TECHNICAL PROPOSAL REPORT

Agreement: E01640 | **Project Specific** | **Active**

Name: Schuylkill County Design/Bid/Build Package #1

Selection Process: Modified
Initiating Org: Engineering District 5-0

Supplement: 2 | **Normal** | **Executed**

Description: include additional borings, inspection and testing in the preliminary engineering phase and to provide final design of the rehabilitation of the US 209 Broad Street Bridge over the Little Schuylkill River.

Part 2 - Preliminary Design - US 209 (MPMS #12708)

Description

Engineering tasks associated with the construction of Design/Bid/Build package for US 209 (Broad Street) over Little Schuylkill River in Tamaqua Township, Schuylkill County.

Task 13 - Structure Boring

Objective:

2.5.4 - Structure Boring
This task is the performance of core borings for structures by an approved test boring contractor in accordance with Publication 15M, Design Manual Part 4, Publication 293 and Publication 222M.

Scope:

2.5.4 - Structure Boring
The following work elements are required for completion of this task:

1. Coordinate the effort with the District Geotechnical Engineer (DGE), District Bridge Engineer, BOD Bridge Quality Assurance Division (BQAD), and the other engineering disciplines involved. Perform QA/QC on work processes and products. Verify that roadway alignment and structure TS&L have not changed since approval of the Reconnaissance Soils and Geological Engineering Report (RSGER).

2. Advertise and receive bids on a contract for performance of the test borings in accordance with Publication 222M, based on the boring program in the approved TS&L for the structure.

3. Submit a summary of the bids to the District for approval to award the contract and proceed with the work.

4. Upon notice to proceed, notify the affected public, and award and administer the test boring contract in accordance with Publication 222M.

5. Provide PennDOT-certified inspectors to oversee the field operations and to prepare the field logs of the borings as they are drilled.

6. Prepare water testing required to allow analysis of foiundation conditions. Tabulate the results of the testing

7. Upon completion of the field work, verify contract terms have been met, close out the subcontract, and prepare and submit the subcontractor evaluation form.

8. Prepare a record copy of the engineer's logs for the borings for submission with the Foundation Report for the structure.

Detail Task 1 - Structure Borings

Department Details:

Assume eight borings at 30 feet each.

All references to Publication 15M shall be replaced to reference Publication 15.
All references to Publication 222M shall be replaced to reference Publication 222.

Scope of Work bullet point 6 shall be amended to change “water testing” to “soil/rock/water testing”.

All boring locations will be surveyed and staked out.

The core boring contract will include the following:

- Preparation and coordination of boring contract documents in accordance with Pub. 222 and Pub. 293. Soil Erosion and Sedimentation Control Plans and documentation for the core borings needs to be prepared and submitted to the local Soil Conservation District for approval.

- The consultant will prepare the necessary documents for the letting of a core boring contract in accordance with Pub. 222 and Pub. 293. Copies of this package will be submitted to the District Engineer for review and approval.

- Subsequent to the approval of the bid package, the consultant will solicit bids from all the firms on the Department's listing of approved core boring contractors. To the interested bidders, the consultant will transmit the following data: the proposal for test borings; the location map of the project; the plans indicating the test boring locations; and any additional specifications necessary to fulfill the objectives of the foundation exploration.

- The bids received will be opened on the prescribed date in the District office. Consultant’s personnel will conduct the proceedings at this meeting.

- After reviewing the bids received, the District Engineer will approve the acceptable low bid. The consultant will then procure the necessary contract documentation, i.e., bonds, certificates of insurance’s, etc., from the low bidder and finally grant notice to proceed with the work after being notified to proceed from the Department.

- In accordance with Pub. 222, the consultant will assign full-time supervision of the drilling program with PADOT certified/approved Level II inspectors to ensure that the contract requirements and specifications are met. A member of the consultant’s Geotechnical staff will check all the soils and rock samples. Soil classification will be in accordance with Publication 293, BC-795, and the procedures of ASTM D2488-96. Rock

descriptions will be made in accordance with Publication 293 and BC-795. The core samples will be retained and delivered to a District facility prior to completion of this engineering agreement.

- The consultant will be responsible for the preparation of typed boring logs and structure boring tracings in accordance with Design Manual, Part 4 and Publication 222 guidelines. Both will be submitted to the Department's District 5-0 Office for review.

In Supplement 2, this task is amended to include additional borings, inspection and testing in accordance with comments received on the RSGER.

Approach:

Supplemental effort for this task includes the preparation of bid documents for the proposed subsurface investigation for this project and an additional 80 feet of drilling.

AWK will prepare and submit a Subsurface Boring, Sampling and Testing Contract (SBSTC), which will include the “announcement to drillers of a pending project”, and will:

• Advertise and solicit bids from all Department-approved drilling contractors, supplying each interested contractor with a copy of the bid documents and a pre labeled envelope for use in returning their bid.
• Conduct a pre bid meeting with all interested drilling contractors.
• Attend the bid opening and tabulate and summarize the bids.

Bids for the drilling contract will be opened by AWK at their office in Harrisburg. AWK will tabulate the bids, verify the submittals and present the results to Ammann & Whitney for submittal to the Department. There are eight structure borings and one roadway boring proposed for this investigation. There are also four test pits to ascertain the condition of the existing bridge masonry.

AWK will perform the management and administration of the drilling program and will provide Department-certified inspectors to oversee and direct the drillers work, and perform QA/QC on the processes and the products. AWK will also log the borings, collect samples for testing and submit the samples to the selected testing laboratory. The laboratory testing includes full soil classifications, unconfined rock compression tests, corrosion testing of soil and water, direct shearsa standard proctor, and a California Bearing Ratio (CBR) test. A Consolidation test may be conducted if soft compressible soil is found.

All test-drilling activities will be performed under the full-time, on-site supervision of an experienced AWK inspector, who is a geologist, engineer or engineering technician and is certified as a drilling inspector by PennDOT. A Level 2 inspector will oversee the field operations. The AWK inspector will observe the drilling and sampling, supervise field tests, if required, and prepare comprehensive boring logs for use in design.

Soil descriptions will include texture, state, moisture and color. Soil sampling blow counts will also be recorded. Rock descriptions (if encountered) will include type, hardness, degree of fracturing, degree of weathering, recovery, RQD determinations and color. Every attempt will be made to identify all the fresh core breaks caused by the sampling disturbance and to disregard these fresh breaks when determining the RQD’s. Photographs will be taken of all core boxes.

Utility clearance and maintenance and protection of traffic will be the responsibility of the drilling contractor. The drilling contractor will be required to grout all of the borings and restore all disturbed areas, including seeding and mulching, once the boring program is completed.

AWK will prepare typed boring logs and drafted structure boring sheets for all borings.

After completion of drilling for the project, AWK will prepare a Laboratory Request Submission for review and approval by Ammann & Whitney and PennDOT. This will include recommendations for geotechnical testing of soil and rock samples, and for corrosivity testing of soil and water samples, if warranted.

Consultant Hierarchy

Business Partner	DBE Type	Supervising BP
Ammann & Whitney Pennsylvania, Inc.	No	
AWK Consulting Engineers, Inc.	Yes	Ammann & Whitney Pennsylvania, Inc.

Attachments

No records found.

Part 3 - Final Design - US 209 (MPMS #12708)

Description

Engineering tasks associated with development of Design/Bid/Build package for US 209 (Broad Street) over Little Schuylkill River in Tamaqua Township, Schuylkill County.

Task 1 - Project Management/Administration

Objective:

2.1.1 - Project Management/Administration
This task consists of the administrative effort required by principals, project manager, and involved personnel to complete the project on time and within budget, and to provide a quality product.

2.1.1.3 - Quality Control/Quality Assurance
This task consists of the effort to administer the QC/QA policies and procedures.

2.1.1.5 - Project Schedule Development and Maintenance
The purpose of this task is to prepare and maintain a design schedule that ranges from Scoping Field View to Contract Award.

2.1.1.7 - Project Reporting
This task consists of periodically reporting project schedule and budget progress.

Scope:

2.1.1 - Project Management/Administration
Project Management involves the planning, scheduling, organizing and controlling of resources to achieve specific objectives within established schedule, budget and quality standards. The Project Manager is responsible for the tasks outlined in the Department Detail.

2.1.1.3 - Quality Control/Quality Assurance
Quality Control and Quality Assurance practices and procedures need to be incorporated and administered.

PennDOT has implemented procedures to place additional responsibilities on consultants for quality of work. The consultants will be required to submit a corporate quality plan and submit job specific Quality Development plans for PennDOT approval. As part of quality reviews, process reviews, and IAPs, these plans and the consultants' conformance to them will be monitored, evaluated and documented.

Design Manual Part 1A can be used as a source of information to develop QC/QA policies and procedures.

2.1.1.5 - Project Schedule Development and Maintenance
Guidance:
- Publication 615, Scheduling Manual
- All applicable strike-off-letters
- ECMS (Project Management Homepage)

Scope:
1. Develop a design schedule utilizing Deltek's Open Plan software. The design schedule will be developed in accordance with Publication 615 using the Department's PDSPRJ and PDSMASTER templates.

2. Maintain the design schedule utilizing Deltek's WelcomHome software.

3. Document all schedule issues to ensure that the project is let on time.

Scope Subtasks:
1. Coordinate the schedule development with the entire project team. The project team includes but is not limited to the District Portfolio Manager, the District Project Manager, various District functional units, the Bureau of Design, the Federal Highways Administration and various environmental agencies. Development of the schedule will consist of reviewing the schedule to ensure it contains the appropriate activities. There may be the need to add or delete activities to make the schedule specific to a given project. The review and modification of durations or relationships should also be performed to ensure that the schedule is setup to meet the desired completion date.

2. Prepare a draft of the design schedule that will be reviewed by the project team either in conjunction with a project status meeting or offline depending on the frequency of these meetings. The draft will, if approved, become the initial project schedule and be maintained through the remainder of the project.

3. Monthly progress of the design schedule activities will be input into Deltek's WelcomHome software. The schedule update day of the month will be specified by the District Project Manager to ensure that they have appropriate time to review proposed schedule changes prior to acceptance.

4. In the event that a major change in schedule occurs the Department will provide an Open Plan backup file (bk3) so that revisions can be made and resubmitted to the Department. Re-submittal shall follow the same process as the initial schedule development.

Scope Deliverables:
1. Provide the project team a draft design schedule in portable document format (PDF) and/or hard copy. The draft will contain relationships and durations so that they can be reviewed along with the activities that are included in the schedule. Schedules provided in portable document format (PDF) shall be submitted either by email or CD-ROM.

2. Upon acceptance of the schedule by the project team an Open Plan backup file (bk3) shall be provided to the District Project Manager either by email or CD-ROM.

3. Resubmit major revisions to the design schedule, as an Open Plan backup file (bk3), to the District Project Manager either by email or CD-ROM.

4. All schedule documentation shall be provided in MS Word compatible format to the District Project Manager either by email or CD-ROM.

2.1.1.7 - Project Reporting
On a regular basis (i.e., monthly or as necessary) prepare a project status report of which should address the current status of the project schedule and budget. Note any areas of concern such as delays in the project schedule or potential cost overruns.

Detail Task 1 - Project Management/Administration

Department Details:

Task involves project management during final design for the rehabilitation of the S.R. 209 bridge over the Little Schuylkill River in the Borough of Tamaqua, Schuylkill County.

Monitor design team performance and project development.

Control project costs.

Maintain the project schedule using Welcom Open Plan software including PennDOT developed/approved templates, and continue updates/progressing in Welcom Home.

Limit attendees at meetings to only those needed to provide input and make decisions. Verify attendees with District prior to each meeting.

Follow the Department's QA/QC guidelines.

Continue evaluation of bicycle and pedestrian checklists per DM1.

Provide electronic deliverables in compatible formats (Microsoft or Microstation) for completed preliminary engineering documents.

Provide cost containment information per DM1 during final design (75% complete); or annually (which ever comes first); at the PS&E stage (95%). Provide a detailed cost justification for cost increases when PMC approved costs are exceeded by 15%.

In the technical approach, specify any Other Costs which are not standard costs so that extraneous other costs items can be reviewed before submitting Price Proposal.

Submit all design final invoices within sixty days of the construction notice to proceed.

Complete environmental due diligence for clean fill determinations for design.

Approach:

Ammann & Whitney (A&W), in conjunction with our subconsultatnts; Skelly & Loy (S&L); and AWK Consulting Engineers (AWK), will perform project management and administration in accordance with the above SOW and as detailed below.

A&W will provide a project manager to administer the overall project and be the main point of contact with the Department and the design team.

A&W's PM will be in responsible charge of overseeing the review of all submittals and deliverables described herein for compliance with applicable policies and procedures.

Throughout the design process, continuing communication and coordination will be accomplished through meetings, progress reports, and consultation with the Department and the design team.

Task 2 - Project Management/Administration

Objective:

2.1.1 - Project Management/Administration
This task consists of the administrative effort required by principals, project manager, and involved personnel to complete the project on time and within budget, and to provide a quality product.

2.1.1.1 - Meetings
This task includes meeting preparation, attendance and documentation in the form of minutes. This includes Project Status, Design Review and Special Purpose Meetings.

Scope:

2.1.1 - Project Management/Administration
Project Management involves the planning, scheduling, organizing and controlling of resources to achieve specific objectives within established schedule, budget and quality standards. The Project Manager is responsible for the tasks outlined in the Department Detail.

2.1.1.1 - Meetings
Attend all project meetings as necessary, including meeting preparation and minutes. Meetings will include but will not be limited to:

Project Status Meetings
Design Review Meetings
Special Purpose Meetings (e.g., Kick-off Meeting, Design Field View, etc.)
Public Meetings

Preparation for the meetings will include an agenda and any visuals necessary to conduct the meeting.

Meeting minutes will be prepared in a timely and accurate manner.

Detail Task 1 - Meetings

Department Details:

Task involves design, review and coordination meetings with the Department to complete final design for the rehabilitation of the S.R. 209 bridge over the Little Schuylkill River in the Borough of Tamaqua, Schuylkill County.

The consultant will prepare and distribute to appropriate parties the minutes of all meetings and telephone conversations where directions or decisions are made.

Assume there will be one (1) design related meeting every two months for the duration of the preliminary design phase of the project. Assume two (2) attendees per meeting. The number of meetings necessary will be a function of the duration and complexity of the project.

Assume there will be one (1) public involvement related meeting. Assume two (2) attendees for the meeting.

Limit attendees at meetings to only those needed to provide input and make decisions. Verify attendees with District prior to each meeting.

Approach:

A&W will prepare for and conduct the project meetings. This includes developing meeting agenda, handouts, and material; taking and distributing meeting minutes; and scheduling necessary meeting rooms.

A&W's project manager and highway or structures task leader will attend the following meetings:
• Six Design Coordination Meetings
• One Public Meeting

This task includes all meetings except the waterway permit pre-app meeting which is included in Task 3.

A&W, as the meeting moderator, will actively guide the meetings to allow thorough coverage of each discussion topic within a reasonable overall meeting time period.

Task 3 - Waterway Permits

Objective:

2.7.4 - Waterway Permits
This task is the coordination with the appropriate environmental agencies and the preparation of permit applications.

2.7.4.1 - 105 Permit Application/401 Water Quality Certification (WQC)
This task includes the preparation of the Chapter 105 Permit application package.

Scope:

2.7.4 - Waterway Permits
Needs completed.

2.7.4.1 - 105 Permit Application/401 Water Quality Certification (WQC)
1. Coordinate with the PADEP to present the water obstructions and encroachments associated with the project. Determine any specific information requirements that will be needed for the Chapter 105 permit review.

2. Prepare a summary of the information requirements needed for the permit review.

3. Prepare the Chapter 105 Permit Application package using the PENNDOT JPA Expert System. This will include, but not limited to: the General Information Form, Chapter 105 Application (signed and notarized), location map, Act 14 Notification Letters with return receipts, floodplain and stormwater management consistency letters, Environmental Assessment Form, H&H reports, E&S approval letter, etc.

4. Provide written responses to any PADEP comments received on the permit package.

Detail Task 1 - Waterway Permits

Department Details:

Use JPA/H&H Expert System via the internet for all permit submissions.

Determine the information requirements for the Chapter 105 Application. Coordinate with the PADEP.
Coordinate with PennDOT and the agencies to determine the permit strategy to be employed.
Prepare the information requirements for the 401 WQC, Section 404 Permit and the Environmental Assessment Form.

Submit a request for the 401 WQC.

2.7.4.1

Determine the information requirements for the Chapter 105 Application. Coordinate with the PADEP.

2.7.4.3

Coordinate with PennDOT and the agencies to determine the permit strategy to be employed. Prepare the information requirements for the 401 WQC, Section 404 Permit and the Environmental Assessment Form. Submit a request for the 401 WQC.

Approach:

A&W will provide project oversight and coordination for our sub-consultants work on this task as described below. A&W's project manager will attend the meeting listed below.

A Chapter 105 General Permit 11 will be prepared in accordance with PA DEP regulations. It is assumed this will be processed as a Pennsylvania State Programmatic General Permit (PASPGP-4) Category III activity by the United States Army Corps of Engineers (USACE) given the cultural resource coordination necessary. Skelly and Loy will complete the Permit Registration Form, General Information Form, Project Screening form, Municipality and County Act 14 Notifications, Project Location Map, updated HGIS PNDI Review, Wetland No Finding memo (which will require a field view), and facilities report as part of the administrative assemblage of the permit information and insertion into the JPA system. The Project engineer will be required to provide to Skelly and Loy the project design plans (signed and sealed) along with type, size, and location details regarding all existing and proposed encroachment activities, an erosion and sedimentation pollution control plan, cross sections, and any necessary hydrologic and hydraulic analysis or supporting information. The project design plans should include limits of the following: regulated floodplains, including the floodway and floodplain fringe; all regulated waters, including watercourses, wetlands, and bodies of water; all existing

roads, utility lines, lots, and other man-made structures; all natural features such as slope and drainage patterns, contour lines; all proposed structures or activities included in the project (permanent and temporary); name(s) of person(s) who prepared the plan; north arrow; and scale of 1"=200' or larger. Threatened and endangered species (updated in final design) and cultural resource clearances will be obtained in preliminary design as part of this scope of services and will be included with the GP-11 package.

Skelly and Loy will set-up/attend one pre-application meeting to discuss permit requirements for the project as well as coordinate with PFBC on the final ATON plan. Skelly and Loy will update the T&E PNDI once during the final design contract for use in the permitting process. Should additional information, studies, or meetings be required upon coordination with state or federal agencies, those items would be supplemental to this scope of services. The scope of service and associated cost for this task includes the preparation and submission of an administratively complete GP-11/PASPGP-4 Permit Application package.

Task 4 - Roadway

Objective:

2.10.2 - Roadway
This task includes survey, roadway, pavement and drainage design, plans, cross sections, soil profile, final design office meeting, draft special provisions and final design field view.

2.10.2.1 - Final Drainage Design
This task includes the design of roadway drainage items. Publication 13M, Design Manual Part 2 applies to this task.

2.10.2.2 - Final Pavement Design
This task is the preparation of the final pavement design.

2.10.2.3 - Roadway Plan
This task includes the preparation of the final roadway plans and profiles in accordance with Publication 10A, Design Manual Part 1A.

Scope:

2.10.2 - Roadway
Needs completed.

2.10.2.1 - Final Drainage Design
One copy of the plan depicting the drainage design and the hydraulic design computations for roadway drainage structures shall be submitted to the appropriate District Office for review and comment by the Project Manager or designated drainage engineer. As directed by the District, one additional copy of the drainage submission shall be sent to Central Office, Bureau of Design for quality assurance review.

The following work elements are required for the successful completion of this task:

1. Develop a drainage design that provides the proper capacity, spacing, size and type of drainage facility (existing and proposed) for each drainage area, location, fill height, roadway type and environmental condition including all inlets, pipes, culverts, ditches and base drains.

2. Prepare hydraulic design computations using appropriate methodologies for all roadway drainage structures. Include energy grade line and hydraulic grade line computations for existing and proposed systems.

3. Develop alternate pipe designs as required with corresponding hydraulic computations for each alternate. Provide "For Information Only" quantities for each pipe type and alternate as well as minimum and maximum fill heights as required.

4. Verify that downstream drainage capacity is sufficient for the proposed design. Conform to local municipal storm water requirements, if a local storm water ordinance exists.

5. Show all existing and proposed drainage facilities on construction cross sections and profiles.

6. Prepare transmittal letter to include, plans showing drainage design and hydraulic design computations. Provide PE seal on all plans and computations.

2.10.2.2 - Final Pavement Design
Follow Publication 13M, Design Manual Part 2, which refers to Publication 242, Pavement Policy Manual for the preparation of final pavement design.

2.10.2.3 - Roadway Plan
The submission will include the completion of the following work items:

1. Interchange Design

2. Intersection Design - Prepare pavement elevation plans to describe the horizontal and vertical geometry that cross sections cannot describe.

3. Airport Clearances - Review Part 77 of the Federal Aviation Regulations and adjust the design accordingly when the project is within 2 (3.2 km) miles of an operating airport. If the project is within 2 (3.2 km) miles of an operating airport, an Airport Clearance Submission to the FAA is required.

Prepare all the following work elements:
(Note: Plans listed below are highway design plans only and do not include also plans.)

1. Title sheet
2. Index/General Note Sheet
3. Typical Section Sheet (Location Map and General Notes)
4. Summary of Quantities Sheets
5. Tabulation of Quantities Sheets
6. Detail Plan Sheets
7. Profile Sheets
8. Contour, Grading, and Drainage Plans
9. Landscaping Plans
10. Cross Sections
11. Special Detail Sheets
12. Required Forms, Special Provisions and Estimates

Detail Task 1 - Final Roadway, Pavement and Drainage Design

Department Details:

2.10.2 - Roadway
Supplemental Surveys is Task 5 and is not a part of this task.
Cross Sections is in Task 13 and is not a part of this task.
A Soil Profile is not required.
This task includes preparation of all non-structure related special provisions.

2.10.2.2 - Final Pavement Design
This task includes the typical section and pavement design submission, including preparation of a DarWIN run and completion of form D-4332.

2.10.2.3 - Roadway Plan
Interchange Design, Intersection Design and Airport Clearance tasks are not required.
Contour, Grading, and Drainage Plans and Landscaping Plans are not required.

Approach:

This task represents a continuation of activities from Preliminary Design. A&W will integrate any comments from the Design Field View into the roadway construction plans. Horizontal alignments and vertical profiles will be refined as needed for the final design of the

A&W will prepare the following to complete the roadway design for our assigned work:

• Typical Section Sheet
• Special Detail Sheets
• Summary of Quantities Sheets
• Tabulation of Quantities Sheets
• Detail Plan Sheet at 50 scale
• Profile Sheet at 50 scale
• Cross Sections

Upon Design Field View approval, A&W will prepare the final roadway design plans at 1”=25’ (standard)
, including final drainage design, final line & grade and typical sections; roadway tracings; quantity computations and tabulations in accordance with current Department Design Manuals for the construction plans other than listed elsewhere in this scope.

Task 5 - Supplemental Surveys

Objective:

2.10.3 - Supplemental Surveys
This task includes all survey required to supplement the original roadway survey or Photogrammetric mapping performed in Preliminary Design.

Scope:

2.10.3 - Supplemental Surveys
Guidance:
- Publication 122M, Surveying and Mapping Manual
- Strike Off Letter 430-99-20, QA/QC Control Checklist for Right-of-Way and Construction Plans
- Publication 213, Work Zone Traffic Control Manual
- Form D-428, Field Book

Scope:

The Quality Assurance/Quality Control Checklist will be completed and discussed with the District Chief of Survey for all final design survey work.

Prior to initiating surveys, develop a Traffic Control Plan in accordance with Publication 213 for implementation during surveys within existing transportation facilities.

Detail Task 1 - Supplemental Surveys

Department Details:

Field Survey will be within the limits of work. All work will be in accordance with Pub.122, Department Survey Manual.

Follow current Department procedures regarding Notice of Intent to Enter letters. Contact each property owner at least 48 hours prior to entering their property for survey and any other task.

Survey and stake the construction centerline and other baselines. Establish all control points including PIs, PCs, and PTs. The centerline will be stationed at 50-foot intervals on tangent and 25-foot intervals on curves. Roadway cross sections will be taken at 25-foot intervals within the project limits.

Give written notification or e-mail the project and survey managers to have the District Survey Unit to field inspect the alignment.

Establish permanent benchmarks along the proposed alignment, but placed outside the limits of construction. The benchmarks will be based on the USC&GS vertical datum.

The plan scale will be 1” = 25’ on 22” x 34” plan sheets. The plan will show all topographic features such as pavement edges, inlets, headwalls, pipes, utilities, guide rail, fences, buildings, signs, sidewalks, trees and property corners which could affect the proposed design or the estimating of quantities. Apparent property lines will be shown together with the owner's name where right-of-way takes are anticipated. The plan will be consistent with the requirements of Design Manual, Part 3.

All survey plans and associated data will adhere to the Quality Assurance/Quality Control Procedures and Guidelines as outlined Pub. 122.

Furnish a hard copy and electronic files for all traverse points used to produce alignments.

Furnish electronic files on CD-ROM with the original 3 dimensional terrain and proposed alignments.

Approach:

A&W will provide project oversight and coordination for our sub-consultants work on this task.

AWK will perform the following supplemental surveys using the horizontal and vertical control baselines and benchmarks previously established during Preliminary Design:

Obtain spot elevations at on dry-stacked stone masonry walls at all 4 corners for proposed modifications, obtain spot elevations at sidewalks tie-ins at all 4 corners, and obtain spot elevations at both proposed roadway tie-in points. This information is to be used by A&W to prepare details and adjust elevations and quantities at the tie-in points.

Stake/mark final baselines and baseline control reference points assuming two (2) separate reference points.

Stake/mark any proposed Right-of-Way lines at fifty-foot (50') intervals for Property Owner viewing.

Task 6 - Final Right-of-Way Plan

Objective:

2.10.5 - Final Right-of-Way Plan
This task includes all work necessary to prepare the final R/W plan in accordance with Publication 14M, Design Manual Part 3.

Scope:

2.10.5 - Final Right-of-Way Plan
Right-of-Way Plans, when specified in the project scope of work, will be the basis for determining all property damages which are involved in the construction requirements of a highway project. They will also serve as the legal record of the location, the extent, and the character of any acquisition of Right-of-Way, Permanent Easements, and Temporary Easements by the Commonwealth.

The Right of Way Plan presentation format will be as specified in the project scope of work. The Right-of-Way Plan format could be either, or a combination of the following:

A. Standard Right-of-Way Plan - For the authorization of acquisition of both total take and partial take property, for both Free Access and Limited Access highways.

B. Final Plan - Reestablishes and/or authorizes the GAP Plan right-of-way, if necessary, and establishes right-of-way and authorizes acquisition of property requirements that were not included under the GAP Plan.

C. Combination Plan - This plan combines both the Right-of-Way and Construction requirements on the drawings. This plan shall be acceptable only for small Federal Aid and 100% state-financed projects involving few properties with no relocation problems.

D. Simplified Right-of-Way Plan - This plan is a simple one (1) or two (2) sheet Right-of-Way Plan, applicable to small projects, where construction is primarily within existing legal right-of-way where only a few properties are involved and the area of taking is minor.

The following are general tasks and their description for Right-of-Way Plan preparation:
1. Current Property Owner Record Research
2. Deed Plotting
3. Composite Deed Plot Matrix Map
4. Property Owner Name
5. Parcel Numbers
6. Right-of-Way Plan Preparation

The following are the basic requirements comprising Right-of-Way Plan preparations:
1. Title Sheet
2. Index Sheet
3. Location Map, General Notes, Etc., Sheets
4. Typical Sections
5. Summary of Project Coordinates
6. Summary of Required Right-of-Way Line Coordinates
7. Detail Plan Sheets
8. Profile Sheets
9. Property Plats
10. Right-of-Way Plan Revisions

Detail Task 1 - Final Right-of-Way Plan

Department Details:

A Standard Right-of-Way Plan is required.

Two (2) Right-of-Way Plan checks are anticipated for this project.

Prepare Final Right-of-Way Plans immediately after issuance of Notice to Proceed on the Final Design Part.

Verify and reissue intent to enter letters.

Based on Design Field View approval and preliminary ROW plans, prepare 1” = 25’ scale ROW Plans showing all topography, property lines, legal and required ROW lines, utilities, relocated utilities, easements and takes.

Prepare property plats for all parcels involved in a take (i.e. parcels with claims). Plats should show all buildings and other structures or shrubbery, which may affect the value of the property.

Verify all information at courthouses prior to submission for plan check.

Submit three (3) full size sets of plans to the District for final Right-of-Way plan check.

Send copies of the right-of-way plans to the District Utility Unit upon request and, after clearance by the Department, send copies to the utility companies as needed.

Approach:

A&W will provide project oversight and coordination for our sub-consultants work on this task.

AWK will perform final Right-of-Way work in accordance with the Department's scope and as herein described. The Right-of-Way title sheet will be updated and the property plots and metes and bounds descriptions for four (4) parcels identified in Preliminary Design. The following information will be provided to A&W for use on the Final Plans: right-of-way dimensions in feet, break point coordinates, primary horizontal control monuments with coordinates in feet in project grid and NAD83 SPC values with notation on datum, reference circles for horizontal control monuments, primary vertical control benchmarks with coordinates in project grid, station and offset and description with elevation and datum, notation of right-of-way baseline and bearings for right-of-way and construction baselines and right-or-way numbers.

AWK will visit the Schuylkill County Courthouse thirty (30) days before the final Right-of-Way plans are submitted to verify deeds or to obtain copies of new deeds and property ownership information. Any changes in property plots and in tabulations resulting from ownership change or parcel reconfiguration will be made.

Task 7 - Utility Engineering

Objective:

2.10.8 - Utility Engineering
This task consists of engineering for utility relocation.

2.10.8.1 - Utility Coordination
This task consists of the coordination of all project utility relocation activities.

Scope:

2.10.8 - Utility Engineering
Guidance:
- Publication 16M, Design Manual Part 5, Utility Relocation

Solicit the utilities requirements for the design and construction of the relocations as soon as possible to determine if:
- work will be done by utility staff and forces,
- work will be done by utility consultant and contractor,
- work will be requested to be done by PennDOTs project designer and contractor, or any combinations of the above.

All utility related formal requests for agreements, permits and occupancy applications must be in accordance with the applicable policies and procedures of Design Manual Part 5.

Authorization to perform preliminary and final utility engineering will be provided in writing by the Department.

2.10.8.1 - Utility Coordination

Guidance:
- Publication 16M, Design Manual Part 5, Utility Relocation
- Form D4181, Utility Relocation Questionnaire and Permit Application
- Form D4181UC, Utility Relocation Clearance Report
- Form D4181A, Utility Relocation Estimates Relocation Plans & Supporting Data
- Cost Sharing Request Information, DM5

The scope of work will include the following activities:

1. Schedule and facilitate an Initial Utility Design Stage meeting to explain the project improvement goals, schedules, and targeted utility clearance dates.

2. Transmit copies of the Department's right-of-way plans, profiles and cross sections along with forms D4181, D4181UC, and D4181A to the utility companies for their relocation engineering design and cost estimates.

3. Delineate the type, size and location utility information verified by the utility company onto the project plans, profiles and cross sections.

4. Upon receipt of utility relocation alignment plans, establish and delineate the substitute right-of-way, or reserved easements, corridor for the utility relocation on the project Right-of-Way Plan.

5. Solicit utility company input relative to project design/utility conflicts, and potential need for substitute right-of-way corridors for utility relocations.

6. Schedule and conduct a utility meeting to review the proposed utility relocations and to resolve any outstanding issues with the individual affected utilities, as needed.

7. Schedule and facilitate the Final Utility Design Stage meeting to discuss and resolve utility/design conflicts and concerns, including substitute right-of-way, when required.

8. Keep utility companies informed of all design changes that could impact existing or planned utility facilities.

9. Ensure the following items are made part of the P.S.&E. package:
a. Utility relocation, abandonment and removal information onto the roadway construction plans, based on plans and information received from the utility company.
b. Incorporated utility work to be performed by the PennDOT contractor, as ALSO Plans, or other approved procedures, into the project construction contract documents.
c. Obtain the restrictive, prior, concurrent, and coordinated calendar work day estimates from the utility companies for work to be performed by their own forces. The utility relocation construction duration time and schedule restrictions must be incorporated into the overall project construction schedule.

10. Invite District Utility Unit representative to attend the Final Design Stage Meeting, pre-bid, pre-construction, and all construction status meetings.

Scope Deliverables:

Document and distribute all meeting minutes, correspondence, memorandums and telephone conversations regarding project related utility issues.

Detail Task 1 - Utility Coordination and SUE

Department Details:

Utilize all information received from all affected utility companies during the preliminary engineering part.

Notify each utility company that your firm will be completing the final design for this project.

As more detailed roadway and right-of-way plans are developed, forward them to the utility companies upon their request. In addition, maintain close contact with the affected utility company, through the District Utility Unit, to ensure accuracy of plans.

The above work consists of fulfilling the requirements of Act 38; plotting existing utilities on plans, cross sections, profiles, and other drawings; attending all necessary meetings and performing design functions necessary to accommodate existing and relocated utilities.

Under scope for 2.10.8 disregard the fourth bullet point included under "The District shall advise the utilities that:" concerning form 4181X.

Obtain SUE Quality Level A information for the water line that is within the arch fill.

Obtain SUE Quality Level B information for the petroleum pipeline and sanitary sewer line in the Little Schuylkill River.

Approach:

A&W will follow the basic procedures outlined above to perform utility engineering.

A&W will coordinate with the District 5-0 Utility Unit and currently developed utility contacts and submit the updated plan for re-verification along for requests for known information that has not yet been obtained. A&W will update the utility plans and will present the utility information in profiles and cross sections. A&W will review and incorporate attachment details, supplied by each utility, to the Broad St. structure. The form 4181-X, Bridge Occupancy Permit and the information necessary for the completion of the Form D-419 will be forwarded to the District Utility Unit.

A&W will utilize the services of an SUE contractor to perform three test pits at the crown of each arch to vertically locate the water line that is within the arch fill. The horizontal location of the gas line and sanitary sewer line located within the streambed will also be located by the SUE contractor.

Unless specified otherwise in the project scope of work, all project related Utility Agreements and utility authorizations will be the responsibility of the District Utility Unit.

Task 8 - Final Structure Plans

Objective:

2.10.13 - Final Structure Plans

This task is the development of the final structure plans.

Scope:

2.10.13 - Final Structure Plans
1. Complete final engineering design(s) for structures on the project based upon the approved type, size and location (TS&L) plans and approved foundation recommendations. Prepare design calculations, construction documents and QA/QC forms in accordance with the Department's Design Manuals as amended by current strike-off letters.

2. Provide pay items and special provisions for design alternate bidding.

3. Provide plan details and special provisions as required for support of excavation and for construction phasing.

4. Provide special provisions for items not covered by Department specifications. Obtain current standard special provisions list from District and utilize standard special provisions whenever possible. Write project specific special provisions, if needed.

5. Prepare cost estimate for each structure based upon estimated quantities and historical data for similar structures in the project region. Consider access, phasing, and relative difficulty of construction in establishing unit prices.

6. Make a pre-final submission to the Department of completed plans, special provisions, quantity estimates, cost estimates, QA/QC forms and computations.

7. Revise the previously submitted documents as required to address the Department's comments thereon. Document responses to comments in writing.

8. Submit the final plans, special provisions, quantity estimates, cost estimates, QA/QC forms and computations properly signed and sealed and in the form described in Publication 15M, Design Manual Part 4.

Detail Task 1 - Final Structure Plans

Department Details:

Prepare final structure calcuations and plans giving special consideration since the location of the project is within a historic district.

Complete final engineering design for structures on this project based upon the approved TS&L and approved foundation recommendations.

This task includes preparation of structural special provisions.

This task includes any on-structure design work related to the existing Broad Street streetscape/enhancements.

Prepare design calculations, final structure plans, construction documents, and QA/QC forms in accordance with the Department’s Design Manuals as amended by current strike-off letters. Design will include seismic criteria.

Submit the structure plans for review at the 90% complete stage. Pre-final plans, special provisions, pay items, quantity estimates, cost estimates,

QA/QC forms, and computations will be provided at this time.

Revise the submitted documents as required to address the Department's comments. Document responses to comments in writing.

The final structure plans should be complete and submitted with the PS&E package. Submit the original final plans, special provisions, pay items, quantity estimates, cost estimates, QA/QC forms, and computations properly signed and sealed and in the form described in Design Manual 4.

Approach:

A&W
In accordance with the above scope of work and as described below, A&W will prepare the final design for the Broad St. Bridge in accordance with the approved TS&L.

All work will be in accordance with the current PennDOT Design Manual, Part 4. The existing masonry arch structure will be rehabilitated. The arch will be rated for HS-20 using the U.S. Army Corps of Engineers method. The sidewalks and their supporting structures will be reconstructed and supported by reinforced concrete beams. The sidewalks will be designed for AASHTO pedestrian loading and rated for HS-20 at the operating level using LRFD methodology. A&W will include structure plans, quantities, cost estimates, computations, work time schedules, special provisions, and applicable duly completed Quality Assurance forms, as per the latest Department Policy and Procedures.

The design will include special analysis for the arched sidewalk beams including details for continuity and beam erection.

The final structure packages will be submitted as part of the PS&E package and will include the original final plans, special provisions, component item schedules, quantity estimates, cost estimates, QA/QC Forms, and computations properly signed and sealed and in the form described in Design Manual Part 4.

Prior to rehabilitation of the bridge structure, it will be inspected for the presence of Asbestos Containing Materials (ACM) by a Pennsylvania Department of Labor and Industry-certified Asbestos Building Inspector. Representative samples of all materials suspected of containing asbestos that can safely and physically be accessed will be collected and submitted under Chain of Custody (COC) documentation to an analytical laboratory.

During the site inspection, the inspector will also assess the individual suspect ACMs associated with the bridge for friability, type and location, and to determine an estimated quantity of each. This information along with the analytical report and COC will be presented in a brief letter report to the District for BMS records.

Also as part of this work scope, a Pennsylvania Department of Environmental Protection (PaDEP) Asbestos Abatement and Demolition/Renovation Notification Form (Form 2700-FM-AQ0021) will be completed to the greatest extent possible and submitted to PennDOT for finalization and submission to the PaDEP and US EPA. Additionally, the District Project Manager and District Environmental Unit will be notified if abatement of asbestos from the bridge will be required prior to rehabilitation. This proposed work scope also includes provisions for performing environmental due diligence while on site and filling out the EDD form. Paint and other materials suspected of containing hazardous and/or environmentally regulated materials will not be inspected for said materials.

Should the results of the bridge inspection identify ACM, Skelly and Loy will prepare special provisions to address appropriate removal methods, compliance with local, state and federal regulations, and worker protection to be included in the plans, specifications, and estimates (PS&E) package.

It is assumed that heavy metals exist in the paint coatings located on steel components of the bridge. Therefore, special provisions addressing worker and environmental protection and compliance with local, state, and federal regulations will also be prepared as part of the PS&E package.

Task 9 - Traffic Control Plan

Objective:

2.10.14 - Traffic Control Plan
This task is the development of the final traffic control plan. Publication 14M, Design Manual 3; the MUTCD and Publication 213 apply to this task.

Scope:

2.10.14 - Traffic Control Plan
Phasing schemes, sign messages, and approximate locations of signs and traffic control devices should be approved at the Design Field View stage, prior to the development of the final plans.

The Traffic Control Plan will be a stand-alone plan and will include the following:
- Title sheet with general notes, location map, and pay item quantities,
- Tabulation of Traffic Control Devices,
- Typical-sections
- Narrative describing each stage and phase by stating the work to be performed and the traffic control to be implemented
- General plan layout
- Temporary road plan, typical-section and profile (if necessary)
- Temporary signal plan (if necessary)
- Temporary Highway Lighting (if necessary)
- Special Sign Details (if necessary)

The plan will also include, but will not be limited to, sign messages, sign sizes, general sign locations, tapers lengths, barricades, channelizing devices, impact attenuators, temporary pavement markings, temporary roadway locations, temporary highway lighting locations, detours, portable changeable message signs, and arrow boards. Detail of temporary roads cross-section and profile will be included as well as other details as appropriate.

If detours are necessary, the detour route(s) will be identified and driven to determine general safety issues and restrictions. State roads requiring a detour will utilize other State owned roadways. If detour routes formed from State owned roads are found to be unacceptable because of length or other reasons, then agreements between the State and municipalities will need to be developed to utilize local roadways. This scope does not include support activities needed to develop agreements between the State and municipalities.

In locations where pedestrian movements are prominent, either safe passage or restrictions will be addressed. Scope associated with construction temporary pedestrian structures and signals will be included in either the Amendments to the Standard Scope of Work or the Detailed Project Approach.

Provide temporary highway lighting for limited access crossovers and at locations as directed by the District. Contact the Highway Lighting Unit in Harrisburg for design requirements. Submit the lighting design to the Highway Lighting Unit for approval prior to the release of the Traffic Control Plans to the District for PS&E Development.

This scope of work does not provide for a temporary traffic signal plan. If the implementation of the traffic control plan impacts a signalized intersection such that a temporary signal design is necessitated, the temporary signal plan will be incorporated into the traffic control plan. However, the scope of work for the temporary signal design will be provided in the Detailed Project Approach or in the Amendments to the Standard Scope of Work.

Specifications will include the description of the construction staging and phasing. Special provisions will also be written for traffic control devices outside the scope of the specifications included in the Publication 408M.

If required for boring and drilling work associated with geotechnical studies, the subconsultant will develop traffic control plans. Details of the design for these plans will be provided in the Detailed Project Approach.

Detail Task 1 - Final Traffic Control Plan

Department Details:

Prepare a final traffic control plan showing all required stages for review and approval by the District 5-0 Traffic Unit.

Adhere to all pertinent provisions of the Department's Design Manuals, Publication 213 - Temporary Traffic Control Guidelines, the M.U.T.C.D., and Publication 212 - Official Traffic Control Devices.

The plans will depict all signs and devices necessary for safe and efficient movement of traffic and pedestrians through or around the construction area.

Maintain contact with all agencies involved during development of final plans and supporting material.

Approach:

A&W will peform the Scope of Work outlined above as modified below. Upon approval of the Design Field View plans and the preliminary MPT/detour plans, A&W will prepare the final MPT/detour plan. A&W will address the comments from the preliminary MPT/detour plans and prepare a set of final plans. Proposed signing of the MPT/detour plans will be included with the final MPT/detour plans in accordance with Publication 14M, Design Manual 3, Publication 213, Work Zone Traffic Control Guidelines, Publication 46, Traffic Engineering Manual, and the MUTCD. All required details, phases and steps, and signing will be shown on the final MPT/detour plans. The final MPT/detour Plans will be prepared at an appropriate scale to clearly depict temporary traffic control measures to the contractor, and submitted to the District traffic unit for review and approval. The final MPT/detour plans including the final narrative, special provisions, and plans will be provided to A&W for inclusion into the final plan submission.

A&W will also investigate and develop (as necessary) a specific pedestrian detour and an ATON plan.

Task 10 - Pavement Marking Plan

Objective:

2.10.16 - Pavement Marking Plan
This task is the development of the pavement marking plan.

Scope:

2.10.16 - Pavement Marking Plan
The final submission will include:
- General Plans
- Special Details
- Delineator Spacing Tables
- Delineator Mounting Details
- Quantities
- Specifications

For mainline roadway sections where markings and delineators are consistent and repetitive, typical details will be developed to eliminate unnecessary drafting and design sheets. The pavement marking and delineation plan for the interchange areas will detail all gore areas, islands and other special markings. Beginning and ending stations will be shown for longitudinal pavement markings and station locations will be identified for pavement legends.

Depending on the complexity of the project, the details of the plan and the total length of the project, the elements of the pavement marking and delineation plan may be incorporated with the signing plan.

Detail Task 1 - Final Pavement Marking and Signing Plan

Department Details:

A combined pavement marking and signing plan will be required.

Show all necessary pavement markings such as edge line, centerline, gore area striping, delineation, etc. All specific items necessary will be tabulated and indicated on the plans for the various types of markings utilized.

Show all required stop bars, lane delineation, turn arrows, crosswalks and legends, etc. as needed.

Designs will be in accordance with the Department's latest Publication 212, the M.U.T.C.D., and TC standards.

Approach:

A&W will perform this task with the Scope of Work outlined above as modified below. A&W will prepare the combined pavement marking and signing plans in accordance with PennDOT Publication 14M, Design Manual Part 3, the Manual on Uniform Traffic Control Devices, Traffic Standards (TC 7600 Series), Publication 68 with guidance from the Pavement Marking Handbook, PennDOT Publication 236M, Approved Signs, and the Manual on Uniform Traffic Control Devices. The plans will follow the checklist for a condition diagram and the plan format checklist from the PENNDOT Traffic Signal Design Handbook. Quantity tabulations will be prepared for the construction plans.

The combined plans will be developed with a scale of 1”=25’.
. The following items should be included in the plan:
• General Plans
• Special Details
• Delineator Spacing Tables

• Delineator Mounting Details
• Quantities
• Specifications

Task 11 - Erosion and Sedimentation Control Plan / NPDES Permit

Objective:

2.10.25 - Erosion and Sedimentation Control Plan / NPDES Permit
This task is the development of the Erosion & Sedimentation Control Plan and submission of the NPDES Permit Application.

Scope:

2.10.25 - Erosion and Sedimentation Control Plan / NPDES Permit
The Erosion and Sediment Pollution Control Plans and supporting documentation shall be submitted to the applicable Engineering District for review and approval. Upon acceptance of the plans by the District, the submission will be forwarded to the County Conservation District for review and approval.

The following work elements are required for the successful completion of this task:

1. Develop Erosion and Sedimentation Control Plans to include:
- cover sheet
- location map
- topography of the area including watershed areas and watercourses receiving runoff from the project
- proposed alterations to the area
- limits of the project
- the location of all temporary and permanent erosion and sediment pollution control measures and facilities
- all pertinent erosion control and construction details

2. Develop a narrative report describing the project and indicating the purpose, the engineering assumptions, the specifications, and the calculations for erosion control measures and facilities. The narrative shall include a schedule of installation and removal of temporary and permanent erosion control measures and facilities as they relate to the various earthmoving operations and a maintenance program for each type of temporary and permanent erosion control measure and facility.

3. Provide detailed instructions relating to the sequence of construction on the plan and in the narrative. Include staging, sequencing and scheduling of earthmoving activities and installation and removal of erosion and sediment pollution control measures and facilities as required.

4. Provide a detailed description in the narrative report of all soil types located within the project limits including each soil type, depth, slope and resistance to erosion. The soil boundaries and a summary table of the soil types and limitations should also be included on the plans.

5. Provide all applicable construction schedules, maintenance programs (including the removal and disposal of accumulated soil materials).

6. Prepare transmittal letter, plans and narrative report for submission to the County Conservation District. If necessary, on large projects meet with the County Conservation District prior to submission to discuss submission requirements and review conceptual plan.

7. For projects exceeding 5 acres of earth disturbance or impacting High Quality/Exceptional Value (HQ/EV) waterways, prepare a Notice of Intent (NOI) Application for an NPDES Storm Water Permit and a Preparedness, Prevention and Contingency (PPC) Plan (see below). The PPC plan should also be incorporated into the narrative report and the plans.

8. Address all applicable comments from the County Conservation District and/or PADEP and re-submit the revised package for approval.

The following tasks are required for the preparation of the NPDES permit application:

1. Develop an NPDES boundary map that includes the following information: limits of disturbance, highway alignment, cut & fill limits, ROW lines, contours, stations, location identifiers and, the permit boundary.

2. Complete the NPDES Permit Application. The application package will consist of the following items: Act 14 Notification, PNDI Form, location map, NPDES Application Form, Cultural Resources Notice (if involves a Special Protection Watershed), General Information Form (if project involves a Special Protection Watershed or an Individual NPDES Application), and the Erosion and Sediment Pollution Control Plan.

3. Submit NPDES Permit Application package to PennDOT for review. Revise as necessary. Obtain PennDOT's notarized signature on the application and make the designated amount of copies to submit to the County Conservation District and, if applicable, the PADEP.

4. Schedule review meetings with the agencies prior to submitting the NPDES permit package to expedite the permitting process.

5. Submit permit package to the Conservation District/PADEP.

Detail Task 1 - Final E&S Plan

Department Details:

Provide E & S plans as needed to meet current County Conservation District and Tamaqua municipal requirements. Submit for and obtain approvals.

An NPDES permit is not anticipated for this project.

Approach:

A&W will perform this task in accordance with the Scope of Work outlined above as modified below. A&W will prepare the Soil Erosion and Sediment Control Plans and narrative in accordance with the PennDOT Publication Department's Design Manual, Part 2, Chapter 13; and the guidelines set forth in the Pennsylvania Department of Environmental Protection’s publication Erosion and Sedimentation Control Program Manual, dated April 15, 2000, as well as any revisions thereto.

A&W will develop a narrative report describing the project and indicating the purpose, the engineering assumptions, the specifications, construction details, and the calculations for erosion control measures and facilities. The narrative will include a schedule of installation and removal of temporary and permanent erosion control measures and facilities as they relate to the various earthmoving operations and a maintenance program for each type of temporary and permanent erosion control measure and facility. The narrative report will also contain soil information located within the limits including soil type, depth, characteristics related to highway construction, and the soil boundaries.

Both temporary as well as permanent erosion and sedimentation controls will be developed. Special considerations will be given to any temporary measures to control erosion during construction.

The Erosion and Sediment Pollution Control Plans and supporting documentation shall be submitted to the District for review and approval. Upon acceptance of the plans by the District, the submission will be forwarded to the DEP review agencies.

Final Soil Erosion and Sedimentation Control Plans will be developed as ALSO plans, based on the comments received from the DEP review agencies on the preliminary plans.

A&W will include the permanent erosion control items on the construction plans. A&W will prepare a special provision detailing the construction sequence.

Task 12 - Assemble Final Project Documents for Contract Management

Objective:

2.10.29 - Assemble Final Project Documents for Contract Management
This task is the preparation of the PS&E submission to District contract management.

2.10.29.1 - Pre-Bid
This task includes all items necessary for the District to prepare the bid package for submission to Central Office.

2.10.29.2 - Finalize Pre-Bid Construction Schedule/Special Provisions
This task is to prepare the final pre-bid construction schedule/special provisions.

2.10.29.4 - Final Bid Package Development
This task consists of preparing the bid proposal, engineers estimate, construction schedule, data entry into CMS and quality assurance.

2.10.29.5 - Bid Proposal
This task is the preparation of the bid proposal.

2.10.29.6 - Engineer□s Estimate
This task is the preparation of the engineer's estimate.

2.10.29.7 - Construction Schedule
This task is the preparation of the final construction schedule.

2.10.29.8 - Enter Project into CMS
This task consists of entering the data into CMS.

Scope:

2.10.29 - Assemble Final Project Documents for Contract Management
Before any attempt is made to develop and submit a proposal, it is very important to obtain all required

documents, contract drawings, design estimates and supporting data. Supporting documents such as environmental clearances and re-evaluations, funding authorizations, PMC approvals, DEP and Corps of Engineer permits, utility and right-of-way clearances, agreements and related administrative requirements must be resolved. Missing supporting documents complicate the PS&E process, and may affect project advancement to letting.

Assemble all available information on the project from the designers, such as plans or sketches, permits, non-standard special provisions, agreements, construction trainee requirements, Utility Form D-419 clearance and right-of-way certification.

Contract proposals should appear as uniform as possible on a State-wide basis to assist prospective bidders as well as Department personnel who use the proposal. All proposals are to be prepared by utilizing the Contract Management System (CMS) automated bid proposal development software, in accordance with the principles in the current "CMS Users Manual."

Assemble project documents in accordance with requirements of Publication 51M, "Contract Proposal Preparation Guide."

2.10.29.1 - Pre-Bid
Prepare the Pre-Bid package in accordance with Publication 51M, Contract Proposal Preparation Guide.

2.10.29.2 - Finalize Pre-Bid Construction Schedule/Special Provisions
Provide provisions, requirements, or directions applying to the project, as set forth in the proposal, that are not contained in Publication 408M or its supplements. Generally, the design engineer will submit draft special provisions to be reviewed, finalized and incorporated into the Bid proposal by Contract Management.

2.10.29.4 - Final Bid Package Development
Prepare the Final Bid Package in accordance with Publication 51M, Contract Proposal Preparation Guide

2.10.29.5 - Bid Proposal
Bid Proposal (Publication 51M - Contract Proposal Preparation Guide)

Assemble the following contract proposal components:
* Title Page - Provide a contract title page

* Project Description - Provide a brief project description

* Project Schedule - Provide a project schedule in calendar days

* List of Special Provisions, Attachments and Supplemental Specifications, Structure Drawings, Purchasable Items - tabulate these items as they apply to the job

* Schedule of Prices - Tabulate Items Numbers with related prequalification work classification codes, Approximate Quantity, Item and contractor's

Unit Price Bid and Item Total

* Bid Submission Forms - Identify and insert the applicable bid submission forms into the contract document

* Component Item Schedule - Provide for lump sum pay items

* Bidder Signature Pages - Provide standard signature pages for single bidder and second and third party joint venture bids

* Notice to Bidder

* Special Provisions - Modify and expand the Specifications (Publication 408M) to provide for requirements unique to a specific project.

* Index - Provide an index to the special provisions, schedule of prices and bid component schedule.

* Attachments - Assemble and provide contract attachments as indicated in Publication 51.

2.10.29.6 - Engineer□s Estimate
Prepare a detailed estimate, which will be used to verify funding requirements and to determine acceptability of bids, and submit with the PS&E to Contract Management.

2.10.29.7 - Construction Schedule
Prepare Form D476 & D476A, or CPM schedule, for construction of the project.

2.10.29.8 - Enter Project into CMS
Upon assembly of the bid proposal at the District, enter into CMS all pertinent project information (i.e.. Project identification numbers, special provisions, pay items, quantities, estimate, etc..)

Detail Task 1 - Final Plans, Specifications & Estimates, Proposal Attachments and ECMS Entry

Department Details:

Submit complete PS&E to District Project Manager showing that all back checking of plans and special provisions is complete.

Complete ECMS data entry so that bid proposal can be created with minimal warnings and/or errors.

Consultant responsibilities are:
- ensures that all issues related to Construction Plan Review (checklist items) have been resolved and that all back-checking of the plans and special provisions is complete.
- enters all items into ECMS via AUTOTAB, spreadsheet, or manually
- enters unit prices w/ fund codes for items and plan stations into ECMS
- enters project specific special provisions and links to appropriate items
- develops construction CPM and submits it via email so that a hard copy can be signed by ADE and ACE for scanning into ECMS.
- completes plans and submits it on a CD with proper indexing

- submits all documents, approvals, and permits for final scanning into ECMS by the District
- prepares and submits Cost Driver Form, SUE Form, and Lump Sum Item back-up.

Provide electronic copies of the final project deliverables.

2.10.29.5
* Project Schedule - Must be completed using the Welcom/Open Plan software.
* Bid Submission Forms - Disregard this component.
* Bidder Signature Pages - Disregard this component.
* Index - Disregard this component.

2.10.29.7
The forms D476 and D476A are no longer applicable.

Provide ten (10) full size and ten (10) half-size copies of all final signed plans and cross sections after award for use by the Department's Construction Unit and contractors at the pre-construction conference.

Attend the pre-bid meeting (if needed), and provide input regarding design details, answer contractor questions, and take minutes.

Assist the District Contract Management Unit with preparing addenda if needed.

Assist with review and justification of bids.

Participate in the pre-construction conference as needed.

Submit final project cross sections on cd-rom for scanning into ECMS by Central Office.

Approach:

A&W will perform this task in accordance with the above as modified below. A&W will assemble project information, such as plans or sketches, permits, non-standard special provisions, agreements, construction trainee requirements, Utility clearance form D-419 and right-of-way certification that were developed under previous tasks.

A&W will refine and update the overall engineer's estimate in Form D-407 format and complete the PS&E checklists.

The PS&E package will incorporate the comments received to date and will include items on the District's Contract Management checklist. The PS&E will be submitted to the Department for final preparation into a construction proposal. Accompanying the PS&E submission will be a letter certifying the accuracy of the plans and that all provisions of the QA/QC plan have been followed.

A&W will not upload the construction documents into EDMS A&W will provide assistance in the form of supplying final documents and answering questions only.

A&W will assist the Department in answering pre-bid questions and developing the addenda in ECMS.

Additionally, A&W will provide oversight and coordination of the work performed by our subconsultants.

Task 13 - Other Final Design Activities

Objective:

2.10.99 - Other Final Design Activities
This includes any other necessary PennDOT final design activities for the project which are not otherwise covered under the standard final design tasks.

Scope:

2.10.99 - Other Final Design Activities
Provide work as detailed by the Department. See Below.

Detail Task 1 - Off-Bridge Enhancement Coordination and Cross Sections

Department Details:

This task is for the preparation of cross sections.

This task is also for coordination and development of any design details needed related to the existing Broad Street streetscape/enhancements within the project limits but off of the bridge. This includes but is not limited to the street lighting conduit and circuit and brick paver sidewalk.

Approach:

A&W will perform this task in accordance with the Scope of Work outlined above.

Task 14 - Final Structure Foundation Report

Objective:

2.5.5 - Final Structure Foundation Report
This task includes all items necessary to prepare the Final Structure Foundation Report in accordance with Publication 15M, Design Manual Part 4.

Scope:

2.5.5 - Final Structure Foundation Report
This task consists of the development of a Final Structure Foundation Report for each structure in the project. The report presents recommendations for design and construction of the structure foundations, and provides geotechnical data in support of the recommendations.

The following work elements are required for completion of this task:

1. Coordinate the effort with the District Geotechnical Engineer (DGE), District Bridge Engineer, BOD Bridge Quality Assurance Division (BQAD), and the other engineering disciplines involved. Perform QA/QC on work processes and products.

2. Perform an office investigation, reviewing available geotechnical reports for the project including the Reconnaissance Soils and Geological

Engineering Report (RSGER) for the specific structure. Review the Preliminary Foundation Report. Obtain the record copy of the engineers logs for the borings drilled for the
structure.

3. Perform the soil, rock, and water testing required to allow analysis of foundation conditions. Tabulate the results of the testing.

4. Perform analyses to determine the preferred foundation for the structure, and document the rationale for the preference. Include cost comparisons for foundation alternatives. Prepare a tabular summary of the site conditions and foundation recommendations at each substructure location.

5. Identify and address special site conditions through appropriate design. Develop foundation notes, construction details, and special provisions as warranted.

6. Prepare plotted boring log sheets for the core borings used in foundation analysis and design.

7. Prepare the Final Foundation Report for the structure, presenting the information required in Design Manual Part 4, with the tabular summary of foundation recommendations, foundation notes, construction details, special provisions, and plotted boring log sheets appended. Submit the report, with the other documentation required by Design Manual Part 4, for approval.

8. Prepare quality assurance (QA) form for foundations.

Detail Task 1 - Final Structure Foundation Report

Department Details:

Structure Boring Task must be completed prior to this task.

The plotted structure boring log sheets become part of the structure plans after approval.

All references to Publication 15M shall be replaced to reference Publication 15.

Upon completion of the drilling operations, the Geotechnical Engineer will prepare and provide the following items in the foundation submission.

- Typewritten Engineer's Field Logs, including the photographs and Structure Test Boring tracings.
- Brief description of each site including history, surface features, geological formation, and items identified during the final exploration plan meeting.
- Recommended soil and rock parameters to be used in design.
- Results of the professional engineer AMRL certified laboratory tests.
- Discussions of the applicability of various foundation types and cost comparisons, and recommendations for foundation substrata improvements.
- Other geotechnical information deemed necessary to help justify the foundation type selected.

“Foundation Submission and Approval” as per Design Manual 4.

A foundation report will be prepared for the TS&L approved structures in accordance with Design Manual, Part 1 and Part 4 guidelines.

Coordinate activity with the District Geotechnical Engineer and the District Bridge Engineer during the preparation of the foundation report to ensure the District's agreement with the foundation design approach. Anticipate at least one meeting with the District to review the foundation submissions.

The following is recommended AMRL certified laboratory testing to determine the foundation pressure and a copy of their certification should be attached:

Lab Testing Program is to be discussed with District Geotechnical Engineer/District Bridge Engineer before being performed.

Soil: Consolidation tests; classification with Atterberg limit and natural moisture content tests; and direct shear tests.

Rock: Unconfined compression tests.

Approach:

A&W will provide project oversight and coordination for our sub-consultant's work on this task. A&W will also perform the COM 624 analysis required for the integral abutments after our sub-consultant provides the necessary parameters.

AWK will subcontract for laboratory testing of soil, rock and water, including strength and corrosion characteristics and conduct the approved testing programs as detailed in Part 2 and report the findings as part of the Final Structure Foundation Report. Laboratory testing of samples will be conducted by a certified AMRL laboratory under the direction of AWK.

AWK will complete geotechnical analyses required to support Final Design of the new bridge and roadway approaches. The analysis is anticipated to focus on the following subject areas:
• Bearing Capacity of rock units occurring at or near the top of rock beneath the site; and
• Evaluation of requirements for shoring required.

AWK will prepare the Structure Foundation Report for this project, which will include:
• A description of the office investigation findings and the field reconnaissance results.
• Typed boring logs.
• Drafted Structure Boring Logs.
• A discussion of the laboratory test results.
• A recommendation for the preferred foundation alternative(s), along with a discussion of analyses performed;
• Factored bearing resistance for each substructure unit.
• Preparation of foundation notes, special provisions and construction details (such as toe key and benching for “sliver fills”) related to the geotechnical aspects of the proposed construction.
• Hand-drawn subsurface profile along the centerline of the bridge and subsurface section at each abutment and wingwall.
• A discussion of any special site conditions or treatments required.
• Tables indicating the results of the subsurface exploration program, laboratory test results, foundation recommendations for each substructure unit, and recommended soil and rock parameters for use in design of the bridge substructure units and for temporary shoring.
• Photographs of each core box. The photos will be clear enough to show rock quality.

A draft and final copy of the Final Structure Foundation Report (four copes each) will be submitted to the District for review.

AWK will also assist Ammann & Whitney in their preparation of the Foundation Submission by completing the geotechnical sections of the appropriate QA forms.

Consultant Hierarchy

Business Partner	DBE Type	Supervising BP
Ammann & Whitney Pennsylvania, Inc.	No	
AWK Consulting Engineers, Inc.	Yes	Ammann & Whitney Pennsylvania, Inc.
Skelly and Loy, Inc.	No	Ammann & Whitney Pennsylvania, Inc.

Attachments

No records found.

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