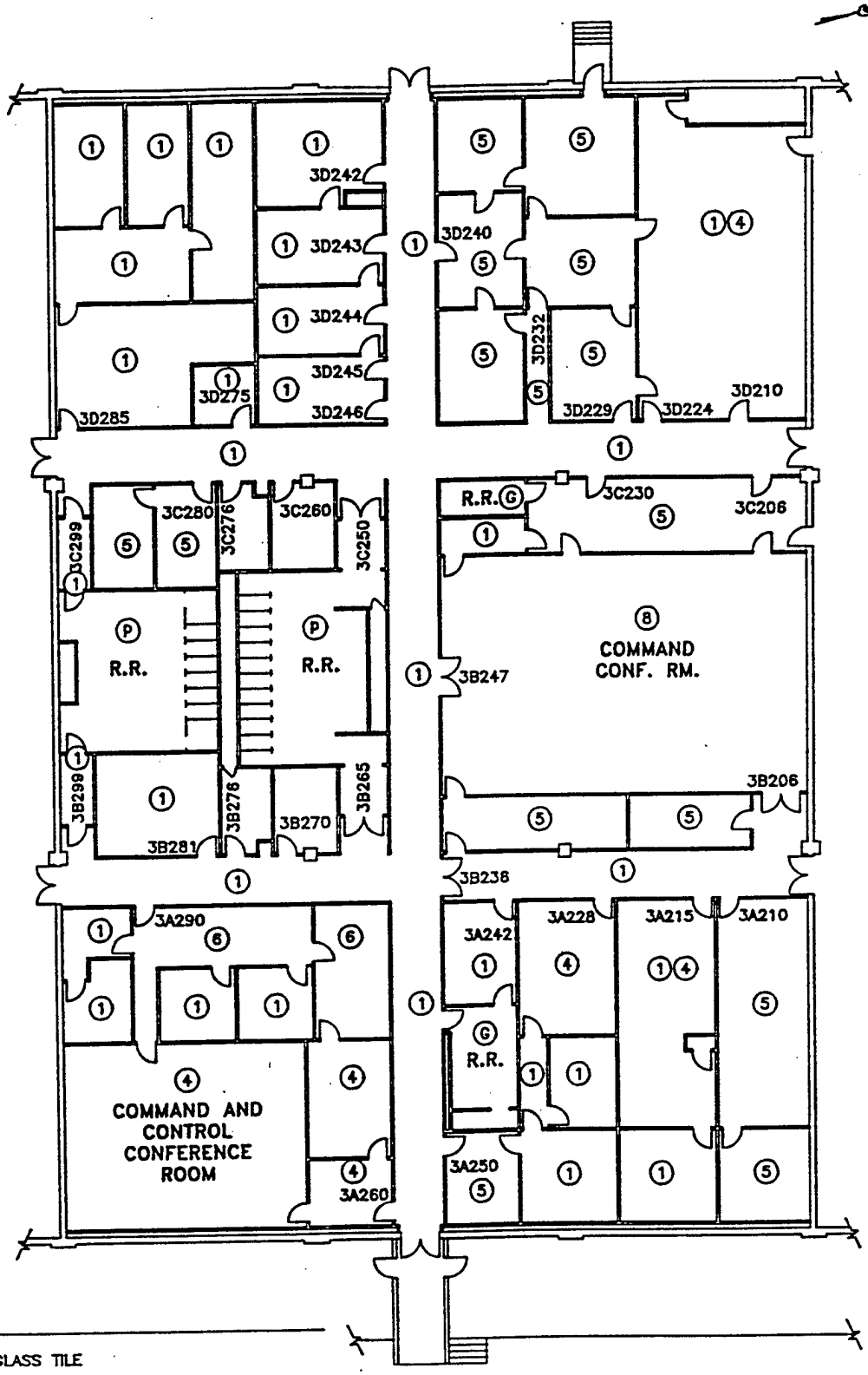
LEGEND

(DB) DEBRIS

(X) AREA NOT ACCESSED

\+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 2 ATTIC SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. DATE: 8–3–91 FIG. 3/2A–SL
	CHECKED BY: F.B.C. SCALE: N.T.S.



LEGEND

(1) 1" x 2" GROOVED FIBERGLASS TILE

(4) 1" x 1" FISSURED TILE

(5) 2" x 4" FISSURED TILE

(6) 2" x 4" SMOOTH TILE

(8) 2" x 2" FISSURED TILE

(G) GYPSUM BOARD

(P) PLASTER

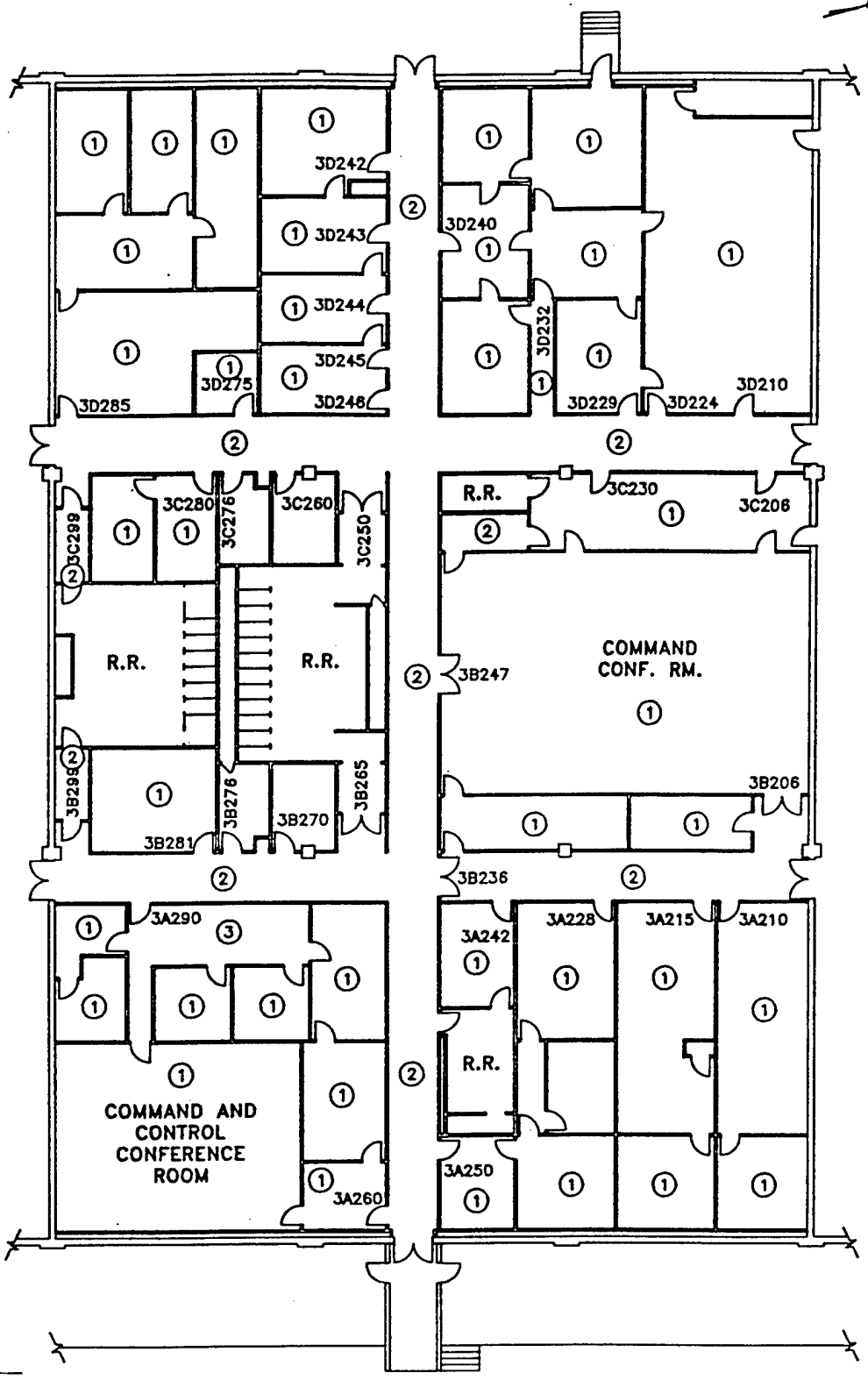
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 3 – BAY 2
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	8-3-91	3/2-CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



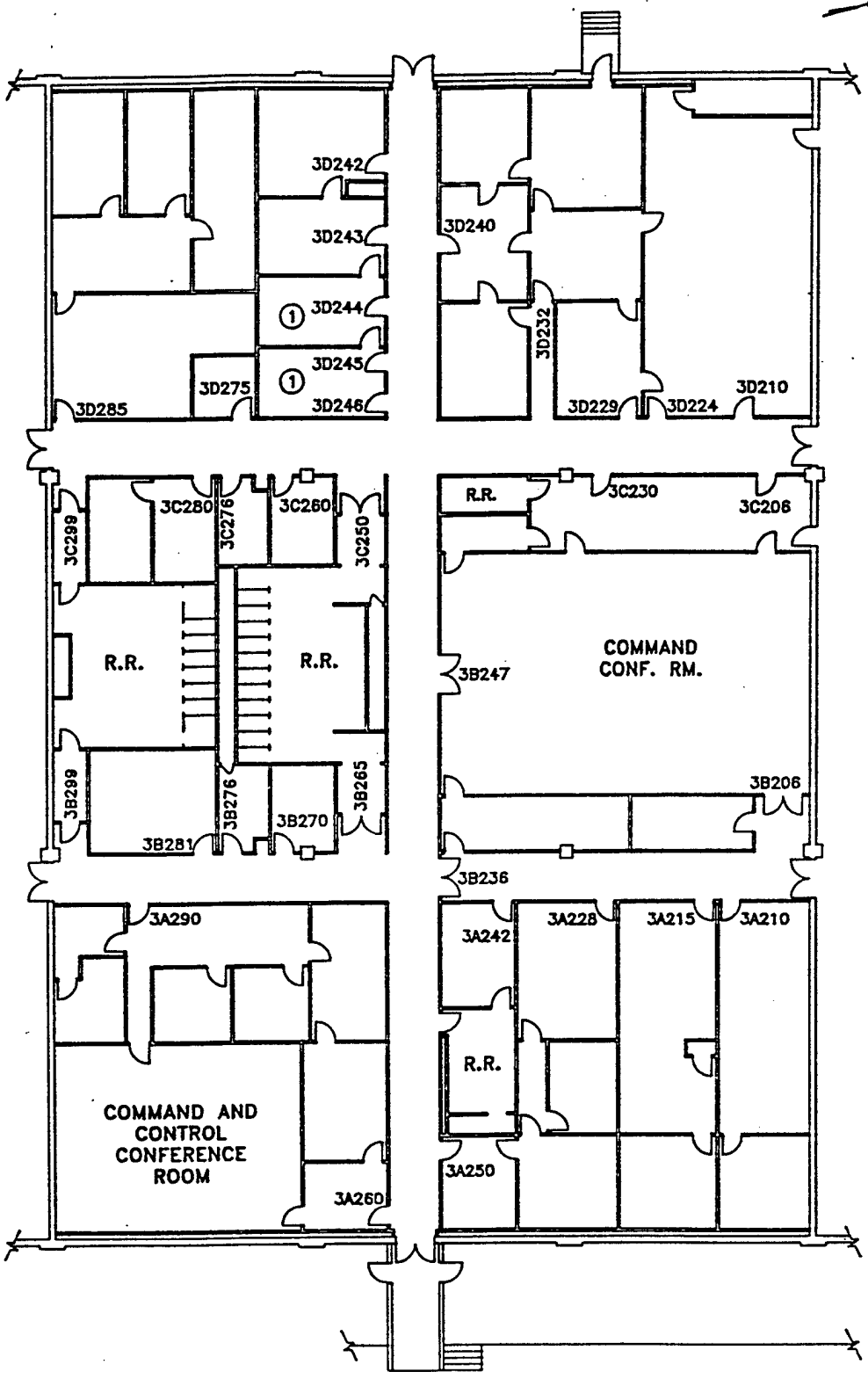
LEGEND

① 9" x 9" BROWN

② 12" x 12" WHITE

③ 9" x 9" BLACK

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 2 FLOOR TILE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. CHECKED BY: F.B.C. DATE: 6-3-91 SCALE: N.T.S. DWG. NO. 3/2-FT



LEGEND

(1) 2" x 2" UNIFORM HOLE TILE

CLIENT USATHAMA

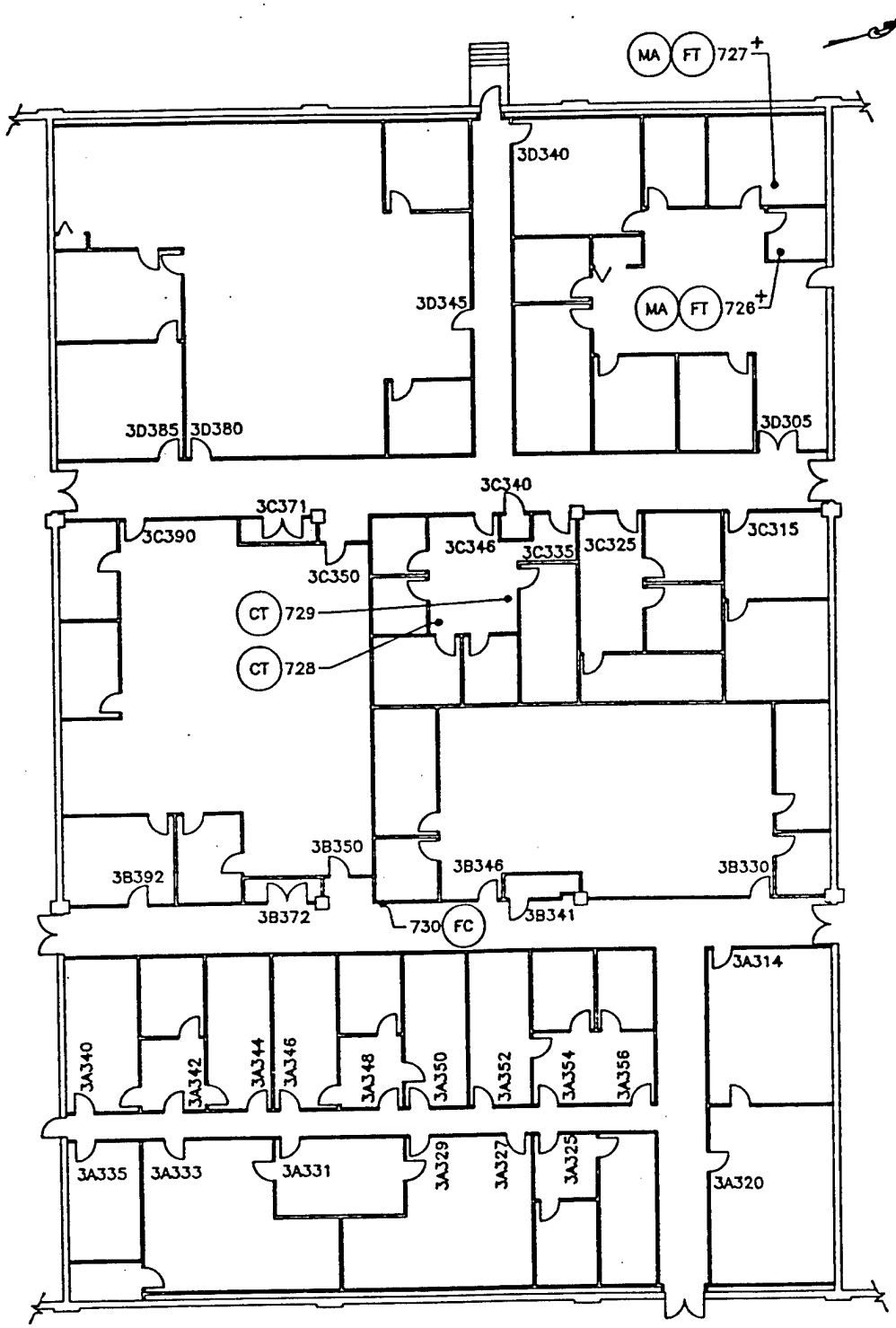
LOCATION Cameron Station, Alexandria, Virginia

Woodward-Clyde Federal Services

TITLE

BUILDING 3 - BAY 2
WALL TILE LOCATIONS

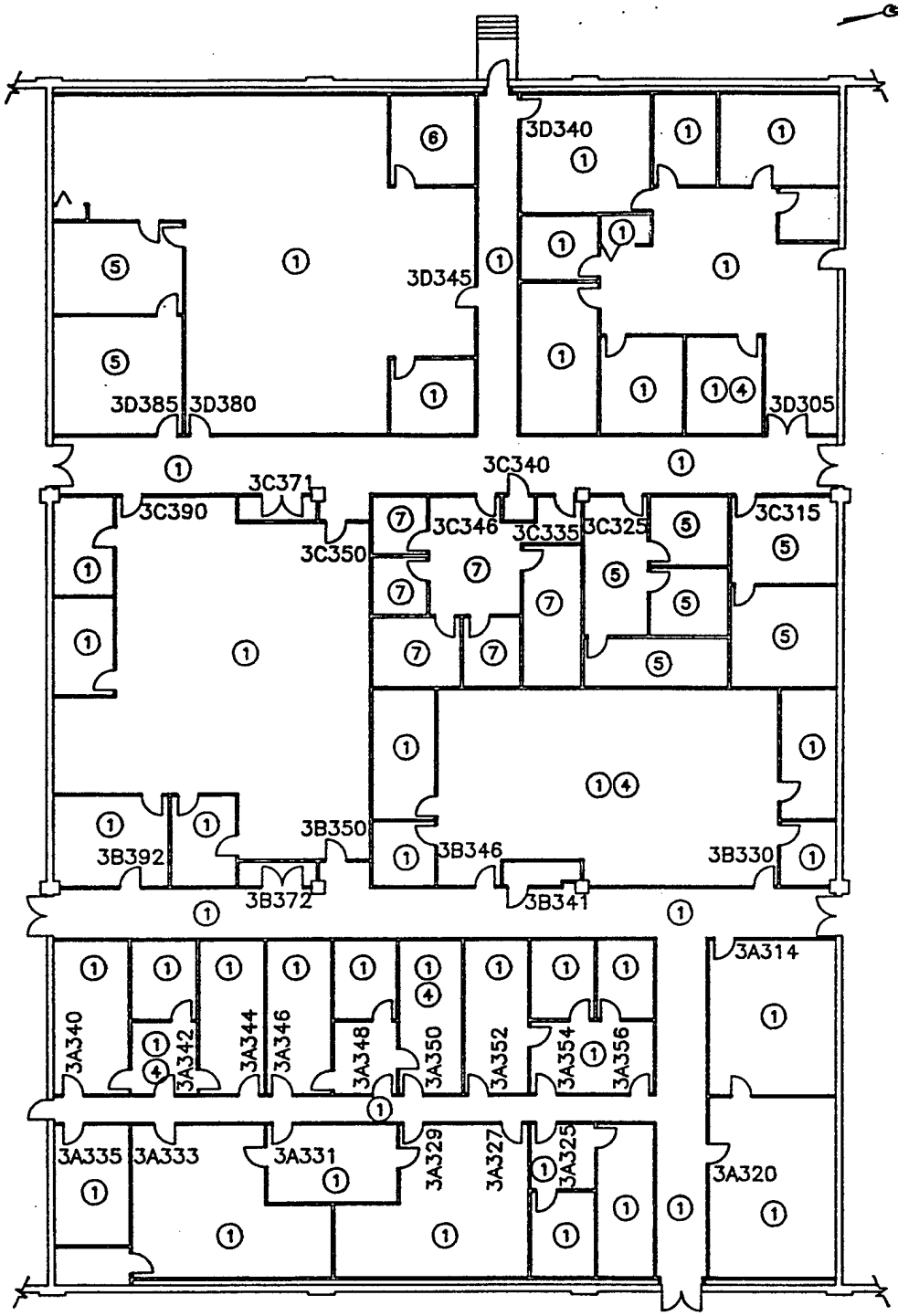
PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001-210	CHECKED BY:	SCALE:	3/2-WT



LEGEND

- (CT) CEILING TILE
- (FT) FLOOR TILE
- (MA) MASTIC
- (FC) FIRE CODE GYPSUM BOARD
- \+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia				
Woodward-Clyde Federal Services	TITLE BUILDING 3 – BAY 3 SAMPLE LOCATIONS				
	PROJECT NO. 3001-210	DRAWN BY: L.A.L.	DATE: 6-3-91	FIG.	3/3-SL
		CHECKED BY: F.B.C.	SCALE: N.T.S.		



LEGEND

(1) 1" x 2" GROOVED FIBERGLASS TILE

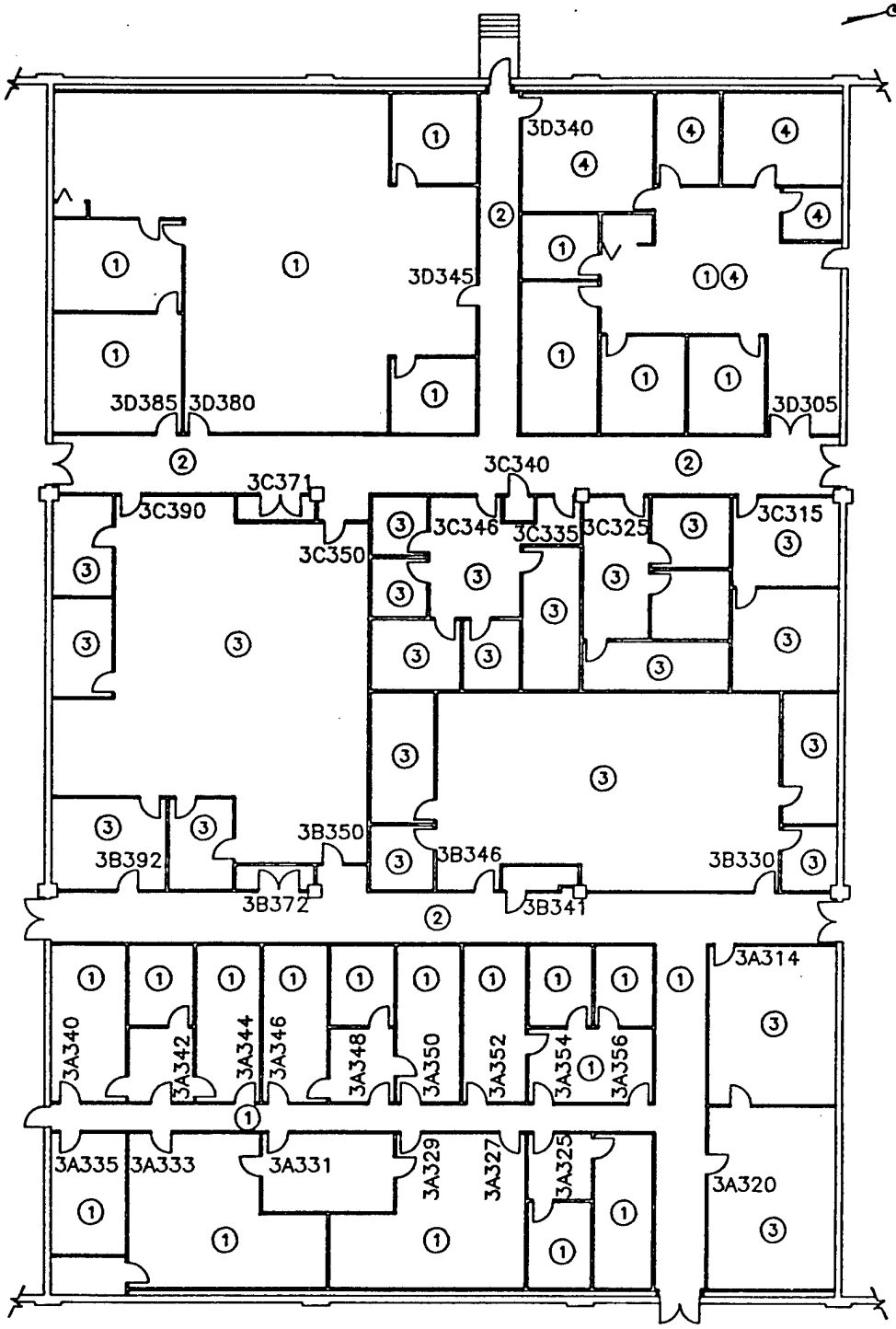
(4) 1" x 1" FISSURED TILE

(5) 2" x 4" FISSURED TILE

(6) 2" x 4" SMOOTH TILE

(7) 2" x 4" RANDOM HOLE TILE

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 3 CEILING TYPE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. CHECKED BY: F.B.G. DATE: 6–3–91 SCALE: N.T.S. DWG. NO. 3/3–CT



LEGEND

① 9" x 9" BROWN

② 12" x 12" WHITE

③ 9" x 9" BLACK

④ 9" x 9" GREEN

CLIENT USATHAMA

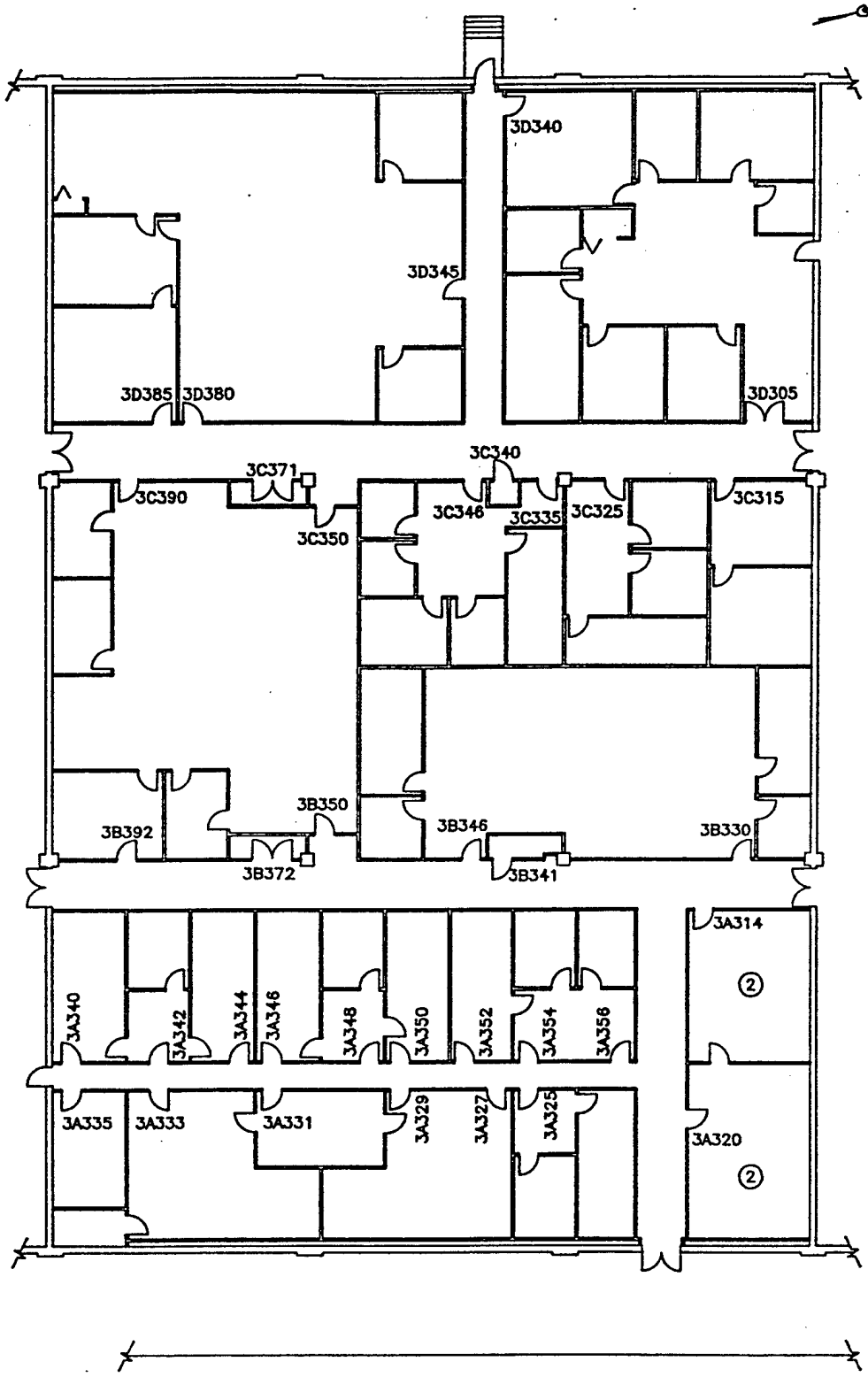
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 3 – BAY 3
FLOOR TILE LOCATIONS

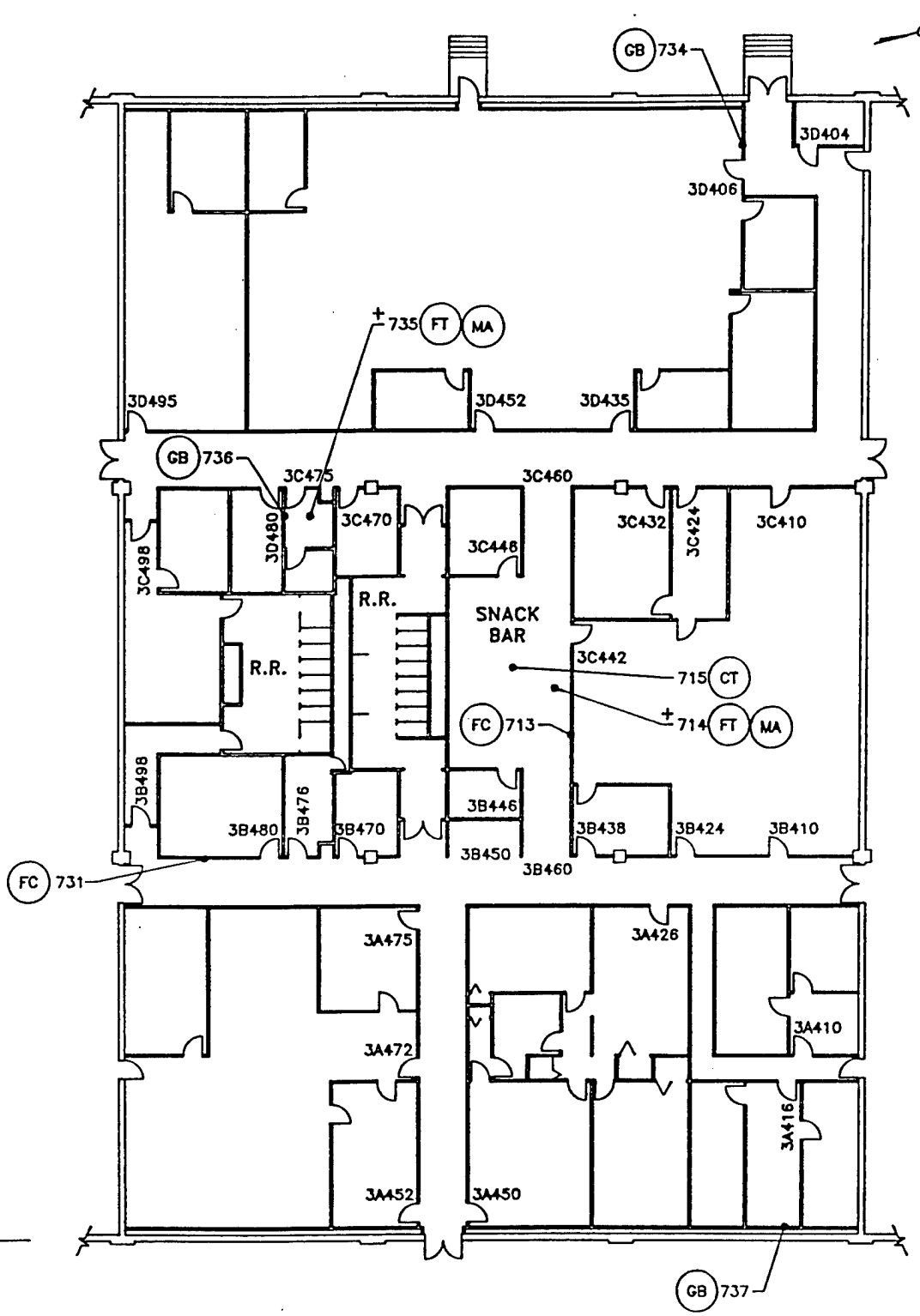
PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–3–91	3/3–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

② 1" x 1" FIBERBOARD TILE

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia				
Woodward-Clyde Federal Services	TITLE BUILDING 3 – BAY 3 WALL TILE LOCATIONS				
PROJECT NO. 3001-210	DRAWN BY: L.A.L.	CHECKED BY: F.B.G.	DATE: 6-3-91	SCALE: N.T.S.	DWG. NO. 3/3-WT



LEGEND

- CT — CEILING TILE
- FT — FLOOR TILE
- MA — MASTIC
- GB — GYPSUM BOARD
- \+ — DENOTES POSITIVE RESULTS

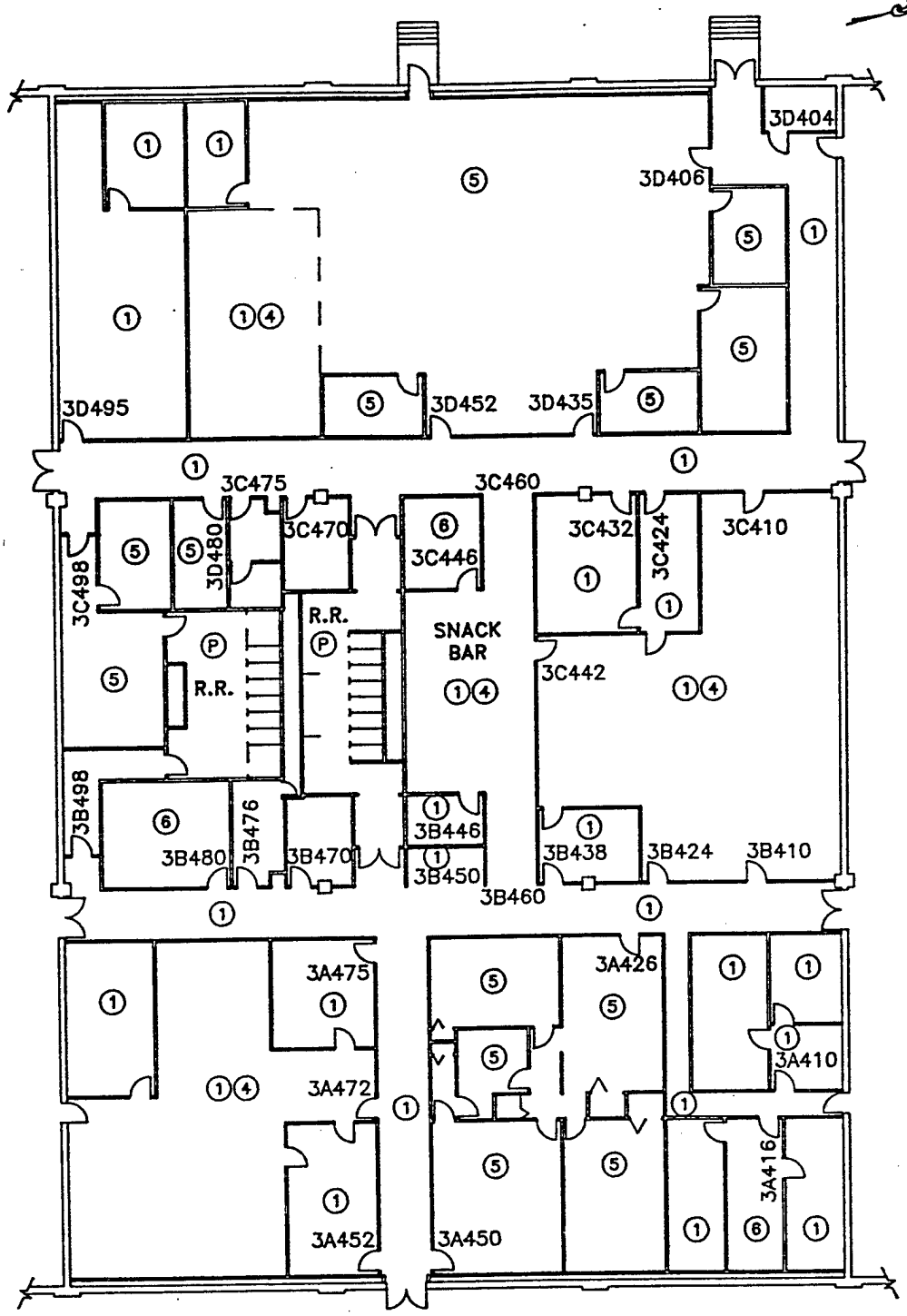
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 3 – BAY 4
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE	FIG.
3001–210	L.A.L.	6–3–91	3/4–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(1) 1" x 2" GROOVED FIBERGLASS TILE

(4) 1" x 1" FISSURED TILE

(5) 2" x 4" FISSURED TILE

(6) 2" x 4" SMOOTH TILE

(P) PLASTER

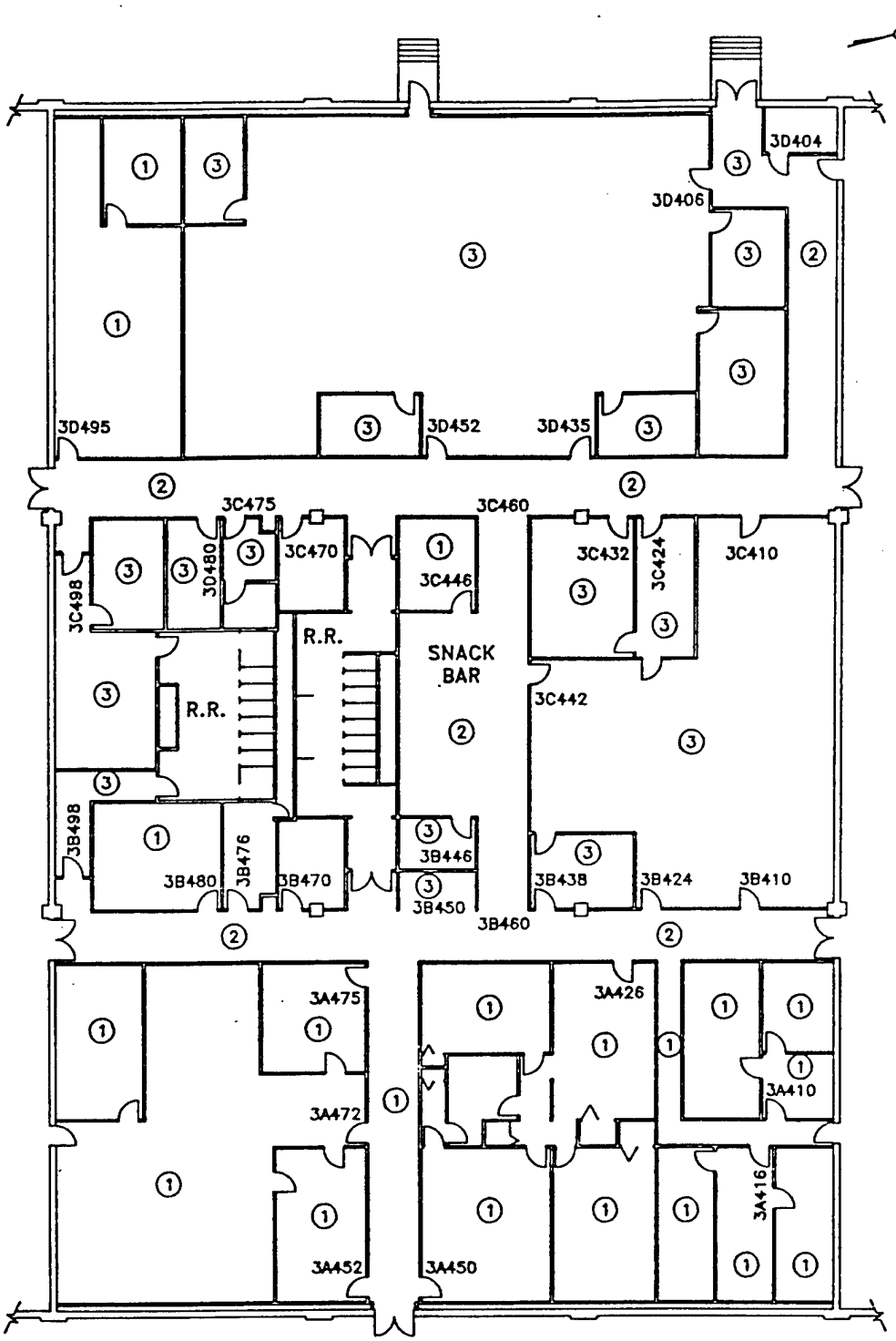
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward-Clyde Federal Services

TITLE BUILDING 3 - BAY 4
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001-210	L.A.L.	6-3-91	3/4-CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



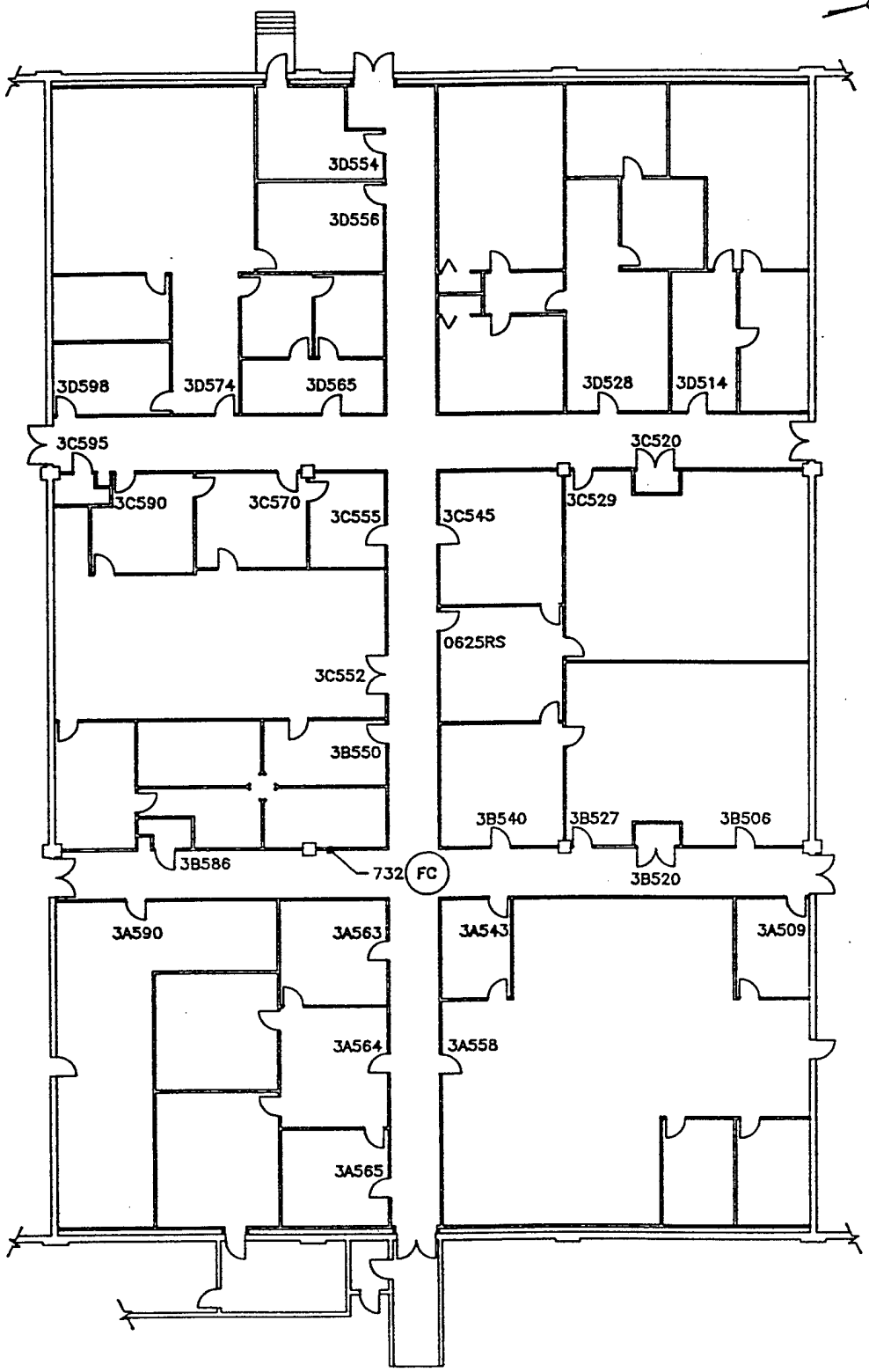
LEGEND

(1) 9" x 9" BROWN

(2) 12" x 12" WHITE

(3) 9" x 9" BLACK

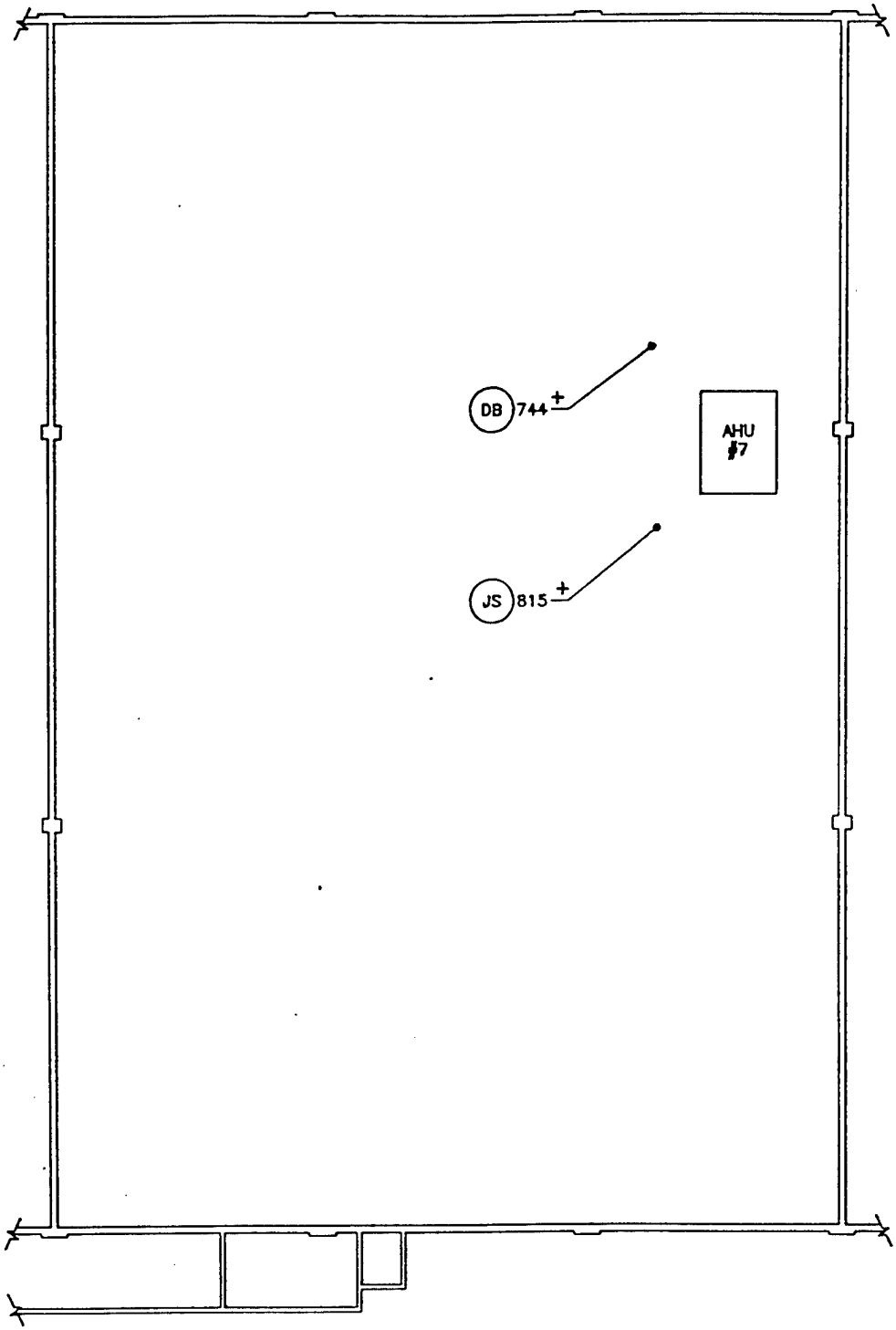
CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 4 FLOOR TILE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: LAL; DATE: 6–3–91; FIG. 3/4-FT
	CHECKED BY: F.B.C.; SCALE: N.T.S.



LEGEND

(FC) FIRE CODE GYPSUM BOARD

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia				
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 5 SAMPLE LOCATIONS				
PROJECT NO. 3001–210	DRAWN BY: L.A.L.	CHECKED BY: F.B.C.	DATE: 8–3–91	SCALE: N.T.S.	FIG. 3/5–SL



LEGEND

(DB) DEBRIS

(JS) JOINT SEALANT

\+ DENOTES POSITIVE RESULTS

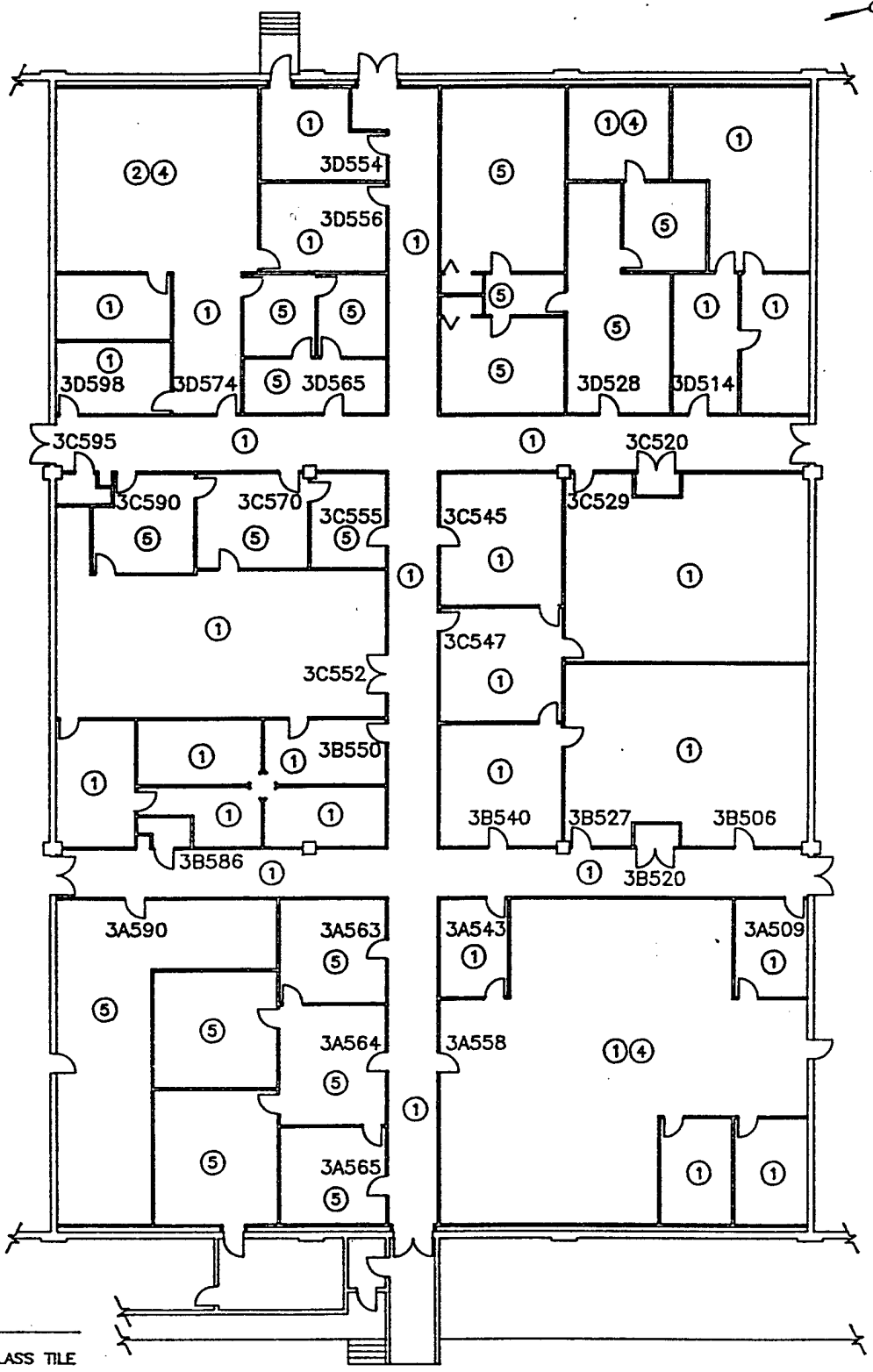
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 3 – BAY 5 ATTIC SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001–210	L.A.L.	8–3–91	3/5A–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(1) 1" x 2" GROOVED FIBERGLASS TILE

(2) 2" x 4" PLASTIC TILE

(4) 1" x 1" FISSURED TILE

(5) 2" x 4" FISSURED TILE

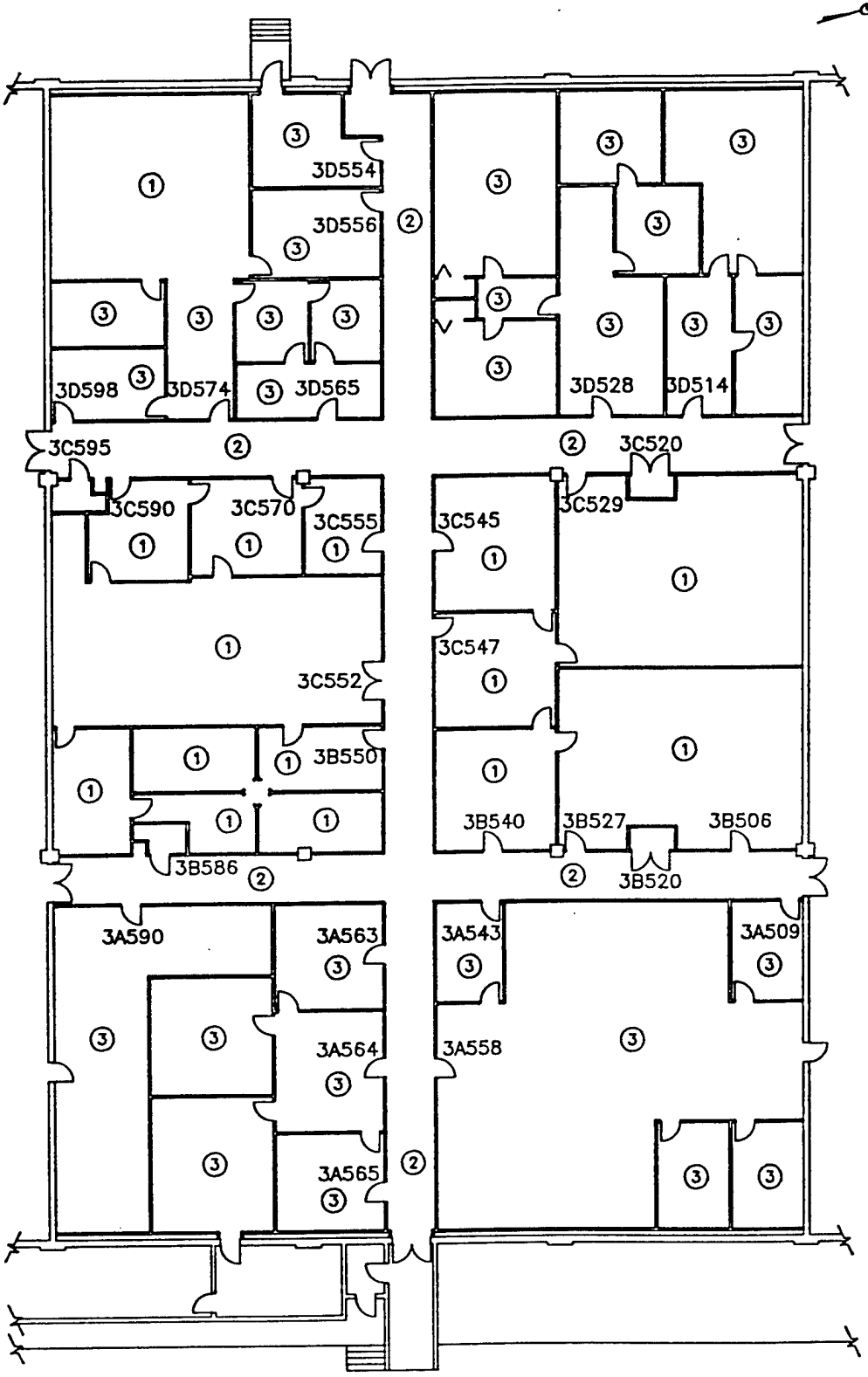
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 3 – BAY 5
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–3–91	3/5–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 9" x 9" BROWN

(2) 12" x 12" WHITE

(3) 9" x 9" BLACK

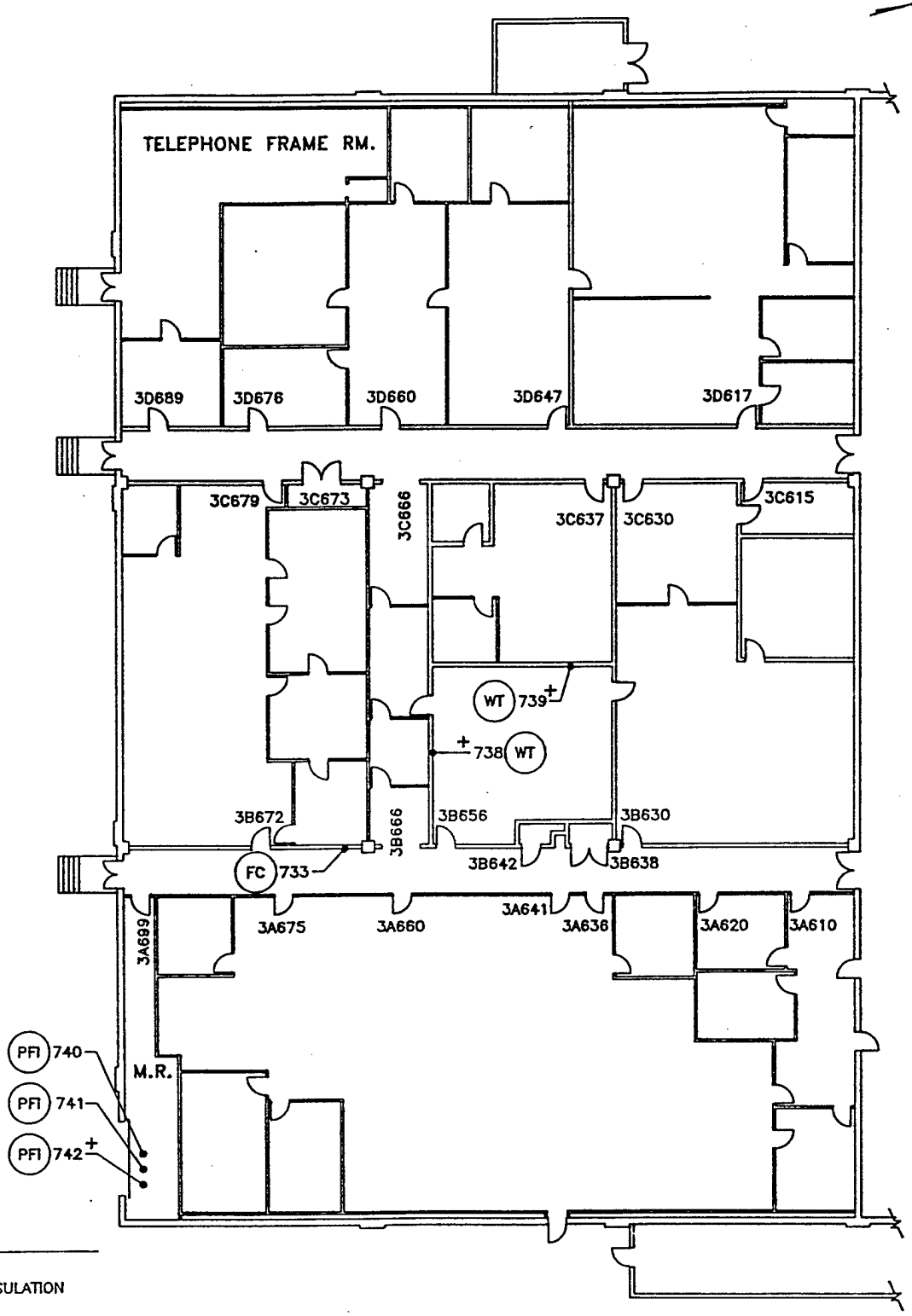
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 3 – BAY 5
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	8–3–91	3/5–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

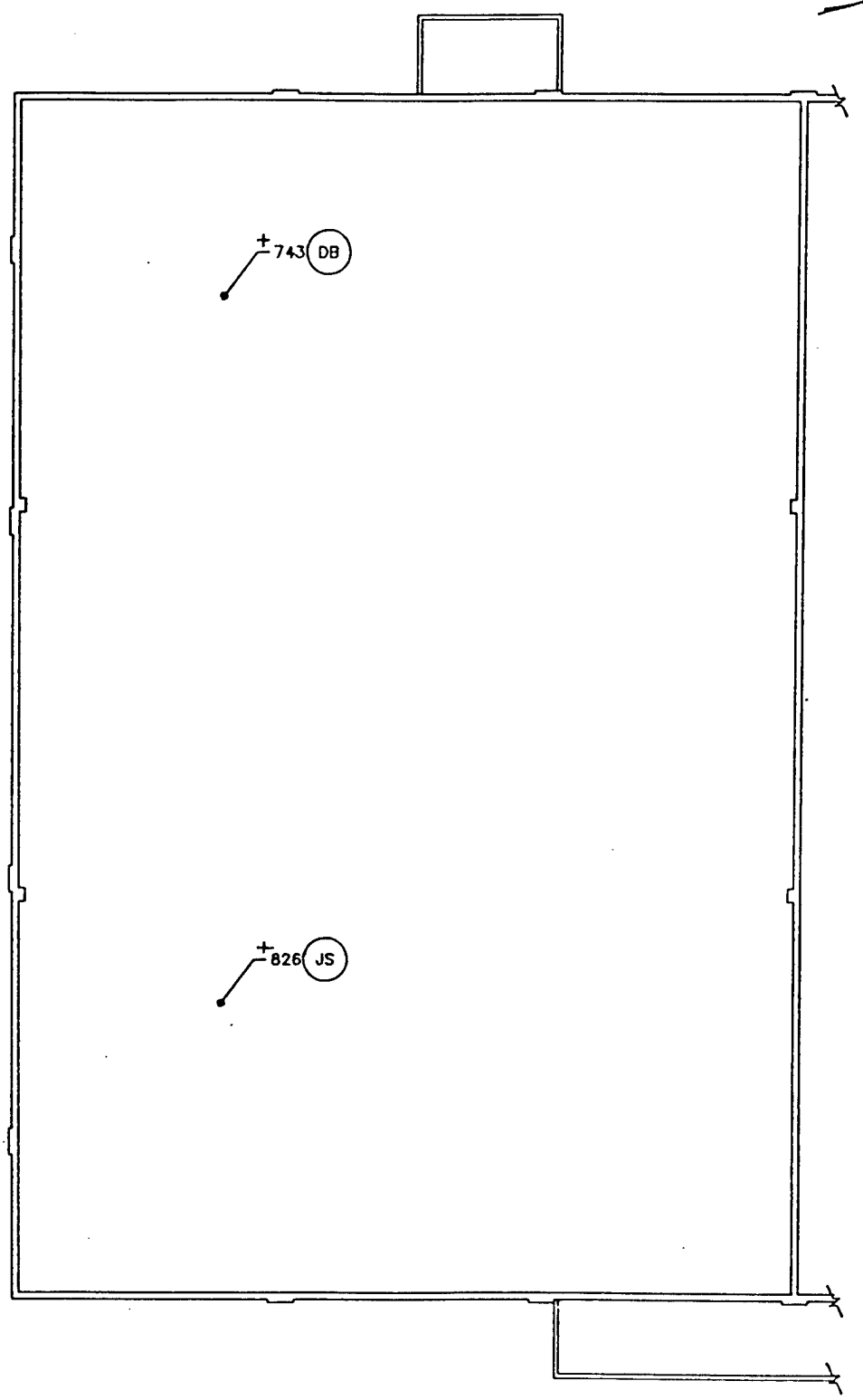
(PFI) PIPE FITTING INSULATION

(WT) WALL TILE

(FC) FIRE CODE GYPSUM BOARD

\+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 6 SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. CHECKED BY: F.B.G. DATE: 6–3–91 SCALE: N.T.S. FIG. 3/6–SL

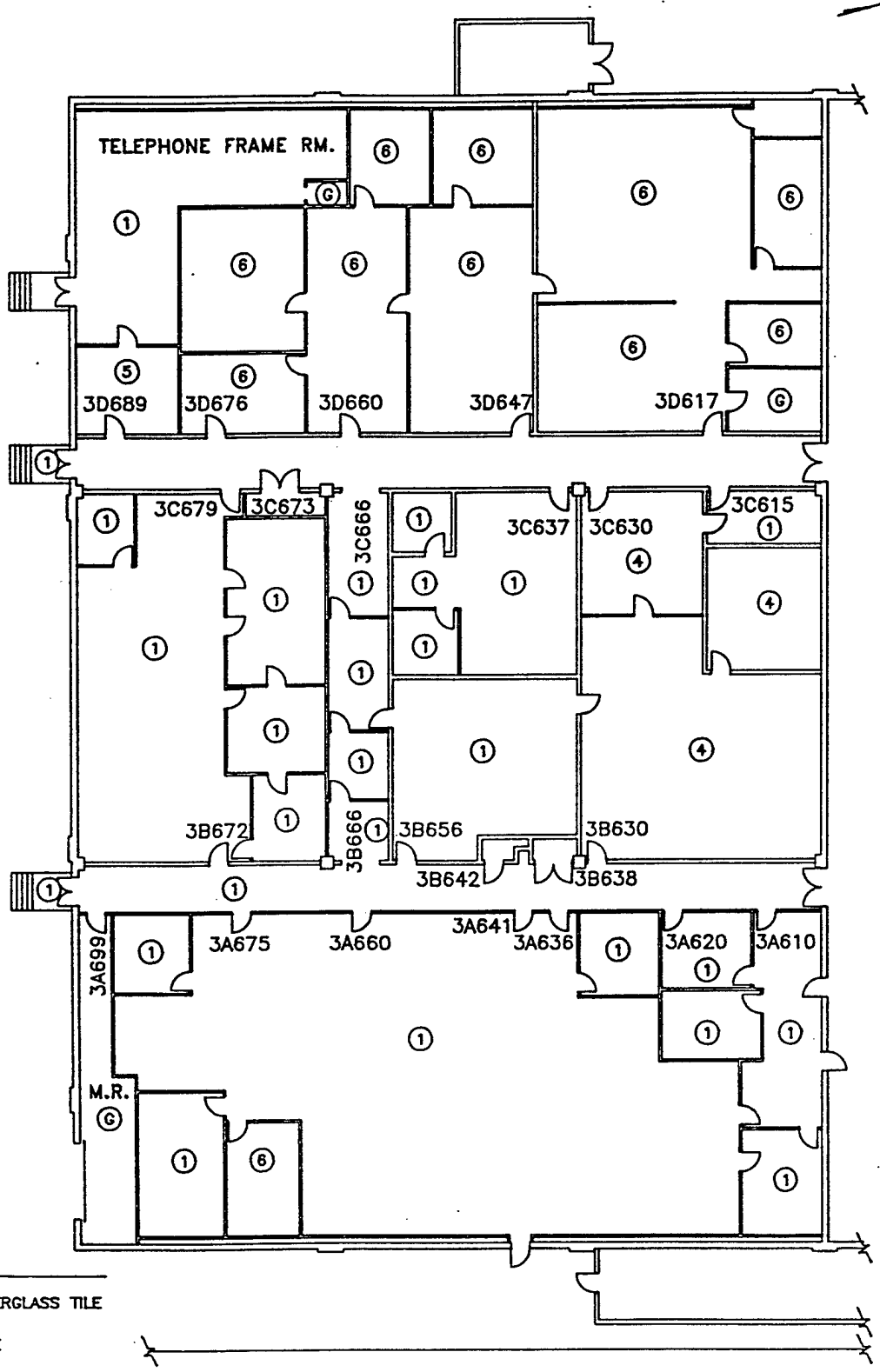


LEGEND

(DB) DEBRIS

\+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 6 ATTIC SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. CHECKED BY: F.B.G. DATE: 8–3–91 SCALE: N.T.S. FIG. 3/6A–SL



LEGEND

(1) 1" x 2" GROOVED FIBERGLASS TILE

(4) 1" x 1" FISSURED TILE

(5) 2" x 4" FISSURED TILE

(6) 2" x 4" SMOOTH TILE

(G) GYPSUM BOARD

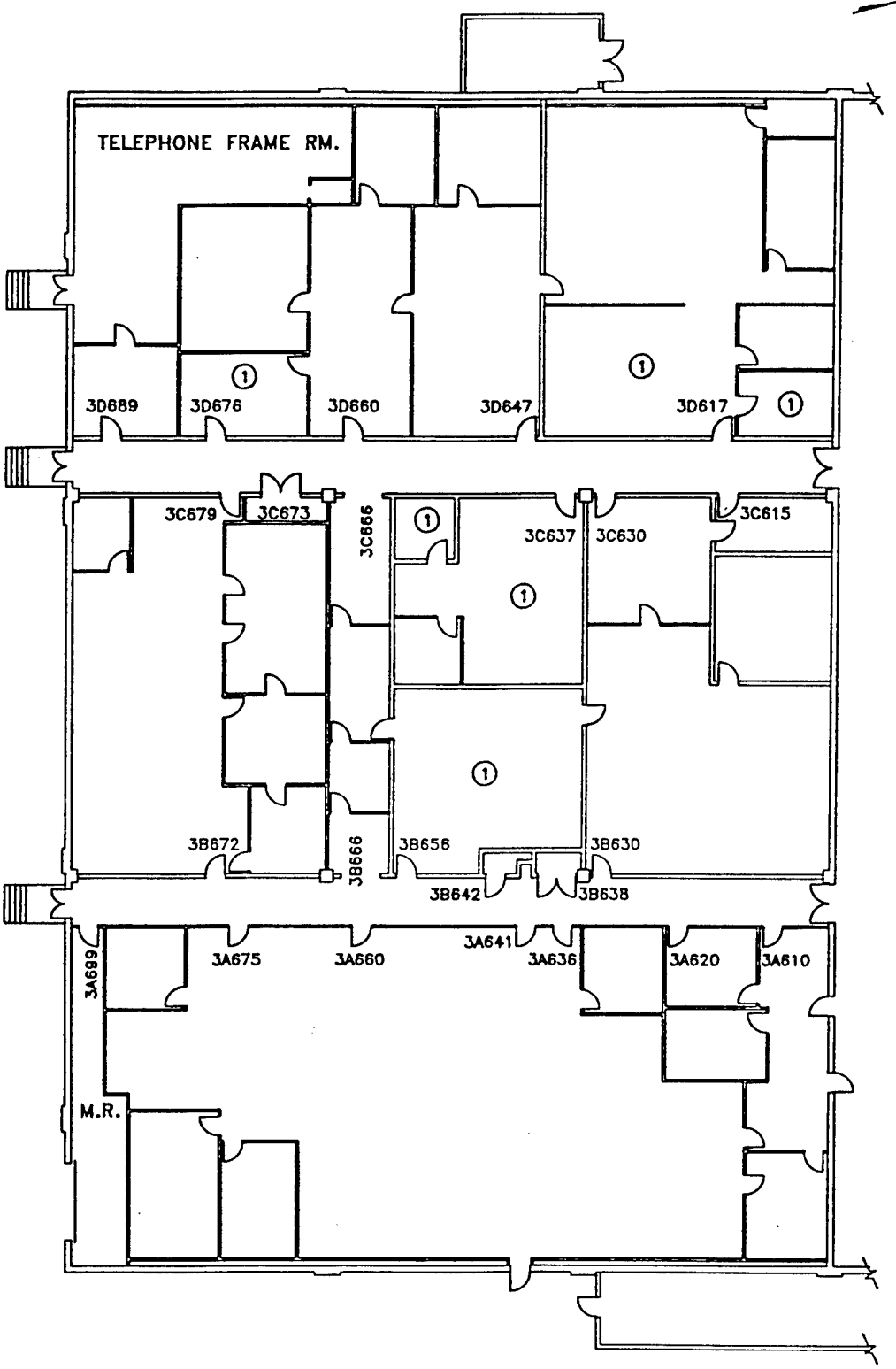
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 3 – BAY 6
CEILING TYPE LOCATIONS

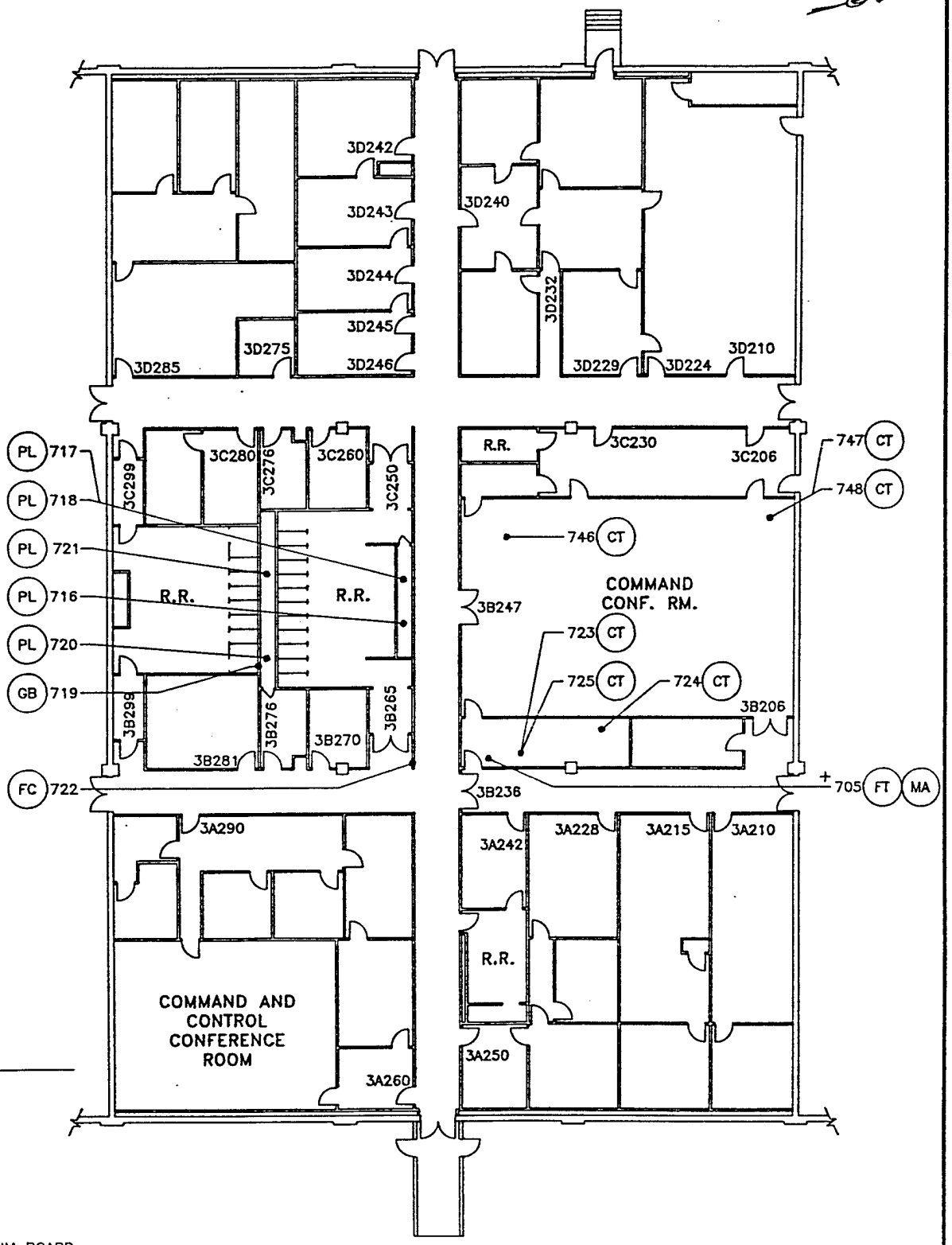
PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	LAL	6–3–91	3/6–CT
	CHECKED BY: FBG	SCALE: NTS	



LEGEND

(1) 2' x 2' UNIFORM HOLE TILE

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 6 WALL TILE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY LAL; CHECKED BY F.B.C.; DATE 6–3–91; SCALE N.T.S.; FIG. 3/6–WT



LEGEND

- (CT) CEILING TILE
- (FT) FLOOR TILE
- (MA) MASTIC
- (FC) FIRE CODE GYPSUM BOARD
- (PL) PLASTER
- \+ DENOTES POSITIVE RESULTS

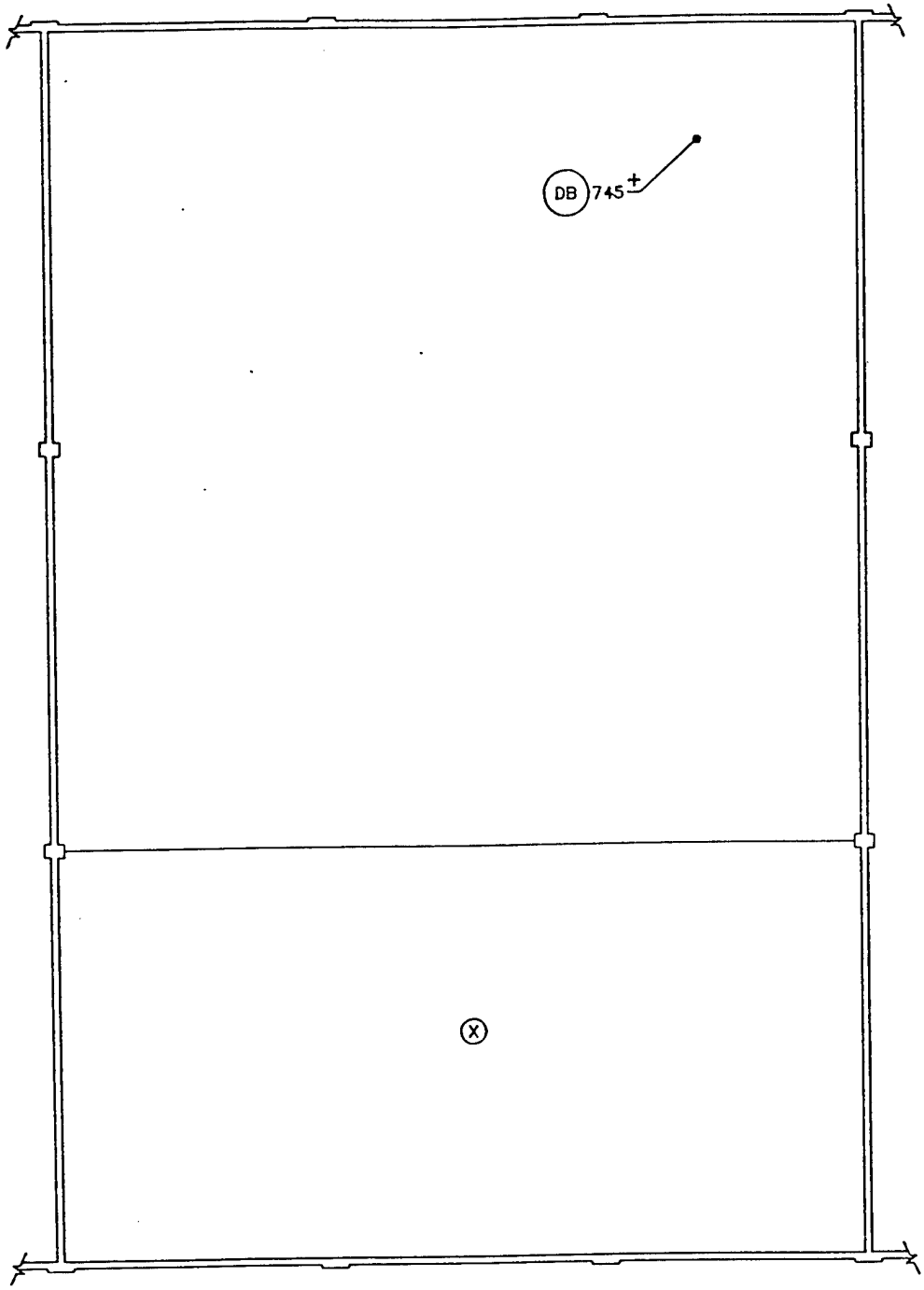
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 3 – BAY 2
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001–210	L.A.L.	8–3–91	3/2–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



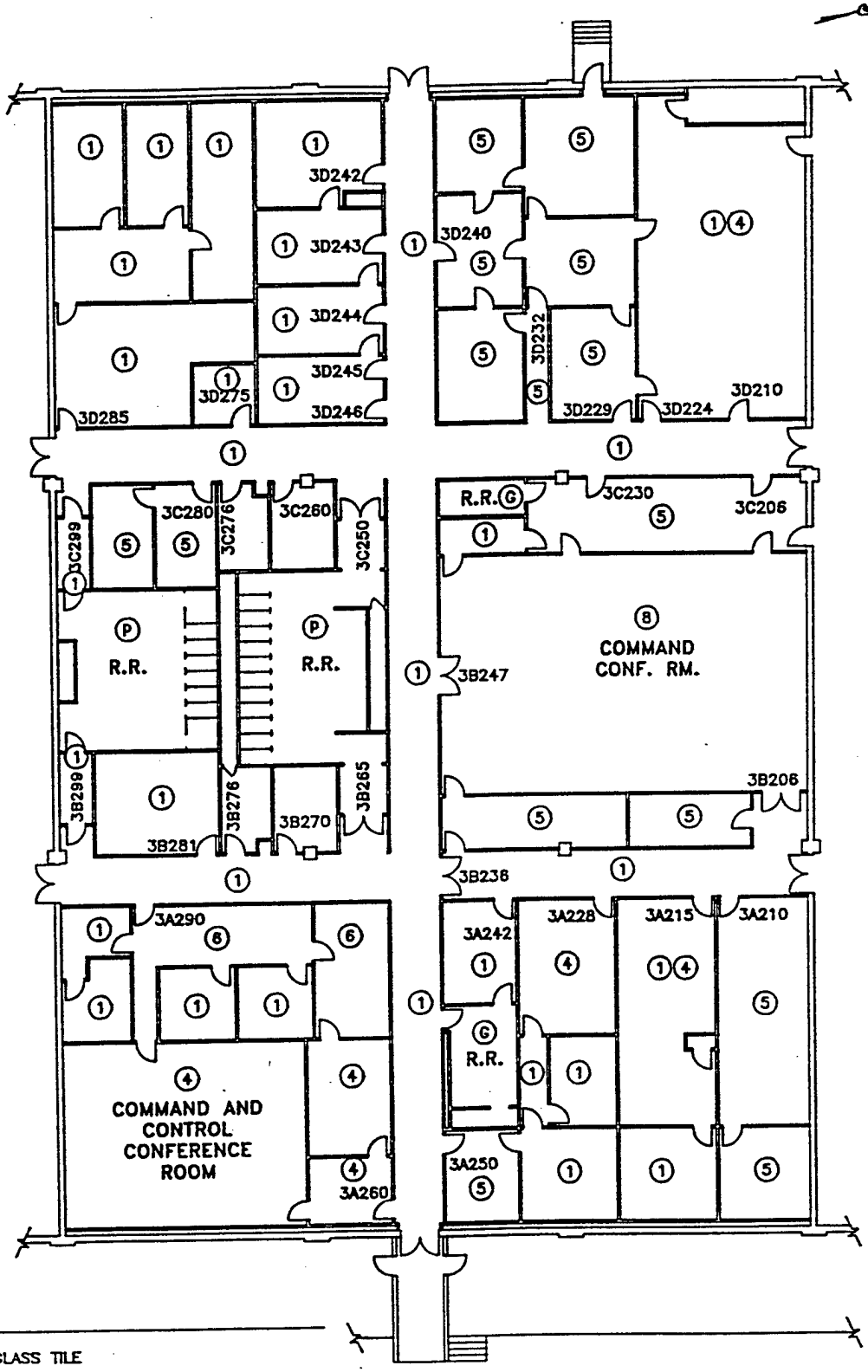
LEGEND

(DB) DEBRIS

(X) AREA NOT ACCESSED

\+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 2 ATTIC SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY L.A.L. · CHECKED BY F.B.C. · DATE 8–3–91 · SCALE N.T.S. · FIG. 3/2A–SL



LEGEND

(1) 1" x 2" GROOVED FIBERGLASS TILE

(4) 1" x 1" FISSURED TILE

(5) 2" x 4" FISSURED TILE

(6) 2" x 4" SMOOTH TILE

(8) 2" x 2" FISSURED TILE

(G) GYPSUM BOARD

(P) PLASTER

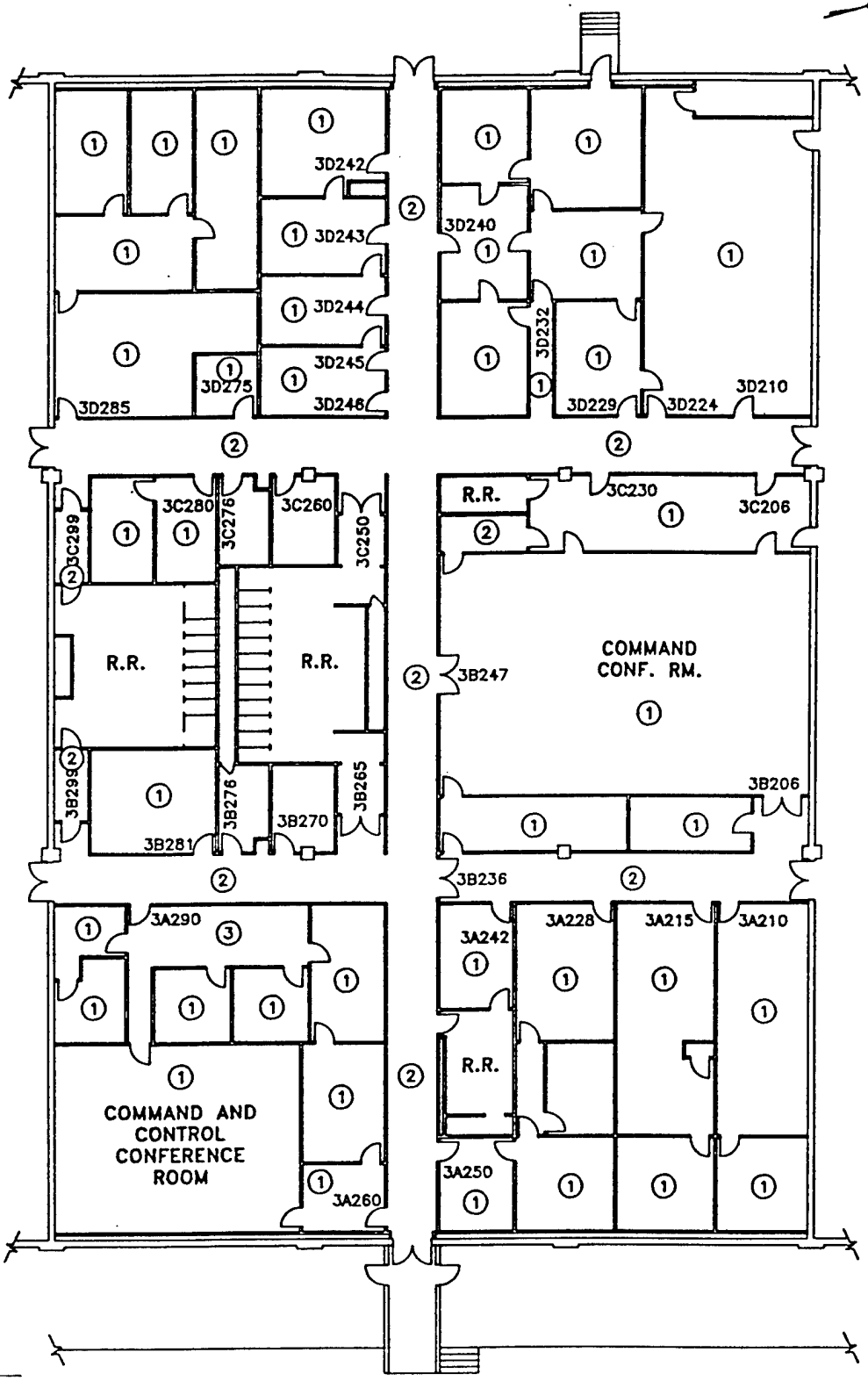
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 3 – BAY 2
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001-210	CHECKED BY:	SCALE:	3/2-CT
	L.A.L. / F.B.G.	8-3-91 / N.T.S.	



LEGEND

(1) 9" x 9" BROWN

(2) 12" x 12" WHITE

(3) 9" x 9" BLACK

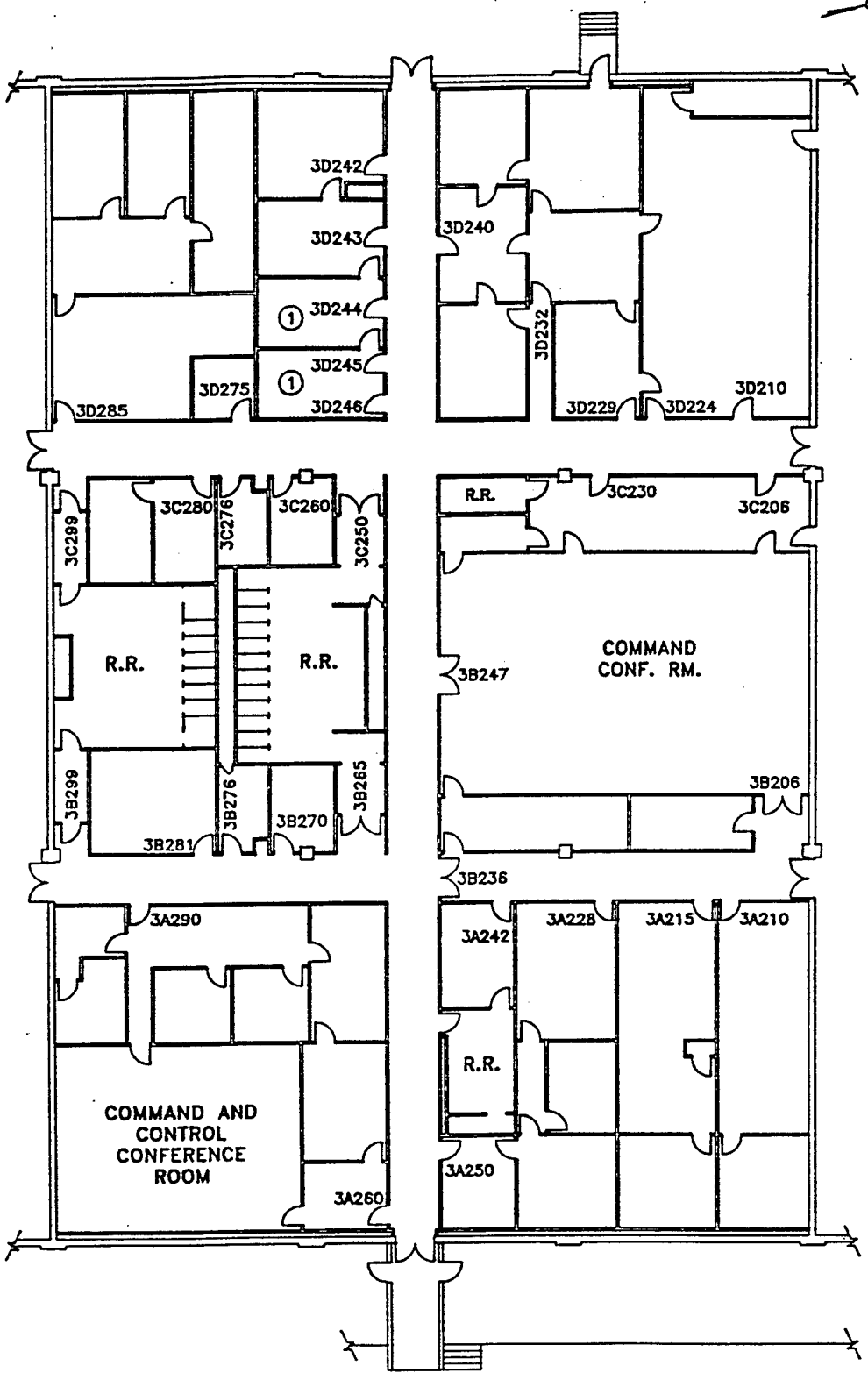
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 3 – BAY 2
FLOOR TILE LOCATIONS

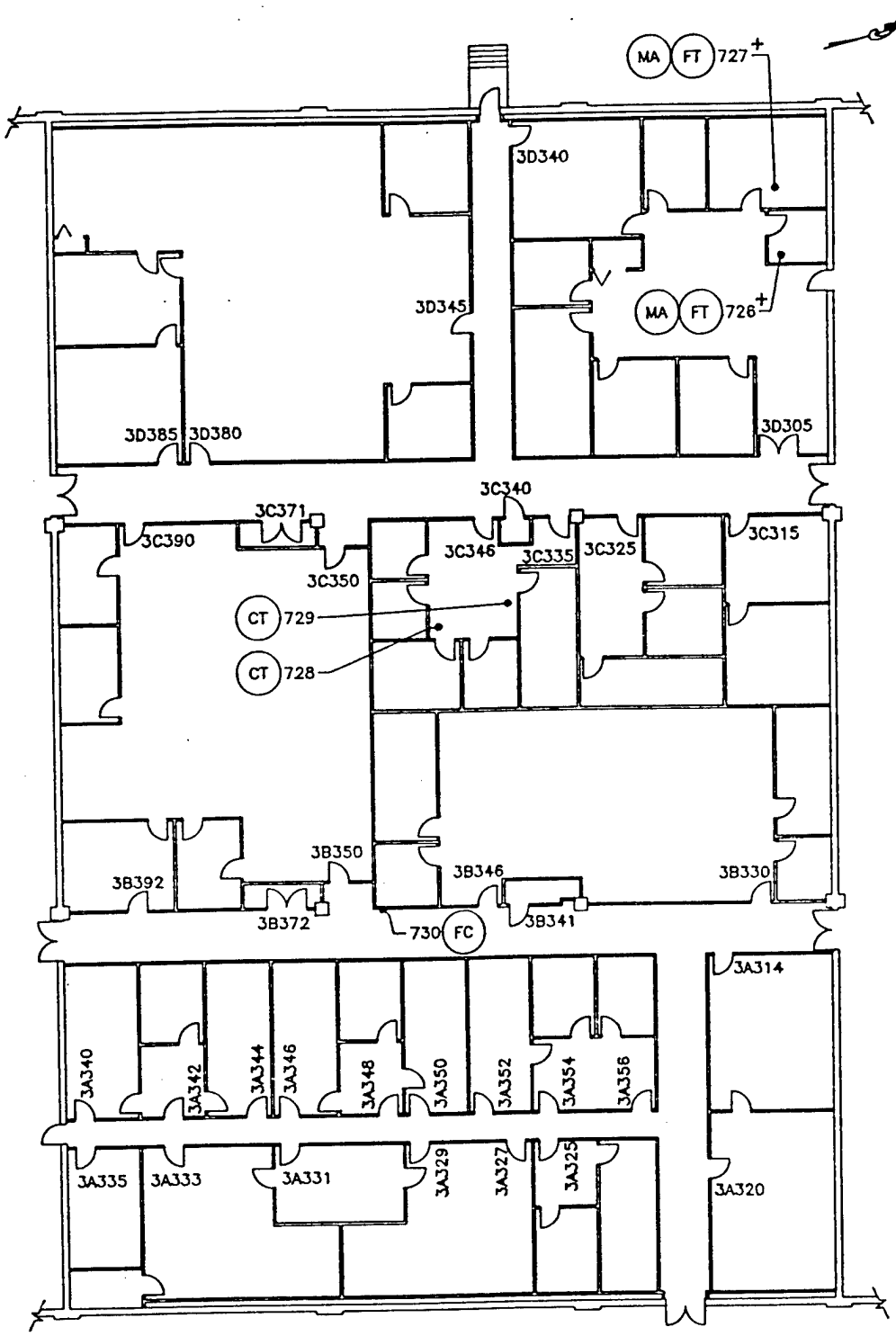
PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6-3-91	3/2-FT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

① 2" x 2" UNIFORM HOLE TILE

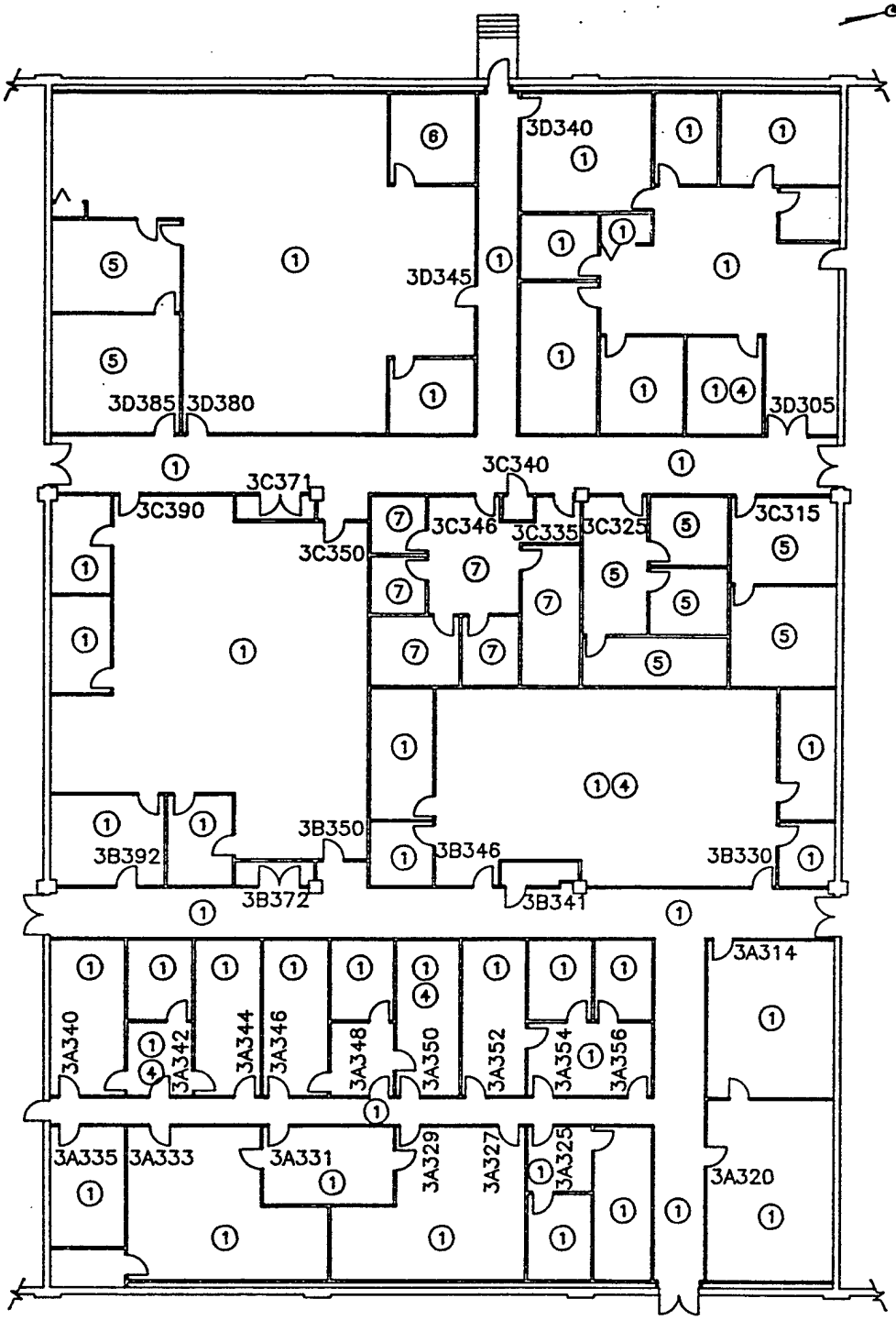
CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 2 WALL TILE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: LAL; CHECKED BY: FRG; DATE: F-3-91; SCALE: NTS; DWG. NO. 3/2-WT



LEGEND

- CT — CEILING TILE
- FT — FLOOR TILE
- MA — MASTIC
- FC — FIRE CODE GYPSUM BOARD
- \+ — DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia				
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 3 SAMPLE LOCATIONS				
PROJECT NO. 3001–210	DRAWN BY: L.A.L.	DATE: 8–3–91	FIG. 3/3–SL		
	CHECKED BY: F.B.C.	SCALE: N.T.S.			



LEGEND

(1) 1" x 2" GROOVED FIBERGLASS TILE

(4) 1" x 1" FISSURED TILE

(5) 2" x 4" FISSURED TILE

(6) 2" x 4" SMOOTH TILE

(7) 2" x 4" RANDOM HOLE TILE

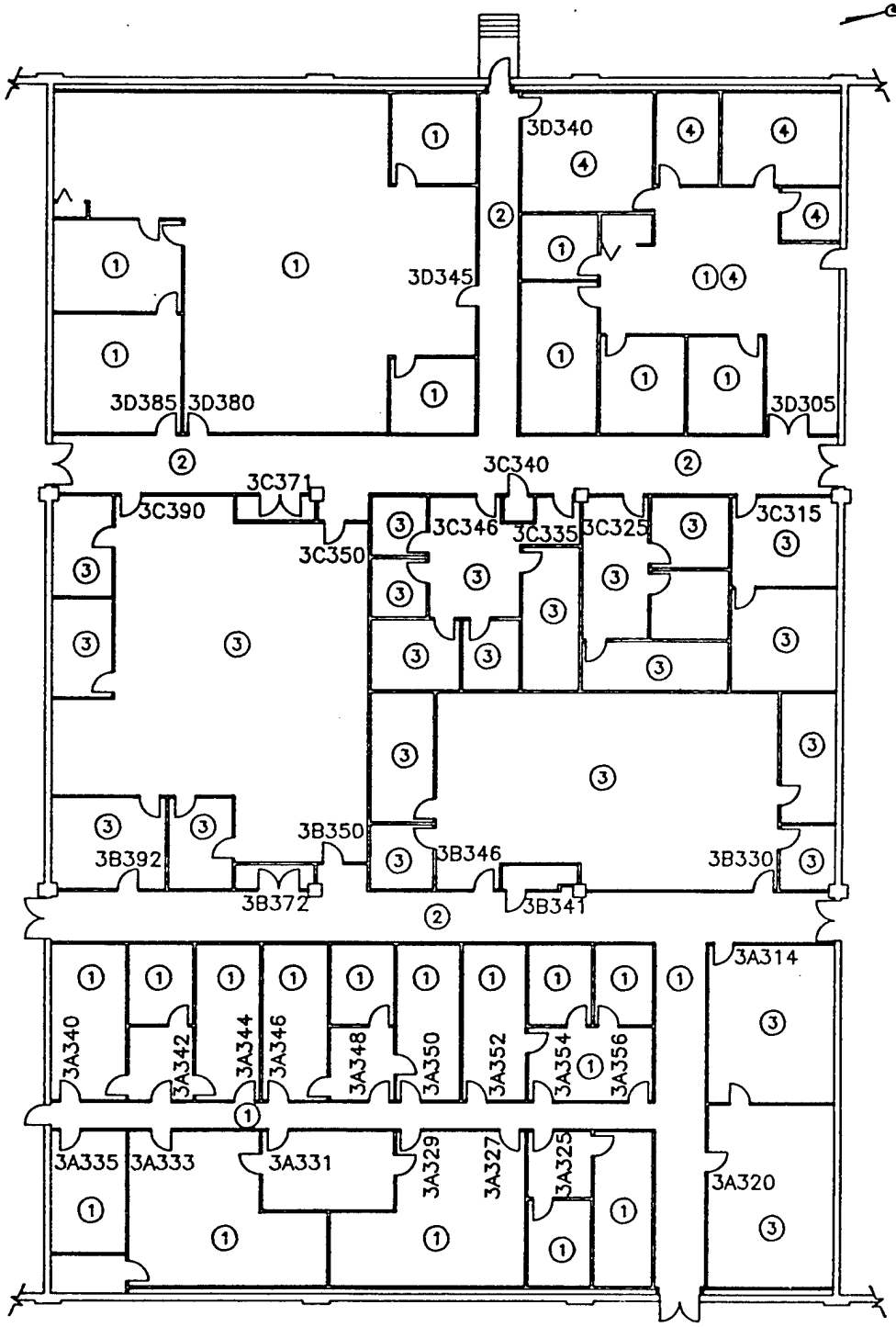
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 3 – BAY 3
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–3–91	3/3–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 9" x 9" BROWN

(2) 12" x 12" WHITE

(3) 9" x 9" BLACK

(4) 9" x 9" GREEN

CLIENT USATHAMA

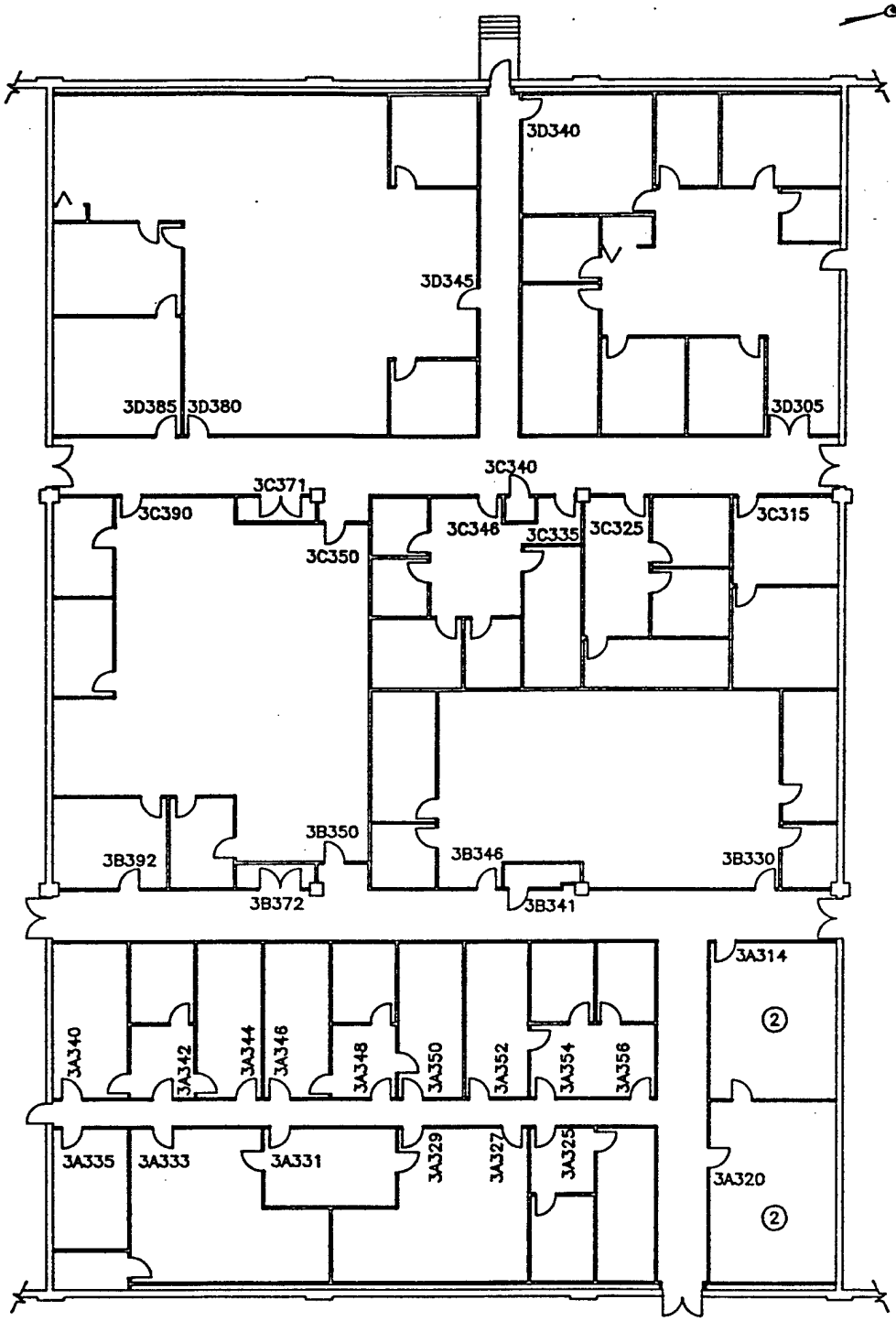
Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE

BUILDING 3 – BAY 3
FLOOR TILE LOCATIONS

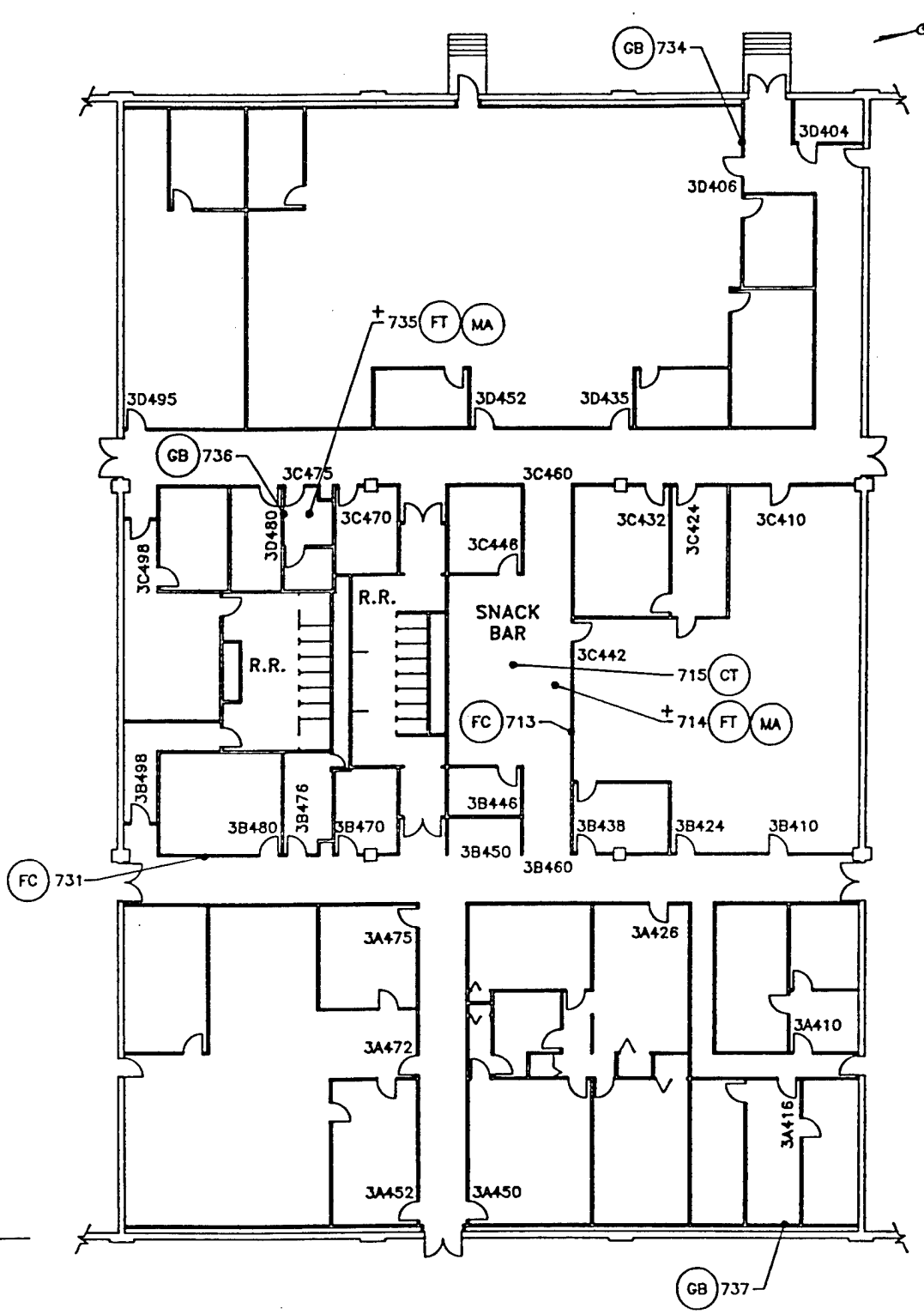
PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–3–91	3/3–FT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

② 1" x 1" FIBERBOARD TILE

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia				
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 3 WALL TILE LOCATIONS				
PROJECT NO. 3001–210	DRAWN BY: LAL	CHECKED BY: F.B.G.	DATE: 6–3–91	SCALE: N.T.S.	DWG. NO. 3/3–WT



LEGEND

- CT — CEILING TILE
- FT — FLOOR TILE
- MA — MASTIC
- GB — GYPSUM BOARD
- \+ — DENOTES POSITIVE RESULTS

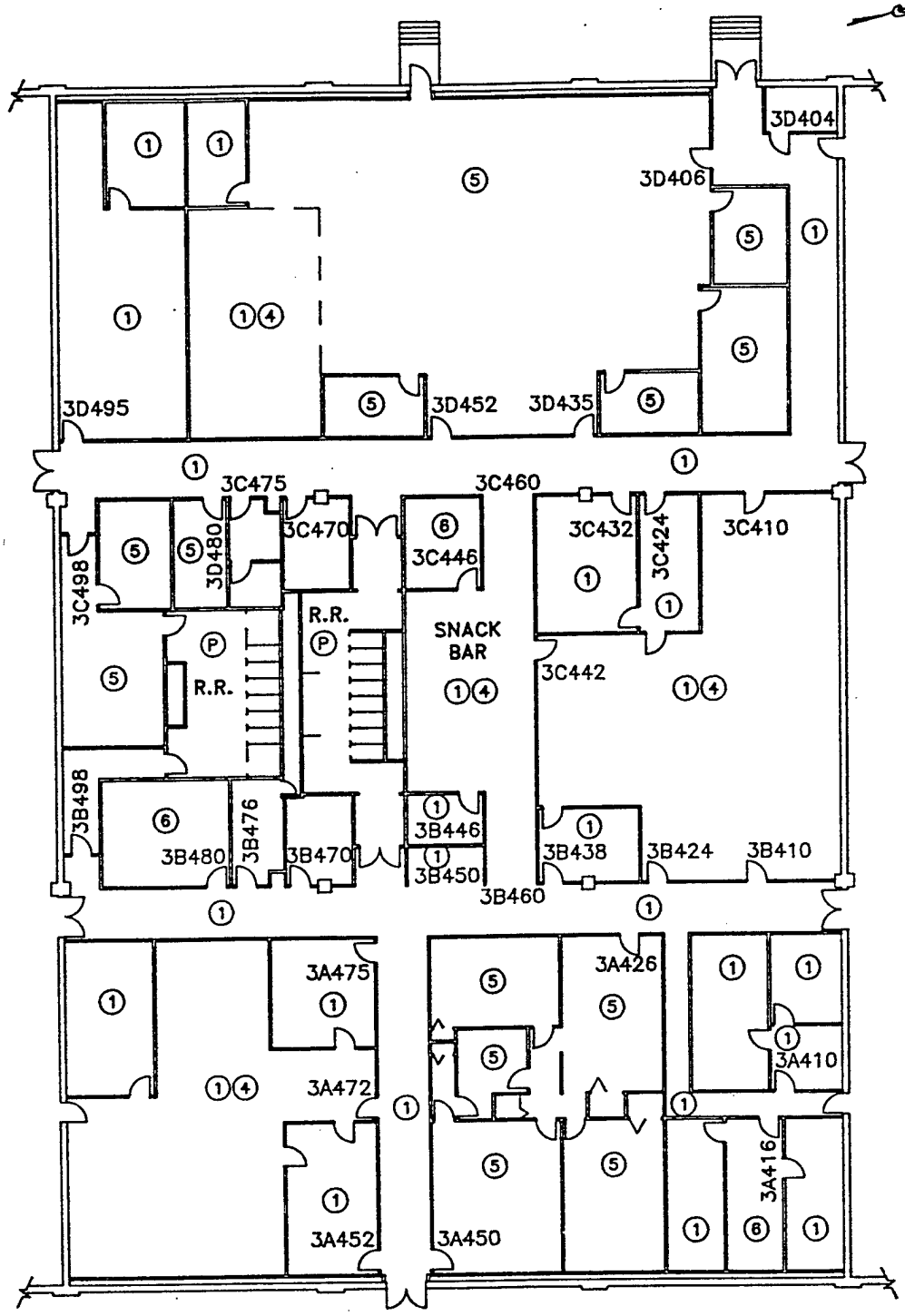
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 3 – BAY 4
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY	DATE	FIG.
3001–210	L.A.L.	6–3–91	3/4–SL
	CHECKED BY F.B.C.	SCALE: N.T.S.	



LEGEND

(1) 1" x 2" GROOVED FIBERGLASS TILE

(4) 1" x 1" FISSURED TILE

(5) 2" x 4" FISSURED TILE

(6) 2" x 4" SMOOTH TILE

(P) PLASTER

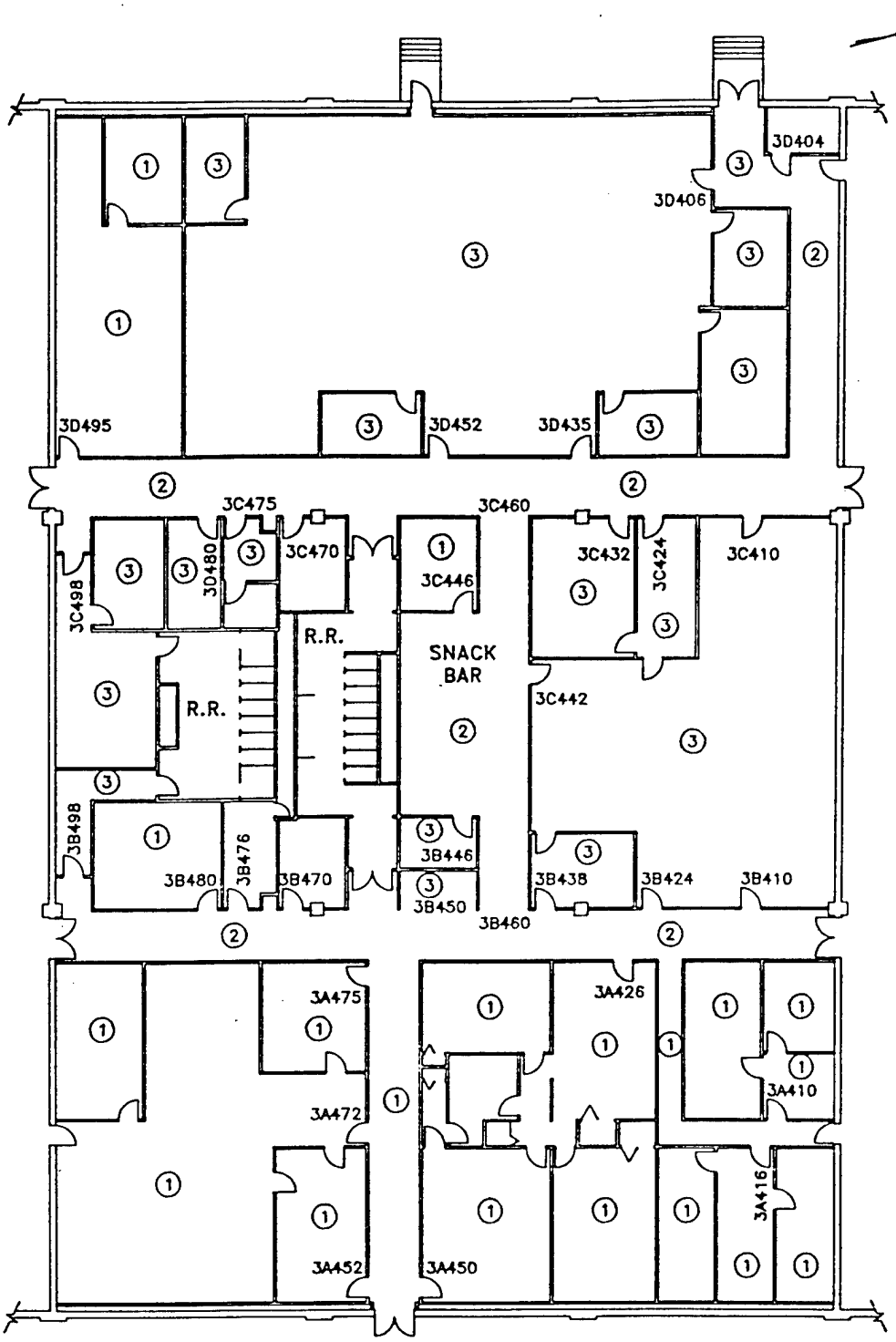
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 3 – BAY 4
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–3–91	3/4–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



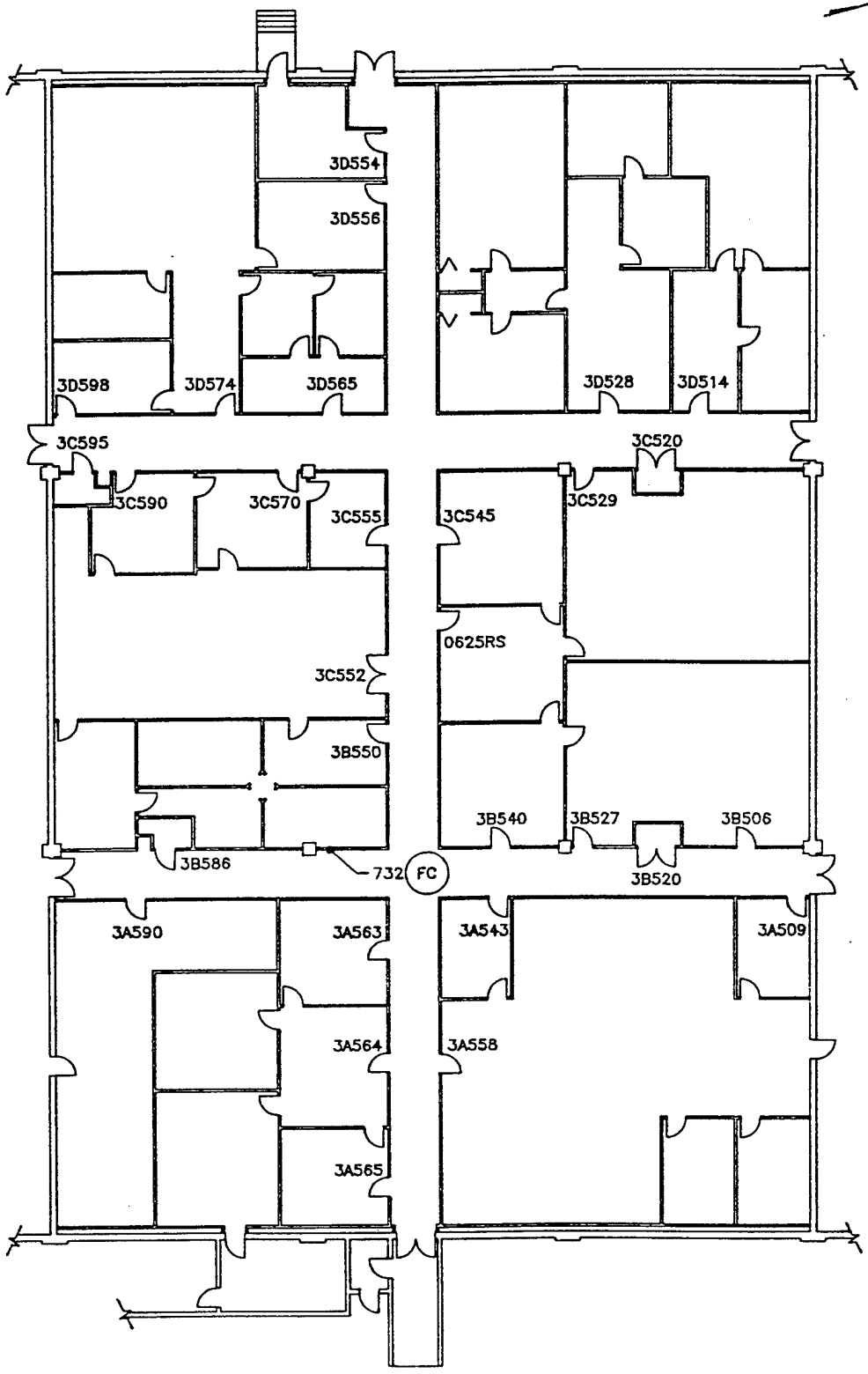
LEGEND

(1) 9" x 9" BROWN

(2) 12" x 12" WHITE

(3) 9" x 9" BLACK

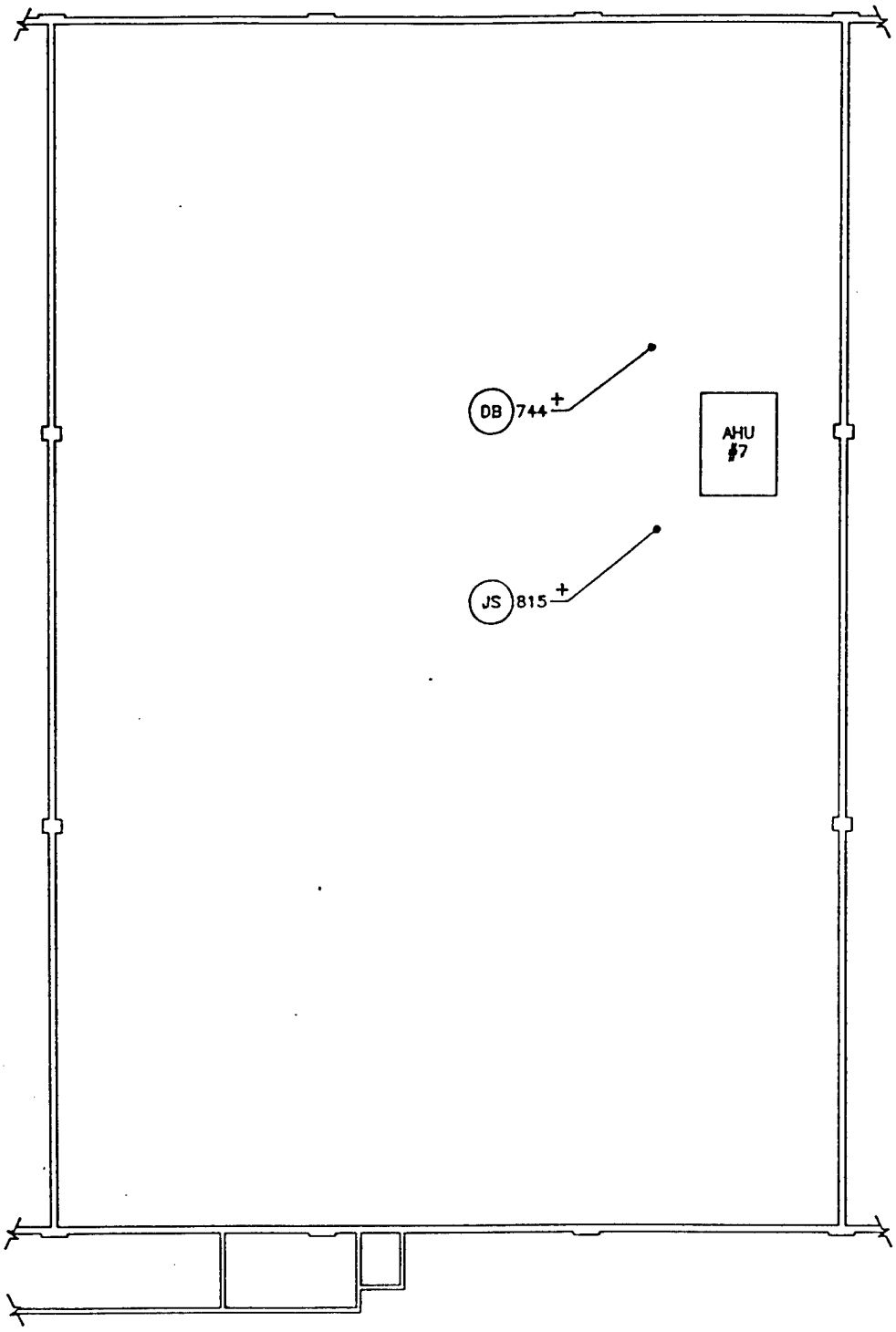
CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 4 FLOOR TILE LOCATIONS
PROJECT NO. 3001-210	DRAWN BY: LAL; DATE: 6-3-91; FIG. 3/4-FT
	CHECKED BY: F.B.C.; SCALE: N.T.S.



LEGEND

(FC) FIRE CODE GYPSUM BOARD

CLIENT USATHAMA		LOCATION Cameron Station, Alexandria, Virginia			
Woodward–Clyde Federal Services		TITLE BUILDING 3 – BAY 5 SAMPLE LOCATIONS			
PROJECT NO. 3001–210	DRAWN BY: L.A.L.	DATE: 8–3–91	FIG. 3/5–SL		
	CHECKED BY: F.B.G.	SCALE: N.T.S.			



LEGEND

(DB) DEBRIS

(JS) JOINT SEALANT

\+ DENOTES POSITIVE RESULTS

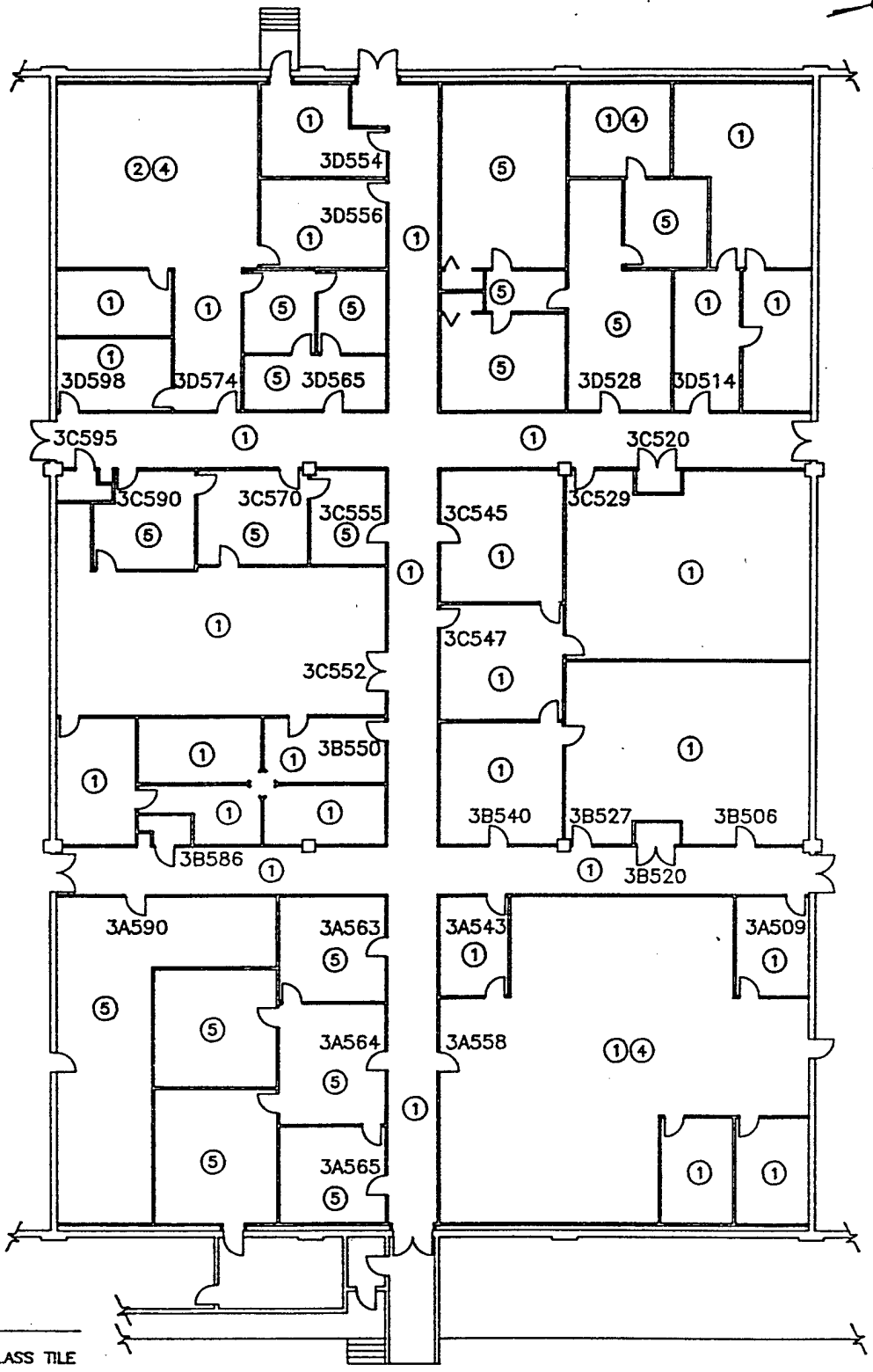
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 3 – BAY 5 ATTIC SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001–210	L.A.L.	8–3–91	3/5A–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(1) 1" x 2" GROOVED FIBERGLASS TILE

(2) 2" x 4" PLASTIC TILE

(4) 1" x 1" FISSURED TILE

(5) 2" x 4" FISSURED TILE

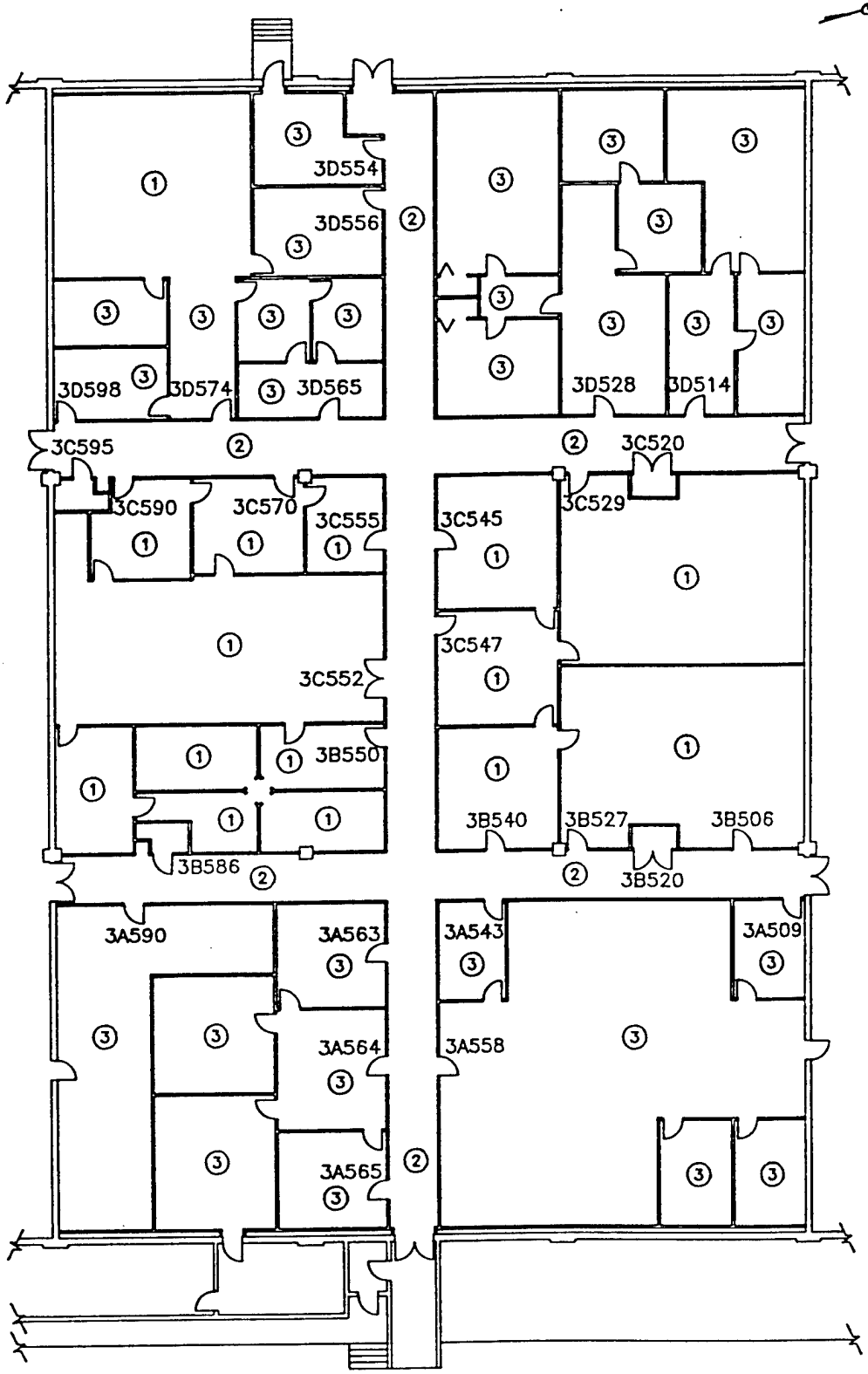
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 3 – BAY 5
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–3–91	3/5–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 9" x 9" BROWN

(2) 12" x 12" WHITE

(3) 9" x 9" BLACK

CLIENT USATHAMA

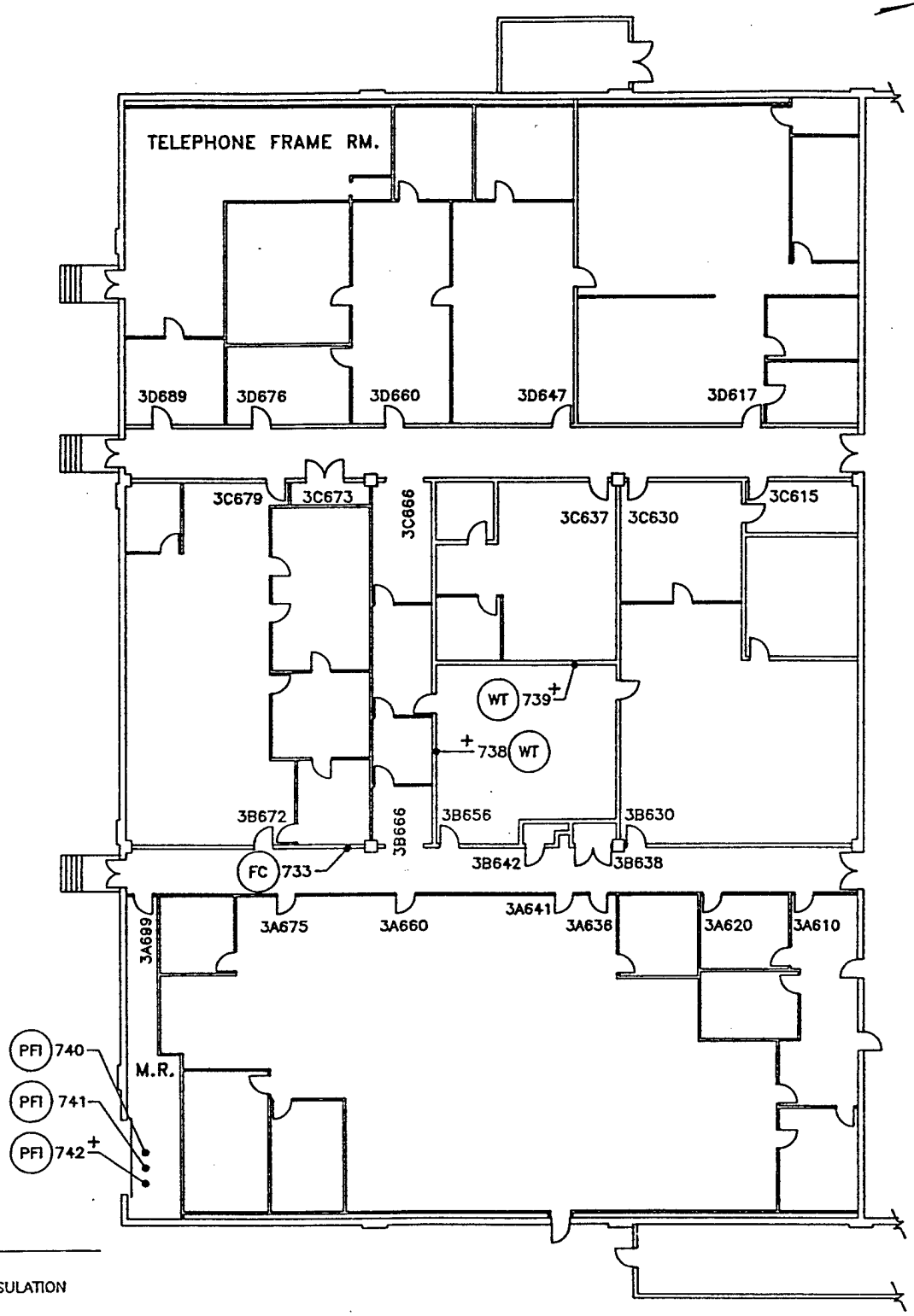
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 3 – BAY 5
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	8–3–91	3/5–FT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

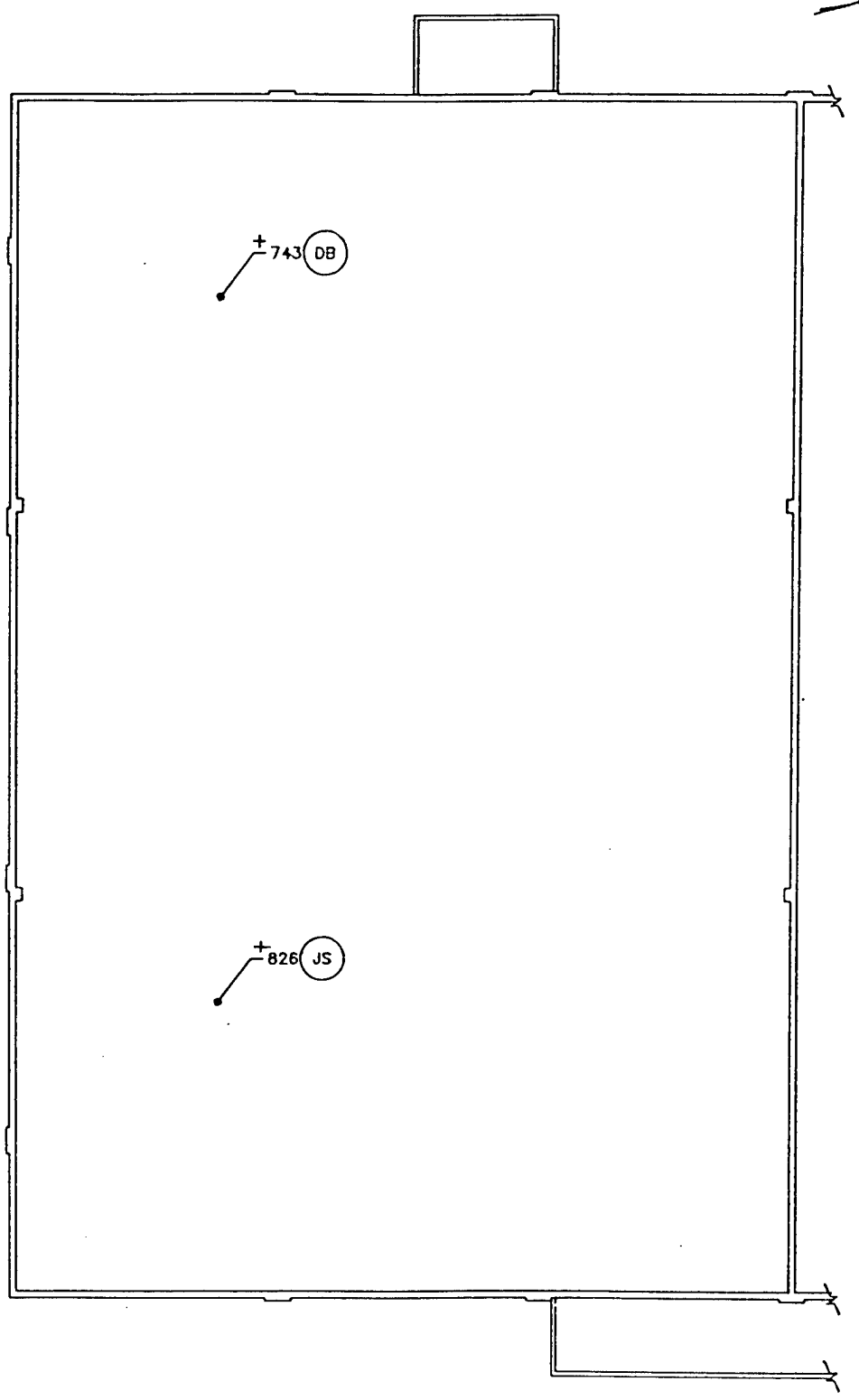
(PFI) PIPE FITTING INSULATION

(WT) WALL TILE

(FC) FIRE CODE GYPSUM BOARD

\+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 6 SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. CHECKED BY: F.B.C. DATE: 8–3–91 SCALE: N.T.S. FIG. 3/6–SL

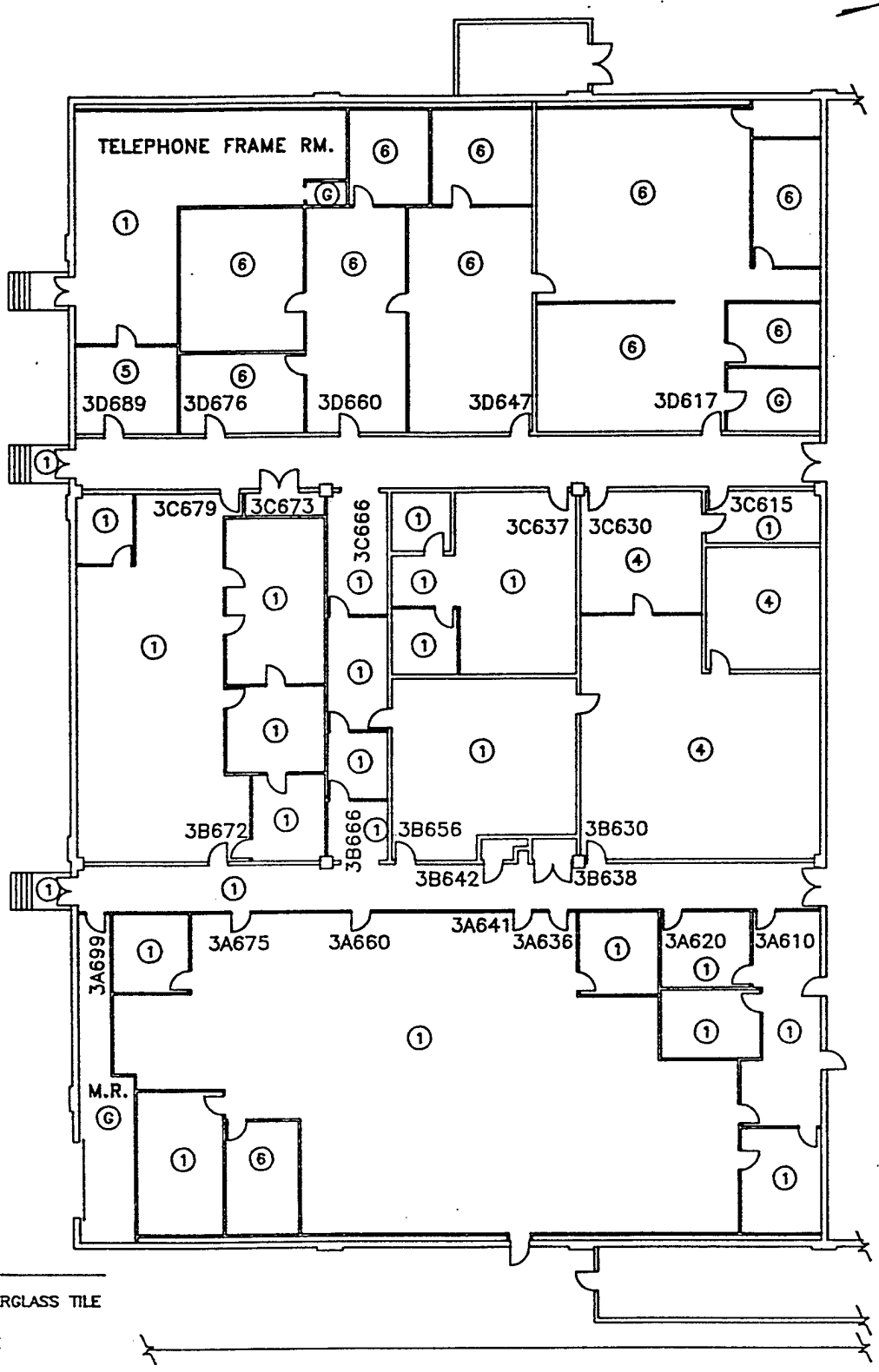


LEGEND

(DB) DEBRIS

\+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 6 ATTIC SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. CHECKED BY: F.B.G. DATE: 8–3–91 SCALE: N.T.S. FIG. 3/6A–SL



LEGEND

(1) 1" x 2" GROOVED FIBERGLASS TILE

(4) 1" x 1" FISSURED TILE

(5) 2" x 4" FISSURED TILE

(6) 2" x 4" SMOOTH TILE

(G) GYPSUM BOARD

CLIENT USATHAMA

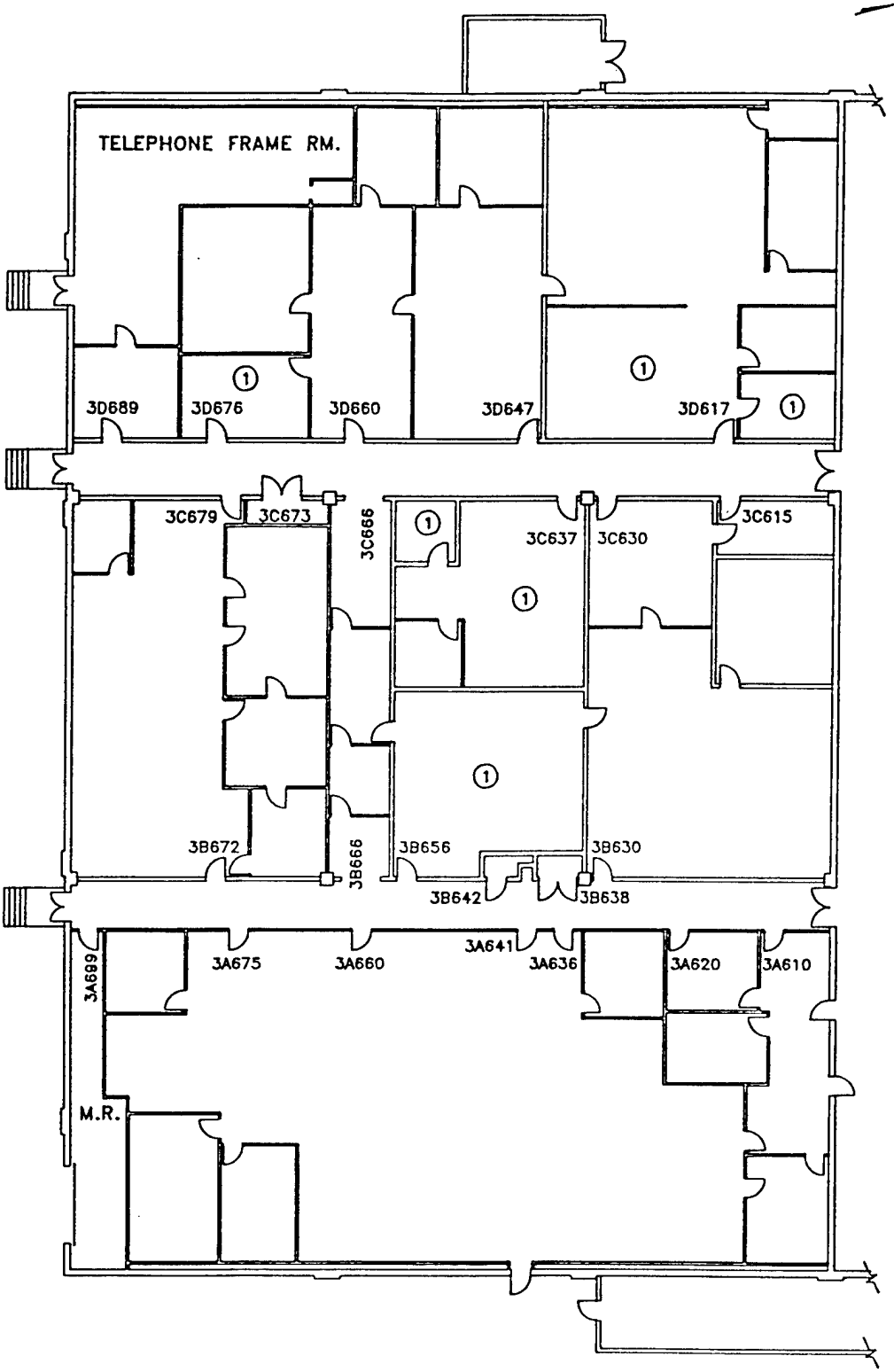
Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE

BUILDING 3 – BAY 6
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001-210	CHECKED BY: F.B.G.	SCALE: N.T.S.	3/6-CT



LEGEND

(1) 2' x 2' UNIFORM HOLE TILE

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 3 – BAY 6 WALL TILE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: LAL; CHECKED BY: F.B.C.; DATE: 6–3–91; SCALE: N.T.S.; FIG. 3/6–WT

APPENDIX 3-D

WALKTHROUGH SURVEY DATA SHEETS

Building 3

EXTERIOR

Inspector/Date Guardia 10/19/90 12/6/90

Exterior Siding

Masonry ☒ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y (N) _____ Condition G F P Quantity _____ SF

Roof

Assume ACM

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☒ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition G F P Quantity 131,500 SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☒	Y (N)	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☒	Y (N)	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☒ Steel Joists/Beams ☒ Wood Columns ☒ Steel Column ☒ Concrete Column ☒

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☒ Firedoor ☐

Sample Y (N) Condition G F P Quantity _____ SF

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 3 Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
Gypsum board FC		Hallway & entrance	Y	G	7/10000
Gypsum board Reg		Interior walls: throughout, also ceilings in custodial closets & restrooms	Y	"	7 130,000
				"	
Plaster		Restrooms	Y	"	5000
Plaster		Ductwork	Y	"	5000

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

Woodward-Clyde Federal Services

APPENDIX 3-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

[illegible] Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 3
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 03/11/91
Date Analyzed : 03/19/91
Person Submitting: D. Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	ASBESTOS % CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	OTHER FIBROUS MATERIAL % MINERAL WOOL	GLASS	FIBROUS ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
700	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
701	N	-----	-----	-----	-----	-----	-----	40-45	-----	20-25	-----	30-40	AS	
702	N	-----	-----	-----	-----	-----	-----	-----	<1	05-10	-----	90-95	AS	
703	N	-----	-----	-----	-----	-----	-----	35-40	-----	25-30	-----	30-40	AS	
704	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
705	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	-----	90-95	AS	
706	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	-----	90-95	AS	
707	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
708	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	-----	90-95	AS	
709	N	-----	-----	-----	-----	-----	-----	-----	-----	30-35	-----	65-70	AS	
710	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	AS	
711	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AS	
712	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AS	
713	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

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AMA Analytical Services, Inc.

[illegible] (AIHA) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 3
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 03/11/91
Date Analyzed : 03/19/91
Person Submitting: D. Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
714	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	
715	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
716	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
717	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
718	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
719	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AS	
720	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
721	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
722	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AS	
723	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
724	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
725	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
726	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	
727	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	-----	90-95	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. All rights reserved. AMA Analytical Services, Inc.

AMA Analytical Services, Inc.

Asbestos (NVLAP) and EMSL (#1194) Accredited Laboratory

CERTIFICATE OF ANALYSIS



Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 3
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 03/11/91
Date Analyzed : 03/19/91
Person Submitting: D. Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	ASBESTOS % CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	OTHER FIBROUS MATERIAL % MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
728	N	-----	-----	-----	-----	-----	-----	40-45	-----	20-25	-----	30-40	AS	
729	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
730	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AS	
731	N	-----	-----	-----	-----	-----	-----	-----	<1	20-25	-----	75-80	AS	
732	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AS	
733	N	-----	-----	-----	-----	-----	-----	-----	<1	20-25	-----	75-80	AS	
734	P	<1	<1	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
735	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	AS	
736	N	-----	-----	-----	-----	-----	-----	-----	-----	30-35	-----	65-70	AS	
737	N	-----	-----	-----	-----	-----	-----	-----	-----	25-30	-----	70-75	AS	
738	P	35-40	-----	-----	-----	-----	-----	-----	-----	-----	-----	60-65	AS	
739	P	25-30	-----	-----	-----	-----	-----	-----	-----	-----	-----	70-75	AS	
740	N	-----	-----	-----	-----	-----	-----	25-30	-----	<1	-----	70-75	AS	
741	N	-----	-----	-----	-----	-----	-----	25-30	-----	<1	-----	70-75	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

NVLAP (#256) and EPA LAP (#115) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 3
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 03/11/91
Date Analyzed : 03/19/91
Person Submitting: D. Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
742	P	85-90	-----	-----	-----	-----	-----	-----	-----	-----	-----	10-15	AS	
743	P	05-10	-----	-----	-----	-----	-----	35-40	-----	-----	-----	50-60	AS	
744	P	05-10	-----	-----	-----	-----	-----	30-35	-----	-----	-----	55-65	AS	
745	P	05-10	-----	-----	-----	-----	-----	30-35	-----	-----	-----	55-65	AS	
746	N	-----	-----	-----	-----	-----	-----	50-55	-----	10-15	-----	30-40	AS	
747	N	-----	-----	-----	-----	-----	-----	50-55	-----	10-15	-----	30-40	AS	
748	N	-----	-----	-----	-----	-----	-----	55-60	-----	05-10	-----	30-40	AS	
749	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
750	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
751	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
752	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
753	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
754	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
815	P	01-05	-----	-----	-----	-----	-----	-----	20-25	15-20	01-05	50-60	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. All rights reserved. AMA Analytical Services, Inc.

AMA Analytical Services, Inc.

NVLAP (#234) and EMLAP (#1143) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 3
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 03/11/91
Date Analyzed : 03/19/91
Person Submitting: D. Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
826	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

LAST PAGE OF 5 PAGE(S)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

Andreas Saldivar (AS)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

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APPENDIX 3-F

SAMPLE CHAIN-OF-CUSTODY FORMS

WCFS Project [redacted]0001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted]eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

Bldg 3

COC By: F B G

Field Office: Woodward-[redacted] Federal Services
Building 1[redacted]
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe				Number of Containers
										CODE	UM05	UM06	LM06	UM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19				
FBG		ASB003	700																						1							
FBG		ASB003	701																						1							
FBG		ASB003	702																						1							
FBG		DSB003	703																						1							
FBG		DSB003	704																						1							
FBG		DSB003	705																						1							
FBG		DSB003	706																						1							

Relinquished by: Woodward–Clyde Federal Services

Date: 3/11/91 Time: 1250 Signature: Dr. Barnes

Accepted by: AMA Analytical Services, Inc.

Date: 3-11-91 Time: 1300 Signature: L. Maurice

Total No. of Containers

Comments:

3/28/91 1000 L Maurice fed ex'd final

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Proj. No. 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: FBG

Field Office: Woodward–Clyde Federal Servic
Buildin.
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Servic
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

Bldg 3

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(DDP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe		
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19		
FBG		BSB003	707																						1				
FBG		BSB003	708																						1				
FBG		BSB003	709																						1				
FBG		BSB003	710																						1				
FBG		BSB003	711																						1				
FBG		BSB003	712																						1				
FBG		BSB003	713																						1				

Relinquished by: Woodward–Clyde Federal Services

Date: 3/11/91 Time: 1250 Signature: Dm. Beam

Accepted by: AMA Analytical Services, Inc.

Date: 3-11-91 Time: 1300 Signature: L. Maurice

Total N
Contai

Comments:

3/28/91 1000 L Maurice fed ups

Pink: WCFS Project File

Gold: WCFS Project S

WCFS Project 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

Bldg 3

COC By: F | B | G

Field Office: Woodward–Clyde Federal Services
Building 1,
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)
FBG		DSB003	714			
FBG		DSB003	715			
FBG		DSB003	716			
FBG		DSB003	717			
FBG		DSB003	718			
FBG		DSB003	719			
FBG		DSB003	720			

Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
			CODE	UM05	UM06	UM06	UM06	UH21	LH19															
				LM05	LM06	LM06	LM06	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19		

Relinquished by: Woodward–Clyde Federal Services

Date: 3/11/91 Time: 1250 Signature: M. Bauer

Accepted by: AMA Analytical Services, Inc.

Date: 3-11-91 Time: 1300 Signature: L. Maurice

Total No. of Containers

Comments:

3/26/91 1000 L Mc Hold exp Invoice

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project No. 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

Bldg 3

COC By: F | B | G

Field Office: Building 33
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		BSB003	721																						1					
FBG		BSB003	722																						1					
FBG		BSB003	723																						1					
FBG		BSB003	724																						1					
FBG		BSB003	725																						1					
FBG		BSB003	726																						1					
FBG		BSB003	727																						1					

Relinquished by: Woodward-Clyde Federal Services

Date: 3/11/91 Time: 1250 Signature: Dan Barnes

Accepted by: AMA Analytical Services, Inc.

Date: 3-11-91 Time: 1300 Signature: L. Maurice

Total No. of Containers

Comments:

3/28/91 1000 Lab supervisor L. Maurice

Gold: WCFS Project Scientist

WCFS Project [redacted] 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward-Clyde [redacted] deral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

Bldg 3

COC By: F | B | G

Field Office: Woodwa[redacted] s Federal Services
Building [redacted]
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec))	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		BSB003	728																					1						
FBG		BSB003	729																					1						
FBG		BSB003	730																					1						
FBG		BSB003	731																					1						
FBG		BSB003	732																					1						
FBG		BSB003	733																					1						
FBG		BSB003	734																					1						

Relinquished by: Woodward-Clyde Federal Services
Date: 3/11/91 Time: 1950 Signature: M. Barn

Accepted by: AMA Analytical Services, Inc.
Date: 3-11-91 Time: 1302 Signature: L. Maurice

Total No. of Containers

Comments:
3/28/91 1000 L. Ma[redacted] fed up [redacted]

Pink: WCFS Project File

Gold: WCFS Project Scient

WCFS Project .. 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

Bldg 3

COC By: F B G

Field Office: Woodward-Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM06	UM06	UM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB003	735																						2						
FBG		ASB003	736																						2						
FBG		ASB003	737																						2						
FBG		ASB003	738																						2						
FBG		ASB003	739																						2						
																									1						

Relinquished by: Woodward–Clyde Federal Services

Date: 3/11/91 Time: 1250 Signature: Dm. Bauer

Accepted by: AMA Analytical Services, Inc.

Date: 3-11-91 Time: 1300 Signature: L Maurice

Total No. of Containers

Comments:

3/[redacted]/91 1000 L Maurice fedexpd

Pink: WCFS Project File

Gold: WCFS Project Scient

WCFS Proj[redacted] No. 3001

Installation (2): CM
Sample Program (3): BD
Laboratory (2):

Woodward-Clyde[redacted]deral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

Bldg 3

COC By: F | B | G

Field Office: Woodwa[redacted]e Federal Services
Building
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Number of Containers
FBG		OSB003	740				2
FBG		OSB003	741				1
FBG		OSB003	742				1

Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	
			CODE	UM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1					
				LM05																SW8290	SW8290	LH19	

Relinquished by: Woodward-Clyde Federal Services

Date: 3/11/91 Time: 1250 Signature: M. Barn

Accepted by: AMA Analytical Services, Inc.

Date: 3-11-91 Time: 1302 Signature: L. Maurice

Total No. of Containers

Comments:

collected 3/7/91 3/28/91 1000 L. Mau[redacted] faxed 4/4/91 [illegible]

Pink: WCFS Project File

Gold: WCFS Project Scienti

WCFS Project [illegible]3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: D M B

Bldg 3

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/cc)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM06	UM06	LM06	UH21		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19		
FB6		ASB003	743																						✓					
FB6		ASB003	744																						✓					
FB6		ASB003	745																						✓					
FB6		ASB003	746																						✓					
FB6		ASB003	747																						✓					
FB6		ASB003	748																						✓					
FB6		ASB003	749																						✓					

Relinquished by: Woodward–Clyde Federal Services

Date: 3/13/91 Time: 1120 Signature: D M. Barnes

Accepted by: AMA Analytical Services, Inc.

Date: 3/13/91 Time: 1120 Signature: C. Kiger

Total No. of Containers

Comments:

3/28 1000 L Mar Holding time

Pink: WCFS Project File

Gold: WCFS Project Scientist

WCFS Project [redacted] 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted] eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward-[redacted] ederal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

Bldg 3

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM06	UM06	UM06	UH21	LH19	HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB003	750																						/					
FBG		ASB003	751																						/					
FBG		ASB003	752																						/					
FBG		ASB003	753																						/					
FBG		ASB003	754																						/					

Relinquished by: Woodward–Clyde Federal Services
Date: 3/13/91 Time: 1120 Signature: M. Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 3/13/91 Time: 1120 Signature: C. Kiger

Total No. of Containers

Comments:
3/28/91 1000 L Mann for lexp funds

Pink: WCFS Project File

Gold: WCFS Project Scientis

WCFS Project .. 3001

Installation (2): CM
Sample Program (3): BE
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F B G

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM05	UM06	LM06	UM06	LM06	UH21	LH19			HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
F B G		ASB 003	826																						/						

Relinquished by: Woodward–Clyde Federal Services
Date: 4/23/91 Time: 1100 Signature: M. Baum

Accepted by: AMA Analytical Services, Inc.
Date: 4/23/91 Time: 1105 Signature: L. Mauricio

Total No. of Containers: 1

Comments:

Pink: WCFS Project File

Gold: WCFS Project Scientist

WCFS Project [redacted]3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward-Clyde [redacted]eral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: F | B | G

Field Office: Woodward-C[redacted]ederal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19			HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		ASB003	815																					\							

Relinquished by: Woodward-Clyde Federal Services
Date: 9/16/91 Time: 1035 Signature: FB Dranchy

Accepted by: AMA Analytical Services, Inc.
Date: 4/16/91 Time: 1035 Signature: R Hamm

Total No. of Containers

Comments:

Pink: WCFS Project File

Gold: WCFS Project Scientist

BUILDING 4

4.1 DESCRIPTION

Building 4 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof, typical of buildings at Cameron Station, is constructed of tar, felt and gravel over wood. The building is divided into six bays by masonry firewalls. Originally designed as a warehouse, it was converted to one floor of offices and attic space more than twenty years ago. Building materials typically found on the main floor include carpet over floor tile, ceiling tile, regular and fire code gypsum board and plaster. The overhead areas house the HVAC system. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

The Defense Logistics Agency is the current occupant of Building 4.

4.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 4-A through 4-F. A summary of this data is presented below.

4.2.1 Suspect Friable ACM

Four homogeneous areas of suspect friable ACM were identified and six bulk samples were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following four materials:

- Premolded pipe insulation.
- Tank insulation.
- Pipe fitting insulation.
- Debris.

These materials were found in two functional spaces and were assessed as follows:

- Premolded pipe insulation, tank insulation, pipe fitting insulation and debris in the attic areas of Bays 3, 4, 5 and 6. Assessment of these materials indicates a damage factor of 16 and an exposure factor of 22. According to the GAHA Index, these materials rank as Priority B.

- Assessment of the pipe fitting insulation in Room 4B687 indicates a damage factor of 5 and an exposure factor of 13. According to the GAHA Index, these materials rank as Priority C.

4.2.2 Suspect Nonfriable ACM

Fourteen homogeneous areas of suspect nonfriable ACM were identified and fifty-three bulk samples, including three QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following eight materials:

- Joint Sealant in attic areas.
- CT 2 1' x 1' white random hole ceiling tile
- CT 6 2' x 4' white uniform hole ceiling tile
- CT 7 1' x 1' white fissured ceiling tile
- FT 1 12" x 12" white floor tile and mastic
- FT 2 9" x 9" green floor tile and mastic
- FT 3 9" x 9" gray floor tile and mastic
- FT 4 9" x 9" brown floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

4.2.3 Material Assumed To Contain Asbestos

Two homogenous areas, the tar and felt roofing material and vibration cloth are assumed to be ACM. No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

4.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection the following materials originally identified in the walkthrough survey as suspect ACM were examined more closely and reclassified as nonsuspect:

- CT 3 2' x 4' smooth fiberglass ceiling tile
- CT 4 2' x 4' light texture fiberglass ceiling tile
- CT 5 2' x 4' rough texture fiberglass ceiling tile
- FT 5 2' x 2' raised composite floor tile

4.4 AREAS NOT ACCESSED

The following areas in Building 1 were not accessed:

- Room 4B275
- Room 4C473
- Overhead area in Bay 6, northeast corner

4.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
4		18 MF * 8 SF TSI	<10 SF TSI

TSI = THERMAL SYSTEM INSULATION
PI = PIPE INSULATION
MF = MUDDED FITTINGS
* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

4.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 4-A ACM Survey Results
Appendix 4-B Assessments/Recommendations for Friable ACM
Appendix 4-C Building Drawings
Appendix 4-D Walkthrough Survey Data Sheets
Appendix 4-E Laboratory Certificate of Analysis
Appendix 4-F Sample Chain-of-Custody Forms

APPENDIX 4-A

ACM SURVEY RESULTS

ACM Survey Results for Building 4

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	130000	SF	Assume ACM	Assume ACM	
2	Misc.	Vibration cloth	Bays 1, 2, 3, 4, 5, and 6, on AHUs in attic areas	Non	Good	200	SF	Assume ACM	Assume ACM	
3	TSI	Premolded pipe insulation	Bays 3 and 5, near AHUs 8, 9, 11, 17, 18	High	Poor	<2	LF	675	20-25% chrysotile	Small amounts of material left on pipes entering AHUs after abatement
4	TSI	Tank insulation	Bay 6, attic	High	Poor	4	SF	802	10-15% chrysotile	Ends of tank insulated with trowelled-on material; remainder insulated with fiberglass

ACM Survey Results for Building 4 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
5	TSI	Pipe fitting insulation	Bay 6, attic and Room 4B687	Low	Good	18	# of fittings	804 811	10-15% chrysotile 5-10% chrysotile	
6	TSI	Debris	Bays 3, 4, 5 and 6	High	Poor	--	--	001 680	20-25% chrysotile 20-25% chrysotile	Debris is near catwalks and air handling units.
7	TSI	Joint sealant	Bays 1, 2, 3, 4, 5, 6, attic areas	Non	Good	42000	SF	676 678 679 801 803 805 808 809 812 813	1-5% chrysotile 1-5% chrysotile 1-5% chrysotile 1-5% chrysotile <1% chrysotile 10-15% chrysotile 5-10% chrysotile 1-5% chrysotile 1-5% chrysotile 1-5% chrysotile	Material is found on ends and seams of fiberglass-insulated steam pipes and ducts. The estimated amount is based on the quantity of insulation on which it is located. Sample 813 is a QC for sample 812.
8	TSI	Joint sealant	Bay 6, mechanical room	Non	Good	--	--	800 810	None detected None detected	Material is found on ends of fiberglass-insulated pipe.

ACM Survey Results f. Building 4 (continued)

	Material Description					Quantity				
Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure-ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
9	Misc.	Ceiling tile	See Drawing 4/1-CT 4/2-CT 4/4-CT 4/5-CT	Non	Good	13000	SF	652 674	None detected None detected	CT 1 2' x 4' white w/ fissures
10	Misc.	Ceiling tile	See Drawing 4/3 CT	Non	Good	1200	SF	667 668	5-10% amosite 1-5% amosite	CT 2 1' x 1' white w/random holes
11	Misc.	Ceiling tile	Entry areas See Drawings 4/1-CT 4/6-CT	Non	Good	100	SF	642 644	30-35% chrysotile 35-40% chrysotile	CT 6 2' x 4' white w/uniform holes
12	Misc.	Ceiling tile	Room 4B692	Non	Good	400	SF	683 684	1-5% chrysotile 1-5% chrysotile	CT 7 1' x 1' white w/fissures

ACM Survey Results for Building 4 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
13	Misc.	Floor tile and mastic	See Drawings 4/1-FT 4/2-FT 4/3-FT 4/4-FT 4/5-FT 4/6-FT	Non	Good	37500	SF	640 647	1-5% chrysotile <1% chrysotile	FT 1 12' x 12" white floor tile
14	Misc.	Floor tile and mastic	See Drawings 4/1-FT 4/2-FT 4/3-FT 4/4-FT 4/5-FT 4/6-FT	Non	Good	33000	SF	643 645	1-5% chrysotile 1-5% chrysotile	FT 2 9" x 9" green floor tile
15	Misc.	Floor tile and mastic	See Drawings 4/1-FT 4/2-FT 4/3-FT 4/4-FT 4/5-FT	Non	Good	33000	SF	659 660	1-5% chrysotile 1-5% chrysotile	FT 3 9" x 9" gray floor tile
16	Misc.	Floor tile and mastic	See Drawings 4/1-FT 4/2-FT 4/3-FT 4/5-FT	Non	Good	19100	SF	653 654	1-5% chrysotile 5-10% chrysotile	FT 4 9" x 9" brown floor tile

ACM Survey Results for Building 4 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
17	Misc.	Floor tile and mastic	Room 4B687	Non	Good			806 807	<1% chrysotile <1% chrysotile	FT 6 9" x 9" black floor tile
18	Surfacing	Fire code gypsum board	Hallways throughout building	Non	Good	>110000	SF	641 648 649 656 657 661 672 673	None detected None detected None detected None detected None detected None detected None detected None detected	Sample 649 is a QC for sample 648
19	Surfacing	Regular gypsum board	Interior walls throughout building Ceilings; custodial closets; Rooms in Bay 6 - See Drawing 4/6-CT	Non	Good	>130000	SF	646 650 651 655 658 669 670 671	None detected None detected None detected None detected None detected None detected None detected None detected	Sample 651 is a QC for sample 650
20	Surfacing	Plaster	Restrooms and Room 4B687 See Drawings 4/2-CT 4/5-CT 4/6-CT	Non	Good	<5000	SF	662 663 664 665 666 681 682	None detected None detected None detected None detected None detected <1% chrysotile None detected	

APPENDIX 4-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 4.

Functional Space	Homogeneous Sample Area #	Material Description: Category (surfacing TSI or misc.)	Material Description: Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
4-1 Bays 3, 4, 5, & 6 Attic areas	3, 4, 5, 6	TSI	Premolded pipe insulation, tank insulation, pipe fitting insulation, debris	16	22	B	Action as Soon As Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule correction action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
4-2 Bay 6, Rm 4B687	5	TSI	Pipe fitting insulation	5	13	C	Planned Action - Initiate an O&M Program.. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.

Friable Asbestos Assessment Checklist

Cameron Station Building 4 Inspector Barnes / Guarda 4/16/91

Homogeneous Sample Area #(s) 3, 4, 5 & 6 Material Type(s) pipe/elbow pipe insulation, tank insulation, duct pipe fitting insulation

Functional Space 4-1 Attic area, asp 3, 4, 5 & 6

Part 1: Damage/Risk

- Visible evidence of physical damage: (5) High; 4 Moderate; 2 Low; 1 Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: (8) High; 5 Medium; 2 Low
  - B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 675, 802, 811, 001, 680

Damage/Risk Total 16

Friable Asbestos Assessment Checklist

Cameron Station Building 4

Inspector/Date Barnes / Guarda 4/16/91

Homogeneous Sample Area #(s) 3, 4 5, 6

Material Type(s) Crumbled pipe insulation rank insulation. debris, & Pipe fitting insulation

Functional Space 4-1 Attic area Bays 3, 4, 5, & 6

Part 2: Exposure

- Friability: (6) High; 3 Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 22

Friable Asbestos Assessment Checklist

Cameron Station Building 4 Inspector Barnes/Guarden 4/16/91

Homogeneous Sample Area #(s) 5 Material Type(s) Pipe fitting insulation

Functional Space 4-2 Room 43687

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; 4 Moderate; 2 Low; 1 Minimal; (0) None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: 8 High; 5 Medium; (2) Low
  - B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 804

Damage/Risk Total 5

Friable Asbestos Assessment Checklist

Cameron Station Building 4 Inspector Barnes / Guarden 4/16/91

Homogeneous Sample Area #(s) 5 Material Type(s) Pipe fitting insulation

Functional Space 4-2 Rm 4B687

Part 2: Exposure

- Friability: 6 High; 3 Moderate; (1) Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft_2
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

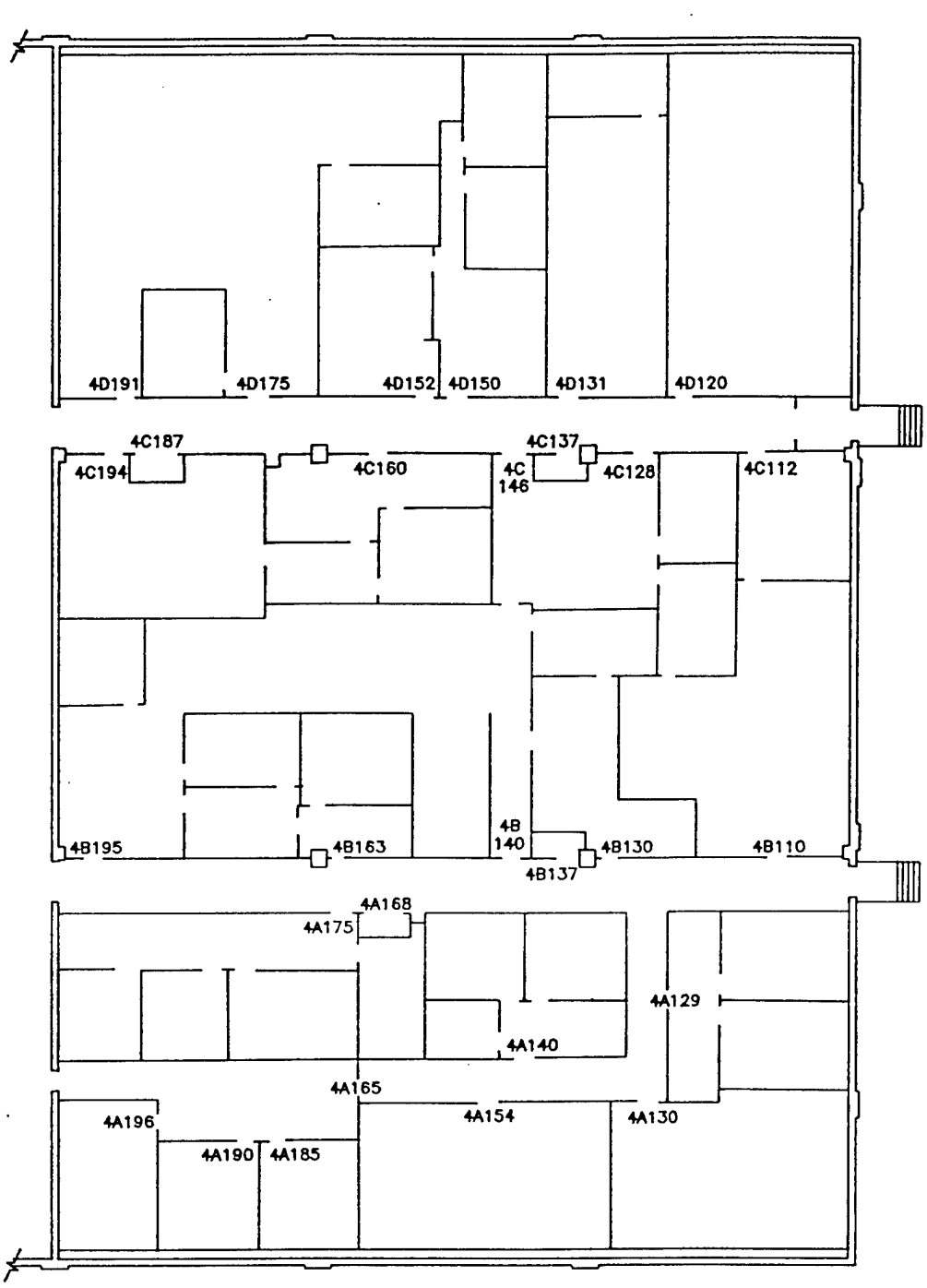
  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  (1) ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; 4 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 13

APPENDIX 4-C

BUILDING DRAWINGS



NOTE: NO SAMPLES COLLECTED IN THIS BAY.

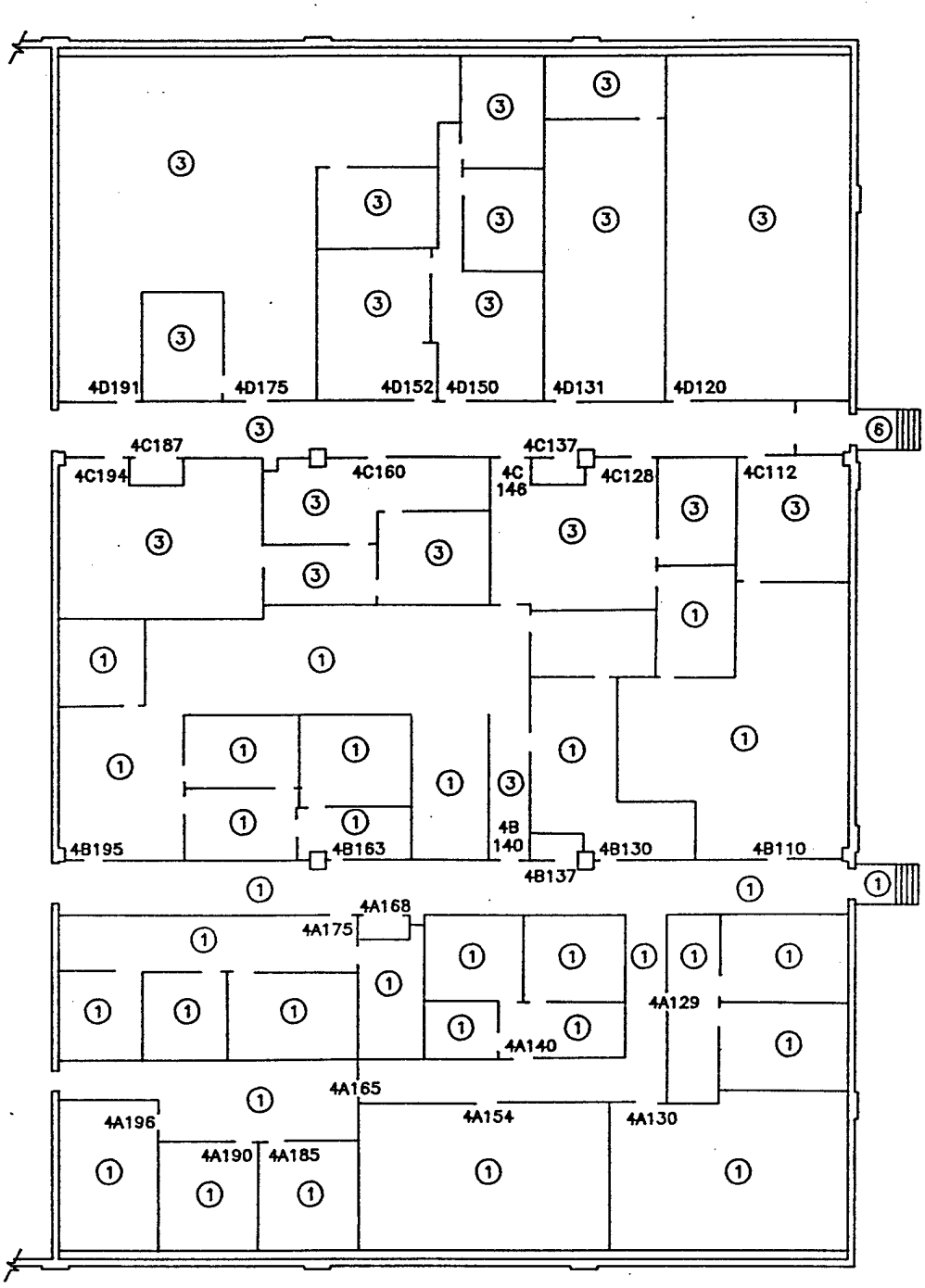
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 4 – BAY 1
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	LAL	8–4–91	4/1–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



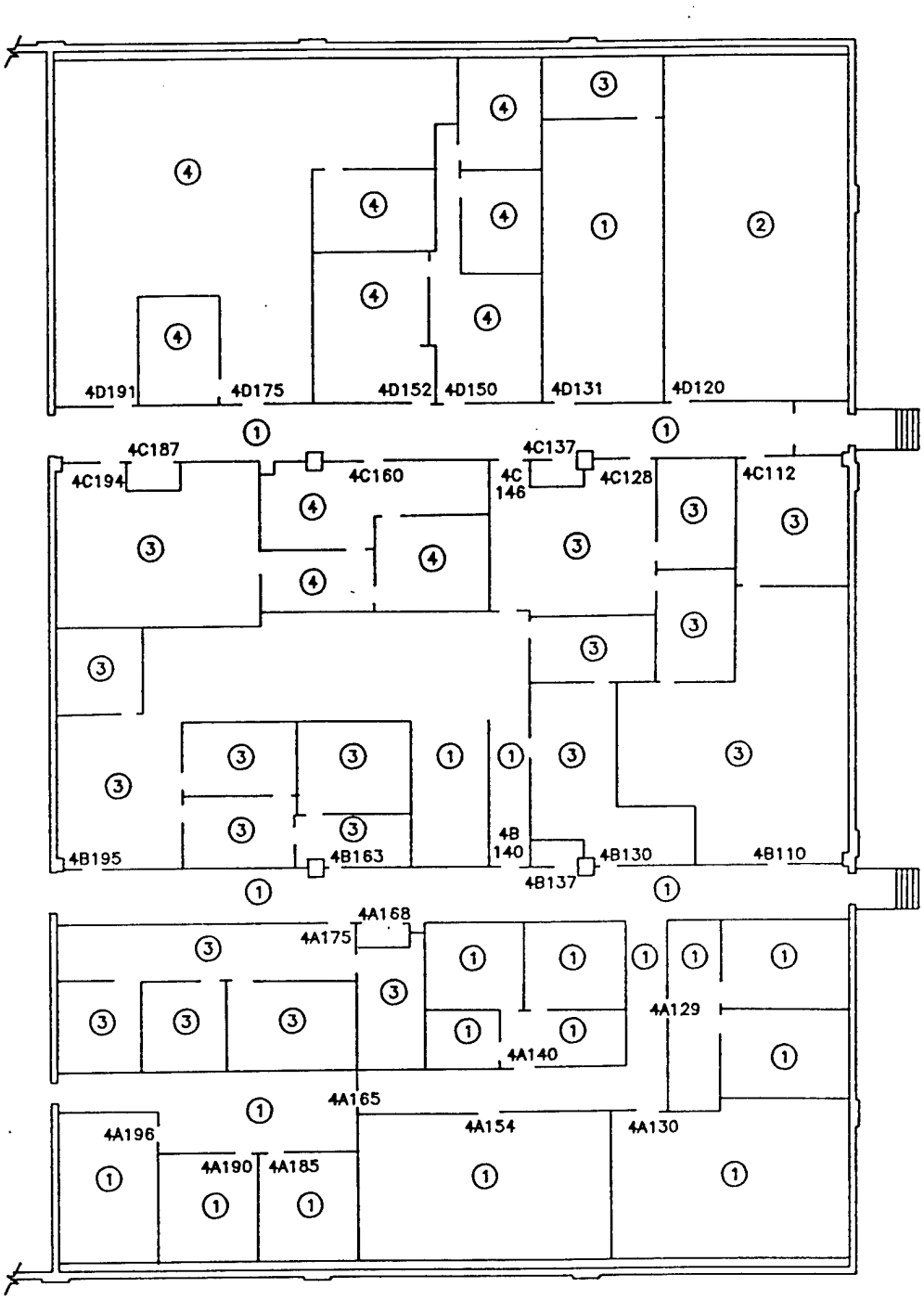
LEGEND

(1) 2' x 4' FISSURED TILE

(3) 2' x 4' SMOOTH TILE

(6) 2' x 4' UNIFORM HOLE TILE

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia				
Woodward–Clyde Federal Services	TITLE BUILDING 4 – BAY 1 CEILING TYPE LOCATIONS				
	PROJECT NO. 3001–210	DRAWN BY: LAL CHECKED BY: F.B.G.	DATE: 6–4–91 SCALE: N.T.S.	DWG. NO. 4/1–CT	



LEGEND

(1) 12" x 12" WHITE

(2) 9" x 9" GREEN

(3) 9" x 9" GRAY

(4) 9" x 9" BROWN

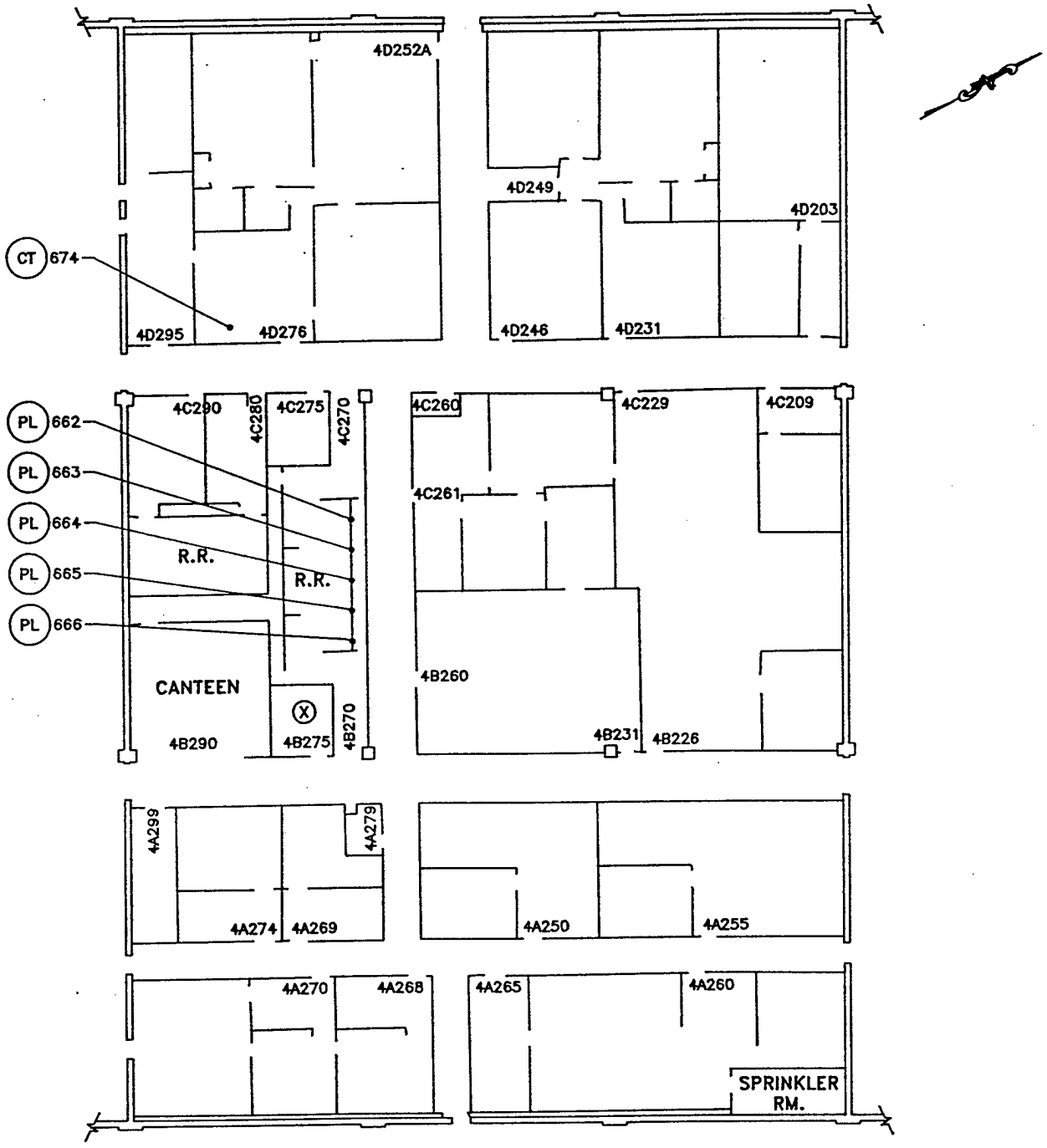
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 4 – BAY 1
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	4/1–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(CT) CEILING TILE

(PL) PLASTER

(X) AREA NOT ACCESSED

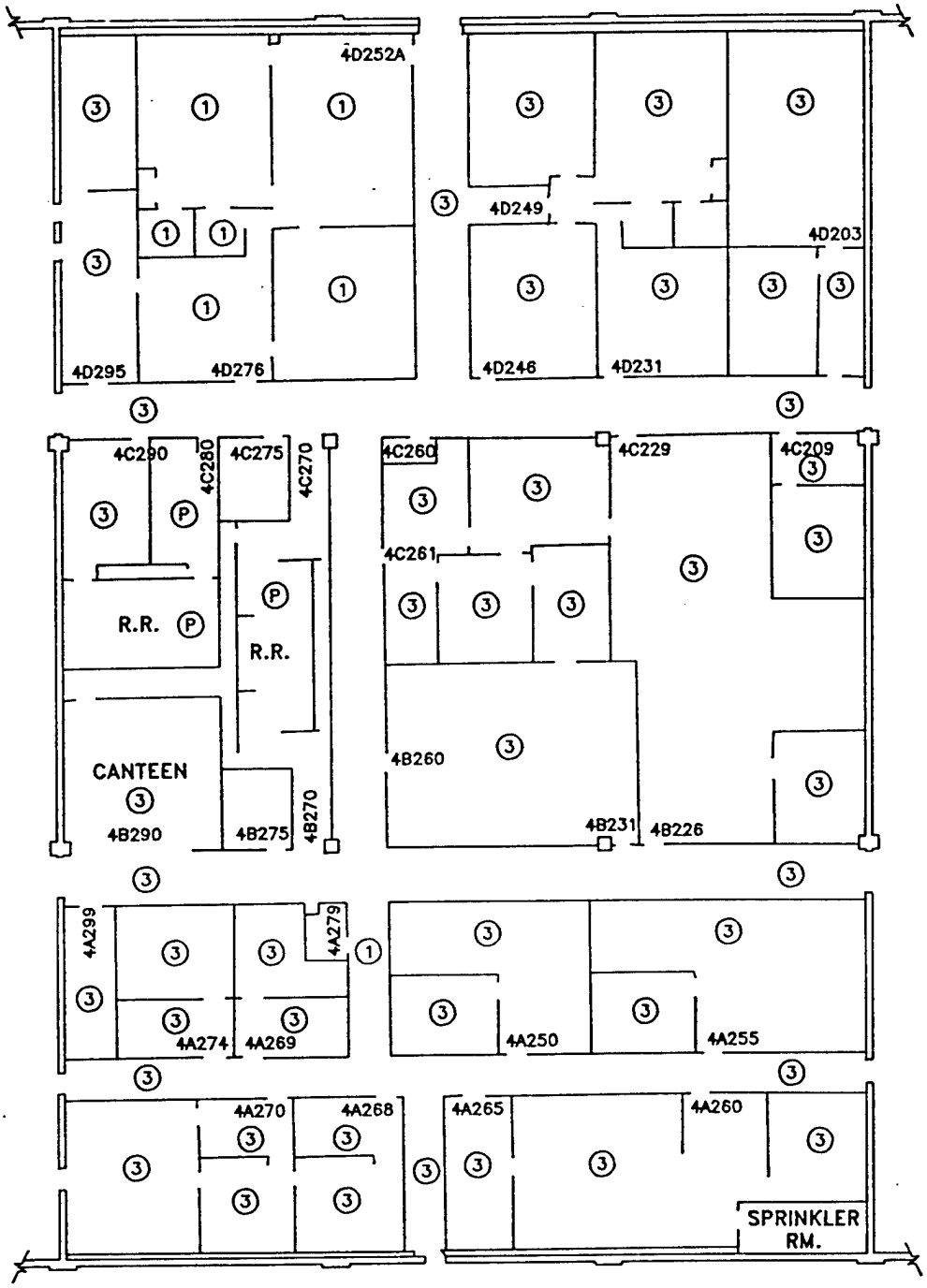
CLIENT USATHAMA

Woodward-Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 4 – BAY 2
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001-210	L.A.L.	6-4-91	4/2-SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' FISSURED TILE

(3) 2' x 4' SMOOTH TILE

(P) PLASTER

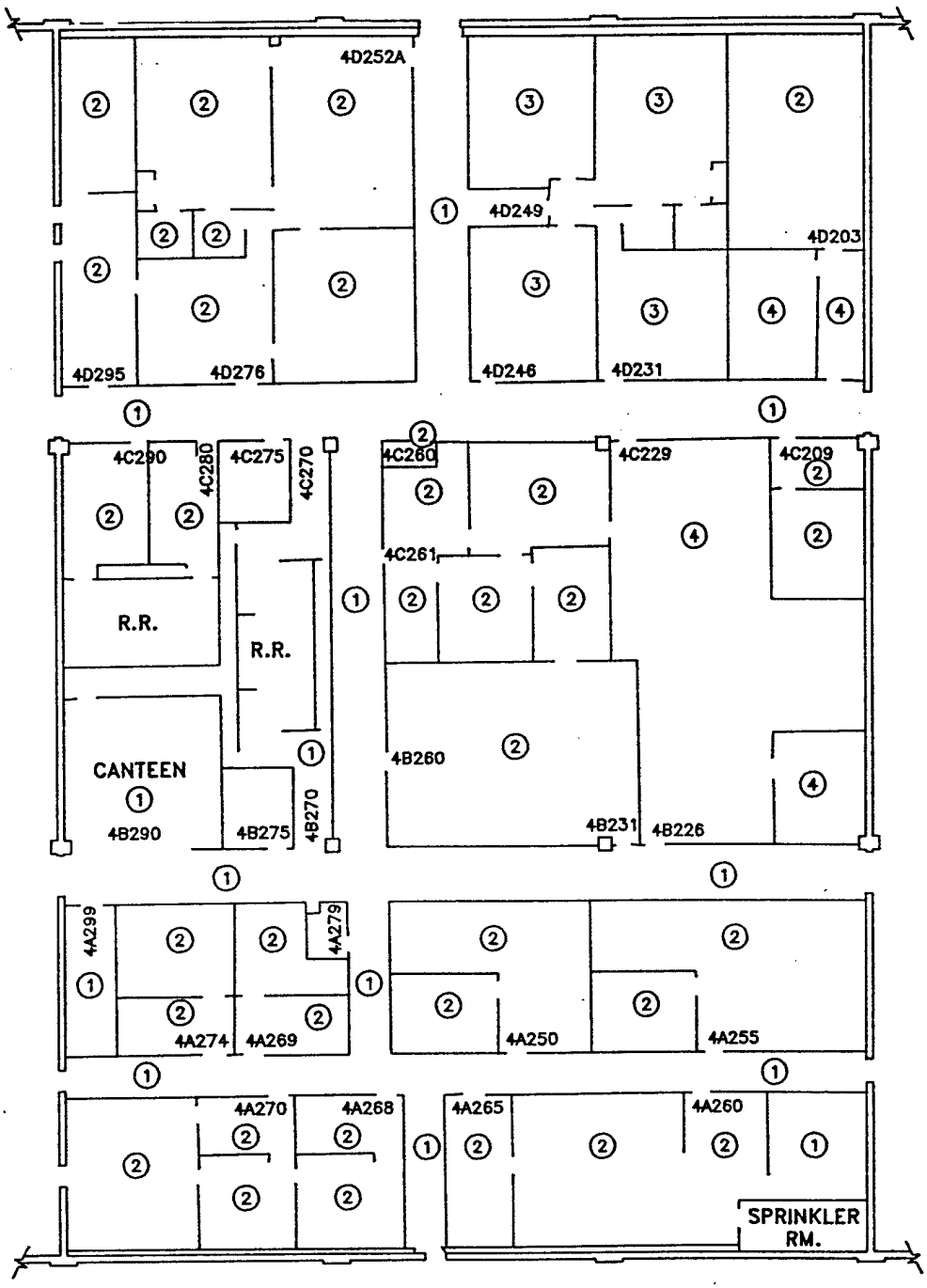
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 4 – BAY 2
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	4/2–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 12" x 12" WHITE

(2) 9" x 9" GREEN

(3) 9" x 9" GRAY

(4) 9" x 9" BROWN

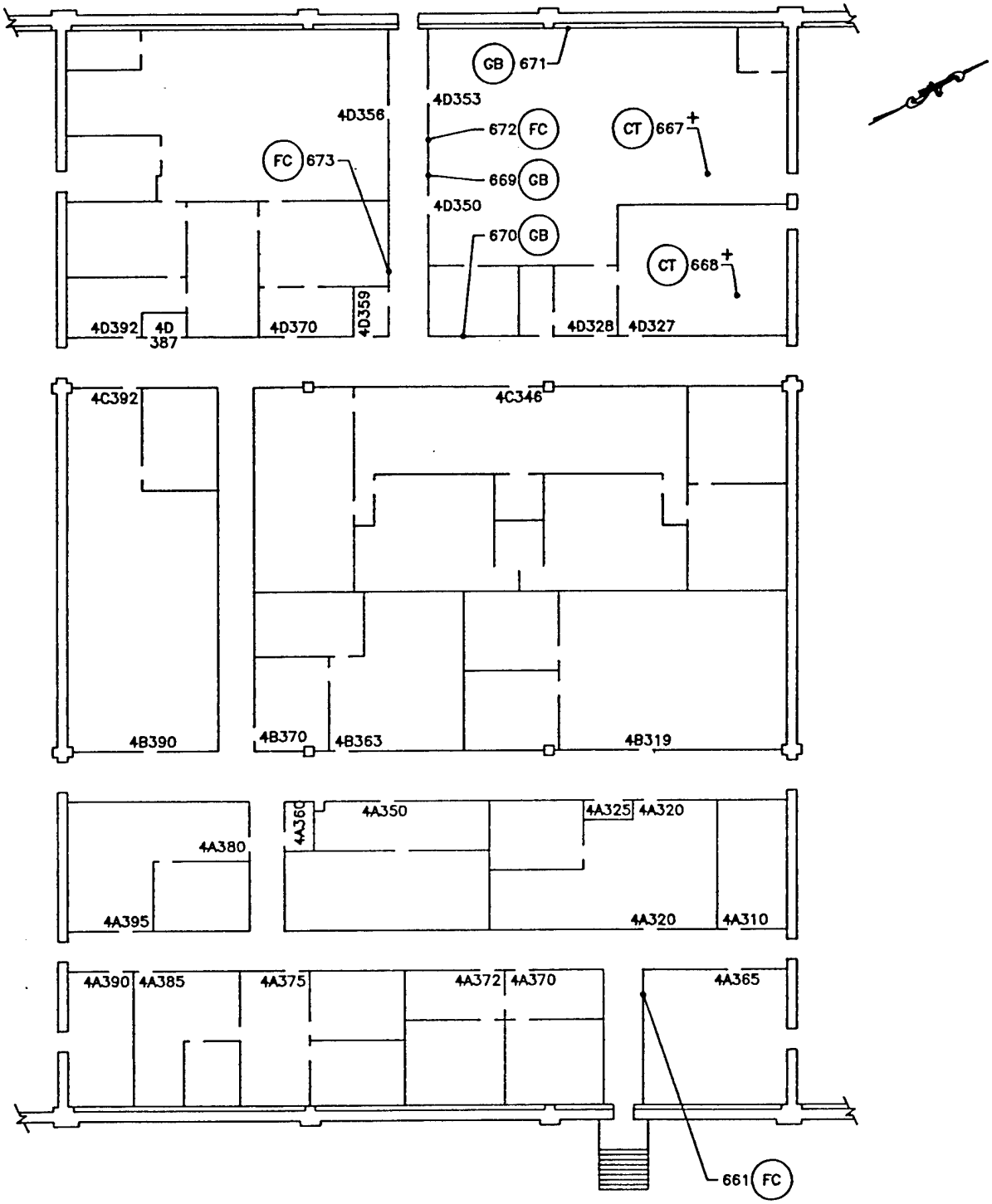
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 4 – BAY 2
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	4/2–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

- (CT) CEILING TILE
- (GB) GYPSUM BOARD
- (FC) FIRE CODE GYPSUM BOARD

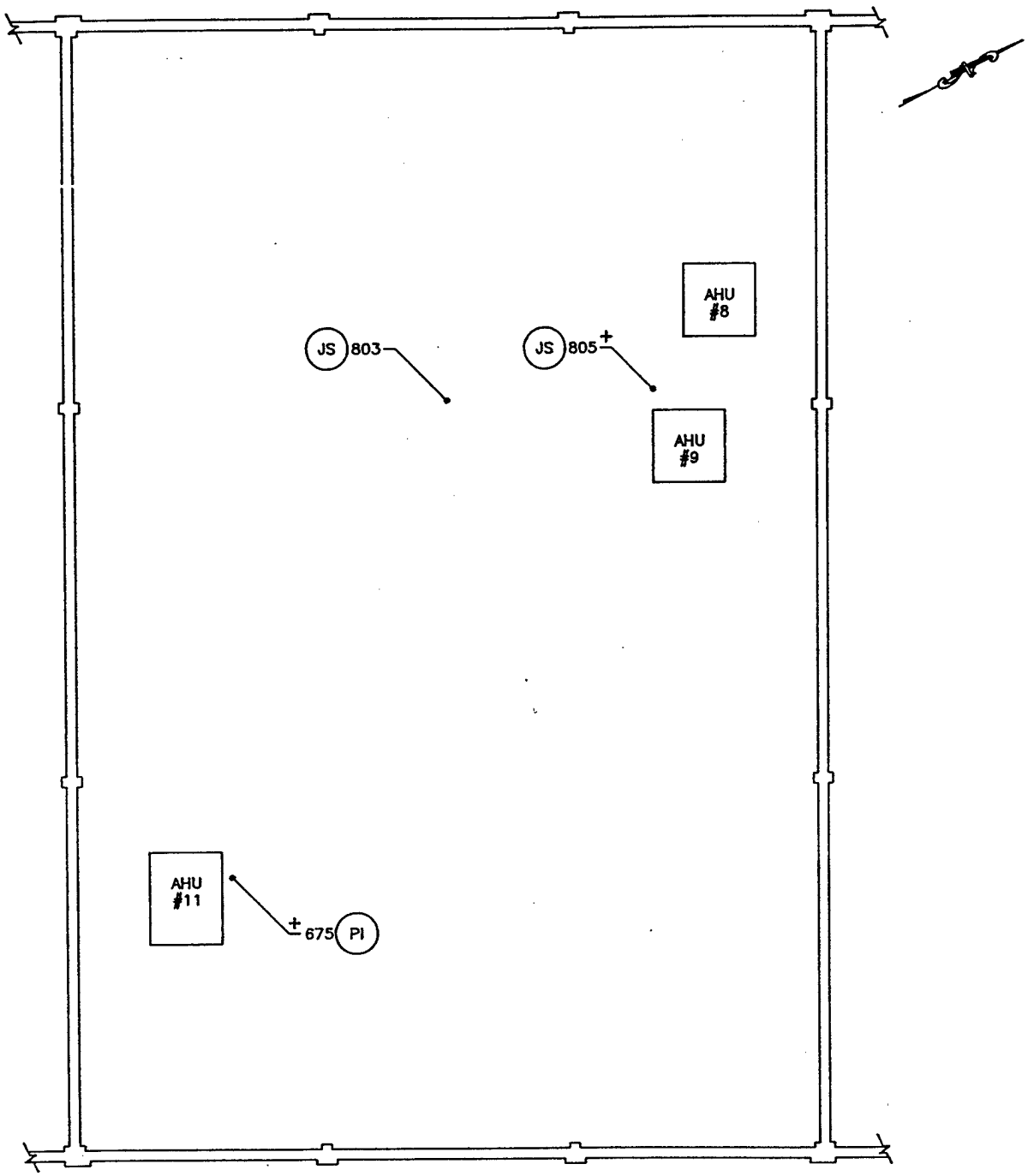
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 4 – BAY 3
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	4/3–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

- (PI) PIPE INSULATION
- (JS) JOINT SEALANT
- \+ DENOTES POSITIVE RESULTS

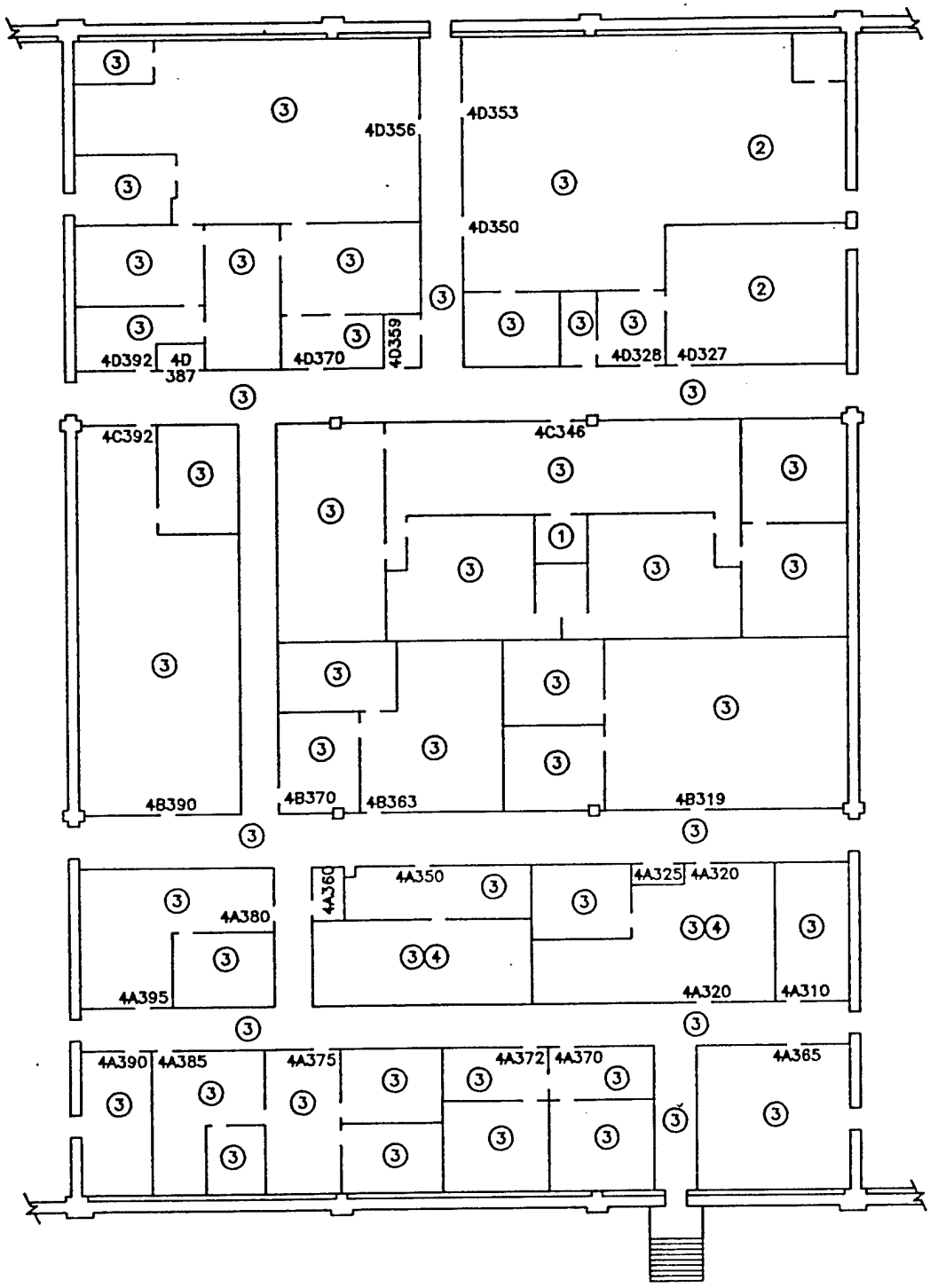
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 4 – BAY 3 ATTIC SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	4/3A–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' FISSURED TILE

(2) 1' x 1' RANDOM HOLE TILE

(3) 2' x 4' SMOOTH TILE

(4) 2' x 4' LIGHT TEXTURE TILE

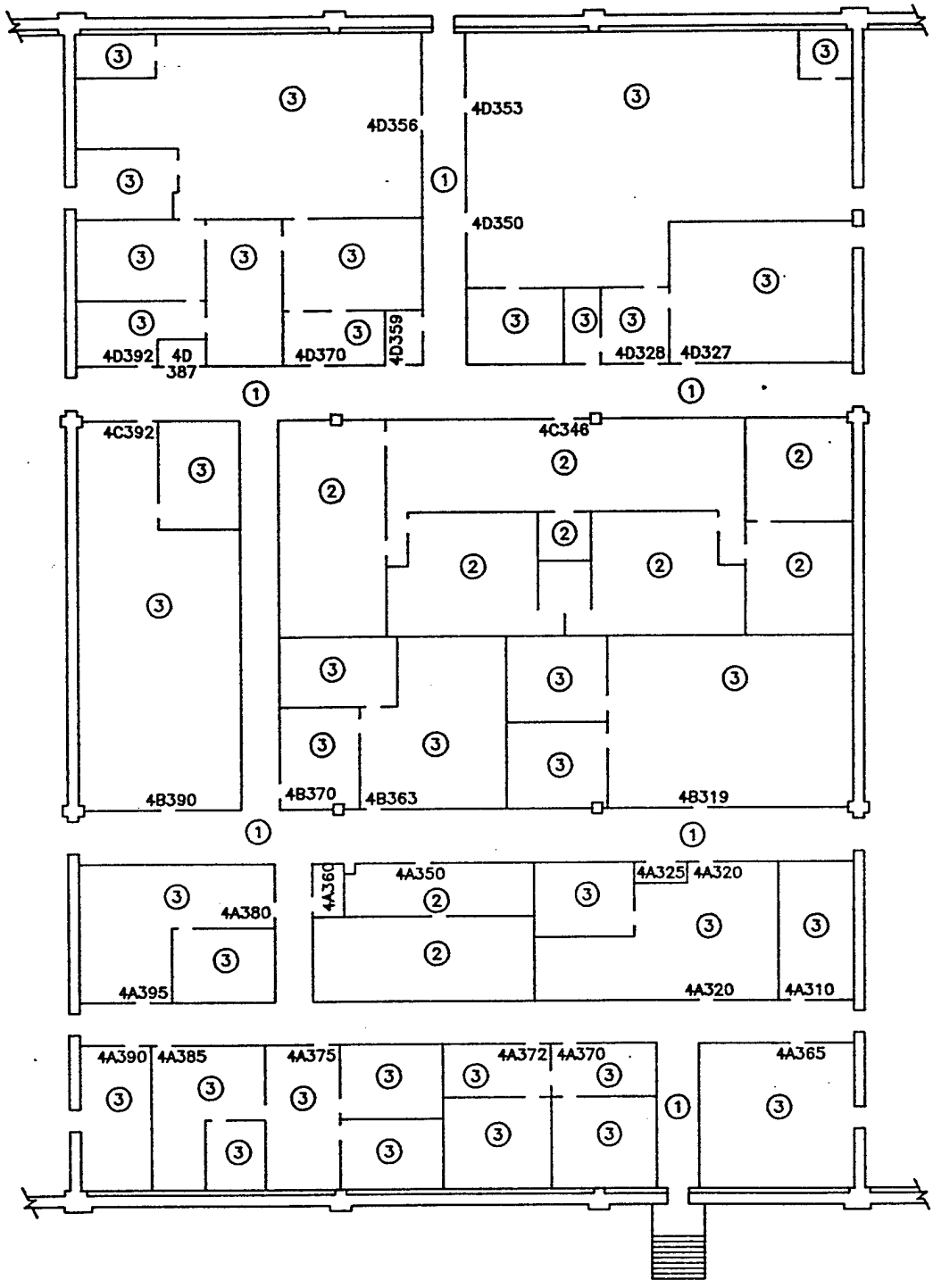
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 4 – BAY 3
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	CHECKED BY: F.B.G.	SCALE: N.T.S.	4/3–CT



LEGEND

(1) 12" x 12" WHITE

(2) 9" x 9" GREEN

(3) 9" x 9" GRAY

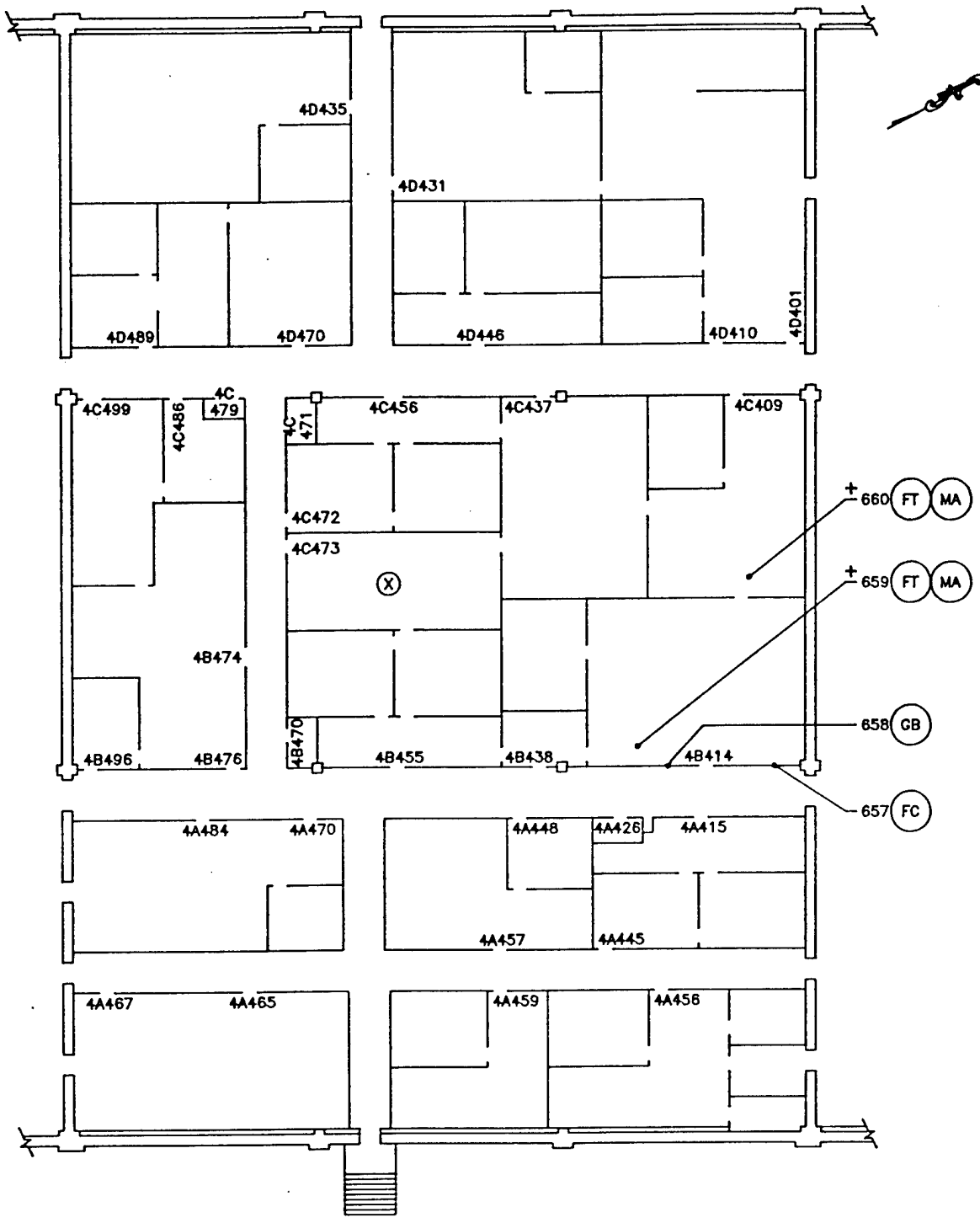
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 4 – BAY 3
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	8–4–91	4/3–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

FT	FLOOR TILE	FC	FIRE CODE GYPSUM BOARD
MA	MASTIC	X	AREA NOT ACCESSED
GB	GYPSUM BOARD	+	DENOTES POSITIVE RESULTS

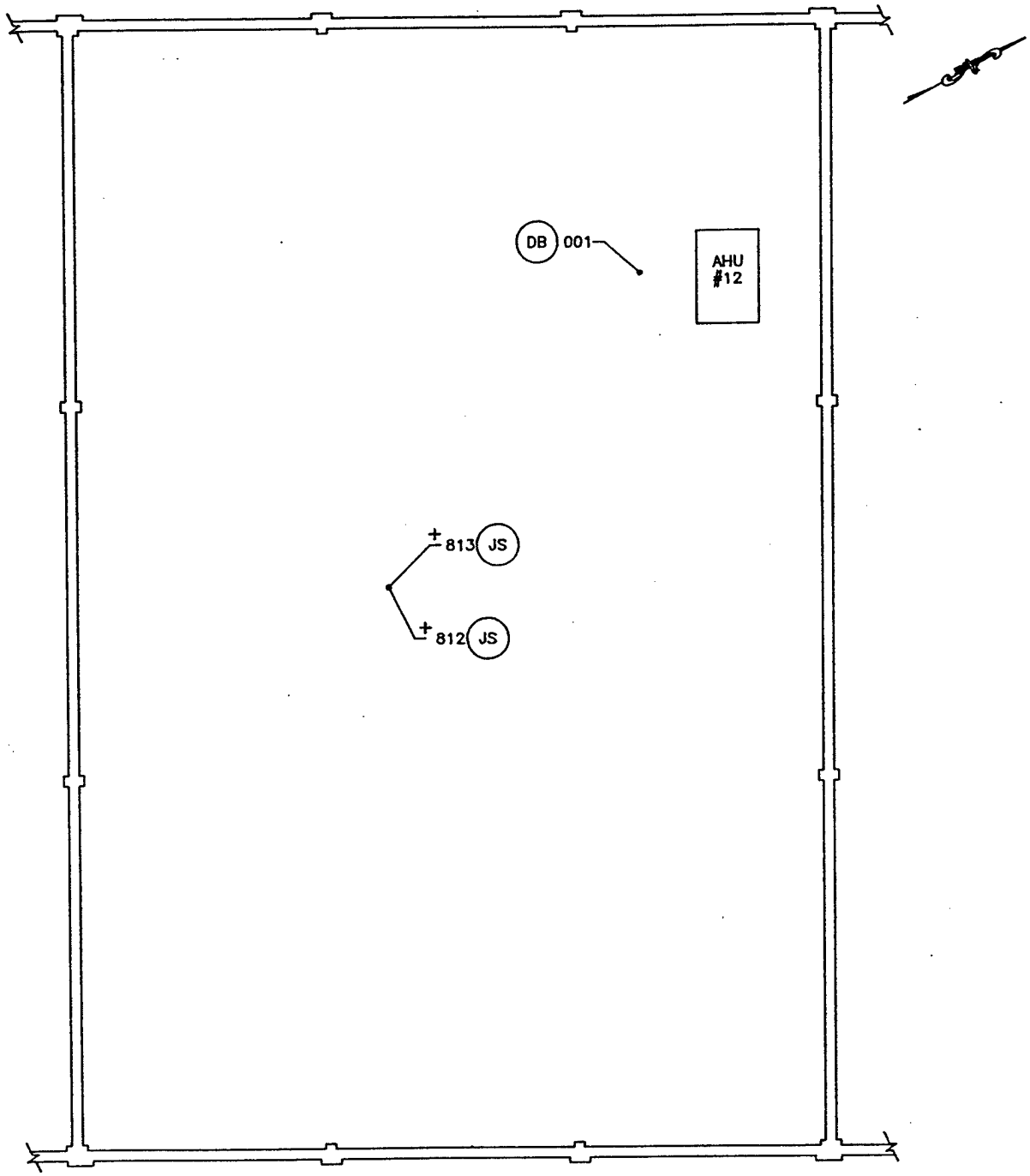
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 4 – BAY 4
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	4/4–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

DB DEBRIS

JS JOINT SEALANT

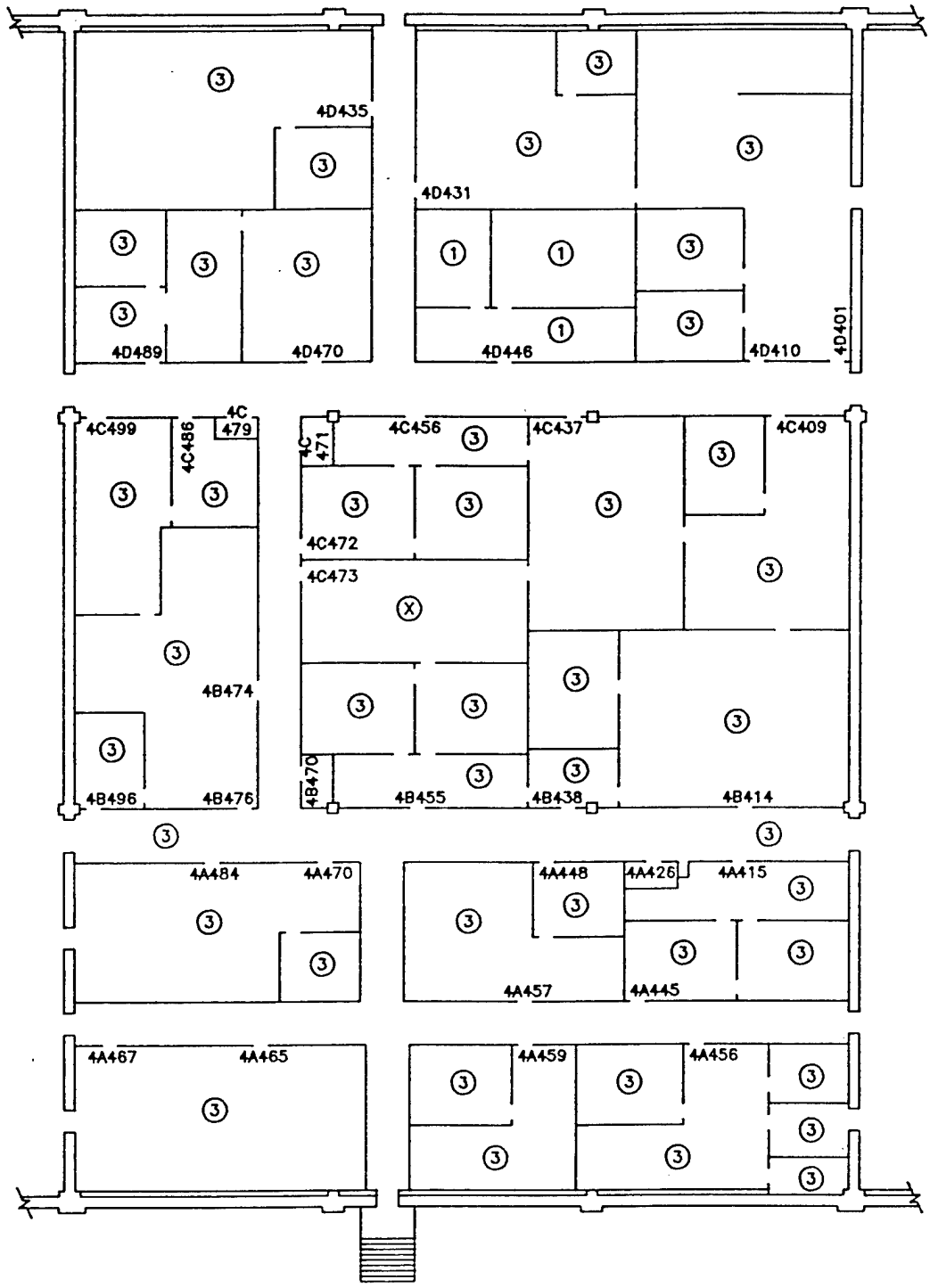
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 4 – BAY 4 ATTIC SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	8–4–91	4/4A–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' FISSURED TILE

(3) 2' x 4' SMOOTH TILE

CLIENT USATHAMA

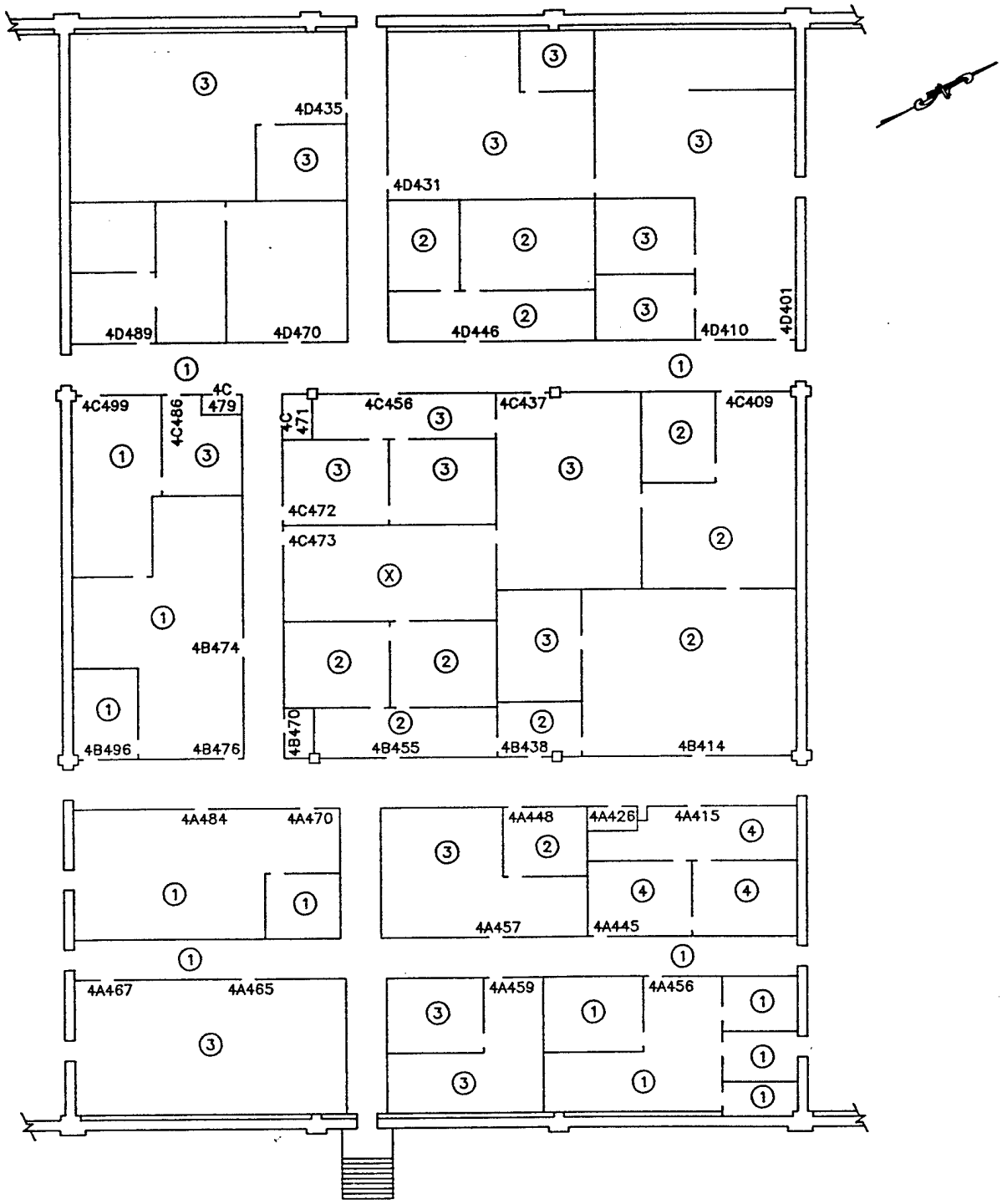
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 4 – BAY 4
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	4/4–CT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(1) 12" x 12" WHITE

(2) 9" x 9" GREEN

(3) 9" x 9" GRAY

(4) 9" x 9" BROWN

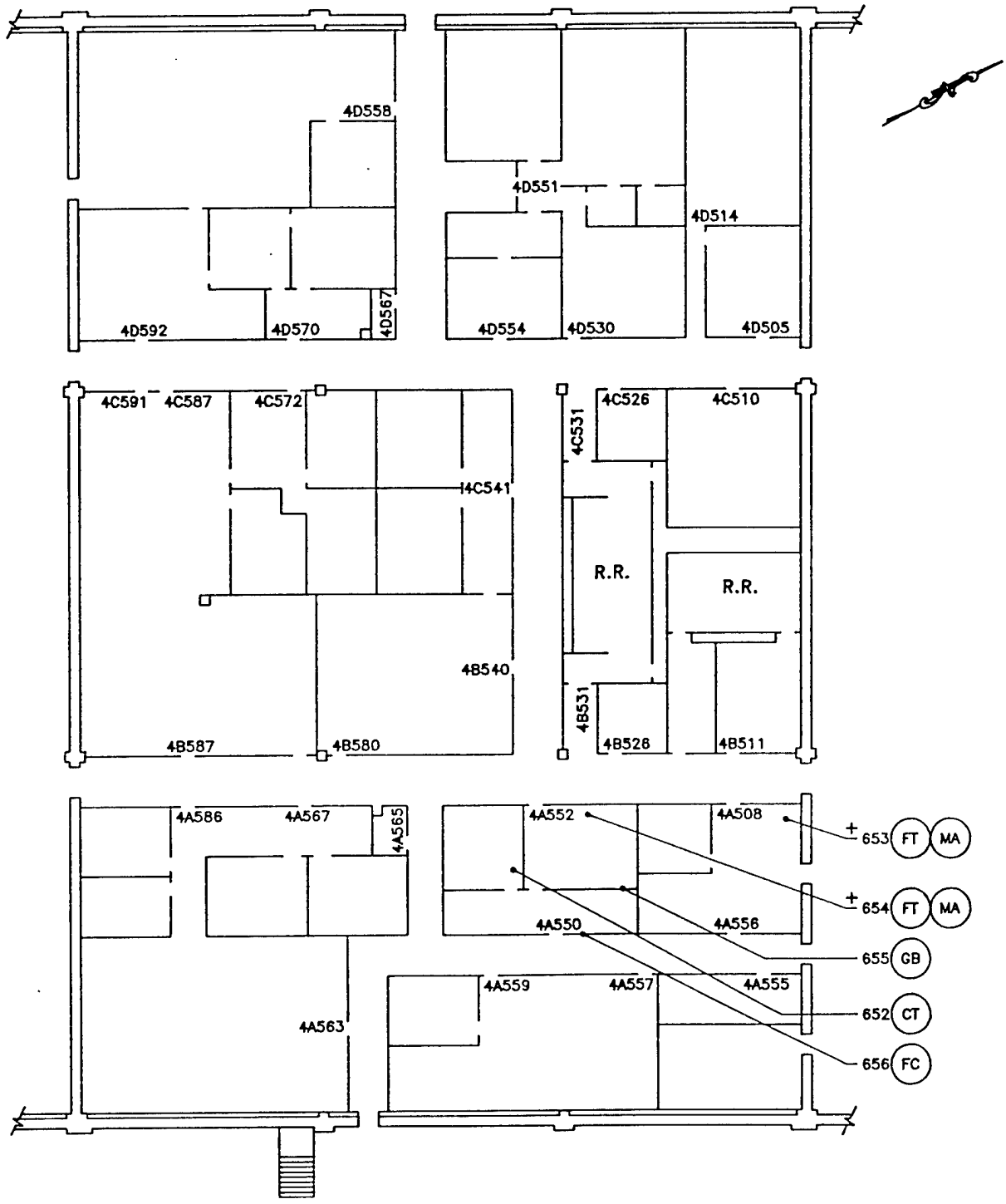
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 4 – BAY 4
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	L.A.L.	DATE:	6-4-91	DWG. NO.
3001-210	CHECKED BY:	F.B.C.	SCALE:	N.T.S.	4/4-FT



LEGEND

FT	FLOOR TILE	GB	GYPSUM BOARD
MA	MASTIC	FC	FIRE CODE GYPSUM BOARD
CT	CEILING TILE	+	DENOTES POSITIVE RESULTS

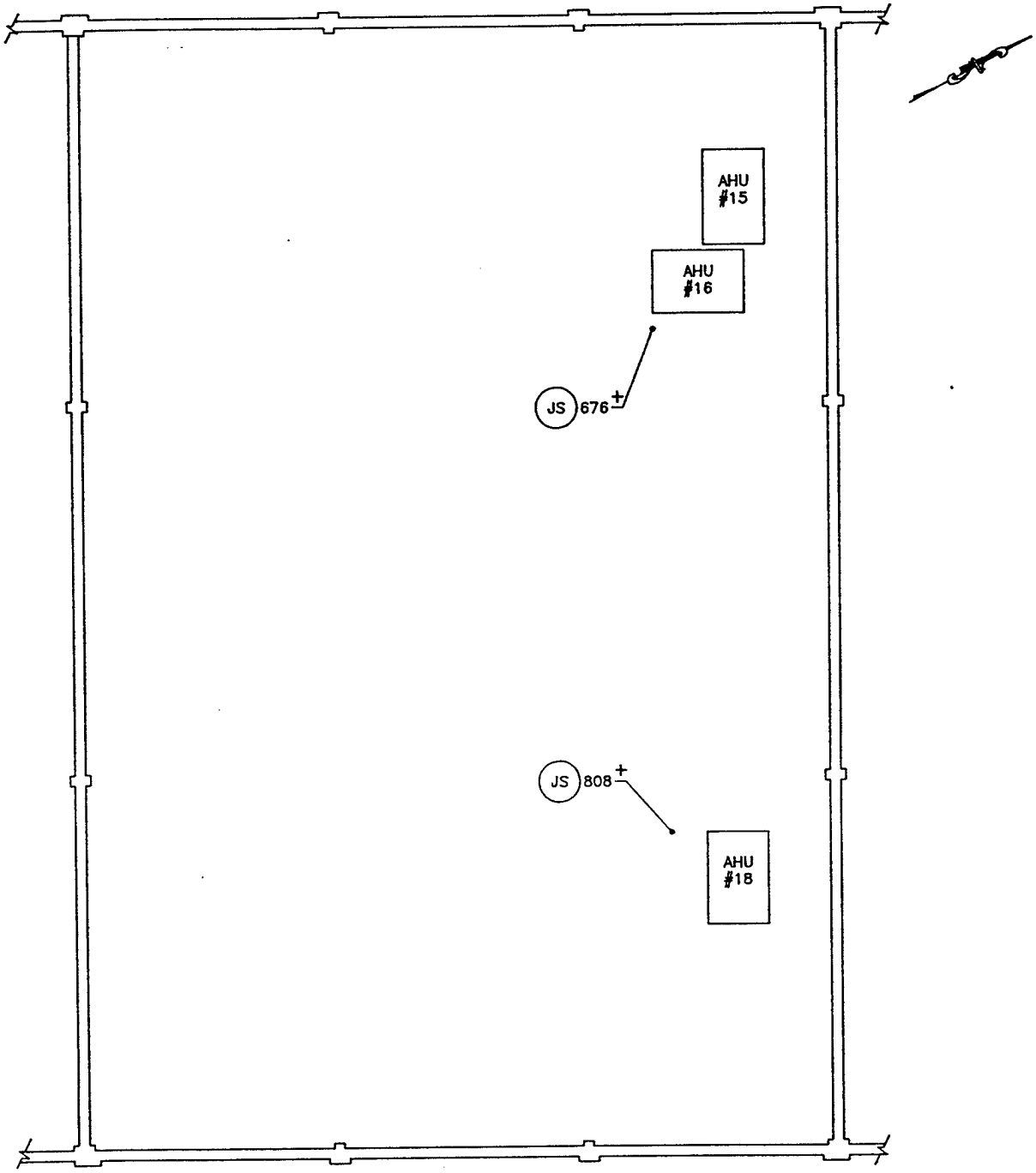
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 4 – BAY 5
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	4/5–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

JS JOINT SEALANT

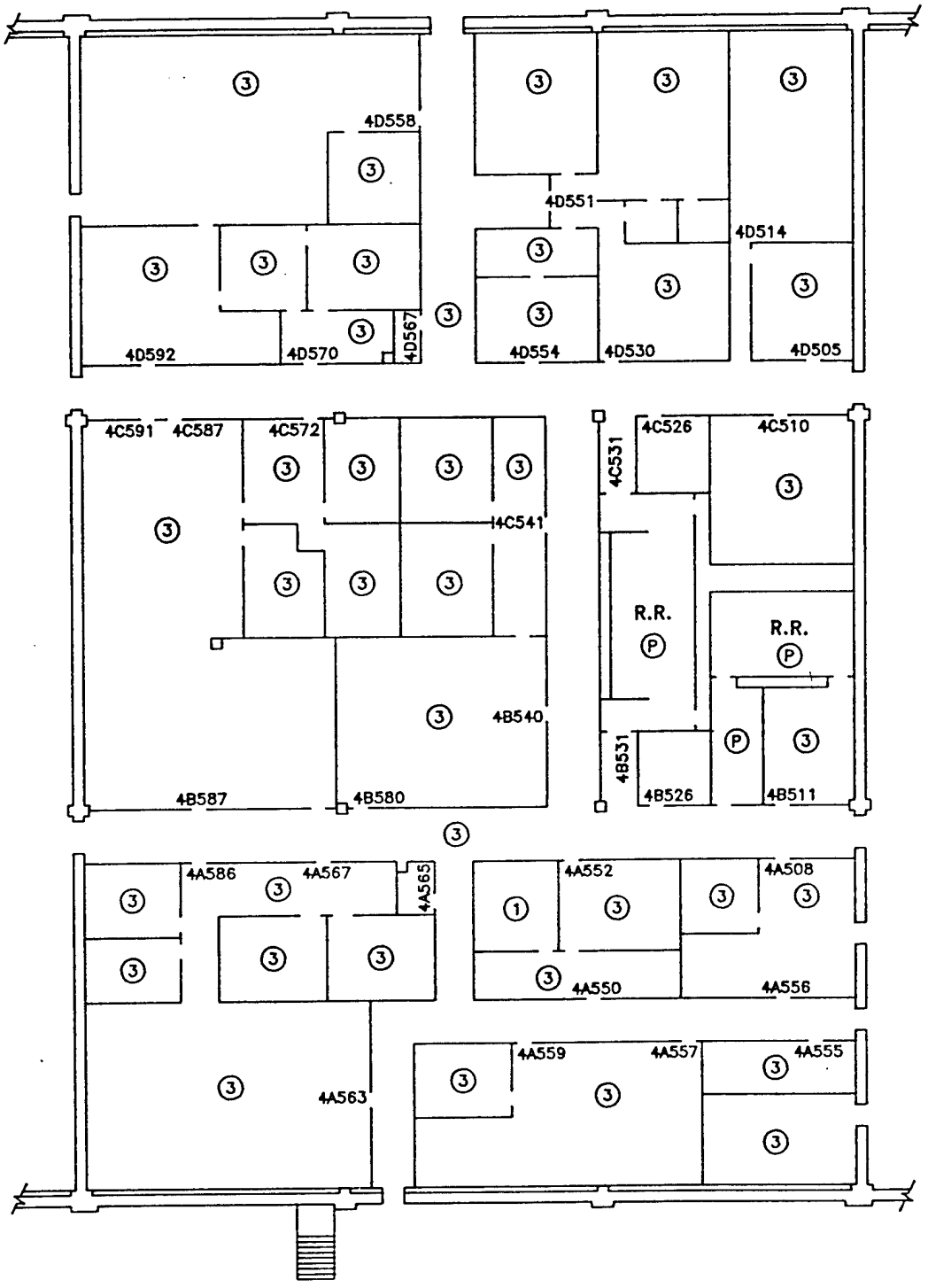
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde
Federal Services

TITLE BUILDING 4 – BAY 5 ATTIC
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	4/5A–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' FISSURED TILE

(3) 2' x 4' SMOOTH TILE

(P) PLASTER

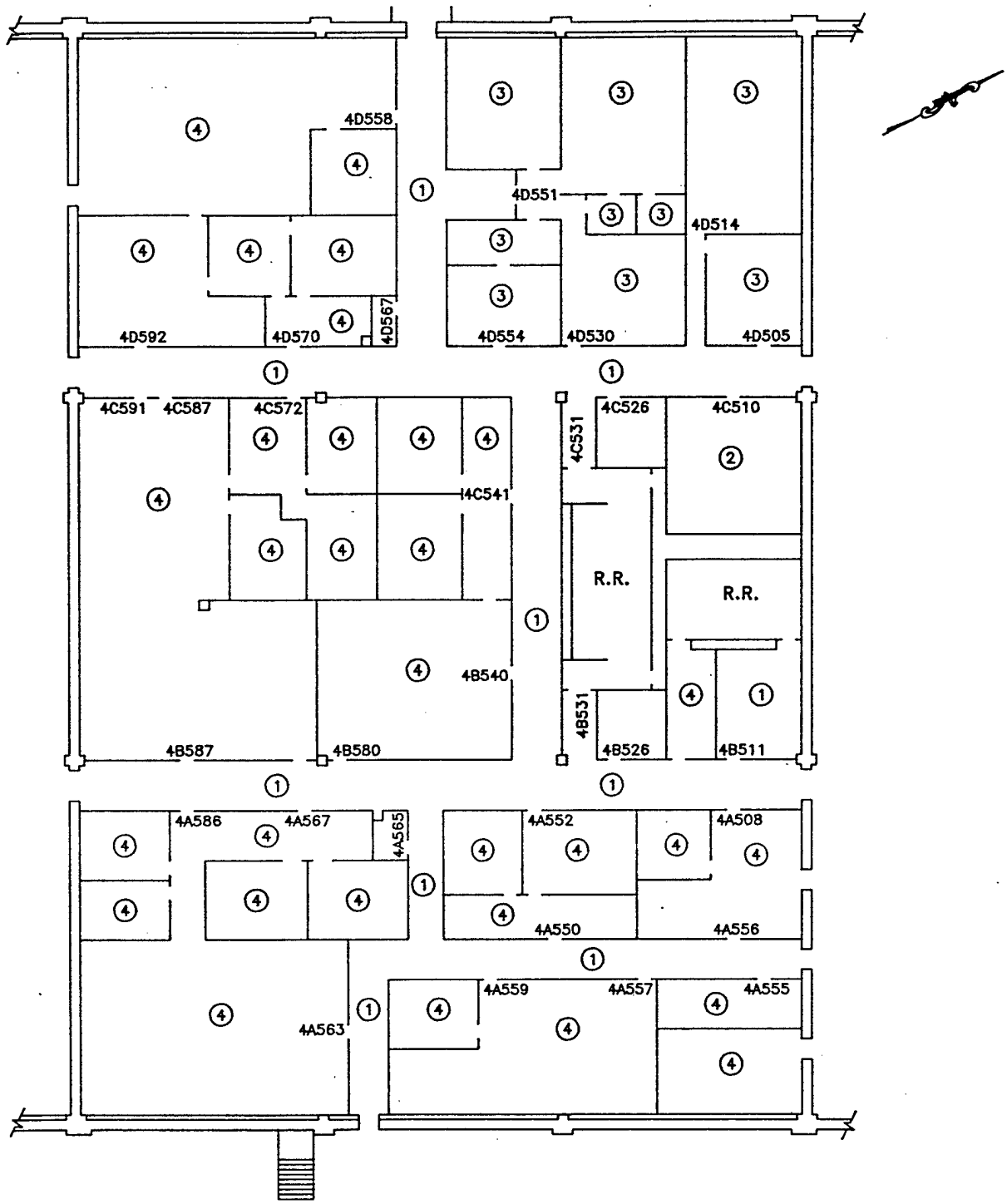
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 4 – BAY 5
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	8–4–91	4/5–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

1. 12" x 12" WHITE
2. 9" x 9" GREEN
3. 9" x 9" GRAY
4. 9" x 9" BROWN

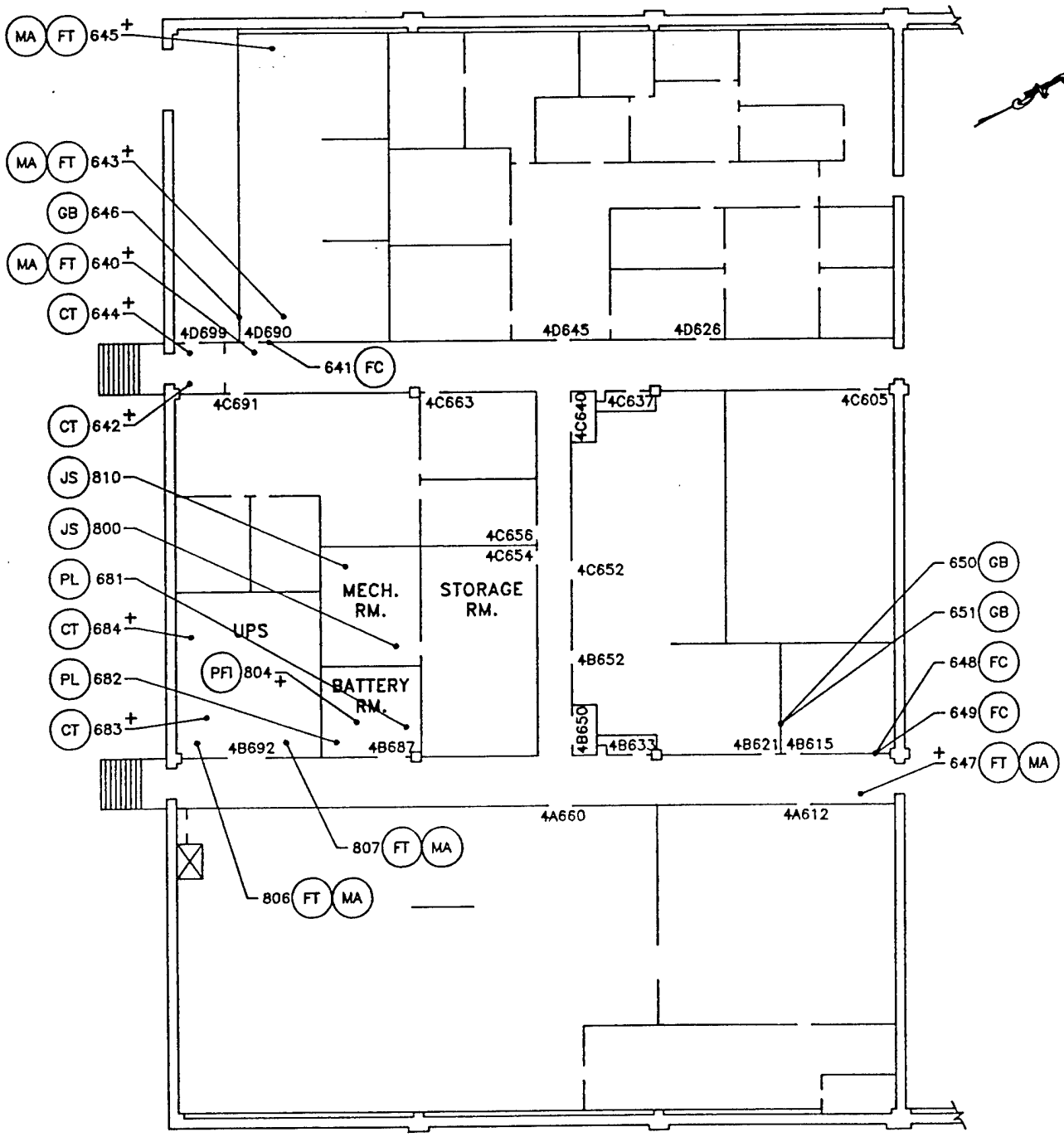
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 4 – BAY 5
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	L.A.L.	DATE:	6–4–91	DWG. NO.
3001–210	CHECKED BY:	F.B.G.	SCALE:	N.T.S.	4/5–FT



LEGEND

CT CEILING TILE	GB GYPSUM BOARD	PL PLASTER
FT FLOOR TILE	FC FIRE CODE GYPSUM BOARD	PFI PIPE FITTING INSULATION
MA MASTIC	JS JOINT SEALANT	+ DENOTES POSITIVE RESULTS

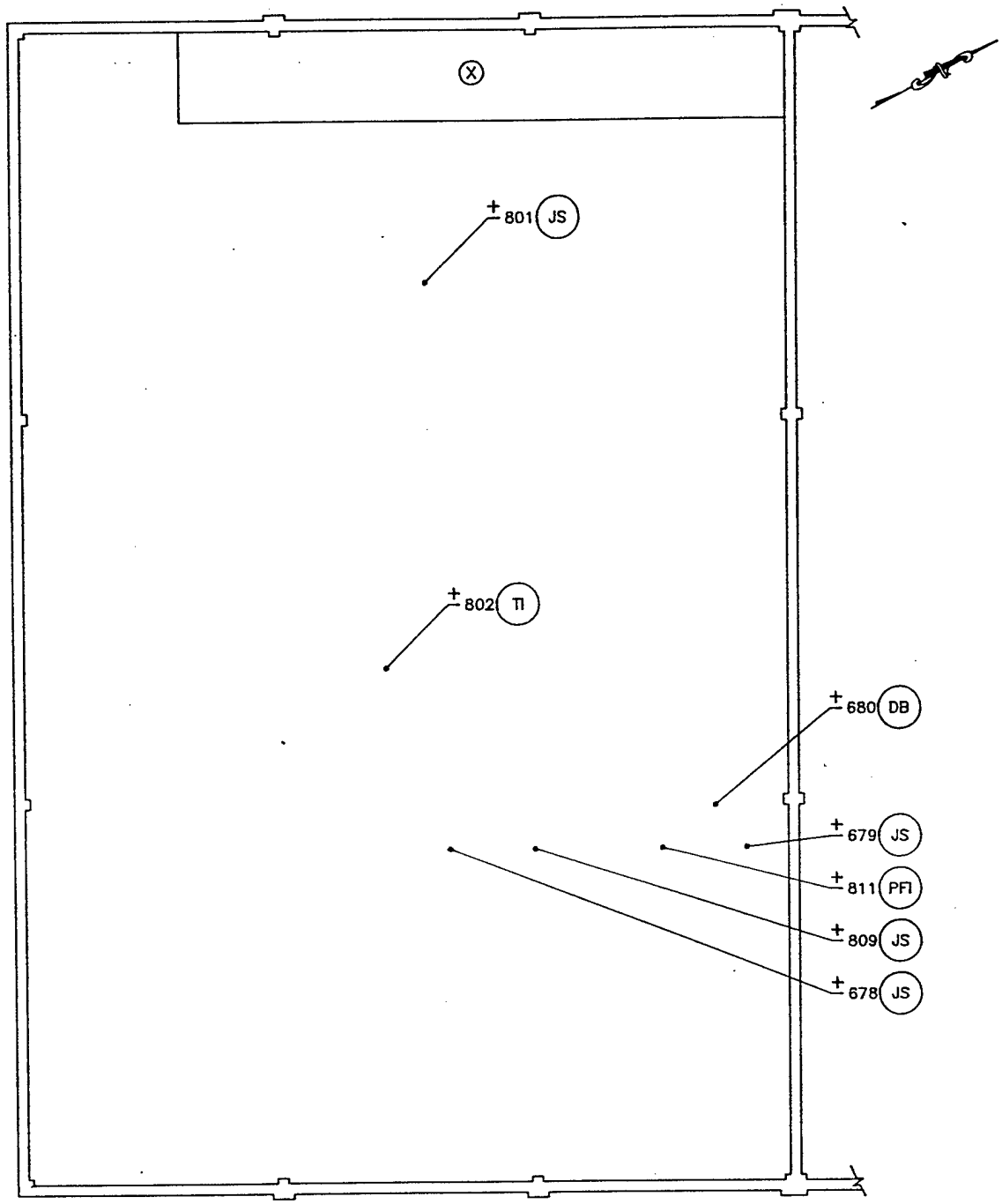
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 4 – BAY 6 SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–4–91	4/6–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

DB	DEBRIS	TI	TANK INSULATION
PI	PIPE INSULATION	X	AREA NOT ACCESSED
PFI	PIPE FITTING INSULATION	+	DENOTES POSITIVE RESULT
JS	JOINT SEALANT		

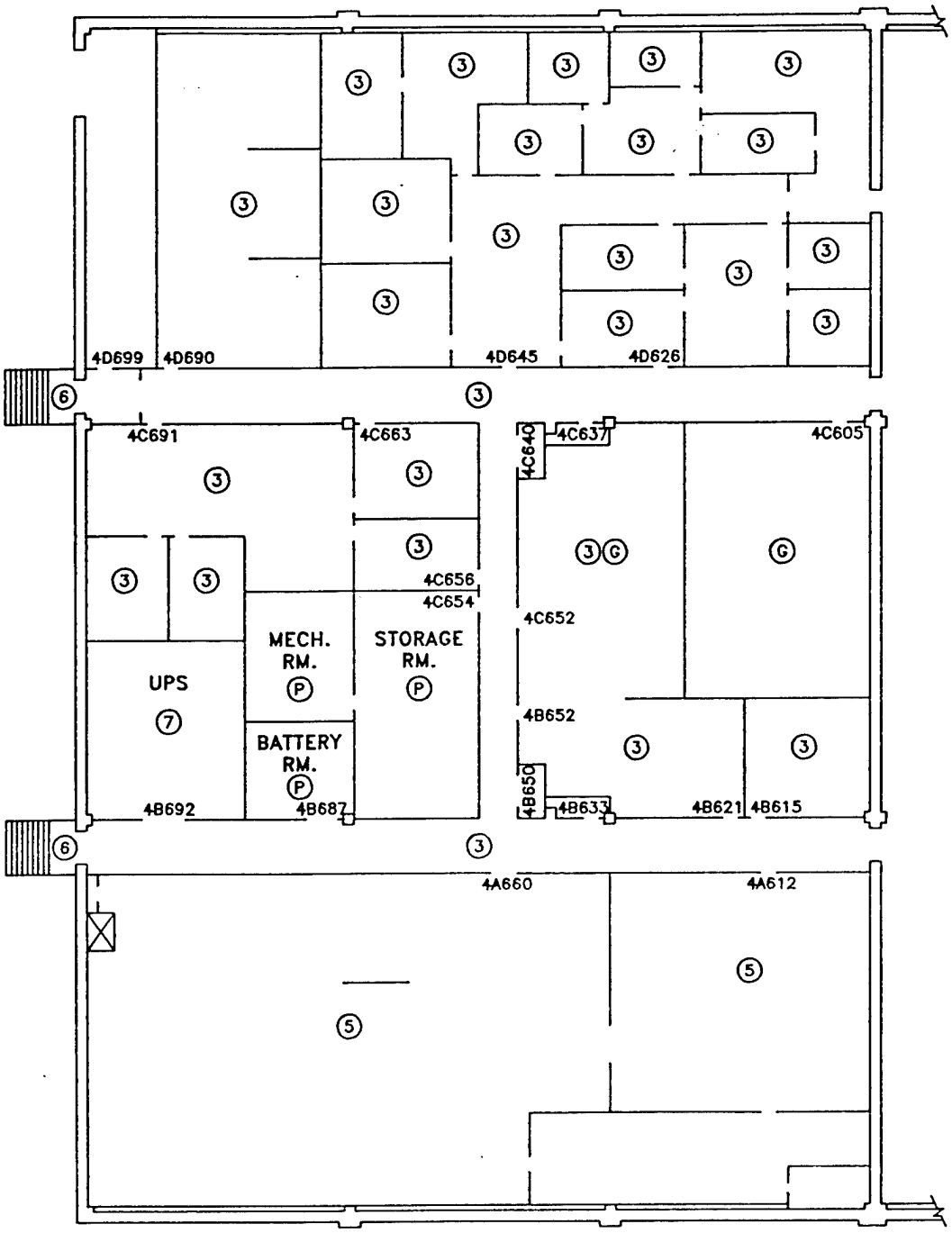
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 4 – BAY 6 ATTIC SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	CHECKED BY:	DATE:	SCALE:	DWG. NO.
3001–210	L.A.L.	F.B.G.	8–4–91	N.T.S.	4/6A–SL



③ 2' x 4' SMOOTH TILE

⑤ 2' x 4' ROUGH TEXTURE TILE

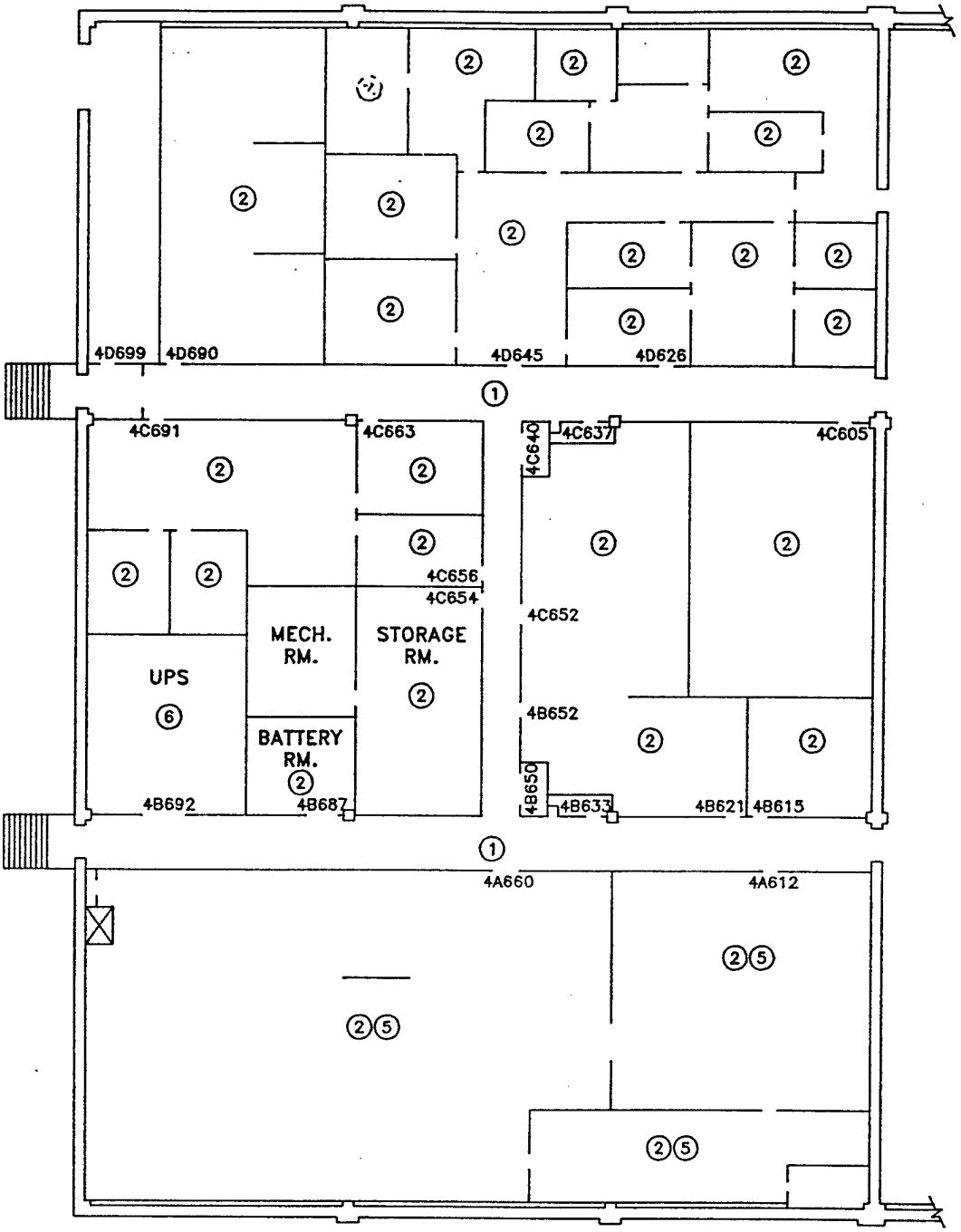
⑥ 2' x 4' UNIFORM HOLE TILE

⑦ 1' x 1' FISSURED TILE

Ⓖ GYPSUM BOARD

Ⓟ PLASTER

LIENT USATHAMA			LOCATION Cameron Station, Alexandria, Virginia				
Woodward–Clyde Federal Services			TITLE BUILDING 4 – BAY 6 CEILING TYPE LOCATIONS				
PROJECT NO. 3001–210	DRAWN BY: L.A.L.	DATE: 8–4–91	DWG. NO. 4/6–CT				
	CHECKED BY: F.B.G.	SCALE: N.T.S.					



LEGEND

(1) 12" x 12" WHITE

(2) 9" x 9" GREEN

(5) 2' x 2' WHITE

(6) 9" x 9" BLACK

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia				
Woodward–Clyde Federal Services	TITLE BUILDING 4 – BAY 6 FLOOR TILE LOCATIONS				
	PROJECT NO. 3001–210	DRAWN BY: L.A.L.	DATE: 8–4–91	DWG. NO. 4/6–FT	
		CHECKED BY: F.B.G.	SCALE: N.T.S.		

APPENDIX 4-D

WALKTHROUGH SURVEY DATA SHEETS

Building 4 EXTERIOR Inspector Date Guardia, Cubit 10/19/90 - Barnes 12/6/90

Exterior Siding

Masonry ☒ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y (N) _____ Condition G F P Quantity _____ SF

Roof

Assume

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☒ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition G F P Quantity 130,000 SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☒	Y (N)	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☒	Y (N)	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☒ Steel Joists/Beams ☒ Wood Columns ☒ Steel Column ☒ Concrete Column ☒

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☒ Firedoor ☐

Sample Y (N) Condition G F P Quantity _____ SF

Woodward-Clyde Federal Services

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building 4 | Inspector/Date:

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
HW heaters		N					
Expansion tank	Attic - Bay C	Y		PG & Trowelled on ends	Y	G	4
Elec./Telephone							
Phone/Janitorial	closets	have concrete	floors,	jolt wood walls,	5/8" board	ceilings	
Other							
AHU - vibration cloth					Assume	F	200 SF

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

HVAC

Building 4 Inspector/Date:

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	Attic - all bays	Y	FG	N				
Pipe	Attic - all bays	Y	FG	N				
	Bays 3 + 5 - near AHU 8, 9, 11, 17, 18	Y	premold	Y	P	< 2	LF	
Fittings	Attic - all bays	Y	FG	N				
	Attic - Bay 6 &	Y	mud	Y	Good	18	#	
	Rm 4B687				poor			
Other								
Debris	Bays 3, 4, 5, 6			Y				
	near AHUs							
	alongside catwalks							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 4 — Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity	
CT 1 2X4	white/fissured	see drawing	Y	G	13,000	
2 12" x 12"	" / random hole	"	Y	G	1200	
~~3 2 x 4~~	~~" / smooth~~	~~"~~	~~Y~~	~~G~~	~~99 000~~	No EG
~~4 2 x 4~~	~~" / light texture~~	~~"~~	~~Y~~	~~G~~	~~700~~	EG
~~5 2 x 4~~	~~" / rough "~~	~~"~~	~~Y~~	~~G~~	~~6500~~	EG
6 2 x 4	" / semi-form hi/lo	"	Y	G	100	
7 12" x 12"	" / fissured	"	Y	G	400	
ET 1 12" x 12"	white	"	Y	G	37,500	
2 9" x 9"	green	"	Y	G	33,000	
3 9" x 9"	grey	"	Y	G	33,000	
4 9" x 9"	brown	"	Y	G	19,100	
~~5 2' x 2'~~	~~white~~	~~"~~	~~Y~~	~~G~~	~~6000~~	No rubber wld
6 9" x 9"	black	"	Y	G		

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

Cameron Station

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building #4

Inspector/Date: Barnes, Guardia 12/6

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
Drywall Facade	painted	All hallways	Y	Good	> 110,000 SF
		both sides			
Drywall acoustic	painted	interior walls	Y	Good	> 130,000 SF
		throughout			
		ceilings in custodial			
		closets			
		also 4C605			
Plaster		Restrooms #3687	Y	Good	15000 SF
covered walkways between		Combustible board	Y	Good	
Bldgs 3 & 4		No - Gyp board			
		combustible above			

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

Woodward-Clyde Federal Services

APPENDIX 4-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

Inspected and Proficiency Tested by Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 4
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/26/91
Date Analyzed : 03/05/91
Person Submitting: S. Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
640	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
641	N	-----	-----	-----	-----	-----	-----	-----	<1	01-05	-----	95-99	AS	
642	P	30-35	-----	-----	-----	-----	-----	-----	-----	-----	-----	65-70	AS	
643	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	10-15	80-89	AS	
644	P	35-40	-----	-----	-----	-----	-----	-----	-----	<1	-----	60-65	AS	
645	P	01-05	-----	-----	-----	-----	-----	-----	-----	10-15	-----	80-89	AS	
646	N	-----	-----	-----	-----	-----	-----	-----	-----	45-50	-----	50-55	AS	
647	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
648	N	-----	-----	-----	-----	-----	-----	-----	<1	10-15	-----	85-90	AS	
649	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AS	
650	N	-----	-----	-----	-----	-----	-----	-----	<1	20-25	-----	75-80	AS	
651	N	-----	-----	-----	-----	-----	-----	-----	<1	10-15	-----	85-90	AS	
652	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
653	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

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4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • TOLL FREE (800) 346-0961 • FAX (301) 459-2643

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 4
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/26/91
Date Analyzed : 03/05/91
Person Submitting: S. Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
654	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	-----	90-95	AS	
655	N	-----	-----	-----	-----	-----	-----	-----	-----	25-30	-----	70-75	AS	
656	N	-----	-----	-----	-----	-----	-----	-----	<1	15-20	-----	80-85	AS	
657	N	-----	-----	-----	-----	-----	-----	-----	-----	35-40	-----	60-65	AS	
658	N	-----	-----	-----	-----	-----	-----	-----	<1	25-30	-----	70-75	AS	
659	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	05-10	85-94	AS	
660	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
661	N	-----	-----	-----	-----	-----	-----	-----	<1	25-30	-----	70-75	AS	
662	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
663	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
664	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
665	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
666	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
667	P	-----	05-10	-----	-----	-----	-----	35-40	-----	05-10	-----	45-50	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. All rights reserved. AMA Analytical Services, Inc.

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 4
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/26/91
Date Analyzed : 03/05/91
Person Submitting: S. Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
668	P	-----	01-05	-----	-----	-----	-----	30-35	-----	05-10	-----	55-59	AS	
669	N	-----	-----	-----	-----	-----	-----	-----	-----	30-35	-----	65-70	AS	
670	N	-----	-----	-----	-----	-----	-----	-----	-----	25-30	-----	70-75	AS	
671	N	-----	-----	-----	-----	-----	-----	-----	-----	30-35	-----	65-70	AS	
672	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AS	
673	N	-----	-----	-----	-----	-----	-----	-----	-----	30-35	-----	65-70	AS	
674	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
675	P	20-25	-----	-----	-----	-----	-----	-----	35-40	-----	-----	35-45	AB	
676	P	01-05	-----	-----	-----	-----	-----	-----	80-85	-----	-----	10-20	AB	
678	P	01-05	-----	-----	-----	-----	-----	-----	50-55	-----	-----	40-50	AB	
679	P	01-05	-----	-----	-----	-----	-----	-----	55-60	<1	-----	35-45	AB	
680	P	20-25	-----	-----	-----	-----	-----	-----	35-40	-----	-----	35-45	AB	
681	P	<1	-----	-----	-----	-----	-----	-----	<1	-----	-----	100	AB	
682	N	-----	-----	-----	-----	-----	-----	-----	01-05	<1	-----	95-99	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 4
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/26/91
Date Analyzed : 03/05/91
Person Submitting: S. Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	ASBESTOS % CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	OTHER FIBROUS MATERIAL % MINERAL WOOL	GLASS	FIBROUS ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
683	P	01-05	-----	-----	-----	-----	-----	-----	80-85	<1	-----	10-20	AB	
684	P	01-05	-----	-----	-----	-----	-----	-----	75-80	<1	-----	15-25	AB	
800	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	10-15	85-90	AB	
801	P	01-05	-----	-----	-----	-----	-----	-----	10-15	15-20	15-20	50-55	AB	
802	P	10-15	-----	-----	-----	-----	-----	-----	40-45	<1	-----	40-50	AB	
803	P	<1	-----	-----	-----	-----	-----	-----	10-15	20-25	-----	60-70	AB	
804	P	10-15	-----	-----	-----	-----	-----	-----	30-35	-----	-----	50-60	AB	
805	P	10-15	-----	-----	-----	-----	-----	-----	30-35	-----	-----	50-60	AB	
806	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AB	
807	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AB	
808	P	05-10	-----	-----	-----	-----	-----	-----	01-05	-----	05-10	80-90	AB	
809	P	01-05	-----	-----	-----	-----	-----	-----	05-10	<1	01-05	85-89	AB	
810	N	-----	-----	-----	-----	-----	-----	-----	20-25	-----	01-05	70-80	AB	
811	P	05-10	-----	-----	-----	-----	-----	-----	20-25	<1	-----	65-75	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 4
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/26/91
Date Analyzed : 03/05/91
Person Submitting: S. Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
812	P	01-05	-----	-----	-----	-----	-----	-----	05-10	15-20	01-05	65-74	AB	
813	P	01-05	-----	-----	-----	-----	-----	-----	10-15	15-20	-----	65-69	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

LAST PAGE OF 5 PAGE(S)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

Andreas Saldivar (AS)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.
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DYNAMAC CORPORATION LABORATORY TEST REPORT

DATE: 11/05/90

DYNAMAC LAB NUMBER 11-90-636

REPORT SUBMITTED TO:

WOODWARD CLYDE FEDERAL SERVICE
ONE CHURCH ST. SUITE 404
ROCKVILLE MD 20850

ATTENTION: SALLY GUARDIA

REPORT PREPARED BY:

DYNAMAC CORPORATION
11140 ROCKVILLE PIKE
ROCKVILLE, MD 20852

CONTACT: RICK SANDER

WORK ORDER NUMBER:

PROJECT NAME: CAMSTA

PROJECT CODE:

NUMBER OF SAMPLES RECEIVED:1

DATE RECEIVED: 11/02/90

TYPE OF ANALYSIS: PLM

1.) BULK ASBESTOS ANALYSIS IS PERFORMED USING POLARIZED LIGHT MICROSCOPY (PLM) IN CONJUNCTION WITH DISPERSION STAINING, ACCORDING TO THE US EPA "INTERIM METHOD FOR THE DETERMINATION OF ASBESTOS IN BULK INSULATION SAMPLES".

2.) THE ANALYTICAL RESULTS CONTAINED IN THIS REPORT RELATE ONLY TO THE SPECIFIC SAMPLES AS RECEIVED FROM THE CLIENT, AND ANY EXTRAPOLATION FROM THESE RESULTS IS SOLELY THE RESPONSIBILITY OF THE CLIENT.

3.) THE PERCENTAGES REPORTED ARE AREA ESTIMATES ONLY AND ARE EXPRESSED AS PROBABLE RANGES.

4.) THIS TEST REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL AND WITH APPROVAL FROM THIS LABORATORY.

COMMENTS:

CERTIFIED BY: Robert Rendon CIH

LABORATORY MANAGER

DYNAMAC CORPORATION LABORATORY RESULTS
SUMMARY OF RESULTS
DYNAMAC LAB NUMBER:11-90-636

CLIENT SAMPLE NUMBER.	TYPE OF ASBESTOS..... DETECTED	PERCENT ASBESTOS	SAMPLE LOCATION...
001	CHRYSOTILE	20-25	BUILDING 4, NEAR AHU #12, ATTIC AREA, BAY 4

DYNAMAC CORPORATION TEST REPORT
COMPLETE RESULTS BY SAMPLE
DYNAMAC LAB NUMBER:11-90-636

SAMPLE DATA

SAMPLE NUMBER:001
FRACTION #: 01B
DATE ANALYZED:11/05/90
ANALYST: RICK SANDER
VERIFIED: RICK SANDER
SAMPLE DESCRIPTION:
BEIGE, LOOSE FIBROUS MATERIAL

BULK ASBESTOS RESULTS

ASBESTOS	PERCENT
CHRYSOTILE	20-25

NONASBESTOS	PERCENT
CELLULOSE	1-2
FIBROUS GLASS	25-30
NONASBESTOS, NONFIBROUS	40-45

COMMENTS:

APPENDIX 4-F

SAMPLE CHAIN-OF-CUSTODY FORMS

/CFS Project No. 01

stallation (2): CM
ample Program (3): BEI
aboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: JMB

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

BLDG 4

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19			HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		ASB004	640																						/					
FBG		ASB004	641																						/					
FBG		ASB004	642																						/					
FBG		ASB004	643																						/					
FBG		ASB004	644																						/					
FBG		ASB004	645																						/					
FBG		ASB004	646																						/					

Relinquished by: Woodward–Clyde Federal Services

Date: 2/26/91 Time: 1125 Signature: M. Barnes

Accepted by: AMA Analytical Services, Inc.

Date: 2-26-91 Time: 11:30 Signature: L. Mauricio

Total No. of Containers

Comments:

3/28/[redacted] 1000 L. Mauricio dup. denied

Pink: WCFS Project File

Gold: [redacted]S Project Scientist

WCFS Project [redacted]001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted]eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward–Cl[redacted] Federal Services
Building 1[redacted]
Door 2
Cameron Stat[redacted]
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

BLDG 4

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19			HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FB6		ASB004	654																						/					
FB6		ASB004	655																						/					
FB6		ASB004	656																						/					
FB6		ASB004	657																						/					
FB6		ASB004	658																						/					
FB6		ASB004	659																						/					
FB6		ASB004	660																						/					

Relinquished by: Woodward–Clyde Federal Services

Date: 2/26/91 Time: 1125 Signature: M. Barnes

Accepted by: AMA Analytical Services, Inc.

Date: 2-26-91 Time: 11:30 Signature: L. Maurice

Total No. of Containers

Comments:

2/28/91 1000 L. Maurice fed.up final

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project No. 101

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

BLDG 4

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
									CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		AS3004	661																						/						
FBG		AS3004	662																						/						
FBG		AS3004	663																						/						
FBG		AS3004	664																						/						
FBG		AS3004	665																						/						
FBG		AS3004	666																						/						
FBG		AS3004	667																						/						

Relinquished by: Woodward–Clyde Federal Services

Date: 2/26/91 Time: 1105 Signature: DM. Bacon

Accepted by: AMA Analytical Services, Inc.

Date: 2.26.91 Time: 11:30 Signature: L. Mancuso

Total No. of Containers

Comments:

3 Sep 6000 L. Mancuso for Lyn Fenical

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project No. [redacted]001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde F[redacted]ral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward–[redacted]ederal Services
Building 17[redacted]
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

BLDG 4

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
									CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB004	668																						/					
FBG		ASB004	669																						/					
FBG		ASB004	670																						/					
FBG		ASB004	671																						/					
FBG		ASB004	672																						/					
FBG		ASB004	673																						/					
FBG		ASB004	674																						/					

Relinquished by: Woodward–Clyde Federal Services
Date: 2/26/91 Time: 1135 Signature: DM Barry

Accepted by: AMA Analytical Services, Inc.
Date: 2.26.91 Time: 11:30 Signature: L. Manuel

Total No. of Containers

Comments:
3/28/91 1000 L Manuel-Hedgpeth

Pink: WCFS Project File

Gold: WCFS Project Scientist

WCFS Project No: 01

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F B G

Bldg. 4

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Number of Containers
FBG		DSB004	675				1
FBG		DSB004	676				1

Sample Techniques (1)
Sample Flag Code (1)
Sample QC Code (1)
TEST NAME
CODE
VOC: UM05, LM05, UM06, LM06
SVOC: UM06, LM06
Pest: UM06, LM06
Pest: UH21, LH19
(OCP/PCBs (pc/ec))
Herbicides: HPLC
Rotenone
TAL Metals: SS15, JS14
CYN: TY03, KY04
TPHC (IR): E418.1, E418.1
SO4
CL
NIT
TCLP: SW1311
Asbest
TCDD: SW8290, SW8290
PCB Wipe: LH19

Relinquished by: Woodward–Clyde Federal Services
Date: 3/11/91 Time: 1250 Signature: W. Baum

Accepted by: AMA Analytical Services, Inc.
Date: 3-11-91 Time: 1302 Signature: L Mance

Total No. of Containers

Comments: collected 3/8/91
3/28 1000 L Mance federal fund

Pink: WCFS Project File

Gold: WCFS Project Scientist

WCFS Project N[redacted] 01

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde F[redacted]ral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

Bldg. 4

COC By: DMB

Field Office: Woodward–[redacted]deral Services
Building 17[redacted]
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
									CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		ASB004	678																						✓						
FBG		ASB004	679																						✓						
FBG		ASB004	680																						✓						
FBG		ASB004	681																						✓						
FBG		ASB004	682																						✓						
FBG		ASB004	683																						✓						
FBG		ASB004	684																						✓						

Relinquished by: Woodward–Clyde Federal Services

Date: 3/13/91 Time: 1130 Signature: DM. Barnes

Accepted by: AMA Analytical Services, Inc.

Date: 3/13/91 Time: 1120 Signature: C. Kiger

Total No. of Containers

Comments:

3/28/91 1000 Lillian fed ex final

Pink: WCFS Project File

Gold: WCFS Project Scientist

WCFS Project No: 01

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F B IS

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

per S. Guardia - only sample/prepare caulking-like material (not fiberglass)

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec))	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
									CODE		UM05	UM06	UM06	UM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		BJB004	800																					/							
FBG		BJB004	801																					/							
FBG		BJB004	802																					/							
FBG		BJB004	803																					/							
FBG		BJB004	804																					/							
FBG		BJB004	805																					/							
FBG		BJB004	806																					/							

Relinquished by: Woodward–Clyde Federal Services
Date: 4/16/91 Time: 1035 AM Signature: F B Guardia

Accepted by: AMA Analytical Services, Inc.
Date: 4-16-91 Time: 1635 Signature: L. Maurice

Total No. of Containers

Comments:

Pink: WCFS Project File

G... WCFS Project Scientis

WCFS Project [redacted]01

nstallation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted]ral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: FBG

Field Office: Woodward [redacted]ederal Services
Building
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		DSB004	807																						✓						
FBG		DSB004	808																						✓						
FBG		DSB004	809																						✓						
FBG		DSB004	810																						✓						
FBG		DSB004	811																						✓						
FBG		DSB004	812																						✓						
FBG		DSB004	813																						✓						

Relinquished by: Woodward–Clyde Federal Services
Date: 4/16/91 Time: 1035 Signature: FBG

Accepted by: AMA Analytical Services, Inc.
Date: 4/16/91 Time: 1035 Signature: L. Maurice

Total No. of Containers

Comments:

Pink: WCFS Project File

Gold: WCFS Project Scientist

DYNAMAC CORPORATION

OPTICAL MICROSCOPY LAB

CHAIN OF CUSTODY/SAMPLE SUBMITTAL

Reports to:
Company ✓ Woodward Clyde Federal Services
Address ✓ One Church St Suite 404
Rockville MD 20850
Attention: ✓ Sally Guardis
Phone ✓ (301) 309-0800
Invoice to: ✓ same as above

Date Submitted _____ Time _____ am/pm 5:00 PM

Relinquished by	✓ S Guardis	Date/Time	✓ 11/2/90 / 1
Received by	RS	Date/Time	11/2/90 / 1650
Relinquished by		Date/Time	
Received by		Date/Time	
Relinquished by		Date/Time	
Received by		Date/Time	

Condition: _____ / Good / _____ / _____ / _____ / _____

Project Name ✓ CAMSTA
Date(s) of Sampling _____
Requested Date for Reports: Verbal _____

Charge No. ✓ _____
Collected by _____
Written _____

Total No. of Samples ✓ 1
Analysis Type Requested PLM
Comments _____

Sample ID	Description/Location	Cassette Time On	Cassette Time Off	Cassette Flow Rate	Cassette Volume	Special Instructions
001						FAX # 301 309-1579

6/89

BUILDING 5

5.1 DESCRIPTION

Building 5 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof is constructed of tar, felt and gravel over wood. It is divided into three bays by masonry firewalls. Originally built as a warehouse, it has been converted to offices with separate attic areas housing the HVAC system. Building materials typically found on the main floor include carpet over floor tile, ceiling tile and regular and fire code gypsum board. There is a plaster ceiling in the mechanical room in Bay 2. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

The Defense Logistics Agency is the major occupant in Building 5. The building also houses the facility's travel agency.

5.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 5-A through 5-F. A summary of this data is presented below.

5.2.1 Suspect Friable ACM

Four homogeneous areas of suspect friable ACM were identified and thirteen bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following four materials:

- Trowelled-on breech insulation, mechanical room (5B352)
- Pipe fitting insulation on 3" - 12" fittings, mechanical room (5B352)
- Joint sealant on ends of fiberglass-insulated pipe, mechanical room
- Pipe fitting insulation, attic areas, Bays 1, 2 and 3.

These materials were found in two functional spaces.

Assessment of the breech material, pipe fitting insulation, and joint sealant in the mechanical room indicates a damage factor of 19 and an exposure factor of 23. According to the GAHA Index, this material ranks as Priority A.

Assessment of the pipe fitting insulation in the attic areas indicates a damage factor of 6 and an exposure factor of 15. According to the GAHA Index this material ranks as Priority C.

5.2.2 Suspect Nonfriable ACM

Fourteen homogeneous areas of suspect nonfriable ACM were identified and forty-one bulk samples, including two QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following six materials:

- FT 1 9" x 9" tan floor tile and mastic.
- FT 2 9" x 9" brown floor tile and mastic
- FT 3 9" x 9" gray floor tile and mastic
- FT 5 9" x 9" green floor tile and mastic
- FT 7 12" x 12" gray floor tile and mastic
- FT 8 12" x 12" black floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

5.2.3 Material Assumed To Contain Asbestos

The following three homogeneous areas are assumed to be ACM.

- Tar and felt roofing material
- Vibration cloth
- Tar sprayed on brick walls.

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

5.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following materials, originally identified in the walkthrough survey as suspect ACM, were examined more closely and identified as nonsuspect:

- CT 1 2' x 4' smooth fiberglass ceiling tile
- CT 2 2' x 4' rough texture fiberglass ceiling tile
- CT 3 2' x 4' rough texture fiberglass ceiling tile

No bulk samples of these materials were collected, and they were deleted as homogeneous sample areas from the final survey data.

5.4 AREAS NOT ACCESSED

All areas in Building 5 were accessed.

5.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
5	5000 SF TSI 100 MF		200 MF

TSI = THERMAL SYSTEM INSULATION
PI = PIPE INSULATION
MF = MUDDED FITTINGS
* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

5.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 5-A ACM Survey Results
Appendix 5-B Assessments/Recommendations for Friable ACM
Appendix 5-C Building Drawings
Appendix 5-D Walkthrough Survey Data Sheets
Appendix 5-E Laboratory Certificate of Analysis
Appendix 5-F Sample Chain-of-Custody Forms

APPENDIX 5-A

ACM SURVEY RESULTS

ACM Survey Results for Building 5

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	130000	SF	Assume ACM	Assume ACM	
2	Misc.	Vibration cloth	Bays 1, 2 and 3, on AHUs in attic areas & Room 5B352	Non	Good	280	SF	Assume ACM	Assume ACM	
3	Misc.	Tar	Bay 1, Attic Walls	Non	Good	500	SF	Assume ACM	Assume ACM	A thin layer of this material has been sprayed on brick walls
4	TSI	Trowelled-on insulation	Room 5B352, Breech	High	Poor	>5000	SF	199 204 205 208	15-20% chrysotile 10-15% chrysotile 15-20% chrysotile 10-15% chrysotile	Sample 205 is a QC for sample 204.
5	TSI	Pipe fitting insulation	Room 5B352	High	Poor	100	# of fittings	202 206 207	15-20% chrysotile 10-15% chrysotile 10-15% chrysotile	3"-12" fittings with insulation

ACM Survey Results for Building 5 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
6	TSI	Joint sealant	Room 5B352	High	Poor	25	# of pipe ends	213 214 215	10-15% chrysotile 15-20% chrysotile 15-20% chrysotile	Material, which is approximately 1/4" thick, is on the ends of fiberglass-insulated pipe.
7	TSI	Pipe fitting insulation	Bays 1, 2 & 3, attic areas	Low	Good	200	# of fittings	694 695 696	20-25% chrysotile 20-25% chrysotile 20-25% chrysotile	
8	TSI	Joint sealant	Bay 1, attic	Non	Good	-- --	-- --	827 828	None detected None detected	Sample 827 is from material recently applied to fiberglass insulated pipe. Sample 828 is from can of sealant currently in use.
9	Misc.	Ceiling tile	Bay 3, See Drawing 5/3-CT	Non	Good	2700	SF	219 220	None detected None detected	CT 4 2' x 4' white with random holes

ACM Survey Results for Building 5 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
10	Misc.	Ceiling tile	Bay 3, south end. See Drawing 5/3-CT	Non	Good	6850	--	221 224	None detected None detected	CT 5 12" x 12" white with uniform holes
11	Misc.	Floor tile & mastic	See Drawings 5/1-FT 5/2-FT	Non	Good	5450	SF	180 188	1-5% chrysotile 1-5% chrysotile	FT 1 9" x 9" tan floor tile
12	Misc.	Floor tile & mastic	See Drawing 5/1-FT 5/2-FT	Non	Good	5700	SF	182 189	5-10% chrysotile 1-5% chrysotile	FT 2 9" x 9" brown floor tile
13	Misc.	Floor tile & mastic	See Drawings 5/1-FT 5/2-FT 5/3-FT	Non	Good	71400	SF	179 185 186	1-5% chrysotile 1-5% chrysotile 1-5% chrysotile	FT 3 9" x 9" gray floor tile Sample 186 is a QC for sample 185.
14	Misc.	Floor tile & mastic	See Drawings 5/1-FT 5/2-FT 5/3-FT	Non	Good	12400	SF	183 195	None detected None detected[1] <1% chrysotile[2]	FT 4 12" x 12" beige floor tile

[1]using PLM
[2]using TEM

ACM Survey Results for Building 5 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
15	Misc.	Floor tile & mastic	See Drawings 5/1-FT 5/2-FT 5/3-FT	Non	Good	16450	SF	187 218	1-5% chrysotile 1-5% chrysotile	FT 5 9" x 9" green floor tile
16	Misc.	Floor tile & mastic	See Drawings 5/1-FT 5/2-FT	Non	Good	5700	SF	191 196	None detected None detected	FT 6 12" x 12" white floor tile
17	Misc.	Floor tile & mastic	See Drawings 5/1-FT 5/2-FT	Non	Good	4200	SF	197 200	1-5% chrysotile 5-10% chrysotile	FT 7 12" x 12" gray floor tile
18	Misc.	Floor tile & mastic	See Drawing 5/3-FT	Non	Good	225	SF	209 210	1-5% chrysotile 1-5% chrysotile	FT 8 12" x 12" black floor tile
19	Surfacing	Regular gypsum board	Interior walls throughout building	Non	Good	154700	SF	178 181 190 192 211 212 217 222	None detected None detected None detected None detected None detected None detected None detected None detected	Sample 181 is a QC for sample 178.

ACM Survey Results ... Building 5 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
20	Surfacing	Fire code gypsum board	Hallways & entryways throughout building	Non	Good	36200	SF	177	None detected	
								184	None detected	
								193	None detected	
								198	<1% chrysotile	
								216	None detected	
								223	None detected	
								225	None detected	
21	Surfacing	Plaster	Ceiling in Room 5B352 See Drawing 5/2-CT	Non	Good	1000	SF	194	None detected	
								201	None detected	
								203	None detected	

APPENDIX 5-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 5

		Material Description					
Functional Space	Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
5-1 Bay 3, Room 5B352, mechanical room	4, 5, 6	TSI	Breech insulation, pipe fitting insulation, joint sealant	19	23	A	Immediate Action - Isolate area and restrict access to qualified personnel. Schedule an immediate corrective action (often removal) to reduce the risk of exposure to asbestos fibers.
5-2 Bays 1, 2, & 3, attic areas	7	TSI	Pipe fitting insulation	6	15	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.

(A) Friable Asbestos Assessment Checklist

Cameron Station Building 5

Inspector Barnes / Guardian 1/31/91

Homogeneous Sample Area #(s) 4, 5 & 6

Material Type(s) breech insulation, pipe fitting insulation joint sealant

Functional Space 5-1 Room 5B352 - mechanical room

Part 1: Damage/Risk

- Visible evidence of physical damage: (5) High; 4 Moderate; 2 Low; 1 Minimal; 0 None
- Water damage: (3) Yes; 0 No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

  A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance

  B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:

  A. < 10 ft: (8) High; 5 Medium; 2 Low

  B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 199, 204, 205, 208, 202, 206, 207, 213, 214, 215

Damage/Risk Total 19

Friable Asbestos Assessment Checklist

Cameron Station Building 5 Inspector Banks/Guarisco 1/31/91

Homogeneous Sample Area #(s) 4586 Material Type(s) bulk insulation, Pipe fitting insulation, joint sealant

Functional Space 5-1 Room 5B352 - mechanical room

Part 2: Exposure

- Friability: (6) High; 3 Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; 1 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; (3) ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  (5) High (constant vibration); 2 Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  (1) ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; 4 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 23

Friable Asbestos Assessment Checklist

Cameron Station Building 5 (C) Inspector Barnes / Guardia 3/11/91

Homogeneous Sample Area #(s) 7 Material Type(s) Pipe fitting insulation

Functional Space 5-2 Bays 1, 2 & 3 after entry

Part 1: Damage/Risk

- Visible evidence of physical damage: **5** High; **4** Moderate; **2** Low; (1) Minimal; **0** None
- Water damage: **3** Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: **3** <1 ft. or ceiling panel contaminated; **2** 1≤ ft <5; **1** ≥5 ft; **0** ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: **3** Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; **0** No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; **3** HVAC; **4** Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: **8** High; **5** Medium; (2) Low
  - B. ≥ 10 ft: **5** High; **3** Medium; **0** Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; **3** 30 < % ≤ 50; **5** > 50%; **NO HAZARD** Samples contain no asbestos
- Sample Numbers: 694, 695, 696

Damage/Risk Total 6

Friable Asbestos Assessment Checklist

Cameron Station Building 5 Inspector Barnes / Guardia 3/11/91

Homogeneous Sample Area #(s) 7 Material Type(s) Pipe fitting insulation

Functional Space S-2 BAYS 1, 2 & 3 3rd Gallery

Part 2: Exposure

- Friability: 6 High; 3 Moderate; (1) Low
- Amount of Visible Friable Material: 0 < 10 ft²; 1 10≤ ft² < 100; (2) 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

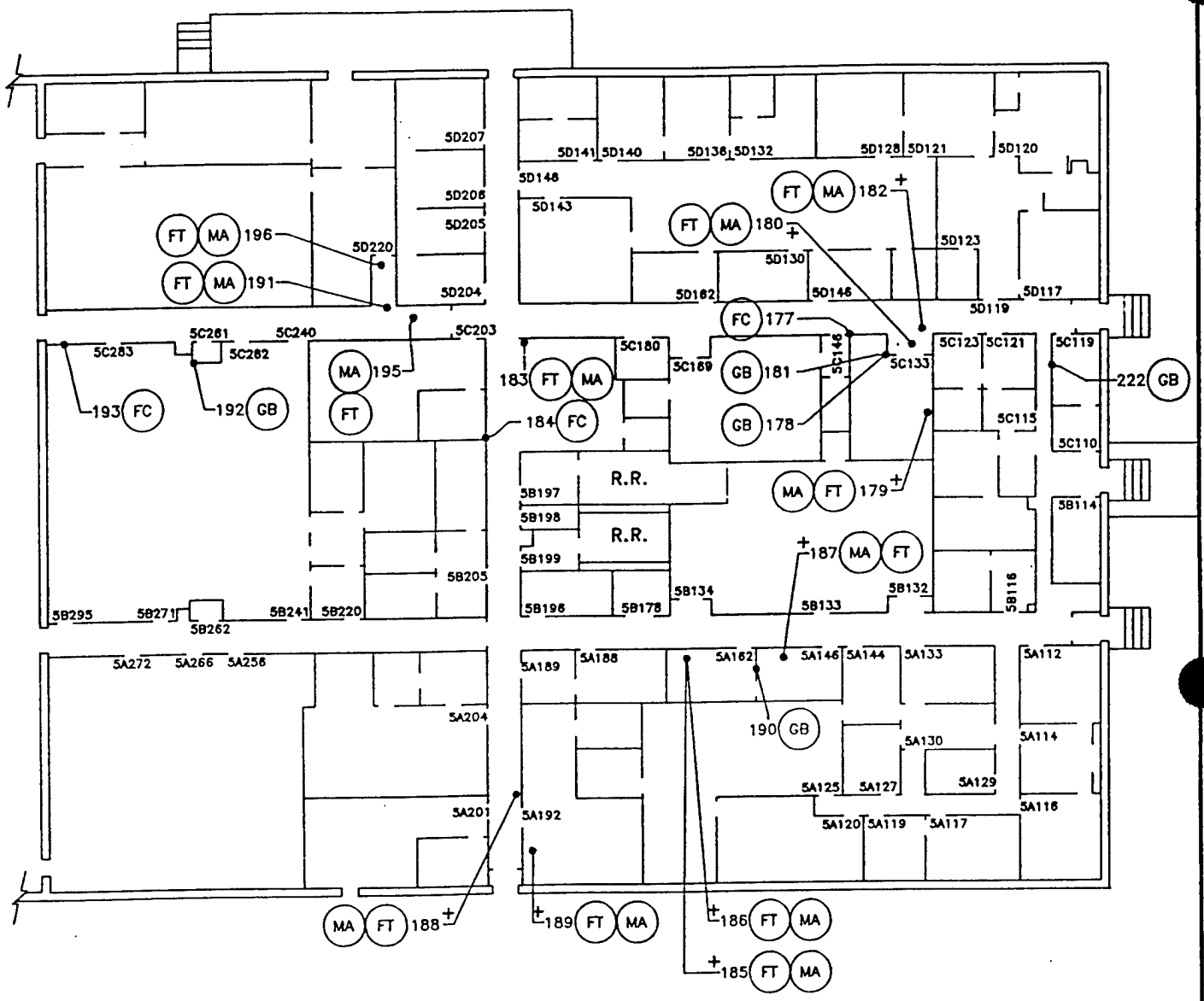
  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  (1) ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; 4 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 15

APPENDIX 5-C

BUILDING DRAWINGS



LEGEND

- (FC) FIRE CODE GYPSUM BOARD
- (GB) GYPSUM BOARD
- (FT) FLOOR TILE
- (MA) MASTIC
- \+ DENOTES POSITIVE RESULTS

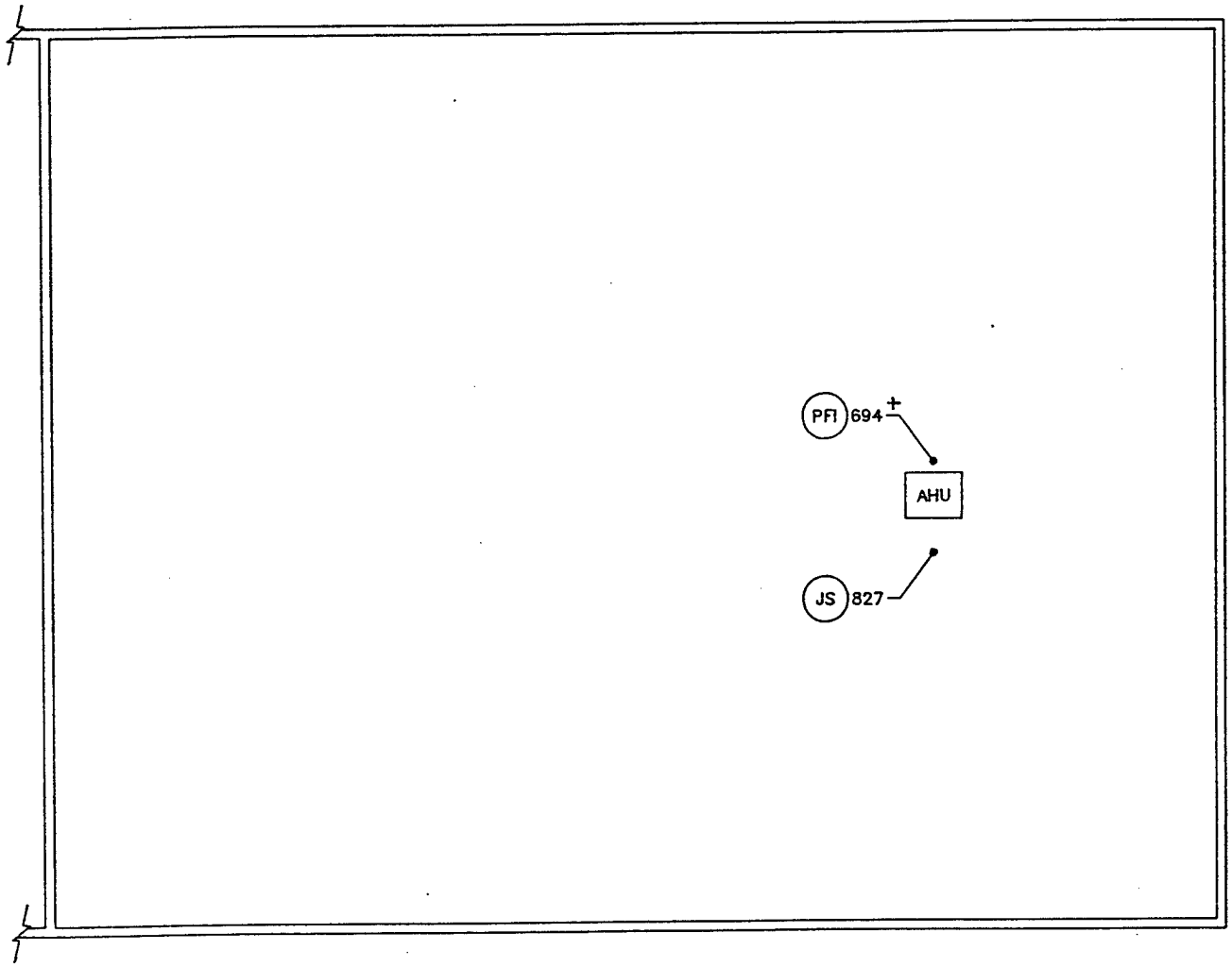
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 5 – BAY 1
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	5/1–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



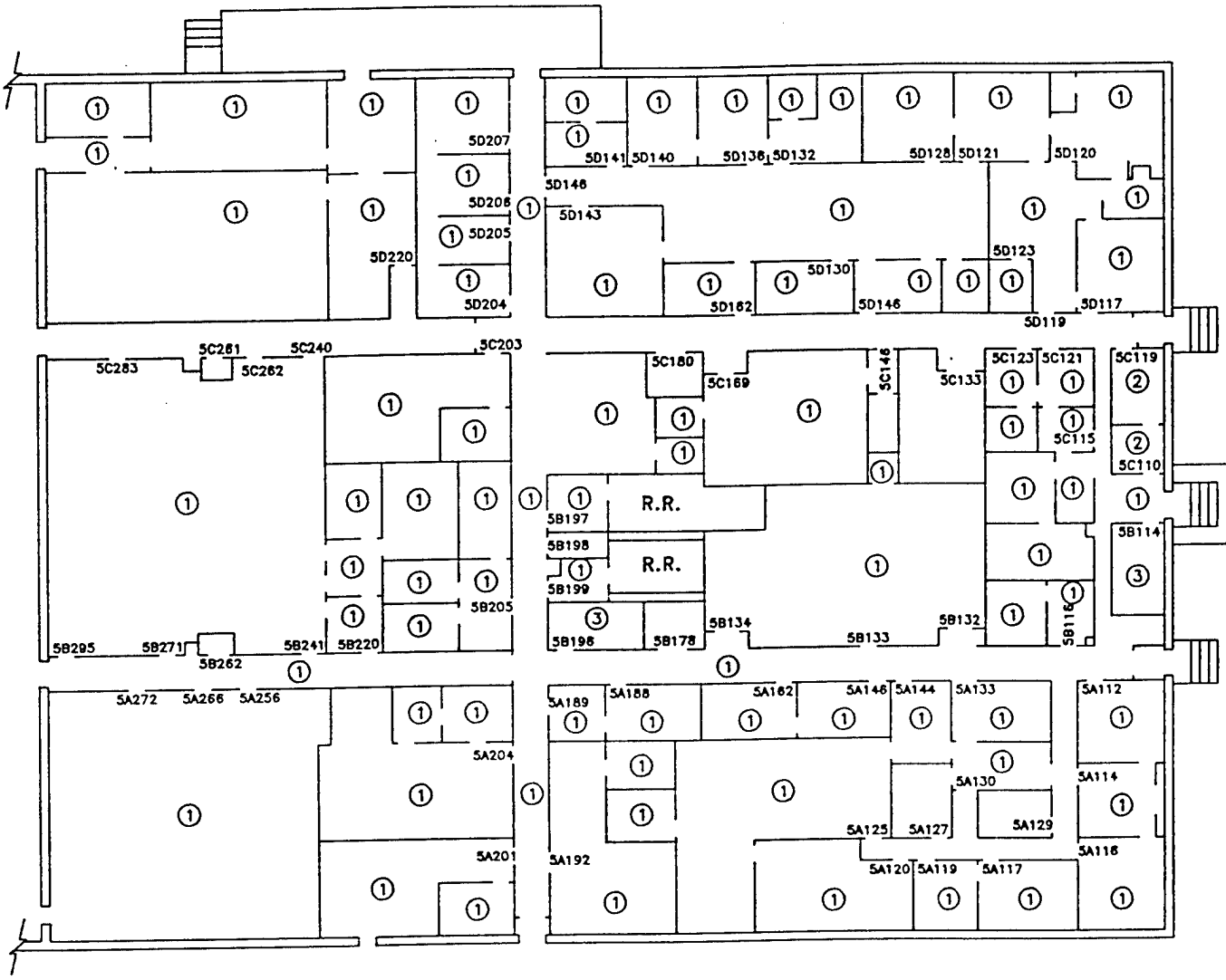
LEGEND

(PFI) PIPE FITTING INSULATION

AHU AIR HANDLING UNIT

\+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 5 – BAY 1 ATTIC SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. CHECKED BY: F.B.G. DATE: 5–24–91 SCALE: N.T.S. DWG. NO. 5/1A–SL



LEGEND

① 2' x 4' SMOOTH TEXTURE FIBERGLASS TILE

② 2' x 4' ROUGH TEXTURE FIBERGLASS TILE

③ 2' x 4' ROUGH TEXTURE FIBERGLASS TILE

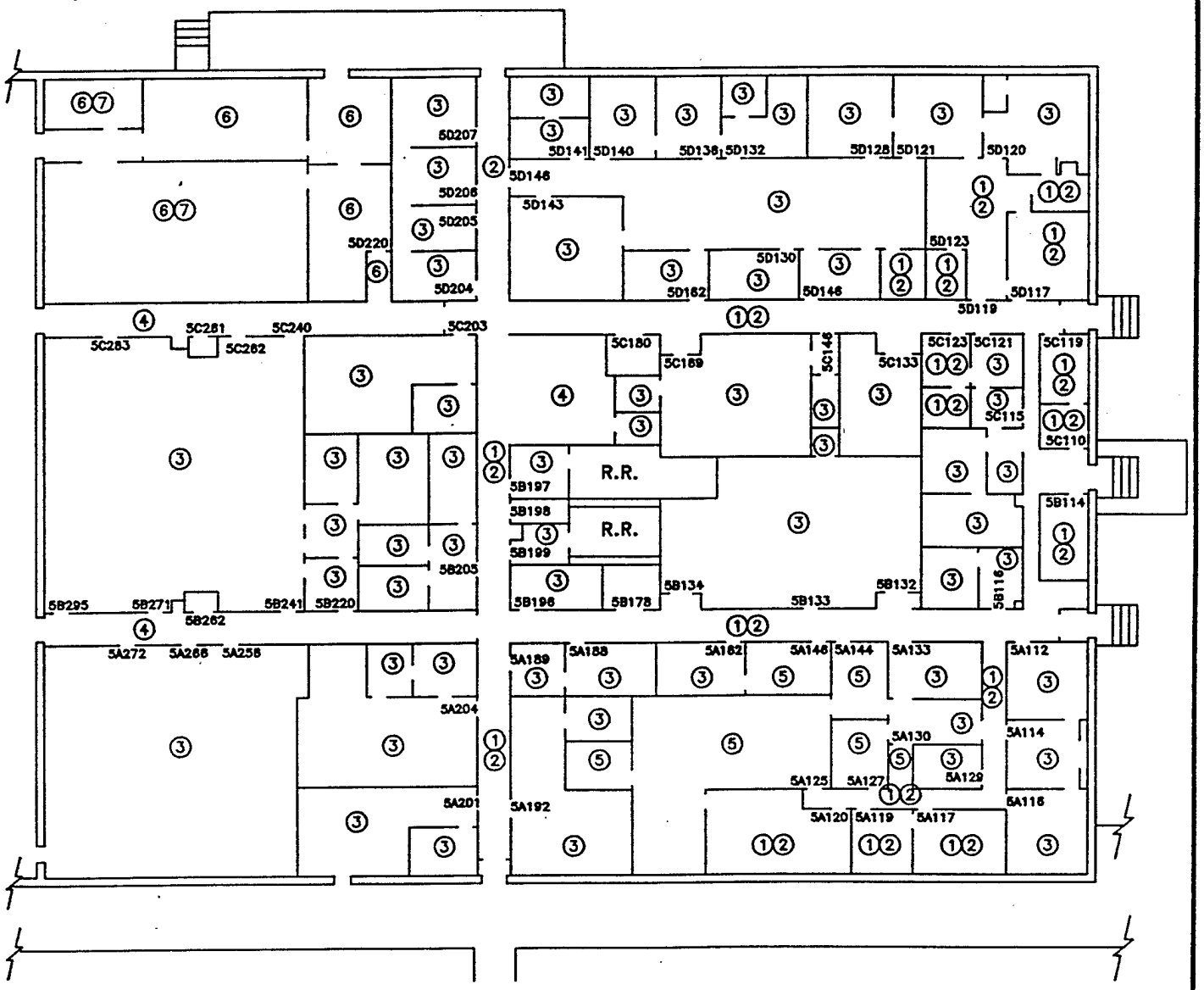
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 5 – BAY 1
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	5/1–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

① 9" x 9" TAN

② 9" x 9" BROWN

③ 9" x 9" GRAY

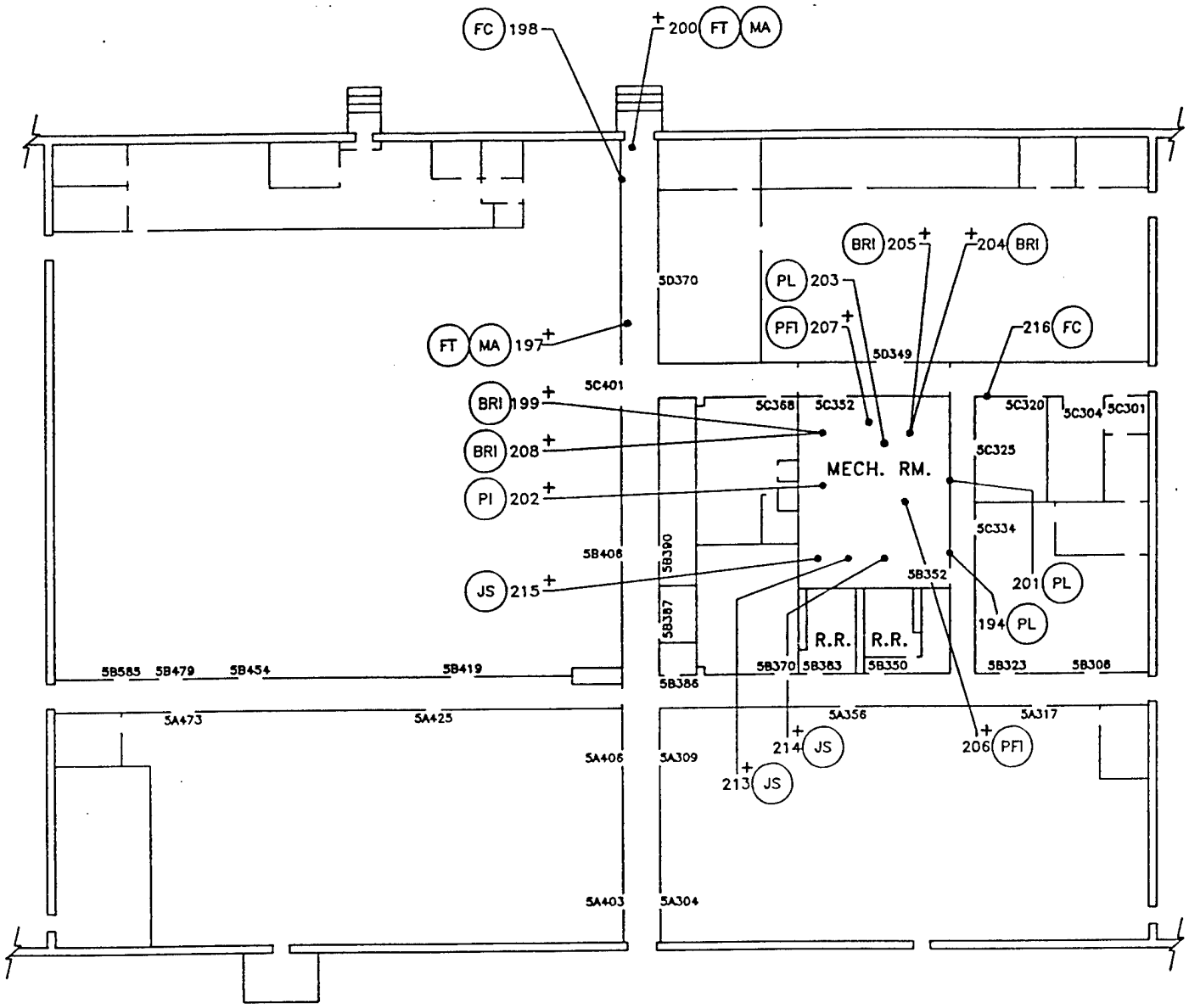
④ 12" x 12" BEIGE

⑤ 9" x 9" GREEN

⑥ 12" x 12" WHITE

⑦ 12" x 12" GRAY

TENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia				
Woodward–Clyde Federal Services	TITLE BUILDING 5 – BAY 1 FLOOR TILE LOCATIONS				
PROJECT NO. 3001–210	DRAWN BY: CAL	DATE: 5–22–91	DWG. NO. 5/1–FT		
	CHECKED BY: F.B.C.	SCALE: N.T.S.			



LEGEND

FC	FIRE CODE GYPSUM BOARD	PI	PIPE INSULATION
FT	FLOOR TILE	PFI	PIPE FITTING INSULATION
MA	MASTIC	BRI	BREECHING INSULATION
PL	PLASTER	+	DENOTES POSITIVE RESULTS
JS	JOINT SEALANT		

CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 5 – BAY 2
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	CHECKED BY: F.B.C.	SCALE: N.T.S.	5/2–SL

APPENDIX 5-D

WALKTHROUGH SURVEY DATA SHEETS

Building #5 EXTERIOR Inspector Date 1/14/91 ex ath

Attics 3/7 - 3/8.

Exterior Siding

Masonry ☑ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y N no Condition G F P Quantity _____ SF

Roof

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☑ (Assume) Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition G F P Quantity 130,000 SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☑	Y (N)	G F P		
Chimney ☐	Y N	G F P		
Louvers ☑	Y (N)	G F P		
A/C Units ☑	Y (N)	G F P		
Other ☐	Y N	G F P		

STRUCTURAL

Wood Joists/Beams ☑ Steel Joists/Beams ☑ Wood Columns ☐ Steel Column ☑ Concrete Column ☑

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y (N) Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☑ Firedoor ☐

Sample Y (N) Condition G F P Quantity _____ SF

Woodward-Clyde Federal Services

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building # 5 Inspector/Date: 1/14

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Rm 513 352		Y		trowelled	Y	P	>5000 SF
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

HVAC

Building | Inspector/Date:

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	Bays 1-3 & Hic	Y	FG	N				
Pipe	Bays 1-3 & Hic	Y	FG	N				
Fittings	Rm 5B352	Y	mud	Y	P	>100	#	3"-12" fittings
	AHics - Bays	Y	mud	Y	G	>100	#	
	1, 2, 3							
Other								
	Rm 5B352		Vibration cloth	asbestos		30		
	AHics -		"	"		250/280		
	Rm 5B352		Joint sealant	Y		>25	pipe ends	

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Joint sealant - on ends of FG insulated pipe - ~ $\frac{1}{4}$" thick

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

lding #5 — Inspector/Date: 1/14/91

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	approximate Quantity	
Ceiling Tile #1 2x4'	painted/smooth	See Plan	yes	good	96 2#1 SF	
Ceiling Tile 2 2x4	white/rough	See plan	yes	good	364	
Ceiling Tile #3 2x4'	white/rough texture	See Plan	yes	good	185 364 SF	
Ceiling Tile #4 2x4'	white/random hole	See Plan	yes	good	2678 SF 2700	R
Ceiling Tile #5 12"x12"	white/uniform hole	See Plan	yes	good	6854 SF 6850	R
Floor Tile #1 9"x9"	tan	See Plan	yes	good	5455 SF 5450	R
Floor Tile #2 9"x9"	brown	See plan	yes	good	5706 5700	R
Floor Tile #3 9"x9"	grey	See Plan	yes	good	11476 SF 11470	R
Floor Tile #4 12"x12"	beige	See plan	yes	good	12437 SF 12400	R
Floor Tile #5 9"x9"	green	See Plan	yes	good	16440 SF 16450	R
Floor Tile #6 12"x12"	white	See Plan	yes	good	5677 SF 5700	R
Floor Tile #7 12"x12"	grey	See Plan	yes	good	4458 SF 4200	R
Floor Tile #8 12"x12"	black	See Plan	yes	good	228 SF	

laterial

iling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 5

Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
Gypsum board - Regular		interior - throughout	Y	G	~~1~~ 6800 15470 ft
" FC		halls - entryo	Y	G	~~3~~ 620 3620 ft
Plaster		ceiling SB 352	Y	G	~ 1600
Accoustical material - soundproofing		Rm SB 192	N — foam !!		

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

APPENDIX 5-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 5
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/26/91
Date Analyzed : 02/19/91
Person Submitting: D.M. BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
177	N	-----	-----	-----	-----	-----	-----	-----	<1	05-10	-----	90-95	GC	
178	N	-----	-----	-----	-----	-----	-----	-----	01-05	05-10	-----	85-95	GC	
179	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	GC	
180	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	01-05	90-98	GC	
181	N	-----	-----	-----	-----	-----	-----	-----	<1	10-15	-----	85-90	GC	
182	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	<1	90-95	GC	
183	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	GC	
184	N	-----	-----	-----	-----	-----	-----	-----	<1	10-15	-----	85-90	GC	
185	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	GC	
186	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	GC	
187	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	GC	
188	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	GC	
189	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	GC	
190	N	-----	-----	-----	-----	-----	-----	-----	01-05	10-15	-----	80-90	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. All rights reserved. AMA Analytical Services, Inc.

AMA Analytical Services, Inc.

(AIHA) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 5
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/26/91
Date Analyzed : 02/19/91
Person Submitting: D.M. BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
191	N	-----	-----	-----	-----	-----	-----	-----	<1	-----	-----	100	GC	
192	N	-----	-----	-----	-----	-----	-----	-----	<1	25-30	-----	70-75	GC	
193	N	-----	-----	-----	-----	-----	-----	-----	01-05	10-15	-----	80-90	GC	
194	N	-----	-----	-----	-----	-----	-----	-----	<1	<1	-----	100	GC	
195	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	GC	
196	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
197	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	GC	
198	P	<1	-----	-----	-----	-----	-----	-----	<1	25-30	-----	70-75	GC	
199	P	15-20	-----	-----	-----	-----	-----	-----	15-20	-----	-----	60-70	GC	
200	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	-----	90-95	GC	
201	N	-----	-----	-----	-----	-----	-----	-----	<1	<1	-----	100	GC	
202	P	15-20	-----	-----	-----	-----	-----	-----	15-20	<1	-----	60-70	GC	
203	N	-----	-----	-----	-----	-----	-----	-----	<1	<1	-----	100	GC	
204	P	10-15	-----	-----	-----	-----	-----	-----	20-25	<1	-----	60-70	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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WCFS Project [redacted] 01

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted]ral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

Bldg 5

COC By: FBG

Field Office: Woodward-[redacted] Federal Services
Building [redacted]
Door 2
Cameron Statio..
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
									CODE		UM05	UM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		DSB005	694																						2						
FBG		DSB005	695																						1						
FBG		DSB005	696																						1						

Relinquished by: Woodward–Clyde Federal Services

Date: 3/11/91 Time: 1250 Signature: M. Baum

Accepted by: AMA Analytical Services, Inc.

Date: 3-11-91 Time: 1300 Signature: L. Mauricio

Total No. of Containers

Comments: samples collected 3/3/91
3/28/91 1300 L. Mauricio samples results faxed/expressed

Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project No. .01

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F I B I G

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1) / Sample Flag Code (1) / Sample QC Code (1) / TEST NAME / CODE	VOC / UM05	SVOC / LM05	Pest / UM06	Pest / LM06	(OCP/PCBs (gc/ec)) / UH21	Herbicides / LH19	Rotenone / HPLC	TAL Metals / SS15	CYN / JS14	TPHC (IR) / TY03	SO4 / KY04	CL / E418.1	NIT / E418.1	TCLP / SW1311	Asbest	TCDD / SW8290	PCB Wipe / SW8290	LH19	Number of Containers
FBG		ASB005	827																						
FBG		ASB005	828																						

Relinquished by: Woodward–Clyde Federal Services

Date: 11/3/11 Time: 1100 Signature:

Accepted by: AMA Analytical Services, Inc.

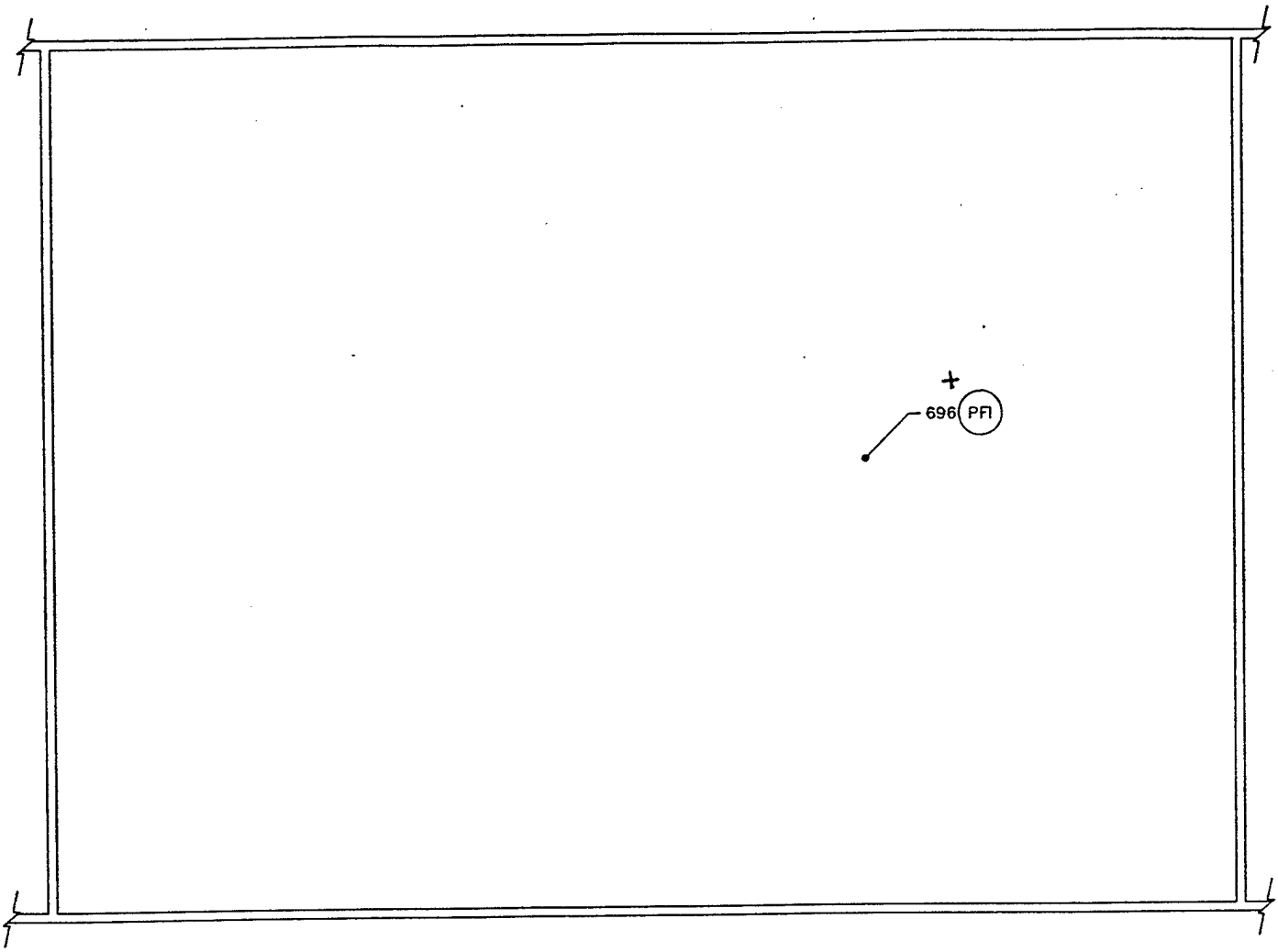
Date: 11/3/11 Time: 1100 Signature:

Total No. of Containers

Comments:

Pink: WCFS Project File

Gold: WCFS Project Scientist



LEGEND

(PFI) PIPE FITTING INSULATION

\+ DENOTES POSITIVE RESULTS

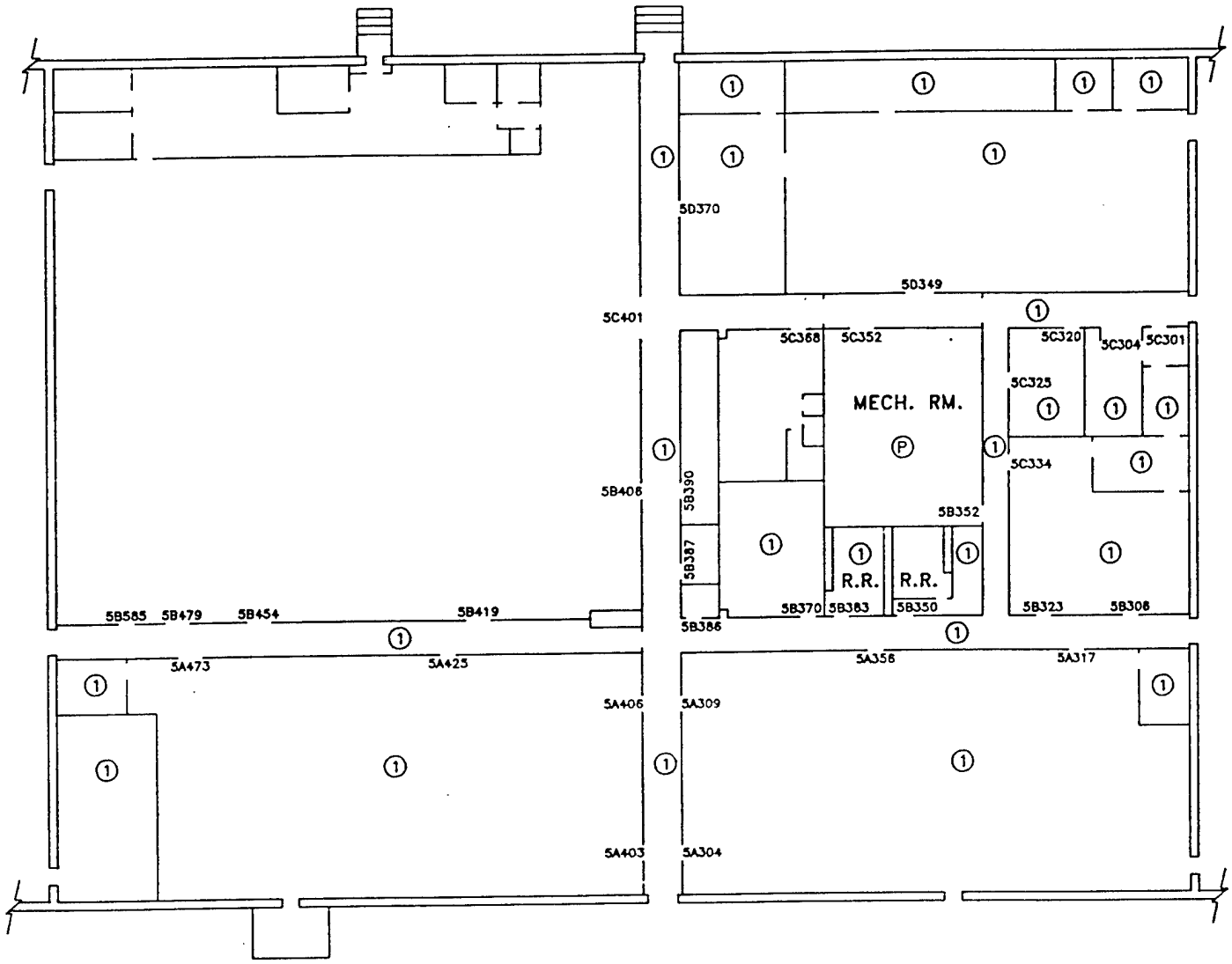
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 5 – BAY 2 ATTIC SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–24–91	5/2A–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	

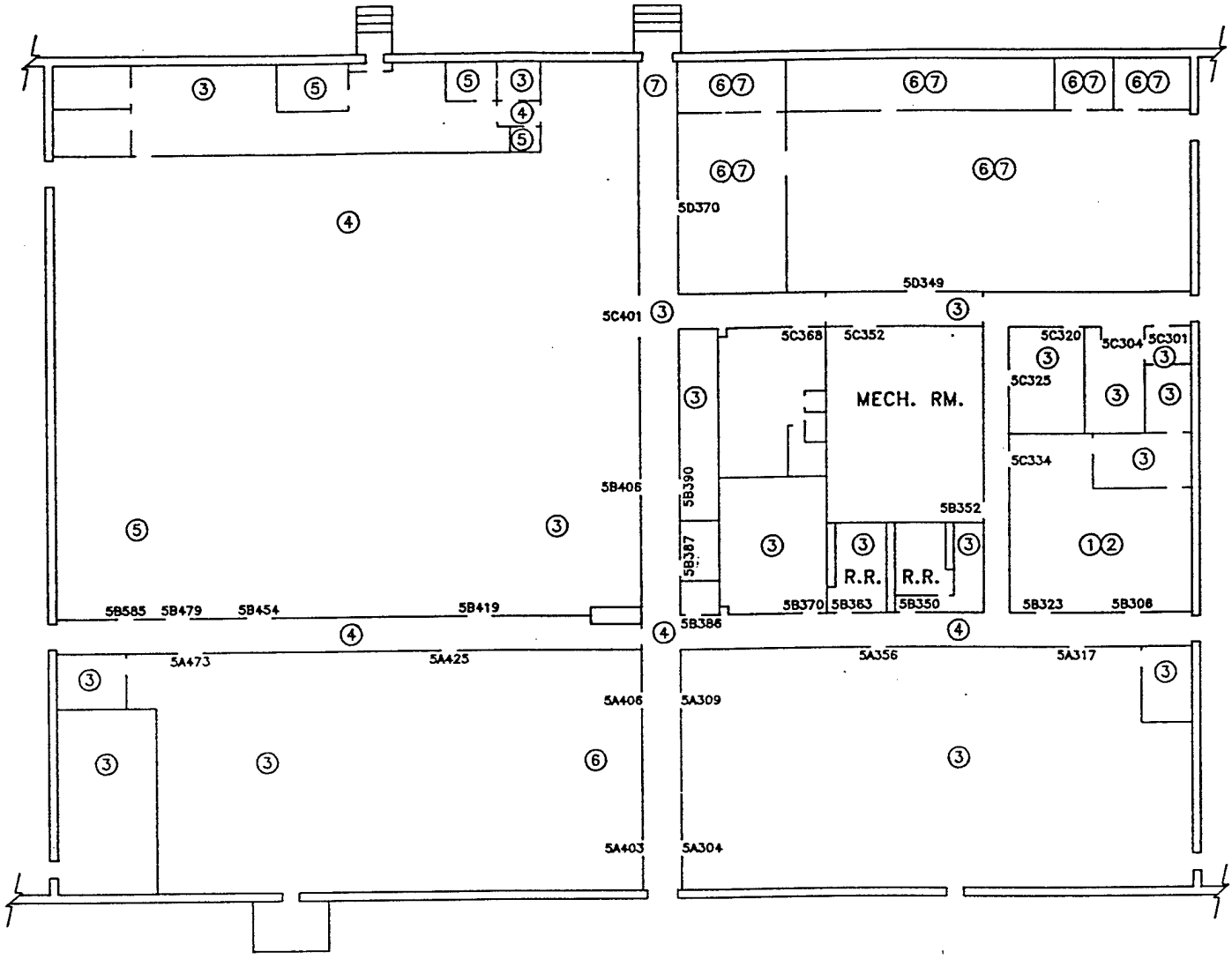


LEGEND

① 2' x 4' SMOOTH TEXTURE FIBERGLASS TILE

Ⓟ PLASTER

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 5 – BAY 2 CEILING TYPE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. CHECKED BY: F.B.C. DATE: 5–24–91 SCALE: N.T.S. DWG. NO. 5/2–CT



LEGEND

① 9" x 9" TAN

② 9" x 9" BROWN

③ 9" x 9" GRAY

④ 12" x 12" BEIGE

⑤ 9" x 9" GREEN

⑥ 12" x 12" WHITE

⑦ 12" x 12" GRAY

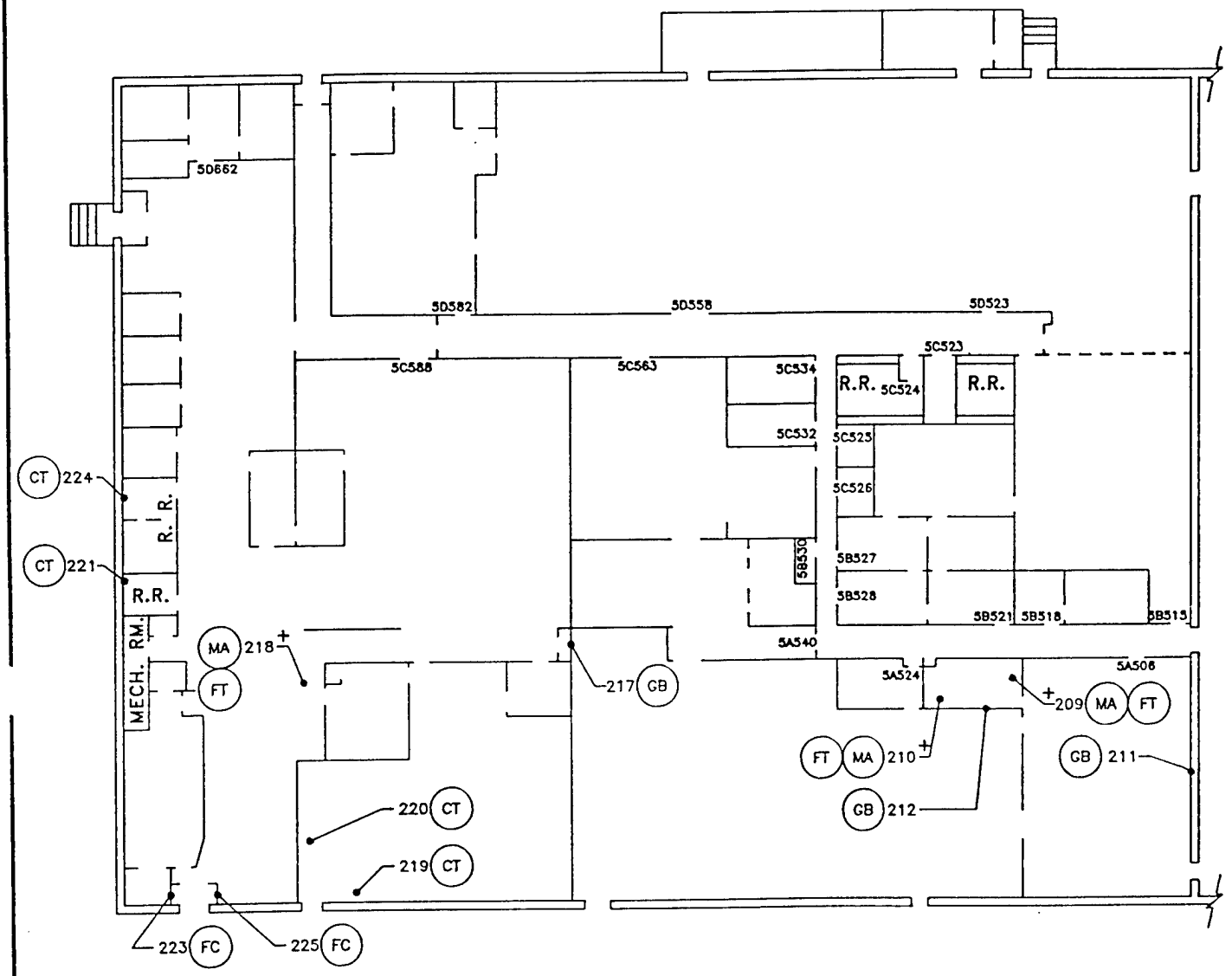
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 5 – BAY 2
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–24–91	5/2-FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

FC	FIRE CODE GYPSUM BOARD	MA	MASTIC
GB	GYPSUM BOARD	CT	CEILING TILE
FT	FLOOR TILE	+	DENOTES POSITIVE RESULTS

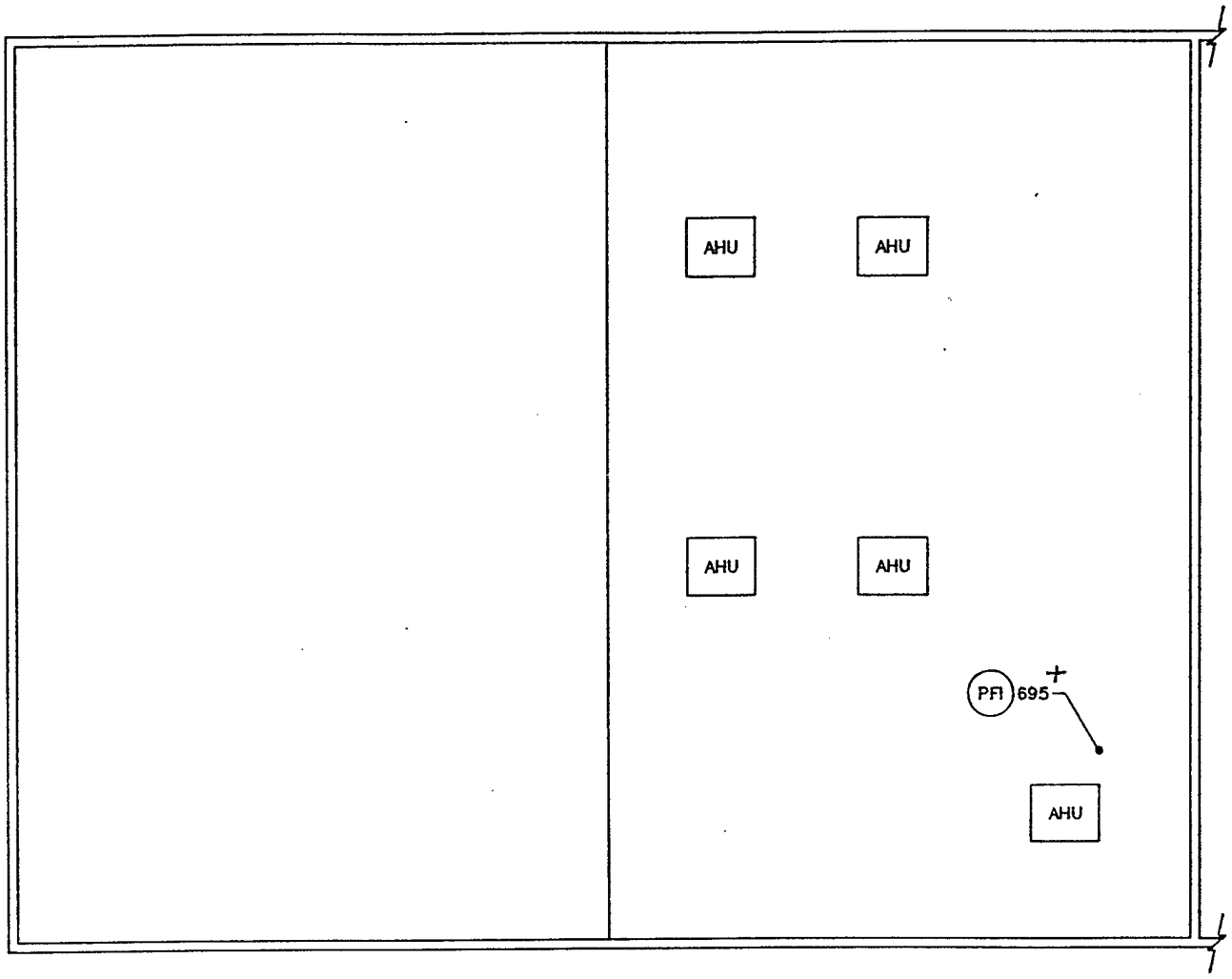
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 5 – BAY 3
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–24–91	5/3–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	

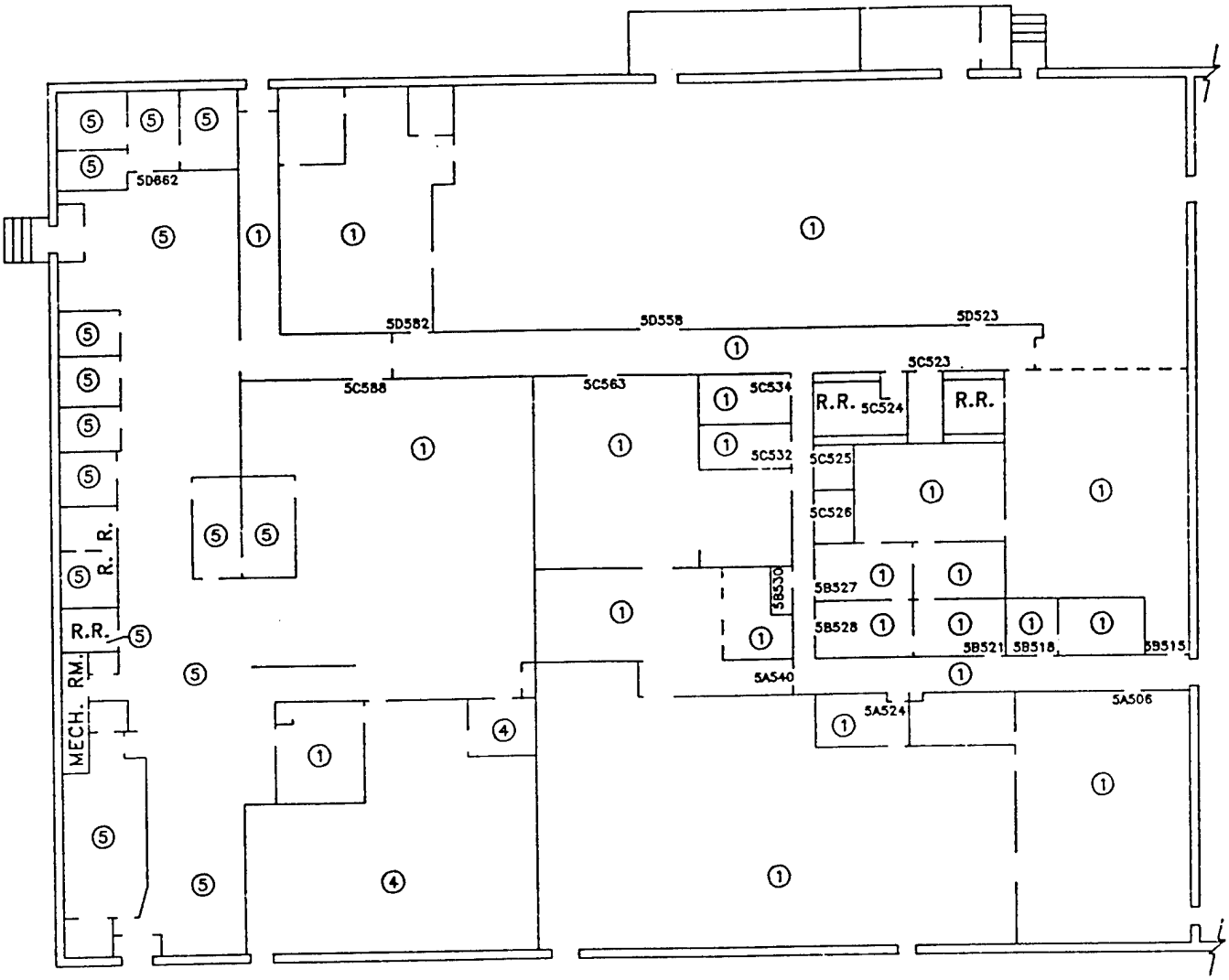


LEGEND

(PFI) PIPE FITTING INSULATION

AHU AIR HANDLING UNIT

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia				
Woodward–Clyde Federal Services	TITLE BUILDING 5 – BAY 3 ATTIC SAMPLE LOCATIONS				
PROJECT NO. 3001–210	DRAWN BY: L.A.L.	CHECKED BY: F.B.Q.	DATE: 5–24–91	SCALE: N.T.S.	DWG. NO. 5/3A–SL



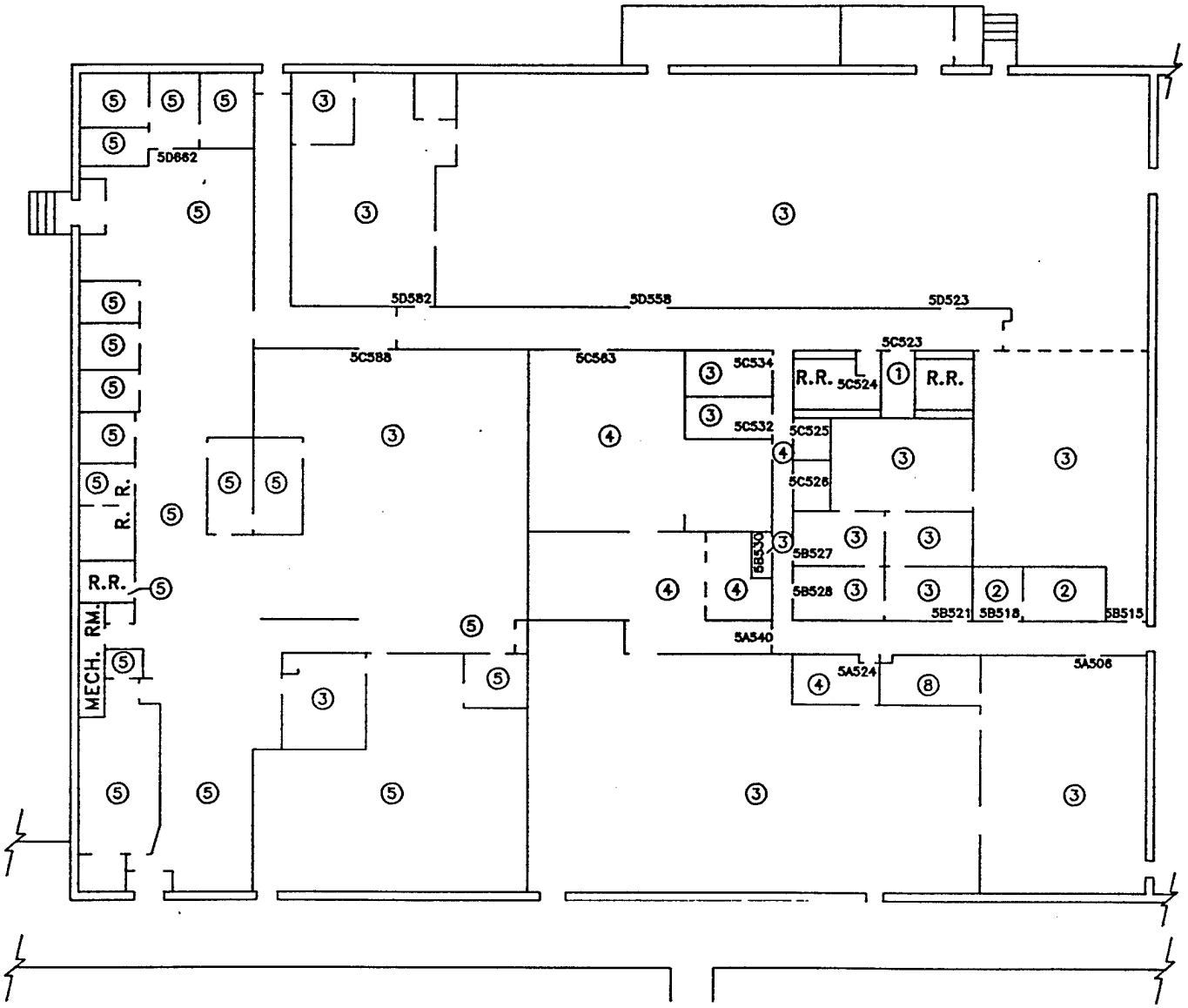
LEGEND

① 2' x 4' SMOOTH FIBERGLASS TILE

④ 2' x 4' RANDOM HOLE TILE

⑤ 12" x 12" UNIFORM HOLE TILE

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia		
Woodward–Clyde Federal Services	TITLE BUILDING 5 – BAY 3 CEILING TYPE LOCATIONS		
PROJECT NO. 3001–210	DRAWN BY: L.A.L.	DATE: 5–24–91	DWG. NO. 5/3–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

① 9" x 9" TAN

② 9" x 9" BROWN

③ 9" x 9" GRAY

④ 12" x 12" BEIGE

⑤ 9" x 9" GREEN

⑧ 12" x 12" BLACK

JENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 5 – BAY 3 FLOOR TILE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: LAL. DATE: 5–24–91 DWG. NO. 5/3–FT
	CHECKED BY: F.B.G. SCALE: N.T.S.

APPENDIX 5-D

WALKTHROUGH SURVEY DATA SHEETS

Building #5 EXTERIOR Inspector Date 1/14/91 ex attic 3/7 - 3/8.

Exterior Siding

Masonry ☑ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y N no Condition G F P Quantity _____ SF

Roof

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☑ (Assume) Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition G F P Quantity 130,000 SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☑	Y (N)	G F P		
Chimney ☐	Y N	G F P		
Louvers ☑	Y (N)	G F P		
A/C Units ☑	Y (N)	G F P		
Other ☐	Y N	G F P		

STRUCTURAL

Wood Joists/Beams ☑ Steel Joists/Beams ☑ Wood Columns ☐ Steel Column ☑ Concrete Column ☑

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y (N) Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☑ Firedoor ☐

Sample Y (N) Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building #5 Inspector/Date: 1/14

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Rm 513 352		Y		trowelled	Y	P	>5000 SF
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

HVAC

Building | Inspector/Date:

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	Bays 1-3 attic	Y	FG	N				
Pipe	Bays 1-3 attic	Y	FG	N				
Fittings	Rm 5B352	Y	mud	Y	P	>100	#	3"-12" fittings
	Attics - Bays	Y	mud	Y	G	>200	#	
	1,2,3							
Other								
	Rm 5B352		Vibration cloth	asbestos		30		
	Attics -		"	"		250/280		
	Rm 5B352		Joint sealant	Y		>25	pipe ends	

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Joint sealant - on ends of FG insulated pipe - ~ ¼" thick

INTERIOR - CEILING/WALLS/FLOORS/MISC.

lding #5 — Inspector/Date: 1/14/91

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Approximate Quantity	
Ceiling Tile #1 2x4'	painted/smooth	See Plan	~~No~~ yes	~~good~~	~~96~~ 24 SF	
Ceiling Tile 2 2x4	white/rough	See plan	~~No~~ yes	~~good~~	~~364~~	
Ceiling Tile #3 2'x4'	white/rough texture	See Plan	~~No~~ yes	~~good~~	~~185~~ ~~364~~ SF	
Ceiling Tile #4 2'x4'	white/random hole	See Plan	yes	good	~~2678~~ SF 2700	R
Ceiling Tile #5 12"x12"	white/uniform hole	See Plan	yes	good	~~6854~~ SF 6850	R
Floor Tile #1 9"x9"	tan	See Plan	yes	good	~~5455~~ SF 5450	R
Floor Tile #2 9"x9"	brown	See plan	yes	good	5706 5700	R
Floor Tile #3 9"x9"	grey	See Plan	yes	good	~~7476~~ SF 7140	R
Floor Tile #4 12"x12"	berge	See plan	yes	good	~~12437~~ SF 12400	R
Floor Tile #5 9"x9"	green	See Plan	yes	good	16440 SF 16450	R
Floor Tile #6 12"x12"	white	See Plan	yes	good	~~5677~~ SF 5700	R
Floor Tile #7 12"x12"	grey	See Plan	yes	good	~~4458~~ SF 4200	R
Floor Tile #8 12"x12"	black	See Plan	yes	good	~~228~~ SF	

laterial

iling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 5

Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
Gypsum board - Regular		interior - throughout	Y	G	~~15~~ 6800 15470 R
" FC		halls - entrys	Y	G	~~3620~~ 3620 R
Plaster		ceiling 5B352	Y	G	~ 1620
Accoustical material - soundproofing		Rm 5B192	N — foam !!		

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

Woodward-Clyde Federal Services

APPENDIX 5-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 5
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/26/91
Date Analyzed : 02/19/91
Person Submitting: D.M. BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	ASBESTOS % CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	OTHER FIBROUS MATERIAL % MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
177	N	-----	-----	-----	-----	-----	-----	-----	<1	05-10	-----	90-95	GC	
178	N	-----	-----	-----	-----	-----	-----	-----	01-05	05-10	-----	85-95	GC	
179	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	GC	
180	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	01-05	90-98	GC	
181	N	-----	-----	-----	-----	-----	-----	-----	<1	10-15	-----	85-90	GC	
182	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	<1	90-95	GC	
183	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	GC	
184	N	-----	-----	-----	-----	-----	-----	-----	<1	10-15	-----	85-90	GC	
185	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	GC	
186	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	GC	
187	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	GC	
188	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	GC	
189	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	GC	
190	N	-----	-----	-----	-----	-----	-----	-----	01-05	10-15	-----	80-90	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.
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AMA Analytical Services, Inc.

[illegible] Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 5
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/26/91
Date Analyzed : 02/19/91
Person Submitting: D.M. BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
191	N	-----	-----	-----	-----	-----	-----	-----	<1	-----	-----	100	GC	
192	N	-----	-----	-----	-----	-----	-----	-----	<1	25-30	-----	70-75	GC	
193	N	-----	-----	-----	-----	-----	-----	-----	01-05	10-15	-----	80-90	GC	
194	N	-----	-----	-----	-----	-----	-----	-----	<1	<1	-----	100	GC	
195	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	GC	
196	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
197	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	GC	
198	P	<1	-----	-----	-----	-----	-----	-----	<1	25-30	-----	70-75	GC	
199	P	15-20	-----	-----	-----	-----	-----	-----	15-20	-----	-----	60-70	GC	
200	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	-----	90-95	GC	
201	N	-----	-----	-----	-----	-----	-----	-----	<1	<1	-----	100	GC	
202	P	15-20	-----	-----	-----	-----	-----	-----	15-20	<1	-----	60-70	GC	
203	N	-----	-----	-----	-----	-----	-----	-----	<1	<1	-----	100	GC	
204	P	10-15	-----	-----	-----	-----	-----	-----	20-25	<1	-----	60-70	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 5
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/26/91
Date Analyzed : 02/19/91
Person Submitting: D.M. BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
205	P	15-20	-----	-----	-----	-----	-----	-----	15-20	<1	-----	60-70	GC	
206	P	10-15	-----	-----	-----	-----	-----	-----	20-25	<1	-----	60-70	GC	
207	P	10-15	-----	-----	-----	-----	-----	-----	15-20	<1	-----	65-75	GC	
208	P	10-15	-----	-----	-----	-----	-----	-----	20-25	<1	-----	60-70	GC	
209	P	01-05	-----	-----	-----	-----	-----	-----	<1	<1	-----	95-99	GC	
210	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	GC	
211	N	-----	-----	-----	-----	-----	-----	-----	<1	30-35	-----	65-70	GC	
212	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	GC	
213	P	10-15	-----	-----	-----	-----	-----	-----	20-25	<1	-----	60-70	GC	
214	P	15-20	-----	-----	-----	-----	-----	-----	20-25	<1	-----	55-65	GC	
215	P	15-20	-----	-----	-----	-----	-----	-----	20-25	<1	-----	55-65	GC	
216	N	-----	-----	-----	-----	-----	-----	-----	-----	30-35	-----	65-70	GC	
217	N	-----	-----	-----	-----	-----	-----	-----	01-05	20-25	<1	70-80	GC	
218	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	95-99	-----	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

... (AIHA) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 5
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/26/91
Date Analyzed : 02/19/91
Person Submitting: D.M. BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
								MINERAL	FIBROUS	ORGANIC			ANALYST	
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	WOOL	GLASS	FIBERS	OTHER	PARTICULATE	ID**	COMMENT
219	N	-----	-----	-----	-----	-----	-----	-----	30-40	30-35	-----	30-35	GC	
220	N	-----	-----	-----	-----	-----	-----	-----	30-40	30-35	-----	30-35	GC	
221	N	-----	-----	-----	-----	-----	-----	-----	<1	80-85	-----	15-20	GC	
222	N	-----	-----	-----	-----	-----	-----	-----	01-05	20-25	<1	70-80	GC	
223	N	-----	-----	-----	-----	-----	-----	-----	05-10	<1	-----	90-95	GC	
224	N	-----	-----	-----	-----	-----	-----	-----	-----	70-75	-----	25-30	GC	
225	N	-----	-----	-----	-----	-----	-----	-----	01-05	25-30	-----	65-75	GC	
694	P	20-25	-----	-----	-----	-----	-----	-----	30-35	-----	-----	40-50	AB	
695	P	20-25	-----	-----	-----	-----	-----	-----	30-35	-----	-----	40-50	AB	
696	P	20-25	-----	-----	-----	-----	-----	-----	30-35	-----	-----	40-50	AB	
827	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AB	
828	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

G. Edward Carney (GC)

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4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • TOLL FREE (800) 346-0961 • FAX (301) 459-2643

The asbestos detected in the sample was chrysotile, and was identified by selected area electron diffraction (SAED) and energy dispersive X-ray analysis (EDXA).

Sample Preparation

A representative portion of the sample is placed into a preweighed porcelain crucible. The sample weight is recorded. The sample is then placed into a muffle furnace at 480 degrees Celsius for a minimum of 12 hours. The weight of the residual ash is then calculated and recorded.

A quantity of the residual material is suspended in ethanol in a glass vial and treated ultrasonically . A drop of the suspension is placed onto a carbon-coated copper grid and allowed to dry. If, upon TEM observation, an excess of calcite/dolomite is present in the ashed material, these carbonates are then extracted using hydrochloric acid; the asbestos is not extracted by this process. The acid-treated sample is then prepared for analysis, as above.

Analytical Methodology

Analysis is conducted using a JEOL 100CXII transmission electron microscope equipped with either a Kevex (Delta Class) or EG&G Ortec energy dispersive x-ray analyzer. The sample grid is examined at 100X to determine the quality of the sample preparation. A screen magnification of 15,000X is then used for the analysis of 5 grid openings.

Structures having aspect ratios $\geq$ 5:1 and a 0.5 micrometer minimum length are examined in detail. Structure morphology, selected area electron diffraction (SAED) and EDXA are used to differentiate asbestos from non-asbestos structures. Photographic documentation of representative asbestos structures, as well as EDXA data, is recorded for each asbestos containing sample.

Results

The percentage of ashed material identified as asbestos is estimated within a lower and upper range. The percentage of asbestos present in the entire sample is calculated. If acid extraction is used, the percentage of calcite/dolomite is also calculated.

AMA Analytical Services, Inc. thanks Woodward-Clyde Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely,
AMA ANALYTICAL SERVICES, INC.

Luis H. Bustillos
Electron Microscopist

Robert M. Powell
Laboratory Director

LHB/kec

APPENDIX 5-F

SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No.: 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMB (Initials)

Field Office: Woodward-C ederal Services
c/o Charles ..mett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/30/91 (MM DD YY)

BLDG 5

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)	Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	TY03 KY04										
FB6		ASB005	177																				✓				
FB6		ASB005	178																				✓				
FB6		ASB005	179																				✓				
FB6		ASB005	180																				✓				
FB6		ASB005	181																				✓				
FB6		ASB005	182																				✓				
FB6		ASB005	183																				✓				

Relinquished by: Woodward-Clyde
Date: 1/31/91 Time: 1538 Signature: DM Sauna

Relinquished by: ~~Reco~~ Lab, ~~Inc.~~
Date: 2-6-91 Time: 1300 Signature: L Mann

Comments:
Federal Express

Accepted by: ~~Reco~~ Lab, ~~Inc.~~
Date: 1-31-91 Time: 1540 Signature: L. Mann

Total Number of Containers: 7

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

White: ~~Reco~~ Lab Yellow: WCFS Chemist Pink: Return to WCF.. ..ter sample receipt Gold: Return to WCFS with residual samples

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project No.: 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMS
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Drummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/29/91 (MM DD YY)

BLDG. 5

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Asbest	Number of Containers
FBG		ASB005	184				✓	
FBG		ASB005	185				✓	
FBG		ASB005	186				✓	
FBG		ASB005	187				✓	
FBG		ASB005	188				✓	
FBG		ASB005	189				✓	
FBG		ASB005	190				✓	

Sample Techniques (1) | Sample Flag Code (1) | Sample QC Code (1) | TEST NAME | CODE | VOC UM05 | SVOC UM05 | VOC UM06 | SVOC UM06 | OCP/PCBs (gc/ms) UM06 | OCP/PCBs (gc/ec) LM06 | NON-TCL Pest. | TAL Metals | CYN TY03 | TPHC (IR) KY04 | SO4 | CL | NIT | TCLP | Asbest | TCDD | PCB Wipe | TPHC (gc)

Relinquished by: Woodward-Clyde
Date: 1/31/91 Time: 1535 Signature: Dan Barnes

Relinquished by: ~~Pace~~ Lab, Inc.
Date: 2-8-91 Time: 1300 Signature: L. Mann

Comments:

Accepted by: Pace Lab, Inc.
Date: 1-31-91 Time: 15:40 Signature: L. Mancuso

Total Number of Containers: 7

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

White: ~~Pace~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: [illegible]
Initials

Field Office: Woodward-C ederal Services
c/o Charles .mett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/30/91 (MM DD YY)

BLDG 5

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Asbest	Number of Containers
FBG		ASB005	191				✓	
FBG		ASB005	192				✓	
FBG		ASB005	193				✓	
FBG		ASB005	194				✓	
FBG		ASB005	195				✓	
FBG		ASB005	196				✓	
FBG		ASB005	197				✓	

Sample Techniques (1) | Sample Flag Code (1) | Sample QC Code (1) | TEST NAME | CODE | VOC UM05 | SVOC LM05 | VOC UM06 | SVOC LM06 | OCP/PCBs (gc/ms) UM06 | OCP/PCBs (gc/ec) LM06 | NON-TCL Pest. | TAL Metals | CYN TY03 | CYN KY04 | TPHC (IR) | SO4 | CL | NIT | TCLP | Asbest | TCDD | PCB Wipe | TPHC (gc)

Relinquished by: Woodward-Clyde
Date: 1/31/91 Time: 1535 Signature: [illegible]

Accepted by: Pace Lab, Inc.
Date: 1-31-91 Time: 15:40 Signature: [illegible]

Total Number of Containers: 7

Relinquished by: Pace Lab, Inc.
Date: 3-28-91 Time: 1302 Signature: [illegible]

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: Pace Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DKFFIES
Initials

Field Office: Woodward-Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/26/91 (MM DD YY) BLDG 5

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Asbest	Number of Containers
FBG		ASB005	198				✓	
FBG		ASB005	199				✓	
FBG		ASB005	200				✓	
FBG		ASB005	201				✓	
FBG		ASB005	202				✓	
FBG		ASB005	203				✓	
FBG		ASB005	204				✓	

Sample Techniques (1) | Sample Flag Code (1) | Sample CC Code (1) | TEST NAME | CODE | VOC UM05 LM05 | SVOC UM06 LM06 | OCP/PCBs (gc/ms) UM06 LM06 | OCP/PCBs (gc/ec) | NON-TCL Pest. | TAL Metals | CYN TY03 KY04 | TPHC (IR) | SO4 | CL | NIT | TCLP | Asbest | TCDD | PCB Wipe | TPHC (gc)

Relinquished by: Woodward-Clyde
Date: 1/31/91 Time: 1535 Signature: M. Barnes

Accepted by: Race Lab, Inc.
Date: 1-31-91 Time: 15:40 Signature: L. Maurice

Total Number of Containers: 8

Relinquished by: ~~Race~~ Lab, ~~Inc.~~
Date: 3.26-91 Time: 1800 Signature: L. Maurice

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: ~~Race~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DKRIES
Initials

Field Office: Woodward- ederal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/26/91 (MM DD YY)

BLDG 5

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	LM05	LM06	LM06				TY03	KY04												
FBG		ASB005	198																				✓							
FBG		ASB005	199																				✓							
FBG		ASB005	200																				✓							
FBG		ASB005	201																				✓							
FBG		ASB005	202																				✓							
FBG		ASB005	203																				✓							
FBG		ASB005	204																				✓							

Relinquished by: Woodward-Clyde
Date: 1/31/91 Time: 1535 Signature: M. Barnes

Relinquished by: ~~Race~~ Lab, ~~Inc.~~
Date: 3-26-91 Time: 1800 Signature:

Comments:

Accepted by: ~~Race~~ Lab, ~~Inc.~~
Date: 1-31-91 Time: 15:40 Signature: L. Maurice

Total Number of Containers: 8

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

White: ~~Race~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMD
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles [illegible]mett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/~~28~~/91 (MM DD YY) BLDG 5

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN		TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	LM05	LM05	LM06	LM06			TY03	KY04													
FB6		ASB005	212																					✓							
FB6		ASB005	213																					✓							
FB6		ASB005	214																					✓							
FB6		ASB005	215																					✓							
FB6		ASB005	216																					✓							
FB6		ASB005	217																					✓							
FB6		ASB005	218																					✓							

Relinquished by: Woodward-Clyde
Date: 1/31/91 Time: 1535 Signature: [signature]

Accepted by: ~~Pace~~ Lab, ~~Inc.~~
Date: 1-31-91 Time: 15:40 Signature: [signature]

Total Number of Containers: 7

Relinquished by: ~~Pace~~ Lab, ~~Inc.~~
Date: 2-8-91 Time: 1800 Signature: [signature]

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: ~~Pace~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No.: 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DM LB
Initials

Field Office: Woodward-Cl ederal Services
c/o Charles E. ...mett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/26/91
MM DD YY

BLDG 5

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	TY03	KY04													
FBG		ASB005	219																				✓							
FBG		ASB005	220																				✓							
FBG		ASB005	221																				✓							
FBG		ASB005	222																				✓							
FBG		ASB005	223																				✓							
FBG		ASB005	224																				✓							
FBG		ASB005	225																				✓							

Relinquished by: Woodward-Clyde
Date: 1/31/91 Time: 1535 Signature: Dat Barnes

Relinquished by: ~~Pace~~ Lab, Inc.
Date: 2-28-91 Time: 1500 Signature: L Mar

Comments:

Accepted by: ~~Pace~~ Lab, Inc.
Date: 1-31-91 Time: 15:40 Signature: L Mannes

Total Number of Containers: 7

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

White: ~~Pace~~ Lab Yellow: WCFS Chemist Pink: Return to WCF... ...ter sample receipt Gold: Return to WCFS with residual samples

WCFS Project J1

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

Bldg 5

COC By: FBG

Field Office: Woodward-Clyde Federal Services
Building
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Number of Containers
FBG		DSB005	694				2
FBG		DSB005	695				1
FBG		DSB005	696				1

Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			
			CODE	UM05	UM06	UM06	LM06	UH21	LH19	HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1		SW1311		SW8290	SW8290	LH19		

Relinquished by: Woodward–Clyde Federal Services

Date: 3/11/91 Time: 1250 Signature: M. Baum

Accepted by: AMA Analytical Services, Inc.

Date: 3-11-91 Time: 1300 Signature: L. Mauricio

Total No. of Containers

Comments: samples collected 3/5/91
3/28/91 1300 L. Mauricio sample results telephoned

Pink: WCFS Project File

Gold: WCFS Project Scientist

WCFS Project No .01

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: F | B | G

Field Office: Woodward-Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
									CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		ASB005	827																						/						
FBG		ASB005	828																						/						

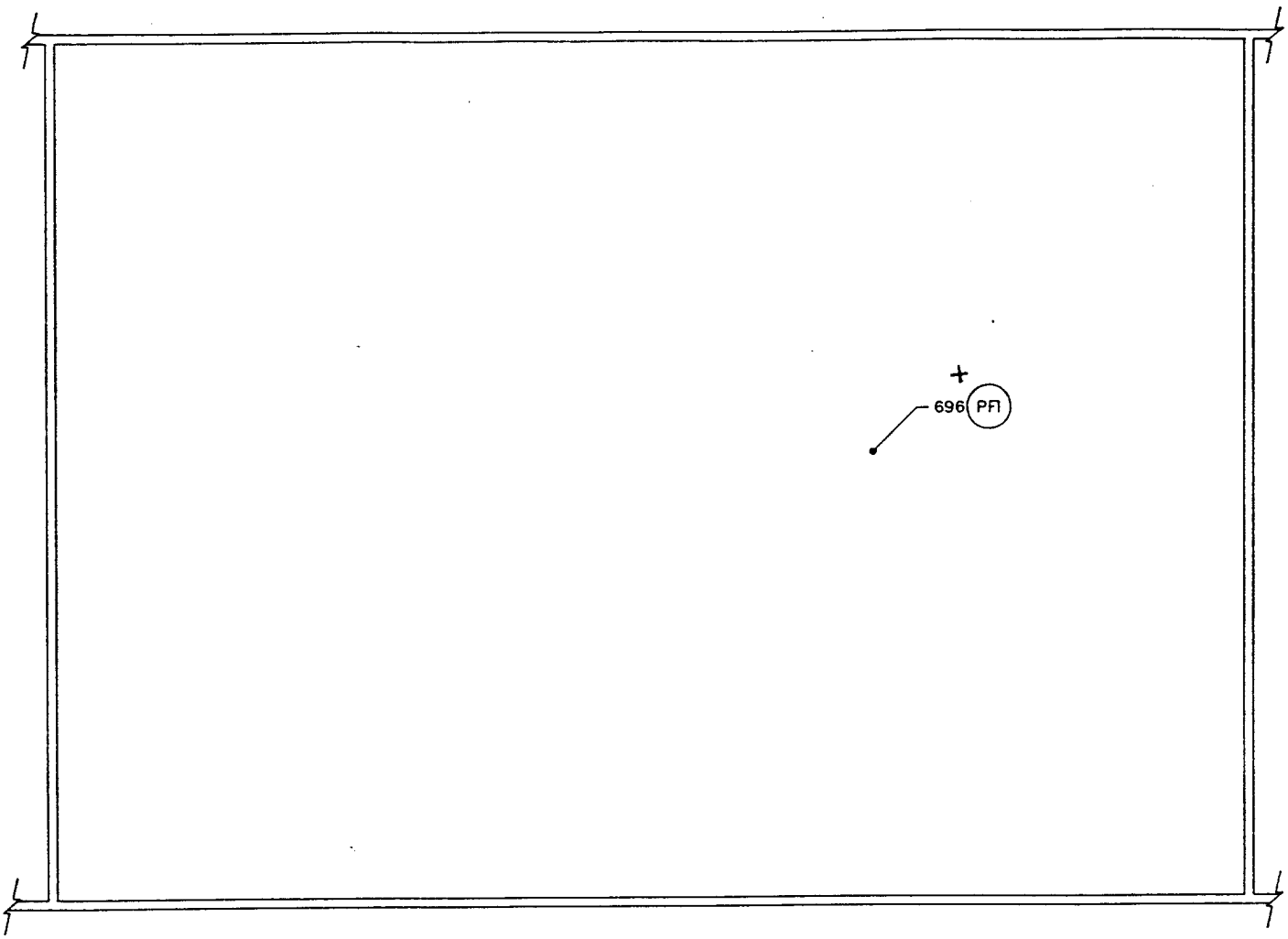
Relinquished by: Woodward-Clyde Federal Services
Date: 4/22/91 Time: 1100 Signature:

Accepted by: AMA Analytical Services, Inc.
Date: 4/22/91 Time: 1105 Signature:

Total No. of Containers

Comments:

AMA Analytical Services, Inc. Pink: WCFS Project File Go. FS Project Scientist



LEGEND

(PFI) PIPE FITTING INSULATION

\+ DENOTES POSITIVE RESULTS

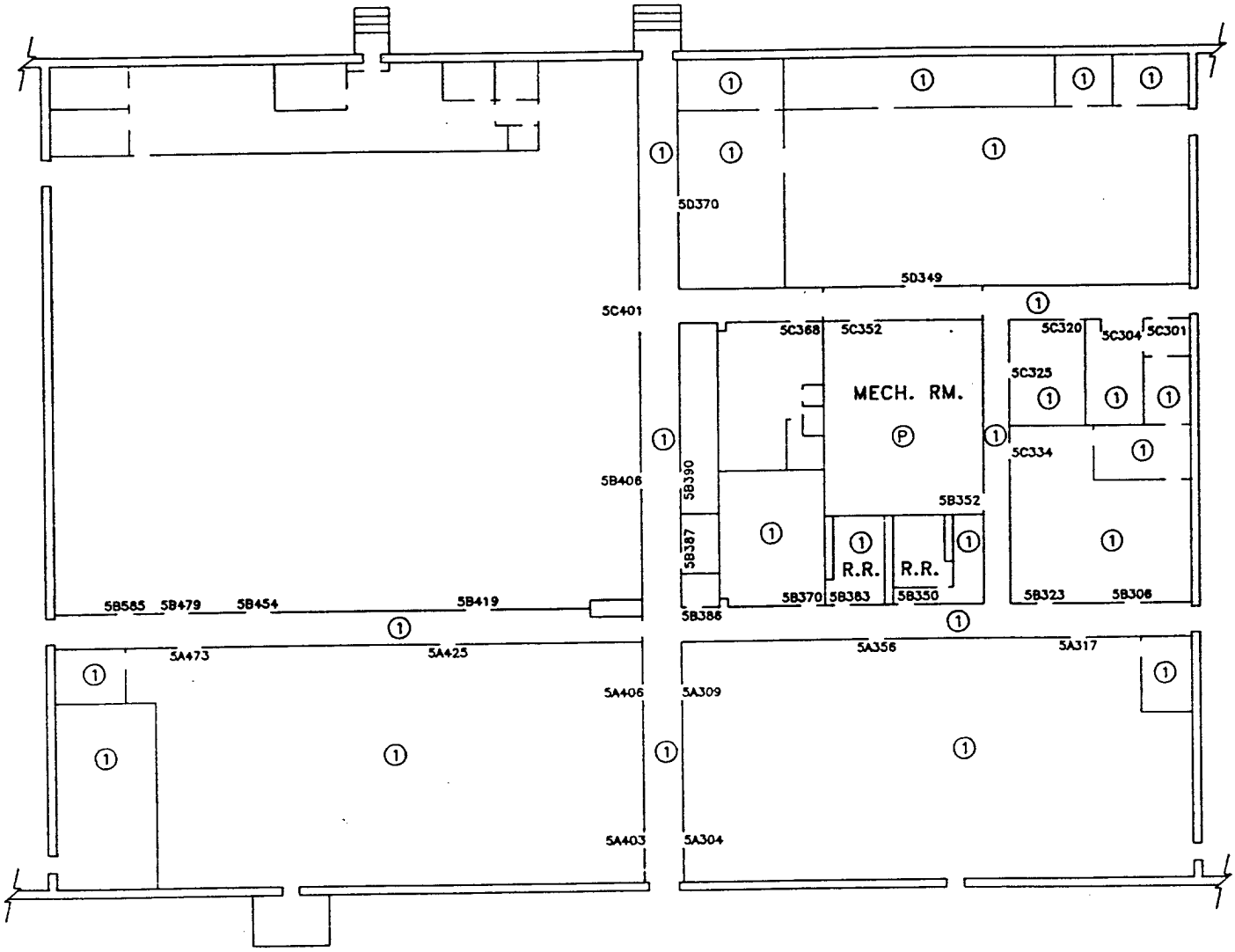
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 5 – BAY 2 ATTIC SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–24–91	5/2A–SL
	CHECKED BY: E.B.G.	SCALE: N.T.S.	

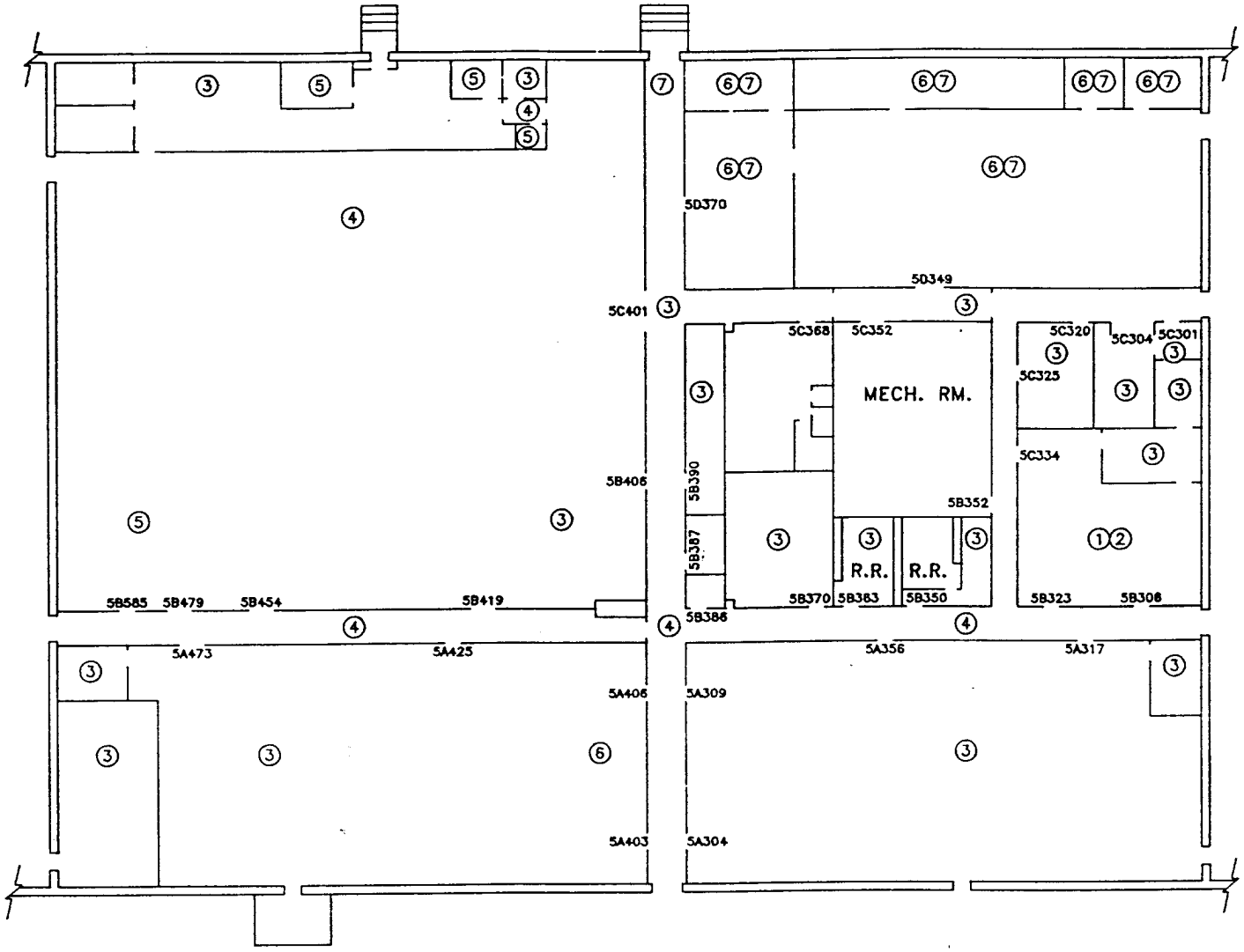


LEGEND

① 2' x 4' SMOOTH TEXTURE FIBERGLASS TILE

Ⓟ PLASTER

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia		
Woodward–Clyde Federal Services	TITLE BUILDING 5 – BAY 2 CEILING TYPE LOCATIONS		
PROJECT NO. 3001–210	DRAWN BY: L.A.L.	DATE: 5–24–91	DWG. NO. 5/2–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

1. 9" x 9" TAN
2. 9" x 9" BROWN
3. 9" x 9" GRAY
4. 12" x 12" BEIGE
5. 9" x 9" GREEN
6. 12" x 12" WHITE
7. 12" x 12" GRAY

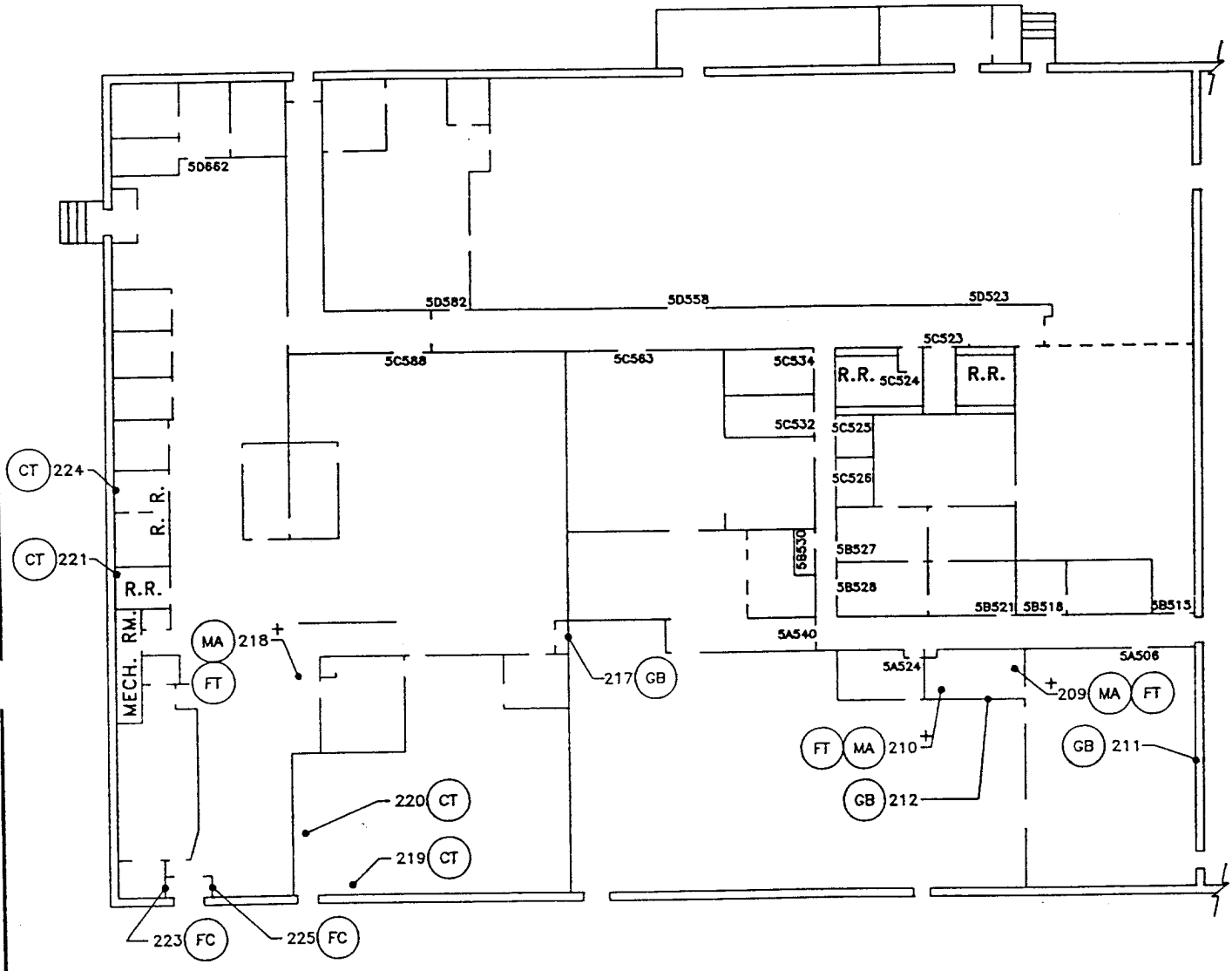
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE
BUILDING 5 – BAY 2
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–24–91	5/2–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

FC	FIRE CODE GYPSUM BOARD	MA	MASTIC
GB	GYPSUM BOARD	CT	CEILING TILE
FT	FLOOR TILE	+	DENOTES POSITIVE RESULTS

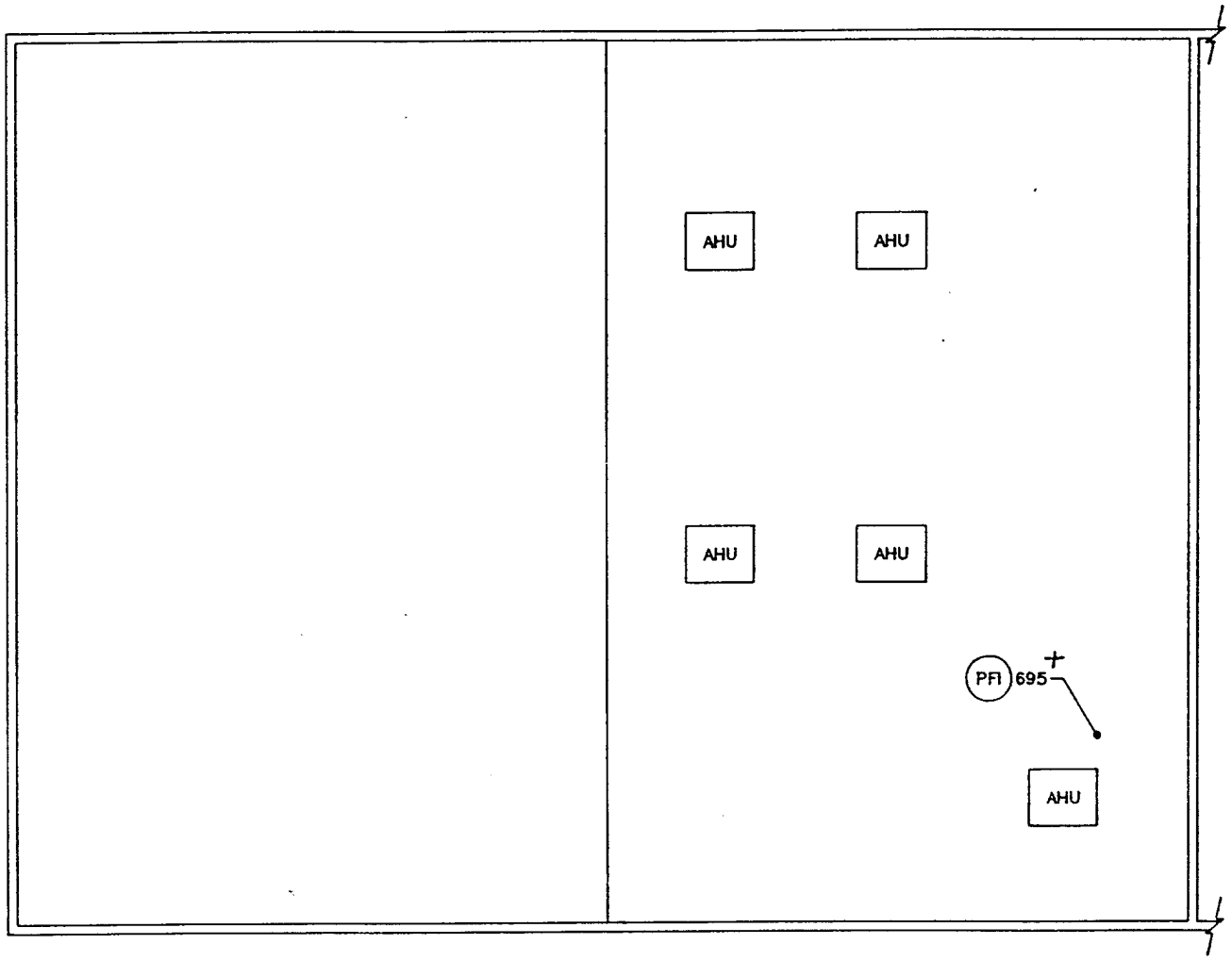
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward-Clyde Federal Services

TITLE BUILDING 5 – BAY 3
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001-210	L.A.L.	5-24-91	5/3-SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	

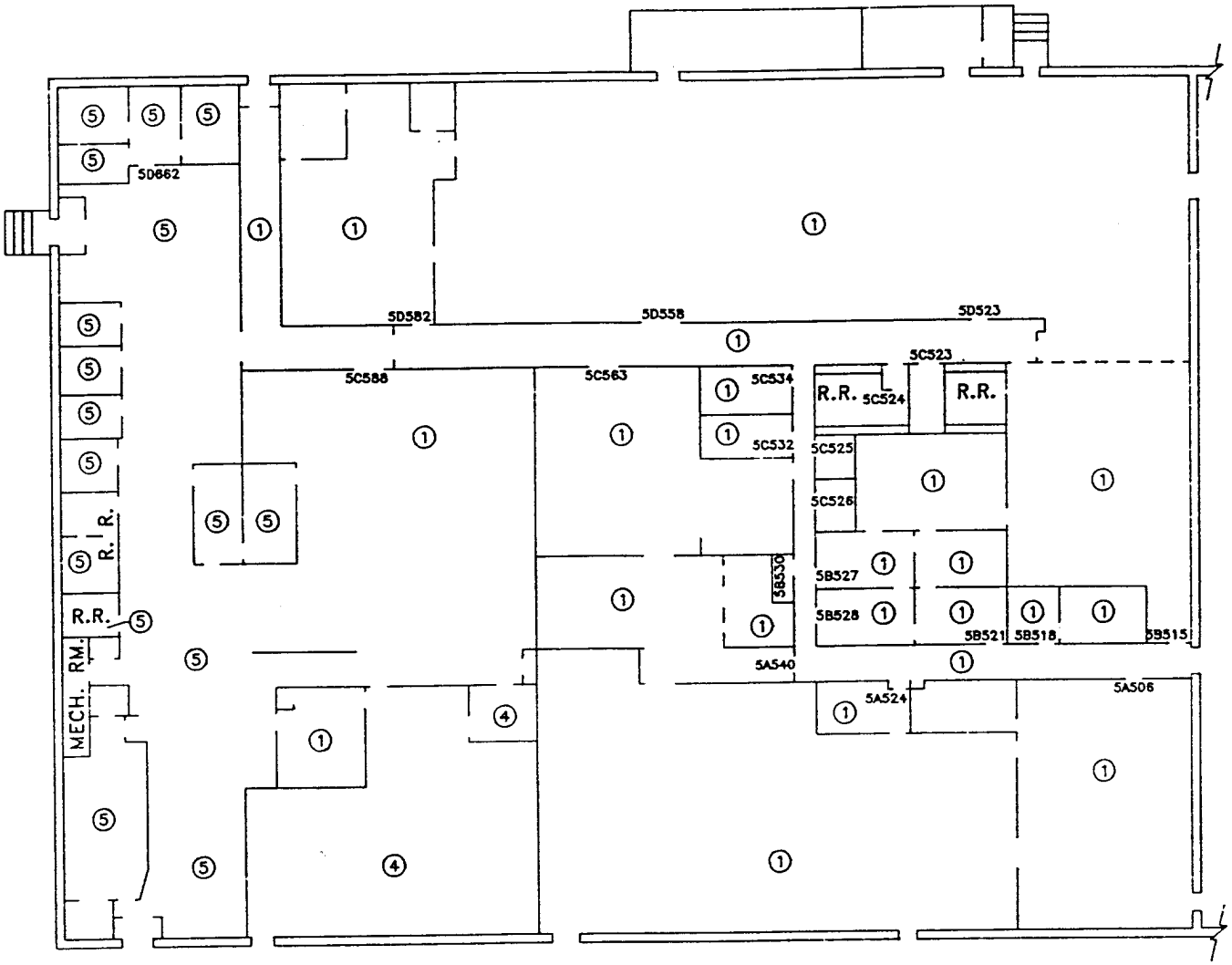


LEGEND

(PFI) PIPE FITTING INSULATION

AHU AIR HANDLING UNIT

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 5 – BAY 3 ATTIC SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. / CHECKED BY: F.B.Q. / DATE: 5–24–91 / SCALE: N.T.S. / DWG. NO. 5/3A–SL



LEGEND

① 2' x 4' SMOOTH FIBERGLASS TILE

④ 2' x 4' RANDOM HOLE TILE

⑤ 12" x 12" UNIFORM HOLE TILE

CLIENT USATHAMA

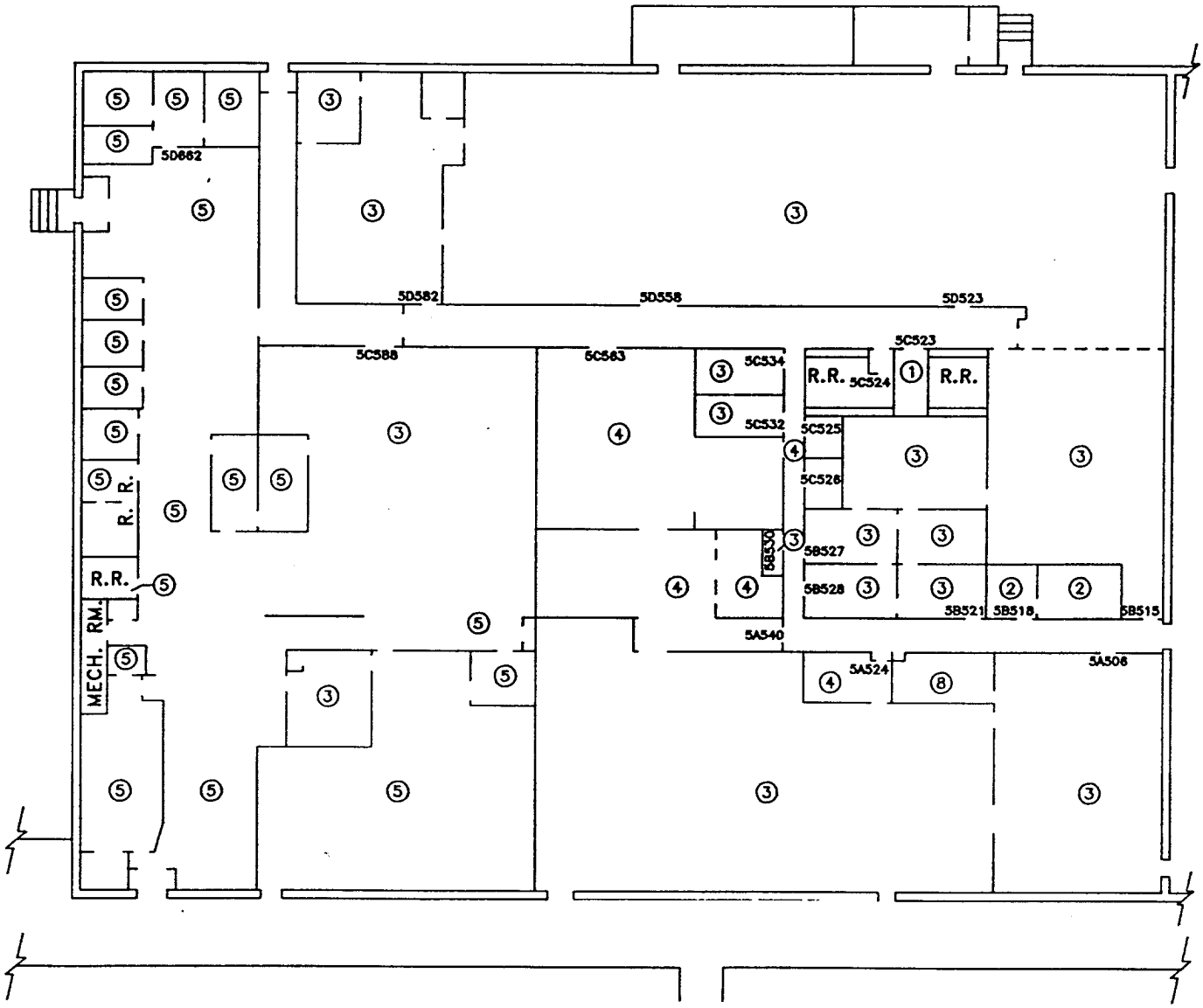
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 5 – BAY 3
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	LAL	5–24–91	5/3–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

① 9" x 9" TAN

② 9" x 9" BROWN

③ 9" x 9" GRAY

④ 12" x 12" BEIGE

⑤ 9" x 9" GREEN

⑧ 12" x 12" BLACK

JENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia		
Woodward–Clyde Federal Services	TITLE BUILDING 5 – BAY 3 FLOOR TILE LOCATIONS		
PROJECT NO. 3001–210	DRAWN BY: [illegible]	DATE: 5–24–91	DWG. NO. 5/3–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	

BUILDING 6

6.1 DESCRIPTION

Building 6 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof is constructed of tar, felt and gravel over wood. It is divided into three bays by masonry firewalls. Originally built as a warehouse, it has been partially converted to offices with a separate attic area housing the building HVAC system. Building materials typically found on the main floor include carpet over floor tile, ceiling tile and regular and fire code gypsum board. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

Bays one and two are occupied by the Defense Logistics Agency (DLA) and the Army and Air Force Exchange Service (AAFES); the U.S. Army Recruiting Support Command (USARSC) occupies Bay three.

6.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 6-A through 6-F. A summary of this data is presented below.

6.2.1 Suspect Friable ACM

Two homogeneous areas of suspect friable ACM were identified and ten bulk samples, including two QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following one material:

- Pipe fitting insulation

Assessment of this material, which is found in one functional space, indicates a damage factor of 7 and an exposure factor of 17. According to the GAHA Index, this material ranks as Priority B.

6.2.2 Suspect Nonfriable ACM

Twenty-two homogeneous areas of suspect nonfriable ACM were identified and fifty-six bulk samples, including two QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following nine materials:

- Joint sealant
- Corrugated cement board
- FT 1 9" x 9" white floor tile and mastic
- FT 2 9" x 9" gray floor tile and mastic
- FT 3 9" x 9" green floor tile and mastic
- FT 4 12" x 12" white floor tile and mastic
- FT 8 9" x 9" black floor tile and mastic
- FT 10 12" x 12" blue floor tile and mastic
- FT 12 9" x 9" brick pattern floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

6.2.3 Material Assumed To Contain Asbestos

Two homogeneous areas, the tar and felt roofing material and the vibration cloth, are assumed to be ACM. No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

6.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following materials, originally identified in the walkthrough survey as suspect ACM, were examined more closely and reclassified as nonsuspect:

- CT 3 2' x 4' fiberglass ceiling tile
- CT 5 12" x 12" fiberglass ceiling tile

6.4 AREAS NOT ACCESSED

The following areas in Building 6 were not accessed:

- Three rooms in AAFES section of Bay 1 (refer to Drawing 6/1-SL for specific locations).
- Room along west wall between Doors 23 and 24 in Bay 2.

6.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
6		100 MF	

TSI = THERMAL SYSTEM INSULATION
PI = PIPE INSULATION
MF = MUDDED FITTINGS
* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

6.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 6-A ACM Survey Results

Appendix 6-B Assessments/Recommendations for Friable ACM

Appendix 6-C Building Drawings

Appendix 6-D Walkthrough Survey Data Sheets

Appendix 6-E Laboratory Certificate of Analysis

Appendix 6-F Sample Chain-of-Custody Forms

APPENDIX 6-A

ACM SURVEY RESULTS

ACM Survey Results for Building 6

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	130000	SF	Assume ACM	Assume ACM	
2	Misc.	Vibration cloth	Bays 1 and 3, on AHUs in attic areas	Non	Good	160	SF	Assume ACM	Assume ACM	
3	TSI	Trowelled-on duct insulation	Bay 1, AHU #7, Door 28,	High	Poor	1000	SF	012 391 392 393	None detected None detected None detected None detected	Sample 393 is a QC for sample 392.
4	TSI	Pipe fitting insulation	Bays 1, 2 and 3, attic areas	Low-High	Poor-Good	100	# of fittings	371 372 373 388 389 390	1-5% amosite 1-5% amosite 1-5% amosite 1-5% amosite 1-5% amosite None detected	Sample 372 is a QC for Sample 371.
5	TSI	Joint sealant	Bays 1, 2 and 3, attic areas	Non	Good	28000	SF	832 833	1-5% chrysotile <1% chrysotile	This material is found on ends and seams of fiberglass-insulated pipes and ducts. The estimated amount is based on the quantity of insulation on which it is found.

ACM Survey Results for Building 6 (continued)

	Material Description					Quantity				
Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure-ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
6	Misc.	Corrugated cement board	Bay 1, Awning over loading dock	Non	Good	8800	SF	413 414	30-35% chrysotile 30-35% chrysotile	
7	Misc.	Floor tile & mastic	See Drawings 6/1-FT 6/3-FT	Non	Good	12650	SF	363 366	1-5% chrysotile 1-5% chrysotile	FT 1 9" x 9" white floor tile
8	Misc.	Floor tile & mastic	See Drawing 6/1-FT	Non	Good	1500	SF	405 406	5-10% chrysotile 1-5% chrysotile	FT 2 9" x 9" gray floor tile
9	Misc.	Floor tile & mastic	See Drawings 6/1-FT 6/3-FT	Non	Good	4470	SF	369 374	1-5% chrysotile 1-5% chrysotile	FT 3 9" x 9" green floor tile

ACM Survey Results for Building 6 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
10	Misc.	Floor tile & mastic	See Drawings 6/1-FT 6/3-FT	Non	Good	29730	SF	352 355	<1% chrysotile 1-5% chrysotile	FT 4 12" x 12" white floor tile
11	Misc.	Floor tile & mastic	See Drawing 6/1-FT	Non	Good	1000	SF	411 412	None detected None detected	FT 5 2' x 2' white floor tile
12	Misc.	Floor tile & mastic	See Drawing 6/1-FT	Non	Good	200	SF	407 408	None detected None detected	FT 6 12" x 12" gray floor tile
13	Misc.	Floor tile & mastic	See Drawing 6/1-FT	Non	Good	100	SF	409 410	None detected None detected	FT 7 12" x 12" mauve floor tile

ACM Survey Results ... Building 6 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
14	Misc.	Floor tile & mastic	See Drawing 6/3-FT	Non	Good	1070	SF	364 365	1-5% chrysotile 1-5% chrysotile	FT 8 9" x 9" black floor
15	Misc.	Floor tile & mastic	See Drawing 6/3-FT	Non	Good	2330	SF	375 376	None detected None detected	FT 9 12' x 12' brown floor tile
16	Misc.	Floor tile & mastic	See Drawing 6/3-FT	Non	Good	400	SF	378 379	1-5% chrysotile 1-5% chrysotile	FT 10 12" x 12" blue floor tile
17	Misc.	Floor tile & mastic	See Drawing 6/3-FT	Non	Good	330	SF	357 358	None detected <1% chrysotile	FT 11 12" x 12" green floor tile

ACM Survey Results for Building 6 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
18	Misc.	Floor tile & mastic	See Drawing 6/3-FT	Non	Good	2600	SF	380 381	1-5% chrysotile 1-5% chrysotile	FT 12 9" x 9" brick pattern floor tile
19	Misc.	Ceiling tile	See Drawings 6/1-CT 6/2-CT 6/3-CT	Non	Good	47500	SF	359 360	None detected None detected	CT 1 2' x 4' white w/fissures
20	Misc.	Ceiling tile	See Drawing 6/1-CT 6/2-CT	Non	Good	2000	SF	394 395	None detected None detected	CT 2 2' x 4' white w/random holes
21	Misc.	Ceiling tile	See Drawing 6/3-CT	Non	Good	1500	SF	356 377	None detected None detected	CT 4 2' x 4' white w/smooth texture

ACM Survey Results ... Building 6 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
22	Misc.	Ceiling tile	See Drawing 6/3-CT	Non	Good	100	SF	386 387	None detected None detected	CT 6 12" x 12" white w/random holes
23	Misc.	Ceiling tile	See Drawing 6/3-CT	Non	Good	100	SF	384 385	None detected None detected	CT 7 12" x 12" white w/uniform hole
24	Misc.	Ceiling tile	See Drawing 6/3-CT	Non	Good	300	SF	382 383	None detected None detected	CT 8 12" x 12" white w/smooth texture
25	Misc.	Fire code gypsum board	Hallways & entry areas throughout bldg. 6/3-CT	Non	Good	93000	SF	354 361 367 368 397 398 399 400	None detected None detected None detected None detected None detected None detected None detected None detected	CT 4 2' x 4' white w/smooth texture Sample 400 is a QC for Sample 398

ACM Survey Results ... Building 6 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
26	Misc.	Regular gypsum board	**Interior walls:** Throughout building **Ceilings:** See drawing 6/2-CT 6/3-CT	Non	Good	50000	SF	353 362 370 396 401 402 403 404	None detected None detected None detected None detected None detected None detected None detected None detected	Sample 404 is a QC for Sample 403

APPENDIX 6-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 6

		Material Description					
Functional Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
6-1 Bays 1, 2 and 3, attic areas	4	TSI	Pipe fitting insulation	7	17	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable Asbestos Assessment Checklist

Cameron Station Building 6 (B) Inspector/Date Barnes/Giraldo 2/6/91

Homogeneous Sample Area #(s) 4 Material Type(s) Pipe fitting insulation

Functional Space C-1 Bldgs 1 & 3 attic areas

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; 4 Moderate; (2) Low; 1 Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: 8 High; 5 Medium; (2) Low
  - B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 371, 372, 373, 383, 389, 390

Damage/Risk Total 7

Friable Asbestos Assessment Checklist

Cameron Station Building 6 Inspector/Date Barnes/Gunsalus 2/6/91

Homogeneous Sample Area #(s) 4 Material Type(s) Pipe fitting insulation

Functional Space 6-1 Bays 1 & 3, attic area

Part 2: Exposure

- Friability: 6 High; (3) Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; 10≤ ft² < 100; (2) 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

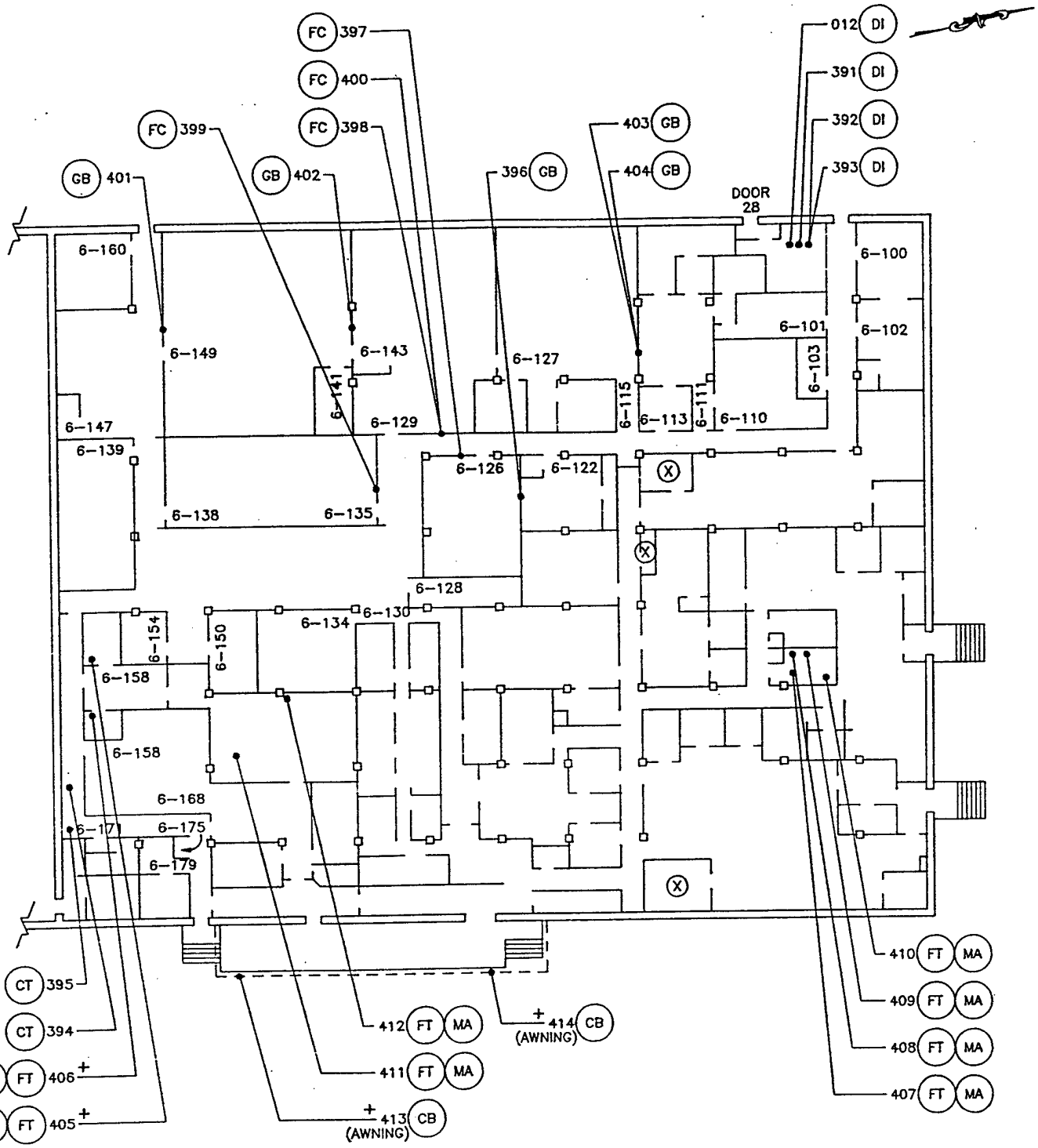
  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  (1) ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; 4 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 17

APPENDIX 6-C

BUILDING DRAWINGS



LEGEND

DI DUCT INSULATION	MA MASTIC	GB GYPSUM BOARD
CT CEILING TILE	CB CEMENT BOARD	X AREA NOT ACCESSED
FT FLOOR TILE	FC FIRE CODE GYPSUM BOARD	+ DENOTES POSITIVE RESULTS

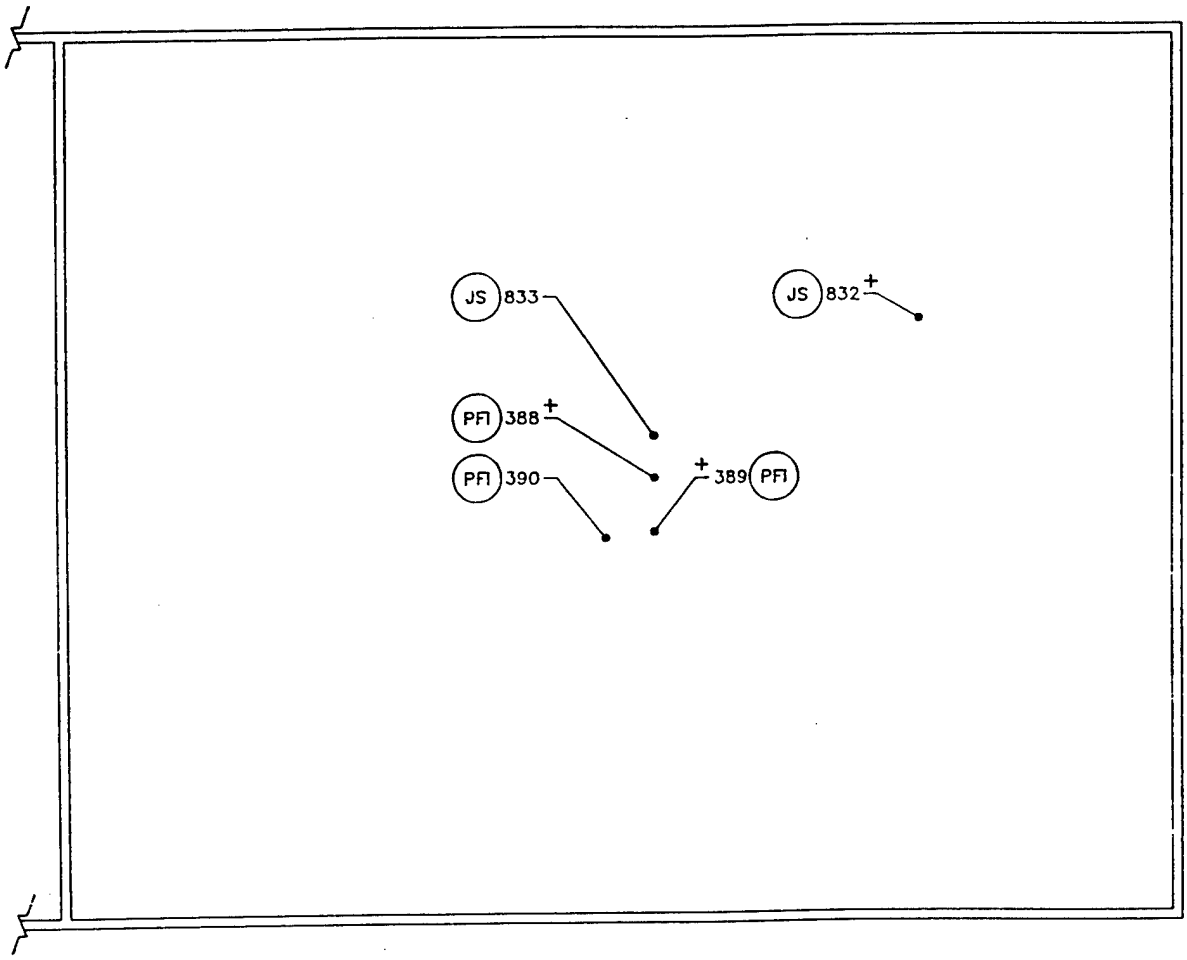
CLIENT USATHAMA

Woodward-Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 6 - BAY 1
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001-210	CHECKED BY: F.B.G.	SCALE: N.T.S.	6/1-SL



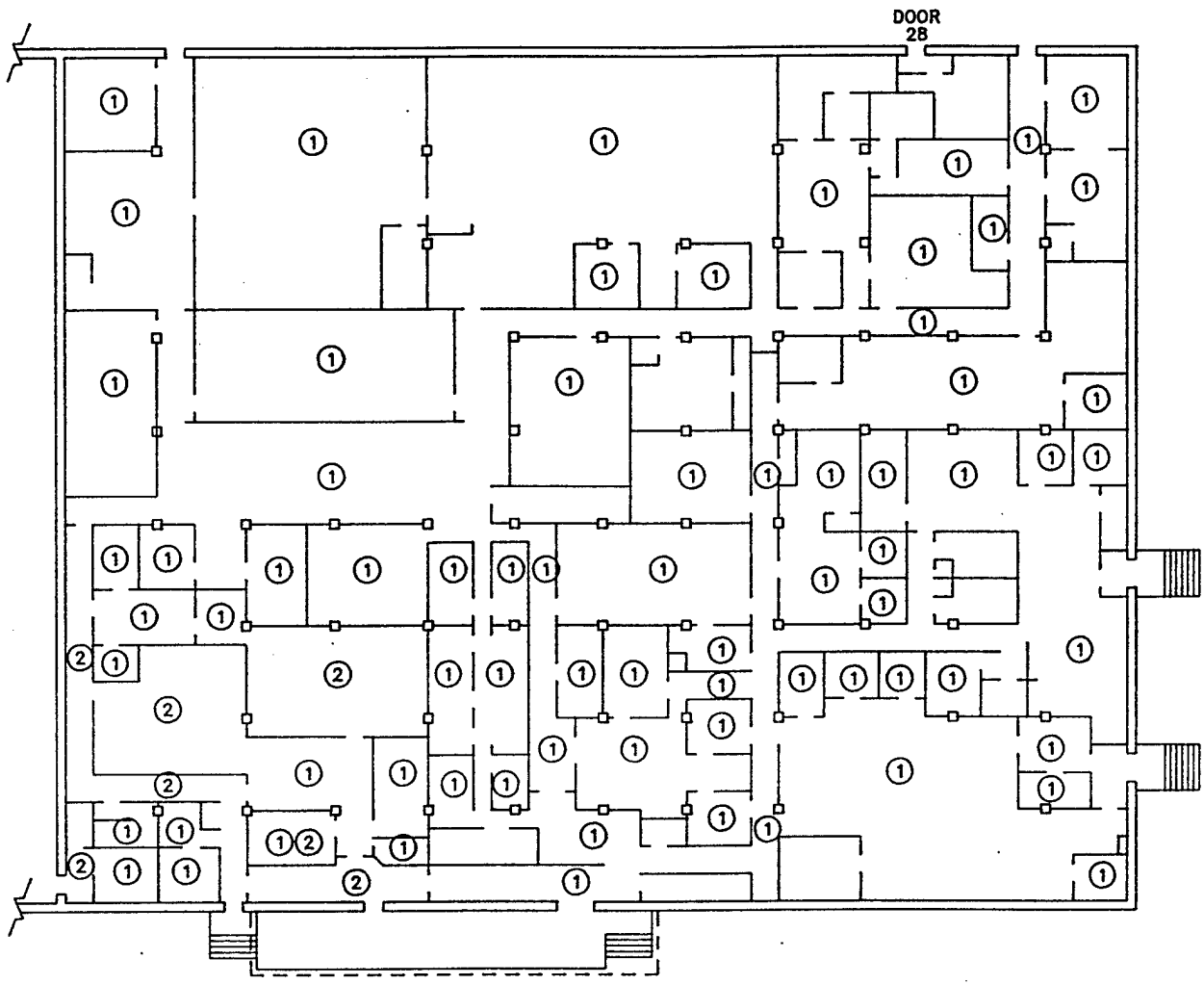
LEGEND

(PFI) PIPE FITTING INSULATION

(JS) JOINT SEALANT

\+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia		
Woodward–Clyde Federal Services	TITLE BUILDING 6 – BAY 1 ATTIC SAMPLE LOCATIONS		
PROJECT NO. 3001–210	DRAWN BY: LAL	DATE: 6-3-91	FIG. 6/1A–SL
	CHECKED BY: F.B.G	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' WHITE FISSURED TILE

(2) 2' x 4' RANDOM HOLE TILE

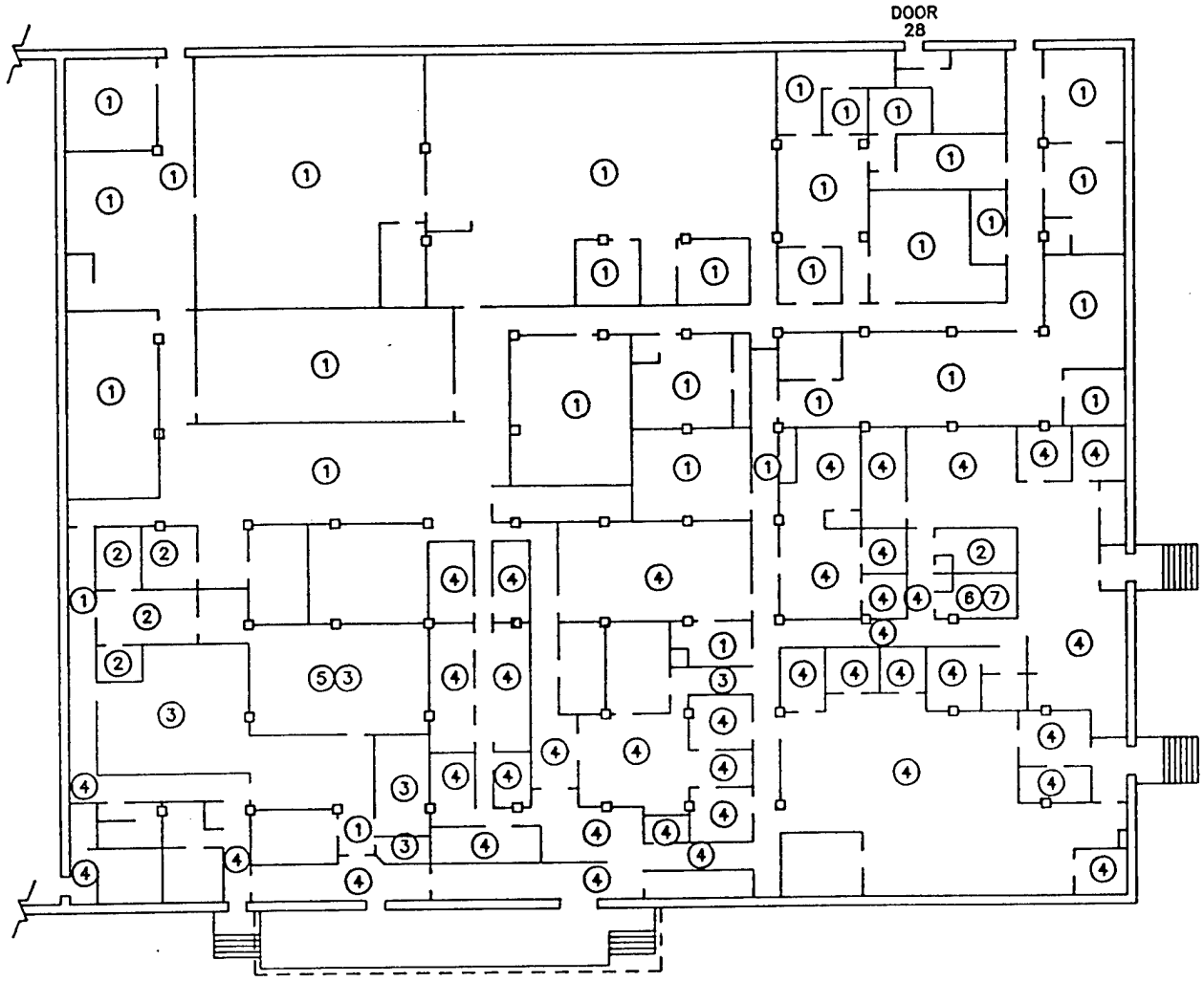
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 6 – BAY 1
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–3–91	6/1–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 9" x 9" WHITE

(2) 9" x 9" GRAY

(3) 9" x 9" GREEN

(4) 12" x 12" WHITE

(5) 2' x 2' WHITE

(6) 12" x 12" GRAY

(7) 12" x 12" MAUVE

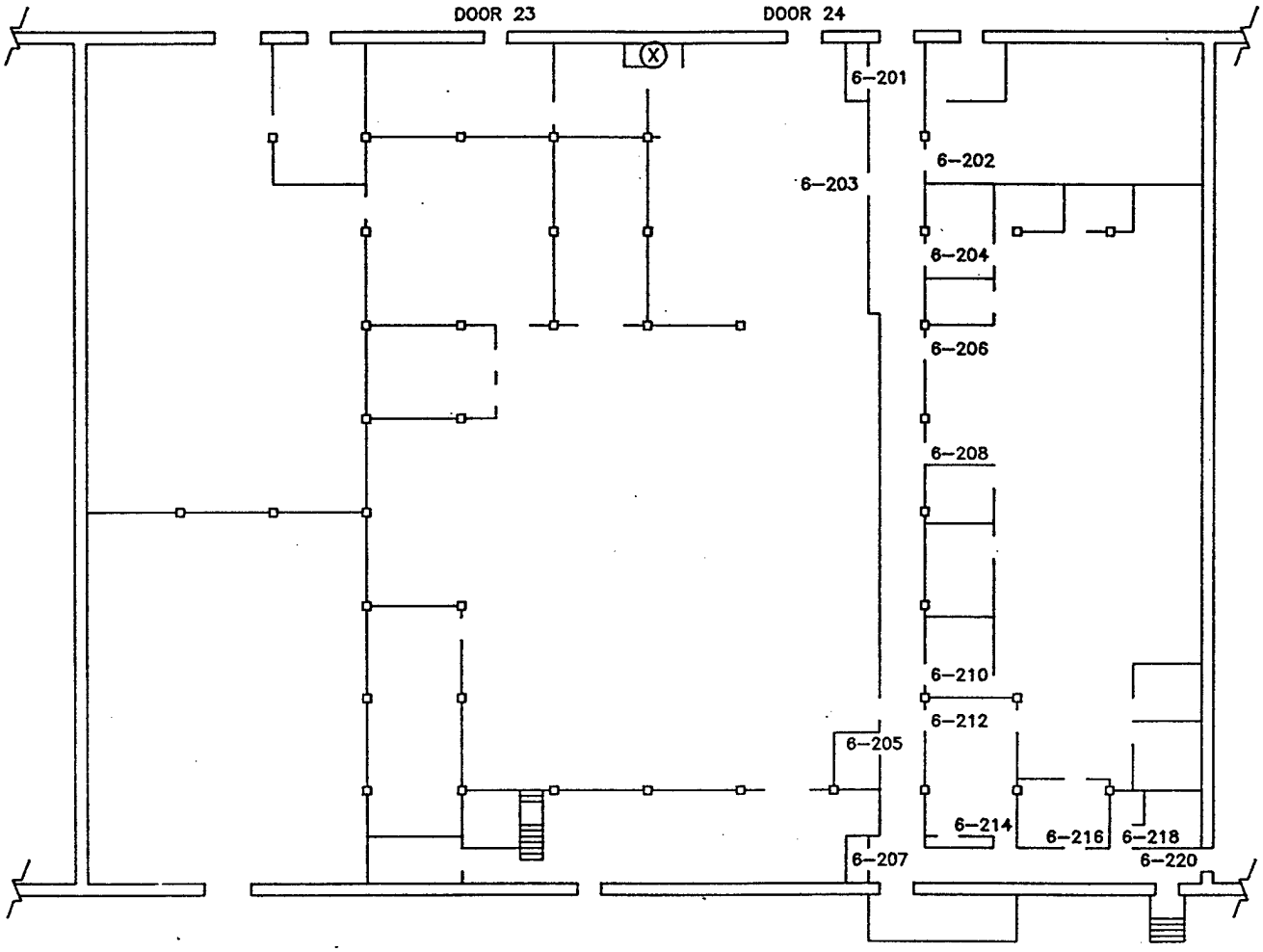
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 6 – BAY 1
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–3–91	6/1–FT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	

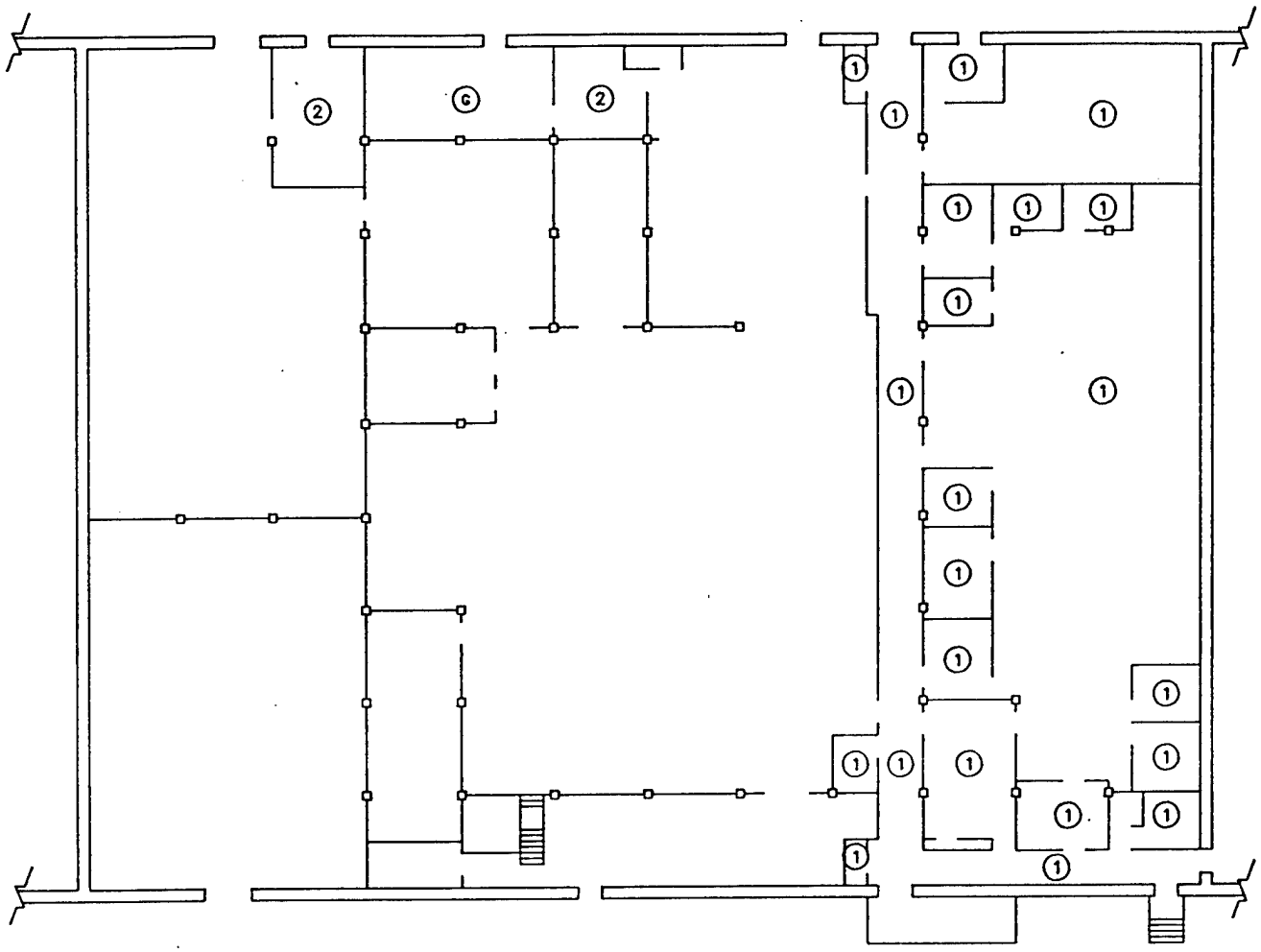


NOTE:
NO SAMPLES COLLECTED IN THIS BAY

LEGEND

(X) AREA NOT ACCESSED

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia		
Woodward-Clyde Federal Services	TITLE BUILDING 6 - BAY 2 SAMPLE LOCATIONS		
PROJECT NO. 3001-210	DRAWN BY: LAL	DATE: 8-3-91	DWG. NO. 6/2-SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' WHITE FISSURED TILE

(2) 2' x 4' RANDOM HOLE TILE

(G) GYPSUM BOARD

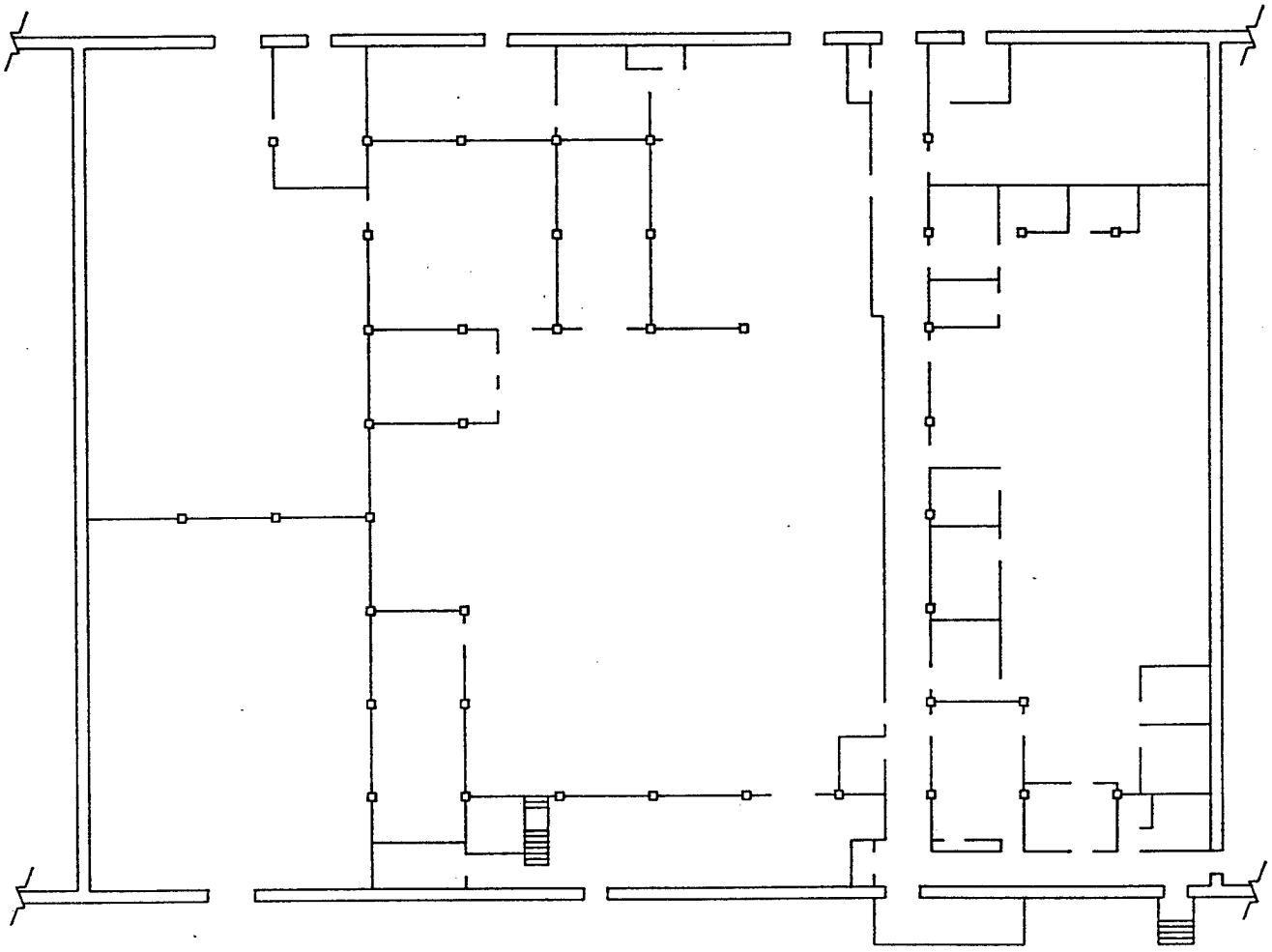
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward-Clyde Federal Services

TITLE BUILDING 6 – BAY 2
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001-210	L.A.L.	6-3-91	6/2-CT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



NOTE:
NO FLOOR TILE IN THIS BAY

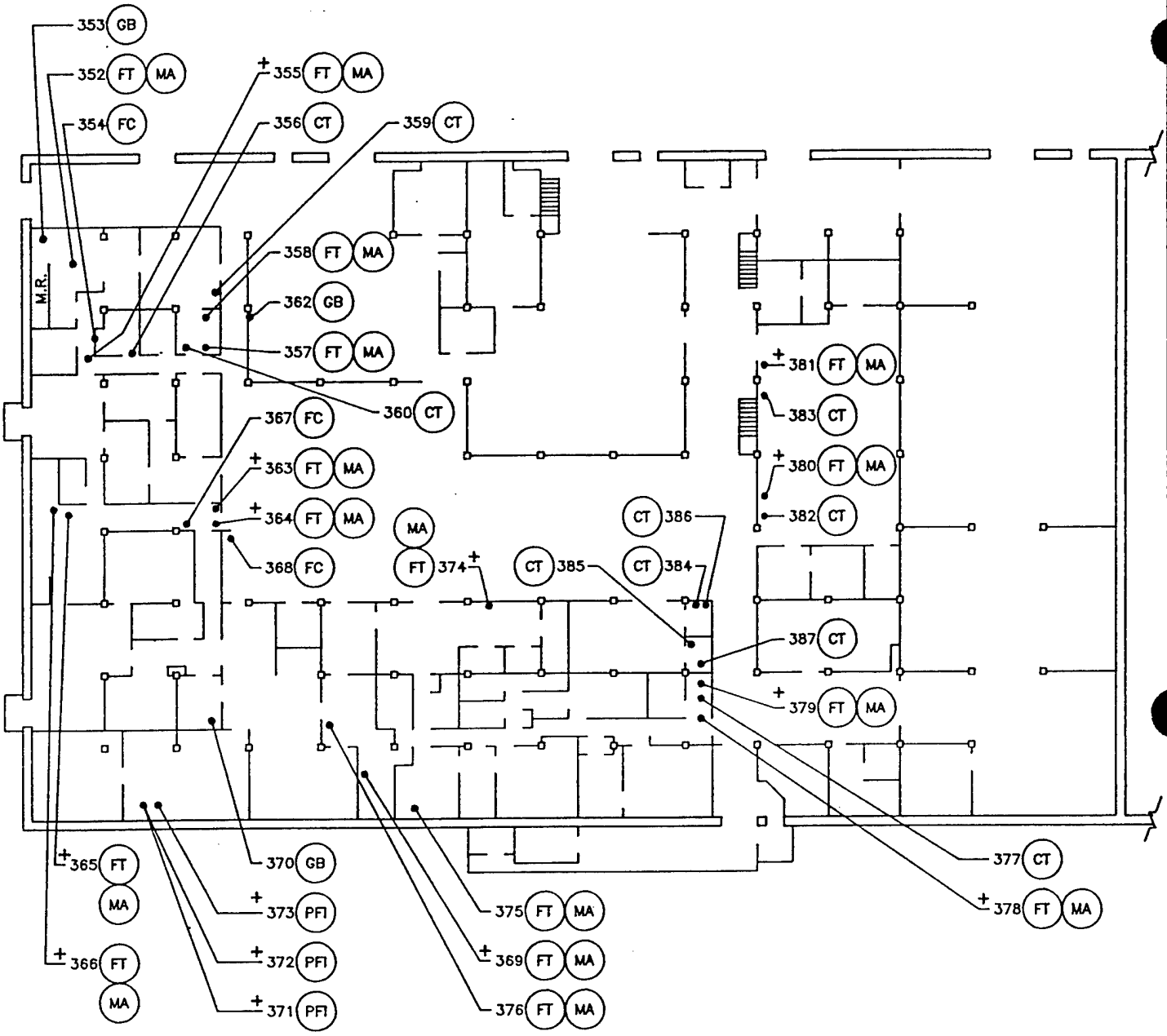
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE
BUILDING 6 – BAY 2
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	LAL	6–3–91	6/2–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

- GB — GYPSUM BOARD
- FT — FLOOR TILE
- MA — MASTIC
- FC — FIRE CODE GYPSUM BOARD
- CT — CEILING TILE
- PFI — PIPE FITTING INSULATION
- \+ — DENOTES POSITIVE RESULTS

CLIENT USATHAMA

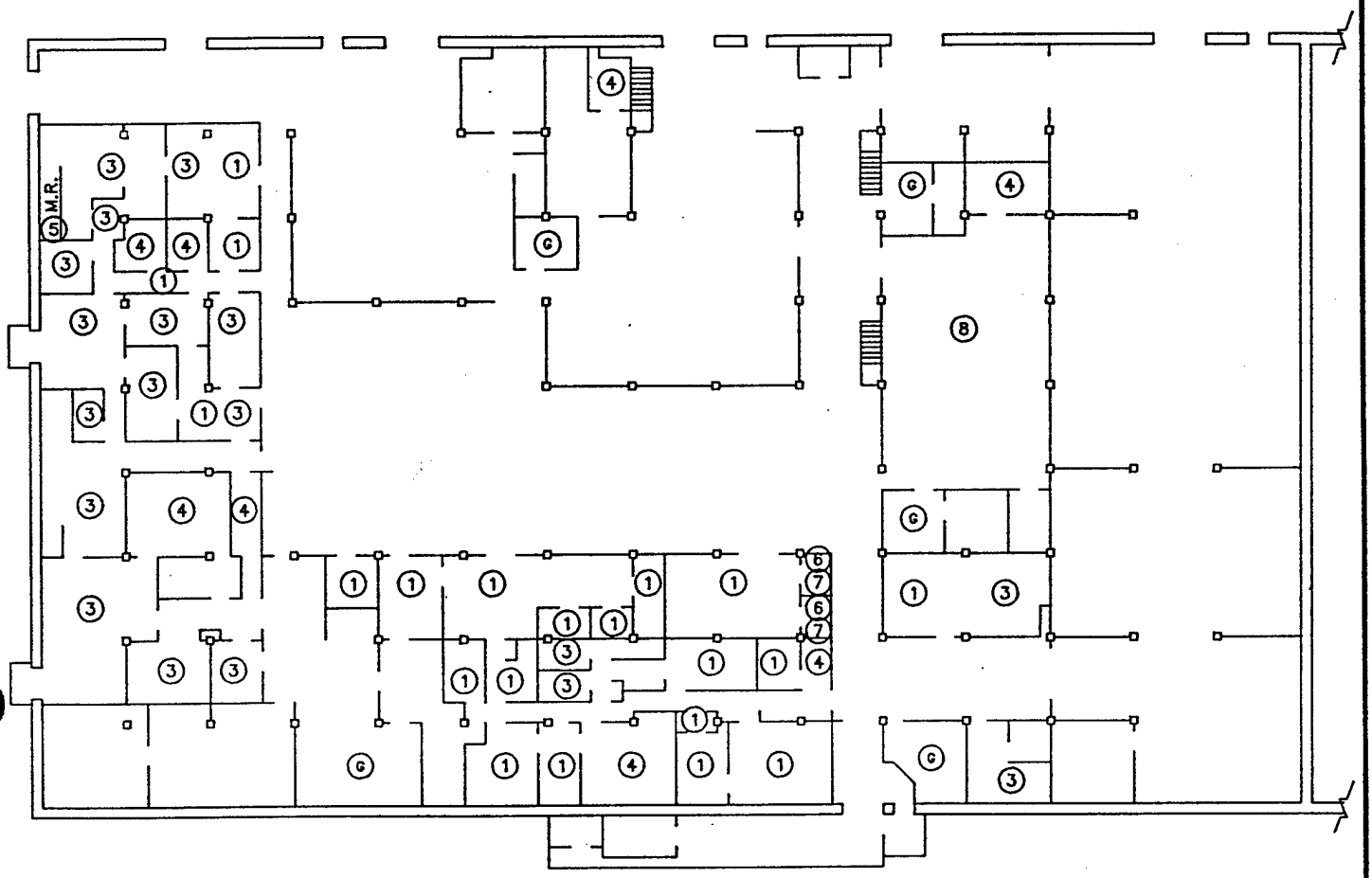
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 6 – BAY 3 SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	LAL	8–3–91	6/3–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' FISSURED TILE

(3) 2' x 4' FIBERGLASS TILE

(4) 2' x 4' SMOOTH TILE

(5) 12" x 12" FIBERGLASS TILE

(6) 12" x 12" RANDOM HOLE TILE

(7) 12" x 12" UNIFORM HOLE TILE

(8) 12" x 12" SMOOTH TILE

(G) GYPSUM BOARD

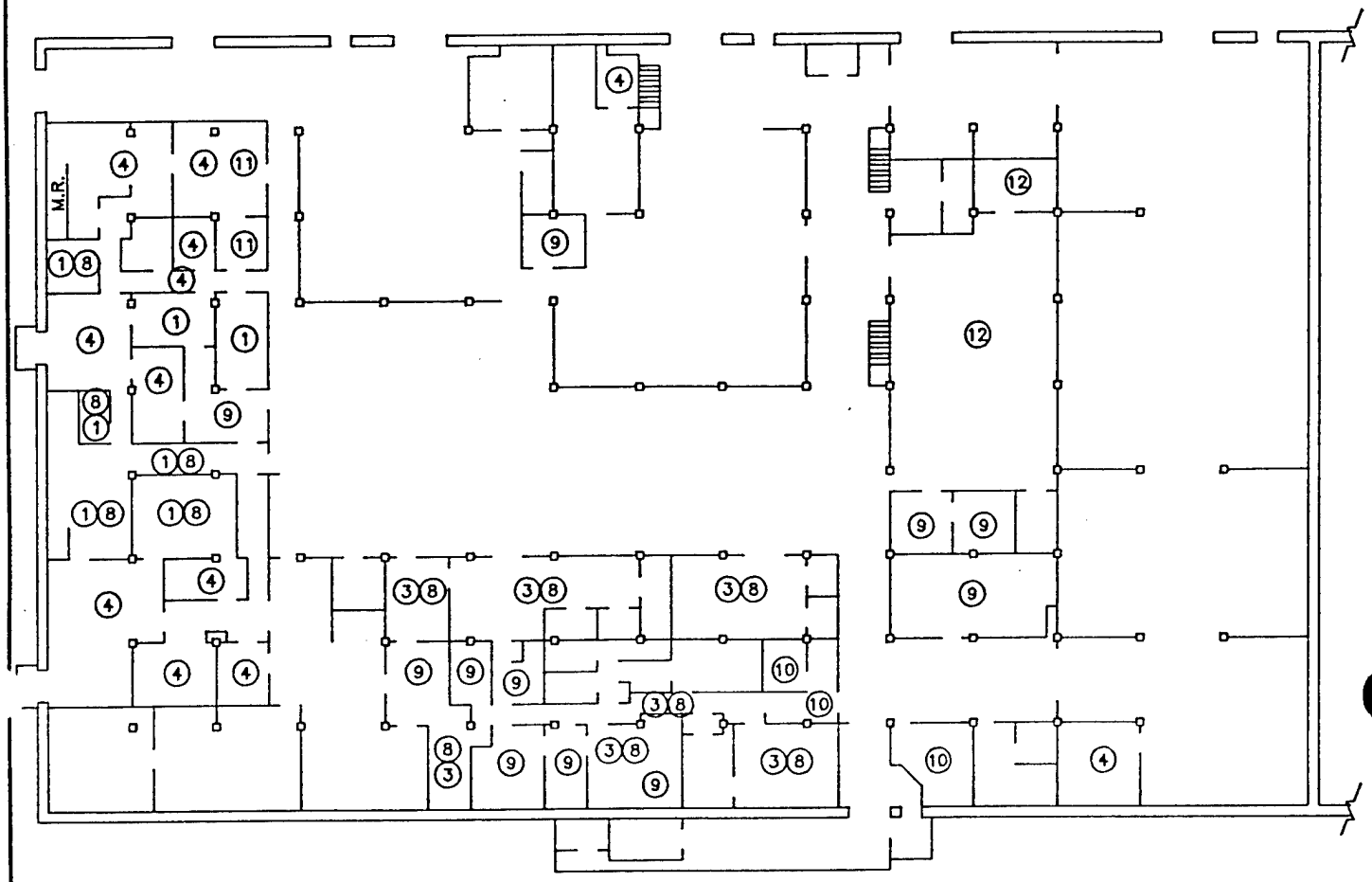
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 6 – BAY 3
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	LAL	6–3–91	6/3–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 9" x 9" WHITE

(3) 9" x 9" GREEN

(4) 12" x 12" WHITE

(8) 9" x 9" BLACK

(9) 12" x 12" BROWN

(10) 12" x 12" BLUE

(11) 12" x 12" GREEN

(12) 9" x 9" RED BRICK PATTERN

CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 6 – BAY 3
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–3–91	6/3-FT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	

APPENDIX 6-D

WALKTHROUGH SURVEY DATA SHEETS

Cameron Station — Walkthrough Survey — Sheet 1 of 4

Building #5 DLA / DOFES / Army Recruit — EXTERIOR — Inspector Date Guardia/Gomez 12/7/91 - 12/13/91

Exterior Siding

Masonry ☒ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☒ Corrugated board over Soffit ☐

Sample (Y) N "loading dock" Condition (G) F P Quantity 8800 SF

Roof

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☒ assume Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y N Condition G F P Quantity 130,000 SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☐	Y N	G F P		
Chimney ☐	Y N	G F P		
Louvers ☐	Y N	G F P		
A/C Units ☒	Y ~~N~~	G F P		
Other ☐	Y N	G F P		

STRUCTURAL

Wood Joists/Beams ☒ Steel Joists/Beams ☒ Wood Columns ☒ Steel Column ☒ Concrete Column ☒

Sample Y ~~N~~ Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☒ Firedoor ☐

Sample Y ~~N~~ Condition G F P Quantity _____ SF

Woodward-Clyde Federal Services

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building #6 NAVFAC/DLA/USARSC N/A Inspector/Date: GUARDIA/FINDLEY 12/12/90

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

HVAC

Building 6

Inspector/Date:

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	AHUs	Y	FG	N				
	Bay 1 Door 2 & AHU 7	Y	Trowelled on	Y	P	1000	SF	
Pipe	AHUs	Y	FG	N				
Fittings	AHUs - 1, 2 & 3	Y	mud	Y	G-P	>100	#	
Other								
	Bays 1 & 3	Y	vibration cloth	Assume		160		

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building #5 [illegible] Quinlan/Brooks 12/12/90

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
floor tile #1 9"x9"	white	See plan	yes	good	~ 12 650 SF
floor tile #2 9"x9"	Grey	See plan	yes	good	~ 1500 SF
floor tile #3 9"x9"	Green	See plan	yes	good	~ 4470 SF
floor tile #4 12"x12"	white	See plan	yes	good	~ 297.30 SF
floor tile #5 2'x2'	white	See plan	yes	good	1000 SF
floor tile #6 12"x12"	Grey	See plan	yes	good	200 SF
floor tile #7 12"x12"	Maroon	See plan	yes	good	100 SF
floor tile #8 9"x9"	Black	See plan	yes	good	1070 SF
floor tile #9 12"x12"	Brown	See plan	yes	good	~330 SF
floor tile #10 12"x12"	Blue	See plan	yes	good	400 SF
floor tile #11 12"x12"	Green	See plan	yes	good	330 SF
floor tile #12 9"x9"	Red Brick	See plan	yes	good	~600 SF
vinyl wall covering	green	Bay 3	No		

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

INTERIOR - CEILINGS/WALLS/FLOORS/MISC. 1/12/90

Building #6 AAFES/DCA/U.S.A.R.S.C. Inspector/Date: GUARDIA/BARNES

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
ceiling tile #1 2'x4'	white/fissured	see plan	yes	good	~47 500 SF
ceiling tile #2 2'x4'	white/random holes	see plan	yes	good	~ 2000 SF
ceiling tile #3 2x4	white/rough texture	see plan	No FG yes	good	~6800 SF C FG
ceiling tile #4 2x4'	white/smooth	see plan	yes	good	~1500 SF
ceiling tile #5 12" x 12"	white/ridged	see plan	No FG yes	fair	~ 310 SF 2 FG
Ceiling tile #6 12x12"	white/random hole	see plan	yes	good	~ 100 SF
ceiling tile #7 12"x12"	white/uniform hole	see plan	yes	good	~ 100 SF
ceiling tile #8 12'x12"	white/smooth	see plan	yes	good	~ 300 SF
Fire code drywall	painted	all hallways & entrys	yes	good	~ 92650 SF 93000 SF
interior drywall	painted	interior walls	yes	good	~ 50,000 SF

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

Woodward-Clyde Federal Services

APPENDIX 6-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

NVLAP (#[illegible]) and EMLAP (#1143) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 6
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/06/91
Date Analyzed : 02/14/91
Person Submitting: D.M. BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
352	P	<1	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AB	
353	N	-----	-----	-----	-----	-----	-----	-----	-----	30-35	-----	65-70	AB	
354	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AB	
355	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
356	N	-----	-----	-----	-----	-----	-----	-----	01-05	65-70	-----	25-35	AB	
357	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AB	
358	P	<1	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AB	
359	N	-----	-----	-----	-----	-----	-----	-----	30-35	35-40	-----	25-35	AB	
360	N	-----	-----	-----	-----	-----	-----	-----	30-35	30-35	-----	30-40	AB	
361	N	-----	-----	-----	-----	-----	-----	-----	<1	30-35	-----	65-70	AB	
362	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AB	
363	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
364	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
365	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

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AMA Analytical Services, Inc.

An AIHA (#244) and NVLAP (#1143) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 6
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/06/91
Date Analyzed : 02/14/91
Person Submitting: D.M. BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
366	P	01-05	-----	-----	-----	-----	-----	-----	<1	01-05	-----	90-98	AB	
367	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AB	
368	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AB	
369	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
370	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AB	
371	P	-----	01-05	-----	-----	-----	-----	35-40	-----	01-05	-----	55-59	AB	
372	P	-----	01-05	-----	-----	-----	-----	40-45	-----	01-05	-----	50-54	AB	
373	P	-----	01-05	-----	-----	-----	-----	40-45	-----	01-05	-----	50-54	AB	
374	P	01-05	-----	-----	-----	-----	-----	-----	-----	05-10	-----	85-95	AB	
375	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AB	
376	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AB	
377	N	-----	-----	-----	-----	-----	-----	-----	<1	80-85	-----	15-20	AB	
378	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
379	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

An AIHA (#244) and NVLAP (#1143) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 6
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/06/91
Date Analyzed : 02/14/91
Person Submitting: D.M. BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	ASBESTOS % CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	OTHER FIBROUS MATERIAL % MINERAL WOOL	GLASS	FIBROUS ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
380	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
381	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
382	N	-----	-----	-----	-----	-----	-----	-----	-----	80-85	-----	15-20	AB	
383	N	-----	-----	-----	-----	-----	-----	-----	<1	80-85	-----	15-20	AB	
384	N	-----	-----	-----	-----	-----	-----	-----	25-30	05-10	-----	60-70	AB	
385	N	-----	-----	-----	-----	-----	-----	-----	25-30	15-20	-----	50-60	AB	
386	N	-----	-----	-----	-----	-----	-----	-----	40-45	20-25	-----	30-40	AB	
387	N	-----	-----	-----	-----	-----	-----	-----	40-45	20-25	-----	30-40	AB	
388	P	-----	01-05	-----	-----	-----	-----	40-45	-----	-----	-----	50-60	AB	
389	P	-----	01-05	-----	-----	-----	-----	45-50	-----	<1	-----	45-55	AB	
390	N	-----	-----	-----	-----	-----	-----	45-50	-----	<1	-----	50-55	AB	
391	N	-----	-----	-----	-----	-----	-----	-----	50-55	-----	-----	45-50	AB	
392	N	-----	-----	-----	-----	-----	-----	-----	45-50	<1	-----	50-55	AB	
393	N	-----	-----	-----	-----	-----	-----	-----	50-55	-----	-----	45-50	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

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AMA Analytical Services, Inc.

An AIHA (#244) and NVLAP (#1143) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 6
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/06/91
Date Analyzed : 02/14/91
Person Submitting: D.M. BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
394	N	-----	-----	-----	-----	-----	-----	-----	40-45	20-25	-----	30-40	AB	
395	N	-----	-----	-----	-----	-----	-----	-----	35-40	25-30	-----	30-40	AB	
396	N	-----	-----	-----	-----	-----	-----	-----	01-05	30-35	-----	60-70	AB	
397	N	-----	-----	-----	-----	-----	-----	-----	<1	20-25	-----	75-80	AB	
398	N	-----	-----	-----	-----	-----	-----	-----	-----	25-30	-----	70-75	AB	
399	N	-----	-----	-----	-----	-----	-----	-----	-----	30-35	-----	65-70	AB	
400	N	-----	-----	-----	-----	-----	-----	-----	<1	20-25	-----	75-80	AB	
401	N	-----	-----	-----	-----	-----	-----	-----	05-10	25-30	-----	60-70	AB	
402	N	-----	-----	-----	-----	-----	-----	-----	-----	30-35	<1	65-70	AB	
403	N	-----	-----	-----	-----	-----	-----	-----	-----	25-30	-----	70-75	AB	
404	N	-----	-----	-----	-----	-----	-----	-----	-----	25-30	-----	70-75	AB	
405	P	05-10	-----	-----	-----	-----	-----	-----	-----	01-05	-----	85-95	AB	
406	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
407	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

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AMA Analytical Services, Inc.

An AIHA (#244) and NVLAP (#1143) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 6
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/06/91
Date Analyzed : 02/14/91
Person Submitting: D.M. BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	ASBESTOS % CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	OTHER FIBROUS MATERIAL % MINERAL WOOL	GLASS	FIBROUS ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
408	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AB	
409	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AB	
410	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AB	
411	N	-----	-----	-----	-----	-----	-----	-----	-----	25-30	-----	70-75	AB	
412	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AB	
413	P	30-35	-----	-----	-----	-----	-----	-----	-----	-----	-----	65-70	AB	
414	P	30-35	-----	-----	-----	-----	-----	-----	-----	-----	-----	65-70	AB	
832	P	01-05	-----	-----	-----	-----	-----	-----	<1	<1	-----	95-99	AB	
833	P	<1	-----	-----	-----	-----	-----	-----	<1	<1	-----	100	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

Lisa A. Boykin Mancci
Lisa Boykin (AB)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

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4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • TOLL FREE (800) 346-0961 • FAX (301) 459-2643

DYNAMAC CORPORATION LABORATORY TEST REPORT

DATE: 12/18/90

DYNAMAC LAB NUMBER 12-90-685

REPORT SUBMITTED TO:

WOODWARD CLYDE FEDERAL SERVICE
ONE CHURCH ST. SUITE 404
ROCKVILLE MD 20850

ATTENTION: SALLY GUARDIA

REPORT PREPARED BY:

DYNAMAC CORPORATION
11140 ROCKVILLE PIKE
ROCKVILLE, MD 20852

CONTACT: RICK SANDER

WORK ORDER NUMBER: 3001-210

PROJECT NAME: CAMSTA

Bldg 6 Air #7 Door 28

PROJECT CODE:

NUMBER OF SAMPLES RECEIVED:1

DATE RECEIVED: 12/17/90

TYPE OF ANALYSIS: PLM

1.) BULK ASBESTOS ANALYSIS IS PERFORMED USING POLARIZED LIGHT MICROSCOPY (PLM) IN CONJUNCTION WITH DISPERSION STAINING, ACCORDING TO THE US EPA "INTERIM METHOD FOR THE DETERMINATION OF ASBESTOS IN BULK INSULATION SAMPLES".

2.) THE ANALYTICAL RESULTS CONTAINED IN THIS REPORT RELATE ONLY TO THE SPECIFIC SAMPLES AS RECEIVED FROM THE CLIENT, AND ANY EXTRAPOLATION FROM THESE RESULTS IS SOLELY THE RESPONSIBILITY OF THE CLIENT.

3.) THE PERCENTAGES REPORTED ARE AREA ESTIMATES ONLY AND ARE EXPRESSED AS PROBABLE RANGES.

4.) THIS TEST REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL AND WITH APPROVAL FROM THIS LABORATORY.

COMMENTS:

CERTIFIED BY: Gregory B. Fick

LABORATORY MANAGER

DYNAMAC CORPORATION LABORATORY RESULTS
SUMMARY OF RESULTS
DYNAMAC LAB NUMBER:12-90-685

CLIENT SAMPLE NUMBER.	TYPE OF ASBESTOS..... DETECTED	PERCENT ASBESTOS
)12	NO ASBESTOS DETECTED	

DYNAMAC CORPORATION TEST REPORT
COMPLETE RESULTS BY SAMPLE
DYNAMAC LAB NUMBER:12-90-685

SAMPLE DATA	BULK ASBESTOS RESULTS	
SAMPLE NUMBER:012	ASBESTOS	PERCENT
FRACTION #: 01B	NO ASBESTOS DETECTED	
DATE ANALYZED:12/17/90		
ANALYST: GREG FICK		
VERIFIED: GREG FICK		
SAMPLE DESCRIPTION:		
BEIGE FINE-GRAINED MATERIAL WITH FIBERS	NONASBESTOS	PERCENT
	CELLULOSE	2-5
	FIBROUS GLASS	10-15
	NONASBESTOS, FIBEROUS	1-2
	NONASBESTOS, NONFIBROUS	75-80

COMMENTS:

APPENDIX 6-F

SAMPLE CHAIN-OF-CUSTODY FORMS

WCFS Project N ,001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde F eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: D M B

Field Office: Woodward–C ederal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM05	UM06	UM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		ASB006	352																						/					
FBG		ASB006	353																						/					
FBG		ASB006	354																						/					
FBG		ASB006	355																						/					
FBG		ASB006	356																						/					
FBG		ASB006	357																						/					
FBG		ASB006	358																						/					

Relinquished by: Woodward–Clyde Federal Services
Date: 3/6/91 Time: 1310 Signature: D M Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 26-91 Time: 13:15 Signature: L Maurice

Total No. of Containers: 7

Comments:
3/28/91 1000 L Maurice – Hold requested Jerad

White & Yellow: AMA Analytical Services, Inc. Pink: WC roject File Gold S Project Scientist

WCFS Project [redacted]001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY REC[redacted] – USATHAMA SAMPLES

COC By: D M B

Building 17
Door 2
Cameron [redacted] 304
Alexandria,
703 617-73[redacted]

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM06	UM06	UM06	UH21	LH19	HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19		
FB6		ASB006	359																						✓					
FB6		ASB006	360																						✓					
FB6		ASB006	361																						✓					
FB6		ASB006	362																						✓					
FB6		ASB006	363																						✓					
FB6		ASB006	364																						✓					
FB6		ASB006	365																											

Relinquished by: Woodward–Clyde Federal Services

Date: 2/6/91 Time: 1310 Signature: D. Burns

Accepted by: AMA Analytical Services, Inc.

Date: 2-6-91 Time: 13:15 Signature: L. Maureen

Total No. of Containers: (7)

Comments:

2/6/91 1000 L. Mau — fed. exp. email

White & Yellow: AMA Analytical Services, Inc. Pink: Project File Gold: WCFS Project Scient

WCFS Project: 3001

Installation (2): UM
Sample Program (3): BE
Laboratory (2):

Woodward-Clyde Federal Services
CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Door 2
Cameron
Alexandria 22304
703 617-

Admin. Office: Woodward-Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe										Number of Containers
										CODE	UM05	UM05	UM06	LM06	UM06	LM06	UH21	LH19			HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19						
FBG		ASB006	366																						✓												
FBG		ASB006	367																						✓												
FBG		ASB006	368																						✓												
FBG		ASB006	369																						✓												
FBG		ASB006	370																						✓												
FBG		ASB006	371																						✓												
FBG		ASB006	372																																		

Relinquished by: Woodward-Clyde Federal Services

Date: 2/6/91 Time: 1510 Signature: D.M. Bauer

Accepted by: AMA Analytical Services, Inc.

Date: 2-6-91 Time: 13:15 Signature: L. Mannucci

Total No. Containe: 7

Comments:

3/[illegible]/91 1000 L. Mannucci Fed. Exp. Airbill

White & Ye AMA Analytical Services, Inc. CFS Project File Gold: WCFS Project Sc

WCFS Project [redacted] 001

Installation (2): CM
Sample Program (3): BE
Laboratory (2):

Woodward-Clyde Federal Services

CHAIN OF CUSTODY REC[redacted] - USATHAMA SAMPLES

COC By: D M B

Door 2
Cameron
Alexandria[redacted] 304
703 617-7[redacted]

Admin. Office: Woodward-Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
									CODE		UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19			HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB006	373																						✓						
FBG		ASB006	374																						✓						
FBG		ASB006	375																						✓						
FBG		ASB006	376																						✓						
FBG		ASB006	377																						✓						
FBG		ASB006	378																							✓					
FBG		ASB006	379																												

Relinquished by: Woodward-Clyde Federal Services

Date: 2/6/91 Time: 1310 Signature: [signature]

Accepted by: AMA Analytical Services, Inc.

Date: 2-6-91 Time: 13:15 Signature: [signature]

Total No. of Containers: 7

Comments:

3/18/91 1000 [signature] fedexp. from b

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scien

WCFS Project ( )001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde F eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward–C ederal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD. 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe				Number of Containers
									CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB006	380																						✓							
FBG		ASB006	381																						✓							
FBG		ASB006	382																						✓							
FBG		ASB006	383																						✓							
FBG		ASB006	384																						✓							
FBG		ASB006	385																						✓							
FBG		ASB006	386																						✓							

Relinquished by: Woodward–Clyde Federal Services
Date: 2/6/91 Time: 1510 Signature: [signature]

Accepted by: AMA Analytical Services, Inc.
Date: 2-6-91 Time: 13:15 Signature: [signature]

Total No. of Containers: 7

Comments:
3/4 d 1000 L. Mar fed. exp. ferial

White & Yellow: AM. Analytical Services, Inc. Pink: WCF roject File Gold: S Project Scientist

WCFS Project [redacted] 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron [redacted]
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe				Number of Containers
										CODE	UM05	UM05	UM06	UM06	UM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19				
FBG		ASB006	387																						/						1
FBG		ASB006	388																						/						1
FBG		ASB006	389																						/						1
FBG		ASB006	390																						/						1
FBG		ASB006	391																						/						1
FBG		ASB006	392																						/						1
FBG		ASB006	393																						/						1

Relinquished by: Woodward–Clyde Federal Services
Date: 2/6/91 Time: 1510 Signature: D. Burn

Accepted by: AMA Analytical Services, Inc.
Date: 2-6-91 Time: 13:15 Signature: L. Mancuso

Total No. of Containers: 7

Comments:
3/28/91 1000 L. Mancuso Add exp. fund

White & Yellow: AMA Analytical Services, Inc. Pink: Project File G WCFS Project Scienti

WCFS Project [ ].001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde F[ ]eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: D M B

Field Office: Woodward–Cl[ ]deral Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (ge/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM05	UM06	UM06	UM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB006	394																						✓					
FBG		ASB006	395																						✓					
FBG		ASB006	396																						✓					
FBG		ASB006	397																						✓					
FBG		ASB006	398																						✓					
FBG		ASB006	399																						✓					
FBG		ASB006	400																						✓					

Relinquished by: Woodward–Clyde Federal Services
Date: 2/6/91 Time: 1510 Signature: D Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 2-6-91 Time: 13:15 Signature: L Mauricio

Total No. of Containers: 7

Comments:
3/20 by 1000 L Mauricio Fed Exp. Inv#

White & Yellow: A[ ] Analytical Services, Inc. Pink: WC[ ]roject File Gol[ ] S Project Scientist

WCFS Project [redacted] 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted] eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: D. Mills

Field Office: Woodward [redacted] Federal Services
Building 1[redacted]
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe				Number of Containers
									CODE		UM05	UM06	UM06	LM06	UH21		HPLC	SS15	TY03	E418.1			SW1311		SW8290	SW8290	LH19				
FBG		ASB006	401								LM05	LM06	UM06	LM06	LH19			JS14	KY04	E418.1											
FBG		ASB006	402																						✓						
FBG		ASB006	403																						✓						
FBG		ASB006	404																						✓						
FBG		ASB006	405																						✓						
FBG		ASB006	406																						✓						
FBG		ASB006	407																						✓						

Relinquished by: Woodward–Clyde Federal Services

Date: 2/6/91 Time: 1510 Signature: W. Barnes

Accepted by: AMA Analytical Services, Inc.

Date: 2-6-91 Time: 13:15 Signature: L. Maurice

Total No. of Containers: 7

Comments:

2/26/91 1000 L. Maurice fedexp fixed

White & Yellow: AMA analytical Services, Inc. Pink: WCFS Project File

WCFS Project ( )001

Installation (2): CM
Sample Program (3): BE
Laboratory (2):

Woodward–Clyde F eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: D M B

Field Office: Woodward–Cl ederal Services
Building 17
Door 2
Cameron Sta...
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(002/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
									CODE		UM05	UM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB006	408																												
FBG		ASB006	409																												
FBG		ASB006	410																												
FBG		ASB006	411																												
FBG		ASB006	412																												
FBG		ASB006	413																												
FBG		ASB006	414																												

Relinquished by: Woodward–Clyde Federal Services
Date: 2/6/91 Time: 1310 Signature: D. Bauer

Accepted by: AMA Analytical Services, Inc.
Date: 2-6-91 Time: 1375 Signature: L. Mann

Total No. of Containers: 7

Comments:
3/28 1000 L. Mann Fed Exp final

White & Yellow: ... Analytical Services, Inc. Pink: W... Project File Go... FS Project Scientist

WCFS Project N[redacted] 01

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde F[redacted]al Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: F B G

Field Office: Woodward–C[redacted] ...ral Services
Building 17[redacted]
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	LM05	UM06	LM06	UH21	LH19	HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19		
FBG		ASB006	832																						1						
FBG		ASB006	833																						1						

Relinquished by: Woodward–Clyde Federal Services
Date: 5/13/91 Time: 1045 Signature: D.M. Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 5-13-91 Time: 1050 Signature: Lisa Maurice

Total No. of Containers

Comments: Please analyze only paint layer

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS ...ject File Gold: ... Project Scientist

DYNACHEM CORPORATION

OPTICAL MICROSCOPY LAB

P. ___ of ___

CHAIN OF CUSTODY/SAMPLE SUBMITTAL

Reports to:
Company: Woodward Clyde Federal Services
Address: One Church St Suite 404
Rockville MD 20850
Attention: Sally Guardia
Phone: (301) 309-0800
Invoice to: same as above

Date Submitted: 12/17 Time: _____ am/pm

Relinquished by	S Guardia	Date/Time		Condition
Received by	R Bowley	Date/Time	12/17/90	Condition
Relinquished by		Date/Time		Condition
Received by		Date/Time		Condition
Relinquished by		Date/Time		Condition
Received by		Date/Time		Condition

Project Name: CAMSTP
Date(s) of Sampling: _____
Requested Date for Reports: Verbal _____

Charge No. 3001-210
Collected by: _____
Written _____

Total No. of Samples: 1
Analysis Type Requested: PLM
Comments: _____

Sample ID	Description/Location	Cassette Time On	Cassette Time Off	Cassette Flow Rate	Cassette Volume	Special Instructions
012	Bld 6, inside Door 28					

6/8

BUILDING 7

7.1 DESCRIPTION

Building 7 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet with a flat roof consisting of tar, felt and gravel. It is divided into three bays by masonry firewalls. Originally constructed as a warehouse, parts of Bay 1 have been converted for occupancy by the Officers' Club, the NCO Club and a conditioning area. The mechanical room in the northeast corner of the bay contains a boiler, which supplies hot water to the kitchen areas. The rest of the building remains open warehouse space with several small finished office areas and restrooms. The Defense Supply Services occupies Bays 2 and 3. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

7.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 7-A through 7-F. A summary of this data is presented below.

7.2.1 Suspect Friable ACM

Seven homogeneous areas of suspect friable ACM were identified and 25 bulk samples, including 3 QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following four materials:

- Pipe fitting insulation, attic, Bay 1
- Trowelled-on boiler insulation, mechanical room, Bay 1
- Pipe fitting insulation, mechanical room, Bay 1
- Pipe fitting insulation, restrooms, Bay 3

These friable materials were found in three functional spaces and were assessed as follows:

- Pipe fitting insulation, attic, Bay 1. Assessment of this material indicates a damage factor of 14 and an exposure factor of 23. According to the GAHA Index, this material ranks as Priority B.

- Boiler and pipe fitting insulation, mechanical room, Bay 1. Assessment of these materials indicates a damage factor of 12 and an exposure factor of 25. According to the GAHA Assessment Index, these materials rank as Priority B.

- Pipe fitting insulation, restrooms, Bay 3. Assessment of this material indicates a damage factor of 23 and an exposure factor of 19. According to the GAHA Assessment Index, this material ranks as Priority A.

7.2.2 Suspect Nonfriable ACM

Seventeen homogeneous areas of suspect nonfriable ACM were identified and forty-four bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following six materials:

- Cement board
- FT 1 9" x 9" green floor tile and mastic
- FT 2 9" x 9" brown floor tile and mastic
- FT 3 12" x 12" brown floor tile and mastic
- FT 5 9" x 9" dark brown floor tile and mastic
- FT 8 12" x 12" white floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

7.2.3 Material Assumed To Contain Asbestos

Two homogeneous areas, the tar and felt roofing material and the vibration cloth are assumed to be ACM. No assessment of these nonfriable material was performed. However, as ACM they should be included in an O&M Program.

7.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

7.4 AREAS NOT ACCESSED

All areas of Building 7 were accessed.

7.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
7	40 LF PI 12 MF	> 115 MF 260 SF TSI	

TSI = THERMAL SYSTEM INSULATION
PI = PIPE INSULATION
MF = MUDDED FITTINGS
* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

7.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 7-A ACM Survey Results

Appendix 7-B Assessments/Recommendations for Friable ACM

Appendix 7-C Building Drawings

Appendix 7-D Walkthrough Survey Data Sheets

Appendix 7-E Laboratory Certificate of Analysis

Appendix 7-F Sample Chain-of-Custody Forms

APPENDIX 7-A

ACM SURVEY RESULTS

ACM Survey Results for Building 7

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	130000	SF	Assume ACM	Assume ACM	
2	Misc.	Vibration cloth	Bay 1, on AHUs, in attic areas	Non	Good	90	SF	Assume ACM	Assume ACM	
3	TSI	Pipe fitting insulation	Bay 1, North end of attic	High	Poor	>100	# of fittings	479 480 481 482 489	15-20% chrysotile 15-20% chrysotile 20-25% chrysotile 15-20% chrysotile 60-65% chrysotile	Sample 481 is a QC for sample 480.
4	TSI	Trowelled-on boiler insulation	Rear of Conditioning Room	Low	Good	90	SF	474 475 476	None detected None detected None detected	
5	TSI	Trowelled-on boiler insulation	Bay 1, Boiler, Mechanical Room, Door 3	Low	Good	260	SF	524 525 526 527	1-5% chrysotile 1-5% chrysotile 20-25% chrysotile 20-25% chrysotile	Sample 525 is a QC sample for sample 524.

ACM Survey Results for Building 7 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
6	TSI	Trowelled-on breech insulation	Bay 1, Breech, Mechanical Room, Door 3	Low	Good	20	SF	532 533 534	None detected None detected None detected	
7	TSI	Pipe fitting insulation	Bay 1, Mechanical Room, Door 3, Pipes from/to Boiler	High	Poor	15	# of fittings	528 529 530 531	20-25% chrysotile 15-20% chrysotile 5-10% chrysotile 5-10% chrysotile	Sample 531 is a QC for sample 530.
8	TSI	Corrugated paper pipe insulation	Bay 3, DHW, Restrooms	High	Poor	40	LF	505 506 507	None detected None detected None detected	On domestic hot water line.
9	TSI	Pipe fitting insulation	Bay 3, DHW, Restrooms	High	Poor	12	# of fittings	508 509 510	55-60% chrysotile 55-60% chrysotile 55-60% chrysotile	
10	Misc.	Cement board	Overhang, loading deck	Non	Fair	12800	SF	502 523	55-60% chrysotile 45-50% chrysotile	
11	Misc.	Ceiling tile	See Drawing 7/1-CT	Non	Good	8700	SF	466 467	None detected None detected	CT 1 2' x 4' white, rectangular pattern w/small holes
12	Misc.	Ceiling tile	See Drawing 7/1-CT	Non	Good	3200	SF	498 499	None detected None detected	CT 2 12" x 12" white w/fissures
13	Misc.	Ceiling tile	See Drawing 7/1-CT	Non	Good	750	SF	477 478	None detected None detected	CT 3 2' x 2' white w/fissures

ACM Survey Results for Building 7 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod, or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
14	Misc.	Ceiling tile	See Drawing 7/1-CT	Non	Good	400	SF	470 471	None detected None detected	CT 4 2' x 4' white w/fissures
15	Misc.	Ceiling tile	See Drawing 7/2-CT	Non	Good	1040	SF	519 520	None detected None detected	CT 5 12" x 12" white w/uniform holes
16	Misc.	Ceiling tile	See Drawing 7/2-CT	Non	Good	1100	SF	516 517 518	None detected None detected None detected	CT 6 2' x 4' white smooth Sample 517 is a QC for sample 516.
17	Misc.	Floor tile & mastic	See Drawings 7/1-FT 7/3-FT	Non	Good	500	SF	491 494	5-10% chrysotile 10-15% chrysotile	FT 1 9" x 9" green floor tile
18	Misc.	Floor tile & mastic	See Drawing 7/1-FT	Non	Good	680	SF	496 497	1-5% chrysotile 1-5% chrysotile	FT 2 9" x 9" brown floor tile
19	Misc.	Floor tile & mastic	See Drawing 7/1-FT	Non	Good	400	SF	492 495	1-5% chrysotile 1-5% chrysotile	FT 3 12" x 12" brown floor tile
20	Misc.	Floor tile & mastic	See Drawing 7/1-FT	Non	Good	1175	SF	472 473	None detected None detected	FT 4 4' x 4' burgundy floor tile

ACM Survey Results for Building 7 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
21	Misc.	Floor tile & mastic	See Drawing 7/2-FT	Non	Good	400	SF	521 522	5-10% chrysotile 5-10% chrysotile	FT 5 9" x 9" dark brown floor tile
22	Misc.	Floor tile & mastic	See Drawing 7/2-FT	Non	Good	400	SF	514 515	None detected None detected[1] <1% chrysotile[2]	FT 6 12" x 12" medium brown floor tile
23	Misc.	Floor tile & mastic	Bay 2, Lounge, See Drawing 7/2-FT	Non	Good	700	SF	511 512	None detected None detected	FT 7 .12" x 12" blue floor tile
24	Misc.	Floor tile & mastic	Bay 3, Restroom, See Drawing 7/3-FT	Non	Good	200	SF	503 504	1-5% chrysotile 1-5% chrysotile	FT 8 12" x 12" white floor tile
25	Surfacing	Regular gypsum board	Walls: Throughout building Ceilings: See Drawings 7/1-CT 7/2-CT 7/3-CT	Non	Good	58000	SF	468 469 490 493 500 501 513	None detected None detected None detected None detected None detected None detected None detected	
26	Surfacing	Plaster	Ceiling in kitchen	Non	Good	9000	SF	483 484 485 486 487 488	None detected None detected None detected None detected None detected None detected	

[1]using PLM
[2]using TEM

APPENDIX 7-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 7

Functional Space	Homogeneous Sample Area #	Material Description: Category (surfacing TSI or misc.)	Material Description: Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
7-1 Bay 1, attic	3	TSI	Pipe fitting insulation	14	23	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
7-2 Bay 1, mechanical room	5, 7	TSI	Boiler insulation, pipe fitting insulation	12	25	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
7-3 Bay 3, restroom, domestic hot water line	9	TSI	Pipe fitting insulation	23	19	A	Immediate Action - Isolate area and restrict access to qualified personnel. Schedule an immediate corrective action (often removal) to reduce the risk of exposure to asbestos fibers.

(B)

Friable Asbestos Assessment Checklist

Cameron Station Building 7 Inspector/Date Barnes / Guardino 2/20/91

Homogeneous Sample Area #(s) 3 Material Type(s) Pipe fitting insulation

Functional Space T-1 Bay 1, attic, north end

Part 1: Damage/Risk

- Visible evidence of physical damage: (5) High; 4 Moderate; 2 Low; 1 Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: 8 High; 5 Medium; (2) Low
  - B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  1 1< % ≤ 30; 3 30 < % ≤ 50; (5) > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 479, 480, 481, 482, 483

Damage/Risk Total 14

(B) Friable Asbestos Assessment Checklist

Cameron Station Building 7

Inspector/Date Brooks/Guardian 2/20/91

Homogeneous Sample Area #(s) 5, 7

Material Type(s) pipe insulation, appurtenant materials

Functional Space 7-2 Bay 1, mechanical room, floor 3

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; (4) Moderate; 2 Low; 1 Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

  A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance

  B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:

  A. < 10 ft: 8 High; (5) Medium; 2 Low

  B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; (5) > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 524, 525, 526, 527, 528, 529, 530, 531

Damage/Risk Total 12

Friable Asbestos Assessment Checklist

ameron Station Building 7 Inspector/Date Barnes/Guardia 2/20/91

omogeneous Sample Area #(s) 3 Material Type(s) Pipe fitting insulation

unctional Space 7-1 Bay 1 attic north end

Part 2: Exposure

Friability: (6) High; 3 Moderate; 1 Low

Amount of Visible Friable Material: 0 < 10 ft²; 1 10≤ ft² < 100; (2) 100 ≤ ft ² < 1000; 3 ≥ 1000 ft_2

Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

(4) Rough; 3 Pitted; 2 Moderate; 1 Smooth

Ventilation: (Mark all categories that apply; maximum of 7 points.)

5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above

Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area

Activity (Refers to forces such as vibration, water or steam acting on material.)

5 High (constant vibration); (2) Medium (occasional vibration); 0 Low

Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)

Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

A. Sprayed- or trowelled-on ceiling or walls

1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100

Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 23

Friable Asbestos Assessment Checklist

Cameron Station Building 7 Inspector/Date Barnes, Guarino 2/20/91

Homogeneous Sample Area #(s) 5, 7 Material Type(s) boiler insulation, pipe fitting insulation

Functional Space 7-2 Bay 1 mechanical room door 3

Part 2: Exposure

- Friability: (6) High; 3 Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft^2; 1 10≤ ft^2 < 100; (2) 100 ≤ ft^2 < 1000; 3 ≥ 1000 ft_2
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  (5) High (constant vibration); (3) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 25

Friable Asbestos A[illegible]ment Checklist

Cameron Station Building 7 Inspector/Date Barnes / Giardina 2/20/91

Homogeneous Sample Area #(s) 9 Material Type(s) pipe fittings & insulation

Functional Space 7-3 Bay 3 Bathroom DHW line

Part 1: Damage/Risk

- Visible evidence of physical damage: (5) High; 4 Moderate; 2 Low; 1 Minimal; 0 None
- Water damage: (3) Yes; 0 No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).
  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: (8) High; 5 Medium; 2 Low
  - B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:
  1 1< % ≤ 30; 3 30 < % ≤ 50; (5) > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 508 509 510

Damage/Risk Total 23

Friable Asbestos Assessment Checklist

meron Station Building 7 Inspector/Date Barnes / Granda 2/20/91

omogeneous Sample Area #(s) 9 Material Type(s) paper fitting insulation

inctional Space

Part 2: Exposure

Friability: (6) High; 3 Moderate; 1 Low

Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂

Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

(4) Rough; 3 Pitted; 2 Moderate; 1 Smooth

Ventilation: (Mark all categories that apply; maximum of 7 points.)

5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above

Air Movement: 5 Routine turbulent/abrupt air movement; 2 Perceptible/occasional air stream; (0) No perceptible air flow in area

Activity (Refers to forces such as vibration, water or steam acting on material.)

5 High (constant vibration); (2) Medium (occasional vibration); 0 Low

Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)

Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

A. Sprayed- or trowelled-on ceiling or walls

1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

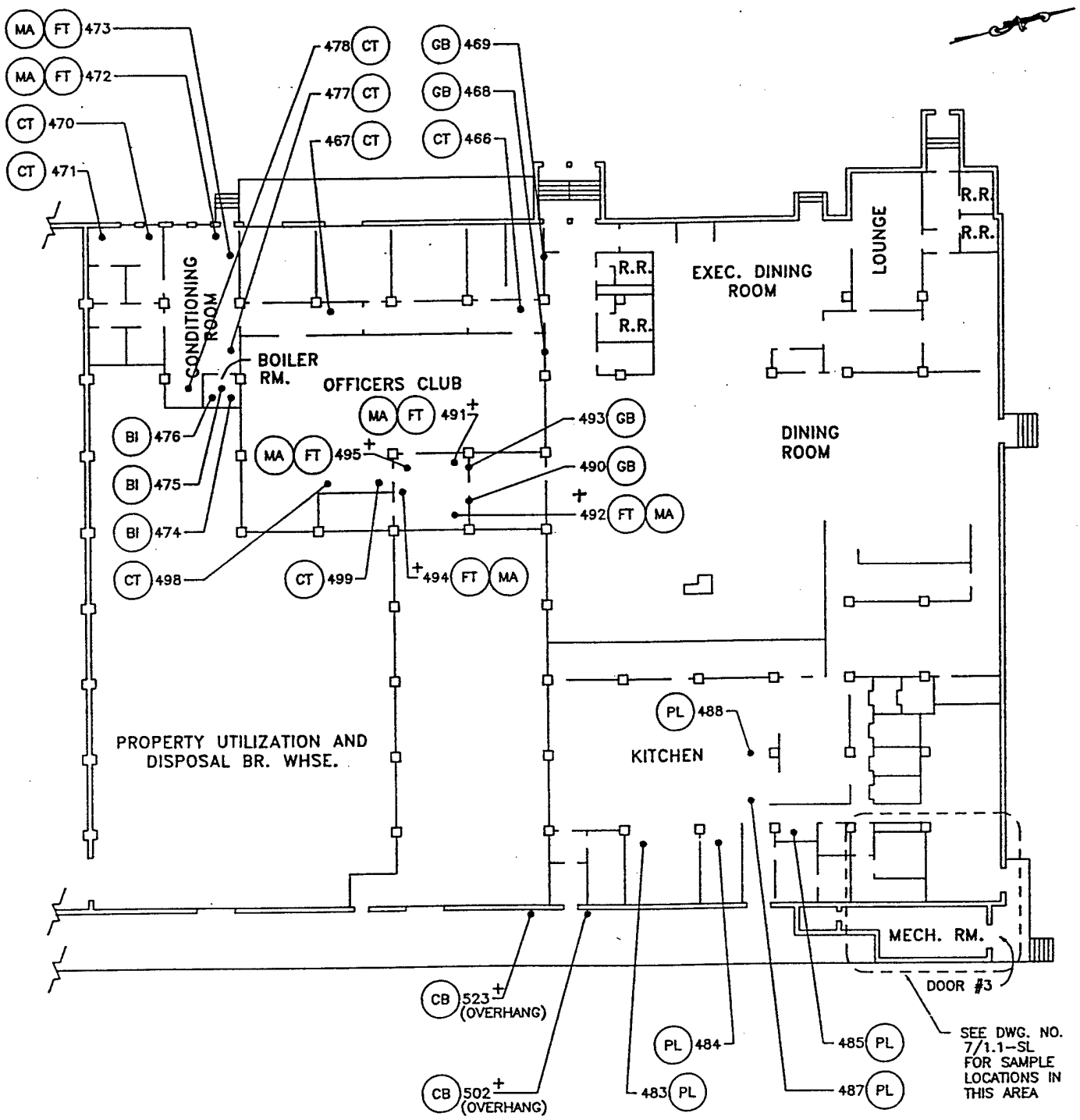
1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100

Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 19

APPENDIX 7-C

BUILDING DRAWINGS



LEGEND

FT FLOOR TILE	CB CEMENT BOARD	BI BOILER INSULATION
MA MASTIC	GB GYPSUM BOARD	+ DENOTES POSITIVE RESULT
CT CEILING TILE	PL PLASTER	

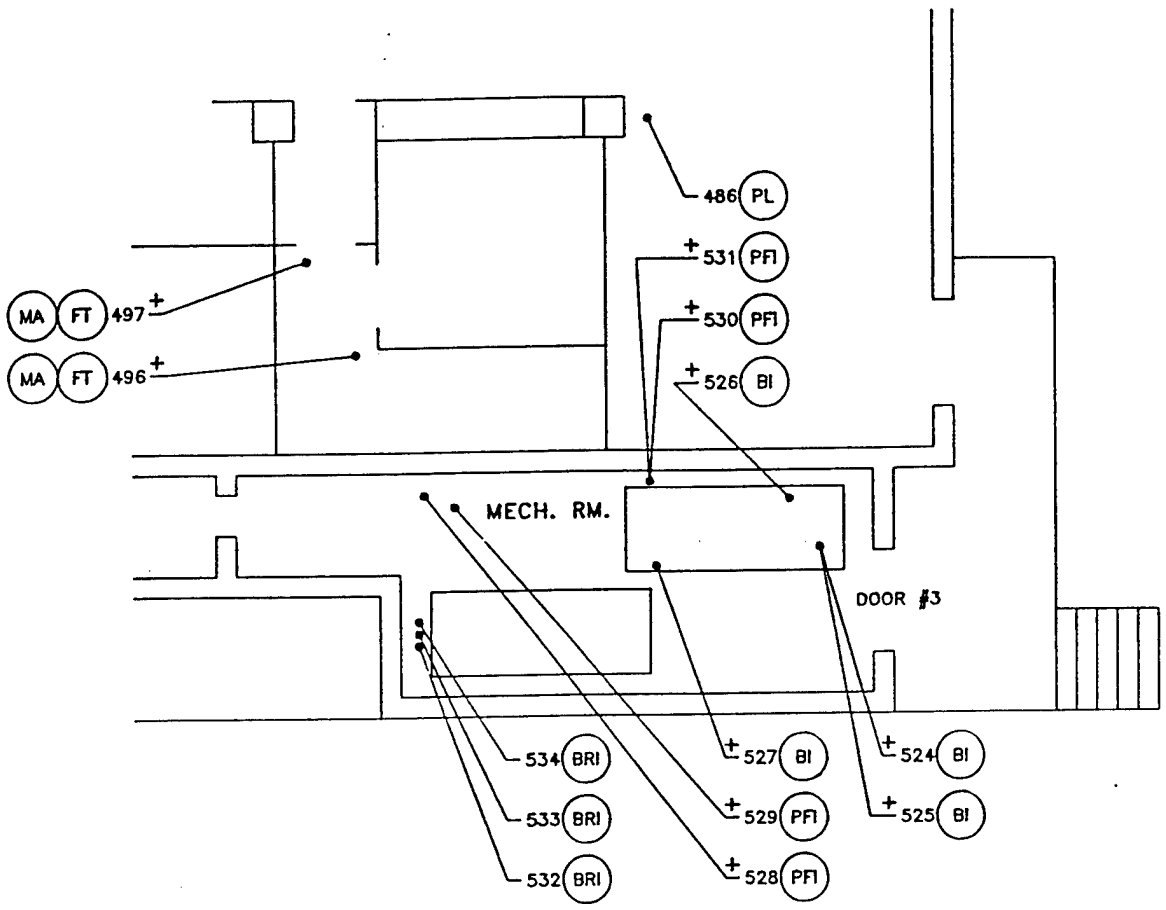
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 7 – BAY 1
SAMPLE LOCATIONS

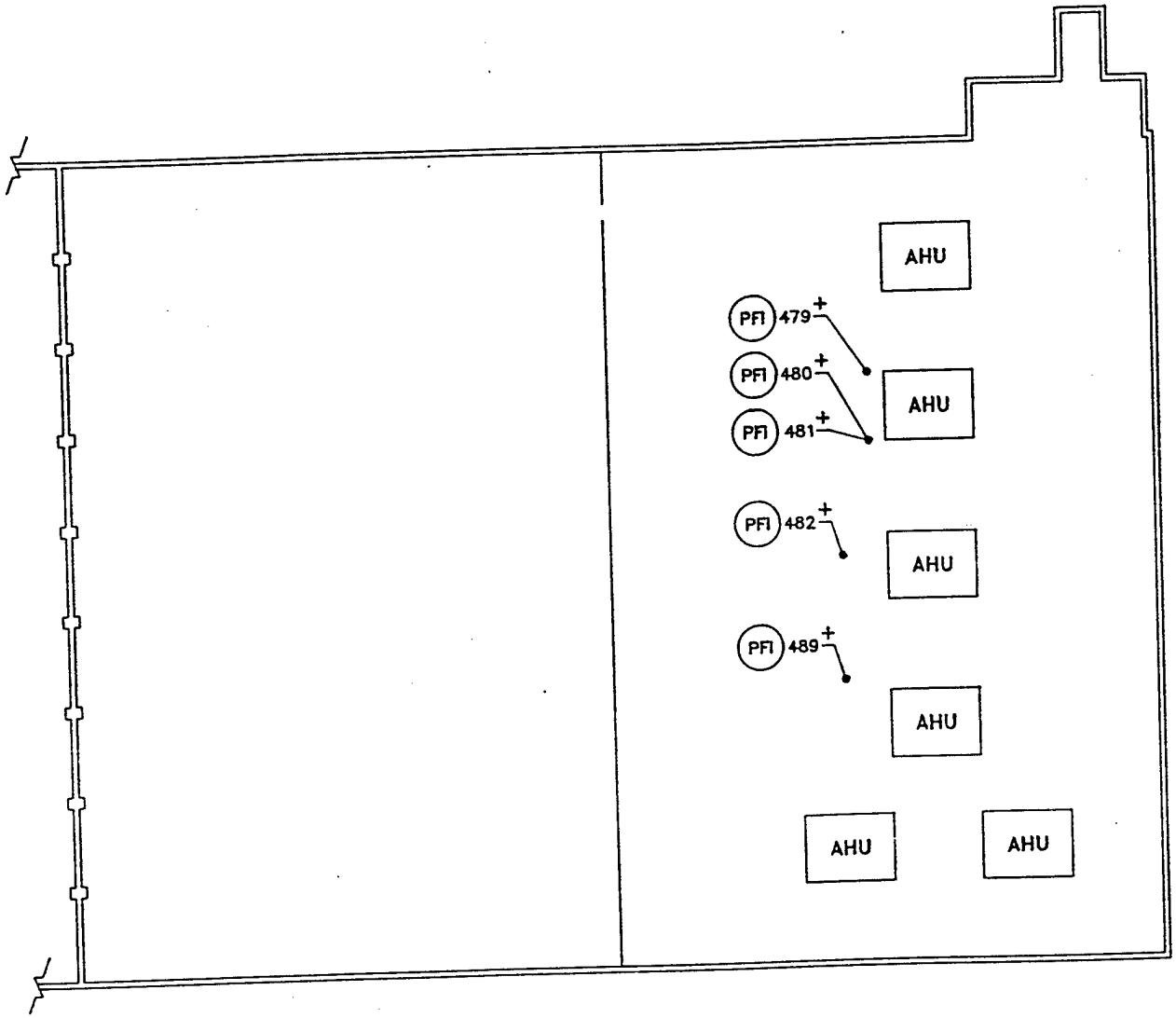
PROJECT NO.	DRAWN BY:	CHECKED BY:	DATE:	SCALE:	FIG.
3001–210	L.A.L.	F.B.G.	6–3–91	N.T.S.	7/1–SL



LEGEND

- FT — FLOOR TILE
- MA — MASTIC
- PL — PLASTER
- PFI — PIPE FITTING INSULATION
- BI — BOILER INSULATION
- BRI — BREECH INSULATION
- \+ — DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 7 – BAY 1 SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY A.L. · CHECKED BY F.B.C. · DATE 6–3–91 · SCALE N.T.S. · FIG. 7/1.1–SL



LEGEND

PFI	PIPE FITTING INSULATION
AHU	AIR HANDLING UNIT
+	DENOTES POSITIVE RESULTS

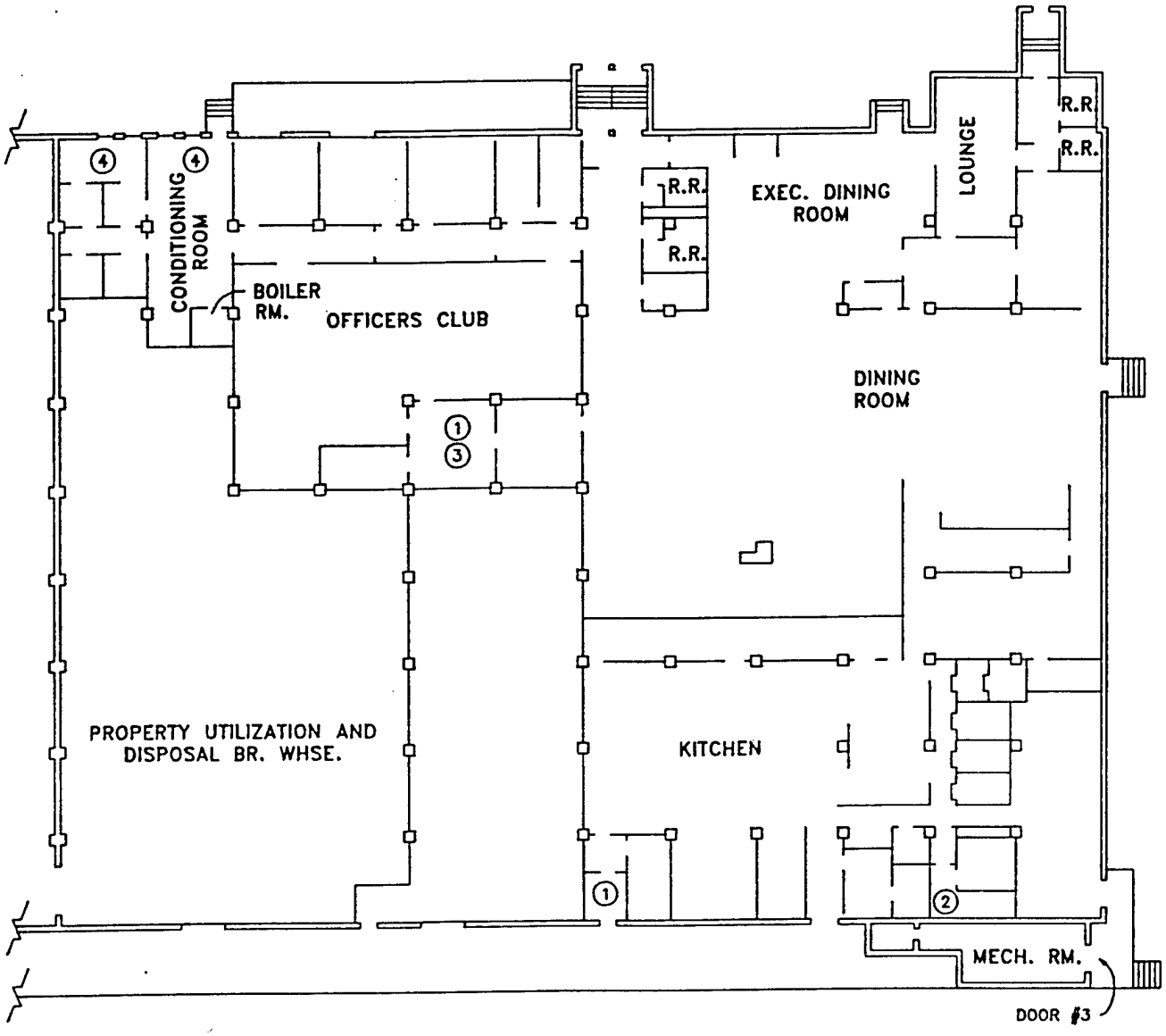
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 7 – BAY 1 ATTIC SAMPLE LOCATIONS

Woodward–Clyde Federal Services

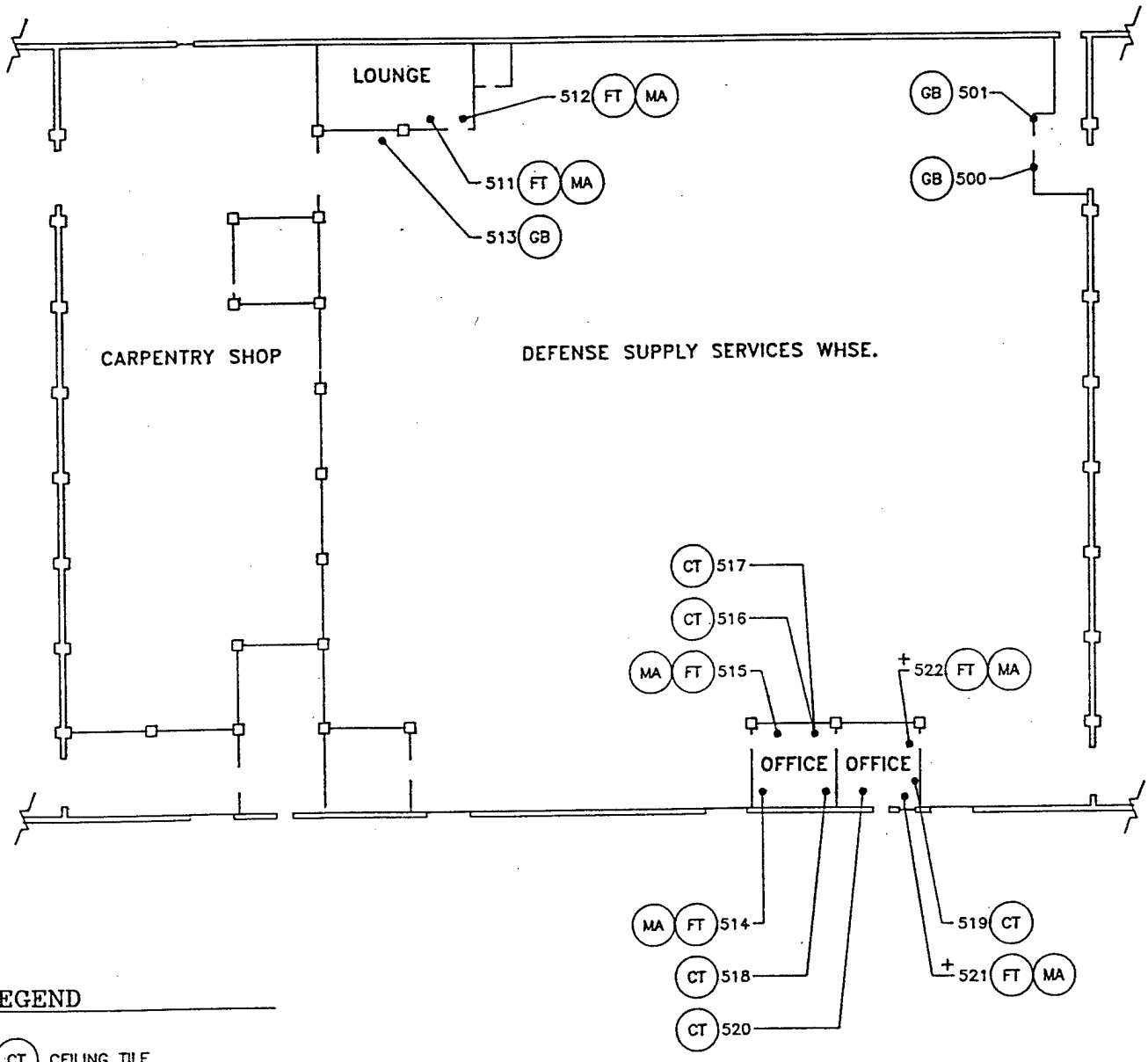
PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001–210	L.A.L.	6–3–91	7/1A–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

1. 9" x 9" GREEN
2. 9" x 9" BROWN
3. 12" x 12" BROWN
4. 4' x 4' BURGUNDY

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward-Clyde Federal Services	TITLE BUILDING 7 – BAY 1 FLOOR TILE LOCATIONS
PROJECT NO. 3001-210	DRAWN BY: LAL; CHECKED BY: F.B.G.; DATE: 6-3-91; SCALE: N.T.S.; DWG. NO. 7/1-FT



LEGEND

- CT — CEILING TILE
- FT — FLOOR TILE
- MA — MASTIC
- GB — GYPSUM BOARD
- \+ — DENOTES POSITIVE RESULTS

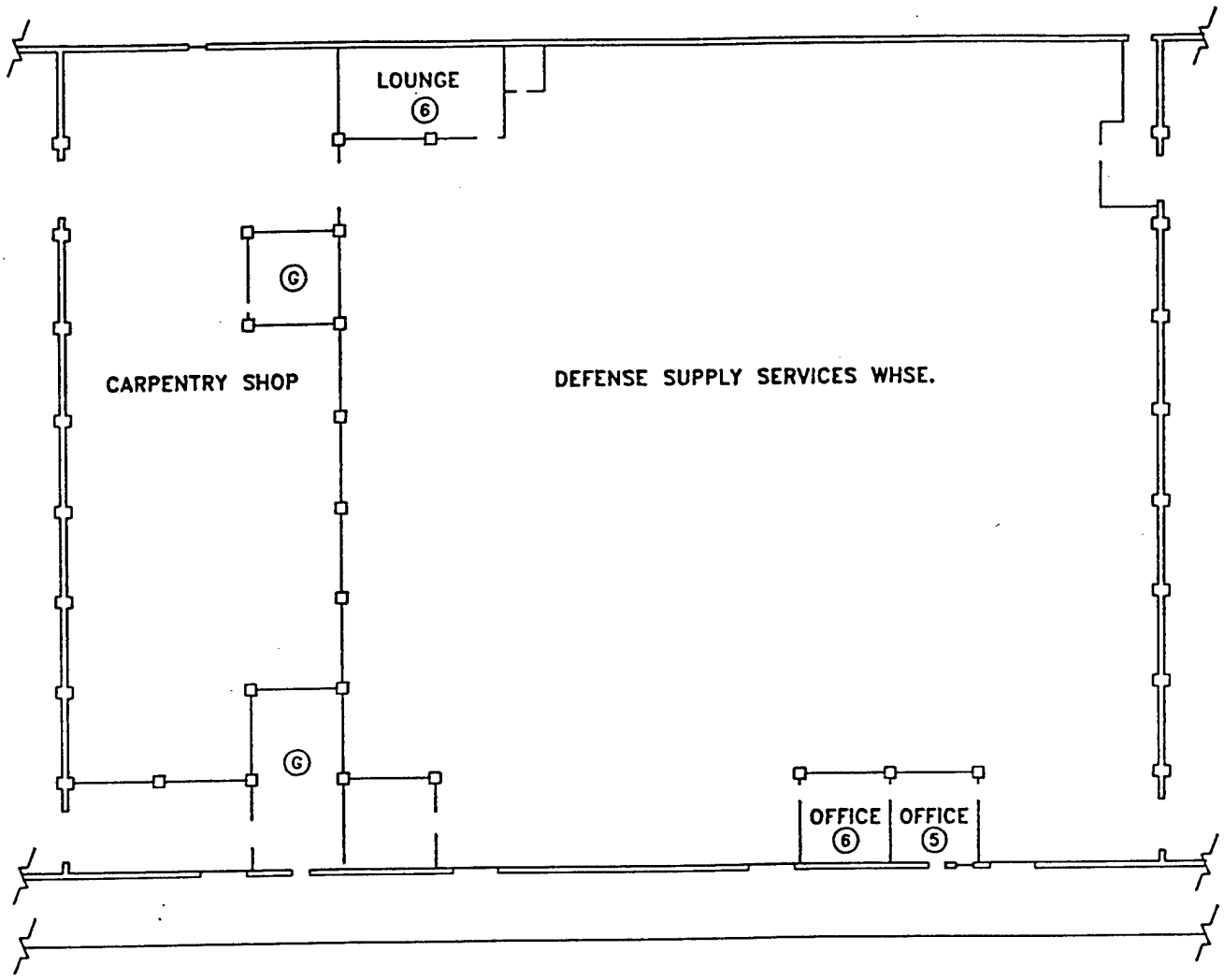
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 7 – BAY 2
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	T.A.L.	DATE:	6-3-91	FIG.	7/2-SL
3001-210	CHECKED BY:	F.B.G.	SCALE:	N.T.S.		



LEGEND

⑤ 12" x 12" UNIFORM HOLES TILE

⑥ 2' x 4' SMOOTH TILE

Ⓖ GYPSUM BOARD

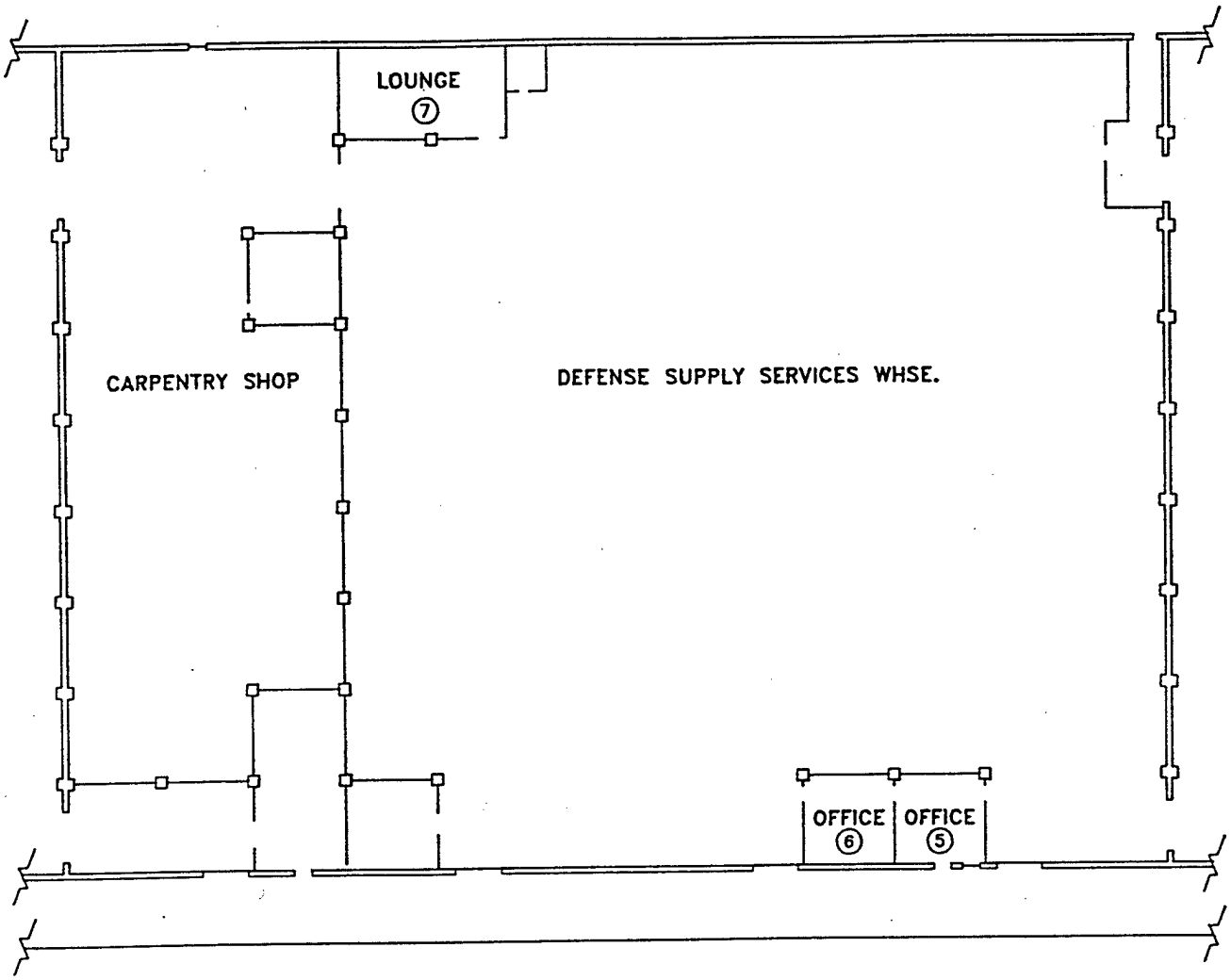
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 7 – BAY 2
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	8–3–91	7/2–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

⑤ 9" x 9" DK. BROWN

⑥ 12" x 12" MED. BROWN

⑦ 12" x 12" BLUE

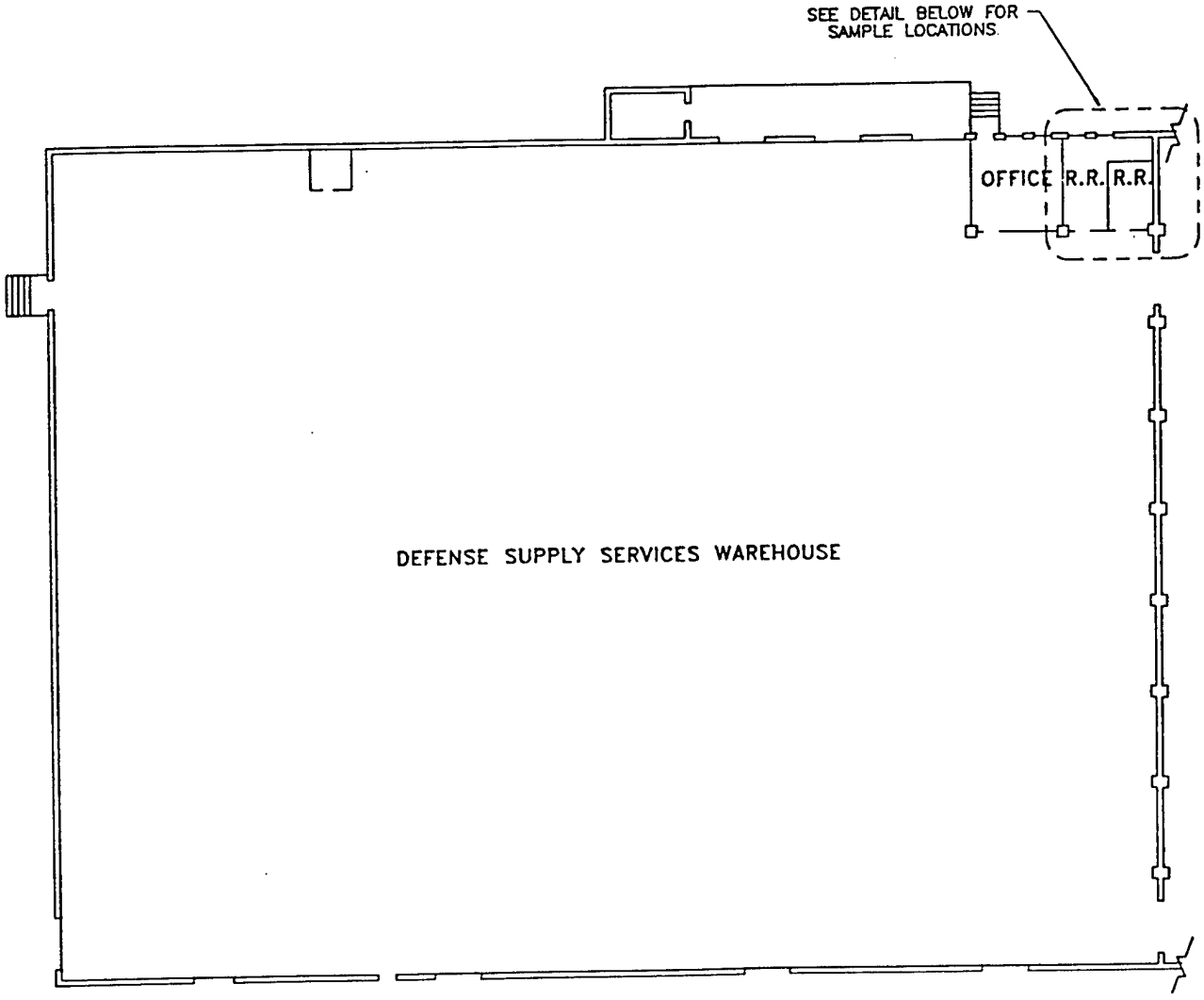
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

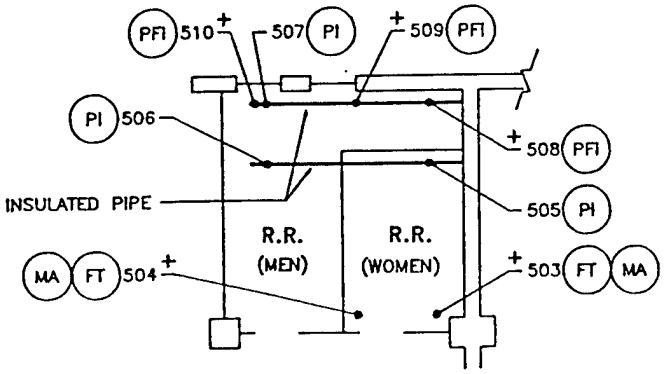
TITLE BUILDING 7 – BAY 2
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–3–91	7/2–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

- (FT) FLOOR TILE
- (MA) MASTIC
- (PI) PIPE INSULATION
- (PFI) PIPE FITTING INSULATION
- \+ DENOTES POSITIVE RESULTS



DETAIL

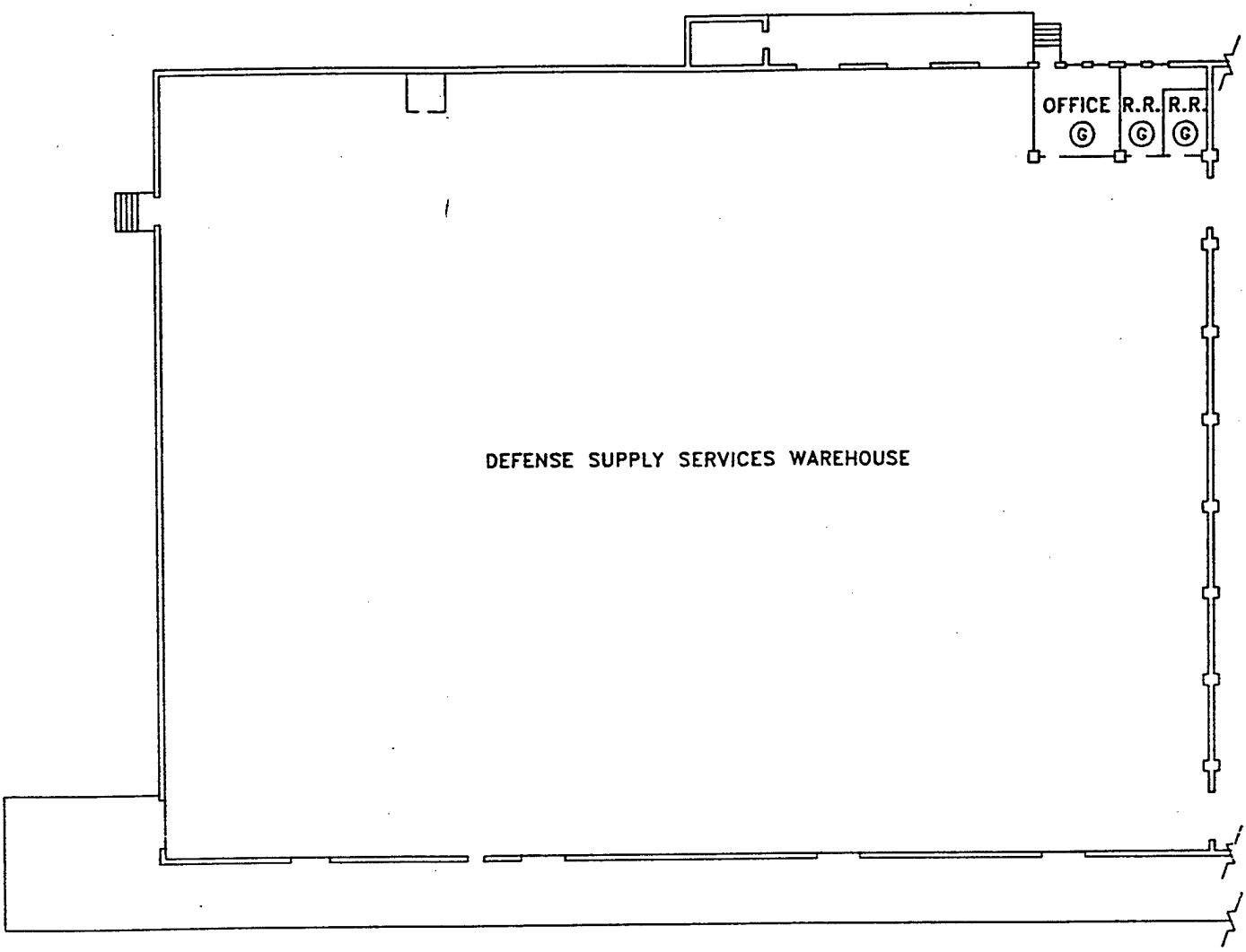
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 7 – BAY 3 SAMPLE LOCATIONS

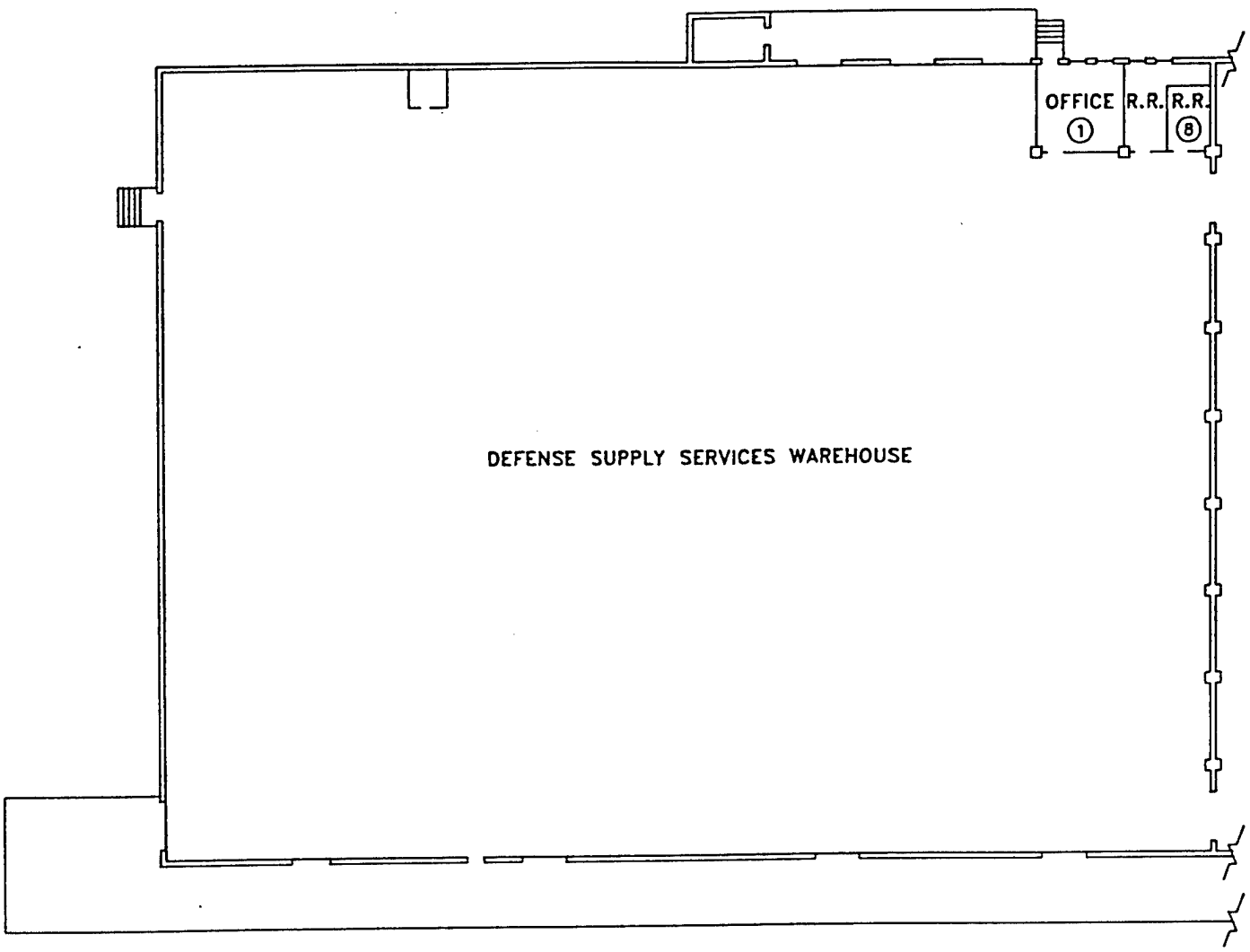
PROJECT NO.	DRAWN BY:	DATE:	FIG.
3001–210	L.A.L.	6–3–91	7/3–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(G) GYPSUM BOARD

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward-Clyde Federal Services	TITLE BUILDING 7 – BAY 3 CEILING TYPE LOCATIONS
PROJECT NO. 3001-210	DRAWN BY: LAL. DATE: 6-3-91
	CHECKED BY: F.B.G. SCALE: N.T.S.
	DWG. NO. 7/3-CT



LEGEND

① 9" x 9" GREEN

⑧ 12" x 12" WHITE

CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 7 – BAY 3
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–3–91	7/3–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	

APPENDIX 7-D

WALKTHROUGH SURVEY DATA SHEETS

Cameron Station — Walkthrough Survey — Sheet 1 of

Building #7 OFFICER'S MESS CLUB — EXTERIOR — Inspector Date 10/27/90

Defense Supply Service — GUARDIAN/BARNES

Exterior Siding

Masonry ☑ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☑ siding on block overhang Soffit ☐

Sample (Y) N _____ Condition (G) F P Quantity 12,800 SF

Roof

Asphalt Built

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☑ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y N Condition G F P Quantity ~~12800~~ 13,000 SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☒	Y (N)	G F P		
Chimney ☐	Y N	G F P		
Louvers ☒	Y (N)	G F P		
A/C Units ☐	Y N	G F P		
Other ☐	Y N	G F P		

STRUCTURAL

Wood Joists/Beams ☑ Steel Joists/Beams ☑ Wood Columns ☑ Steel Column ☑ Concrete Column ☑

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☑ Firedoor ☐

Sample Y (N) Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building #7 — Inspector/Date: GIARDIA / JAMES 12/27/90

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
inside Door #3 Boiler		yes	1	Troweled on	yes	Good	~260 SF
Rear - conditioning Rm		"		"	"	"	90 SF
inside Door #3 Breeching		yes		premold/mud	yes	good	~ 20'
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							
AHU vibration					Assume	G	~ 90 SF
cloth							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

HVAC

Building #7 — Inspector/Date: Guardia/Barnes 12/27/90

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct			Fiberglass	N				
Pipe	Door #3 N.E. Cor. Bldg #7	yes	Fiberglass					
DHW	Laundry Bay #3	yes	corrugated paper	yes	poor	~ 40	LF	1-3"
Fittings	Laundry Bay #3	yes	mud	yes	poor	12	#	
	North End attic Bay #1	yes	mud	yes	poor	> 100	#	1-3"
3/4 inch boiler	MR Dorm 3 Bay #1	yes	mud	yes	poor	15	#	
Other								

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Page 2

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 7 Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity	
Gypsum board - R	Painted	Throughout	Y	G	58 000	R
Plaster		Ceilings - Kitchen	Y	G	900V	
		Bay 1				

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building #7 Inspector/Date: GUARIGLIA/Barnes 12/27/90

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
CEILING TILE #1 2'x4'	white/rectangular	see plan	yes	good	~ 8700 SF
CEILING TILE #2 12"x12"	white/fissured	see plan	yes	good	~ 3200 SF
CEILING TILE #3 2'x2'	white/fissured	see plan	yes	good	~ 750 SF
CEILING TILE #4 2'x4'	white/fissured	see plan	yes	good	~ 400 SF
CEILING TILE #5 12"x12"	white/uniform hole	See plan	yes	good	~ 1040 SF
CEILING TILE #6 2'x4'	white/smooth	See plan	yes	good	~ 1100 SF
FLOOR TILE #1 9"x9"	Green	see plan	yes	good	~ 500 SF
FLOOR TILE #2 9"x9"	Brown	see plan	yes	good	~ 680 SF
FLOOR TILE #3 12"x12"	Brown	See plan	yes	good	~ 400 SF
FLOOR TILE #4 4'x4'	Burgandy	see plan	yes	good	~ 1175 SF
FLOOR TILE #5 9"x9"	Dark Brown	See plan	yes	good	~ 400 SF
FLOOR TILE #6 12"x12"	Med. Brown	See plan	yes	good	~ 400 SF
FLOOR TILE #7 12"x12"	Blue	See plan	yes	good	~ 700 SF
FLOOR TILE #8 12"x12"	white	See plan	yes	good	~ 200 SF

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

Woodward-Clyde Federal Services

APPENDIX 7-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 7
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91
Date Analyzed : 02/27/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
466	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
467	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
468	N	-----	-----	-----	-----	-----	-----	-----	<1	15-20	-----	80-85	AS	
469	N	-----	-----	-----	-----	-----	-----	-----	-----	25-30	-----	70-75	AS	
470	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
471	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
472	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
473	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
474	N	-----	-----	-----	-----	-----	-----	30-35	-----	<1	-----	65-70	AS	
475	N	-----	-----	-----	-----	-----	-----	30-35	-----	<1	-----	65-70	AS	
476	N	-----	-----	-----	-----	-----	-----	30-35	-----	<1	-----	65-70	AS	
477	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
478	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
479	P	15-20	-----	-----	-----	-----	-----	20-25	-----	<1	-----	55-65	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

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1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 7
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91
Date Analyzed : 02/27/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
480	P	15-20	-----	-----	-----	-----	-----	20-25	-----	-----	-----	55-65	AS	
481	P	20-25	-----	-----	-----	-----	-----	20-25	-----	-----	-----	50-60	AS	
482	P	15-20	-----	-----	-----	-----	-----	20-25	-----	-----	-----	55-65	AS	
483	N	-----	-----	-----	-----	-----	-----	<1	-----	<1	-----	100	AS	
484	N	-----	-----	-----	-----	-----	-----	<1	-----	<1	-----	100	AS	
485	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
486	N	-----	-----	-----	-----	-----	-----	<1	-----	<1	-----	100	AS	
487	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
488	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
489	P	60-65	-----	-----	-----	-----	-----	01-05	-----	-----	-----	30-39	AS	
490	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
491	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	-----	90-95	AS	
492	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	
493	N	-----	-----	-----	-----	-----	-----	-----	01-05	<1	-----	95-99	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

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1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 7
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91
Date Analyzed : 02/27/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	/---------- ASBESTOS % ----------/ CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	/--- OTHER FIBROUS MATERIAL % --/ MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
494	P	10-15	-----	-----	-----	-----	-----	-----	-----	-----	-----	85-90	AS	
495	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	AS	
496	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	05-10	85-94	AS	
497	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	05-10	85-94	AS	
498	N	-----	-----	-----	-----	-----	-----	40-45	-----	25-30	-----	25-35	AS	
499	N	-----	-----	-----	-----	-----	-----	40-45	-----	25-30	-----	25-35	AS	
500	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
501	N	-----	-----	-----	-----	-----	-----	-----	<1	01-05	-----	95-99	AS	
502	P	55-60	-----	-----	-----	-----	-----	-----	-----	-----	-----	40-45	AS	
503	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AS	
504	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AS	
505	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
506	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
507	N	-----	-----	-----	-----	-----	-----	-----	-----	80-85	-----	15-20	AS	

COMMENTS: * P = ASBESTOS PRESENT
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Bldg # : 7
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91
Date Analyzed : 02/27/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
508	P	55-60	-----	-----	-----	-----	-----	-----	-----	-----	-----	40-45	AS	
509	P	55-60	-----	-----	-----	-----	-----	-----	-----	-----	-----	40-45	AS	
510	P	55-60	-----	-----	-----	-----	-----	-----	-----	<1	-----	40-45	AS	
511	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
512	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
513	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
514	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
515	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
516	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
517	N	-----	-----	-----	-----	-----	-----	-----	-----	75-80	-----	20-25	AS	
518	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
519	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
520	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
521	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	-----	90-95	AS	

COMMENTS: * P = ASBESTOS PRESENT
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Date Sampled : 02/20/91
Date Analyzed : 02/27/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
522	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	-----	90-95	AS	
523	P	45-50	-----	-----	-----	-----	-----	-----	-----	-----	-----	50-55	AS	
524	P	01-05	-----	-----	-----	-----	-----	30-35	-----	-----	-----	60-69	AS	
525	P	01-05	-----	-----	-----	-----	-----	30-35	-----	-----	-----	60-69	AS	
526	P	20-25	-----	-----	-----	-----	-----	10-15	-----	-----	-----	60-70	AS	
527	P	20-25	-----	-----	-----	-----	-----	20-25	-----	-----	-----	50-60	AS	
528	P	20-25	-----	-----	-----	-----	-----	15-20	-----	-----	-----	55-65	AS	
529	P	15-20	-----	-----	-----	-----	-----	15-20	-----	-----	-----	60-70	AS	
530	P	05-10	-----	-----	-----	-----	-----	-----	-----	20-25	-----	65-75	AS	
531	P	05-10	-----	-----	-----	-----	-----	-----	-----	20-25	-----	65-75	AS	
532	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AS	
533	N	-----	-----	-----	-----	-----	-----	15-20	-----	-----	-----	80-85	AS	
534	N	-----	-----	-----	-----	-----	-----	30-35	-----	<1	-----	65-70	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

LAST PAGE OF 5 PAGE(S)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

Andreas Saldivar (AS)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.
All rights reserved. AMA Analytical Services, Inc.

AMA Analytical Services, Inc.

May 15, 1991

Woodward-Clyde Federal Services
One Chruch Street, Suite 404
Rockville, MD 20850

RE:	TEM Bulk Analysis Cameron Station
JOB SITE:	Bldg. 7
JOB LOCATION:	Cameron Station
PROJECT NUMBER:	3001

Attention Sally Guardia:

This is the final report for transmission electron microscopy (TEM) analysis performed on your floor tile sample. The sample was submitted by Sally Guardia of Woodward-Clyde Federal Services to AMA Analytical Services, Inc. on April 16, 1991. Analytical results were reported to Sally Guardia of Woodward-Clyde Federal Services by telefax and telephone, on April 23, 1991.

The sample set consisted of one (1) sample. One (1) sample was prepared and analyzed following Dr. Eric J. Chatfield's revised TEM protocol (submitted to the ASTM Committee 022.05.07.007 in 1988).

The result of the TEM analysis is shown below:

SAMPLE	TEM ASBESTOS CONC.	ORGANIC MATERIAL	DOLOMITE/ CALCITE	NON FIBROUS MINERALS
515	<1%	20%	62%	18%

4475 Forbes Blvd. • Lanham, MD 20706 • 301-459-2640; 800-346-0961 • FAX: 301-459-2643

AMA Analytical Services, Inc. thanks Woodward-Clyde Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely,
AMA ANALYTICAL SERVICES, INC.

Luis H. Bustillos
Electron Microscopist

Robert M. Powell
Laboratory Director

LHB/kec

WCFS Project N[redacted]001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde F[redacted]ral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: D M B

Field Office: Woodward–Cl[redacted]ederal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe					Number of Containers
										CODE	UM05	UM06	UM06	LM06	UH21	LH19	HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19				
FB6		ASB007	466																						✓							
FB6		ASB007	467																						✓							
FB6		ASB007	468																						✓							
FB6		ASB007	469																						✓							
FB6		ASB007	470																						✓							
FB6		ASB007	471																						✓							
FB6		ASB007	472																						✓							

Relinquished by: Woodward–Clyde Federal Services
Date: 2/20/91 Time: 1330 Signature: M. Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 2/20/91 Time: 13:35 Signature: L. Maurice

Total No. of Containers: 7

Comments:

3/28/91 1000 L. Maurice left msg for

White & Yellow: AMA A[redacted]cal Services, Inc. Pink: WCFS P[redacted]ect File

WCFS Project [illegible]001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: D MB

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)
FBG		ASB007	473			
FBG		ASB007	474			
FBG		ASB007	475			
FBG		ASB007	476			
FBG		ASB007	477			
FBG		ASB007	478			
FBG		ASB007	479			

Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
			CODE	UM05	UM06	UM06	UM06	UH21	LH19	HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1		SW1311		SW8290	SW8290	LH19		
																			/				
																			/				
																			/				
																			/				
																			/				
																			/				
																			/				
																			/				

Relinquished by: Woodward–Clyde Federal Services
Date: 2/20/91 Time: 1330 Signature: Don Zanno

Accepted by: AMA Analytical Services, Inc.
Date: 2/20/91 Time: 13:35 Signature: L. Maurice

Total No. of Containers: 7

Comments:
3/[illegible]/91 10dr fedexp Lmal L. Mau

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project [redacted] 3001

Installation (2): C[redacted]
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted]deral Services

CHAIN OF CUSTODY REC[redacted]D – USATHAMA SAMPLES

COC By: D M B

Field Office: Woodw[redacted] Federal Services
Buildin[redacted]
Door 2
Cameron Staton
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe					Number of Containers
										CODE	UM05	UM06	UM06	UM06	UH21	LH19	HPLC	SS15	TY03	E418.1				SW1311		SW8290	SW8290	LH19					
FBG		ASB007	480																						/							
FBG		ASB007	481																						/							
FBG		ASB007	482																						/							
FBG		ASB007	483																						/							
FBG		ASB007	484																						/							
FBG		ASB007	485																						/							
FBG		ASB007	486																						/							

Relinquished by: Woodward–Clyde Federal Services
Date: 2/20/91 Time: 1330 Signature: D M Burns

Accepted by: AMA Analytical Services, Inc.
Date: 2-20-91 Time: 13:55 Signature: L Manuel

Total No. of Containers: 7

Comments:
3/28/91 1000 L Manuel delivered final.

White & Yellow: AM[redacted]lytical Services, Inc. Pink: WCF[redacted]ject File Gold: [redacted] Project Scientist

WCFS Project 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: D M B

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe					Number of Containers
										CODE	UM05	UM05	UM06	UM06	UM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19					
FBG		ASB007	487																						✓								
FBG		ASB007	488																						✓								
FBG		ASB007	489																						✓								
FBG		ASB007	490																						✓								
FBG		ASB007	491																						✓								
FBG		ASB007	492																						✓								
FBG		ASB007	493																						✓								

Relinquished by: Woodward–Clyde Federal Services
Date: 2/20/91 Time: 1330 Signature: D M Bauer

Accepted by: AMA Analytical Services, Inc.
Date: 2/20/91 Time: 13:35 Signature: L Maurer

Total No. of Containers: 7

Comments:

3 hr/91 1000 L Ellen followup call

White & Yellow: AMA Analytical Services, Inc. Pink: Work Project File Goldenrod: WCFS Project Scientis

WCFS Project [redacted] 001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted] eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: D M B

Field Office: Woodward [redacted] ederal Services
Building 1[redacted]
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM05	UM06	UM06	UM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB007	494																						✓					
FBG		ASB007	495																						✓					
FBG		ASB007	496																						✓					
FBG		ASB007	497																						✓					
FBG		ASB007	498																						✓					
FBG		ASB007	499																						✓					
FBG		ASB007	500																						✓					7

Relinquished by: Woodward–Clyde Federal Services
Date: 3/20/91 Time: 1330 Signature: D M. Burns

Accepted by: AMA Analytical Services, Inc.
Date: 3/20/91 Time: 13:35 Signature: L Maureen

Total No. of Containers: 7

Comments:
3/20/91 1000 L. Maureen Anderson Jr.

Blue: WCFS Project File Gold: WCFS Project Scientist

WCFS Project I)001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward–[Federal Services
Building 17
Door 2
Cameron Stauon
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD. 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
									CODE		UM05	UM06	UM06	UM06	UH21		HPLC	SS15	TY03	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		ASB007	501								LM05	LM06	LM06	LM06	LH19			JS14	KY04	E418.1					✓						
FBG		ASB007	502																						✓						
FBG		ASB007	503																						✓						
FBG		ASB007	504																						✓						
FBG		ASB007	505																						✓						
FBG		ASB007	506																						✓						
FBG		ASB007	507																						✓						

Relinquished by: Woodward–Clyde Federal Services
Date: 2/20/91 Time: 1330 Signature: M. Baum

Accepted by: AMA Analytical Services, Inc.
Date: 2/20/91 Time: 13:35 Signature: L Maurau

Total No. of Containers: 7

Comments:

3/2[illegible]/91 1000 L. Maurau fedexpd

White & Yellow: AM[illegible] Analytical Services, Inc. Pink: W[illegible] roject File G[illegible] S Project Scientist

WCFS Project [redacted] 301

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted]eral Services

CHAIN OF CUSTODY RECOR[redacted] – USATHAMA SAMPLES

COC By: D M B

Field Office: Woodward-[redacted] Federal Services
Building [redacted]
Door 2
Cameron Stat[redacted]
Alexandria, VA 22304
703 817-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
									CODE		UM05	UM06	UM06	UM06	UH21	LH19	HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19		
FBG		ASB007 ~~ASB008~~	508																						/					
FBG		ASB007 ~~ASB008~~	509																						/					
FBG		ASB007 ~~ASB008~~	510																						/					
FBG		ASB007	511																						/					
FBG		ASB007	512																						/					
FBG		ASB007	513																						/					
FBG		ASB007	514																						/					

Relinquished by: Woodward–Clyde Federal Services
Date: 2/20/91 Time: 1330 Signature: D M. Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 2/20/91 Time: 13:35 Signature: L. Hammack

Total No. of Containers: 7

Comments:
3/28 1/91 1000 L. Hammond left [illegible]

White & Yellow: AM[redacted] Analytical Services, Inc. Pink: WCI [redacted] oject File Gold. [redacted] Project Scientist

WCFS Project 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward-Clyde Federal Services
Building 1.
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

Bldg 7

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe					Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19						
RBG		ASB007 ~~ASBOOB~~	515																						✓							
FBG		ASB007 ~~ASBOOB~~	516																						✓							
FBG		ASB007 ~~ASBOOB~~	517						1																✓							
FBG		ASB007 ~~ASBOOB~~	518																						✓							
FBG		ASB007 ~~ASBOOB~~	519																						✓							
FBG		ASB007 ~~ASBOOB~~	520																						✓							
FBG		ASB007 ~~ASBOOB~~	521																						✓							

Relinquished by: Woodward–Clyde Federal Services

Date: 2/20/91 Time: 1330 Signature: DM. Burns

Accepted by: AMA Analytical Services, Inc.

Date: 2/20/91 Time: 13:35 Signature: L. Mauricio

Total No. of Containers: 6

Comments:

3 1/91 1000 Lab supplied

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project [redacted]001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted]eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward–[redacted] Federal Services
Building 17
Door 2
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Admin. Office: Woodward–Clyde Federal Services
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Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (pc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB007 ~~AS3008~~	522																						✓					
FBG		ASB007 ~~ASB008~~	523																						✓					
FBG		ASB007 ~~ASB008~~	524																						✓					
FBG		ASB007 ~~ASB008~~	525																						✓					
FBG		ASB007 ~~ASB008~~	526																						✓					
FBG		ASB007 ~~ASB008~~	527																						✓					
FBG		ASB007 ~~ASB008~~	528																						✓					

Relinquished by: Woodward–Clyde Federal Services
Date: 2/20/91 Time: 1330 Signature: DM. Burns

Accepted by: AMA Analytical Services, Inc.
Date: 2/20/91 Time: 13:35 Signature: L. Maurice

Total No. of Containers: 7

Comments:
3/22/91 1000 L. Maurice fed systems

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project 3001

Installation (2): CM
Sample Program (3): BE
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward–Clyde Federal Services
Building 17
Door 2
Cameron Station
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703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Number of Containers
FBG		ASB007 ~~ASB008~~	529				
FBG		ASB007 ~~ASB008~~	530				
FBG		ASB007 ~~ASB008~~	531				
FBG		ASB007 ~~ASB008~~	532				
FBG		ASB007 ~~ASB008~~	533				
FBG		ASB007 ~~ASB008~~	534				

| Sample Techniques (1) | Sample Flag Code (1) | Sample QC Code (1) | TEST NAME | CODE | VOC | SVOC | Pest | Pest | (OCP/PCBs (gc/ec) | Herbicides | Rotenone | TAL Metals | CYN | TPHC (IR) | SO4 | CL | NIT | TCLP | Asbest | TCDD | PCB Wipe | | | | | | |

BUILDING 8

8.1 DESCRIPTION

Building 8 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof is constructed of tar, felt and gravel over wood. It is divided into three bays by masonry firewalls. Originally built as a warehouse, it has been converted to offices and a separate attic area, which houses the HVAC system. Building materials typically found throughout the first floor of the building include carpet over one type of floor tile, ceiling tile, plaster (in the restrooms) and regular and fire code gypsum board. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

Current occupants are the Defense Logistics Agency (DLA) and the Defense Fuel Supply Center (DFSC).

8.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 8-A through 8-F. A summary of this data is presented below.

8.2.1 Suspect Friable ACM

Three homogeneous areas of suspect friable ACM were identified and eleven bulk samples were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following one material.

- Corrugated paper pipe insulation

Assessment of this material, which was found in one functional space, indicates a damage factor of 3 and an exposure factor of 19. According to the GAHA Index, this material ranks as Priority C.

8.2.2 Suspect Nonfriable ACM

Eight homogeneous areas of suspect nonfriable ACM were identified and thirty-four bulk samples, including two QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following two materials:

- FT 1 9" x 9" green floor tile and mastic
- CT 2 2' x 2' white ceiling tile w/uniform holes
- Joint sealant

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

Analysis detected less than 1% asbestos in five of the suspect materials.

8.2.3 Material Assumed To Contain Asbestos

The following three homogeneous areas are assumed to be ACM.

- Tar and felt roofing material
- Vibration cloth
- Tar sprayed on brick walls

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

8.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following material, originally identified in the walkthrough survey as suspect ACM, was examined more closely and reclassified as nonsuspect:

- CT 1 2' x 4' fiberglass ceiling tile

No bulk samples of this material were collected, and it was deleted as a homogeneous sample area from the final survey data.

8.4 AREAS NOT ACCESSED

The following areas in Building 8 were not accessed:

- Bay 1
  - Room 8B158
  - Unnumbered room along east wall near Room 8A198
- Bay 2
  - Room 8B312
  - Room 8B318
  - Attic area above Room 8B312

8.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
8			75 LF PI

TSI = THERMAL SYSTEM INSULATION
PI = PIPE INSULATION
MF = MUDDED FITTINGS
* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

8.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 8-A ACM Survey Results
Appendix 8-B Assessments/Recommendations for Friable ACM
Appendix 8-C Building Drawings
Appendix 8-D Walkthrough Survey Data Sheets
Appendix 8-E Laboratory Certificate of Analysis
Appendix 8-F Sample Chain-of-Custody Forms

APPENDIX 8-A

ACM SURVEY RESULTS

ACM Survey Results for Building 8

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	130000	SF	Assume ACM	Assume ACM	
2	Misc.	Vibration cloth	Bays 1, 2, & 3, on AHUs in attic areas	Non	Good	120	SF	Assume ACM	Assume ACM	
3	Misc.	Tar	Bay 1, Attic north & east walls	Non	Good	500	SF	Assume ACM	Assume ACM	A thin layer of the material has been sprayed on brick walls.
4	TSI	Pipe fitting insulation	Bays 1, 2, 3 Attic areas	Low	Good	300	# of fittings	609 615 616	None detected None detected None detected	
5	TSI	Corrugated paper pipe insulation	Bay 1, Attic, north wall	Mod	Good	75	LF	632 633 638	None detected 25-30% chrysotile <1% chrysotile	

ACM Survey Results for Building 8 (continued)

	Material Description					Quantity				
Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure-ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
6	Misc.	Unknown	Bay 1, attic, north and east walls	High	Poor	Unknown	---	634 635 823 824 825	None detected 20-25% chrysotile None detected None detected < 1% chrysotile	White powdery material on bricks, Sample 635 was contaminated with asbestos-containing tar which has been sprayed on the brick wall.
7	TSI	Joint sealant	Bays 1, 2 and 3, attic areas	Non	Good	28000	SF	820 821 822	1-5% chrysotile <1% chrysotile 1-5% chrysotile	Material is found on fiberglass-insulated pipes and ducts. The estimated amount is based on the quantity of insulation on which it is located.
8	Misc.	Floor tile & mastic	Throughout building See Drawings 8/1-FT 8/2-FT 8/3-FT	Non	Good	120000	SF	602 619 620	10-15% chrysotile 5-10% chrysotile 5-10% chrysotile	FT 1 9" x 9" green floor tile Sample 620 is a QC for sample 619.

ACM Survey Results for Building 8 (continued)

	Material Description					Quantity				
Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure-ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
9	Misc.	Ceiling tile	Building entrances See Drawings 8/1-CT 8/2 CT 8/3-CT	Non	Good	1000	SF	611 612	35-40% chrysotile 30-35% chrysotile	CT 2 2' x 2' white w/uniform holes
10	Misc.	Ceiling tile	See Drawings 8/2-CT 8/3-CT	Non	Good	7500	SF	617 618	None detected None detected	CT 3 12" x 12" white w/random holes
11	Misc.	Ceiling tile	Scattered throughout building	Non	Good	UNK	--	636 637	None detected None detected	CT 4 2' x 4' white replacement tile interspersed with CT 1.
12	Surfacing	Fire code gypsum board	Hallways & entrances throughout building	Non	Good	8400	SF	604 608 614 621 626 628 630	None detected None detected None detected None detected None detected None detected None detected	

ACM Survey Results for Building 8 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
13	Surfacing	Regular gypsum board	Interior walls: throughout building Ceilings: custodial and telephone closets throughout building	Non	Good	54000	SF	600 601 610 613 625 627 629 631	None detected None detected None detected None detected None detected None detected None detected None detected	Sample 601 is a QC for sample 600.
14	Surfacing	Plaster	Restroom walls & ceilings	Non	Good	5000	SF	603 605 606 607 622 623 624	None detected None detected None detected None detected None detected None detected None detected	

APPENDIX 8-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 8

		Material Description					
Functional Space	Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
8-1 Bay 1, attic, north wall	5	TSI	Corrugated paper pipe insulation	3	19	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.

(C)

Friable Asbestos Assessment Checklist

Cameron Station Building 8

Inspector/Date Barno / Guardia 9/20/91

Homogeneous Sample Area #(s) 5

Material Type(s) Corrugated paper pipe insulation

Functional Space 8-1 Bay 1, attic, mid-way wall

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; 4 Moderate; 2 Low; 1 Minimal; (0) None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

  A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance

  B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:

  A. < 10 ft: 8 High; 5 Medium; 2 Low

  B. ≥ 10 ft: 5 High; 3 Medium; (0) Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 632, 633, 638

Damage/Risk Total 3

Friable Asbestos Assessment Checklist

Cameron Station Building 8 Inspector/Date Bonna / Guardia 2/20/91

Homogeneous Sample Area #(s) 5 Material Type(s) corrugated paper insulation

Functional Space 8-1 Bay 1, Attic, north wall

Part 2: Exposure

- Friability: 6 High; (3) Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft_2
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

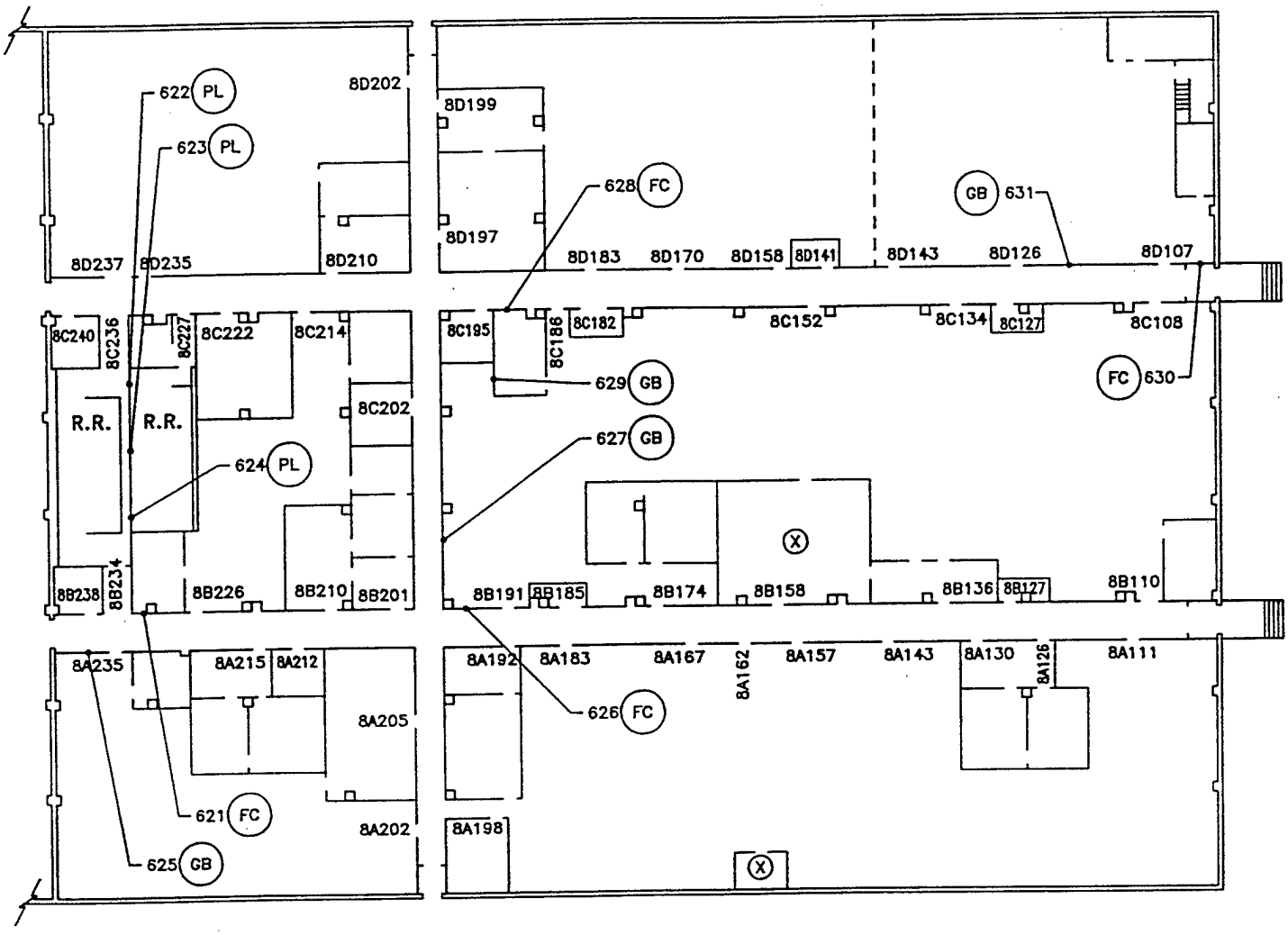
  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 19

APPENDIX 8-C

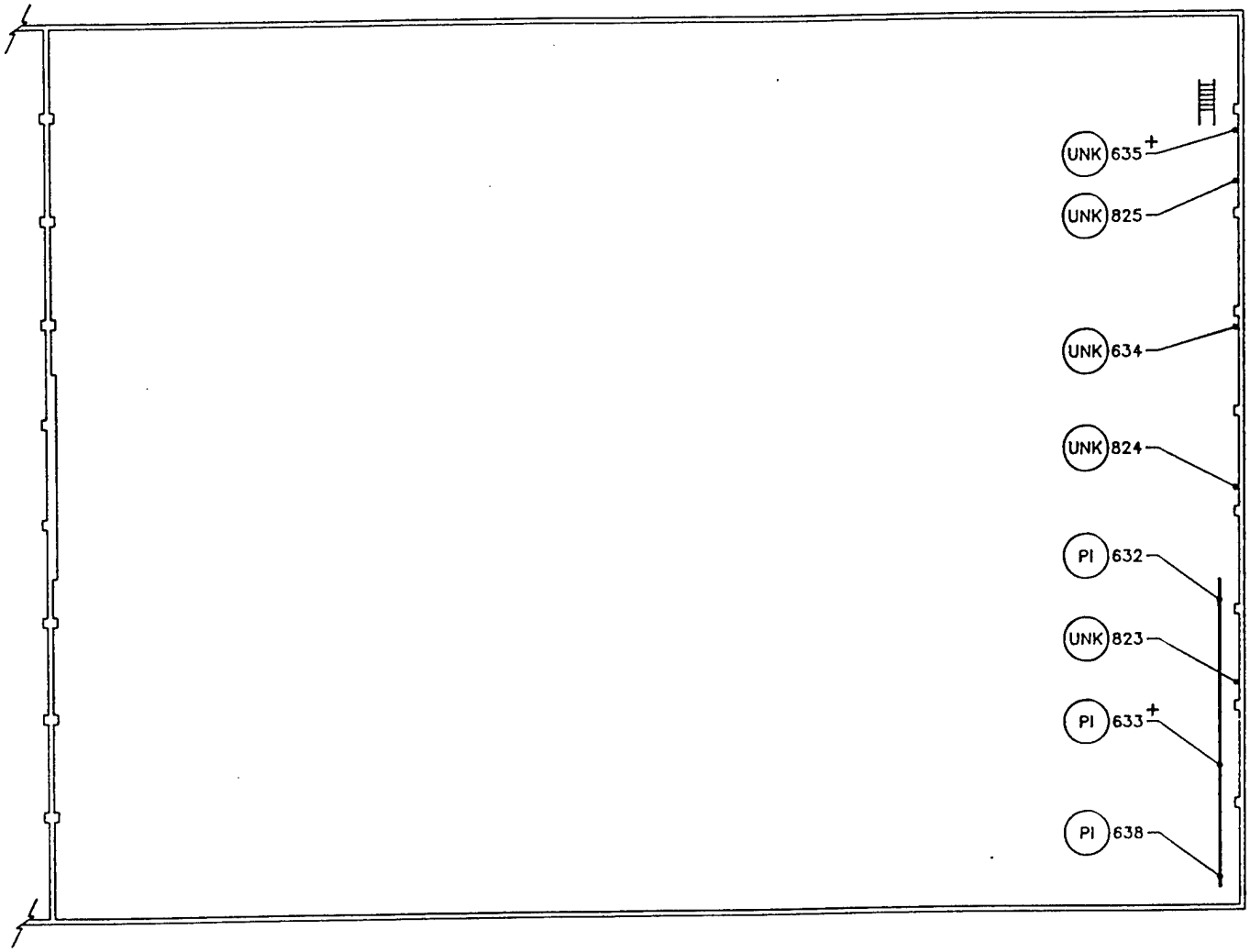
BUILDING DRAWINGS



LEGEND

- (PL) PLASTER
- (GB) GYPSUM BOARD
- (FC) FIRE CODE GYPSUM BOARD
- (X) AREA NOT ACCESSED

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia				
Woodward–Clyde Federal Services	TITLE BUILDING 8 – BAY 1 SAMPLE LOCATIONS				
	PROJECT NO. 3001–210	DRAWN BY: L.A.L.	DATE: 8–5–91	DWG. NO. 8/1–SL	
		CHECKED BY: F.B.G.	SCALE: N.T.S.		



LEGEND

(PI) PIPE INSULATION

(UNK) UNKNOWN FUNCTION

\+ DENOTES POSITIVE RESULTS

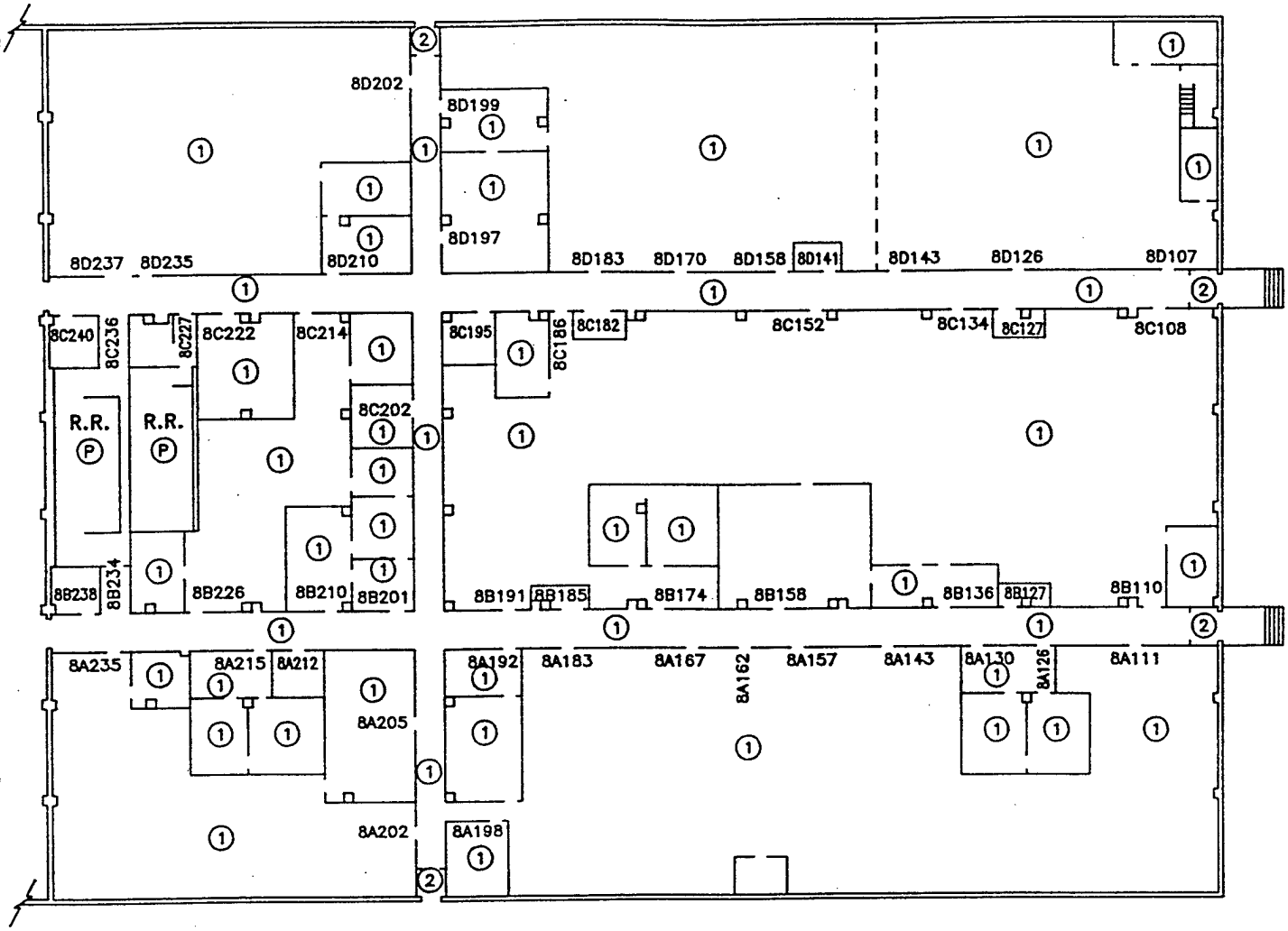
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 8 – BAY 1 ATTIC SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	6–5–91	8/1A–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' SMOOTH TEXTURE TILE

(2) 2' x 2' UNIFORM HOLE TILE

(P) PLASTER

CLIENT USATHAMA

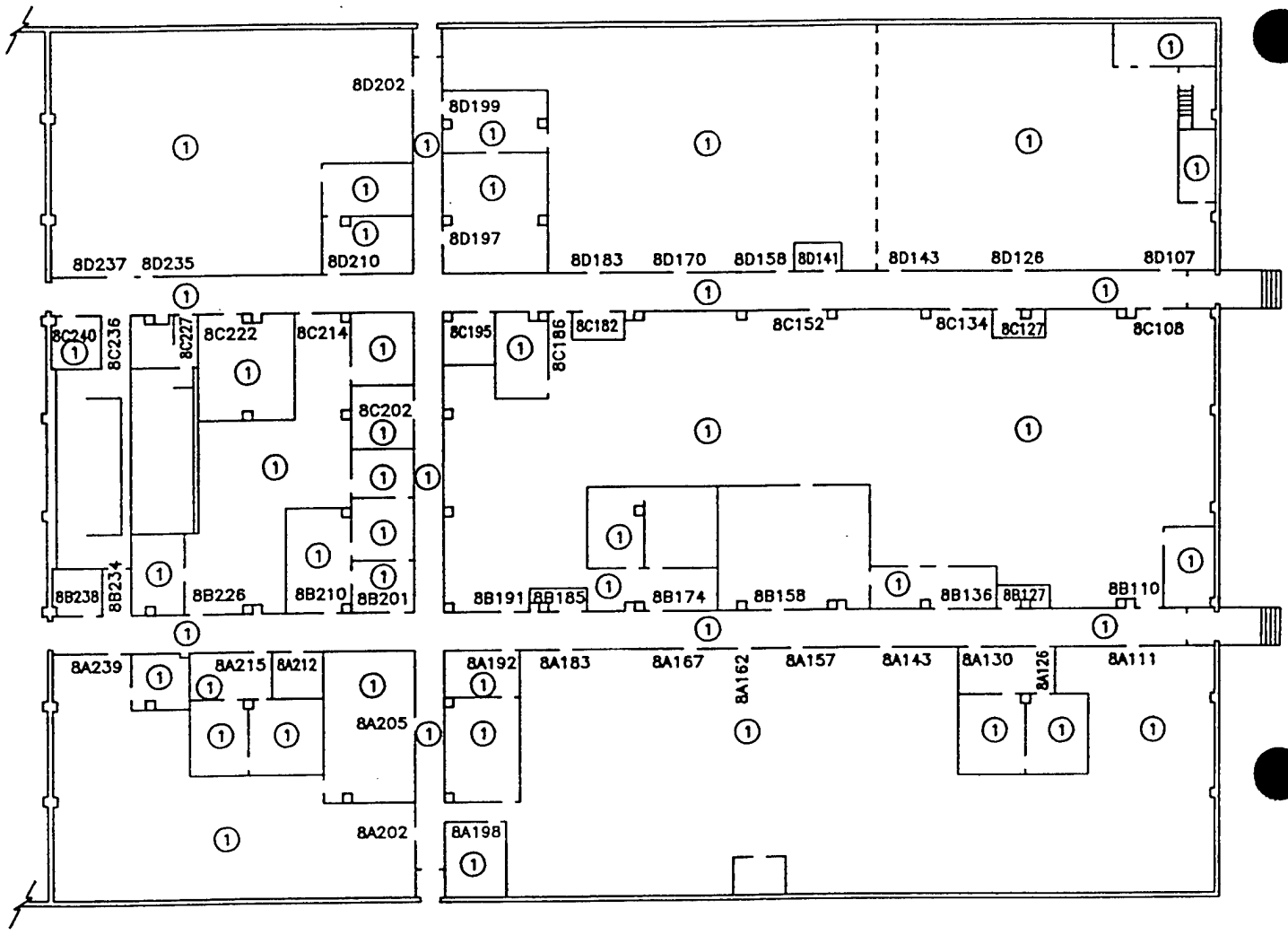
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 8 – BAY 1
CEILING TYPE LOCATIONS

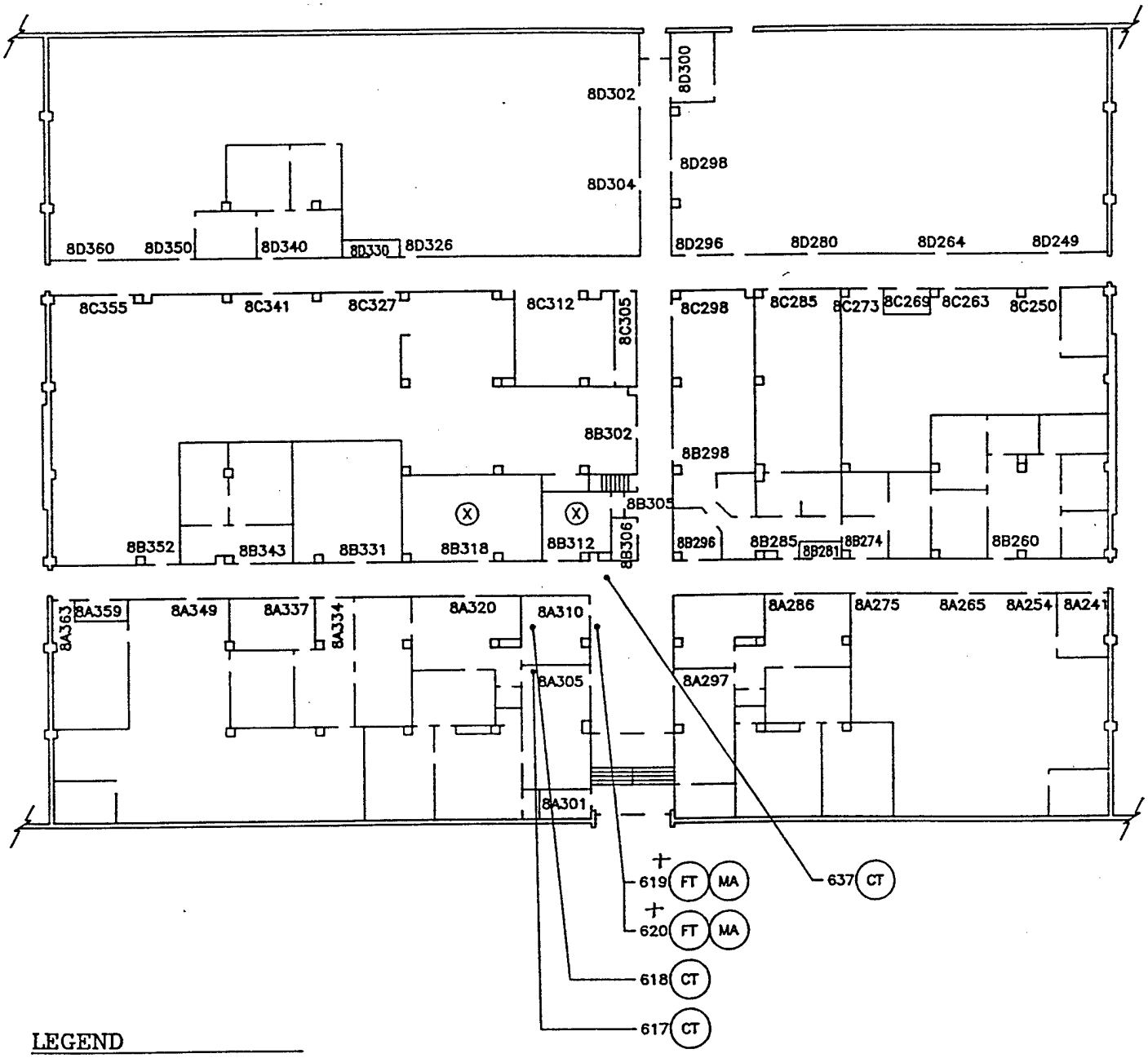
PROJECT NO.	DRAWN BY:	CHECKED BY:	DATE:	SCALE:	DWG. NO.
3001–210	L.A.L.	F.B.G.	6–5–91	N.T.S.	8/1–CT



LEGEND

(1) 9" x 9" GREEN

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia				
Woodward–Clyde Federal Services	TITLE BUILDING 8 – BAY 1 FLOOR TILE LOCATIONS				
PROJECT NO. 3001–210	DRAWN BY: L.A.L.	DATE: 8–5–91	DWG. NO. 8/1–FT		
	CHECKED BY: F.B.G.	SCALE: N.T.S.			



LEGEND

- (CT) CEILING TILE
- (FT) FLOOR TILE
- (MA) MASTIC
- (X) AREA NOT ACCESSED
- \+ DENOTES POSITIVE RESULTS

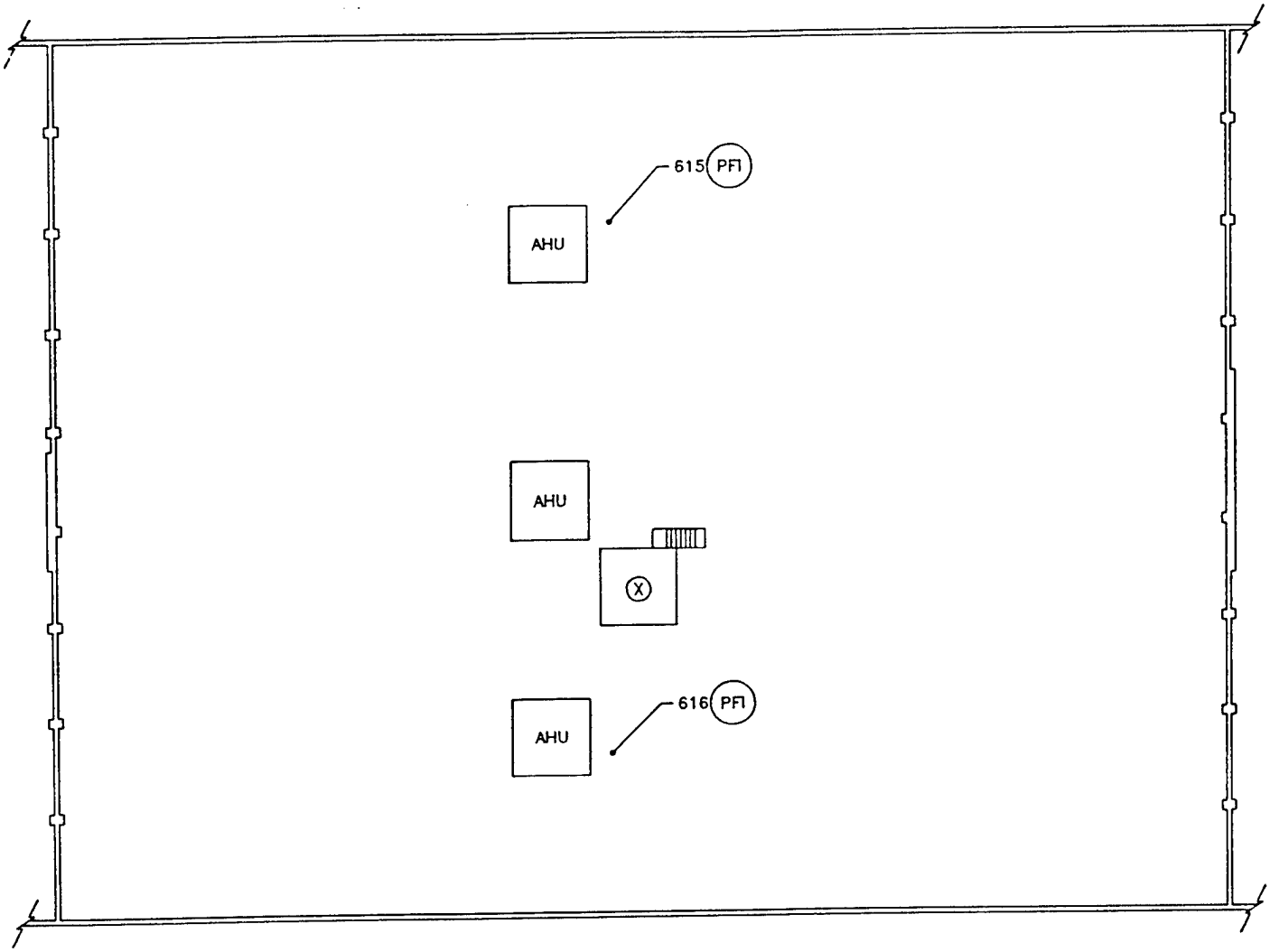
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 8 – BAY 2
SAMPLE LOCATIONS

Woodward–Clyde
Federal Services

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	8–5–91	8/2–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



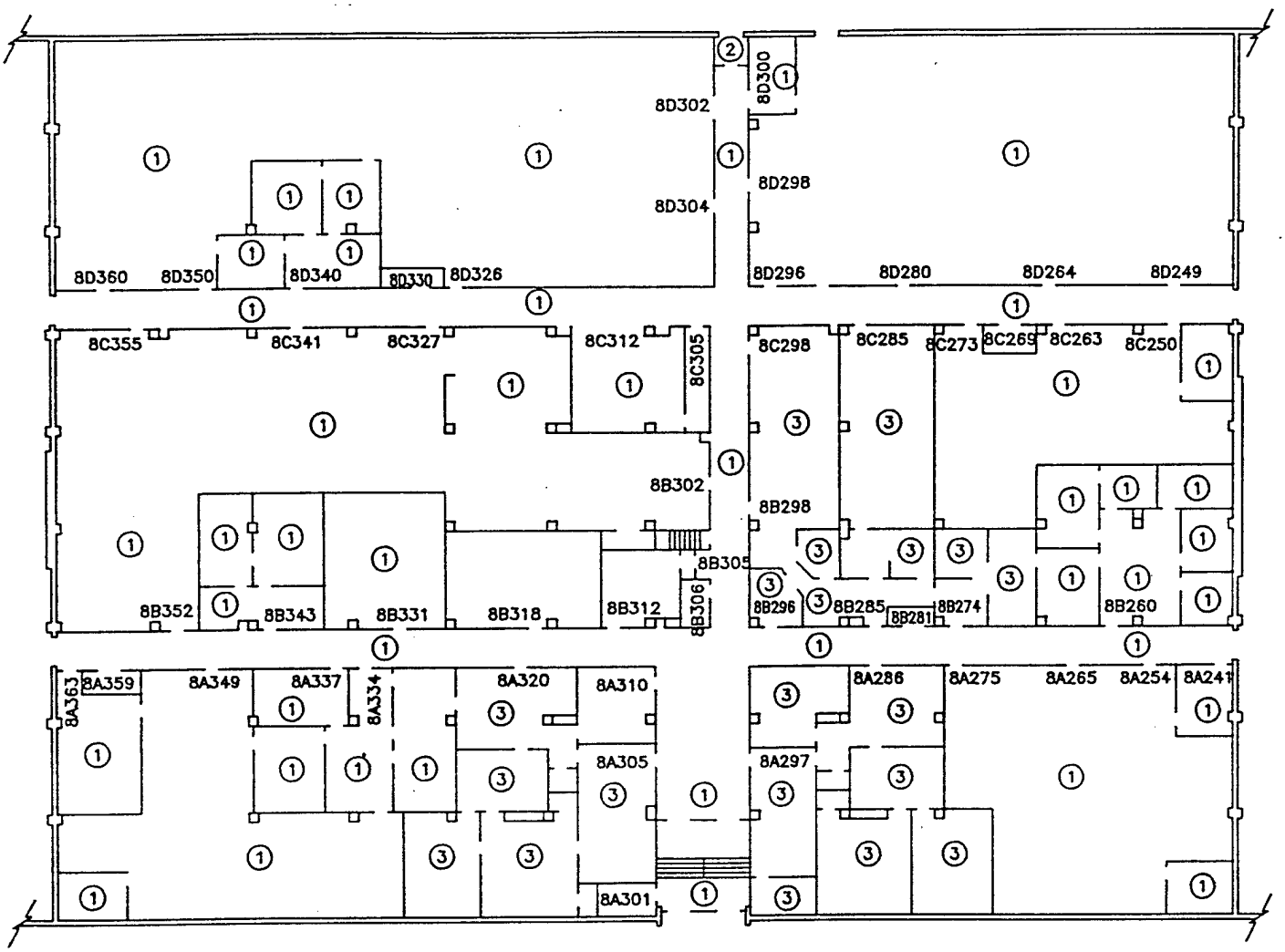
LEGEND

(PFI) PIPE FITTING INSULATION

(X) AREA NOT ACCESSED

AHU AIR HANDLING UNIT

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia				
Woodward–Clyde Federal Services	TITLE BUILDING 8 – BAY 2 ATTIC SAMPLE LOCATIONS				
	PROJECT NO. 3001–210	DRAWN BY: LAL	DATE: 8–5–91	DWG. NO. 8/2A–SL	
		CHECKED BY: F.B.G.	SCALE: N.T.S.		



LEGEND

(1) 2' x 4' SMOOTH TEXTURE TILE

(2) 2' x 2' UNIFORM HOLE TILE

(3) 12" x 12" RANDOM HOLE TILE

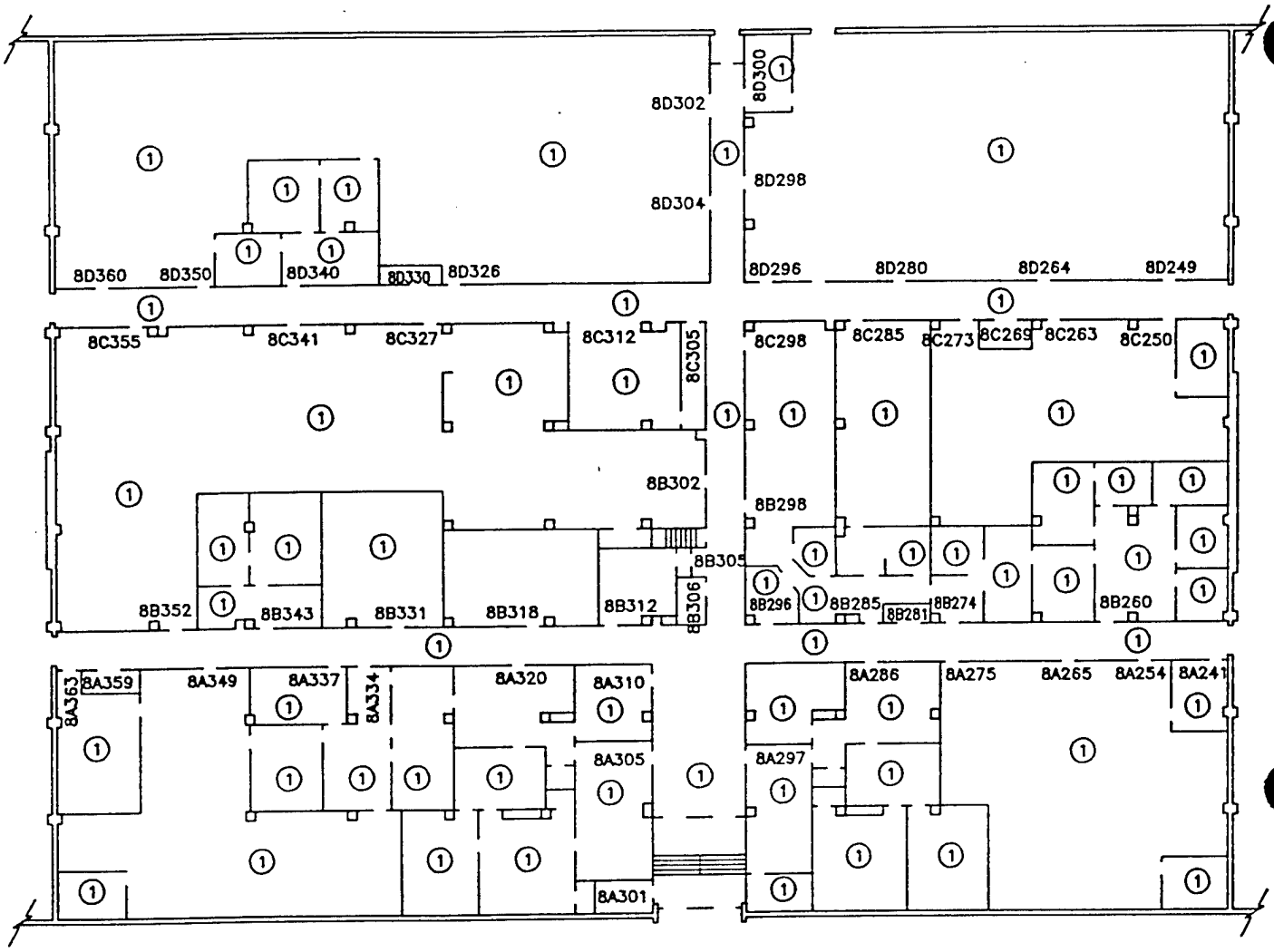
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 8 – BAY 2
CEILING TYPE LOCATIONS

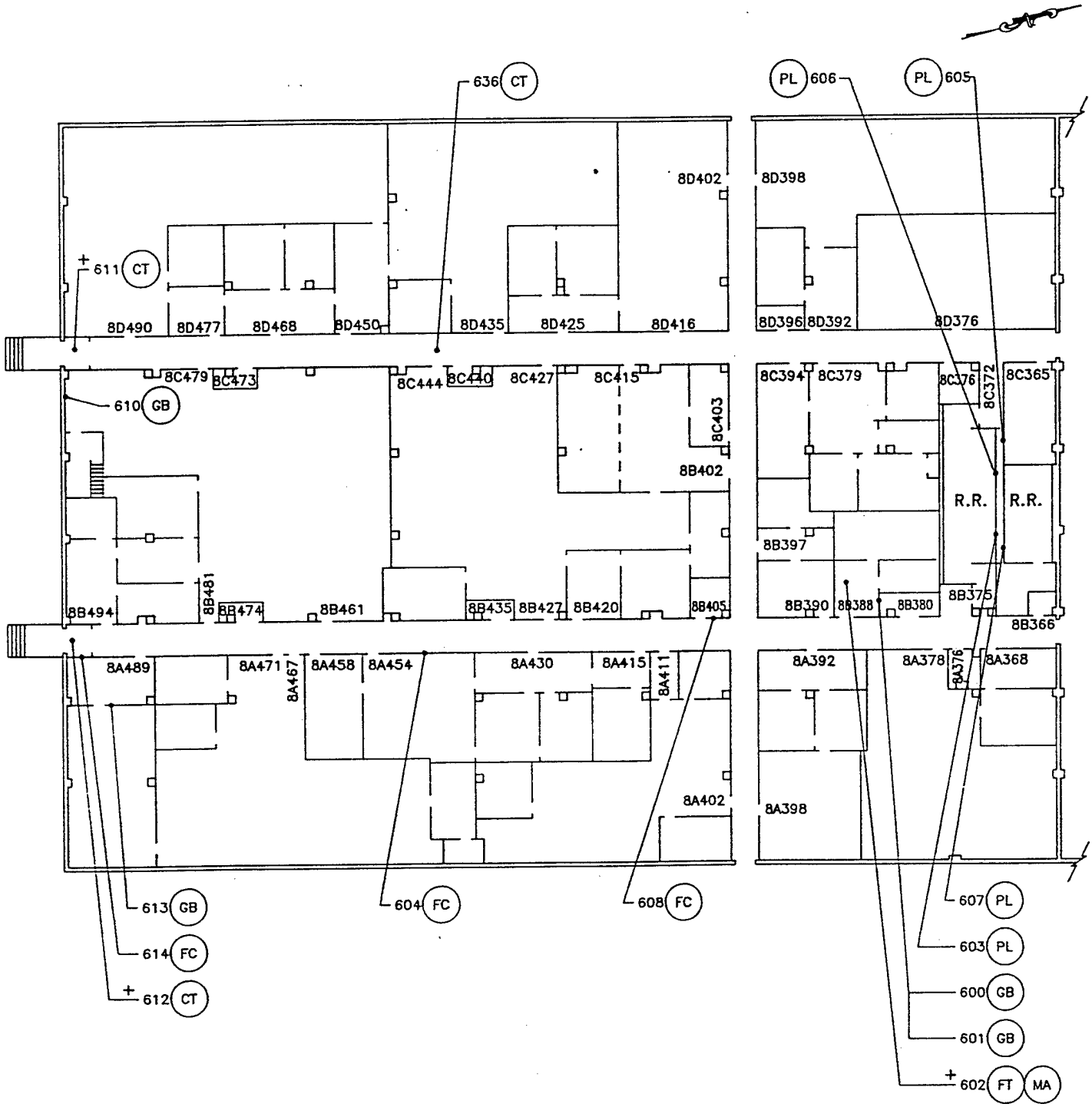
PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	CHECKED BY: F.B.G.	SCALE: N.T.S.	8/2–CT



LEGEND

① 9" x 9" GREEN

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia		
Woodward–Clyde Federal Services	TITLE BUILDING 8 – BAY 2 FLOOR TILE LOCATIONS		
PROJECT NO. 3001–210	DRAWN BY: L.A.L.	DATE: 6–5–91	DWG. NO. 8/2–FT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

CT	CEILING TILE	GB	GYPSUM BOARD
FT	FLOOR TILE	FC	FIRE CODE GYPSUM BOARD
MA	MASTIC	+	DENOTES POSITIVE RESULTS
PL	PLASTER		

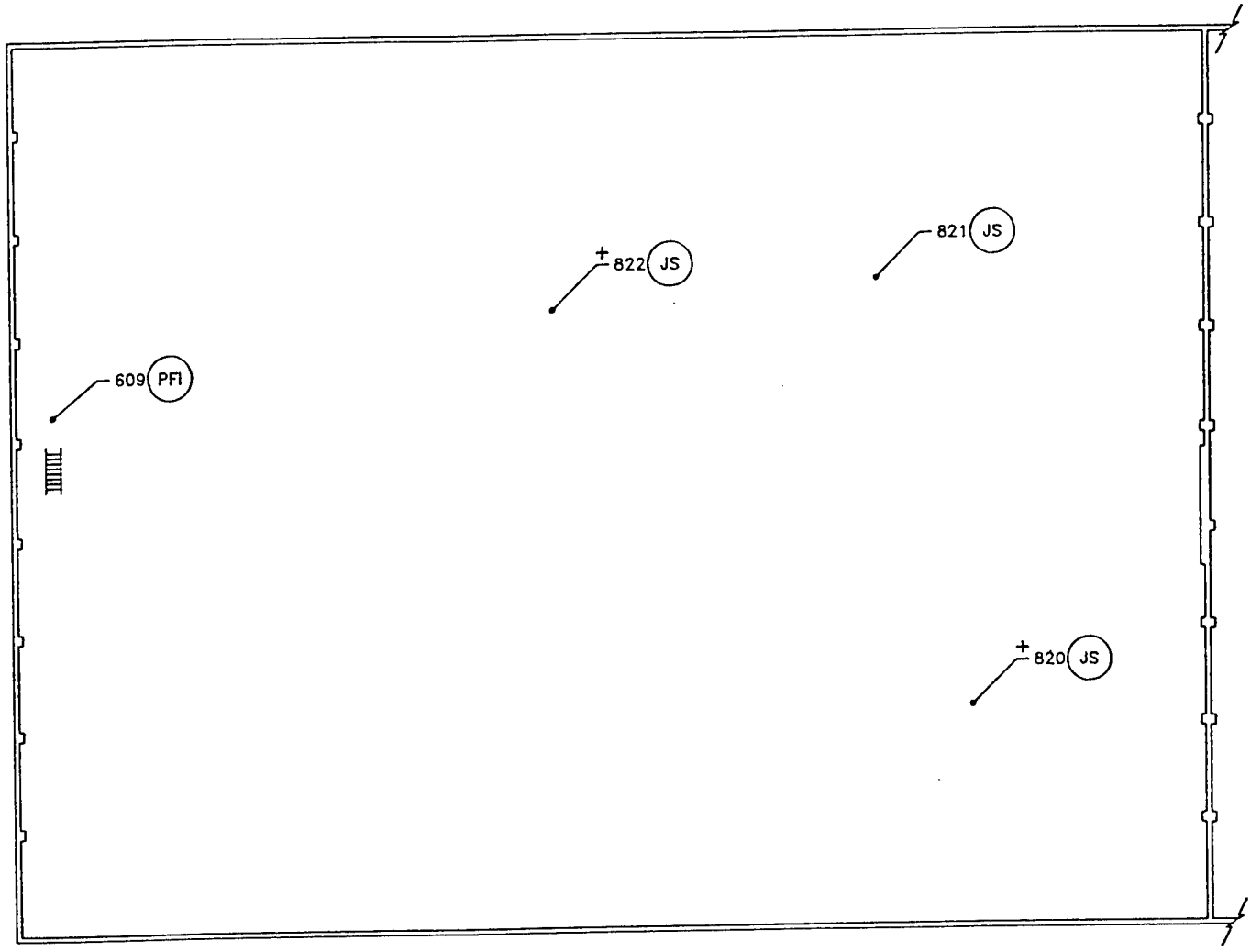
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 8 – BAY 3
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	8–5–91	8/3–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(PFI) PIPE FITTING INSULATION

(JS) JOINT SEALANT

\+ DENOTES POSITIVE RESULTS

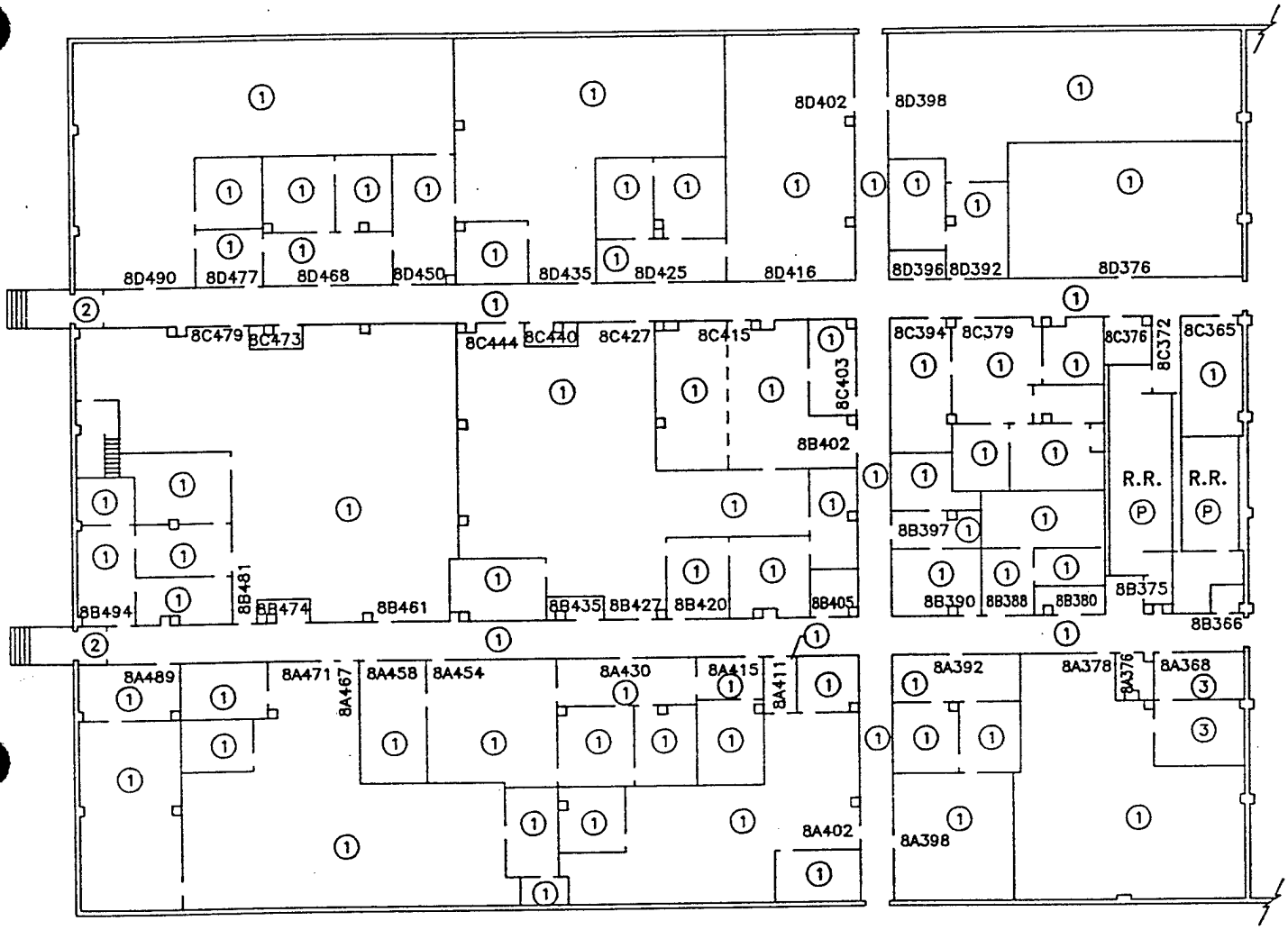
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 8 – BAY 3 ATTIC SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	8–5–91	8/3A–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

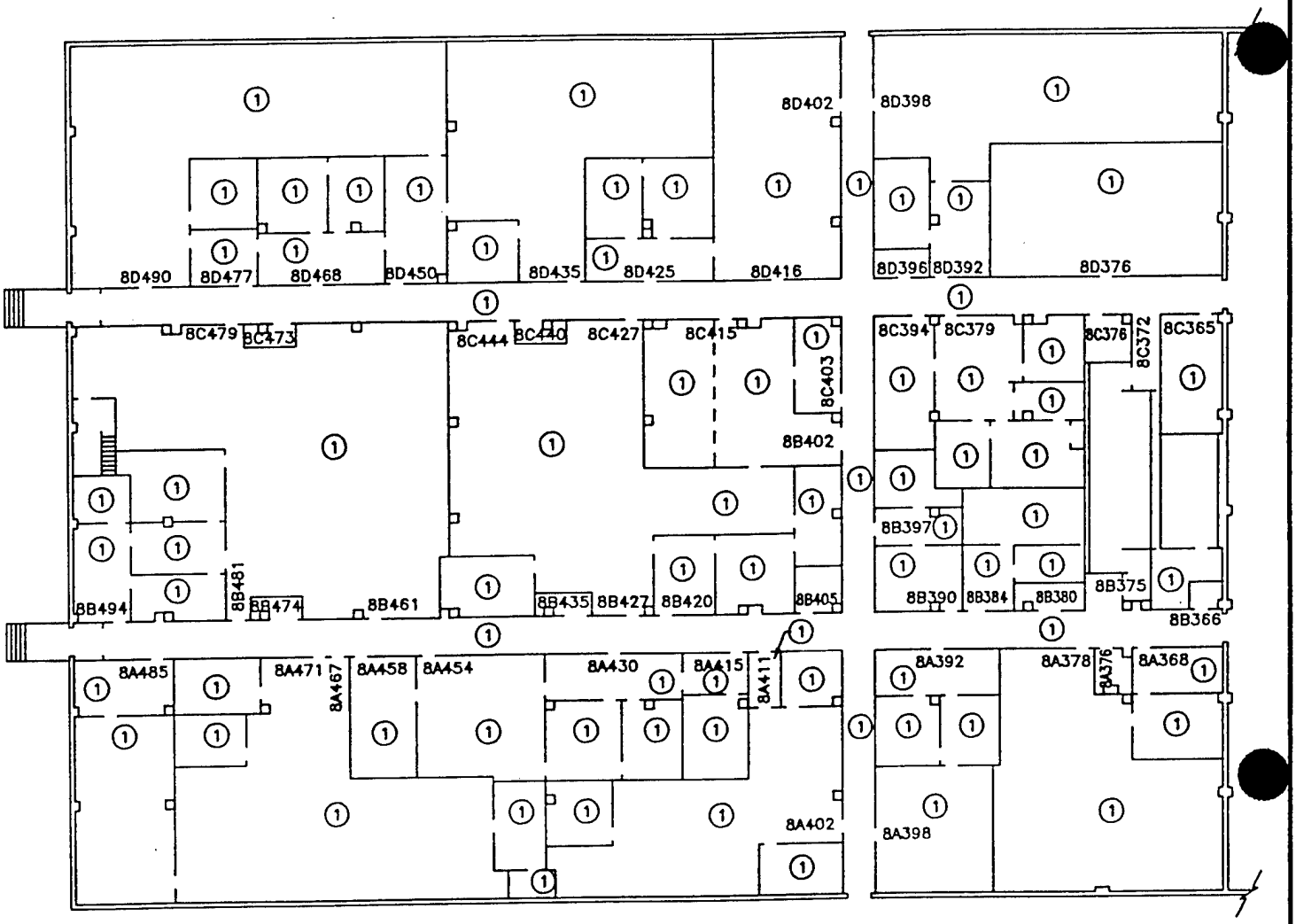
(1) 2' x 4' SMOOTH TEXTURE TILE

(2) 2' x 2' UNIFORM HOLE TILE

(3) 12" x 12" RANDOM HOLE TILE

(P) PLASTER

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward-Clyde Federal Services	TITLE BUILDING 8 – BAY 3 CEILING TILE LOCATIONS
PROJECT NO. 3001-210	DRAWN BY: LAL. DATE: 6-5-91 DWG. NO. 8/3-CT
	CHECKED BY: F.B.G. SCALE: N.T.S.



LEGEND

(1) 9" x 9" GREEN

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia		
Woodward–Clyde Federal Services	TITLE BUILDING 8 – BAY 3 FLOOR TILE LOCATIONS		
PROJECT NO. 3001–210	DRAWN BY: L.A.L.	DATE: 8–5–91	DWG. NO. 8/3–FT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	

APPENDIX 8-D

WALKTHROUGH SURVEY DATA SHEETS

Building 8 DLA/DFSC

EXTERIOR

Inspector Date Guardia/Barnes 12/18/90

Exterior Siding

Masonry ☒ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y (N) _____ Condition G F P Quantity _____ SF

Roof

Assume

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☐ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y N Condition G F P Quantity 130,000 SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☒	Y (N)	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☒	Y (N)	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☒ Steel Joists/Beams ☒ Wood Columns ☒ Steel Column ☒ Concrete Column ☒

Sample Y N Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☒ Firedoor ☐

Sample Y (N) Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building 8 Inspector/Date:

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler None							
Breeching None							
Furnace None							
Tanks/Vessels							
HWH		N					
~~Elec.~~/Telephone							
Phone closets have		concrete floors, plywood		walls. Gypsum board ceilings			
& Janitorial							
closets							
Other							
AHA w/ bystirm cloth					Assume		~120 SF

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

HVAC

Building 8 Inspector/Date:

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	Bays 1-3	Y	FG	N				
Pipe	Bays 1-3	Y	FG	N				
	Bay 1 North wall	Y	corrugated paper	Y	G	75	LF	
Fittings	Bays 1-3	Y	mud	Y	G	> 300	~~EA~~	
Other								
	Bay 1 attic	white	fluffy material on		brush ??	?		
		also	tar sprayed on wall		- assume OCM			

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 8 — Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
CT1 2x4	white/smooth	Throughout	Y	G	>110,000
2 2x2	" / uniform hole	Bldg entrances	Y	G	1000
3 12"x12"	" random "	See drawings	Y	G	7500
4 2x4	white -	mixed in w/ CT1	Y	G	?
FT1 9x9	Green	Throughout	Y	G	>120 000
Firecode Gypsum board		Hallways & entrances	Y	G	84000
Reg " "		Interior walls	Y	G	54000
Plaster		Restrooms	Y	G	>5000

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

APPENDIX 8-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 8
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91
Date Analyzed : 02/26/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
600	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AS	
601	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AS	
602	P	10-15	-----	-----	-----	-----	-----	-----	-----	-----	-----	85-90	AS	
603	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
604	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AS	
605	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
606	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
607	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
608	N	-----	-----	-----	-----	-----	-----	-----	<1	01-05	-----	95-99	AS	
609	N	-----	-----	-----	-----	-----	-----	30-35	-----	<1	-----	65-70	AS	
610	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AS	
611	P	35-40	-----	-----	-----	-----	-----	-----	-----	-----	-----	60-65	AS	
612	P	30-35	-----	-----	-----	-----	-----	-----	-----	-----	-----	65-70	AS	
613	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

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AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 8
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91
Date Analyzed : 02/26/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %					
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
614	N	-----	-----	-----	-----	-----	-----	-----	<1	10-15	-----	85-90	AS	
615	N	-----	-----	-----	-----	-----	-----	30-35	-----	<1	-----	65-70	AS	
616	N	-----	-----	-----	-----	-----	-----	30-35	-----	<1	-----	65-70	AS	
617	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
618	N	-----	-----	-----	-----	-----	-----	-----	-----	90-95	-----	05-10	AS	
619	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	-----	90-95	AS	
620	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	<1	90-95	AS	
621	N	-----	-----	-----	-----	-----	-----	-----	-----	15-20	-----	80-85	AS	
622	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
623	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
624	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
625	N	-----	-----	-----	-----	-----	-----	-----	-----	15-20	-----	80-85	AS	
626	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AS	
627	N	-----	-----	-----	-----	-----	-----	-----	<1	05-10	-----	90-95	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

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CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 8
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91
Date Analyzed : 02/26/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
628	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AS	
629	N	-----	-----	-----	-----	-----	-----	-----	-----	15-20	-----	80-85	AS	
630	N	-----	-----	-----	-----	-----	-----	-----	-----	15-20	-----	80-85	AS	
631	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AS	
632	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
633	P	25-30	-----	-----	-----	-----	-----	-----	-----	35-40	-----	30-40	AS	
634	N	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	100	AS	
635	P	20-25	-----	-----	-----	-----	-----	-----	-----	-----	-----	75-80	AS	
636	N	-----	-----	-----	-----	-----	-----	01-05	-----	25-30	-----	65-74	AS	
637	N	-----	-----	-----	-----	-----	-----	01-05	-----	35-40	-----	55-64	AS	
638	P	<1	-----	-----	-----	-----	-----	-----	-----	80-85	-----	15-20	AS	
820	P	01-05	-----	-----	-----	-----	-----	20-25	-----	<1	-----	70-80	AB	
821	P	<1	-----	-----	-----	-----	-----	-----	10-15	<1	<1	85-90	AB	
822	P	01-05	-----	-----	-----	-----	-----	<1	-----	01-05	-----	90-98	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

[illegible] Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 8
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91
Date Analyzed : 02/26/91
Person Submitting: David Barnes

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
823	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AB	
824	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AB	
825	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AB	

COMMENTS: * P = ASBESTOS PRESENT ** ANALYST ID CODE (SEE SIGNATURE)
N = ASBESTOS NOT OBSERVED

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

Andreas Saldivar (AS)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. All rights reserved. AMA Analytical Services, Inc.

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APPENDIX 8-F

SAMPLE CHAIN-OF-CUSTODY FORMS

WCFS Project 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward-Clyde Federal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Number of Containers
FBG		ASB008	600				
FBG		ASB008	601				
FBG		ASB008	602				
FBG		ASB008	603				
FBG		ASB008	604				
FBG		ASB008	605				
FBG		ASB008	606				

Sample Techniques (1) / Sample Flag Code (1) / Sample QC Code (1) / TEST NAME / CODE

TEST NAME	CODE
VOC	UM05 / LM05 / UM06 / LM06
SVOC	UM06 / LM06
Pest	UM06 / LM06
Pest (OCP/PCBs (gc/ec))	UH21 / LH19
Herbicides	
Rotenone	HPLC
TAL Metals	SS15 / JS14
CYN	TY03 / KY04
TPHC (IR)	E418.1 / E418.1
SO4	
CL	
NIT	
TCLP	SW1311
Asbest	
TCDD	SW8290 / SW8290
PCB Wipe	LH19

Relinquished by: Woodward–Clyde Federal Services
Date: 2/20/91 Time: 1330 Signature: KM Baumo

Accepted by: AMA Analytical Services, Inc.
Date: 2/20/91 Time: 13:35 Signature: L. Maurice

Total No. of Containers: 7

Comments:
3/2 1000 Lillian Federal Express

Pink: WCFS Project File

Gold: WCFS Project Scientist

WCFS Pro[redacted] o. 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyd[redacted] ederal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Wo[redacted] yde Federal Service
Bui[redacted]
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Service
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe					Number of Containers
										CODE	UM05	UM06	UM06	LM06	UH21	LH19	HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19				
FBG		ASB008	614																						✓							
FBG		ASB008	615																						✓							
FBG		ASB008	616																						✓							
FBG		ASB008	617																						✓							
FBG		ASB008	618																						✓							
FBG		ASB008	619																						✓							
FBG		ASB008	620																						✓							

Relinquished by: Woodward–Clyde Federal Services
Date: 2/20/91 Time: 1330 Signature: DM Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 2/20/91 Time: 13:35 Signature: L. Maurice

Total No. of Containers: 7

Comments:

5/28/91 1000 L. Maurice fed exp funds

White & Yellow: AMA Aonlytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientis

WCFS Projec . 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde deral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: D I M B

Field Office: Woodward Federal Services
Building 1
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec))	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe						Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19			HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19						
FBG		ASB008	621																						✓								
FBG		ASB008	622																						✓								
FBG		ASB008	623																						✓								
FBG		ASB008	624																						✓								
FBG		ASB008	625																						✓								
FBG		ASB008	626																						✓								
FBG		ASB008	627																						✓								

Relinquished by: Woodward–Clyde Federal Services
Date: 2/20/91 Time: 1330 Signature: DM Baum

Accepted by: AMA Analytical Services, Inc.
Date: 2/20/91 Time: 13:35 Signature: L. Mauricio

Total No. of Containers: 7

Comments:

2/21/91 1000 L Mauricio had exp[illegible]

Pink: WCFS Project File

Gold: WCFS Project Scienti

WCFS Proj[redacted] . 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward-Clyd[redacted] deral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: D.M.B

Field Office: Woodw[redacted] Federal Services
Building [redacted]
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
									CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		ASB008	628																						/						
FBG		ASB008	629																						/						
FBG		ASB008	630																						/						
FBG		ASB008	631																						/						
FBG		ASB008	632																						/						
FBG		ASB008	633																						/						
FBG		ASB008	634																						/						

Relinquished by: Woodward-Clyde Federal Services
Date: 2/20/91 Time: 1330 Signature: D.M. Baum

Accepted by: AMA Analytical Services, Inc.
Date: 2/20/91 Time: 13 35 Signature: L. Maurice

Total No. of Containers: 7

Comments:
3/20/91 1000 L. Maurice had exp final

Pink: WCFS Project File

Gold: WCFS Project Scien

WCFS Project 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: D. Mid

Field Office: Woodward-Clyde Federal Services
Building 1?
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe				Number of Containers
										CODE	UM05	UM06	UM06	UM06	UH21	LH19	HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB008	635																						/						
FBG		ASB008	636																						/						
FBG		ASB008	637																						/						
FBG		ASB008	638																						/						

Relinquished by: Woodward–Clyde Federal Services
Date: 2/20/91 Time: 1330 Signature: DM. Barra

Accepted by: AMA Analytical Services, Inc.
Date: 2/20/91 Time: 13:35 Signature: L. Maurice

Total No. of Containers: 4

Comments:
3/2 /91 1000 L. Maurice Hal explained

AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project [redacted] 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward-Clyde [redacted] deral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: F B G

Field Office: Wood[redacted] Federal Services
Building [redacted]
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (ge/ec))	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB 008	820																						1					
FBG		ASB 008	821																						1					
FBG		ASB 008	822																						1					
FBG		ASB 008	823																						1					
FBG		ASB 008	824																						1					
FBG		ASB 008	825																						1					

Relinquished by: Woodward-Clyde Federal Services
Date: 4/23/91 Time: 1100 Signature: [signature]

Accepted by: AMA Analytical Services, Inc.
Date: 4/24/91 Time: 1105 Signature: [signature]

Total No. of Containers: (6)

Comments:

BUILDING 9

9.1 DESCRIPTION

Building 9 is a large (greater than 190,000 square feet) masonry, timber and concrete structure with a flat tar, felt and gravel roof. Building 9 was initially constructed with open sides and was used as a storage facility. In the early 1960s, the building was enclosed with wood siding and converted to office and warehouse use. More recently, aluminum siding has been added over the wood siding. The building is divided into five bays by masonry firewalls. It is heated by natural gas; no steam lines enter the building.

Current occupants are:

- Bay 1 MDW Property Control Services
- Bay 2 Outdoor Recreation and Self-Service Supply
- Bay 3 Ft. Myer Commissary Warehouse
- Bay 4 EA/CA Supply Center
- Bay 5 Motor Pool

9.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 9-A through 9-F. A summary of this data is presented below.

9.2.1 Suspect Friable ACM

Three homogeneous areas of suspect friable ACM were identified and ten bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following three materials:

- Pipe fitting insulation
- Trowelled-on duct insulation
- Corrugated paper pipe insulation

These friable materials were found in three functional spaces and were assessed as follows:

- Pipe fitting insulation in Bay 5. Assessment of this material indicates a damage factor of 10 and an exposure factor of 14. According to the GAHA Index, this material ranks as Priority C.

- Pipe fitting insulation and corrugated paper pipe insulation in Bay 1, attic area. Assessment of this material indicates a damage factor of 10 and an exposure factor of 14. According to the GAHA Index, this material ranks as Priority C.

- Trowelled-on duct insulation in Bay 1 inside Door 8. Assessment of this material indicates a damage factor of 13 and an exposure factor of 19. According to the GAHA Index, this material ranks as Priority B.

9.2.2 Suspect Nonfriable ACM

Fifteen homogeneous areas of suspect nonfriable ACM were identified and thirty-seven bulk samples, including two QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following six materials:

- FT 1 9" x 9" black floor tile and mastic
- FT 3 9" x 9" brown floor tile and mastic
- FT 4 9" x 9" green floor tile and mastic
- FT 5 9" x 9" tan floor tile and mastic
- FT 7 12" x 12" black floor tile and mastic
- FT 8 12" x 12" green floor tile and mastic
- FT 9 12" x 12" brown floor tile and mastic

No assessment of these nonfriable asbestos-containing materials was performed. However as ACM they should be included in an O&M Program.

9.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

9.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following materials, originally identified in the walkthrough survey as suspect ACM, were examined more closely and reclassified as nonsuspect:

- CT 2 2' x 4' white w/black streaks fiberglass ceiling tile
- CT 6 2' x 4' white w/fissures fiberglass ceiling tile

No bulk samples of these materials were collected, and they were deleted as homogeneous sample areas from the final survey data.

9.4 AREAS NOT ACCESSED

The following areas in Building 9 were not accessed:

- Overhead area in Bay 4;
- Sprinkler system equipment room in Bay 4.

9.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
9		50 SF TSI	34 MF 70 LF PI

TSI = THERMAL SYSTEM INSULATION PI = PIPE INSULATION

MF = MUDDED FITTINGS * = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

9.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 9-A ACM Survey Results
Appendix 9-B Assessments/Recommendations for Friable ACM
Appendix 9-C Building Drawings
Appendix 9-D Walkthrough Survey Data Sheets
Appendix 9-E Laboratory Certificate of Analysis
Appendix 9-F Sample Chain-of-Custody Forms

APPENDIX 9-A

ACM SURVEY RESULTS

ACM Survey Results for Building 9

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	>190000	SF	Assume ACM	Assume ACM	
2	TSI	Pipe fitting insulation	Bay 5, east wall & above office area. Bay 1, attic above Door 8	Mod.	Fair	34	# of fittings	126 145 155	5-10% Chrysotile 1-5% Chrysotile 1-5% Amosite	
3	TSI	Trowelled-on duct insulation	Inside Door 8	Mod.	Fair	50	SF	117 128 130 133	25-30% Chrysotile 40-45% Chrysotile 35-40% Chrysotile 25-30% Chrysotile	Sample 128 is a QC for sample 117.
4	TSI	Corrugated paper pipe insulation	Bay 1, attic above restroom & storage room	Mod.	Poor	70	LF	140 142 143	30-35% Chrysotile 35-40% Chrysotile 35-40% Chrysotile	2" pipe diameter with insulation. Also several lengths of insulation loose on attic floor.
5	Misc.	Floor tile & mastic	See Drawing 9/1-FT	Non	Fair	700	SF	110 115	5-10% Chrysotile 1-5% Chrysotile	FT 1 9" x 9" black floor tile
6	Misc.	Floor tile & mastic	See Drawing 9/1-FT	Non	Fair	80	SF	111 116	<1% Chrysotile <1% Chrysotile	FT 2 9" x 9" gray floor tile

ACM Survey Results for Building 9 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
7	Misc.	Floor tile & mastic	See Drawings 9/1-FT 9/5-FT	Non	Fair	420	SF	123 154	1-5% Chrysotile 1-5% Chrysotile	FT 3 9" x 9" brown floor tile
8	Misc.	Floor tile & mastic	See Drawings 9/1-FT 9/2-FT 9/5-FT	Non	Good	5100	SF	109 120	<1% Chrysotile 1-5% Chrysotile	FT 4 9" x 9" green floor tile
9	Misc.	Floor tile & mastic	See Drawing 9/1-FT	Non	Fair	1500	SF	121 125	1-5% Chrysotile 1-5% Chrysotile	FT 5 9" x 9" tan floor tile
10	Misc.	Floor tile & mastic	See Drawings 9/2-FT 9/3-FT 9/4-FT 9/5-FT	Non	Good	2400	SF	131 134	<1% Chrysotile None detected	FT 6 12" x 12" white floor tile
11	Misc.	Floor tile & mastic	See Drawing 9/2-FT	Non	Good	100	SF	147 151	1-5% Chrysotile 1-5% Chrysotile	FT 7 12" x 12" black floor tile
12	Misc.	Floor tile & mastic	See Drawing 9/5-FT	Non	Good	1500	SF	144 149	None detected None detected[1] 3-4% chrysotile[2]	FT 8 12" x 12" green floor tile
13	Misc.	Floor tile & mastic	See Drawing 9/5-FT	Non	Good	1300	SF	152 153	1-5% Chrysotile 1-5% Chrysotile	FT 9 12" x 12" brown floor tile

[1]using PLM
[2]using TEM

ACM Survey Results for Building 9 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
14	Misc.	Floor tile & mastic	See Drawing 9/4-FT	Non	Good	300	SF	135 136	None detected None detected	FT 10 12" x 12" white marbled floor tile
15	Misc.	Ceiling tile	See Drawing 9/1-CT	Non	Good	132	SF	113 114	None detected None detected	CT 1 2' x 4' white w/rough texture
16	Misc.	Ceiling tile	See Drawings 9/1-CT 9/2-CT 9/3-CT 9/5-CT	Non	Good	4200	SF	112 118 127	None detected None detected None detected	CT 3 2' x 4' white w/fissures Sample 127 is a QC for sample 112.
17	Misc.	Ceiling tile	See Drawing 9/1-CT	Non	Good	360	SF	122 124	None detected None detected	CT 4 12" x 12" white w/random holes
18	Misc.	Ceiling tile	See Drawings 9/3-CT 9/5-CT	Non	Good	610	SF	146 150	None detected None detected	CT 5 12" x 12" white w/small holes
19	Surfacing	Gypsum board	Walls: Finished areas throughout building Ceilings: See Drawings 9/4-CT 9/5-CT	Non	Good	34000	SF	119 129 132 137 138 139 141 148	None detected None detected None detected None detected None detected None detected None detected None detected	 Sample 139 is a QC for sample 137.

APPENDIX 9-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 9.

Functional Space	Homogeneous Sample Area #	Material Description: Category (surfacing TSI or misc.)	Material Description: Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
9-1 Bay 5, along east wall and above office area	2	TSI	Pipe fitting insulation	10	14	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
9-2 Bay 1, attic area above Door 8, restroom and storage area	2, 4	TSI	Pipe fitting insulation, corrugated paper pipe insulation	10	14	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
9-3 Bay 1, inside Door 8	3	TSI	Trowelled-on duct insulation	13	19	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable Asbestos Assessment Checklist

Cameron Station Building 9 Inspector/Date Barnes / Guardia 1/25/91

Homogeneous Sample Area #(s) 2 Material Type(s) Pipe fitting insulation

Functional Space 9-1 Bay 5 along east wall & above office area

Part 1: Damage/Risk

- Visible evidence of physical damage: **5** High; (4) Moderate; **2** Low; **1** Minimal; **0** None
- Water damage: (3) Yes; **0** No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: **3** <1 ft. or ceiling panel contaminated; **2** 1≤ ft <5; **1** ≥5 ft; **0** ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: **3** Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; **0** No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; **3** HVAC; **4** Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: **8** High; **5** Medium; **2** Low
  - B. ≥ 10 ft: **5** High; **3** Medium; (0) Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; **3** 30 < % ≤ 50; **5** > 50%; **NO HAZARD** Samples contain no asbestos
- Sample Numbers: 126, 145, 155

Damage/Risk Total 10

Friable Asbestos Assessment Checklist

Cameron Station Building 9 Inspector/Date Barnes/Guardia 1/25/91

Homogeneous Sample Area #(s) 2 Material Type(s) Pipe fitting insulation

Functional Space 9-1 Bay 5 along east wall & above office area

Part 2: Exposure

- Friability: 6 High; (3) Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft_2
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  4 Rough; (3) Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); 2 Medium (occasional vibration); (0) Low
- Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  (1) ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; 4 75 < % ≤ 100
- Population: 1 ≤ 9 or for corridors; (2) 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 14

Friable Asbestos ... essment Checklist

Cameron Station Building 9 Inspector/Date Barnes / Gerardo 1/25/91

Homogeneous Sample Area #(s) 2, 4 Material Type(s) pipe fitting insulation, corrugated paper pipe insulation

Functional Space 9-2 Bay 1 attic, above door 8, restroom & storage area

Part 1: Damage/Risk

- Visible evidence of physical damage: (5) High; 4 Moderate; 2 Low; 1 Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

  A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance

  B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:

  A. < 10 ft: 8 High; 5 Medium; 2 Low

  B. ≥ 10 ft: 5 High; 3 Medium; (0) Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  1 1< % ≤ 30; (3) 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 126, 145, 155, 140, 142 143

Damage/Risk Total 10

Friable Asbestos Assessment Checklist

Cameron Station Building 9 Inspector/Date Barnes / Giandia 7/25/91

Homogeneous Sample Area #(s) 2 Material Type(s) pipe fitting insulation, corrugated paper pipe insulation

Functional Space 9-2 Bay 1 attic, above Div. 8, restroom & storage area

Part 2: Exposure

- Friability: 6 High; (3) Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; 0 None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); 2 Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  (1) ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; 4 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 14

Friable Asbestos Assessment Checklist

Cameron Station Building 9 Inspector/Date Barnes / Guarda 1/25/91

Homogeneous Sample Area #(s) 3 Material Type(s) Trowelled on duct insulation

Functional Space 9-3 Bay 1, just inside Door 8

Part 1: Damage/Risk

- Visible evidence of physical damage: **5** High; (4) Moderate; **2** Low; **1** Minimal; **0** None
- Water damage: **3** Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: **3** <1 ft. or ceiling panel contaminated; **2** 1≤ ft <5; **1** ≥5 ft; **0** ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: **3** Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; **0** No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; **1** Boiler/pipe; (3) HVAC; **4** Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: **8** High; **5** Medium; (2) Low
  - B. ≥ 10 ft: **5** High; **3** Medium; **0** Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  1 1< % ≤ 30; (3) 30 < % ≤ 50; **5** > 50%; **NO HAZARD** Samples contain no asbestos
- Sample Numbers: 117, 128, 130, 133

Damage/Risk Total 13

Friable Asbestos Assessment Checklist

Cameron Station Building 9 Inspector/Date Barnes/Guenther 1/25/91

Homogeneous Sample Area #(s) 3 Material Type(s) Trowelled-on duct insulation

Functional Space 9-3 Bay 1, duct inside door 8

Part 2: Exposure

- Friability: 6 High; (3) Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft_2
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  4 Rough; 3 Pitted; (2) Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  (5) High (constant vibration); 2 Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

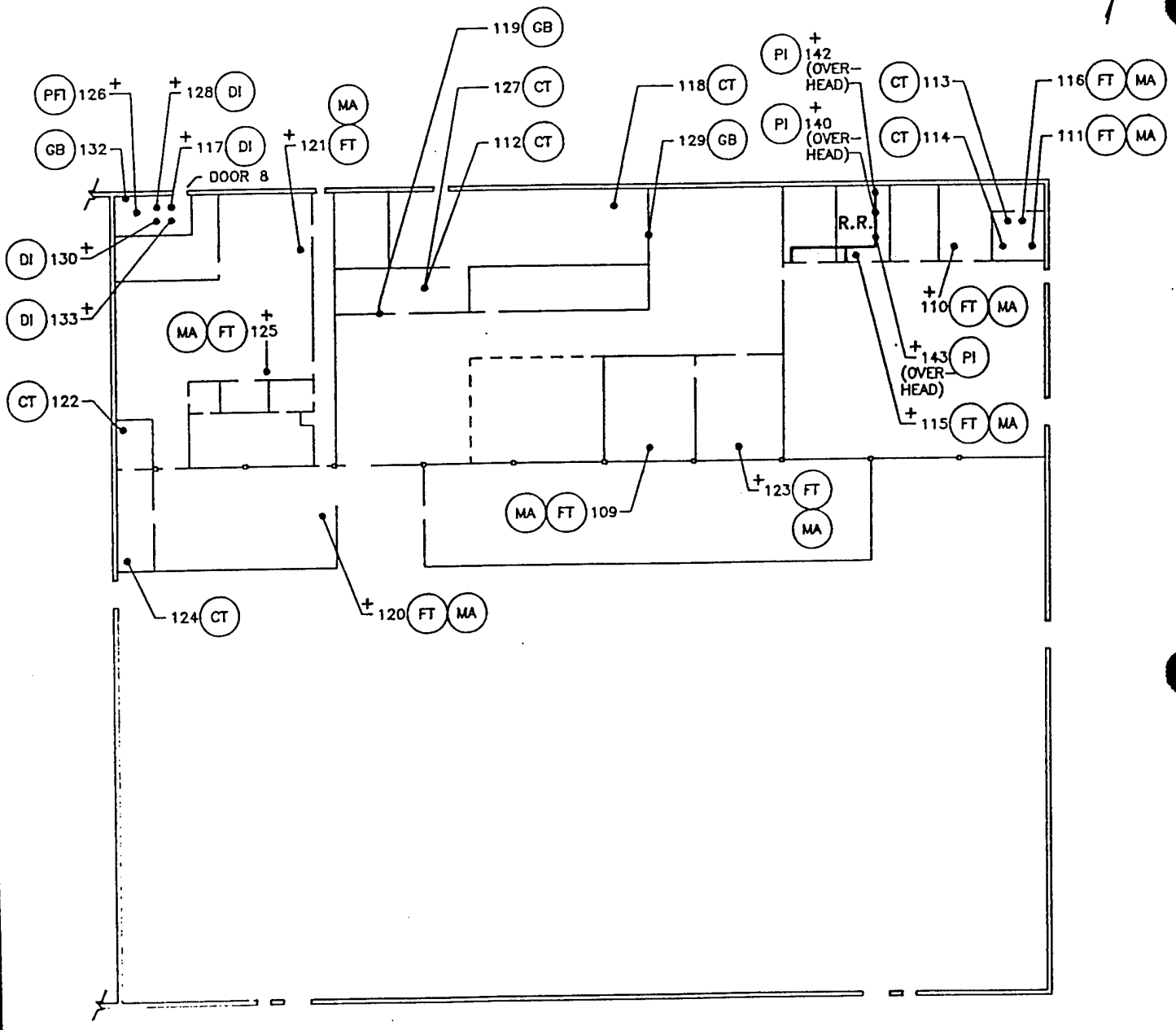
  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 19

APPENDIX 9-C

BUILDING DRAWINGS



LEGEND

PI	PIPE INSULATION	GB	GYPSUM BOARD
CT	CEILING TILE	DI	DUCT INSULATION
FT	FLOOR TILE	+	DENOTES POSITIVE RESULTS
MA	MASTIC		

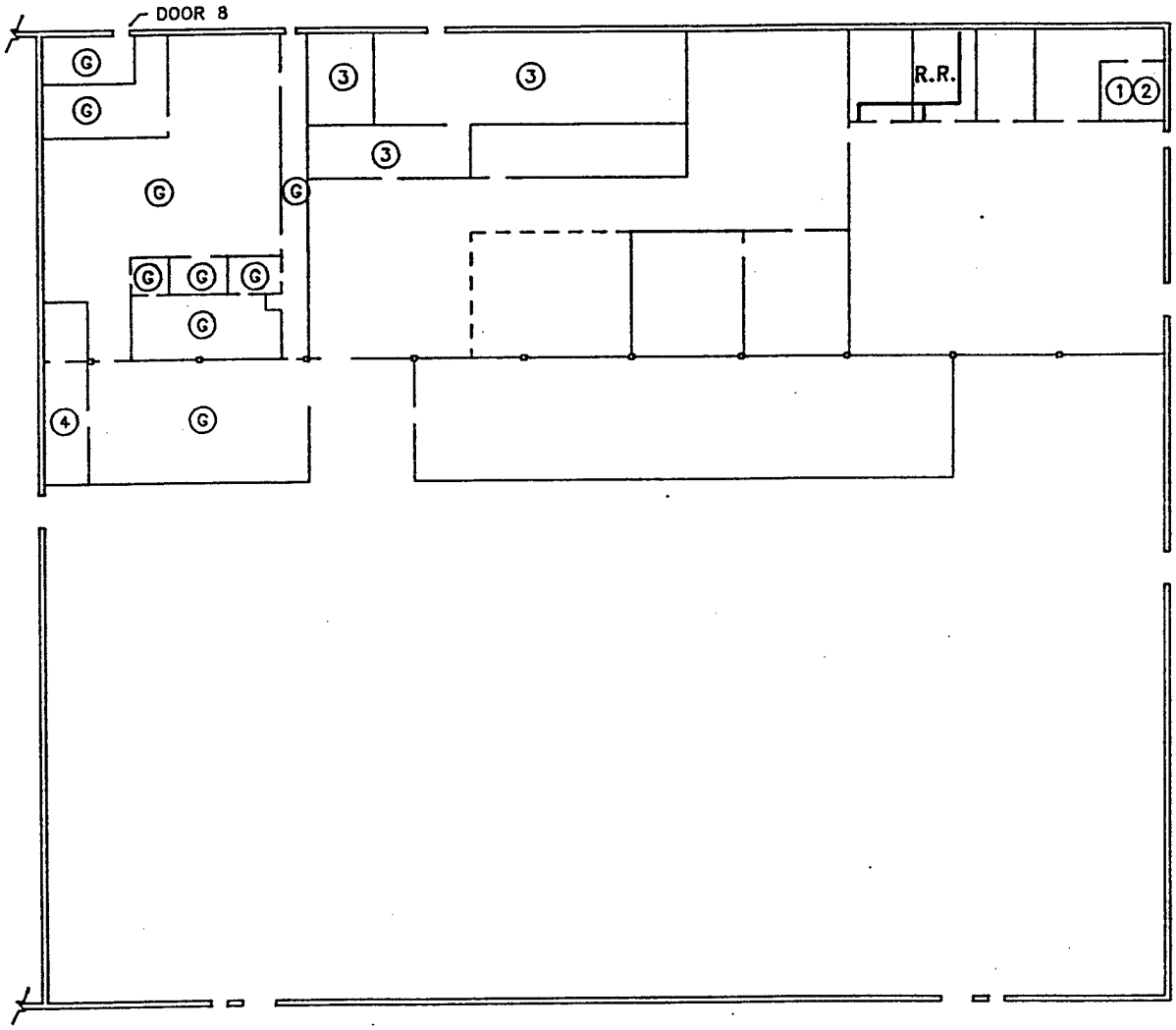
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 9 – BAY 1
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–21–91	9/1–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(1) 2" x 4" ROUGH TEXTURED TILE

(2) 2" x 4" TEXTURED FIBERGLASS TILE

(3) 2" x 4" FISSURED TILE

(4) 12" x 12" RANDOM HOLE TILE

(G) GYPSUM BOARD

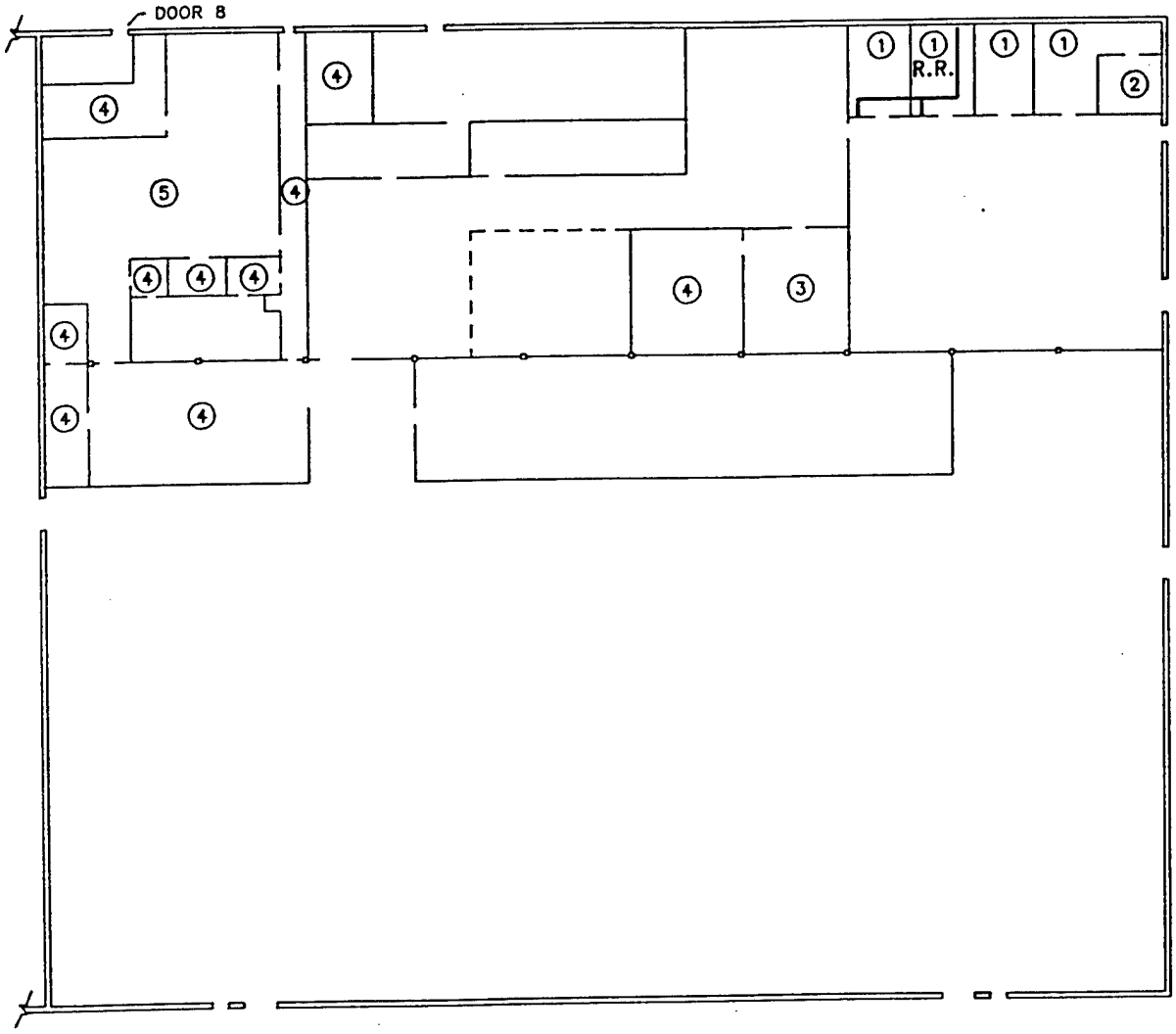
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 9 – BAY 1
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–21–91	9/1–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(1) 9" x 9" BLACK

(2) 9" x 9" GRAY

(3) 9" x 9" BROWN

(4) 9" x 9" GREEN

(5) 9" X 9" TAN

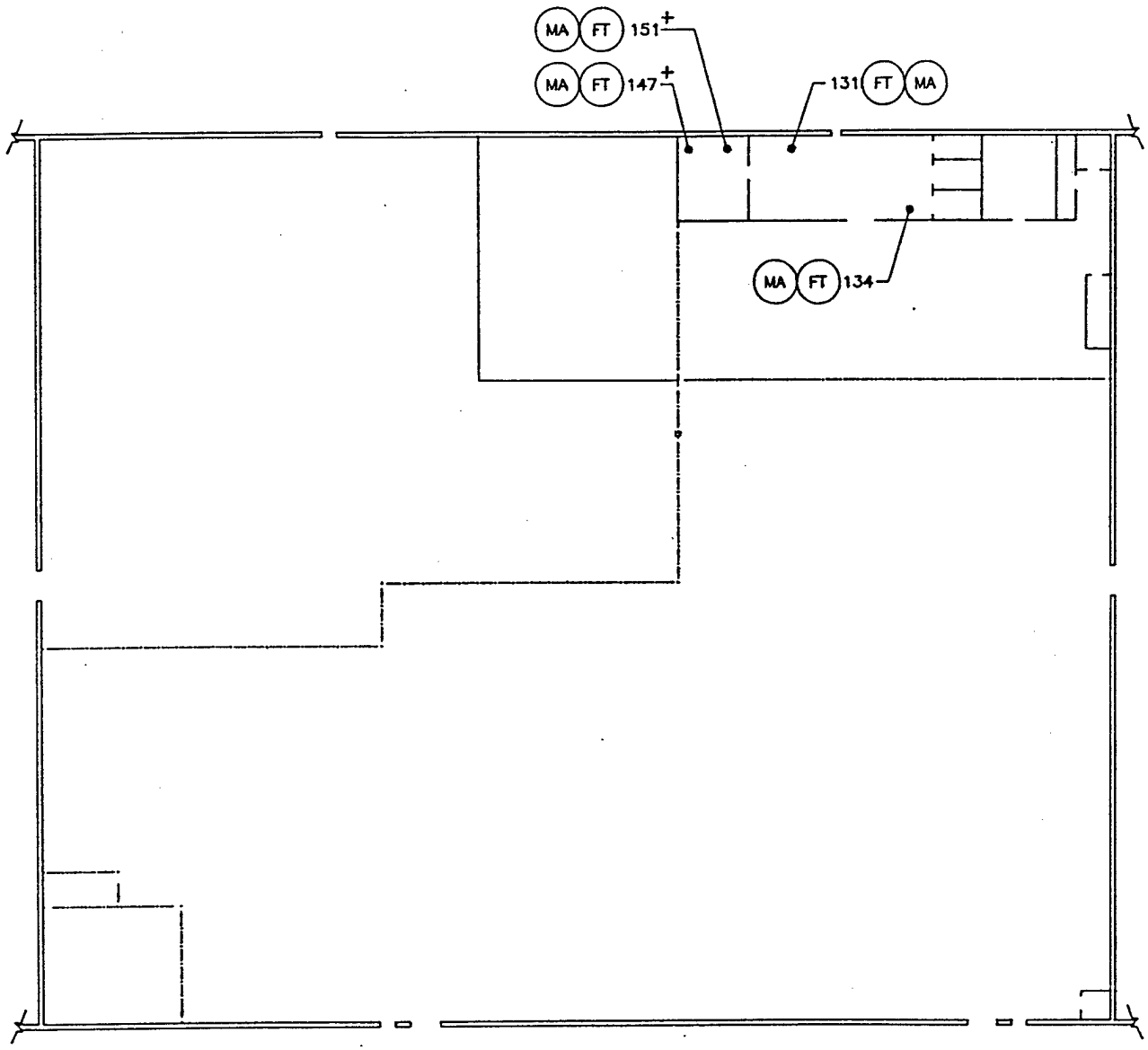
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 9 – BAY 1
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–21–91	9/1–FT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



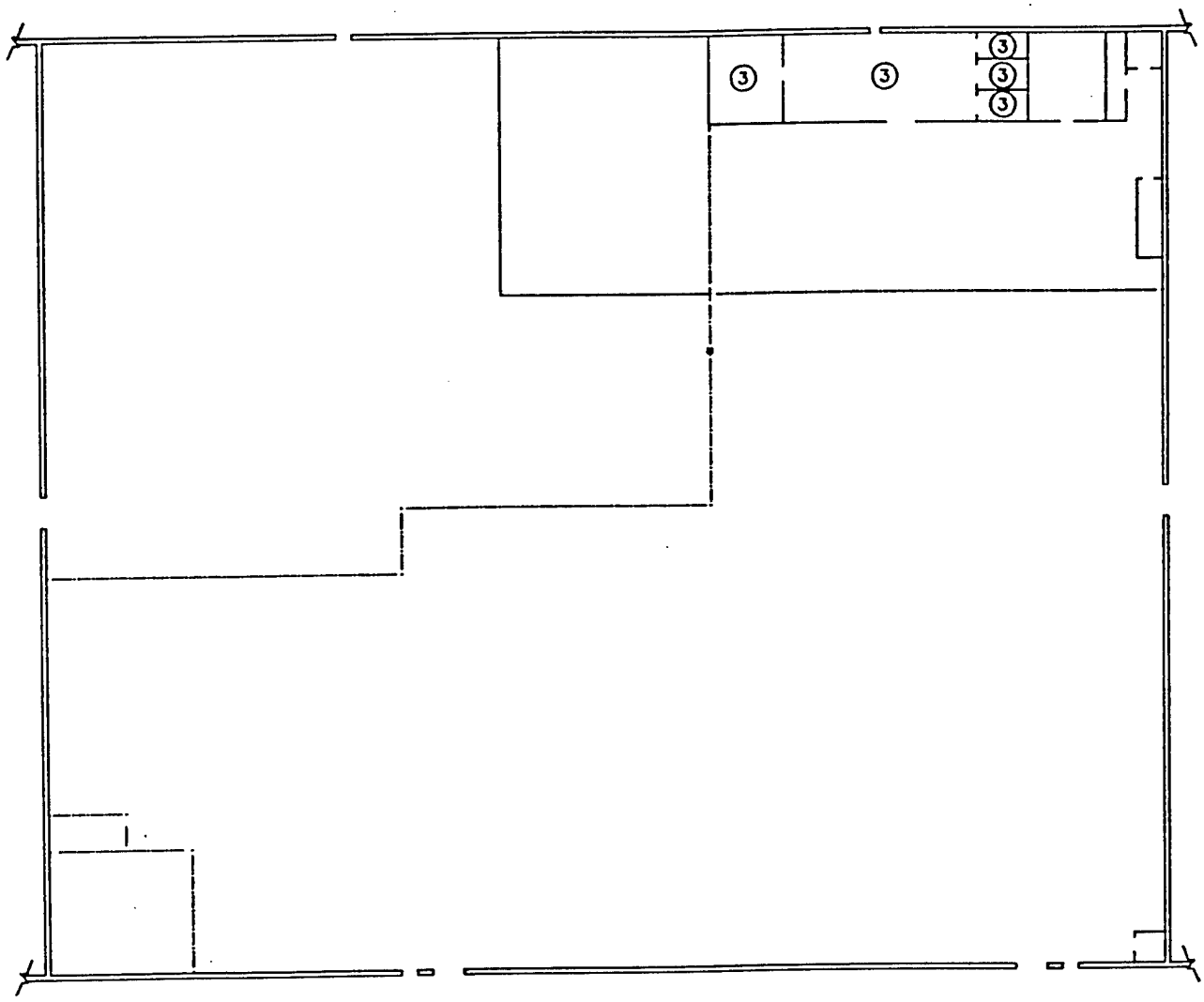
LEGEND

(FT) FLOOR TILE

(MA) MASTIC

\+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 9 – BAY 2 SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. / CHECKED BY: F.B.C. / DATE: 5–21–91 / SCALE: N.T.S. / DWG. NO. 9/2–SL



LEGEND

③ 2' x 4' FISSURED TILE

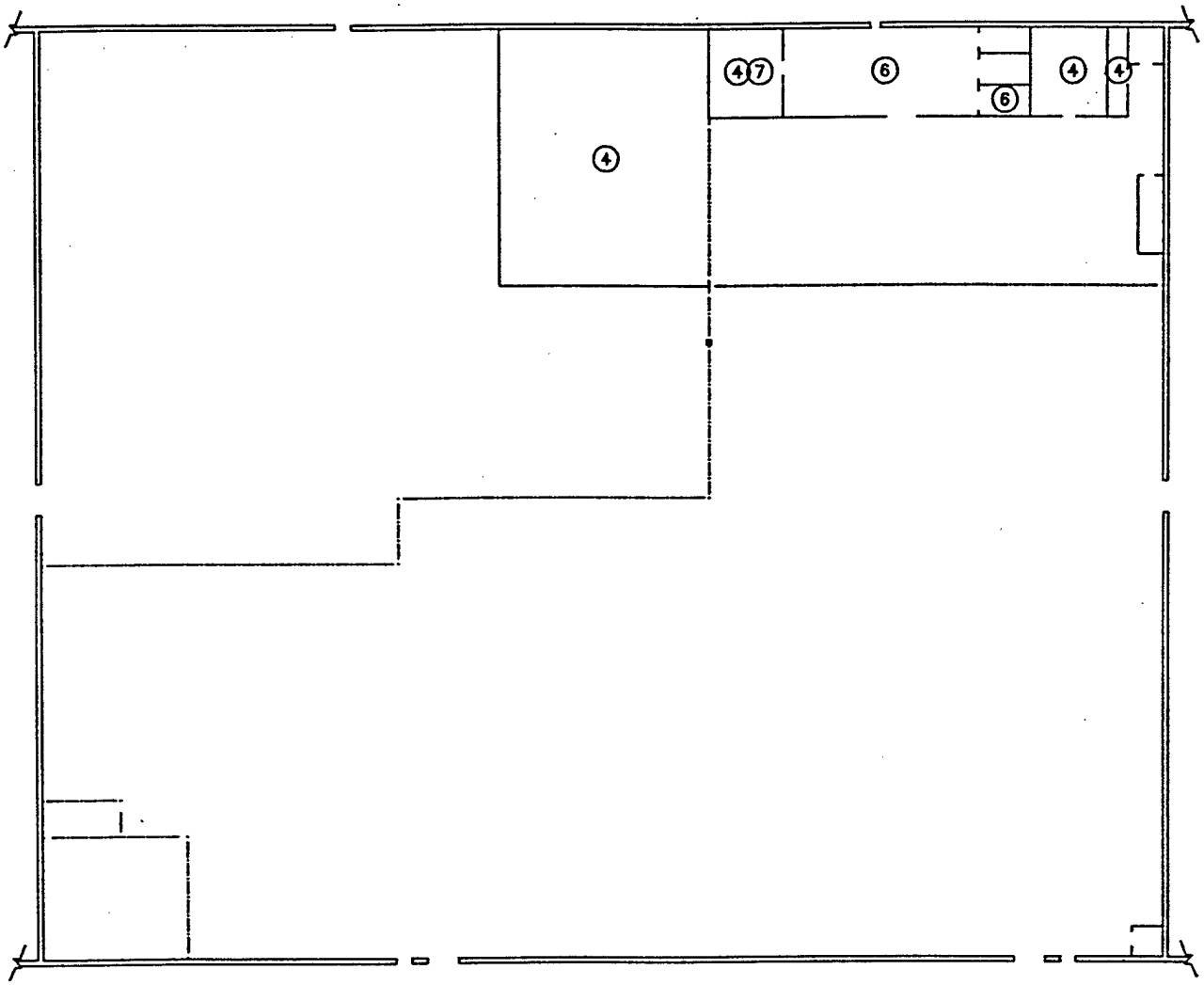
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 9 – BAY 2
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–21–91	9/2–CT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(4) 9" x 9" GREEN

(6) 12" x 12" WHITE

(7) 12" x 12" BLACK

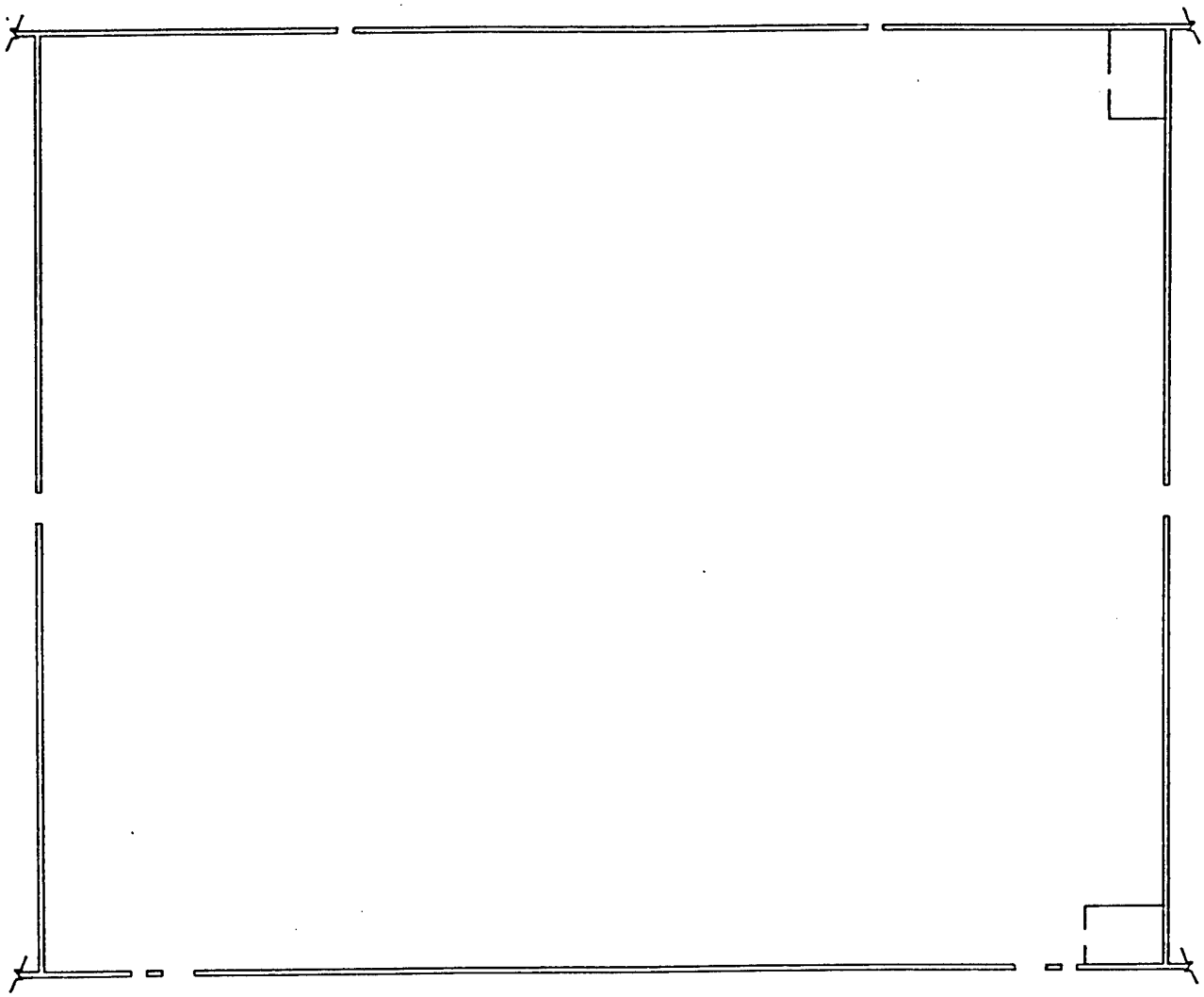
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

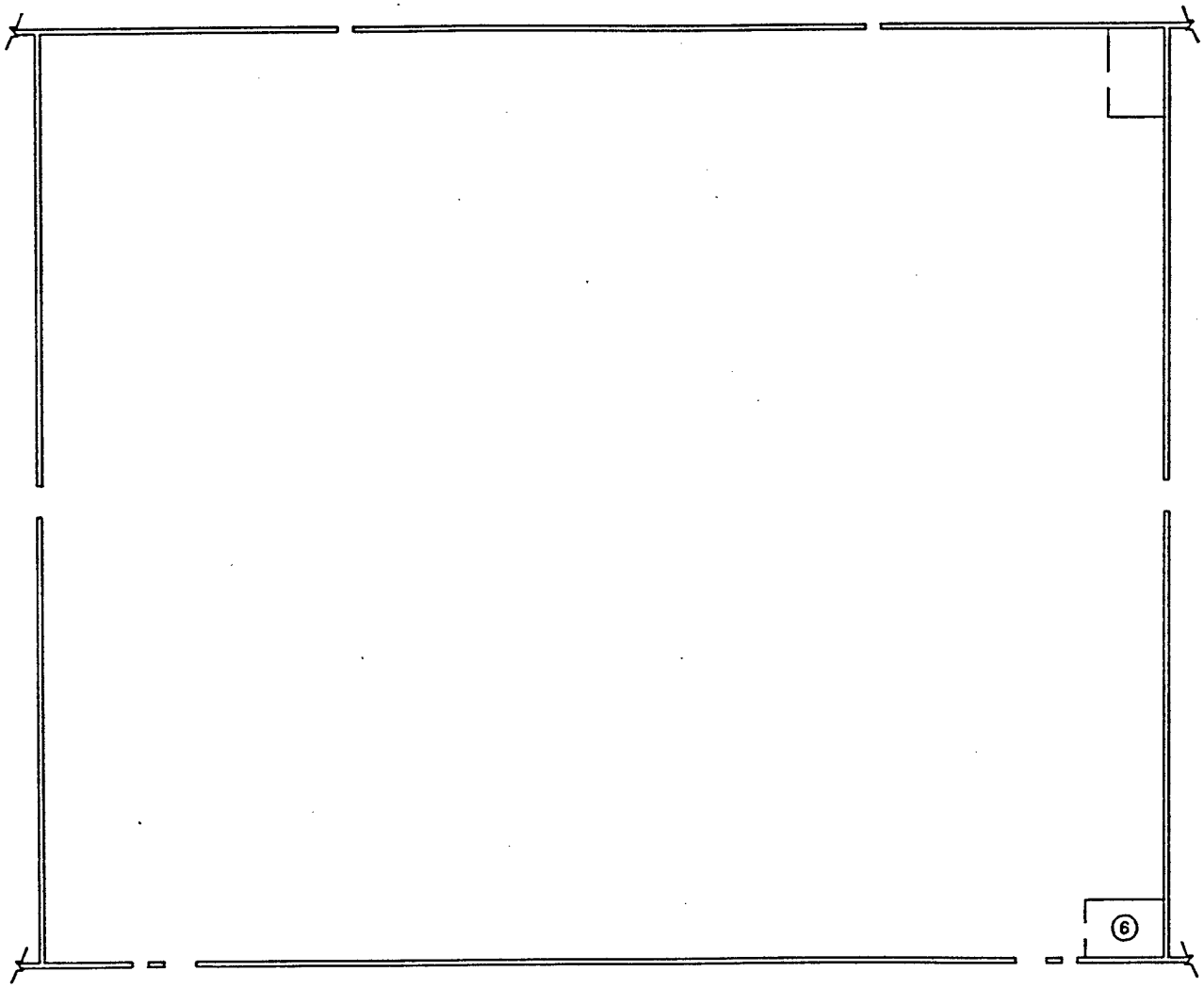
TITLE BUILDING 9 – BAY 2
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–21–91	9/2–FT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



NOTE:
NO SAMPLES COLLECTED IN THIS BAY

JENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 9 – BAY 3 SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. / CHECKED BY: F.B.G. / DATE: 5–21–91 / SCALE: N.T.S. / DWG. NO. 9/3–SL



LEGEND

⑥ 12" x 12" WHITE

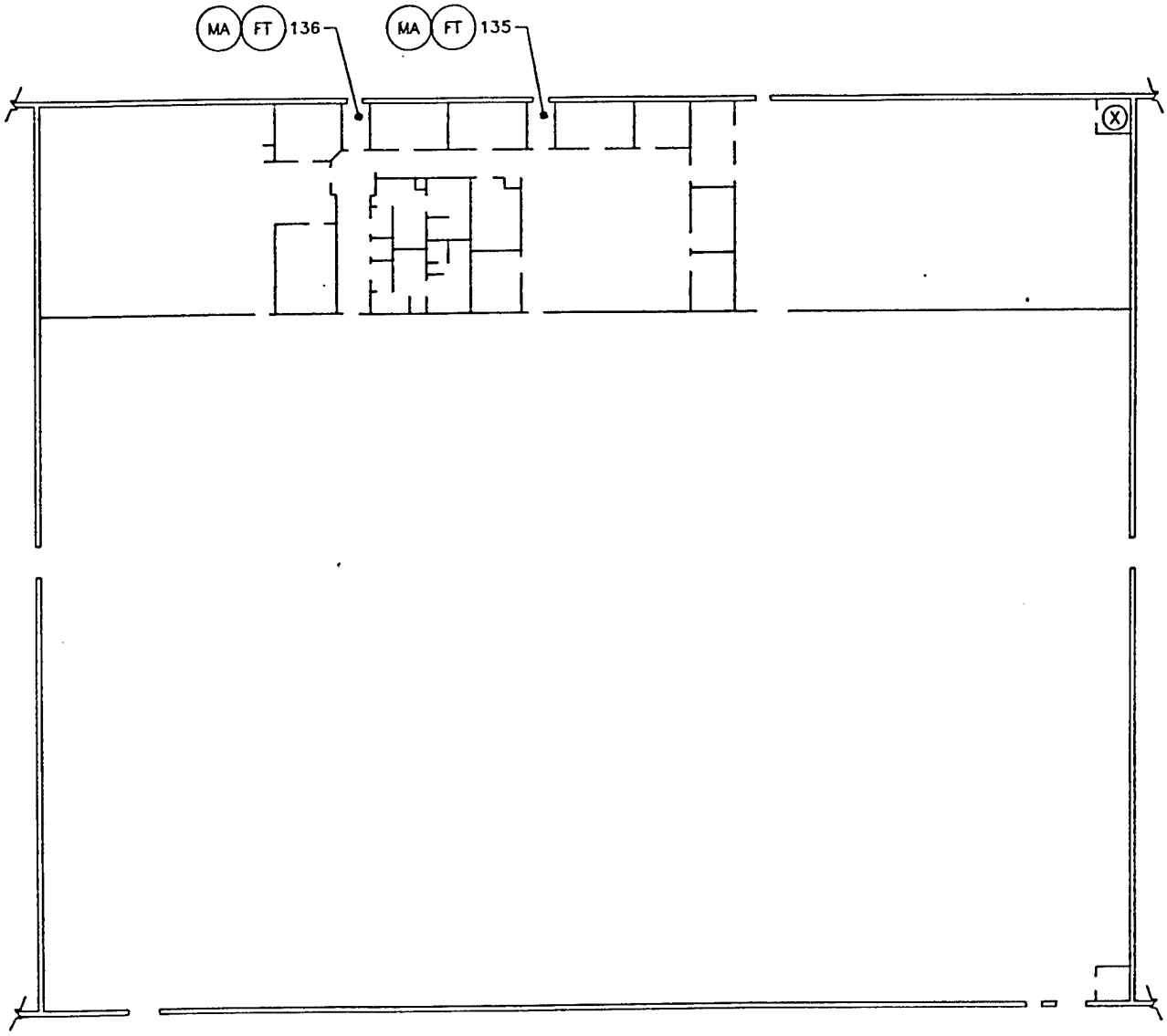
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 9 – BAY 3
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	L.A.L.	DATE:	5-21-91	DWG. NO.
3001–210	CHECKED BY:	F.B.G.	SCALE:	N.T.S.	9/3–FT



LEGEND

(FT) FLOOR TILE

(MA) MASTIC

(X) AREA NOT ACCESSED

\+ DENOTES POSITIVE RESULTS

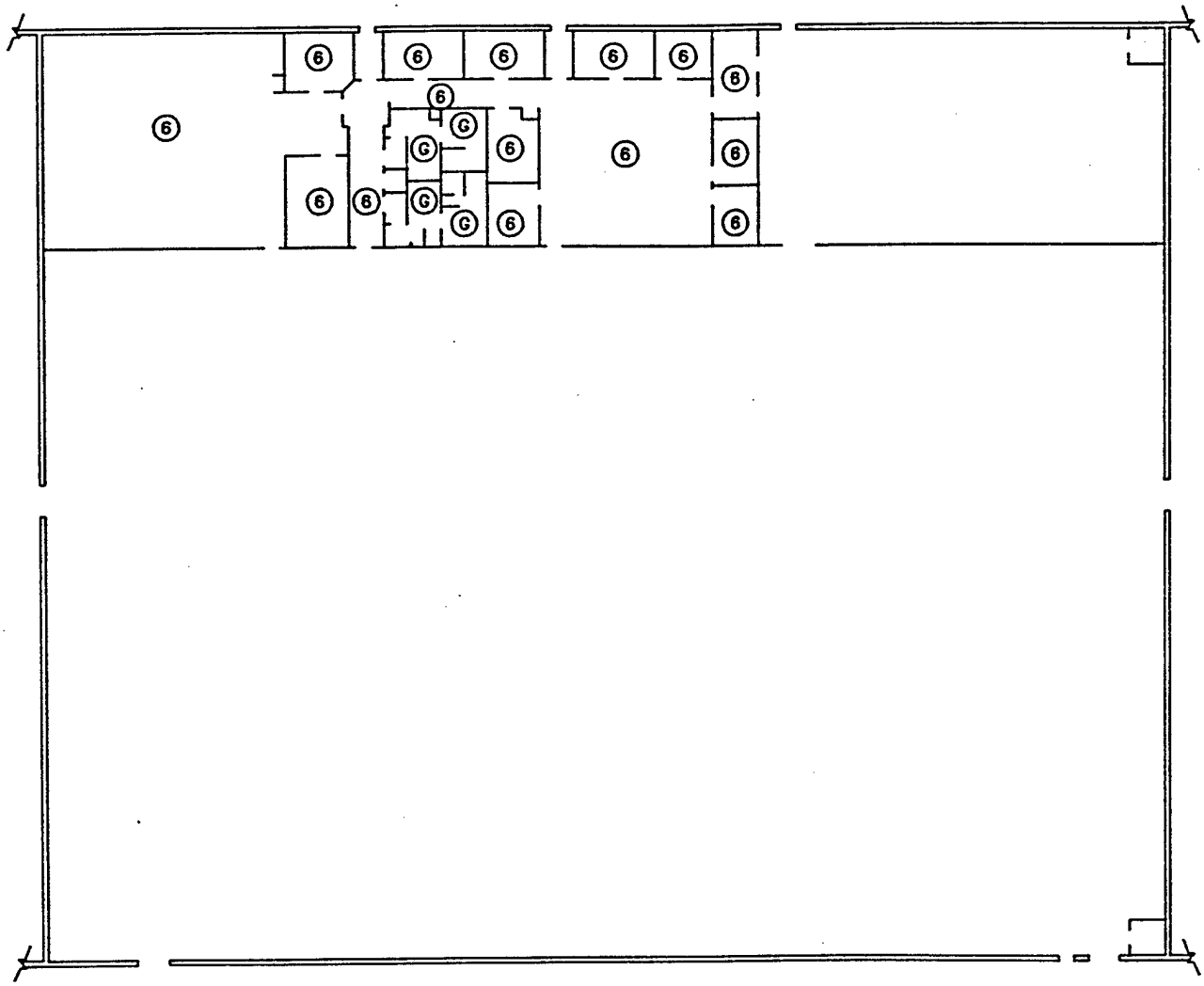
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 9 – BAY 4 SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–21–91	9/4–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(6) 2' x 4' FIBERGLASS TILE

(G) GYPSUM BOARD

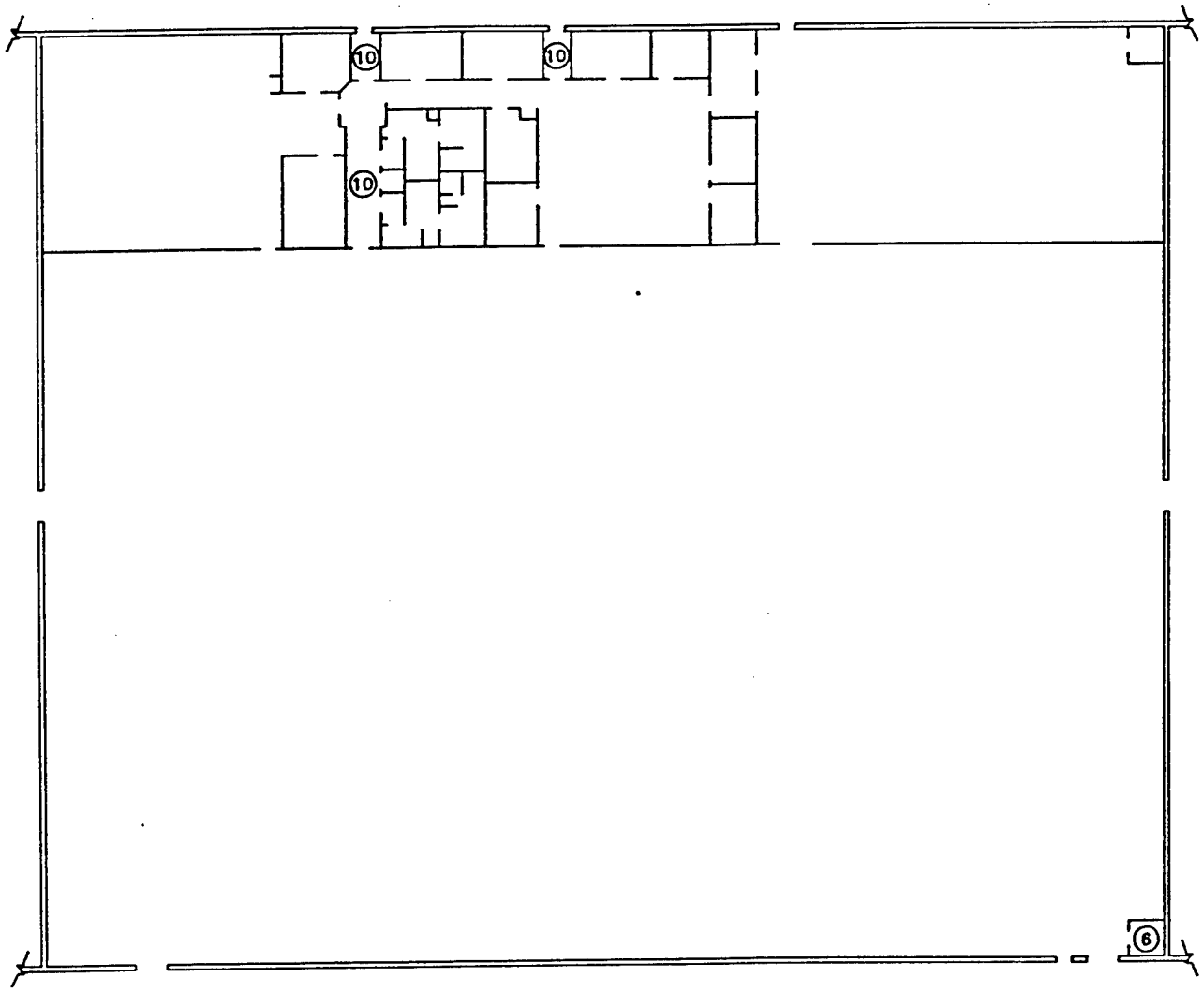
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 9 – BAY 4
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–21–91	9/4–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

⑥ 12" x 12" WHITE

⑩ 12" x 12" WHITE MARBLED

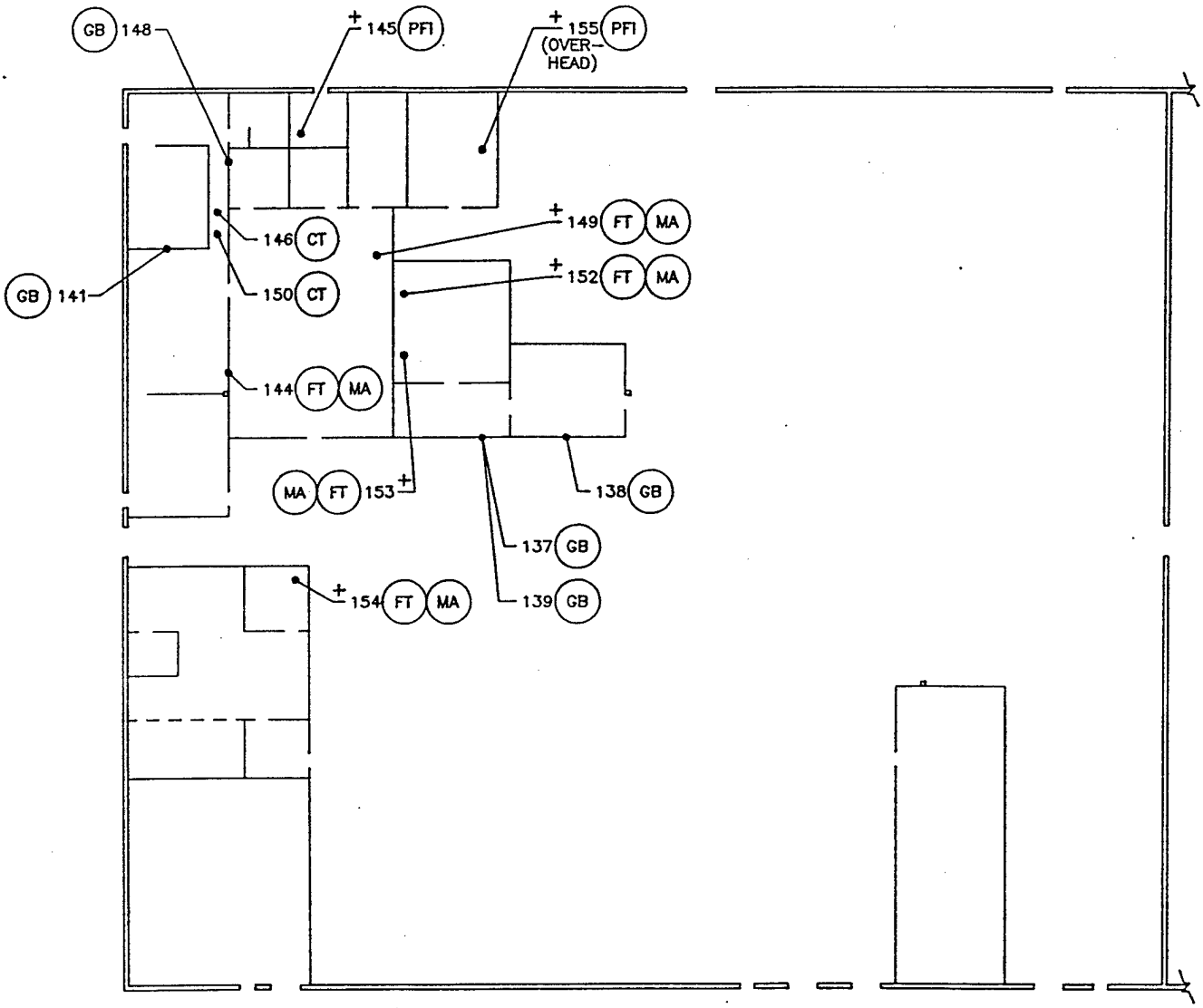
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 9 – BAY 4
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–21–91	9/4–FT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

PI	PIPE INSULATION	GB	GYPSUM BOARD
PFI	PIPE FITTING INSULATION	CT	CEILING TILE
FT	FLOOR TILE	+	DENOTES POSITIVE RESULTS
MA	MASTIC		

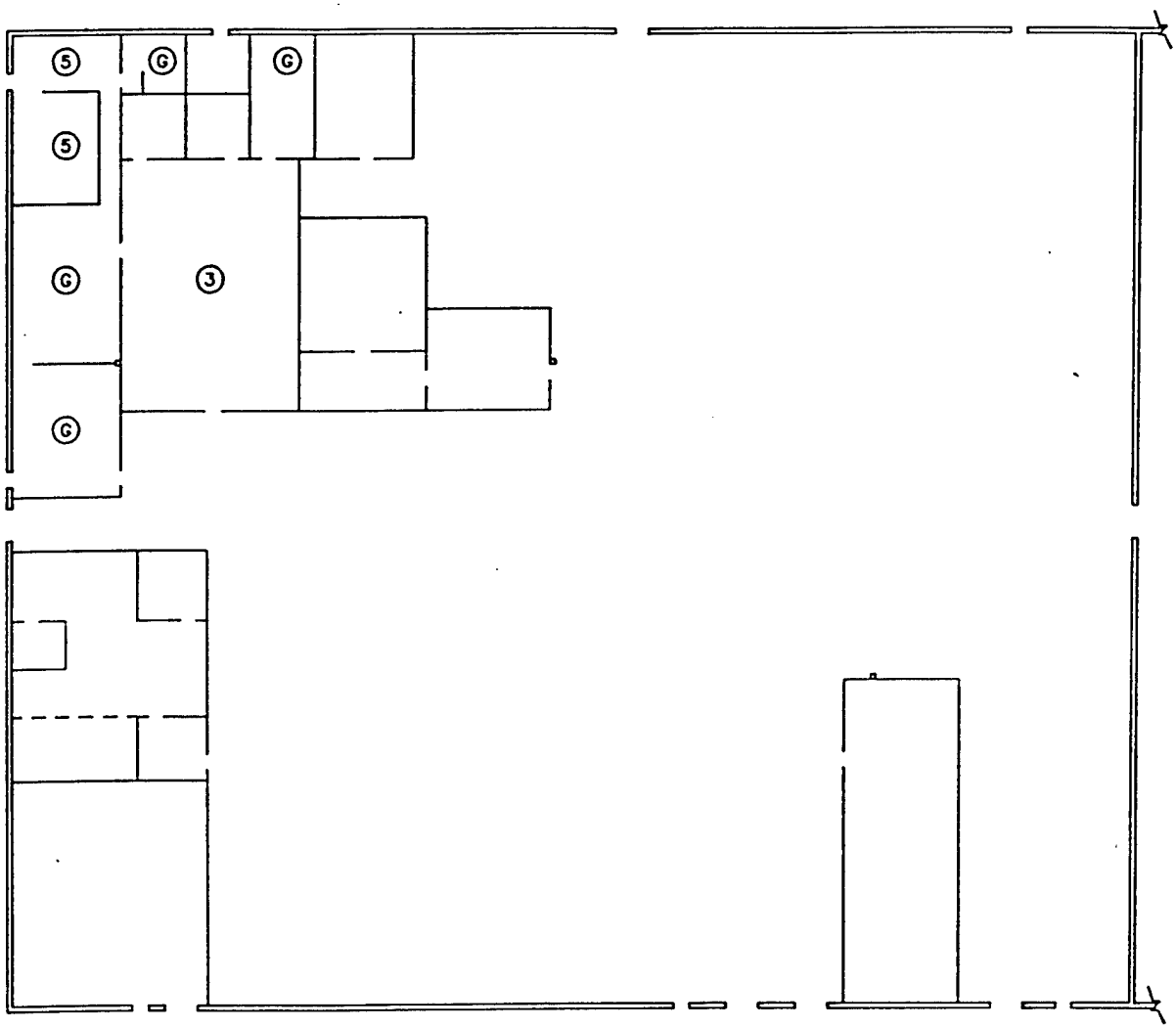
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 9 – BAY 5
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–21–91	9/5–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

(3) 2' x 4' FISSURED TILE

(5) 12" x 12" SMALL HOLES TILE

(G) GYPSUM BOARD

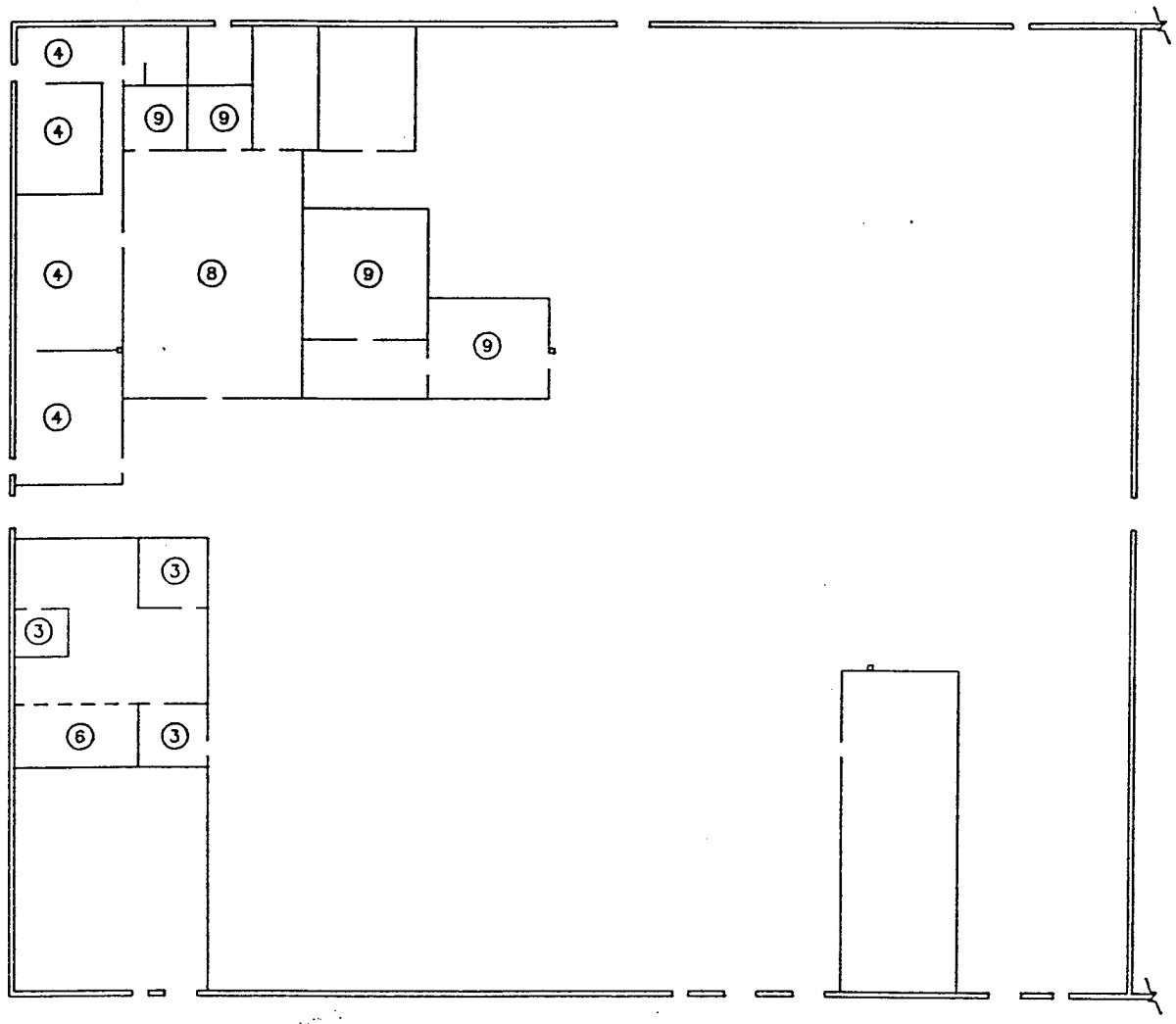
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 9 – BAY 5
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–21–91	9/5–CT
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

- (3) 9" x 9" BROWN
- (4) 9" x 9" GREEN
- (6) 12" x 12" WHITE
- (8) 12" x 12" GREEN
- (9) 12" x 12" BROWN

CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 9 – BAY 5
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–21–91	9/5–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	

APPENDIX 9-D

WALKTHROUGH SURVEY DATA SHEETS

Cameron Station

Walkthrough Survey 1 Sheet 1 of

Building #9 multiple tenants

EXTERIOR

Barker / Gaeckler
11/9/90

Exterior Siding

Masonry ☐ Steel/Aluminum ☑ (aluminum over wood siding) Wood ☑ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☑ aluminum

Sample Y N no Condition G F P Quantity >190,000 SF

Roof

assume tar & gravel

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☑ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y N Condition G F P Quantity _____ SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☑	Y N no	G F P		
Chimney ☐	Y N	G F P		
Louvers ☑	Y N no	G F P		
A/C Units ☑	Y N no	G F P		
Other ☑ exhaust fans	Y N no	G F P		

STRUCTURAL

Wood Joists/Beams ☑ Steel Joists/Beams ☐ Wood Columns ☐ Steel Column ☐ Concrete Column ☑

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y (N) Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☑ Firedoor ☑

Sample Y (N) no Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building #9

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler	N/A						
Breeching	N/A						
Furnace	N/A						
Tanks/Vessels	N/A						
Elec./Telephone							
Other							
NAT. GAS. HEAT	N/A	NO					

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
5. Trowelled-on
6. Mud
7. Other

ilding #9

HVAC

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
	above							
Duct	OFFICE AREAS Bays 1, 2, 4, 5	yes	fiberglass	no				
	above							
Pipe	DHW, OFFICE AREAS Bays 1, 2, 4, 5	yes	fiberglass	no				
	Bay 1 - overhead area - RR, Hallway	"	corrugated paper	yes	P	70	LF	2"
	above							
Fittings	DHW, OFFICE AREAS Bays #5	yes	mud	yes	fair	5	fittings	1" & 3/4 copper
	East wall	"	"	"	"	25		
	Bay 1 POTW & other	"	"	"	"	4		
Other						4 / 34'		

Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

INTERIOR - CEILI[redacted]ALLS/FLOORS/MISC.

Building #9

Inspector/Date: Gunsolus / [illegible]

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
Floor tile #1 9"x9"	Black	See plan	yes	fair	700 SF
Floor tile #2 9"x9"	grey	See plan	yes	fair	80 SF
Floor tile #3 9"x9"	brown	See plan	yes	fair	420 SF
Floor tile #4 9"x9"	green	See plan	yes	good	5100 SF
Floor tile #5 9"x9"	tan	See plan	yes	fair	1500 SF
Floor tile #6 12"x12"	white	See plan	yes	good	2400 SF
Floor tile #7 12"x12"	Black	See plan	yes	good	100 SF
Floor tile #8 12"x12"	green	See plan	yes	good	15.00 SF
Floor tile #9 12"x12"	brown	See plan	yes	good	1300 SF

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

Woodward-Clyde Federal Services

APPENDIX 9-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 9
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/24/91
Date Analyzed : 02/05/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
109	P	<1	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AB	
110	P	05-10	-----	-----	-----	-----	-----	-----	-----	01-05	-----	85-95	AB	
111	P	<1	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AB	
112	N	-----	-----	-----	-----	-----	-----	-----	25-30	25-30	-----	40-50	AB	
113	N	-----	-----	-----	-----	-----	-----	-----	25-30	30-35	-----	35-45	AB	
114	N	-----	-----	-----	-----	-----	-----	-----	15-20	30-35	-----	45-55	AB	
115	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
116	P	<1	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AB	
117	P	25-30	-----	-----	-----	-----	-----	-----	05-10	01-05	-----	60-64	AB	
118	N	-----	-----	-----	-----	-----	-----	-----	20-25	30-35	-----	40-50	AB	
119	N	-----	-----	-----	-----	-----	-----	-----	10-15	15-20	-----	65-75	AB	
120	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
121	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	01-05	89-93	AB	
122	N	-----	-----	-----	-----	-----	-----	-----	-----	80-85	-----	15-20	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.
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AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 9
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/24/91
Date Analyzed : 02/05/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
123	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
124	N	-----	-----	-----	-----	-----	-----	-----	-----	75-80	-----	20-25	AB	
125	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
126	P	05-10	-----	-----	-----	-----	-----	20-25	20-25	-----	-----	45-50	AB	
127	N	-----	-----	-----	-----	-----	-----	-----	15-20	30-35	-----	45-55	AB	
128	P	40-45	-----	-----	-----	-----	-----	-----	-----	-----	-----	55-60	AB	
129	N	-----	-----	-----	-----	-----	-----	-----	01-05	30-35	-----	60-70	AB	
130	P	35-40	-----	-----	-----	-----	-----	-----	-----	-----	-----	60-65	AS	
131	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
132	N	-----	-----	-----	-----	-----	-----	-----	05-10	30-35	-----	55-65	AS	
133	P	25-30	-----	-----	-----	-----	-----	-----	05-10	01-05	-----	60-64	AB	
134	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AB	
135	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AB	
136	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 9
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/24/91
Date Analyzed : 02/05/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %					
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
151	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
152	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
153	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
154	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
155	P	-----	01-05	-----	-----	-----	-----	35-40	-----	01-05	-----	55-64	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

Lisa Boykin (AB)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

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AMA Analytical Services, Inc.

May 15, 1991

Woodward-Clyde Federal Services
One Chruch Street, Suite 404
Rockville, MD 20850

RE:	TEM Bulk Analysis Cameron Station
JOB SITE:	Bldg. 9
JOB LOCATION:	Cameron Station
PROJECT NUMBER:	3001

Attention Sally Guardia:

This is the final report for transmission electron microscopy (TEM) analysis performed on your floor tile sample. The sample was submitted by Sally Guardia of Woodward-Clyde Federal Services to AMA Analytical Services, Inc. on April 16, 1991. Analytical results were reported to Sally Guardia of Woodward-Clyde Federal Services by telefax and telephone, on April 23, 1991.

The sample set consisted of one (1) sample. One (1) sample was prepared and analyzed following Dr. Eric J. Chatfield's revised TEM protocol (submitted to the ASTM Committee 022.05.07.007 in 1988).

The result of the TEM analysis is shown below:

SAMPLE	TEM ASBESTOS CONC.	ORGANIC MATERIAL	DOLOMITE/ CALCITE	NON FIBROUS MINERALS
149	3 - 4%	20%	50%	26 - 27%

4475 Forbes Blvd. • Lanham, MD 20706 • 301-459-2640; 800-346-0961 • FAX: 301-459-2643

AMA Analytical Services, Inc. thanks Woodward-Clyde Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely,
AMA ANALYTICAL SERVICES, INC.

Luis H. Bustillos
Electron Microscopist

Robert M. Powell
Laboratory Director

LHB/kec

APPENDIX 9-F

SAMPLE CHAIN-OF-CUSTODY FORMS

WCFS Project [redacted] 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde [redacted] ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: D W 2/13
Initials

Field Office: Woodward [redacted] ederal Services
c/o Charles [redacted] mmett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/24/91
MM DD YY

BLDG 9

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC		SVOC		OCP/PCBs (gc/ms)		OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN		TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06				TY03	KY04													
FBG		ASB 109	109																								✓						
FBG		ASB 110	110																								✓						
FBG		ASB 111	111																								✓						
FBG		ASB 112	112																								✓						
FBG		ASB 113	113																								✓						
FBG		ASB 114	114																								✓						
FBG		ASB 115	115																								✓						

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: David M. Bean

Accepted by: ~~Roee~~ Lab, Inc.
Date: 1/25/91 Time: 1205 Signature: L. Maurice

Total Number of Containers: 7

Relinquished by: ~~Roee~~ Lab, ~~Inc.~~
Date: 3/28/91 Time: 1000 Signature: L. Maurice

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: ~~Roee~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project 3001
Installation (2): CM
Sample Program (J): BEI
Laboratory (2): PC

COC By: D M B
Initials

Field Office: Woodward-[illegible] ederal Services
c/o Charles [illegible]mett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/24/91 (MM DD YY)

BLDG 9

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	UM05	UM05	UM06	UM06	UM06		TY03													
											LM05	LM06	LM06	LM06	LM06		KY04													
FB6		ASB116	116																				✓							
FB6		ASB117	117																				✓							
FB6		ASB118	118																				✓							
FB6		ASB119	119																				✓							
FB6		ASB120	120																				✓							
FB6		ASB121	121																				✓							
FB6		ASB 122	122																				✓							

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: David M. Bauer

Accepted by: Pace Lab, Inc.
Date: 1/25/91 Time: 12 05 Signature: L. Maurer

Total Number of Containers: (7)

Relinquished by: Pace Lab, Inc.
Date: 3/28/91 Time: 1000 Signature: L. Maurer

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: Pace Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project [redacted] 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde [redacted] ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward [redacted] ederal Services
c/o Charles [redacted]mmett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/24/91
MM DD YY

BLDG 9

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1) / Sample Flag Code (1) / Sample CC Code (1) / TEST NAME / CODE	VOC UM05 LM05 UM06 LM06	SVOC UM06 LM06	OCP/PCBs (gc/ms) UM06 LM06	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN TY03 KY04	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)	Number of Containers
FB6		ASB123	123																	✓				
FB6		ASB124	124																	✓				
FB6		ASB125	125																	✓				
FB6		ASB126	126																	✓				
FB6		ASB127	127																	✓				
FB6		ASB128	128																	✓				
FB6		ASB129	129																	✓				

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: David N. Bauer

Accepted by: ~~Pace~~ Lab, ~~Inc.~~
Date: 1/25/91 Time: 12:05 Signature: L. Maurice

Total Number of Containers: 7

Relinquished by: ~~Pace~~ Lab, ~~Inc.~~
Date: 2/25/91 Time: 1055 Signature: L. Maurice

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: ~~Pace~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMB
Initials

Field Office: Woodward-Cl, ederal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/24/91 (MM DD YY)

BLDG 9

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Asbest	Number of Containers
FBG		ASB130	130				✓	
FBG		ASB131	131				✓	
FBG		ASB132	132				✓	
FBG		ASB133	133				✓	
FBG		ASB134	134				✓	
FBG		ASB135	135				✓	
FBG		ASB136	136				✓	

Sample Techniques (1) / Sample Flag Code (1) / Sample QC Code (1) / TEST NAME / CODE

VOC: UM05, LM05, UM06, LM06
SVOC: UM06, LM06
OCP/PCBs (µg/ml): UM06
OCP/PCBs (µg/kg): LM06
NON-TCL Pest.
TAL Metals
CYN: TY03
TPHC (IR): KY04
SO4
CL
NIT
TCLP
Asbest
TCDD
PCB Wipe
TPHC (gc)

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: David M. Brown

Relinquished by: ~~Pace~~ Lab, ~~Inc.~~
Date: 3/28/91 Time: 1002 Signature: L. Hamm

Comments:

Accepted by: ~~Pace~~ Lab, ~~Inc.~~
Date: 1/25/91 Time: 12.05 Signature: L. Hamm

Total Number of Containers: 7

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

White: ~~Pace~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project [redacted] 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde [redacted] ederal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward-[redacted] ederal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/24/91 (MM DD YY) BLDG 9

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC		SVOC		OCP/PCBs (gc/ms)		OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN		TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06				TY03	KY04													
FBG		ASB137	137																								✓						
FBG		ASB138	138																								✓						
FBG		ASB139	139																								✓						
FBG		ASB140	140																								✓						
FBG		ASB141	141																								✓						
FBG		ASB142	142																								✓						
FBG		ASB143	143																								✓						

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: David M. Barn

Accepted by: [redacted] Lab, [redacted]
Date: 1/25/91 Time: 12.05 Signature: L Mann

Total Number of Containers: 7

Relinquished by: [redacted] Lab, [redacted]
Date: 3/28/91 Time: 1000 Signature: L. Mann

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White:[redacted] Lab Yellow:WCFS Chemist Pink:Return to WCFS after sample receipt Gold:Return to WCFS with residual samples

Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project: 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMB
Initials

Field Office: Woodward-[illegible] ederal Services
c/o Charles [illegible]ummett
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Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/24/91 (MM DD YY)

BLDG 9

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	UM05	UM05	UM06	UM06	UM06	UM06	TY03	KY04													
FBG		ASB 144	144																				✓							
FBG		ASB 145	145																				✓							
FBG		ASB 146	146																				✓							
FBG		ASB 147	147																				✓							
FBG		ASB 148	148																				✓							
FBG		ASB 149	149																				✓							
FBG		ASB 150	150																				✓							

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: David M. Bauer

Accepted by: Pace Lab, Inc.
Date: 1/25/91 Time: 12:05 Signature: L. Maurice

Total Number of Containers: 7

Relinquished by: Pace Lab, Inc.
Date: 3/28/91 Time: 1000 Signature: L. Maurice

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: Pace Lab Yellow: WCFS Chemist Pink: Return to WCF[illegible] after sample receipt Gold: Return to WCFS with residual samples

WCFS Projec[redacted] 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyd[redacted] ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DMW
Initials

Field Office: Woodwa[redacted] ederal Services
c/o Charles nmett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01 24 91 (MM DD YY) BLDG 9

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
									CODE		UM05	UM05	UM06	UM06			TY03													
											LM05	LM06	LM06	LM06			KY04													
FBG		ASB151	151																				✓							5
FBG		ASB152	152																				✓							
FBG		ASB153	153																				✓							
FBG		ASB154	154																				✓							
FBG		ASB153'	155																				✓							

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: David M. Bau

Accepted by: ~~Pace~~ Lab, ~~Inc.~~
Date: 1/25/91 Time: 12:05 Signature: L. Mann

Total Number of Containers: 5

Relinquished by: ~~Pace~~ Lab, ~~Inc.~~
Date: 3/29/91 Time: 1000 Signature: L. Mann

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: ~~Pace~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

BUILDING 10

10.1 DESCRIPTION

Building 10, a two-story masonry structure with an attached one-story office/locker room, houses metal working and carpentry shops. It has a flat tar, felt and gravel roof typical of buildings at Cameron Station. The concrete floor is tile-covered in non-shop areas. Ceiling materials are fiberglass tile and fiberboard. Steam heat is supplied by Building 21, the Boiler House, through underground steam pipes.

10.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 10-A through 10-F. A summary of this data is presented below.

10.2.1 Suspect Friable ACM

Two homogeneous areas of suspect friable ACM were identified and six bulk samples were collected. Laboratory analysis using PLM confirmed the presence of asbestos in one material:

- Corrugated paper pipe insulation

Assessment of this material indicates a damage factor of 10 and an exposure factor of 14. According to the GAHA Index, this material ranks as Priority C.

10.2.2 Suspect Nonfriable ACM

Three homogeneous areas of suspect nonfriable ACM were identified and eight bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in one material:

- 9" x 9" black floor tile and mastic

No assessment of this nonfriable material was performed. However, as ACM this material should be included in an O&M Program.

10.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

10.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

10.4 AREAS NOT ACCESSED

All areas in Building 10 were accessed.

10.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
10			24 LF PI

TSI = THERMAL SYSTEM INSULATION
PI = PIPE INSULATION
MF = MUDDED FITTINGS
* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

10.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 10-A	ACM Survey Results
Appendix 10-B	Assessments/Recommendations for Friable ACM
Appendix 10-C	Building Drawings
Appendix 10-D	Walkthrough Survey Data Sheets
Appendix 10-E	Laboratory Certificate of Analysis
Appendix 10-F	Sample Chain-of-Custody Forms

APPENDIX 10-A

ACM SURVEY RESULTS

ACM Survey Results for Building 10

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	6600	SF	Assume ACM	Assume ACM	
2	TSI	Corrugated paper pipe insulation	Locker room & shops	Low	Fair	24	LF	160 173 174	<1% Chrysotile 5-10% Chrysotile 5-10% Chrysotile	3" pipe diameter with insulation
3	TSI	Pipe fitting insulation	Shops	Low	Good	25	# of fittings	162 163 170	None detected None detected None detected	
4	Misc.	Floor tile & mastic	Office & locker room	Non	Good	550	SF	159 172	<1% Chrysotile <1% Chrysotile	12" x 12" brown floor tile
5	Misc.	Floor tile & mastic	Lounge	Non	Good	300	SF	164 167	1-5% Chrysotile 1-5% Chrysotile	9" x 9" black floor tile
6	Surfacing	Gypsum board	Walls in lounge	Non	Good	900	SF	165 169 175 176	None detected None detected None detected None detected	Sample 176 is a QC for sample 169.

D:\ASBESTOS/B10.asb

Woodward-Clyde Federal Services
July 2, 1991

APPENDIX 10-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 8

		Material Description					
Functional Space	Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
10-1	2	TSI	Corrugated paper pipe insulation	10	14	C	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.

Friable Asbestos Assessment Checklist

Cameron Station Building 10 Inspector/Date Burma / Guardia 1/25/91

Homogeneous Sample Area #(s) 2- Material Type(s) Corrugated paper, paper insulation

Functional Space 10-1 Locker room & shops

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; 4 Moderate; (2) Low; 1 Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

  A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance

  B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:

  A. < 10 ft: 8 High; (5) Medium; 2 Low

  B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 160, 173, 174

Damage/Risk Total 10

Friable Asbestos [illegible]ssment Checklist

Cameron Station Building 10

Inspector/Date Barnes/Gandia 1/25/91

Homogeneous Sample Area #(s) 2

Material Type(s) Corrugated paper pipe insulation

Functional Space 10-1 locker room & shops

Part 2: Exposure

- Friability: 6 High; 3 Moderate; (1) Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  4 Rough; 3 Pitted; (2) Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

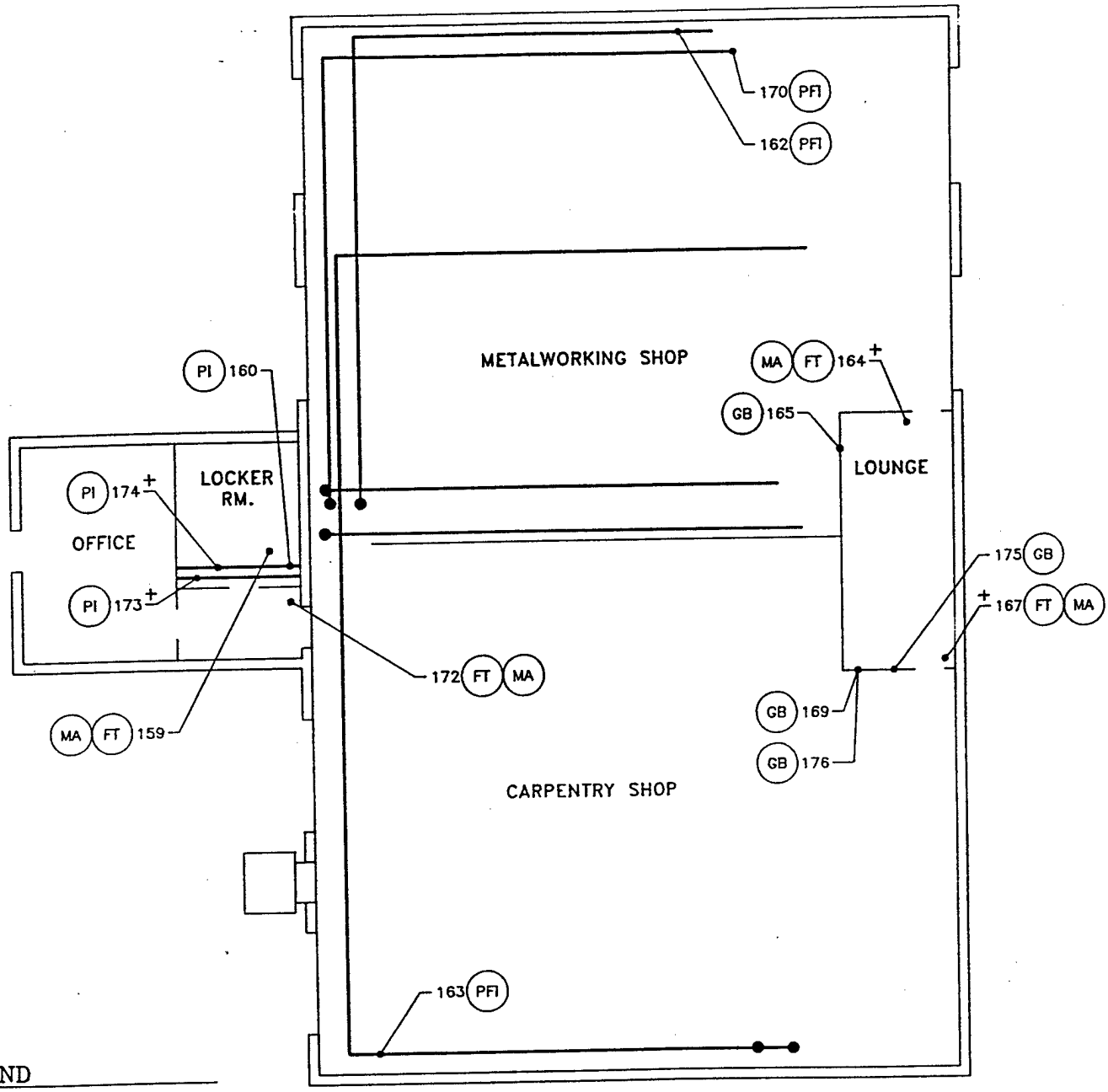
  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 14

APPENDIX 10-C

BUILDING DRAWINGS



LEGEND

- PI — PIPE INSULATION
- PFI — PIPE FITTING INSULATION
- GB — GYPSUM BOARD
- FT — FLOOR TILE
- MA — MASTIC
- \+ — DENOTES POSITIVE RESULTS

NOTE: PIPES IN SHOP AREAS ARE INSULATED WITH FIBERGLASS

CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE: BUILDING 10 SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	FIG.
7001-210	L.A.L.	6-3-91	10-SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	

APPENDIX 10-D

WALKTHROUGH SURVEY DATA SHEETS

Cameron Station — Walkthrough Survey — Sheet 1 of 4

Building #10 Fac Engineering

EXTERIOR

11/14/90

Exterior Siding

Masonry ☑ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y N no Condition G F P Quantity 6600 SF

Roof — Assume ACM

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☑ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) no Condition G F P Quantity _____ SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☑	Y (N)	G F P		
Chimney ☐	Y N	G F P		
Louvers ☑	Y (N)	G F P		
A/C Units ☑	Y (N)	G F P		
Other ☐	Y N	G F P		

STRUCTURAL

Wood Joists/Beams ☐ Steel Joists/Beams ☑ Wood Columns ☐ Steel Column ☑ Concrete Column ☐

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y (N) Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☑ Firedoor ☐

Sample Y (N) Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building #10

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
HW heater		no			no		
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
5. Trowelled-on
6. Mud
7. Other

HVAC

Building #10

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	~~Quantity~~ Units SF/LF or # Fittings	Diam. of Pipe if round
Duct								
Pipe	LOCKER ROOM	yes	corrug. paper	yes	fair	24	LF	3.5"
	SHOP AREA	yes	Fiberglass	NO	good	~600	LF	5.5"
Fittings	SHOP AREA	yes	mudded	yes	good	25	EA	
Other								

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 10 — Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
CT 1 4x8' fibrous hardboard			No		
CT 2 2x4 white smooth fiberglass			No		
Walls	gypsum board	lounge	yes	G	900 SF

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

uilding #10

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
FLOOR TILE					
#1 12" x 12"	brown	SEE FLOOR PLAN	yes	Good	~550 SF
#2 9" x 9"	black	" " "	yes	Good	~300 SF

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

APPENDIX 10-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 10
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/24/91
Date Analyzed : 02/05/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	ASBESTOS % CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	OTHER FIBROUS MATERIAL % MINERAL WOOL	GLASS	FIBROUS ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
159	P	<1	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AB	
160	P	<1	-----	-----	-----	-----	-----	-----	-----	75-80	-----	20-25	AB	
162	N	-----	-----	-----	-----	-----	-----	55-60	-----	<1	-----	40-45	AB	
163	N	-----	-----	-----	-----	-----	-----	35-40	-----	05-10	-----	50-60	AB	
164	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
165	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AB	
167	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	AB	
169	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AB	
170	N	-----	-----	-----	-----	-----	-----	-----	35-40	<1	-----	60-65	AB	
172	P	<1	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AB	
173	P	05-10	-----	-----	-----	-----	-----	-----	-----	75-80	-----	10-20	AB	
174	P	05-10	-----	-----	-----	-----	-----	-----	-----	70-75	-----	15-25	AB	
175	N	-----	-----	-----	-----	-----	-----	-----	-----	15-20	-----	80-85	AB	
176	N	-----	-----	-----	-----	-----	-----	-----	<1	10-15	-----	85-90	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

Lisa Boykin Mauricci

Lisa Boykin (AB)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.
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4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • TOLL FREE (800) 346-0961 • FAX (301) 459-2643

APPENDIX 10-F

SAMPLE CHAIN-OF-CUSTODY FORMS

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/24/91 (MM DD YY)

BLDG 10

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	LM05	LM06	LM06	LM06			TY03	KY04												
FBG		ASB159	159																				✓							
FBG		ASB160	160																				✓							
FBG		ASB162	162																				✓							
FBG		ASB163	163																				✓							
FBG		ASB164	164																				✓							
FBG		ASB165	165																				✓							
FBG		ASB167	167																				✓							

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: David M. Bar

Accepted by: ~~Reee~~ Lab, ~~Inc.~~
Date: 1-25-91 Time: 12:05 Signature: L. Maurice

Total Number of Containers: 7

Relinquished by: ~~Reee~~ Lab, ~~Inc.~~
Date: 2/28/91 Time: 1000 Signature: L. Maurice

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: ~~Reee~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/24/91 (MM DD YY)

BLDG 10

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Number of Containers
FBG		ASB169	169				
FBG		ASB170	170				
FBG		ASB172	172				
FBG		ASB173	173				
FBG		ASB174	174				
FBG		ASB175	175				
FBG		ASB176	176				

Sample Techniques (1) / Sample Flag Code (1) / Sample CC Code (1) / TEST NAME / CODE

TEST NAME	CODE
VOC	UM05
	LM05
SVOC	UM06
	LM06
OCP/PCBs (gc/ms)	UM06
OCP/PCBs (gc/ec)	LM06
NON-TCL Pest.	
TAL Metals	
CYN	TY03
	KY04
TPHC (IR)	
SO4	
CL	
NIT	
TCLP	
Asbest	✓ (all rows)
TCDD	
PCB Wipe	
TPHC (gc)	

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: David W. Ja

Accepted by: ~~Roco~~ Lab, ~~Inc.~~
Date: 1-25-91 Time: 12:05 Signature: L. Mauricio

Total Number of ~~Containers~~: 7

Relinquished by: ~~Roco~~ Lab, ~~Inc.~~
Date: 3/28/91 Time: 1600 Signature: L. Mauricio

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: ~~Roco~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

BUILDING 11

11.1 DESCRIPTION

Building 11 is a small (approximately 60 square feet) masonry structure with a flat metal panel roof. It houses the installation's sewage pumping station.

11.2 SURVEY RESULTS

The survey team identified no suspect ACM, either friable or nonfriable, in Building 11. No bulk samples were collected, and no materials were assumed to be ACM.

11.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes.

11.4 AREAS NOT ACCESSED

All areas in Building 11 were accessed.

11.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not applicable.

11.6 REPORT APPENDICES

The remainder of this building report consists of the following one appendix:

Appendix 11-D Walkthrough Survey Data Sheets.

Other appendices are not applicable to this building report.

APPENDIX 11-D

WALKTHROUGH SURVEY DATA SHEETS

Building 11 Sewage Pumping Station EXTERIOR Inspector Date Barnes/Guenther 12/18/90

Exterior Siding

Masonry ☒ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐ wood

Sample Y (N) _____ Condition G F P Quantity _____ SF

Roof

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☐ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition G F P Quantity _____ SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☐	Y N	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☐	Y N	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☐ Steel Joists/Beams ☐ Wood Columns ☐ Steel Column ☐ Concrete Column ☐

Sample Y N Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☐ Firedoor ☐

Sample Y N Condition G F P Quantity _____ SF

BOILER, FURNANCE, ECTRICAL/TELEPHONE

Building 11 N/A Inspector/Date:

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

H.VAC

Building 11 N/A Inspector/Date:

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct								
Pipe								
Fittings								
Other								

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 11 Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
Concrete floor			N		
masonry walls			N		

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

Woodward-Clyde Federal Services

BUILDING 15

15.1 DESCRIPTION

Building 15 is a two-story "L" shaped masonry and concrete structure with a basement. Structural support is accomplished by cast-in-place columns and concrete decks. The flat roof consists of felt, tar and gravel. The stairwells have plaster walls; otherwise, the interior building materials are typical for Cameron Station structures and include gypsum board walls, carpet over floor tile over concrete, and ceiling tile. Heat is provided by Building 21, the Boiler House, through underground steam pipes. Heating is by radiators; there is no ductwork, i.e., no air handling units, throughout the building.

Building 15 houses the offices of the Post Commander, Post Police and the Institute of Heraldry.

15.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 15-A through 15-F. A summary of this data is presented below.

15.2.1 Suspect Friable ACM

Two homogeneous areas of suspect ACM were identified and seven bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following two materials:

- Corrugated paper pipe insulation
- Pipe fitting insulation

These materials were found in two separate functional spaces. For the basement reproduction work area, assessment of both materials indicates a damage factor of 16 and an exposure factor of 22. According to the GAHA Index, these materials rank as Priority B.

For the first floor corridor, assessment of the pipe insulation indicates a damage factor of 6 and an exposure factor of 19. According to the GAHA Index, the materials rank as Priority B.

15.2.2 Suspect Nonfriable ACM

Sixteen homogeneous areas of suspect nonfriable ACM were identified and forty-nine bulk samples, including two QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following five materials:

- FT 2 9" x 9" gray floor tile and mastic
- FT 3 9" x 9" green floor tile and mastic
- FT 4 9" x 9" brown floor tile and mastic
- FT 6 9" x 9" black floor tile and mastic
- FT 8 12" x 12" woodgrain floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

15.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

15.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following materials, originally identified in the walkthrough survey as suspect ACM, were examined more closely and reclassified as nonsuspect:

- CT 1 2' x 4' fiberboard ceiling tile
- CT 5 2' x 4' fiberglass ceiling tile
- FT 1 12" x 12" rubber floor tile

No bulk samples of these materials were collected, and they were deleted as homogeneous sample areas from the final survey data.

15.4 AREAS NOT ACCESSED

All areas in Building 15 were accessed.

15.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
15		460 LF PI 32 MF	

TSI = THERMAL SYSTEM INSULATION
PI = PIPE INSULATION
MF = MUDDED FITTINGS
* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

15.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 15-A	ACM Survey Results
Appendix 15-B	Assessments/Recommendations for Friable ACM
Appendix 15-C	Building Drawings
Appendix 15-D	Walkthrough Survey Data Sheets
Appendix 15-E	Laboratory Certificate of Analysis
Appendix 15-F	Sample Chain-of-Custody Forms

APPENDIX 15-A

ACM SURVEY RESULTS

ACM Survey Results for Building 15

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good		SF	Assume ACM	Assume ACM	
2	TSI	Corrugated paper pipe insulation	Basement and 1st floor See Drawings 15/B-PL 15/1-PL	Mod.-High	Good-Poor	460	LF	299 300 303 304	1-5% Chrysotile 5-10% Chrysotile 20-25% Chrysotile 1-5% Chrysotile	Sample 300 is a QC for Sample 299. 3" - 6" pipe diameter with insulation. Material is badly damaged in basement.
3	TSI	Pipe fitting insulation	Basement	High	Fair	32	# of fittings	301 302 306	1-5% Chrysotile 20-25% Amosite 5-10% Chrysotile 25-30% Amosite 1-5% Chrysotile	
4	Misc.	Ceiling tile	See Drawings 15/B-CT 15/1-CT	Non	Good	3830	SF	296 305	None detected None detected	CT 2 12" x 12" white w/small random holes
5	Misc.	Ceiling tile	See Drawing 15/1-CT	Non	Good	700	SF	333 334	None detected None detected	CT 3 12" x 12" white w/large random holes
6	Misc.	Ceiling tile	See Drawings 15/B-CT 15/1-CT 15/2-CT	Non	Good	7450	SF	309 310	None detected None detected	CT 4 2' x 4' white with fissures

ACM Survey Results for Building 15 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
7	Misc.	Ceiling tile	See Drawing 15/1-CT	Non	Good	1350	SF	331 332	None detected None detected	CT 6 12" x 12" white w/uniform holes
8	Misc.	Ceiling tile	See Drawing 15/B-CT	Non	Good	776	SF	311 312	None detected None detected	CT 7 2' x 4' white w/random holes
9	Misc.	Ceiling tile	See Drawing 15/1-CT	Non	Good	1100	SF	339 340	None detected None detected	CT 8 12" x 12" white w/large fissures
10	Misc.	Floor tile & mastic	See Drawings 15/B-FT 15/1-FT 15/2-FT	Non	Good	610	SF	313 318	1-5% Chrysotile 1-5% Chrysotile	FT 2 9" x 9" grey floor tile
11	Misc.	Floor tile & mastic	See Drawing 15/1-FT	Non	Good	385	SF	335 336	1-5% Chrysotile 1-5% Chrysotile	FT 3 9" x 9" green floor tile
12	Misc.	Floor tile & mastic	See Drawings 15/B-FT 15/1-FT 15/2-FT	Non	Good	2200	SF	307 315	1-5% Chrysotile <1% Chrysotile	FT 4 9" x 9" brown floor tile
13	Misc.	Floor tile & mastic	See Drawing 15/1-FT	Non	Good	576	SF	337 338	None detected None detected	FT 5 12" x 12" beige floor tile

ACM Survey Results for Building 15 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
14	Misc.	Floor tile & mastic	See Drawings 15/B-FT 15/2-FT	Non	Good	2000	SF	308 314	5-10% Chrysotile <1% Chrysotile	FT 6 9" x 9" black floor tile
15	Misc.	Floor tile & mastic	See Drawing 15/B-FT	Non	Good	650	SF	316 317	<1% Chrysotile <1% Chrysotile	FT 7 12" x 12" white floor tile
16	Misc.	Floor tile & mastic	See Drawing 15/B-FT	Non	Good	288	SF	322 323	<1% Chrysotile 1-5% Chrysotile	FT 8 12" x 12" woodgrain floor tile
17	Misc.	Fire code gypsum board	Hallways throughout building	Non	Good	6200	SF	298 319 320 326 344 345 347 349	None detected None detected None detected None detected None detected None detected None detected None detected	Sample 347 is a QC for sample 344.
18	Surfacing	Regular gypsum board	Interior walls throughout building	Non	Good	48500	SF	297 321 325 327 348 350 351	None detected None detected None detected None detected None detected None detected None detected	
19	Surfacing	Plaster	Stairwells	Non	Good	7500	SF	324 328 329 330 341 342 343 346	None detected None detected None detected None detected None detected None detected None detected None detected	Sample 342 is a QC for sample 341.

APPENDIX 15-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Re .nmendation for Building 15.

Functional Space	Homogen-eous Sample Area #	Material Description: Category (surfacing TSI or misc.)	Material Description: Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
15-1 Basement reproduction work area	2, 3	TSI	Corrugated paper pipe insulation; pipe fitting insulation	16	22	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
15-2 First floor corridor	2	TSI	Corrugated paper pipe insulation	6	19	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable Asbestos Assessment Checklist

Cameron Station Building 15

Inspector/Date Barnes / Guardia 2/1/91

Homogeneous Sample Area #(s) 2, 3

Material Type(s) corrugated paper pipe insulation pipe fitting insulation

Functional Space 15-1 Basement reproduction work area

Part 1: Damage/Risk

- Visible evidence of physical damage: (5) High; 4 Moderate; 2 Low; 1 Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: (8) High; 5 Medium; 2 Low
  - B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 299, 300, 303 304, 301, 302, 306

Damage/Risk Total 16

Friable Asbestos A ssment Checklist

Cameron Station Building 15 Inspector/Date Barnes / Gluecha 2/1/91

Homogeneous Sample Area #(s) 2, 3 Material Type(s) Corrugated paper pipe insulation, pipe fitting insulation

Functional Space 15-1 Basement reproduction work Area

Part 2: Exposure

- Friability: (6) High; 3 Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: 1 ≤ 9 or for corridors; (2) 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 22

Friable Asbestos Assessment Checklist

Cameron Station Building 15

Inspector/Date Barnes / Gianchis 2/1/91

Homogeneous Sample Area #(s) 2

Material Type(s) corrugated paper pipe insulation

Functional Space 15-2 1st floor corridor

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; 4 Moderate; 2 Low; (1) Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: 8 High; 5 Medium; (2) Low
  - B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 299, 300, 303, 304

Damage/Risk Total 6

Friable Asbestos A ssment Checklist

Cameron Station Building 15

Inspector/Date Barnes / Guardia 2/1/91

Homogeneous Sample Area #(s) 2

Material Type(s) Corrugated paper pipe insulation

Functional Space 15-2 1st floor Corridor

Part 2: Exposure

- Friability: 6 High; (3) Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); 2 Medium (occasional vibration); (0) Low
- Floor: (4) Carpet; 2 Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

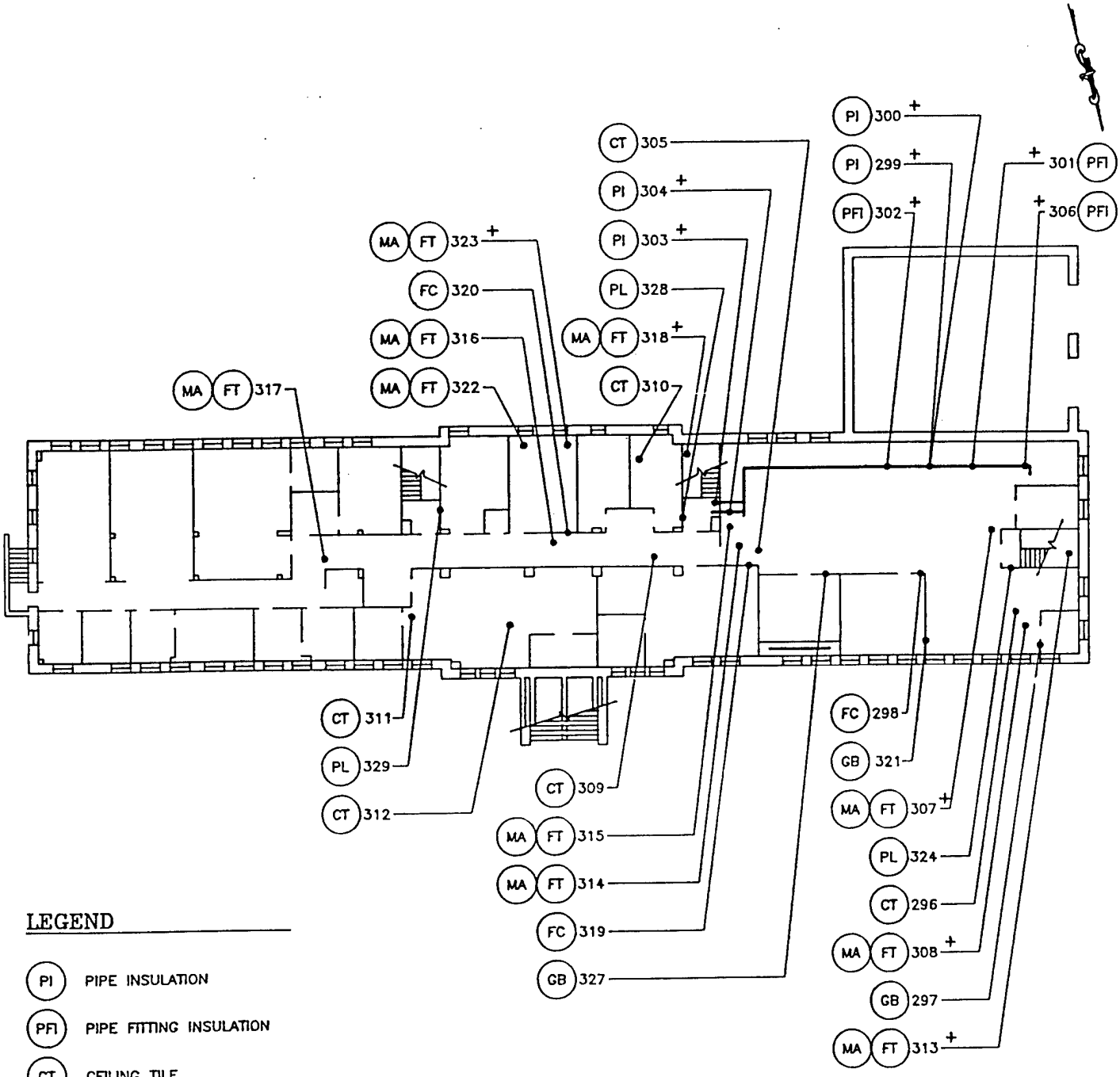
  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 19

APPENDIX 15-C

BUILDING DRAWINGS



LEGEND

- PI — PIPE INSULATION
- PFI — PIPE FITTING INSULATION
- CT — CEILING TILE
- FT — FLOOR TILE
- MA — MASTIC
- PL — PLASTER
- GB — GYPSUM BOARD
- FC — FIRE CODE GYPSUM BOARD
- \+ — DENOTES POSITIVE RESULTS

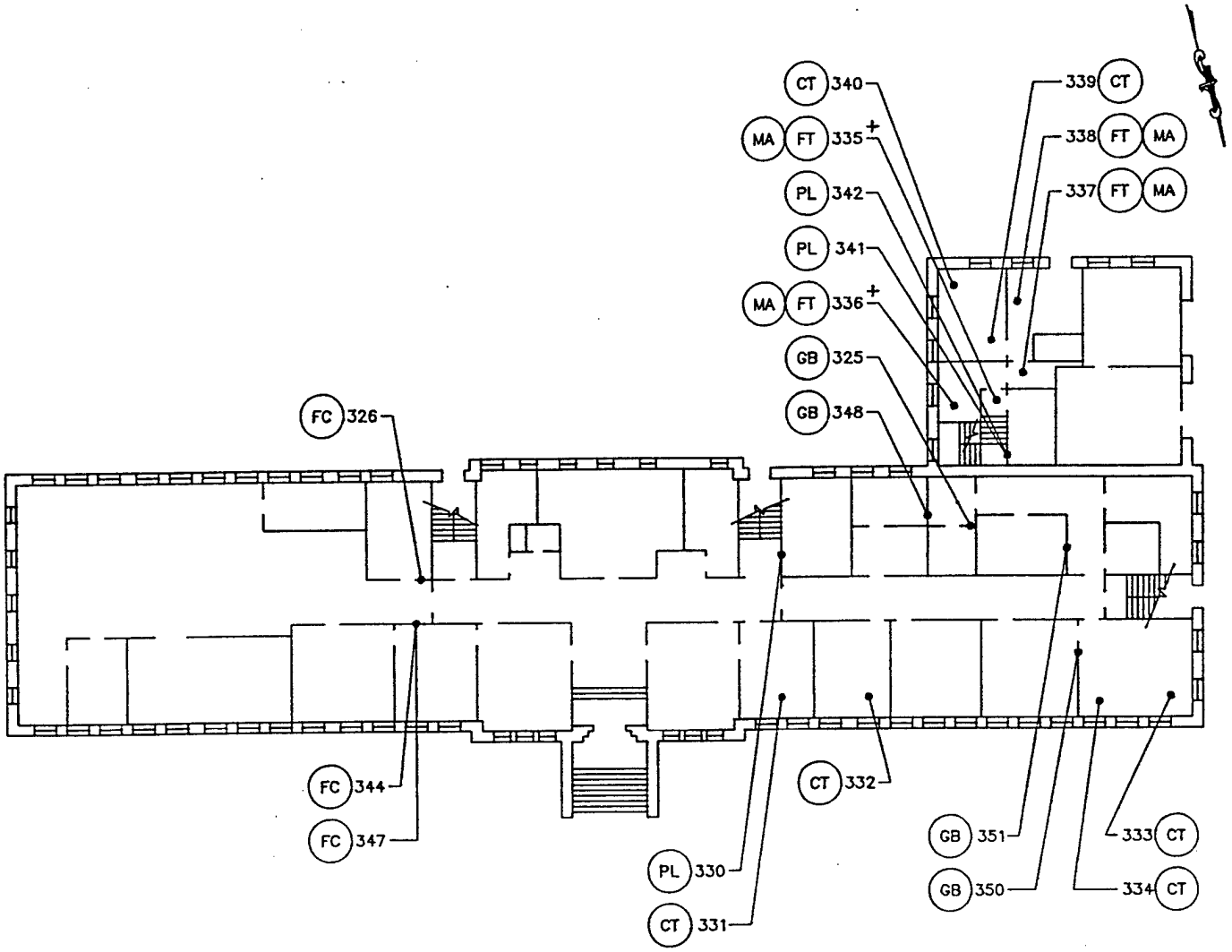
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE: BUILDING 15 – BASEMENT SAMPLE LOCATIONS

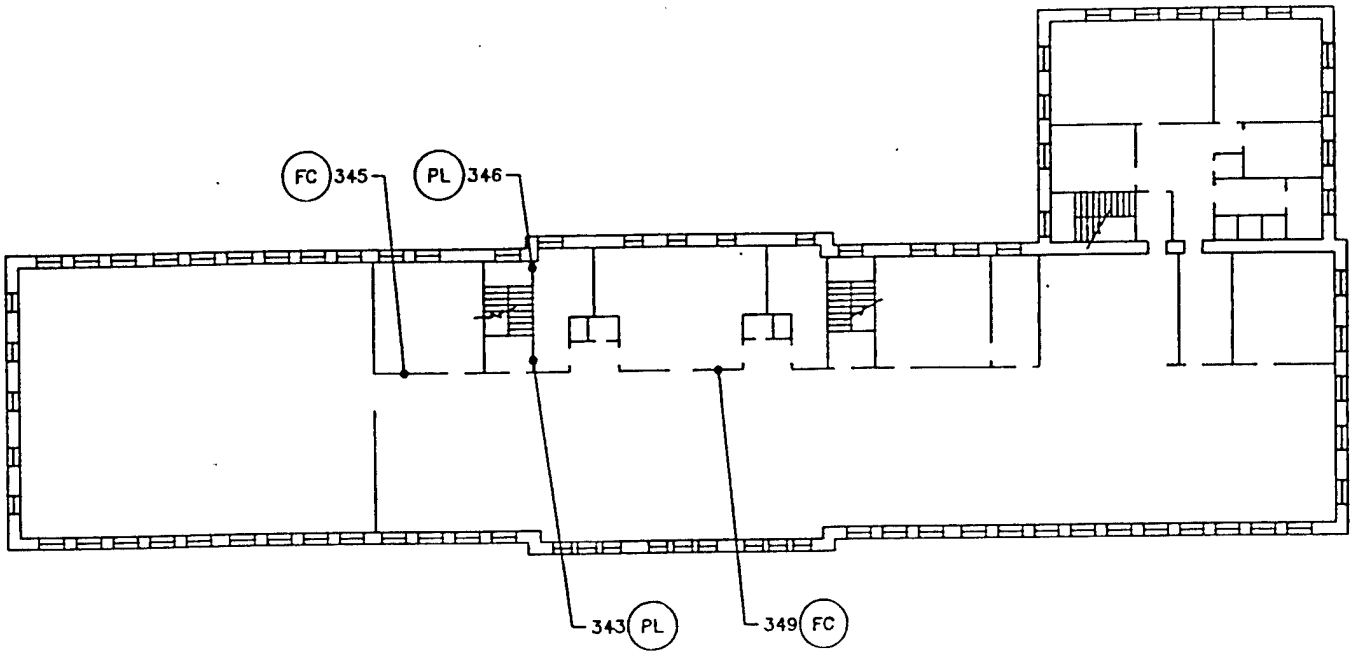
PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–15–91	15/B–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

- (CT) CEILING TILE
- (FT) FLOOR TILE
- (MA) MASTIC
- (PL) PLASTER
- (GB) GYPSUM BOARD
- (FC) FIRE CODE GYPSUM BOARD
- \+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia		
Woodward–Clyde Federal Services	TITLE BUILDING 15 – FIRST FLOOR SAMPLE LOCATIONS		
PROJECT NO. 3001–210	DRAWN BY: L.A.L.	DATE: 5–15–91	DWG. NO. 15/1–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

PL PLASTER

FC FIRE CODE GYPSUM BOARD

CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 15 – SECOND FLOOR SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–15–91	15/2–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	

APPENDIX 15-D

WALKTHROUGH SURVEY DATA SHEETS

Building #15 Post Commander, Police EXTERIOR Inspector Date 1/10/91

Exterior Siding

Masonry ☑ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y (N) no Condition G F P Quantity _____ SF

Roof

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☑ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition G F P Quantity _____ SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☐	Y N	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☐	Y N	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☐ Steel Joists/Beams ☐ Wood Columns ☐ Steel Column ☐ Concrete Column ☑

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☑ Firedoor ☐

Sample Y (N) Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building #15 N/A Inspector/Date: 1/10/91

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

HVAC

uilding #15 — Inspector/Date: 11/10/91

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct								
Pipe	southwest corner of Basement	yes	Aircell	yes	fair	300	LF	3-6"
	Basement north wall (behind back of lounge)	yes	Aircell	yes	fair	100	LF	3-6"
4 plus	mechanical room (old garage west end of bldg.)	yes	Aircell	yes	fair	40	LF	3-6"
	1st floor S.W. cor. of main bldg. near stairs to police sta.	yes	Aircell	yes	fair	20 / 460	LF	3-6"
Other Fittings	south west corner of basement	yes	mudded fitting	yes	fair	20	# fittings	
	mech. room old garage	yes	" "	"	"	10	" "	
4 plus	1st floor S.W. corner of main bldg. near stairs to police sta.	"	" "	"	"	2 / 32	" "	

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

INTERIOR - CEILINGS/WALLS/FLOORS/MISC.

Building #5 Inspector/Date: 1/10/91

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity	
~~Ceiling Tile #1 2'x4'~~	white/ light texture	See plan fiberboard	~~yes~~ NO	good	216	C
Ceiling Tile #2 12"x12"	white/ w/sm random holes	see plan	yes	good	3830	R
Ceiling Tile #3 12"x12"	white/ w/lg random holes	see plan	yes	good	708	R
Celing Tile #4 2'x4'	white/fissured	see plan	yes	good	7450	R
~~Ceiling Tile #5 2'x4'~~	white/ textured plastic w/ RIB.	See plan fiberglass	~~yes~~ NO	~~good~~	~~288~~	C
Ceiling Tile #6 12"x12"	white/ w/uniform holes	see plan	yes	good	1350	
Ceiling Tile #7 2'x4'	white/ w/random holes	see plan	yes	good	776	
Ceiling Tile #8 12"x12"	white/ w/large fissures	See plan	yes	~~good~~	~~1099~~ 1100	R
~~Floor Tile #1 [illegible] 12"x12"~~	Brown w/raised rect. ~~grey~~ pattern.	FRONT ENTRANCE rubber	~~yes~~ NO	good	60	C
Floor Tile #2 9"x9"	grey	See plan	yes	good	610	
Floor Tile #3 9"x9"	green	See plan	yes	good	385	
Floor Tile #4 9"x9"	brown	See plan	yes	good	2200	R
Floor Tile #5 12"x12"	~~beige~~ beige	See plan	yes	good	576	
Floor Tile #6 9"x9"	black	See plan	yes	good	2002	R
Floor Tile #7 12"x12"	~~white~~ white	See plan	yes	good	650	R
Floor ~~Tile~~ Tile #8 12"x12"	brown woodgrain	See plan	yes	good	288	

Material
Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

Woodward-Clyde Federal Services

INTERIOR - CEILING/. .LLS/FLOORS/MISC.

Building A15 — Inspector/Date: 1/10/91

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity	
Firecode drywall	painted	Hallways basement/1st/2nd floor	yes	good	6200 SF	R
Regular	painted	Through out Bldg.	yes	good	48464 45,500	R
Plaster	painted	~~Ceiling throughout~~ stair wells	yes	good	7500	

Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

APPENDIX 15-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

[illegible] and Environmental Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 15
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/01/91
Date Analyzed : 02/13/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
296	N	-----	-----	-----	-----	-----	-----	-----	40-50	25-30	-----	25-30	GC	
297	N	-----	-----	-----	-----	-----	-----	-----	<1	25-30	-----	70-75	GC	
298	N	-----	-----	-----	-----	-----	-----	-----	01-05	25-30	-----	65-75	GC	
299	P	01-05	-----	-----	-----	-----	-----	-----	-----	60-70	-----	30-35	GC	
300	P	05-10	-----	-----	-----	-----	-----	-----	-----	55-65	-----	30-35	GC	
301	P	01-05	20-25	-----	-----	-----	-----	-----	-----	01-05	-----	70-75	GC	
302	P	05-10	25-30	-----	-----	-----	-----	-----	-----	01-05	-----	60-65	GC	
303	P	20-25	-----	-----	-----	-----	-----	-----	-----	35-40	-----	35-45	GC	
304	P	01-05	-----	-----	-----	-----	-----	-----	-----	60-70	-----	30-35	GC	
305	N	-----	-----	-----	-----	-----	-----	-----	35-45	25-30	-----	30-35	GC	
306	P	01-05	-----	-----	-----	-----	-----	45-55	-----	-----	-----	45-50	GC	
307	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	GC	
308	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	-----	90-95	GC	
309	N	-----	-----	-----	-----	-----	-----	-----	30-35	30-40	-----	30-35	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.
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AMA Analytical Services, Inc.

Certified participant of (AIHA) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 15
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/01/91
Date Analyzed : 02/13/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %					
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
310	N	-----	-----	-----	-----	-----	-----	-----	30-40	30-35	-----	30-35	GC	
311	N	-----	-----	-----	-----	-----	-----	-----	30-40	30-35	-----	30-35	GC	
312	N	-----	-----	-----	-----	-----	-----	-----	30-40	30-35	-----	30-35	GC	
313	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	GC	
314	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
315	P	<1	-----	-----	-----	-----	-----	-----	<1	<1	-----	100	GC	
316	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
317	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
318	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	GC	
319	N	-----	-----	-----	-----	-----	-----	-----	<1	25-30	-----	70-75	GC	
320	N	-----	-----	-----	-----	-----	-----	-----	<1	20-25	-----	75-80	GC	
321	N	-----	-----	-----	-----	-----	-----	-----	<1	20-25	-----	75-80	GC	
322	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	<1	100	GC	
323	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

(a NVLAP [accredited and AIHA [accredited laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 15
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/01/91
Date Analyzed : 02/13/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	ASBESTOS % CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	OTHER FIBROUS MATERIAL % MINERAL WOOL	GLASS	FIBROUS ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
324	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
325	N	-----	-----	-----	-----	-----	-----	-----	01-05	30-35	-----	60-70	GC	
326	N	-----	-----	-----	-----	-----	-----	-----	<1	35-40	-----	60-65	GC	
327	N	-----	-----	-----	-----	-----	-----	-----	<1	30-35	-----	65-70	GC	
328	N	-----	-----	-----	-----	-----	-----	-----	<1	<1	-----	100	GC	
329	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
330	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
331	N	-----	-----	-----	-----	-----	-----	-----	-----	75-80	-----	20-25	GC	
332	N	-----	-----	-----	-----	-----	-----	-----	-----	80-85	-----	15-20	GC	
333	N	-----	-----	-----	-----	-----	-----	-----	-----	80-85	-----	15-20	GC	
334	N	-----	-----	-----	-----	-----	-----	-----	-----	75-80	-----	20-25	GC	
335	P	01-05	-----	-----	-----	-----	-----	-----	<1	01-05	-----	90-98	GC	
336	P	01-05	-----	-----	-----	-----	-----	-----	<1	<1	-----	95-99	GC	
337	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

NVLAP (#244) and NVLAP (#1143) Accredited Laboratory

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 15
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/01/91
Date Analyzed : 02/13/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
338	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	GC	
339	N	-----	-----	-----	-----	-----	-----	-----	-----	75-80	-----	20-25	GC	
340	N	-----	-----	-----	-----	-----	-----	-----	-----	75-80	-----	20-25	GC	
341	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
342	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
343	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
344	N	-----	-----	-----	-----	-----	-----	-----	-----	35-40	-----	60-65	GC	
345	N	-----	-----	-----	-----	-----	-----	-----	-----	45-50	-----	50-55	GC	
346	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
347	N	-----	-----	-----	-----	-----	-----	-----	-----	30-35	-----	65-70	GC	
348	N	-----	-----	-----	-----	-----	-----	-----	-----	35-40	-----	60-65	GC	
349	N	-----	-----	-----	-----	-----	-----	-----	<1	45-50	-----	50-55	GC	
350	N	-----	-----	-----	-----	-----	-----	-----	<1	35-40	-----	60-65	GC	
351	N	-----	-----	-----	-----	-----	-----	-----	01-05	01-05	-----	90-98	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

G. Edward Carney (GC)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

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APPENDIX 15-F

SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: D M B (Initials)

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 02/01/91 (MM DD YY) BLDG 15

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)
FBG		ASB015	296			
FBG		ASB015	297			
FBG		ASB015	298			
FBG		ASB015	299			
FBG		ASB015	300			
FBG		ASB015	301			
FBG		ASB015	302			

Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN		TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
		CODE		UM05	UM06	UM06	UM06			TY03	KY04													
																	✓							
																	✓							
																	✓							
																	✓							
																	✓							
																	✓							
																	✓							

Relinquished by: Woodward-Clyde
Date: ~~2~~ 2/1/91 Time: 1505 Signature: M Bauer

Relinquished by: ~~Pace~~ Lab, ~~Inc~~
Date: 2-28-91 Time: 1300 Signature: L Hammer

Comments: [illegible] expressed

Accepted by: ~~Pace~~ Lab, ~~Inc~~
Date: 2/1/91 Time: 1505 Signature: C. Kiger

Total Number of Containers: 7

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 02/01/91 (MM DD YY) BLDG. 15

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)
FBG		ASB015	303			
FBG		ASB015	304			
FBG		ASB015	305			
FBG		ASB015	306			
FBG		ASB015	307			
FBG		ASB015	308			
FBG		ASB015	309			

Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
			CODE	UM05	UM06	UM06	LM06			TY03 KY04													
																✓							
																✓							
																✓							
																✓							
																✓							
																✓							
																✓							7

Relinquished by: Woodward-Clyde
Date: 2/1/91 Time: 1505 Signature: DM. Barnes

Relinquished by: ~~Pace~~ Lab, ~~Inc.~~
Date: 3-24-91 Time: 1300 Signature: L. Allan

Comments:

Accepted by: ~~Pace~~ Lab, ~~Inc.~~
Date: 2/1/91 Time: 1605 Signature: C. Kilgen

Total Number of Containers: 7

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

White: Prep Lab; Yellow: WCFS Chemist; Pink: Return to WCFS after sample receipt; Gold: Return to WCFS with residual samples

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMB
Initials

Field Office: Woodward- Federal Services
c/o Charles drummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 02/01/91 (MM DD YY) BLDG. 15

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1) / Sample Flag Code (1) / Sample CC Code (1) / TEST NAME / CODE	VOC UM05	VOC LM05	SVOC UM06	SVOC LM06	OCP/PCBs (µg/ml) UM06	OCP/PCBs (µg/ml) LM06	OCP/PCBs (µg/kg)	NON-TCL Pest.	TAL Metals	CYN TY03	CYN KY04	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (µg)	Number of Containers
FBG		ASB015	310																				✓				
FBG		ASB015	311																				✓				
FBG		ASB015	312																				✓				
FBG		ASB015	313																				✓				
FBG		ASB015	314																				✓				
FBG		ASB015	315																				✓				
FBG		ASB015	316																				✓				

Relinquished by: Woodward-Clyde
Date: 2/1/91 Time: 1505 Signature: M. Burns

Accepted by: Pace Lab, Inc.
Date: 2/1/91 Time: 1505 Signature: C Kiger

Total Number of Containers: 7

Relinquished by: ~~Pace~~ Lab, Inc
Date: 2-28-91 Time: 1200 Signature: L. Mann

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: WCFS Chemistry Field Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 02/01/91 (MM DD YY) BLDG. 15

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)
FBG		ASB015	317			
FBG		ASB015	318			
FBG		ASB015	319			
FBG		ASB015	320			
FBG		ASB015	321			
FBG		ASB015	322			
FBG		ASB015	323			

Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)					Number of Containers
			CODE	UM05 LM05	UM06 LM06	UM06 LM06				TY03 KY04														
																✓								1
																✓								1
																✓								1
																✓								1
																✓								1
																✓								1
																✓								1

Relinquished by: Woodward-Clyde
Date: 2/1/91 Time: 1505 Signature: DM Burns

Relinquished by: ~~Pace~~ Lab, ~~Inc~~
Date: 3 28 91 Time: 1300 Signature: L Mann

Comments:

Accepted by: ~~Pace~~ Lab, ~~Inc~~
Date: 2/1/91 Time: 1505 Signature: C. Kriger

Total Number of Containers: 7

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

WCFS ... sample receipt Gold:Return to WCFS with residual samples

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMB
Initials

Field Office: Woodward- , Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 02/01/91 (MM DD YY) BLDG. 15

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)
FBG		ASB015	324			
FBG		ASB015	325			
FBG		ASB015	326			
FBG		ASB015	327			
FBG		ASB015	328			
FBG		ASB015	329			
FBG		ASB015	330			

Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (pc/ml)	OCP/PCBs (pc/wc)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
		CODE		UM05	UM05	UM06	UM06	UM06	LM06	TY03 KY04													
																✓							
																✓							
																✓							
																✓							
																✓							
																✓							
																✓							

Relinquished by: Woodward-Clyde
Date: 2/1/91 Time: 1505 Signature: Dm. Burns

Relinquished by: ~~Pace~~ Lab, ~~Inc.~~
Date: 2.8.91 Time: 1500 Signature: L. Mann

Comments:

Accepted by: ~~Pace~~ Lab, ~~Inc.~~
Date: 2/1/91 Time: 1505 Signature: C. Kiger

Total Number of Containers: 7

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

White: Pace Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 02/01/91 (MM DD YY) BLDG. 15

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)
FBG		ASB015	331			
FBG		ASB015	332			
FBG		ASB015	333			
FBG		ASB015	334			
FBG		ASB015	335			
FBG		ASB015	336			
FBG		ASB015	337			

Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)	Number of Containers
			CODE	UM05	UM06	UM06	LM06			TY03										
				LM05	LM06	LM06				KY04										
																✓				
																✓				
																✓				
																✓				
																✓				
																✓				
																✓				

Relinquished by: Woodward-Clyde
Date: 2/1/91 Time: 1505 Signature: [signature]

Relinquished by: ~~Paces~~ Lab, ~~Inc.~~
Date: 3.28.91 Time: 1300 Signature: [signature]

Comments:

Accepted by: ~~Paces~~ Lab, ~~Inc.~~
Date: 2/1/91 Time: 1805 Signature: [signature]

Total Number of Containers: 7

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

White: ~~Paces~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMB
Initials

Field Office: Woodward- Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 02/01/1 (MM DD YY) BLDG. 15

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Number of Containers
FBG		ASB015	338				1
FBG		ASB015	339				1
FBG		ASB015	340				1
FBG		ASB015	341				1
FBG		ASB015	342				1
FBG		ASB015	343				1
FBG		ASB015	344				1

Sample Techniques (1) / Sample Flag Code (1) / Sample CC Code (1) / TEST NAME / CODE

TEST NAME	CODE
VOC	UM05
	LM05
SVOC	UM06
	LM06
OCP/PCBs (gc/ml)	UM06
	LM06
OCP/PCBs (gc/wc)	
NON-TCL Pest.	
TAL Metals	
CYN	TY03
	KY04
TPHC (IR)	
SO4	
CL	
NIT	
TCLP	
Asbest	
TCDD	
PCB Wipe	
TPHC (gc)	

Relinquished by: Woodward-Clyde
Date: 2/1/91 Time: 1505 Signature: M. Baum

Accepted by: ~~Pace~~ Lab, ~~Inc~~
Date: 2/1/91 Time: 1505 Signature: C. Kiger

Total Number of Containers: 7

Relinquished by: ~~Pace~~ Lab, ~~Inc~~
Date: 3-28-91 Time: 1300 Signature: L. Mar

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: Pace Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 02/01/91 (MM DD YY) BLDG. 15

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	UM05	UM05	UM06	UM06	UM06	UM06	TY03	KY04												
FBG		ASB015	345																				/							
FBG		ASB015	346																				/							
FBG		ASB015	347																				/							
FBG		ASB015	348																				/							
FBG		ASB015	349																				/							
FBG		ASB015	350																				/							
FBG		ASB015	351																				/							

Relinquished by: Woodward-Clyde
Date: 2/1/91 Time: 1505 Signature: DM. Barnes

Accepted by: ~~Pace~~ Lab, ~~Inc~~
Date: 2/1/91 Time: 1505 Signature: C. Kiger

Total Number of Containers: 7

Relinquished by: ~~Pace~~ Lab, ~~Inc~~
Date: 2/5/91 Time: 1300 Signature: [signature]

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: Pace Lab, Yellow: WCFS Chemist, Pink: Return to WCFS after sample receipt, Gold: Return to WCFS with residual samples

BUILDING 16

16.1 DESCRIPTION

Building 16, which houses the installation's clinic, is a wood frame structure built on pilings. The roof consists of asphalt shingles over roofing felt; the exterior walls are aluminum over wood siding. Inside, the floor is tile over wood and the walls and ceiling are finished with fiber board. Heat is supplied by an oil-fired furnace. No steam lines enter the building.

16.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 16-A,C,D,E, AND F. A summary of this data is presented below.

16.2.1 Suspect Friable ACM

No suspect friable ACM was identified in Building 16.

16.2.2 Suspect Nonfriable ACM

Three homogeneous areas of suspect nonfriable ACM were identified and eight bulk samples, including one QC sample, were collected. Laboratory analysis using PLM detected less than 1% asbestos in these materials. One material, 12" x 12" white floor tile, was reanalyzed using TEM. This method of analysis determined that the floor tile contained asbestos. No assessment of this nonfriable material was performed. However as ACM it should be included in an O&M Program.

16.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the roofing felt, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

16.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

16.4 AREAS NOT ACCESSED

All areas in Building 16 were accessed.

16.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not Applicable

16.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 16-A	ACM Survey Results
Appendix 16-C	Building Drawings
Appendix 16-D	Walkthrough Survey Data Sheets
Appendix 16-E	Laboratory Certificate of Analysis
Appendix 16-F	Sample Chain-of-Custody Forms

Appendix B is not applicable to this building report.

APPENDIX 16-A

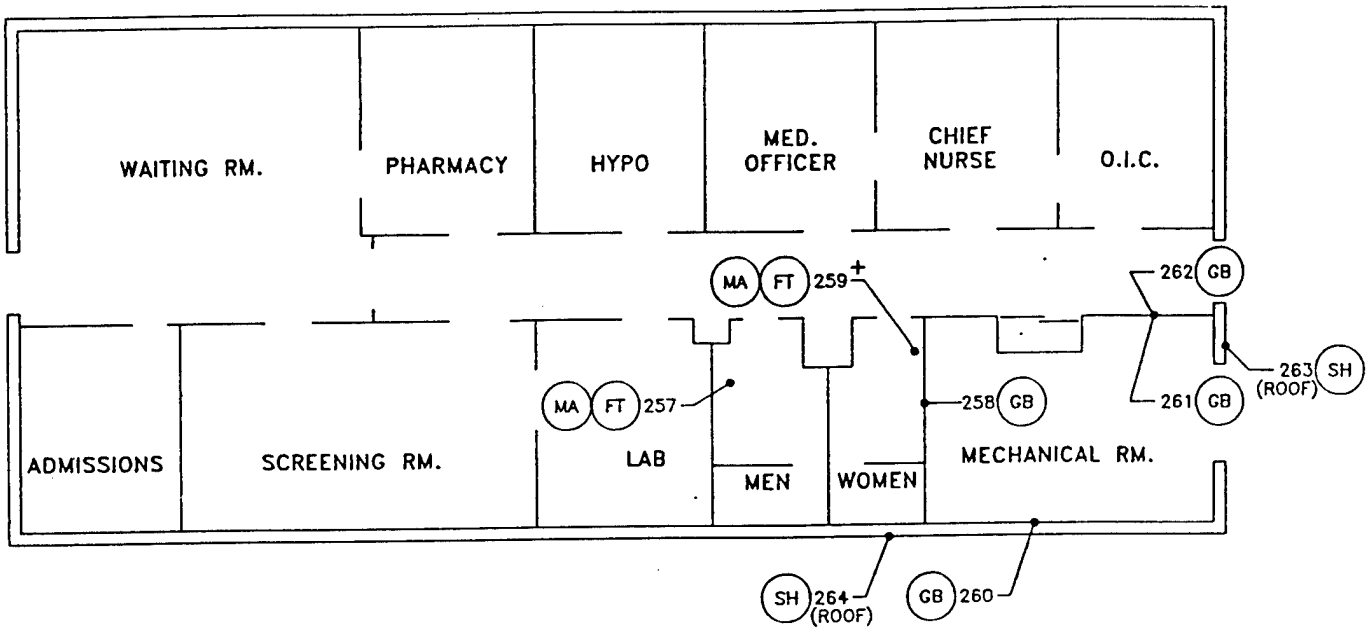
ACM SURVEY RESULTS

ACM Survey Results for Building 16

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Roofing Felt	Roof	Non	Good	2200	SF	Assume ACM	Assume ACM	
2	Misc.	Shingles	Roof	Non	Good	2200	SF	263 264	None detected None detected	
3	Surfacing	Gypsum board	Meeting room	Non	Good	600	SF	258 260 261 262	None detected None detected None detected None detected	Sample 262 is a QC for sample 261.
4	Misc.	Floor tile & mastic	Throughout building	Non	Good	2000	SF	257 259	None detected <1% chrysotile[1] 11-13% chrysotile[2]	12" x 12" white floor tile
									[1]using PLM [2]using TEM	

APPENDIX 16-C

BUILDING DRAWINGS



LEGEND

- FT — FLOOR TILE
- MA — MASTIC
- SH — SHINGLES
- GB — GYPSUM BOARD
- \+ — DENOTES POSITIVE RESULTS

CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 16 SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	16–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	

APPENDIX 16-D

WALKTHROUGH SURVEY DATA SHEETS

Building 16 Clinic

EXTERIOR

Inspector Date 12/6/90

Exterior Siding

Masonry ☐ ~~Steel~~/Aluminum ☒ Wood ☒ covered w/ al siding Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y (N) _____ Condition G F P Quantity 2200 SF

Roof

Shingle (asphalt/fiberglass) ☒ over ~~Tar &~~ Felt ☒ (Assume) Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample (Y) N (shingles) Condition G F P Quantity _____ SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☐	Y N	G F P		
Chimney ☒	Y (N)	G F P		
Louvers ☐	Y N	G F P		
A/C Units ☒	Y (N)	G F P		
Other ☐	Y N	G F P		

STRUCTURAL

Wood Joists/Beams ☒ Steel Joists/Beams ☐ Wood Columns ☐ Steel Column ☐ Concrete Column ☐

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☐ Firedoor ☐

Sample Y N Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building _____ Inspector/Date: _____

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace	ord	N	1				
Tanks/Vessels							
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

...AC

Building Inspector/Date:

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	(2) mech room	Y	Fiberglass	N				
	(3) throughout bldg	N						
Pipe								
Fittings								
Other								

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building

Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
FT 12 X 12	white	throughout	Y	G	2000
fiber board - ceiling & walls	"	"	N		
Gypsum board	gray	mech room	Y	G	600

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

Woodward-Clyde Federal Services

APPENDIX 16-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 16
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/30/91
Date Analyzed : 02/08/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
257	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
258	N	-----	-----	-----	-----	-----	-----	-----	<1	15-20	-----	80-85	GC	
259	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
260	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	GC	
261	N	-----	-----	-----	-----	-----	-----	-----	-----	35-40	-----	60-65	GC	
262	N	-----	-----	-----	-----	-----	-----	-----	-----	45-50	-----	50-55	GC	
263	N	-----	-----	-----	-----	-----	-----	-----	20-25	<1	-----	75-80	GC	
264	N	-----	-----	-----	-----	-----	-----	-----	20-25	<1	-----	75-80	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

LAST PAGE OF 1 PAGE(S)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

G. Edward Carney (GC)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.
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AMA Analytical Services, Inc.

May 15, 1991

Woodward-Clyde Federal Services
One Chruch Street, Suite 404
Rockville, MD 20850

RE:	TEM Bulk Analysis Cameron Station
JOB SITE:	Bldg. 16
JOB LOCATION:	Cameron Station
PROJECT NUMBER:	3001

Attention Sally Guardia:

This is the final report for transmission electron microscopy (TEM) analysis performed on your floor tile sample. The sample was submitted by Sally Guardia of Woodward-Clyde Federal Services to AMA Analytical Services, Inc. on April 16, 1991. Analytical results were reported to Sally Guardia of Woodward-Clyde Federal Services by telefax and telephone, on April 23, 1991.

The sample set consisted of one (1) sample. One (1) sample was prepared and analyzed following Dr. Eric J. Chatfield's revised TEM protocol (submitted to the ASTM Committee 022.05.07.007 in 1988).

The result of the TEM analysis is shown below:

SAMPLE	TEM ASBESTOS CONC.	ORGANIC MATERIAL	DOLOMITE/ CALCITE	NON FIBROUS MINERALS
259	11 - 13%	23%	45%	19 - 21%

4475 Forbes Blvd. • Lanham, MD 20706 • 301-459-2640; 800-346-0961 • FAX: 301-459-2643

The asbestos detected in the sample was chrysotile, and was identified by selected area electron diffraction (SAED) and energy dispersive X-ray analysis (EDXA).

Sample Preparation

A representative portion of the sample is placed into a preweighed porcelain crucible. The sample weight is recorded. The sample is then placed into a muffle furnace at 480 degrees Celsius for a minimum of 12 hours. The weight of the residual ash is then calculated and recorded.

A quantity of the residual material is suspended in ethanol in a glass vial and treated ultrasonically . A drop of the suspension is placed onto a carbon-coated copper grid and allowed to dry. If, upon TEM observation, an excess of calcite/dolomite is present in the ashed material, these carbonates are then extracted using hydrochloric acid; the asbestos is not extracted by this process. The acid-treated sample is then prepared for analysis, as above.

Analytical Methodology

Analysis is conducted using a JEOL 100CXII transmission electron microscope equipped with either a Kevex (Delta Class) or EG&G Ortec energy dispersive x-ray analyzer. The sample grid is examined at 100X to determine the quality of the sample preparation. A screen magnification of 15,000X is then used for the analysis of 5 grid openings.

Structures having aspect ratios $\geq$ 5:1 and a 0.5 micrometer minimum length are examined in detail. Structure morphology, selected area electron diffraction (SAED) and EDXA are used to differentiate asbestos from non-asbestos structures. Photographic documentation of representative asbestos structures, as well as EDXA data, is recorded for each asbestos containing sample.

Results

The percentage of ashed material identified as asbestos is estimated within a lower and upper range. The percentage of asbestos present in the entire sample is calculated. If acid extraction is used, the percentage of calcite/dolomite is also calculated.

AMA Analytical Services, Inc. thanks Woodward-Clyde Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely,
AMA ANALYTICAL SERVICES, INC.

Luis H. Bustillos
Electron Microscopist

Robert M. Powell
Laboratory Director

LHB/kec

APPENDIX 16-F

SAMPLE CHAIN-OF-CUSTODY FORMS

WCFS Project 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward-C. ederal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/30/91 (MM DD YY)

BLDG 16

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
									CODE		UM05	UM05	UM06	UM06	UM06	UM06	TY03	KY04												
FBG		ASB016	257																				✓							
FBG		ASB016	258																				✓							
FBG		ASB016	259																				✓							
FBG		ASB016	260																				✓							
FBG		ASB016	261																				✓							
FBG		ASB016	262																				✓							
FBG		ASB016	263																				✓							

Relinquished by: Woodward-Clyde
Date: 1/31/91 Time: 1535 Signature: DM Barnes

Accepted by: Pace Lab, Inc.
Date: 1-31-91 Time: 15:40 Signature: Lisa Maurer

Total Number of Containers: 7

Relinquished by: Pace Lab, Inc.
Date: 3-28-91 Time: 1300 Signature: L Maurer

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments: federal express

Comments:

White:Pace Lab Yellow:WCFS Chemist Pink:Return to WC .r sample receipt Gold:Return to WCFS with residual samples

WCFS Projec[redacted] 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyd[redacted] ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward[redacted] ederal Services
c/o Charles [redacted]ommett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/30/91
MM DD YY

BLDG 16

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	CC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	TY03	KY04													
FBG		A58016	264																				✓							

Relinquished by: Woodward-Clyde
Date: 1/31/91 Time: 1535 Signature: [signature]

Accepted by: ~~Pace~~ Lab, Inc.
Date: 1-31-91 Time: 15:40 Signature: [signature]

Total Number of ~~Containers~~: 1

Relinquished by: ~~Pace~~ Lab, ~~Inc.~~
Date: 3-28-91 Time: 1300 Signature: [signature]

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White:~~Pace~~ Lab Yellow:WCFS Chemist Pink:Return to WCI [illegible]r sample receipt Gold:Return to WCFS with residual samples

BUILDING 17

17.1 DESCRIPTION

Building 17 is a "U" shaped, one-story building with a flat roof covered with tar, felt and gravel. The building was initially constructed with open sides on the inside of the "U" for use by the motor pool. It is now fully enclosed and occupied by Post Engineer's offices and shops. The exterior walls are masonry on the outside of the "U" and aluminum siding over cement siding on the newer inside sections. Interior walls are gypsum board. Office area ceilings are finished with tile or gypsum board ceilings; the shop areas are open to the roof. The floor is concrete with many areas covered with tile and carpet. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

17.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 17-A through 17-F. A summary of this data is presented below.

17.2.1 Suspect Friable ACM

One homogeneous area of suspect friable ACM was identified and one bulk sample was collected. Laboratory analysis using PLM confirmed the presence of asbestos in this material:

- Premolded pipe insulation

Assessment of this material, which is found in the overhead area in the east wing, indicates a damage factor of 15 and an exposure factor of 19. According to the GAHA Index, this material ranks as Priority B.

17.2.2 Suspect Nonfriable ACM

Twenty homogeneous areas of suspect nonfriable ACM were identified and forty-eight bulk samples, including three QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following eleven materials:

- Cement siding
- FT 1 9" x 9" dark brown floor tile and mastic
- FT 2 9" x 9" red brown floor tile and mastic
- FT 3 12" x 12" white marbled floor tile and mastic
- FT 5 12" x 12" light brown floor tile and mastic
- FT 6 9" x 9" black floor tile and mastic
- FT 7 9" x 9" tan with brown streaks floor tile and mastic
- FT 9 9" x 9" tan floor tile and mastic
- FT 10 9" x 9" red floor tile and mastic
- FT 11 9" x 9" gray floor tile and mastic
- FT 12 9" x 9" medium brown floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM these materials should be included in an O&M Program.

17.2.3 Material Assumed To Contain Asbestos

Two homogeneous areas, the tar and felt roofing material and vibration cloth, are assumed to be ACM. No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

17.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following material, originally identified in the walkthrough survey as suspect ACM, was examined more closely and reclassified as nonsuspect:

- CT 4 2' x 4' fiberglass ceiling tile

No bulk samples of this material were collected, and it was deleted as a homogeneous sample area from the final survey data.

17.4 AREAS NOT ACCESSED

All areas in Building 17 were accessed.

17.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
17		320 LF PI	

TSI = THERMAL SYSTEM INSULATION
MF = MUDDED FITTINGS
PI = PIPE INSULATION
* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

17.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 17-A	ACM Survey Results
Appendix 17-B	Assessments/Recommendations for Friable ACM
Appendix 17-C	Building Drawings
Appendix 17-D	Walkthrough Survey Data Sheets
Appendix 17-E	Laboratory Certificate of Analysis
Appendix 17-F	Sample Chain-of-Custody Forms

APPENDIX 17-A

ACM SURVEY RESULTS

ACM Survey Results for Building 17

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	17600	SF	Assume ACM	Assume ACM	
2	Misc.	Vibration cloth	On duct to office in refrigerator room See Drawing 17-PL	Non	Good	3	SF	Assume ACM	Assume ACM	
3	TSI	Premolded pipe insulation	Two pipes run on west side of east wing See Drawing 17-PL	High	Poor	320	LF	009	2-5% Chrysotile 30-35% Amosite	3"-6" pipe diameter with insulation. Pipes run above ceiling tile in office areas; in mechanical room pipes are exposed and insulation is badly damaged.
4	Misc.	Cement siding	Under aluminum siding	Non	Unknown	6000	SF	059 060	15-20% Chrysotile 15-20% Amosite 35-40% Chrysotile	Material is covered by aluminum siding making it difficult to assess condition.
5	Misc.	Ceiling tile	See Drawing 17-CT	Non	Good	2550	SF	103 104	None detected None detected	CT 1 12" x 12" white w/random holes
6	Misc.	Ceiling tile	See Drawing 17-CT	Non	Good	240	SF	072 079	None detected None detected	CT 2 12" x 12" white w/uniform holes

ACM Survey Results - Building 17 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
7	Misc.	Ceiling tile	See Drawing 17-CT	Non	Good	2800	SF	066 092	None detected None detected	CT 3 2' x 4' white w/fissures
8	Misc.	Ceiling tile	See Drawing 17-CT	Non	Good	240	SF	073 108	None detected None detected	CT 5 2' x 4' white w/very small random holes
9	Misc.	Ceiling tile	See Drawing 17-CT	Non	Good	1400	SF	089 094 095	None detected None detected None detected	CT 6 12" x 12" white w/fissures Sample 095 is a QC for sample 089.
10	Misc.	Ceiling tile	See Drawing 17-CT	Non	Good	280	SF	105 106	None detected None detected	CT 7 2' x 2' white w/fissures
11	Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	5200	SF	065 075	1-5% Chrysotile 1-5% Chrysotile	FT 1 9" x 9" dark brown floor tile
12	Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	10	SF	096 100	5-10% Chrysotile 5-10% Chrysotile	FT 2 9" x 9" red brown replacement floor tile
13	Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	3200	SF	071 074	5-10% Chrysotile 1-5% Chrysotile	FT 3 12" x 12" white, marbled floor tile
14	Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	10	SF	098 099	None detected None detected	FT 4 12" x 12" white marbled, replacement floor tile

ACM Survey Results . Building 17 (continued)

	Material Description					Quantity				
Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure-ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
15	Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	3	SF	090 091	1-5% Chrysotile 1-5% Chrysotile	FT 5 12" x 12" light brown w/spots, replacement floor tile
16	Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	160	SF	063 088	5-10% Chrysotile 5-10% Chrysotile	FT 6 9" x 9" black floor tile
17	Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	600	SF	082 086 087	15-20% Chrysotile 15-20% Chrysotile 10-15% Chrysotile	FT 7 9" x 9" tan w/brown streaks floor tile Sample 87 is a QC for sample 86.
18	Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	900	SF	067 068	<1% Chrysotile <1% Chrysotile	FT 8 12" x 12" light brown floor tile
19	Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	140	SF	080 081	10-15% Chrysotile 1-5% Chrysotile	FT 9 9" x 9" tan floor tile
20	Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	140	SF	078 083	1-5% Chrysotile 1-5% Chrysotile	FT 10 9" x 9" red floor tile

ACM Survey Results for Building 17 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
21	Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	140	SF	069 070	1-5% Chrysotile 1-5% Chrysotile	FT 11 9" x 9" gray floor tile
22	Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	1600	SF	062 064	1-5% Chrysotile 1-5% Chrysotile	FT 12 12" x 12" medium brown floor tile
23	Surfacing	Gypsum board	**Walls:** throughout building **Ceilings:** See Drawing 17-CT	Non	Good	31500	SF	076 077 084 085 093 097 101 102	None detected None detected None detected None detected None detected None detected <1% Chrysotile None detected	Sample 085 is a QC for sample 084.

APPENDIX 17-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 17.

		Material Description					
Functional Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
17-1	3	TSI	Premolded pipe insulation	15	19	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable Asbestos Assessment Checklist

Cameron Station Building 17 Inspector/Date Barnes / Guardia 1/25/91

Homogeneous Sample Area #(s) 3 Material Type(s) Premolded pipe insulation

Functional Space 17-1 Overhead area along east wing

Part 1: Damage/Risk

- Visible evidence of physical damage: (5) High; 4 Moderate; 2 Low; 1 Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

  A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance

  B. Pipe, boiler or duct insulation: (3) Contaminated ceiling panel requires removal; 1 Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:

  A. < 10 ft: 8 High; 5 Medium; 2 Low

  B. ≥ 10 ft: 5 High; (3) Medium; 0 Low top. on Mech rm.
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  1 1< % ≤ 30; (3) 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 09

  Damage/Risk Total 15

Friable Asbestos Assessment Checklist

Cameron Station Building 17

Inspector/Date Barnes / Guardia 1/25/91

Homogeneous Sample Area #(s) 3

Material Type(s) Pumpkled pipe insulation

Functional Space 17-1 Overhead area along East Wing

Part 2: Exposure

- Friability: (6) High; 3 Moderate; 1 Low
- Amount of Visible Friable Material: 0 < 10 ft²; (1) 10≤ ft² < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft₂
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low top in much use
- Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

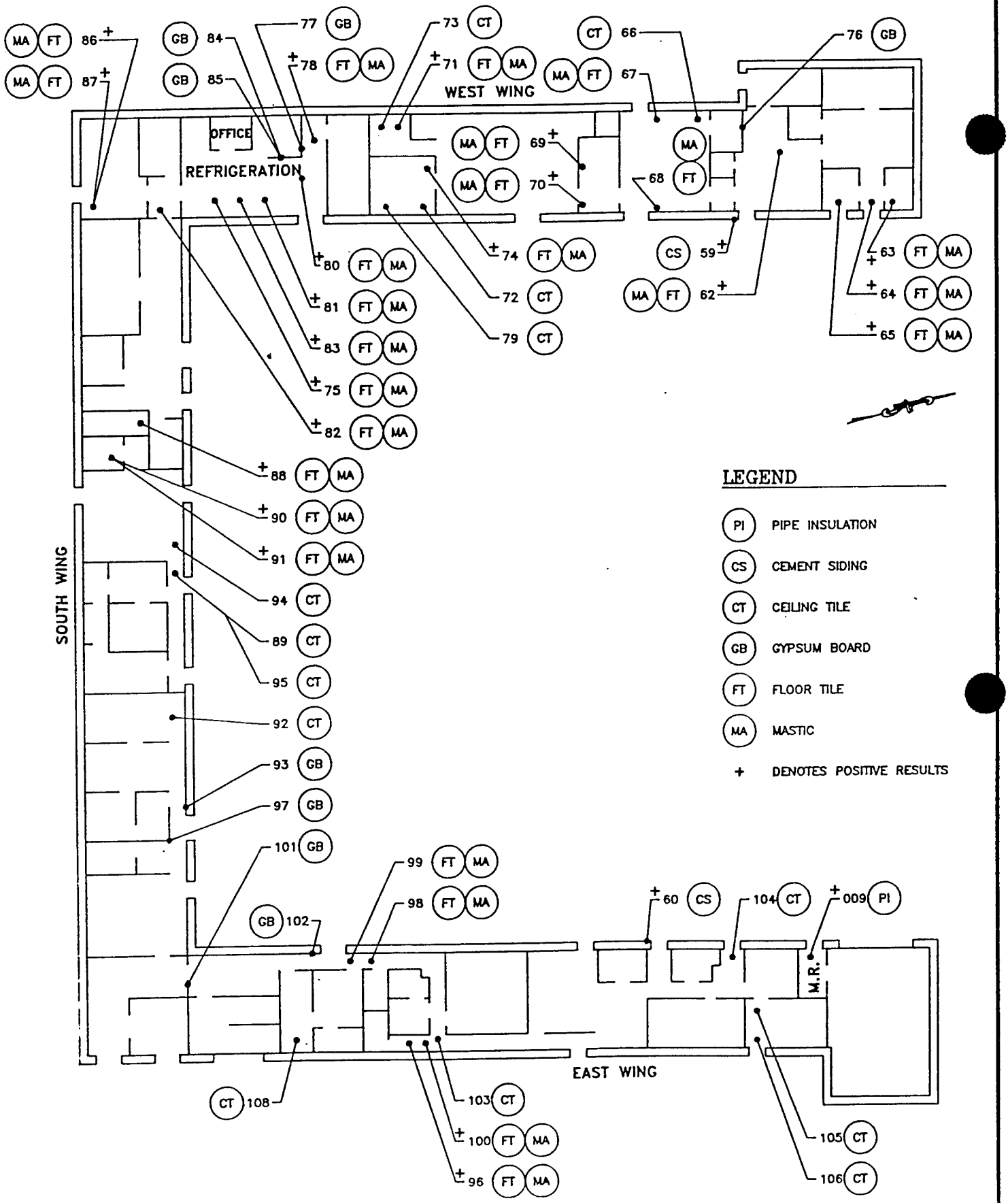
  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  (1) ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; 4 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 19

APPENDIX 17-C

BUILDING DRAWINGS



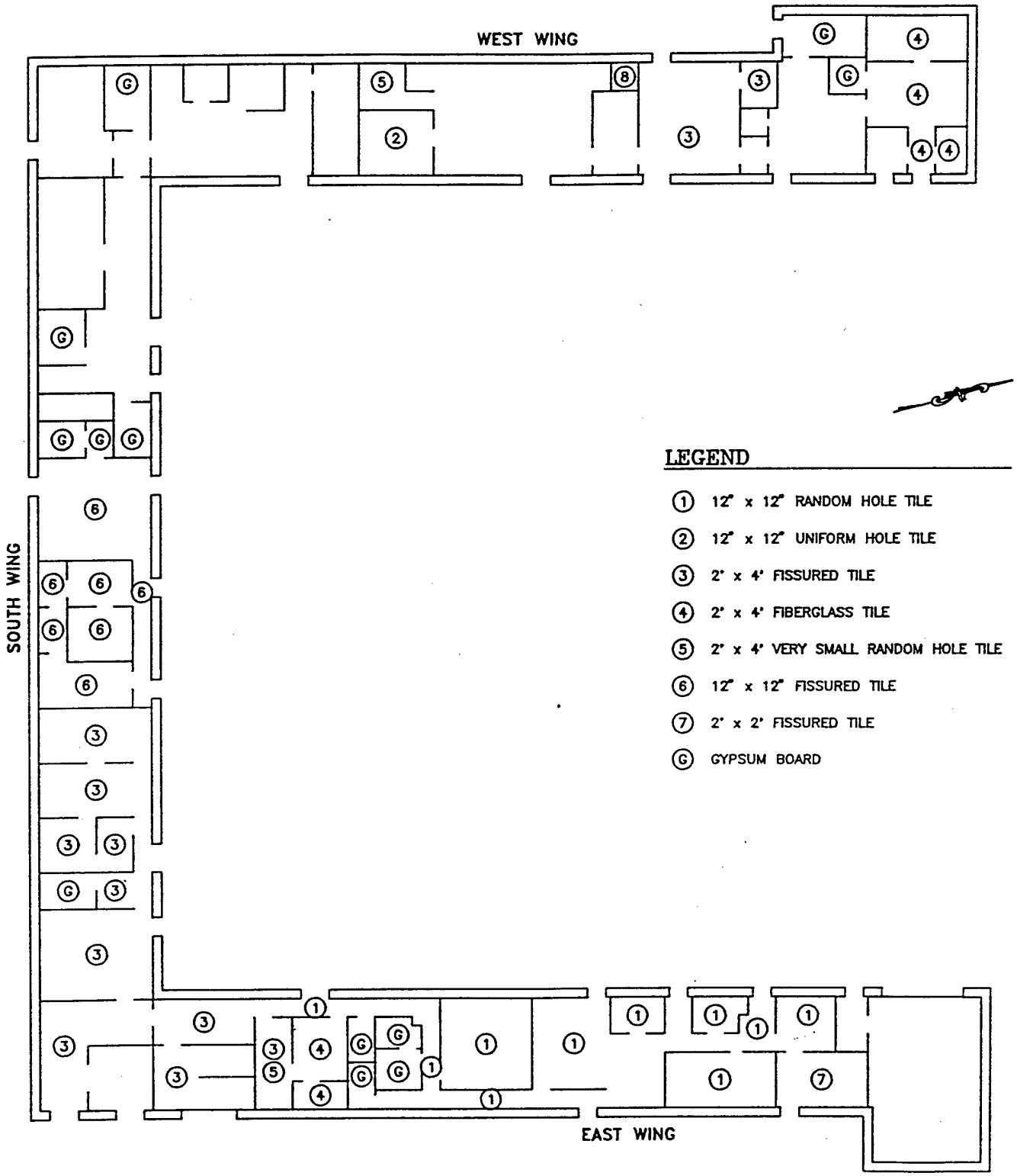
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 17
SAMPLE LOCATIONS

Woodward–Clyde Federal Services

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	17–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

1. 12" x 12" RANDOM HOLE TILE
2. 12" x 12" UNIFORM HOLE TILE
3. 2' x 4' FISSURED TILE
4. 2' x 4' FIBERGLASS TILE
5. 2' x 4' VERY SMALL RANDOM HOLE TILE
6. 12" x 12" FISSURED TILE
7. 2' x 2' FISSURED TILE
G. GYPSUM BOARD

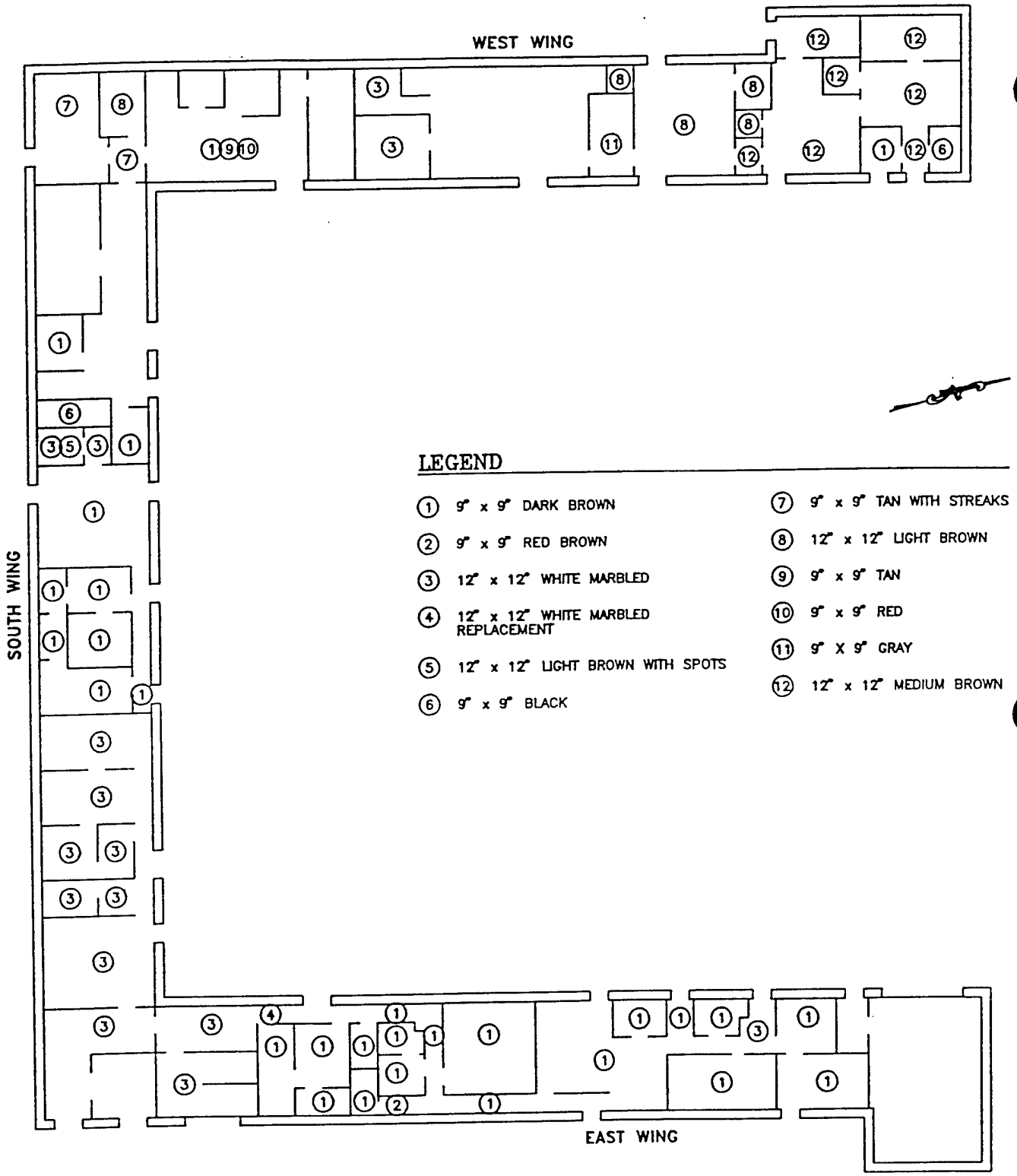
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 17
CEILING TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	17–CT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



LEGEND

1. 9" x 9" DARK BROWN
2. 9" x 9" RED BROWN
3. 12" x 12" WHITE MARBLED
4. 12" x 12" WHITE MARBLED REPLACEMENT
5. 12" x 12" LIGHT BROWN WITH SPOTS
6. 9" x 9" BLACK
7. 9" x 9" TAN WITH STREAKS
8. 12" x 12" LIGHT BROWN
9. 9" x 9" TAN
10. 9" x 9" RED
11. 9" X 9" GRAY
12. 12" x 12" MEDIUM BROWN

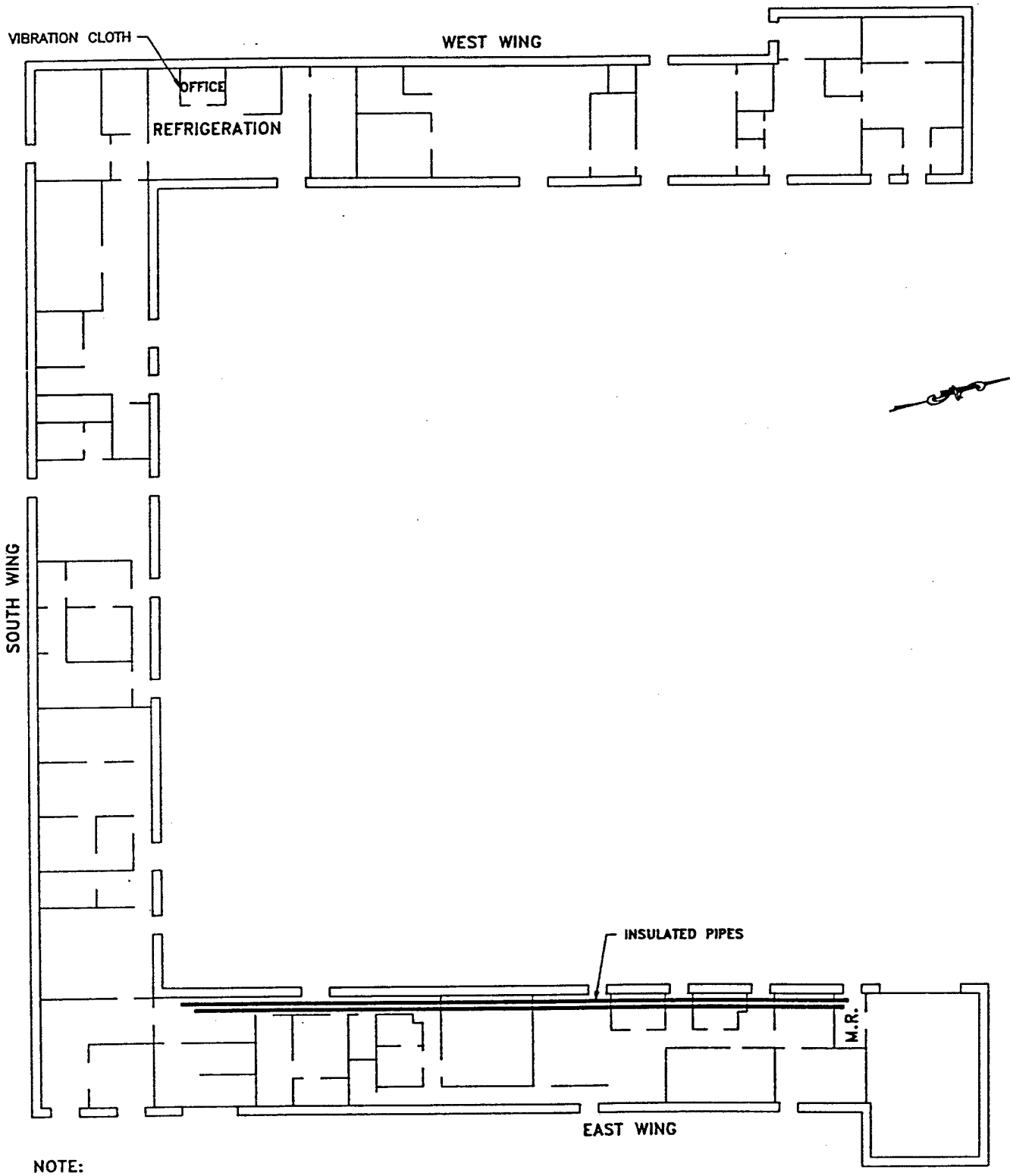
CLIENT USATHAMA

Woodward–Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 17
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–22–91	17–FT
	CHECKED BY: F.B.G.	SCALE: N.T.S.	



NOTE:
PIPES RUN ABOVE CEILING TILE IN OFFICE AREAS
BUT ARE EXPOSED IN MECHANICAL ROOM

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia				
Woodward–Clyde Federal Services	TITLE BUILDING 17 PIPE LOCATIONS				
PROJECT NO. 3001–210	DRAWN BY: L.A.L.	DATE: 5–22–91	DWG. NO. 17–PL		
	CHECKED BY: F.B.C.	SCALE: N.T.S.			

APPENDIX 17-D

WALKTHROUGH SURVEY DATA SHEETS

Building 17 Post engineers office & shops

EXTERIOR

Inspector Date 11/14/90

Exterior Siding

Masonry ☒ Steel/Aluminum ☒ Wood ☐ Asbestos Cement Shingle ☒ Asphalt Shingle ☐

covered w/ Al siding

Other ☐ _____ Soffit ☐

Sample (Y) N cement shingle Condition G F P ? Quantity 6000 SF

Roof

Assume

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☐ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition G F P Quantity _____ SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☐	Y N	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☒	Y (N)	G F P	_____	_____
A/C Units ☒	Y (N)	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☒ Steel Joists/Beams ☐ Wood Columns ☒ Steel Column ☐ Concrete Column ☒

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☒ Firedoor ☐

Sample Y (N) Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building #17

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler	N/A						
Breeching	N/A						
Furnace	N/A						
Tanks/Vessels							
DHW		No					
Elec./Telephone	N/A						
Other							
Insulation	on duct		Refrig room	DSSame Dcm	N	G	3
"	inside of office						
"	on DHW		Mech Rm	Rubberized material	N		

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
5. Trowelled-on
6. Mud
7. Other

HVAC

uilding #17

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	FROM PE. SEC. TO FILING & PRINTING	no						
	" "	yes	fiberglass	no				
Pipe	From PE. SEC. TO FILING & PRINTING	yes	pre mold	yes	poor	160	LF	3.5" w/ In
	"	yes	pre mold	yes	poor	160	LF	5.5" w/ In
Fittings								
Other								

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building #17

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
Ceiling Tile					
#1 - 12" x 12" - glued on	white/punch holes random pattern	SEE FLOOR PLAN	yes	G	2550 SF
#2 - 12" x 12" - glued on	white/punch holes uniform pattern			G	240 SF
#3 - 2'x4' - suspended	white/fissured			G	2800 SF
#4 - 2'x4' "	white/smooth		No	Fire Damage	1030 SF
#5 - 2'x4' "	white/very sm. holes			G	240 SF
#6 - 12" x 12" glued on	white/fissured			G	1400 SF
#7 - 2'x2'	white/fissured			G	280 SF
- 4'x8' gypsum board	white			G	1500 SF
- fibrous membrane	white	inside Door 2	No		
fine fiberboard					
nailed to underside of roof boards	white/grey		No		

R

Common

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

INTERIOR - CEILING/WALLS/FLOORS/MISC.

uilding #77

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
floor tile					
#1 - 9"x9" brown	brown	SEE FLOOR PLAN	yes		5200 SF
#2 - 9"x9" brown (replacement)	brown				10 SF
#3 - 12"x12" white marbled	white marbled				3200 SF
#4 - 12"x12" " " (replacement)	white marbled				10 SF
#5 - 12"x12" Light brown w/spots	Light brown w/spots				3 SF
#6 - 9"x9" black	black				160 SF
#7 - 9"x9" tan w/ brown streaks	tan w/brown streaks				600 SF
#8 - 12"x12" Light brown	Light brown				900 SF
#9 - 9"x9" tan	tan				140 SF
#10 - 9"x9" red	red				140 SF
#11 - 9"x9" grey	grey				140 SF
#12 - 12"x12" medium brown	medium brown				1600 SF

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

APPENDIX 17-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 17
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/22/91
Date Analyzed : 02/01/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
59	P	15-20	15-20	-----	-----	-----	-----	-----	-----	-----	-----	60-70	AS	
60	P	35-40	-----	-----	-----	-----	-----	-----	-----	<1	-----	60-65	AS	
62	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
63	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	-----	90-95	AS	
64	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	
65	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	<1	95-99	AS	
66	N	-----	-----	-----	-----	-----	-----	30-35	-----	30-35	-----	30-40	AS	
67	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
68	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
69	P	01-05	-----	-----	-----	-----	-----	-----	-----	05-10	05-10	80-84	AS	
70	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	05-10	85-94	AS	
71	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	<1	90-95	AS	
72	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
73	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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AMA Analytical Services, Inc.

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Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 17
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/22/91
Date Analyzed : 02/01/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
74	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
75	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	AS	
76	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AS	
77	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AS	
78	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	<1	95-99	AS	
79	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
80	P	10-15	-----	-----	-----	-----	-----	-----	-----	-----	<1	85-90	AS	
81	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	
82	P	15-20	-----	-----	-----	-----	-----	-----	-----	-----	-----	80-85	AS	
83	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	<1	95-99	AS	
84	N	-----	-----	-----	-----	-----	-----	-----	<1	01-05	-----	95-99	AS	
85	N	-----	-----	-----	-----	-----	-----	-----	<1	01-05	-----	95-99	AS	
86	P	15-20	-----	-----	-----	-----	-----	-----	-----	-----	-----	80-85	AS	
87	P	10-15	-----	-----	-----	-----	-----	-----	-----	-----	-----	85-90	AS	

COMMENTS: * P = ASBESTOS PRESENT
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Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 17
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/22/91
Date Analyzed : 02/01/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
88	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	-----	90-95	AS	
89	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
90	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	
91	P	01-05	-----	-----	-----	-----	-----	-----	-----	-----	-----	95-99	AS	
92	N	-----	-----	-----	-----	-----	-----	55-60	-----	10-15	-----	25-35	AS	
93	N	-----	-----	-----	-----	-----	-----	<1	-----	10-15	-----	85-90	AS	
94	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
95	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
96	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	-----	90-95	AS	
97	N	-----	-----	-----	-----	-----	-----	<1	-----	15-20	-----	80-85	AS	
98	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
99	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
100	P	05-10	-----	-----	-----	-----	-----	-----	-----	-----	<1	90-95	AS	
101	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	

COMMENTS: * P = ASBESTOS PRESENT
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Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 17
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/22/91
Date Analyzed : 02/01/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

	/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
102	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AS	
103	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
104	N	-----	-----	-----	-----	-----	-----	-----	-----	85-90	-----	10-15	AS	
105	N	-----	-----	-----	-----	-----	-----	55-60	-----	20-25	-----	15-25	AS	
106	N	-----	-----	-----	-----	-----	-----	50-55	-----	20-25	-----	20-30	AS	
108	N	-----	-----	-----	-----	-----	-----	65-70	-----	-----	-----	30-35	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

Andreas Saldivar (AS)

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DYNAMAC CORPORATION LABORATORY TEST REPORT

DATE: 11/19/90

DYNAMAC LAB NUMBER 11-90-653

REPORT SUBMITTED TO:

WOODWARD CLYDE FEDERAL SERVICE
ONE CHURCH ST. SUITE 404
ROCKVILLE MD 20850

ATTENTION: SALLY GUARDIA

REPORT PREPARED BY:

DYNAMAC CORPORATION
11140 ROCKVILLE PIKE
ROCKVILLE, MD 20852

CONTACT: RICK SANDER

WORK ORDER NUMBER: 3001-210

PROJECT NAME: CAMERON STATION

PROJECT CODE:

NUMBER OF SAMPLES RECEIVED:1

DATE RECEIVED: 11/19/90

TYPE OF ANALYSIS: PLM

1.) BULK ASBESTOS ANALYSIS IS PERFORMED USING POLARIZED LIGHT MICROSCOPY (PLM) IN CONJUNCTION WITH DISPERSION STAINING, ACCORDING TO THE US EPA "INTERIM METHOD FOR THE DETERMINATION OF ASBESTOS IN BULK INSULATION SAMPLES".

2.) THE ANALYTICAL RESULTS CONTAINED IN THIS REPORT RELATE ONLY TO THE SPECIFIC SAMPLES AS RECEIVED FROM THE CLIENT, AND ANY EXTRAPOLATION FROM THESE RESULTS IS SOLELY THE RESPONSIBILITY OF THE CLIENT.

3.) THE PERCENTAGES REPORTED ARE AREA ESTIMATES ONLY AND ARE EXPRESSED AS PROBABLE RANGES.

4.) THIS TEST REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL AND WITH APPROVAL FROM THIS LABORATORY.

COMMENTS:

CERTIFIED BY: Gregory Fick

LABORATORY MANAGER

DYNAMAC CORPORATION LABORATORY RESULTS
SUMMARY OF RESULTS
DYNAMAC LAB NUMBER:11-90-653

?I IT SAMPLE NUMBER.	TYPE OF ASBESTOS..... DETECTED	PERCENT ASBESTOS
)09	CHRYSOTILE	2-5
	AMOSITE	30-35

DYNAMAC CORPORATION TEST REPORT
COMPLETE RESULTS BY SAMPLE
DYNAMAC LAB NUMBER:11-90-653

SAMPLE DATA

SAMPLE NUMBER:009
FRACTION #: 01B
DATE ANALYZED:11/19/90
ANALYST: RICK SANDER
VERIFIED: RICK SANDER
SAMPLE DESCRIPTION:
WHITE FIBROUS MATERIAL

BULK ASBESTOS RESULTS

ASBESTOS	PERCENT
CHRYSOTILE	2-5
AMOSITE	30-35

NONASBESTOS	PERCENT
CELLULOSE	2-5
NONASBESTOS, NONFIBROUS	50-55

COMMENTS:

APPENDIX 17-F

SAMPLE CHAIN-OF-CUSTODY FORMS

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: D M B
Initials

Field Office: Woodward-Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/22/91 (MM DD YY) BLDG 17

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Asbest	Number of Containers
FBG		ASB059	059				✓	
FBG		ASB060	060				✓	
FBG		ASB062	062				✓	
FBG		ASB063	063				✓	
FBG		ASB064	064				✓	
FBG		ASB065	065				✓	
FBG		ASB066	066				✓	

Sample Techniques (1) | Sample Flag Code (1) | Sample CC Code (1) | TEST NAME | CODE | VOC: UM05, LM05, UM06, LM06 | SVOC: UM06, LM06 | OCP/PCBs (µg/ml): UM06, LM06 | OCP/PCBs (µg/kg) | NON-TCL Pest. | TAL Metals | CYN: TY03, KY04 | TPHC (IR) | SO4 | CL | NIT | TCLP | Asbest | TCDD | PCB Wipe | TPHC (gc)

Relinquished by: Woodward-Clyde
Date: 4/25/91 Time: 1205 Signature: [signature]

Relinquished by: [redacted]
Date: 5/21/91 Time: 1000 Signature: [signature]

Comments: federal express

Accepted by: [redacted]
Date: Time: Signature:

Total Number of Containers: 7

Accepted by: Woodward-Clyde
Date: Time: Signature:

Comments:

White: [redacted] Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: D ImiB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/29/91 (MM DD YY) BLDG 17

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)					Number of Containers
										CODE	UM05 LM05	UM06 LM06	UM06 LM06	LM06			TY03 KY04															
FBG		ASB 074	074																				✓								
FBG		ASB 075	075																				✓								
FBG		ASB 076	076																				✓								
FBG		ASB 077	077																				✓								
FBG		ASB 078	078																				✓								
FBG		ASB 079	079																				✓								
FBG		ASB 080	080																				✓								

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: A B

Accepted by: [redacted]
Date: 1/25/91 Time: 12:05 Signature: L Maurice

Total Number of Containers: 7

Relinquished by: [redacted]
Date: 1-28-91 Time: 1000 Signature: L M

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: [redacted] Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/22/91 (MM DD YY) BLDG 17

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ml)	OCP/PCBs (gc/ac)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	UM05	UM06	UM06	UM06			TY03	KT04												
FBG		ASB081	081																				✓							
FBG		ASB082	082																				✓							
FBG		ASB083	083																				✓							
FBG		ASB084	084																				✓							
FBG		ASB085	085																				✓							
FBG		ASB086	086																				✓							
FBG		ASB087	087																				✓							

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: [signature]

Relinquished by: ~~Roux Lab, Inc.~~
Date: 2-28-91 Time: 1000 Signature: [signature]

Comments:

Accepted by: ~~Roux Lab, Inc.~~
Date: 1/25/91 Time: 12 05 Signature: L. Maurice

Total Number of Containers: (7)

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

White: ~~Roux Lab~~ Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DMB (Initials)

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/22/91 (MM DD YY) BLDG 17

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Number of Containers
FBG		ASB088	088				
FBG		ASB089	089				
FBG		ASB090	090				
FBG		ASB091	091				
FBG		ASB092	092				
FBG		ASB093	093				
FBG		ASB094	094				

Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	CODE	Asbest
				UM05	✓
				LM05	✓
				UM06	✓
				LM06	✓
				UM06	✓
				LM06	✓

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: [signature]

Relinquished by: [redacted] Lab, [redacted]
Date: 1/28/91 Time: 1000 Signature: [signature]

Comments:

Accepted by: [redacted] Lab, [redacted]
Date: 1/25/91 Time: 12:05 Signature: [signature]

Total Number of Containers: 7

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

White: [redacted] Lab, Yellow: WCFS Chemist, Pink: Return to WCFS after sample receipt, Gold: Return to WCFS with residual samples

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMB
Initials

Field Office: Woodward Federal Services
c/o Charles Drummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/22/91 (MM DD YY) BLDG 17

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Number of Containers
FBG		ASB 095	095				
FBG		ASB 096	096				
FBG		ASB 097	097				
FBG		ASB 098	098				
FBG		ASB 099	099				
FBG		ASB 100	100				
FBG		ASB 101	101				

Sample Techniques (1) / Sample Flag Code (1) / Sample QC Code (1) / TEST NAME / CODE

TEST NAME	CODE	Asbest
VOC	UM05	✓
	LM05	✓
SVOC	UM06	✓
	LM06	✓
OCP/PCBs (gc/ms)	UM06	✓
	LM06	✓
OCP/PCBs (gc/ec)		✓
NON-TCL Pest.		
TAL Metals		
CYN	TY03	
	KY04	
TPHC (IR)		
SO4		
CL		
NIT		
TCLP		
TCDD		
PCB Wipe		
TPHC (gc)		

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: DMB

Relinquished by: Lab, Inc.
Date: 3-25-91 Time: 1000 Signature: L. [illegible]

Comments:

Accepted by: Lab, Inc.
Date: 1/25/91 Time: 12:05 Signature: L Maurice

Total Number of Containers: 7

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

White: Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Drummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/22/91 (MM DD YY) BLDG 17

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)
FBG		ASB102	102			
FBG		ASB103	103			
FBG		ASB104	104			
FBG		ASB105	105			
FBG		ASB106	106			
FBG		ASB108	108			

Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
			CODE	UM05	UM06	UM06	LM06			TY03													
				LM05	LM06	LM06				KY04													
																✓							6
																✓							
																✓							
																✓							
																✓							
																✓							

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: [signature]

Accepted by: [redacted] Lab, Inc.
Date: 1/25/91 Time: 12:05 Signature: [signature]

Total Number of Containers: 6

Relinquished by: [redacted] Lab, Inc.
Date: 3-28-91 Time: 1000 Signature: [signature]

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: [redacted] Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

DYNAMAC CORPORATION

OPTICAL MICROSCOPY LAB

Page 1 of 1

CHAIN OF CUSTODY/SAMPLE SUBMITTAL

Reports to:
Company Woodward Clyde Federal Services
Address One Church Street
Rockville MD 20850

Attention: Sally Guardia
Phone (301) 309 0800
Invoice to: Woodward Clyde Federal Services
One Church St. Suite 704
Rockville MD 20850

Date Submitted _____ Time _____ am/pm

× Relinquished by	Date/Time 11/9/90 10:15	Condition	
Received by	Date/Time 11/9/90 10:15	Condition	cool
Relinquished by	Date/Time	Condition	
Received by	Date/Time	Condition	
Relinquished by	Date/Time	Condition	
Received by	Date/Time	Condition	

Project Name Cameron Station
Date(s) of Sampling
Requested Date for Reports: Verbal ASAP

Charge No. 3001-210
Collected by
Written

Total No. of Samples 1
Analysis Type Requested PLM
Comments

Sample ID	Description/Location	Cassette Time On	Cassette Time Off	Cassette Flow Rate	Cassette Volume	Special Instructions
009	Bldg 17 Mechanical room					
	FSI					

6/89

BUILDING 20

20.1 DESCRIPTION

Building 20, the Four Seasons store managed by AAFES, is a relatively new structure at Cameron Station. Constructed in the early 1980s, it has steel columns and beams and a flat steel panel roof. The interior, which is subdivided into the main store area, a warehouse, garden shop, office space, restrooms, and a utility room, has only one type of ceiling tile and floor tile throughout. Building 20 is heated by electricity. No steam lines enter the building.

20.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 20-A,C,E, and F. A summary of this data is presented below.

20.2.1 Suspect Friable ACM

No suspect friable ACM was identified in Building 20.

20.2.2 Suspect Nonfriable ACM

Three homogeneous areas of suspect nonfriable ACM were identified and twelve bulk samples, including one QC sample, were collected. Laboratory analysis using PLM detected less than 1% asbestos in these three materials.

20.2.3 Material Assumed To Contain Asbestos

No materials in Building 20 were assumed to be ACM.

20.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

20.4 AREAS NOT ACCESSED

All areas in Building 20 were accessed.

20.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not applicable.

20.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 20-A	ACM Survey Results
Appendix 20-C	Building Drawings
Appendix 20-E	Laboratory Certificate of Analysis
Appendix 20-F	Sample Chain of Custody Forms

Appendices B and D are not applicable to this building report.

APPENDIX 20-A

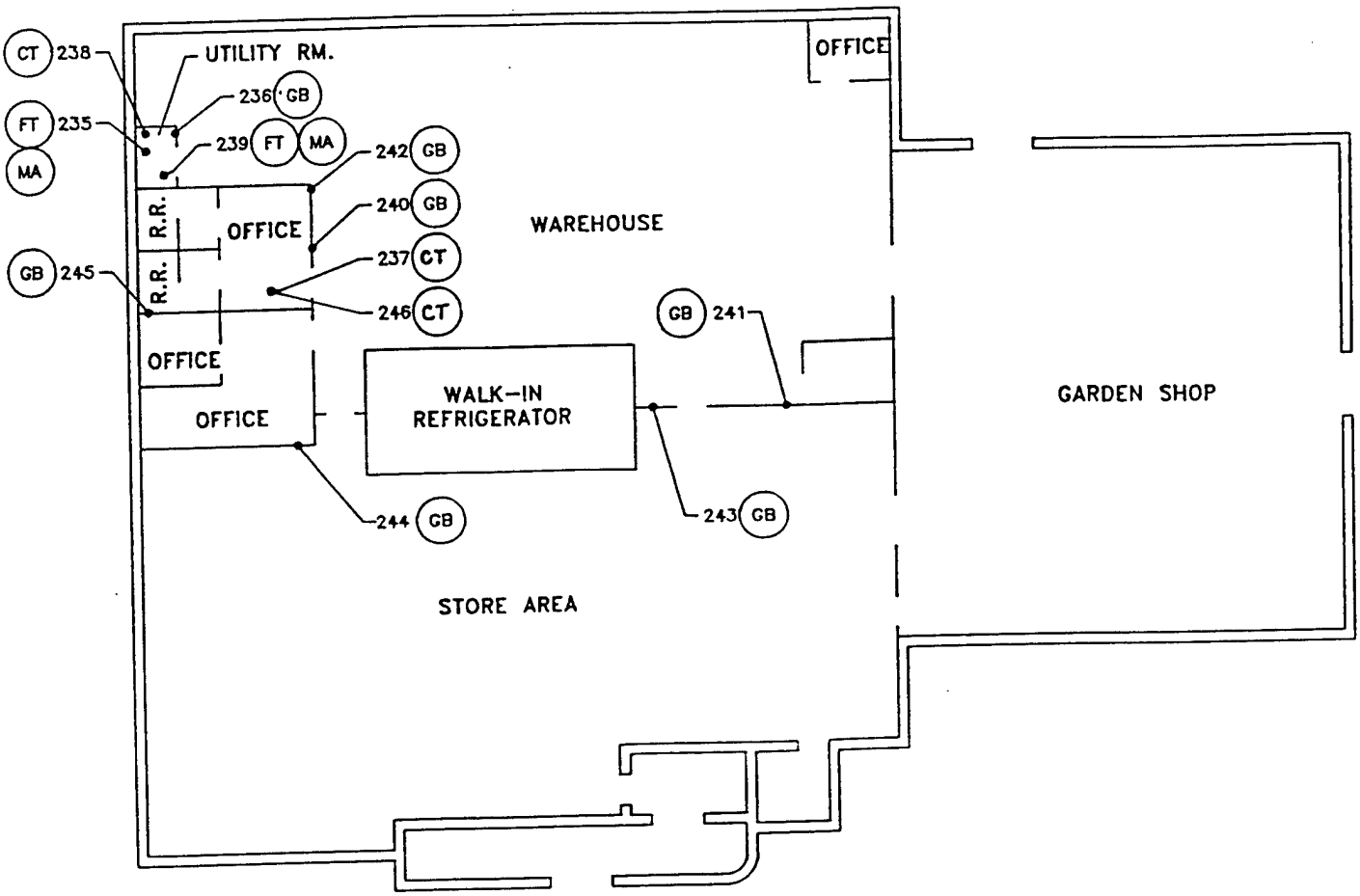
ACM SURVEY RESULTS

ACM Survey Results for Building 20

	Material Description					Quantity				
Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure-ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Ceiling tile	Main store, offices, restrooms & utility room	Non	Good	8600	SF	238 237 246	None detected None detected None detected	2' x 4' white w/fissures Sample 246 is a QC for Sample 237.
2	Misc.	Floor tile & mastic	Main store, offices, restrooms & utility room	Non	Good	8700	SF	235 239	None detected None detected	12" x 12" white floor tile
3	Surfacing	Gypsum board	Walls: main store, offices, restrooms & utility room Ceiling: restroom	Non	Good	10000	SF	236 240 241 242 243 244 245	None detected None detected None detected None detected None detected None detected None detected	

APPENDIX 20-C

BUILDING DRAWINGS



LEGEND

- (FT) – FLOOR TILE
- (MA) – MASTIC
- (CT) – CEILING TILE
- (GB) – GYPSUM BOARD

CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 20
SAMPLE LOCATIONS

Woodward–Clyde Federal Services

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–16–91	20–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	

APPENDIX 20-D

WALKTHROUGH SURVEY DATA SHEETS

ameron Station (C) Walkthrough Survey Sheet 1 of 4

uilding #20 APFES exchange EXTERIOR Guardia/Barnes 11/20/90

Exterior Siding

Masonry ☑ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y (N) _____ Condition (G) F P Quantity _____ SF

Roof

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☐ Steel Panel ☑ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition (G) F P Quantity _____ SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☐	Y N	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☐	Y N	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☐ Steel Joists/Beams ☑ Wood Columns ☐ Steel Column ☑ Concrete Column ☐

Sample Y (N) Condition (G) F P Quantity _____ SF

Sample Y (N) Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☐ Firedoor ☐

Sample Y [redacted] Condition (G) F P [redacted]ity _____ SF [redacted]

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building #20 HALLS

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Domestic Hot Water		NO	1				
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

HVAC

uilding #20 ARFES

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	Through out Bldg.	no						
Pipe	unit in unit in refrigeration	yes	fiberglass	no				
Fittings								
Other								

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglas
5. Trowelled-on
6. Mud
7. Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

uilding #20 ARFF'S

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
2x4' ceiling tile	white/fissured	main store & offices	yes	good	~ 8600 SF
12"x12" Floor Tile	white	main store & offices	yes	good	~ 8700 SF
Gypsum Board	painted	main store & offices	yes	good	~ 10000 SF

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

APPENDIX 20-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 20
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/06/91
Date Analyzed : 02/14/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
235	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
236	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	GC	
237	N	-----	-----	-----	-----	-----	-----	-----	30-40	30-35	-----	30-35	GC	
238	N	-----	-----	-----	-----	-----	-----	-----	30-40	30-35	-----	30-35	GC	
239	N	-----	-----	-----	-----	-----	-----	-----	<1	<1	-----	100	GC	
240	N	-----	-----	-----	-----	-----	-----	-----	<1	10-15	-----	85-90	GC	
241	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	<1	85-90	GC	
242	N	-----	-----	-----	-----	-----	-----	-----	-----	30-35	-----	65-70	GC	
243	N	-----	-----	-----	-----	-----	-----	-----	-----	35-40	-----	60-65	GC	
244	N	-----	-----	-----	-----	-----	-----	-----	-----	35-40	01-05	55-65	GC	
245	N	-----	-----	-----	-----	-----	-----	-----	01-05	<1	-----	95-99	GC	
246	N	-----	-----	-----	-----	-----	-----	-----	35-45	30-35	-----	25-30	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

G. Edward Carney (GC)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.
All rights reserved. AMA Analytical Services, Inc.

APPENDIX 20-F

SAMPLE CHAIN-OF-CUSTODY FORMS

WCFS Project: 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward- Federal Services
Building 1,
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

BLDG 20

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec))	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB020	235																						✓					
FBG		ASB020	236																						✓					
FBG		ASB020	237																						✓					
FBG		ASB020	238																						✓					
FBG		ASB020	239																						✓					
FBG		ASB020	240																						✓					
FBG		ASB020	241																						✓					

Relinquished by: Woodward–Clyde Federal Services

Date: 2/6/91 Time: 1315 Signature: D.M. Barnes

Accepted by: AMA Analytical Services, Inc.

Date: 2-6-91 Time: 13:15 Signature: L. Mauricio

Total No. of Containers: 7

Comments:

3-28-91 1300 L Mau — Sent for exp. fnals

Pink: WCFS Project File

Gold: WCFS Project Scientis

WCFS Project [redacted] 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted] deral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodwa[redacted] Federal Services
Building
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

BLDG 20

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM05	UM06	UM06	UH21	LH19	HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19		
FBG		ASB020	242																						✓					
FBG		ASB020	243																						✓					
FBG		ASB020	244																						✓					
FBG		ASB020	245																						✓					
FBG		ASB020	246																						✓					

Relinquished by: Woodward–Clyde Federal Services

Date: 2/7/91 Time: 1515 Signature: D. Barnes

Accepted by: AMA Analytical Services, Inc.

Date: 2-6-91 Time: 13:15 Signature: L. Maurice

Total No. of Containers: 5

Comments:

3-28-91 1500 L. Maurice Federal Express Trials

BUILDING 21

21.1 DESCRIPTION

Building 21, the Boiler House, is a masonry structure with a flat tar, felt and gravel roof. It contains six insulated boilers, which supply steam to heat the major buildings throughout Cameron Station. The boilers originally coal-fired, now use fuel oil. All pipes, including those leading from the outside fuel tanks and to installation buildings are insulated.

21.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 21-A through 21-F. A summary of this data is presented below.

21.2.1 Suspect Friable ACM

Thirteen homogeneous areas of suspect friable ACM were identified and forty-three bulk samples, including three QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following eleven materials:

- Trowelled-on insulation, Boiler #5
- Trowelled-on insulation, Boilers #1 and 2
- Trowelled-on insulation, breech, Boilers #5 and 6
- Blanket insulation, breech, Boilers #1, 2, 3, and 4
- Premolded pipe insulation, 8" high pressure steam line
- Premolded pipe insulation, 14" high pressure steam line
- Premolded pipe insulation, 4" high pressure steam line between boilers at south end
- Premolded pipe insulation, fuel lines from fuel pump to boilers
- Premolded pipe insulation, feed water line in sump area
- Corrugated paper pipe insulation, domestic hot water line
- Premolded pipe insulation, lines outside building leading to fuel tanks

Assessment of ten of these materials, which are located in one functional space within the Boiler House indicates a damage factor of 15 and an exposure factor of 24. According to the GAHA Index, these materials rank as Priority B.

No assessment of the remaining material, pipe insulation outside the Boiler House was made using the GAHA Index. However, it should be scheduled for corrective action at the same time as ACM inside the building.

21.2.2 Suspect Nonfriable ACM

Four homogeneous areas of suspect nonfriable ACM were identified and nine bulk samples were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following one material:

- 9" x 9" brown floor tile and mastic

No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

21.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However as ACM it should be included in an O&M Program.

21.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

21.4 AREAS NOT ACCESSED

All areas in Building 21 were accessed.

21.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
21		2774 SF TSI 651 LF PI	

TSI = THERMAL SYSTEM INSULATION
PI = PIPE INSULATION
MF = MUDDED FITTINGS
* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

21.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 21-A	ACM Survey Results
Appendix 21-B	Assessments/Recommendations for Friable ACM
Appendix 21-C	Building Drawings
Appendix 21-D	Walkthrough Survey Data Sheets
Appendix 21-E	Laboratory Certificate of Analysis
Appendix 21-F	Sample Chain-of-Custody Forms

APPENDIX 21-A

ACM SURVEY RESULTS

ACM Survey Results for Building 21

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	6200	SF	Assume ACM	Assume ACM	
2	TSI	Trowelled-on insulation	Boiler #5	Low	Fair	500	SF	017	10-15% Chrysotile 15-20% Amosite	
3	TSI	Trowelled-on insulation	Boiler #6	Low	Fair	500	SF	018 757 758	< 1% Amosite None detected None detected	
4	TSI	Trowelled-on insulation	Boilers #3 and 4	Low	Fair	1000	SF	047 048 761 762 763 764	None detected None detected None detected None detected None detected None detected	
5	TSI	Trowelled-on insulation	Boilers #1 and 2	Low	Fair	1000	SF	049 050	35-40% Chrysotile 1-5% Amosite <1% Chrysotile 25-30% Amosite	
6	TSI	Trowelled-on insulation	Breech on Boilers #5 and 6	Low	Fair	224	SF	019 020 755 756	30-35% Chrysotile 5-10% Amosite <1% Chrysotile 25-30% Chrysotile 15-20% Amosite 20-25% Chrysotile 20-25% Amosite	

ACM Survey Results for Building 21 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
7	TSI	Blanket insulation	Breech on Boilers #1,2,3, and 4	Low	Fair	1050	SF	051 052 053 054	40-45% Chrysotile 20-25% Chrysotile 20-25% Amosite <1% Crocidolite 45-50% Chrysotile 40-45% Chrysotile	 Sample 54 is a QC for sample 53.
8	TSI	Premolded pipe insulation	8" high pressure steam line throughout building	Low	Fair	180	LF	027 033 042	30-35% Chrysotile 15-20% Chrysotile 20-25% Amosite 15-20% Chrysotile	
9	TSI	Premolded pipe insulation	14" high pressure steam line throughout building	Low	Fair	200	LF	021 022 040 043	10-15% Chrysotile 20-25% Amosite 25-30% Chrysotile 10-15% Amosite 5-10% Chrysotile 20-25% Amosite 5-10% Chrysotile 15-20% Amosite	 Sample 43 is a QC for sample 40.
10	TSI	Premolded pipe insulation	4" high pressure steam line between boilers at south end	Low	Good	26	LF	023 024	25-30% Chrysotile 1-5% Amosite 25-30% Amosite	

ACM Survey Results f. Building 21 (continued)

	Material Description					Quantity				
Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure-ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
11	TSI	Premolded pipe insulation	Fuel lines from fuel pump to boilers along south & east walls	Low	Good	350	LF	030 031 032	30-35% Chrysotile 10-15% Amosite 25-30% Chrysotile 5-10% Amosite <1% Chrysotile	
12	TSI	Premolded pipe insulation	Feed water line in sump area	Low	Good	20	LF	045 046	10-15% Chrysotile 30-35% Amosite 20-25% Chrysotile 15-20% Amosite	
13	TSI	Premolded pipe insulation	Lines outside building leading to fuel tanks	Low	Poor	200	LF	037 038 039	30-35% Chrysotile 10-15% Amosite 30-35% Chrysotile 10-15% Amosite 35-40% Chrysotile 5-10% Amosite	
14	TSI	Corrugated paper pipe insulation	Domestic hot water lines west & north walls	Mod.	Poor	175	LF	025 026 041 044 759 760	<1% Chrysotile 1-5% Chrysotile None Detected None Detected 1-5% Chrysotile 1-5% Chrysotile	Sample 44 is a QC for sample 41.

ACM Survey Results - Building 21 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
15	Misc.	Floor tile & mastic	Restroom & kitchen	Non	Good	216	SF	57 58	<1% Chrysotile None Detected	FT 1 12" x 12" white w/speckles floor tile
16	Misc.	Floor tile & mastic	Restroom & kitchen	Non	Good	48	SF	55 56	None Detected None Detected	FT 2 12" x 12" brown replacement floor tile
17	Misc.	Floor tile & mastic	Lab & Office	Non	Poor	336	SF	28 29	1-5% Chrysotile <1% Chrysotile	FT 3 9" x 9" brown floor tile
18	Surfacing	Gypsum board	Ceilings in lab & office	Non	Good	336	SF	34 35 36	None Detected None Detected None Detected	

APPENDIX 21-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Re .nmendation for Building 21.

		Material Description					
Functional Space	Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
21-1	2, 5, 6, 7, 8, 9, 10, 11, 12, 14	TSI	Trowelled-on, blanket, premolded, and corrugated paper pipe insulation	15	24	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable Asbesto[redacted]ssment Checklist

Cameron Station Building 21 Inspector/Date Barnes / Granbery 3/13/91

Homogeneous Sample Area #(s) 2, 5, 6, 7, 8, 9, 10, 11, 12, , 14 Material Type(s) Trowelled on, blanket, premolded & corrugated paper pipe insulation

Functional Space 21 Boiler House

Part 1: Damage/Risk

- Visible evidence of physical damage: **5** High; **4** Moderate; (2) Low; **1** Minimal; **0** None
- Water damage: (3) Yes; **0** No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: **3** <1 ft. or ceiling panel contaminated; **2** 1≤ ft <5; **1** ≥5 ft; **0** ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: **3** Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; **0** No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; **3** HVAC; **4** Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: **8** High; (5) Medium; **2** Low
  - B. ≥ 10 ft: **5** High; **3** Medium; **0** Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  1 1< % ≤ 30; (3) 30 < % ≤ 50; **5** > 50%; **NO HAZARD** Samples contain no asbestos
- Sample Numbers: 17, 49, 50, 19, 20, 755, 756, 51, 52, 53, 54, 27, 33, 42, 21, 22, 40, 43, 23, 24, 30, 31, 32, 45, 46, 25, 26, 41, 44, 759, 760

  Damage/Risk Total 15

Friable Asbestos Assessment Checklist

Cameron Station Building 21 Inspector/Date Barnes / Granados 3/13/91

Homogeneous Sample Area #(s) 2, 5, 6, 7, 8, 9, 10, 11, 12, 14 Material Type(s) Trowelled-on blanket, pressboard, corrugated paper pipe insulation

Functional Space 21-1 Boiler Room

Part 2: Exposure

- Friability: 6 High; 3 Moderate; (1) Low
- Amount of Visible Friable Material: 0 < 10 ft^2; 1 10≤ ft^2 < 100; 2 100 ≤ ft^2 < 1000; (3) ≥ 1000 ft_2
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: (5) Routine turbulent/abrupt air movement; 2 Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  (5) High (constant vibration); 2 Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

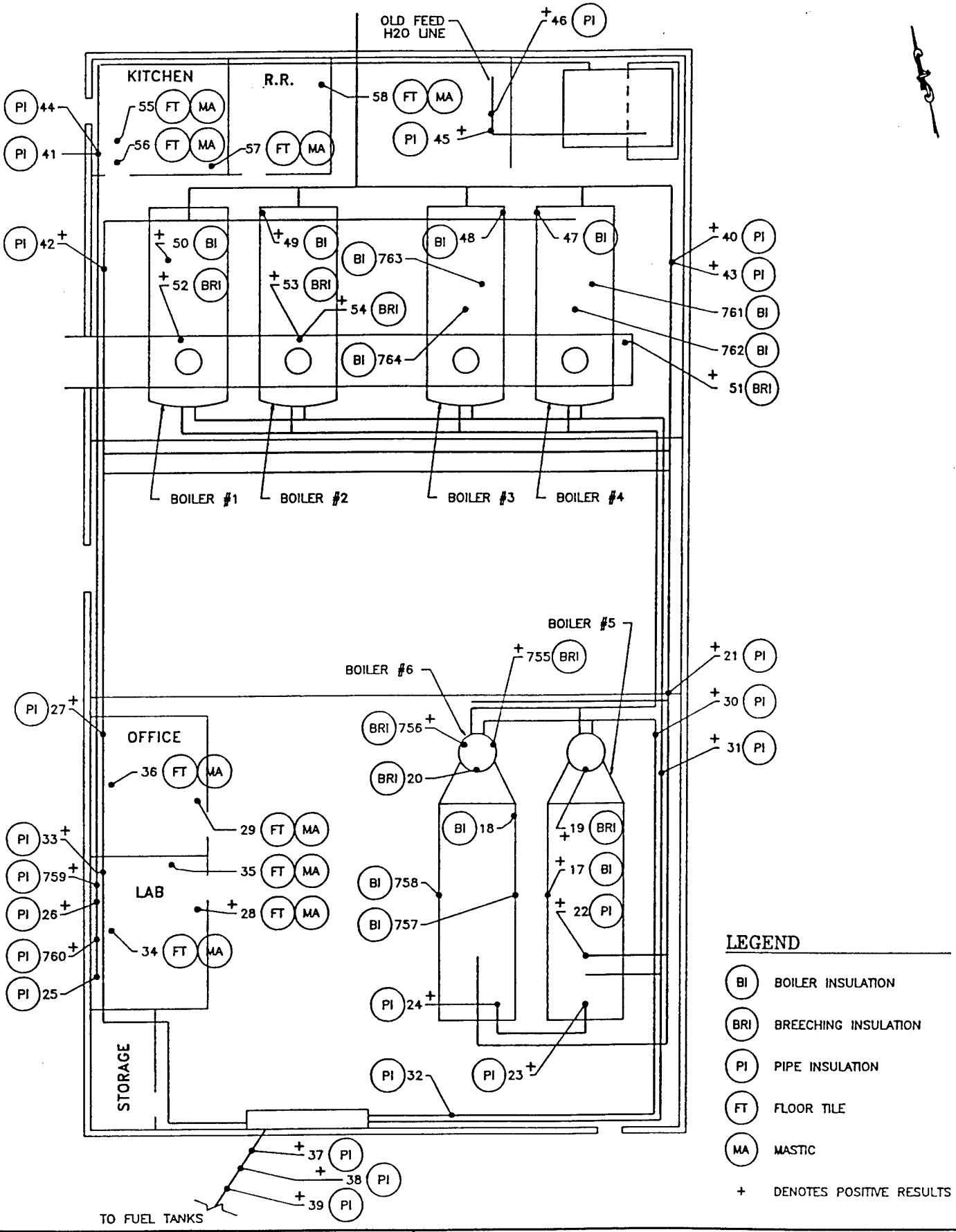
  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 24

APPENDIX 21-C

BUILDING DRAWINGS



CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE
BUILDING 21
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	CHECKED BY:	DATE:	SCALE:	DWG. NO.
3001–210	L.A.L.	F.B.C.	5–21–91	N.T.S.	21–SL

APPENDIX 21-D

WALKTHROUGH SURVEY DATA SHEETS

Building 21 Boiler House

EXTERIOR

Inspector Date 9/18/90
Cabot/Guanche

Exterior Siding

Masonry ☒ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y (N) _____ Condition G F P Quantity _____ SF

Roof

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☒ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y N Condition G F P Quantity 6200 SF 59 x 105

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☒	Y ☒	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☐	Y N	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☐ Steel Joists/Beams ☐ Wood Columns ☐ Steel Column ☐ Concrete Column/beam ☒

Sample Y ☒ Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☐ Firedoor ☐

Sample Y N Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building _____ Inspector/Date: _____

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler	South end	y	2	trowelled-on	y	F	22 x 7.5 D 20 x 7.5 D
	North "	"	1	"	"	"	21 x 7.5 x 4 ft
							Doors Not insulated
Breeching	South "	Y	2	"	"	"	4 x 3 x 8 x 2 sides 2 units
	North	Y	1	blanket	Y	"	5.5 x 5 x 50 ft 1 unit
Furnace							
Tanks/Vessels							
Feed H_2O - heat		Y		Fiberglass	N		
Feed w/ aerator		Y		"	N		
Elec./Telephone							
Other -							
where breeching	exit to building			metal flashing & caulking	N		

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

HVAC

Building Inspector/Date:

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct								
Pipe								
1 High pressure steam	Throughout	Y	Premold	Y	Fair	180	LF	8"
2 "	"	Y	"	Y	"	200	LF	14"
3 "	Between boilers S. end	Y	"	Y	G	76	LF	4"
4 Fuel line	From fuel pump to boilers - S.E. wall	Y	"	Y	G	350	"	6"
~~Fittings~~								
5 Feed H_2O line	Sumps	Y	"	Y	G	20	"	8"
6	Outside leading to fuel tanks	Y	"	"	Poor	20V	"	
~~Other~~								
7 DHW	West & North wall	Y	Corrugated	Y	P	175	"	3"
8 Feed H_2O	South & North ends	Y	FG	N				
9 Steam lines in bilge	underground steam and piping	Y	FG	N				

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 21 Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
FT 1 12 x 12	white w/speckles	restroom & kitchen	Y	G	216
2 "	brown, replacement	"	Y	G	48
3 9 x 9	brown	lab & office	Y	POOR !	336
Ceiling gypsum board		lab & office	Y	G	336
Walls - masonry			N		
Ceiling & walls - fiberboard		storage room	N		

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

Woodward-Clyde Federal Services

APPENDIX 21-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 21
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/22/91
Date Analyzed : 02/01/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
17	P	10-15	15-20	-----	-----	-----	-----	-----	-----	-----	-----	65-75	GC	
18	P	-----	<1	-----	-----	-----	-----	-----	10-15	20-25	-----	60-70	GC	
19	P	30-35	05-10	-----	-----	-----	-----	-----	<1	10-15	-----	45-50	GC	
20	P	<1	-----	-----	-----	-----	-----	-----	30-35	<1	-----	65-70	GC	
21	P	10-15	20-25	-----	-----	-----	-----	-----	-----	-----	-----	60-70	GC	
22	P	25-30	10-15	-----	-----	-----	-----	-----	-----	-----	-----	55-65	GC	
23	P	25-30	01-05	-----	-----	-----	-----	-----	<1	<1	-----	65-75	GC	
24	P	-----	25-30	-----	-----	-----	-----	-----	-----	<1	-----	70-75	GC	
25	P	<1	-----	-----	-----	-----	-----	-----	-----	80-85	-----	15-20	GC	
26	P	01-05	-----	-----	-----	-----	-----	-----	-----	50-60	-----	40-45	GC	
27	P	30-35	-----	-----	-----	-----	-----	-----	<1	<1	-----	65-70	GC	
28	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	GC	
29	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
30	P	30-35	10-15	-----	-----	-----	-----	-----	-----	<1	-----	50-60	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. All rights reserved. AMA Analytical Services, Inc.

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 21
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/22/91
Date Analyzed : 02/01/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
31	P	25-30	05-10	-----	-----	-----	-----	-----	-----	<1	-----	60-70	GC	
32	P	<1	-----	-----	-----	-----	-----	-----	35-40	<1	-----	60-65	GC	
33	P	15-20	20-25	-----	-----	-----	-----	-----	-----	<1	-----	55-65	GC	
34	N	-----	-----	-----	-----	-----	-----	-----	<1	15-20	-----	80-85	GC	
35	N	-----	-----	-----	-----	-----	-----	-----	-----	15-20	-----	80-85	GC	
36	N	-----	-----	-----	-----	-----	-----	-----	<1	35-40	-----	60-65	GC	
37	P	30-35	10-15	-----	-----	-----	-----	-----	-----	-----	-----	50-60	GC	
38	P	30-35	10-15	-----	-----	-----	-----	-----	-----	<1	-----	50-60	GC	
39	P	35-40	05-10	-----	-----	-----	-----	-----	-----	<1	-----	50-60	GC	
40	P	05-10	20-25	-----	-----	-----	-----	-----	-----	01-05	-----	65-70	GC	
41	N	-----	-----	-----	-----	-----	-----	-----	-----	80-85	-----	15-20	GC	
42	P	15-20	-----	-----	-----	-----	-----	-----	15-20	05-10	-----	55-60	GC	
43	P	05-10	15-20	-----	-----	-----	-----	-----	-----	05-10	-----	65-70	GC	
44	N	-----	-----	-----	-----	-----	-----	-----	<1	75-80	-----	20-25	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. All rights reserved. AMA Analytical Services, Inc.

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 21
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/22/91
Date Analyzed : 02/01/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
45	P	10-15	30-35	-----	-----	-----	-----	-----	-----	<1	-----	50-60	GC	
46	P	20-25	15-20	-----	-----	-----	-----	-----	-----	-----	-----	55-65	GC	
47	N	-----	-----	-----	-----	-----	-----	-----	20-25	20-25	-----	50-60	GC	
48	N	-----	-----	-----	-----	-----	-----	-----	20-25	20-25	-----	50-60	GC	
49	P	35-40	01-05	-----	-----	-----	-----	-----	<1	<1	-----	55-65	GC	
50	P	<1	25-30	-----	-----	-----	-----	-----	-----	<1	-----	70-75	GC	
51	P	40-45	-----	-----	-----	-----	-----	-----	-----	<1	-----	55-60	GC	
52	P	20-25	20-25	<1	-----	-----	-----	-----	<1	<1	-----	50-60	GC	
53	P	45-50	-----	-----	-----	-----	-----	-----	-----	<1	-----	50-55	GC	
54	P	40-45	-----	-----	-----	-----	-----	-----	-----	<1	-----	55-60	GC	
55	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
56	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
57	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
58	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. All rights reserved. AMA Analytical Services, Inc.

AMA Analytical Services, Inc.

NVLAP (#2561) and EMLAP (#1153) Accredited Laboratory

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 21
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/22/91
Date Analyzed : 02/01/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	ASBESTOS % CHRYSOTILE	ASBESTOS % AMOSITE	ASBESTOS % CROCIDOLITE	ASBESTOS % TREMOLITE	ASBESTOS % ACTINOLITE	ASBESTOS % ANTHOPHYLLITE	OTHER FIBROUS MATERIAL % MINERAL WOOL	OTHER FIBROUS MATERIAL % FIBROUS GLASS	OTHER FIBROUS MATERIAL % ORGANIC FIBERS	OTHER FIBROUS MATERIAL % OTHER	PARTICULATE	ANALYST ID**	COMMENT
755	P	25-30	15-20	-----	-----	-----	-----	-----	01-05	<1	-----	50-54	AB	
756	P	20-25	20-25	-----	-----	-----	-----	-----	05-10	<1	-----	45-50	AB	
757	N	-----	-----	-----	-----	-----	-----	-----	20-25	25-30	-----	45-55	AB	
758	N	-----	-----	-----	-----	-----	-----	-----	20-25	25-30	-----	45-55	AB	
759	P	01-05	-----	-----	-----	-----	-----	-----	-----	70-75	01-05	20-24	AB	
760	P	01-05	-----	-----	-----	-----	-----	-----	<1	70-75	-----	20-30	AB	
761	N	-----	-----	-----	-----	-----	-----	-----	30-35	30-35	-----	30-40	AB	
762	N	-----	-----	-----	-----	-----	-----	-----	30-35	30-35	-----	30-40	AB	
763	N	-----	-----	-----	-----	-----	-----	-----	45-50	<1	-----	50-55	AB	
764	N	-----	-----	-----	-----	-----	-----	-----	45-50	<1	-----	50-55	AB	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

G. Edward Carney (GC)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.
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APPENDIX 21-F

SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01 22 91 (MM DD YY)

BLDG 21

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	UM05	UM06	UM06	UM06			TY03													
											LM05	LM06	LM06	LM06			KY04													
FB6		021 ASB 017	017																				✓							
FB6		021 ASB 018	018																				✓							
FB6		021 ASB 019	019																				✓							
FB6		021 ASB 020	020																				✓							
FB6		ASB 021	021																				✓							
FB6		021 ASB 022	022																				✓							
FB6		021 ASB 023	023																				✓							

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: David M. B

Accepted by: [redacted] Lab, Inc.
Date: 1/25/91 Time: 12:05 Signature: Lisa Maurice

Total Number of Containers: 7

Relinquished by: [redacted] Lab, Inc.
Date: 3/28/91 Time: 1300 Signature: L L

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments: federal expressed

Comments:

White: [redacted] Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/22/91 (MM DD YY)

BLDG 21

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	UM05	UM05	UM06	LM06	UM06	LM06	TY03	KY04												
FBG		021 ASB024	024																				✓							•
FBG		021 ASB025	025																				✓							
FBG		021 ASB026	026																				✓							
FBG		021 ASB027	027																				✓							
FBG		021 ASB028	028																				✓							
FBG		021 ASB029	029																				✓							
FBG		021 ASB030	030																				✓							

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: David M. Brummett

Accepted by: ~~Paco~~ Lab, ~~Inc.~~
Date: 1/25/91 Time: 12.05 Signature: L. Hamrick

Total Number of Containers: 7

Relinquished by: ~~Paco~~ Lab, ~~Inc.~~
Date: 3-28-91 Time: 1300 Signature:

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: ~~Paco~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMW
Initials

Field Office: Woodward- Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/22/91
MM DD YY

BLDG 21

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	TY03	KY04												
FBG		021 ASB 031	031																				✓							
FBG		021 ASB 032	032																				✓							
FBG		021 ASB 033	033																				✓							
FBG		021 ASB 034	034																				✓							
FBG		021 ASB 035	035																				✓							
FBG		021 ASB 036	036																				✓							
FBG		021 ASB 037	037																				✓							

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1605 Signature: [signature]

Accepted by: Lab, Inc.
Date: 1/28/91 Time: 12 05 Signature: [signature]

Total Number of Containers: 7

Relinquished by: Lab, Inc.
Date: 3-28-91 Time: 1300 Signature: [signature]

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: Lab Yellow: WCFS Chemist Pink: Return to W after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Drummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/22/91 (MM DD YY) BLDG 21

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1) / Sample Flag Code (1) / Sample CC Code (1) / TEST NAME / CODE	VOC UM05	VOC LM05	SVOC UM06	SVOC LM06	OCP/PCBs (gc/ms) UM06	OCP/PCBs (gc/ec) LM06	NON-TCL Pest.	TAL Metals	CYN TY03	CYN KY04	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)	Number of Containers
FBG		021 ASB038	038																				✓				
FBG		021 ASB039	039																				✓				
FBG		021 ASB040	040																				✓				
FBG		021 ASB041	041																				✓				
FBG		021 ASB042	042																				✓				
FBG		021 ASB043	043																				✓				
FBG		021 ASB044	044																				✓				

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 12:05 Signature: [signature]

Accepted by: ~~Pace~~ Lab, Inc.
Date: 1/25/91 Time: 12:05 Signature: [signature]

Total Number of Containers: 7

Relinquished by: ~~Pace~~ Lab, Inc.
Date: 3-28-91 Time: 1700 Signature: [signature]

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: ~~Pace~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/22/91 (MM DD YY) BLDG 21

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
										CODE	UM05	UM06	UM06	UM06			TY03	KY04												
FBG		021 ASB045	045																				✓							
FBG		021 ASB046	046																				✓							
FBG		021 ASB047	047																				✓							
FBG		021 ASB048	048																				✓							
FBG		021 ASB049	049																				✓							
FBG		021 ASB050	050																				✓							
FBG		021 ASB051	051																				✓							

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1305 Signature: [signature]

Accepted by: ~~Pace~~ Lab, ~~Inc~~
Date: 1/25/91 Time: 12:05 Signature: [signature]

Total Number of Containers: 7

Relinquished by: ~~Pace~~ Lab, ~~Inc~~
Date: 3-28-91 Time: 1350 Signature: [signature]

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: ~~Pace~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. [redacted]
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/22/91 (MM DD YY) BLDG 21

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1) / Sample Flag Code (1) / Sample CC Code (1) / TEST NAME / CODE	VOC UM05	VOC LM05	SVOC UM06	SVOC LM06	OCP/PCBs (gc/ms) UM06	OCP/PCBs (gc/ec) LM06	NON-TCL Pest	TAL Metals	CYN TY03	CYN KY04	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
FBG		021 ASB052	052																				✓						
FBG		021 ASB053	053																				✓						
FBG		021 ASB054	054																				✓						
FBG		021 ASB055	055																				✓						
FBG		021 ASB056	056																				✓						
FBG		021 ASB057	057																				✓						
FBG		021 ASB058	058																				✓						

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: [signature]

Accepted by: ~~Pace~~ Lab, ~~Inc.~~
Date: 1/25/91 Time: 12:05 Signature: [signature]

Total Number of Containers: 7

Relinquished by: ~~Pace~~ Lab, ~~Inc.~~
Date: 3.8.91 Time: 1300 Signature: [signature]

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: ~~Pace~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project N 001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde F eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Bldg 21

Field Office: Woodward–C ederal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe										Number of Containers
										CODE	UM05	UM05	UM06	UM06	UM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19						
FB6		AS8021	755																						/											
FB6		AS8021	756																						/											
FB6		AS8021	757																						/											
FB6		AS8021	758																						/											
FB6		AS8021	759																						/											
FB6		AS8021	760																						/											
FB6		AS8021	761																						/											

Relinquished by: Woodward–Clyde Federal Services
Date: 3/13/91 Time: 1546 Signature: D. Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 3/13/91 Time: 1540 Signature: C. Kiger

Total No. of Containers

Comments:

3/20 1300 L Mann sent Fedexpress

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project [redacted]0001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted]eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

Bldg 21

COC By: DMB

Field Office: Woodward[redacted]ederal Services
Building 1[redacted]
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM05	UM06	UM06	UH21	LH19	HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19		
FB6		A5B021	762																						/					
FB6		A5B021	763																						/					
FB6		A5B021	764																						/					

Relinquished by: Woodward–Clyde Federal Services
Date: 3/13/91 Time: 15:40 Signature: D. Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 3/13/91 Time: 1540 Signature: C. Kiger

Total No. of Containers

Comments:
3/28/91 1300 L. Ham

Pink: WCFS Project File

Gold: WCFS Project Scientist

BUILDING 22

22.1 DESCRIPTION

Building 22 is a one-story masonry structure with a metal panel roof covered with tar, felt and gravel and a two-foot-wide cement board soffit. The building is used as a guard office and for vehicle registration. It is heated by electric baseboard heaters. No steam lines enter the building.

22.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 22-A,C,D,E, AND F. A summary of this data is presented below.

22.2.1 Suspect Friable ACM

No suspect friable ACM was identified in Building 22.

22.2.2 Suspect Nonfriable ACM

Four homogeneous areas of suspect nonfriable ACM were identified and ten samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following one material:

- 2' x 4' cement soffit board

Laboratory analysis using TEM confirmed the presence of asbestos in the following one material:

- 9" x 9" white floor tile

No assessment of thse nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

22.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

22.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

22.4 AREAS NOT ACCESSED

All areas in Building 22 were accessed.

22.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not Applicable

22.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 22-A	ACM Survey Results
Appendix 22-C	Building Drawings
Appendix 22-D	Walkthrough Survey Data Sheets
Appendix 22-E	Laboratory Certificate of Analysis
Appendix 22-F	Sample Chain-of-Custody Forms

Appendix B is not applicable to this building report.

APPENDIX 22-A

ACM SURVEY RESULTS

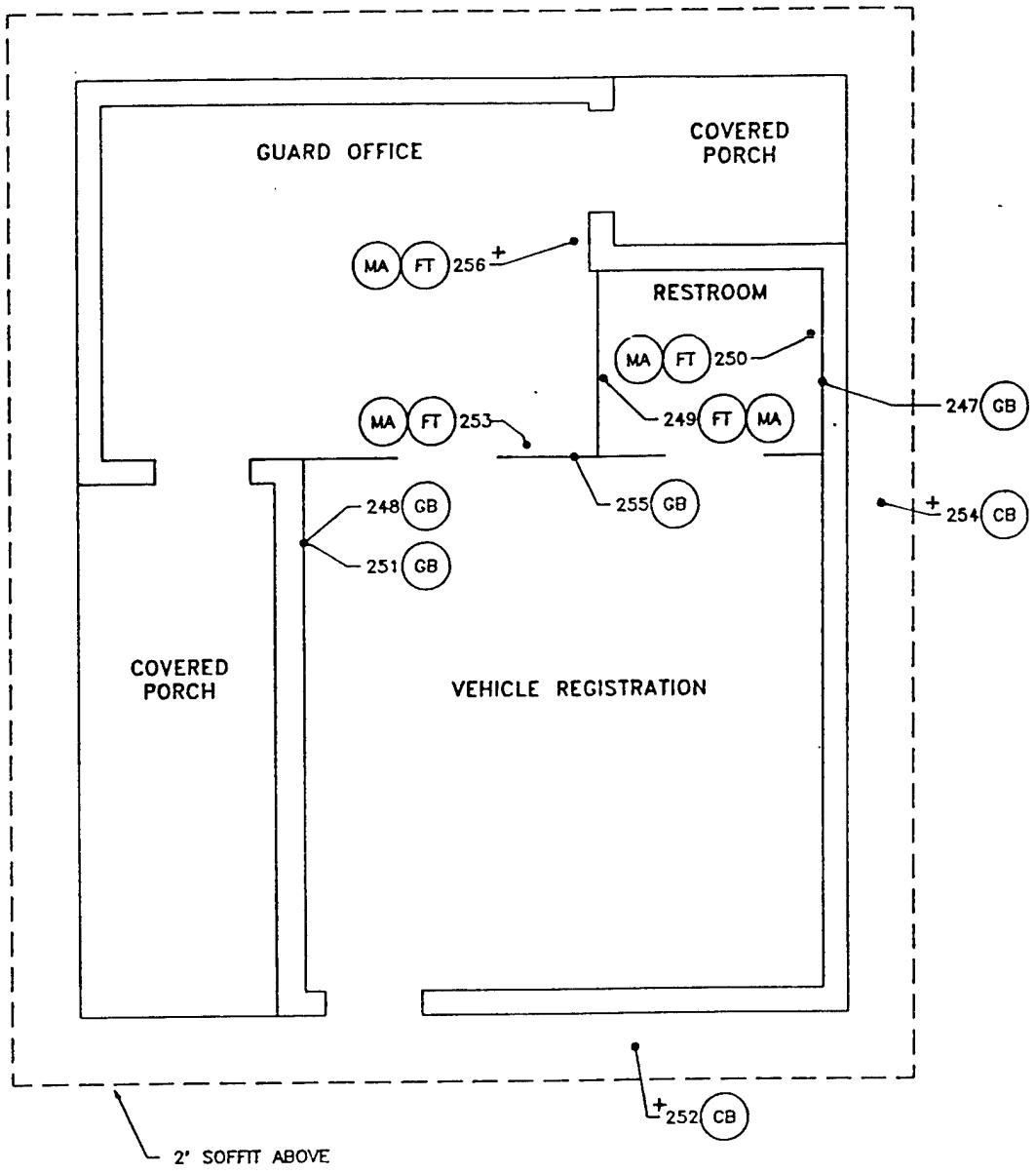
ACM Survey Results for Building 22

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	513	SF	Assume ACM	Assume ACM	
2	Misc.	Cement Board	Soffit	Low	Good	220	SF	252 254	15-20% chrysotile 15-20% chrysotile	2' x 4' board w/uniform holes
3	Surfacing	Gypsum Board	Ceilings throughout building	Non	Good	750	SF	247 248 251 255	None detected None detected None detected None detected	Sample 251 is a QC for sample 248
4	Misc.	Floor tile & mastic	Guard office	Non	Good	200	SF	253 256	<1% chrysotile <1% chrysotile[1] 31-32% chrysotile[2]	9" x 9" white floor tile
5	Misc.	Floor tile & mastic	Vehicle registration & restrooms	Non	Good	300	SF	249 250	<1% chrysotile <1% chrysotile	9" x 9" beige floor tile

[1]using PLM
[2]using TEM

APPENDIX 22-C

BUILDING DRAWINGS



LEGEND

- (CB) CEMENTITIOUS BOARD
- (GB) GYPSUM BOARD
- (FT) FLOOR TILE
- (MA) MASTIC
- \+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 22
SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–15–91	22–SL
	CHECKED BY: F.B.G.	SCALE: N.T.S.	

APPENDIX 22-D

WALKTHROUGH SURVEY DATA SHEETS

Building 22 Guard House EXTERIOR Inspector Date Barnes/Granda 12/13/90

Exterior Siding

Masonry ☐ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ Metal porch ceiling Soffit ☒ - Hardboard Sample ☒ conclusion ☐ Approximately 220 SF

Sample Y (N) Condition G F P Quantity _____ SF

Roof

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☒ Assume Steel Panel ☒ Fiberglass Panel ☐ Other ☐ _____

Sample Y N Condition G F P Quantity 513 SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☐	Y N	G F P		
Chimney ☐	Y N	G F P		
Louvers ☐	Y N	G F P		
A/C Units ☒	Y ~~N~~	G F P		
Other ☐	Y N	G F P		

STRUCTURAL

Wood Joists/Beams ☐ Steel Joists/Beams ☐ Wood Columns ☐ Steel Column ☐ Concrete Column ☐ ~~N~~ Masonry X

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☐ Firedoor ☐

Sample Y N Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building N/A Inspector/Date:

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

HVAC

uilding #22 -3UILD 16USE

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct								
Pipe	Restrooms	N						
Fittings								
Other								

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building #22 GUARD HOUSE

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity	
Gypsum wallboard	Painted white	interior walls &				
		Ceiling	yes	good	750 SF	
Floor tile #1 (9" x 9")	white	Guard office	yes	good	200 SF	C
#2 (9"x9")	Brown	Veh. Reg. & Bathroom	yes	good	300 SF	R

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

APPENDIX 22-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 22
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/30/91
Date Analyzed : 02/07/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
247	N	-----	-----	-----	-----	-----	-----	-----	01-05	01-05	-----	90-98	AS	
248	N	-----	-----	-----	-----	-----	-----	-----	01-05	01-05	-----	90-98	AS	
249	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
250	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
251	N	-----	-----	-----	-----	-----	-----	-----	-----	15-20	-----	80-85	AS	
252	P	15-20	-----	-----	-----	-----	-----	-----	-----	-----	-----	80-85	AS	
253	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	
254	P	15-20	-----	-----	-----	-----	-----	-----	-----	-----	-----	80-85	AS	
255	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AS	
256	P	<1	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	AS	

COMMENTS: * P = ASBESTOS PRESENT ** ANALYST ID CODE (SEE SIGNATURE)
N = ASBESTOS NOT OBSERVED

LAST PAGE OF 1 PAGE(S)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

Andreas Saldivar (AS)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. All rights reserved. AMA Analytical Services, Inc.

AMA Analytical Services, Inc.

May 15, 1991

Woodward-Clyde Federal Services
One Chruch Street, Suite 404
Rockville, MD 20850

RE:	TEM Bulk Analysis Cameron Station
JOB SITE:	Bldg. 22
JOB LOCATION:	Cameron Station
PROJECT NUMBER:	3001

Attention Sally Guardia:

This is the final report for transmission electron microscopy (TEM) analysis performed on your floor tile sample. The sample was submitted by Sally Guardia of Woodward-Clyde Federal Services to AMA Analytical Services, Inc. on April 16, 1991. Analytical results were reported to Sally Guardia of Woodward-Clyde Federal Services by telefax and telephone, on April 23, 1991.

The sample set consisted of one (1) sample. One (1) sample was prepared and analyzed following Dr. Eric J. Chatfield's revised TEM protocol (submitted to the ASTM Committee 022.05.07.007 in 1988).

The result of the TEM analysis is shown below:

SAMPLE	TEM ASBESTOS CONC.	ORGANIC MATERIAL	DOLOMITE/ CALCITE	NON FIBROUS MINERALS
256	31 - 32%	24%	44%	<2%

4475 Forbes Blvd. • Lanham, MD 20706 • 301-459-2640; 800-346-0961 • FAX: 301-459-2643

The asbestos detected in the sample was chrysotile, and was identified by selected area electron diffraction (SAED) and energy dispersive X-ray analysis (EDXA).

Sample Preparation

A representative portion of the sample is placed into a preweighed porcelain crucible. The sample weight is recorded. The sample is then placed into a muffle furnace at 480 degrees Celsius for a minimum of 12 hours. The weight of the residual ash is then calculated and recorded.

A quantity of the residual material is suspended in ethanol in a glass vial and treated ultrasonically . A drop of the suspension is placed onto a carbon-coated copper grid and allowed to dry. If, upon TEM observation, an excess of calcite/dolomite is present in the ashed material, these carbonates are then extracted using hydrochloric acid; the asbestos is not extracted by this process. The acid-treated sample is then prepared for analysis, as above.

Analytical Methodology

Analysis is conducted using a JEOL 100CXII transmission electron microscope equipped with either a Kevex (Delta Class) or EG&G Ortec energy dispersive x-ray analyzer. The sample grid is examined at 100X to determine the quality of the sample preparation. A screen magnification of 15,000X is then used for the analysis of 5 grid openings.

Structures having aspect ratios $\geq$ 5:1 and a 0.5 micrometer minimum length are examined in detail. Structure morphology, selected area electron diffraction (SAED) and EDXA are used to differentiate asbestos from non-asbestos structures. Photographic documentation of representative asbestos structures, as well as EDXA data, is recorded for each asbestos containing sample.

Results

The percentage of ashed material identified as asbestos is estimated within a lower and upper range. The percentage of asbestos present in the entire sample is calculated. If acid extraction is used, the percentage of calcite/dolomite is also calculated.

AMA Analytical Services, Inc. thanks Woodward-Clyde Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely,
AMA ANALYTICAL SERVICES, INC.

Luis H. Bustillos
Electron Microscopist

Robert M. Powell
Laboratory Director

LHB/kec

APPENDIX 22-F

SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMB (Initials)

Field Office: Woodward–Federal Services
c/o Charles Drummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/30/91 (MM DD YY) BLDG 22

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Number of Containers
FBG		ASB022	247				
FBG		ASB022	248				
FBG		ASB022	249				
FBG		ASB022	250				
FBG		ASB022	251				
FBG		ASB022	252				
FBG		ASB022	253				

Sample Techniques (1) / Sample Flag Code (1) / Sample QC Code (1) / TEST NAME / CODE

TEST NAME	CODE	Number of Containers
VOC	UM05	
	LM05	
SVOC	UM06	
	LM06	
OCP/PCBs (µg/mL)	UM06	
	LM06	
OCP/PCBs (µg/kg)	LM06	
NON-TCL Pest.		
TAL Metals		
CYN	TY03	
	KY04	
TPHC (IR)		
SO4		
CL		
NIT		
TCLP		
Asbest		✓ ✓ ✓ 1 1 1 1
TCDD		
PCB Wipe		
TPHC (gc)		

Relinquished by: Woodward-Clyde
Date: 1/31/91 Time: 1535 Signature: DM Burns

Relinquished by: Pace Lab, Inc.
Date: 2/28/91 Time: 1000 Signature: L. Hamm

Comments: fed ex'd overnight

Accepted by: Pace Lab, Inc.
Date: 1-31-91 Time: 15:40 Signature: L. Hamm

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Total Number of Containers: 7

White: Pace Lab; Yellow: WCFS Chemist; Pink: Return to WCFS after sample receipt; Gold: Return to WCFS with residual samples

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/30/91 (MM DD YY) BLD 32

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)
FBG		ASB022	254			
FBG		ASB022	255			
FBG		ASB022	256			

Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME	VOC	SVOC	OCP/PCBs (gc/ms)	OCP/PCBs (gc/ec)	NON-TCL Pest.	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
			CODE	LM05	LM06	LM06	LM06			TY03	KY04												
																1							
																1							
																1							

Relinquished by: Woodward-Clyde
Date: 1/31/91 Time: 0535 Signature: M. Brown

Relinquished by: Pace Lab, Inc.
Date: 3/28/91 Time: 1000 Signature: L. Hu

Comments:

Accepted by: Pace Lab, Inc.
Date: 1-31-91 Time: 15:40 Signature: Lisa Hawes

Total Number of Containers: 3

Accepted by: Woodward-Clyde
Date: Time: Signature:

Comments:

WCFS with residual samples

BUILDING 23

23.1 DESCRIPTION

Building 23, the base service station, is a one-story masonry structure with a flat metal panel roof. It is divided into areas for sales, storage, offices, a garage, two restrooms and a wooden storage area at the rear. Interior building materials include floor tile over concrete, ceiling tile and gypsum board. Heat is supplied by electric heaters. No steam lines enter the building.

23.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 23-A,C,E, AND F. A summary of this data is presented below.

23.2.1 Suspect Friable ACM

No suspect friable ACM was identified in Building 23.

23.2.2 Suspect Nonfriable ACM

Four homogeneous areas of suspect nonfriable ACM were identified and twelve bulk samples, including one QC sample, were collected. Laboratory analysis using PLM detected less than 1% asbestos in these four materials.

23.2.3 Material Assumed To Contain Asbestos

No materials in Building 23 were assumed to be ACM.

23.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

23.4 AREAS NOT ACCESSED

All areas in Building 23 were accessed.

23.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not applicable

23.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 23-A ACM Survey Results
Appendix 23-C Building Drawings
Appendix 23-E Laboratory Certificate of Analysis
Appendix 23-F Sample Chain of Custody Forms

Appendices B and D are not applicable to this building report.

APPENDIX 23-A

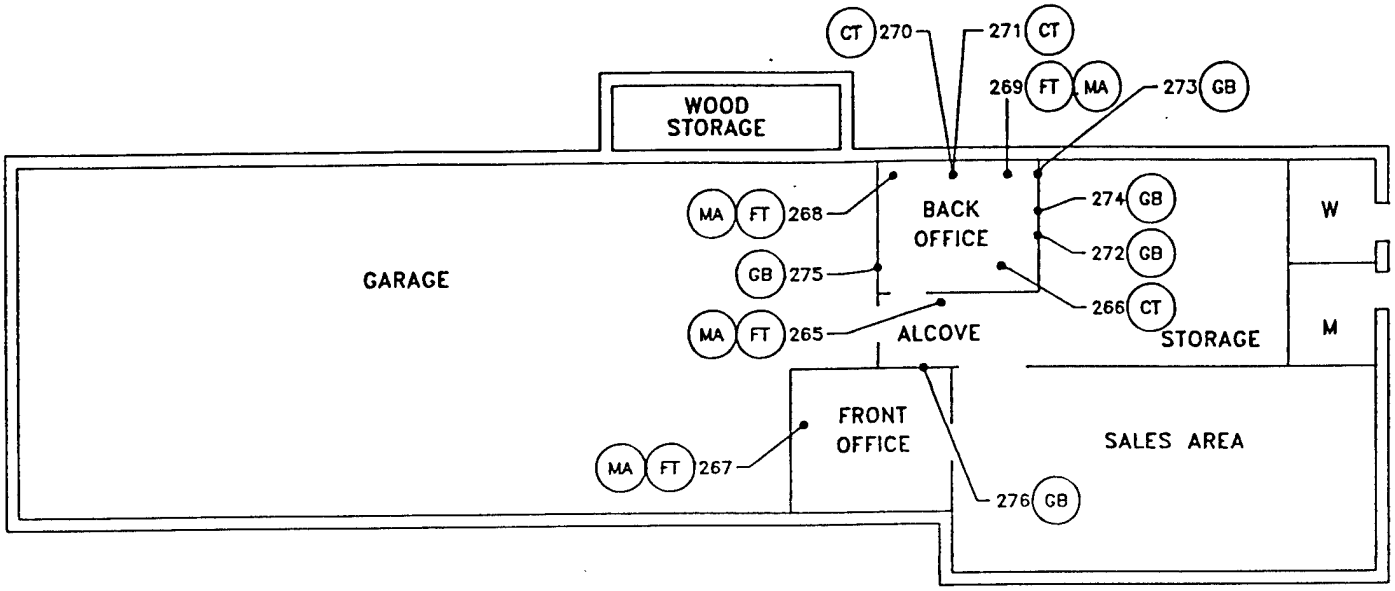
ACM SURVEY RESULTS

ACM Survey Results for Building 23

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Ceiling tile	Sales area, front and back office, alcove	Non	Good	930	SF	266 270 271	None detected None detected None detected	2' x 4' white with fissures Sample 271 is a QC for sample 270
2	Misc.	Floor tile & mastic	Sales area, front office & alcove	Non	Good	900	SF	265 267	None detected None detected	FT 1 12" x 12" white floor tile
3	Misc.	Floor tile & mastic	Back office	Non	Good	100	SF	268 269	None detected None detected	FT 2 12" x 12" cream floor tile
4	Surfacing	Gypsum board	**Walls:** Sales area, front & back offices, alcove **Ceiling:** Restrooms & wood storage area	Non	Good	2600	SF	272 273 274 275 276	None detected None detected None detected None detected None detected	

APPENDIX 23-C

BUILDING DRAWINGS



LEGEND

- CT — CEILING TILE
- FT — FLOOR TILE
- MA — MASTIC
- GB — GYPSUM BOARD

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 23 SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. CHECKED BY: F.B.C. DATE: 5–16–91 SCALE: N.T.S. DWG. NO. 23–SL

APPENDIX 23-D

WALKTHROUGH SURVEY DATA SHEETS

Building #23 Gas Station EXTERIOR Guardian / Barnes 11/20/90

Exterior Siding

Masonry ☑ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y (N) _____ Condition G F P Quantity _____ SF

Roof

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☑ Steel Panel ☑ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition G F P Quantity _____ SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☑	Y (N)	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☐	Y N	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☐ Steel Joists/Beams ☐ Wood Columns ☐ Steel Column ☐ Concrete Column ☐

Sample Y (N) Condition G F P Quantity _____ SF masonry ☑

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☐ Firedoor ☐

Sample Y [redacted] Condition G F P Qu[redacted]y _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

uilding 23

N/A

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
5. Trowelled-on
6. Mud
7. Other

HVAC

uilding 23

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct ✓		no		no				
Pipe								
Fittings								
Other								

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
5. Trowelled-on
6. Mud
7. Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

ıilding 823

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
Floor tile					
#1 – 12"x12"	white	Front sales, Front office Back office	yes	Good	~ 900 SF
#2 – 12"x12"	cream	Back storage office	yes	Good	~~100~~ SF
Ceiling Tile					
#1 – 2x4	white/fissured	All finished areas	yes	Good	~ 930 SF
#2 – drywall	unpainted	wood storage area in rear and rest rooms	yes	Good	300 SF ~~120 SF~~
Wall board	painted	all finished areas	yes	Good	~2300 SF
concrete floor		storage, garage	N		
ceramic tile		RR	N		

combine

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

APPENDIX 23-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

An AIHA (#244) and NVLAP (#1143) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 23
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/06/91
Date Analyzed : 02/14/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	ASBESTOS % CHRYSOTILE	ASBESTOS % AMOSITE	ASBESTOS % CROCIDOLITE	ASBESTOS % TREMOLITE	ASBESTOS % ACTINOLITE	ASBESTOS % ANTHOPHYLLITE	OTHER FIBROUS MATERIAL % MINERAL WOOL	OTHER FIBROUS MATERIAL % FIBROUS GLASS	OTHER FIBROUS MATERIAL % ORGANIC FIBERS	OTHER FIBROUS MATERIAL % OTHER	PARTICULATE	ANALYST ID**	COMMENT
265	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	GC	
266	N	-----	-----	-----	-----	-----	-----	-----	20-25	35-40	-----	35-45	GC	
267	N	-----	-----	-----	-----	-----	-----	-----	-----	<1	-----	100	GC	
268	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	GC	
269	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	GC	
270	N	-----	-----	-----	-----	-----	-----	-----	25-30	35-40	-----	30-40	GC	
271	N	-----	-----	-----	-----	-----	-----	-----	25-30	35-40	-----	30-40	GC	
272	N	-----	-----	-----	-----	-----	-----	-----	<1	10-15	-----	85-90	GC	
273	N	-----	-----	-----	-----	-----	-----	-----	<1	05-10	-----	90-95	GC	
274	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	GC	
275	N	-----	-----	-----	-----	-----	-----	-----	-----	35-40	-----	60-65	GC	
276	N	-----	-----	-----	-----	-----	-----	-----	-----	40-45	-----	55-60	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

LAST PAGE OF 1 PAGE(S)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

G. Edward Carney (GC)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. All rights reserved. AMA Analytical Services, Inc.

APPENDIX 23-F

SAMPLE CHAIN-OF-CUSTODY FORMS

WCFS Project [illegible]001

nstallation (2): CM
Sample Program (3): BEI
.aboratory (2):

Woodward–Clyde F[illegible]ral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward–C[illegible]ederal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

BLDG 23

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(DDT/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe				Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19					
FBG		ASB023	265																						/						
FBG		ASB023	266																						/						
FBG		ASB023	267																						/						
FBG		ASB023	268																						/						
FBG		ASB023	269																						/						
FBG		ASB023	270																						/						
FBG		ASB023	271																						/						

Relinquished by: Woodward–Clyde Federal Services
Date: 2/6/91 Time: 1310 Signature: [signature]

Accepted by: AMA Analytical Services, Inc.
Date: 2-6-91 Time: 13:15 Signature: [signature]

Total No. of Containers: 7

Comments:
3-28-91 1300 L. Mann Fedexp [illegible]

White & Yellow: AMA [illegible]alytical Services, Inc. Pink: WCFS [illegible]ject File Gold: [illegible] Project Scientist

WCFS Project N[redacted]001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde F[redacted]ral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward–[redacted]ederal Services
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

1579

BLDG 23

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe				Number of Containers
										CODE	UM05	LM05	UM06	LM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1			SW1311		SW8290	SW8290	LH19			
FBG		ASB023	272																						/						
FBG		ASB023	273																						/						
FBG		ASB023	274																						/						
FBG		ASB023	275																						/						
FBG		ASB023	276																						/						

Relinquished by: Woodward–Clyde Federal Services
Date: 2/6/91 Time: 2310 Signature: [signature]

Accepted by: AMA Analytical Services, Inc.
Date: 2-6-91 Time: 13:15 Signature: [signature]

Total No. of Containers: 5

Comments:
3/28/91 1300 [signature]

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS [redacted]ject File Gold: [redacted] Project Scientist

BUILDING 24 - RECREATION

24.1 DESCRIPTION

Building 24 consists of a sheltered picnic area and two restrooms. The shelter has a concrete floor, a metal roof and is open at the sides. The restrooms have masonry walls, a metal roof and a concrete floor.

24.2 SURVEY RESULTS

The survey team identified no suspect ACM, either friable or nonfriable, in Building 24. No bulk samples were collected, and no materials were assumed to be ACM.

24.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes.

24.4 AREAS NOT ACCESSED

All areas in Building 24 were accessed.

24.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not applicable.

24.6 REPORT APPENDICES

The remainder of this building report consists of the following one appendix:

Appendix 24-D Walkthrough Survey Data Sheets

Other appendices are not applicable to this building report.

APPENDIX 24-D

WALKTHROUGH SURVEY DATA SHEETS

Building 24 Recreation 11/20/90

EXTERIOR

Exterior Siding All metal roof

Masonry ☑ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y (N) _____ Condition G F P Quantity _____ SF

Roof

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☐ Steel Panel ☑ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition G F P Quantity _____ SF

Exterior Mechanical Systems N/A

	Sample	Condition	Quantity	Location
Vent pipe ☐	Y N	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☐	Y N	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☐ Steel Joists/Beams ☐ Wood Columns ☐ Steel Column ☐ Concrete Column ☐ MASONRY ☑

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☐ Firedoor ☐

Sample Y N Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building 24 N/A

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
5. Trowelled-on
6. Mud
7. Other

Building 84

HVAC

N/A

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct								
Pipe								
Fittings								
Other								

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 24 — Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
No ceiling tile			N		
concrete floor - no tile			N		
cinder block walls			N		

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

Woodward-Clyde Federal Services

BUILDING 25

25.1 DESCRIPTION

Building 25 is a one-story wood frame structure built on pilings with aluminum siding covering the wood. The roof is asphalt shingles over roofing felt. Heat is supplied by Building 21, the Boiler House, through underground steam pipes. Currently Building 25 houses the Installation Support Branch, MDW laundry/cleaners and a preparation area for installation food services.

25.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 25-A through 25-F. A summary of this data is presented below.

25.2.1 Suspect Friable ACM

One homogeneous area of suspect friable ACM was identified and three bulk samples were collected. Laboratory analysis using PLM confirmed the presence of asbestos in this material:

- Corrugated paper pipe insulation

Assessment of this material, which was found in one functional space, indicates a damage factor of 7 and an exposure factor of 17. According to the GAHA Index, this material ranks as Priority B.

25.2.2 Suspect Nonfriable ACM

Seven homogeneous areas of suspect nonfriable ACM were identified and fifteen bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following five materials:

- Ft 1 9" x 9" brown floor tile and mastic
- Ft 2 9" x 9" green floor tile and mastic
- Ft 3 9" x 9" black floor tile and mastic
- Ft 4 9" x 9" light grey floor tile and mastic
- Ft 5 9" x 9" dark grey floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

25.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

25.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following material, originally noted in the walkthrough survey as suspect ACM, was examined more closely and identified as nonsuspect:

- CT 1 2' x 4' fiberglass ceiling tile

No bulk samples of this material were collected, and it was deleted as a homogeneous sample area from the final survey data.

25.4 AREAS NOT ACCESSED

All areas in Building 25 were accessed.

25.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
25		20 LF PI	

TSI = THERMAL SYSTEM INSULATION
PI = PIPE INSULATION
MF = MUDDED FITTINGS
* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

1.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 1-A ACM Survey Results
Appendix 1-B Assessments/Recommendations for Friable ACM
Appendix 1-C Building Drawings
Appendix 1-D Walkthrough Survey Data Sheets
Appendix 1-E Laboratory Certificate of Analysis
Appendix 1-F Sample Chain-of-Custody Forms

APPENDIX 25-A

ACM SURVEY RESULTS

ACM Survey Results for Building 25

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Roofing felt	Roof	Non	Good	9300	SF	Assume ACM	Assume ACM	
2	Misc.	Shingles	Roof	Non	Good	9300	SF	293 294	None detected None detected	
3	TSI	Corrugated paper pipe insulation	Food preparation area adjacent to steam room	Mod	Fair	20	LF	286 287 288	1-5% chrysotile 5-10% chrysotile 1-5% chrysotile	3" pipe diameter with insulation
4	Misc.	Floor tile & mastic	Entryway Door 8 See Drawing 25-FT	Non	Good	25	SF	284 285	5-10% chrysotile 1-5% chrysotile	FT 1 9" x 9" brown floor tile
5	Misc.	Floor tile & mastic	Throughout building; See Drawing 25-FT	Non	Good	3000	SF	280 281	5-10% chrysotile 5-10% chrysotile	FT 2 9" x 9" green floor tile
6	Misc.	Floor tile & mastic	Throughout building; See Drawing 25-FT	Non	Good	4500	SF	277 278 279	5-10% chrysotile 5-10% chrysotile 5-10% chrysotile	FT 3 9" x 9" black floor tile Sample 278 is a QC for Sample 277.
7	Misc.	Floor tile & mastic	Storage area adjacent to steam room; See Drawing 25-FT	Non	Good	320	SF	291 292	1-5% chrysotile 1-5% chrysotile	FT 4 9" x 9" light grey floor tile

ACM Survey Results for Building 25 (continued)

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
8	Misc.	Floor tile & mastic	Storage area adjacent to steam room; See Drawing 25-FT	Non	Good	320	SF	289 290	1-5% chrysotile 1-5% chrysotile	FT 5 9" x 9" dark grey floor tile
9	Misc.	Ceiling tile	Offices between Doors 8&3; See Drawing 25-CT	Non	Good	1140	SF	282 283	None detected None detected	CT 2 12" x 12" light brown w/fissures

APPENDIX 25-B

ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Re nmendation for Building 25.

Functional Space	Homogeneous Sample Area #	Material Description: Category (surfacing TSI or misc.)	Material Description: Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
25-1 Food preparation area adjacent to steam room	3	TSI	Corrugated paper pipe insulation	7	17	B	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

Friable Asbestos Assessment Checklist

Cameron Station Building 25 Inspector Barnes / Guardia 2/6/91

Homogeneous Sample Area #(s) 3 Material Type(s) corrugated paper pipe- insulation

Functional Space(s) 3-1 Food prep. area adjacent to steam room

Part 1: Damage/Risk

- Visible evidence of physical damage: 5 High; 4 Moderate; (2) Low; 1 Minimal; 0 None
- Water damage: 3 Yes; (0) No
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
  - A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
  - B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

  0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
  - A. < 10 ft: 8 High; 5 Medium; (2) Low
  - B. ≥ 10 ft: 5 High; 3 Medium; 0 Low
- Asbestos content: Use percentage for material with highest probability for becoming airborne:

  (1) 1< % ≤ 30; 3 30 < % ≤ 50; 5 > 50%; NO HAZARD Samples contain no asbestos
- Sample Numbers: 286, 287, 288

Damage/Risk Total 7

Friable Asbestos ... essment Checklist

Cameron Station Building 35 Inspector Barnes / Guardia 2/6/91

Homogeneous Sample Area #(s) 3 Material Type(s) corrugated paper pipe insulation

Functional Space 3-1 Food prep. area adjacent to steam room

Part 2: Exposure

- Friability: 6 High; (3) Moderate; 1 Low
- Amount of Visible Friable Material: (0) < 10 ft^2; 1 10 ≤ ft^2 < 100; 2 100 ≤ ft^2 < 1000; 3 ≥ 1000 ft_2
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

  (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)

  5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)

  5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
- Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

  A. Sprayed- or trowelled-on ceiling or walls

  1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

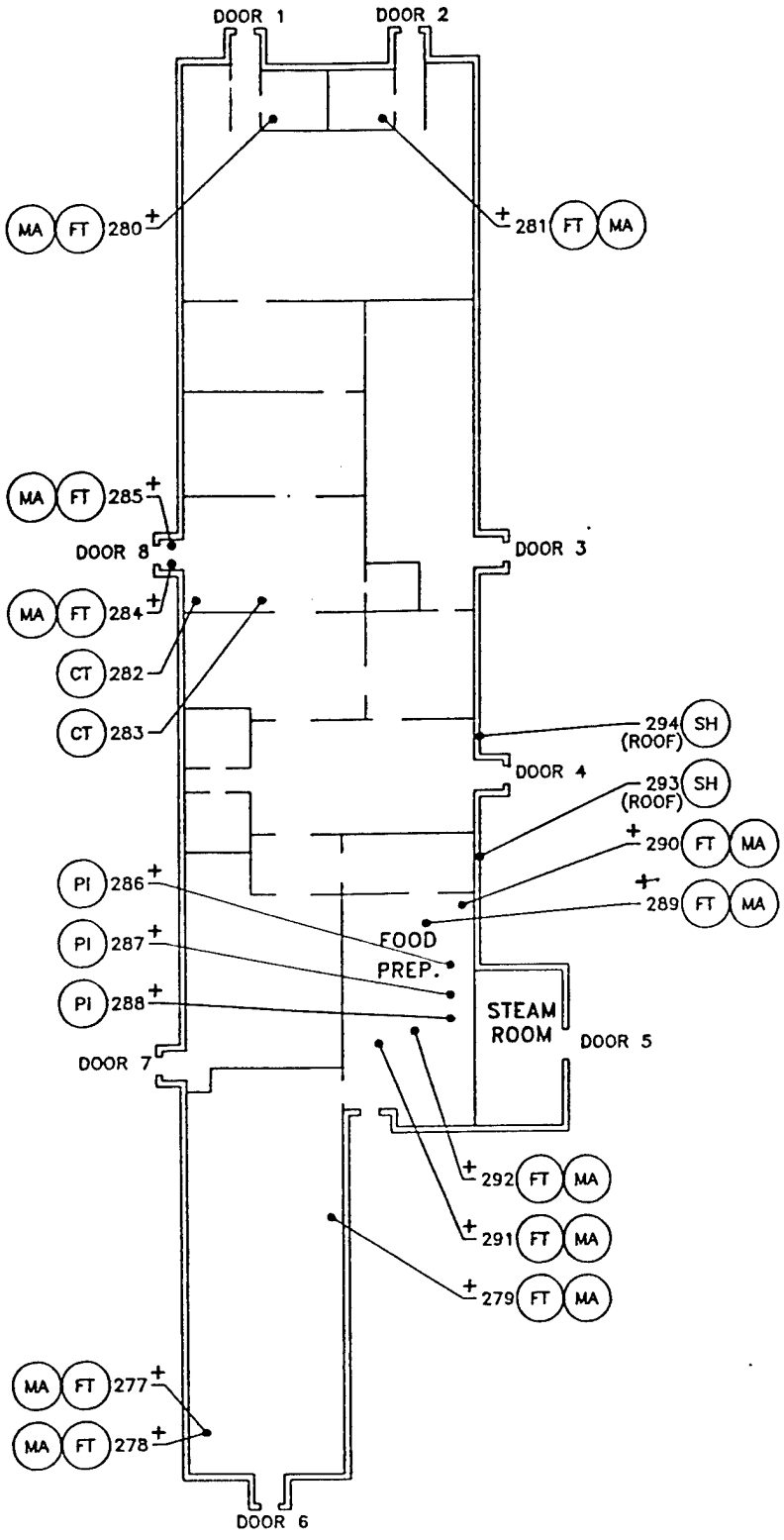
  B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

  1 ≤ 25%; 2 25 < % ≤ 50; 3 50 < % ≤ 75; (4) 75 < % ≤ 100
- Population: (1) ≤ 9 or for corridors; 2 10 ≤ pop ≤ 200; 3 201 ≤ pop ≤ 500 4 501 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential

Exposure Total 17

APPENDIX 25-C

BUILDING DRAWINGS



LEGEND

- PI — PIPE INSULATION
- FT — FLOOR TILE
- MA — MASTIC
- CT — CEILING TILE
- SH — SHINGLES
- \+ — DENOTES POSITIVE RESULTS

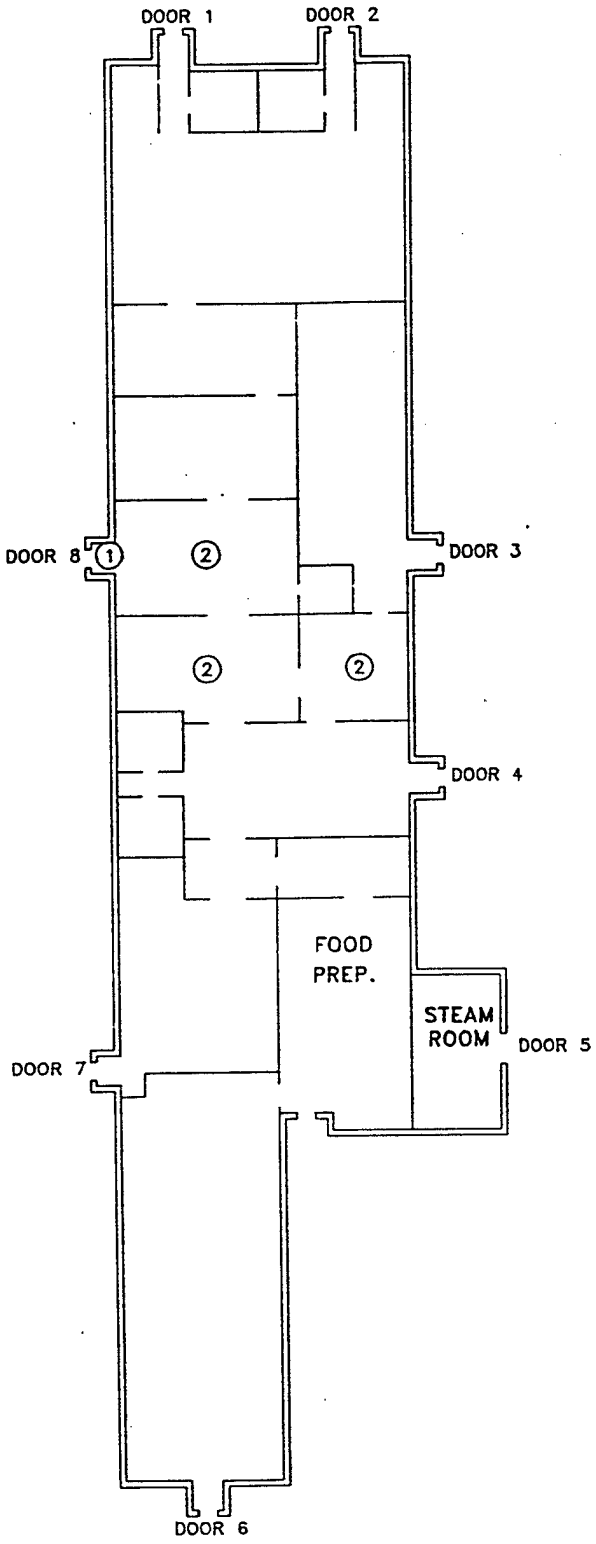
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 25 SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–7–91	25–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	



LEGEND

(1) 2' x 4' WHITE FIBERGLASS TILE

(2) 12" x 12" BROWN FISSURED TILE

CLIENT USATHAMA

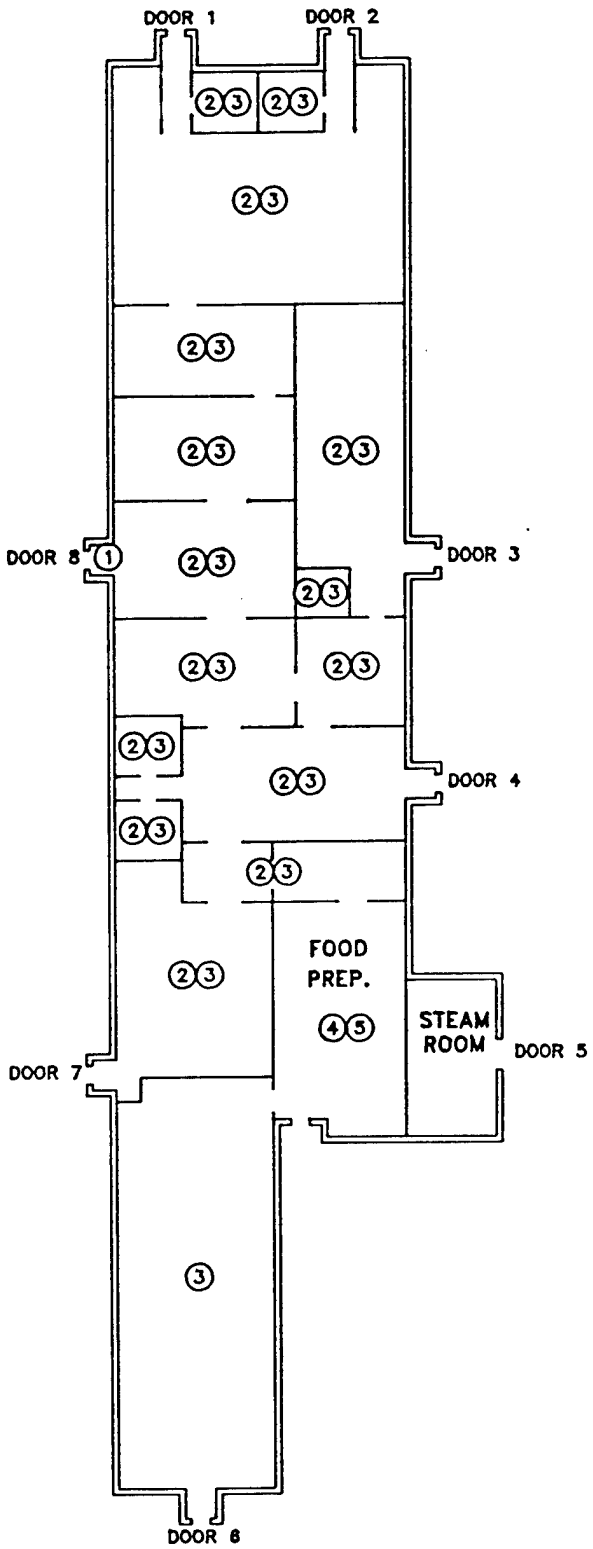
LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 25
CEILING TYPE LOCATIONS

PROJECT NO.	DRAWN BY:		DATE:		DWG. NO.
3001–210	CHECKED BY:	F.B.C.	SCALE:	N.T.S.	25–CT



LEGEND

1. 9" x 9" BROWN
2. 9" x 9" GREEN
3. 9" x 9" BLACK
4. 9" x 9" LIGHT GRAY
5. 9" x 9" DARK GRAY

CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE

BUILDING 25
FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	LAL	8–7–91	25–FT
	CHECKED BY: FBG	SCALE: N.T.S.	

APPENDIX 25-D

WALKTHROUGH SURVEY DATA SHEETS

Building #25 EXTERIOR Inspector Date Sundin/Brown's 12/20/90

Exterior Siding

Masonry ☐ Steel/Aluminum ☑ Wood ☑ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y (N) _____ Condition (G) F P Quantity _____ SF

Roof

Shingle (asphalt/fiberglass) ☑ new felt Tar & Felt ☐ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition G F P Quantity _____ SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☐	Y N	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☐	Y N	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Frame ☑

Wood Joists/Beams ☐ Steel Joists/Beams ☐ Wood Columns ☐ Steel Column ☐ Concrete Column ☐

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☐ Firedoor ☐

Sample Y N Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building #25 N/A Inspector/Date: [illegible] 12/20/90

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

HVAC

uilding #25 Inspector/Date: GUARDIA / SPARKS 12/20/90

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct								
Pipe	STORAGE AREA adjacent to STEAM ROOM	yes	corrugated	yes	fair	~ 20	LF	~ 3"
			paper					
Fittings								
Other								

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building #25 Inspector/Date: Sullivan/Barnes 12/20/90

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
Ceiling Tile #1 2'x4'	white	entry way door 8	~~yes~~ N	fiberglass	25 SF
Ceiling Tile #2 12"x12"	light brown/fissured	offices Between doors 8 & 3	yes	good	1140 SF
Floor Tile #1 9"x9"	Brown	Entry way door 8	yes	good	25 SF
Floor Tile #2 9"x9"	Green	Through out bldg (see plan)		good	3000 SF
Floor Tile #3 9"x9"	Black	Through out bldg (see plan)		good	4500 SF
Floor Tile #4 9"x9"	Light grey	(storage area adjacent to steam room)	yes	good	320 SF
FLOOR Tile #5 9"x9"	dark grey		yes	good	320 SF
Fiberboard	painted	Through out bldg	No	fair	19100 SF

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

APPENDIX 25-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

An AIHA (#264) and NVLAP (#1163) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 25
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/06/91
Date Analyzed : 02/14/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
277	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	-----	90-95	GC	
278	P	05-10	-----	-----	-----	-----	-----	-----	-----	01-05	-----	85-95	GC	
279	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	-----	90-95	GC	
280	P	05-10	-----	-----	-----	-----	-----	-----	-----	01-05	-----	85-95	GC	
281	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	-----	90-95	GC	
282	N	-----	-----	-----	-----	-----	-----	-----	-----	70-75	-----	25-30	GC	
283	N	-----	-----	-----	-----	-----	-----	-----	-----	75-80	-----	20-25	GC	
284	P	05-10	-----	-----	-----	-----	-----	-----	-----	<1	-----	90-95	GC	
285	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	GC	
286	P	01-05	-----	-----	-----	-----	-----	-----	-----	50-60	-----	35-40	GC	
287	P	05-10	-----	-----	-----	-----	-----	-----	-----	50-60	-----	35-40	GC	
288	P	01-05	-----	-----	-----	-----	-----	-----	-----	55-65	-----	35-40	GC	
289	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	GC	
290	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. All rights reserved. AMA Analytical Services, Inc.

AMA Analytical Services, Inc.

An AIHA (#244) and NVLAP (#1143) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 25
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/06/91
Date Analyzed : 02/14/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

SAMPLE ID	ASBESTOS PRESENT*	ASBESTOS % CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	OTHER FIBROUS MATERIAL % MINERAL WOOL	GLASS	FIBROUS ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
291	P	01-05	-----	-----	-----	-----	-----	-----	-----	<1	-----	95-99	GC	
292	P	01-05	-----	-----	-----	-----	-----	-----	-----	01-05	-----	90-98	GC	
293	N	-----	-----	-----	-----	-----	-----	-----	-----	25-30	-----	70-75	GC	
294	N	-----	-----	-----	-----	-----	-----	-----	-----	30-35	-----	65-70	GC	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

G. Edward Carney (GC)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.
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4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • TOLL FREE (800) 346-0961 • FAX (301) 459-2643

APPENDIX 25-F

SAMPLE CHAIN-OF-CUSTODY FORMS

WCFS Project 3001

Installation (2): CM
Sample Program (3): BE
Laboratory (2):

Woodward–Clyde deral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward–Clyde Federal Services
Building 1
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

BLDG 25

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe						Number of Containers
									CODE		UM05	UM06	UM06	UM06	LH19		HPLC	SS15	TY03	E418.1				SW1311		SW8290	LH19						
FBG		ASB025	277																						✓								
FBG		ASB025	278																						✓								
FBG		ASB025	279																						✓								
FBG		ASB025	280																						/								
FBG		ASB025	281																						/								
FBG		ASB025	282																						/								
FBG		ASB025	283																						/								

Relinquished by: Woodward–Clyde Federal Services
Date: 2/6/91 Time: 1310 Signature: D.M. Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 2-6-91 Time: 13:15 Signature: R. Maurice

Total No. of Containers: 7

Comments:

3/7 by 1300 L Maurice sent fed express-mails

White & Yellow: AMA Analytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Project [redacted]001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [redacted]eral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward [redacted] ederal Services
Building 1
Door 2
Cameron Station
Alexandria, VA 22304
703 617–7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309–0800

BLDG 25

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM06	UM06	UM06	LM06	UH21	LH19		HPLC	SS15	JS14	TY03	KY04	E418.1	E418.1				SW1311		SW8290	SW8290	LH19			
FBG		ASB025	284																						/					
FBG		ASB025	285																						/					
FBG		ASB025	286																						/					
FBG		ASB025	287																						/					
FBG		ASB025	288																						/					
FBG		ASB025	289																						/					
FBG		ASB025	290																						/					

Relinquished by: Woodward–Clyde Federal Services
Date: 2/6/91 Time: 1340 Signature: D. Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 2-6-91 Time: 13:15 Signature: L Maunce

Total No. of Containers: 7

Comments:
3/26/91 1300 L Maunce

White & Yellow: AMA Aanlytical Services, Inc. Pink: WCFS Project File Gold: WCFS Project Scientist

WCFS Projec[illegible]. 3001

Installation (2): CM
Sample Program (3): BEI
Laboratory (2):

Woodward–Clyde [illegible]deral Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DMB

Field Office: Woodward–Clyde Federal Services
Building 1
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward–Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

BLDG 25

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample QC Code (1)	TEST NAME	VOC	SVOC	Pest	Pest	(OCP/PCBs (gc/ec)	Herbicides	Rotenone	TAL Metals	CYN	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe			Number of Containers
										CODE	UM05	UM06	UM06	UM06	UH21	LH19	HPLC	SS15	TY03	E418.1				SW1311		SW8290	LH19			
											LM05	LM06	LM06	LM06				JS14	KY04	E418.1						SW8290				
FBG		ASB025	291																						✓					
FBG		ASB025	292																						✓					
FBG		ASB025	293																						✓					
FBG		ASB025	294																						✓					

Relinquished by: Woodward–Clyde Federal Services
Date: 2/6/91 Time: 1310 Signature: D. Barnes

Accepted by: AMA Analytical Services, Inc.
Date: 2-6-91 Time: 13:15 Signature: L. Mauricio

Total No. of Containers: 4

Comments:

2/28/91 1300 L. Mau

White & Yellow: A[illegible]nalytical Services, Inc. Pink: WCF[illegible]roject File Gold: WCFS Project Scientist

BUILDING 26

26.1 DESCRIPTION

Building 26 is a 100' x 100' cast-in-place concrete structure with a tar, felt and gravel roof over wood. It is supported by timber beams on concrete columns. Originally constructed as a water storage tank, Building 26 has been converted to a warehouse and is currently used for storage by AAFES and EA-CA. It contains no domestic water line or heat, only electricity and a security system.

26.2 SURVEY RESULTS

The survey team identified no suspect ACM, either friable or nonfriable in Building 26, for which bulk samples were collected. One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

26.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes.

26.4 AREAS NOT ACCESSED

All areas in Building 26 were accessed.

26.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not Applicable

26.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 1-A ACM Survey Results

Appendix 1-D Walkthrough Survey Data Sheets

Appendices B, C, F and G are not applicable to this building report.

APPENDIX 26-A

ACM SURVEY RESULTS

ACM Survey Results for Building 26

	Material Description					Quantity				
Homogen-eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure-ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	10000	SF	Assume ACM		

D:\ASBESTOS/B26.asb

Woodward-Clyde Federal Services
July 3, 1991

APPENDIX 26-D

WALKTHROUGH SURVEY DATA SHEETS

Building 26 AAFES / EA, CA storage

EXTERIOR

Inspector Date 12/13/90

Exterior Siding

Masonry ☐ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☒ Cast in place concrete Soffit ☐

Sample Y (N) Condition G F P Quantity _____ SF

Roof

Assume

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☒ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y (N) Condition G F P Quantity 10,000 SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☐	Y N	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☐	Y N	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☐ Steel Joists/Beams ☐ Wood Columns ☐ Steel Column ☐ Concrete Column ☒

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☐ Firedoor ☐

Sample Y N Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

ıilding #26 AAFES/EA-CM STORAGE

N/A

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							

Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

ilding #26 AAFES/EA-CW STORAGE

HVAC
N/A

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct								
Pipe								
Fittings								
Other								

Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

ıilding #26 AAFES/EA-CA STORAGE

N/A

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet
- Carpet only
- Concrete

BUILDING 30 - PESTICIDE STORAGE

30.1 DESCRIPTION

Building 30, which is currently used for pesticide storage, is a masonry structure with steel trusses supporting a precast concrete panel ceiling covered with a metal roof. The floor is concrete with no additional floor covering. Approximately 300 square feet of unfinished gypsum board subdivide the building into sections. This material was installed approximately four years ago and is not suspect ACM. Heat is supplied by an electric radiator; no steam lines enter the building.

30.2 SURVEY RESULTS

The survey team identified no suspect ACM, either friable or nonfriable, in Building 30. No bulk samples were collected, and no materials were assumed to be ACM.

30.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes.

30.4 AREAS NOT ACCESSED

All areas in Building 30 were accessed.

30.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not applicable.

30.6 REPORT APPENDICES

The remainder of this building report consists of the following one appendix:

Appendix 30-D Walkthrough Survey Data Sheets

Other appendices are not applicable to this building report.

APPENDIX 30-D

WALKTHROUGH SURVEY DATA SHEETS

ilding #30 Pesticide Storage

EXTERIOR

Inspector Date Guarisia / Barnes 12/20/90

erior Siding

sonry ☑ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

ıer ☐ _____ Soffit ☐

nple Y (N) _____ Condition G F P Quantity _____ SF

of

ngle (asphalt/fiberglass) ☐ Tar & Felt ☐ Steel Panel ☑ Fiberglass Panel ☐ Other ☐ _____

nple Y (N) Condition G F P Quantity _____ SF

terior Mechanical Systems

	Sample	Condition	Quantity	Location
nt pipe ☐	Y N	G F P	_____	_____
imney ☐	Y N	G F P	_____	_____
uvers ☐	Y N	G F P	_____	_____
C Units ☐	Y N	G F P	_____	_____
her ☐	Y N	G F P	_____	_____

STRUCTURAL

ood Joists/Beams ☐ Steel Joists/Beams ☑ Wood Columns ☐ Steel Column ☐ Concrete Column ☐

nple Y N Condition G F P Quantity _____ SF

nple Y (N) Condition G F P Quantity _____ SF

ewalls - Steel ☐ Masonry ☐ Firedoor ☐

mple Y N Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

N/A

lding 430 PESTICIDE STORAGE Inspector/Date: GUARDIA / FARKES 12/20/90

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							

Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

HVAC

ding #30 PESTICIDE STORAGE Inspector/Date: GUARNIA/BARNES 12/20/90

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
uct N/A								
ipe N/A								
Fittings N/A								
)ther								

ype of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

lding A30 PESTICIDE STORAGE Inspector/Date: GUARNA / BARNES 12/20/90

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
Drywall (gypsum board)	gray (unpainted	~~See plan~~ Dividing wall to right of entry; installed 3-4 years ago Too new to be suspect DCM	No	good	~300 SF

laterial
iling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls
Gypboard/Drywall
Plaster
Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

BUILDING 34

34.1 DESCRIPTION

Building 34 is a wood frame structure built on pilings. The roof is asphalt shingles over roofing felt, and the exterior walls are aluminum over wood siding. Inside the floor is concrete with no floor covering. Both the walls and ceiling are finished with gypsum board. The west side of the building is heated by electricity; the east side is not heated. No steam lines enter this building. Building 34 is currently used by EA-CA (Roads and Grounds) for storage.

34.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 34-AC,D,E, AND F. A summary of this data is presented below.

34.2.1 Suspect Friable ACM

No suspect friable ACM was identified in Building 34.

34.2.2 Suspect Nonfriable ACM

Two homogeneous areas of suspect nonfriable ACM were identified and eight bulk samples, including one QC sample, were collected. Laboratory analysis using PLM detected less than 1% asbestos in these two materials.

34.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the roofing felt, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

34.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

34.4 AREAS NOT ACCESSED

All areas in Building 34 were accessed.

34.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not Applicable

34.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 34-A	ACM Survey Results
Appendix 34-C	Building Drawings
Appendix 34-D	Walkthrough Survey Data Sheets
Appendix 34-E	Laboratory Certificate of Analysis
Appendix 34-F	Sample Chain-of-Custody Forms

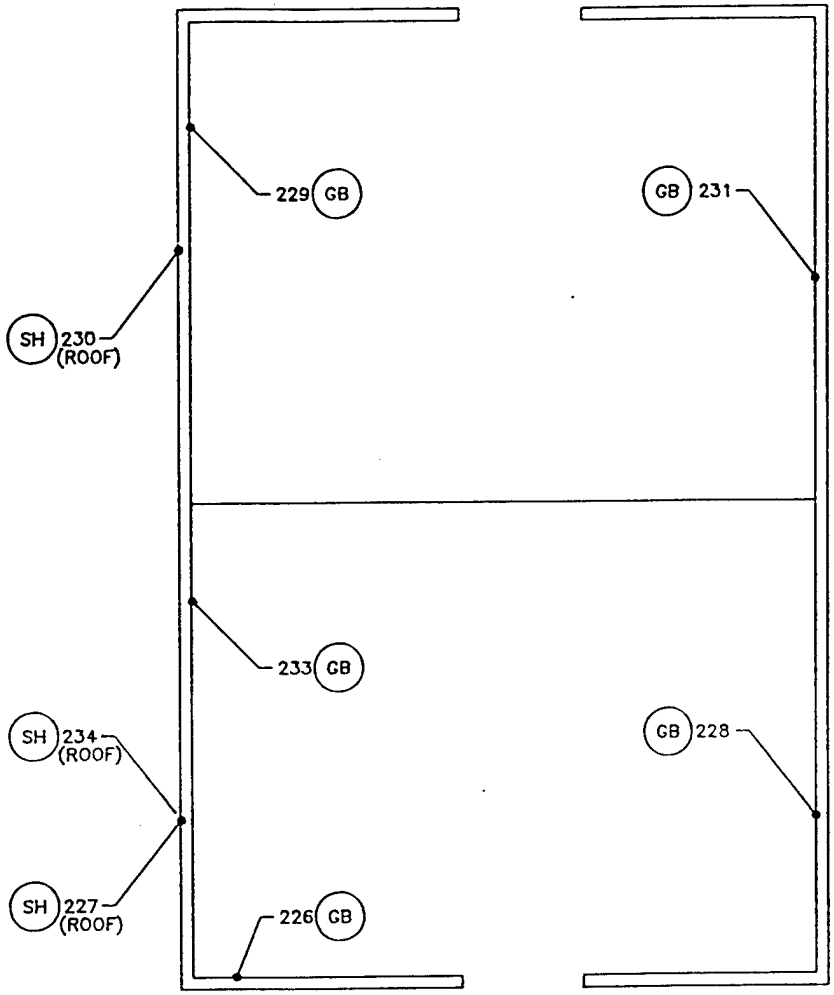
Appendix B is not applicable to the building report.

ACM Survey Results for Building 34

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Roofing felt	Roof	Non	Good	650	SF	Assume ACM	Assume ACM	
2	Surfacing	Gypsum board	Walls & ceiling throughout building	Non	Good	1560	SF	229 231 233 226 228	None detected None detected None detected None detected None detected	
3	Misc.	Shingles	Roof	Non	Good	650	SF	227 230 234	None detected None detected None detected	Sample 234 is a QC for sample 227.

APPENDIX 34-C

BUILDING DRAWINGS



LEGEND

SH SHINGLES

GB GYPSUM BOARD

CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

Woodward–Clyde Federal Services

TITLE BUILDING 34 SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	DATE:	DWG. NO.
3001–210	L.A.L.	5–7–91	34–SL
	CHECKED BY: F.B.C.	SCALE: N.T.S.	

APPENDIX 34-D

WALKTHROUGH SURVEY DATA SHEETS

Building 34 Roads & grounds (EA, CA) storage

EXTERIOR

Inspector Date Guardia/Barnes 12/20/90

Exterior Siding

Masonry ☐ Steel/Aluminum ☒ Wood ☒ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y (N) _____ Condition G F P Quantity _____ SF

Roof

Shingle (asphalt/fiberglass) ☒ ~~Tar~~ & Felt ☒ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample (Y) N Condition (G) F P Quantity 650 SF

Exterior Mechanical Systems

	Sample	Condition	Quantity	Location
Vent pipe ☐	Y N	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☐	Y N	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☒ Steel Joists/Beams ☐ Wood Columns ☐ Steel Column ☐ Concrete Column ☐

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☐ Firedoor ☐

Sample Y N Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building 34 N/A Inspector/Date:

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other					1		

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

HVAC

Building 34 N/A Inspector/Date:

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct								
Pipe								
Fittings								
Other								

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 34 Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
Gypsum board		Throughout	Y	G	1560

*Material

Ceiling
- 2x4 tile
- 2x2 tile
- 1x1 tile
- 1x2 tile
- Plaster
- Other

Walls
- Gypboard/Drywall
- Plaster
- Other

Floors
- 9x9 tile
- 12x12 tile
- Sheet

Woodward-Clyde Federal Services

APPENDIX 34-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

An AIHA (#244) and NVLAP (#1143) Accredited Laboratory

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 34
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/30/91
Date Analyzed : 02/07/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		/---------- ASBESTOS % ----------/						/--- OTHER FIBROUS MATERIAL % --/						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSO-TILE	AMOSITE	CROCIDO-LITE	TREMO-LITE	ACTIN-OLITE	ANTHOP-HYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
226	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AS	
227	N	-----	-----	-----	-----	-----	-----	-----	-----	25-30	-----	70-75	AS	
228	N	-----	-----	-----	-----	-----	-----	-----	-----	10-15	-----	85-90	AS	
229	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AS	
230	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AS	
231	N	-----	-----	-----	-----	-----	-----	-----	-----	01-05	-----	95-99	AS	
233	N	-----	-----	-----	-----	-----	-----	-----	-----	05-10	-----	90-95	AS	
234	N	-----	-----	-----	-----	-----	-----	-----	-----	20-25	-----	75-80	AS	

COMMENTS: * P = ASBESTOS PRESENT
N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE SIGNATURE)

LAST PAGE OF 1 PAGE(S)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

Andreas Saldivar (AS)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.
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APPENDIX 34-F

SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: DMB
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/30/91 (MM DD YY) BLDG. 34

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Asbest	Number of Containers
FBG		ASB034	226				✓	
FBG		ASB034	227				✓	
FBG		ASB034	228				✓	
FBG		ASB034	229				✓	
FBG		ASB034	230				✓	
FBG		ASB034	231				✓	
FBG		ASB034	233				✓	

Sample Techniques (1)
Sample Flag Code (1)
Sample CC Code (1)
TEST NAME
CODE
VOC: UM05, LM05
SVOC: UM06, LM06
OCP/PCBs (gc/ms): UM06, LM06
OCP/PCBs (gc/ec): LM06
NON-TCL Pest.
TAL Metals
CYN: TY03, KY04
TPHC (IR)
SO4
CL
NIT
TCLP
Asbest
TCDD
PCB Wipe
TPHC (gc)

Relinquished by: Woodward-Clyde
Date: 1/31/91 Time: 1535 Signature: M. Barr

Accepted by: ~~Pace~~ Lab, ~~Inc.~~
Date: 1-31-91 Time: 15:35 Signature: L. Manner

Total Number of Containers: 7

Relinqdished by: ~~Pace~~ Lab, ~~Inc.~~
Date: 3/20/91 Time: 1000 Signature: L. Manner

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments: dpl expressed

Comments:

White: Pace Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

Woodward-Clyde Federal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

COC By: DM113
Initials

Field Office: Woodward-Clyde Federal Services
c/o Charles Brummett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01 30 91 (MM DD YY) BLDG. 34

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Sample Techniques (1)	Sample Flag Code (1)	Sample CC Code (1)	TEST NAME / CODE	VOC UM05	SVOC LM05	VOC UM06	SVOC LM06	OCP/PCBs (gc/ms) UM06	OCP/PCBs (gc/ec) LM06	NON-TCL Pest.	TAL Metals	CYN TY03	CYN KY04	TPHC (IR)	SO4	CL	NIT	TCLP	Asbest	TCDD	PCB Wipe	TPHC (gc)				Number of Containers
FB6		AS3034	234																							✓						1

Relinquished by: Woodward-Clyde
Date: 1/31/91 Time: 1535 Signature: DM Barnes

Accepted by: ~~Pace~~ Lab, Inc.
Date: 1-31-91 Time: 15:35 Signature: L Maurice

Total Number of Containers: 1

Relinquished by: ~~Pace~~ Lab, Inc.
Date: 2/28/91 Time: 1000 Signature: L. Ma

Accepted by: Woodward-Clyde
Date: _____ Time: _____ Signature: _____

Comments:

Comments:

White: ~~Pace~~ Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

BUILDING 68

68.1 DESCRIPTION

Building 68 is a 20' x 24' one-story masonry structure, which is currently used as an office for the motor pool service station. It has a flat metal panel roof covered with tar, felt and gravel. The walls are cinder block. The floor is concrete with no additional covering. The building is heated with electric heaters; no steam lines enter this building.

68.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 68-A,C,D,E,F. A summary of this data is presented below.

68.2.1 Suspect Friable ACM

No suspect friable ACM was identified in Building 68.

68.2.2 Suspect Nonfriable ACM

One homogeneous area of suspect nonfriable ACM was identified and three bulk samples, including one QC sample, were collected. Laboratory analysis using PLM detected less than 1% asbestos in this material.

68.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

68.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

68.4 AREAS NOT ACCESSED

All areas in Building 68 were accessed.

68.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not Applicable

68.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 68-A	ACM Survey Results
Appendix 68-C	Building Drawings
Appendix 68-D	Walkthrough Survey Data Sheets
Appendix 68-E	Laboratory Certificate of Analysis
Appendix 68-F	Sample Chain-of-Custody

Appendix B is not applicable to this building report.

APPENDIX 68-A

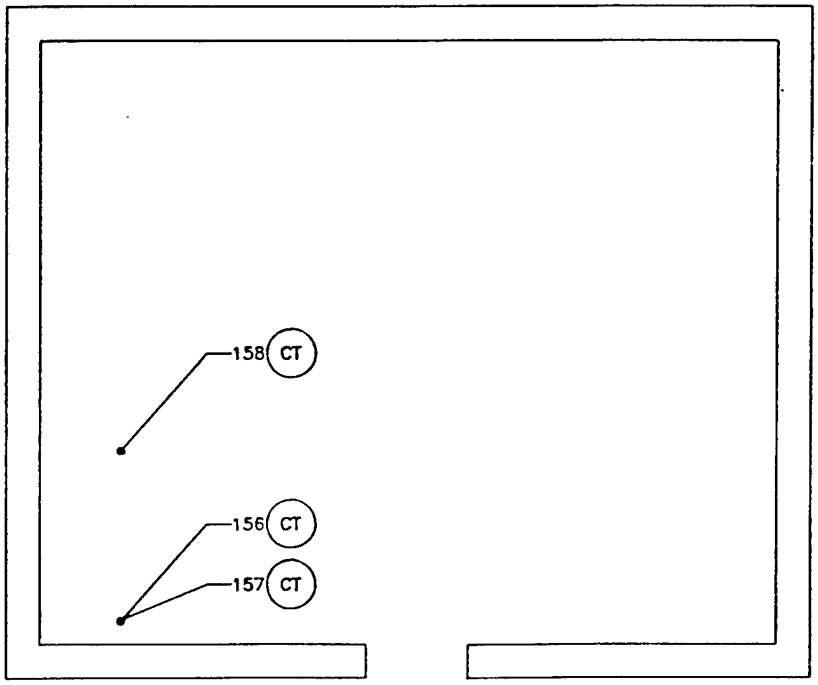
ACM SURVEY RESULTS

ACM Survey Results for Building 68

	Material Description					Quantity				
Homogeneous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measurement (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
1	Misc.	Tar and felt	Roof	Non	Good	396	SF	Assume ACM		
2	Misc.	Ceiling tile	Throughout building	Non	Good	396	SF	156 157 158	None detected None detected None detected	2' x 4' w/fissures Sample 157 is a QC for Sample 156.

APPENDIX 68-C

BUILDING DRAWINGS



LEGEND

(CT) CEILING TILE

\+ DENOTES POSITIVE RESULTS

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward–Clyde Federal Services	TITLE BUILDING 68 SAMPLE LOCATIONS
PROJECT NO. 3001–210	DRAWN BY: L.A.L. / CHECKED BY: F.B.G. / DATE: 5–7–91 / SCALE: N.T.S. / DWG. NO. 68–SL

APPENDIX 68-D

WALKTHROUGH SURVEY DATA SHEETS

Building 68 moto pool/gas station EXTERIOR Inspector Date Guardia/Boone 11/20/90

Exterior Siding

Masonry ☒ Steel/Aluminum ☐ Wood ☐ Asbestos Cement Shingle ☐ Asphalt Shingle ☐

Other ☐ _____ Soffit ☐

Sample Y N _____ Condition G F P Quantity _____ SF

Roof

Shingle (asphalt/fiberglass) ☐ Tar & Felt ☒ Steel Panel ☐ Fiberglass Panel ☐ Other ☐ _____

Sample Y N Condition G F P Quantity _____ SF

Exterior Mechanical Systems

N/A

	Sample	Condition	Quantity	Location
Vent pipe ☐	Y N	G F P	_____	_____
Chimney ☐	Y N	G F P	_____	_____
Louvers ☐	Y N	G F P	_____	_____
A/C Units ☐	Y N	G F P	_____	_____
Other ☐	Y N	G F P	_____	_____

STRUCTURAL

Wood Joists/Beams ☐ Steel Joists/Beams ☐ Wood Columns ☐ Steel Column ☐ Concrete Column ☐

masonry ×

Sample Y (N) Condition G F P Quantity _____ SF

Sample Y N Condition G F P Quantity _____ SF

Firewalls - Steel ☐ Masonry ☐ Firedoor ☐

Sample Y N Condition G F P Quantity _____ SF

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building N/A Inspector/Date:

	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

HVAC

Building 68 N/A Inspector/Date:

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct								
Pipe								
Fittings								
Other								

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fiberglass
5. Trowelled-on
6. Mud
7. Other

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building 68 Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
2 x 4 CT	frosted	throughout	Y	G	396 SF
concrete floor			N		
concrete block walls			N		
metal roof above suspended ceiling tiles					

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls
Gypboard/Drywall
Plaster
Other

Floors
9x9 tile
12x12 tile
Sheet

Woodward-Clyde Federal Services

APPENDIX 68-E

LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

An AIHA (#244) and NVLAP (#1143) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 68
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/24/91
Date Analyzed : 02/01/91
Person Submitting: DAVID BARNES

SUMMARY OF POLARIZED LIGHT MICROSCOPY

		ASBESTOS %						OTHER FIBROUS MATERIAL %						
SAMPLE ID	ASBESTOS PRESENT*	CHRYSOTILE	AMOSITE	CROCIDOLITE	TREMOLITE	ACTINOLITE	ANTHOPHYLLITE	MINERAL WOOL	FIBROUS GLASS	ORGANIC FIBERS	OTHER	PARTICULATE	ANALYST ID**	COMMENT
156	N	-----	-----	-----	-----	-----	-----	-----	30-35	30-35	-----	30-40	GC	
157	N	-----	-----	-----	-----	-----	-----	-----	30-35	30-40	-----	30-35	GC	
158	N	-----	-----	-----	-----	-----	-----	-----	30-35	30-35	-----	30-40	GC	

COMMENTS: * P = ASBESTOS PRESENT ** ANALYST ID CODE (SEE SIGNATURE)
N = ASBESTOS NOT OBSERVED

LAST PAGE OF 1 PAGE(S)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

G. Edward Carney (GC)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.
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APPENDIX 68-F

SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD – USATHAMA SAMPLES

WCFS Project No. 3001
Installation (2): CM
Sample Program (3): BEI
Laboratory (2): PC

COC By: D M B
Initials

Field Office: Woodward-Cl, leral Services
c/o Charles Br...mett
EACA, RPMO, Bldg. 17
Cameron Station
Alexandria, VA
(703) 274-6548

Admin. Office: Woodward-Clyde Consultants
One Church Street, Suite 404
Rockville, MD 20850
(301) 309-0800

Sample Date: 01/24/91 (MM DD YY)

BLDG 68

WCFS Field Sampler Initials (3)	Time of Sampling (Military Clock) (4)	Site ID (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	Asbest	Number of Containers
FBG		ASB156	156				✓	
FBG		ASB157	157				✓	
FBG		ASB158	158				✓	

Sample Techniques (1) | Sample Flag Code (1) | Sample CC Code (1) | TEST NAME | CODE | VOC UM05 LM05 UM06 LM06 | SVOC UM06 LM06 | OCP/PCBs (gc/ms) UM06 LM06 | OCP/PCBs (gc/ec) | NON-TCL Pest. | TAL Metals | CTN TY03 KY04 | TPHC (IR) | SO4 | CL | NIT | TCLP | Asbest | TCDD | PCB Wipe | TPHC (gc)

Relinquished by: Woodward-Clyde
Date: 1/25/91 Time: 1205 Signature: B. Barn

Relinquished by: [redacted] Lab, [redacted]
Date: 3-28-91 Time: 1300 Signature: L Maurice

Comments: fed. expressed

Accepted by: [redacted] Lab, [redacted]
Date: 1/25/91 Time: 12:05 Signature: L Maurice

Total Number of Containers: 3

Accepted by: Woodward-Clyde
Date: Time: Signature:

Comments:

White: [redacted] Lab, Yellow: WCFS Chemist, Pink: Return to WCFS after sample receipt, Gold: Return to WCFS with residual samples