

# 3

## SITE EVALUATIONS

This chapter provides an analysis of each site and evaluates the potential of locating a boathouse based on the minimum and maximum boathouse program established. It is divided into three parts – the first discusses the existing conditions at each site, the second describes the conceptual site plans, and the third provides an assessment of the potential impacts of locating a proposed boathouse on each site.

There are four alternative sites that have been examined. These are:

- Rosslyn Waterfront – Lower Site
- Rosslyn Waterfront – Upper Site
- Immediately south of the CSX Railroad Bridge
- Eastern Shoreline of Daingerfield Island, to the south of the existing marina

### 3.1 ROSSLYN WATERFRONT SITE – LOWER LEVEL

#### 3.1.1 Existing Conditions

##### 3.1.1.1 – Physical Conditions

##### a. Existing Land Use

The Rosslyn lower level site is located east of the GWMP and north of the existing TRI parking lot (see Figure 3.1, Existing Conditions Map). The site is currently vacant and vegetated, and under NPS ownership.



Figure 3.1 Existing Conditions, Rosslyn Waterfront

**b. Infrastructure**

- **Water Mains:** Record drawings of the GWMP indicate that a 30-inch water main exists adjacent to the curb of the GWMP northbound roadway. A 6-inch ductile iron waterline also exists north of the Mount Vernon Trail pedestrian bridge. A concrete vault for this waterline is also in the vicinity. Modifications to this 6-inch line may be required depending on the roadway and site layout.
- **Electrical / Telephone Service:** A 4-inch two-way electric conduit, which is concrete encased, enters the site from the west approximately 300-feet north of the MVT bridge. It is unknown as to what this service is feeding and if there is telephone service within this conduit. Further investigation with the utility companies will be required to determine if it is capable of serving a potential boathouse.
- **Sanitary Sewer:** There does not appear to be any sanitary sewer existing on site. Record drawings indicate that the closest sanitary sewer line is the sewer main in Rosslyn Circle. Therefore, it is anticipated that a new sewer force main connecting the lower site to Rosslyn Circle would be required.

**3.1.1.2 – Environmental Conditions**

- **Floodplains:** According to FEMA mapping, the lower Rosslyn site for the potential boathouse is designated an area of minimal flood potential (FEMA 1982).

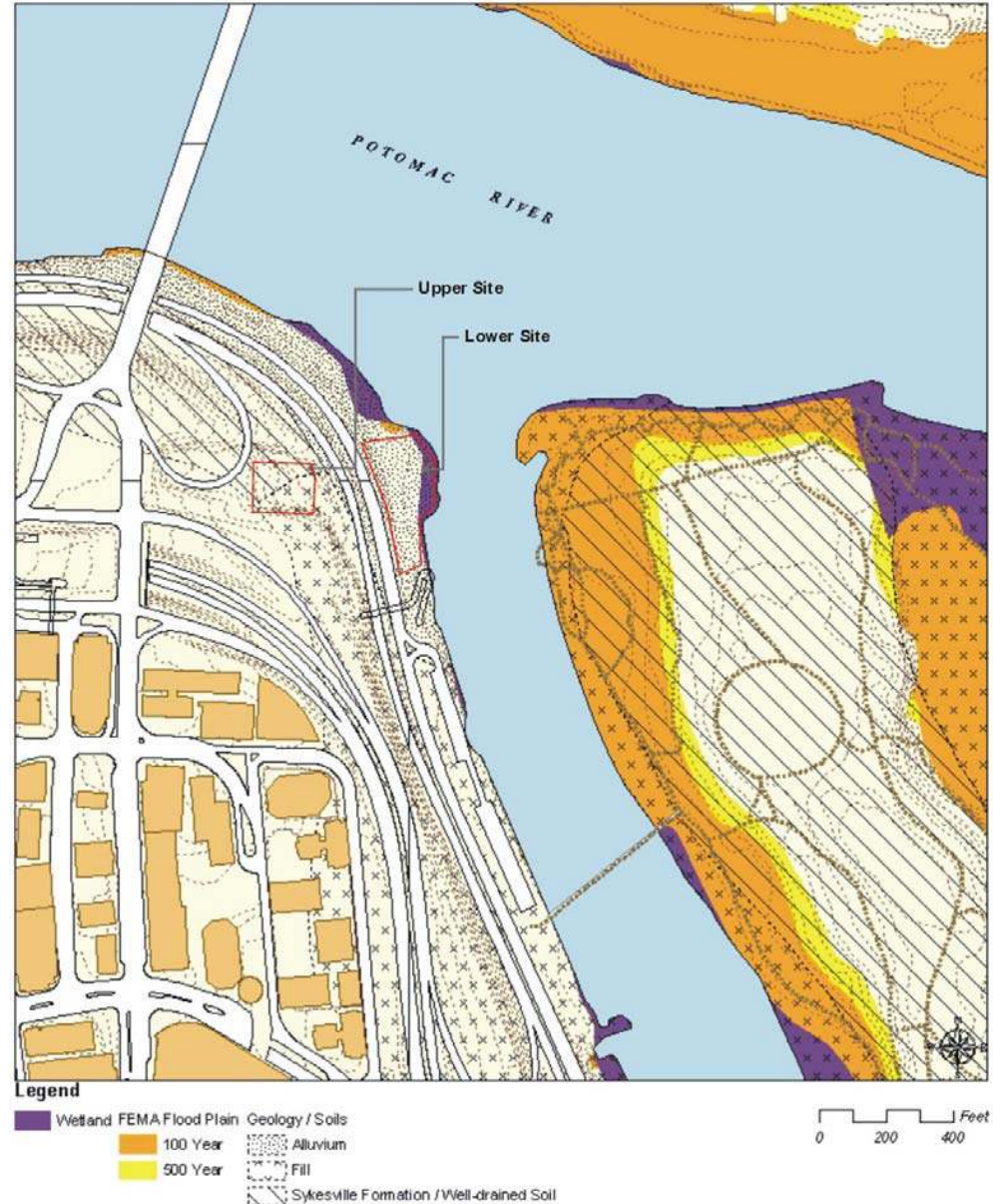


Figure 3.2: Existing Soils and Hydrology, Rosslyn Waterfront



- **Wetlands:** National Wetland Inventory data indicates that there are wetlands at the Potomac shoreline along the majority of the length of the site.
- **Soils:** Soils on the site are likely Udorthents. Udorthents usually include materials that have been reworked by machinery in the past and consist of loamy materials that have been placed over soils of varying drainage classes on terraces and flood plains. Udorthents may also include relatively undisturbed alluvial soils that have been shaped to some extent. The permeability of Udorthents is highly variable (Hydel 2001). The soils on the site are well vegetated and do not exhibit signs of serious erosion. The riverbank does not exhibit bank loss, root exposure, or tree fall (see Figure 3.2).
- **Geology:** There are no noticeable significant geologic features on the site. The underlying geology is alluvial material (Fleming 1994).
- **Vegetation:** Vegetation on the lower Rosslyn site includes common suburban tree species, understory species, and grassy areas in a corridor along the river. Vegetation exhibits edge characteristics such as prominent vine growth. A letter from the Virginia Division of Natural Heritage, dated December 10, 2001 states that no natural heritage resources or State Natural Area Preserves have been documented at the site. An additional letter from Natural Heritage dated February 11, 2002 states that Virginia Mallow, a very rare riverside

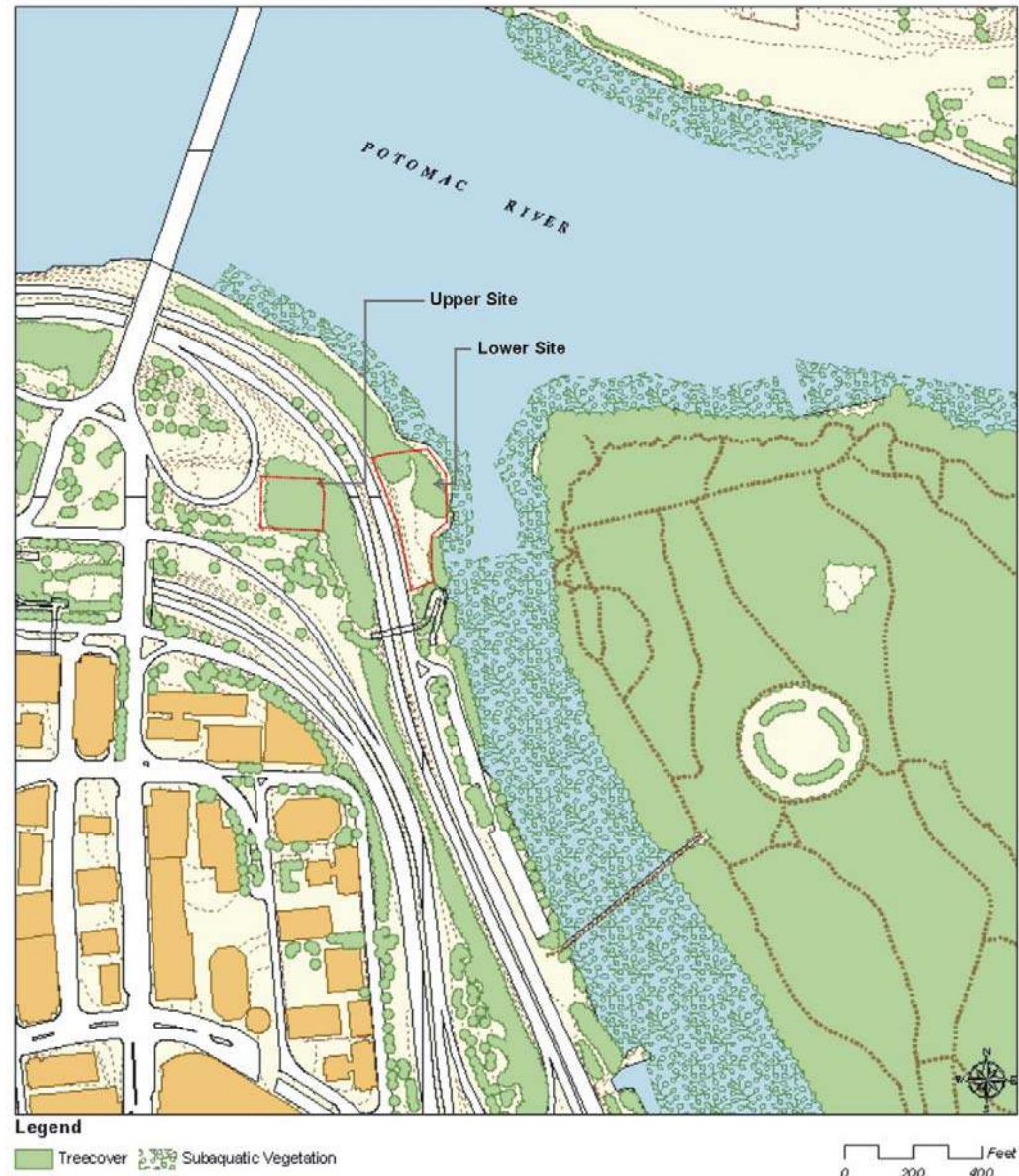


Figure 3.3: Existing Vegetation, Rosslyn Waterfront

perennial, has been identified within a two-mile radius of the site. The letter further states that, due to its relatively unaltered character, the site presents habitat more suitable for supporting rarities than do the other potential sites for the boathouse, and recommends an inventory of suitable habitat on the Lower Rosslyn site (see Figure 3.3).

Subaquatic vegetation growth in the Potomac River has been shown to increase the biological productivity of the Potomac ecosystem. Shoreline surveys of peak annual subaquatic vegetation growth, conducted in September and October of 2000, found extremely dense SAV surrounding TRI (Ryan 2001) (see Figure 3.3).

- **Wildlife:** Wildlife on the site likely includes common urban species such as small mammals and birds. Larger animals would not likely utilize the narrow forest on the site for permanent habitat. However, since the forest is contiguous with forest along the Potomac it is possible that larger species could utilize the forest corridor for movement. A letter from the Virginia Division of Natural Heritage, dated December 10, 2001 states that no natural heritage resources or State Natural Area Preserves have been documented at the lower Rosslyn site. An additional letter from Natural Heritage dated February 11, 2002 states that Pizzini's amphipod and *Stygobromus* sp. 15, could be located on the site if seeps occur there. Both of the very rare crustaceans were documented to the north of the site in a 1996 inventory. The

letter further states that, due to its relatively unaltered character, the site presents habitat more suitable for supporting rarities than do the other potential sites for the boathouse, and recommends an inventory of suitable habitat on the Lower Rosslyn site.

- **Topography:** The topography on this site is characterized by moderately steep slopes at the western extent of the site, along the retaining wall for the GWMP. The steep slopes fall to relatively flat ground that gradually descends to the riverbank at the Potomac.
- **Stormwater:** In general, stormwater flows from west to east across the site from the GWMP retaining wall towards the Potomac River. There is no evidence of channelization or pooling of stormwater on the site.
- **Noise:** The site is located within the flight path of the Reagan National Airport. However, planes are relatively high at this location, compared to the 14<sup>th</sup> Street and Daingerfield Island sites, and have a reduced noise related impact.

### 3.1.1.3 – Operational Factors

#### a. Transportation (Access and Parking)

The subject site is located to the east of the GWMP. Existing access is provided from the northbound lanes of the parkway by means of right-in / right-out movements. This portion of the parkway is access controlled, with interchanges to the north and south of the site. The posted speed limit along the

parkway is 40-mph, with observed free flow speeds near 50-mph throughout much of the day. The parkway has a 2-foot shoulder on either side of the traveled way near the site.

- **Access:** The existing entrance to the site from the northbound lanes of the parkway is located approximately 1,125 feet north of the entrance ramp from I-66. The beginning of the taper to the deceleration lane to the site entrance is located approximately 75 feet north of the end of the taper from the I-66 ramp acceleration lane. The relatively close spacing between the merge and diverge areas results in somewhat of a weaving condition. Combined with the relatively short deceleration length of 500 feet (followed by a tight, 25-foot radius curve), the existing entrance may be problematic for larger vehicles, particularly those with trailers.

The existing acceleration lane from the site is 300 feet long, followed by a 300-foot taper. Due to the fact that the parkway only has a two-foot shoulder and a closed section (curb-and gutter), larger, heavier vehicles that might otherwise have used a shoulder to “extend” their merge area must accelerate from a stopped condition to approximately 40-mph in only 300 feet. This may be problematic for vehicles pulling loaded boat trailers.

There is no access to the site from the southbound lanes of the parkway. To reach the site, southbound vehicles can use the ramp to Memorial Drive, proceed around the circle/roundabout and then

follow the ramp back to northbound GWMP. This route sends motorists approximately one mile out of their way and is somewhat circuitous, but not overly indirect. Similarly, vehicles exiting the site that wish to head southbound on the parkway have a similar route to follow; proceeding about one-mile north, exiting at Sprout Run Parkway, and following the ramp to the U-turn which places motorists directly back on the parkway in the Southbound direction. This route would send motorists about two miles out of their way.

- **Parking:** The existing parking lot is divided into two halves, the northern portion having 31 spaces (on only one side due to lot size) and the southern portion having 67 regular spaces and 5 handicap spaces. There is little, if any, room within these lots for a large vehicle (bus, truck or car with trailer) to turn around, and these are not expected to park here.

The lots tends to be overcrowded in the spring, summer and fall months Overflow parking is difficult at this site, due to the lack of usable land near the site for temporary parking on grass.

#### **b. Rowing Conditions**

- **Depth of Water:** There is sufficient water depth for rowing, a few feet from the shoreline. Based on the Tidal Map for the Potomac River, during low tide, the area towards the Little River Channel has a depth of approximately one-foot. However, immediately north of the Little



*Figure 3.4: Little River Channel – Not rowable under any conditions.*

- River Channel, the depth increases with the deepest portion near the Georgetown side measuring approximately 39 feet.
- **Available Course:** Rowers from this location would have immediate access to the waters north of Key Bridge up to Fletcher's Cove and Chain Bridge, and south to Woodrow Wilson Bridge and beyond.
  - **Safety:** The area north of Memorial Bridge has a 'no-wake' zone that requires boat traffic to travel at speeds below five mph. This reduces potential conflicts with powerboats and cruise-boats that frequent the Washington Harbor. There are two other boathouses, the Potomac Boat Club (PBC) and Thompson's Boat Center that are located across the shore from this site. These provide quick emergency assistance in case there is a need on the water. In addition to these,



Georgetown University is proposing to construct a new boathouse, upstream from the PBC.

- Days lost due to Weather: The coaches who row in this area indicated that they lose between one and two weeks of rowing in the Spring season. Between the beginning of February and end of May (17 weeks), the approximate period when the High School rowers practice on the water, that averages out to less than one day per week.

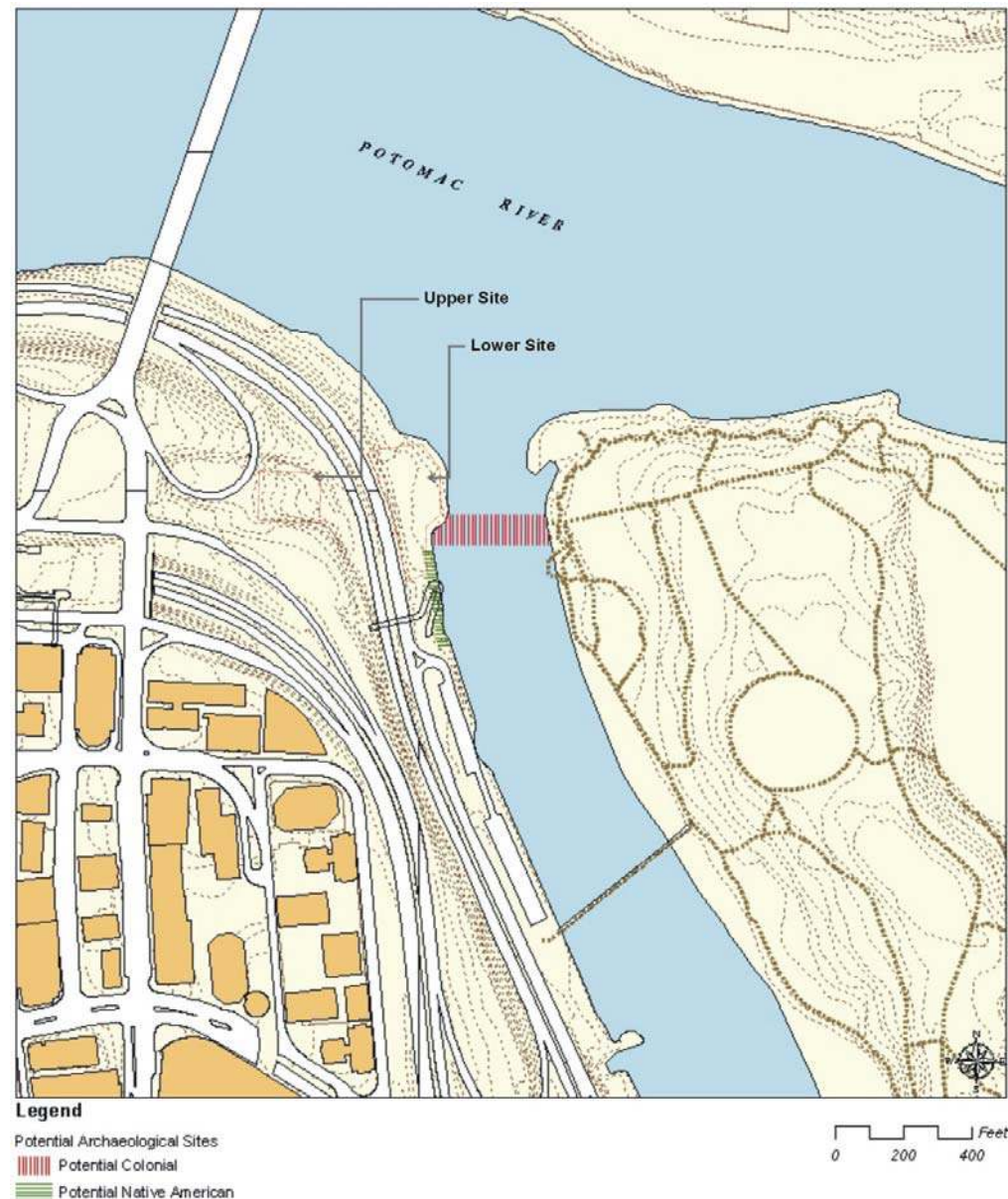
#### **3.1.1.4 – Cultural/Visual Conditions**

##### **a. Cultural Resources**

Potential archeological resources on the site include possible locations, in undisturbed areas of the Potomac riverbank, for artifacts from prehistoric Native American settlements (Arlington County 1993). There is also submerged structural debris within the river, adjacent to the site, from a causeway built from the VA shoreline to the John Mason's (Roosevelt) Island during colonial times, that allowed access to ferry conveyance from the island to Georgetown (Cissna 1990). In addition, a number of structures were known to have existed in this area, below the Aqueduct and above the causeway, some of which may have been associated with Mason's Ferry Landing. See Figure 3.5. The GWMP is a National Historic Register property that is in proximity to the project site.

##### **b. Visual Conditions**

The site is vegetated with a combination of trees and lawn (see figures 3.12, 3.14, 3.16,



*Figure 3.5: Existing Historical/Cultural Resources, Rosslyn Waterfront*

3.18 and 3.20). It is visible from the river, from some areas on TRI, from the parkway, Key Bridge and from Georgetown, across the river. Visually, the site contributes to an uninterrupted, vegetated shoreline along TRI.

### 3.1.2 Conceptual Site Plans

Two conceptual plans were prepared to test the potential of locating a boathouse at this site. Figures 3.6 and 3.7 illustrate a smaller boathouse with a footprint of 10,000 SF. Figure 3.8 illustrates a larger boathouse with a footprint of 14,000 SF. In both plans, a new access road with a drop-off area is proposed off the existing entrance/exit location to the TRI parking area. The coaches' boats would be tied to the dock during the rowing season. During non-rowing periods, these boats could be stored at the proposed boathouse.

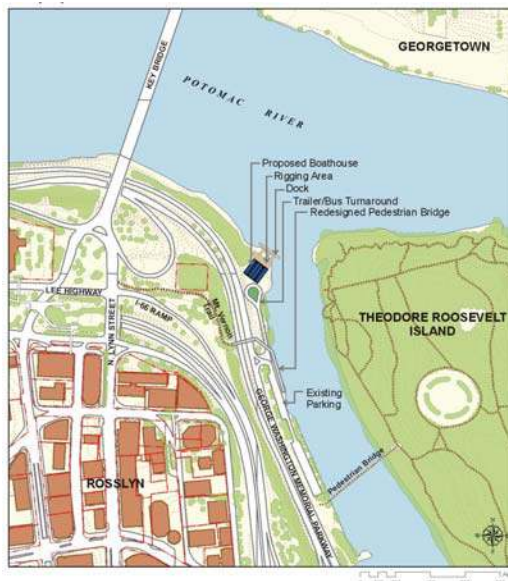


Figure 3.6: Conceptual Site Plan

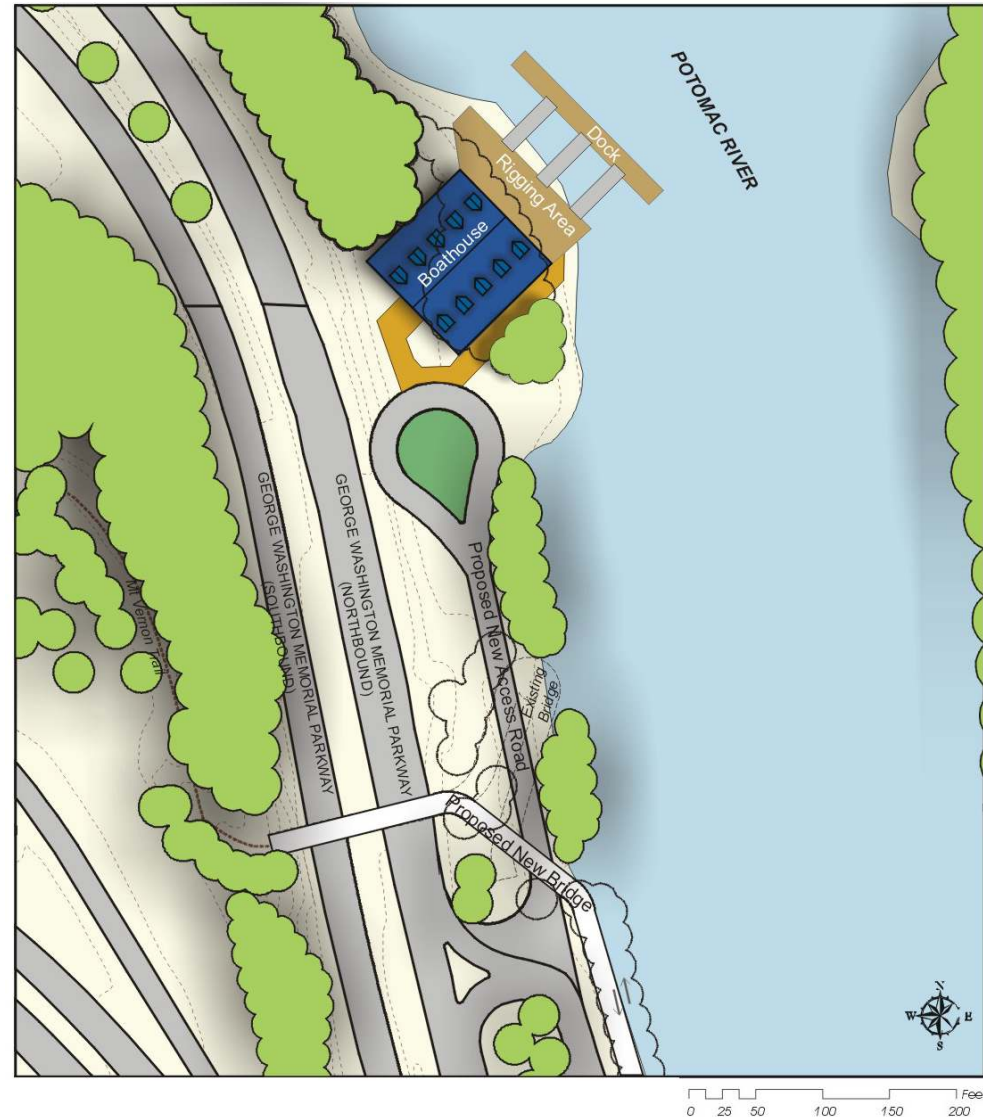


Figure 3.7: Enlarged Conceptual Site Plan, Minimum Program Boathouse



### 3.1.3 Site Analysis

Summary: A boathouse, based on the proposed minimum and maximum program, with a footprint that ranges from 10,000 SF to 14,000 SF, could be accommodated at the lower Rosslyn site. There are a number of improvements that would be necessary for these plans to work. These include the following:

- A new road that would provide boathouse access to trailers, school buses and emergency vehicles. This road should be configured to allow ingress and egress from the site area. A bus drop off location is proposed at the end of the new access road.
- To configure a turning radius for exiting trailers, buses and emergency vehicles, the existing pedestrian bridge would have to be reconstructed on the eastern portion of the GWMP. Reconstruction should take into account the required clearance below the bridge for large vehicles and a gradient of 8.33 percent on the bridge to allow for handicap accessibility. The proposed configuration, illustrated in the conceptual site plan, ensures that there is no conflict between movement on the Mount Vernon Trail and the new access drive. Due to the proximity of the proposed and existing alignments of the pedestrian bridge, pedestrian use of the bridge would not be available during reconstruction.

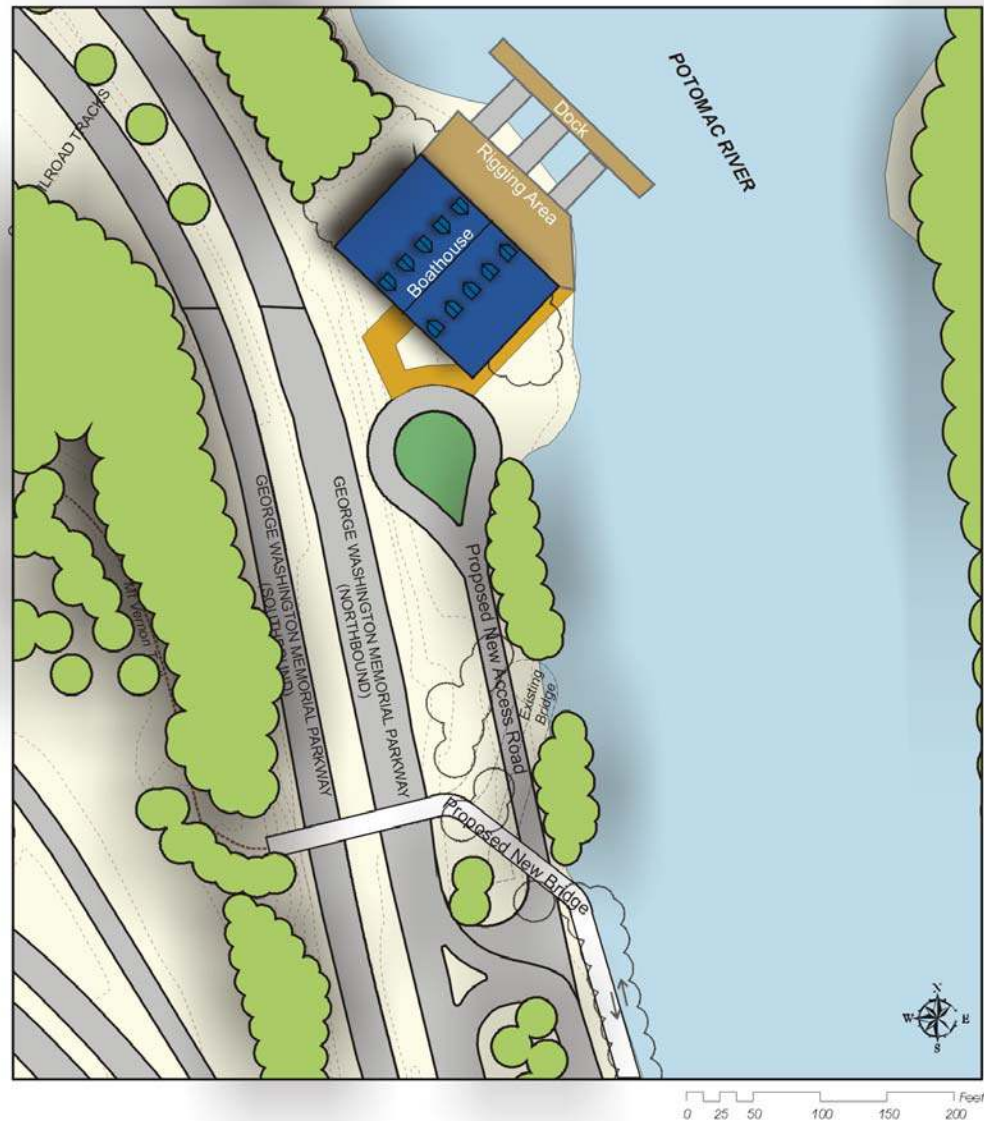


Figure 3.8: Conceptual Site Plan, Maximum Program Boathouse



### 3.1.3.1 – Physical Conditions

#### a. Existing Land Use

The boathouse would result in developing a predominantly open space area.

#### b. Infrastructure

- Water Mains: It is anticipated that 100-feet of new 4-inch water service for the boathouse can be connected to the existing 6-inch main. One new fire hydrant is likely to be required for fire protection.
- Electrical / Telephone Service: For purposes of this study, it is assumed that new telephone and electric services will be required to serve the boathouse. These services are assumed to be approximately 100-feet in length.
- Sanitary Sewer: It is anticipated that a new sewer force main connecting the lower site to Rosslyn Circle would be required. This 4-inch force main would need to be bored or jacked under the GWMP. Approximately 900-feet of 4-inch force main would be required. A pump/lift station would also be required for the boathouse.

A summary of the new utility services, that are likely to be required for the boathouse, is as follows:

- 900-feet of 4-inch ductile iron sanitary sewer force main
- 150-feet of bored/jacked sewer pipe
- one ejector pump/lift station

- 100-feet of 4-inch ductile iron water main
- 100-feet of two-way 4-inch PVC electric conduit with handbox
- 100-feet of two-way 4-inch PVC telephone conduit with handbox
- 100-feet of 15-inch RCP storm drain
- one fire hydrant
- two storm drain inlets
- one storm drain manhole
- two sanitary sewer manholes

### 3.1.3.2 – Environmental Conditions

- Floodplains: Contrary to the FEMA designation, observations of topography at the potential development site, and NPS photos of past flood levels, indicate that the site would likely be inundated under 100-year flood conditions. To decrease the likelihood of flood damage to the potential boathouse facilities, the habitable areas of the structure, such as the shower/locker areas, could be located on the second floor.
- Wetlands: As shown on the conceptual site plan, foundations for the potential boathouse and roadways at the lower Rosslyn site would be in areas adjacent to or within existing riparian wetland areas at the Potomac shoreline. As discussed above, the addition of fill material in these areas could be required to construct sound foundations. In accordance with Section 404 of the Clean Water Act, the discharge of fill into wetlands could require permitting by the Army Corps of Engineers. The delineation of the wetlands on and near the project site would be compulsory in order to predict and minimize impacts to these areas by fill material. Construction of the smaller boathouse could disturb approximately 5,500 square feet of wetland area while construction of the larger boathouse could disturb about 8,300 square feet of wetland area. In contrast to construction for building foundations, the placement of beams at the river edge to support decking would not likely have any major impacts to wetland resources.
- Soils: The soils on the lower Rosslyn site provide a good substrate for vegetative growth and exhibit a moderate potential for erosion. To preserve soil for the growth of vegetation and to reduce the potential for soil erosion and sedimentation, the development of the potential boathouse facilities should retain the maximum practicable amount of undisturbed surface soil area. Development of the smaller boathouse would likely disturb approximately 1.02 acres of surface soil while development of the larger boathouse would likely disturb about 1.23 acres of surface soil.
- Geology: The lower Rosslyn site for the potential boathouse is underlain by alluvial material. As this substrate has been composed by repeated deposition of material over time, it could be inconsistent in composition and structure. Sample geologic borings would be required prior to detailed design and construction to provide a detailed understanding of the existing geologic material under the development site. If the existing substrate would not provide

sufficient structural support for construction of the boathouse and roadways, additional fill material or structural measures could be necessary to support the boathouse facilities.

- Vegetation: Some vegetation on the lower Rosslyn site would be removed by the boathouse development. The smaller boathouse would clear approximately 20,200 square feet of treed area and the larger boathouse would clear about 28,700 square feet of treed area. Based on visual surveys and Virginia Natural Heritage Department records, the trees that would likely be removed are not rare, threatened or endangered species. Performance of a site inventory of suitable habitat for rare species, as recommended by the Virginia Natural Heritage program, would allow further identification of potential impacts to critical habitat.

The dense SAV growth near the lower Rosslyn site for the potential boathouse could significantly interfere with rowers utilizing the facilities. Removal of the SAV would effectively decrease this interference, but could be detrimental to the Potomac River ecosystem. If operation of the potential boathouse at the lower Rosslyn site would necessitate rowing through SAV, means of coping with the complications while not negatively impacting the Potomac River would be necessary.

- Wildlife: There is no documented critical habitat on the lower Rosslyn site for the potential Boathouse and there are no

records of rare, threatened or endangered species on the site. Accordingly, the development of the potential boathouse would not likely disturb sensitive wildlife species. Performance of a site inventory of suitable habitat for rare species, as recommended by the Virginia Natural Heritage program, would allow further identification of potential impacts to critical habitat. To preserve the potential for animal utilization of the site, the boathouse facilities should not completely block north-south passage across the site. Common urban species inhabiting the site should readily be able to utilize other similar habitat along the Potomac River, in proximity to the site, if disturbed by development of the boathouse.

- Topography: The potential boathouse at the lower Rosslyn site would be built at the eastern portion of the site so minimal disturbance or regrading of the steep slopes along the parkway retaining wall would be required. There may be some minimal addition of fill material to regrade the site near the eastern slopes that descend to the river. The construction of the roadway associated with the boathouse would require cutting into the steep western slopes by the GWMP retaining wall. As per the conceptual site plan, the smaller boathouse would require approximately 20,000 cubic feet of cut, while the larger boathouse would require about 28,000 cubic feet of cut.
- Stormwater: Construction of the potential boathouse facilities at the lower Rosslyn site would increase the amount of

impervious surface on the site. As per the conceptual site plan, the smaller boathouse would add approximately 25,000 square feet of impervious surfaces while the larger boathouse would add approximately 29,000 square feet of impervious surfaces. This addition of impervious surfaces would increase the potential runoff volume on the site. The proximity of the facilities to the Potomac River would require development of stormwater measures to effectively restrict any infiltration of uncontrolled runoff into the Potomac River.

- Noise: This area is likely to experience the least amount of aircraft noise of any of the sites considered since planes are at a much higher altitude.

### **3.1.3.3 – Operational Factors**

#### **a. Transportation (Access and Parking)**

Provision of the drop-off area for buses, trailers and emergency vehicles at this site seems difficult for several reasons under existing conditions:

- Vehicles must be able to pass beneath or around the existing pedestrian bridge/ramp structure. This may be possible in two locations; east of the parkway and west of the pedestrian ramp (passing beneath the pedestrian bridge) or west of the entrance to the pedestrian ramp (passing between the columns supporting the switch-back ramp).



- If the first option is selected, turning radii will be problematic, if not impossible, especially for larger vehicles exiting the boathouse and entering the northbound lanes of the parkway.
- If the second option is selected, overhead clearance is very likely to be an issue and turning radii for exiting vehicles may still be an issue, although probably to less of an extent compared with the first option.
- Reconstructing the pedestrian bridge as indicated in the site plan would provide clearing space beneath the bridge and an adequate turning radius for buses, trailers or emergency vehicles.
- **Travel Times:** During the week of January 18, 2002, travel times were obtained between the site and the three public high schools. Vehicles departed the schools at approximately 3:15 PM to simulate vehicles leaving the schools and traveling to after-school practice. Vehicles departed the boathouse site at approximately 6:00 PM to simulate vehicles leaving the boathouse after practice and returning to school. These times were based on information received from the coaches of the rowing teams at Washington-Lee and Wakefield High Schools.
- **Transit Access:** The closest Metro Station at Rosslyn is about 0.33 miles from the site, a walk of about 10 minutes. There is currently no bus service to the site.

Table 3.1

School	Travel Times to Site	Travel Times from Site
	Depart 3:15 PM	Depart 6:00 PM
Washington Lee	14 minutes	13 minutes
Yorktown	18 minutes	13 minutes
Wakefield	13 minutes	18 minutes
Average Travel Time	15 minutes	14 min 40 sec

#### **b. Rowing Conditions**

- The water in the area where the docks are proposed is fairly shallow towards the shore but gets deeper a few feet into the river. There may be some need for minimal dredging to provide sufficient depth near the shore, or the docks could be floated towards the deeper portion of the river.
- Since this area lies within an existing 'no-wake' zone, the potential for conflict with powerboats and other motorized vehicles is minimal. However, there are two existing rowing boathouses, Thompsons and Potomac Boat Club within a mile of the proposed boathouse, and Georgetown University is in the process of developing plans for an additional boathouse upstream, which could result in a large number of rowing shells using this area and could cause potential conflicts between the various practicing teams.
- The teams would potentially lose less than one day on the river each week, due to inclement weather conditions.

#### **3.1.3.4 – Cultural/Visual Resources**

##### **a. Cultural Resources**

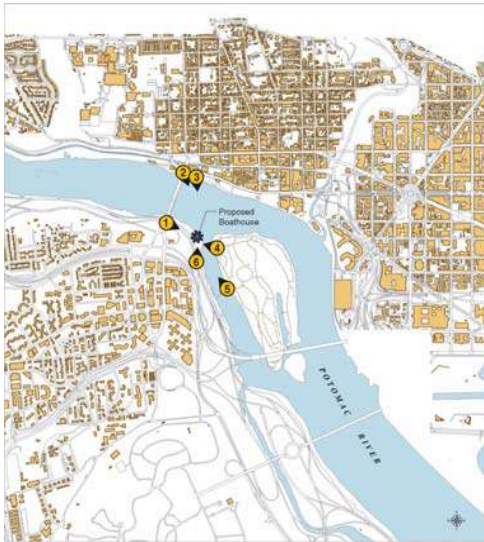
Historic maps and photos indicate that the lower Rosslyn site is on fill land added into the Potomac River for development between 1868 and the early 1900s (aerial photos dated 1939 & 1952, and a map from 1868 & a map from early 1900s). According to these records, boathouse facilities developed at the site, would not likely be within undisturbed potential locations for Native American artifacts. The boathouse facilities would also likely be north of, and thus not disturb, the location of remnants from the historic causeway. Thereby development of the potential boathouse would not be expected to directly disturb these resources. Performance of careful historic and archeological studies of the project site and adjacent areas, prior to initiation of construction, as would be required as part of a Section 106 Review, would help to insure against the loss of potentially valuable cultural resources due to development of boathouse facilities.

The GWMP and TRI would not be directly affected by construction of the boathouse facilities at the lower Rosslyn site. The visual character associated with the historic properties could be affected by the development as discussed regarding the visual simulations of the conceptual plan.

##### **b. Visual**

To assess potential visual impacts of the proposed boathouse, simulations of the boathouse were prepared and overlapped with existing images. The locations of the

images were determined based on their level of visibility from public places (see Figure 3.9). The existing boathouse at Alexandria was used as a model for the simulated architectural style of the proposed boathouse.



*Figure 3.9: Location of Photo Simulations*



*Figure 3.10: Existing View from Southern End of Key Bridge*

*View 1:* From the pedestrian walkway at the southern end of the Francis Scott Key Bridge, the GWMP, adjacent vegetation, vegetation within TRI and bits of the Little River Channel are visible (see Figure 3.10). From this location, the boathouse will be visible, as illustrated in Figure 3.11. A portion of the boathouse's roof and rear wall would be visible. The boathouse will displace a small stand of existing trees increasing the visibility of the TRI's shoreline.

The existing vegetation will most likely obscure the dock area. There is potential to introduce supplemental plantings consistent with existing species, along the shoreline to the south of the boathouse. However, it is unlikely that adding vegetation would reduce the visibility of the boathouse from this location.



*Figure 3.11: Simulation of Proposed Smaller Boathouse – View from the Southern End of Key Bridge*





*Figure 3.12: Existing View from Northern End of Key Bridge*

*View 2:* From the pedestrian walkway at the northern end of the Key Bridge the Potomac River, Rosslyn skyline and the vegetation edge along the GWMP is visible (see Figure 3.12). From this location, approximately two thirds of the boathouse along with the dock will be visible (see Figure 3.13). This will change the existing vegetated character of the shoreline.



*Figure 3.13: Simulation of Proposed Smaller Boathouse – View from Northern End of Key Bridge*



*Figure 3.14: Existing View from TRI*

*View 3:* From the existing hiking trail within TRI, the Little River Channel, portions of the boathouse site, existing vegetation along GWMP and some portions of existing buildings in Rosslyn are visible (see Figure 3.14). Nearly all of the proposed boathouse will be visible from this location during winter months (see Figure 3.15). During summer, the boathouse will be slightly more obscured by existing vegetation.



*Figure 3.15: Simulation of Proposed Smaller Boathouse – View from TRI*





*Figure 3.16: Existing View from the Georgetown Area*

View 4: From across the Potomac River, along Water Street in Georgetown, the Potomac River and the existing vegetation along GWMP create a foreground for multistoried structures in Rosslyn. From this location, the entire dock area and most of the boathouse would be visible.



*Figure 3.17: Simulation of Proposed Smaller Boathouse – View from the Georgetown Area*



*Figure 3.18: Existing View from GWMP Northbound*

*View 5:* This view is from the center median of the GWMP looking north from underneath the existing pedestrian bridge (Figure 3.18). From this location, the entire upper level of the boathouse would be visible (see Figure 3.19) and would change the existing character of the drive along the GWMP. In addition, the Georgetown area, which is currently obscured behind existing vegetation, would become more apparent when the vegetation is removed. Potential for adding vegetation to screen the boathouse is restricted due to limitations of space between the proposed boathouse and GWMP.



*Figure 3.19: Simulation of Proposed Smaller Boathouse – View from GWMP Northbound*



*Figure 3.20: Existing View from the Existing Pedestrian Bridge to TRI*

*View 6:* From the existing pedestrian bridge leading to TRI, looking north, the vegetated shoreline along GWMP, portions of Key Bridge, the Little River Channel and portions of the vegetation on TRI are visible (see Figure 3.20). From this location, portions of the dock area, one third of the front of the boathouse and the reconstructed pedestrian bridge (from Rosslyn) would be visible (see Figure 3.21). The simulation shows the displacement of the shoreline trees due to the realignment of the pedestrian bridge to Rosslyn and the boathouse. Removal of existing trees also will result in increasing the visibility of Key Bridge from this location.



*Figure 3.21: Simulation of Proposed Smaller Boathouse – View from the Existing Pedestrian Bridge to TRI*





*Figure 3.22: Existing View from GWMP Northbound*

**View 7:** This view illustrates the potential view of the larger boathouse from the center median of the GWMP looking north from underneath the existing pedestrian bridge (see Figure 3.22). The increased size compared to the minimum scenario results in a greater view of the larger boathouse (see Figure 3.23 and compare with Figure 3.19).

### **3.1.3.5 – Order of Magnitude Cost**

A preliminary cost estimate of the conceptual plans, prepared for comparison purposes only, indicates that the redevelopment of this site with a potential boathouse could cost the following:

**Table 3.2: Preliminary Cost Estimates**

	<b>Smaller</b>	<b>Larger</b>
Boathouse @\$200/SF	\$3.0 million	\$3.8 million
Site Improvements*	\$1.77 million	\$1.9 million
30% Contingency	\$1.43 million	\$1.7 million
<b>Total</b>	<b>\$6.2 million</b>	<b>\$7.4 million</b>

\* includes an estimate of \$1,248,130 for improvements to the existing pedestrian bridge.



*Figure 3.23: Simulation of Proposed Larger Boathouse – View from GWM P Northbound*