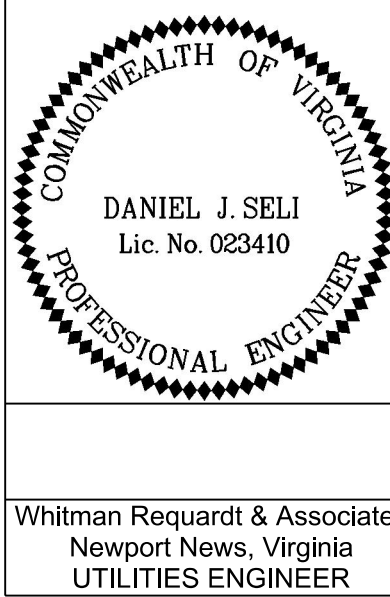


PROJECT MANAGER: KEN MCKINNA, PE (757) 925-2406
SURVEYED BY, DATE: DANNY R. WILLIAMS (757) 925-2657
DESIGN BY: WHITMAN, REQUARDT, AND ASSOCIATES, LLP (757) 599-5101
SUBSURFACE UTILITY BY, DATE: ACCUMARK, INC. (757) 767-3147
HAMPTON ROADS DISTRICT DESIGN UNIT



REVISED	STATE	ROUTE	STATE	PROJECT	SHEET NO.
	VA.	612		0612-047-631, C-501	14(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

LONGHILL RD.

001

Utility Owners

Water and Sewer:
James City Service Authority
119 Tewning Road
Williamsburg, VA 23188
Michael Youshock
757.259.5451

Hampton Roads Sewer District
1436 Air Rail Avenue
Virginia Beach, VA 23455
757.460.2261

Power:

Dominion Virginia Power
701 E. Cary St.
Andrew J. Brooks
Underground Damage Prevention Manager
Dominion Emergency Preparedness Center
804-771-3655
804-514-2277 cell

Telecomm:

Cox Communications
Vicki Kincaid
HFC Designer III/EAST REGION Design Team
757-222-6579 / 757-369-6261

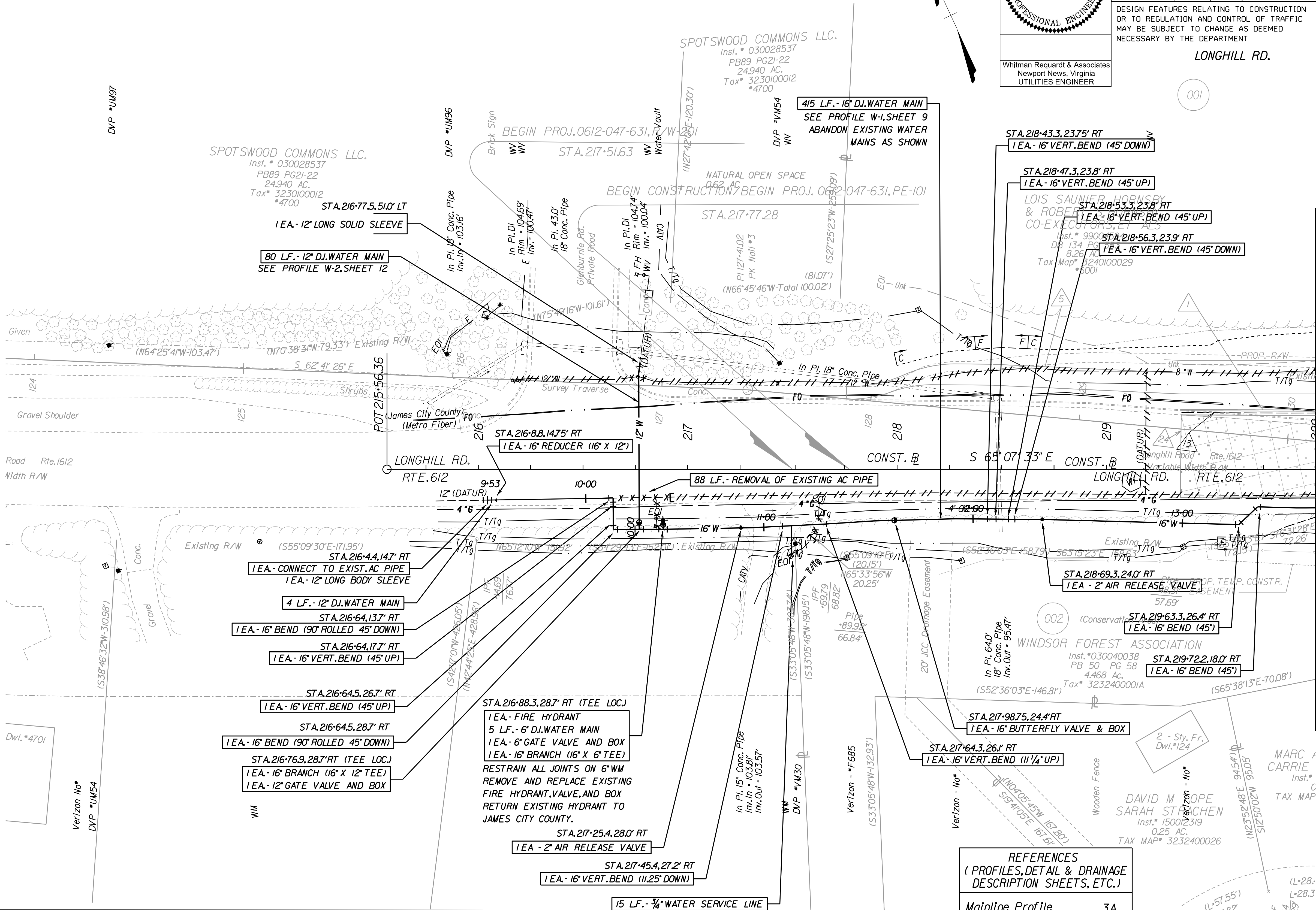
Verizon
William C. Swann Jr
Verizon Virginia Inc.
Outside Plant Engineering
Highway Department
2600 Brittons Hill Rd
2nd Floor
Richmond, VA 23230
804.772.4409
804.772.5978

James City Information
Mike Bowler
757-890-0143
Metro Fiber
Ray Dehart
757-876-9637

Gas:

Virginia Natural Gas
150 W. Main St.
Norfolk, VA 23502
757-455-2000

Kevin D. Starke
Senior Engineering Technician
Engineering Services
757-616-7529 office
757-449-0825 mobile
757-616-7517 fax



LEGEND

- Denotes Drainage Structure Number
[C] Denotes Construction Limits In Cuts
[E] Denotes Construction Limits In Fills
[X] Denotes Areas Of Demolition Of Flexible Pavement.

- 00'-00' Figures without parenthesis or brackets and solid lines denote Proposed Right of Way.
00'-00' Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
00'-00' Figures in double brackets and dot-dot-dashed lines denote Permanent Utility Easements.

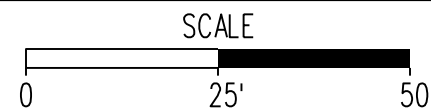
- ① Denotes existing structure & pipe to be removed.
② Denotes existing structure & pipe to be cleaned out.
③ Denotes Prop. Pavement
④ Denotes Pavement to be Milled and Overlaid
- 1 ST'D. CG-7 REQ'D.
2 RAD. CG-7 REQ'D.
3 ST'D. CG-3 REQ'D.
4 ST'D. MS-2 REQ'D.

- 5 10' SHARED USE PATH
6 5' CEM. CONC. SIDEWALK

NOTES
See General Notes for E&S Legend

REFERENCES
(PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

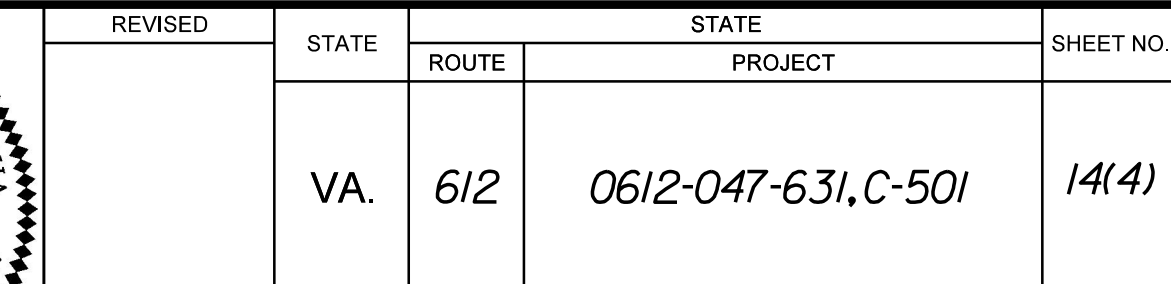
Mainline Profile	3A
Drainage Descr.	-
Conn. Profiles	-
Entr. Profiles	-



PROJECT	SHEET NO.
0612-047-631	14(3)
















MATCH LINE STATION 220+00 SHEET NO. 4

SEE SHEET 3 FOR UTILITY OWNERS



LONGHILL RD.

LEGEND


- | | | | | | | | |
|---|---|---|---|---|--|---|-------------------|
|  | Denotes Drainage Structure Number |  | Figures without parenthesis or brackets and solid lines denote Proposed Right of Way. |  | Denotes existing structure & pipe to be removed. |  | ST'D. CG-7 REQ'D. |
|  | Denotes Construction Limits In Cuts |  | Figures in parenthesis and dot - dot - dashed lines denote Temporary Easements. |  | Denotes existing structure & pipe to be cleaned out. |  | RAD. CG-7 REQ'D. |
|  | Denotes Construction Limits in Fills |  | Figures in double brackets and dot - dashed lines denote Permanent Utility Easements. |  | Denotes Prop. Pavement |  | ST'D. CG-3 REQ'D. |
|  | Denotes Areas Of Demolition of Flexible Pavement. |  | | | |  | ST'D. MS-2 REQ'D. |

NOTES

See General Notes for E&S Legend

REFERENCES (PROFILES,DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Mainline Profile	4A
Drainage Descr.	2J & 2K
Conn.Profiles	-
Entr.Profiles	9

SCALE



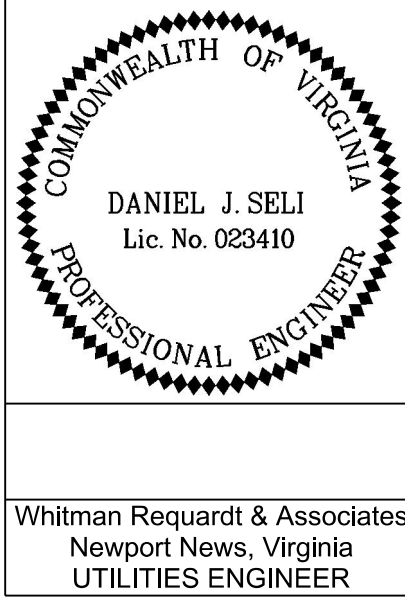
25' 50'

PROJECT
06/2-047-631

SHEET NO.
14(4)

PROJECT MANAGER: KEN MCKINNA, PE (757) 925-2406
SURVEYED BY: DATE: DANNY R. WILLIAMS (757) 925-2657
DESIGN BY: WHITMAN, REQUARDT, AND ASSOCIATES, LLP (757) 599-5101
SUBSURFACE UTILITY BY: DATE: ACCUMARK, INC. (757) 767-3147
SEE SHEET 3 FOR UTILITY OWNERS

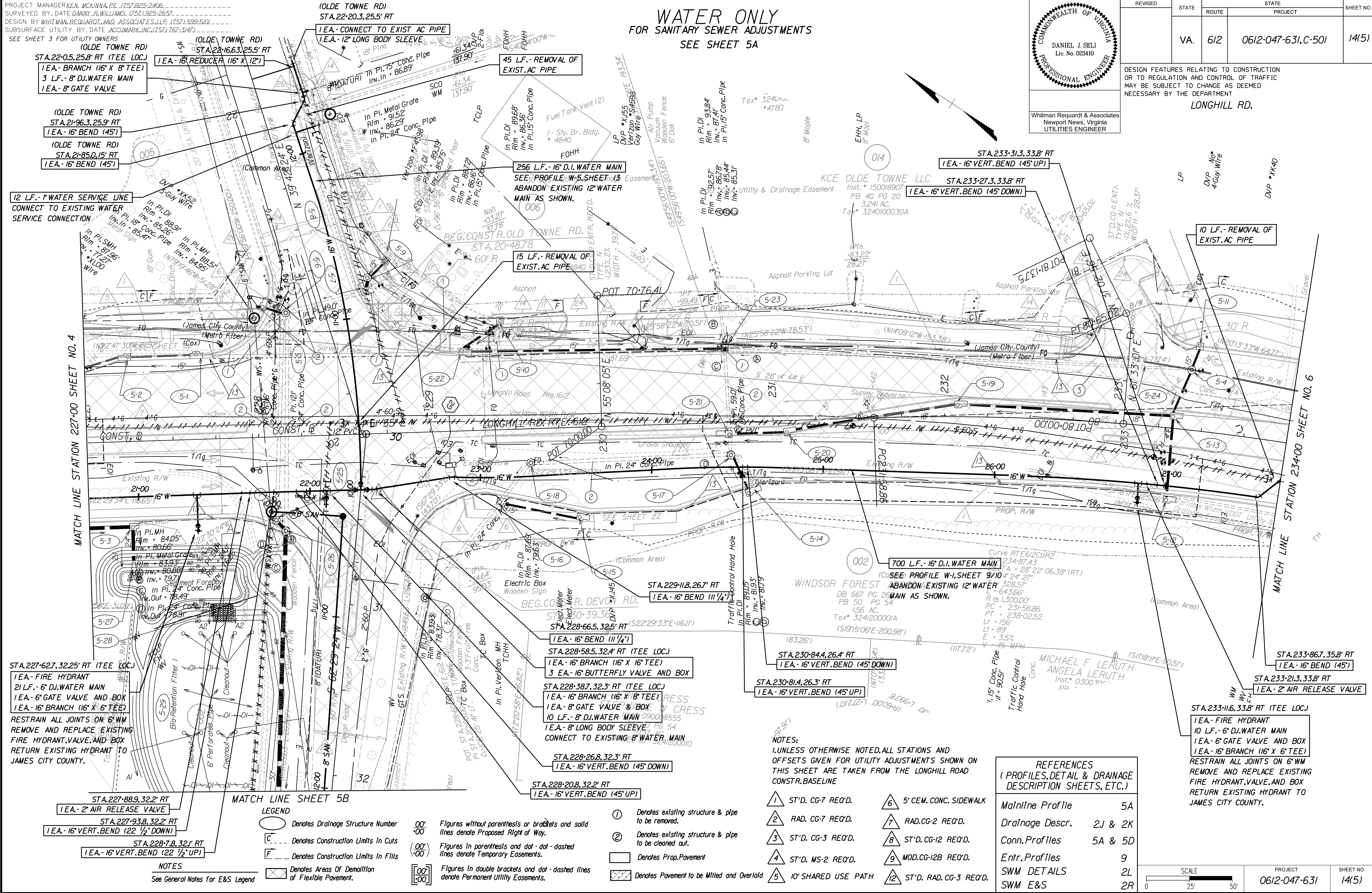
WATER ONLY
FOR SANITARY SEWER ADJUSTMENTS
SEE SHEET 5A



REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	612	0612-047-631, C-501	14(15)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

LONGHILL RD.



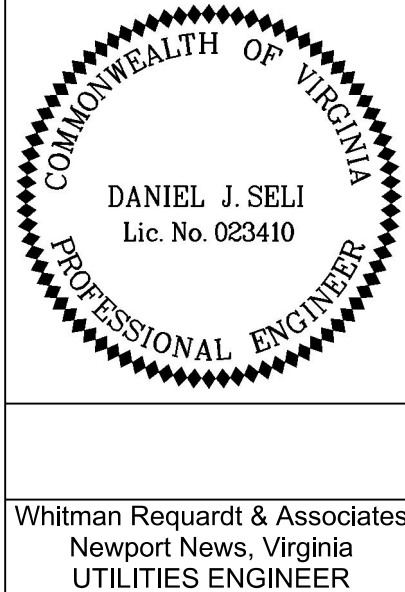
PROJECT MANAGER: KEN MCKINNA, PE (757) 925-2406
SURVEYED BY: DATE DANNY R. WILLIAMS (757) 925-2657
DESIGN BY: WHITMAN, REQUARDT, AND ASSOCIATES, LLP (757) 599-5101
SUBSURFACE UTILITY BY: DATE ACCUMARK, INC. (757) 767-3147

SEE SHEET 3 FOR UTILITY OWNERS

SANITARY SEWER ONLY

FOR WATER ADJUSTMENTS

SEE SHEET 5



REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	612	0612-047-631, C-501	14(5A)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

LONGHILL RD.

Whitman Requardt & Associates
Newport News, Virginia
UTILITIES ENGINEER

1EA- ADJUST EXIST. FRAME & COVER

CLEANOUT
ADJUST TO FINAL
FINISHED GRADE.

1EA- ADJUST EXIST. FRAME & COVER

MANHOLE 15305-112
ADJUST TO FINAL
FINISHED GRADE.

12 L.F.- RECONSTRUCT EXIST. SANITARY MANHOLE
1EA- MANHOLE FRAME & COVER WF&C-1

MANHOLE 15305-III
SEE SANITARY MANHOLE 15305-III
RECONSTRUCTION DETAIL ON SHEET 16

NOTES

See General Notes for E&S Legend

LEGEND

- Denotes Drainage Structure Number
- Denotes Construction Limits In Cuts
- Denotes Construction Limits In Fills
- Denotes Areas Of Demolition Of Flexible Pavement.

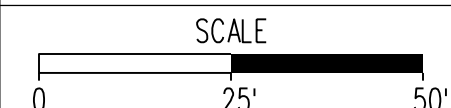
- Figures without parenthesis or brackets and solid lines denote Proposed Right of Way.
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- Denotes Prop. Pavement
- Denotes Pavement to be Milled and Overlaid

- ST'D. CG-7 REQ'D.
- RAD. CG-7 REQ'D.
- ST'D. CG-3 REQ'D.
- ST'D. MS-2 REQ'D.
- 10' SHARED USE PATH
- 5' CEM. CONC. SIDEWALK
- RAD. CG-2 REQ'D.
- ST'D. CG-12 REQ'D.
- MOD. CG-12B REQ'D.
- ST'D. RAD. CG-3 REQ'D.

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

Mainline Profile	5A
Drainage Descr.	2J & 2K
Conn. Profiles	5A & 5D
Entr. Profiles	9
SWM DETAILS	2L
SWM E&S	2R



PROJECT	SHEET NO.
0612-047-631	14(5A)

PROJECT MANAGER: KEN MCKINNA, PE (757) 925-2406
SURVEYED BY, DATE: DANNY R. WILLIAMS (757) 925-2657
DESIGN BY: WHITMAN, REQUARDT, AND ASSOCIATES, LLP (757) 599-5101
SUBSURFACE UTILITY BY, DATE: ACCUMARK, INC. (757) 767-3147

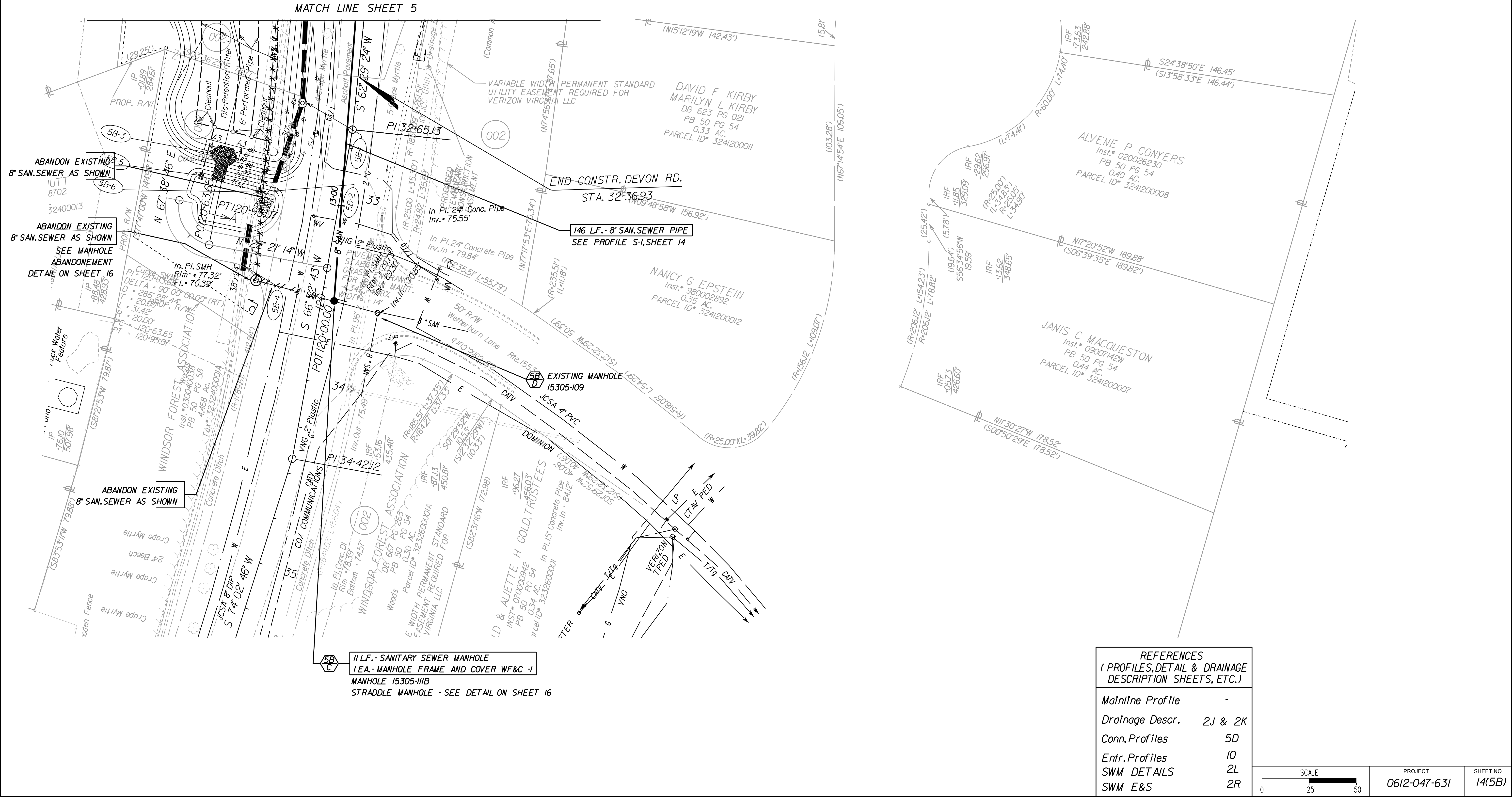
SEE SHEET 3 FOR UTILITY OWNERS



Whitman Requardt & Associates
Newport News, Virginia
UTILITIES ENGINEER

REVISED	STATE	ROUTE	STATE	PROJECT	SHEET NO.
	VA.	612		0612-047-631, C-501	14(5B)

DESIGN FEATURES RELATING TO CONSTRUCTION
OR TO REGULATION AND CONTROL OF TRAFFIC
MAY BE SUBJECT TO CHANGE AS DEEMED
NECESSARY BY THE DEPARTMENT



Proposal ID: C0000100921C01

Oversight/State Project No.: (NFO) 0612-047-631, C501

Order No.: A72

Federal Project No.: STP-5A03 (684)

Contractor: _____

SECTION: 0001

REGULAR BID ITEMS

Cat Alt Set ID:

Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
				Dollars	Cents	Dollars	Cents
1820	510	42765 ADJUST EXIST FRAME & COVER	6.000 EA	_____	_____	_____	_____
1830	520	42771 RECONSTRUCT EXISTING SANITARY MANHOLE	24.000 LF	_____	_____	_____	_____
1840	ATTD	45505 CONNECT TO EXIST. A/C PIPE	2.000 EA	_____	_____	_____	_____
1850	ATTD	45506 REMOVE EXIST. A/C PIPE	189.000 LF	_____	_____	_____	_____
1860	701	50108 SIGN PANEL	621.000 SF	_____	_____	_____	_____
1870	700	50430 SIGN POST STP-1, 2", 14 GAUGE	487.000 LF	_____	_____	_____	_____
1880	700	50432 SIGN POST STP-1, 2 3/16", 10 GAUGE	24.000 LF	_____	_____	_____	_____
1890	700	50434 SIGN POST STP-1, 2 1/2", 10 GAUGE	73.000 LF	_____	_____	_____	_____
1900	700	50436 SIGN POST STP-1, 2 1/2", 12 GAUGE	402.000 LF	_____	_____	_____	_____
1910	700	50487 CONCRETE SIGN FOUNDATION STP-1, TYPE C	5.000 EA	_____	_____	_____	_____
1920	700	50488 CONCRETE SIGN FOUNDATION STP-1, TYPE D	39.000 EA	_____	_____	_____	_____
1930	700	50489 CONCRETE SIGN FOUNDATION STP-1, TYPE E	31.000 EA	_____	_____	_____	_____

Revised June 13, 2019

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

[SP516-000100-00](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
REMOVAL OR CONNECTION OF ASBESTOS CEMENT PIPE

November 7, 2005cc; Reissued July 12, 2016

I. GENERAL

The Contractor is advised that the existing pipe on this project that is scheduled for removal or for connection may contain asbestos. The Contractor shall assume any pipe designated on the plans as asbestos cement (A/C) pipe contains asbestos in a quantity sufficient to be a health hazard if found in a friable condition or made friable during removal or connection. A/C pipe is a "facility component" as defined in 40 CFR 61.141. The U.S. Environmental Protection Agency and the Virginia Department of Labor and Industry consider A/C pipe to be Category II non-friable asbestos-containing materials. Disposal of A/C is regulated by the Virginia Department of Environmental Quality.

II. PROCEDURES

Modifications of, connections to, or removal of A/C pipe that involve breaking, crushing, saw-cutting or abrading shall comply with the VDOT *Special Provision for Asbestos Removal for Road Construction Projects*.

This Special Provision applies to all removal modifications to A/C pipe where the A/C pipe is removed intact by disconnecting at the slip (bell) joint (with no breakage) and where any subsequent connections are made without disturbing the integrity of the existing pipe. If at any time the Contractor determines that the pipe cannot be removed without breakage, abrading, cutting or crushing, the Contractor shall cease work and resume operations according to the VDOT *Special Provision for Asbestos Removal for Road Construction Projects*.

The Contractor shall spray and saturate pipe joints with amended water prior to disturbing any pipe.

No "T"-type connections shall be made to existing pipe by internally piercing or breaking existing potable water pipe without pre- and post-connection monitoring for asbestos fibers in water downstream of the connection. Any results that exceed 7 million fibers per liter (7MFL) shall be reported immediately to the Engineer.

VDOT, at its discretion, may employ an asbestos project monitor to observe and monitor removal operations of intact A/C pipe. If such monitoring determines that asbestos fibers are being released above the applicable action level or the pipe becomes friable, the Contractor shall cease operations on the pipe and take appropriate corrective action to comply with all applicable federal, state, and local regulations.

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

Removal, connection, hauling, and disposal shall be performed according to 40CFR 61.140-61.157 (Subpart M-National Emission Standard for Asbestos), with 29 CFR 1926.1101 (Subpart Z-Toxic and Hazardous Substances), and with all state, regional, and local standards. The Contractor shall ensure that the intact A/C pipe sections remain intact during loading and hauling of the material to the licensed disposal facility. The Contractor shall double bag or wrap A/C pipe in plastic and seal and mark the materials. The Contractor shall only dispose of the material in a permitted landfill that provides daily soil cover and only after the Contractor has provided notification to the landfill that the material is non-friable/non-regulated ACM. Within 35 days of the deposit of the waste in the landfill, the Contractor shall submit to the Engineer a copy(s) of the certificate of disposal from the landfill. VDOT must receive all acceptable waste manifests/certificates of disposal prior to making payment to the Contractor.

With approval of the Engineer, abandoned portions of A/C pipe may be left in place of origin and backfilled provided that the pipe is not crushed; however, pipe that is scheduled to be abandoned may not be removed and re-deposited. With approval of the Engineer, the Contractor may pump grout into buried lines that are no longer in service to maintain the structural weight bearing capacity of the area. No on-site burial of crushed A/C pipe will be allowed.

III. MEASUREMENT AND PAYMENT

Connection to existing A/C pipe will be measured and paid for at the contract unit price per each for each connection.

Removal of existing A/C pipe (without disturbing integrity of pipe) will be measured and paid at the contract unit price per linear foot for the length of pipe actually removed (back to the closest joint).

Payment for these items shall include all material, labor, and equipment necessary for excavation, disassembly, tie-ins, backfill, line abandonment including grout, documentation and disposal of A/C pipe.

Payment will be made under:

Pay Item	Pay Unit
Connection to Existing A/C Pipe	Each
Remove Existing A/C Pipe	Linear Foot

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

[SP522-000220-00](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
ASBESTOS REMOVAL FOR ROAD CONSTRUCTION DEMOLITION PROJECTS

March 14, 2017

I. DESCRIPTION

1. The Special Provision shall only apply to the removal of asbestos from structures that will be demolished and not reoccupied. Asbestos removal from any structure that is to be reoccupied (e.g. construction project offices, leased structures, etc.) shall comply with the *Special Provision for the Removal of Asbestos for Re-Occupied Structures*.
2. The Contractor shall furnish all labor, materials, supplies, and equipment necessary to legally remove and dispose of the materials identified in the Department's asbestos inspection reports, as required for removal and abatement.

All quantities are estimates. The bidder shall be responsible for ascertaining the exact amount of material to be removed and to base their bid on that quantity.

Payment shall be made for separate layers of similar Asbestos Containing Material (ACM) (e.g. floor tiles, roofing, etc.) only if it is physically separated by one or more layers of non-ACM.

3. This work may require the removal of existing flashing and miscellaneous trim in order to remove asbestos containing materials.

II. DEFINITIONS AND ABBREVIATIONS

1. **ABATEMENT:** Procedures to control fiber releases from asbestos containing building materials. Includes securing the work area, removing the material, and clearing the area and disposal of the material.
2. **ABATEMENT CONTRACTOR:** The company or individual properly licensed in the Commonwealth of Virginia by the Virginia Department of Professional and Occupational Regulations who conducts asbestos abatement activities such as, but not limited to, removal, encapsulation or enclosure of asbestos-containing materials.
3. **AIRBORNE ASBESTOS FIBERS:** Suspended, settling or moving asbestos fibers or fiber bundles in air.
4. **AIR LOCK:** A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area, consisting of two curtained doorways separated by a dead air space of at least four feet.
5. **AIR MONITORING:** The process of measuring the fiber content of a specific volume of air in a stated period of time.
6. **AMBIENT AIR:** Air in an area outside of the asbestos containment area. Areas chosen for air sampling shall not be located near access or egress routes for the project, nor shall they be located in areas known to contain friable asbestos containing materials.
7. **AMBIENT SAMPLING:** Air sampling of an area performed under normal or "as found" activity conditions.

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

8. **AMENDED WATER:** Water containing a wetting agent or surfactant.
9. **AIHA:** American Industrial Hygiene Association.
10. **ASBESTOS ANALYTICAL LABORATORY:** A laboratory accredited by the National Institute of Standards and Technology (NIST) and licensed by the Virginia Department of Professional and Occupational Regulation to perform analysis of asbestos samples.
11. **ASBESTOS-CONTAINING MATERIAL (ACM):** The material or product containing more than 1% asbestos.
12. **ASBESTOS CONTAINMENT AREA:** An area where an asbestos response action takes place.
13. **ASBESTOS DEBRIS:** Pieces of ACM that can be identified by an accredited inspector through color, texture, or composition, or particulate matter (i.e. dust) to contain more than 1.0% asbestos by volume.
14. **ASBESTOS REGULATED AREA:** An area where asbestos removal operations and some support activities are performed. This area is isolated by physical barriers with warning signs and includes regions where the airborne concentration of asbestos exceeds or can be reasonably expected to exceed the permissible exposure limit.
15. **AREA MONITORING:** Sampling of asbestos fiber concentrations within the asbestos regulated area. Sampling strategy must be designed to yield fiber counts representative of airborne fiber levels in the breathing zone.
16. **AUTHORIZED PERSON OR VISTOR:** The building Owners, or their authorized representative, or any representative of a regulatory, or other agency having jurisdiction over the project.
17. **CATEGORY I, NON-FRIABLE ACM:** Asbestos-containing resilient floor covering, asphalt roofing products, packings and gaskets, and asbestos-containing mastics.
18. **CATEGORY II, NON-FRIABLE ACM:** Asbestos-containing material, excluding Category I Non-Friable ACM, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
19. **CLASS I ASBESTOS WORK:** Activities involving the removal of Thermal System Insulation (TSI) and surfacing ACM and PACM.
20. **CLASS II ASBESTOS WORK:** Activities involving the removal of ACM that is not TSI or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard systems, floor tile and sheeting material, roofing and siding shingles, and construction mastics.
21. **CLEARANCE AIR SAMPLING:** The measurement of airborne asbestos fibers using sampling filters to determine the adequacy and completeness of the asbestos removal actions.
22. **CLEARANCE LEVEL:** 0.01 or fewer asbestos fibers per cubic centimeter (0.01 f/cc) of air.
23. **COMPETENT PERSON:** An individual capable of identifying existing asbestos hazards in the workplace, selecting the appropriate control strategy for asbestos exposure and who has the authority to take prompt corrective measures to eliminate them.
24. **DEMOLITION:** Wrecking or taking out any load-supporting structural member and any related razing, removing, or stripping of asbestos products.

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

- 25. **ENCAPSULATION:** The treatment of ACM with a material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers, as an encapsulate creates a membrane over the surface (bridging encapsulate) or penetrates the material and binds its components together (penetrating encapsulate).
- 26. **ENCLOSURE:** An airtight, impermeable, permanent barrier around ACM to prevent the release of asbestos fibers into the air.
- 27. **EQUIPMENT ROOM (CHANGE ROOM):** A contaminated room located within the decontaminated area that is supplied with the impermeable bags or containers for the disposal of contaminated protective clothing and equipment.
- 28. **FRIABLE ACM:** any material containing more than one percent asbestos as determined by polarized light microscopy that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.
- 29. **GLOVEBAG TECHNIQUE** (to be used following all OSHA and EPA rules and regulations): A method with limited applications for removing small amounts of friable asbestos- containing materials from HVAC ducts, short piping runs, valves, joints, elbows, and other nonplanar surfaces in a non-contained work area. The glovebag assembly is a manufactured or fabricated device consisting of glovebag (typically constructed of 6-mil transparent plastic), two inward projecting long sleeve rubber gloves, one inward projecting waterwand sleeve, and internal tool pouch and an attached-labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and contains all asbestos fibers released during the removal process. All workers who are permitted to use the glovebag technique must be highly trained, experienced, and skilled in this method. Glovebags must be under negative air pressure during use.
- 30. **GOOD CONDITION:** condition of Category I non-friable asbestos-containing material wherein the binding of the material has not lost its integrity as indicated by the lack of peeling, cracking, or crumbling of the material.
- 31. **HEPA FILTER EQUIPMENT:** High efficiency particulate air filtered vacuuming equipment with a filter system capable of collecting and retaining asbestos fibers. Filters shall be 99.97 % efficient for retaining particles and fibers with a minimum dimension of 0.3 micrometer.
- 32. **LOGBOOK:** A notebook or other book containing essential data and daily project information and daily project diary. This book is kept on the project site at all times.
- 33. **MINI-ENCLOSURE:** A method with limited applications for removing small amounts of friable asbestos-containing materials typical for small scale, short duration type projects.
- 34. **NEGATIVE AIR PRESSURE EQUIPMENT:** A portable local exhaust system equipped with HEPA filtration and capable of maintaining constant, low velocity airflow into the contaminated area from adjacent uncontaminated areas.
- 35. **NIOSH:** National Institute for Occupational Safety and Health.
- 36. **OWNER:** Virginia Department of Transportation.
- 37. **PACM:** Presumed ACM
- 38. **PAT PROGRAM:** Proficiency Analytical Testing Program

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

39. **PERMISSIBLE EXPOSURE LIMIT (PEL):** The Contractor shall ensure that no employee is exposed to an airborne concentration of asbestos (1) in excess of 0.1 fiber per cubic centimeter of air as an eight (8) hour time-weighted average (TWA) or (2) in excess of 1.0 fiber per cubic centimeter over a 30 minute period (excursion limit), as determined by the method described in 29 CFR 1926.1101, Appendix A.
40. **PERSONAL MONITORING:** Sampling of asbestos fiber concentration within the breathing zone of an employee (i.e. attached to or near the collar or lapel near the worker's face).
41. **PHASE CONTRAST MICROSCOPY (PCM):** A laboratory analysis method for measuring airborne asbestos fibers (National Institute of Occupational Safety and Health Method 7400).
42. **PROJECT MONITOR:** Individual employed by the Department and licensed by the Virginia Department of Professional and Occupational Regulation to observe and monitor the activities of asbestos abatement contractors on asbestos projects to determine that proper work practices are used and that compliance with all federal, state, and local laws and regulations is maintained.
43. **RACM:** Regulated Asbestos Containing Materials includes:
- A. Friable asbestos material
 - B. Category I non friable ACM that has become friable.
 - C. Category I non friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, and
 - D. Category II non friable ACM that has a high probability of becoming crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.
44. **REMOVAL:** All herein-specified procedures necessary to remove asbestos containing materials from the designed areas and to dispose of these materials properly and legally at an acceptable site.
45. **RESPONSE ACTION:** A method, including removal, encapsulation, enclosure, repair, operations and maintenance, to abate asbestos hazards to human health and the environment.
46. **SHOWER ROOM:** A room between the clean room, and the equipment room in the worker decontamination unit with hot and cold or warm running water and suitably arranged for complete showering during decontamination. The shower room comprises an air lock between the contaminated and clean area. Shower water filtration system shall be used to remove asbestos fibers from wastewater.
47. **SURFACING ACM:** Any ACM that is sprayed, troweled on or otherwise applied to surfaces.
48. **SURFACTANT:** A chemical wetting agent added to water to improve penetration.
49. **TIME WEIGHTED AVERAGE (TWA):** Representative samples are required to establish the eight (8) hours time weighted average. The TWA is an eight- (8) hour time weighted average airborne concentration of fibers, as determined according to 29 CFR 1926. 1101, Appendix A. Workshifts, which differ from eight- (8) hour duration, may require adjustments of the standard, which applies.
50. **TSI – Thermal System Insulation ACM**
51. **WASHROOM:** A room between the work area and the holding area in the equipment decontamination area. The washroom comprises an air lock.

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

52. **WASTE SHIPMENT RECORD:** The shipping document that is required to be originated and signed by the asbestos waste generator and that is used to track and substantiate the disposition of asbestos-containing waste material.
53. **WET CLEANING:** The process of eliminating asbestos-contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and after use, disposing of these tools as asbestos-contaminated waste.
54. **WORK AREA:** Designated rooms, spaces, or areas of the project in which asbestos abatement actions are to be undertaken or which may become contaminated as a result of abatement actions. A contained work area is a work area that has been sealed, covered in plastic and equipped with a decontamination enclosure system. A non-contained work area is an isolated or controlled-access work area that contains ACM, that has not been covered in plastic nor equipped with a decontamination enclosure system.

III. CONTRACT LIMITATIONS

1. Asbestos abatement contractors are not eligible to bid on projects in which individuals or firms employed by or financially affiliated with the Contractor performed the asbestos inspection or sample analyses during the time period in which these activities were completed.
2. Asbestos Project Monitors are not eligible to contract for asbestos inspection, project monitoring or clearance air monitoring work if they are financially affiliated with or employed by the project asbestos removal contractor. The Project Monitor shall only be accountable to Department officials.
3. All laboratories utilized to perform asbestos sampling analyses on projects shall not have a business relationship or any financial affiliation with the Contractors conducting the asbestos removal activities. Individuals performing clearance air sampling shall not be employed by, or have a financial affiliation with, the asbestos removal contractor conducting the asbestos abatement project.

IV. REGULATIONS

1. The Contractor shall comply with all applicable EPA, OSHA, VOSH, and Virginia Department of Professional and Occupation Regulation (DPOR) regulations, and shall follow EPA, VOSH, and OSHA workplace guidelines unless they are shown as not applicable. EPA workplace guidelines include (1) those pertinent sections of Part I and II, EPA guideline document 560/5-85-024, "Guidance for Controlling Asbestos Containing Materials in Buildings"; (2) EPA regulations 40 CFR Part 61 Subparts A and M; and (3) "*Demolition Practices Under the Asbestos NESHAP*" (TRC Environmental Corporation Work Assignment No. IA2-19). OSHA workplace guidelines include any currently applicable OSHA compliance directives or instructions. In any instance of conflict between the VOSH and OSHA requirements, the VOSH requirements shall take precedence. Any "de minimus" exemptions or reduced requirements for activities involving less than 25 linear feet or 10 square feet of ACM that are provided in the aforementioned references shall not apply to VDOT asbestos removal activities.
2. The Contractor is required to maintain at the job site copies of EPA, VOSH, OSHA, and applicable state and local government regulations regarding the handling of ACM.
3. The Contractor shall remove, transport, and dispose of the ACM from the job site according to Virginia Department of Environmental Quality (VDEQ) regulations and this special provision. The Contractor shall be responsible for generating and maintaining a waste shipment record according to applicable local, state, federal, and disposal facility requirements and shall provide a copy to the Engineer for the Department's records.

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

4. The Contractor, its supervisors, and its employees shall be licensed for asbestos abatement activities according to DPOR requirements. A copy of valid license shall be included with the submittals.

V. NOTIFICATIONS

1. Contractor shall make all required notifications at least 20 days prior to beginning removal of asbestos-containing materials. Contractors also performing demolition activities shall also provide the requisite 10 day demolition notifications. Notifications shall be submitted to the Virginia Department of Labor and Industry and the EPA Region III, Land and Chemical Division according to Section 107.01 of the Specifications.
2. The 20 day notification is only required for the removal of RACM or Category II nonfriable ACM that is expected to become, or becomes, friable during removal. If any Category I or Category II non-friable ACM becomes friable during removal, the Contractor shall stop work and make all notifications. The on-site project monitor will determine friability.
3. The Contractor shall give both a 20 day and a 3 full business day notification to the Asbestos Project Monitor, the VDOT Area Construction Engineer, the VDOT District Engineer, and VDOT Project Manager prior to work being performed.
4. If the Contractor is performing structure demolition, the required 10 calendar day demolition notification to the aforementioned addressees pursuant to 40 CFR 61.145(b), irrespective of minimum quantity or other exclusions, shall be provided.

VI. COMPETENT PERSON

1. The Contractor shall have a "competent person" (as defined herein) present at all times while work on this contract is in progress. The competent person shall be thoroughly familiar and experienced with asbestos removal, related work, and shall monitor and enforce the use of all safety procedures and equipment and shall be knowledgeable of all EPA, OSHA, NIOSH, DPOR and Virginia Department of Labor and Industry VOSH requirements and guidelines.
2. The competent person shall have a valid asbestos supervisor's license issued by DPOR in accordance to the provisions of Chapter 5, Article 1 §54.1-500 et seq.

VII. SUBMITTALS

Prior to commencing work, two copies each of the following items, with the exception of the landfill manifest receipts, logs and air monitoring results, shall be submitted to and approved by the Department:

1. **Asbestos Plan:** Submit a detailed plan of the work procedures to be used in the removal of the materials containing asbestos. Such plan shall include the location of the asbestos work areas, layout of change rooms, interface with other trades involved in this project, sequencing of asbestos-related work, disposal plan, type of wetting agent, asbestos sealer, air monitoring and detailed description of the methods to be employed in order to control air pollution. Prior to the start of any asbestos removal work, the Project Monitor must approve this plan. Prior to performing any deviations from the approved plan, the Contractor shall submit a written request to the Department for approval.
2. **Notification:** Provide a copy of the required notification submitted to the Asbestos Control Clerk, Virginia Department of Labor and Industry.

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

3. **Testing Laboratory:** Provide the name, address, and telephone number of the independent testing laboratory selected for the monitoring of airborne concentrations of asbestos fibers along with a copy of the Commonwealth of Virginia Asbestos Analytical Laboratory License. Also, include evidence that the laboratory is accredited to analyze airborne asbestos fiber counts.
4. **Monitoring Results:** All monitoring results are to be received within 24 hours and retained at the work site where the Owner's representative may review them. Submit copies of these results at the completion of the project.
5. **Landfill:** Submit written evidence (copy of permit) that the landfill selected for disposal is approved for disposal of friable ACM (where friable materials are to be removed and disposed) or for disposal (where Non-friable ACM is to be disposed) by the USEPA and appropriate state or local regulatory agencies. Within 35 days of the deposit of a load of ACM waste from this project at the designated landfill, the Contractor shall submit a copy of the certificates of disposal from the landfill to the Department. The Department shall have received all acceptable waste manifests and certificates of disposal prior to making any payments to the Contractor.
6. **Certificate of Compliance:** A copy of the manufacturer's certificate of compliance with ANSI 9.2 for each brand and model of vacuum, ventilation and other equipment used by the Contractor to contain or remove asbestos fibers.
7. **Qualification of the Contractor's Personnel and Personnel Training:** Prior approval by the Department is required of all proposed asbestos removal personnel. Approval shall be based on review and acceptance of the Contractor's written submittals that all contractor personnel working on this asbestos project:
 - A. Have a valid asbestos worker's or supervisor's license issued by DPOR in accordance to the provisions of Chapter 5, Article 1 §54.1-500 et seq.
 - B. Have been provided with a respirator fit test according to 29 CFR 1926.1101 at the time of initial fitting, when facial conditions change, and at least annually thereafter for each employee wearing a negative pressure respirator.
 - C. Have been trained in the proper procedures to follow in case of an emergency.
8. **Medical Requirements:** Provide certification that the Contractor has an established medical surveillance program in compliance with OSHA regulations 29 CFR 1926.1101. This submittal shall include copies of the physician's statement that each employee (working on this project) is able to perform the required duties while wearing a respirator.
9. **Respirator Program:** Submit a copy of a written respirator program that complies with OSHA regulation 29 CFR 1910.134.
10. **Logs:** Copies of daily progress log and visitor's log.
11. **Safety Data Sheets (SDS):** Copies of SDS shall be provided for any chemical solvents that will be used.

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

VIII. PERSONNEL PROTECTION

1. Respirators

- A. Workers shall wear properly fitted respirators in the work area. Respirator selection shall be based on personal air monitoring as required by 29 CFR 1926.1101. All employees within the work zone shall have respiratory protection consistent with proper respiratory protection factors. Long sideburns, beards, etc., which interfere with proper respirator fit, will not be allowed. However, the Engineer may, at his discretion, allow the Contractor to provide a loose fitting, hood-type powered air purifying respirator (PAPR) for such employees.
- B. All work requiring the use of Class "C" supplied air respirators shall utilize C.G.A. Grade D breathing air or better from a certified air source and copies of the certifications shall be supplied to the Department.
- C. Supplied air respirator systems must include a back-up provision approved for maintaining air flow long enough for escape and decontamination from a contaminated atmosphere in the event of loss of the primary source of breathing air.

2. Exposure Control/Protective Clothing

- A. Eating, gum or tobacco chewing, smoking, or drinking shall not be permitted in the asbestos control area.
- B. Workers shall wear protective clothing according to 29 CFR 1926.1101. Use of protective clothing in the asbestos control area shall be mandatory and irrespective of airborne asbestos concentrations or removal quantities.
- C. Contractor shall make available to the Department's representative complete sets of personal protective equipment as required herein for entry to the asbestos control area at any time for inspection of the asbestos control area.
- D. Street clothing shall not be worn inside of the asbestos control area.
- E. All persons who enter the control area shall shower after leaving the control area.
- F. Personnel of other trades not engaged in the demolition and removal of asbestos materials shall not be exposed at any time to airborne concentrations of asbestos.

3. Equipment: All air handling equipment shall arrive at the job site in a clean (uncontaminated) condition and will be compliant with ANSI 29.2 specifications.

4. Caution Signs and Labels: Provide cautions signs at all approaches to the asbestos control areas containing concentrations of airborne asbestos fibers. Locate signs at such a distance that personnel may read the sign and take the necessary protective steps required before entering the area. Provide and affix caution labels to all asbestos materials, scraps, waste, debris and other products contaminated with asbestos.

- A. Caution signs shall be in a vertical format conforming to 29 CFR 1926.1101 with a minimum 20-inch by 14-inch size.
- B. Caution labels shall be provided of sufficient size to be clearly legible and conforming to 29 CFR 1926.1101 and 1910.1200(f).

5. Decontamination Area

- A. The Contractor shall set up a decontamination area according to 29 CFR 1926.1101.

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

- B. The shower and any other decontamination water shall be drained and filtered to retain particles 5.0 microns or larger, to ensure that contaminated water is not released to uncontaminated areas; showers shall be drained after each use. If wastewater is inadvertently released, it shall be cleaned up as soon as possible to prevent any asbestos in the water from drying and becoming airborne in areas outside the work area. The Contractor shall be responsible for providing any necessary water source.

IX. PROCEDURES

1. General

- A. Wet removal procedures shall be utilized.
- B. Provide temporary power sources and equipment per applicable electrical code requirements and provide 24-volt safety lighting and ground-fault interrupter circuits as power sources for electrical equipment.
- C. Turn off all electricity to the work area other than that required in 1.B.

2. Preparation of Work Areas

- A. Work areas shall be prepared according to EPA NESHAP Part 61 Subpart M regulations (as amended), applicable EPA guidance, OSHA 1926.1101 standards, any currently applicable OSHA compliance instructions, and any other applicable guidance.
- B. Contractor shall not begin removal procedures until the Project Monitor approves the preparation of work areas as meeting all applicable requirements.

X. ASBESTOS REMOVAL PROCEDURES

1. General Procedures

- A. Contractor shall comply with the applicable Class I and Class II work practices for the removal of ACM pursuant to 29 CFR 1926.1101.
- B. VDOT will provide (at its expense) a licensed asbestos project monitor to collect preabatement air samples and to inspect and approve the work area preparations before authorizing the Contractor to begin removal. The asbestos project monitor will also inspect and approve completeness of the removal and subsequent cleanup actions in the asbestos control area before the Contractor may remove any barricades. No removal of asbestos is to be conducted without the Project Monitor on-site. The Project Monitor does not have the authority to waive compliance with the requirements of this special provision.
- C. The Contractor shall provide personnel to perform air monitoring as required by OSHA (29 CFR 1926.1101) and/ or VOSH regulations.

2. Specific Work Procedures for Asbestos-contaminated Soil Removal: Removal of contaminated soils may be required if ACM falls onto unprotected soil. Contamination shall be determined when fragments of ACM are visible as debris or when bulk sample analysis shows an asbestos fiber level in soil greater than 1%. Specific procedures shall be as follows:

- A. Construct a decontamination enclosure and seal all openings into the work area with at least one layer of 6-mil minimum polyethylene sheeting.

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

- B. Install negative air system using approved equipment unless the use of negative air system is not practicable. The Department or its representative shall determine practicability.
- C. Lightly wet with a surfactant or diluted encapsulate any contaminated soil to be removed.
- D. Remove contaminated debris and/or soil to a depth of 4" from the original surface or to hardpan and until all visible debris has been removed.
- E. Remove all remaining ACM in the area in conjunction with the contaminated soil removal in a manner as not to re-contaminate the cleaned areas.

3. Pre- and Post-Removal Inspection and Clearance

- A. The Project Monitor shall collect pre-abatement air samples and must inspect and approve the work area preparations before authorizing the Contractor to begin removal.
- B. Clearance for removal of transite exterior siding materials, roofing materials (if applicable), soil, and ACM removed through the use of glove bags shall be evaluated by the Department and shall be completed when all visible ACM has been removed and the area properly encapsulated (if applicable).
- C. Clearance for ACM removed in mini-enclosures, and all other removal operations not specifically listed in 4B. shall be achieved when the requirements of Part VII – CLEARANCE AIR MONITORING have been met.
- D. The Project Monitor shall inspect and approve removal and cleaning in the asbestos control area before the Contractor may remove barricades.
- E. The Contractor shall be held responsible for the cost of re-inspections if the work is determined to not be substantially complete.

4. Air Monitoring

- A. The Contractor shall perform daily personal air monitoring for asbestos exposure and shall cooperate with the Project Monitor in all testing and sampling activities.
- B. The Project Monitor shall inform the Contractor of any area samples outside the containment with results in excess of 0.01 fibers/cc. Contractor shall immediately discontinue operations until the violation is corrected.
- C. All laboratory analytical air monitoring results shall be posted at the work site entrance no later than 24 hours after sampling; and copies of the analytical results and signed "Certificates of Analysis" shall be transmitted to the Engineer. The form shall state:
 - (1) Date and time sampling began.
 - (2) Flow rate of samples.
 - (3) Sampling time elapsed.
 - (4) Concentration of fibers.
 - (5) Location of area where sample was taken (building, floor, room, area within room).
 - (6) Activity occurring during sampling (removal, clean up, clean-air, etc.).

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

- (7) Name and phone number of person taking sample.
 - (8) Name, phone number, and signature of person analyzing sample.
 - (9) Name and phone number of contractor.
 - D. Exposure records: The Contractor shall maintain records of any personnel or environmental monitoring required by this specification. Records shall be maintained for a period of at least 30 years and shall be made available upon request to the Secretary of Labor for Occupational Safety and Health, the Director of the National Institute for Occupational Safety and Health, and to authorized representatives of either.
 - E. Copies of all exposure records and area monitoring records shall be submitted to the Owner at the conclusion of the project.
5. **Cleanup**
- A. All external work areas shall be cleared of all construction debris and left in a neat and orderly condition.
 - B. For internal work areas, the Contractor shall remove visible accumulations of asbestos material and debris and wet clean all surfaces within the work area and clean any other contaminated areas with water or HEPA-filtered vacuum equipment.
 - C. Contractor shall clean any sealed drums or equipment used in the work area and subsequently remove these from the work areas, via the equipment decontamination enclosure system.
 - D. The Project Monitor shall make an initial visual inspection of the work area to ensure that the work area is free of visible asbestos debris and; once approved, the Contractor shall subsequently apply one coat of asbestos encapsulating sealer.
 - E. Contractor shall keep the windows and doors sealed and the decontamination system operational until final clearance is certified. Air filtration/negative pressure systems and decontamination enclosure systems shall remain in operation until the time of the initial inspection and in an operational condition until final clearance is certified.
 - F. The Project Monitor shall collect clearance air samples according to Part VII of this special provision.
6. **Site Inspection:** VDOT reserves the right to inspect all asbestos removal operations at any time. If any aspect of the work is found inconsistent with this special provision, a stop work order will be issued and operations will be immediately suspended. Until the inconsistency is corrected, any standby time and costs for corrective actions shall be at the Contractor's expense.
7. **Building Contamination:** If the results of the air or surface dust samples indicate that building contamination has occurred as the result of Contractor negligence or poor work practices, the Contractor shall clean the premises at no additional cost to the Department. In addition, the Contractor shall be liable for any damage claims or other legal actions brought against VDOT or its employees or brought by VDOT or any persons exposed to such contamination.

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

8. **Disposal of Asbestos Waste:** Procedures for hauling and disposal of waste shall comply with 40 CFR 61 (SUBPART M), state, regional, and local standards. All asbestos waste, scrap, debris containers, asbestos contaminated clothing and equipment that may produce airborne concentrations of asbestos fibers shall be collected and placed in sealed and properly labeled, 6 mil impermeable bags. Sealed impermeable bags of asbestos waste shall be temporarily stored in asbestos waste containers (drums, skips, etc.). This waste material shall be transported in sealed, properly labeled, DOT approved containers and disposed of only at an USEPA or State approved sanitary landfill permitted to receive friable ACM. The procedures for hauling and disposal shall comply with 40 CFR61 (SUBPART M), state, regional and local standards. Sealed plastic bags may be hand placed from containers into the burial site unless the bags have been broken or damaged.

Damaged bags shall remain in the container and the entire contaminated container shall be buried. Uncontaminated containers may be recycled.

9. **Asbestos Cement (A/C) Pipe:** A/C pipe shall not be ground, broken, crushed, sawed, abraded or handled in a manner which would cause asbestos material to become friable or airborne. Saw-cutting will only be allowed provided that specifically designed saws equipped with high efficiency particulate air filtered vacuums are used. Cuts shall be continuously sprayed with amended water during cutting and the water shall be collected and properly filtered or disposed of.

With the approval of the Engineer, abandoned portions of A/C pipe may be left in place of origin and back-filled, provided that the pipe is not crushed; however, pipe that is to be abandoned may not be removed and re-deposited. With approval of the Engineer, the Contractor may pump grout into the buried lines that are no longer in service to maintain the structural bearing capacity of the area. No on-site burial of crushed A/C pipe shall be allowed.

XI. Clearance Air Monitoring

Clearance air monitoring shall be conducted utilizing the specified sampling techniques whenever an asbestos containment area is utilized to control release of airborne asbestos fibers.

1. **Limitations:** Clearance air sampling techniques shall: (1) be used only in an asbestos containment area with effective negative air filtration; (2) be performed only by individuals meeting the licensing requirements described in Section D 1; and (3) not be initiated until a visual inspection is conducted and visible ACM and asbestos debris have been removed.

2. Equipment Requirements

- A. High volume air pumps with necessary peripheral equipment (hoses, connectors, etc) calibrated to draw from four to 10 liters of air per minute through the filter shall be used for air sampling.
- B. Filters shall be 25 millimeter mixed cellulose ester (MCE) filters with a 0.8-1.2 micrometer pore size if the filter is to be analyzed by PCM. Sampling cassettes shall have 50-millimeter extension cowls and shall not have been previously used.

3. Sampling Procedures

A. Set up

(1) Ensure that:

- (a) the area inside the enclosure is visibly clean of all ACM, dust and debris;
- (b) spray encapsulate utilized for lockdown purposes has dried; and

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

- (c) the negative air system is and remains fully operational at a rate of four air changes per hour.
- (2) Place the air pumps and sampling cassettes such that each covers approximately the same square footage of floor area, and the exposed filter faces of the sampling cassettes are oriented approximately 45 degrees from the horizontal using tape and clips as necessary to position the sampling cassettes.
- (3) Start the pumps and sample for the required time; turning off the air pumps when sampling is completed.
- B. **Number of samples:** The minimum required number of sample cassettes for each enclosure site is listed in the table below (each set of samples consists of inside air samples, field blanks, and a sealed blank):

Square Feet of Enclosure	Sample Cassettes (PCM Analysis)	Field Blanks ¹
Less Than 100	2	1
100-500	3	1
500-1000	4	1
1000-10,000	5	1
Greater than 10,000	5 + 1 sample per each 5,000 additional square feet	1

¹The cap of each field blank cassette is to be removed for not more than 30 seconds and replaced (before air sampling is initiated) near the entrance to each abatement area.

- C. **Sampling times:** The run time for each air pump is calculated by dividing the flow rate (1ppm) of the pump into the minimum number of liters of air required to be collected (1200 liters for PCM analysis) to obtain the required number of minutes.
- D. **Recording:** A floor plan indicating the locations of the collected sample cassettes, along with a data sheet indicating the project name, project monitor, location of project, date samples were collected, calibrated flows for each air pump, start and stop times for each air pump, the preferred method of analyses specified, and calculated number of liters drawn for each cassette sample, shall be transmitted to the laboratory with the cassette samples to be analyzed. The inclusion of these documents is required when generating reports on final clearance air sampling for the project.
- E. **Shipping:** Air sample cassettes shall be shipped in separate containers from bulk samples to prevent sample cassette contamination. Avoid using expanded polystyrene and particle-based packaging materials.
4. **Laboratory Analysis**
- A. PCM analysis shall be conducted using the National Institute for Occupational Safety and Health (NIOSH) Method 7400 entitled "Fibers" published in the NIOSH Manual of Analytical Methods, (most current edition).
- B. The following minimum information shall be provided by the analytical laboratory to VDOT:
- (1) concentration in fibers per cubic centimeter (PCM);
- (2) analytical sensitivity used for the analysis;

ORDER NO.: A72
CONTRACT ID. NO.: C0000100921C01

- (3) area analyzed;
- (4) volume of air samples;
- (5) average grid size opening;
- (6) number of grids analyzed;
- (7) copy of the count sheet;
- (8) type of asbestos;
- (9) signature(s) of laboratory analyst;
- (10) official laboratory identification; and
- (11) floor plan indication location where samples were obtained.

5. Final Clearance

- A. Final clearance shall be achieved when the concentration of fibers for each of the samples is shown to be less than or equal to 0.01 fiber per cubic centimeter of air.
- B. If the results of the clearance samples are above the level specified in 5(A.), the abatement site must be re-cleaned, and new sets of sample cassettes collected and analyzed until the abatement area passes. This process must continue until the abatement area complies with the above standard.

XII. Measurement And Payment

For the purposes described herein, asbestos shall be identified by type as either friable, Category II nonfriable (Cat II NF) or Category I non-friable (Cat I NF) not in "good" condition.

Asbestos Removal will be measured and paid for at the contract unit per square foot or linear foot for the type specified. The price bid shall be full compensation for removal and disposal, sampling, testing, analysis, and encapsulation, if required, and for all required documentation and monitoring operations.

Payment for removal and disposal will be made under:

Pay Item	Pay Unit
Friable ACM	Square foot or linear foot
Cat II NF ACM	Square foot or linear foot
Cat I NF ACM (not in "good" condition)	Square foot or linear foot