Project Summary Report

Kaal Rock Connector Feasibility Study

Kaal Rock Point Park
City of Poughkeepsie
Dutchess County, New York

May 13, 2016

THE Chazen COMPANIES®
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TABLE OF CONTENTS

1. PROJECT OVERVIEW 1
2. SUMMARY OF WORK COMPLETED IN SUPPORT OF PROJECT 4
2.1 Document Review of Project History and Past Design Efforts 4
2.2 Conceptual Existing Condition Plan 4
2.3 Geotechnical Investigation and Report 4
2.4 Kaal Rock Connector Feasibility Study 4
2.5 Opinion of Probable Cost Study 5
2.6 Regulatory Feasibility Assessment and SEQRA Environmental Assessment Form (EAF) 5
2.7 Public Meetings and Stakeholder Outreach 5
2.8 Recommendations 5
2.9 Limitations 5
2.10 Conclusion 5
2.11 Appendices 5
3. DOCUMENT REVIEW OF PROJECT HISTORY AND PAST DESIGN EFFORTS 6
3.1 History of Planning Efforts for Poughkeepsie Waterfront and Kaal Rock Point Park 6
3.2 Poughkeepsie Waterfront Redevelopment Strategy Report (2015) 6
3.3 Kaal Rock -- Main Street Action Plan (2013) 9
3.4 Morris Associates Study of “Over Rock” Connector Approach (2014) 14
4. PROJECT SITE AND EXISTING CONDITIONS 15
4.1 General Site Description 15
4.2 Available Survey Information 17
4.3 Concept Existing Conditions Plan 18
4.4 Concept Toposurface for Structural Comparison Study 18
5. GEOTECHNICAL INVESTIGATION 19
6. KAAL ROCK CONNECTOR FEASIBILITY STUDY 20
6.1 General Design Criteria 20
6.2 Conceptual Structural Design Study 23
6.3 Conceptual Public Park Design Study 40

7. OPINION OF PROBABLE COST 48
7.1 Contractor Partner – D.A. Collins / Kubricky Construction 48
7.2 Assumptions and Limitations 48
7.3 Opinion of Probable Cost Summary 49
8. REGULATORY FEASIBILITY ASSESSMENT AND RECOMMENDATIONS 52
8.1 Regulatory Feasibility Assessment 52
8.2 SEQRA Long Environmental Assessment Form 56
9. PUBLIC MEETINGS AND STAKEHOLDER OUTREACH 57
10. RECOMMENDATIONS FOR FUTURE WORK 58
10.1 Site and Survey 58
10.2 Geotechnical 58
10.3 Structural 58
10.4 Public Spaces 58
10.5 Opinion of Probable Cost Studies 58
10.6 Regulatory 59
11. LIMITATIONS OF THIS STUDY 60
12. CONCLUSION 60

TABLES

Table 7-1 Kaal Rock Connector – Opinion of Probable Cost Summary
Table 7-2 Kaal Rock Connector – Opinion of Probable Cost – Suspended Option
Table 7-3 Kaal Rock Connector – Opinion of Probable Cost – Cantilevered Option
Table 9-1 Record of Discussions

FIGURES

Figure 1-1 Site Location Map 2
Figure 1-2: Naming Convention Map 3
Figure 3-1: Illustrative Park Improvements 8
Figure 3-2: Illustrative Park Improvements Redevelopment 9
Figure 3-3: Pedestrian and Bikeway Connections between Waryas Park and Kaal Rock Park 11
Figure 3-4: Concept Design for Kaal Rock Park and Kaal Rock Point 13
Figure 3-5: Over Rock Approach Summary 14
Figure 4-1: Overview Photograph 15
Figure 4-2: Overview Photograph 16
Figure 4-3 Available Record Topographic Information 17
Figure 4-4: Renderings of Toposurface from Available Survey Information 18
Figure 5-1 Photograph of rock core from field work. 19
Figure 5-2 Field Investigation Photograph Survey Information 19
Figure 6-1 Example Project – Liberty Bridge 21
Figure 6-2 Example Project – Sassnitz Footbridge 21
Figure 6-3 Example Project – Grimberg Harbor Footbridge 22
Figure 6-4 Example Project – Campo Volantin Footbridge 22
Figure 6-5 Example Project – Gahlensche-Strasse Footbridge 22
Figure 6-6 Prior Structural Connector Concepts 23
Figure 6-7 Comparison of Structural Systems 24
Figure 6-8 Conceptual Walkway Design 25
Figure 6-9 Cantilevered Approach – View from River 27
Figure 6-10 Cantilevered Approach – View from the West 28
Figure 6-11 Cantilevered Approach – View from the North 28
Figure 6-12 Cantilevered Approach – View from Southeast 29
Figure 6-13 Cantilevered Approach – View from the Walkway 29
Figure 6-14 Cantilevered Approach – View from the Walkway 30
Figure 6-15 Cantilevered Approach – Conceptual Plan View 30
Figure 6-16 Suspended Approach – View from River 31
Figure 6-16 Suspended Approach – View from West 32
Figure 6-17 Suspended Approach – View from North 32
Figure 6-18 Suspended Approach – View from South 33
Figure 6-19 Suspended Approach – View from North Above Walkway 33

Figure 6-20 Suspended Approach – View from Walkway 34
Figure 6-21 Suspended Approach – Conceptual Plan View 34
Figure 6-22 Hybrid Approach –View from River 35
Figure 6-23 Hybrid Approach –View from West 36
Figure 6-24 Hybrid Approach –View from North 36
Figure 6-24 Hybrid Approach –View from South 37
Figure 6-25 Hybrid Approach –Conceptual Plan View 37
Figure 6-26: Nautical and Stewardship Theme Inspired by Sloop Clearwater 41
Figure 6-27: Design Precedents and Vision 42
Figure 6-28: Site Topography 43
Figure 6-29: Conceptual Park Design – Plan View 44
Figure 6-30: Envisioned Park Pathways 45
Figure 6-31: Open Spaces Areas 45
Figure 6-32: Nautical Themes 46
Figure 6-33: Park Design Elements 46
Figure 6-34: Birds Eye View of Overall Park Concept 47

APPENDICES

Appendix A – Record Document – Poughkeepsie Waterfront Development Strategy
Appendix B – Record Document – Excerpts from Kaal Rock – Main Street Action Plan
Appendix C – Record Document – Over Rock Connector Approach
Appendix D – Geotechnical Interpretive Report
Appendix E – Conceptual Development Plan
Appendix F – Regulatory Feasibility Study
Appendix G – SEQRA Long EAF
Appendix H – Presentation from First Public Meeting
Appendix I – Meeting Minutes

1. PROJECT OVERVIEW

The City of Poughkeepsie is located along the shores of the Hudson River. Founded in the 18th Century, the City is proud of its rich maritime history and has been undertaking planning efforts to revitalize its Hudson River waterfront for the benefit of the entire Mid-Hudson Region of New York State.

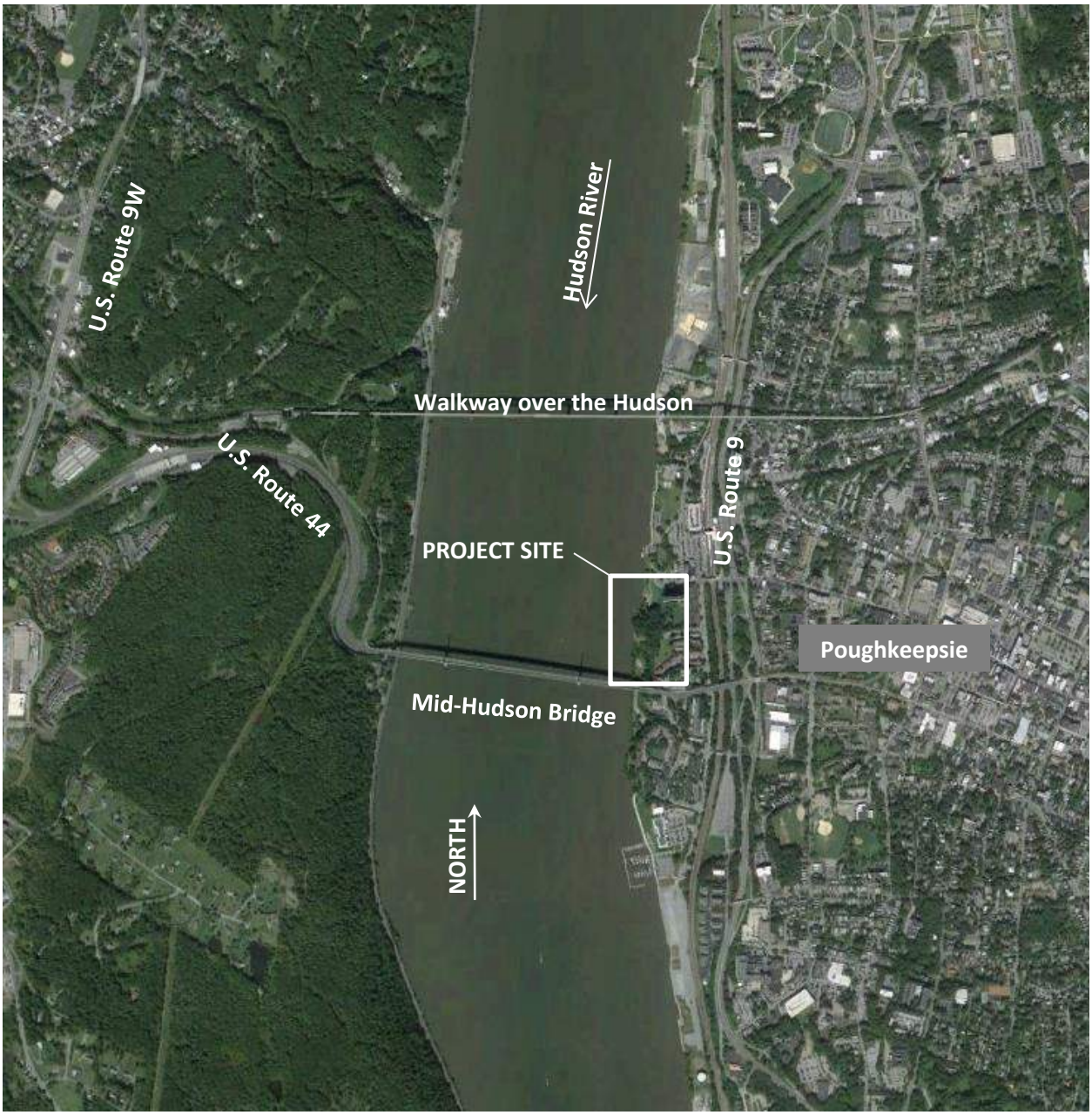
A key component of this revitalization strategy is a continuous walkway north to south along the waterfront. This walkway will not only connect important destinations in Poughkeepsie, but will also serve as a link through the Hudson River corridor. Kaal Rock Point, a large rock outcrop that extends out from the shore and into the Hudson River on City parkland, has long been an obstacle to this envisioned walkway. This feasibility assessment is the first step of installing an elevated walkway around the Kaal Rock Point above the Hudson River, with connections to Waryas Park at the north end and Kaal Rock Park at the south end. This project also envisions enhancement to Kaal Rock Point Park, making it a destination in and of itself.

The proposed walkway is approximately 500 feet long and suspended approximately 15 feet above the Hudson River around the western edge of Kaal Rock Point. This design allows the walkway to be used year-round, as it is above the reach of Hudson River's floodwaters and ice flows. The design is also intended to be ADA-accessible. Reminiscent of both the Mid-Hudson Suspension Bridge and Poughkeepsie's maritime heritage, the walkway and park design adopt a nautical theme reflected in steel masts and cables to suspend the walkway over the Hudson.

The walkway will be located approximately 350 feet north of the Mid-Hudson Bridge (NYS Route 55) in the City of Poughkeepsie on parcel number 720091 (Kaal Rock Point Park). The northern limit of the walkway begins and connects into Waryas Park (parcel 718136) continues westward over the Hudson River (underwater lands owned by the State of New York), and southeast, connecting to lands associated with Kaal Rock Park (parcel 705060). To the northeast is the Rip Van Winkle Housing Complex and associated lands (Parcel 749131), where a pedestrian/bike trail connecting northward to Main Street and southward to the remainder of Kaal Rock Park which may be proposed in a future phase.

Figure 1-2, Naming Convention Map, illustrates the various locations and areas in closer proximity to the proposed project. The project site is located between the Hudson River to the west and the transportation corridors of the Metro North and Amtrak Rail lines and US Route 9 to the east. Waryas Park is located to the north of Kaal Rock Point Park. Kaal Rock Point Park encompasses the tall rock promontory that extends into the Hudson River. The Rip Van Winkle Tower residential development and associated open lands abut the northeast boundary of Kaal Rock Point Park. The Long Street cul-de-sac abuts Kaal Rock Point Park on the eastern boundary in the center. Additional residential development is located south of Long Street and abuts Kaal Rock Point Park along its southeastern boundary. To the south of Kaal Rock Point Park is Kaal Rock Park, a waterfront park generally located at or just above the Hudson River elevation, with steep hillsides extending upward along the eastern boundary, which abuts additional residential development. The Mid-Hudson Bridge, which runs perpendicular to the Kaal Rock Park and Hudson River, bisects Kaal Rock Park south of Kaal Rock Point Park.

Figure 1-1 Site Location Map



(Source: Google Earth)

Figure 1-2: Naming Convention Map[1]

[1] PPS Project for Public Spaces and Morris Associates Engineering Consultants P.L.L.C. 2012. Placemaking in Poughkeepsie Vision and Action Plan for Poughkeepsie Waterfront – Main Street Corridor. Draft. http://cityofpoughkeepsie.com/wp-content/files/kaalrock_mainstreet_actionplan20130423.pdf. (AKA 2013 Kaal Roc – Main Street Action Plan.) PDF Page 125 of 135.

2. SUMMARY OF WORK COMPLETED IN SUPPORT OF PROJECT

A brief overview of the scope of this study is provided herein. Detailed discussions of each task are provided in the sections of the report referenced below.

2.1 Document Review of Project History and Past Design Efforts

Chazen performed a document review of the project history and prior design efforts that was completed between 2011 and 2015 in support of the Poughkeepsie Waterfront Redevelopment Strategy. Chazen focused on those portions of the planning process associated with Kaal Rock Point Park, and linkages to Waryas Park to the north, the Long Street cul-de-sac to the east, and the Kaal Rock Park to the south. Our design solution took into consideration this past work and built upon conceptual design elements contained in those plans.

This document review is discussed in Section 3 of the report.

2.2 Conceptual Existing Condition Plan

Chazen developed a conceptual existing condition plan that served as the base for the conceptual design of the proposed elevated walkway. The existing condition plans was based on record data Chazen had available; no additional field work was undertaken for this project. These plans are suitable only for the conceptual design of the walkway and are not suitable for detailed design, permitting, project bidding or construction-level documents.

This existing condition plan is discussed in Section 4 of the report.

2.3 Geotechnical Investigation and Report

Chazen completed a geotechnical investigation for the lands in and adjacent to Kaal Rock to determine the ability of this site to support an elevated walkway. Chazen monitored a drilling subcontractor, who completed four test boring explorations on and around Kaal Rock advanced a minimum of 15 feet into bedrock. Chazen prepare detailed subsurface logs that provide descriptions of the subsurface conditions encountered, performed geotechnical analyses to determine the strength and composition of Kaal Rock and prepared a Geotechnical Interpretive Report.

This geotechnical investigation is discussed in Section 5 of the report.

2.4 Kaal Rock Connector Feasibility Study

Chazen studied the feasibility of the Kaal Rock Connector project. This study defined general design criteria, explored alternative methods of supporting a walkway around Kaal Rock, prepared a concept public space park plan and identified design issues that require future consideration.

This feasibility study is discussed in Section 6 of the report.

2.5 Opinion of Probable Cost Study

Chazen, in concert with D.A. Collins and the Kubricky Construction Corporation, prepared an opinion of probable cost for the walkway and associated park and access as shown on the concept development plan. The opinion of probable cost study is based upon industry-recognized estimating documents and the experience of Chazen, D.A. Collins and Kubricky Construction on past and similar projects. It is anticipated that this opinion of probable cost will be used for project budgeting purposes, fundraising drives and grant applications.

This opinion of probable cost study is discussed in Section 7 of the report.

2.6 Regulatory Feasibility Assessment and SEQRA Environmental Assessment Form (EAF)

Chazen completed a Regulatory Feasibility Assessment to identify potential regulatory involvement associated with the proposed project. This assessment includes a list of permits and next steps required to obtain necessary authorizations for the construction of the elevated walkway. Chazen also prepared a Long form State Environmental Quality Review Act (SEQRA) long Environmental Assessment Form (SEQRA EAF). This step should assist the project in future phases for funding and reviews, as it defines potential regulatory issues, allows future reviewers to become comfortable with the project in a familiar reporting format, and can be adopted or used by funding and regulatory agencies.

This regulatory assessment study is discussed in Section 8 of the report.

2.7 Public Meetings and Stakeholder Outreach

Chazen engaged in several meetings and teleconferences with community officials, regulatory agencies and other stakeholders to discuss the overall goals and vision for the region, form and understanding of regulatory and entitlement requirements for the project.

This outreach is discussed in Section 9 of the report.

2.8 Recommendations

Recommendations and suggested next steps are summarized in Section 10 of the report.

2.9 Limitations

The limitations of this study are discussed in Section 11 of the report.

2.10 Conclusion

Conclusions and closing statements are provided in Section 12 of the report.

2.11 Appendices

Relevant documents used in support of this study are attached in the report appendices.

3. DOCUMENT REVIEW OF PROJECT HISTORY AND PAST DESIGN EFFORTS

This section of the report discusses the prior planning that was completed between 2011 and 2015 in support of the Poughkeepsie Waterfront Redevelopment Strategy, with attention focused on those portions of the planning process associated with Kaal Rock Point Park, and linkages to Waryas Park to the north, the Long Street cul-de-sac to the east, and the Kaal Rock Park to the south. Where feasible, the design solution took into consideration and built upon conceptual design elements contained in those plans. This section of the report then describes the design solution and the design considerations that were incorporated into the Conceptual Plan. It then discusses those features which appear to work well, and any features or considerations that need to be resolved during the next phase of design.

3.1 History of Planning Efforts for Poughkeepsie Waterfront and Kaal Rock Point Park

The design for the Kaal Point walkway, park area and access builds upon previous studies completed for the Kaal Rock Point Park and surrounding lands. The 2015 Poughkeepsie Waterfront Redevelopment Strategy[2] is discussed below, as it provides an overview of how the Kaal Rock Point Park fits into the overall redevelopment strategy for the Poughkeepsie waterfront. More focused concept designs were developed for Kaal Rock Point Park and connections adjoining lands in the 2013 Kaal Rock – Main Street Action Plan.[3] (It is noted that this document appears to be called Poughkeepsie Waterfront –Main Street Corridor Action Plan, and has components dated from May 2, 2011 to January 30, 2012). Sections 2.4 to the end discuss conceptual plans for Kaal Rock Point Park and surrounding connections.

3.2 Poughkeepsie Waterfront Redevelopment Strategy Report (2015)

Kaal Rock is discussed in many locations within the 2015 Final Poughkeepsie Waterfront Redevelopment Strategy report. A copy of this report is provided in Appendix A. It is first mentioned as part of the stretch of "over 39 waterfront acres that have been transformed into new, publically-accessible parkland."[4] Overall Goal #1 of the Poughkeepsie Waterfront Redevelopment Strategy is to "build a continuous greenway trail along the riverfront,"[5] including continuous trail systems, signage, connections to inland residential neighborhoods, and boating access. Four gaps were identified along this trail system, including Kaal Rock Point, specifically stating:

> *"Kaal Rock Point. The City's Kaal Rock Study provides a park layout and trail specifications for both over the top of the point and around the base at river level. Recommendations include a trail system with no more than 5 percent grades to an overlook area with a kiosk or gazebo*

[2] City of Poughkeepsie Common Council. 2015. "Poughkeepsie Waterfront Redevelopment Strategy." Consultants: Stantec, Planning and Landscape Architecture; Torti Gallas and Partners, Urban Design; HR&A Advisors, market and Financial Analysis; with assistance from Dutchess County Planning and Development. Final dated May 18, 2015. See http://www.co.dutchess.ny.us/CountyGov/Departments/Planning/pwrs.pdf.
[3] PPS Project for Public Spaces and Morris Associates Engineering Consultants P.L.L.C. 2012. Placemaking in Poughkeepsie Vision and Action Plan for Poughkeepsie Waterfront – Main Street Corridor. Draft. http://cityofpoughkeepsie.com/wp-content/files/kaalrock_mainstreet_actionplan20130423.pdf. (AKA 2013 Kaal Roc – Main Street Action Plan.)
[4] City of Poughkeepsie Common Council. Page 1.
[5] Ibid. Page 3.

> *and potential concessions. Stairs are necessary down the steep slopes to Kaal Rock Park. The boardwalk at river level would be supported by piles or cantilevered off the rock. The City is currently pursuing grants to construct the initial trail system."*[6]

Goal #2 of the Poughkeepsie Waterfront Redevelopment Strategy is to "knit together surrounding City plans, projects and neighborhoods."[7] The Kaal Rock Study is discussed here as well:

> *"Kaal Rock Study. Under a grant from the NYS Department of State, Project for Public Places has recommended a variety of options to restore Kaal Rock Park, clean-up Kaal Rock Point, integrate the Point into the waterfront trail system, and create connections to Main Street. The Waterfront Strategy includes new paths that directly link Main Street across the front of the Rip Van Winkle property to the park entrance, making the Waryas Park connection far less steep and uninviting. Additional housing along Kaal Rock Point and Long Street will provide "eyes on the park" security."*[8]

Under Existing Park Conditions, the Poughkeepsie Waterfront Redevelopment Strategy report mentions that the Kaal Rock Park and the grassy northern section of Waryas Park are the "two most inactive areas" along the Poughkeepsie waterfront. The report discusses Waryas Park in greater depth, stating that the immense greenspace at the southern end is often empty, even when the parking lots are full. The report indicates that Waryas Park "lacks the variety of destination features, through circulation systems, frequent maintenance, weekly programming, and surrounding uses necessary to keep the area continually active. This is particularly evident on weekdays and during the colder months."[9]

In the Guiding Principles and Design Strategies portion of the Poughkeepsie Waterfront Redevelopment report, the following items were identified for Kaal Rock Park and its environs (bold emphasis added):

- "South of Main Street: Area improvements should strengthen the residential neighborhood, increase safety, and **revitalize Kaal Rock Point and Park**."[10]
- **"Improve accessibility and attractions at Kaal Rock Point and Park to benefit both residents and visitors, consistent with the 2013 Kaal Rock Study, including a continuous trail over and around the point to the southern waterfront businesses and beyond."** [11]
- "Construct townhomes along Long Street and Rinaldi Blvd. to complement the existing neighborhood to the south **and provide better accessibility and security for Kaal Rock Point."** [12]
- "Replace or reduce the size of the current park parking lots and the over-sized Main Street cul-de-sac to create a more continuous green park from the Children's museum to **Kaal Rock, linked by a riverfront promenade and a second inland path along the rear slopes."**[13]

[6] Ibid. Page 4.
[7] Ibid. Page 5.
[8] Ibid. Page 5.
[9] Ibid. Page 11.
[10] Ibid. Page 15.
[11] Ibid. Page 15.
[12] Ibid. Page 15.
[13] Ibid. Page 16.

In the Recommendations and Illustrative Plan portion of the Waterfront Redevelopment report, Kaal Rock Park and its environs were identified and illustrated (bold emphasis added):

- "Increase public access. The overall plan envisions a remarkable network of public greenspaces and paths that will pull together the park system and connect the City to the river. It first creates multiple new access ways through Waryas Park to the water. **The plans expand to include paths over and around Kaal Rock,** a proposed trail system along the Fall Mill Creek, and a priority connection past the Children's museum to Upper Landing Park and the Walkway over the Hudson elevator. It also links to Greenway Trail sections along the Hudson River north and south of the City's two iconic bridges."[14]
- "Any **demand for continued parking spaces** overlooking the river can still be **supplied at the revitalized Kaal Rock Park** to the south."[15]

The Illustrative Park Improvement Plan is provided on page 18 of the Poughkeepsie Waterfront Redevelopment report. Figure 3-1, an excerpt from that report,[16] illustrates Kaal Rock Park (which seems to include here Kaal Rock Point Park) and its immediate environment. The following Park Improvements are identified adjacent to or within Kaal Rock Park.[17]

Figure 3-1: Illustrative Park Improvements

Item 14. Playground. "Built into the slopes at the south end of Waryas Park to provide safer slides and back away from the river's edge, this children's playground complements the climbing structures and picnic tables near the base of Main Street."[18] It is mentioned here due to its proximity to the Kaal Rock Point Park.

Item 15. Kaal Rock Point: "The Kaal Rock Plan recommends the clearing of underlying brush, a connected path system, open playing field to the rear, and rain gardens. A viewing area on top with railings along the edge would have seating options, a kiosk/gazebo and possible future concessions."[19]

Item 16. Kaal Rock Walkway: "The plan calls for a boardwalk around the base of the rock, either supported on piles or perhaps cantilevered off the rock, to provide a river level linkage to City parklands to the south."[20]

The Plan also calls for a "Park Lane" (Item 2) as "a secondary connection from the Walkway elevator and Fall Kill Pedestrian bridge **south to the top of Kaal Rock Point**….The lane...offers through circulation for walkers, bicyclists, and park security, and also provides a place for temporary food or craft market stalls."[21]

[14] Ibid. Page 17.
[15] Ibid. Page 17.
[16] Ibid. Page 18.
[17] Ibid. Pages 18 and 19.
[18] Ibid. Page 19.
[19] Ibid. Page 19.
[20] Ibid. Page 19.
[21] Ibid. Page 18.

The Poughkeepsie Waterfront Redevelopment report also discusses redevelopment options in the vicinity of Kaal Rock Point Park. Specifically the plan recommends redevelopment of the parcel containing the Rip Van Winkle Tower as well as Rinaldi Boulevard (see Items 5 and 6 on Page 20, and described on page 19 of the report) to the northeast of Kaal Rock Park. Figure 3-2, an excerpt from that report,[22] illustrates these locations. Redevelopment of the Rip Van Winkle Parcel with mixed uses was identified as having many benefits including "overlook[ing] Kaal Rock Point to enhance park safety."

Figure 3-2: Illustrative Park Improvements Redevelopment

3.3 Kaal Rock -- Main Street Action Plan (2013)

From 2011 to 2013 the Project for Public Spaces (PPS) and Morris Associates Engineering Consultants P.L.L.S completed the Poughkeepsie Waterfront – Main Street Corridor Action Plan. A copy of this action plan is provided in Appendix B. As stated above, this document appears to have been subsequently named the 2013 Kaal Rock – Main Street Action Plan. The Poughkeepsie Waterfront Redevelopment Strategy document, discussed above, references many of the elements generated from this Plan and associated public participation process, such as linkages through the Poughkeepsie Waterfront and to areas to the east, as well as redevelopment on various parcels. However, this plan also provides some additional visioning details for the Kaal Rock Point and Kaal Rock Park. This summary focuses on those planning efforts.

The Project Walkthrough and Scoping Meeting identified the following items relative to Kaal Rock:

- A pier at Kaal Rock was noted, and identified as a free pier, a location used by Sloop Clearwater, and a place where people were fishing, and a possible destination. This pier is located on the northwest side of Kaal Rock Point within Waryas Park.[23]
- A possible former restaurant and residence was noted on the Kaal Rock Point property.[24]

The "Summary of Land Use" portion of the Action Plan describes Kaal Rock Point and Park as follows:

> *"<u>Kaal Rock Point</u>: Kaal Rock Point rises approximately 60 feet above the Hudson River. Its prominent rock faces and steep topography on three sides present challenges to visitors, as the existing network of informal paths are steep and precarious. Although much of the Point itself is heavily forested, the highpoint is roughly cleared. The meadow near the Long Street cul-de-sac, also located in the Kaal Rock Point subarea, is another cleared area. From Long St. approach to the Point is mostly level or gently rolling topography. Although evidence of travel exists, there is no designated path to the point from Long St. Forested areas with no to little paths isolated the high point itself from public access.*

[22] Ibid. Page 20.
[23] PPS Project for Public Spaces and Morris Associates Engineering Consultants P.L.L.C. PDF Page 2 of 135.
[24] Ibid. PDF Page 3 of 135.

> *<u>Kaal Rock Park:</u> Kaal Rock Park provides limited visual and physical access to the Hudson. The view of the River and access to short lengths of beach are often obstructed by vegetation and there are not defined or improved trails. Pathways that are evident because of repeated usage are often steep; run along precarious rock faces; and are worn on uneven, rock-strew surface that would not be safe for residents and visitors even in regular street shoes. However, the prospect of traversing the face of Kaal Rock and strolling along flatter areas in Kaal Rock Par are activities that are enhanced by the presence of the River."* [25]

Later, the Action Plan describes the shoreline from the timber pier at Waryas Park through to the southern end of Kaal Rock Point as follows:

> *Within Waryas Park, there is "a concrete seawall…which extends south approximately 50 linear feet… Extending west from the concrete seawall is a timber pier… This pier extends approximately 70 feet into the Hudson River."*
>
> *"Just south of the concrete seawall, the shoreline transitions into an undeveloped shoreline for approximately 50 linear feet… The termination of this reach is at the boundary of Waryas Park and Kaal Rock Point Park."*
>
> *"<u>Kaal Rock Point Park</u>: The reach extending from the boundary of Waryas Park and Kaal Rock Point Park is approximately 300 linear feet. The shoreline of this reach is characterized as a "hard" shoreline due to the rocky bluff which extends into the Hudson River… A rocky bluff is a natural rock outcropping with a steep upland slope."*
>
> *"<u>Kaal Rock Park</u>. The shoreline at the boundary of Kaal Rock Point Park and Kaal Rock Park consists of riprap which extends south approximately 600 linear feet… Sections of this reach are composed of riprap which appears to be non-engineered, as the riparap armor stone is sparsely distributed…"*[26]

In the vicinity of the asphalt parking area at Kaal Rock Park are timber piles at a former platform, configured in a triangle extending into the Hudson River and further south there is a concrete slab on riprap, extending approximately 75 feet along the shoreline. [27]

The "Roads and Parking" portion of the Action Plan states that Kaal Rock Park has parking spaces for 10-20 vehicles but that parking in this area could be better utilized (see photograph on Page 38 of that report).[28]

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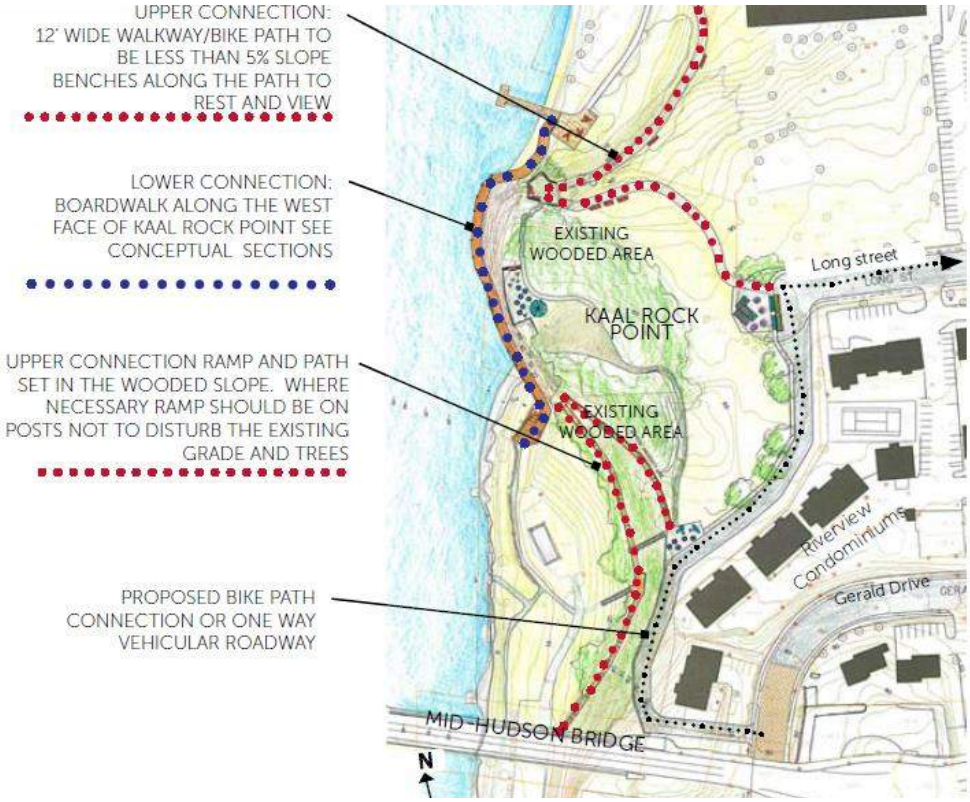
[25] Ibid. PDF Page 40 of 135.
[26] Ibid. PDF Page 57 of 135.
[27] Ibid. PDF Page 58 of 135.

The Action Plan provides a figure identifying Proposed Key Destinations.[29] For the areas around Kaal Rock Point Park, the key areas are:

- Location 2.4 - Kaal Rock Point Pier and Lawn located within Waryas Park.
- Location 3.1 - Kaal Rock Point Gateway to the Point and Point Overlook (from Long Street).
- Location 3.2 - Kaal Rock Point Neighborhood Law and Natural Forest Area and Pathways.
- Location 4.2 - Kaal Rock Park north of Mid-Hudson Bridge, proposed for boat and kayak, and environmental education.

The Plan then provides a chart of Action Items and illustrations of Design Concepts for Kaal Rock Park and Kaal Rock Point. Appendix D, Excepts from 2013 Kaal Rock – Main Street Action Plan include the portions of the Action Plan specified above. These relevant items are summarized here in order to build upon this planning effort in the design of the Kaal Rock Point Elevated Walkway and associated infrastructure, and to avoid future use conflicts. Figure 3-3 below is an excerpt from that report,[30] provided here to illustrate the envisioned proposed pedestrian and bike connections.

Figure 3-3: Pedestrian and Bikeway Connections between Waryas Park and Kaal Rock Park



[28] Ibid. PDF Page 56 of 135.
[29] Ibid. PDF Page 95 of 135.
[30] Ibid. PDF Page 109 of 135.

Location 2.4 – Kaal Rock Point Pier and Lawn located within Waryas Park. For this location, the vision specific to Kaal Rock Point Park includes[31] "an access point to Kaal Rock," "orientation [signage] for the destinations south of Kaal Rock, and the boardwalk to Kaal Rock Park and nature walks." In addition, a scenic viewpoint near Rip Van Winkle housing with an overlook to add "eyes on the Kaal Rock Point Park." Figures for this vision illustrate a boardwalk starting from near the pier at the south end of Waryas and continuing south around the west side of Kaal Rock Point Park, and a future walkway connector around the north and east side of Kaal Rock Point Park connecting south into Kaal Rock Park. As shown above in Figure 5, pedestrian and bikeway connections from Main Street in Waryas Park down to the Kaal Rock Point Park are envisioned, and include either a suspended boardwalk, a floating dock or a fixed pier around the west side of Kaal Rock. [32]

Location 3.1 Kaal Rock Point Gateway to the Point and Point Overlook. For this location, the vision includes[33] making Kaal Rock Point one of the "iconic places to see along the waterfront. Items include a "gateway entrance [at Long Street] to Kaal Rock Point Park; wayfinding, gather plaza for drop off and small events, future food truck parking on weekends." "Improved walkway to the Point viewing area. Use the existing flat area for creating…access pathways through the wooded area, providing ADA accessible paving, seating, enhancing the view corridor. Overlook [of the Hudson River] with seating, kiosk/gazebo, future café concession."

Location 3.2 Kaal Rock Point Neighborhood Lawn, Natural Wooded Areas and Pathways. For this location, the vision as shown in Figure 6, which is an excerpt from the Report [34] calls for the design to "preserve and build off of the natural feeling, especially of the woodlands, but infuse it with more activity and improve its connectivity to make it more usable. The wooded areas could become a natural resource for all waterfront parks, restoring the Point to native times using native plantings…A lawn [south of the Long Street cul-de-sac and northwest of the Riverview Condominiums] for informal games, family picnics, neighborhood activities. A challenge course youth program. Nature walk in the existing wooded area, building on the existing path system. Climbing and difficult trails in a wooded area."

Location 4.2 Kaal Rock Park Youth Environmental Education and Boat and Kayak Launch, North end of Park and Lawn. For this location, the vision, specific to Kaal Rock Point Park discusses[35] existing conditions stating that there are "several asphalt walkways and a wider paved area [but] few benches in the wooded area close to the base of Kaal Rock. There is a narrow asphalt road connecting the parking on the south." The linkage to Kaal Rock Point is discussed stating "In order for this section of Kaal Rock Park to be a successful youth destination, it is necessary to accomplish the North South connection to Waryas Park, the connection to the Walkway elevator, and to the loop." The vision for activities in this area include "providing

[31] Ibid. PDF Page 108 of 135.
[32] Ibid. PDF Page 109 of 135.
[33] Ibid. PDF Page 108 of 135.
[34] Ibid. PDF Page 111 of 135.
[35] Ibid. PDF Page 113 of 135.

natural areas for children to explore is emerging as a key opportunity for Kaal Rock Park. A kayak pontoon (warm weather uses), an Exploratorium for adventure and nature walks, climbing, orienteering. An outdoor classroom, a natural amphitheater with movable stage for concerts/performances."

Figure 3-4 summarizes these visions into a Concept Design for Kaal Rock Park and Kaal Rock Point.[36]

Figure 3-4: Concept Design for Kaal Rock Park and Kaal Rock Point

[36] Ibid. PDF Page 128 of 135.

3.4 Morris Associates Study of "Over Rock" Connector Approach (2014)

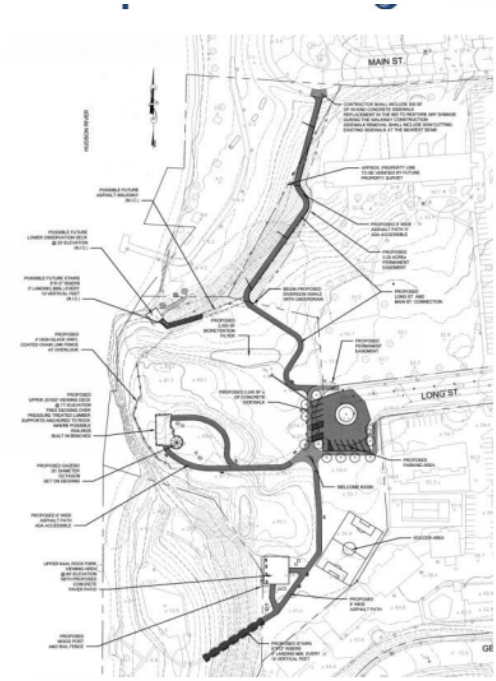
In 2014, Morris Associates explored the possibility of constructing a connection path around the east side of Kaal Rock, hereafter referred to as the "Over Rock Approach." Morris Associates prepared a construction level set of documents entitled, "Final Construction Plans for City of Poughkeepsie – Kaal Rock Point Park Improvements", dated July 28, 2014. A copy of these documents is provided in Appendix C.

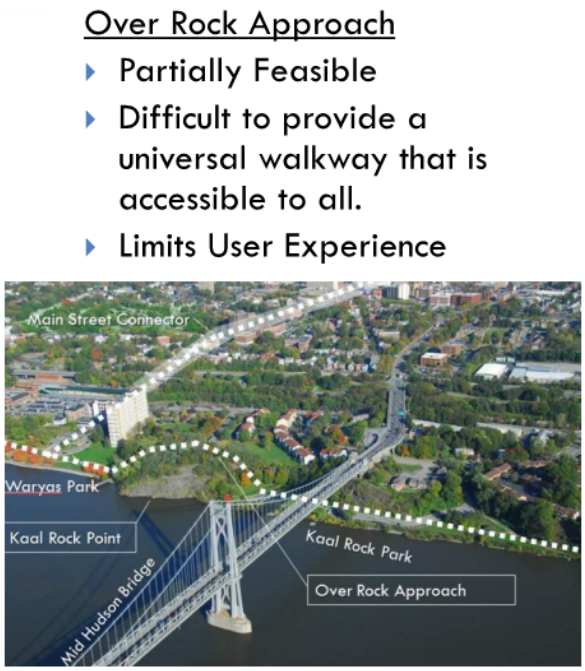
Chazen reviewed this set of drawings as a part of our document review. Our review revealed that the "Over Rock Approach":

- Does not provide a universally accessible walkway around Kaal Rock Point. The grades on the south side of Kaal Rock are too steep to provide an accessible path and a staircase is required.
- Takes the public away from the waterfront and limits the user experience.
- Limits the amount of traffic to the northern edge of Kaal Rock Park and the southern edge of Waryas Park, limiting the potential for these two areas.

Based upon our review, we determined that the Over Rock Approach is only a partially feasible design solution. While it does provide a connection between Kaal Rock Park and Waryas Park, it does not satisfy the design criteria described in Section 6 of this report.

Figure 3-5: Over Rock Approach Summary





4. PROJECT SITE AND EXISTING CONDITIONS

4.1 General Site Description

The proposed project site includes Victor C. Waryas Park to the north, Kaal Rock Point (outcrop and surrounding wooded area), the Hudson River to the west, Kaal Rock Park to the south, and the Long Street cul-de-sac to the east. The planned elevated walkway will connect Waryas Park to Kaal Rock Park by extending out over the Hudson River. New ramped walk paths will transition the existing at grade paths in Waryas Park, Kaal Rock Park and from Long Street to Kaal Rock Point.

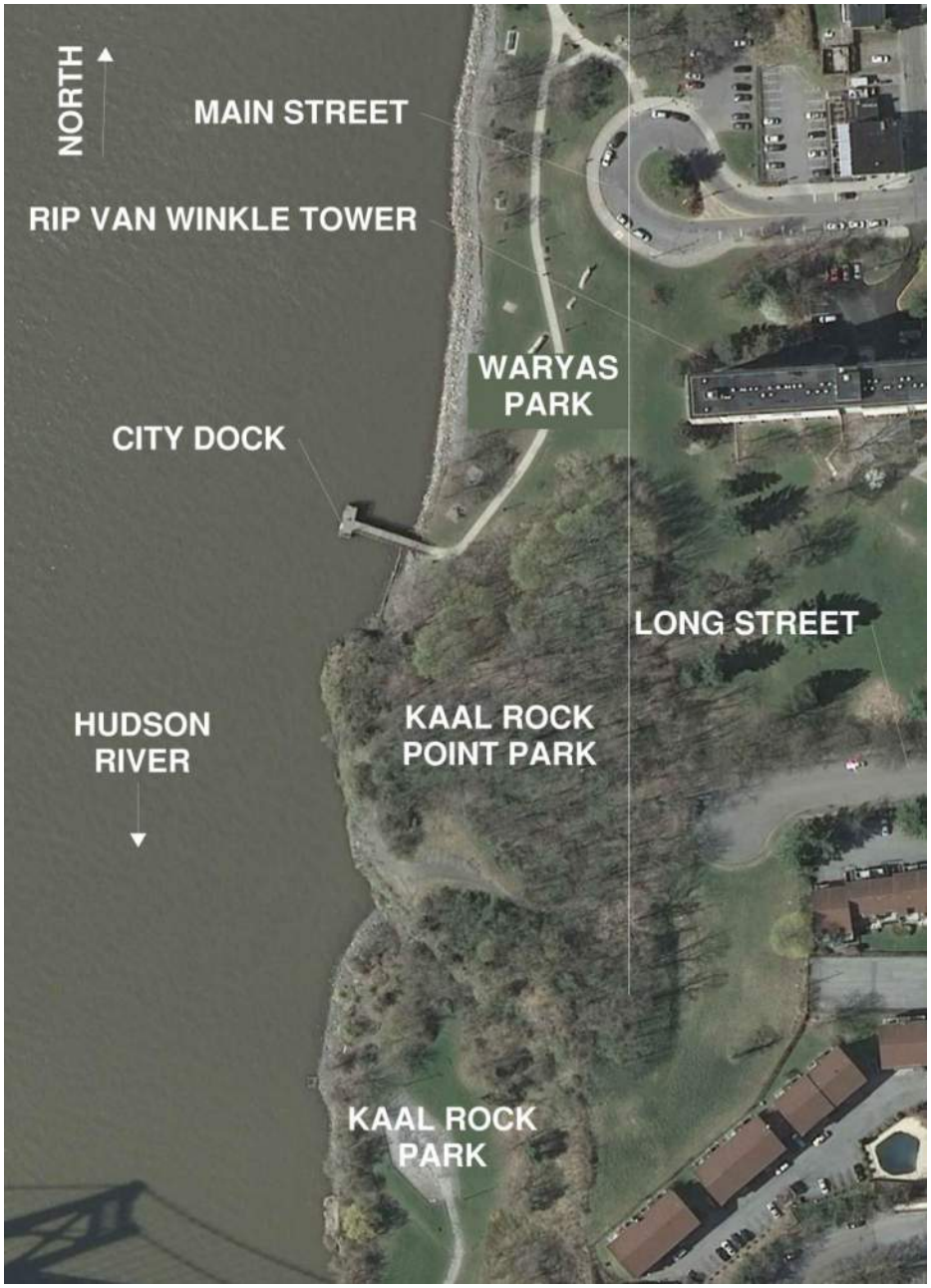
The southern portion of Waryas Park is adjacent to Kaal Rock Point and is a relatively flat area. Currently, there are landscape features (e.g. retaining walls and sidewalks), a playground, a small beach area and wooden pier/dock extending into the Hudson River. The topography gradually slopes from Elevation 0 at the river edge to Elevation 6 at the Kaal Rock Point.

The topography at Kaal Rock Point outcrop slopes from near vertical out of the Hudson River (Elevation 0) to Elevation 68 at Kaal Rock Point's flat area in the southern portion. The outcrop surface slopes gently to the east towards the Long Street cul-de-sac to Elevation 52 and steeply to the north and south to Elevation 0.

Kaal Rock Park topography slopes gradually up to the east from Elevation 0 at the Hudson River to Elevation 12 at the parking area. From the parking area the grades rise steeply to the north and east to Elevation 25.

Figure 4-1: Overview Photograph

Figure 4-2: Overview Photograph

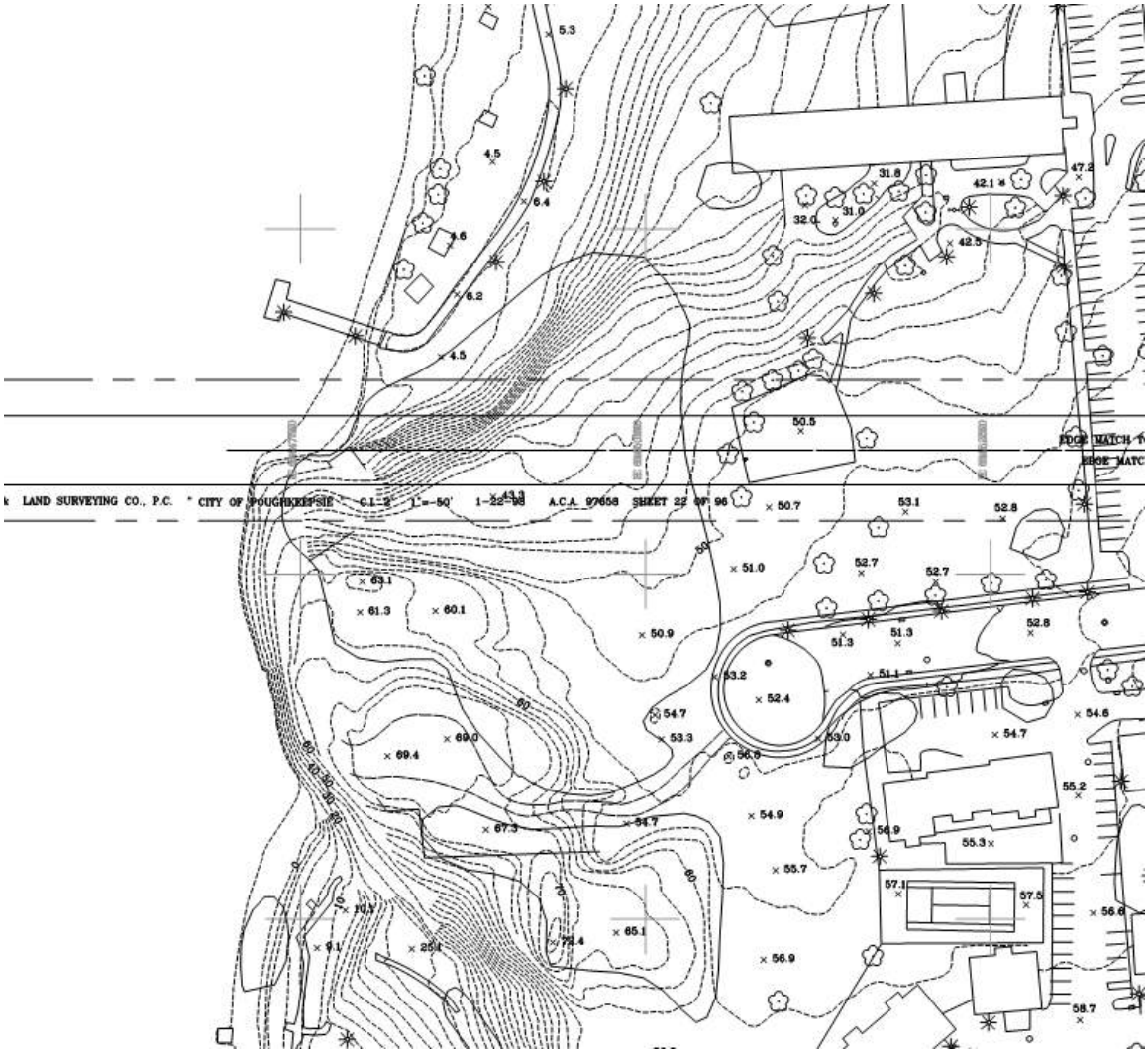


4.2 Available Survey Information

Chazen has available approximate topographic information for the project site. Chazen believes that this topographic information is accurate enough for the purposes of this feasibility study and formed the basis for our site and walkway design phases. This topographic information is shown below in Figure 4-3.

No additional survey or field verification work was performed as a part of this project. Chazen recommends that additional survey work be performed in future stages of the project. This would include more detailed topographic, boundary survey and datum correlation for tidal elevations. Note the limitation section of this report for more information.

Figure 4-3 Available Record Topographic Information



4.3 Concept Existing Conditions Plan

Chazen utilized our available record topographic information, combined it with publically available parcel and GIS data to form an existing conditions plan suitable for concept planning of the project. This concept existing condition plan is believed to be accurate enough for the purposes of this feasibility study and formed the basis for our concept level site and walkway design phases. The existing conditions plan can be seen as the background on which the concept site plans were prepared in Section 6 of this report.

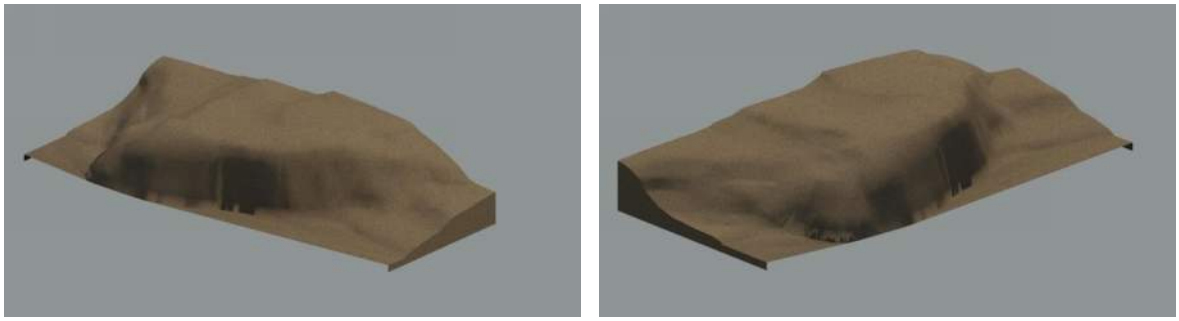
4.4 Concept Toposurface for Structural Comparison Study

Chazen created a three-dimensional topographic surface (or "toposurface") from the record topographical information using a building information modeling (BIM) software "Revit", by Autodesk. The program takes known elevation contour lines from the record file and approximates the elevations between them to create a complete surface.

This surface should be considered an approximation of the topography only, but we believed to be accurate enough for the purposes of this feasibility study and formed the basis for the conceptual structural design study.

Note that only the topography is modeled in the toposurface and no information is provided on the location of vegetation, existing parklands, structures or the shoreline. The entire surface is modeled using the color brown and it does not distinguish between the rock face, vegetated areas and the river itself. Renderings of the toposurface are shown in Figure 4-4.

Figure 4-4: Renderings of Toposurface from Available Survey Information



5. GEOTECHNICAL INVESTIGATION

Chazen completed a geotechnical investigation for the lands in and adjacent to Kaal Rock to determine the ability of this site to support an elevated walkway structure.

Figure 5-1 Photograph of rock core from field work.

The exploration program included five (5) test boring explorations performed between March 14 and March 16, 2016 to obtain representative subsurface information, including rock cores. Subsurface stratigraphy across the project site consists of Topsoil, Fill, Glacial Deposits, Weathered Bedrock, and "Sound" Bedrock. Groundwater was observed to be perched on the Bedrock surface where overburden soils were present.

Based on findings from the subsurface explorations and the concept design plans, developed by Chazen in concert with this report, pile caps and micro-piles with rock sockets deriving their strength from "Sound" Bedrock are recommended to support the pedestrian elevated walkway structural system (i.e. girders anchored into and secured against Kaal Rock Cliff face and supported by cables attached to vertical mast structures). Chazen recommends an allowable end bearing capacity of 20 tons-per-square-foot (tsf) for foundation elements end bearing on "Sound" Bedrock and an allowable "Sound" bedrock-to-grout bond strength of 50 pounds per square inch (psi). Additional design considerations are discussed in the geotechnical report.

Provided that the geotechnical recommendations and construction considerations outlined in the Geotechnical Interpretive Report are incorporated in the design and during construction activities, the project site is considered feasible for the proposed Kaal Rock Walkway project.

Additional design considerations, recommendations and limitations are provided in the complete Geotechnical Interpretive Report that is provided in Appendix D.

Figure 5-2 Field Investigation Photograph

6. KAAL ROCK CONNECTOR FEASIBILITY STUDY

Chazen studied the feasibility of the Kaal Rock Connector, an elevated walkway around the south side of Kaal Rock, as part of this study. Our feasibility study defined general design criteria for the connector, studied existing site features to identify possible locations for the connector, explored different structural systems to support the connector and developed a conceptual park design to tie together the project into something that best fits the Poughkeepsie waterfront. Our conceptual development plans are provided in Appendix E.

6.1 General Design Criteria

Based upon our document review, discussions with project stakeholders and understanding of the project, Chazen adopted the following general design criteria for this feasibility study:

- This project has the potential to be a **signature project** on the Poughkeepsie waterfront. The final design should be one that draws attention.
- The project should continue to make Poughkeepsie a **tourist destination** by connecting this signature project into the existing multi-use trail system and adjacent parklands.
- The walkway and connecting paths should be **universally accessible,** ADA-compliant and follow good design practices to accommodate both cyclists and pedestrians.
- The project should **pay homage to Poughkeepsie's past** and present relationship with the Hudson River.
- The project **should strike a balance** between the visual, physical, ecological, and cultural impacts while being technically and economically feasible.

6.1.1 Prior Examples of Successful Elevated Walkways

Chazen studied prior examples of successful elevated walkway projects around the world. Our study revealed that elevated walkway projects come in a variety of forms. Our study focused upon design examples from two prominent structural engineers: Jorg Schlaich and Santiago Calatrava.

Each of these referenced walkway projects has a structure that is tailored to the site in which it sits, makes efficient use of materials, is lit up at night and becomes an icon for each community. Representative photographs of these projects are provided in Figure 6-1 through 6-5. We believe these are good examples of what the Kaal Rock Connector can be for Poughkeepsie.

Example projects include:

- Liberty Bridge[37], Greenville, South Carolina.

Figure 6-1 Example Project – Liberty Bridge

- Sassnitz Footbridge[38], Sassnitz, Germany.

Figure 6-2 Example Project – Sassnitz Footbridge

[37] Schlaich Bergmann and Partner, http://www.sbp.de/en/project/liberty-bridge-greenville/
[38] Schlaich Bergmann and Partner, http://www.sbp.de/en/project/footbridge-sassnitz/

- Grimberg Harbor[39], Gelsenkirchen, Germany.

Figure 6-3 Example Project – Grimberg Harbor Footbridge

- Campo Volantin Footbridge[40], Bilbao, Spain.

Figure 6-4 Example Project – Campo Volantin Footbridge

- Bridge across Gahlensche-Strasse[41], Bochum, Germany.

Figure 6-5 Example Project – Gahlensche-Strasse Footbridge

[39] Schlaich Bergmann and Partner, http://www.sbp.de/en/project/footbridge-grimberg-harbour-gelsenkirchen-1/
[40] Santiago Calatrava, http://www.calatrava.com/projects/campo-volantin-footbridge-bilbao.html
[41] Schlaich Bergmann and Partner, http://www.sbp.de/en/project/bridge-across-gahlensche-strasse/

6.1.2 Site Design

Chazen studied the features of the Kaal Rock Point site. Our study was based upon our review of previously completed studies, record topographical information and our own visits to the site. Our study revealed:

- **The topography on the south side of Kaal Rock provides a natural tie-in point for the connector.** There is a raised portion of grade that can accommodate a tie-in point somewhere around Elevation 16 to Elevation 20. This area already supports a pedestrian walkway and can be easily modified to support the new connector.

- **The topography on the north side of Kaal Rock will require site work to support the connector.** The site is near Elevation 4 near the base of the rock. The site will need to be raised to an elevation similar to the south end to tie the connector into Waryas Park in a ADA-compliant manner.

6.2 Conceptual Structural Design Study

Chazen studied the feasibility of several different structural systems as a part of this study. We studied two different systems that require contact with the Hudson River and two systems that are attached directly to Kaal Rock itself. Our study revealed that both types of rock-supported structural systems were feasible.

Chazen prepared a conceptual-level structural design of each rock-supported system and studied the advantages and limitations of each. The results of our study are listed herein.

6.2.1 Prior Structural Concept Study

Chazen studied the three structural concepts proposed by Morris Associates /PPS as a starting point for our study. The three concepts are described below and in Figure 6-6.

Figure 6-6 Prior Structural Connector Concepts

- Floating Dock – A walkway that floats directly on the Hudson River and is anchored to the river bottom.

- Fixed Pier – A walkway that is supported on pilings that is secured directly to the river bottom.

- Suspended Boardwalk – A walkway that is secured to Kaal Rock without direct physical contact to the river itself.

Chazen evaluated each concept and summarized our findings in Figure 6-7.

Figure 6-7 Comparison of Structural Systems

After evaluating these options and discussing our findings with community officials, Chazen proceeded forward using the **suspended boardwalk** design concept for the following primary reasons:

- **Minimizes physical and ecological impacts to the Hudson River.** Both other options require disturbing the river bottom and water way beneath the bridge, which can disturb aquatic life and lead to significant regulatory and permitting challenges.

- **It can be built above the flood plain.** The walkway can be secured above both the 100 and 500 year flood elevations with room to account for future sea-level rise.

- **It minimizes yearly maintenance costs for the City.** The walkway is permanently raised above the river, is not susceptible to ice-related damage and does not require City personnel to remove the walkway each winter.

6.2.2 General Walkway Design Criteria

Chazen studied the general design criteria that has been used successfully in other elevated walkway and shared-use path designs and combined this to the specifics of the project site. Our study revealed that the ideal walkway should:

- **Be about 15 feet wide.** This width can accommodates bicycle traffic, walking pedestrians and stationary onlookers on the walkway. Narrower paths can limit range of motion while larger paths incur larger structure costs.

- **Be flat.** This simplifies the design and construction of the walkway and provides the best experience for the user. (A slight cross slope is recommended in the deck to promote drainage.)

- **Have a walking surface around Elevation 18.** This elevation ties-in to the existing raised area in Kaal Rock Park and allows for an ADA-accessible path to be constructed into Waryas Park. This elevation also allows the walking surface to be well-above the flood plain and allows room for structural systems to be placed beneath it.

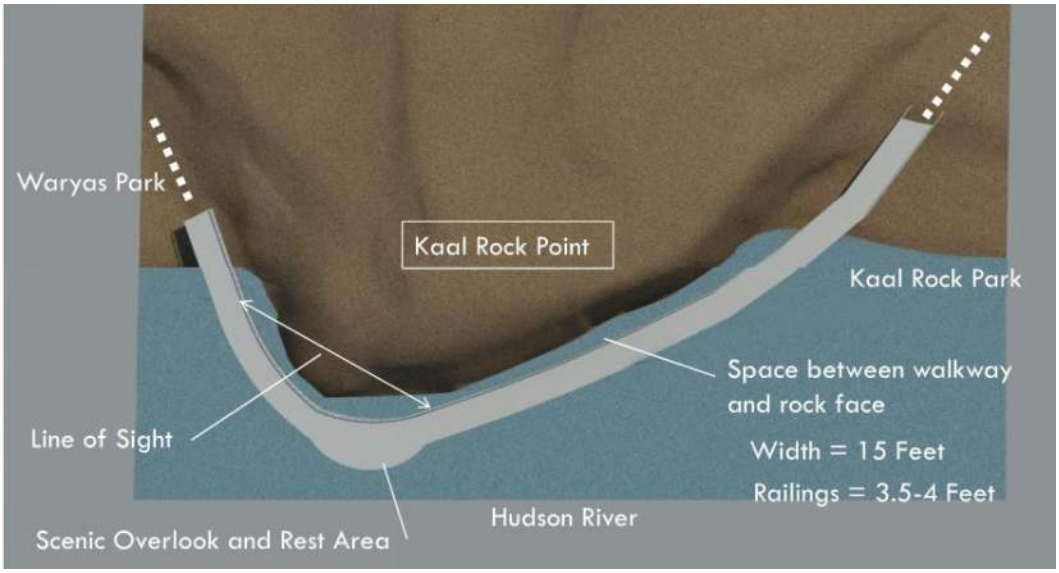
- **Have a smooth horizontal geometry and good lines of sight.** The walkway should avoid abrupt turns and blind corners, especially for bicycle traffic. This provides the best and safest experience for all users.

- **Have a distance between the walkway and the rock face.** This distance protects users debris that may dislodge from the fractured rock face, minimizes the shadows that may occur beneath the walkway and help provide a smooth horizontal geometry for users.

- **Have a designated scenic overlook area.** This area can allow users to enjoy the view while being out of the flow of foot and bicycle traffic.

Chazen incorporated these design elements into the conceptual walkway design shown in Figure 6-8.

Figure 6-8 Conceptual Walkway Design



6.2.3 General Structural Design Criteria

Chazen studied the structural design criteria for the proposed walkway. Our study revealed that the walkway should be designed:

- **To accommodate an assembly load of pedestrians.** This corresponds to a 100PSF live load that is used in current building codes. This design criteria would correspond with a "Fourth-of-July" type pedestrian load and is greater than the live load expected under normal use.

- **To minimize the dynamic effects** of pedestrian movement and wind loading. Suspended structures are light in nature and can be susceptible to these dynamic effects. Unwanted bridge movement and vibrations can cause user discomfort or a reduced design life. Therefore the walkway should be designed with a stiff structural system, be fitted with damping systems or a combination of both.

- **To minimize the permanent physical disturbance** to the rock face and project site. While the design life of the walkway will be measured in decades, like all human-built structures may someday be decommissioned and removed.

- **To minimize the maintenance costs for the City.** All materials used in the bridge should be corrosion resistant and easily maintained where ever possible to minimize repair and maintenance costs over the design life of the walkway.

- **To minimize upfront construction costs.** The structure should be designed to minimize the amount of heavy equipment and construction personnel needed to work from the Hudson River wherever possible.

Chazen incorporated this design criteria into conceptual designs of three different rock-supported structural systems. These systems are listed below and described in the following sections:

- **Cantilevered Approach –** A structural system that supports the walkway using anchors into the side of Kaal Rock.

- **Suspended Approach –** A structural system that primarily supports the walkway by cables that are anchored into the top of the rock using masts and anchorages.

- **Hybrid Approach –** A structural system that uses a combination of the two approaches to support the walkway.

6.2.4 Cantilevered Approach

Chazen studied the structural system needed to support the walkway using the "cantilevered approach." This approach would require that the walkway be secured solely using a structural system anchored to the rock face. Conceptual renderings of this approach are provided in Figures 6-9 through 6-15. Note that these figures do not capture the rock anchors that would be required. Our study revealed this approach has the following advantages:

- **It limits the visual impact of the bridge above the walking surface.** It does not require masts or anchorages on the top of the rock and does not require cables.

Our study revealed this approach has the following disadvantages:

- **It has higher material costs than other methods.** A cantilevered structure requires more material to provide an equally stiff support system and has higher material costs.

- **The bottom of structure is closer to the river than other methods.** A cantilever structure requires more depth to provide an equally stiff support system, pushing the bottom of structure closer to the river.

- **It requires more permanent disturbance to the rock face.** Since the structure solely depends upon its attachment to the rock face, there needs to be significantly more anchors between it and the rock.

- **It requires higher maintenance costs than other methods.** This approach requires more structural members that require periodic cleaning, painting and maintenance than other methods.

Figure 6-9 Cantilevered Approach – View from River

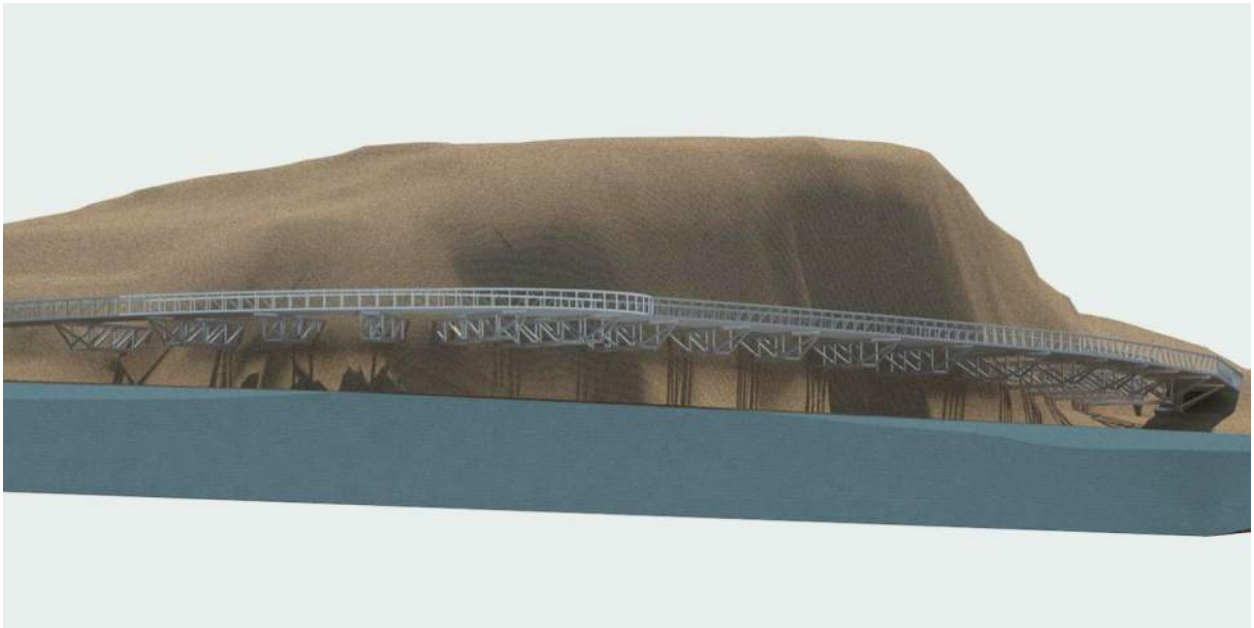


Figure 6-10 Cantilevered Approach – View from the West

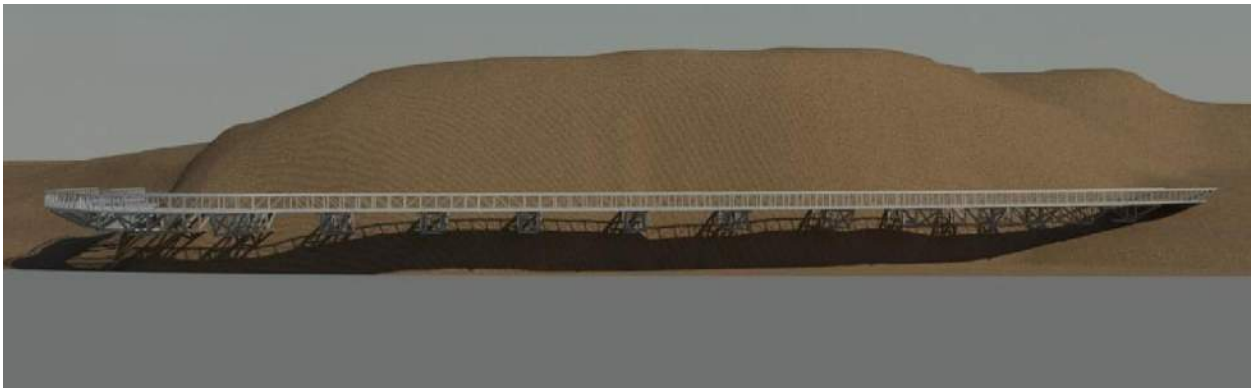


Figure 6-11 Cantilevered Approach – View from the North

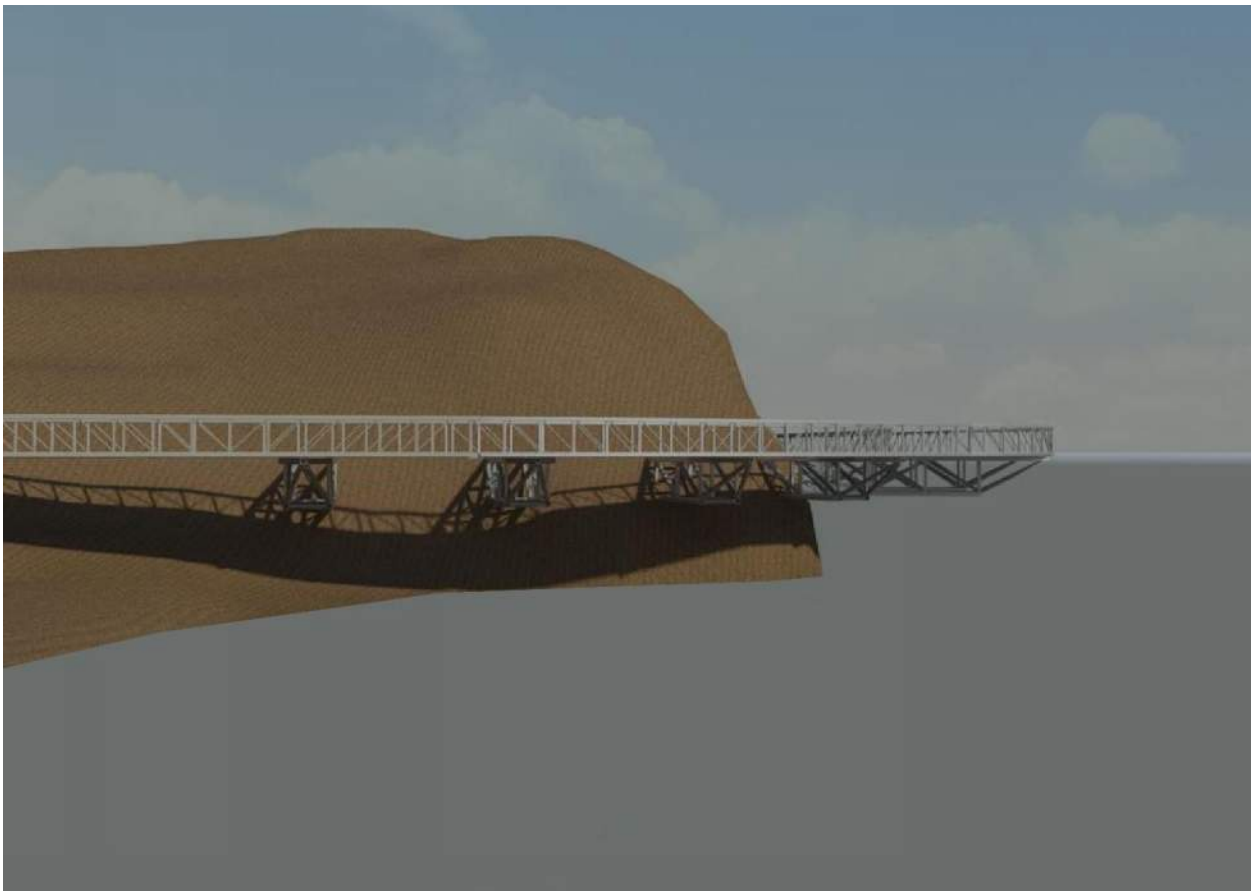


Figure 6-12 Cantilevered Approach – View from Southeast

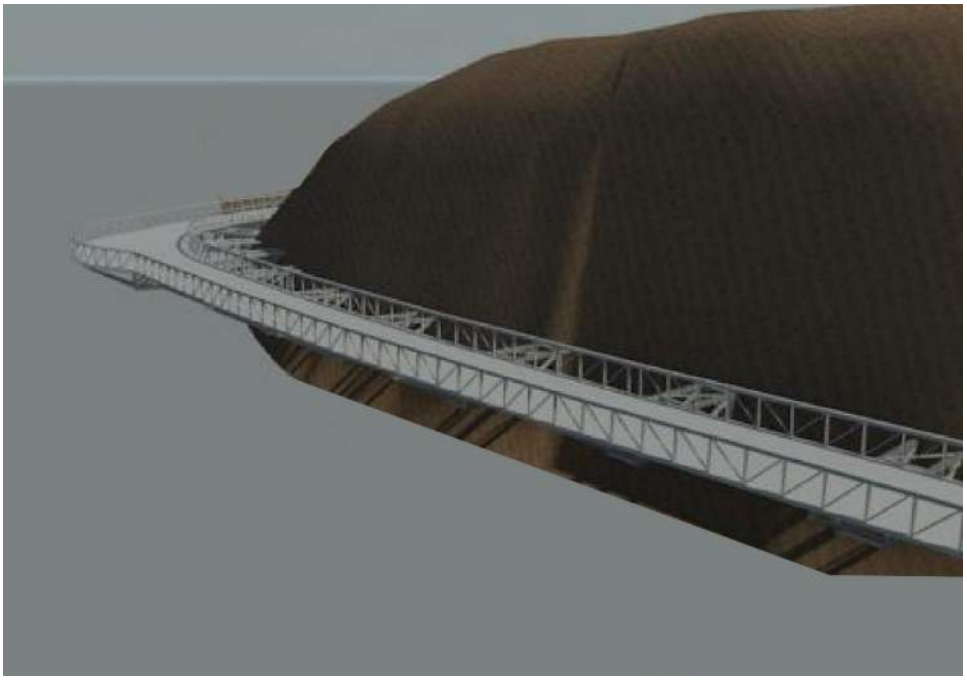


Figure 6-13 Cantilevered Approach – View from the Walkway

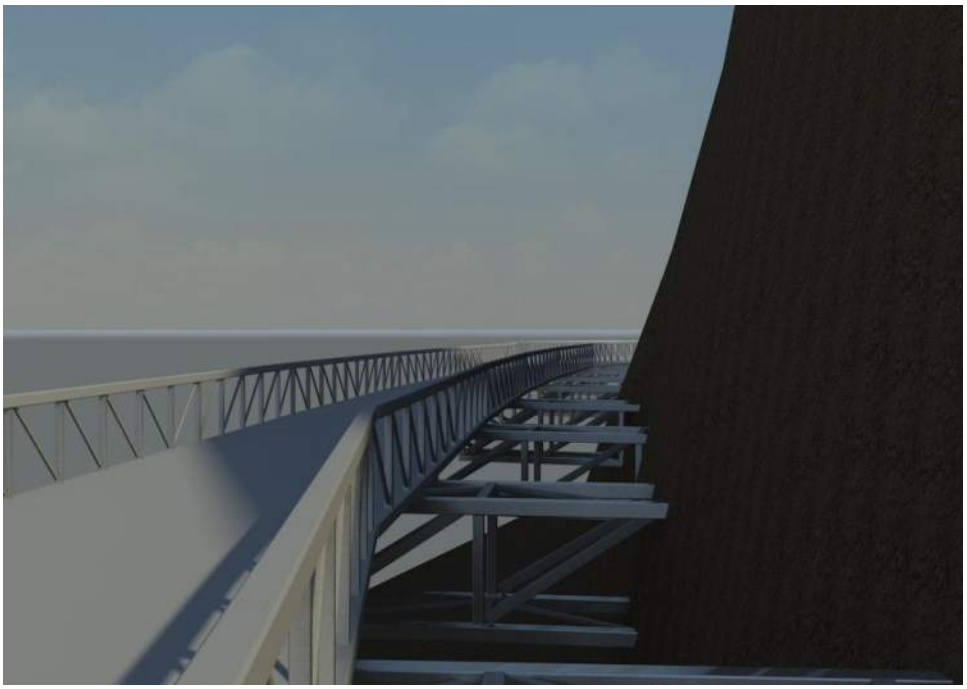


Figure 6-14 Cantilevered Approach – View from the Walkway

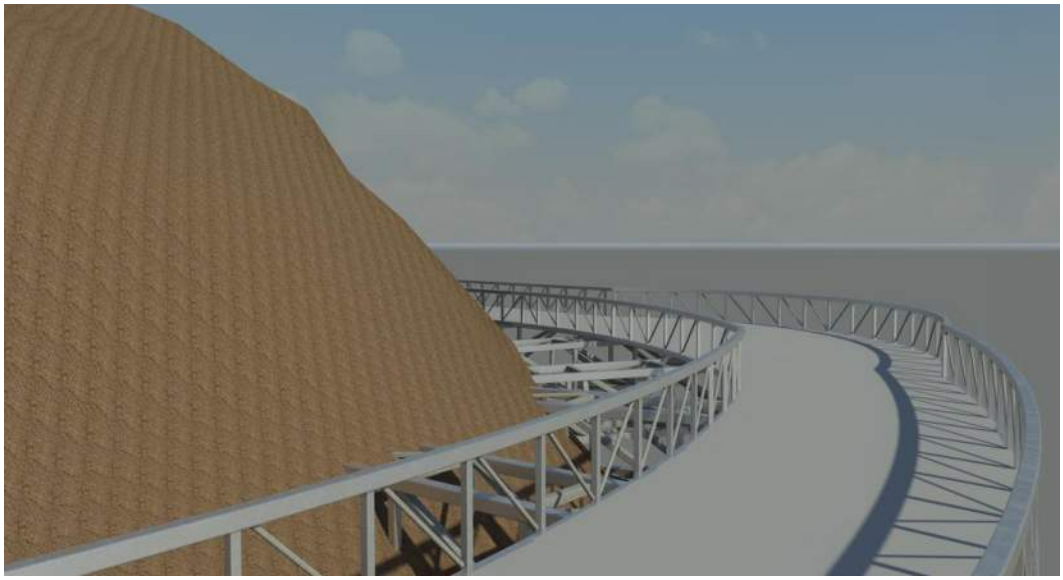
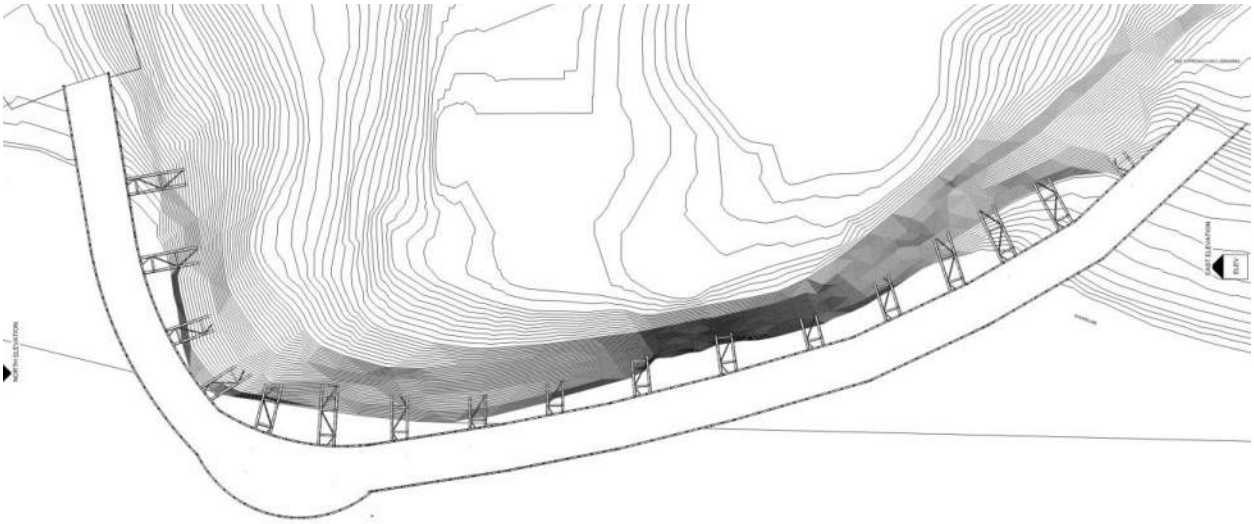


Figure 6-15 Cantilevered Approach – Conceptual Plan View



6.2.5 Suspended Approach

Chazen studied the structural system needed to support the walkway using the "suspended approach." This approach would require that the walkway be secured primarily using cables secured to masts and anchorages secured on top of Kaal Rock. Conceptual renderings of this approach are provided in Figures 6-16 through 6-21. Our study revealed this approach has the following advantages:

- **It has less material costs than other methods.** A suspended structure allows the rock to support the walkway in a more efficient manner. This requires less material to provide an equally stiff support system.

- **It requires less disturbance to the rock face.** Since the structure is primarily supported from above, quantity and invasiveness of the attachments needed to the rock face is significantly less than other methods.

- **It minimizes the amount of work performed from the Hudson River.** Less rock anchors means that less time and construction effort must be spent working from barges upon the Hudson River.

- **The bottom of structure is higher above to the river than other methods.** A suspended structure requires less depth beneath the walkway to provide an equally stiff support system, providing more clearance between it and the river.

- **It requires less maintenance than other methods.** This approach requires less structural members that require periodic cleaning, painting and maintenance than other methods.

Our study revealed this approach has the following disadvantages:

- **It has a greater visual impact of the bridge above the walking surface.** This system requires tall masts to be located on top of the rock, and cables and anchorage structures to transfer load and have a strong visual impact.

- **It requires physical disturbance to the top of the rock**. The masts and anchorages will require rock anchors and concrete structures to be built on top of the rock.

Figure 6-16 Suspended Approach – View from River

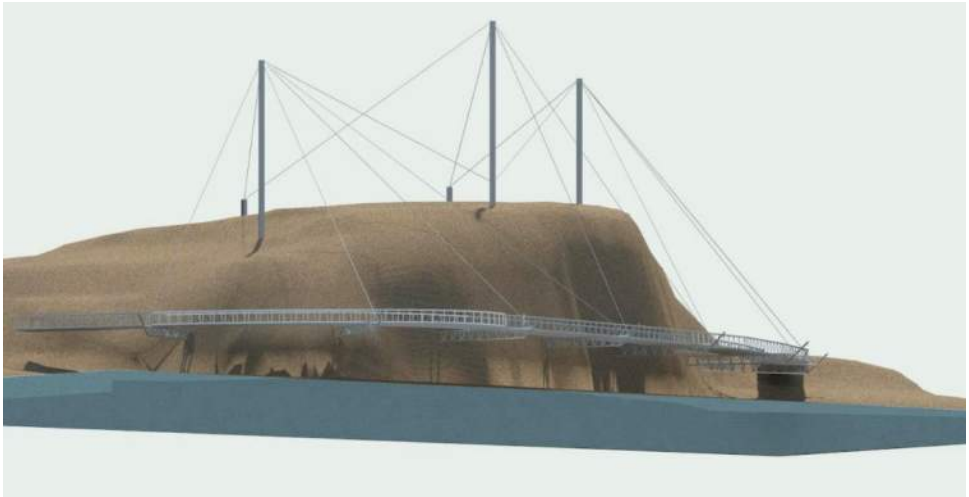


Figure 6-16 Suspended Approach – View from West

Figure 6-17 Suspended Approach – View from North

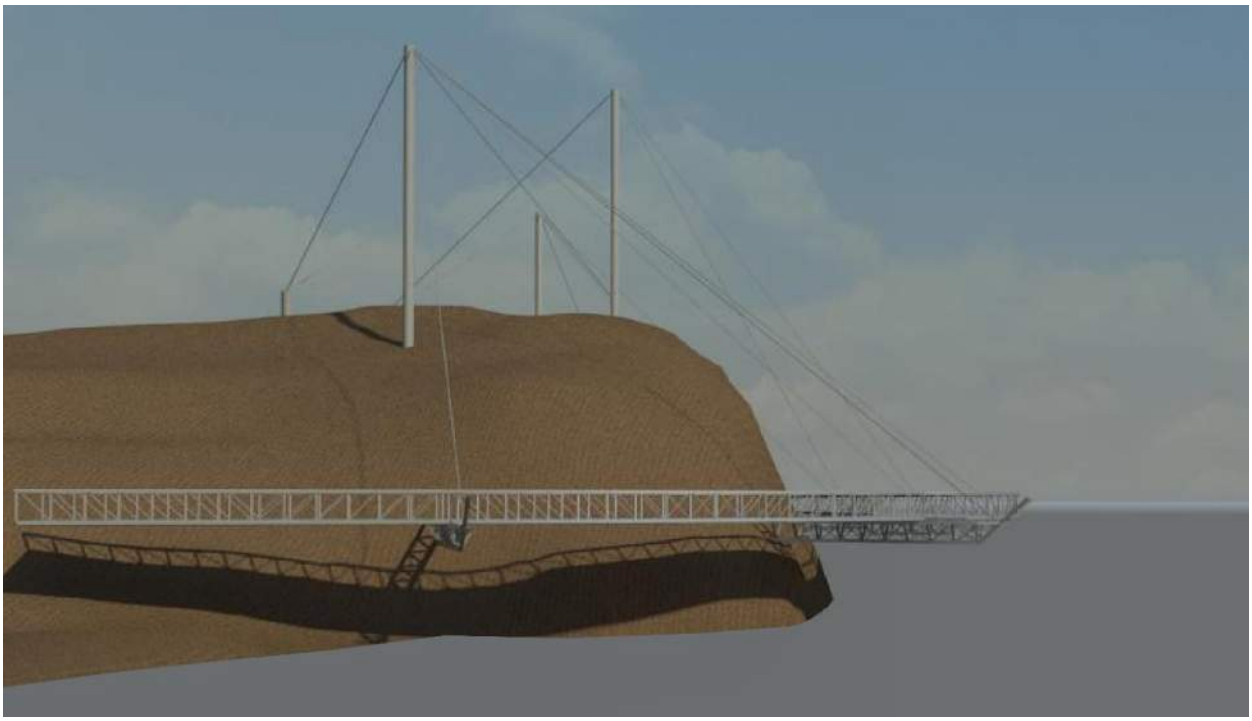


Figure 6-18 Suspended Approach – View from South

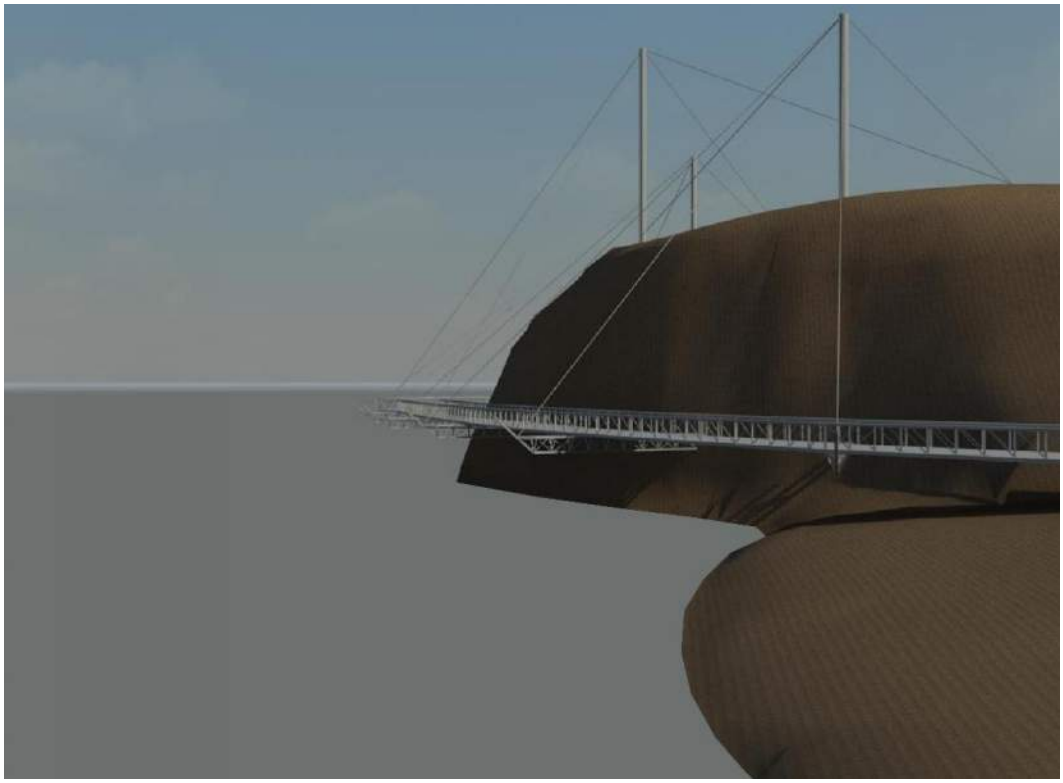
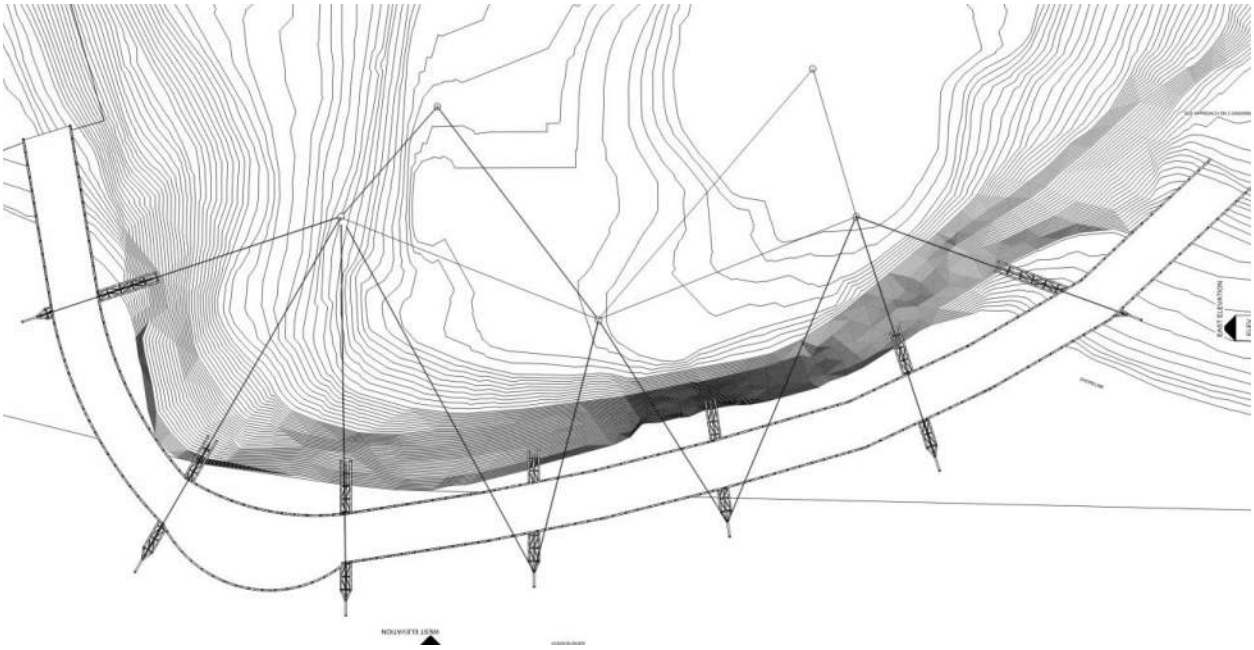


Figure 6-19 Suspended Approach – View from North Above Walkway

Figure 6-20 Suspended Approach – View from Walkway

Figure 6-21 Suspended Approach – Conceptual Plan View



6.2.6 Hybrid Approach

Chazen studied the structural system needed to support the walkway using the "hybrid approach." This approach would require that the walkway use a combination of the "cantilevered" and "suspended" approaches. Conceptual renderings of this approach are provided in Figures 6-22 through 6-25. Our study revealed this approach has the following advantages:

- **It provides the flexibility to balance the advantages and disadvantages of each system.** For example, the hybrid approach can allow the design team to minimize the visual and physical impacts in one area while utilizing the benefits of the other system elsewhere.

Our study revealed this approach has the following disadvantages:

- **It requires the mobilization of construction equipment needed for both systems.** This may increase the construction costs of the system compared to approaches that require just one approach.

Figure 6-22 Hybrid Approach –View from River

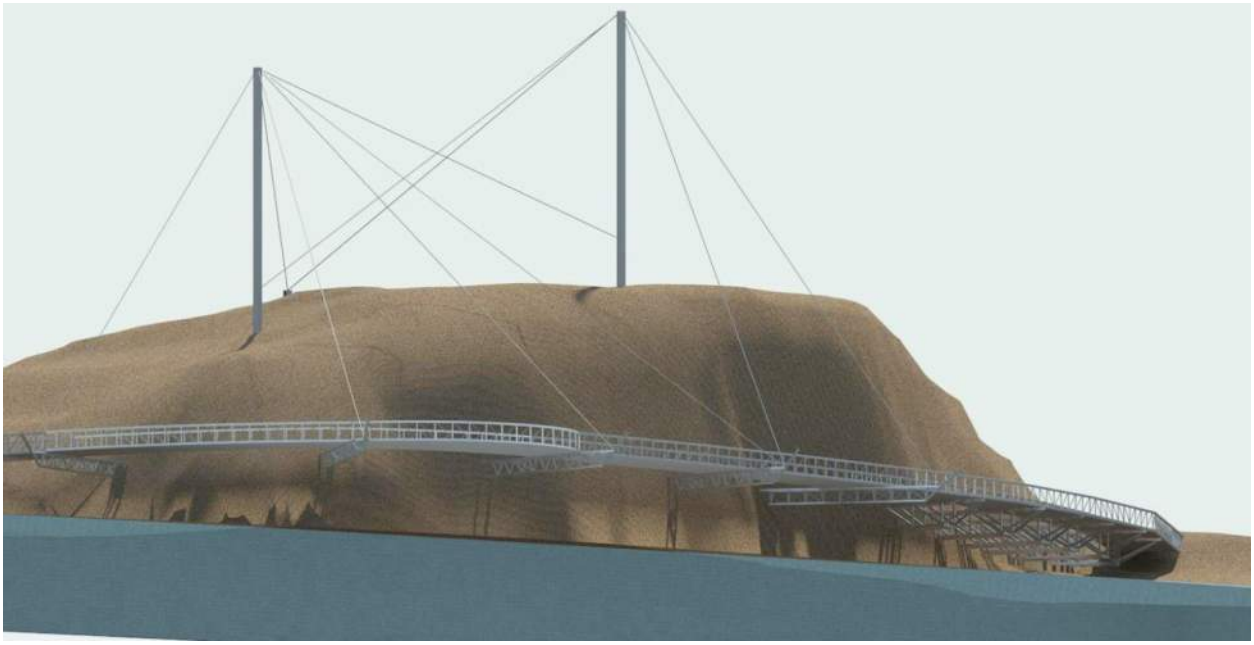


Figure 6-23 Hybrid Approach –View from West

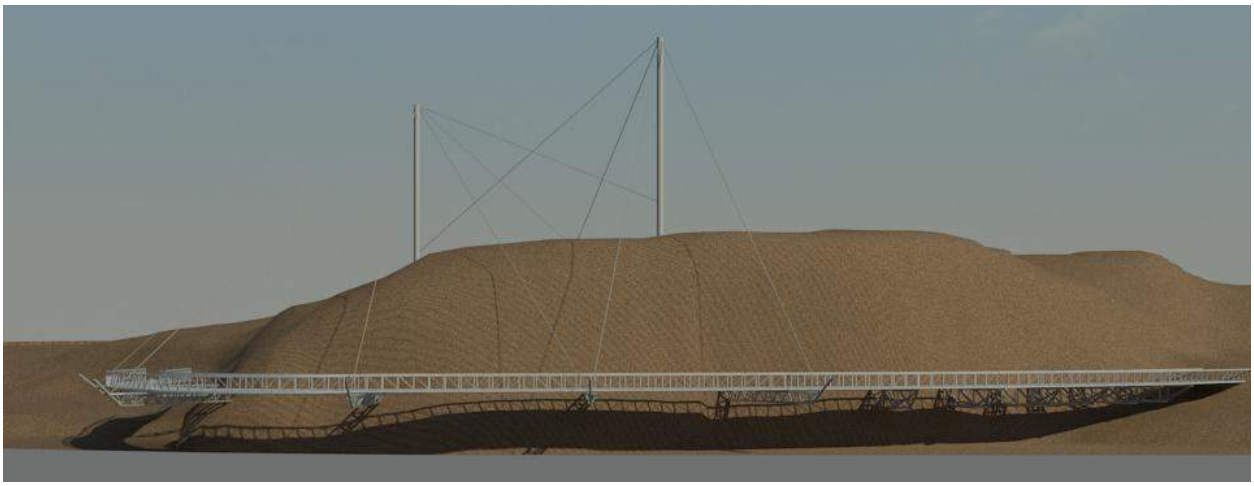


Figure 6-24 Hybrid Approach –View from North

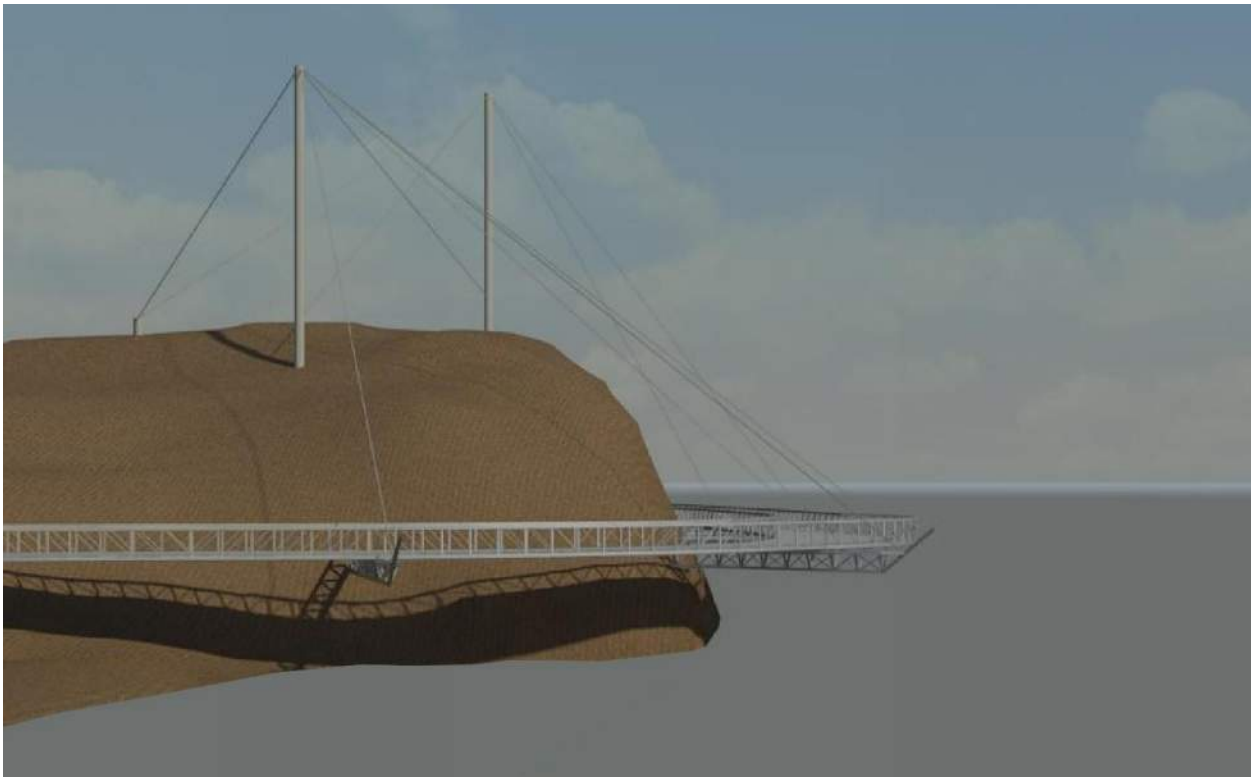


Figure 6-24 Hybrid Approach –View from South

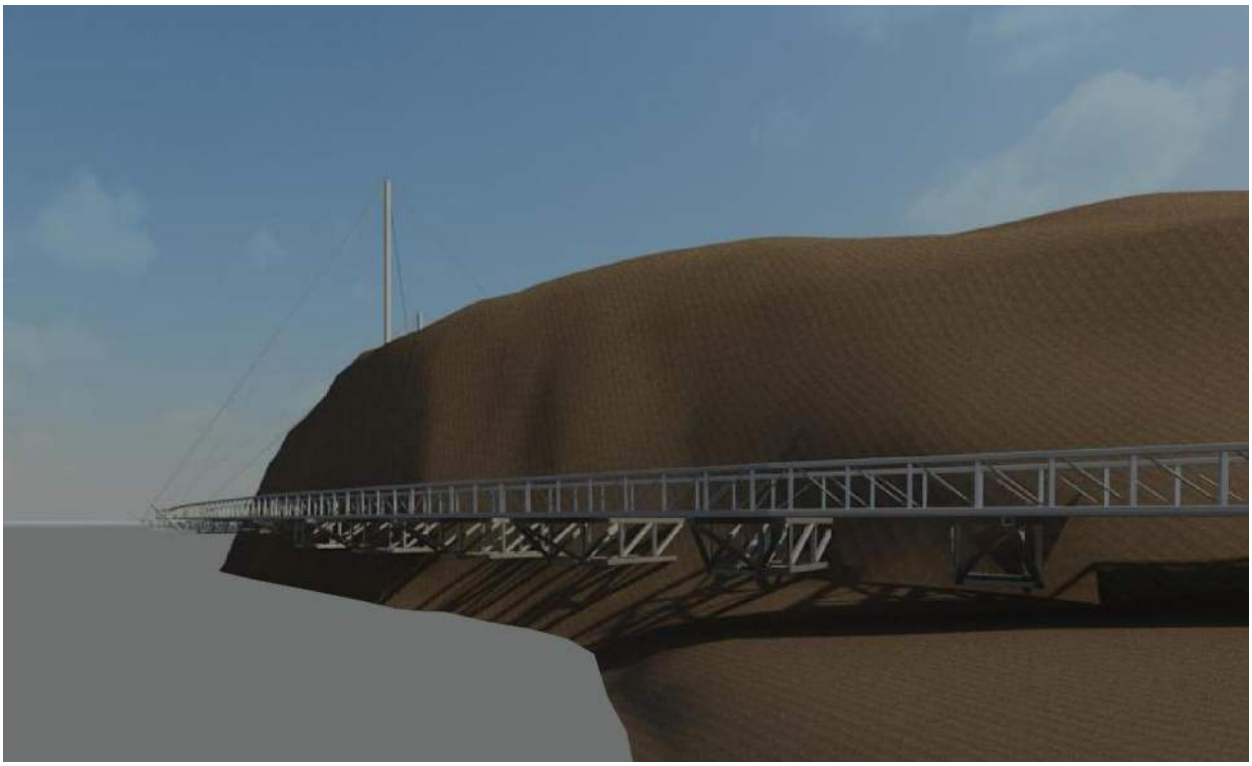
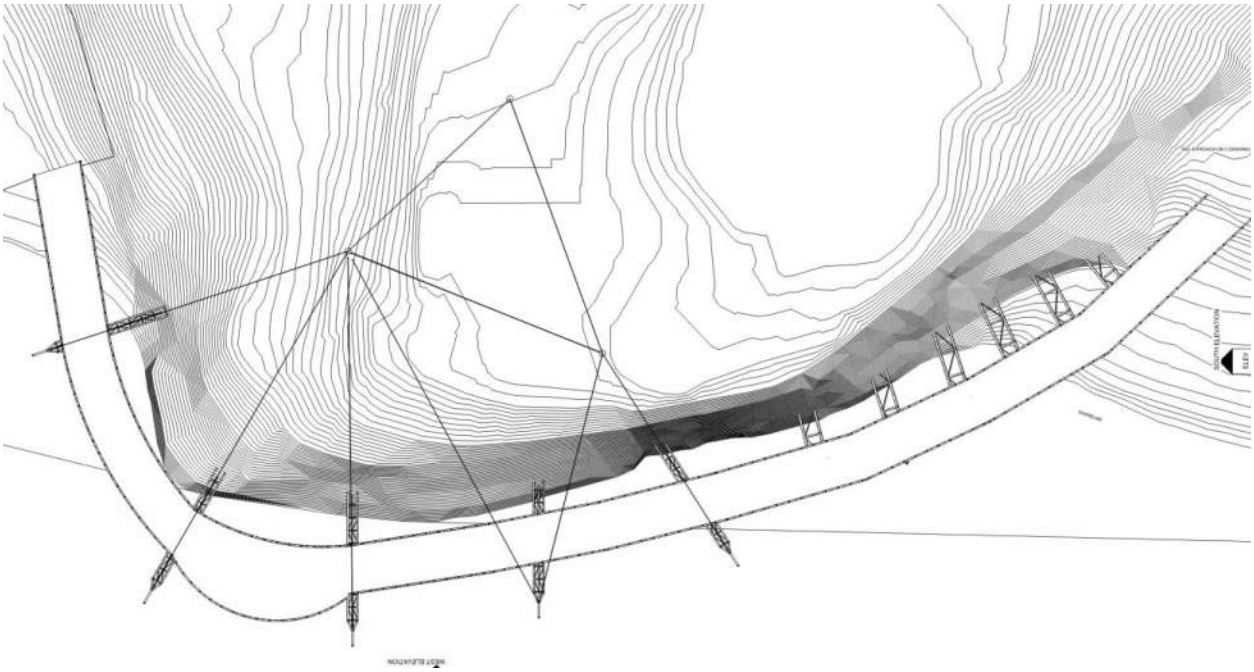


Figure 6-25 Hybrid Approach –Conceptual Plan View



6.2.7 Recommended Approach

While our study reveals each of the three approaches are feasible, **Chazen recommends the suspended approach** because it:

- **Is the most structurally efficient system.** The suspended approach is capable of carrying the design loads using less material and rock anchors compared to the cantilevered system.

- **Is the least expensive.** A structural system that uses less materials and requires fewer anchors is generally less expensive than systems that require more.

- **Minimizes permanent disturbance to the rock face.** This approach minimizes the number of anchors and physical impact to the rock face. This allows the user to experience the rock with minimal interventions and keeps the rock face natural for future generations.

- **Will be a signature project for the region.** A cable-stayed walkway is the signature design "of our times" and can provide regional and national attention.

6.2.8 Limitations and Recommendations for Future Study

The scope of this study was limited to determining the general feasibility of an elevated walkway structure and should not be a considered a comprehensive design solution for the Kaal Rock Connector.

Our feasibility study revealed several design considerations that Chazen recommends should be reviewed by the future design team:

- **Study additional forms of suspended structures.** Our study used one form of suspended structure as our model for comparison but additional forms were considered and are possible. The future design team may consider and adopt a different layout of masts, anchors, cable orientation, rock attachment points and deck structure than was conceptually depicted here.

- **Cable anchorage and rock anchor detailing.** The technical design and aesthetics of the rock anchorage system are a significant design consideration. Our geotechnical investigation revealed that rock anchors are feasible provided they are installed deep enough into the rock, but Chazen did not perform any direct examination of the face of Kaal Rock and did not develop a design for rock anchors into it. The design of connections to the rock must be performed in later design phases. The aesthetics of the anchor-structure connection should be considered along with the technical requirements since they may be exposed to view and should not detract from the natural appearance of the rock.

- **Horizontal walkway structural system.** Our study used one form of horizontal-spanning structural system beneath the walking surface deck but additional forms were considered and are possible. Chazen studied a system that utilizes two parallel trusses that are exposed to view from the walking surface and double as fall-protection guard railing, but other systems such as under-slab truss systems, steel trapezoidal torsion tubes and other structural systems should be studied in the final design. If the structural system is moved below the deck, the design team will also need to consider non-structural guard railing systems for user fall-protection.

- **Deck design.** Our study assumed that the deck structure would be made from precast reinforced concrete panels, but additional forms were considered and are possible. Concrete deck structures can be constructed in-place using stay-in-place forms, built integral with the supporting structure off-site or be placed on the erected structure using precast concrete panels. Chazen recommends that the reinforcement used in a concrete deck be made using stainless steel to increase the structure service life without significant maintenance. Glass blocks may be cast into the deck to provide light-passage to limit the shadow effects to the river habitat below. The wearing surface of the deck should be made slip-resistant and sloped to drain. The future design team can consider alternative light-weight deck systems, such as metal grating or fiber-reinforced polymer (FRP) decking systems to limit the dead weight of the structure, if desirable for the final design. Grating systems can cause long-term maintenance issues and alter the user experience of the deck while FRP panels are generally more expensive. The future design team should explore each option while developing the final design of the structure.

- **Redundancy Requirements.** The future design team should consider the redundancy requirements for the structural system. Redundancy allows the structural system to still perform in the event of a failure of one or more components. However, providing secondary load paths often requires a heavier structural system and/or more disturbance into the rock than would otherwise be necessary for a non-redundant system. The suspended option studied is a structurally efficient system that uses a walkway-cable-mast-anchor load path, but a failure of one component (a cable, for example) could influence a general failure of the overall system, unless secondary load paths are provided. Secondary load paths may take the form of additional cables, stronger cables supporting the horizontal structural systems or designing the walkway to also cantilever from the rock if the design team so chooses. The trade-offs of each approach should be studied by the future design team.

- **Advanced structural considerations.** Suspended walkway structures are susceptible to dynamic effects that were not considered as part of this study. Such effects include vibration due to foot traffic and wind forces and require mitigation by the future design team.

- **Constructability analysis.** The construction sequence of the suspended walkway structure should be further developed as part of future design phases. Chazen believes that the suspended option allows a contractor the flexibility to construct the majority of the walkway from the top of Kaal Rock, which may be accessed directly from Long Street. Chazen believes that constructing from the top of the rock will yield cost savings over an approach built solely from barges from the river, but qualified contractors should be brought early into the next design phase to assess the most cost-effective means of constructing the walkway.

- **Decorative lighting.** Chazen recommends that this structure be illuminated using a decorative lighting system. Chazen envisions that the walkway, masts and cables of the structure and the face of Kaal Rock itself be illuminated using programmable multi-colored lights to enhance the user experience along the Poughkeepsie Waterfront. The Lighting Research Center at the Rensselaer Polytechnic Institute is experienced in designing decorative lighting systems and can be engaged to provide consulting services and/or incorporate this project into a senior design project. Prof. Russell Leslie at the LRC can be contacted at (518) 687-7100.

6.3 Conceptual Public Park Design Study

Chazen prepared a conceptual public park design for Kaal Rock Point Park as part of this feasibility assessment.

Our intent was to shape the vision that was outlined in the "Placemaking in Poughkeepsie" action plan as well as the "Poughkeepsie Waterfront Revitalization Strategy" for Kaal Rock Point into an executable plan for Kaal Rock Point.

These studies outlined several of the design challenges and proposed good suggestions for how to make use of the surrounding open space as well as existing woodlands on the point. Chazen's goal was not to create an alternate vision for the project site, but rather to fit the connector walkway and park as seamlessly as possible within the framework of these prior visions while incorporating our design philosophy and environmental sensibilities.

6.3.1 Goals of the Park Design

Chazen identified four primary goals for conceptual public park design:

- Ensure the park is connected to and is **a destination** along Hudson River Greenway Trail.
- Create a **quiet riverside oasis** for city residents and visitors by maintaining the wooded portion of the site that creates a sense of enclosure making for an intimate experience for the user.
- Make the space as **inclusive** as possible by incorporating both accessible and rugged pathways including natural paths throughout the park.
- **Maximize the breathtaking views** of the surrounding landscape. The Hudson River, Mid-Hudson Bridge, and the Walkway over the Hudson are the foreground elements which are wrapped by beautiful wooded hills and mountains that act as the backdrop to create the "million-dollar" views off Kaal Rock Point.

6.3.2 Themes of the Park Design

Chazen adopted three primary themes for the conceptual public park design:

- **Adopt a nautical theme.** The proximity to the water, Poughkeepsie's rich history and the mast and cable form of the elevated walkway elicits a nautical theme which was continued throughout the design. Chazen used the Sloop Clearwater, the Hudson River's environmental flagship, as inspiration for the angles and lines of the park (Figure 6-26).

- **Maintain a "soft footprint."** When working with a unique natural element such as Kaal Rock, Chazen's focus is on prescribing a *minimal* number of interventions to the site's topography and plant community. The subsequent materials chosen in the design as it moves towards solving site challenges and meeting design goals, such as utilizing porous pavers and minimal hard-scape elements. Our goal is to allow the land to inform the final design.

- **Emphasize environmental stewardship.** The Hudson River estuary is one of the region's national treasures. We believe that the park should honor both the river by adopting Clearwater's core message of collective stewardship of lands and waters. We believe that the overall design of the park should minimize the physical and ecological impacts to the park and contain informational placards that inform users of the environmental resources in the area.

Figure 6-26: Nautical and Stewardship Theme Inspired by Sloop Clearwater

6.3.3 Design Precedents and Vision

Precedent Imagery is where Chazen starts when approaching a design problem. This is used to visually inform what the focused experience of the user will be, as well as inspire designers what the forms will eventually take.

Some of the imagery that we used to guide the design is presented in Figure 6-27 and included: Rats Nest; Topsail from Clearwater; Earthen Amphitheater; Seating nodes; Pavers in grass; Stairs in lawn; Seat walls and naturalized conditions surrounding them; Coin operated telescopes that fit nautical theme; Cable railings; Porous pavers; Accessible stairs; Finally Cable Anchor as a sculptural element.

Figure 6-27: Design Precedents and Vision

6.3.4 Site Constraints and Opportunities

Chazen identified three primary constraints to the park design:

- **The topography and steep slopes of the site**. As one would expect given the type of geologic figure that Kaal Rock is, topography is a big challenge. Grade undulates over the entire site and this makes connections to surrounding landscape a challenge. The site topography is shown in Figure 6-28.

- **The shallow depth to bedrock.** Shallow bedrock makes any substantial interventions to the site difficult. Raising elevations require fill to be trucked in to the site and lowering elevations require rock cutting, both of which can be disruptive and expensive.

- **The cultural resources of the point.** There is potential for archeological sensitivity. These factors may increases the cost of substantial interventions at the site.

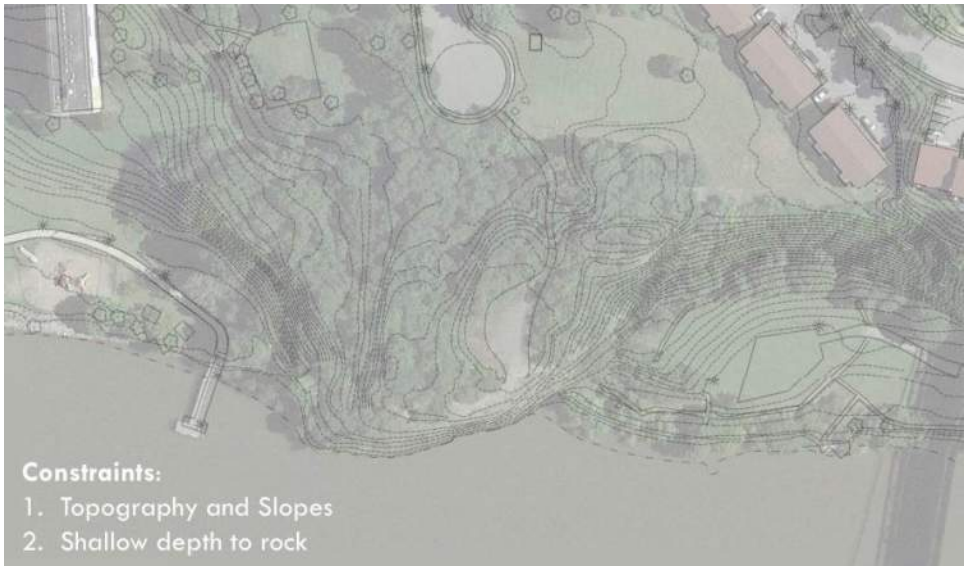
Chazen identified three primary opportunities for the park design:

- **The topography and steep slopes of the site.** While also a challenge, the prominent features of the park make it unique location for users to experience the Poughkeepsie Waterfront by offering some of the best and memorable views of the Hudson River Valley.

- **The two relatively flat areas near the bluff.** These two naturally flat areas allow for gathering areas next to the edge of the rock.

- **The variety of trail types throughout the park.** The natural terrain promotes both accessible paths and more rugged paths through the park and towards the bluff, allowing a variety of experiences for park users.

Figure 6-28: Site Topography



6.3.5 Concept Park Design Walkthrough

Chazen incorporated these goals, themes, constraints and opportunities into a conceptual park design. The overall plan view of the conceptual park design is presented below in Figure 6-29. A descriptive "walk-through" of the park's features are described herein.

Figure 6-29: Conceptual Park Design – Plan View

The proposed conceptual park design has three primary features: the connections, the wooded area and the open spaces.

6.3.5.1 The Connections

- **The park connects into the surrounding environment at three locations.** The first is the Front Street Cul-de-sac. We envision that the cul-de-sac be upgraded to include a small number of parking spaces and an inviting park sign. This area serves as the primary entrance for those who wish to drive to and use the park directly.

- **The park connects to Waryas Park using a universal and ADA-compliant trail** from the main entrance at Long Street towards the Main Street Circle. Note that this path would travel over lands owned by the Rip Van Winkle Housing Complex and the Owner would need to grant permission.

- **The park connects to Kaal Rock Park using a staircase near the envisioned amphitheater.** This connection requires a staircase due to the steep grades in this area. Kaal Rock Point Park can still be universally accessed from the south by means of the elevated walkway and the accessible connection to Waryas Park.

Figure 6-30: Envisioned Park Pathways

6.3.5.2 The Wooded Area

- **The wooded areas between the park entrance and the river edge are important to the user experience.** The natural environment provides both a visual and psychological barrier between the surrounding urban areas and the river. This wooded area fosters a contemplative relationship between the user and the river and creates a "quiet oasis" experience as it hugs the open space of the park.

- **Several paths lead through the wooded area.** The grade naturally allows for three accessible path routes between the Long Street and Waryas Park connections and several more rugged connection types. By providing both types of trails, the park can fulfil its goal of maintaining its current more rugged-feel while being accessible to all. Each trail can contain interpretive signage to enrich and inform the user experience (Figure 6-30).

6.3.5.3 The Open Spaces

Figure 6-31: Open Spaces

- **There are two relatively flat areas near the bluff.** These areas can be utilized as two open space gathering areas with minimal intervention, consistent with the "soft footprint" theme. These two areas are at different elevations and are named "Upper" and "Lower" Parks (Figure 6-31).

- **Users enter both parks via paths through the wooded area.** The constrained views of the woods open up into the grand open views of the Mid-Hudson Bridge, Walkway over the Hudson and the Hudson River.

- **A nautical theme runs through the Upper Park.** The path that leads into the Upper Park is made of paver stones that appear to dissolve into a lawn. This paver effect is inspired by rope lines on the Sloop Clearwater. There is a seatwall along the northern edge of the park that is inspired by the way the gaff of the main sail and mast of the Sloop Clearwater are positioned while sailing. Closer to the bluff, a circular section of seatwalls allow for complete views of the Hudson. Within the center of this circle are inlaid lawn pavers which borrow the iconic sun logo on its topsail, oriented to magnetic north. This is a perfect spot for commemorative plaques, personalized pavers for significant donors, coin-operated telescopes and for small groups to gather and enjoy the view.

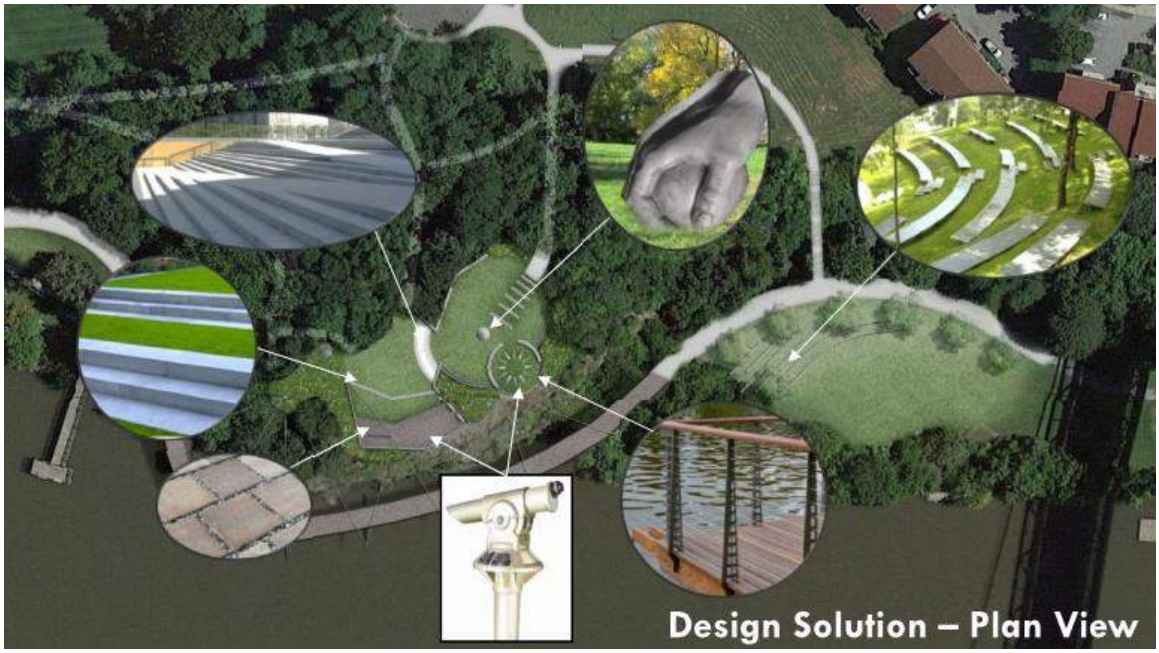
Figure 6-32: Nautical Themes

- **The Lower Park encourages users to relax, loiter, and enjoy the views.** The area nearest the bluff is a raised lawn / porous paver plaza area. This plaza area can contain benches and tables to encourage users to relax and picnic. This plaza area can contain interpretative signage that describes the Hudson Valley, its history and ecological resources. The rest of the Lower Park is a lawn area that encourages lounging and recreation activities.

- **The two parks are connected with an accessible staircase with built in ramp system.** This provides universal connectivity to both areas along the river edge.

- **A decorative fence is placed along the bluff for safety and aesthetics.** We envision using a visually unobtrusive wire fence that allows users to be able to take in the view while being safe.

Figure 6-33: Park Design Elements



- **The masts, cables and anchors of the walkway speak to the nautical theme of the park.** The tall masts and cross cables are reminiscent of the overhead cabling of a sailing ship serve as a reminder of how the river helped shape the history of Poughkeepsie.

- **The design of the masts and anchors can be selected by a public art competition.** The final form of these features can be chosen via a public design competition. Public competitions are a great way for officials to engage the community, drive enthusiasm for the project and reach innovative design solutions for these featured elements. The anchor structures near the middle of the park can take a variety of shapes – from sculptures, monuments to playful recreations of anchors themselves – and can be an attraction for photographers and tourists alike. The masts can also take a variety of forms and the base of each can be decorated by sculptures, masonry piers or other community-driven ideas in much the same way.

Figure 6-34: Birds Eye View of Overall Park Concept

7. OPINION OF PROBABLE COST

Chazen, in concert with D.A. Collins and the Kubricky Construction Corporation, prepared an opinion of probable cost for the Kaal Rock Connector as shown on the concept development plan. Chazen understands that this opinion of probable cost study will be used for project budgeting purposes, fundraising drives and grant applications.

7.1 Contractor Partner – D.A. Collins / Kubricky Construction

The D.A. Collins Family of Companies is a full-service civil construction group that provides a wide range of services to clients in the public and private sectors. Headquartered in upstate New York, the D.A. Collins Companies has currently more than 500 employees, maintains an $85 million equipment fleet and has recently celebrated 65 years in the construction business.

Kubricky Construction is part of the D.A. Collins family of companies and is an experienced commercial contractor located in Wilton, New York. Kubricky is experienced in construction of elevated walkway and bridge structures, large-scale infrastructure and working around regulated waterways. Kubricky Construction provided valuable insight, current market costs and constructability recommendations during the development of our opinion of probable cost.

Chazen recommends that future design team consider engaging D.A. Collins / Kubricky in future phases to help develop cost-effective design solutions by utilizing their expertise and effort spend understanding this project.

7.2 Assumptions and Limitations

This opinion of probable cost (OPC) is subject to several assumptions and limitations:

- **The design is only at conceptual level.** Our team needed to make assumptions about material selection, structural sizes, and anchorage details to prepare this opinion. Future design teams should expect that this OPC will vary as the design progresses.

- **The design should limit the amount of future maintenance work, where possible.** Our team assumed that all concrete deck reinforcement be made from stainless steel and all structural steel should be hot-dipped galvanized and painted with high-performance coatings to limit future corrosion. This assumption raised the upfront costs of the structure but will limit long-term maintenance requirements for the City.

- **Work will be primarily performed from the river.** Since the design is conceptual, our contractor partners recommended that we assume that the majority of the structural work be performed from barges on the river. This method will likely be required for the “Cantilevered” walkway option and is conservative for the “Suspended” option. Future cost savings may be realized by erecting the “Suspended” option from the top of the rock, or possibly in combination with barge operations, but additional study is required.

- **A decorative lighting allowance of $50,000 is included.** This allowance is based upon representative projects but can vary widely based upon the final capabilities desired by the City. The Lighting Research Center at the Rennselaer Polytechnic Institute in Troy, New York can assist the future design team in refining lighting designs and budget estimates.

- **Contractor overhead and profit (OHP) is assumed to be 20% of the direct costs.**

- **Design and permitting fees are assumed to be 15% of the overall project construction cost.**

- **The Sitework number includes costs for reconfiguring the Long Street Cul-de-Sac.** This includes costs for lighting, repaving, striping and for a 12'x16' maintenance building.

- **The cost of the "Hybrid" Solution is assumed to fall somewhere between the Suspended and Cantilevered options.**

- **This estimate is prepared considering dollar values and market conditions for the Spring of 2016.** Future costs may vary depending upon economic factors outside of our control.

7.3 Opinion of Probable Cost Summary

Our team prepared opinion of probable costs for both the Suspended and Cantilevered structural options, which includes opinions for the site, public spaces and soft costs for the project.

Due to the limitations described above, Chazen recommends that the Client assume a 20% (+/-) variation on our target opinion of probable number. Chazen is reporting 80%, 100% and 120% OPC values for each option for convenience.

The opinion of probable cost for the Suspended Option is provided in Table 7-2 and the Cantilevered Option is provided in Table 7-3. The results of each study are summarized in Table 7-1.

Table 7-1 Kaal Rock Connector - Opinion of Probable Cost Study Summary

		Suspended	Cantilevered
Site Work:	(A)	$1,010,690	$1,010,690
Structural Work:	(B)	$4,387,400	$5,557,400
Combined Total:	(A+B)	$5,398,090	$6,568,090
20% for Construction OHP:	(20%(A+B))	$1,079,618	$1,313,618
Construction Total:	(C = 120%(A+B))	$6,477,708	$7,881,708
15% Design and Permitting Costs:	(D = 15% C)	$971,656	$1,182,256
Opinion of Probable Cost:	**(C+D)**	**$7,449,364**	**$9,063,964**
Anticipated Range			
80% Opinion of Probable Cost:	80%(C+D)	$5,959,491	$7,251,171
120% Opinion of Probable Cost:	120% (C+D)	$8,939,237	$10,876,757

Table 7-2 Kaal Rock Connector - Opinion of Probable Cost Study Summary - Suspended Option

SITEWORK	Unit	Quantity	Unit Price (No OHP)	Subtotal
Clearing of Park Area (50,000sqft)	Acres	1.25	$ 20,000	$ 25,000
Clearing of pathways (1510x15)	LF	1510	$ 24	$ 36,240
Clearing of Path from Long Street (equipment access)	LF	300	$ 24	$ 7,200
Excavation of Park Area (3' Depth in Paver Area)	CY	8100	$ 10	$ 81,000
Subbase in paver areas (7900 x 1)	CY	300	$ 60	$ 18,000
15' wide Approach Ramps on North and South	LF	550	$ 35	$ 19,250
8' wide approach path upper level of park	LF	960	$ 35	$ 33,600
2 Sets of Stairs (1@80', 1@35')	LF	115	$ 1,000	$ 115,000
Ornamental Fence (500')	LF	500	$ 200	$ 100,000
Seatwalls (Conc. Walls with cap)	LF	150	$ 250	$ 37,500
Paver Area (Upper Level, 7900 SF)	SF	7900	$ 30	$ 237,000
Excavation of Cul-De-Sac (15000X2)	CY	1200	$ 35	$ 42,000
Sidewalk (800SF)	SF	800	$ 8	$ 6,400
Striping	LS	1	$ 2,500	$ 2,500
Light Poles and Conduits (6 EA)	LS	1	$ 50,000	$ 50,000
Signs, Decorative (5EA)	EA	5	$ 1,000	$ 5,000
Maintenance Building (12x16)	LS	1	$ 15,000	$ 15,000
Erosion Control	LS	1	$ 50,000	$ 50,000
Various Planning Allowance	LS	1	$ 50,000	$ 50,000
Top Soil and Seeding (1 Acre)	Acres	1	$ 30,000	$ 30,000
Decorative Lighting Allowance	LS	1	$ 50,000	$ 50,000
			Subtotal:	**$ 1,010,690**

STRUCTURAL WORK - SUSPENDED	Unit	Quantity	Unit Price (No OHP)	Subtotal
Concrete Abutments				
Concrete Allowance (40x4x10)	CY	60	$ 900	$ 54,000
Rock Excavation (40x6x3)	CY	30	$ 600	$ 18,000
Drill and Grout into rock base (80x3@2')	LF	480	$ 75	$ 36,000
Horizontal Supports (7 EA)				
Rock Excavation (6'x6'x1')	CY	14	$ 600	$ 8,400
Rock Anchors (7X4X15' Deep)	LF	420	$ 250	$ 105,000
Install Supports (7EA)	EA	7	$ 35,000	$ 245,000
Elevated Walkway (550LF)				
Install bridge prefabricated sections (550 lf)	LF	550	$ 500	$ 275,000
Install Decking (10,000 sqft)	SF	10000	$ 8	$ 80,000
Reinforcing Steel (Stainless) (60,000 lbs)	LB	60000	$ 4	$ 240,000
Concrete for Deck (315 CY)	CY	315	$ 1,400	$ 441,000
Masts and Anchors				
Micropiles (5x6 @30')	LF	900	$ 750	$ 675,000
Concrete Footings	LS	5	$ 10,000	$ 50,000
Anchor Structures Secured by Micropiles	EA	2	$ 30,000	$ 60,000
Masts (@ 60' tall, Galv and Painted)	EA	3	$ 100,000	$ 300,000
Cable System (200ft @ 10)	LF	2000	$ 100	$ 200,000
Construction Activities				
Access to River (Create Access Point, Loading+Unloading)	LS	1	$ 250,000	$ 250,000
Floating Equipment for River Work (6 Months)	LS	1	$ 750,000	$ 750,000
Mobilization and Supervision	LS	1	$ 600,000	$ 600,000
			Subtotal:	**$ 4,387,400**

Site Work:	(A)	$1,010,690
Structural Work:	(B)	$4,387,400
Combined Total:	(A+B)	$5,398,090
20% for Construction OHP:	(20%(A+B))	$1,079,618
Construction Total:	(C = 120%(A+B))	$6,477,708
15% Design and Permitting Costs:	(D = 15% C)	$971,656
Opinion of Probable Cost:	**(C+D)**	**$7,449,364**

Anticipated Cost Range:	Low End:	80% OPC	80%(C+D)	$5,959,491
	High End:	120% OPC	120% (C+D)	$8,939,237

Table 7-3 Kaal Rock Connector - Opinion of Probable Cost Study Summary - Cantilevered Option

SITEWORK	Unit	Quantity	Unit Price (No OHP)	Subtotal
Clearing of Park Area (50,000sqft)	Acres	1.25	$ 20,000	$ 25,000
Clearing of pathways (1510x15)	LF	1510	$ 24	$ 36,240
Clearing of Path from Long Street (equipment access)	LF	300	$ 24	$ 7,200
Excavation of Park Area (3' Depth in Paver Area)	CY	8100	$ 10	$ 81,000
Subbase in paver areas (7900 x 1)	CY	300	$ 60	$ 18,000
15' wide Approach Ramps on North and South	LF	550	$ 35	$ 19,250
8' wide approach path upper level of park	LF	960	$ 35	$ 33,600
2 Sets of Stairs (1@80', 1@35')	LF	115	$ 1,000	$ 115,000
Ornamental Fence (500')	LF	500	$ 200	$ 100,000
Seatwalls (Conc. Walls with cap)	LF	150	$ 250	$ 37,500
Paver Area (Upper Level, 7900 SF)	SF	7900	$ 30	$ 237,000
Excavation of Cul-De-Sac (15000X2)	CY	1200	$ 35	$ 42,000
Sidewalk (800SF)	SF	800	$ 8	$ 6,400
Striping	LS	1	$ 2,500	$ 2,500
Light Poles and Conduits (6 EA)	LS	1	$ 50,000	$ 50,000
Signs, Decorative (5EA)	EA	5	$ 1,000	$ 5,000
Maintenance Building (12x16)	LS	1	$ 15,000	$ 15,000
Erosion Control	LS	1	$ 50,000	$ 50,000
Various Planning Allowance	LS	1	$ 50,000	$ 50,000
Top Soil and Seeding (1 Acre)	Acres	1	$ 30,000	$ 30,000
Decorative Lighting Allowance	LS	1	$ 50,000	$ 50,000
			Subtotal:	**$ 1,010,690**

STRUCTURAL WORK - CANTILEVERED	Unit	Quantity	Unit Price (No OHP)	Subtotal
Concrete Abutments				
Concrete Allowance (40x4x10)	CY	60	$ 900	$ 54,000
Rock Excavation (40x6x3)	CY	30	$ 600	$ 18,000
Drill and Grout into rock base (80x3@2')	LF	480	$ 75	$ 36,000
Horizontal Supports (7 EA)				
Rock Excavation (6'x6'x1')	CY	14	$ 600	$ 8,400
Rock Anchors (17X8X30' Deep)	LF	4080	$ 250	$ 1,020,000
Install Supports (17EA)@Triple Weight	EA	17	$ 105,000	$ 1,785,000
Elevated Walkway (550LF)				
Install bridge prefabricated sections (550 lf)	LF	550	$ 500	$ 275,000
Install Decking (10,000 sqft)	SF	10000	$ 8	$ 80,000
Reinforcing Steel (Stainless) (60,000 lbs)	LB	60000	$ 4	$ 240,000
Concrete for Deck (315 CY)	CY	315	$ 1,400	$ 441,000
Masts and Anchors				
Micropiles (5x6 @30')	LF	0	$ -	$ -
Concrete Footings	LS	0	$ -	$ -
Anchor Structures Secured by Micropiles	EA	0	$ -	$ -
Masts (@ 60' tall, Galv and Painted)	EA	0	$ -	$ -
Cable System (200ft @ 10)	LF	0	$ -	$ -
Construction Activities				
Access to River (Create Access Point, Loading+Unloading)	LS	1	$ 250,000	$ 250,000
Floating Equipment for River Work (6 Months)	LS	1	$ 750,000	$ 750,000
Mobilization and Supervision	LS	1	$ 600,000	$ 600,000
			Subtotal:	**$ 5,557,400**

Site Work:		(A)	$1,010,690
Structural Work:		(B)	$5,557,400
Combined Total:		(A+B)	$6,568,090
20% for Construction OHP:		(20%(A+B))	$1,313,618
Construction Total:		(C = 120%(A+B))	$7,881,708
15% Design and Permitting Costs:		(D = 15% C)	$1,182,256
Opinion of Probable Cost:		**(C+D)**	**$9,063,964**
Anticipated Cost Range: Low End:	80% OPC	80%(C+D)	$7,251,171
High End:	120% OPC	120% (C+D)	$10,876,757

8. REGULATORY FEASIBILITY ASSESSMENT AND RECOMMENDATIONS

8.1 Regulatory Feasibility Assessment

Chazen completed a Regulatory Feasibility Assessment as a part of this study. This Regulatory Feasibility Assessment Report identifies potential regulatory involvement associated with the proposed Kaal Rock Point Scenic Walkway, and a list of permits and next steps required to obtain necessary authorizations for the construction of the walkway and ancillary facilities.

This assessment focuses on site conditions that would influence the regulatory involvement of the federal Corps of Engineers, the NYSDEC, and local agencies and municipalities. Associated reviews for the project are listed, along with the regulatory challenges and next steps for each aspect of the project review.

The complete Regulatory Feasibility Assessment is provided in Appendix F. A partial summary of this assessment is provided below:

8.1.1 Land Ownership

- The proposed project will directly affect three City-owned parcels: Kaal Rock Point Parcel (720091); Wayras Park (718136) and Kaal Rock Park (705060).
- The project will require a Lease/Work Agreement with the New York State Office of General Services (NYSOGS) for Occupancy above State-Owned Underwater Lands.
- The project may affect lands owned by the Rip Van Winkle Housing LLC (parcel 743191), depending upon the layout of the trail network extending up and to the east of Kaal Rock. Future easement of land grants may be required.
- A formal property boundary survey is recommended to ensure that the relationship of park boundaries is established relative to the project limits to ensure that the proposed project is not inadvertently extending outside of the City of Poughkeepsie property limits, and/or to identify if additional land grants are required.

8.1.2 Aquatic Resources

- There are no NYSDEC or Federal regulated wetlands mapped on the project site.
- The Hudson River at this location is a tidal water with Class A Water Quality Standards. It is regulated under NYSDEC Environmental Conservation Law Article 15, regulations at 6 NYCRR 608 as both a navigable and a protected stream. A Use and Protection of Waters Permit is required for the project.
- The Army Corps of Engineers regulates the Hudson River under Section 10 Rivers & Harbors Act and this project will require an individual permit application. This project may also require a permit under the 404 Clean Water Act for fill in Mean Higher High Water, depending upon the final location and design of the walkway abutment structures.
- The tidal elevations at the project site will need to be tied into known benchmarks and adjacent monitoring stations. These elevations needs to be correlated to the vertical datum used for the Existing Conditions Mapping and for the location of the project site downstream from the Hyde Park gauging station location. We recommend this work be performed in future stages of the project and in concert with the formal boundary survey previously recommended.

8.1.3 Navigation

- According to communications with the Corps of Engineers, there is no "federal navigation channel" identified in this section of the Hudson River, the entire waterbody is a federal navigation area.
- During and following a Public Information Meeting, questions were raised about potential navigation conflicts between the existing pier on the Waryas Park property and the proposed Kaal Point Scenic Walkway. The Corps of Engineers does not provide firm navigational setbacks from piers for this condition, and will require the project to study the impact the walkway will have on the adjacent pier. If the walkway impacts the ability for boats to navigate to the pier, the study must recommend steps to mitigate those impacts for review. This study was outside the scope of this feasibility assessment and we recommend that this study be performed in future permitting stages of the project.

8.1.4 Cultural Resources

- The project site is located in proximity to listed and eligible National Register Buildings or features, including: The Sloop Clearwater, the Johnson Plumbing Complex (35 Main Street), unnamed buildings at 9&9A Main Street, a National Register District east of Main Street, the Mid-Hudson Bridge (National Register Eligible) and the Walkway-Over-Hudson Bridge (State Park).
- Poughkeepsie's Waterfront Revitalization Plan discusses various cultural resources in the area, including a former restaurant atop Kaal Rock Point and the area used for Crew Racing along the Hudson River. There is visible evidence of former building foundation structures on Kaal Rock Point, which may be the remands of the former restaurant. Other photographs illustrate two buildings on the rock.
- We recommend that a cultural resource consultant be retained at future stages in the project to complete a Phase 1A/1B Cultural Resource Assessment (literature review/on-site survey) Report.
- The proposed project will have visual impact on Kaal Rock, the Hudson Riverfront and associated cultural resources in the vicinity. We recommend that a visual impact assessment of the project, with likely photo simulations from nearby significant resources, be performed in future stages of the project.
- A determination of effect on cultural resources is required from the NY State Office of Historic Preservation (SHPO) in order for the Corps of Engineers (Corps) and other regulatory agencies to review any necessary permit applications; this determination of effect is also typically a condition of federal and/or state funding and environmental reviews.

8.1.5 FEMA Flood Plain

- The FEMA 100-Year Flood Elevation is 8 feet (NAVD88 datum).
- The proposed walkway elevation is set at Elevation 18 with the bottom of structure not envisioned to extend lower than Elevation 12, depending upon the structural system selected.
- The City Waterfront Revitalization Strategy recommends that all new structures should be located above flood elevations or be designed to withstand flood-related loads, in accordance with the Building Code of New York State.
- The project design intent is to have the walkway structure outside of FEMA 100- and 500-year elevations, with some additional clearance to account for future sea-level rise.
- The abutment structures on the northern and southern sides of Kaal Rock will likely need to be located within the FEMA 100-Year flood plain. These abutments will need to be designed to resist flood-related loads and be reviewed by the City's site planning board for consistency with local floodplain regulations. Impacts on flooding will also be a permitting consideration of the Corps of Engineers.

8.1.6 Ecological Resources

- There are several regulated animal species located in proximity to the project site. These include: Peregrine Falcon, Atlantic and Shortnose Sturgeon, Indiana and northern long-eared bat. The Golden club, a plant, is also identified in the river.
- The project site is located near regulated natural habitats: Hudson River Estuary, the Kingston-Poughkeepsie Deepwater Habitat, and is Essential Fish Habitat.
- The extent and timing of tree removal on the project site need to be reviewed for potential impact on bat species.
- The duration and extent of construction of the walkway from a barge in the river determines impacts on aquatic resources.
- We recommend that future stages of the project: discuss the project with regulatory agencies, identify best management practices to avoid, minimize and mitigate potential impacts to water resources from construction and operation, and impacts to terrestrial features, such as timing restrictions for tree removal and construction.
- We recommend that future stages of the project complete informal review with USFWS, National Marine Fisheries Service, NYSDEC and develop impact assessments. Include impact assessments in Joint Permit Application to Corps and NYSDEC.

8.1.7 Coastal Resources

- City of Poughkeepsie has a draft Local Waterfront Revitalization Plan (LWRP)[42] and an active Local Waterfront Advisory Committee. The draft LWRP is used by the City in the review of projects before the City for various approvals and for its own projects. The City would also provide comments as an interested party to NYSDOS on any proposed project.
- The project is in the state coastal zone, with the coastal zone boundary located eastward of the site running north to south along Market Street.

[42] NYSDOS. 2016. Local Waterfront Revitalization Programs. http://www.dos.ny.gov/opd/programs/WFRevitalization/LWRP_status.html. Reviewed 4/1/2016.

- The project site is adjacent to Scenic Areas of Statewide Significance (SASS) which includes the Hudson River itself as well as the hills adjacent to the Hudson in Ulster County.
- The project site is located to the east of the Kingston-Poughkeepsie Deepwater Habitat, discussed above within "ecological resources."
- The NYS Department of State (NYSDOS) is responsible for determining consistency with the enforceable policies of the New York State Coastal Zone Program with a particular focus on scenic and ecological resources.
- This project requires Federal Consistency Review because it is within the Coastal Area and requires an individual permit (not nationwide permit) from the Corps of Engineers.
- The NYSDOS must issue a Coastal Consistency Concurrence, that the project is consistent with the NYS Coastal Policies, prior to the Corps and NYSDEC issuing their individual permits.

8.1.8 Site Contamination

- Historic photographs of the site illustrates a series of large Above Ground Storage Tanks (ABST) on the north and south sides of Kaal Rock, in what is now Waryas Park and Kaal Rock Park. These tanks were located in the vicinity of the proposed northern and southern landing zones for the walkway structure.
- We recommended that additional review of any site clean-up records for this property be completed early in future stages of the project. We recommended that as design progresses, and presuming the walkway design calls for below ground foundations at the north or south ends of the walkway, that a groundwater and soil sampling and testing plan be undertaken and completed to determine if any additional mitigation measures need to be implemented during construction.
- Historic records also document the presence of occupied structures atop Kaal Rock Point. We recommend that investigations into any contamination atop of the rock be performed in future stages of the project.

8.1.9 City of Poughkeepsie SEQRA and Zoning

- The proposed Kaal Rock Point Scenic Walkway project is considered a Type I Action under the State Environmental Quality Review Act (SEQRA). The preparation of a Full EAF and a coordinated SEQRA review will be required.
- The City of Poughkeepsie is assumed to be the SEQRA Lead Agency at this time, the final determination will be made when a funding source is secured.
- The project appears compliant with City zoning use requirements for Waterfront (W) and Urban Density Residence (R-6).
- The project is considered a unique structure and would need to be reviewed for consistency with local bulk requirements.
- The proposed mast structures are on the Kaal Rock Point property (720091), which are in the R-6 zone. There is no maximum height for structures in the R-6 Zone so we do not believe a height variance is required for the mast structures associated with the walkway.

- While the structures are not proposed on property zoned as "W", there is a 60 foot height standard for structures in the "W" district except that "where structures of maximum height will adversely affect views" from a list of specific locations, then "such structures must be reduced to a height less than 35 feet inclusive of rooftop mechanicals, water towers or ornamentation." A reading of this clause would indicate that a variance is required for structures greater than 60 feet in height, or for structures >35 feet and <60 feet in height where there are adverse visual effects and the structure's height cannot be reduced to eliminate those adverse effects. It is noted elsewhere that visual impact assessments will need to be completed for assessments by the NYSDOS Coastal Zone and by the City of Poughkeepsie as part of consistency with their own LWRP.
- We recommend that the City be engaged to determine the acceptability of approximately 60 foot tall mast structures and the project's consistency with the Draft Waterfront Revitalization Plan early in future stages of the project.
- The abutment structures on the northern and southern sides of Kaal Rock will likely need to be located within the FEMA 100-Year flood plain. These abutments will need to be designed to resist flood-related loads and be reviewed by the City's site planning board for consistency with local floodplain regulations.

8.2 SEQRA Long Environmental Assessment Form

Chazen completed a SEQRA Long Environmental Assessment Form (EAF) as a part of this study. The Long EAF defines potential regulatory issues and will allow potential reviewers to become comfortable with the project in a familiar reporting format, and can be adopted or used by funding and regulatory agencies.

The complete SEQRA Long Environmental Assessment Form is provided in Appendix G.

9. PUBLIC MEETINGS AND STAKEHOLDER OUTREACH

Chazen discussed the conceptual design for the Kaal Rock Connector in two public meetings.

The first meeting was held at the River Station Restaurant near the project site on Wednesday, April 13, 2016 at 6:00pm. The purpose of this meeting was to assist representatives from the City of Poughkeepsie in presenting the conceptual design for the Kaal Rock Connector and to receive public feedback. This meeting consisted of a brief PowerPoint presentation, a community question and answer period and a poster session in which community members could discuss the project directly with members of the Chazen technical team. A PDF copy of this PowerPoint presentation is provided for reference in Appendix H.

The second meeting was held at Poughkeepsie Common Council meeting at Poughkeepsie City Hall on Monday, May 2, 2016 at 6:30pm. The purpose of this meeting was to assist a representative of the City of Poughkeepsie in presenting the conceptual design and opinion of probable cost estimates to the members of the Common Council and participating community members. A video record of this presentation can be found by selecting the "Common Council Meeting – May 2, 2016" option, clicking on the "Kaal Rock Connector Presentation" at http://www.totalwebcasting.com/view/?id=cop .

Chazen engaged in several meetings and teleconferences with community officials, regulatory agencies and other stakeholders to discuss the overall goals and vision for the region, form and understanding of regulatory and entitlement requirements for the project.

Chazen prepared meeting minutes and summaries for the discussions listed in Table 9-1 and are provided for reference in Appendix I.

Table 9-1: Record of Discussions

Date	Stakeholder(s)	Description
3/1/2016	Army Corps of Engineers	Discussion of Navigation Channel Extents
4/13/2016	Public Meeting	First Public Presentation of Project at the River Station Restaurant.
4/26/2016	Army Corps of Engineers	Discussion about project, regulatory impacts and next steps.

10. RECOMMENDATIONS FOR FUTURE WORK

Chazen compiled a list of recommendations from our study below for convenience and future reference:

10.1 Site and Survey

- Perform a property boundary survey of the project site and verify the conceptual topographical information prepared as a part of this study.
- Perform a 3-D scan of the face of Kaal Rock to aid in the design and detailing of the structure.
- Collaborate the datum of floodplain elevation, mean high water, mean higher high the project location and tie in the datums used as a part of this study.
- Perform a stormwater management study and mitigation design as a part of the final project.
- Advance the design of the raised abutment on the north side of Kaal Rock.
- Advance the design of the abutment to the existing raised path on the south side of Kaal Rock.

10.2 Geotechnical

- Perform additional borings at final locations of masts and anchors to verify rock composition at those locations. Use values from that study in final design of structural system.
- Directly assess the condition of the rock face.
- Update anchor design criteria and develop final design of rock anchorage systems.
- Advance the design of the abutment structures on each side of Kaal Rock.

10.3 Structural

- Study additional forms of suspended structures to develop a signature structural design.
- Design cable anchorages and rock anchors and explore aesthetics of exposed detailing.
- Study different horizontal walkway structural systems.
- Study different walking surface and deck designs.
- Establish redundancy requirements for the project.
- Explore and mitigate advanced structural considerations.
- Engage a qualified contractor to perform a constructability analysis early in future phases of the project to guide the overall design of the connector.
- Explore a decorative lighting system to highlight the Kaal Rock Connector.

10.4 Public Spaces

- Advance the design of the public space on Kaal Rock Point and Kaal Rock Park.
- Seek public involvement through use of a design competition for elements of the public space.

10.5 Opinion of Probable Cost Studies

- Engage a qualified contractor early in future phases of the project to perform constructability reviews and update opinion of probable cost estimates.
- Advance the overall design of the project and revise opinion of probable cost estimates.
- Study the future anticipated maintenance costs of the project.

10.6 Regulatory

- Complete a navigation study to identify any conflicts, and if so solutions between Waryas Pier and proposed Suspended Walkway. Develop this into a report for use in permitting.
- Review site contamination and clean up documentation that may be available at City of Poughkeepsie or NYSDEC. Conduct soil and groundwater sampling as needed.
- Retain cultural resource consultant to complete Phase 1A/1B cultural resource investigation.
- Identify sensitive receptors with the assistance of the City of Poughkeepsie and Scenic Hudson. Complete a visual impact assessment and photo simulations.
- Confirm zoning requirements regarding mast heights.
- Consult informally with USFWS, NYSDEC, and NMFS about proposed project and identified species to develop Best Management Practices.
- Review shading impacts of structure on water.
- Identify datum of FEMA Floodplain, Mean High Water, Mean Higher High Water to be shown on survey drawings and then tied into design to identify any impacts.
- Identify Lead Agency under SEQRA. Move through SEQRA process.
- Develop application materials and plans, and complete zoning and site plan reviews with City of Poughkeepsie.
- Develop Permit Application Materials for Corps, NYSDEC and associated agencies:
    - Cultural Resource Reports and Determination of Effect. Mitigation Plans as needed.
    - Navigation Study.
    - Visual Impact Assessment.
    - Assessment of Impacts on sturgeon, Essential Fish Habitat, streamlined NMFS Consultation Form.
    - Assessment of impacts on bats.
    - Assessment of impacts on peregrine falcons.
    - Floodplain impact and compliance assessment.
    - Consistency Assessment with City of Poughkeepsie LWRP.
    - Consistency Assessment with NYSDOS Coastal Zone Policies and FCAF.
    - NYSOGS permit application for occupancy of state-owned underwater lands.
    - Develop Joint Permit Application to Corps, NYSDEC, NYSDOS, NYSOGS to initiate reviews.

11. LIMITATIONS OF THIS STUDY

The scope of our report was limited to studying the feasibility of an elevated walkway structure secured to Kaal Rock based upon available record information, a limited geotechnical investigation, conceptual structural and public space designs and an assessment of the regulatory requirements for the project. This report, and its findings and recommendations, should be used solely in that context.

There are several limitations to our study and these are discussed in this summary report and its appendices. This report should not be considered a detailed or final design, suitable for permit applications, or used for bidding or construction purposes.

Chazen recommends that the future design team study this report, its attached appendices and the previous studies performed for this project in their entirety as a starting point to help guide future phases of the project. Future design teams, project stakeholders and community officials should anticipate that additional design considerations will be encountered as this project progresses towards completion.

12. CONCLUSION

Chazen completed a feasibility study of the Kaal Rock Connector project. Our study revealed that the project is technically feasible. Chazen documented our approach, opinions and recommendations in a summary report to help guide future phases of the project.

It was a pleasure for the entire Chazen team to work on this interesting and potentially transformative project along the Poughkeepsie waterfront. We thank the Poughkeepsie Alliance for this opportunity, Paul Hesse at the City of Poughkeepsie and Peter Bernard at Scenic Hudson for their guidance during this process.

Please do not hesitate to contact our office at (845) 454-3980 with any questions or future needs.

Sincerely,

Joseph M. Lanaro, P.E., M.ASCE
Senior Principal-in-Charge
Vice President of Engineering Services

Michael J. Baron, P.E., S.E.
Project Manager / Project Structural Engineer

Barbara B. Beall, PWS, LEED AP
Principal
Director, Natural Resources Services

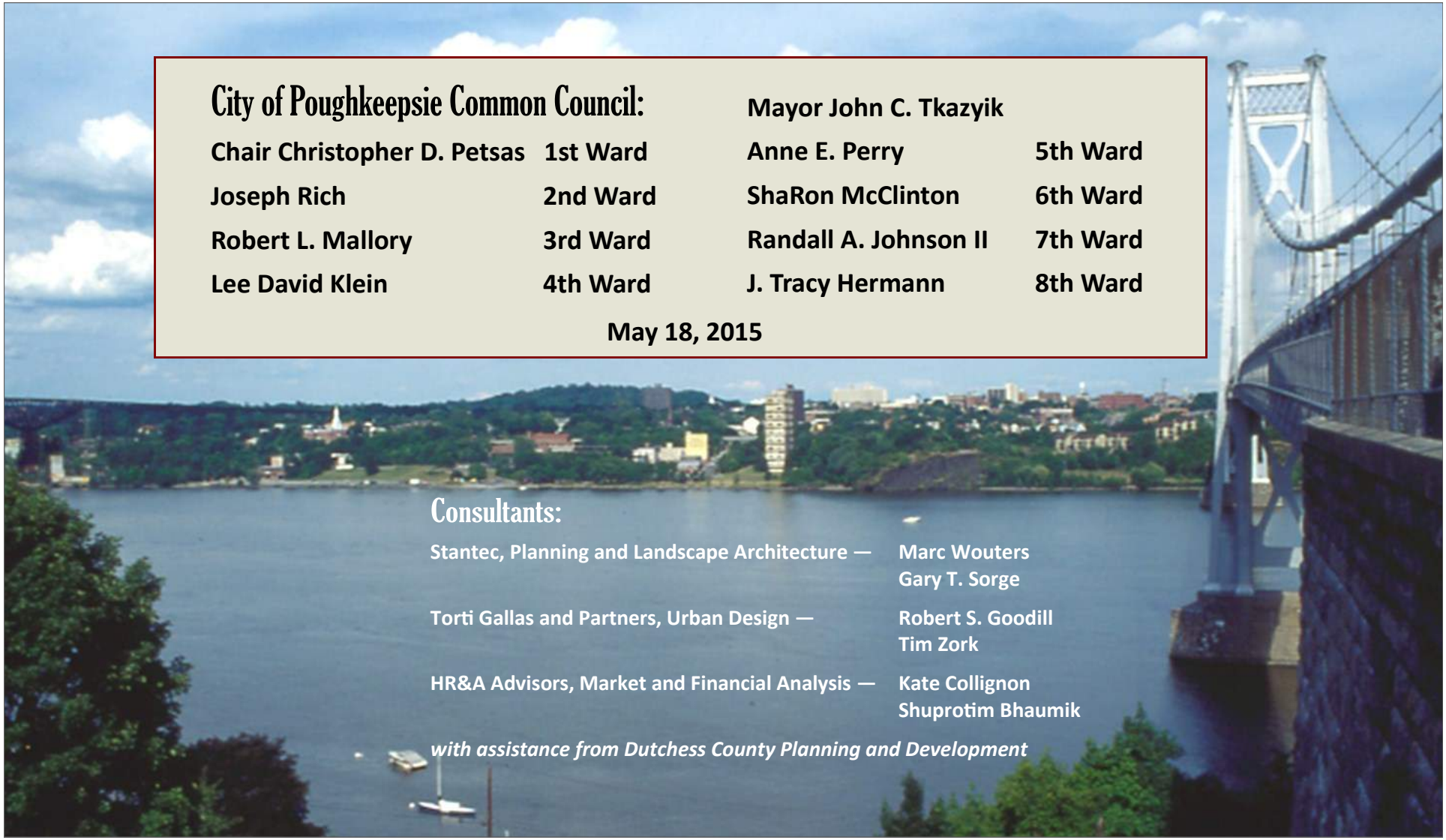
Jon Quackenbush
Landscape Designer

APPENDIX A

Record Document

Poughkeepsie Waterfront Redevelopment Strategy

Poughkeepsie Waterfront Redevelopment Strategy



City of Poughkeepsie Common Council:

Mayor John C. Tkazyik

Chair Christopher D. Petsas	1st Ward	Anne E. Perry	5th Ward
Joseph Rich	2nd Ward	ShaRon McClinton	6th Ward
Robert L. Mallory	3rd Ward	Randall A. Johnson II	7th Ward
Lee David Klein	4th Ward	J. Tracy Hermann	8th Ward

May 18, 2015

Consultants:

Stantec, Planning and Landscape Architecture —	Marc Wouters Gary T. Sorge
Torti Gallas and Partners, Urban Design —	Robert S. Goodill Tim Zork
HR&A Advisors, Market and Financial Analysis —	Kate Collignon Shuprotim Bhaumik

with assistance from Dutchess County Planning and Development

Project funding generously provided by the Dyson Foundation with administrative support from the Community Foundation of Dutchess County.

Poughkeepsie Waterfront Redevelopment Strategy

Table of Contents

1 Regional Center and Connections ____ 1

2 Waterfront History and Area Analysis ____ 7

- History ____ 7
- Previous Plans and Progress ____ 10
- Existing Conditions ____ 11

3 Planning Process ____ 13

4 Guiding Principles and Design Strategies ____ 15

5 Recommendations and Illustrative Plan ____ 17

- Park Improvements ____ 18
- Redevelopment Opportunities ____ 19
- Parking Strategy ____ 21
- Consistency with Regional Plans ____ 22

6 Financial Analysis ____ 23

7 Next Steps ____ 29

Regional Center and Connections

1

One Connected Waterfront

The greater Poughkeepsie waterfront, from the Hyde Park line south to Locust Grove, has a long history of dramatic change and redevelopment. Since 2000 alone, over 39 waterfront acres have been transformed into new, publically accessible parkland, including Quiet Cove Riverfront Park, Marist College's Long View Park, Upper Landing Park, and Kaal Rock Point. In addition, the Poughkeepsie Railroad Bridge is now the magnificent Walkway Over the Hudson State Historic Park (Walkway), soaring 212 feet over the river, providing expansive views with "360-Degrees of Discovery" and attracting over 700,000 visitors last year.

The center of this regionally important waterfront and the primary focus of this planning project is the land surrounding Waryas Park and the Poughkeepsie Railroad Station, with connections east into the City. Largely cleared during the Urban Renewal era and replaced by parklands and too many parking lots, the Poughkeepsie waterfront is a potentially powerful place for redevelopment with several unique characteristics:

Heartbeat of the Hudson Valley. Poughkeepsie is the largest city in the Mid-Hudson region, halfway between the State Capital of Albany and the New York City metro area, which is home to tens of millions of potential visitors an easy train ride away. Think of the Railroad Station as "Grand Central North," the northern terminus of the Metro-North Hudson Line, designed by the same architects as the other Grand Central, and gateway to all the nearby attractions of the Hudson Valley.

Crossroads of two major trail systems. The Walkway connects east to the Dutchess Rail Trail and west to the Hudson Valley Rail Trail, creating 18 miles of continuous walking and biking experience, part of a longer term project to eventually link existing trails from New York City all the way to the Catskill Mountains. Local governments and groups are also working to connect segments of the north-south Hudson River Greenway Trail from the Roosevelt and Vanderbilt Historic Sites in Hyde Park south to the Samuel F. B. Morse Estate.

Framed by two historic bridges. To the north, the 1889 Poughkeepsie Railroad Bridge is a classic cantilever truss structure, listed on the National Register of Historic Places, and now transformed into the longest pedestrian bridge in the world. To the south, the 1930 Mid-Hudson Bridge has graceful cables suspended between gothic steel towers that are traced at night by necklace lighting in variable colors. Together, they create a loop trail system and frame river views into a memorable location unlike any place along the entire length of the Hudson River.

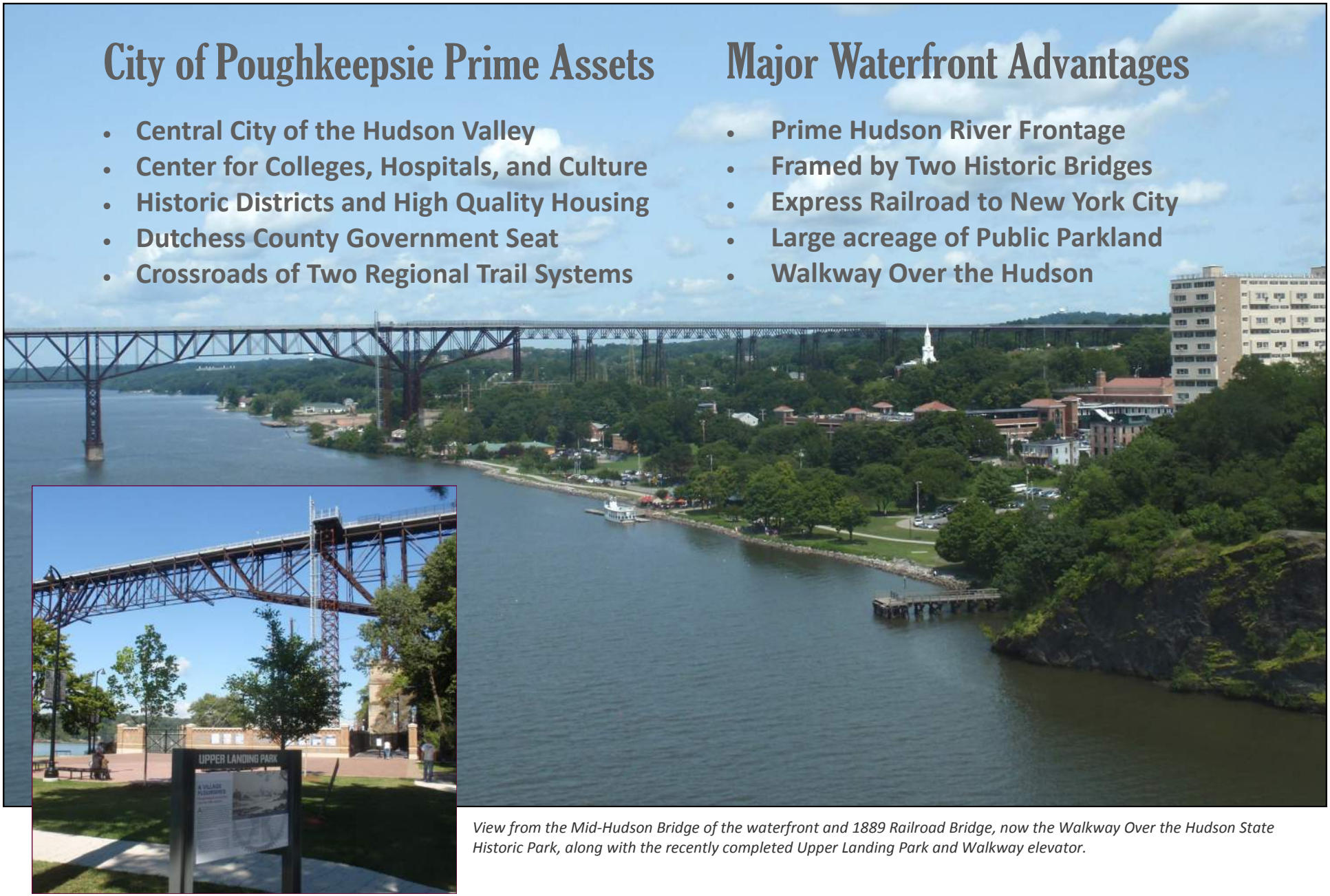
Built-in bird's eye view. The Walkway's new glass-sided elevator, 21 stories straight up from shoreline to the top of the span, is the critical connector from Main Street, the Railroad Station, and waterfront to the Walkway. The elevator acts as a major attraction in itself, an experience designed to elevate your heartbeat. The waterfront can become a primary place for the City and a central path for the regional center along Water Street, through Waryas Park, and focused in particular on a new public park plaza at the base of the Railroad Station's western overlook, the visitor entry point to an exciting waterfront walking district.

City of Poughkeepsie Prime Assets

- Central City of the Hudson Valley
- Center for Colleges, Hospitals, and Culture
- Historic Districts and High Quality Housing
- Dutchess County Government Seat
- Crossroads of Two Regional Trail Systems

Major Waterfront Advantages

- Prime Hudson River Frontage
- Framed by Two Historic Bridges
- Express Railroad to New York City
- Large acreage of Public Parkland
- Walkway Over the Hudson



View from the Mid-Hudson Bridge of the waterfront and 1889 Railroad Bridge, now the Walkway Over the Hudson State Historic Park, along with the recently completed Upper Landing Park and Walkway elevator.

Trails through wooded areas, such as Quiet Cove Park and Locust Grove can be compacted gravel or stone dust 6-8 feet wide. (Photo Credit: northshore-thereandback.blogspot.com)

Overall Goal #1: Build a continuous Greenway Trail along the riverfront.

The City and Town of Poughkeepsie have a common goal for the over 3.5-mile length of waterfront shown below: to link together the private parcels and parklands into a continuous and publicly accessible Greenway Trail along the river frontage. This coordinated local initiative is part of a larger regional project to create a Hudson River Greenway Trail from New York City to the Troy dam. The following consensus points emerged out of community and Steering Committee discussions:

- Build a continuous Greenway Trail along the riverfront with coordinated signs and other trail features, connecting existing parks through new parkland parcels or along permanent trail easements.
- Create convenient walking connections across Route 9 and the railroad tracks, linking the waterfront to all inland residential neighborhoods.
- Ensure that new activities and improvements complement proposed development on the Dutton site, as well as existing and approved uses along the southern waterfront.
- Coordinate boating needs and access points, generally concentrating rowing and non-motorized boating from Waryas Park to the north and encouraging motorized boating from Waryas Park to the south.
- Consider NYS DOS funding for a future Harbor Management Plan.

Four significant gaps currently interrupt a continuous trail from the Hyde Park town line south to Locust Grove:

Marist College North Campus. Marist is working on an updated plan for the northern campus, including a proposed trail segment linking the existing natural trails on the

4 Major Gaps:

property south of Quiet Cove Park to the tunnel under the railroad tracks and Long View Park. The most difficult section in that missing link is between the Poughkeepsie Water Treatment Plant and the adjacent steep slopes to the east.

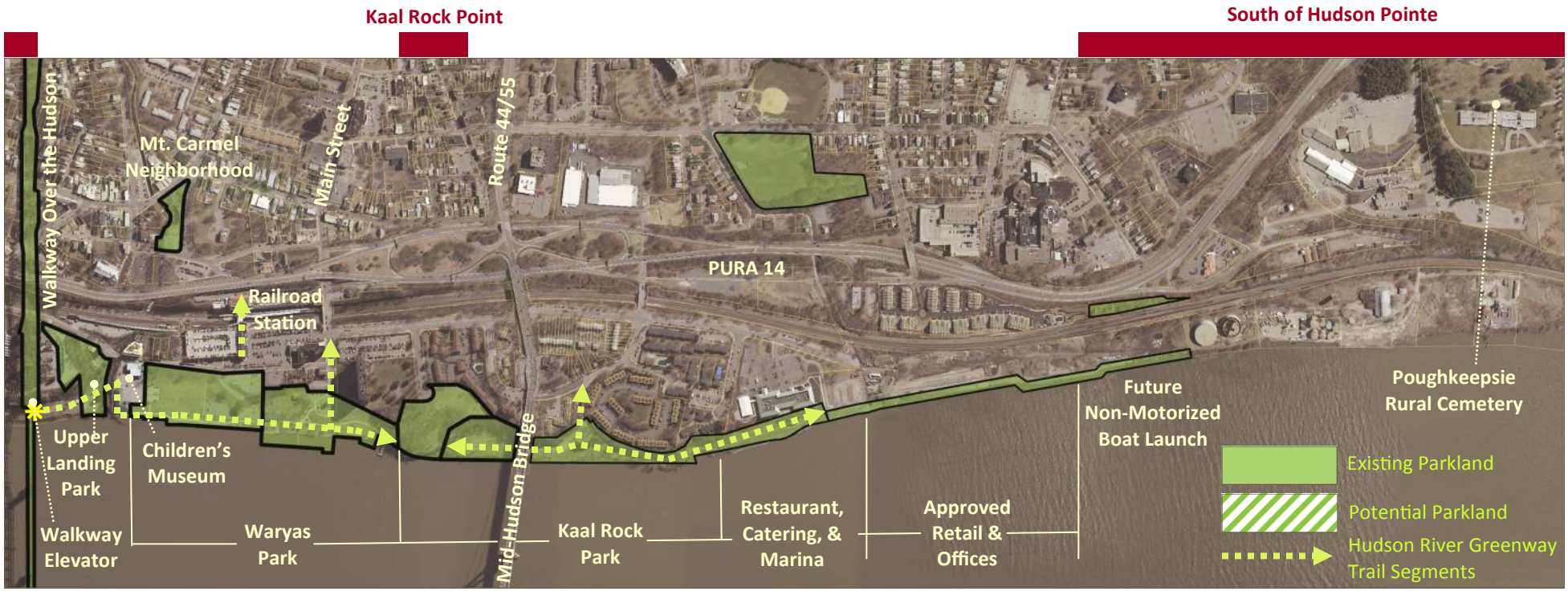
Dutton and Central Hudson Properties. The One Dutchess Avenue proposal for 384 apartments and 13,800 square feet of commercial space is under site plan review and includes an agreement for a 2.45-acre park and trail frontage. Final design and ownership of the park has not yet been decided, but the trail will connect the existing trail on the Vassar and Community Boathouse property to Dutchess Avenue.

The Central Hudson property under the Walkway Over the Hudson is in the process of cleaning up site contamination, which may last until 2018. Once remediation is complete, a trail connection will be possible between Dutchess Avenue and the Walkway elevator.

Kaal Rock Point. The City's Kaal Rock Study provides a park layout and trail specifications for both over the top of the point and around the base at river level. Recommendations include a trail system with no more than 5 percent grades to an overlook area with a kiosk or gazebo and potential concessions. Stairs are necessary down the steep slopes to Kaal Rock Park. The boardwalk at river level would be supported by piles or cantilevered off the rock. The City is currently pursuing grants to construct the initial trail system.

South of Hudson Pointe. Currently, the Greenway Trail extends to the Southern Waterfront marina, awaiting further approved development to the south. A trail right-of-way has been reserved through a tunnel under the tracks and past the Hudson Pointe project. The trail could then link to Prospect Street, along the western side of the Central Hudson parcel, and to the existing road and trail systems at the Poughkeepsie Rural Cemetery and the 200-acre estate of Samuel F.B. Morse.

Existing 10-foot wide walkway along Waryas Park includes park benches, historic markers, landscaping, and pedestrian-scale lighting.



Overall Goal #2: Knit together surrounding City plans, projects, and neighborhoods.

Fall Kill waterfalls along the Piano Factory building on N. Water Street.

Illustrative Plan for the Walkway-Gateway district shows the desirable street character along Parker Avenue.

The City of Poughkeepsie has multiple planning studies and private development projects underway that have been merged into the Waterfront Redevelopment Strategy, including trail connections through the One Dutchess Avenue and Southern Waterfront projects. Other recently completed plans include:

The Fall Kill Plan. Completed in 2012 by Clearwater and Urban Landscape Lab under a DEC Estuary Program grant, among the primary goals are to improve water quality, repair the stone walls, restore natural habitats in certain locations, and to create active public places and an eco-urban walking corridor along the creek. Compatible Waterfront Strategy recommendations include a fishing pier at the Fall Kill's mouth, removing the parking lot from the Children's Museum creek frontage, a potential pedestrian bridge over the railroad tracks as a crucial trail link, and opening up access to the horseshoe falls at Dongan Park.

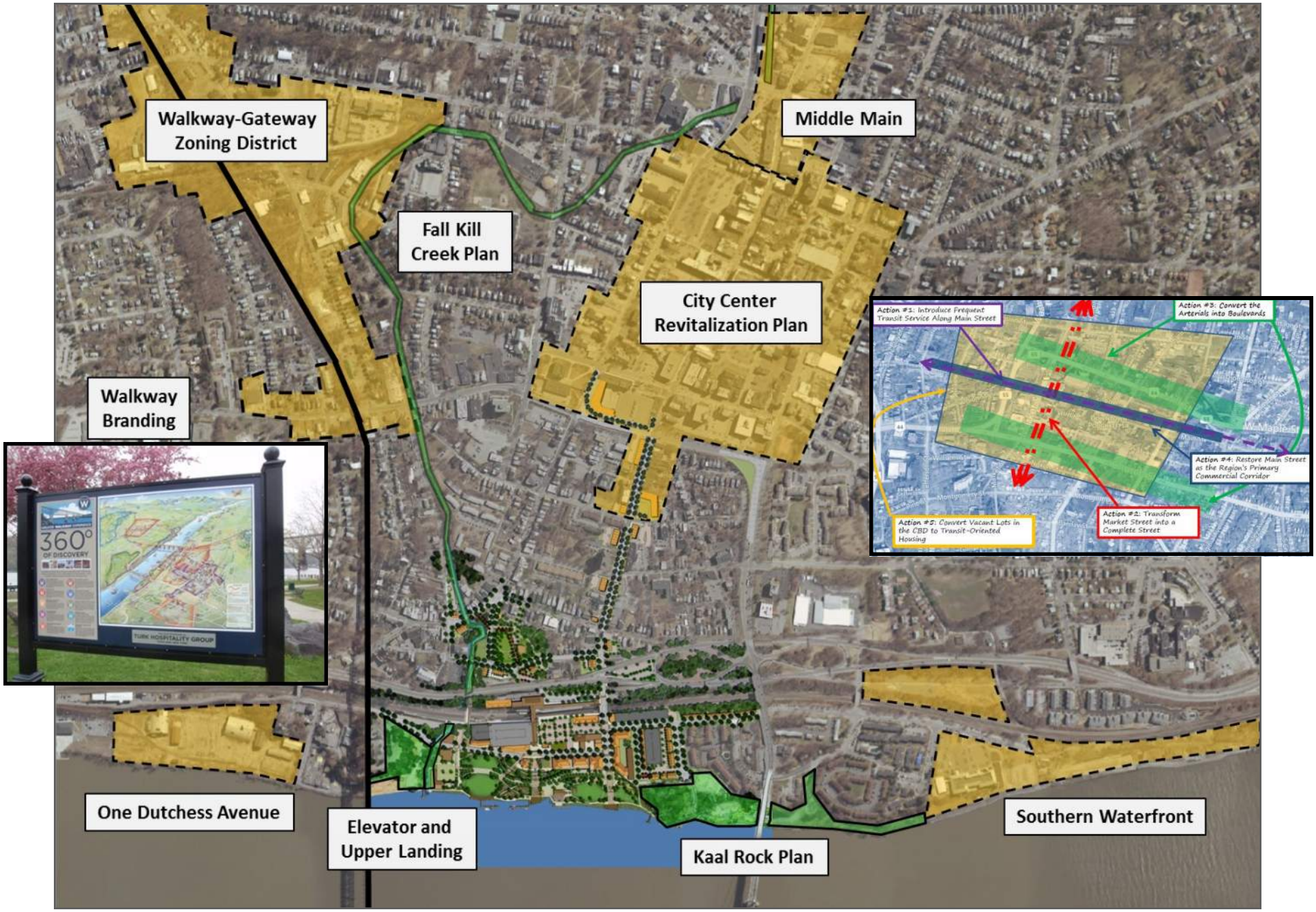
Walkway-Gateway Zoning District. Adopted in 2013, this new zoning designation is intended to revitalize the primarily industrial and residential area around the eastern entrance to the Walkway Over the Hudson into a mixed-use and walkable neighborhood, where people want to live, work, shop, visit, and invest. The standards emphasize an interconnected network of sidewalks, paths, and bike routes with ground floor uses that generate active streets, such as retail, restaurants, services and job opportunities. The Waterfront Strategy stresses similar goals and techniques for the waterfront district and supports a direct sidewalk-path connection through the Mt. Carmel neighborhood and along Verazzano Boulevard and the Fall Kill Creek to the Walkway-Gateway neighborhood.

Kaal Rock Study. Under a grant from the NYS Department of State, Project for Public Spaces has recommended a variety of options to restore Kaal Rock Park, clean-up Kaal Rock Point, integrate the Point into the waterfront trail system, and create connections to Main Street. The Waterfront Strategy includes new paths that directly link Main Street across the front of the Rip Van Winkle property to the park entrance, making the Waryas Park connection far less steep and uninviting. Additional housing along Kaal Rock Point and Long Street will also provide "eyes on the park" security.

Walkway Branding Project. Working with Walkway Over the Hudson, Scenic Hudson, the Regional Chamber of Commerce, and Dyson Foundation, Vox, Inc. created ways to maximize the economic benefits from Walkway visitors. Promotion of the "Greater Walkway Experience" at the heart of the Hudson in all website and marketing materials has been combined with a coordinated sign program. Using color maps and code systems, the "360 Degrees of Discovery" signs at gateway locations like the waterfront and Railroad Station direct visitors to multiple discovery zones and cultural sites in the City and Highland area.

City Center Revitalization Plan. Consultant Kevin Dwarka has begun a land use and economic analysis of the City with funding from the Dyson Foundation. The initial concepts, outlined in the graphic on the next page, will be expanded to a more comprehensive Main Street Economic Development Strategy from the waterfront to Upper Main Street. The concepts are complementary with the Waterfront Strategy, especially frequent, direct bus service from the waterfront and Railroad Station up Main Street, making all infill along Main Street transit-oriented development. The Strategy also endorses the redesign of the arterial behind the Civic Center to add expansion space, eliminate traffic hazards, and reduce the Main Street crosswalk distance.

Overall Goal #3: Create a high-quality waterfront park and regional destination center between Main Street, the Railroad Station, and Walkway Elevator (see section 5 for recommendations).



The Waterfront Redevelopment Strategy's Illustrative Plan, shown in the center, is designed to seamlessly link Upper Landing Park to Kaal Rock Park, extend the Greenway Trail from Hyde Park through the Southern Waterfront, and connect up Main Street to the City Center and up the Fall Kill corridor to the Walkway-Gateway district.

2

Two mid-1800s views of the Poughkeepsie waterfront from the sailing sloop and early steamboat years, showing buildings directly adjacent to the shoreline. The Exchange House Hotel stood at the end of Main Street, notable for its three-level wraparound porch.

River Era: 1690 to 1850

The name Poughkeepsie was derived from the Wappinger language, referring to a reed-covered lodge by a spring located over 1.5 miles south of Main Street. The first Dutch and English settlers in the late 1600s were attracted to mill sites along the Fall Kill Creek and land available for farming. The small river settlement with landings for trade and inland agriculture, a ship building yard, and ferry service at Upper Landing on the north side of the Fall Kill gradually grew into a city as a deep water port halfway between New York City and Albany.

Home of the County Courthouse since 1720, Poughkeepsie was the state capital during the Revolutionary War and achieved prominence as the place where the famous Constitutional Convention debate led to New York's decisive ratification. The river was the essential transportation corridor, especially after the Erie Canal was completed in 1825, linking the Great lakes and western states to the port of New York. The three major river landings at the Fall Kill Creek, the center of Kaal Rock Park, and the end of Pine Street were supplemented in the early 1800s by the first Mid-Hudson steamboat terminal at the base of Main Street and even a wharf to the north for a small whaling fleet.

1692	First house built by European settler
1699	Sawmill constructed at Upper Landing
1720	Original County Courthouse built
1777	Hudson River ferry service began
1777 – 1784	Capital of New York State
1788	Constitution ratified at Courthouse
1789	Hoffman House built at Upper Landing
1799	Poughkeepsie chartered as a Village
1800	Main Street extended to river
1803	Water Street initially laid out
1814	First Mid-Hudson Steamboat Terminal
1831	Village Hall with public market built
1832	Whaling company established

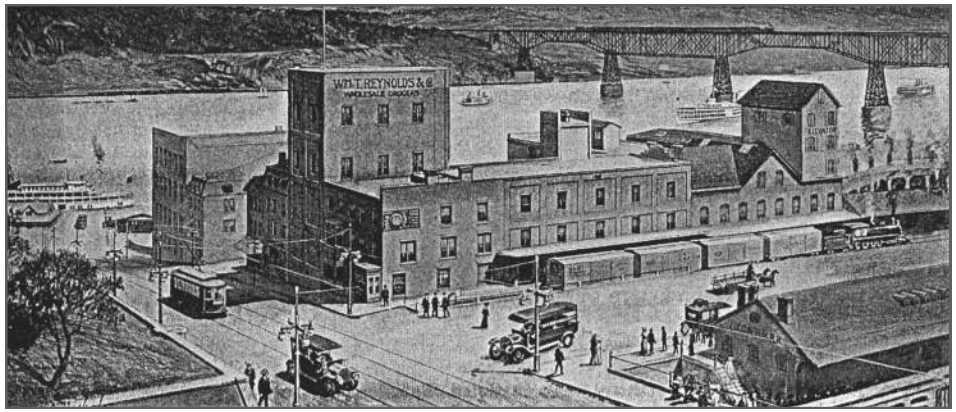
Railroad Era: 1850 to 1930

The City's strategic central location led in the late 1800s to an ideal convergence of river and rail access. In 1850 the Hudson River Railroad Depot was built one block form the Steamboat Terminal. When the only railroad bridge over the Hudson south of Albany was completed in 1889, Poughkeepsie became the junction of two great passenger and freight rail lines. A street trolley system extended east to Vassar College and south to Wappingers Falls. Factories powered by steam replaced older operations at the Fall Kill dams and waterfalls. Manufacturing flourished along the waterfront and rail tracks, including large-scale plants north of the Railroad Bridge, south of Kaal Rock, and on filled land at the Lower Landing near Pine Street.

On the river the annual Inter-Collegiate Regatta, held here from 1895 to 1949 for elite crew teams from across the country, enhanced the City's national reputation. The Main Street Steamboat Dock also became a prime stop for dayliner passengers and tourist travelers up the Hudson.

1850	Hudson River Railroad extended to City
1854	Poughkeepsie City Charter adopted
1861	Vassar Female College founded
1869	Bardavon Opera House opened
1870	City Street Railway system began service
1872	Reynolds Warehouse built near Depot
1874	Landing trade consolidated at Main Street
1889	Poughkeepsie Railroad Bridge completed
1892	DeLaval plant built on southern waterfront
1895	Annual Inter-Collegiate Regatta began
1899	Last mill pond filled-in
1918	Present Railroad Station constructed
1938	Most central Dutchess rail lines abandoned

**History adapted from 1997 Poughkeepsie Transportation Strategy.*



Wm. T. Reynolds & Co. relocated from the Upper Landing in 1872 to a large new warehouse complex between the Steamboat Dock at left and the old Railroad Depot shown at the bottom right.

The annual Regatta made Poughkeepsie a major center for the sport of rowing for decades, attracting large crowds of spectators on the shoreline, pleasure boats, and rail cars designed to follow the race.

Deep water directly along the shoreline allowed the waterfront to handle large vessels, such as the Dayliners shown at the Main Street Steamboat Dock in this post card from 1906.

View from newly constructed Railroad Bridge, with Vassar Brewery buildings on the left and Steamboat Dock and Exchange House Hotel to the right.

View down from the then derelict bridge after urban renewal had replaced most older buildings with the 18-story Rip Van Winkle building, parkland, and lots of parking lots.

Illustration of an expanded park and development district from the Poughkeepsie Transportation Strategy, endorsed by the Common Council in 1997.

Highway Era - 1930 to Present

With the overwhelming emphasis in the last 60 years on cars and highways over river and rail, many cities lost their locational advantages. For Poughkeepsie, the highway era began on a high note with the beautiful Mid-Hudson Bridge leading directly into the City. But more recent highway construction and arterial routes, while responding to the growing traffic demands, also reinforced dispersing patterns of development away from the traditional centers. Growth along highways with better access for trucks and larger lots available for parking slowly drained much of the City's commercial and industrial base.

Federal Urban Renewal and highway policies from 1955 to 1980 also led to widespread demolition along lower Main Street and the waterfront, while Route 9 bypassed the City Center and the arterials bypassed Main Street. Infill redevelopment around the Railroad Station, the attraction of the Walkway, and the greening of new parkland all signal a reversal of these trends and a new vision for the waterfront.

1930	Mid-Hudson Bridge opened
1941	Ferry service ended
1942	IBM plant constructed south of City
1949	Last Hudson River Inter-Collegiate Regatta
1950	City's population peaked at 41,000
1956	NYS Thruway built west of river
1964	DeLaval plant relocated from City to Town
1966	Route 9 north-south arterial completed
1968	Rip Van Winkle building constructed
1974	Railroad Bridge abandoned after fire
1979	East-west arterials completed
1981	Luckey Platt department store closed
1993	Main Street Dock rebuilt
2001	RR Station parking structure constructed
2002	Children's Museum moved to waterfront
2007	Piano Factory restored as mixed-use building
2009	Walkway Over the Hudson opened
2013	Upper Landing Park completed

Previous Plans and Progress

In the late 1990s Poughkeepsie completed three significant planning projects with waterfront implications. At that time the shoreline was eroding into the river, half of northern Waryas Park was a pot-holed gravel lot, and several new large surface parking lots were being considered around the Railroad Station. The 1997 Transportation Strategy proposed extending Waryas Park along the entire riverfront north to the Fall Kill with a continuous promenade, consolidating parking into a multilevel parking structure, and creating a new mixed-use development district along Main and Water streets.

In 1998 the Comprehensive Plan and Local Waterfront Revitalization Program were adopted, although the LWRP process was never finalized with the Department of State. All three plans included complementary policies, leading to renewed interest in the waterfront. Much of the debate focused on the future of Water Street and the unimproved northern section of Waryas Park. The LWRP deemed appropriate for this area not only water dependent uses, such as docks, tour boats, tourism, and recreational activities, but also water enhanced businesses or activities, such as a farmers market, restaurants, related retail shops serving activities on the site, museums, galleries and other cultural facilities, as well as the potential for housing in conjunction with other mixed uses (see pgs ES-4 and III-4).

The LWRP also led to the creation of the Waterfront Advisory Committee, which makes consistency recommendations to the Common Council for any waterfront proposal.

Since 2000, many of the recommended plan elements have been implemented, although Water Street and substantial sections of the City's parkland still need improvements.

Metro-North built an award-winning parking deck with a walkway and waterfront overlook on the south side.

The covered walkway to Main Street was also restored and an entrance pavilion and bus drop-off area added.

Former industrial buildings have been converted into the Mid-Hudson Children's Museum and mixed-use housing.

The Reynolds & Co. warehouses, initially proposed to be torn down for a parking lot, are now a mix of commercial uses.

The new pedestrian bridge over the Fall Kill Creek, Upper Landing Park, and the elevator to the Walkway all set high quality standards for future waterfront development.

Waterfront access is segmented into three dead-end parking areas. Pedestrian paths are limited, indirect, and inconsistent with the American with Disabilities Act because of steep sidewalk grades at all three approaches.

The existing waterfront is dominated by parking areas (grey) with Waryas Park separated by two large central lots.

Existing Park Conditions

Poughkeepsie has substantial public parklands along the waterfront, but certain sections are currently underused. Near Main Street, the picnic tables, playground, band stand area, and public boat docks, as well as the skate park next to the Children's Museum, are more regularly active. The recently added Ice House restaurant and tour boats have attracted many new visitors to the park, although they have also aggravated peak parking problems. Waryas Park is home to periodic large-scale outdoor events, including concerts, cultural celebrations, fireworks displays, and an annual balloon festival, but there is no stage, hillside terraces, rest rooms, or a path system through the rear sections of the park to provide permanent support facilities for these activities.

Kaal Rock Park and the grassy northern section of Waryas Park are the most inactive areas. Waryas Park is effectively split in two by two large surface parking lots and the steep diagonal street heading down to the boat ramp. The North Waryas lawn and hillside are large enough to fit two regulation football fields side-by-side. However, this immense greenspace is often empty, even on sunny afternoons when parking lots are full (see photo below).

Overall, the park lacks the variety of destination features, through circulation systems, frequent maintenance, weekly programming, and surrounding uses necessary to keep the area continually active. This is particularly evident on weekdays and during the colder months.

Northern Waryas waterfront with a full parking lot and an empty lawn.

Floodplain and Slope Issues

As the blue-striped section of the map to the right shows, the lower level of Waryas Park is in the designated 100-year floodplain, only 4–8 feet above the river level. Recent major storms have flooded the park, including the Children's Museum pavilion and the Ice House during Hurricane Irene in 2011. Park greenspaces can absorb periodic flooding and be cleaned-up, but any new buildings should located on higher ground, or in the case of park accessory structures, designed to withstand expected flood events.

Moreover, climate change is leading to more frequent and severe storms, as well as a rise in the base river levels. The Hudson has risen about a foot over the last century and future projections are accelerating—up to another foot by the 2050s and roughly double that rate under rapid ice melt scenarios. Scenic Hudson's 2010 guidebook, *Revitalizing Hudson Riverfronts,* proposes that new buildings and critical infrastructure be located out of the 500-year floodplain.

Steep slopes over 25% (shown in orange) ring the parks, creating great river views, especially from Kaal Rock Point and the central terrace due west of the Railroad Station. But they also cause driveway access and walkway difficulties between N. Water Street and the park. Designs should take advantage of the slopes with additional park terraced viewpoints, stairways that offer informal seating, and elevated building locations overlooking the park and river.

Property Ownership

One of the prime advantages of the Poughkeepsie waterfront is the amount of land in public ownership. The City controls over 25 acres of riverfront, in addition to the Walkway Over the Hudson State Park, the 2.7-acre Upper Landing Park, and the 2.45 acres being proposed for parkland as part of the One Dutchess Avenue development. Another benefit is the limited number of property owners in the area around the Railroad Station, making a coordinated approach to redevelopment of the public and private lands much more likely.

Waryas Park and Ice House flooding in 2011 (right). Photo Credit: NYSDEC

3

Original Steering Committee

City of Poughkeepsie
Mayor John Tkazyik
Councilmember Gwen Johnson
Councilmember Robert Mallory
Councilmember Thomas Parise
Councilmember Joseph Rich

Dyson Foundation
Diana Gurieva

Dutchess County
John Clarke

Metro-North Railroad
Wendy Johnston

Scenic Hudson
Steve Rosenberg

Walkway Over the Hudson
Sally Mazzarella
Elizabeth Waldstein-Hart

Public Outreach

With funding from the Dyson Foundation, the City and County distributed a Request for Qualifications to over 50 planning and design firms. From the nine proposals, three teams were interviewed and the selection committee picked the Stantec, Torti Gallas, and HR&A team as consultants for the project.

Public participation began with a kick-off stakeholders meeting on December 5, 2012 with over 50 residents and interested parties. A Steering Committee with representation from the City leadership and both waterfront wards was organized and met ten times throughout the process to give direction to the consultants. Two public workshops in 2013 attracted capacity crowds to hear presentations, consider options, and give ideas and opinions in smaller group sessions. Written surveys also helped to define the issues (see survey summaries to right).

There was broad agreement on many elements. The most controversial issue involved development of northern Waryas parkland, as envisioned in previous plans. Three options were considered: no park buildings, mixed-use buildings along the rear hillside, providing the City substantial revenues for park construction and maintenance, and a middle choice with a few mixed-use buildings to the rear. The survey respondents split the vote between these concepts with no clear mandate.

More than 30 other meetings occurred throughout the course of the plan preparation to get direct feedback from individuals and stakeholders, including the following groups:

- City administration and Common Councilmembers;
- Waterfront Advisory Committee representatives;
- Friends of Little Italy and Mt. Carmel businesses;
- Children's Museum;
- Clearwater and Scenic Hudson;
- Metro-North Railroad officials; and
- Multiple waterfront property owners.

A draft of the Waterfront Redevelopment Strategy report and proposed zoning amendment was presented to the Common Council and public for final comments and revisions in October of 2014. An independent evaluation by the City's economic development consultant stressed that the Strategy's recommendations will assist Main Street revitalization plans. The consensus plans reflect popular sentiments expressed during the public sessions and the views of local property owners, integrated with an analysis of the economic advantages for the City. All recommendations and the reasoning for specific development and design features are included in section 5.

January 24, 2013 Public Workshop Survey Results:

1. What types of Public Spaces should be included?

Promenade	91%	Fishing Pier	57%
Picnic Park	89%	Boat Launch	55%
Restored Natural Areas	86%	Swimming	39%
Outdoor Performance Area	80%	Ice Rink	38%
Public Plaza/Outdoor Dining	71%	Play Field	36%
Kayak Launch	71%	Skate Park	34%
Boat Dock	68%		

2. What type of Economic Development?

Tourism related jobs	84%	Retail related jobs	66%
Children related activities	84%	Residential	45%
Cultural activities	84%	Small office space	32%
Entertainment	80%		

3. What kind of improvements around the train station?

Improve walk to Main St	89%	People live near station	66%
Improve walk to Mt. Carmel	86%	Office uses near station	43%
Use Station to aid tourism	86%		

4. Which of the following on Lower Main Street?

Improve pedestrian connection to waterfront	77%		
Add a pier at end of Main St	61%	Add some new buildings	46%

5. What Sustainable Design measure would you like?

Strategies to protect Hudson River water	86%		
Restore ecological areas	82%	Guidelines to save energy	79%
Include green buildings	80%	Strategies for less carbon	79%

May 2, 2013 Public Workshop Survey Results:

1. **Did you attend the first public meeting? (Yes)** 54%

2. **Improvements along Main Street**
   Greater pedestrian connection between Main Street and river 91%
   Improved bus route that links Waterfront to City Center 78%
   New mixed-use infill buildings on Main St. near the Train Station .. 58%
   Infill townhouses and additional shops on Main St. east of Rt. 9 .... 52%
   If feasible, a surface parking lot at Route 9 interchange 34%

3. **Improvements around Mt. Carmel and Dongan Street**
   Improved walking connections from Train Station to Mt. Carmel .. 80%
   New pedestrian path along Fallkill Creek 74%
   New infill housing and shops in Mt. Carmel area on Mill Street..... 51%
   New parking structure next to Rt 9 on Dongan Pl 35%

4. **Near Station**
   Allow for new homes on Rinaldi Blvd near Main Street 49%
   Add new parking structures and mixed-use development on
   MTA property next to west side of train station..... 48%
   Add low rise homes (3–4 stories) around Rip Van Winkle building . 37%

5. **Parks and Public Space Uses**
   Outdoor performances ..... 91% Open air weekend market . 83%
   Hudson Valley-oriented craft stores/businesses along side of park 77%
   Restaurants along side of park 68% Outdoor movies..... 68%
   Children's play area ..... 68% Carousel..... 45%

6. **Boating**
   Limit waterside ramp to kayak use and move boat launch south ... 48%
   Linear boat dock in North Waryas Park..... 45%
   New boat dock on Waryas Park between Main St. and Ice House .. 45%

7. **Do you favor adjustments to Park Lanes and Walks?**
   Do you like the idea of continuous linear walk connecting Kaal
   Rock, Waryas Park, and the Walkway Elevator..... 91%
   Do you like the idea of extending the park up the hill to Train
   Station entrance and replace existing road to Ice House..... 68%
   Do you like the idea of connecting west end of Main Street
   with a small lane to the back of the Ice House..... 48%

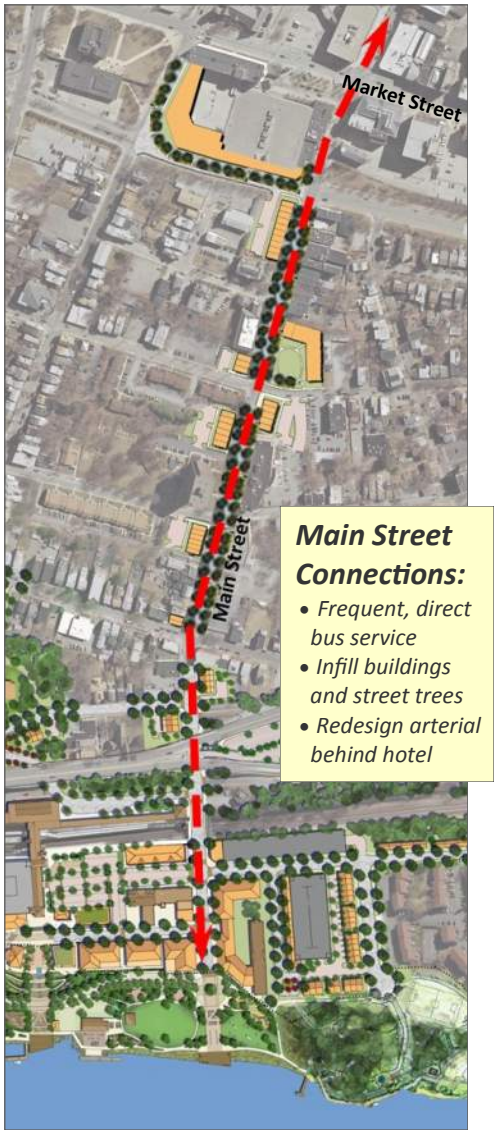
8. **Park Options:** In all park designs the amount of parkland stays the same, but the shape of the boundaries and uses are different. Of the three park plans, which do you like most?
   Option A: Keep park shape similar to current configuration, but
   add some outdoor park activities..... 38%
   Option B: Allows for a combination of outdoor park activities and
   some mixed-use buildings along edge of park..... 22%
   Option C: Allows for a combination of outdoor park activities and
   restaurants at edge of park..... 32%

9. **Sustainable Design: Should any of the following be included?**
   Features to protect Hudson .. 82% Guidelines to save energy . 74%
   Restore ecological areas ..... 82% Strategies for less carbon .. 72%

Three options presented for comments at May 2013 Public Workshop.

Guiding Principles and Design Strategies

4



After listening to the public, the following guiding principles and strategies were endorsed by the Steering Committee:

Lower Main Street (Route 9 to Market St.)

Redevelopment near the waterfront district should benefit and be connected to the City Center with improved transit and pedestrian linkages.

Points of General Agreement:

- Provide a shuttle bus/trolley line along lower Main Street, creating direct and frequent service connections with a reduced fare between Waryas Park and the City Center.
- Fill in gaps with residential and retail buildings, replacing front yard parking lots and creating a pedestrian-friendly frontage with street trees, benches, and a corner park.
- Make the Route 9 underpass less of a perceived barrier with enhanced lighting and/or artwork.
- Redesign the arterial between Mill and Main to slow traffic, reduce the Main Street crossing width to 2 - 3 lanes, and provide usable space behind the Civic Center.
- Work with NYSDOT on long-term changes to the hazardous Route 9–44/55 interchange, allowing the northern ramp space to be used for parking with access to lower Main Street and the Station.

Model for new infill buildings with residential over retail and attractive streetscape features.

South of Main Street

Area improvements should strengthen the residential neighborhood, increase safety, and revitalize Kaal Rock Point and Park.

Points of General Agreement:

- Transform northern Rinaldi Boulevard from a long surface parking lot into a narrower, tree-lined, walkable street connecting the residential neighborhood and southern waterfront to the Station area.
- Improve accessibility and attractions at Kaal Rock Point and Park to benefit both residents and visitors, consistent with the results of the 2013 Kaal Rock Study, including a continuous trail over and around the point to the southern waterfront businesses and beyond.
- Working with the property owners and tenants to address site issues, design 2-5 story housing around Rip Van Winkle to reduce the out-of scale impact of the high-rise, create a balanced mix of incomes without displacement, and screen the parking and loading areas.
- Construct townhomes along Long Street and Rinaldi Blvd. to complement the existing neighborhood to the south and provide better accessibility and security for Kaal Rock Point.
- Build structured parking south of Rip Van Winkle for new residents and, if additional parking is needed, build a second parking structure with Main Street retail frontage on City-owned land adjacent to the tracks.

Mt. Carmel Connections:

- *Narrow intersections and street trees*
- *New commercial uses on Mill Street*
- *Townhouses on commuter parking lot*

Existing entrance to Mt. Carmel from Station features a large parking lot, overly wide intersections, and speeding cars.

Mt. Carmel Neighborhood

The waterfront district should have strong, seamless linkages to surrounding neighborhoods, including the Mt. Carmel/Little Italy area uphill from the Railroad Station.

Points of General Agreement:

- Improve pedestrian connections through the use of sidewalk extensions, shorter crosswalks, street trees, and other traffic calming measures.
- Add mixed-use buildings at the Mill St.-Verazzano intersection, filling the street gap between two main commercial intersections, allowing public access to the Fall Kill Creek, and highlighting the horseshoe-shaped falls.
- Construct a pathway along the Fall Kill Creek, consistent with the 2012 Fall Kill Plan, from the river, perhaps over the railroad tracks, along Dongan Park and Verazzano to Parker Avenue and the Rail Trail.
- Fill in the empty parcels and MTA lot surrounding Dongan Park with active uses to provide a more attractive and secure pedestrian connection to the Mt. Carmel commercial center.

Waryas Park Waterfront and North Water Street

The Waryas Park area should have a wide variety of all-day and all-season uses, including picnic areas and other greenspaces, boating and water-dependent uses, and cultural and children's activities, as well as adjacent water-enhanced commercial and upper-level housing uses framing the park, making the entire area active, attractive, safe, and accessible for all. Any mixed-use redevelopment and visitor-oriented services should complement the parks, Railroad Station, and City Center and be a source of economic development that benefits the whole City and all of its residents.

Active, Attractive Waterfront Walking District:

- *Increase park greenspace by removing surface parking lots*
- *Path network integrates a wide variety of park features*
- *Park plaza acts as a gateway at base of RR Station overlook*
- *Commercial uses focused around Main and Water streets*

Points of General Agreement:

- Replace or reduce the size of the current park parking lots and the over-sized Main Street cul-de-sac to create a more continuous green park from the Children's Museum to Kaal Rock, linked by a riverfront promenade and a second inland path along the rear slopes.
- Design a convenient and visually attractive pathway with exciting adjacent activities from Main Street and the Railroad Station to the Children's Museum, Upper Landing Park, and Walkway elevator.
- Replace the steep, angled, dead-end street from North Water Street down to the boat ramp, extending the central part of the park up to the Railroad Station with a public market plaza overlooking the river.
- Build an improved free public boat ramp with a larger adjacent parking area for trailers farther south in the City and use the Waryas Park ramp for launching non-motorized boats and kayaks from cartops.
- Create a premier waterfront park for the Hudson Valley with a full range of distinctive and engaging features, including promenades, bike paths, picnic areas, terraced garden overlooks, boating facilities, elevated public plazas, multi-use performance spaces, all-season cultural and recreational activities, and an event lawn to allow large-scale festivals and outdoor entertainment.
- Emphasize sustainable systems throughout the waterfront, including reduced carbon emissions, flood resiliency, Hudson watershed protection, natural drainage methods, and green building technologies.
- Encourage new mixed-use development along North Water Street and Main Street to fill in parking lots and underused private land, create an enticing, pedestrian-oriented street to attract residents and visitors, screen views of the parking deck, take advantage of river views, and enhance economic development and city revenues.
- Provide adequate area parking for park visitors, businesses, and train users with expanded parking structures, under-building parking, and on-street parking along Water Street.

5

A New Front Porch for Poughkeepsie

The Waterfront Redevelopment Strategy is designed to generate new activities at the waterfront and attract residents to the river. But it will also create a gateway stimulus for development in and around the City Center by establishing the waterfront/Railroad Station area as an extremely positive first impression of Poughkeepsie. Visitors will be encouraged to explore the many upland city neighborhoods through the use of a shuttle bus up Main Street, pedestrian linkages to Mt. Carmel, and other streetscape connections. As a result, the plan will increase land values, encourage investment, and create jobs for a much broader area. The waterfront will become a great front porch for the entire City.

Extensive Public Park System

The Illustrative Plan includes improved park features to benefit Poughkeepsie's residents and businesses, organized around three major objectives:

- Increase public access to and along the river;
- Gain net greenspace and usable park land; and
- Add a variety of new attractions and river views.

Increase public access. The overall plan envisions a remarkable network of public greenspaces and paths that will pull together the park system and connect the City to the river. It first creates multiple new access ways through Waryas Park to the water. The plan expands to include paths over and around Kaal Rock, a proposed trail system along the Fall Kill Creek, and a priority connection past the Children's Museum to Upper Landing Park and the Walkway Over the Hudson elevator. It also links to Greenway Trail sections along the Hudson River north and south of the City's two iconic bridges.

Gain usable park space. The Illustrative Plan reclaims greenspace and park uses from surface parking lots in three central locations. The large surface lot facing the river will be replaced by paths crossing through naturally planted garden rooms for outdoor seating and green drainage systems. The large parking lot at the top of the hill will be transformed into a public market plaza and gateway gathering place at the base of the Railroad Station overlook. The overly large cul-de-sac parking turnaround at the west end of Main Street will be substantially reduced in size to recover greenspace and allow a direct Main Street walking corridor to the river. And although on private land, the Children's Museum driveway and parking lot will also be relocated away from the Fall Kill Creek. Any demand for continued parking spaces overlooking the river can still be supplied at the revitalized Kaal Rock Park to the south.

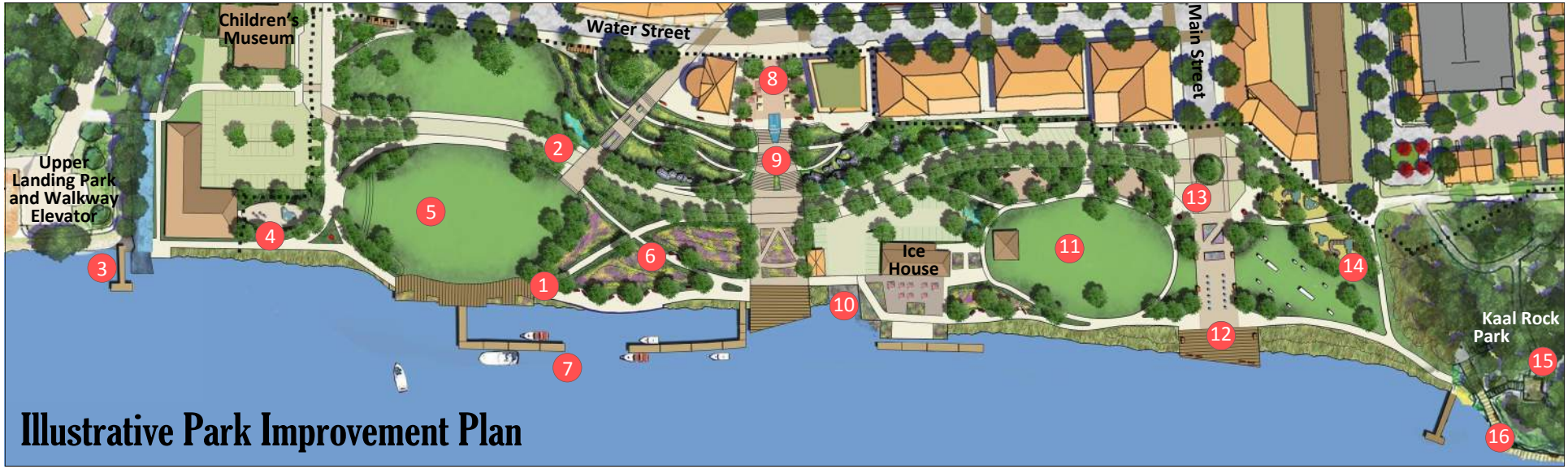
Add to park variety and river views. New piers, docks, and boardwalk sections along the Poughkeepsie promenade offer additional boating opportunities and more ways to access the water. Two east-west pedestrian plazas allow direct circulation from the Railroad Station and Main Street to the river, with displays that recall the historic port of Poughkeepsie. Other features include an events lawn and stage, two children's play areas, a storage building for kayaks and small boats, and a new bicycle-priority rear lane that can also be used for a food or crafts market. The staircases and terraced rear slopes create new view spots, while ramping paths allow ADA accessibility.

Looking at specific questions in the public surveys, almost all of the major proposed park features received strong support, including a riverfront promenade, an outdoor performance space, restored natural areas, an open air market, a public plaza with outdoor dining, a kayak launch, a boat dock, and children's playground. And although the survey results were very favorable to restaurants and Hudson Valley-oriented businesses along side the park, the Steering Committee decided against any development terraced into the northern Waryas hillside because of some strong public opposition. The City-owned park boundaries will stay the same with no non-park related uses proposed on existing parkland.

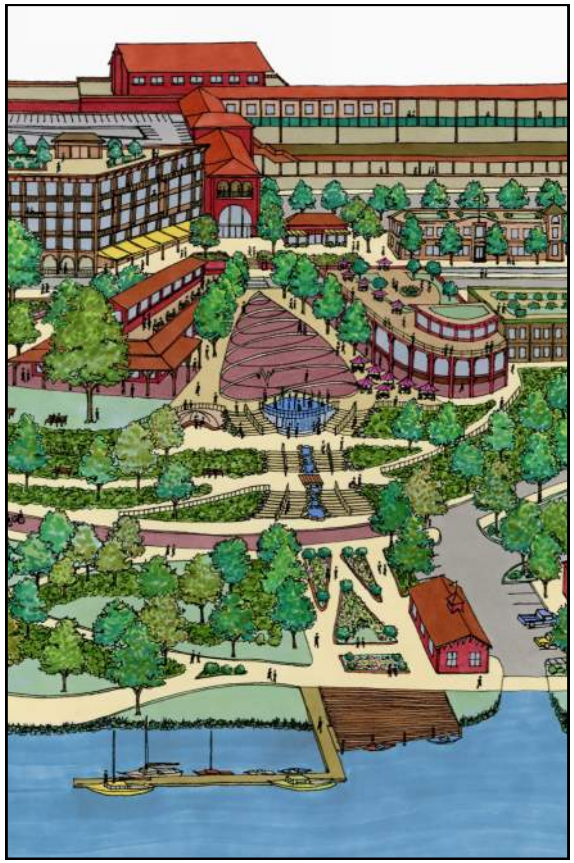
Park Improvements

1. **Pedestrian Promenade**: A continuous Greenway connection along the riverfront combines concrete paths with boardwalk and pier sections to provide multiple access areas to the river, places to dock boats and touch the water, and varied design and materials to break up the current uniform configuration of a curving concrete path with stone rip-rap shoreline.
2. **Park Lane**: A narrow rear lane along the base of the hill, designed as a bicycle priority boulevard, provides a secondary connection from the Walkway elevator and Fall Kill pedestrian bridge south to the top of Kaal Rock Point. It is also essential for access from Main Street to the kayak launch and park parking screened behind the Ice House. The lane replaces the steep diagonal street down to the boat launch, offers through circulation for walkers, bicyclists, and park security, and also provides a place for temporary food or craft market stalls.
3. **Fishing Pier**: The mouth of Fall Kill Creek is a favorite fishing spot, but the water is shallow, so a pier off Upper Landing allows more fishing locations and access to deeper water.
4. **Learning Landscape**: A children's outdoor play area can be coordinated with the Children's Museum to include changing programs for educational experience.
5. **Event Lawn**: A large-scale greenspace is needed for picnics, open play area, concerts, and other events with a stage at the north end and extra seating on the hillside to the east.
6. **Garden Paths:** Naturally planted garden rooms replace the existing riverfront parking lot with paths, picnic tables, seating, and natural park drainage areas.
7. **Boat Docks**: Transient docks will promote boating visits to the park, City, and Walkway. Harbor-shaped floating docks provide interior protection for smaller boats from wave action and double the length of new tie-up areas.
8. **Park Plaza**: A gateway park entrance plaza replaces the existing parking lot with a public gathering place at the prime central space below the Railroad Station overlook and on a terrace with great views of the river and two bridges. This multipurpose plaza is framed by a Public Market hall and cafes with outdoor eating patios and includes an interactive fountain at the west end.

Park Plaza from Station Overlook, Before and After



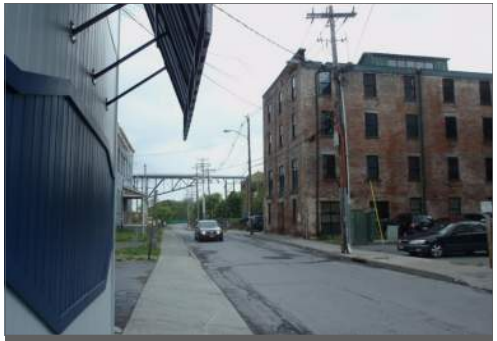
The Illustrative Plan enhances public access through Waryas Park to the river, and creates direct connections between Main Street, the Railroad Station, and the Walkway Over the Hudson elevator.



Sketch of Park Plaza at base of Railroad Station overlook, public market, grand stairs, boathouse, and docks.

9. **Grand Stairs**: As a continuation of the Park Plaza and fountain, the curving stairs with a central stream or planters and connections to parallel paths along the hillside create a variety of sitting spots, places for terrace benches, and accessible ramps down to the river.
10. **Kayak Launch**: The Comprehensive Plan recommended moving the larger boat ramp to the southern water-front, where there is much more room for parking and trailers. If that can be implemented, a smaller kayak launch will still provide boating activity with an adjacent rental storage building for kayaks and small boats.
11. **Band Stand Green**: The existing band stand is moved to the north end of the lawn, so that viewers do not have their backs to the river, providing additional park event and greenspace in a smaller-scale setting.
12. **Main Street Pier**: A pedestrian plaza and boardwalk pier extends the Main Street visual corridor to the river and provides a place for displays of riverfront history, such as the Steamboat Dock for Dayliners, Exchange House Hotel, and Vassar Brewery.
13. **Main Street Square**: A smaller turnaround square allows for a Main Street shuttle bus stop, while reclaiming park greenspace from the current overly large cul-de-sac.
14. **Playground:** Built into the slopes at the south end of Waryas Park to provide safer slides and back away from the river's edge, this children's playground complements the climbing sculptures and picnic tables near the base of Main Street.
15. **Kaal Rock Point**: The Kaal Rock Plan recommends the clearing of underlying brush, a connected path system, open playing field to rear, and rain gardens. A viewing area on top with railings along the edge would have seating options, a kiosk/gazebo, and possible future concessions.
16. **Kaal Rock Walkway**: The plan calls for a boardwalk around the base of the rock, either supported on piles or perhaps cantilevered off the rock, to provide a river level linkage to City parklands to the south.

1. **Children's Museum**: With a shared park access drive to the south of the building, the parking can be removed along the Fall Kill frontage. The Museum then has space for outdoor exhibits overlooking the creek and connecting to the pavilion, or possible expansion space.
2. **Parking Structure Area**: The existing parking deck is expanded to the north with two new mixed-use buildings screening the massive structure from the park and river views. A hotel here with a covered walkway along Water Street would best fit the narrow space and provide every room with an expansive river view.
3. **River Station Parcels**: Ground floor commercial, upper floor housing or hotel rooms, under-building parking, and terraces and balconies facing the river would create an active walking district along Water and Main streets and help provide the park with an improved sense of security.
4. **Station Parking Lots**: Mixed commercial buildings along the street frontages and railroad tracks screen views of the surface lot, while enhanced landscaping, walkway connections, and station drop-off plaza make this entry area much more inviting. The upper parking lot becomes townhouses overlooking Dongan Park and, along with other infill buildings, provides a more active street connection to the Mt. Carmel neighborhood.
5. **Rip Van Winkle Parcel**: Mixed-uses along Main Street and townhouses to the south have multiple benefits, including that new market rate and moderate income housing will balance income levels in the area without any displacement of existing affordable apartments. Perimeter buildings will also visually screen the out-of-scale tower, replace the corner parking lot, activate Main Street's south side, line Long Street with townhouses similar to adjacent housing, and overlook Kaal Rock Point to enhance park safety.
6. **Rinaldi Boulevard**: Using the narrow city-owned land along the railroad tracks and the overly wide street now used for commuter parking, a new parking structure could be built with commercial frontage facing Main Street and additional townhouses to the south.



View looking north up Water Street, Before and After

The Illustrative Plan provides a clear vision for how the waterfront and area around the Railroad Station can be developed to enhance Waryas Park, provide connections up Main Street, and help revitalize nearby neighborhoods.

Parking Summary

Existing Parking

Railroad:	Parking Deck	536
	Surface Lots	378
	On-Street Spaces	209
	Total	1,123
Waryas Park Area		115
Main Street Spaces		35
Rip Van Winkle		130
Total Existing Spaces		**1,403**

Estimated Parking Need

Railroad projected need	1,323
New Commercial:	
Retail (80,000 sf)	200
Office (10,000 sf)	32
Hotel (80 Rooms)	50
New Residential:	
MTA Properties	17
Rip Van Winkle Parcel	150
Town Houses	56
Multi-Family	28
Children's Museum:	30
Park/public parking:	175
Total Estimated Need	**2,061**

Potential Parking and Locations

	Existing	Proposed
Railroad Surface Lots:		
River Side Lot	251	125
East Lot	64	64
Dongan Lot	63	0
New Route 9 Lot		72
On-Street Leased Spaces:		
South of Station	15	15
Rinaldi Blvd	135	102
Long Street	13	13
Gerald Drive	27	27
Dongan Place	19	19
Parking Structures:		
Existing Deck	536	536
New North Extension		225
New Rinaldi Structure		250
Public Parking:		
Existing Main Street		35
New Water Street		34
New Waryas Park Lane		36
New Waryas Park Lot		36
New Rinaldi Blvd		33
Private Parking:		
New Rip Van Winkle Deck		150
New Residential		100
New Commercial		120
Potential Parking Totals		**1,993**

The plan is to relocate surface parking spaces into parking structures backed up against the train tracks and to screen both the structures and any remaining lots behind new buildings lining the sidewalks and streets.

Parking Strategy

Parking is an essential element at the waterfront, but the plan proposes to relocate unattractive lots away from the river and street views and to consolidate surface spaces into structures. There are 1,123 parking spaces currently in the vicinity of the station available for railroad users. This includes a three-level parking structure, three surface lots, and 209 on-street spaces that are leased from the City. A total of approximately 1,400 parking spaces, including private spaces, are in the area.

The Strategy proposes two new public parking structures to replace surface lots and to accommodate future demand. The first is located between the train tracks and Rinaldi Blvd. on City-owned land, limiting land acquisition costs. The second involves a northern expansion of the current parking deck, taking advantage of existing ramps to save construction costs. Also, a new Main Street surface parking lot is possible between the Route 9 north- and south-bound lanes. These new facilities could create 547 new spaces, including up to 200 new railroad parking spaces and relocation of 189 spaces from surface lots to make room for new development. Some leased on-street spaces could also be moved into the parking structures so that street parking would be available for area residents and businesses.

New on-street parking is proposed on the west side of Water Street and in the rear of Waryas Park behind the Ice House to replace the large riverfront lot. Private commercial and residential development within the area will also provide new parking. Shared parking between uses with different peak hours will reduce overall parking needs, especially on weekends when demand for railroad parking is less and up to 225 spaces become available for public use.

Waterfront zoning encourages shared parking arrangements that would support partnerships for constructing new parking facilities. As a transit-oriented district, parking requirements are also reduced dramatically to promote walking, biking, and transit use and to decrease development costs. Approximately 2,000 total spaces can be built in the area, but that many may not be needed if alternatives to the auto are treated seriously.

Consistency with Regional Plans

It is especially important that the Strategy's recommendations are aligned with state policies and regional plans in order to be competitive for future grants. With priorities set by the Mid-Hudson Regional Economic Development Council, state grants will likely be the best source of funding for park improvements and infrastructure. Three regional planning documents should be considered:

Mid-Hudson Regional Sustainability Plan. Completed in 2013 with the participation of many counties, communities, committees, interested groups, and individuals, this plan is the newest and most significant for compatibility purposes. The Sustainability Plan is organized around critical themes and issue-oriented chapters. The Poughkeepsie Strategy is fully consistent with the focal strategies to revitalize waterfronts, urban centers, housing, and infrastructure "as engines of regional prosperity." It also fulfills all the major objectives in the Land Use, Livable Communities and Transportation chapter, including:

- Strengthen centers supported by transit;
- Create complete communities with a balance of housing and jobs, a mix of services, access to parks, affordable housing, and transportation options;
- Reduce fuel consumption and greenhouse gas emissions;
- Promote land efficient development;
- Expand and upgrade transit facilities;
- Improve streets, sidewalks, and trails; and
- Encourage transportation demand management.

Most noteworthy, Poughkeepsie is a perfect place to implement transit-oriented development on a regional scale, with the bonus advantage of a beautiful waterfront location. The economic and environmental benefits of TODs include all the points listed above. As the best way to strengthen existing centers and infrastructure, create walkable neighborhoods, reverse auto dependency, and reduce overall pollution, transit-oriented development is the purest form of smart growth and sustainable development.

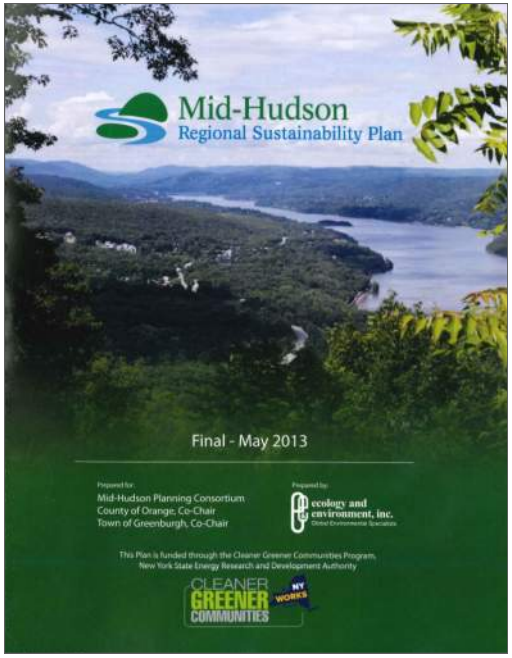
Revitalizing Hudson Riverfronts. Prepared by Scenic Hudson in 2010 with financial assistance from the NYS Department of State, this illustrated guidebook advances six riverfront development principles, all of them addressed in the Waterfront Redevelopment Strategy. Some of the more specific recommendations that are particularly targeted in the proposals:

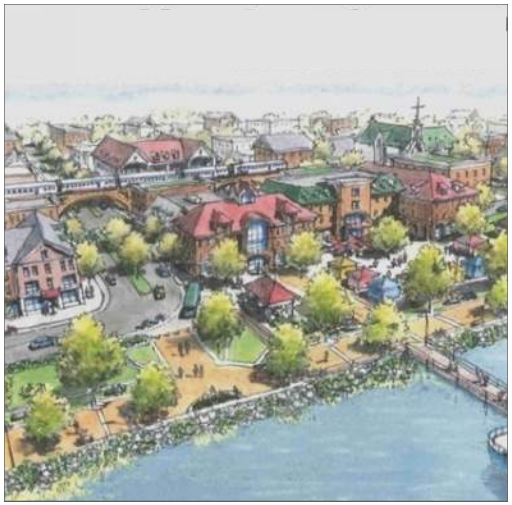
- Promote riverfront development in areas with existing infrastructure;
- Locate new development near transportation hubs;
- Transform surface parking adjacent to stations into multiple-use facilities;
- Discourage parking immediately adjacent to the shoreline;
- Create linear riverfront parks with piers and docks;
- Include prominent public spaces that support community life; and
- Establish mixed-use zoning and form-based codes.

Greenway Connections. Produced as the Greenway Compact plan for Dutchess County with model Greenway Guides for the region, *Greenway Connections* was adopted by the City in 2002. The recommendations in this Strategy are entirely supported in the Greenway document, most specifically:

- Reinforce centers as the primary growth areas;
- Complete a continuous trail along the Hudson River shore;
- Support arts and tourism as among the top economic generators;
- Plan for pedestrians as a top priority; and
- Improve public access to the water.

Under the public access section, the City of Poughkeepsie waterfront is identified as a potential model for transit-oriented development within walking distance of a regional rail terminal. Also, park improvements, future mixed-use development along Water Street, and an inland trail system along the Fall Kill Creek to College Hill Park and the Dutchess Rail Trail are all endorsed.





Graphic promoting riverfront development in areas with existing infrastructure, from Scenic Hudson's "Revitalizing Hudson Riverfronts."

5

Diverse Redevelopment Program for the Waterfront District

There are multiple land uses possible in the area including residential, retail, offices, hotel, outdoor park activities, and parking facilities. Several potential combinations of these uses are possible. This mix of uses will provide a vibrant gateway for the entire City of Poughkeepsie.

Type	Units/ Rooms	Square Footage
Townhouses	56	106,000
Multifamily	207	209,000
Hotel	80	36,000
Retail		78,500
Office		10,000
Public Marketplace		18,000
Total Square Footage		457,500
New parking structures		315,000
Improved park 10 acres		

The Poughkeepsie Waterfront Redevelopment Strategy will benefit both the City and the wider region. The plan will provide important public amenities for the residents of the area, support a growing tourism economy, create jobs, increase land values, and provide multiple opportunities for significant private investment. The plan establishes a vision for the waterfront that is consistent with city-wide and regional plans for Poughkeepsie by both protecting and improving access to the waterfront and by creating economic benefits for the entire City.

Economic Benefits

Both the park and the blocks surrounding the Railroad Station area are planned to create economic benefits. Retail on Water Street is expanded to include more local shops and restaurants. New residential buildings contribute to the local tax base and make the neighborhood lively at all times of the day. A potential new hotel supports tourism. The park itself is designed to showcase Poughkeepsie's dramatic location on the Hudson River and its remarkable bridges. The park is intended to serve area residents first; however, the park is also designed to generate economic activity. It accomplishes this through its new event lawn and stage that can serve regular events, a walkable lane that can host public food and craft markets, a new public plaza with spectacular views and outdoor seating for restaurants, grand stairs down to a new boat dock, children's parks, and historic displays that celebrate the past of Poughkeepsie's great historic port. The park offers opportunities for new jobs, and extensive opportunities to capture significant amounts of tourism spending. In addition, the project creates significant new private investment in the form of construction and associated jobs in the area. As a result, the area will be a major destination on the Hudson Valley and source of economic growth.

Investment

The redevelopment will create significant economic benefits, but will also require investments in new public facilities to enable the initial stages of redevelopment. The investments include public park facilities, parking facilities, street and utility improvements.

This section describes the challenges that inform the design of the Poughkeepsie Waterfront Redevelopment Strategy, and the potential land uses. It then describes the extent of investments and potential sources for funding. It concludes with a description of the long-term benefits of the plan.

Challenges

There are several challenges for the Poughkeepsie Waterfront. They include providing the appropriate combination of public park facilities and mixed-use development, providing adequate parking, accommodating the area's steep topography, funding a large park system, and limitations on the extent of market demand in the next five to ten years.

Parking and Steep Slopes

The existing surface lots in the area and structured parking garage are frequently full. The plan will require significant amounts of new parking to provide for area businesses, park visitors, transit users, and new residential users. The existing steep slopes of the land restrict the ability to construct parking in the form of surface parking lots. In order to conform to the hillside, the width of existing land parcels is often narrow in the east-west direction leaving little space for parking. The consequence of this condition is that much new parking must be located in above ground structured parking or in under-building parking. The costs of these parking solutions are relatively high.

Public Amenities

The amount of space allocated for public amenities is important to the City of Poughkeepsie. The park network which includes a revitalized Waryas Park will require funds for the improvements that serve the residents of Poughkeepsie and to attract regional tourism.

Market Demand

The current demand for new residential, retail and other commercial uses exists, but on a limited basis. Over a ten year period there appears to be demand for approximately 75,000 square feet of commercial uses, a hotel, and 721 residential units. The number of units includes directly adjacent areas. This demand enables a diverse mix of uses that will provide an active atmosphere. However, this market demand has some limits and has a corresponding limit on the extent private development may be able to contribute to public improvements. In popular, high-demand locations private developments might be able to contribute to the cost of public improvement projects, such as parks, sidewalks, or parking. However, in Poughkeepsie's near-term, the cost of construction in the area compared to the revenue from sales or leases of new projects will generate limited additional private funds that can be directed to fund public improvements. This means public funds will be required to support public facilities in the redevelopment plan.

Investment Costs

There are two types of costs related to the Redevelopment Strategy: operating costs for annual maintenance that reoccur periodically, and capital costs for construction of various aspects of the project that occur one time.

Operating Costs

Operating costs are associated with the annual maintenance of the 10-acre park. An estimate of operating costs can be done by comparison of other similar parks. The operating costs per acre of similar parks are between $30,000 and $85,000 per acre annually. As a result, the estimated 10-acre park may have annual operating costs of $300,000 to $850,000. The current estimated annual expenditure for Waryas Park is approximately $59,000 per year. The average annual operating cost increase is estimated to be $516,000.

Potential Funding of Operating Cost

These operating costs may be funded from the incremental growth in land value of the parcels in the immediate vicinity. The current assessed value of the parcels bounded between Route 9 and the river is $8,563,000 (see property ownership map on page 12). The estimated future market value with proposed development and increased land value is $61,199,000 over a ten year period. The value increment is $52,636,000. At the current City Tax Rate (excluding schools) of 1.48%, the annualized income from the development will be $777,000. The income will be in excess of the required park operating budget.

Existing west side of Station would feature an enhanced drop-off plaza and new infill buildings along the streets and tracks.

Capital Costs

The project will require construction of several elements including parking, the park improvements, street and utility improvements, and a new public market. While the overall costs appear sizable for a City the size of Poughkeepsie, there are methods to moderate the impact of the costs. They include:

1. Breaking down construction projects into smaller phases that can be implemented over time, as funds allow.
2. Utilizing multiple potential sources of public and private funds. These are discussed later in this section.
3. The investments will generate jobs, increase land values over a broad area, and attract new residents that will allow many of the investment costs to be recaptured over time.

Parking Costs

The plan proposes up to 547 new parking spaces within public parking facilities. They are located in three principal locations. One is located directly north of the existing parking structure.

Potential Parking Costs

These parking spaces can be allocated amongst a variety of users including private development, the City of Poughkeepsie, and other Parking Structure Entities. Each may be responsible for a portion of the costs of the parking, with one scenario as follows:

User	New Spaces	Cost
City	34	$0.8M–$1.2M
Private developers (residential)	32	$0.8M–$1.2M
Private developers (hotel)	50	$1.3M–$1.7M
Other parking structure entities (PSE)	431	$12.5M–$15.8M
Total	**547**	**$15.4M–$19.9M**

Major new parking facilities can be phased-in and financed by a combination of public and private sources.

A second new parking structure is proposed on Rinaldi Blvd adjacent to the train tracks on city-owned property. A third surface parking lot is proposed adjacent to Route 9 between the north- and south-bound lanes. The estimated cost of all three parking facilities is $15.4–$19.9 million.

Park Improvements Costs

The proposed park plan provides a variety of amenities to benefit the residents of Poughkeepsie. The park includes a variety of design strategies to connect the park to several neighborhoods of the City and create a continuous park network along the Hudson River. These include new north-south connections, such as a waterfront promenade. A new public park lane is located inland and provides a connection to Kaal Rock Park to the south, and connections to the Children's Museum, Upper Landing Park, and the Walkway Over the Hudson to the north. The park also includes major new connections to the east, including a new Main Street entrance with features that recall the historic port of Poughkeepsie, a new public plaza and grand stairs across from the west Railroad Station overlook, and a new entrance near the Children's Museum. Other features include a new events lawn and stage, public gardens, children's play areas, bioretention areas that will clean stormwater and help protect the Hudson River from pollution, public concession structures for food and kayak storage, and a public transient boat dock.

The park is specifically designed so that it can generate jobs and revenue by incorporating features that attract residents and outside visitors. Through the use of its public events lawn, public markets, concession buildings, docking facilities with fees, and historic markers, the park will capture tourism spending. It will also improve visitation to the City's private retailers, restaurants, and businesses.

The estimated costs of the improvements to the park are between $10.5-16.9 million. The cost range is dependent of the quality of materials employed in the final design, and the specific design features of individual items such the boat dock, garden designs, and other items. The park could be constructed in phases as funds become available.

The public market and concession building adjacent to Water Street and to the Railroad Station overlook could be constructed by private funds. The two facilities, approximately 18,000 square feet in size with estimated combined construction cost of $4-6 million, may house public markets, restaurants, retail, or cultural facilities.

Street and Utility Improvements Costs

The plan includes improvements to existing streets. These include reduction in the width of a section of Rinaldi Blvd to become a more walkable street, improved ramp alignments from Route 9, and a new park lane in Waryas Park. New electrical, water, and storm sewer service are required to serve the park. Estimated costs for these infrastructure improvements are $4.8-6.0 million.

Moderating and Sourcing Investment Costs

While the overall costs appear sizable for a city the size of Poughkeepsie, there are methods to moderate the impacts. These include phasing of the costs over time, dividing up responsibility for the costs, and also utilizing multiple sources of public funding.

Project and Cost Phasing

The project is envisioned to be implemented in three principal phases. This will allow costs from both public and private sources to be invested over time.

The first phase may include construction of new temporary surface parking lots at the sites of the two future parking structures on Water Street and on Rinaldi Blvd. This will allow for parking spaces currently located within Waryas Park to be relocated. During this period the park lane, walking paths, and new Main Street entrance for Waryas Park will be constructed. Some private mixed-use development may occur during this period as well.

The second phase may include the construction of one of the two parking structures and significant mixed-use development around the station area. Additional portions of the waterfront park will be constructed. The two main concession buildings next to the public plaza on Water Street would be constructed with private funds.

The final phase would include completion of the third parking facility, any remaining improvements in the park, new housing along Rinaldi Blvd and other mixed-use development.

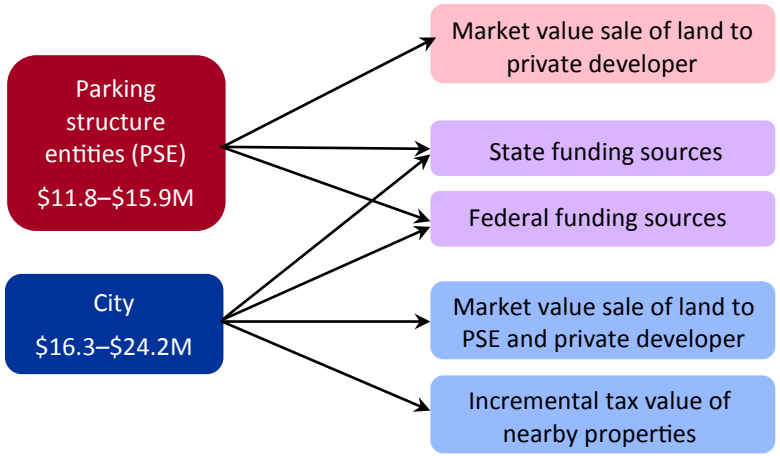
Dividing up responsibility of the costs

In addition to the investments being phased over time, the investments are also divided amongst various participants within each phase. The City may take on the effort of securing funds for the waterfront park, for a limited number of city public parking spaces, and for street and utility improvements.

Private developers may provide funding for portions of the structured parking and for construction of some of the public facilities such as the concession buildings. Portions of the parking in the new parking facilities maybe funded by a combination of parking entities. The funds should be administered by one construction facilitator.

Sources of Funds

Both the City of Poughkeepsie and the parking structure entities have a series of sources that they can look to for funding. There is City and MTA-owned land in the redevelopment plan area that will secure revenue when the land is made available for development. There is incremental tax value from nearby properties. There are both State and Federal programs for funding significant public projects. Following is a list of State and Federal funding sources.



Phasing of Capital Costs

The preliminary phasing strategy reflects three construction phases over which the development program can be staggered:

	Phase 1	Phase 2	Phase 3	Total
Park	$2.5M–$4.1M	$3.5M–$5.5M	$4.5M–$7.4M	$10.5M–$17.0M
Public Market (by private funds)	—	$4.0M–$6.0M	—	$4.0M–$6.0M
Parking	$2.0M–$3.7M	$6.5M–$8.5M	$6.9M–$7.7M	$15.4M–$19.9M
Infrastructure	$2.0M–$2.5M	$2.0M–$2.5M	$0.8M–$1.0M	$4.8M–$6.0M
Total	**$6.6M–$10.3M**	**$16.0M–$22.5M**	**$12.2M–$16.1M**	**$34.7M–$48.9M**

State and Federal Funding Programs

Empire State Development Corporation (ESDC)

Build Now-NY/Shovel Ready Program
Grants for shovel ready projects

Metro Economic Revitalization Fund (MERF)
Loan program for improving land or buildings, construction or renovation

Economic Development Purposes Grants
Grants for initiatives that generate economic, social and viability and vitality of local communities

Regional Council Capital Fund
Funding for capital-based economic development initiatives
Urban and Community Development Program (UCDP)
Loans and grants with preference to communities where other funding sources are unavailable

US Department of Transportation (US DOT)

Transportation Investment Generating Economic Recovery (TIGER)
Grants for infrastructure improvements

US DOT/ FTA/HUD

Transportation, Housing and Urban Development, and Related Agencies Appropriations Act (THUD)
Grants for transportation and infrastructure

US Department of Housing and Urban Development (HUD)

Transportation Infrastructure Finance & Innovation Act (TIFIA)
Federal loan program backed by dedicated revenue stream

Community Development Block Grant
Entitlement Communities Grants — Grants that address low-moderate income populations, blight or urgent threats to health and safety.

Sustainable Communities Regional Planning Grant
Grants that unite diverse interests in a region for housing, workforce and infrastructure investments

Funds to revitalize Rip Van Winkle Parcel

The Rip Van Winkle property may be eligible for sources of public funds to assist in revitalization of the site. The US Department of Housing and Urban Development (HUD) offers multiple programs for collaborating with municipalities and local developers of affordable and mixed-income housing to improve and revitalize older projects. The fund provides opportunities to reduce the concentration of subsidized housing by creating mixed-income neighborhoods. The municipality typically leads the application process for the funding. The process could build new market rate housing, as well as improve the existing affordable housing.

Mixed-Income Redevelopment could include 30 townhouses (55,000 square feet) and 120 multifamily units (120,000 square feet).

View of out-of-scale tower, corner parking lot, and dumpster area on lower Main Street should be screened by the addition of new mixed-use buildings, creating an active Main Street frontage.

Rip Van Winkle Redevelopment Issues

Challenges:

- Existing mortgage with an interest reduction payment subsidized by HUD
- 40-year tax credit
- 20-year HIV/AIDS Bureau Contract

Incentives to explore:

- Choice Neighborhoods Program
- Promise Zones
- FHA Section 220 Mortgage Insurance for Rental Housing for Urban Renewal and Concentrated Development Areas
- FHA Section 207/223(f) Mortgage Insurance for Purchase or Refinancing of Existing Multifamily Rental Housing

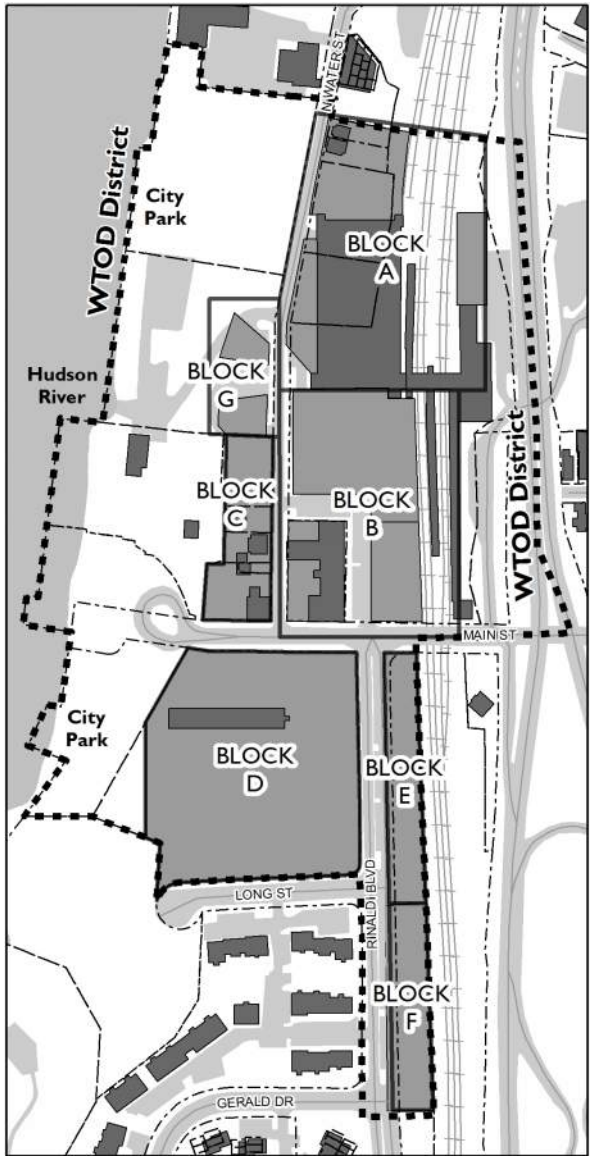
Long-Term Economic Benefits

The Strategy will not only provide the area will a great public park network and vibrant new mixed-use development, but it will create substantial long-term benefits including private investment and new jobs.

1. The proposed waterfront plan (including development on City, Metro North Railroad, and privately owned parcels) will comprise approximately 263 residential units, 70,000-80,000 square feet of street-level retail space, a hotel with 80-122 keys, about 10,000 square feet of offices, and 547 new parking spaces on nearby land.
2. Public spending on infrastructure and open space will attract nearly $100M from the development community through construction of approximately 450,000 square feet of new retail, hotel, and residential units near the waterfront. At a public cost of $21M-$27M (excluding parking structure entities costs), every $1M in public investment will attract $4M in private investment.
3. The total construction costs of approximately $125M (excluding parking structure costs) will support approximately 700 construction jobs. Once the project is fully phased-in and operational, the project can support over 250 permanent jobs in property operations and management, hotel services, office, and retail.
4. The waterfront plan will generate approximately $800,000 in incremental annual property tax revenues that could be utilized to fund, among other things, operation and maintenance of the newly created waterfront park. In addition, concession franchise fees from City-controlled park facilities, revenues from park events, docking fees, and parking fees will contribute on an ongoing basis to City revenues. Moreover, the 70,000–80,000 square feet of retail and the proposed hotel will generate additional sales taxes, primarily from visitors.
5. Beyond the defined project area, the plan will also enhance connections to the City Center as well as along the waterfront to the Walkway Over the Hudson. The plan is anticipated to lead to redevelopment of infill sites and other underutilized buildings and sites in these corridors, resulting in more private investment, jobs, economic activity, and taxes to the City. These funds also could be utilized to finance some of the initial public capital improvements. Further, as the entire area is revitalized, existing properties will attract new investment that will generate even more incremental net new property taxes for the City.

7

Conventional Zoning:	Form-Based Code:
Text, Tables, and a Map	Adds Design Illustrations
Negative Restrictions	Gives Positive Examples
Focus on Numbers, Single Parcels, and Parking Lots	Emphasis on Urban Form And Streetscape Context
Separated Use Districts	Mixed Neighborhoods
Unpredictable Results	Cohesive Sense of Place



The proposed WTOD district provides block by block standards for more specific guidance and to allow a flexible, phased-in approach.

Adopt the Form-Based Zoning Amendment.
The City should demonstrate its commitment to the overall Strategy recommendations and begin the revitalization process by endorsing this report and adopting the associated Waterfront Transit-Oriented Development (WTOD) district into its Zoning Code. This is the most important first step for attracting future public grants for park and infrastructure improvements. As examples, adoption of the City's 1997 and 1998 plans helped to secure a sizable state grant to rebuild the Waryas Park shoreline bulkhead and $3.75 million to partially fund the Metro-North parking structure.

Approving a strong form-based zoning code is also the most significant action the City can take to promote private investment in the waterfront district. Developers want to get in on the ground floor of a place with high potential, but they also desire a predictable process without long delays. An adopted plan and updated zoning creates such confidence for investors. It builds a sense of certainty with the public as well, that new development will be consistent with public purposes.

The current zoning code relies on legal text that is difficult to interpret and negative restrictions that emphasize what you cannot do. Form-based codes are designed to provide positive examples of what the community would like to see, using illustrative plans, images, and physical standards to give applicants more specific guidance toward solutions that fit well within the Poughkeepsie context. Drawings and design details in the code also provide the Planning Board more clarity, resulting in a less confrontational and more streamlined review process.

Form-based codes stress an integrated mix of uses, walkable streetscapes, and public spaces, rather than the separation of uses and the parcel-by-parcel approach in conventional codes. This mixed-use nature of the districts allows a

greater degree of market flexibility. The focus on community planning up front, illustrative plans, and a form-based code is ideal for the waterfront and transit-oriented development around the Station, where park spaces and river views are sensitive, historic buildings like the Hoffman House, Piano Factory, Reynolds & Co. buildings, and the Railroad Station need to be considered, and a close-knit, walkable mix of uses is most appropriate.

Coordinate with Main Street Economic Development Strategy. The City's Main Street consultant has endorsed the Waterfront Redevelopment Strategy as an essential component of a larger-scale approach to building economic success all the way up Main Street and into the City's neighborhoods. Some residents, using a river analogy, see waterfront development and park improvements as an anchor for city-wide revitalization, but remember that an anchor is only a place-securing piece of a much larger vessel. Poughkeepsie's economic history began at the waterfront, but soon moved inland. As the City now builds back toward the river to reclaim its waterfront from too many dead parking lots, the goal is to give the entire City a better balanced economy.

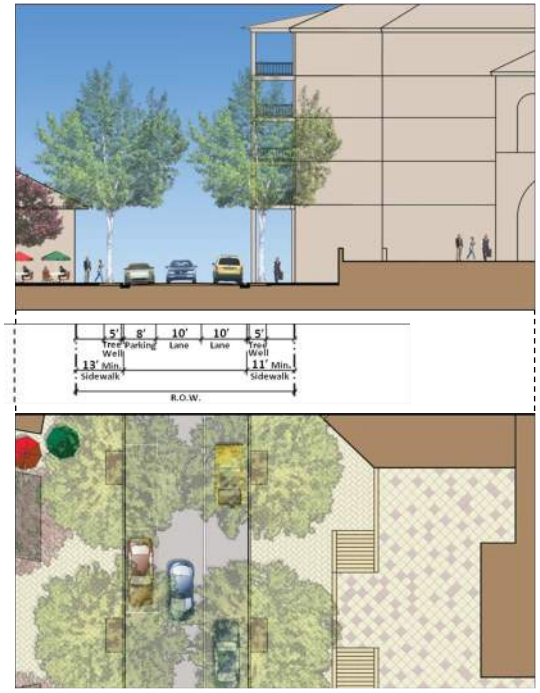
Submit New York State Consolidated Funding Applications. Administered through the Mid-Hudson Regional Economic Development Council, the CFA process determines the distribution of state grant funding for local and regional projects. For example, in 2012 Poughkeepsie received a grant for more than $250,000 to plan and design a waterfront park along the front of the proposed One Dutchess Avenue project on the former Dutton lumberyard. There are numerous projects identified in the Waterfront Redevelopment Strategy that would be eligible for the state funding cycle, given the consistency of its recommendations with goals of the Mid-Hudson Regional Sustainability Plan, Greenway Connections, and other state and regional planning policies.

A key project will be to build upon the Illustrative Plan and list of improvements on pages 17–19 to develop a more detailed physical park design with construction drawings, cost estimates, and identified funding sources.

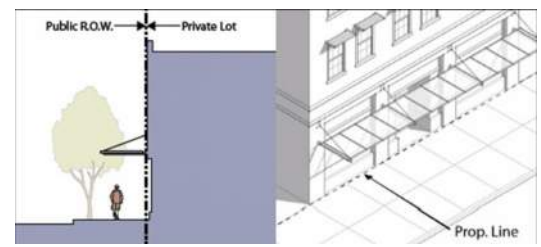
Update the Local Waterfront Revitalization Program and Prepare a Generic Environmental Impact Statement. The City received a $150,000 grant from the NYS Dept. of State to update its Local Waterfront Revitalization Program, which was adopted in 1998 but never fully approved by the state. A new LWRP would incorporate all the recent park and private development changes in the area and reflect the recommendations of the Strategy and the proposed rezoning. The grant also funds the completion of a GEIS for key properties and projects identified in this process. The environmental review will provide much more detailed analysis of traffic, views, floodplain, climate, and other potential impacts of redevelopment alternatives, allowing the City thereafter to move forward more efficiently toward approvals and implementation.

Collaborate on Request for Expression of Interest (RFEI). Metro-North Railroad has supported the concept of transit-oriented development and the overall recommendations in the Waterfront Redevelopment Strategy, but would like to further test the market and solicit developer interest and ideas for its properties. The agency has had success in other communities with an RFEI process, which gathers information and advances redevelopment discussions, but does not create a commitment for any of the parties. The City could partner with Metro-North via a Memorandum of Understanding or other form of mutual agreement, as well as actively work with other major owners in the area who are interested in improving their properties.

Complete the City-wide Rezoning. The City prepared a full draft rezoning in 2010, but it was never submitted to a wide-ranging review process or adopted. The current zoning code dates back to 1979 and is definitely in need of replacement. Certain sections have been revised, most recently the 2013 Walkway-Gateway district along Parker Avenue and the rail trail, but all the piecemeal amendments over the years have made the outdated code complicated and confusing. Once the Main Street Economic Development Strategy recommendations are available, the City should complete its comprehensive rezoning, including consideration of a provision to incorporate affordable housing into any major new residential development.



Sample streetscape graphics from proposed WTOD district form-based code.



Sample building type graphics from proposed WTOD district form-based code.

APPENDIX B

Record Document

Excerpts from Kaal Rock – Main Street Action Plan

Placemaking in Poughkeepsie

Vision and Action Plan

DOS Task 12 (Task 1.6)

Project: Poughkeepsie Waterfront - Main Street Corridor

This document was prepared for the Department of State Division of Coastal Resources, State of New York with funds provided under Title 11 of the Environmental Protection Fund. DOS #: C006572

January 30, 2012

Prepared by:

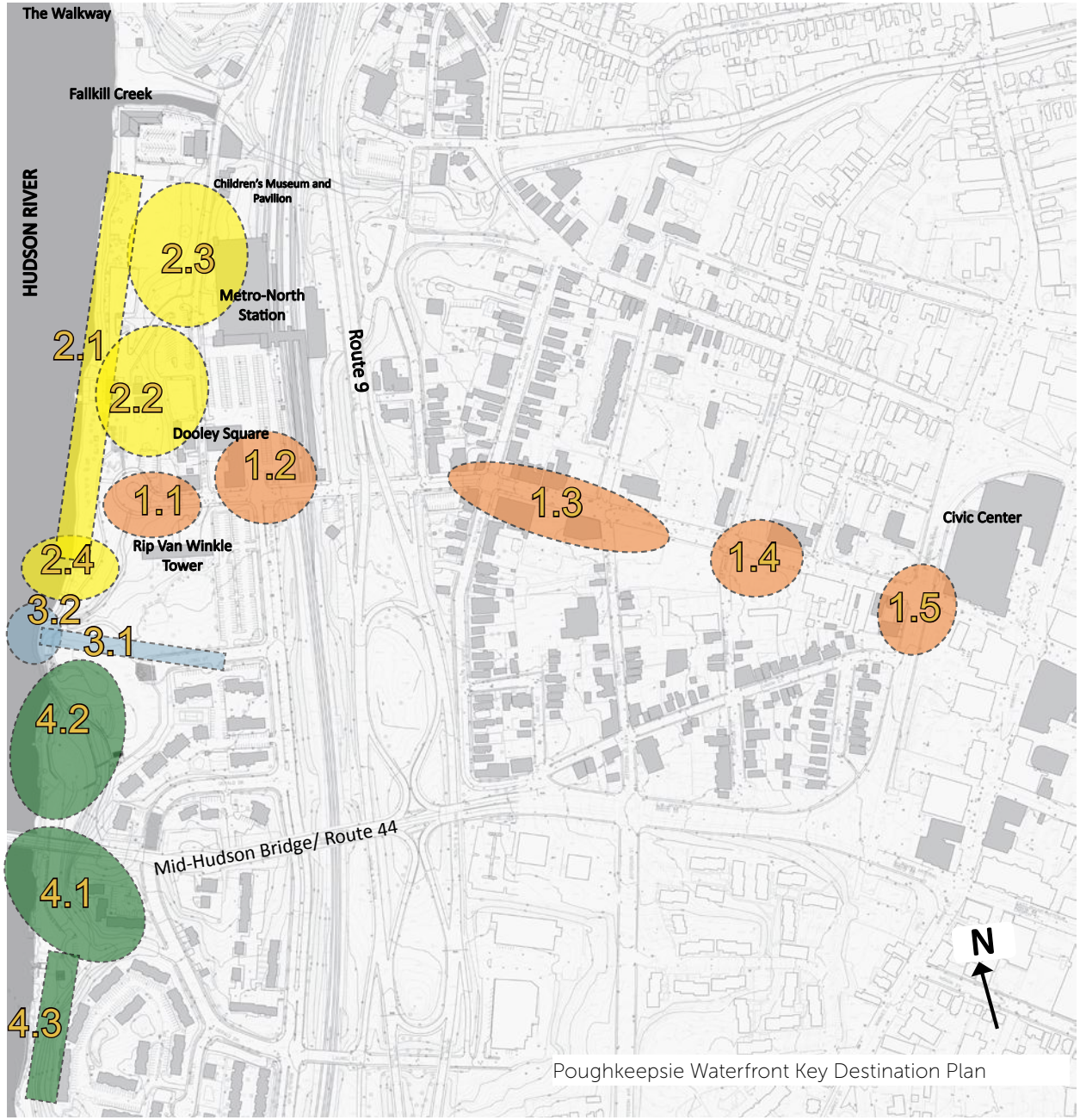
MORRIS ASSOCIATES ENGINEERING CONSULTANTS, P.L.L.C.

OCEAN AND COASTAL CONSULTANTS

PPS PROJECT FOR PUBLIC SPACES

DRAFT

Main Street Corridor and Waterfont Park - Proposed Key Destinations



Poughkeepsie Waterfront Key Destination Plan

Lower Main Street Corridor

1.1 Main Street Gateway to the Waterfront
1.2 Dooley Square and the Metro North Station
1.3 Main Street commercial core
1.4 Sculpture Park and Cunneen-Hackett Arts Center
1.5 Lower Main Street Gateway at the Civic Center

Waryas Park

2.1 Promenade
2.2 Ice House and Community uses
2.3 Flexible lawn, youth area, adventure play
2.4 Kaal Rock Point Pier and Lawn

Kaal Rock Point

3.1 Gateway to the Point and Point overlook
3.2 Neighborhood Lawn and Natural forest area and pathways

Kaal Rock Park

4.1 Family Beach and gateway to the Park
4.2 Boat and kayak launch, environmental and nature education
4.3 Nature walk/Path

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2.4 Waryas Park: Pier and sloped lawn to Kaal Rock Point Park

Existing conditions:

This side of Waryas Park is close to Kaal Rock Point and the Pier, and it is a very calm and quiet area. A sloping lawn is connecting Waryas Park to Kaal Rock Point. The flat lawn area at the bottom of the slope has several sculptures, and benches for seating. The existing Pier is a clear destination for fishing and boat mooring. Next to the pier there is a protected pebble beach and the beginning of the steep rocky walls of Kaal Rock Point.

RVW HOUSING FROM THE LAWN AREA

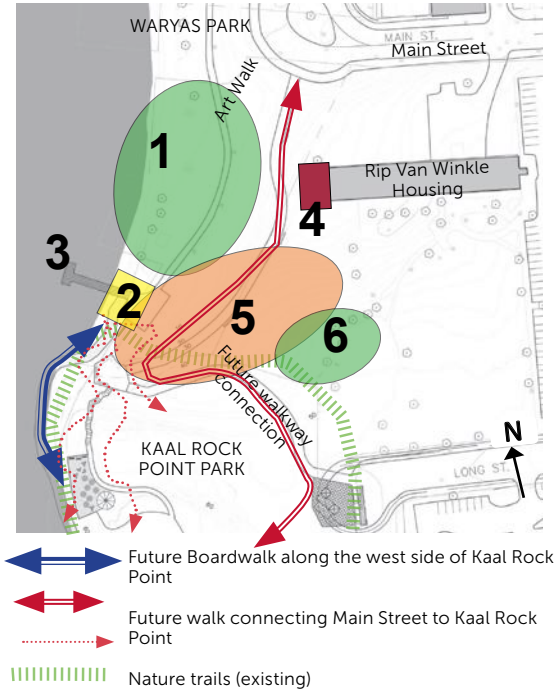
SLOPED LAWN

Vision:

An access point to Kaal Rock
1-Lawn for sunbathing, picnics
2-Promenade should end in a small paved plaza connected to the existing pebble beach via steps. At this location there should also be orientation for the destinations south of the Kaal Rock, and the boardwalk to Kaal Rock Park and nature walks.
3-Pier: community related boating uses, schools, science barge, the Clearwater, learn to fish, fishing, and benches for viewing.
4- RVW scenic vantage point with terrace and cafe' overlooking the Hudson. The RVW housing ground floor could have a commercial use. Activities along that side of the housing, will add "eyes" on the Kaal Rock Point Park.
5-Gardens and seating, rain gardens, children gardens
6-RVW community gardens

Activities:

- Sunbathing, picnics, fishing and tour boats/ water taxi
- Connection to nature, walks, playing on grass
- Gardening, community, garden clubs
- Fenced dog run



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Pedestrian and bikeway connection between Waryas Park and Kaal Rock Park- Upper and lower connections

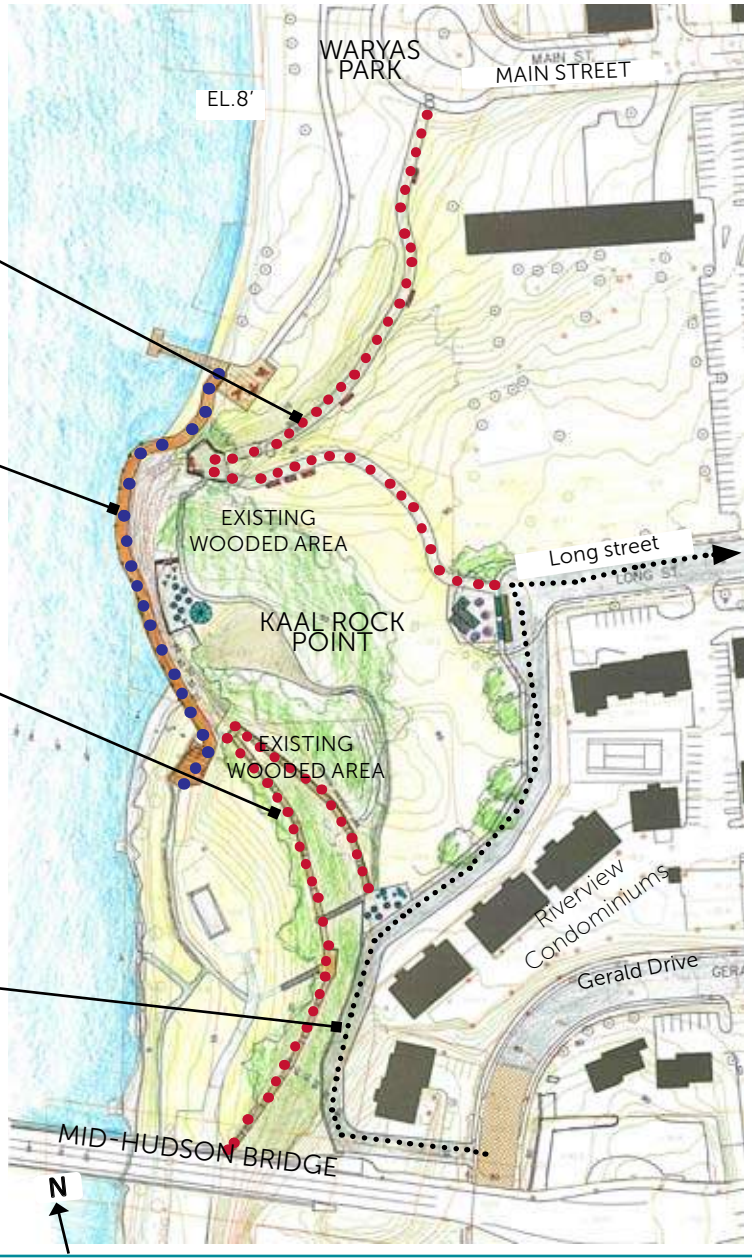
THIS PAGE SUMMARIZES POSSIBLE ALTERNATIVES FOR CONNECTING WARYAS PARK TO KAAL ROCK PARK

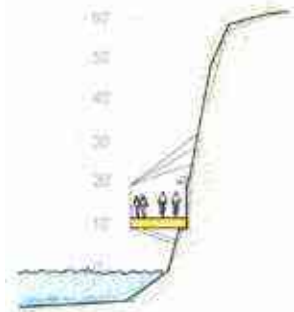
UPPER CONNECTION: 12' WIDE WALKWAY/BIKE PATH TO BE LESS THAN 5% SLOPE BENCHES ALONG THE PATH TO REST AND VIEW

LOWER CONNECTION: BOARDWALK ALONG THE WEST FACE OF KAAL ROCK POINT SEE CONCEPTUAL SECTIONS

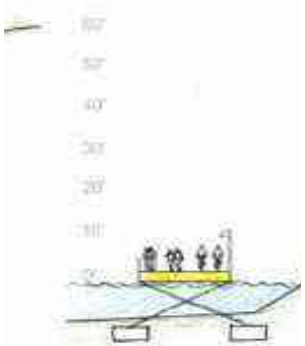
UPPER CONNECTION RAMP AND PATH SET IN THE WOODED SLOPE. WHERE NECESSARY RAMP SHOULD BE ON POSTS NOT TO DISTURB THE EXISTING GRADE AND TREES

PROPOSED BIKE PATH CONNECTION OR ONE WAY VEHICULAR ROADWAY

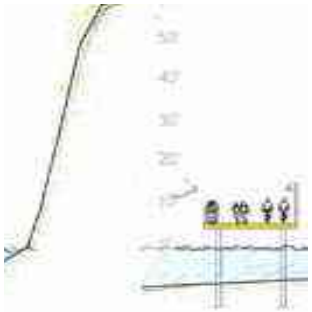




SUSPENDED BOARDWALK



FLOATING DOCK



FIXED PIER

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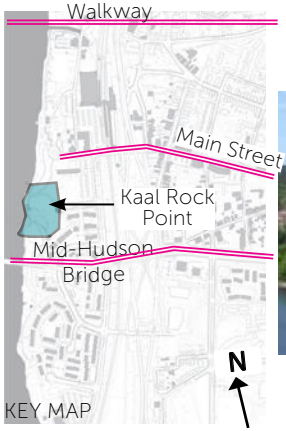
3.1 Kaal Rock Point: Gateway to the Point and Point Overlook

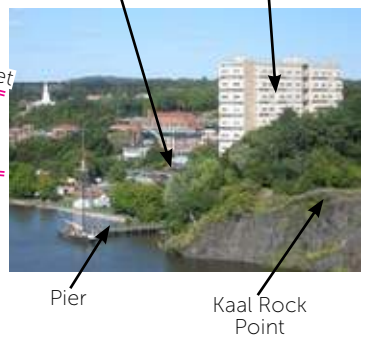
Existing conditions:

The rock formation of Kaal Rock Point is the highest point on the Poughkeepsie waterfront. Kaal Rock Point rises approximately 60 feet above the Hudson River. Although much of the Point itself is heavily forested, the high point is roughly cleared and affords sweeping views of the Hudson River and the two bridges. The high point is also at the same level as Long Street and it is a pleasant stroll to reach it. Although evidence of travel exists, there is no designated path to the point from Long Street. The site could have been used in the history as an outlook, and in most recent years was a site for a brewery and later a restaurant.

Issues:

- The access to the Point from Long Street is unmarked and heavily wooded.
- Close to residential
- Isolated, difficult to locate, no entrance signage





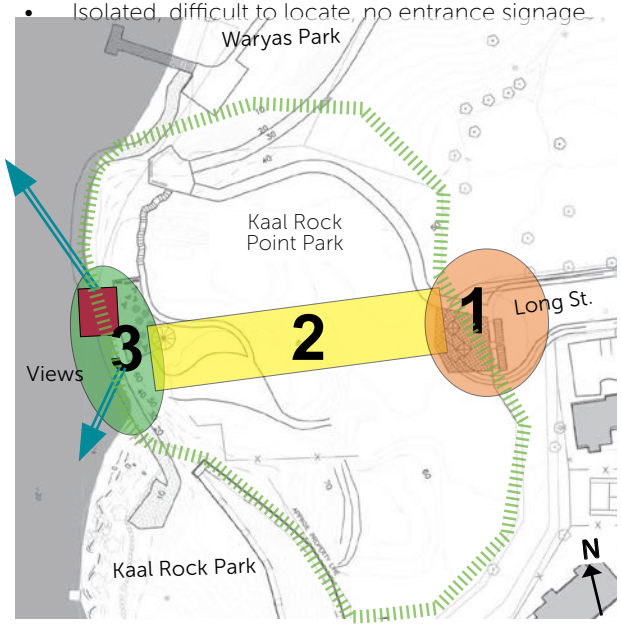
VIEWS FROM THE POINT

Vision:

Kaal Rock Point should become one of the iconic places to see along the waterfront.
1- Gateway entrance to Kaal Rock Point Park: wayfinding, gathering plaza for drop off and small events, future food truck parking on weekends
2-Improved walkway to the Point viewing area. Use the existing flat area for creating an access pathways through the wooded area, providing ADA accessible paving, seating, enhancing the view corridor
3- Overlook with seating, kiosk/gazebo, future cafe' concession

Activities:

- Views, Cafe' seating, walking, bird watching, boats watching



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3.2 Kaal Rock Point: Neighborhood lawn, natural wooded area and pathways

Existing conditions:

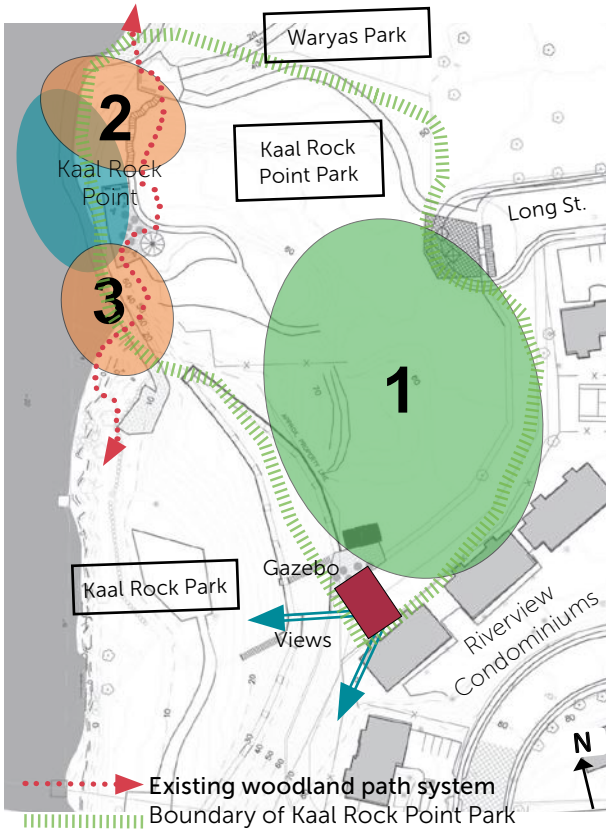
Kaal Rock Point vertical rock faces and steep topography on three sides present challenges to visitors, as the existing network of informal paths are steep and precarious. A system of informal and unmarked path system is connecting the Point to north and south parks and to Long Street entrance.
A flat lawn at elevation 55'/60' is located between the rock and the existing residential units of the River view Condominiums near the Long Street cul-de-sac. Dense wooded areas screen the high point from public access.

Issues:

- Isolated
- Close to residential

EXISTING WOODLAND WALK

EXISTING ROCK FORMATION WITH CLIMBING PATH



Vision: Preserve and build off the natural feeling, especially of the woodlands, but infuse with more activity and improve its connectivity to make it more usable. The wooded areas could become a natural resource for all the waterfront parks, restoring the Point to native times using native planting and providing a setting for possible camping and adventure for kids. It could be a place where kids learn how to build a teepee, a canoe, and be immerse in a adventure setting. Restoring a natural landscape will likely attract birds and wildlife that will enhance the park as a natural environment.

1- Lawn for informal games, family picnics, neighborhood activities, schools
2- Challenge course youth program. Nature walk in the existing wooded area, building on the existing path system.
3- Climbing and difficult trails in a wooded area

Activities:

- Kids adventures using canoes, teepees and camping
- Connection to nature, walks, playing ball games on lawn
- Gardening, community, garden clubs.
- Nature exploration, through walks in the wooded areas, bridges, climbing on rocks, will be an additional play element that builds the park as a kid-friendly, family destination.

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4.2 Kaal Rock Park: Youth environmental education + Boat and kayak launch - North end of Park and Lawn

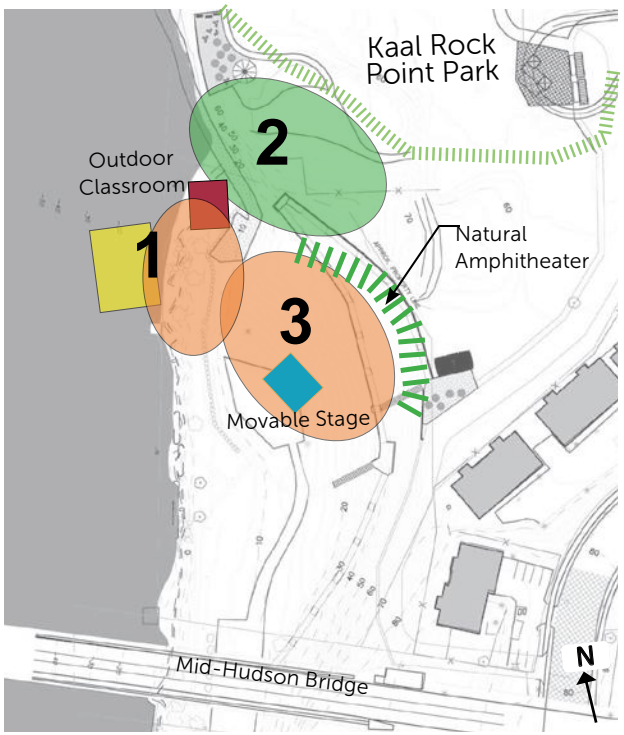
Existing conditions:

In the North park area there are several asphalt walkways and a wider paved area. Few benches in the wooded area close to the base of Kaal Rock. There is a narrow asphalt road connecting the parking on the south. In the very picturesque setting there is no easy pedestrian water access; although it was once present, it is now closed off and in disrepair.

Issues:

- Isolated
- The existing paths leading to the top of the Rock are not marked and difficult to find
- Nice but secluded benches in the north end of the Park are not used.

Kall Rock (1920's)



Vision:

Create a great place for kids, building off the presence of the MHCM, and bringing in other partners as Outward Bound and Head Start. Providing natural areas for children to explore is emerging as a key opportunity for Kaal Rock Park.
1-Kayak pontoon (warm weather uses)
2-Exploratorium: adventure and nature walks, climbing, orienteering. An outdoor classroom could support the exploratorium activities.
3-Natural Amphitheater with movable stage for large concerts/performances. Because of the slope southern exposure, outdoor performances and activities could be extended into fall and spring.

Activities:

- Kids camping, outdoor adventures, exploration in science, organized by the MHCM or other partners
- Concerts and performances, theater

Kaal Rock Parl Link: In order for this section of Kaal Rock Park to be a succesful youth destination, it is necessary to accomplish the North South connection to Waryas Park, the connection to the Walkway elevator, and to the loop

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Action Plan Chart

Site	Short-term LQC (In the next year)	Mid-term Opportunities	Long-term Opportunities
2.4 Pier and sloped lawn to Kaal Rock Point	• Existing Pier: add kids fishing area with signage, bench and learn to fish activities • Add variety of seating options for passive and social enjoyment of the River • Reestablish short length of pebbly beach and add seating and steps • Design and plan a boardwalk along the west side of Kaal Rock Point • Design and plan a direct trail connection between Rip Van Winkle Upper Lawn and Waryas Park	• Install informational kiosk to orient visitors to fishing, walkway and trail opportunities at pier, Kaal Rock Point • Create clustered picnic and seating areas with umbrellas or shelter • Construct a direct trail connection between RVW Upper Lawn and Waryas Park • Construct a boardwalk along the west side of Kaal Rock Point • Enlist RVW residents and interested groups in planning and implementing community gardens	• Open a Cafe' in the ground floor level facing the lawn
3-Kaal Rock Point			
3.1 Gateway to the Point and Point Overlook	• Develop preliminary plans for a future walkway connecting the end of Long Street to the top of Kaal Rock Point • Improve existing trail from Long Street to the existing viewing area. Provide fencing at the viewing area • Complete minimal necessary trimming and clearing to maximize view • Install picnic tables, benches and chairs for seating, a gazebo, provide bike racks • Install temporary directional signage indicating the access to the Overlook from Long Street and also the proposed connections to Kaal Rock Park and Waryas Park • Establish temporary spaces for vendors • Engage residents through programming as community and farm gardens for the RVW Housing • Refurbish RVW playground and provide benches • Improve connection/access to Waryas, Kaal Rock Point and Kaal Rock Park • Collaborate with residents and housing authority about the use of their parking facility for events or weekend park users • Collaborate with local outing groups to delineate connecting trails from top of Kaal Rock to Waryas and Kaal Rock Park • Identify improvements needed for activities and create a layout plan	• Construct a future ADA walkway connecting the end of Long Street to the top of Kaal Rock Point. • Collaborate with local outing, biking, running and walking groups to begin planning for events connecting Main Street with Waryas, Kaal Rock Point and Kaal Rock Parks • Design and construct permanent picnic, seating, shelter, viewing area and a security rail at the Rock viewing area • Design the walking and biking trails to Waryas and Kaal Rock Parks. • Contact interested groups to develop plans for a permanent pavilion and/or interpretive center • Install informational signage and/or exhibits to describe view and specific visible elements, i.e. history of the Mid-Hudson Bridge and Kaal Rock • Construct connecting trails from top of Kaal Rock Point Park to Waryas and Kaal Rock Park • Install improvements needed for activities	• Hold exercise-oriented and other events connecting Main Street with Waryas, Kaal Rock Point and Kaal Rock Parks • Construct permanent pavilion and/or interpretive center

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Action Plan Chart

Site	Short-term LQC (In the next year)	Mid-term Opportunities	Long-term Opportunities
3.2 Neighborhood Lawn, Natural wooded area and pathways	• Develop preliminary plans and pursue permitting for the continuation of the riverfront boardwalk from Waryas Park, through Kaal Rock Point to Kaal Rock Park • Organize, identify partners in addition to the MHCM for planning the Challenge course youth program • Delineate passive lawn area and do necessary clearing, minimal grading and planting to create lawn area	• Develop construction plans and pursue permitting for the continuation of the riverfront boardwalk from Waryas Park, through Kaal Rock Point to Kaal Rock Park • Start using the Challenge course youth program as part of the school programming, the Clearwater programming and the MHCM • Delineate passive lawn area and do necessary clearing, minimal grading and planting to create a flexible lawn area usable for games	• Construct continuation of the Greenway trail for the continuation of the Greenway trail from Waryas Park, through Kaal Rock Point to Kaal Rock Park • Delineate a program for using the lawn area
4-Kaal Rock Park			
4.1 Family Beach and gateway to the Park	• Install Park entry sign at Fredrick Street Entrance. • Identify bike connections from MNR station and Mid-Hudson Bridge via Gerald Street to Kaal Rock Park entrance and short, medium- and long-term improvements needed for bike access and events • Install short-term bike improvements • Improve arrival parking to become the park entry terrace, purchase movable chairs, umbrellas • Open Boat House providing an information point, small concession, cafe' and restrooms • Organize/give permits to food vendors for events and weekends • Install new lighting for security and nighttime uses	• Install bike safety improvements to access the park. This way the Walkway Loop will extend to Kaal Rock Park • Collaborate with local outing, biking, running and walking groups to begin planning for events connecting Main Street with Waryas, Kaal Rock Point and Kaal Rock Parks • Plan to restore existing swimming access, bring sand to create a public beach, purchase amenities, chairs, umbrellas • Build attractive concession stands • Reorganize parking to be more efficient. Begin with striping and reducing amount of pavement • Extend Boat House uses and hours, adding Community uses and concession	• Hold sport-oriented or exercise events connecting Waryas, Kaal Rock Point and Kaal Rock Parks • Build active public beach with public amenities like modern well-maintained restrooms, food kiosks, equipment rentals, seating options • Parking: add planting and permeable pavement/bioswales
4.2 Youth environmental education + Boat and kayak launch - North end of Park	• Assess feasibility of creating access points to the water • Provide inflatable or movable stage for amphitheater • Floating pontoon for kayak users • Signage and wayfinding • Low pedestrian lighting	• When designing the boardwalk connecting Waryas to Kaal Rock Park, a gateway to Kaal Rock Park should be created at this point, with orientation, seating and wayfinding • Outdoor classroom-planning • Construct deck with seating for later connection to the Greenway	• Outdoor Classroom building, create programming for classrooms, community uses, connect to possible partners
4.3 Nature and River trail - South end of Park	• Assess feasibility of creating beach or shoreline areas for contact with the River for study and enjoyment purpose • Provide low pedestrian lighting • Start rock climbing activity at the Poughkeepsie Mélange rock outcrop	• Design beach and swimming area for contact with the River • Design node plaza to the Shadows walkway and Marina	• Construct node plaza to the Shadows walkway and Marina

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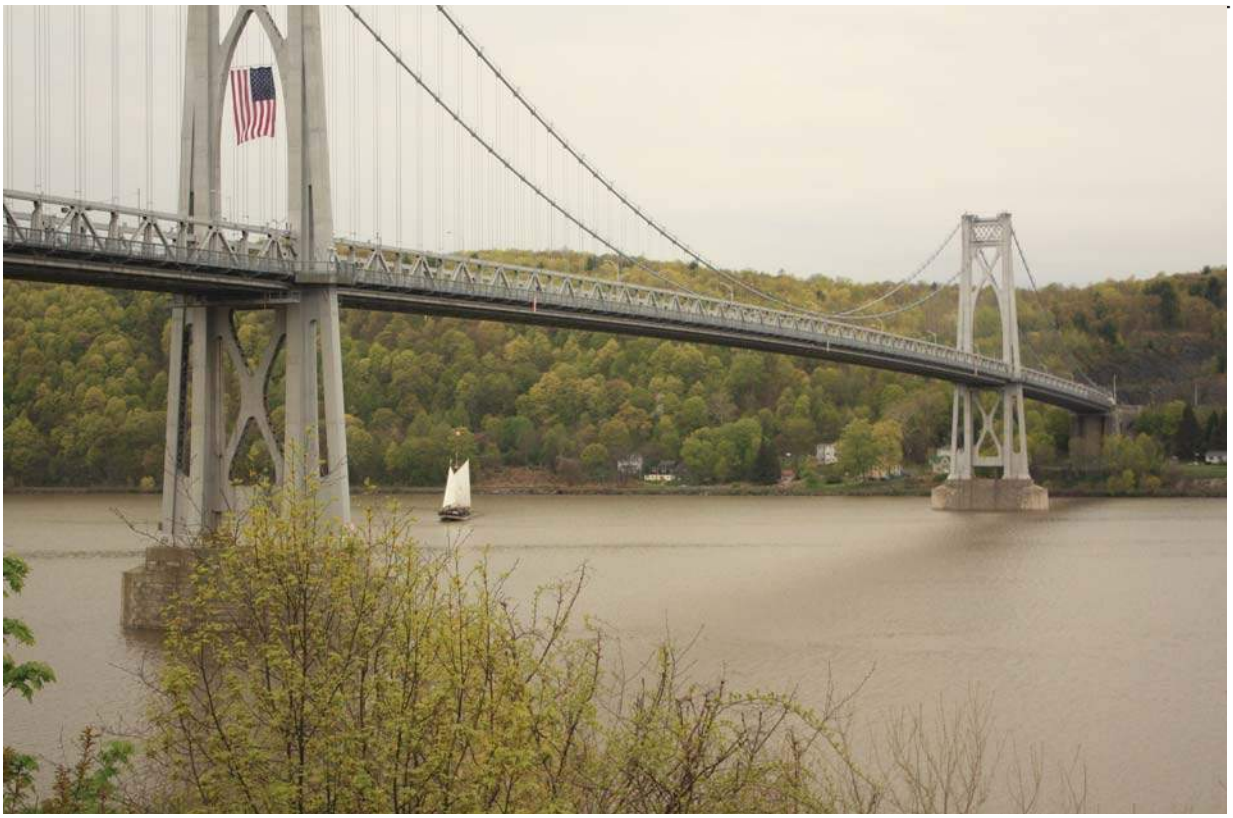

Scope of work from the City RFP:

"Provide alternative design concepts for Kaal Rock Park, which is improved parkland that has, through benign neglect, significantly deteriorated over the last 15 years.

Provide alternative design concepts for improvements to Kaal Rock Point, which is unimproved parkland. The design of Kaal Rock Point must include design alternatives for extending the existing pedestrian esplanade in Kaal Rock Park through/around Kaal Rock Point and connecting it to the existing pedestrian esplanade at Waryas Park."

POUGHKEEPSIE WATERFRONT:

TASK 2.1 AND 2.2
KAAL ROCK PARK AND KAAL ROCK POINT

Design Concepts for, Kaal Rock Park, Kall Rock Point,
and for the pedestrian and bikeway connection to Waryas Park and Main Street

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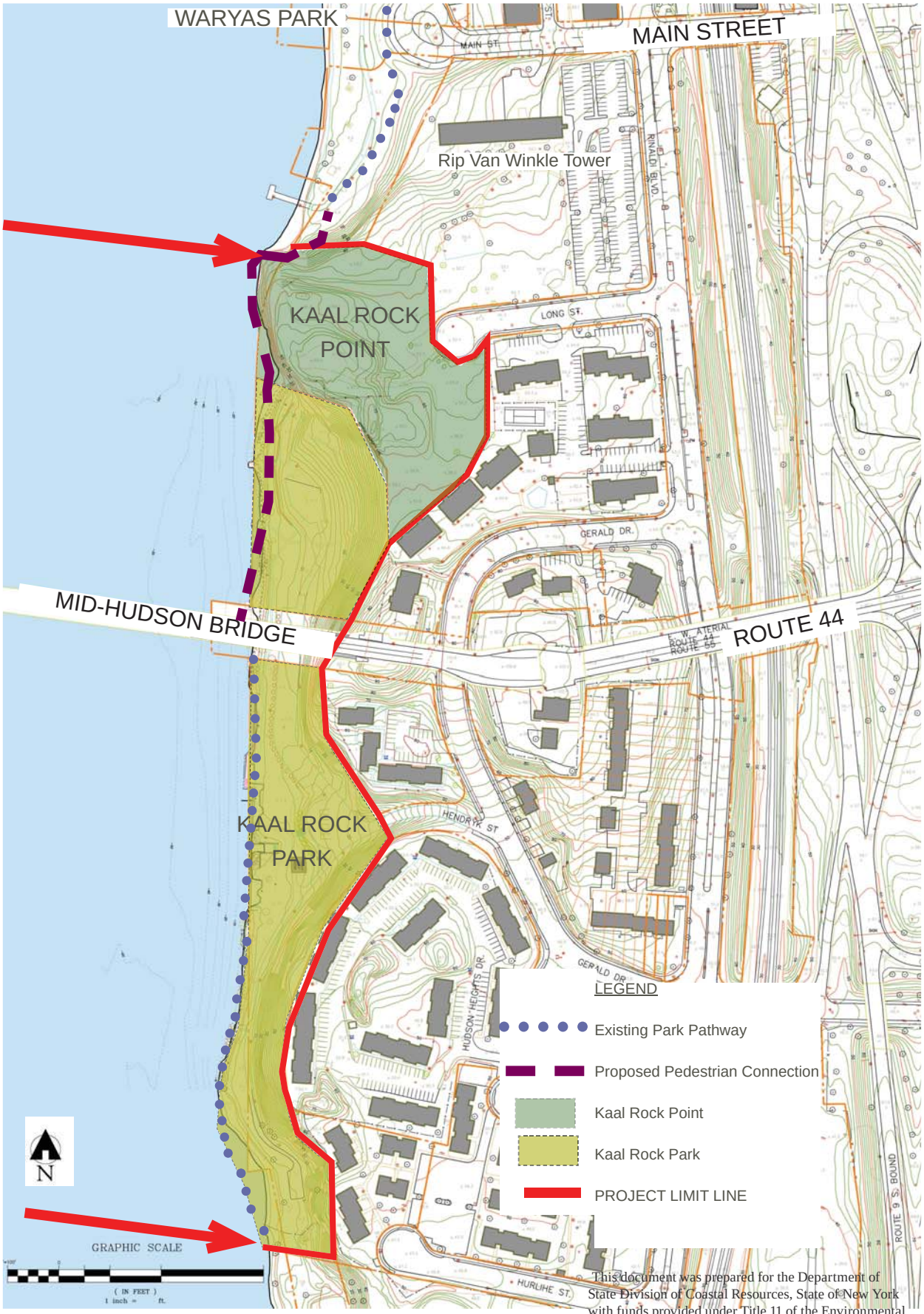
MORRIS ASSOCIATES ENGINEERING CONSULTANTS, P.L.L.C.

OCEAN AND COASTAL CONSULTANTS

PPS PROJECT FOR PUBLIC SPACES



Conceptual Design Work Limit Line

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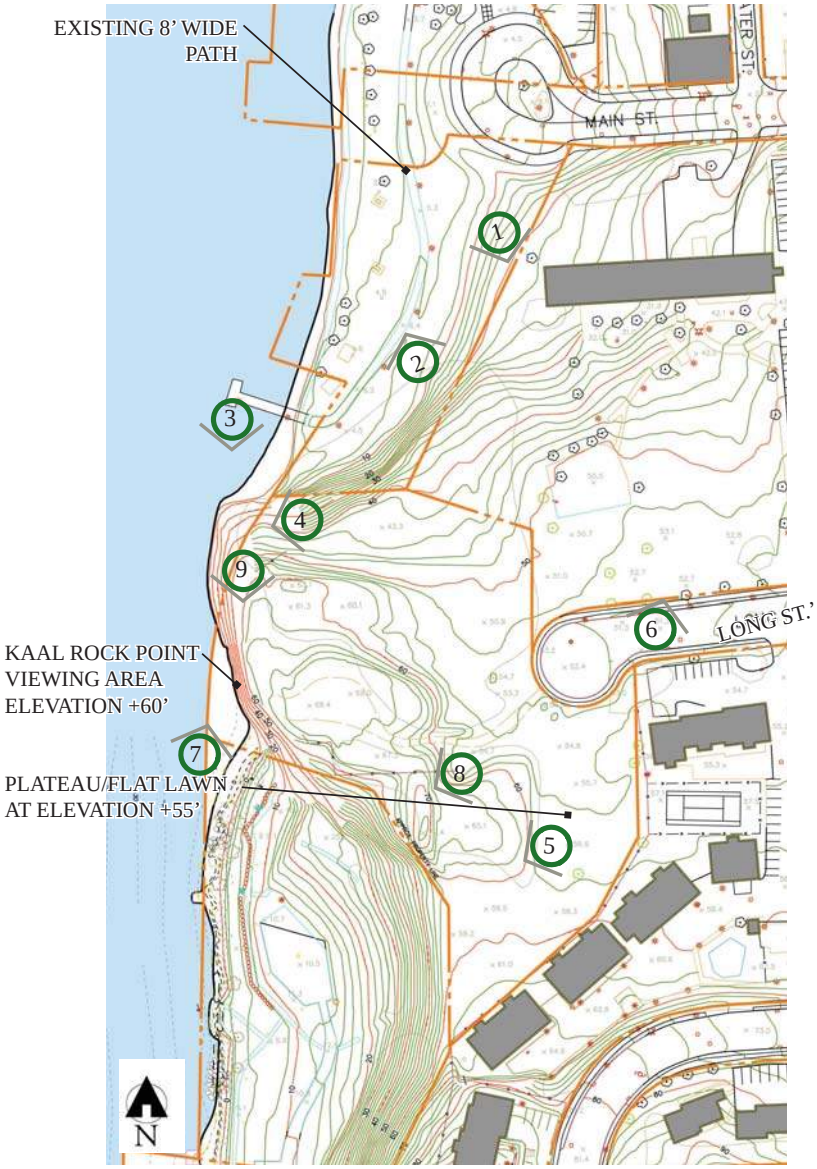

1- SLOPE UP TO KAAL ROCK POINT

2- LOOKING DOWN TO WARYAS PARK

3-NORTH END OF KAAL ROCK

4-EXISTING WOODLAND WALK

Kaal Rock Point-Existing Conditions

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Date	11/30/12
Page Number	04

MORRIS ASSOCIATES ENGINEERING CONSULTANTS, P.L.L.C.

OCEAN AND COASTAL CONSULTANTS

PPS PROJECT FOR PUBLIC SPACES

South end of Waryas Park and Main Street

Waryas Park if the active waterfront Park in Poughkeepsie, located at the end of Main Street. In order to connect Kaal Rock Point and Kaal Rock Park to Main Street and Waryas Park, a path should be created from Main street and Waryas Park.

A sloping lawn is connecting Waryas Park to Kaal Rock Point. The more gradual existing slopes in this area are on the adjacent RVW Apartment property. There are few sculptures in the flat lawn area at the bottom of the slope with benches for seating and a Pier used for mooring and fishing. This existing Pier is a major destination in Waryas Park, and yet has no direct pathway to Main street. Next to the pier there is a protected pebble beach and the beginning of the steep rocky walls of Kaal Rock Point.

5-PLATEAU AT ELEVATION +55'

Kaal Rock Point

The rock formation of Kaal Rock Point is the highest point on the Poughkeepsie waterfront. Kaal Rock Point rises approximately 60 feet above the Hudson River. Although much of the Point itself is heavily forested, the high point is roughly cleared and affords sweeping views of the Hudson River and the two bridges. The high point is also at the same level as Long Street and it is a pleasant stroll to reach it. Although evidence of travel exists, there is no designated path to the point from Long Street. The site could have been used in the history as an outlook, and in most recent years was a site for a brewery and later a restaurant.

Kaal Rock Point vertical rock faces and steep topography on three sides present challenges to visitors, and the existing network of informal paths are steep and precarious. A system of informal and unmarked path system is connecting the Point to north and south parks and to Long Street entrance.

A flat lawn at elevation 55'/60' is located between the rock and the existing residential units of the River view Condominiums near the Long Street cul-de-sac. Dense wooded areas screen the high point from public access.

I*ssues:*

The access to the Point from Long Street is unmarked and heavily wooded;

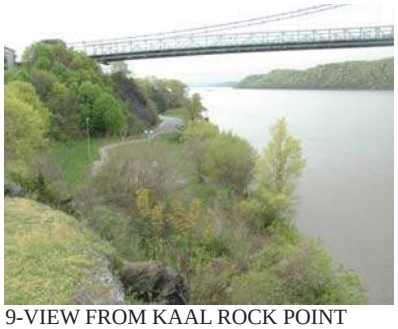
Close to residential;

Isolated, difficult to locate, no sign directing to the scenic point;

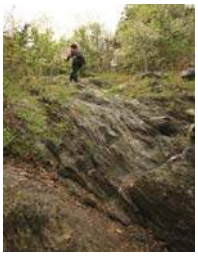
6-CUL-DE-SAC AT THE END OF LONG STREET

7- SOUTH END OF KAAL ROCK

8-FLAT AREA ON TOP OF KAAL ROCK POINT



9-VIEW FROM KAAL ROCK POINT



EXISTING ROCK FORMATION WITH CLIMBING PATH

This document was prepared for the Department of State Division of Coastal Resources, State of New York with funds provided under Title 11 of the Environmental Protection Fund. DOS #: C006572

Kaal Rock Point-Existing Conditions

Kaal Rock Point-Proposed

N

This document was prepared for the Department of State Division of Coastal Resources, State of New York with funds provided under Title 11 of the Environmental Protection Fund. DOS #: C006572

Date	11/30/12
Page Number	06

MORRIS ASSOCIATES ENGINEERING CONSULTANTS, P.L.L.C.

OCEAN AND COASTAL CONSULTANTS

PPS PROJECT FOR PUBLIC SPACES

Vision:

Waryas Park: Pier and sloped lawn to Kaal Rock Point Park

An access point to Kaal Rock Point and Park need to be created from Waryas Park.

Destinations and activities suggested for this area:

1-Lawn for sunbathing, picnics, free play

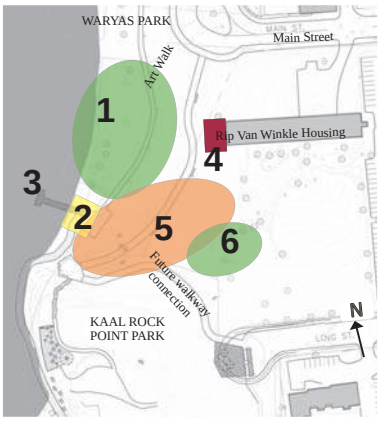
2-The existing riverfront walk should end in a small paved plaza, and should connect to an existing pebble beach with new steps. At this location there should also be orientation signage for the destinations south of Waryas Park: boardwalk to Kaal Rock Park , pathway to Kall Rock Point and nature walks.

3-Pier: community related boating uses, schools, science barge, the Clearwater, learn to fish, fishing, and benches for viewing. tour boats/water taxi

4- RVW scenic vantage point with terrace and cafe' overlooking the Hudson. The RVW housing ground floor could have a commercial use. Activities along that side of the housing, will add "eyes" on the Kaal Rock Point Park.

5-Gardens and seating, rain gardens, children gardens community, garden clubs, RVW community gardens

6-A fenced dog run



WARYAS PARK CONNECTION-KEY MAP OF ACTIVITIES

Kaal Rock Point: Gateway to the Point and Point Overlook

Kaal Rock Point should become one of the iconic destinations, a 'must see' in Poughkeepsie.

Destinations and activities suggested for this area:

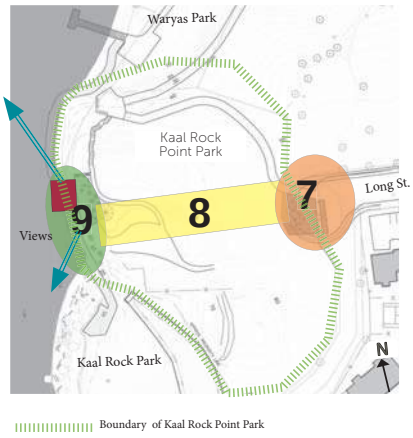
7- Gateway entrance to Kaal Rock Point Park: wayfinding, seating, small arrival plaza for drop off and small events, future food truck parking on weekends, off the end of the cul de sac in the lawn area.

8-Improved walkway to the Point viewing area. Use the existing flat area for creating an access pathway through the wooded area, providing ADA accessible paving, seating, enhancing the view corridor

9- Overlook with seating, kiosk/gazebo, future cafe' concession

Activities:

Views, Cafe' seating, walking, bird watching, boats watching



KAAL ROCK POINT PARK-KEY MAP OF ACTIVITIES

Kaal Rock Point-Vision and Activities by area

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Kaal Rock Point: Neighborhood lawn, natural wooded area and pathways

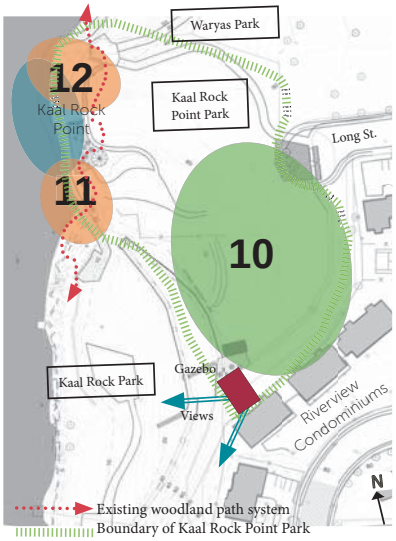
Preserve and build off the existing natural resources, especially of the woodlands; infuse with educational activity and improve its connectivity to make it more usable. The wooded areas should become a natural resource for all the waterfront parks, restoring the Point to native times using native planting and providing a setting for possible camping and adventure for kids. It could be a place where kids learn how to build a teepee, a canoe, and be immerse in a adventure setting. Restoring a natural landscape will likely attract birds and wildlife that will enhance the park as a natural environment.

Destinations and activities suggested for this area:

10- Lawn for informal ball games, family picnics, neighborhood activities, schools

11- Challenge course youth program. Nature walk in the existing wooded area, building on the existing path system. Kids adventures using canoes, teepees and camping , Connection to nature

12- Climbing and difficult trails in a wooded area Nature exploration, through walks in the wooded areas, bridges, climbing on rocks, will be an additional play element that builds the park as a kid-friendly, family destination.

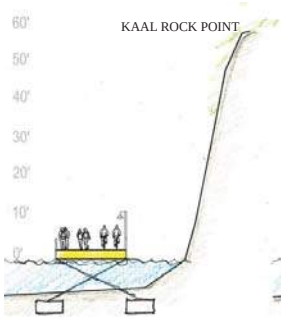


KAAL ROCK POINT PARK-KEY MAP OF ACTIVITIES

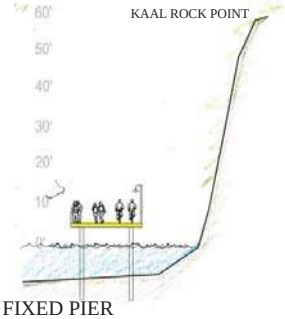
Pedestrian and bikeway connection between Waryas Park and Kaal Rock Park

A Boardwalk is proposed along the west face of Kaal rock point see conceptual sections below.

FIXED PIER



FLOATING DOCK



FIXED PIER

FLOATING DOCK

Kaal Rock Point-Vision and Activities by area

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Kaal Rock Park-Existing Conditions

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North end of Kaal Rock Park and Lawn

In the North park area there are several asphalt walkways and a wider paved area. Few benches in the wooded area close to the base of Kaal Rock. There is a narrow asphalt road connecting the parking on the south. In the very picturesque setting there is no easy pedestrian water access; although it was once present, it is now closed off and in disrepair.

Issues:

Isolated

The existing paths leading to the top of the Rock are not marked and difficult to find

Nice but secluded benches in the north end of the Park are not used.

Central part of Kaal Rock Park around the Boathouse/park building

The entrance to Kaal Rock Park located in a residential neighborhood with little traffic, is difficult to find because it is unmarked. The vehicular access via Hendryck Street is very steep and biking or walking is challenging. Because of the difficulty of access, this park is a very isolated place. Everywhere in the park there are great views of the river and of the beautiful structure of the Mid-Hudson Bridge, spanning 90 feet above. It is a protected area, nested between Kaal Rock and another rock outcrop formation called Poughkeepsie Melange. This layout gives the park its intimate feel which should be preserved.

Issues:

Isolated

Difficult access via a steep road (Hendryck St.)

No marked entrance to the Park

South end of Kaal Rock Park and Lawn

The south end of Kaal Rock Park is a narrow unimproved parkland located between the Poughkeepsie Melange rock formation and the river's edge. This shoreline is characterized as a "soft" shoreline due to the existence of natural sediments and rocks. In several areas, overgrown vegetation is hiding the access to the River. A narrow pathway is connecting the existing boathouse to the south boundary of Kaal Rock Park. A new pathway and rip rap starts at the former sewage treatment plant (STP) and connects Shadows Restaurant and Marina, an important destination along the shoreline.

Issues:

Very isolated

Asphalt walks in disrepair

No seating or amenities

1- SOUTH END OF KAAL ROCK

Kall Rock (1920's)

2-EXISTING PARK BUILDING

3-PEDESTRIAN RAMP TO THE RIVER

4-HENDRYCK STREET PARK

5- SOUTH END OF EXISTING PATHWAY

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Kaal Rock Park-Existing Conditions

MORRIS ASSOCIATES ENGINEERING CONSULTANTS, P.L.L.C.

OCEAN AND COASTAL CONSULTANTS

PPS PROJECT FOR PUBLIC SPACES

Vision:

Kaal Rock Park: Youth environmental education + Boat and kayak launch - North end of Park and Lawn

Destinations and activities suggested for this area:

Create a great place for kids, building off the presence of the MHCM, and bringing in other partners as Outward Bound and Head Start. Providing natural areas for children to explore is emerging as a key opportunity for Kaal Rock Park.

1-Kayak pontoon (warm weather uses)

2-Exploratorium: adventure and nature walks, climbing, orienteering. An outdoor classroom could support the exploratorium activities.

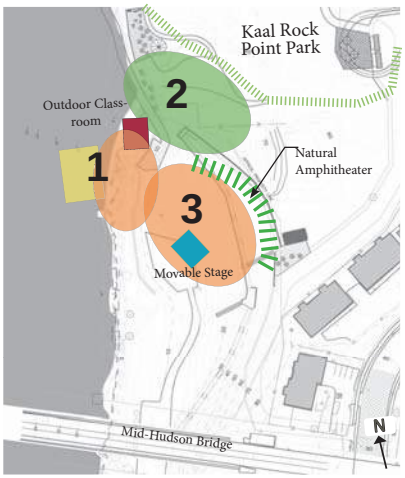
3-Natural Amphitheater with movable stage for large concerts/performances. Because of the slope southern exposure, outdoor performances and activities could be extended into fall and spring.

Activities:

Kids camping, outdoor adventures, exploration in science, organized by the MHCM or other partners

Concerts and performances, theater

Kaal Rock Parl Link: In order for this section of Kaal Rock Park to be a succesful youth destination, it is necessary to accomplish the North South connection to Waryas Park, the connection to the Walkway elevator, and to the loop



KAAL ROCK PARK-NORTH END
KEY MAP OF ACTIVITIES

Kaal Rock Park-Vision and Activities by area

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MORRIS ASSOCIATES ENGINEERING CONSULTANTS, P.L.L.C.
OCEAN AND COASTAL CONSULTANTS
PPS PROJECT FOR PUBLIC SPACES

APPENDIX C

Record Document

"Over Rock" Connector Approach Documents

Final Construction Plans for
City of Poughkeepsie - Kaal Rock Point Park Improvements

Long Street - Main Street

OWNER:

City of Poughkeepsie

62 Civic Center Plaza

Poughkeepsie, NY 12601

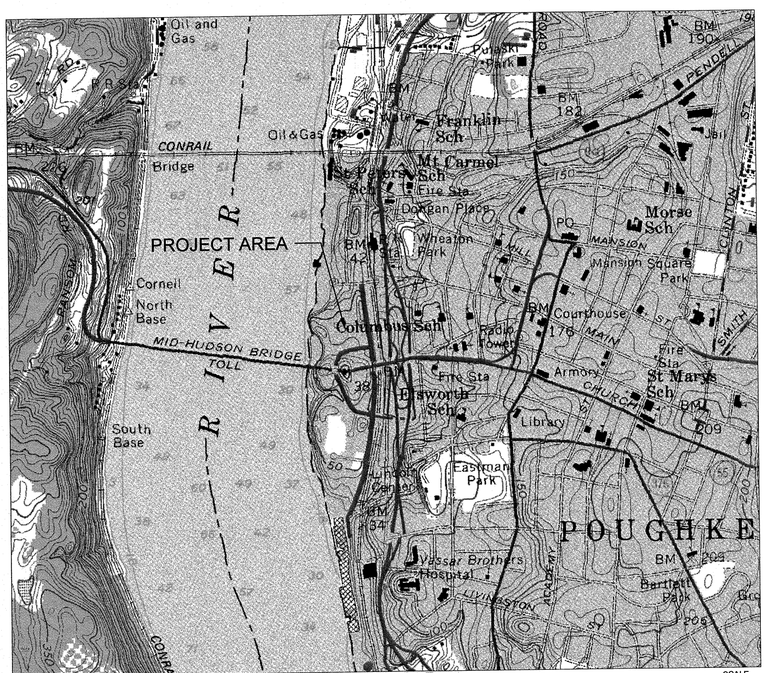
CIVIL ENGINEER:

Morris Associates Engineering Consultants, PLLC

9 Elks Lane

Poughkeepsie, NY 12601

Location Map:



LOCATION-MAP

SCALE 1"=1000'

Drawing List:

1	-	Title Sheet
2	-	Existing Conditions Plan
3	-	Overall Schematic Plan
4	-	20 Scale Northern Section
5	-	20 Scale Middle Section
6	-	20 Scale Southern Section
7	-	Erosion and Sediment Control Plan
8	-	Profiles
9	-	Details 1
10	-	Details 2
11	-	Details 3

Tax Parcel:

APN: 131300-6062-82-720091-0000
131300-6062-74-718136-0000
131300-6062-74-749131-0000
131300-6062-82-705060-0000

CONSTRUCTION NOTES:

1. *LOCATION OF EXISTING SITE UTILITIES ARE BASED ON INFORMATION PROVIDED BY OWNER AND ARE FOR ILLUSTRATIVE PURPOSES ONLY. OWNER AND ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE UTILITIES SHOWN. CONTRACTOR SHALL BE RESPONSIBLE FOR THE MARK OUT OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION.*
2. *CONTRACTOR SHALL CONTACT UFPO PRIOR TO COMMENCING CONSTRUCTION. 1-800-962-7962*
3. *THE PLANS SHOW SOME KNOWN SUBSURFACE STRUCTURES, ABOVE GROUND STRUCTURES AND/OR UTILITIES BELIEVED TO EXIST IN THE WORKING AREA, EXACT LOCATIONS OF WHICH MAY VARY FROM THE LOCATIONS INDICATED. IN PARTICULAR, THE CONTRACTOR IS WARNED THAT THE EXACT OR EVEN APPROXIMATE LOCATIONS OF SUCH PIPELINES, SUBSURFACE STRUCTURES AND/OR UTILITIES IN THE AREA MAY BE SHOWN OR MAY NOT BE SHOWN, AND IT SHALL BE HIS (THE CONTRACTORS) RESPONSIBILITY TO PROCEED WITH GREAT CARE IN EXECUTING ANY WORK.*
4. *PRIOR TO THE INSTALLATION OF ALL NEW EQUIPMENT AND APPURTENANCES, THE CONTRACTOR IS DIRECTED TO LOCATE EXISTING STRUCTURES, PIPELINES OR EQUIPMENT TO ASCERTAIN IF SAID ITEM IS IN CONFLICT OR CONTRADICTION TO THE INTENT OF THE CONTRACT PLANS OR SPECIFICATIONS.*
5. *IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE ALL PLANS, SPECIFICATIONS AND CONTRACT DOCUMENTATION TO THOROUGHLY FAMILIARIZE HIMSELF/HERSELF WITH THE FULL SCOPE AND INTENT OF THE WORK.*
6. *THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE PLANS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE PLANS WITHOUT THE EXPRESSED APPROVAL OF THE ENGINEER.*
7. *THE CONTRACTOR IS RESPONSIBLE FOR THE FIELD LAYOUT OF ALL IMPROVEMENTS.*
8. *EXPLORATORY EXCAVATIONS SHALL BE PERFORMED BY THE CONTRACTOR, AT HIS OWN EXPENSE AND AS NEEDED, TO VERIFY EXISTING SUBSURFACE CONDITIONS.*
9. *ALL EXCAVATION AND ANY REQUIRED SHEETING, SHORING OR BRACING SHALL BE CONDUCTED IN FULL CONFORMANCE WITH THE LATEST REVISIONS OF THE NEW YORK STATE INDUSTRIAL CODE RULE 23 AND OSHA REGULATIONS FOR CONSTRUCTION. SHEETING SHALL BE DESIGNED AND SEALED BY A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER.*
10. *THE CONTRACTOR SHALL MAINTAIN, AT ALL TIMES, FULL ACCESS TO ALL ROADWAYS AND PARKING AREAS THROUGHOUT THE SITE.*
11. *THE CONTRACTOR SHALL NOT STOCKPILE ANY MATERIALS OR CAUSE ANY MATERIALS TO BE PLACED ON ANY ROADWAYS OR PARKING AREAS THROUGHOUT THE SITE. ANY MATERIALS DEPOSITED ON ANY ROADWAYS OR PARKING AREAS SHALL BE REMOVED IMMEDIATELY.*
12. *THE CONTRACTOR IS CAUTIONED THAT THE SITE MAY BE OCCUPIED DURING THE COURSE OF CONSTRUCTION.*
13. *CONTRACTOR IS TO GRADE ALL DISTURBED AREAS ON THE SITE TO PROVIDE POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES.*
14. *THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION SITE SAFETY.*
15. *THE CONTRACTOR SHALL PROVIDE BARRICADES, INCLUDING TEMPORARY FENCING TO PREVENT UNAUTHORIZED ENTRY TO CONSTRUCTION AREAS AND TO PROTECT EXISTING AND NEW FACILITIES FROM DAMAGE BY CONSTRUCTION OPERATIONS OR VANDALISM.*
16. *THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION METHODOLOGY UNLESS OTHERWISE REQUIRED BY THESE PLANS AND SPECIFICATIONS.*
17. *ALL EXCAVATIONS SHALL BE BACK FILLED TO FINISHED GRADE OR ADEQUATELY BARRICADED AT THE END OF EACH WORKDAY.*
18. *THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS, INCLUDING LAWNS, DRIVES, CULVERTS, FENCES, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY TO IT'S PRE-CONSTRUCTION CONDITION UNLESS OTHERWISE REQUIRED BY THESE PLANS AND/OR SPECIFICATIONS.*
19. *THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION DEWATERING AND MAINTENANCE OF SURFACE DRAINAGE DURING THE COURSE OF CONSTRUCTION.*
20. *DURING THE COURSE OF CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A DETAILED SET OF OF RECORD DRAWINGS INDICATING THE EXACT LOCATIONS, INCLUDING ELEVATIONS, OF ALL IMPROVEMENTS. A MINIMUM OF TWO (2) TIE DISTANCES TO PROMINENT FEATURES SHALL BE PROVIDED TO ALL NEW STRUCTURES, CHANGES IN PIPE AND ELECTRICAL CONDUIT ALIGNMENT (HORIZONTAL AND VERTICAL) AND OTHER PERTINENT FEATURES, TO PERMIT THE LOCATION OF ANY BURIED COMPONENTS. UPON COMPLETION OF CONSTRUCTION, THESE PLANS SHALL BE PROVIDED TO THE PROJECT ENGINEER. THE CONTRACTOR SHALL PROVIDE ANY CORRECTIONS OR ADDITIONAL DATA, AS MAY BE REQUIRED, TO THE SATISFACTION OF THE OWNER AND PROJECT ENGINEER. FINAL APPROVAL OF THESE RECORD PLANS BY THE OWNER AND THE PROJECT ENGINEER WILL BE A REQUIREMENT PRIOR TO THE RELEASE OF FINAL PAYMENT.*
21. *THE CONTRACTOR SHALL PROTECT EXISTING TREES AND SHRUBS FROM DAMAGE DURING ALL PHASES OF CONSTRUCTION.*
22. *THE CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROLS AS REQUESTED BY THE DESIGN ENGINEER OR OWNER TO PREVENT SOIL EROSION AND SEDIMENTATION.*

GENERAL NOTE:

THESE PLANS HAVE BEEN PREPARED AS PART OF A GRANT OBTAINED BY THE CITY OF POUGHKEEPSIE. AT THE TIME OF THE PLAN COMPLETION, FUNDING IS NOT AVAILABLE FOR THE CONSTRUCTION.

REGULATIONS, CODES, FIELD, OR ENVIRONMENTAL CONDITIONS MAY CHANGE BETWEEN THE COMPLETION OF THE PLANS AND CONSTRUCTION.

MORRIS ASSOCIATES SHALL BE CONTACTED IN ADVANCE OF ADVERTISING FOR BIDS TO REVIEW THE PLANS AND SPECIFICATIONS THAT MAY REQUIRE REVISIONS, BASED ON CHANGES TO REGULATIONS, CODES, FIELD, OR ENVIRONMENTAL CONDITIONS.

MAP NOTES:

THE BACKGROUND MAPPING USED IN THIS PLAN SET IS A COMPILATION OF AN AERIAL SURVEY COORDINATED BY CHAZEN ENGINEERING & LAND SURVEYING CO., P.C. IN 1997 AND SELECTED AREAS OF ACTUAL FIELD TOPOGRAPHY TAKEN BY MORRIS ASSOCIATES IN 2014.

VERTICAL DATUM IS NGVD-29

HORIZONTAL DATUM IS NAD-88

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REV. No.	DESCRIPTION	DATE	BY
2	REVISED FOR FINAL CONSTRUCTION PLAN SUBMISSION	7-28-14	THH
1	REVISED FOR PRELIMINARY CONSTRUCTION PLAN SUBMISSION	6-18-14	THH

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STATE OF NEW YORK · PETER D. SEARS · 071008 · LICENSED PROFESSIONAL ENGINEER

KAAL ROCK POINT IMPROVEMENT PLANS

CITY OF POUGHKEEPSIE — DUTCHESS COUNTY, NY

TITLE SHEET

MORRIS ASSOCIATES,
ENGINEERING CONSULTANTS, PLLC
9 Elks Lane, Poughkeepsie, New York 12601
Phone No. (845) 454-3411 Fax No. (845) 473-1962
64 Green Street - Suite 1, Hudson, New York 12534
Phone No. (518) 828-2300 Fax No. (518) 828-3963

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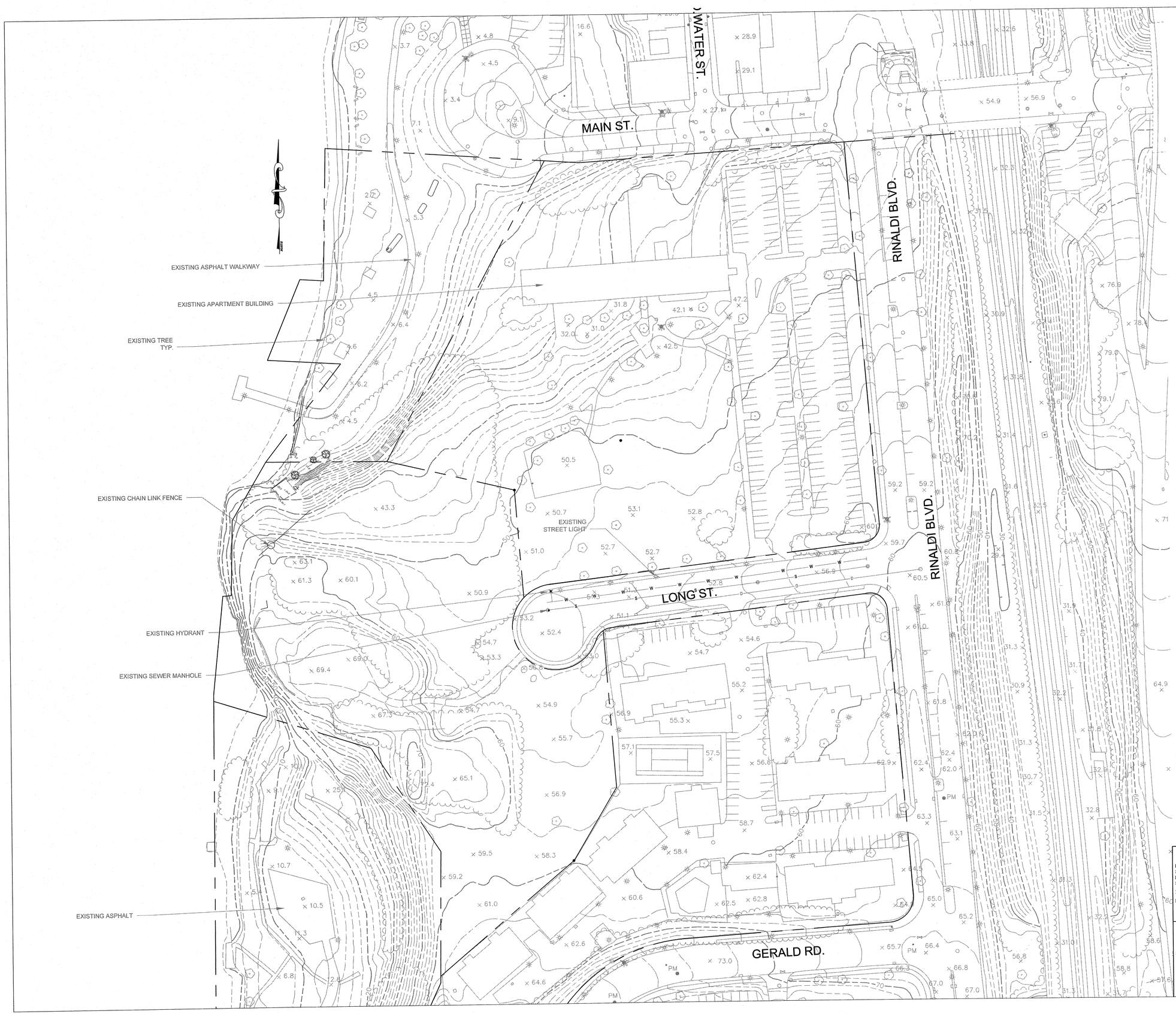
DATE	SCALE	DESIGNED BY: THH / DRAWN BY: THH/KS / CHECKED BY: PDS	FILE No.	DRAWING NO.
4/2/2014	AS SHOWN		211012.34	1 OF 11



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KAAL ROCK POINT PARK IMPROVEMENT PLANS

CITY OF POUGHKEEPSIE — DUTCHESS COUNTY, NY

EXISTING CONDITIONS PLAN

STATE OF NEW YORK — PETER D. SEVINO — 070066 — LICENSED PROFESSIONAL ENGINEER

MORRIS ASSOCIATES,
ENGINEERING CONSULTANTS, PLLC
9 Elks Lane, Poughkeepsie, New York 12601
Phone No. (845) 454-3411 Fax No. (845) 473-1962
64 Green Street - Suite 1, Hudson, New York 12534
Phone No. (518) 828-2300 Fax No. (518) 828-3963

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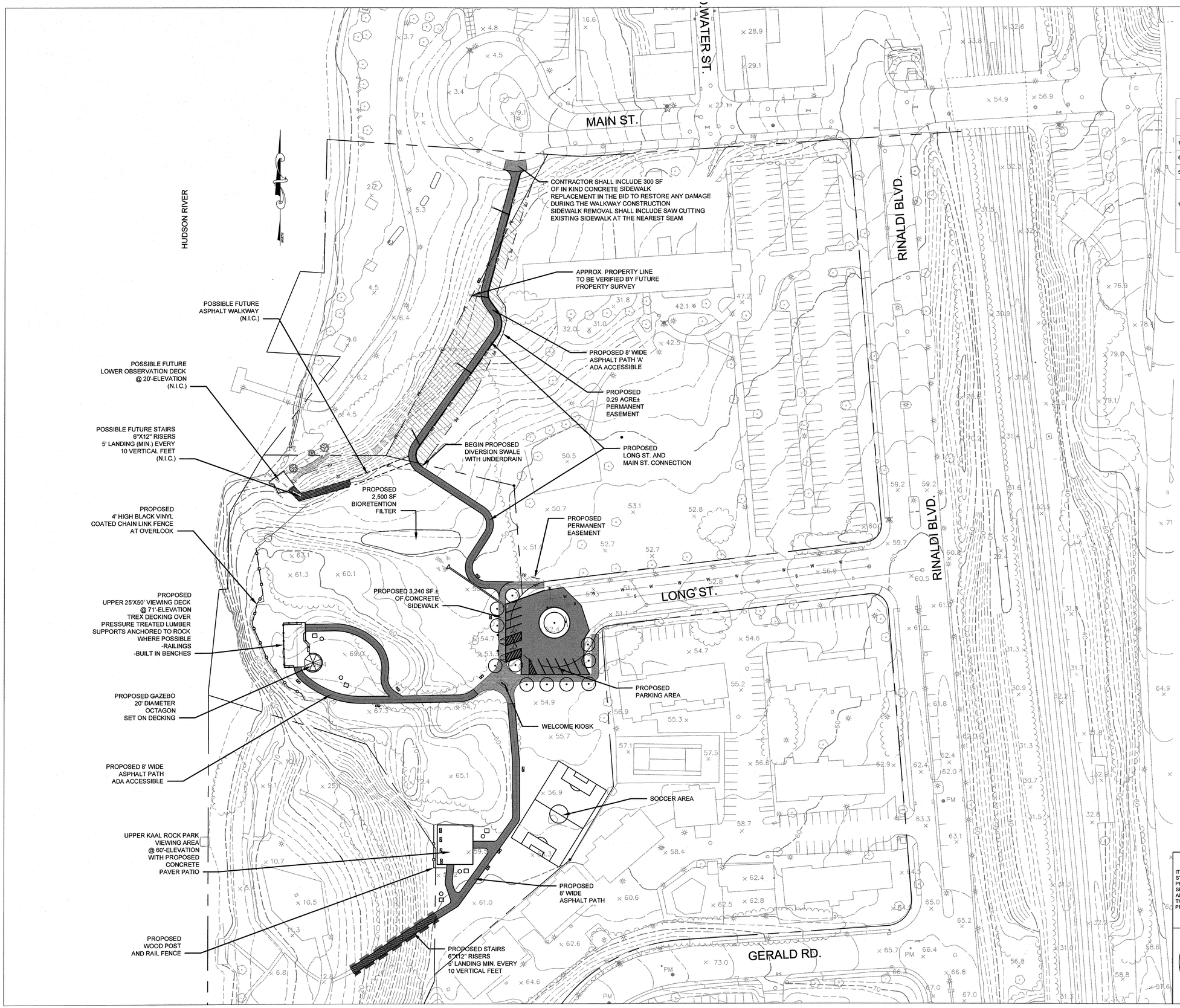
2/19/2014	1"= 50'	DESIGNED BY: THH DRAWN BY: KS CHECKED BY: PDS	211012.34	2 OF 11



SCHEDULE FOR PARK APPARATUS				
QUANTITY/SYMBOL/ITEM		MODEL/PART #	MANUFACTURER	INSTALLATION NOTES/ GENERAL NOTES
14	FIXED BENCH	EVR-3002	EVEREST RECREATION	PER MANUFACTURERS INSTRUCTIONS
5	PICNIC TABLE	EVR-1006	EVEREST RECREATION	PER MANUFACTURERS INSTRUCTIONS
5	BBQ GRILL	620	HIGHLAND PRODUCTS GROUP, LLC	PER MANUFACTURERS INSTRUCTIONS
1	GAZEBO	CUSTOM GAZEBO	GAZEBOCREATIONS	20' OCTAGON, RED CEDAR, SINGLE ROOF, 128" HEIGHT, 2X2 SQUARE RAILINGS, STANDARD BRACES, OLD ENGLISH PEWTER ASPHALT SHINGLE, CEDAR TONE STAIN/SEALER, STRAIGHT POST
1	WELCOME KIOSK	SSG 8'X9'	POLYGON	PER MANUFACTURER'S INSTRUCTIONS

NOTE:

APPROVED EQUALS MAY BE ACCEPTED FOR THE ABOVE SPECIFIED ITEMS.

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KAAL ROCK POINT PARK IMPROVEMENT PLANS

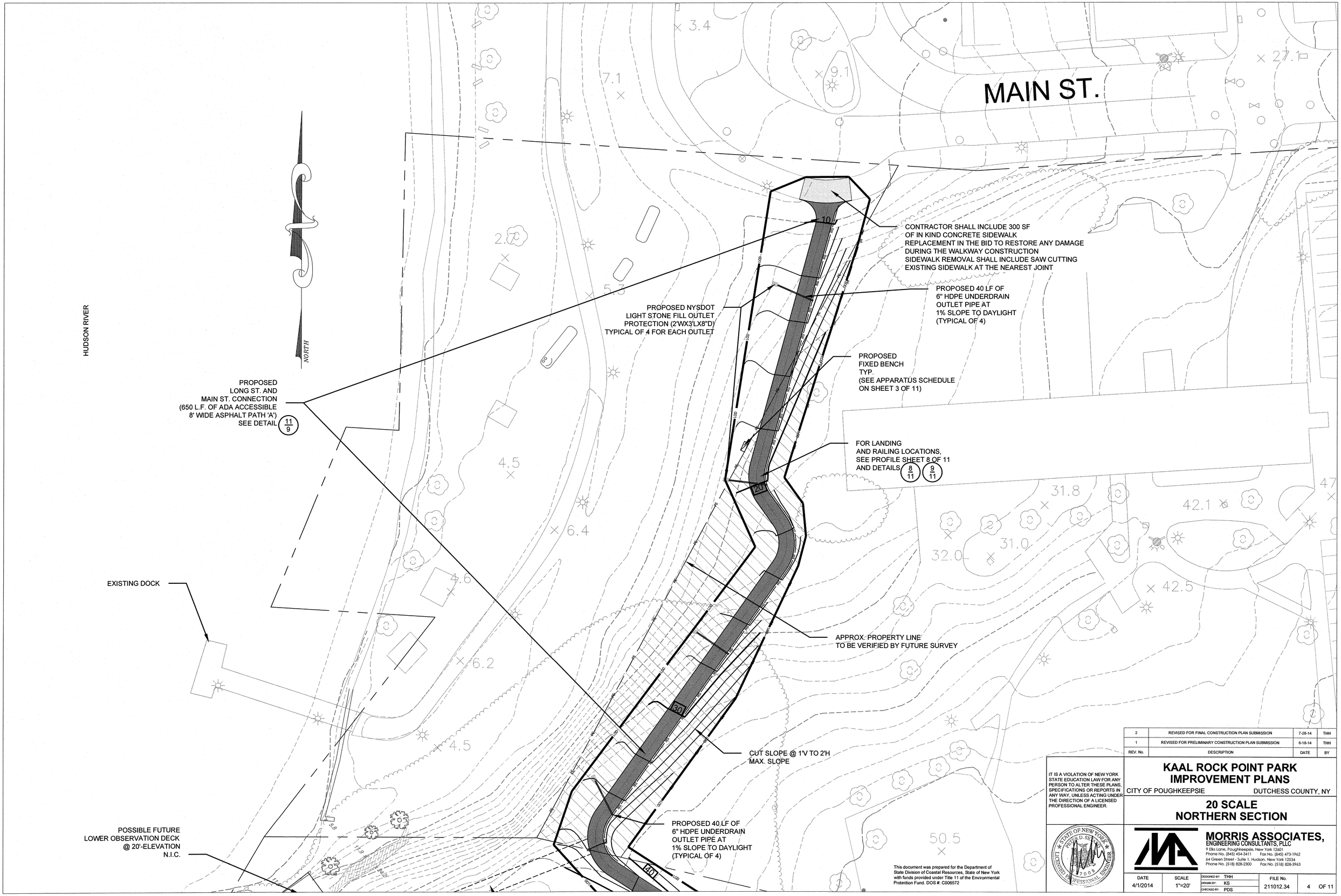
CITY OF POUGHKEEPSIE DUTCHESS COUNTY, NY

SCHEMATIC SITE PLAN

STATE OF NEW YORK · PETER D. SEWARD · 047000 · LICENSED PROFESSIONAL ENGINEER

MORRIS ASSOCIATES, ENGINEERING CONSULTANTS, PLLC
9 Elks Lane, Poughkeepsie, New York 12601
Phone No. (845) 454-3411 Fax No. (845) 473-1962
64 Green Street - Suite 1, Hudson, New York 12534
Phone No. (518) 828-2300 Fax No. (518) 828-3963

DATE	SCALE	DESIGNED BY: THH / DRAWN BY: KS / CHECKED BY: PDS	FILE No.	
2/19/2014	1"= 50'		211012.34	3 OF 11



REV. No.	DESCRIPTION	DATE	BY
2	REVISED FOR FINAL CONSTRUCTION PLAN SUBMISSION	7-28-14	THH
1	REVISED FOR PRELIMINARY CONSTRUCTION PLAN SUBMISSION	6-18-14	THH

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KAAL ROCK POINT PARK IMPROVEMENT PLANS

CITY OF POUGHKEEPSIE DUTCHESS COUNTY, NY

20 SCALE NORTHERN SECTION

STATE OF NEW YORK · PETER D. SEBASTIAN · 070008 · LICENSED PROFESSIONAL ENGINEER

MORRIS ASSOCIATES, ENGINEERING CONSULTANTS, PLLC
9 Elks Lane, Poughkeepsie, New York 12601
Phone No. (845) 454-3411 Fax No. (845) 473-1962
64 Green Street - Suite 1, Hudson, New York 12534
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4/1/2014	1"=20'				211012.34	4 OF 11

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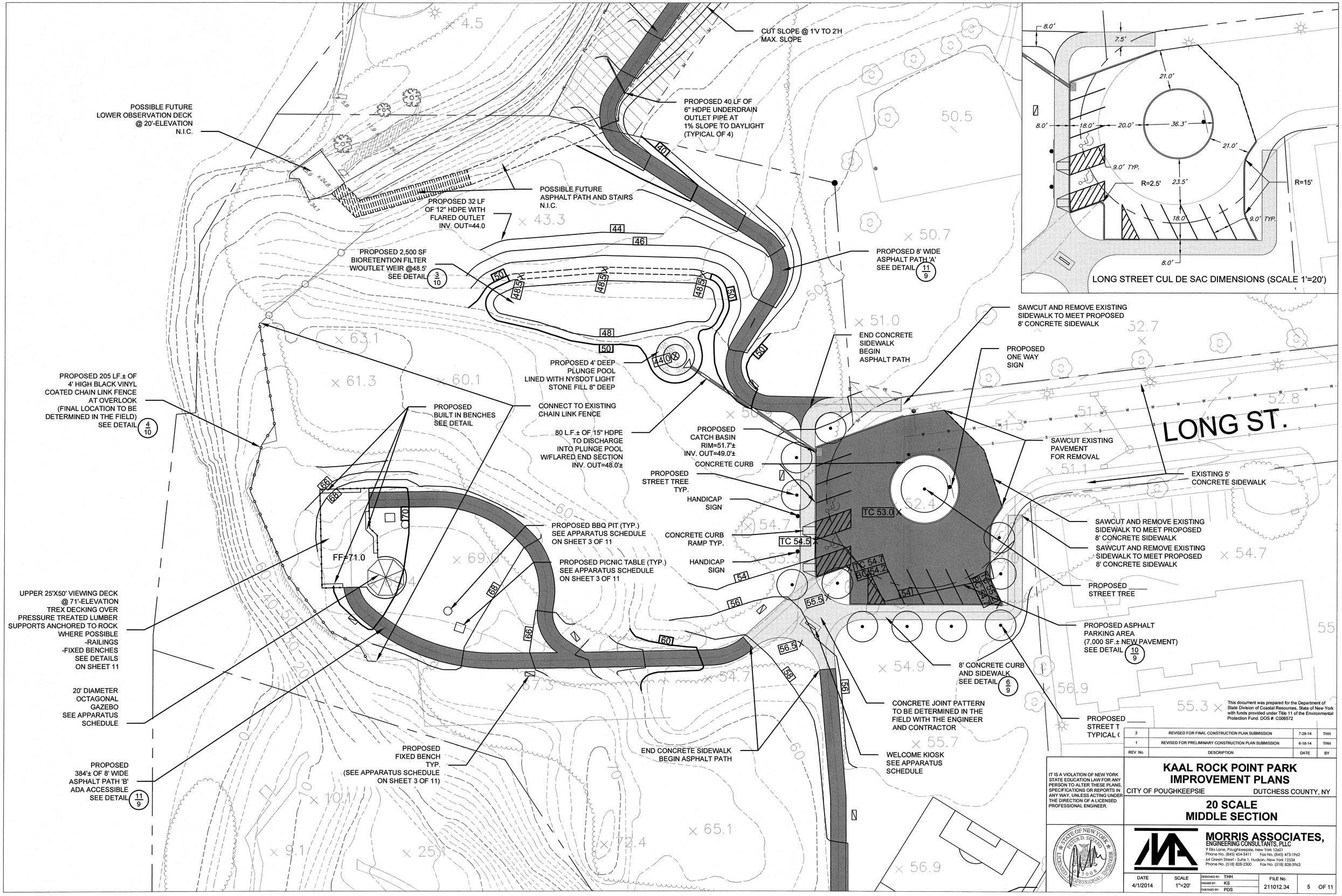

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KAAL ROCK POINT PARK IMPROVEMENT PLANS

CITY OF POUGHKEEPSIE — DUTCHESS COUNTY, NY

20 SCALE MIDDLE SECTION

STATE OF NEW YORK — BRIAN D. SHEPARD — 070008 — LICENSED PROFESSIONAL ENGINEER

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Phone No. (518) 828-2300 Fax No. (518) 828-3963

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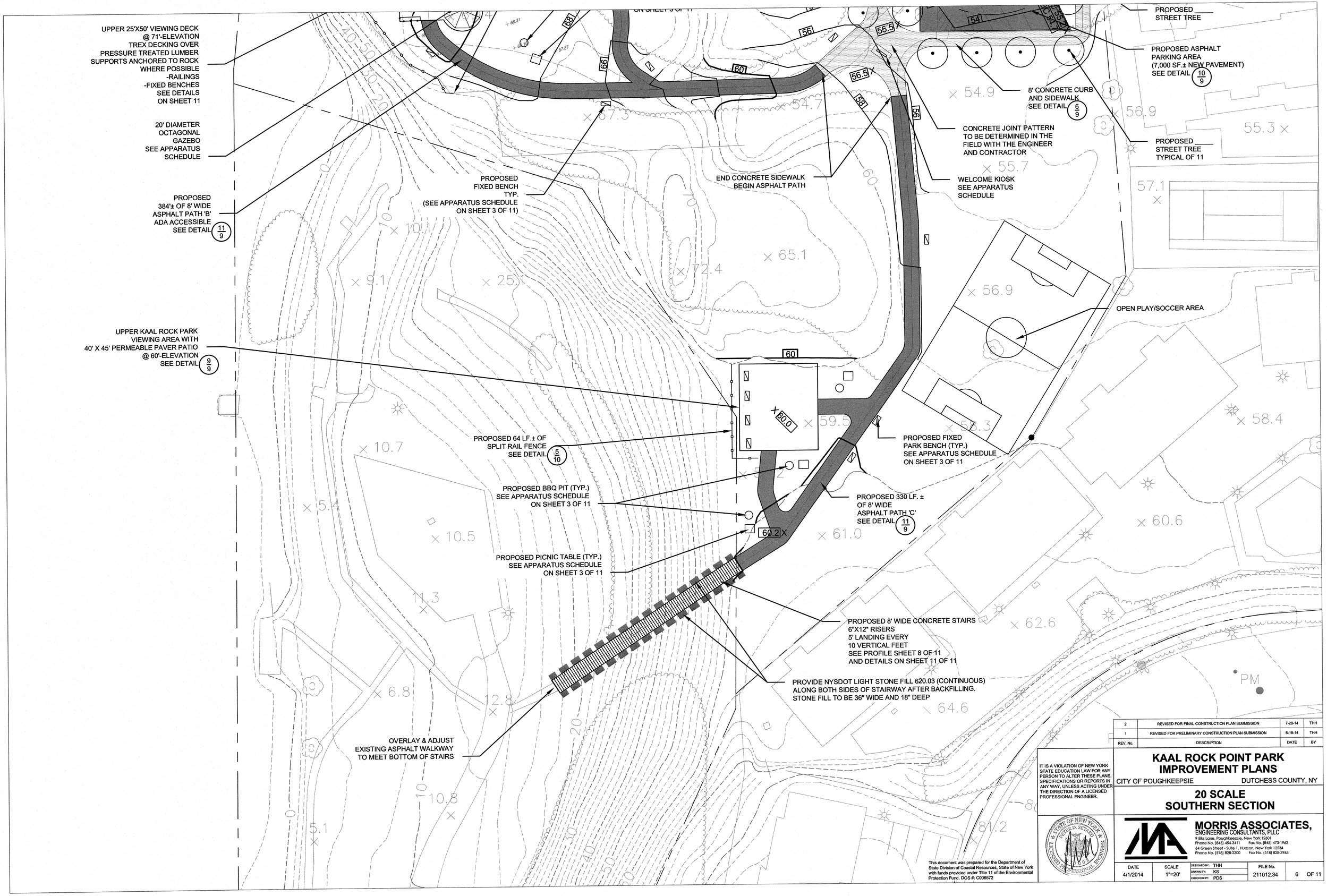
4/1/2014	1"=20'		211012.34	5 OF 11



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KAAL ROCK POINT PARK IMPROVEMENT PLANS

CITY OF POUGHKEEPSIE — DUTCHESS COUNTY, NY

20 SCALE SOUTHERN SECTION

STATE OF NEW YORK — PETER D. SETARO — LICENSED PROFESSIONAL ENGINEER

MORRIS ASSOCIATES,
ENGINEERING CONSULTANTS, PLLC
9 Elks Lane, Poughkeepsie, New York 12601
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44 Green Street - Suite 1, Hudson, New York 12534
Phone No. (518) 828-2300 Fax No. (518) 828-3963

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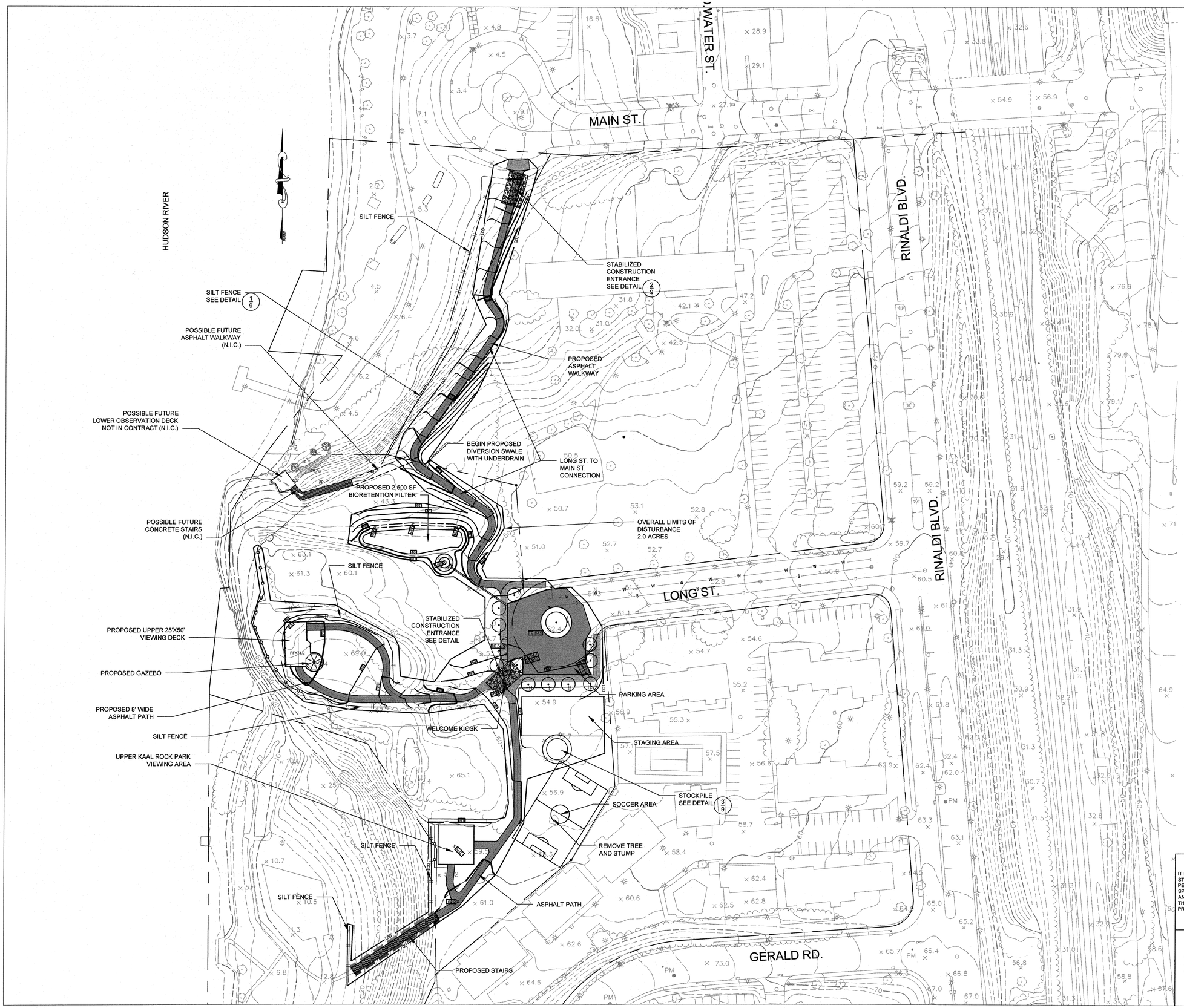

1. ALL SOIL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE NEW YORK STANDARDS & SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROLS. (REFERRED TO IN REMAINING TEXT AS "THE NEW YORK GUIDELINES".)

2. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN THIRTY (30) DAYS, AND ARE NOT SUBJECT TO CONSTRUCTION TRAFFIC, SHALL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS SHALL BE MULCHED WITH STRAW OR EQUIVALENT MATERIAL. THE SEEDING SHALL BE DONE IN ACCORDANCE WITH THE NEW YORK GUIDELINES, AS FOLLOWS:

A) FERTILIZER: THE FERTILIZER SHALL BE APPLIED AT A RATE OF FOURTEEN (14) POUNDS PER ONE THOUSAND SQUARE FEET, USING 5-10-10 OR EQUAL.

B) SEED: ANNUAL RYE GRASS APPLIED AT A RATE OF 30 LBS./ACRE OR OTHER SELECT MIXTURE AS DESCRIBED IN THE NEW YORK GUIDELINES.

C) MULCH: SALT-HAY OR SMALL GRAIN STRAW APPLIED AT A RATE OF NINETY (90) POUNDS PER ONE THOUSAND SQUARE FT. OR TWO (2) TONS PER ACRE, TO BE APPLIED AND ANCHORED ACCORDING TO THE NEW YORK GUIDELINES.

D) IN AREAS OF SLOPES STEEPER THAN ONE ON THREE AND IN DRAINAGE CHANNELS WHERE RUNOFF VELOCITIES EXCEED 2.5 FEET PER SECOND, JUTE MATTING SHALL BE USED TO STABILIZE SEEDED AND/OR PLANTED AREAS. JUTE MATTING SHALL BE INSTALLED AND ANCHORED IN ACCORDANCE WITH THE NEW YORK GUIDELINES.

3. ANY GRADED AREAS NOT SUBJECT TO FURTHER DISTURBANCE OR CONSTRUCTION TRAFFIC SHALL, WITHIN TEN (10) DAYS AFTER FINAL GRADING, RECEIVE PERMANENT VEGETATIVE COVER IN COMBINATION WITH A SUITABLE MULCH AS SPECIFIED IN THE PROJECT MANUAL/SPECIFICATIONS.

4. SLOPES STEEPER THAN ONE ON THREE SHALL BE STABILIZED IMMEDIATELY AFTER GRADING.

5. PAVED ROADWAYS SHALL BE KEPT CLEAN AT ALL TIMES.

6. THE SITE SHALL AT ALL TIMES BE GRADED AND MAINTAINED SUCH THAT ALL STORM WATER RUNOFF IS DIVERTED TO SOIL EROSION OR SEDIMENT CONTROL FACILITIES. EXCEPT FOR MINOR PERIMETER EMBANKMENT AREAS, ALL GRADED AREAS SHALL BE DIRECTED THROUGH ONE OF THE SEDIMENT BARRIERS. DIVERSION SWALES MAY BE USED TO DIRECT DRAINAGE RUNOFF UNTIL THE PERMANENT STORM DRAINAGE SYSTEM IS IN PLACE.

7. DUST SHALL BE CONTROLLED BY SPRINKLING OR OTHER APPROVED METHODS.

8. STOCKPILES SHALL NOT BE LOCATED WITHIN FIFTY FEET (50') OF ROADWAYS OR DRAINAGE FACILITIES. THE BASE OF ALL STOCKPILES SHALL BE PROTECTED BY HAYBALE BARRIER.

9. SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED BY THE CONTRACTOR ON A DAILY BASIS TO ENSURE THAT TEMPORARY AND PERMANENT DITCHES, PIPES AND STRUCTURES ARE CLEAR OF DEBRIS, THAT EMBANKMENTS AND BERMS ARE NOT BREACHED, AND THAT ALL BARRIERS ARE INTACT.

10. ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL FINAL ACCEPTANCE OF THE WORK BY THE OWNER. UPON CERTIFICATION OF FINAL ACCEPTANCE, THE OWNER WILL ASSUME RESPONSIBILITY FOR THE CONTINUED MAINTENANCE OF PERMANENT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES.

THE FOLLOWING IS THE SUGGESTED CONSTRUCTION SEQUENCE (±2.0 ACRES OF DISTURBANCE)

1. Obtain all required permit approvals from Local, State and/ or Federal agencies prior to the start of construction.
2. The contractor shall coordinate to have all utilities marked out prior to the start of site work/ demolition. Contractor shall contact NYS & LI One Call Center (1-800-272-4480).
3. Clear trees, leaving stumps and topsoil in place, within disturbance area.
4. Install stabilized construction entrances.
5. Clearly delineate with orange construction fence, signs, etc. the limit of disturbance/phase boundary and locations of any sensitive areas.
6. Install silt fence.
7. Install temporary sediment traps, if required.
8. Install temporary and permanent diversion swales.
9. Install check dams, as directed by Project Engineer or Qualified Inspector.
10. Request pre-construction inspection by a Qualified Professional.
11. Clear and grub area within current phase, minimizing disturbance to the maximum extent practicable.
12. Strip topsoil and stockpile. Stabilize stockpile as shown.
13. Install, grade and compact all required fill for the proposed paths and parking area.
14. Install necessary site utilities (drainage, etc.).
15. Install subbase and pavement for paths and parking area.
16. Begin footing excavation and construction of proposed deck and patio.
17. Install storm drain inlet protection for all proposed catch basins/outlet structures as soon as the surrounding grade elevations allow runoff to enter the structure.
18. Install rock outlet protection immediately upon installation of any pipe or swale outlet.
19. Topsoil, seed and mulch all disturbed areas with permanent seed mixture. Topsoil to be reclaimed from on-site stockpiles.
20. Install bioretention filters, when the contributing area is deemed permanently stabilized.
21. Remove temporary sediment traps and diversion swales as dictated by construction and grading requirements.
22. Remove stabilized construction entrances and restore the area.
23. Finish miscellaneous site work and deck/patio construction as needed.
24. Remove all remaining temporary erosion and sediment control practices once the site is declared stabilized by the Qualified Inspector.

FOR THE DURATION OF CONSTRUCTION ACTIVITIES, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE DISTURBANCE OF ASSOCIATED PROJECT AREAS. LONG TERM INSPECTION AND MAINTENANCE OF THE STORMWATER MANAGEMENT PRACTICE(S) WILL BE THE RESPONSIBILITY OF THE OWNER/OPERATOR (CITY OF POUGHKEEPSIE).

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KAAL ROCK POINT PARK IMPROVEMENT PLANS

CITY OF POUGHKEEPSIE DUTCHESS COUNTY, NY

EROSION AND SEDIMENT CONTROL PLAN

MORRIS ASSOCIATES, ENGINEERING CONSULTANTS, PLLC
9 Elks Lane, Poughkeepsie, New York 12601
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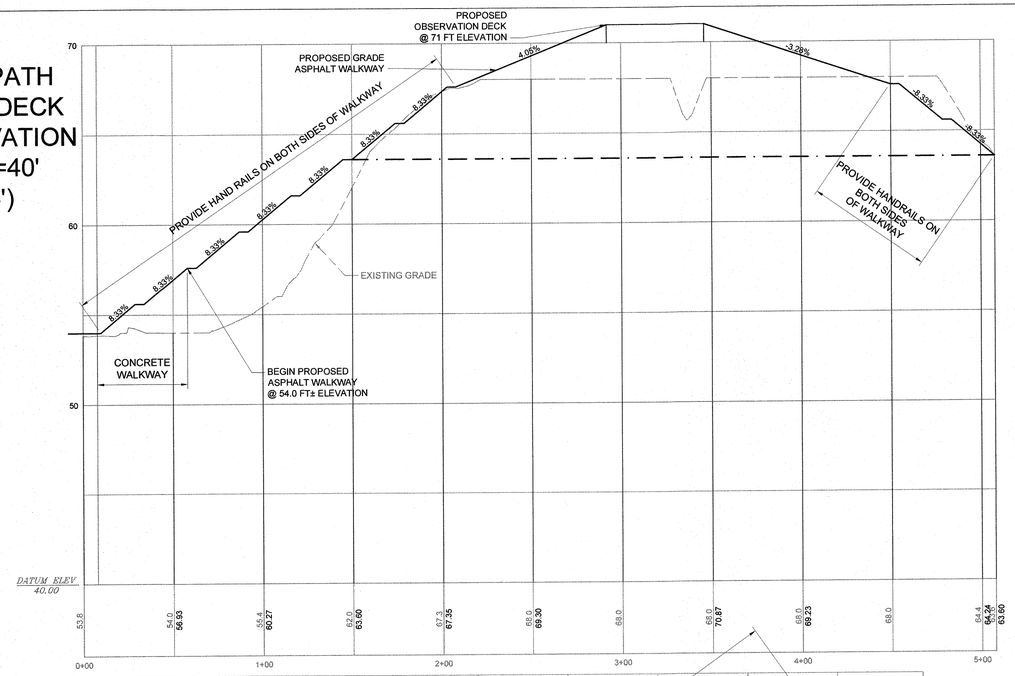
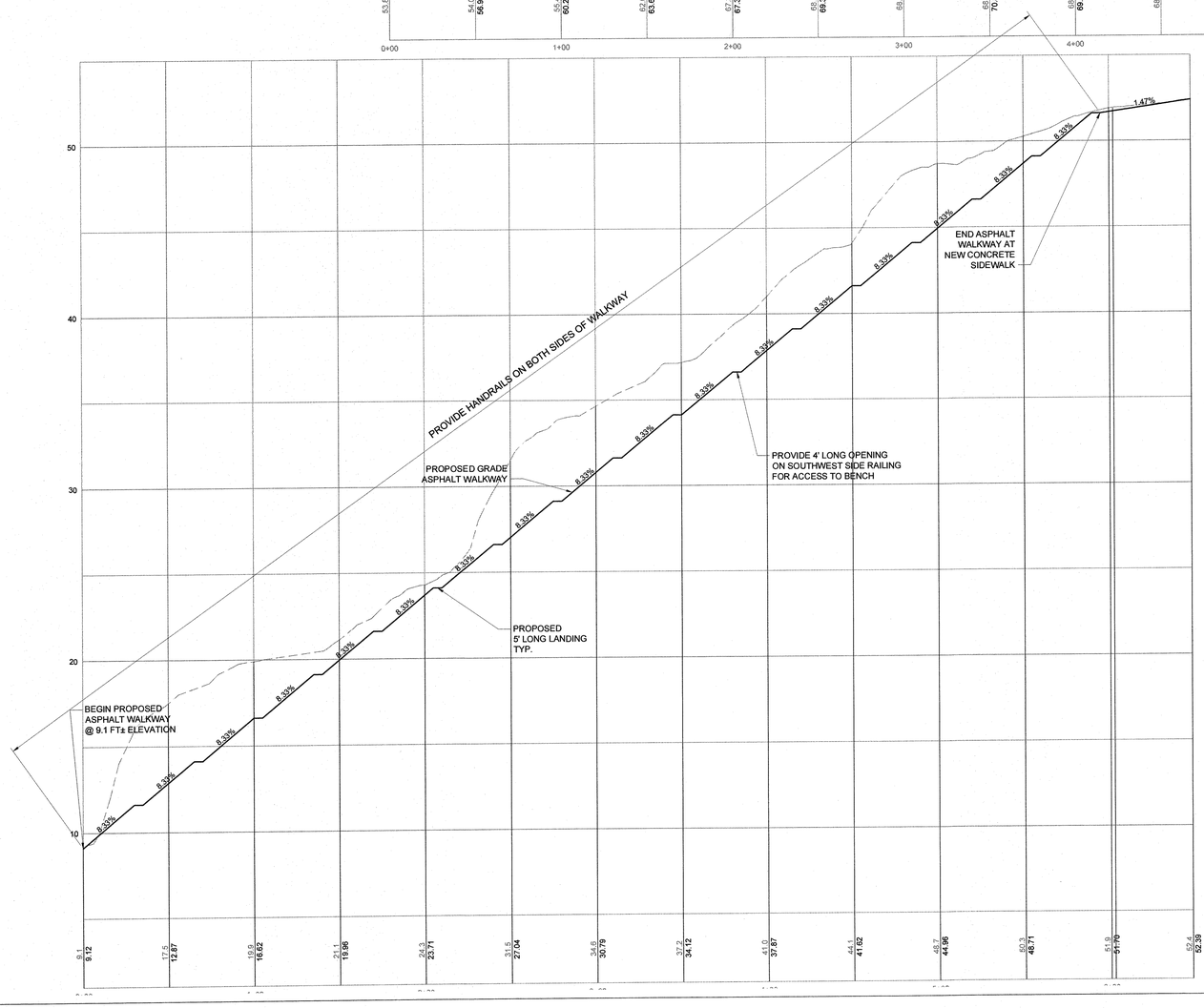
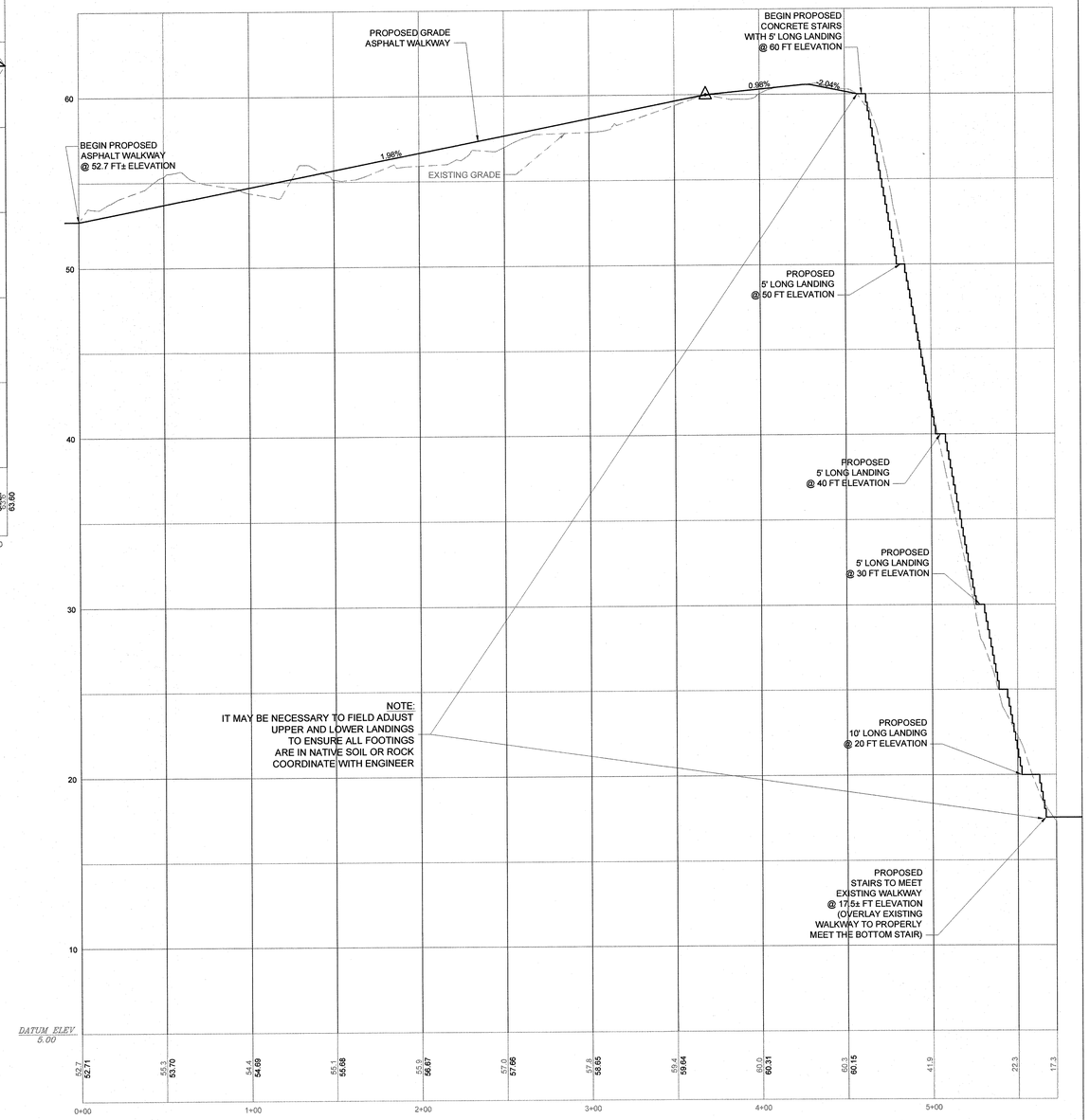
64 Green Street - Suite 1, Hudson, New York 12534
Phone No. (518) 828-2300 Fax No. (518) 828-3963

DATE	SCALE	DESIGNED BY: THH / DRAWN BY: KS / CHECKED BY: PDS	FILE No.	
6/13/2014	1"= 50'		211012.34	7 OF 11

LONG STREET ASPHALT PATH TO UPPER OBSERVATION DECK AND GAZEBO @ 71 FT ELEVATION (HORIZONTAL SCALE: 1"=40' VERTICAL SCALE: 1"=4')







LONG STREET ASPHALT WALKWAY AND CONCRETE STAIRWAY TO KAAL ROCK PARK (HORIZONTAL SCALE: 1"=40' VERTICAL SCALE: 1"=4')

LONG STREET ASPHALT WALKWAY TO MAIN STREET (HORIZONTAL SCALE: 1"=40' VERTICAL SCALE: 1"=4')

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KAAL ROCK POINT PARK IMPROVEMENT PLANS

CITY OF POUGHKEEPSIE DUTCHESS COUNTY, NY

PROPOSED WALKWAY PROFILES

STATE OF NEW YORK · PETER D. SEFANOV · 070896 · LICENSED PROFESSIONAL ENGINEER

MORRIS ASSOCIATES,
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9 Elks Lane, Poughkeepsie, New York 12601
Phone No. (845) 454-3411 Fax No. (845) 473-1962
44 Green Street - Suite 1, Hudson, New York 12534
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4/1/2014	AS NOTED		211012.34	8 OF 11

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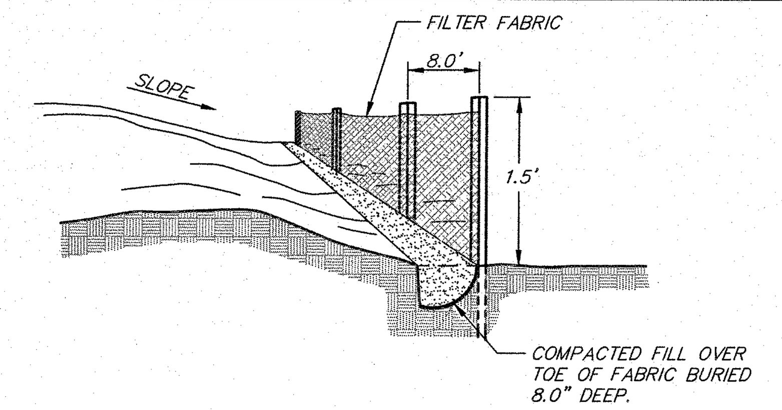
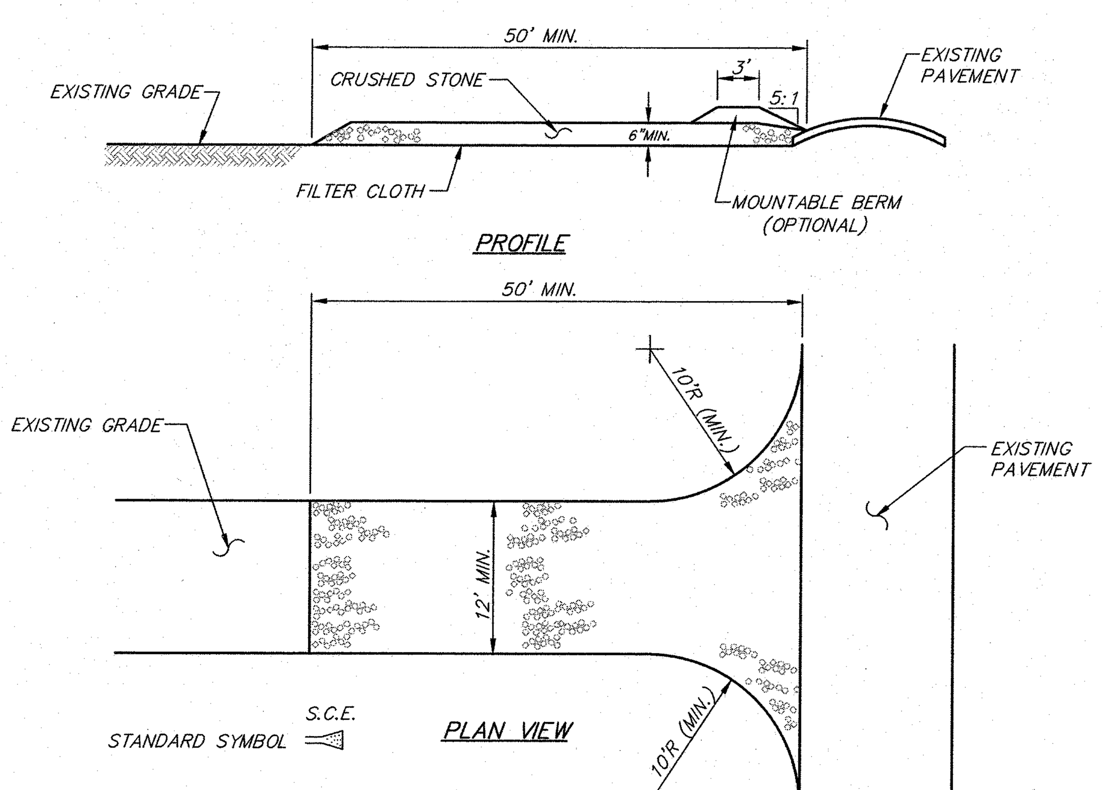


NOTES:

1. LOCATE POSTS DOWNSIDE OF FABRIC TO HELP SUPPORT FENCING.
2. BURY TOE OF FENCE APPROXIMATELY 8" DEEP TO PREVENT UNDERCUTTING.
3. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FABRIC AT A SUPPORT POST WITH OVERLAP TO THE NEXT POST.

1/9 TYPICAL SILT FENCE DETAIL

N.T.S.

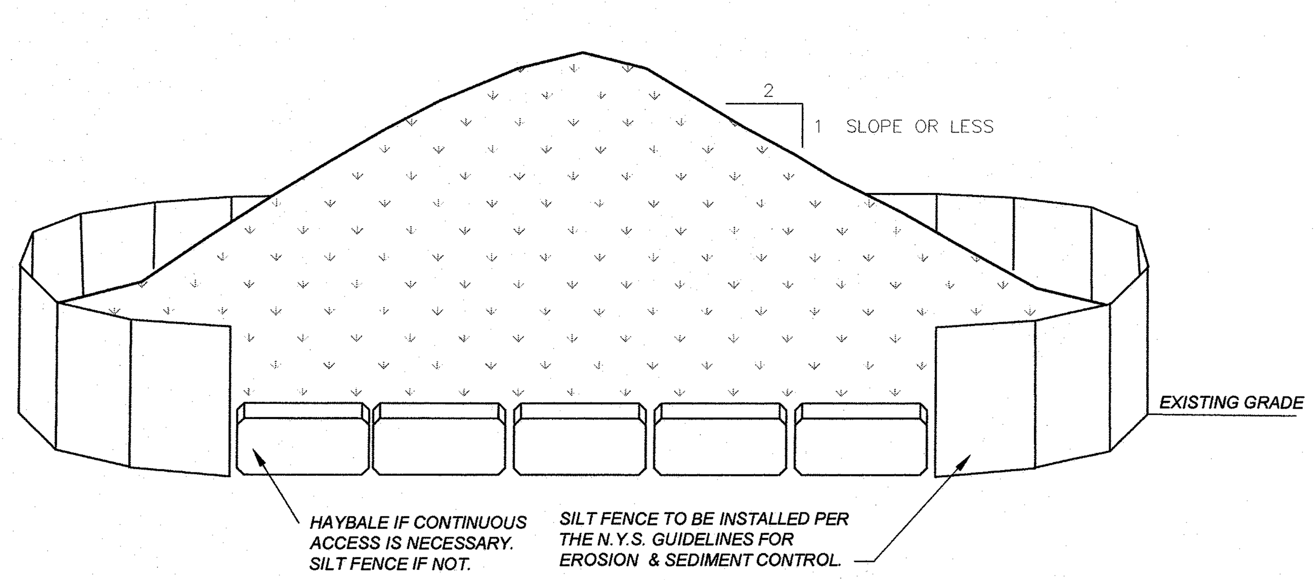


2/9 TYPICAL STABILIZED CONSTRUCTION ENTRANCE DETAIL

N.T.S.

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT
2. LENGTH – AS REQUIRED, BUT NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN 6".
4. WIDTH – 10' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO THE PLACING OF STONE. FILTER WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES SHALL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE,
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

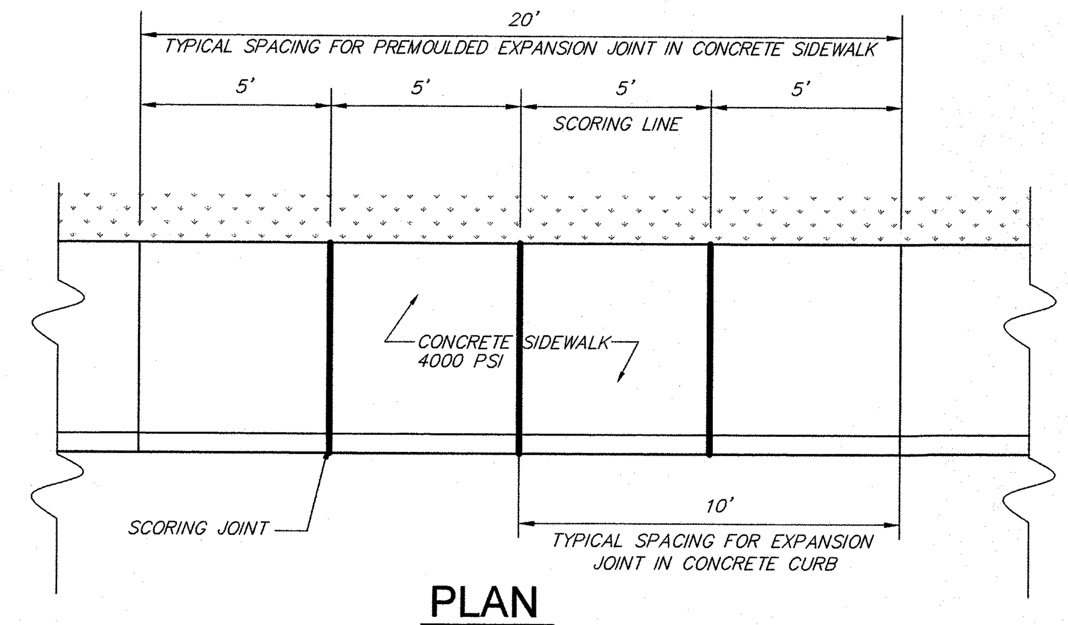


3/9 SOIL STOCKPILE STABILIZATION DETAIL

N.T.S.

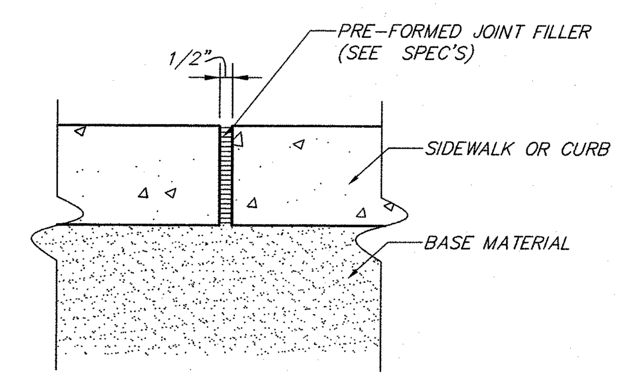
NOTES:

1. AREA CHOSEN FOR STOCKPILING SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 2:1.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING OR HAY BALES AND STABILIZED SEED AND MULCH OR JUTE MESH.
4. SEE SPECIFICATIONS FOR INSTALLATION OF SILT FENCE AND HAY BALES.
5. SIZE OF STOCKPILE SHALL NOT EXCEED THE LIMITATIONS OF DRAINAGE AREA PER SILT FENCE SPECIFICATIONS.
6. INSTALL SILT FENCE AND OR HAY BALES A MINIMUM OF 10' FROM THE TOE OF THE STOCKPILE.



4/9 CONCRETE SIDEWALK, CURB AND SLAB PLAN OF SCORING AND EXPANSION JOINTS

N.T.S.



5/9 TYPICAL EXPANSION JOINT

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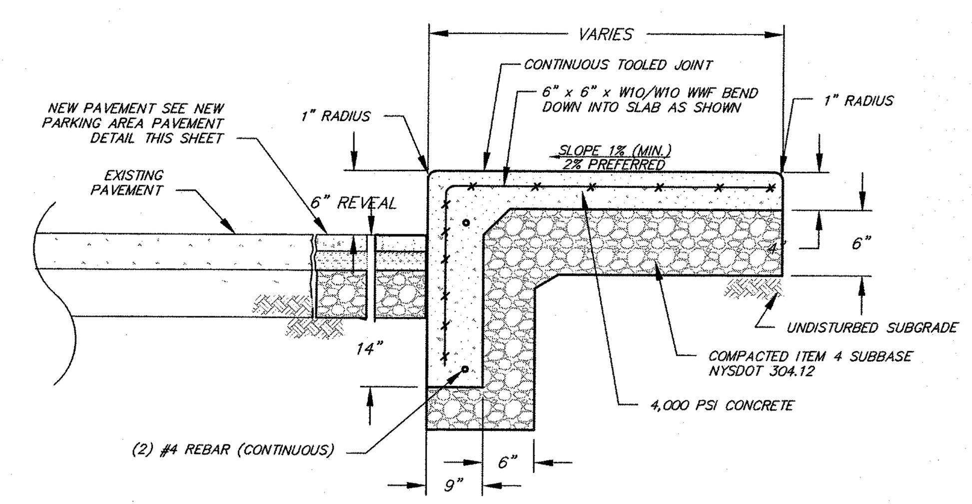
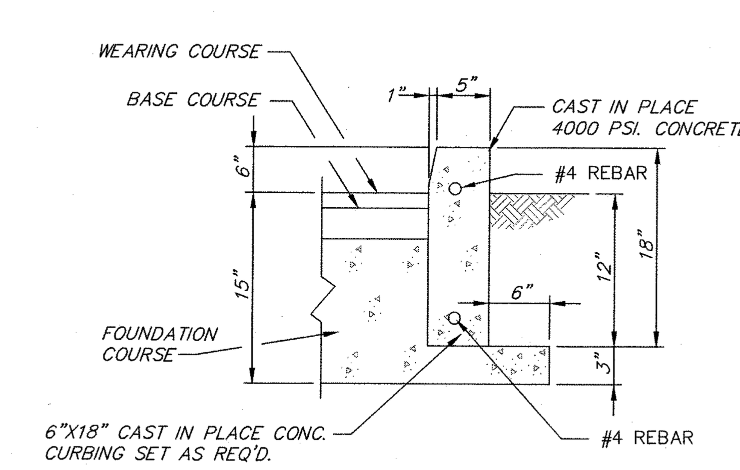


6/9 COMBINATION CURB AND WALK DETAIL (ALTERNATE)

N.T.S.

NOTES:

1. PROVIDE TOOLED JOINTS AT 48" ON CENTER (FROM TOOLED CURB JOINT TO LAWN SIDE OF SIDEWALK)
2. PROVIDE 1/2" EXP. JOINT MATERIAL AT 12' ON CENTER (THROUGH CURB AND SIDEWALK)



7/9 TYPICAL CAST IN PLACE CONCRETE CURB DETAIL

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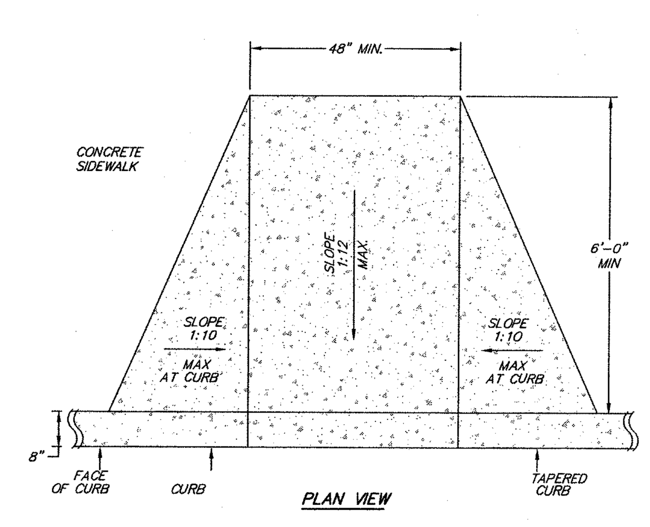
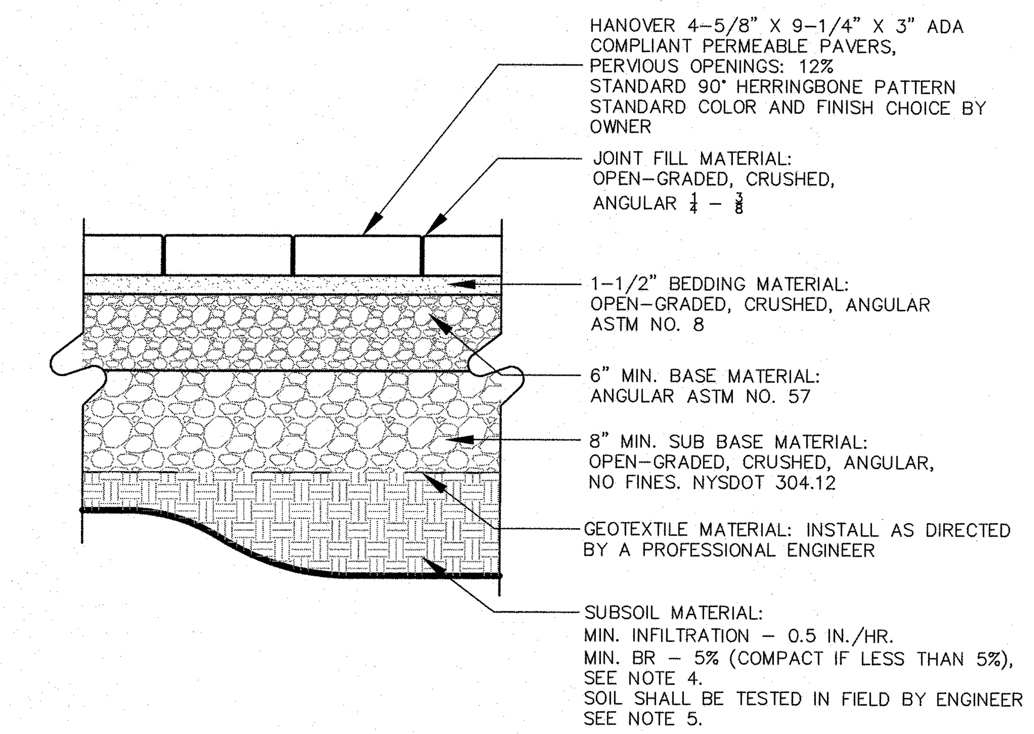


8/9 SIDEWALK HANDICAP ACCESS

N.T.S.

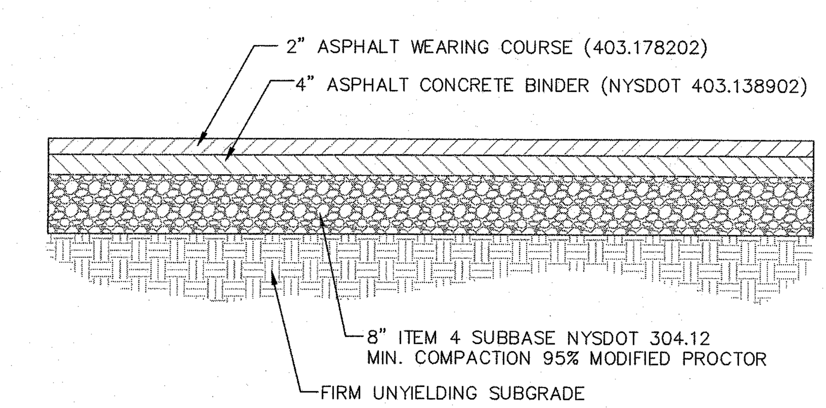


9/9 PERMEABLE PAVERS DETAIL

N.T.S.

NOTES:

1) THIS PERMEABLE PAVEMENT DETAIL IS A RECOMMENDED MINIMUM AND MUST BE DESIGNED BY A PROFESSIONAL ENGINEER.
2) ALL AGGREGATE MATERIAL SHALL BE CRUSHED, ANGULAR STONE AND FREE OF FINES.
3) COMPACT SUBSOIL WITH A BEARING RATIO (BR) OF LESS THAN 5% AS DIRECTED BY A PROFESSIONAL ENGINEER.
4) SURFACE SLOPE SHALL BE A MINIMUM OF 1% AND A MAXIMUM OF 5%.
5) INSTALL PVC UNDERDRAIN PIPE WHERE INFILTRATION RATE OF SUBSOIL IS LESS THAN 0.5 IN./HR. SIZE AS DIRECTED BY A PROFESSIONAL ENGINEER.
6) NEVER BUILD PERMEABLE PAVEMENTS ON ORGANIC CLAY SOILS OF HIGH PLASTICITY AND/OR PEAT, MULCH, SOILS WITH HIGH ORGANIC CONTENT.
7) MAINTAIN A MINIMUM DISTANCE OF 2' BETWEEN BOTTOM OF PERMEABLE BASE AND WATER TABLE
8) THE MINIMUM AGGREGATE THICKNESSES ARE AFTER COMPACTION.



10/9 LONG STREET NEW PAVEMENT DETAIL

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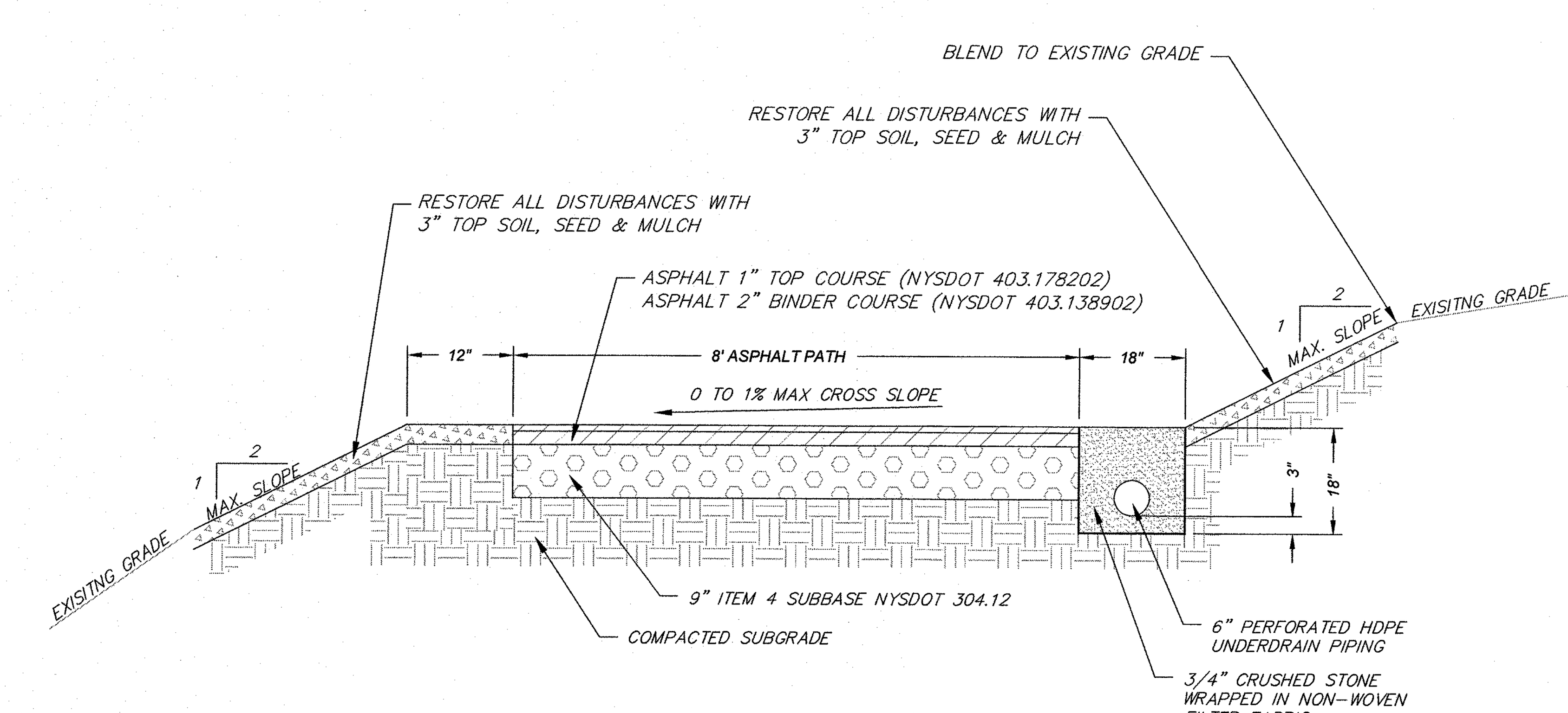


11/9 ASPHALT PATH DETAIL

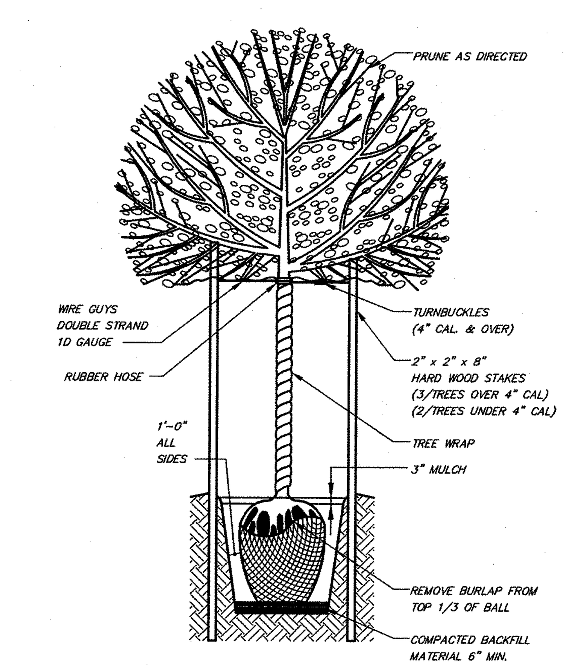
N.T.S.

NOTES:

PATH 'A' SHALL HAVE THE 1% CROSS SLOPE WITH THE UNDERDRAIN ON THE UPHILL SIDE.

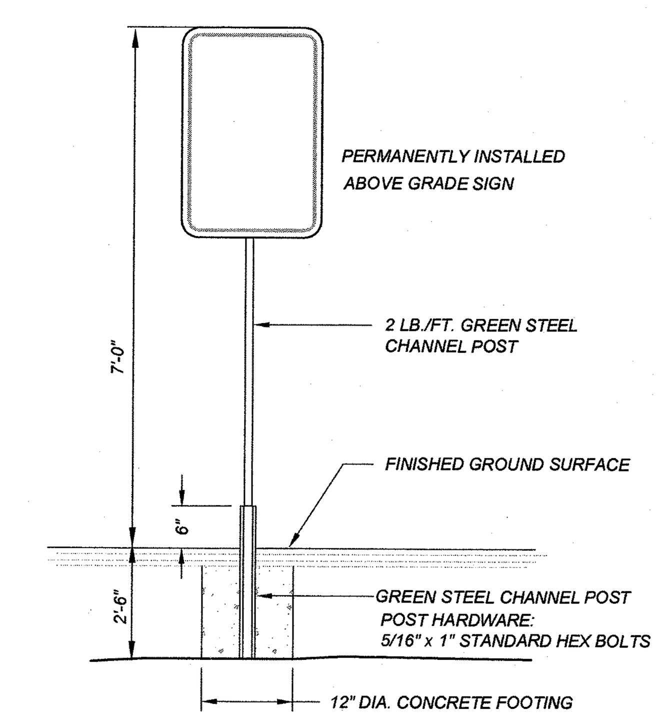
PATH 'B' SHALL HAVE A FLAT CROSS SLOPE WITH NO UNDERDRAINS.

PATH 'C' SHALL HAVE THE 1% CROSS SLOPE TO THE DOWN HILL SIDE WITH NO UNDERDRAINS.



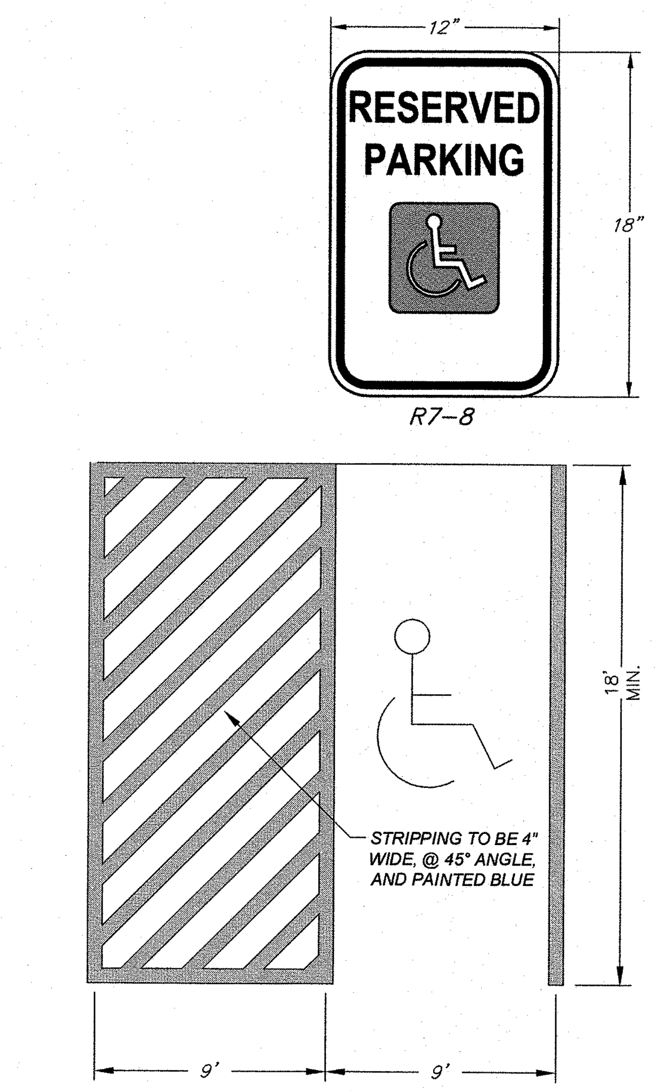
12/9 TYPICAL DECIDUOUS TREE PLANTING DETAIL

N.T.S.



13/9 TYPICAL SIGN DETAIL

N.T.S.



14/9 HANDICAP STALL DETAIL

N.T.S.

R6–2

16/9 ONE WAY SIGN

N.T.S.

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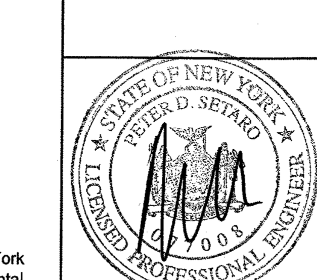
KAAL ROCK POINT PARK IMPROVEMENT PLANS

CITY OF POUGHKEEPSIE DUTCHESS COUNTY, NY

DETAILS-1



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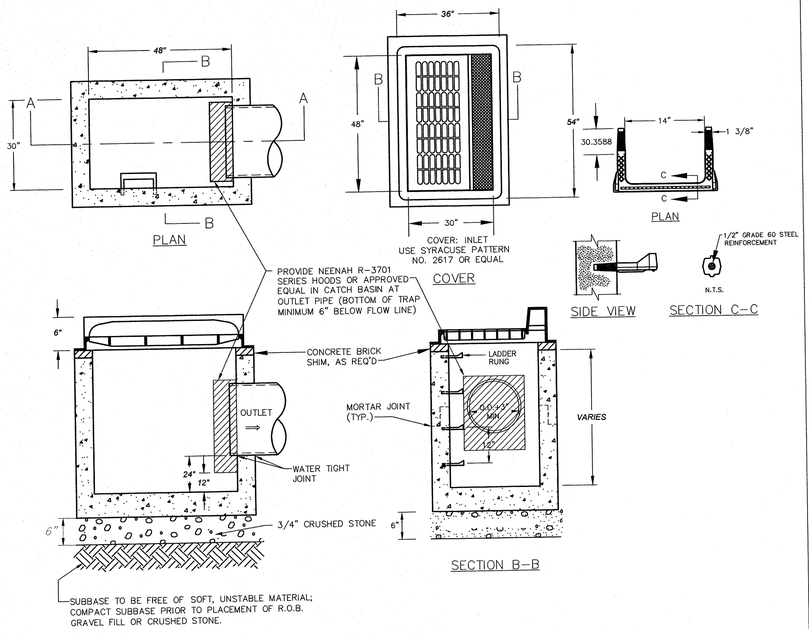


1/10 CATCH BASIN DETAIL

CITY OF POUGHKEEPSIE STANDARD

N.T.S.

NOTES:

1. CATCH BASIN SHALL BE PRECAST CONCRETE. DESIGNED FOR H–20–44 VEHICULAR LOADING AND 30% IMPACT.
2. FRAME AND COVER SHALL BE DESIGNED FOR H–20–44 VEHICULAR LOADING AND 30% IMPACT.
3. CONCRETE CATCH BASIN CASTING CLEAR OPENING DIMENSION MUST MATCH FRAME AND GRATE. CLEAR OPENING DIMENSION (30"x48") FOR H–20–44 VEHICULAR LOADING.
4. CATCH BASINS HAVING A DEPTH GREATER THAN 48" FROM FINISHED SURFACE TO THE TOP OF THE CONCRETE BASE SHALL BE PROVIDED WITH STEPS.
5. BACKFILL USING SUITABLE MATERIAL, ITEM 4, NYSDOT 304.12, COMPACTED IN 6" LIFTS.
6. SUMP SHALL BE 2'. BOTTOM OF HOOD SHALL BE 1' FROM BOTTOM OF CATCH BASIN.
7. EXISTING CONNECTION TO BE ABANDONED AND CAPPED AT CATCH BASIN, MANHOLE, AT EXPOSED TRENCH CROSSING AS ORDERED BY ENGINEER. PIPE TO BE SEALED TO SATISFACTION OF ENGINEER BY USE OF BRICK AND MORTAR WITH CAP TO SEAL.

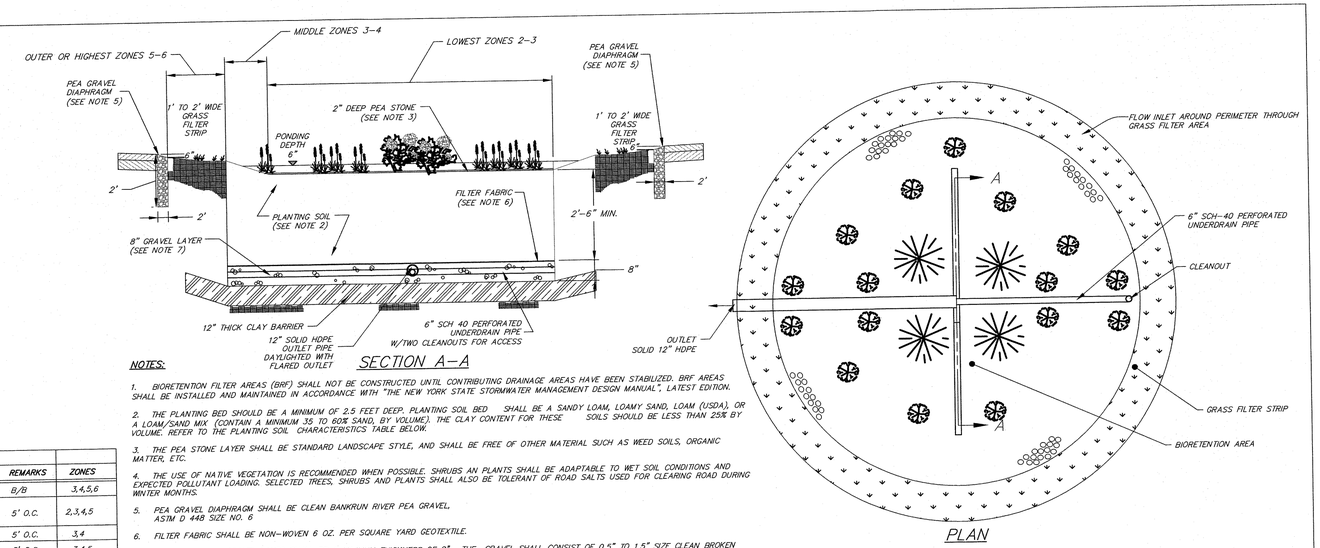
RAIN GARDEN & BIORETENTION FILTER LANDSCAPING NOTES:

1. DISTURBED AREAS SHALL BE IMMEDIATLY STABILIZED AT THE COMPLETION OF SOIL DISTURBING ACTIVIES. PROVIDE TEMPORARY CRITICAL AREA PLANTINGS TO CONSIST OF 30 LBS PER ACRE OF RYEGRASS DURING SPRING, SUMMER, OR EARLY FALL. TEMPORARY CRITICAL AREA PLANTINGS SHALL CONSIST OF 100 LBS. PER ACRE OF CEREAL RYE DURING LATE FALL OR EARLY WINTER. APPLY HAY OR STRAW AT A RATE OF 2 TONS/ACRE OVER ANY TEMPORARY SEED.

PLANTING SOIL CHARACTERISTICS	
PARAMETER	VALUE
PH RANGE	5.2 TO 7.0
ORGANIC MATTER	1.5 TO 4.0%
MAGNESUM	35 LBS PER ACRE, MINIMUM
PHOSPHORUS	75 LBS PER ACRE, MINIMUM
POTASSIUM	85 LBS PER ACRE, MINIMUM
SOLUBLE SALTS	< 500 PPM
CLAY	10 TO 25%
SILT	30 TO 55%
SAND	35 TO 60%

BIORETENTION FILTER PLANTING				
SCIENTIFIC NAME	COMMON NAME	SIZE	REMARKS	ZONES
SAMBUCUS CANADENSIS	ELDERBERRY	6' – 8'	B/B	3,4,5,6
CEPAHLANTHUS OCCIDENTALIS	BUTTONBUSH	1' – 2'	5' O.C.	2,3,4,5
VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	1' – 2'	5' O.C.	3,4
LINDERA BENZOIN	COMMON SPICEBUSH	1' – 2'	5' O.C.	3,4,5
CORNUS AMOMUM	SILKY DOGWOOD	1' – 2'	5' O.C.	3,4,5

BIORETENTION HERBACEOUS PLANT SEED MIX			
SCIENTIFIC NAME	COMMON NAME	ZONES	REMARKS
ANDROPOGON VIRGINICUS	BROOM SEDGE	2,3	SEW SEEDS IN BIORETENTION AREA ABOVE WATER LINE AT 5 LBS/ACRE.
GLYCERIA STRIATA	FOWL MANNAGRASS	4,5	
PANICUM VIRGATUM	SWITCHGRASS	2,3,4,5,6	



NOTES:

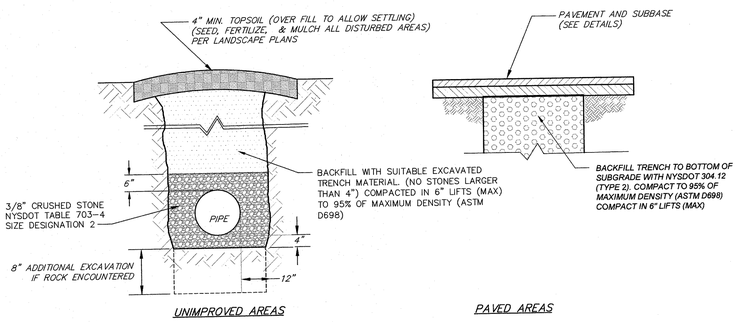
1. BIORETENTION FILTER AREAS (BRF) SHALL NOT BE CONSTRUCTED UNTIL CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED. BRF AREAS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH "THE NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL", LATEST EDITION.
2. THE PLANTING BED SHOULD BE A MINIMUM OF 2.5 FEET DEEP. PLANTING SOIL BED SHALL BE A SANDY LOAM, LOAMY SAND, LOAM (USDA), OR A LOAM/SAND MIX (CONTAIN A MINIMUM 35 TO 60% SAND, BY VOLUME). THE CLAY CONTENT FOR THESE SOILS SHOULD BE LESS THAN 25% BY VOLUME. REFER TO THE PLANTING SOIL CHARACTERISTICS TABLE BELOW.
3. THE PEA STONE LAYER SHALL BE STANDARD LANDSCAPE STYLE, AND SHALL BE FREE OF OTHER MATERIAL SUCH AS WEED SOILS, ORGANIC MATTER, ETC.
4. THE USE OF NATIVE VEGETATION IS RECOMMENDED WHEN POSSIBLE; SHRUBS AN PLANTS SHALL BE ADAPTABLE TO WET SOIL CONDITIONS AND EXPECTED POLLUTANT LOADING. SELECTED TREES, SHRUBS AND PLANTS SHALL ALSO BE TOLERANT OF ROAD SALTS USED FOR CLEARING ROAD DURING WINTER MONTHS.
5. PEA GRAVEL DIAPHRAGM SHALL BE CLEAN BANKRUN RIVER PEA GRAVEL, ASTM D 448 SIZE NO. 6
6. FILTER FABRIC SHALL BE NON–WOVEN 6 OZ. PER SQUARE YARD GEOTEXTILE.
7. THE UNDERDRAIN GRAVEL LAYER SHALL BE A MINIMUM THICKNESS OF 8". THE GRAVEL SHALL CONSIST OF 0.5" TO 1.5" SIZE CLEAN BROKEN STONE OR PEA GRAVEL, AASHTO M–43.
8. PVC PIPING SHALL BE 6" RIGID SCHEDULE 40 AASHTO M–278. 3/8" PERFORATED AT 6" CENTERS, 4 HOLES PER ROW.
9. IN THE CONSTRUCTION OF THE BIORETENTION AREAS ONLY LIGHT CONSTRUCTION EQUIPMENT SHALL BE USED SO AS TO PREVENT THE COMPACTION OF THE PLANTING SOIL BED.
10. PROPOSED TREES, SHRUBS AND PLANT SPECIES SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL.

CLAY BARRIER NOTES:

1. CLAY BARRIER SHALL CONSIST OF 12" OF CLAY WITH A MINIMUM OF 50% PASSING A #200 SIEVE AND A MAXIMUM PERMEABILITY OF 0.00001 CM/SEC.

3/10 TYPICAL BIORETENTION FILTER DETAIL

N.T.S.

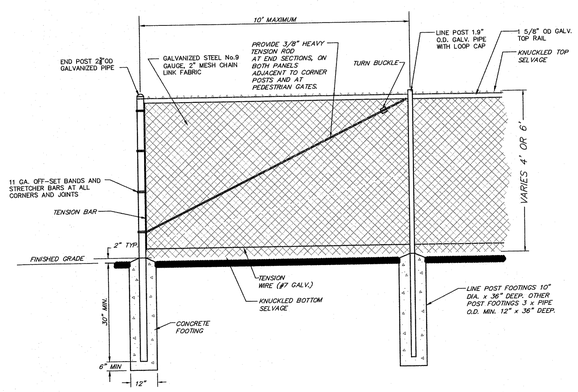


2/10 STORM DRAINAGE TRENCH DETAIL

N.T.S.

NOTE:

EXCAVATING OVER 5' REQUIRES SHEETING/SHORING OR OVER EXCAVATION OF TRENCH SIDE WALLS PER OSHA.

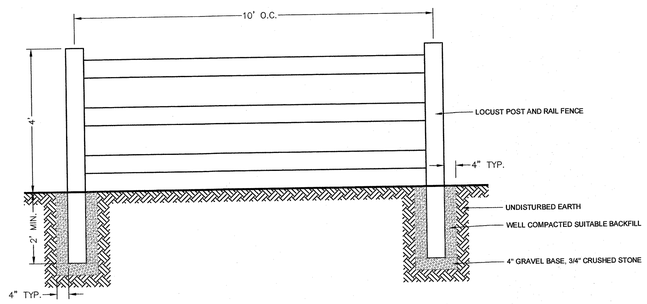


4/10 TYPICAL CHAINLINK FENCE DETAIL

N.T.S.

CHAINLINK FENCE NOTES

1) FENCE TO BE SS–20 GALVANIZED, HEIGHT AS INDICATED ON PLAN. POSTS TO BE SET TO A MAXIMUM SPACING OF 10 FT ON CENTER, TO A DEPTH OF 30" WITH A 10" DIAMETER FOOTING, WITH 1⅝" DIAMETER TOP RAIL ONLY. END POSTS TO BE 2⅜" DIAMETER AND LINE POSTS TO BE 2⅜" IN. DIAMETER.
2) FENCE FABRIC TO BE BLACK PVC COATED, GALVANIZED STEEL (9 GAUGE), 2" SQUARE WIRE MESH. FASTENED TO ALL LINE POSTS AT INTERVALS NOT EXCEEDING 15"; AND NOT EXCEEDING 24" ON ALL RAILS OR TENSION WIRE.
3) BOUNDARY FENCE TO BE PLACED ON PROPERTY LINE OR AS SPECIFIED ON DRAWINGS.
4) FENCE FABRIC SELVAGE TO BE KNUCKLED ON TOP AND BOTTOM.
5) ALL CONCRETE USED IN THE POST FOOTING SHALL HAVE A MINIMUM COMPREHENSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.
6) ALL CONCRETE WORK SHALL BE COMPLETED IN ACCORDANCE WITH APPLICABLE ACI CODES.



5/10 SPLIT RAIL FENCE DETAIL

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KAAL ROCK POINT PARK IMPROVEMENT PLANS

CITY OF POUGHKEEPSIE — DUTCHESS COUNTY, NY

DETAILS-2

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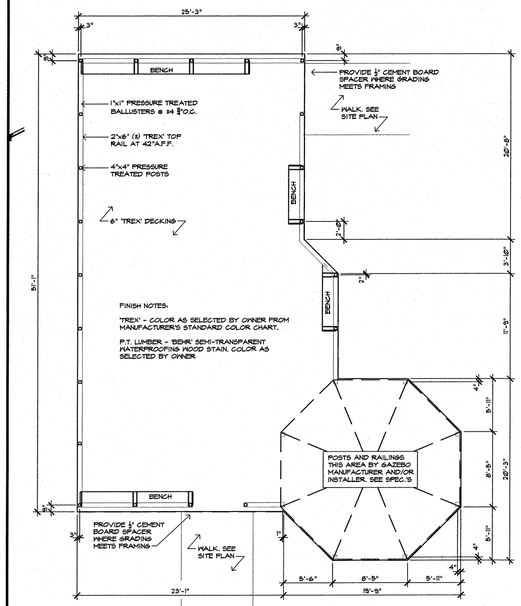
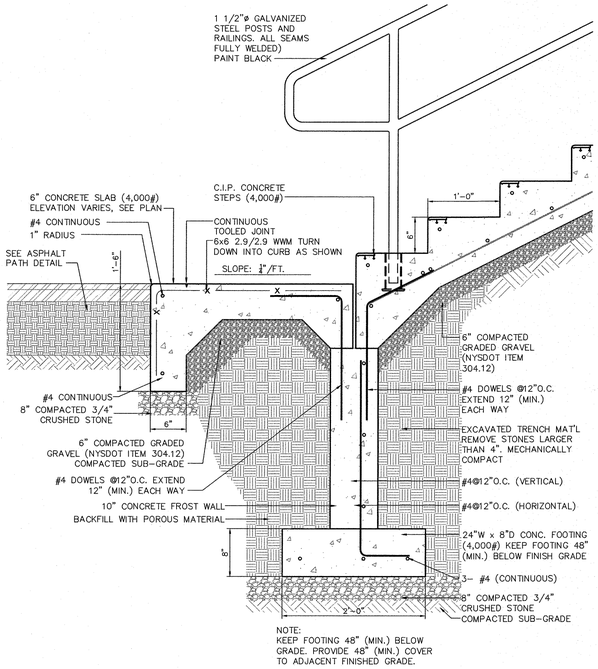
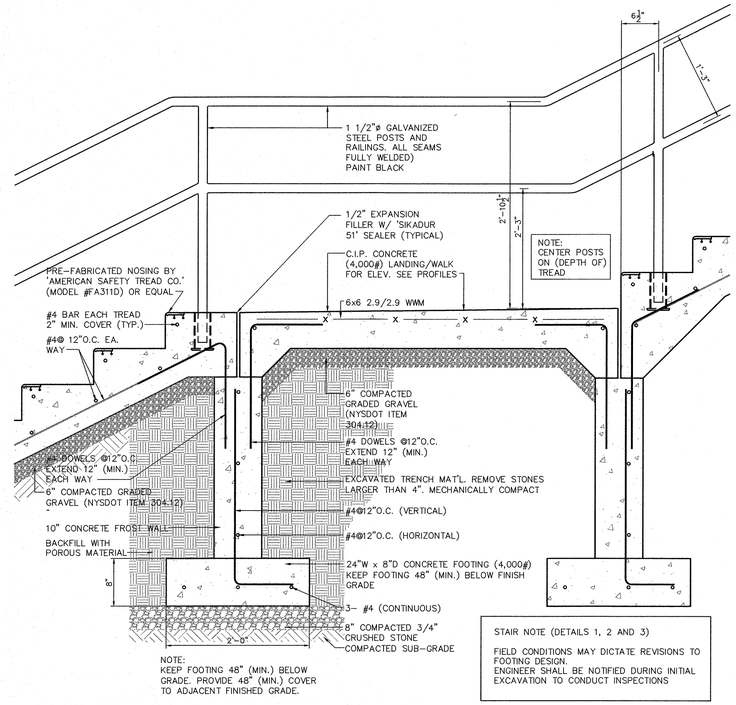


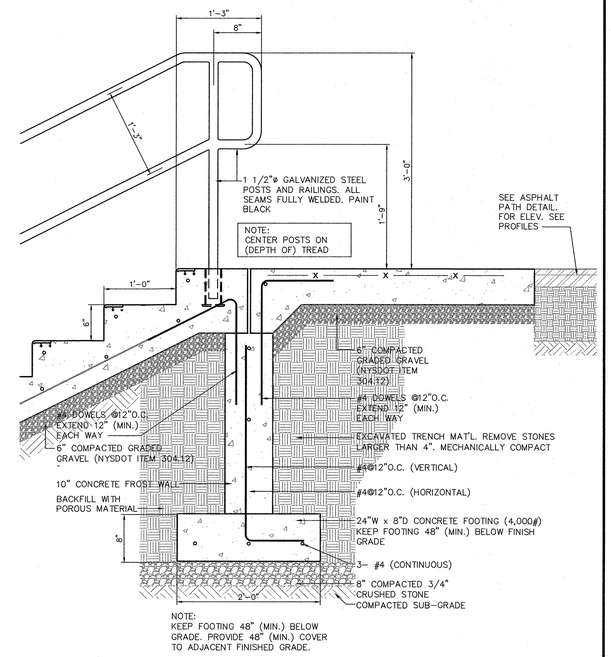
1/11 VIEWING DECK - PLAN



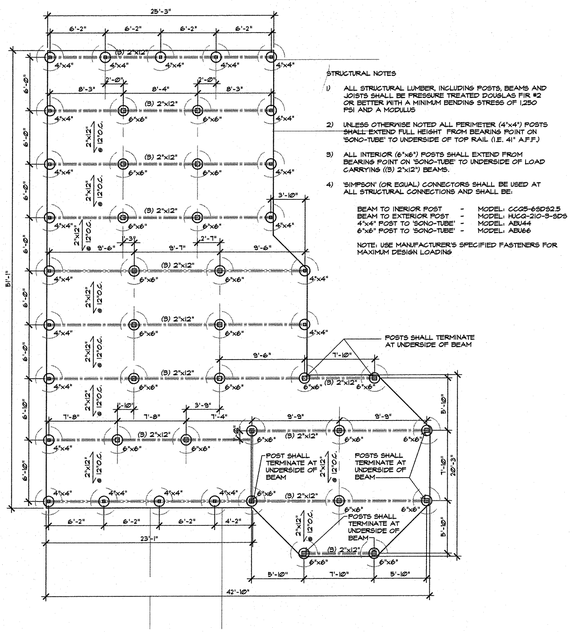
2/11 CONCRETE STAIR - LOWER LANDING DETAIL



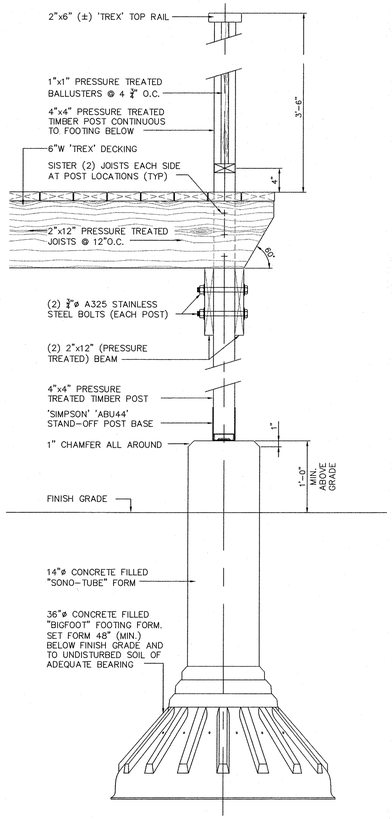
3/11 CONCRETE STAIR - INTERMEDIATE LANDING DETAIL



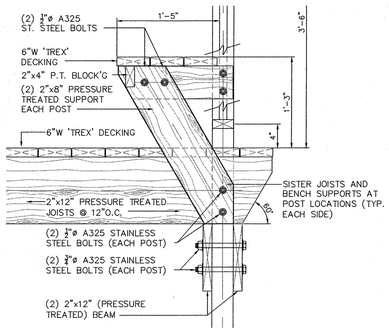
4/11 CONCRETE STAIR - UPPER LANDING DETAIL



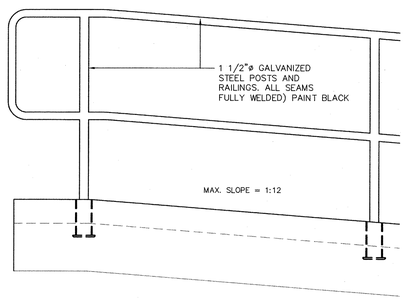
5/11 VIEWING DECK - PLAN



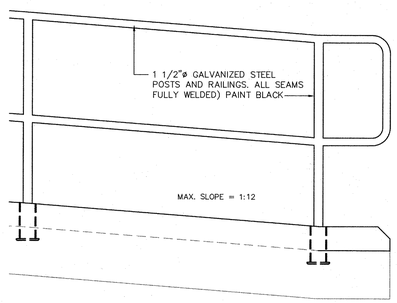
6/11 VIEWING DECK - FRAMING DETAIL



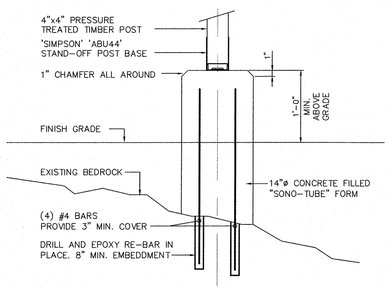
7/11 VIEWING DECK - BENCH DETAIL



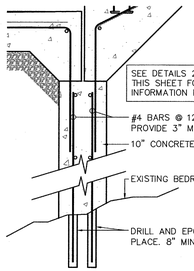
8/11 ASPHALT RAMP - UPPER LANDING DETAIL



9/11 ASPHALT RAMP - LOWER LANDING DETAIL



10/11 VIEWING DECK - ALTERNATE FOOTING DETAIL (ON ROCK)



11/11 CONCRETE STAIR - ALTERNATE FOOTING DETAIL (ON ROCK)

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KAAL ROCK POINT PARK IMPROVEMENT PLANS

CITY OF POUGHKEEPSIE — DUTCHESS COUNTY, NY

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APPENDIX D

Geotechnical Interpretive Report

Geotechnical Interpretive Report for

Kaal Rock Connector Feasibility Study

Kaal Rock Point Park
City of Poughkeepsie
Dutchess County, New York

April 12, 2016

THE Chazen COMPANIES®
Proud to be Employee Owned
Engineers
Land Surveyors
Planners
Environmental & Safety Professionals
Landscape Architects

Prepared for:

Poughkeepsie Alliance
2515 South Road, 3rd Floor
Poughkeepsie, NY 12601

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Geotechnical Interpretive Report for

Kaal Rock Connector Feasibility Study

Kaal Rock Point Park
City of Poughkeepsie
Dutchess County, New York

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Prepared by:

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TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY 1
2.0 PHYSICAL SETTING 1
3.0 SUBSURFACE EXPLORATIONS 2
3.1 Test Boring Explorations 2
3.2 Subsurface Stratigraphy 3
3.3 Groundwater Conditions 4
3.4 Site Seismic Characterizations 5
4.0 RECOMMENDATIONS 5
4.1 Foundation Walls 7
4.2 Fill Materials 7
4.2.1 Stone Fill 8
4.2.2 Granular Fill 8
4.2.3 Common Fill 8
4.2.4 On-Site Soils 9
5.0 OTHER CONSIDERATIONS 9
5.1 Excavation 9
5.2 Control of Water 9
5.3 Earthwork Special Inspections 10
6.0 CLOSURE 10

LIST OF FIGURES
Figure 1 **Conceptual Plan**
Figure 2 **Exploration Location Plan**

LIST OF APPENDICES
Appendix A **Exploration Logs**
Appendix B **Laboratory Results**
Appendix C **Photographic Documentation**

1.0 EXECUTIVE SUMMARY

The Chazen Companies (Chazen) was retained by Poughkeepsie Alliance to prepare a geotechnical interpretive report. This report discusses our subsurface exploration program, analyses, evaluations, and recommendations relative to the Kaal Rock Walkway to be located over the Hudson River around and supported by Kaal Rock Point, in the City of Poughkeepsie, Dutchess County, New York, hereinafter referred to as the "project site".

The exploration program included five (5) test boring explorations performed between March 14 and March 16, 2016 to obtain representative subsurface information, including rock cores. Subsurface stratigraphy across the project site consists of Topsoil, Fill, Glacial Deposits, Weathered Bedrock, and "Sound" Bedrock. Groundwater was observed to be perched on the Bedrock surface where overburden soils were present.

Based on findings from the subsurface explorations and the concept design plans, developed by Chazen in concert with this report, pile caps and micro-piles with rock sockets deriving their strength from "Sound" Bedrock are recommended to support the pedestrian elevated walkway structural system (i.e. girders anchored into and secured against Kaal Rock Cliff face and supported by cables attached to vertical mono poles, refer to Figure 1 – Conceptual Design for an isometric view). Chazen recommends an allowable end bearing capacity of 20 tons-per-square-foot (tsf) for foundation elements end bearing on "Sound" Bedrock and an allowable "sound" bedrock-to-grout bond strength of 50 pounds per square inch (psi). Additional design considerations are discussed in Section 4.1.1 of this report, due to the proximity of foundation elements to the Kaal Rock Point outcrop and the calculated rock quality designation within the rock cores.

Provided that the geotechnical recommendations and construction considerations outlined in this report are incorporated in the design and during construction activities, the project site is considered feasible for the proposed Kaal Rock Walkway project.

2.0 PHYSICAL SETTING

The proposed project site includes Victor C. Waryas Park to the north, Kaal Rock Point (outcrop and surrounding wooded area), the Hudson River to the west, Kaal Rock Park to the south, and the Long Street cul-de-sac to the east. The planned elevated walkway will connect Waryas Park to Kaal Rock Park by extending out over the Hudson River. New ramped walk paths will transition the existing at grade paths in Waryas Park, Kaal Rock Park and from Long Street to Kaal Rock Point. Existing conditions and boring locations are depicted in Figure 2: Exploration Location Plan. Photographs of the surrounding areas and outcrop are provided in Appendix A.

The southern portion of Waryas Park is adjacent to Kaal Rock Point and is relatively flat area. Currently, there are landscape features (e.g. retaining walls and sidewalks), a playground, a small beach area and wooden pier/dock extending into the Hudson River. The topography gradually slopes from El. 0 at the river edge to El. 6 at the Kaal Rock Point. Boring KB-1 was performed within Waryas Park near the base of Kaal Rock Point south and east of the pier location.

The topography at Kaal Rock Point outcrop slopes from near vertical out of the Hudson River (El. 0) to El. 68 at Kaal Rock Point's flat area in the southern portion. The outcrop surface slopes gently to the east towards Long Street cul-de-sac to El. 52 and steeply to the north and south to El 0. Borings KB-2 and KB-3 were performed on the flat area of Kaal Rock Point outcrop. Boring KB-5 was performed on the walking path in the wooded area between Long Street and Kaal Rock Point.

Kaal Rock Park topography slopes gradually up to the east from El. 0 at the Hudson River to El.12 at the parking area. From the parking area the grades rise steeply to the north and east to El. 25. Boring KB-4 was performed within a small flat area adjacent to Kaal Rock Point.

The adjacent Hudson River has an approximate average water elevation of El. 0 (±) ft and a high tide elevation of El. +8 (±) ft.

Based on the conceptual plans, the proposed project includes:

- An elevated pedestrian walkway wrapping around Kaal Rock Point outcrop at El. 18+ (NAVD 88) ft which is supported by:
    - Vertical suspension poles and tie-back poles (referenced in this report and on the conceptual plans as "masts" in compression and "anchors" in tension), extending up to 35-feet in height, which will support the bridge by means of tension cables; and
    - Horizontal cantilever "girder" supports for the pedestrian walkway, anchored into and secured against Kaal Rock Point cliff surface;
- Pedestrian ramps from the northern park and southern park which connect to the elevated pedestrian walkway – constructed using vegetated reinforced steep slopes; and;
- A 1-story structure without a basement (for security purposes). The current concept does not identify the planned location.

Existing elevations noted herein are based on an aerial survey, utilizing the National Geodetic Vertical Datum 1929 (NGVD 29). Proposed elevations are based on the North American Vertical Datum of 1988 (NAVD 88). Unless noted otherwise all elevations in this report utilizes NGVD 29.

3.0 SUBSURFACE EXPLORATIONS

This section summarizes the results of the subsurface explorations performed at the project site between March 14 and March 16, 2016 by Chazen, and in support of the interpretations made herein.

3.1 Test Boring Explorations

Chazen conducted subsurface explorations to characterize the in-situ conditions and to collect representative soil and rock samples. Samples were used for both visual classification and laboratory testing as a basis for determining design criteria cited in this report. Five (5) test boring explorations designated KB-1 through KB-5 were performed at the project site. The explorations were performed to obtain subsurface information at specific points based on the concept design plans and existing site features. Approximate as-drilled locations are documented on Figure 1, Exploration Location Plan.

Test boring explorations were performed by Aquifer Drilling and Testing, Inc. of Waterford, New York utilizing a CME 55 track mounted drill rig capable of advancing 4-inch inner diameter (I.D.) casing and drill bit and a 2-inch I.D. NX rock core sampler. Rock core samples were obtained within test explorations KB-1 through KB-4. Test explorations were advanced to depths ranging from 7 feet to 25 feet below existing site grades.

Test explorations were monitored by Chazen representative (Chris Marini, P.E.) to advise the driller regarding location and depth, to record activities, and to modify the subsurface exploration as necessary. During Standard Penetration Test (SPT) soil sample collection, a 2-inch split spoon sampler was driven approximately 24 inches and the number of blows required to drive the sampler every 6-inches were recorded in accordance with ASTM D 1586 to measure the resistance of the soil to penetration of the sampler. Soil samples collected during the subsurface explorations were visually classified in the field in accordance with the Unified Soil Classification System (USCS) and ASTM D 2488. Logs detailing the explorations were prepared by Chazen to document subsurface conditions at the project site and are included within Appendix B: Exploration Logs.

Four (4) representative rock core samples were selected for unconfined rock compression testing to derive rock design parameters. The rock core samples were delivered to the Atlantic Testing Laboratories office in Clifton Park, New York for testing. The results are provided in Appendix C, Laboratory Results.

3.2 Subsurface Stratigraphy

Explorations indicate that the project site subsurface stratigraphy consists of at least four distinct strata. The sequence of observed strata, starting from existing site grades and working downward, is generally: Topsoil, Fill, Glacial Deposits, Weathered Bedrock (i.e. Completely to Highly Weathered Bedrock), and "Sound" Bedrock (Taconic Mélange). Not all stratum were observed in each exploration. Each stratum is described in greater detail below using the soil percentage descriptions per ASTM D2488.

Topsoil: Four of the borings were advanced through Topsoil at ground surface. Where encountered, the Topsoil (Forest Mat) material was classified as an Organic Soil (OL) and generally consisted of moist, dark brown, mostly to some percentage of silt, and some to a little percentage of sand, with frequent roots and other organics. The Topsoil ranged from 0.2 feet to 0.8 feet thick.

Fill: Fill material was encountered underlying the Topsoil within borings KB-1 and KB-4. The Fill was observed to be approximately 3.5-foot thick at KB-1 and 17-foot thick at KB-4. The soil within the Fill Material was classified as Silt (ML) in KB-1 or Silty Sand with Gravel (SM) in KB-4 and generally consisted of dry to wet, brown to black, loose to medium dense, varying amounts of sand, silt, gravel, and clay. Construction debris, a boulder, weathered rock, void spaces, and very loose or washed-out subsurface soils were encountered within the Fill deposit at KB-4.

Glacial Deposits: A stratum of Glacial Deposits was observed underlying the Topsoil (KB-5) or Fill (KB-1). This stratum was classified as either: Silty Sand with Gravel (SM) in boring KB-1 or Sandy Silt with Gravel (ML) in boring KB-5 and generally consisted of moist to wet, brown to gray, loose, some to a little percentage of silt, a little percentage of sand, a little percentage of gravel, and a few to no percentage of clay with moderate to numerous amounts of cobbles and boulders. Where encountered, this stratum was observed to range from approximately 4 feet to 6 feet thick.

Weathered Bedrock: A thin stratum of Weathered Bedrock, was encountered below the Fill or Glacial Deposits within borings KB-1 and KB-4 at depths of 11.2 feet and 17.5 feet below existing ground surface, or elevations corresponding to El. -5 (±) ft and El. +7.5 (±) ft, respectively. The stratum, ranged from 1.2 to 1.5 feet thick. Completely weathered bedrock is identified as bedrock that has been fully decomposed to soil while still retaining its structure. Highly weathered bedrock is defined as bedrock where over 50 percent of the material is disintegrated or fully decomposed to soil.

"Sound" Bedrock: "Sound" Bedrock was either exposed at ground surface (outcrop) or encountered underlying a combination of the above stratum across the project site. "Sound" Bedrock is defined as bedrock that has retained at least 50 percent of its structure (i.e. Moderately Weathered to Fresh Bedrock). The Bedrock was classified as Taconic Mélange which consists of varying block sizes of various lithologies (shale, greywacke, sandstone) within a matrix. Within the project site, the lithology of the block is sandstone. "Sound" Bedrock or a boulder was encountered at a depth of 7 feet within KB-5, as indicated by roller-bit refusal.

The Bedrock, as visually examined by rock core samples within KB-1 through KB-4, was generally described as moderately weathered to fresh bedrock. Typically the severity of weathering decreases and the fracturing diminishes with depth within the upper 5 feet of bedrock. Little to no variation in weathering or amount of fracturing was observed after 5 feet. Based on the unconfined rock compression tests; the compressive strength of four Sound Bedrock core samples (varying from slightly weathered to fresh) were found to range from 2,220 psi to 17,240 psi. Measured fracture planes within the core samples were approximately 20° to 35° from the horizontal, resulted in the variance in the unconfined compressive strengths. Please refer to Appendix B for laboratory results.

Within Kaal Rock Point (borings KB-2, KB-3, and KB-5), "Sound" Bedrock was encountered at the ground surface or to depths up to 7 feet below existing ground surface and elevations ranging from El. 68 (±) ft to El. 55 (±) ft.

Adjacent to Kaal Rock Point, within borings KB-1 (north) and KB-4 (south), the "Sound" Bedrock was encountered between depths of 12.5 and 19 feet, corresponding to elevations El. 6.5 (±) ft and El. 6 (±) ft, respectively.

Numerous cobbles, boulders, and cobble- and boulder-sized construction debris were encountered within the soil explorations KB-1 and KB-4 and may be encountered during earthwork activities near these locations. The frequency at which these materials are encountered can vary across the project site as well as with depth.

3.3 Groundwater Conditions

Groundwater was observed within three of the five (5) explorations at depths ranging from 5 feet to 18 feet below the ground surface, and elevations ranging from El. +50 (±) ft to El. -1 (±) ft. In these borings (KB-1, KB-4 and KB-5), the groundwater appeared to be perched on the bedrock surface. Groundwater readings were taken at the termination of the explorations and are typically considered a fluctuating reading (unstable). Groundwater levels recorded on the exploration logs are based on field measurements within the borings, and visual classification of the soil samples. Groundwater will fluctuate with tide, season, precipitation, nearby construction activity, and other factors.

3.4 Site Seismic Characterizations

Using an accepted procedure to determine liquefaction potential at the project site, soils are judged as not susceptible to liquefaction when examined under the following conditions: Depth to Bedrock, USGS published mean peak ground acceleration (0.098 g), a maximum earthquake magnitude of 5.0, site recorded standard blow count values, groundwater depth determined in the field, and percentage of fines observed within the underlying soils.

The soils and rock across the subject area have been characterized for seismic conditions in accordance with Section 1613 of the 2010 Building Code of New York State (2010 BCNYS) using the acceptable standard penetration resistance method. Based on the concept design, the subsurface conditions observed, and our analysis and interpretation, Chazen classified the superstructure for the elevated walkway as a Site Class B, with an S_S of 0.191 g and an S_1 of 0.065 g.

4.0 RECOMMENDATIONS

This section presents our geotechnical recommendations for foundation design and construction of the proposed elevated walkway with a finished deck elevation at El. 18 ft (NAVD 88). Our recommendations are in accordance with the related provisions of the 2010 BCNYS.

At the time of this report and based on the concept design plans, we understand that the primary support for the pedestrian bridge will be from a suspended cable system connected to approximately 35-foot high poles in compression and shorter poles in tension. All vertical poles will have some lateral loads. It is understood the pedestrian elevated walkway will have a secondary cantilever support system anchored into and secured against Kaal Point Rock cliff surface. Preliminary maximum foundation reactions as follows:

- Mast: vertical compression load of 1,000 kips and lateral load of 200 kips.
- Anchor: vertical uplift load of 600 kips and lateral load of 600 kips.
- Girder – horizontal support: horizontal compression load of 120 kips and a vertical shear force of 100 kips. An alternative load path in lieu of the cable support system would have girders designed to resist 600 kips of horizontal tensile force.

It is understood the ramp walkways leading from each park to the elevated walkway will be constructed using vegetated reinforced steep slope. Chazen recommends using wire baskets with geotextile to create these steep slopes. Onsite soils are not recommended for reuse within these embankments. A granular fill meeting the gradation later in this report should be used.

At the time of the report, the conceptual look of the abutments has not been completed. It is our understanding that they will be founded within the vegetated reinforced slopes. To minimize potential differential settlement Chazen recommends that each abutments is supported with micropiles, which are designed following recommendations provided in later sections. To resist lateral loads we recommend and allowable lateral bearing capacity of 200 pounds per square foot per foot (psf/ft) of depth is utilized. Battered piles may be utilized if lateral loads exceed the allowable lateral bearing capacity.

The conceptual plan does not show the single story security structure. Based on the results of our subsurface program, we envision that this single story structure can be supported on shallow reinforced-concrete foundations bearing either on overburden soils or Bedrock. If founded on soil, we recommend an allowable bearing capacity of 3 ksf. Refer below for allowable bearing capacity of foundations on bedrock.

Elevated Walkway Superstructure (Vertical poles and horizontal anchors)

Chazen recommends the use of reinforced concrete piles caps in addition to micro-piles (i.e. rock anchors) to support the proposed pedestrian elevated walkway based on the observed subsurface conditions, conceptual plan, and proposed superstructure system. The full thickness of the pile cap should be located with the "sound" bedrock to resist lateral forces and vertical compression loads. Small diameter rock anchors (4-inch or 6-inch) spaced a minimum of 8 pile diameters on center should be utilized to resist all pullout forces. According to Section 1805.2.1 of the 2010 BCNYS, foundations erected on solid rock are exempt from frost protection requirements. Total settlements for statically loaded foundations end bearing on Bedrock and designed using the recommended foundation considerations above are expected to be less than 0.25 inch and differential settlements (non-uniform settlement) are anticipated to be less than 0.25 inch.

An allowable bearing capacity of 20 ksf is recommend for the pile cap design when end bearing on and cast against the "Sound" Bedrock. Pile caps shall bear a minimum of 4 feet below existing site grades. The maximum allowable lateral bearing of the "Sound" Bedrock is recommended to be 2 ksf per foot below grade (for shear resistance design). Chazen recommends that the pile caps supporting the Mast vertical piles be located at a minimum of 20 feet from the cliff edge, to minimize forces propagating to the cliff face. We further recommend installing a waterstop between the pile cap and rock surface to prevent surface water from accumulating between the pile cap and bedrock which could lead to undesirable freezing.

Rock anchors in tension shall develop their capacity by the working bond stress between the grout and surrounding bedrock. Based on the rock quality of the rock cores, type of bedrock and unconfined compressive strength test results, Chazen recommends utilizing allowable bonds stress of 50 psi. The design of the rock anchors shall conform with the provisions in Section 1808 "Pier and Pile Foundations" of the 2010 BCNYS.

For the rock anchors in tension under the vertical poles, we recommend at least four grouted piles be utilized with a minimum pile length of 18 feet. The minimum pile length starts from the bottom of the pile cap and ignores the top three feet of bedrock due to lower rock quality values. Based on the aforementioned loads; minimum pile lengths for a 6-inch diameter rock socket is 18 feet increasing to 26 feet for a 4-inch diameter rock socket.

If rock anchors are utilized to support design loads from the alternative load path mentioned above, then Chazen recommends a two phase approach. Due to the life safety and rock quality at the project site; we recommend three test piles are installed (north end, middle and south end) and tested to failure to confirm final design rock bond strength values. Once confirmed, all final piles shall be tested to 100 percent of their design strength.

Chazen recommends that additional test borings are performed at the final vertical mast and anchor locations to verify rock characteristics (i.e weathering and rock quality) to more accurately design the mircopiles lengths and identify the depth to "Sound bedrock".

4.1 Foundation Walls

Where below grade foundation walls are utilized, we recommend that they be backfilled with a suitable, free draining material such as Stone Fill wrapped in filter fabric (acting as a drainage medium as outlined in Section 4.4.1 of this report) within 12-inches adjacent to the wall and granular fill, compacted to a minimum of 92% of the material's Modified Proctor relative dry density, adjacent to the Stone Fill. We recommend using the following equivalent fluid pressures to model lateral earth pressures. These values assume a level back slope (i.e. $\beta = 0$) is present and the wall is backfilled as recommend above. If b is greater than 0, we recommend utilizing either Rankie's or Coulomb's theory to adjust the earth pressure coefficients and equivalent fluid pressures. It is assumed that hydrostatic pressures will not be present due to the use of a foundation wall drainage system. These values were calculated using a composite internal friction angle of 34°, and a total unit weight of 120 pounds per cubic foot (pcf):

Table 1

Lateral Earth Pressure Type	Earth Pressure Coefficient	Equivalent Fluid Pressure
At rest – Static, (*Restrained condition at top of wall*)	Ko = 0.44	53 psf/ft
Active (*Wall allows for deflection at top*)	Ka = 0.28	34 psf/ft
Passive (*1/2 of calculated value**)	Kp = 3.54*	212 psf/ft
Active with Seismic (mean *PGA*)	Kea = 0.36	33 psf/ft

*The full amount of passive resistance is often not incorporated into design to provide an additional factor of safety and for other reasons including the large amount of movement required to mobilize passive resistance and the potential future removal of soil. The amount of passive resistance used in the design of the wall shall be determined by the structural engineer of record.

Equivalent fluid pressures stated herein do not include safety factors. When recommended equivalent fluid pressures are utilized, appropriate factors of safety for sliding, overturning and bearing capacity should be applied in the design.

Equivalent fluid pressures assume a level back slope; based on proposed site grading, fluid pressures may need to be adjusted for an angled backslope adjacent to the wall. Additionally, surcharge loads should be added to wall design loads as required.

4.2 Fill Materials

Fill materials shall be free of unsuitable materials. All unsuitable materials (i.e. soil that is observed to pump or weave during proof-rolling or soil containing materials such as organics, cobbles/boulders, elongated or irregularly shaped particles, frozen material, etc.). Fill areas shall be cleared of all vegetation, roots, and other organic materials prior to placement of fill. Stockpiled soils may require installation of run-off protection between drainage channels and the stockpile.

Compaction should consist of at least 4 systematic passes using a vibratory roller. In confined areas, hand guided vibratory equipment shall be utilized to compact the soil to the specified criteria. If soil weaving or other disturbance is noticed during compaction, vibratory compaction should be discontinued. Heavy compaction equipment shall not be utilized within 3 feet of structures. Compaction shall meet the requirements stated below or as approved by a qualified engineer.

4.2.1 Stone Fill

Stone Fill with no more than 10 percent material passing the number 4 sieve, such as a well graded ¾ inch crushed stone, is recommended for prepared subgrades for footings and slab construction. Stone Fill should be placed in loose lifts not to exceed 8 inches in thickness for heavy compaction equipment and 6 inches for lighter compaction equipment.

When Stone Fill is used as a drainage medium, it should be uniformly graded. A non-woven, geotextile meeting AASHTO M288 Survivability Class 3, such as a Mirafi 140N or equivalent, should be placed between the Stone Fill and adjacent soils to prevent the migration of fines into the stone void space.

4.2.2 Granular Fill

Granular Fill similar to NYSDOT Select Granular Subgrade should consist of inorganic, granular soils, free of debris and other deleterious material that meet the following gradation:

Sieve Size	Percent Passing by Weight
3 inch	100
¼ inch	30 to 100
No. 40	0-50
No. 200	0-10

Granular Fill should be placed in lifts not exceeding 8 inches loose measure and compacted to 95% of the maximum dry density as determined by ASTM D 1557. Granular Fill shall be utilized within 2 feet of the bottom of slabs on grade and within the zone of influence of foundations and equipment pads. Granular Fill should be used within 18 inches of bottom of subbase for asphalt pavement or concrete sidewalks.

4.2.3 Common Fill

Common Fill similar to NYSDOT Select Fill should consist of inorganic, sand based, granular soils, free of debris and other deleterious material that meet the following gradation:

Sieve Size	Percent Passing by Weight
4 inch	100
No. 40	0-70
No. 200	0-15

Common Fill used for site grading and landscaping should be placed in lifts not exceeding 8 inches loose measure and compacted to 90% of the maximum dry density as determined by ASTM D 1557. All fill should be placed to promote positive drainage away from structures.

4.2.4 On-Site Soils

Based on Chazen's visual classification of the overburden on-site soils, the soil (SM, ML) is deemed not suitable for use as Granular Fill as described above due to the percentage of fine grained material. These soils can be stockpiled and reused in landscape areas as Common Fill if screened to remove any 4 inch or larger particles, and any deleterious materials and debris.

5.0 OTHER CONSIDERATIONS

This section presents our preliminary construction considerations to address excavation and groundwater conditions.

5.1 Excavation

At the time of this report, we anticipate that rock excavation will be limited to the installation of pile caps and rock anchors. Based on the observed bedrock characteristics, we anticipate rock excavation for the pile caps can be achieved through typical methods such as hoe ramming. We anticipate that excavation of on-site soils can be accomplished using conventional earthwork equipment and techniques (i.e. backhoes, scrapers, excavators, or dozers) based on the physical characteristics, relative density of the strata observed, and the anticipated excavation limits.

Generally, all temporary cut slope excavations should not be left open or unbraced for extended periods of time. Temporary cuts should be sloped as required for stability in accordance with OSHA regulations and protected from erosion. OSHA requires each type of material be benched at the following slope for temporary excavations:

- Stable Rock – Vertical (90°);
- Type "A" – 3/4 Horizontal: 1 Vertical (3/4H: 1V);
- Type "B" – 1 Horizontal: 1 Vertical (1H: 1V), and;
- Type "C" – 1-1/2 Horizontal: 1 Vertical (1-1/2H: 1V).

Based on the subsurface explorations, overburden soils are to be considered OSHA Type "C". It should be noted that in accordance with OSHA standards, if a higher type of soil overlies a lower type of soil, then the higher type shall be sloped as required for the lower type of soil. "Sound" Bedrock may be benched at a steeper slope (up to 90°), however, this should be verified for each excavation by an OSHA competent person. It should be noted that shallow to moderately dipping planes were observed within the bedrock.

5.2 Control of Water

Temporary dewatering measures (e.g., sumps, barriers) should be readily available during construction. Surface water must be controlled during foundation construction and earthwork operations by using

temporary swales, ditches or other means necessary to prevent runoff into open excavations and to maintain a dry excavation for foundation construction.

5.3 Earthwork Special Inspections

Soils

In accordance with the 2010 BCNYS, Section 1704.7, the Owner shall employ a Special Inspector to provide special inspections and verification of existing site soil conditions, fill placement, and load-bearing capacity at each structure as outlined in Table 1704.7 *Required Verification and Inspection of Soils*. During fill placement, the Special Inspector shall determine that proper materials and procedures are used in accordance with the provisions of this geotechnical report, and as so specified in related construction documents.

Foundations

In accordance with the 2010 BCNYS, Section 1704.8 *Pile Foundations* and Section 1704.9 *Pier Foundations*, and any related sections, the Owner shall employ a Special Inspector to provide special inspections during installation and testing of foundation elements.

6.0 CLOSURE

This report and the recommendations contained herein have been prepared for the exclusive use by Poughkeepsie Alliance and their representatives for specific application to the design and construction of the Kaal Rock Walkway project in the City of Poughkeepsie, Dutchess County, New York.

This report was prepared in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made. The analysis, designs and recommendations presented in this report are based in part upon the data obtained from subsurface explorations available at the time of this exploration.

The nature and extent of variations between these explorations may not become evident until construction. If significant variations appear, it may be necessary to reevaluate the recommendations cited in this report.

Prepared by,

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Reviewed and approved by;

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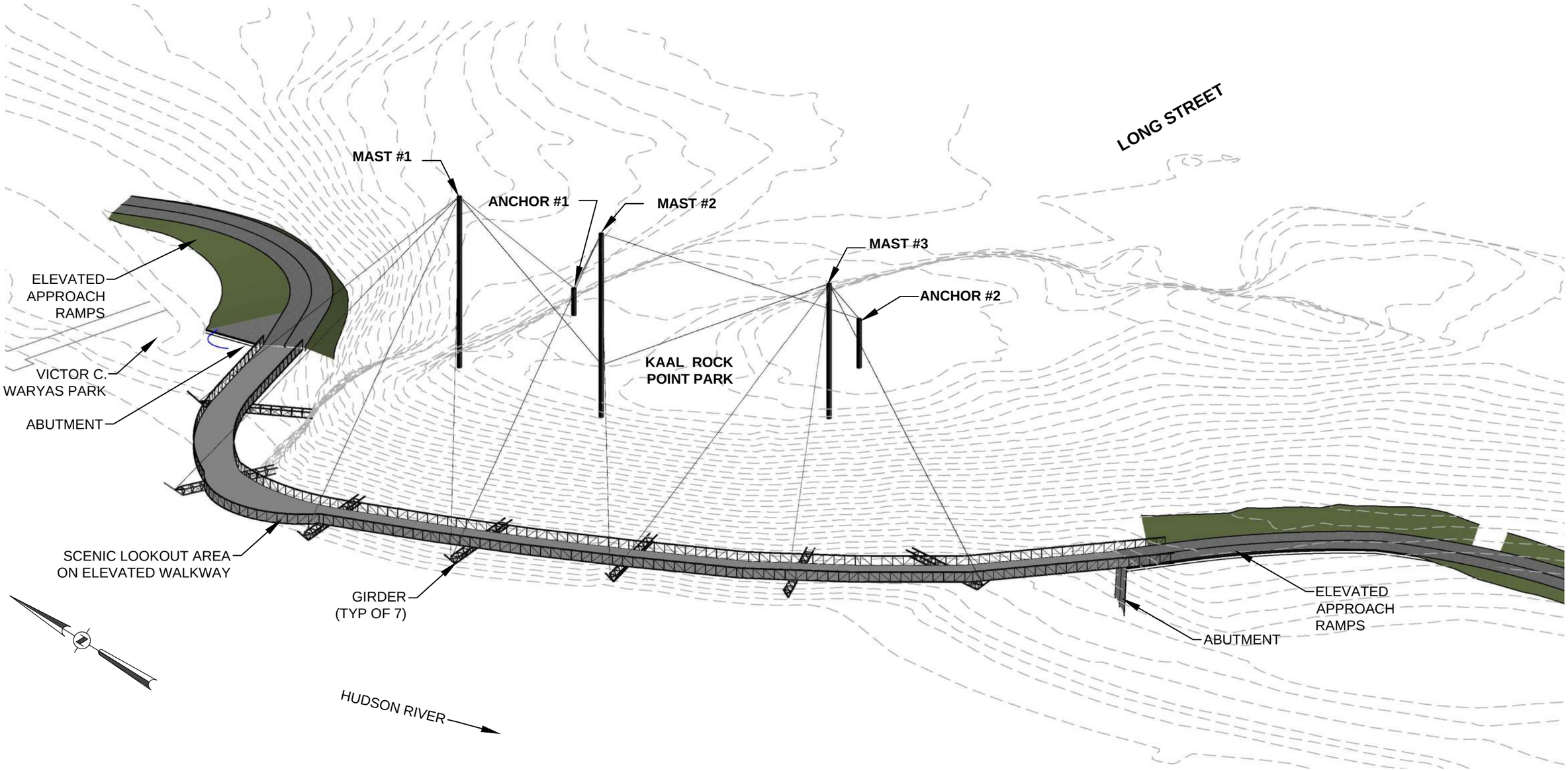
President, Engineering Services

Figures



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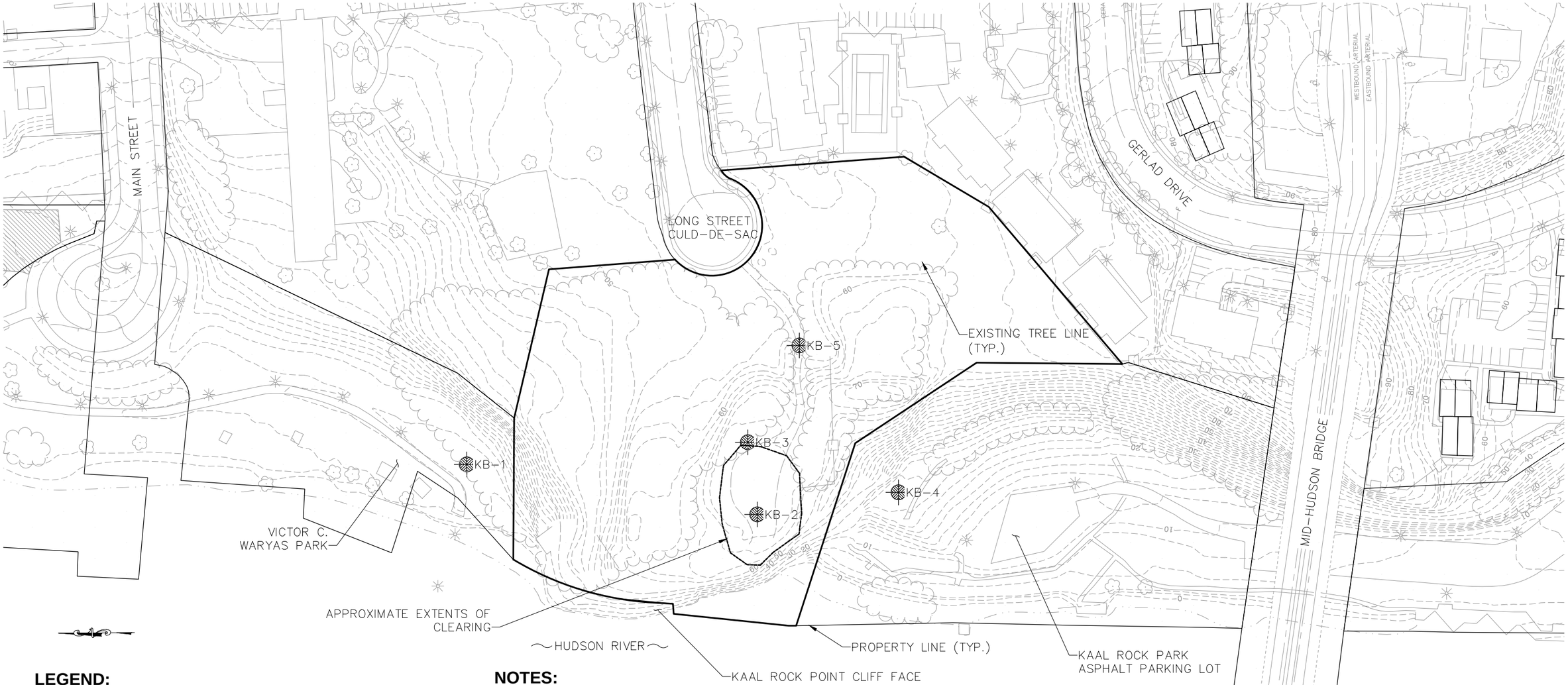
KAAL ROCK WALKWAY

CONCEPTUAL PLAN

CITY OF POUGHKEEPSIE, DUTCHESS COUNTY, NEW YORK STATE

designed	checked
CJM	
date 3/24/16	scale NTS
project no. 31613.00	
sheet no. **FIG 1**	

Drawing Name: S:\3\31600-31699\31613.00 - Poughkeepsie Alliance - Kaal Rock Walkway\DWG\50_FIG1_30613-00_BORING.DWG Date Printed: Apr 08, 2016, 3:22pm



LEGEND:

KB-# LOCATION OF TEST BORING MONITORED BY CHAZEN

NOTES:

1. TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AN AERIAL SURVEY.
2. DISPLAYED CONTOURS ARE 2-FOOT OR 10-FOOT INTERVALS AND VERTICAL DATUM IS BASED ON NGVD29.
3. SOIL TEST BORING LOCATIONS SHOWN HEREON WERE PERFORMED ON MARCH 14-16, 2016, BY AQUIFER DRILLING & TESTING, WHOM WAS SUB-CONTRACTED AND MONITORED BY CHAZEN.

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KAAL ROCK WALKWAY

EXPLORATION LOCATION PLAN

CITY OF POUGHKEEPSIE, DUTCHESS COUNTY, NEW YORK STATE

designed	checked
CJM	
date 3/24/16	scale 1"=100'
project no. 31613.00	
sheet no. FIG 2	

Drawing Name: S:\3\31600-31699\31613.00 - Poughkeepsie Alliance - Kaal Rock Walkway\DWG\50_FIG2_30613-00_BORING.DWG Date Printed: Apr 08, 2016, 3:21pm

ROCK CLASSIFICATIONS

Rock Classifications are visual descriptions on the basis of the Driller's, Technician's, Geologist's or Geotechnical Engineer's observations of the coming activity and the recovered samples applying the following classifications.

	CLASSIFICATION TERM	DESCRIPTION
Hardness	Very Hard	Unable to scratch with a knife
	Hard	Difficulty scratching with a knife
	Medium Hard	Able to groove 1/16" with a knife
	Soft	Easily grooved with a knife
	Very Soft	Easily scratched with a fingernail
Weathering	Fresh	No visible signs of rock weathering
	Slightly Weathered	Fresh rock with discoloration and staining at joints
	Moderately Weathered	Less than ½ of rock is disintegrated or decomposed
	Highly Weathered	More than ½ of rock is disintegrated or decomposed
	Completely Weathered	All rock material decomposed to soil, structure intact
Texture	Amorphous	Too small to be seen with naked eye
	Fine Grained	Barely seen with naked eye to 1/8"
	Coarse Grained	1/8" to 1/4"
	Very Coarse Grained	Greater than 1/4"
Attitude	Horizontal	0 – 5°
	Shallow	6 – 20°
	Moderate Dipping	21 – 45°
	Steep Dipping	46 – 85°
	Vertical	86 – 90°

Visual observation of the fracture joints should be described as either clean, stained or filled (clay, mineral vein or other) and noted as to whether they are rough, irregular or smooth.

Core sample RECOVERY (REC) is expressed as percent of recovered of total sampled. The ROCK QUALITY DESIGNATION (RQD) is the total length of core sample pieces exceeding 4 in. in length divided by the total interval cored for N size cored.

GENERAL

- Soil and Rock classifications are made visually on samples recovered. The presence of Gravel, Cobbles and Boulders will influence sample recovery classification density/consistency determination.
- Groundwater, if encountered, was measured and its depth recorded at the time and under the conditions as noted.
- Topsoil or pavements, if present, were measured and recorded at the time and under the conditions as noted.
- Stratifications Lines are approximate boundaries between soil types. These transitions may be gradual or distinct and are approximated.

INTERPRETATION OF SUBSURFACE LOGS

The Exploration Logs present observations and the results of tests performed in the field by the Driller, Technician, Geologists, and Geotechnical Engineers as noted. Soil/Rock classifications are made visually and modified accordingly based on laboratory results. The classification of soils or soil like material is subject to limitations imposed by the size of the sampler, the size of the sample and it's degree of disturbance and moisture.

The following defines some of the terms utilized in the preparation of the Subsurface Logs.

SOIL CLASSIFICATIONS

Soil classifications are visual descriptions on the basis of the United Soil Classification ASTM D-2488. The soil density or consistency is based on the penetration resistance determined by ASTM D 1586. Soil Moisture of the recovered materials is described as DRY, MOIST, WET or SATURATED.

SIZE DESCRIPTION		RELATIVE DENSITY/CONSISTENCY (BASIS ASTM D1586)			
Soil Type	Particle Size	Granular Soil		Cohesive Soil	
Boulder	>12"	Density	Blows/FT	Consistency	Blows/FT
Cobble	3"- 12"	Very Loose	< 4	Very Soft	< 2
Gravel-Coarse	3" – ¾"	Loose	5 – 10	Soft	2 - 5
Gravel-Fine	¾" - #4	Medium Dense	11 – 30	Medium Stiff	6 – 10
Sand-Coarse	#4 - #10	Dense	31- 50	Stiff	10 – 20
Sand-Medium	#10 - #40	Very Dense	50+	Very Stiff	20 – 30
Sand-Fine	#40 - #200			Hard	>30
Silt/NonPlastic	< #200				
Clay/Plastic	< #200				

SOIL STRUCTURE		RELATIVE PROPORTION OF SOIL TYPES	
Structure	Description	Description	% of Sample by Weight
Layer	6" Thick or Greater	Mostly	50 – 100
Seam	6" Thick or Less	Some	30 – 45
Parting	Less than ¼" thick	Little	15 – 25
Varved	Uniform horizontal partings or seams	Few	5 – 10
		Trace	Less than 5

Additional Notes:
1. Utilized c: coarse, m: medium, and f: fine when describing the size of sand or gravel.
2. WOH – weight of hammer.
3. WOR – weight of rods.
4. bgs – below ground surface
5. NA – Not Available
6. ▼ – Phreatic Surface, if observed

Refusal:
1. Split-spoon refusal is considered 50 blows over six inches.
2. Auger and Casing refusal occurs if the driller is unable to advance the boring.
3. Roller bit refusal occurs if the bit is worn and needs to be replaced or the bedrock is a dense very hard material.

Appendix A:
Photographic Documentation

Photograph #1
Description: View of southern end of Waryas Park and north face of Kaal Rock Point.

Photograph #2
Description: View of north face of Kaal Rock Point

Photograph #3
Description: View on top of Kaal Rock Point looking south.

Photograph #4
Description: View on top of Kaal Rock Point looking east.

Photograph #5
Description: Overview of south face of Kaal Rock Point and northern end of Kaal Park.

Photograph #6 - Description: close up view of south face of Kaal Rock Point.

Appendix B:
Exploration Logs

TEST BORING LOG

THE Chazen COMPANIES
547 River Street
Troy, New York 12180
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Kaal Rock Walkway
LOCATION: Poughkeepsie, NY
CLIENT: Poughkeepsie Alliance
PROJECT NO.: 31613.00

Test Boring No.: **KB-1**
Total Depth: 25 ft.

Contractor: Aquifer Drilling & Testing
Drill Rig: CME-55 Track Rig
Driller: Les Darrow
Inspector: Chris Marini

Start Date: 14-Mar-2016
Finish Date: 14-Mar-2016
El. Datum: NGVD29
G.S. Elevation: 6

Northing: See Figure 1
Easting:
Latitude: -
Longitude: -

Borehole Dia.: 8 in.
Water Depth: 7 ft.
Rock Depth: 12.5 ft.
Sample Hammer: Automatic

Depth (Ft)	Elevation (Ft)	Sample No.	SPT Blows or Core Run Time	Recovery (in)	Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
		G-1				OL	(0 to 0.5') Forest Mat [Topsoil]	Approximate Strata Change
1	5	W-1				ML	(0.5' to 4') Silt (ML): Black, wet, loose, mostly silt [Fill]	
2	4							
3	3							
4	2		*SPT Blows*					Approximate Strata Change
		SS-1	4	10		SM	Silty Sand with Gravel (SM): Wet, gray, loose, little sand, little gravel, little silt, few clay [Glacial Deposits]	
5	1		4					
			4					
6	0		16					
7	-1				▼			
8	-2		*Core Run Time*					Approximate Sub-strata Change
		RC-1	2 min				(8.2' to 11.2') Boulder [Glacial Deposits]	RC-1 from 8.2' to 11.2'
9	-3		2 min					REC for RC-1: 2.2' (73%)
10	-4		6 min					RQD for RC-1: 0.0' (0%)
11	-5						(11.2' to 12.5') Completely Weathered Bedrock	Approximate Strata Change
12	-6							
13	-7	RC-2	3 min				(12.5' to 15') Taconic Melange - Gray, hard, slightly weathered, amorphous, with shallow to moderately dipping, stained to clean, rough to smooth fracture joints [Sound Bedrock]	Approximate Strata Change RC-2 from 12.5' to 15' REC for RC-2: 2.5' (100%)
			6 min					RQD for RC-2: 2.2' (88%)
14	-8		6 min					
15	-9	RC-3	8 min				(15' to 20') Taconic Melange - Gray to white, hard to very hard, fresh, amorphous, with moderately dipping, clean, smooth fracture joints [Sound Bedrock]	RC-3 from 15' to 20' REC for RC-3: 5.0' (100%)
16	-10		8 min					RQD for RC-3: 2.7' (54%)
17	-11		9 min				Unconfined Compression Test on sample at 16.0': 3,820 psi	
18	-12		9 min					
19	-13		9 min					
20	-14							

METHODS: **HA**- Hollow Stem Auger, **RWH**- Rotary Wash, **DC**-Diamond Core, **DP**-Direct Push
SAMPLE TYPES: **SS**-Split Spoon, **RC**-Rock Core, **G**-Grab, **ST**-Shelby Tube, **GS**-Geoprobe Sleeve, **W**-Wash
STANDARD NOTES:
1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.
2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.
3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.

ADDITIONAL NOTES:

DRILLING INFORMATION

Method:	RWH	0 to	8.2
Method:	DC	8.2 to	25.0

	Sample	Core
Type	SS	NX
Int Diam.	2"	2"
Weight	140 lb	
Fall	30 in.	

TEST BORING LOG

THE Chazen COMPANIES
547 River Street
Troy, New York 12180
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Kaal Rock Walkway
LOCATION: Poughkeepsie, NY
CLIENT: Poughkeepsie Alliance
PROJECT NO.: 31613.00

Test Boring No.: **KB-1**
Total Depth: 25 ft.

Depth (Ft)	Elevation (Ft)	Sample No.	Run Time/Foot		Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
20	-14	RC-4	9 min				(20' to 25') Taconic Melange - Gray to white, very hard, fresh, amorphous, with moderately dipping, clean, smooth fracture joints [Sound Bedrock]	RC-4 from 20' to 25' REC for RC-4: 5.0' (100%) RQD for RC-4: 4.5' (90%)
21	-15		8 min					
22	-16		8 min					
23	-17		9 min					
24	-18		9 min					
25	-19						End of boring at 25 feet.	
26	-20							
27	-21							
28	-22							
29	-23							
30	-24							
31	-25							
32	-26							
33	-27							
34	-28							
35	-29							
36	-30							
37	-31							
38	-32							
39	-33							
40	-34							
41	-35							
42	-36							
43	-37							
44	-38							
45	-39							

ADDITIONAL NOTES:

TEST BORING LOG

THE Chazen COMPANIES
547 River Street
Troy, New York 12180
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Kaal Rock Walkway
LOCATION: Poughkeepsie, NY
CLIENT: Poughkeepsie Alliance
PROJECT NO.: 31613.00

Test Boring No.: **KB-2**
Total Depth: 15 ft.

Contractor:	Aquifer Drilling & Testing	**Start Date:**	15-Mar-2016	**Northing:**	See Figure 1
Drill Rig:	CME-55 Track Rig	**Finish Date:**	15-Mar-2016	**Easting:**	
Driller:	Les Darrow	**El. Datum:**	NGVD29	**Latitude:**	-
Inspector:	Chris Marini	**G.S. Elevation:**	65	**Longitude:**	-

Borehole Dia.:	8	in.
Water Depth:	N/A	ft.
Rock Depth:	0	ft.
Sample Hammer:	Automatic	

Depth (Ft)	Elevation (Ft)	Sample No.	Core Run Time		Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
		RC-1	5 min				(0' to 5') Taconic Melange - Gray, medium hard to hard, moderately weathered to slightly weathered, amorphous, with shallow to moderately dipping, filled to stained, irregular to rough fracture joints [Sound Bedrock]	RC-1 from 0' to 5' REC for RC-1: 5.0' (100%) RQD for RC-1: 1.6' (32%)
1	64		5 min					
2	63		3 min					
3	62		4 min					
4	61		4 min					
5	60	RC-2	4 min				(5' to 10') Taconic Melange - Gray, hard, slightly weathered, amorphous, with moderately dipping, stained to clean, rough to smooth fracture joints [Sound Bedrock] Unconfined Compression Test on sample at 6.5': 2,220 psi	RC-2 from 5' to 10' REC for RC-2: 5.0' (100%) RQD for RC-2: 4.4' (88%)
6	59		3 min					
7	58		3 min					
8	57		3 min					
9	56		3 min					
10	55	RC-3	4 min				(10' to 15') Taconic Melange - Gray, hard, slightly weathered, amorphous, with moderately dipping, stained to clean, rough to smooth fracture joints [Sound Bedrock]	RC-3 from 10' to 15' REC for RC-3: 5.0' (100%) RQD for RC-3: 4.0' (80%)
11	54		4 min					
12	53		4 min					
13	52		4 min					
14	51		4 min					
15	50						End of boring at 15 feet.	
16	49							
17	48							
18	47							
19	46							
20	45							

METHODS: **HA**- Hollow Stem Auger, **RWH**- Rotary Wash, **DC**-Diamond Core, **DP**-Direct Push
SAMPLE TYPES: **SS**-Split Spoon, **RC**-Rock Core, **G**-Grab, **ST**-Shelby Tube, **GS**-Geoprobe Sleeve
STANDARD NOTES:
1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.
2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.
3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.

ADDITIONAL NOTES:

DRILLING INFORMATION

Method: DC	0 to	15.0
Method:		

	Sample	Core
Type	NX	-
Int Diam.	2"	-
Weight	-	
Fall	-	

TEST BORING LOG

THE Chazen COMPANIES
547 River Street
Troy, New York 12180
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Kaal Rock Walkway
LOCATION: Poughkeepsie, NY
CLIENT: Poughkeepsie Alliance
PROJECT NO.: 31613.00

Test Boring No.: **KB-3**
Total Depth: 20 ft.

Contractor: Aquifer Drilling & Testing
Drill Rig: CME-55 Track Rig
Driller: Les Darrow
Inspector: Chris Marini

Start Date: 15-Mar-2016
Finish Date: 15-Mar-2016
El. Datum: NGVD29
G.S. Elevation: 66

Northing: See Figure 1
Easting:
Latitude: -
Longitude: -

Borehole Dia.: 8 in.
Water Depth: N/A ft.
Rock Depth: 0.2 ft.
Sample Hammer: Automatic

Depth (Ft)	Elevation (Ft)	Sample No.	Core Run Time		Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
		G-1				OL	(0 to 0.2') Forest Mat [Topsoil]	Approximate Strata Change
1	65	RC-1	3 min				(0.2' to 5') Taconic Melange - Gray, medium hard to hard, moderately weathered to slightly weathered, amorphous, with shallow to moderately dipping, filled to stained, irregular to rough fracture joints [Sound Bedrock]	RC-1 from 0.2' to 5' REC for RC-1: 4.8' (100%) RQD for RC-1: 0.3' (6%)
			5 min					
2	64							
			6 min					
3	63							
			4 min					
4	62							
			3 min					
5	61	RC-2	4 min				(5' to 10') Taconic Melange - Gray, hard, slightly weathered, amorphous, with shallow to moderately dipping, stained to clean, rough to smooth fracture joints [Sound Bedrock] Unconfined Compression Test on sample at 5.4': 2,680 psi	RC-2 from 5' to 10' REC for RC-2: 5.0' (100%) RQD for RC-2: 2.5' (50%)
6	60		3 min					
7	59		3 min					
8	58		3 min					
9	57		3 min					
10	56	RC-3	4 min				(10' to 15') Taconic Melange - Gray, hard, slightly weathered, amorphous, with shallow to moderately dipping, stained to clean, rough to smooth fracture joints [Sound Bedrock]	RC-3 from 10' to 15' REC for RC-3: 5.0' (100%) RQD for RC-3:3.7' (74%)
11	55		3 min					
12	54		3 min					
13	53		3 min					
14	52		3 min					
15	51	RC-4	4 min				(15' to 20') Taconic Melange - Gray, hard, slightly weathered, amorphous, with moderately dipping, stained to clean, rough to smooth fracture joints [Sound Bedrock] Unconfined Compression Test on sample at 16.5': 17,240 psi	RC-4 from 15' to 20' REC for RC-4: 5.0' (100%) RQD for RC-4:3.8' (76%)
16	50		3 min					
17	49		3 min					
18	48		4 min					
19	47		3 min					
20	46						End of boring at 20 feet.	

METHODS: **HA**- Hollow Stem Auger, **RWH**- Rotary Wash, **DC**-Diamond Core, **DP**-Direct Push
SAMPLE TYPES: **SS**-Split Spoon, **RC**-Rock Core, **G**-Grab, **ST**-Shelby Tube, **GS**-Geoprobe Sleeve
STANDARD NOTES:
1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.
2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.
3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.

ADDITIONAL NOTES:

DRILLING INFORMATION

Method: DC	0 to	20.0
Method:		
	Sample	Core
Type	NX	-
Int Diam.	2"	-
Weight	-	
Fall	-	

TEST BORING LOG

THE Chazen COMPANIES
547 River Street
Troy, New York 12180
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Kaal Rock Walkway
LOCATION: Poughkeepsie, NY
CLIENT: Poughkeepsie Alliance
PROJECT NO.: 31613.00

Test Boring No.: **KB-4**
Total Depth: 22 ft.

Contractor:	Aquifer Drilling & Testing	**Start Date:**	16-Mar-2016	**Northing:**	See Figure 1
Drill Rig:	CME-55 Track Rig	**Finish Date:**	16-Mar-2016	**Easting:**	
Driller:	Les Darrow	**El. Datum:**	NGVD29	**Latitude:**	-
Inspector:	Chris Marini	**G.S. Elevation:**	25	**Longitude:**	-

Borehole Dia.:	8	in.
Water Depth:	18	ft.
Rock Depth:	19	ft.
Sample Hammer:	Automatic	

Depth (Ft)	Elevation (Ft)	Sample No.	Core Run Time		Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
		G-1				OL	(0 to 0.5') Forest Mat [Topsoil]	Approximate Strata Change (typ.)
1	24	W-1				SM	(0.5' to 3.7') Silty Sand with Gravel (SM): Dry to wet, brown to gray, loose to medium dense, some to little sand, some silt, some to little gravel, with numerous cobbles and cobble-sized fragments [Fill]	Classification based on wash, drilling action, and ground surface observations
2	23							
3	22							
4	21	RC-1	8 min			X	(3.7' to 5.0') Boulder [Fill]	RC-1 from 3.7' to 5.0' REC for RC-1: 1.2' (92%) RQD for RC-1: 1.0' (77%)
5	20	RC-2	4 min 7 min			X	(5.0' to 6.5') Moderately Weathered Rock to Completely Weathered Rock [Fill]	RC-2 from 5.0' to 6.5' REC for RC-2: 1.5' (100%) RQD for RC-2: 0.9' (60%)
6	19		8 min					
7	18						(6.5' to 10.0') Weathered Rock Fill, Construction Debris Fragments, Sand, Silt [Fill]	Stopped RC-2 at 6.5' because encountered "completely weathered rock" which clogged core barrel
8	17							
9	16							Rollerbit Washed to 10'. Lost water in fractures/voids. Drove casing to 10': very difficult due to numerous cobbles, boulder, and weathered rock fill.
10	15	RC-3	8 min			X	(10' to 11.7') Concrete (no rebar) [Fill]	RC-3 from 10' to 11.7' REC for RC-3: 1.7' (100%) RQD for RC-3: 1.7' (100%)
11	14		6 min					
12	13						(11.7' to 16') Apparent Void Area or Very Loose Soil Area below Concrete.	Stopped core run RC-3, lost water circulation after concrete due to assumed void. Casing; very easy to advance to 16', easy to advance to 17.5'.
13	12							
14	11							
15	10							
16	9						(16' to 17.5') Loose soil [Fill]	
17	8							
18	7	RC-4	N/A		▼	X	(17.5' to 19') Completely to Highly Weathered Rock	Attempted core run RC-4 at 18' but rollerbit clogged with weathered rock.
19	6	RC-5	8 min			X	(19' to 22') Taconic Melange [Sound Bedrock] See next page for description.	Core Run RC-4: Clogged with weathered rock: REC/RQD: N/A
20	5							

METHODS: **HA**- Hollow Stem Auger, **RWH**- Rotary Wash, **DC**-Diamond Core, **DP**-Direct Push

SAMPLE TYPES: **SS**-Split Spoon, **RC**-Rock Core, **G**-Grab, **ST**-Shelby Tube, **GS**-Geoprobe Sleeve

STANDARD NOTES:
1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.
2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.
3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.

ADDITIONAL NOTES:

DRILLING INFORMATION

Method: RWH	0 to 19.0	
Method: RC	See Above	
	Sample	Core
Type	NX	-
Int Diam.	2"	-
Weight	-	
Fall	-	

TEST BORING LOG

THE Chazen COMPANIES
547 River Street
Troy, New York 12180
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Kaal Rock Walkway
LOCATION: Poughkeepsie, NY
CLIENT: Poughkeepsie Alliance
PROJECT NO.: 31613.00

Test Boring No.: **KB-4**
Total Depth: 22 ft.

Depth (Ft)	Elevation (Ft)	Sample No.	Run Time/Foot		Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
20	5	RC-5					(19' to 22') Taconic Melange - Gray, medium hard, moderately weathered, amorphous, with shallow to vertical, filled to stained, irregular to rough fracture joints [Sound Bedrock]	Rollerbit washed to 19' to begin core run RC-5. RC-5 from 19' to 22' REC for RC-5: 3.0' (100%) RQD for RC-5: 0.0' (0%)
21	4							
22	3						End of boring at 22 feet.	
23	2							
24	1							
25	0							
26	-1							
27	-2							
28	-3							
29	-4							
30	-5							
31	-6							
32	-7							
33	-8							
34	-9							
35	-10							
36	-11							
37	-12							
38	-13							
39	-14							
40	-15							
41	-16							
42	-17							
43	-18							
44	-19							
45	-20							

ADDITIONAL NOTES:

TEST BORING LOG

THE Chazen COMPANIES
547 River Street
Troy, New York 12180
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Kaal Rock Walkway
LOCATION: Poughkeepsie, NY
CLIENT: Poughkeepsie Alliance
PROJECT NO.: 31613.00

Test Boring No.: **KB-5**
Total Depth: ft.

Contractor:	Aquifer Drilling & Testing	**Start Date:**	15-Mar-2016	**Northing:**	See Figure 1
Drill Rig:	CME-55 Track Rig	**Finish Date:**	15-Mar-2016	**Easting:**	
Driller:	Les Darrow	**El. Datum:**	NGVD29	**Latitude:**	-
Inspector:	Chris Marini	**G.S. Elevation:**	55	**Longitude:**	-

Borehole Dia.:	8	in.
Water Depth:	5	ft.
Rock Depth:	7	ft.
Sample Hammer:	Automatic	

Depth (Ft)	Elevation (Ft)	Sample No.	Core Run Time		Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
		G-1				OL	(0 to 0.8') Forest Mat [Topsoil]	
1	54							Approximate Strata Change
2	53	W-1				ML	(0.8' to 7.0') Sandy Silt with Gravel (ML): Wet to saturated, brown, loose to medium dense, little to some silt, some to little sand, little gravel, few to no clay with occasional cobbles [Glacial Deposits]	Boulders observed near-by
3	52							
4	51							
5	50				▼			Difficult driving casing to 5 feet (likely due to cobbles) and washed to roller-bit refusal at 7 feet.
6	49							
7	48						Roller-bit refusal at 7 feet on bedrock or boulder.	Approximate Strata Change
8	47							
9	46							
10	45							
11	44							
12	43							
13	42							
14	41							
15	40							
16	39							
17	38							
18	37							
19	36							
20	35							

METHODS: **HA**- Hollow Stem Auger, **RWH**- Rotary Wash, **DC**-Diamond Core, **DP**-Direct Push
SAMPLE TYPES: **SS**-Split Spoon, **RC**-Rock Core, **G**-Grab, **ST**-Shelby Tube, **GS**-Geoprobe Sleeve, **W**-Wash
STANDARD NOTES:
1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.
2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.
3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.

ADDITIONAL NOTES:

DRILLING INFORMATION

Method: RWH	0 to 7.0	
Method:		
	Sample	Core
Type	-	-
Int Diam.	-	-
Weight	-	
Fall	-	

Appendix C:
Laboratory Results

ATLANTIC TESTING LABORATORIES

WBE certified company

March 25, 2016

The Chazen Companies
21 Fox Street
Poughkeepsie, New York 12601

Attn: Mr. Matt Korn, PE E/Mail: mkorn@chazencompanies.com

Re: Soil Laboratory Testing
Kaal Rock Elevated Walkway
Chazen Companies Job No.: 31613.00
ATL Report No. AT354SL-657-660-03-16

Ladies/Gentlemen:

On March 18, 2016, your representative delivered four Rock Core samples (ATL Sample Nos. AT354S657 to AT354S660) from the Kaal Rock Elevated Walkway and delivered them to our Clifton Park, New York facility. An Unconfined Compressive Strength of Intact Rock in accordance with ASTM D 7012 was performed on these samples. The results follow:

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK
ASTM D 7012

ATL Sample ID	Client Sample ID	Diameter (in)	Length (in)	Load Rate (lbs./sec)	Total Load (lbs.)	Area (in^2)	Compressive Strength (psi)
AT354S657	KB-1, RC-2	1.975	4.005	260	11,700	3.06	3,820
AT354S658	KB-2, RC-2	1.979	4.199	160	6,840	3.08	2,220
AT354S659	KB-3, RC-2	1.983	3.549	120	8,300	3.09	2,680
AT354S660	KB-3, RC-4	1.973	4.020	340	52,700	3.06	17,220

Please contact our office should you have any questions or if we may be of further service.

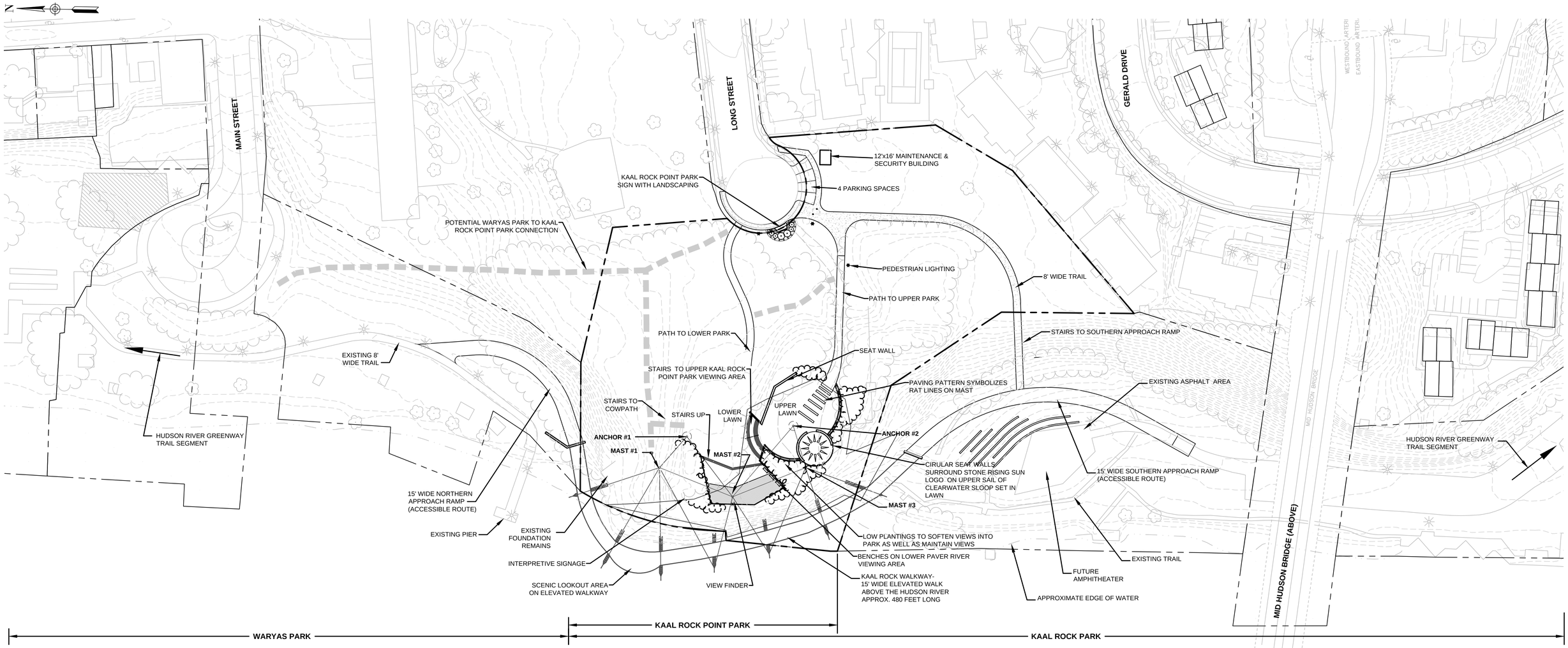
Sincerely,
ATLANTIC TESTING LABORATORIES, Limited

Robert E. Field
Laboratory Manager
bfield@atlantictesting.com

REF/rf

APPENDIX E

Conceptual Development Plans



HUDSON RIVER WATER ELEVATION

- THE TOPOGRAPHIC INFORMATION ON THIS SHEET IS BASED APPROX. INFORMATION BASED UPON NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD 29) DATUM.
- 100YR FLOOD ELEVATION IS 8 FEET NAV88 DATUM (SOURCE FEMA FIRM MAPS). NOTE THIS ELEVATION HAS NOT BEEN CONVERTED TO THIS PLAN SHEET'S DATUM.
- HIGH TIDE IS APPROXIMATELY 3.7'±FEET
- LOW TIDE IS APPROXIMATELY 0.6± FEET (FLUCTUATES 0.2-0.4 TENTHS, DEPENDING ON MOON PHASE AND OTHER NATURAL FACTORS)

PROJECT 31613.00
APRIL 13, 2016

NORTH

OVERALL MASTER PLAN

KAAL ROCK POINT PARK - WALKWAY FEASIBILITY STUDY

CITY OF POUGHKEEPSIE, DUTCHESS COUNTY, NEW YORK STATE

Poughkeepsie Alliance

THE Chazen COMPANIES®
Proud to be Employee Owned

Drawing Name: S:\3\31600-31699\31613.00 - Poughkeepsie Alliance - Kaal Rock Walkway\DWG\C200_31613-00_OVERALL MASTER PLAN.DWG
Xref's Attached: XLAYOUT_30613-00; XBASE_30613-00_AERIAL; XTB_30613-00_24x36_presentation
Date Printed: May 13, 2016, 4:38pm

APPENDIX F

Regulatory Feasibility Assessment

THE Chazen COMPANIES®
Proud to be Employee Owned
Engineers
Land Surveyors
Planners
Environmental & Safety Professionals
Landscape Architects

Hudson Valley Office
21 Fox St., Poughkeepsie, NY 12601
P: (845) 454-3980 F: (845) 454-4026
www.chazencompanies.com

Capital District Office (518) 273-0055
North Country Office (518) 812-0513

May 16, 2016

Poughkeepsie Alliance
C/O Paul Calogerakis
Key Bank
2515 South Road, 3rd Floor
Poughkeepsie, NY 12601

Re: Regulatory Feasibility Assessment Report
Kaal Rock Point Scenic Walkway
City of Poughkeepsie, Dutchess County, NY
Job # 31613.00

Dear Mr. Calogerakis:

This Regulatory Feasibility Assessment Report identifies potential regulatory involvement associated with the proposed Kaal Rock Point Scenic Walkway, and a list of permits and next steps required to obtain necessary authorizations for the construction of the walkway and ancillary facilities. A SEQRA Full EAF (FEAF) is provided under separate cover. This assessment focuses on site conditions that would influence the regulatory involvement of the federal Corps of Engineers, the NYSDEC, and local agencies and municipalities. Associated reviews for the project are listed, along with the regulatory challenges and next steps for each aspect of the project review.

This report was submitted in draft form to the Corps of Engineers and NYSDEC on April 22, 2016, along with the April 13, 2016 Powerpoint Presentation that was given in the City of Poughkeepsie. On April 25, 2016 Chazen held a WEBEX meeting with the Corps of Engineers staff person that handles Dutchess County; a meeting summary (that was reviewed by the Corps) is attached to this letter. The NYSDEC is in the process of reviewing the material and will be speaking with us shortly. Also attached to this letter is the US Fish and Wildlife Service IPAC Report and NY Natural Heritage Program (NYNHP) letter for the site. This letter has not be revised to reflect comments of the Corps (or NYSDEC); see the attachments.

SUMMARY OF PROPOSED PROJECT

The proposed project is located approximately 350 feet north of the Mid-Hudson Bridge (US Route 44) in the City of Poughkeepsie on parcel number 720091 (Kaal Rock Point Park). The northern limit of the walkway begins and connects into Waryas Park (Parcel 718136), continues westward over the Hudson River (underwater lands owned by the State of New York), and southeast, connecting to lands associated with Kaal Rock Park (Parcel 705060). To the northeast of the site is the Rip Van Winkle House and associated lands (Parcel 749131), where a pedestrian/bike trail connecting to Main Street may be proposed in a future phase, to the east by the Long Street cul-de-sac, and to the southeast by the Riverview condominiums.

The City of Poughkeepsie is located along the shores of the Hudson River. Founded in the 18th Century, the City is proud of its rich maritime history and has been undertaking planning efforts to revitalize its Hudson River waterfront for the benefit of the entire Mid-Hudson Region of New York State. A key component of this revitalization strategy is a continuous walkway north to south along the waterfront. This walkway will not only connect important destinations in Poughkeepsie, but will also serve as link through the Hudson River corridor. Kaal Rock Point, a large rock outcrop that extends out from the shore and into the Hudson River on city parkland, has long been an obstacle to this envisioned walkway. This feasibility assessment is the first step of installing an elevated walkway around the Kaal Rock Point rock face above the Hudson River, with connections to Waryas Park at the north end and Kaal Rock Park at the south end. This project also envisions enhancement to Kaal Rock Point Park, making it a destination in and of itself.

The proposed walkway is approximately 500 feet long and suspended approximately 15 feet above the Hudson River around the western edge of Kaal Rock Point. This design allows the walkway to be used year-round, as it is above the reach of Hudson River's floodwaters and ice flows. The design is also intended to be ADA-accessible. Reminiscent of both the Mid-Hudson Suspension Bridge and Poughkeepsie's maritime heritage, the walkway and park design adopt a nautical theme reflected in steel masts and cables to suspend the walkway over the Hudson.

Figure 1 below illustrates the properties described above on an orthophotograph. The blue line on this figure are the limits of city parkland. Figure 2 is an aerial photographic view looking east of Kaal Rock Point and surrounding environs, and Figure 3 is a Plan View with Conceptual Survey illustrating the site. Figure 4 the conceptual layout for the proposed Kaal Rock Point Scenic Walkway and Associated Park; additional details for the Conceptual Site Plan is also presented as an Appendix to the main Project Summary Report. Figure 3 is a Concept Design Solution Plan View of Kaal Rock Point Scenic Walkway and Associated Park. Figure 4 is a Park and plan view of the walkway, and illustrates the walkway's relationship to surrounding land and water areas. Figures 5 and 6 provide plan and side views of the walkway.

Source: Dutchess County ParcelAccessInternet. 3/29/2016

Figure 1: Properties in vicinity of Proposed Kaal Rock Point Scenic Walkway and Associated Park

Figure 2: Aerial View looking east of Kaal Rock and nearby Resources

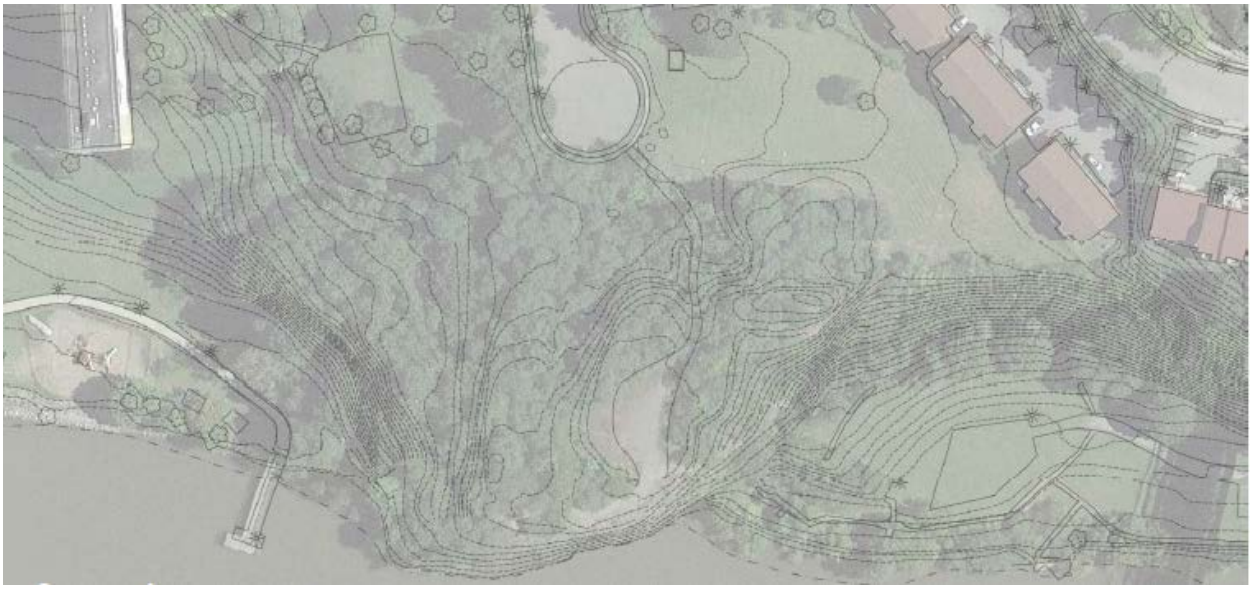


Figure 3: Plan View of Kaal Rock Point and nearby Resources

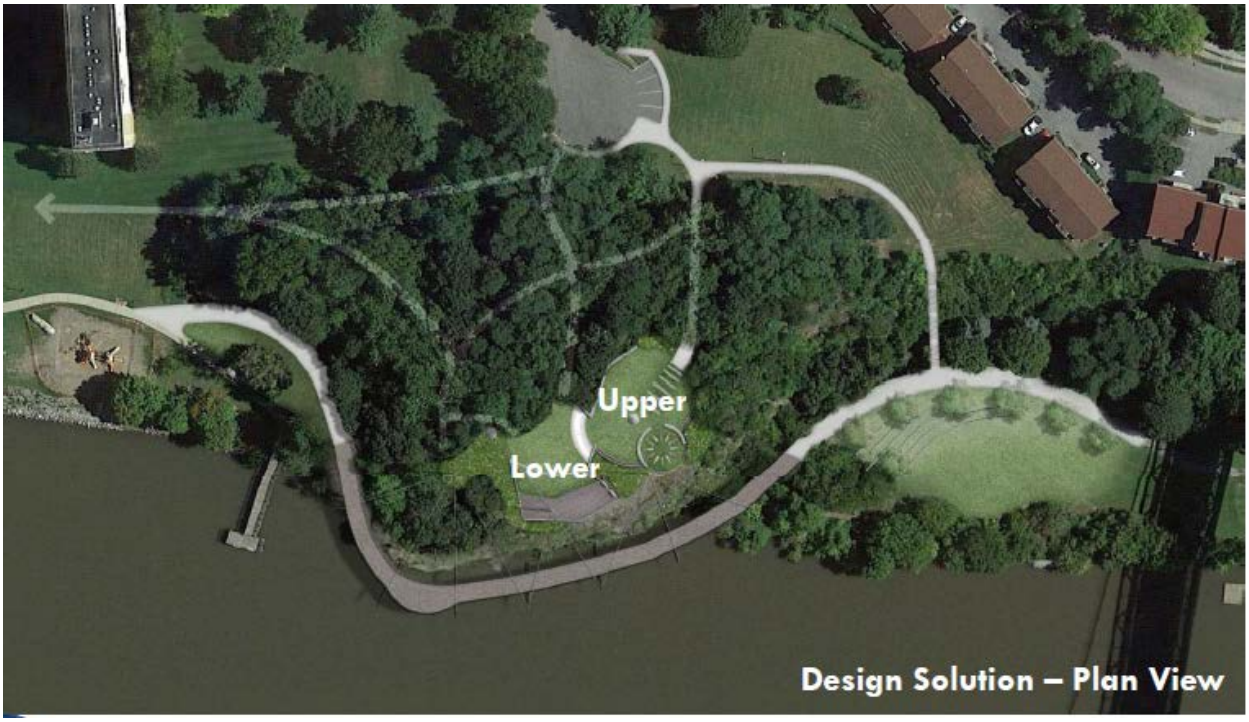


Figure 4: Concept Design Solution Plan View for Kaal Rock Point Scenic Walkway and Associated Park

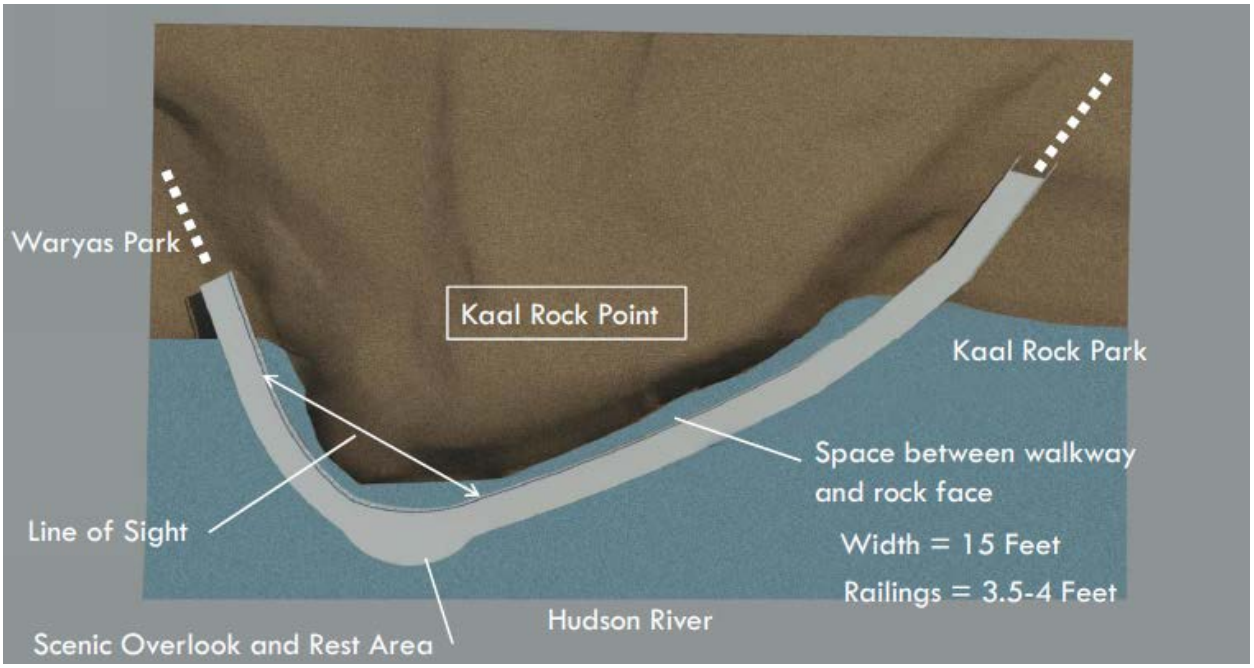


Figure 5: Plan View of Kaal Rock Point Scenic Walkway

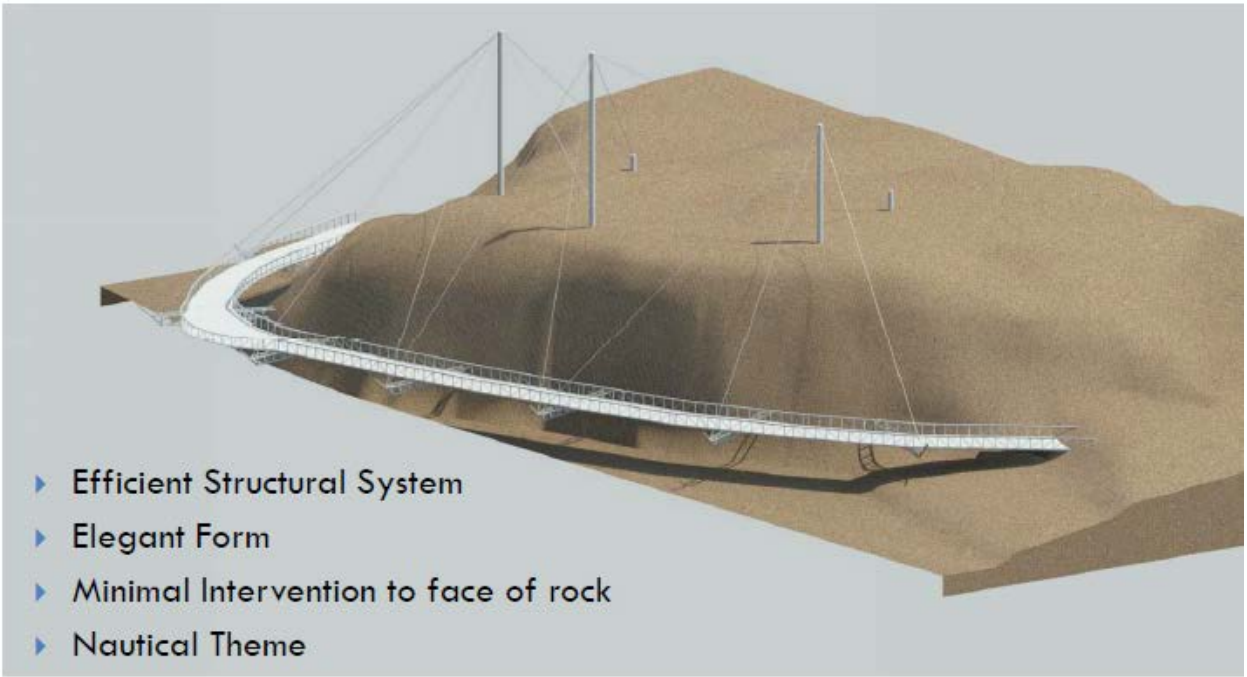


Figure 6: Side View of Kaal Rock Point Scenic Walkway

METHODOLOGY OF REVIEW AND CONTENTS OF THIS REPORT

A desktop review of databases for the Kaal Rock Point area was completed to evaluate the potential impacts of the project site on aquatic, ecological, cultural and land use resources. In addition, a review of local land use planning and zoning documents was completed. This included a review of the City of Poughkeepsie's "Poughkeepsie Waterfront Redevelopment Strategy"[1] dated May 18, 2015, and the City of Poughkeepsie's "2013 Kaal Rock – Main Street Action Plan".[2] Chazen also reviewed the City of Poughkeepsie's Zoning Code for this project location. The City of Poughkeepsie does not have an approved Local Waterfront Revitalization Plan (LWRP).[3]

The following sections discuss resources identified, regulatory implications and associated "next steps" to obtain vested interests in developing the proposed Kaal Point Rock Scenic Walkway and associated park infrastructure.

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[1] City of Poughkeepsie Common Council. 2015. "Poughkeepsie Waterfront Redevelopment Strategy." Consultants: Stantec, Planning and Landscape Architecture; Torti Gallas and Partners, Urban Design; HR&A Advisors, market and Financial Analysis; with assistance from Dutchess County Planning and Development. Final dated May 18, 2015. See http://www.co.dutchess.ny.us/CountyGov/Departments/Planning/pwrs.pdf.

[2] PPS Project for Public Spaces and Morris Associates Engineering Consultants P.L.L.C. 2012. Placemaking in Poughkeepsie Vision and Action Plan for Poughkeepsie Waterfront – Main Street Corridor. Draft. http://cityofpoughkeepsie.com/wp-content/files/kaalrock_mainstreet_actionplan20130423.pdf. (AKA 2013 Kaal Roc – Main Street Action Plan.) PDF Page 125 of 135.

[3] NYSDOS. 2016. Local Waterfront Revitalization Programs. http://www.dos.ny.gov/opd/programs/WFRevitalization/LWRP_status.html. Reviewed 4/1/2016.

PROPERTY RIGHTS

Property Rights - Documented Information: As shown on Figure 4, all terrestrial facilities proposed for this project are on City of Poughkeepsie parkland except for a proposed future bicycle/pedestrian trail leading from the Long Street cul-de-sac to Main Street. That proposed future bicycle/pedestrian trail could be located on a portion of the Rip Van Winkle Housing property. That future phase trail is not proposed with this design, but is shown in order to demonstrate consistency with past planning efforts, and also to incorporate all potential impacts into the Project Summary Report. The Kaal Scenic Walkway will be located over the Hudson River for a portion of the project.

As shown on Figures 4 and 5, a large portion of the walkway is located over the Hudson River. The Hudson River "lands underwater" are owned by the State of New York, and are managed by the NYS Office of General Services (NYSOGS). As discussed below, similar to "air rights" permission will need to be obtained from NYSOGS for use of the airspace above state-owned underwater lands.

Property Rights - Regulatory Implications: Based on record mapping, there are no current terrestrial land right issues for the current project. Except for a future phase of trail work, the project appears to be located and contained on the City of Poughkeepsie Park property. The future phase of the bicycle/pedestrian trail design would require negotiations with the Rip Van Winkle Housing LLC. Regarding underwater lands, the Project Sponsor will need to obtain permission from the NYSOGS to occupy the air rights above NYS owned underwater lands.

Property Rights – List of Permits/Reviews Needed:

- NYSOGS – Lease and/or agreement for work and presence of platform over state-owned underwater lands.
- Rip Van Winkle Housing LLC – Future easement or land grant for future bicycle/pedestrian trail.

Property Rights - Next Steps: The following steps are recommended for addressing property issues.

- A formal property boundary survey is recommended to ensure that the relationship of park boundaries is established relative to the project limits to ensure that the proposed project is not inadvertently extending outside of the City of Poughkeepsie property limits.
- The ownership of State of New York Underwater Lands (and their extent) should also be confirmed as part of this property boundary survey.
- The NYSOGS should be contacted to discuss the proposed walkway and any property ownership concerns or issues, and the procedure to obtain a lease/permits for this use. This is typically completed by contacting the NYSOGS, Bureau of Land Management, Mayor Erastus Corning 2nd Tower, Empire State Plaza, Albany NY 12242; Telephone at 518-474-2915. Chazen has previously worked with Nancy Dwyer.
- The Joint Permit Application to the Corps of Engineers and the NYSDEC for this project would be submitted to NYSOGS with documentation available at the time. The permitting would require submitting a survey illustrating the vertical limits of the occupation and other forms necessary to obtain use rights for land underwater.

NAVIGATION AND AQUATIC RESOURCES

Aquatic Resources – Documented Information: Mapping resources were examined for aquatic resources. The NYSDEC Environmental Resource Mapper[4], shown in Figure 7, indicates that the Hudson River at this location is a tidal water, with Class A Water Quality Standards. There are no NYSDEC regulated wetlands mapped on site. The Poughkeepsie Deepwater Habitat is located in the center of the Hudson River. Therefore, the Hudson River is regulated under NYSDEC Environmental Conservation Law Article 15, regulations at 6 NYCRR 608, as both a navigable and a protected stream.

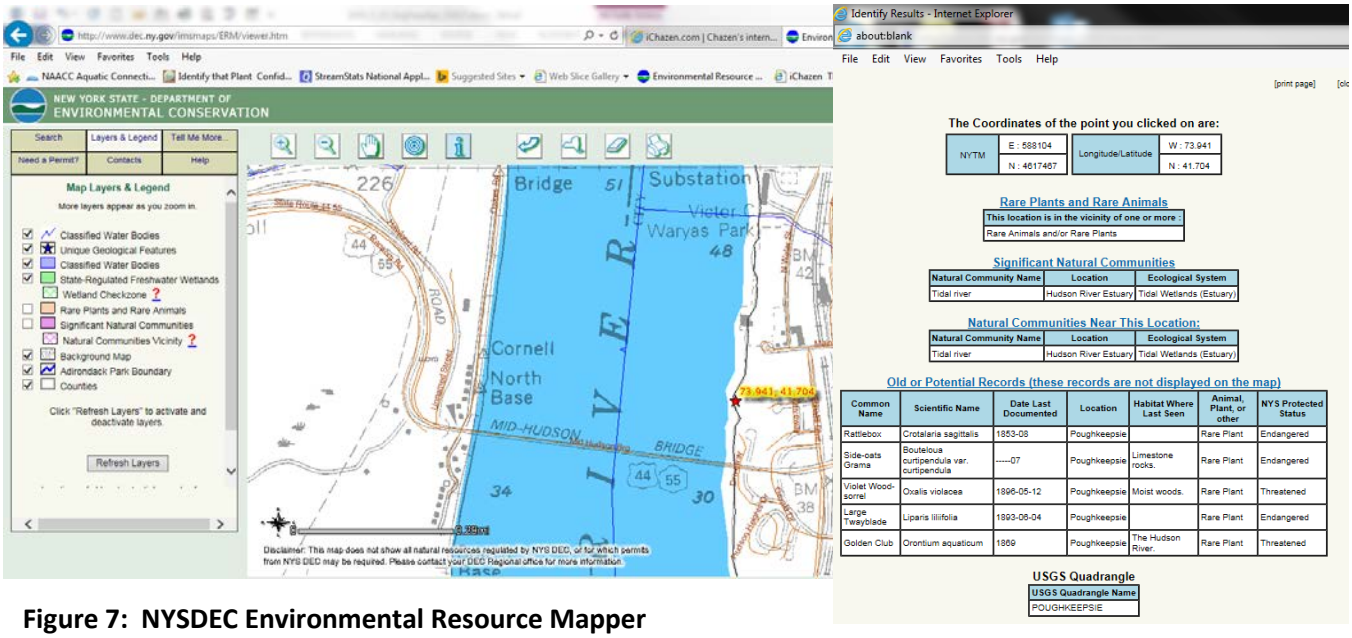

Figure 7: NYSDEC Environmental Resource Mapper

The Corps of Engineers (Corps) also regulates the Hudson River under Section 10 of the Rivers and Harbors Act as a navigable water and under Section 404 of the Clean Water Act as a Waters of the United States. The regulatory limits (both vertical and horizontal) of Section 10 and Section 404 (assuming no adjacent wetlands) are the Mean High Water and the Mean Higher High Water tides, respectively[5]. The closest NOAA Gauging Station[6] to the site is at Hyde Park (see Figure 8). This datum is reported in STND Datum (Station Datum) at a location upstream from the project site. These elevations will need to be converted to the vertical datum for the project, and calibrated from the Hyde Park station to the data to the downstream project location in Poughkeepsie.

According to communications with the Corps of Engineers, there is no "federal navigation channel" identified in this section of the Hudson River, the entire waterbody is a federal navigation area.

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[4] NYSDEC. 2016. Environmental Resource Mapper. http://www.dec.ny.gov/imsmaps/ERM/viewer.htm. Viewed March 31, 2016.

[5] MHW – Mean High Water, which is the limit of Section 10 jurisdiction, is the average tidal data for all high tides 2x/day over the last 18.6 years. MHHW – Mean Higher High Water, which is the limit of Section 404 jurisdiction, is the average of all high tides plus spring tides, but not storm surges over the last 18.6 years.

[6] NOAA Tides & Currents. 2016. Datums for 8518951, Hyde Park, NY http://tidesandcurrents.noaa.gov/datums.html?id=8518951. Reviewed February 25, 2016.

There do not appear to be any Corps regulated adjacent wetlands on the property. Figure 9, the US Fish and Wildlife Service (USFWS) National Wetland Inventory mapper (NWI)[7] shows the Hudson River as the only aquatic resource, a Riverine Subtidal Unconsolidated Bottom Permanently Flooded-Tidal (R1UBV). Figure 10, the Natural Resource Conservation Service (NRCS) web-based soil mapping for the site[8] (see Figure 10) also indicates that soils on the site are non-hydric or predominantly non-hydric. The soils mapped on site include Nassau-Cardigan complex, hilly very rocky (NwD) (hydric rating of 10 or predominantly non-hydric), and Udorthents (Ud) and Urban Land (Ur), both with hydric ratings of 0 or non-hydric. The "w" on Figure 10 is water, where the project site is located over the Hudson River.

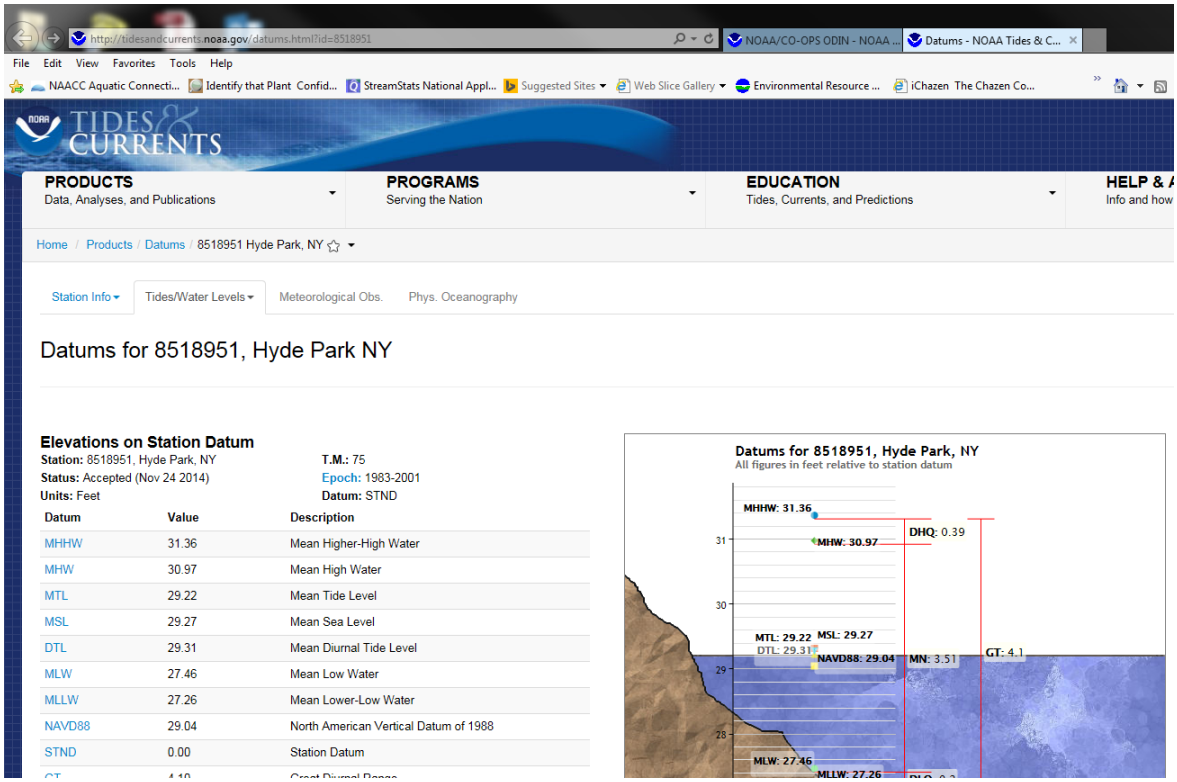


Figure 8: Screenshot of NOAA Tidal Datum at Hyde Park, NY

[7] US Fish and Wildlife Service. 2016. National Wetlands Inventory. http://www.fws.gov/wetlands/data/Mapper.html. Reviewed March 15, 2016.

[8] Natural Resource Conservation Service Web-based Soil Mapping. 2016. http://websoilsurvey.sc.egov.usda.gov/WssProduct/0cmskithbrhubf1b2jed2x4l/0cmskithbrhubf1b2jed2x4l/20160331_15535803618_107_Hydric_Rating_by_Map_Unit.pdf. Reviewed March 31, 2016.

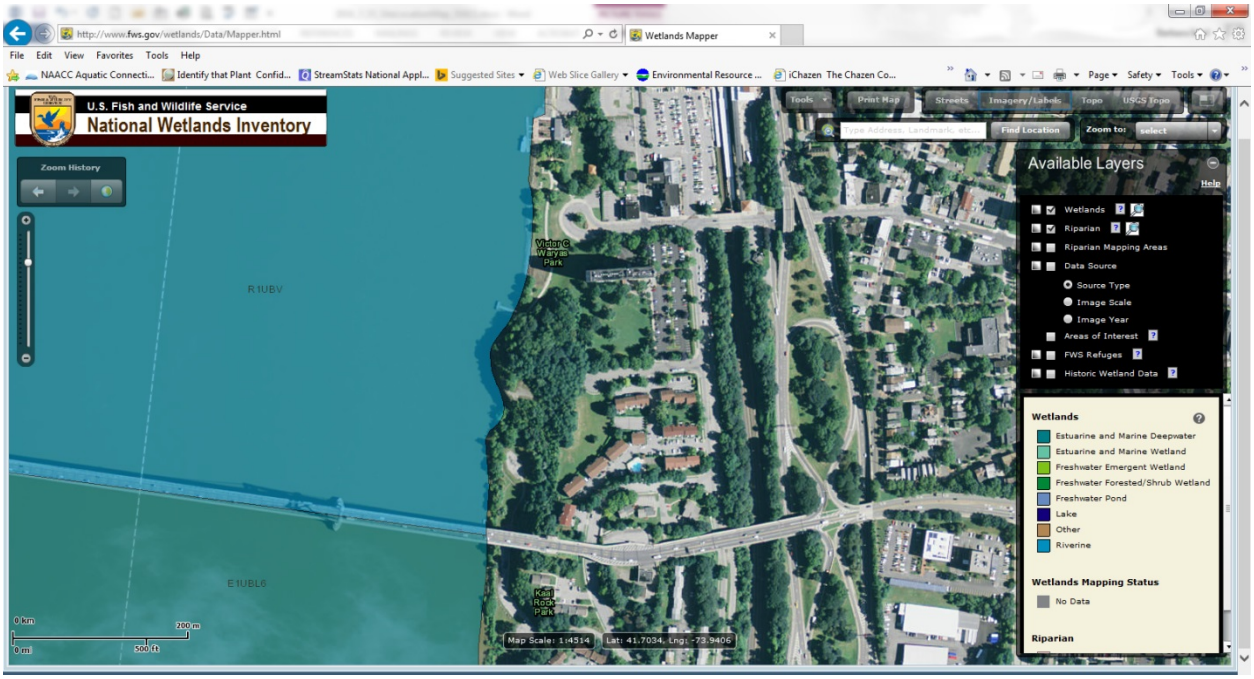


Figure 9: USFWS National Wetland Inventory Mapping

Figure 10: Screenshot of NRCS Web-Based Soil Survey, Hydric Soil Mapping

During and following a Public Information Meeting, questions were raised about potential navigation conflicts between the existing dock on the Waryas Park property and the proposed Kaal Point Scenic Walkway. Figure 3 illustrates in plan view the relationship of the dock relative to the project site. Figures 11 and 12 illustrate the use of the dock by a large tour boat and by the Sloop Clearwater relative to Kaal Rock. Feedback from the Corps of Engineers on navigational setbacks from docks, if any, will be useful.

Figure 11: View north of tour boat moored at Waryas Pier

Figure 12: View northeast of sloop Cleawater moored at Waryas Pier

Aquatic Resources - Regulatory Implications: A permit will be needed under ECL from the NYSDEC for this project for disturbance to the bed and banks of a navigable water and disturbance to the bed and banks of a protected stream. Because the Corps limits are both vertical and horizontal, a permit is needed from the Corps of Engineers under Section 10 for work and structures in Section 10 navigable waters of the United States. If the approach ramp on the north end is outside of the horizontal limits of the Section 404 datum elevation calibrated for this site, then no Section 404 permit is needed for fills in Waters of the United States. There is no Nationwide Permit to authorize this type of activity, therefore an individual permit from the Corps will be required. A Joint Permit Application would be prepared to both agencies under one cover. This application would also be submitted to the NYS Department of State for Coastal Consistency Concurrence[9]. This is discussed in greater detail below. It would also be submitted to the NYS Office of General Services for State-Owned Underwater Lands as a Platform above the water. The Application would describe the project, identify impacts to waters, navigation, compliance with permit issuance standards of the state and federal government, and associated regulations (e.g., endangered species, cultural resources, coastal zone consistency, platform over state-owned underwater lands, floodplains).

Aquatic Resource – List of Permits/Reviews Needed:

- Corps Individual Permit, Assumed under Section 10 Rivers and Harbors Act (only) to authorize Work and Structures in navigable Waters of the United States. Assumes no discharge of fill material into waters of the United States, thereby negating need for authorization under Section 404 of the Clean Water Act.
- NYSDEC permit under Article 15, Use and Protection of Waters, for disturbance of navigable waters and for disturbance to bed or banks of protected stream.

Aquatic Resources – Next Steps: As the project moves beyond Conceptual Design the next steps are needed to vet the project for aquatic resource permitting.

- Currently the MHW and MHHW elevations are reported in STND/NAVD 88 datum for Hyde Park. With advance to design development, these elevations needs to be correlated to the vertical datum used for the Existing Conditions Mapping and for the location of the project site downstream from the Hyde Park gauging station location.
- With advance to design development, the approach ramp on the north side, as well as the south side will be checked to determine that they are outside of the recalibrated MHHW elevation in order to avoid Section 404 regulations, and keep the project only regulated under Section 10 of the Rivers and Harbors Act, where the reviews will be focused on navigation impacts.
- With advance to design development, an assessment of potential impacts on navigation and docking at Waryas Pier will need to be developed based on guidance provided by the Corps. Alternatively, relocating the Waryas Pier may be explored.
- Regular meetings should be held with the Corps and the NYSDEC to ensure a consistent understanding of permit application information requirements and process early in the project. This would also provide an opportunity for coordinating the review of other state and federal agencies.
- Documentation of associated reviews will be incorporated into the permit application. This includes:

[9] The City of Poughkeepsie has a draft (but not NYSDOS-approved) Local Waterfront Revitalization Plan (LWRP).

  - Assessment of impacts on navigation.
  - SHPO determination of effect and any mitigation plans.
  - Determination of effect on floodplains by Poughkeepsie Floodplain Administrator.
  - Assessment of visual impacts on sensitive visual receptors including historic properties.
  - Documentation that the project is moving forward with acquiring air rights for use of underwater lands lease with NYSOGS.
  - Documentation of consistency with the NYS Department of State Coastal Zone Policies.
  - Assessment of impacts on state and federal endangered/threatened species.
  - A SEQRA review with either a negative declaration or a positive declaration with an accepted EIS by the SEQR Lead Agency in order to present a complete application to the NYSDEC under Uniform Procedures Act.
- Permit application materials will need to be submitted to the Corps on 8.5 x 11 sheets since this will be an individual permit with a public notice requirement.
- The Corps and the NYSDEC would both review the application for completeness.
- The project will go through a public notice comment period at both the state and federal level, likely for 30 days.
- The Project Sponsor would then be provided an opportunity to respond to comments of the Corps, NYSDEC and the public.
- The Corps and NYSDEC would then provide any additional comments and/or negotiations with the Project Sponsor. Once all necessary certifications and approvals/determinations from consulting agencies are provided to the Corps and NYSDEC, the two agencies would make a permit decision on the project.

CULTURAL RESOURCES

Cultural Resources - Documented Information:

State Information: Figure 13 below is a computer screen shot of the NYS Cultural Resource Information System (CRIS)[10] illustrating the general project area and its relationship to known cultural resources and sensitive archeological resource areas. The site is located within a gray circle, indicating it is in an area of potential sensitivity for archeological resources. This indicates that previous cultural resource studies in the vicinity of the site have identified pre- or post-contact archeological (below ground) cultural resources and thus there is a higher probability for such resources to be present here. The site is also located in proximity to listed and eligible National Register Buildings or features. These include the following:

- Sloop Clearwater (Listed USN Number 02740.000863) shown as a yellow square docked at the end of the Waryas Pier north of Kaal Rock Point park. Figure 12 is a photograph from the 2013 Kaal Rock – Main Street Action Plan[11] illustrating this feature.
- Sloop Clearwater (NRBuilding Listings NR 03NR05148) shown as a purple rectangle in the Hudson River north of the yellow square mentioned above.
- Mid-Hudson Bridge (Eligible Building USN Number 02740.000791). See the green square on bridge.

[10] NYS Office of Parks Recreation and Historic Preservation. 2016. https://cris.parks.ny.gov.
[11] PPS Project for Public Spaces and Morris Associates Engineering Consultants P.L.L.C. 2012. PDF Page 26 of 135.

- Johnson Plumbing Complex (Eligible Buildings USN Number 02740.000810). These are three mid- to late- 19th century brick buildings at 35 Main Street shown as a green square north of Main Street.
- Two Buildings (Undetermined USN Numbers 02714.000241 and 00241.0000055) at 9 and 9A Main Street, shown as two black squares north of Main Street.
- A National Register District with numerous individually listed buildings located east of Route 9.

It is also noted that the Poughkeepsie Railroad Bridge, now the Walkway over the Hudson is a New York State Park.[12]

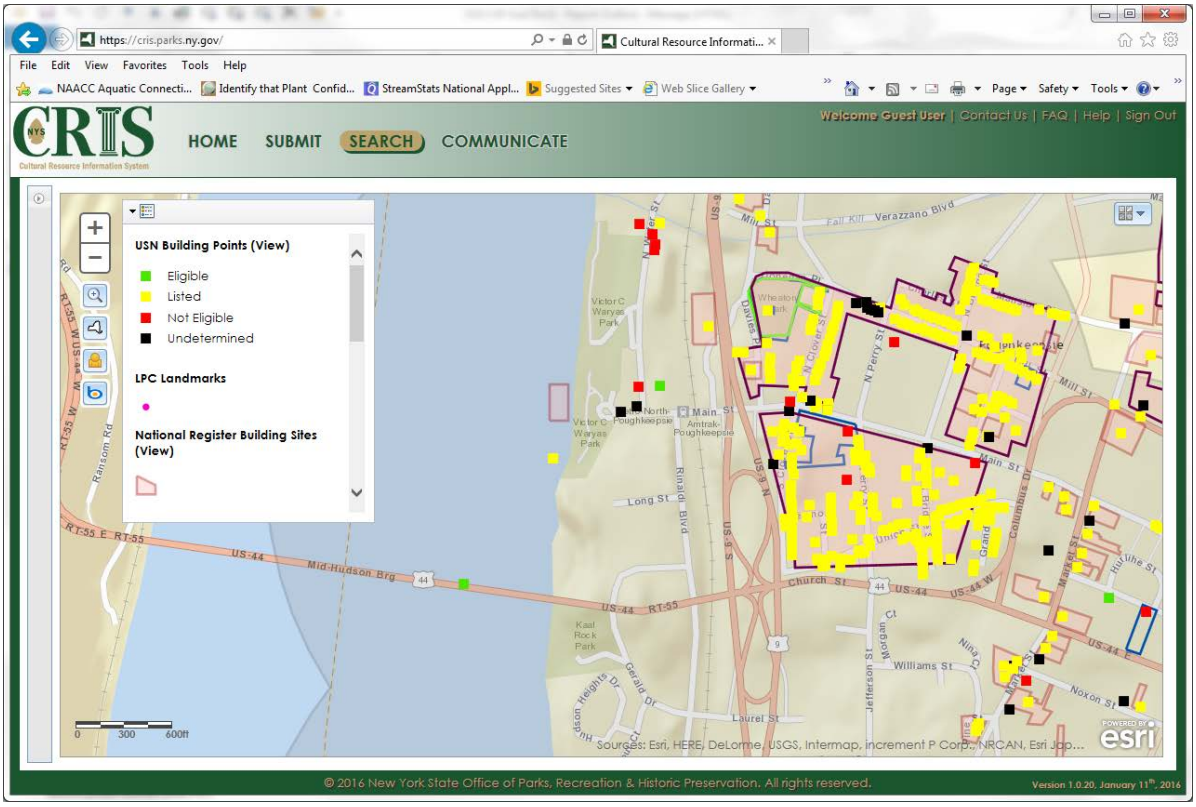


Figure 13: Screenshot of CRIS-Identified Cultural Resources in Vicinity of Project Site

City of Poughkeepsie Information: Poughkeepsie's Waterfront Revitalization Plan mentions cultural resources, stating the following[13].

> "The name Poughkeepsie was derived from the Wappinger language, referring to a reed-covered lodge by a spring located over 1.5 miles south of Main Street. The first Dutch and English settlers in the late 1600 were attracted to mill sites along the Fall Kill Creek and land available for farming. The small river settlement with landings for trade and inland agricutural, a ship building yard and ferry service at Upper Landing on the north side of

[12] Ibid. PDF Page 32 of 135.
[13] City of Poughkeepsie Common Council. 2015. Pages 7 and 8.

the Fall Kill gradually grew into a city as a deep water port halfway between New York City and Albany."

"Home of the County Courthouse since 1720, Poughkeepsie was the state capital during the Revolutionary War...The river was the essential transportation corridor…The three major river landings at the Fall Kill Creek, the center of Kaal Rock Park, and the end of Pine Street were supplemented in the early 1800 by the first Mid-Hudson steamboat terminal at the base of Main Street and even a wharf to the north for a small whaling fleet."

"The City's strategic central location led in the large 1800s to an ideal convergence of river and rail access. In 1850 the Hudson River Railroad Depot was built one block from the Steamboat Terminal. When the only railroad bridge over the Hudson south of Albany was completed in 1889, Poughkeepsie became the junction of two great passenger and freight lines. …Manufacturing flourished along the waterfront and rail tracks, including large-scale plants north of the Railroad Bridge, south of Kaal Rock, and on filled land at the Lower Landing near Pine Street."

"On the river, the annual Inter-Collegiate Regatta, held here from 1986 to 1949 for elite crew teams from access the country, enhanced the City's reputation." See Figure 14A, a photo from the 1920's of crews shells from just south of Kaal Rock[14] and Figure 14B, a view of Kaal Rock Point as it appears today. It is noted that the bestselling book "Boys in the Boat" discusses the crew racing in Poughkeepsie.

Figure 14A: Crews Launching Shells south of Kaal Rock (1920's)
Figure 14B: Kaal Rock (view north) (2016)

Figure 15 is from the Poughkeepsie Waterfront Revitalization Plan and is a "mid-1800 view of the Poughkeepsie waterfront from the sailing sloop and early steamboat years, showing buildings directly adjacent to the shoreline."[15] A red circle has been added around the Kaal Rock Point area, showing two buildings in the vicinity of that promontory. The 2013 Kaal Rock – Main Street Action Plan states that Kaal Rock Point "could have been used in the history as an outlook, and in most recent years was a site for a brewery and later a restaurant. On the plateau at the Rock, there are remnants of older structures and the presence of garden landscape plants, as lilacs and periwinkle show remnants of gardens."[16] The report

[14] PPS Project for Public Spaces and Morris Associates Engineering Consultants P.L.L.C. 2012. PDF Page 132 of 135.
[15] City of Poughkeepsie Common Council. 2015. Page 7.
[16] PPS Project for Public Spaces and Morris Associates Engineering Consultants P.L.L.C. 2012. PDF Page 69 of 135.

also mentions a "restaurant and former residence." [17] Figure 16 illustrates what might be that old restaurant or former residence. Figure 17, an aerial view looking east, also illustrates that building, and a second building to the north. Figure 18A to 18D illustrates photographs of the remnants structure on Kaal Rock Point. The 2013 Kaal Rock – Main Street Action Plan, Section V (PDF pages 50-52) describe historic areas in the vicinity of the waterfront as taken from the City of Poughkeepsie Planning Department; Figure 4 of that report does not identify specific resources within the Kaal Rock Point Park.

Figure 15: Screenshot of mid-1800 Painting of Poughkeepsie Waterfront with Kaal Rock Point

[17] Ibid. PDF Page 3 of 135.

Figure 16: Photo looking northwest of building on top of Kaal Rock Point

Figure 17: Photo looking northwest of building on top of Kaal Rock Point

Figure 18A – 18D: Photographs of structure remnants on north side of Kaal Rock Point

Cultural Resources – Regulatory Implications: A determination of effect on cultural resources is required from the NY State Office of Historic Preservation (SHPO) in order for the Corps of Engineers (Corps) and other regulatory agencies to review any necessary permit applications; this determination of effect is also typically a condition of federal and/or state funding and environmental reviews. There are two types of "effect" that the SHPO would examine. The first would be direct impacts on cultural resources and the second would be indirect impacts (such as visual impacts) on cultural resources. Cultural resources can include archeological resources, such as pre-contact materials left in-situ and building foundations. They can also include buildings, bridges and other features, as listed above.

Cultural Resources – List of Permits/Reviews Needed:

- Section 106 National Historic Preservation Act Review. Concurrence from SHPO, Corps, NYSDEC Cultural Resource Specialists of the effect of the project on any National Register Listed or Eligible Resources, and, if needed, the extent of those resources and mitigation, as documented in a Memorandum of Understanding agreed to by SHPO, Corps, NYSDEC and Project Sponsor.

Cultural Resources - Next Steps: The next steps to address cultural resources would include:

- Retain a cultural resource consultant to complete a Phase 1A/1B Cultural Resource Assessment (literature review/on-site survey) Report.
- Assess/develop a list of National Register listed/eligible properties in vicinity of project and other visually sensitive resources (parks, etc.). Complete a visual impact assessment of project, and likely photo simulations from nearby significant resources.
- Submit Phase 1 Cultural Resource Assessment Report to SHPO for review, with copies submitted to cultural resource specialists at permitting agencies.
- SHPO reviews Phase 1 Report to determine whether the on-site resources need additional study for significance. If resources cannot be avoided and SHPO determines they have the potential to be significant, additional study completed to determine resource' extent and their significance. SHPO also determines visual impact significance on significant (National Register listed or eligible)

cultural resources. Obtain similar feedback from cultural resource specialists at permitting agencies.

- If necessary, based on results of SHPO's review of Phase 1 Report, the cultural resource consultant completes a Phase 2 Cultural Resource Study regarding extent and National Register Eligibility. Report submitted to SHPO for concurrence on findings of extent and eligibility with copies submitted to cultural resource specialists at permitting agencies.
- If SHPO and cultural resource specialists at permitting agencies find that on-site cultural resources are not significant, then no further review by SHPO of impacts on resources. If on-site are significant (eligible for listing on National Register), then Project Sponsor can either avoid the resources or develop and complete a Phase 3 Mitigation Plan (study and document) prior to impacts. Both actions require a Memorandum of Agreement between the Project Sponsor, the SHPO and the consulting regulatory agencies.
- Concurrence on visual impacts (and their mitigation) would also need to be obtained from SHPO and consulting regulatory agencies.

FEMA FLOODPLAINS

Floodplains - Documented Information: Figure 19, FEMA Floodplain Mapping[18] is an excerpt from this FEMA Mapping. The LX1409 is a benchmark location. This indicates that there is a regulated FEMA-floodplain associated with the Hudson River in the vicinity of the project site, circled in red, specifically a Special Flood Hazard Area Subject to Inundation by the 1% Annual Chance Flood. This is identified as an AE area, because the Base Flood Elevation is Determined; that base flood elevation is 8.0 (NAVD 88). There is no floodway mapped for the Hudson River. The 500 year floodplain (black line) is closely aligned with the 100 year floodplain elevation.

The City of Poughkeepsie's Waterfront Revitalization Strategy found that the 100-year floodplain encroached upon portions of the Waryas Park and recommended that "any new buildings should [be] located on higher ground, or in the case of accessory structures, designed to withstand expected flood events. Moreover, climate change is leading to more frequent and severe storms, as well as a rise in the base river levels. The Hudson River has risen about a foot over the last century and future projections are accelerating, up to another foot by the 2050's and roughly double that rate under rapid ice melt scenarios. Scenic Hudson's 2010 guidebook, Revitalizing Hudson Riverfronts, proposes that new buildings and critical infrastructure be located out of the 500-year floodplain." [19]

[18] Federal Emergency Management Agency. 2012. FEMA Floodplain Mapping, Community 360222, Panel 0354E, Map Number 36027CO354E, Effective Date May 2, 2012. See http://map1.msc.fema.gov/idms/IntraView.cgi?ROT=0&O_X=9949&O_Y=5077&O_ZM=0.154588&O_SX=1134&O_SY=849&O_DPI=400&O_TH=94480235&O_EN=94532157&O_PG=1&O_MP=1&CT=0&DI=0&WD=14400&HT=10350&JX=1272&JY=909&MPT=0&MPS=0&ACT=1&KEY=94477098&ITEM=1&PICK_VIEW_CENTER.x=550&PICK_VIEW_CENTER.y=378&R1=VIN. Reviewed March 21, 2016.

[19] City of Poughkeepsie Common Council. 2015. Page 12.

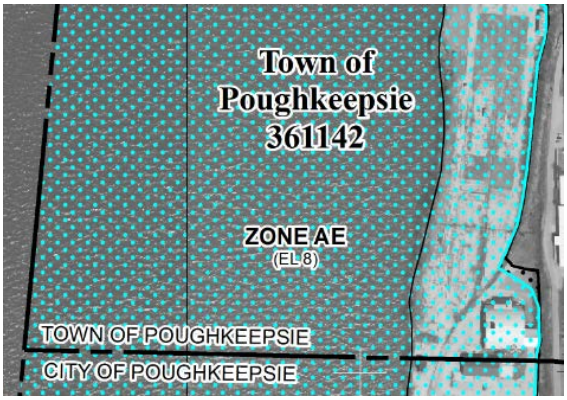
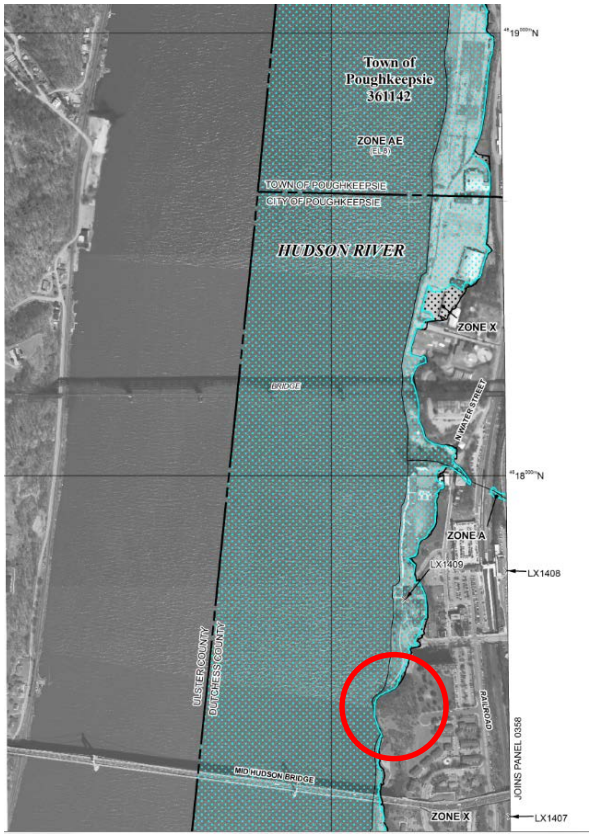


Figure 19: FEMA Floodplain Mapping with Close-up of Elevation



Floodplain - Regulatory Implications: Permitting by the Corps and others requires a demonstration that the project is consistent with local floodplain regulations administered by the City of Poughkeepsie. One design intent of the Scenic Walkway is to keep much of the walkway, and the locations where the walkway connect to on-the-ground travel paths out of the 100- and 500-year floodplain elevation (approximately 8 feet (NAVD88)) and compliant with local regulations.

Floodplain – List of Permits/Reviews Needed:

- Determination of "no impact" or concurrence of compliance with City of Poughkeepsie's Floodplain Regulations by the City of Poughkeepsie Floodplain Administrator.

Floodplain – Next Steps: As the project advances to design development the next steps are needed to vet the project for floodplain regulation compliance.

- Currently the FEMA Floodplain 100 year flood elevation is reported at 8 feet (NAVD 88). In the next iteration of concept drawings, this elevation needs to be correlated to the vertical datum used for the Existing Conditions Mapping and for the location of the project site downstream from the elevation noted on the FEMA Floodplain map.
- In the next iteration of the Concept Design Plan, the approach ramp on the north side, as well as the south side will be checked to determine if they are in or out of the recalibrated 100-year floodplain elevation. Currently the south end connection is at elevation 12, and so should be outside of the FEMA-regulated 100 year floodplain but the north end appears to connect at elevation 7.8 and so may be within the FEMA-regulated floodplain.

- If the filled facilities are outside of the FEMA 100-year floodplain elevation, there should be no additional review. If fill is proposed within the FEMA 100-year floodplain elevation, then this will be part of the City's site plan review for consistency with local floodplain regulations.
- A written consistency determination from the City's designated Floodplain Administrator will be requested for documentation in Corps and state permitting.

ECOLOGICAL RESOURCES

Ecological Resources – Document Information:

Federal Species: Chazen obtained an "IPAC Trust Resources Report" from the USFWS Information Planning and Conservation System (IPaC) website[20]. This report identified three potential species in the region, the dwarf wedgemussel (*Alasmidonta heterodon*), the Indiana bat (*Myotis sodalis*), and the northern long-eared bat (*Myotis septentrionalis*). In addition to these species, it is also commonly known that the shortnose sturgeon (*Acipenser brevirostrum*) and Atlantic sturgeon (*Acipenser oxyrinchus*) are found in this stretch of the Hudson River. Both of these species are regulated by the federal National Marine Fisheries Service (NMFS) as federally listed Endangered Species.

Migratory Birds: The IPAC report also identified 22 migratory birds of conservation concern which may occur in the vicinity of the site.

State Species: Figure 20, NYSDEC Environmental Resource Mapper also identified potential presence of rare plants/animals. By letter dated March 15, 2016, the Chazen requested occurrence information from the NYSDEC NY Natural Heritage Program (NYNHP). By letter dated April 3, 2016 the NYNHP identified the shortnose and Atlantic sturgeon and the peregrine falcon as occurring in the vicinity (0.5 mile) of the project site. The NYSDEC identified one plant species, a historic record, of golden club from 1869, the Hudson River Poughkeepsie. This is a state-threatened species.

Habitats and Significant Communities: Figure 1 indicates that Kaal Rock Point contains a mix of wooded vegetation, some open lawn area and cleared rock face on the southwest portion of the promontory. There are open grasslands to the south of the Long Street cul-de-sac. Open lawn area also exists north of the Long Street cul-de-sac beyond a line of trees. An area of paved asphalt is located in the southwestern portion of the site. The remainder of the terrestrial portion of the site is wooded. The Hudson River is located along the western property boundary and curves around the rock outcrop to the north and south. The Hudson River supports Essential Fish Habitat that is typically reviewed under the Magnuson-Stevens Fisheries Conservation and Management Act. The Hudson River, as a tidal estuary, is identified as a Significant Natural Community, and the Hudson River Significant Deepwater Habitat is located in the deeper sections of the Hudson River some distance off of Kaal Rock Point.

[20] http://ecos.fws.gov/ipac/ (accessed on 08/28/2015).

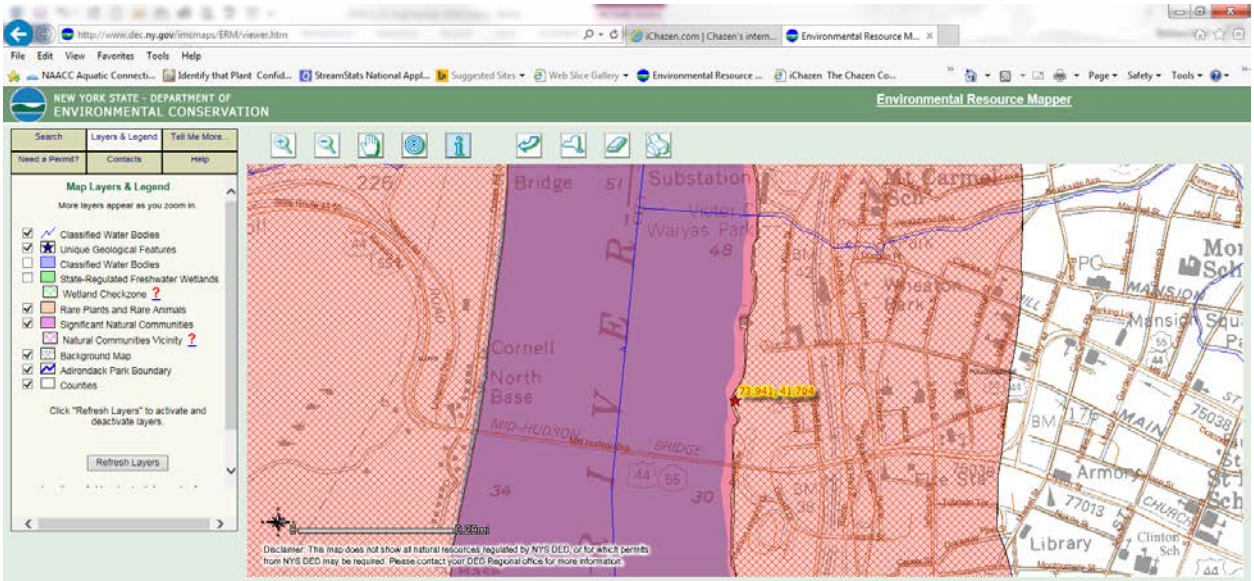


Figure 20: NYSDEC Environmental Resource Mapper

Ecological Resources – Regulatory Implications: A joint permit application to the Corps and NYSDEC includes an assessment of impacts to endangered and threatened species, migratory birds, significant habitats and other ecological resources, along with potential mitigation measures to address these concerns. Table 1 below assesses the ecological resources and potential consultation measures.

Table 1. Suitable Habitat Requirements for Potential Endangered and Threatened Species

Species Name	Regulatory Status[bc]	Preferred Habitat	Potential Habitat Present? Documentation Summary
Dwarf wedgemussel (*Alasmidonta heterodon*)	Federally and State-listed Endangered	In NY, the dwarf wedgemussel lives embedded in fine sediments that have accumulated between cobbles in slow to moderate current and relatively shallow water (40 cm) in small cool water rivers and similar habitat in larger rivers (Stayer and Jirka 1997). Generally these are identified as "confined river," which is defined as the aquatic community of relatively large, fast flowing sections of streams with a moderate to gentle gradient. The only two known populations in New York State occur in the upper Delaware River in Sullivan and Delaware Counties and one of its downstream tributaries, the lower Neversink River in Orange County.	Unlikely to be present. Found in one location east of Hudson River, along New York State's eastern boundary. Hudson River does not represent habitat. No additional review warranted.
Indiana bat[a] (*Myotis sodalis*)	Federally and State-listed Endangered	Suitable summertime roosting habitat is characterized by wooded areas with trees that have sun exposure for at least half of the day, are ≥ 5 in. diameter at breast height (dbh), and exhibit specific physical traits (e.g., exfoliating bark, crevices, dead limbs, snags). Hibernation sites include caves and mines with stable temperatures and relatively high humidity (usually above 74%) for overwintering. Suitable foraging habitat includes riparian/floodplain forests, upland forests, as well as open fields and pastures with scattered trees.	While no NYNHP records for this species in vicinity of site, the site contains wooded areas and is in the documented range of species. Project requires identification of area of woods to be removed. Timing of clearing restriction to winter will likely be adequate to address potential impacts. Consultation information to be included in Joint Permit Application.
Northern long-eared bat[b] (*Myotis septentrionalis*)	Federally listed Threatened (State - not on list at 6 NYCRR 182.5 but are federally listed)	The reproductive habits of this bat are not well known. It is believed that they behave similarly to the Indiana bat, with the females congregating in maternity colonies in the spring, often using trees with cavities, crevices, and loose bark for daytime roosts. They may also roost in buildings and behind shutters. They are associated with mature interior forest and may prefer foraging on forested ridges and hillsides.	While no NYNHP records for this species in vicinity of site, site contains wooded habitats and is in the documented range of species. Consultation information to be included in Joint Permit Application.

Species Name	Regulatory Status[bc]	Preferred Habitat	Potential Habitat Present? Documentation Summary
Shortnose sturgeon (*Acipenser brevirostrum*)	Federally and State Endangered	The shortnose sturgeon is found in the Hudson River, and it is anadromous, migrating from salt water to span in freshwater. Adult sturgeon migrate upriver from the Mid-Hudson area, overwintering in freshwater spawning sites north of Coxsackie, and spawn from April to May.	The Hudson River is present within the site limits, but no significant impacts to the Hudson River are proposed. Obtain concurrence from NMFS regarding impacts.
Atlantic sturgeon (*Acipenser oxyrinchus*)	Federally Endangered State No Open Season[e]	Atlantic sturgeon occurs in deeper portions of the Hudson River. Adults spawn in freshwater in spring and early summer and migrate into estuarine and marine waters where they spend most of their lives. Males may be present in freshwater areas from between April and November, whereas females may be present only during spawning times from May to July. They spawn in moderately flowing waters in deep parts of large rivers. Eggs are deposited on bottom sediments on hard surfaces. Juveniles reside in estuarine waters for months to years. Subadults and adults live are in coastal waters when not spawning.	The Hudson River is present within the site limits, but no significant impacts to the Hudson River are proposed. Obtain concurrence from NMFS regarding impacts.
Peregrine falcon (*Falco peregrinus*)	State Endangered	According to the NYSDEC Breeding Bird Atlas, "About half of New York's nests are on cliffs and half on artificial structures, usually bridges or buildings...Many of the urban sites, especially those on bridges are vulnerable to disturbance. The New York City Department of Environmental Protection cooperates with the NYSDEC, and together with bridge authorities and building management they ensure that necessary maintenance and other work takes place in a manner that avoids disturbing the falcons during the nesting season. Although some pairs exhibit remarkable tolerance for nearby human activity…others appear to need a buffer[21]"	Need to coordinate with the NYSDEC Region 3 Endangered Species Unit to identify location of peregrine falcon and appropriate construction timeframes to avoid disturbance. It is noted that the project site is in a park with significant human activity.

[21] McGowan, Kevin and Corwin, Kimberly. 2008. Second Atlas of Breeding Birds in New York State. Cornell University Press. Ithaca, NY.

Species Name	Regulatory Status[bc]	Preferred Habitat	Potential Habitat Present? Documentation Summary
Golden club[a] (*Orontium aquaticum*)	State-Threatened	Record from 1869 from the Hudson River. Freshwater tidal marshes, swamps, mudflats.	The Hudson River is present within the site limits, but no significant impacts to the Hudson River are proposed. Obtain concurrence from NYSDEC regarding impacts.
Hudson River Estuary	N/A	A deepwater habitat in the Hudson River ranging in depth from 20 to 50 feet or more, that provides wintering habitat for shortnose and Atlantic sturgeon, and a diversity of freshwater and migratory fish species. Important spawning area for Atlantic sturgeon. Critical habitat for estuarine-dependent fisheries. Habitat for blue crab and concentrations of waterfowl. The Kingston-Poughkeepsie Deepwater is critical habitat for most estuarine-dependent fisheries…contributes directly to the production of in-river and ocean populations of food, game, and forage fish species. Consequently, commercial and recreational fisheries throughout the North Atlantic benefit from these biological inputs from the Hudson River estuary.	The Hudson River is present within the site limits, but no significant impacts to the Hudson River are proposed. Obtain concurrence from NYSDEC and NMFS regarding impacts.
Kingston-Poughkeepsie Deepwater Habitat[c]	N/A		
Essential Fish Habitat	N/A		

[a]Sources: NYNHP. 2014. Online Conservation Guides. Available from: http://www.acris.nynhp.org.
[b]Sources: https://govt.westlaw.com/nycrr/ 6 NYCRR 182.5. Last updated August 31, 2015. Accessed October 22, 2015. Note that the Northern Long-Eared Bat is not listed on the state list as threatened 6 NYCRR 182.5, but this section makes reference of federal listing. Similarly, Atlantic sturgeon not on the State List, but is identified as "No Open Season" in the June 17, 2015 NYNHP Response letter.
[c]Sources: http://www.dos.ny.gov/opd/programs/consistency/Habitats/HudsonRiver/Kingston_Poughkeepsie_Deepwater_FINAL.pdf
[d] Sources: NYSDEC Shortnose sturgeon Fact Sheet: http://www.dec.ny.gov/animals/26012.html
[e] Sources: http://www.nmfs.noaa.gov/pr/species/fish/atlanticsturgeon.htm#habitat.

Ecological Resources – List of Permits/Reviews Needed:

- Federal Endangered Species Act Section 7 Consultation between USFWS and Corps for Indiana bat and northern long-eared bat. An assessment of impacts to resources will be included in Joint Permit Application and will be used as the basis for consultation. Likely addressed through timing restrictions on tree clearing.
- Federal Endangered Species Act Section 7 Consultation between NMFS and Corps for sturgeon. An assessment of impacts to resources will be included in Joint Permit Application and will be used as the basis for consultation. Assumed to be no significant impacts given the nature of the project.

- Federal Migratory Birds Treaty Act Consultation between USFWS and Corps. For impacts to potential bird species of concern. Likely addressed through timing restrictions on tree clearing.
- Federal Essential Fish Habitat Magnuson-Stevens Fisheries Conservation and Management Act consultation between Corps and NMFS for impacts to fisheries in Hudson River. An assessment of impacts to resources will be included in Joint Permit Application and will be used as the basis for consultation. Assumed to be no significant impacts given the nature of the project.
- State Endangered Species Act consultation with NYSDEC under Environmental Conservation Law Article 11. This will be for potential impacts to all state species where there is an occurrence record. These include the two sturgeon species and the peregrine falcon. An assessment of impacts to resources will be included in Joint Permit Application and will be used as the basis for consultation with the NYSDEC. Impacts will be avoided based on the nature of the project (no habitat impacts to sturgeon) and potential timing of construction to avoid impacts to the falcon. Review of sturgeon will be by Hudson River Fisheries Unit at 21 South Putt Corners Road, New Paltz, NY 12561 at 845-256-3071.
- SEQRA Review/Coastal Consistency review for potential impacts to Kingston-Poughkeepsie Deepwater habitats, state listed plant and general habitats. Potential impacts discussed in SEQRA documents, Coastal Zone Consistency documents to be reviewed by Lead Agency and NYS Department of State for potential impacts. Coastal consistency is discussed below in this letter.

Ecological Resources – Next Steps: As the project moves out of Conceptual Design the next steps are needed to vest the project for ecological resources.

- Identify the area of tree removal versus trees to remain at the project site.
- In discussions with regulatory agencies, identify best management practices to avoid, minimize and mitigate potential impacts to water resources from construction and operation, and impacts to terrestrial features, such as timing restrictions for tree removal and construction.
- Complete informal review with USFWS, NMFS, NYSDEC and develop impact assessments.
- Include impact assessments in Joint Permit Application to Corps and NYSDEC.

COASTAL RESOURCES

Coastal Resources – Document Information:

City of Poughkeepsie has a draft Local Waterfront Revitalization Plan (LWRP)[22] and an active Local Waterfront Advisory Committee. The draft LWRP is used by the City in the review of projects before the City for various approvals and for its own projects. The City would also provide comments as an interested party to NYSDOS on any proposed project.

As shown in Figure 21A, the project is in the state coastal zone, with the coastal zone boundary located eastward of the site running north to south along Market Street.[23] As shown in Figure 21B, the project site is adjacent to Scenic Areas of Statewide Significance (SASS) which includes the Hudson River itself as well as the hills adjacent to the Hudson in Ulster County. As shown in Figure 21C, the project site is located to the east of the Kingston-Poughkeepsie Deepwater Habitat, discussed above within "ecological resources." Therefore the NYS Department of State (NYSDOS) is responsible for determining consistency

[22] NYSDOS. 2016. Local Waterfront Revitalization Programs. http://www.dos.ny.gov/opd/programs/WFRevitalization/LWRP_status.html. Reviewed 4/1/2016.
[23] Ibid. 2016. See https://appext20.dos.ny.gov/coastal_map_public/map.aspx. Reviewed 4/1/2016.

with the enforceable policies of the New York State Coastal Zone Program with a particular focus on scenic and ecological resources.

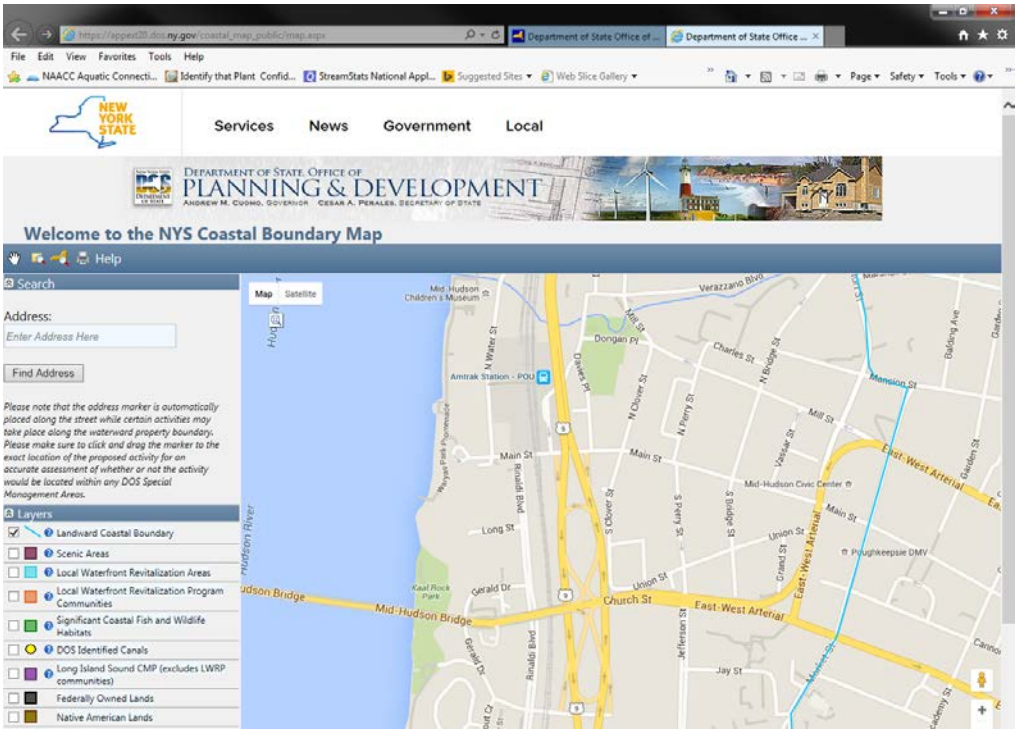


Figure 21A: NYS Coastal Zone Boundary, shown in Blue running North/South along Market Street

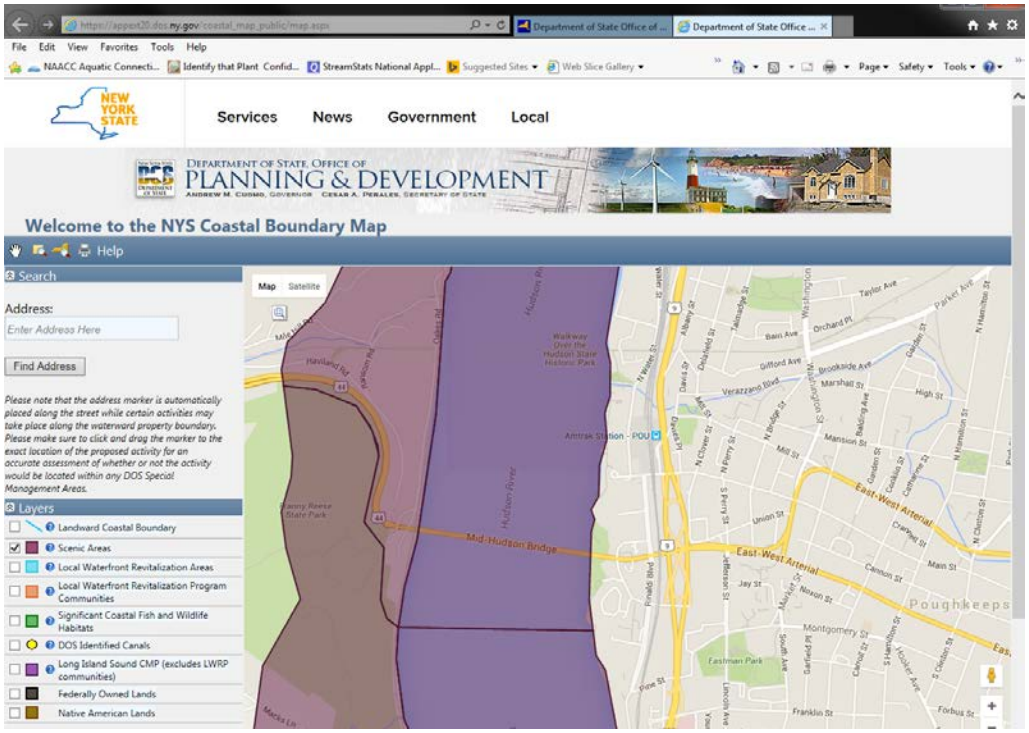


Figure 21B: NYS Coastal Scenic Areas shown in purple

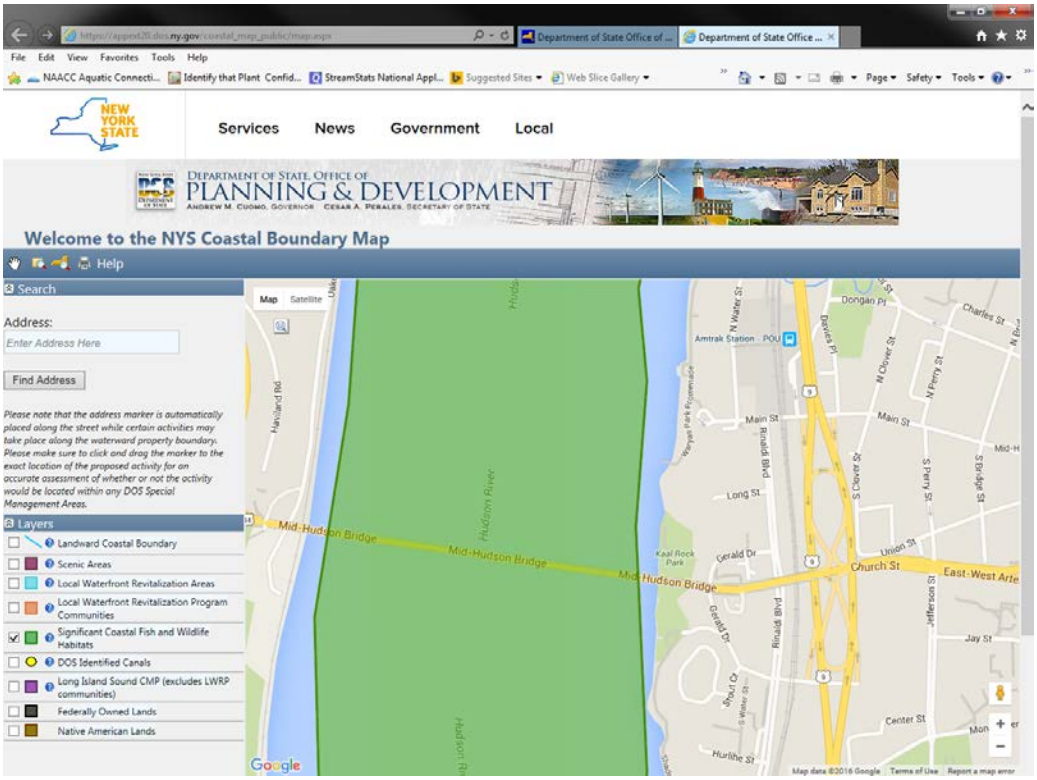


Figure 21C: NYS Coastal Scenic Areas shown in purple

Coastal Resources – Regulatory Implications: The NYSDOS Consistency Review Process for Federal Projects are discussed on the NYSDOS Website.[24] This project requires Federal Consistency Review because it is within the Coastal Area and requires an individual permit (not nationwide permit) from the Corps of Engineers. The review process involves submittal of a Federal Coastal Consistency Assessment, prepared by the Project Sponsor or Applicant as an attachment to the Joint Permit Application. Information required includes:

- Detailed map of the proposed activity, its associated facilities, and coastal effects;
- Maps showing the project location;
- A site map with all components of the activity;
- Recent color photographs illustrating the existing site in its entirety;
- A written statement of the purpose and need for the project;
- Identification of adjoining landowners and underwater lands;
- A written analysis of alternatives to the proposed activity considered which supports selection of the proposed alternative;
- Federal Consistency Assessment Form (FCAF), and;
- Other supporting documentation, typically including a discussion of the project in relation to the 44 New York Coastal Policies.

[24] NYSDOS. 2016. http://www.dos.ny.gov/opd/programs/consistency/index.html. 2016.

[The NYSDOS can begin its review once all necessary data is obtained. By regulation, the NYSDOS has 6 months to complete this review, although reviews may take less time. The review will consider impacts on the 44 Coastal Policies, including particular focus in this area on impacts to Scenic Areas of Statewide Significance.

Coastal Resources – List of Permits/Reviews Needed:

- NYSDOS must issue a Coastal Consistency Concurrence, that the project is consistent with the NYS Coastal Policies, prior to the Corps and NYSDEC issuing their individual permits.

Coastal Resources – Next Steps: As the project moves out of Conceptual Design the next steps are needed to vest the project for coastal resources.

- As part of the Joint Permit Application, assemble the documentation necessary to support the Federal Coastal Consistency Assessment and Form. This would include assessment of visual impacts on SASS.
- Include documents as attachment to Joint Permit Application to Corps and NYSDEC and submit to NYSDOS.

SITE CONTAMINATION

Site Contamination – Document Information:

Figure 17, which illustrates the Kaal Rock Point from an aerial photograph and the buildings that rested on that rock, also illustrates a series of large Above Ground Storage Tanks (ABST) of large size on the north and south sides of Kaal Rock, in what is now Waryas Park and Kaal Rock Park. These tanks were located in the vicinity of the proposed northern and southern landing zones for the Scenic Walkway. Table 2 provides known data about each of these parcels from the Dutchess County GIS Mapper.

Table 2 – Parcel Information

Common Name	Waryas Park	Kaal Rock Point Park	Kaal Rock Park
Acreage	1.43	3.58	6
Lot Number	718136	7200091	705060
Block Number	74	82	82
Section Number	7062	6062	6062
Street Address	Main Street	21 Long Street	Gerald Drive
Owner	City of Poughkeepsie	Poughkeepsie Urban Renewal	City of Poughkeepsie

There were no spill incidents identified in the NYSDEC Spill Incidents Database[25] for "Gerald Drive" or for "21 Long Street" from 01/01/1978 to current. There are 44 record counts for "Main Street" the earliest from 1990. Without an address for Waryas Park, it is not possible to refine this search. Similarly there were no results in the "Environmental Site Remediation Database Search for "Gerald Drive" or "21 Long Street." Four records were identified for "Main Street," none of which appeared to agree with the address of the subject properties.

Construction/Regulatory Implications

There may be the need for soil excavation or dewatering for construction on the north or south sides of the rock. It is recommended that additional review of the any site clean-up records for this property be completed early in the process. It is also recommended that as design progresses, and presuming the site calls for below ground foundations at the north or south ends of the walkway, that a groundwater and soil sampling and testing plan be undertaken and completed to determine if any additional mitigation measures need to be implemented during construction.

CITY OF POUGHKEEPSIE SEQRA AND ZONING

SEQRA and Zoning – Document Information

The proposed Kaal Rock Point Scenic Walkway project is considered a Type I Action under the State Environmental Quality Review Act (SEQRA) due to the project's proximity to the Sloop Clearwater National/State Historic Register site (03NR05148), per Section 617.4 of the SEQRA regulations. Additionally, the Johnson Plumbing Complex at 35 Main Street (NYSOPRHP USN Number 02740.000810), which is noted as eligible for listing by NYSOPRHP, is also adjacent to the project site. Therefore, the preparation of a Full EAF and a coordinated SEQRA review will be required. The SEQRA Lead Agency will be determined when a funding source is secured.

Figure 22 provides the City of Poughkeepsie Zoning Map for this portion of the City.[26] Kaal Rock Point parcel (720091) is situated in the Urban Density Residence (R-6) District. Kaal Rock Park parcel (to the south) (705060) is situated in the Waterfront (W) District. The Waryas Park (718136) and Rip Van Winkle Housing parcel (749131) is situated in the Waterfront Transit-Oriented Development District (WTOD).

"Municipal parks and recreation facilities, including refreshment and service buildings accessory thereto and any other government uses and structures of the City of Poughkeepsie…" are permitted uses in the Waterfront (W) District, and "public or private marinas and parks and refreshment and service buildings accessory thereto" are permitted uses in the Urban Density Residence (R-6 zoning) district. Permitted Uses in the WTOD District (subject to site plan review) (from Table A, Principal Use Table)[27] include "Boat

[25] NYSDEC. 2016. Spill Incidents Database Search Results. http://www.dec.ny.gov/cfmx/extapps/derexternal/spills/. Reviewed 4/21/2016.
[26] Dutchess County. 2016. Website for zoning. http://www.co.dutchess.ny.us/CountyGov/Departments/Planning/poughkeepsiecity.pdf. Reviewed 4/22/2016. According to Paul Hesse, City Planner, the City of Poughkeepsie is updating the GIS mapping for the City Zoning Map on the City Website; the Dutchess County Mapping is up-to-date.
[27] City of Poughkeepsie. 2016. "City of Poughkeepsie Website; adopted Zoning." http://cityofpoughkeepsie.com/wp-content/files/plan/2014%20_WTODZibubg_completepacket_FINALADOPTED.pdf Reviewed 4/22/2016. Again,

Launch; Community Facility/Uses, Public; Market for Arts, Crafts, or Food Products; Marina; Parks, recreation and open space; Pier; Public Uses, Community Services; Recreational Facility, Commercial (less than 10,000 sf)"

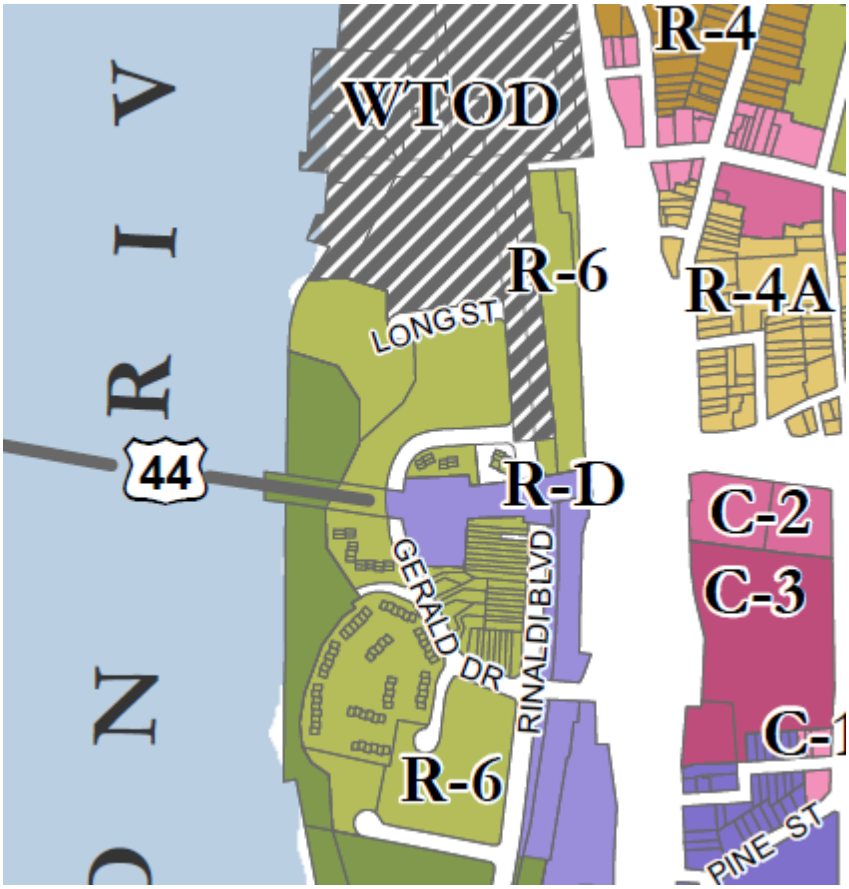


Figure 22: City of Poughkeepse Zoning Map

The statement of intent for residence districts provided in Section 19-3.11 of the zoning regulations include:

(1) *To provide sufficient land in appropriate locations for residential development to meet the housing needs of the city's present and expected future population.*

(2) *To protect residential areas from any environmentally objectionable influences.*

(3) *To protect residential areas, as far as possible, from the consequences of heavy traffic and through traffic.*

(4) *To protect residential areas from congestion by regulating the density of population and the bulk of buildings in relation to the land around them and to one another; by providing for off-street parking spaces, open space and recreation areas.*

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according to Paul Hesse, City of Poughkeepsie Planner, these files are the final zoning code, and will be uploaded to eCode shortly.

(5) *To protect and enhance the aesthetic appeal and character of residential neighborhoods by suitable landscaping and screening of unsightly activities wherever possible and by breaking the monotony of continuous building bulk.*

(6) *To protect the character and integrity of areas and sites designated as of historic and architectural interest.*

(7) *To provide for privacy and for access of light and air to windows by assuring the proper spacing of buildings and other structures in relation to their height.*

(8) *To provide for the appropriate location of those educational, religious, recreational, health and similar facilities which serve the needs of nearby residents, which generally perform their own activities more effectively in a residential environment and which do not generate objectionable influences.*

(9) *To conserve the value of land and buildings and to protect and enhance the city's tax revenues.*

The purpose of the Urban Density Residence District (R-6) per Section 19-3.17(1) is "*to provide areas for very intense residential development accessible to all commercial, cultural and community services and major transportation facilities and to provide opportunity for limited nonresidential activity that will enrich the urban environment*."

The purpose of the Waterfront District (W) per Section 19-3.34(1) is "*to encourage the creation or maintenance of sound development of certain portions of the City's waterfront in a manner that optimizes the waterfront location while simultaneously protecting the physical integrity of the waterfront and expanding the range of water-oriented activities for residents and visitors"*.

The purpose of the Waterfront Transit-Oriented Development District (WTOD) per section 19-37(1) is to "*encourage a pedestrian-friendly, urban mix of public, recreational, residential, and compatible commercial uses within walking distance of waterfront parks, the Walkway Over the Hudson elevator, and the Railroad Station. This mixed-use district is designed to promote public access to the waterfront along a continuous Greenway park and walkway system and to create a regionally connected destination center around the Railroad Station with direct links up Main Street to the City Center. The waterfront is one of the City's greatest assets and represents exceptional opportunities for balancing high value development with public access to riverfront recreational and entertainment activities….*" The standards in the section (Section 19-37(2)) then go on to identify specific objectives for this zone, including "*water dependent and water enhanced recreational, public, residential and compatible commercial uses…enhance public access to the river, and ensure that development and land or water use activities occur in harmony with the parkland and ecological systems that exist along the Hudson River…encourage an active waterfront walking district, bicycling…for residents and visitors…to enhance public access to the river and ensure that development and land or water use activities occur in harmony with the parkland and ecological systems that exist along the Hudson River…to ensure that development of the waterfront is consistent with the City's Local Waterfront Revitalization Program.*"

Table 3 provides the bulk requirements for the R-6 and W Districts. The design requirements for the WTOD Zoning District as found in Section 19-37 are more prescriptive and not easily placed in tabular format although the Bulk Requirements for the Rip Van Winkle parcel (749131) are found under Block D.

Table 3 - Bulk Requirements for R-6 and W Zoning Districts

REQUIREMENT	R-6 DISTRICT	W DISTRICT
Minimum lot area for non-residential development	14,000 SF	None
Minimum lot width	100 FT	NA
Minimum frontage	100 FT	50 FT
Minimum front yard	20 FT	None, except if provided must be at least 6 FT
Minimum side and rear yards for uses other than 1, 2, or 3-family dwellings	10 FT	None, except if provided must be at least 6 FT
Maximum lot coverage	70%	50%
Maximum Floor Area Ratio (FAR)	NA	1.25
Required open space	NA	
Maximum height	None	60 FT*
Minimum distance of structures from the mean high water mark of the Hudson River, other than structures or improvements of which the usual and customary use requires direct communication with the waters of the Hudson River such as, but not limited to, piers, docks, marinas, fishing stations, boat launches or the like: 25 feet.	NA	25 FT

* Where structures of maximum height will adversely affect views from the following locations, public parks, the Poughkeepsie Railroad Station, Kaal Rock, the Mid-Hudson Bridge, Vassar Brothers Hospital, DeLaval, the steps of Our Lady of Mount Carmel Church, such structures must be reduced to a height that will not impact said views except that in no instance shall buildings be required to be reduced to less than 35 feet in height inclusive of rooftop mechanicals, water towers or ornamentation.

Section 19-4.6, *Flood damage prevention*, of the Zoning regulations regulates activities located within special flood hazard areas, which are areas subject to a 1% or greater chance of flooding in any given year (i.e. 100 year floodplain).

SEQRA and Zoning – Regulatory Implications

The proposed Kaal Rock Point Scenic Walkway project is a permitted use in both the R-6 and W zoning districts. Proposed buildings and structures will be required to meet the above bulk requirements for the appropriate zoning district. Any buildings/structures that do not meet these requirements may require an area variance from the City of Poughkeepsie Zoning Board of Appeals. Any proposed construction within the 100 year floodplain will require a floodplain development permit application to the Zoning Administrator, and must adhere to the standards of Section 19-4.6 of the zoning regulations.

The proposed mast structures are on the Kaal Rock Point property (720091), which as shown on Figure 22 are in the R6 zone. There is no maximum height for structures in the R6 Zone. Therefore, we do not believe a height variance is required for the mast structures associated with the walkway. It is noted that

visual impact assessments will need to be completed for assessments by the NYSDOS Coastal Zone and by the City of Poughkeepsie as part of consistency with their own LWRP.

There is a 60 foot height standard for structures in the "W" district except that "where structures of maximum height will adversely affect views" from a list of specific locations, then "such structures must be reduced to a height less than 35 feet inclusive of rooftop mechanicals, water towers or ornamentation." A reading of this clause would indicate that a variance is required for structures greater than 60 feet in height, or for structures >35 feet and <60 feet in height where there are adverse visual effects and the structure's height cannot be reduced to eliminate those adverse effects.

SEQRA and Zoning – List of Permits/Reviews Needed

The proposed Kaal Rock Point Scenic Walkway will require site plan approval by the City Planning Board and SEQRA review and a determination of significance by the Lead Agency, which is expected to be the funding agency. If any development is proposed within a 100-year floodplain, a floodplain development permit will be required.

SEQRA and Zoning – Next Steps

As the project moves out of Conceptual Design, the next steps are needed to vest the project within the City of Poughkeepsie relative to SEQRA and Zoning. Once a source of funding is identified, the funding agency, as proposed Lead Agency, will prepare a City of Poughkeepsie site plan application and Part 1 of the Full Environmental Assessment Form (FEAF), and a notice of intent to be Lead Agency for SEQRA review along with the FEAF and concept plan will be circulated to all involved agencies. After 30 days, if there are no objections to the proposed Lead Agency, the Lead Agency will adopt a resolution declaring itself as Lead Agency and will continue with SEQRA review.

The site plan application and FEAF and associated application and review fees are submitted to the Zoning Administrator, who will review the material for completeness and for compliance with the provisions of the zoning regulations. The Zoning Administrator shall act to certify the application or return it to the applicant for completion within 30 days. Once the Zoning Administrator determines the application to be complete, the application must be referred to the Planning Board within 5 working days. The Application will simultaneously be reviewed by the City Engineer, Chief of Police, Fire Chief, Director of Public Works, and Plumbing Inspector for review by these department heads. The plans will be circulated where required to the County Department of Planning and Development, County Highway Department, and any other agency that the Zoning Administrator and Director of Planning and Development deem appropriate. The Planning Board may hold a public hearing on the site plan if it determines that the matter is of wide public interest.

If you have any questions regarding this report, please do not hesitate to contact me at 518-824-1934 or bbeall@chazencompanies.com

Sincerely,

Barbara B. Beall, PWS, LEED®AP
Principal
Director, Natural Resource Services

BBB/bbb
Encl.

APPENDIX G

SEQRA Long EAF

Full Environmental Assessment Form Part 1

KAAL ROCK POINT
SCENIC WALKWAY

21 Long St, Gerald Dr, Main St, & 10 Rinaldi Blvd
City of Poughkeepsie
Dutchess County, New York

May 6, 2016

THE Chazen COMPANIES®
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Prepared for:
Poughkeepsie Alliance
c/o Paul Calogerakis, Key Bank
2515 South Rd 4rd Floor
Poughkeepsie, NY 12601

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Full Environmental Assessment Form Part 1

KAAL ROCK POINT
SCENIC WALKWAY

21 Long St, Gerald Dr, Main St, & 10 Rinaldi Blvd
City of Poughkeepsie
Dutchess County, New York

May 6, 2016

THE Chazen COMPANIES®
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Engineers
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Prepared by:

Chazen Engineering, Land Surveying & Landscape Architecture Co., D.P.C.
21 Fox Street
Poughkeepsie, New York 12601
(845) 454-3980

Capital District Office
(518) 273-0055

North Country Office
(518) 812-0513

CONTENTS

PROJECT DESCRIPTION

FULL ENVIRONMENTAL ASSESSMENT FORM PART 1 WITH ENDNOTES

FIGURES

Figure 1: USGS Location Map
Figure 2: Orthophoto Tax Map
Figure 3: Contiguous City-Owned Parcels
Figure 4: Wetland and Stream Map
Figure 5: Land Use Map
Figure 6: Soils Map
Figure 7: Floodplain Map
Figure 8: NYSDEC Environmental Resource Map
Figure 9: NYSOPRHP Cultural Resource Information System (CRIS) Map
Figure 10A: Map of Publicly Accessible Federal, State, or Local Scenic or Aesthetic Resources within Five (5) Miles
Figure 10B: Map of Publicly Accessible Federal, State, or Local Scenic or Aesthetic Resources within One (1) Mile

ATTACHMENTS

Attachment A: Concept Plan
Attachment B: Correspondence
Attachment C: USFWS IPaC Trust Resource Report

PROJECT DESCRIPTION

PROJECT DESCRIPTION

The City of Poughkeepsie is located along the shores of the Hudson River. Founded in the 18th Century, the City is proud of its rich maritime history and has been undertaking planning efforts to revitalize its Hudson River waterfront for the benefit of the entire Mid-Hudson Region of New York State. A key component of this revitalization strategy is a continuous walkway north to south along the waterfront, which will connect important destinations in Poughkeepsie and serve as link through the Hudson River corridor. Kaal Rock Point, a large rock outcrop that extends out from the shore and into the Hudson River on City parkland, has long been an obstacle to this envisioned walkway.

The proposed Kaal Rock Point Scenic Walkway project consists of the construction of an elevated walkway around the Kaal Rock Point rock face above the Hudson River, with connections to Waryas Park at the north end and Kaal Rock Park at the south end. This project also envisions enhancement to Kaal Rock Park, making it a destination in and of itself. The proposed project involves four tax parcels as follows:

Tax Parcel	Description	Parcel Address	Parcel Owner	Parcel Acreage
6062-82-720091	Kaal Rock Point – elevated walkway & maintenance building	21 Long Street	City of Poughkeepsie Urban Renewal	3.62
6062-74-718136	Northernmost parcel – trail connection to Waryas Park	Main Street	City of Poughkeepsie	1.46
6062-82-705060	Kaal Rock Park – trail connection	Gerald Drive	City of Poughkeepsie	2.35 portion of 6.6 acre parcel (north of Rt 44/55)
6062-74-749131	Apartments – potential future trail connection to Main Street	10 Rinaldi Blvd	Rip Van Winkle House, LLC	4.89
Total:				12.32

The proposed walkway is approximately 500 feet long and suspended approximately 15 feet above the Hudson River around the western edge of Kaal Rock Point. This design allows the walkway to be used year-round, as it is above the reach of Hudson River's floodwaters and ice flows. The design is also intended to be ADA-accessible. Reminiscent of both the Mid-Hudson Suspension Bridge and Poughkeepsie's maritime heritage, the walkway and park design adopt a nautical theme reflected in steel masts and cables to suspend the walkway over the Hudson.

The walkway will be located approximately 350 feet north of the Mid-Hudson Bridge (NYS Route 55) in the City of Poughkeepsie on parcel number 720091 (Kaal Rock Point). The northern limit of the walkway begins and connects into Waryas Park (parcel 718136) continues westward over the Hudson River (underwater lands owned by the State of New York), and southeast, connecting to lands associated with Kaal Rock Park (parcel 705060). To the northeast of the site is the Rip Van Winkle Housing parcel (Parcel 749131), where a future pedestrian/bike trail connecting northward to Main Street and southward to the remainder of Kaal Rock Park may be proposed.

According to the City of Poughkeepsie Zoning Map, the northernmost portion of the project site (parcel 718136) is situated in the Waterfront Transit Oriented District (WTOD), the southern portion (parcel 705060) is situated in the Waterfront (W) District, and the central and eastern portion (parcels 720091 and 749131) are situated in the Urban Density Residence (R-6) District. "Municipal parks and recreation facilities, including refreshment and service buildings accessory thereto and any other government uses and structures of the City of Poughkeepsie…" are permitted uses in the W district. "Public or private marinas and parks and refreshment and service buildings accessory thereto" are permitted uses in the R-6 zoning district. "Parks, recreation and open space" are permitted uses in the WTOD.

The FEAF was completed utilizing the NYSDEC EAF Mapper. The EAF Mapper tool sometimes indicates limited availability for certain digital data. Endnotes are provided for certain responses to provide clarification of or reference used for the response.

FULL ENVIRONMENTAL ASSESSMENT FORM (FEAF) WITH ENDNOTES

The Chazen Companies
May 6, 2016

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Sponsor Information.

Name of Action or Project: Kaal Rock Point Scenic Walkway		
Project Location (describe, and attach a general location map): Kaal Rock Park and Kaal Rock Point; 21 Long St, Main St, Gerald Dr, and 10 Rinaldi Blvd	Parcels 6062-82-720091, 6062-74-718136, portion of 6062--82-705060, and potentially 6062-74-749131. Refer to Figures 1 and 2 and Endnote 1.	
Brief Description of Proposed Action (include purpose or need): Proposed elevated walkway around the Kaal Rock Point rock face above the Hudson River, with connections to Waryas Park at the north end and Kaal Rock Park at the south end. The proposed walkway is approximately 500 feet long and suspended 15+/- feet above the Hudson River around the western edge of Kaal Rock Point. This design allows the walkway to be used year-round, as it is above the reach of Hudson River's floodwaters and ice flows, and it will be ADA-accessible. Reminiscent of both the Mid-Hudson Suspension Bridge and Poughkeepsie's maritime heritage, the walkway and park design adopt a nautical theme reflected in steel masts and cables to suspend the walkway over the Hudson. The walkway will be located approximately 350 feet north of the Mid-Hudson Bridge (NYS Route 55). The northern limit of the walkway begins and connects into Waryas Park and continues westward over the Hudson River (underwater lands owned by the State of New York), and southeast, connecting to lands associated with Kaal Rock Park. To the northeast of the site is the Rip Van Winkle Housing property, where a future pedestrian/bike trail connecting northward to Main Street and southward to the remainder of Kaal Rock Park may be constructed. Please refer to Concept Plan in Attachment A. For the purpose of the FEAF, the 12.32 acre project area consists of three tax parcels plus a portion of the Kaal Rock Park parcel as shown in Figure 2 and described in Endnote 1.		
Name of Applicant/Sponsor: City of Poughkeepsie (Mayor Rob Rolison)	Telephone: 845-451-4073 E-Mail: mayor@cityofpoughkeepsie.com	
Address: City Hall 3rd Floor, 62 Civic Center Plaza		
City/PO: Poughkeepsie	State: NY	Zip Code: 12601
Project Contact (if not same as sponsor; give name and title/role): (Michael Baron) Chazen Engineering, Land Surveying, & Landscape Architecture Co., D.P.C.	Telephone: 518-266-7315 E-Mail: mbaron@chazencompanies.com	
Address: 21 Fox Street		
City/PO: Poughkeepsie	State: NY	Zip Code: 12601
Property Owner (if not same as sponsor): Same as Applicant (except parcel 749131 owned by Rip Van Winkle House LLC)	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Council, Town Board, or Village Board of Trustees ☑Yes ☐No	approval, funding	May 2016
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	site plan, floodplain development permit	TBD
c. City Council, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☐Yes ☑No		
e. County agencies ☑Yes ☐No	Dutchess County Dept of Planning GML 239m review	TBD
f. Regional agencies ☐Yes ☑No		
g. State agencies ☑Yes ☐No	NYSDEC GP-0-15-002; NYSDEC Article 15 Permit; NYSOGS "air rights" agreement for walkway above Hudson River	TBD
h. Federal agencies ☑Yes ☐No	USACOE Section 10 Individual Permit	Jun 2016

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☑Yes ☐No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☑Yes ☐No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes ☐No

If Yes, identify the plan(s):

Poughkeepsie Waterfront Redevelopment Strategy, 2013 Kaal Rock - Main Street Action Plan". Proposed project is consistent with these plans.

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
Waterfront Transit Oriented District (WTOD), Urban Density Residence (R-6) District and Waterfront (W) District

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Poughkeepsie City School District

b. What police or other public protection forces serve the project site?
City of Poughkeepsie Police Department with support from Dutchess County Sheriff's Department and NYS Police

c. Which fire protection and emergency medical services serve the project site?
City of Poughkeepsie Fire Department on North Clove Street

d. What parks serve the project site?
Kaal Rock Park, Waryus Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? recreational

b. a. Total acreage of the site of the proposed action? 12.32 acres Refer to Endnote 1.
b. Total acreage to be physically disturbed? 1.07 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 40.83 acres Refer to Figure 3.

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 12 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

f. Does the project include new residential uses? ☐ Yes ☑ No
If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase	_____	_____	_____	_____
At completion of all phases	_____	_____	_____	_____

g. Does the proposed action include new non-residential construction (including expansions)? ☑ Yes ☐ No
If Yes,
i. Total number of structures 1 (maintenance building)
ii. Dimensions (in feet) of largest proposed structure: 1 story height; 12' width; and 16' length
iii. Approximate extent of building space to be heated or cooled: 0 (not heated/cooled) square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☑ No
If Yes,
i. Purpose of the impoundment: _____
ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify:
_____
iii. If other than water, identify the type of impounded/contained liquids and their source.
_____
iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres
v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):
_____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? ☐ Yes ☑ No
(Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)
If Yes:
i .What is the purpose of the excavation or dredging? _____
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?
- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.
_____
_____
iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No
If yes, describe. _____
_____
v. What is the total area to be dredged or excavated? _____acres
vi. What is the maximum area to be worked at any one time? _____ acres
vii. What would be the maximum depth of excavation or dredging? _____ feet
viii. Will the excavation require blasting? ☐ Yes ☐ No
ix. Summarize site reclamation goals and plan: _____
_____
_____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? Refer to Figure 4 and Endnote 2 ☑ Yes ☐ No
If Yes:
i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): Project involves an elevated walkway above the Hudson River. No physical disturbance to the river itself or its banks is proposed. Project requires "air rights" agreement with NYSOGS for use of the airspace above NYS owned underwater lands.

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:
Project involves an elevated walkway above the river.

iii. Will proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☑ No
If Yes, describe: _____

iv. Will proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☑ No
If Yes:

- acres of aquatic vegetation proposed to be removed: _____
- expected acreage of aquatic vegetation remaining after project completion: _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____
- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____
NA

c. Will the proposed action use, or create a new demand for water? TBD ☐ Yes ☐ No
(No restroom facilities are proposed at this time.)
If Yes:
i. Total anticipated water usage/demand per day: _____ gallons/day
ii. Will the proposed action obtain water from an existing public water supply? ☐ Yes ☐ No
If Yes:

- Name of district or service area: _____
- Does the existing public water supply have capacity to serve the proposal? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No
- Do existing lines serve the project site? ☐ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☐ No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____
- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☐ No
If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

vi. If water supply will be from wells (public or private), maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? TBD (No restroom facilities are proposed at this time.) ☐ Yes ☑ No
If Yes:
i. Total anticipated liquid waste generation per day: _____ gallons/day
ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐ Yes ☐ No
If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No

- Do existing sewer lines serve the project site? ☐Yes ☐No
- Will line extension within an existing district be necessary to serve the project? ☐Yes ☐No

  If Yes:
  - Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☐No

If Yes:
- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge, or describe subsurface disposal plans):

_____

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☐Yes ☑No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 2.99 acres (impervious surface) (0.54 acre of impervious plus 2.45 acre of gravel - includes existing)

_____ Square feet or 12.32 acres (parcel size)

ii. Describe types of new point sources. None

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

detention pond for discharge to Hudson River

- If to surface waters, identify receiving water bodies or wetlands: _____

  Hudson River
- Will stormwater runoff flow to adjacent properties? ☐Yes ☑No

iv. Does proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑Yes ☐No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐Yes ☑No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:
- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

A slight increase in traffic due to new visitors may occur; however, additional traffic generated by the proposed improvements is not expected to be significant.

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of semi-trailer truck trips/day: _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☑No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

iii. Will the proposed action require a new, or an upgrade to, an existing substation? ☐Yes ☐No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 6:30 AM to 9:00 PM max
- Saturday: 6:30 AM to 9:00 PM max
- Sunday: NA
- Holidays: NA

ii. During Operations:

- Monday - Friday: 7:00 AM to 9:00 PM
- Saturday: 7:00 AM to 9:00 PM
- Sunday: 7:00 AM to 9:00 PM
- Holidays: 7:00 AM to 9:00 PM

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Temporary noise above local ambient noise levels may occur during construction activities, which will be limited to the hours of 6:30 AM to 9:00 PM in accordance with City of Poughkeepsie Code Chapter 13.5, Noise. Operational noise is not expected to change significantly as a result of the project.

ii. Will proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe: _____

n.. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

Pedestrian lighting along paths. Details to be determined.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe: _____

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally describe proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☑ No

Use is not commercial or industrial. An increase in visitors may result in a slight increase in solid waste generated at the site; however, this is not expected to be significant.)

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____
- Operation: _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____
- Operation: _____

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility: _____

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site. Refer to Figure 5.

☑ Urban ☑ Industrial ☑ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)

☐ Forest ☐ Agriculture ☑ Aquatic ☑ Other (specify): Community services, public services

ii. If mix of uses, generally describe:

Parks, residential, recreation, restaurants, community service, railroad line, Hudson River

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces (including gravel)	2.73	2.99	+0.26
• Forested	2.89	2.62	-0.27
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0.30	0.38	+0.08
• Agricultural (includes active orchards, field, greenhouse etc.)			
• Surface water features (lakes, ponds, streams, rivers, etc.)	0.26	0.26	0.00
• Wetlands (freshwater or tidal)			
• Non-vegetated (bare rock, earth or fill)			
• Other Describe: lawn with scattered trees	6.14	6.07	-0.07

c. Is the project site presently used by members of the community for public recreation? ☑ Yes ☐ No

i. If Yes: explain: Most of project area is public parkland.

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☑ Yes ☐ No

If Yes,

i. Identify Facilities:

City of Poughkeepsie school, age-restricted apartments on Main St, Union St special school

e. Does the project site contain an existing dam? ☐ Yes ☑ No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____

iii. Provide date and summarize results of last inspection:

_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Has the facility been formally closed? ☐ Yes ☐ No

- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

_____

iii. Describe any development constraints due to the prior solid waste activities: _____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☑ No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☑ No

☐ Yes – Spills Incidents database Provide DEC ID number(s): _____

☐ Yes – Environmental Site Remediation database Provide DEC ID number(s): _____

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☑ Yes ☐ No

If yes, provide DEC ID number(s): C314125, E314108 , 546031 , V00292 , 314070 ...

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

C314125 = Queen City Lofts (Classification A); E314108 = PURA-14 Property (Classification C); 546031= HR PCB sediments (Classification 02); V00292 = CHGE Laurel St MGP (Classification A), 314070 = CHGE Water Street MGP (Classification N); 314068 = CHGE Laurel St MGP (Classification N); C314109 = Former City STP (Classification C); C314108 = PURA-14 Site (Classification C); 314071 = CH Bayeaux St MGP (Classification C); B00190 = DeLaval HR Waterfront (Classification C); C314070 = CHGE Water St MGP (Classification A). Please refer to NYSDEC website for further details. None of these sites are adjacent to the proposed project area.

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☑ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site Refer to Figure 6 and Endnote 3.

a. What is the average depth to bedrock on the project site? 10 to >60 inches ~~feet~~

b. Are there bedrock outcroppings on the project site? ☑ Yes ☐ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? 4 %

c. Predominant soil type(s) present on project site:

Nassau-Cardigan complex (NwD)	51 %
Udorthents smoothed (Ud)	10 %
Urban land (Ur)	35 %

d. What is the average depth to the water table on the project site? Average: 0 to >3 feet

e. Drainage status of project site soils:
- ☑ Well Drained: 96 % of site
- ☐ Moderately Well Drained: ____ % of site
- ☑ Poorly Drained 4 % of site

f. Approximate proportion of proposed action site with slopes:
- ☑ 0-10%: 56 % of site
- ☑ 10-15%: 12 % of site
- ☑ 15% or greater: 32 % of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? Refer to Figure 4 and Endnote 2. ☑ Yes ☐ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name Hudson River Classification A
- Lakes or Ponds: Name NA Classification NA
- Wetlands: Name Federal Waters, Federal Waters, Federal Waters,... Approximate Size 0.26+/- ac in project area
- Wetland No. (if regulated by DEC) NA

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☑ Yes ☐ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____
Name - Pollutants - Uses:Hudson River (Class A) – Priority Organics – Fish Consumption

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100 year Floodplain? Refer to Figure 7 and Endnote 4. ☑ Yes ☐ No

k. Is the project site in the 500 year Floodplain? Refer to Figure 7 and Endnote 4. ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:
i. Name of aquifer: _____

m. Identify the predominant wildlife species that occupy or use the project site: _____
Typical urban species _____ _____ _____
_____ _____ _____

n. Does the project site contain a designated significant natural community? ☐ Yes ☑ No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation): _____
_____
ii. Source(s) of description or evaluation: _____
iii. Extent of community/habitat:
- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☑ Yes ☐ No

Refer to Figure 8 and Endnote 5.

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☑ No

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☑ Yes ☐ No
If yes, give a brief description of how the proposed action may affect that use: _____
Park is open to the public for fishing on the Hudson River.

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☑ No
If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☑ No
i. If Yes: acreage(s) on project site? _____
ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____
_____
_____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☑ No
If Yes:
i. CEA name: _____
ii. Basis for designation: _____
iii. Designating agency and date: _____

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on, or has been nominated by the NYS Board of Historic Preservation for inclusion on, the State or National Register of Historic Places? Refer to Figure 9 and Endnote 6. ☑ Yes ☐ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☑ Historic Building or District

ii. Name: Poughkeepsie Railroad Station, CLEARWATER (Sloop)

iii. Brief description of attributes on which listing is based:

RR Station is sample of late 19th & 20th century revivals. Clearwater Sloop is full scale replica of classic mid-19th century HR sloop.

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? Refer to Figure 9 and Endnote 6. ☑ Yes ☐ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☑ Yes ☐ No

If Yes:

i. Identify resource: Refer to Figures 10A and 10B.

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): State & local parks, historic sites, Scenic Area of Statewide Significance, etc. Refer to Figures 10A and 10B.

iii. Distance between project and resource: 0 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name City of Poughkeepsie Date_____

Signature_____ Title_____

TBD = To be determined

PRINT FORM

EAF Mapper Summary Report

Friday, May 06, 2016 1:29 PM

Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.

B.i.i [Coastal or Waterfront Area]	Yes
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	Yes
E.1.h.iii [Within 2,000' of DEC Remediation Site - DEC ID]	C314125, E314108 , 546031 , V00292 , 314070 , 314068 , C314109 , C314108, 314071, B00190 , C314070
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	Yes
E.2.h.v [Impaired Water Bodies - Name and Basis for Listing]	Name - Pollutants - Uses:Hudson River (Class A) – Priority Organics – Fish Consumption
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	Yes
E.2.k. [500 Year Floodplain]	Yes

E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National Register of Historic Places]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National Register of Historic Places - Name]	Poughkeepsie Railroad Station, CLEARWATER (Sloop)
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

ENDNOTES

1. The following table provides a list of parcels that are part of the project area for the purpose of the FEAF.

Tax Parcel	Description	Parcel Address	Parcel Owner	Parcel Acreage
6062-82-720091	Kaal Rock Point – elevated walkway & maintenance building	21 Long Street	City of Poughkeepsie Urban Renewal	3.62
6062-74-718136	Northernmost parcel – trail connection to Waryas Park	Main Street	City of Poughkeepsie	1.46
6062-82-705060	Kaal Rock Park – trail connection	Gerald Drive	City of Poughkeepsie	2.35 portion of 6.6 acre parcel (north of Rt 44/55)
6062-74-749131	Apartments – potential future trail connection to Main Street	10 Rinaldi Blvd	Rip Van Winkle House, LLC	4.89
Total:				12.32

Figure 3 shows the total contiguous acreage owned by the City of Poughkeepsie, which totals 40.83 acres.

2. Wetlands and Surface Waters

According to available GIS mapping (Figure 4) and the NYSDEC Environmental Resource Mapper (Figure 8), the site does not contain nor is contiguous to a State regulated wetland. The mapping indicates that the Hudson River is a tidal water classified as Class A, and is also shown as a National Wetland Inventory (NWI) wetland. The project will require a NYSDEC permit under Environmental Conservation Law (ECL) for disturbance to the bed and banks of a navigable water and disturbance to the bed and banks of a protected stream, and a US Army Corps of Engineers (USACOE) permit will be required under Section 10 for work and structures in navigable waters of the United States. If the approach ramp on the north end is outside of the horizontal limits of the Section 404 datum elevation calibrated for this site, then no Section 404 permit is needed for fills in Waters of the United States. There is no Nationwide Permit to authorize this type of activity, so an individual permit from the USACOE will be required. A Joint Permit Application would be prepared for review by both agencies under one cover.

3. Soils

The following table provides the soil characteristics for each soil type expected to be found on the project site, according to available Geographic Information Systems (GIS) information (Figure 6) and the USDA Natural Resources Conservation Service website (http://efotg.sc.egov.usda.gov/ treemenuFS.aspx).

SOIL SYMBOL	SOIL TYPE	SLOPES	DRAINAGE	DEPTH TO WATER TABLE (FT)	DEPTH TO BEDROCK (INCHES)
NwD	Nassau-Cardigan complex, hilly, very rocky	15 to 30%			
	Nassau		somewhat excessively	>6	10 to 20
	Cardigan		well	>6	20 to 40
Ud	Udorthents, smoothed	mostly 0 to 8% but 8 to 25% on sides of excavations & along highways	somewhat excessively to moderately well	>3.0 Nov-Jun	>60
Ur	Urban Land	0 to 8%	well	>2	>10
W	Water	NA	NA	0	

Most of the area where disturbance is proposed contains of the Nassau-Cardigan complex, hilly, very rocky (NwD) and Urban land (Ur) soil types. Urban Land is described as areas covered by buildings, streets, parking lots and other impervious surfaces, which obscure soil identification, so that the actual identification of the soil is not determined for this portion of the site. These areas are considered to be well drained since stormwater drainage from them is controlled.

4. Floodplain

Figure 7 shows the areas of 100 year and 500 year floodplain. FEMA Floodplain Mapping indicates that there is a floodplain associated with the Hudson River, and portions of the project area along the River are within these floodplains. The 500 year floodplain is closely aligned with the 100 year floodplain elevation. The design of the Scenic Walkway is intended to keep much of the walkway, and the locations where the walkway connect to on-the-ground travel paths, out of the 100 year floodplain elevation and compliant with local regulations. If necessary, a Floodplain Development Permit will be requested from the City of Poughkeepsie.

5. Endangered, Threatened, and/or Rare Species and Significant Natural Communities

According to the NYSDEC Environmental Resource Map (Figure 8), there are known occurrences of endangered, threatened, or rare species, and the Hudson River is considered a Significant Natural Community (tidal river) in the vicinity of the project. The NYSDEC Environmental Resource Mapper also identified five historic records (dating from the mid- to late 1800's) of state listed endangered and threatened plant species which include the following:

- Rattlebox (Endangered). (1853-08)
- Side-oats Grama (Endangered) (limestone rocks) (1853-07)
- Violet wood-sorrel (Threatened) (1895-5-12)
- Large twayblade (Endangered) (1893-06-04)
- Golden club (Threatened) (1869)

The Hudson River Deepwater Habitat is located in the deeper sections of the Hudson River some distance off of Kaal Rock Point.

Correspondence from NYSDEC dated April 3, 2016, indicates the documentation of several endangered species near the project site, generally within 0.5 mile, which include the Peregrine falcon, Shortnose sturgeon, and Atlantic sturgeon, and one historical record of a threatened plant species, the Golden club, in the vicinity of the project site. The US Fish and Wildlife Service (USFWS) IPAC Trust Resources Report identified three potential species in the region, the dwarf wedgemussel (endangered), the Indiana bat (endangered), and the northern long-eared bat (threatened). The two sturgeon species are regulated by the federal National Marine Fisheries Service (NMFS) as federally listed Endangered Species.

According to a Chazen biologist, the proposed project is not expected to result in any significant impacts to the Hudson River, and thus, no impacts to the two sturgeon species, the Golden club plant species, or the significant river habitats are anticipated. The site does not contain the sandy soils utilized by the Rattlebox plant species. The Dwarf wedgemussel is not likely to be present on the site since the Hudson River does not provide suitable habitat. Restriction of the timing of clearing of trees to winter will likely be adequate to address potential impacts to bat species; however, consultation with NYSDEC and USFWS will be required. Coordination with the NYSDEC Region 3 Endangered Species Unit will be required to identify the location of the peregrine falcon and to determine appropriate construction timeframes to avoid disturbance. It is noted that the project site is in a park with significant human activity.

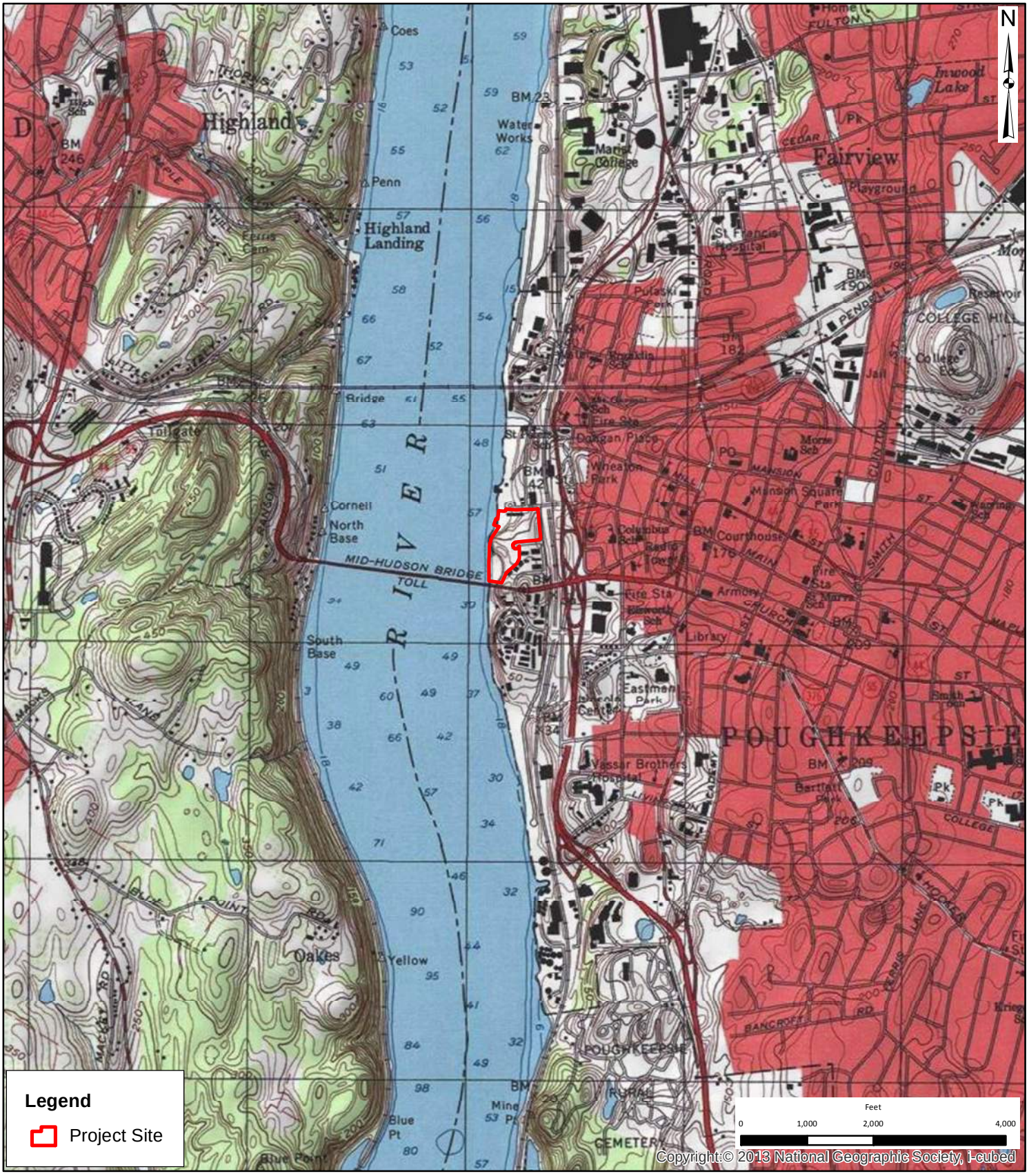
6. Cultural/Historic Resources

According to the NYS Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) Cultural Resource Information System (CRIS) mapping (Figure 9), the site is also located in close proximity to three listed and eligible National Register Buildings or features. These include the following:

- Sloop Clearwater (03NR05148), which docks adjacent to the project site to the west;
- The Mid-Hudson Bridge (02740.000791), adjacent to the project area to the south, is shown as eligible for listing; and
- Johnson Plumbing Complex (Eligible Buildings USN Number 02740.000810), which consists of three mid to late 19th century brick buildings located adjacent to the project site to the north at 35 Main Street.

The Union Street National Historic District with numerous individually listed buildings is located east of the project site on the east side of Route 9. The Walkway Over the Hudson (Poughkeepsie Railroad Bridge) is a New York State Park and is listed on the National Historic Register as site number 90NR00370. The Poughkeepsie Railroad Station (90NR00379) is located east of the site. The CRIS mapping also indicates that the project site is located in a known archeologically sensitive area. Project information will be uploaded to the NYSOPHRP CRIS website requesting review of the proposed project.

FIGURES



THE Chazen COMPANIES

ENGINEERS
LAND SURVEYORS
PLANNERS
ENVIRONMENTAL & SAFETY PROFESSIONALS
LANDSCAPE ARCHITECTS

Dutchess County Office:
21 Fox Street, Poughkeepsie, NY 12601
Phone: (845) 454-3980

Capital District Office:
547 River Street, Troy, NY 12180
Phone: (518) 273-0055

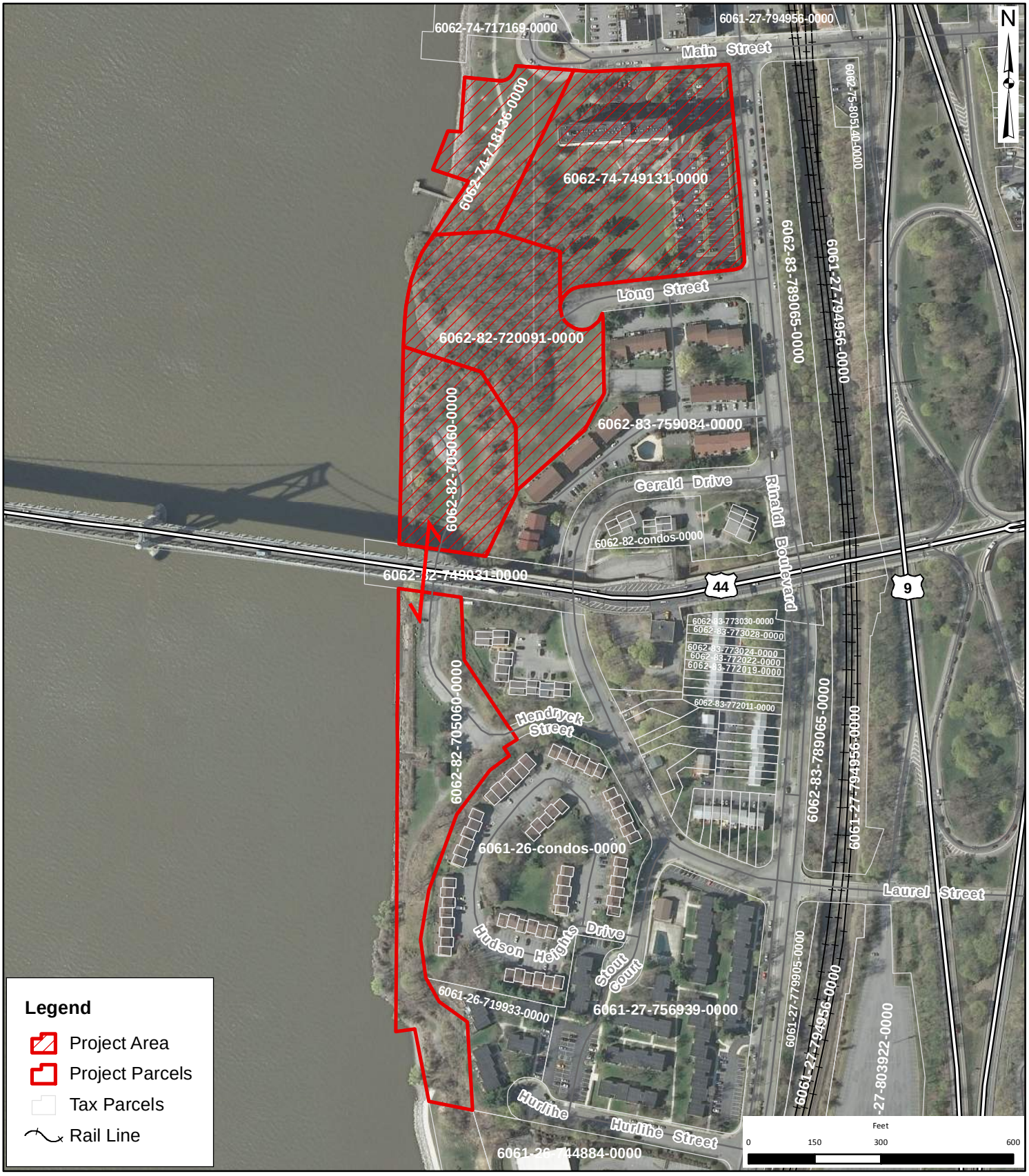
North Country Office:
375 Bay Road, Queensbury, NY 12804
Phone: (518) 812-0513

Kaal Rock Point Scenic Walkway

USGS Location Map

21 Long St, Gerald Dr & Main St, City of Poughkeepsie- Dutchess County, NY

Drawn:	RLB
Date:	05/04/2016
Scale:	1:24,000
Project:	31613.00
Figure:	1



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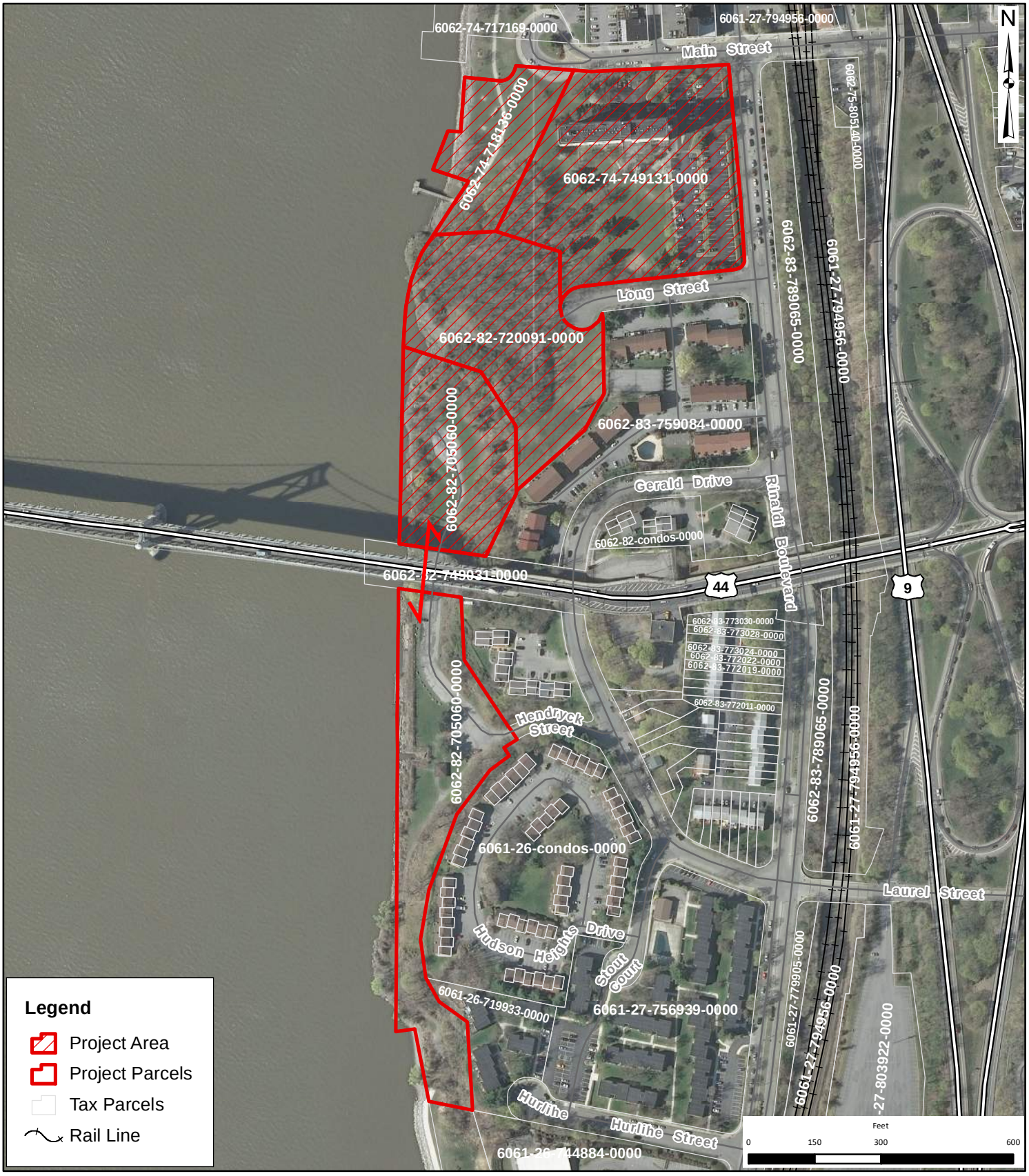
Kaal Rock Point Scenic Walkway

Orthophoto Tax Map

21 Long St, Gerald Dr & Main St, City of Poughkeepsie- Dutchess County, NY

Drawn:	RLB
Date:	05/04/2016
Scale:	1 inch = 300 feet
Project:	31613.00
Figure:	2



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Kaal Rock Point Scenic Walkway

Orthophoto Tax Map

21 Long St, Gerald Dr & Main St, City of Poughkeepsie- Dutchess County, NY

Drawn:	RLB
Date:	05/04/2016
Scale:	1 inch = 300 feet
Project:	31613.00
Figure:	2

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Kaal Rock Point Scenic Walkway

Contiguous City-owned Parcels

21 Long St, Gerald Dr & Main St, City of Poughkeepsie- Dutchess County, NY

Drawn:	RLB
Date:	05/04/2016
Scale:	1 inch = 800 feet
Project:	31613.00
Figure:	3

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Dutchess County Office:
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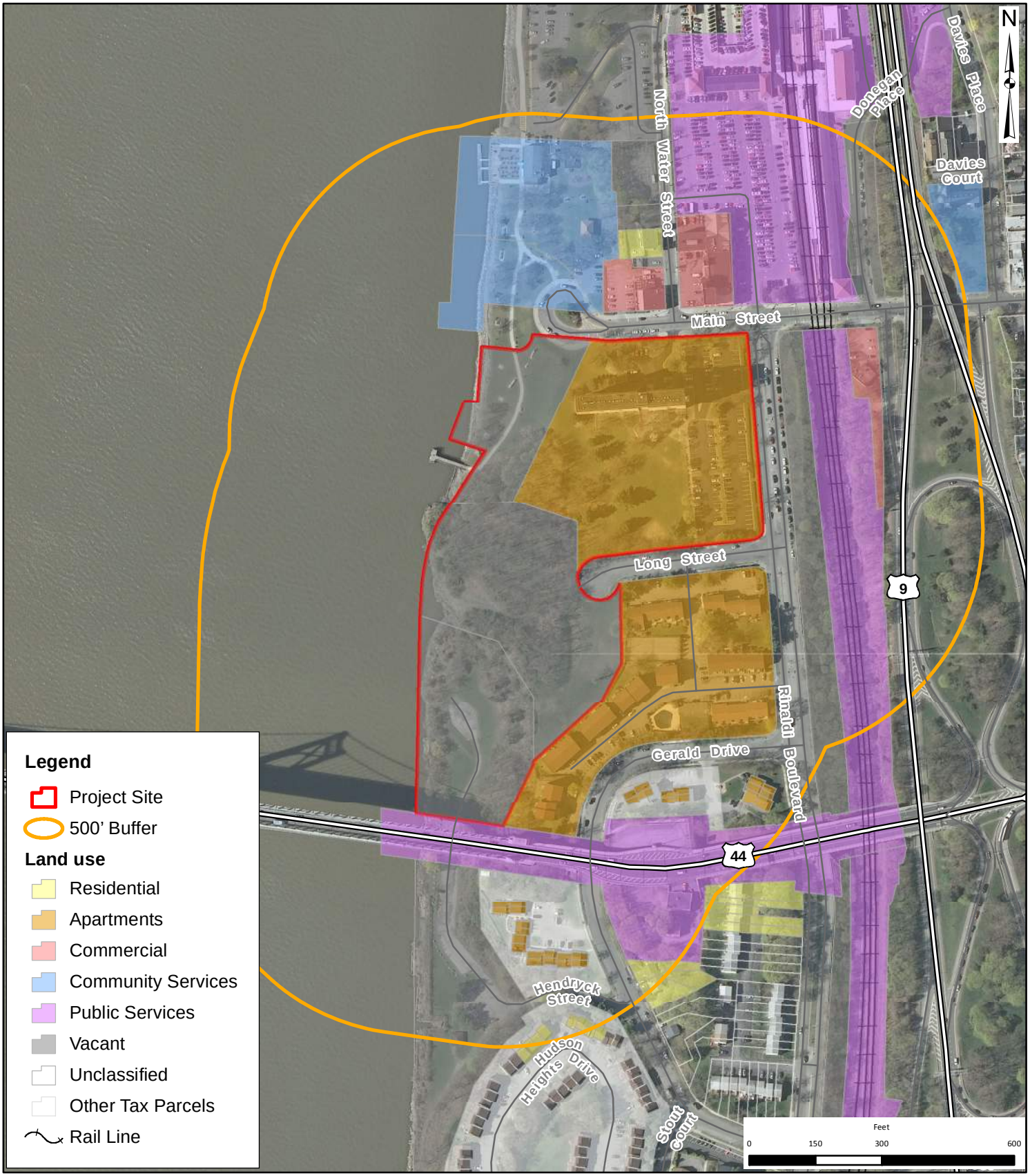
Kaal Rock Point Scenic Walkway

Wetland and Stream Map

21 Long St, Gerald Dr & Main St, City of Poughkeepsie- Dutchess County, NY

Drawn:	RLB
Date:	05/04/2016
Scale:	1 inch = 400 feet
Project:	31613.00
Figure:	4



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LANDSCAPE ARCHITECTS

Dutchess County Office:
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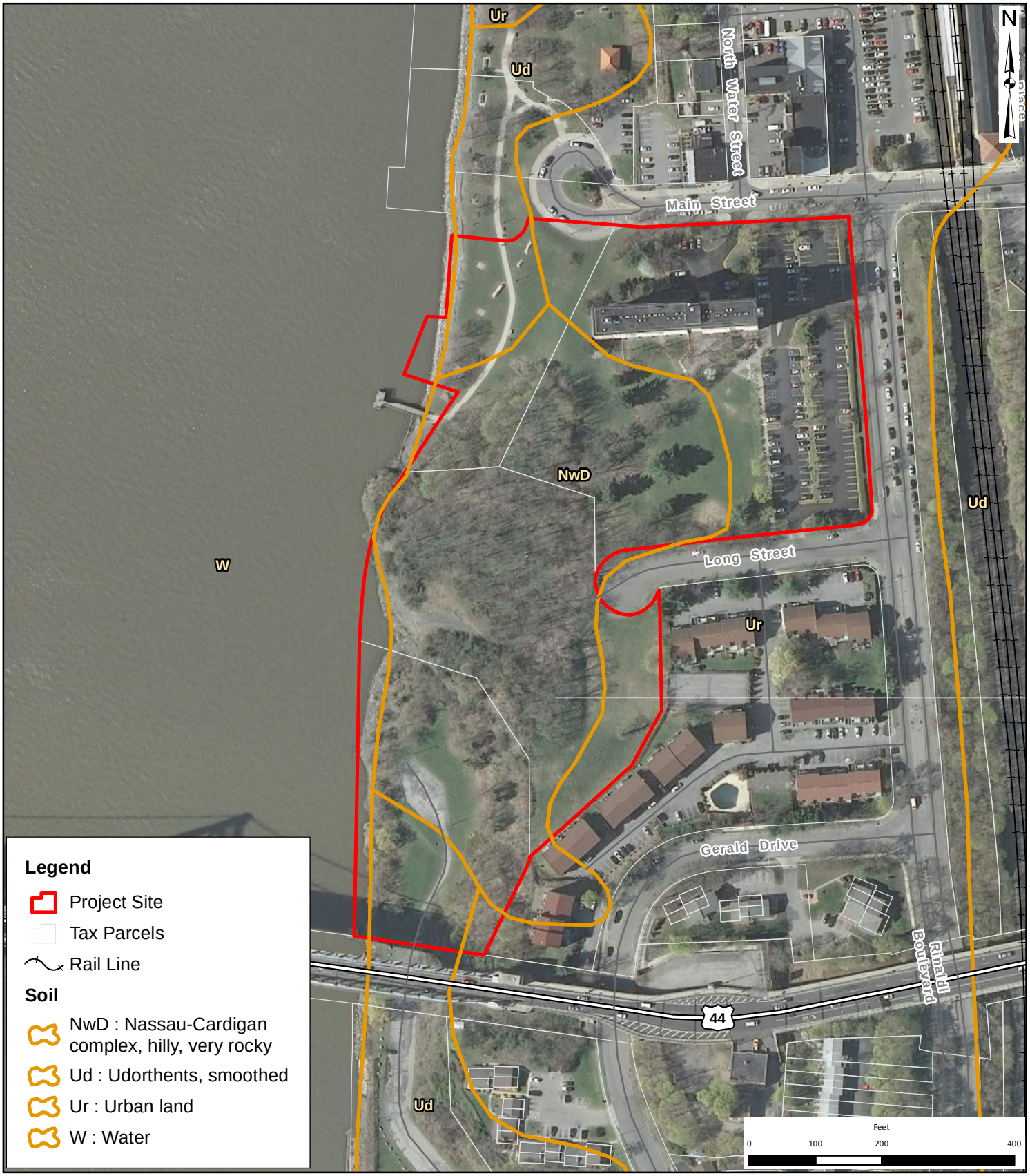
Kaal Rock Point Scenic Walkway

Land Use Map

21 Long St, Gerald Dr & Main St, City of Poughkeepsie- Dutchess County, NY

Drawn:	RLB
Date:	05/04/2016
Scale:	1 inch = 300 feet
Project:	31613.00
Figure:	5



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LANDSCAPE ARCHITECTS

Dutchess County Office:
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Phone: (518) 812-0513

Kaal Rock Point Scenic Walkway

Soils Map

21 Long St, Gerald Dr & Main St, City of Poughkeepsie- Dutchess County, NY

Drawn:	RLB
Date:	05/04/2016
Scale:	1 inch = 200 feet
Project:	31613.00
Figure:	6

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North Country Office:
375 Bay Road, Queensbury, NY 12804
Phone: (518) 812-0513

Kaal Rock Point Scenic Walkway

Floodplain Map

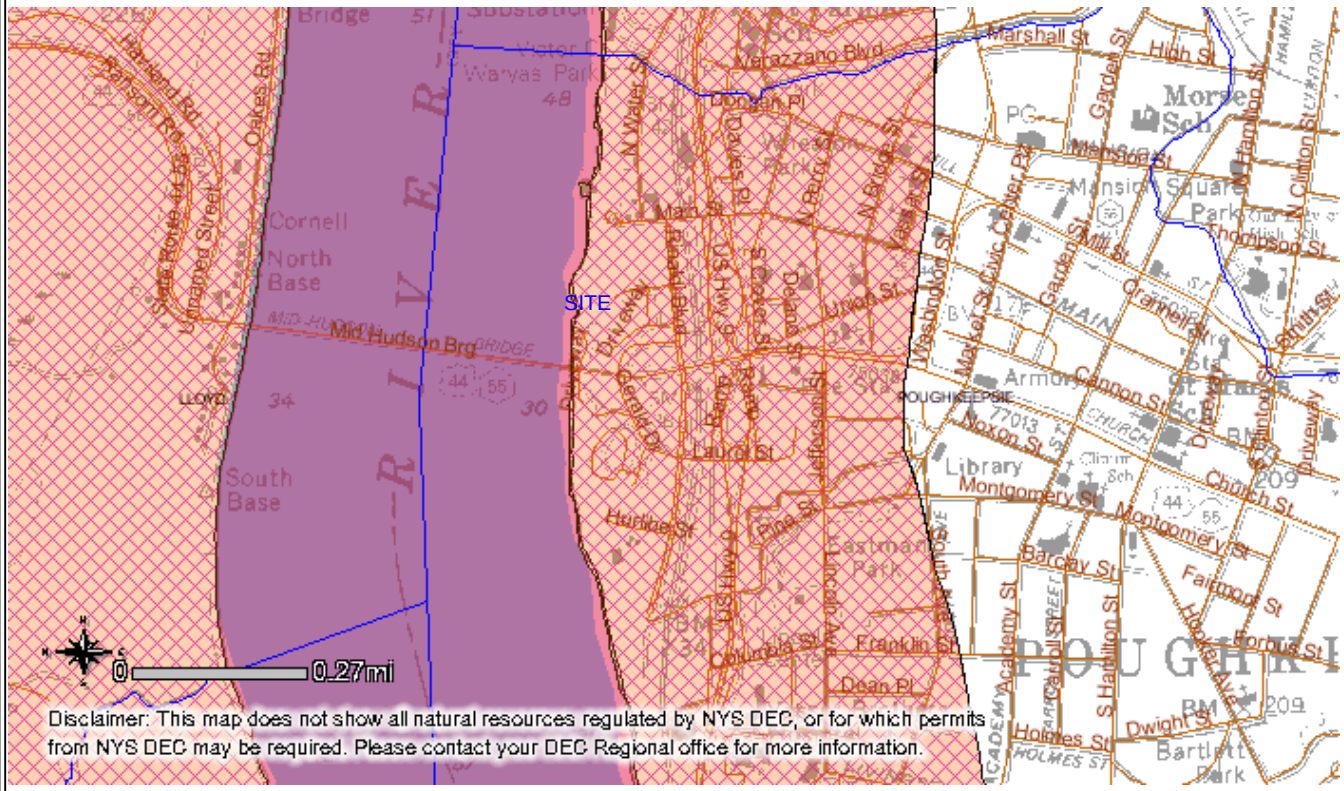
21 Long St, Gerald Dr & Main St, City of Poughkeepsie- Dutchess County, NY

Drawn:	RLB
Date:	05/04/2016
Scale:	1 inch = 200 feet
Project:	31613.00
Figure:	7

[print page] [close window]

Please set your printer orientation to "Landscape".

NYSDEC Environmental Resource Map



MinX: 586735, MaxX: 589951, MinY: 4617978, MaxY: 4616431

Visible Layers

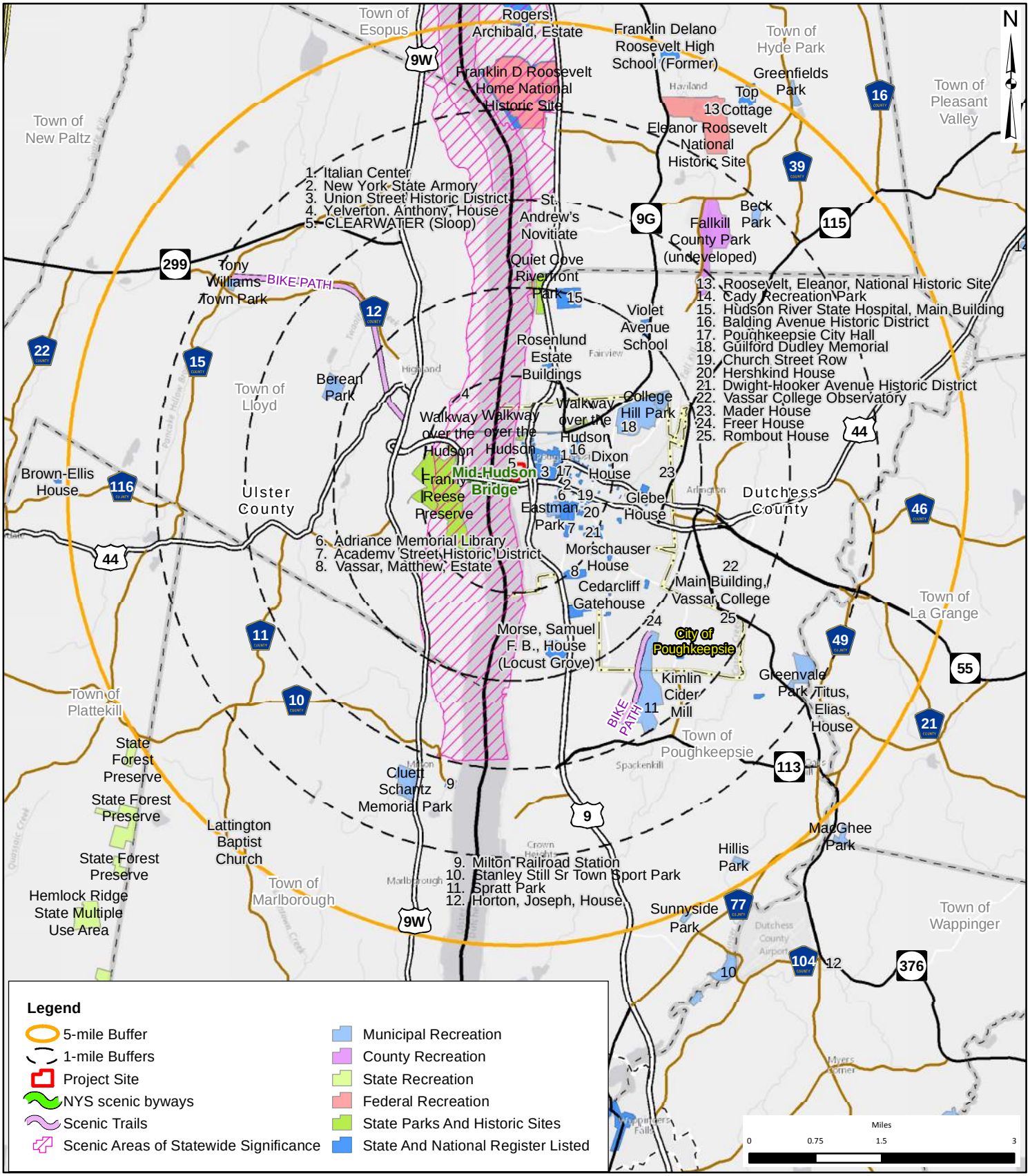
- Classified Streams
- Classified Ponds
- State-Regulated Freshwater Wetlands
- Wetland Checkzone
- State-Regulated Freshwater Wetlands
- Rare Plants and Rare Animals
- Significant Natural Communities Buffered
- Natural Communities Nearby
- Significant Natural Communities
- Interstate Highways
- Adirondack Park Boundary
- Counties

Figure 8

Disclaimer:This map was prepared by the New York State Department of Environmental Conservation using the most current data available. It is deemed accurate but is not guaranteed. NYS DEC is not responsible for any inaccuracies in the data and does not necessarily endorse any interpretations or products derived from the data.

Figure 9
NYS Office of Parks, Recreation, & Historic Preservation (NYSOPRHP)
Cultural Resource Information System (CRIS) Map

SITE



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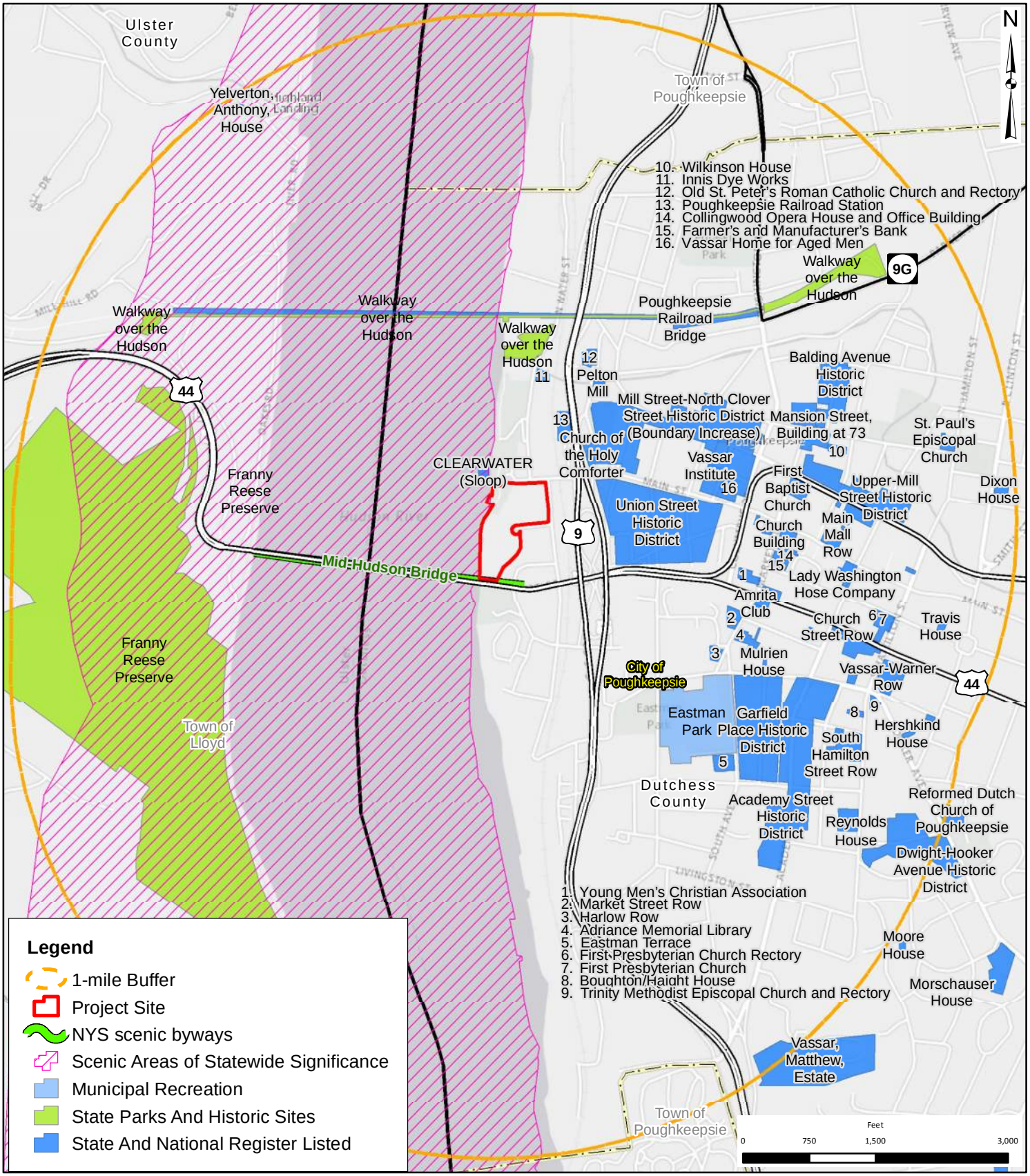
375 Bay Road, Queensbury, NY 12804
Phone: (518) 812-0513

Kaal Rock Point Scenic Walkway

Publicly Accessible Federal, State, or Local Scenic or Aesthetic Resources within 5 Miles

21 Long St, Gerald Dr & Main St, City of Poughkeepsie- Dutchess County, NY

Drawn:	RL-B
Date:	05/04/2016
Scale:	1 in = 1.5 miles
Project:	31613.00
Figure:	10A



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375 Bay Road, Queensbury, NY 12804
Phone: (518) 812-0513

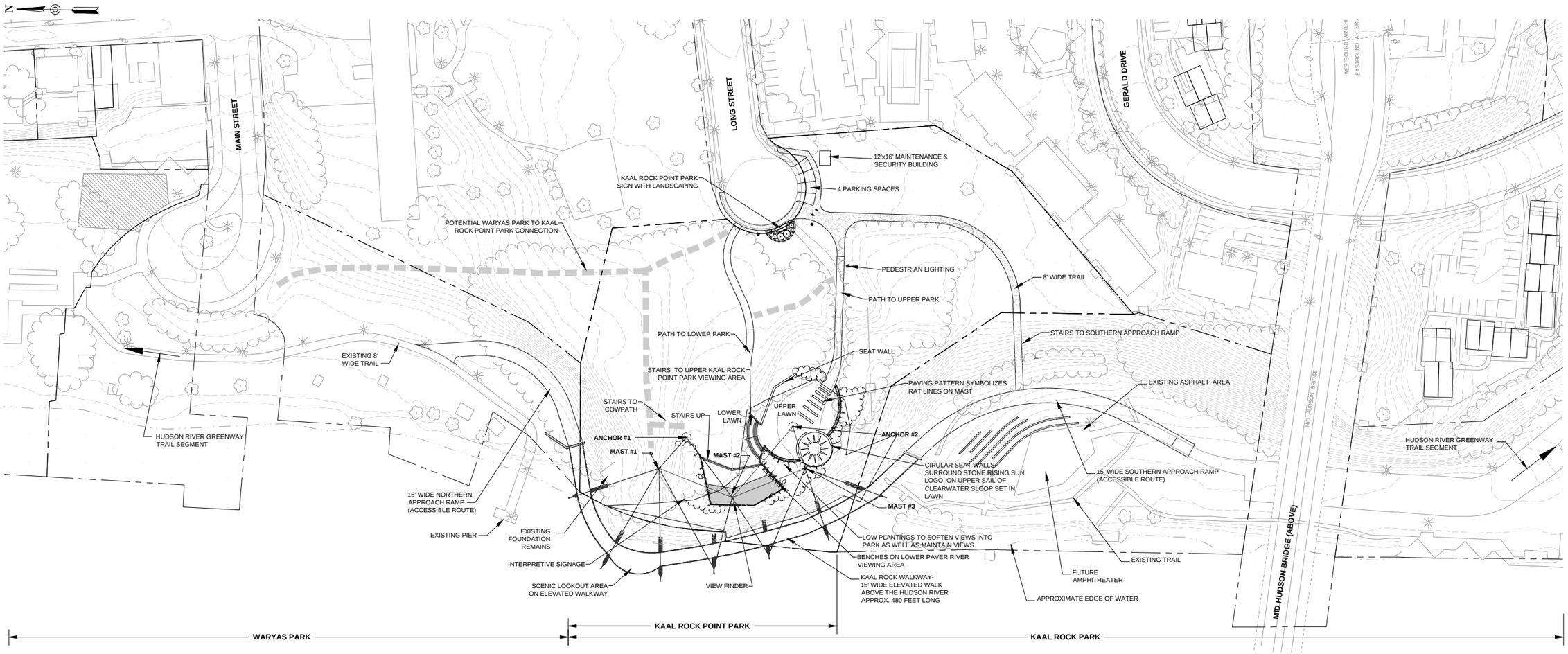
Kaal Rock Point Scenic Walkway

Publicly Accessible Federal, State, or Local Scenic or Aesthetic Resources within 1 Mile

21 Long St, Gerald Dr & Main St, City of Poughkeepsie- Dutchess County, NY

Drawn:	RL-B
Date:	05/04/2016
Scale:	1 in = 1,500 ft
Project:	31613.00
Figure:	10B

ATTACHMENT A
Concept Plan



HUDSON RIVER WATER ELEVATION

- THE TOPOGRAPHIC INFORMATION ON THIS SHEET IS BASED APPROX. INFORMATION BASED UPON NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD 29) DATUM.
- 100YR FLOOD ELEVATION IS 8 FEET NAV88 DATUM (SOURCE FEMA FIRM MAPS). NOTE THIS ELEVATION HAS NOT BEEN CONVERTED TO THIS PLAN SHEET'S DATUM.
- HIGH TIDE IS APPROXIMATELY 3.7'±FEET
- LOW TIDE IS APPROXIMATELY 0.6± FEET (FLUCTUATES 0.2-0.4 TENTHS, DEPENDING ON MOON PHASE AND OTHER NATURAL FACTORS)

PROJECT 31613.00
APRIL 13, 2016

NORTH

OVERALL MASTER PLAN

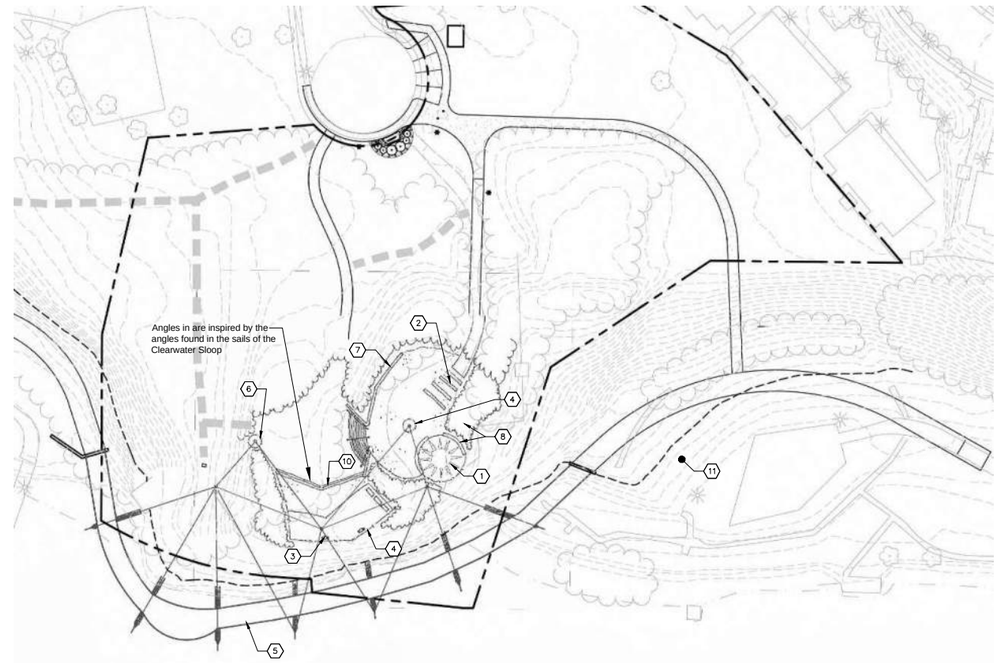
KAAL ROCK POINT PARK - WALKWAY FEASIBILITY STUDY

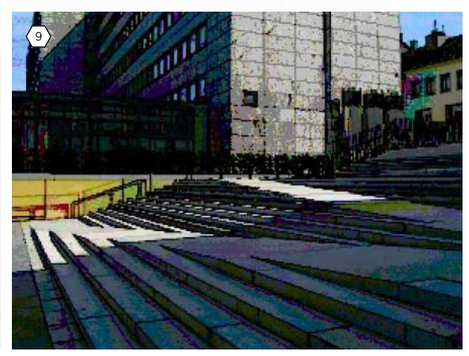
CITY OF POUGHKEEPSIE, DUTCHESS COUNTY, NEW YORK STATE

Poughkeepsie Alliance

THE Chazen COMPANIES®
Proud to be Employee Owned

Drawing Name: S:\31\31600-31699\31613.00 - Poughkeepsie Alliance - Kaal Rock Walkway\DWG\C200_31613-00_OVERALL MASTER PLAN.DWG





PROJECT 31613.00
APRIL 13, 2016

NORTH

DESIGN INSPIRATION & MATERIALS

KAAL ROCK POINT PARK - WALKWAY FEASIBILITY STUDY

CITY OF POUGHKEEPSIE, DUTCHESS COUNTY, NEW YORK STATE

Poughkeepsie Alliance

THE Chazen COMPANIES®
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Drawing Name: S:\J\31600-31699\31613.00 - Poughkeepsie Alliance - Kaal Rock Walkway\DWG\C500_30613-00_DETAILS.DWG

ATTACHMENT B
Correspondence

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov

April 03, 2016

Barbara B. Beall
The Chazen Companies
375 Bay Road
Queensbury, NY 12804

Re: Site located at Kaal Rock (Chazen Job #31613.00)
Town/City: City Of Poughkeepsie. County: Dutchess.

Dear Barbara B. Beall:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur, or may occur, on your site or in the immediate vicinity of your site. Note also that the Kingston-Poughkeepsie Deepwater Significant Coastal Fish & Wildlife Habitat is in the vicinity of your site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

Our database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,

Andrea Chaloux

Andrea Chaloux
Environmental Review Specialist
New York Natural Heritage Program

380

The following state-listed animals have been documented in the vicinity of your project site.

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing.

For information about any permit considerations for your project, please contact the Permits staff at the NYSDEC Region 3 Office at dep.R3@dec.nygov, (845) 256-3054.

For information about potential impacts of your project on these species and how to avoid, minimize, or mitigate any impacts, contact the Region 3 Wildlife staff at Wildlife.R3@dec.ny.gov, (845) 256-3098 regarding the Peregrine Falcon and contact the Hudson River Fisheries Unit at 21 South Putt Corners Road, New Paltz, NY 12561, 845-256-3071, HudsonRiverFish@dec.ny.gov regarding the Atlantic Sturgeon and Shortnose Sturgeon.

A listing of Regional Offices is at http://www.dec.ny.gov/about/558.html.

The following species have been documented near the project site, generally within 0.5 mile. Potential onsite and offsite impacts from the project may need to be addressed.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Birds				
Peregrine Falcon *Breeding*	*Falco peregrinus*	Endangered		2203
Fish				
Shortnose Sturgeon	*Acipenser brevirostrum*	Endangered	Endangered	1091
Atlantic Sturgeon	*Acipenser oxyrinchus*	No Open Season	Endangered	11464

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.

The following rare plants and rare animals have historical records at your project site, or in its vicinity.

The following rare plants and animals were documented in the vicinity of the project site at one time, but have not been documented there since 1979 or earlier, and/or there is uncertainty regarding their continued presence. There is no recent information on these plants and animals in the vicinity of the project site and their current status there is unknown. In most cases the precise location of the plant or animal in this vicinity at the time it was last documented is also unknown.

If suitable habitat for these plants or animals is present in the vicinity of the project site, it is possible that they may still occur there. We recommend that any field surveys to the site include a search for these species, particularly at sites that are currently undeveloped and may still contain suitable habitat.

COMMON NAME	*SCIENTIFIC NAME*	*NYS LISTING*	*HERITAGE CONSERVATION STATUS*
Vascular Plants			
Golden Club	*Orontium aquaticum*	Threatened	Imperiled in NYS
1869: Poughkeepsie. The Hudson River.			10275

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

ATTACHMENT C
USFWS IPaC Trust Resource Report

U.S. Fish & Wildlife Service

Kaal Rock

IPaC Trust Resources Report

Generated March 15, 2016 02:51 PM MDT, IPaC v3.0.0

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.

IPaC - Information for Planning and Conservation (https://ecos.fws.gov/ipac/): A project planning tool to help streamline the U.S. Fish & Wildlife Service environmental review process.

Table of Contents

IPaC Trust Resources Report 1
Project Description 1
Endangered Species 2
Migratory Birds 4
Refuges & Hatcheries 7
Wetlands 8

U.S. Fish & Wildlife Service

IPaC Trust Resources Report

NAME

Kaal Rock

LOCATION

Dutchess County, New York

IPAC LINK

https://ecos.fws.gov/ipac/project/C22WB-XUDOF-CBPMV-POEXA-3ARONY

U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9349
(607) 753-9334

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the Endangered Species Program of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Clams

Dwarf Wedgemussel Alasmidonta heterodon — Endangered

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=F029

Mammals

Indiana Bat Myotis sodalis — Endangered

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A000

Northern Long-eared Bat Myotis septentrionalis — Threatened

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A0JE

Critical Habitats

There are no critical habitats in this location

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

---

1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
  http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/akn-histogram-tools.php

The following species of migratory birds could potentially be affected by activities in this location:

American Bittern Botaurus lentiginosus — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F3

Bald Eagle Haliaeetus leucocephalus — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008

Black-billed Cuckoo Coccyzus erythropthalmus — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HI

Black-crowned Night-heron Nycticorax nycticorax — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EU

Blue-winged Warbler Vermivora pinus — Bird of conservation concern
Season: Breeding

Canada Warbler Wilsonia canadensis — Bird of conservation concern
Season: Breeding

Cerulean Warbler Dendroica cerulea — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B09I

Fox Sparrow Passerella iliaca — Bird of conservation concern
Season: Wintering

Golden-winged Warbler Vermivora chrysoptera — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0G4

Least Bittern Ixobrychus exilis — Bird of conservation concern
Season: Breeding

Olive-sided Flycatcher Contopus cooperi — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0AN

Peregrine Falcon Falco peregrinus — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU

Pied-billed Grebe Podilymbus podiceps — Bird of conservation concern
Year-round

Prairie Warbler Dendroica discolor — Bird of conservation concern
Season: Breeding

Purple Sandpiper Calidris maritima — Bird of conservation concern
Season: Wintering

Red-headed Woodpecker Melanerpes erythrocephalus — Bird of conservation concern
Season: Breeding

Rusty Blackbird Euphagus carolinus — Bird of conservation concern
Season: Wintering

Short-eared Owl Asio flammeus — Bird of conservation concern
Season: Wintering
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD

Upland Sandpiper Bartramia longicauda — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HC

Willow Flycatcher Empidonax traillii — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F6

Wood Thrush Hylocichla mustelina — Bird of conservation concern

Season: Breeding

Worm Eating Warbler Helmitheros vermivorum — Bird of conservation concern

Season: Breeding

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in this location

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

This location overlaps all or part of the following wetlands:

Riverine

R1UBV 25200.0 acres

A full description for each wetland code can be found at the National Wetlands Inventory website: http://107.20.228.18/decoders/wetlands.aspx

APPENDIX H

Presentation at First Public Meeting

Kaal Rock Point Connector - Feasibility Study

April 13, 2016

THE Chazen COMPANIES®
Proud to be Employee Owned

SEAL OF THE CITY OF POUGHKEEPSIE
1799
INCORPORATED 1854

Poughkeepsie Alliance

Overview

- Project Background
- Walkway Design
- Public Space Concepts
- Questions and Answer Period
- Community Feedback Session
- Closing Remarks and Next Steps

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Poughkeepsie Alliance

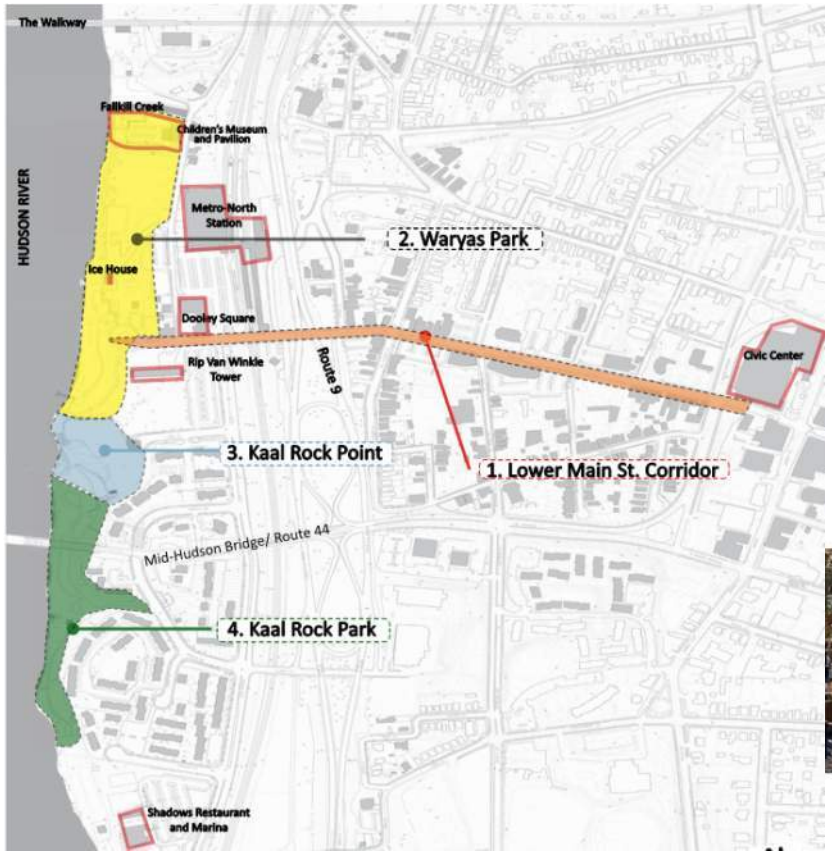
Project Background

Source: Jeff Anzevino

THE Chazen COMPANIES®

Poughkeepsie Alliance

Project Background



Prepared by:

MORRIS ASSOCIATES
ENGINEERING CONSULTANTS, P.L.L.C.

OCEAN AND COASTAL CONSULTANTS

PPS
PROJECT FOR PUBLIC SPACES

DOS Task 12 (Task 1.6)
Project: Poughkeepsie Waterfront - Main Street Corridor
This document was prepared for the Department of State Division of Coastal Resources, State of New York with funds provided under Title 11 of the Environmental Protection Fund. DOS #: C006572

January 30, 2012

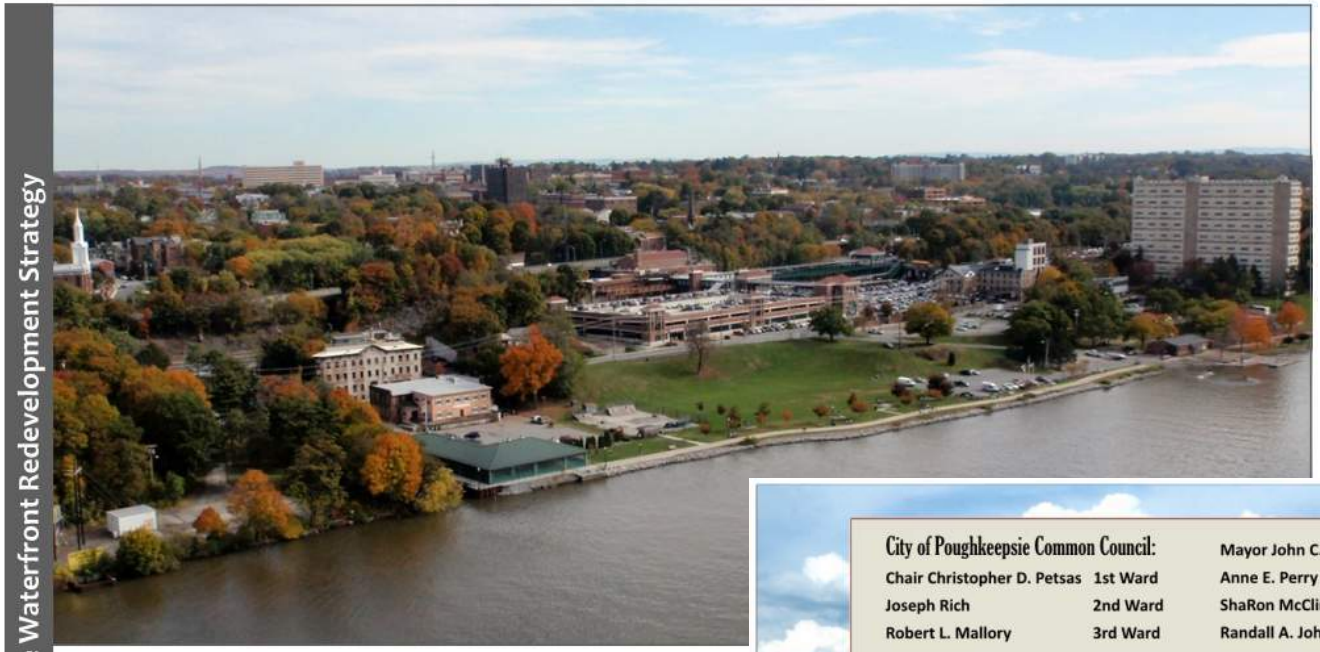
Prepared by:

Source: Morris Associates – PPS

THE Chazen COMPANIES®

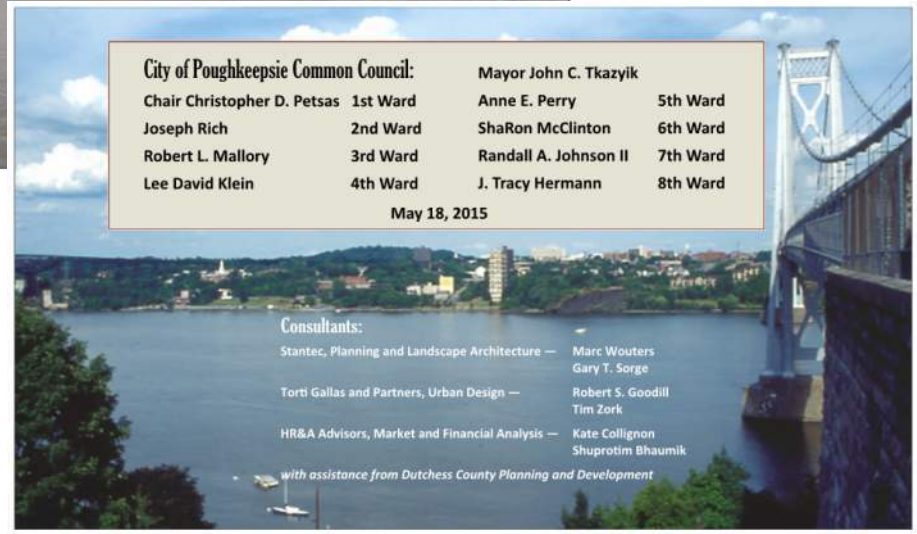
Poughkeepsie Alliance

Project Background



Poughkeepsie Waterfront Redevelopment Strategy

Poughkeepsie Waterfront Redevelopment Strategy



City of Poughkeepsie Common Council:

		Mayor John C. Tkazyik	
Chair Christopher D. Petsas	1st Ward	Anne E. Perry	5th Ward
Joseph Rich	2nd Ward	ShaRon McClinton	6th Ward
Robert L. Mallory	3rd Ward	Randall A. Johnson II	7th Ward
Lee David Klein	4th Ward	J. Tracy Hermann	8th Ward

May 18, 2015

Consultants:

Stantec, Planning and Landscape Architecture — Marc Wouters, Gary T. Sorge

Torti Gallas and Partners, Urban Design — Robert S. Goodill, Tim Zork

HR&A Advisors, Market and Financial Analysis — Kate Collignon, Shuprotim Bhaumik

with assistance from Dutchess County Planning and Development

Project funding generously provided by the Dyson Foundation with administrative support from the Community Foundation of Dutchess County.

Source: Poughkeepsie Waterfront Redevelopment Strategy

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Poughkeepsie Alliance

Project Background

Source: Jeff Anzevino

THE Chazen COMPANIES®

Poughkeepsie Alliance

Project Background

Source: Jeff Anzevino

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Poughkeepsie Alliance

Project Background

THE Chazen COMPANIES®

Poughkeepsie Alliance

Project Background

THE Chazen COMPANIES®

Poughkeepsie Alliance

Project Background

THE Chazen COMPANIES®

Poughkeepsie Alliance

Project Background

Source: City of Poughkeepsie

THE Chazen COMPANIES®

Poughkeepsie Alliance

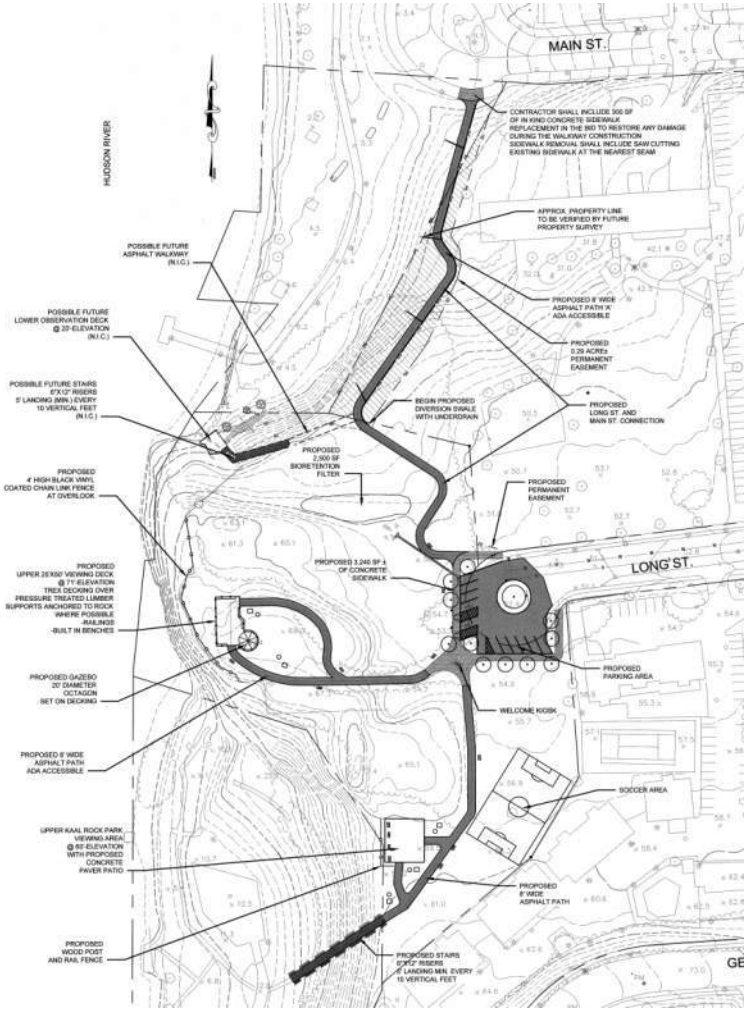
Project Background

Source: Jeff Anzevino

THE Chazen COMPANIES®

Poughkeepsie Alliance

Project Background



Over Rock Approach

- Partially Feasible
- Difficult to provide an universal walkway that is accessible to all.
- Limits User Experience

Source: Morris Associates

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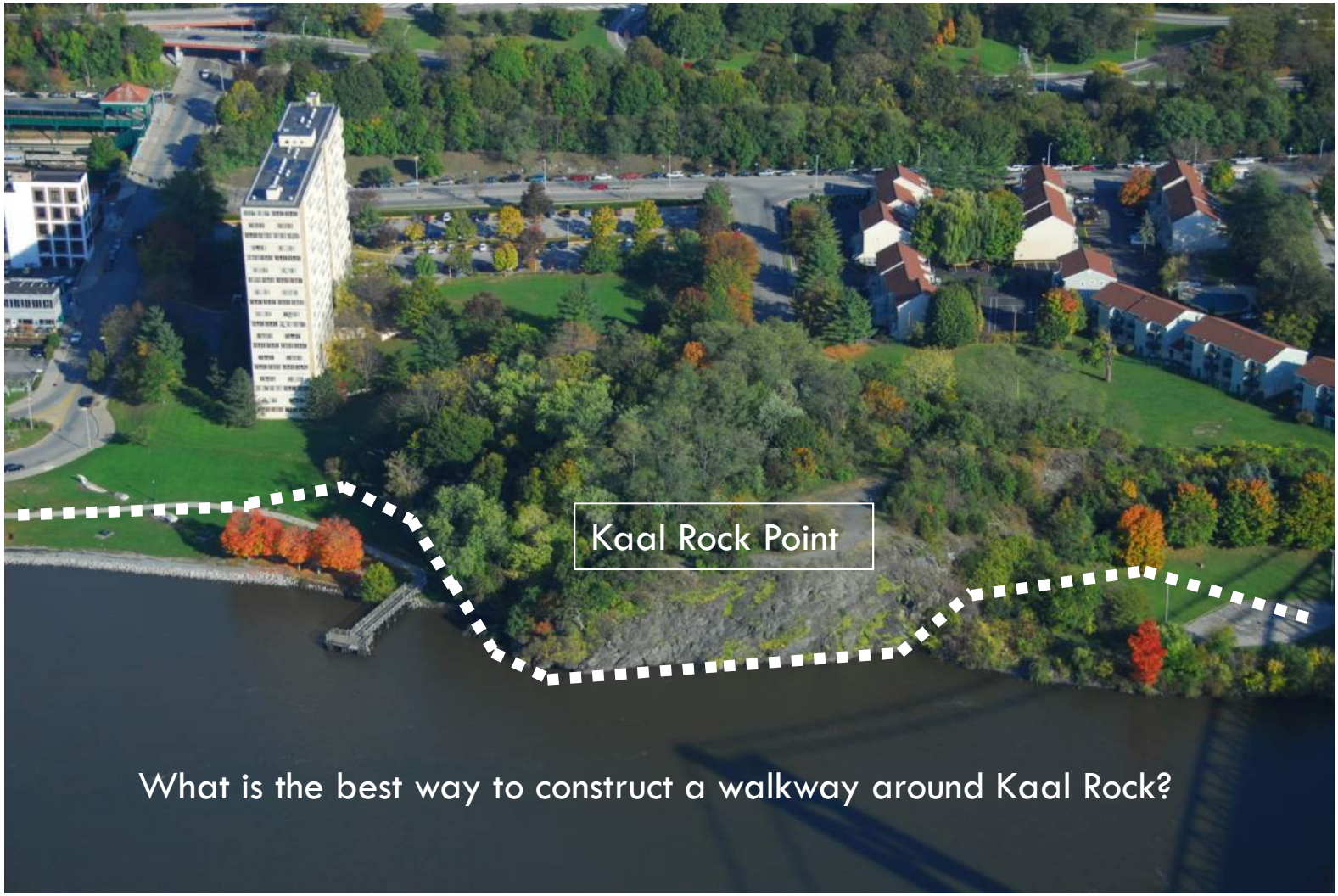
Poughkeepsie Alliance

Project Background



What is the best way to construct a walkway around Kaal Rock?

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Poughkeepsie Alliance

Project Background

Over Water Approach

- Feasible
- Provides an universal walkway that is accessible to all.
- Allows User to Experience both river and rock face
- Better utilizes public spaces
- Need to construct walkway over Hudson River
- Concept Level

Source: Morris Associates

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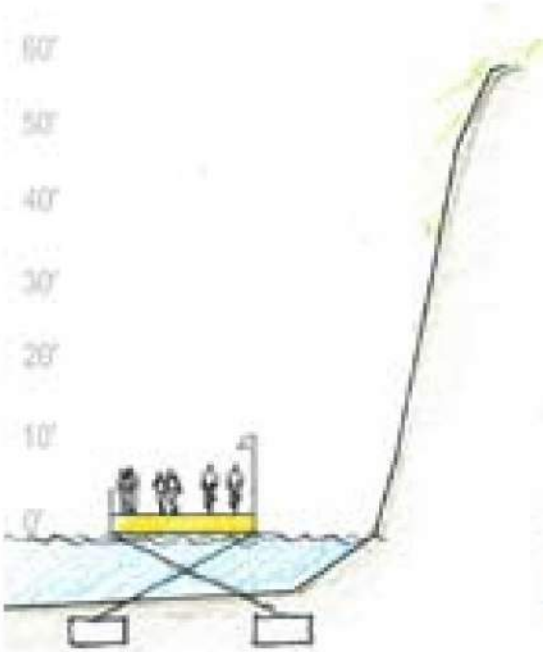
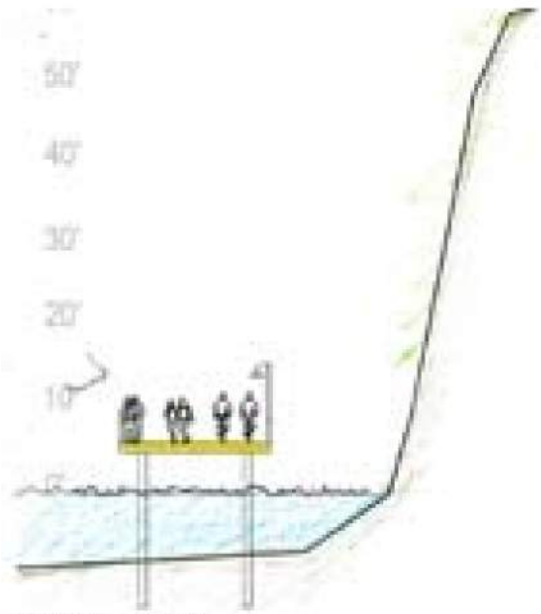
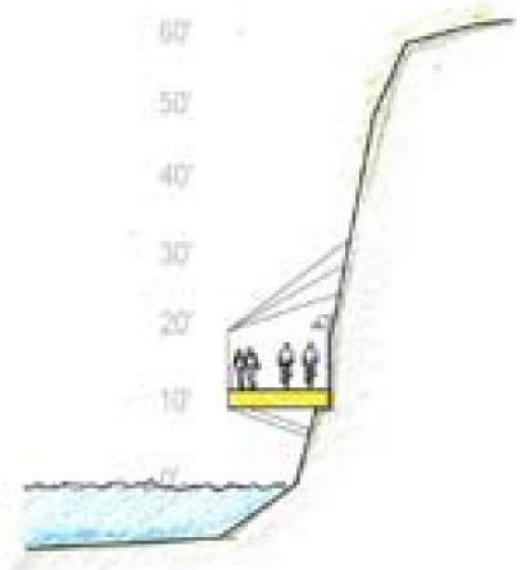
Walkway Concepts



FLOATING DOCK



FIXED PIER



SUSPENDED BOARDWALK

Source: Morris Associates

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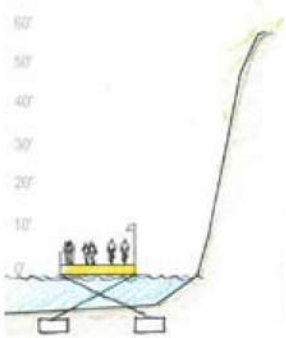
Poughkeepsie Alliance

Walkway Concepts



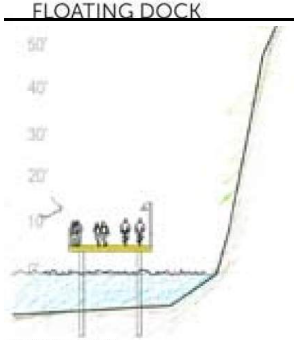
FLOATING DOCK

Pros

- Low up-front costs
- Easy to construct

Cons

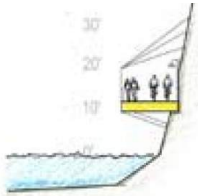
- Seasonal Use Only
- Long-Term Costs



FIXED PIER

- Year-round use
- Simple Design

- Environmental Issues
- Flood / Ice Issues
- Natural Habitat Issues



SUSPENDED BOARDWALK

- Year-round Use
- Above Flood and Ice
- Less Permitting Issues
- Less Disturbance to River

- More Expensive
- Disturbance to Rock Face

Source: Morris Associates

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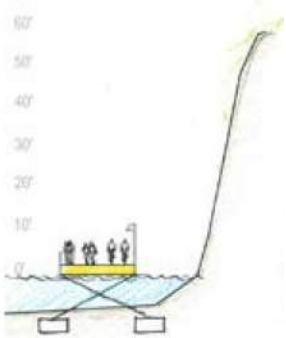
Walkway Concepts



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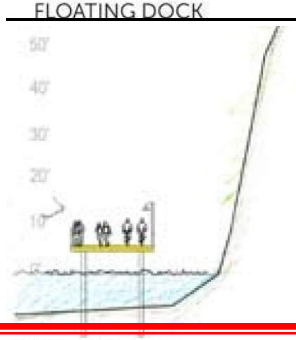

FIXED PIER

- Year-round use
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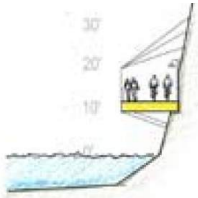

SUSPENDED BOARDWALK

Source: Morris Associates

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Walkway Concepts

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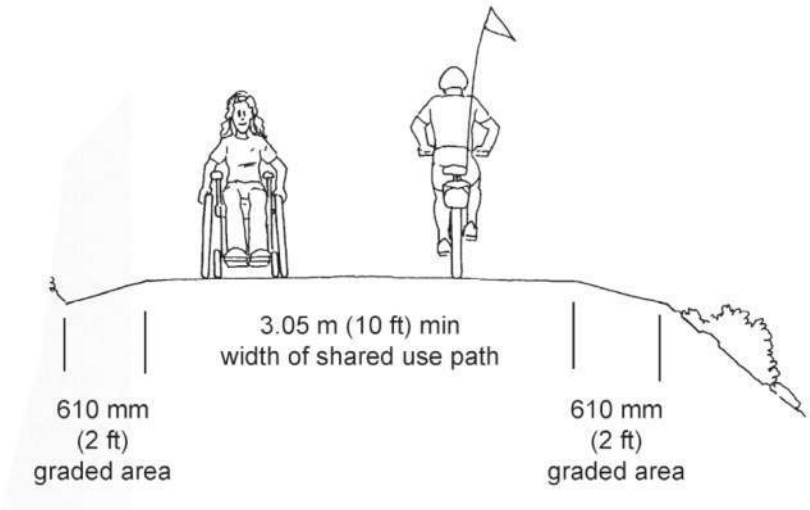
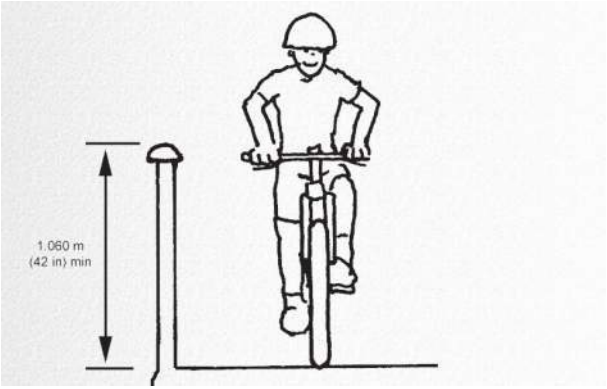
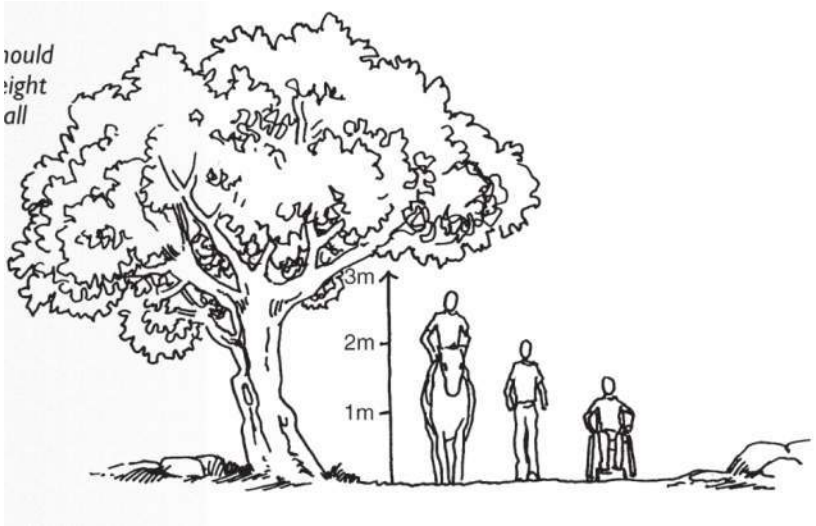
Walkway Concepts







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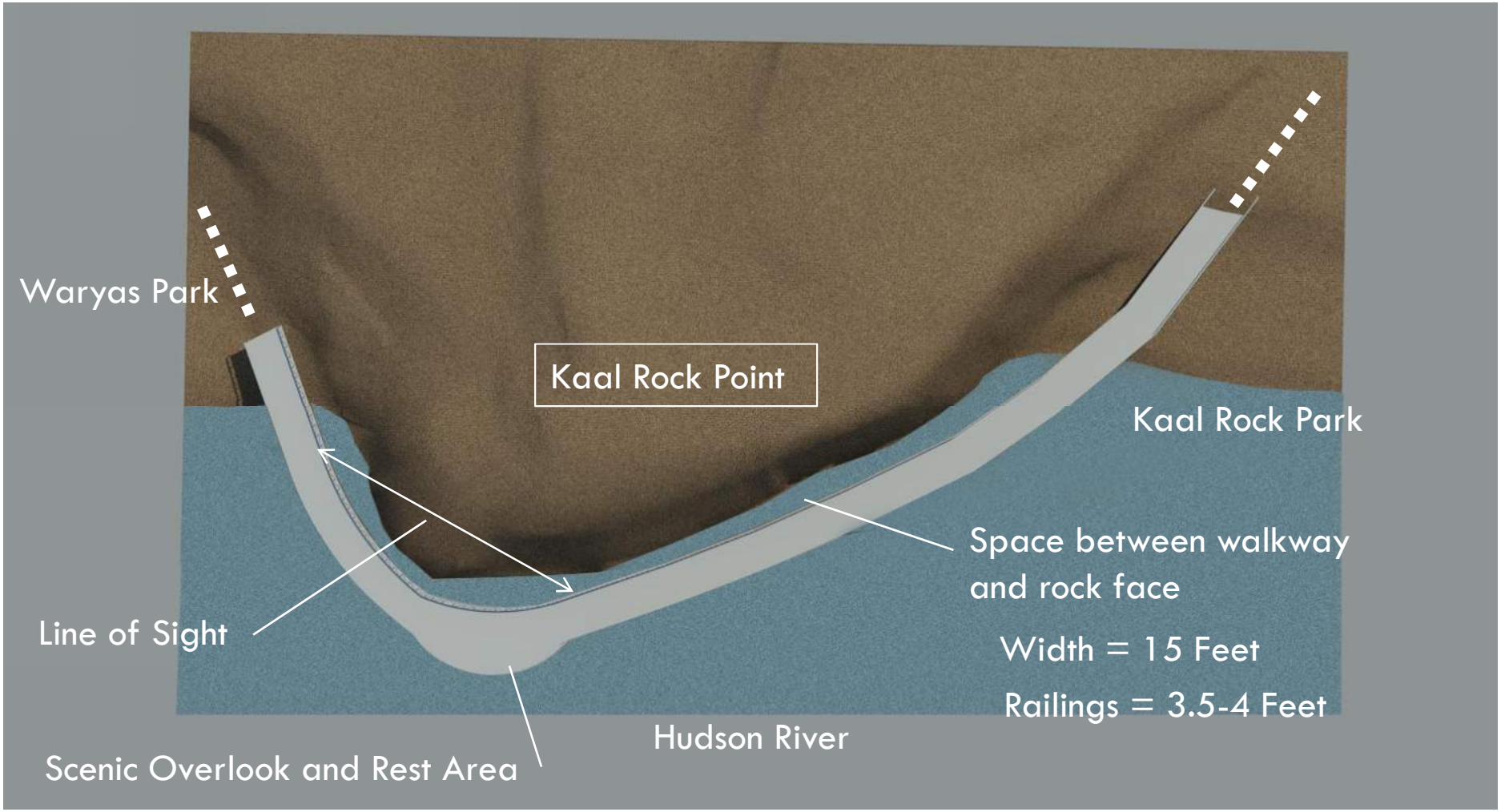
Walkway Design



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What is Kaal Rock Point?

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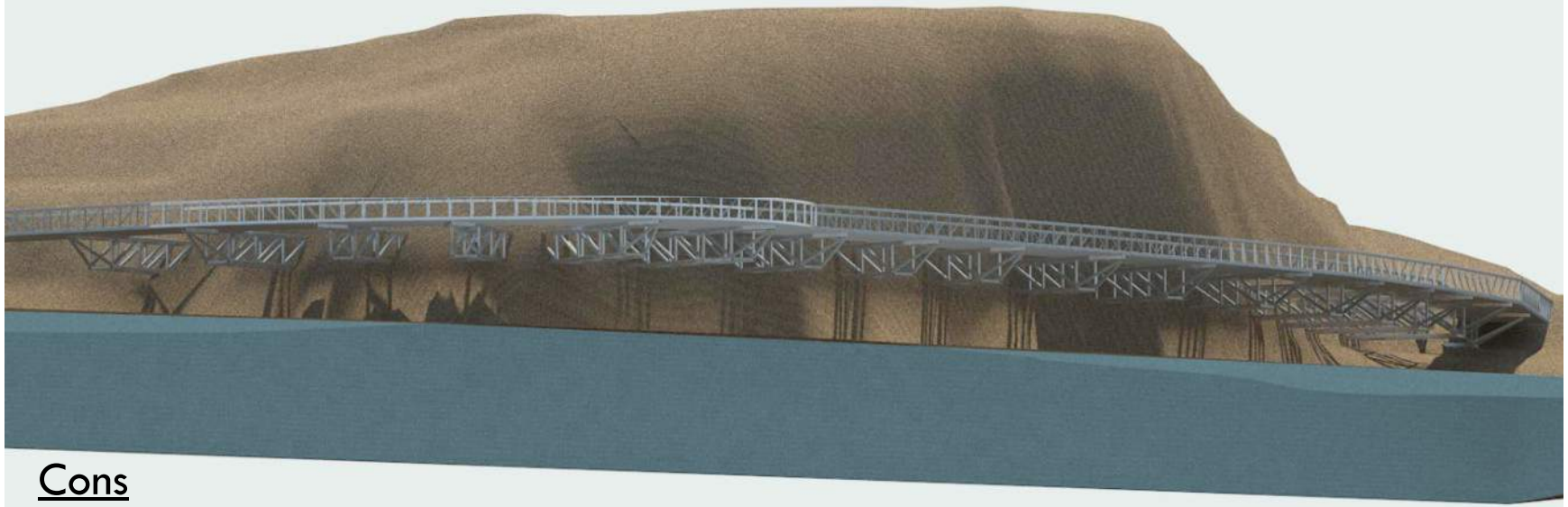
Concept 1 –Cantilevered Walkway

Pros

- No physical or visual impact to top of rock

Cost

- $$$$$



Cons

- Permanent Disturbance to face of rock
- Visual impact from water level
- Heavier Structural System Required

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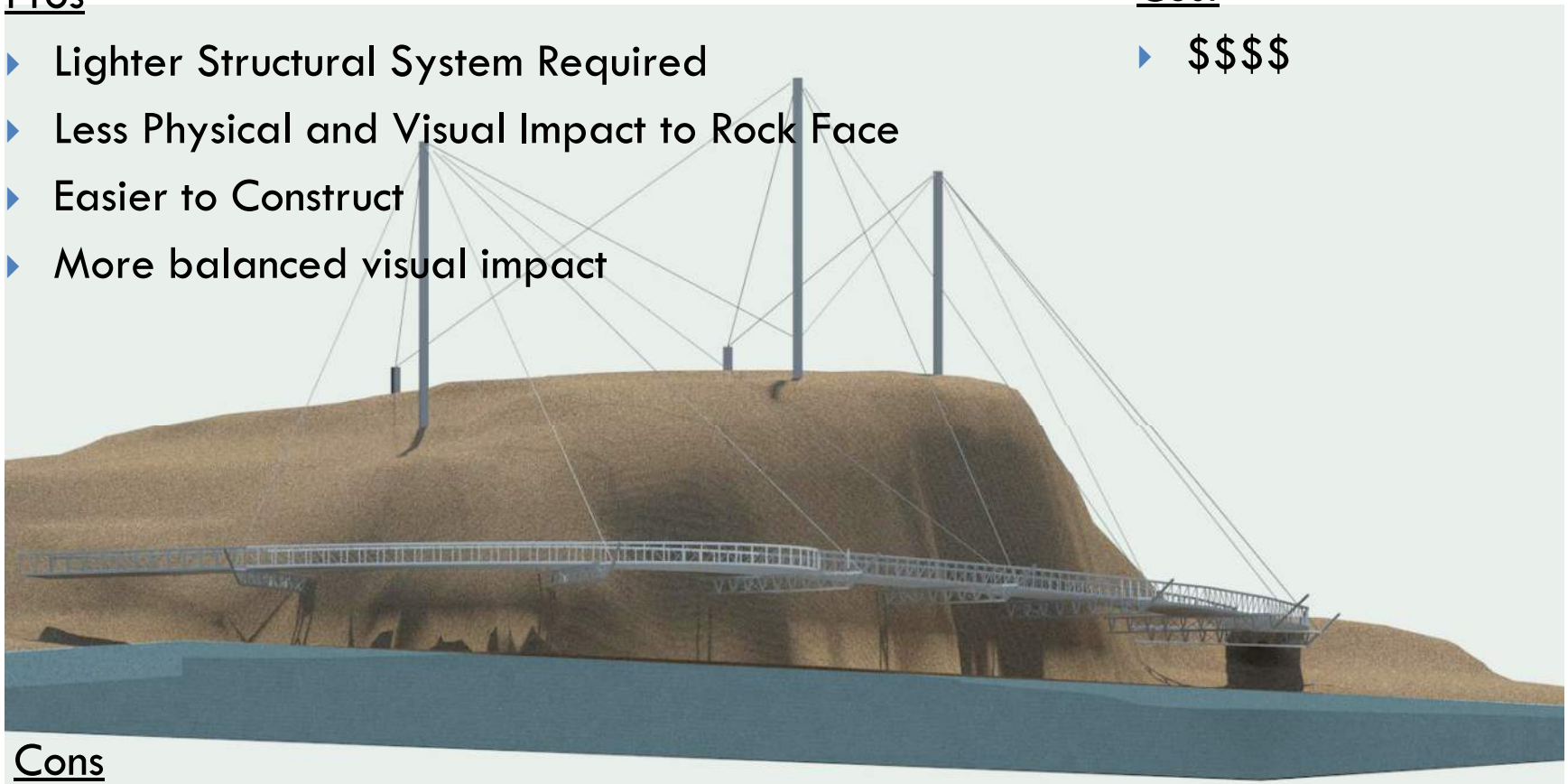
Concept 2 – Suspended Walkway

Pros

- Lighter Structural System Required
- Less Physical and Visual Impact to Rock Face
- Easier to Construct
- More balanced visual impact

Cost

- $$$$



Cons

- Permanent Physical Impact to top of rock
- Visual Impact to top of rock

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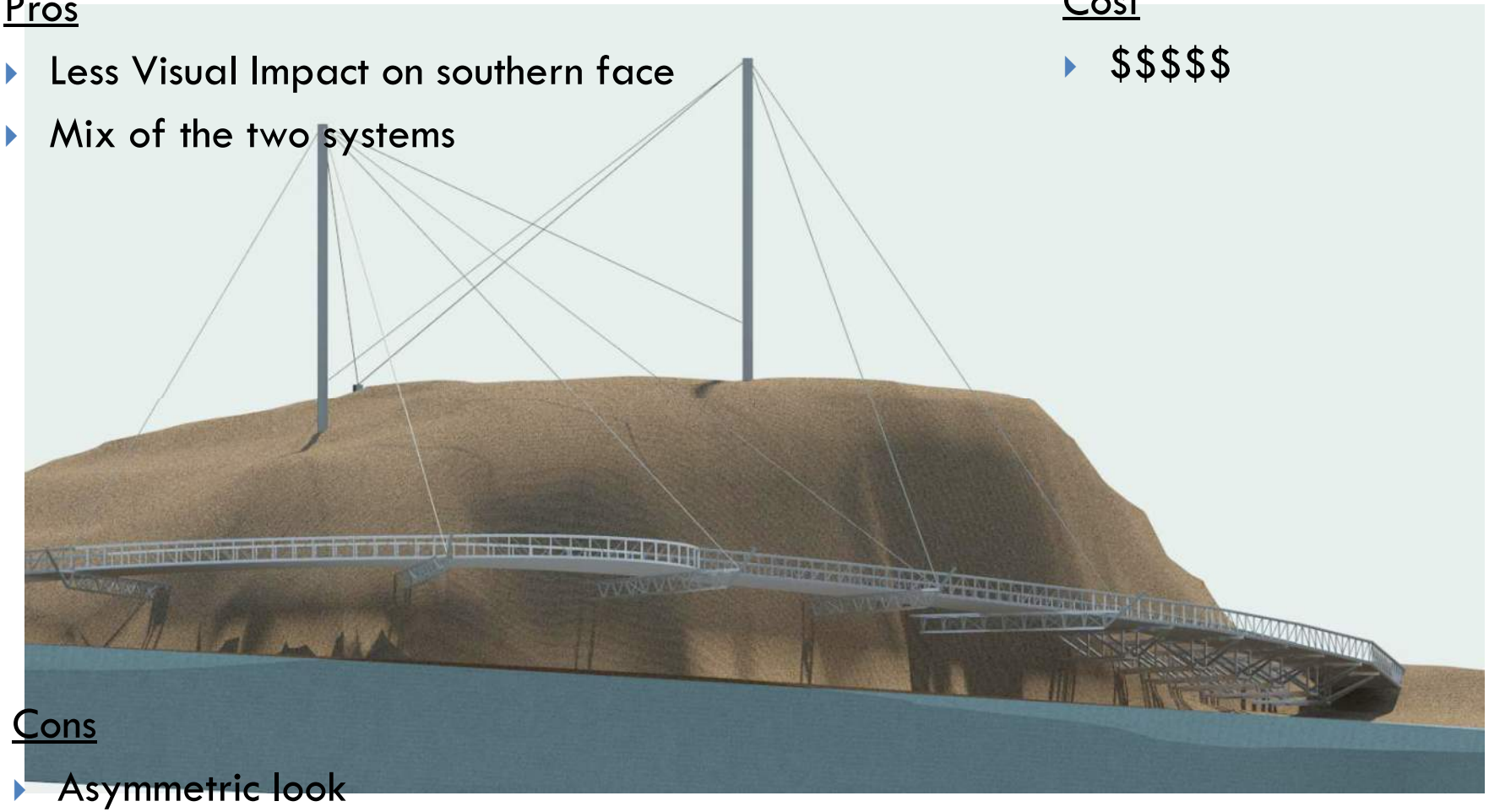
Concept 3 –Hybrid Walkway

Pros

- Less Visual Impact on southern face
- Mix of the two systems

Cost

- $$$$$



Cons

- Asymmetric look
- Double mobilization for two systems

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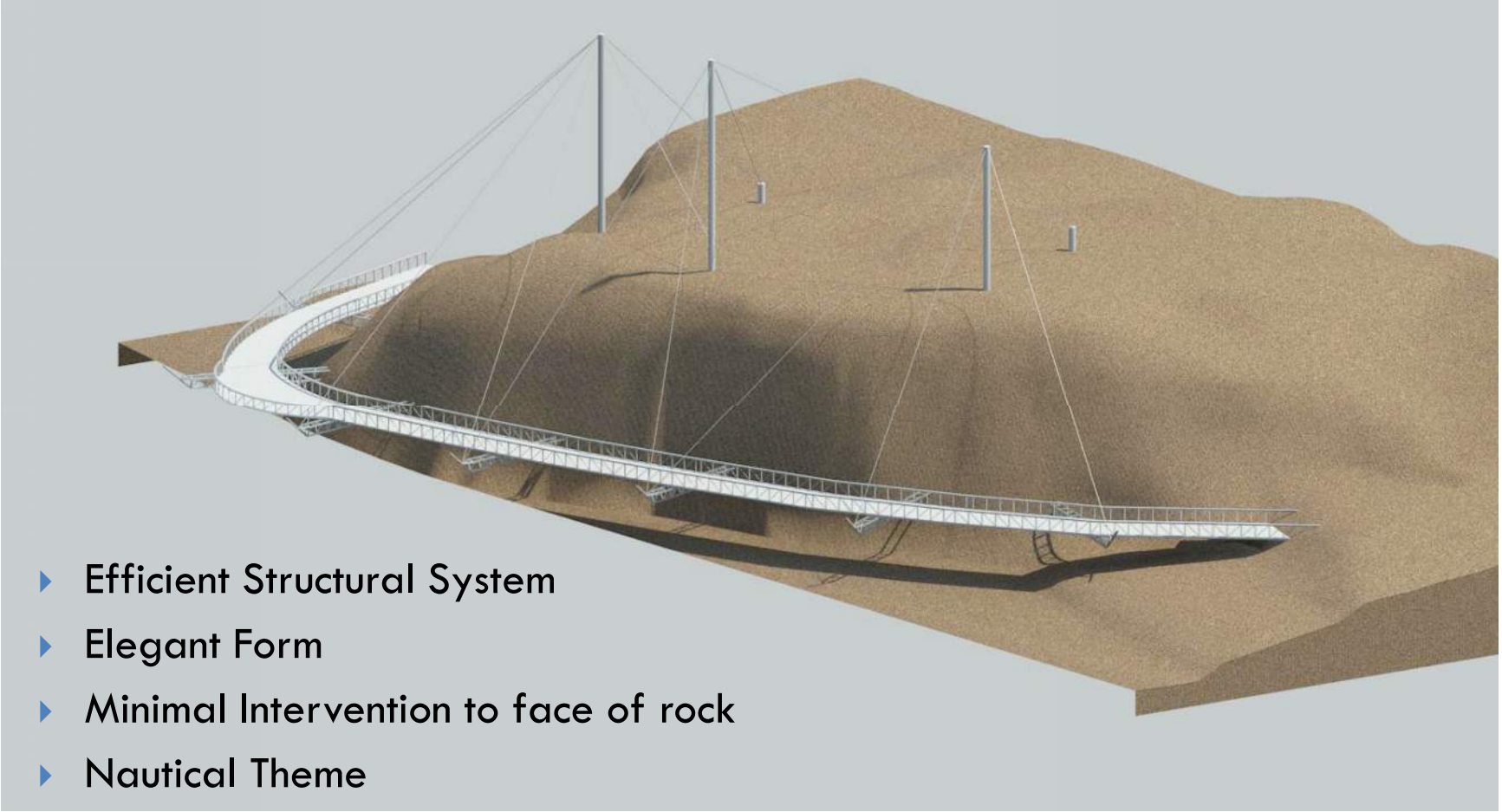
Concept 2 – Suspended Walkway



- Efficient Structural System
- Elegant Form
- Minimal Intervention to face of rock
- Nautical Theme

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Kaal Rock Point Park

Goals:

1. Add Shape the Waterfront Vision
2. Quiet Oasis
3. Maximize Views
4. Inclusive
5. Connectivity

Image Source: Jeff Anzevino

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Poughkeepsie Alliance

Kaal Rock Point Park

Objectives / Themes:

1. "Soft Footprint"
2. Nautical Theme

Kaal Rock Image Source: Jeff Anzevino

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Kaal Rock Point Park - Precedents

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Poughkeepsie Alliance

Kaal Rock Point Park - Precedents

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Kaal Rock Point Park

Site Opportunities & Constraints

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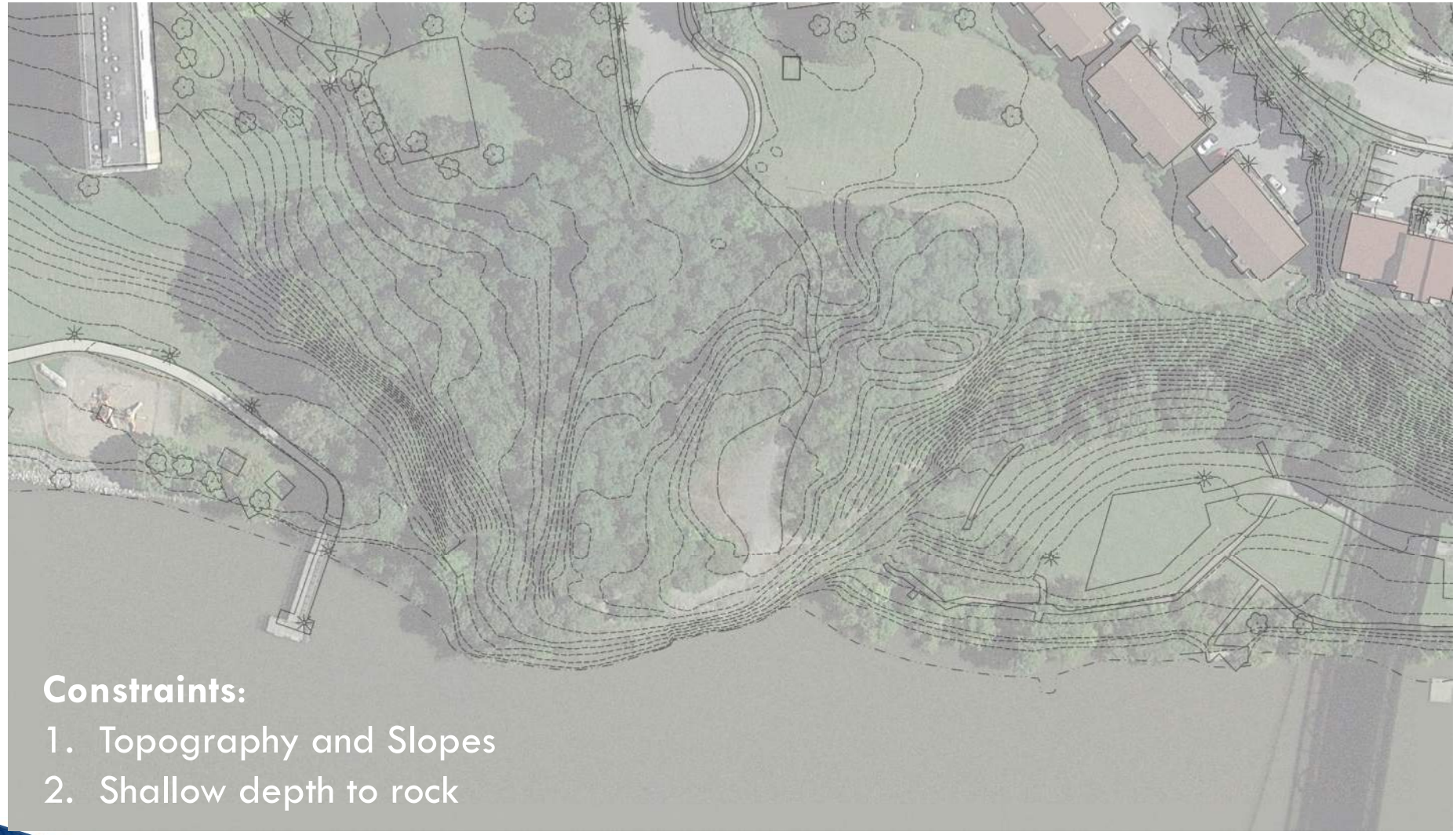
Kaal Rock Point Park



Constraints:

1. Topography and Slopes
2. Shallow depth to rock

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Kaal Rock Point Park

THE Chazen COMPANIES®

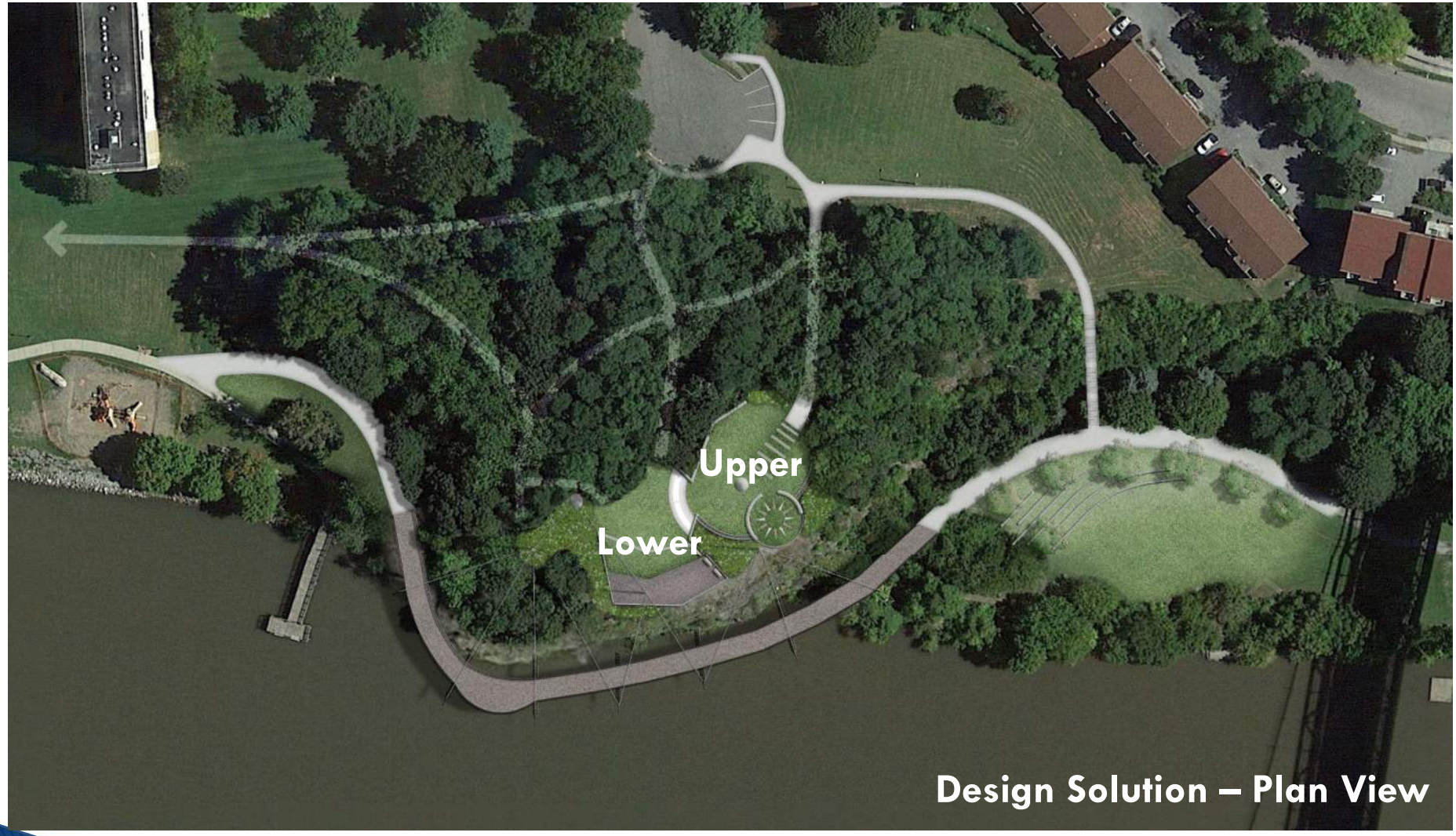
Poughkeepsie Alliance

Kaal Rock Point Park

THE Chazen COMPANIES®

Poughkeepsie Alliance

Kaal Rock Point Park



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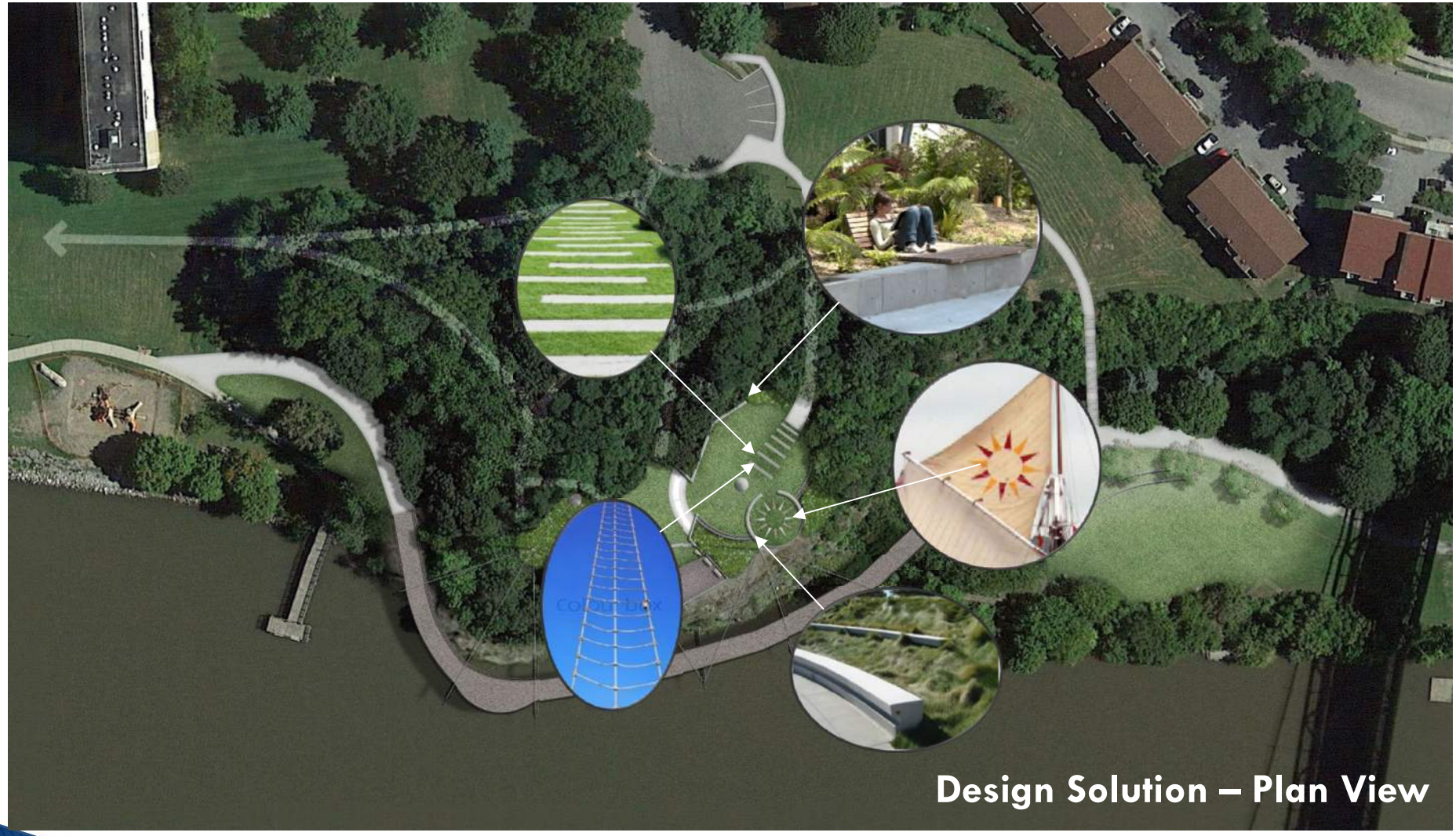
Kaal Rock Point Park



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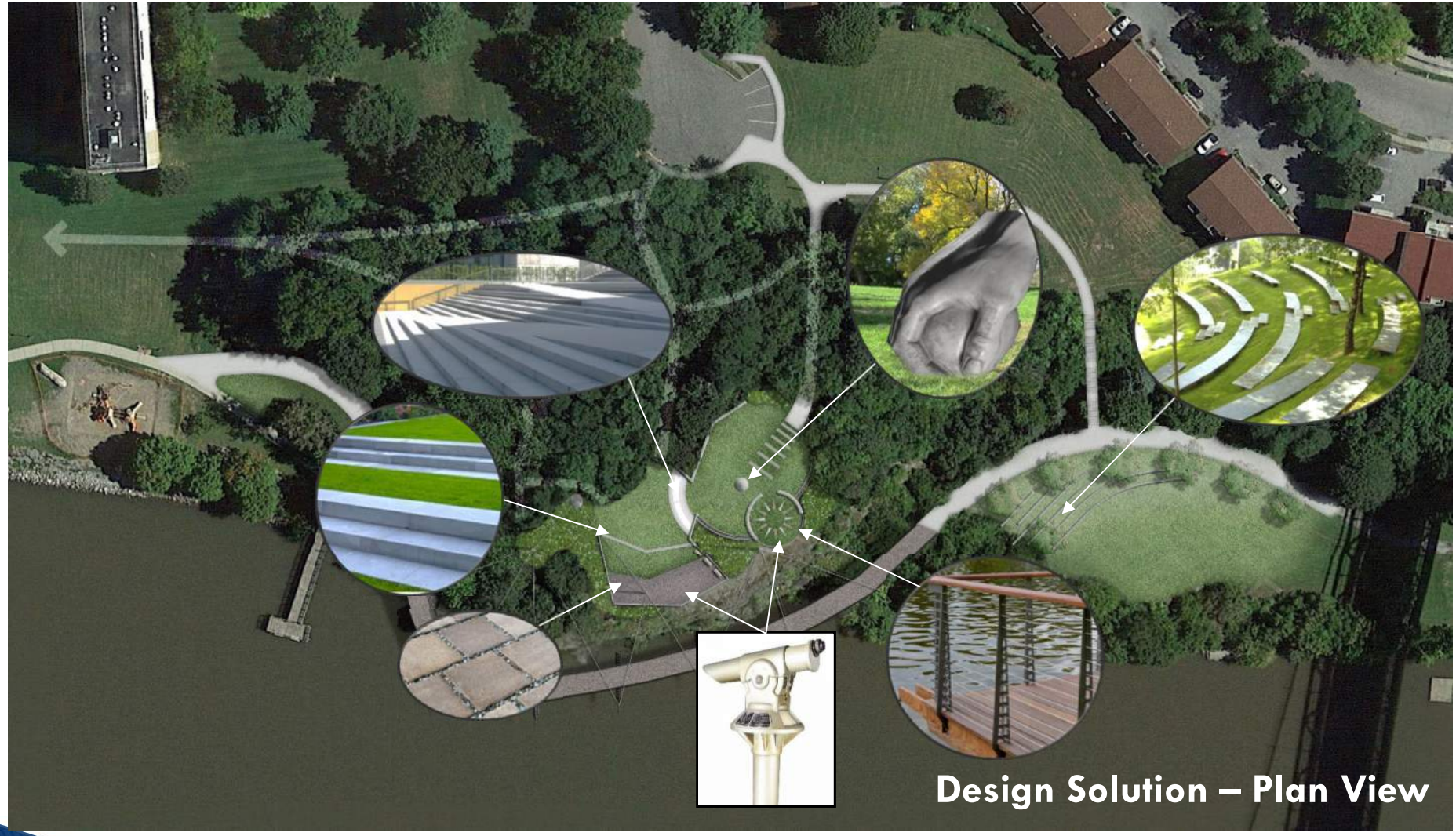
Poughkeepsie Alliance

Kaal Rock Point Park



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Kaal Rock Point Park

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Questions?

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APPENDIX I

Meeting Minutes

THE Chazen COMPANIES

Record of Telephone Conversation

The following conversation took place between Mike Baron of *The Chazen Companies* and Bill Petronis of the U.S. Army Corps of Engineers.

TCC Project Title: Kaal Rock Feasibility Study
TCC Project #: 31613.00
Conversation Date and Time: Tuesday, March 1, 2016 at 3:00 PM

Summary:

- **Purpose:** Reach out to the Army Corps of Engineers to understand where the navigation channel is at the project site. Barb Beall asked Mike Baron to perform this initial outreach while she was out of the office the week of 2/29 – 3/4 .

- **Reference:** Barb's email to Mike dated 2/25/16, entitled RE: 31613.00 - Kaal Walkway Pougkeepsie - Federal Regulation under Section 10 and Section 404.

Call Contact:

William Petronis,
Project Engineer,
U.S. Army Corps of Engineers, New York District, Albany Field Office
Phone: (518)-273-0870
E-mail: William.F.Petronis@usace.army.mil

U.S. Army Corps of Engineers, New York District, Albany Field Office
1 Bond Street
Troy, NY 12180

- **Result:** Mike called William (Bill) Petronis and asked about information about the navigation channel in front of Poughkeepsie. Mr. Petronis told Mike that there is no established navigation channel south of Kingston, NY since the river is wide and generally navigable.

- **Follow-Up:** Mike generally described the project to Mr. Petronis and asked who a good person would be to discuss our project would be. Mr. Petronis recommended that we call Amy Gitchell in the Army Corps. Albany Region office at (518) 266-6364 as a next step. She can provide guidance on jurisdictions and next steps.

-End-

Note: this document represents the writer's understanding of the comments during the Telephone Conversation. Information herein shall be deemed to be an accurate record of the conversation to the best of the ability of the writer.

Meeting Summary

Project Title: Kaal Rock Walkway
Chazen Project Number: 31613.00

Meeting Date, Time: April 13, 2016 from 6-8:15 – PUBLIC INFORMATION MEETING
Meeting Location: River Station Restaurant
Summary Writer: Barbara Beall
Issue Date: April 25, 2016

Attending: See Sign up List
Summary: See Attached Attendance List, PowerPoint Presentation

Agenda Outline:

City Opening (5-10 minutes) (Mayor and Paul Hesse - Planner):

- Welcome and Introduction: Opening remarks.
- Background: Discuss past efforts by other groups to get us to this point. Discuss strategic important of project. Discuss public + private partnership.

Chazen Presentation (15-20 minutes) – PowerPoint:

- Technical Challenges of Site. Discuss Kaal Rock. Discuss ADA / grading challenges. Discuss construction challenges.
- Discussion of Technical Alternatives: Floating vs. pile supported vs. cantilevered walkways vs. cable supported walkway. Selected cable supported walkway. Discussion of different cable supported walkway options. Discuss walkway width. Discuss materials.
- Discussion of our recommended solution (Chazen): Discuss our solution.

Community Discussion (60 minutes):

- Listen to community feedback. Post-it notes on poster session. Survey sheets.

Closing Statements (10 minutes):

- Announce Second Meeting. Likely May 2nd at City Council meeting. TBD.

Presentation

Mayor Robert Rolison made opening remarks:

- Planning for waterfront and the conversation was underway before he got into office.
- The Council and the Waterfront Committee working together on this exciting project.
- Thanked Kevin Hill for use of Restaurant.
- Thanked Poughkeepsie Journal for public outreach.
- This is a combined effort of the Waterfront Committee, the Planning Board, City Staff and DWP.
- He remembered that Kaal Rock was the place to hang out in the City in the 1970s. It was a gem on the City Waterfront in the '70s and '80s.

Note: this document represents the writer's understanding of the comments, decisions or actions taken at the meeting listed and is not intended as a full representation of the meeting. Please advise the writer in writing of additions or corrections required upon receipt or the information herein shall be deemed to be an accurate record of the meeting.

- Seeking to make Kaal Rock and the City's Waterfront the premier park in the City through a continuous connection along the waterfront. Blessed to have such an impressive waterfront. The Kaal Rock walkway is of strategic importance to the park system.

- Introduced Paul Hesse, the Community Development Coordinator shared between the County and the City. Paul will serve as MC for the evening. Paul works under a shared services agreement being a County Planning Employee working in the City of Poughkeepsie, and as such he has brought the City and the County together.

Paul Hesse described background of project, described the framework of the meeting. Presentation by Technical Group, then at 7:00 PM public will be free to wander and review boards and ask questions of the technical team. At 8:00 PM, the group can come back together, or if leaving early, asked the public to complete a survey at the rear of the room before leaving.

- Kaal Walkway is not a new concept. Waterfront revitalization in the City of Poughkeepsie has been discussed in statewide and local comprehensive plans, as part of a waterfront redevelopment strategy. There has been quite a bit of discussion about the waterfront and a walkway around Kaal Rock.

- PPS and Morris completed a study on Lower Main Street. Discussed Kaal Park and connection walkway concepts. The walkway was incorporated into the Waterfront Strategic Plan. The feasibility of a walkway was discussed with Scenic Hudson's Advisory Committee.

- City obtained a state grant to complete a study of the Kaal Rock Walkway. However in the interim, the Poughkeepsie Alliance offered a partnership to accelerate the process. Paul Calogerakis is head of that group and present at the meeting (introduced). This advanced planning helps to move the project along. The private funding is allowing for the completion of this conceptual advance work. It is hoped that the City can obtain/use the capital dollars via state funding grants. It is anticipated that working with the Poughkeepsie Alliance may have shaved 1.5 years off of the process.

- The City and the Alliance are at the very start of the project, and very early in the review. Both are seeking the input of the City Council, the City of Poughkeepie's Waterfront Advisory Committee, the Scenic Hudson and Sloop Clearwater and Riverkeeper. This is a public space, and everyone's park. And therefore the City wants to hear what the public has to say, and that is the purpose of the public meeting.

- It is hoped that this project can be built with no City funding. The City and Alliance are looking for outside funding. Both are very much aware and sensitive to the financial condition of the City, and are hoping to use no City dollars, and have a project that minimizes maintenance costs.

- Would like to introduce Joe Lanaro of Chazen who will introduce Chazen's technical team.

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<u>Joe Lanaro, VP of Engineering for Chazen</u> introduced the technical team. Mike Baron, Structural Engineer; Jon Quackenbush, Landscape Architect lead for Park Design, Barbara Beall, Director of Natural Resource Services for Regulatory issues.

<u>Mike Baron spoke on Slides 1-26 of PPT.</u>

- This project has the potential to be a signature project on the Poughkeepsie waterfront, and so captured the imagination of Chazen's project team.

- There was significant background work completed on Kaal Rock. This work focused on the connections between the southern and northern waterfronts and set the stage for the Kaal Rock Scenic Walkway and Park project.

- There is a vision for having a north to south walkway through the Poughkeepsie waterfront. But Kaal Rock Point is breaking up the party. It is challenging to overcome. At 65 feet high by 300 feet long it is a big rock. It also has breathtaking views to the south towards the Mid-Hudson Bridge and to the north towards the Walkway over the Hudson.

- It was the location of a Tavern, thought to be Gilman Brewery around the 1890s.

- How does one get from north to south on the waterfront? Over the rock is partially feasible. However, it is steep which limits the user experience, and might not be fully accessible.

- Previous studies explored going around the river side of the rock. Looked at three concepts, a floating or fixed pier or suspended by the rock face. Chazen evaluated these three options and their pros and cons. Noted on slide.

- There was also a real desire to create an accessible experience that everyone could enjoy. The Chazen Team asked how this dream walkway could look. At a 18 foot elevation the walkway has pretty even elevations/grades throughout with good connections at the north and south end. At 15 feet wide, it can support both pedestrian and bicycle traffic.

- Chazen's next step was to evaluate the rock, through a geotechnical study. Chazen drilled two cores on the north and south ends. Kaal Rock is a sedimentary formation. The cores show breaks every so often associated with the sedimentary formation. The rock is very strong for downward forces. It is less strong, but acceptable for side tensile forces.

- Chazen then examined the cantilevered walkway. This design looks very heavy from the water but is clean on top of the rock. Because of the amount of steel, its cost, and the need to drill into the side of the rock to anchor it in place, this is likely the most expensive design. It likely has higher construction costs and higher potential environmental impacts to the River.

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- Chazen then examined the suspended walkway. This can carry the same user deck with less steel, and so has less cost. It is probably easier to construct because it hangs from the top of the rock, rather than drilling into the face of the rock, and so more construction can occur from above, although there will still need to be some construction from a barge in the river. There is less weight on the rock face, and while beauty is in the eye of the beholder, the mast structures conveyed a sense of the nautical theme reflecting the river front design.

- Chazen also discussed a mixed or hybrid system – with two masts on the north end holding up a suspended walkway, and a cantilevered walkway on the south end. It is Chazen's opinion that this mixed system provides an inconsistent and less elegant a look.

- Chazen recommended that the suspended walkway became the main concept discussed tonight along with the cantilevered and hybrid alternatives.

- Chazen attempted to continue the nautical theme underneath the walkway with the arms looking like the hull of a ship. This design is then continued into the park design that Jon Quackenbush will discuss.

<u>Jon Quackenbush spoke on slides 27-39 - Park Design</u>

Goals of the park design

- Shape the vision outlined in the 2012 "Placemaking in Poughkeepsie" action plan as well as the 2014 "Poughkeepsie Waterfront Revitalization Strategy" for Kaal Rock Point into an **executable plan** for Kaal Rock Point. The previously mentioned studies outline several design challenges in addition to making some great suggestions for how to make use of the surrounding open space as well as existing woodlands on the point. Chazen's aim was not to create an alternate vision for the entire point, but rather to fit as seamlessly as possible within work already done and to fuse with it with good design philosophy and environmental sensibilities.
- Create a **quiet riverside oasis** in the city as the wooded area naturally hugs the site making it a very intimate experience between the user and the river. Users can be residents and/or tourists. A good place to sit and watch the world go by, read a book, eat your lunch, do yoga.
- Orient space to **maximize views** of the Hudson River, the Mid-Hudson Bridge, and the Walkway over the Hudson.
- Make the space as **accessible** as possible – bring people to the point.
- Establish **connections** to Hudson River Greenway Trail.

Objectives / Themes

- Maintain a "soft footprint." When working with a unique natural element such as Kaal Rock, Chazen's focus is on maintaining a soft footprint. This means prescribing a *minimal* number of interventions to the site's topography and plant community and the subsequent materials chosen in the design as it moves towards solving site challenges and meeting design goals. Allow the land to direct the design.
- Nautical Theme. Good design is inspired by something. The proximity to the water combined with the elevated walkway form started to carry a nautical theme, which was continued throughout the design. Primary inspiration for the angles and lines would be the Hudson River's environmental flagship the sloop Clearwater.

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- Environmental Stewardship. The Clearwater's core message is one of collective stewardship of lands and waters. The Clearwater mirrors Chazen's values and Chazen as members of the Poughkeepsie family wanted to honor this, the preferred design.

Design Precedents / Vision

- Precedent Imagery is where Chazen starts when approaching a design problem. This is used to visually inform what the focused experience of the user will be, as well as inspire designers what the forms will eventually take. Imagery included: Rats Nest; Topsail from Clearwater; Earthen Amphitheater; Seating nodes; Pavers in grass; Stairs in lawn; Seat walls and naturalized conditions surrounding them; Coin operated telescopes that fit nautical theme; Cable railings; Porous pavers; Accessible stairs; finally Cable Anchor as a sculptural element.

Site Constraints and Opportunities

- Three constraints. Topography/Slopes, Depth to Bedrock, Known Cultural Resources. As one would expect given the type of geologic figure that Kaal Rock is, topography is a big challenge. Grade undulates over the entire site and this makes connections to surrounding landscape a challenge. Depth of rock is shallow. There is potential for archeological sensitivity. These factors increases the cost of substantial interventions into the site.
- Opportunities include two relatively flat areas near the bluff, accessible path network in blue and challenging connections in Red

Design Walkthrough

- An upper park space and a lower park space informed by the grade. Each has a main path leading to an open lawn that connects to a trailhead on Long Street with a couple of Parking Spaces as well as an inviting park sign. At the Upper Park, the path dissolves into lawn, inspired by rat lines on the Clearwater. The seawall border on the north edge with the form inspired by angle on the gaff of the main sail and mast.
- Circular Seatwall near bluff, with pavers inlaid in grass honor the Clearwater, positioned to face north. These have the potential as upper tier park supporter donor pavers. Perhaps a coin operated telescope. Site oriented to provide views of entire River Corridor.
- A visually penetrable wire fence for safety and aesthetics.
- An accessible staircase with built in ramp system provides connectivity to the lower park.
- The lower park contains a depressed lawn that has an accessible pathway to trailhead to the north and a set of stairs to the west that leads to wooded interpretive trails. The trails would ultimately connect to the Greenway trail network. Towards the bluff there are a couple of stairs up to a slightly raised lawn/porous donor paver plaza section. This area hosts benches, cable fence, coin operated telescopes and interpretive signage.
- The first cable anchors is located at the path's terminus. The cable anchors are relatively massive forms and Chazen's vision is to make this element sculptural in nature.
- The clearing that currently exists at the terminal of an existing path was a logical place to start, as it leads directly to a plateau on the point. Here is envisioned a third of an acre greenspace which makes use of existing topography called the upper point park, with a set of stairs down a natural slope to the lower park minimally cleared to create a second quarter acre open space. As one makes their way down the primary concrete entry path (grade to be determined) it dissolves into the lawn in a series of concrete panels. This was inspired by the ratlines that run up the mast of the ship.

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- At the path's terminus is one of the primary cable anchors of the elevated walkway. These are relatively massive forms and the vision is make this element sculptural in nature. A compelling option for consideration opening a portion of the park to a future design competition in which artists are asked to submit their vision as to what these forms ultimately take and the community could then pick their preferred options.
- A key feature for the upper point are making use of seat walls. The northern border borrows the lines and angles on from the gaff to the main mast on the Clearwater. Closer to the bluff, a circular section of walls allow for complete views of the Hudson. Within the center of the circle inlaid lawn pavers which borrow the iconic sun logo on its topsail, oriented to magnetic north. This is a perfect spot for personalized pavers for significant donors.
- Leading to a lower open space, current topography suggests the need for a few stairs, which could be designed to incorporate a switchback ramp right into the treads of the stairs for accessibility
- The lower Point consists of a lawn at the base of the stairs, a landing and, with a couple stair treads up to a small grass area and ultimate a donor paver pavilion near the bluff. This area will incorporate interpretive signs, coin operated telescopes and benches for seating.

Meeting Follow Up

Following the presentations, the following questions/answers were given in the public forum.

- "Why was this more than just an engineering study?" From the head of PGK's Waterfront Alliance. Joe Lanaro answered that the Poughkeepsie Alliance and the City requested that Chazen develop a comprehensive design that would support moving the project into the next round of funding.

- Town of Lloyd residents across river were happy, want to be the first to walk on the structure.

- "What other cable stay structures are there in the United States or in the world?"

- "Can there be a second overlook on the trail on the south side of the rock. Seems like one overlook would get crowded." Jon noted that the park on the top of the rock provides that view to the south. Mike placed it on the list of comments/questions.

- "Within the park how many people could be there, how many people could sit on the benches?" Jon answered two areas each approximately 1/3 acre in size. Unknown how many people could sit on the benches or use it. Identified as a quiet intimate setting.

The meeting then went into one-on-one discussions. At 8:00 PM, anyone who had not yet filled out a survey was encouraged to do so before leaving. Meeting adjourned (8:10 PM)

Attached to this memo is the attendance list and summary of comments.

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Kaal Rock Public Meeting 04.13.16

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Kaal Rock Public Meeting 04.13.16

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Kaal Rock Public Meeting 04.13.16

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Kaal Rock Public Meeting 04.13.16

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Kaal Rock Connector
Alternative Conceptual Designs
Public Forum Survey Respones and Analysis

Data

	Preference Rank			
Respondent	Cantilevered	Suspended	Hybrid	Comments
1	1	2	3	
2	1	2	3	Would like to see design mimic a rail road theme to match Walkway Over the Hudson.
3	1	3	2	
4	1	3	2	To me, this is about making a trail connection while celebrating Kaal Rock. The poles/cables would become the focus and degrade Kaal Rock rather than enhanc and celebrate it. I'm all for "statements" in the right context, but not in this way with this project.
5	1	3	2	
6	1	3	2	I like [cantilevered] but financially [the] hybrid should be considered.
7	1	3	2	(No to the last two)
8	1	3	2	Fewer the poles the better but using the poles for lighting or another purpose might add to justification.
9	1	3	2	Additional parking?
10	1	3	2	I prefer floating over either of the suspended options.
11	2	1	3	
12	2	1	3	
13	2	3	1	
14	2	3	1	Love it! Innovative design will be a regional landmark!
15	2	3	1	
16	3	1	2	I really appriciate the tie-in to the nautical theme and history--making the most of the rock's topography which calling out great public use spaces--a stage or ampetheater of some type would be great. Maintenance of the steps and deck on the walkway wouldconcern me--I'd like to know more. Also--where will adequate parking be located, so someone isn't walking a mile before they ever get on the bridge? Will there be any security features, similar to the walkway? Will there be gates at either end of the bridge? (open in inclement weather?) Great presentation--very thorough without many design promises. Also, love the concpt of a design competition for the art to anchor the pilings! Great way to invite the larger community.
17	3	1	2	
18	3	1	2	Love it! Make it happen!
19	3	1	2	
20	3	1	2	
21	3	1	2	
22	3	1	2	
23	3	1	2	
24	3	1	2	
25	3	1	2	

26	3	2	1	Kaal rock is a Natural Landmark for its Geology (H.V. Melange) Which will require minimal intrusion Views to and from will need to be addressed in a Visual Impact Assessment in SEQRA. Also, H.R. ecology impact.
27	3	2	1	Towers can be Artistic Totem Poles - colorful "sculpture" instead of plain poles-ask cell phone provider to partially fun/rent poles as signal relay beacons.
28	3	2	1	
29	3	2	1	

Analysis

Total Count	Cantilevered	Suspended	Hybrid	Comments
1	11	14	8	Suspended recived the most first place rakings, followed closely by cantilivered. Hybrid recived the fewest first place rankings.
2	5	6	17	Hybrid recived the most second place rankings, with cantilivered and suspended reciving approximately the same number of second place rankings.
3	14	10	5	Canttilevered was ranked third the most, with suspended reciving fewer third rankings. Hybrid receved the fewest third rankings.
Total Score	62	57	55	Hybrid recived the lowest total score (highest rank), Suspended recived the second lowest score (middle rank), and Cantilivered recived the highest total score (lowest rank)
Avg	**2.14**	**1.97**	**1.90**	**Hybrid recived the highest average ranking, with suspended coming in second and cantilivered coming in third when null responses were removed.**
Wght	3	2	1	Weighted rank is effectively a tie between the two suspended options.
Com +	3	4	4	Suspended and hybrid recived the most positive comments, but were closely followed by cantilivered.
Com -	1	3	3	Suspended and hybrid recived the most negative comments, with cantilivered reciving the fewest.

Takeaway

Overall, responses to the project were good. The most frequent concern raised was the visual impact of the masted designs. Partcipants who voiced these concerns felt that the masted designs detracted from the rock and that the current design for these proposals was "inelligant" from a design standpoint. (Perhaps these design could be revised to make it more evocative?) A few people felt that the cantilivered design was too intrusive in the rock itself, and that the suspended version offered a lighter foot print. Few people felt the two masted design was the best, but many felt it was a happy medium. Otherse felt the hybrid was a silly compromise. None of the concepts was strongly favored over the others, and the sample was not large enough to demostrate statistically significant preference.

Kaal Rock Connector				
Alternative Conceptual Designs				
Public Forum Survey Respones and Analysis - RAW DATA				
	Preference Rank			
Respondent	Cantilevered	Suspended	Hybrid	Comments
1				I vote for whatever on is the least expensive that will actually get built.
2	1	2	3	
3	1	2	3	Would like to see design mimic a rail road theme to match Walkway Over the Hudson.
4	1	3	2	
5	1	3	2	To me, this is about making a trail connection while celebrating Kaal Rock. The poles/cables would become the focus and degrade Kaal Rock rather than enhanc and celebrate it. I'm all for "statements" in the right context, but not in this way with this project.
6	1	3	2	
7	1	3	2	I like [cantilevered] but financially [the] hybrid should be considered.
8	1	3	2	(No to the last two)
9	1	3	2	Fewer the poles the better but using the poles for lighting or another purpose might add to justification.
10	1	3	2	Additional parking?
11	1	4	3	2=floating
12	1	4	4	
13	2	1	3	
14	2	1	3	
15	2	3	1	
16	2	3	1	Love it! Innovative design will be a regional landmark!
17	2	3	1	
18	3	1	2	I really appriciate the tie-in to the nautical theme and history--making the most of the rock's topography which calling out great public use spaces--a stage or ampetheater of some type would be great. Maintenance of the steps and deck on the walkway wouldconcern me--I'd like to know more. Also--where will adequate parking be located, so someone isn't walking a mile before they ever get on the bridge? Will there be any security features, similar to the walkway? Will there be gates at either end of the bridge? (open in inclement weather?) Great presentation--very thorough without many design promises. Also, love the concpt of a design competition for the art to anchor the pilings! Great way to invite the larger community.
19	3	1	2	
20	3	1	2	Love it! Make it happen!
21	3	1	2	

22	3	1	2	
23	3	1	2	
24	3	1	2	
25	3	1	2	
26	3	1	2	
27	3	1	2	
28	3	2	1	Kaal rock is a Natural Landmark for its Geology (H.V. Melange) Which will require minimal intrusion Views to and from will need to be addressed in a Visual Impact Assessment in SEQRA. Also, H.R. ecology impact.
29	3	2	1	Towers can be Artistic Totem Poles - colorful "sculpture" instead of plain poles-ask cell phone provider to partially fun/rent poles as signal relay beacons.
30	3	2	1	
31	3	2	1	
32	4	1	4	How do you measure how the bridge sustains the force of the winds?
33	4	1	4	Best Option
34	4	4	1	Great idea!
Total Count	**Cantilevered**	**Suspended**	**Hybrid**	**Comments**
1	11	14	8	Suspended recived the most first place rakings, followed closely by cantilivered. Hybrid recived the fewest first place rankings.
2	5	6	17	Hybrid recived the most second place rankings, with cantilivered and suspended reciving approximately the same number of second place rankings.
3	14	10	5	Canttilevered was ranked third the most, with suspended reciving fewer third rankings. Hybrid receved the fewest third rankings.
Null	4	4	4	Four responses in each could not be "coded." (given a score of 4)
Avg	2.273	2.061	2.091	The average score for suspended and hybrid were effectively the same.
Wght	3	1	1	Weighted rank is effectively a tie between the two suspended options.
Com +	3	4	4	Suspended and hybrid recived the most positive comments, but were closely followed by cantilivered.
Com -	1	3	3	Suspended and hybrid recived the most negative comments, with cantilivered reciving the fewest.

Meeting Summary

Project Title: 31613.00
Chazen Project Number: 31613.00 – Kaal Rock Scenic Walkway and Park

Meeting Date, Time: April 25, 2016 from 9:30 to 10:30
Meeting Location: WEBEX GO TO MEETING – Videoconference and Telecom
Summary Writer: Barbara Beall
Issue Date: April 26, 2016

Attending:

Attendee:	Representing:
Barbara Beall	Chazen (bbeall@chazencompanies.com)
Mike Baron	Chazen (mbaron@chazencompanies.com)
Melanie O'Meara	Corps of Engineers Regulatory (Melanie.S.O'Meara@usace.army.mil)

Summary:

Discussion

- **Prior to the meeting,** Chazen provided Melanie O'Meara a copy of the Regulatory Feasibility Assessment Report dated April 22, 2016 and the PowerPoint (in PDF) of the presentation made on April 13, 2016.

- **Purpose of meeting** was to serve as mini-Pre-Application Meeting with the Corps to discuss the project and gain feedback on important points in the Application Process.

- **Chazen began with a brief introduction to the project**. Discussed that project is early in design, and is being funded through the Poughkeepsie Alliance with input from the City of Poughkeepsie and Scenic Hudson. A public meeting was held in Poughkeepsie on April 13, 2016. Project is now seeking feedback from various agencies that will be incorporated into a Project Summary Report. The Project Summary Report is Conceptual Design document for a "30% complete" project, to discuss the studies completed before, existing conditions, design development, regulatory assessment, and opinion of probable cost that can then be used to obtain additional funding for the next steps of the project.

- **Ms. O'Meara had the following comments** as we moved through the sections of the Regulatory Feasibility Assessment Report.

- **Property Ownership** - No comments.

- **Corps Regulatory Involvement**. Regulatory elevations for Corps of Engineers – Ms. O'Meara commented that the elevation for Section 404 is average of all high tides PLUS the spring high tides, and asked that this be the elevation listed. Barbara Beall stated that the MHHW is this calculation.

- **Waryas Pier and Navigation.** Ms. Beall asked if the Corps had particular regulatory standards or guidance re safe distance/design. Ms. O'Meara indicated that, to her knowledge, there was no set standard and no setback distance. Chazen would need to demonstrate that the Pier to Walkway separation is safe. This might include feedback from ships that dock at Waryas Pier. Navigation is a

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Public Interest component in the Corps' review and the Corps will examine whether there is an impact on navigation. This may include asking the Coast Guard for comments on this issue. [After the meeting, Ms. O'Meara emailed information on Coast Guard stating that the Corps coordinates with Jeff Yunker, but if Chazen plans to discuss the proposed project with USCG independently, recommend that Chazen start at the US Coast Guard website to ensure that Chazen does not inadvertently skip important communication recordkeeping steps that the Guard may have; the New York Sector link is: http://www.uscg.mil/d1/sectNY/default.asp.]

- **Moving or Changing the Pier:** Would raise another set of regulatory issues associated with impacts on habitat and coastal area. Similar to the walkway, the Corps would need to review the reasons and impacts for the pier, with additional focus on in-water impacts (habitat, sediment, fisheries, etc.).

- **Alternatives Discussion for Walkway (and perhaps Pier if relocated).** The walkway is within the Corps' jurisdictional area. There should be a discussion in the application about why the walkway cannot be moved out of the Corps' jurisdiction to avoid impacts, or other measures to minimize impacts. Chazen discussed some aspects of the design intent and alternatives analysis including ADA compliance/accessibility. Ms. O'Meara stated that the permit application would need to provide a discussion of various alternative designs that were reviewed, and measures to avoid and minimize impacts. Discussed our review of floating docks, dock on pilings, cantilevered walkway provided in the PowerPoint. Ms. O'Meara noted that the NOAA does not like floating docks due to habitat impacts. Pilings have habitat impacts too due to shading and sediment disturbances, but less in comparison to floating docks. Alternatives analysis should discuss why the suspended walkway is set off from the rock face. Discussed width of the walkway itself versus total distance off rock face. The location of the scenic viewpoint would also be discussed. Height above substrate is important to NOAA. NOAA likes to have 4.5 feet of separation to avoid shading. This project has 12-14 feet from bottom of structure to water.

- **Area of Potential Effect (APE):** Ms. O'Meara reminded that the project reviewed by the Corps is not just the area over/in the water but upland components directly related as well. Ms. Beall indicated that the APE would include any areas of disturbance both in uplands and over waters associated with project. The APE would not just be for cultural resources, but all areas of public interest.

- **Cultural Resources:** Discussed two possible structures identified on Kaal Rock. Discussed the contents in regulatory review process. She had no additional comments.

- **FEMA Floodplain:** Ms. O'Meara commented that the Corps will want to know if there are any impacts regarding changes to the floodplain that might affect flooding or water flow in the area. Chazen mentioned that the City of Poughkeepsie Site Plan Review would include the review of flooding impacts and compliance with local floodplain regulations by the City's Floodplain Administer.

- **Ecological Resources/Endangered Species:** Ms. O'Meara asked about tree removal and bats. Discussed that both species (IBAT, NLEB) are identified by USFWS but no NYSDEC occurrence records. Tree removal is relatively limited in area (2/3 to 1 acre). Will be done in winter to avoid impacts. Ms. O'Meara asked that the Application Package include distance to known hibernacula and maternity roost trees; data that can be obtained from NYNHP.

  Discussed aquatic resource impacts and sturgeon. Impacts are not just the possible shading impacts (we will need to do a shading study to evaluate the impacts or lack thereof of the walkway over the water) but also construction impacts including how long the construction barge will be in the water, and where is the barge coming from (long or short travel distance). Ms. O'Meara stated that NOAA

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has a streamlined review template to use for these types of projects, which probably is in the "may affect but not likely to adversely affect" range of impacts. [After the call, this template was emailed. NOAA ESA Streamlined Review: http://www.greateratlantic.fisheries.noaa.gov/protected/section7/index.html http://www.greateratlantic.fisheries.noaa.gov/protected/section7/guidance/consultation/index.html #technical]. In addition, Ms. O'Meara emailed the NOAA Essential Fish Habitat Grid: http://www.greateratlantic.fisheries.noaa.gov/hcd/index2a.htm].

- **Coastal Resources:** Discussed status of City of Poughkeepsie LWRP (draft, not adopted by NYSDOS), the fact that we are in the Coastal Zone, within the SASS, and somewhat offset from the Deepwater Habitat. Discussed that we had a public meeting in City of Poughkeepsie, attended by 40 people, where there was a review of the three alternatives (cantilevered, suspended, hybrid), an opportunity to comment. Also discussed that Scenic Hudson is involved now in the project. Acknowledged that there is a need to complete visual impact assessment/study from important parks/sensitive resources/cultural resources as part of the next phase. Also need to document compliance with 44 coastal policies. Ms. O'Meara thought it was excellent that Scenic Hudson was part of the project, and that public meetings were already being held to gain feedback.

- **Site Contamination.** Briefly discussed prior use as shown in Figure 17 of report, and steps to review. No comments.

- **SEQRA and Zoning.** Did not discuss in depth, as these are local review issues.

Action Items

1. **Melanie O'Meara to send Barb info on US Coast Guard Contact, information on NOAA Endangered Species Streamlined Consultation Template, and on Essential Fish Habitats. [DONE]**
2. **Barbara Beall to send Melanie O'Meara the meeting summary for review and comment. [DONE]**

Meeting adjourned (10:30 AM)

Note: this document represents the writer's understanding of the comments, decisions or actions taken at the meeting listed and is not intended as a full representation of the meeting. Please advise the writer in writing of additions or corrections required upon receipt or the information herein shall be deemed to be an accurate record of the meeting.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov

April 03, 2016

Barbara B. Beall
The Chazen Companies
375 Bay Road
Queensbury, NY 12804

Re: Site located at Kaal Rock (Chazen Job #31613.00)
Town/City: City Of Poughkeepsie. County: Dutchess.

Dear Barbara B. Beall:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur, or may occur, on your site or in the immediate vicinity of your site. Note also that the Kingston-Poughkeepsie Deepwater Significant Coastal Fish & Wildlife Habitat is in the vicinity of your site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

Our database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,

Andrea Chaloux

Andrea Chaloux
Environmental Review Specialist
New York Natural Heritage Program

380

The following state-listed animals have been documented in the vicinity of your project site.

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing.

For information about any permit considerations for your project, please contact the Permits staff at the NYSDEC Region 3 Office at dep.R3@dec.nygov, (845) 256-3054.

For information about potential impacts of your project on these species and how to avoid, minimize, or mitigate any impacts, contact the Region 3 Wildlife staff at Wildlife.R3@dec.ny.gov, (845) 256-3098 regarding the Peregrine Falcon and contact the Hudson River Fisheries Unit at 21 South Putt Corners Road, New Paltz, NY 12561, 845-256-3071, HudsonRiverFish@dec.ny.gov regarding the Atlantic Sturgeon and Shortnose Sturgeon.

A listing of Regional Offices is at http://www.dec.ny.gov/about/558.html.

The following species have been documented near the project site, generally within 0.5 mile. Potential onsite and offsite impacts from the project may need to be addressed.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Birds				
Peregrine Falcon *Breeding*	*Falco peregrinus*	Endangered		2203
Fish				
Shortnose Sturgeon	*Acipenser brevirostrum*	Endangered	Endangered	1091
Atlantic Sturgeon	*Acipenser oxyrinchus*	No Open Season	Endangered	11464

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.

The following rare plants and rare animals have historical records at your project site, or in its vicinity.

The following rare plants and animals were documented in the vicinity of the project site at one time, but have not been documented there since 1979 or earlier, and/or there is uncertainty regarding their continued presence. There is no recent information on these plants and animals in the vicinity of the project site and their current status there is unknown. In most cases the precise location of the plant or animal in this vicinity at the time it was last documented is also unknown.

If suitable habitat for these plants or animals is present in the vicinity of the project site, it is possible that they may still occur there. We recommend that any field surveys to the site include a search for these species, particularly at sites that are currently undeveloped and may still contain suitable habitat.

COMMON NAME	*SCIENTIFIC NAME*	*NYS LISTING*	*HERITAGE CONSERVATION STATUS*
Vascular Plants			
Golden Club	*Orontium aquaticum*	Threatened	Imperiled in NYS
1869: Poughkeepsie. The Hudson River.			10275

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

THE Chazen COMPANIES®
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North Country Office
375 Bay Road, Queensbury, NY 12804
P: (518) 812-0513 F: (518) 812-2205
www.chazencompanies.com

Hudson Valley Office (845) 454-3980
Capital District Office (518) 273-0055

March 15, 2016

Information Services, Natural Heritage Program
NYS Department of Environmental Conservation
625 Broadway, 5th Floor
Albany, New York 12233-4757
sent via e-mail (NaturalHeritage@dec.ny.gov)

Re: Threatened and Endangered Species Request
Site Located at Kaal Rock, City of Poughkeepsie, Dutchess County, NY
Chazen Job #31613.00

Dear Program Staff:

I am requesting a search of the files of the New York Natural Heritage program for records of the occurrence of any rare animals, plants, and natural communities and/or significant wildlife habitats in the vicinity of this project. The Chazen Companies' client, The Poughkeepsie Alliance is proposing work in and around Kaal Rock to develop an open-space area.

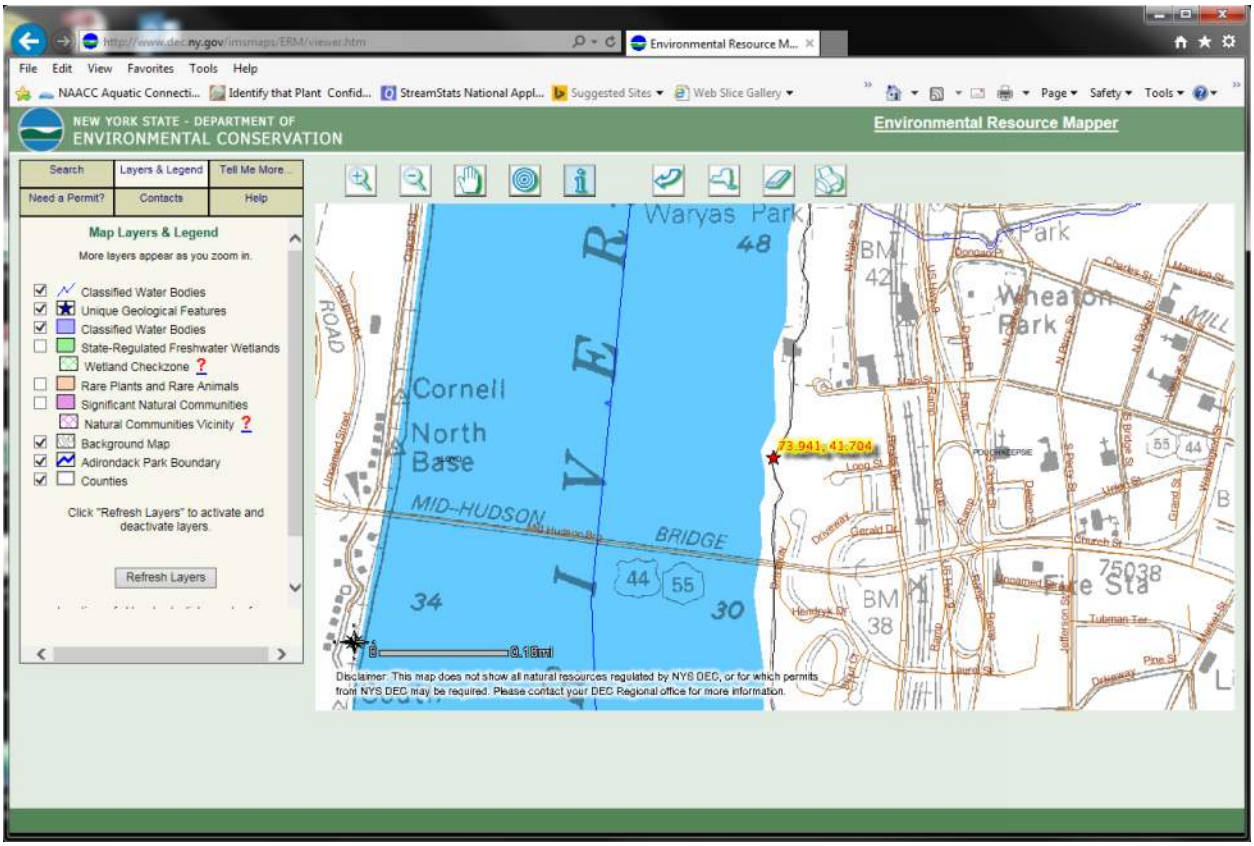
Your report will be used in due diligence planning, SEQRA documentation and/or any permit applications. We will retain the confidentiality, as needed, of any information received.

The site is located to the west of the Long Street cul-de-sac, north of the Mid-Hudson Bridge and south of the Walkway over the Hudson. Attached is a site location map based of a portion of the Poughkeepsie, NY, 7.5-minute USGS topographic quadrangle. The geographic coordinates of the ground bed site are NYSM E: 588102; N: 4617487 or Longitude/Latitude W: 73.941; N: 41.704. If you should need any additional information concerning this site, please do not hesitate to contact me by phone (518-824-1934) or e-mail. My e-mail address is bbeall@chazencompanies.com. Your assistance in this matter is greatly appreciated.

Sincerely,

Barbara B. Beall, PWS, LEED®AP
Principal, Director Natural Resource Services

Encl.


Environmental Resource M...
File Edit View Favorites Tools Help
NAACC Aquatic Connecti... Identify that Plant Confid... StreamStats National Appl... Suggested Sites Web Slice Gallery
Page Safety Tools
NEW YORK STATE - DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
Environmental Resource Mapper
Search
Layers & Legend
Tell Me More...
Need a Permit?
Contacts
Help
Map Layers & Legend
More layers appear as you zoom in.
Classified Water Bodies
Unique Geological Features
Classified Water Bodies
State-Regulated Freshwater Wetlands
Wetland Checkzone
Rare Plants and Rare Animals
Significant Natural Communities
Natural Communities Vicinity
Background Map
Adirondack Park Boundary
Counties
Click "Refresh Layers" to activate and deactivate layers.
Refresh Layers
Waryas Park
Cornell
North
Base
MID-HUDSON
BRIDGE
73.941, 41.704
Disclaimer: This map does not show all natural resources regulated by NYS DEC, or for which permits from NYS DEC may be required. Please contact your DEC Regional office for more information.

Sign in
SITE
Main St
Waryas Park Promenade
Long St
Mid-Hudson Bridge North Walkway
Gerald Dr
Hendryx Dr
Rinaldi Blvd
Glover St
© 2016 Google
Google earth
Tour Guide
1996
lat 41.703364° lon -73.939323° elev 72 ft eye alt 2761 ft

U.S. Fish & Wildlife Service

Kaal Rock

IPaC Trust Resources Report

Generated March 15, 2016 02:51 PM MDT, IPaC v3.0.0

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.

IPaC - Information for Planning and Conservation (https://ecos.fws.gov/ipac/): A project planning tool to help streamline the U.S. Fish & Wildlife Service environmental review process.

Table of Contents

IPaC Trust Resources Report 1
Project Description 1
Endangered Species 2
Migratory Birds 4
Refuges & Hatcheries 7
Wetlands 8

U.S. Fish & Wildlife Service

IPaC Trust Resources Report

NAME

Kaal Rock

LOCATION

Dutchess County, New York

IPAC LINK

https://ecos.fws.gov/ipac/project/C22WB-XUDOF-CBPMV-POEXA-3ARONY

U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9349
(607) 753-9334

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the Endangered Species Program of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Clams

Dwarf Wedgemussel Alasmidonta heterodon — Endangered

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=F029

Mammals

Indiana Bat Myotis sodalis — Endangered

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A000

Northern Long-eared Bat Myotis septentrionalis — Threatened

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A0JE

Critical Habitats

There are no critical habitats in this location

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

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1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
  http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/akn-histogram-tools.php

The following species of migratory birds could potentially be affected by activities in this location:

American Bittern Botaurus lentiginosus — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F3

Bald Eagle Haliaeetus leucocephalus — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008

Black-billed Cuckoo Coccyzus erythropthalmus — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HI

Black-crowned Night-heron Nycticorax nycticorax — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EU

Blue-winged Warbler Vermivora pinus — Bird of conservation concern
Season: Breeding

Canada Warbler Wilsonia canadensis — Bird of conservation concern
Season: Breeding

Cerulean Warbler Dendroica cerulea — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B09I

Fox Sparrow Passerella iliaca — Bird of conservation concern
Season: Wintering

Golden-winged Warbler Vermivora chrysoptera — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0G4

Least Bittern Ixobrychus exilis — Bird of conservation concern
Season: Breeding

Olive-sided Flycatcher Contopus cooperi — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0AN

Peregrine Falcon Falco peregrinus — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU

Pied-billed Grebe Podilymbus podiceps — Bird of conservation concern
Year-round

Prairie Warbler Dendroica discolor — Bird of conservation concern
Season: Breeding

Purple Sandpiper Calidris maritima — Bird of conservation concern
Season: Wintering

Red-headed Woodpecker Melanerpes erythrocephalus — Bird of conservation concern
Season: Breeding

Rusty Blackbird Euphagus carolinus — Bird of conservation concern
Season: Wintering

Short-eared Owl Asio flammeus — Bird of conservation concern
Season: Wintering
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD

Upland Sandpiper Bartramia longicauda — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HC

Willow Flycatcher Empidonax traillii — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F6

Wood Thrush Hylocichla mustelina — Bird of conservation concern

Season: Breeding

Worm Eating Warbler Helmitheros vermivorum — Bird of conservation concern

Season: Breeding

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in this location

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

This location overlaps all or part of the following wetlands:

Riverine

R1UBV 25200.0 acres

A full description for each wetland code can be found at the National Wetlands Inventory website: http://107.20.228.18/decoders/wetlands.aspx