SMITHSONIAN INSTITUTION

NATIONAL MUSEUM OF AFRICAN AMERICAN HISTORY AND CULTURE:

REPLACE CANOPY LIGHTS AND IMPROVE SOUTH WATER FEATURE EDGE

CONCEPT SUBMISSION

SMITHSONIAN PROJECT NUMBER: 2127105

NATIONAL CAPITAL PLANNING COMMISSION

OCTOBER 30, 2026

SMITHGROUP

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1.0 PROJECT OVERVIEW

1.1 PROJECT DATA

PROJECT NAME

NMAAHC: Replace Canopy Lights and Improve South Water Feature Edge

AGENCY AND CONTACT

Smithsonian Institution

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Smithsonian Institution

PROJECT LOCATION AND SITE

NMAAHC is located on the National Mall in Washington, D.C., at 1400 Constitution Ave. NW



Figure 1.1.1: Vicinity Map

PROJECT BACKGROUND

The National Museum of African American History and Culture (NMAAHC) was established by an Act of Congress in 2003. The roughly five-acre site for the Museum was selected in 2006 and was originally part of the Washington Monument grounds. In 2009, the design submitted by The Freelon Group/Adjaye Associates/Davis Brody Bond/SmithGroup was chosen for the new Museum. Construction began in 2012, and the 350,000 sf Museum was opened to the public on September 24th, 2016.

In 2022, the Museum welcomed 1,092,552 visitors and was the eighth-most visited museum in the United States.

The South Plaza faces the National Mall, and the landscape design of this area directs visitors to the primary Museum entrance vestibule on the southeast side of the facade. The minimal aesthetic of the project area is dominated by a memorial Water Feature and the Porch Canopy.

The proposed project area is at the South Plaza of the Museum.



Figure 1.1.2: View of NMAAHC South Plaza from the Washington Monument, July 2016

RELEVANT PRIOR AGENCY COMMENTS

Review meetings were held with the Commission of Fine Arts to review the original South Water Feature and Plaza with the original design Team during concept review on September 2010 through October 2011. Below is the summary of the Comission of Fine Arts comments from each meeting.

CONCEPT MEETING HELD ON 9/16/2010

"...they acknowledged the desirability of a water feature on the south side of the museum as part of the entrance experience and recommended that its shape be refined in conjunction with the design of the canopy and pedestrian circulation through the site."

REVISED CONCEPT MEETING HELD ON 3/17/2011

"They expressed strong support for the overall design of the south side of the site—including the gradually sloping lawn, reflecting pool, and paved plaza at the front entrance—which they said could become a highly attractive venue for performances overlooking the National Mall. They recommended consultation with an acoustician to optimize the design of this space for potential programming; they cautioned against lively water features as a distraction in this location, suggesting instead a more calm and reflective character."

REVISED CONCEPT MEETING HELD ON 10/20/2011

"For the design of the south entrance porch and pool, they suggested that the water be more still and reflective as a counterpoint to the cascade at the oculus on the north; they noted that the use of inscriptions as a pattern across the entire basin may compete with the intricacy of the corona and may lessen the impact of the words themselves—whereas a more limited use of quotations would create the opportunity for poignancy at specific moments within the site. In support of the goal of providing useable spaces in the landscape, they suggested increasing the number of trees where possible and considering the appearance of the grounds and water elements during winter conditions."



Figure 1.1.3: Photo of the South Plaza including Water Feature and Porch canopy, August 2016.

PROPOSED PROJECT SCOPE, DEVELOPMENT AND ALTERNATIVES SUMMARY

South Water Feature Edge

At the south Water Feature, there have been reported incidents of guests inadvertently stepping or falling into the pool portion of the feature since the opening of the Museum. These fall incidents have occurred on east, west and north pool perimeter (See Chapter 2). At Smithsonian's request, Smithsonian Gardens have installed temporary planters on the east and west sides, and these have been successful in reducing the number of incidents, however they are a significant departure from the original design intent and experience of the south plaza and represent a substantial maintenance obligation. Water runoff from plant care washes soil and debris into the water feature's filtration system.

Fall incidents have continued to occur on the north side of the Water Feature, and to mitigate these, NMAAHC has installed additional temporary crowd control stanchions which visually clutter the Plaza.

Porch Canopy Lighting

Located in the NMAAHC's south plaza are 24 in-ground spotlight fixtures that were designed to illuminate the underside of the south Porch Canopy. Shortly after the Museum opening in 2016, facilities personnel reported that the fixtures no longer functioned properly and had found evidence of persistent water intrusion (See Chapter 3). The breaker feeding the lights has been turned off and the fixtures remain non-operational. As a result, the Canopy remains dark at night, not meeting the original design intent. The reduced levels of ambient light at the south plaza have limited visibility and increased the safety concerns around the Water Feature during evening activities.

The Water Feature and Porch Canopy are significant contributors to the original architectural design of NMAAHC. They are integral to the entry experience for all visitors to NMAAHC and important contributing elements to the Museum and visitor experience.

PROJECT GOALS

The Design Team has been charged with addressing these two issues as follows:

Water Feature Edge treatment

Investigate options for the South Water Feature edge to mitigate occurrences of visitors accidentally stepping into the Water Feature pool from the adjacent walking surfaces.

All proposed solutions are to carefully consider and complement the existing architectural and landscape design to minimize any aesthetic impact to the visitor or site. The goal is not to redesign the Water Feature or surrounding hardscape area, but to provide minimal interventions that resolve the concern of visitors stepping into the fountain.

Canopy Lights

Investigate options for full replacement of the existing (Porch) canopy lights and/or other solutions that provide an equivalent light source to the original design and intent. Consider feedback and recommendations from the recent non-invasive probes investigating water infiltration onto the existing canopy lights and surrounding paved area.

Chapter 4 details the proposed Water Feature Edge and Lighting solutions respectively.

The proposed Water Feature Edge solution includes combining one railing Option with one paving Option as follows:

Railing Options

- Option 1 – 36" High Railing, 8' Post Spacing
- Option 2 – 30" High Railing, 8' Post Spacing

Paving Options

- Option 1 – Black Granite with Textured Inserts
- Option 2 – White Granite Edge

The proposed Canopy Light solution includes one of the **Lighting Options** as follows:

- Option 1 – Framing Projector Lights
- Option 2 – Floodlight

Option 1 is Recomended for all solutions.

GUIDING DOCUMENTS

This project is not part of a current master plan.

PROPOSED DESIGN SCHEDULE

Design Development: Spring 2027

Design Complete: Summer 2027

Construction Duration: Approximately 4 months

1.2 PROJECT CHALLENGES

WATER FEATURE FALL INCIDENTS

NMAAHC Security provided the design team with a summary of fall related incident reports that involved or occurred near the south Water Feature. The diagram at right represents the location summary and dates of the relevant incidents. These can be further grouped by rough location of occurrence: east (entering), west (exiting), originating from north bench, and general/ nonspecific reported location.

- Total of 17 reported fall incidents at the Water Feature.
- Temporary planters were installed on the east and west in late 2019.
- Most incidents occurred before 2019 but still continue.
- Most incidents occurred during daytime, between 11am and 5pm.
- Nighttime issues related to post event ending/ exiting.
- Many reports cite ‘carelessness’ and visitors ‘not looking’.

The existing water feature has a maximum vertical elevation change of 24” at the northwest corner, and is a code compliant condition that does not require and handrail nor guardrail.

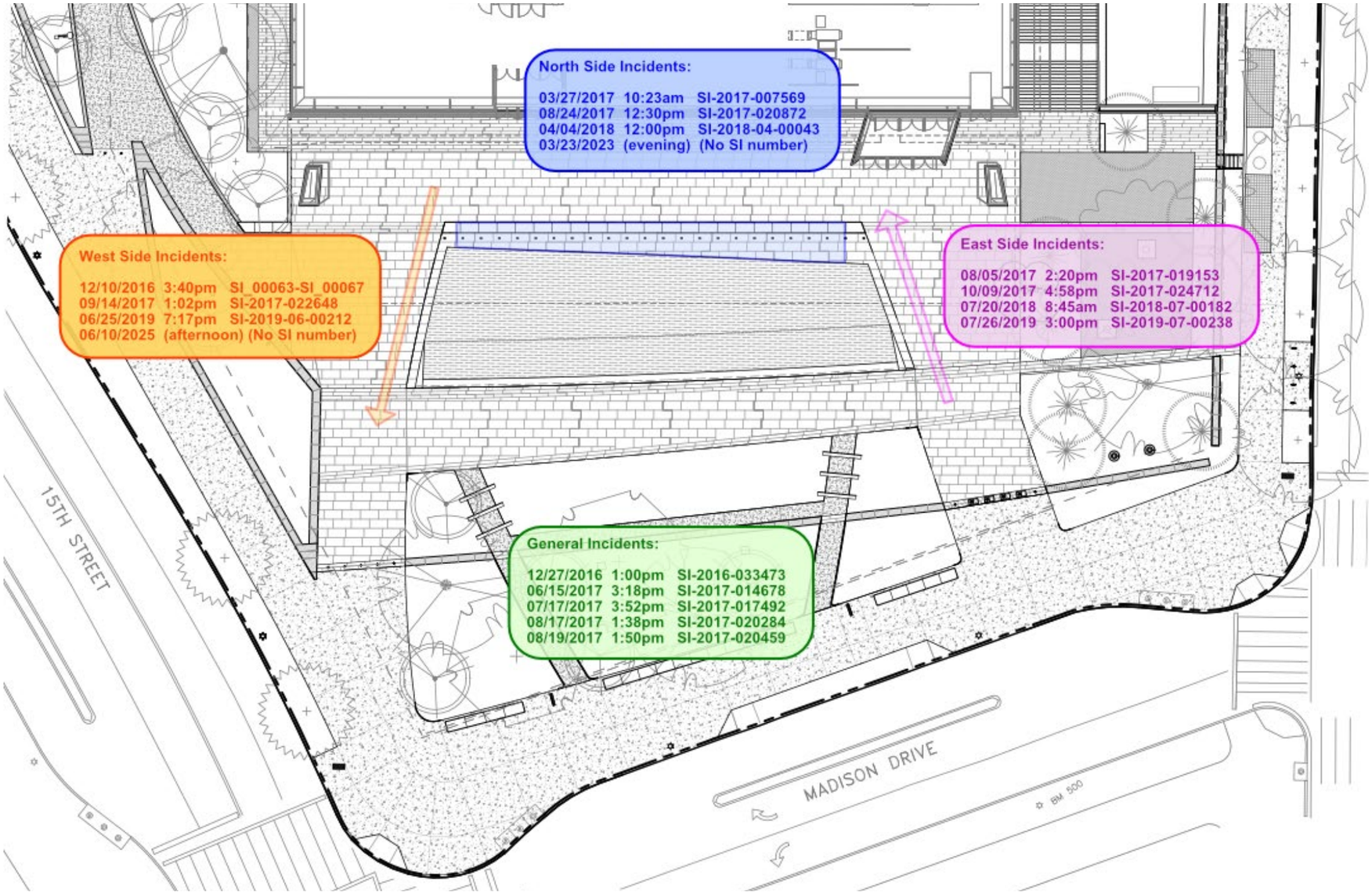


Figure 1.2.1: Record of reported incidents related to the south plaza water feature since opening in 2016

CONTRIBUTING FACTORS TO FALL INCIDENTS

Visitor queuing for Museum entry occurs outside between the north bench and the building façade. The Museum erects temporary stanchions to manage the queue lines. The largest volume of pedestrians occurs during the Museum opening and closing times, coinciding with the majority of fall incidents.

The incidents at the north side can in part be attributed to the non-parallel edge of the Water Feature and bench, as this creates a narrowing walkway from east to west. Clearance is reduced to 36" at the west end. As a preventative measure, stanchions have been placed to deter passage in this area and to provide a visual queue to the presence of the pool edge.

The monolithic color palette of the paving of the South Plaza and Water Feature may also be a contributing factor to the fall incidents, where visitors may have difficulty distinguishing the surface edges, even with the textured surface around the pool. Messabi Black Granite, a dark gray stone, is used uniformly for both the Plaza paving and the Water Feature basin.

Recent incidents further indicate that visitors continue to access the water feature edge between the temporary planter boxes and bypass the exisitng deterrent measures put in place.



Figure 1.2.2: Photo of temporary stanchions and signage for managing pool edge and visitor queuing



Figure 1.2.3: Visitor queuing for entry between north bench and building under Porch

TEMPORARY SOLUTIONS

Retention of the temporary planter and stanchion solution is not a sustainable option for the Smithsonian for the following reasons:

- Not fully successful, additional stanchions and cones required to fill gaps around the temporary planters.
- Difficult and intensive maintenance for healthy plant growth.
- Planter debris spoils water quality and clogs Water Feature inlets.
- Placing landscaping centered within the hardscaped south plaza is incongruous with original design experience.



Figure 1.2.4: Photo showing debris under planters and exisitng textured paving with 1/8" deep grooves.



Figure 1.2.5: Photo of existing protections at the Water Feature Edge including temporary planters, safety cones, and stanchions

CANOPY LIGHT FAILURE

There are 24 inground incandescent uplights for the Porch Canopy that were installed in 2016 and began showing signs of failure shortly after the museum's opening.

SmithGroup prepared non-destructive probe and water testing instructions, which were executed by a contractor in the early winter of 2024.

These investigations revealed the following:

- The fixture housings are in a constant state of flooding and filling with water. Even after clearing the units out, water continued to ingress for hours following.
- Water is entering the light fixture housings from multiple observable locations: from the surface level via cracked or otherwise damaged lens support housings, from below the fixtures entering at seams in the embedded housing, and communicating between the fixtures via the daisy chained electric conduit.
- Many of the fixtures exhibit some degree of damage to the upper housing ring that supports the lens and lens gasket.

There may be additional sources of water entering the fixtures. It is unclear if this water was entering from the primary incoming conduit feed on east, one of the untested fixtures, or from another location.

Based on these probe observations, SmithGroup initially explored replacement options that were LED based, located at the original fixture locations, and could fit in the 6" available depth. However, as concerns over infiltration from below-grade water sources were realized, maintenance concerns increased, and watertight solutions became ever more complex, a reasonable in ground solution was dismissed.

We also dismissed the use of "submersible" fixtures (IP68) as not realistic since they assume constant submersion (not intermittent wetting and drying) and are not designed for pedestrian traffic.

The Design Team turned to the exploration of above-ground lighting solutions that would illuminate the Canopy in a manner similar to the original design. These solutions can be seen in Chapter 4.3.

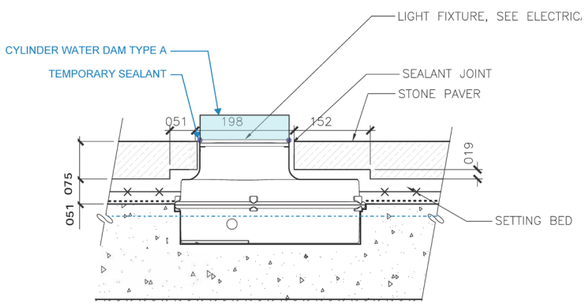


Figure 1.2.6: Detail of the existing in-ground fixture



Figure 1.2.7: Close up of in-ground fixture lens



Figure 1.2.8: Water test of in-ground light fixture



Figure 1.2.9: In-ground Porch Canopy fixtures

1.3 PROJECT DESIGN PARAMETERS

Design solutions for the Water Feature Edge protection and Canopy Light replacement were developed under the following guiding principles and goals:

- Maintain the entrance experience and have a minimal impact during and after construction.
- Be compatible with original design.
- Be constructed of materials and a quality consistent with the original design.
- Illuminate the Porch Canopy with an intensity, color and distribution consistent with original design.

Successful design solutions shall:

- Provide a clear indication of the Water Feature edge, provide visual cues to warn of the potential hazard, and to discourage visitors from stepping into the fountain.
- Address illumination of the Porch Canopy to achieve equivalent nighttime lighting to the original design.
- Be a minimal intervention to the South Plaza area.
- Provide waterproof, durable and maintainable installations or modifications.
- Avoid or minimize new penetrations through existing waterproofing building systems.

The concept designs presented here are a culmination of this process of iteration and evaluation, and incorporate feedback received from two preliminary consultation meetings with National Capital Planning Commission, Commission of Fine Arts, and DC State Historic Preservation Office staff. Documentation of the alternative designs considered can be found in Chapter 4.3.

2.0 PROJECT CONTEXT

2.1 PROJECT AREA AND LOCATION

For the purposes of this Concept Design phase, the project area was assumed to encompass the majority of the South Plaza of NMAAHC, inclusive of the Porch Canopy, Benches, Canopy Lighting and the Water Feature.

While the project intervention is expected to be limited to the east, west and north sides of the Water Feature, the larger context of the hardscape, and public view sheds to the south plaza are being taken into consideration with each design solution.

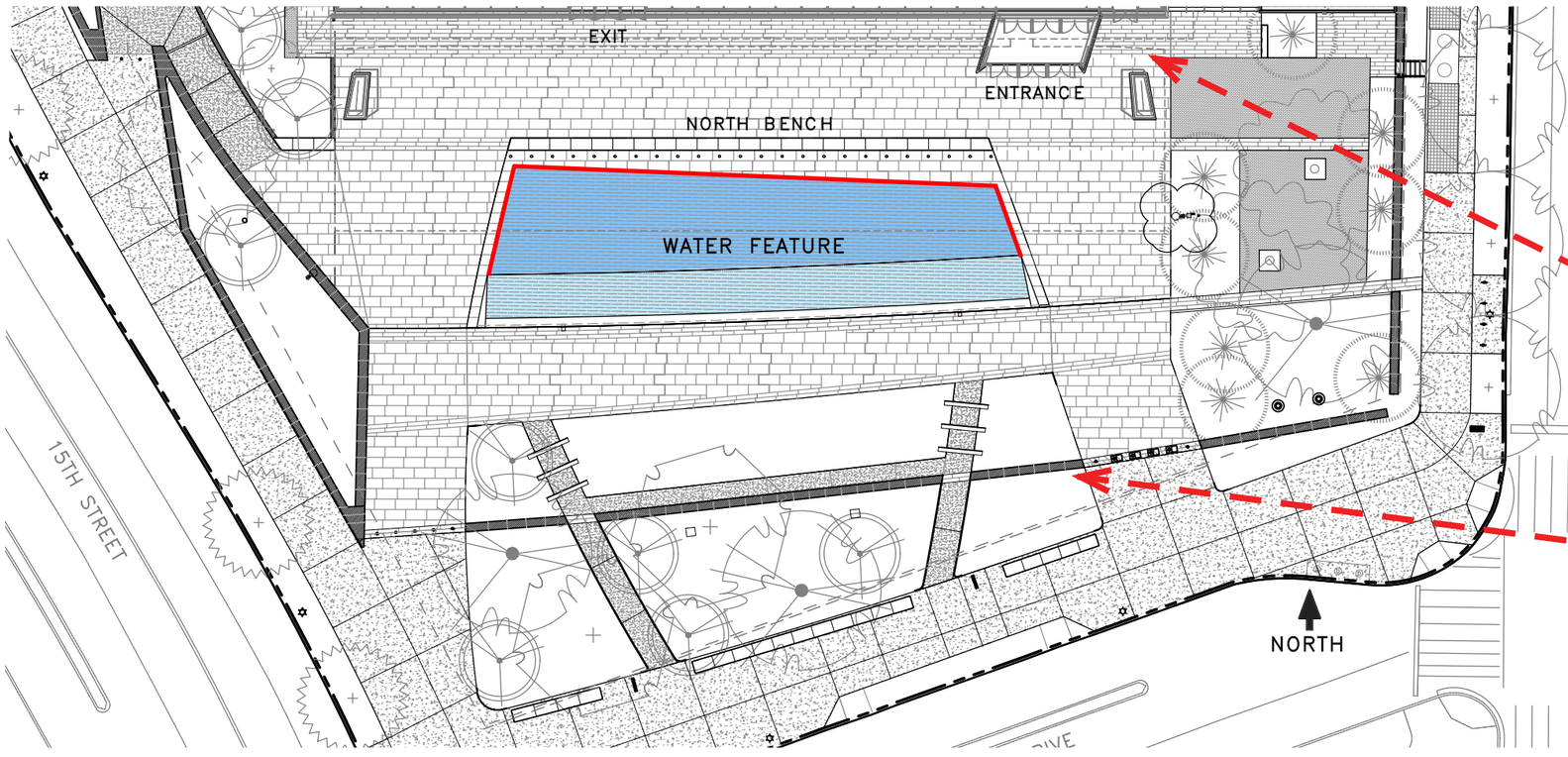


Figure 2.1.1: Project Area Plan

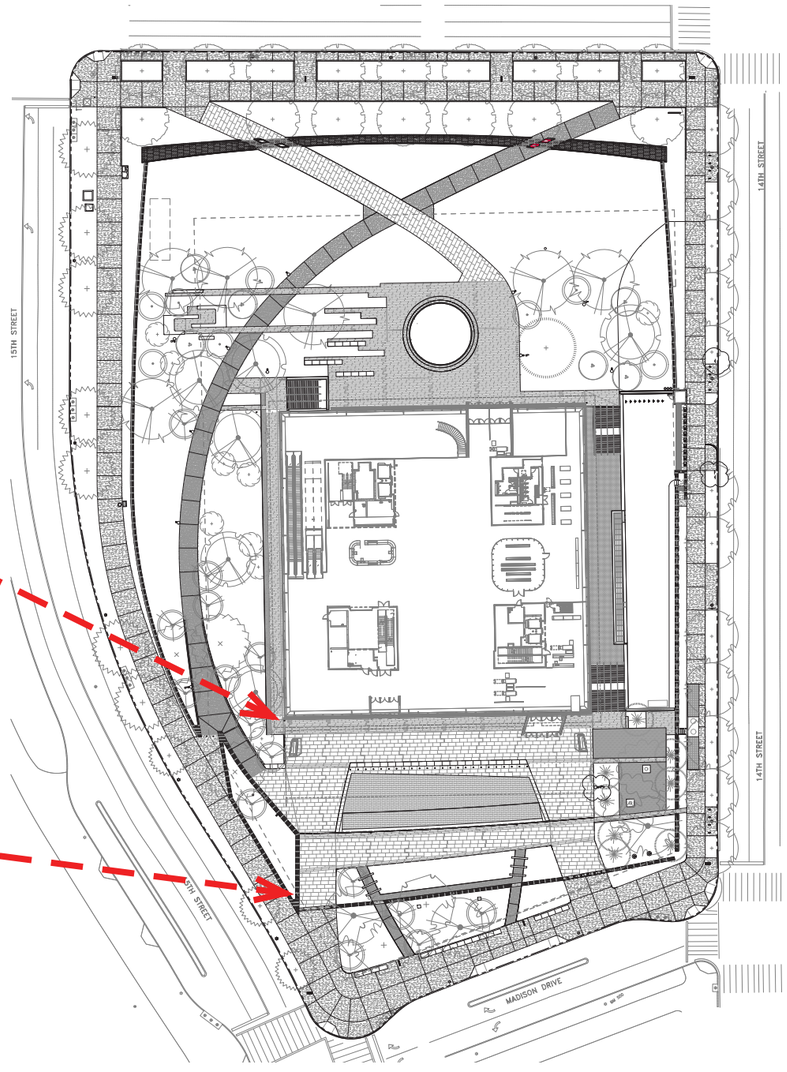


Figure 2.1.2: Overall Site Plan



Figure 2.1.3: View of NMAAHC south plaza from Washington Monument grounds, looking northeast, photo taken summer 2016

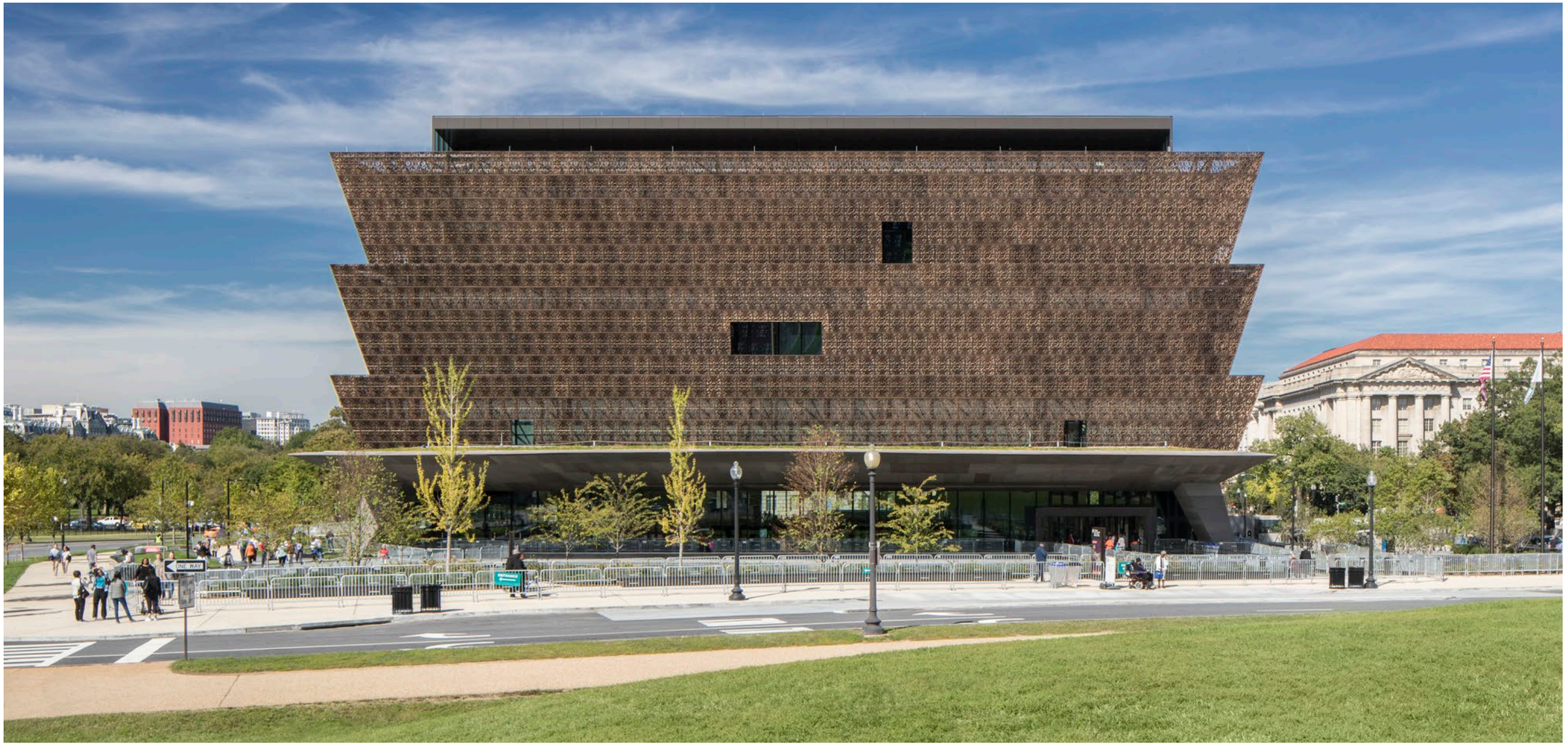


Figure 2.1.3: View of NMAAHC south plaza from acrosss Madison Drive., looking north, photo taken summer 2016

2.2 PROJECT SITE

The Project Site area is highlighted in yellow in the diagram at right. The red dashed line represents the edges of the Water Feature where fall mitigation is required. The blue dashed rectangle represents the outline of the Porch Canopy above, and 24 green dots represent the location of the existing in-ground light fixtures illuminating the Canopy underside.

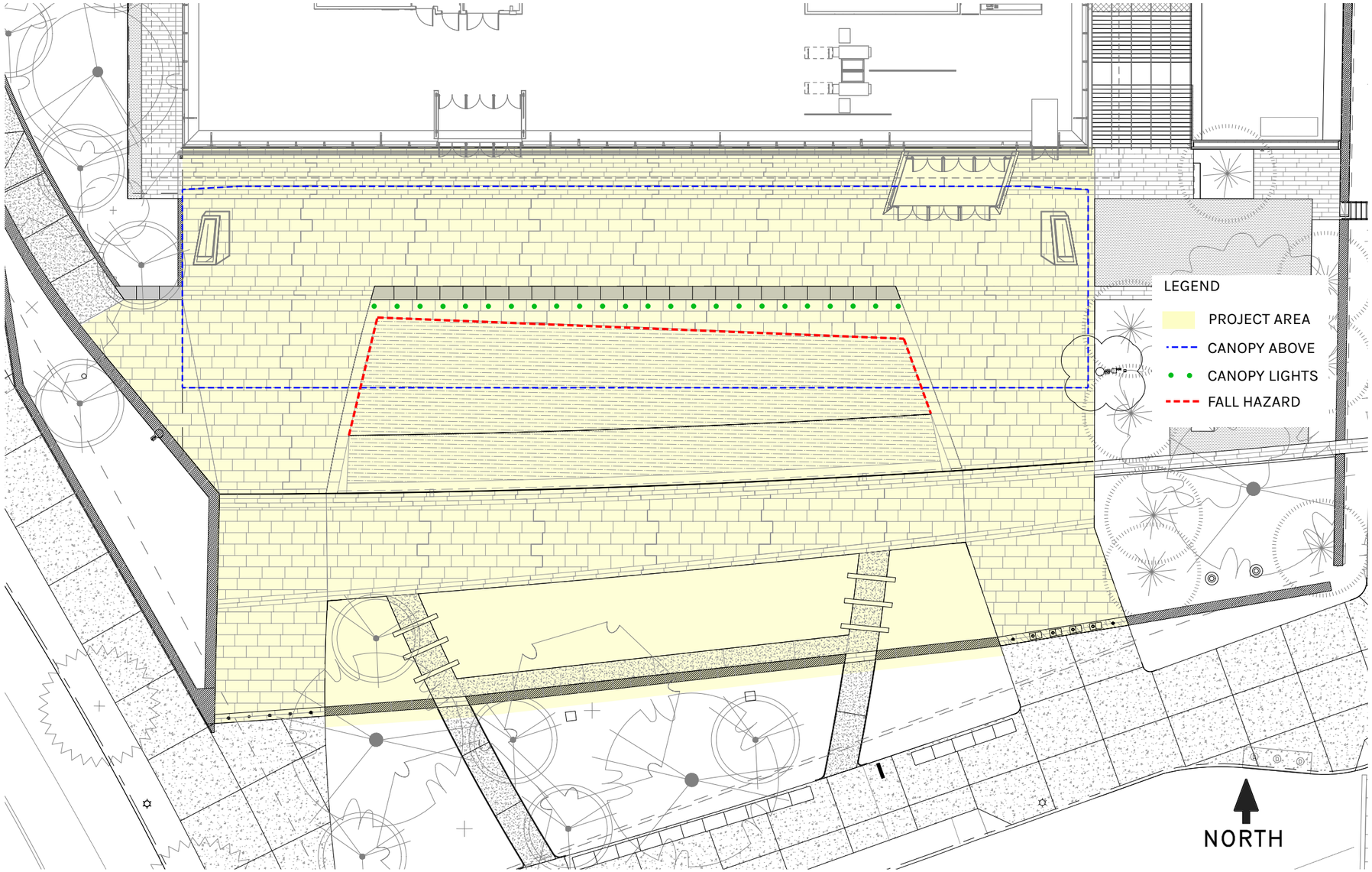


Figure 2.1.4: Existing Project Site Plan



Figure 2.1.5: Photo of project site with the temporary planters removed. Note the consistency of color between the paving and Water Feature basin.

2.3 FLOODING

The NMAAHC site includes areas in both the 100-year and 500-year flood plains. However, this project's proposed area of work is limited to the 500-year flood plain.

The proposed design is not expected to alter the existing topography and therefore is not expected to change the facility's current resiliency to flood impacts, nor is it expected to alter its impact on neighboring properties.

Flood protection measures and a protection plan were prepared in 2013 for the original project. These systems and plans are not expected to be altered by the proposed Water Feature Edge and Canopy Lights project.

Relative to the 100-year flood plain, the original project design created a barrier of soil and retaining walls on the East, North, and West sides to protect the majority of the building. The main entry level was designed to be approximately 4' above this 100 -year flood plain on an elevated plateau.

At the loading dock entry rampway, a combination of automatic and manual flood gates were installed to protect the entry drive. This system is to be supplemented with additional manual panels in the event of a 500-year flood.

Relative to the 500-year flood plain, the general strategy was to install sandbags approximately 18" high on the North, West and South sides of the ground floor atrium and exit stairwells. The South Plaza and Water Feature are located slightly below the main entry elevation of 5000mm.

FEMA 100 Year Flood Level: 3801mm

FEMA 500 Year Flood Level: 5130mm

Elevation of main entry/atrium: 5000mm

Elevation of project area: between 4900mm and 4300mm

2.4 STORMWATER MANAGEMENT

Surface runoff of the South Plaza hardscape drains either into the Water Feature or towards a trench drain at the south edge of the feature. The design proposed by the Water Feature Edge and Canopy Lights project is not expected to alter the existing topography and therefore is not expected to alter the existing stormwater management systems.

During construction, it is expected that the Water Feature will be turned off and an erosion and sediment plan will be put in place for the limited work area.

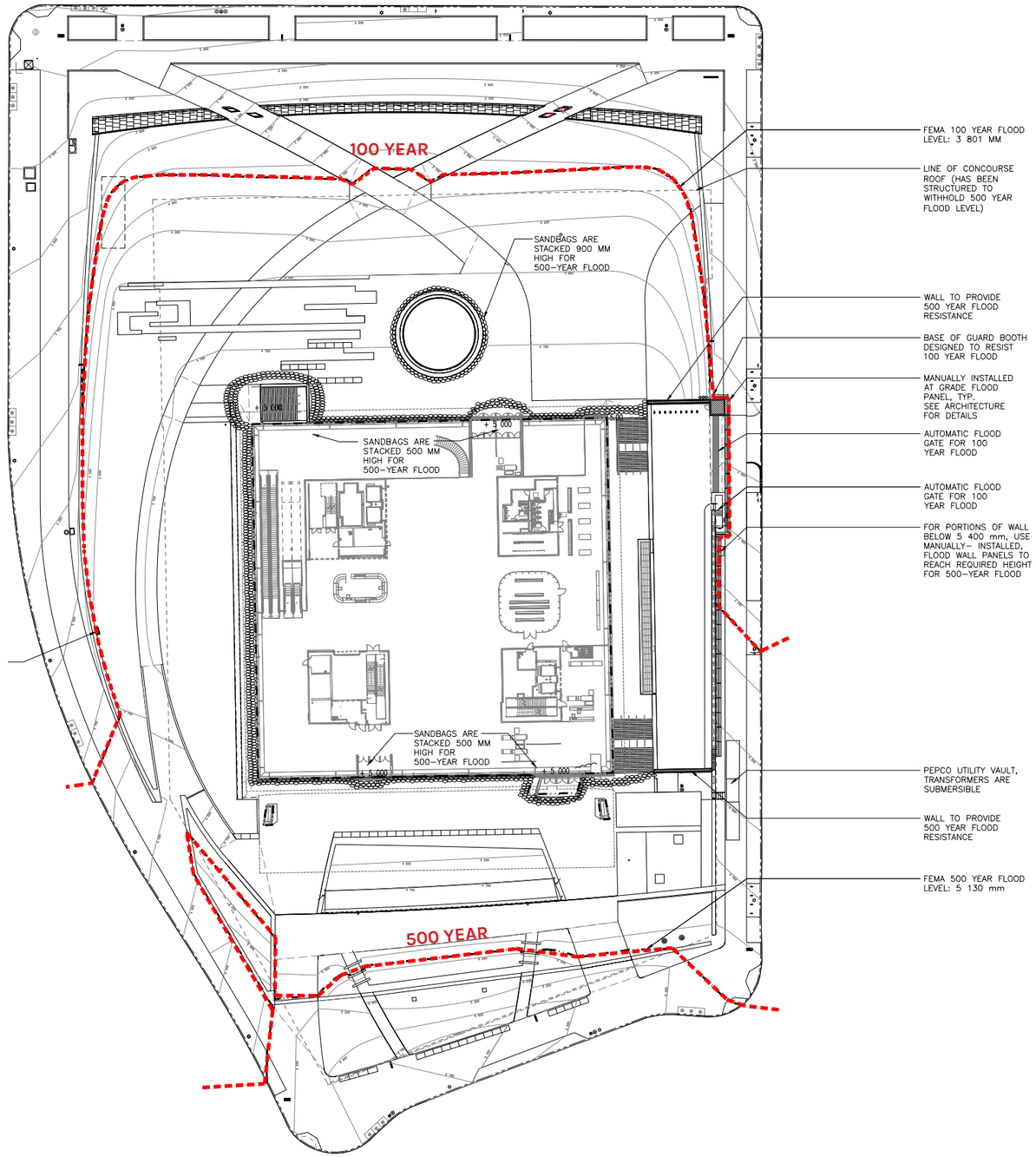


Figure 2.1.6: 5/3/2013 Flood Protection Plan

2.5 OTHER ENVIRONMENTAL CONSIDERATIONS

The project site is contained within a fully paved and developed area. This project will have no anticipated effects on natural resources. The Smithsonian and NCPC need to consult on the level of National Environmental Policy Act analysis.

2.6 OUTREACH AND HISTORIC CONSIDERATIONS

NMAAHC is a contributing element of the National Mall Historic District listed in the National Register of Historic Places. Preliminary consultations have indicated the concept designs have little potential to result in adverse effects on historic properties. Further Section 106 consultation with the DC SHPO is required.

The following preliminary consultation meetings have been conducted with Agency NCPC, CFA and DC SHPO Staff on this project:

- 1/30/25 – Preliminary meeting and viewing of Water Feature Edge mock ups.
- 4/24/25 - Preliminary meeting to review lighting mock ups.
- 11/2/26 - Pending meeting to review current railing, material, and lighting mock ups.



Figure 2.1.7: 4/24/25 Lighting Mock up review

3.0 EXISTING CONDITIONS

3.1 PROJECT SITE PLAN

The South Plaza of the NMAAHC, shown in red below is facing Madison Dr NW.

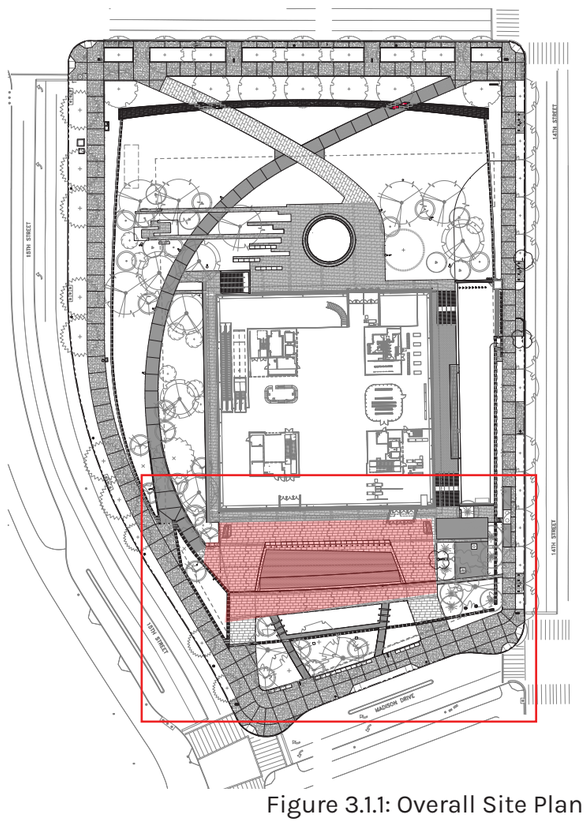


Figure 3.1.1: Overall Site Plan

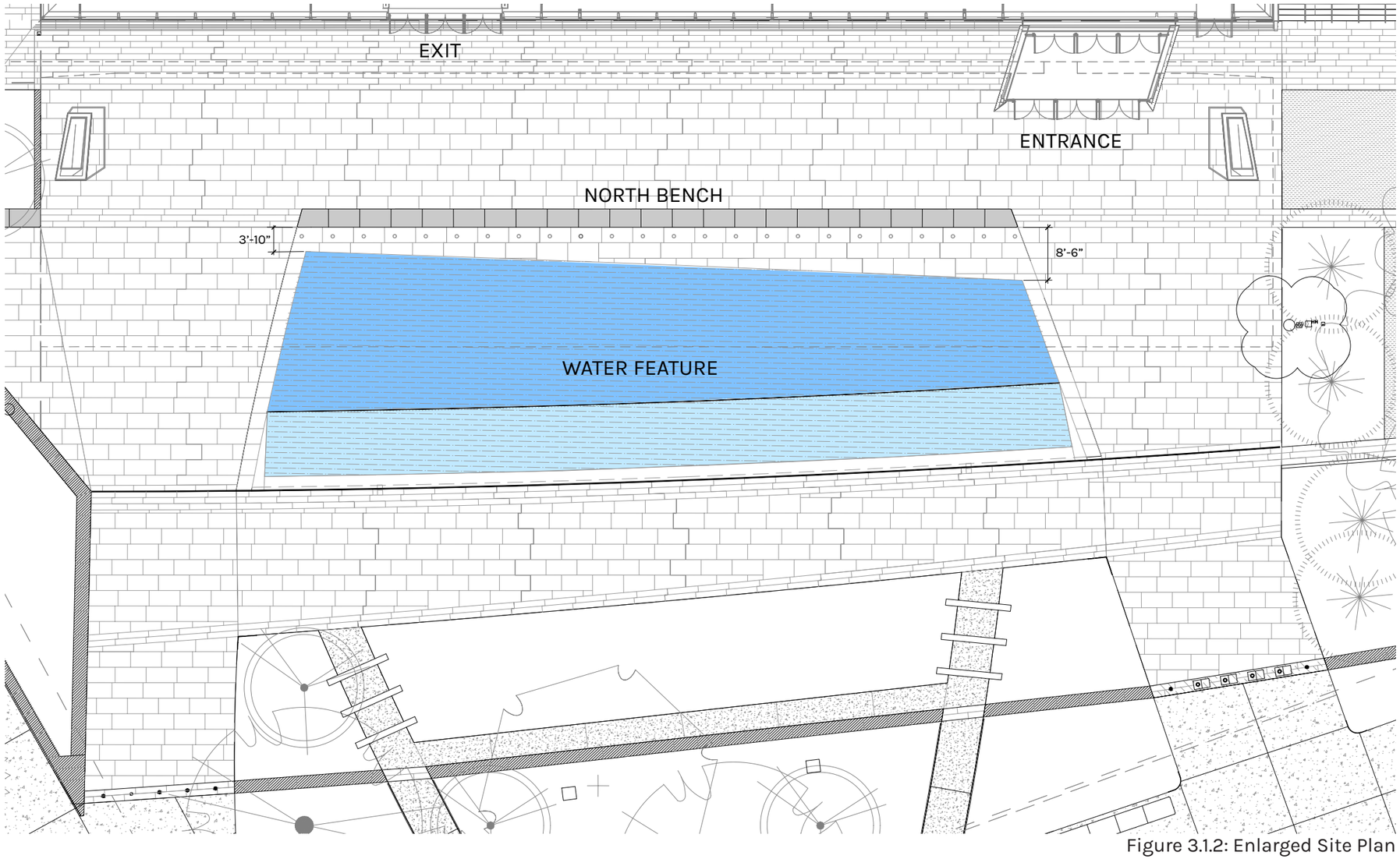


Figure 3.1.2: Enlarged Site Plan

3.2 PROJECT SITE SECTIONS

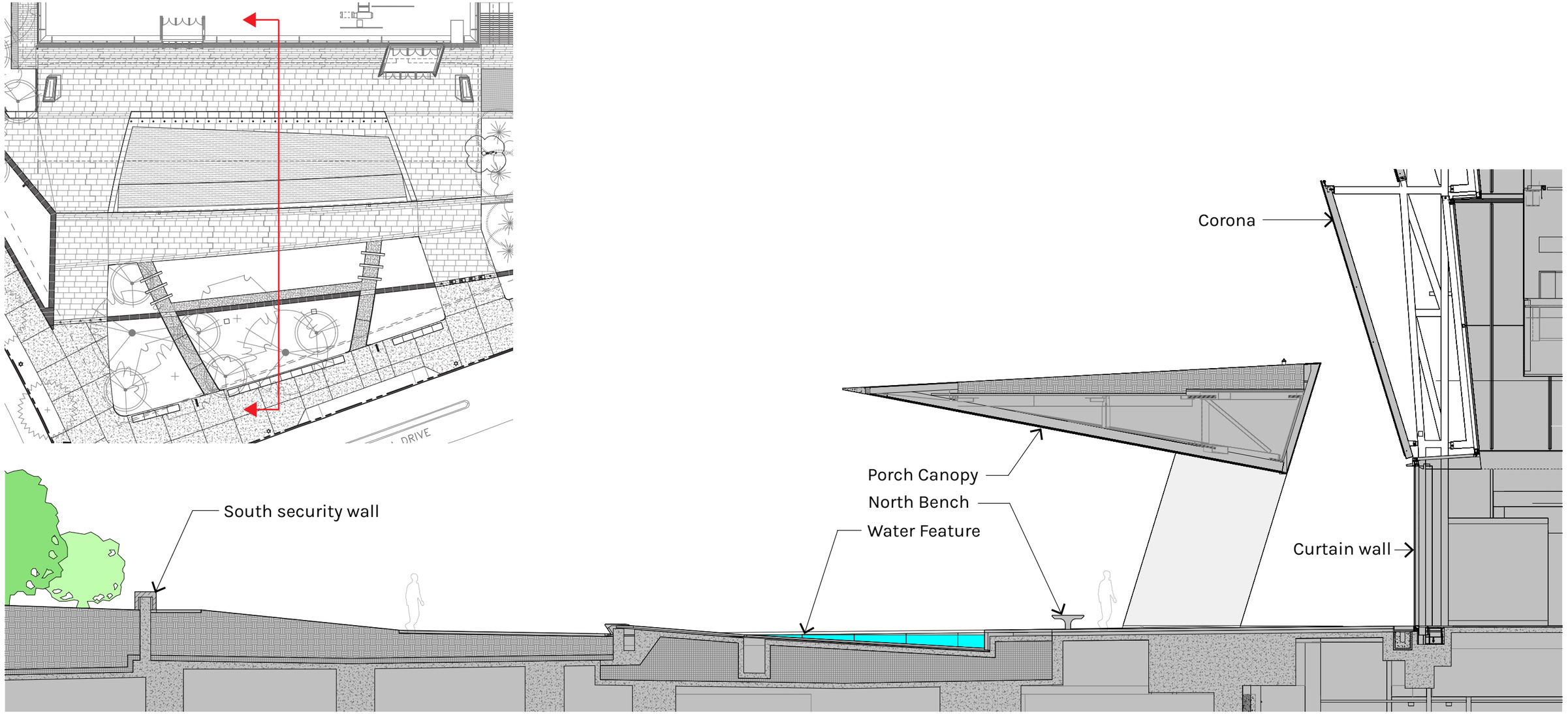
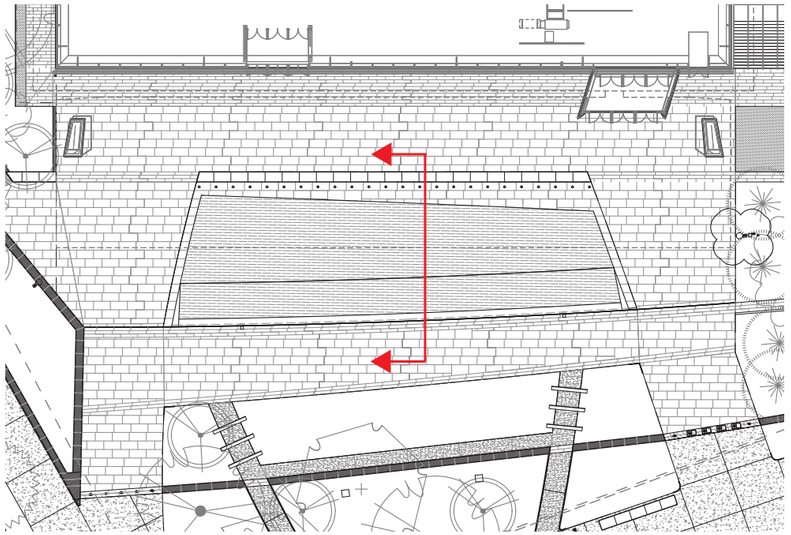
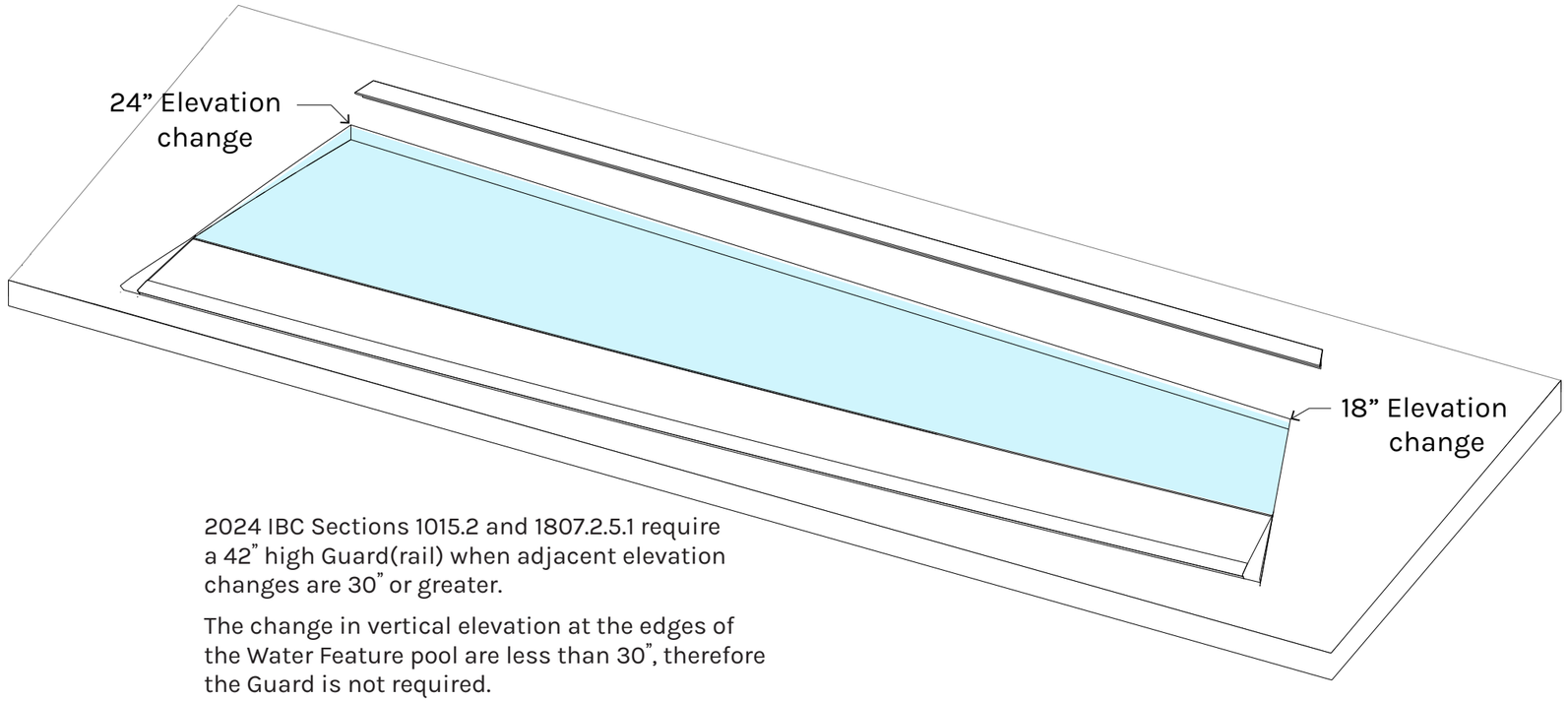


Figure 3.1.3: Section through South Plaza and Project Site including Water Feature, Porch and Canopy

3.2 PROJECT SITE SECTIONS





2024 IBC Sections 1015.2 and 1807.2.5.1 require a 42” high Guard(rail) when adjacent elevation changes are 30” or greater.

The change in vertical elevation at the edges of the Water Feature pool are less than 30”, therefore the Guard is not required.

Figure 3.1.4a: 3D view of Water Feature showing pool depth

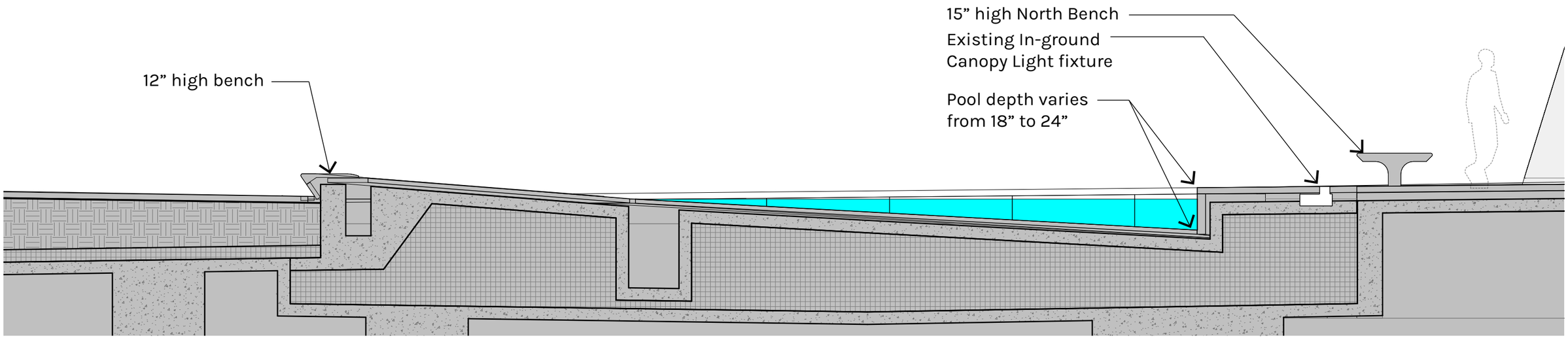


Figure 3.1.4b: Section through Water Feature

3.3 LANDSCAPE AND SITE ELEMENTS

Significant adjacent site elements include:

- North Bench
- Porch Leg and Cane Detection Rails
- Temporary Planters
- Egress Stair Guard and Handrails
- Illuminated Handrails on South Lawn
- Tactile pavers around the Water Feature edges

3.4 PHOTOGRAPHS OF EXISTING SITE CONDITIONS



Figure 3.1.5: West edge of Water Feature with temporary planters



Figure 3.1.6: North Bench

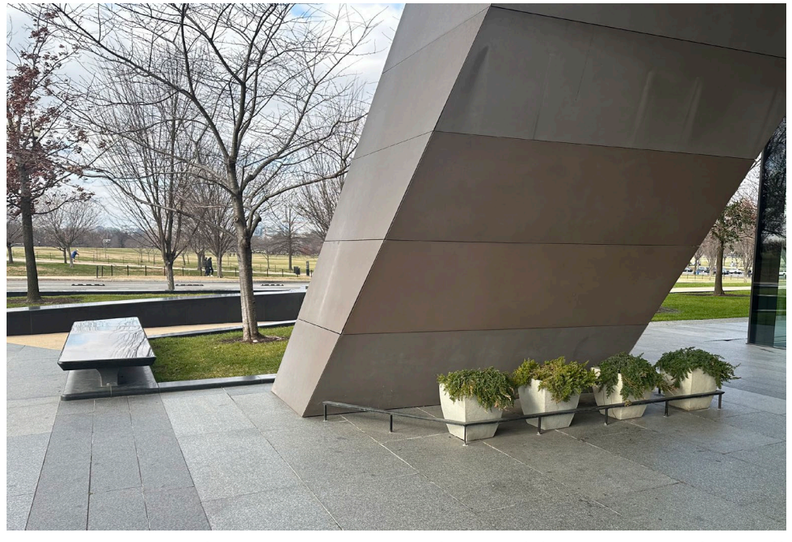


Figure 3.1.7: West Porch Leg with Cane Detection Rail



Figure 3.1.8: Water Feature edge, canopy lights, and tactile pavers



Figure 3.1.9: Current state of South Plaza showing temporary planters and stanchions

3.4 PHOTOGRAPHS OF EXISTING SITE CONDITIONS

Existing exterior and interior handrails and guards used at NMAAHC are typically solid bronze or oil rubbed bronze finish (on aluminum or steel material) and have square edge profiles, as seen in the images below. Within this palette, a variety of sizes, shapes and profiles are used. This contextual palette was one of the factors considered during the development of the proposed railing designs for the Water Feature edge.



Figure 3.1.11: Illuminated Handrails on South Lawn



Figure 3.1.10: Egress Court bronze plate guardrail from areaway



Figure 3.1.12: Interior bronze handrail at monumantal stair

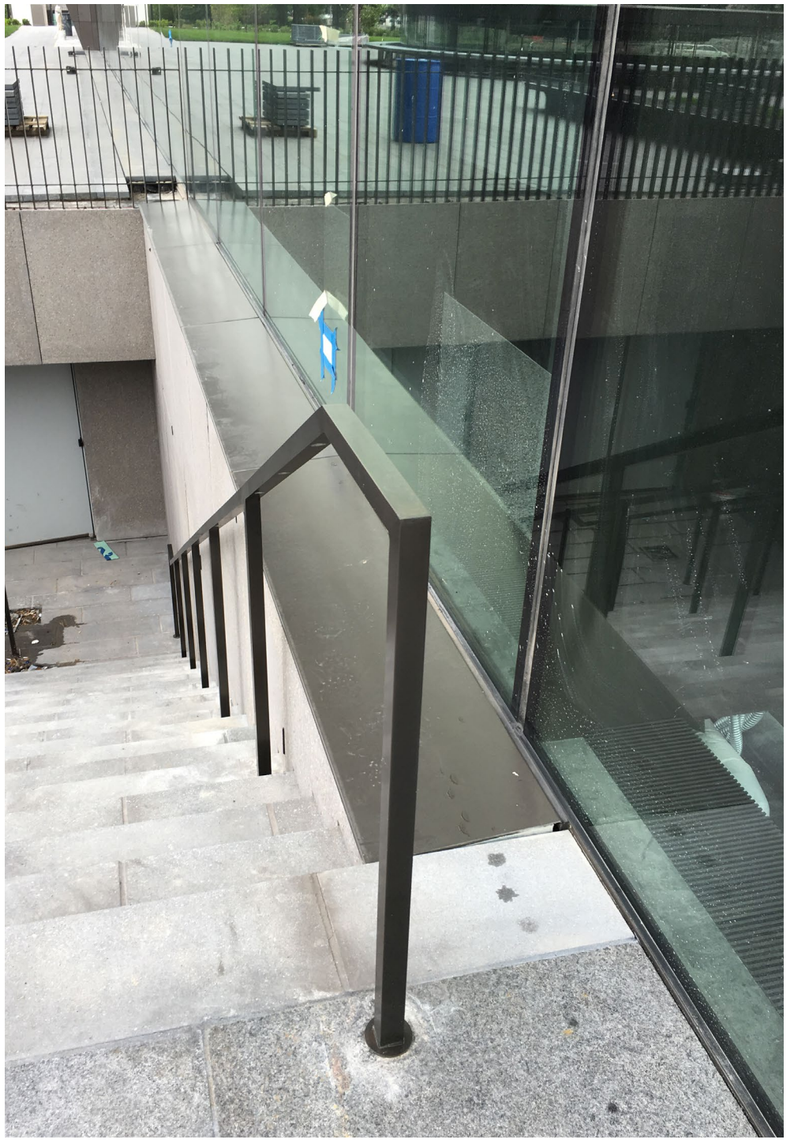


Figure 3.1.13: Bronze colored handrail with Guradrail beyond

The Water Feature remains empty seasonally from approximately November to March. When the basin is dry, it is even more difficult to visually discern the change in grade or presence of the Water Feature.



Figure 3.1.14: View of Water Feature from South

4.0 CONCEPT DESIGNS

4.1 DESIGN APPROACH

Design solutions for the Water Feature Edge protection and Canopy Light replacement were developed under the following guiding principles and goals:

- Maintain the entrance experience and have a minimal impact during and after construction.
- Be compatible with original design intent.
- Be constructed of materials and a quality consistent with the original design.
- Illuminate the Porch Canopy with an intensity, color and distribution consistent with original design intent.

Throughout the project's design process, each alternative design has been developed and evaluated relative to the degree to which the solution achieves each of the following criteria set forth by the Smithsonian:

- How well it mitigates the risk of Museum and National Mall visitors falling into Water Feature and alerts them to the potential hazard.
- How well it aligns with original design intent for the South Water Feature and architectural context.
- How difficult the solution would be to implement.
- How minimal the visual disturbance would be to the South Water Feature area and entrance experience (during and after construction).
- How maintainable is the solution, and does it create new problems or concerns.

The designs presented here are a culmination of this process of iteration and evaluation, and incorporate feedback received from preliminary consultation with Agency Staff. Documentation of the alternative designs considered can be found in Chapter 4.4.

Many Smithsonian units were involved in determining mitigation of fall risks, including General Counsel, Risk Management, Safety Health and Emergency Management, and NMAAHC.



Figure 4.1.1: Daytime Photo ca. 2016

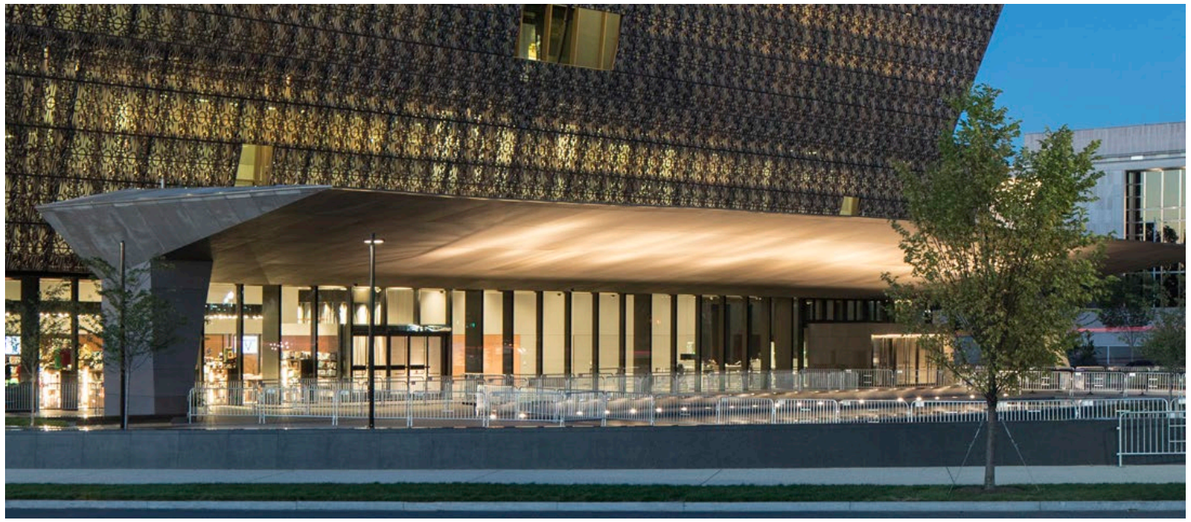


Figure 4.1.2: Nighttime Photo ca. 2016 prior to the light fixtures failing

4.2 CONCEPT DESIGN – WATER FEATURE EDGE

The Smithsonian's preferred solution to address the Water Feature edge concern is to install a railing on three sides of the Water Feature combined with a revised paving treatment that includes additional visual cues warning of the presence of the Water Feature edge.

Two railing options and two paving options are presented in this report. The proposed Water Feature Edge solution includes combining one railing Option with one paving Option, and in both cases, Option 1 is the Recommended solution.

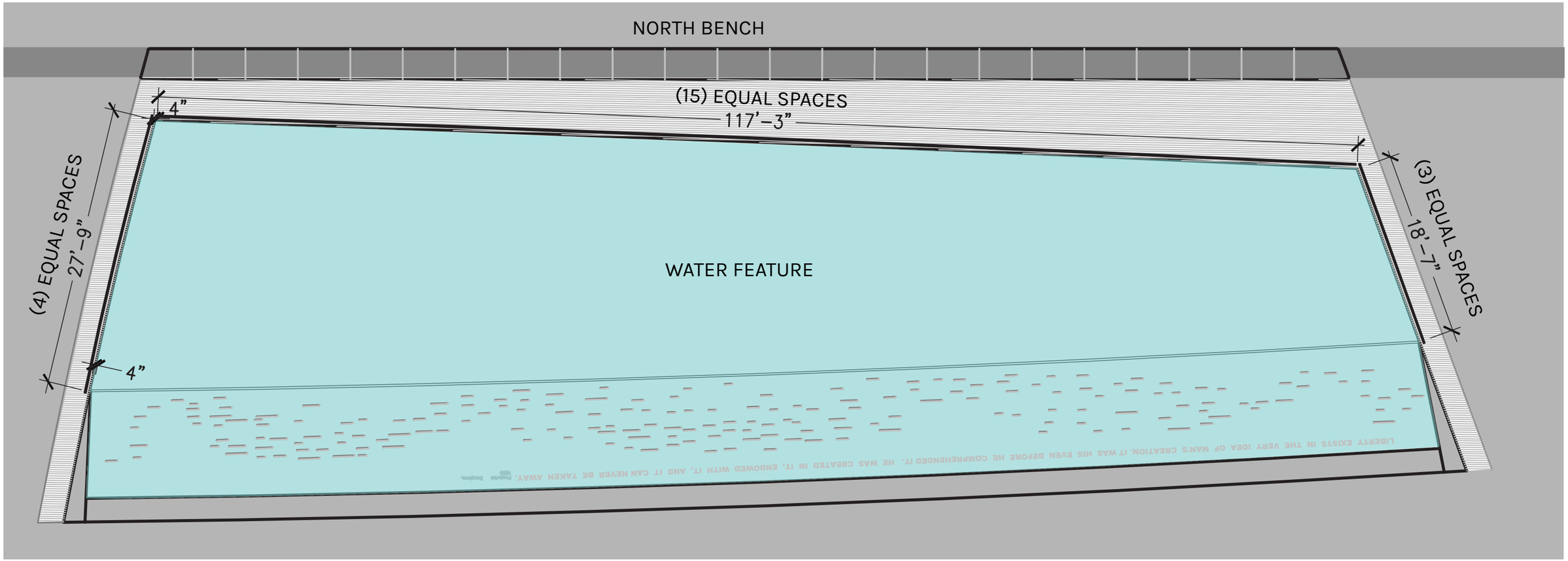


Figure 4.2.1: Site Plan showing extent of proposed railing and new paving zone around the Water Feature

4.2 WATER FEATURE EDGE – RAILING OPTIONS

Materials considered for the railing include solid bronze, stainless steel, and painted 50ksi steel. The bronze material was considered due to alignment with the existing material palette of the Museum. To investigate options for thinner cross-sectional profiles and reduced post spacing, the stronger steel materials were considered. Initial structural calculations indicate the solid bronze material requires a thicker cross section and denser vertical support spacing to achieve the same capacity as the steel materials. The Smithsonian's recommended material for the rail is painted 50ksi steel.



Figure 4.2.2: Railing material samples

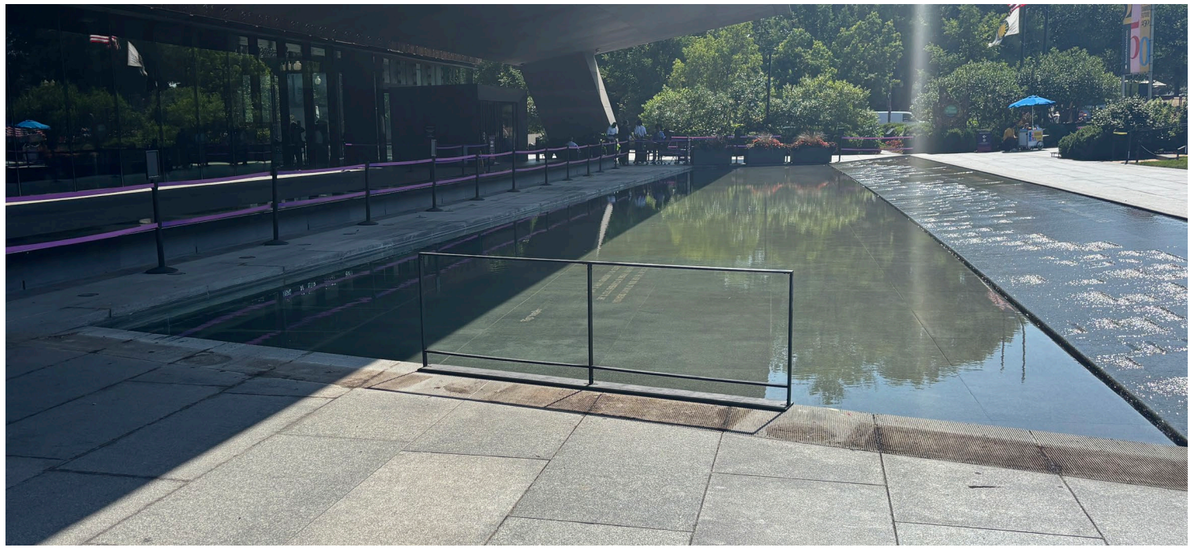


Figure 4.2.3: Mock up of 4' post spacing, and black finish



Figure 4.2.4: Mock up of 6' post spacing, and stainless steel finish

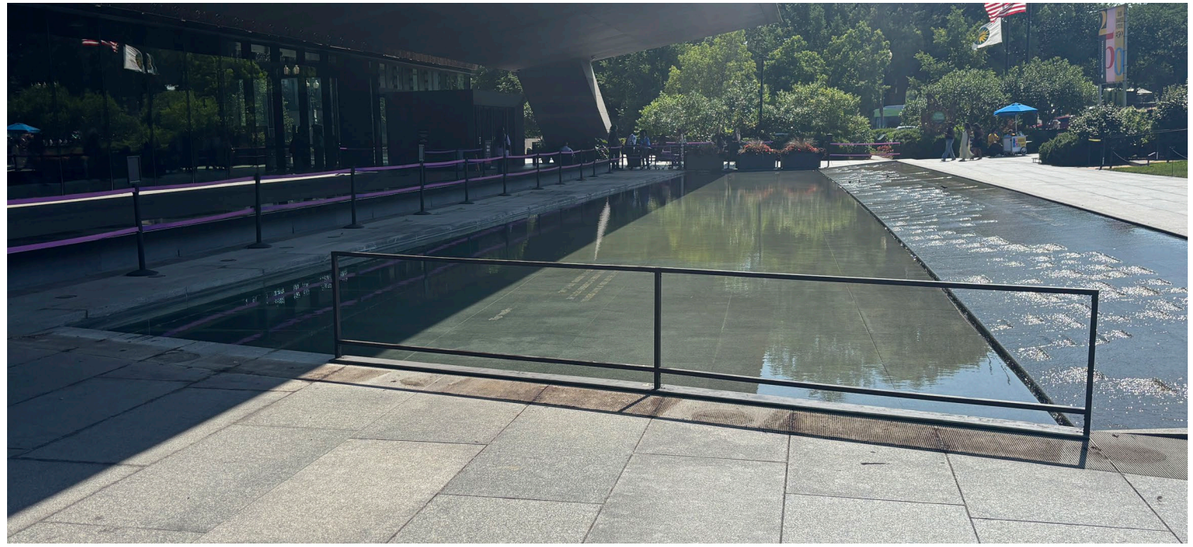


Figure 4.2.5: Mock up of 8' post spacing, and bronze finish

4.2 WATER FEATURE EDGE – RAILING OPTIONS

A variety of railing post spacings were studied by the design team and the material thicknesses of each railing component was calculated for each span. The range of post spacing included 4', 6' and 8' on center posts. These were mocked up with actual material thicknesses and viewed on site (images previous page). While the denser post spacing resulted in thinner material cross sections, the stakeholder consensus was that less posts were preferred over the thinnest material. Therefore, the 8' post spacing is recommended and presented in all of the Options to follow.

The Options presented in this report are for two different railing heights. Option 1 is for a 36" railing height, and Option 2 is for a 30" railing height. Both options have the same material cross sections.

Three railing heights (18", 24" and 30") were mocked-up and reviewed at the 1/30/25 preliminary consultation meeting with Agency Staff. At that time, Agency Staff encouraged pursuing the lowest railing height possible that would deter fall events and preferred the 18" or 24" height. Railing heights of 36" and 30" will be reviewed at the 11/2/26 mock-up.

It is the consensus among the Smithsonian stakeholders and leadership that a 36" high rail (Option 1) is the lowest height acceptable height to deter accidental falls into the Water Feature and therefore is the Recommended Option.

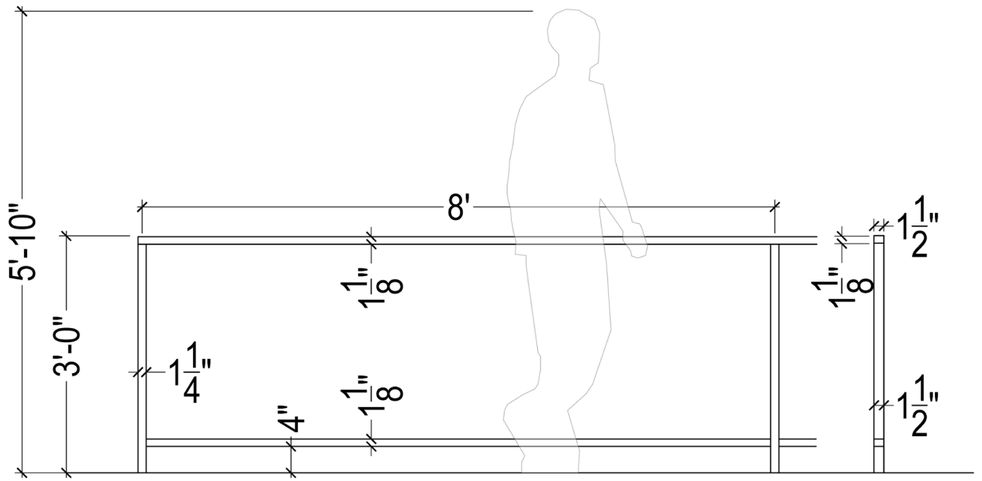


Figure 4.2.6: Elevation of typical segment, Railing Option 1 - 36" height

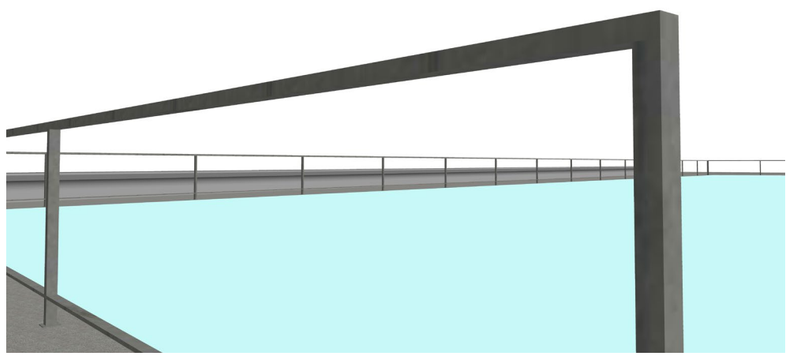


Figure 4.2.7: Detail of proposed handrail corner, Option 1 and 2

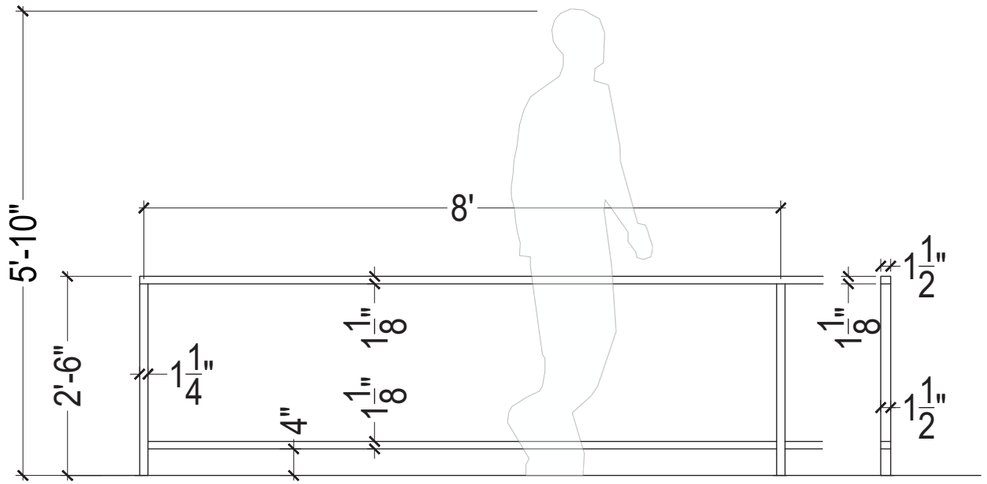


Figure 4.2.8: Elevation of typical segment, Railing Option 2 - 30" height

4.2 WATER FEATURE RAILING - OPTION 1

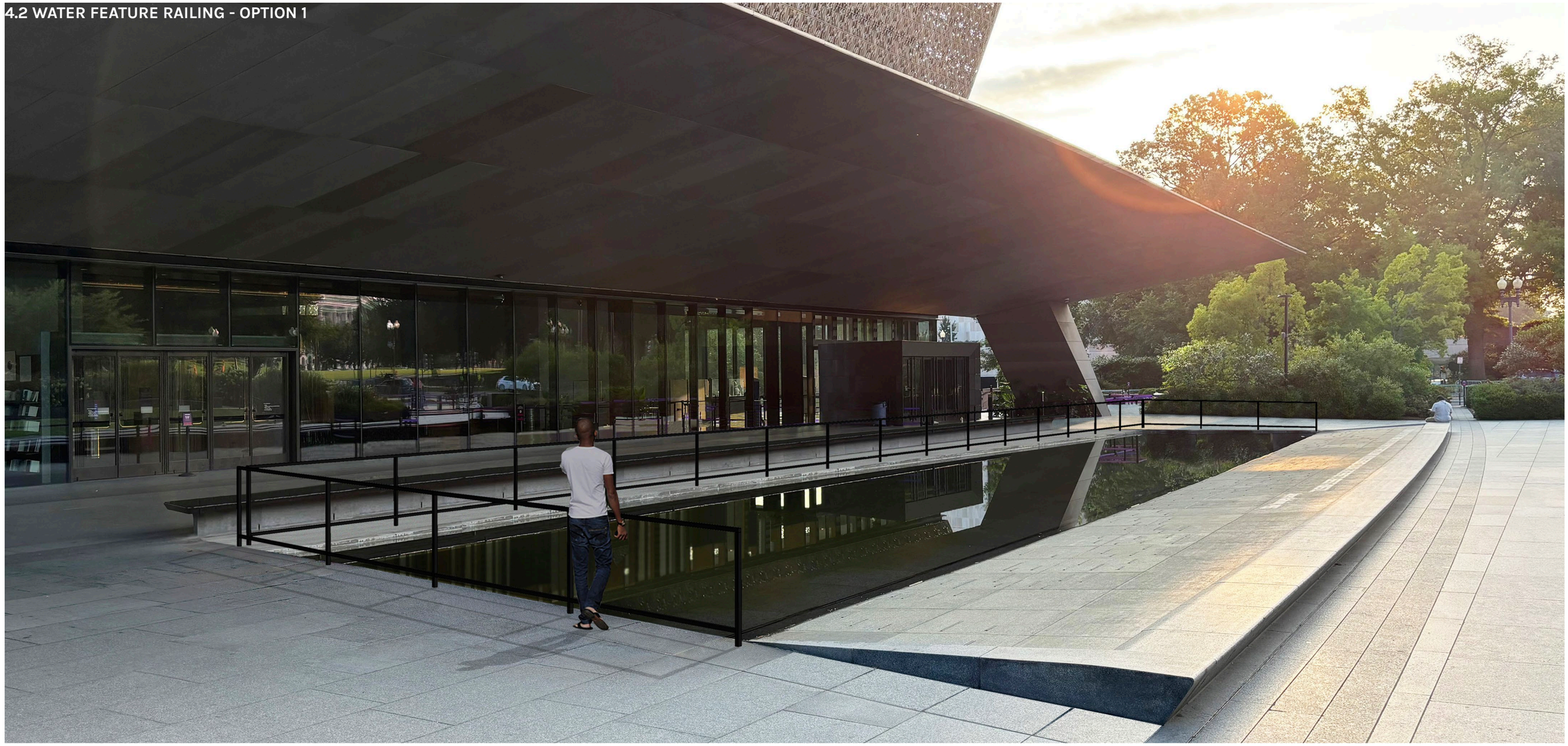


Figure 4.2.9: Rendering of Railing Option 1, 36" high rail only. Shown with existing paving. Paving Options shown in later renderings.

4.2 WATER FEATURE RAILING - OPTION 2

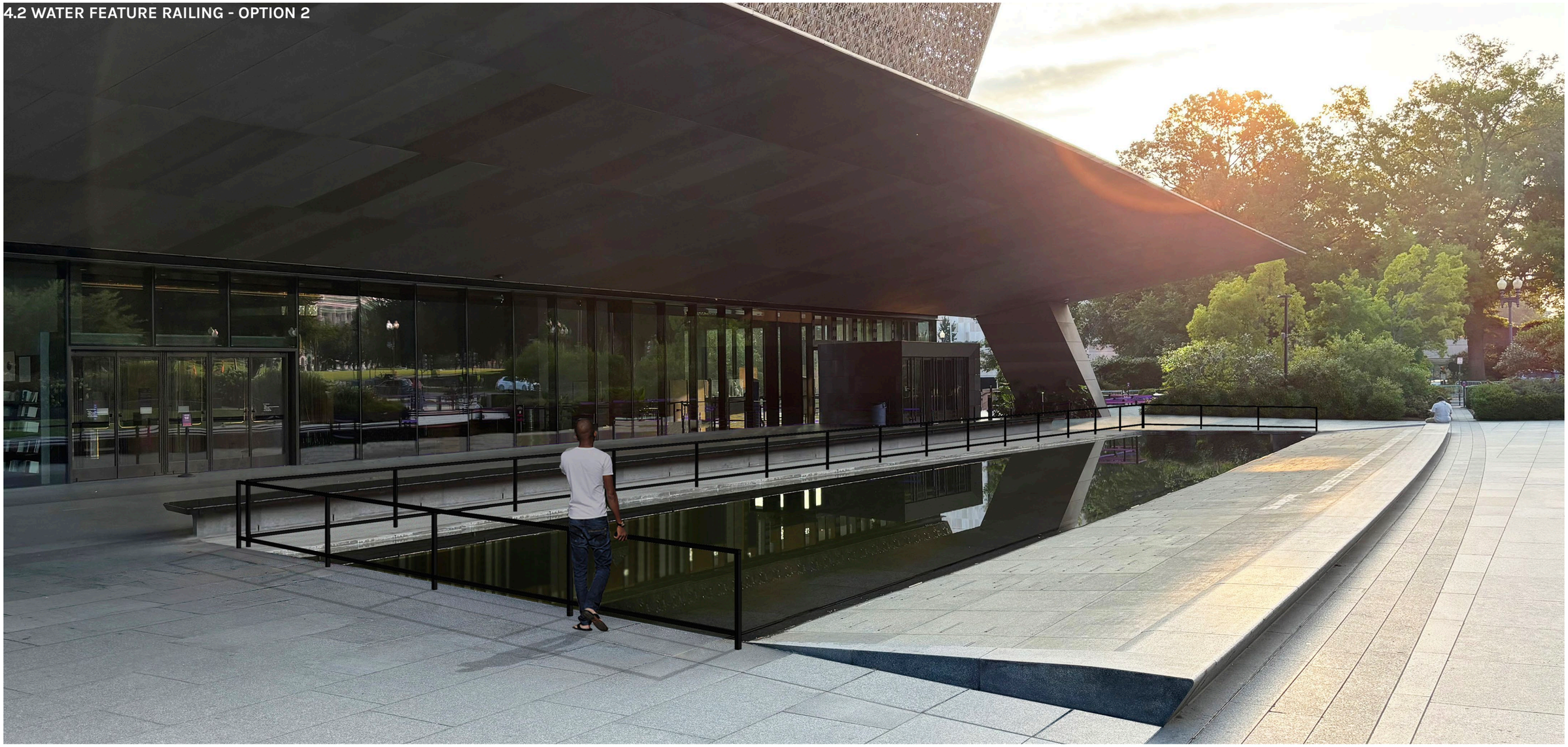


Figure 4.2.10: Rendering of Railing Option 2, 30" high rail only. Shown with existing paving. Paving Options shown in later renderings.

4.2 WATER FEATURE EDGE – PAVING OPTIONS

In addition to the railing, the recommended concept design includes alterations to the paved surface surrounding the Water Feature edge. The intent of this design element is to improve on the original textured ground plane and increase the visual and tactile contrast, providing an additional level of warning of the potential hazard.

This contrasting effect would be achieved through one of two proposed approaches. Option 1 uses a black granite border with raised bands of polished stone inserts, and Option 2 uses a combination of white granite edging and (more) deeply grooved Messabi granite.

The proposed ground plane color contrast and texturing would be more detectable than the current textured paving.

The extent of the paving replacement would be limited to the exiting area of textured paving and is identical in Options 1 and 2.

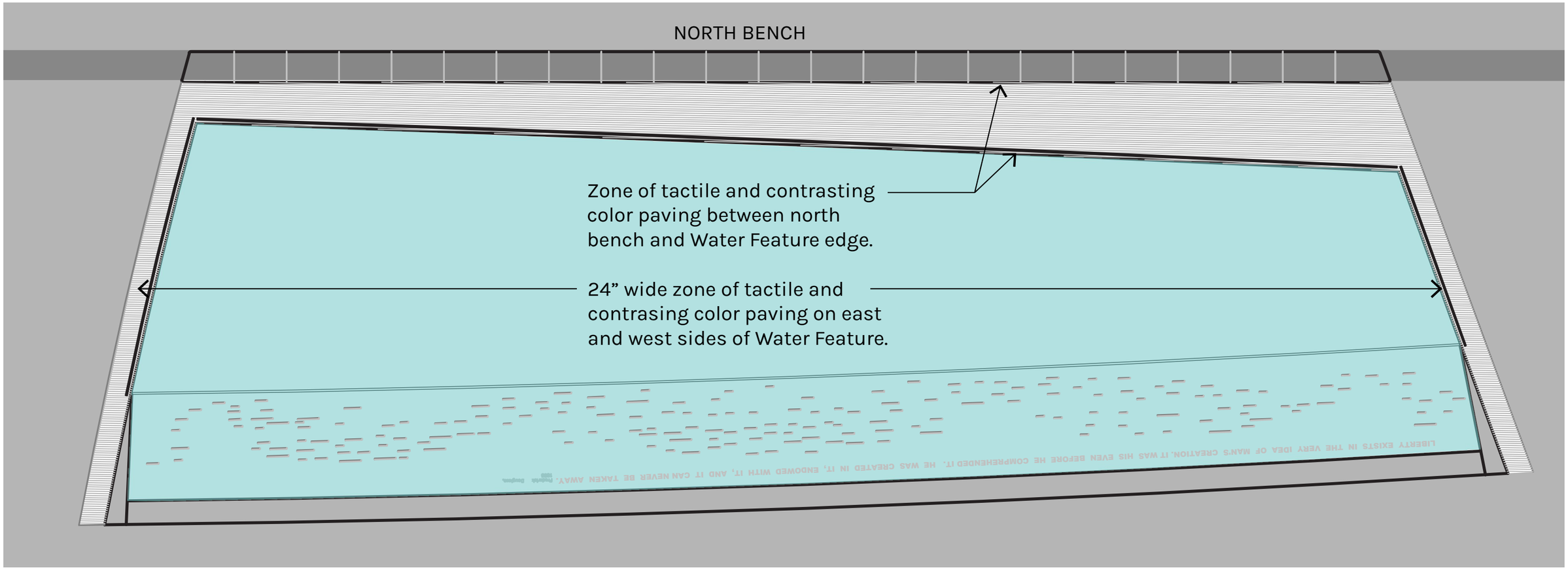


Figure 4.2.11: Site Plan showing extent of proposed paving replacement for paving Option 1 and 2

4.2 WATER FEATURE EDGE – PAVING OPTIONS

The existing textured paving is comprised of 1/8" deep scalloped groves cut into Messabi Black Granite, which is the same gray-like granite used throughout the South Plaza including inside the Water Feature basin. In directions parallel or oblique to the sun (east-west or north facing), the grooves are difficult to detect visually. Only from the south, where shadows are cast into the grooves, is a visual contrast achieved.

One of the challenges contributing to the fall incidents at the Water Feature is the sameness and monochromatic nature of the ground plane, throughout the south plaza.

Visitors are unable to easily distinguish the change in color between the walking surfaces and the Water Feature basin, particularly when the Water Feature is empty.

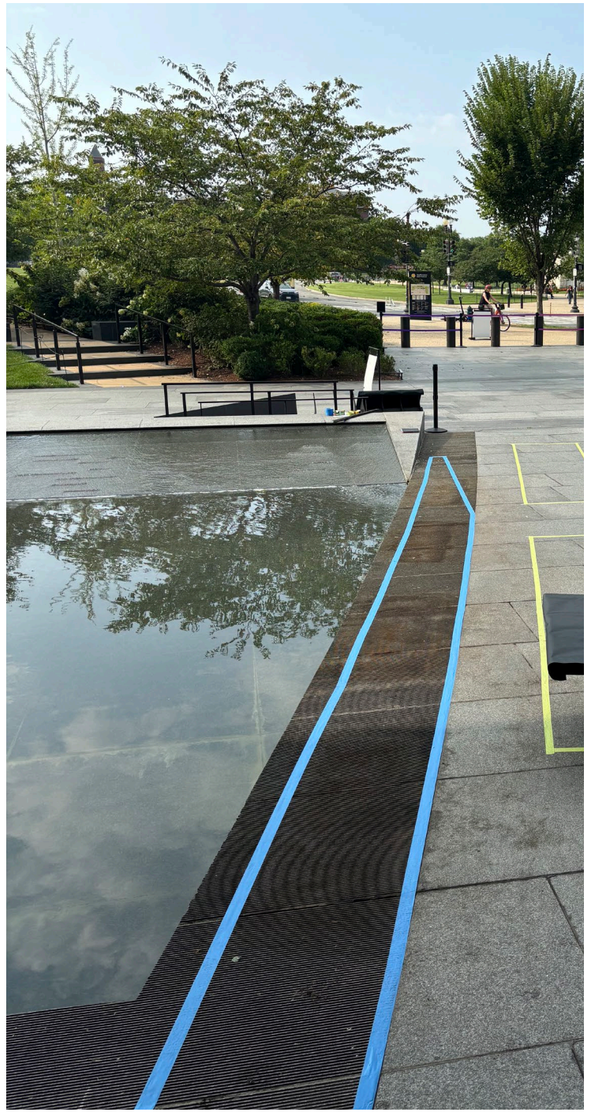


Figure 4.2.12: Existing Textured Paving looking north, south facing grooves



Figure 4.2.13: Existing Textured Paving - viewed from the east, parallel to grooves

4.2 WATER FEATURE EDGE - PAVING OPTION 1

Paving Option 1 proposes to replace the existing grooved paving with a new 24" wide paving area of Cold Spring Black Granite. This new paving would include ¼" raised polished stone inserts running perpendicular to the water's edge to create a textural surface.

The intent of this Option is to use a darker stone to create visual contrast with the surrounding gray granite and supplement that with a detectable surface of modestly raised edges that create irregular shadow lines.

This Option draws inspiration from the sloped portion of the adjacent Water Feature that includes a similar series of offset linear stone inserts.

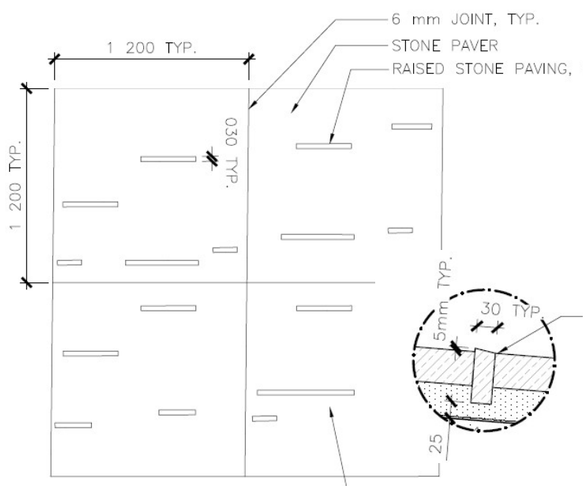


Figure 4.2.15: Existing Water Feature basin detail



Figure 4.2.16: Examples of Cold Spring Black granite used at site walls

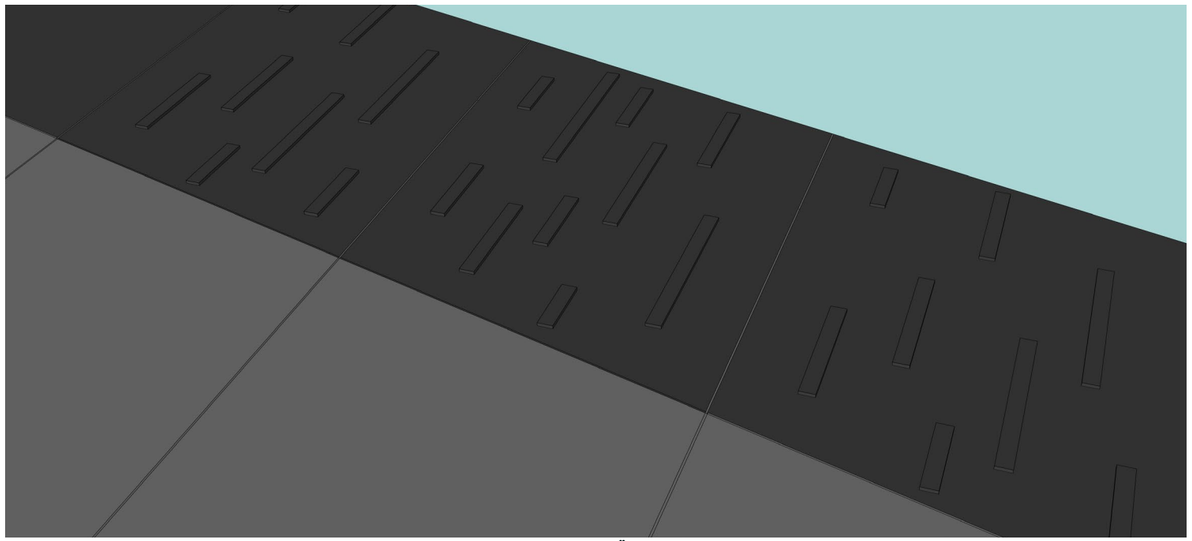
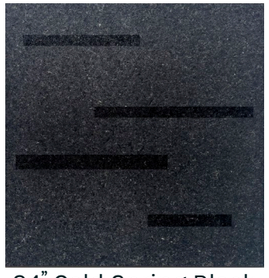


Figure 4.2.14: Paving Option 1 - Detail of 24" textural edge and raised polished stone embeds



Figure 4.2.17: Water Feature sloped surface showing existing stone embeds



24" Cold Spring Black Granite w/embed



Existing Messabi Black Granite



Figure 4.2.18: Rendering of Paving Option 1 with 36" high rail

4.2 WATER FEATURE EDGE - PAVING OPTION 2

Paving Option 2 proposes to replace the existing grooved paving with an 8" wide band of Sierra White Granite against the water's edge, and a 16" wide band of textured Messabi Black Granite (matching existing paving) in the remaining area.

The intent of this option is to limit the amount of new white stone to a minimal band and rely on the contrast between the white and gray materials to achieve the primary desired visual cue at the water's edge. This approach is similar to that of creating a contrasting material at the leading edge of stair treads.

The textured surface of the 16" Messabi Black Granite area would provide a secondary detectable cue. This textured surface would have deeper and wider grooves than the existing with a maximum depth of 3/8" and would be in a pattern perpendicular to the main path of travel.

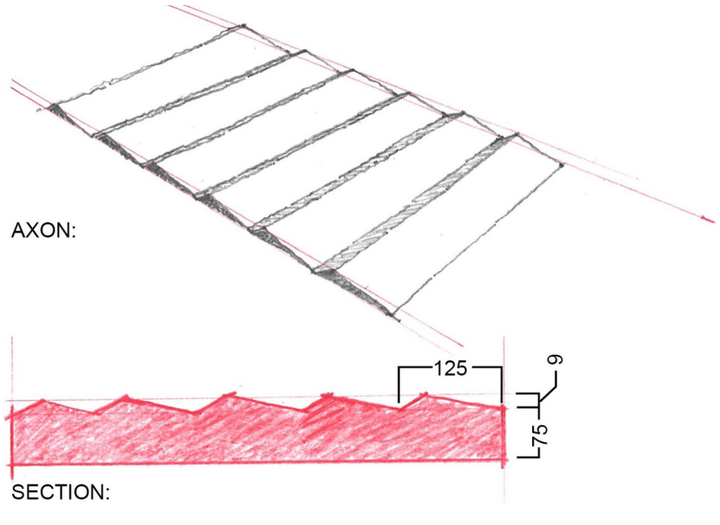


Figure 4.2.20: Textured Groving Example



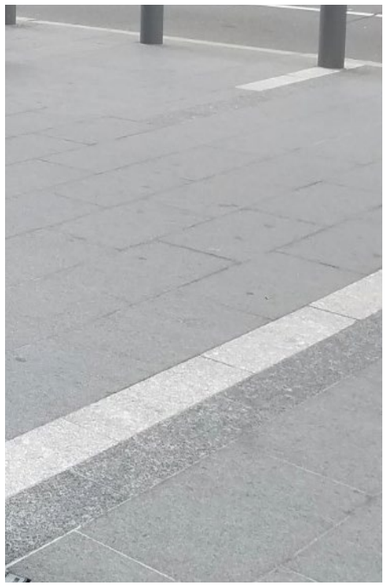


Figure 4.2.19: Examples of Sierra White Granite banding within gray granite paving.

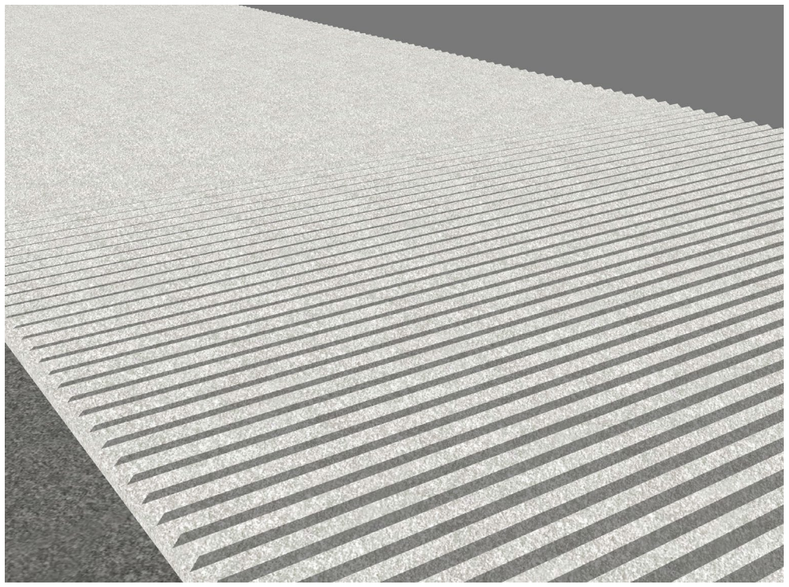


Figure 4.2.21: Textured Groving Example

8” Sierra White
Granite edge



16” Textured Messabi
Black Granite

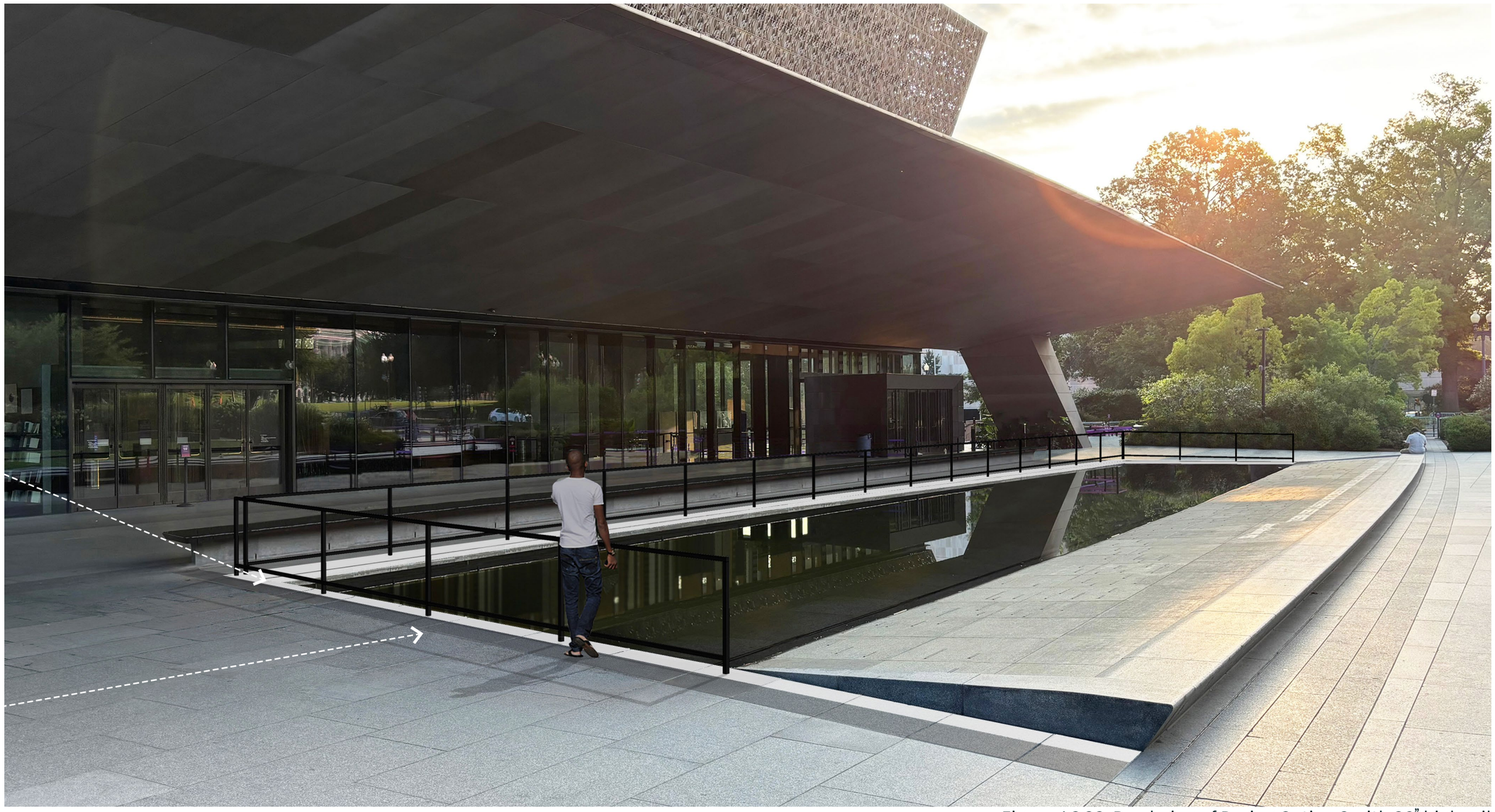


Figure 4.2.22: Rendering of Paving Option 2 with 36” high rail

4.2 WATER FEATURE EDGE - SIGNAGE

To provide an additional layer of visual, sensory, and informational cues warning visitors of the presence of the water feature edge, two types of permanent signage are proposed.

Sign Type 1 - Railing Inscription: This sign is proposed to be a permanent engraved or embossed text on the top of the horizontal railing surface at seven locations around the Water Feature railing. This text would be either an engraving with contrasting color infill (painted), or a raised applied metal.

Sign Type 2 - Paving Plaque: This sign is proposed to be a permanent plaque set into the pavement surface under the railing at seven locations. This plaque would be either an engraved metal or a jetcut granite panel inset flush to the granite paving. Either material would be fabricated of contrasting colors to the adjacent paving.

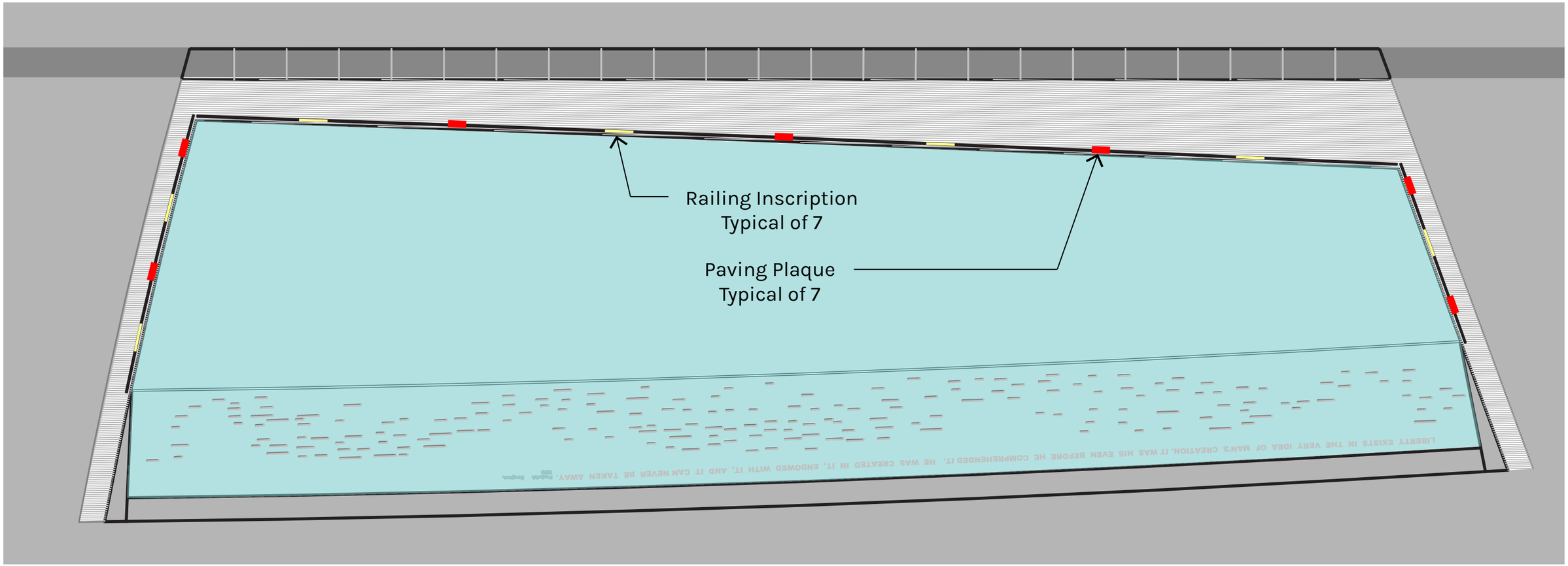


Figure 4.2.23: Site Plan showing location of proposed signage.

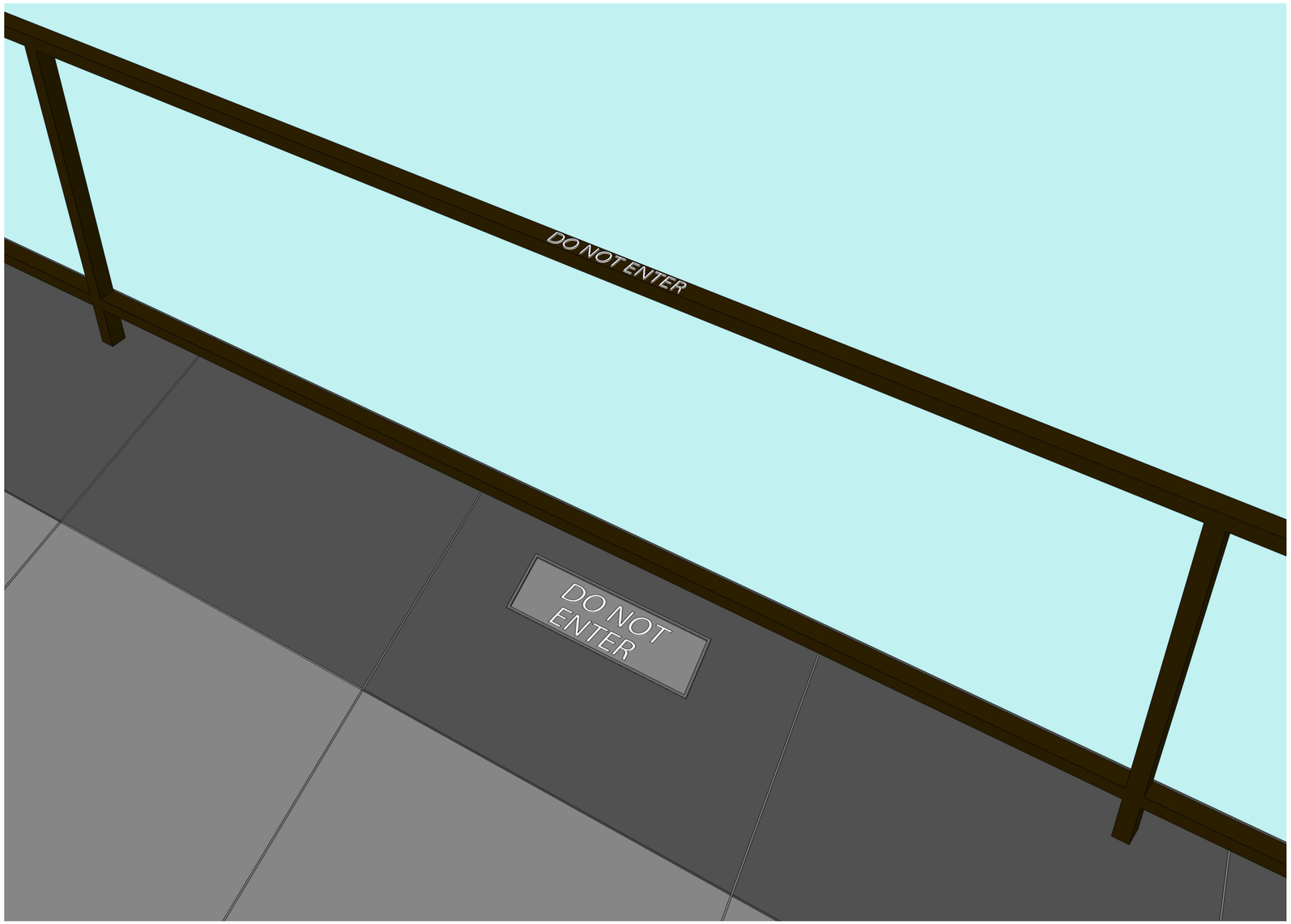


Figure 4.2.24: Rendering of proposed signage, typeface and copy, TBD.



Figure 4.2.25: Example of Sign Type 1 - Railing Inscription



Figure 4.2.26: Example of Sign Type 2 - Paving Plaque

4.3 CANOPY LIGHTS – ABOVE GROUND OPTIONS

SmithGroup initially explored replacement options for the existing in-ground Canopy lights, however, as concerns over water infiltration from below-grade sources were realized, maintenance concerns increased, and watertight solutions became ever more complex, a reasonable in ground solution was dismissed.

The Design Team turned to the exploration of above-ground lighting solutions to illuminate the Porch Canopy in a manner similar to the original design. It was determined that the most optimal position and angle for lighting the Canopy was from the south, aligned square to the Canopy and as low as possible to light in an upward direction.

A lighting mockup was conducted in July to evaluate multiple approaches for illuminating the architectural canopy while minimizing glare and light spill.

Floodlights were positioned along the landscape bench approximately 70 feet in front of the canopy, and aimed back toward the canopy at roughly 10 degrees upward. The objective was to achieve an even illumination of the canopy while minimizing:

- Glare for occupants beneath the canopy
- Light spill onto the adjacent building facade
- Visible reflections of the luminaires in the building's glass façade
- Minimal visual impact during the day

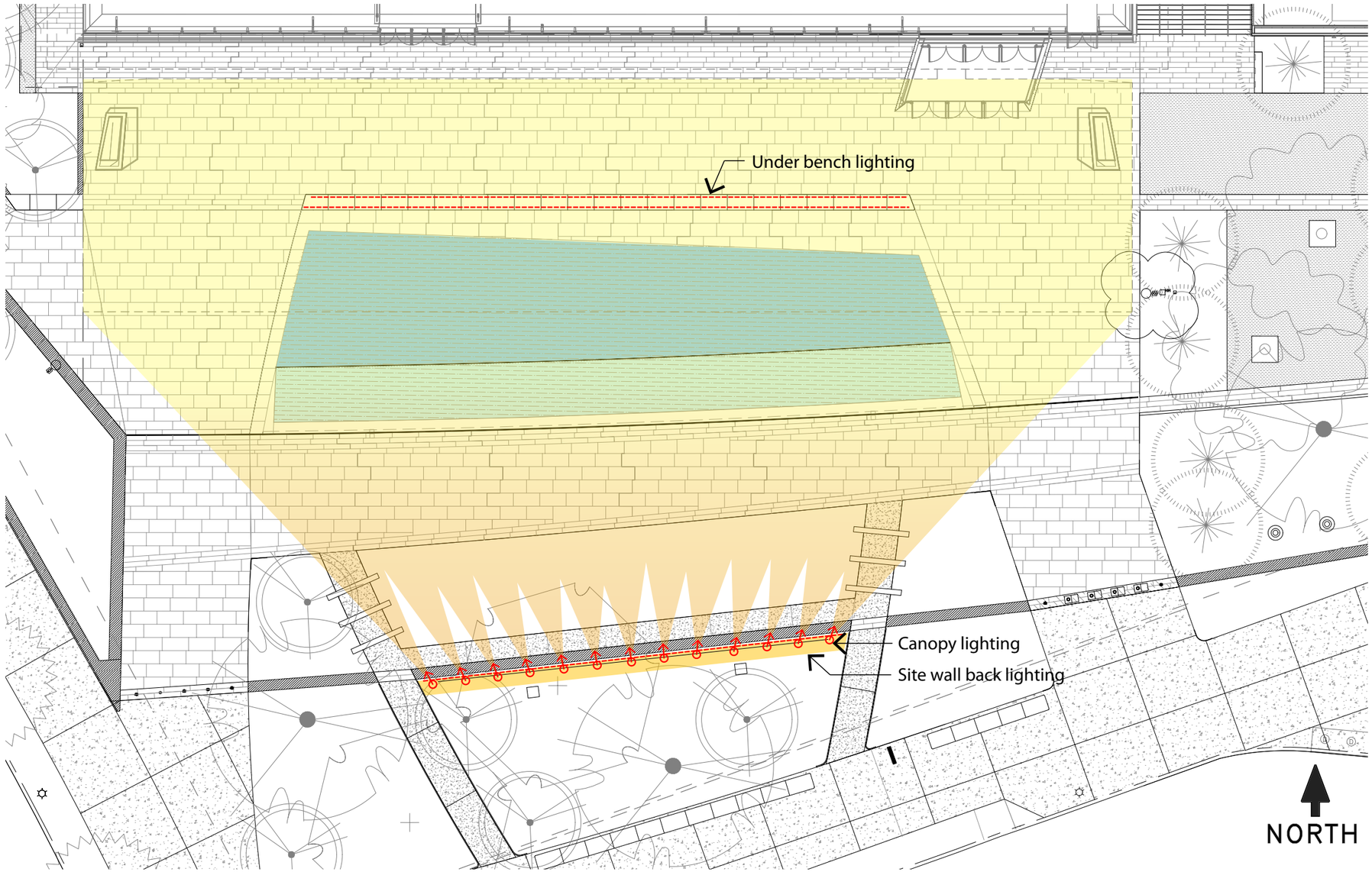


Figure 4.3.1: Site Plan showing location of proposed Canopy and underbench lighting

Proposed here are two above-ground options. Both would position individual light fixtures on posts mounted behind the south site security wall, at the height of the wall, and in front of planting. This position is generally out of view of the public and at the edge of the occupiable landscape. There would be approximately thirteen (13) total light fixtures for the Canopy.

Option 1 is for a framing projector light fixture that is capable of a controllable focused beam of light but has limits on intensity of light over the distance of the south plaza.

Option 2 is for a floodlight fixture that has less beam control but is capable of greater light intensity than the framing projector.

Both Options are proposed to be supplemented with a downlight system to illuminate the area under the North Bench, and an uplight system to illuminate the space behind the South security wall and planting area.

All light options will be mocked up at the future 11/2/26 meeting.



Figure 4.3.2: Photo of South Security wall where Canopy lights are proposed to be mounted.



Figure 4.3.3: Photo detail of site wall and planting

4.3 CANOPY LIGHTS - OPTION 1

FRAMING PROJECTOR

Option 1 proposes an array of ERCO framing projectors, which utilize internal framing shutters (baffles) to sharply control the beam shape. This allows light to be directed onto the Canopy and limit spillage to the Corona beyond, while effectively eliminating glare for occupants beneath the Canopy through the precise beam cutoff.

This Option offers excellent glare control, soft beam edges, limited light spillage beyond the Canopy, and reduced reflected glare from the building glass. It is also the most favorable Option from a maintenance and adjustability standpoint offering excellent field adjustment capabilities.

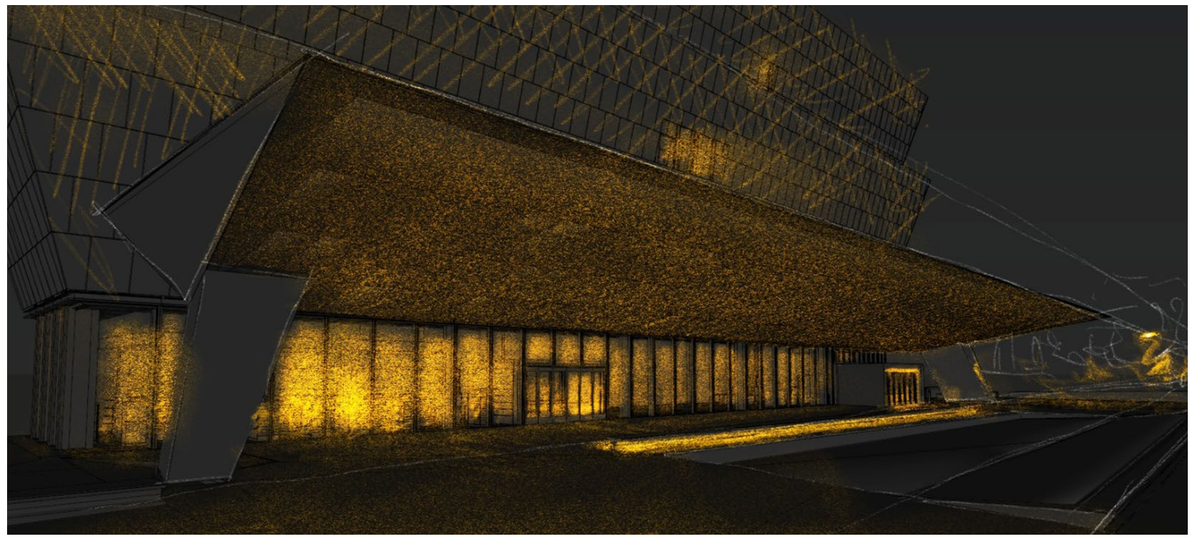


Figure 4.3.4: Rendering of anticipated effect of Option 1 fixtures.



Figure 4.3.5: Option 1 Fixture - ERCO Large Framing Projector

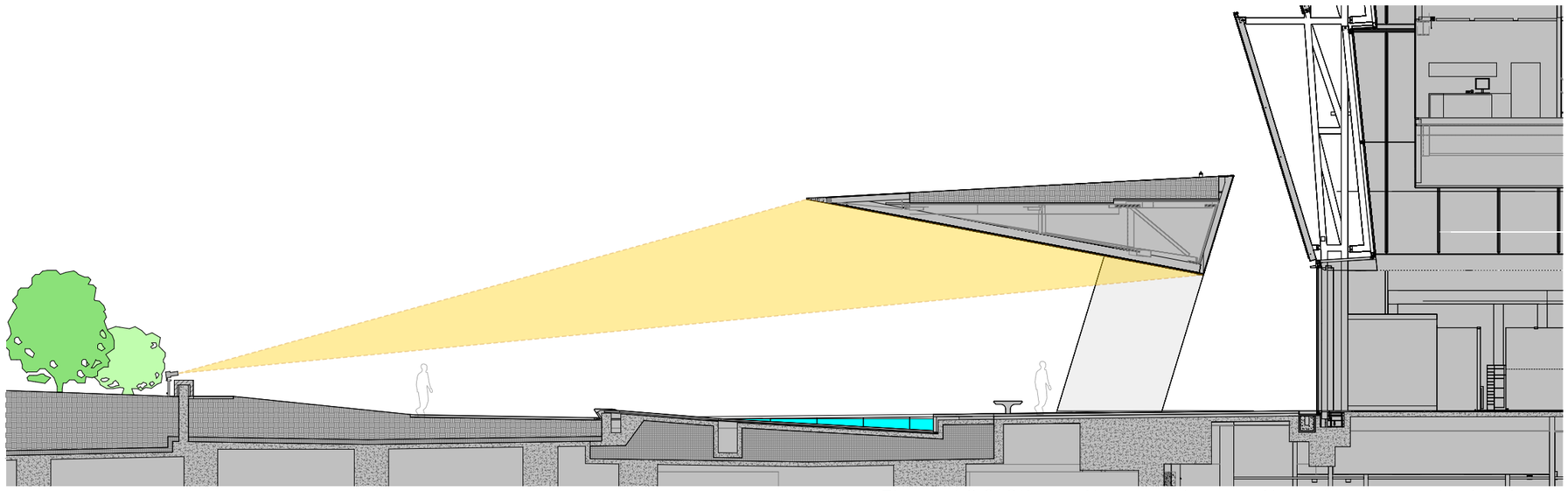


Figure 4.3.6: Site section showing location of proposed light fixtures.

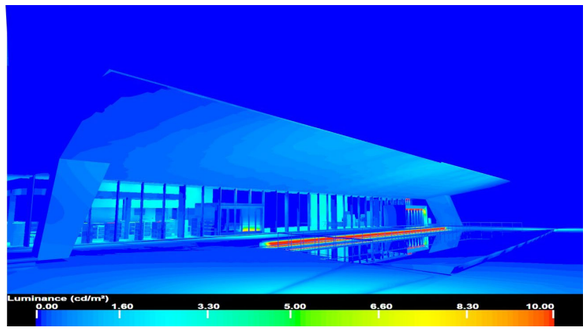


Figure 4.3.7: Photometric Study - Option 1



Figure 4.3.8: View of fixture from building.

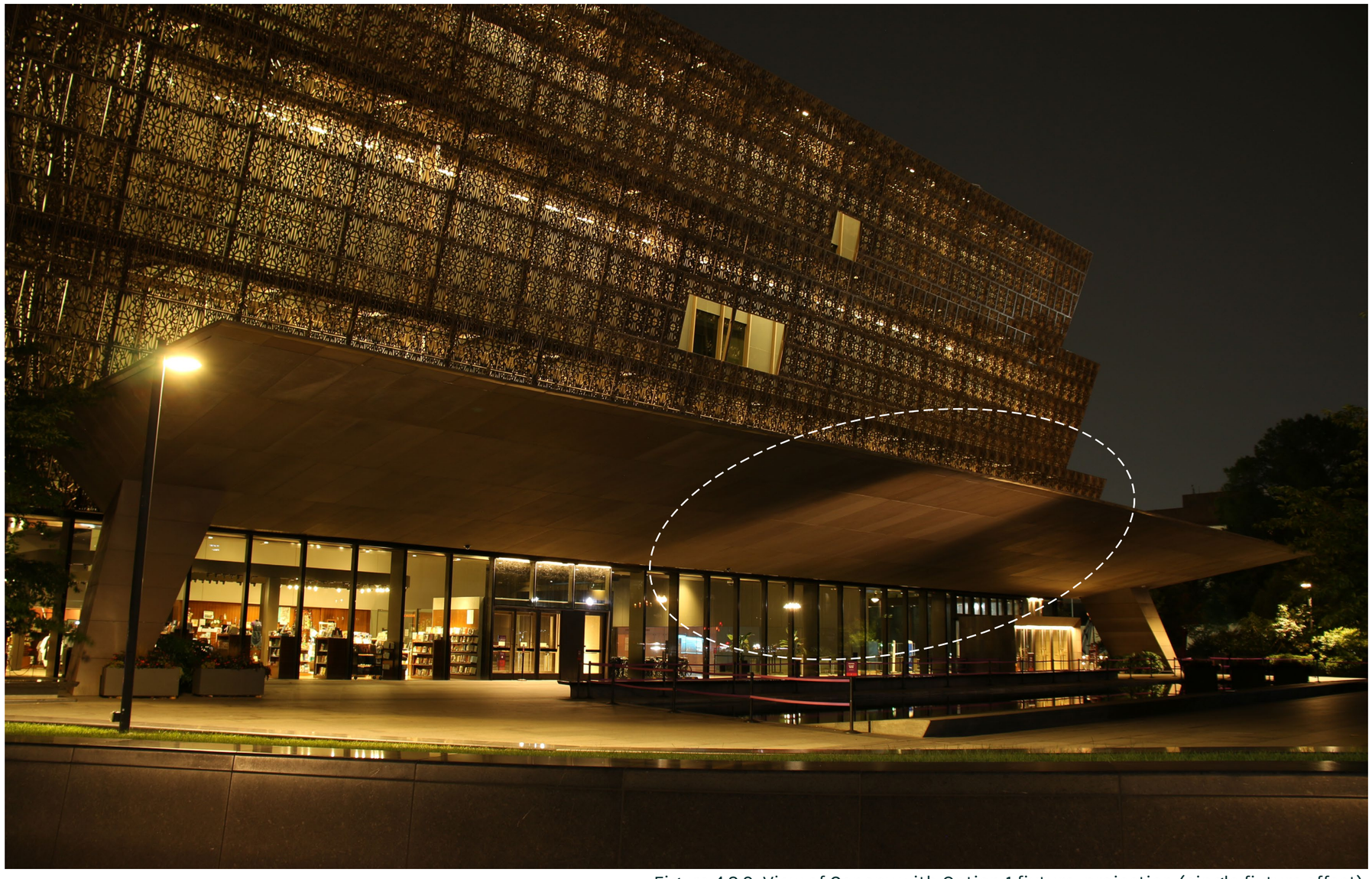


Figure 4.3.9: View of Canopy with Option 1 fixture projection (single fixture effect).

4.3 CANOPY LIGHTS - OPTION 2

FLOODLIGHT

Option 2 proposes an array of ERCO Beamer Floodlights with a linear spread lens and deep baffles. This fixture combines a linear spread distribution with a significantly deeper baffle intended to improve glare control.

This Option offers an attractive diffuse lighting effect on the Canopy and has the potential for fewer total fixtures. However, this Option does not eliminate glare to occupants beneath the canopy and reflections in the building glass are more noticeable than Option 1. In addition, some light spill is visible onto the building façade beyond.

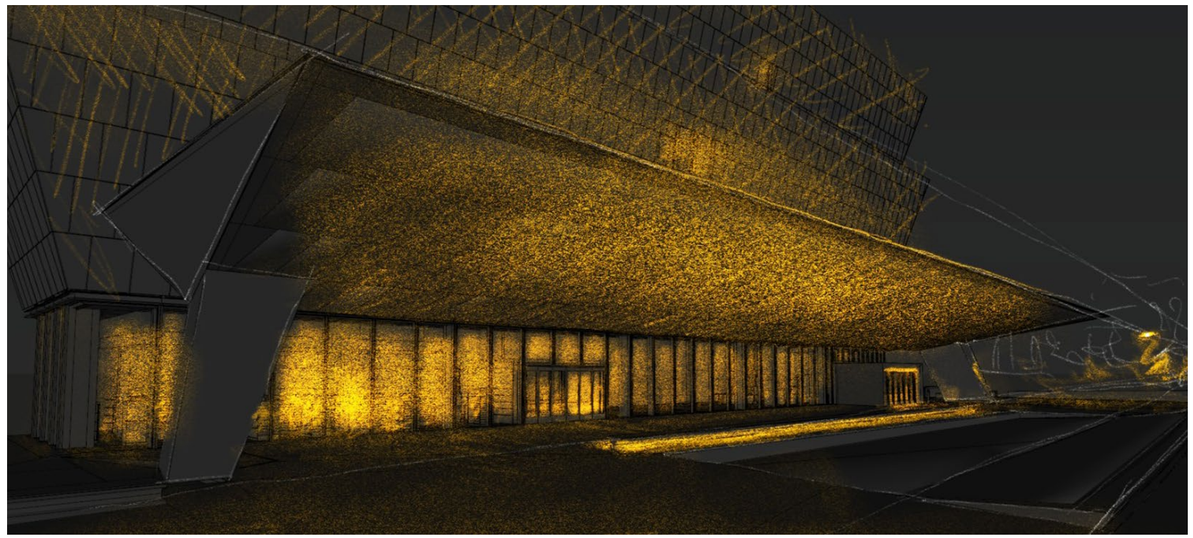


Figure 4.3.10: Rendering of anticipated effect of Option 2 fixtures.



Figure 4.3.11: Option 2 Fixture - ERCO Beamer Large Spotlight

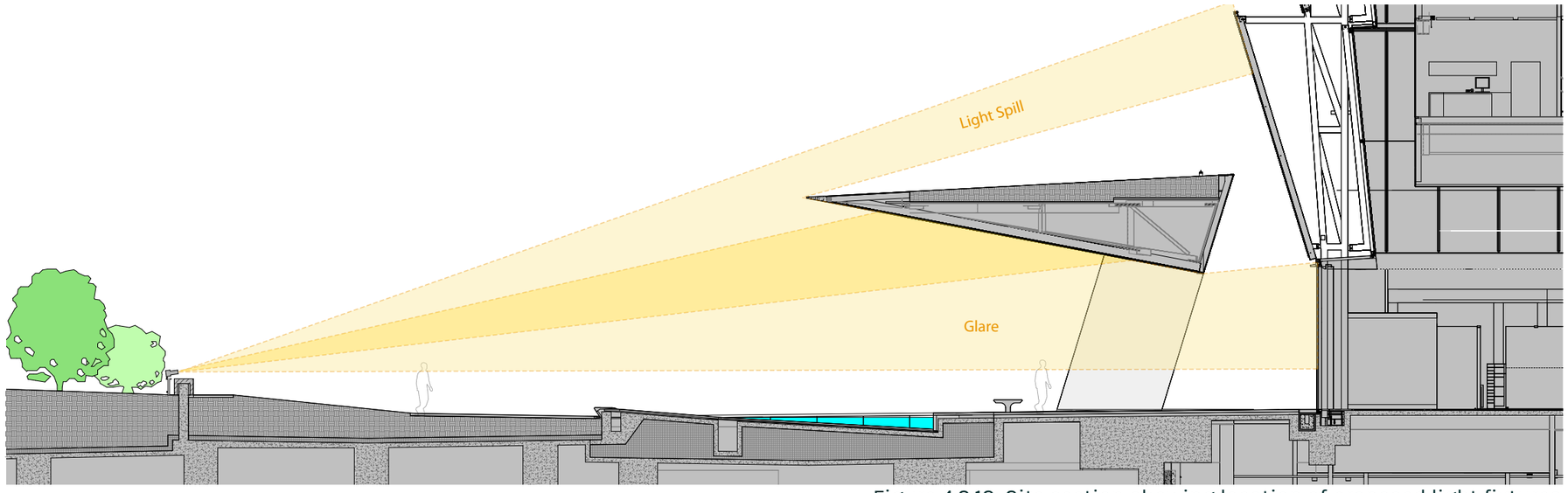


Figure 4.3.12: Site section showing location of proposed light fixtures.

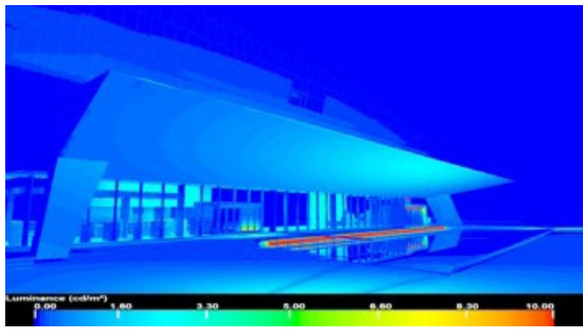


Figure 4.3.13: Photometric Study - Option 1



Figure 4.3.14: View of fixture from building.



Figure 4.3.15: View of Canopy with Option 2 fixture projection (single fixture effect).

4.3 UNDER BENCH LIGHTING

The intent of this proposed lighting component is to improve visibility at the South Plaza ground plane during evening events, and create an additional visual cue to presence of the Water Feature edge.

At the 4/24/25 meeting with Agency Staff, the Design Team provided three different internal light louver options to shield the fixture from glare and reflections when viewed across the water. Even the most effective louver still produced some glare and reflection.

To address this concern further, the Design Team has developed an aluminum angle detail to be placed between the fixture and bench edge in hopes of further shielding the fixture from direct view. A sample of this shield feature and it's effectiveness will be viewed at the 11/2/26 lighting mock up.



Figure 4.3.17: Photo of under bench lighting - building site

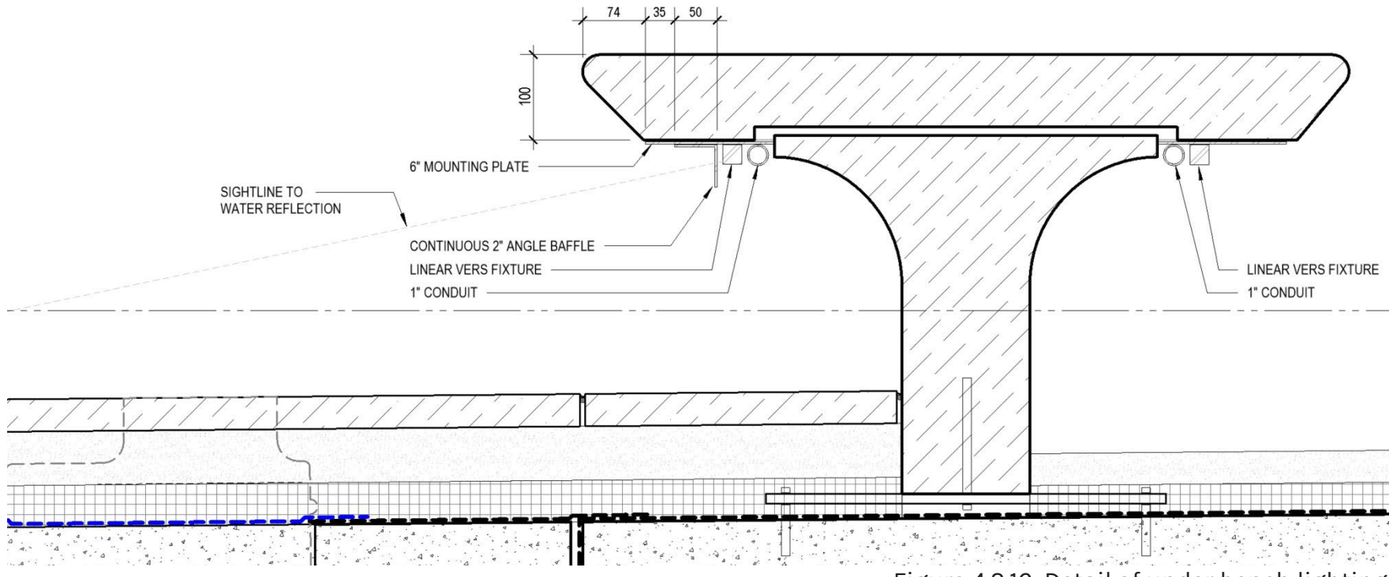


Figure 4.3.16: Detail of under bench lighting

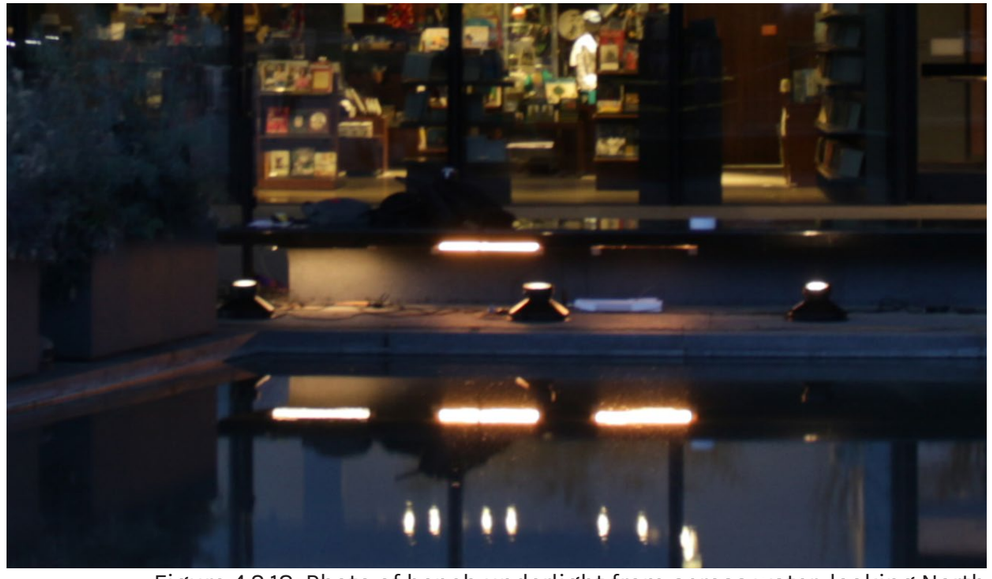


Figure 4.3.18: Photo of bench underlight from across water, looking North

4.3 BACK LIGHT AT SOUTH SECURITY WALL

During the lighting mock up on 7/14/26, a concern was expressed by Smithsonian staff about the general darkness of the area behind the south security wall where the proposed Canopy lights would be installed. It was noted that this area is often not visible at night from the interior guard positions, nor Porch cameras, and Security must routinely inspect this area for concealed individuals.

The SmithGroup team suggested placing an indirect uplight behind the security wall to minimally illuminate this area and provide a backdrop to the Canopy lights. Such a unit could be mounted to the back of the security wall or on the Canopy light mounting poles. As an example, during the 7/14/26 mock up, the linear fixture proposed for the bench downlight was placed at the base of the wall to demonstrate the suggested effect (see photo at right). The linear fixture was successful at providing a modest amount of illumination behind the wall and had the added benefit of mitigating the amount of perceived glare from the Canopy fixtures.

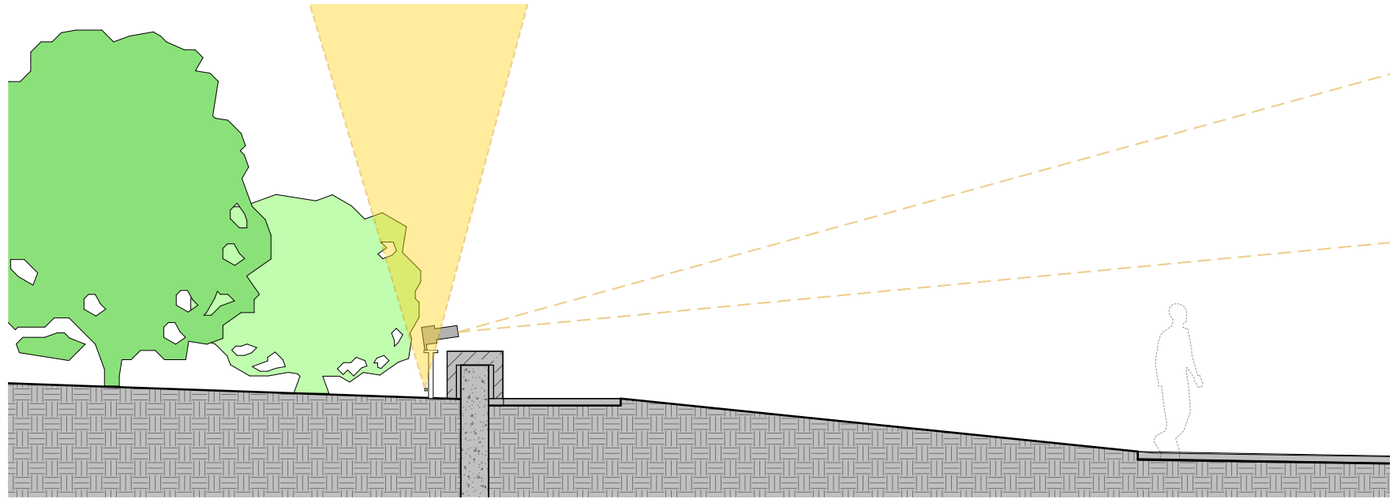


Figure 4.3.19: Section showing location of proposed uplight behind security wall

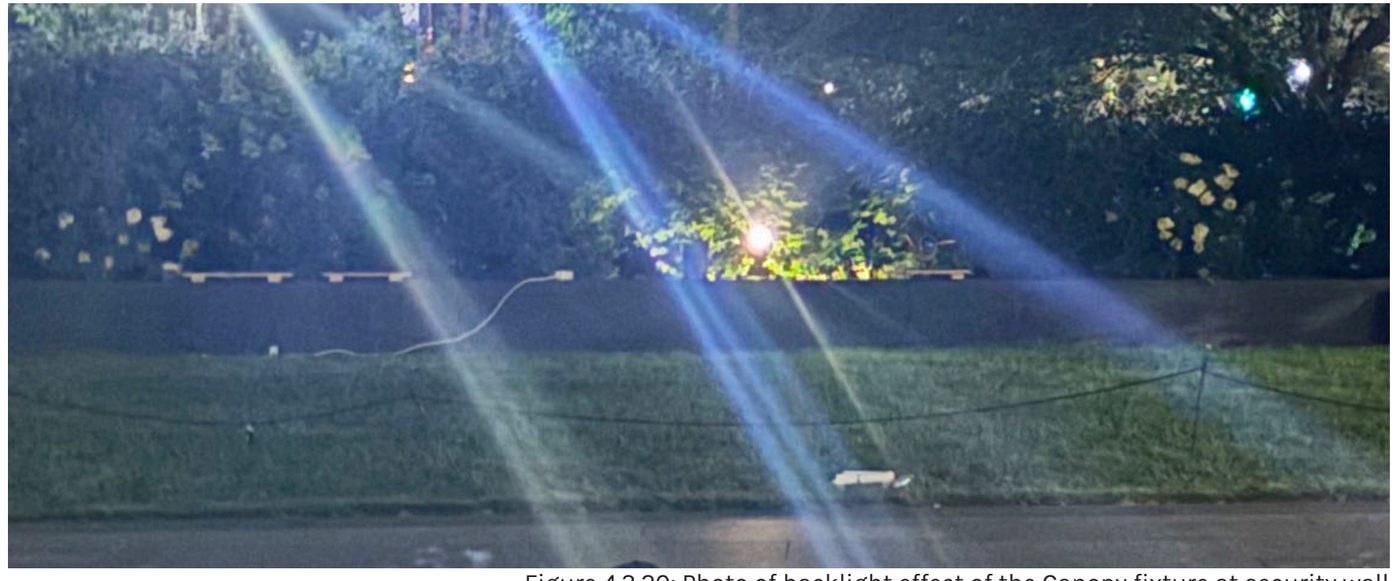


Figure 4.3.20: Photo of backlight effect of the Canopy fixture at security wall

4.4 PREVIOUS ALTERNATIVES CONSIDERED

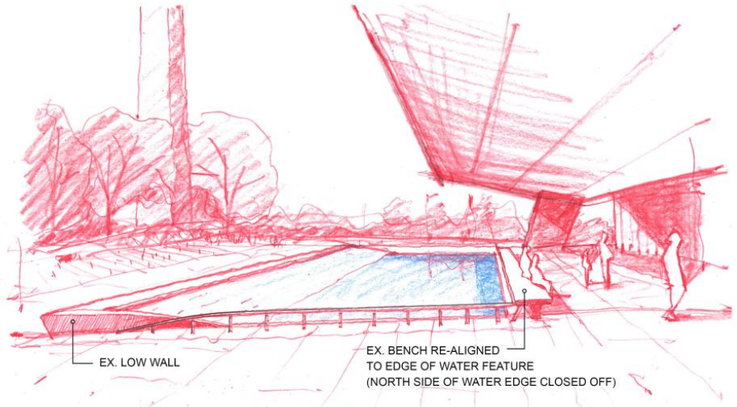
WATER FEATURE EDGE OPTIONS CONSIDERED

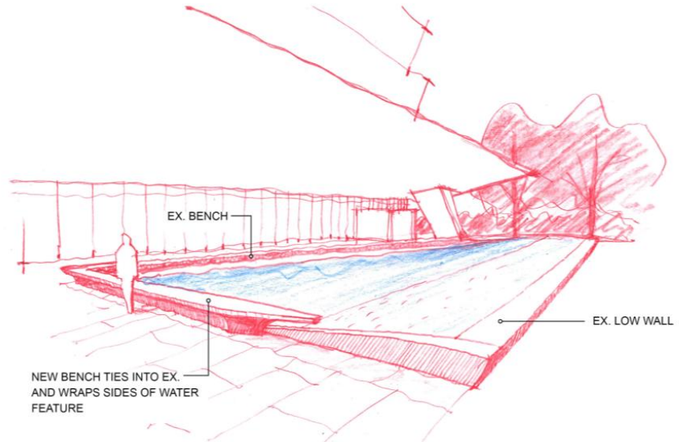
Prior to meetings with Agency Staff, options were explored that investigated conceptual approaches to deterrent elements at the Water Feature edge.

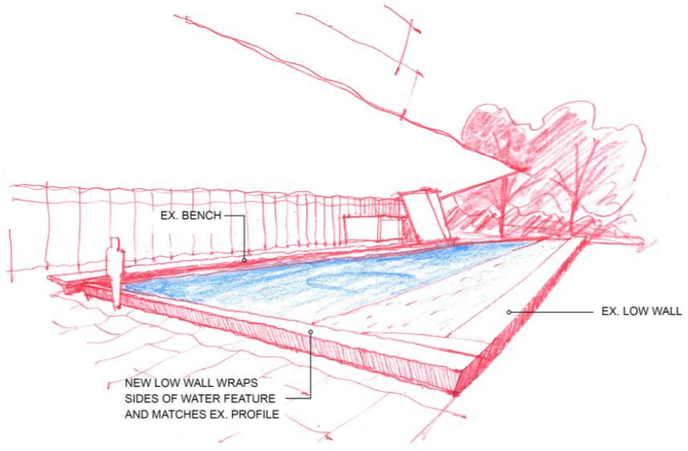
These options included low curbs and rails, planters, benches and folds in the plaza surface.

Some options were dismissed due to maintenance implications and/or insufficient level of deterrent or hazard notification.

A summary of these alternate options was presented at the 1/30/25 Agency Staff meeting.







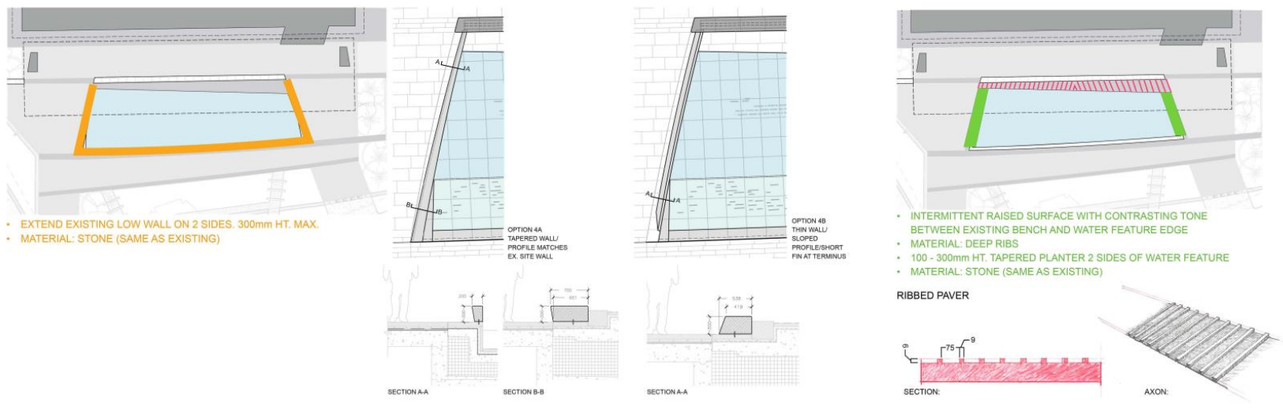
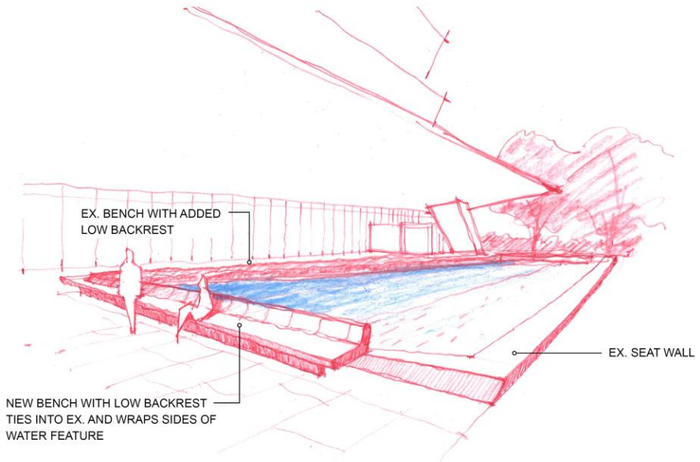
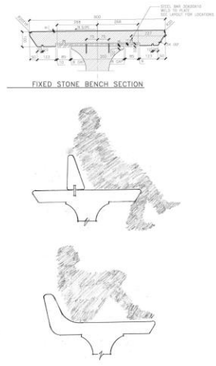
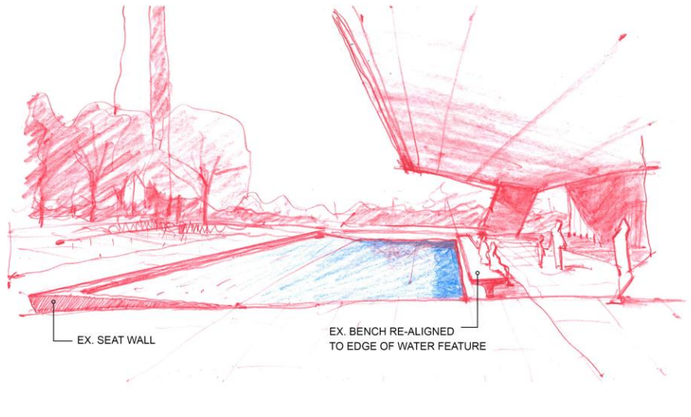
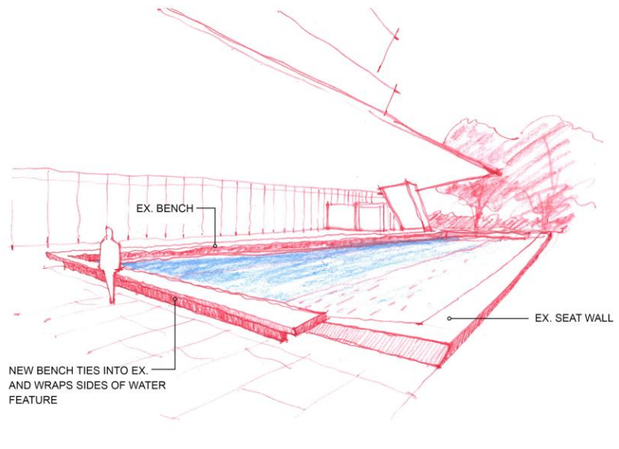


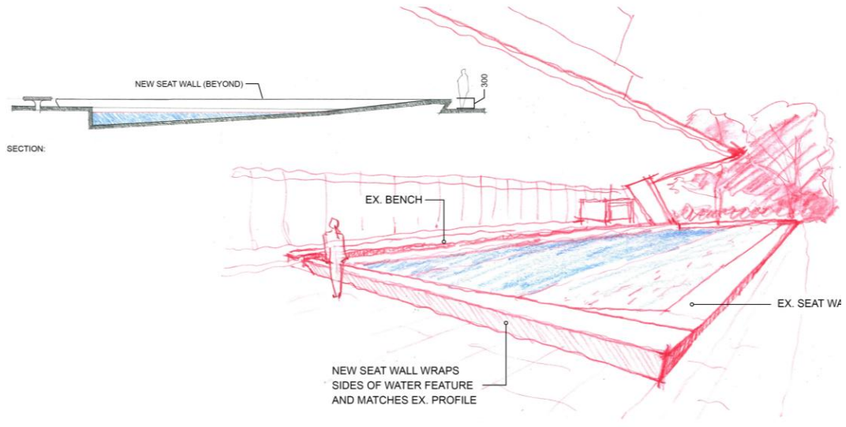
Figure 4.4.1: Options considered prior to 1/30/25 meeting with Agency Staff

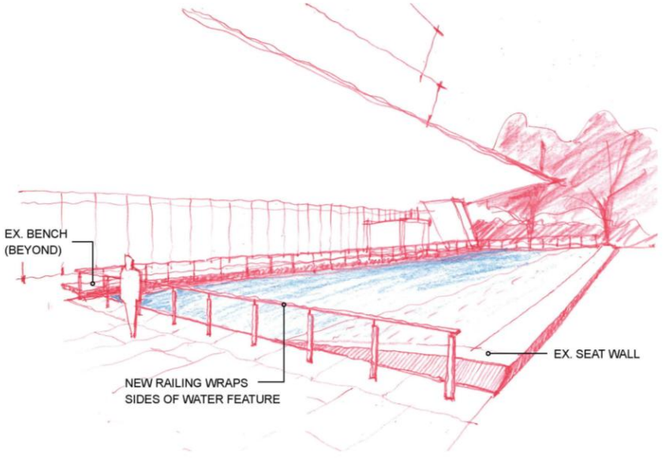












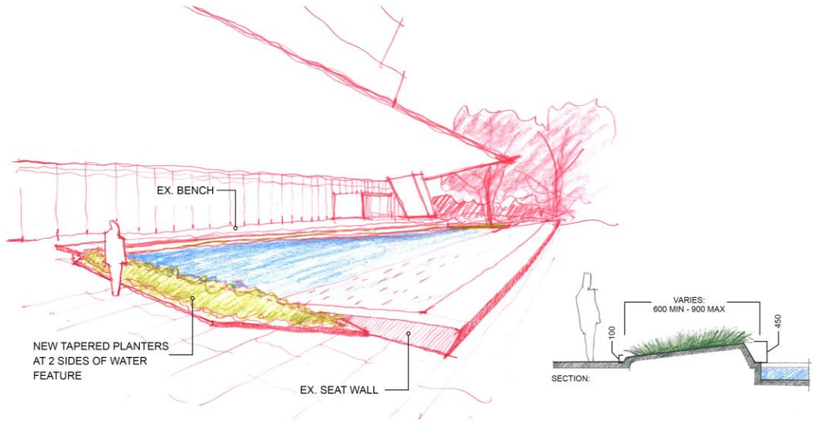


Figure 4.4.2: Options considered prior to 1/30/25 meeting with Agency Staff

4.4 PREVIOUS ALTERNATIVES CONSIDERED

At the Agency Staff meeting of 1/30/25 several options were mocked-up for discussion:

OPTION 1 - RAILING (AT 18", 24" AND 30" HEIGHTS)

OPTION 2 - LOW BENCH

At this meeting, the Low Bench Option was dismissed due to insufficient level of deterrent, and the requirements for an accessible bench back presenting a significant visual impediment to the Water Feature.

Among the railing options, there was general support for the 24" rail as the preferred solution by the Agency Staff.

The 18" rail was deemed too low and might present an additional tripping hazard.

The 30" rail, while acceptable, was less preferred than the 24" rail.

The Design team was asked to further investigate low curb design options, provide alternate material options and profiles, and additional renderings for the railing.



Figure 4.4.3: Railing Options presented at the 1/30/25 meeting with Agency Staff

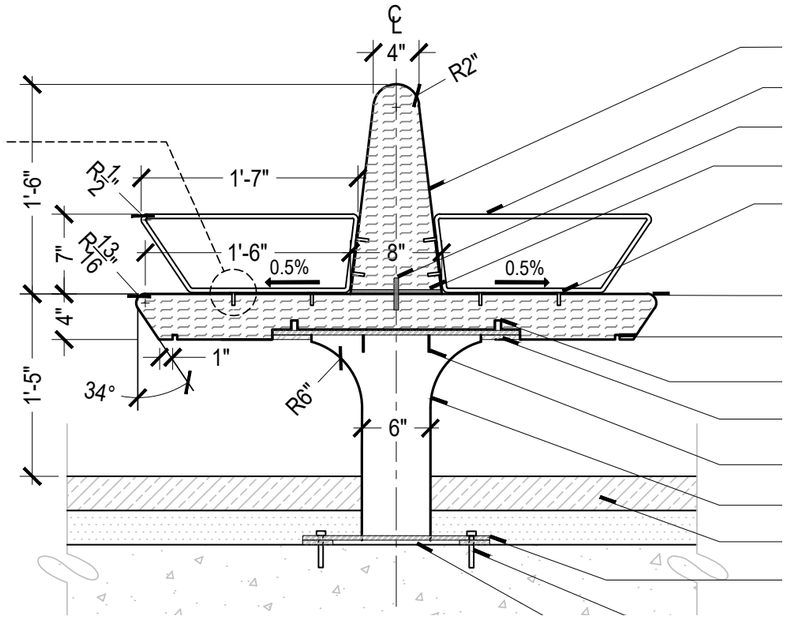


Figure 4.4.4: Option 2 Low Bench - Section Detail with back



Figure 4.4.5: Option 2 Low Bench Alt - Mock Up



Figure 4.4.6: Option 2 Low Bench - Mock Up

4.4 PREVIOUS ALTERNATIVES CONSIDERED

In response to the viewing of the mock ups on 1/30/25, the Design team provided additional renderings on 3/21/25, as requested.

These renderings included the following:

- A view of the baseline option 30" railing looking South across the bench.
- A view of the baseline option 30" looking from the east to west.
- A view showing an alternate material (stainless steel) and profile (ellipse).
- A view of a low curb similar to the World War I memorial.



Figure 4.4.7: Baseline view, 30" rail, looking South



Figure 4.4.8: Baseline view, 30" rail, looking west

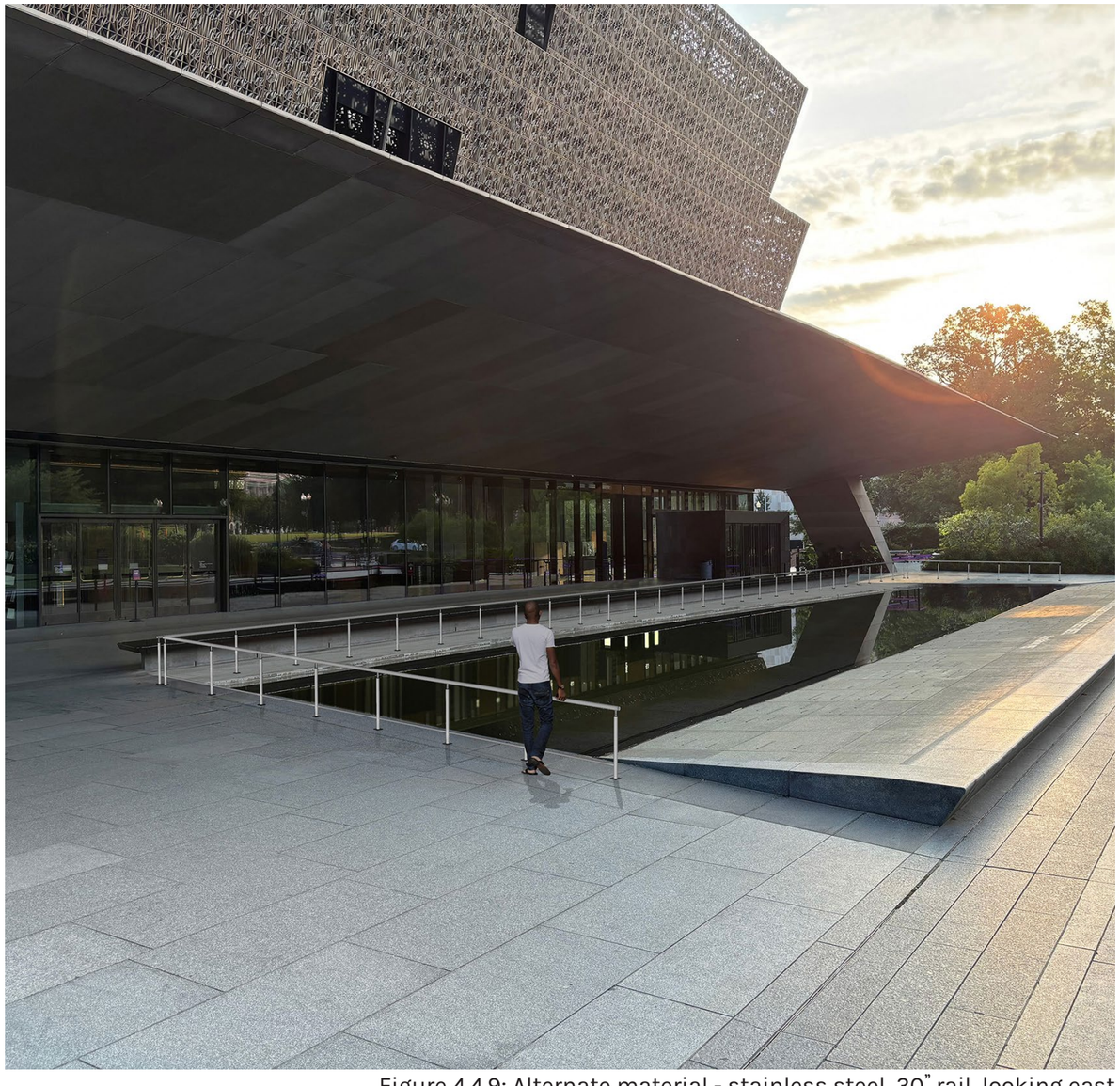


Figure 4.4.9: Alternate material - stainless steel, 30” rail, looking east



Figure 4.4.10: Low curb option, looking east

4.4 PREVIOUS ALTERNATIVES CONSIDERED

Upon further review with Smithsonian Risk Management and OSHEM, the Design team was asked to study options that presented additional protection for visitors to the potential hazard of falling into the Water Feature.

The team was asked to investigate three new alternatives for consideration.

The team was also asked to investigate options for textured paving and tactile warning surfaces to be placed around the Water Feature edge.

The design Options considered were:

A 24" railing Option set back from the water edge by 24",

A 24" tall low wall option set back from the water's edge by 24".

A 30" high stone pilaster with 24" high rail between.

Note: all Options are located on the East and West sides only, to deter access to the space between the north bench and Water Feature.

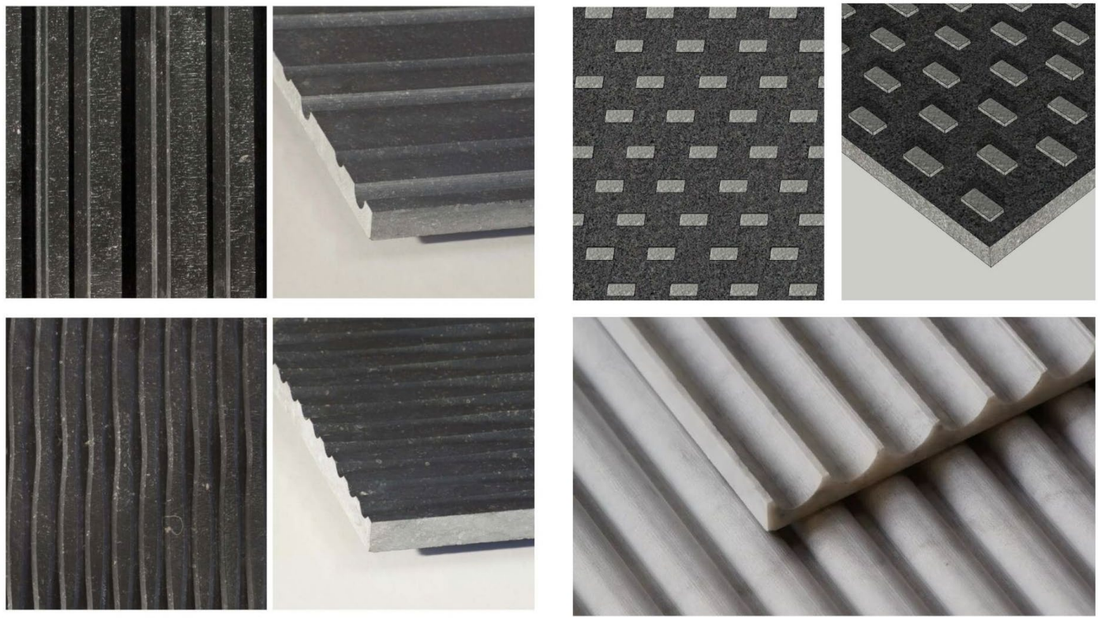


Figure 4.4.11: Textured paving studies

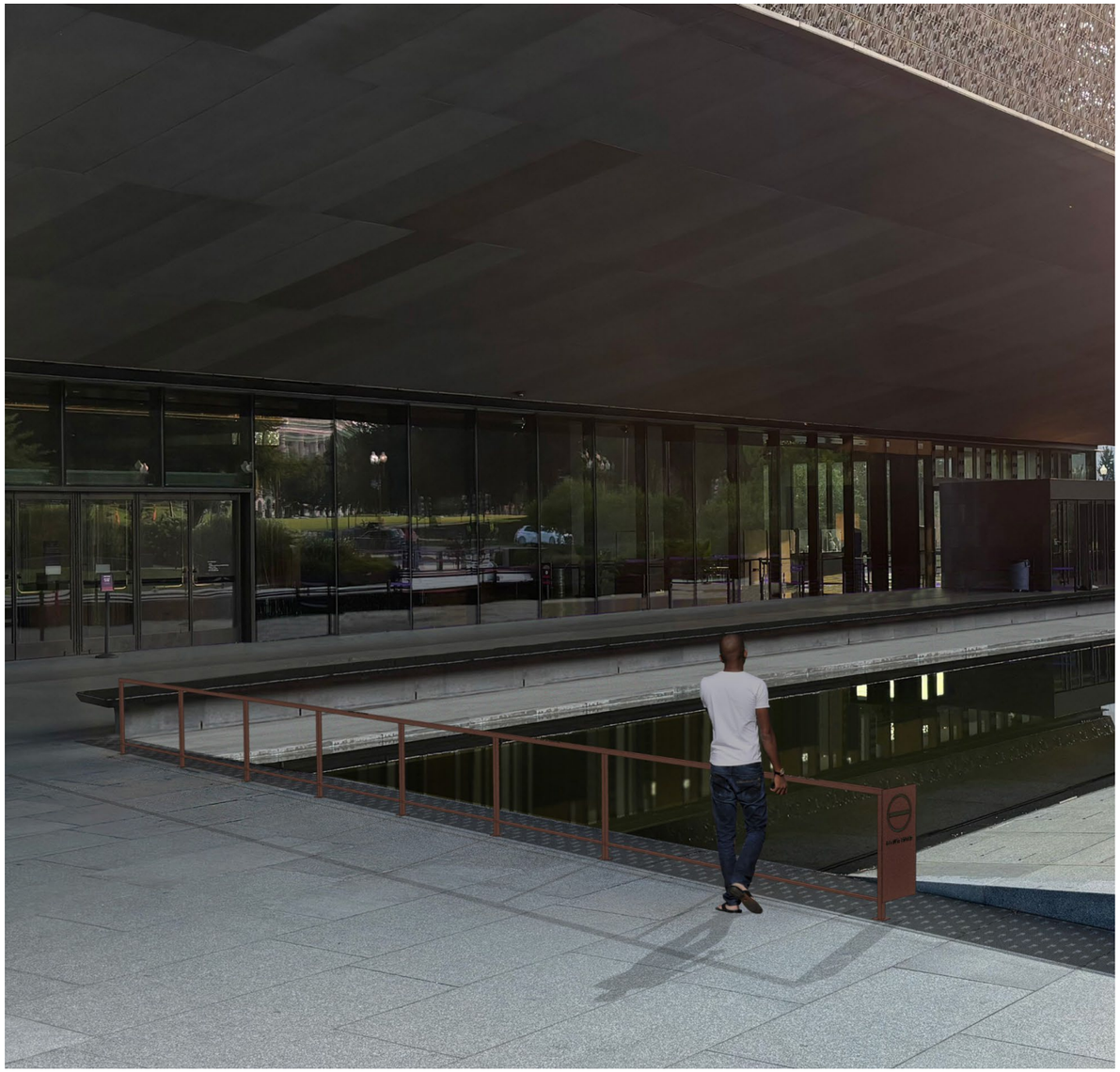


Figure 4.4.12: Railing Option - E/W sides only, set back 24"

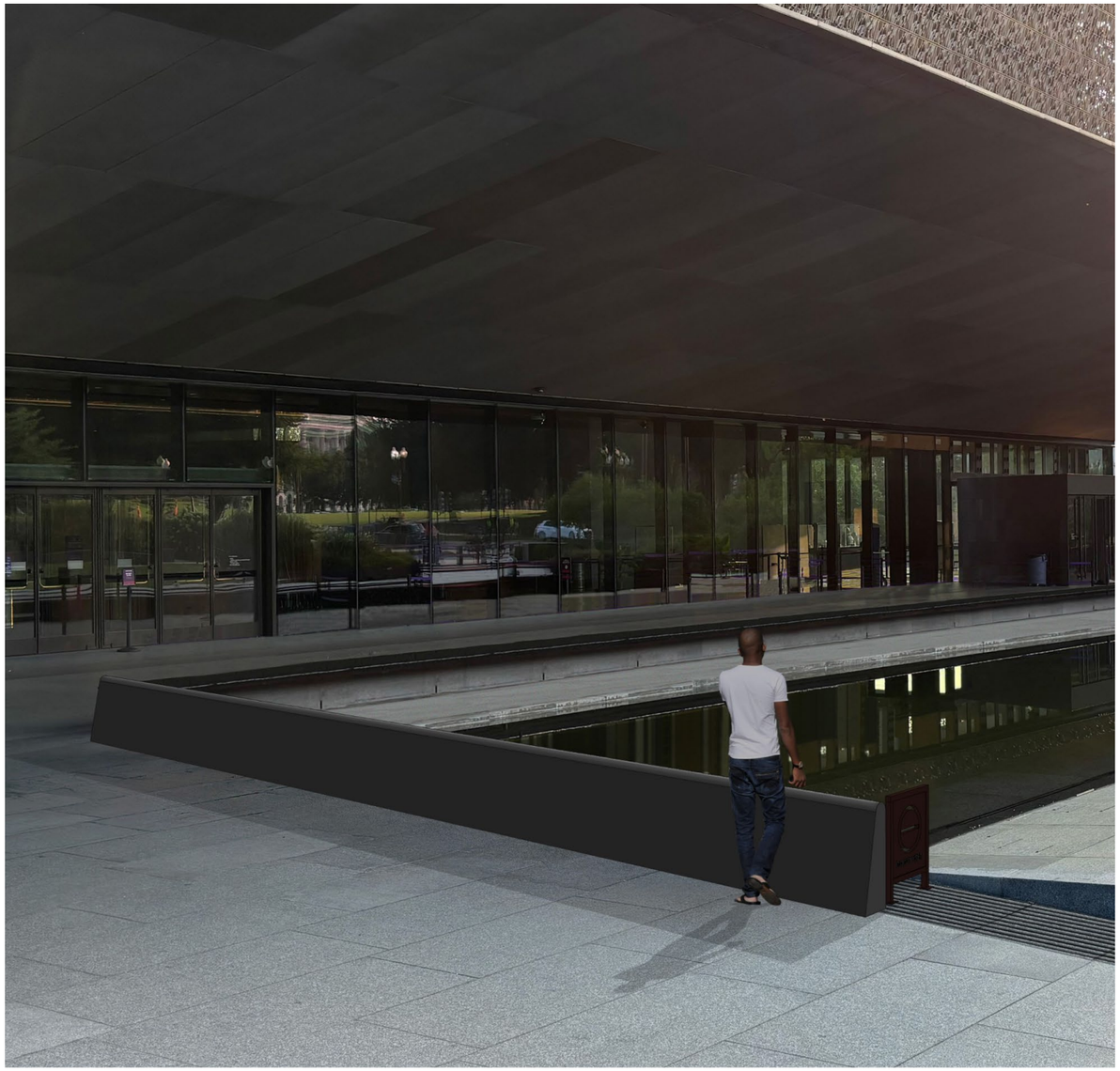


Figure 4.4.13: Low Wall Option

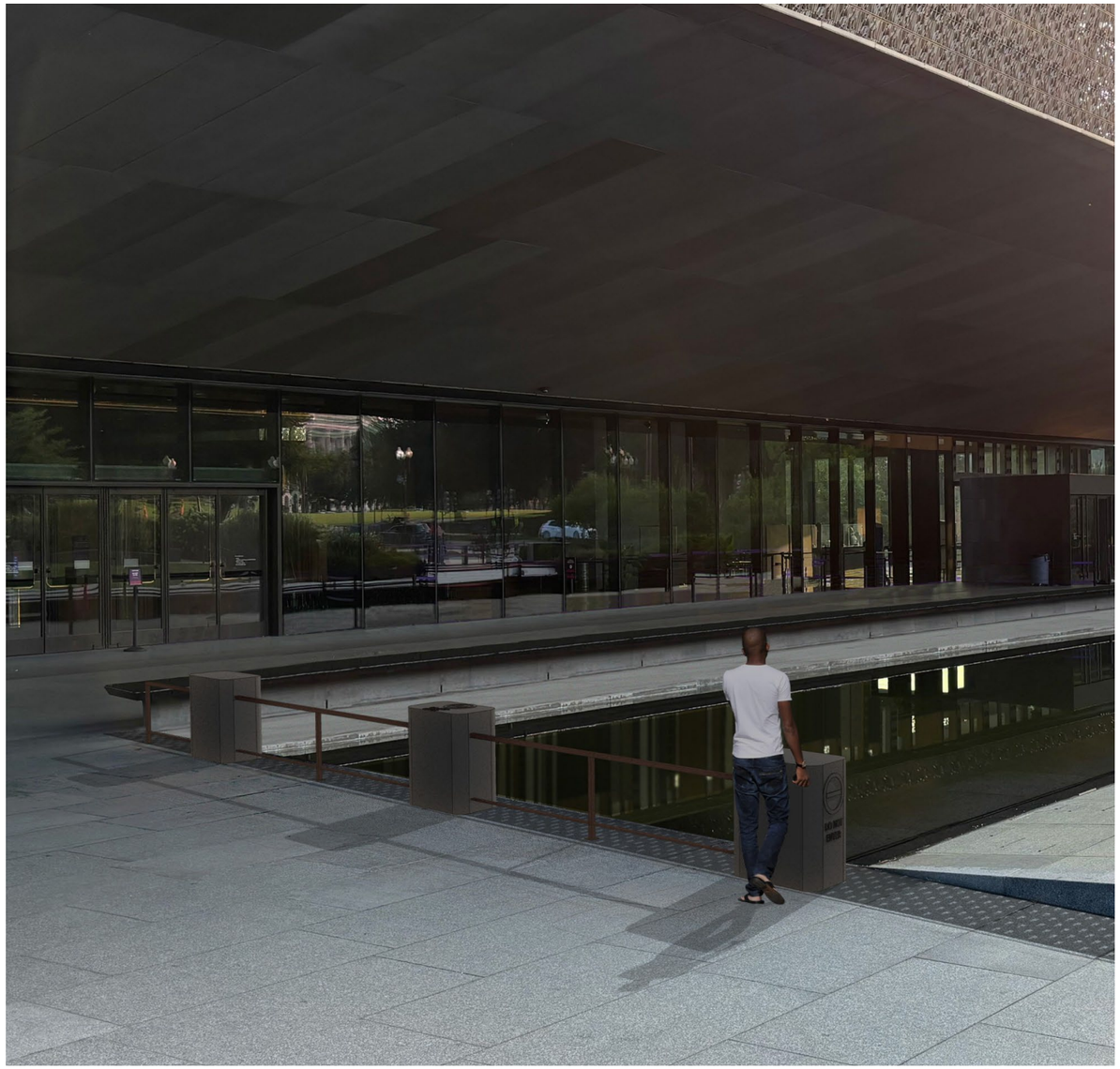


Figure 4.4.14: Pilaster and 24" Rail Option

4.4 PREVIOUS ALTERNATIVES CONSIDERED

As part of the Paving Options studies, an alternate was considered that included contrasting metal inserts into a black granite surface. This option was inspired by the approach of installing metal stips at the leading edge of stairs to create a contrasting edge.

This option was dismissed due to mainatnce concerns.

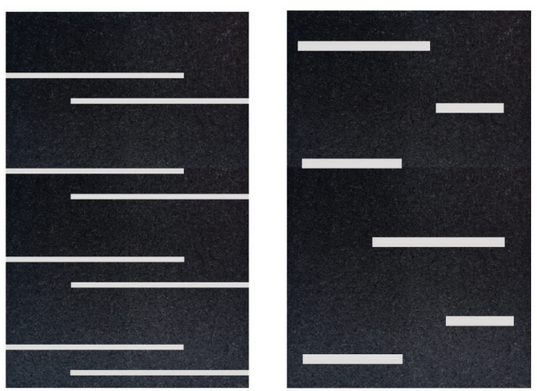


Figure 4.4.15: Alternate metal insert patterns

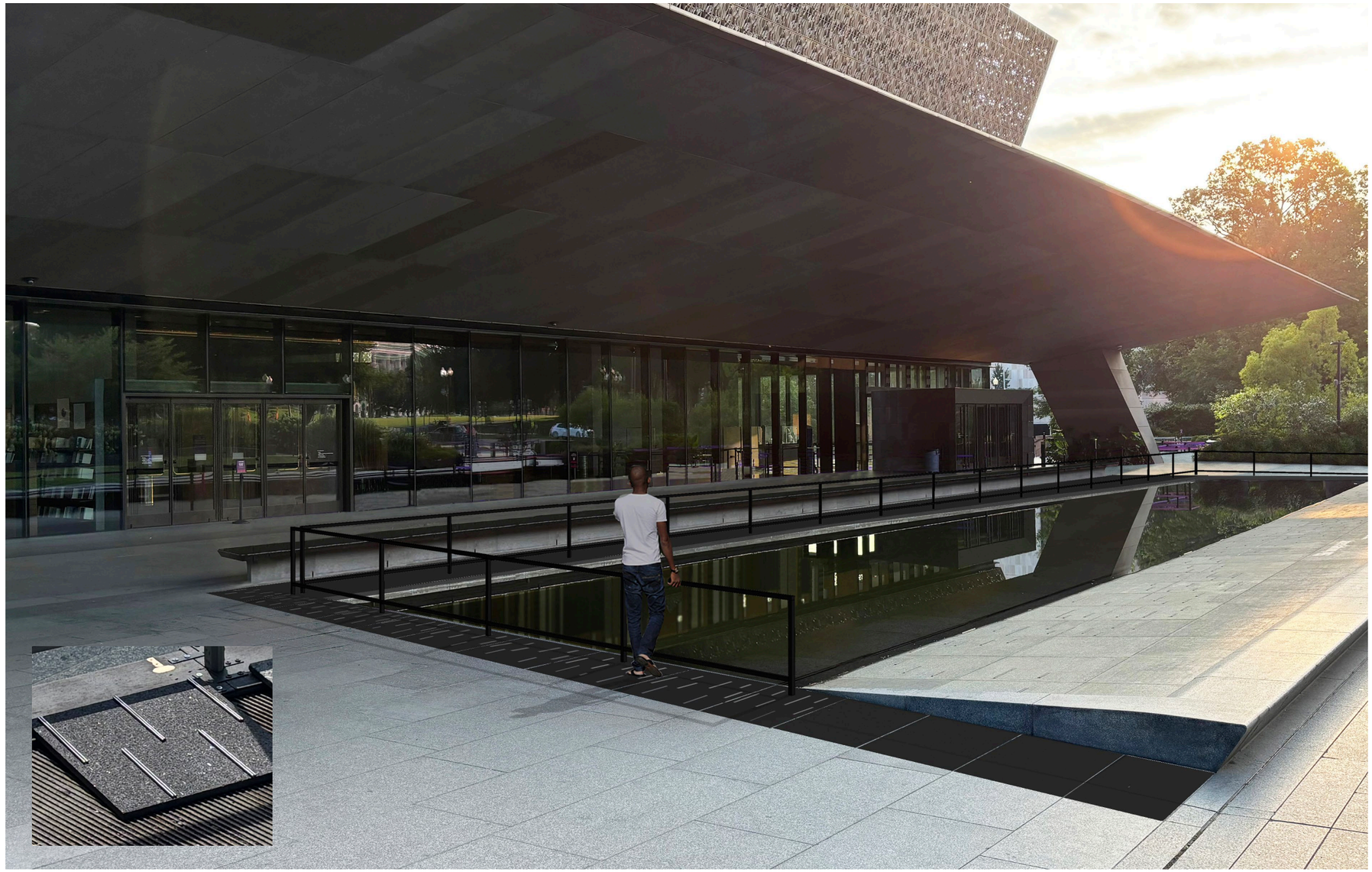


Figure 4.4.16: Rendering of alternate Paving Option of Cold Spring Black granite with metal inserts.

4.4 PREVIOUS ALTERNATIVES CONSIDERED

CANOPY LIGHTING OPTIONS CONSIDERED

At the Agency Staff meeting of 1/30/25 the Design team presented three Options for replacing and/or repairing the failed lights illuminating the Porch Canopy.

These three Options are:

1 - Replace in Kind. In this option, the 24 inground spot light fixtures would be replaced with spot light fixtures similar to the original fixtures.

2 - Porch Leg Uplights. In this option, lights would be added to the two Porch legs and would throw light horizontally across the underside of the canopy. These would replace the inground fixtures.

3 - Linear Spread Light. This option would replace the 24 in ground fixtures with a continuous row of linear light fixtures that would illuminate the Canopy with a more even distribution of light, but with eh same location and extent as the original fixtures.

At this meeting, Option 2, the Porch Leg Uplight was dismissed as being too much of a departure from the original intent and Agency Staff were skeptical of the ability of the fixtures to throw the length of the Canopy.

Agency Staff requested mock ups of the remaining Options.

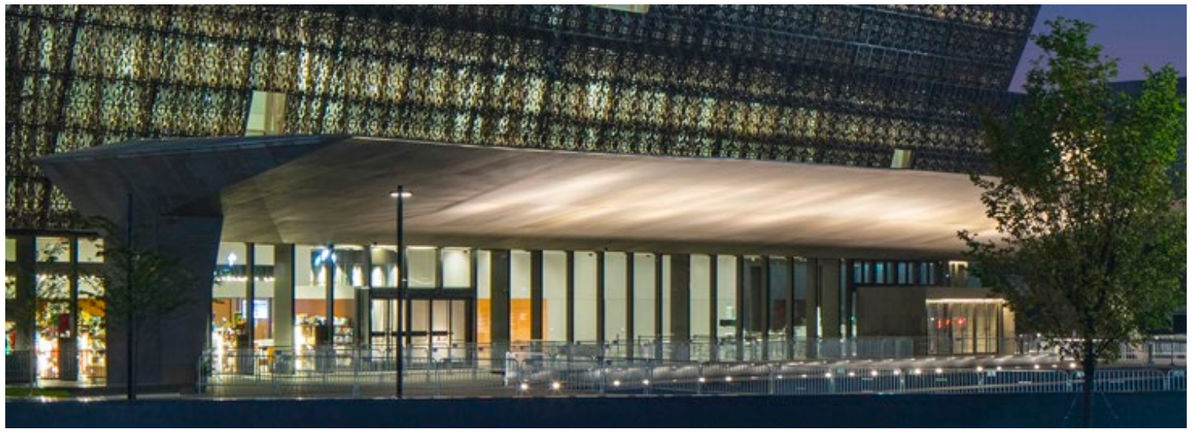
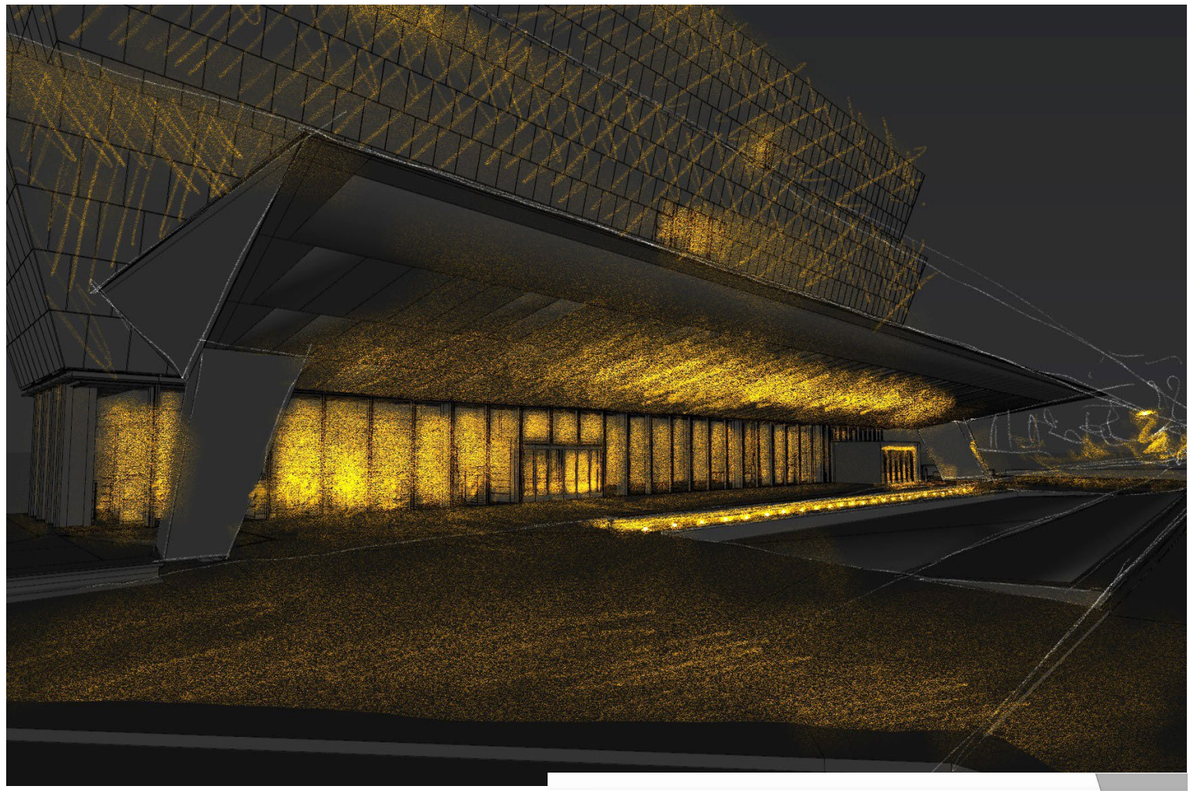


Figure 4.4.17: Original Canopy Lights, Photo circa 2016



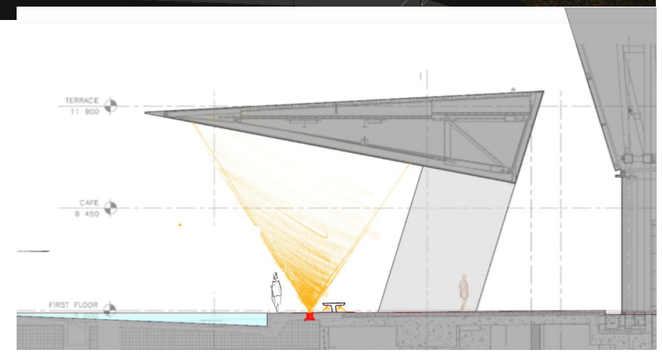
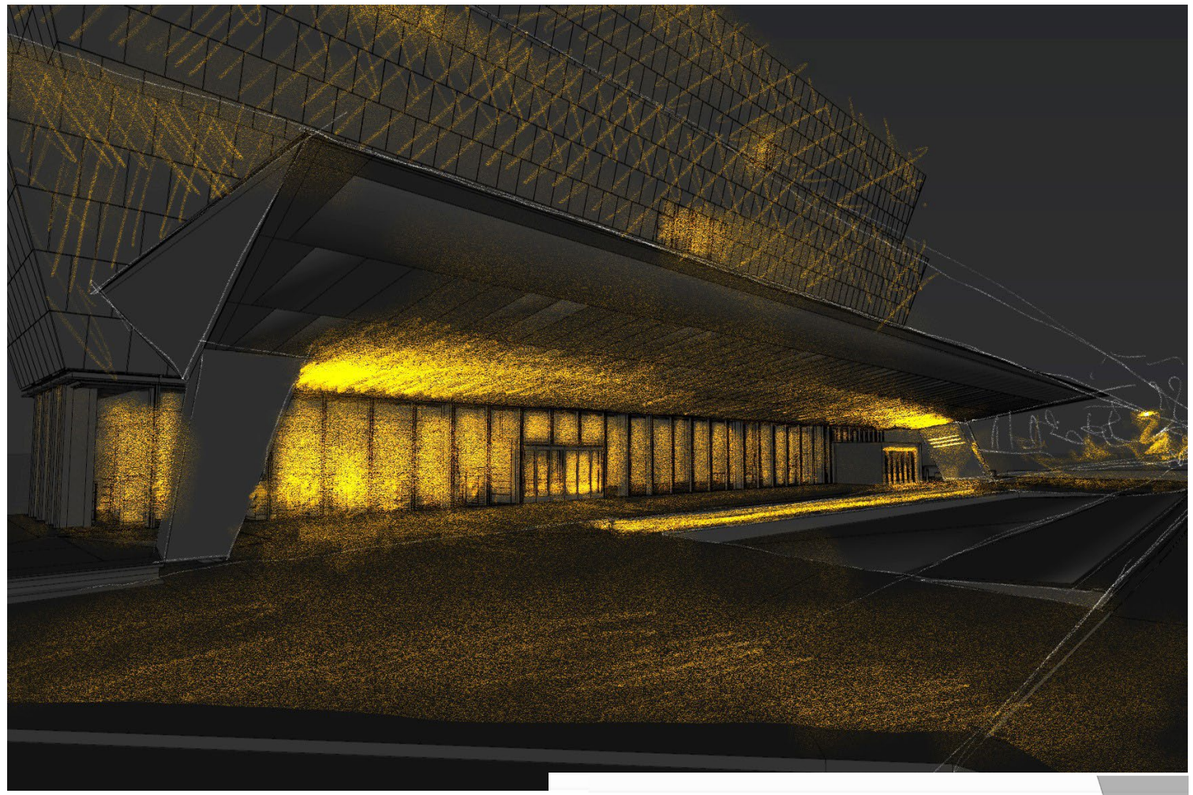


Figure 4.4.18: Option 1 - Replace in Kind -Spot Uplights



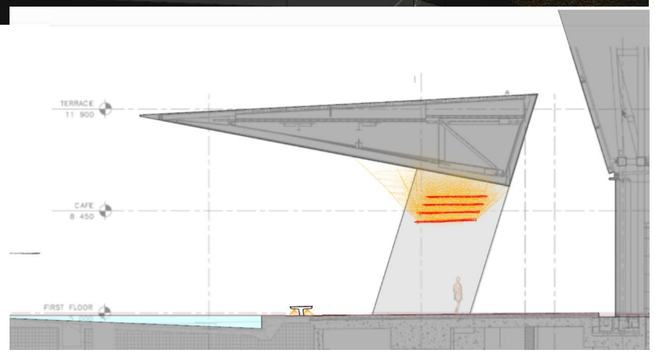
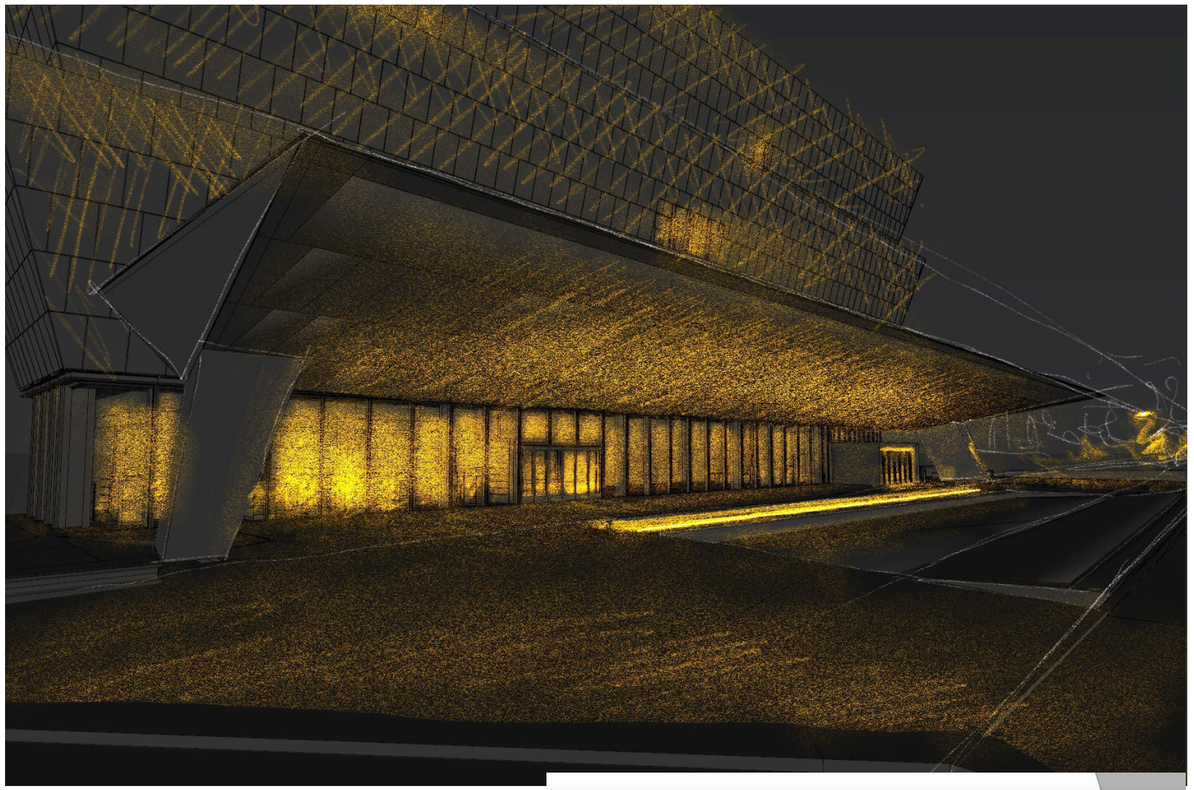


Figure 4.4.19: Option 2 - Porch Leg Uplights



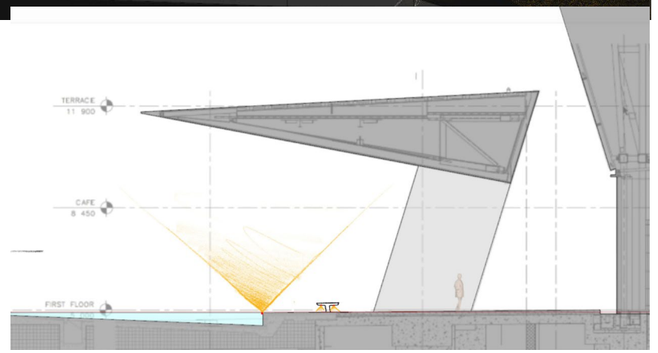


Figure 4.4.20: Option 3 - Linear Spread Light

4.4 PREVIOUS ALTERNATIVES CONSIDERED

On the evening of 4/23/2025 the Design team installed a mock up of the proposed lighting for the Porch Canopy. These options were reviewed and discussed with Agency Staff.

This mock up included:

Option A: Replace in Kind

This proposed option would consist of 16 spot fixtures located in the same position as the original fixtures with similar intensity and light spread. The mock up included six total fixtures with three different lens options for consideration.

Option B: Small Form Factor

This proposed option would consist of 32 spot fixtures located in the same line as the original fixtures but with double the amount of fixtures. The mock up included a total of four fixtures for consideration.

Option C: Linear Spread

This proposed option would consist of a continuous 120' line of linear fixtures aligned with the original spot fixture location and extent. The mock up included a total of two 4' linear fixtures for consideration.



Figure 4.4.21: Photo of Option A - Spot Fixture from Mock Up



Figure 4.4.22: Photo of Option A - Spot Fixture Illuminating Porch Canopy

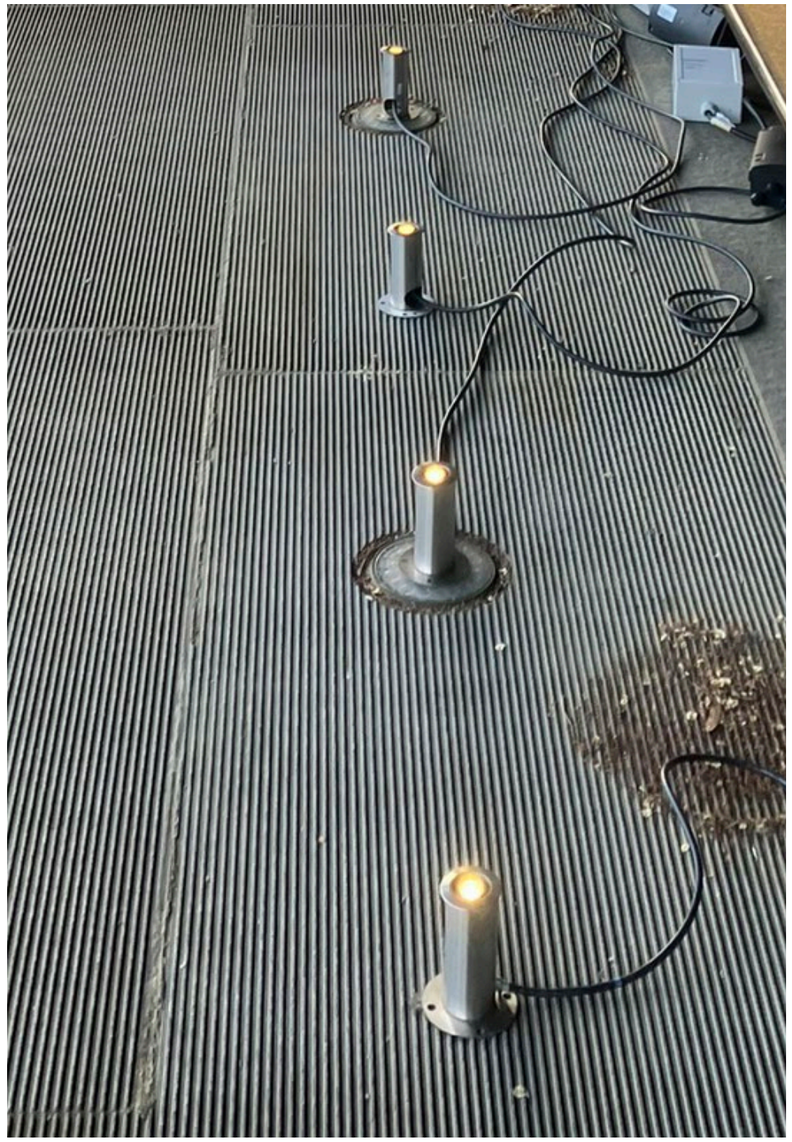


Figure 4.4.23: Photo of Option B - Small Form Factor fixtures



Figure 4.4.24: Photo of Option B - Small Form Factor - Illumination of Canopy

4.4 PREVIOUS ALTERNATIVES CONSIDERED

PORCH CANOPY LIGHTING OPTION C

The intent of this option is to replace the failed incandescent fixtures with a continuous row of inground linear (116 linear feet total) LED fixtures. The basis of design was the Lumenpulse fixture Inground Direct View, and was seen in the 4/24/25 mock up. In response to the glare concerns raised at that meeting, Lumenpulse has confirmed they are not able to integrate a louver shielding element in their housing, however they have agreed to produce a modified lens cover with an integral fritting to mitigate the brightness of the lens.

SmithGroup is also working with an alternate lighting manufacture (GVA Lighting) on a similar linear LED product to produce a sample with an internal micro louver to reduce the glare effect.

Samples of both versions of the linear fixture are expected to be available for a future (second) lighting mock up.

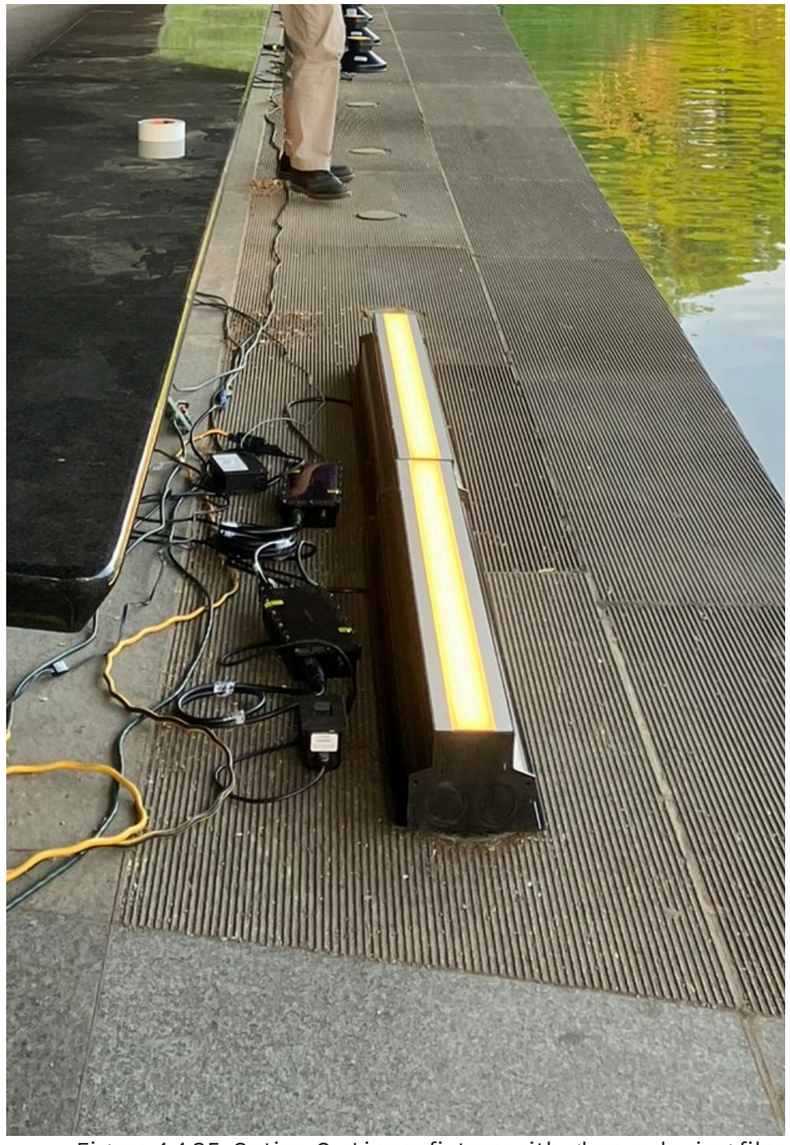


Figure 4.4.25: Option C - Linear fixture with glare reducing film



Figure 4.4.26: Photo of Option C - Linear Fixture from Mock Up

IN-GROUND LIGHTING DETAIL

SmithGroup explored in-ground LED light fixture replacement options located at the original fixture locations, and could fit in the available 6" depth. To meet the drainage requirements of the IP65 lights, a continuous waterproof enclosure was necessary and a direct drain to the interior was also required. As concerns over infiltration from below-grade water sources and the adjacent water feature were realized, maintenance concerns increased over fixture access, and the detail became ever more complex, a reasonable in ground solution was dismissed, and above ground solutions were investigated.

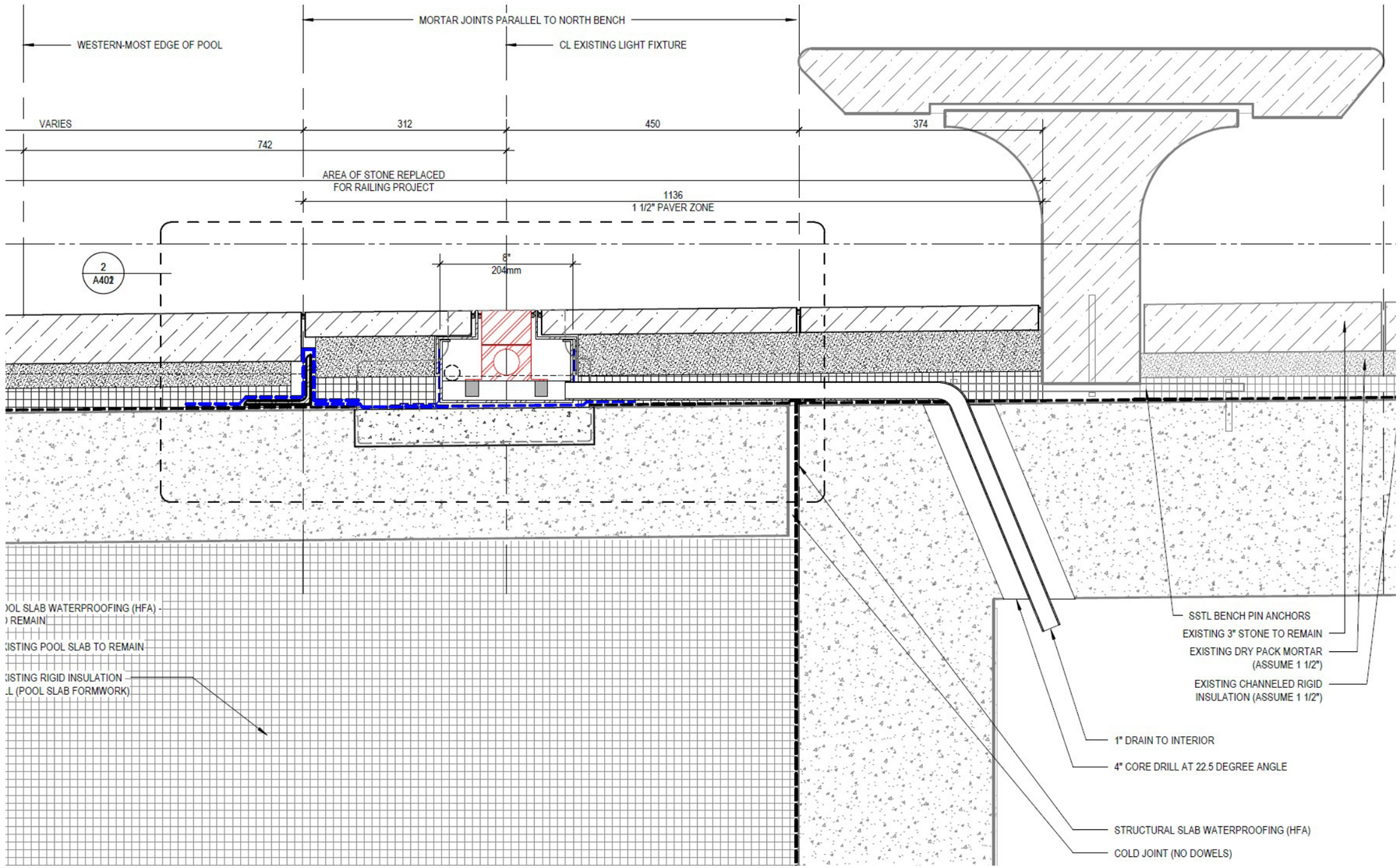


Figure 4.4.27: Detail of in ground lighting box, waterproofing and drain