Seattle Department of Transportation

To: Pioneer Square Preservation Board

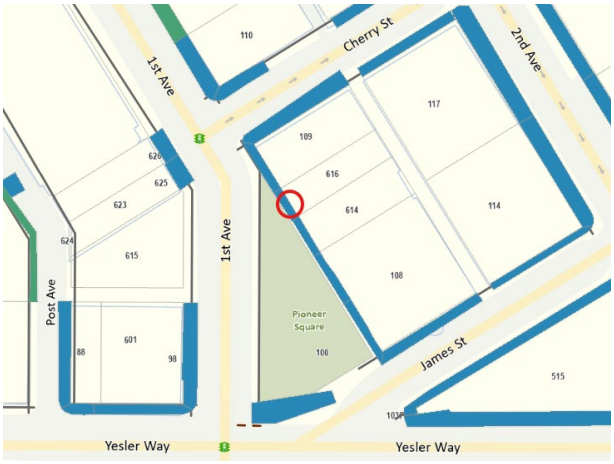
From: Kit Loo, PE (SDOT)

Date: April 17, 2026

Re: Areaway 190 (616 1st Ave.) – Repair Proposal – Correction Notice 2

Project Summary

On May 13, 2025, a vehicle drove onto the sidewalk along Pioneer Square Park. This location is known to contain areaways, and an assessment was conducted to determine whether additional damage—beyond what was visible during the initial response to the incident—may have occurred. Following a comprehensive evaluation of all areaways along this segment of sidewalk, it was determined that the damage to the sidewalk and areaway was limited to the location identified as ARW-190.



Repair Assumptions

The following elements that were identified as requiring minor and major repair work to restore the areaway condition to post-incident conditions.

Minor Repair Work

Minor repair work includes the following:

- **Restore loosed and displaced brick:** There were no observed impacts to the masonry walls and no wide spread impacts to most of the brick work. Areas impacted by the accident was limited to small, isolated areas near the brick barrel ceilings, where loose brick, deteriorated mortar, and minor displacement of bricks were observed. Proposed repair work includes tuckpointing damage mortar joints as needed as part of resetting and replacing loose brick.

- **Repair areas of open cut in the existing floor slab:** the accident did not damage the existing floor slab; however there were several existing open utility cuts associated with above ground utility connections were observed. As part of the areaway repairs, some of these areas will be cleaned and repaired

Major Repair Work

The major repair efforts involves restoring the damage areaway skylights. Althought the north set skylights were the most severly damaged, the south skylights were also damaged.

Figure 1: *4 frames, with 4 panels in each frame photo pre-accident condition*

The areaway skylights are composed of two primary elements: the frame and the cast-iron panels. The frame is cast into and integrated with the surrounding concrete sidewalk. The cast-iron panels consists of three main components: cast-iron grate, embedded circular glass pucks and concrete infill. All these individual elements are integrated into what is referred to as the cast-iron panel. Each frame consists of four cast-iron panels. (Figure 1B)

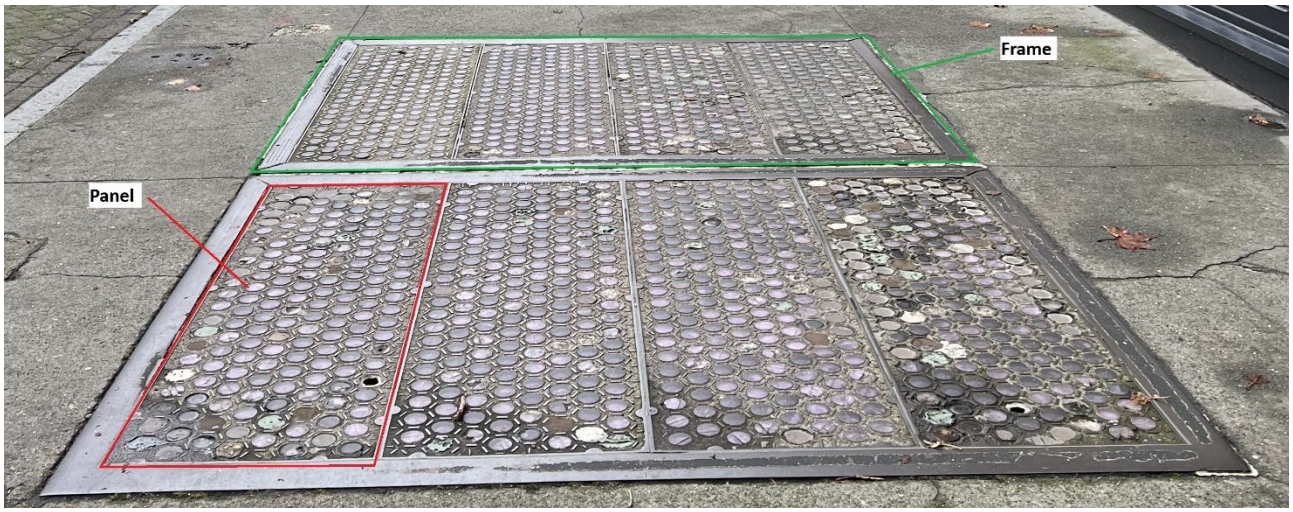


Figure 1B: *Definition of Frame and Panel*

The extent of the damage caused by the accident to the north skylight assembly was quite apparent, see Figure 3. With the frame and the panels sustaining significant amount of damage some to extent that two of the panels had broken into multiple pieces and had fallen into the areaway; while the remaining panels of the north skylight did not fall into the areaway, the large cracks and deformation of the frame and panels were indicative that the structural integrity of these elements were compromised.

Figure 2: *Damage of north skylight right after vehicle was removed lifted from the opening*

The severity of damage to the south skylight was not fully apparent until a more detailed evaluation of the areaways was conducted in the days following the incident. Closer inspection of the underside of the frame and panels revealed cracks of varying sizes, ranging from hairline fractures to large through-cracks extending the full depth of many of the structural members (Figures 3A and 3B). These findings indicate that the south skylight sustained significant damage, which was not immediately evident as the damage observed on the north skylight.

Photo 3A: *Crack cast-iron frame (typ)*

Photo 3B: *Cracked cast-iron frame (typ)*

Olympic Foundry, a local subject matter expert in cast-iron fabrication, was consulted to determine if the existing support frame and cast-iron panels can be repaired. Due to the extent of the damage consisting of crack frame members, section loss due to corrosion, multiple through cracks at various locations of the panels, repairs were deemed infeasible. Based upon this recommendation, shop drawing were developed for the fabrication of new frames and cast-iron panels.

Dimensions of the existing skylight system were documented, and the unique pattern and size of each panel and frame were replicated as closely as possible using measurements taken from the damaged components. Per discussion with the fabricator there will be some minor dimensional variations that are inherent with sand-casting fabrication.

Because the frame and panels are completely replaced, the replaced elements must comply with current design requirements, the following modifications were necessary to meet current load standards:

- The depth of the cast-iron panels was increased from 7/8” to 1.25”
- The depth of the frames changed from 4.5” to 5.75”
- The material of the frame was also changed from cast-iron to stainless steel to maintain dimensional sizes of the reveal due to the higher design loads and to ensure long term durability of the material that is in direct contact and imbedded to the surrounding concrete sidewalk
- use of an epoxy-infused concrete aggregate mixture as the concrete infill material for the cast-iron panels.

Figure 3: *Fragment of existing panel*

Significant effort has been undertaken to ensure that the newly fabricated frames and cast-iron panels closely replicate the appearance of the original components, while incorporating necessary modifications to meet current structural and durability standards.

Construction Methods

Repair plans were developed to minimize impacts to the areaway to the greatest extent feasible. This approach includes limiting the removal of existing elements wherever possible and addressing issues such as incomplete utility cuts. The existing masonry barrel ceilings will be protected in place using temporary scaffolding installed beneath them to provide additional support during removal and replacement of the concrete sidewalk as part of the skylight frame reinstallation.

The original damaged frames and panels, including the glass prisms, will be salvaged and placed in storage. The glass prisms may be reused for repairs of other similarly constructed skylights.

MATERIAL SUPPLIER FOR GLASS AND CAST IRON PANELS

Glass Prism Supplier

Circle Redmont

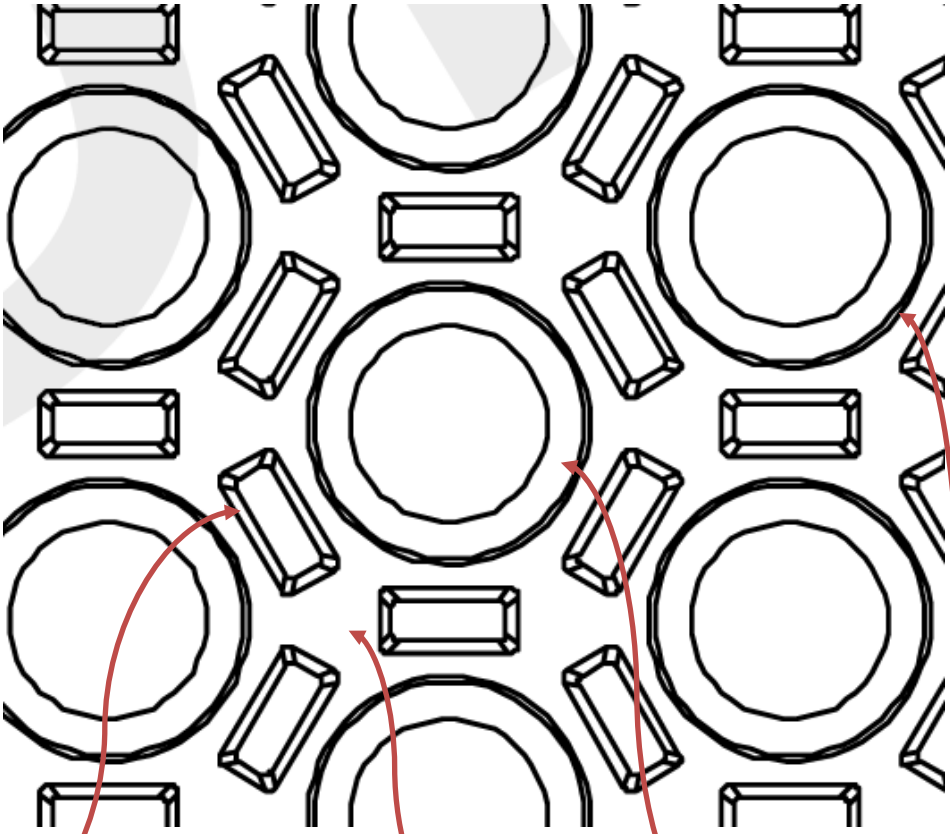
1213 Medina Rd, Suite B
Medina OH 44256
Toll-Free: (888) 701-5697
Local: (321) 259-7374

URL: https://www.circleredmont.com/

Cast Iron Fabricator

Olympic Foundry Inc
5200 Airport Wy S
Seattle, WA 98108, USA
Local: (206)764-6200

URL: https://www.olympicfoundry.com/

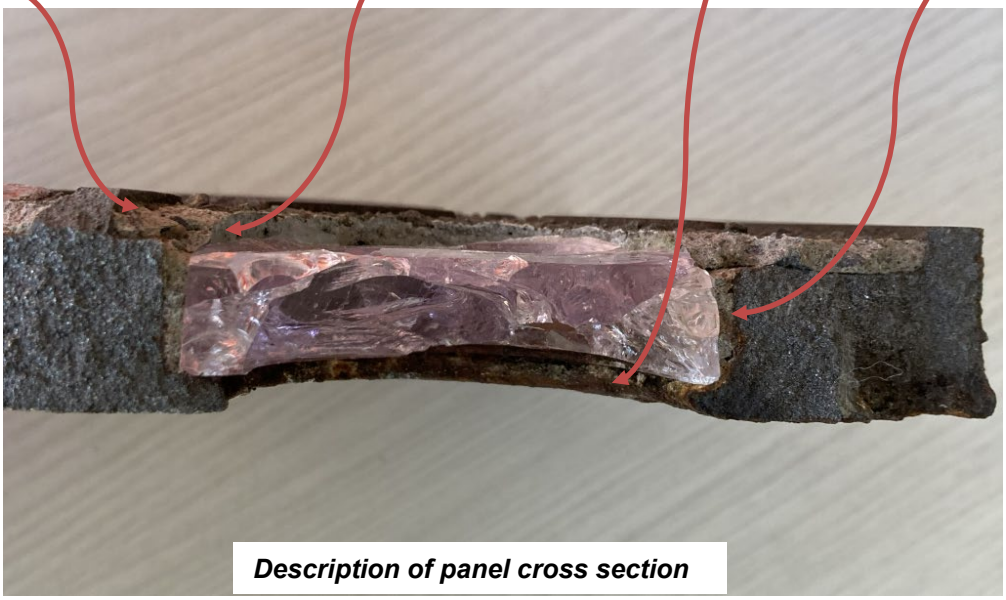


Concrete infill to be level to bottom of beveled edges

Space for concrete infill

Bottom ledge for supporting glass puck

Double line represents slight taper in the space for the glass pucks



Description of panel cross section

Photo 1: *North frame and panel, post-accident condition*

Photo 2: *North frame and panel, post-accident condition*

Photo 3: *South frame and panel, post-accident condition*

Photo 4: *South frame and panel, post-accident condition*

Photo 5: *Masonry barrel ceiling looking towards building, post-accident*

Photo 6: *Masonry barrel ceiling looking towards street wall, post-accident*

Photo 7: *Close up of isometric view of fragment of cast-iron panel*

Photo 8: *Underside of a fragment of cast-iron panel*

Photo 9: *Cross section view of a fragment of cast-iron panel*

Photo 10: *Plan view of a fragment of cast-iron panel*

Photo 11: *Plan view of a fragment of cast-iron panel*

Photo 12: *Close up of cross section of a fragment of cast-iron panel*

Photo 13: *Looking north interior view of areaway – post accident*

Photo 14: *Looking south, top of frame and panel – pre-accident*

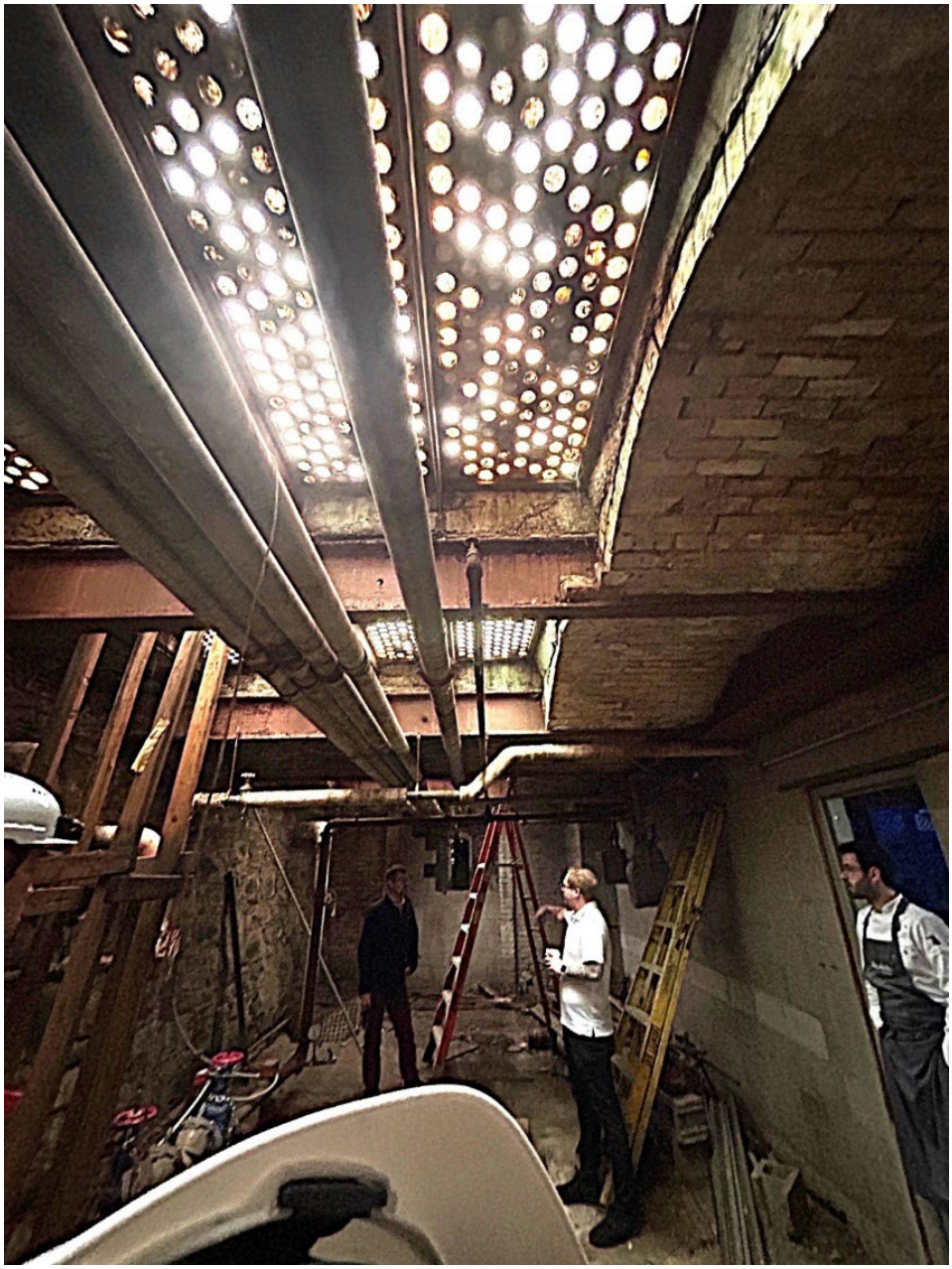


Photo 15: *Looking north interior view of areaway – post accident*

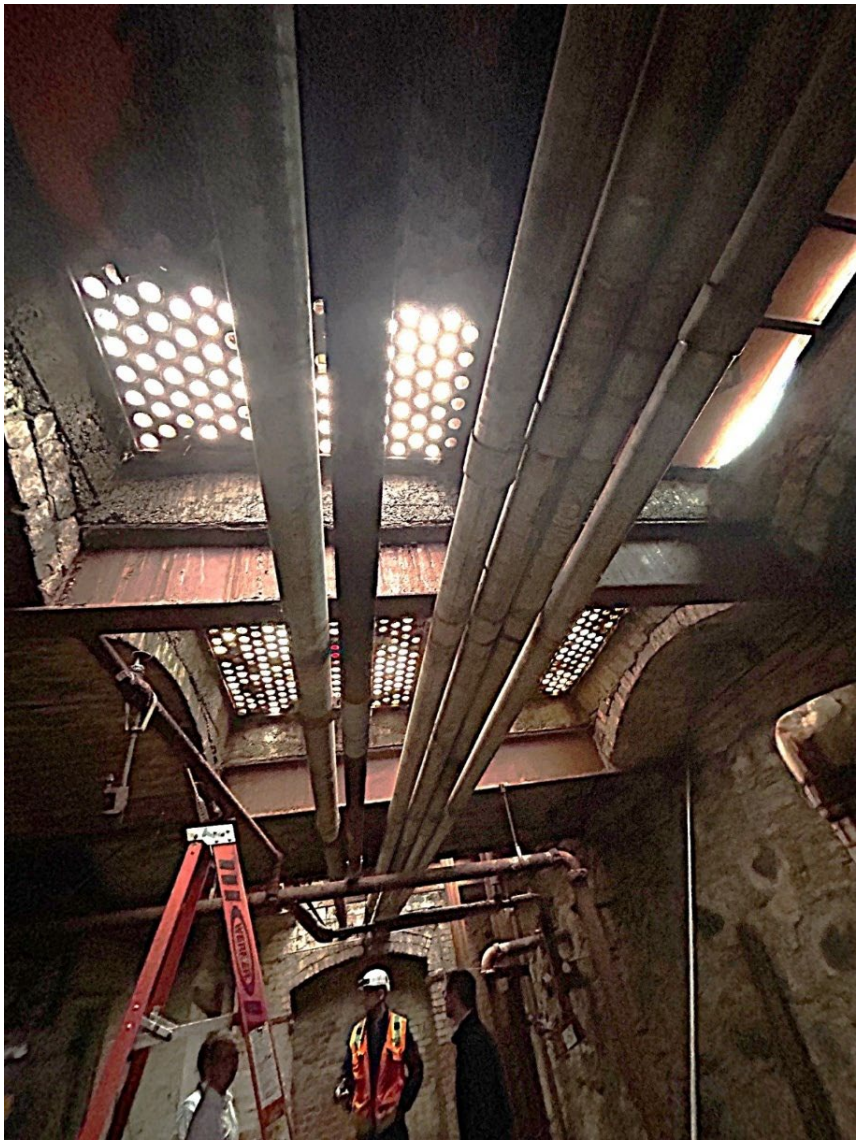


Photo 16: *Looking south, interior view of areaway – post accident*

Photo 17: *Post accident condition*

Photo 18: *Looking north, top of frame and panel pre-accident*

Photo 19: *Looking at south end of inside areaway, pre-accident*

Photo 20: *South frame and panel, outside, post accident condition*

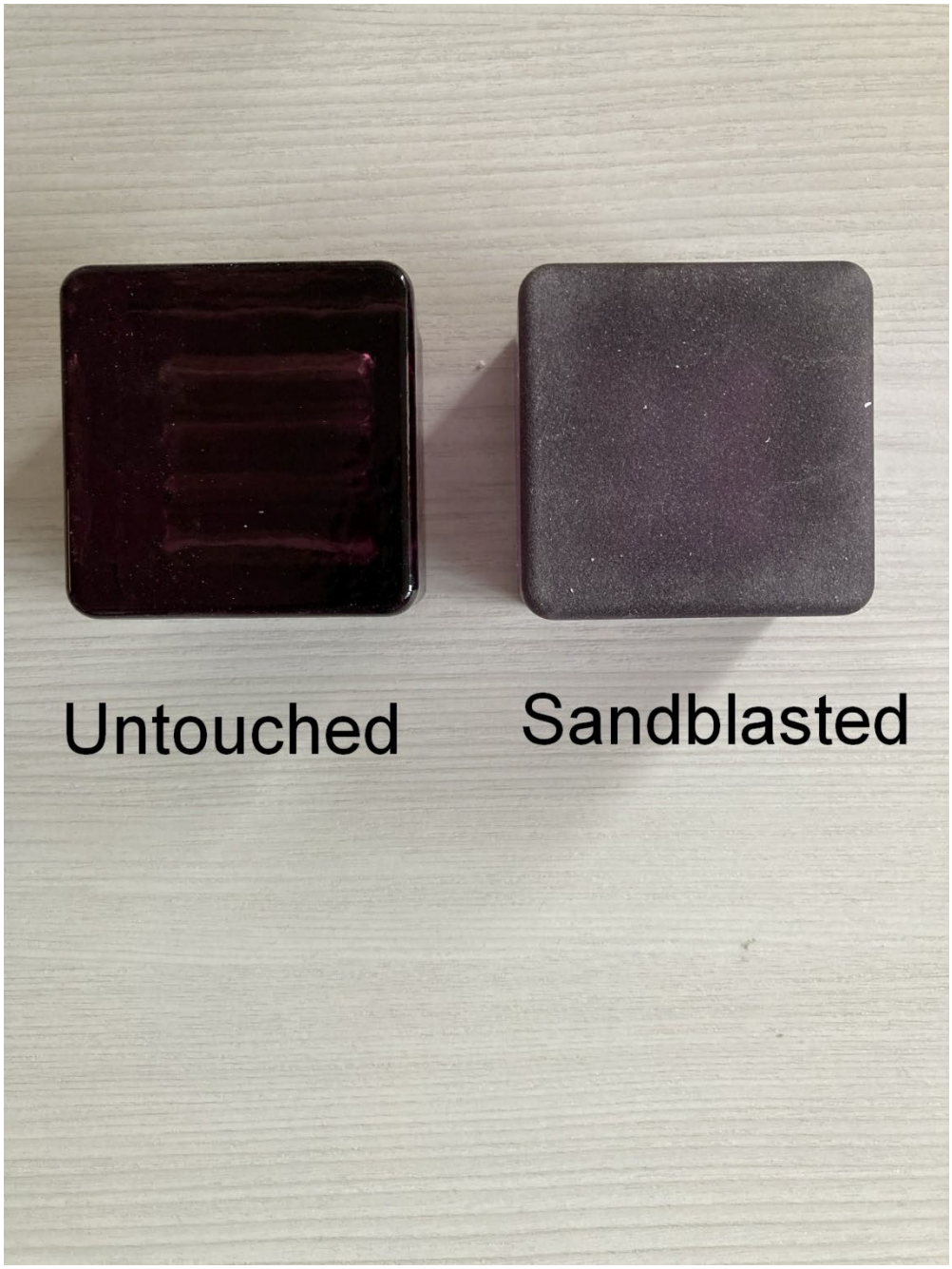
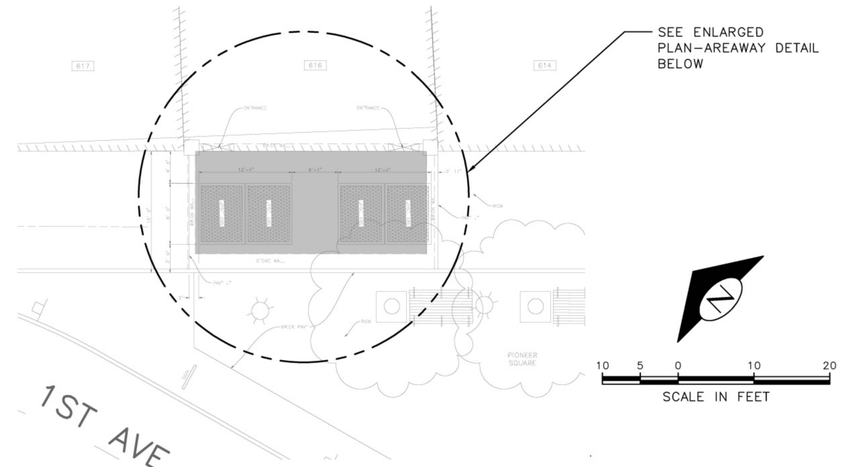


Photo 21: *Sample of color and surface texture; right glass surface is sandblasted; left sample is untouched*

Photo 22: *Underside of south frame and panel, post accident*

Photo 23: *Underside of south frame and panel, post accident*

Photo 24: *Underside of South frame and panel, post-accident condition*

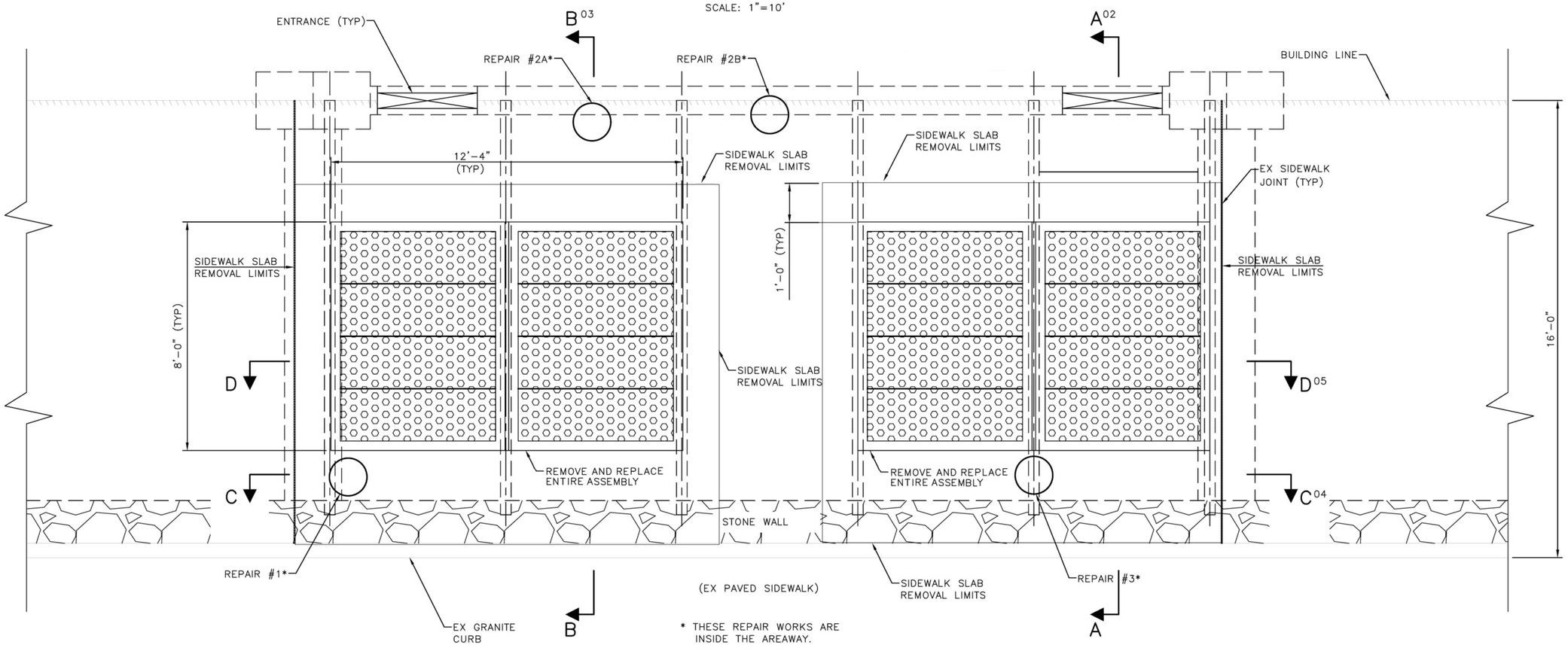


SITE PLAN

SCALE: 1"=10'

STRUCTURAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP MUST BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF SEATTLE "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION" 2023 EDITION AND CITY OF SEATTLE STANDARD PLANS FOR MUNICIPAL CONSTRUCTION, 2023 EDITION.
2. CONCRETE CL 4000 PER SECTION 6–02.3(1).
3. REINFORCING STEEL AASHTO M31 (ASTM A615) GRADE 60, fy = 6,000 PSI.
4. ALL NEW SIDEWALK CONCRETE TO CONFORM TO CITY OF SEATTLE PIONEER SQUARE PRESERVATION BOARD STANDARDS. PROVIDE MIX COLOR CONSISTING OF 1 LB OF LAMP BLACK COLOR PER CUBIC FOOT OF CONCRETE.



PLAN – AREAWAY (ARW–190)

SCALE: 6" = 1'–0"

90% SUBMITTAL (NOT FOR CONSTRUCTION)

MARK	DATE	NATURE OF REVISIONS MADE	CHK'D	REV'D

VAULT SERIAL NO.

APPROVED FOR ADVERTISING
FAS PURCHASING AND CONTRACTING DIRECTOR
SEATTLE, WASHINGTON

BY: . . . . . .
FAS PURCHASING AND CONTRACTING DIRECTOR

INITIALS AND DATE	INITIALS AND DATE
DESIGNED	REVIEWED:
CHECKED	DES. CONST.
	SDOT PROJ. MGR.
DRAWN	RECEIVED
CHECKED	REVISED AS BUILT

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF SEATTLE STANDARD PLANS AND SPECIFICATIONS AND OTHER DOCUMENTS CALLED FOR IN SECTION 0–02.3 OF THE PROJECT MANUAL.

Seattle Department of Transportation

ORDINANCE NO. PW NO.

SCALE: AS NOTED

PLAN AND STRUCTURAL NOTES

AREAWAY 190 SKYLIGHT REPAIR (616 1ST AVE)

JOB PC TRG0276 CO TRCXXXX

VPI # XXX–XXX

ST01

SHEET 01 OF 05

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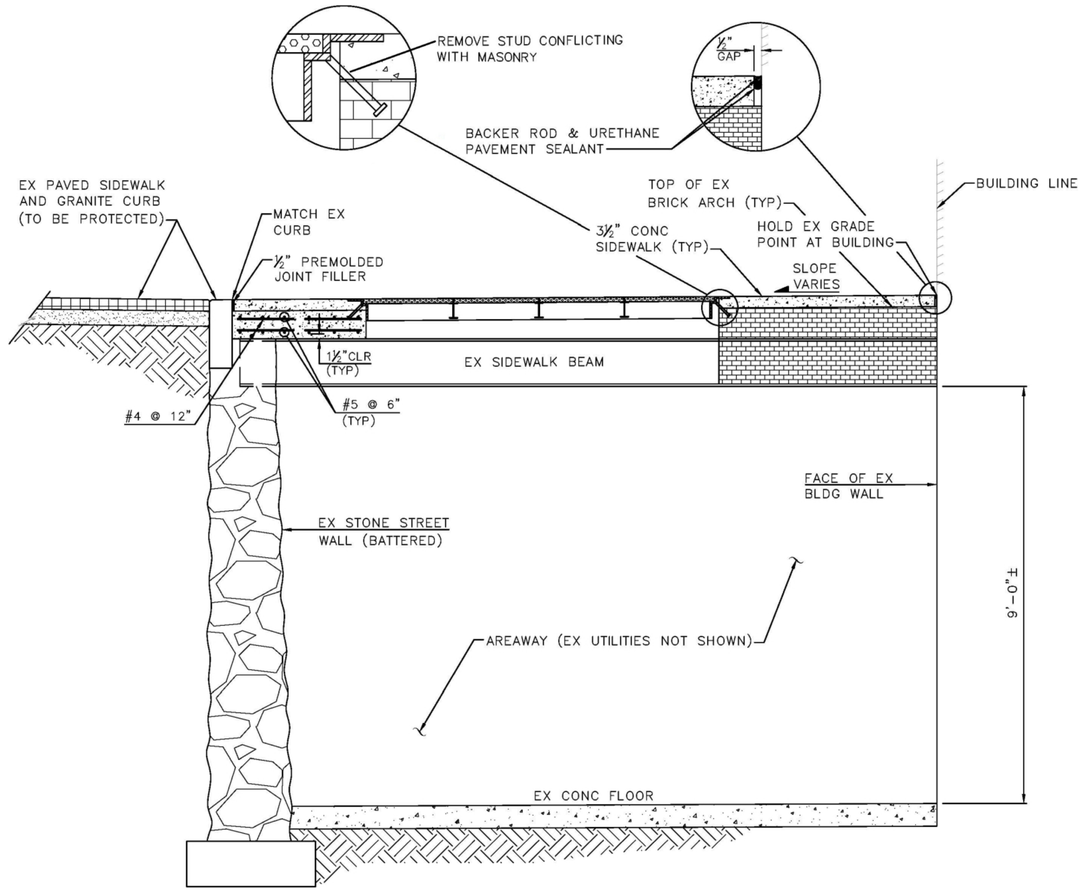

SECTION A–A 01
SCALE: 1"=20'

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STRUCTURAL DETAILS

	APPROVED FOR ADVERTISING FAS PURCHASING AND CONTRACTING DIRECTOR SEATTLE, WASHINGTON BY: . . . . . . FAS PURCHASING AND CONTRACTING DIRECTOR	INITIALS AND DATE DESIGNED CHECKED DRAWN CHECKED ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF SEATTLE STANDARD PLANS AND SPECIFICATIONS AND OTHER DOCUMENTS CALLED FOR IN SECTION 0-02.3 OF THE PROJECT MANUAL.	INITIALS AND DATE REVIEWED: DES. CONST. SDOT PROJ. MGR. RECEIVED REVISED AS BUILT

Seattle Department of Transportation
ORDINANCE NO. PW NO.
SCALE: 1"=20'

AREAWAY 190 SKYLIGHT REPAIR (616 1ST AVE)

JOB PC TRG0276 CO TRCXXXX
VPI # XXX–XXX
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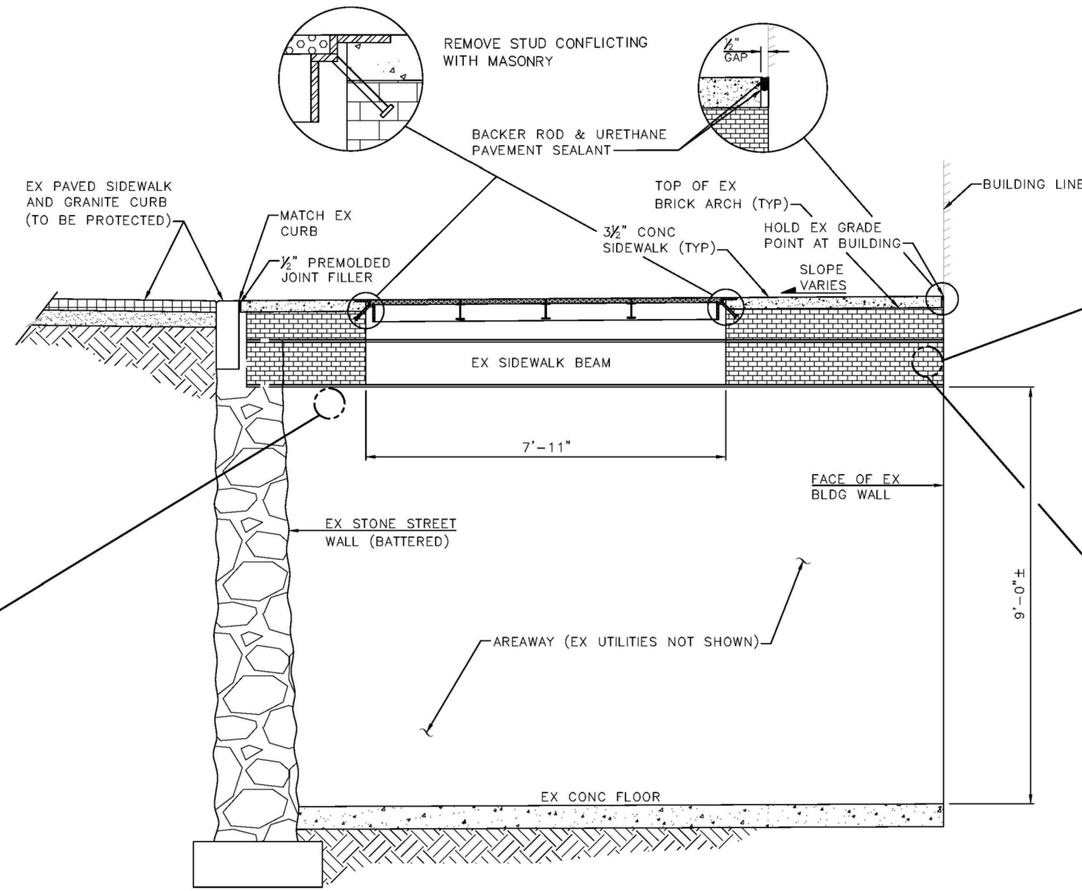
REPAIR #1



SECTION B–B 01
SCALE: 1"=20'

REPAIR #2A

REPAIR #2B

CONSTRUCTION NOTES:

1. REPAIRS #1, #2A, AND #2B ARE TO RESET THE LOOSE BRICKS TO ORIGINAL CONDITION AND FILL ALL THE EXISTING CRACKS AROUND THE REPAIR AREAS.
2. THE REPAIR MORTAR SHALL BE SIKAQUICK VOH OR APPROVED EQUAL. SIKAQUICK VOH SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER.
3. IF ADDITIONAL BRICKS ARE NEEDED, THERE ARE A PILE OF BRICKS INSIDE THE BUILDING BASEMENT.

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SCALE: 1"=20'

STRUCTURAL DETAILS

AREAWAY 190 SKYLIGHT REPAIR (616 1ST AVE)

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VPI # XXX-XXX
STDT02
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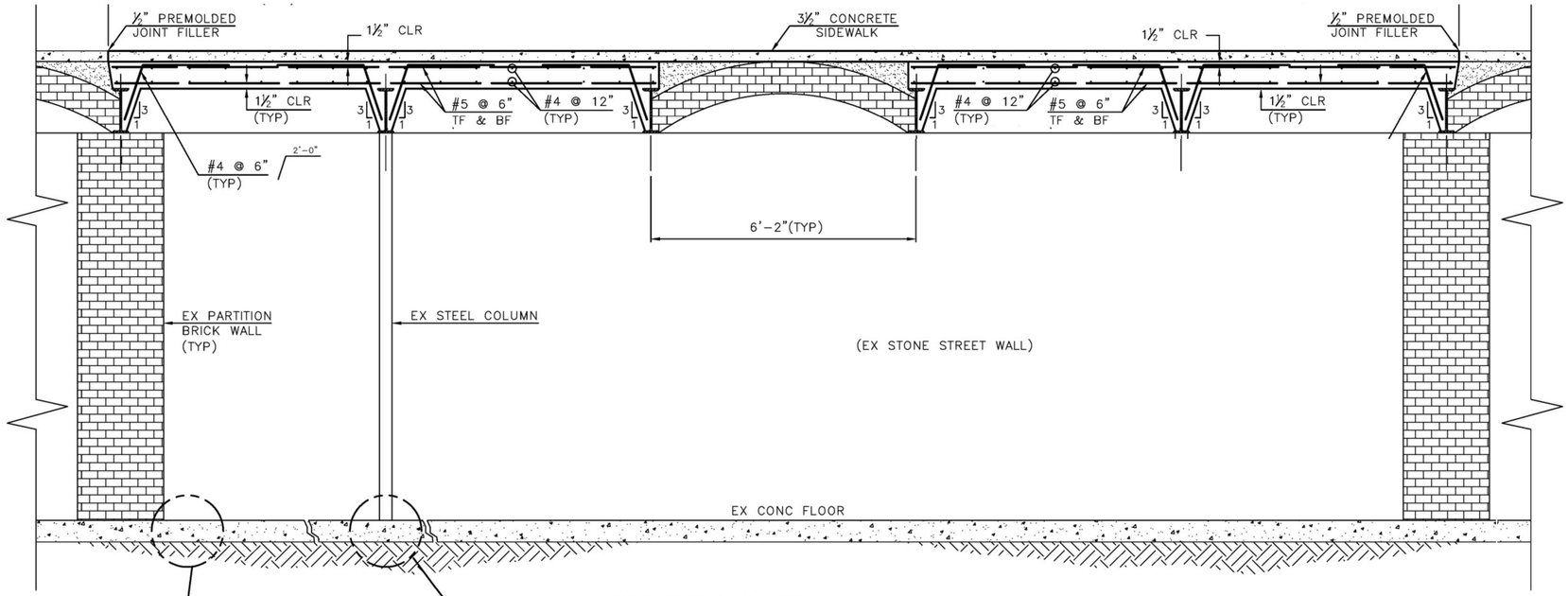


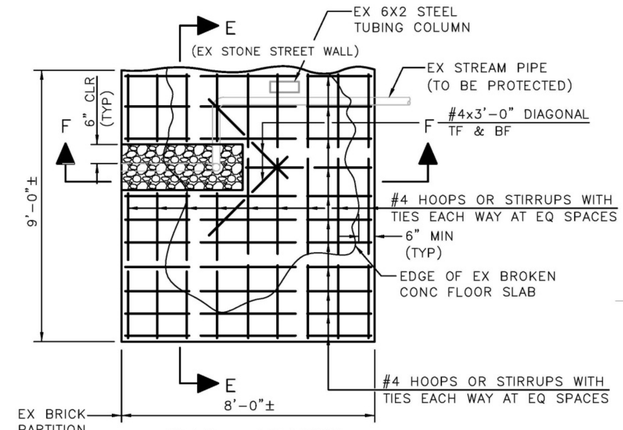
SECTION C–C 01
SCALE: 1"=20'

REPAIR #3

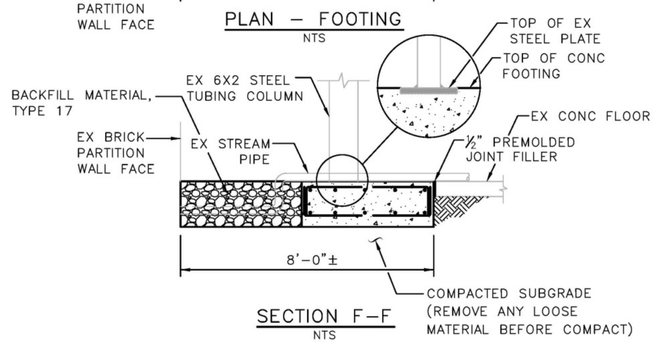
REPAIR #3

CONSTRUCTION NOTES:

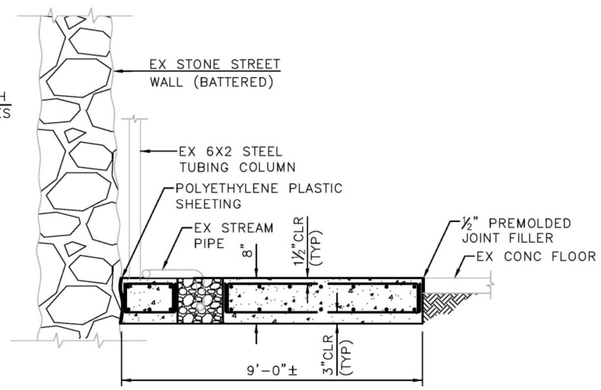
1. REPAIR #3 IS TO RESTORE THE DAMAGED CONCRETE FLOOR SLAB WITH A NEW CONCRETE FOOTING.
2. RECONSTRUCT THE TEMPORARY TIMBER SUPPORTS SO THAT IT IS NOT IN CONFLICT WITH THE WORKING AREAS.
3. CARE SHOULD BE TAKEN WHEN REMOVING THE EX DAMAGED CONCRETE FLOOR SLAB AROUND THE STONE WALL, PARTITION BRICK WALL, AND STREAM PIPE. RECOMMENDED TO USE HAND TOOLS ONLY.
4. ALL VOIDS SHALL BE FILLED WITH CDF BEFORE POURING THE NEW CONCRETE FOOTING.



PLAN – FOOTING
NTS



SECTION F–F
NTS



SECTION E–E
NTS

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SEATTLE, WASHINGTON
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INITIALS AND DATE	INITIALS AND DATE
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Seattle Department of Transportation
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SCALE: 1"=20'

AREAWAY 190 SKYLIGHT REPAIR (616 1ST AVE)

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VPI # XXX–XXX
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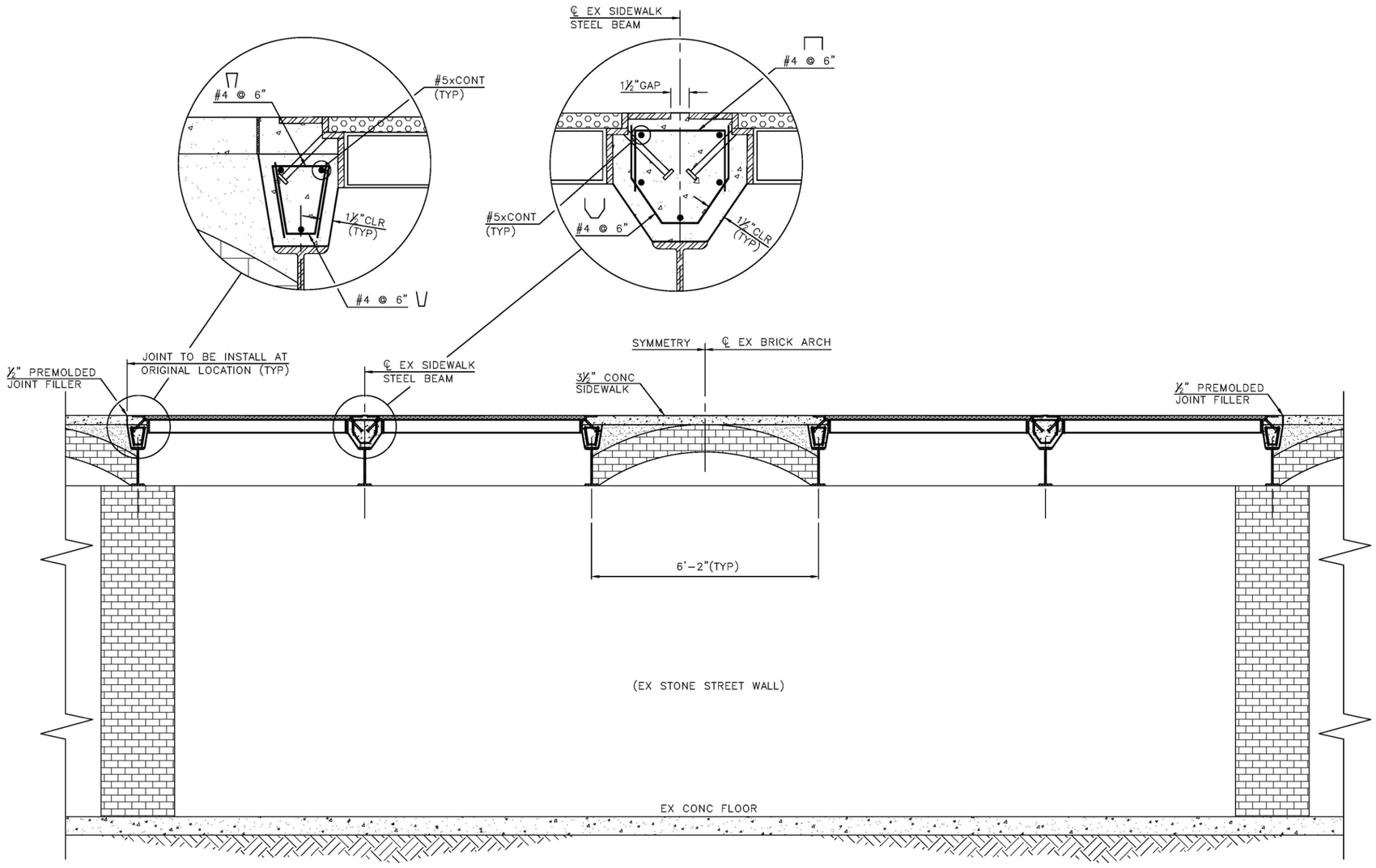

SECTION D-D 01
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AREAWAY 190 SKYLIGHT REPAIR (616 1ST AVE)

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