

SCOPE OF WORK

New Visitor Center

Washington Crossing State Park
Titusville, Mercer County, N.J.

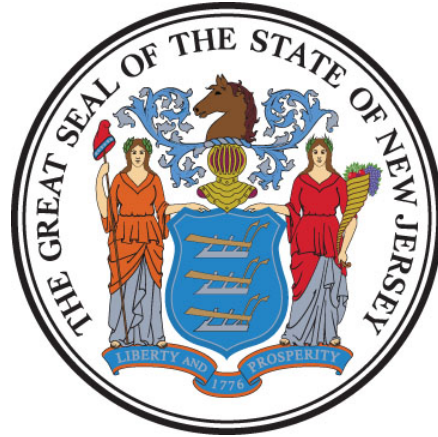
Project No. P1222-00

STATE OF NEW JERSEY

Honorable Philip D. Murphy, Governor
Honorable Sheila Y. Oliver, Lt. Governor

DEPARTMENT OF THE TREASURY

Elizabeth Maher Muoio, Treasurer



DIVISION OF PROPERTY MANAGEMENT AND CONSTRUCTION

Christopher Chianese, Director

Date: June 10, 2020

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I. OBJECTIVE

The objective of this project is to construct a new Visitor Center at Washington Crossing State Park. The new Visitor Center should include an auditorium/theater, workspace for the museum staff, gift shop with storage and a climate controlled and secured artifact storage space. There needs to be a public information area, public restrooms and an employee restroom. A small conference/break room for the museum staff should be included. The building design will be under 15,000 square feet but will incorporate green technology. The existing Visitor Center will be demolished.

II. CONSULTANT QUALIFICATIONS

A. CONSULTANT & SUB-CONSULTANT PRE-QUALIFICATIONS

The Consultant shall be a firm pre-qualified with the Division of Property Management & Construction (DPMC) in the following discipline(s):

- **P001 Architecture**

The Consultant shall also have in-house capabilities or Sub-Consultants pre-qualified with DPMC in:

- **P002 Electrical Engineering**
- **P003 HVAC Engineering**
- **P004 Plumbing Engineering**
- **P005 Civil Engineering**
- **P007 Structural Engineering**
- **P025 Estimating/Cost Analysis**
- **P031 Archaeology**
- **P037 Asbestos Design**
- **P038 Asbestos Safety Control Monitoring**
- **P065 Lead Paint Evaluation**

As well as, **any and all** other Architectural, Engineering and Specialty Disciplines necessary to complete the project as described in this Scope of Work (SOW).

III. PROJECT BUDGET

A. CONSTRUCTION COST ESTIMATE (CCE)

The initial Construction Cost Estimate (CCE) for this project is \$8,000,000.

The Consultant shall review this Scope of Work and provide a narrative evaluation and analysis of the accuracy of the proposed project CCE in their technical proposal based on their professional experience and opinion.

B. CURRENT WORKING ESTIMATE (CWE)

The Current Working Estimate (CWE) for this project is \$9,816,000.

The CWE includes the construction cost estimate and all consulting, permitting and administrative fees.

The CWE is the Client Agency's financial budget based on this project Scope of Work and shall not be exceeded during the design and construction phases of the project unless DPMC approves the change in Scope of Work through a Contract amendment.

C. CONSULTANT'S FEES

The construction cost estimate for this project *shall not* be used as a basis for the Consultant's design and construction administration fees. The Consultant's fees shall be based on the information contained in this Scope of Work document and the observations made and/or the additional information received during the pre-proposal meeting.

IV. PROJECT SCHEDULE

A. SCOPE OF WORK DESIGN & CONSTRUCTION SCHEDULE

The following schedule identifies the estimated design and construction phases for this project and the estimated durations.

PROJECT PHASE	ESTIMATED DURATION (Calendar Days)
1. Site Access Approvals & Schedule Design Kick-off Meeting	14
2. Program Phase	42
• <i>Project Team & DPMC Plan/Code Unit Review & Comment</i>	14

3. Schematic Design Phase	25% (Minimum)	42
• <i>Project Team & DPMC Plan/Code Unit Review & Comment</i>		14
4. Design Development Phase	50% (Minimum)	42
• <i>Project Team & DPMC Plan/Code Unit Review & Comment</i>		14
5. Final Design Phase	100%	42
• <i>Project Team & DPMC Plan/Code Unit Review & Approval</i>		14
6. Final Design Re-Submission to Address Comments		7
• <i>Project Team & DPMC Plan/Code Unit Review & Approval</i>		14
7. Permit Application Phase		7
• <i>Issue Plan Release</i>		
8. Bid Phase		42
9. Award Phase		28
10. Construction Phase		365

B. CONSULTANT’S PROPOSED DESIGN & CONSTRUCTION SCHEDULE

The Consultant shall submit a project design and construction bar chart schedule with their technical proposal that is similar in format and detail to the schedule depicted in **Exhibit ‘A’**. The bar chart schedule developed by the Consultant shall reflect their recommended project phases, phase activities, activity durations.

The Consultant shall estimate the duration of the project Close-Out Phase based on the anticipated time required to complete each deliverable identified in Section XIV of this document entitled “Contract Deliverables - Project Close-Out Phase” and include this information in the bar chart schedule submitted.

A written narrative shall also be included with the technical proposal explaining the schedule submitted and the reasons why and how it can be completed in the time frame proposed by the Consultant.

This schedule and narrative will be reviewed by the Consultant Selection Committee as part of the evaluation process and will be assigned a score commensurate with clarity and comprehensiveness of the submission.

C. CONSULTANT DESIGN SCHEDULE

Based on the Notice to Proceed, Consultant shall update their approved schedule and shall distribute it at the design kickoff meeting. Note that this schedule shall be submitted in both paper format and on compact disk in a format compatible with *Microsoft Project*. This schedule will be binding for the Consultant’s activities and will include the start and completion dates for each design activity. The Consultant and Project Team members shall use this schedule to ensure that all design milestone dates are being met for the project. The Consultant shall update the schedule to reflect performance periodically (minimally at each design phase) for the Project Team review and approval. Any recommendations for deviations from the approved design schedule must be explained in detail as to the causes for the deviation(s) and impact to the schedule.

D. BID DOCUMENT CONSTRUCTION SCHEDULE

The Consultant shall include a construction schedule in Division 1 of the specification bid document. This schedule shall contain, at minimum, the major activities and their durations for each trade specified for the project. This schedule shall be in “bar chart” format and will be used by the Contractors as an aid in determining their bid price. It shall reflect special sequencing or phased construction requirements including, but not limited to: special hours for building access, weather restrictions, imposed constraints caused by Client Agency program schedules, security needs, lead times for materials and equipment, anticipated delivery dates for critical items, utility interruption and shut-down constraints, and concurrent construction activities of other projects at the site and any other item identified by the Consultant during the design phases of the project.

E. CONTRACTOR CONSTRUCTION PROGRESS SCHEDULE

The Contractor shall be responsible for preparing a coordinated combined progress schedule with the Sub-Contractors after the award of the contract. This schedule shall meet all of the requirements identified in the Consultant’s construction schedule. The construction schedule shall be completed in accordance with the latest edition of the Instructions to Bidders and General Conditions and Bulletins that may be issued on the project.

The Consultant must review and analyze this progress schedule and recommend approval/disapproval to the Project Team until a satisfactory version is approved by the Project Team. The Project Team must approve the baseline schedule prior to the start of construction and prior to the Contractor submitting invoices for payment.

The Consultant shall note in Division 1 of the specification that the State will not accept the progress schedule until it meets the project contract requirements and any delays to the start of the construction work will be against the Contractor until the date of acceptance by the State.

The construction progress schedule shall be reviewed, approved, and updated by the Contractor, Consultant, and Project Team members at each regularly scheduled construction job meeting and the Consultant shall note the date and trade(s) responsible for project delays (as applicable).

V. PROJECT SITE LOCATION & TEAM MEMBERS

A. PROJECT SITE ADDRESS

The location of the project site is:

Washington Crossing State Park
355 Washington Crossing Pennington Road
Titusville, NJ 08560

See **Exhibit 'B'** for the project site location map.

B. PROJECT TEAM MEMBER DIRECTORY

The following are the names, addresses, and phone numbers of the Project Team members.

1. DPMC Representative:

Name: Eugene Cardone, Project Manager
Address: Division Property Management & Construction
20 West State Street, 3rd Floor
Trenton, NJ 08608-1206
Phone No: (609) 633-2648
E-Mail No: Eugene.Cardone@treas.nj.gov

2. Department of Environmental Protection:

Name: Larry Tutela, Project Manager
Address: Office of Resource Development
275 Freehold-Englishtown Road
Englishtown, NJ 07726
Phone No: 609-273-1866
E-Mail No: larry.tutela@dep.nj.gov

VI. PROJECT DEFINITION

A. BACKGROUND

Washington Crossing State Park is a 3,575-acre park that is located north of Trenton along the Delaware River. The park includes the site of Washington's crossing of the Delaware at Johnsons Ferry. This is where General George Washington and a 2,400-man detachment of Continental Army troops crossed the river overnight on December 25, 1776, and into the morning of December 26, 1776, in order to make a surprise attack on Trenton, a move that would prove to be a turning point in the American Revolutionary War. Thousands of spectators gather to watch the reenactment of the Christmas Day Crossing of the Delaware.

Under DPMC Project P1169-00, the Department of Environmental Protection (DEP) procured the services of Clarke Caton Hintz to create a Master Plan for a new Visitor Center at Washington Crossing State Park as the nation approaches its 250th birthday in 2026. The existing Visitor Center is outdated and inadequate for display of the Swan Historical Foundation Collection. The Master Plan provides an analysis of the site and its history and recommends two potential locations (upper and lower sites) for a new Visitor Center.

Three building concepts are presented in the Master Plan that can meet the needs of the site and display the Swan collection in a compelling fashion while interpreting the site and the Crossing. Concept A (Soldiers March) is located near the existing Visitor Center on the upper part of the site and is the lowest cost option. Concept B (The Wake) is located on the lower part of the site closer to the actual crossing site but is more expensive due to necessary road and utility work and tree removal. Concept C (The Ferry Boat) is also located on the lower part of the site. It has the largest footprint and is the most expensive option. The Clarke Caton Hintz Master Plan is shown in **Exhibit 'D'** at the end of this Scope of Work.

The DEP has not selected a final concept. There is a preference for the lower part of the site with a view of the actual crossing location. The new Visitor Center shall also be less than 15,000 square feet. All three concepts can be blended with regard to elements. The first part of this project will have a Program Phase to select a location and building concept that will meet stakeholder needs.

B. FUNCTIONAL DESCRIPTION OF THE BUILDING

The Master Plan for the Visitor Center includes a Lobby, Reception and Information Desk, Theater, Exhibits, Exhibit Storage, Conservation/Preparation Room, Gift Shop, Multi-Purpose Room, Public Restrooms, Administrative Suite, IT Closet and an Outdoor Patio. The new structure should be a one-story building fitting into the landscape and charm of the park and be a green building. The building shall incorporate green technology for energy efficiency and be as maintenance free as possible. There needs to be permanent museum galleries, as well as

temporary changeable exhibits, a lobby area/information counter, and a gift shop/bookstore. There needs to be ample storage space for the gift shop inventory. Provide a multi-purpose auditorium/theater with fixed seating for 125 persons. Climate controlled artifact storage and built in cabinets to store historic artifacts needs to be incorporated in the design. The building will also need a common staff working area, office space for the museum curators and a kitchenette with a breakroom. Internal/external restrooms and a separate employee restroom need to be incorporated in the building.

VII. CONSULTANT DESIGN RESPONSIBILITIES

A. PROGRAM PHASE

The project will commence with a program phase to review the Master Plan for the Visitor Center. The master plan was prepared by Clarke Caton Hintz under project number P1169-00. **See Exhibit ‘D’**. Concepts presented in the Master Plan can be blended. Define the requirements of the new Visitor Center and select the best location to construct the new building. The consultant is encouraged to think “outside the box” and be creative in the design of the building so that it will attract new audiences to both the visitor center and the park. The consultant shall meet with Client Agency and Park Staff to outline the functional requirements necessary for this project. All meetings will be documented.

In addition to any creative aspects suggested by the Consultant, specific components or items required by the Client Agency in this project shall include, but not be limited to the following:

1. Auditorium/Theater:

Investigate and design a multi-purpose auditorium/theater with fixed stadium seating in a U-Shape for 125 persons (two school bus loads) to be used to orient the public to the historic programming at Washington Crossing State Park. Any space under the seats that can be used for storage is desirable. Provide an area in front of the seating to accommodate a podium and an area for “hands – on” demonstrations, table discussions, etc. Provide for A/V control room, audio system, etc. that is compatible with the existing film. Outside access for the audience to leave and return to the auditorium should be investigated. A stage is not required.

2. Interpretive Exhibit Area:

The Interpretive Consultant shall provide a minimum of three (3) floor plan layouts for the interpretive /exhibit display area incorporated into the A/E's proposed conceptual floor plan layout for review and comments. The three floor plan layouts must be in sufficient detail for the client to analyze and select direction for exhibit design. The interpretive consultant shall provide

a written description and justification for each exhibit/display design being presented, including program elements for the auditorium and other areas of the building. Each design shall have a corresponding cost estimate. See **Exhibit 'C'** for the interpretive themes as well as the exhibit overview.

The interpretive consultant may incur costs such as copyright fees etc. to acquire some interpretive materials, with Using Agency approval. A sum of five thousand dollars (\$5,000.00) is provided to reimburse the consultant for expenditures regarding this item.

The interpretive consultant *MAY BE* required to perform research for only selected elements. The interpretive consultant, with using agency approval, will be reimbursed for time spent doing approved research. A sum of fifteen thousand dollars (\$15,000.00) is provided for this purpose.

3. Multi-Functional Workspace/Office Space:

A multi-functional workspace is need for the visitor center staff and office space for the museum curators. Two separate offices are needed for the curators and enough space for 3 staff in the multi-function workspace. The spaces should be designed with room for expansion if it is ever necessary.

4. Kitchen/Breakroom:

A small area for staff to have their breaks and lunch break away from the multi-purpose space.

5. Gift Shop:

Provide an area for a gift shop with a storage area for merchandise that is sold in the gift shop. The gift shop should have merchandise display cases, shelving, and a sales counter.

6. Environmentally Controlled Secure Storage:

Provide an area that is environmentally controlled and secure storage to preserve historical artifacts when not otherwise on display.

7. Public Restrooms:

Provide a minimum of two public universal restrooms as well as a separate employee restroom facility. The public restrooms should be accessible from both inside and outside of the Visitor Center. All restroom facilities must meet the Barrier Free accessibility requirements.

B. DESIGN REQUIREMENTS

The Consultant shall provide construction documents for a new Visitor Center at Washington Crossing State Park as guided by the Master Plan and decisions made in the program phase. Design services shall include, but not be limited to, demolition of the existing Visitor Center, new roadways and parking as necessary, utilities, permits and approvals, interpretive display, wayfinding, geotechnical investigations, and archaeological work during construction.

C. HAZARDOUS BUILDING MATERIALS

Consultant shall survey the existing Visitor Center and, if deemed necessary, collect samples of materials that will be impacted by the construction/demolition activities and analyze them for the presence of hazardous materials including:

1. Asbestos in accordance with N.J.A.C. 5:23-8, Asbestos Hazard Abatement Sub code.
2. Lead in accordance with N.J.A.C. 5:17, Lead Hazard Evaluation and Abatement Code.
3. PCB's in accordance with 40 CFR 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions. Consultant shall engage a firm certified in the testing and analysis of materials containing PCB's.

The Consultant shall engage the services of a Sub-Consultant, pre-qualified with DPMC in the P065 Lead Paint Evaluation/Inspection Specialty Discipline to produce a design document that stipulates construction safety procedures that adhere to applicable Federal and State regulations and that shall be incorporated into the project design documents.

A formal lead abatement shall not be conducted. Rather, the design document shall deal only with proposed lead base paint as may be encountered in areas of the building that will be affected by the construction of this project. It is intended that the construction Contractor for the project shall be responsible for any and all air or swab sampling during construction as may be required by law. The Sub-Consultant shall supervise said activity and sampling.

Consultant shall document their procedure, process and findings and prepare a "Hazardous Materials Survey Report" identifying building components impacted by construction activities requiring hazardous materials abatement. Consultant shall provide three copies of the "Hazardous Materials Survey Report" to the Project Manager.

Consultant shall estimate the cost of hazardous materials sample collection, testing, analysis and preparation of the Hazardous Materials Survey Report and include that amount in their fee proposal line item entitled "**Hazardous Materials Testing and Report Allowance**", refer to paragraph XI.B.

Based on the Hazardous Materials Survey Report, Consultant shall provide construction documents for abatement of the hazardous materials impacted by the work in accordance with the applicable code, sub code and Federal regulations.

Consultant shall estimate the cost to prepare construction documents for hazardous materials abatement and include that amount in their fee proposal line item entitled “**Hazardous Materials Abatement Design Allowance**”, refer to paragraph XI.C.

Consultant shall estimate the cost to provide “Construction Monitoring and Administration Services” for hazardous materials abatement activities and include that amount in their fee proposal line item entitled “**Hazardous Materials Construction Administration Allowance**”, refer to paragraph XI.D.

There shall be no “mark-up” of sub-consultant or subcontractor fees if sub-consultants or subcontractors are engaged to perform any of the work defined in paragraph VII.C “Hazardous Building Materials”. All costs associated with managing, coordinating, observing and administrating sub-consultants and subcontractors performing hazardous materials sampling, testing, analysis, report preparation, hazardous materials construction administration services shall be included in the consultant’s lump sum fee proposal.

D. GENERAL DESIGN OVERVIEW

1. Design Detail:

Section VII of this Scope of Work is intended as a guide for the Consultant to understand the overall basic design requirements of the project and is not intended to identify each specific design component related to code and construction items. The Consultant shall provide those details during the design phase of the project ensuring that they are in compliance with all applicable codes, regulating authorities, and the guidelines established in the DPMC Procedures for Architects and Engineers Manual.

The Consultant shall understand that construction documents submitted to DPMC shall go beyond the basic requirements set forth by the Uniform Construction Code N.J.A.C. 5:23-2.15(f). Drawings and specifications shall provide detail beyond that required to merely show the nature and character of the work to be performed. The construction documents shall provide sufficient information and detail to illustrate, describe and clearly delineate the design intent of the Consultant and enable all Contractors to uniformly bid the project.

The Consultant shall review and comply with the DPMC “Plan Review Instructions” which can be found on DPMC’s web site at:

http://www.state.nj.us/treasury/dPMC/lists_and_publications.shtml

The Consultant shall ensure that all of the design items described in this scope of work are addressed and included in the project drawings and specification sections where appropriate.

It shall be the Consultant's responsibility to provide all of the design elements for this project. Under no circumstance may they delegate the responsibility of the design; or portions thereof, to the Contractor unless specifically allowed in this Scope of Work.

2. Specification Format:

The Consultant shall prepare the construction specifications in the Construction Specifications Institute (CSI) format entitled MasterFormat®, latest edition.

The project construction specifications shall include only those CSI MasterFormat® specification sections and divisions applicable to this specific project.

3. Submittal Schedule:

The Consultant shall include a submittal schedule in Division 1 of the specifications. The schedule (list of required submittals) shall identify the general conditions and/or specification section (number and name) and the type of submittal required (material data, product data, test results, calculations, etc.). The submittal schedule is a compilation of the submittals required on the project and is provided as an aid to the contractor.

4. Construction Cost Estimates:

The Consultant shall include with each design submittal phase identified in Paragraph IV.A, including the Permit Application Phase and Bid Phase, a detailed construction cost estimate itemized and summarized by the divisions and sections of the Construction Specification Institute (CSI) MasterFormat® latest edition applicable to the project.

The detailed breakdown of each work item shall include labor, equipment, material and total costs.

The construction estimate shall include all alternate bid items and all unit price items itemized and summarized by the divisions and sections of the specifications.

All cost estimates shall be adjusted for regional location, site factors, construction phasing, premium time, building use group, location of work within the building, temporary swing space, security issues, and inflation factors based on the year in which the work is to be performed.

The cost estimate shall include descriptions of all allowances and contingencies noted in the estimate.

All cost estimates must be submitted on a DPMC-38 Project Cost Analysis form at each design phase of the project supported by the detailed construction cost estimate. The Project Manager will provide cost figures for those items which may be in addition to the CCE such as art inclusion, CM services, etc. and must be included as part of the CWE. This cost analysis must be submitted for all projects regardless of the Construction Cost Estimate amount.

E. PROJECT COMMENCEMENT

A pre-design meeting shall be scheduled with the Consultant and the Project Team members at the commencement of the project to obtain and/or coordinate the following information:

1. Project Directory:

Develop a project directory that identifies the name and phone number of key designated representatives who may be contacted during the design and construction phases of this project.

2. Site Access:

Develop procedures to access the project site and provide the names and phone numbers of approved escorts when needed. Obtain copies of special security and policy procedures that must be followed during all work conducted at the facility and include this information in Division 1 of the specification.

3. Project Coordination:

Review and become familiar with any current and/or future projects at the site that may impact the design, construction, and scheduling requirements of this project. Incorporate all appropriate information and coordination requirements in Division 1 of the specification.

4. Existing Documentation:

Copies of the following documents will be provided to each Consulting firm at the pre-proposal meeting to assist in the bidding process.

- DPMC Project P1169-00: **Washington Crossing State Park Visitor Center: Master Plan**, March 2019, Clarke Caton Hintz/GWWO Architects

Review these documents and any additional information that may be provided at a later date such as reports, studies, surveys, equipment manuals, as-built drawings, etc. The State does not attest to the accuracy of the information provided and accepts no responsibility for the consequences of errors by the use of any information and material contained in the documentation provided. It shall be the responsibility of the Consultant to verify the contents and assume full responsibility for any determination or conclusion drawn from the material used. If the information provided is

insufficient, the Consultant shall take the appropriate actions necessary to obtain the additional information required.

All original documentation shall be returned to the provider at the completion of the project.

5. Scope of Work:

Review the design and construction administration responsibilities and the submission requirements identified in this Scope of Work with the Project Team members. Items such as: contract deliverables, special sequencing or phased construction requirements, special hours for construction based on Client Agency programs or building occupancy, security needs, delivery dates of critical and long lead items, utility interruptions or shut down constraints for tie-ins, weather restrictions, and coordination with other project construction activities at the site shall be addressed.

This information and all general administrative information; including a narrative summary of the work for this project, *shall be included in Division 1* of the specification. The Consultant shall assure that there are no conflicts between the information contained in Division 1 of the specification and the DPMC General Conditions.

6. Project Schedule:

Review and update the project design and construction schedule with the Project Team members.

F. BUILDING & SITE INFORMATION

The following information shall be included in the project design documents.

1. Building Classification:

Provide the building Use Group Classification and Construction Type on the appropriate design drawing.

2. Building Block & Lot Number:

Provide the site Block and Lot Number on the appropriate design drawing.

3. Building Site Plan:

Only when the project scope involves site work, or when the design triggers code issues that require site information to show code compliance, shall a site plan be provided that is drawn in accordance with an accurate boundary line survey. The site plan shall include, but not be limited to, the following as may be applicable:

- The size and location of new and existing buildings and additions as well as other structures.
- The distance between buildings and structures and to lot lines.
- Established and new site grades and contours as well as building finished floor elevations.
- New and existing site utilities, site vehicular and pedestrian roads, walkways and parking areas.

4. Site Location Map:

Provide a site location map on the drawing cover sheet that identifies the vehicular travel routes from major roadways to the project construction site and the approved access roads to the Contractor's worksite staging area.

G. DESIGN MEETINGS & PRESENTATIONS

1. Design Meetings:

Conduct the appropriate number of review meetings with the Project Team members during each design phase of the project so they may determine if the project meets their requirements, question any aspect of the contract deliverables, and make changes where appropriate. The Consultant shall describe the philosophy and process used in the development of the design criteria and the various alternatives considered to meet the project objectives. Selected studies, sketches, cost estimates, schedules, and other relevant information shall be presented to support the design solutions proposed. Special considerations shall also be addressed such as: Contractor site access limitations, utility shutdowns and switchover coordination, phased construction and schedule requirements, security restrictions, available swing space, material and equipment delivery dates, etc.

It shall also be the responsibility of the Consultant to arrange and require all critical Sub-Consultants to be in attendance at the design review meetings.

Record the minutes of each design meeting and distribute within seven (7) calendar days to all attendees and those persons specified to be on the distribution list by the Project Manager.

2. Design Presentations:

The minimum number of design presentations required for each phase of this project is identified below for reference:

Program Phase: One (1) oral presentation at phase completion.

Schematic Phase: One (1) oral presentation at phase completion.

Design Development Phase: One (1) oral presentation at phase completion.

Final Design Phase: One (1) oral presentation at phase completion.

H. CONSTRUCTION BID DOCUMENT SUBMITTAL

In addition to submitting construction bid documents as defined in Section XIV Contract Deliverables, Consultant shall submit both specifications and drawings on compact disk (CD) in *Adobe Portable Document Format (.pdf)*.

VIII. CONSULTANT CONSTRUCTION RESPONSIBILITIES

A. GENERAL CONSTRUCTION ADMINISTRATION OVERVIEW

This section of the Scope of Work is intended as a guide for the Consultant to understand their overall basic construction administration responsibilities for the project and does not attempt to identify each specific activity or deliverable required during this phase. The Consultant shall obtain that information from the current publication of the DPMC Procedures for Architects and Engineers Manual and any additional information provided during the Consultant Selection Process.

B. PRE-BID MEETING

The Consultant shall attend, chair, record and distribute minutes of the Contractor pre-bid meetings. When bidders ask questions that may affect the bid price of the project, the Consultant shall develop a Bulletin(s) to clarify the bid documents in the format described in the Procedures for Architects and Engineers Manual, Section 9.2 entitled "Bulletins." These Bulletins must be sent to DPMC at least seven (7) calendar days prior to the bid opening date. DPMC will then distribute the document to all bidders.

C. POST BID REVIEW MEETING, RECOMMENDATION FOR AWARD

The Consultant; in conjunction with the Project Manager, shall review the bid proposals submitted by the various Contractors to determine the low responsible bid for the project. The Consultant; in conjunction with the Project Manager and Project Team members, shall develop a post bid questionnaire based on the requirements below and schedule a post bid review meeting with the Contractor's representative to review the construction costs and schedule, staffing, and other pertinent information to ensure they understand the Scope of the Work and that their bid

proposal is complete and inclusive of all requirements necessary to deliver the project in strict accordance with the plans and specifications.

1. Post Bid Review:

Review the project bid proposals including the alternates, unit prices, and allowances within seven (7) calendar days from the bid due date. Provide a bid tabulation matrix comparing all bids submitted and make a statement about the high, low, and average bids received. Include a comparison of the submitted bids to the approved current construction cost estimate. When applicable, provide an analysis with supporting data, detailing why the bids did not meet the construction cost estimate.

2. Review Meeting:

Arrange a meeting with the apparent low bid Contractor to discuss their bid proposal and other issues regarding the award of the contract. Remind the Contractor that this is a Lump Sum bid. Request the Contractor to confirm that their bid proposal does not contain errors. Review and confirm Alternate pricing and Unit pricing and document acceptance or rejection as appropriate.

Comment on all omissions, qualifications and unsolicited statements appearing in the proposals. Review any special circumstances of the project. Ensure the Contractor's signature appears on all post bid review documents.

3. Substitutions:

Inquire about any potential substitutions being contemplated by the Contractor and advise them of the State's guidelines for the approval of substitutions and the documentation required. Review the deadline and advise the Contractor that partial submissions are not acceptable. Submission after the deadline may be rejected by the State.

Equal substitutions that are proposed by the Contractor that are of lesser value must have a credit change order attached with the submittal (See Article 4.7.5 "Substitutions" of the General Conditions). The State has the right to reject the submission if there is no agreement on the proposed credit. Contractor will be responsible to submit a specified item.

4. Schedule:

Confirm that the Contractor is aware of the number of calendar days listed in the contract documents for the project duration and that the Contractor's bid includes compliance with the schedule duration and completion dates. Particular attention shall be given to special working conditions, long lead items and projected delivery dates, etc. Review project milestones (if applicable). This could give an indication of Contractor performance, but not allow a rejection of the bid.

Review the submittal timeframes per the Contract documents. Ask the Contractor to identify what products will take over twenty-eight (28) calendar days to deliver from the point of submittal approval.

If a CPM Schedule is required, review the provisions and have Contractor acknowledge the responsibility. Ask for the name of the CPM Scheduler and the “ballpark” costs.

5. Performance:

Investigate the past performance of Contractor by contacting Architects and owners (generally three of each) that were listed in their DPMC pre-qualification package or other references that may have been provided. Inquire how the Contractor performed with workmanship, schedule, project management, change orders, cooperation, paper work, etc.

6. Letter of Recommendation:

The Consultant shall prepare a Letter of Recommendation for contract award to the Contractor submitting the lowest responsible bid within three (3) calendar days from the post bid review meeting. The document shall contain the project title, DPMC project number, bid due date and expiration date of the proposal. It shall include a detailed narrative describing each post bid meeting agenda item identified above and a recommendation to award the contract to the apparent low bid Contractor based on the information obtained during that meeting. Describe any acceptance or rejection of Alternate pricing and Unit pricing.

Comment on any discussion with the Contractor that provides a sense of their understanding of the project and any special difficulties that they see, and how they might approach those problems.

Attach all minutes of the Post bid meeting and any other relevant correspondence with the Letter of Recommendation and submit them to the Project Manager.

7. Conformed Drawings:

The Consultant shall prepare and distribute two (2) sets of drawings stamped “Conformed Drawings” to the Project Manager that reflect all Bulletins and/or required changes, additions, and deletions to the pertinent drawings within fourteen (14) calendar days of the construction contract award date.

Any changes made in Bulletins, meeting minutes, post bid review requirements shall also be reflected in the specification.

D. DIRECTOR’S HEARING

The Consultant must attend any Director’s hearing(s) if a Contractor submits a bid protest. The Consultant shall be present to interpret the intent of the design documents and answer any technical questions that may result from the meeting. In cases where the bid protest is upheld, the Consultant shall submit a new “Letter of Recommendation” for contract award. The hours required to attend the potential hearings and to document the findings shall be estimated by the Consultant and the costs will be included in the base bid of their fee proposal.

E. CONSTRUCTION JOB MEETINGS, SCHEDULES, LOGS

The Consultant shall conduct all of the construction job meetings, to be held bi-weekly for the duration of construction, in accordance with the procedures identified in the A/E manual and those listed below.

1. Meetings:

The Consultant and Sub-Consultant(s) shall attend the pre-construction meeting and all construction job meetings during the construction phase of the project. The Consultant shall chair the meeting, transcribe and distribute the job-meeting minutes for every job meeting to all attendees and to those persons specified to be on the distribution list by the Project Manager. The Agenda for the meeting shall include, but not be limited to the items identified in the Procedures for Architects and Engineers Manual, Section 10.3.1, entitled “Agenda.”

Also, the Consultant is responsible for the preparation and distribution of minutes within three (3) calendar days of the meeting. The format to be used for the minutes shall comply with those identified in the “Procedures for Architects and Engineers Manual,” Section 10.3.4, entitled, “Format of Minutes.” All meeting minutes are to have an “action” column indicating the party that is responsible for the action indicated and a deadline to accomplish the assigned task. These tasks must be reviewed at each job progress meeting until it is completed and the completion date of each task shall be noted in the minutes of the meeting following the task completion.

2. Schedules:

The Consultant; with the input from the Client Agency Representative and Project Manager, shall review and recommend approval of the project construction schedule prepared by the Contractor. The schedule shall identify all necessary start and completion dates of construction, construction activities, submittal process activities, material deliveries and other milestones required to give a complete review of the project.

The Consultant shall record any schedule delays, the party responsible for the delay, the schedule activity affected, and the original and new date for reference.

The Consultant shall ensure that the Contractor provides a two (2) week “look ahead” construction schedule based upon the current monthly updated schedule as approved at the bi-weekly job meetings and that identifies the daily planned activities for that period. This Contractor requirement must also be included in Division 1 of the specification for reference.

3. Submittal Log:

Based on the Submittal Schedule in Division 1 of the specifications, the Consultant shall develop and implement a submittal log that includes all of the required project submittals as identified in the general conditions and technical specifications. The submittal log shall be provided to the contractor at the pre-construction meeting. The dates of submission shall be determined and approved by all affected parties during the pre-construction meeting.

Examples of the submissions to be reviewed and approved by the Consultant and Sub-Consultant (if required) include: project schedule, schedule of values, shop drawings, equipment and material catalog cuts, spec sheets, product data sheets, MSDS material safety data sheets, specification procedures, color charts, material samples, mock-ups, etc. The submittal review process must be conducted at each job progress meeting and shall include the Consultant, Sub-Consultant, Contractor, Project Manager, and designated representatives of the Client Agency.

The Consultant shall provide an updated submittal log at each job meeting that highlights the status of all required submissions.

F. CONSTRUCTION SITE ADMINISTRATION SERVICES

The Consultant and Sub-Consultant(s) shall provide construction site administration services during the duration of the project. The Consultant and Sub-Consultant(s) do not necessarily have to be on site concurrently if there are no critical activities taking place that require the Sub-Consultant’s participation.

The services required shall include, but not be limited to; field observations sufficient to verify the quality and progress of construction work, conformance and compliance with the contract documents, and to attend/chair meetings as may be required by the Project Manager to resolve special issues.

Consultant and Sub-Consultant(s) shall conduct weekly site inspection/field observation visits. Site inspection/field observation visits may be conducted in conjunction with regularly scheduled bi-weekly construction job meetings, depending on the progress of work, for weeks that construction job meetings are scheduled. The Consultant and their Sub-Consultant(s) shall submit a field observation report for each site inspection to the Project Manager within three (3) calendar days of the site visit. Also, they shall conduct inspections during major construction activities including, but not limited to the following examples: concrete pours, steel and truss installations, code inspections, final testing of systems, achievement of each major milestone

required on the construction schedule, and requests from the Project Manager. The assignment of a full time on-site Sub-Consultant does not relieve the Consultant of their site visit obligation.

The Consultant shall refer to Section XIV. Contract Deliverables of this Scope of Work subsection entitled “Construction Phase” to determine the extent of services and deliverables required during this phase of the project.

G. SUB-CONSULTANT PARTICIPATION

It is the responsibility of the Consultant to ensure that they have provided adequate hours and/or time allotted in their technical proposal so that their Sub-Consultants may participate in all appropriate phases and activities of this project or whenever requested by the Project Manager. This includes the pre-proposal site visit and the various design meetings and construction job meetings, site visits, and close-out activities described in this Scope of Work. Field observation reports and/or meeting minutes are required to be submitted to the Project Manager within three (3) calendar days of the site visit or meeting. All costs associated with such services shall be included in the base bid of the Consultant’s fee proposal.

H. DRAWINGS

1. Shop Drawings:

Each Contractor shall review the specifications and determine the numbers and nature of each shop drawing submittal. Five (5) sets of the documents shall be submitted with reference made to the appropriate section of the specification. The Consultant shall review the Contractor’s shop drawing submissions for conformity with the construction documents within seven (7) calendar days of receipt. The Consultant shall return each shop drawing submittal stamped with the appropriate action, i.e. “Approved”, “Approved as Noted”, “Approved as Noted Resubmit for Records”, “Rejected”, etc.

2. As-Built & Record Set Drawings:

The Contractor(s) shall keep the contract drawings up-to-date at all times during construction and upon completion of the project, submit their AS-BUILT drawings to the Consultant with the Contractor(s) certification as to the accuracy of the information prior to final payment. All AS-BUILT drawings submitted shall be entitled AS-BUILT above the title block and dated.

The Consultant shall review the Contractor(s)’ AS-BUILT drawings at each job progress meeting to ensure that they are up-to-date. Any deficiencies shall be noted in the progress meeting minutes.

The Consultant shall acknowledge acceptance of the AS-BUILT drawings by signing a transmittal indicating they have reviewed them and that they reflect the AS-BUILT conditions as they exist.

Upon receipt of the AS-BUILT drawings from the Contractor(s), the Consultant shall obtain the original reproducible drawings from DPMC and transfer the AS-BUILT conditions to the original full sized signed reproducible drawings to reflect RECORD conditions within fourteen (14) calendar days of receipt of the AS-BUILT information.

The Consultant shall note the following statement on the original RECORD-SET drawings. “The AS-BUILT information added to this drawing(s) has been supplied by the Contractor(s). The Architect/Engineer does not assume the responsibility for its accuracy other than conformity with the design concept and general adequacy of the AS-BUILT information to the best of the Architect’s/Engineer’s knowledge.”

Upon completion, The Consultant shall deliver the RECORD-SET original reproducible drawings to DPMC who will acknowledge their receipt in writing. This hard copy set of drawings and two (2) sets of current release AUTO CAD discs shall be submitted to DPMC. The discs shall contain all AS-BUILT drawings in both “.dwg” (native file format for AUTO CAD) and “.pdf” (*Adobe* portable document format) file formats.

I. CONSTRUCTION DEFICIENCY LIST

The Consultant shall prepare, maintain and continuously distribute an on-going deficiency list to the Contractor, Project Manager, and Client Agency Representative during the construction phase of the project. This list shall be separate correspondence from the field observation reports and shall not be considered as a punch list.

J. INSPECTIONS: SUBSTANTIAL & FINAL COMPLETION

The Consultant and their Sub-Consultant(s) accompanied by the Project Manager, Code Inspection Group, Client Agency Representative and Contractor shall conduct site inspections to determine the dates of substantial and final completion. The Project Manager will issue the only recognized official notice of substantial completion. The Consultant shall prepare and distribute the coordinated punch list, written warranties and other related DPMC forms and documents, supplied by the Contractor, to the Project Manager for review and certification of final contract acceptance.

If applicable, the punch list shall include a list of attic stock and spare parts.

K. CLOSE-OUT DOCUMENTS

The Consultant shall review all project close-out documents as submitted by the Contractors to ensure that they comply with the requirements listed in the “Procedure for Architects and Engineers’ Manual.” The Consultant shall forward the package to the Project Manager within fourteen (14) calendar days from the date the Certificate of Occupancy/Certificate of Approval is issued. The Consultant shall also submit a letter certifying that the project was completed in accordance with the contract documents, etc.

L. CLOSE-OUT ACTIVITY TIME

The Consultant shall provide all activities and deliverables associated with the “Close-Out Phase” of this project as part of their Lump Sum base bid. The Consultant and/or Sub-Consultant(s) may not use this time for additional job meetings or extended administrative services during the Construction Phase of the project.

M. TESTING, TRAINING, MANUALS AND ATTIC STOCK

The Consultant shall ensure that all equipment testing, training sessions and equipment manuals required for this project comply with the requirements identified below.

1. Testing:

All equipment and product testing conducted during the course of construction is the responsibility of the Contractor. However, the Consultant shall ensure the testing procedures comply with manufacturers recommendations. The Consultant shall review the final test reports and provide a written recommendation of the acceptance/rejection of the material, products or equipment tested within seven (7) calendar days of receipt of the report.

2. Training:

The Consultant shall include in the specification that the Contractor shall schedule and coordinate all equipment training with the Project Manager and Client Agency representatives. It shall state that the Contractor shall submit the Operation and Maintenance (O&M) manuals, training plan contents, and training durations to the Consultant, Project Manager and Client Agency Representative for review and approval prior to the training session.

The Consultant shall ensure that the training session is video recorded by the Contractor. A copy of the recording shall be transmitted to the Project Manager on compact disk who will forward the material to the Client Agency for future reference.

All costs associated with the training sessions shall be borne by the Contractor installing the equipment. A signed letter shall be prepared stating when the training was completed and must be accompanied with the training session sign-in sheet as part of the project close-out package.

3. Operation & Maintenance Manuals:

The Consultant shall coordinate and review the preparation and issuance of the equipment manuals provided by the Contractor(s) ensuring that they contain the operating procedures, maintenance procedures and frequency, cut sheets, parts lists, warranties, guarantees, and detailed drawings for all equipment installed at the facility.

A troubleshooting guide shall be included that lists problems that may arise, possible causes with solutions, and criteria for deciding when equipment shall be repaired and when it must be replaced.

Include a list of the manufacturer's recommended spare parts for all equipment being supplied for this project.

A list of names, addresses and telephone numbers of the Contractors involved in the installations and firms capable of performing services for each mechanical item shall be included. The content of the manuals shall be reviewed and approved by the Project Manager and Client Agency Representative.

The Consultant shall include in the specification that the Contractor must provide a minimum of ten (10) "throwaway" copies of the manual for use at the training seminar and seven (7) hardbound copies as part of the project close-out package.

4. Attic Stock:

The Consultant shall determine and recommend whether "attic stock" should be included for all aspects of the project. If required, the Consultant shall specify attic stock items to be included in the project.

Prior to project close-out, the Consultant must prepare a comprehensive listing of all items for delivery by the Contractor to the Owner and in accordance with the appropriate specification/plan section. Items shall include, but not be limited to: training sessions, O&M manuals, as-built drawings, itemized attic stock requirements, and manufacturer guarantees/warranties.

N. CHANGE ORDERS

The Consultant shall review and process all change orders in accordance with the contract documents and procedures described below.

1. Consultant:

The Consultant shall prepare a detailed request for Change Order including a detailed description of the change(s) along with appropriate drawings, specifications, and related documentation and submit the information to the Contractor for the change order request submission. This will require the use of the current DPMC 9b form.

2. Contractor:

The Contractor shall submit a DPMC 9b Change Order Request form to the Project Manager within seven (7) calendar days after receiving the Change Order from the Consultant. The document shall identify the changed work in a manner that will allow a clear understanding of the necessity for the change. Copies of the original design drawings, sketches, etc. and specification pages shall be highlighted to clarify and show entitlement to the Change Order.

Copies shall be provided of job minutes or correspondence with all relative information highlighted to show the origin of the Change Order. Supplementary drawings from the Consultant shall be included if applicable that indicate the manner to be used to complete the changed work. A detailed breakdown of all costs associated with the change, i.e. material, labor, equipment, overhead, Sub-Contractor work, profit and bond, and certification of increased bond shall be provided.

If the Change Order will impact the time of the project, the Contractor shall include a request for an extension of time. This request shall include a copy of the original approved project schedule and a proposed revised schedule that reflects the impact on the project completion date. Documentation to account for the added time requested shall be included to support entitlement of the request such as additional work, weather, other Contractors, etc. This documentation shall contain dates, weather data and all other relative information.

3. Recommendation for Approval:

The Consultant shall evaluate the reason for the change in work and provide a detailed written recommendation for approval or disapproval of the Change Order Request including backup documentation of costs in CSI format and all other considerations to substantiate that decision.

4. Code Review:

The Consultant shall determine if the Change Order request will require Code review and shall submit six (6) sets of signed and sealed modified drawings and specifications to the DPMC Plan & Code Review Unit for approval, if required. The Consultant must also determine and produce a permit amendment request if required.

5. Cost Estimate:

The Consultant shall provide a detailed cost estimate of the proposed Change Order Request, as submitted by the Contractor, in CSI format (latest edition) for all appropriate divisions and sub-divisions using a recognized estimating formula. The estimate shall then be compared with that of the Contractor's estimate. If any line item in the Consultant's estimate is lower than the corresponding line item in the Contractor's estimate, the Consultant in conjunction with the Project Manager is to contact the Contractor by telephone and negotiate the cost differences. The Consultant shall document the negotiated agreement on the Change Order Request form. If the Contractor's total dollar value changes based on the negotiations, the Consultant shall identify the changes on the Change Order Request form accordingly.

When recommending approval or disapproval of the change order, the Consultant shall be required to prepare and process a Change Order package that contains at a minimum the following documents:

- DPMC 9b Change Order Request
- DPMC 10 Consultant's Evaluation of Contractor's Change Order Request
- Consultant's Independent Detailed Cost Estimate
- Notes of Negotiations

6. Time Extension:

When a Change Order Request is submitted with both cost and time factors, the Consultant's independent cost estimate is to take into consideration time factors associated with the changed work. The Consultant is to compare their time element with that of the Contractor's time request and if there is a significant difference, the Consultant in conjunction with the Project Manager is to contact the Contractor by telephone and negotiate the difference.

When a Change Order Request is submitted for time only, the Consultant is to do an independent evaluation of the time extension request using a recognized scheduling formula.

Requests for extension of contract time must be done in accordance with the General Conditions Article 10.1 "Changes in the Work".

7. Submission:

The Consultant shall complete all of the DPMC Change Order Request forms provided and submit a completed package to the Project Manager with all appropriate backup documentation within seven (7) calendar days from receipt of the Contractor's change order request. The Consultant shall resubmit the package at no cost to the State if the change order package contents are deemed insufficient by the Project Manager.

8. Meetings:

The Consultant shall attend and actively participate at all administrative hearings or settlement conferences as may be called by Project Manager in connection with such Change Orders and provide minutes of those meetings to the Project Manager for distribution.

9. Consultant Fee:

All costs associated with the potential Contractor Change Order Requests shall be anticipated by the Consultant and included in the base bid of their fee proposal.

If the Client Agency Representative requests a scope change; and it is approved by the Project Manager, the Consultant may be entitled to be reimbursed through an amendment and in accordance with the requirements stated in paragraph 10.01 of this Scope of Work.

IX. PERMITS & APPROVALS

A. NJ UNIFORM CONSTRUCTION CODE PERMIT

The project construction documents must comply with the latest adopted edition of the NJ Uniform Construction Code (NJUCC).

The latest NJUCC Adopted Codes and Standards can be found at:

<http://www.state.nj.us/dca/divisions/codes/codreg/>

The Consultant shall complete the NJUCC permit application and all applicable technical sub-code sections with all technical site data required. The Agent section of the application and certification section of the building sub-code section shall be signed. These documents shall be forwarded to the DPMC Project Manager.

The Consultant may obtain copies of all NJUCC permit applications at the following website:

<http://www.state.nj.us/dca/divisions/codes/forms/>

All other required project permits shall be obtained and paid for by the Consultant in accordance with the procedures described in Paragraph IX.B.

1. Prior Approval Certification Letters:

The issuance of a construction permit for this project may be contingent upon acquiring various “prior approvals” as defined by N.J.A.C. 5:23-1.4. It is the Consultant’s responsibility to

determine which prior approvals, if any, are required. The Consultant shall submit a general certification letter to the DPMC Plan & Code Review Unit Manager during the Permit Phase of this project that certifies all required prior approvals have been obtained.

In addition to the general certification letter discussed above, the following specific prior approval certification letters, where applicable, shall be submitted by the Consultant to the DPMC Plan & Code Review Unit Manager: Soil Erosion & Sediment Control, Water & Sewer Treatment Works Approval, Coastal Areas Facilities Review, Compliance of Underground Storage Tank Systems with N.J.A.C. 7:14B, Pinelands Commission, Highlands Council, Well Construction and Maintenance; Sealing of Abandoned Wells with N.J.A.C. 7:9D, Certification that all utilities have been disconnected from structures to be demolished, Board of Health Approval for Potable Water Wells, Health Department Approval for Septic Systems. It shall be noted that in accordance with N.J.A.C. 5:23-2.15(a)5, a permit cannot be issued until the letter(s) of certification is received.

2. Multi-building or Multi-site Permits:

A project that involves many buildings and/or sites requires that a separate permit shall be issued for each building or site. The Consultant must determine the construction cost estimate for *each* building and/or site location and submit that amount where indicated on the permit application.

3. Special Inspections:

In accordance with the requirements of the New Jersey Uniform Construction Code N.J.A.C. 5:23-2.20(b), Bulletin 03-5 and Chapter 17 of the International Building Code, the Consultant shall be responsible for the coordination of all special inspections during the construction phase of the project.

Bulletin 03-5 can be found at:

http://www.state.nj.us/dca/divisions/codes/publications/pdf_bulletins/b_03_5.pdf

a. Definition:

Special inspections are defined as an independent verification by a certified Special Inspector for **Class I buildings and smoke control systems in any class building**. The special inspector is to be independent from the Contractor and responsible to the Consultant so that there is no possible conflict of interest.

Special inspectors shall be certified in accordance with the requirements in the New Jersey Uniform Construction Code.

b. Responsibilities:

The Consultant shall submit with the permit application, a list of special inspections and the agencies or special inspectors that will be responsible to carry out the inspections required for the project. The list shall be a separate document, on letter head, signed and sealed.

B. OTHER REGULATORY AGENCY PERMITS, CERTIFICATES AND APPROVALS

The Consultant shall identify and obtain all other State Regulatory Agency permits, certificates, and approvals that will govern and affect the work described in this Scope of Work. An itemized list of these permits, certificates, and approvals shall be included with the Consultant’s Technical Proposal and the total amount of the application fees should be entered in the Fee Proposal line item entitled, **“Permit Fee Allowance.”**

The Consultant may refer to the Division of Property Management and Construction “Procedures for Architects and Engineers Manual”, Section 6.4.8, which presents a compendium of State permits, certificates, and approvals that may be required for this project.

The Consultant shall determine the appropriate phase of the project to submit the permit application(s) in order to meet the approved project milestone dates.

Where reference to an established industry standard is made, it shall be understood to mean the most recent edition of the standard unless otherwise noted. If an industry standard is found to be revoked, or should the standard have undergone substantial change or revision from the time that the Scope of Work was developed, the Consultant shall comply with the most recent edition of the standard.

C. STATE INSURANCE APPROVAL

The Consultant shall respond in writing to the FM Global Insurance Underwriter plan review comments through the DPMC Plan & Code Review Unit Manager as applicable. The Consultant shall review all the comments and, with agreement of the Project Team, modify the documents while adhering to the project’s SOW requirements, State code requirements, schedule, budget, and Consultant fee.

D. PUBLIC EMPLOYEES OCCUPATIONAL SAFETY & HEALTH PROGRAM

A paragraph shall be included in the design documents, if applicable to this project that states: The Contractor shall comply with all the requirements stipulated in the Public Employees Occupational Safety & Health Program (PEOSHA) document, paragraph 12:100-13.5 entitled

“Air quality during renovation and remodeling”. The Contractor shall submit a plan demonstrating the measures to be utilized to confine the dust, debris, and air contaminants in the renovation or construction area of the project site to the Project Team prior to the start of construction.

The link to the document is:

<http://www.nj.gov/health/workplacehealthandsafety/peosh/peosh-health-standards/iaq.shtml>

E. PERMIT MEETINGS

The Consultant shall attend and chair all meetings with Permitting Agencies necessary to explain and obtain the required permits.

F. MANDATORY NOTIFICATIONS

The Consultant shall include language in Division 1 of the specification that states the Contractor shall assure compliance with the New Jersey “One Call” Program (1-800-272-1000) if any excavation is to occur at the project site.

The One Call Program is known as the “New Jersey Underground Facility Protection Act”, refer to N.J.A.C. 14:2.

G. CONSULTANT FEE

The Consultant shall determine the efforts required to complete and submit all permit applications, obtain and prepare supporting documentation, attend meetings, etc., and include the total cost in the base bid of their fee proposal under the “Permit Phase”.

X. GENERAL REQUIREMENTS

A. SCOPE CHANGES

The Consultant must request any changes to this Scope of Work in writing. An approved DPMC 9c Consultant Amendment Request form reflecting authorized scope changes must be received by the Consultant prior to undertaking any additional work. The DPMC 9c form must be approved and signed by the Director of DPMC and written authorization issued from the Project Manager prior to any work being performed by the Consultant. Any work performed without the executed DPMC 9c form is done at the Consultant’s own financial risk.

B. ERRORS AND OMISSIONS

The errors and omissions clause and the corresponding sections of the “Procedures for Architects and Engineers Manual” are eliminated. All claims for errors and omissions will be pursued by the State on an individual basis. The State will review each error or omission with the Consultant and determine the actual amount of damages, if any, resulting from each negligent act, error or omission.

C. ENERGY INCENTIVE PROGRAM

The Consultant shall review the programs described on the “New Jersey’s Clean Energy Program” website at: <http://www.njcleanenergy.com> to determine if any proposed upgrades to the mechanical and/or electrical equipment and systems for this project qualify for “New Jersey Clean Energy Program” rebates and incentives such as SmartStart, Pay4Performance, Direct Install or any other incentives.

The Consultant shall be responsible to complete the appropriate registration forms and applications, provide any applicable worksheets, manufacturer’s specification sheets, calculations, attend meetings, and participate in all activities with designated representatives of the programs and utility companies to obtain the entitled financial incentives and rebates for this project. All costs associated with this work shall be estimated by the Consultant and the amount included in the base bid of their fee proposal.

XI. ALLOWANCES

A. PERMIT FEE ALLOWANCE

The Consultant shall obtain and pay for all of the project permits in accordance with the guidelines identified below.

1. Permits:

The Consultant shall determine the various permits, certificates, and approvals required to complete this project.

2. Permit Costs:

The Consultant shall estimate the application fee costs for all of the required project permits, certificates, and approvals (excluding the NJ Uniform Construction Code permit) and include that amount in their fee proposal line item entitled “**Permit Fee Allowance**”, refer to Paragraph

IX.A. A breakdown of each permit and application fee shall be attached to the fee proposal for reference.

NOTE: The NJ Uniform Construction Code permit is excluded since it will be paid for by the State.

3. Applications:

The Consultant shall complete and submit all permit applications to the appropriate permitting authorities and the costs shall be paid from the Consultant's permit fee allowance. A copy of the application(s) and the original permit(s) obtained by the Consultant shall be given to the DPMC Project Manager for distribution during construction.

4. Consultant Fee:

The Consultant shall determine what is required to complete and submit the permit applications, obtain supporting documentation, attend meetings, etc., and include the total cost in the base bid of their fee proposal under the "Permit Phase" column.

Any funds remaining in the permit allowance will be returned to the State at the close of the project.

B. HAZARDOUS MATERIALS TESTING AND REPORT ALLOWANCE

Consultant shall estimate the costs to complete the hazardous materials survey, sample collection, testing and analysis and preparation of a "Hazardous Materials Survey Report" noted in paragraph VII.C and enter that amount on their fee proposal line item entitled "**Hazardous Materials Testing and Report Allowance**". Consultant shall attach a detailed cost breakdown sheet for use by DPMC during the proposal review and potential fee negotiations. The cost breakdown sheet shall include, but not be limited to, the following information:

- Description of tasks and estimated cost for the following:
 - Sample collection
 - Sample testing
 - Preparation of a Hazardous Materials Survey Report

Any funds remaining in the Hazardous Materials Testing and Report Allowance will be returned to the State at the close of the project.

C. HAZARDOUS MATERIALS ABATEMENT DESIGN ALLOWANCE

Consultant shall estimate the costs to prepare construction documents for hazardous materials abatement noted in paragraph VII.C and enter that amount on their fee proposal line item entitled "**Hazardous Materials Abatement Design Allowance**". Consultant shall attach a detailed cost

breakdown sheet for use by DPMC during the proposal review and potential fee negotiations. The cost breakdown sheet shall include a description of the tasks to be performed and the estimated cost of each task.

Any funds remaining in the Hazardous Materials Abatement Design Allowance will be returned to the State at the close of the project.

D. HAZARDOUS MATERIALS CONSTRUCTION ADMINISTRATION ALLOWANCE

Consultant shall estimate the cost to provide Construction Monitoring and Administration Services for hazardous materials abatement as noted in paragraph VII.C and enter that amount on their fee proposal line item entitled “**Hazardous Materials Construction Administration Allowance**”. Consultant shall attach a detailed cost breakdown sheet for use by DPMC during the proposal review and potential fee negotiations. The cost breakdown sheet shall include a description of the tasks to be performed and the estimated cost of each task.

XII. SUBMITTAL REQUIREMENTS

A. CONTRACT DELIVERABLES

All submissions shall include the Contract Deliverables identified in Section XIV of this Scope of Work and described in the DPMC Procedures for Architects and Engineers Manual.

B. CATALOG CUTS

The Consultant shall provide catalog cuts as required by the DPMC Plan & Code Review Unit during the design document review submissions. Examples of catalog cuts include, but are not limited to: mechanical equipment, hardware devices, plumbing fixtures, fire suppression and alarm components, specialized building materials, electrical devices, etc.

C. PROJECT DOCUMENT BOOKLET

The Consultant shall submit all of the required Contract Deliverables to the Project Manager at the completion of each phase of the project. All reports, meeting minutes, plan review comments, project schedule, cost estimate in CSI format (latest edition), correspondence, calculations, and other appropriate items identified on the Submission Checklist form provided in the A/E Manual shall be presented in an 8½” x 11” bound “booklet” format.

D. DESIGN DOCUMENT CHANGES

Any corrections, additions, or omissions made to the submitted drawings and specifications at the Permit Phase of the project must be submitted to DPMC Plan & Code Review Unit as a complete document. Corrected pages or drawings may not be submitted separately unless the Consultant inserts the changed page or drawing in the original documents. No Addendums or Bulletins will be accepted as a substitution to the original specification page or drawing.

E. SINGLE-PRIME CONTRACT

All references to “separate contracts” in the Procedures for Architects and Engineers Manual, Chapter 8, shall be deleted since this project will be advertised as a “Single Bid” (Lump Sum All Trades) contract. The single prime Contractor will be responsible for all work identified in the drawings and specifications.

The drawings shall have the required prefix designations and the specification sections shall have the color codes as specified for each trade in the DPMC Procedure for Architects and Engineers Manual.

The Consultant must still develop the Construction Cost Estimate (CCE) for each trade and the amount shall be included on the DPMC-38 Project Cost Analysis form where indicated. This document shall be submitted at each design phase of the project and updated immediately prior to the advertisement to bid.

PROJECT NAME: New Visitor Center
PROJECT LOCATION: Washington Crossing State Park
PROJECT NO: P1222-00
DATE: June 10, 2020

XIII. SOW SIGNATURE APPROVAL SHEET

This Scope of Work shall not be considered a valid document unless all signatures appear in each designated area below.

The Client Agency approval signature on this page indicates that they have reviewed the design criteria and construction schedule described in this project Scope of Work and verifies that the work will not conflict with the existing or future construction activities of other projects at the site.

SOW PREPARED BY: James W. Wright 6/10/2020
JAMES WRIGHT, PROJECT MANAGER DATE
DPMC PROJECT PLANNING & INITIATION

SOW APPROVED BY: Larry Tutela 6/10/2020
LARRY TUTELA, PROJECT MANAGER DATE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOW APPROVED BY: Eugene Cardone 06.12.2020
EUGENE CARDONE, PROJECT MANAGER DATE
DPMC PROJECT MANAGEMENT GROUP

SOW APPROVED BY: Richard S. Flodmand 7/7/20
RICHARD FLODMAND, DEPUTY DIRECTOR DATE
DIV PROPERTY MGT & CONSTRUCTION

XIV. CONTRACT DELIVERABLES

The following is a listing of Contract Deliverables that are required at the completion of each phase of this project. The Consultant shall refer to the DPMC publication entitled, “Procedures for Architects and Engineers,” Volumes I and II, 2nd Edition, dated January, 1991 to obtain a more detailed description of the deliverables required for each item listed below.

The numbering system used in this “Contract Deliverables” section of the scope of work corresponds to the numbering system used in the “Procedures for Architects and Engineers” manual and some may have been deleted if they do not apply to this project.

PROGRAM STUDY

5.1 Project Schedule (Bar Chart Format)

5.2 Meetings & Minutes (Minutes within seven (7) calendar days of meeting)

5.3 Correspondence

5.4 Submission Requirements

5.4.8 Regulatory Approvals

5.4.9 Utility Availability (On Site & Public)

Sanitary Service

Storm Water

Domestic Water

Gas Service

Fire Service

Electric Service

Telephone Service

5.4.11 Outline Specifications: 6 sets

5.4.12 Current Working Estimate in CSI Format & Cost Analysis 38 Form

5.4.13 Bar Chart of Design and Construction Schedule

5.4.14 Oral Presentation of Submission to Project Team

5.4.15 SOW Compliance Statement

5.4.16 This Submission Checklist

5.4.17 Deliverables Submission in Booklet Form: 7 sets

5.5 Approval of Submission

5.5.1 Respond to Submission Comments

SCHEMATIC DESIGN PHASE: 25% Complete Design Documents (Minimum)

- 6.1 Project Schedule (Update Bar Chart Schedule)**
- 6.2 Meetings & Minutes (Minutes within seven (7) calendar days of meeting)**
- 6.3 Correspondence**
- 6.4 Submission Requirements**
 - 6.4.1 A/E Statement of Site Visit
 - 6.4.2 Space Analysis & Program Requirements
 - 6.4.3 Special Features Description: communications, security, fire protection, special structural features, etc.
 - 6.4.4 Site Evaluation
 - 6.4.5 Borings, Surveys, and Soils Analysis (provided with plan submission)
 - 6.4.6 Fine Arts Inclusion (all new construction projects regardless of CCE)
 - 6.4.7 Design Rendering/Sketches
 - 6.4.8 Regulatory Agency Approvals
 - 6.4.8.1 NJ Department of Agriculture
 - (a) Soil Erosion (land disturbance over 5000 s.f.)
 - 6.4.8.2 NJ Department of Community Affairs
 - (a) UCC Permit for Building Construction
 - 6.4.8.3 NJ Department of Environmental Protection as Applicable
 - (a) Equipment Emissions
 - (c) Coastal Development (CAFRA)
 - (d) Environmental Assessment Statement (CCE in excess of \$1m)
 - (e) Environmental Impact Statement (CCE in excess of \$5 m & 5 acres)
 - (g) Wetlands Development Permit
 - (m) Permit to Discharge Wastewater (NJPDES)
 - (n) Sewage System Construction
 - (p) Water Management Plan for Sewage System
 - (t) Well Drilling
 - (x) Historic Site Project Building
 - 6.4.8.6 Delaware and Raritan Canal Commission
 - (a) Within D&R Canal
 - 6.4.8.7 Delaware River Basin Commission
 - (a) Within Delaware River Basin
 - 6.4.8.12 County Board of Health
 - (a) Septic Tank Construction
 - 6.4.9 Utility Availability for:
Sanitary Service

- Storm Water
- Domestic Water
- Gas Service
- Fire Service
- Electric Service
- Telephone Service
- Cable Service
- 6.4.10 Drawings: 6 sets
 - Cover Sheet (See A/E Manual for format)
 - Site Plan
 - Site Utility Plan
 - Floor Plans
 - Elevations
 - Sections/Details
 - Structural Narrative
 - HVAC Narrative
 - Electrical Narrative
- 6.4.11 Specifications: 6 sets (See A/E Manual for format, include Division 1 and edit to describe the administrative and general requirements of the project)
- 6.4.12 Current Working Estimate in CSI Format & Cost Analysis 38 Form
- 6.4.13 Bar Chart of Design and Construction Schedule
- 6.4.14 Oral Presentation of Submission to Project Team
- 6.4.15 SOW Compliance Statement
- 6.4.16 This Submission Checklist (See A/E Manual, Figure 6.4.16 for format)
- 6.4.17 Deliverables Submission in Booklet Form: 7 sets

6.5 Approval

- 6.5.1 Respond to Submission Comments

6.6 Submission Forms

- Figure 6.4.10 Plan Review Record Sheet
- Figure 6.4.12 Current Working Estimate/Cost Analysis
- Figure 6.4.16 Submission Checklist

DESIGN DEVELOPMENT PHASE: 50% Complete Design Documents (Minimum)

- 7.1 Project Schedule (Update Bar Chart Schedule)**
- 7.2 Meetings & Minutes (Minutes within seven (7) calendar days of meeting)**

7.3 Correspondence

7.4 Submission Requirements

- 7.4.1 A/E Statement of Site Visit
- 7.4.2 Space Analysis & Program Requirements (if changed from Schematic Phase)
- 7.4.3 Special Features Description: communications, security, fire protection, special structural features, etc.
- 7.4.4 Site Evaluation
- 7.4.5 Borings, Surveys, and Soils Analysis (provided with plan submission)
- 7.4.6 Fine Arts Inclusion (all new construction projects regardless of CCE)
- 7.4.7 Design Rendering/Sketches
- 7.4.8 Regulatory Agency Approvals (See Section 6.4.8 for listing)
- 7.4.9 Confirm Utility Availability (On Site & Public)
 - Sanitary Service
 - Storm Water
 - Domestic Water
 - Gas Service
 - Fire Service
 - Electric Service
 - Telephone Service
 - Cable Service
 - Tank Locations & Sizes
- 7.4.10 Drawings: 6 sets
 - Cover Sheet (See A/E Manual for format)
 - Site Plan
 - Site Utility Plan
 - Floor Plans
 - Elevations
 - Sections/Details
 - Structural Drawings, Seismic Design Load Criteria
 - HVAC Drawings, Heating & Cooling Equipment Schedules
 - Economic Comparison of Proposed vs. Alternate Fueled System
 - Plumbing Drawings, Pipe Distribution & Riser Details, Fixture Schedule
 - Fire Protection Drawings, Hydraulic Calcs, Water Pressure & Flow Data
 - Electrical Drawings, Riser Diagram, Panel Schedules, Service Size, Lighting Design
 - Emergency Power Equipment & Source
- 7.4.11 Specifications: 6 sets (See A/E Manual for format, include Division 1 and edit to describe the administrative and general requirements of the project)
- 7.4.12 Current Working Estimate in CSI Format & Cost Analysis 38 Form
- 7.4.13 Bar Chart of Design and Construction Schedule
- 7.4.14 Oral Presentation of Submission to Project Team

- 7.4.15 SOW Compliance Statement
- 7.4.16 This Submission Checklist (See A/E Manual, Figure 6.4.16 for format)
- 7.4.17 Deliverables Submission in Booklet Form: 7 sets

7.5 Approval

- 7.5.1 Respond to Submission Comments

7.6 Submission Forms

- Figure 7.4.12 Current Working Estimate/Cost Analysis
- Figure 7.4.16 Submission Checklist

FINAL DESIGN PHASE 100% Complete Construction Documents

This Final Design Phase may require more than one submission based on the technical quality and code conformance of the design documents.

8.1 Schedule (Update Bar Chart Schedule)

8.2 Meeting & Minutes (Minutes within seven (7) calendar days of meeting)

8.3 Correspondence

8.4 Submission Requirements

- 8.4.1 A/E Statement of Site Visit
- 8.4.2 Space Analysis
- 8.4.3 Special Features Description: Communication/Security/Fire/Smoke/Exhaust)
- 8.4.4 Site Evaluation
- 8.4.5 Borings, Surveys, Soils Analysis (provided with plan submission)
- 8.4.6. Fine Arts Inclusion
- 8.4.7 Framed Rendering and Photographs
- 8.4.8 Regulatory Agency Approvals (Include itemized list specific to this project)
- 8.4.10 Drawings: 6 sets
- 8.4.11 Specifications: 6 sets
- 8.4.12 Current Working Estimate in CSI Format & Cost Analysis 38 Form
- 8.4.13 Bar Chart of Design and Construction Schedule
- 8.4.14 Oral Presentation of this Submission to Project Team
- 8.4.15 Plan Review/SOW Compliance Statement
- 8.4.16 This Submission Checklist
- 8.4.17 Deliverables Submission in Booklet Form: 7 sets

8.5 Approvals

8.5.1 Respond to Submission Comments

PERMIT APPLICATION PHASE

This Permit Application Phase should not include any additional design issues. Design documents shall be 100% complete at the Final Design Phase.

8.6 Permit Application Submission Requirements

- 8.6.1 - 8.6.7: If all of the deliverables of these sections have been previously submitted to DPMC and approved there are no further deliverables due at this time
- 8.6.8 Regulatory Agency Approvals
 - (a) UCC Permit Application & Technical Sub-codes completed by A/E
- 8.6.9 Utility Availability Confirmation
- 8.6.10 Signed and Sealed Drawings: 6 sets
- 8.6.11 Signed and Sealed Specifications: 6 sets
- 8.6.12 Current Working Estimate/Cost Analysis
- 8.6.13 Bar Chart Schedule
- 8.6.14 Project Presentation (N/A this Project)
- 8.6.15 Plan Review/SOW Compliance Statement
- 8.6.16 Submission Checklist

8.7 Approvals

8.8 Submission Forms

- Figure 8.4.12 Current Working Estimate/Cost Analysis
- Figure 8.4.16 Submission Checklist (Final Review Phase)
- Figure 8.6.12-b Bid Proposal Form (Form DPMC -3)
- Figure 8.6.12-c Notice of Advertising (Form DPMC -31)
- Figure 8.6.16 Submission Checklist (Permit Phase)
- Figure 8.7 Bid Clearance Form (Form DPMC -601)

BIDDING AND CONTRACT AWARD

9.0 Bidding Phase Requirements

- 9.01 Original Drawings signed & sealed by A/E and drawings on compact disk (CD) in *Adobe Portable Document Format (.pdf)*
- 9.02 One Unbound Specification Color Coded per A/E Manual Section 8.4.11 and specifications on compact disk (CD) in *Adobe Portable Document Format (.pdf)*

- 9.03 Bid Documents Checklist
- 9.04 Bid Proposal Form
- 9.05 Notice for Advertising

9.1 Chair Pre-Bid Conference/Mandatory Site Visit

9.2 Prepare Bulletins

9.3 Attend Bid Opening

9.4 Recommendation for Contract Award

- 9.4.1 Prepare Letter(s) of Recommendation for Award & Cost Analysis

9.5 Attend Post Bid Review Meeting(s)

9.6 Submission Checklist

9.7 Submission Forms

- Figure 9.4.1 Cost Analysis
- Figure 9.6 Submission Checklist

CONSTRUCTION PHASE

10.1 Site Construction Administration

10.2 Pre-Construction Meeting

10.3 Construction Job Meetings

- 10.3.1 Agenda: Schedule and Chair Construction Job Meetings
- 10.3.2 Minutes: Prepare and Distribute Minutes within 5 working days of meeting
- 10.3.3 Schedules; Approve Contractors' Schedule & Update
- 10.3.4 Minutes Format: Prepare Job Meeting Minutes in approved format, figure 10.3.4-a

10.4 Correspondence

10.5 Prepare and Deliver Conformed Drawings

10.7 Approve Contractors Invoicing and Payment Process

10.8 Approve Contractors 12/13 Form for Subs, Samples and Materials

10.10 Approve Test Reports

10.11 Approve Shop Drawings

10.12 Construction Progress Schedule

10.12.1 Construction Progress Schedule

10.13 Review & Recommend or Reject Change Orders

- 10.13.1 Scope Changes
- 10.13.2 Construction Change Orders
- 10.13.3 Field Changes

10.14 Construction Photographs

10.15 Submit Field Observation Reports

10.16 Submission Forms

- Figure 10.3.4-a Job Meeting Format of Minutes
- Figure 10.3.4-b Field Report
- Figure 10.6 DPMC Insurance Form-24
- Figure 10.6-a Unit Schedule Breakdown
- Figure 10.6-b Monthly Estimate for Payment to Contractor DPMC 11-2
- Figure 10.6-c Monthly Estimate for Payment to Contractor DPMC 11-2A
- Figure 10.6-d Invoice DPMC 11
- Figure 10.6-e Prime Contractor Summary of Stored Materials DPMC 11-3
- Figure 10.6-f Agreement & Bill of Sale certificate for Stored Materials DPMC 3A
- Figure 10.7-a Approval Form for Subs, Samples & Materials DPMC 12
- Figure 10.7-b Request for Change Order DPMC 9b
- Figure 10.9 Transmittal Form DPMC 13
- Figure 10.10 Submission Checklist

PROJECT CLOSE-OUT PHASE

11.1 Responsibilities: Plan, Schedule and Execute Close-Out Activities

11.2 Commencement: Initiate Close-Out w/DPMC 20A Project Close-Out Form

11.3 Develop Punch List & Inspection Reports

11.4 Verify Correction of Punch List Items

11.5 Determination of Substantial Completion

11.6 Ensure Issuance of “Temporary Certificate of Occupancy or Approval”

11.7 Initiation of Final Contract Acceptance Process

11.8 Submission of Close-Out Documentation

11.8.1 As-Built & Record Set Drawings, 3 sets AUTOCAD Discs Delivered to DPMC

11.8.2 (a) Maintenance and Operating manuals, Warranties, etc.: 7 sets each

(b) Guarantees

(c) Testing and Balancing Reports

(d) Boiler Inspection Certificates

(e) Shop Drawings

(f) Letter of Contract Performance

11.8.3 Final Cost Analysis-Insurance Transfer DPMC 25

11.8.4 This Submission Checklist

11.9 Final Payment

11.9.1 Contractors Final Payment

11.9.2 A/E Invoice and Close-Out Forms for Final Payment

11.10 Final Performance Evaluation of the A/E and the Contractors

11.11 Ensure Issuance of a “Certificate of Occupancy or Approval”

11.12 Submission Forms

Figure 11.2 Project Close-Out Documentation List DPMC 20A

Figure 11.3-a Certificate of Substantial Completion DPMC 20D

Figure 11.3-b Final Acceptance of Consultant Contract DPMC 20C

Figure 11.5 Request for Contract Transition Close-Out DPMC 20X

Figure 11.7 Final Contract Acceptance Form DPMC 20

Figure 11.8.3-a Final Cost Analysis

Figure 11.8.3-b Insurance Transfer Form DPMC 25

Figure 11.8.4 Submission Checklist

PROJECT NAME: New Visitor Center
PROJECT LOCATION: Washington Crossing State Park
PROJECT NO: P1222-00
DATE: June 10, 2020

XV. EXHIBITS

The attached exhibits in this section will include a sample project schedule, and any supporting documentation to assist the Consultant in the design of the project such as maps, drawings, photographs, floor plans, studies, reports, etc.

END OF SCOPE OF WORK

February 7, 1997
Rev.: January 29, 2002

Responsible Group Code Table

The codes below are used in the schedule field "GRP" that identifies the group responsible for the activity. The table consists of groups in the Division of Property Management & Construction (DPMC), as well as groups outside of the DPMC that have responsibility for specific activities on a project that could delay the project if not completed in the time specified. For reporting purposes, the groups within the DPMC have been defined to the supervisory level of management (i.e., third level of management, the level below the Associate Director) to identify the "functional group" responsible for the activity.

<u>CODE</u>	<u>DESCRIPTION</u>	<u>REPORTS TO ASSOCIATE DIRECTOR OF:</u>
CM	Contract Management Group	Contract Management
CA	Client Agency	N/A
CSP	Consultant Selection and Prequalification Group	Technical Services
A/E	Architect/Engineer	N/A
PR	Plan Review Group	Technical Services
CP	Construction Procurement	Planning & Administration
CON	Construction Contractor	N/A
FM	Financial Management Group	Planning & Administration
OEU	Office of Energy and Utility Management	N/A
PD	Project Development Group	Planning & Administration

EXHIBIT 'A'

Activity ID	Description	Rspn	Weeks
<PROJ>			
Design			
CV3001	Schedule/Conduct Pre-design/Project Kick-Off Mtg.	CM	
CV3020	Prepare Program Phase Submittal	AE	
CV3021	Distribute Program Submittal for Review	CM	
CV3027	Prepare & Submit Project Cost Analysis (DPMC-38)	CM	
CV3022	Review & Approve Program Submittal	CA	
CV3023	Review & Approve Program Submittal	PR	
CV3024	Review & Approve Program Submittal	CM	
CV3025	Consolidate & Return Program Submittal Comments	CM	
CV3030	Prepare Schematic Phase Submittal	AE	
CV3031	Distribute Schematic Submittal for Review	CM	
CV3037	Prepare & Submit Project Cost Analysis (DPMC-38)	CM	
CV3032	Review & Approve Schematic Submittal	CA	
CV3033	Review & Approve Schematic Submittal	PR	
CV3034	Review & Approve Schematic Submittal	CM	
CV3035	Consolidate & Return Schematic Submittal Comment	CM	
CV3040	Prepare Design Development Phase Submittal	AE	
CV3041	Distribute D. D. Submittal for Review	CM	
CV3047	Prepare & Submit Project Cost Analysis (DPMC-38)	CM	
CV3042	Review & Approve Design Development Submittal	CA	
CV3043	Review & Approve Design Development Submittal	PR	
CV3044	Review & Approve Design Development Submittal	CM	
CV3045	Consolidate & Return D.D. Submittal Comments	CM	
CV3050	Prepare Final Design Phase Submittal	AE	
CV3051	Distribute Final Design Submittal for Review	CM	
CV3052	Review & Approve Final Design Submittal	CA	
CV3053	Review & Approve Final Design Submittal	PR	
CV3054	Review Final Design Submit for Constructability	OCS	

DBCA - TEST

Sheet 1 of 3

Bureau of Design & Construction Services
Routine Project

Exhibit "A"

NOTE:
Refer to section "IV Project Schedule" of the
Scope of Work for contract phase durations.

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Activity ID	Description	Reph	Weeks
CV2055	Review & Approve Final Design Submittal	CM	
CV2056	Consolidate & Return Final Design Comments	CM	
CV3060	Prepare & Submit Permit Application Documents	AE	
CV3068	Prepare & Submit Bidding Cost Analysis (DPMC-38)	CM	
Plan Review-Permit Acquisition			
CV4001	Review Constr. Documents & Secure UCC Permit	PR	
CV4010	Provide Funding for Construction Contracts	CA	
CV4020	Secure Bid Clearance	CM	
Advertise-Bid-Award			
CV5001	Advertise Project & Bid Construction Contracts	CP	
CV5010	Open Construction Bids	CP	
CV5011	Evaluate Bids & Prep. Recommendation for Award	CM	
CV5012	Evaluate Bids & Prep. Recommendation for Award	AE	
CV5014	Complete Recommendation for Award	CP	
CV5020	Award Construction Contracts/Issue NTP	CP	
Construction			
CV6000	Project Construction Start/Issue NTP	CM	
CV6001	Contract Start/Contract Work (25%) Complete	CON	
CV6002	Preconstruction Meeting	CM	
CV6003	Begin Preconstruction Submittals	CON	
CV6004	Longest Lead Procurement Item Ordered	CON	
CV6005	Lead Time for Longest Lead Procurement Item	CON	
CV6006	Prepare & Submit Shop Drawings	CON	
CV6007	Complete Construction Submittals	CON	
CV6011	Roughing Work Start	CON	
CV6012	Perform Roughing Work	CON	
CV6010	Contract Work (50%+) Complete	CON	
CV6013	Longest Lead Procurement Item Delivered	CON	
CV6020	Contract Work (75%) Complete	CON	

Sheet 2 of 3

Bureau of Design & Construction Services
Routine Project

Exhibit 'A'

DRCA - TEST

NOTE:
Refer to section "IV Project Schedule" of the Scope of Work for contract phase durations.

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Activity ID	Description	Respn	Weeks
CV6014	Roughing Work Complete	CON	
CV6021	Interior Finishes Start	CON	
CV6022	Install Interior Finishes	CON	
CV6030	Contract Work to Substantial Completion	CON	
CV6031	Substantial Completion Declared	CM	
CV6075	Complete Deferred Punch List/Seasonal Activities	CON	
CV6079	Project Construction Complete	CM	
CV6080	Close Out Construction Contracts	CM	
CV6089	Construction Contracts Complete	CM	
CV6090	Close Out A/E Contract	CM	
CV6092	Project Completion Declared	CM	

DBCA - TEST

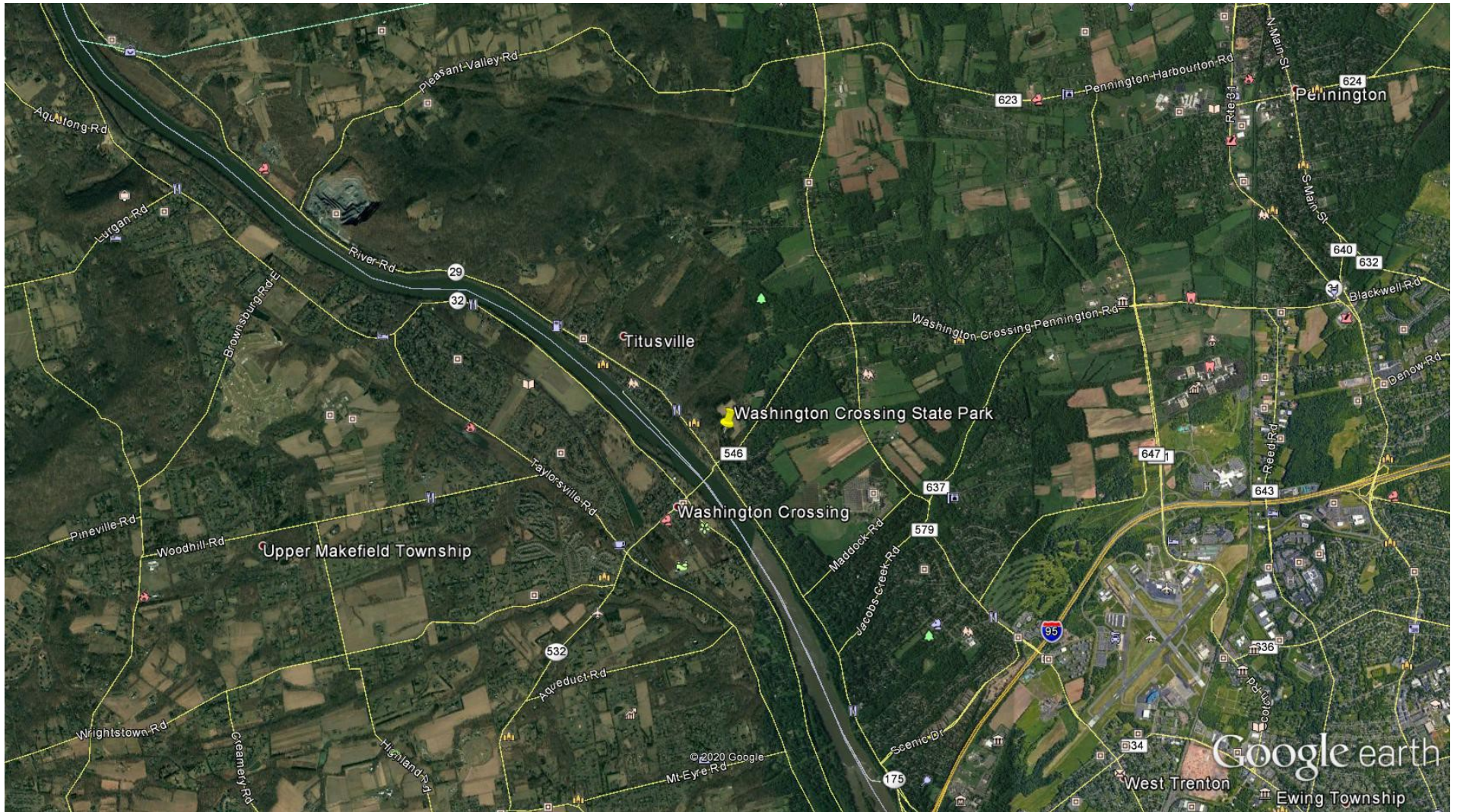
Sheet 3 of 3

Bureau of Design & Construction Services
Routine Project

Exhibit 'A'

NOTE:
Refer to section "IV Project Schedule" of the
Scope of Work for contract phase durations.

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Project Site Location Map
Washington Crossing State Park
EXHIBIT 'B'

WASHINGTON CROSSING VISITOR CENTER

INTERPRETIVE EMPHASIS

The following are the primary themes of the Exhibit:

1. The Ten Crucial Days Campaign: The Turning point of the Revolution
2. The American Revolution
3. New Jersey: Crossroads of the American Revolution

The primary objectives of the exhibits will be to:

1. Interpret and dramatize the Park's signature event; The Christmas Night Crossing as well as the Battles of Trenton and Princeton, commonly referred to as "The Ten Crucial Days."
2. Educate and interpret the complex story of the American Revolution in a summarized and chronological format. Show how the "Ten Crucial Days" fits in and highlight New Jersey's role during the conflict.

The contents of the exhibits should include:

The exhibits will consist of the current collection of artifacts provided by the Swan Historical Foundation, the State of New Jersey, as well as additional artifacts, displays, dioramas, etc. that could be acquired.

Eight (8) separate exhibit rooms (one temporary exhibit gallery, six permanent smaller galleries and one grand gallery) with each room interpreting a particular period of the American Revolution chronologically through thematic displays highlighting the events of the period. Chronological exhibit displays will consist of fixed cases on an outer wall; fixed cases on an interior wall will highlight particular themes as well as relevant biographies, events, artifacts, and stories of the Revolution with a focus on New Jersey's prominent role throughout the conflict both politically and militarily.

The museum galleries will include exhibit cases, wall mounted displays, maps, graphics and dioramas. Space should be allowed in each gallery for a central display case/area for a diorama, mannequins or to highlight notable artifacts. Some exhibit rooms would contain small theaters for electronic media opportunities such as videos or interactive displays.

The lobby area will have a large map of Colonial America printed on the main floor, possibly highlighting the larger battles of the War. The lobby can additionally be utilized to highlight the other areas in the park including the Nature Center, Johnson Ferry House, and Nelson House.

EXHIBIT 'C'

WASHINGTON CROSSING VISITOR CENTER

Thematic Interpretive Exhibit Overview:

1. The Ten Crucial Days Campaign: The Turning point of the Revolution

The 10 Crucial Days gallery will encompass about half of the museum, almost creating a museum within the museum aesthetic. The Gallery will begin with the Invasion of New York on August 27th, 1776 and continues with the Retreat through the Jerseys, Washington's Crossing, the 1st Battle of Trenton, 2nd Battle of Trenton and the Battle of Princeton. We propose to have, in addition to our diverse collection of artifacts on display, several interactive displays and exhibits within this gallery to emote the feeling and experience of actually crossing the Delaware.

Ten Crucial Days Gallery (The Grand Gallery)

The Crossing Experience - This exhibit would allow the visitor to actually choose to enter a life size replica of a Delaware River ferry boat or a Durham Boat that would have been utilized during the Christmas Night Crossing. This will include a full size 4 pounder cannon reproduction with caisson and horses on the ferry boat and dressed mannequins for the both the ferry boat and Durham Boat.

Additionally, the ability to create a 4D experience with mist, cold temperature replication, the sounds of howling wind, horses whinnying, and men shouting would allow the visitor to truly experience the crossing in person. This would be a serious draw for public visitation and would be included as part of the museum tour.

The Ferry Landing Experience - Upon exiting the Washington Crossing Theater, visitors would enter another immersive gallery centered around a large "bonfire" where they can stand near a mannequin of John Greenwood and others and hear their experiences firsthand. Instead of a wall of artifacts, visitors would instead face a large window revealing the sight of the Johnson Ferry House, as if they had crossed and stood among their fellow troops on the banks of the Delaware. {A foam reproduction fence and wood will be available in the gallery for visitors to tear down/gather and place in a predetermined location to "build" a bonfire of their own. Once a certain amount of wood has been properly placed the fire will light and begin to "burn." This secondary gallery will also be temperature controlled so as feel the effects of the crossing and the fire.}

10 Crucial Days Interactive Maps - Located at appropriate points throughout the gallery these interactive lights driven maps would show troop movements from periods of the 10 Crucial Days campaign, helping visitors to better understand the, at times, complicated nature of the disposition of all parties during the campaign. The current design incorporates a twenty-two (22) phase sequence on 3 maps that can be divided into different sections of the Grand Gallery. It follows Washington's Retreat through the Jersey's through the 10 Crucial Days Campaign. The displays will be accompanied by a voice over and written words to describe exactly what the visitors are seeing.

EXHIBIT 'C'

WASHINGTON CROSSING VISITOR CENTER

2. The American Revolution

The War Galleries will make up the other half of the museum and will feature the history of the War prior to and following the 10 Crucial Days Campaign. It will tell the overall story of the war; however it will highlight New Jersey's role as the Crossroads of the American Revolution as well. Each exhibit will feature large maps of the theaters of war with corresponding troop movements decorating the wall space, accompanied by brief summaries of the campaigns as the story of the Revolution shifts across America.

The War Galleries

Prelude to War - This gallery will feature artifacts and information about life in the colonies before the Revolution, including the French and Indian War, the series of taxations levied by England on the Colonies, the Boston Massacre, the Boston Tea Party, etc. *Gallery Entrance: Boxes of Tea, Spices, other goods. EIC printed on boxes?*

Possible themes: Large map of the Colonies, Quakers & Religion.

Possible Biographies: Benjamin Franklin and William Franklin, Lord North & King George III.

New Jersey Events: Tea burning at College of New Jersey, Greenwich Tea Party, and a map of Colonial New Jersey.

1775 - To Die or Be Free - Features the beginning of the War (Lexington, Concord, Fort Ticonderoga, Bunker Hill, Invasion of Canada) - NJ highlights the divided nature of New Jersey (mini civil war). *Gallery Entrance: Stone Wall (Concord)*

Possible themes: Weapons of War, the American and British Soldier.

Possible Biographies: Patrick Henry, William Patterson & Hendrick Fisher.

New Jersey Events: Loyalists and divided loyalties.

1776 - The First American Crisis. Features Thomas Paine's Common Sense, Knox's noble train of artillery, the evacuation of Boston, the Declaration of Independence, the New York Campaign prior to the actions of August 27th, 1776 and the Battle of Valcour Island. Biographies of the five New Jersey's signers and their signatures would be featured. *Gallery Entrance: Abandoned Earthworks for Fort Lee/Washington? Pennsylvania State House?*

Possible themes would include: Musicians, Swords, and Powder Horns.

Possible Biographies: New Jersey signers John Hart, Abraham Clark, John Witherspoon, Richard Stockton and Francis Hopkinson. Thomas Paine, William & Richard Howe, William Livingston.

New Jersey Events: William Franklin arrested; NJ Provincial Congress votes to break ties with Great Britain.

EXHIBIT 'C'

WASHINGTON CROSSING VISITOR CENTER

(The Grand Gallery) -The Ten Crucial Days -This large gallery features artifacts and detailed information about the New York Campaign, the events prior to and including the Christmas Night Crossing, the Battles of Trenton and Princeton and the arrival of the army at Morristown. The Washington order for boats will be featured prominently as well as Lloyd Garrison's painting "The Crossing".

Possible themes: Money, Hessians & Spies.

Possible Biographies: George Washington, Johann Rall, James Monroe, Henry Knox, Nathaniel Greene, John Sullivan, Hugh Mercer, William Stirling, John Glover, Alexander Hamilton, Philemon Dickinson, Charles Cornwallis, Robert Morris, John Honeyman, John Fitch and Frederick Frelinghuysen.

1777-1778 - War in the Middle States - This gallery would include artifacts and information relating to the Philadelphia and Saratoga campaigns of 1777, Forts Clinton & Montgomery, Valley Forge, the Alliance with France and the Battle of Monmouth. *Gallery Entrance: Artillery Park?*

Possible themes: The French & Spanish, Role of Women and Artillery.

Possible Biographies: Charles Lee, Horatio Gates, Marquis de Lafayette, Mary Hays (Molly Pitcher), Deborah Sampson, Baron Von Steuben, Benjamin Lincoln & Tadeusz Kosciuszko.

New Jersey Events: Morristown encampment, Fort Mercer, Hancock's Bridge & Middlebrook encampment (Wallace House).

1779-1780 - Liberty or Death - This gallery will feature artifacts and information relating to Savannah, Stony Point, Paulus Hook, Camden, King's Mountain, Sullivan's expedition against the Iroquois & Charleston. *Gallery Entrance: Deck of a Ship?*

Possible themes: The War at Sea & the War on the Frontier.

Possible Biographies: John Paul Jones, Benedict Arnold, Anthony Wayne, William Maxwell, Patrick Ferguson, John Andre & Casimir Pulaski.

New Jersey Events: Paulus Hook, Simcoe's Raid and the burning of the Somerset Courthouse, Second Morristown encampment, Connecticut Farms & Springfield.

1781-1783 - The World Turn'd Upside Down - This gallery includes Cowpens, Guilford Courthouse, Yorktown campaign and the 1783 Treaty of Paris. *Gallery Entrance: flanked by Gabions and Fascines, mimicking the walls of the trenches outside of Yorktown.*

Possible themes: African & Native Americans & Medicine.

Possible Biographies: Daniel Morgan & the Comte de Rochambeau.

New Jersey Events: Mutinies of Pennsylvania Line and the New Jersey Brigade, Congress abandons Philadelphia and reconvenes in Nassau Hall at Princeton. Washington's Farewell Address to troops at Rockingham.

EXHIBIT 'C'

3. New Jersey: Crossroads of the American Revolution

This theme focuses on artifacts, events and Biographies displayed throughout the galleries highlighting New Jersey's prominent role during the conflict.

EXHIBIT 'C'

WASHINGTON CROSSING STATE PARK VISITOR CENTER: MASTER PLAN

MARCH 2019

CLARKE CATON HINTZ/GWWO ARCHITECTS



EXHIBIT 'D'

EXHIBIT 'D'

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EXHIBIT 'D'

EXECUTIVE SUMMARY

Acknowledgements:

State of New Jersey:

DPMC: Eugene Cardone

DEP: Lawrence Tutela, Edward Mulvan

Washington Crossing State Park: Neal Ferrari,
Clay Craighead, Mark Sirak

Consultants:

Clarke Caton Hintz: John Hatch, FAIA;

Michael Hanrahan, AIA; Gabriel Haug

GWWO: Alan Reed, FAIA; Al Ip

Riggs Ward: Brent Ward, Bob Riggs

Hunter Research: Richard Hunter, Patrick
Harshbarger

Van Note Harvey: Richard Wizeman, PE

Becker and Frondorf: John Frondorf, RA

Washington Crossing State Park Visitor Center

The site for the Washington Crossing State Park Visitor Center has a long and storied history. Beginning as early as 1729, it was an important ferry crossing over the Delaware River, connecting Pennsylvania and New Jersey. By the 1760's, the site included what is now known as the Johnson Ferry House, various farm buildings and a tavern.

The site's claim to fame and the reason for being developed as a State Park is General Washington's famous "Crossing of the Delaware" with the remains of the Continental Army on Christmas night in 1776. This daring surprise attack on the Hessian mercenaries quartered in Trenton was the first American victory in the Revolutionary War and provided the momentum and inspiration for the ultimate defeat of the British. Beginning around 1910, land was purchased and a number of historic buildings close to the site of the Crossing were preserved, providing the opportunity of interpreting this crucial victory. The current Visitor Center was built in 1976 to commemorate the nation's Bicentennial, and now houses an important collection of 18th century artifacts provided by the Swan Historical Foundation.

The purpose of this Master Plan is to prepare the site as the nation approaches its 250th birthday in 2026. The current Visitor Center is now outdated and has proven to be inadequate to accommodate visitors and the expanding Swan Historical Foundation collection. In addition, its configuration and location make interpretation of the site and, in particular, the Crossing, problematic. This Master Plan provides an analysis of the site and its history, recommendations for two potential locations for a new Visitor Center, a building program that can serve the site through the 21st century, and three alternative building designs that can accommodate the program and an increased number of visitors, display the Swan collection in a compelling fashion, and properly interpret the site and the Crossing. These three designs accommodate the program and the Park's important history in different ways, and can be located, with some adjustments, at either of the two potential locations.

The analysis and design alternatives presented in this Master Plan are intended to be a guide and inspiration for future work at Washington Crossing State Park. The Park, DEP and DPMC can now begin the work of identifying funding and the timeline for this important project.

The Master Plan

In December of 2017, New Jersey's Division of Property Management and Construction (DPMC) issued an RFP requesting proposals from qualified firms to complete the Master Plan for the Visitor Center. The team of Clarke Caton Hintz of Trenton and GWWO of Baltimore was selected and began work in February of 2018. In addition to the two architecture firms, the team includes Riggs Ward, exhibit designers based in Richmond, VA; Hunter Research, cultural resource consultants based in Trenton; Becker & Frondorf, cost estimators based in Philadelphia; and the site/ civil engineering firm of Van Note-Harvey. On the client side, the team was spearheaded by DPMC's and DEP's project team and key staff from the Washington Crossing State Park,

After surveying the site, researching its history and collecting information about the collection and visitation to the Center, the project team held a series of meetings over the course of the spring and early summer of 2018. The design team began by presenting its analysis of the site, providing pros and cons of locating the Visitor Center in various locations. Ultimately, all agreed that locating the Center much closer to the actual location of the Crossing, (i.e. closer to the Delaware River) would make more sense given the importance of interpreting this crucial event. However, the ultimate cost of the new Visitor Center is obviously an issue, so two locations for the Center (the current location and a new location closer to the River) continued to be considered.

The next presentation by the design team included the two options for the building location, as well as several different design approaches. Based on feedback, the design team further developed these options and made a second presentation to the project team, including preliminary approaches to displaying the Swan collection. After incorporating the additional feedback, the team made a final presentation including updated design options for the site, building and displays. Once these approaches were approved, Becker & Frondorf prepared cost estimates. All of this work is now incorporated into the Master Plan.

PROCESS AND GOALS

HISTORY OF THE SITE

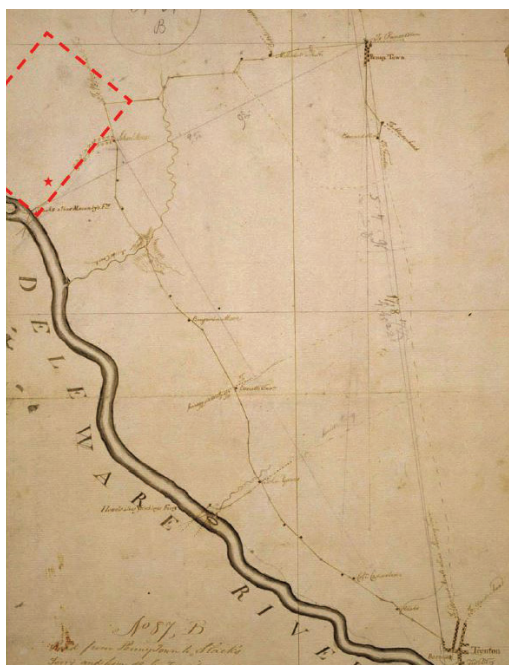


Figure 1. Revolutionary War-era Map

Before the Park: 1700's to 1910

Although Washington Crossing is most closely associated with the celebrated crossing of the Delaware River by George Washington and the Continental Army on December 25, 1776, the small riverside settlement developed as a minor transportation hub during the first half of the 18th century. In fact, transportation represents the central theme of the hamlet's first 200 years of history.

Washington Crossing developed around a ferry located at an important crossing point on the Delaware River. The ferry was established by Garret Johnson (Jansen), though some sources report that the ferry was begun by John Palmer around 1729.¹ The ferry stood on the 490-acre property that Johnson had inherited from his father, Rutger Jansen, of colonial Dutch descent from Flatbush, New York, in 1749. In addition to operating the ferry, Johnson supported his wife, Judith, and their 12 children by farming. By the late 1760's, the settlement was known as Johnson's Ferry and included a ferry, a farmhouse constructed by the Johnson family (The Johnson Ferry House) between 1740 and circa 1760, agricultural outbuildings and a tavern.² The Johnson ferry was subsequently operated by James Slack from 1767 to 1786, Abraham and Moses Harvey from 1786 to 1801, Samuel Tomlinson from 1801 to 1828 and Bernard Taylor from 1828 to 1834.³

The hamlet permanently entered the history books on December 25, 1776, when it played a crucial role in one of the most important events of the Revolutionary War. Facing declining morale among his troops and imminently expiring enlistments, General Washington and his officers developed a plan to cross the Delaware River in secrecy to stage a surprise attack on the Hessian garrison at Trenton. Between the evening hours of Christmas night December 25, 1776, and the early morning hours of December 26, 1776, Washington and 2,400 troops crossed from McConkey's Ferry in Pennsylvania to Eight Mile Ferry (formerly known as Johnson's Ferry) in New Jersey.⁴ From there, the Continental Army marched south to Trenton, where they defeated Hessian forces in what became known as the First Battle of Trenton, killing 22, wounding 84 and capturing 886.⁵

The Continental Army utilized the road network marching east from Eight Mile Ferry to Bear Tavern before turning south toward Trenton. Although some controversy has existed among historians surrounding the route taken by the Continental Army between Eight Mile Ferry and Bear Tavern, most modern historians agree that it followed the route of Washington Crossing-Pennington Road (Route 546) along the park's southern boundary.⁶ The road was officially established in 1767, though it may have been laid out as early as 1729, and appears on Revolutionary War-era maps (Figures 1-2).⁷ Following the First Battle of Trenton, the Continental Army engaged the British at the Second Battle of Trenton on January 2, 1777, and at the Battle of Princeton on January 3, 1777, the latter of which ended in an American victory. These three battles and their associated events are collectively known as the “Ten Crucial Days” and marked a turning point of the Revolutionary War.⁸

Following the war, Eight Mile Ferry remained a relatively sleepy settlement whose identity was closely associated with the ferry. After Bernard Taylor purchased the New Jersey side of the ferry crossing in 1828, Eight Mile Ferry became known as Bernardsville. Bernard Taylor was the son of Benjamin Taylor, who owned all of the land on the Pennsylvania side of the ferry crossing and after whom the Pennsylvania side was named Taylorsville. Bernardsville witnessed three important transportation developments that dramatically impacted the village in the years and decades following 1828. In 1834, the first bridge connecting Taylorsville and Bernardsville opened to the public, and the Delaware and Raritan Feeder Canal was completed (Photograph 1).⁹ The bridge quickly put the ferry out of business, while the canal prompted the reconfiguration of the local transportation network. Maps produced during the 1840's show the covered bridge over the Delaware River and capture the changes to Bernardsville's transportation network (Figures 2-3).¹⁰ A bridge was constructed to carry Washington Crossing-Pennington Road/Route 546 over the canal, while the late 18th century road, known as River Road, connecting Bernardsville to Trenton was vacated. A replacement roadway, which was known as River Bank Road, which generally corresponded to the right-of-way currently occupied by New Jersey Route 29, was opened to the east of the canal.



Photograph 1. View of the Delaware & Raritan Canal facing towards the Johnson Ferry House

HISTORY OF THE SITE

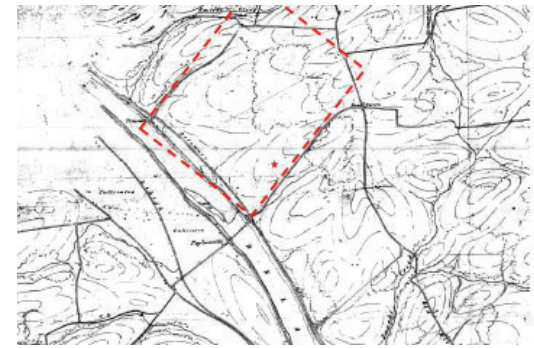


Figure 2. Revolutionary War-era Map

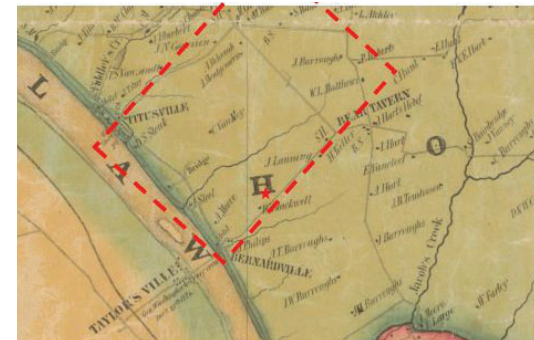
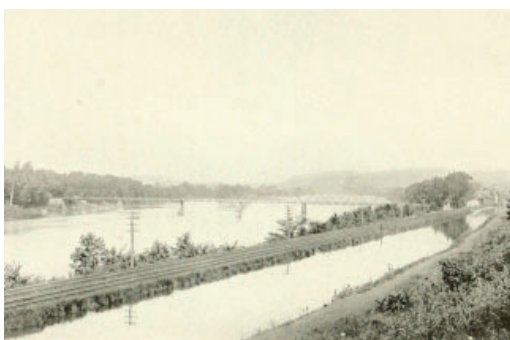
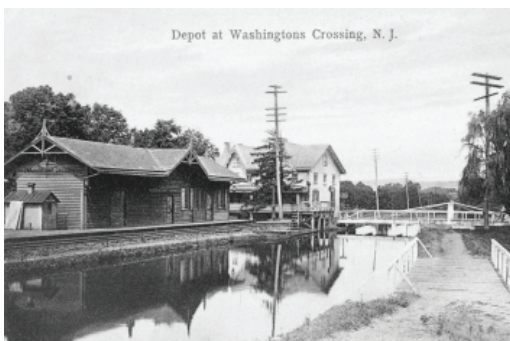


Figure 3. Bernardsville Transportation Network

HISTORY OF THE SITE



Photograph 2. View of the Delaware and Raritan Canal and the Belvidere-Delaware Railroad



Photograph 3. Washington Crossing Station

Between 1850 and 1855, the Belvidere Delaware Railroad (Bel-Del), a feeder line for the Camden and Amboy Railroad connecting Trenton and Belvidere, was constructed alongside the Delaware and Raritan Feeder Canal, and the section between Trenton and Lambertville, which passed through Bernardsville, opened in 1851 (Photograph 2).¹¹ The railroad constructed a station in Bernardsville, which stood southeast of the intersection of the Washington Crossing-Pennington Road and River Bank Road, and named it Washington Crossing (Photograph 3).¹² As a result, Bernardsville was quickly rechristened Washington Crossing.¹³

The various road, canal and railroad transportation improvements brought limited growth to Washington Crossing, which housed several commercial enterprises controlled by the Taylor family, including a lumberyard. The village's tavern grew and expanded into a thriving hotel, owned by Alexander Nelson, to meet the needs of the growing number of travelers. Only the rear stone wing of Nelson's Hotel (The Nelson House), which once included a large, three-and-a-half-story main wing, survives.

Washington Crossing, however, was never much more than a rural hamlet with farms scattered along Washington Crossing-Pennington Road (Route 546), River Bank Road and River Road. A farm owned by the Blackwell family and containing a farmhouse on the north side of the Washington Crossing-Pennington Road (Route 546), which still stands and is currently known as the Blackwell House (Photograph 4), included within its fields and wood lots the site that has been identified for the construction of a new visitors' center.¹⁴ The two-story stuccoed stone farmhouse is representative of the vernacular style of the middle Delaware River Valley. It was constructed in two phases between the early 19th century and the 1850's to 1860's. William Blackwell had purchased the house, which may have been constructed by Bernard Taylor, and farm by 1849.¹⁵

Physically, Washington Crossing experienced some important changes as the 19th century transitioned into the 20th century. Beginning in 1893, the Delaware and Raritan Canal began to lose money as traffic on the canal decreased from its peak in the 1860's and 1870's due to growing competition from railroads. By the 1910's, traffic on the canal had dropped precipitously, and the Delaware and Raritan Feeder Canal was ultimately closed after 1932.¹⁶

As the canal declined in importance and popularity, Washington Crossing and the surrounding area gained popularity among the wealthy inhabitants of Trenton as a fashionable resort destination due to the recreational and scenic attractions offered by the Delaware River. Many of these people constructed summer houses to the south of the village and the Washington Crossing-Pennington Road (Route 546) and on the east side of New Jersey Route 29 during the first decades of the 20th century. A new highway, known as Delaware River Drive, built specifically for automobiles was constructed along the east bank of the Delaware and Raritan Canal in 1917. It occupied the former right-of-way of the River Bank Road between Washington Crossing-Pennington Road (Route 546) and Ewing Township and incorporated a new section that ran north towards Lambertville and bypassed Titusville. Delaware River Drive was designated New Jersey Route 29 in 1953.

The most important change that Washington Crossing experienced during this period, however, was initially intangible and involved growing public interest in celebrating, memorializing and re-creating the crossing of the Delaware River by Washington and the Continental Army on December 25, 1776. This commemorative sentiment eventually evolved into proposals to establish a public park at the site of the crossing.¹⁷

Washington Crossing State Park: 1910 to 2018

The State of New Jersey's first official efforts to create a park at the site of Washington Crossing occurred in 1910, when the State Legislature authorized the creation of the Washington Crossing Commission, which was tasked with selecting lands for the creation of a state park and maintaining the park. The Legislature failed, however, to appropriate funding. In 1912, the Legislature passed a bill that officially established Washington Crossing State Park, granted the reconstituted Washington Crossing Park Commission the power to purchase 100 acres of land for the park, to erect a memorial and fencing and otherwise to improve the property, and appropriated \$25,000 for these activities.

HISTORY OF THE SITE



Photograph 4. *The Blackwell House (1914)*

HISTORY OF THE SITE

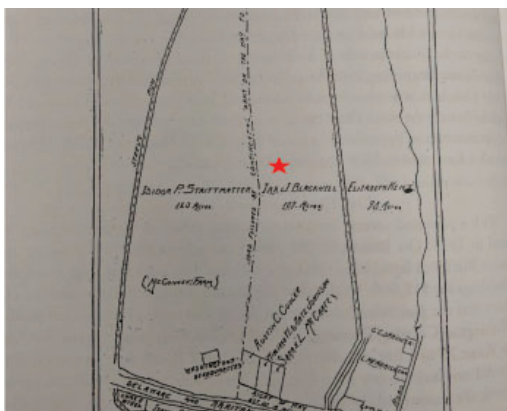


Figure 4. Blackwell Farm



Photograph 5. Johnson Ferry House

On January 4, 1913, the Washington Crossing Park Commission secured the title to the Blackwell farm, a 100 acre tract containing a farmhouse and outbuildings and bordered by the Washington Crossing-Pennington Road (Route 546) on the south, the right-of-way currently occupied by New Jersey Route 29 on the west and Brickyard Road on the east, for \$18,000 (Figure 4). The Washington Park Commission hired landscape architect Charles Leavitt, who had previously designed gardens for wealthy clients and parks in Cuba and New York and New Jersey and worked as an engineer for local governments and private companies, to develop a comprehensive design. Leavitt and the Commission identified properties in addition to the Blackwell farm for acquisition, though this went beyond their mandate. The boundaries of Washington Crossing State Park remained unchanged for the next eight years.¹⁸

The 1920s and 1930's brought dramatic changes to Washington Crossing State Park. Between 1921 and 1929, the State of New Jersey drastically expanded the park's size through a series of land acquisitions. The most important of these acquisitions occurred in 1922 and 1923, when the State of New Jersey purchased two tracts of land north of the Blackwell farm from Dr. Isidor Strittmatter. These parcels included the most important historic structure associated with the Crossing, the Johnson Ferry House, the Harvey stone barn and a farm lane, along which early 20th century historians believed the Continental Army had traveled to Bear Tavern. The lane became known as Continental Lane (Photograph 5).¹⁹ The State of New Jersey also expanded the park's boundaries to the Delaware River shoreline where the Continental Army had landed. The heirs of Alexander Nelson deeded Nelson's Hotel (the Nelson House) and the surrounding lands, which included additional shoreline, to the park in 1924. By 1929, the State of New Jersey owned most of the properties deemed necessary to undertake Leavitt's original 1913 design, and Washington Crossing State Park comprised 292 acres.²⁰



Figure 5a. Washington Crossing State Park

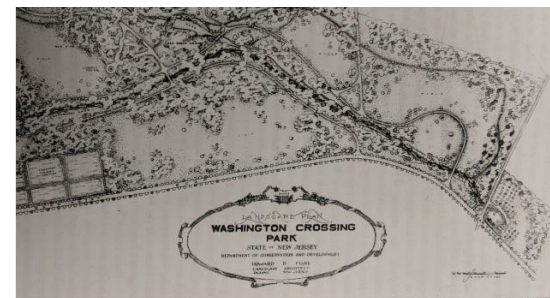


Figure 5b. Washington Crossing State Park

Ultimately, the Leavitt plan failed to come to fruition, and the Department of Conservation and Development, which had assumed responsibility for Washington Crossing State Park in 1915 after the Washington Crossing Park Commission was disbanded, turned to a new landscape architect, Howard Fiske, to create a new plan for Washington Crossing State Park in 1925 (Figures 5a-5b). Fiske's plan shaped the development of the park through the 1930's. Although the entirety of Fiske's vision was not realized, many of the major features that he proposed were completed. These included a formally landscaped memorial park at the western end of Washington Crossing State Park with an overlook providing views of the Crossing site and the Johnson Ferry House (Photograph 6)²¹; the expansion of the State Forest Nursery, which had been established in 1924 on the upslope of the former Blackwell farm near the present-day Visitors' Center; an extensive landscaping effort to transform a predominantly open agricultural landscape into woodland; a new park entrance with stone walls and a stone staircase at the northeastern corner of Washington Crossing-Pennington Road (Route 546) and New Jersey Route 29 (Photograph 7)²²; and three picnic groves (Washington Grove, Sullivan Grove and Greene Grove). An updated plan created by Fiske in 1930 provides more detailed information about these features and which ones had been completed (Figures 6a-6b). The Department of Conservation and Development formally dedicated the re-landscaped Washington Crossing State Park on June 4, 1927.²³

Despite the formal dedication of the park in 1927, work on park infrastructure and landscape continued unabated into the 1930's. To commemorate the bicentennial of George Washington's birth in 1932, the George Washington Memorial Arboretum was created and the Colonial Gateway located at the northwestern corner of Washington Crossing-Pennington Road (Route 546) and New Jersey Route 29 was constructed. The Park also undertook an extensive series of projects under the auspices



Figure 6a. Washington Crossing State Park

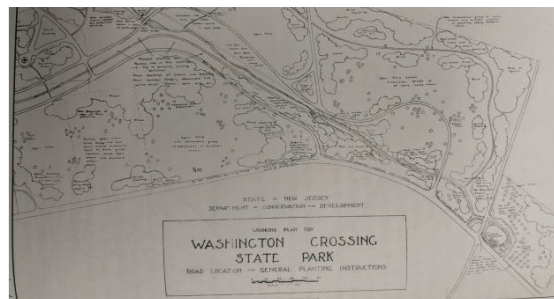


Figure 6b. Washington Crossing State Park

HISTORY OF THE SITE



Photograph 6. View of the overlook constructed as part of Fiske Plan of 1925



Photograph 7. Main entrance to Washington Crossing State Park at the intersection of NJ Rte. 29 & Washing Crossing-Pennington Road (Route 546) constructed as part of Fiske Plan of 1925

HISTORY OF THE SITE



Figure 7. The Nelson House map circa 1936

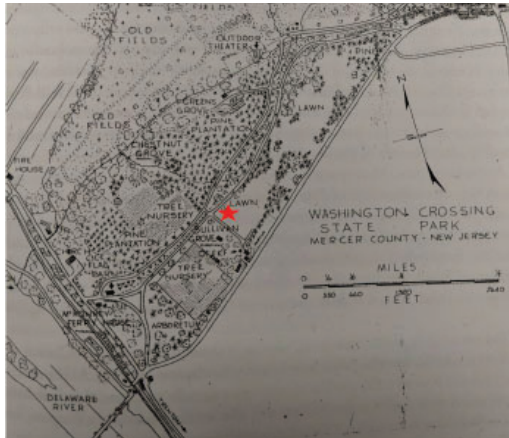


Figure 8. Washington Crossing State Park

of the federal Works Progress Administration, later the Works Projects Administration (WPA). WPA workers constructed new buildings, roads, bridges, foot trails, guard rails and gutters, rerouted and recreated Continental Lane, upgraded the Washington, Sullivan and Greene Groves and demolished the three-story, Victorian-era main wing of Nelson’s Hotel (the Nelson House). A circa 1936 map documents much of the work undertaken by the WPA (Figure 7).

An additional development that would have future implications for Washington Crossing State Park occurred in 1934, when the Delaware and Raritan Canal, which had closed permanently in 1932, became the property of the State of New Jersey. With America’s entry into World War II in 1941, the WPA era at Washington State Park came to a close, and the park entered a relatively quiet period in the 1950’s during which no major construction projects or property acquisitions occurred. The 1950’s witnessed only two events that would have future implications for Washington Crossing State Park. The annual reenactment of the Crossing began in 1953 and has continued through today, and the Delaware and Raritan Canal and Feeder was developed as public water source, which would eventually enable the creation of the Delaware and Raritan State Park in 1974.²⁴

During the 1960’s and 1970’s, Washington Crossing State Park developed a split personality and purpose as a military memorial park and an active recreation area as the approaching Bicentennial of 1976 fueled new land acquisitions, infrastructure changes and improvements, and the construction of new recreational resources for park visitors. Under the Green Acres program, which began in 1961, Washington Crossing State Park more than doubled in size from 372 acres in 1963 to 848 acres in 1978. Two maps produced during the 1960’s and 1970’s capture the expansion of the park and show the space opened up for new recreational opportunities and large events (Figures 8-9). Two of the new recreational resources for park visitors that were established during this period also appear on these maps. These are the Nature Center, which opened in a former single-family residence in 1966, and the Open Air Theater, which was created in 1964 and expanded during the ensuing years. Nature trails, most of which do not appear on the two maps, were also laid out in the northeastern section of Washington Crossing State Park in the vicinity of the Nature Center in the 1960’s and 1970’s.

As the Bicentennial approached in 1976, the Department of Environmental Protection, which had replaced the Department of Conservation and Development as stewards and managers of Washington Crossing State Park in 1970, developed a new conceptual plan for the park that virtually eliminated and replaced the 1925 Fiske design. All of the original automobile routes into the park were closed,

and a new entrance with a toll booth was opened on the north side of Washington Crossing-Pennington Road (Route 546), which continues to serve as the main entrance into the park, just to the east of the Visitors' Center. A pedestrian bridge over New Jersey Route 29 was constructed, enabling visitors to access the park from the Delaware and Raritan Canal Feeder and the riverfront area west of New Jersey Route 29 (Photograph 8).²⁵

Most important, however, was the completion of a new Visitors' Center, which opened to the public on September 11, 1976, and was dedicated on December 25, 1976. The Center's exhibits were designed to provide visitors to the park with background information on the Crossing and the Ten Crucial Days. Additional changes to the park landscape occurred with the establishment of the Delaware and Raritan Canal State Park in 1974, and the abandonment of the former Bel-Del line in 1976 and the removal of the tracks in 1979-1980 to create a trail.²⁶

The pace of construction and major infrastructure improvement projects within Washington Crossing State Park continued into the final decades of the 20th century. The John W. H. Simpson Observatory was constructed in 1977. In the 1980's, the Open Air Theater facilities were upgraded, flagpoles were moved from the overlook above New Jersey Route 29 to the Visitors' Center and the New Jersey State Forest Nursery closed. The 1990's witnessed additional improvements, including a substantial renovation of the Open Air Theater that continued into the 2000's, the restoration of the Blackwell House and the construction of a new Nature Center and horse and mountain bike trail. In 1995, the purchase of additional land brought Washington State Park's size up to 869 acres.

Construction and major improvement projects have declined within the park during the past two decades, as the focus has shifted toward maintenance and the management of additional properties outside of the park's boundaries for preservation and recreational purposes. These properties and the additional historic sites that have come under the jurisdiction of Washington Crossing State Park, such as the Princeton Battlefield Park, the Trenton Battle Monument and the John Marshall House, are commonly known as "the Greater Park." Today, Washington Crossing State Park is a popular recreation resource for local residents and a tourist destination.²⁷

HISTORY OF THE SITE

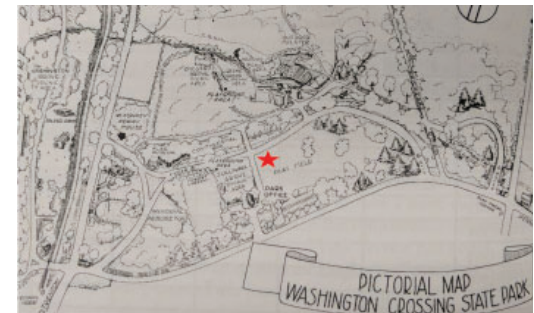


Figure 9. Washington Crossing State Park



Photograph 8. Pedestrian footbridge over New Jersey Route 29, which was constructed in 1976

EXHIBIT 'D'

Endnotes

- 1 Peter Osborne, *Where Washington Once Led: A History of New Jersey's Washington Crossing State Park* (Yardley, PA: Yardley Press, 2012), 33; Richard W. Hunter and Richard L. Porter, *Hopewell: A Historical Geography* (Titusville, NJ: Township of Hopewell, 1990), 126.
- 2 New Jersey Department of Environmental Protection, Division of Parks and Forestry, Washington Crossing State Park, "Washington Crossing State Park Museum Interpretive Plan," December 2017.
- 3 Osborne, *Where Washington*, 33; Hunter and Porter, *Hopewell: A Historical*, 126.
- 4 Washington Crossing State Park, "History," Washington Crossing State Park, last modified 2018, accessed August 9, 2018, <https://www.washingtoncrossingpark.org/history/>.
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- 11 Todd, Charles Burr, *The Washington's Crossing Sketch Book* (Charles Burr Todd, 1914).
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- 14 Todd, *The Washington's Crossing*.
- 15 Osborne, *Where Washington*, 32, 59-66; Hunter and Porter, *Hopewell: A Historical*, 127.
- 16 Osborne, *Where Washington*, 48.
- 17 Osborne, *Where Washington*, 75-101.
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- 19 Todd, *The Washington's Crossing*.
- 20 Osborne, *Where Washington*, 114-125.
- 21 *Ibid.*, 152.
- 22 *Ibid.*, 145.
- 23 *Ibid.*, 115-149.
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- 25 Wikimedia Commons, "Washington Crossing State Park, NJ, Footbridge Over Highway," Wikimedia Commons, last modified 2013, accessed August 10, 2018, <https://commons.wikimedia.org>.
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THE SWAN HISTORICAL FOUNDATION



The Collection at the Washington Crossing Visitor Center

The Washington Crossing Visitor Center is home to an important collection of artifacts from the 18th and 19th century, many related to the Revolutionary War. This collection, owned by the Swan Historical Foundation, is an important draw at the Center, and its size and nature are two of the key reasons for expanding and reconfiguring the Visitor Center. Currently, the collection is housed in a number of cases in two rooms in the Visitor Center, tightly packed and difficult to interpret. The new Visitor Center will allow for dramatically improved display and storage of the collection.

Their website briefly describes the Foundation, its history and mission:

The Swan Historical Foundation, Inc. (SHF) is a registered 501(c)3 not-for-profit organization founded in 1989. SHF is dedicated to encouraging knowledge and appreciation of the American Revolution for the benefit of present and future generations.

The Swan Historical Foundation is named for an early (1821-1831) United States congressman, Dr. Samuel Swan, of Somerville, New Jersey. He wrote the bill authorizing a pension for the widows and orphans of those first American soldiers. That early legislation led years later to what we know today as the Veterans Administration. His great, great grandson, Mr. H. Kels Swan, established SHF and served as its president.

SHF owns a superb collection of artifacts from the American Revolution. These artifacts currently can be viewed in the Visitors Center at Washington Crossing State Park in Titusville, New Jersey. It is also there that General George Washington and his ragtag army crossed the Delaware River to turn the tide against the British in the darkest days of the American Revolution during the ten-day Trenton-Princeton campaign.

Overview

The new Washington Crossing Visitor Experience will engage and delight people of all ages. From the moment visitors first encounter the interpretation online to the moment they leave the site, each step along the way will entice, encouraging further exploration of the site and subject.

The design team's goal is to utilize the proximity to the crossing site to our greatest advantage by opening up the building with expansive views to where history actually took place.

Website

The website should contain numerous references to the visitor experience and learning opportunities with images that curate each step a visitor should take up to arrival and beyond. An explanation of the approach, the use of the road by the Continental Army and the interpretive opportunities around the park should be shown on an interactive map that can be downloaded via PDF or mobile application and used while on site.

Site Approach

Since the visitor entry is on Route 546 and is a bit of an indirect route to the Visitor Center, there is need for a more engaging campus sign and gateway experience prior to entering the Park. While the traditional routed board sign is in keeping with other New Jersey State Parks, a more sculptural and possibly interpretive marker would be more enticing.

For approximately 50 yards along Route 546 past the entry road, it is recommended that poles with banners be placed on the park property to further engage and attract motorists. These banners will also serve to brand the park and help define its mission.

Entry Road

Again, this is yet another opportunity to provide an interpretive campus marker. Here, where the road divides at the intersection of Route 546 and the park entry road, could be an evocatively lit sculptural element that encourages exploration. This could be a group of three soldiers marching or a colorful display of flags. No matter what is presented, there is no doubt that a more engaging element will draw attention and greater visitation. Upon returning down the entry road, the median between the guardhouse and Route 546 presents an excellent vista that could be populated with more banner poles or interpretive elements.

INTERPRETATION OF THE SITE AND THE COLLECTION





Wayfinding and Interpretive Signage

While the current wayfinding signage is adequate, a newly designed family of environmental graphics that still meet the requirements of the New Jersey State Park sign manual could add to the character of the Park and the visitor experience.

A design vocabulary that emulates the colonial era or the style of the new Visitor Center would brand the visitor experience. Visitors would know, even from a distance, the meaning or purpose of a sign just by its shape, color, or design.

Wherever the new Visitor Center is located, there will be many interpretive opportunities to engage visitors as they approach the building from the parking lot.



The new Washington Crossing Visitor Center will interact with the landscape in new and exciting ways. It will also make much better use of the treasure that is the Swan Collection. These two elements will be the keys to better visitor engagement, repeat visitation, and sustainability for the site.

Three concepts have been developed to explore how the new Visitor Center might be designed and sited.

Storyline and Interpretive Experience

All three concepts attempt to “frame” the Ten Crucial Days story so that the context and importance of the site remains the focus of the visitor experience.

Had Washington decided not to cross the Delaware, there really would be no Park in this place and no story of heroism related to it. The building and the focus of the exhibits should be on the landscape, the Swan Collection, and the story of the Ten Crucial Days. Beyond these elements, there should be interpretation that sets the tone and importance of the Crossing story and how the Crossing was a pivotal point in the Revolutionary War. The larger stories of why the Revolutionary War came about and its outcomes can likely be left to other, larger sites to interpret. While there should be some reference to the broader story and meaning, it likely makes sense for the mission of the Park to keep the storylines focused.

All three concepts will follow a linear, chronological approach with the majority of the interpretation focused on the Ten Crucial Days story. This will allow for a suspenseful build up that leads to the point at which the Continental Army makes their first crossing of the Delaware River from Pennsylvania to New Jersey. The pre- and post- Crossing stories will be less elaborate in their presentation but equally educational.

With this interpretive context in mind, the park staff should seek out partnerships with other Revolutionary War sites that can better inform patrons about the larger story. Places like Yorktown, Philadelphia, and others can do their part to expose visitors to the remaining six years of the Revolutionary War, the underpinnings of Colonial North America, and the birth of the government of the United States.



BUILDING PROGRAM



Data Visualization



Immersive Experiences

Architectural Program Space Descriptions

In 2006, Washington Crossing State Park completed a study to replace its existing 4,000 sf visitor center, constructed in 1976. The study programmed a gross building area of 18,102 sf. The spaces outlined in that document served as the basis for developing this building program. During a series of meetings in 2018, the design team reviewed the spatial requirements and functions with the Park.

In general, area modifications were made to the following notable spaces:

- Decreases: Theatre, Administrative offices, Vending Room, and Pantry.
- Increases: Lobby, Restrooms, Family Restroom, Staff Restroom, and storage spaces.

At the conclusion of the design meetings and subsequent discussions with the Park, the total gross building area was 16,814 sf.

The following descriptions provide information on the characteristics, requirements for each individual space in the program, as well as relationships and adjacencies with other spaces.

Lobby (700 sf)

This area serves as a gathering space for visitors and architecturally, it serves as a hub for the other public spaces. It will have immediate adjacencies to the building's major public spaces: Reception Desk, Theater, Exhibits, Gift Shop, Multi-Purpose Room, and Restrooms.

The Lobby will have natural light supplemented with adequate general lighting. Flexible lighting can be added for traveling or temporary exhibits.

Reception and Information Desk (150 sf)

This visually prominent location in the Lobby is where visitors can gather literature and brochures, and speak with Park staff. It will have a direct view to the front entrance.

Wall space will be available behind the desk for installation of a fee schedule, hours of operation or identifying information as desired by the Park. A closet, with 80 coat capacity, will be located adjacent to the desk.

Theater (1,800 sf)

The theater will have a seating capacity of 120, including ADA accessible seating. It's primary function is to show the interpretive film to visitors, but it will also have a raised stage for lectures and presentations. This space will be fitted with acoustic treatments on the ceiling and wall surfaces. Depending on the interpretive concept, the theater may have doors connecting to the Exhibit space.

Exhibits (3,000 sf)

The interpretive space will be visually prominent from the Lobby and will house objects from the Swan Historical Foundation. Refer to the Exhibit Narrative for further detail. Depending on the building and exhibit concept, the exhibit space may have doors to the theater.

The exhibit spaces may have controlled views to the exterior. These windows will be equipped with daylighting controls to protect sensitive artifacts.

Exhibit Storage (1,000 sf)

This room will have a direct connection to the Conservator's Prep Room, and possibly the Exhibits. If adjacent to the Exhibits, part of this area can be used as visible storage for interpretation, as shown in the diagram. This space may also serve as storage for re-enactment items.

Conservation/ Preparation Room (150 sf)

This work room is for handling and preparing artifacts, and will have utility cabinets, countertops and a sink. It will be directly adjacent to the Exhibit Storage Room.

Gift Shop (400 sf)

The retail area is located adjacent to the Lobby and visually prominent. It provides sales of books, gifts, concessions, etc. The space will have built-in casework and shelving for merchandise and a point of sale counter with electrical and data outlets. It will have adequate general lighting, as well as flexible spot lighting.

It will have a merchandise storage room and cash counting/ security room directly adjacent to it.

BUILDING PROGRAM

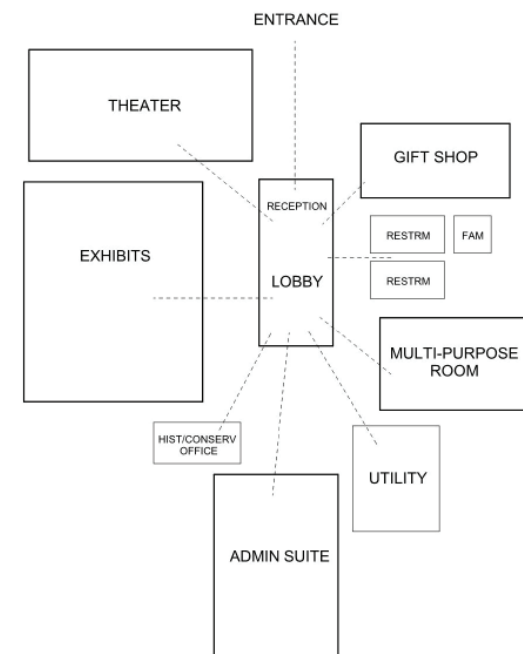


Diagram: Lobby relationship to major spaces.

BUILDING PROGRAM

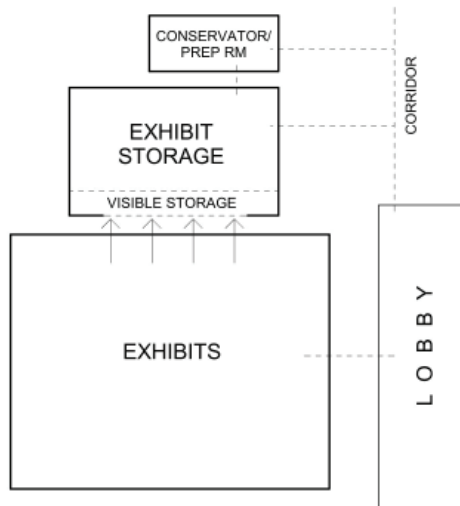


Diagram: Relationship of Exhibit spaces

Multi-Purpose Room (1,000 sf)

This room is designed for flexible uses: lunchroom for school groups, small group meetings, and temporary exhibits. It can accommodate different layouts with stackable chairs and folding tables, and will have its own storage closet. It will also have an area for vending machines.

This space will have views out to the Park or Delaware River. The windows will have daylighting controls for presentations, temporary exhibits, or events. It will also have direct access to an outdoor patio.

Public Restrooms (Women/ 200 sf, Men/ 160 sf, Family/ 75 sf)

The public restrooms will also include a family restroom. During the visitor center's off-hours, the Men's and Women's Restrooms can be accessed by the public from the exterior doors, while being secured from the interior. These restrooms will be ADA accessible and equipped with compliant accessories. Wall and floor tiles will be durable and cleanable, and floor tiles will be non-slip.

Administrative Suite (1,640 sf)

This area of the building contains the Park's operational spaces: limited access library, conference room, offices, copy room, break room, and a dedicated staff toilet. While this suite will be accessible from the Lobby, it does not need direct access. The Historian and Conservator Offices will have direct access to the Lobby and exhibits to assist with visitors and school groups.

IT Closet (50 sf)

This room securely houses the Visitor Center's IT equipment (servers and hubs for computer networks) and can serve as miscellaneous secured storage. It will require adequate power and ventilation for electrical components.

Outdoor Patio

Adjacent and accessible from the Multi-purpose Room, this space will have seating, and can serve as a queueing area for site walking tours. It can be used for observing musket firing demonstrations. A building canopy extension or freestanding trellis can provide partial shading for this space.

SPACE IDENTIFICATION	SF
Common	
Lobby	700
Reception Desk	150
Coat Room	100
Women's Restroom	200
Men's Restroom	160
Family Restroom	65
Multi-Purpose Room	1,000
Multi-Purpose Storage	80
Vending	40
Interpretive	
Exhibits	3,000
Exhibit Storage	1,000
Conservation/ Prep Room	150
Theatre	1,800
Theatre Storage	100
Historian & Conservator Office	180
IT Closet (Exhibit)	80
Retail	
Gift Shop	400
Storage Room	400
Cash/Security Room	60

SPACE IDENTIFICATION	SF
Administrative	
Staff Entrance	60
Superintendent Office	185
Clerical Staff (2 desks)	120
Seasonal Staff (3 desks)	160
Conference Room/ Library	350
Limited Access Library	250
Staff Toilet Room	65
Copy Room	100
Break Room	120
IT Closet (Admin..)	50
File Storage	150
Utility	700
Janitor	35
<hr/>	
TOTAL NET SF	12,010
Efficiency Factor +40%	+4,804
TOTAL GROSS SF	16,814

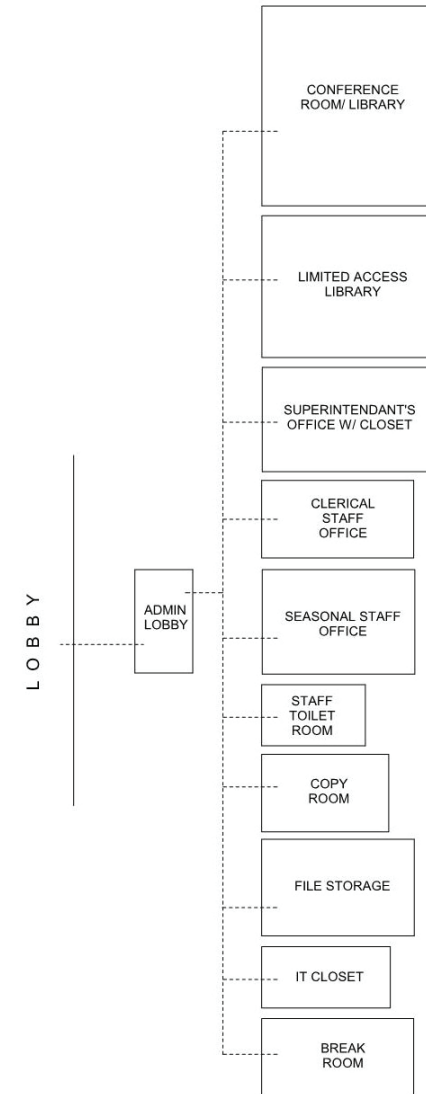


Diagram: Relationship of Administrative spaces

BUILDING MATERIALS

General Materials

At this preliminary stage, the anticipated material selections are generally as follows:

- Ceilings:** Painted exposed structure at Concept A.
Wood planks at the Lobby.
Acoustic ceiling tiles in the Lobby, Multi-Purpose Room, Administrative Suite, and restrooms.
- Interior Walls:** Painted gypsum board for general areas.
Wood or metal paneling at accent walls.
Acoustic paneling in the Theater.
Porcelain tile at restrooms.
- Doors:** Glazed aluminum doors at public entrances. Wood doors for general indoor purpose.
- Countertops:** Quartz.
- Counter Faces:** Metal and wood (both hardwood and laminate).
- Wall Bases:** Wood. Tile at restrooms.
- Floors:** Porcelain tile at the lobby and rest rooms.
Carpet tile in the Theater, Exhibits, Gift Shop, Multi-purpose Room, and Administrative Suite.
- Outdoor Deck:** Stone or concrete pavers with map graphics. Wood trellis.

Code Analysis

New Jersey has adopted the 2015 International Building Code/ New Jersey Edition; this code and other relevant subcodes have been used for this brief analysis.

The Washington Crossing Visitor Center is designed as a single building with mixed-use occupancies including Use Groups A-3 (Assembly, Museums, Galleries, Lecture Halls, etc.), and B (Offices). With mixed uses, the code permits two options for addressing safety and construction issues:

1. Non-separated uses are permitted provided that the more-restrictive use-group code requirements are used to design the entire the entire building.
2. Using required fire separation construction to physically separate each use-group.

Given the program requirements of a Visitor Center/ Museum, it likely makes the most sense to design the facility with non-separated uses, incorporating the code requirements of the more restrictive use: A-3.

Since the proposed Visitor Center is one story and free-standing, and given the proposed character of the structure, it is likely that the construction type will be IIIB: Non-combustible exterior walls and combustibile (wood) interior structure. Type IV construction, Heavy Timber, may also be an option.

The proposed designs all show an adequate number, width and distribution for the means of egress. Egress signage, emergency lighting, fire alarm and detection systems, etc., will all be required. In addition, the building will need to be fully sprinklered. To protect sensitive artifacts in the galleries, exhibit storage and limited access library, these areas may be equipped with gaseous or chemical based suppression systems.

Accessibility

As a public facility, the entire building and all of its spaces will need to be fully accessible. In addition, gender-neutral restroom facilities should be provided.

BUILDING CODE



Site

Washington Crossing State Park is located on the north side of the Delaware River and gently slopes toward the river. The existing Visitor Center, constructed in 1976 for the Bicentennial, is sited on a large, open field bound by trees and Sullivan Drive. It has a path to Sullivan Grove, a picnic area, to the southwest.

Most of the site's historic resources are located in close proximity to the river. These include: Johnson Ferry House (witness building), Overlook Wall, Nelson House, a ferryboat replica, and river crossing markers. The existing Visitor Center, located approximately 1/2 mile northeast of the Delaware River, has no view to the river or its nearby resources. It requires visitors to walk approximately 2,000 feet to interpret these historic resources.

During the master planning process, the design team explored two overall potential building sites. The three concept designs for the building itself can work, with some modifications, in either location. In addition, all three design concepts and site options allow for the existing Visitor Center to continue operating during construction.

- Upper Site (Site #1), on the large open field near the existing Visitor Center.
- Lower Sites (Sites #2 and #3), are in clearings to the SW, along the Continental Trail. At these locations, landscaping and a palette of natural materials, such as wood and stone, should be used to minimize the visual impact from the Johnson Ferry House and the river.

It should be noted that there may be archaeological resources at any of the potential building locations. For project compliance with the NJ Register of Historic Places Act, it is likely that a Phase I assessment by an appropriately qualified professional archaeologist will be required. Historically, the sites were farm fields and no buildings appear to have been located at these sites. The likelihood of Revolutionary War period archaeological remains or artifacts being found is slight. The Upper Site, which lies some 2,500 feet from the River and almost 500 feet from a tributary of Steele Run, has a moderate potential for Native American archeological resources. The Lower Sites, on the upland rim overlooking the Delaware River floodplain, have a moderate to high potential for Native American resources. Numerous Native American sites have been documented in the floodplain and along the terraces bordering the Delaware River, including in the Titusville/Washington Crossing vicinity.

Parking

Based on the Park's estimated annual visitation of approximately 80,000, 40,000 of which use the Visitor Center, calculations show that a new Visitor Center would require 25-30 spaces close to the building. For the Upper Site, the existing parking lot can remain. At the Lower Sites, these additional parking spaces could be added along Sullivan Drive, similar to the existing head-in parking near the Johnson Ferry House. The existing parking lot near the Upper Site would then remain for other Park functions and overflow. Currently, the majority of visitors are school groups. For both sites, buses can drop off students at the Visitor Center and then park at the existing lot.

SITE ANALYSIS



Sullivan Grove



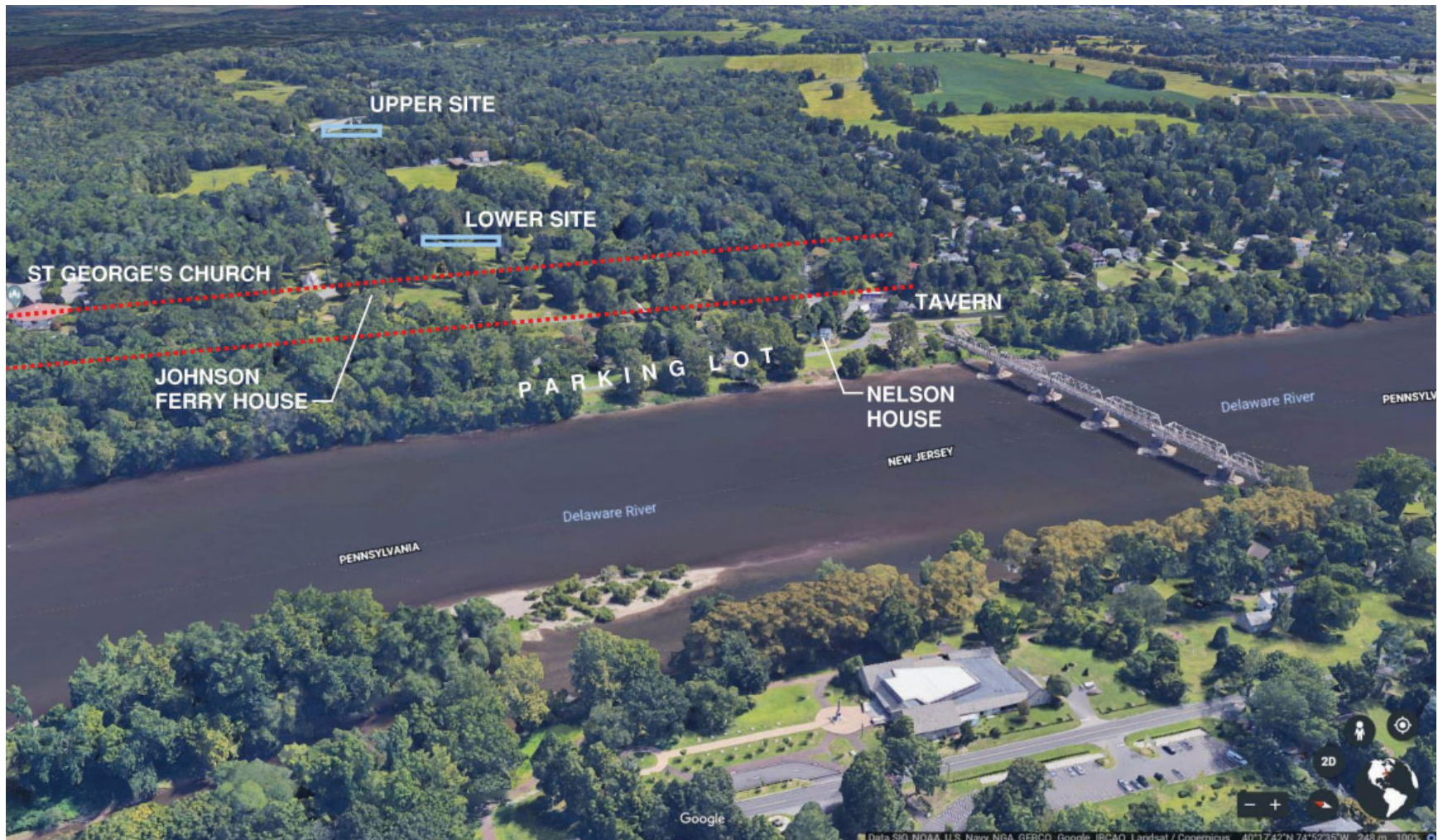
View to Johnson Ferry House from Overlook Wall



Southeast View of the Lower Site

Lower Sites: Connection to Interpretive Resources

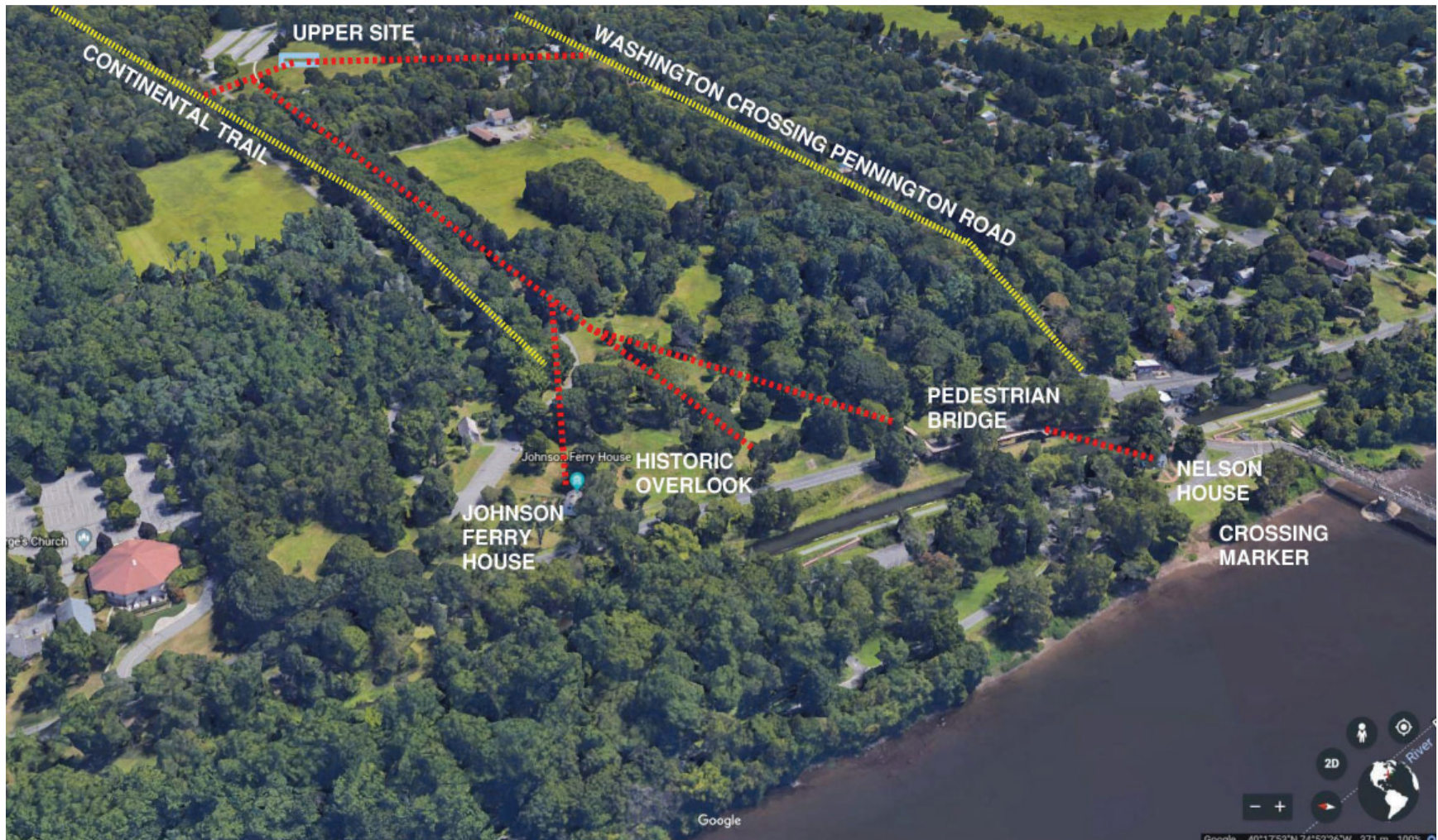
While closer to the river than the upper field site, the Lower Sites are nevertheless set back from Route 29/ River Road by approximately 560 feet. They are also at a higher elevation, allowing the Johnson Ferry House to maintain its visual prominence along River Road, and reducing the potential visual impact of the new Visitor Center if located on this site.



View North from Pennsylvania

Visibility

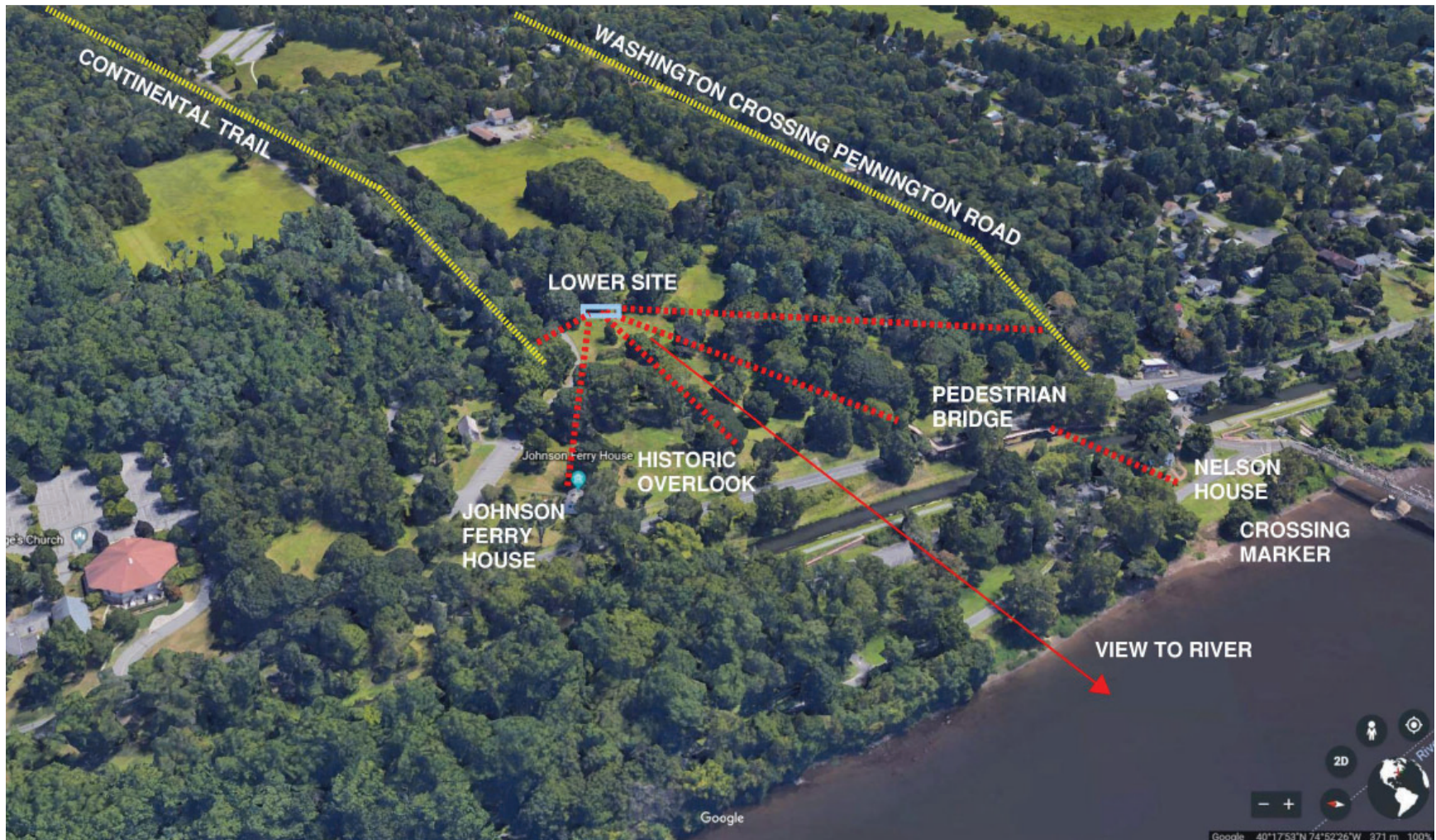
Viewed from the south side of the Delaware River, the Lower Sites are screened by trees and structures along the river. Unlike the upper field site, strategies for placing a new Visitor Center on the lower sites would involve minimizing the building height to one story, using natural materials to visually blend into the trees, and the strategic use of appropriate landscaping.



Upper Site: Context and Proximity to Delaware River

Upper Site (Existing): Connection to Historic Resources

The existing Visitor Center is sited on a large open field that has no visual connection to the Delaware River. After seeing the movie and exhibits, visitors must walk approximately 2,000' along the Continental Trail/ Sullivan Drive to access the Johnson Ferry House, the river, and various interpretive resources.



Lower Site: Context and Proximity to Delaware River

Lower Sites: Connection to Historic Resources

The Lower Sites are closer in proximity to several of the interpretive resources, as well as the pedestrian bridge that leads to the Delaware River, the crossing marker, and the Nelson House. These locations are approximately 500' from the Johnson Ferry House.

EXHIBIT ELEMENTS



The Interpretive Plan completed in 2016 was used extensively during the planning stages and meetings for the schematic design phase. Many of the exhibit ideas from the 2016 plan are bold, visionary, and technologically sophisticated.

For this Master Plan, elements of the earlier interpretive concepts are incorporated, but scaled to accommodate budgetary and maintenance concerns. With limited staffing and technical expertise, the Park is most interested in a consistent and reliable visitor experience. The following are some of the more practical and economic elements that could work with any of the three aforementioned concept designs:

Graphics

As with any exhibit, both large and small-scale graphics will be used throughout the galleries. From graphic rails with text and images to mural graphics that cover the walls, there will be plenty of impactful imagery and texture.

Exhibit Cases (Open Storage)

The Swan Collection is extensive enough that there should be plenty of high quality, easily accessible exhibit cases to house it. Not all of the Swan Collection will be on display, but this Plan envisions several deep wall cases that will allow for large objects and flexible viewing/storage options. Should enough space be allocated for casework, the feel of an open storage concept could hold the visitor's attention.

Smaller vitrines and other casework would also be scattered throughout the gallery to emphasize the extent of the collection and to punctuate interpretive themes.

Timeline Pylons

A concept that might help define the storyline would be to populate the Ten Crucial Days section of the exhibit with ten pylons. These structures would reinforce the significance of the section and, of course, the ten pivotal days.

Each pylon could have the biography of a significant soldier, event, or fact related to the Ten Days. There could also be a video clip from the film that corresponds with the concept highlighted on that pylon. Step by step, visitors would move through the Ten Days and at each pylon learn a significant point that will stick with them through the galleries and out to the site.

Encampment Diorama

One of the more compelling concepts discussed in the interpretive plan was the idea of an interactive encampment. This diorama would show the harsh conditions the Continental Army faced during the winter in Pennsylvania and New Jersey in 1776 and early 1777.

The encampment could have life-cast figures, tents, simulated fires, audio-visual presentations, and other atmospheric interpretation. There could also be a scavenger hunt for kids that could extend beyond this gallery out onto the site where they could search for other items of interest.

Mobile Website/Application & iBeacons

A mobile website or application for smart phones would allow the Park to begin the visitor experience prior to arrival and then extend it beyond the Park's boundaries.

As mentioned previously, an interactive map could highlight sections of the Park and could include augmented reality (AR) overlays showing things like soldiers marching or vistas of encampments with fires burning through the night. It could even show General Washington and the Continental Army making the Crossing.

Visitors could collect points as they visit each vista when they encounter an iBeacon - a small Bluetooth transmitter that would automatically communicate with the Park's mobile application. Each iBeacon could present a different theme and invoke different interpretive storylines and objects to appear on screen.

In sum, there are numerous interpretive techniques available with such an incredibly important and rich story. Our imaginations are limited only by the resources we have available to express them. As probably the most pivotal point in the Revolutionary War or even the American Revolution, the decisions made here by George Washington could arguably be some of the most impactful ever made.

DAYLIGHTING CONTROLS

Daylighting Controls and Shading

Since all of the concept designs for the Visitor Center take advantage of selective views to the exterior from the exhibit spaces, they will all need to incorporate daylighting controls to preserve the historic artifacts. In addition, artifacts that are particularly light-sensitive will be housed in separate exhibit rooms with controllable artificial lighting.

Some of these daylighting control devices can also be used in the building's public spaces, such as the Lobby, Multi-Purpose Room, and Theater, to control daylight and minimize glare while maintaining views to the surrounding landscape.

Roof Overhangs

Architecturally, south-facing roof overhangs will serve as the primary protection from direct sunlight entering the interior spaces during the Spring, Summer, and Autumn months. These will be carefully designed so that optimal shading is achieved. During the winter months, which have lower sun angles, the design can include several additional design features.

Exterior Sunshades and Louvers

These elements minimize direct sunlight in interior spaces, but allow diffused natural light and views to the outside. These components can be integrated with the curtain wall frame system.

Tinted Glazing/ Spandrel Glass

Glazed units can vary in opacity, and limit solar heat gain and UV infiltration using a variety of methods. They can be tinted glass, backpainted glass, or insulated metal panel that integrate into the curtain wall system.

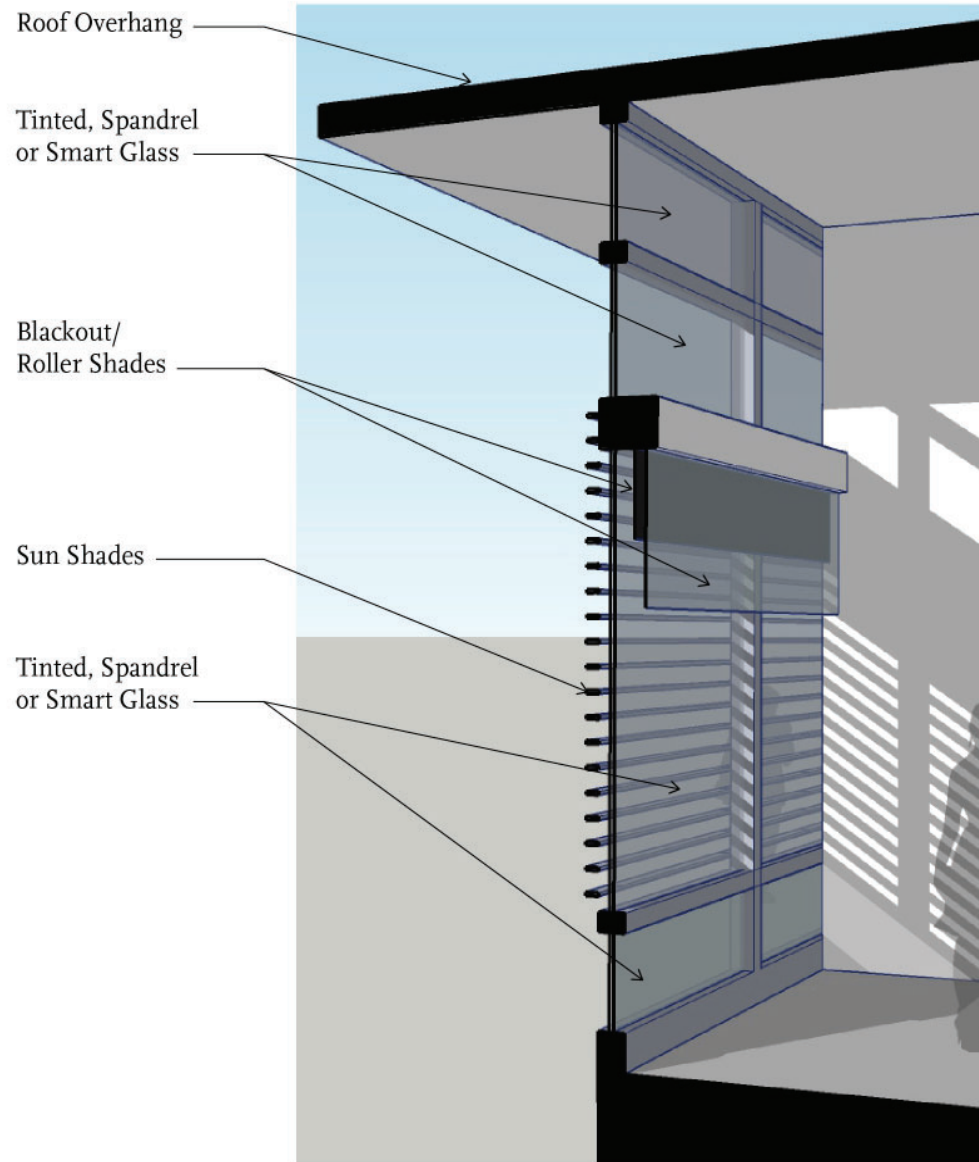
Blackout/ Roller Shades

A dual roller system can have a room-darkening blackout shade and a separate fabric translucent shade. Translucency, opacity, UV shading and color can be varied to be optimized given the programmatic requirements of the space. They can also be controlled by sensors and a computer program to address specific light conditions and angles.

Smart Glass/ Dynamic Glass

Electronically controlled opacity film within window unit assemblies can eliminate the need for roller shade devices. Opacity can be timed throughout the day and year to address the changing position of the sun.

Given the sensitivity of the collection being housed in the Visitor Center, some or all of these daylighting control methods will need to be used.



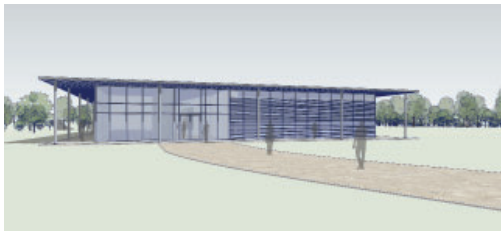
DESIGN CONCEPT A: SOLDIERS MARCH



Concept A: View from Parking



Concept A: Entrance from Parking



Concept A: View from Sullivan Grove

Concept

“These are the times that try men’s souls: The summer soldier and the sunshine patriot will, in this crisis, shrink from the service of his country; but he that stands it NOW, deserves the love and thanks of man and woman. Tyranny, like hell, is not easily conquered; yet we have this consolation with us, that the harder the conflict, the more glorious the triumph.” – Thomas Paine

Prior to the Delaware River crossing, General Washington and his remaining troops faced several challenges: retreat, desertion, and worsening weather. But, history shows their resolve during the *Ten Crucial Days*. The tall, upright columns along a new paved path symbolize the exhausted troops who persevered, and marched through this area towards Trenton during the winter storm.

Currently, visitors retrace their path by walking along the Continental Trail to the river crossing site. This tradition would continue for a Visitor Center located on the Upper Site. However, this design can be modified to work on the Lower Site as well.

Upper Site

The prominent new Visitor Center sits on the large open field, along a new paved path between the existing parking lot and Sullivan Grove. This location reuses the existing parking lot, but requires a modified service area to the southwest.

Although the new building sits in a more central location on the field, the Park’s musket firing demonstrations can continue to take place on the building’s southwest side, near Sullivan Grove, while cannon firing demonstrations can still take place on the large field to the southeast.

Architecture

The new Visitor Center’s tall glazed lobby faces Sullivan Drive and greets visitors as they drive along the loop to the Johnson Ferry House. An elongated lobby acts as a spine, connecting all of the public spaces and a corridor to the Administrative Suite and support spaces. The floor plan is simple yet flexible allowing for various configurations of the Theater and Exhibits.

The building’s large roof overhang provides cover for visitors walking along its perimeter or observing events on the open field. In addition to the overhang’s shade, the south facing interior spaces can have a curtain wall system with integrated sunshades, louvers and daylighting controls. The glazing



Concept A: Overall Site Plan

EXHIBIT 'D'

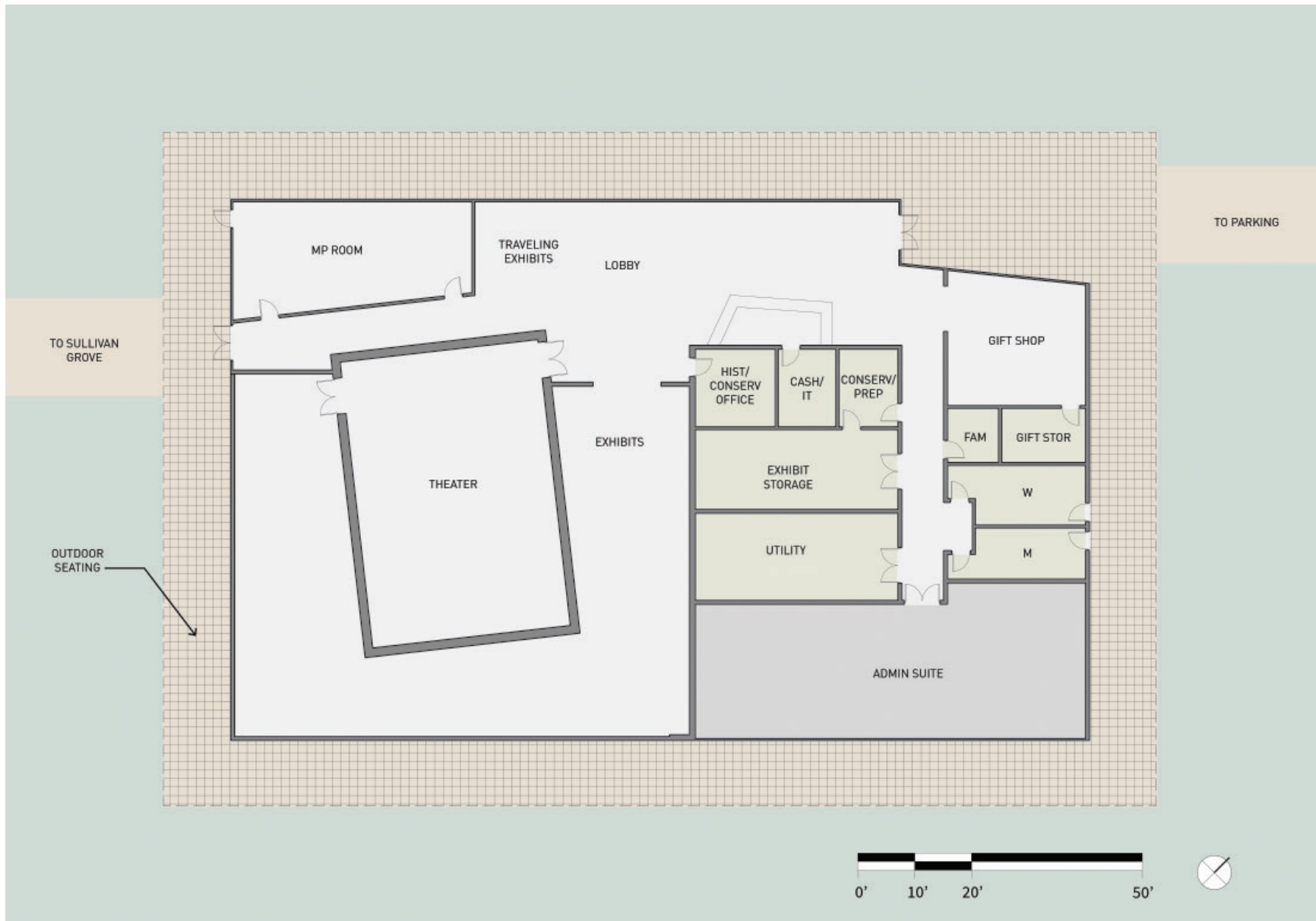


Concept A: Site Plan



Concept A: Aerial View South towards Delaware River

EXHIBIT 'D'



Concept A1: Floor Plan with Theater integrated into the Exhibit Space



Concept A2: Floor Plan with Theater along the southwest wall and a centralized Exhibit Space

EXHIBIT 'D'



Concept A: View South to Front Entrance



Concept A: Lobby

EXHIBIT 'D'



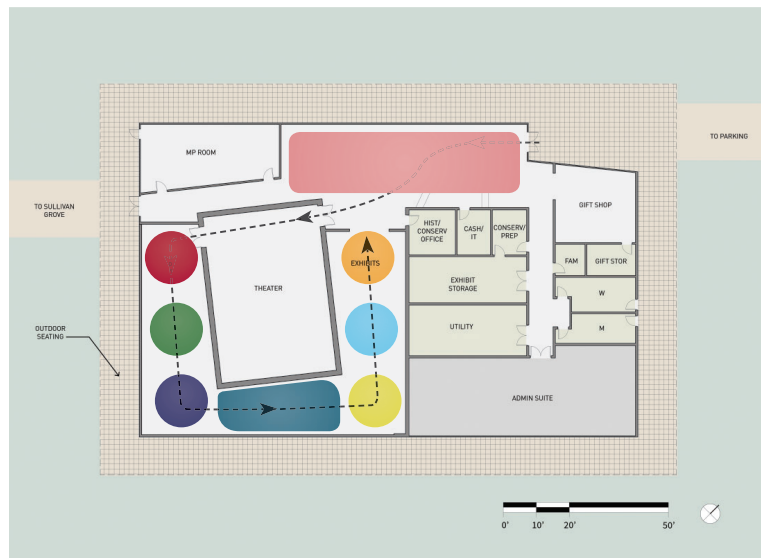
should also be selected to reduce UV light from entering the gallery spaces where artifacts are displayed.

With the building sited approximately where it is today, this concept seeks to utilize the current parking lot and a view of the field beyond.

In this concept the entry to the Visitor Center is highlighted by a “crossing” boat in the lobby/reception area that would be set alongside a wall and exhibit space allocated to changing interpretive elements. The changing gallery could be used for community-curated exhibits or for exhibits related to special events at the park.

Visitors would then walk directly into a theater space that sits at the center of the interpretive area of the visitor center. After watching an introductory film and exiting the theater, patrons would engage in variety of interpretive experiences.

The exhibit gallery surrounds the theater and runs along the visitor center’s perimeter walls, giving visitors views out onto the landscape where the Continental Army marched from and to the river crossing point. Upon the conclusion of the film in the theater, patrons will exit into the perimeter gallery where they will experience the different exhibit elements.



Key:

- Rotating Exhibit
- Prelude to War
- 1775: To Die, Or Be Free
- 1776: The First American Crisis
- Ten Crucial Days Campaign
- 1777-1778: War in the Middle States
- 1779-1780: Liberty or Death
- 1781-1783: The World Turn'd Upside Down



DESIGN CONCEPT B: THE WAKE



Concept B: Massing



Ferry boat on display at Washington Crossing

Concept

On the night of December 25, 1776, as General Washington's men rode boats and ferries across the Delaware River to New Jersey, they created disturbances and temporary impressions on the water's surface. The "wakes" created by these men were not temporary. They were permanent impressions in the nation's history and cultural fabric.

This building concept centers around a large triangular space, similar to a "wake", pointing to the northeast, and parallel to the river crossing's direction. This "Wake", houses the historic treasures and exhibits, and has an open view south towards the Delaware River.

Lower Site

This slightly elevated site has a glimpse to the river and is accessible to Sullivan Drive. It is nestled in the trees, and will require some tree removal. This location requires 30 new parking spaces along Sullivan Drive and a paved path to the Visitor Center. A service access road runs along the northeast.

Architecture

The building is anchored by a large triangular shaped Lobby and Exhibit space. Two smaller bar volumes, at an angle of 17.76° to one another, create a "V" shaped space that opens a view to the Delaware River. Visitors in the Lobby can interpret a replica of a crossing boat, and can glimpse through inscripted glass panels into the exhibits. Afterwards they can view the film in the theater, then enter the exhibit space with its grand view to the Delaware River.

A dramatic wood-slatted ceiling and columns are metaphors for the underside of a crossing boat, and oars or poles.



Concept B: View from Brickyard Road



Concept B: Overall Site Plan

EXHIBIT 'D'



Concept B: Site Plan



Concept B: Floor Plan

EXHIBIT 'D'



Concept B: Aerial View



Concept B: View Southwest

EXHIBIT 'D'



Concept B: View from Lobby to Entrance



Concept B: View to Exhibits from Lobby

EXHIBIT 'D'



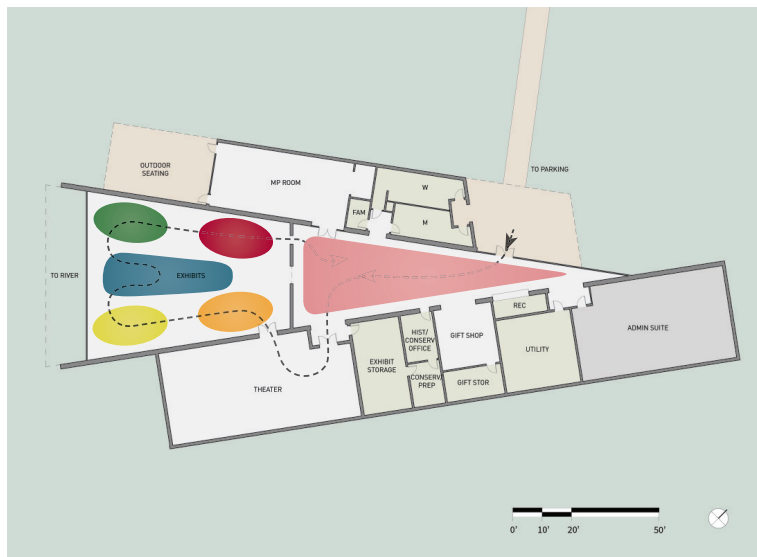
In this concept, the structure is moved much closer to the river to frame the crossing point as the gallery view rather than the colonial road and field as seen in Concept A.

Again, like in Concept A, the entry/reception area serves as a changing gallery space with a replica crossing boat as the focal point. In both this scheme and in Concept A, the boat is envisioned to be accessible for visitors to interact with in some form or to simply sit in to take photographs.

Most compelling about this concept is the viewing point from the lobby through the exhibit gallery and out onto the river. This communicates the significance of the Crossing from the beginning of the visitor experience and rightly starts to define the pivotal nature of the Ten Crucial Days story.

To the left of the vista from the lobby sits the theater entrance. It is anticipated that most visitors will want to watch the Ten Crucial Days film as an introduction, but some may want to simply explore the exhibits without seeing the film. Portions of the film could be edited and placed within the exhibit gallery to highlight certain elements/objects of interest on display or to capture a mood set through the use of a vignette or diorama.

The exhibits follow a chronology with the Ten Crucial Days taking up the majority of the space.



Key:

- Rotating Exhibit
- Declaring Independence
- Early Months of War
- Ten Crucial Days Campaign
- Revolutionary War following the Ten Crucial Days Campaign
- American Victory and the Impact of War



DESIGN CONCEPT C: THE FERRY BOAT



"Washington's Crossing" by Mort Kunstler



Ferry boat at Washington Crossing State Park

Concept

This design pays homage to the transport vessels that ferried the Continental Army safely across the icy Delaware River during that cold Christmas night in 1776. It celebrates the contributions of the Johnson Ferry House, a witness building, during the *Ten Crucial Days*.

Clad in wood paneling and emerging from the other building volumes, the theater symbolizes the ferries and Durham boats, by transporting groups of visitors back to the *Ten Crucial Days*.

Lower Site

This clearing at the Lower Site has a controlled view of the river and the Overlook Wall. This location requires an additional 30 parking spaces along Sullivan Drive and a paved path to the Visitor Center. A service access road runs along the north side of the structure.

Architecture

The Visitor Center is sited to maximize southwest exposure and views to the river, while blending in with its surroundings. The building has an entry courtyard with a crossing boat display in the center. The Lobby is an extension of the courtyard, and leads to the Theater beyond.

An outdoor patio, Multi-Purpose Room and the Exhibits equipped with daylighting controls, are along the building's south facade, offering controlled views to the river, while the Administrative Suite, Gift Shop, Restrooms and supporting spaces are along the north.

A separate outdoor path from the parking area, leads to the public restrooms along the north face.



Concept C massing



Concept C: Overall Site Plan

EXHIBIT 'D'



Concept C: Site Plan



Concept C: Floor Plan

EXHIBIT 'D'



Concept C: Aerial View from South



Concept C: Bird's Eye View

EXHIBIT 'D'



Concept C: Entrance View with outdoor seating and view to river



Concept C: Multi-Purpose Room with flexible seating and view to river



Concept C: View of Lobby

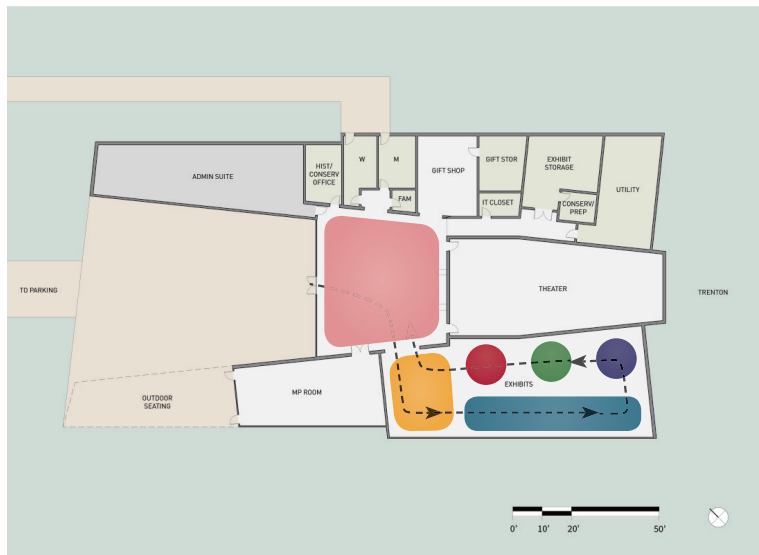
EXHIBIT 'D'



This design is similar to Concept B in that the building is again set closer to the river and allows views of the crossing point. However, the view also takes advantage of site lines down the to the Johnson Ferry House. These two views offer additional interpretive opportunities to tell the story with a more direct link to the landscape.

As an alternative to the previous concepts, the crossing boat is moved outside and onto the terrace. This might be ideal should it be determined that the boat used by Washington is actually larger than originally thought. Here visitors could interact with the boat and possibly get on board for photos. Interestingly, the boat could be used as a setting for larger educational programs and in the evenings for audio-visual effects or a sound and light show interpreting the Crossing.

The theater is more of an optional experience and does not have a direct entry into the exhibit gallery.



Key:

- Rotating Exhibit
- Intro/Orientation
- Timeline of Revolutionary War
- Pre-Battle
- Ten Crucial Days Campaign
- Impact of War



EXHIBIT 'D'

COST ESTIMATE:

SITE COSTS

This master plan contemplates three different building designs and three potential sites for locating the new Visitor Center. On the following pages, each building design is presented at a particular site which was considered to be most appropriate. However, each design can be located on any of the three sites.

The first potential site is close to the current Visitor Center. This location allows for the reuse of some of the existing utilities, well and parking, resulting in reduced site development costs. On the other hand, this location has drawbacks, particularly its distance from the most important interpretive locations at Washing Crossing.

The second and third sites are variations on a theme. Both are located much closer to the River and the actual location of the crossing. The second site is slightly elevated and is accessible to Sullivan Drive. It is nestled in the trees, and will require some tree removal. This location requires 30 new parking spaces along Sullivan Drive and a paved path to the Visitor Center. A service access road runs along the northeast.

The third site has a controlled view of the river and the Overlook Wall. This location also requires an additional 30 parking spaces along Sullivan Drive and a paved path to the Visitor Center. A service access road runs along the north side of the structure.

Following are estimates of the site development costs at each potential sites. These costs include demolition of the existing Visitor Center, site clearing, paving, seat walls, site furniture, signage, storm water management and utility connections, etc. The costs are described in greater detail in the appendix:

CODE	DESCRIPTION		COST
F	Location 1 Sitework		\$342,800
	General Conditions/O.H. & P.	14.0%	\$48,000
	Bond	1.0%	\$4,000
	Design Contingency	15.0%	\$59,000
	Total		\$453,800

F	Location 2 Sitework		\$648,150
	General Conditions/O.H. & P.	14.0%	\$91,000
	Bond	1.0%	\$7,500
	Design Contingency	15.0%	\$111,000
	Total		\$857,650
F	Location 3 Sitework		\$869,130
	General Conditions/O.H. & P.	14.0%	\$122,000
	Bond	1.0%	\$10,000
	Design Contingency	15.0%	\$149,000
	Total		\$1,150,130

COST ESTIMATE:

SITE COSTS



COST ESTIMATE:

EXHIBITS

For a site this rich in history, and with a collection of extraordinary artifacts, there is a wide range of exhibits and displays that can be designed for the Visitor Center, with an equally wide range of construction and installation costs. For this master plan, the team developed conceptual cost estimates to provide some sense of what a high-quality, inspiring exhibit design would cost, using the items described on pages 32 and 33 as a basis. Like all of the estimates provided in this document, these are conceptual in nature and the final cost will depend on the final scope of work and when the project is actually constructed.

Washington Crossing Visitor Center: Exhibit Fabrication Allowance (3,500 sf)

Permanent Exhibit:

Artifact Cases	\$308,000
AV Components	\$420,000
AV Hardware	
AV Integration	
AV Programming	
Misc. Exhibit Components	\$224,000
Platforms	
Sloped Rails	
Hands-on Opportunities	
Seating	
Graphics	\$78,400
Artifact Mounts	\$89,600

Temporary Exhibition

-

Exterior Interpretation

TBD

Subtotal Exhibition Fabrication

\$1,120,000

Delivery and Installation		\$235,200
Protoyping and Integration		\$33,600
Subtotal Exhibition Fabrication and Installation		\$1,388,800
Subcontractor Gen. Cond. & Field Overhead	14.0%	\$111,104
Subcontractor Overhead & Profit	3.0%	\$41,664
Bond	1.5%	\$20,832
Total		\$1,600,000

COST ESTIMATE:

EXHIBITS

GENERAL NOTES REGARDING ALL OF THE ESTIMATES:

Backup costs are current, for Summer 2018; escalation costs are not included.

Furniture, Fees and other soft costs are not included.

Hazardous Materials Removal/Remediation is not included

Rock Excavation is not included

Dewatering not included

Pricing assumes Competitive Bid; Minimum 3 Bidders

COST ESTIMATES:

CONCEPT A1:

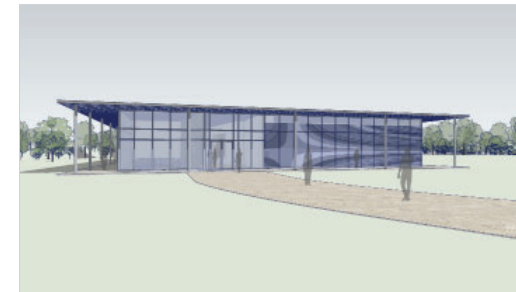


CODE	DESCRIPTION	14,450 SF	COST
Concept A1 - Soldiers March			
A	Foundations & Framing	\$90	\$1,300,730
B	Exterior Envelope	\$133	\$1,915,150
C	Interior Fitout/Finish	\$32	\$460,830
D	Millwork/Specialties/Furnishings	\$22	\$311,650
E	Mechanical/Electrical	\$137	\$2,028,810
	Interpretive Experience & Gathering Space		\$100,000
	Exhibit Gallery Fitout		\$1,600,000
	AV System Allowance		\$550,000
	Subtotal		\$8,267,170
	General Conditions/O.H. & P.	14.0%	\$1,157,830
	Bond	1.0%	\$94,000
	Design Contingency	15.0%	\$1,428,000
	Total	\$784	\$10,947,000
F	Location 1 Sitework		\$342,800
	General Conditions/O.H. & P.	14.0%	\$48,000
	Bond	1.0%	\$4,000
	Design Contingency	15.0%	\$59,000
	Total		\$453,800
F	Location 2 Sitework		\$648,150
	General Conditions/O.H. & P.	14.0%	\$91,000
	Bond	1.0%	\$7,500
	Design Contingency	15.0%	\$111,000
	Total		\$857,650
F	Location 3 Sitework		\$869,130
	General Conditions/O.H. & P.	14.0%	\$122,000
	Bond	1.0%	\$10,000
	Design Contingency	15.0%	\$149,000
	Total		\$1,150,130

CODE	DESCRIPTION	14,450 SF	COST
	Concept A2 - Soldiers March		
A	Foundations & Framing	\$90	\$1,300,730
B	Exterior Envelope	\$133	\$1,915,150
C	Interior Fitout/Finish	\$31	\$452,830
D	Millwork/Specialties/Furnishings	\$21	\$311,650
E	Mechanical/Electrical	\$137	\$2,034,810
	Interpretive Experience & Gathering Space		\$100,000
	Exhibit Gallery Fitout		\$1,600,000
	AV System Allowance		\$550,000
	Subtotal		\$8,265,170
	General Conditions/O.H. & P.	14.0%	\$1,156,830
	Bond	1.0%	\$94,000
	Design Contingency	15.0%	\$1,427,000
	Total	\$784	\$10,943,000
F	Location 1 Sitework		\$342,800
	General Conditions/O.H. & P.	14.0%	\$48,000
	Bond	1.0%	\$4,000
	Design Contingency	15.0%	\$59,000
	Total		\$453,800
F	Location 2 Sitework		\$648,150
	General Conditions/O.H. & P.	14.0%	\$91,000
	Bond	1.0%	\$7,500
	Design Contingency	15.0%	\$111,000
	Total		\$857,650
F	Location 3 Sitework		\$869,130
	General Conditions/O.H. & P.	14.0%	\$122,000
	Bond	1.0%	\$10,000
	Design Contingency	15.0%	\$149,000
	Total		\$1,150,130

COST ESTIMATE:

CONCEPT A2



COST ESTIMATE:

CONCEPT B:



CODE	DESCRIPTION	14,500 SF	COST
Concept B - The Wake			
A	Foundations & Framing	\$78	\$1,130,500
B	Exterior Envelope	\$178	\$2,585,750
C	Interior Fitout/Finish	\$41	\$598,380
D	Millwork/Specialties/Furnishings	\$22	\$321,250
E	Mechanical/Electrical	\$139	\$2,064,600
	Interpretive Experience & Gathering Space		\$100,000
	Exhibit Gallery Fitout		\$1,600,000
	AV System Allowance		\$550,000
	Subtotal		\$8,950,480
	General Conditions/O.H. & P.	14.0%	\$1,253,520
	Bond	1.0%	\$102,000
	Design Contingency	15.0%	\$1,546,000
	Total	\$872	\$11,852,000
F	Location 1 Sitework		\$342,800
	General Conditions/O.H. & P.	14.0%	\$48,000
	Bond	1.0%	\$4,000
	Design Contingency	15.0%	\$59,000
	Total		\$453,800
F	Location 2 Sitework		\$648,150
	General Conditions/O.H. & P.	14.0%	\$91,000
	Bond	1.0%	\$7,500
	Design Contingency	15.0%	\$111,000
	Total		\$857,650
F	Location 3 Sitework		\$869,130
	General Conditions/O.H. & P.	14.0%	\$122,000
	Bond	1.0%	\$10,000
	Design Contingency	15.0%	\$149,000
	Total		\$1,150,130

CODE	DESCRIPTION	14,250 SF	COST
	Concept C - Ferry Boat		
A	Foundations & Framing	\$89	\$1,269,630
B	Exterior Envelope	\$140	\$1,998,750
C	Interior Fitout/Finish	\$37	\$521,200
D	Millwork/Specialties/Furnishings	\$21	\$299,750
E	Mechanical/Electrical	\$143	\$2,091,170
	Interpretive Experience & Gathering Space		\$100,000
	Exhibit Gallery Fitout		\$1,600,000
	AV System Allowance		\$550,000
	Subtotal		\$8,430,500
	General Conditions/O.H. & P.	14.0%	\$1,163,500
	Boat Shape Premium	5.0%	\$485,000
	Bond	1.0%	\$101,000
	Design Contingency	15.0%	\$1,527,000
	Total	\$901	\$11,707,000
F	Location 1 Sitework		\$342,800
	General Conditions/O.H. & P.	14.0%	\$48,000
	Bond	1.0%	\$4,000
	Design Contingency	15.0%	\$59,000
	Total		\$453,800
F	Location 2 Sitework		\$648,150
	General Conditions/O.H. & P.	14.0%	\$91,000
	Bond	1.0%	\$7,500
	Design Contingency	15.0%	\$111,000
	Total		\$857,650
F	Location 3 Sitework		\$869,130
	General Conditions/O.H. & P.	14.0%	\$122,000
	Bond	1.0%	\$10,000
	Design Contingency	15.0%	\$149,000
	Total		\$1,150,130

COST ESTIMATE:

CONCEPT C



CONCLUSION

The Washington Crossing Visitor Center

Constructing a new Visitor Center at Washington Crossing State Park presents a unique opportunity for celebrating our nation's 250th anniversary; dramatically improving the visitor experience at the Park; dramatically improving interpretation and storage of the Swan Collection; and providing an inspiring experience that brings home the events that took place at this site on Christmas night, 1776 and then in Trenton and Princeton.

The existing Visitor Center is outdated and cannot meet the requirements of visitors and the collection. This Master Plan explores three design options for a new Visitor Center on two sites: The existing site close to the parking lot, and a new site much closer to the actual location of the Crossing. All of the options provide spaces that welcome and orient visitors, that allow them to experience multi-media presentations and that provide exhibit and display spaces that interpret the artifacts and events so that visitors are left with an inspiring and coherent experience. All of the designs are rooted in the site, and the dramatic story of the Crossing and the march to Trenton.

As part of the Master Plan, cost estimates for the three designs are provided. These range from about \$11.3 million for constructing a new building close to the existing site; to \$12.6 to \$12.8 million for a new facility close to the actual site of the Crossing. The difference in the estimates is primarily attributable to additional site and utility costs (distance from existing utilities) at the new location, and the complexity of the proposed building forms and interior spaces.

The project team feels strongly that the new site, close to the location of the Crossing, is preferable to the current location. It is a more dramatic site where the interpretation of the events of late 1776 and early 1777 are clearer and more seamless.

This Master Plan is the first step in the planning process for the nation's 250th birthday in 2026. Using this document, the State of New Jersey can now identify funding sources and a timeline so that this inspiring and important project can move forward.

APPENDIX A:
STORMWATER AND
SEPTIC ANALYSIS

Stormwater and Septic Analysis

A. PERMEABILITY TESTING

From January 28 through 30 2019, Van Note-Harvey conducted soil permeability and depth to groundwater testing for the proposed Visitor Center for a new septic system and stormwater detention system. The results indicated positive soil/permeability conditions (unwitnessed by the municipality) for the proposed septic field and stormwater management system as shown on the Master Plan engineering plan. Future witnessed testing will be required to obtain the proper documentation for Township approval for septic system design and construction.

B. SEPTIC SYSTEM

The existing Visitor Center is served by a dedicated existing septic system. Based on our discussion with the Hopewell Township Health Officer, the existing septic system does not have adequate capacity to accept additional flows, and a new septic system will be required for the new Visitors Center. Therefore, an evaluation of the existing septic system was not performed.

Proposed septic field, dosing tank, and septic tank have been shown on the proposed Master Plan. The final design/sizing of the system will be subject to the building interior uses/facilities use and occupancy. It should be noted that due to the high-water table as determined above the septic field will be mounded approximately two (2) feet above existing grade.

It is our understanding that there are approximately there are currently 40,000 visitors per year to the Visitor Center, with 60,000 visitors per year anticipated. The breakdown will likely mirror the current percentages, with approximately 30,000 in December, and 30,000 in the Spring (90 days). It is our further understanding that temporary sanitary facilities are provided during the Spring season. Basing our septic system design for the Spring season, the number of daily visitors is 334 (30,000/90). Using a per visitor flowrate of 3 GPD (per N.J.A.C. 7:9A Standards for Individual Subsurface Sewerage Disposal Systems and accepted by the Hopewell Township Health Department), the total required capacity is 1,002 GPD; adding a safety factor of 150%, we will base our design on a flow of 1,500 GPD – subject to approval by authorities having jurisdiction. It should be noted that this does not include capacity for the existing Visitor Center and out buildings, and that the existing septic system(s) was not evaluated as part of this study.

C. STORMWATER MANAGEMENT (SWM)

The site improvements associated with the Project will result in an increase in site impervious coverage of approximately 0.3 acres and site disturbance potentially exceeding 1 acre (subject upon final grading). Therefore, the following local/state agency stormwater management standards apply:

- Hopewell Township
- Delaware and Raritan Canal Commission (DRCC)
- New Jersey Department of Environmental Protection (NJDEP)

Per Township Ordinance requirements and outside agency regulations, stormwater management must be addressed for new Projects. If the increase in impervious surfaces is greater than 0.25 acres or if the land disturbance exceeds one (1) acre of land, requirements for stormwater quantity control, groundwater recharge, and non-structural stormwater management strategies are triggered. Once compliance with the stormwater management is triggered, water quality treatment is required for any pavement generating pollutants (i.e. new parking spaces). The DRCC looks at an increase of total impervious surfaces cumulatively since 1980, when determining the required quality treatment.

Current stormwater management requirements can be broken down into the following four main categories that need to be addressed:

Stormwater Quantity Control

The stormwater quantity control regulations require the reduction of post-development stormwater runoff rates for the 2-, 10-, and 100-year storm events by 50%, 75%, and 80% respectively of the pre-development stormwater runoff rates or demonstrate that the 2-, 10-, and 100-year storm events do not exceed, at any point in time, the pre-development runoff hydrographs for the same storm events.

To offset the increase in impervious of 0.3 acres, the Master plan includes a standard extended detention basin to the south of the new improvements. The detention basin has been sized to mitigate runoff from the new building, new upstream sidewalk and lawn area. The basin will temporarily detain runoff before conveying flow to an outlet pipe that discharges to a downstream channel. Conduit outlet protection will be required to provide a stable outfall prior to entering the existing swale.

Stormwater Quality Treatment

To meet the water quality requirement, a site must provide 80% Total Suspended Solids removed (TSS) for new and reconstructed vehicular pavement surfaces. Consistent with New Jersey Department of Environmental Protection (NJDEP) requirements, 'Clean roof runoff and runoff from lawns, walkways, patios or decks do not need to be treated for TSS removal'. As this Project does not propose any new vehicular pavement or reconstruction of existing vehicular pavement, water quality treatment is not required.

Groundwater Recharge Requirements

The groundwater recharge requirement can be met by designing a site to maintain 100% of the site's average annual pre-developed groundwater recharge volume or by demonstrating that the increase of stormwater runoff volume from pre-construction to post-construction for the 2-year storm is infiltrated.

To offset the increase in impervious of 0.3 acres, groundwater recharge must be incorporated into the site design. As noted, soil testing was completed at the site and indicated favorable conditions for infiltration. A spreadsheet has been established by the state to address groundwater recharge requirements to ensure that the predevelopment rates of recharge continue to be met post-construction. A drywell is an underground stone area that collects stormwater runoff and allows the water to infiltrate into the subsoil. The proposed Master Plan design collects the roof area drainage which is piped to a drywell to meet the recharge requirement for the site. A drywell with an effective storage depth of 18" and a footprint of approximately 450 square feet would be required to meet the site's requirement. The top of the drywell would be set 12" below grade. A diversion structure is required upstream of the drywell. The diversion structure directs lower flows to the system, while larger flows are diverted directly to the detention basin.

Non-Structural Stormwater Management Strategies

To meet the non-structural stormwater management requirement, a site must incorporate low impact development strategies per the New Jersey Best Management Practices Manual. Review agencies often require that a Non-Structural Stormwater Management Spreadsheet (developed by NJDEP) is completed as part of the engineering design. In addition, efforts to include non-structural stormwater management techniques to the maximum extent practical must be made.

For DRCC review, this requirement is addressed by inputting the site land coverage and site features into a spreadsheet that will “rate” the project and determine whether adequate measures have been provided. NJDEP and local ordinances require a narrative demonstrating that efforts have been made to the maximum extent practical to incorporate non-structural stormwater strategies.

Based on the proposed engineering plan, the following will provide adequate non-structural elements to meet the governing requirements:

- Limited increase in impervious coverage
- “Disconnecting” impervious (i.e. drywells/sidewalks)
- Use of swales in lieu of conventional storm sewer piping around the building

D. WATER SYSTEM

The water system at the Park is classified as a Public Non-Community Water System. The water system provides water for the various uses at the Park. Based on our review of the well permits that were issued for the Park property, we found records for several wells on the site. One of the existing wells provides domestic water to the current Visitor Center. Based on Well Driller records, the well for the existing Visitor Center has a 19 gallons per minute (gpm) pump installed. The water from the well is supplied to the existing Visitor Center where a hydro-pneumatic tank and well pump controller are located. The well water is pumped into the current Visitor Center’s hydro-pneumatic tank, from where it is then distributed to several out buildings.

Per the Master Plan, the new Visitor Center will be approximately 16,800 SF. Using the Water Volume Requirements of NJAC 7:10-12.6, the average daily domestic water demand is projected to be 2,100 gallons per day (gpd). Peak daily domestic water demands could be as high as 6,300 gpd. The minimum pumping capacity shall be 21,000 gallons per day or an average of ~15 gpm. The projected average daily water demand is less than 100,000 gpd therefore a water allocation permit from the NJDEP is not required. It is assumed that if the average daily water demand for entire park property exceeds 100,000 gpd, an existing water use registration exists.

The existing well capacity meets the minimum service requirements for the new Visitor Center if the current Visitor Center is demolished. If the existing Visitor Center is not planned for demolition, then a new well is required.

If the existing Visitor Center is to be demolished and the existing well is to be used for the new Visitor Center, then the existing well would need to be redirected to the new Visitor Center where a hydro-pneumatic tank and the well pump controller would be located. A new water service would be required from the new building to the location of the existing Visitor Center to reconnect the out buildings. The operating parameter (pressure) of the existing well water system would need to be adjusted to maintain an acceptable level of service to the existing buildings. The existing well would then be able to continue supplying water to the out buildings. This option results in disruption of water service to the current Visitor Center as well as the out-buildings during construction.

If it is desired to keep the current Visitor Center and the other out buildings supplied by the existing well operational during construction, then a new well is required. The new well could be located near the existing Visitor Center or near the proposed Visitor Center, either location appears to be an acceptable alternate. A new well provides the needed flexibility during construction to keep the park in “normal” operation. Based on our conversation with a well driller familiar with the wells on the Park, the required size and depth of a new well to provide a minimum of 19 gpm (match existing well pump performance) would be at least a 6” diameter well to a depth of approximately 350’.

E. REQUIRED PERMITS AND APPROVALS

Below is a brief narrative describing the required permits and a matrix containing permitting costs and time frames for securing approvals for the proposed Master Plan.

Delaware and Raritan Canal Commission Certification

The Visitor Center is located in the “upper site” as identified in the Master Plan document, approximately 2,500 feet northeast of the Delaware & Raritan Canal (D&R Canal). The property on which the proposed Master Plan is located extends to the D&R Canal. Accordingly, the site improvements are within the DRCC’s Review Zone A (within 1,000 feet of the centerline of the D&R Canal) and will be reviewed for Stormwater Runoff and Water Quality Impact; Visual, Historic and Natural Quality Impact; and, Traffic Impact. It is assumed that site improvements are not located within the DRCC’s Stream Corridor and will not be reviewed for Stream Corridor Impact.

Mercer County Soil Conservation District, Soil Erosion and Sediment Control (SESC) Plan Certification

Because the Master Plan will disturb more than 5,000 square feet of land, a SESC Plan Certification

will be required.

New Jersey Department of Environmental Protection (NJDEP) Stormwater General Permit, Request for Authorization to Discharge Stormwater from a Construction Activity (RFA)

It is assumed the project will disturb more at least 1 acre of land. Accordingly, an RFA approval will be required. The application is submitted on-line through the NJDEP's portal and the permit is issued immediately upon payment.

Mercer County Planning Board Site Plan Approval

The Project is located adjacent to County Route 546 and is subject to Site Plan review for impacts to a Mercer County road or drainage feature. However, since the applicant is the State of New Jersey, it is assumed that a formal review by Mercer County will not be required. We recommend the County be provided with a "courtesy" review of the project.

New Jersey Department of Environmental Protection (NJDEP) Freshwater Wetland Letter of Interpretation (LOI) and Flood Hazard Area (FHA) Verification

It is assumed based on site location and visual evaluation that NJDEP verification of the absence of wetlands, flood plains and riparian zones is not required. If required during the conceptual review process, we recommend submitting a freshwater wetland LOI – Absence Determination application and an FHA Verification application to the NJDEP.

NJDEP New Jersey Pollutant Discharge Elimination System (NJPDES) Permit

Based on NJPDES Permit Summary Report, Washington Crossing State Park (PI # 49669) has an existing NJPDES T1 Permit to operate an Individual Subsurface Sewage Disposal System (ISSDS) with a capacity exceeding 2,000 gallons per day (GPD). Further, it is understood that the existing ISSDS will be abandoned and a new ISSDS with a capacity exceeding 2,000 GPD will be required. Accordingly, an amendment to the existing T1 permit will be required for the new ISSDS.

Note, the system also requires review by Hopewell Township for the new septic design.

NJDEP Potable Water Well Permit

It is understood that the site has an existing Public Non-Community Water System and operates one

or more wells on the site for domestic water use. Based on the projected average daily water demand and assuming the existing Visitor Center is demolished, a well permit from NJDEP is not required if the existing well is used.

If the existing Visitor Center is not planned for demolition, then a new well will be required. Based on the proposed size of the building the average daily water demand is below 100,000 gallons per day, so a water allocation is not required. Well permits are applied for by the well driller and are included in the cost of the new well. It is assumed that if the average daily water demand for entire park property exceeds 100,000 gpd, an existing water use registration exists.

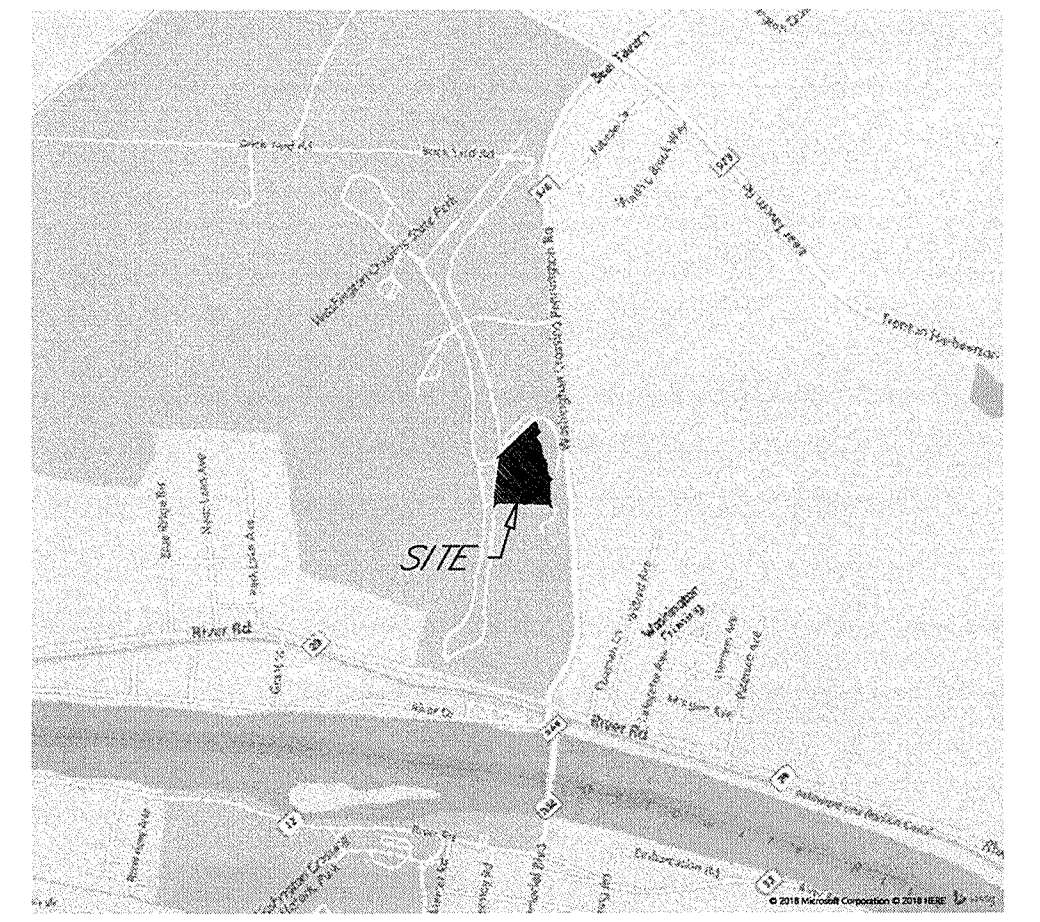
A permitting matrix summarizing the approximate fees and timeframes required for the various permits have been included below.

PERMITTING MATRIX		
Permit Required	Approximate Review Fee	Timeframe to Secure Permit
DRCC Certification	\$4,600.00 *	60-90 Days
SESC Plan Certification	\$1,455.00 *	60 Days
RFA Permit	\$450.00	**Immediately upon Submission/Payment
Amend NJPDES T1 Permit	TBD***	90 Days
Hopewell Township Septic System	\$625	30-60 Days
Potable Water Well Permit	Included in New Well Cost	

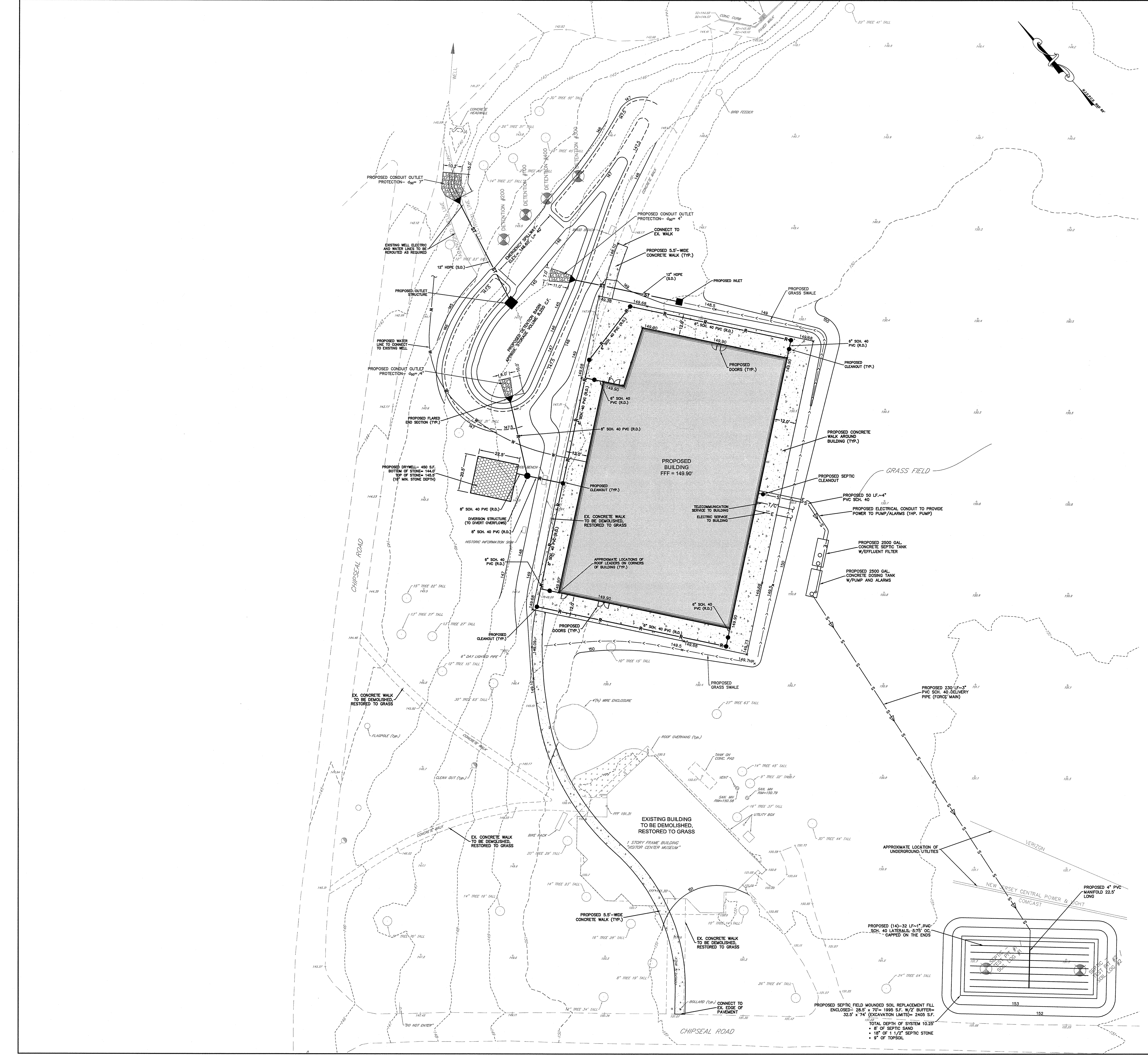
**Review fees are based on area of land disturbance. For the purpose of this report, it is assumed that land disturbance will not exceed 2 acres.*

*** Application is submitted online to the NJDEP*

****An overall evaluation of all existing sanitary flows throughout the site will need to be performed in order to determine a review fee.*



LOCATION MAP
SCALE 1" = 1000'



EXISTING LEGEND

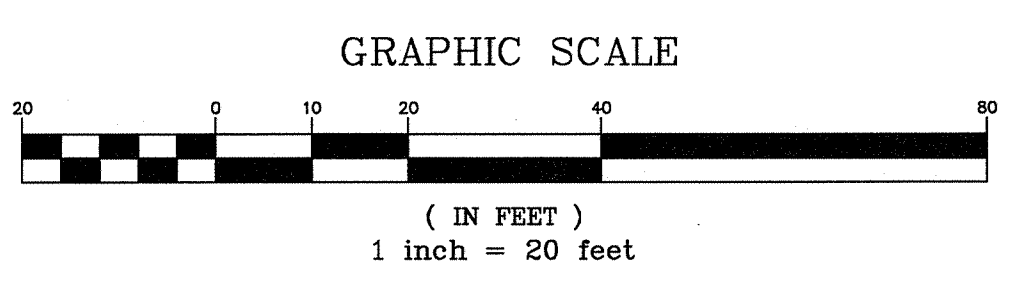
- EXISTING MINOR CONTOUR
- - - EXISTING MAJOR CONTOUR
- - - EXISTING STOCKPILE FENCE
- - - EXISTING EDGE OF PAVEMENT
- - - EXISTING CONCRETE EDGE
- - - EXISTING CURB
- + 100.0 EXISTING GROUND SPOT SHOT
- + 100.00 EXISTING HARDSCAPE SPOT SHOT
- EXISTING CLEAN-OUT
- EXISTING SANITARY MANHOLE
- EXISTING STORMWATER INLETS
- EXISTING VENT
- EXISTING LIGHT POLE
- EXISTING UTILITY BOX
- EXISTING SIGNS
- EXISTING TREE LOCATION
- EXISTING FLAGPOLE
- EXISTING LANDSCAPE AREA

PROPOSED LEGEND

- ▭ BUILDING
- ▭ CONCRETE WALK
- ▭ DRYWELL
- ▭ CONDUIT OUTLET PROTECTION
- ▭ CONTOUR
- HALF CONTOUR
- 148.90 SPOT ELEVATION
- ST SURFACE DRAIN PIPE
- R ROOF DRAIN PIPE
- GRASS SWALE
- E ELECTRIC SERVICE
- T/C TELECOMMUNICATION SERVICE
- W WATER LINE
- S SEPTIC PIPE
- DOORS
- CLEANOUT
- INLET
- FLARED END SECTION
- DIVERSION STRUCTURE
- OUTLET STRUCTURE
- TEST PIT

HOPEWELL TOWNSHIP TAX MAP DATA

SHEET 21
BLOCK 121
P.O. LOT 3



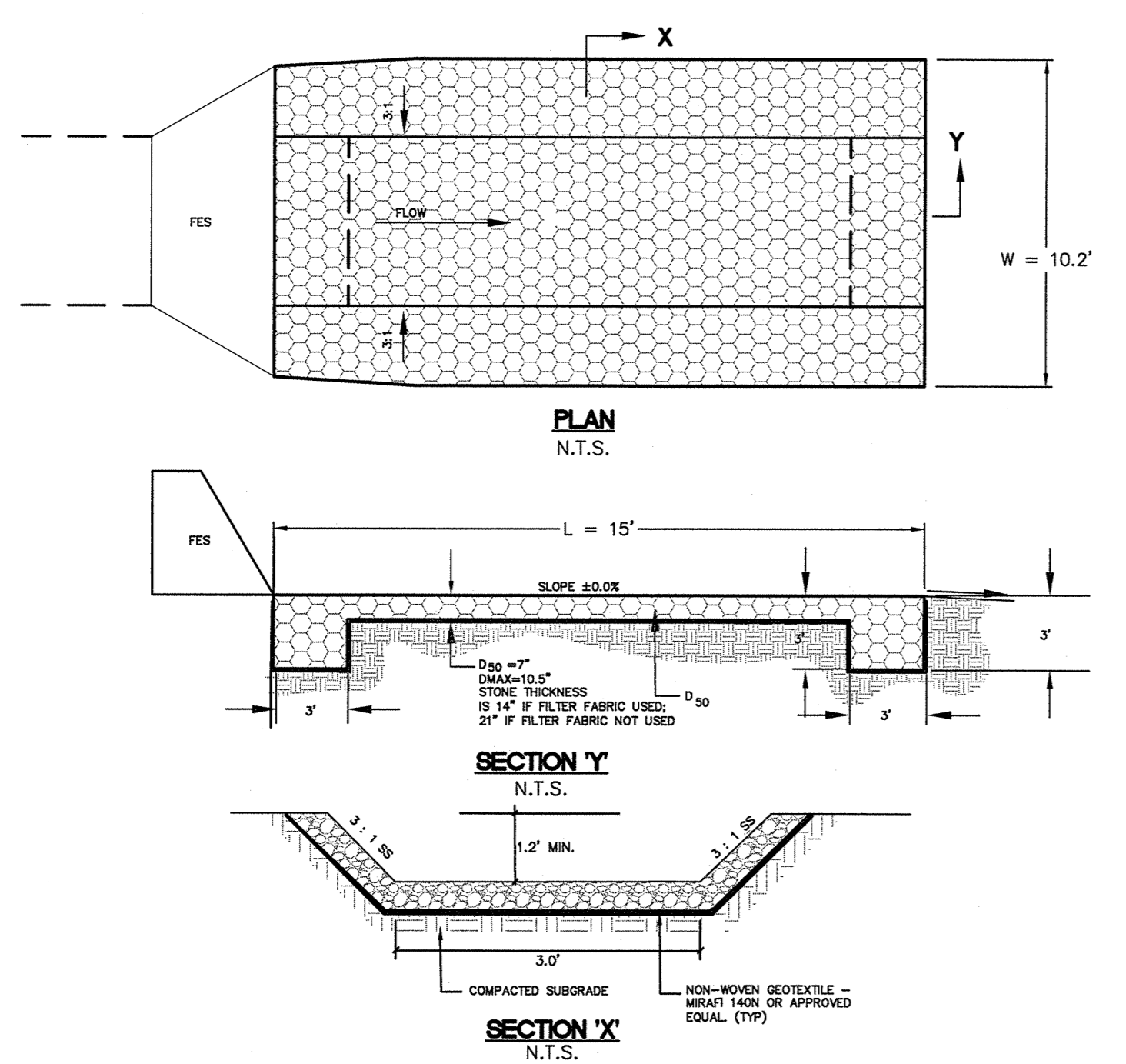
- ABBREVIATIONS
- (H) HIGH
 - BC BOTTOM OF CURB
 - C.F. CUBIC FEET
 - CONC. CONCRETE
 - AVE. AVERAGE STONE SIZE
 - ELEV. ELEVATION
 - EX. EXISTING
 - FFF FINISHED FIRST FLOOR
 - MH MANHOLE
 - MIN. MINIMUM
 - OC. ON-CENTER
 - PVC POLYVINYL CHLORIDE
 - R.D. ROOF DRAIN
 - R.M. RM. ELEVATION
 - S.D. SURFACE DRAIN
 - S.F. SQUARE FEET
 - SAN. SANITARY
 - SCH. SCHEDULE
 - TC TOP OF CURB
 - TYP. TYPICAL

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103 College Road East • Princeton, NJ 08540 • 609-987-2323
211 Bayberry Drive • Cape May Court House, NJ 08210 • 609-485-2800
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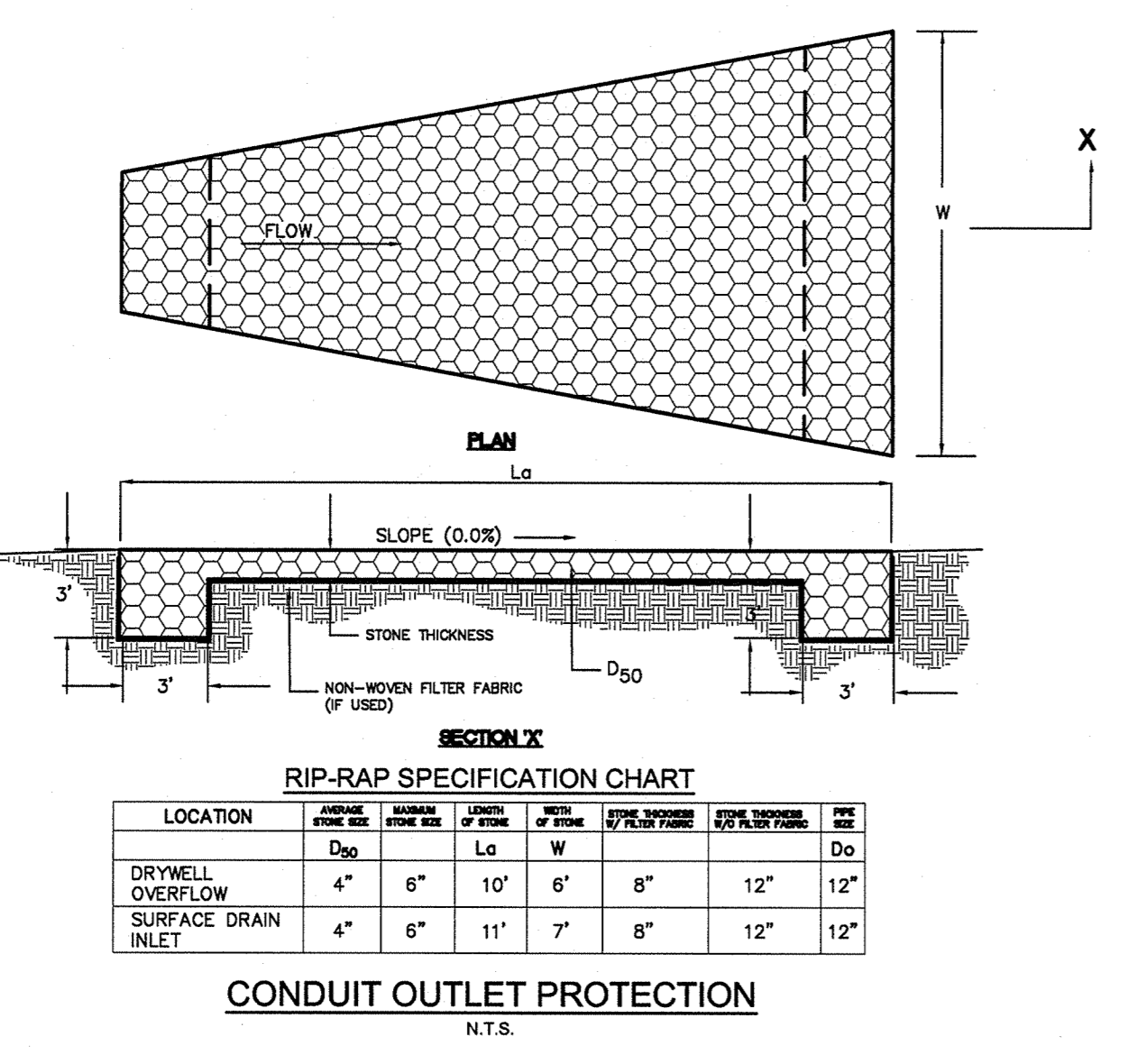
CONCEPTUAL ENGINEERING PLAN
WASHINGTON CROSSING STATE PARK
VISITOR CENTER
PREPARED FOR
CLARKE CATON HINTZ
SITUATED IN

HOPEWELL TOWNSHIP MERGER CO., N.J.
SCALE 1" = 20' MARCH 6, 2019
DRAWN BY CEY/MNK FIELD BK ORDER NO. FILE NO. SHEET NO.
DATE PAGE 43770-198-D-4 401-21 1
CHECKED BY RAP
DATE

EXHIBIT 'D'



CONDUIT CHANNEL PROTECTION - OUTFLOW FROM O.S.
N.T.S.

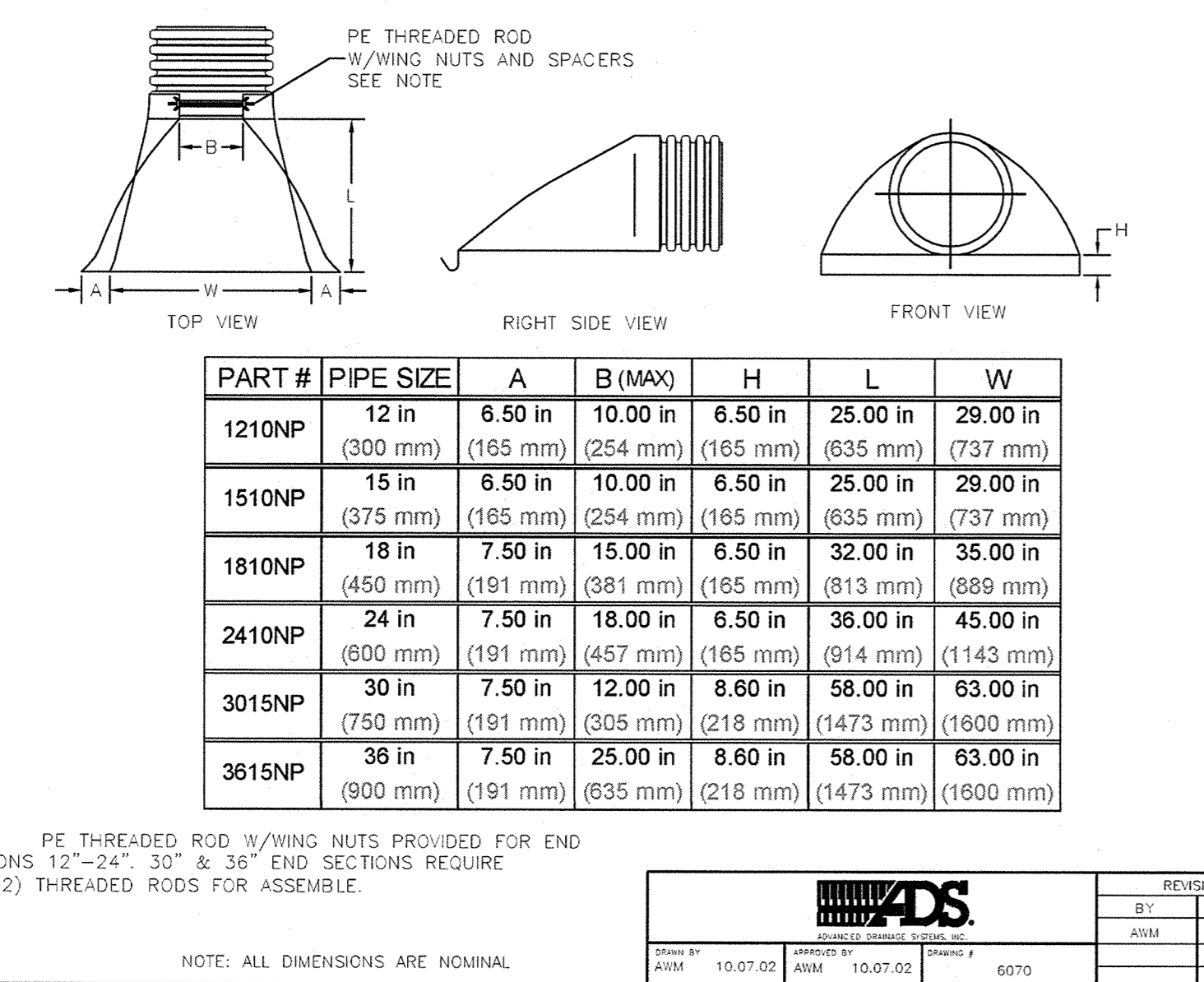


HOPE STORM DRAINAGE TRENCH DETAIL
N.T.S.

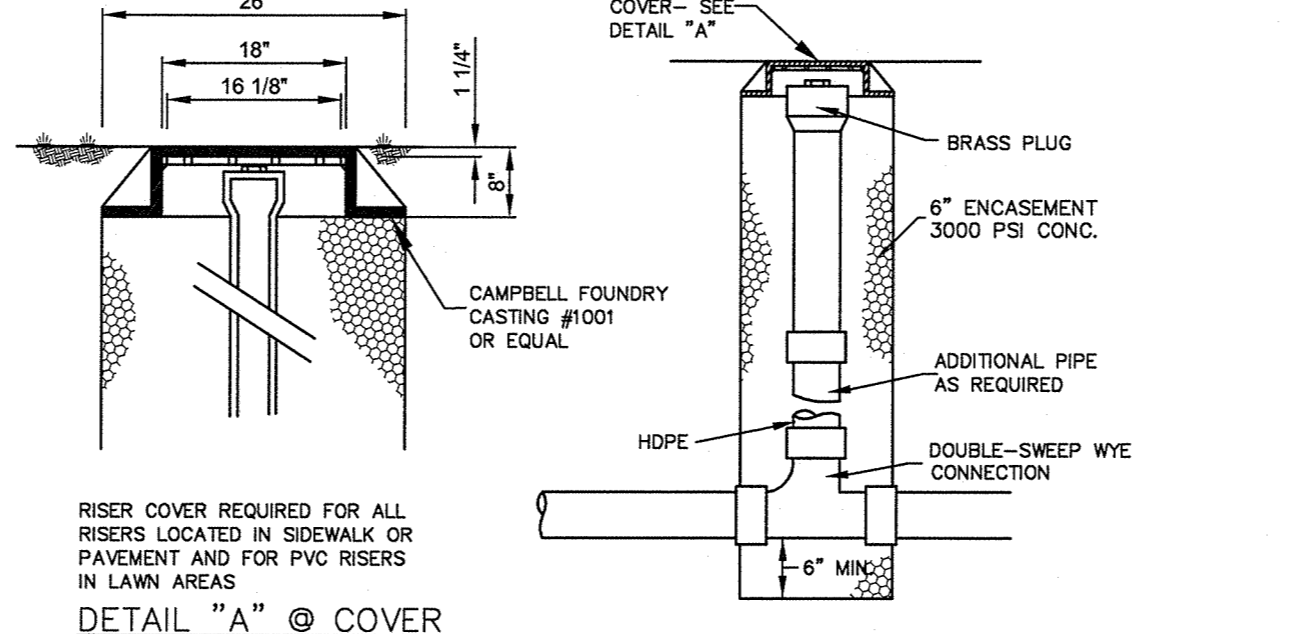
RIP-RAP SPECIFICATION CHART

LOCATION	GRADE	MIN. SIZE	MIN. THICKNESS	MIN. SPACING	MIN. SPACING	MIN. SPACING	MIN. SPACING	MIN. SPACING	MIN. SPACING
DRYWELL OVERFLOW	4"	6"	10"	6"	8"	12"	12"		
SURFACE DRAIN INLET	4"	6"	11"	7"	8"	12"	12"		

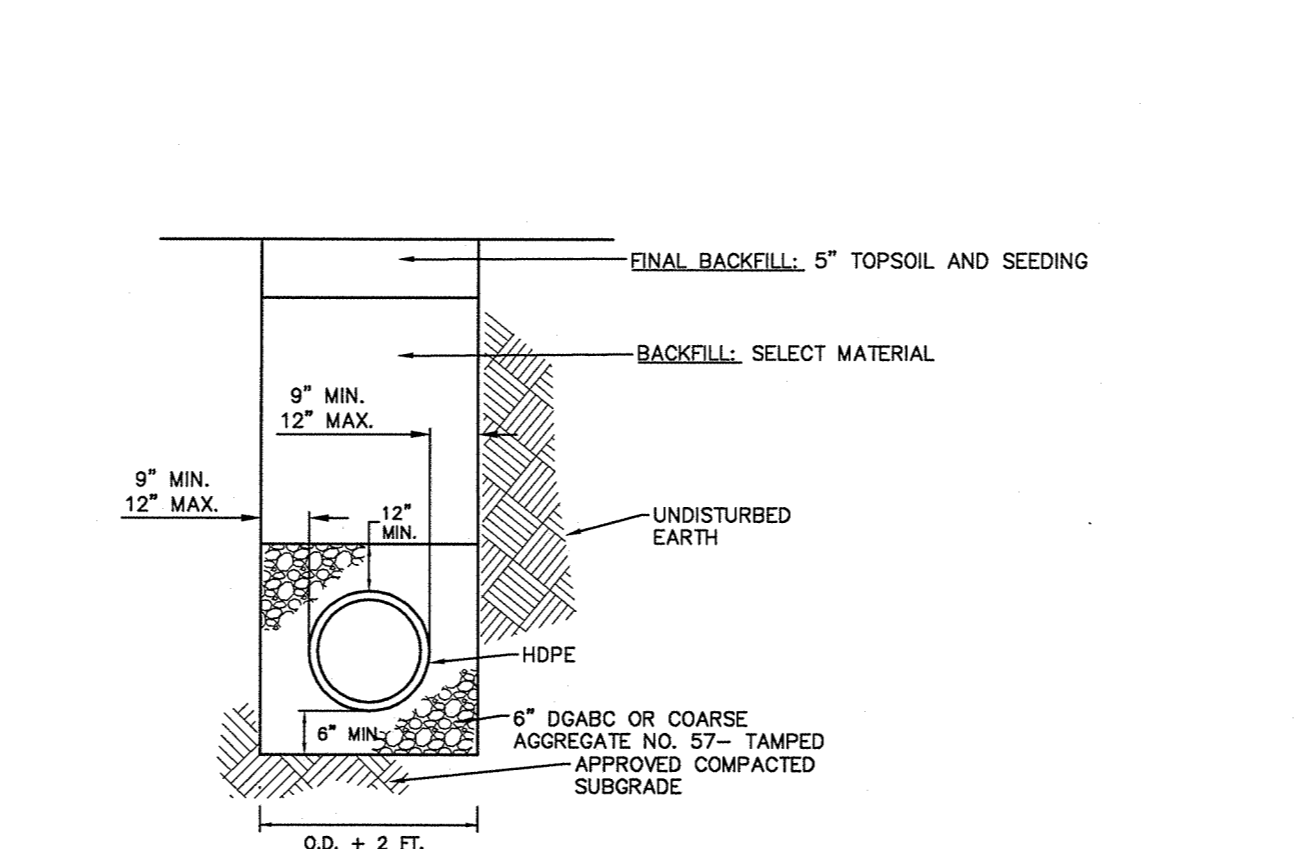
RIP-RAP SPECIFICATION CHART
N.T.S.



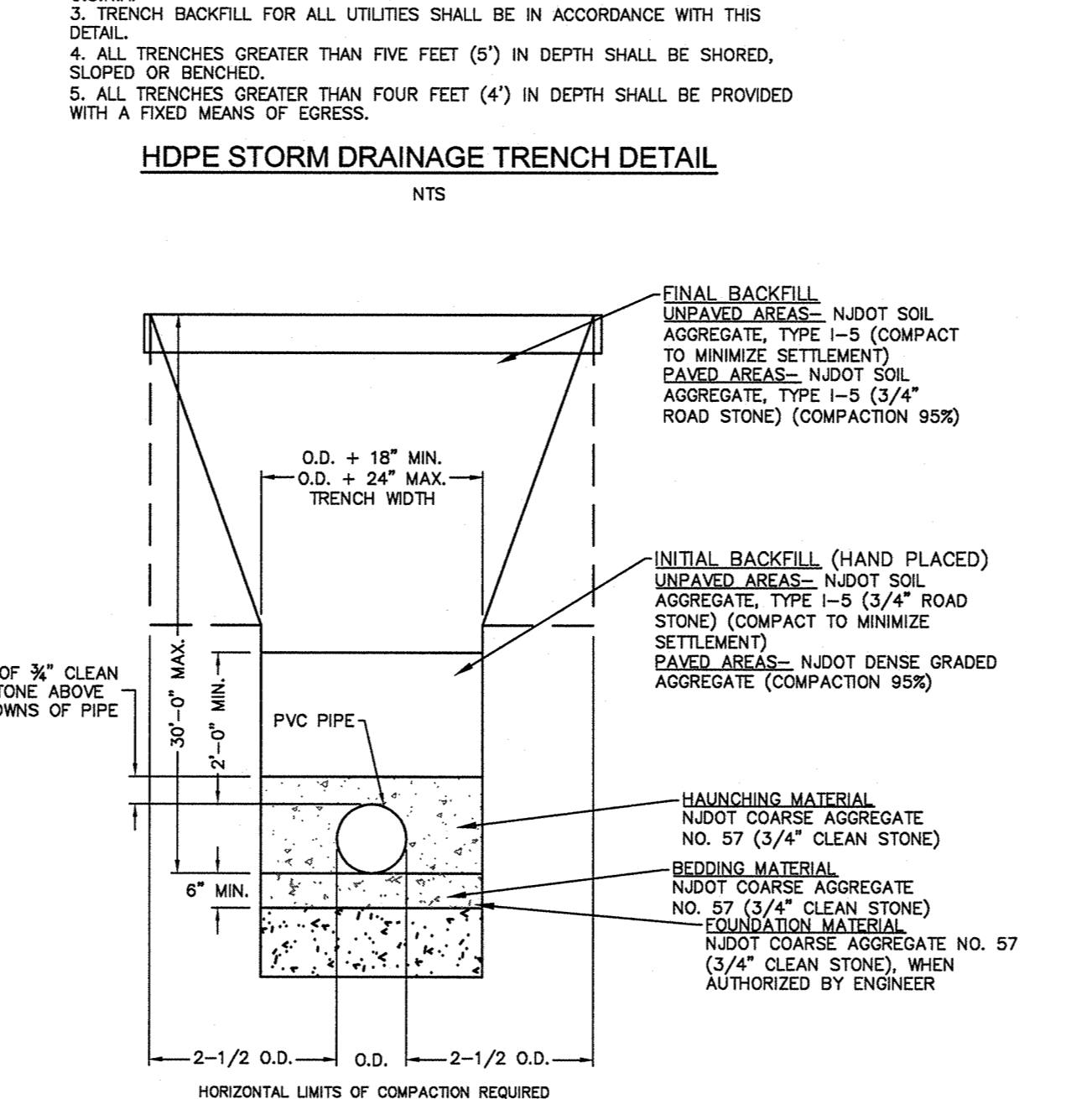
FLARED END SECTION DETAIL
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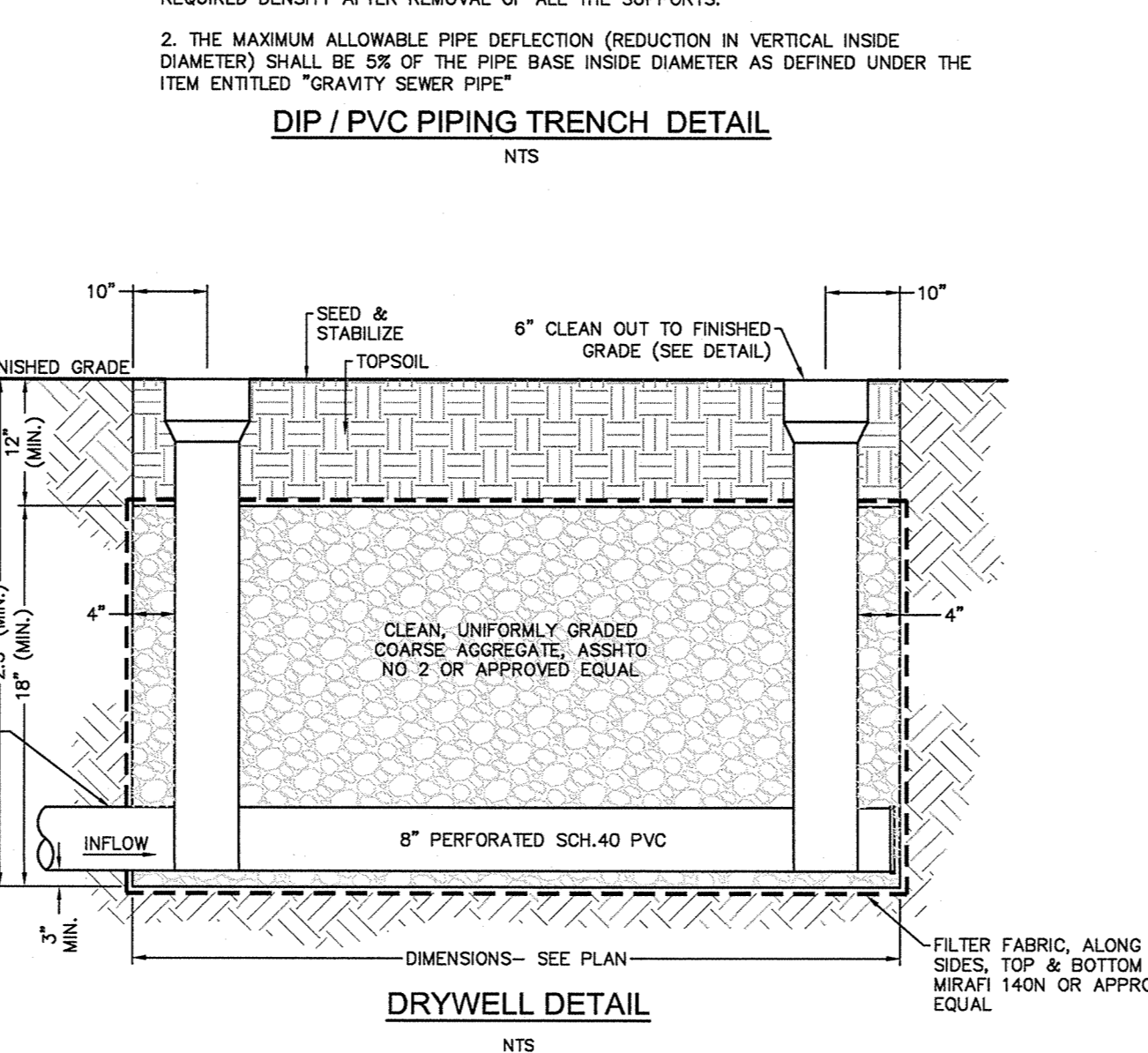
STORM CLEANOUT DETAIL
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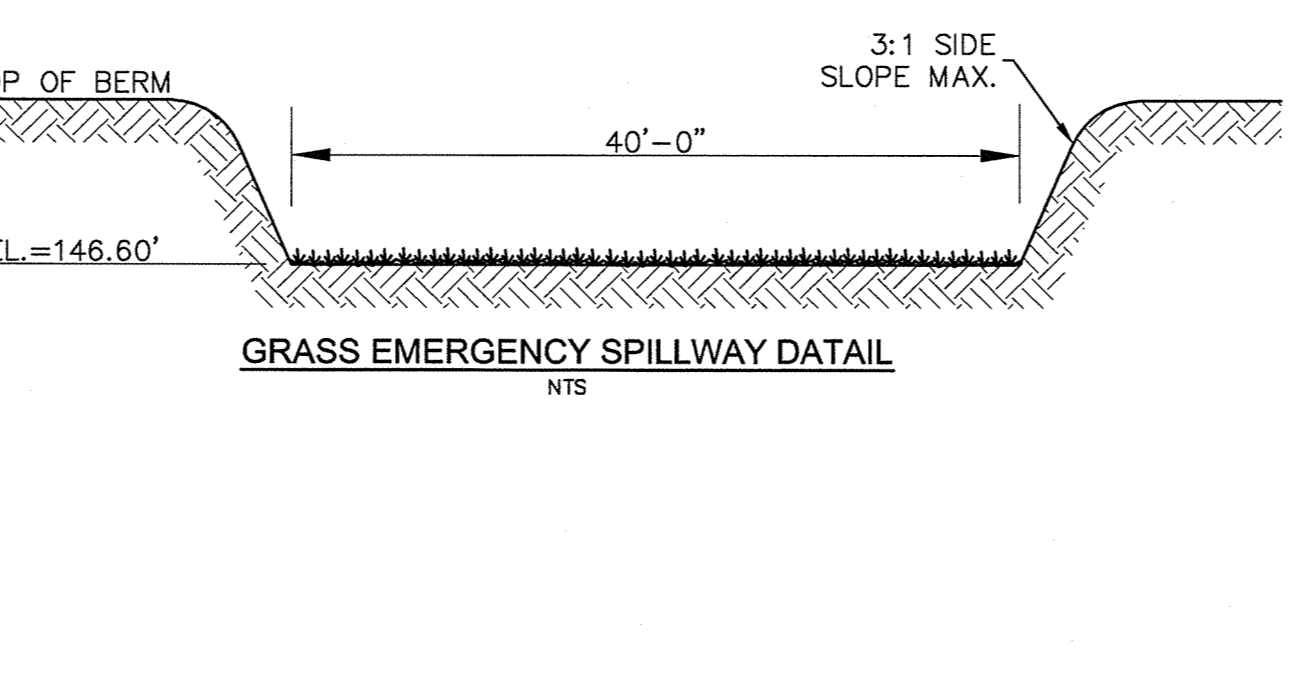
HOPE STORM DRAINAGE TRENCH DETAIL
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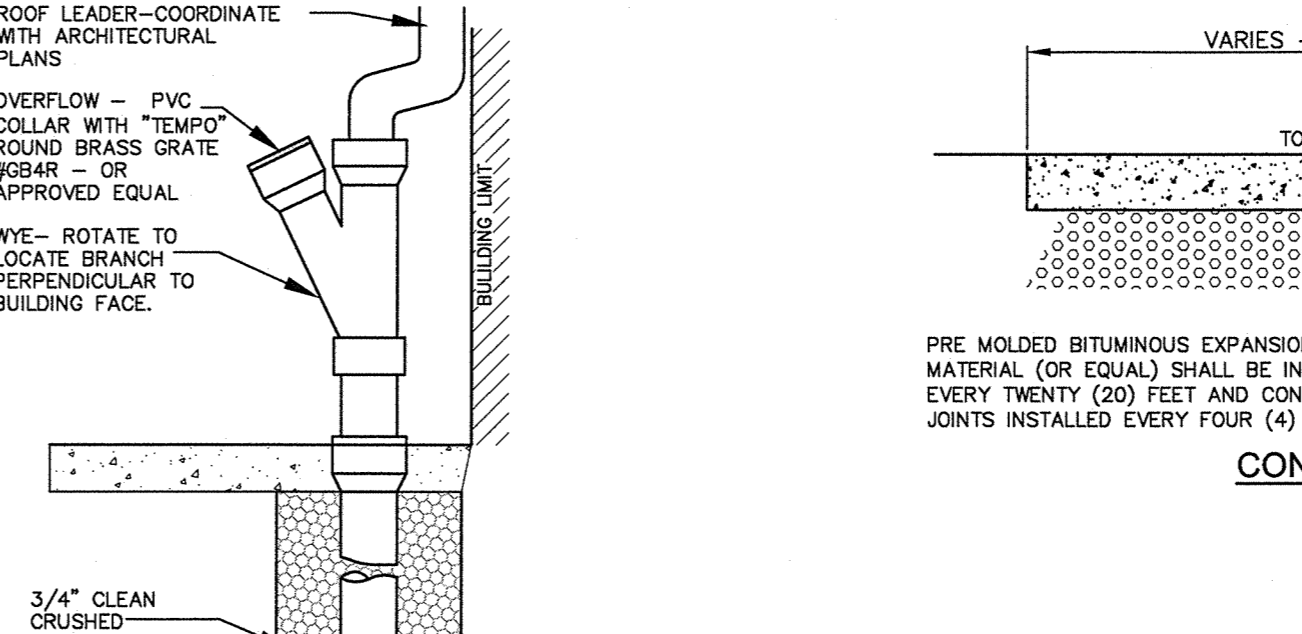
DIP / PVC PIPING TRENCH DETAIL
N.T.S.



DRYWELL DETAIL
N.T.S.



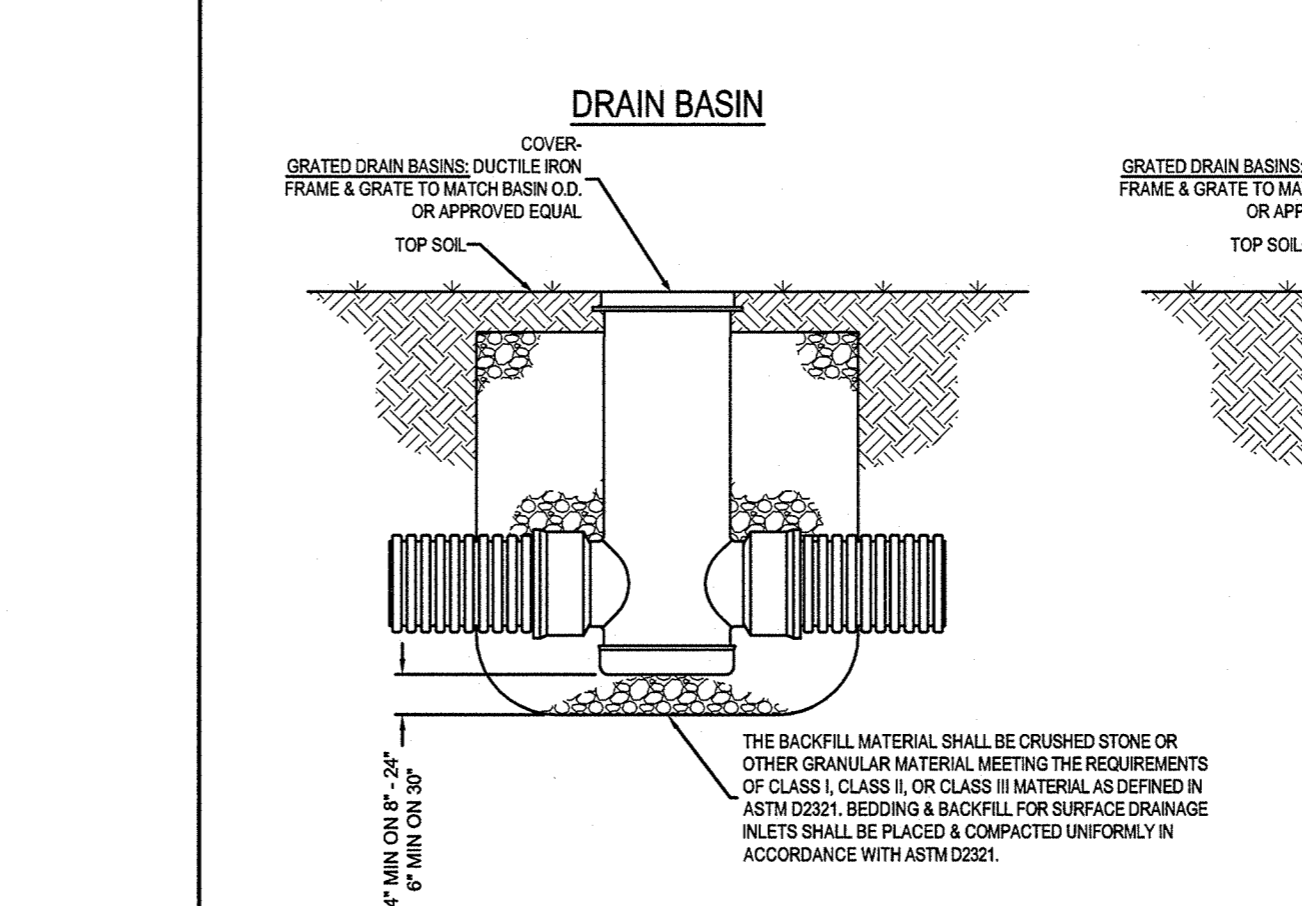
GRASS EMERGENCY SPILLWAY DETAIL
N.T.S.



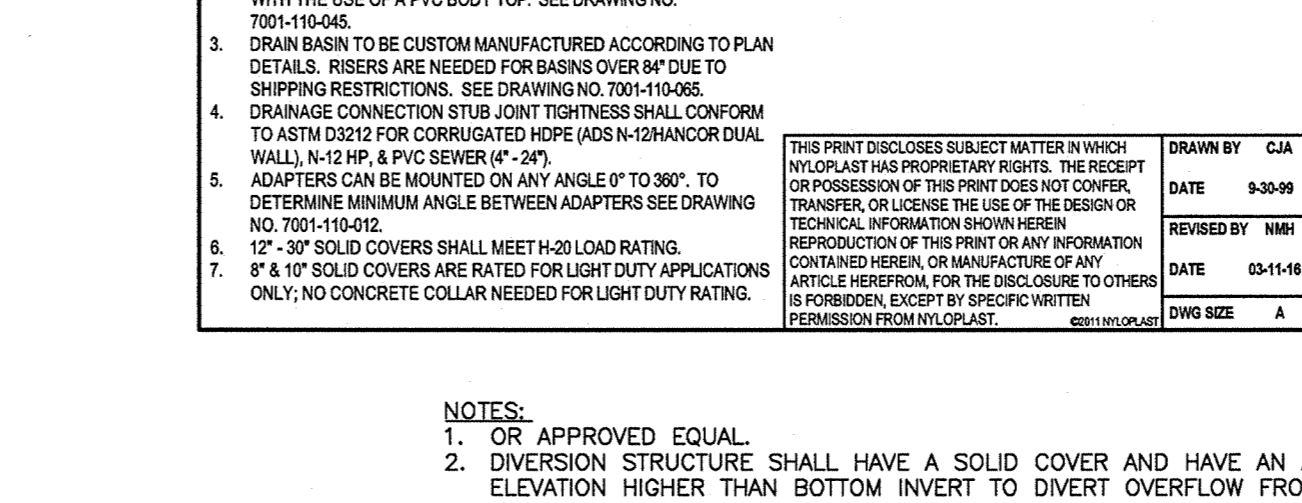
CONCRETE WALK DETAIL
N.T.S.



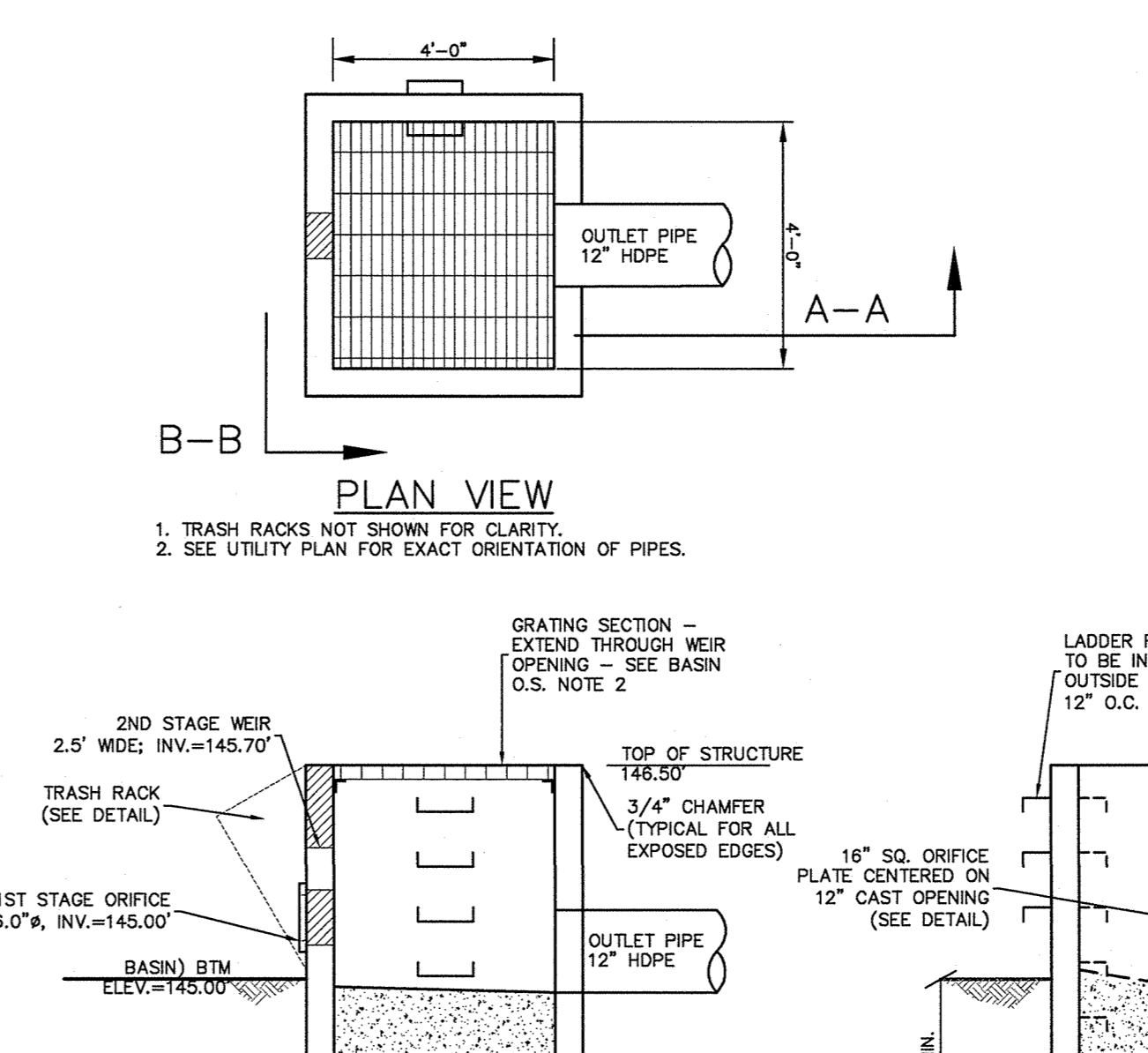
ROOF DOWNSPOUT COLLECTOR DETAIL
N.T.S.



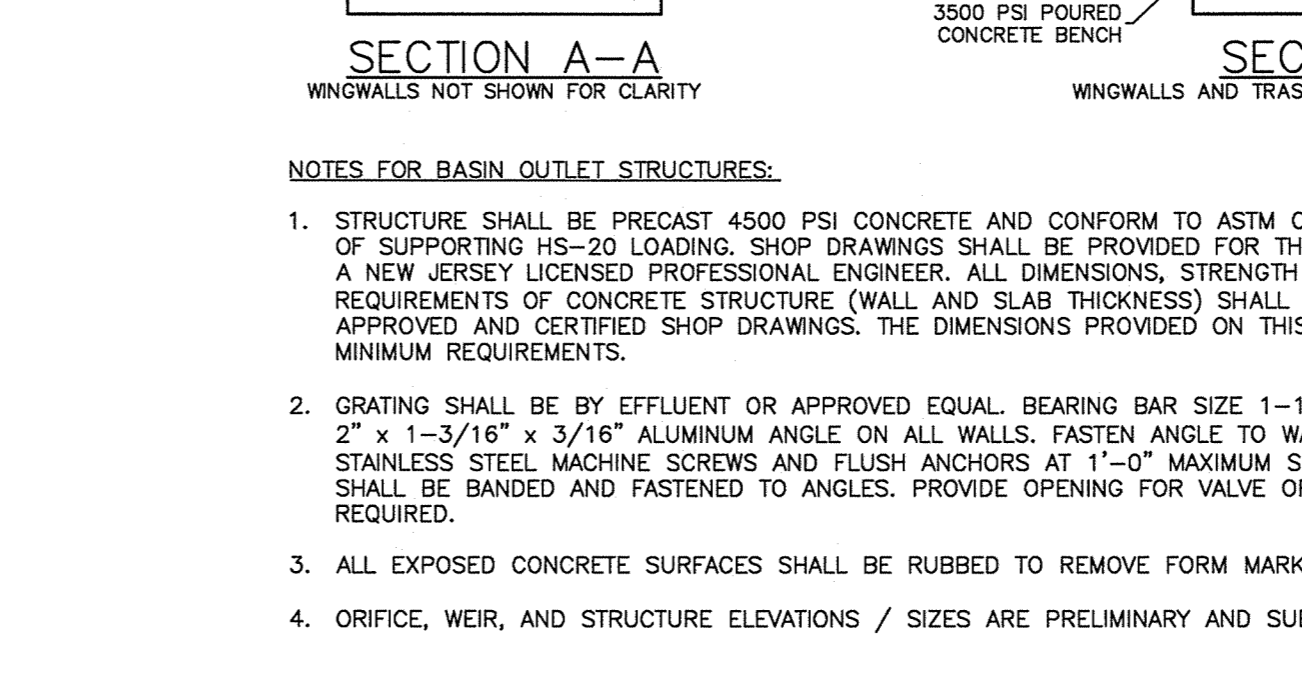
NON TRAFFIC INSTALLATION



SURFACE DRAINAGE INLET / DIVERSION STRUCTURE DETAIL
N.T.S.



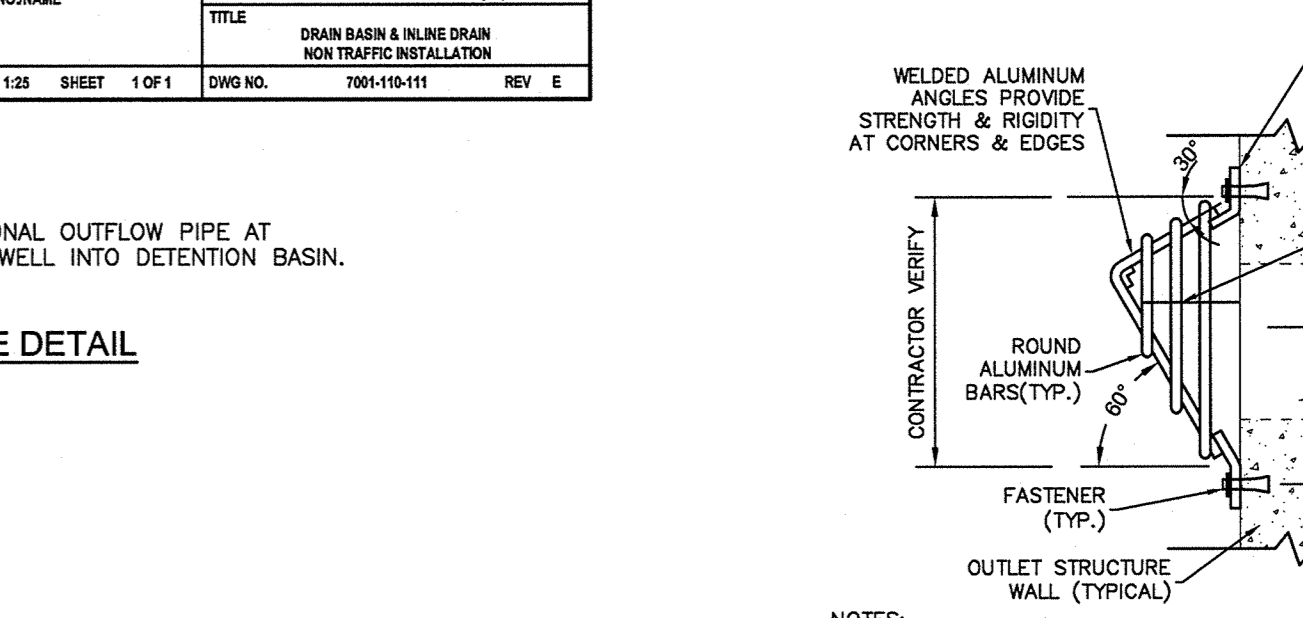
BASIN OUTLET STRUCTURE TRASH RACK DETAIL
N.T.S.



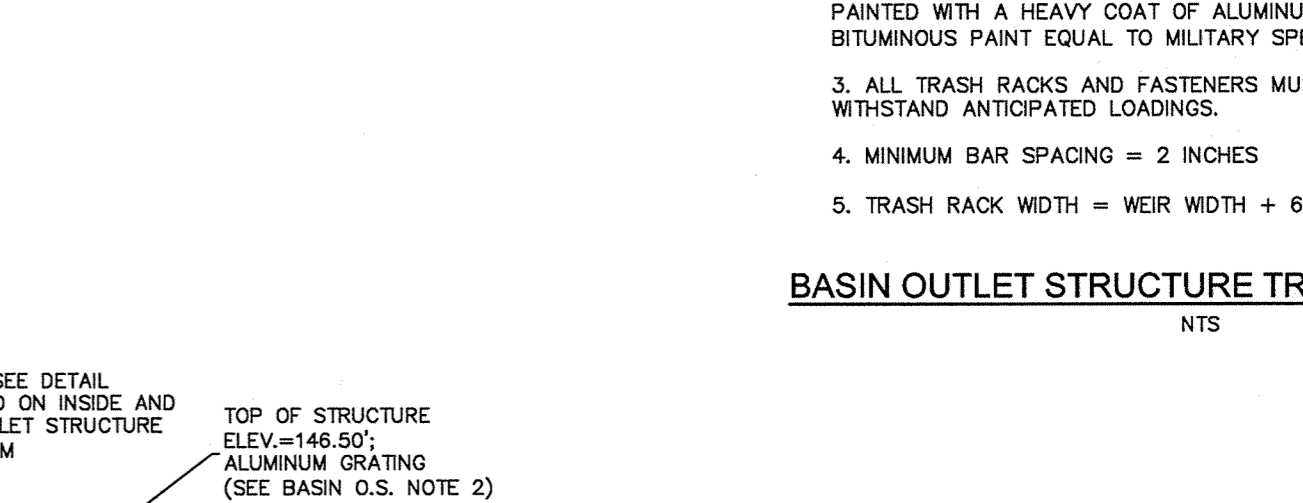
BASIN OUTLET STRUCTURE ORIFICE PLATE DETAIL
N.T.S.

- GENERAL CONSTRUCTION NOTES:**
- THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF CONCEPT DESIGN AND PRICING. THIS SET OF PLANS SHALL NOT BE UTILIZED FOR CONSTRUCTION DOCUMENTS UNTIL ALL MUNICIPAL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED ON THE DRAWINGS AND HAS BEEN REVISED TO INDICATE "ISSUED FOR CONSTRUCTION."
 - REFERENCE PLAN:
 - EXISTING CONDITION FEATURES SHOWN HEREON ARE BASED ON A FIELD SURVEY PERFORMED BY VAN NOTE-HARVEY ASSOCIATES ON MARCH 6TH, 2019.
 - ALL CONSTRUCTION MATERIALS AND METHODS FOR ROADWAY, PARKING AREAS, PAVING, SITE WORK, AND DRAINAGE CONSTRUCTION SHALL BE IN ACCORDANCE WITH MOST SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST REVISION, EXCEPT AS MODIFIED HEREON AND IN THE SPECIFICATIONS.
 - ALL CONTRACTORS ARE REQUIRED TO NOTIFY ENGINEER (VNH) IMMEDIATELY (AND PRIOR TO CONSTRUCTION) OF ANY PLAN/SPECIFICATION DISCREPANCIES, LAYOUT/ELEVATION DISCREPANCIES, CONFLICTS, APPARENT ERRORS, OMISSIONS OR OF ANY OTHER INFORMATION CONTAINED HEREON WHICH THE CONTRACTOR FEELS IS UNUSUAL AS TO MEANING. ENGINEER WILL PROVIDE CLARIFICATION AND, IF NECESSARY, CORRECTIONS AS REQUESTED BY THE CONTRACTOR FOR PERFORMANCE OF CONTRACTORS WORK.
 - THE HOPEWELL TOWNSHIP ENGINEER AND SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING 48 HOURS BEFORE ANY LAND DISTURBANCE. THE ENGINEER (VNH) AND THE SEWER AUTHORITY ARE TO BE NOTIFIED 12 HOURS BEFORE ANY SANITARY SEWER CONSTRUCTION AND/OR TESTING.
- UTILITY CONSTRUCTION NOTES:**
- EXISTING UTILITY INFORMATION SHOWN HEREON HAS BEEN COLLECTED FROM VARIOUS SOURCES AND IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION TO HIS/HER SATISFACTION PRIOR TO EXCAVATION. WHERE EXISTING UTILITIES ARE TO BE CROSSED BY PROPOSED CONSTRUCTION, TEST PITS SHALL BE DUG BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ASCERTAIN EXISTING INVERTS, MATERIALS, AND SIZES. TEST PIT INFORMATION SHALL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION TO PERMIT ADJUSTMENTS AS REQUIRED TO AVOID CONFLICTS.
 - THE CONTRACTOR SHALL CALL THE "ONE NUMBER TO CALL SYSTEM" 1-800-272-1000, NOT LESS THAN 72 HOURS NOR MORE THAN 10 WORKING DAYS PRIOR TO PLANNED WORK TO NOTIFY UTILITY OWNERS OF THE INTENT TO START WORK. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING NON-MEMBER UTILITY OWNERS INDIVIDUALLY. ALL WORK SHALL BE COORDINATED WITH UTILITY OWNERS INCLUDING, BUT NOT LIMITED TO, PUBLIC SERVICE ELECTRIC AND GAS CO., VERIZON COMMUNICATIONS, NEW JERSEY AMERICAN WATER COMPANY, PRIOR TO THE START OF CONSTRUCTION.
 - ALL ELECTRIC, GAS, TELEPHONE, AND CATV, ETC. SHALL BE INSTALLED UNDERGROUND AND COORDINATED WITH APPLICABLE UTILITY COMPANY, AND OWNER.
 - ALIGNMENT OF UTILITIES WHICH CROSS EXISTING VEGETATION SHALL BE ADJUSTED IN ORDER TO MINIMIZE DISTURBANCE TO EXISTING VEGETATION SUBJECT TO PROPER UTILITY SPACING AND EASEMENT REQUIREMENTS.
 - MINIMUM PIPE COVER SHALL BE PER MANUFACTURER RECOMMENDATIONS.
 - EXISTING TREES WILL BE PRESERVED WHEREVER POSSIBLE. FIELD ADJUSTMENTS TO PROPOSED GRADING, UTILITY STRUCTURE LOCATIONS, ETC. WILL BE MADE IN AN EFFORT TO PRESERVE EXISTING TREES.
 - STORM SEWER PIPE SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) EXCEPT WHERE NOTED.
 - PIPE LENGTHS SHOWN ARE FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
 - PRECAST OR CAST-IN-PLACE REINFORCED CONCRETE STRUCTURES MAY BE UTILIZED FOR DRAINAGE AND SANITARY SEWER SYSTEMS INCLUDING DETENTION OUTLET STRUCTURES UPON SUBMISSION OF AND APPROVAL OF SHOP DRAWINGS BY ENGINEER. ALL SHOP DRAWINGS ARE TO BE CERTIFIED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER. ALL PRECAST AND CAST-IN-PLACE STRUCTURES ARE TO BE DESIGNED TO AASHTO HS-20 LOADING REQUIREMENTS.
 - ALL UTILITY TRENCHES LOCATING IN EXISTING PAVED ROADWAYS SHALL BE REPAIRED IN ACCORDANCE WITH HOPEWELL TOWNSHIP DETAILS.
 - ANY DRAINAGE STRUCTURE THAT IS TO BE LEFT UNCOVERED FOR MORE THAN 8 HOURS SHALL BE PROTECTED WITH BARRICADES IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND TSPHA STANDARDS.
 - ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS CONSTRUCTION OF STORM SEWER PROGRESSES IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION.
 - ALL STORM SEWER CONSTRUCTION SHALL BEGIN AT THE LOWEST ELEVATION.

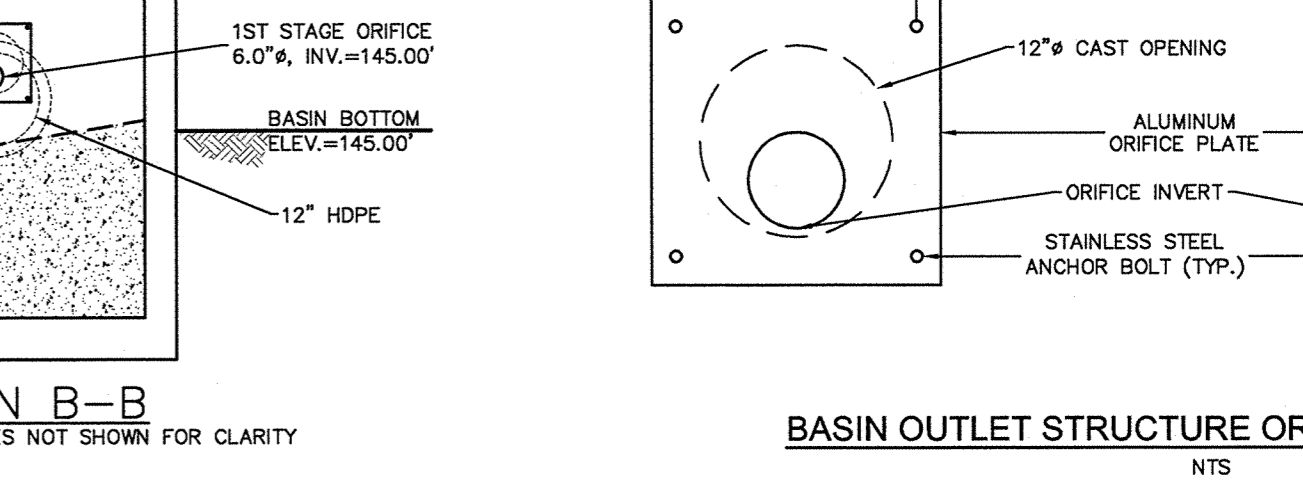
- GRADING CONSTRUCTION NOTES:**
- NO TOPSOIL SHALL BE REMOVED FROM AREAS INTENDED FOR LAWN OR OPEN SPACE UNLESS REQUIRED FOR MINIMUM GRADING. TOPSOIL REMOVED DURING CONSTRUCTION SHALL BE REDISTRIBUTED WITHIN THE RE-GRADED SITE TO PROVIDE AT LEAST 12" OF TOPSOIL OVER ALL LANDSCAPED AREAS OF THE DISTURBED SITE AND SHALL BE STABILIZED IN ACCORDANCE WITH THE SOIL EROSION AND SEDIMENT CONTROL STANDARDS OF NEW JERSEY.
 - ALL STRUCTURAL FILL REQUIRED IN AREAS OF PROPOSED IMPROVEMENTS SUCH AS UTILITIES, SANITARY SEWER, STORM DRAINAGE, BUILDING, PAVEMENTS, WALKS, ETC. MUST BE PLACED AND COMPACTED ETC. IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER FOR THE TYPE OF MATERIAL UTILIZED.
 - ALL SOIL AND STONE AGGREGATES IMPORTED TO THE SITE SHALL BE CERTIFIED AS MEETING NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION "CLEAN SOIL STANDARDS" PRIOR TO DELIVERY TO THE PROJECT.
 - HANDICAP RAMPS SHALL BE PROVIDED AT ALL SIDEWALK INTERSECTIONS AT DRIVEWAYS, PARKING AREAS, ETC. AND SHALL COMPLY WITH A.S.A. REQUIREMENTS & BE PROVIDED WITH A DETECTABLE WARNING SURFACE.
 - THE MINIMUM LAWN AREA GRADE SHALL BE 2.0% MAXIMUM LAWN AREA GRADE SHALL BE 3:1 SLOPE UNLESS SPECIFIED OTHERWISE ON THE PLANS.
 - SIDEWALKS AND PATHS SHALL BE PROVIDED CROSS SLOPE OF 2.0% MAXIMUM RUNNING SLOPE OF 5:0%.
 - AS-BUILT SITE PLANS SHALL BE PROVIDED AT THE TIME OF THE REQUEST FOR CERTIFICATE OF OCCUPANCY.



BASIN OUTLET STRUCTURE TRASH RACK DETAIL
N.T.S.



BASIN OUTLET STRUCTURE ORIFICE PLATE DETAIL
N.T.S.



BASIN OUTLET STRUCTURE TRASH RACK DETAIL
N.T.S.



BASIN OUTLET STRUCTURE ORIFICE PLATE DETAIL
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CONCEPTUAL CONSTRUCTION DETAILS
OF
WASHINGTON CROSSING STATE PARK
VISITOR CENTER
PREPARED FOR
CLARKE CATON HINTZ
SITUATED IN

HOPEWELL TOWNSHIP
SCALE AS SHOWN
DRAWN BY: MKK
DATE: 4/3/20
CHECKED BY: RAP
DATE: 4/3/20

MERCER CO., N.J.
MARCH 6, 2019
FIELD BK: 43770
ORDER No: 401-21
FILE No: 198-D-4
SHEET No: 2

N:\P\43770\DWG\43770-CPT-PLT.DWG

APPENDIX B:
COST
ESTIMATES

Project: Washington Crossing Visitor Center
Number: 18080E1R2
Client: CCH
Date: July 23, 2018 Rev: 7, Dec 2018
Phase: Masterplan



ESTIMATE SUMMARY

CODE	DESCRIPTION	14,450	SF		COST
Concept A1 - Soldiers March					
A	Foundations & Framing			\$90	\$1,300,730
B	Exterior Envelope			\$133	\$1,915,150
C	Interior Fitout/Finish			\$32	\$460,830
D	Millwork/Specialties/Furnishings			\$22	\$311,650
E	Mechanical/Electrical			\$140	\$2,028,810
F	Sitework: Location 1			\$24	\$342,800
	Interpretive Experience & Gathering Space				\$100,000
	Exhibit Gallery Fitout				\$1,600,000
	AV System Allowance				\$550,000
	Subtotal				\$8,609,970
	General Conditions / O. H. & P.		14.0%		\$1,205,030
	Bond		1.0%		\$98,000
	Design Contingency		15.0%		\$1,487,000
	Total			\$789	\$11,400,000

Notes

Backup costs are current, for Summer 2018; escalation costs are not included.
 Furniture, fees and other soft costs are not included.
 Hazardous Materials Removal/Remediation is not included
 Rock Excavation is not included
 Dewatering not included
 Pricing assumes Competitive Bid; Minimum 3 Bidders
 See Transmittal For Basis of Estimate & Additional Conditions

	Concept A2 - Soldiers March	14,450	SF	\$789	\$11,398,000
	Concept B - The Wake	14,500	SF	\$876	\$12,709,000
	Concept C - Ferry Boat	14,250	SF	\$906	\$12,915,000

ESTIMATE

Proj: Washington Crossing Visitor Center
Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
A	Foundations & Framing				
A1	Earthwork - Excavate @ Foundations	1	LS	50,000.00	50,000
A2	- Fine Grading	14,450	SF	-	Included
A3	Foundations - Footing/Wall/Conc/1x2.5	490	LF	50.00	24,500
A4	- Footing/Col/Assume 4x4x1.5	14,450	SF	2.00	28,900
A5	- Foundation Wall/CMU/12"/2' D+WP/Perim. Insul.	980	SF	25.00	24,500
A6	- Piers/Allowance	1	LS	7,500.00	7,500
A7	- Slab-on-grade	14,450	SF	8.50	122,830
A8	Framing - Steel/Columns	20,850	SF	5.00	104,250
A9	- Glulam Framing	20,850	SF	30.00	625,500
A10	- Glulam Roof Deck	20,850	SF	15.00	312,750
A11					0
A12					0
A13					0
A14					0
A15					0
A16					0
A17					0
A18					0
A19					0
A20					0
A21					0
A22					0
A23					0
	Subtotal				1,300,730

B	Exterior Envelope				
B1	Roofing - Membrane/Insulation/Flashing	20,850	SF	25.00	521,250
B2	- Green Roof, Irrigation, Drainage	1	LS	-	NIC
B3	Soffit @ Overhang - No Spec/Allowance	6,900	SF	43.50	300,150
B4	Exterior Wall - Stone/Insul/Sheath/Studs	500	SF	110.00	55,000
B5	Glazing/30% - Windows	1	LS	-	NIC
B6	- Curtain Wall/15' H	8,500	SF	120.00	1,020,000
B7	Doors/Hdw/Frames - Entry/Glass/Double	1	PR	10,000.00	10,000
B8	- HM/Double	1	PR	3,500.00	3,500
B9	- HM/Single	3	EA	1,750.00	5,250
B10					0
B11					0
B12					0
B13					0
B14					0
B15					0
B16					0
B17					0
B18					0
B19					0
B20					0
B21					0
	Subtotal				1,915,150

■

ESTIMATE

Proj: Washington Crossing Visitor Center

Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
C	Interior Fitout/Finish				
C1	Drywall - Partitions16' H	500	LF	100.00	50,000
C2	- Theater	185	LF	150.00	27,750
C3	- Mech	60	LF	400.00	24,000
C4	- Chase	20	LF	300.00	6,000
C5	- Furred @ Perimeter	4,200	SF	3.50	14,700
C6	Brick Walls - Facing	1	LS	-	NIC
C7	Doors/Hdw/Frames - SCWD	10	EA	1,500.00	15,000
C8	- SCWD/Double @ Theater	2	PR	5,000.00	10,000
C9	- SCWD/Double	3	PR	3,000.00	9,000
C10	- Transom/Sidelights	1	LS	-	NIC
C11	- Glazed/Half/Full	1	LS	-	NIC
C12	Glazing - Interior Storefront/9' H	1	LS	50,000.00	50,000
C13	Finishes - Office/Conf/Carpet/RB/Paint/Exp. Clg.	4,750	SF	10.00	47,500
C14	- Lobby/Assume Polished Conc/Paint/Exp. Clg.	2,900	SF	25.00	72,500
C15	- Kitchen/Allowance	1	LS	-	NIC
C16	- Toilets/CT/Wains/DW Clg	500	SF	43.00	21,500
C17	- Mech/Elec/Sealed Conc/Paint/Exp. Clg.	1,050	SF	7.50	7,880
C18	- Exhibit	3,500	SF	25.00	87,500
C19	- Admin Suite/Carpet/RB/Paint/Exp. Clg.	1,750	SF	10.00	17,500
C20					0
C21					0
C22					0
C23					0
	Subtotal				460,830

D	Millwork/Specialties/Furnishings				
D1	Millwork/Casework - Kitchen Cab/Counter	1	LS	-	NIC
D2	- Reception @ Lobby	40	LF	1,000.00	40,000
D3	- Vanities	20	LF	250.00	5,000
D4	Toilets Accessories - Toilet/Shower Partitions	7	EA	1,750.00	12,250
D5	- Misc. Specialties	1	LS	7,500.00	7,500
D6	Building Accessories - Folding Wall/Assume 15' H	1	LS	-	NIC
D7	- Shades/Assume Motorized	3,700	SF	40.00	148,000
D8	- Theater/Acoustic Panels/8' H	1,500	SF	25.00	37,500
D9	- Misc. Specialties/Signage/FE Cabs/Etc.	14,450	SF	2.00	28,900
D10	Theater - Seats/Allowance	50	EA	650.00	32,500
D11	- Acoustic Panels	1	LS	-	TBD
D12					
D13					
D14					
D15					0
D16					0
D17					0
D18					0
D19					0
D20					0
D21					0
	Subtotal				311,650

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ESTIMATE

Proj: Washington Crossing Visitor Center

Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
E	Mechanical/Electrical				
E1	Fire Protection - Sprinklers	14,450	SF	5.00	72,250
E2	- Fire Pump/Jockey Pump	1	LS	-	TBD
E3	Plumbing - No Fixtures Shown/Allowance	1	LS	100,000.00	100,000
E4	- Roof Drainage	20,850	SF	2.00	41,700
E5	HVAC Allowance	14,450	SF	50.00	722,500
E6	- Museum Premium	14,450	SF	25.00	361,250
E7	Electrical - Service/MDP	1	LS	25,000.00	25,000
E8	- Feeders/Not Shown	14,450	SF	1.50	21,680
E9	- Branch Panels/Not Shown	4	EA	7,500.00	30,000
E10	- Equipment Connections	14,450	SF	2.00	28,900
E11	- Branch Wiring	14,450	SF	5.00	72,250
E12	- Devices	14,450	SF	2.00	28,900
E13	- Exhibit Premium/Power	3,500	SF	35.00	122,500
E14	- Lighting Allowance/Lobby	2,900	SF	35.00	101,500
E15	- Lighting Allowance/Typical	10,500	SF	15.00	157,500
E16	- Lighting Allowance/Mech/Storage	1,050	SF	8.00	8,400
E17	Systems - FA	14,450	SF	3.00	43,350
E18	- Communications/Raceways Only	14,450	SF	2.50	36,130
E19	- Security	1	LS	-	25,000
E20	- AV Power	1	LS	-	w/ Electrical Allowance
E21	- Emerg. Back Up Power	1	LS	-	30,000
E22					0
E23					0
E24					0
E25					0
E26					0
E27					0
E28					0
E29					0
	Subtotal				2,028,810

F	Sitework: Location 1				
F1	Demolition - Existing Visitor Center	1	LS	25,000.00	25,000
F2	Site Clearing/No Scope - Assume Minor	1	LS	7,500.00	7,500
F3	Paving - Asphalt @ Parking & Drive/Per Space	30	EA	2,500.00	Existing
F4	- Paved Path/Assume 5' Wide	530	LF	35.00	18,550
F5	- Concrete @ Side Walk	6,900	SF	7.50	51,750
F6	- Conc. Curb @ Parking	1	LS	-	w/ Parking
F7	Seat Walls	1	LS	-	NIC
F8	Seating/Trash Receptacles/Bike Racks/Etc	1	LS	25,000.00	25,000
F9	Plantings @ Building/None @ Parking/Allowance	1	LS	25,000.00	25,000
F10	Musket Firing Demonstrations	1	LS	50,000.00	50,000
F11	Signage - Misc & Wayfinding	1	LS	25,000.00	25,000
F12	Storm Water Management/No Scope/Allowance	1	LS	25,000.00	25,000
F13	Site Utilities/Not Shown - W/F/S/E/C	5	EA	15,000.00	75,000
F14	- Street Connections	5	EA	5,000.00	NIC
F15	- Trench/Patch	1	LS	15,000.00	15,000
	Subtotal				342,800

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Project: Washington Crossing Visitor Center
Number: 18080E1R2
Client: CCH
Date: July 23, 2018 Rev: 7, Dec 2018
Phase: Masterplan



ESTIMATE SUMMARY

CODE	DESCRIPTION	14,450	SF	COST
Concept A2 - Soldiers March				
A	Foundations & Framing			\$1,300,730
B	Exterior Envelope			\$1,915,150
C	Interior Fitout/Finish			\$452,830
D	Millwork/Specialties/Furnishings			\$311,650
E	Mechanical/Electrical			\$2,034,810
F	Sitework: Location 1			\$342,800
	Interpretive Experience & Gathering Space			\$100,000
	Exhibit Gallery Fitout			\$1,600,000
	AV System Allowance			\$550,000
	Subtotal			\$8,607,970
	General Conditions / O. H. & P.	14.0%		\$1,205,030
	Bond	1.0%		\$98,000
	Design Contingency	15.0%		\$1,487,000
	Total		\$789	\$11,398,000

Notes

Backup costs are current, for Summer 2018; escalation costs are not included.
 Furniture, fees and other soft costs are not included.
 Hazardous Materials Removal/Remediation is not included
 Rock Excavation is not included
 Dewatering not included
 Pricing assumes Competitive Bid; Minimum 3 Bidders
 See Transmittal For Basis of Estimate & Additional Conditions

ESTIMATE

Proj: Washington Crossing Visitor Center
Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
A	Foundations & Framing				
A1	Earthwork - Excavate @ Foundations	1	LS	50,000.00	50,000
A2	- Fine Grading	14,450	SF	-	Included
A3	Foundations - Footing/Wall/Conc/1x2.5	490	LF	50.00	24,500
A4	- Footing/Col/Assume 4x4x1.5	14,450	SF	2.00	28,900
A5	- Foundation Wall/CMU/12"/2' D+WP/Perim. Insul.	980	SF	25.00	24,500
A6	- Piers/Allowance	1	LS	7,500.00	7,500
A7	- Slab-on-grade	14,450	SF	8.50	122,830
A8	Framing - Steel/Columns	20,850	SF	5.00	104,250
A9	- Glulam Framing	20,850	SF	30.00	625,500
A10	- Glulam Roof Deck	20,850	SF	15.00	312,750
A11					0
A12					0
A13					0
A14					0
A15					0
A16					0
A17					0
A18					0
A19					0
A20					0
A21					0
A22					0
A23					0
	Subtotal				1,300,730

B	Exterior Envelope				
B1	Roofing - Membrane/Insulation/Flashing	20,850	SF	25.00	521,250
B2	- Green Roof, Irrigation, Drainage	1	LS	-	NIC
B3	Soffit @ Overhang - No Spec/Allowance	6,900	SF	43.50	300,150
B4	Exterior Wall - Stone/Insul/Sheath/Studs	500	SF	110.00	55,000
B5	Glazing/30% - Windows	1	LS	-	NIC
B6	- Curtain Wall/15' H	8,500	SF	120.00	1,020,000
B7	Doors/Hdw/Frames - Entry/Glass/Double	1	PR	10,000.00	10,000
B8	- HM/Double	1	PR	3,500.00	3,500
B9	- HM/Single	3	EA	1,750.00	5,250
B10					0
B11					0
B12					0
B13					0
B14					0
B15					0
B16					0
B17					0
B18					0
B19					0
B20					0
B21					0
	Subtotal				1,915,150

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ESTIMATE

Proj: Washington Crossing Visitor Center

Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
C	Interior Fitout/Finish				
C1	Drywall - Partitions16' H	550	LF	100.00	55,000
C2	- Theater	90	LF	150.00	13,500
C3	- Mech	60	LF	400.00	24,000
C4	- Chase	20	LF	300.00	6,000
C5	- Furred @ Perimeter	4,200	SF	3.50	14,700
C6	Interior Stone Walls	1	LS -		NIC
C7	Doors/Hdw/Frames - SCWD	10	EA	1,500.00	15,000
C8	- SCWD/Double @ Theater	3	PR	5,000.00	15,000
C9	- SCWD/Double	3	PR	3,000.00	9,000
C10	- Transom/Sidelights	1	LS -		NIC
C11	- Glazed/Half/Full	1	LS -		NIC
C12	Glazing - Interior Storefront/9' H	1	LS	50,000.00	50,000
C13	Finishes - Office/Conf/Carpet/RB/Paint/Exp. Clg.	5,000	SF	10.00	50,000
C14	- Lobby/Assume Polished Conc/Paint/Exp. Clg.	3,200	SF	25.00	80,000
C15	- Kitchen/Allowance	1	LS -		NIC
C16	- Toilets/CT/Wains/DW Clg	500	SF	43.00	21,500
C17	- Mech/Elec/Sealed Conc/Paint/Exp. Clg.	1,050	SF	7.50	7,880
C18	- Exhibit	2,950	SF	25.00	73,750
C19	- Admin Suite/Carpet/RB/Paint/Exp. Clg.	1,750	SF	10.00	17,500
C20					0
C21					0
C22					0
C23					0
	Subtotal				452,830

D	Millwork/Specialties/Furnishings				
D1	Millwork/Casework - Kitchen Cab/Counter	1	LS	-	NIC
D2	- Reception @ Lobby	40	LF	1,000.00	40,000
D3	- Vanities	20	LF	250.00	5,000
D4	Toilets Accessories - Toilet/Shower Partitions	7	EA	1,750.00	12,250
D5	- Misc. Specialties	1	LS	7,500.00	7,500
D6	Building Accessories - Folding Wall/Assume 15' H	1	LS	-	NIC
D7	- Shades/Assume Motorized	3,700	SF	40.00	148,000
D8	- Theater/Acoustic Panels/8' H	1,500	SF	25.00	37,500
D9	- Misc. Specialties/Signage/FE Cabs/Etc.	14,450	SF	2.00	28,900
D10	Theater - Seats/Allowance	50	EA	650.00	32,500
D11	- Acoustic Panels	1	LS	-	TBD
D12	AV System	1	LS	-	By Others
D13	- Exhibit	1	LS	-	By Others
D14	- Theater	1	LS	-	By Others
D15					0
D16					0
D17					0
D18					0
D19					0
D20					0
D21					0
	Subtotal				311,650

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ESTIMATE

Proj: Washington Crossing Visitor Center
Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
E	Mechanical/Electrical				
E1	Fire Protection - Sprinklers	14,450	SF	5.00	72,250
E2	- Fire Pump/Jockey Pump	1	LS	-	TBD
E3	Plumbing - No Fixtures Shown/Allowance	1	LS	100,000.00	100,000
E4	- Roof Drainage	20,850	SF	2.00	41,700
E5	HVAC Allowance	14,450	SF	50.00	722,500
E6	- Museum Premium	14,450	SF	25.00	361,250
E7	Electrical - Service/MDP	1	LS	25,000.00	25,000
E8	- Feeders/Not Shown	14,450	SF	1.50	21,680
E9	- Branch Panels/Not Shown	4	EA	7,500.00	30,000
E10	- Equipment Connections	14,450	SF	2.00	28,900
E11	- Branch Wiring	14,450	SF	5.00	72,250
E12	- Devices	14,450	SF	2.00	28,900
E13	- Exhibit Premium/Power	3,500	SF	35.00	122,500
E14	- Lighting Allowance/Lobby	3,200	SF	35.00	112,000
E15	- Lighting Allowance/Typical	10,200	SF	15.00	153,000
E16	- Lighting Allowance/Mech/Storage	1,050	SF	8.00	8,400
E17	Systems - FA	14,450	SF	3.00	43,350
E18	- Communications/Raceways Only	14,450	SF	2.50	36,130
E19	- Security	1	LS	-	25,000
E20	- AV Power	1	LS	-	w/ Electrical Allowance
E21	- Emerg. Back Up Power	1	LS	-	30,000
E22					0
E23					0
E24					0
E25					0
E26					0
E27					0
E28					0
E29					0
	Subtotal				2,034,810

F	Sitework: Location 1				
F1	Demolition - Existing Visitor Center	1	LS	25,000.00	25,000
F2	Site Clearing/No Scope - Assume Minor	1	LS	7,500.00	7,500
F3	Paving - Asphalt @ Parking & Drive/Per Space	30	EA	2,500.00	Existing
F4	- Paved Path/Assume 5' Wide	530	LF	35.00	18,550
F5	- Concrete @ Side Walk	6,900	SF	7.50	51,750
F6	- Conc. Curb @ Parking	1	LS	-	w/ Parking
F7	Seat Walls	1	LS	-	NIC
F8	Seating/Trash Receptacles/Bike Racks/Etc	1	LS	25,000.00	25,000
F9	Plantings @ Building/None @ Parking/Allowance	1	LS	25,000.00	25,000
F10	Musket Firing Demonstrations	1	LS	50,000.00	50,000
F11	Signage - Misc & Wayfinding	1	LS	25,000.00	25,000
F12	Storm Water Management/No Scope/Allowance	1	LS	25,000.00	25,000
F13	Site Utilities/Not Shown - W/F/S/E/C	5	EA	15,000.00	75,000
F14	- Street Connections	5	EA	5,000.00	NIC
F15	- Trench/Patch	1	LS	15,000.00	15,000
	Subtotal				342,800

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Project: Washington Crossing Visitor Center
Number: 18080E1R2
Client: CCH
Date: July 23, 2018 Rev: 7, Dec 2018
Phase: Masterplan



ESTIMATE SUMMARY

CODE	DESCRIPTION	14,500	SF	COST
Concept B - The Wake				
A	Foundations & Framing			\$1,130,500
B	Exterior Envelope			\$2,585,750
C	Interior Fitout/Finish			\$598,380
D	Millwork/Specialties/Furnishings			\$321,250
E	Mechanical/Electrical			\$2,064,600
F	Sitework: Location 2			\$648,150
	Interpretive Experience & Gathering Space			\$100,000
	Exhibit Gallery Fitout			\$1,600,000
	AV System Allowance			\$550,000
	Subtotal			\$9,598,630
	General Conditions / O. H. & P.	14.0%		\$1,343,370
	Bond	1.0%		\$109,000
	Design Contingency	15.0%		\$1,658,000
	Total		\$876	\$12,709,000

Notes

Backup costs are current, for Summer 2018; escalation costs are not included.
 Furniture, fees and other soft costs are not included.
 Hazardous Materials Removal/Remediation is not included
 Rock Excavation is not included
 Dewatering not included
 Pricing assumes Competitive Bid; Minimum 3 Bidders
 See Transmittal For Basis of Estimate & Additional Conditions

ESTIMATE

Proj: Washington Crossing Visitor Center
Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
A	Foundations & Framing				
A1	Earthwork - Excavate @ Foundations	1	LS	50,000.00	50,000
A2	- Fine Grading	14,500	SF	-	Included
A3	Foundations - Footing/Wall/Conc/1x2.5	600	LF	50.00	30,000
A4	- Footing/Col/Assume 4x4x1.5	14,500	SF	2.00	29,000
A5	- Foundation Wall/CMU/12"/2' D+WP/Perim. Insul.	1,200	SF	25.00	30,000
A6	- Piers/Allowance	1	LS	7,500.00	7,500
A7	- Slab-on-grade	14,500	SF	8.50	123,250
A8	Framing - Steel/Columns	15,650	SF	5.00	78,250
A9	- Glulam Framing	15,650	SF	35.00	547,750
A10	- Glulam Roof Deck	15,650	SF	15.00	234,750
A11					0
A12					0
A13					0
A14					0
A15					0
A16					0
A17					0
A18					0
A19					0
A20					0
A21					0
A22					0
A23					0
	Subtotal				1,130,500

B	Exterior Envelope				
B1	Roofing - SS Metal/Insulation/Flashing	15,650	SF	65.00	1,017,250
B2	- Membrane Roof	1	LS	-	NIC
B3	- Green Roof, Irrigation, Drainage	1	LS	-	NIC
B4	- Gutters & Downspouts	1	LS	-	Included
B5	Canopy - No Spec/Allowance	1,650	SF	50.00	82,500
B6	Exterior Wall - Stone/Insul/Sheath/Studs	6,800	SF	110.00	748,000
B7	- Wood/Metal Cladding	800	SF	90.00	72,000
B8	- Stone Wing Walls @ West	2	EA	30,000.00	60,000
B9	- Stone Piers	5	EA	15,000.00	75,000
B10	Glazing - Windows	1,250	SF	100.00	125,000
B11	- Curtain Wall/19' H	2,550	SF	150.00	382,500
B12	Doors/Hdw/Frames - Entry/Glass/Double	1	PR	10,000.00	10,000
B13	- Glass/Single	2	EA	5,000.00	10,000
B14	- HM/Single	2	EA	1,750.00	3,500
B15					0
B16					0
B17					0
B18					0
B19					0
B20					0
B21					0
	Subtotal				2,585,750

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ESTIMATE

Proj: Washington Crossing Visitor Center

Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
C	Interior Fitout/Finish				
C1	Drywall - Partitions/19' H	500	LF	125.00	62,500
C2	- Theater	100	LF	175.00	17,500
C3	- Mech	50	LF	475.00	23,750
C4	- Chase	20	LF	350.00	7,000
C5	- Furred @ Perimeter	7,600	SF	3.50	26,600
C6	Interior Stone Piers @ Exhibit	1	LS	100,000.00	100,000
C7	Doors/Hdw/Frames - SCWD	10	EA	1,500.00	15,000
C8	- SCWD/Double @ Theater	2	PR	5,000.00	10,000
C9	- Glass/Double	1	PR	8,500.00	8,500
C10	- Transom/Sidelights	1	LS	-	NIC
C11	- Glazed/Half/Full	1	LS	-	NIC
C12	Glazing - Interior Storefront/9' H	1	LS	50,000.00	50,000
C13	Finishes - Office/Conf/Carpet/RB/Paint/Exp. Clg.	5,250	SF	12.50	65,630
C14	- Lobby/Assume Polished Conc/Paint/Exp. Clg.	2,200	SF	27.50	60,500
C15	- Kitchen/Allowance	1	LS	-	NIC
C16	- Toilets/CT/Wains/DW Clg	550	SF	43.00	23,650
C17	- Mech/Elec/Sealed Conc/Paint/Exp. Clg.	1,200	SF	7.50	9,000
C18	- Exhibit	3,500	SF	27.50	96,250
C19	- Admin Suite/Carpet/RB/Paint/Exp. Clg.	1,800	SF	12.50	22,500
C20					0
C21					0
C22					0
C23					0
	Subtotal				598,380

D	Millwork/Specialties/Furnishings				
D1	Millwork/Casework - Kitchen Cab/Counter	1	LS	-	NIC
D2	- Reception @ Lobby	40	LF	1,000.00	40,000
D3	- Rec	15	LF	200.00	3,000
D4	- Vanities	20	LF	250.00	5,000
D5	Toilets Accessories - Toilet/Shower Partitions	7	EA	1,750.00	12,250
D6	- Misc. Specialties	1	LS	7,500.00	7,500
D7	Building Accessories - Folding Wall/Assume 15' H	1	LS	-	NIC
D8	- Shades/Assume Motorized	3,800	SF	40.00	152,000
D9	- Theater/Acoustic Panels/8' H	1,600	SF	25.00	40,000
D10	- Misc. Specialties/Signage/FE Cabs/Etc.	14,500	SF	2.00	29,000
D11	Theater - Seats/Allowance	50	EA	650.00	32,500
D12	- Acoustic Panels	1	LS	-	TBD
D13	AV System	1	LS	-	By Others
D14	- Exhibit	1	LS	-	By Others
D15	- Theater	1	LS	-	By Others
D16					0
D17					0
D18					0
D19					0
D20					0
D21					0
	Subtotal				321,250

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ESTIMATE

Proj: Washington Crossing Visitor Center

Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
E	Mechanical/Electrical				
E1	Fire Protection - Sprinklers	14,500	SF	5.00	72,500
E2	- Height Premium/3'H	14,500	SF	1.00	14,500
E3	- Fire Pump/Jockey Pump	1	LS	-	TBD
E4	Plumbing - No Fixtures Shown/Allowance	1	LS	100,000.00	100,000
E5	- Roof Drainage	15,650	SF	-	w/ Gutters & Downspouts
E6	HVAC Allowance	14,500	SF	50.00	725,000
E7	- Museum Premium	14,500	SF	25.00	362,500
E8	- Height Premium/3'H	14,500	SF	5.00	72,500
E9	Electrical - Service/MDP	1	LS	25,000.00	25,000
E10	- Feeders/Not Shown	14,500	SF	1.50	21,750
E11	- Branch Panels/Not Shown	4	EA	7,500.00	30,000
E12	- Equipment Connections	14,500	SF	2.00	29,000
E13	- Branch Wiring	14,500	SF	5.00	72,500
E14	- Devices	14,500	SF	2.00	29,000
E15	- Exhibit Premium/Power	3,500	SF	35.00	122,500
E16	- Lighting Allowance/Lobby	2,200	SF	35.00	77,000
E17	- Lighting Allowance/Typical	11,100	SF	15.00	166,500
E18	- Lighting Allowance/Mech/Storage	1,200	SF	8.00	9,600
E19	Systems - FA	14,500	SF	3.00	43,500
E20	- Communications/Raceways Only	14,500	SF	2.50	36,250
E21	- Security	1	LS	-	25,000
E22	- AV Power	1	LS	-	w/ Electrical Allowance
E23	- Emerg. Back Up Power	1	LS	-	30,000
E24					0
E25					0
E26					0
E27					0
E28					0
	Subtotal				2,064,600

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ESTIMATE

Proj: Washington Crossing Visitor Center
Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
F	Sitework: Location 2				
F1	Demolition - Existing Visitor Center	1	LS	25,000.00	25,000
F2	- Backfill/Landscape	1	LS	5,000.00	5,000
F3	Site Clearing/No Scope - Assume Minor	1	LS	15,000.00	15,000
F4	Paving - Asphalt @ Parking & Drive/Per Space	30	EA	3,000.00	90,000
F5	- Paved Path/Assume 5' Wide	90	LF	35.00	3,150
F6	- Concrete @ Side Walk	1	LS	-	NIC
F7	- Conc. Curb @ Parking	1	LS	-	w/ Parking
F8	Seat Walls	1	LS	-	NIC
F9	Seating/Trash Receptacles/Bike Racks/Etc	1	LS	25,000.00	25,000
F10	Plantings @ Building/Parking/Allowance	1	LS	100,000.00	100,000
F11	Musket Firing Demonstrations	1	LS	50,000.00	50,000
F12	Signage - Misc & Wayfinding	1	LS	25,000.00	25,000
F13	Storm Water Management/No Scope/Allowance	1	LS	50,000.00	50,000
F14	Site Utilities/Not Shown - W/F/S/E/C	5	EA	25,000.00	125,000
F15	- Street Connections	5	EA	5,000.00	25,000
F16	- Trench/Patch	1	LS	15,000.00	15,000
F17	Trellis	850	SF	50.00	42,500
F18	- Pavers	850	SF	25.00	21,250
F19	- Outdoor Seating	1	LS	10,000.00	10,000
F20	Canopy - Pavers	850	SF	25.00	21,250
F21					0
F22					0
F23					0
F24					0
F25					0
F26					0
F27					0
F28					0
	Subtotal				648,150

Project: Washington Crossing Visitor Center
Number: 18080E1R2
Client: CCH
Date: July 23, 2018 Rev: 7, Dec 2018
Phase: Masterplan



ESTIMATE SUMMARY

CODE	DESCRIPTION	14,250 SF	COST
Concept C - Ferry Boat			
A	Foundations & Framing	\$89	\$1,269,630
B	Exterior Envelope	\$140	\$1,998,750
C	Interior Fitout/Finish	\$37	\$521,200
D	Millwork/Specialties/Furnishings	\$21	\$299,750
E	Mechanical/Electrical	\$147	\$2,091,170
F	Sitework: Location 3	\$61	\$869,130
	Interpretive Experience & Gathering Space		\$100,000
	Exhibit Gallery Fitout		\$1,600,000
	AV System Allowance		\$550,000
	Subtotal		\$9,299,630
	General Conditions / O. H. & P./Bond	15.0%	\$1,395,370
	Boat Shape Premium	5.0%	\$535,000
	Design Contingency	15.0%	\$1,685,000
	Total		\$12,915,000

Notes

Backup costs are current, for Summer 2018; escalation costs are not included.
 Furniture, fees and other soft costs are not included.
 Hazardous Materials Removal/Remediation is not included
 Rock Excavation is not included
 Dewatering not included
 Pricing assumes Competitive Bid; Minimum 3 Bidders
 See Transmittal For Basis of Estimate & Additional Conditions

ESTIMATE

Proj: Washington Crossing Visitor Center
Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
A	Foundations & Framing				
A1	Earthwork - Excavate @ Foundations	1	LS	50,000.00	50,000
A2	- Fine Grading	14,250	SF	-	Included
A3	Foundations - Footing/Wall/Conc/1x2.5	650	LF	50.00	32,500
A4	- Footing/Col/Assume 4x4x1.5	14,250	SF	2.00	28,500
A5	- Foundation Wall/CMU/12"/2' D+WP/Perim. Insul.	1,300	SF	25.00	32,500
A6	- Piers/Allowance	1	LS	7,500.00	7,500
A7	- Slab-on-grade	14,250	SF	8.50	121,130
A8	Framing - Steel/Columns	14,250	SF	5.00	71,250
A9	- Glulam Framing	14,250	SF	50.00	712,500
A10	- Glulam Roof Deck	14,250	SF	15.00	213,750
A11					0
A12					0
A13					0
A14					0
A15					0
A16					0
A17					0
A18					0
A19					0
A20					0
A21					0
A22					0
A23					0
	Subtotal				1,269,630

B	Exterior Envelope				
B1	Roofing - SS Metal/Insulation/Flashing/Lobby/Theate	4,550	SF	65.00	295,750
B2	- Membrane/Insul/Flashing	9,700	SF	25.00	242,500
B3	- Green Roof, Irrigation, Drainage	1	LS	-	NIC
B4	Canopy - No Spec/Allowance	3,400	SF	-	NIC
B5	Exterior Wall - Stone/Insul/Sheath/Studs	7,150	SF	110.00	786,500
B6	- Wood/Metal Cladding	1,950	SF	90.00	175,500
B7	Glazing - Windows	1,000	SF	100.00	100,000
B8	- Curtain Wall	2,500	SF	150.00	375,000
B9	Doors/Hdw/Frames - Entry/Glass/Double	1	PR	10,000.00	10,000
B10	- Glass/Single	2	EA	5,000.00	10,000
B11	- HM/Single	2	EA	1,750.00	3,500
B12					0
B13					0
B14					0
B15					0
B16					0
B17					0
B18					0
B19					0
B20					0
B21					0
B22					0
B23					0
	Subtotal				1,998,750

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ESTIMATE

Proj: Washington Crossing Visitor Center

Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
C	Interior Fitout/Finish				
C1	Drywall - Partitions16' H	360	LF	100.00	36,000
C2	- Theater	170	LF	150.00	25,500
C3	- Mech	40	LF	400.00	16,000
C4	- Chase	20	LF	300.00	6,000
C5	- Furred @ Perimeter	7,150	SF	3.50	25,030
C6	Interior Wood/Stone Walls - Facing @ Lobby	700	SF	100.00	70,000
C7	Doors/Hdw/Frames - SCWD	8	EA	1,500.00	12,000
C8	- SCWD/Single @ Theater	2	EA	2,500.00	5,000
C9	- SCWD/Double	1	PR	3,000.00	3,000
C10	- Transom/Sidelights	1	LS	-	NIC
C11	- Glazed/Half/Full	1	LS	-	NIC
C12	Glazing - Interior Storefront/9' H	1	LS	50,000.00	50,000
C13	Finishes - Office/Conf/Carpet/RB/Paint/Exp. Clg.	5,250	SF	12.50	65,630
C14	- Lobby/Assume Polished Conc/Paint/Exp. Clg.	2,350	SF	27.50	64,630
C15	- Kitchen/Allowance	1	LS	-	NIC
C16	- Toilets/CT/Wains/DW Clg	550	SF	43.00	23,650
C17	- Mech/Elec/Sealed Conc/Paint/Exp. Clg.	1,250	SF	7.50	9,380
C18	- Exhibit	3,250	SF	27.50	89,380
C19	- Admin Suite/Carpet/RB/Paint/Exp. Clg.	1,600	SF	12.50	20,000
C20					0
C21					0
C22					0
C23					0
	Subtotal				521,200

D	Millwork/Specialties/Furnishings				
D1	Millwork/Casework - Kitchen Cab/Counter	1	LS	-	NIC
D2	- Reception @ Lobby	30	LF	1,000.00	30,000
D3	- Rec	1	LS	-	NIC
D4	- Vanities	20	LF	250.00	5,000
D5	Toilets Accessories - Toilet/Shower Partitions	7	EA	1,750.00	12,250
D6	- Misc. Specialties	1	LS	7,500.00	7,500
D7	Building Accessories - Folding Wall/Assume 15' H	1	LS	-	NIC
D8	- Shades/Assume Motorized	3,500	SF	40.00	140,000
D9	- Theater/Acoustic Panels/8' H	1,760	SF	25.00	44,000
D10	- Misc. Specialties/Signage/FE Cabs/Etc.	14,250	SF	2.00	28,500
D11	Theater - Seats/Allowance	50	EA	650.00	32,500
D12	- Acoustic Panels	1	LS	-	TBD
D13	AV System	1	LS	-	By Others
D14	- Exhibit	1	LS	-	By Others
D15	- Theater	1	LS	-	By Others
D16					0
D17					0
D18					0
D19					0
D20					0
D21					0
D22					0
D23					0
	Subtotal				299,750

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ESTIMATE

Proj: Washington Crossing Visitor Center
Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
E	Mechanical/Electrical				
E1	Fire Protection - Sprinklers	14,250	SF	5.00	71,250
E2	- Height Premium/8'H	4,550	SF	3.00	13,650
E3	- Fire Pump/Jockey Pump	1	LS	-	TBD
E4	Plumbing - No Fixtures Shown/Allowance	1	LS	100,000.00	100,000
E5	- Roof Drainage	14,250	SF	3.00	42,750
E6	HVAC Allowance	14,250	SF	50.00	712,500
E7	- Museum Premium	14,250	SF	25.00	356,250
E8	- Height Premium/8'H	4,550	SF	10.00	45,500
E9	Electrical - Service/MDP	1	LS	25,000.00	25,000
E10	- Feeders/Not Shown	14,250	SF	1.50	21,380
E11	- Branch Panels/Not Shown	4	EA	7,500.00	30,000
E12	- Equipment Connections	14,250	SF	2.00	28,500
E13	- Branch Wiring	14,250	SF	5.00	71,250
E14	- Devices	14,250	SF	2.00	28,500
E15	- Exhibit Premium/Power	3,250	SF	35.00	113,750
E16	- Lighting Allowance/Lobby	2,350	SF	35.00	82,250
E17	- Lighting Allowance/Typical	10,650	SF	15.00	159,750
E18	- Lighting Allowance/Mech/Storage	1,250	SF	8.00	10,000
E19	- Height Premium/8'H	4,550	SF	7.50	34,130
E20	Systems - FA	14,250	SF	3.00	42,750
E21	- Communications/Raceways Only	14,250	SF	2.50	35,630
E22	- Security	1	LS	-	25,000
E23	- AV Power	1	LS	-	w/ Electrical Allowance
E24	- Height Premium/8'H	4,550	SF	2.50	11,380
E25	- Emerg. Back Up Power	1	LS	-	30,000
E26					0
E27					0
E28					0
	Subtotal				2,091,170

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ESTIMATE

Proj: Washington Crossing Visitor Center
Date: July 23, 2018 Rev: 7, Dec 2018

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
F	Sitework: Location 3				
F1	Demolition - Existing Visitor Center	1	LS	25,000.00	25,000
F2	- Backfill/Landscape	1	LS	5,000.00	5,000
F3	Site Clearing/No Scope - Assume Minor	1	LS	15,000.00	15,000
F4	Paving - Asphalt @ Parking & Drive/Per Space	30	EA	3,000.00	90,000
F5	- Paved Path/Assume 5' Wide	75	LF	35.00	2,630
F6	- Concrete @ Side Walk	1	LS	-	NIC
F7	- Conc. Curb @ Parking	1	LS	-	w/ Parking
F8	Seat Walls	1	LS	-	NIC
F9	Seating/Trash Receptacles/Bike Racks/Etc	1	LS	25,000.00	25,000
F10	Plantings @ Building/Parking/Allowance	1	LS	100,000.00	100,000
F11	Musket Firing Demonstrations	1	LS	50,000.00	50,000
F12	Signage - Misc & Wayfinding	1	LS	25,000.00	25,000
F13	Storm Water Management/No Scope/Allowance	1	LS	50,000.00	50,000
F14	Site Utilities/Not Shown - W/F/S/E/C	5	EA	25,000.00	125,000
F15	- Street Connections	5	EA	5,000.00	25,000
F16	- Trench/Patch	1	LS	15,000.00	15,000
F17	Trellis	1,000	SF	50.00	50,000
F18	- Pavers	1,000	SF	25.00	25,000
F19	- Outdoor Seating	1	LS	10,000.00	10,000
F20	Plaza - Pavers	3,400	SF	35.00	119,000
F21	Seat walls	150	LF	750.00	112,500
F22					0
F23					0
F24					0
F25					0
	Subtotal				869,130