SR-81 and SR-107 Emergency Bridge and Approach Reconstruction | Project

PIN # | Greene and Washington Counties, TN

Executive Summary/Project Description

Emergency Design and Reconstruction of State Route 81 Bridge and Approaches over Nolichucky River LM 4.55 and State Route 107 Bridge and Approaches over Nolichucky River LM 12.65.

Contract Information

[Enter Prime Consultant Name]				
Contract #: PD2401	**Contract Type:** Choose an item.	**Payment Type:** *Cost Plus*	**Overhead:** Enter %	**Fee:** Enter %
[Enter Subconsultant Name – if applicable; add more rows as needed]				
Contract #: Enter	**Contract Type:** Choose an item.	**Payment Type:** Choose an item.	**Overhead:** Enter %	**Fee:** Enter %

Project Information

Project Information			
Contract Letting Date: December 15, 2024			
Region: 1	**Route:** SR-81 & SR-107	**County:** Greene and Washington	**City:** Enter City
Project Limits (log mile): Enter Limits		**Length (miles):** Enter # Miles	
Concept Estimate: ROW: Enter Creator — Enter ROW$ — Enter Date Construction: Enter Creator — Enter Const$ — Enter Date Utilities: Enter Creator — Enter Utilities$ — Enter Date	**Funding Source:** ☐ Federal ☐ State ☐ Other: Explain	**Document Type:** ☐ CE ☐ EA/FONSI ☐ EIS/ROD ☐ TEER ☐ Other	**Delivery Type:** ☐ Design/Bid/Build ☐ Design Build ☐ CMCG (Construction Manager/General Contractor) ☒ Other
Base Year: Enter	**Design Year:** Enter	**Number of Build Alternatives:** Enter #	

Description of Build Alternatives: Enter Brief Description	
AADT: Enter #	**Design Hour Vol.:** Enter #
Design Speed: Enter #	**Posted Speed:** Enter #
Functional Class: Enter Tier	**Terrain:** Enter Terrain
Design Standard: Enter Applicable Standard	**Standard Drawings Used:** Enter #'s
Bicycle Route: Choose an item.	**Sidewalk:** Choose an item.
Railroad Involvement: Choose an item.	**Utility Impact:** Choose an item.
Bridges: Enter # Bridges	**Major Drainage Structures/Crossing:** Enter #

Project Goals and Commitments

Fill in project goals and commitments. Delete instructions when complete.

Detailed Scope of Work

1GT1 |Develop Geotechnical Work Plan | [Design-Build Team]

Objective:

Develop a geotechnical work plan based on field reconnaissance, study of geologic maps, and possible limited subsurface investigations.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Gather Relevant Geotechnical Information ▪ Collect/evaluate relevant project information. ▪ Prepare for Site Visit (if needed).
Complete Project-Specific Geotechnical Investigation ▪ Coordinate with Operations and Maintenance staff to discuss maintenance history and existing conditions. ▪ Coordinate with Operations and Maintenance staff to discuss maintenance history and existing conditions. ▪ Determine site-specific seismic or liquefaction potential. ▪ Determine where certain geotechnical subsurface locations may conflict with utilities.
Identify Project Type and Potential Mitigation Strategies ▪ Develop a preliminary strategy to mitigate identified issues/risks. ▪ Develop preliminary costs to implement mitigations.
Develop Geotechnical Work Plan ▪ Draft the Geotechnical Work Plan (including responding to comments on the draft). ▪ Finalize the Geotechnical Work Plan and send to survey, if needed.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

1PM1 |Set Up Project | [Design-Build Team]

Objective:

Confirm project assignment and begin project setup. Assess the reliability of the data used to develop project planning documents (e.g., Concept Report), consider the amount of time since collection and/or the limitations of the data, account for and resolve ambiguities.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Prepare Draft Project Scope ▪ Collect and review available project information. ▪ Establish stakeholder communications protocols and draft agreements. ▪ Develop a draft scope for the project.
Prepare Preliminary Schedule ▪ Develop a draft project schedule.
Prepare Preliminary Budget ▪ Validate the estimate in the Concept Report and update the estimate with new project details. ▪ Develop a preliminary budget.
Prepare Draft Project Quality Management Plan ▪ Clarify expectations with discipline managers and technical leads early and discuss any risks that may impact the project. ▪ Develop a draft risk management plan. ▪ Define roles and responsibilities for critical quality tasks
Prepare Draft Risk Management Plan ▪ Clarify expectations with discipline managers and technical leads early and discuss any risks that may impact the project. ▪ Develop a draft risk management plan and register (to be updated as noted in the plan).
Prepare Draft Project Communication Plan ▪ Identify the communication needs and expectations of the project team. ▪ Develop a draft Project Communication Plan.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

1PM3 |Hold Kickoff Meeting | [Design-Build Team]

Objective:

Organize, lead, and facilitate the Kickoff Meeting with the project team and external stakeholders as needed.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Set Up Meeting and Develop Agenda ▪ Gather all relevant materials (e.g., the Project Management Plan, project mapping, preliminary concept designs, etc.) in the shared project folder and distribute to the meeting invitees. ▪ Organize this meeting and develop the agenda.
Hold Meeting and Document/Distribute Minutes ▪ Attend/Lead meeting (list and count hours in the meeting list above). ▪ If assigned, document comments, decisions, and actions and distribute/upload meeting minutes and deliverables. ▪ Update documents as needed (e.g., project management plan documents, project commitment document, risk register, comment resolution form, etc.).
Verify the ETSA ▪ Coordinate review of the ETSA with the assigned technical leads. ▪ Request updates, if needed.
General Task Management (other than tasks outlined above) ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

1PM4 |Conduct Initial Risk Workshop | [Design-Build Team]

Objective:

Conduct risk analysis early in the project in preparation for the Initial Risk Workshop and the subsequent workshops to identify, minimize, and/or eliminate risks or maximize opportunities that may negatively or positively impact schedule and/or budget. Updates to the register are repeated as often as necessary throughout the project (but minimally at each design field review).

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Set Up Meeting and Develop Agenda ▪ Gather all relevant materials (e.g., the Project Management Plan, project mapping, preliminary concept designs, etc.) in the shared project folder and distribute to the meeting invitees. ▪ Organize this meeting and develop the agenda.
Hold Meeting and Document/Distribute Minutes ▪ Attend/Lead meeting (list and count hours in the meeting list above). ▪ If assigned, document comments, decisions, and actions and distribute/upload meeting minutes and deliverables. ▪ Update documents as needed.
Update and Monitor Risk Register ▪ Evaluate the effects and status of the risks as the project progresses. ▪ Update the Project Risk Register following the approach and schedule in the Risk Management Plan ▪ Confirm assignments for team members to document and resolve risks in the risk register.
General Task Management (other than tasks outlined above) ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

1PM5 |Hold Scoping Meeting | [Design-Build Team]

Objective:

Organize, lead, and facilitate the Project Scoping Meeting. For smaller or less complex projects, determine whether to combine this meeting with the Kickoff Meeting.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Set Up Meeting and Develop Agenda ▪ Gather all relevant materials (e.g., the Project Management Plan, project mapping, preliminary concept designs, etc.) in the shared project folder and distribute to the meeting invitees. ▪ Organize this meeting and develop the agenda.
Review and Complete Comment Form ▪ Review and Complete Comment Form ▪ Complete PM-level review of the submittal (as appropriate) and add comments to the form.
Compile Comments, Hold Meeting and Document Minutes ▪ Compile all comments received. ▪ Attend/Lead meeting (list and count hours in the meeting list above). ▪ If assigned, document comments, decisions, and actions and distribute/upload meeting minutes and deliverables. ▪ Update documents as needed.
Estimate the Project Using the Line and Grade Package ▪ Initially draft the Line and Grade Estimate Form. ▪ Coordinate input into the forms with discipline leads. ▪ Finalize the Line and Grade estimate.
Determine Need for Value Engineering
General Task Management (other than tasks outlined above) ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

1RD1 |Initiate Roadway Design | [Design-Build Team]

Objective:

Ensure that the roadway design is consistent with the conceptual layout developed as part of the Concept Report and represents sound roadway design principles and practices.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Establish Project-Specific Design Criteria ▪ Prepare and submit draft design criteria. ▪ Revise and resubmit design criteria in response to comments. ▪ Submit final design criteria.
Determine Work Zone Significance ▪ Prepare and submit draft Work Zone Significance Determination Form. ▪ Revise and resubmit form in response to comments. ▪ Submit final form
Develop Line, Grade, and Cross Sections (Line and Grade Package) ▪ Develop/design the Line and Grade Package to include: o Set the horizontal alignment o Set the vertical alignment o Establish cross sections o Set driveway profiles for key driveways. o Create the initial, proposed TIN file and display present and proposed contours. o Establish preliminary/proposed right-of-way limits and easement locations. o Incorporate environmental resource shapefiles or location details (e.g., for ecological features such as wetlands, streams, etc. or for historic or archaeological resources). o Incorporate all other elements listed in the Roadway Line and Grade Design Checklist. ▪ Document design efforts that avoid or minimize impacts to environmental resources in the ETSA. ▪ Finalize the Line and Grade Package, containing: o Title sheet .pdf o Survey and proposed alignment, contours, and cross section .dgn files o TIN file o GPK file o KMZ file o All other necessary MicroStation, GEOPAK, and Microsoft files o A .pdf of the proposed alignment as a roll plot, profile, and cross sections o All other elements listed in the Roadway Line and Grade Design Checklist ▪ Submit the Package that includes proposed alignment as a roll plot, profile, and cross sections. ▪ Validate the initial assumptions and costs from the preliminary project estimate to support establishment of the initial project estimate.

▪ Develop and submit quantities for the major roadway items for the Line and Grade estimate.
Compile the Line and Grade Package and Participate in the Field Review ▪ Compile and notify the team that the package is available. ▪ Lead the meeting and technical discussions (list and count hours in the meeting list above). ▪ Compile and distribute meeting minutes.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

1ST1 |Complete Existing & No Structure Modeling | [Design-Build Team]

Objective:

Complete existing and no structure modeling to inform the hydraulic design and grade selection in Stage 2.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Hydraulically Model Existing and No Structure Conditions ▪ Gather/confirm previously collected data on the crossings from existing information sources. ▪ Determine flood flows through structure. ▪ Create the existing structure hydraulic model in 1D or 2D modeling software. ▪ Create the No Bridge hydraulic model in 1D or 2D modeling software.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

1SY1 |Conduct Design-Level Survey | [Design-Build Team]

Objective:

Provide survey data that covers the project limits, as requested by the Roadway Design Lead or other technical leads to aid in the development of the Line and Grade Package and Functional Design Plans.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Prepare the Ground Control for Aerial Survey ▪ Place aerial targets and conduct GPS occupations. ▪ If static occupation is used, post-process static data. ▪ Submit coordinate data and any other requested information to Aerial Survey Manager.
Complete the Aerial Survey ▪ Create a Flight and Ground Control Survey Plan that shows the proposed flight lines. ▪ Obtain/verify ground control survey. ▪ Upon notification of completion of the panels, coordinate with the Aeronautics Division to fly the project. ▪ Completes aerotriangulation using the ground surveyed panel coordinates. ▪ After the project has been flown, post-process both the aerial photography and the GNSS-IMU data that was collected during the flight. ▪ Complete the mapping product, which includes the topographical survey and digital terrain model (DTM). ▪ Provide planimetric mapping and ground elevation data with the mapping.
Conduct Survey Public Involvement and Ground Survey ▪ Conduct Survey Public Involvement and Ground Survey ▪ Finalize the survey files based on comments received. ▪ Develop and submit Property Packet (tax cards, deeds, property owner contact letters), roadway plans, One-Call tickets.
Incorporate SUE Request into Survey ▪ Contact Tennessee One Call to obtain utility markings to be located and incorporated into the ground survey. ▪ Incorporate into the existing topography deliverable for the stage.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

1UT1 |Begin Third Party (Utilities) Coordination | [Design-Build Team]

Objective:

Contact the utility owners/railroads in a project's vicinity to confirm all are aware of one another's plans, which reduces late-stage changes that can negatively impact the schedule and add unexpected costs.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Conduct Utility Coordination Kickoff Meeting ▪ Prepare meeting agenda. ▪ Attend the meeting (list and count hours in the meeting list above). ▪ Prepare and distribute meeting minutes/actions.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

2EN3 | Conduct Permit Assessment | [Design-Build Team]

Objective:

Complete a permit assessment referencing the environmental features/boundaries detailed in the Environmental Boundaries Report (EBR) as depicted on the Line and Grade Package or Functional Design Plans. Use the assessment to coordinate design options and permit sketches to support developing and submitting a project's permit applications.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Conduct Permit Assessment ▪ Review the Ecological (and other appropriate) Environmental Boundaries Report, current version of the Utility Coordination Plans (if available), and Line and Grade Package or Functional Design Plans (which must include the boundaries of the identified ecological features). ▪ Complete the Permit Assessment. (if no there are no proposed impacts to stream or wetland areas in the EBR) **OR** ▪ Review impacts to environmental features (streams and wetlands). Based on the impacts, identify the types of environmental permits required. ▪ Redline plans to identify required changes. ▪ Coordinate with the Roadway Design Lead on all required design revisions/redlines to ensure the plans meet regulatory requirements for avoidance and minimization. ▪ Identify the need for permit sketches and the location where permit sketches are required. ▪ Determine requirements for on-site mitigation or natural channel designs (see 2EN4 and 3EN1 for related information). ▪ Complete the Permit Assessment (if impacts to streams and wetlands are identified).
Finalize Plans and Sketch Review and Prepare Permittable Plans Package ▪ Continue coordination with the Roadway Design Lead on all required design revisions/redlines to ensure the plans meet regulatory requirements for avoidance and minimization. ▪ Finalize permit sketches. ▪ Prepare permittable plans package and revise (as needed) based on comments received.
Evaluate Permittable Plans Package ▪ Submit the permittable plans package to Headquarters Permitting for review.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

2GT1 |Complete the Soils and Geology Report | [Design-Build Team]

Objective:

Complete a Soils and Geology Report, including site exploration, laboratory testing, engineering analysis, and recommendations. Additionally, develop Geotechnical Sheets (G-sheets) and supporting geotechnical addenda for the Functional Design Plans.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Conduct Site Exploration for Soils and Geology Report (may be combined with 2GT2 exploration) ▪ Make the TN One Call and document feedback. ▪ Coordinate with TDOT Maintenance for required traffic control and ensure equipment is ready to mobilize to project site. ▪ Mobilize crew ▪ Conduct the workplan's drilling, sampling, and geophysical testing for the site. ▪ Add additional steps specific to the drilling and documentation process here.
Select the Appropriate Laboratory Testing Program ▪ Determine the appropriate test methods.
Develop the Soils and Geology Report ▪ Provide samples to GeoServices for lab testing and ensure necessary lab work is completed to process results. ▪ Create boring logs and develop necessary report details. ▪ Draft the Soils and Geology Report (including responding to comments on the draft). ▪ Finalize the Report, including uploading final product to the project folder.
Develop Associated Geotechnical Sheet (G-Sheets) ▪ Develop the Geotechnical Sheets (G-Sheets). ▪ Send preliminary slope recommendations to Roadway Design Lead. ▪ Coordinate inclusion of the G-Sheets in the Functional Design Plans and Plan-in-Hand Plans. ▪ Attend the field review meeting (list and count hours in the meeting list above).
Develop Supporting Project Addenda ▪ Develop (as needed) any project addenda to address additional issues or scope change.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures

- Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

2GT2 |Complete Foundation Reports | [Design-Build Team]

Objective:

Prepare foundations reports early in Stage 3 for required bridge foundations, retaining walls, noise walls, and foundations for high-mast lighting, standard lighting, signing, and signal structures. Advanced the geotechnical design and draft the geotechnical special provisions to include with the Plan-in-Hand Plans finalized in Stage 4.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Conduct Site Exploration (for Foundation Reports; may be combined with 2GT1 exploration) ▪ Make the TN One Call and document feedback. ▪ Coordinate with TDOT Maintenance for required traffic control and ensure equipment is ready to mobilize to project site. ▪ Mobilize crew ▪ Conduct the workplan's drilling, sampling, and geophysical testing for the site for proposed retaining wall(s). ▪ Conduct the workplan's drilling, sampling, and geophysical testing for the site for proposed noise wall(s). ▪ Conduct the workplan's drilling, sampling, and geophysical testing for the site for proposed signs, signals, and lighting. ▪ Conduct the workplan's drilling, sampling, and geophysical testing for the site for proposed bridges (hydraulic and non-hydraulic). ▪ Attend the X field review meetings (list and count hours in the meeting list above). ▪ Add additional steps specific to the drilling and documentation process here.
Complete and Submit Foundation Report for Retaining Wall(s) ▪ Provide samples to GeoServices for lab testing and ensure necessary lab work is completed to process results. ▪ Create boring logs and develop necessary report details. ▪ Draft the Report (including responding to comments on the draft). ▪ Finalize the Report, including uploading final product to the project folder. ▪ Develop associated foundation R-sheets in .dgn format, including uploading final product to the project folder.
Complete and Submit Foundation Report for Noise Wall(s) ▪ Provide samples to GeoServices for lab testing and ensure necessary lab work is completed to process results. ▪ Create boring logs and develop necessary report details.

▪ Draft the Report (including responding to comments on the draft). ▪ Finalize the Report, including uploading final product to the project folder. ▪ Develop associated foundation detail sheets in .dgn format, including uploading final product to the project folder.
Complete and Submit Foundation Report for Bridges ▪ Complete necessary lab work to process results. ▪ Create boring logs and develop necessary report details. ▪ Draft the Report (including responding to comments on the draft). ▪ Finalize the Report, including uploading final product to the project folder. ▪ Revise associated foundation detail sheets in .dgn format, including uploading final product to the project folder. ▪ Draft Geotechnical Special Provisions, including uploading draft product to the project folder.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

2PM1 |Manage Project | [Design-Build Team]

Objective:

Lead the project team to ensure the project remains on schedule, within allocated resources (budget and staff), and within the project scope of work. Provide project oversight through the entire design phase and proactively facilitate regular coordination between project team members to improve quality, resolve issues, and mitigate risks. The deliverables and tasks in this activity are repeated throughout Stages 2, 3, and 4.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Develop the Project Management Plan ▪ Develop Scope ▪ Develop Schedule ▪ Develop Budget   ○ Request and obtain funding in each Stage (e.g., Preliminary Engineering/Final Design (PE-D) funding and ROW acquisition and Utility relocation funding). (TDOT staff only). ▪ Develop Project Quality Management Plan ▪ Develop Risk Management Plan and update the Risk Register ▪ Develop Project Communication Plan
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

2PM3 |Conduct ROW Strategy Meeting(s) | [Design-Build Team]

Objective:

Work with the Design Lead (e.g., the Roadway Design Lead, Structural Design Lead) and ROW Lead to organize, and facilitate the Right-of-Way (ROW) Strategy Meeting(s). The deliverables and tasks in this activity continue into Stage 3.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

2PM4 |Conduct Permit Strategy Meeting(s) | [Design-Build Team]

Objective:

Organize and facilitate the Permit Strategy Meeting. Review permits required to construct the project(s). The deliverables and tasks in this activity continue into Stage 3.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Set Up Meeting and Develop Agenda ▪ Gather all relevant materials in the shared project folder and distribute to the meeting invitees. ▪ Organize this meeting and develop the agenda.
Hold Meeting and Document Minutes ▪ Attend/Lead meetings (list and count hours in the meeting list above). ▪ If assigned, document comments, decisions, and actions and distribute/upload meeting minutes and deliverables. ▪ Update documents as needed.
Verify Permit(s) Are Complete and Submitted
General Task Management (other than tasks outlined above) ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

2PM5 |Hold Functional Design Plans Field Review Meeting | [Design-Build Team]

Objective:

Organize and facilitate the Functional Design Plans Field Review Meeting, with support from the Design Lead (e.g., the Roadway Design Lead, Structural Design Lead) to lead specific design and technical discussions to solidify the project's footprint.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Set Up Meeting and Develop Agenda ▪ Gather all relevant materials (e.g., Functional Design Plans, estimates, Comment Resolution Form, etc.) in the shared project folder and distribute to the meeting invitees. ▪ Organize this meeting and develop the agenda. ▪ Coordinate with the Design Lead to confirm all disciplines have completed quality checks and that the Functional Plans are ready for review.
Review and Complete Comment Form ▪ Distribute comment resolution form. ▪ Complete PM-level review of the submittal (as appropriate) and add comments to the form.
Compile Comments, Hold Meeting and Document Minutes ▪ Compile all comments received. ▪ Attend/Lead meeting (list and count hours in the meeting list above). ▪ If assigned, document comments, decisions, and actions and distribute/upload meeting minutes and deliverables. ▪ Update documents as needed.
General Task Management (other than tasks outlined above) ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

2PV1 |Provide Pavement Design | [Design-Build Team]

Objective:

Complete the project's pavement design and associated tasks to support advancement of other disciplines' plans and related design work.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Provide Draft Pavement Design ▪ Evaluate the structural capacity and life-cycle cost for the pavement design. ▪ Provide an initial/draft pavement design for the Functional Design Plans. ▪ Review any other relevant information available to identify known resources.
Provide Final Pavement Design ▪ Update or finalize the pavement design to confirm the original pavement recommendations, provide any needed approvals for changes to the design, and/or submit any updated pavement designs (if needed). ▪ Review any other relevant information available to identify known resources.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

2RD1 |Develop Functional Design Plans | [Design-Build Team]

Objective:

Complete the project's Functional Design Plans and associated roadway tasks to set the project footprint, define the data to be incorporated into the environmental document, and support advancement of other disciplines' plans and related design work for similar ends.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Develop a Utility Impact/Conflict Matrix (complete in concert with SUE task) ▪ Develop a project-specific Utility Impact/Conflict Matrix ▪ Revise/update as the project's design progresses and utility details become known.
Identify Initial Subsurface Utility Engineering (SUE) Needs ▪ Perform a utility conflict analysis to identify potential subsurface conflicts with proposed design elements. ▪ Coordinates anticipated subsurface components to further refine preliminary utility conflicts. ▪ Establish a test hole list. ▪ Request Pavement Design ▪ Prepare and submit a Pavement Design Request Form to include: o Title sheet o Traffic information, including average daily traffic (ADT) and average daily loading (ADL). o Soils and geology report, as available at the time of the request (see 2GT1 for related information). o Typical sections o Present and proposed layout sheets o Cross sections o Traffic phasing (including locations of temporary run-arounds or use of shoulders)
Request Pavement Design ▪ Complete and submit a Pavement Design Request Form and all required design information (see 2RD1 for list of required information)
Document Design Exceptions and Waivers ▪ Complete a Design Exception or Design Waiver Request Form ▪ Prepare and submit the letter, checklist, and location of the design plans (i.e., plan sheets, location map, and other related information). ▪ Revise the form and related information to address comments. ▪ Secure approval of the Design Exception(s) or Design Waiver(s).
Incorporate SUE Data and Lead Internal Design Deconfliction Meetings ▪ Develop agenda and prepare for meeting.

- Update plans/files and the Utility Impact/Conflict Matrix.
- Lead the meeting.
- Distribute and upload meeting minutes and action items to the project folder.
- Schedule follow-up meetings, as needed.

Develop Utility Coordination Plans

- Develop and revise (to address comments) a .pdf and .dgn set with a "Utility Coordination Plan Phase" stamp to include:
  - Title sheet
  - Plan and profile sheets
  - Typical sections and cross section sheets
  - SUE quality level C representation of known (surveyed) utilities
  - Traffic control sheets (if available)
  - Drainage sheets, including storm drain system and culvert crossings
  - Structure sheets, including retaining wall sheets that depict location and type of retaining walls and bridge foundation and utility impacts with foundations.
  - Signal and lighting poles, cabinets, and electrical circuit locations
  - Stream and wetland mitigation design and clearly marked resource areas not to be used for utility relocations design (if available and as applicable).
  - Proposed cut and fill lines
  - Present and proposed right-of-way linework
  - Any underground improvements that have a potential to impact the utility relocation design.
- Submit/upload the Utility Coordination Plans to the Utility Coordinator.

Develop Design and Sketches for Permit Applications

- Develop and revise (to address comments) a .pdf or .dgn set with a "Permit Application Plans" stamp that includes:
  - Title sheet
  - Project commitments and environmental notes
  - Present and proposed layouts
  - Roadway and sideroad profiles
  - Haul road layouts and profiles
  - Drainage maps and culvert cross sections
  - Erosion prevention and sediment control (EPSC) plans
  - Bridge preliminary plans
  - Sinkhole remediation plans
  - Location(s) of existing environmental features, proposed impacts to these environmental features, and environmental mitigation plans.
  - Natural stream design plans
  - Proposed right-of-way, easement, and slope lines
- Develop and revise (to address comments) permit sketches consisting of maps and drawings on 8 ½" x 11" sheets depicting individual impact locations.
- Prepare for and attend established Permit Strategy Meetings (list and count hours in the meeting list above).

Develop Conceptual Traffic Control Strategies

- Develop conceptual strategies or Temporary Traffic Control (TTC) concepts in accordance with the Work Zone Safety and Mobility Manual.
- Review the line and grade .dgn in the Line and Grade Package and the layout sketch developed as part of 0TO1.
- Coordinate a QC review of any concepts.

Develop the Functional Design Plans

- Revise the title sheet and update the plan, profile sheets, and cross section sheets from the Line and Grade Package.
- Incorporate geotechnical recommendations for slopes into the plan, profile, and cross section sheets.
- Refine the typical sections to include the pavement design.
- Develop conceptual traffic control strategies/TTC concepts.
- Draft the preliminary pavement and intersection marking design.
- Include preliminary placement of roadway safety features.
- Develop a preliminary drainage design.
- Develop preliminary erosion prevention and sediment control (EPSC) design.
- Include existing easements and any right-of-way, permanent easements, slope easements, and temporary construction easements.
- Incorporate environmental recommendations for avoidance and minimization of impacts, labeling the environmental features on the plans.
- Create pay item quantities associated with construction and generates an updated cost estimate.
- Evaluate the roadway design to determine if any incompatibilities exist with other discipline's designs.
- Incorporate all other elements listed in the Roadway Functional Design Checklist.

Coordinate Geotechnical Analysis for Noise and Retaining Walls

- Coordinate/identify boring locations.
- Develop and send request letter and layouts to the Lead Geotechnical Engineer/ Geotechnical Engineering Section (revise as needed).

Compile the Functional Design Plans and Participate in the Field Review

- Compile (from all disciplines) and notify the team that project plans/sheets and estimate are available.
- Attend the meeting and lead the technical discussions (list and count hours in the meeting list above).
- Compile and distribute a comprehensive list of review comments and meeting minutes.

Revise and Submit Updated Functional Design Plans

- Review and resolve all field review comments on the Functional Design Plans.
- Submit the revised plans in accordance with the Roadway Design Guidelines.

General Task Management

- Internal coordination and meetings
- Project documentation
- Administration

Complete QC/QA Procedures

- Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

2ST1 |Complete Hydraulic Design | [Design-Build Team]

Objective:

Choose the preliminary structure types/sizes and provide the project team with an initial assessment on the acceptability of the horizontal and vertical alignment provided in the initial line and grade .dgn (as part of the Line and Grade Package). Choose the most appropriate structure based on in-depth hydraulic modeling and provide final hydraulic design information to the project team and other stakeholders. Note: proposed structures may change SIGNIFICANTLY from the initial assessment to the final hydraulic design completed in this stage.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Verify Proposed Grade and Estimate Hydraulic Structure Sizes ▪ Review the final Conceptual Layout, final digital terrain model (DTM) from the Survey Lead, the line and grade .dgn, and any other relevant information. ▪ Initiate/continue coordination with USCG or TVA or FEMA and the local community. ▪ Review existing bridge reports for long-term issues. ▪ Review for offset issues due to TVA or USACE reservoirs and provide offset elevations. ▪ Provide a preliminary estimate of span and bridge length and any necessary grade changes needed to accommodate the structure. ▪ Coordinate the hydraulic details (e.g., preliminary structural elevations). ▪ Draft, respond to comments, and finalize the Initial Hydraulic Grade Assessment Letter.
Develop Draft Hydraulic Layout ▪ Draft the Hydraulic Layout. ▪ Attach layout to the Initial Hydraulic Grade Assessment Letter.
Hydraulically Model Proposed Conditions, Evaluate Proposals, and Select Appropriate Structure ▪ Create proposed hydraulic alternatives in 1D or 2D modeling software. ▪ Calculate ultimate scour for selected structure. ▪ Design deck drains if selected structure is a bridge. ▪ Continue coordination with USCG or TVA or FEMA and the local community. ▪ Continue coordination with TVA or USACE regarding reservoir and offset requirements. ▪ Compile Hydraulic Design File consisting of all project correspondence, including: o Final Hydraulic Letter and Layout o Maps o Pictures o Summary o Analysis of the hydraulic crossings on the project
Finalize Hydraulic Layout ▪ Finalize the Hydraulic Layout. ▪ Attach layout to the Final Hydraulic Letter.

Finalize Hydraulic Design Information ▪ Write the Final Hydraulic Letter. ▪ Submit the letter to the State Hydraulic Engineer for review and signature (if needed). ▪ Resolve any comments and finalize/sign the letter. ▪ Attend the field review meeting (list and count hours in the meeting list above).
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

2ST2 |Develop Preliminary Bridge Plans | [Design-Build Team]

Objective:

Review all projects with proposed non-hydraulics structures/crossings to evaluate clearances of the assumed structures for the proposed geometry. Develop preliminary bridge layout(s) for inclusion with the Functional Design Plans.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Review Proposed Grade and Alignment for Non-Hydraulic Crossings ▪ Review the proposed alignment, profile, and typical section in the initial line and grade .dgn. ▪ Confirm and/or determine appropriate structure type and span arrangement for each crossing. ▪ Calculate vertical and horizontal clearances for each assumed structure, evaluating whether the proposed line and grade are acceptable. ▪ Develop draft layouts for each crossing if the line and grade are acceptable. ▪ Draft, respond to comments, and finalize Grade Approval Letter.
Develop Preliminary Bridge Layouts ▪ Review the Final Hydraulic Layout or Draft Preliminary Layout to ensure all geometry matches the latest roadway plans and adjust the proposed structure as necessary. ▪ Develop a typical cross section using beam type recommendations from the Hydraulics Designer or assumed beam type from the grade approval for non-hydraulic crossings. ▪ Coordinate the design of deck drains with the Hydraulic Lead for all non-hydraulic structures. ▪ Update notes and project information. ▪ Develop preliminary/conservative bridge (and any known wall) estimates based on square footage and preliminary design assumptions. ▪ Submit the preliminary bridge layouts to the Structures Division CE Manager for approval (for consultant-led design). ▪ Attend the field review meeting (list and count hours in the meeting list above).
Coordinate Geotechnical Analysis for Bridges ▪ Establish the boring locations for all bridge foundations and wall locations. ▪ Prepare the Foundation Data Sheets. ▪ Finalize and submit the Structures Foundation Request to the Lead Geotechnical Engineer/ Geotechnical Engineering Section.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration

Complete QC/QA Procedures

- Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

2SY1 |Complete SUE and Requested Staking | [Design-Build Team]

Objective:

Complete requested subsurface utility engineering (SUE) and staking for proposed sounding holes and right-of-way to support the respective technical discipline's work.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Incorporate SUE Level A and B Request into Survey ▪ Contact Tennessee One Call to obtain utility markings to be located and incorporated into the ground survey. ▪ Incorporate into the deliverable for the stage.
Stake Sounding Holes ▪ Provide staking of locations identified by the Structural Design Lead or Lead Geotechnical Engineer/Geologist on the proposed Layout Sheet. ▪ Set the field markings to complete the staking. ▪ Update the Layout Sheet to include assigned ground elevations.
Stake ROW ▪ Stake the proposed right-of-way to field-locate parcel impacts. ▪ Complete the field staking and mark the stakes with a description, station, and offset designations.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

2UT1 |Initiate Utility Pre-Acquisition Activities | [Design-Build Team]

Objective:

Provide updated estimates, coordinate subsurface utility exploration (SUE) needs, and advance third-party coordination efforts from previous stages.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Coordinate/Request Needed SUE ▪ Support the utility conflict analysis to identify potential subsurface conflicts with proposed design elements. ▪ Coordinate anticipated subsurface components to further refine preliminary utility conflicts. ▪ Help establish the test hole list with the Roadway Design Lead.
Prepare Utility Estimate ▪ Compare projected relocations with past relocations costs. ▪ Complete the estimate (determining preliminary utility costs) and upload the estimate into IRIS.
Develop a Utility Impact/Conflict Matrix ▪ Support development of the project-specific Utility Impact/Conflict Matrix. ▪ Revise/update as the project's design progresses and utility details become known.
Review SUE Data and Attend Internal Design Deconfliction Meetings ▪ Support the Roadway Design Lead in developing agenda and preparing for meeting.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

3EN1 | Finalize Stream & Wetland Mitigation Design | [Design-Build Team]

Objective:

Finalize mitigation design to offset and generate mitigation credits required for the transportation project as soon as feasible, but no later than Stage 3.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Finalize Mitigation Plans ▪ Review current Roadway and Utility Coordination Plans. ▪ Finalize plans for the proposed on-site mitigation area(s). ▪ Finalize off-site mitigation project could be required as a separate set of mitigation plans (if required under the Mitigation Assessment). ▪ Coordinate inclusion of plans in the Plan-in-Hand Plans.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

3EN2 |Complete and Obtain Aquatic Permit | [Design-Build Team]

Objective:

Complete and submit the necessary aquatic permit application(s). Obtain all permit(s), review the conditions, and distribute the permit(s) required to construct the projects.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Complete Aquatic Permit Application (for the Roadway Project) ▪ Determine the environmental impact details requiring a permit(s) and draft the permit application. ▪ Gather/finalize all supporting documentation for the application. ▪ Submit the draft application internally and revise (as needed) based on comments received. ▪ Submit the draft application to the regulatory agencies and revise (as needed) based on comments received.
Obtain Aquatic Resource Permits ▪ Coordinate (as needed) with the regulatory agencies to secure the permit approval. ▪ Review the conditions and wording for accuracy. ▪ Distribute permit to the team.
Modify or Complete Aquatic Permit Application (for Utility Relocation Impacts) ▪ Identify environmental features and potential areas not to be used for utility relocations in the Utility Coordination Plans. ▪ Support the Utility Coordination Lead in meetings and discussions with the Utility Owners. ▪ Evaluate schedule risk for either modifying the existing permit application or preparing and submitting a new application to address utility relocation impacts. ▪ Modify and resubmit the permit application (as needed) to document utility relocation impacts.
Obtain Aquatic Resource Permits (for utilities) ▪ Coordinate (as needed) with the regulatory agencies to secure the permit approval. ▪ Review the conditions and wording for accuracy. ▪ Distribute permit to the team.
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

3PM2 | Hold Plan-in-Hand Field Review Meeting | [Design-Build Team]

Objective:

Organize and facilitate the Plan-in-Hand Field Review Meeting with support from the Design Lead (e.g., the Roadway Design Lead, Structural Design Lead) to lead specific design and technical discussions to produce a complete design.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Set Up Meeting and Develop Agenda ▪ Gather all relevant materials (e.g., Plan-in-Hand plans, quantities and estimates, specifications/special provisions, Comment Resolution Form, etc.) in the shared project folder and distribute to the meeting invitees. ▪ Organize this meeting and develop the agenda. ▪ Coordinate with the Design Lead to confirm all disciplines have completed quality checks and that the Functional Plans are ready for review.
Review and Complete Comment Form ▪ Distribute comment resolution form. ▪ Complete PM-level review of the submittal (as appropriate) and add comments to the form.
Compile Comments, Hold Meeting, and Document/Distribute Minutes ▪ Compile all comments received. ▪ Attend/Lead meeting (list and count hours in the meeting list above). ▪ If assigned, document comments, decisions, and actions and distribute/upload meeting minutes and deliverables. ▪ Update documents as needed.
General Task Management (other than tasks outlined above) ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

3RD1 |Complete Plan-In-Hand Design | [Design-Build Team]

Objective:

Complete the project's Plan-in-Hand design and the associated roadway tasks (i.e., all design complete) to facilitate a multidiscipline plan set review of the entire design at the conclusion of the stage. To be completed at any time during this stage, develop the ROW acquisition exhibits, advance the Utility Coordination Plans, coordinate the permit application design/sketches, and finalize the Transportation Management Plan (TMP).

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Develop ROW Acquisition Exhibits ▪ Prepare exhibits (revise as needed based on review comments). ▪ Prepare for and attend established ROW Strategy Meetings (list and count hours in the meeting list above). ▪ Revise exhibits and/or plans and complete the Revision Request Form (as needed) due to optimization or negotiations. ▪ Revise/Update as the design progresses and utility details become known encroachments (e.g. permanent easements, slope easements, temporary construction easements).
Finalize the TMP & Complete the Temporary Traffic Control Plans ▪ Finalize the TMP and associated temporary traffic control plans. ▪ Coordinate a final compliance review of the TMP and TTC plans with Traffic Operations.
Complete the Plan-in-Hand Plans ▪ Refine and complete the roadway design based on comments received from the Functional Design Plans Field Review Meeting. ▪ Verify geotechnical recommendations for slopes and walls are in the design, plan, profile, cross section, and retaining wall sheets. ▪ Finalize the title sheet, plan and profile sheets, and cross section sheets. ▪ Finalize the typical sections. ▪ Finalize the TMP and TTC plans. ▪ Finalize the pavement marking and signing (signing and striping) plans. ▪ Finalize the drainage design plans. ▪ Finalize the EPSC plans and any landscape and aesthetic plans. ▪ Incorporate/confirm inclusion of all environmental resource boundary identifiers into the design. ▪ Finalize the roadway design of retaining walls and sheets in coordination with the Hydraulic Lead, Lead Geotechnical Engineer, Structural Design Lead, Utility Coordinator, and ROW Lead.

- Evaluate the roadway design to determine if any incompatibilities exist with other discipline's designs.
- Incorporate all other elements listed in the Roadway Plan-in-Hand Design Checklist.
- Finalize pay item quantities associated with construction and generates an updated cost estimate.
- Coordinate with the Construction Engineer to create the project's roadway special provisions.

Compile the Plan-in-Hand Plans and Participate in the Field Review

- Compile (from all disciplines) and notify the team that project plans/sheets, specifications, and estimate are available.
- Attend the meeting and lead the technical discussions (list and count hours in the meeting list above).
- Compile and distribute a comprehensive list of review comments and meeting minutes.

General Task Management

- Internal coordination and meetings
- Project documentation
- Administration

Complete QC/QA Procedures

- Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

3ST1 |Complete Structural Design | [Design-Build Team]

Objective:

Finalize the structural design (walls and bridge plans) for inclusion with the Plan-in-Hand Plans.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions

Complete Retaining/Noise Wall Sheets
▪ For Category One retaining walls:
  o Design the retaining wall.
  o Detail final wall drawings, which includes Structures Division drawing numbers.
  o Submit final plans, quantities, and calculations to the Structures Division CE Manager for review.
▪ For Category Two Retaining Walls:
  o Review the wall preliminary plans, adjusting the acceptable wall types, aesthetic finishes, or other details as needed.
▪ For Noise Walls:
  o Design the noise wall.
  o Detail final wall drawings, which includes Structures Division drawing numbers.
  o Submit final plans, quantities, and calculations to the Structures Division CE Manager for review.
▪ Compile all wall drawings into a final set with 'R' series sheet numbers.
▪ Submit to the Roadway Design Lead for inclusion with the Plan-in-Hand Set.

Complete Design and Detail Bridge Plans and Estimate ▪ Design the bridge ▪ Compile design calculation notebook in .pdf format. ▪ Prepare the structures special provisions and detailed bridge plans. ▪ Submit calculation notebook and plans sheets to Structures Division CE Manager for review. ▪ Prepare quantity cost estimate in the standard TDOT Excel format. ▪ Compile all bridge drawings and submit to the Roadway Design Lead for inclusion with the Plan-in-Hand Set. ▪ Attend the field review meeting (list and count hours in the meeting list above).
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

3UT1 |Perform Utility Coordination | [Design-Build Team]

Objective:

Develop and execute a plan to address how each utility on a project is addressed (avoided, relocated, protected-in-place, etc.) so construction may move forward without any delays/issues.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Send Utility Coordination Plans ▪ Review the plans and provide comments prior to sending to the utility owner. ▪ Send the identified utility owner a complete set of plans. ▪ Upload the submitted plans to IRIS.
Conduct Utility Plan Review Kickoff Meeting ▪ Prepare the agenda and other meeting materials. ▪ Attend the meeting (list and count hours in the meeting list above). ▪ Prepare and distribute meeting minutes and actions.
60-Day Deconfliction Meeting ▪ Set and invite attendees to the utility deconfliction meeting. ▪ Prepare agenda and other meeting materials. ▪ Attend the meeting (list and count hours in the meeting list above).
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

3UT3 |Prepare & Submit Utility Certification | [Design-Build Team]

Objective:

Verify required coordination steps have been completed and secure/finalize the utility and (if applicable) railroad certification for letting.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
General Task Management ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.