TECHNICAL MEMORANDUM

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CC: Mr. Chris Moran, Weston Solutions, Inc.

DATE: 23 June 2021

SUBJECT: **Final Technical Memorandum** – Spring Valley FUDS, Public Safety Building Test Pit Excavation and Rotosonic Drilling Results – February and April 2021

In February 2021, Weston Solutions, Inc. (WESTON) initiated an investigation outside the bounds of the Public Safety Building (PSB) footprint using test pitting and rotosonic drilling techniques to gather data on the horizontal and vertical extent of American University Experimental Station (AUES) debris along the eastern, northern, and western sides of the PSB. Test pitting was conducted in seven locations, as shown on **Figure 1**, in accordance with Standard Operating Procedure (SOP) G24 – *Test Pit Investigation to Determine AUES Debris Extent Beyond Former Public Safety Building Slab.* Rotosonic drilling was conducted in six locations, also shown on **Figure 1**, in accordance with SOP G25 – *Rotosonic Drilling to Determine AUES Debris Extent Beyond Former Public Safety Building Slab*.

During excavation of the PSB sub-slab soil, a layer of concentrated AUES debris was encountered between 1 and 4 feet (ft.) below slab elevation. Along the northern portion of the eastern sidewall of the excavation, an area of dark brown soil with visible laboratory glassware was observed extending from slab elevation to approximately 2 feet below slab grade. A 75-millimeter (mm) projectile and 12.7 pounds (lbs.) of laboratory glassware were encountered in the immediate vicinity, directly above the building footer, outside of the frost wall. Based on these observations, six test pits were advanced along the eastern side of the PSB footprint.

Along the western side of the PSB excavation, some laboratory glassware was visible in the sidewall and in the rise for the first excavation soil bench, approximately 8 ft away. A tail boom for a mortar was encountered approximately 6 ft west of the PSB footprint in this

area during utility potholing activities conducted in July 2019. Additionally, laboratory glassware was encountered in this area during hand digging to expose the tarpaper pipe. Based on these observations, one test pit was excavated along the western side of the PSB footprint to confirm the presence or absence of additional AUES debris.

To explore the extent of a band of dark-colored soil in the northern sidewall of the excavation corresponding with the debris layer that was encountered within the PSB footprint, a test pit trench labeled D3 was advanced laterally (northward into the sidewall) by approximately 8 ft. in August 2020, exposing AUES debris along the entire length. Test Pit D3 was terminated 8 ft. north of the PSB foundation due to slope stability concerns. Based on these findings, rotosonic drilling was proposed and conducted in six locations along the north side of the PSB footprint to investigate the northward extent of debris in this area.

This Technical Memorandum serves as documentation for test pitting and rotosonic drilling operations that were conducted from 04 February 2021 through 14 April 2021. Field observation data collected for each test pit and rotosonic boring are presented herein.

1.0 TEST PITTING METHODOLOGY

Test pitting was conducted by the contractor, ACV Enviro, to gather data on the extent of AUES debris along the eastern and western sides of the PSB footprint based on visual observation during soil sorting activities. The test pits were advanced in 1-ft. depth increments from the existing ground surface to the depths of (a) 1 ft. below the last identified AUES items, or (b) the approximate elevation of 349 ft. above mean sea level (amsl), which corresponds with the bottom depth of AUES debris observed within the eastern sidewall. Each lift of excavated soil was screened for soil vapor, then inspected for munitions and explosives of concern (MEC), munitions debris (MD), and AUES items by WESTON Unexploded Ordnance Technicians (UXO Techs) at the soil sorting (screening) table. AUES debris encountered within each lift was segregated from the soil using hand tools, consolidated into batch glass samples, and submitted to the Combat Capabilities Development Command Chemical Biological Center (CCDC) mobile laboratory for on-site chemical agent headspace analysis in accordance with the CCDC Sample Analysis Plan (Appendix C of the UFP-QAPP). Additionally, CCDC conducted perimeter air monitoring

for chemical agent during the investigation activities using Depot Area Air Monitoring Systems (DAAMS) tubes, and WESTON conducted particulate air monitoring using personal DataRAMS. Processed soil was placed into a roll-off container for characterization and disposal.

Backfilling of the test pits was conducted using approved stone dust backfill material installed in lifts and tamped with the excavator bucket until it was firm, dense, and unyielding. Upon completion of backfilling activities, the disturbed areas were stabilized with seed and erosion control blankets. Survey data documenting the locations of test pits and rotosonic borings are presented in the **Survey Data Table** at the end of the memorandum.

1.1 TEST PITTING RESULTS

Test Pit E2F2, located approximately 8 ft. west of the PSB excavation, was advanced to 6 ft. below ground surface (bgs) (349.0 ft. amsl). A significant quantity (95 pieces, 2.7 lbs.) of AUES debris (glassware) was encountered in the top 3 ft., and a clear transition from impacted to non-impacted material was observed in the excavation sidewall between 2 and 3 ft. bgs. No AUES debris was encountered below the 3-ft. depth (352 ft. amsl).

Test Pit D7E7, located approximately 16 ft. east of the PSB excavation, was advanced to 9 ft. bgs (349.1 ft. amsl). A significant quantity (more than 185 pieces, 5.9 lbs.) of AUES debris (glassware) was encountered from ground surface to 5 ft. bgs. At 5-9 ft. bgs, AUES debris was absent in each interval except at 7-8 ft., where a small amount of glassware was encountered.

Test Pit E7, located approximately 8 ft. east of the PSB excavation, was advanced to 6 ft. bgs (347 ft. amsl). A large amount (more than 70 pieces, 2.5 lbs.) of glassware was encountered from ground surface to 4 ft. bgs (349 ft. amsl), and a small amount of glassware was encountered at 4-5 ft. bgs. AUES debris was absent from 5-6 ft. bgs.

Test Pit E8, located approximately 24 ft. east of the PSB excavation, was advanced to 9 ft. bgs (348.3 ft. amsl). Small amounts of glassware were encountered at 1-3 ft. bgs and 4-5 ft. bgs. AUES debris was absent in the other depth intervals down to 9 ft. bgs.

Test Pit E7F7, located approximately 16 ft. east of the PSB excavation, was advanced to 6 ft. bgs (348.9 ft. amsl). Small amounts of glassware were encountered at 0-1 and 4-5 ft. bgs. AUES debris was absent in the other depth intervals down to 6 ft. bgs.

Test Pit F7, located approximately 8 ft. east of the PSB excavation, was advanced to 5 ft. bgs (347.7 ft. amsl). A significant amount (more than 85 pieces, 2.1 lbs.) of glassware was encountered at 0-1 ft. bgs, a moderate amount of glassware was encountered at 1-2 ft. bgs (350 ft. amsl), and small amounts of glassware were encountered at 2-4 ft. bgs. AUES debris was absent at 4-5 ft. bgs.

Test Pit F7G7, located approximately 8 ft. east of the PSB excavation, was advanced to 5 ft. bgs (349.0 ft. amsl). Small amounts of glassware were encountered from 0-4 ft. bgs. AUES debris was absent at 4-5 ft. bgs.

A summary of the overall visual observations for each test pit completed from 4 to 12 February 2021 is provided in **Table 1-1,** below.

TABLE 1-1 VISUAL TEST PIT OBSERVATIONS

Test Pit ID	Initial Pit Elevation (ft. amsl)	Final Pit Elevation (ft. amsl)	Test Pit Depth (ft) and AUES Items Encountered								
			0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9
E2F2	355.0	349.0	25+ pcs 9 oz.	50+ pcs 26 oz.	20+ pcs 8 oz.	No AUES Items	No AUES Items	No AUES Items	NA	NA	NA
D7E7	358.1	349.1	5 pcs 2 oz.	25+ pcs 32 oz.	50+ pcs 19 oz.	50+ pcs 18 oz.	50+ pcs 23 oz.	No AUES Items	No AUES Items	5+ pcs 3 oz.	No AUES Items
E7	353.0	347.0	25+ pcs 17 oz.	5 pcs 3 oz.	20+ pcs 10 oz.	20+ pcs 10.5 oz.	6 pcs 2 oz.	No AUES Items	NA	NA	NA
E8	357.3	348.3	No AUES Items	15+ pcs 2.5 oz.	10+ pcs 2.8 oz.	No AUES Items	5+ pcs 2.5 oz.	No AUES Items	No AUES Items	No AUES Items	No AUES Items
E7F7	354.9	348.9	7 pcs 2 oz.	No AUES Items	No AUES Items	No AUES Items	3 pcs 2.5 oz.	No AUES Items	NA	NA	NA
F7	352.7	347.7	40+ pcs 17.5 oz.	25+ pcs 9.5 oz.	10+ pcs 2 oz.	10+ pcs 4 oz.	No AUES Items	NA	NA	NA	NA
F7G7	354.0	349.0	15+ pcs 2 oz.	10+ pcs 2.5 oz.	20+ pcs 3.5 oz.	5 pcs 1.2 oz.	No AUES items	NA	NA	NA	NA

ft. – feet pcs – pieces AUES – American University Experimental Station
amsl – above mean seal level oz. – ounces NA – Not applicable: test pitting stopped above this interval.
Gray shaded cells – No AUES Items or Not Applicable

Photographs of the potential AUES items found in each test pit and rotosonic boring are included in this memorandum as **Attachment A**. Test pit dig sheets documenting soil type and AUES debris items encountered in each test pit depth interval are included as **Attachment B**.

2.0 ROTOSONIC DRILLING METHODOLOGY

The second phase of the investigation was conducted using a rotosonic drill rig to advance multiple angled borings into the subsurface to gather data on the lateral (northern) extent of the layer of AUES debris that was observed extending into the hillside in Test Pit D3. To accomplish this task, a level drilling pad measuring approximately 30 ft. by 40 ft. was constructed north of the PSB at the top of the slope immediately west of the eastern drainage channel at the approximate elevation of 370 ft. amsl to stage the drill rig, and a ramp from the work zone to the drilling pad was installed to provide safe access. A slope stability analysis was conducted in advance of drill rig mobilization to ensure that the altered grades and weight of the drilling equipment did not adversely impact slope stability.

Six angled borings, labeled RS-01 through RS-06, were advanced from the drilling pad to intercept the AUES debris layer. The drilling subcontractor, Cascade Environmental, worked with an on-site WESTON engineer to determine the correct angle, azimuth, and total length for each boring to reach the proposed targets. Prior to the start of drilling operations, a WESTON UXO Tech III conducted a surface magnetometer clearance of the drilling entry point to address potential anomalies. Rotosonic drilling was conducted using a 4-inch diameter core barrel to collect the soil core and a 6-inch diameter override casing installed to keep the borehole open while the soil core was extracted. The soil cores were advanced in 10-ft. intervals, the core barrel was retrieved, the soil was extruded into a plastic sleeve sealed at both ends, and the core barrel was advanced to next depth interval.

A UXO Tech III and a Tech II opened the sealed soil cores on a processing tray, screened the soil using a MultiRAE photoionization detector (PID) and a Jerome J-505 mercury vapor analyzer (MVA), and processed the soil with hand tools to identify potential AUES debris, MEC, and MD. Any AUES debris that was encountered within the soil core was segregated by the UXO Techs into potential item or batch samples and submitted to CCDC for Mustard and Lewisite headspace analysis. Following processing for AUES debris, the soil cores were characterized by a WESTON geologist in accordance with SOPs G05 - *Field Documentation,* and G08 - *Soil Sampling*. Soil cuttings were placed into open-top 55-gallon steel drums for disposal. Upon reaching the target elevation for each boring, the borehole was abandoned by tremie grouting using a bentonite/Portland Cement slurry. Drilling equipment was decontaminated between borings and before leaving the site in accordance

with SOP G07- *Decontamination*. Decontamination water was collected and pumped into a closed-top 55-gallon steel drum for characterization and disposal.

2.1 ROTOSONIC DRILLING RESULTS

Rotosonic Borings RS-01 through RS-04 and RS-06 were arranged in a transect oriented approximately north to south, north of the PSB excavation, to intercept the AUES debris layer that was encountered in Test Pit D3 and to gather data specific to the northward extent of the debris layer. In Test Pit D3, the AUES debris layer consisted of concentrated laboratory glassware, cinders, metal scrap, and discolored soil, and extended approximately 8 ft. north of the PSB slab. The total weight of AUES debris segregated from the soil during excavation of Test Pit D3 exceeded 25 lbs., and an MD item (booster component) was also encountered.

In Boring RS-01, which intercepted the depth interval of the AUES debris layer at approximately 22 ft. north of the PSB slab, no AUES debris was encountered within the soil core. No AUES debris layer was observed.

In Boring RS-02, which intercepted the depth interval of the AUES debris layer at approximately 17 ft. north of the PSB slab, one small piece of porcelain was encountered approximately 23 ft. from the PSB slab at 351.5 ft. amsl. No AUES debris layer was observed.

In Boring RS-03, which intercepted the depth interval of the AUES debris layer at approximately 28 ft. north of the PSB slab, eight pieces of AUES glassware were encountered from approximately 33 to 37 ft. north of the PSB slab at approximately 354 to 362 ft. amsl.

In Boring RS-04, which intercepted the depth interval of the AUES debris layer at approximately 36 ft. north of the PSB slab, more than 20 pieces of AUES glassware were encountered within a layer of dark colored soil and cinders approximately 39 ft. north of the PSB slab at approximately 358 ft. amsl.

In Boring RS-06, which intercepted the depth interval of the AUES debris layer at approximately 45 ft. north of the PSB slab, only one piece of glass was encountered approximately 45.5 ft. from the PSB slab at approximately 356 ft. amsl.

Boring RS-05 was advanced to intercept the depth interval associated with the AUES debris layer approximately 12 ft. north of the northeastern corner of the PSB slab. Only one piece of glass was encountered at approximately 360 ft. amsl in this boring. No AUES debris layer was observed.

The results obtained using the rotosonic 4-inch diameter continuous soil cores were excellent. The 4-inch core barrel was able to capture enough of the AUES laboratory glass and porcelain fragments to easily identify both the dark soil (burn layer) and glass fragment layer observed in the PSB excavation sidewalls. By using this technique, the team was able to confirm the debris layer; this was an improvement compared to the previous 2018 sub-slab borings conducted using the smaller 1.5-inch diameter direct push technology (DPT, e.g., Geoprobe®) sampler, which resulted in difficulties identifying the debris layer.

A summary of the overall visual observations for each test pit completed from 8 to 13 April 2021 is provided in **Table 2-1,** below.

TABLE 2-1 ROTOSONIC DRILLING VISUAL OBSERVATIONS

Rotosonic Drilling ID	Angle of Drilling (°) from Horizontal	Total Depth (TD) Elevation (ft. amsl)	Final TD Distance from Edge of Slab (ft)	Saprolite Depth & Elevation ft. (elev.)	AUES Debris Potential Item Observations						
					Depth Interval Along Boring (ft.)		Elevation (ft. amsl)		Distance From Edge of Slab (ft.)		Description
					Start	End	Start	End	Start	End	
RS-01	39.1	341.6	22	37.0 (356.1)	No Potential AUES Debris Items Encountered						
RS-02	34.8	344.3	17	42.5 (360.3)	30	35	352.9	350.0	24	21.5	Potential Item – Porcelain (1 piece)
RS-03	39.2	344.7	28	37.5 (352.3)	15	25	360.5	354.2	33.3	36.9	Potential Item Batch – Glass (8 pieces; 0.6 oz.)
RS-04	43	349.5	36	26.5 (351.8)	17	18	358.4	357.7	38.9	39.2	Potential Item Batch–Glass (20+ pieces; 7.2 oz.)
RS-05	42.5	339.6	12	41.5 (342.0)	14	15	360.5	359.9	28.8	28.1	Potential Item – Glass (1 piece)
RS-06	46	348.4	45	23.0 (354.5)	16	23	358.5	353.5	45.2	45.7	Potential Item – Glass (1 piece)

° - degrees amsl – above mean sea level AUES – American University Experiment Station
ft. – feet oz. – ounces

Boring logs documenting soil type and AUES debris items encountered in the rotosonic borings are included in this memorandum as **Attachment C**.

2.2 PSB SLOPE INVESTIGATION ANALYSIS

The results of the test pit and rotosonic boring investigation north, east, and west of the PSB footprint plus the existing information collected by Weston and Parsons during previous investigations and remedial actions centered on the PSB area provide sufficient data to guide decisions concerning the need for additional removal actions at the PSB. The data for the test pits and rotosonic borings were adjusted so that the AUES debris observations could be compared and contrasted on a foot-by-foot basis. **Table 2-2** summarizes and compares the observations of AUES debris from both investigation methods.

TABLE 2-2 INVESTIGATION RESULTS – AVERAGE DEBRIS BY FOOT

Test Pit ID	Initial Pit Elevation (ft. amsl)	Final Pit Elevation (ft. amsl)			Pit/Boring AUES Debris Interval (ft)	Debris Interval No. Feet	Average/Foot
E2F2	355.0	349.0	**No. Glass Pieces**	95	0-3	3	**31.7**
			Glass Weight - oz	43		3	**14.3**
D7E7	358.1	349.1	**No. Glass Pieces**	185	0-5, 7-8	6	**30.8**
			Glass Weight - oz	97		6	**16.2**
E7	353.0	347.0	**No. Glass Pieces**	76	0-5	5	**15.2**
			Glass Weight - oz	42.5		5	**8.5**
E8	357.3	348.3	**No. Glass Pieces**	30	1-3, 4-5	3	**10.0**
			Glass Weight - oz	7.8		3	**2.6**
E7F7	354.9	348.9	**No. Glass Pieces**	10	0-1, 4-5	2	5.0
			Glass Weight - oz	4.5		2	2.3
F7	352.7	347.7	**No. Glass Pieces**	85	0-4	4	**21.3**
			Glass Weight - oz	33		4	**8.3**
F7G7	354.0	349.0	**No. Glass Pieces**	50	0-4	4	**12.5**
			Glass Weight - oz	9.2		4	**2.3**
D3	351.0	347.0	**No. Glass Pieces**	100+	1-3	2	**50+**
			Glass Weight - oz	51		2	**25.5**

Rotosonic Drilling ID	Angle of Drilling (°) from Horizontal	Total Depth (TD) Elevation (ft. amsl)			Pit/Boring AUES Debris Interval (ft)	Debris Interval No. Feet	Average/Foot
RS-01	39.1	341.6	**No. Glass Pieces**	0	NA	0	0
			Glass Weight - oz	0		0	0
RS-02	34.8	344.3	**No. Glass Pieces**	1	30-35	5	0.2
			Glass Weight - oz	0.1		5	0.02
RS-03	39.2	344.7	**No. Glass Pieces**	8	20-22	2	4
			Glass Weight - oz	0.6		2	0.3
RS-04	43.0	349.5	**No. Glass Pieces**	20	17-18	1	**20**
			Glass Weight - oz	7.2		1	**7.2**
RS-05	42.5	339.6	**No. Glass Pieces**	1	14-15	1	1
			Glass Weight - oz	0.1		1	0.1
RS-06	46.0	348.4	**No. Glass Pieces**	1	16-23	7	0.14
			Glass Weight - oz	0.1		7	0.01

Notes: Gray shaded results represent AUES debris layer: Over 15 glass pieces and glass weighing more than 5 ounces.
Bold results represent AUES debris with over 8 glass pieces and glass weighing more than 2 ounces.
° - degrees amsl – above mean sea level AUES – American University Experiment Station
ft. – feet oz. – ounces

Averaging the AUES debris observations by foot helps to identify the locations where AUES debris layers were encountered in the test pits and borings: locations where over 15 glass pieces and glass weighing more than 5 ounces were observed per foot. The 15-pieces/5-ounce standard was established based on the current PSB slope investigation observations and the previous observations of the AUES debris layer reported during the PSB excavation operations. In order to present a conservative approach to the AUES debris area, a lower 8-piece/2-ounce cutoff was established to identify the potential excavation area north, east, and west of the former PSB foundation. The areas where AUES debris exceeds the proposed 8-piece/2-ounce cutoff are presented on **Figure 2**.

3.0 PROPOSED APPROACH FOR ADDITIONAL REMOVAL

The findings of the test pit and rotosonic investigations indicate that additional excavation is warranted to remove the AUES debris that was encountered in soil west, north, and east of the PSB footprint. The goal of the PSB slope investigation was to determine the extent of continuous AUES debris extending from the PSB excavation sidewalls. An area of continuous AUES debris was indicated to the west (approximately 12 feet from the former PSB foundation), to the east (approximately 16 feet from the former PSB foundation), and to the north (approximately 15 feet from the former PSB foundation). This area also corresponds to soil benches 4 and 5, where AUES debris was encountered during the excavation in 2019. No additional investigation work was proposed for south of the former PSB foundation due to the previous soil and AUES debris removal work conducted by Parsons in 2008 (**Attachment D**).

The proposed soil and AUES debris excavation area is presented in **Figure 3** with the approximate cut depths around the former PSB foundation. The following approach would involve the excavation and removal of an estimated in-place volume of 720 cubic yards of soil and AUES debris.

The excavation volume estimate was obtained by using Autodesk® Civil 3D to create a 3D model of the PSB site. The existing benched contours were then compared to the target excavation elevations along the former foundation slab footprint and a difference in fill material was obtained. A hand calculation was also performed to achieve an excavation volume as a check against the computer-generated volume. The hand calculation was performed on each grid cell and then summed together. To reconcile the two values and to account for survey errors, 10% was added to the computer-generated volume. The excavation volume will be updated and refined based on updated survey information and will reflect any changes to excavation extents.

A more efficient two-phase approach is recommended for the additional soil, glassware, and AUES debris excavation and removal north, east, and west of the former PSB, based on our experience excavating and screening soil at the PSB:

1. Prior to excavating a specific area, a UXO Tech III will sweep the planned excavation area with a magnetometer and hand dig all anomalies to 1 foot for identification.

Once the area is cleared for excavation, the excavator will remove the soil on the slope in 1-foot lifts while the UXO Tech III watches for potential items in the soil as it is removed and placed into the track loader bucket for transfer into a waiting dump truck. Air monitoring will be conducted at the loader bucket using a PID and Mercury Vapor Analyzer during the soil excavation activities. As an additional precaution, a second UXO Tech (UXO Tech II) will observe the excavated soil as it is feathered (slowly spread out) into the dump truck. If at any point a MEC item, intact AUES item, or an AUES debris layer is observed by either UXO Tech, work stops (heavy equipment stops and locks out controls) until the item or AUES layer is confirmed from bucket or in the dump truck bed. Excavated soil with no evidence of a concentrated AUES debris layer will be stored onsite for later use during the slope reconstruction and restoration activities.

2. Any identified MEC items or intact AUES items will be handled in accordance with the Low Probability Contingency Plan. The Team's experience gained during the PSB sub-slab excavation work, suggests that AUES debris layer materials can be identified in the excavation bottom and sidewalls along with the excavator bucket. All AUES debris layer materials will be segregated and stored onsite for later screening by a 4-person UXO Team using the sorting table once a sufficient pile of soil and AUES debris has been set aside requiring a UXO Team to mobilize to the site. Our ability to identify the exact location and depth where AUES debris in this soil pile originated will be constrained by this approach, but notes will be recorded as the materials are excavated. Soil that was screened at the sorting table will be loaded into separate roll-off containers for waste characterization and proper off-site disposal. AUES debris glassware that passes the headspace screening will be containerized and held for disposal.

To determine the level of effort that will be required to complete the removal using the two-phase approached described above, Table 3-1 was created. The removal was divided into a surface area per investigation location. Then the debris interval (in feet) found in Table 2-2 for each investigation location, plus an assumed additional foot of excavation added to meet clean requirements, was used to calculate the volume that would require screening. The remaining volume of removal out of the 720 CY that is proposed, is the estimated removal that will only require visual observations.

TABLE 3-1 ESTIMATION OF REMOVAL EFFORT BY VOLUME

Grid or Drill Location	Surface area (ft^2)	Thickness of debris layer (ft)	Estimated removal that will require screening (CY)
E2F2	215	4	32
D3	781	3	87
D7E7	139	7	36
E7	210	6	47
E8	134	4	20
F7	282	5	52
RS-04	100	2	7
Estimated removal (screening)			**281**
Estimated removal (visual observation)			**439**
Estimated total removal volume			**720**

3.1 APPROACH FOR WESTERN SIDE OF PSB

Along the western side of the PSB excavation, AUES debris, consisting mostly of laboratory glassware, was encountered in Grid Cells E2 and F2, each of which were half grids measuring 7.5 ft. x 15 ft. In E2, six batches of glassware totaling 23 lbs. were encountered between 1 and 4 ft. below slab grade, with the debris being most concentrated at the 3- to 4-ft. depth interval. In F2, two batches of glassware totaling 10.6 lbs. were encountered in the top 2 ft. In Test Pit E2F2, located approximately 8 ft. away from the PSB excavation, 2.7 lbs. of glassware were encountered in the top 3 ft.

WESTON recommends that excavation be conducted in this area to follow the AUES debris using a grid-by-grid approach, with soil being excavated and screened in 1-ft. lifts until reaching 1 ft. below the debris. Smaller grid cells (7.5 ft. x 7.5 ft.) are proposed to provide greater flexibility in determining where to stop excavation. Based on what was seen in the adjacent portion of the PSB excavation, WESTON recommends that the excavation in the western portion of Grid Cell E2 should be divided into two cells, and be excavated to 5 ft. bgs, and the western portion of Grid Cell F2 will be excavated to 4 ft. bgs. Because of the glassware that was encountered in Test Pit E2F2, it is anticipated the excavation area

would need to then be extended an additional 7.5 ft. westward with an assumed depth of 3 to 4 ft.

3.2 APPROACH FOR NORTHERN SIDE OF PSB

Along the northern side of the PSB excavation, a concentrated layer of AUES debris was observed in Test Pit D3 at a depth of approximately 1 to 3 ft. below slab grade extending 8 ft. north of the PSB slab. Additionally, based on whiteboard photos generated during benching activities, laboratory glassware was encountered above slab grade during excavation of the bottom two soil benches, which extend approximately 16 ft. north of the PSB slab.

Rotosonic drilling that was conducted to intercept the AUES debris layer associated with Test Pit D3 did not identify any continuous AUES debris at the target depth. The closest rotosonic boring ended approximately 17 ft. north of the PSB foundation slab. Based on the presence of AUES debris in the bottom two benches and concentrated AUES debris extending 8 ft. north of the slab in Test Pit D3, it is recommended that removal along the north side of the PSB be conducted laterally by a minimum of 15 ft. Depth of excavation would be based on the grid-by-grid, lift-by-lift approach that was employed during excavation within the PSB footprint.

3.3 APPROACH FOR EASTERN SIDE OF PSB

Test pitting that was conducted along the eastern side of the PSB excavation confirmed the presence of AUES debris in this area. The test pits were advanced in successive rows spaced 8 ft. apart starting at the eastern edge of the PSB excavation, and generally showed the highest concentration of debris being located closest to the excavation at a depth of 4 to 5 ft. bgs and extending to the northeast. Amounts of AUES debris declined with distance away from the PSB foundation and toward the southeast. Based on the test pitting results, it is recommended that excavation be extended eastward and northeastward using the grid-by-grid, lift-by-lift approach described in Section 3.1. Test pitting results suggest that the required depth of excavation would get shallower to the east and southeast. WESTON notes that the north and northeastward extent of AUES debris was not bounded by the test pits. The northernmost test pit, D7E7, contained more AUES debris than any other test pit excavated, and the lateral extent of the debris to the north and northeast of this test pit is unknown. For the purposes of estimating the required extent of removal in

this area, it can be assumed, based on the existing data, that excavation would need to extend at least 7.5 ft. (one grid width) north and east of D7E7 to a depth of 6 ft. bgs. Additional removal beyond the above estimated extent may be required to capture the full extent of AUES debris to the north and northeast of Test Pit D7E7.

3.4 APPROACH FOR RS-04 DEBRIS LOCATION

During Rotosonic drilling operations, a layer of AUES debris was identified while drilling at location RS-04. The layer was located approximately 17 ft to 18 ft depth along the rotosonic drilling path. Considering the angle of the drilling and ground surface elevation where the debris was encountered, the depth to the layer bgs is approximately 10 to 11ft. As shown in Figure 2, the location of this proposed removal area is within the previously benched slope, therefore, the excavation depth could fluctuate by ± 4ft depending on the footprint of the removal. RS-04 was bounded by rotosonic drilling locations RS-03 and RS-06 which cross approximately 5 ft north and 5 ft south of the encountered debris in RS-04, respectively. Based on the results of RS-03 and RS-06, where no removal is required, a 10 ft by 10 ft footprint for the removal excavation at RS-04 is proposed. There is a possibility of expansion if an apparent debris layer is encountered outside of the footprint. However, reassessment of the slope's stability by a qualified engineer is required prior to expansion of the excavation. Final depth and extent of removal will be determined using the grid-by-grid, lift-by-lift approach described in Section 3.1.

3.5 CONSTRUCTION APPROACH

As mentioned in the previous sections, the AUES debris is embedded into the benched slope. To safely excavate the AUES debris from the hillside, an updated excavation plan will need to be developed to address excavation safety with respect to EM 385-1-1 and site-specific constraints and conditions.

One possible method of slope stabilization would be to utilize a slide rail shoring system, in which a series of steel panels and posts would be driven into the ground. The slide rail system is installed simultaneously as the pit is excavated by inserting the panels into the driven corner posts. This technique allows the soils behind the excavation to be held in place while the excavation is advanced to the anticipated depth as described previously. The excavation would need to be phased in grids and the grids would be sized by the slide rail configuration and footprint.

The RS-04 location is approximately 35 to 45 ft away from the former PSB slab area compared to the Northern removal which ends 15 ft from the slab area, therefore, RS-04 will require individual assessment for the appropriate removal approach. The slide rail shoring system, engineered appropriately, is the preferred method for slope stabilization in this area during removal operations. This system would be most effective if the footprint of the excavation were set, so that the correct configuration and size of panels can be obtained prior to construction. Therefore, a panel set 10' by 10', as mentioned above, is recommended for the RS-04 excavation.

Another potential method of excavation would be to install a retaining wall with a tieback system, such as a soil nail wall, around the entire excavation footprint. The wall would be installed after the 4th bench has been excavated and again as the 5th bench is excavated. Therefore, the retaining wall would be installed in phases as the excavation depth increases. This would allow the excavation to occur across the site in lifts instead of a section-by-section approach but would require the excavation of more slope soil.

Existing utilities will need to be addressed prior to and during construction. A sewer line currently runs in the west to east direction across Bench 3. The sewer line may need to be disconnected and removed temporarily, pending American University (AU) concurrence, to facilitate easier excavation. An abandoned 24-inch diameter concrete storm sewer that was encountered during excavation of the third bench may be encountered during excavation. If this drain line extends into the area targeted for excavation, it will need to be worked around or shortened. An electric line also exists to the East of the site and may need to be worked around or protected during construction. Although not anticipated, other unknown utilities encountered during excavation will also be addressed during construction.

The construction approach will be refined depending on equipment used and agreed upon methodology. Excavation by means of sloping back material alone to create safe cut slopes is not feasible along the north side of the former PSB because of the anticipated excavation depths and the current site configuration. The current site constraints include a previously benched slope, existing AU buildings to the east and west of the site, and highly variable and debris-laden soils.

The amount of soil expected to be excavated from the site is only an estimate and will be refined for planning purposes before construction. The excavated volume will be updated

based on method of construction, new site survey, any revisions to excavation horizontal and vertical extents, and soil cuts needed to maintain a proper freeboard during shoring system use.

FIGURES

Limit-of-Disturbance

Drill Pad Elevation = 370 ft amsl

Rockwood Building

PSB Soil Slope Benches

Top of Slab Elevation = 351.5 ft amsl

RS-06
RS-04
RS-03
RS-05
RS-01
RS-02
D3
D7/E7
E7
E8
E7/F7
E2/F2
F7
F7/G7

Legend

- 1-4 Feet Outside PSB Foundation
- PSB Foundation Slab Jan 2021
- Slope Soil Benches 4 and 5
- Pad for Rotosonic Drilling Operations
- Excavation Area Grids (15 x 15 ft)
- Test Pit Location
- Potential AUES Debris
- Access Road
- Limit of Disturbance
- Test Pit Locations at 8 and 16 feet from PSB wall
- Test Pit Locations at 24 feet from PSB wall
- Test Pit Locations at 8 feet from PSB wall
- Rotosonic Drilling Location Entry Point
- Boring End Point
- Rotosonic Drilling Location Path

N E S W

0 5 10 20
Feet

Figure 1
Rotosonic Drilling and Test Pit Locations
Public Safety Building Site
Spring Valley FUDS
Spring Valley, Washington, D.C.

FILE: Y:\Spring_Valley\MXD\2017_Effort\PSB_Drilling_Locs.mxd 9:25:09 AM 5/18/2021 ricksc

Parking Lot

Limit of Disturbance

Drill Pad Elevation = 370 ft amsl

Rockwood Building

PSB Soil Slope Benches

Top of Slab Elevation = 351.5 ft amsl

Jack Child Hall

RS-06
RS-04
RS-03
RS-05
RS-01
RS-02
D3
D7/E7
E7
E8
E2/F2
E7/F7
F7
F7/G7

Legend

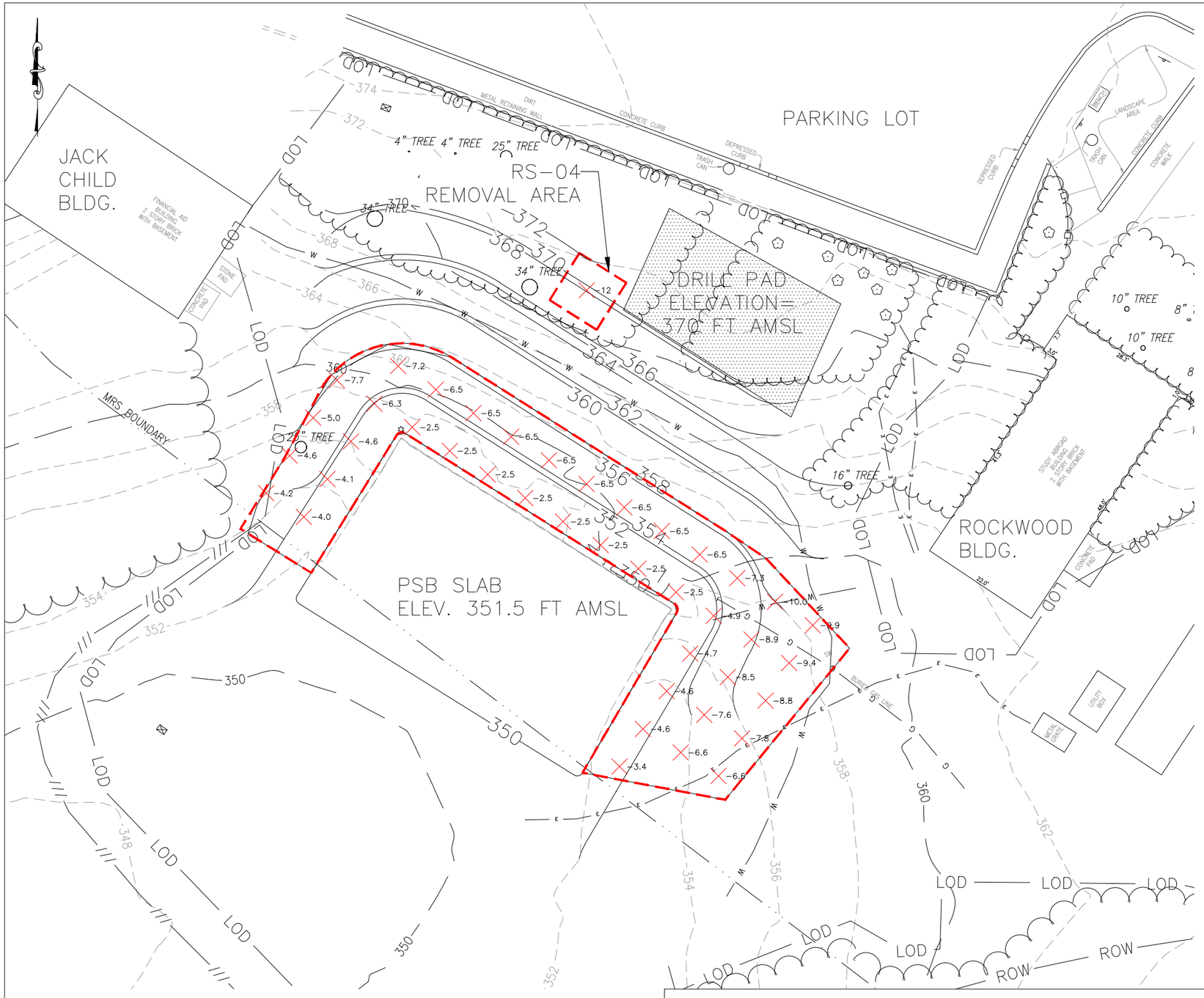
- 1-4 Feet Outside PSB Foundation
- PSB Foundation Slab Jan 2021
- Slope Soil Benches 4 and 5
- Pad for Rotosonic Drilling Operations
- Excavation Area Grids (15 x 15 ft)
- Test Pit Location
- Potential AUES Debris in Boring
- Areas where AUES Glassware exceeded an average of 8 pieces and 2 oz per foot
- Access Road
- Limit of Disturbance
- Test Pit Locations at 8 and 16 feet from PSB wall
- Test Pit Locations at 24 feet from PSB wall
- Test Pit Locations at 8 feet from PSB wall
- Rotosonic Drilling Location Entry Point
- Boring End Point
- Rotosonic Drilling Location Path

N E S W

0 5 10 20
Feet

Figure 2
Area with Potential AUES Debris Layer
Public Safety Building Site
Spring Valley FUDS
Spring Valley, Washington, D.C.

FILE: Y:\Spring_Valley\MXD\2017_Effort\PSB_Potential_debris_layer.mxd 10:32:16 AM 6/15/2021 langloisb



PLAN

SCALE: 1"=20'-0"

GENERAL NOTES:

1. BASE SURVEY PERFORMED IN JULY OF 2008 WITH UPDATES IN JULY OF 2018 BY CPJ & ASSOCIATES.
2. HORIZONTAL DATUM IS BASED UPON THE MARYLAND STATE PLANE COORDINATES NAD 83(NSRS 2007). TOPOGRAPHIC INFORMATION SHOWN WITHIN THE PROJECT LIMITS IS BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88),
3. SURVEY TO BE UPDATED PRIOR TO ADDITIONAL EXCAVATION.

LEGEND:

- PRE-CONSTRUCTION MAJOR CONTOUR
- PRE-CONSTRUCTION MINOR CONTOUR
- INTERIM/EXISTING CONTOUR
- EXCAVATION BOUNDARY
- -2.5 PROPOSED EXCAVATION DEPTH (FT)

AMERICAN UNIVERSITY
PUBLIC SAFETY BUILDING SITE

WESTON SOLUTIONS

FIGURE 3: EXCAVATION EXTENTS

DRAWN	DATE	DES. ENG.	DATE
KP	5/18/21	LB	5/18/21
CHECKED	DATE	APPROVED	DATE
NH	5/18/21	CM	5/18/21

FILE NO. \\fsfed02\1494\SPRING VALLEY\1A - W912DR-15-D-0022 - Remedial Action\Documents\PSB Slope Report\Draft\Figures

SURVEY DATA TABLE

Rotosonic Boring and Test Pit Survey Data Table
Public Safety Building - Spring Valley FUDS

Boring/Test Pit Location	Entry Elevation (ft. amsl)	Northing	Easting
Rotosonic Borings			
RS01	370.01	461,894.89	1,286,466.94
RS02	370.03	461,893.71	1,286,466.15
RS03	369.95	461,896.58	1,286,466.14
RS04	369.85	461,897.97	1,286,466.38
RS05	370.02	461,885.59	1,286,481.22
RS06	369.98	461,901.79	1,286,465.36
Test Pits			
Test Pit D7/E7	358.12	461,835.27	1,286,486.37
Test Pit E7	352.99	461,833.20	1,286,475.52
Test Pit E8	357.31	461,824.73	1,286,490.35
Test Pit E7/F7	354.94	461,822.88	1,286,478.38
Test Pit F7	352.69	461,819.74	1,286,467.43
Test Pit F7/G7	354.01	461,811.87	1,286,466.67
Test Pit E2/F2	355*	461,867.43	1,286,405.42

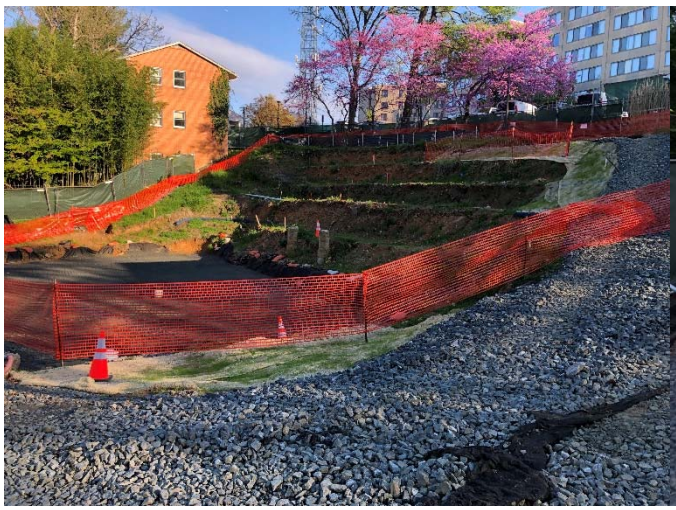
Notes: ft. - feet
amsl - above mean sea level
Maryland State Plane Coordinates, NAD83, Feet
Vertical Datum - NAVD88
* - elevation is estimated

ATTACHMENT A
Photos

Spring Valley FUDS Public Safety Building Slope Investigation – Photo Log

PSB footprint backfilled to adjacent grade.

PSB footprint backfilled to adjacent grade.



PSB excavation and benches with high-visibility fence at demobilization

PSB access road at demobilization

East side of PSB excavation at start of test pitting operations

PSB excavation and benches at start of test pitting operations

Impacted soil layer in PSB eastern sidewall, north end, at sanitary sump

Expended 75mm projectile encountered in impacted soil at sanitary sump

Soil from Test Pit E7, 2- to 3-ft depth on table for screening

Processed soil being loaded into roll-off container for disposal

Test Pit E8 excavated to 7 ft. bgs

Test Pit E7 excavated to 6 ft. bgs

Batch glass sample PI-PSB-PITE2F2-BATCH-0001-001

Batch glass sample PI-PSB-PITE2F2-BATCH-0102-001

Batch glass sample PI-PSB-PITE2F2-BATCH-0203-001

Test Pit E2F2. Note transition from impacted material (top)

Batch glass sample PI-PSB-PITD7E7-BATCH-0001-001

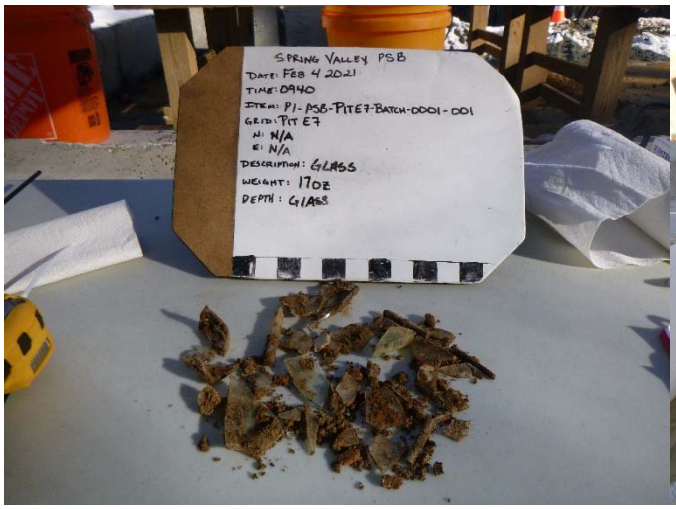
Batch glass sample PI-PSB-PITD7E7-BATCH-0102-001

Batch glass sample PI-PSB-PITD7E7-BATCH-0203-001

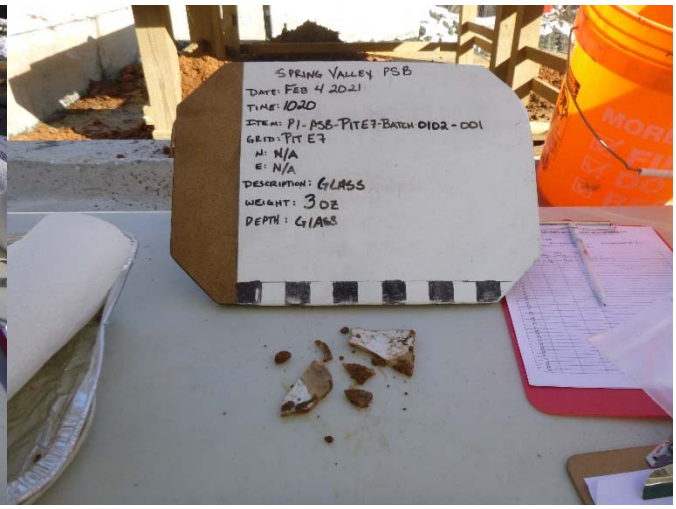
Batch glass sample PI-PSB-PITD7E7-BATCH-0304-001

Batch glass sample PI-PSB-PITD7EF-BATCH-0405-001

Batch glass sample PI-PSB-PITD7E7-BATCH-0708-001



Batch glass sample PI-PSB-PITEF-BATCH-0001-001



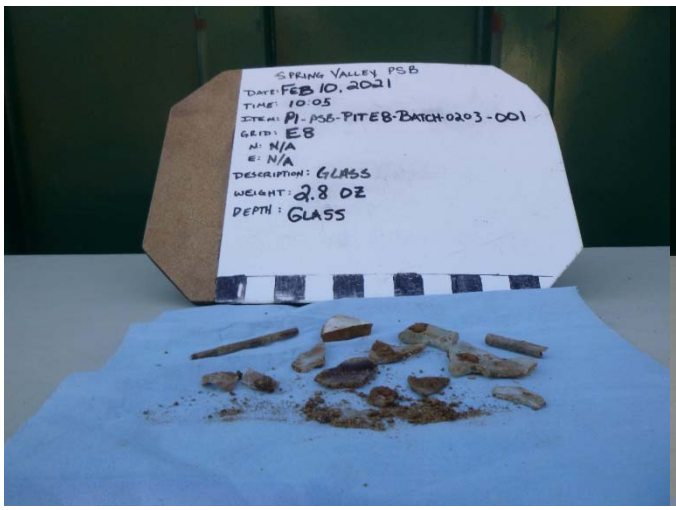
Batch glass sample PI-PSB-PITE7-BATCH-0102-001

Batch glass sample PI-PSB-PITE7-BATCH-0203-001

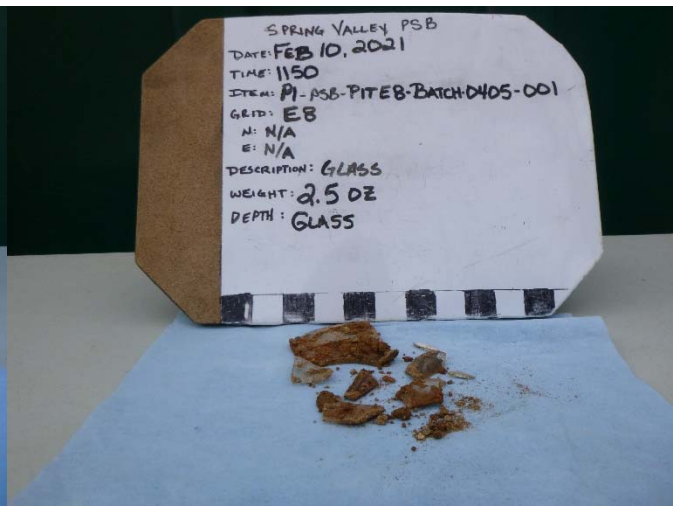
Batch glass sample PI-PSB-PITE7-BATCH-0304-001

Batch glass sample PI-PSB-PITE7-BATCH-0405-001

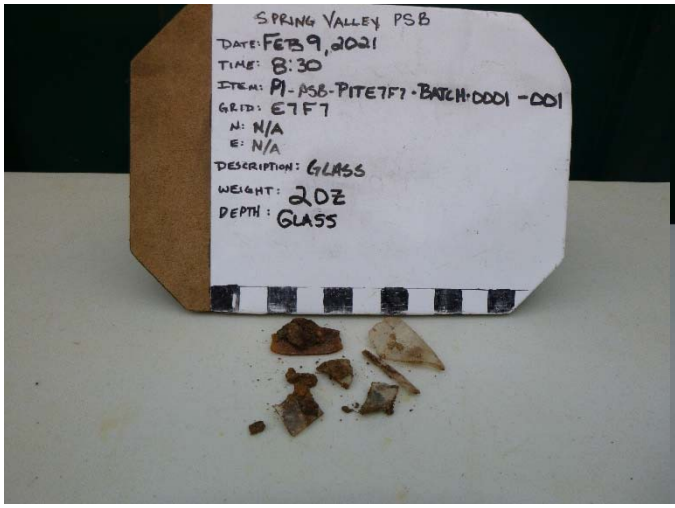
Batch glass sample PI-PSB-PITE8-BATCH-0102-001



Batch glass sample PI-PSB-PITE8-BATCH-0203-001



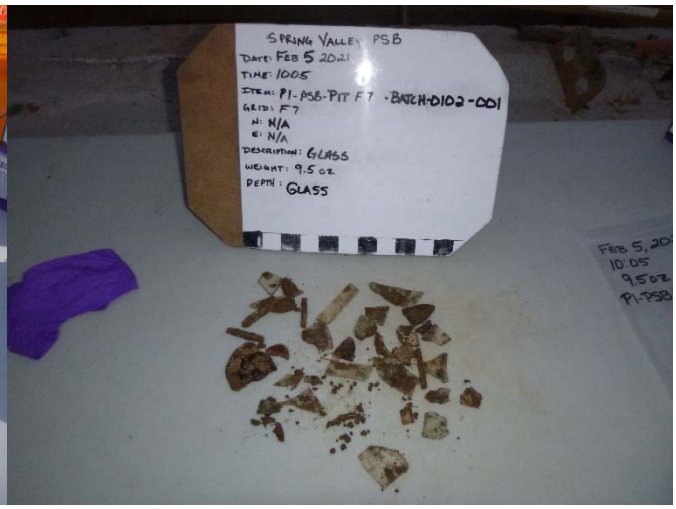
Batch glass sample PI-PSB-PITE8-BATCH-0405-001



Batch glass sample PI-PSB-PITE7F7-BATCH-0001-001

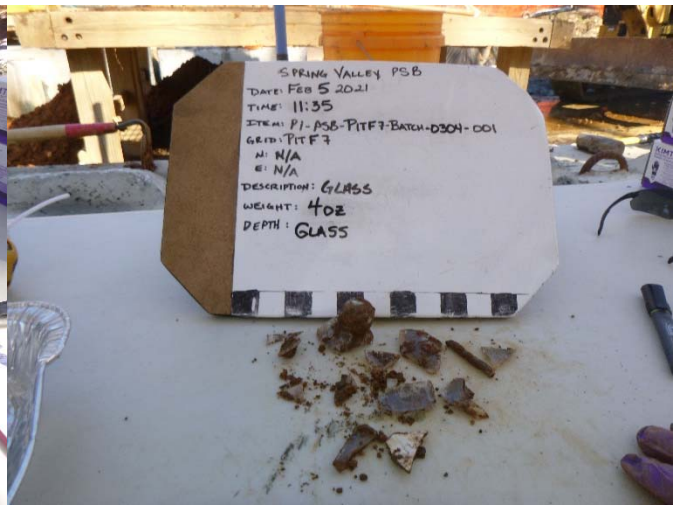
Batch glass sample PI-PSB-PITE7F7-BATCH-0405-001

Batch glass sample PI-PSB-PITF7-BATCH-0001-001



Batch glass sample PI-PSB-PITF7-BATCH-0102-001

Batch glass sample PI-PSB-PITF7-BATCH-0203-001



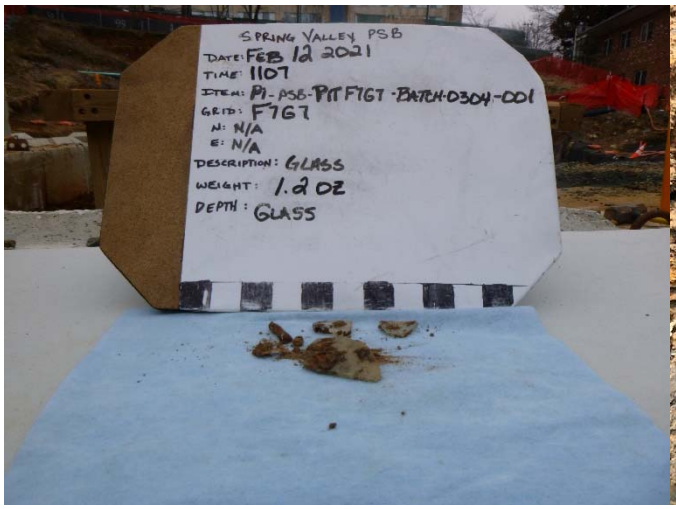
Batch glass sample PI-PSB-PITF7-BATCH-0304-001

Test Pit F7G7 excavated to 5 ft. bgs

Batch glass sample PI-PSB-PITF7G7-BATCH-0001-001

Batch glass sample PI-PSB-PITF7G7-BATCH-0102-001

Batch glass sample PI-PSB-PITF7G7-BATCH-0203-001



Batch glass sample PI-PSB-PITF7G7-BATCH-0304-001

Test Pit D3 in PSB excavation's north wall

Test Pit D3 in PSB excavation's north wall

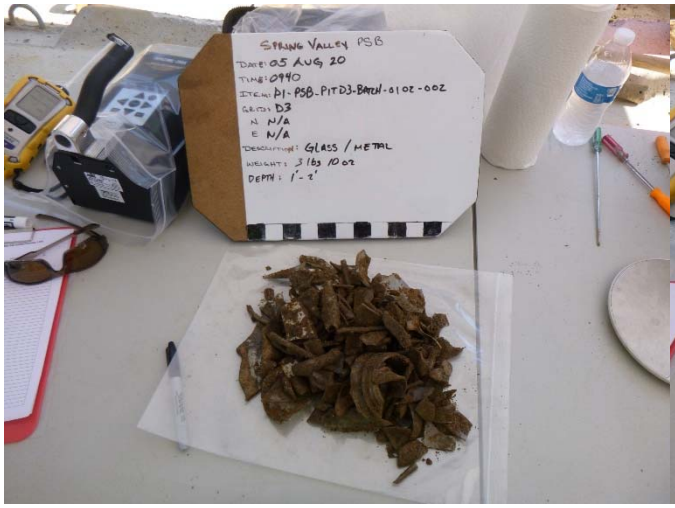
Batch glass sample PI-PSB-PITD3-0001-001

Batch glass sample PI-PSB-PITD3-0001-002

Batch glass sample PI-PSB-PITD3-0001-003

Batch glass sample PI-PSB-PITD3-BATCH-0001-004

Batch glass sample PI-PSB-PITD3-BATCH-0102-001



Batch glass sample PI-PSB-PITD3-BATCH-0102-002

Batch glass sample PI-PSB-PITD3-BATCH-0102-003

Drilling pad at top of slope

Ramp to drilling pad

Track-mounted roto-sonic drill rig on ramp

Rig and drilling team at top of slope

Rosonic drill rig set up for angled boring

Soil tray for logging soil cores

Drilling crew set up for roto-sonic boring

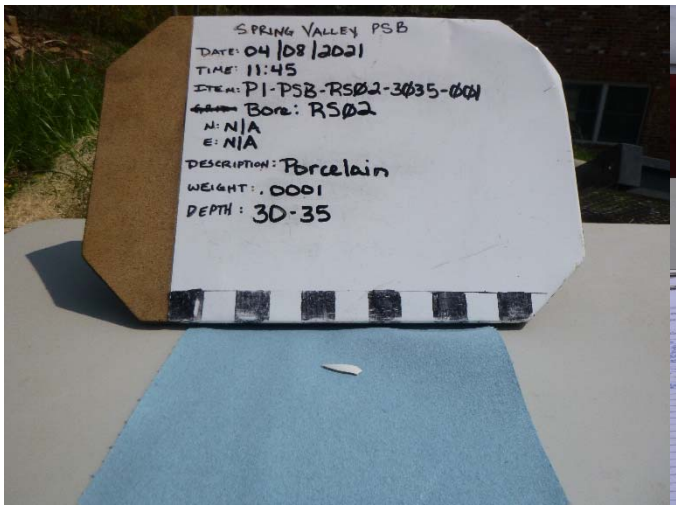
Soil core section from boring RS-05

Charred soil encountered in Soil Core RS-03 at approximately 354 ft. amsl.

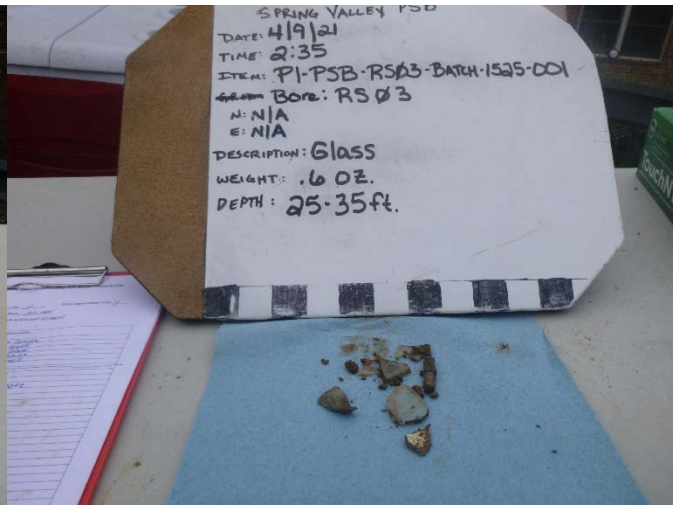
Saprolite encountered at bottom of Soil Core RS-03

Core barrels at decontamination station

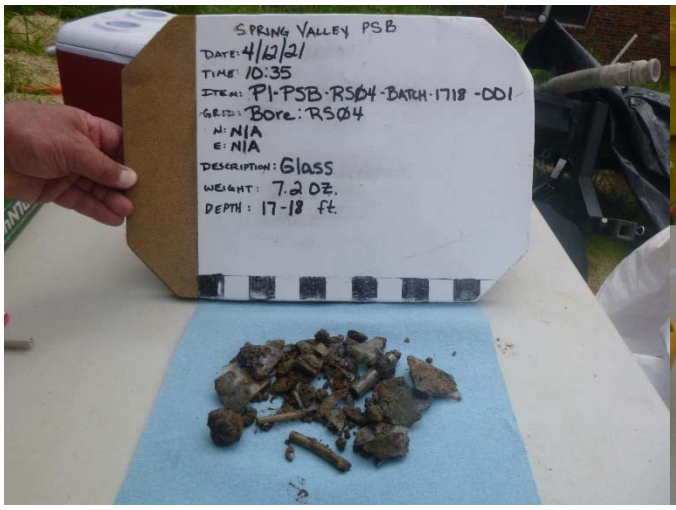
Mixing grout to abandon bore holes



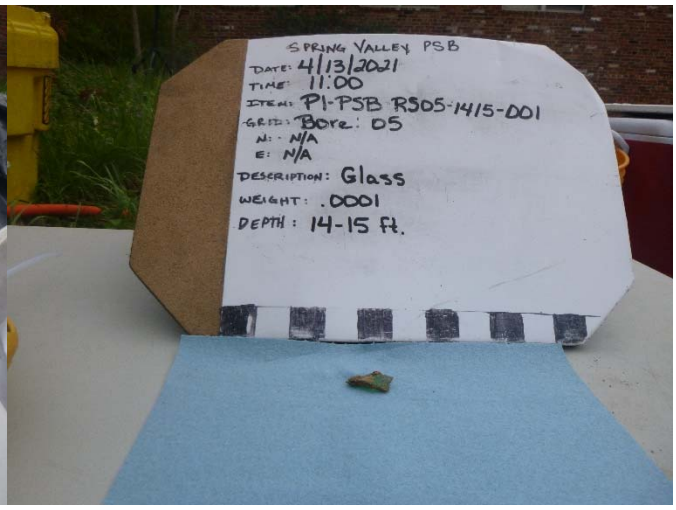
Potential Item sample PI-PSB-RS02-3035-001



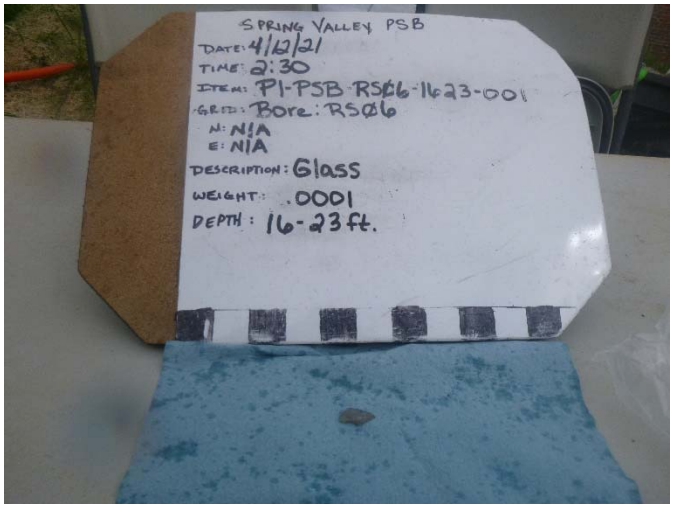
Batch glass sample PI-PSB-RS03-BATCH-1525-001



Batch glass sample PI-PSB-RS04-BATCH-1718-001



Potential Item sample PI-PSB-RS05-1415-001



Potential Item sample PI-PSB-RS06-1623-001

ATTACHMENT B
Test Pit Dig Sheets

Test Pit Digsheet

Low Probability Investigation at Public Safety Building - American University

Test Pit ID D7E7 **Start Date** 02/05/2021 **Excavation Complete Date** 02/08/2021 **Backfill Complete Date** 02/08/2021

Final Dimensions in feet (W/L/D) 2'x2'x9' **Initial Ground Surface Elevation:** 358.12 **Final Depth Elevation:** 349.1

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	SAMPLE RESULTS	Weight of glass (lbs)	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	sandy SILT, some clay and gravel, brown, gray inclusions , moist. AUES suspect items found in this area, broken lab glass and pipettes.	SUSPECT AUES ITEMS	PI-PSB-PITD7E7-BATCH-0001-001	NO RESULTS ABOVE REPORTING LIMIT	0.1	02/05/2021 two BATCH samples were collected, one for each 1 ft lift . BATCH samples contained broken glassware. 02/08/121 three BATCH samples were collected one for each lift from 2' -5' BGS. BATCH samples contained broken glassware. Large amounts of glass in this area, potential burn pit from 3.5 to 5ft.
0.5-1						
1-1.5			PI-PSB-PITD7E7-BATCH-0102-001		2.0	
1.5-2						
2-2.5			PI-PSB-PITD7E7-BATCH-0203-001		1.2	
2.5-3						
3-3.5			PI-PSB-PITD7E7-BATCH-0304-001		1.1	
3.5-4	sandy SILT, some clay and gravel, brown, some cinders and burnt soil, gray inclusions , moist. AUES suspect items found in this area, broken lab glass and pipettes, burnt wood.					
4-4.5			PI-PSB-PITD7E7-BATCH-0405-001		1.4	
4.5-5						
5-5.5	silty SAND, little clay and gravel reddish brown, moist. No glass found in this area.	NA	NA	NA	NA	No potential AUES items found while excavating these lifts.
5.5-6						
6-6.5						
6.5-7						
7-7.5	sandy CLAY, some gravel, golden brown, moist to wet, water table at 8ft. Small amounts of glass identified in this lift.	SUSPECT AUES ITEMS	PI-PSB-PITD7E7-BATCH-0708-001	NO RESULTS ABOVE REPORTING LIMIT	0.2	02/08/2021 one BATCH sample was collected of broken glassware.
7.5-8						
8-8.5	sandy CLAY, some gravel, golden brown, wet. No potential AUES items identified in this list. Final excavation depth of test pit is 9ft.	NA	NA	NA	NA	No potential AUES items found while excavating these lifts.
8.5-9						

Test Pit Digsheet

Low Probability Investigation at Public Safety Building - American University

Test Pit ID E2F2 **Start Date** 02/11/2021 **Excavation Complete Date** 02/11/2021 **Backfill Complete Date** 02/11/2021

Final Dimensions in feet (W/L/D) 2'x2'x6' **Initial Ground Surface Elevation:** 354.97' **Final Depth Elevation:** 348.97'

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	SAMPLE RESULTS	Weight of glass (lbs)	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	sandy SILT, some gravel and organics, brown, moist. AUES suspect items found in this area, broken lab glass and pipettes.	Suspect AUES Glassware	PI-PSB-PITE2F2-BATCH-0001-001	NO RESULTS ABOVE REPORTING LIMIT	0.56	02/11/2021 three BATCH samples were collected, one for each 1 ft lift of the test pit. BATCH samples contained broken glassware, total of 2.7 lbs collected.
0.5-1						
1-1.5	sandy SILT, some gravel and organics, brown, moist. AUES suspect items found in this area, broken lab glass and pipettes. Majority of glass in this test pit identified in this area.		PI-PSB-PITE2F2-BATCH-0102-001		1.63	
1.5-2						
2-2.5			PI-PSB-PITE2F2-BATCH-0203-001		0.50	
2.5-3	clayey SILT, little clay and sand, lite brown, moist. No AUES items identifed in this lift, bottom excavation depth of test pit 6ft.					
3-3.5		NA	NA	NA	NA	02/11/2021 excavated lift with no AUES items identified. Final depth of test pit 6ft.
3.5-4						
4-4.5						
4.5-5						
5-5.5						
5.5-6						

Test Pit Digsheet

Low Probability Investigation at Public Safety Building - American University

Test Pit ID E7 **Start Date** 02/04/2021 **Excavation Complete Date** 02/04/2021 **Backfill Complete Date** 02/05/2021

Final Dimensions in feet (W/L/D) 2'x2'x6' **Initial Ground Surface Elevation:** 352.99 **Final Depth Elevation:** 346.99'

TRENCH DESCRIPTION						
LIFT	**SOIL DESCRIPTION**	**ITEMS FOUND**	**SAMPLE or ITEM ID**	**SAMPLE RESULTS**	**Weight of glass (lbs)**	**REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)**
0-0.5	sandy SILT, some clay and gravel reddish brown, gray inclusions , moist. AUES suspect items found in this area, broken lab glass and pipettes.	SUSPECT AUES GLASSWARE	PI-PSB-PITE7-BATCH-0001-001	NO RESULTS ABOVE REPORTING LIMIT	1.1	02/04/2021 five BATCH samples were collected, one for each 1 ft lift of the test pit. BATCH samples contained broken glassware, total of 2.7lbs collected.
0.5-1						
1-1.5			PI-PSB-PITE7-BATCH-0102-001		0.2	
1.5-2						
2-2.5			PI-PSB-PITE7-BATCH-0203-001		0.6	
2.5-3						
3-3.5			PI-PSB-PITE7-BATCH-0304-001		0.7	
3.5-4						
4-4.5			PI-PSB-PITE7-BATCH-0405-001		0.1	
4.5-5						
5-5.5	sandy SILT, some clay and gravel reddish brown, gray inclusions , moist. No glass found in this lift. Final Test Pit depth: 6ft/ approximately elevation: 347'	NA	NA	NA	NA	02/05/2021 excavated lift with no AUES items identified. Final depth of test pit 6ft.
5.5-6						

Test Pit Digsheet

Low Probability Investigation at Public Safety Building - American University

Test Pit ID E7F7 **Start Date** 02/09/2021 **Excavation Complete Date** 02/09/2021 **Backfill Complete Date** 02/09/2021

Final Dimensions in feet (W/L/D) 2'x2'x6' **Initial Ground Surface Elevation:** 354.95' **Final Depth Elevation:** 348.95'

TRENCH DESCRIPTION						
LIFT	**SOIL DESCRIPTION**	**ITEMS FOUND**	**SAMPLE or ITEM ID**	**SAMPLE RESULTS**	**Weight of glass (lbs)**	**REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)**
0-0.5 0.5-1	sandy SILT, some gravel, brown , dry. AUES suspect items found in this area, small amount of broken glassware identified.	SUSPECT AUES DEBRIS ITEMS	PI-PSB-PITE7F7-BATCH-0001-001	NO RESULTS ABOVE REPORTING	0.1	02/09/2021 one BATCH samples was collected (2 oz), contained broken glassware.
1-1.5 1.5-2 2-2.5 2.5-3 3-3.5 3.5-4	sandy SILT, little gravel, brown to reddish brown as excavated deeper, dry. No potential AUES items identified in this area.	NA	NA	NA	NA	02/09/2021 excavated these lifts with no AUES items identified.
4-4.5 4.5-5	sandy SILT, some gravel, little clay, reddish browl, moist. AUES suspect items found in this area. Small amounts of glass identified in this area.	SUSPECT AUES DEBRIS ITEMS	PI-PSB-PITE7F7-BATCH-0405-001	NO RESULTS ABOVE REPORTING	0.2	02/09/2021 one BATCH samples was collected (2.5 oz), contained broken glassware.
5-5.5 5.5-6	sandy SILT, some gravel, little clay, reddish brown, moist to wet, water table at 6ft. No glass found in this lift. Final Test Pit depth: 6ft/ approximately elevation: 349'	NA	NA	NA	NA	02/09/2021 excavated lift with no AUES items identified. Final depth of test pit 6ft.

Test Pit Digsheet

Low Probability Investigation at Public Safety Building - American University

Test Pit ID E8 **Start Date** 02/10/2021 **Excavation Complete Date** 02/10/2021 **Backfill Complete Date** 02/10/2021

Final Dimensions in feet (W/L/D) 2'x2'x9' **Initial Ground Surface Elevation:** 357.31 **Final Depth Elevation:** 348.31

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	SAMPLE RESULTS	Weight of glass (lbs)	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	sandy SILT, some gravel, brown, dry. AUES suspect items found in this area, broken lab glass.	SUSPECT AUES GLASSWARE	NA	NA	NA	02/05/2021 two BATCH samples were collected, one for each 1 ft lift . BATCH samples contained broken glassware. 02/08/121 three BATCH samples were collected one for each lift from 2' -5' BGS. BATCH samples contained broken glassware. Large amounts of glass in this area, potential burn pit from 3.5 to 5ft.
0.5-1						
1-1.5			PI-PSB-PITE8-BATCH-0102-001	NO RESULTS ABOVE REPORTING LEVEL	0.2	
1.5-2						
2-2.5			PI-PSB-PITE8-BATCH-0203-001		0.2	
2.5-3						
3-3.5	sandy SILT, some gravel, brown, dry. No potential AUES debris identified in this lift.		NA		NA	
3.5-4						
4-4.5	sandy SILT, some clay and gravel, brown, dry. AUES suspect items found in this area, broken lab glass.		PI-PSB-PITE8-BATCH-0405-001		0.2	
4.5-5						
5-5.5	sandy SILT, some clay and gravel, reddish brown, gray inclusions moist. No potential AUES debris items found in this area.	NA	NA	NA	NA	No potential AUES items found while excavating these lifts. Final excavation depth 9ft.
5.5-6						
6-6.5						
6.5-7						
7-7.5						
7.5-8						
8-8.5						
8.5-9						

Test Pit Digsheet

Low Probability Investigation at Public Safety Building - American University

Test Pit ID F7 **Start Date** 02/05/2021 **Excavation Complete Date** 02/05/2021 **Backfill Complete Date** 02/05/2021

Final Dimensions in feet (W/L/D) 2'x2'x5' **Initial Ground Surface Elevation:** 352.67' **Final Depth Elevation:** 347.67'

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	SAMPLE RESULTS	Weight of glass (lbs)	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	sandy SILT, some clay and gravel brown, gray inclusions , moist. AUES suspect items found in this area, broken lab glass and pipettes.	Suspect AUES Glassware	PI-PSB-PITF7-BATCH-0001-001	NO RESULTS ABOVE REPORTING LIMIT	1.09	02/05/2021 four BATCH samples were collected, one for each 1 ft lift of the test pit. BATCH samples contained broken glassware, total of 2.1lbs collected.
0.5-1						
1-1.5			PI-PSB-PITF7-BATCH-0102-001		0.59	
1.5-2						
2-2.5	medium sandy SILT, some gravel, little clay, red-brown, moist, AUES suspect items found in this area, broken lab glassware.		PI-PSB-PITF7-BATCH-0203-001		0.13	
2.5-3						
3-3.5			PI-PSB-PITF7-BATCH-0304-001		0.25	
3.5-4						
4-4.5	medium sandy SILT, some gravel, little clay, red-brown, moist. No AUES items identifed in this lift, bottom excavation depth of test pit 5ft.	NA	NA	NA	NA	02/05/2021 excavated lift with no AUES items identified. Final depth of test pit 5ft.
4.5-5						

Test Pit Digsheet

Low Probability Investigation at Public Safety Building - American University

Test Pit ID F7G7 **Start Date** 02/12/2021 **Excavation Complete Date** 02/12/2021 **Backfill Complete Date** 02/12/2021

Final Dimensions in feet (W/L/D) 2'x2'x5' **Initial Ground Surface Elevation:** 354.01' **Final Depth Elevation:** 349.01'

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	SAMPLE RESULTS	Weight of glass (lbs)	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	sandy SILT, some gravel, brown, dry. AUES suspect items found in this area, broken lab glass and pipettes.	Suspect AUES Glassware	PI-PSB-PITF7G7-BATCH-0001-001	NO RESULTS ABOVE REPORTING LIMIT	0.13	02/12/2021 four BATCH samples were collected, one for each 1 ft lift of the test pit. BATCH samples contained broken glassware, total of 2.1lbs collected.
0.5-1						
1-1.5			PI-PSB-PITF7G7-BATCH-0102-001		0.16	
1.5-2						
2-2.5	medium sandy SILT, some gravel, little clay, red-brown, moist, AUES suspect items found in this area, broken lab glassware.		PI-PSB-PITF7G7-BATCH-0203-001		0.22	
2.5-3						
3-3.5			PI-PSB-PITF7G7-BATCH-0304-001		0.08	
3.5-4						
4-4.5	medium sandy SILT, some gravel, little clay, red-brown, moist. No AUES items identifed in this lift, bottom excavation depth of test pit 5ft.	NA	NA	NA	NA	02/12/2021 excavated lift with no AUES items identified. Final depth of test pit 5ft.
4.5-5						

ATTACHMENT C
Boring Logs

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS01**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/9/2021	**Boring Angle (degrees)**	37.1
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.01
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description - Continuous 4-inch Diameter Soil Cores
1–3	370.0	45	ML	(0.0 - 4.0) 10 YR 5/2 grayish brown SILT and CLAY, medium firm, slight plasticity, some well-sorted subangular fine sand, some subangular poorly sorted fine to coarse gravel, roots, trace brick fragments musty odor
4	367.6		CH	(4.0 - 5.0) 10 YR 5/6 strong brown CLAY, soft, high plasticity, some poorly sorted fine to medium subangular gravel, moist
5	367.0	120	GC	(5.0 - 5.5) 10 YR 5/6 strong brown CLAY and poorly sorted fine to coarse subangular GRAVEL, soft, moist, slight plasticity, no odor
6–10			ML	(5.5 - 15.0) 10 YR 5/6 strong brown SILT, firm, low plasticity, moist, some poorly sorted fine to coarse subangular gravel, trace brick fragments, no odor

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS01**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/9/2021	**Boring Angle (degrees)**	37.1
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.01
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
15	361.0		ML	(15.0 - 20.5) - Same as above

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS01**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/9/2021	**Boring Angle (degrees)**	37.1
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.01
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
21	357.6			
22			GC	(20.5 - 25.0) - 10 YR 5/6 strong brown CLAY and bricks and poorly sorted gravel; clay component is soft, moist, low plasticity; gravel is fine to coarse, subrounded to subangular; some subrounded very dark gray cobbles, no odor
23				
24				
25	354.9			
26		120		(25.0 - 32.0) 10 YR 6/1 gray CLAY, soft, high plasticity, moist, trace well rounded gravel, becomes more firm with increasing depth
27				
28			CH	
29				
30				

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS01**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/9/2021	**Boring Angle (degrees)**	37.1
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.01
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
31				
32	350.7			
33			ML	(32.0 - 35.0) 10 YR 6/6 brownish yellow and 10 YR 7/2 light gray saprolite SILT, foliated, firm, low plasticity, moist, no odor
34				
35	348.9			
36			GC	(35.0 - 36.2) 10 YR 5/2 grayish brown CLAY and poorly sorted fine to medium subangular gravel, clay component is firm, moist, moderate to high plasticity
	348.2			
37			ML	(36.2 - 37.0) 7.5 YR 7/6 reddish yellow SILT and poorly sorted fine to medium subangular gravel; silt component is medium firm, moderate plasticity, moist
	347.7			
38			ML	(37.0 - 38.5) 7.5 YR 6/1 gray saprolite SILT, moist, firm, low plasticity, micaceous
	346.8			
39			ML	(38.5 - 45.0) 7.5 YR 7/6 reddish yellow to 7.5 YR 6/8 reddish yellow saprolite SILT, moist, firm, moderate plasticity
40				

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS01**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/9/2021	**Boring Angle (degrees)**	37.1
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.01
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
41			ML	
42				
43				
44				
45	342.9			
				END OF BORING AT 45 FEET
46				
47				
48				
49				
50				

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS02**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/8/2021	**Boring Angle (degrees)**	34.8
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.03
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description - Continuous 4-inch Diameter Soil Cores
0	370.0	60	ML	(0.0 - 5.0) 5 YR 4/3 reddish brown SILT, soft, slight plasticity, some well sorted subangular fine sand, some poorly sorted subrounded fine to coarse gravel, moist, manure-like odor, plant roots
5	367.2		ML	(5.0 - 15.0) Same as above, no roots; nail at 6.5 feet, tile fragment at 8 feet; no odor

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS02**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/8/2021	**Boring Angle (degrees)**	34.8
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.03
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
11–15			ML	
15	361.5	95		(15.0 - 25.0) 10 YR 6/8 brownish yellow SILT, soft, slight plasticity, moist, some well sorted subangular fine sand, some poorly sorted fine to coarse subrounded gravel; small glass fragment (triangular/pyramid-shaped, approximately 1/2 inch across); grades to 7.5 YR 5/8 strong brown, no odor
16–20			ML	

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS02**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/8/2021	**Boring Angle (degrees)**	34.8
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.03
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
21			ML	
22				
23				
24				
25	355.8			
		120		(25.0 - 33.5) - 10 YR 5/2 grayish brown CLAY, some silt, soft, moderate to high plasticity, well rounded cobble at 31 feet
26				
27			CH	
28				
29				
30				

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS02**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/8/2021	**Boring Angle (degrees)**	34.8
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.03
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
31			CH	
32				
33				
	350.9		ML	(33.5 - 34.2) 10 YR 6/8 reddish yellow SILT, firm, slight plasticity, moist; 1/2 inch thich layer of very dark gray silt at 33.8 feet
34				
			CL	(34.2 - 35.0) 10 YR 5.3 brown CLAY, some silt, moderate plasticity, moist, trace muscovite, plate glass fragment at 33.5 feet
35	350.1			
		120	ML	(35.0 - 37.0) 10 YR 5/2 grayish brown SILT, some clay, firm, moderate plasticity, trace subrounded gravel, trace muscovite, moist
36				
37	348.9			
			CH	(37.0 - 42.5) 10 Y 7/1 light gray CLAY, reddish yellow mottling, medium firm, high plasticity, moist
38				
39				
40				

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS02**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/8/2021	**Boring Angle (degrees)**	34.8
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.03
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
41			CH	
42	345.77			
43			ML	(42.5 - 45.0) 10 YR 5/2 grayish brown and 7.5 YR 6/6 reddish yellow saprolite SILT, foliated, medium firm, slight plasticity, moist
44				
45	344.35			
				END OF BORING AT 45 FEET
46				
47				
48				
49				
50				

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS03**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/9/2021	**Boring Angle (degrees)**	39.1
Drilling Company:	Cascade	**Elevation (ft amsl)**	369.95
Drill Foreman :	Steven Argue	**Boring Length (ft)**	40
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description - Continuous 4-inch Diameter Soil Cores
1–4	370.0	60	ML	(0.0 - 5.0) 10 YR 5/2 grayish brown SILT, medium firm, low plasticity, moist, some poorly sorted fine to coarse subrounded gravel, no odor
5–10	366.8	105	ML	(5.0 - 13.5) 10 YR 5/3 brown SILT, firm, slight plasticity, some poorly sorted fine to coarse subrounded gravel; 1/2 inch thick lens of black subangular silty fine gravel at 12.0 feet; concrete and metal fragment at 13 feet; poor recovery below concrete fragment, no odor

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS03**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/9/2021	**Boring Angle (degrees)**	39.1
Drilling Company:	Cascade	**Elevation (ft amsl)**	369.95
Drill Foreman :	Steven Argue	**Boring Length (ft)**	40
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
11 – 15			ML	
		102		(15.0 - 17.2) 2.5 YR 5/8 red brick fragments, nail
16 – 20			ML	(17.2 - 21.0) 10 YR 5/3 brown SILT, moderate plasticity, micaceous, trace brick fragments, soft, moist, glass tube at 20.5 feet

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS03**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/9/2021	**Boring Angle (degrees)**	39.1
Drilling Company:	Cascade	**Elevation (ft amsl)**	369.95
Drill Foreman :	Steven Argue	**Boring Length (ft)**	40
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
21	356.7		ML	
22				(21.0 - 25.0) 10 YR 4/1 dark gray to 10 YR 6/2 light grayish brown CLAY, moderate to high plasticity, soft, moist, burned wood debris, no odor
23			CH	
24				
25	354.2			(25.0 - 33.0) 10 YR 5/2 grayish brown CLAY, firm, high plasticity, little fine to coarse subrounded poorly sorted gravel, no odor
26				
27				
28			CH	
29				
30				

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS03**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/9/2021	**Boring Angle (degrees)**	39.1
Drilling Company:	Cascade	**Elevation (ft amsl)**	369.95
Drill Foreman :	Steven Argue	**Boring Length (ft)**	40
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
31			CH	
32				
33	349.1			
34			ML	(33.0 - 35.0) Gley 1 7/1 light greenish gray and 7.5 YR 6/6 reddish yellow SILT, firm, low to moderate plasticity, trace subangular medium gravel, foliate, moist, no odor
35	347.9			
36		60	ML	(35.0 - 37.5) Same as above
37	346.3			
38	345.9		ML	(37.5 - 38.2) 5 YR 6/6 reddish yellow saprolite SILT, firm, low plasticity, trace weathered rock fragments, dry (heated by drill tooling)
39				38.2 - 40.0) 10 YR 7/1 light gray to 7.5 YR 6/6 reddish yellow partially weathered rock, very firm, hard, dry (heated by drill tooling)
40	344.7			

END OF BORING AT 40 FEET

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS04**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/12/2021	**Boring Angle (degrees)**	43.0
Drilling Company:	Cascade	**Elevation (ft amsl)**	369.85
Drill Foreman :	Steven Argue	**Boring Length (ft)**	30
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description - Continuous 4-inch Diameter Soil Cores
1–4	369.9	60	ML	(0.0 - 5.0) 7.5 YR 5/4 brown SILT, low plasticity, soft, some poorly sorted fine to coarse subangular sand, little fine to coarse subrounded gravel, flat piece of black plastic or ceramic plate approximately 1/8 inch thick at 1.5 feet
5–7	366.4	50	ML	(5.0 - 7.5) Same as above
8–10	364.7			(7.5 - 15.0) Weathered brick fragments, some fine to coarse subrounded to subangular gravel, some silt, moist; driller indicated brick debris extends from approximately 7.5 to 15 feet and resulted in poor recovery

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS04**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/12/2021	**Boring Angle (degrees)**	43.0
Drilling Company:	Cascade	**Elevation (ft amsl)**	369.85
Drill Foreman :	Steven Argue	**Boring Length (ft)**	30
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
11				
12				
13				
14				
15	359.6			
16		120	GW-GM	(15.0 - 16.8) 7.5 YR 6/4 light brown SILT and poorly sorted fine to coarse subangular GRAVEL, some brick fragments, black/burned wood fragments, moist, glass tube at 16.8 feet
	358.4			
17			ML	(16.8 - 17.8) 7.5 YR 6/4 light brown SILT, firm, moderate plasticity, moist, micaceous, trace black/burned wood fragments, glass tube, glass fragments
	357.7			
18			CH	(17.8 - 22.0) 10 YR 5/2 grayish brown CLAY, high plasticity, firm, moist, trace burned wood fragments, faint musty odor
19				
20				

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS04**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/12/2021	**Boring Angle (degrees)**	43.0
Drilling Company:	Cascade	**Elevation (ft amsl)**	369.85
Drill Foreman :	Steven Argue	**Boring Length (ft)**	30
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
21			CH	
22	354.8			
23			CH	(22.0 - 25.0) 7.5 YR 6/8 reddish yellow CLAY, firm, high plasticity, trace subrounded fine gravel
24				
25	352.8			
26			CH	(25.0 - 26.5) Same as above
	351.8			
27			ML	(26.5 - 28.0) 7.5 YR 6/8 reddish yellow saprolite SILT, very firm, low plasticity, moist
28	350.8			
29				(28.0) - 30.0) 10 YR 5/2 grayish brown and 7.5 YR 6/8 reddish yellow saprolite SILT, foliated, very firm, low plasticity, moist
30	349.4			

END OF BORING AT 30 FEET

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS05**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/13/2021	**Boring Angle (degrees)**	42.5
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.02
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description - Continuous 4-inch Diameter Soil Cores
0	370.0	36	ML	(0.0 - 5.0) 10 YR 5/2 grayish brown SILT, slight plasticity, medium firm, moist, musty odor, some poorly sorted fine to coarse subrounded to subangular gravel, trace fine to medium black subangular gravel
5	366.6		CH	(5.0 - 15.0) 7.5 YR 6/6 reddish yellow CLAY, moderate to high plasticity, soft to medium firm, moist, some poorly sorted fine to coarse subrounded gravel; green glass fragment, metal nail, and black piece of subangular gravel at 14.5 feet

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS05**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/13/2021	**Boring Angle (degrees)**	42.5
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.02
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
11				
12			CH	
13				
14				
15	359.9			
		120		(15.0 - 22.2) Same as above, some fine angular black gravel (possible coke or burn material) from 22.0 to 22.2 feet
16				
17			CH	
18				
19				
20				

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS05**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/13/2021	**Boring Angle (degrees)**	42.5
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.02
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
21			CH	
22	355.0			
23			CH	(22.2 - 25.0) 10 YR 5/2 grayish brown to 10 YR 6/1 gray CLAY, soft, high plasticity, trace well sorted subangular fine sand, trace coarse well rounded gravel, moist
24				
25	353.1			
26			CH	(25.0 - 27.8) Same as above
27				
	351.2			
28			CH	(27.8 - 33.8) 10 YR 7/1 light gray and 7.5 YR 6/8 reddish yellow CLAY, foliated, medium firm, high plasticity, moist
29				
30				

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS05**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/13/2021	**Boring Angle (degrees)**	42.5
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.02
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
31			CH	
32				
33				
	347.2			
34			CH	(33.8-35.0) 10 YR 5/1 gray CLAY, soft, high plasticity, some poorly sorted fine to coarse subangular sand, some poorly sorted fine to coarse subangular to well rounded gravel, moist
35	346.4			
		120		(35.0-41.5) Same as above
36				
37				
			CH	
38				
39				
40				

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS05**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/13/2021	**Boring Angle (degrees)**	42.5
Drilling Company:	Cascade	**Elevation (ft amsl)**	370.02
Drill Foreman :	Steven Argue	**Boring Length (ft)**	45
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
41	342.0		CH	
42 – 44			ML	(41.5- 45.0) 10 YR 5/1 gray to Gley 2 7/10BG light greenish gray saprolite SILT, very firm, low plasticity, moist
45	339.6			END OF BORING AT 45 FEET
46 – 50				

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS06**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/12/2021	**Boring Angle (degrees)**	46.0
Drilling Company:	Cascade	**Elevation (ft amsl)**	369.98
Drill Foreman :	Steven Argue	**Boring Length (ft)**	30
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description - Continuous 4-inch Diameter Soil Cores
0	370.0	18	ML	(0.0 - 5.0) 5 YR 5/6 yellowish red SILT, soft, moderate plasticity, moist, some fine to coarse subangular gravel, trace brick fragments; rock fragment at 1.5 feet underlain by soft material resulted in poor recovery below 1.5 feet
5	366.4	75	ML	(5.0 - 8.0) 7.5 YR 5/4 brown SILT and poorly sorted fine to coarse subangular gravel, moist, brick fragments
8	364.2		SW	(8.0 - 9.2) Black poorly sorted fine to coarse subangular SAND and fine angular GRAVEL, some silt, dense, moist, earthy odor
9	363.4		ML	(9.2 - 15.0) 5 YR 6/6 reddish yellow SILT, medium firm, moderate plasticity, moist, some fine to coarse poorly sorted subangular gravel
10				

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS06**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/12/2021	**Boring Angle (degrees)**	46.0
Drilling Company:	Cascade	**Elevation (ft amsl)**	369.98
Drill Foreman :	Steven Argue	**Boring Length (ft)**	30
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
11–15			ML	
15	359.2	120	CH	(15.0 - 15.8) 2.5 YR 4/8 red CLAY, medium firm, high plasticity, moist, some poorly sorted fine to medium well rounded gravel, thin metal strip
16	358.6			(15.8 - 23.0) 10 YR 5/2 grayish brown CLAY, medium firm, high plasticity, little poorly sorted fine to coarse well rounded gravel, trace black wood fragments, small curved glass fragment at 20 feet
16–20			CH	

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

Drilling/Lithologic Log

Job Name	Spring Valley FUDS	**Boring No.**	**RS06**
Site/Property	Former PSB	**Drilling Method**	Sonic
Date Drilled	4/12/2021	**Boring Angle (degrees)**	46.0
Drilling Company:	Cascade	**Elevation (ft amsl)**	369.98
Drill Foreman :	Steven Argue	**Boring Length (ft)**	30
Logged By:	Josh Frizzell	**Borehole Diameter (in)**	6

Depth ft bgs	Elevation ft amsl	Recovery (inches)	USCS Code	Lithologic Description
21			CH	
22				
23	353.4			
24			ML	(23.0 - 25.0) 7.5 YR 6/4 light brown saprolite SILT, very firm/hard, low plasticity, moist
25	352.0			
26			ML	(25.0 - 30.0) Same as above, grades to 10 YR 5/2 grayish brown, some partially weathered rock
27				
28				
29				
30	348.4			END OF BORING AT 30 FEET

Notes:
Boring angles are in degrees from horizontal.
ft = feet
bgs = below ground surface
USCS = Unified Soil Classification System

ATTACHMENT D
Historical Removal Results

Public Safety Building
Debris Area Trench Excavations
Parsons - 2008

Parsons Trench ID	Depth to no AUES Debris (ft)	Depth to no Glass/Metal Scrap (ft)	Total Trench Depth (ft)
C1	6.5	8.5	9.5
C2	6.5	7.0	8.0
C3	7.5	9.0	10.0
C4	4.0	4.5	10.0
D1	5.5	6.0	8.0
D2	5.0	6.0	8.0
D3	4.0	6.0	8.0
E1	4.0	5.5	8.0
E2	4.5	6.0	8.0
E3	3.5	5.0	8.0

Terracotta Pipe (Extending Under Building)

6.5ft Wide, 8ft Long (Approximate), 10ft Deep, Interceptor Trench

12" HDPE Pipe

18" HDPE Pipe

Public Safety Building

Sump 1

Sump 2 (Abandoned)

Sump 3 (Abandoned)

Sump 4 (New)

Sump (Interceptor Trench)

8'

10'

8'

C1 C2 C3 C4 C5 C6 C7 C8

D1 D2 D3 D4 D5 D6

E1 E2 E3 E4 E5

F1

A

B

Extension

Excavation Trenches (Typical)

Elemental Mercury

HVAC Unit

AU Generator

Figure 1
PSB Debris Area
Public Safety Building

Spring Valley Site-Wide
Washington, DC

Legend

- Debris Area Behind PSB
- Trench Locations
- Utility Work Completed by AU (2006)
- Trench Boundaries in PSB Debris Area
- Interceptor Trench
- Areas Completely Cleared During Previous Investigation
- Grids

Debris Excavation Areas

- Area A: Previously Cleared to 5ft Depth
- Area B: Previously Cleared to 4ft Depth
- Area C
- Area D
- Area E
- Area F
- Extension

Cleared of Debris

- Trees
- Buildings
- Driveway
- Deck/Porch
- Sidewalk
- Concrete Pad

Utilities

- Telephone Line
- Electric Line
- Water Line
- Gas Line

C1 Trench ID Numbering may be Revised Depending on Eastern Extent of Debris

10 5 0 10 Feet

1 inch equals 10 feet

Scale:	1:120
Created By:	Parsons
File:	20080723 Public Safety Bld Working Map.mxd
Date:	5/18/2009
Figure Number:	-
Page Number:	-

PARSONS

Digsheet - Low Probability Investigation in Debris Area behind Public Safety Building Phase 2- American University

Trench ID Trench C1 **Start Date 07-28-08** **Excavation Complete Date** 8/4/2008 **Backfill Complete Date** 8/5/2008

Water pumped (gallons) ___12,500 gallons of water was recovered.

Final Dimensions in feet (W/L/D) __6' x 8' x 9.5' **Magnetometer Clearance at Final Depth?** Y **Comments:** Stone to be replaced with soil in top layer

TRENCH DESCRIPTION

LIFT	SOIL DESCRUPTION	ITEMS FOUND	SAMPLE or ITEM ID	PHOTO ID	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, Footer depth and width, water level, etc.)
0-0.5	Dark brown silty clay with trace sand and gravel	Scrap	SW-PSB2-(C1)-BATCH-072808		3 lbs - Scrap metal, ceramic & terracotta pieces, glass
0.5-1	Dark brown silty clay with trace sand and fine gravel.	Labware 4.5"x 3"diameter	SW-PSB2 -(C1)-SCR-001		4.5":X3 ceramic unsealed container
1-1.5	Lifgt to dark brown silty clay, some fine sand and gravel.	scrap and suspect	SW-PSB2 -(C1)-BATCH-072908		glass and metal scrap
1.5-2	Dark brown and light grey clay with trace sand and gravel	scrap and suspect	SW-PSB2 -(C1)-BATCH-072908		
2-2.5	Dark brown and light grey clay with trace sand and gravel	scrap and suspect	SW-PSB2 -(C1)-BATCH-072908		
2.5-3	Dark to light brown silt and clay with sand and trace fine gravel.	scrap and suspect	SW-PSB2 -(C1)-BATCH-072908		glass and metal scrap
3-3.5	Light brown silt and clay with sand and trace fine gravel.	One unsealed bottle	SW-PSB2 -(C1)-SCR-002		Unsealed amber bottle. 7"x2.5", empty.
3.5-4	Light brown silt and clay with sand and trace fine gravel.	None			
4-4.5	Dark to light brown silty clay with sand and trace fine gravel	Scrap	SW-PSB2-(C1)-BATCH-073008		1 lb - Scrap metal ceramic & glassware pieces
4.5-5	Dark brown and light gray clay with trace sand and gravel, suspect lab ware debris.	Scrap	SW-PSB2-(C1)-BATCH-073008		1 lb - Scrap metal ceramic & glassware pieces
5-5.5	Dark brown and light gray clay with trace sand and gravel, suspect lab ware debris.	NA	NA		Nothing Found
5.5-6	Dark brown and light gray clay with trace sand and gravel, suspect lab ware debris.	NA	NA		Nothing Found
6-6.5	Light brown and gray mottled silty clay	Intact container unsealed	SW-PSB2-(C-1)-SCR-003		3" x 1" diameter ceramic
6.5-7	Light brown and gray mottled silty clay	Scrap & Suspect	SW-PSB2-(C1)-BATCH-073108		glass and metal scrap
7-7.5	Light brown and gray mottled silty clay	Scrap & Suspect			
7.5-8	Light brown and gray mottled silty clay	Scrap & Suspect			

Digsheet - Low Probability Investigation in Debris Area behind Public Safety Building Phase 2- American University

Trench ID Trench C1 **Start Date 07-28-08** **Excavation Complete Date** 8/4/2008 **Backfill Complete Date** 8/5/2008

Water pumped (gallons) ___12,500 gallons of water was recovered.

Final Dimensions in feet (W/L/D) __6' x 8' x 9.5' **Magnetometer Clearance at Final Depth? Y** **Comments: Stone to be replaced with soil in top layer**

TRENCH DESCRIPTION						
8-8.5	Light brown and gray mottled silty clay	Scrap & Suspect	SW-PSB2-(C-1)-BATCH-080408		1 lb bag glassware and ceramic pieces.	
8.5-9	Light brown and gray mottled silty clay					
9-9.5	Light brown and gray mottled silty clay				Trench completed. No suspect glassware from 8.5 to 9.5ft	
9.5-10		NA				
+10 observation		NA				

Digsheet
Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID C2 **Start Date** 08-06-08 **Excavation Complete Date** 8/18/2008 **Backfill Complete Date** 9/5/08 (with C6)
Water pumped (gallons) 24750
Final Dimensions in feet (W/L/D) 6' x 8' x 8' **Magnetometer Clearance at Final Depth?** Y **Comments:**

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	PHOTO ID	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	Dark brown silty clay with trace sand and gravel	Suspect/Scrap	SW-PSB2-(C2)-BATCH-080608-001 SW-PSB2-(C2)-BATCH-080608-002	#024 #026	3 lbs - Scrap metal, glass, ceramic and terracotta pieces
0.5-1	Dark brown silty clay with trace sand and gravel	MD/Suspect/Scrap	SW-PSB2-(C2)-MD-001 SW-PSB2-(C2)-BATCH-080708-001 SW-PSB2-(C2)-BATCH-080708-002	#041	One- 3" Stokes Mortar round found 10 inches bgs, 1.5 feet from bldg footer (closer to trench C-3 side). 4 lbs-Scrap metal, glass, ceramic and terracotta pieces
1-1.5	Dark brown silty clay with trace sand and gravel	Suspect/Scrap	SW-PSB2-C2-GS001-(MD001) SW-PSB2-(C2)-BATCH-080808-001		Collected a grab sample of the soil below MD001 per PDT. 1 lb - Broken pieces of lab glassware from pipettes, bottle necks and ceramic pieces. Scrap metal debris.
1.5-2	Dark brown silty clay with trace sand and gravel	Suspect/Scrap	SW-PSB2-(C2)-SCR-004	#047	One unsealed amber glass tube (1.5"L x 1.0" D) with fluorescent green powdery solid found at 2.0' bgs. Found item on sifting table.
2-2.5	Dark brown silty clay with trace sand and gravel	Suspect/Scrap	SW-PSB2-(C2)-BATCH-080808-002		1 lb - Broken pieces of lab ware from pipettes, bottle necks and ceramic pieces. Scrap metal debris.
2.5-3	Dark brown silty clay with trace sand and gravel	Suspect/Scrap	SW-PSB2-(C2)-SCR-004A SW-PSB2-C2-BATCH-081208-001	#048	Glass piece that appeared to be related to SCR-004 labeled SCR 004A (this piece did not have any green material observed). 1 lb of scrap metal, glassware and ceramic pieces
3-3.5	Dark brown silty clay with trace sand and gravel	Suspect/Scrap	SW-PSB2-C2-TE001	#2190 #2191	One clear glass ampoule (1/4"D x 1.5"L) found at 3.0 feet. Found item on sifting table. Appears empty.
3.5-4	Dark brown silty clay with trace sand and gravel	Suspect/Scrap	SW-PSB2-(C2)-BATCH-081208-002 SW-PSB2-C2-GS002		White powdery solid found at 4 feet bgs and 2.5 feet from the bldg. 1 lb of scrap metal, glassware and ceramic.
4-4.5	Dark brown silty clay with trace sand and gravel	Suspect/Scrap	SW-PSB2-C2-NW(01)-(4.0') SW-PSB2-C2-SCR005	#2198	Pit Characterization sample collected from north wall of trench to characterize Area C. Found an unsealed broken container (2"L x 1.5"D) with red residue.

Digsheet
Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID C2 **Start Date** 08-06-08 **Excavation Complete Date** 8/18/2008 **Backfill Complete Date** 9/5/08 (with C6)
Water pumped (gallons) 24750
Final Dimensions in feet (W/L/D) 6' x 8' x 8' **Magnetometer Clearance at Final Depth?** **Y** **Comments:**

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	PHOTO ID	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
4.5-5	Dark brown silty clay with trace sand and gravel	Suspect/Scrap	SW-PSB2-C2-BATCH-081308		1 lb of scrap metal, broken glassware for headspace 4.5 lbs into scrap drum.
5-5.5	Dark brown silty clay with trace sand and gravel	Suspect/Scrap		#2208 #2209	Located a 14" terracotta pipe aligned perpendicular to building in middle of trench at 5 feet bgs. Water leaking out of pipe joint into trench.
5.5-6	Light brown silty clay with trace gray mottling	Scrap		#2217	2 lbs - Scrap metal, glass, ceramic and terracotta pieces
6-6.5	Light brown silty clay with trace gray mottling	Scrap	SW-PSB2-C2-BATCH-081408	#2220 #2225	2 lbs - Scrap metal, glass, ceramic and terracotta pieces
6.5-7	Light brown silty clay with trace gray mottling	Suspect/Scrap	SW-PSB2-C2-BATCH-081808	#2243 #2246 #2267	2 Pieces of glass found at 6.5 feet bgs (one piece is opaque green in color and the other piece is part of a bottle neck)
7-7.5	Light brown silty clay with trace gray mottling	Nothing	NA		Nothing found
7.5-8	Light brown silty clay with trace gray mottling	Nothing	NA		Nothing found
8-8.5	NOT EXCAVATED				
8.5-9	NOT EXCAVATED				
9-9.5	NOT EXCAVATED				
9.5-10	NOT EXCAVATED				
+10 observation					

Digsheet
Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID C-3 **Start Date** 09-08-08 **Excavation Complete Date** 9/11/2008 **Backfill Complete Date** 9/12/2008
Water pumped (gallons) 23160
Final Dimensions in feet (W/L/D) 4' x 8' x 10' **Magnetometer Clearance at Final Depth?** Y **Comments:**

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	PHOTO ID	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	Light brown silty CLAY, with some fine sand and trace fine gravel.	Suspect/Scrap	SW-PSB2-C3-BATCH 090808	#006 #007	Found 15 lbs of broken glass pieces, broken pipettes, rusted scape metal pieces and ceramic pieces. 3-lbs scrap items went to headspace in BATCH sample. Found a yellow granular type solid material within a clump of dirt on the sifting table (found in the 1.5 foot range bgs). Scrap item was sampled and labeled SW-PSB2-C3-SCR007(1.5').
0.5-1				#012 #017	
1-1.5			**SW-PSB2-C3-SCR007. Sent to GPL as SW-PSB2 -C3-GS-003(1.5')**	#020 #023	
1.5-2	Light brown silty CLAY, with some fine sand and trace fine gravel.	Suspect/Scrap	SW-PSB2-C3-BATCH 090908	#026	Found 25 lbs of broken glass pieces, broken pipettes, rusted scrape metal and ceramic pieces. 3 lbs of scrap items went to headspace in daily BATCH sample. At 2.5 feet we encountered a white powdery solid 1.5 feet in diameter and going under the building footer. USACEH determined the material was same in nature as previously collected sample SW-PSB2-C2-GS002 (sampled on 08-12-08).
2-2.5				#031 #032	
2.5-3				#037	
3-3.5				#038	
3.5-4				#040	
4-4.5	Dark gray stiff CLAY with some brown mottling.	Suspect/Scrap	SW-PSB2-C3-BATCH 091008	#047	Found 11 lbs of broken glass pieces, broken pipettes, rusted scrape metal and ceramic pieces. 1.5 lbs of scrap items went to headspace in daily BATCH sample.
5-5.5				#057 #058	
5.5-6				#060 #063	
6-6.5				#065 #068	
6.5-7				#070	

Digsheet
Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID C-3 **Start Date** 09-08-08 **Excavation Complete Date** 9/11/2008 **Backfill Complete Date** 9/12/2008
Water pumped (gallons) 23160
Final Dimensions in feet (W/L/D) 4' x 8' x 10' **Magnetometer Clearance at Final Depth?** Y **Comments:**

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	PHOTO ID	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
7-7.5	Dark gray stiff CLAY with some brown mottling.	Suspect/Scrap	SW-PSB2-C3-BATCH 091108	#081	Found 1 lbs of broken glass pipettes and glass pieces. 0.5 lbs was bagged and submitted to minicams for headspace in daily BATCH sample.
7.5-8				#087	
8-8.5				#093	
8.5-9				#098	
9-9.5		No Suspect/Scrape			Nothing found
9.5-10		No Suspect/Scrape	**SW-PSB2-C3-GS-004 (10')**		No debtris found but discolored soil on trench bottom observed at 1.5 ft from bldg and 3 ft from adjacent sidewall to C2. Grab sample collected.
+10 observation					

Table 3.4
Digsheet
Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID C-4 Interceptor Trench **Start Date** 07-14-08 **Excavation Complete Date** 7/23/2008 **Backfill Complete Date** 7/24/2008

Water pump 14,300 Gallons of water pumped today

Final Dimensions in feet (W/L/D) __6' x 8' x 10'_____ **Magnetometer Clearance at Final Depth?** Y **Comments:**

TRENCH DESCRIPTION

LIFT	DESCRIPTION OF MATERIAL	ITEMS FOUND	SAMPLE or ITEM ID	PHOTO ID	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	Dark brown silty clay with trace sand and gravel	Scrap	NA	#1840	5 lbs - Scrap metal, ceramic & terracotta pieces, glass
0.5-1	Dark brown silty clay with trace sand and fine gravel. Suspect lab ware debris found NE corner of trench up near building footer	Suspect	PI-PSB2-Trench(C-4)-071408	#1841,#1878, #1879	1 lbs - Pieces of pipettes and bottle necks
1-1.5	Light to dark brown silty clay with some sand and gravel, items found in NE corner near building footer	Scrap & Suspect	PI-PSB2-Trench(C-4)-071508 - Samples (001 through 007	#1883,#1885	3 lbs - Scrap metal, terracotta pieces, 14 lbs - Pieces of broken lab ware debris such as broken pipettes, broken glass and ceramic pieces
1.5-2	Dark brown and light gray clay with trace sand and gravel, suspect lab ware debris found NE corner near building footer.	Scrap & Suspect	PI-PSB2 - Trench (C-4)-071608	#1886	2 lbs - Scrap metal debris and ceramic pieces. 1 lb of broken pieces of lab ware, broken pipettes, broken bottle necks.
2-2.5	Dark brown and light gray clay with trace sand and gravel, suspect lab ware debris found NE corner near building footer.	Scrap & Suspect	PI-PSB2 - Trench (C-4)-071608	#1887	1 lb - Broken pieces of lab ware from pipettes, bottle necks and ceramic pieces. 1 lb of scap metal debris.
2.5-3	Dark to light brown silty clay with sand and trace fine gravel	Scrap & Suspect	PI-PSB2 - Trench (C-4)-071708	#1890	4 lbs - Scrap metal pieces and broken glass pieces and 0.3 lb - pieces of broken pipettes and broken glass lab ware.
3-3.5	Light brown silty clay with sand and trace fine gravel	Scrap & Suspect	PI-PSB2 - Trench (C-4)-071708		3 lbs - Scrap metal pieces and broken glass pieces and 0.3 lb - pieces of broken pipettes and broken glass lab ware.
3.5-4	Light brown silty clay with sand and trace fine gravel	Scrap & Suspect	PI-PSB2 - Trench (C-4)-071708		3 lbs - Scrap metal pieces and broken glass pieces and 0.4 lb - pieces of broken pipettes and broken glass lab ware.
4-4.5	Light gray silty clay with sand and trace fine gravel	Scrap	No Sample		One small piece of pane glass
4.5-5	Light gray silty clay with sand and trace fine gravel	Nothing	No Sample		Nothing Found
5-5.5	Light brown and gray mottled silty clay	Nothing	No Sample		Nothing Found
5.5-6	Light brown and gray mottled silty clay	Nothing	No Sample		Nothing Found
6-6.5	Light brown and gray mottled silty clay	Nothing	No Sample		Nothing Found
6.5-7	Light brown and gray mottled silty clay	Nothing	No Sample		Nothing Found
7-7.5	Light brown and gray mottled silty clay	Nothing	No Sample	#1894	Nothing Found

7.5-8	Light brown and gray mottled silty clay	Nothing	No Sample		Nothing Found
8-8.5	Light brown and gray mottled silty clay	Nothing	No Sample	#1898	Nothing Found
8.5-9	Light brown and gray mottled silty clay	Nothing	No Sample		Nothing Found
9-9.5	Light brown and gray mottled silty clay	Nothing	No Sample		Nothing Found
9.5-10	Light brown and gray mottled silty clay	Nothing	No Sample	#2000	Nothing Found
+10 observation					

Digsheet
Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID D-1 **Start Date** 09-15&10-6-08 **Excavation Complete Date** 10/8/2008 **Backfill Complete Date** 10/9/2008
Water pumped (gallons) 25200
Final Dimensions in feet (W/L/D) 6' x 8' x 8' **Magnetometer Clearance at Final Depth?** Y **Comments:**

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	PHOTO ID	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	Dark brown to Black silty sand and clay, with some fine sand and trace fine gravel.	Suspect/Scrap	SW-PSB2-D1-BATCH 091508 SW-PSB2-D1-BATCH 091508-001	#2535	Found 50 lbs of broken glass pieces, broken pipettes, rusted scrap metal pieces. 5-lbs scrap items went to headspace in two BATCH samples. Uncovered a metal container (6 to 8 inches in diameter) observed at 1 foot depth and 14 inches from building footer.
0.5-1				#2545	
1-1.5	Dark brown to Black silty sand and clay, with some fine sand and trace fine gravel.	Suspect/Scrap	SW-PSB2-D1-MD-002 SW-PSB2-D1-TE-002 SW-PSB2-D1-MD-003 SW-PSB2-D1-TE-003 SW-PSB2-D1-BATCH 091608-A SW-PSB2-D1-BATCH 091608-B SW-PSB2-D1-BATCH 091608-C SW-PSB2-D1-BATCH 091808	#916004 #916006 #916008 #9160011 #9160013	3" Open Cavity AP round 2" Closed Cavity Pipe w/ end caps Open cavity scrap Sheet metal bomb w/ conical fins 3.5" Pressurised cylinder Found 25 lbs of broken glass pieces, broken pipettes, rusted scrape metal pieces.
1.5-2	Dark brown to Black silty sand and clay, with some fine sand and trace fine gravel.	Suspect/Scrap	SW-PSB2-D1-TE-004 SW-PSB2-D1-GS006 (TE004) SW-PSB2-D1-MD006 SW-PSB2-D1-BATCH-100608 A SW-PSB2-D1-BATCH-100608 B SW-PSB2-D1-BATCH-100608 C SW-PSB2-D1-BATCH-100608 D	2671 2672	Closed cavity 75 mm projectile found on sifting table collected from approximately 3 ft bgs, 6 feet from building footer in the middle of the trench. A grab sample was collected from soils surrounding TE004 for analysis. Mark 2 bomb tail fins found at 2.5 ft bgs and 20" inches from the bldg. 50 lbs of broken glassware, pipettes, rusted metal and ceramic porcelain.10 lbs of scrape went to headspace as batch samples
2-2.5				PA060001 PA060002 PA060003 PA060004 PA060005	
2.5-3	Dark brown to Black silty sand and clay, with some fine sand and trace fine gravel.	Suspect/Scrap	SW-PSB2-D1-MD007 SW-PSB2-D1-MD008		Mark 2 bomb tail fins with tail section found at 2.5' bgs. Mark 2 bomb tail fins found at 2.5' bgs.
3-3.5		Suspect/Scrap	SW-PSB2-D1-GS007(3.5') SW-PSB2-D1-MD009	PA070001 PA070002	A grab sample was collected at 3.5' bgs of the glassware debris going beneath the building.
3.5-4			SW-PSB2-D1-BATCH-100708-A SW-PSB2-D1-BATCH-100708-B	PA070003 PA070004	Conglomerate of Mark 2 bomb fins (3 seperate sets) were found on the sifting table collected from between 3' to 4' bgs.
4-4.5			SW-PSB2-D1-BATCH-100708-C SW-PSB2-D1-BATCH-100708-D		Found 60 lbs of broken glassware, empty bottles (no lid), rusted metal and ceramic pieces. 10 lbs of scrap went to headspace as

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Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID D-1 **Start Date** 09-15&10-6-08 **Excavation Complete Date** 10/8/2008 **Backfill Complete Date** 10/9/2008
Water pumped (gallons) 25200
Final Dimensions in feet (W/L/D) 6' x 8' x 8' **Magnetometer Clearance at Final Depth?** **Y** **Comments:**

TRENCH DESCRIPTION					
5-5.5					batch samples.
5.5-6	Dark to light brown silty clay, gray mottled with trace fine sand and gravel	Suspect/Scrap	SW-PSB2-D1-BATCH 100808		Found 2 lbs of broken glass, rusted metal and porcelain pieces and all went to headspace in batch sample.
6-6.5	Light brown and gray mottled silty clay, trace large gravel	None	NA		Nothing Found
6.5-7					
7-7.5					
7.5-8					
8-8.5					
8.5-9					
9-9.5					
9.5-10					
+10 observation					

Digsheet
Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID D-2 **Start Date** 10/15/08 **Excavation Complete Date** 10/16/2008 **Backfill Complete Date** 10/17/2008
Water pumped (gallons) 16200
Final Dimensions in feet (W/L/D) 6' x 8' x 8' **Magnetometer Clearance at Final Depth?** Yes **Comments:**

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	Backfill	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	Dark brown and black clay, some sand and fine gravel	Suspect/Scrap	SW-PSB2-D2-BATCH 101508 SW-PSB2-AREA D-NW01(4.5')		Found 50 lbs of broken glass and pipettes, rusted scrap metal and porcelain pieces. 6 lbs of scrap items was bagged and submitted for headspace in one batch sample. A pit charcterization sample was collected from the middle of trench D-2 north wall at 4.5', sample labeled SW-PSB2-AREA D-NW01(4.5').
0.5-1					
1-1.5					
1.5-2					
2-2.5					
2.5-3					
3-3.5					
3.5-4	Light brown silty clay, gray mottled, some fine to medium gravel				
4-4.5					
4.5-5		Suspect/Scrap	SW-PSB2-D2-BATCH 101608		1 lb of broken pipettes and glass, rusted metal and porcelain pieces, all was bagged and submitted for headspace as daily batch sample
5-5.5					
5.5-6					
6-6.5		Nothing	SW-PSB2-AREA D-FL01(8')		Nothing Found
6.5-7					
7-7.5					

Digsheet

Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID D-2 **Start Date** 10/15/08 **Excavation Complete Date** 10/16/2008 **Backfill Complete Date** 10/17/2008

Water pumped (gallons) 16200

Final Dimensions in feet (W/L/D) 6' x 8' x 8' **Magnetometer Clearance at Final Depth?** **Yes** **Comments:**

TRENCH DESCRIPTION					
7.5-8					
8-8.5					
8.5-9					
9-9.5					
9.5-10					
+10 observation					

Dig sheet
Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID D-3 **Start Date** 10/20/08 **Excavation Complete Date** 10/21/2008 **Backfill Complete Date** 10/22/2008
Water pumped (gallons) 9300
Final Dimensions in feet (W/L/D) 6' x 8' x 8' **Magnetometer Clearance at Final Depth?** Yes **Comments:**

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	Backfill	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	Dark brown and black clay, some sand and fine gravel	Suspect/Scrap	SW-PSB2-D3-BATCH 102008		Found 25 lbs of broken glass lab ware, cultural glass, rusted scrap metal and porcelain pieces. 2 lbs of suspect scrap items was bagged and submitted for headspace in one batch sample SW-PSB2-D3-BATCH-102008.
0.5-1					
1-1.5					
1.5-2					
2-2.5					
2.5-3					
3-3.5	Light brown silty clay, gray mottled, some fine to medium gravel				
3.5-4		Suspect/Scrap	SW-PSB2-D3-GS008 (4') SW-PSB2-D3-BATCH 102108		Found 3/4 lb of broken glass, rusted metal and porcelain pieces. 1/2 lb of suspect debris was bagged and submitted for headspace in one batch sample SW-PSB2-D3-BATCH-102108.
4-4.5	Light brown silty clay, gray mottled, some trace medium gravel				
4.5-5					
5-5.5					
5.5-6					
6-6.5		Nothing	NA		Nothing Found
6.5-7					
7-7.5					

Dig sheet

Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID D-3 **Start Date** 10/20/08 **Excavation Complete Date** 10/21/2008 **Backfill Complete Date** 10/22/2008

Water pumped (gallons) 9300

Final Dimensions in feet (W/L/D) 6' x 8' x 8' **Magnetometer Clearance at Final Depth?** **Yes** **Comments:**

TRENCH DESCRIPTION					
7.5-8					
8-8.5					
8.5-9					
9-9.5					
9.5-10					
+10 observation					

Dig sheet
Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID E-1 **Start Date** 11/19/08 **Excavation Complete Date** 11/20/2008 **Backfill Complete Date** 11/21/2008
Water pumped (gallons) 18,000
Final Dimensions in feet (W/L/D) 6' x 8' x 8' **Magnetometer Clearance at Final Depth?** Yes **Comments:**

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	Backfill	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	Dark brown and black clay, some fine sand and gravel	Suspect/Scrap	SW-PSB2-E1-SCR015 SW-PSB2-E1-MD024 SW-PSB2-E1-BATCH 111908		Found one empty open cavity intact bottle in the sifting table collected from about 1.5' in depth. Found an open cavity empty 75 mm shrapnel round on the sifting table collected from 2' ft in depth.2 Found 30 lbs of debris including broken lab ware glass, rusted metal and porcelain pieces.
0.5-1					
1-1.5					
1.5-2					
2-2.5					
2.5-3		Suspect/Scrap	SW-PSB2-E1-SCR016 SW-PSB2-E1-BATCH 112008		Found one empty open cavity intact bottle on the sifting table collected from 3 ft in depth. Found 5 lbs of debris including broken lab ware glass, rusted metal and porcelain pieces.
3-3.5					
3.5-4					
4-4.5					
4.5-5	Light brown silty clay, with gray mottling and trace large gravel				
5-5.5					
5.5-6		Nothing found	NA		Nothing found
6-6.5					
6.5-7					
7-7.5					
7.5-8					
8-8.5					
8.5-9					
9-9.5					
9.5-10					

Dig sheet

Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID E-1 **Start Date** 11/19/08 **Excavation Complete Date** 11/20/2008 **Backfill Complete Date** 11/21/2008

Water pumped (gallons) 18,000

Final Dimensions in feet (W/L/D) 6' x 8' x 8' **Magnetometer Clearance at Final Depth?** **Yes** **Comments:**

TRENCH DESCRIPTION					
+10 observation					

Dig sheet
Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID E-2 **Start Date** 11/24/08 **Excavation Complete Date** 12/1/2008 **Backfill Complete Date** 12/2/2008
Water pumped (gallons) 78,300
Final Dimensions in feet (W/L/D) 6' x 8' x 8' **Magnetometer Clearance at Final Depth?** Yes **Comments:**

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	Backfill	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	Dark brown and black clay, some fine sand and gravel	Suspect/Scrap	SW-PSB2-E2-BATCH 112408		Found 10 lbs of debris including broken labware glass, rusted metal and porcelain pieces. One daily batch sample submitted for headspace.
0.5-1					
1-1.5					
1.5-2					
2-2.5					
2.5-3					
3-3.5		Suspect/Scrap	SW-PSB2-E2-AREA E-NW01(4') SW-PSB2-E2-BATCH 112508		Collected a pit characterization sample from the northwall in the middle at 4 feet in depth. Found 3 lbs of debris including broken glass, rusted metal porcelain pie
3.5-4					
4-4.5					
4.5-5	Light brown silty clay, some gray mottling, trace medium to large gravel				
5-5.5					
5.5-6					
6-6.5		Nothing found	NA		Nothing found. Collected a pit characterization sample from the center of the trench floor at 8 feet in depth.
6.5-7					
7-7.5					
7.5-8					
8-8.5					
8.5-9					
9-9.5					
9.5-10					
+10 observation					

Dig sheet
Low Probability Investigation in Debris Area behind Public Safety Building- American University

Trench ID E-3 **Start Date** 12/3/08 & 1/5/09 **Excavation Complete Date** 1/8/2009 **Backfill Complete Date** 1/9/2009
Water pumped (gallons) 47,400
Final Dimensions in feet (W/L/D) 6' x 8' x 8' **Magnetometer Clearance at Final Depth?** Yes **Comments:**

TRENCH DESCRIPTION

LIFT	SOIL DESCRIPTION	ITEMS FOUND	SAMPLE or ITEM ID	Backfill	REMARKS (Size, Weight and Description of Item, Sample description, PID Alarms, etc.)
0-0.5	Dark brown and black clay, some fine sand and gravel	Suspect/Scrap	SW-PSB2-E3-BATCH 120308		Found 1 lb of suspect debris including broken labware glass, rusted metal and porcelain pieces. One daily batch sample submitted for headspace.
0.5-1					
1-1.5		Suspect/Scrap	SW-PSB2-E3-BATCH 010509		Found 10 lbs of suspect debris including broken labware glass, rusted metal and porcelain pieces. 3 lbs of suspect debris were submitted for headspace as a daily batch sample.
1.5-2					
2-2.5					
2.5-3	Light brown sitly clay, gray mottled, some fine to medium gravel.	Suspect/Scrap	SW-PSB2-E3-BATCH 010609 SW-PSB2-E3-GS012 (3')		Found 10 lbs of suspect debris including broken glass, rusted metal and porcelain pieces. 3 lbs of suspect debris were submitted for headspace as a daily batch sample. A grab sample was collected from the northwall of the trench at 3' bgs just below the footer.
3-3.5					
3.5-4					
4-4.5					
4.5-5					
5-5.5		Nothing Found	No Samples		Nothing Found
5.5-6					
6-6.5					
6.5-7					
7-7.5					
7.5-8					
8-8.5					
8.5-9					
9-9.5					
9.5-10					
+10 observation					