**DESCRIPTION OF ITEMS**

**PRODUCTION-HOUR WORKSHEET**

(revised August 23, 2019)

**SURVEY**

**RECONNAISSANCE**

**1 Control (existing)**

A field and record search for any existing control that may be utilized, including controls established for aerial photogrammetry. Sources of any existing control need to be identified.

**2 Utilities (data gathering, identification & contact)**

Identify all utility companies within the project corridor and maintain a valid contact list of those utility companies and their representatives. Contact utility companies, Kentucky 811, KYTC District Utilities Staff and any other sources for utility facility mapping or other information concerning the location of any utilities. Check with local governments for GIS databases and for other sources of information.

**3 Drainage - (sink holes, streams, pipes, etc.)**

Identify drainage features that may require consideration in design and that are necessary to be documented on the plans.

##### CONTROL

**4 Horizontal**

Establish any new or additional horizontal coordinate control including the monumentation. All control information, including pre-established, shall be documented in a survey report and submitted to the KYTC Project Manager. All horizontal control obtained from Global Positions Systems (GPS) shall comply with the **Geometric Geodetic Accuracy Standards and Specifications for using GPS Relative Positioning Techniques** published by the Federal Geodetic Control Subcommittee dated August 1, 1989. Additional control points set shall be a minimum of 24-inch rebar (#4 or larger) with a plastic or aluminum cap.

**5 Vertical**

Establish any new or additional vertical control, including benchmarks, and including the monumentation. All control information, including pre-established, shall be documented in a survey report and submitted to the KYTC Project Manager. All vertical control obtained from Global Positions Systems (GPS) shall comply with the **Geometric Geodetic Accuracy Standards and Specifications for using GPS Relative Positioning Techniques** published by the Federal Geodetic Control Subcommittee dated August 1, 1989.

Note: The Department, through its photogrammetry consultant, will provide horizontal and vertical controls to NGS (National Geodetic Survey) bench marks. Intermediate controls set by the Consultant shall be tied to the controls provided by the Department. This work is only necessary if the project was not flown or if insufficient controls were established with the aerial photogrammetry. It is expected that with this item of work, any existing controls would be checked for accuracy.

**6 Process data**

Process data obtained from field survey and check for accuracy and closure. Preparation of survey report of coordinate controls and bench marks.

Note: A complete coordinate control report including existing and new control point information, with traverse information confirming coordinate control accuracy and a bench level report shall be prepared and submitted to the KYTC Project Manager.

**PLANIMETRIC SURVEY**

**7 Planimetric location**

Locate and/or identify all necessary planimetric features. On projects with aerial photogrammetry available this would require only identification of planimetric features and pick-up of areas not covered by the available photogrammetry, if required. For Phase 2 design this would be for the update of the topography due to new or changed planimetric features since the original survey or aerial photogrammetry was obtained. It should be noted on the production-hour form the extent of work required, for example, complete, pick-up or update.

**8 Subsurface Utility Engineering, Quality Level C & D**

Apply reconnaissance utility data gathered to locate utility facilities on plans. Gather a survey of all visible utility facility features (i.e. poles, valves, manholes, markers, etc.) and provide them on the plans. Utilize both the reconnaissance data and field generated data to assess the approximate location of the utility facilities within the project corridor. This data shall be used to identify potential conflicts between the project and the existing facilities.

**9 Subsurface Utility Engineering, Quality Level B**

Identify specific locations where the road project potentially may conflict with the existing utility facilities and a more precise location of the utility is needed. Quality Level B location is valid if precision is needed to validate the conflict, confirm the facility may remain in situ, or design to avoidance. The Quality Level B location shall be a non-excavation field procedure using surface locating technologies and shall provide a more precise location of the facility without providing elevations. The consultant shall denote the Quality Level B location on the plans and use this information to avoid the facility or establish a plan for relocation as appropriate.

**10 Subsurface Utility Engineering, Quality Level A**

Identify specific locations where the exact location of the utility is needed. A Quality Level A location is valid if a precise elevation is needed to validate the conflict, confirm the facility may remain in situ, or design to avoidance. For those locations, validate the Quality Level B location, confirm facility type, size, and provide elevations via vacuum excavation or other valid means. The consultant shall communicate with the utility company, providing the utility to be present during the facility location when necessary. The consultant shall denote the Quality Level A location on the plans and use this information to avoid the facility or establish a plan for relocation as appropriate.

**11 Process data**

Process all necessary data to produce a planimetric map and submit electronic files to the designer.

**TERRAIN SURVEY**

**12 DTM data collection**

Collect general terrain data for project (when general terrain data is not already available).

*Note: Items 11-18 should not be required if general terrain data is to be collected.*

**13 Verify terrain model accuracy**

Check for accuracy of breaklines, random points, contours, etc., including terrain model obtained from aerial photogrammetry.

*Note: The density of points taken in the field to check the DTM will be determined at the Predesign Conference.*

**14 Tie-ins**

Field verification of all field data necessary for tying of project to existing features pavements etc. Include all road approaches. Entrances are not generally required and will only be performed if specifically directed by the KYTC Project Manager.

**15 Drainage situation survey (Bridge)**

Obtain all necessary field data to represent situation survey for bridges, including stream profile and necessary terrain data to merge into the existing terrain model.

**16 Drainage situation survey (Culvert)**

Obtain all necessary field data to represent situation survey for culverts.

**17 Drainage pipe section (non-situation size)**

Obtain all necessary field data to define the accuracy of the existing flowlines and inlet and outlet location and elevations of cross drains.

*Note: Does* ***not*** *include entrance pipes.*

**18 Flood plain data**

Collect field data necessary for flood plain analysis.

**19 Railroad Surveys**

Obtain all necessary terrain data to represent railroad survey (top of rail, ballast, ditches, fills, cuts, RR milepost, etc.).

**20 Additional necessary DTM data**

Collect other necessary data to produce an accurate digital terrain model (obscured areas, field checked areas, areas needing greater accuracy, etc.).

**21 Process data**

Process all pertinent data necessary to generate digital terrain models and submit electronic files to the designer.

**ESTABLISH PROPERTY LINES & OWNERSHIP**

**22 Contact & Interview Property Owners**

Contact property owners requesting permission for access and discuss general scope of project, locations of property lines, septic system, drainage and any other pertinent information. A report is to be generated with a copy of the contact letter and all completed contact information forms from property owners, upon request.

*Note: The contact letter and information form is to be reviewed and approved by the KYTC Project Manager prior to contacting the property owners. The contact letter shall include the name of a person from the consultant that may be contacted in case of problems and the KYTC Project Manager.*

**23 Field tie property lines/corners**

Locate all monuments (rebars, pins, etc.) and other evidence of property lines (fences, tree lines, drains, etc.).

**STAKING**

**24 Stake centerlines, approaches, detours**

Accurately stake centerline at intervals determined at the Predesign Conference and process data.

**25 Stake core holes - structures**

Stake or locate all geotechnical borings required for structural design and process data.

*NOTE: The unit is per individual structure, NOT per hole.*

**26 Stake core holes - roadway**

Stake or locate all geotechnical borings required for geotechnical soil/rock analysis and process data.

*NOTE: The unit is per individual core hole.*

**SURVEY MISCELLANEOUS**

**27 Determine Roadway Elevations (Crown and EP)**

This would be necessary on widening and overlay projects where the terrain model is developed from aerial photogrammetry and accurate pavement elevations are required and includes processing data.

*NOTE: Unit is per mile of individual roadway sections.*

## 28 Environmental areas

Locate and identify areas and feature that may be considered environmental issues and includes processing data.

**29 Reserved for additional miscellaneous survey items required**

**PRELIMINARY LINE AND GRADE**

## 30 Computer setup

Load and organize project data (manuscripts, mapping, ortho-rectified photographs, etc.) into computer system, the establishment and maintenance of a file management system for project data, including the storage and manipulation of all project files required for plan development.

**31 Prepare existing manuscripts**

Reviewing existing manuscript, if provided from aerial photogrammetry, and modifying any items that need to be corrected in order to conform to current KYTC CADD standards. Incorporate any additional topography picked up by field survey. Depict locations of all existing utility facilities. Manipulation/addition of text and notes identifying topography, planimetrics, drainage structures and utilities. Addresses shall be shown for all parcels, if requested.

**32 Establish approximate property lines and ownership**

Using field evidence and research documentation, such as plats and PVA records, establish approximate existing right of way and property lines and denote the property ownership, parcel numbers and lines on the plans.

**33 Study and develop typical sections**

Study, develop, and document all necessary typical sections (including alternatives) for the mainline and all other roadways, including creating the Inroads roadway templates for each roadway.

**34 Study and develop horizontal alignments**

Study, develop and document the alternate horizontal alignments including approaches. Generate the necessary graphics depicting the proposed alternative, including disturbed limits, drainage structures, etc.

**35 Study and develop vertical alignments**

Study, develop and document the vertical alignments for each horizontal alignment including approaches and entrances.

**36 Create and evaluate proposed roadway models**

Create, review, modify and finalize the proposed roadway model for each roadway and alternative, including creating the required cut/fill to create the roadway model. Includes depiction of critical cross sections, as discussed in the Predesign Conference.

*Note: This would include the various iterations and adjustments required to complete an alternative due to earthwork balancing, intersection sight distance and alignment refinement.*

37 Design entrances

Determine approximate location, grade, width and type of entrance and depict on the plans of the preliminary alternatives.

**38 Pre-size pipes**

Determine preliminary diameter, length, and end treatment for each drainage pipe.

**39 Pre-size culverts**

Determine preliminary size, length, and end treatment for each culvert.

**40 Pre-size bridges**

Determine preliminary size (deck width, span arrangement, hydraulic openings, and/or clearances) for each bridge.

**41 Conduct Traffic Engineering Analysis (Basic; Highway Capacity Manual Procedures)**

Conduct and document traffic engineering analysis for each roadway section and each major intersection, using the appropriate Highway Capacity Manual/Highway Capacity (HCM/HCS) procedures.  This analysis will determine the appropriate lane configuration to meet the desired performance of the roadway.  Production hours will be based on the number of intersections for the project. Roadway lengths between intersections will be considered incidental to the overall analysis.

*Note: Number of major intersections to be analyzed, along with appropriate analysis scenarios and roadway sections will be determined and documented at the Predesign Conference.*

**42 Study and development of interchange**

Study, develop and document preliminary interchange layouts including capacity analysis for weaving areas and merge/diverge.

*Note: The specific scope of work and methodology of analysis will be determined at the Predesign Conference.*

**43 Study and development of intersection**

Study, develop and document preliminary intersection layouts including appropriate capacity analysis, if required, for each intersection. Intersections to be studied will be identified in the Predesign Conference.

*Note: The specific scope of work and methodology of analysis will be determined at the Predesign Conference.*

**44 Study and develop maintenance of traffic plan**

Study, develop and document alternative traffic control plans including construction phasing and/or detour routes.

**45 Plot/print plans for meetings and inspections**

Plot and/or print plans, profiles, drawing, cross sections, schematics, etc. for meetings, inspections or upon request.

*Note: The number of sets of prints for meetings and inspections shall be determined at the Predesign Conference.*

**46 Calculate preliminary quantities and develop cost estimates**

Develop and document cost estimates for each alternate, including calculating preliminary quantities for each alternative. Includes development of a preliminary pavement design, to be reviewed by the KYTC Project Manager, to use in calculating preliminary pavement quantities. This should include estimating utility relocations costs as a result of the highway project and examination of those costs relative to the road construction costs.

**47 Revise plans and estimates**

Revise plans and estimates as directed from reviews and inspections. Upon completion of the Preliminary Line and Grade Inspection, the Consultant shall incorporate all significant comments into the preliminary plans and submit the revised plans and electronic files to the KYTC Project Manager.

**48 Preliminary Right of Way with taking areas**

Layout preliminary Right of Way and calculate approximate Right of Way taking areas from each parcel, for each alternate. Document the areas of taking for each alternate and depict the preliminary Right of Way and easements on the plans.

**49 Prepare Design Executive Summary**

Prepare and submit Design Executive Summary, including all necessary documentation, location map, typicals, etc.

**50 Develop/document “Avoidance Alternatives to Water Related Impacts”**

Prepare documentation concerning all blue line streams as denoted on topographic quad maps.

## 51 Conduct Traffic Engineering Analysis (Advanced; Micro-simulation)

Conduct and document traffic engineering analysis for each roadway section and each major intersection, using micro-simulation.  This analysis will evaluate the ability of the project to operate as a comprehensive system.  Production hours will be based on the number of major intersections on the project. Analysis should account for roadway lengths and minor intersections along the approaches to the major intersections.

*Note: Major intersections to be analyzed, along with appropriate analysis scenarios and roadway sections will be determined and documented at the Predesign Conference.*

**52 Project Scheduling**

Prepare and maintain a Project Development Schedule (example, using Microsoft Project to create a Gantt Chart). Create initial schedule, including relevant milestones and critical path, and provide an updated PDF to the Project Manager monthly, quarterly or other schedule as directed.

**53 Highway Safety Analysis**

Perform a safety analysis for a specific location or various segments of a project, to help evaluate the effectiveness of proposed improvements. At a minimum, gather, analyze and report on the crash history. May need to prepare crash diagrams and a report discussing benefit/costs of proposed options at the Preliminary Line & Grade meeting, or other milestone outlined in the Pre-Design Conference minutes. For more complex projects, may require the use of Highway Safety Manual or IHSDM software for analysis.

**54-55 Reserved for additional miscellaneous PL&G items required**

**UTILITY COORDINATION**

**56** **Utility Coordination Meeting**

Provide for travel time to and from a Utility Coordination Meeting for all utility companies identified within the project corridor, KYTC utility and design staff. The intent of this type of meeting is to identify critical conflicts and easement needs, discuss avoidance possibilities, consider relocation placements and costs, phasing and schedule, and identify Quality Level A or Quality Level B location needs. This meeting shall take place prior to the joint inspection but for complex projects and projects with a prevalence of utilities, it is recommended to hold at least two meetings.

**57** **Develop Utility Relocation Layout Sheets (1”=200’)**

Develop preliminary relocation layout sheets that show all existing utility facilities, locations of Quality Level A and Quality Level B subsurface utility engineering information, identified conflicts with the project, and proposed relocation alignments.

**58 Develop Utility Relocation Plans (1”=50’)**

Develop utility relocation plans for utilities that have agreed to have KYTC’s consultant perform relocation design services. These plans shall provide a detailed horizontal and vertical alignment of the facilities to be relocated. Plan sheets, profile sheets, and cross sections shall be required. Plans shall adhere to the utility company’s standards and specifications.

**59 Reserved for additional miscellaneous Utility Coordination items required.**

**RIGHT OF WAY**

**60 Deed research**

Research of all documents necessary to determine property lines, existing easements, encumbrances and ownership including a copy of the deed with deed book and page number and available plats.

**61 Establish property and ownership**

Using field evidence and research documentation to accurately establish property lines, existing Right of Way, existing easements, owner names, lessee names, and parcel numbers. Document on plans.

**62 Calculate Right of Way**

Calculate lines and areas of all proposed right of way and easement takings for each parcel. Depict all right of way and easements, including metes and bounds, on plans.

**63 Prepare legal descriptions**

Prepare and check legal descriptions for each area of taking.

**64 Prepare Right of Way summary sheet**

Complete Right of Way summary sheet including all affected parcels.

**65 Generate Right of Way strip map**

Prepare Right of Way strip map covering all affected parcels. Generate individual strip map sheets.

**66 Prepare Right of Way Plans Submittal**

Generate the computer files of the Right of Way plans, plot the original mylars, prepare electronic submittal of plans and deeds and submit plans, computer files, source deeds and proposed deed descriptions to the District Office. Detour runarounds or other maintenance of traffic plans that have impacts to the right of way or utilities shall be included in the Right of Way plans. A set of prints of drainage and cross sections may also be required to be included in the submittal.

*Note: A set of prints is to be submitted to the KYTC Project Manager for review prior to submittal of Right of Way plans, if requested.*

**67 Right of Way revisions after Right of Way submittal**

Prepare Right of Way plan revisions as necessary. Post Right of Way Plan submittal and prior to the final construction plan submittal. Includes re-submittal of revised plans (mylars), 1 set of prints with changes marked in red, plats, deed descriptions and electronic files.

**68 Deed Research for Existing Alignments**

Research to see if any back source deeds exist on existing alignments which will not be reconstructed and are not included in Line 60.

**69 Deed Research for Existing Parcels**

Investigate old recorded deeds that exist and perform actual research for each parcel necessary to determine property lines, existing easements, encumbrances and ownership including a copy of the deed with deed book and page number and available plats, if any.

**70 Prepare Legal Descriptions for Right of Way Transfer**

Prepare legal deed descriptions for each parcel to be transferred to local government responsibility.

**71-74 Reserved for additional miscellaneous Right of Way items required**

**FINAL PLAN PREPARATION**

**80 Computer setup**

Load and organize electronic data files (manuscripts, centerline data, coordinates data, terrain models etc.).

*Note: In most cases much of this work was completed in Phase 1.*

**81 Update existing topography and terrain model**

Using updated field data, modify and update the existing topography and terrain model.

**82 Refine alignments (horizontal & vertical)**

Refine, adjust, and document the preferred horizontal and vertical alignments accommodating greater detail in tie-down points, approaches, detours, etc.

**83 Develop pavement design**

Analyze, document and submit for review and approval the proposed pavement design folder for each roadway, including pavement calculations, life cycle costs, typical sections and pavement details.

**84 Finalize templates & transitions**

Finalize necessary templates and template transitions for all roadways. This includes each instance of a horizontal change in roadway edge of pavement with respect to the centerline.

**85 Develop final roadway model**

Modify the preliminary roadway model or generate a new roadway model incorporating the proposed design into the initial roadway model, including cut/fill slopes, roadside ditches, etc. as necessary to define ditches and disturbed limits and enable the generation of cross-sections for all roadways.

*Note: The extent and degree of accuracy of the “final” roadway model is to correspond with the required guidelines of electronic deliverables. This effort of work is to be discussed at the Predesign Conference.*

**86 Develop proposed design**

Design and depict on the plans (manuscript) all proposed construction details and graphics, including pavement, drainage, construction notes, etc.

**87 Generate plan sheets**

Perform necessary work to create individual plan sheets, including dropping of sheet cells, masking, manipulation of text and notes, etc.

**88 Generate profile sheets**

Perform necessary work to create individual profile sheets, including dropping profile, annotation of profile, drainage, ditches, notes, etc.

Note: Though depiction of longitudinal storm sewers is generally performed on the profile sheets, they will be paid for as individual pipe sections under Item 92.

**89 Detail cross sections**

Drop cross sections onto sheet cells; add yardage quantities, details, notes, etc.

Note: The majority of work required for the development of cross sections is under Item 85.

**90 Design entrances**

Determine location, grade, type of entrance, width and quantities and depict on the plans.

**91 Revise roadway plans from soils report**

Modify the roadway model incorporating geotechnical report recommendations.

*Note: Length is based on expected area requiring changes due to geotechnical report, not entire project length.*

**DRAINAGE**

**92 Develop pipe sections (< 54”)**

Create and design pipe sections including quantities, notes and depicting them in the plans.

*Note: Includes cross drains, storm sewer, etc.*

**93 Develop drainage system map**

Create map describing the proposed drainage system and delineates drainage areas. Includes generating the individual sheets.

**94 Develop drainage situation (bridge)**

Develop and prepare drawing of alignment, profiles, sections, and plan to represent bridge situation survey.

**95 Develop drainage situation (culvert)**

Develop and prepare drawing of alignment, profiles, sections, and plan to represent culvert situation survey.

**96 Develop blue line stream channel changes (=> 200’)**

Develop and prepare drawing of alignment, profiles, sections, and plan to represent channel change, including stream mitigation requirements.

**97 Drainage analysis (Entrance pipes)**

Conduct and document drainage analysis to determine frequency flows and required structure size of entrance pipes. Includes completion of forms.

**98 Drainage analysis (A <= 200 acres)**

Conduct and document drainage analysis to determine frequency flows and required structure size. Includes completion of forms.

**99 Drainage analysis (200 acres < A < 1.0 sq. mile)**

Conduct and document drainage analysis to determine frequency flows and required structure size. Includes completion of forms.

**100-102 Drainage analysis (A => 1.0 sq. mile) -- Levels 1, 2, & 3 Analysis**

Conduct and document drainage analysis to determine frequency flows, required structure size, location, and risk assessment. Includes completion of forms.

**103 Special drainage studies**

Conduct special drainage studies, which may include HEC-1, TR-20, TR-55, Unsteady Flow Models, FESWMS-2DH, Detention Basin Design, Energy Dissipater Design, Dynamic Culvert Design or other Hydrologic/Hydraulic design as deemed appropriate.

**104 Roadway ditches and channels**

Determine hydraulic capacity (ditch size) and necessary channel lining of all ditches and channels. Includes documentation of design calculations and completion of forms.

*Note: Left and right sides are independent to each other and should be added for a combined total.*

**105 Develop erosion control plan**

Determination of required erosion control items and depiction in the plans, including required calculations and generating the individual sheets. Includes documentation of design calculations and completion of forms.

*Note: Specific scope of work and level of effort is to be discussed at the Predesign Conference*

**106 Inlet spacing calculations**

Conduct necessary calculations to determine structure types, and inlet spacing for the layout and design of storm sewer systems. Includes documentation of design calculations and completion of forms.

**107 Storm sewer calculations**

Conduct necessary calculations to determine pipe size, storage volumes, etc. for the layout and design of storm sewer systems. Includes documentation of design calculations and completion of forms.

**108 Perform scour analysis**

Perform scour analysis as referenced in the FHWA HEC-18 and HEC-20 and the current Drainage Manual. Includes documentation of design calculations and completion of forms.

**109 Assemble preliminary and final drainage folders**

Copy, fold, bind, and assemble drainage folders.

**110 Prepare advanced situation folder - bridge**

Prepare required documentation, copy, fold, bind, and assemble the folder.

*Note: Folder contents are to conform to requirements outlined in the Drainage and Bridge Manuals.*

**111 Prepare advanced situation folder - culvert**

Prepare required documentation, copy, fold, bind, and assemble the folder.

*Note: Folder contents are to conform to requirements outlined in the Drainage and Bridge Manuals.*

**112-115 Reserved for additional miscellaneous Drainage items required**

**FINAL PLAN CONTINUATION**

**116 Prepare layout sheet**

Prepare layout sheet for the Construction Plans.

**117 Prepare typical sections**

Prepare all typical sections including the proposed pavement design and other necessary details for each roadway, detour, and entrance.

**118 Prepare interchange geometric approval sheet**

Prepare geometric approval sheet, including all required alignments, curve data, coordinates, etc. for requesting approval of the interchange geometrics.

**119 Prepare intersection geometric approval sheet**

Prepare geometric approval sheet, including all required alignments, curve data, coordinates, etc., for requesting approval of the intersection geometrics.

**120 Prepare coordinate control sheet**

Develop all coordinate control information, including proposed centerlines, event points, control points, and benchmarks with appropriate descriptions, and place into the plans in tabular form and generate individual sheets.

**121 Prepare elevation developments sheet**

Prepare elevation development sheets including all geometric data and elevation data necessary.

**122 Prepare striping plan**

Prepare details for striping plans as outlined in the Predesign Conference.

**123 Calculate final quantities**

Calculate and document all quantities required for the construction of the final roadway and maintenance of traffic during construction, including permanent and temporary items.

**124 Complete general summary**

**125 Complete paving summary**

**126 Complete drainage summary**

**127 Complete pavement under-drain summary**

**128 Prepare cost estimate**

Prepare and document cost estimates including bid prices for each item, using best engineering judgement, for inspections, meetings and final plan submittal.

**129 Plot/Print copies of plans**

Plot/print copies of plans including the necessary copies of plans for distribution at project milestones (inspections, meetings, etc.).

*Note: The number of sets of prints for meetings and inspections shall be determined at the Predesign Conference*

**130 Plan revisions**

Complete any necessary and unexpected plan revisions that arise during the project that are beyond the control of the consultant, including revisions to plans required due to Right of Way Revisions that are not directly shown on the Right of Way Plans.

**131 Prepare final construction plans submittal**

Generate the computer files of the final plans, plot the original mylars, prepare electronic submittal of plans and required files and submit plans, computer files and a list of General Notes to the District Office. Also includes submittal of a set of Review Plans and making any necessary changes identified by the roadway plan review.

**MAINTAINENCE OF TRAFFIC**

**132 Write maintenance of traffic notes (TCP)**

Write and submit the required Traffic Control Plan, including the construction phasing for the project.

**133 Prepare construction phasing plans**

Prepare plans for maintenance of traffic, construction phasing and/or detours necessary for the construction of the project, including all phasing, special notes, signs, temporary pavement markings and quantities. When maintenance of traffic details have been completed, a Traffic Control Plan shall be prepared and submitted to the KYTC Project Manager to obtain the necessary approval signatures. Once approved, the notes and phasing details will be incorporated into the final construction plans.

**134 Develop diversion plan sheets**

**135 Develop diversion profile sheets**

1. **Develop diversion cross sections**

**137 Develop temporary drainage**

**FINAL PLANS MISCELLANEOUS**

**138 Document available rock quantities**

**139-149 Reserved for additional miscellaneous Final Plans items required**

**MEETINGS**

**150 Preliminary line and grade inspection**

Preparation, consideration of travel to and from, and attendance by the project engineer and others, if necessary, to the preliminary line and grade inspection and preparation of the inspection report.

**151 Drainage inspection**

Preparation, consideration of travel to and from, and attendance by the project engineer and drainage engineer to the drainage inspection and preparation of the inspection report.

**152 Final inspection**

Preparation, consideration of travel to and from, and attendance by the project engineer and others, if necessary, to the final inspection and preparation of the inspection report.

**153 Misc. project coordination meetings**

Consideration of travel to and from and attendance by the project engineer and others, if necessary, to any project coordination meetings scheduled by the Project Manager and preparation of the meeting minutes.

**154 Project team meetings**

Consideration of travel to and from and attendance by the project engineer and others if necessary, to any project team meetings scheduled by the Project Manager and preparation of the meeting minutes.

**155 Value Engineering Study**

This item is applicable only for a project requiring a VE study or project where the KYTC project manager specifies that a VE study will be done.

Consideration of travel to and from and attendance by the project engineer at the project briefing (normally 2 hours). Consideration of travel to and from and attendance by the project engineer at the VE recommendations briefing (normally 2 hours). Preparation of presentation for the project briefing. Preparation and compilation of project plans and documents for the VE team. Meeting attendance by the project engineer with KYTC project manager to review VE recommendations for further implementation.

**156 Constructability Review**

This item is applicable to any project for which the KYTC project manager determines a standalone constructability meeting is warranted.  The constructability review meeting is scheduled so as to facilitate the design decision making process and the development of final plans.  Typical projects are those for which the project engineer anticipates a complicated maintenance of traffic plan or unusual construction work restrictions.   Attendees should include the project engineer and others as necessary.

Prepare meeting materials, including any constructability related details (draft phasing, maintenance of traffic, seasonal restrictions, as well as standard plan information) prior to the meeting.  Write and distribute minutes after the meeting. Includes consideration of travel to and from the meeting

**157-159 Reserved for additional miscellaneous Meeting items required**

**PUBLIC INVOLVEMENT**

*Note: The level of Public Involvement shall be discussed in the Predesign Conference and documented in the minutes.*

**160 Develop and maintain mailing list**

Prepare and maintain an up-to-date mailing list consisting of all potential property owners, local officials and other interested individuals.

**161 Prepare for advisory committee/officials meetings**

Preparation and delivery of all necessary materials (project plans, photographs, exhibits, maps, handouts, etc.) to facilitate advisory committee and local officials meetings.

**162 Attend advisory committee/officials meetings**

Consideration of travel to and from and attendance by the project engineer and others, if necessary, to the required meetings and preparation of the meeting minutes.

**163 Prepare for public meetings/hearings**

Preparation and delivery of all necessary materials (project plans, photographs, exhibits, maps, handouts, etc.) to facilitate public meetings/hearings.

**164 Attend public meetings/hearings**

Consideration of travel to and from and attendance by the project engineer and others, if necessary, to the public meeting.

**165 Prepare and distribute newsletters**

Develop and distribute project newsletters to individuals on the project mailing list and other interested parties.

*Note: The specific extent of the type of newsletter to be prepared will be determined at the Predesign Conference.*

**166 Property owner coordination**

Coordination with property owners with respect to project impacts.

*Note: The specific extent of property owner coordination will be determined at the Predesign Conference.*

* 1. **Reserved for additional miscellaneous Public Involvement items required**

**QA/QC**

*Note: This section is generally ONLY required with large projects that have multiple sections and consultants.*

**180 Plan review**

Review by a Senior Engineer to ensure the quality of the design and quality of the plans.

**181 Structure review**

Review by a Senior Engineer to ensure the quality of the design and quality of the plans.