



TECHNICAL PROPOSAL REPORT

Agreement: E02200	Project Specific	Executed
Name: County Line Road : Kulp Road to PA 611		Selection Process: Modified
		Initiating Org: Engineering District 6-0

Part 1 - SR 2038 M04 Preliminary Engineering

Description

SR 2038 M04 Preliminary Engineering

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.

2.1.1.5 - 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.

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.

2.1.1.5 - 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 PDSRJ 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.

Detail Task 1 - Project Management/Administration

Department Details:

1. Monitor design team performance and project development.
2. Control project costs.
3. Coordinate the flow of information concerning the project. The number of meetings necessary will be a function of the duration and complexity of the project.
4. While the core activities within the PDSPRJ and PDSMASTER templates are required for all Open Plan design schedules the District has modified these standard templates to include additional activities. Therefore, always use the most current approved version of these template files. These templates can be obtained from either from the District Portfolio Manager or the District Project Manager.
5. The consultant must maintain an up to date electronic copy of the project's Open Plan schedule using the Department approved version of the Deltek's Open Plan software. This will allow the consultant the ability to address what if scenarios related to any necessary recovery plans, since the modification of relationships is not a functionality of WelcomHome.
6. After the District Project Manager has performed initial setup of the WelcomHome project the remainder of the project team will need added to the WelcomHome project by the District Project Manager. This will be accomplished utilizing the WelcomHome project administrative functions. This is not required for 100% State funded projects. Conduct status meetings to identify project and scope. The regulatory/resource agencies will vary from project to project. Conduct regular status meetings.
7. Provide Open Plan schedule updates in WelcomHome by the first of every month.

Effort for task-specific meetings should be included in the hours for each particular task.

Approach:

This task will be completed as outlined in the Department's Scope of Work and as modified below:

2.1.1 - Project Management/Administration

Baker has selected Mr. Saul Mellman, P.E., to serve as the Project Manager for this project. Mr. Mellman will serve as Baker's single point of contact with PENNDOT and will be responsible for the overall coordination of the project team and work effort.

Baker will complete the project tasks in a timely manner and will make the submissions required as part of the project development.

This task includes invoice preparation, accounting, secretarial work, meeting attendance and administrative functions performed by Officers, Department Heads and the Project Manager.

Baker's sub-consultants will also assist with this task, including management and administrative duties.

Baker's sub-consultant, ARROW, will advise the team on any preliminary ROW questions or issues that may arise.

Scope 2.1.1.3 - Quality Control/Quality Assurance

The project QA/QC Plan will be prepared by Baker and their sub-consultants and submitted to the Department as part of this task.

Scope 2.1.1.5 - Project Schedule Development and Maintenance

Baker's sub-consultants will assist with project schedule updates. Baker assumes that the project schedule will be developed to the end of the preliminary engineering phase only. A supplemental agreement under the final design phase of the project will be required to modify the schedule to the project letting date.

Scope 2.1.1.1 - Meetings

As part of this task Baker and its sub-consultants will attend the Project Kick-off meeting and one project status meeting. Additional meetings (i.e. Design Review, Public, etc) will be covered under a supplemental agreement.

Task 2 - Wetland Studies**Objective:****2.2.1 - Wetland Studies**

Title 25, Chapter 105.17 of the Pennsylvania Code will be used to identify wetlands and determine the impact of the proposed alternatives.

2.2.1.1 - Identification/Delineation

This task consists of the delineation of wetland resources, wetland functional assessment, the preparation of wetland resource reports, mapping wetland resources and obtaining jurisdictional determinations within a project. Publication 325 applies to this task.

Scope:**2.2.1 - Wetland Studies**

Preliminary assessment (field view) to determine presence/absence of resources will be conducted in accordance with Publication 325, Wetland Resources Handbook.

2.2.1.1 - Identification/Delineation

Conduct field views and site walkovers to identify the presence or absence of jurisdictional wetlands within the study area. Secondary sources normally used to characterize the areas include the County Soil Survey Reports (Soil Conservation Service) to identify known hydric soils, National Wetland Inventory Maps (US Fish and Wildlife Service) to locate anticipated wetland areas and USGS 7 1/2 min. Quadrangle Sheets (U.S. Geological Survey) to define the drainage and topography of the site. These sources provide the background information and a starting point for in-field investigations.

Delineate the wetlands within the study area utilizing the methodology presented in the U.S. Army Corps of Engineers (ACOE) Wetland Delineation Manual (1987). The wetland boundaries will be marked with surveyors flagging.

The functions and values for each wetland will be assessed using either the Corps Descriptive Method (CDM) or the WET 2.1 Analysis. This information will be compiled for inclusion into the Wetland Identification and Delineation Report. Determine if the wetlands within the study area meet the criteria of exceptional value.

A jurisdictional determination field view to verify wetland delineations will be conducted with appropriate review agencies including the ACOE and the Pennsylvania Department of Environmental Protection (PADEP).

A Wetland Identification and Delineation Report will be prepared to document the investigation including: methodology, findings, agency coordination activities and the photographs and data forms.

Detail Task 1 - Wetland Studies

Department Details:

The consultant will be responsible to gather project environmental information and complete all tasks associated with obtaining an approved Wetland Identification and Delineation Report.

Approach:

This task will be completed as outlined in the Department's Scope of Work and as modified below:

Scope 2.2.1.1 - Identification/Delineation

Wetlands will be identified by the delineation methods described in the 2010 Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region and the 1987 Corps of Engineers Wetland Delineation Manual. Streams will be identified according to the watercourse definition described in Title 25 Chapter 105 of the Pennsylvania Code. Floodways, which are also regulated by PADEP, will be similarly identified by the definition in Chapter 105. Due to the linear nature of the study area, the Routine On-Site Determination Method will be used procedurally and the wetlands will be classified in accordance with the USFWS' Classification of Wetlands and Deep Water Habitats in the United States (Cowardin, et al., 1979). In all cases, when regulated waters are identified and delineated, they will be surveyed by our sub-consultant Chilton.

Baker will prepare a Preliminary Jurisdictional Determination (JD) submission for this project (rather than an approved) JD.

This task includes attending one JD field view with the ACOE and PADEP representatives.

Task 3 - Archaeology

Objective:

2.2.29 - Archaeology

To determine the potential for prehistoric and historic archaeological resources (geomorphology, predictive model) within the area of potential effect (APE), determine the presence or absence of prehistoric and historic archaeological resources within the APE (Phase I), assess the significance of identified resources for eligibility to the National Register of Historic Places (Phase II), determine project effects on eligible resources, and develop appropriate mitigation strategies, such as data recovery (Phase III), as warranted.

2.2.29.5 - Archaeological Identification and Evaluation (Phase I & II) – Recommendations of Eligibility

Identification surveys and evaluation of archaeological sites combined into a single field effort with the goal being the recommendation of eligibility of archaeological properties within the project's area of potential effect (APE).

Scope:

2.2.29 - Archaeology

Archaeology covers those steps in Section 106 consultation involving the identification and evaluation of significant archaeological sites, the project's effects on significant archaeological sites, and appropriate public and consulting party involvement.

2.2.29.5 - Archaeological Identification and Evaluation (Phase I & II) – Recommendations of Eligibility

Guidance:

- National Register Bulletin Guidelines for Evaluating and Registering Archeological Properties (2000)
- Advisory Council's Handbook on the Treatment of Archaeological Properties (1980)
- Secretary of the Interior's Standards for Archaeology and Historic Preservation (36 CFR 61.3 (b) and Chapter 6, Section C.1.a)
- Guidelines for Archaeological Investigations in Pennsylvania, November 2008, Bureau for Historic Preservation, Pennsylvania Historical and Museum Commission

Scope:

At the direction of the Project Manager (PM) and in coordination with the PennDOT District Cultural Resource Professional(s), determine the presence or absence of archaeological resources within the APE (Phase I archaeological identification survey) and/or evaluate identified archaeological resources for eligibility in the National Register of Historic Places (Phase II archaeological evaluation investigations).

The scope of work will include some or all of the following activities:

1. Perform Archaeological Identification Survey (Phase I)

a. Confer with the PennDOT District Cultural Resource Professional(s) to determine the archaeological APE for the project and the level of testing needed to identify archaeological resources located within the APE. If an archaeological predictive model has been developed for the project under Section 2.2.29.3, use the model to guide the testing of the APE.

b. Review Pennsylvania Archaeological Site Survey (PASS) files maintained at the State Historic Preservation Office (SHPO), Harrisburg, Pennsylvania, and historic structure forms, National Register of Historic Places historic structures files, and area cultural resource management reports maintained at the BHP in Harrisburg, Pennsylvania, to identify recorded archaeological sites and inventoried historic structures in or adjacent to the project area, and to assess the level of cultural resources work previously done in the general area.

- c. Review relevant primary and secondary source material including archival collections, historic maps, atlases, and local histories. Consult with regional and local historical societies, and conduct informant interviews with property owners and other informants, as appropriate.
- d. Review relevant geology; physiography; hydrology; pedology; climate; flora and fauna; current land use; results of geomorphological testing and similar environmental data.
- e. Develop prehistoric and historic period context statements. Phase I context statements will provide project area-specific background data and clarify research expectations. Prioritize survey areas into probability zones for the location and/or preservation of cultural materials.
- f. Conduct a pedestrian reconnaissance of the project area to confirm the presence and condition of resources identified during the background research, assess current land use, and delineate areas suitable for sub-surface testing.
- g. Based upon the results of the pedestrian reconnaissance, background research, geomorphological assessment, as appropriate, or predictive model, hand-excavate shovel test pits (STPs) or 1 meter² units at intervals appropriate to the project area prioritization (i.e., high, moderate, or low probability), and with reference to the SHPO guidelines. When cultivated fields are located within the APE and there is good surface visibility, conduct close-interval walkover and controlled surface collection according to the SHPO guidelines. In fluvial or colluvial settings where potential exists for the preservation of deeply-buried cultural materials in stratified contexts, conduct manual or mechanically-assisted deep testing.
- h. Document land use and previous disturbance. Record soil profiles and map and photograph identified cultural features (e.g., wells, privies, refuse pits, architectural remains, prehistoric features, etc.) in situ.
- i. Process, label, and inventory recovered artifacts according to the Curation Guidelines of the Section of Archaeology, The State Museum of Pennsylvania, Pennsylvania Historical and Museum Commission (PHMC). Conduct Phase I-level analysis (i.e., cultural/temporal affiliation, artifact type, material, and function).
- j. When archaeological sites are identified within the APE, prepare and submit PASS form(s) to the SHPO in order to secure Smithsonian Trinomial site number from the SHPO.
- k. When no archaeological sites are identified in the APE prepare the PHMC's "Negative Survey" form. When the APE is found to be entirely disturbed, prepare the PHMC's "Record of Disturbance" form. Submit the "Negative Survey Form" or "Record of Disturbance Form" to the project manager for review by the District Archaeologist. Upon review and approval by the District Archaeologist, submit the requested number of copies of the forms to the project manager. The requested number will be a minimum of four (4) and a maximum of 20.
- l. If archaeological sites are identified but will be avoided by project activities, prepare a complete report on the results of the Phase I identification efforts. The report should include the results of the background research; field methodology employed, and field results. The report is to be suitably illustrated with photographs, soil profiles, and maps to support the results of the Phase I findings. Include the BHP report summary form. Submit the report to the project manager for review by the District Archaeologist. Upon review and approval by the District Archaeologist, submit the requested number of copies of thereport to the project manager. The requested number will be a minimum of four (4) and a maximum of 20.
- m. When archaeological sites are identified in the APE, request that the property owner sign a PHMC gift agreement donating the artifacts to the State Museum. If the property owner does not wish to sign the gift agreement, the artifacts must be returned to the owner. When artifacts will not be permanently curated, conduct the additional analyses and documentation per the PHMC Curation Guidelines.
- n. Upon acceptance of the archaeology report by the BHP/SHPO, pack and deliver artifacts, signed gift agreements and all project records to the State Museum of Pennsylvania or other approved repository for permanent curation. Provide documentation of receipt by the State Museum to the District Archaeologist.
- o. When archaeological sites are identified during the Identification (Phase I) survey that require additional investigation, confer with the Project Manager or District Cultural Resource Professional. The Cultural Resource Professional may request a short synopsis(letter-type report) of the Phase I field investigations and results to include:
 1. a map of the locations tested
 2. a listing/catalog of recovered artifacts
 3. stratigraphic interpretation

4. potential for eligibility to the National Register of Historic Places

5. recommendations for additional testing.

At the request of the District Archaeologist, attend a meeting or field view to discuss the scope of work for site evaluation (Phase II).

p. At the request of the District Cultural Resource Professional, provide electronic copy of the documentation.

2. Perform Archaeological Evaluation Investigations (Phase II)

a. Conduct background research at a level sufficient to place the resource within its geographic and historic context.

b. Conduct testing in accordance with the plan agreed to by the District Cultural Resource Professional Archaeologist, and in consultation with the SHPO, as appropriate, and considering the PHMC's 's guidelines for Phase II excavations. Testing must be sufficient to determine:

1. the horizontal and vertical boundaries of the site within the APE including the identification of stratified deposits

2. artifact distributions

3. presence or likelihood for features

4. whether the site meets the criteria for eligibility to the National Register

5. (if so) what important specific research questions the information from the site may help to answer

c. Conduct analyses to include but not be limited to the following:

1. assess prehistoric lithic artifacts for cultural/temporal affiliation, artifact type, raw material, presumed function, and modification or usewear

2. classify Native American ceramics by cultural affinity, type/ware and temper categorize historic artifacts by material type, function, and diagnostic attributes

3. process feature soils by flotation to recover botanical and faunal remains

4. classify botanical and faunal specimens by major taxon and structural form

5. obtain radiocarbon dates on charcoal recovered from features, as appropriate

d. Prepare a draft report on the results of the identification survey (Phase I) and site(s) evaluation (Phase II). The report must include:

1. the results of the background research including a prehistoric and historic context.

2. a discussion of the field methodology.

3. testing results and recommendations.

4. An assessment of the reliability of the model and recommendations for modification to the model when a predictive model was developed according to Section 1.3.1.

5. A delineation of the horizontal and vertical boundaries of the site within the vertical and horizontal APE for each archaeological site evaluated.

6. An illustration and description of any identified features and artifact distribution maps.

7. Appropriate graphs and tables to present artifact tabulations and results of analyses.

8. A suitable number of photographs, stratigraphic profiles, and maps to support the results of the Phase II evaluation.

9. A recommendation of each site's eligibility to the National Register of Historic Places, following the guidance provided in the National Register Bulletin Guidelines for Evaluating and Registering Archeological Properties (2000).

10. For archaeological sites recommended as eligible for the National Register, a justification for the recommendation based on the important specific research questions the information from the site may help to answer.

11. Make recommendations for the potential effects from project implementation.

i. If the project can be redesigned to avoid effects to the site(s) a finding of No Historic Properties Affected should be recommended.

ii. If the site(s) would be affected but can be protected during construction through erection of protective fencing or by other means, then a finding of No Adverse Effect should be recommended. If the site(s) cannot be avoided through design modification or otherwise protected during construction, a finding of Adverse Effect should be recommended.

iii. Make recommendations for minimizing or mitigating the adverse effect. Mitigation measures may include a research design and excavation plan for a data recovery (Phase III), or a proposal for alternative/creative mitigation. Submit the report to the project manager for review by the District

Archaeologist. Upon review and approval by District Archaeologist, submit the requested number of copies of the report to the Department. The requested number will be a minimum of four (4) and a maximum of 20.

iv. Review of project's coordination and consultation efforts

e. Contact the property owner and request that the property owner sign a PHMC Accession and Gift Agreement Form donating the artifacts to the State Museum. If the property owner does not wish to sign the gift agreement, the artifacts must be returned to the owner. When artifacts will not be permanently curated, conduct the additional analyses and documentation per the PHMC Curation Guidelines.

f. Process, label, and inventory recovered artifacts according to the most current PennDOT-approved Curation Guidelines of the Section of Archaeology, The State Museum of Pennsylvania, Pennsylvania Historical and Museum Commission. Upon acceptance of the report by the BHP/SHPO, pack and deliver artifacts, signed gift agreements and all project records to the State Museum of Pennsylvania or other approved repository for permanent curation.

g. Provide documentation of receipt by the State Museum to the District Archaeologist.

3. Submit the document(s) to the PennDOT Project Manager for review by the PennDOT District Cultural Resource Professional(s).

4. Upon review and approval by the PennDOT District Cultural Resource Professional(s), submit the requested number of final reports to the Department. The requested number will be a minimum of four (4) and a maximum of 20.

5. At the request of the PennDOT District Cultural Resource Professional(s), provide electronic copies of the documentation.

Scope Deliverables:

1. Draft Phase I Archaeological Identification and/or Phase II Archaeological Evaluation report.

2. Final copies of Phase I Archaeological Identification and/or Phase II Archaeological Evaluation report.

3. Electronic copies of the documentation, if requested.

Detail Task 1 - Archaeology

Department Details:

Complete Phase 1 testing at the areas described in the project Scoping Field View form. If the District Qualified Professional determines that Phase II testing is required, the Agreement will be supplemented at a later date. The consultant will be responsible to gather project environmental information and complete all tasks associated with obtaining an approved Archaeological Phase I Report.

Approach:

This task will be completed by Baker's sub-consultant Cultural Heritage Research Services, Inc. (CHRS). Baker will provide oversight and will coordinate with CHRS to complete this task as outlined in the Department's Scope of Work and as modified below:

This technical approach is being prepared with the understanding that the previously completed Scoping Form is valid. Based on the information in the Scoping Form a Phase I Archaeological Survey is anticipated.

Scope 2.2.29.5 - Archaeological Identification and Evaluation (Phase I & II) – Recommendations of Eligibility

Subsurface shovel testing will be conducted at 15-meter intervals in high probability zones, Shovel tests will be 0.5 meters by 0.5 meters and

excavated in 10-centimeter levels to undisturbed subsoil. Each probe is to be excavated to a minimum depth of 10 centimeters below the A horizon or the deepest cultural component. A maximum of 70 shovel tests are anticipated to be excavated to a depth of 0.5 meters and two one-meter test units are anticipated to be excavated to a depth of 0.5 meters. All soils are to be screened through 0.63 mm hardware cloth. If cultural materials are located in a single-shovel test probe but not in adjacent tests, supplementary probes are to be excavated at a shorter interval to ensure against "isolated finds."

Analysis will be performed subsequent to the archaeological fieldwork. All recovered archaeological materials will be analyzed according to standard procedures and prepared for permanent storage. Fewer than fifty artifacts are anticipated. Gift donation forms will be sought from any property owners where archaeological sites have been identified. If the property owner elects to donate the archaeological material, the Pennsylvania Historical and Museum Commission has the first right of refusal for all artifactual material generated during the project. The potential cultural resources to be located and evaluated include those from both historic and prehistoric periods. All sites which are potentially significant in terms of national, state, or local history or prehistory, and for which there are either subsurface or above-ground components, will be considered. Besides evaluating individual resources in terms of National Register criteria, each resource will be analyzed with respect to the potential impact the project will have upon it and recommendations for further work, if necessary. The goal of the analysis will be the basic identification and tabulation of artifacts by material, functional type, and frequency to provide guidance for Phase II investigations, if necessary. Any Phase I sites identified are to be justified as to why the site is potentially significant and warrants Phase II evaluation. Cultural/chronological types are to be specified if possible. Historic period artifacts are to be analyzed according to type and frequency.

If no archaeological sites are found a Negative Survey Form will be prepared. If archaeological sites are found that require no additional evaluation, a Phase I Archaeological Survey Report will be prepared. This report will be prepared giving the details of the methodology and assumptions of the researchers, an environmental and cultural history background overview, the results of the research, and the analysis of the data collected. The report will be fully illustrated with maps, photographs, and drawings. The report will include a bibliography of references, and a catalog of the artifacts recovered. The report will contain sufficient detail to allow an evaluation of the lack of need for additional work and a recommendation that no additional archaeological research at the project site under investigation is warranted. Draft copies of the reports are anticipated to be submitted electronically. Two draft final copies are anticipated for submission and review. Eight final copies are anticipated to be prepared for tribal coordination. If archaeological resources are discovered during a Phase I survey, consultation with the relevant PENNDOT District Liaison and with the PENNDOT Archaeologist will occur, and a Phase I Management Summary may be prepared. Recommendations concerning a Phase II survey of the resources in question will be presented in the form of a Phase II Work Plan. A meeting and field view will be arranged with the Department and the PHMC staff to review the Phase I results and discuss the Phase II work plan. If needed the Phase II work will be performed under a supplemental agreement.

Task 4 - Above Ground Historic Properties: Historic Structures, Buildings, Districts, and National Parks

Objective:

2.2.30 - Above Ground Historic Properties: Historic Structures, Buildings, Districts, and National Parks

Identify above-ground historic properties, including historic structures, buildings, and districts, and National Historic Landmarks within the project's area of potential effect (APE), assess the effect of the project on eligible above-ground historic properties and develop strategies for mitigation when there is an unavoidable adverse effect.

2.2.30.5 - Above Ground Historic Properties Identification and Evaluation—Recommendations of Eligibility

Identify above-ground historic properties, including historic structures, buildings, and districts, within the project's area of potential effect (APE).

2.2.30.6 - Determination of Effects

To assess effects of the project on eligible or listed historic properties or National Historic Landmarks within the area of potential effect (APE).

2.2.30.7 - Public Involvement – Historic Structures

To continue consultation with consulting parties established during early coordination, continue coordination with the public, and continue to seek out additional consulting parties.

Scope:

2.2.30 - Above Ground Historic Properties: Historic Structures, Buildings, Districts, and National Parks

Guidance:

- 36 CFR § 800.4
- 36 CFR § 800.10

Scope:

At the direction of the Project Manager (PM) and in coordination with the PennDOT District Cultural Resource Professional(s), any or all of the following subtasks may be implemented; each subtask may be combined with other subtasks in the same document at the request of the CRP:

2.2.30.3. Background Research and Reconnaissance Surveys

2.2.30.4. Historic Contexts

2.2.30.5. Above Ground Historic Properties Identification and Evaluation – Recommendations of Eligibility

2.2.30.6. Determination of Effects

2.2.30.7. Public Involvement

Scope Deliverables:

See individual subtasks.

2.2.30.5 - Above Ground Historic Properties Identification and Evaluation–Recommendations of Eligibility

Guidance:

- 36 CFR § 800.4
- National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation

Scope:

At the direction of the Project Manager and in coordination with the PennDOT District Cultural Resource Professional(s), identify above-ground historic properties, including historic structures, buildings, and districts, within the project's APE.

The scope of work will include some or all of the following activities:

1. Confer with the PennDOT District Cultural Resource Professional(s) to determine or confirm the APE for the project and the level of effort needed to identify potentially significant above ground historic resources located within the APE.
2. Confer with the PennDOT District Cultural Resource Professional(s) to establish what the important themes are that influenced the area's pattern of development. At the direction of the Cultural Resource Professional, develop concise narratives (where narratives do not already exist) on each

of the significant themes for which there are extant properties in the APE.

3. Complete a Pennsylvania Historic Resource Survey (PHRS) short form or full form for each property specified by the PennDOT District Cultural Resource Professional(s). The District Cultural Resource Professional may request that some properties be documented on short forms and some may be documented on full forms.4. Prepare a draft Historic Structures Determination of Eligibility Report, if requested by the District Cultural Resource Professional.

4. Submit the report or document(s) (PHRS forms) to the PennDOT Project Manager for review by the PennDOT District Cultural Resource Professional(s).

5. Upon review and approval by the PennDOT District Cultural Resource Professional(s), submit the requested number of final reports or documentation to the Department.

6. At the request of the PennDOT District Cultural Resource Professional(s), provide electronic copies of the report or documentation.

Scope Deliverables:

1. Draft Historic Structures Determination of Eligibility Report or documentation.
2. Final copies of Historic Structures Eligibility Report or documentation.
3. Electronic copies of the Report or documentation, if requested.

2.2.30.6 - Determination of Effects

Guidance:

- 36 CFR Section 800.4(d) and 800.5.

Scope:

At the direction of the PennDOT District Cultural Resource Professional(s), develop a Determination of Effect report that assesses the effects of the project on properties determined eligible for, or listed in the National Register of Historic Places in accordance with 36 CFR Section 800.4(d) and 800.5, or National Historic Landmarks in accordance with 36 CFR Section 800.10.

The scope of work will include the following activities:

1. Prepare a Determination of Effect report that contains the following:
 - a. The SHPO's Environmental Review #
 - b. A Table of Contents
 - c. An abstract which contains a project description, a description of the APE, a summary of the project status, relevant laws and regulations, a summary of historic properties in the APE, and a summary of effects.
 - d. A description of alternatives considered or under consideration including any proposed measures or alternatives that were considered to avoid or minimize the effects resulting from the project. The engineering decisions resulting in the selection of the preferred alternative must be documented.
 - e. A description and map of the current APE. If the APE has been revised since earlier coordination with SHPO, include a description of why and

how the APE has changed.

f. A summary of the efforts to identify historic properties and results of identification.

g. An evaluation of effects including application of the definition of effect and criteria of adverse effect (as appropriate) to each eligible property in the APE, minimally for the preferred alternative.

h. A summary of the alternatives considered, particularly any alternatives considered that would avoid adverse effects.

i. A description of the public involvement efforts, including efforts to seek out and involve Consulting Parties, made to date and proposed public involvement.

j. Sufficient photographs of the APE.

k. Recommendations for avoidance, minimization and or mitigation.

2. Submit the document(s) to the PennDOT Project Manager for review by the PennDOT District Cultural Resource Professional(s).

3. Upon review and approval by the PennDOT District Cultural Resource Professional(s), submit the requested number of final documentation to the Department.

4. At the request of the PennDOT District Cultural Resource Professional(s), provide electronic copies of the documentation.

Scope Deliverables:

1. Draft Determination of Effect report.

2. Final copies of Determination of Effect report.

3. Electronic copies of the documentation, if requested.

2.2.30.7 - Public Involvement – Historic Structures

Guidance:

- 36 CFR § 800.3(e)

Scope:

At the direction of the PennDOT District Cultural Resource Professional(s), continue involvement with consulting parties established during early coordination, continue coordination with the public, and continue to seek out additional consulting parties.

The scope of work will include some or all of the following activities:

1. Prepare materials such as project descriptions, maps, reports, or short summaries of historic structures surveys/evaluations for submission to consulting parties or for distribution at public or consulting party meetings.

2. Prepare informational materials, including preparing and distributing announcements and/or flyers, for public or consulting party meetings.

3. Attend public or consulting party meetings to inform the public about cultural resources within the project area, explain the Section 106 process, solicit information from the public or consulting parties on historic properties to aid in eligibility evaluations. Continue to invite members of the public to apply to be consulting parties.

4. Attend public or consulting party meetings to solicit information from the public on effect determinations, and to solicit comments on minimizing effects or resolving adverse effects.
5. Prepare minutes of the public or consulting party meeting to be submitted to the PennDOT Project Manager and the PennDOT District Cultural Resource Professional(s).
6. Provide copies of historic structures and effects reports to consulting parties.
7. Collect and summarize the views of consulting parties and/or the public following review of eligibility and effect documentation.
8. Submit the document(s) to the PennDOT Project Manager for review by the PennDOT District Cultural Resource Professional(s).
9. Upon review and approval by the PennDOT District Cultural Resource Professional(s), submit the requested number of final documentation to the Department.
10. At the request of the PennDOT District Cultural Resource Professional(s), provide electronic copies of the documentation.

Scope Deliverables:

1. Draft consulting party documentation.
2. Final copies of documentation.
3. Electronic copies of the documentation, if requested.

Detail Task 1 - Above Ground Historic Properties

Department Details:

Investigate APE to determine if there are resources in addition to the four properties identified in the Scoping Field View Form. Complete Pennsylvania Historic Resource Survey forms for any additional properties as directed by the District Architectural Historian.

Develop a report that assesses the effects of the project on properties determined eligible for, or listed, in the National Register of Historic Places in accordance with 36 CFR Section 800.4(d) and 800.5. Submit the report to the project manager for review by the District Architectural Historian. Upon review and approval by District Architectural Historian, submit the requested number of copies of the final report to the Department.

The consultant will be responsible to gather project environmental information and complete all tasks associated with acquiring an approved Determination of Effects Report.

Approach:

This task will be completed by Baker's sub-consultant CHRS. Baker will provide oversight and will coordinate with CHRS to complete this task as

outlined in the Department's Scope of Work and as modified below:

This technical approach is being prepared with the understanding that the previously completed Scoping Form is valid. Based on this information, CHRS will coordinate the level of effort needed with the District's Cultural Resource Professional.

Scope 2.2.30.5 - Above Ground Historic Properties Identification and Evaluation—Recommendations of Eligibility

The majority of the properties located along County Line Road have previously been surveyed and determined not eligible for listing in the National Register of Historic Places. Four resources within the project area were previously determined eligible: The Baker House (ID#103607), the J. Baker Farmstead (ID#103619), the Thompson Property (ID#142777) and the William and Hanna Penrose House (ID #105261). In addition, the project is located adjacent to the National Historic Landmark Graeme Park. Three properties along the project area are currently shown as undetermined in the CRGIS: John and Toni Rex Property (ID#091460), the George Brower House (ID#140757) and the Kulp Property (ID#140758).

PHRS Forms, or addendum forms, will be completed on the four previously determined eligible properties because the resources were evaluated more than five years ago. New PHRS Forms will be completed for the three properties that are listed as undetermined. In addition, there is the possibility for additional PHRS Forms needed to document and assess properties that have become fifty-years old or older since the original Scoping was completed for this project. For purposes of this technical proposal it is anticipated that four additional properties will require PHRS Forms.

The PHRS Forms will evaluate the resources in their entirety and will determine contributing and non-contributing elements as appropriate. In addition, should the resources retain integrity and be recommended eligible, the PHRS Forms will propose a National Register Boundary. The work will begin with a literature search. The purpose of this research is to provide a historical and architectural context within which the historical property can be assessed. Sources to be consulted include, as appropriate, the historic site files of the State Historic Preservation Office; the National Register of Historic Places; local historical societies; public libraries; published and unpublished primary and secondary sources at various repositories; historic and contemporary atlases and maps; and other records. The resources will be photographed and site plans will be drawn. The data collected will be evaluated within the criteria set forth in 36 CFR 60. The properties will be considered in relation to their importance in the history and architectural record of the region and the state. Deliverables will include electronic submission of the PHRS forms, one draft hard copy and one final hard copy of each form.

Scope 2.2.30.6 - Determination of Effects

A Determination of Effect Report is anticipated. A Determination of Effect Report will be prepared to evaluate project effects to the eligible and listed historic properties. The Criteria of Effect and Adverse Effect will be applied to each eligible or listed resource in accordance with 36 CFR 800.9(a) and 36 CFR 800.9(b). This report will document the potential impacts of the proposed project on any eligible or listed historic resource within the APE. The report will include: relevant legislation, USGS map, description of project, description of each affected resource, the relationship of the proposed action to the resource and correspondence from the project (if available). Photographs illustrating the area to be affected will be provided. Deliverables will include electronic submission of the report and one draft hard copy and one final hard copy of the Determination of Effect Report.

2.2.30.7 - Public Involvement – Historic Structures

Baker and our subconsultant CHRS, Inc. understand that public meetings and the development of informational materials, meeting attendance, minute preparation, and responses to the public will be covered under a supplemental agreement.

Task 5 - 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:**

The consultant will be responsible to gather project environmental information and complete all tasks associated with acquiring an approved environmental document.

Level 2 CEE (ED) will be prepared in the CE/EA Expert System to comply with NEPA and obtain environmental clearance. Complete all Parts of the Categorical Exclusion Evaluation (Environmental Document) Form. Submit the completed CEE Form and pertinent supporting documents for review, concurrence, and approval to the District office. In necessary, revise the CEE form and or supporting documentation as directed

Approach:

Baker will lead this task with support from CHRS and McMahon as outlined in the Department's Scope of Work and as modified below:

Scope 2.3.3 – Level 2 CE

Baker will complete the CEE using the CE/EA Expert System and provide attachments, as necessary and/or required. CHRS will assist with the preparation of the Level 2 CE, specifically the sections which apply to Cultural Resources.

Baker anticipates that any re-evaluation of the approved CEE will be covered under a supplemental agreement.

Early Coordination Guidance:

The purpose of the Early Coordination work is to initiate the consultation process for Section 106. Generally this work is undertaken in close consultation with the District's Qualified Professionals. In consultation with the project team and the Cultural Resources professionals (CRPs) from PennDOT, a preliminary Area of Potential Effect will be established. As part of this effort CHRS will coordinate with the District's Cultural Resources Professionals for Historic Structures and Archaeology. This work is anticipated to include coordination with project team to obtain project engineering, a field view with the CRPs, and the preparation of graphics if requested by the CRPs.

CHRS will consult on-line sources to identify known and mapped archaeological and historic properties within and adjacent to the project area. CHRS will prepare a map of the project study region on a 7.5 minute USGS topographic base, locating and labeling all identified archaeological and historic properties and provide a tabular synopsis of information about each mapped resource. The information will be provided to the District Cultural Resource Professional(s).

Task 6 - 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.

2.4.1.3 - Survey Data Collection

This task consists of collecting the survey data as required for preliminary design.

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.

2.4.1.3 - Survey Data Collection

Guidance:

- Publication 122M, Surveying and Mapping Manual
- Strike Off Letter 430-99-20, QA/QC Control Checklist for Right-of-Way and Construction Plans
- Form D-428, Field Book

Scope:

Provide survey data at intervals and widths necessary for the proper design for highways and structures.

Scope Deliverables:

1. Provide Survey data of items listed in Publication 122M for preliminary surveys including, but not limited to, utility facilities, roadway features, structures, topography features, obvious property corners, driveways, and buildings.
2. Provide survey data sufficient to establish geometry of intersecting streets and railroad crossings.
3. Establish control traverse and/or GPS Control Network.
4. Establish stations, bench levels, and references at proper intervals.
5. Record cross sectional information at proper intervals.
6. Reference control points as required.

Detail Task 1 - Surveys

Department Details:

Field survey will be within the limits of work, which are specified in the project description.

Follow current Department procedures regarding Notice of Intent to Enter letters. In addition, notify each property owner of intent at least 48 hours prior to each entry.

All work will be accordance with Form No. 442 Specification for Consultant Engineering Agreements and Pub 122 Department Survey Manual.

Perform the following survey tasks on this project:

Obtain stream cross-sections at 50-foot intervals extending 500 feet upstream and downstream of the existing structure (along the waterway). In area of bridge replacement.

Survey will locate all existing features pertinent to the design of the project, including roads, bridges, streams, utilities, pavement markings,

drainage structures, buildings, underground facilities, and signs.

Obtain field elevations of existing features pertinent to the design of the project such as pavement, drainage facilities, manholes, floor elevations, etc.

Topographic features will be located on properties involved in the right-of-way take, sufficient to enable preparation of the Right-of-Way plans.

Locate the boundaries of all wetlands identified within the project area. The boundaries will be established and marked in the field.

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

Additional shots/detail is required at intersections where new ADA curb ramp designs are anticipated.

The plan will show all topographic features such as pavement edges, inlets, headwalls, pipes, utilities, guide rail, fences, buildings, signs, sidewalks, trees and property corners, which would affect the proposed design or the estimating of quantities. Apparent property lines will be shown together with property owner s names where right-of-way takes are anticipated. The plan will be consistent with the requirements of Design Manual, Part 3.

All survey plans and associated data will adhere to the Quality Assurance/Quality Control Procedures and Guidelines as outlined in Strike-Off Letter 430-99-20, dated March 16, 1999. Attached hereto and incorporated into this Scope of Work are the Quality Assurance/Quality Control Procedures and Guidelines Checklist. All survey plans and data must adhere to all guidelines and procedures contained therein.

Approach:

This task will be completed by Baker's sub-consultant Chilton Engineering (Chilton). Baker will provide oversight and will coordinate with Chilton to complete this task as outlined in the Department's Scope of Work and as modified below:

The limits of the topographic survey will be within the right-of-way and extend from two hundred feet (200') east of the intersection of SR 0611 (Easton Road) and SR 2038 to a point two hundred feet (200') west of the intersection of SR 2038 and Kulp Road, a distance of approximately three and one tenth (3.1) miles.

Chilton may begin and progress stream surveys as directed by Baker along Park Creek, an unnamed branch of the Neshaminy Creek and Little Neshaminy Creek to provide data for the hydraulic modeling used to evaluate the impacts of proposed improvements. The channel geometry necessary to prepare the hydraulic model for the stream will be determined by field survey. This effort will entail the placement of a baseline (tied to the main project control) from which to reference the stream cross sections. Stream cross sections will be located as necessary to define the stream geometry based on field observation of the area. Information for ground shots, the tops and bottoms of banks, edges of streams, centerline of stream and any low points found in the stream bed will be obtained. The stream cross sections will extend at least fifty feet (50') beyond the top of bank.

As a minimum, the following stream cross sections will be obtained:

Five hundred feet (500') upstream and downstream from the existing bridge location at the following approximate distances: twenty five foot (25') intervals for a distance of one hundred feet (100') from the bridge and fifty foot (50') intervals for the remaining four hundred feet (400').

Additional cross sections to reflect changes in hydraulic conditions such as points where the terrain changes rapidly, where the flow is constricted,

where the shape of the channel changes, where the grade of the channel changes, at hydraulic controls and confluences, will be provided as required by Baker within the downstream and upstream survey limits indicated above.

Chilton's office staff will reduce and check all field data obtained during the field survey operation. This survey data will be used to prepare the existing conditions base plan as part of this initial work task. This plan will be prepared at the minimum scale of 1"=50'-0". The plan format and drafting procedures will be in accordance with Chapter 3 of the current edition of Design Manual Part 3. All topographic features identified during the field survey operation will be clearly shown and labeled on the plan. This data will be plotted and progress base plan submissions will be submitted to Baker in electronic file format for their use. Copies of the field notes and any detailed sketches prepared in the field will also be transmitted to Baker as required for their use. A digital terrain model of the project area will be prepared using the cross section data obtained during the field survey operations. From this model, contours will be calculated and shown on the plan at one (1) foot intervals.

This task will be supplemented at a later date to establish the baseline upon Design Field View approval.

Scope 2.4.1 - Surveys

Chilton will prepare and forward a copy of the draft Notice of Intent to Enter letter to the Department for approval and signature. After approval of the letter, Chilton will forward a copy of the letter to all property owners within the project limits. These letters will be mailed via Certified Mail-Return Receipt Requested at least 10 days before the initial entry onto the property. Our survey crews will be provided with copies of the Notice of Intent to Enter letters so that any property owner on whose property we may enter can be furnished with a copy of the letter that describes our reason or need to be on their property. The Notice of Intent to Enter letters will describe the types of improvements being considered and proposed work to be performed on the property, but will not provide actual dates for proposed property entries. In addition to issuing these letters, attempts to contact the property owners at least two days prior to our crews performing "major" field surveys will be made. A log of these attempts will be maintained. If, during the course of the project, entries are not made within a six-month period from the date of issuance of the Notice of Intent to Enter, the letters will be re-issued by regular mail prior to entry. At a minimum, the letters will re-issued annually for the duration of the project.

A second task to be accomplished upon receipt of Notice to Proceed is the preparation of Maintenance and Protection Plans for implementation during field survey operations that may impact traffic. Chilton is very familiar with the process of preparing these plans for the Department, notifying the Department Public Relations Office prior to field activity and performing the actual field survey activities safely under adverse traffic conditions. At all times Chilton will keep the Department apprised of our work schedules. The safety of our field crews and the traveling public is an important factor when scheduling and performing the field work. At this time, to mitigate traffic impacts, we may propose to perform some of the survey tasks during off-peak hours or to utilize our High Definition Survey Scanner.

Existing horizontal and vertical survey control in the area of the project will be researched. Published data for controls will be obtained and where possible, recovery of this control will be made. In the event that no survey control is found or recovered in the project area, control will be established using GPS Network Rover technology and horizontal GPS survey.

Chilton will use these control points to establish survey baselines throughout the project limits. All survey data that is obtained will be referenced to these lines. Benchmarks will be established outside the limits of proposed construction. All survey control points will be referenced to make future recovery possible.

Scope 2.4.1.3 - Survey Data Collection

Measurements will be exacted to the nearest 0.01 of a foot on hard surfaces and pavements and to the nearest 0.1 of a foot on ground shots.

Existing rim, top of grate and invert elevations will be obtained for any storm or sanitary sewer facilities within the project limits. Existing pipe type and size will also be obtained.

Any utility mark-outs performed in the project area by affected utility companies will be located by our field staff.

The location of any identified on-lot sewage facilities and/or water supply wells that may be affected by the proposed construction on adjacent private property will be located and tied to the project control.

The location of any specific existing property monumentation identified during CHILTON'S right-of-way investigation, if found, will be tied to the project control.

Detailed surveys of existing structure may be performed as directed by Baker. Features of the existing structures will be located horizontally and vertically. Existing structural members will be identified and dimensioned for both the superstructure and foundation of the existing structures if required. Additional construction details will be surveyed as requested.

Full-width roadway cross sections from right of way to right of way will be obtained as part of this initial work task.

Task 7 - Cross Sections

Objective:

2.4.5 - Cross Sections

This task consists of preparing representative cross sections on all alignments considered in previous environmental studies at intervals such that approximate right-of-way limits can be defined. Earthwork calculations are included in this task.

Scope:

2.4.5 - Cross Sections

This task is the preparation of cross sections during preliminary engineering to assist in evaluating alternate alignments. It includes development of sections at critical locations to assess impacts on right-of-way limits, earthwork, existing structures, drainage controls, environmentally sensitive areas and other features that could be impacted by the alignment.

Following identification of the preferred alternate, the designer will prepare critical cross sections as part of the Design Field View Submission in accordance with Design Manual Part 1A.

Detail Task 1 - Cross Sections

Department Details:

Develop cross-sections for critical areas as part of the Line and Grade and CE effort.

Approach:

Baker will complete this task as outlined in the Department's Scope and as modified below:

Objective 2.4.5 – Cross Sections

Earthwork calculations are not included in this task.

Scope 2.4.5 – Cross Sections

Design Field View submission is outside this scope of work. Therefore, only critical cross sections for line and grade will be developed as indicated in the Department Details to assist in determination of the preferred alternative. Baker assumes that the development of cross sections to the DFV level will be covered under a future supplement.

Task 8 - Typical Sections

Objective:

2.4.7 - Typical Sections

This task consists of the development of typical sections. Publication 10A, Design Manual Part 1A and Publication 13M, Design Manual Part 2 apply to this task.

Scope:

2.4.7 - Typical Sections

The following items should be included on each typical section:

- Pavement width and cross slope (clarify lane widths to two decimal places to match existing pavement width)
- Pavement depths
- Shoulder type, width, depth and cross slope
- Median type, width and cross slope
- Embankment and cut slopes
- Swales and contiguous gutters as applicable
- Subbase drainage treatment
- Rate of superelevation
- Unusual design conditions (i.e., special treatment of subgrade, subbase or under-drain)
- Median barrier and guide rail
- Point of profile grade
- Centerline or baseline
- Limits of variable widths
- Base course and subbase widths and depths (and slopes if not parallel with pavement)
- Seeding treatment
- Station Control

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

1. Develop superelevation rates and place on the related typical section.
2. Develop pavement design and list on each typical section.
3. Label all items in accordance with the item description on the summary of quantities sheet.
4. Submit typical sections for review and approval by the Department.

Detail Task 1 - Typical Sections

Department Details:

Provide Typical Sections in accordance with applicable Department Manuals and consistent with the provisions of the standard scope of work.

Approach:

Baker will complete this task as outlined in the Department's Scope and as modified below:

Baker anticipates the need to develop up to ten (10) independent typical sections along County Line Road (SR 2038) to assist in determination of the preferred alternative

Scope 2.4.7 – Typical Sections

Baker anticipates that final pavement design approval will not be issued until after Design Field View approval and will be covered under a future supplement. Since Design Field View submission is outside this scope of work, typical sections will depict approximate pavement depths and pavement materials.

Task 9 - 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:

This task included preliminary ROW activities only. Preparation of parcel plats will be added to agreement at a later date.

Approach:

This task will be completed by Baker's sub-consultant Chilton. Baker will provide oversight and will coordinate with Chilton to complete this task as outlined in the Department's Scope of Work and as modified below:

Chilton will perform the property owner research and prepare the right-of-way and property mosaic for the project. At this time Chilton estimates approximately one-hundred thirty (130) property parcels are adjacent to the project and the Department has identified that fifty (50) properties will be impacted by the project. Property research limits may have to be expanded to allow for the accurate preparation of the mosaic. The right-of-way investigation will begin immediately after the Notice to Proceed is received.

2.6.1.1 – Right-of-Way and Deed Research

Chilton will conduct courthouse research to establish ownership and location of properties adjacent to the project.

Copies of deeds, adverbs, descriptions of easements and any available land development or subdivision plans within the affected areas including tax maps will be obtained. Private and public right-of-way and easements will be indicated if discovered and cross referenced to the appropriate legal document. Additional research and review with the District right-of-way unit will be performed to reestablish limits of acquisitions authorized under the original right-of-way plans for existing roadways within the project limits.

Chilton will begin the preparation of the mosaic by using the existing conditions plan prepared under Task 7 – Surveys as a basis. Plan presentation will be in accordance with Chapter 3 of PennDOT's current Design Manual Part 3. Chilton will prepare the mosaic at a scale of 1"=25'. Legal right-of-way lines and property lines will be plotted on the plan along with owner and parcel information. Record data obtained during the courthouse research will be used to detail metes and bounds of properties, easements, and rights-of-way on the mosaic.

Chilton will submit the mosaic to Baker for their use in preparing the preliminary Right-of-Way plans.

Copies of record plans, tax maps, deeds, lease agreements, private/public right documents, and transcribing sheets will be submitted to Baker.

Baker understands that the development of the preliminary right-of-way plans in accordance with Publication 14M (DM3) requirements will be covered under a supplemental agreement, upon approval of the preferred alternative.

Task 10 - 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.

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.

Detail Task 1 - Utilities

Department Details:

Coordinate all activities through the District 6-0 Utility Unit.

Approach:

This task will be completed by Baker's sub-consultant Chilton. Baker will provide oversight and will coordinate with Chilton to complete this task as outlined in the Department's Scope of Work and as modified below:

Scope 2.9.1.1 – Utility Location Verification

Chilton, with assistance from Baker, will begin and progress a complete investigation of existing utilities within the limits of the project. The method of investigation will be based on the latest Department publications including Design Manual Part 5, and applicable Strike-Off Letters. At a minimum Chilton will begin and progress the following tasks:

- Contact the Pennsylvania One Call System.
- Obtain a list of utilities from the Pennsylvania One Call System and County, Township and local agencies.

All utility tasks will be coordinated with the District Utility Unit.

Baker and our subconsultant Chilton understand that plotting of all utility information on the project base plans will be covered under a supplemental agreement

Task 11 - 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:

This work is for preliminary roadway studies only.

Approach:

Baker will complete this task as outlined in the Department's Scope and as modified below:

Scope 2.4.6 – Line and Grade

Existing traffic data previously obtained by Baker and sub-consultant McMahon will be utilized to determine lane requirements, turning movements and weaving movements.

Only critical cross sections will be developed at this stage to identify constraints. Tabulation of pavement grades and superelevation for development of cross sections are not included.

Included in this task is attendance at two meetings, one for the review of Line and Grade to receive comments and the second meeting to discuss the Line and Grade once the comments have been addressed.

Line and grade plans will be developed to the level of detail necessary to assist in determination of the preferred alternative only. Baker understands that development of preliminary roadway plans in accordance with Publication 14M (DM3) requirements will be covered under a supplemental agreement when the Design Field View task is established.

Task 12 - 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 preliminary drainage design as needed to determine required right-of-way. It is anticipated that much of the existing open (ditch) drainage system will need to be replaced with a closed system. Preliminarily size detention basins to determine right-of-way. Conform to post construction storm water management requirements. Complete design to level necessary for CE documentation.

Approach:

Baker will complete this task as outlined in the Department's Scope and as modified below:

Scope 2.4.3 – Preliminary Drainage Design

Since Design Field View submission is outside this scope of work, this task does not include the preparation of Design Field View plans. The results of this task will be displayed on the Line and Grade Plans as it relates to the determination of required right-of-way. This includes the approximate size and location of major drainage structures and the approximate limits of grading required to accommodate the proposed drainage features, to assist in determining the preferred alternative

Task 13 - 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:

Complete task as indicated. Confirm that local municipal flood plain ordinances are met. Submit through the JPA/H&H Expert system for review and concurrence.

Approach:

Baker will complete this task as outlined in the Department's Scope and as modified below:

Scope 2.7.1 – Hydrologic and Hydraulic Report

This task assumes two reports. One report for the proposed work at the existing 72" culvert between Park Road and Bradford Road and one at the existing bridge over an unnamed tributary to the Lower Neshaminy Creek near Fairmount Avenue.

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:

Per the scoping field view forms Structure No. S-5216, BMS Number 09-2038-0120-2037 is indicated to be replaced.

BRADD is to be used for the design unless waived by the District Bridge Unit.

Approach:

Baker will complete this task as outlined in the Department's Scope and as modified below:

Scope 2.7.3 Final Type, Size & Location (TS&L) Report

Baker anticipates that the final TS&L will not be submitted until after the Design Field View submission.

Department Details

BRADD is to be used for the design unless either waved by the District Bridge Unit, or an alternate type of structure is selected such as a precast concrete arch structure

Task 15 - 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 - Reconnaissance Soils and Geological Engineering Report

Department Details:

The RSGER is a required part of the TS&L submission.

Approach:

Baker will complete this task as outlined in the Department's Scope and as modified below:

Scope 2.5.2 Preliminary Geotechnical Engineering Report

The Preliminary Geotechnical Engineering Report will be completed upon approval of the selected alternative and will be covered under a Supplemental Agreement.

Scope 2.5.2.1 - Reconnaissance Soils and Geological Engineering Report

This task will be completed in conjunction with the preparation of the TS&L submission.

Task 16 - 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:

Local access must be maintained.

Develop conceptual MPT plans to the level necessary to supplement the CE documentation.

Approach:

This task will be completed by Baker's sub-consultant McMahon. Baker will provide oversight and will coordinate with McMahon to complete this task as outlined in the Department's Scope of Work and as modified below:

Objective 2.8.2 – Preliminary Maintenance and Protection of Traffic

This work does not include the development of plan sheets. This effort will be covered under a supplemental agreement.

Scope 2.8.2 – Preliminary Maintenance and Protection of Traffic

The conceptual design will consider staging of construction to best meet the needs of the public use of the roadway. Traffic data based on time of day for the work zone will be considered in the design.

Baker's sub-consultant McMahon, anticipates no need to evaluate the work zone impacts on traffic and will not develop a Traffic Incident Management (TIM) plan during this phase. Should the District request a TIM under this phase, this effort will be covered under a supplemental agreement.

Baker's sub-consultant McMahon understands this effort will include development of a conceptual MPT plan only, typical section sketches and a general narrative.

This work does not include the development of plan sheets. This effort will be covered under a supplemental agreement.

Consultant Hierarchy

Business Partner	DBE Type	Supervising BP
Michael Baker Jr., Inc.	No	
Arrow Land Solutions, LLC	Yes	Michael Baker Jr., Inc.
Chilton Engineering, Inc.	Yes	Michael Baker Jr., Inc.
CHRS, Inc.	No	Michael Baker Jr., Inc.
McMahon Associates, Inc.	No	Michael Baker Jr., Inc.

Attachments

No records found.

Part 2 - SR 2038 M04 Final Design

Description

SR 2038 M04 Final Design

Task 1 - Design Approval

Objective:

2.3.8 - Design Approval
 This task consists of authorized personnel granting Design Approval.

Scope:

2.3.8 - Design Approval
 Submit the project plans to BOD at the time of receiving a signed CE/FONSI/ROD for location/design approval.

Detail Task 1 - Design Approval

Department Details:

Final Design Scope of Work to be determined during Preliminary Engineering.

Approach:

Michael Baker Jr., Inc. and our subconsultants understand Part 2 Final Design will be covered under a supplemental agreement upon receiving Preliminary Design approval.

Consultant Hierarchy

Business Partner	DBE Type	Supervising BP
Michael Baker Jr., Inc.	No	
Arrow Land Solutions, LLC	Yes	Michael Baker Jr., Inc.
Chilton Engineering, Inc.	Yes	Michael Baker Jr., Inc.
CHRS, Inc.	No	Michael Baker Jr., Inc.
McMahon Associates, Inc.	No	Michael Baker Jr., Inc.

Attachments

No records found.

Part 3 - SR 2038 M04 Services During Construction

Description

SR 2038 M04 Services During Construction

Task 1 - 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:

To be determined during final design.

Approach:

Michael Baker Jr., Inc. and our subconsultants understand Part 3 Construction Consultation will be covered under a supplemental agreement upon approval of the Final Design.

Consultant Hierarchy

Business Partner	DBE Type	Supervising BP
Michael Baker Jr., Inc.	No	
Arrow Land Solutions, LLC	Yes	Michael Baker Jr., Inc.
Chilton Engineering, Inc.	Yes	Michael Baker Jr., Inc.
CHRS, Inc.	No	Michael Baker Jr., Inc.

McMahon Associates, Inc.

No

Michael Baker Jr., Inc.

Attachments

No records found.

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