City of Lynchburg
Procurement Division
900 Church Street
Lynchburg, Virginia 24504
Telephone No.: (434) 455-3970
Fax No.: (434) 845-0711

Addendum for Request for Proposal
Architectural/Engineering Services for the LRWWTP Operations Building Renovation

2016-007

Date: 07/13/2015
From: Lisa Moss, Buyer VCA
RE: Addendum No. 1

This Addendum supplements and amends the original Plans and Specifications and shall be taken into account in preparing proposals and shall become a part of the Contract Documents. The Offeror shall indicate receipt of this Addendum and all previously issued Addenda on the Title Page.

This addendum includes items covered in the Pre-Proposal meeting held on July 9, 2015.

1. When does the City anticipate the construction phase of this project will start?
   The schedule is to complete design drawings by April 2016. Construction funding is available in July 2016. The goal is to complete the majority of this project prior to the WWTP CSO Headworks project starting construction.
2. The RFP states the WWTP has to maintain operations 365 days a year, 24 hours a day. Does this include the lab?
   The lab must be operational at all times the plant is operational. A phased construction approach will be required.
3. When will the construction on the Headworks building start?
   Construction of the CSO Headworks project will likely start in late 2017. Work on this project will likely start at the Headworks building and would not impact the Control Building until later.
4. What are the security concerns for the WWTP during the various phases of this project and final completion?
   The primary need is to separate the plant operations and laboratory areas from public interface. Administration and staff need to be available to the public at the front of the building, but the laboratory and critical operational areas should have a controlled access. The laboratory needs to be secure at the end of the day when lab staff leaves.
5. Will there be any additional projects attached to the RFP and resulting contract?
   The Basis of Design included a restroom addition to the odor control building. This may be included in the project depending on funding availability, but Proposers are not required to include this in their design proposal. The elevator renovation also is dependent on construction funds, but should be analyzed during the preliminary engineering phase to determine options and costs.
6. Is there a master plan available?
   There is a site master plan that is out of date and is not relevant to the building improvements. The Basis of Design is the best planning document for the Operations Building.
7. Can the proposal be printed on two sides of a page or does it have to be single page?
   The proposal can be printed on two sides, however each side will be considered a page and proposal is not to exceed 30 pages, not including cover, but including all other materials.
8. Are there any audio visual requirements, any AV integration needed?
   Any audio visual requirements and/or AV integration would either be listed in the Basis of Design or would be a re-establishment of existing AV. For example if an option presented included the second floor layout being modified and the conference room relocated, the existing AV would need to be re-established at the new location.

9. **A comment was made about using WWTP process water for HVAC operations. Process water has a temperature variance of 4 to 40 degrees Celsius.**

10. Items requested at the Pre-proposal meeting:
    - **a.** Asbestos Report
    - **b.** Lead Paint Analysis – does not exist. Note that lead paint is likely encapsulated behind sheetrock walls. In addition, an area of mercury contamination is located in the current lab and has also been encapsulated.
    - **c.** Aerial photograph of site
    - **d.** Floor plan drawings of the Operations Building.

Regional Wastewater Treatment Plant

Department of Water Resources

North Side			
Map #	STRUCTURE DESCRIPTION	Map #	STRUCTURE DESCRIPTION
1	Maintenance Building	15	Sodium Bisulfite Building
2	Warehouse	16	Septage Receiving Station
3	Headworks Building	17	Chlorine Contact Tank No. 1 (South)
4	JRI Influent Box and CSO 109 Screen	18	Chlorine Contact Tank No. 2 (North)
5	Influent line to Primary Clarifiers	19	Non-potable Water Pump Building
6	Papermill Flow Meter Box	20	Chlorine Contact Tank Splitter Box
7	Papermill Grit Removal	21	Primary Clarifier No. 1 (West)
8	Papermill Clarifier	22	Primary Clarifier No. 2 (East)
9	Papermill Electrical Building	23	Primary Influent Splitter Box
10	Papermill Pump Station	24	Primary Clarifier Electrical Building
11	Effluent Defoamer Feed Building	25	Primary Clarifier Pump Station
12	Sodium Bisulfite Feed Box	26	Primary Clarifier Effluent Sample Station
13	Backup Effluent Flow Meter	27	East Storage Building 1
14	CSO 109 Outfall Structure	28	East Storage Building 2

South Side			
Map #	STRUCTURE DESCRIPTION	Map #	STRUCTURE DESCRIPTION
29	Blower Building	43	Gravity Thickener
30	Aeration Storage Building	44	Sodium Hypochlorite Building
31	Aeration Electrical Building	45	Sludge Holding Tank
32	Aeration Basin Influent Splitter Box	46	Centrifuge Feed Pump Station
33	Aeration Basins (East & West)	47	Grease Dump Station
34	Secondary Clarifiers 1 & 2 Electrical Building	48	Odor Control Building
35	Secondary Clarifiers 1 & 2 RAS/WAS Pipe Room	49	Lime Silos
36	Secondary Clarifier No. 1 (SE)	50	Sludge Dewatering/Stabilization Building
37	Secondary Clarifier No.2 (NE)	51	Gravity Belt Thickener Building
38	Secondary Clarifier No. 3 (SW)		
39	Secondary Clarifier No. 4 (NW)		
40	Secondary Clarifier Splitter Box		
41	Main Electrical Building		
42	Control Building (Houses Lab)		

DISCLAIMER: THIS MAP IS NEITHER A LEGALLY RECORDED MAP NOR A SURVEY AND IS NOT INTENDED TO BE USED AS SUCH. THE INFORMATION DISPLAYED IS A COMPILATION OF RECORDS, INFORMATION, AND DATA OBTAINED FROM VARIOUS SOURCES. THE CITY OF LYNCHBURG IS NOT RESPONSIBLE FOR ITS ACCURACY OR HOW CURRENT IT MAY BE

City Of Lynchburg - GIS Division - 01/2013

ASBESTOS MANAGEMENT PLAN
CITY OF LYNCHBURG
WASTEWATER TREATMENT COMPLEX

UT-110 Wastewater Treatment Complex
UT-111 Heat Treatment Facility
UT-112 Ammonia Building
UT-113 Electrical Equipment Building
UT-114 Maintenance Building
UT-115 Non-Potable Water Building
UT-116 Screen Building

Prepared for:

CITY OF LYNCHBURG
LYNCHBURG, VIRGINIA

Prepared by:

ENVIRONMENTAL PROTECTION SYSTEMS
A Division of Enviro/Analysis Corporation
Chantilly, Virginia

Project No. 6.89.1203.01
January, 1989

REPORT CERTIFICATION

We hereby certify that the inspection, sampling and assessment of ACBM at the Wastewater Treatment Complex was performed by Environmental Protection Systems (EPS) on November 15, 1988 under the direction of the following licensed personnel:

		VIRGINIA ASBESTOS LICENSE NUMBER
Brian J. Burgher, P.E.	Management Planner	#000227
C. Edwin Craft	Management Planner	#000255
	Inspector	#000384
Tracy C. McAlister	Inspector	#000426

SUMMARY

This Management Plan has been prepared for the Wastewater Treatment Complex located on Concord Road, Lynchburg, Virginia. It is part of an overall Management Plan prepared for all City of Lynchburg buildings. The approach used for this effort follows the requirements set forth by the U. S. Environmental Protection Agency (USEPA) at 40 CFR 763: Asbestos-Containing Materials in Schools. While these regulations apply only to school facilities, they represent the most current and comprehensive regulations regarding asbestos inspection and management.

This Management Plan is intended to document the results of facility inspections and subsequent analyses conducted during the period of November - December, 1988, using the procedures specified by USEPA in 40 CFR 763 and associated guidance provided by EPA-approved training courses. It is based on available information during that period, and is therefore subject to the following limitations and considerations:

1. Inspections were only conducted in exposed and/or accessible areas. Except where otherwise authorized, no physical destruction of walls, ceilings or floors was conducted to evaluate ACBM located behind or within these building materials.

2. Materials covered by this Management Plan are those defined as Asbestos-Containing Building Materials (ACBM) as required by 40 CFR 763. Other Asbestos-Containing Materials (ACM) such as automobile brake linings, oven and kiln fireproofing and electrical wiring are not comprehensively covered. Any ACM included in this Management Plan is provided for information purposes only and should not be used as a complete inventory of ACM.

3. This Management Plan documents the location, quantity and condition of ACBM determined from site inspection on November 15, 1988. Recommended response actions are therefore based on the observed status of identified ACBM. Any changes to the condition of ACBM may substantially change the response actions recommended, requiring modification to this plan by the City of Lynchburg.

MANAGEMENT PLAN
TABLE OF CONTENTS

1.0 INTRODUCTION

An inspection of the Wastewater Treatment Complex, located on Concord Road, Lynchburg, Virginia, was conducted on November 15, 1988 by Environmental Protection Systems (EPS) under contract to the City of Lynchburg. The objective of this inspection was to determine the location, distribution, condition and composition of all accessible asbestos-containing building materials (ACBM) located within this facility using the most recent inspection guidelines. Specifically, the inspection was performed using the procedures set forth by the U.S. Environmental Protection Agency (EPA) regulations at 40 CFR 763.

Consistent with these regulations, this inspection was completed in five phases as follows:

1. Completion of an initial walk-through survey to determine the location, amount, distribution, condition, accessibility and friability of all material suspected of containing asbestos.
2. Determination and classification of homogeneous areas of suspect material to determine a sampling scheme in accordance with EPA regulation 40 CFR 763.
3. Collection of bulk samples and photographs of all suspect material identified during the initial walk-through survey.
4. Submission of bulk samples to an accredited laboratory for determination of material composition using polarized light microscopy with dispersion staining.
5. Documentation of the location, composition, and quantity of both friable and nonfriable asbestos.

This report presents the approach, results and all supporting information from the inspection of the Wastewater Treatment Complex. The report includes the following sections:

2.0 Inspection Procedure

3.0 Sampling Procedure

4.0 Analytical Procedure

5.0 Quality Assurance/Quality Control Procedure

6.0 Summary of Results

7.0 Recommendations

8.0 Resource Requirements

The results are supported by detailed information such as analytical results, photographs and facility floor plans provided as Appendices.

2.0 INSPECTION PROCEDURE

The inspection of this facility consisted of a walk-through visual examination in accordance with EPA regulations contained in 40 CFR 763.85. As specified, the EPS inspection team conducted the following activities:

1. Visually inspected all accessible areas to identify the location and amount of suspected ACBM.
2. Touched all suspected ACBM to determine if it was friable or not.
3. Identified all homogeneous areas of friable suspected ACBM and all homogeneous areas of nonfriable suspected ACBM.
4. Assessed the condition, accessibility and potential for future damage of all suspect friable ACBM.
5. Classified the material as either friable surfacing material, thermal system insulation, friable miscellaneous material, or nonfriable suspected ACBM to develop a sampling scheme in accordance with 40 CFR 763.86.
6. Classified the material by assessment code in accordance with 40 CFR 763.86 as follows:

    1. Damaged or significantly damaged thermal system insulation ACM.
    2. Damaged friable surfacing ACM.
    3. Significantly damaged friable surfacing ACM.
    4. Damaged or significantly damaged friable miscellaneous ACM.
    5. ACBM with potential for damage.
    6. ACBM with potential for significant damage.
    7. Any remaining friable ACBM or friable suspected ACBM.

The inspection was completed by EPS team members Tracy McAlister, Task Manager, Susan Gee and Neil O'Connor, with project supervision provided by C. Edwin Craft. EPS inspectors have successfully completed EPA inspection training courses and are licensed in accordance with Title 54 Chapter 7.01, Virginia licensing regulations.

3.0 SAMPLING PROCEDURE

Following the walk-through inspection and assessment of the facility, the EPS inspection team developed a sampling strategy and sampled all suspect ACBM in accordance with sampling requirements defined in 40 CFR 763.86 and EPA guidance for random sampling procedures. No suspect material was assumed to be ACBM for this investigation except for fire doors. Consistent with this guidance, EPS identified sampling locations for each homogeneous area of ACBM. Sample locations were recorded on building floor plans which were then used during sampling by the inspection team.

A critical step in this process was the delineation of different suspect ACBM and definition of homogeneous areas for sampling where necessary to confirm asbestos content. This definition formed the basis upon which subsequent steps of the inspection and management planning process were completed.

In general, homogeneous areas were defined as those in each building that contained a given type of suspect ACBM. ACBM was identified using a consistent coding system as summarized in Table 3-1. This approach involved noting on a building floor plan the location of each type of suspect ACBM using this coding system to delineate different materials (e.g., ceiling tile, floor tile) and different types of each material (e.g., brown floor tile, green floor tile). Following notation of each material, homogeneous areas were defined based upon area, operating system and functional use criteria. For example, all areas containing the same type of floor tile throughout a building as determined by physical appearance, age and general condition were considered to be one

TABLE 3-1

ASBESTOS IDENTIFICATION

MATERIAL CODE LEGEND

MATERIAL CODE	DESCRIPTION
BI	BOILER INSULATION
C	CONCRETE
CT	CEILING TILE
CT1	1 X 1 CEILING TILE
CT2	2 X 2 CEILING TILE
CT3	2 X 4 CEILING TILE
CT4	OTHER CEILING TILE
FFG	FOIL COVERED FIBERGLASS BATT
FT	FLOOR TILE
G	GYPSUM BOARD
GL	GLASS
M	METAL
P	PLASTER (HARD, SMOOTH)
P	PIPE INSULATION
PJI	PIPE JOINT INSULATION
S	SPRAY-ON MATERIAL
TI	TANK INSULATION
TFG	TAR-COVERED FIBERGLASS BATT
T	TECTUM
TB	TRANSITE BOARD
VFG	VINYL COVERED FIBERGLASS BATT
W	WOOD
DI	DUCT INSULATION
FI	FLUE INSULATION
DP	DAMAGED PLASTER (WATER OR CONTACT)
HVAC	HVAC CONNECTION
DW	DOMESTIC WATER
HW	HOT WATER
CW	COLD WATER
SL	STEAM LINE
DB	DECORATIVE BOARD
VI	VALVE INSULATION

homogeneous area. This approach was used even in situations where that type of floor tile was scattered throughout a building. Similarly, each mechanical system component (e.g., boiler tank, hot water piping system) containing similar suspect ACBM was defined as one homogeneous area.

Once homogeneous areas were defined, a sampling strategy was developed for each area to provide random samples of ACBM in accordance with the minimum sampling requirements defined by EPA in 40 CFR 763.86. Table 3-2 provides a summary of this sampling strategy. The selection of sample locations was conducted in a consistent manner to ensure valid unbiased results. The approach to sample location was as follows:

1. Surfacing Material: locations were determined by dividing the area into a 3 X 3 grid pattern and selecting the appropriate number of sample locations using random number tables.

2. Thermal System Insulation: locations were selected in a random manner for each homogeneous thermal system. Samples were taken in locations to minimize insulation damage wherever practical. If homogeneous areas extended throughout broad areas of the building, samples were taken in different sections of the building (e.g., boiler room, hallways, different floors) to ensure a complete profile of the homogeneous system.

3. Miscellaneous Friable Material: location of samples of other suspect friable ACBM such as ceiling tile, surface plasters and fiber board were selected in a random manner for each defined homogeneous area. Samples were taken in locations to minimize the visible damage to these materials such as the edges or hidden locations wherever practical.

4. Nonfriable Suspect ACBM: for nonfriable suspect ACBM not assumed to be ACBM, sample locations were selected in a random manner for each defined homogeneous area. Locations were also selected to minimize visible damage to these materials at the edges or hidden locations wherever practical.

This overall approach was applied universally for all City of Lynchburg facilities to ensure consistent, reproducible results.

TABLE 3-2

SAMPLING STRATEGY
CITY OF LYNCHBURG
ASBESTOS INSPECTION

MATERIAL	MINIMUM NUMBER OF SAMPLES	REASON
Friable Surfacing Material <1000 sf	3	Required number of samples under 763.86
Friable Surfacing Material ≤5000 sf	5	Required number of samples under 763.86
Friable Surfacing Material >5000 sf	7	Required number of samples under 763.86
Non-friable Surfacing Material (e.g., hard plaster) including all layers	3	Minimum number to ensure identification as ACBM
Thermal System Insulation	3	Required number of samples under 763.86
Thermal System Insulation Patch	1	Required number of samples under 763.86
Insulated Mechanical System - Tees, Joints Valves	3	Minimum number to ensure identification as ACBM
Ceiling Tile	3	Minimum number to ensure identification as ACBM (Smaller numbers may be taken for small areas of tile)
Floor Tile, Including Mastic	2	Minimum number to ensure identification as ACBM
Other Non-friable Suspect ACBM	As needed	Minimum number to ensure identification as ACBM

4.0 ANALYTICAL PROCEDURE

40 CFR 763.87 requires that bulk samples be analyzed at laboratories which have received interim accreditation for polarized light microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Analysis Quality Assurance Program. Both EPS laboratories have received accreditation under this program. Bulk samples for this project were analyzed at the EPS-Jackson laboratory, located at 160 Upton Drive, Jackson, Mississippi (EPA Laboratory Identification Number 4551). Procedures used by the laboratory exceed the minimum requirements established by EPA under 40 CFR 763 Appendix A to Subpart F: Interim Method for the Determination of Asbestos in Bulk Insulation Samples. Results of bulk analysis using PLM list the percentage composition of specific types of asbestos (e.g., chrysotile, amosite, crocidolite), total asbestos, and non-asbestos substances such as glass fibers, perlite, plaster, rubberoid, and tile components found in each bulk sample.

5.0 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURE

Rigorous Quality Assurance/Quality Control (QA/QC) procedures were followed by EPS to ensure the integrity and compliance of procedures used for inspection of City of Lynchburg facilities. The QA/QC protocol established by EPS consists of three major components: (1) Field Survey QA/QC, (2) Analytical QA/QC, and (3) Report QA/QC. Each of these areas is discussed below.

5.1 FIELD SURVEY QUALITY ASSURANCE/QUALITY CONTROL

A QA/QC inspection of approximately 20 percent of the gross square footage of buildings surveyed during this project was performed by EPS. The re-inspection was conducted to ensure that all surveys were performed in accordance with guidelines established in the contract and that all material identified was properly sampled and labeled. An independent QA/QC review was also performed with each inspection team involved in the field survey program to ensure uniformity in sampling identification and sampling techniques.

5.2 ANALYTICAL QUALITY ASSURANCE/QUALITY CONTROL

In accordance with EPS standard procedures, analytical QA/QC procedures were followed to ensure the integrity of all sample analyses and analytical techniques by our qualified analysts associated with this project. As part of this program, laboratory blank samples were analyzed by the analyst for comparison with reference results to ensure accurate visual evaluation by our analysts. In addition, five percent of all samples were reanalyzed by an independent laboratory analyst for verification of laboratory results.

5.3 REPORT QUALITY ASSURANCE/QUALITY CONTROL

As part of the internal QA/QC program, all reports were thoroughly inspected by a minimum of three EPS professionals. The report QA/QC program consisted of inspecting all building summaries and analytical and QA/QC results to ensure that all buildings and building materials were properly documented. To aid in the report QA/QC inspections, all reports were thoroughly inspected by the Project Director and inspection team members.

6.0 SUMMARY OF RESULTS

This section presents a summary of the results of the inspection and assessment of ACBM in the Wastewater Treatment Complex. The Wastewater Treatment Complex consists of seven buildings covering 19,319 square feet. A total of 24 bulk samples of suspect material were collected by EPS within the facility.

Table 6-1 presents a summary of ACBM found in the Wastewater Treatment Complex. An assessment of friable ACBM was conducted to characterize the material in order to define appropriate response actions. Table 6-1 also presents a summary of the assessment of friable ACBM within the Wastewater Treatment Complex based on visual inspection of the type, severity and extent of damage.

The detailed results of this inspection and assessment are provided in the following Appendices:

- Appendix A provides the survey summary for each sample collected.
- Appendix B presents floor plan(s) showing the location of all samples taken and distribution of ACBM.
- Appendix C provides the detailed analytical results for each sample.
- Appendix D provides detailed response actions.
- Appendix E provides facility photographs.
- Appendix F presents the Operations and Maintenance Plan.

TABLE 6-1
SUMMARY OF ASBESTOS-CONTAINING MATERIAL
WASTEWATER TREATMENT COMPLEX

MATERIAL	LOCATION	ESTIMATED QUANTITY	ASSESSMENT CATEGORY*	PERCENT ASBESTOS
Floor Tile 1	Halls, Lounge, Storage	800 sf	5	trace
Floor Tile 3	Lab Room	675 sf	5	trace
Floor Tile 2	Storage	20 sf	5	trace
Pipe Insulation	Above ceiling in Lab and Hall	26 lf	1	5 - 10

* Assessment Categories:

1. Damaged or significantly damaged thermal system insulation ACM.
2. Damaged friable surfacing ACM.
3. Significantly damaged friable surfacing ACM.
4. Damaged or significantly damaged friable miscellaneous ACM.
5. ACBM with potential for damage.
6. ACBM with potential for significant damage.
7. Any remaining friable ACBM or friable suspected ACBM.

TABLE 6-1
SUMMARY OF ASBESTOS-CONTAINING MATERIAL
HEAT TREATMENT FACILITY

MATERIAL	LOCATION	ESTIMATED QUANTITY	ASSESSMENT CATEGORY	PERCENT ASBESTOS
NO ACM WAS FOUND THROUGH THIS INSPECTION. A SUMMARY OF ANALYTICAL RESULTS CAN BE FOUND IN APPENDIX C. FLOOR PLANS CAN BE FOUND IN APPENDIX B.				

TABLE 6-1
SUMMARY OF ASBESTOS-CONTAINING MATERIAL
AMMONIA BUILDING

MATERIAL	LOCATION	ESTIMATED QUANTITY	ASSESSMENT CATEGORY	PERCENT ASBESTOS
NO ACM WAS FOUND THROUGH THIS INSPECTION.				

TABLE 6-1
SUMMARY OF ASBESTOS-CONTAINING MATERIAL
ELECTRICAL EQUIPMENT BUILDING

MATERIAL	LOCATION	ESTIMATED QUANTITY	ASSESSMENT CATEGORY	PERCENT ASBESTOS
NO ACM WAS FOUND THROUGH THIS INSPECTION.				

TABLE 6-1
SUMMARY OF ASBESTOS-CONTAINING MATERIAL
MAINTENANCE BUILDING

MATERIAL	LOCATION	ESTIMATED QUANTITY	ASSESSMENT CATEGORY	PERCENT ASBESTOS
NO ACM WAS FOUND THROUGH THIS INSPECTION. A SUMMARY OF ANALYTICAL RESULTS CAN BE FOUND IN APPENDIX C. FLOOR PLANS CAN BE FOUND IN APPENDIX B.				

TABLE 6-1
SUMMARY OF ASBESTOS-CONTAINING MATERIAL
NON-POTABLE WATER BUILDING

MATERIAL	LOCATION	ESTIMATED QUANTITY	ASSESSMENT CATEGORY	PERCENT ASBESTOS
NO ACM WAS FOUND THROUGH THIS INSPECTION.				

TABLE 6-1
SUMMARY OF ASBESTOS-CONTAINING MATERIAL
SCREEN BUILDING

MATERIAL	LOCATION	ESTIMATED QUANTITY	ASSESSMENT CATEGORY	PERCENT ASBESTOS
NO ACM WAS FOUND THROUGH THIS INSPECTION.				

7.0 RECOMMENDATIONS

Based on the inspection results for the Wastewater Treatment Complex, Table 7-1 presents a summary of the recommendations for management of asbestos-containing building materials. A detailed description of these recommendations is provided in Appendix D. As shown, repair is needed for all thermal system insulation located above the ceiling in the lab and the hall. Following repair, thermal system insulation as well as ACM floor tiles should be incorporated into the Operations and Maintenance Program (O&M) provided in Appendix F.

TABLE 7-1
SUMMARY OF RECOMMENDATIONS
WASTEWATER TREATMENT COMPLEX

MATERIALS ADDRESSED	LOCATION	RECOMMENDATION*
1. Floor Tile	Halls, Lounge, Storage, Lab Room	O&M Plan
2. Pipe Insulation	Above ceilings in Lab and Hall Basement	Repair damaged thermal insulation and incorporate into O&M Plan.

* See Appendix D for a detailed explanation of the response action recommendation.

8.0 RESOURCE REQUIREMENTS

This section presents an estimate of economic and other resources required by the City of Lynchburg to complete recommended response actions and carry out additional management activities including reinspections, operations and maintenance activities, periodic surveillance and training activities required at the Wastewater Treatment Complex. Resource requirements are summarized in Table 8-1. For comparison, Table 8-2 gives a detailed summary of cost for removal of all ACBM from the building. Table 8-3 provides a unit cost summary of replacement and removal costs. All costs were based on current (1988) market conditions in the Mid-Atlantic region. Some fluctuation of these costs may occur in the future due to the increase market demand in the asbestos industry.

TABLE 8-1
SUMMARY OF RESOURCE NEEDS
WASTEWATER TREATMENT COMPLEX

ACTION	COST ESTIMATE (1988 DOLLARS)
1. Initial Cleaning	$ 500
2. Repair damaged pipe insulation	$ 100
3. O&M Program	$ 500
TOTAL	$ 1,100

TABLE 8-2
SUMMARY OF TOTAL REMOVAL COSTS
WASTEWATER TREATMENT COMPLEX

	MATERIAL	REMOVAL COST	REPLACEMENT COST	TOTAL
1.	Floor Tile 1	$ 2,400	$ 1,600	$ 4,000
	Floor Tile 2	60	40	100
	Floor Tile 3	2,025	1,350	3,375
2.	Pipe Insulation	780	390	1,170
	TOTAL	$ 5,265	$ 3,380	$ 8,645

TABLE 8-3
ENVIRONMENTAL PROTECTION SYSTEMS
UNIT COST SUMMARY 1988

MATERIAL	REMOVAL COST	REPLACEMENT COST	TOTAL COST	
PIPE INSULATION	20	10	$ 30	($15-40/LF)
PIPE JOINT INSULATION:				
W/PI	20	10	$ 30	($15-40/EA)
W/O PI	30	15	$ 45	($20-100/EA)
TANK INSULATION	15	10	$ 25	($15-30/SF)
BOILER INSULATION	15	10	$ 25	($20-30/SF)
DUCT INSULATION	10	10	$ 20	($10-50/SF)
FLUE INSULATION	10	10	$ 20	($10-50/SF)
CEILING TILES	5	2.50	$ 7.50	($5-20/SF)
ACOUSTICAL PLASTER	17	3	$ 20	($10-30/SF)
HARD PLASTER	25	5	$ 30	($10-40/SF)
SPRAY-ON FIRE-PROOFING	12	3	$ 15	($10-30/SF)
FLOOR TILES	3	2	$ 5	($3-10/SF)
SOILS (2")	3	-	$ 3	($1-10/SF)
CLEAN $0.50/SF				

LIST OF APPENDICES

APPENDIX A - SURVEY SUMMARY

SURVEY SUMMARY
WASTEWATER TREATMENT COMPLEX

MATERIAL	CODE	LOCATION	NO. OF SAMPLES	ESTIMATED QUANTITY
Floor Tile	FT-1	Hall, Lounge, Storage	2	800 sf
	FT-2	Storage	2	20 sf
	FT-3	Lab Room	2	675 sf
Ceiling Tile	CT2-1	Offices, Labs, Operations	3	2,000 sf
	CT2-2	Lab, Hall	2	100 sf
Pipe Insulation	PI	Above ceilings in Lab and Hall	4	26 lf
Pipe Joint Insulation	PJI	Chlorine Storage	3	5 joints

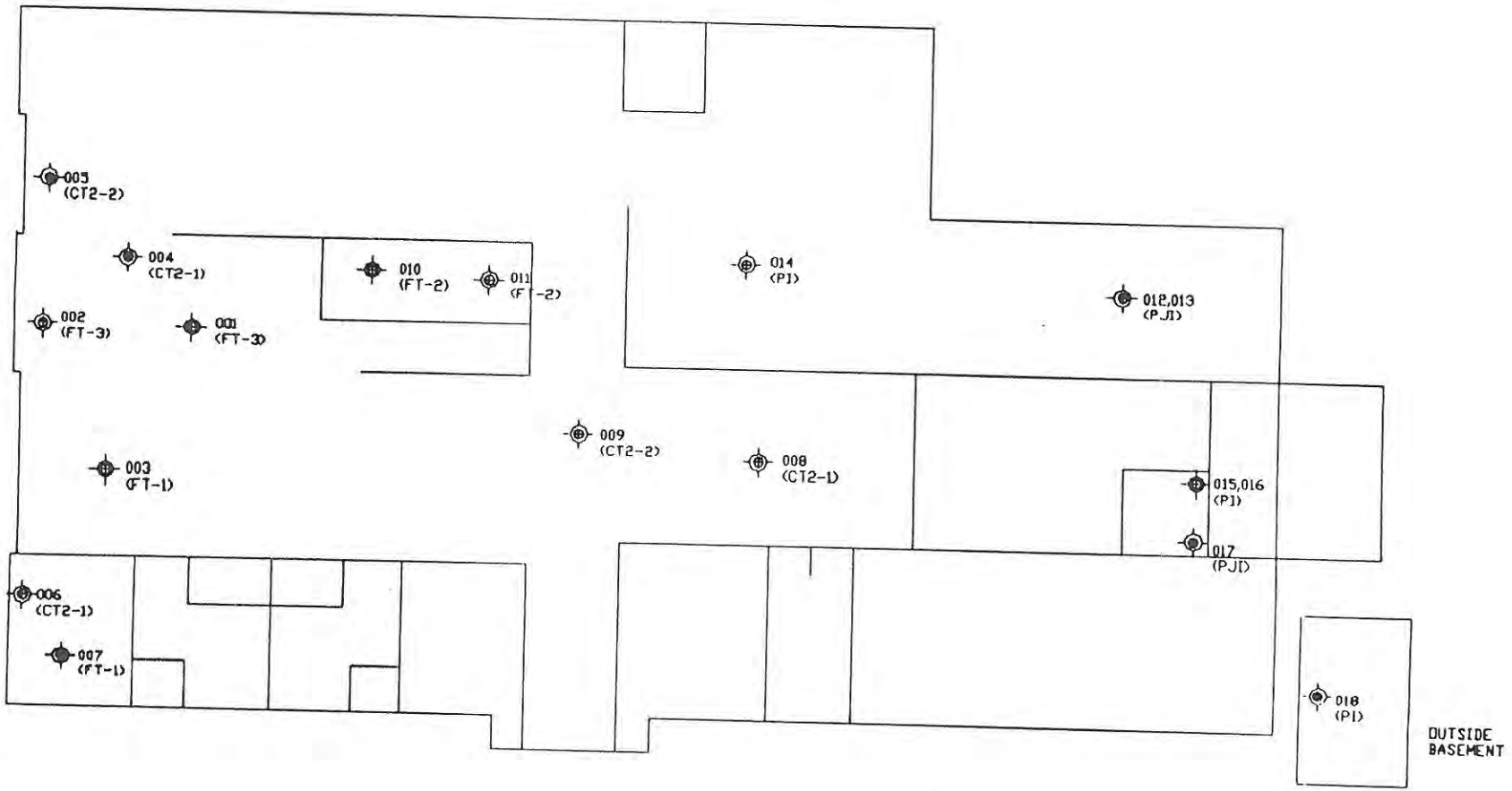
SURVEY SUMMARY
HEAT TREATMENT FACILITY

MATERIAL	CODE	LOCATION	NO. OF SAMPLES	ESTIMATED QUANTITY
Ceiling Tile	CT2-1	Office, Restroom	2	100 sf
Pipe Insulation	PI	Opposite of Entrance	1	1 lf

SURVEY SUMMARY
MAINTENANCE BUILDING

MATERIAL	CODE	LOCATION	NO. OF SAMPLES	ESTIMATED QUANTITY
Ceiling Tile	CT2-1	Office, Restroom	3	160 sf

APPENDIX B - FLOOR PLANS



LEGEND

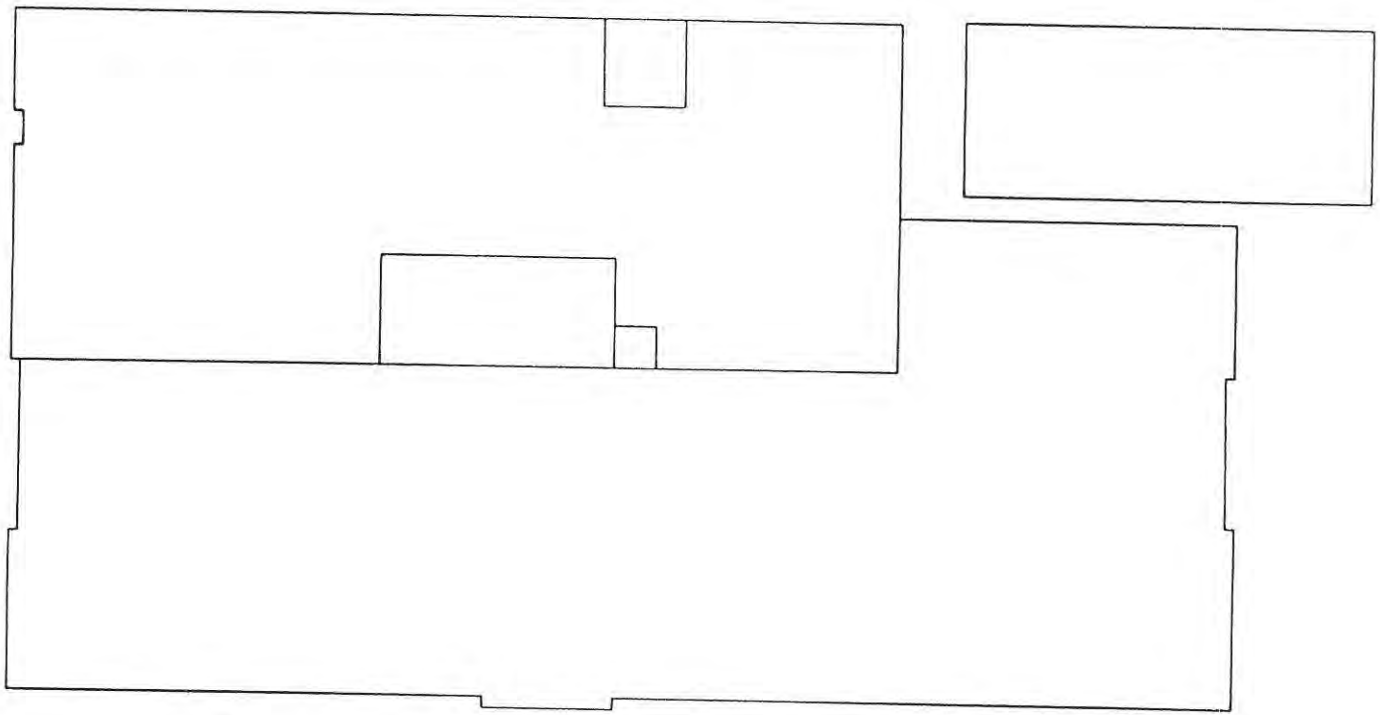
SAMPLE POINT-POSITIVE

SAMPLE POINT-NEGATIVE

FIRST FLOOR
SAMPLE POINT LOCATIONS

ENVIRONMENTAL PROTECTION SYSTEMS
3000 CONCORDE PARKWAY, SUITE 2100
CHANTILLY, VA 22021
JACKSON, MS MEMPHIS, TN
PENSACOLA, FL NASHVILLE, TN FAIRLAWN, NJ
ENGINEERS, PLANNERS, SCIENTISTS

PROJECT NAME:	WASTEWATER TREATMENT PLANT		
SCALE:	NONE	DRAWN BY:	SBI
DATE:	DECEMBER 14, 1988	APPROVED BY:	BJB



NO POINTS

LEGEND

- SAMPLE POINT-POSITIVE
- SAMPLE POINT-NEGATIVE

SECOND FLOOR
SAMPLE POINT LOCATIONS

ENVIRONMENTAL PROTECTION SYSTEMS
3000 CONCORDE PARKWAY, SUITE 2100
CHANTILLY, VA 22021
JACKSON MS MEMPHIS, TN
PENSACOLA FL NASHVILLE, TN FAIRLAWN, NJ
ENGINEERS, PLANNERS, SCIENTISTS

PROJECT NAME:	WASTEWATER TREATMENT PLANT		
SCALE:	NONE	DRAWN BY:	SRI
DATE:	DECEMBER 14, 1988	APPROVED BY:	BJB
PROJECT NUMBER:	6.88.1201.01	DRAWING NUMBER:	

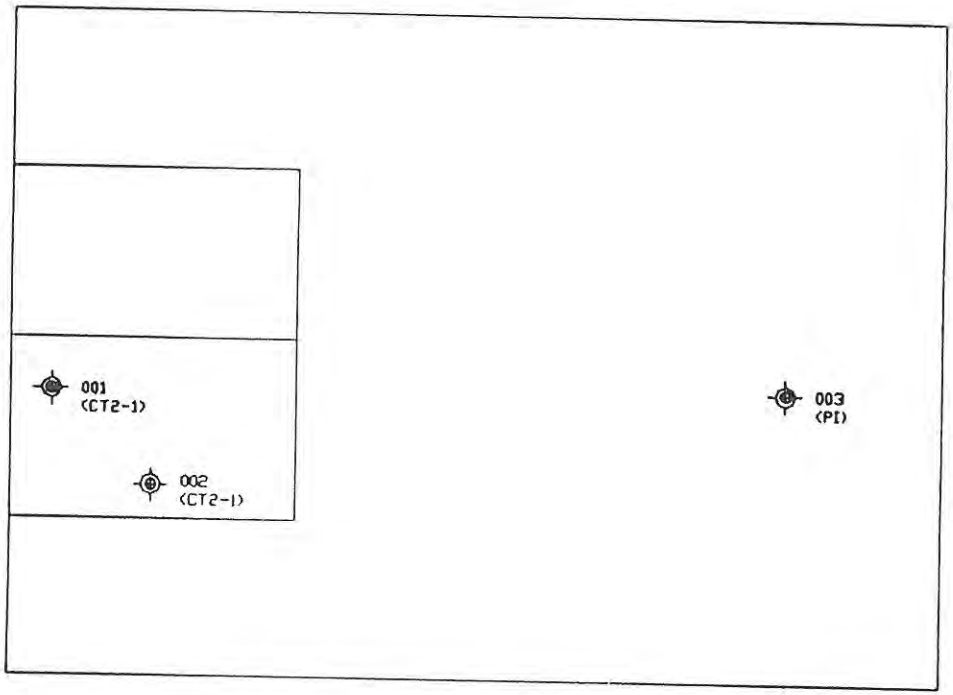
NOTE:
26 L.F. OF PIPE INSULATION WAS FOUND TO BE ACM, THEREFORE, ALL PI SHOULD BE ASSUMED ACM.

LEGEND
ACM FLOOR TILE
ACM CEILING TILE

FIRST FLOOR
FLOOR AND CEILING TILE LOCATIONS

ENVIRONMENTAL PROTECTION SYSTEMS
3000 CONCORDE PARKWAY, SUITE 2180
CHANTILLY, VA 22021
JACKSON, MS MEMPHIS, TN
PENSACOLA, FL NASHVILLE, TN FAIRLAWN, NJ
ENGINEERS, PLANNERS, SCIENTISTS

PROJECT NAME:	WASTEWATER TREATMENT PLANT		
SCALE:	NONE	DRAWN BY:	SBI
DATE:	DECEMBER 14, 1988	APPROVED BY:	BJB
PROJECT NUMBER:	6.89.1203.01	DRAWING NUMBER:	1203.01.110.03



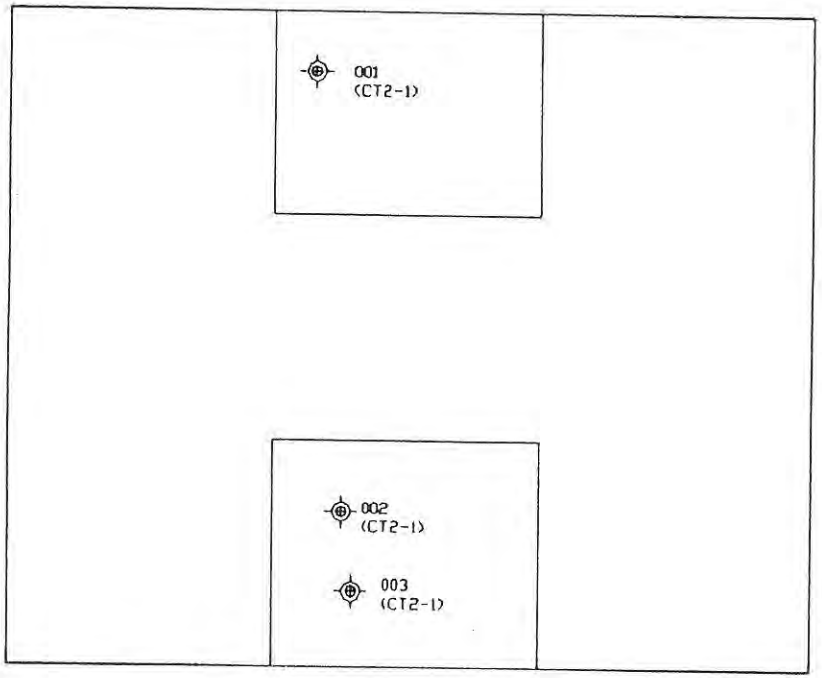
LEGEND

- SAMPLE POINT-POSITIVE
- SAMPLE POINT-NEGATIVE

SAMPLE POINT LOCATIONS

ENVIRONMENTAL PROTECTION SYSTEMS
2000 CONCORDE PARKWAY, SUITE 8100
CHANTILLY, VA 22021
JACKSON, MS MEMPHIS, TN
PENSACOLA FL NASHVILLE, TN FAIRLAWN, NJ
ENGINEERS, PLANNERS, SCIENTISTS

PROJECT NAME:	HEAT TREATMENT BUILDING
SCALE:	NONE
DRAWN BY:	SBI
DATE:	DECEMBER 14, 1998
APPROVED BY:	DJB
PROJECT NUMBER:	6.00.1202.01
DRAWING NUMBER:	



LEGEND

- SAMPLE POINT-POSITIVE
- SAMPLE POINT-NEGATIVE

SAMPLE POINT LOCATIONS

ENVIRONMENTAL PROTECTION SYSTEMS
3000 CONCORDE PARKWAY, SUITE #100
CHANTILLY, VA. 22021
JACKSON, MS MEMPHIS, TN
PENSACOLA, FL NASHVILLE, TN FAIRLAWN, NJ
ENGINEERS, PLANNERS, SCIENTISTS

PROJECT NAME:	MAINTENANCE BUILDING		
SCALE:	NONE	DRAWN BY:	SBI
DATE:	DECEMBER 14, 1988	APPROVED BY:	BJB
PROJECT NUMBER:		DRAWING NUMBER:	

APPENDIX C - ANALYTICAL RESULTS

ENVIRONMENTAL PROTECTION SYSTEMS
ANALYTICAL RESULTS

Client Name: City of Lynchburg
Project No.: 6.89.1203.01
Project Location: W.W. Treatment Plant Cplx.
Building ID: 110
Date Collected: 11/15/88 Date Analyzed: 11/22/88
Collector: Susan Gee
Analyst: Deborah Smith

LAB ID NO.	DESCRIPTION	
001	FT-3	Lab Room
002	FT-3	Lab Room
003	FT-1	Hallway
004	CT2-1	Lab Room
005	CT2-2	Lab Room
006	CT2-1	Change Room - Lounge
007	FT-1	Change Room - Lounge
008	CT2-1	Operations
009	CT2-2	Operations
010	FT-2	Storage

	PERCENT COMPOSITION										
LAB ID NO. -->	001	Dup	002	003	004	005	006	007	008	009	010
Chrysotile	Trace	Trace		Trace							
Amosite											Trace
Crocidolite											
TOTAL ASBESTOS	Trace*	Trace*	ND	Trace	ND	ND	ND	ND	ND	ND	Trace*
Glass Fibers					40	40	40		40	40	
Wood Fibers											
Cellulose Fibers					25	25	25		25	25	
Plastic Fibers											
Perlite					20	20	20		20	20	
Diatoms											
Quartz											
Vermiculite											
Mortar/Plaster					5	5	5		5	5	
Plastic											
Paint					10	10	10		10	10	
Tar/Adhesive											
Tile Components	95	97	100	99				100			95
Soil											
Asphalt	4	2									4

COMMENTS: * Asbestos in Asphalt only.