

Umstead Correctional Center Building Assessment



Prepared for The Town of Butner, North Carolina

12-18-19

Prepared by

Tony Conner

HagerSmith Design

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Executive Summary

This Conditions Assessment was prepared for the Town of Butner, NC as a tool for determining future work needed to bring the building into compliance with applicable codes as well as practical functionality. The report will also suggest other options for future development of the property.

Assessment of the existing conditions was carried out in October thru November of 2019 by professional staff of HagerSmith Design, PA, Bass Nixon and Kennedy, Legacy Builders, and previously by Brumbaugh – Herrick, Inc.

There are basically nine individual buildings on this site with a couple of ancillary spaces. Four of the buildings are connected with covered walkways. Two of the buildings are residential dwellings. For use in this report, the buildings will be referred to by numbers, One - Nine. Reference the aerial map for numbering.

Buildings one and two, residential dwellings, are both Type V (wood) building types. Building one residence is clad with wood siding, masonry and an asphalt shingle roof. Building two of the residence structures is brick veneer with a small wood sided porch and an asphalt shingle roof.

Buildings three and four are Type V (wood and masonry) building types. Each of these buildings have load bearing masonry exterior walls and wood framed/truss roof structures. The roof appears to have been a built-up roof system. Both of these buildings are also in extremely poor condition and are dangerous as they sit today.

Building five, the Shop/Facilities building is a Type II (non-combustible construction) building type. It is comprised of masonry exterior walls and steel truss roof supports with a flat membrane roof.

Building six, the gymnasium/classroom building is a Type II (non-combustible construction) building type. Is has masonry walls, steel roof trusses/joist and a membrane roof. This building has a large gymnasium floor (VCT tile) and smaller spaces surrounding the floor.

Building seven, eight and nine are presumable Type V (some wood framing) building types. These buildings have masonry walls and metal roof joist. These building have a fairly new metal roof system. It is unknow how the new metal roof system installed by the State was built but we suspect there is wood framing supporting the metal.

None of the building listed above are sprinkled but some do have new fire alarm wiring without any devises. The buildings had been heated with a central boiler system and there were a few older chillers. The residence buildings were heated and cooled with split system heat pumps.

Specific Building Observations

Residence #1

Walls, Windows and Doors

The exterior wall construction for this structure consist of wood siding and masonry end walls. The windows are wood framed with single pane glass. The doors are wood and wood louver doors. The wood siding is in fair condition and the brick portions of the wall are in good condition. The windows and doors are in poor condition and are showing signs of water damage and decay. Signs of water leakage is evident at the window/frame connections and at the floor level of the exterior doors.

Floor

The floor appears to be a concrete slab on grade with a tile floor. No specific comments were noted.

Roof

The roof is an asphalt shingle roof that is showing signs of failure. Debris and shingle deformities are evident on the roof. Our team was not able to gain access inside the building but based on the teams through the window visual inspection there were some signs of leakage, but no major leaks were observed.

Overall assessment

This structure is in immediate need of repairs. It is unclear what damage may exist in the floor system or in the interior framing. A complete interior gut will most likely have to take place in order to mediate the mold and mildew damage. All door and windows will have to be replaced and a new roof, including some underlayment will also have to be replaced in order to save the structure from further decay. Further inspections will be required to ensure no termite damage exist.

Photographs

Images of this structure are on the next 2 pages.







Residence #2

Walls, Windows and Doors

The exterior wall construction for this structure consist of brick and wood siding. The windows are wood framed with single pane glass. The doors are wood. The wood siding is in poor condition and the brick portions of the wall are in fair to good condition. The windows and doors are in poor condition and are showing signs of water damage and decay. Signs of water leakage is evident at the window/frame connections. The exterior doors are in poor condition due to water damage and lack of maintenance.

Floor

The floor system is wood framed over a crawl space. The floor is in extremely poor to non-existent condition. Due to water intrusion the floor system is not safe or usable. There are major holes in the floor and the remaining floor system is close to collapse.

Roof

The roof is an asphalt shingle roof that is failing. Debris and shingle deformities are evident on the roof. Our team was not able to gain access inside the building but based on the teams through the window visual inspection there were some major signs of leakage.

Overall assessment

This structure is beyond practical repair and should be demolished.

Photographs

Images of this structure are on the next 2 pages.



Dormitory #3 and #4

Walls, Windows and Doors

The exterior wall construction for this structure is load bearing masonry. The windows are metal framed with single pane glass. The doors are wood and metal. The windows and doors are in poor condition and are rusting or have water damage. Signs of water leakage is evident at the window/frame connections. The exterior doors are in poor to non-existent condition. Generally, the exterior wall is in fair condition although signs of water intrusion are evident.

Floor

The floor system is a concrete slab on grade with tile floors. The condition of the slab is unknown due to the amount of building debris from furnishings and the roof. The tile has been soaked with water and is no longer adhered to the slab.

Roof

The roof is an asphalt built up roof. The roof has failed and has collapsed in many locations. In locations that have not collapsed the wood structure is beyond the point of repair and will need to be replaced.

Overall assessment

These structures are beyond practical repair and should be demolished.

Photographs

Images of this structure are on the next 3 pages.









Shop and Facilities #5

Walls, Windows and Doors

The exterior wall construction for this structure consist of brick and block. The windows are aluminum framed with insulated pane glass. The doors are storefront and metal. The windows and doors are in fair condition and are rusting or have water damage. Signs of water leakage is evident at the exterior wall/roof intersection and interior to the roof in several places. The exterior sectional doors are in poor condition. Generally, the exterior wall is in fair condition although signs of water intrusion are evident.

Floor

The floor system is a slab on grade and is in generally good condition except for being wet from the various leaks in the roof and walls.

Roof

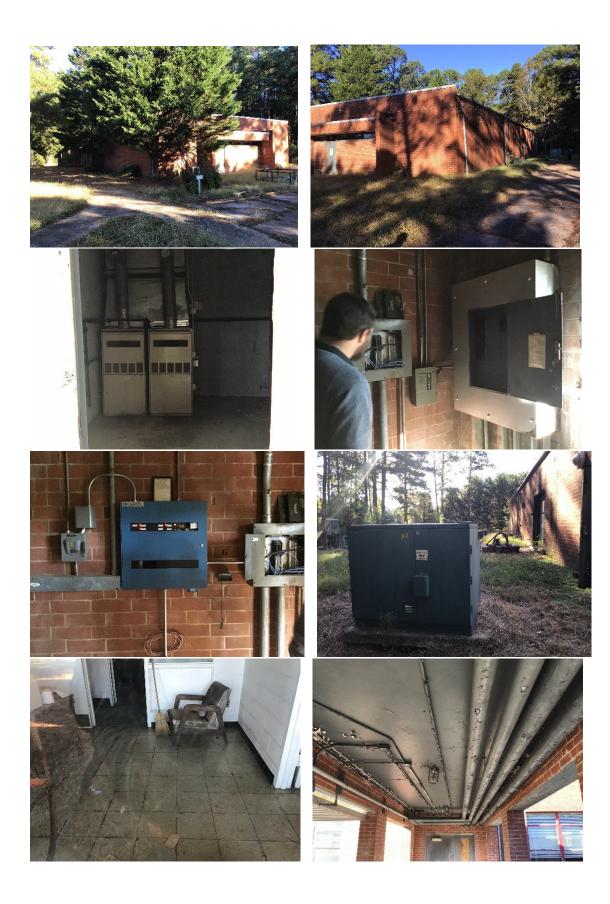
The roof is a membrane roof of some type. The structure for the roof is steel joist and is a single slope to the rear. Signs of water leakage is evident at the exterior wall/roof intersection and interior to the roof in several places.

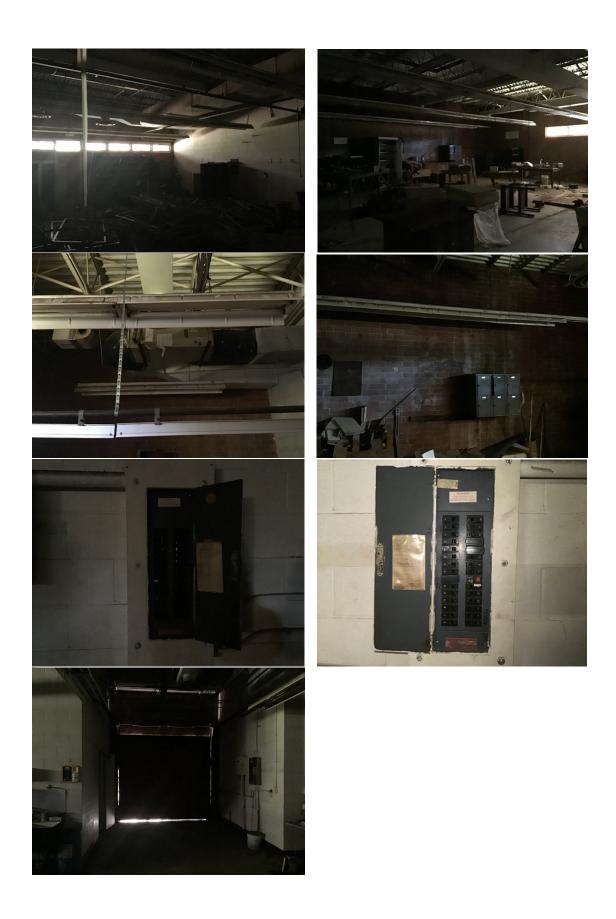
Overall assessment

This structure is in fair condition and could be repaired for future use. Mold and mildew remediation must occur once any leaks have been repaired.

Photographs

Images of this structure are on the next 2 pages.





Gymnasium #6

Walls, Windows and Doors

The exterior wall construction for this structure consist of brick and block with a metal panel soffit facia. The windows are metal, and aluminum framed with mostly insulated pane glass. The doors are hollow metal and metal. The windows and doors are in fair condition with some insulated glass panels that have broken seals. Generally, the exterior wall is in fair condition although signs of water intrusion are evident. There are several areas of the soffit that the facia has fallen off and has been exposed to the weather for some time. These areas will have to be repaired or completely replaced.

Floor

The floor system is a slab on grade and over the mechanical tunnel/crawl space system and is in generally good condition. There is a mix of terrazzo and VCT tiles that make up the floor finish.

Roof

The roof system is a membrane of some type, most likely EPDM/TPO and built up roof combination. The structure for the roof is steel joist. The roof is leaking in some areas throughout the building. Insulation will most likely have to be replaced due to moisture content during any roof replacement.

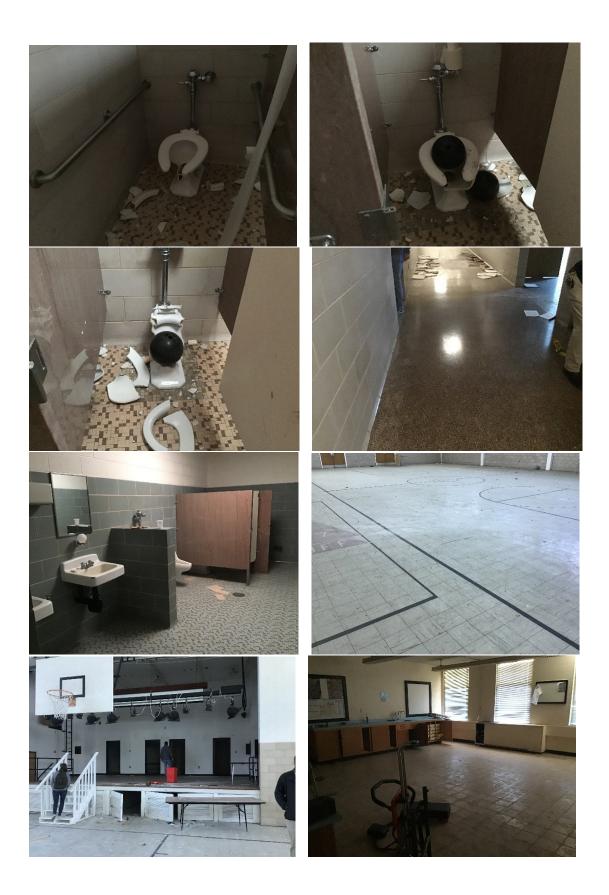
Overall assessment

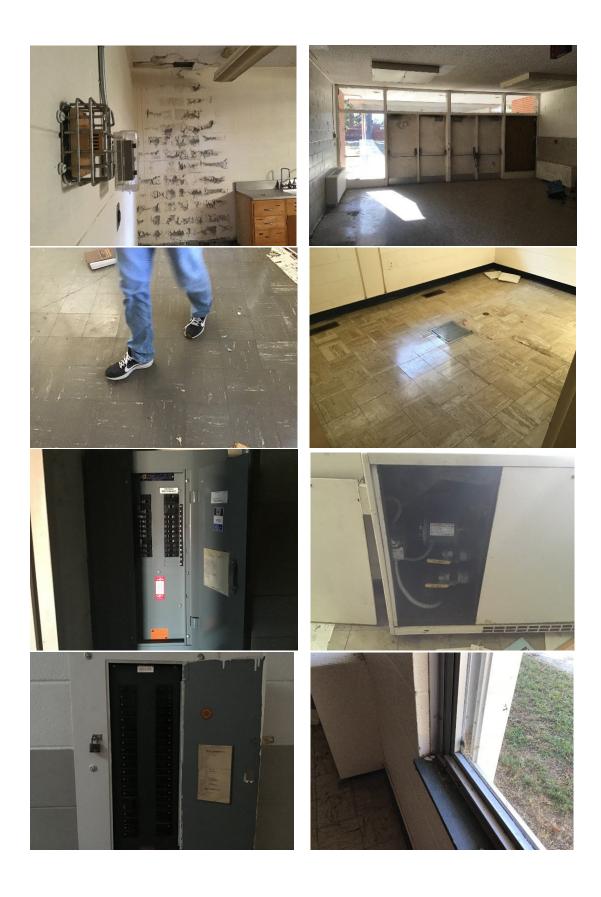
This structure is in fair condition and could be repaired for future use. Mold and mildew remediation must occur once any leaks have been repaired.

Photographs

Images of this structure are on the next 4 pages.









Dormitory #7

Walls, Windows and Doors

The exterior wall construction for this structure consist of brick and block. The windows are metal framed with non-insulated pane glass. The doors are hollow metal and metal. The windows and doors are in poor condition with signs of water and rust damage. Generally, the exterior wall is in fair condition although signs of water intrusion are evident.

Floor

The floor system is an elevated slab and over a partial crawl space and is in generally good condition. There are VCT tiles that make up the floor finish.

Roof

The roof system has been capped with a metal roof system. The framing for this roof is unknown but is probably wood framing. Our opinion is that the original built up roof system still exist under the new metal roof installation.

Overall assessment

This structure is in fair condition and could be repaired for future use. There is evidence of water damage throughout the building. This damage most likely occurred prior to the installation of the new metal roof. Mold and mildew remediation must occur once any leaks have been repaired.

Photographs

Images of this structure are on the next 3 pages.







Administration/Classroom #8

Walls, Windows and Doors

The exterior wall construction for this structure consist of brick and block. The windows are metal framed with non-insulated pane glass. The doors are hollow metal and metal. The windows and doors are in poor condition with signs of water and rust damage. Generally, the exterior wall is in fair condition although signs of water intrusion are evident.

Floor

The floor system is an elevated slab and over a partial crawl space and is in generally good condition. There are VCT tiles that make up the floor finish. There are several windows that have been broken and remain open.

Roof

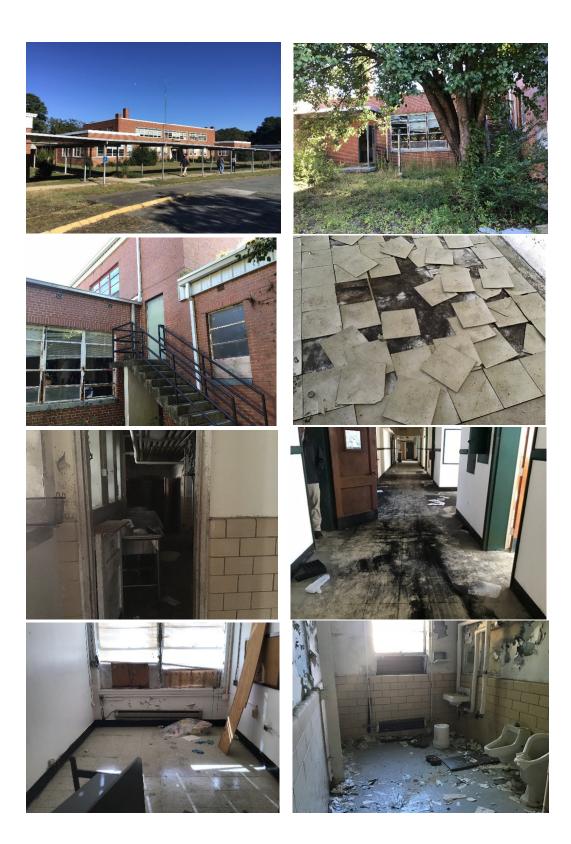
The roof system has been capped with a single sloped metal roof system. The framing for this roof is unknown. Our opinion is that the original built up roof system still exist under the new metal roof installation.

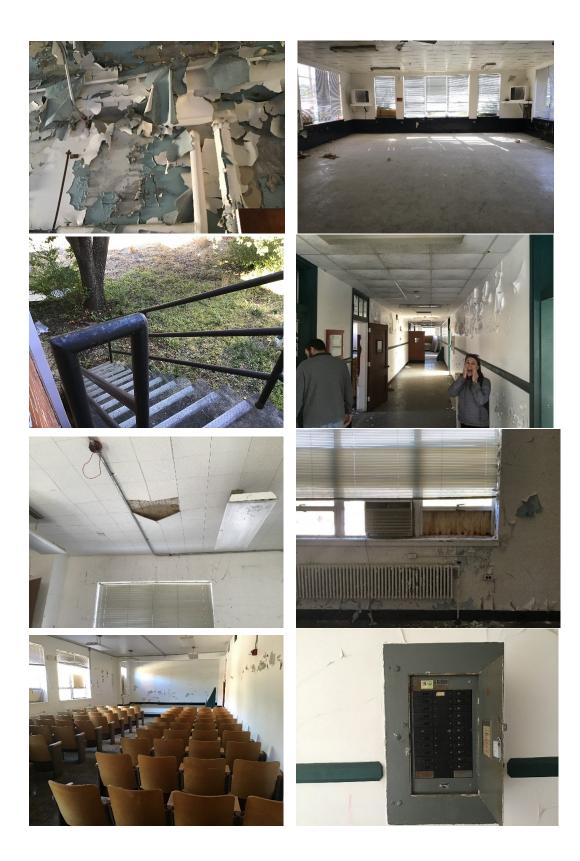
Overall assessment

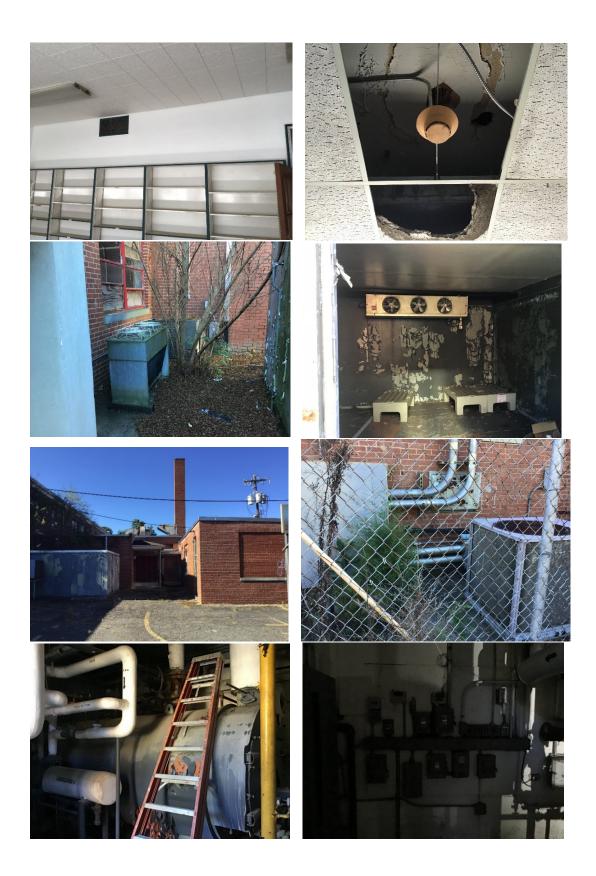
This structure is in fair condition and could be repaired for future use. There is evidence of water damage throughout the building. This damage most likely occurred prior to the installation of the new metal roof. Mold and mildew remediation must occur with any repairs.

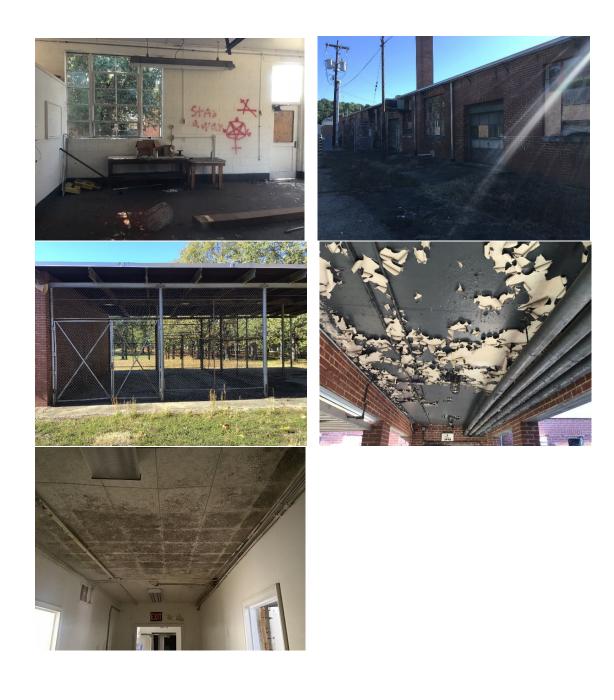
Photographs

Images of this structure are on the next 4 pages.









Dormitory #9

Walls, Windows and Doors

The exterior wall construction for this structure consist of brick and block. The windows are metal framed with non-insulated pane glass. The doors are hollow metal and metal. The windows and doors are in poor condition with signs of water and rust damage. Generally, the exterior wall is in fair condition although signs of water intrusion are evident.

Floor

The floor system is an elevated slab and over a partial crawl space and is in generally good condition. There are VCT tiles that make up the floor finish.

Roof

The roof system has been capped with a metal roof system. The framing for this roof is unknown but is probably wood framing. Our opinion is that the original built up roof system still exist under the new metal roof installation.

Overall assessment

This structure is in fair condition and could be repaired for future use. There is evidence of water damage throughout the building. This damage most likely occurred prior to the installation of the new metal roof. Mold and mildew remediation must occur once any leaks have been repaired.

Photographs

Images of this structure are on the next page.



Structural Assessment

Based on our visual walk-thru for the buildings we offer the following opinions regarding structural soundness. The following comments are broken down per individual structure.

Residence #1

Our team was not allowed access to this structure but based on our visual inspection from outside there appeared to be minimal water damage to structural elements. However, a thorough inspection will have to be performed in order to assess the structure from a termite activity perspective. The floor is a slab on grade. The rest of the structure is wood framing and wood trusses.

Residence #2

Our team was not allowed access to this structure but based on our visual inspection from outside there appeared to be major water damage to structural elements. This residence is a conventionally built residential wood structure. There has been catastrophic damage done to the roof, floor and walls. This building is unsafe and not structurally sound.

Dormitory #3

Our team was not allowed access to this structure but based on our visual inspection from outside there appeared to be major water damage to most components of the building. This building has structural load bearing exterior walls and a concrete slab on grade floor. The roof construction is wood with a built-up roof membrane. There has been catastrophic damage done to the roof and interior walls due to the failure of the roof. This building is unsafe and not structurally sound.

Dormitory #4

Based on our visual inspection there was major to most components of the building. This building has structural load bearing exterior walls and a concrete slab on grade floor. The roof construction is wood with a built-up roof membrane. There has been catastrophic damage done to the roof and interior walls due to the failure of the roof. This building is unsafe and not structurally sound.

Shop/Facilities Building #5

Based on our visual inspection there were no major deficiencies to structural elements. This building has structural load bearing exterior walls, a concrete slab on grade floor and a light-weight steel frame with bar joist. While there has been water infiltration into the building the materials used for the structure have not sustained substantial damage.

Gymnasium/Classroom #6

Based on our visual inspection there were no major deficiencies to structural elements. This building has structural load bearing interior and exterior walls, a concrete slab on grade floor and metal bar joist roof supports. While there has been water infiltration into the building the materials used for the structure have not sustained substantial damage. An inspection was not conducted in the tunnel system/crawl space that is under the building, but no significant settlement was found.

Dormitory #7

Based on our visual inspection there were no major deficiencies to structural elements. This building has structural load bearing interior and exterior walls, a concrete slab on grade floor and metal bar joist roof supports. While there has been water infiltration into the building the materials used for the structure have not sustained substantial damage. An inspection was not conducted in the crawl space under the building, but no significant settlement was found.

Administration/Classroom Building #8

Based on our visual inspection there were no major deficiencies to structural elements. This building has structural load bearing interior and exterior walls, a concrete slab on grade and elevated floor and metal bar joist roof supports. While there has been water infiltration into the building the materials used for the structure have not sustained substantial damage. An inspection was not conducted in the crawl space under the building, but no significant settlement was found.

Dormitory #9

Based on our visual inspection there was no major deficiencies to structural elements. This building has structural load bearing interior and exterior walls, a concrete slab on grade floor and metal bar joist roof supports. While there has been water infiltration into the building the materials used for the structure have not sustained substantial damage. An inspection was not conducted in the crawl space under the building, but no significant settlement was found.

Electrical, Mechanical and Plumbing Assessment

Based on our visual walk-thru for the buildings we offer the following opinions regarding Electrical, Mechanical and Plumbing systems. The following comments are not broken down per individual structure. These are blanket statements for all buildings. These opinions are based on experience working with existing systems of these types in buildings of this age and condition.

Electrical Systems

All electrical systems should be demolished and rebuilt to current code and safety standards from the service point (Power company transformer). This opinion is based on the condition of the existing systems observed and the conditions, or non-conditions, that the systems have been kept.

Mechanical Systems

There are no mechanical systems that are salvageable. All boilers, chillers, heat pumps and related equipment will have to be demolished and replaced with code compliant systems. In addition to the actual mechanical units, all ductwork and associated piping will have to be replaced as well. This opinion is based on the age of the inactive systems and the conditions, or non-conditions, that the systems have been kept.

Plumbing System

All plumbing fixtures should be replaced. A detailed investigation should be run regarding the main drain lines to the SGWASA sewer system. Our experience has shown that the probably cast-iron pipes (they could be clay tile) that serve these structures has degraded beyond repair. The waterlines that serve the structures are, in our opinion also no longer serviceable and should be replaced.

Summary

All electrical, mechanical and plumbing systems will be required to be rebuilt from scratch to serve the building in a safe and code compliant manner.

Hazardous Materials Survey Report	Attachment A
Gymnasium Roof Condition Assessment	Attachment B
Gymnasium Roof Replacement Quote	Attachment C
Campus Demolition Quote	Attachment D

Conclusion

Based on the assessment teams finding, our opinions are as follows:

Buildings #1, #2, #3 and #4 are beyond the point of practical renovation. These buildings would best be demolished to regain the land that they currently sit on. Of the 4 buildings listed, building #1 has the most potential to be saved, however it would take significant renovations to render the building habitable. We estimate an investment of approximately \$175,000 to \$200,000 to renovate this building up to a point that it could be considered as a rental property. Building #2 has reached the point of no return in the team's opinion. It is not practical to spend any funds to save the structure. Building #3 and #4 are also beyond practical renovations. The renovation cost for these buildings is approximately between \$250 and \$275 per square foot. New buildings of this same square footage would cost approximately \$200 to \$250 per square foot. The total investment to renovate buildings #3 and #4 would be approximately \$3,353,600. Two new buildings of the same square footage would be approximately \$2,880,000.

Building #5, the Shop/Facilities Building is arguably the building that has the most potential, as it sits. The renovation of this building would include a roof replacement at a cost of approximately \$50,000. In addition to the roof replacement we estimate a renovation cost of \$100 to \$125 per square foot. This estimate includes renovation to bring the building back to its original use. **The total investment for this building would be approximately \$675,000**.

Buildings #6, #7, #8 and #9 are in fair condition and could be renovated for approximately \$250 to \$300 per square foot, depending the type of mechanical system installed. The main issue with these buildings is that the load barring walls will adversely affect the future layout of the space. Due to this inflexibility it would be very difficult to upfit spaces that could effectively be used. In addition, the common space created by the large corridors and open areas would drive the rental factor too high to be sustainable. The total square footage of these buildings is approximately 61,000 square feet. The total investment to renovate these buildings would be approximately \$16,775,000.

The total to renovate all buildings except building #2 would be approximately \$21,000,000.

<u>The total investment to demolish the structures listed above would be approximately</u> \$695,000 plus asbestos remediation.

Assuming the Town could lease the leasable spaces for \$13 per square foot, not including investment cost, management and upkeep, the annual income would be approximately \$624,000. At that rate it would take **35 + years** for the investment to break even.

It is the Assessment Team's opinion that it would be in the best interest of investment to demolish the buildings on the campus. This could be done in one of two ways. Either the Town could demolish the buildings and develop Town owned uses for the site, or the Town could develop an RFP for developers to respond to. The RFP could require the developer to demolish the buildings prior to development of the site.

This concludes the assessment for the Umstead Correctional Center Campus,

for Com

Tony Conner President HageSmith Design

Attachment A

FACILITY ASBESTOS INSPECTION REPORT

For:

Umstead Correctional Center Facility Name

> 4255 Facility Number

April, 1996 Date of Inspection

This inspection was conducted by an inspector accedited in the State of North Carolina,

Inspection and Report by:

Jeffrey P. Kramer

11351 Accreditation #

ignature

Brumbaugh-Herrick, Inc. 3861 Monroe Street Toledo, OH 43606



Brumbaugh-Herrick, Inc.

3861 Monroe Street Toledo, Ohio 43606 Tel (419)475-1253 Fax (419)475-0163

MEMORANDUM

- To: Mr. Joseph A. Simpson Director, Safety & Environmental Health NC Department of Correction
- From: Jeff Kramer Brumbaugh-Herrick, Inc.
- Subject: Umstead Building List Update

Old List

New List

Administration Bldg	waamaaaaaa OK
Staff Housing	Now Known As
Staff Housing	Now Known As
Industrial Arts Bldg.	Now Known As
Supt's House	www.anderson.OK
Wood Bldg./Gym	and a second sec
Warehouse	OK
Duplex 1-2	
	VAL

Also Add:

Administration Bldg. Staff Housing A Staff Housing B Maintenance Shop Supt's House Wood Bldg. Warehouse Duplex 1-2

A Dormitory B Dormitory

Introduction

This work is being performed by Brumbaugh-Herrick, Inc. under contract to the North Carolina Department of Correction. The purpose of this inspection is to identify the Asbestos Containing Building Materials (ACBM) in all pre-1981 buildings at the Umstead facility for compliance with the OSHA asbestos standards 29 CFR 1910.1001 and 29 CFR 1926.1101. The information obtained from this report may subsequently be used to help reduce the risk of potential asbestos exposure to employees. Sampling and analysis were conducted in accordance with the state of the art inspection methods detailed in the EPA AHERA asbestos regulation [40 CFR 763 Subpart E-763.80 - 763.99] as referenced in the OSHA standard for General Industry 1921.1001 (j)(8)(ii)(B).

Summary of Results

This is the report for the asbestos inspection survey which was conducted on April 8th, 1996 at the Umstead Correctional Center in Butner, North Carolina. Certain materials were found to contain asbestos in parts of the facility. A table which lists these materials follows this page. Color coded drawings show the location of these materials in buildings larger than 2,500 square feet.

The materials are identified by building, room or location, an assigned homogeneous area identification number, the type and quantity of material, the percentage of asbestos they contain, the condition of the material and whether it is friable or non-friable. A glossary of the Type of Material Codes is an appendix to this report. A homogeneous area is the location of a material which is uniform in color, texture, size and time of installation. The condition of the material is rated as Good, Fair or Poor. Friability is a term used to describe whether a material may be crumbled or reduced to powder by hand pressure.

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Page 1

Unstead Correctional Conter Confirmed Asbestos Containing Naterials

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B Dorm	Throughout	210	1	12" beige speckled	4.000 SF	-	-	Plaru		,	e
		V/10	FTH	Mastic for floor tile 017				Chrv	2		
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	SWADA CHUI PAT	000	H	7 green w/yellow streaks	520 SF	5	N	Chry	0		
		Accu		Mastic for floor tile 055	520 SF	9	2	Chrv	201		
		026	Ŀ	9" brown w/multi-colored streaks	630 SF	GF	. 72	Chrv			
		V9C0		Mastic for floor tile 056	630 SF	9	T	Chrv	10		
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		84ch	-	Mastic for floor tile 059	280 SF	a.			20		
		060	H	12 white w/black streaks	700 SF	ß	X		0		
		UPUA	L I	Hastic for floor tile 060	700 SF	5	20				
		062		9° gray w/multi-colored streaks	630 SF	9	-		5		
		U62A		Hastic for floor tile 062	630 SF	5	22		20		
		165		9 beige w/dark streaks	470 SF	9	×		10		
		0654		Mastic for floor tile 063	470 SF	4	2		20		
		1004	T	y red w/light streaks	130 SF	-0	N		6		
6 Staff Hunse/Builer Pe	Roiler Doom	0648		Mastic for floor tile 064	130 SF	ക			12		
	WARE JOTTAN	000	LP N	Layered paper pipe insulation	55 LF	4	Y		60 Anos	05 20	
Duplex	Firnace Rooms	100	40 P	Rudded Insul on FE pipe insul	10 EA	40	~				
	Throughout	200	1	If ansite Panels	380 SF	GF	N		55		
		UCU DEDA	11	12 White W/Delge streaks	2,100 SF	g	N		,		
Maintenance Bldg	Office/Inbbv/Tool Re	Which and		MASELE FOF FLOOF FILE 050	2,100 SF	-	N				
		007		12 9010 W/Drown Streaks	530 SF	3	H				
Supt's Residence	Furnace Roos	U42		result for floor tile U69	530 SF	co	z		10		
	Kitchen/Back Porch	147		transite rangis		Lakar .	N		10		
Hood Building	Boiler Room into Tunnel	079	MUN	Wed fittions of J rows of			-	Chry 5			
	Bowling/Various Offices/Class	074		ow ittings on old fo pipe insul 9" beige w/hrnan ctroabe		കം	> ;		-		
		074A	H	Mastic for floor tile 074	2.750 SF						
								UIL & 10	-		

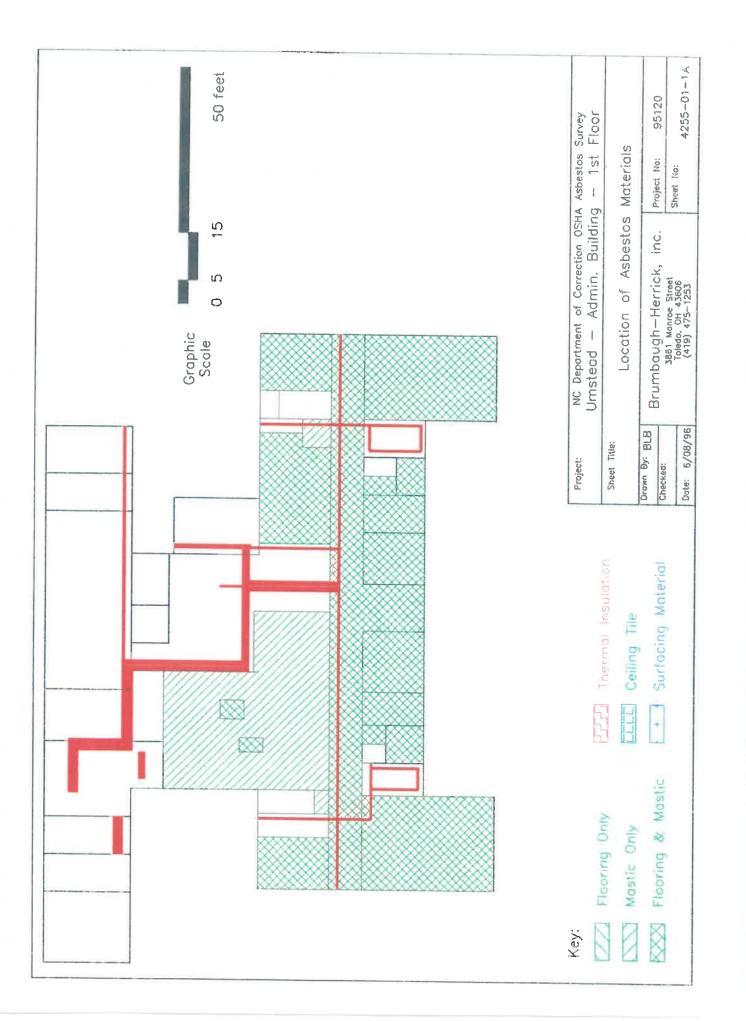
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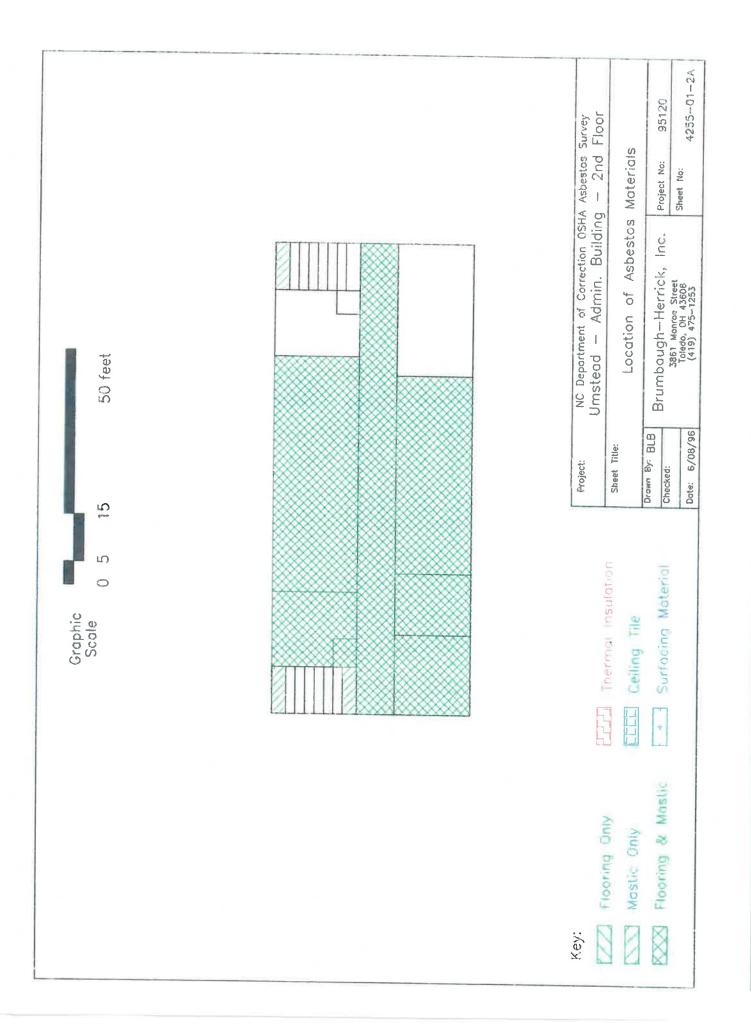
Unstead Currectional Center Confirmed Asbestus Containing Materials

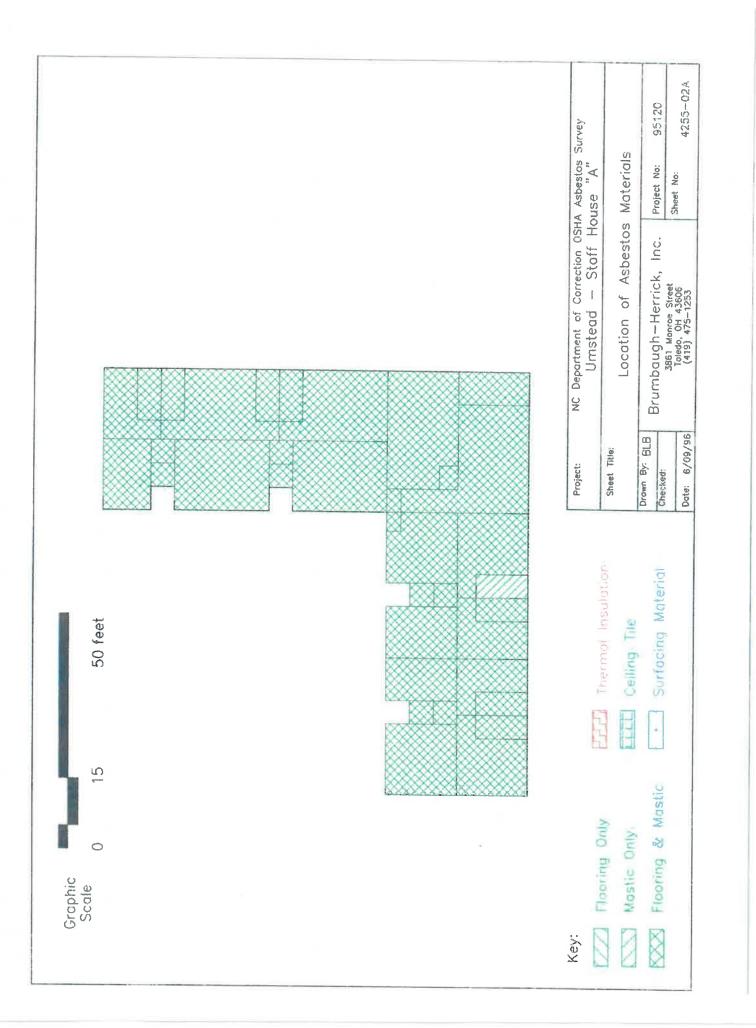
2 6	4			
Ash 2				
		201	10	12
Åsh I	10	chry chry	Chry	chry chry chry
Cond Eriable	3		t 22 s	
Cond	e			
Size		650 SF 750 SF	750 SF	5,400 SF (
Naturial Bescription	9" white w/black & pink streaks	Mastic for floor tile 076 9° gruy w/while streaks	Mastic for floor tile 075 9° while w/multi-colored streaks	Mastic for floor tile 077 9" gold/brown/while streaks
<u>IYPe</u>			FTH	
T VI			075A 077	
Room	Coam work prog offices	Dressing Rms./Thurapy4	Gygnasium	X-Ray/Copy Room
-	Wood Building			

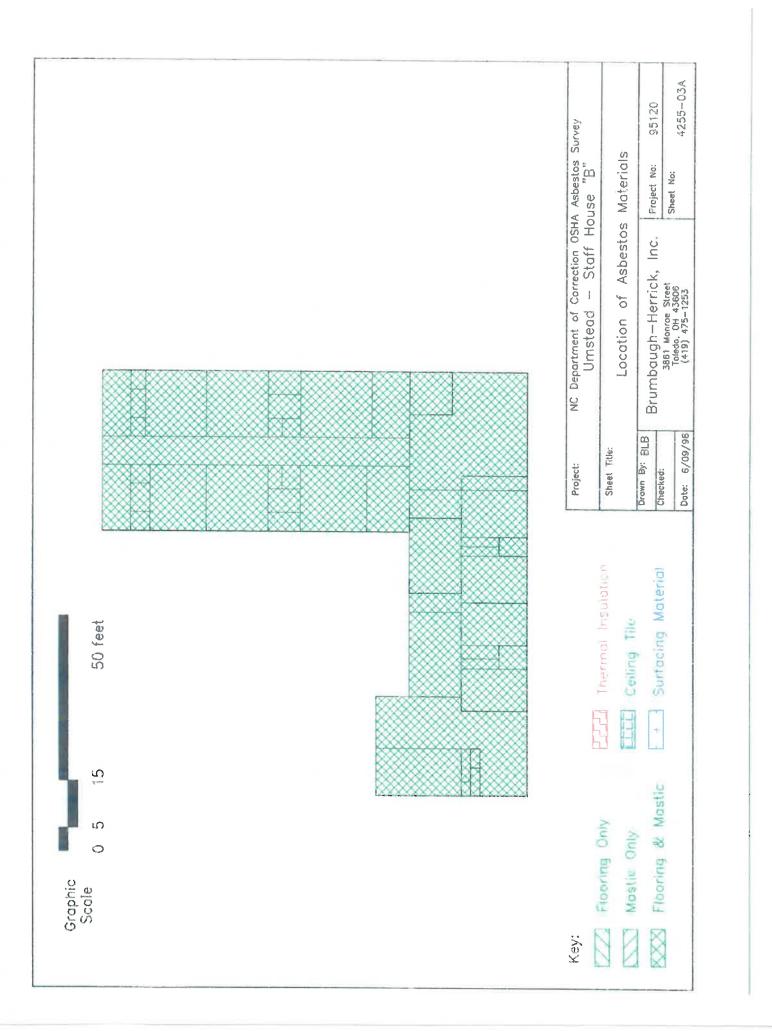
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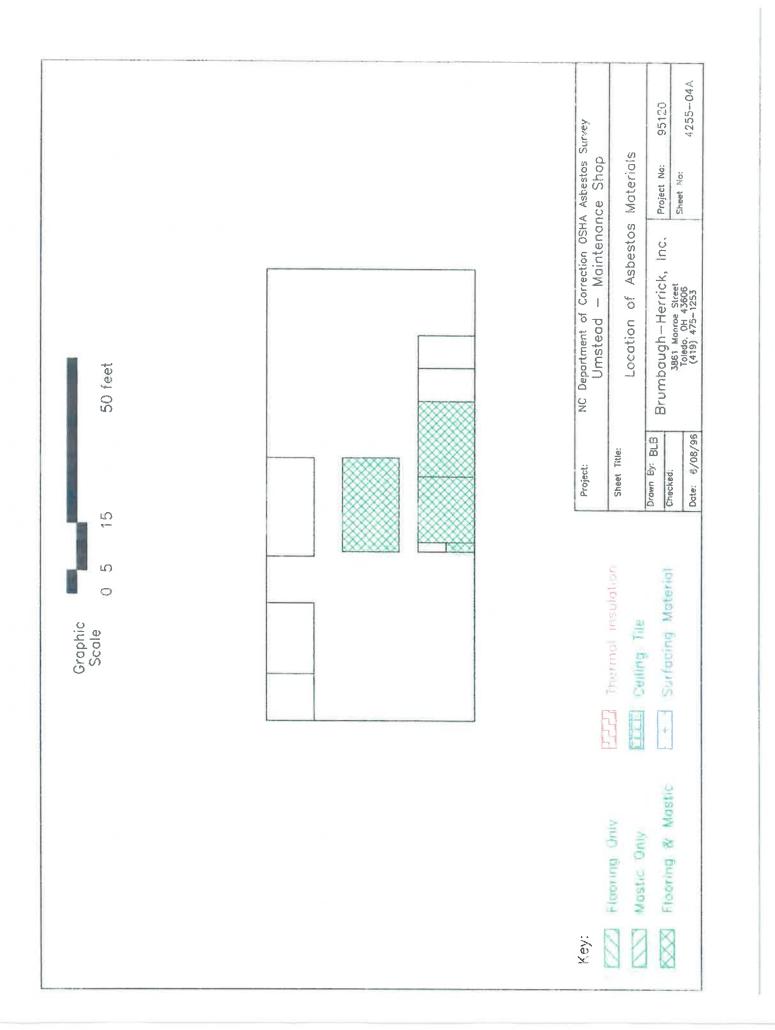
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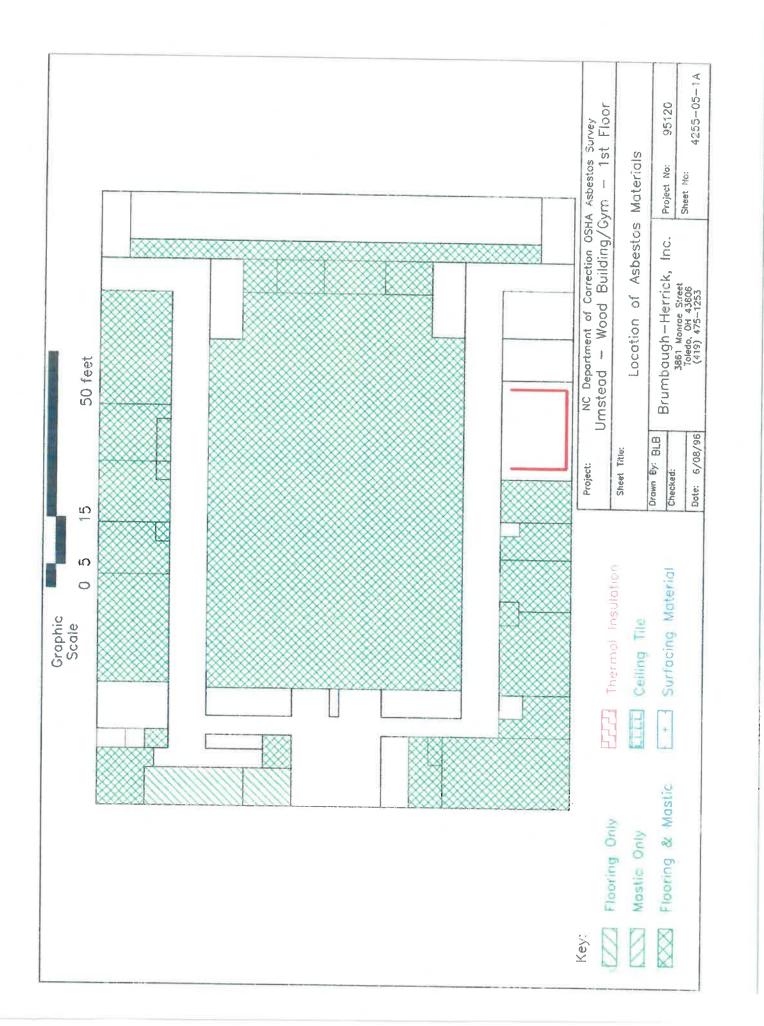


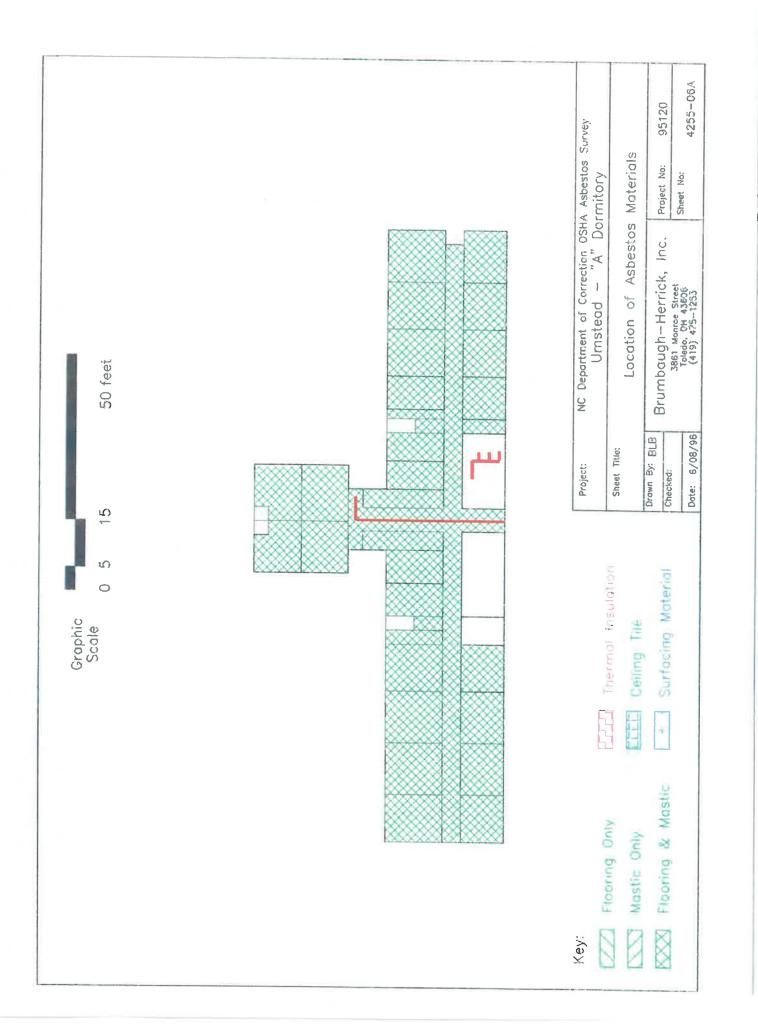


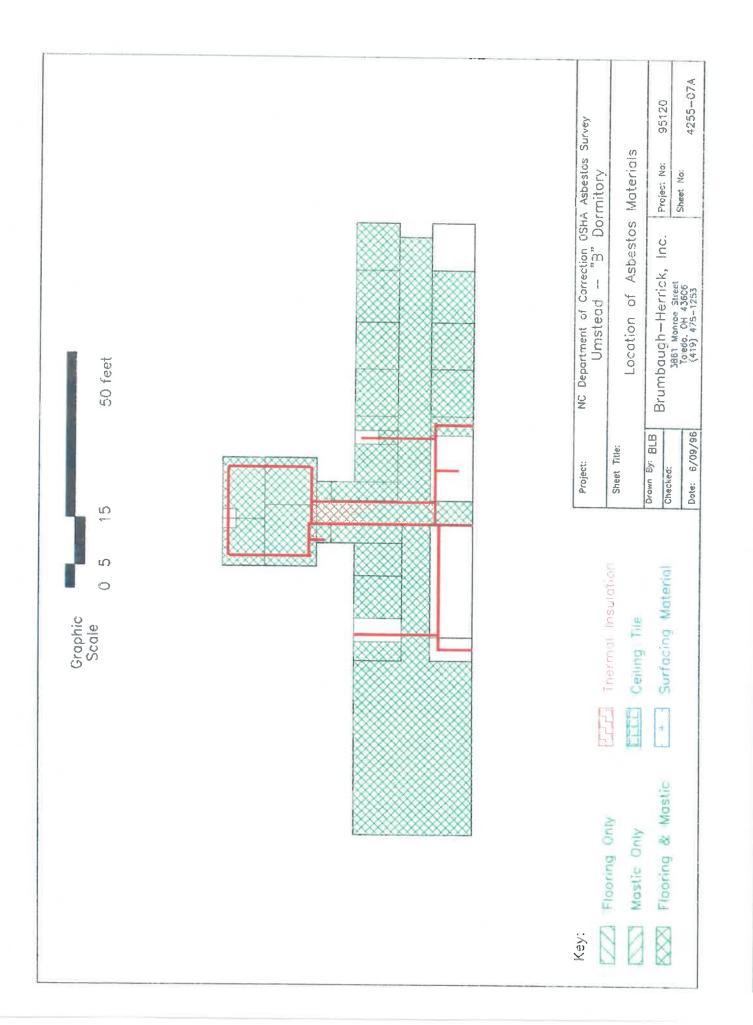












Asbestos Inspection Survey Report - Umstead Correctional Center

Accreditation of Project Participants

The inspection survey was conducted by Mr. Jeffrey P. Kramer who is licensed as an Asbestos Inspector by the NC Department of Environment, Health and Natural Resources, Asbestos Branch:

Jeffrey P. Kramer - #11351

The laboratory used for the analysis of all bulk samples was EMSL Analytical, Inc. of Greensboro, NC. EMSL is an approved laboratory which is accredited by the NVLAP program (National Voluntary Laboratory Accreditation Program), Certification #2104.

Sampling and Analytical Procedures

Each building was visually inspected for materials suspected to contain asbestos. Bulk sampling of suspected ACBM was based on appearance, texture and location of the material, and any material suspected to contain asbestos was hand-touched during the evaluation to determine its friability. The selection of sampling locations was random throughout each homogeneous area of material. Three samples were collected for most homogeneous areas although five or seven samples may have been necessary for surfacing, sprayed-on or trowelled-on materials depending on the quantity of the material. Each sample was individually collected, bagged and labeled. All bulk samples were analyzed utilizing current EPA methods for Polarized Light Microscopy (PLM) by an approved Laboratory which is accredited by the NVLAP program (National Voluntary Laboratory Accreditation Program). As noted in the RFP, analysis in any given homogeneous area was discontinued when a positive result for asbestos was obtained. For quality control purposes five percent of the bulk samples were "split" and sent to a second accredited laboratory for analysis to ensure the quality of the analytical results.

Asbestos Inspection Survey Report - Umstead Correctional Center

Discussion

Each of the pre-1981 buildings at this facility was visually inspected for any material suspected to contain asbestos. Accessible areas included ceilings, walls, floors, surfaces above suspended ceilings, thermal pipe and boiler insulation, ductwork, air plenums and heating and air handling units. The following categories of building materials were considered to be suspect materials:

floor tile floor tile mastic (separate from floor tile) linoleum linoleum backing (separate from linoleum) thermal insulation - boiler lagging - pipę wrap - tank insulation - mudded fittings - jacketing fireproofing on structural steel transite (asbestos cement paneling) acoustical plaster hard plaster "popcorn" ceiling coatings / decorative surfacings wallboard / sheet rock system ceiling tile gaskets

During the inspection each suspect material was identified by homogeneous area, type of material, location, estimated quantity of material and the condition of the material. Each building, room or area suspected to contain ACBM has been recorded in the table which can be found as an appendix to this report.

Asbestos containing pipe insulation was commonly used during the era when many of the buildings at this facility were constructed. Some areas of the buildings may have piping between the walls or in other locations that were inaccessible during the survey. No destructive actions were taken to search for such inaccessible materials during this survey.

Asbestos Inspection Survey Report - Umstead Correctional Center

The following building at the Umstead facility had suspect ACBM's, were sampled, and the analytical results were negative for asbestos:

Warehouse

Unstead Correctional Center All Suspect Asbestos Containing Materials

Building	Room	I WI	IYPE	Halerial Description	Siye		1.044
A Dorm	Basement/Craulspace	0718	1110			1.11	ALLA
	Lobby	2100	UAU OY	Hagnesia insulation on pipes	600 LF	1007.001	>
	Throughout	170	1	salou/w altum IXI			
	25010 m	020	=	12 ⁻ beige speckled		100 100 1000	
		U26A	FTH	Mastic for flour tile 026	3 ADD SC	100 100 100	>-
		026	HAG	Magnesia insul on pipes		UDZA, U63A, U64A	7
		029	AUD	Mudded filtings on pipe incut		068, 069, 070	2
A Staff Ilouro		030	ШP	Hard Plaster		071, 072, 073	N
9500H 1484A 4	CLOSELS	034	FT	9" Green w/vellow strasts		074, 075, 076	N
		034A	FTH	Mastic for floor tile Dra		092, 093, 094	<u>>-</u>
	Throughout	035	MB	Latthoard/Chool Bird.		0924, 0934, 0944	20
	Various	032		9ª hrows studies. RUCK		095, 096, 097	N
		032A	ETH	Machin for Floor sil one		086, 087, 088	
		220	ET.	We have us 1100 116 052	690 SF	086A. 087A. 088A	~
		0334	ETH	Machin for Flan Alfebric		089, 090, 091	- >-
		034		0^{*}	530 SF	089A. 090A. 091A	. >
		020	1.1	y yray w/streaks	280 SF	098. 099. 100	- >
		1000		Mastic for floor tile 036		198A 099A 1004	- 2
		137	H	9" tan w/dark streaks		101 100 107 107	- 2
		037A	HLA	Mastic for floor tile 037		1017 107 103	
		038	H	9" brown/yellow streaked		TULA, JUZA, JUJA	- :
		038A	FTM	Mastic for floor tile 038		104, LU3, 106)
		039	11	12" beide soerklad		104A, 105A, 106A	
		0394	FIN	Mastic for floor tile 030		107, 108, 109	X
		040	Li	brownlond block asterna limitant		107A, 108A, 109A	Å
		041	13	er and a store pettern timureum		110, 111, 112	>-
		042	11	9" hrick rod u/tao cteate		113, 114, 115	X
		042A	FTH	Mastic for floor file nas		116, 117, 118	7
		043	11	9ª OFAV Winter Prince January		116A, 117A, 118A	>
		043A	FTK	Machic for Flaar til nar		119, 120, 121	2=
A Staff House/Boiler Ro	Boiler Room	044	d	Chi all'i noti ini presso		119A, 120A, 121A	7
		045	MID	Wud issuit as footing insulation		122, 123, 124	~
Addinistration	Bailer Room	800	MAG	May insulation on close line.		125, 126, 127	- 22
		600	UUN	Nudded fittings on steam lines	550 LF	013,	- :
	Dining Patch	010	NAG	Mag insulation on hot H20 tank		018. 019. 020	z >
		/00	 	9 blue W/green streaks		010.	- >
							_

Page 1

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Unstead Correctional Center All Suspect Asbestos Containing Materials

Building	ROOD	IN F	Ĭype	Material Description	Size	Sa) II	A CM
	Dining Patch	007A	FIN	Machin for floor att. one		1 12	NLI NLI
	Dining, 2nd Flr. Hall	DUK	P1		40 SF	009Å, 010Å, 011Å	*
	Dininy, Stairwells	004		of heigh w/hrows flacks	2,125 SF	006, 007, 008	H
		DOAA	LTM	Machin for Fluer All. on	1,325 SF	999, 001, 002	2
	Front offices	000	T.T.	ty this white the life Bug		999Å, 001Å, 002Å	-
	Kitchen	105	5 2		400 SF	993, 994, 995	2
	kurse's Office	003	51	III Idrye IISSUFEG Dvo cannek	650 SF	003, 004, 005	z
	Throughout	011	MAG	Moreover of a firmer of the	360 SF	996, 997, 998	-
		610	0	regueste pipe trsulation	2,000 LF	021, 022, 023	2
		210	10	Layereu paper pipe insulation	700 LF	024	N
		710	MID	No. Fister	15,000 SF	031, 032, 033	: 20
	Throughout 1st floor	100		10" boint steam/water lines	400 EA	034, 035, 036	: >
		VIUU	ETM.	As better speckled	6,000 SF	990, 991, 992	~
	Throughout 2nd floor	013		9° krown wisterste	6,000 SF	990A, 991A, 992A	>
		0134	FTH	Machie for floor tile of	3,300 SF	025, 026, 027	~
		014	LJ.	restriction figures	3,300 SF	025Å, 026Å, 027Å	- >
	Lobby	018	12	ivi vkito vitaleS	3,200 SF	028, 029, 030	
	Throughout	017	ET .	Salou'n atlin tyt	300 SF	040, 041, 042	: 22
		0174	FIN	Hattic for flags till out		037, 036, 039	>
		010	MAC		4,000 SF	037A, 038A, 039A	>
		050		ney insulation on steam pipes	300 LF	043. 844. 045	- >
		000	100	nua rittings on hot H20 lines	150 EA	046. 047. 049	- >
		220	5 9	Layered paper pipe insulation		050	- 2
		C20	Hr.	Hard Plaster walls		057 05A 056	2 2
		120	HL I	Hard Plaster ceiling	T ARR CC	1400	2 :
	Throughout dores	025		Brown coat ceiling	3 AND SE	ACU ,/CU rocu	*:
		021	CI CI	2x1 w/holes		190 ,000, 061	2
		065	NB.	Wallboard/Sheet Burk	0,100 SF	049, 050, 051	35
	Various Rooms	055	FT	9" Orpan w/wallow stracks		179, 180, 181	N
		0554	ETH	System for started as a started	520 SF	149, 150, 151	-
		056		Garbon of 111 1100 1116 055	520 SF	1494. 1504. 1514	- >
		0224	274	7 ULUMIN N/ BUILIT-COLORED STREAKS	630 SF	159 153 154	- >
		UC3		mastic for floor tile 056		1524 1574 1644	
		0574	FTN	y Dlack W/White Streaks		155, 156, 157	
		058		9ª Drav w/linkt & dark and 1		1554, 1564, 1574	
				STRATE & DOLA SUPERSY	280 SF	158, 159, 160	~

Page 2

Unstead Correctional Center All Suspect Asbestos Containing Materials

				CIDI ISTRIA RITHING ALLAN			
Building	Room	I VI	IYRE	Naterial Description	Size	Sn I t	104
B Staff Nouse	Various Ruoms	DEGA	114		Allowed a strong of the American		TIN
		MUCU		Hastic for floor tile 058	200 SF	158A. 159A. 160A	٨
		460	-	" brown w/yellow streaks		141 149 147	- >
		VACO		Hastic for floor tile 059		1614 1694 1274	- >
		000		12" White w/black streaks		1/4 1/5 1/1 100H	- 2
		V090	FTH.	Mastic for floor tile 0k0		101 1001 101	-
		061	2	I'l u/halae		164A, 165A, 166A	~
		062	L	", orar is/aultimortorid atomic		167, 168, 169	H
		07.24	LIN	Machic for first till out		170, 171, 172	_ر
		11300	1		630 SF	1704, 1714, 1724	2
		000	11	y beige w/dark streaks	470 SF	173. 174. 175	>
		0658	LIN .	Mastic for floor tile 063		1736. 1746. 1764	- >
		164	-	9" red w/light streaks		174 177 170	- >
B Staff HouseAPailor De		0644	FTH	Mastic for floor tile 064		TOCI VCLI V7CI	- 2
at Introd School Lings	acov lation	066	5	Layered paper pipe insulation		100 1//N1 1/08	- 2
000 000		290	MUD	Hudded' insul on FG pipe insul	10 64	10C 101 10F	- 3
Yaldon	Furnace Rooms	052	4L	Transite Panels	ZOD CC	103, 104, 183	- :
		053	JF	Jacket on FG pipe insul	10 00	144	<u>~</u>
		054	DUM	Aud fittings on FC bing incut	20 11	C61	
	Throughout	050	L	1) ² Bhito Whoise strach	2 22 22	146, 147, 148	N
		DSOA	CTM	Hart's for flam till and	2,100 SF	136, 139, 140	<u>>-</u>
		DE1		HASTIC TUL TICOF TILE USU	2,100 SF	138A, 139A, 140A	2
Maintenance Aldo	Afficall abbulted B-	100		Wallboard/Sheet Rock	5,000 SF	141. 142. 143	, A
	VIIIte/LUUUV NI	690	-	12° gold w/brown streaks	530 SF	189. 190 191	- >
		069A	FTN	Mastic for floor tile 069	530 SF	Tet 60/T 6001	
	101 D0000 101	068	HUD	Mudded insul on FG pipe insul	29 EA	107 101 100 101	- 1
		0/0	8	Wallboard/Sheet Rock	9 500 CC	100 107 100	x :
aupt s Restdence	5alhruogs	046	LN	White W/black & gray flecks	55 25	176, 173, 174	æ 2
		046A	LNB	Backing for linoleum 046	55.55	1264 127, 130 1264 1394 1304	8 3
	Furnace Room	048	41	Transite Panels	190 55	HUCT INVERTING	z >
	kitchen/Back Porch	047	LN	Green linoleum	280 SF	221 621 121	- >
		047A	LNB	Backing for lindpum Ad7	200 61	101 1001 1001 1001	-
	Throughout	049	NB.	Wallboard/Sheet Rock	A DOD SE	101A, 102A, 105A	-
Warehouse	Throughout ceiling	031	۶ę	Spraved-on fireprocfing	1 220 05	101 100 101 101	23
BODD BUILDING BODH	Boiler Room into Tunnel	1/0	JF	Jacket on FG pipe insul, nid	10 0C 1C	CAL 10/0 1/10	
		072	UNH	Mud fittings on old FG pipe insul		1001	20 2
	Bowling/Various Offices/Class	074	H	9" beige w/brown streaks	2.750 SF	204 205 202	-
						Inn?	-

Page 3

Unstead Correctional Center All Suspect Asbeslos Containing Naterials

ACM.		- >- >	- 24 2	- 7 2 2	**>	N
Spl 1	204Å, 205Å, 206Å	210Å, 211Å, 212Å 207. 208. 209	2074, 2084, 209A	2134, 2144, 215A 201, 202, 203 216, 217, 218	2164, 217A, 218A 219, 220, 221	219A, 220A, 221A
Size	2,750 SF 650 SF	650 SF 750 SF	750 SF 5,400 SF	5,400 SF 6,500 SF 475 SF	475 SF 300 SF	300 SF
Material Description	Hastic)for floor tile 074 9° white w/black & pink streaks	Mastic for flour tile 076 9° gray w/white streaks	Mastic for floor tile 075 9" white w/multi-colored streaks	Mastic for floor tile 077 1x1 White w/Jarge fissures, small holes 12° White W/gray fleckks	Mastic for floor tile 078 9° gold/brown/white streaks	6/0 ATT1 MOTT INT STATE
IYPE				Esti		
IV I	074A 076	075	42/0	073 073	079 079 079	
Noon No	Bowling/Various Offices/Class Comm work prog offices	Dressing Rms./Thorapy4	Gyanasiua	Hallways, Various Rms Waiting Rm/Dental Clinic	X-Ray/Copy Room	
Building	Nood Building					

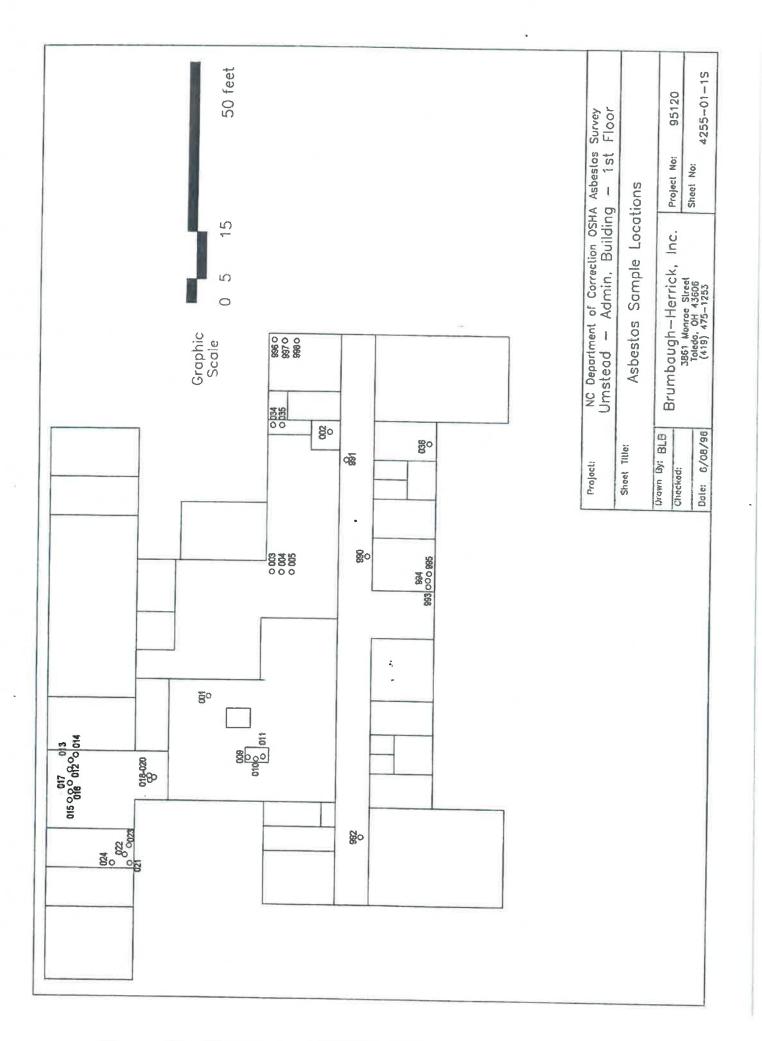
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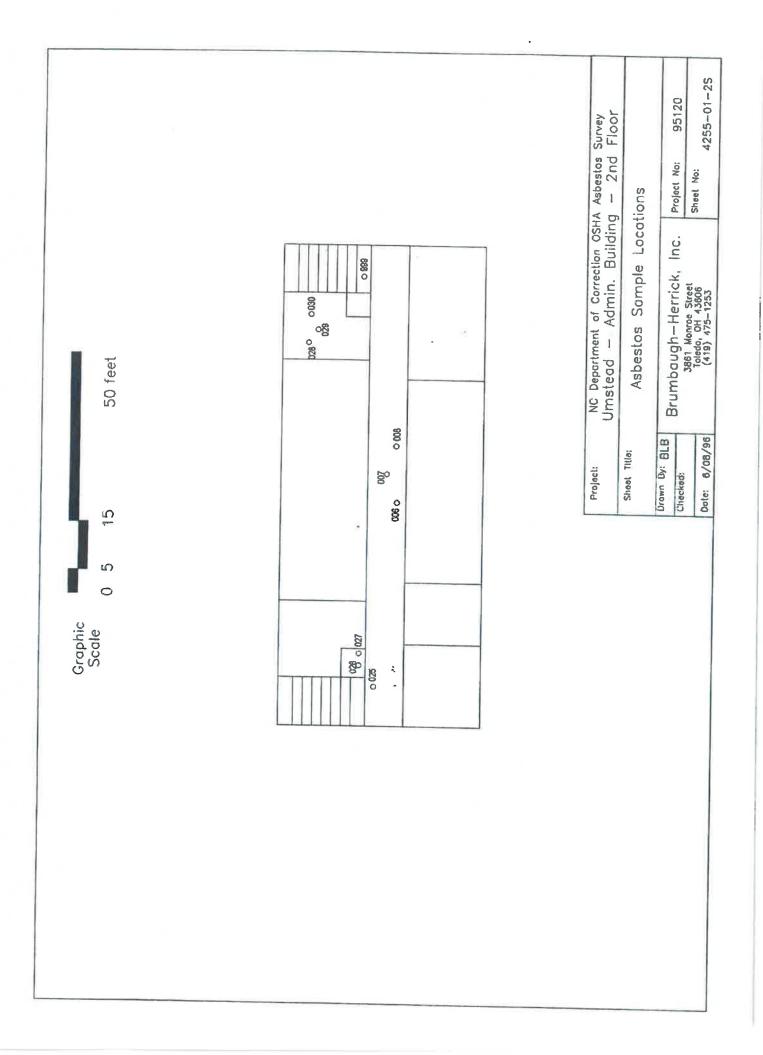
TYPE OF MATERIAL CODES

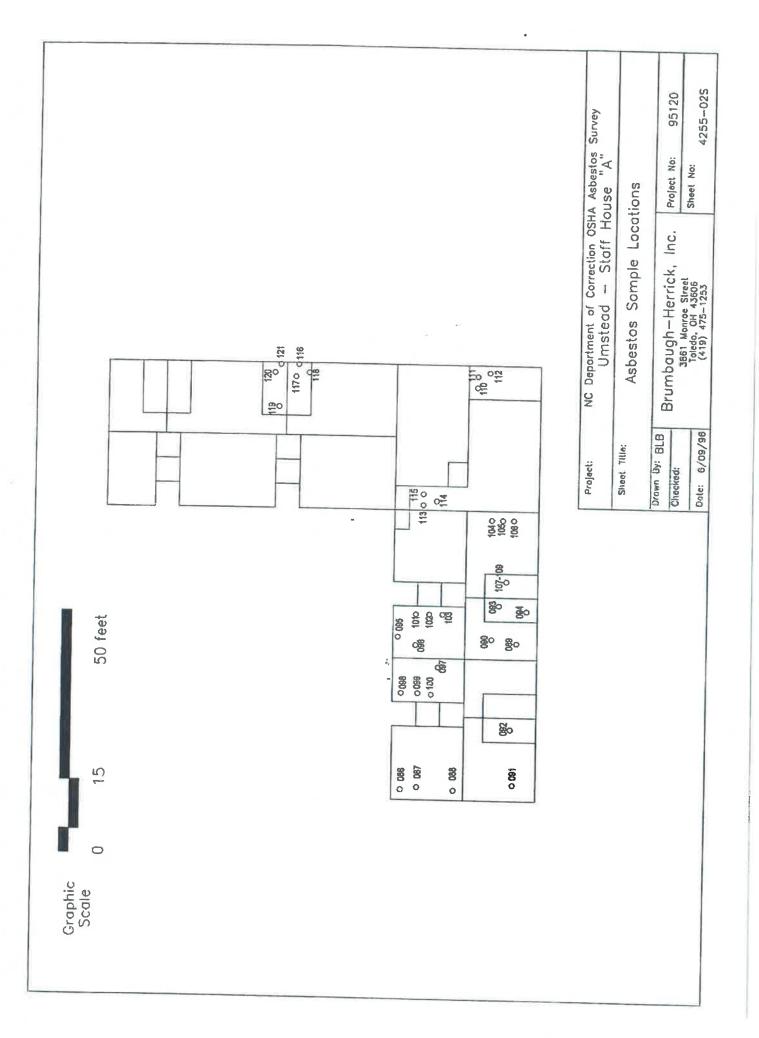
N.C. DEPARTMENT OF CORRECTION

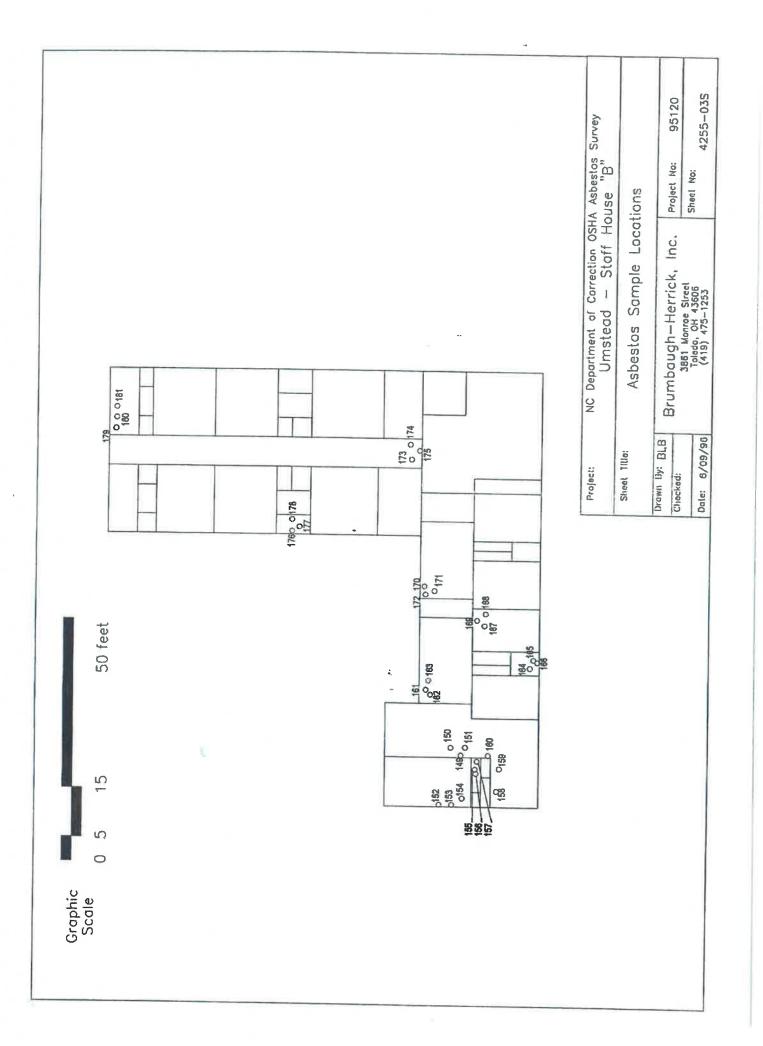
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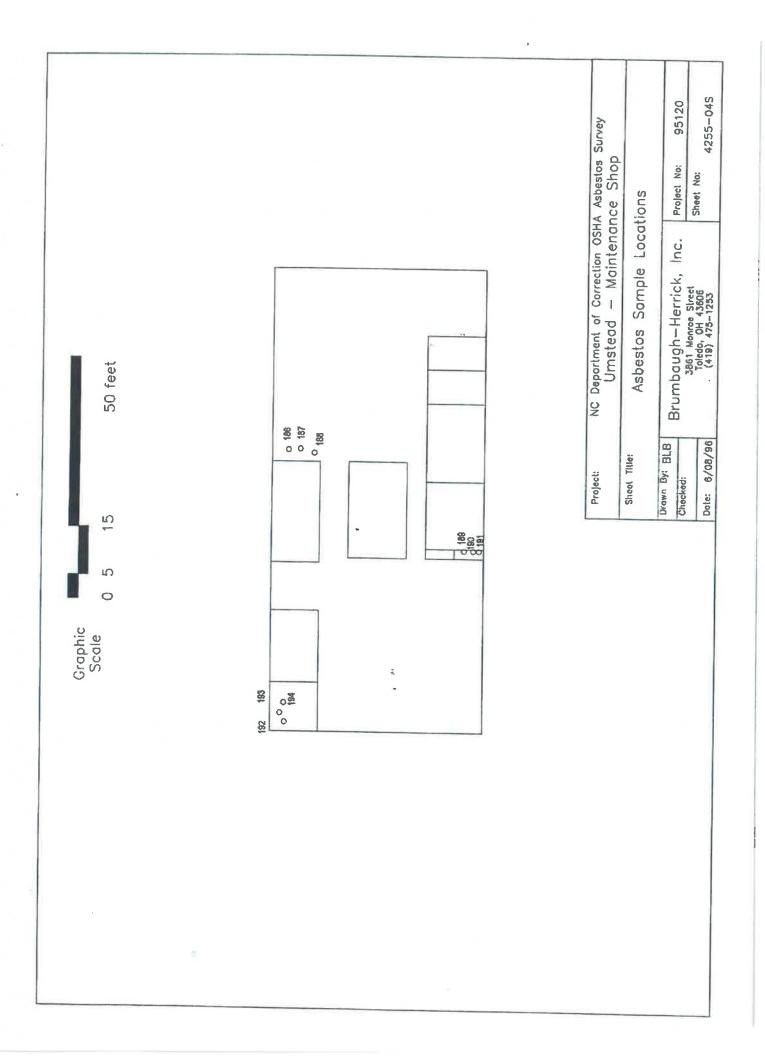
AC	AIRCELL THERMAL INSULATION
CT	CEILING TILE
DS	DECORATIVE CEILING MATERIAL
FD	FIRE DOOR
FT	FLOOR TILE
FTM	FLOOR TILE MASTIC
GA	GASKET .
PL	HARD PLASTER (WALL OR CEILING)
JF	JACKET ON FIBERGLASS THERMAL INSULATION
LN	LINOLEUM FLOORING
LNB	LINOLEUM BACKING
MAG	MAGNESIA OR CALCIFORM THERMAL INSULATION
MJP	MUDDED JOINT PACKING
MW	MINERAL WOOL, MINERAL FIBER, ETC
PI	OTHER PIPE INSULATION
SF	SPRAYED-ON FIREPROOFING
TP	ASBESTOS CEMENT PANELING
WB	WALLBOARD/SHEETROCK/JOINT COMPOUND

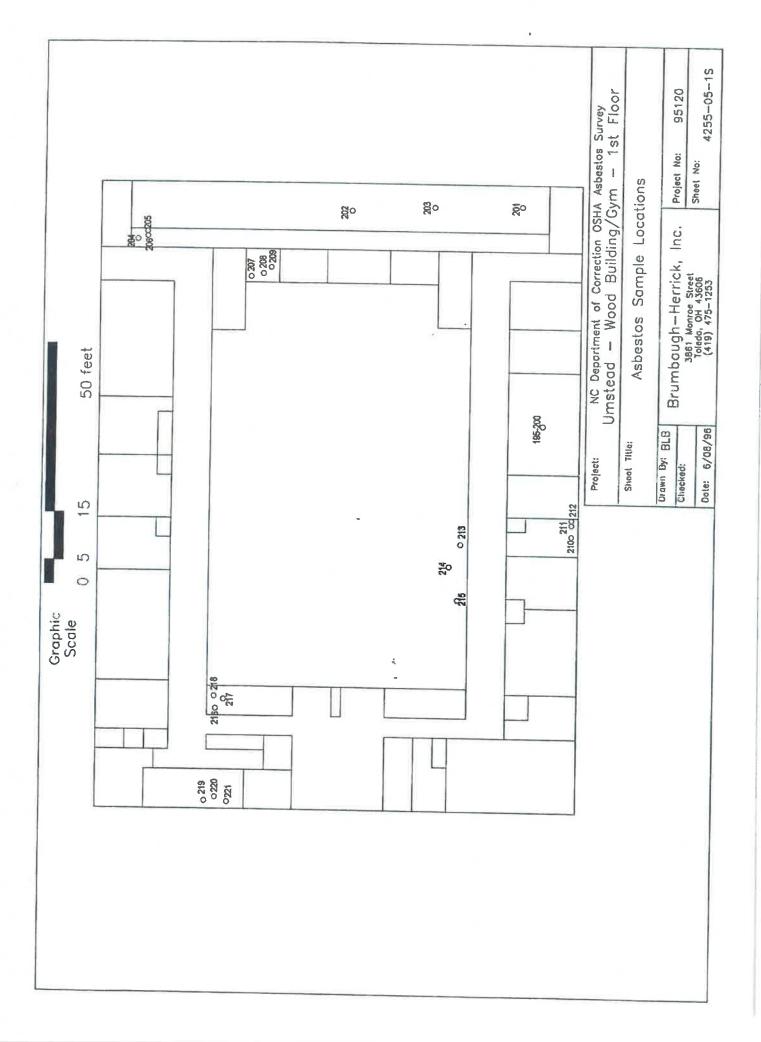


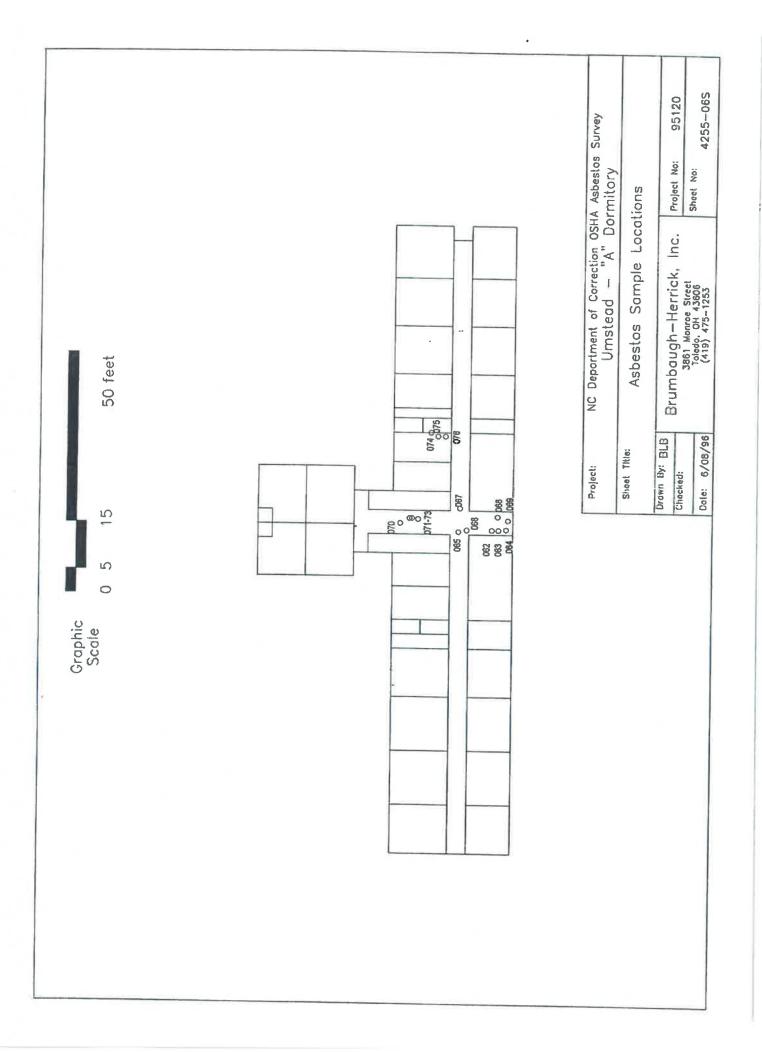


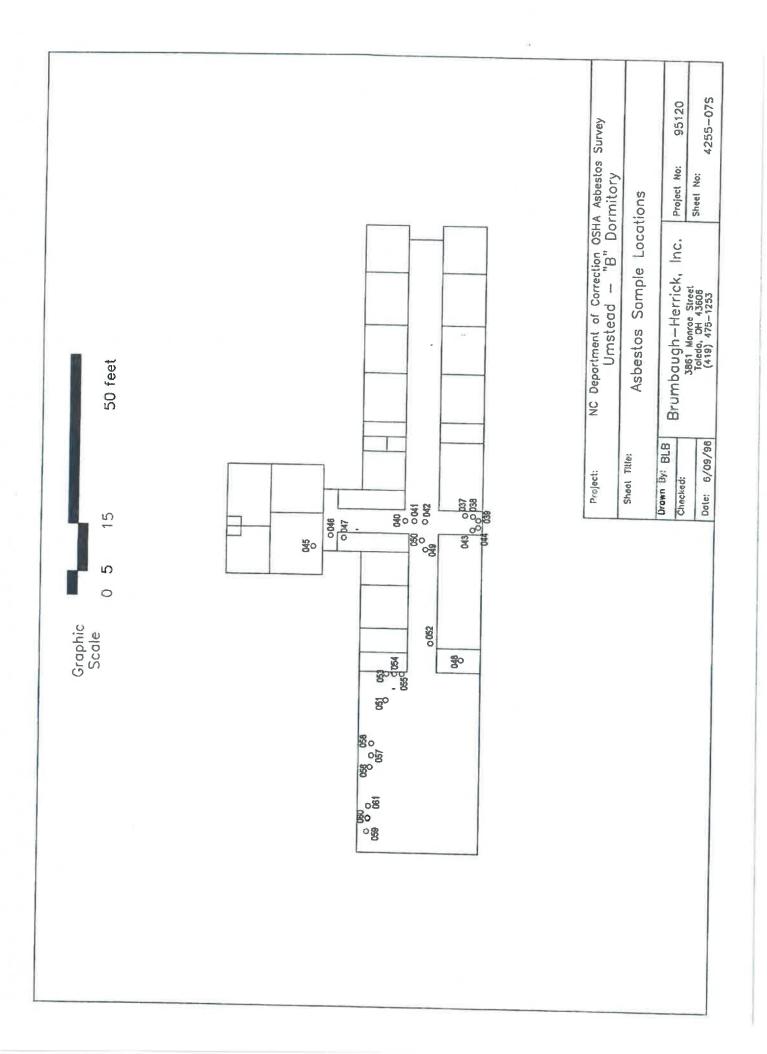












Washiment, ILJ Plocatuway, ILJ 609-658-6550 SOL-831-0550

L Anst Arbor, Mi 213-688-8810 San Mateo, CA. Smyrna, GA 415-570-5401 404-333-6066



Herrick Engineering Inc. 1705 Chatsworth Lane Raleigh, NC 27614

Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	<u>ASBESTOS</u> % TYPE	<u>NONASB</u> % FIBROUS	ESTOS % NONFIBROUS
L990	Tile	Beige Non-Fibrous Homogeneous	Crushed/Dissolved	2% Chrysotile	1% Cellulose	97% Other
L990A	Mastic	Black Non-Fibrous Homogeneous	Teased	5% Chrysotile	2% Cellulose	93% Other
L993	Paint	White Non-Fibrous Homogeneous	Ashed/Crushed	None Detected		100% Other
L993A	Ceiling tile	Brown Fibrous Homogeneous	Teased	None Detected	100% Cellulose	
L994	Celling tile	Brown Fibrous Homogeneous	Teased	None Detected	100% Cellutose	
L995	Paint	White Non-Fibrous Homogeneous	Ashed/Crushed	None Detected		100% Other

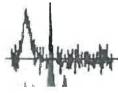
Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

Bitto

David Buetow Analyst

Laboratory Supervisor

Other Approved Signatory



Disclaimers: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. Floor tiles and wipes should be lested with either SEM or TEM. The above test report relates only to the items tested. This report may only be reproduced in full with written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. All "NVLAP" reports with NVLAP logo must contain at least one signature to be valid. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.

1

Westmeet, 3.J 608-853-600	Piscataway, 3J 908-981-0559	Carle Piana, NY 516-007-7251	Mankattan, NY 212-290-0052	Selbourns, FL 407-735-5223	Ann Arbor, Mi 313-668-6810	3an Matee, CA 416-670-5401	Szyran, CA 404-223-6046	EMSL
	rick Engine 5 Chatswort	-			Friday, April 26, 1996			
	eigh, NC 27				F	Ref Number	NC962692	
		POLA		GHT MICR	OSCOPY	(PLM)		

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASBESTOS		
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS % NONFIBROUS		
95A	Ceiling tile	Brown Fibrous Homogeneous	Teased ;	None Detected	100% Cellulose		
96		Orange Fibrous Homogeneous	Teased	None Detected	1% Cellulose 99% Min. Wool		
97	Paint	White Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	2% Wollastonite 98% Other		
97A	Orange fibers	Orange Fibrous Homogeneous	Teased	None Detected	100% Min. Wool		
98		Orange Fibrous Homogeneous	Teased	None Detected	100% Min. Wool		
99	Tile	Beige Non-Fibrous Homogeneous	Crushed/Dissolved	4% Chrysotile	96% Other		

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. .o. "# of Layers" refers to number of separable subsamples. te: Sample- M107 (A) is at the end of report.

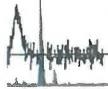
) and H. Butow

David Buetow Analyst

R. K. Maloney

Laboratory Supervisor

Other Approved Signatory



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2

Westmont, XJ 609-858-4800	Flacataway, XJ 308-301-0550	Carle Place, NY 516-997-7251	Manbattan, NY 212-290-0052	Helbourne, FL 407:725-5823	Ann Arbor, Mi 313-668-6810	3an Mates, 5A 415-570-5401	Зшугаа, 8А 404-333-6866	EMSL
	rick Enginee 5 Chatswort				1	Friday, April	26, 1996	
	igh. NC 27					Ref Number	: NC962692	

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASBESTOS		
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS	
)04A	Ceiling tile	Grey Fibrous Homogeneous	Crushed	None Detected	97% Min. Wool	3% Other	
205	Paint	Grey Fibrous Homogeneous	Crushed	None Detected	98% Min. Wool	2% Other	
105A	Calling the	Grey Fibrous Homogeneous	Crushed	None Detected	98% Min. Wool	2% Other	
106	Paint	White Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	3% Min. Wool	97% Other	
)CEA	Ceiling tile	Grey Fibrous Homogeneous	Crushed	None Detected	60% Min. Wool 35% Cellulose	5% Perlite	
07	Paint	White Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	3% Min. Wool	97% Other	

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. :0. "# of Layers" refers to number of separable subsamples, te: Sample- M107 (A) is at the end of report.

and H. Butow

David Buetow Analyst

R. K. Mahoney

Laboratory Supervisor Other Approved Signatory



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Weitment, 33 808-855-4800	Piscalaway, NJ 308-361 (1655	Carte Place, NT 516-007-7251	Maakattaa, NY 212-200-0052	Melbourne, 71. 407-725-5223	Ann Arbor, 161 313 -663-68 10	fani Mateo, CA 425-870-8401	Smyrns, 6A 404-333-6086	EN

Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBES	TOS	NONASBESTOS			
SAMPLE	LOCATION	APPEARANCE	TREATMENT	%	TYPE	%	FIBROUS	%	NONFIBROUS
M007A	Ceiling the	Grey Fibrous Homogeneous	Crushed -	None	Detected		Min. Wool Cellulose	5%	6 Perlite
M008	Paint	White Non-Fibrous Homogeneous	Ashed/Crushed	None	Detected	2%	Min. Wool	98%	6 Other
M008A	Ceiling the	Grey Fibrous Homogeneous	Crushed	None	Detected		Min. Wool Cellulose	10%	Perlite
M009	Tile	Blue/Green Non-Fibrous Homogeneous	Crushed/Dissolved	2% Chry	sotile			98%	Other
M009A	Mastic	Brown Non-Fibrous Homogeneous	Teased	None	Detected	5%	Cellulose	95%	Other
M010A	Mastic	Brown/Black Non-Fibrous Homogeneous	Teased	None	Detected	5%	Cellulose	95%	Other

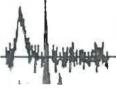
Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

) and H. Buton

David Buetow Analyst

Laboratory Supervisor

Other Approved Signatory



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Wastment, 11 009-552-4569	Panotaway, 113 305-361-0530	Carlo Pince, XT 518-867-7251	Manhattan, NT 213-200-0052	Nelbourne, FL 407-725-8223	Ann Arbor, MI 313-868-6810	San Hatee, CA 415-579-5401	Smyrna, SA 404-333-6056	EMSL
Her	rick Engine	ering Inc.			F	Friday, April	26, 1996	

1705 Chatsworth Lane Raleigh, NC 27614

naay, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASB	istos
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
L999A	Mastic	Brown Non-Fibrous Homogeneous	Teased	None Detected	2% Cellulose	98% Other
M001A	Mastic	Brown/Black Non-Fibrous Homogeneous	Teased	None Detected	5% Cellulose < 1% Min. Wool	95% Other
MC02A	Mastic	Brown Non-Fibrous Homogeneous	Teased	None Detected	2% Cellulose	98% Other
M003	Paint	Beige Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	2% Min. Wool	98% Other
M003A	Ceiling the	Grey Fibrous Homogeneous	Crushed	None Detected	95% Min. Wool	5% Other
M004	Paint	Beige Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	2% Min. Wool	98% Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

Bestow David Buetow

Analyst

Laboratory Supervisor

Other Approved Signatory



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Westmost, 3J 673-853-4900	Piscalaway, XJ 908-981-0589	Carlo Plazo, NY 516-007-7251	Manhettan, HY 212-250-6053	Melbourne, FL 407-725-5223	Ann Arbor, Hi 31 3-668-68 10	San Mates, CA 415-570-5401	Sayraa, 6A 404-313-6066	EMSL
	rick Engine 5 Chatswort	-				Friday, April :	26, 1996	
	eigh, NC 27					Ref Number:	NC962692	
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Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASB	ESTOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
)11A	Mastic	Brown Non-Fibrous Homogeneous	Teased ,	None Detected	5% Cellulose	95% Other
1118	Black mastic	Black Non-Fibrous Homogeneous	Teased	5% Chrysotile		95% Other
)12		White Fibrous Homogeneous	Teased/Crushed	30% Amosite	2% Cellulose	68% Other
)15		Gray Fibrous Homogeneous	Crushed	None Detected	35% Min. Wool	65% Other
)16		Grey Fibrous Homogeneous	Crushed	None Detected	40% Min. Wool	60% Other
)17		Grey Fibrous Homogeneous	Crushed	None Detected	40% Min. Wool	60% Other

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. .o. "# of Layers" refers to number of separable subsamples.

te: Sample- M107 (A) is at the end of report.

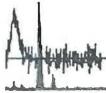
Lavid H. Butow

David Buetow Analyst

R.K. Mahor

Laboratory Supervisor

Other Approved Signatory



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Westment, 1.7 605-852-4800	Pisentaway, NJ 208-381-0650	Carie Pines, XT 516-897-7251	Manhattan, NY 212-290-0052	Melbourne, FL 407-725-5223	Ana Arbor, M 313 468 6 819	8an Mateo, 6A 415-670-6491	Smyran, GA 404-333-6066	EMSL
	rick Engine	-			Ĩ	Friday, April :	26, 1996	

1705 Chatsworth Lane Raleigh, NC 27614

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASBE	STOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
M018		Grey Fibrous Homogeneous	Teased - T	40% Chrysotile		60% Other
M021		Pink Fibrous Homogeneous	Teased/Crushed	10% Chrysotile 20% Amosite		70% Other
M024	Brown paper layer	Brown Fibrous Homogeneous	Teased	None Detected	100% Celluiose	
M024A	Black paper layer	Black Fibrous Homogeneous	Teased	None Detected	98% Cellulose	2% Other
M025	Tile	Brown Non-Fibrous Homogeneous	Crushed/Dissolved	10% Chrysotile		90% Other
M025A	Mastic	Black Non-Fibrous Homogeneous	Teased	10% Chrysotile	2% Cellulose	88% Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

David & Biston

David Buetow Analyst

R.K. Malos

Laboratory Supervisor

Other Approved Signatory



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Westmann, 21 608-552-6805	Pinnstaway, 33 908-961-0550	Carls Place, HT 518-997-7251	Manhattan, NY 212-290-0052	Nelbourne, 71. 407-725-6223	Anu Arbor, MI 313468-6810	3an Matso, GA 415-570-5401	\$myroa, 6A 404-333-5055	EMSL
	rick Engine					Friday, April	26, 1996	
	5 Chatsword eigh, NC 27					Ref Number	NC962692	

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASB	
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
28	Paint	White	Ashed/Crushed	None Detected		100% Other
		Non-Fibrous Homogeneous	7			
)28A	Ceiling tile	Grey Fibrous Homogeneous	Crushed	None Detected	98% Min. Wool	2% Other
)29	Paint	White Non-Fibrous Homogeneous	Ashed/Crushed	None Detected		100% Other
)29A	Ceiling tile	Grey Fibrous Hornogeneous	Crushed	None Detected	98% Min. Wooł	2% Other
)30	Paint	White Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	1% Min. Wool	99% Other
)30A	Ceiling tile	Grey	Crushed	None Detected	98% Min. Wool < 1% Cellulose	2% Other

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. io, "# of Layers" refers to number of separable subsamples.

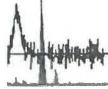
te: Sample- M107 (A) is at the end of report.

and H. Buton

David Buetow Analyst

K. Maloney

Laboratory Supervisor Other Approved Signatory



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Westment, 53	Placataway, 33	Carle Pince, 37	Mashattan, NY	Melbourne, 7L	Ann Arbor, MI	San Mateo, CA	Smyrna, GA	
808-858-4809	205-261-0550	515-397-7251	213-290-0052	407-725-5223	31 3-868-63 10	415 -576-5401	404-333-6006	



Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASE	ESTOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
M031	Paint	Yellow/Green	Ashed/Crushed	None Detected	1	100% Other
		Non-Fibrous				
		Homogeneous	;			
M031A	Plaster	White	Crushed	None Detected	< 1% Cellulose	100% Other
		Non-Fibrous				eese ound
		Homogeneous				
M032	Paint	Yellow	Ashed/Crushed	None Detected		100% Other
		Non-Fibrous				Too to Galar
		Homogeneous				
M032A	Gray layer	Grey	Crushed	None Detected	2% Min, Woot	98% Other
		Non-Fibrous				
		Homogeneous				
M032B	White layer	White	Crushed	None Detected	< 1% Cellulose	100% Other
		Non-Fibrous				en e
		Homogeneous				
M033	Paint	Yellow/Green	Ashed/Crushed	None Detected	1	100% Other
		Non-Fibrous				
		Homogeneous				

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

David H Bistour

David Buetow Analyst

Maloney

Laboratory Supervisor

Other Approved Signatory



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Washington, 33 509-858-4800	Piscalaway, 33 508-981-0650	Carle Place, NT 516-307-7251	Haabattan, NY 212-290-0052	Maibourne, FL 407-725-5223	Ann Arbor, 50 313468-6810	San Mateo, Gà 415-570-5401	8myrna, GA 4943336066	EMSL
	rick Engine 5 Chatswort	-				Friday, April :	26, 1996	
	eigh, NC 27				I	Ref Number:	NC962692	
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Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASB	estos
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
133A	Gray layer	Grey Non-Fibrous Homogeneous	Crushed .	None Detected		50% Quartz 50% Other
1338	White layer	White Non-Fibrous Homogeneous	Crushed	None Detected	< 1% Cellulose	100% Other
134		Grey Fibrous Homogeneous	Crushed	60% Chrysotile	20% Min. Wool	20% Other
)37	Tile	Beige Non-Fibrous Homogeneous	Crushed/Dissolved	3% Chrysotile		97% Other
)37A	Mastic	Black Non-Fibrous Homogeneous	Teased/Crushed	15% Chrysotile	10% Cellulose	75% Other
140		Brown Fibrous Homogeneous	Trased	None Detected	100% Cellulose	

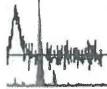
mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. o, "# of Layers" refers to number of separable subsamples, te: Sample- M107 (A) is at the end of report.

avid H. Butour

David Buetow Analyst

K. Maloney

Laboratory Supervisor Other Approved Signatory



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Westmont, MJ Pleastaway, MJ 008-352-4820 203-381-0550 Manhattan, NY Melbourne, FL 212-250-0052 487-725-5223

Ann Arbor, MI 313-668-6810 Sau Matso, CA Sunyrun, SA 415-570-5401 404-333-6068



Herrick Engineering Inc. 1705 Chatsworth Lane Raleigh, NC 27614

Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASB	ESTOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
M041		Brown Fibrous Homogeneous	Teased .	None Detected	100% Cellulose	
M042		Brown Fibrous Homogeneous	Teased	None Detected	100% Cellulose	
M043		White Fibrous Homogeneous	Teased	25% Chrysotile 10% Amosite		65% Other
M046		Grey Fibrous Homogeneous	Crushed	None Detected	60% Min. Wool	40% Other
M047		Grey Fibrous Homogeneous	Crushed	None Detected	60% Min. Wool	40% Other
M048		Grey Fibrous Homogeneous	Teased	60% Chrysotile	5% Min. Wool	35% Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

David H. Buston

David Buetow Analyst

R.H. Maloney

Laboratory Supervisor Other Approved Signatory



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Westmont, XJ 508-858-6860	Piscataway, 3J 308-901-0550	Carlo Place. NY 515-907-7251	Hanhattan, NY 212-290-0062	Melbourne, PL 407-785-5223	Ano Arbor, Mi 31 3 568 68 10	San Matee, CA 415-570-5401	Smyrna, 8A 404-333-6666	EMISL
	rick Engine				ł	Friday, April	26, 1996	
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Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASBE	STOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
)49	Paint	Beige Non-Fibrous Homogeneous	Ashed/Crushed_	None Detected		100% Other
)49A	Celling tile	Grey Fibrous Homogeneous	Teased	None Detected	70% Min. Wool 30% Cellulose	
)50	Paint	Beige Non-Fibrous Homogeneous	Ashed/Crushed	None Detected		100% Other
)50A	Ceiling tile	Gray Fibrous Homogeneous	Teased	None Detected	70% Min. Wool 30% Hair	
)51	Paint	Beige Non-Fibrous Homogeneous	Ashed/Crushed	None Detected		100% Other
)51A	Ceiling tile	Grey Fibrous Homogeneous	Teased	None Detected	70% Min. Wool 30% Cellulose	

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. io, "# of Layers" refers to number of separable subsamples. te: Sample- M107 (A) is at the end of report.

avid H. Buton

David Buetow Analyst

.K. Maloney

Laboratory Supervisor

Other Approved Signatory



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Westmout, 313 035-553-4800	Placataway, 31 906-961-0550	Carlo Place, MY 516-937-7251	Manhattan, HT 212-290-0052	Neibourne, Ff. 407-725-5223	Aun Arbor, MI 313-668-6810	Jan Mateo, CA 415-570-5401	Smyrna, 8A 404-333-6066	
								EMSI

Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASB	ESTOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
M052	Brown paper	Brown Fibrous Homogeneous	Teased	None Detected	100% Cellulose	
M052A	Black paper	Black Fibrous Homogeneous	Teased	None Detected	98% Cellulose	2% Other
M053		White Non-Fibrous Hamogeneous	Crushed	None Detected	< 1% Cellulose < 1% Min. Wool	100% Other
M054		White Non-Fibrous Homogeneous	Crushed	None Detected	< 1% Min. Wool	100% Other
M055		White Non-Fibrous Homogeneous	Crushed	None Detected	< 1% Cellulose	100% Other
M056	Paint	Beige/Green Non-Fibrous Homogeneous	Ashed/Crushed	None Detected		100% Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

) and H. Bustow

David Buetow Analyst

Laboratory Supervisor Other Approved Signatory



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Westment, 33 Gabacit-Citoo	Platataway, 3.7 208-961-0559	Carlo Place, NY 515-997-7251	Nanhaitan, NY 212-236-0062	Melbourze, PL 407-725-5223	Ann Arbor, ME 313-668-6810	5ac Mateo, CA 415-570-5401	Smyrna, 8A 404-333-6069	EMSL
	rick Engine 5 Chatswort				l	Friday, April	26, 1996	
	eigh, NC 27					Ref Number	: NC962692	

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASE	ESTOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
156A	Plaster	White Non-Fibrous Homogeneous	Crushed	None Detected	1% Min. Wool < 1% Cellulose	20% Perlite 79% Other
157	Paint	Beige/Green Non-Fibrous Homogeneous	Ashed/Crushed	None Detected		100% Other
157A	Plaster	White Non-Fibrous Hamogeneous	Crushed	None Detected		30% Quartz 70% Other
)58	Paint	Beigs/Green Non-Fibrous Homogeneous	Ashed/Crushed	None Detected		100% Other
)58A	Plaster	White Non-Fibrous Homogeneous	Crushed	None Detected		20% Quartz 80% Other
)59		Brown Non-Fibrous Homogeneous	Crushed	None Detected		80% Quartz 20% Other

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately, o. "# of Layers" refers to number of separable subsamples.

te: Sample- M107 (A) is at the end of report.

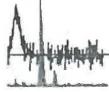
id H Botour a

David Buetow Analyst

R.K. Mallorey

Laboratory Supervisor

Other Approved Signatory



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	Westmann, XJ 003-852-4369	Placatzway, NJ 908-981-0550	Carlo Place, 317 516-307-7251	Maskattan, NT 212-290-0052	Mejbourne, FL 407-725-5223	Ann Arbor, MI 313-608-6810	San Maleo, CA 415-570-5401	Smyrna, GA 404-333-4065	
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Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASB	STOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
M060		Brown	Crushed	None Detected	< 1% Min. Wool	80% Quartz
		Non-Fibrous	3			20% Other
		Homogeneous				
M061		Brown	Crushed	None Detected	< 1% Min. Wool	80% Quartz
		Non-Fibrous				20% Other
		Homogeneous				
M062	Tile	Beige	Crushad/Dissolved	2% Chrysotile	< 1% Other	98% Other
		Non-Fibrous		Lie enjetao	- iso outpi	CON OTHER
		Homogeneous		•		
M062A	Mastic	Black	Teased	15% Chrysotile	2% Cellulose	83% Other
		Non-Fibrous				
		Homogeneous				
M065	27 Yalan 1980ata	Brown	Teased	None Detected	100% Cellulose	
		Fibrous				
		Homogeneous				
M066		Brown	Teased	None Detected	100% Cellulose	
		Fibrous				
		Homogeneous				

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

and H. Batow

David Buetow Analyst

R.K. Malio

Laboratory Supervisor Other Approved Signatory



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Wortmont, 11 609-853-6809	Piscataway, 33 908-961-9530	Carle Pince, NY 516-917-7251	Maakattas, NY 212-230-6052	Malbourne, FL 407-725-6223	Ann Arbor, 30 313-668-6810	San Mateo, CA 415-570-5461	5 22722, 9 4 404-333-6068	EMISL
	rick Engine 5 Chatswort					Friday, April	26, 1996	
	eigh, NC 27					Ref Number:	NC962692	

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASPESTOS	NONASB	ESTOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
)67		Brown Fibrous Homogeneous	Teased .	None Detected	100% Cellulose	
368		White Fibrous Homogeneous	Teased	20% Chrysotile 15% Amosite		65% Other
371		Grey Fibrous Homogeneous	Crushed	None Detected	70% Min. Wooi < 1% Cellulose	30% Other
)72		Grey Fibrous Homogeneous	Crushed	None Detected	75% Min. Wool	25% Other
)73		Grey Fibrous Homogeneous	Crushed	None Detected	75% Min. Wool < 1% Cellulose	25% Other
)74		Grey Non-Fibrous Homogeneous	Crushed	None Detected		60% Quartz 40% Other

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately, :0. "# of Layers" refers to number of separable subsamples.

te: Sample- M107 (A) is at the end of report.

and H. Buton

David Buetow Analyst

Laboratory Supervisor Other Approved Signatory



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Treenest, 3.3 Pipenkeys, 606-685-6800 208-981-0		Manhattan, NT 212-290-0052	Melbourne, FL 407-785-5223	Ann Arbor, 163 31 3-568-5 810	San Mateo, CA 415-579-5401	\$myraa, GA 404-333-6096	EMSL
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Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASBESTOS			
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS		
M075		Grey	Crushed	None Detected	1% Cellulosa	70% Quartz		
		Non-Fibrous	3			29% Other		
		Homogeneous	,					
M076		Grey	Crushed	None Detected	1	70% Quartz		
		Non-Fibrous				30% Other		
		Homogeneous				ette Otto		
M077		Brown	Teased	None Detected	100% Cellulose			
		Fibrous	100000	HALE DELEVED	100% CONCIDE			
		Homogeneous		4				
M078		Brown	Teased	None Detected	100% Cellulose			
		Fibrous						
		Homogeneous						
M079		Brown	Teased	None Detected	100% Cellulose			
		Fibrous						
		Homogeneous						
M080		Brown	Teased	None Detected	100% Cellulose			
		Fibrous		CLARKE SEARCH STREET				
		Homogeneous						

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

and At Butout

David Buetow Analyst

Mahoney

Laboratory Supervisor Other Approved Signatory



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Westmont, 323 603-888-4805	Placataway, NJ 308-381-0580	Carle Pinon, MY 518-307-7253	Manhattan, NY 212-200-0052	Nelbourne, 71. 407-725-5223	Ann Arbor, 30 313-468-6810	3an Mateo, CA 415-570-5401	8myrna, 6A 404-333-4058	EMISL
	rick Engine 5 Chatswort	-				Friday, April :	26, 1996	
	eigh, NC 27					Ref Number:	NC962692	

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASB	STOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
181		Brown Fibrous Homogeneous	Teased	None Detected	100% Cellulose	
182		Pink Fibrous Homogeneous	Teased	5% Chrysotile 25% Amosite		70% Other
386	Tile	Brown Non-Fibrous Homogeneous	Crushed/Dissolved	15% Chrysotile		85% Other
386A	Mastic	Black Non-Fibrous Homogeneous	Teased	10% Chrysotile	2% Cellulose	88% Other
)89	Tile	Black Non-Fibrous Homogeneous	Crushed/Dissolved	10% Chrysotile		90% Other
)89A	Mastic	Black Non-Fibrous Homogeneous	Teased	15% Chrysotile	2% Cellulose	83% Other

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. so, "# of Layers" refers to number of separable subsamples.

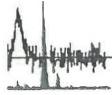
te: Sample- M107 (A) is at the end of report.

) and H. Button

David Buetow Analyst

K. Maloney

Laboratory Supervisor Other Approved Signatory



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Wastment, XJ Placateway, MJ Carle Place, JT Kanhattan ST Melbourne, FL Ann Arber, MI San Mateo, CA. Smyras, GA 609-853-4908 308-981-0550 516-917-7251 212-293-0052 407-725-5223 313-568-6810 415 579-5401 464-332-6066

Herrick Engineering Inc. 1705 Chatsworth Lane Raleigh, NC 27614

Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASE	ESTOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
M092	Tile	Green Non-Fibrous Homogeneous	Crushed/Dissolved	18% Chrysotile		82% Other
M092A	Mastic	Black Non-Fibrous Homogeneous	Teased	5% Chrysotile	10% Cellulose 5% Synthetic	80% Other
M095	Paint	Beige/Blue Non-Fibrous Homogeneous	Ashed/Crushed	None Detected		100% Other
M095A	Wallboard	Grey Non-Fibrous Homogeneous	Crushed	None Detected	15% Cellulose	85% Other
M096	Paint	Beige/Blue Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	< 1% Other	100% Other
M096A	Waliboard	Grey Non-Fibrous Homogeneous	Crushed	None Detected	15% Cellulose	85% Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

and H Butow

David Buetow Analyst

R.K. Maloney Laboratory

Supervisor

Other Approved Signatory



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Westmoot, 33 608-858-4808	Piscataway, 113 308-981-0550	Carle Piace, NY 515-997-7251	Manhattan, NY 212-230-0052	Melbourne, FL 467-725-5223	Ann Arber, MI 31 3-663-6 310	San Mateo, CA 415-570-5405	Smyrua, SA 404.333.8066	EMSL
	Tick Engine	-				Friday, April	26, 1996	
	eigh, NC 27					Ref Number	NC962692	

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASB	STOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
)97		Grey Non-Fibrous Homogeneous	Crushed :	None Detected	15% Cellulose	85% Other
198	Tile	Gray Non-Fibrous Homogeneous	Crushed/Dissolved	12% Chrysotile		88% Other
)98A	Mastic	Black Non-Fibrous Homogeneous	Teased	10% Chrysotile	2% Cellulose	88% Other
101	Tile	Tan Non-Fibrous Homogeneous	Crushed/Dissolved	8% Chrysotile		92% Other
101A	Mastic	Black Non-Fibrous Homogeneous	Teased	5% Chrysotile	10% Cellulose	85% Other
104	Tile	Brown Non-Fibrous Homogeneous	Crushed/Dissolved	8% Chrysotile		92% Other

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. .o, "# of Layers" refers to number of separable subsamples.

te: Sample- M107 (A) is at the end of report.

Varid H. Buston

David Buetow Analyst

Laboratory Supervisor Other Approved Signatory



Disciamers: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. Floor tiles and wipes should be tested with either SEM or TEM. The above test report relates only to the items tested. This report may only be reproduced in full with written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any sgency of the Under States Government. All "NVLAP" reports with NVLAP logo must contain a test one signature to be valid. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered astroples.

Westmeen, 2.3 609-455-4255	Panataway, 83 208-361-8680	Gario Piazo, NT 818-987-7251	Manhattan, NY 212-280-0052	Molbeurus, FL 407-725-5223	Ann Arber, MJ 3134586810	San Mateo, CA 415-670-6401	5 197722 , 6A 454-333-4955	EMSL
Her	rick Engine	erina Inc.				Friday April	24 1004	

1705 Chatsworth Lane Raleigh, NC 27614 Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONAS	BESTOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
M104A	Mastic	Black Non-Fibrous Homogeneous	Teased	15% Chrysotile		85% Other
M107**	Tile	Beige Non-Fibrous Homogeneous	Crushed/Dissolved	None Detected		100% Other
M108	Tie	Beige Non-Fibrous Homogeneous	Crushed/Dissolved	None Detected		100% Other
M109	Tile	Brown/Tan Non-Fibrous Homogeneous	Crushed/Dissolved	None Detected		100% Other
M110		Brown/Tan Other Heterogeneous	Teased	40% Chrysotile	10% Cellulose	50% Other
M113	Paint	Beige Non-Fibrous Homogeneous	Ashed/Crushed	None Detected		100% Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

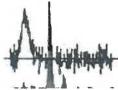
231 Bato David Buetow

Analyst

R.K. Malone

Laboratory Supervisor

Other Approved Signatory



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Westmann, 33 608-858-4808	Placestaway, MJ 308-361-0550	Carle Piace, NY 518-397-7251	Nashattan, NY 212290-0052	Melbourne, FL 407-725-6223	Ann Arbor, MI 313-668-6810	San Mateo, CA 415-570-5401	Smyrna, GA 404-333-6066	
								EMSL
	rick Engine 6 Chatswort	-			F	⁻ riday, April	26, 1996	
	eigh. NC 27				F	Ref Number	: NC962692	

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	<u>ASBESTOS</u> % Type	NONASBESTOS % FIBROUS % NONFIBROUS
113A	Ceiling tile	Brown Fibrous Homogeneous	Teased -	None Detected	100% Cellulose
114	Paint	Beige Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	100% Other
114A	Ceiling tile	Brown Fibrous Homogeneous	Teased	None Detected	100% Cellulose
115	Paint	Beige Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	100% Other
115A	Ceiling tile	Brown Fibrous Homogeneous	Teased	None Detected	100% Cellulose
116	Tile	Red Non-Fibrous Homogeneous	Crushed/Dissolved	8% Chrysotile	92% Other

imments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. to, "# of Layers" refers to number of separable subsamples. ite: Sample- M107 (A) is at the end of report.

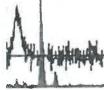
David By Butow

Analyst

Malorey

Laboratory Supervisor

Other Approved Signatory



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Westmeet, IIJ 403-353-4203	Macataway, XJ 208-261-0550	Carle Flace, NY 516-907-7251	Manhattan, NY 212-290-0052	Malbourse, FL 407-725 5223	Ann Arbor, NE 313 558-58 10	San Matee, CA 415-570-5401	Sizyuna, GA 404-333-4965	EMSL
	rick Engine				F	riday, April	26, 1996	

1705 Chatsworth Lane Raleigh, NC 27614

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASB	-18170 <u>8</u>
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
M116A	Mastic	Black	Teased	5% Chrysotile	5% Cellulose	90% Other
		Non-Fibrous Homogeneous	÷			
M119	Tile	Grey Non-Fibrous Homogeneous	.Crushed/Dissolved	8% Chrysotile		92% Other
M119A	Mastic	Black Non-Fibrous Homogeneous	Teased	10% Chrysotile	5% Cellulose	85% Other
M122	Gray paper layer	Grey Fibrous Homogeneous	Teased	60% Chryşotile	30% Cellulose	10% Other
M122A	Brown paper layer	Brown Fibrous Homogeneous	Teased	None Detected	100% Cellulose	
M123A	Brown paper layer	Brown Fibrous Homogeneous	Teased	None Detected	100% Cellulose	

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

274 Batton

David Buetow Analyst

Malorey.

Laboratory Supervisor Other Approved Signatory



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	Westmoost, 323 623-653-6803	Pisosisway, KJ 808-381-0550	Carls Plans, 31 516-307-7251	Manherran, NT 812-290-0052	Neibourne, FL 407-725-5233	Ann Arber, 30 313-668-6810	San Mateo, CA 415-570-5401	Smyras, 6A 404-333-8088	EMISL
		rick Engine 5 Chatswort				I	Friday, April 2	26, 1996	
		eigh. NC 27				I	Ref Number:	NC962692	
			POLA	RIZEDLI	GHT MICR	OSCOPY	(PLM)		

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASBE	STOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
24A	Brown paper layer	Brown Fibrous Homogeneous	Teased _ ·	None Detected	100% Cellulose	
248	White woven mesh	White Fibrous Homogeneous	Teased	None Detected	100% Cellulose	
25		Grey Non-Fibrous Homogeneous	Crushed	None Detected	30% Min. Wool	70% Other
26		Grey Non-Fibrous Homogeneous	Crushed	None Detected	30% Min. Wool	70% Other
27		Grey Non-Fibrous Homogeneous	Crushed	None Detected	30% Min. Wool	70% Other
28	Linoleum	Various Other Heterogeneous	Teased	None Detected	40% Cellulose 20% Synthetic	40% Other

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. :o, "# of Layers" refers to number of separable subsamples.

te: Sample- M107 (A) is at the end of report.

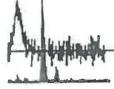
David H. Buton

David Buetow Analyst

Mahoney

Laboratory Supervisor Other Approved Signatory

24



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Westment, 113 009-858-6500	Placateway, 33 908-981-0850	Caris Place, NY 518-997-7251	Manhattan, NY 212-290-0052	Melkourse, FL	Ann Arber, Mi	San Mateo, CA	Smyrna, GA	
001-858-6 900	908-991-0650	516-397-7251	212-200-0062	407-725-5223	313-868-6810	416-578-5481	404-333-6068	EMISL



Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

		SAMPLE	ASBESTOS		NONASBE	STOS
LOCATION	APPEARANCE	TREATMENT	% TY	PE %	FIBROUS	% NONFIBROUS
Мазіс	Black Non-Fibrous Homogeneous	Teased:	None Det	acted 5%	Cellulose	95% Other
Linoleum	Various Other Heterogeneous	Teased	None Det			40% Other
Mastic	Grey/Black Non-Fibrous Homogeneous	Teased	None Dete	ected 10%	Cellulose	90% Other
Linoleum	Various Other Heterogeneous	Teased	None Dete			40% Other
Mastic	Grey Non-Fibrous Homogeneous	Teased/Crushed	None Dete	cted 10%	Cellulose	90% Other
Linoleum	Green/Black Other Heterogeneous	Teased/Dissolved	5% Chrysotile			45% Other
	Mastic Linoleum Mastic Linoleum	Mastic Black Non-Fibrous Homogeneous Linoleum Various Other Heterogeneous Mastic Grey/Black Non-Fibrous Homogeneous Linoleum Various Other Heterogeneous Mastic Grey Non-Fibrous Homogeneous	LOCATIONAPPEARANCETREATMENTMasticBlackTeasedNon-Fibrous HomogeneousTeasedLinoleumVarious Other HeterogeneousTeasedMasticGrey/Black Non-Fibrous HomogeneousTeasedLinoleumVarious Other HeterogeneousTeasedMasticGrey/Black Non-Fibrous HomogeneousTeasedLinoleumVarious Other HeterogeneousTeasedLinoleumVarious Other HeterogeneousTeasedLinoleumGrey Non-Fibrous HomogeneousTeased/CrushedMasticGrey Non-Fibrous HomogeneousTeased/CrushedLinoleumGreen/Black OtherTeased/Dissolved	LOCATION APPEARANCE TREATMENT % TY Mastic Black Teased None Deternation Non-Fibrous Homogeneous Teased None Deternation Linoleum Various Teased None Deternation Mastic Grey/Black Teased None Deternation Mastic Grey/Black Teased None Deternation Linoleum Various Teased None Deternation Linoleum Various Teased None Deternation Mastic Grey/Black Teased None Deternation Mastic Grey Teased None Deternation Mastic Grey Teased/Crushed None Deternation Mastic Grey Teased/Crushed None Deternation Linoleum Green/Black Teased/Dissolved 5% Chrysotile Unoleum Green/Black Teased/Dissolved 5% Chrysotile	LOCATIONAPPEARANCETREATMENT%TYPE%MasticBlackTeasedNone Detected5%Non-FibrousHomogeneous:None Detected50%LinoleumVariousTeasedNone Detected50%MasticGrey/Black HomogeneousTeasedNone Detected10%LinoleumVarious HomogeneousTeasedNone Detected10%MasticGrey/Black HomogeneousTeasedNone Detected50%LinoleumVarious HomogeneousTeasedNone Detected50%LinoleumVarious HeterogeneousTeasedNone Detected10%LinoleumGrey HeterogeneousTeased/CrushedNone Detected10%LinoleumGrey HeterogeneousTeased/CrushedNone Detected10%LinoleumGreen/Black OtherTeased/Dissolved5% Chrysotile45%	LOCATION APPEARANCE TREATMENT % TYPE % FIBROUS Mastic Black Non-Fibrous Homogeneous Teased None Detected 5% Cellulose Linoleum Various Other Heterogeneous Teased None Detected 50% Cellulose Mastic Grey/Black Non-Fibrous Homogeneous Teased None Detected 10% Cellulose Linoleum Various Other Heterogeneous Teased None Detected 10% Cellulose Mastic Grey/Black Non-Fibrous Homogeneous Teased None Detected 50% Cellulose Linoleum Various Non-Fibrous Homogeneous Teased None Detected 50% Cellulose Linoleum Grey Mastic Grey Ron-Fibrous Homogeneous Teased/Crushed None Detected 10% Cellulose Mastic Grey Non-Fibrous Homogeneous Teased/Crushed None Detected 10% Cellulose Linoleum Green/Black Other Teased/Dissolved 5% Chrysotile 45% Cellulose 5% Synthetic

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

David H. Buton

David Buetow Analyst

R. M. Mahoney

Laboratory Supervisor Other Approved Signatory



Disclaimers: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannol be guaranteed. Floor tiles and wopes should be tested with either SEM or TEM. The above test report relates only to the items tested. This report may only be reproduced in full with written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any egency of the United States Government. All "NVLAP" reports with NVLAP logo must contain at least one signature to be valid. Laboratory is not responsible for the accuracy of results when requested to physically separate and enaltyze layered samples.

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	ck Enginee Chatswort	-			I	riday, April	26, 1996	
	gh. NC 27					Ref Number:	NC962692	

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASE	FSTOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
31A	Mastic	Brown Non-Fibrous Homogeneous	Teased _	None Detected	5% Cellulose 5% Synthetic	90% Other
32A	Mastic	Brown Non-Fibrous Homogeneous	Crushed	None Detected	10% Cellulose	90% Other
33A	Mastic	Brown Non-Fibrous Homogeneous	Teased	None Detected	5% Cellulose	95% Other
34		Grey Fibrous Homogeneous	Teased/Crushed	55% Chrysotile	5% Cellulose	40% Other
35		Brown/Grey Other Heterogeneous	Crushed	None Detected	15% Cellulose	85% Other
36		Brown/Grey Other Heterogeneous	Crushed	None Detected	15% Cellulose	85% Other

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. o, "# of Layers" refers to number of separable subsamples. te: Sample- M107 (A) is at the end of report.

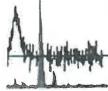
David H. Buton

David Buetow Analyst

R.K. Mallon

Laboratory Supervisor

Other Approved Signatory



Disclament: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. Floor tiles and wipes should be tested with either SEM or TEM. The above lest neport relates only to the items tested. This report may only be reproduced in full with written approval by EMSL. The above item must not be used by the clean product endorsement by NVLAP not any sgency of the United States Government. All "NVLAP" reports with NVLAP logo must contain a loast one signature to be valid. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.

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L Ann Arbor, MI 313-863-6810 8np Mateo, CA 8myrna, 6A 415-570-5401 404-333-6088



Herrick Engineering Inc. 1705 Chatsworth Lane Raleigh, NC 27614

Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASB	<u>ESTOS</u>
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
M137		Brown/Grey Other Heterogeneous	Crushed;	None Detected	15% Callulose	85% Other
M138	Tile	White Non-Fibrous Homogeneous	Crushed/Dissolved	2% Chrysotile	1% Cellulose	97% Other
M138A	MAstic	Black Non-Fibrous Hornogeneous	Teased	5% Chrysotile		95% Other
M141		Grey Fibrous Homogeneous	Crushed	None Detected	15% Cellulose	85% Other
M142		Grey Fibrous Homogeneous	Crushed	None Detected	15% Cellulose	85% Other
M143		Grey Fibrous Homogeneous	Crushed	None Detected	15% Cellulose	85% Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

David H. Bustow

David Buetow Analyst

R.I. Malo Laboratory

Supervisor

Other Approved Signatory



Disclamers: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. Floor tiles and wipes should be tasted with either SEM or TEM. The above test report relates only to the items tested. This report may only be reproduced in full with written approval by EMSL. The above test must not be used by the client to cleim product endorsement by NVLAP nor any agency of the United Status Gevernment. All "NVLAP" reports with NVLAP logo must contain it least one signature to be valid. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.

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	rick Engined 5 Chatswort	-				Friday, April	26, 1996	
	eigh. NC 27					Ref Number	: NC962692	

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASBESTOS
SAMPLE 44	LOCATION	APPEARANCE Grey Fibrous Homogeneous	TREATMENT Teased	% TYPE 55% Chrysotile	% FIBROUS % NONFIBROU: 45% Other
45	Paint	White Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	100% Other
45A	White fabric	White Fibrous Homogeneous	Teased	None Detected	100% Cellulose
45B	Tan paper layer	Tan Fibrous Homogeneous	Teased	None Detected	100% Cellulose
46		Grey Non-Fibrous Homogeneous	Crushed	None Detected	50% Min. Wool 50% Other
147		Grey Non-Fibrous Homogeneous	Crushed	None Detected	50% Celluiose 50% Other

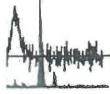
mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. o, "# of Layers" refers to number of separable subsamples.

te: Sample- M107 (A) is at the end of report.

David H. Button

David Buetow Analyst

Laboratory Supervisor Other Approved Signatory



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Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASBESTOS		
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS	
M148		Grey Non-Fibrous Homogeneous	Crushed .	None Detected	45% Cellulose	55% Other	
M149	Tile	Green Non-Fibrous Homogeneous	Crushed/Dissolved	8% Chrysotile		92% Other	
M149A	Mastic	Black Non-Fibrous Homogeneous	Teased	10% Chrysotile	2% Cellulose	88% Other	
M152	Tile	Brown Non-Fibrous Homogeneous	Crushed/Dissofved	8% Chrysotile		92% Other	
M152A	Mastic	Black Non-Fibrous Homogeneous	Teased	10% Chrysotile		90% Other	
M155	Tile	Black Non-Fibrous Homogeneous	Teased	10% Chrysotile		90% Other	

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

and H. Bustow

David Buetow Analyst

Laboratory Supervisor

Other Approved Signatory



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	e <mark>rrick Engine</mark> 705 Chatsword					Friday, April	26, 1996	
	aleigh, NC 27					Ref Number	NC962692	

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASBESTOS		
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS	
55A	Mastic	Black Non-Fibrous Homogeneous	Teased -	None Detected	2% Cellulose	98% Other	
56A	Mastic	Black Non-Fibrous Homogeneous	Teased	10% Chrysotile		90% Other	
58	Tile	Grey Non-Fibrous Homogeneous	Crushed/Dissolved	10% Chrysotile		90% Other	
58A	Mastic	Black Non-Fibrous Homogeneous	Teased	10% Chrysotile		90% Other	
61	Tile	Brown Non-Fibrous Hornogeneous	Crushed/Dissolved	12% Chrysotile		88% Other	
61A	Mastic	Black Non-Fibrous Homogeneous	Teased	20% Chrysotile		80% Other	

nments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. o. "# of Layers" refers to number of separable subsamples.

e: Sample- M107 (A) is at the end of report.

David H. Button

David Buetow Analyst

Laboratory Supervisor

Other Approved Signatory



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Manhattan, MY Methourne, FL 497-725-5223

212-250-0052

Ann Arbor, MI 313-668-6810

San Maten, CA Smyrna, GA 415-570-5401 404-333-6066



Herrick Engineering Inc. 1705 Chatsworth Lane Raleigh, NC 27614

508-561-0550

Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS		NONASBESTOS		
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYP	E %	FIBROUS	%	NONFIBROUS
M164	Tile	White Non-Fibrous Homogeneous	Crushed/Dissolved	2% Chrysotile			98%	6 Other
M164A	Mastic	Black Non-Fibrous Homogeneous	Tessed	5% Chrysotile	59	% Cellulose	90%	6 Other
M167	Paint	Beige Non-Fibrous Homogeneous	Ashed/Crushed	None Detec	ted		100%	b Other
M167A	Ceiling tile	Brown Fibrous Homogeneous	Teased	None Detec	ted 1009	6 Cellulose		
M168	Paint	Beige Non-Fibrous Homogeneous	Ashed/Crushed	None Detec	ted		100%	Other
M168A	Ceiling tile	Brown Fibrous Homogeneous	Teased.	None Detect	ted 100%	6 Celtutose		

Comments: For all opviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also. "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

David H. Butow

David Buetow Analyst

Malos

Laboratory Supervisor

Other Approved Signatory



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	Westmond, 313 609-853-6800	Piscataway, %J 908-981-0550	Caris Piace, NY 516-897-7251	Manhattan, MY 212-230-0052	Mollourne, Fl. 407-725-5223	Ann Arber, Mi 313 66868 10	San Mateo, CA 415-570-5451	Smyrza, BA 404-333-6046	EMISL
		rrick Engine					Friday, April	26, 1996	
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			PULA	KIZEU LI	GHT MICF	COSCOPY	(PLM)		

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	<u>ASBESTOS</u> % TYPE	<u>NONASBESTOS</u> % FIBROUS %	NONFIBROUS
169	Paint	Beige Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	100%	Other
169A	Ceiling tile	Brown Fibrous Homogeneous	Teased	None Detected	100% Cellulose	
170	Tile	Grey Non-Fibrous Homogeneous	Crushed/Dissolved	15% Chrysotile	85%	Other
170 <u>A</u>	Mastc	Black Non-Fibrous Homoganeous	Teased	20% Chrysotile	80%	Other
173	Tile	Beige Non-Fibrous Homogeneous	Crushed/Dissolved	10% Chrysotile	90%	Other
173A	Mastic	Black Non-Fibrous Homogeneous	Teased	20% Chrysotile	2% Cellulose 78%	Other

imments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. 30, "# of Layers," refers to number of separable subsamples. ite: Sample- M107 (A) is at the end of report.

Javid H. Buton

David Buetow Analyst

Laboratory Supervisor Other Approved Signatory



Disclements, PLM has been known to miss asbeatos in a small percentage of samples which contain asbeatos. Thus negative PLM results cannot be guaranteed. Floor tiles and wipes should be tested with either SEM or TEM, The above test report relates only to the items tested. This report may only be reproduced in full with written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government, All "NVLAP" reports with NVLAP logo must contain a test one signature to be veild. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.

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Ann Arbor, MI 31**3-688-**5510 San Matso, CA Smyrnu, 6A 415-670 5401 404-333-6068



Herrick Engineering Inc. 1705 Chatsworth Lane Raleigh, NC 27614

Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASBESTOS		
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS	
M176	Tile	Red Non-Fibrous Homogeneous	Crushed/Dissolved	12% Chrysotile	1% Cellulose	87% Other	
M176A	Mestic	Black Non-Fibrous Homogeneous	Teased	15% Chrysotile	3% Cellulose < 1% Min. Wool	82% Other	
M179		White Non-Fibrous Homogeneous	Crushed	None Detected	20% Cellulose	80% Other	
M180		White Non-Fibrous Homogeneous	Crushed	None Detected	20% Cellulose	80% Other	
M181		White Non-Fibrous Homogeneous	Crushed	None Detected	20% Cellulose	80% Other	
M182	White paper	White Fibrous Homogeneous	Teased	60% Chrysotile 2% Amosite	35% Cellulose	3% Other	

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

David H. Butow David Buetow

David Buetow Analyst

R.K. Mahoney

Laboratory Supervisor Other Approved Signatory



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		POLA	RIZED LI	GHT MICR	OSCOPY	(PLM)		

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASEESTOS		
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS	
182A	Brown paper	Black Fibrous Homogeneous	Teased	None Detected	100% Cellulose		
1828	Black paper	Black Fibrous Homogeneous	Teased	None Detected	98% Cellulose	2% Other	
183		White Fibrous Homogeneous	Teased	15% Chrysotile	45% Min. Wool	40% Other	
186		Grey Fibrous Homogeneous	Crushed	None Detected	65% Min. Wool	35% Other	
187		Grey Fibrous Homogeneous	Crushed	None Detected	65% Min. Wool	35% Other	
188		Grey Fibrous Homogeneous	Crushed	None Detected	60% Min. Wool	40% Other	

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. so, "# of Layers" refers to number of separable subsamples.

ste: Sample- M107 (A) is at the end of report.

David H. Buttow

David Buetow Analyst

R.K. Mahoney

Laboratory Supervisor

Other Approved Signatory



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Westmoor, 3.3 \$03-\$51-1200

Manhattan HT Melbourne, FL. 212-200-0052 407-725-5223

Ana Arber, MI 313468-6310

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Herrick Engineering Inc. 1705 Chatsworth Lane Raleigh, NC 27614

908-981-0550

Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASB	ESTOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
M189	Tile	Grey Non-Fibrous Homogeneous	Crushed/Dissolved	2% Chrysotile .		98% Other
M189A	mastic	Black Non-Fibrous Homoganeous	Teased	10% Chrysolile	2% Cellulose	88% Other
M192		Grey Other Homogeneous	Crushed	None Detected	15% Cellulose	85% Other
M193		Grey Other Homogeneous	Crushed	None Detected	10% Cellulose	90% Other
M194		Grey Other Hamogeneous	Crushed	None Detected	10% Cellulose	90% Other
M195	Paint	Black Non-Fibrous Homogeneous	Teased	None Detected		100% Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

David 24 Buto

David Buetow Analyst

Malorey

Laboratory Supervisor

Other Approved Signatory



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Westment, 313 509-538-4200	Placataway, 113 908-081-0550	Carle Place, NT 518-997-7251	Manhartan, NY 212-290-0052	Melbourne, FL 407-725-5223	Ann Arbor, MI 313-663-8810	šan Muteo, CA 415-570-5461	8myras, 6A 404-333-6066	EMIS
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Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASBESTOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS % NONFIBRO
195A	Woven layers	White Fibrous Homogeneous	Teased . :	None Detected	100% Cellulose
195B	Brown paper	Brown Fibrous Homogeneous	Teased	None Detected	100% Cellulose
195C	Black paper	Black Fibrous Homogeneous	Teased	None Detected	98% Cellulose 2% Other
195D	White paper	White Fibrous Homogeneous	Teased	None Detected	100% Cellulose
196	Paint	Black Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	100% Other
196A	Woven layers	White Fibrous Homogeneous	Teased	None Detected	100% Cellulose

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. :0, "# of Layers" refers to number of separable subsamples. te: Sample- M107 (A) is at the end of report.

+ Buttow

David Buetow Analyst

Mohoney

Laboratory Supervisor

Other Approved Signatory



Disclaimers: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be quaranteed. Floor tiles and wipes should be tested with either SEM or TEM. The above test report relates only to the items tested. This report may only be reproduced in full with written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. All "NVLAP" reports with NVLAP logo must contain at least one signature to be valid, Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze tayered samples.

Vectoret, 13	Honazaway, NJ	Gario Piaco, NY	Mankattan, NY	Malhourne, FL	Ann Arbor, MI	8an Mates, CA	Smyrza, BA	
808-552-4800	208-981-0550	518-307-7251	213-290-0052	407-725-5233	313-668-6810	416-570-6401	404-333-8086	



Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASBESTOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS % NONFIBROUS
M196B	Brown paper	Brown Fibrous Homogeneous	Teased .	None Detected	100% Cellulose
M196C	Black paper	Black Fibrous Homogeneous	Teased	None Detected	98% Cellulose 2% Other
M196D	White paper	White Fibrous Homogeneous	Teased	None Detected	100% Cellulose
M197	Paint	Black Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	100% Other
M197A	Woven layers	White Fibrous Homogeneous	Teased	None Detected	100% Cellulose
M197B	Brown paper	Brown Fibrous Homogeneous	Teased	None Detected	100% Cellulose

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

David H. Button

David Buetow Analyst

Maloney

Laboratory Supervisor Other Approved Signatory



Disclaimers: PLM has been known to miss estestos in a small percentage of samples which contain estestos. Thus negative PLM results cannot be guaranteed. Floor tites and wipes should be tested with either SEM or TEM. The above test report relates only to the kerne tested. This report may only be reproduced in full with written approval by EMSL. The above test must not be used by the client to cleim product endorsement by NVLAP nor any agency of the United States Government. All "NVLAP" reports with NVLAP logo must contain at least one signature to be valid. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered semples.

San Mateo. CA Smyrna, GA 415-570-5401 464-333-8088	Ann Arbor, MI 313-669-6810	Melbourne, FL 407-725-5223	Mankattan, HY 212-290-0052	Carlo Placo, XT 516407-7251	Pineataway, 33 906-941-0550	Westmeet, 1.5 505-553-1300	
Friday, April 26, 1996				-	rick Engine 5 Chatswort		
Ref Number: NC962692					eigh, NC 27		
Y (PLM)	OSCOPY	GHT MICR	RIZED LIC	POLA			
Y (PLM)	OSCOP	SHT MICR	RIZED LIC	POLA			

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	<u>ASBESTOS</u> % TYPE	<u>NONASBI</u> % FIBROUS	<u>STOS</u> % NONFIBROUS
197C	8lack paper	Black Fibrous Homogeneous	Teased _	None Detected	98% Cellulose	2% Other
197D	White paper	White Fibrous Homogeneous	Teased	None Detected	100% Cellulose	
198		White Fibrous Homogeneous	Teased	40% Chrysotile		60% Other
201	Paint	White Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	2% Min. Wool	98% Other
201A	Celling tile	Grey Fibrous Homogeneous	Teased	None Detected	85% Min. Wool 35% Cellulose	
202	Paint	White Non-Fibrous Homogeneous	Ashed/Crushed	None Detected	3% Min. Wool	97% Other

proments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately, so, "# of Layers" refers to number of separable subsamples.

ste: Sample- M107 (A) is at the end of report.

) and H. Buton

David Buetow Analyst

R.K. Mahoney

Laboratory Supervisor

Other Approved Signatory

Disclamers: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed, Floor bies and wipes should be tested with either SEM or TEM. The above test report relates only to the items tested. This report may only be reproduced in full with written approval by EMSL. The above lest must not be used by the client to claim product endorsement by NLAP nor any agency of the United States Government. All "INVLAP" reports with NVLAP loop must contain a theat one signature to be valid. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.

609-851-4209	908-961-0554

Piscataway, MJ

Westmoor, MJ

Carle Place, NY 518-997-7254

Manhatian, NY Melbourne, FL. 407-725-5223

212-290-0052

Ann Arbor, MI 313 688-6810

Sau Mateo, CA Smyrna, GA 415-578-5401 404-333-6668



Herrick Engineering Inc. 1705 Chatsworth Lane Raleigh, NC 27614

Friday, April 26, 1996

Ref Number: NC962692

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASBI	STOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
M202A	Ceiling tile	Grey	Teased	None Detected	70% Min. Wool	
		Fibrous			30% Cellulose	
		Homogeneous				
M203	Paint	White	Ashed/Crushed	None Detected	2% Min. Wool	98% Other
		Non-Fibrous	Tionoar of Goriog	TIONS DECOLOU	2.70 WHILL VYUOI	ap» Otter
		Homogeneous				
M203A	Cailing tile	Grey	Teased	None Detected	70% Min. Wool	
		Fibrous	. 00000	Note Potected	30% Cellulosa	
		Homogeneous				
M204	Tile	Beige	Crushed/Dissolved	4% Chrysotile	1% Cellulose	95% Other
		Non-Fibrous			170 00/01080	35 % Other
		Homoganeous				
M204A	Mastic	Black	Teased	10% Chrysotile	1% Cellulose	89% Other
		Non-Fibrous		tore only only	176 06/01036	09% Ofuel
		Homogeneous				
M207	Tile	Grey	Crushed/Dissolved	3% Chrysotile		97% Other
		Non-Fibrous				or to Other
		Homogeneous				

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

David H. Butow

David Buetow Analyst

R.K. Mahoney

Laboratory Supervisor

Other Approved Signatory



Disclaimers: PLM has been known to miss asbeatos in a small percentage of samples which contain sabestos. Thus negative PLM results cannot be guaranteed. Floor tiles and wipes should be tested with either SEM or TEM. The above last report relates only to the items tested. This report may only be reproduced in full with written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. All "NVLAP" reports with NVLAP logo must contain at least one signature to be valid. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.

Westment, NJ 609-858-4800	Pisontaway, NJ 903-361-0660	Carlo Pinco, NY 518-397-7251	Manbatian, NY 212-290-0052	Methourze, FL 407-725-5223	Ann Arbor, 30 313-559-5910	San Maton, CA 415-870-6401	Smyraa, GA 464-333-8068	EMISL
	rick Engine 5 Chatsword	_				Friday, Ap ri l	26, 1996	V
	eigh, NC 27					Ref Number	: NC962692	

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	<u>ASBESTOS</u> % TYPE	NONASBE % FIBROUS	STOS % NONFIBROUS
.07A	Mastic	Black Non-Fibrous Homogeneous	Teased .	10% Chrysotile		90% Other
:10	Tile	White Non-Fibrous Homogeneous	Crushed/Dissolved	3% Chrysotile		97% Other
:10A	Mastic	Black Non-Fibrous Homogeneous	Teased	10% Chrysotile	2% Cellulose	88% Other
:13	Tile	White Non-Fibrous Homogeneous	Crushed/Dissolved	6% Chrysotile	1% Cellulose	93% Other
213A	Mastic	Black Non-Fibrous Homogeneous	Teased	12% Chrysotile	2% Cellulose	86% Other
216	Tile	White Non-Fibrous Homogeneous	Crushed/Dissolved	None Detected		100% Other

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. io, "# of Layers" refers to number of separable subsamples.

te: Sample- M107 (A) is at the end of report.

David H. Buto

David Buetow Analyst

Maloney

Laboratory Supervisor

Other Approved Signatory

Disclaimers: PLM has been known to miss asbestos in a amail percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. Floor lites and wipes should be tested with either SEM or TEM. The above test report relates only to the items tested. This report may only be reproduced in full with written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. All "NVLAP" reports with NVLAP logo must contain at least one signature to be valid. Leboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.

Westmout, NJ 609-558-4800	Phormiaway, NJ 908-981-0558	Carle Place, NT 515-897-7251	Maabattan, NY 813-290-0052	Malbourne, Pl. 407-725-5823	Ann Arbor, 342 313-668-6810	5an lifaton, 6A 415-575-5601	Зартна, СА 404-333-6068	EMSL
	rick Engine 5 Chatswort					Friday, April :	26, 1996	
Rale	eigh, NC 27	614				Ref Number:	NC962692	

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			SAMPLE	ASBESTOS	NONASE	ESTOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
M216A	Mastic	Black Non-Fibrous Homogeneous	Teased _	None Detected	15% Cellulose	85% Other
M217	The	White Non-Fibrous Homogeneous	Crushed/Dissolved	None Detected		100% Other
M217A	Mastic	Black Non-Fibrous Homogeneous	Teased	None Detected	20% Cellulose	80% Other
M218	Tile	White Non-Fibrous Homogeneous	Crushed/Dissolved	None Detected	< 1% Cellutose	100% Other
M218A	Mastic	Black Non-Fibrous Homogeneous	Teased	None Detected	20% Cellutose	80% Other
M219	Tile	l Tan i Non-Fibrous Homogeneous	Crushed/Dissolved	4% Chrysotile	1% Cellulose	95% Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. Note: Sample- M107 (A) is at the end of report.

David H Buto

David Buetow Analyst

Makone

Laboratory Supervisor

Other Approved Signatory



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Westmost, SJ 505-858-4800	Panalaway, SJ 305-981-0650	Carle Pince, NY S16-997-7251	Manbattan, NY 218-298-0053	Melbeurne, Pl. 407-725-5223	Ann Arbor, Mì 313-869-6810	3an Mater, CA 415-570-5401	Swyrus, GA 404-313-8066	EMSL
	rick Engine					Friday, April :	26, 1996	
	5 Chatswort eigh, NC 27					Ref Number:	NC962692	

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Correction Project No. 95120- Umstead Facility

			0.440	-	ASB	ESTOS		NONASB	ESTOS	
SAMPLE	LOCATION	APPEARANCE	SAMPL TREATM		%	TYPE	%	FIBROUS	%	NONFIBROUS
19A	Mastic	Black Non-Fibrous Homogeneous	Teased	-	No	one Detected	5%	Cellulose	95%	6 Other
:20A	Mastic	Black Non-Fibrous Homogeneous	Teased		No	one Detected	5%	Cellulose	95%	6 Other
:21A	Mastic	Black Non-Fibrous Homogeneous	Teased			one Detected	2%	Cellulose	989	6 Other
.07A	Mastic	Black Non-Fibrous Homogeneous	Teased		15% C	hrysotile	5%	Cellulose	80%	6 Other

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. io, "# of Layers" refers to number of separable subsamples.

te: Sample- M107 (A) is at the end of report.

David H. Butow

David Buetow Analyst

R.K. Mahane

Laboratory Supervisor

Other Approved Signatory



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Westmont, 33	Piscalaway, XJ	Carlo Place, XY	Kanhattan, MY	Melbourne, FL	Ann Arbor, MJ	San Mateo, CA	Sosyma, GA	Greensbore, NC	Reaston, TX
609-552-4309	906-381-0559	516 117-7251	212-290-0062	407-725-6223	313-688-6810	416-570-5401	404-333-6066	910-297-1487	713-688-3635



Herrick Engineering Inc. 1705 Chatsworth Lane Raleigh, NC 27614

Friday, May 03, 1996

Ref Number: GA96656

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Corrections/Umstead QC

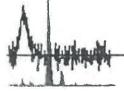
			SAMPLE	ASBESTOS	NONASBI	STOS
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
L990QC (FLOOR TILE)		: Off-White/Grey Non-Fibrous Layers # 2	Dissolved -	5% Chrysotile	None Detected	95% Other
L990QC (MASTIC)		. Black Non-Fibrous Layers # 2	Dissolved	5% Chrysotile	None Detected	95% Other
M009QC (FLOOR TILE)		White/Green Non-Fibrous Layers # 2	Dissolved	3% Chrysotile	None Detected	97% Other
M009QC (MASTIC)		Amber Non-Fibrous Layers # 2	Dissolved	None Detected	< 1% Callulose	100% Other
M021QC		Pink Fibrous Homogeneous	Dissolved	15% Chrysotile 15% Amosite	None Detected	70% Other
M037QC (FLOOR TILE)		Off-White/Grey Non-Fibrous Layers # 2	Dissolved	10% Chrysotile	None Detected	90% Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

Craig Coombs

Analyst

Laboratory Supervisor Other Approved Signatory



Disclaimers: PLM has been known to mise asbestos in a small percentage of samples which contain asbestos. Thus negetive PLM results cannot be guaranteed. Floor tites and wipes should be tested with either SEM or TEM. The above test report relates only to the items tested. This report may only be reproduced in full with written approval by EMSL. The above test must not be used by the cleant to claim product and cramment by NVLAP nor any agency of the United States Government. All "NVLAP" reports with NVLAP logo must contain at least one signature to be valid. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.

Westmotil, NJ 608-552-4500

Malbeurne, FL Ann Arbor, MI 407-725-5223 313 648-6810

San Mateo, CA Smyrna, EA 415-570-5401 444-332-6068

Greensberg, NC Houston, TX 510-297-1487 713 688-3835



Herrick Engineering Inc. 1705 Chatsworth Lane Raleigh, NC 27614

Friday, May 03, 1996

Ref Number: GA96656

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Corrections/Umstead QC

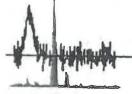
SAMPLE	LOCATION		SAMPLE	ASBESTOS	NONASB	ESTOS
	LUCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROU
M179QC		White Fibrous Homogeneous	Dissolved -	None Detected	10% Cellulose	90% Other
M201QC		White/Grey	Pht-1			
		Fibrous Heterogeneous	Dissolved	None Detected	40% Cellulose 50% Min. Wool	10% Other
M216QC		Off-White	Dissolved			
(FLOOR TILE)		Non-Fibrous Layers # 2	Dissolved	None Detected	None Detected	100% Other
A2160C						
MASTIC)		Black Non-Fibrous Layers # 2	Dissolved	None Detected	10% Cellulose	90% Other
1219QC						
FLOOR TILE)		Off-White/Grey Non-Fibrous Layers # 2	Dissolved	10% Chrysotile	None Detected	90% Other
1219QC		21				
MASTIC)		Black Non-Fibrous Layers # 2	Dissolved	None Detected	< 1% Cellulose	100% Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

Craig Coombs Analyst

Laboratory Supervisor

Other Approved Signatory



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estratut, NJ	Pisesiaway, NJ	Carlo Place, NY	Hanheiten, MY	Melbourne, Fl.	Ann Arbor, MI	San Maton, CA	Smyrna, GA	Greensborn, BC	Houston, TX
19-858-4909	506-581-0550	516-50747251	212-280-0462	407-725 5223	313-688-6810	415-570-5401	404-333-608E	510-287-1487	712 686-3635



Herrick Engineering Inc. 1705 Chatsworth Lane Raleigh, NC 27614

Friday, May 03, 1996

Ref Number: GA96656

POLARIZED LIGHT MICROSCOPY (PLM)

Project: NC Dept. of Corrections/Umstead QC

			SAMPLE	ASBESTOS	NONASBE	<u>STOS</u>
SAMPLE	LOCATION	APPEARANCE	TREATMENT	% TYPE	% FIBROUS	% NONFIBROUS
1037QC VASTIC)		Black Non-Fibrous Layers # 2	Dissolved -	10% Chrysotile	None Detected	90% Other
1082QC		Pink Fibrous Homogeneous	Dissolved	15% Chrysotile 15% Amosite	None Detected	70% Other
1128QC (LINOLEUM)		White/Grey/Black Fibrous Layers # 2	Dissolved	None Detected	30% Cellulose 10% Synthetic	60% Other
1128QC WASTIC)		Brown Non-Fibrous Layers # 2	Dissolved	None Detected	5% Cellulose	95% Other
4141QC		White Fibrous Homogeneous	Crushed/Dissolved	None Detected	10% Cellulose	90% Other
4167QC		White/Beige Fibrous Heterogeneous	Teased	None Detected	90% Cellulose	10% Other

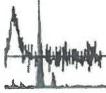
omments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Iso, "# of Layers" refers to number of separable subsamples.

Analyst

Craig coombs

Laboratory Supervisor

Other Approved Signatory



Discisimers: PLM has been known to miss asbastos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. Floor lifes and wipss should be tested with either SEM or TEM. The above tast report relates only to the items tasted. This report may only be reproduced in full with written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any sgency of the United States Government. All "NVLAP" reports with NVLAP logo must contain at least one signature to be valid. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.



STATE OF NORTH CAROLINA OFFICE OF STATE PERSONNEL 116 WEST JONES STREET RALEIGH 27603-8004

JAMES B. HUNT, JR. GOVERNOR

RONALD G. PENNY STATE PERSONNEL DIRECTOR

February 3, 1998

TO:	Joe Simpson, Safety and Health Director
	Department of Correction

FROM: Mary Fulmer, Accredited Asbestos Inspector #10546 $\gamma\gamma\gamma$ F Risk Control Services, OSP

SUBJECT: Asbestos Inspection of the Umstead Laundry Building and Heat Reclamation Building on January 23, 1998

Chrysotile asbestos was detected in bulk samples of these materials in the Umstead Laundry Building and Heat Reclamation Building:

Sample #4. Grey floor tile in the processing assistant's office and in the manager's office (2%)

Sample # 5. Black mastic on the grey floor tile in the processing assistant's office and in the manager's office (5%)

No asbestos was detected in bulk samples of these materials:

Samples 1 and 1A. Wall surfacing material (white paint and tan plaster and grey coat) in the processing assistant's and in the manager's office

Sample 2. Black backing on the wall surfacing material (plaster) in the processing assistant's office and in the manager's office

<u>Sample 3.</u> Black coating on the interior side of the brick wall in the processing assistant's office and in the manager's office

<u>Sample 6</u>. Brown and white ceiling tile in the processing assistant's office and in the manager's office

Sample 7. Paint and cloth wrapping on fiberglass thermal system insulation on the steam distribution line behind dryers 1-5

Sample 8. Wrapping and mud on fiberglass thermal system insulation on the inlet steam line going into dryers 1-5

Sample 9. Grey mud on fittings on the steam distribution line behind washers 1-5 Sample 10. Grey insulation on the front and back of the hot water heater in the heat reclamation building

Sample 11. Brown mud from joint on the hot water pipes in the heat reclamation building

Sample 12. Paint and cloth wrapping on mudded joint on the hot water pipes in the heat reclamation building

Sample 13. White insulation on hot water pipe in the heat reclamation building Sample 14. White wrapping on hot water pipe in the heat reclamation building Sample 15. Black wrapping on fiberglass insulation on steam pipes in crawl space under hand presses in the laundry building

The samples were analyzed by EMSL Analytical, Inc. The laboratory report is attached.

Randy Penland, NC Department of Correction Enterprise Laundries, 2020 CC: Yonkers Road, Raleigh, NC 27604

RECEIVED FEB 0 5 '98 DOC SAFETY OFFICE

Of State Personnel OA POLARIZED LIGH Performed by E ct: Umstead Laundr ARANCE TREATME ite wous jeneous	EPA 600/R-93/116 N ny Bidg & Heat Rec E <u>Aspesto</u>	Ref Number: DY (PLM) Method* clamation Bldg		STOS % NONFIBROUS 100% Other
PolaRIZED LIGH Performed by E ct: Umstead Laundr ARANCE SAMPLI TREATME ite Teased	EPA 600/R-93/116 N ny Bidg & Heat Rec E <u>ASBESTO</u> ENT % T	PY (PLM) Method* clamation Bldg SS TYPE %	MONASBE FIBROUS	% NONFIBROUS
Performed by E ct: Umstead Laundr SAMPLI ARANCE TREATME ite Teased rous	EPA 600/R-93/116 N ny Bidg & Heat Rec E <u>ASBESTO</u> ENT % T	Viethod*	<u>NONASBE</u> FIBROUS	% NONFIBROUS
SAMPLI ARANCE TREATME ite Teased rous	e <u>Asbesto</u> Ent % t	NS TYPE %	<u>NONASBE</u> FIBROUS	% NONFIBROUS
rcus	None Da	etected		100% Other
			and and 1.5 m	ens we
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Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to humber of separable subsamples. * NY samples also analyzed by ELAP 198-1 Method

oma Tom Ferrante

Tom Ferrante Analyst



Dischaimens: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed Samples reported as <1% or name detected should be tasked with either SEM or TeM. The above task report relates only to the items (seled. This report may only be repreduced in part with written approval by EMSL. The above task must not be used by the ctem to alaxen product and an approximation of NVLAP not any agency of the United Status Government. All "NVLAP" reports with NVLAP log must contain all less one spheric to be valid. Laboratory is not respectively for examples to reput the reput of the United Status Status of the provide the security of the reput of the transition requisited to physically separate and analyze layered semples Analyzes percented of the United Status Status Status Contained of the physically separate and analyze layered semples Analyzes percented by EMSC Gramabole for the security of the status of the status of the status of the security of the status of the status of the security of the status of the status of the security of the status of the security of the security of the status of the status of the security of the status of the security of

Approved Signatory

EMS	L Anal	ytical, I	nc.	Greensbord	ford College 5, NC 27409 36) 297-1487		(336) 297-10	
	Attn.: Joe Sim North Carolina 116 W. Jones Raleigh, NC 2	Office of State I	Personnel			ay, Febri umber:	uary 02, 199 NC98285	18
	Kaleign, NG 2	POLARI	ZED LIGHT	600/R-93/1	16 Method*		Ŧ	
SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT		<u>ESTOS</u> TYPE	%	NONAȘI FIBROUS	NONFIBROU
SAMPLE		Grey Non-Fibrous Homogeneous	Discolved/Teased	2% C	hrysotile			98% Other
5		Bieck Fibrous Homogeneous	Dissolved/Teased	5% C	:hrysotile		Cellulose Glass	93% Other
3		Brown/White Fibrous Heterogeneous	Teased	P	lone Detected	98%	Cellulosa	2% Other
	Paint & Cloth	Various Fibrous Heterogeneous	Teased		None Detected	60%	Cellulose	40% Other
Alam "# of Lay	or all obviously heter yers" refers to numbe also analyzed by EL	21 Of the ball stold serverse	isily separated into a nples.		and for layered s	samples, e	ach component	l is analyzed separately.
homa	> Aenar	200					RA	Approved

Tom Ferrante Analyst

Disclatmens: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. Samplas reported as <1% or name delected should be tested with ethan SEM or TEM. The above test must not be used by the chent to claim product tested. This report may only be reproduced in part with writem speroval by EMSL. The above test must not be used by the chent to claim product endorsement by NULAP nor any spercy of the United States Government. All "NULAP" reports with NVLAP logo must contain al least one software to be valid. Laboratory is not responsible for the accuracy of results when requested to physicelly separate and enalty a layared samples Analysis parameter of years consciond invicor software and Doc endertow y

EMSL Analytical, Inc.

Attn.: Joe Simpson North Carolina Office of State Personnel 116 W. Jones Raleigh, NC 27603-8004 620-G Guilford College Rd Greensborv, NC 27409 Phone: (336) 297-1487 Fux: (336) 297-1676



Monday, February 02, 1998

Ref Number: NC98285

POLARIZED LIGHT MICROSCOPY (PLM) Performed by EPA 600/R-95/116 Method*

Project: Umstead Laundry Bldg & Heat Reclamation Bldg

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	<u>Aseestos</u> % Type	MONASBE % FIBROUS	% NONFIBROUS
	Wrap & Mud	Various Fibrous Heterogeneous	Teased	None Detected	40% Cellulose 20% Giass 10% Min. Wool	30% Other
9		Grey Fibrous Homogeneous	Teased	None Detected	40% Glass 10% Min. Wool	60% Other
10	-	Grey Fibrous Homogeneous	Teased	None Detected	40% Glass 10% Min. Wool	50% Other
[1 1		Brown Fibrous Homogensous	Teased	None Detected	70% Cellulose 20% Glass 5% Min. Wool	5% Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples. * NY samples also enalyzed by ELAP 198-1 Method

oma

Tom Ferrante Analyst

pproved Signatory

Discisimera: PLM has been known to mits asbeetos in a small percentage of samples which content asbeetos. This negative PLM results cannot be guaranteed. Samples reported as <1% or home detected should be leated with either SEM or TEM. The above test report retakes only to the items leated. This report may only be reproduced in per with written approval by EMSL. The shove test must not be used by the drient to down product endorsement by NVLAP nor any approval. But Units Grane Government. All "NVLAP" reports with NVLAP logo must content as least one signature to be verific. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples Analysis performance by EINSL consistence or the above test in the second of the second of

PAGE 04

620-G Guilford College Rd EMSL Analytical, Inc. Greensboro, NC 27409 Fax: (336) 297-1676 MS Phone: (336) 297-1487 Attn .: Joe Simpson Monday, February 02, 1998 North Carolina Office of State Personnel 116 W. Jones Ref Number: NC98285 Raleigh, NC 27603-8004 POLARIZED LIGHT MICROSCOPY (PLM) Performed by EPA 600/R-93/116 Method* Project: Umstead Laundry Bidg & Heat Reclamation Bidg NONASBESTOS ASBESTOS SAMPLE % NONFIBROUS FIBROUS % TYPE % APPEARANCE TREATMENT SAMPLE LOCATION 70% Cellulose 30% Other None Detected Teased Paint & Cloth Various 12 Fibrous Heterogeneous 70% Other 30% Cellulose None Detected Teased White 13 Fibrous Homogéneous 100% Cellulose None Detected Teased While 14 Fibrous Hamoganeous 75% Other 25% Callulose None Datected Dissolved/Teased Black 15 Fibrous Homogeneous

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

* NY samples also analyzed by ELAP 198-1 Method

Tom Ferrante Analyst

Disclaimers: PLM has been known to miss asbestos in a small perdentage of samples which contain asbestos. Thus negative PLM results cannot be guaranised. Samples reported as <1% or none detected should be tasked with whiter BEM or TEM. The above last report relates only to the nems tested. This report may only be reproduced in port with written approval by EMSL. The show lest must not be used by the diart to deam product andorsement by NVLAP nor any agency of the United States Government AI "NVLAP" reports with NVLAP log on usis contain a least anis agriterior to be velid, Laboratory is not responsible for the socuracy of results when requested to physically separate and energy a layored samples "Analytic Autominatory credul deemsbore INVLAPIDe with Beat, 199244-0,].

Approved Signatory

UMSTEAD CORRECTIONAL CENTER Butner, NC

Roof Condition Report

Inspection Date: 08/22/2019

PREPARED BY:



Tal Eidson PO Box 991 Kinston, NC 28502 tal@curtiscc.com 910-992-1180

PREPARED FOR:



Reid Daniel Director Town of Butner rdaniel@butnernc.org. Phone: 919-691-0095



FACILITY INFORMATION:

Umstead Correctional Facility 400 West D Street Butner, NC 27509 Building Type: Dormitory/detention Neighborhood: Open Terrain

This report was prepared using True Roof Rater by

UMSTEAD CORRECTIONAL CENTER - BUTNER, NC

Roof Repair/Replacement Costs



ROOFTOP SUMMARY:

Roof Sections: 1 Total Issues: 19 Total Details: 2

Section	Severity	Recommendation	Repair Cost	Replacement Cost
A)	Major	Replace	N/A	N/A
			\$0.00	\$0.00

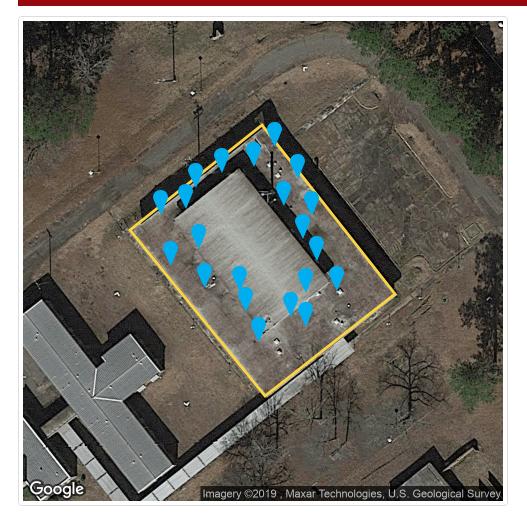
Disclaimer

This report has been prepared by an individual trained by experience and education in this industry. However, this report is not intended to be and does not constitute an expert opinion on the cause of any deficiencies found, rather it addresses such deficiencies, if found, and proposed corrective action to restore the effectiveness and long term viability of the roof. This report was not prepared by a licensed professional engineer and is not intended to be a statement or opinion concerning the quality of the installation inspected, since its focus is on remediation of any conditions found. This report is for the exclusive use for the recipient and may not be used by any other person or entity without the prior express consent of the author.

Notice: Scale drawings, preliminary specifications and documentation provided by are preliminary. The successful bidder is responsible for all building permits, field conditions and compliance with building codes. Any budgetary figures are preliminary only and not guaranties. Preliminary specifications and budgeting parameters are based upon field inspections and test cuts when applicable and are subject to revisions based upon final field conditions and construction issues. The successful bidder is responsible to conduct their own field tests and construction inspections to assure proper installation and compliance with building codes. No structural analysis has been provided in these preliminary specifications.

Versico nor their independent representatives are architects and therefore it is not the intent herein to describe all of the details for roofing and flashing. The roofing contractors shall assure themselves that they have been provided with all information and details required by the membrane manufacturer or project conditions to achieve a complete water-tight installation regardless of whether or not such information or details are expressed specifically herein. The roofing contractor shall provide immediate notice to the owner in the event the roofing contractor determines that additional information, details or drawings are necessary to achieve a complete watertight installation. All work shall be performed by the roofing contractor in accordance with local, state and federal laws, codes and regulation. Owner shall accept responsibility for the adequacy of the design and the conformance of the design with all local, state, federal laws, codes. To the extent applicable, Owner accepts responsibility for any identification, analysis removal and disposal of asbestos containing material.

Section A Overview:



Section Outcome: Replace

Severity: Major

Section Summary: Section Issues: 19 Section Details: 2

Section Recommendation:

This roof system is over 20 years old. The system is in the downward trend of its life-cycle. Typically a gravel built-up system will show signs of deterioration at the perimeter edges and penetrations. This system is a product of these phenomenons. Facia, soffit, and wall restoration will also be required to create a watertight building envelope. Our recommendation is to invest in a new roof system before any building improvements are made. Normal maintenance has not been conducted and there are deficiencies and leaks throughout the roof area.

Detail AD-1: Overview of front-side - main roof area

Detail:

Overview of front-side - main roof area

Description:

Front-side roof area.

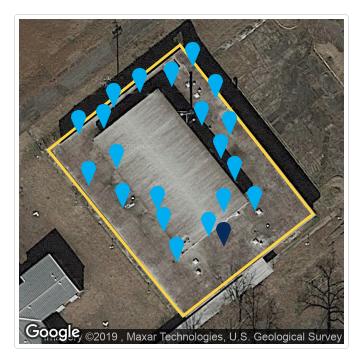


Figure 1



09/05/2019

Detail AD-2: Roof Composition

Detail:

Roof Composition

Description:

Image of roof composition (2.5") over concrete deck.

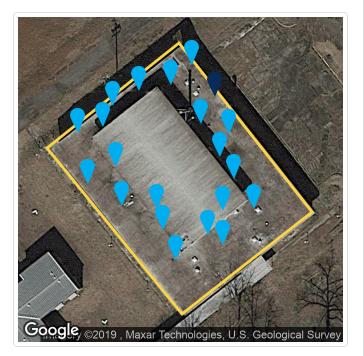






Figure 2



Issue AI-1: Alligatoring

Description:

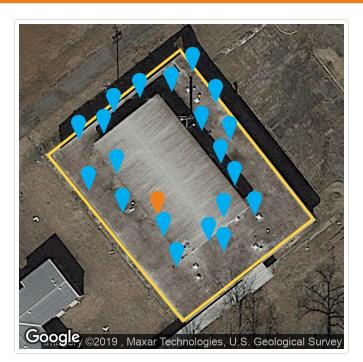
The cracking of the surfacing bitumen asphalt which occurs during the aging process in which the loss of volatile oils and the oxidation brought about by solar radiation; produces a pattern of cracks similar to an alligator's hide. The cracks may or may not extend through the surfacing bitumen.

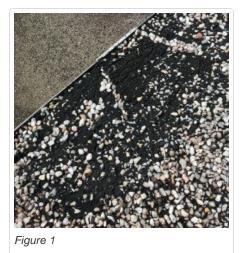
Why is this an issue?

When alligatoring cracks extend through the entire waterproofing surface, the underlying felts can become exposed to moisture, which will progressively cause the strength in the felts to decrease. Splitting of the roof membrane may result.

Severity: Moderate

Action: Requires Repair









Issue AI-2: Alligatoring

Description:

The cracking of the surfacing bitumen asphalt which occurs during the aging process in which the loss of volatile oils and the oxidation brought about by solar radiation; produces a pattern of cracks similar to an alligator's hide. The cracks may or may not extend through the surfacing bitumen.

Why is this an issue?

When alligatoring cracks extend through the entire waterproofing surface, the underlying felts can become exposed to moisture, which will progressively cause the strength in the felts to decrease. Splitting of the roof membrane may result.

Severity: Moderate

Action: Requires Repair

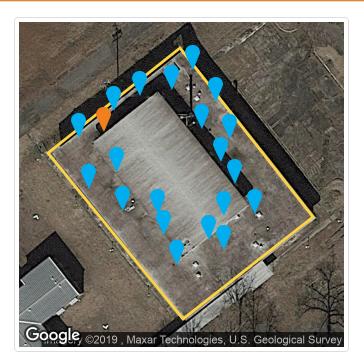
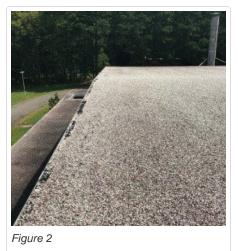


Figure 1





Issue AI-3: Vegetation

Description:

A roof top environment that is rich with moisture and air born dirt and particulates can be the breeding ground for seeds.

Why is this an issue?

These seeds can grow into vegetation with root structures that can penetrate and rupture the strongest of roof membranes, resulting in leakage into the roof system and the building's interior.

Severity: Moderate Action: Requires Repair

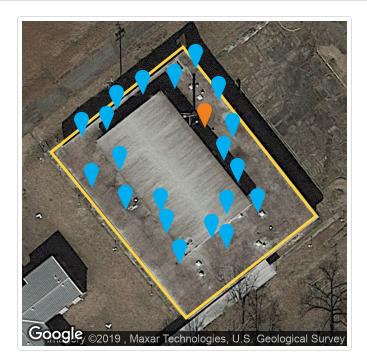




Figure 1



Figure 2



09/05/2019

Issue AI-4: Clogged drain

Description:

Foreign objects clogging the drain strainer or drain bowl.

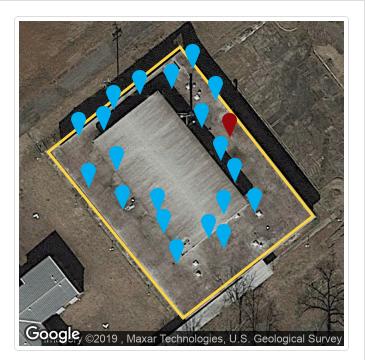
Why is this an issue?

Clogged drains impede positive drainage and result in the development of ponding water conditions. Additional water adds weight to the roofing system. This condition requires immediate correction. In its extreme, this could result in deck deflection or roof collapse.

Severity:

Major

Action: Requires Repair





Issue AI-5: Skylight/Curb Damaged

Description:

Broken skylights throughout the roof areas. Open void in roof system/building.

Why is this an issue? Water intrusion is occurring. Interior is compromised.

Severity: Major Action: Requires Repair

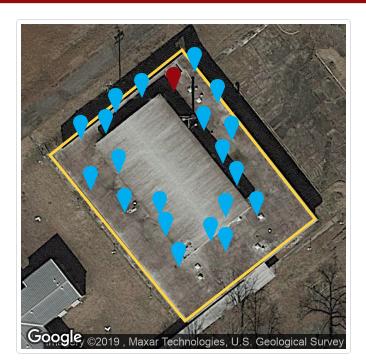




Figure 1

Prepared by Tal Eidson using True Roof Rater by: VERSICO

09/05/2019

Issue AI-6: Drain broken strainer

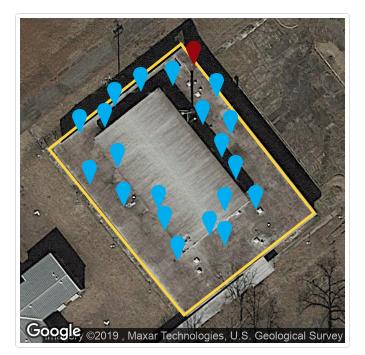
Description:

Drains are installed with strainers to prevent debris and other foreign objects from entering the piping system.

Why is this an issue?

Broken or missing roof drain strainers may allow dirt and debris into roof drains. This condition may clog or impede drainage causing ponding water on the roof. If the roof membrane or drain flashing is compromised in a ponding area, the water may drain into the roof system and into the building.

Severity: Major Action: Requires Repair





Issue AI-7: Open siding

Description:

Open siding allows driving rain and snow to enter the building.

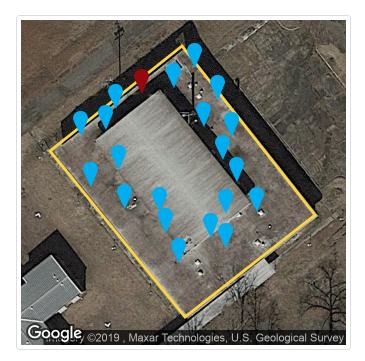
Why is this an issue?

Building wall siding must be watertight and sealed from driving rain and snow. Open siding allows moisture and water to enter the building or roof system, causing deterioration and failure of insulation substrates and interior finishes.

Severity:

Major

Action: Requires Repair





Issue AI-8: Clogged drain

Description:

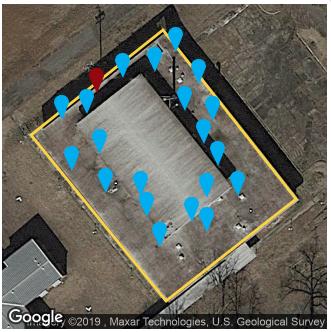
Foreign objects clogging the drain strainer or drain bowl.

Why is this an issue?

Clogged drains impede positive drainage and result in the development of ponding water conditions. Additional water adds weight to the roofing system. This condition requires immediate correction. In its extreme, this could result in deck deflection or roof collapse.

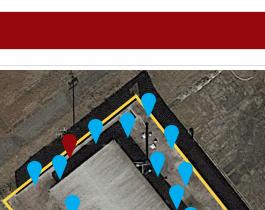
Severity:

Major









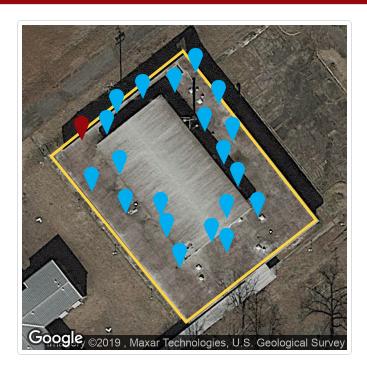
Issue AI-9: Broken Skylight

Description:

Skylight/curb is damaged. Open void to building's interior.

Why is this an issue? Water intrusion is occurring. Building's interior is compromised.

Severity: Major





Issue AI-10: Open siding

Description:

Open siding allows driving rain and snow to enter the building.

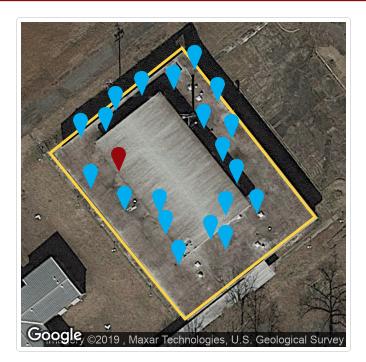
Why is this an issue?

Building wall siding must be watertight and sealed from driving rain and snow. Open siding allows moisture and water to enter the building or roof system, causing deterioration and failure of insulation substrates and interior finishes.

Severity:

Major

Action: Requires Repair





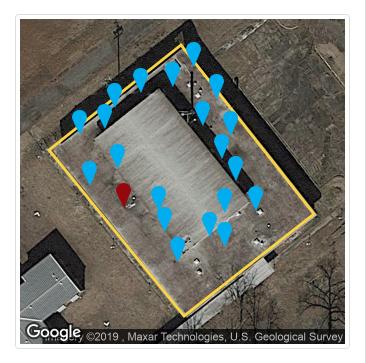
Issue AI-11: Ponding

Description:

Ponding water can be traced to any of several factors. First, a roof may pond water as a result of poor housekeeping on the roof which contributes to clogged drains, gutters and downspouts. The build up of roof top debris or displaced gravel ballast frequently blocks water flow and creates ponds. Secondly, the building's roof top drainage system may not have been designed properly. Finally, ponds form as a result of such common conditions as building settlement and deck deflection.

Why is this an issue?

The NRCA has classified "undesirable" ponding water as standing for more than 48 hours, though ponding can pose a threat in even shorter time spans. Since ponds occur in low areas of a roof, a pond becomes a repository for debris, sediment, and chemical



emissions. Ponding encourages microorganism and bacterial degradation, roof deflection, magnified ultraviolet exposure and premature failure of the roof system. A matter of "deep" concern in the roofing industry is the fact that a 1" deep pond weighs 5.2 lbs. / sq. ft. and many structures cannot handle this extra load.

Severity:

Major



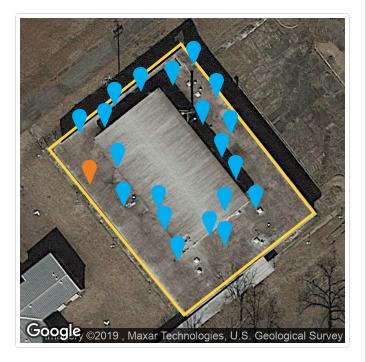
Issue AI-12: Ponding

Description:

Ponding water can be traced to any of several factors. First, a roof may pond water as a result of poor housekeeping on the roof which contributes to clogged drains, gutters and downspouts. The build up of roof top debris or displaced gravel ballast frequently blocks water flow and creates ponds. Secondly, the building's roof top drainage system may not have been designed properly. Finally, ponds form as a result of such common conditions as building settlement and deck deflection.

Why is this an issue?

The NRCA has classified "undesirable" ponding water as standing for more than 48 hours, though ponding can pose a threat in even shorter time spans. Since ponds occur in low areas of a roof, a pond becomes a repository for debris, sediment, and chemical



emissions. Ponding encourages microorganism and bacterial degradation, roof deflection, magnified ultraviolet exposure and premature failure of the roof system. A matter of "deep" concern in the roofing industry is the fact that a 1" deep pond weighs 5.2 lbs. / sq. ft. and many structures cannot handle this extra load.

Severity: Moderate





Issue AI-13: Drain broken strainer

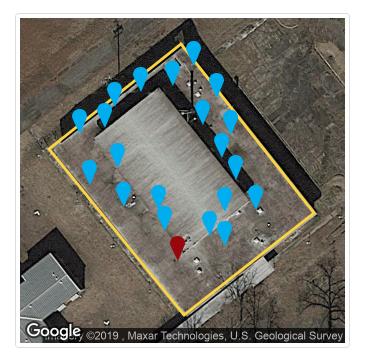
Description:

Drains are installed with strainers to prevent debris and other foreign objects from entering the piping system.

Why is this an issue?

Broken or missing roof drain strainers may allow dirt and debris into roof drains. This condition may clog or impede drainage causing ponding water on the roof. If the roof membrane or drain flashing is compromised in a ponding area, the water may drain into the roof system and into the building.

Severity: Major Action: Requires Repair





Prepared by Tal Eidson using True Roof Rater by: VERSICO

Issue AI-14: Open siding

Description:

Open siding allows driving rain and snow to enter the building.

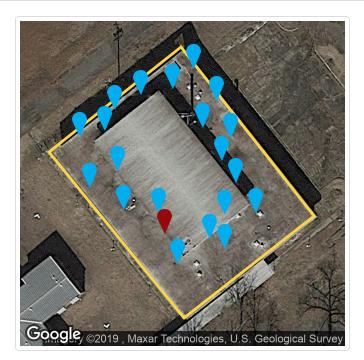
Why is this an issue?

Building wall siding must be watertight and sealed from driving rain and snow. Open siding allows moisture and water to enter the building or roof system, causing deterioration and failure of insulation substrates and interior finishes.

Severity:

Major

Action: Requires Repair







Issue AI-15: Debris

Description:

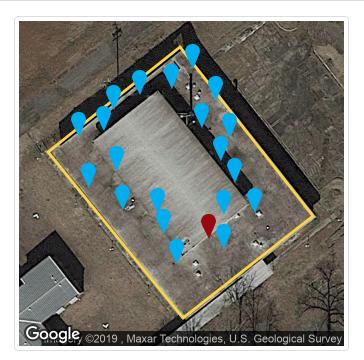
Any foreign objects on the surface of the roof. These foreign objects could include vegetation such as dead leaves and man made objects such as broken glass, nails, etc.

Why is this an issue?

The buildup of rooftop debris frequently impedes positive drainage, clogs drains and results in the development of ponding water conditions. In its extreme, this could result in roof collapse. Sharp foreign objects can puncture a roof membrane if stepped upon, resulting in wet insulation, roof leaks and interior damage.

Severity: Major

Action: Requires Repair







Issue AI-16: Alligatoring

Description:

The cracking of the surfacing bitumen asphalt which occurs during the aging process in which the loss of volatile oils and the oxidation brought about by solar radiation; produces a pattern of cracks similar to an alligator's hide. The cracks may or may not extend through the surfacing bitumen. This is typical of the majority of curbs throughout the roof area.

Why is this an issue?

When alligatoring cracks extend through the entire waterproofing surface, the underlying felts can become exposed to moisture, which will progressively cause the strength in the felts to decrease. Splitting of the roof membrane may result.

Severity: Major

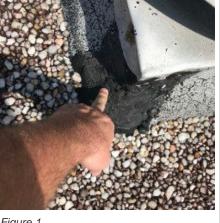






Figure 2



Google, ©2019 , Maxar Technologies, U.S. Geological Survey

Issue AI-17: Open siding

Description:

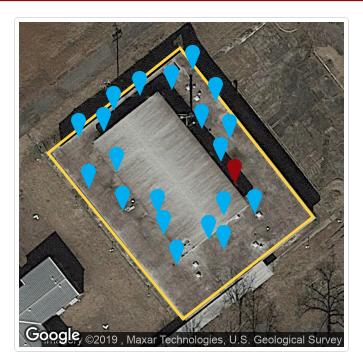
Open siding allows driving rain and snow to enter the building.

Why is this an issue?

Building wall siding must be watertight and sealed from driving rain and snow. Open siding allows moisture and water to enter the building or roof system, causing deterioration and failure of insulation substrates and interior finishes.

Severity:

Major







Issue AI-18: Flashing defect - crazed and cracked

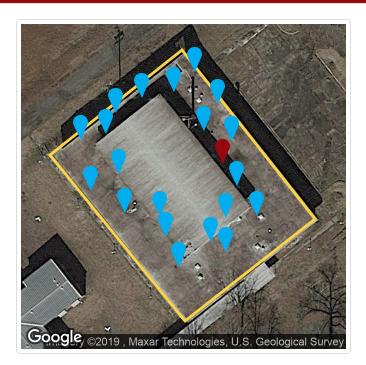
Description:

Flashings exhibit a crazed or cracked appearance in the top layer of the flashings surface. Extended exposure to UV rays over time causes the flashing to split.

Why is this an issue?

Splits permit water entry into the roofing system and potentially into the building interior.

Severity: Major







Issue AI-19: Masonry deterioration

Description:

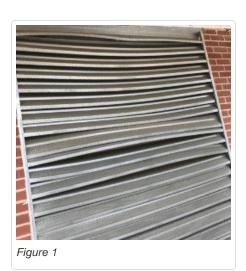
Open masory wall and coping mortar joints resulting from wall movement, disbonding, cracked or deteriorated mortar. Masonary wall and coping mortar joints are the most common means of water entry into a masonry wall.

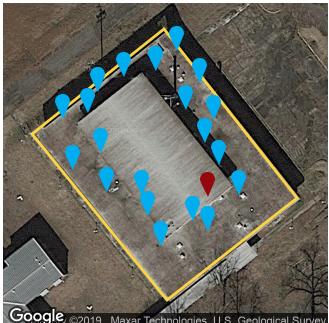
Why is this an issue?

Water penetration is responsible for many of the problems in masonry walls. If a wall is saturated with water, freezing and thawing may cause cracking, spalling, and disintegration. Water and moisture can cause masonry to experience dimensional changes, metal to corrode, insulation to lose its effectiveness, interior finishes to deteriorate and efflorescence to appear on exterior surfaces.

Severity: Major

Action: **Requires Repair**





Google, ©2019 , Maxar Technologies, U.S. Geological Survey

Attachment C



P0 Box 991 Kinston, NC 28502 T 252.523.1078 F 252.523.6151

CurtisCC.com

August 23rd, 2019

BUDGET/ESTIMATE FOR RE-ROOF

Town of Butner Public Works 403 West G Street Butner, NC 27509

Attention: Reid Daniel Director

Reference: Umstead Correctional Facility – Roof Assessment & Re-Roofing Budgetary Figure

Reid,

We propose to provide the labor, material, taxes, insurance, equipment, permits and supervision to provide the following scope of work:

Roof System Details

- Demo existing roof system down to the concrete decking. Any work-related debris will be disposed of in local County landfill.
- Install vapor barrier over existing concrete deck.
- Fully adhere polyisocyanurate insulation board (insulation system/design to be determined).
- Fully adhere a 36-mil FiberTite membrane roof as per Manufacturer's details and instructions per building specific wind uplift calculations and to meet NC Building Code requirements.
- Flash all perimeters and penetrations as per Manufacturer's details and instructions. At existing parapet walls, new membrane will be terminated at existing coping with new counter-flashing.
- Fabricate and install counter-flashing from 24-gauge pre-finished steel. Standard colors only.

See Page 2



P0 Box 991 Kinston, NC 28502

CurtisCC.com

• Upon completion and final acceptance, a Contractor's (2) year warranty will be issued in conjunction with a Manufacturer's Total System (25) year warranty.

All for the sum of......\$575,000.00

This information is only for budget/planning. A formal proposal will be provided upon request.

Sincerely,

Tal Eidson Business Development *Curtis Construction Company, Inc.*

Budgeted Roof Area



Attachment D



BUDGET PROPOSAL

D. H. GRIFFIN WRECKING CO., INC.

421 RALEIGH VIEW ROAD, RALEIGH, NC 27610

PHONE 919-772-4711 FAX 919-772-4311

www.dhgriffin.com - License # 35452

PROPOSAL TO: HagerSmith Design ATTN: Tony Conner JOB NAME: Correctional Facility Demolition Direct: 919-838-5104

DATE: January 27, 2012

DHGW Proposal #: 1950-120 LOCATION: 400 West D St., Butner, NC

EMAIL: tconner@hagersmith.com

Based on site inspection and verbal descriptions, D. H. Griffin Wrecking Co., Inc. (DHGW) proposes the following scope of services:

- 1. Provide necessary labor, equipment, trucking, disposal cost, materials, insurance, etc. to perform work as indicated.
- 2. DHGW will demolish and dispose of materials off site in accordance with local, state and federal regulations.
- 3. Coordinate all utility disconnects with the appropriate agencies
- 4. Apply for and secure the Town of Butner demolition permit when approved
- 5. Remove Freon as mandated by state regulations
- 6. File required National Emission Standards for Hazardous Air Pollutants (NESHAP) forms ten (10) working days prior to commencement of any work related activities as mandated by state and federal law.
- 7. Demolish and dispose of the existing buildings (main, gym, & maintenance) complete with slabs grade beams and footers.
- 8. Remove and dispose of asphalt paving.
- 9. Rough grade areas utilizing on site material

We propose hereby to perform the work as listed above for the BUDGET lump sum amount of: Six Hundred Ninety-Five Thousand Dollars (\$695,000.00) **

Project Clarification:

- ** Owner to provide water and electrical for abatement**
- ** Owner to provide abatement design, air monitoring, and clearance**
- ** Building demolition includes the removal of slabs, grade beams, and footers**
- ** Price includes one (1) mobilization**
- ** Engineering layout if required is by others**
- ** The above quote is based on working Monday Friday **
- ** Any delays or stoppages of work will be handled as an extra cost incurred by DHGW and will be invoiced to the owner or general contractor at an hourly or daily rate on equipment and labor**

DHGW does exclude the following items:

- Removal of underground utilities
- Protection and/or replacement of driveways and sidewalks that are to remain
- Demolition and/or removal of above and/or below ground items other then the above-mentioned
- Removal and/or protection of fences, trees and shrub
- Relocation, evacuation, disconnection, rerouting, capping, locating and marking of utilities within the demolition limits or protection of unmarked utilities within the limits of demolition
- Sediment or erosion control, tree protection, construction/ security fences and barricades
- Backfill and compaction
- Removal and disposition of any hazardous or asbestos materials, including paint, except those items, if any, which are described and itemized above, whether concealed or not.
- Identification or removal of underground storage tanks (USTs) or their contents, removal of tires, and oil
- Cost of performance and payment bonds (can be provided at an additional cost)
- Signs and/or barricades

DHGW retains salvage rights to materials under contract.

If awarded contract, DHGW requests that a signed copy of this proposal become part of contract documents.

Payment to be made as follows: Upon Completion or Monthly Progress Billings

All payments are due and payable as noted. Whenever retainage is <u>required</u> to be withheld, upon completion of D.H. Griffin Wrecking Company, Inc.'s (DHGW) scope of work (contract or sub-contract) DHGW will issue an invoice for work performed and a separate final invoice for retainage. All retainage is to be paid in full no later than forty-five (45) days from date of final invoice. Should the project duration exceed thirty (30) days monthly progress billings will be submitted and paid within thirty (30) days of submission. The undersigned further

agrees to pay to D.H. Griffin Wrecking Company, Inc., a reasonable attorney's fee if the obligation evicenced hereby be collected by an attorney-at-law after maturity. Any alteration or deviation from above specifications involving extra costs will be executed only upon written						
orders, and will become an extra charge over and above the estimate.						
Authorized Signature:	SIDI 1	NOTE: This proposal may be withdrawn by DHGW				
	Od Dlount	if not accepted within 30 days of above date.				
Ed Blount – Estimator; Mobile # 919-427-2174 // eblount@dhgriffin.com						
PLEASE SIGN, DATE AND RETURN ORIGINAL						
Acceptance of Proposal – The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized						
to do the work as specified. Payment will be made as outlined above.						
Signature	Name and Title	Date of Acceptance				

