TEAM KENTUCKY TRANSPORTATION CABINET

Drainage

Chapter	DRAINAGE SUBMITTALS
Subject	Fundamentals

DR-301.1 PURPOSE OF DRAINAGE SUBMITTALS

Drainage submittals are required to document the drainage design on any highway project for which the Kentucky Transportation Cabinet has responsibility. These submittals shall be submitted to the KYTC Division of Highway Design, Drainage Branch for approval.

The purpose of the Drainage submittal is to support the development of plans and to serve as the legal documentation of the drainage design. The submittal must include the following:

- An adherence to the Transportation Cabinet's policies, specifications, and standards as reflected through the most economical and hydraulically feasible alternatives for a proposed drainage design.
- Reports or minutes of all meetings concerning the drainage design process.
- A drainage design summary for any structure that is used to transport water directly through or delays the flow of water into or away from the highway system. This includes extensions to existing structures or improvement of those structures or drainage systems.

Many drainage submittals are used long after projects are completed. Since they are legal documents, they provide information for drainage complaints and litigation. Other agencies and the private sector often use information from the submittals to assist in acquiring encroachment permits and for other projects, which may or may not have a direct effect on a highway. For these reasons, the Drainage Branch places a strong emphasis on accuracy and completeness of all drainage submittals.

Note: Those persons initiating drainage design work who are not familiar with the Cabinet's drainage requirements should contact the District Office or Drainage Branch to familiarize themselves with the current drainage criteria.

DR-301.2 TYPES OF SUBMITTALS

There are two Division of Highway Design drainage submittals:

- The Preliminary Drainage Submittal ensures that the proposed drainage design is consistent with current KYTC and Federal design procedures, accepted methodologies, policies, standards, and specifications.

- Final Drainage Submittal shall:
  - Reflect the recommendations of the review process.
  - Reflect changes made as a result of the right-of-way acquisition process.
  - Reflect changes made during the structural design process.
  - Become the record legal document for the project drainage design.
  - Contain all required information to support the selection of drainage items proposed on the plans. (See **DR 302** for required contents and layout.)

Note: Where variations of current practices and standards (design exceptions) are incorporated into the drainage design, those variations shall be fully documented in the submittals.

There is another type of submittal, the Advance Situation Survey, overseen by the Division of Structural Design. This manual discusses the Advance Situation Survey only in a drainage design context. In such contexts, the Advance Situation Survey is reviewed and approved by the Drainage Branch before passing on to the Division of Structural Design. (See **DR 303**, and Section **SD 202-2** of the Structure Design Manual for required contents and layout.)

It should be noted that the Preliminary and Final Drainage Submittals utilize the same blue 'cover sheet', while the Advance Situation Survey has an orange cover sheet. A box is checked on the cover sheet to indicate Preliminary, Advance, or Final as applicable (**Exhibit 300-1**).

DR-301.3 EXTENT OF DRAINAGE SUBMITTAL MATERIAL

A Drainage Submittal must provide sufficient information to allow the review of the design presented. The presentation must adequately address and support the choices and decisions made and give reason to the formulation of the drainage design. The designer should keep in mind that the contents of the Final Submittal should resemble the Preliminary Submittal. The Final Submittal is subject to change as a result of the review process. Please refer to the KYTC Drainage website for content requirements for the Preliminary and Final Drainage Submittals.

DR-301.3 EXTENT OF DRAINAGE SUBMITTAL MATERIAL (CONT.)

Variations and innovations in the specific content of the Submittals are not prohibited; however, the designer should keep in mind that the document may be reviewed by various disciplines and agencies. Therefore, consistency in the general Submittal format and minimum design requirements is necessary (**DR 302**).

TEAM KENTUCKY TRANSPORTATION CABINET

Drainage

Chapter

DRAINAGE SUBMITTALS

Subject

Drainage Submittal Contents and Format

DR-302.1 OVERVIEW

The following sections discuss the items that will be included in the preliminary and final drainage submittals. Each submittal includes an electronic data component and a PDF component. The preliminary submittal PDF is brief while the final submittal PDF is more extensive. The intent is not to limit the data to only those items listed, but rather to establish a minimum requirement consistent with KYTC drainage design procedures. If circumstances are such that the drainage facility is sized by other than normal procedures or if the size of the facility is governed by factors other than hydrologic or hydraulic factors, a narrative summary detailing the design basis will be included in the Project Drainage Discussion. Additionally, the designer shall include in the documentation items not listed below but which are useful in understanding the analysis, design, findings, and final recommendations.

Drainage submittals include the digital record of the elements of drainage design for a project. They should be organized in a manner that will allow the various components to be found as readily as possible. As discussed in previous sections, final drainage submittals are legal records that provide information not only to design engineers, but also to other agencies, the private sector, etc. To facilitate the location of information by reviewers with a variety of needs, each drainage *submittal* shall be separated into digital subfolders (sections) and organized as shown in Table 302-1.

Table 302-1, Sequence of Drainage Submittal Components

Section	Description
N/A	Drainage Submittal Cover
Section 1	Project Based Digital Files
Section 2	Culverts and Bridges
Section 3	Storm Sewer Systems
Section 4	Spread Calculations
Section 5	Roadside Ditch Calculations
Section 6	Other Drainage Situations

DR-302.1 OVERVIEW (CONT.)

For consistency, each section shall be included in every drainage submittal. The subfolders for sections that are not applicable to a specific project shall be left empty and shall only consist of a sheet labeled as "Not Applicable." The purpose of this is to remove any doubt about whether a section was erroneously or intentionally omitted.

Each drainage submittal section and its subcomponents are described in detail below.

DR-302.2 DRAINAGE SUBMITTAL COVER

Each drainage submittal shall include a standard drainage submittal cover sheet. This sheet serves as a link that assists the Drainage Branch in archiving and tracking the Drainage Submittal. A template for this cover sheet is available for download on the Drainage Branch's website. See **Exhibit 300-1** for a sample drainage submittal cover and instructions for completing it.

DR-302.3 DRAINAGE SUBMITTAL FILE STRUCTURE REQUIREMENTS AND CONTENT

Please refer to the 'Drainage Submittal Summary' spreadsheet for required Drainage Submittal Contents, which is available on the KYTC Drainage Branch website at:

https://transportation.ky.gov/Highway-Design/Pages/Drainage-Folder.aspx

Preliminary and Final Drainage Submittals shall be provided under a base directory named as project# Preliminary Drainage Submittal (or Final Drainage Submittal) as shown below in Figure 302-1.

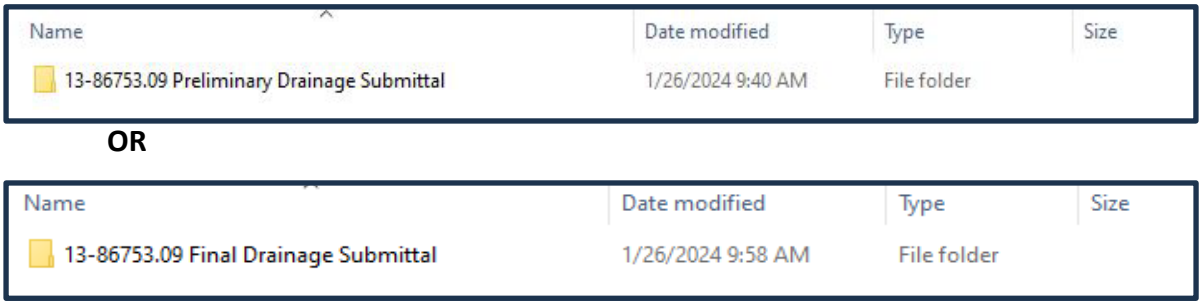

Figure 302-1 Base Directories for Drainage Submittals

DR-302.3 DRAINAGE SUBMITTAL FILE STRUCTURE REQUIREMENTS AND CONTENT (CONT.)

Within this folder, the following subfolder structure should be used:

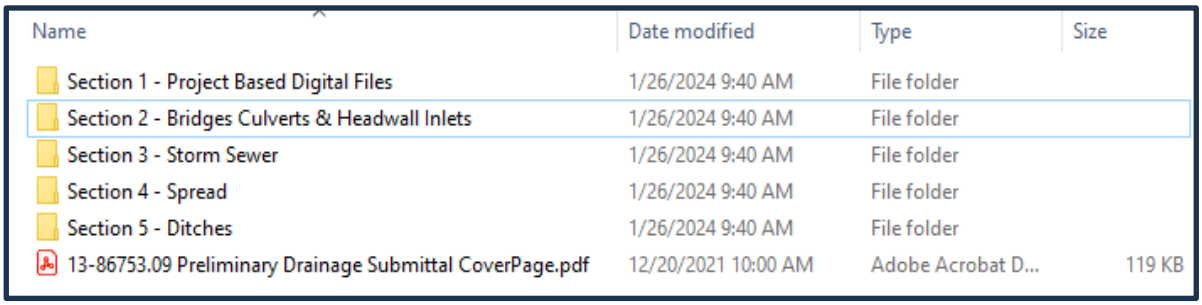

Figure 302-2 Subfolder Structure for Drainage Submittals

Note that the Cover Page for the Submittal is to be located here. The cover page for the Final Drainage Submittal should be labeled accordingly.

DR-302.3.1 SECTION 1 – PROJECT LEVEL SUMMARIES AND SUPPORT FILES

The following electronic file structure should be used for this section:

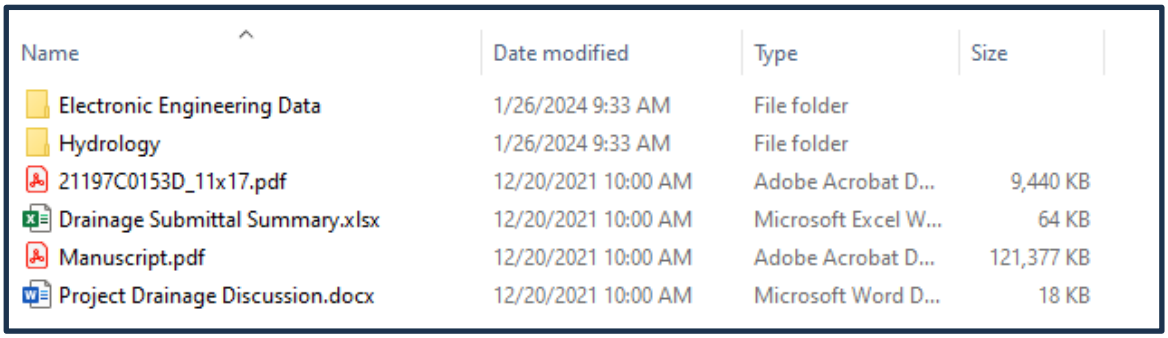

Figure 302-3 Section 1 Electronic File Structures

- The Drainage Submittal Summary spreadsheet can be found on the KYTC Drainage Branch website. It includes:
  - A Drainage Structures Summary table listing drainage structures and systems. (See Table 302-2.) The centerline station should be used to identify culverts. The station and offset (left or right) of the outlet structure should be used to identify storm sewer system.

DR-302.3.1 SECTION 1 – PROJECT LEVEL SUMMARIES AND SUPPORT FILES (CONT.)

Table 302-2 Drainage Structure Summary

DRAINAGE STRUCTURE SUMMARY					
Line	Station	Length	Analysis*	Q100 at Outfall (cfs)	
				Existing	Proposed
KY 213	86' Lt Sta.4+62	Storm Sewer System Outfall - Trunk Line 1		N/A	
Caudill Rd	102' Lt Sta. 1+62	Storm Sewer System Outfall - Trunk Line 2		30.6	31.9
KY 213	65' Rt Sta.11+90	Storm Sewer System Outfall - Trunk Line 3		See Trunk Line 2 outfall	
KY 213	80' Rt Sta.19+54	Storm Sewer System Outfall - Trunk Line 4		N/A	31.9
KY 213	90' Rt Sta. 26+50	Storm Sewer System Outfall - Trunk Line 5		N/A	6.2
KY 213	58' Rt Sta. 30+29	Storm Sewer System Outfall - Trunk Line 6		N/A	0.5
KY 213	26+50	59 ft of 11x4 RCBC		232	232
Homestead Dr.	0+73	60 ft of 15" Pipe		N/A	2.4
Homestead Dr.	8+73	3-Span Type II P.C.I.B. Bridge 38' - 50' - 38'		N/A	2.4

- A Drainage Software Summary table listing the drainage software utilized in the drainage design of the project (Table 302-3).

Table 302-3 Drainage Software Summary

DRAINAGE SOFTWARE SUMMARY				
Provider	Identification	Version	Used	Comment
FHWA	HY8	7.70.1.0	Y	Pipe Culvert Capacity
	Hydraulic Toolbox	5.1.1	Y	Roadway Ditch Design
	Hydraulic Toolbox	5.1.1		Rational Flows
U.S. Army	HECRAS	4.1.0		
Corps	HECRAS	6.1		
Engineers	HEC-HMS	4.8		
Bentley	InRoads Storm and Sanitary	8.11.07.615		Rational Flows & Storm Sewer Capacity
Bentley	Stormcad	10.03.03.44		Storm Sewer Capacity
Bentley	ORD Drainage	10.10.01.03		Rational Flows & Storm Sewer Capacity
KYTC	Spreadsheet	02.17	Y	Regional Flows
	Spreadsheet	17a	Y	Rational Flows
	Spreadsheet	12a-13		Inlet Spread Calculations
	Spreadsheet	01-16		Storm Sewer Capacity
Aquaveo	SMS / SRH-2D	13.0.3		
	WMS	11.0.1		
HydroCAD	HydroCAD	10.00-24		Storage Analysis

DR-302.3.1 SECTION 1 – PROJECT LEVEL SUMMARIES AND SUPPORT FILES (CONT.)

- The Manuscript.pdf file is only required for Final Drainage Submittals. Drainage information included on the manuscript should delineate all drainage areas, and should include the following information:
  - The Drainage Area - In acres for Rational Method or square miles for Regional Method.
  - Time of Concentration path, with overland, shallow concentrated and channel flow paths shown per KYTC CADD Standards.
  - Rational 'C' values or NRCS Curve Number values.
- The Project Drainage Discussion is a summary that shall be used to explain methodologies used or to justify project level decisions that affect the drainage design of the project. Documentation of the use of any drainage design methodologies that do NOT follow KYTC Drainage Design Guidance shall be detailed here.
- The Electronic Engineering Data subdirectory shall be organized as detailed in the KYTC CADD Standards Policy Manual in the section labeled 'Electronic Engineering Data Folder Structure and File Names'.
- The Hydrology subdirectory shall follow guidance provided in the Drainage Submittal Summary spreadsheet provided on the KYTC Drainage Design webpage located at:

  https://transportation.ky.gov/Highway-Design/Pages/Drainage-Folder.aspx

DR-302.3.2 SECTION 2 – ANALYSIS OF BRIDGES & CULVERTS

This section provides the detailed analysis results and summaries for each bridge and culvert on the project. Within this directory, a subdirectory named by centerline name and station (or location) should be provided for each structure.

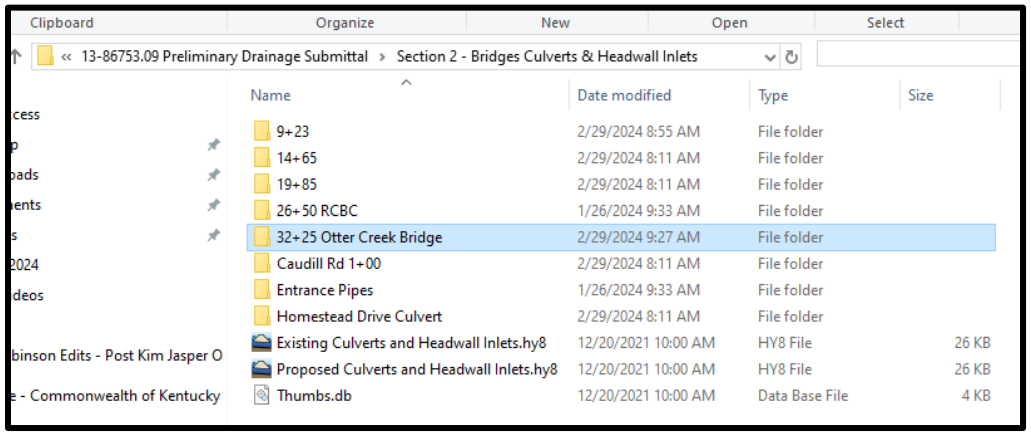

Figure 302-4 Section 2 Electronic File Structures

DR-302.3.2 SECTION 2 – ANALYSIS OF BRIDGES & CULVERTS (CONT.)

Each subfolder shall contain the following:

- Existing studies, including those done for past KYTC projects or FEMA studies that apply to the existing structure or near the proposed structure should be included in this folder.

- Structure Hydrology
  - For projects that use CADD based software (e.g. ORD Drainage, StormCad, HEC-HMS), hydrologic data will be submitted as a source file in the Section 1 folder.
  - For projects that do not have a CADD source file, the individual hydrologic source will be included in the subdirectory for the specific drainage structure. This includes KYTC spreadsheets used to calculate design flow derived from the rational method, USGS Regional Method, StreamStats, and others (Figure 302-5).

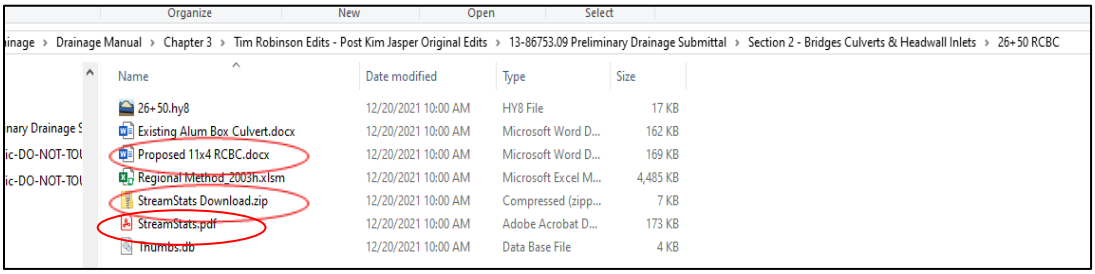

Figure 302-5 Subdirectory for Projects Without a CADD Source File

- Individual structures may also utilize alternative hydrologic analysis, such as HEC-HMS or WMS. The source data and summaries of those analyses shall be included in the subfolder for that structure.

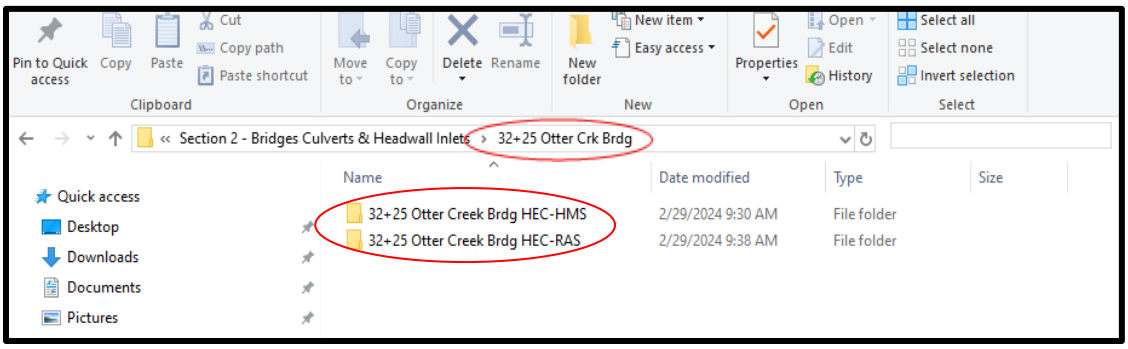

Figure 302-6 Subfolder for Alternative Hydrologic Analysis

DR-302.3.2 SECTION 2 – ANALYSIS OF BRIDGES & CULVERTS (CONT.)

- Hydraulic analysis of the structure shall be provided.

  - A single HY-8 file containing all proposed analyzed culverts shall be provided within the Section 2 directory, or an HY-8 file shall be included in each individual structure directory. Additionally, an HY-8 file shall be provided for the existing culverts that are analyzed to allow for a comparison of existing and proposed conditions.

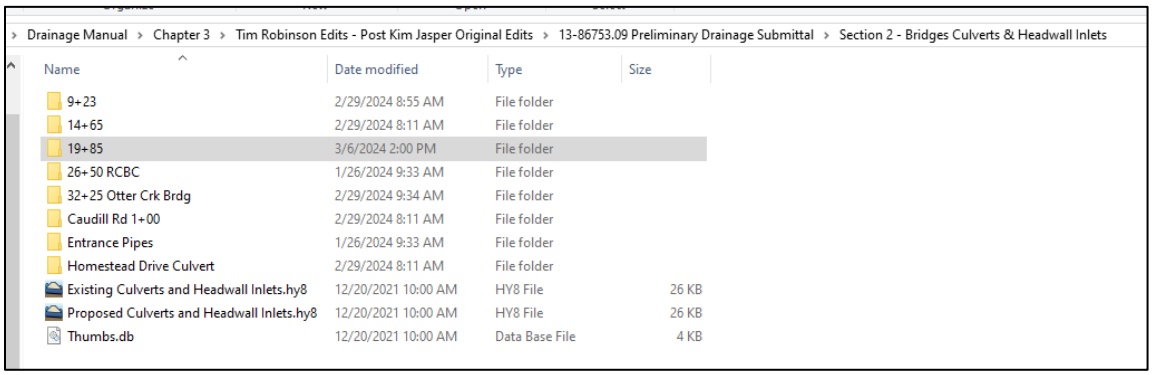

Figure 302-7 Required HY-8 File Locations

  - Individual structures should be labeled in a logical manner within the HY-8 files.

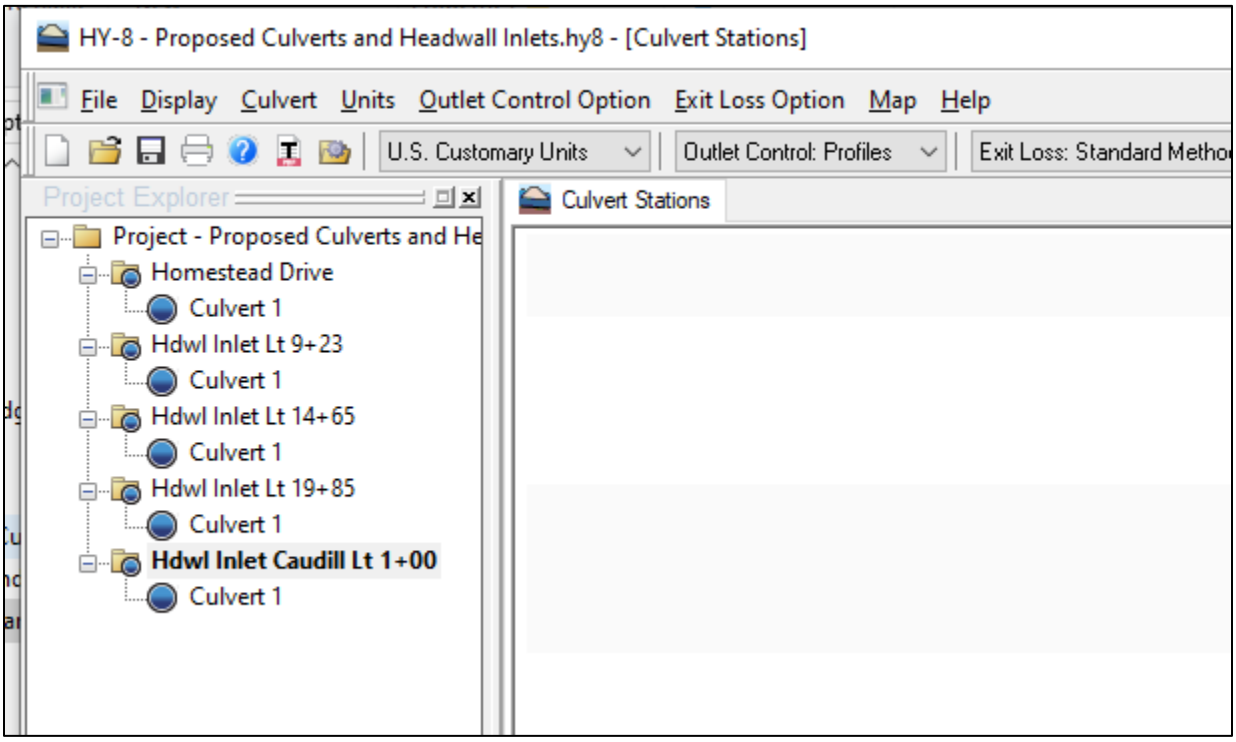

Figure 302-8 Example of Directory Structure Using A Single HY-8 File

DR-302.3.2 SECTION 2 – ANALYSIS OF BRIDGES & CULVERTS (CONT.)

- ♦ The HY-8 Culvert Summary Table for each structure may be placed directly in the subdirectory for that structure.
- ♦ The HY-8 Summary Table for the existing structure that is being replaced or modified, if one exists, should be included in this subfolder as well.

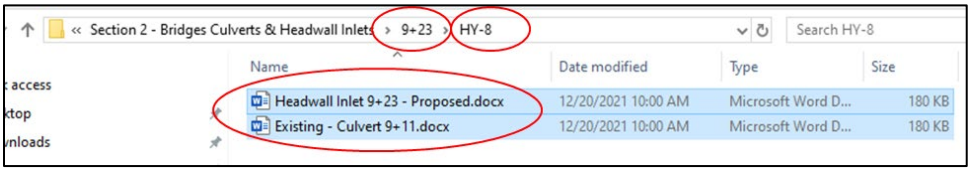

Figure 302-9 Folder Locations for HY-8 Culvert Summary Table

➢ For structures requiring analysis of potential FEMA floodplain/floodway impacts, source files and summaries used in modeling **existing and proposed** conditions shall be included in a subfolder filed in the structure subfolder. Analysis of the existing and proposed floodway shall also be included in this subfolder. Requirements for analysis of floodplain/floodway impacts are covered in **DR-204**, KYTC Floodplain Management Policy.

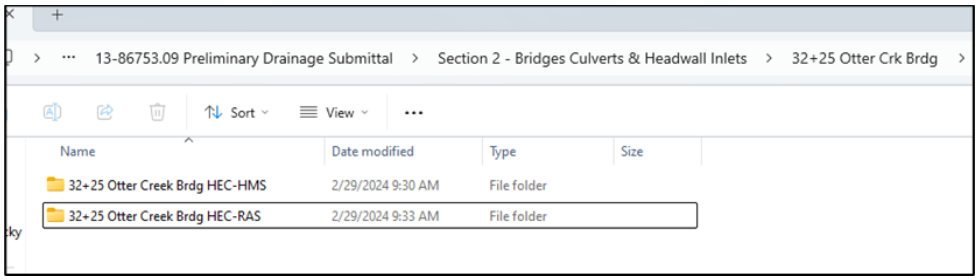

Figure 302-10 Folder Locations for FEMA Analyses

➢ The decision on what should be included in the folder should be governed by the reviewer's need for quick reference and review, as well as the requirements for floodplain/floodway analysis. The following output data should be included in the subfolder for each individual structure (as needed)

- ♦ **Runoff Computations** (same as for culvert computations shown above) – If the runoff calculations from a FEMA study are used, that should be explained in the Discussion section above.
- ♦ **Summary Tables** – One set for existing conditions and another for proposed conditions should be included:
  - The data included in HEC-RAS Standard Table 1 shall, at a minimum, be included in the results. Standard Table 2 may also be included, though generally losses used in the energy equations is not needed for review.

DR-302.3.2 SECTION 2 – ANALYSIS OF BRIDGES & CULVERTS (CONT.)

- Where Floodway computations are done, Encroachment Table 1 shall also be included. Encroachment Tables 2 and 3 may also be included.
- Where a structure is part of the computations, the appropriate Bridge or Culvert Summary Table shall be included.
- Where multiple openings are computed at a single roadway crossing (relief culverts, additional floodplain bridges, etc.), the Multiple Opening Table shall be included.
- When special or unusual circumstances occur, such as junctions or laterals, those tables may also be added. But keep in mind to include only what is necessary in the review process.
- User defined tables may also be included to provide additional output data where it may be pertinent to the design.

♦ **Risk Assessment Form** – This form is used to evaluate the impacts of proposed bridge projects. The Risk Assessment is described in more detail in DR 807. The risk form is shown in Exhibit 800-1.

♦ **Photographs** – Area photos are encouraged (and may sometimes be required) to show the existing conditions of the drainage structure, the stream/channel, the floodplain, or to show flood information. Only those photos that are deemed necessary for review should be included in the folder.

♦ **Environmental Commitments or Limitations** - During the detailed design phase, the designers must ensure that all environmental commitments from the permitting process are satisfied. If applicable, summarize all environmental commitments or limitations in this section.

DR-302.3.3 SECTION 3 – STORM SEWER ANALYSIS

This section provides the detailed analysis results and summaries for each storm sewer system on the project. For projects utilizing ORD Drainage, the source data shall be part of the Electronic Engineering Data in Section 1. For projects that utilize alternative storm sewer analysis software, (e.g. StormCAD) the files shall be included in this section.

When practical, KYTC recommends that the models and analysis for storm sewers be divided into separate systems, with the name of the system being the outlet station and offset of the outlet of each system.

DR-302.3.3 SECTION 3 – STORM SEWER ANALYSIS (CONT.)

Each storm sewer system folder shall include:

- 10-year analysis for flow depth to structure height - should be 25-year storm for structures downstream of a sag inlet.
- 100-year hydraulic gradeline (HGL) analysis for the storm sewer system nodes.
- 100-year HGL analysis for the system pipes.
- For systems with grated drop inlets (e.g. Dropbox Inlet Type 1), analysis of the head on the inlet.
- For systems with a headwall that acts as an inlet, an HY-8 analysis of the headwall for the headwater for the 10, 25 and 100-year events. The tailwater should be specified for the 3 events using the HGL of the node immediately downstream of the headwall. Each event should have a unique HGL/tailwater elevation specified in the HY-8 file.
- Photographs (when necessary).

Examples of these summaries is included in the Drainage Submittal Spreadsheet on the KYTC Drainage Design Webpage located at:

https://transportation.ky.gov/Highway-Design/Pages/Drainage-Folder.aspx

DR-302.3.4 SECTION 4 – PAVEMENT INLET SPREAD ANALYSIS

This section shall provide the results of all the inlet spread calculations in the project. Reports for spread calculations shall show the following data:

- Inlet identification information
- Physical inlet data such as type, local depression, and throat length
- Roadway data such as longitudinal slope, cross slope, gutter width, gutter depression, and pavement roughness
- Hydrologic data such as drainage area, runoff coefficient, rainfall intensity and design gutter flow

Examples of the data required is included in the Drainage Submittal Spreadsheet. KYTC also provides a spreadsheet that calculates pavement inlet spread located online at:

https://transportation.ky.gov/Highway-Design/Pages/Drainage-Resource-Materials.aspx

DR-302.3.5 SECTION 5 – CHANNEL ANALYSIS

All ditches on the project that require documentation shall be analyzed hydraulically. This includes roadway cut ditches, surface ditches, special ditches, interceptor ditches, inlet and outlet ditches, and small channel changes. The following analyses shall be performed and documented as part of the channel design process:

- Channel lining shear analyses (10-year storm event).
- Channel lining depth analysis (10-year storm event).
- Channel capacity (100-year storm event).

Examples of the data required is included in the Drainage Submittal Spreadsheet. KYTC also provides a spreadsheet that calculates the shear and depth analyses for channels. Both are found on the KYTC Drainage Design Webpage.

DR-302.3.5 SECTION 6 - OTHER DRAINAGE SITUATIONS

For some projects, special studies take the form of research, reports and analyses which distinctively deviate from the normal drainage design of a highway project. This includes risk analysis, detention/retention basin analysis, temporary drainage, modification of a Flood Insurance Study, finite element analysis, and other situations.

When necessary, these studies shall be included with the drainage structure that require them. For instance, analysis of a detention basin or temporary drainage structure for a culvert or bridge being designed as part of the project would go in Section 2 of a drainage submittal.

There are situations where a hydrologic or hydraulic study cannot fit into any of the previous categories. For instance, a proposed roadway that is located adjacent to a stream may encroach into floodplain/floodway limits that are defined by a FEMA detailed study. Instances of 'other drainage situations' may include:

- Detention/retention basin analysis.
- Modification of a Flood Insurance Study.
- 2D HEC-RAS, SRH-2D, SWMM modeling, or other finite element analysis.

Each individual 'drainage situation' shall be contained within its own subfolder in Section 6. The documentation, source models (both existing and proposed conditions), and presentation of results should follow the applicable chapter in this drainage manual:

- Basin Storage Computations – Drainage Manual Chapter 9 (**DR-900**)
- Temporary Drainage Structures – Chapter 11 (**DR-1100**)

TEAM KENTUCKY TRANSPORTATION CABINET

Drainage

Chapter	Subject
DRAINAGE SUBMITTALS	Advance Situation Survey

DR-303.1 OVERVIEW

The following sections discuss the items that will be included in the Advance Situation Survey. The intent is not to limit the data to only those items listed, but rather to establish a minimum requirement consistent with KYTC drainage and structure design procedures. If circumstances are such that the facility is sized or designed by other than normal procedures, a narrative summary detailing the design basis will be included in the records. Additionally, the designer will include in the documentation items not listed below but which are useful in understanding the analysis, design, findings, and final recommendations. The information presented in this Survey should include all data and detail as shown in the Structural Design Manual, Section **SD 202-2**.

The Advance Situation Survey is a document assembled and distributed to ensure the structure detailed in it meets all the design decisions previously made in the project development process (including the Drainage Inspection), and it is reviewed and approved by the Structure Section prior to final design. It is the "order form" from the project manager to the Division of Structural Design to begin the structure design. Advance Situation Surveys shall always be separate documents. Therefore, combined Preliminary Drainage/Advance Situation Surveys shall not be permitted. Additionally, each structure that requires an Advanced Situation Survey will be its own unique document.

Note: Contrary to Final Drainage Submittal, the Advance Situation Survey is not a legal document and is not archived.

The Advance Situation Survey should be assembled as described in Section **SD-202-2** of the KYTC Structural Design Guidance Manual.

An Advanced Drainage Survey cover sheet shall be included at the beginning of each folder. A template for this cover sheet is available for download on the Drainage Branch's website. See **Exhibit 300-2** for a sample Advance Drainage Survey Cover and instructions for completing it.

TEAM KENTUCKY TRANSPORTATION CABINET

Drainage

Chapter	DRAINAGE SUBMITTALS
Subject	Responsibilities

DR-304.1 OVERVIEW

The following guidelines shall be observed when submitting, reviewing, approving and archiving electronic drainage submittals.

DR-304.2 CONSULTANT RESPONSIBILITIES

All electronic drainage submittals shall be sent to the KYTC project manager. All data must be supplied in an electronic format that is compatible with the ProjectWise folder structure. Only one copy per drainage submittal type is required. A typical ProjectWise folder structure is shown below in Figure 304-1:

Figure 304-1 Standard ProjectWise Drainage Folder Structure

More details of submittal contents and format are found in **DR-302**.

DR-304.6 KYTC PROJECT MANAGER RESPONSIBILITIES

All data shall be placed by the KYTC project manager into the appropriate ProjectWise folder. The project manager shall notify the Drainage Branch Engineer responsible for that project by email when a drainage submittal or resubmittal has been placed into ProjectWise.

DR-304.7 DRAINAGE BRANCH RESPONSIBILITIES

Once notified by the KYTC Project Manager that the Drainage Submittal has been placed in ProjectWise, the Drainage Branch Engineer shall:

- Provide a review of the submittal for compliance of content.

- Provide recommendations to:
  - The drainage designer,
  - The KYTC location engineer
  - The KYTC project manager.
  - The KYTC Division of Structural Design (e.g. Advance Situation Submittal)

- In certain instances, comments will be provided to other interested parties such as the local FEMA floodplain coordinator.

When the review of a drainage submittal has been completed, the Central Office drainage reviewer shall:

- Affix an electronic review status stamp to the cover sheet. Typical responses include:
  - Received
  - Reviewed
  - Revised
  - Recommended

- Also include:
  - The name of the Central Office Drainage Reviewer
  - The completion date of the activity being documented by the stamp.

  An example of one of these stamps is provided below.

- Document the activity in the KYTC drainage log. This log is currently kept on ProjectWise in the following location:

  pw:\\KTC1VP-APPW001.kytc.ds.ky.gov:KYTC-Main\Documents\Central Office\Highway Design\DRAINAGE\Drainage Project Summaries\

DR-304.7 DRAINAGE BRANCH RESPONSIBILITIES (CONT.)

- Send an email confirmation to:
  - The KYTC project manager
  - The consultant Project Manager and Drainage Designer (if applicable)
  - The Central Office location engineer
  - The KYTC Division of Structural Design (primarily for Advance Situation Surveys)
  - If required, the Division of Environmental Analysis

Note: The final structure design cannot proceed until the Division of Structural Design is notified of the Drainage Branch's approval of the Advanced Situation Survey.

DR-304.8 DIVISION OF STRUCTURAL DESIGN RESPONSIBILITIES

The Division of Structural Design and the Division of Highway Design, Drainage Branch shall maintain close communication with each other and with the district to ensure coordinated and prompt review of each Advance Situation Folder submittal. Communication of modifications made during the review process shall follow the procedures detailed in **DR-105.8**, Advance Situation Survey. Upon approval of the Advanced Situation Survey, the Division of Structural Design shall send a notification of the folder's approval to the district project manager and to the design engineer responsible for the structure.

DR-304.9 ARCHIVAL CONSIDERATIONS

The Final Drainage Submittal will be stored by the Kentucky Transportation Cabinet (KYTC) and shall be considered the Legal Document of record to be retained permanently.

Open records requests for Drainage Submittals are made to the KYTC Office of Legal Services. Legal Services forwards the request to the Drainage Branch for the retrieval of the Drainage Folder which may be a hard copy or an electronic copy. The Cabinet may prescribe a processing fee for the copies provided in response to open records requests.

V02-19

DRAINAGE DESIGN DOCUMENTATION

■ PRELIMINARY
☐ FINAL

STATE PROJECT NO.: FD52 035 1240 002-003

FEDERAL PROJECT NO.: BRZ 0903(205)

COUNTY: FLEMING

ITEM NO.: 9-1092.0 EMARS NO.: 9201201D

ROAD NAME: McIntire Road

REVIEW STATUS
SUBMITTED BY: J.M. CRAWFORD & Assoc.

ROUTE NO.: CR1240

DESIGNED BY: J. VINSON

STATION TO STATION: 20+00 – 26+45

CO DRAINAGE:

■ BRIDGE
☐ DRY BRIDGE
☐ BOX CULVERT
☐ ARCH CULVERT
☐ PIPE CULVERT
☐ OTHER

☐ INLET SPACING
☐ STORM SEWER
☐ CHANNEL CHANGE
☐ CHANNEL LINING

KENTUCKY TRANSPORTATION CABINET
DIVISION OF HIGHWAY DESIGN

Exhibit 300-02

V05-08

DRAINAGE DESIGN DOCUMENTATION

STATE PROJECT NO.: FDXX XXX XXXX 001-002
FDXX XXX XXXX 002-003

■ ADVANCE

FEDERAL PROJECT NO.: XXXXXXXXXX

COUNTY: Fayette - Clark

ITEM NO.: X-XXXX.X

EMARS NO.: XXXXXXXD

ROAD NAME: Xxxxxxx Road

REVIEW STATUS

ROUTE NO.: KY XXXX

DISTRICT: X

STATION TO STATION: 10+92 – 13+31

CO DRAINAGE:

DESIGNED BY: XXXXXXX, Inc.

BRIDGES:

■ BRIDGE
☐ BOX CULVERT
☐ ARCH CULVERT
☐ PIPE CULVERT
☐ OTHER

☐ INLET SPACING
☐ STORM SEWER
☐ CHANNEL CHANGE
☐ DRY STRUCTURE
☐ CHANNEL CHANGE

KENTUCKY TRANSPORTATION CABINET
DIVISION OF HIGHWAY DESIGN