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ARCHITECTURE · PLANNING · INTERIOR DESIGN
Chicago, Washington DC

MEMORANDUM

DATE: June 6, 2016

TO: Phetmano Phannavong – DOEE; Jay Wilson – DOEE; Gary Englebert – DCRA

FROM: Antunovich Associates

SUBJECT: 1900 Half Street, SW: Floodplain Analysis and Mitigation Plan

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Introduction:

The 1900 Half Street redevelopment project is located at Square 666, Lot 15 in southwest Washington, DC. The proposal involves renovation of the existing office building by removing approximately 215,000 square feet of floor area and incorporating a mix of residential and retail/service uses, comprised of 427 residential units and 24,000 SF of retail space. It also includes the construction a portion of the Office of Planning's proposed Anacostia Riverwalk, which is planned to extend along the Anacostia River to the east of the subject property.

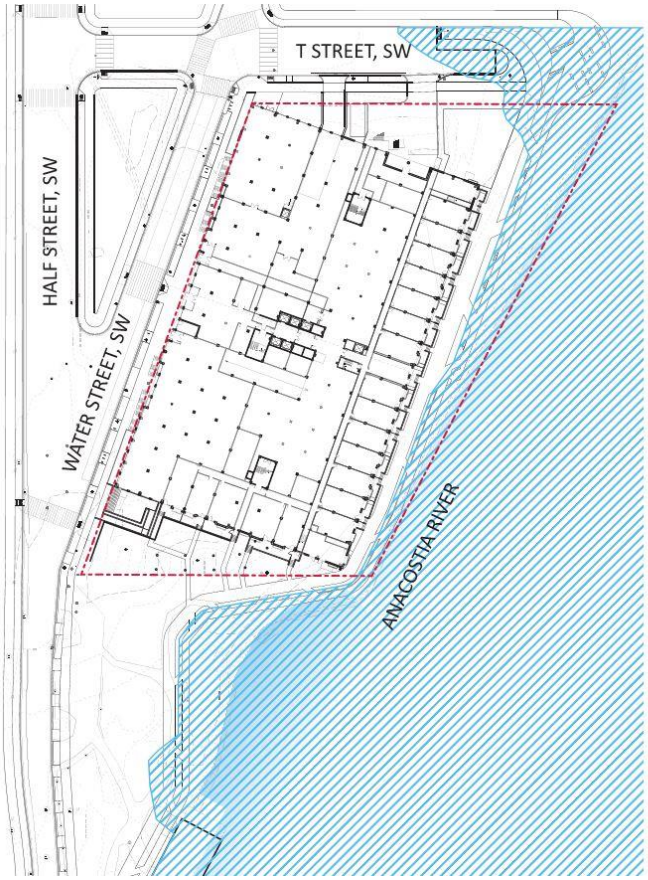
Currently, the existing building is clipped by the 100-year floodplain (see below) which is published at 10' 6" (11 ft.) per the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 57 of 100 Map Number 1100010057C, revised September 27, 2010 and effective on July 28, 2016. Based on the existing models, the 100-year floodplain of the Anacostia River is at 2'-9 5/8" (2.8 ft) in elevation. However, the controlling boundary condition is the still water created by backwater from the Potomac River which is at 10.5 ft. in elevation. This is a backwater condition (still water), which means that the floodplain elevation will not be impacted (raised or lowered) with additional fill or excavation within the floodplain.

Proposed Mitigation:

The 1900 Half Street team met with DOEE and FEMA on May 20, 2016 to discuss the appropriate course of action related to the adaptive reuse of the existing building and the construction of the Anacostia Riverwalk. In order to remove the building from the floodplain, the Owner proposes to re-grade the existing shoreline adjacent to the building by placing earthen fill material between the building and the shoreline protection within the 100-year floodplain. A proposed grading plan will be submitted to DCRA and DOEE to install the required earthen fill material in the Special Flood Hazard Area (SFHA). Placement of this fill will effectively raise the shoreline above the 11-ft elevation contour, which will have the effect of entirely removing the existing building from the 100-year floodplain/SFHA. It should be noted that the existing shoreline protection will not be encroached upon or altered in any way.

Per discussions with DOEE and FEMA, the owner is permitted per FEMA policies to remove the building from the floodplain by re-grading within the area of the future Riverwalk by using earthen fill material. Once the re-grading work is complete and the adjacent ground elevation around the existing building is above 11', a Letter of Map Amendment based on Fill Material (LOMA-F) will be filed with FEMA and DOEE to document that the building is no longer in the SFHA. A surveyor will verify the re-grading and the floodplain amendment will be accepted/approved by FEMA. The earthen fill will be used as part of the District's Anacostia Riverwalk (see below of proposed flood plain).

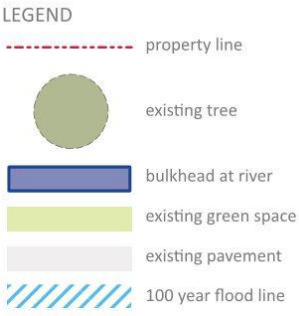
The plan described above will allow the existing building to be renovated with a mix residential and retail/service uses with underground (existing) parking garages. This approach is in compliance with the District's floodplain regulations (20 DCMR Chapter 31, Flood Hazard Rules, and floodplain provisions in 12 DCMR, DC Construction Codes).



ADDITIONAL INFORMATION

100 Year flood plain effects on site:
100 year flood elevation: 10'-6"
Proposed first level residential elevation 14'0"
Proposed promenade elevation: 12'-0"

LEGEND



The benefits of re-grading the shoreline, constructing the Riverwalk, and amending the floodplain include, but are not limited to;

1. The fill area will be above the 100-year floodplain for the Anacostia River (2.8' elevation). The proposed lowest residential level in the existing building will be at 14' in elevation, which is the existing 500 year floodplain elevation. Providing residential habitation at 14' addresses DOEE's concerns related to climate change and flood risk, provides a greater level of resiliency for the building, eliminates risks to the below-grade parking garage due to potential flood events, and prevents/reduces loss of life and property damage at the site.
2. Filling the floodplain by placing earthen fill for the Riverwalk construction removes building from possible 100-yr flood damage and eliminates flooding access points to the building. Fill area will also create a safe pedestrian environment on the Riverwalk.
3. Filling the floodplain along the building will have no impacts to adjacent property upstream or downstream, as the floodplain is controlled by the Potomac River coastal floodplain still water (ponding) elevations. This plan also provides more safety to the public by removing the building entirely from existing floodplain.
4. Filling the floodplain also reduces flood risk to the building because no 100-year flood surges are created from the coastal still water of the Potomac River on the site area.
5. Removing building from the floodplain is acceptable through FEMA policy and procedures per the Owner's May 20, 2016 meeting with FEMA and DOEE.
6. The proposed development addresses the FEMA floodplain. The current floodplain maps used by DOEE and FEMA were developed on September 27, 2010, and become effective on July 28, 2016. These are the maps on which the 100-year floodplain is based.
7. The proposed improvements are in compliance with the District's floodplain regulations of (i) filling the floodplain through constructing the Riverwalk (which removes the building from the floodplain), and (ii) providing a mix of residential and commercial uses within the building but not within the floodplain.
8. Neither DOEE or FEMA have any objections to part of the Riverwalk being constructed within the 100-year floodplain.
9. Cantilevering part of the Riverwalk over the existing shoreline will not negatively impact the future incorporation of the living shoreline.

Architectural Changes

1. The existing building's P1 level will be raised from 11.5ft in elevation to 14ft in elevation with a new concrete slab to accommodate residential use.
2. Existing at-grade ventilation openings will be raised above the flood plain (see marked in red below).

Structural Changes

No structural changes for flood mitigation is proposed, since construction of the Riverwalk will start *prior to* the building construction. Floodproofing the existing structure (strengthening to resist water pressure and prevent ingress of water) is not feasible due to the following factors/conditions;

1. The existing concrete structure was not designed to resist hydrostatic forces, since the lowest level is above the water table. The existing foundation wall is capable of resisting soil pressure only, not additional pressure due to hydrostatic head. The existing slab on grade is capable only of transferring nominal loads to the subgrade and is not able to withstand upward pressure due to hydrostatic head.
2. Water is currently intended to infiltrate into the lowest parking level during a flood event, so that the existing basement walls and slab on grade are not subjected to large hydrostatic pressures.
3. Flood-proofing the building would require significant strengthening of the basement walls and the slab on grade to resist the imposed hydrostatic forces, which is not practical for this project. Strengthening the existing slab on grade would require approximately 12 inches of additional concrete to be poured over the existing slab, which adds significant cost and time to the construction schedule. The additional structural buildup would impact headroom, stairs and elevator pits. In addition, waterproofing the garage levels could lead to the entire building popping up or “floating” which could lead to a catastrophic event instead of just the two garage levels potentially flooding.