Honeywell

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June 2, 2017

William Wu
Environmental Engineer
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, Floor 11
Albany, NY 12233-7014

Subject: Vault Investigation Work Plan
610 Smith Street Site
NYSDEC BCP Site #C224215

Dear Mr. Wu,

Pursuant to the Brownfields Cleanup Agreement (BCA) with 610 Smith St. LLC, attached is a Vault Investigation Work Plan for the building at 628 Smith Street, Brooklyn, New York. The purpose of the work plan is to gather additional information on the configuration / structure of the vault and extent and chemical characteristics of the material remaining in the vault. This additional information is needed before a plan can be developed to remove the material from the vault.

If you have any questions in regards to the information provided herein, feel free to contact me at 302-791-6738.

Regards,

Steve Coladonato
Honeywell

cc: Andrew Gugielmi, Esq., NYSDEC Office of General Counsel (letter only)
Gardiner Cross, NYSDEC Section Chief
Krista Anders, NYS Department of Health
Jeremy Karpatkin, Esq., Arnold & Porter LLP
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Vault Investigation

at the 628 Smith Street Building, NYSDEC BCP Site # C22415

Brooklyn, New York

The purpose of the work plan is to gather additional information on the configuration / structure of the concrete vault and the physical/chemical characteristics of material remaining in the vault at the 628 Smith Street building in Brooklyn, New York (Figure 1). This additional information is needed before a plan can be developed to manage the contents of the vault.

This work plan is a supplement to the original draft Site Characterization Work Plan (SCWP) for the former Barrett Manufacturing and Mica Roofing Sites, Brooklyn, New York. The draft SCWP for the Former Barrett Manufacturing and Mica Roofing Sites was provided to New York State Department of Environmental Conservation (NYSDEC) on April 11, 2016 and approved with modifications by NYSDEC on July 25. Responses to NYSDEC comments were approved on October 16, 2016.

The investigation of the vault will be conducted under the applicable portions of the NYSDEC- approved SCWP, Quality Assurance Project Plan (QAPP), and Health and Safety Plan (HASP).

Scope of Work for Investigation

The scope of work for the investigation includes creating additional access to the vault for purposes of reconnaissance and sampling, and conducting several visits to the 628 Smith Street building, as follows:

1. Site walk
2. Create up to 5 additional sampling hatches
3. Open 1 blocked-up street-level window
4. Investigate vault through newly installed hatches
5. Survey

The visits will include work in spaces that are occupied, therefore, work will be coordinated with the site superintendent in conjunction with the tenants.

A preliminary site visit was conducted on April 19, 2017 to reconnoiter the layout of the 1st floor of the 628 Smith Street building and to perform a GoPro video inspection of the vault through one existing hatch (see Photographs). The information from this visit was used to develop a 1st floor plan sketch (Figure 2) and refine the scope of work contained in this work plan.

1. Site Walk

Conduct a site walk to a) finalize the locations of 4 or 5 geographically-spaced locations to install sampling hatches and b) select a cinder-blocked window to be opened at the level of Smith Street to access the vault. The site walk and hatch installation will be coordinated with the 628 Smith Street owner and building supervisor.

Hatches

It is anticipated that the new hatches will be placed near the corners of the vault and towards the center to obtain geographic coverage within the vault. The final array of hatches will take into consideration the location of the existing hatch in the artist studio, which will be accessed again as part of this investigation.

Select the final locations for the proposed hatches; preliminary locations of the hatches are shown on Figure 2. The locations need to be between the steel supports for the floor. The first floor of the building is supported by steel beams (with tie rods) resting on support columns spaced throughout the vault, based on video observation from the existing hatch in the artist studio (see attached photographs). The steel beams are spaced approximately 6 ft. apart and correspond to the locations and orientations of wooden beams on the 1st floor ceiling.

Mark the locations of the proposed new hatches and the existing hatch on the floor plan of the building. Use a measuring tape to determine where the locations are relative to at least two outside walls of the building, and mark those distances on the plan. Also, measure the distance from the hatch to interior walls and record that information on the plan.

Photograph the proposed hatch areas. Take at least two photographs: 1) one close-up photo of the area of the floor; and 2) one photo from a distance to provide more context as to where the proposed hatch is relative to other features (walls, doors, furniture, etc.).

Blocked-up Window

Mark the location of the window on Smith Street to be opened. Photograph the proposed window area. Take at least two photographs: 1) one close-up photo of the wall; 2) one from a distance to provide more context as to where the window is relative to other features (doors, walkways, dumpsters, etc.)

Equipment and supplies for this task:

- Camera
- 1st floor plan
- Measuring tape (at least 100 ft)

2. Cut and Create Hatches

At the locations of the proposed hatches, cut the floor to create new hatches (approximately 2 ft by 2 ft) to investigate vault (Figure 2). The hatches will be created similar to the existing hatch in the artist studio that was used to access the vault on April 19, 2017. No specialized venting equipment will be used during this task, as there were no apparent indoor air issues when the existing 1st floor hatch was opened on two separate occasions (March 18, 2016 and April 19, 2017), and since intrusive work will not be conducted within the vault itself.

Equipment and supplies for this task:

- Camera phone
- 1st floor plan
- Measuring tape (at least 100 ft)
- PID

3. Open Blocked-up Window and Inspect Vault

At the selected street-level window on Smith Street, remove existing blocks to provide access to the vault. Investigate the vault through the open window using the hand-held support rod system with spot light and video camera. Perform a close-up video inspection of the eastern wall of the vault in both the north and south directions relative to the window. The window will be re-blocked after the investigation is completed.

Equipment and supplies for this task:

- camera
- 1st floor plan
- Measuring tape (at least 100 ft.)
- Spot light (strong hand-held light to illuminate vault)
- GoPro camera
- Hand held support rod system for spot light and GoPro camera (to be inserted into the open window to take video)

4. Investigate Tar at Hatches

At the existing hatch and the five new hatches, perform the following three tasks (Figure 3):

1. Conduct a 360º GoPro video survey
2. Determine the depth to bottom of vault
3. Determine the thickness of tar and collect a sample of tar

The existing hatch location in the artist studio will be investigated again so that the information gathered from all of the hatches is consistent.

During the tar sampling through the hatches, a portable blower will be placed near the hatch opening and the air vented to the exterior of the building. Volatile organic compounds (VOCs) will be measured at the breathing level with a PID at the hatch location being sampled.

Video Survey

Conduct a video survey of the vault through the hatches. Measure the depth to the water in the vault with an oil water interface probe to determine how many feet of open space are available for the video camera and light system. Record the measurement to the nearest 100th of a ft. Make sure the video camera and light system is lowered enough so that it illuminates the far walls of the vault (and not just the upper metal beams or just the water in the vault). Start the 360º video facing north, brace the rod system against the edge of the hatch, and rotate clockwise so each survey is consistent and oriented the same way. Rotate the camera slowly and stop rotating briefly (a few seconds) at every major compass direction (N, S, E, W). Review the video to make sure the light and camera orientations are correct, and if necessary, make any adjustments and reshoot the video.

Depth to Bottom of Vault

Determine the depth to the bottom of the vault (Figure 3). Use a solid probe (e.g., AMS Extendable Tile Probe) through the hatch and push it into the tar until the bottom of the vault is reached (add extension rods as needed). Push the probe as far as possible until the bottom has been reached (keep the probe as vertical as possible). Use a rubber hammer to advance the rod, if necessary. There is likely to be debris in the vault so take three separate readings of depth in three different corners of the hatch to confirm that the advancement of the rod was not stopped prematurely by debris above the floor of the vault. Mark the depth to the bottom of the vault on the rod relative to the top of the floor surface as accurately as possible for each of three runs and record it. Measure the representative depth on the rod to the nearest 100th of a ft.

Mark and photograph the reference location on the floor that was used for the depth to the bottom of the vault measurement; the floor elevation of that location will be surveyed.

Thickness of Tar and Sampling

Determine the thickness of the tar from the bottom of the vault and collect a tar sample (Figure 3). The conceptual model is that there is a layer of tar between 1 and 2 ft. thick below a layer of water in the vault. It is also possible that there are two different consistencies of tar in the vault, soft tar in the upper portion and hard tar at the bottom. The approach is to use one or more methods to determine the thickness of the tar and collect enough sample volume for laboratory analyses. The goal is to collect samples of tar that are as undisturbed as practicable using the methods below.

Start by taking a measurement to the top of tar using an oil water interface probe and record this depth from the top of the floor surface to the nearest 100th of a ft. This will provide an approximate depth to the top of tar in the vault.

Collect samples of tar using one of several methods below. Several methods are presented below as it is not certain which one will produce the best result (they are presented in the recommended order).

1. Adapted Sludge Judge: Use a sludge judge (made of clear ploy tubing) attached to a longer threaded probe or pipe (i.e., AMS Extendable Tile Probe or similarly long probe or piping). Advance the probe/piping with the sludge judge down to the bottom of the vault. Once the bottom is reached, close the bottom of the sludge judge to seal the bottom of the tube and retrieve the sample. Observe the thickness of tar through the clear acetate sleeve and measure the thickness of tar. Decant the tar sample from the bottom of the sludge judge into a bucket, being careful not to collect any water.
2. PVC pipe w/ stopper: Use threaded 1 ½-in. diameter PVC piping (use 5-ft., and 2-ft. sections, as necessary) equipped with a rubber stopper at the bottom that can be actuated by the operator. Sharpen the rim of the PVC on the lowest section of pipe to form a “cutting head.” Push the PVC pipe into and through the tar until the bottom of the vault is reached. Then, pull up slightly and actuate the stopper. Leave the PVC piping at depth and remove as much water as possible that is on top of the tar in the PVC casing using a peristaltic pump (use the oil water interface probe to determine the tar water line in the casing). The pumped water can be directly discharged to the vault. Remove the PVC piping with the tar sample inside the casing. Decant the tar sample from the bottom of the PVC piping into a bucket, being careful not to collect any remnant water in the casing.
3. PVC casing w/ Sludge Judge and probe: Install a 2-in. diameter PVC casing into the soft tar and collect samples of soft and harder tar through the casing using two methods: 1) sludge judge (for soft tar), and 2) sediment probe, (e.g., AMS Sand Sludge Sediment Probe) (for the harder tar)
    - Insert at 2-in. diameter PVC pipe section into the water and tar (use 5-ft., and 2-ft. sections, as necessary) to provide a protective casing through which samples of tar will be collected; leave a portion of PVC pipe sticking up above the floor. Advance the 2-in. diameter PVC into the water and tar to a depth that can easily be penetrated by pushing by hand (do not force the PVC into hard tar, if present).
    - Use the sludge judge to collect a column of soft tar (and water) down to the bottom of the PVC. Insert the sludge judge to approximately the bottom of PVC casing and retrieve a soft (less viscous) tar and water sample. Remove the sludge judge and evaluate the distribution of soft tar in the column.
    - Next, use the sediment probe (e.g., AMS Sand Sludge Sediment Probe, 1 ¼ in. dia. x 36 in. long with 1-in. diameter acetate liner) to collect tar below the bottom of the PVC casing. Insert the sediment probe into the PVC down to the depth of the bottom of the PVC. Advance the sediment probe through the bottom portion of the tar (presumably harder) down to the bottom of the vault. The bottom of the vault will be known from the tile probe investigation above. Remove the probe and evaluate the distribution of harder (more viscous) tar in the column.

Record the thickness of the tar, and determine if it is stratified (soft portion on top and harder portion at the bottom) at each hatch.

Collect tar samples from all six hatch locations for laboratory physical properties analyses as described in Table 1. Collect tar samples from three representative hatch locations for laboratory chemical analyses as described in Table 1. Multiple locations within a hatch location will be required to obtain the necessary sample volume, so repeat the steps above as needed.

Collect two representative water samples from two geographically-spaced hatches for laboratory analyses as described in Table 1. The water samples should be collected from the midpoint in the water column (above the tar) using a disposable polyethylene bailer.

Equipment and supplies for this task:

- Plastic and drop cloth sheeting (to protect the floor)
- 5-gallon buckets
- Camera phone
- 1st floor plan
- Measuring tape (at least 100 ft)
- Portable blower with discharge vent
- Extension cords
- PID
- Oil / Water Interface probe
- Decontamination equipment to remove tar (Simplegreen, etc.)
- Spot light (strong hand-held light to illuminate vault)
- GoPro camera
- Hand held support rod system for spot light and GoPro camera (to be lowered through hatch for taking 360º video)
- Extendible Tile Probe system, e.g., AMS brand (for determining depth to bottom of vault)
- Adapted Sludge Judge with attached probe or piping
- PVC Pipe w/ Stopper: Schedule 40 PVC pipe, threaded 1 ½-in. diameter fitted with an actionable stopper at the bottom, in 5-ft. and 2-ft. long sections.
- PVC casing w/ sludge judge and probe:
    - Schedule 40 PVC pipe, threaded 2-in. diameter, in 5-ft., and 2-ft. long sections (to serve as casing for the sludge judge and sediment probe samplers)
    - Sludge judge (for collecting upper soft tar portion)
    - Sediment probe, e.g., AMS Sand Sludge Sediment Probe, 1 ¼-in. dia. x 36 in long with 1 in diameter acetate liner (for collecting lower harder tar portion)
- Sample bottles from laboratory

5. Survey

A New York State-licensed surveyor will survey the elevations of the floor at marked locations adjacent to the hatches (existing and new) used in the vault investigation. The survey will be made to the nearest 100th of a ft. in North American Vertical Datum (NAVD) 1988.

Attachments

Table 1. Tar and Water Laboratory Analyses

Figure 1. Location of vault at 628 Smith Street building.
Figure 2. 1st floor plan for 628 Smith Street building.
Figure 3. Vault investigation methods at hatches.

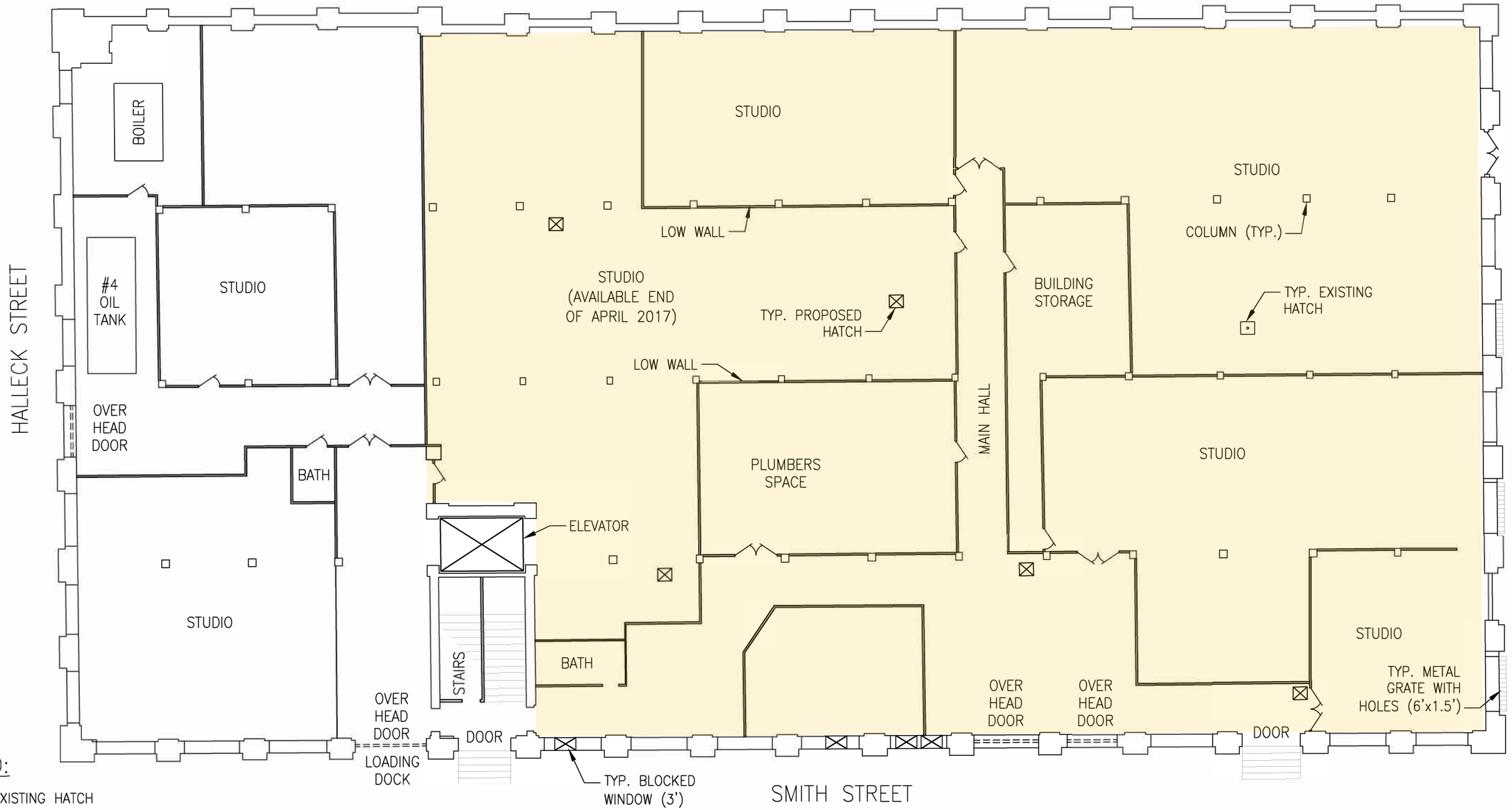
Photographs
a) Existing hatch in artist studio
b) Existing hatch in artist studio
c) Vault facing north
d) Vault facing east

Table 1. Tar and Water Laboratory Analyses
Vault Investigation Work Plan
628 Smith Street, Brooklyn, New York

Tar - Physical Properties Analyses	**Method**
Viscosity at standard temperature, and after heating to 105º, 150º, and 180º C	@ PTS by ASTM D445 and by PTS proprietary
Specific Gravity	@ PTS by ASTM D1481
Density	@ PTS API RP40
Interfacial / Surface Tension	@ PTS by DuNuoy Method – ASTM D971
DNAPL water loss by heating after 105º, 150º, and 180º C	@ PTS by proprietary method
BTU value	@ PTS by ASTM D240 (to be confirmed)
Sulfur	@ PTS by ASTM 4294 (to be confirmed)
Tar - Chemical Analyses	**Method**
VOCs PPL+TCL List	EPA Method SW846 8260C
SVOCs ABN TCL List (CLP4.2 list)	EPA Method SW846 8270D
PCBs	EPA Method SW846 8082A
Total metals, including mercury	EPA Method SW846 6010C (mercury by 7471B)
Chromium, Hexavalent	EPA Method SW846 3060A/7196A
Total Organic Halides (TOX)	EPA Method SW846 9020B
VOC TCLP	8260C, SW846 1311
ABN TCLP	8270D, SW846 3580A
Herbicides TCLP	8151, SW846 8151/3580A
Pesticides TCLP	8081B, SW846 8151/3580A
Metals, including mercury TCLP	SW846 1311, 6010C / 7470A
Corrosivity as pH	SW846 9045D/CHPT 7
Cyanide reactivity	SW846 CHAP7/9012B
Ignitability (flashpoint)	SW846 1010A/ASTM D93
Sulfide reactivity	SW846 CHAP7/9034
Water - Chemical Analyses	**Method**
VOCs PPL TCL List	EPA Method SW846 8260C
SVOCs ABN TCL List (CLP4.2 list)	EPA Method SW846 8270D
PCBs	EPA Method SW846 8082A
Total metals, including mercury	EPA Method SW846 6010C (mercury by 7470A)
Chromium, Hexavalent	EPA Method SW846 7196A
Chloride	EPA 300/SW846 9056A
Fluoride	EPA 300/SW846 9056A
VOC TCLP	8260C, SW846 1311
ABN TCLP	8270D, SW846 3510C
Herbicides TCLP	8151, SW846 8151/3510C
Pesticides TCLP	8081B, SW846 8151/3510C
Metals TCLP	SW846 1311, 6010C / 7470A
Corrosivity as pH	SW846 CHAP7
Cyanide reactivity	SW846 CHAP7/9012B
Ignitability (flashpoint)	SW846 1010A/ASTM D93
Sulfide reactivity	SW846 CHAP7/9034
VOC Trihalomethanes (THMs, 4)	EPA 524.2, rev. 4

Notes:
1) PST is PTS Laboratories, Inc., a specialty analytical laboratory in Santa Fe Springs, CA.

Figure 1. Location of vault at 628 Smith Street building.



LEGEND:

- EXISTING HATCH
- PROPOSED HATCH
- TYPICAL BLOCKED WINDOW (3')
- TYPICAL METAL GRATE WITH HOLES (6'x1.5')

Approximate extent of vault below first floor

NOTE:

BUILDING LAYOUT AND INTERIOR COLUMNS WERE TAKEN FROM A 1946 ARCHITECTURAL "FIRST FLOOR PLAN" BY JUDSON E. SCHNALL & MAXFIELD BLAUFEAX ARCHITECTS. MEASUREMENTS OF INTERIOR WALLS AND OTHER FEATURES MADE USING ENGINEERS TAPE ON APRIL 19, 2017.

15 7.5 0 15 30

APROX. SCALE: 1" = 15'

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
A	ISSUED FOR COMMENT	05/03/17	RR	PFM	–

PARSONS ENVIRONMENT & INFRASTRUCTURE
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DRAWN BY: RR | CHECKED BY: PFM | DATE: 05-03-17 | APPROVED BY: PFM

DRAWING TITLE: Honeywell

1ST FLOOR PLAN FOR 628 SMITH ST. BUILDING

DRAWING NO.: FIGURE 2

SCALE: 1" = 15'

JOB: 450197-02103

FILE NAME: P:\PIT\PROJECTS\HONEYWELL\SMITH STREET – BROOKLYN NY\CAD\AUTOCAD\TAR WELL IRM\FIGURE 1.DWG
PLOT DATE: 5/3/2017 10:24 AM PLOTTED BY: RABUFFETTI, RICH

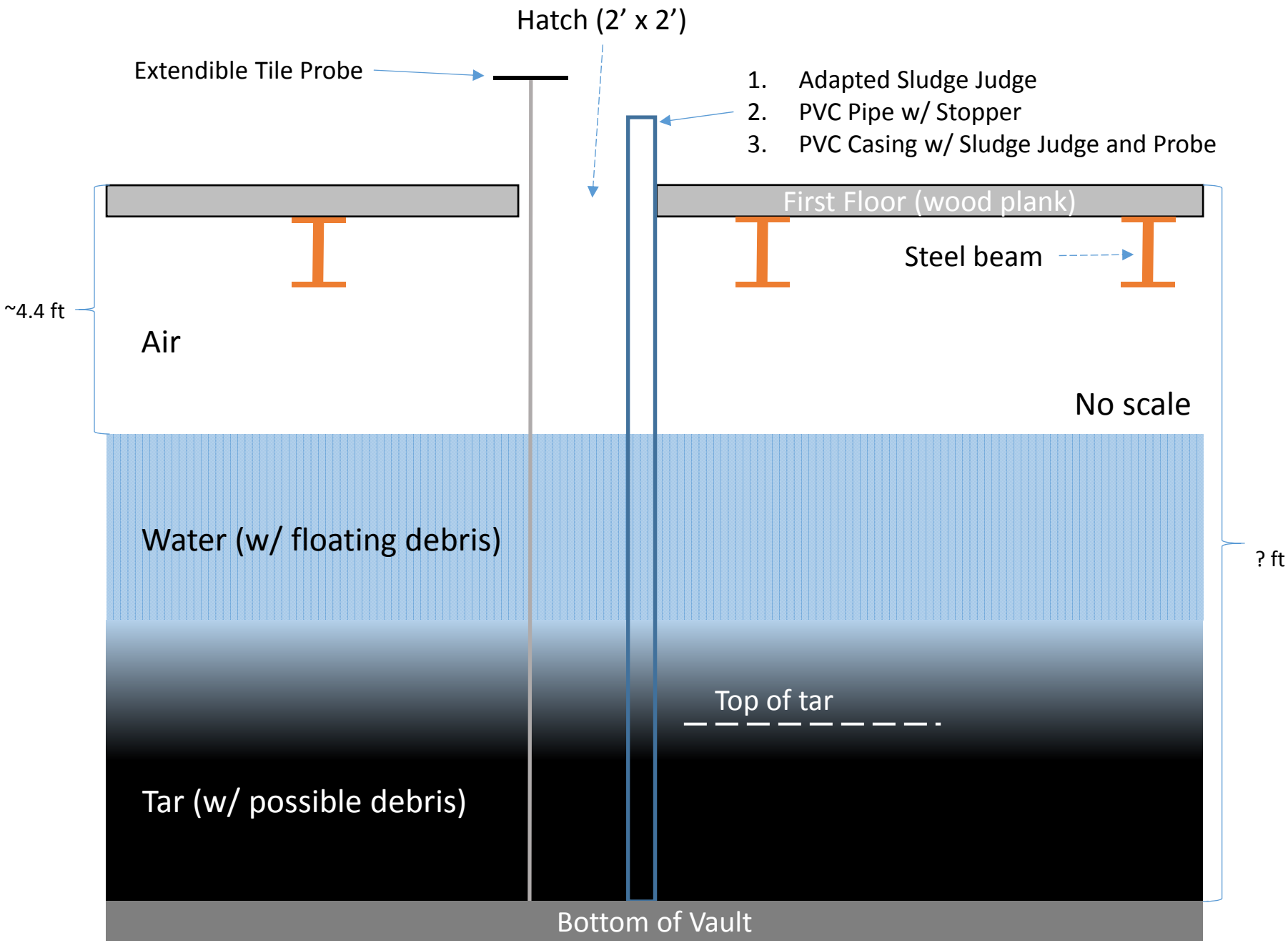

Figure 3. Vault investigation methods at hatches.

Photographs

1. Photograph of access hatch in first floor artist studio. Hatch cover has been removed.

2. Photograph of access hatch in first floor artist studio. Hatch cover has been removed.

3. Photograph of underside of floor through access hatch in first floor artist studio – looking north. Steel beams with tie rods appear to support a wooden plank floor. Metal grates with holes on Sigourney Street are visible in far wall of photo

4. Photograph of underside of floor through access hatch in first floor artist studio – looking east. Steel beams with tie rods appear to support a wooden plank floor. Water with floating debris is visible below the floor.