TECHNICAL PROPOSAL REPORT

Agreement: E02387 | **Project Specific** | **Executed**

Name: Cheney Run Culvert

Selection Process: Modified
Initiating Org: Engineering District 9-0

Part 1 - Preliminary Design - Cheney Run Culvert

Description

Preliminary Engineering for the Cheney Run Culvert carrying S.R. 3002 over Cheney Run in the City of Johnstown, Cambria 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.

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

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

2.1.1.4 - Preliminary Cost Estimates/PMC Approvals
This task involves the preparation of preliminary cost estimates for the project and all steps necessary to obtain PMC approval.

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.

2.1.1.10 - Consultations
This task involves the consultation with various in-house departments or personnel.

2.1.1.12 - Inter/Intra Agency Coordination
This task includes the coordination of project activities with all of the regulatory/resource agencies.

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.

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.

2.1.1.4 - Preliminary Cost Estimates/PMC Approvals
Develop a preliminary cost estimate based on the best available information. The cost estimate should include all anticipated costs including design, right-of-way acquisition, utilities, construction, etc.

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.

2.1.1.10 - Consultations
Meetings with in-house departments or personnel should be conducted on a regular basis or as needed. Document all meetings in the form of meeting minutes for the project file.

2.1.1.12 - Inter/Intra Agency Coordination
1. Invite all regulatory/resource agencies to scoping field view meetings in accordance with Publication 10/10A, Design Manual Part 1/1A.

2. Discuss methodologies for identifying and analyzing environmental impacts with the regulatory/resource agencies and ask for their input.

3. Request regulatory/resource agencies attendance at any project meetings/hearings.

Detail Task 1 - Project Management/Administration

Department Details:

The consultant will prepare and distribute to appropriate parties the minutes of all meetings and telephone conversations where directions or decisions are made. The minutes are to be distributed within 10 calendar days following the meeting or telephone conversation.

The consultant shall provide construction cost updates on a monthly basis or as required by the Department.

The consultant will thoroughly check all design submissions before submitting them to the Department for review. The Department reviews will be cursory in nature and the consultant will be responsible for design and plan accuracy. All computation sheets shall bear the initials of both the individual who prepared the calculations and the individual who checked the calculations. The Department reviews will be cursory in nature and the consultant will be responsible for design and plan accuracy. The consultant will have a goal of two submissions per report to receive District approval. The consultant will be liable for design and plan errors in accordance with 67 PA Code, Chapter 455, Consultant Highway Design Errors.

The prime consultant will be responsible for subconsultants and DBE progress. All submissions prepared by subconsultants will be submitted through the prime consultant's office. The prime consultant will be responsible for the accuracy and quality of work prepared by subconsultants.

The consultant shall prepare the project design schedule using an Open Plan template to be provided by the Department. The consultant shall submit a baseline schedule to the Department for approval within three weeks following issuance of Notice-To-Proceed. Following approval of the baseline schedule, the schedule should be progressed and submitted to the Department on a monthly basis. The monthly updates in WELCOM HOME will be completed by the 25th of each month.

For archiving into the ECMS Project Development Checklist, the following reports (once approved in writing by the District or the appropriate permitting agency) will be provided by the consultant to the District in electronic, PDF format:

- Line, Grade, and Typical Section Submission
- Final TS&L Report, including RSGER
- Final Joint Permit Application (including H&H Report)
- E&S Report/NPDES Permit Submission
- Design Field View Submission

Approach:

Dewberry-Goodkind, Inc. (Dewberry) will be the prime consultant for the following project:

- Cheney Run Culvert Replacement
- S.R. 3002, Section 01B conveying Cheney Run in the City of Johnstown, Cambria County
- The existing culvert structure (BMS# 11-3002-0030-1360) is comprised of several structure types, including a reinforced concrete slab with fully encased steel I-beams, a reinforced concrete slab with encased I-beams with bottom flanges exposed, and a jack arch structure. Interior

dimensions range from approximately 14’ x 5’ at the downstream end of the structure to 7’ x 6’ at the upstream end.
- BMS# 11-3002-0030-1360 is bounded on either end by existing structures. A 14’x5’-3” precast concrete box is located at the downstream end and a concrete encased I-beam structure is located on the upstream end.

- Our understanding is that this project will involve the replacement of BMS# 11-3002-0030-1360 and that partial replacement of either the upstream or downstream structure will not be included with this agreement.

- The technical proposal task descriptions for all work efforts outlined below and the accompanying price proposal are based on the assumption that the structure will be replaced at the existing location. The roadway over the structure will maintain the existing horizontal alignment and configuration; however, minor profile adjustment may be required to define the vertical alignment.
- This proposal is based on use of a two lane temporary roadway with temporary signals to maintain traffic on SR 3002. We also anticipate that Roxbury Avenue will be detoured during construction.

-As prime consultant, Dewberry will provide the overall project management for this agreement. Subconsultant firms Stell Environmental Enterprises, Inc. (SEE), Geo-Mechanics, Inc. (GMI) and So-Deep, Inc. will manage and administer their activities in coordination with Dewberry for the tasks in which they are involved. Dewberry concurs with the District Scope of Work for this task with the following clarifications:

- We will assist District 9-0’s Project Manager in developing a baseline Open Plan schedule for review and approval based on the template provided by the Department. The schedule will be maintained and updated on a monthly basis and transmitted to the District via the Internet (Welcom Home) unless requested on disk or by hard copy.

- We will attend two (2) meetings that are not included in other tasks within this proposal; a Kick-Off meeting and one project status meeting. All other status meetings will be conducted via teleconference calls. As noted in the Department Details, we will also prepare and distribute minutes for each of these meetings. The effort for Task-specific meetings (Public Meeting, etc) is included in the associated task’s scope of work.

- A Cost Driver Analysis will be provided with construction cost updates.

- Dewberry will provide the following approved reports to the District in pdf format for archiving purposes:
- Line, Grade and Typical Section Submission
- Final TS&L Report, including RSGER
- Final Joint Permit Application (including H&H) Report
- E&S Report/NPDES Permit Submission
- Design Field View Submission

GMI provides the following clarifications to the District Scope of Work for their portion of this task:

GMI will manage and coordinate its in-house activities with Dewberry.

GMI anticipates completing this task as indicated in Paragraph 2.1.1 of the WBS, as modified by the District and as appropriate for a subconsultant. Included in this task is attendance at appropriate meetings (Paragraph 2.1.1.1).

Manhour estimates by GMI for this task have been based on attendance at the boring contract site pre-drilling meeting.

SEE provides the following clarifications to the District Scope of Work for their portion of this task:

Stell Environmental Enterprises, Inc. (SEE) will manage and administer their activities in accordance with the work breakdown structure and in coordination with Dewberry for the tasks they are assigned to and involved in.

SEE will provide Dewberry with monthly status/progress reports. SEE will be prepared to attend up to one (1) project management related meeting (e.g. – project status, review or coordination, or special purpose meetings) either onsite or at the District office. SEE will not be responsible for the coordination of meetings or the preparation or distribution of meeting minutes.

Task 2 - Hazardous and Residual Wastes

Objective:

2.2.12 - Hazardous and Residual Wastes
This task consists of applying the waste site evaluation procedures to a transportation improvement project

2.2.12.1 - Phase I Environmental Site Assessment (ESA)
This task includes the necessary field/office studies and coordination and laboratory testing of materials, if necessary, to perform a Phase I Environmental Site Assessment.

Scope:

2.2.12 - Hazardous and Residual Wastes
Guidance:
- Publication 281, Waste Site Evaluation Procedures for the Highway Development Process

Scope:
This task consists of applying the waste site evaluation procedures to a transportation improvement project to identify the potential presence of and impacts to waste sites, and any mitigation required.

2.2.12.1 - Phase I Environmental Site Assessment (ESA)
Guidance:
- Publication 281, Waste Site Evaluation Procedures for the Highway Development Process

Scope:
Perform a Phase I ESA.

The scope of work will include the following activities:
Conduct the following tasks to determine the presence of environmental property concerns.

1. Perform both a paper study and internet database study of records that are relevant to the project study area for indications of hazardous and

environmentally sensitive wastes, practices or materials.
2. Obtain Intent to Enter letters from the District prior to site reconnaissance.
3. Conduct a detailed, noninvasive visual inspection of entire site and adjacent properties for indications of hazardous wastes or environmentally sensitive contaminants.
- This individual should have current OSHA certification.
- The use of photographs or videotape to document the existing conditions and findings at the site should be at the discretion of the investigator.
4. Interview persons whom are thought to have knowledge of releases at or from sites in and around the project area. Maintain written records of all interviews.
5. Interview local knowledgeable residents, officials, and/or others (see Appendix C of Publication 281) regarding changes in lands use within the project limits. Do not rely on just documenting contact with PADEP or local emergency management officials.
6. Gather and organize all information from the investigation.
- Study the compiled data and evaluate the impact of the known environmental conditions.
- Describe the investigation methodology
7. Contact District Right-of-Way Office to determine if previous highway plans are available for project. Review plans to determine waste management concerns.
8. Determine if Sanborn Fire Insurance mapping, and/or other historical mapping is available for project limits and review accordingly.
9. Develop a site sketch.
10. Develop recommendations for further action at sites where environmental conditions of concern were noted.
11. Describe in a complete, concise, manner all evidence gathered in relation to the recognized environmental conditions within the overall scope of the project.
12. Provide to the District, in either written or oral form, a draft report. Revise as necessary.
13. Present final report to the District.
14. Prepare Environmental Due Diligence form and any necessary waste management plan or contract special provisions if investigations are complete.

Scope Deliverables:
1. Draft Phase I Report (written or oral)
2. Final Phase I Report
3. Due Diligence Form (as appropriate)
4. Contract Special Provisions (as appropriate)

Detail Task 1 - Hazardous and Residual Wastes

Department Details:

Utilize standard Scope of Work for Section 2.2.12.1 Phase I Environmental Site Assessment (ESA).

Approach:

Our subconsultant, Stell Environmental Enterprises, Inc. (SEE) will lead this effort. Dewberry will coordinate with the District and SEE in the development of the hazardous waste studies for this project.

SEE provides the following clarifications to the District Scope of Work:

SEE will complete a Phase I Environmental Site Assessment (ESA), as outlined in the PennDOT Publication 281 Waste Site Evaluation Procedures for the Transportation Project Development Process (May 2008). The purpose of the Phase I ESA is to satisfy the Department's need for appropriate inquiry into the environmental characteristics of a parcel of real estate, as established by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA), 42 USC 9601 (35) (B). All work will be coordinated between the SEE designated Project Manager and Dewberry's Project Manager to maintain the highest quality assurance and response. If requested by Dewberry, SEE staff will attend one (1) review or coordination meeting with the District for this task.

In order to fully document the results of the waste investigation, SEE's Waste Specialists will prepare one inclusive Phase I Environmental Site Assessment Report. This will include the regulatory background research and field reconnaissance required in the Phase I survey. The ESA will identify sites of potential concern based on the review of available data. It is anticipated that one (1) electronic copy of the Draft Phase I Environmental Site Assessment Report will be prepared and emailed to the District. Once comments have been received and incorporated into the report, it is anticipated that two (2) unbound copies of the Final Phase I Environmental Site Assessment Report will be prepared and submitted to the District. SEE will also complete a Phase 1 Environmental Due Diligence (EDD) visual inspection and complete PennDOT's form EDD-VI, as requested.

Dewberry will coordinate the development of hazardous waste studies and review submissions prior to transmittal to the District. If requested by the District, Dewberry will attend one (1) review or coordination meeting with the District for this task and prepare meeting minutes.

Task 3 - Section 4(f) Evaluations

Objective:

2.3.7 - Section 4(f) Evaluations
To determine if a transportation project will □use□ a resource protected by Section 4(f) by documenting the impact, assuming there are no feasible and prudent total Section 4(f) avoidance alternatives, in a Section 4(f) Evaluation.

2.3.7.1 - Inventory Section 4(f) Resources
This task includes the background research required to identify Section 4(f) resources within the project area. This task may include the coordination with local and state agencies.

2.3.7.2 - Programmatic 4(f)
This task consists of the assembly and approval of the Programmatic Section 4(f) document. Publication 349, Section 4(f) Handbook applies to this task.

Scope:

2.3.7 - Section 4(f) Evaluations
Needs completed.

2.3.7.1 - Inventory Section 4(f) Resources
1. A file search is conducted at the PHMC to determine (a) historic and archaeological properties listed in the National Register of Historic Places and (b) historic sites previously determined to be eligible for the National Register located in the project area.

2. Complete identification and effect assessment (Section 106) process for historic properties.

3. Contact the local municipalities, local park authorities, the PGC, USFWS, NPS, DOI, DCNR among other agencies for information regarding the existence of public parks, recreation areas, and wildlife and waterfowl refuges in the study area.

2.3.7.2 - Programmatic 4(f)
1. Programmatic 4(f) applicability should be determined by scoping the project.

2. Consult with the official(s) with jurisdiction to determine the applicability of Section 4(f) and to determine if use will occur.

3. Confirm that the Programmatic 4(f) is applicable, and obtain FHWA Division Office approval to apply Programmatic Section 4(f).

4. Identify and describe in detail the location and design of any alternative that totally avoids the use of all Section 4(f) resources. Determine whether any of these alternatives are feasible and prudent and, if a feasible and prudent total Section 4(f) avoidance alternative exists, it must be selected. If more than one, select one of them for the project. However, if one or more of the alternatives totally avoid the resource, but are not feasible and prudent, detailed documentation as to why they are not must be prepared.

5. All alternatives that were not considered as total Section 4(f) avoidance alternatives in the NEPA process must be identified. Thereby, identifying which alternatives are feasible and prudent and which are not. The direct and constructive uses of the Section 4(f) properties should be identified.

6. A comparison is made of the alternatives that use Section 4(f) resources. This comparison is done by shifting or modifying the design to avoid or minimize the use of each Section 4(f) resource. Also, the feasible and prudent alternative that results in the least harm to Section 4(f) resources is identified.

7. Mitigation measures such as noise walls, landscaping, replacement of parkland or any other items that reduce the use of the Section 4(f) resources should be presented.

8. The modified alternatives should be compared to determine which one results in the least harm to the Section 4(f) resources.

9. Receive written agreement from the official(s) with jurisdiction over the Section 4(f) resource regarding the assessment of impacts to the Section 4(f) resource(s) and the measures to minimize harm to the Section 4(f) resource(s).

10. Identify the feasible and prudent total Section 4(f) avoidance alternative, if one exists, or the one with the least harm to Section 4(f) resources.

11. Address FHWA Division comments on the Programmatic Section 4(f) documentation.

12. Receive FHWA Division Office final approval on the Programmatic Section 4(f) documentation.

Detail Task 1 - Section 4(f) Evaluations

Department Details:
This task includes completion of a Section 4(f) checklist if any encroachments or disturbances occur to the park located in the project area.

Approach:

Our subconsultant, Stell Environmental Enterprises, Inc. (SEE) will lead this effort. Dewberry will coordinate with the District and SEE in the development of the Section 4(f) Evaluations for this project.

SEE provides the following clarifications to the District Scope of Work:

Preliminary map analysis and field reconnaissance of the project site revealed no National Register listed or eligible cultural resources, unique geological resources, state/national forests or gamelands, natural and/or wild areas, or national natural landmarks with the project study area; however, a municipal park is located within the project area.

Based on the Department's Scope of Work, SEE will identify and confirm the presence of any potential Section 4(f) resources within the project area. SEE, in coordination with the District and Dewberry, will determine if impacts to the Section 4(f) resource(s) are anticipated, and will determine the appropriate Section 4(f) documentation.

If Section 4(f) documentation is required, it is anticipated that impacts to the resource(s) will be addressed through the preparation of the appropriate Section 4(f) checklist(s). This will be verified during preliminary design in consultation with the District and FHWA. It is anticipated that the only Section 4(f) resource will be the municipal park and that either the De Minimus, No Use, or possibly the Temporary Occupancy Section 4(f) checklist will be sufficient for this project. It is anticipated neither a Programmatic nor an Individual Section 4(f) will be required for this project. If it is determined that a Programmatic or Individual Section 4(f) is required, SEE will prepare a separate Scope of Work and Price Proposal for approval by the District prior to the commencement of work. Final Section 4(f) documentation will be submitted electronically.

Dewberry will coordinate the development of Section 4(f) involvement and review submissions prior to transmittal to the District. Dewberry will provide engineering information needed for the completion of Section 4(f) checklists.

Task 4 - Level 2 CE

Objective:

2.3.3 - Level 2 CE
This task consists of the assembly and approval of the Level 2 Categorical Exclusion

Scope:

2.3.3 - Level 2 CE
Complete Part A and B, of the Categorical Exclusion Evaluation (CEE) form (Publication 294), which includes: Additional narrative will be included, as appropriate. Supplemental information will be attached to the CEE form or placed in the technical file, as appropriate.

Conduct secondary document research and review, and project site walkovers in order to complete an environmental evaluation.

Determine the level of Public and Agency Involvement required. Work items for Public Involvement have been defined in task 2.1.6.

Determine the need for permits required for all project resultant temporary and permanent actions. Work items for permit activities are defined under other work tasks.

Determine what if any supporting documents are required for the CEE. Work items to complete these supporting documents are defined under other work tasks.

Specify and define mitigation measures for impacted environmental issues listed under Section A, Environmental Evaluation Areas, listed above. Provide the general description and the location of any resources within or adjacent to the project work limits that are to be avoided during construction. Also provide measures to mitigate impacts to resources that can not be avoided.

Sheet C-2 will also require completion.

Submit the completed CEE form and pertinent supporting documents for review, concurrence, and approval to the District Office (Step 4 of the CE Process). If necessary, the consultant will revise the CEE form and or supporting documentation as directed. The District will submit the CEE to the Bureau of Design and FHWA for approval.

Detail Task 1 - Level 2 CE

Department Details:

Use CEE Expert System. The District will set up the project on the CEE Expert System and the Consultant will complete. The Consultant will complete the reports and the District will attach the reports in the Expert System. This task includes all necessary work to obtain environmental clearance for the project.

Approach:

Our subconsultant, Stell Environmental Enterprises, Inc. (SEE) will lead this effort. Dewberry will coordinate with the District and SEE in the development of the Level 2 CEE anticipated for this project.

SEE provides the following clarifications to the District Scope of Work:

Based on the District's SOW, the project will require preparation of a Level 2 CEE; however, during project development, it may be determined that the project can be lowered to a Level 1b CEE. SEE will be prepared to complete either a Level 1b or Level 2 CEE as further defines the task as follows:

SEE will attend the Kick Off meeting to discuss the environmental aspects of the project and administrative coordination procedures. Dewberry or another designee will be responsible for organizing and scheduling the meeting and preparing the meeting minutes. It is assumed that the SFV meeting has previously been conducted and the District will prepare the SFV documentation in the Expert System. SEE will complete the Level 2 Scoping Document, and prepare either the Level 2 or Level 1b CEE with the assistance of the design engineer who will aid in completing Part A. This part describes the engineering action in detail and identifies key items such as proposed bridge and approach roadway design characteristics.

Qualitative studies will be performed and documented for subject areas that do not require detailed studies. The qualitative studies will include the compilation of existing information and the evaluation of secondary data sources, which may also include coordination with representatives from the resource agencies and local officials. The following natural, social and economic categories will be qualitatively evaluated: Soil Erosion and Sedimentation, Vegetation and Wildlife, Surface and Groundwater Resources Parks and Recreation Facilities, Construction Impacts Mitigation Summary, Geologic Resources, Public Facilities and Services, Community Cohesion, Environmental Justice, Regional and Community Growth, Aesthetics and Other Values, Maintenance and Operating Costs of the Project, Displacement of any Properties, Hazardous and Residual Wastes,

Archaeological Resources, Historic Resources, Wetlands and Waterways.

Based on the District's SOW, SEE will perform detailed studies for the identification, inventory, and classification of wetland and aquatic resources within the project area. These studies will be based upon available mapping and the SFV meeting. SEE assumes the Design Team will determine any potential impacts to the project area resources, and will provide SEE with qualitative and quantitative impacts. Project related information including existing and proposed conditions will be summarized in the appropriate remarks section(s) of the CEE.

The CEE with supporting documentation will be prepared in order to comply with NEPA and obtain environmental clearance for this bridge project. The CEE will be authored in accordance with the content and format requirements as outlined in the with the revised PennDOT CEE Handbook, Publication 294. Detailed data, calculations, agency correspondence, and other supplementary materials to support the CEE will be included as attachments to the CEE document or referenced under separate cover and included in the project technical file. Additional technical information will include background research materials, site specific project details, permits required, public involvement activities and identified mitigation measures.

The CEE form will be generated in the Department's ECMS-based CE/EA Expert System and posted for review, concurrence and approval by the District. All requested changes or revisions will be made, as needed.

It is anticipated that no additional detailed field studies, investigations, meetings, or coordination beyond what is specified in this technical proposal will be required. If it is determined that any additional detailed studies are required, SEE will prepare a technical and cost proposal for approval by the District prior to the commencement of any out of scope work.

Dewberry will coordinate Preparation of the CEE document and review submissions prior to transmittal to the District. Dewberry will provide engineering information needed for completion of the CEE document.

Task 5 - Surveys

Objective:

2.4.1 - Surveys
This task consists of providing the survey requirements associated with specific PennDOT projects designated for studies, reports, design and construction.

Scope:

2.4.1 - 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
- Design Manual 3, Plans Presentation
- Referencing alignments should be in agreement with Pub 122M, Ch. 3.1 and DM3 Figure 3.214

Scope:
Surveys may consist of either conventional data collection, Three-Dimensional data collection, or a combination, as directed by the District. Obtain

published horizontal and vertical control data for project use.

The Quality Assurance/Quality Control Checklist will be completed and discussed with the District Chief of Survey for all preliminary 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 - Surveys

Department Details:

All surveys shall be completed in accordance with current Design Manuals, Publication 122, and all applicable Strike-Off letters. Consultant will be responsible for checking and plotting all survey data.

The Consultant will perform the following tasks:

- Horizontal Control will be based on State Plane Coordinate System (PA south Zone).

- Vertical Control will be based on NAVD 88.

- Reestablish and reference the existing right-of-way baseline. All surveys will be tied to this baseline.

- Check and plot all survey data.

- Any surveys necessary to support the H & H Studies.

- Send Letters of Intent to Enter to all involved parties prior to the start of field surveys.

- Collect Survey using English units of measure.

- Any surveys necessary at intersections where temporary signals or intersection improvements are proposed along the detour route, if applicable.

- Field locate all utilities including on-lot sanitary sewer systems and private wells.

The Consultant will edit mapping topography, including the type, size, location, and elevation of existing storm drain and utility facilities; and evident property corners.

The Consultant will establish existing stream baseline and obtain stream profile and cross sections.

The Consultant will stakeout the Core Boring Hole locations.

The Consultant will set monumentation points on the Legal Right-of-Way lines.

The Consultant will perform investigations of County Tax Records to obtain names and addresses of involved property owners. Letters of Intent to Enter shall be sent to all involved parties prior by certified mail at the start of field surveys and be updated every 12 months.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry will perform courthouse deed and property owner research for the project. Courthouse research will also be performed to obtain right-of-way information and utility listings.

- Dewberry will send Notice of Intent to Enter letters to all involved parties prior to initiating field survey operations. The letter narrative will be submitted for approval prior to issuing the letters. The letters will be prepared on District 9-0 letterhead with appropriate signatures. Dewberry will reissue the Intent to Enter letters if directed by the District due to the duration of Preliminary Engineering; however, for the purposes of this proposal, it is assumed that only one mailing will be required during preliminary engineering.

- The Pennsylvania One-Call System will be contacted by Dewberry prior to initiating field surveys and the serial number obtained for the project.

- It is assumed that previous field survey data compiled for replacement of the BMS 11-3011-0050-0900 structure will be provided to Dewberry.

- Dewberry will verify, update, and supplement the previous survey data within a corridor approximately 200-ft wide along SR 3002, extending from SR 3011 northward approximately 300-ft; and additional 200-ft will be surveyed along SR 3002 within a 60-ft wide corridor. A survey corridor will also extend northward along Langhorne Avenue. A 60-ft wide corridor along SR 3011 will be surveyed for approximately 500-ft, centered on the SR 3002 intersection.

- Dewberry will survey stream cross sections for 500-ft beyond the outlet of the BMS 11-3011-0050-0900 structure. The stream is contained within a concrete walled channel for this portion. The cross sections will extend approximately 25-ft on either side of the channel.

- Dewberry will not survey channel cross sections upstream of the structure, since the waterway is fully enclosed within the project area and does not appear in an open channel for more than 1,500 ft upstream of the project area.

- Dewberry will also set survey control within the culvert. Survey operations within the existing culvert will determine the structure’s location, alignment, and size. Storm sewer outlets and other utility appurtenances perforating the existing structure will also be located, sizes determined, and inverts obtained.

- The existing Right-of-Way baselines for SR 3002 will be reestablished and referenced.

- A minimum of two benchmarks, one at either end of the project, will be set on permanent objects outside of the construction limits.

- Dewberry assumes monumentation of four (4) points on the Legal Right-of-Way will be required.

- Affected property owners will be contacted during field surveys to locate property corners, wells, septic fields, etc and to obtain additional

information.

- The locations of core boring locations will be staked.

- Although the use of a detour may be required for Roxbury Avenue, Dewberry assumes no additional surveys for intersection improvements outside of the project area will be required.

- Due to the type of structure involved with this project and the need to survey within the culvert, surveyors and personnel required to enter the culvert will be trained in confined space entry safety. Direct costs other than payroll and manhours for this training will be included in this task for three (3) Dewberry employees. This includes two (2) authorized confined space entrants (surveyors), and the attendant, who is stationed outside of the confined space and monitors the authorized entrants. Dewberry assumes the training will consist of one 4-hr training class.

- Dewberry will prepare an Entrance Plan, outlining all activities and safety procedures to be followed for the confined space entry. The plan will also include emergency procedures to be followed if an incident occurs.

- Coordination with local emergency service providers, both prior to field operations and during the confined space entry will also be outlined in the plan.

- Other costs associated with this task will include rental of handheld, 4-gas oxygen monitors.

Task 6 - Line and Grade

Objective:

2.4.6 - Line and Grade
This task consists of the development of the horizontal and vertical geometry. Publication 13M, Design Manual Part 2 applies to this task

Scope:

2.4.6 - Line and Grade
Prior to developing the vertical and horizontal geometry, all environmental and property constraints will be identified. The engineer will have a comprehensive understanding of all of the constraints and will discuss these with the District prior to finalizing the geometry.

Secure sufficient field survey information to develop the final geometry. Develop all control points for the vertical and horizontal geometry. The engineer will analyze the compatibility and acceptability of the horizontal and vertical geometry.

The following work elements are required for the successful completion of this task:
1. Finalize horizontal and vertical geometry and submit plans in accordance with Publication 10A, Design Manual Part 1A.
2. Review for compliance with design criteria and environmental constraints.
3. Tabulate project control point coordinates (POT, PC, PT, and PI) for all roadways and channel relocations.
4. Apply the project traffic data to the design criteria to determine lane requirements, turning movements, and weaving movements.
5. Check final structure depths and adjust vertical alignment as necessary. If alternative structures are being utilized, use the worst case scenario.
6. Tabulate pavement grades and superelevation for development of cross sections.

Detail Task 1 - Line and Grade

Department Details:

The consultant will submit a design criteria report identifying the proposed roadway typology.

The Consultant will anticipate the structure will be replaced at the existing location using approximately the existing line with adjusted grade as required to meet any H&H and preliminary TS&L requirements. The Consultant will provide a cost estimate with the Line & Grade submittal including a Cost Driver Analysis. This submission will also include the Typical Section submission.

The submission will address possible methods of maintaining traffic. Include typical sections depicting the construction phasing with this submission.

The plans will also include anticipated required ROW lines, cut/fill lines, and approximate causeway location (if applicable). Central Office will review the Line & Grade Submission as noted in the Scoping Field View Minutes.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- A Design Criteria Report will be prepared outlining the roadway typology and design parameters for use in developing the Line, Grade and Typical Section Submission.

- Line and grade studies will be performed concurrently with TS&L and H&H studies in order to coordinate roadway geometry with traffic control, hydraulic, and structural requirements.

- Line and grade of the temporary roadway anticipated to maintain traffic during construction will be developed under this task.

- A combined Line, Grade and Typical Section Submission will be prepared. Where preliminary quantities have not been developed at this point in the project, the cost estimates included in the submission will be developed on a square foot basis or similar method.

Task 7 - Preliminary Drainage Design

Objective:

2.4.3 - Preliminary Drainage Design
This task includes all elements to develop preliminary drainage design with associated hydraulic computations

Scope:

2.4.3 - Preliminary Drainage Design
1. Develop a storm sewer drainage system layout for the selected alignment using very preliminary calculations and engineering judgement.
2. Size major culvert cross pipes by determining approximate drainage area.
3. Determine the need for top of slope and toe of slope ditches.
4. Identify existing drainage restrictions and coordinate with stormwater management strategy.
5. Identify drainage structures which will require agency permitting.

Include the following on the Design Field View Plans:

* Minor drainage features (inlets and pipes)
* Major drainage structures
* Drainage ditches

Detail Task 1 - Preliminary Drainage Design

Department Details:

Prepare and submit a preliminary drainage design report to the Department for review. Include all hydrologic and hydraulic computations (excluding those to be included as part of the Hydrologic and Hydraulic Report). Include plans showing drainage areas, flows, swale/ pipe sizes, inlet data, and invert elevations. All Department comments will be incorporated into the final drainage design submission.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- It is anticipated that temporary and permanent conditions will impact eight (8) inlets within the project area.

- Preliminary Drainage Design Report will address drainage areas, flows, inlet data etc. for both temporary and permanent conditions.

- Coordination with city and county maintenance forces will be developed to identify any known drainage problems within the project area.

- It is anticipated that four storm sewer pipe outlets into the proposed culvert will require replacement as a result of culvert replacement. It is anticipated that the pipes will be replaced with similar sized pipes.

- Roadside swales are not anticipated to be involved with this project.

Task 8 - Preliminary Pavement Design

Objective:

2.4.9 - Preliminary Pavement Design
This task consists of assembling design data and determining preliminary pavement and subbase types.

Scope:

2.4.9 - Preliminary Pavement Design
Because the pavement design analysis is typically not completed until after the Design Field View Submission, approximate pavement and shoulder depths are shown on the typical sections in Preliminary Design.

Approximate depths are based on traffic volumes and the functional classification of the roadway.

Detail Task 1 - Preliminary Pavement Design

Department Details:

In accordance with the standard scope. The District Pavement Manager will provide the Final Pavement Design to the consultant.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry understands that approximate depths will be based on traffic volumes and the functional classification (typology) of the roadway.
- The District Pavement Manager will provide the Final Pavement Design to Dewberry for use during Final Design.

Task 9 - Design Field View

Objective:

2.4.10 - Design Field View
This task consists of the development, submission and approval of the Design Field View submission.

2.4.10.1 - Submission Development
This task consists of the assembly of the Design Field View submission. Reference Publication 10/10A, Design Manual Part 1/1A.

2.4.10.2 - Design Field View Approval
This task is the preparation of the design field view submission based on the selected alignments, attendance at the design field view, preparing meeting minutes and responding to District's comments.

2.4.10.4 - Design Exceptions
This task consists of preparing a draft design exception report in accordance with Strike-off-Letter 430-93-40 and Publication 10A, Design Manual Part 1A.

2.4.10.5 - Preliminary Erosion and Sedimentation Pollution Control Plan/NPDES Permit
This task is the preparation of preliminary erosion and sedimentation control plans and application for all NPDES permits (Chapter 102, Earth Disturbance Permits).

Scope:

2.4.10 - Design Field View
1. Conduct design field view at the end of the preliminary engineering and within several weeks of the Design Field View Submission.
2. Evaluate the proposed alternatives under field conditions.
3. Solicit comments from review agencies for further project development.
4. Determine the preferred alternative if applicable.

2.4.10.1 - Submission Development

Upon receipt of NEPA Clearance/Design Approval, the drawings will be further refined and developed to prepare a submission for the Design Field View.

The submission will include the following:
1. Line and Grade
2. Alternate Interchange Schematics
3. Rough preliminary signing layout including the type of sign supports, paint markings, and other traffic control devices to determine if the project is operational and can be signed.
4. Typical sections
5. Structure locations
6. Approximate pavement depth
7. Mass diagrams of grading quantities
8. Draft of Soils and Geological Engineering Report and Profile.
9. Traffic Control Plan
10. Drainage and Preliminary Hydraulic studies
11. Service road justification
12. Utilities
13. Preliminary traffic signals plan
14. Comments from the District Safety Review Committee
15. Agreements with Cities and other Political Subdivisions

2.4.10.2 - Design Field View Approval
1. Secure design field view approval for the preferred alternative developed during preliminary engineering.
2. Obtain written approval from the agency of authority to advance to final design.

2.4.10.4 - Design Exceptions
Prepare the Design Exception Submission after the approval of the proposed design exception(s) by the District Safety Review Committee. Include this report in the Design Field View Submission. Address the following items as applicable:

* Provide project identification information
* Describe proposed work, design criteria, include typical sections
* Provide traffic information
* Identify substandard design elements
* Provide cost information with and without design exception
* Provide justification for retention of the design exception
* Evaluate accident history
* Describe remediation
* Provide collision diagrams and/or accident cluster diagrams
* Compare accident rates to statewide averages
* Describe mitigation measures
* Describe date and type of future upgrades
* Describe advantages and disadvantages of meeting full criteria

Complete the "Design Exception Data Checklist" Design Manual 1A. Include the following in the submission:

* Project location map
* Scoping field view minutes
* Accident analysis with collision diagrams
* Letter of recommendation from Safety Review Committee
* Plan, profiles, cross sections, typical sections if not previously included in the Design Field View Submission
* Bridge sufficiency rating and letter from District Bridge Engineer (if applicable)
* Ramp design sheet (Publication 13M, Design Manual Part 2), if applicable
* Photographs of existing conditions, if applicable

2.4.10.5 - Preliminary Erosion and Sedimentation Pollution Control Plan/NPDES Permit
Preliminary Erosion and Sedimentation Control Plan includes the preliminary sizing and placement of major sediment control facilities (e.g. sediment basins). This effort must correspond with the stormwater management design to use the stormwater basins for erosion and sediment control during construction. Right-of-way requirements must be considered for sediment traps, collection ditches and drainage easements.

This task also includes the coordination with the County Conservation Districts and/or PADEP to review the conceptual approach to the erosion and sediment control design and permitting.

Detail Task 1 - Design Field View

Department Details:

The plans and cross sections submitted as part of the Design Field View Submission shall be in a scale of 1"=25'.

A Design Field View Report is required as part of the Design Field View Submission to include but not be limited to the following:
" Location Map
" Project Description
" Design Criteria
" Traffic Information
" General Evaluation of accident history
" Scoping Field View Minutes
" Letter of recommendation from the District Safety Review Committee.

If design exceptions are required, the Design Field View Report and the Design Exception Request can be combined as one report and submitted as the Design Field View Submission. Requirements for the design exception request are included in the standard scope. Do not include collision diagrams and/or accident cluster diagrams in the Design Exception Request or Design Field View Submission. A general evaluation of the accident history will be sufficient.

Additional plans, reports, details, and other deliverables not listed in this task shall be included in the Design Field View Submission as necessary to support the proposed design.

Prepare necessary information for a safety review submission and meeting as part of this task. This submission will include 1 full and 9 half size copies of color coded plans, profiles, typical sections and project design criteria reports, all in accordance with Design Manual 1A, Appendix E, Table 1, Safety Review Checklist. This submission will also include one pdf file containing the entire Safety Review Plans set.

The following are also required as part of the Safety Review submission: The guiderail length of need, point of need and type of end treatment labeled for each guiderail run and the required and proposed sight distances labeled for each intersection and driveway. If the proposed sight distance does not meet the required sight distance, list the existing sight distance also. These items should be submitted as extra sheets so the plan view is not cluttered. The consultant will attend the formal Safety Review Committee Meeting at the District Office. Any changes that may result from the review will be incorporated into the Design Field View Submission.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry will develop the Line, Grade, and Typical Section submission into a Safety Review Submission as outlined in the District’s scope of work. Dewberry will attend the Safety Review Meeting (2 attendees) , prepare meeting minutes, and respond to comments for the project.

- Upon receiving approval of the Safety Review Submission, Dewberry's engineering staff will prepare the Design Field View submission in accordance with the Department's scope of work for Task 9, except Scope Subtask 2.4.10.1 - Items 2, 7, and 11 which do not apply to this project. The Draft Soils and Geological Engineering Report will be submitted concurrently with the TS&L Submission. Anticipated soil conditions will be outlined in the narrative report submitted with the DFV.

- Preliminary cross sections will be prepared at 25’ intervals.

- Preliminary traffic signal plans will only be required for a temporary signal as part of the maintenance of traffic control. Preliminary traffic signal plans will be prepared under Task 10 - Preliminary Maintenance and Protection of Traffic.

- The cost estimate submitted will be based on preliminary quantity take-offs from the Design Field View plans.

- For the purposes of this proposal, we assume a Design Exception Request will not be required for the project.

- Where sidewalks are impacted by the project, details for ADA compliant curb ramps will be developed. All construction items will be designed in accordance with Pennsylvania Department of Transportation Standards in effect at the time of execution of this contract.

- Curb ramp, sidewalk, and crosswalk improvements will be designed at the SR 3002 intersections with Hershberger Street, Roxbury Avenue, Langhorne Avenue, and Franklin Street.

- The design of the ADA compliant curb ramps will be done so as to minimize and/or avoid impacts to the existing utilities, traffic signal supports, buildings, steps, etc. The curb ramps will be designed to stay within the limits of the existing sidewalks where possible to minimize and/or avoid Right-of-Way impacts. Technically Infeasible Forms (TIFs) will be prepared where necessary.

- Dewberry assumes that the existing traffic signals at the intersection of SR 3002 and SR 3011 will not be permanently impacted by the anticipated use of a temporary roadway.

- Dewberry assumes that traffic studies and permanent intersection configuration improvements will not be included with this project. After construction of the new culvert is complete and the temporary roadway is removed, the SR 3002/SR 3011 intersection will be restored to its existing configuration. It is also assumed that intersections along the Roxbury Avenue detour will not require any improvements.

We anticipate that the following items will be included in the Design Field View submission:

- Title Sheet – 1 Sheet
- Index Sheet – 1 Sheet
- Location Map and General Notes Sheet – 1 Sheet
- Typical Sections – 2 Sheets
- Miscellaneous Construction Details – 1 Sheet
- Plan View – 1 Sheet
- Profile – 3 Sheets
- Cross Sections – 10 Sheets

- 20 Total Sheets

- Preliminary TS&L Plan
- Preliminary Traffic Control Plan
- Preliminary Signing Layout (on the roadway plan views)
- Cost Estimate - based on quantities and unit prices

- Dewberry understands that a Design Field View Meeting will not be conducted.

Task 10 - Preliminary Maintenance and Protection of Traffic

Objective:

2.8.2 - Preliminary Maintenance and Protection of Traffic
This task consists of developing preliminary maintenance and protection of traffic plans in accordance with Publication 14M, Design Manual Part 3, the Manual on Uniform Traffic Control Devices and Publication 213, Work Zone Traffic Control to maintain safe and efficient traffic operations through the construction work zone.

Scope:

2.8.2 - Preliminary Maintenance and Protection of Traffic
Prepare a preliminary Maintenance and Protection of Traffic plan for anticipated work areas involving existing roads. The plans will include a conceptual sequence of operations and identify the type of traffic control needed for each roadway impacted by the anticipated work zones.

Plans will be developed at an appropriate scale.

Drawings will show the work areas and note the traffic control requirements for each area.

A conceptual sequence of operations will be developed identifying the anticipated phases and stages of work necessary to control traffic during

hours of construction and at all other times during construction. Illustration of traffic control signs and devices, temporary pavement markings, temporary roads, detours, and other necessary details will not be developed.

The plans will include a title sheet with index map and general notes, and a listing of anticipated traffic control devices without quantities. The plan will also include the sequence of operations and plans sheets depicting the work areas.

Detail Task 1 - Preliminary Maintenance and Protection of Traffic

Department Details:

This task consists of developing preliminary maintenance and protection of traffic plans in accordance with Publication 14M, Design Manual Part 3, Publication 212 (Official Traffic Control Devices), and Publication 213 (Work Zone Traffic Control) to maintain safe and efficient traffic operations through the construction work zone.

This activity will include a separate plan and written narrative. All signs will be drawn (symbols will not be accepted) and the distance between signs will be shown on a 1"=25' minimum scale plan.

The District has reviewed all traffic control options for this site and determined that traffic should be maintained through the project during construction.

The consultant will design all required temporary traffic signals as part of the Traffic Control Plan Task included in Part 2 of this agreement

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry assumes that maintenance of traffic during construction will be accomplished through use of a 2-lane temporary roadway and temporary intersection with SR 3011.

- We assume that Roxbury Avenue will be closed at the intersection with SR 3002 and a temporary detour will be developed.

- We also assume that Langhorne Avenue will be closed at the intersection with SR 3002. Temporary measures to maintain traffic on Langhorne Avenue will be limited to temporary conversion of the existing one-way status of the roadway to a bi-directional roadway, allowing traffic to enter the street from the north.

- Investigation of alternative methods to maintain traffic will not be performed.

- Dewberry assumes maintenance of pedestrian traffic will be required. A local pedestrian detour will be developed for use during construction. A temporary sidewalk adjacent to the temporary road will also be studied.

- Dewberry assumes no additional temporary bicycle accommodations will be required.

- Dewberry will develop preliminary temporary signal designs in accordance with SOL 470-08-06.

- Dewberry will perform a field visit to assess the site conditions in order to recommend the type of temporary signal to be utilized. Traffic control plans will be developed based upon the District's approval of the type of temporary signal to be utilized.

- Dewberry assumes that temporary signal timing and phasing designs will not be required under this task, but will be prepared under Part 2, Task 3 - Traffic Control Plans.

The Preliminary Traffic Control Plans for the project are anticipated to include the following items:
- Advance signing plan (1)
- Roxbury Ave detour plan (1)
- 1"=25' scale staging plans (2)
- Temporary signal plan (1)
- Typical sections for each phase (1)
- 6 sheets total

- Construction and traffic phasing sequence narrative
- Sign fabrications
- Construction sequencing notes
- Maintenance and Protection of Traffic Special Provision
- Preliminary traffic control cost estimate.

Task 11 - Preliminary ROW Activities

Objective:

2.6.1 - Preliminary ROW Activities
This task includes the requirements as stipulated under Publication 14M, Design Manual Part 3.

2.6.1.1 - Right-of-Way and Deed Research
This task involves the determination of legal right-of-way widths in accordance with the Publication 14M, Design Manual Part 3, and research of property owner records in County Deed Recorder's office.

2.6.1.2 - Property Plats
This task is the preparation of individual property plats in accordance with Publication 14M, Design Manual Part 3.

Scope:

2.6.1 - Preliminary ROW Activities
A preliminary right-of-way plan will be prepared for all Department projects where the construction activities require property acquisition beyond the footprint of existing Department of transportation property. The right-of-way plan shall be prepared in accordance with the requirements and contents as stipulated in Design Manual Part 3.

The right-of-way plan(s) is(are) subject to a plan check review by the District Right-of Way Unit, Chief of Surveys and the Central Office Bureau of Design, Field Liaison Engineer, Highway Quality Control Division. The plan and all supporting data shall be submitted to the District in advance of

the scheduled plan check review meeting. The person(s) responsible for the plan preparation will attend the review meeting. Departments and comments stemming from the plan review shall be addressed and incorporated in the subsequent right-of-way plan submission.

The right-of-way plan will be prepared on mylar with appropriate Pennsylvania professional engineer and surveyor seals affixed.

Until NEPA clearance has been obtained, the Department may not perform final negotiations and acquisitions of property.

A right-of-way certificate is issued when the Department has adequately acquired right-of-way to allow project construction.

2.6.1.1 - Right-of-Way and Deed Research
All public legal right-of-way and private right-of-way within the project area shall be determined from plans and documents recorded in the County Courthouse, or on file in the offices of: PennDOT District, Municipality and involved agency. Copies of all right-of-way record data will be obtained, where available, and included with the R/W plan submission to the District.

The existing public and private right-of-way corridors shall be delineated and labeled on the highway plans. A description of, and the establishment record data for right-of-way, shall be included in the project General Notes for all involved public highways. When recorded subdivision plans exhibit public right-of-way corridors, determinations must include whether the local municipality has, or has not, adopted them.

Property owner research is generally initiated by reviewing the tax maps and records at the County Tax Assessors' Office. Once the highway project location is identified on the tax map(s), the anticipated property involvement's can be listed by tax map and parcel numbers. With this information, the tax assessment files can be researched to provide: Owners name and address, Deed Book and Page Number, parcel area, list of property improvements, and the assessed value of the property. Copies of the tax maps and assessment records may be purchased for subsequent use by the designer, and inclusion as backup data to the R/W plan submissions.

Based on the obtained tax record information, the records in the Recorder of Deeds office shall be researched to verify, or update, the involved property(s) ownership, deed book and page number. Upon verification of property ownership, property investigation shall continue to ascertain if any exceptions, adverse conveyances, easement rights, sale agreements, or subdivision plans associated with property are recorded. When the property research reaches a point that exhibits the best available records available, copies of the involved deeds will be purchased from the Recorder of Deeds for plotting and project property matrix map compilation.

When metes and bounds descriptions of the deed are vague, or lacking information, prior chain of title deed descriptions shall be reviewed and copied when their descriptions provided better clarification for boundary plotting purposes. If overlaps, or gaps, result on the property matrix map due to deed metes and bounds descriptions plots, the District Right-of-Way Administrator should be notified of these conditions, and to solicit his/her direction in resolving these issues.

2.6.1.2 - Property Plats
Individual property plats will be prepared for all parcels with takes on highway projects, unless otherwise directed by the District.

The property plat shall contain all information necessary to provide a clear understanding, by all parties, of the existing conditions and the highway's taking requirements for the parcel, in accordance with Design Manual Part 3, Guidelines and Stipulations.

The proposed highway affects on the individual property plat must be consistent with those shown on the highway right-of-way plan sheet, however, the showing of details and labels beyond the boundary lines of parcel shall be avoided when practical.

Detail Task 1 - Preliminary ROW Activities

Department Details:

The preliminary right of way involvement will include research and investigation of property involvement including utility easements in enough detail to establish an estimate of total and partial takes for the alignment studied, contacting affected property owners for their input as to existing iron pins, corners, septic tanks, septic fields, and/or wells, listing correct adverses from parent deeds, and attempting to eliminate unknown property owners. Letters of Intent to Enter shall be sent to all involved parties prior to the start of field surveys. All Right-of Way activities shall be completed in accordance with Design Manual 1 and all plan preparation will be in accordance with Design Manual 3.

This plan will include plat sheets with no more than 2 plats per sheet and undergo a preliminary plan check. All parcels must include the tax map number. The Preliminary ROW Plan Submission must inlcude one pdf file containing the entire plan.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Courthouse research for deed and Right-of-Way information will be completed under Task 5 - Surveys.

- Notice of Intent to Enter Letters will be issued under Task 5 - Surveys.

- Affected property owners will be contacted during field surveys to locate property corners, wells, septic fields, etc and to obtain additional information.

- Dewberry will be responsible for the preparation of standard right-of-way plans including property plats and right-of-way claim information in accordance with PennDOT Publication 14M (Design Manual-3), PennDOT Strike Off Letter 430-98-26 and the Right-of-Way Manual. It is assumed that this effort will involve the following:

- Create the property line mosaic based upon deed and survey information.
- Determine required right-of-way acquisition limits (temporary and permanent) based upon the preliminary project solution and indicate on the plans.
- Prepare preliminary property plats and calculate all area information.
- Deed information will include deed book page and number.
- All drainage features will be included on the preliminary right-of-way plans and individual property plots.
- All existing utility lines, easements, relocated utilities and substitute easements.

- For the purposes of this proposal, eight (8) property owners are assumed to be within the vicinity of the project.

- Minor Property acquisition and required easements from eight (8) properties.

- Gap plans or combination plans will not be required.

- Dewberry understands that this preliminary right-of-way plan set will include property plot sheets and will be used for a preliminary plan check.

-Dewberry assumes eight (8) property plots will be required.

- Representatives of Dewberry responsible for plan development will attend the Preliminary Right-of-Way Plan Review Meeting at the District office.

- Comments resulting from the preliminary plan review meeting will be addressed and the plans revised accordingly as final design proceeds.

- Dewberry assumes the District will prepare the Plan Review Report and that meeting minutes will not be prepared by Dewberry.

Task 12 - 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 Boring

Department Details:

Upon receiving boring layout approval, the consultant will obtain 5 core borings along the side of the structure for the structure foundation and complete the following: Complete contract documents for soliciting bids in accordance with Design Manual 1, Chapter 5, Section 9, Design Manual Part 4, Volume 1, Part A, Chapter 6.3 and Publication No. 222. Submit the bid documents to the Department for review and approval prior to advertising for bids. Consultant will provide core boring contractors with the Department's pre-labeled envelope for the purpose of returning bids to the District Executive. The consultant will attend the bid opening and tabulate the bids. Consultant will award contract to successful bidder and administer contract. Consultant will stake out core borings in field with consultant forces, will provide core boring inspection (inspector to be listed in Pub 222), and prepare core boring drawings. Included will be testing to determine foundation design parameters, based on the reconnaissance report for depths and locations of tests. Proposed tests should include rock strengths (unconfined compression) and soil parameters (gradation, density, direct shear, consolidation, etc.) as may be required for the foundation report. Obtain department approval of the proposed testing prior to submitting rock & soil samples for samples for testing.

For all developed property (residential, commercial, and agricultural fields) the Consultant will be responsible for ensuring that affected property owners are contacted, by phone or in person, prior to advertising the drilling contract. The person initiating the contact will be prepared to discuss the approximate location of the borings, the purpose of the borings, and a rough timeframe when the drilling will occur. Documentation of this exchange will be prepared and submitted to the Department. A decision regarding the need to contact the owner of non-developed areas (non-agricultural fields, wooded areas, etc.) will be discussed with the Project Manager. Documentation Procedures: The Consultant is responsible to ensure that photos are taken prior to drilling operations as well as providing verification that the property has been adequately restored. In most cases, but not all, the baseline photos can be obtained when the designers are field viewing the project (they need not be taken immediately before the boring operation). It is however recommended that if a meeting with the property owner is warranted, that additional photos be taken at that time.

As a safeguard, the Consultant will ensure that the following “MODIFICATIONS AND ADDITIONS TO STANDARD SPECIFICATIONS FOR SUBSURFACE BORING, SAMPLING AND TESTING” are included in all drilling contracts:

SECTION 103.11 – WORK ON PUBLIC AND PRIVATE PROPERTY – Add the following paragraph to subsection (b) – Arrangements for Access:

Notify property owners in person or by phone at least 2 days but not more than 2 weeks prior to entering their property. Prepare and provide the Department with written documentation of this contact including time, date, parcel identification, person making contact, property owner spoken to, and specific items/concerns discussed. Do not drill, construct an access route, or stage on any property where personal contact has not been made until given permission in writing from the Department. The Contractor will be provided copies of the Notice of Intent to Enter letters.

SECTION 103.14 – INJURY TO PERSONS AND DAMAGE TO PROPERTY – Add the following paragraph:

During drilling operations, the Contractor must not only promptly repair any damage that may occur to property resulting from his operations, but make every effort to prevent damage from occurring in the first place, e.g., laying sheets of plywood down prior to transporting equipment over any lawn area or soft pasture area; going around fences or structures rather than through them; minimizing the cutting of vegetation, particularly in lawn areas; etc.

SECTION 104.09 – RESTORATION OF DISTURBED AREAS – Add the following paragraph:
The contractor will document site conditions both before entering any property and after restoration is complete with digital photographs of areas impacted by the access route, as well as the drilling operations. This documentation will be sent to the Engineer for review prior to issuing the final payment to the Contractor.

Approach:

Our subconsultant, Geo-Mechanics, Inc. (GMI) will lead this effort. Dewberry will coordinate with the District and GMI in the development and completion of the structure borings for this project.

GMI provides the following clarifications to the District Scope of Work:

- GMI will obtain the structure borings and any associated roadway borings for the project in accordance with Design Manual Part 4, Publication 293, Publication 222E and Publication 213.

- GMI anticipates completing this task as indicated in Paragraphs 2.5.1 and 2.5.4 of the WBS, as modified by the District, with the following additions:

- Preliminary geologic research and site reconnaissance indicate that near-surface bedrock is expected to consist of beds belonging to the Freeport formation of the Allegheny group of early Pennsylvanian age. The Freeport formation consists mainly of sandstone and shale with subordinate beds of limestone, claystone coal and underclay. A 3.5-ft thick coal seam was encountered at a basal elevation of approximately 1215 to 1220 feet (depth = approx. 20 to 25-ft) in each of the three (3) test borings drilled in 2000 for the existing culvert (S-2384) that appears to correlate stratigraphically with the position of the Lower Freeport coal seam. As a result, each of the structure borings will most likely be terminated at a depth of 10± feet into bedrock below the coal seam, for an average boring depth of about 35± feet.

- The structure boring program for this Proposal is expected to consist of five (5) borings. The estimated aggregate length of the structure borings, including contingency, is about 240-ft. Manhour estimates for boring inspection are based on a drilling production rate of 30 lineal feet per 8-hour workday.

- Please note that the cost of the structure borings should be less than $20,000.00. GMI is a PENNDOT-approved Test Boring Contractor. Therefore, consistent with Section 3.1.3 of Department Publication 222E, GMI will obtain the borings during the Preliminary Engineering phase of project development as a professional service, using in-house personnel and equipment. This will eliminate the need for administration of a boring contract and will reduce the time needed for solicitation, bidding and award of a drilling contract by up to two (2) months, thus providing for a more expeditious design sequence. GMI will include “Contractor Recall” provisions in the boring contract to facilitate obtaining the borings under separate mobilizations, if needed.

- Because GMI will obtain the borings as a professional service, Boring Contract Documents for soliciting bids are not needed and will not be prepared.

- GMI will also attend a pre-drilling field view meeting with the District Geotechnical Engineer (DGE) to walk the project area, to confirm that all available subsurface information has been obtained, and to discuss and agree upon the scope of subsurface investigations and associated geotechnical laboratory testing for final structure design. Each staked boring will be viewed to confirm access and drilling requirements. GMI will prepare and distribute minutes of the meeting.

- Also included in this task is the performance of soil, rock and water tests on representative samples obtained from the borings. GMI will conduct all laboratory tests for the replacement structure using in-house personnel and equipment in our AMRL-accredited laboratory facilities. The type and number of tests will be recommended in the RSGER described under subsequent Task 13 and will be performed only after receipt of concurrence by the DGE.

- Deliverables for this task will be limited to typed Engineers Field Boring Logs, photographs of the core boxes, and a tabulation of laboratory test results. Invoices including As-Drilled costs and quantities will also be provided.

Task 13 - Preliminary Geotechnical Engineering Report

Objective:

2.5.2 - Preliminary Geotechnical Engineering Report
This task is the preparation of a Geotechnical Engineering Report for Pre-Final Design in accordance with Publication 10A, Design Manual Part 1A and Publication 293.

2.5.2.1 - Reconnaissance Soils and Geological Engineering Report
This task is the preparation of a Reconnaissance Soils and Geological Engineering Report in accordance with Publication 15M, Design Manual Part 4.

Scope:

2.5.2 - Preliminary Geotechnical Engineering Report
The following work elements are required for the successful completion of this task:

1. Coordinate the effort with the District Geotechnical Engineer (DGE) and the other engineering disciplines involved. Perform QA/QC on work processes and products.

2. Perform analysis and design associated with embankment and cut slope construction, stormwater management facilities, drainage conduits, pavements, unsuitable materials, special geotechnical treatments, benching and transition zones, and geotechnical instrumentation for construction control.

3. Develop recommendations for use by the design team, and draft special provisions and details for construction.

4. Identify the anticipated scope of geotechnical investigations required during Final Design.

5. Prepare the GER for Pre-Final Design, presenting the recommendations and providing supporting documentation. Follow the outline in Publication 293, including a summary of the structure-related geotechnical investigations and reports for the project. Submit both a draft (95%) and a final (100%) version of the GER to the DGE.

6. Gather the information and materials necessary to assemble a preliminary soil profile plan. Obtain plan and profile sheets for the alignment from the design team. Obtain approval of the proposed graphics layout, scales and symbology.

7. Prepare the preliminary soil profile cover sheet and index sheet. Develop graphic logs of the borings. Prepare the profile sheets, showing the

graphic boring logs and test results. Assemble the cover, index and profile sheets and submit a half-size copy as an appendix to the GER.

2.5.2.1 - Reconnaissance Soils and Geological Engineering Report
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. Review background geological information and maps, boring logs, project files and reports, environmental documents, and right-of-way plans to describe the soil/rock/hydrologic setting. Contact Federal and State agencies with access to soils and geologic data. Review previous geotechnical work performed in the vicinity of the structure.

3. Visit the site, interviewing local residents and engineers. Perform a detailed field reconnaissance and refine the soil/rock/hydrologic setting description.

4. Determine the important site characteristics and evaluate their impact on the proposed construction.

5. Develop a plan for core boring and testing, based on the requirements of Design Manual Part 4. Prepare a tabular summary of the proposed drilling following the format of Publication 222M.

6. Prepare the RSGER, presenting the information required in Design Manual Part 4, with the boring and testing plan as an appendix. Submit the report for approval.

Detail Task 1 - Preliminary Geotechnical Engineering Report

Department Details:

Delete Scope 2.5.2, work elements 1 through 7. This task is for items described in section 2.5.2.1 only. In order to fully evaluate the feasibility of each structure alternate a soils and geological reconnaissance survey will be undertaken in accordance with Design Manual Part 4, Volume 1, Part A, Chapter 6, Section 6.2. No borings will be required under this task.

Approach:

Our subconsultant, Geo-Mechanics, Inc. (GMI) will lead this effort. Dewberry will coordinate with the District and GMI in the development and completion of the RSGER for this project.

GMI provides the following clarifications to the District Scope of Work:

- GMI will prepare the Preliminary Geotechnical Engineering Report for the project in accordance with Design Manual Part 4 and Publication 293. The report (RSGER) will be included in the Type, Size and Location Submission (Task 14) for the structure prepared by Dewberry.

- GMI anticipates completing this task as indicated in Paragraph 2.5.2 of the WBS, as modified by the District.

- GMI anticipates completing the RSGER for the proposed replacement structure as indicated in Paragraph 2.5.2.1 of the WBS. GMI will work with Dewberry and the District to obtain available Department records regarding the design, construction and maintenance of the existing S.R. 3002 culvert and roadway approaches.

- The PaDEP Mining Operations Office in Coal Center, PA and the US OSMRE Office in Pittsburgh, PA will be contacted to confirm the status of coal mining in the general project area; and the correspondence will be appended to the RSGER.

- A Plan and Tabulation of recommended structure and roadway borings and a recommended scope of laboratory soil, rock and water testing for final design will be attached to the RSGER for review and concurrence by the District. The Plan and Tabulation of borings will satisfy the requirements of a PSDEP.

- The RSGER will initially be submitted in draft format for review and concurrence by the Department. Following receipt of review comments, if any, the report will be revised, as needed, to address and resolve the review comments; and the Final RSGER will be submitted for approval.

Task 14 - Final Type, Size & Location (TS&L) Report

Objective:

2.7.3 - Final Type, Size & Location (TS&L) Report
This task consists of the assembly of Type, Size and Location studies and development of recommendations for proposed structures within the project. Publication 15M, Design Manual Part 4 apply to this task.

Scope:

2.7.3 - Final Type, Size & Location (TS&L) Report
Review any previous studies or preliminary designs with respect to the selection of structure type, span arrangements, horizontal and vertical clearances, design controls and typical section. Coordinate with the District on the logical selection of span arrangements, types of piers, and structure types suitable at each location.

The preliminary structure designs will be performed at a stage when the highway alignment and profile are well defined. Review structure requirements with the District prior to Design Field View (Line and Grade) submission and approval.

The following work elements are required for the successful completion of this task:
1. Develop a location plan showing the feature to be crossed or retained, design controls and regulated areas
2. Identify possible pier and abutment locations
3. Evaluate geotechnical conditions to identify potential foundation types
4. Recommend locations for structure foundation borings
5. Evaluate constructibility, vertical and horizontal clearances and site constraint issues in determining the most suitable structure design for the particular location
6. Prepare cost estimates for alternative structure designs
7. Prepare justification for recommended alternative
8. Prepare transmittal letter, plans and report for TS&L Submission

Detail Task 1 - Final Type, Size & Location (TS&L) Report

Department Details:

This task will include both the Preliminary T.S.& L. and the final T.S.& L.

Preliminary TS&L:
The Consultant will prepare preliminary T.S. & L. submissions for the selected alignment in accordance with Design Manual Part 4. Volume 1, Part A, Section 1.9.3. The preliminary T.S. & L. plans for the recommended structure shall show the plan and the elevation of the structure, the proposed type and size of structure, a section through the approach pavement and shoulders, and the controlling horizontal and vertical clearances. A detailed cost estimate including quantities and unit costs will be included. The Consultant will provide back-up data showing sources of information for for two alternatives, a Cast-in-Place Culvert and a Pre-cast Box Culvert.

Final TS&L:
Following Design Field approval, the Consultant will submit formal TS&L with (BRADD, if applicable) plan sheets and other applicable Design Manual 4 information for each of the structures. Report is to be in accordance with Design Manual Part 4, Volume 1, Part A, Chapter 1.9.3. The Consultant will provide a current construction cost estimate, with back up to lump sum items, with the final TS&L submission.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry understands that this task includes both the Preliminary TS&L and Final TS&L Submissions.

- TS&L studies will be performed concurrently with Line & Grade and H&H studies.

- Initial TS&L studies will be performed for both a precast and cast-in-place concrete single-cell box culvert. Studies will compare utility impacts and traffic control implications associated with each alternative.

- A meeting with the District Bridge Engineer will be conducted to discuss the results of the initial studies. Upon approval of the preferred structure type, full cost estimate and TS&L Report preparation will be completed for the selected structure type.

- The RSGER will be submitted with the TS&L submission.

- Dewberry understands that the Final TS&L Submission will be submitted after Design Field View approval has been received and will address comments resulting from the Preliminary TS&L and Design Field View reviews.

Task 15 - Hydrologic and Hydraulic Report

Objective:

2.7.1 - Hydrologic and Hydraulic Report
This task consists of the preparation of Hydrologic and Hydraulic reports for all bridges, culverts and longitudinal encroachments to size waterway openings properly and to satisfy permitting requirements. Publication 13M, Design Manual Part 2, Publication 15M, Design Manual Part 4; and PADEP Chapter 105 apply to this task.

Scope:

2.7.1 - Hydrologic and Hydraulic Report
A separate Hydrologic and Hydraulic Report is required for each hydraulic structure. However, dual structures or structures located within the same hydraulic system should be combined into one report.

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

1. Gather existing information to be used in the development of the hydrologic and hydraulic analyses and in the preparation of the H&H Report.

2. Perform a hydrologic analysis of the watershed at each proposed crossing using one or more of the Department approved methodologies. The use of a particular model shall be justified as valid for the situation in which it is being used. All assumptions and/or limitations of each model shall be clearly identified and referenced. Multiple hydrologic models are recommended to assist in validating the selected approach. An analysis of the flood history according to the guidelines contained in Design Manual Part 2 should also be considered.

3. Perform a hydraulic analysis for each proposed crossing including alternatives, if necessary, using one or more of the Department approved hydraulic models. The use of a particular model shall be justified as valid for the situation in which it is being used. All assumptions and/or limitations of each model shall be clearly identified and referenced. Where a Flood Insurance Study has been established by FEMA, the hydraulic data included in the study should be utilized to the maximum extent deemed appropriate. Each proposed alternative shall be modeled to assist in the justification for the selected alternative. The hydraulic model shall extend a sufficient distance upstream and downstream to adequately evaluate the potential impacts due to the proposed construction. The hydraulic model should be used to compare existing and proposed conditions with respect to water surface elevations and channel velocities for the design discharge rate(s), including the 500-year event for the scour evaluation and the "overtopping event" for the risk assessment.

4. Evaluate the scour potential at bridge abutments and piers in accordance with Design Manual Part 4. Evaluate the erosion potential at culvert outlets in accordance with HEC-14.

5. Evaluate the channel stability and design countermeasures, if needed.

6. Perform a risk assessment or analysis for each applicable waterway structure or encroachment alternative.

7. Evaluate the hydraulic impacts as a result of temporary encroachments and/or permanent bank protection, if applicable.

8. Prepare the Hydrologic and Hydraulic Report following the general outline described in Design Manual Part 2.

9. If applicable, prepare a Conditional Letter of Map Revision (CLOMR) in accordance with FEMA regulations. The scope of work for the preparation of the CLOMR is not included herein and should be developed prior to initiating the work.

Detail Task 1 - Hydrologic and Hydraulic Report

Department Details:

The consultant is responsible for attending a Pre-H&H meeting with District Bridge Unit personnel prior to beginning the Hydrologic and Hydraulic Study. The hydraulic design of the bridge shall be in accordance with Design Manual 2, Chapter 10. The consultant will prepare all approval requests, permit requests and any other applications as stated in Chapter 10. Consultant will determine if a FEMA Flood Study is available for this project site and obtain data accordingly. The Consultant will develop a detailed narrative report using pre-existing hydraulic study information and all data generated during the hydrologic and hydraulic design analysis will be developed into maps, profiles, and tables related to the replacement of the existing structure. The construction phasing will be hydraulically analyzed to produce the least adverse impacts. A formal report presenting the details of the analysis will be prepared. Each H & H report will include all necessary data for a temporary bridge and/or roadway if feasible and approved by the Department. In addition, the need for a contractor's causeway will be evaluated at this time and documented in writing that it has been considered, is not necessary or if necessary, then it is to be included in the H & H Report. Perform scour analysis and riprap design (use FHWA method). A one hundred year "Risk Assessment" should be on a separate page and broken into two parts. The first part should discuss the proposed structure and the second part should discuss any temporary roadway, causeways, etc. which are needed to construct the bridge.

The consultant will provide two (2) draft copies of the H&H Report. Upon approval, one final .pdf file will be submitted to the District along with a separate computer diskette of the HEC 2 or HEC-RAS data used to prepare the report.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry’s preliminary research indicates that a FEMA Flood Insurance Study and detailed FEMA analysis have not been performed for this site and are not available.

- Dewberry’s hydraulic engineer will conduct a field visit to the project site to evaluate characteristics of the structure, the channelized stream section, and contributory storm sewer system. During this field visit the flood history and performance of the structure will be discussed with local residents and municipal officials, if available.

- After conducting the preliminary field visit and interviews with local officials and residents, Dewberry will attend a Pre-H&H meeting with the District Bridge Unit in accordance with the Department Details for this task. Due to the unusual configuration of the existing/proposed structure (varying slope, width, etc), lengthy stream enclosures both upstream and downstream of the proposed replacement, lack of open channel sections upstream of the bridge within the project limits, a tributary stream (Cherry Run), and numerous storm sewer outlets contributing to flow within the existing structure, a conventional HEC-RAS analysis may not be appropriate.

- The applicability of HEC-RAS and other hydraulic analysis methods, including StormCAD and HydroCAD, will be investigated. The appropriate method of hydraulic analysis to be performed for the structure will be discussed and determined during the Pre-H&H meeting.

- In order to facilitate the preparation of hydraulic analyses of the culvert, Dewberry assumes a field visit by the hydraulic engineer will be required to determine the extent and type of the storm sewer facilities that contribute to the flow within the Cheney Run Culvert. Storm sewer inlets contributing to the culvert will be located and plotted on aerial photography for the purposes of the hydraulic analysis. LIDAR information will be obtained to assist in locating the extent of the storm sewer system.

- Dewberry will calculate flow values for analysis purposes based on accepted methods.

- Hydrologic and hydraulic studies will then proceed accordingly, concurrent with Task 6 - Line and Grade and Task 14 - Final Type, Size and

Location (TS&L). Although full hydraulic studies will only be completed for the selected alternative, initial hydraulic evaluations will be required for various replacement structure configurations (longitudinal slopes, varying width, etc).

- Dewberry assumes stream flow will be maintained through the use of a temporary diversion dike and piping the flow around the proposed construction. Temporary construction conditions addressing this method of maintaining stream flow will be analyzed. Use of a temporary causeway is not applicable for this project.

- Waterway permit applications will be prepared under Task 16.

Task 16 - 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.

2.7.4.2 - 105 Permit Approval
This task includes the coordination with the PADEP to obtain approval of the permit.

2.7.4.3 - 404 Permit Application
This is submitted as the 105 permit in PA

2.7.4.4 - 404 Permit Approval
This task includes the coordination with the U.S. Army Corps of Engineers (ACOE) to obtain approval of the Section 404 permit.

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.

2.7.4.2 - 105 Permit Approval
Coordinate any additional information requirements with the PADEP and PennDOT. The 401 WQC will be issued by the PADEP with the Chapter 105 Permit.

2.7.4.3 - 404 Permit Application
Coordinate the information requirements with the USACE and PADEP for the Section 404 Permit during NEPA/404 Projects. Non-NEPA projects do not require a separate Section 404 Permit, as the PADEP Chapter 105 Joint Permit includes a simultaneous submission for the Section 404 Permit. For the NEPA/404 project, prepare a written request for the 401 WQC. The project EIS or EA will be the supporting document for this request.

Complete the Environmental Assessment Form contained in the PADEP Chapter 105 Application in order to obtain the 401 WQC. The Section 404 Permit is not valid until the 401 WQC is granted.

2.7.4.4 - 404 Permit Approval
Coordinate with the USACE to obtain the Section 404 Permit. Provide any additional information requirements needed for review by the USACE

Detail Task 1 - Waterway Permits

Department Details:

A Pennsylvania DEP Chapter 105/U.S. Corps of Engineers Joint Permit will be prepared in accordance with current DEP Chapter 105 Regulations.

Consultant will attend a pre-application meeting at the project site with District personnel prior to submitting the Joint Permit application. The consultant will prepare a Field Checklist for Preliminary Design Permit Coordination at least four (4) weeks prior to the pre-application meeting. The Department will provide a copy of the blank checklist to the Consultant.

The permit application will be created and submitted using PennDOT's JPA2 Expert System. No hard copies of the permit application will be submitted to the Department. The consultant will provide an e-mail notification to the Department's Project Manager when the permit application is ready for review in the JPA2 Expert System. Assume the projet can be cleared using a Small Projects JPA.

Approach:

This task will be completed by Dewberry with assistance from Stell Environmental Enterprises, Inc. (SEE). We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry assumes a Small Projects Joint Permit Application (JPA) will be required for this culvert replacement due to the length of the stream enclosure.

- Dewberry will attend a Pre-Application meeting to be conducted at the project site prior to submission of the application.

- Dewberry will prepare the Field Checklist for Preliminary Design Permit Coordination four (4) weeks prior to the Pre-Application meeting.

- Dewberry understands that the JPA2 system will be utilized for preparation of the permit application and that hardcopies of the application will not be required.

- SEE will complete the Environmental Assessment (EA) form for the PADEP Chapter 105 and U.S. Army COE Section 404 Joint Permit Application (JPA) as described in the SOW, and the supporting narrative documentation for the permit application.

- SEE will attend the Pre-Application meeting for the project.

- SEE will provide one electronic copy of the EA form to Dewberry for inclusion in the JPA.

- SEE assumes that wetland delineation and/or other intensive field studies will not be required. If additional fieldwork is required, SEE will prepare a revised technical and cost proposal prior to the commencement of any additional work.

Task 17 - 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 - Erosion and Sedimentation Control Plan / NPDES Permit

Department Details:

This task includes a separate erosion and sedimentation control plan showing control measures required and a narrative report to accompany the plans. The measures will be in accordance with the most recent Department and DEP criteria. The submission is to meet NPDES requirements and is to show contours, soil types, drainage areas, and flows.

The plan and narrative will be submitted to the Department for review. Once accepted by the Department, the consultant will then forward a copy to the County Conservation District Office for their review and approval.

Assume an NPDES permit will not be required.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry assumes that earth disturbance will total less than one acre and an NPDES permit will not be required for the project.

- Dewberry assumes stream flow will be maintained through the use of a temporary diversion dike and piping the flow around the proposed construction.

- Dewberry assumes that a separate Post Construction Stormwater Management Plan will not be required.

- The plans and narrative will be submitted to the District prior to transmittal to the Cambria County Conservation District. Comments received will be incorporated into the final Erosion and Sediment Pollution Control Plan.

- Dewberry assumes a coordination meeting with the Cambria County Conservation District at the site will not be required.

Task 18 - Utilities

Objective:

2.9.1 - Utilities
This task involves project specific work requirements for utility relocation engineering activities.

2.9.1.1 - Utility Location Verification
This task is the verification of existing aerial and underground utility locations.

2.9.1.2 - One Call
This task is the compliance with the PA One-Call System design call requirements.

2.9.1.3 - Existing Utility Location Plan
This task is the compilation of the existing utility location plan for design/coordination purposes.

2.9.1.4 - Preliminary Utility Impact Assessment
This task is the assessments of potential conflicts by the project designs with existing utilities, and preliminary determination for utility relocations requirements.

Scope:

2.9.1 - Utilities
Guidance:
- Publication 16M, Design Manual Part 5, Utility Relocation

PennDOT projects which involve public utilities must include all necessary provisions for the safety and protection of both existing and any required relocation of utilities.

Coordination efforts will be maintained with the utility throughout the project design process to allow amicable solutions for known and potential

utility/highway project conflicts.

2.9.1.1 - Utility Location Verification
The scope of work will include the following activities:

1. Invite District Utility Unit representatives to the project Design Field View meeting.

2. Initiate contact with all utilities in the vicinity of project by project notification letter.

3. Formally solicit copies of existing facility location records for underground installations from the utility company.

4. Subsequent to plotting the existing utility locations on the Department's right-of-way plan, submit plan copies to each company and request their verification, or revision, of the type, size, and location of their facilities.

Scope Deliverables:

1. It is the responsibility of the designer to prepare project base mapping showing all existing utility facilities.
a. Aerial and surface utility data will be obtained by conventional survey.
b. Underground utility data may be obtained from utility owner as-built plans and maps and/or test pits or non-destructive probe methods.

2. The existing utility location plan compilation will include the appropriate label and number, as applicable, for each facility.
- For all existing underground utility installations, the locations will be supplemented with profiles and/or cross sections.

3. Once the utility location plan is compiled, the designer will submit copies of the plan to each utility owner on the project with a formal request for their verification of the facilities data depicted.
- The designer will incorporate all revisions, additions, or deletions resulting from the verification comments received from the owners.

2.9.1.2 - One Call
Guidance:
- PA Act 287 of 1974, as amended (73 P.S. § 176, et seq.)

The scope of work will include the following activities:

1. The project designer, and/or survey party chief shall contact the PA One-Call System for the design call not less than 10 working days and no more than 90 working days prior to the final P.S. & E. submission to the District.

2. The project designer, and/or survey party chief must request underground utility line delineations by the utility owner prior to making field survey acquisitions of utility locations.

Scope Deliverable:
The design firm will add the one call serial numbers and the 1-800-242-1776 number to the plan prior to forwarding the plan to facility owners.

2.9.1.3 - Existing Utility Location Plan
Scope:

Preparation of this plan is based on project mapping including field data and the verified facility location as received from the utility companies.

The scope of work will include the following activity:

After a response from the facility owner, the designer will add their existing facility information to the drawing prior to the final P.S. & E. submission to the District.

Scope Deliverables:

The design engineer will prepare a master Existing Utility Location Plan using as a base the construction plan sheets.

2.9.1.4 - Preliminary Utility Impact Assessment
Scope:

When the existing utility location plan has been developed and verified, the proposed project preliminary designs will be investigated for utility impact potentials.

Scope Deliverables:

Conduct a preliminary impact assessment study and provide a report listing known and potential utility conflicts.
a. The project designer will complete a preliminary impact assessment study and report with coordination efforts from the utility owner. This information shall be presented in text and to clearly indicate the location and nature of the conflicts along with the preliminary cost comparisons and conclusions and recommendations for the relocation of the utility facility versus possible project design modifications that would allow the facility to remain at its existing location.
Where utility conflicts are discovered, or other utility problems are anticipated on the project, a preliminary impact assessment study and report will be completed by the project designer, with coordination efforts from the utility owner.

b. The preliminary utility impact assessment report will be submitted to the Department for review, approval and/or conflict resolution decision.

Detail Task 1 - Utilities

Department Details:

Utility investigations and verification of all utilities within the project area shall be completed in accordance with Act 38 and Design Manual 1, Chapter 4, Section 2.

Provide the PA One Call Report to the District in PDF format prior to the initiation of the field survey.

Preliminary plans (Verification Plan) showing all existing utility locations shall be provided to the District in PDF format. Provide hard copies of the Verification Plan to all involved utilities so that conflicts which influence line and grade can be determined. These utility location plans shall show utilities in color in accordance with the APWA Temporary Marking Standard, except that alternate colors shall be used in lieu of lighter colors (i.e. - yellow) which do not reproduce well.

Do not use aerial photography for utility data. Utilize conventional survey.

Once existing utility facilities have been established on the base plan and the Line, Grade, and Typical Section submission is approved, the consultant will aid the Department in determining if Subsurface Utility Engineering is required and the appropriate level. For proposal purposes, assume designation of utilities to a Quality Level A. Assume 2,000 lf of SUE for Quality Level B and 20 test holes. Assume 2 meetings. One will be held at the beginning of SUE, and one will be held before the Design Field View Submission.

Provide a preliminary utility impact plan and matrix including a description/ tabulation of apparent utility impacts with station, offset, and nature of impact (i.e. - widening, cut, fill, drainage, etc.). These utility impact plans shall show utilities in color in accordance with the APWA Temporary Marking Standard, except that alternate colors shall be used in lieu of lighter colors (i.e. - yellow) which do not reproduce well.

Upon Design Field View approval, provide a single PDF file to the District containing the preliminary utility impact plan (showing preliminary right-of-way impacts), preliminary cross sections, and the preliminary utility impact matrix. Provide hard copies of these items to all involved utilities.

Approach:

Dewberry will complete this task in conjunction with our subconsultant, So-Deep, Inc. Dewberry will coordinate with the District and So-Deep in the development and completion of utility coordination and subsurface locating operations for this project.

- Utility easement research within the project limits will be completed by Dewberry under Task 5 - Surveys during courthouse research efforts in order to obtain copies of public utility lists. This contact is required by Act 172 and is a check to ensure that all utilities in the project area are contacted.

- Dewberry will perform all utility contacts and maintain coordination as outlined in the Department’s task outline and in accordance with Act 38, Design Manual Part 1, Chapter 4, Section 2, and Design Manual, Part 5.

- The Pennsylvania One-Call System will be contacted by Dewberry prior to initiating field surveys and the serial number obtained for the project.

- Verification Plans showing the project area and a narrative of the project's anticipated work will be forwarded to each utility company determined to have facilities within the project limits. These plans will be prepared in color coded format as indicated in the Department Details.

- All firms will be required to verify the location and size of their facilities to determine their potential involvement with the project. Dewberry assumes that the preliminary utility impact assessment report will be presented in a spreadsheet format.

- For the purposes of this proposal, Dewberry assumes SUE services will be required for the project. It is anticipated that So-Deep will perform 2000 LF of subsurface utility locating to a Quality Level B and perform 20 test pits for additional Quality Level A locating.

- At the initiation of the project, Dewberry will attend a Preliminary Utility Coordination meeting onsite with the utilities anticipated to be involved with the project. Dewberry will coordinate and schedule the meeting at the initiation of the project, prior to conducting field survey operations. Dewberry will provide two attendees to the meeting and provide meeting minutes.

- Dewberry assumes a follow-up Utility Coordination meeting will be required once preliminary impacts are determined. Dewberry will provide two attendees to the meeting and provide meeting minutes.

So-Deep provides the following clarifications to the District Scope of Work:

- So-Deep will designate, survey and map onto plans/electronic file the existing underground utilities within the project limits. So-Deep anticipates locating approximately 2,000 feet of existing facilities within the project limits to a Quality Level B and performing 20 test pits for utility locating.

- In the event that So-Deep discovers additional facilities, they will promptly notify Dewberry and will recommend an appropriate course of action.

- So-Deep, Inc.’s Project Manager will be William D. Pickering, PE.

- In performing Quality Level B designating services, So-Deep will:

1. Provide all equipment, personnel and supplies required. So-Deep will be responsible to determine which equipment, personnel and supplies are required to perform services.

2. Conduct appropriate records research of existing and planned utilities, investigate site conditions and identify utilities within the applicable project limits.

3. Obtain necessary permits from city, county or other municipal jurisdictions to allow So-Deep to work in the existing streets, roads and rights-of-way.

4. Designate existing utilities and their laterals to existing buildings that are within project limits utilizing radiofrequency electromagnetic, magnetic, and acoustic emission techniques. Unless expressly requested, utilities designated will not include a) storm and sanitary sewer mains or laterals (except metallic force mains), b) empty or abandoned utilities, c) vault or manhole limits or dimensions, d) irrigation or sprinkler systems, or e) underground storage tanks. Physical evidence of these utilities (manhole covers, above ground pipes, etc.), will be recorded.

5. Other geophysical prospecting techniques and energies, such as terrain conductivity and point source transmitters can be used, as appropriate, to discriminate between and detect specific underground facilities. These techniques, although typically involving extra expense, can further refine the utility model. Generally, these extra refinements are not cost beneficial, and So-Deep will not apply these technologies without authorization. However, So-Deep can recommend appropriate techniques on a case-by-case basis.

6. Prepare appropriate field sketches of marked utilities and survey designating marks, which will be referenced to project control provided by Dewberry.

7. Plot survey information onto base plans provided by Dewberry using So-Deep's Computer Aided Drafting and Design ("CADD") systems.

8. Using CADD, compare survey information plotted on base plans with information provided from field sketches and evaluate all plotted information in the field for accuracy and reliability.

9. Final plot all information onto Dewberry's base plans to account for any corrections noted from the previous step and review plan sheets against a) records, b) field sketches, c) CADD drafting and d) field notes.

10. Translate survey data and drafting codes to an electronic file to allow direct incorporation of So-Deep's digital survey information into Dewberry's design file.

11. Provide (a) CADD labeling, (b) cell library and attributes, and (c) survey and drafting codes directly into a reference file of Dewberry's design file.

12. Final review and stamp appropriate deliverables by a staff professional engineer and/or licensed land surveyor in responsible charge.

13. Return and review base plans and project diskette to Dewberry.

14. The accuracy of subsurface data can be influenced by factors beyond our control, such as conductivity of materials and their surroundings, moisture, proximity of other underground utilities or structures, depth, etc. Therefore, only the accuracy of data obtained by actual physical verification (through vacuum excavation or otherwise) can be guaranteed to applicable surveying and/or engineering standards. However, So-Deep does carry professional liability insurance to cover negligent errors or omissions of our work product to the standard of care prevalent in the subsurface utility engineering profession, including application and interpretation of surface geophysical methods, survey and mapping. Markings placed on the ground by So-Deep, Inc. are not to be used for excavation purposes. The use of information provided by So-Deep, Inc. does not relieve any contractor from the duty to comply with applicable utility damage prevention laws and regulations, including but not limited to, giving notifications to utility owners or "one-call" centers, if any, before excavation.

15. With respect to the above services, So-Deep and Dewberry will work together to accomplish peripheral tasks necessary to accomplish the work, such as assistance in obtaining records, notifications to property owners, etc.

16. So-Deep will provide all services to the prevailing standard of care applicable in the subsurface utility engineering profession.

In performing locating (test hole) services, So-Deep will:

1. Provide all equipment, personnel and supplies required. So-Deep will be responsible to determine which equipment, personnel and supplies are required to perform services.

2. Conduct appropriate records research of existing water facilities, if not provided with project information. Investigate site conditions and conduct

an activity hazard analysis within the applicable project limits.

3. Obtain necessary permits PennDOT (if required) to allow So-Deep to work in the existing PennDOT rights-of-way. So-Deep will not be responsible, however, to obtain permits for boring or other excavating work that is not performed by So-Deep. Provide all traffic control and maintenance of traffic operations as required by PennDOT Pub 212 and 213 and the Manual of Uniform Traffic Control Devices (MUTCD).

4. Electronically sweep proposed crossings and perform necessary surveying procedures to "set-up" test holes.

5. Excavate test holes to expose the utility to be measured in such a manner that insures the safety of the excavation and the integrity of the utility to be measured. In performing such excavations, So-Deep shall comply with applicable Pennsylvania Underground Utility Line Protection Law (PA Act 287) as amended, and coordinate with utility inspectors, as required. Excavations will be performed using specially developed vacuum excavation equipment that is non-destructive to existing facilities. If contaminated soils are discovered during the excavation process, So-Deep will so notify Dewberry and PennDOT.

6. Investigate, evaluate, measure and record a) horizontal and vertical location of top and/or bottom of utility referenced to project datum, b) elevation of existing grade over utility at test hole referenced to project datum, c) outside diameter of utility and configuration of non-encased, multi-conduit systems, d) utility structure material composition, when reasonably ascertainable, e) benchmarks and/or project control used to determine elevations that are based on the same project survey control datum as the Department’s design file, f) paving thickness and type, where applicable, g) general soil type and site conditions, and h) such other pertinent information as is reasonably ascertainable from test hole site.

7. Furnish and install permanent markers directly above the centerline of utility structure and in each excavated test hole, record the elevation of the above ground marker. Show the surveyed location of this surface marker on the Quality Level “A”- Certification Forms.

8. Backfill around the exposed facility using screened or sifted select material. Excavations will then be backfilled and compacted in lifts. Compaction will comply with permit requirements.

9. Provide permanent restoration of pavement within limits of original cut. When test holes are excavated in areas other than roadway pavement, these disturbed areas will be restored as nearly as reasonably possible to the condition that existed prior to excavation.

10. Evaluate and compare field information (QL "C", "B", "A") with utility information (QL "D") described in utility records and resolve conflicts. So-Deep will recommend additional courses of action to the Project Manager if discrepancies cannot be resolved without additional cost to the Department. At a minimum, a descriptive note on the project deliverables shall accompany any discrepancy that is not solved.

11. Plot horizontal location and, if applicable, profile view of utility on project plans, profiles, and/or cross sections provided by Dewberry. Compile information described in Subparagraph 6 using So-Deep's automated systems and quality assurance procedures. Such information will be formatted and presented on So-Deep's proprietary Quality Level “A” Certification Form and will be available as a .pdf electronic file if requested. The format of submitted copies of the plans will be in accordance with PennDOT DM-3.

12. Final review and stamp proprietary certification form by a staff professional engineer and/or licensed land surveyor, who are in responsible charge.

13. Return and review deliverables with the Department’s Project Manager or his designee.

14. With respect to the above services, So-Deep, Dewberry and the Department will work together to accomplish peripheral tasks necessary to accomplish the work, such as assistance in obtaining permits, utility records, notifications to property owners, etc.

15. So-Deep will perform and document quality control and quality assurance procedures in accordance with it's "Quality Assurance Plan" on file with the Department. So-Deep will verify that the plan locations are in accordance with the scope deliverables and that all services were performed to the standard of care applicable in the subsurface utility engineering profession.

Scope Deliverables:
So-Deep assumes Dewberry or the Department will provide the following:
- plans/CAD files including topographic and current design files.
- horizontal and vertical survey control within close proximity to the work to be performed.
- the Department will provide Permits to work within PennDOT right-of-way.
- any utility contacts and record information that has been collected for the project.
- property owner notification.
- provide a listing of existing horizontal and vertical control points located throughout the project. Listings shall include the location, description, assigned elevation and coordinate values for each point.

Upon completion of designating and/or locating services, So-Deep will provide a reference CAD file, and a paper plan drawing of utilities in units and at a scale determined by Dewberry. Any QL A data will also be provided on a separate QL A data sheet (Test Hole Certification Form) and as a .pdf file.

The final deliverable will be certified by a professional engineer or surveyor licensed in the Commonwealth of Pennsylvania, by placing their seal on a Certification Letter and on any individual QL A Test Hole Certification Form provided.

1. All deliverables will conform to PennDOT DM-3, and include the following information:

- The project designation, ECMS, Consultant name, and work order number.
- All horizontal and vertical control furnished by Dewberry.
- A listing of utility owners.
- The Quality Level of the depicted utilities.
- Additional information furnished by utility owners, annotated by notes on the CAD and paper drawings.

2. A Test Hole Certification Form for each QL A data point, with the following minimum information for each:

- horizontal and vertical location of top and/or bottom of utility referenced to project datum and project coordinate system.
- elevation of existing grade over utility at test hole referenced to project datum.
- outside diameter of utility and configuration of non-encased, multi-conduit system.
- utility structure material composition, when reasonably ascertainable.
- benchmarks and/or project survey control used to determine elevations.
- paving thickness and type, where applicable.
- general soil type and site conditions.

- such other pertinent information as is reasonably ascertainable from test hole site. References to project datum must maintain vertical tolerance to plus 0.05' based on benchmarks shown on the deliverables and horizontal tolerance to applicable surveying standards.

3. An electronic (EXCEL format or equivalent) and paper copy summary table for all QL A data, with the following information:

- Test Hole Number.
- Elevation of utility.
- Depth below grade of utility.
- Type of utility.
- Size of utility.
- Material type.

Task 19 - Public Involvement

Objective:

2.1.3 - Public Involvement
This task includes the attendance and preparation of informational materials to be viewed and/or distributed to the general public at public meetings. This task may also include the preparation of newsletters, public announcements and all other aspects of public involvement as outlined in Publication 295.

Scope:

2.1.3 - Public Involvement
1. Obtain approval from PMC to proceed with public involvement activities.

2. Prepare announcement for public meeting.

3. Prepare visual materials and/or flyers for general public meetings.

4. Attend all public meetings and address comments made at the meeting.

5. Prepare minutes to the meeting and submit to the Project Manager for review. Revise if necessary.

Detail Task 1 - Public Involvement

Department Details:

The consultant will provide plans and displays for a public officials meeting and a public plans display. The consultant will notify the public officials (township, borough, county, state, police, fire, schools, emergency services, etc.) by letter. Time, date, and place of meetings will be coordinated by the consultant. The consultant will prepare and pay for newspaper ads for the public plans display to be included in the local newspapers circulated in the area. The ad will be submitted to the Department for review and approval prior to submitting it to the newspapers. The consultant will make all necessary arrangements and pay for hall rental for public plans display. Costs for ads and hall rental are to be included in Estimated Direct Expenses. Use $750.00 for ads and $300.00 for hall rental. The consultant will submit a draft agenda for the Public Officials Meeting along with the proposed displays at least one week in advance of the meeting to the Department for review and approval. The consultant will participate in a

conference call to discuss the agenda and displays if necessary. The consultant will record minutes of the public officials meeting and the public plans display and will distribute to interested parties with 10 calendar days after the meetings.

Once the Public Officials Meeting has been held, this task will also include the completion of the District Detour Approval Form.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry assumes a public plans display will be conducted in lieu of a formal public meeting.

- Dewberry assumes a Public Officials Meeting will be conducted on the same day and at the same location as the public plans display, but immediately preceding the public display.

- Dewberry will investigate and select a proposed location for the plans display. Coordination with the District will be performed to obtain approval of the location, date and time of the plans display.

- Dewberry will prepare advertisements for the plans display based on an ad template provided by the District. The proposed advertisement will be submitted to the District for approval. The approved ad will be placed in two local newspapers.

- Dewberry assumes that newsletters/brochures/handouts will not be prepared for use during the public plans display or as follow-up coordination with the public.

It is anticipated that 1 copy of 5 exhibits will be prepared for the plans display, including:
- project location map and Roxbury Ave detour plan
- existing structural conditions (photos)
- project plan view (temporary roadway)
- project plan view (final conditions) and typical sections
- anticipated construction sequence/schedule

- A “dry run” of the plans display is not anticipated. Draft exhibits will be provided to the District for review prior to the plans display. Comments will be incorporated in the final displays.

- Dewberry will provide 2 attendees for the public officials meeting/public plans display. SEE representatives will not attend the meeting.

- Dewberry will prepare a brief project questionnaire/comment card for distribution at the plans display. The comment cards will be made available to public attendees and collected at the end of the event.

- Comments and concerns noted at the plans display will be summarized in the meeting minutes and distributed to interested parties. Follow-up coordination with local businesses is anticipated to include mailings, teleconference calls, and one on-site meeting.

- Dewberry understands preparation of the District Detour Approval Form is included in this task.

Consultant Hierarchy

Business Partner	DBE Type	Supervising BP
Dewberry-Goodkind, Inc.	No	
GEO-Mechanics, Inc.	Yes	Dewberry-Goodkind, Inc.
So-Deep, Inc.	No	Dewberry-Goodkind, Inc.
Stell Environmental Enterprises, Inc.	Yes	Dewberry-Goodkind, Inc.

Attachments

No records found.

Part 2 - Final Design - Cheney Run Culvert

Description

Final Design for the Cheney Run Culvert carrying S.R. 3002 over Cheney Run in the City of Johnstown, Cambria 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.

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.

Detail Task 1 - Project Management/Administration

Department Details:

The consultant will prepare and distribute to appropriate parties the minutes of all project meetings and telephone conversations where directions or decisions are made. The minutes are to be distributed within 10 calendar days following the meeting or telephone conversation.

The consultant shall provide construction cost estimates on a monthly basis or as required by the Department.

The consultant shall progress the schedule and submit the updated Open Plan design schedule to the Department on a monthly basis.

The consultant will thoroughly check all design submissions prior to submitting them to the Department for review. All computation sheets shall bear the initials of both the individual who prepared the calculations and the individual who checked the calculations. The Department reviews will be cursory in nature and the consultant will be responsible for design and plan accuracy. The consultant will be liable for design and plan errors in accordance with 67 PA Code, Chapter 455, Consultant Highway Design Errors.

The prime consultant will be responsible for subconsultant and DBE progress. All submissions prepared by subconsultants will be submitted through the prime consultant's office. The prime consultant will be responsible for the accuracy and quality of work prepared by subconsultants.

For archiving into the ECMS Project Development Checklist, the following reports (once approved in writing by the District or the appropriate permitting agency) will be provided by the consultant to the District in electronic, PDF format:

- Final Foundation Report
- Final Drainage Design Report
- Final Pavement Design
- Final Structure Design Computations
- Final Roadway Design Computations
- Final Quantity Computations

Approach:

The Dewberry Team understands that this task consists of a continuation of the project management/administration efforts from Part 1 of this agreement. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry will attend two (2) project status meetings that are not included in other tasks within this proposal. We will also prepare and distribute minutes for each of these meetings.

- Dewberry will provide the following approved reports to the District in pdf format for archiving purposes:
- Final Foundation Report
- Final Drainage Design Report
- Final Pavement Design
- Final Structure Design Computations
- Final Roadway Design Computations
- Final Quantity Computations

Task 2 - 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:

All conventional roadway surveys will be completed by consultant forces. All surveys shall be in accordance with current Design Manuals and Publication 122. The consultant will resurvey the approved Design Field View alignment as necessary for topography and cross sections. The consultant will be responsible for re-painting and flagging the construction centerline at 50 foot intervals. The consultant will flag and mark all permanent references and flag benchmarks 30 days after the notice-of-proceed is given to the contractor.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry will re-issue the Notice of Intent to Enter letters at the initiation of Final Design.

Supplemental survey operations may include but are not limited to:
- Determination of property improvements affecting right of way acquisitions
- Final benchmarks and permanent references for construction stake out will be established and recorded, outside the limits of construction, for each portion of the project.

- The construction stationing, control, references and benchmarks will be flagged prior to construction of the project. This will be done after notification is received from the PENNDOT Project Manager concerning the construction start date.

- Survey books will be complied, numbered and indexed for submission to the District.

Task 3 - 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 - Traffic Control Plan

Department Details:

Revise Objective 2.10.14 to read:

This task is the development of the final traffic control plan. Publication 14M (Design Manual 3), Publication 212 (Official Traffic Control Devices), and Publication 213 (Work Zone Traffic Control) apply to this task.

This will be a continuation of work performed during the Preliminary Design phase.

This activity will include a separate plan and written narrative. All signs will be drawn (symbols will not be accepted) and the distance between signs will be shown on a 1"=25' minimum scale plan.

This task will be the final design of the preferred traffic control option determined during Preliminary Engineering Task - Preliminary Maintenance and Protection of Traffic.

The consultant will design all required temporary traffic signals.

The locations where pedestrian movements are impacted, safe passage, pedestrian detours, and/or restrictions will be addressed.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- For price proposal purposes, it is assumed that the project will be constructed using a temporary 2-lane roadway to maintain SR 3002. Temporary traffic signals will be required at the SR 3002/SR 3011 intersection.

- We assume that Roxbury Avenue will be closed at the intersection with SR 3002 and a temporary detour will be developed.

- We also assume that Langhorne Avenue will be closed at the intersection with SR 3002. Temporary measures to maintain traffic on Langhorne Avenue will be limited to temporary conversion of the existing one-way status of the roadway to a bi-directional roadway, allowing traffic to enter the street from the north.

- Traffic Control Plans will be included as “ALSO” plans in the final construction plan set.
- Temporary Highway Lighting Plans will not be required.
- Special Sign Details will not be required.

- A temporary traffic signal plan will be required to control the intersection of the SR 3002 two-lane temporary roadway and SR 3011. This work will be included in the Traffic Control Plans.

- Temporary signal timing and phasing will be designed for the signal type recommended under Part 1, Task 10 above.

- Dewberry assumes maintenance of pedestrian traffic will be required. A local pedestrian detour will be developed for use during construction. It is

anticipated that a temporary sidewalk will be located adjacent to the temporary roadway. Temporary pedestrian detours will be required for Langhorne Ave and the east side of SR 3002.

Traffic Control Plans are anticipated to include the following sheets:
- General Notes and Tabulation of Traffic Control Devices (with quantities) - 1 Sheet
- Traffic control device details - 1 sheet
- Typical Sections for each phase - 1 Sheet
- Advance Signing Plan - 1 Sheet
- Phasing Plans at a horizontal scale of 1” = 25’ - 2 Sheets
- Temporary Pedestrian Signing Plan - 1 Sheet
- Temporary Traffic Signal Permit Plans - 1 Sheet

- 8 Total Sheets

Task 4 - 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:

The consultant will prepare a Foundation Recommendation Report in accordance with Design Manual Part 1, Chapter 5, Section 11 and Design Manual Part 4, Volume 1, Part A, Section 1.9.4.

The foundation recommendation will include a determination of the bearing resistance of the foundation material and a cost comparison study for alternate foundations.

Approach:

Dewberry agrees with the Department's scope of work, with the following clarifications:

- Dewberry understands this task consists of the work effort necessary to prepare the Final Structure Foundation Report in accordance with Design Manual Part 1, Chapter 5, Section 11 and Design Manual Part 4, Volume 1, Part A, Section 6.3.4.2.8.

- Core boring operations will be completed under Part 1, Task 12 - Structure Boring. Also, the RSGER will have been prepared under Part 1, Task 13 - Preliminary Geotechnical Engineering Report.

- Dewberry assumes the foundation conditions for a precast or cast-in-place concrete box culvert will be addressed by the Final Structure Foundation Report.

Task 5 - 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 - Roadway

Department Details:

The consultant will perform the following tasks:

- Prepare a set of standard roadway construction plans and final cross sections for the approved line. Plans will be at a scale of 1"=25'.
- Show the limits of excavation for any bridge foundation on the roadway construction plan.
- Show sensitive environmental resources (i.e. wetlands, eligible historic properties, etc.) on the final construction plan.

Prepare and make separate submissions for the following items to be approved prior to finalizing the roadway plans:

a. Pavement Design - Only minimal effort will be required for pavement design as approval for pavement design will occur during the preliminary design phase. Unforeseen changes would be the only reason any additional effort for pavement design would be necessary.

b. Typical Section Submission - Typical Section approval will occur during the preliminary design phase; any effort necessary for typical sections will be minimal and initiated be some unforeseen change.

c. Intersections - When intersections are involved in project design, procedures stated in Design Manual 1, Chapter 5, Section 14 shall be followed. Design will be in accordance with Design Manual 2 and AASHTO.

d. Signing and Pavement Marking Plan (will be a separate plan)

e. Soil Erosion & Sediment Pollution Control Plan

f. Traffic Control Plan

g. Roadway Drainage Design - Design roadway drainage in accordance with Design Manual 2, Chapter 10 and Stormwater Management Guidelines. Prepare and submit a final drainage design report to the Department. Include all hydrologic and hydraulic computations (excluding those to be included as part of Preliminary Engineering, Task 11.0, Hydrologic and Hydraulic Report). Include plans showing drainage areas, flows, swale/ pipe sizes, inlet data, and invert elevations.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

Dewberry assumes the existing roadway alignments and intersection configurations will be retained. Only minor profile adjustments to properly define the vertical alignment and accommodate sufficient cover over the new structure will be required.

Dewberry will complete the following items under this task:
- Finalize roadway drainage designs and prepare a Final Drainage Report
- Compute the final roadway quantities
- Prepare the final cost estimate
- Develop final construction plan set
- Prepare the Special Provisions

Dewberry anticipates the following items will not be required or performed under this task:

- Signing and pavement marking designs; a separate Signing and Pavement Marking Plan will be prepared under Task 12.

- Pavement Design - the District Pavement Manager will provide the Final Pavement Design to Dewberry.

- Contour grading plans (not required)

- Intersection designs - existing intersection configurations and geometry will be maintained, but construction details will be provided where curbing will need to be reconstructed.

- Typical Section Submission – LG&T approval will be granted during Part 1 of the project.

- Erosion & Sedimentation Pollution Control Plans will be prepared under Part 1 of the project.

- Final Traffic Control Plans will be prepared under Task 3 - Traffic Control Plan.

- Traffic Signal Plan - Dewberry assumes no permanent impacts to the existing signals at the SR 3002/SR 3011 intersection will be included with the project. Furthermore, Dewberry assumes no improvements to the pedestrian push button signal actuators will be required at the existing

signals.

- Submission of the PS&E package via ECMS will be completed as part of Task 13 - Assemble Final Project Documents for Contract Management.

Dewberry assumes ADA-compliant curb ramps will be required at intersections where curb reconstruction is required. We assume curb ramp designs will be required at the SR 3002 intersections with SR 3011, Roxbury Ave, Hershberger St, and Langhorne Ave. Technically Infeasible Forms (TIFs) will be prepared where necessary.

It is anticipated that the following applicable sheets will be part of the Roadway Construction Plans:

- Title - 1 sheet
- Index Map - 1 sheet
- Location Map and General Notes - 1 sheet
- Typical Sections - 2 sheets
- Project Specific Details - 3 sheets
- Summary of Quantities - 2 sheets
- Tabulation of Quantities - 3 sheets
- Plan Views - 1 sheet
- Profiles - 3 sheets

- 17 Total Sheets

It is anticipated that the following "ALSO" Plans will be part of the Roadway Construction Plans, as well:
- E&S Plan
- Traffic Control Plan
- Signing and Pavement Marking Plan
- Cross Sections
- Structure Plan – Cheney Run Culvert

Task 6 - Cross Sections

Objective:

2.10.4 - Cross Sections
This task is the preparation of final cross sections in accordance with Publication 10A, Design Manual Part 1A.

Scope:

2.10.4 - Cross Sections
The cross sections will be based on the vertical and horizontal alignments and will be plotted at an approprate vertical and horizontal scale.

Cross section intervals should be taken at a distance that clarifies the existing conditions not to exceed 50 feet. Shorter intervals should be considered for walls and other permanent structures or special conditions. Develop a half - section at each driveway location without prepared profiles.

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

1. Cross sections at selected intervals.

2. Cross section title sheet providing number of cross section sheets in the package, break-down of each alignment with stations and related sheet numbers.

3. Cross section reference sheet at all interchanges and complex intersections

4. Develop earthwork quantities for each section and place on sheet.

5. Submit cross sections in accordance with Publication 14M, Design Manual Part 3.

Detail Task 1 - Cross Sections

Department Details:

Utilize the Standard Scope for this task and add the following:

Show all underground utilities, utility poles, drainage, guide rail, temporary roadways/widening, and right-of-way lines/easements on cross sections.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry will refine the preliminary roadway cross sections based on the Safety Review/Design Field View comments for the project.

- Prepare sections at a scale of 1"=5' horizontal and vertical

- Prepare sections at 25-foot intervals

- Cross sections sheets will show: existing roadway/ground lines with proposed bridge and roadway templates, including profile grades, superelevation transition notes, pavement base drain and notes, right-of-way lines, guiderail, etc.; construction and survey baselines (if they differ); and existing, new, or revised drainage and utilities.

- Cross-sections for each portion of the project will be the basis for earthwork quantity computations. Excavation and embankment quantities will be indicated, including separate breakdowns for the applicable excavation classes.

Task 7 - 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:

The consultant will finalize the right of way plan developed in Preliminary Engineering in accordance with all applicable Design Manuals and PA D.O.T. Strike-off Letter 430-98-26. Present no more than two plats per sheet.

The consultant shall perform deed verification within 30 days of submission of the Final ROW plan submission. This deed verification date shall be placed on the individual property plats. Additional deed verification will need to be performed prior to plan recordation, the timeframe for which will be requested by the District ROW Unit.

The Final ROW Plan Submissions must include:

1. Final ROW Plan – One file containing the entire plan
2. Project Summary Data (one file that includes the following):
a. Project Description
b. Traffic Control (include copy of detour if applicable)
c. Estimation of Construction Duration (using seasons, not specific dates)
d. Summary of Utility Impacts
e. Estimated Costs/Funding
3. Copy of Cross Sections – One file containing all cross sections
4. Copy of Deeds – One file containing all deeds

* All documents referenced above are to be submitted as pdf's.

Any Revised ROW Plan Submissions must include:
1. Revised ROW Plan – one file containing the entire plan
2. Detailed sheet-by-sheet summary of revisions
3. Justification of plan change (request from ROW unit, plan error/omission, design modification, etc.)

* The revised ROW plan is to be submitted as a pdf. Items 2 and 3 can be included in the email transmitting the plan.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry will prepare a Standard Right-of-Way Plan in accordance with the Department's scope of work for this task and Publication 14M, Design Manual Part 3.

- For the purposes of this proposal, it is assumed that this structure replacement will involve minor partial property acquisitions and required easements from eight (8) properties, requiring eight (8) property plots.

- The Final Right-of-Way Plans and supporting documents will be submitted to the District.

- 18 sheets are anticipated for the Right-of-Way Plans.

- Dewberry will attend the Final Right-of-Way Plan Check under Task 11 - Final Plan Checks.

- Property ownership verification will be checked prior to final plans submission.

- Final corrected Right-of-Way Plans will be prepared and appropriately sealed.

- Plans will be sealed by Dewberry's professional engineer and professional surveyor responsible for the right-of-way work.

- Property ownership will also be verified 30 days prior to plan recordation.

Task 8 - Utility Engineering

Objective:

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

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.

Detail Task 1 - Utility Engineering

Department Details:

This activity will be a continuation of the utility efforts initiated in the Preliminary Design phase.
The consultant will provide a finalized utility impact plan and matrix including a description/tabulation of apparent utility impacts with station, offset,

and nature of impact (i.e. - widening, cut, fill, drainage, etc.). These utility impact plans shall be superimposed on the right-of-way plan and show utilities in color in accordance with the APWA Temporary Marking Standard, except that alternate colors shall be used in lieu of lighter colors (i.e. - yellow) which do not reproduce well.

Upon completion of the final right-of-way plan check and preparation of the finalized utility impact plan and matrix, provide a single PDF file to the District containing the following:

- Final Utility Impact Plan (in ROW plan format w/o plats)
- Final Utility Impact Matrix
- Preliminary Structure Plans (w/ excavation limits)
- Preliminary E&S Plans
- Preliminary Signal Plans
- Pre-Final Cross Sections (w/ existing utilities depicted)

Provide hard copies of these items to all involved utilities.

The consultant will work with the affected utilities as the plan develops to ensure that the utility locations shown on the final roadway and bridge plans are totally accurate.

The consultant will coordinate, set up, and attend all required utility meetings. Assume one (1) utility coordination meetings. Provide minutes of utility coordination meetings to the District in hard copy format.

Once the involvement for each utility has been defined for the project, the utility clearance Form D-419 will be prepared by the Department. All requirements of Act 38 will be fulfilled.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry understands this work is a continuation of the effort initiated in Part 1 of this agreement.

- Impact plans will be prepared in color coded format as indicated in the Department Details.

- Dewberry assumes no utilities will desire to occupy the proposed structure.

- Dewberry anticipates that relocation of overhead and subsurface facilities will be required.

- Dewberry anticipates that storm sewer outlets into the proposed culvert will require minor adjustments.

- Dewberry will provide two attendees to one (1) utility coordination meeting at the project site.

- Dewberry will prepare and distribute minutes of the coordination meetings.

- Dewberry understands that the District will prepare the utility clearance Form D-419.

- For the purposes of this proposal, Dewberry assumes SUE services will not be required during Final Design of the project.

- If it is determined that underground locating services are necessary, a supplement will be prepared.

Task 9 - 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:

The consultant will design the structure and provide detailed drawings in accordance with Design Manual Part 4 and the following:
Final Structure Plans shall include Alternate Structure Special Provisions. Provide an updated cost estimate for the entire project with this

submission. Provide back up for all lump sum items.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Structure Plans will be included as “ALSO” plans in the final construction plan set.

- Dewberry assumes that a precast concrete box culvert alternate will be recommended by the TS&L and H&H studies and will be forwarded to Final Design.

The following sheets are anticipated to be included in the plan set:
1. Title Sheet
2. General Plan & Elevation
3. General Notes and Quantities
4. Stake-Out Plan
5. Box Culvert Details-1
6. Box Culvert Details-2
7. Box Culvert Plan & Baffle Details
8. Upstream End Closure Section Details
9. Downstream End Closure Section Details
10. Reinforcement Bar Schedule
11. Test Borings-1
12. Test Borings-2

- Dewberry will submit Pre-Final structure plans for review and comment by the District.

- Dewberry will address and provide written responses to all pre-final review comments. After all review comments are addressed, a final submission will be made that will include signed and sealed plans, design calculations, special provisions (including an Alternate Structure Special Provision), quantity calculations, cost estimates (updated for the entire project and including lump sum cost back-up data) and QA Forms.

- Dewberry will utilize the District 9-0 procedures and preferences in preparing structural plans, design calculations, etc. in PDF format for inclusion in the ECMS bid documents and archiving purposes.

Task 10 - Coordinate Constructability Review

Objective:

2.1.2 - Coordinate Constructability Review
This task is the coordination of the constructibility review team throughout design development.

Scope:

2.1.2 - Coordinate Constructability Review
The constructibility review team will be established at the beginning of the project. Constructibility reviews will be conducted periodically throughout

the design process. The reviews will be preformed to identify potential construction problem areas, possible cost savings, means to expedite construction, and alternate methodologies. The review will focus on the following issues:

* Evaluate MPT vs. Construction Sequence
* Set mandatory sequence logic where necessary
* Detect potential problem areas
* Avoid ambiguities
* Limit inefficient and impractical design features
* Evaluate coordination between design sections, where applicable
* Avoid omissions and overlaps by reviewing specifications vs. plan and plan vs. plan

Detail Task 1 - Coordinate Constructability Review

Department Details:

Using Welcom Open Plan Software, the consultant will perform construction CPM scheduling to determine a realistic construction schedule for completing the project on time and within budget. The CPM will address the work activities required for all phases of construction. This will include work activities required to construct the roadway and bridge in accordance to the construction sequence required by the Traffic Control Plan and the E&S Plan. Construction phasing will be used to determine intermediate milestones and the construction completion date.

The consultant will present the CPM to PENNDOT's review committee to verify the constructibility, time constraints, etc. and resolve any questions and/ or scheduling issues that may arise. The presentation will take place at the District Office prior to PS&E. The consultant will make any necessary revisions or adjustments to the schedule resulting from the review meeting and submit the revised CPM to the Department with the PS&E submission.

Provide a separate CPM for any necessary utility relocation.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- It is assumed that one constructability review meeting will be conducted at the District office prior to the PS&E submission.

- Current roadway plans, bridge plans, and traffic control concepts will be provided as necessary to conduct the constructability review and promote discussion.

- Dewberry will prepare a construction CPM schedule using Open Plan for review at the Constructability Review Meeting. The CPM schedule will include utility relocation requirements.

- Dewberry will provide two representatives familiar with the applicable portions of the project to attend the constructability review meeting (Project Manager and design engineer).

- The revised schedule will be provided to the District along with a flow diagram and calendar.

- Meeting minutes will be prepared and submitted to the District. Comments resulting from the meeting will be incorporated into the project development.

Task 11 - Final Plan Checks

Objective:

2.10.28 - Final Plan Checks
This task is the time required to attend/perform all final plan checks.

Scope:

2.10.28 - Final Plan Checks
The Final Plan Check is performed by representatives of: Bureau of Design - Field Liaison Engineer, District Engineer/Administrator, and Consultant.

The Field Liaison Engineer is in charge of the Final Plan Check and prepares a Plan Review Report on any items which are not correct a the time of the Final Plan Check.

The District Engineer/Administrator provides qualified personnel to perform all required design review; prepares Form 407, Form D-444D and a list of Structural Special Provisions, and notifies the Field Liaison Engineer when the plans will be ready for the Final Plan Check.

The Consultant is required to have the plans adequately checked prior to the Final Plan Check, and will have the Project Engineer and adequate design personnel to make any required corrections, present at the Final Plan Check. It is expected that all required corrections will be made by the Consultant prior to leaving the Final Plan Check.

Detail Task 1 - Final Plan Checks

Department Details:

This task is the time required to attend/perform all plan checks. Assume a total of three plan checks (Final Right-of-Way Plan Check, Preliminary Construction Plan Check, and Final Construction Plan Check).

A preliminary construction plan check and a preliminary right-of-way plan check will be held during the early stages of final design and the final construction plan check and final right-of-way plan check will be held prior to the PS&E submission to Central Office. Consultant will make any necessary changes. This activity will be completed in accordance with Design Manual 1, Chapter 5, Section 26. For the final construction plan check and the final right-of-way plan check to be held in the District Office, provide one engineer and one draftsperson for one day for each check.

The last sentence under Scope 2.10.28 is deleted and revised as follows:
It is expected that all required corrections will be made by the consultant within two weeks following the final plan check.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

As noted in the Department Details, Dewberry will attend three (3) plan check meetings:
- Final Right-of-Way Plan Check
- Preliminary Construction Plan Check
- Final Construction Plan Check

- Dewberry assumes all plan checks will occur in the District office.

- Dewberry assumes all Plan Check Reports will be prepared by the Department.

- Dewberry assumes preparation of meeting minutes for the Plan Checks will not be required.

- Dewberry will provide two (2) representatives directly involved in the preparation of the plan set to attend the plan checks.

Task 12 - 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 - Pavement Marking Plan

Department Details:

A separate plan is to be included in the construction plan.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task.

Task 13 - 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.

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."

Detail Task 1 - Assemble Final Project Documents for Contract Management

Department Details:

This task is the packaging of the contract documents for the project. The work will include finalizing the contract special provisions, engineer's estimate (include a Cost Driver Analysis and Lump Sum Item Breakdown and Cost Justification), and construction CPM schedule.

Also included in this package will be:
- Final Construction Plans (including Also Plans)
- Cross Sections
- Quantity Computations

This task also includes the uploading of the contract document material into ECMS in cooperation with the District.

All plan sheets will be provided in individual pdf file format.

The consultant will provide the special provisions electronically in Word format, and the District will upload them into ECMS.

Approach:

This task will be completed by Dewberry. We agree with the Department's scope of work for this task and provide the following additional clarification and summary of the work effort.

- Dewberry will prepare bid documents in accordance with SOL 437-06-01 and DM-3 for entering into the ECMS System.

- Dewberry will prepare bridge documents in accordance with the PennDOT Engineering District 9-0 Bridge Unit “Instructions for Preparing Adobe Acrobat PDF Files for Document Submissions”.

Consultant Hierarchy

Business Partner	DBE Type	Supervising BP
Dewberry-Goodkind, Inc.	No	

Attachments

No records found.

Part 3 - Services During Construction - Cheney Run Culvert

Description

Construction Services for the Cheney Run Culvert carrying S.R. 3002 over Cheney Run in the City of Johnstown, Cambria County.

Task 1 - Shop Drawing Review

Objective:

2.11.2 - Shop Drawing Review
This task involves the coordination, review and approval of shop drawings submitted by the contractor in accordance with Publication 10/10A, Design Manual 1/1A.

Scope:

2.11.2 - Shop Drawing Review
Review and approve shop drawings following the procedures in Design Manual Part 1A.

Detail Task 1 - Shop Drawing Review

Department Details:

Follow Design Manual 4, Part A, Policies and Procedures, Section 1.10.2 and the PennDOT Engineering District 9-0 Bridge Unit's policy title "Bridge Shop Drawing and Working Drawing Preparation and Review Procedures." The policy is available in the attachment section. Also available in the attachment section are the District 9-0 guidelines for preparing Adobe PDF's.

Shop drawings will be sent by the construction contractor directly to the consultant. Provide a maximum ten (10) working day turnaround on shop and working drawings.

Anticipated shop drawing reviews include:
-Precast Box Culvert

Anticipated working drawing reviews include:
-Removal of existing culvert plan
-Culvert erection plan
-Shoring Plan

Approach:

Dewberry concurs with the District's Scope of Work with the following clarifications;

-Dewberry will review all shop drawings required for fabrication of structural materials and components. Our review process will include checking geometry and principal dimensions, and verifying material and fabrication conformance with the contract plans, specifications and standards. Shop drawing review status logs will be maintained to ensure an efficient checking procedure and to incorporate changes as they occur.

Task 2 - Construction Consultation

Objective:

2.11.3 - Construction Consultation
This task is coordination with the contractor prior to issuance of the notice to proceed.

Scope:

2.11.3 - Construction Consultation
Upon contract execution, issue a Notice-to-Proceed letter and coordinate the scheduling of a pre-construction meeting.

Detail Task 1 - Construction Consultation

Department Details:

The consultant will provide construction consultation for the design portion of the bridge approach roadways, intersections, etc.

The consultant will document all notices from the contractor and PENNDOT concerning design problems. The consultant will provide solutions as necessary and will provide details, plans, quantities, etc. to PENNDOT (2 copies) and contractor (2 copies). Consultant design errors are not eligible for compensation under this part.

The consultant will review and approve the following contractor submissions during construction: demolition, temporary shoring and box erection plans.

Include two representatives to attend a preliminary construction consultation meeting and three field trips to the construction site. Include one

representative to attend final inspection.

The consultant will attend a Design After Action Review at the District office after construction is complete.

Approach:

Dewberry concurs with the District's Scope of Work for this task.

Consultant Hierarchy

Business Partner	DBE Type	Supervising BP
Dewberry-Goodkind, Inc.	No	

Attachments

No records found.