Guidance for the Preparation of Engineering Reports and Environmental Information Documents for Green Projects

North Carolina Department of Environment and Natural Resources

Division of Water Infrastructure

Revised: May 2015

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Introduction

In 2010, the Construction Grants and Loans Section (the Section) of the Division of Water Quality developed a new funding system that instituted a priority rating system. As a direct result, the Section drafted a new set of guidelines for the development of engineering reports and environmental information documents (ERs/EIDs). It underwent a major revision in 2012.

In 2013, legislative action created the Division of Water Infrastructure (the Division) and consolidated the Clean Water State Revolving Fund (CWSRF) and the Drinking Water State Revolving Fund into the Division. It also funded the State Wastewater Reserve program (SWWR) and State Drinking Water Reserve program and moved a portion of the Community Development Block Grant program into the Division for use in funding infrastructure projects (CDBG-I).

As a direct result, the Division has undertaken a further revision of the ER/EID guidance to accommodate not only the CWSRF programs but also high unit cost grants under the SWWR and wastewater projects under the CDBG-I program. Additional ER/EID guidance for the drinking water programs in the Division will be developed later in 2015 for use with projects funded in the September 2015 funding round and beyond.

Also, the Division solicited input from a group of engineering consultants who have frequently used this guidance as well as Division staff to determine where improvements needed to be made. This latest revision of the guidance is a result of that work. Major changes included the following:

- Streamlining the information required to meet the purposes of the ER/EID.
- Tweaks to calculations and methodologies in some project types.
- Restructuring of the ER/EID guidance outline.
- Consolidation of similar type (e.g., collection systems, WWTPs) into one guidance document for each type for ease of use and updating.
- Hyperlinking the guidance for easy electronic navigation.
- Minor revisions to the environmental document.
- Editorial corrections.

As a way of addressing preferences to have one consolidated document or individual sections within the ER/EID, the Division developed a hybrid approach. In this approach, the guidance has been divided into three main project types: wastewater treatment plants, collection systems, and green projects. While most of the sections will be the same across all three documents, variations will occur related to sections of the ER/EID where specific requirements apply to specific project types.

Part of the document consolidation included restructuring the document and utilizing different nomenclature to distinguish between the ER/EID guidance and the ER/EID itself. References to places within the ER/EID *guidance* will be termed “chapter” and “subchapter” while references to the ER/EID *report* itself will be called “section” and “subsection.”

Additionally, this ER/EID guidance is separated into two major parts.

Part A provides general information associated with the funding and ER/EID review processes, when different requirements apply, and basic information associated with ER/EID structure, tables, figures, appendices, and workbooks. References to chapters within Part A will read as "See Subchapter 1.1.1 in Part A." Please take the time to read this section.

Part B contains the meat of the ER/EID guidance and is structured in the same outline as the ER/EID would be prepared (e.g., Executive Summary, Current Situation, Future Situation, etc.). References to chapters within Part B will read as "See Subchapter 1.1.1 in Part B."

This guidance also contains multiple boxes of different colors throughout the text. The yellow boxes highlight information the Division deems important for you to remember. The blue boxes provide some basic definitions of terminology used throughout the guidance. The purple boxes provide written examples of how some portions of the ER/EID might look. The green boxes provide equations. Last, the gray boxes found in Part B indicate where a major ER/EID would differ from a minor ER/EID.

Additionally, the Division will prepare a go-by ER/EID that users can access to have as an example when completing an ER/EID. Once it is complete, this will be found in as a separate document on the Division's website.

Last, for ease of access, the upfront information contains an Abbreviated Table of Contents with hyperlinks to this Table of Contents found at different places throughout the guidance. The point of this Abbreviated Table of Contents is to provide easy access to general sections of the guidance document. Also, the upfront information contains a List of Updates. This list shows each subchapter within the guidance, when it was last updated, and the type of update (e.g., content added, content changes, editorial changes). The end of each subchapter also contains the month and year of the most recent update. Before beginning a project, check the List of Updates to ensure that what is used is the most current information.

Before beginning, please take a minute to review the Table of Contents to gain familiarity with the new guidance structure. For any questions, please contact Division staff. Their information is listed on the Division's website.

(Last updated: May 2015)

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Section		Date Updated	Reason
Part A – Funding Process Information			
1.0	General Information	May 2015	New content added
1.1	Programmatic Requirements	May 2015	New content added
1.1.1	Clean Water State Revolving Fund	May 2015	New content added
1.1.2	Drinking Water State Revolving Fund	May 2015	New content added
1.1.3	Community Development Glock Grant for Infrastructure	May 2015	New content added
1.1.4	High Unit Cost Grants and State Revolving Loans	May 2015	New content added
1.1.5	State Emergency Loans	May 2015	New content added
1.1.6	Funding Hierarchy	May 2015	New content added
1.2	Level of Detail and Final Environmental Documents	May 2015	New content added
1.3	Funding Process	May 2015	New content added
1.3.1	Overview	May 2015	New content added
1.3.2	Engineering Report/Environmental Information Document Review Process	May 2015	New content added
1.3.2.1	Engineering Report/Environmental Information Document preparation and Submittal	May 2015	New content added
1.3.2.2	Initial Review of the Engineering Report/Environmental Information Document	May 2015	New content added
1.3.2.3	Submittal of Revised Engineering Report/Environmental Information Document	May 2015	New content added
1.3.2.4	Iterative Process	May 2015	New content added
1.3.2.5	Preparation of Finding of No Significant Impact/Environmental Assessment	May 2015	New content added
1.3.2.6	Project Approval	May 2015	New content added
1.3.2.7	Engineering Reports under the Community Development Block Grant Program for Infrastructure	May 2015	New content added
1.4	Additional Guidance (USDA Co-Funded Projects Only)	May 2015	New content added
2.0	Engineering Report/Environmental Information Document Basic Requirements	May 2015	Editorial changes
2.1	ER/EID Structure	May 2015	None
2.1.1	Basic Outline	May 2015	Content changes
2.1.2	Multiple Project Types	May 2015	Content changes
2.2	Tables	May 2015	Content changes
2.3	Figures	May 2015	Content changes
2.4	Appendices	May 2015	Content changes
2.5	Workbooks	May 2015	Content changes
Part B ER/EID Requirements			

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1.0	Executive Summary	May 2015	Content changes
2.0	Current Situation	May 2015	Content changes
2.1	Reclaimed Water	May 2015	Updates coming
2.2	Stormwater Best Management	May 2015	New content added
2.2.1	Project Area Definition	May 2015	Editorial changes
2.2.2	Existing Land Use	May 2015	Editorial changes
2.2.3	Existing Watershed Condition	May 2015	Editorial changes
2.2.4	Existing Watershed Characterization	May 2015	Editorial changes
2.3	Stream/Buffer/Wetland Restoration	May 2015	New content added
2.3.1	Project Location	May 2015	Editorial changes
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2.3.3	Stream Characteristics (if applicable)	May 2015	Editorial changes
2.3.4	Stream Classification (if applicable)	May 2015	Editorial changes
2.3.5	Wetland Characteristics (if applicable)	May 2015	Editorial changes
2.3.6	Riparian Buffer Characteristics (if applicable)	May 2015	Editorial Changes
3.0	Future Situation	May 2015	New content added
3.1	Reclaimed Water	May 2015	Updates coming
3.2	Stormwater Best Management Practices	May 2015	Editorial changes
3.2.1	Land Use and Zoning Changes	May 2015	Editorial changes
3.2.2	Future Development Impacts	May 2015	Editorial changes
3.2.3	Future Impervious Surface Area Changes	May 2015	Editorial changes
3.3	Stream, Buffer, and Wetland Restoration	May 2015	New content added
3.3.1	Land Use Changes of Project Area	May 2015	Editorial changes
3.3.2	Floodplain Changes	May 2015	Editorial changes
4.0	Need and Purpose	May 2015	Editorial changes
5.0	Alternatives Analysis	May 2015	Editorial changes
5.1	Alternatives Description	May 2015	New content added
5.1.1	No-Action Alternative	May 2015	New content added
5.1.2	Preferred Alternative	May 2015	New content added
5.1.3	Water Resources Reform and Development Act of 2014 Requirements	May 2015	New content added
5.1.3.1	Water Use, Reuse, Recapture, and Conservation	May 2015	New content added
5.1.3.2	Energy Conservation	May 2015	New content added
5.1.4	Project-Type-Specific Alternatives Description	May 2015	New content added
5.1.4.1	Reclaimed Water Systems	May 2015	Updates coming
5.1.4.2	Stormwater Best Management Practices	May 2015	New content added
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5.1.4.2.2	Preferred Alternative	May 2015	Editorial changes
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5.1.4.3.2	Preferred Alternative	May 2015	Editorial changes

Section		Date Updated	Reason
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5.2.2	Determination of Replacement Costs	May 2015	Content changes
5.2.3	Determination of Operations and Maintenance Costs	May 2015	Content changes
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Appendix A Minor Construction Activities

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Part A
Funding Process Information

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1.0 General Information

As part of its funding process, the Division of Water Infrastructure (the Division) requires that projects awarded funding as part of its programs submit an engineering report/environmental information document (ER/EID). The ER/EID is a document that serves three purposes:

- It fulfills programmatic requirements
- It enables a conceptual, planning review of the project for technical soundness
- It provides the documentation that serves as the basis for any for any environmental clearances.

Final environmental document – The legal document that is prepared in accordance with the State Environmental Policy Act or National Environmental Policy Act (CDBG-I program only).

The Division – The Division of Water Infrastructure

ER/EID – Engineering Report /Environmental Information Document

This section provides an overview of the different ER/EID requirements for each program, how to determine the type of final environmental document and ER/EID needed, and an overview of both the funding process and the ER/EID process.

Please read through this section carefully, as it provides information that will enable you to prepare an ER/EID appropriate for the funding related to your project.

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(Last updated: May 2015)

1.1 Programmatic Requirements

Currently, the Division offers funding through the following programs:

- Clean Water State Revolving Fund (CWSRF)
- Drinking Water State Revolving Fund (DWSRF)
- High Unit Cost (HUC) grants related to the State Wastewater Reserve (SWWR) and State Drinking Water Reserve (SDWR)[1]
- Community Development Block Grant for Infrastructure (CDBG-I)
- State Revolving Loan for wastewater (WW-SRL)
- State Emergency Loan for wastewater (WW-SEL)[2]

While the overall funding process generally works in the same manner, some differences may apply to what is

CWSRF – Clean Water State Revolving Fund

DWSRF – Drinking Water State Revolving Fund

HUC – High Unit Cost

SWWR – State Wastewater Reserve

SDWR – State Drinking Water Reserve

CDBG-I – Community Development Block Grants for Infrastructure

WW-SRL – Wastewater State Revolving Loan

WW-SEL – Wastewater State Emergency Loan

[1] Currently, the Division offers technical assistance grants (TAGs) for both wastewater and drinking water. However, this guidance does not apply unless an ER/EID for future funding under one of the programs is the deliverable.

[2] Please note that presently, no funds are available for the Drinking Water State Revolving Loan (DW-SRL) and Drinking Water State Emergency Loan (DW-SEL). The Division hopes to offer funding through these programs in the future.

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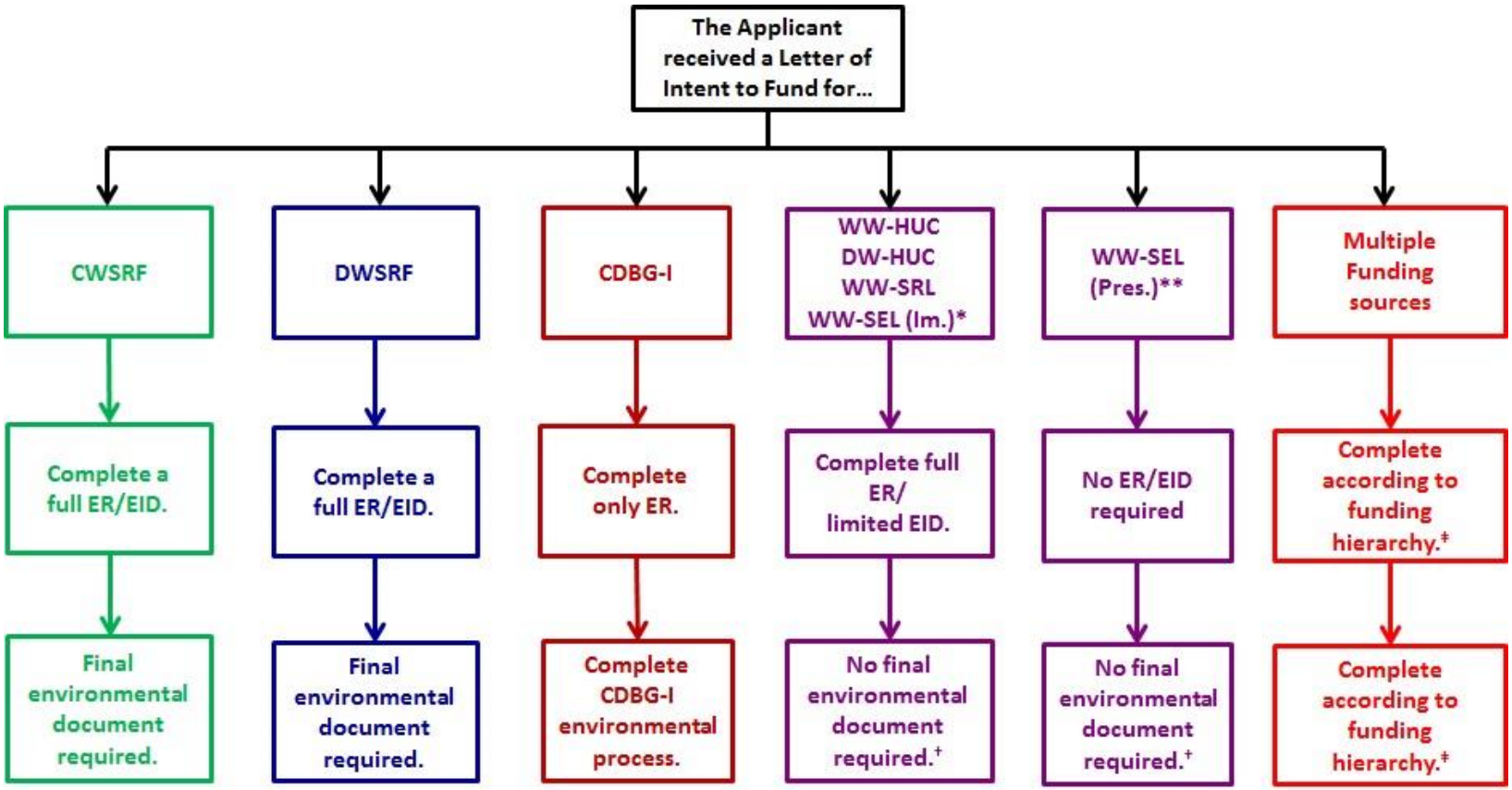

†No final environmental document will be required for projects that are under the minor construction activities requirements as discussed in Section 1.2.2 of this guidance.
‡Please see Section 1.1.6 for a discussion of the funding hierarchy.
*WW-SEL funding for emergencies that are imminent.
**WW-SEL funding for emergencies that are present.
(Last updated: May 2015)

Figure A.1.1. Flowchart of Type of ER/EID to Complete

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required for the ER/EID. Figure A.1.1 shows a flow diagram of how to determine the programmatic requirements related to the ER/EID. The following sections discuss the programmatic requirements for each funding type.

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(Last updated: May 2015)

1.1.1 Clean Water State Revolving Fund

The CWSRF is the most mature of the funding programs offered by the Division and functions under an operating agreement negotiated between the Division and the U.S. Environmental Protection Agency (EPA). As part of the operating agreement, the Division provides a general outline for ERs/EIDs, which is discussed in Subchapter 2.1.1 of this part. The ER/EID for a CWSRF project should contain all parts of the outline discussed, including all parts of the EID portion.

In terms of final environmental document, the CWSRF requires either a categorical exclusion (CE) or a Finding of No Significant Impact (FONSI). The minor construction activities requirements determine whether a project will require a CE or FONSI. Appendix A contains a copy of these criteria, or they may be accessed access them at 15A NCAC 01C .0408. Please note that it is the Applicant's responsibility to determine the type of final environmental document the project will require. For questions, please contact the Division's Environmental Review Coordinator

In extremely rare cases, a project might require an environmental impact statement (EIS) to be prepared for a final environmental document of a Record of Decision (ROD). If at any point an Applicant thinks that the project needs an EIS/ROD, please contact the Division's Environmental Review Coordinator as soon as possible, as such a project cannot submit a funding application until a draft EIS has been sent to the State Clearinghouse (SCH).

It is the Applicant's responsibility to determine the type of final environmental document your project will require. For questions regarding the final environmental document, please contact the Environmental Review Coordinator

Categorical Exclusion (CE) – The final environmental document for projects that do not exceed the state minor construction activities criteria or the HUD minor criteria (CDBG-I) only.

Finding of No Significant Impact (FONSI) – The final environmental document for projects that exceed the state minor construction activities requirements or the HUD minor criteria (CDBG-I) only.

Record of Decision (ROD) – The final environmental document prepared based upon the environmental impact statement. This is required in very rare circumstances.

Environmental Review Coordinator – Division staff that manages the environmental review process.

EPA – U.S. Environmental Protection Agency

EIS – Environmental Impact Statement

SCH – North Carolina State Clearinghouse

Applicant – The legal entity seeking funding from the Division.

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(Last updated: May 2015)

1.1.2 Drinking Water State Revolving Fund

The DWSRF program is a sister program to the CWSRF and operates under the same operating agreement with the EPA. Therefore, the ER/EID requirements are the same as for the CWSRF. Please see Subchapter 1.1.1 of this part for more details on the requirements related to the ER/EID.

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(Last updated: May 2015)

1.1.3 Community Development Block Grant for Infrastructure

Projects funded through the CDBG-I program follow a completely different environmental review procedure.

The CDBG-I program is a newcomer to the Division and operates under the auspices of the U.S. Department of Housing and Urban Development (HUD). Therefore, the programmatic requirements are different. For the CDBG-I program, the technical and environmental review occur under two different procedures. The ER process will occur as discussed under Subchapter 1.3.2 of this part of the guidance.

The environmental documentation process will follow a different set of environmental guidelines. This is because the environmental portion of the CDBG-I program is administered under the National Environmental Policy Act (NEPA) rather than the State Environmental Policy Act (SEPA), which is utilized for all of the Division's other funding programs.[3] In short, the Responsible Entity is responsible for completing all required documentation for the EID and for preparing the final environmental document according to the HUD criteria.

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1.1.4 High Unit Cost Grants and State Revolving Loans

Limited EID – An EID where only certain tables are required.

Projects that receive HUC grants and SRLs receive funds that fall under the purview of state rules and regulations. As a result, the requirements for an ER/EID are slightly different. For the ER portion, a full ER is required to ensure the technical soundness of the project. For the EID, only a limited set of tables are required. These tables relate to floodplains, threatened and endangered species for terrestrial and aquatic species, cultural resources, and wetlands and streams. Each of these resource categories relate to areas where permitting issues with federal agencies could arise. Submitting these tables for review by the Division's Environmental Review Coordinator ensures that the Applicant and the Division address any concerns related to these categories to keep the project moving on schedule.

For state-funded projects, no final environmental document is required so long as the project remains below the minor construction activities threshold listed in 15A NCAC 01C .0408. If the

[3] For more information on the CDBG-I environmental clearance, please see the link on the Division's website.

project exceeds these criteria, then a FONSI will be required. Utilize the procedures in Subchapter 1.2 of this part to determine the type of document the project will require.

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1.1.5 State Emergency Loans

For the wastewater programs, situations may arise where an Applicant may need to consider a WW-SEL. State emergency loans are loans that are made to address emergency situations an Applicant may face. Due to the emergency nature, such loans will be funded outside of the State Water Infrastructure Authority (the Authority) process.

An Applicant may apply at any time during the year for a WW-SEL and must contact the Division as soon as they recognize a project to address an emergency.

Because such loans will be made outside the process, the criteria for emergency loans are very strict and related only to public health threats that are either present or imminent. If an Applicant thinks that their project is either present or imminent, then they should contact the Division for further direction.

Emergencies that are imminent will go through the ER/EID process as described in Subchapter 1.3.2 of this part. Emergencies that are deemed as present require that the Applicant work closely with the Division to complete the funding process.

For projects where an emergency is present, there will be no environmental review. For projects where emergencies are considered imminent, the final environmental document will follow the same requirements as Subchapter 1.1.4 in this part as discussed above.

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(Last updated: May 2015)

1.1.6 Funding Hierarchy

Occasions may arise where an Applicant may utilize two funding sources from within the Division. For example, an Applicant may co-fund a project with a CDBG-I grant and a CWSRF loan or with a CWSRF and SRL. If this occurs, then adhere to the documentation requirements related to the stricter federal program. For former example, with the previous project, follow the documentation requirements for the CDBG-I program as discussed in Subchapter 1.1.3 of this part and prepare only the ER in accordance with this guidance because the environmental portion would follow the separate requirements for the CDBG-I program. For the latter example, follow the documentation requirements as discussed in Subchapter 1.1.1 of this part and prepare both a full ER and a full EID in accordance with Part B of this guidance.

For projects co-funded among two programs within the Division, adhere to the documentation requirements related to the stricter federal program.

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(Last updated: May 2015)

1.2 Level of Detail and Final Environmental Documents

Before beginning the process of drafting the ER/EID, first determine the type of environmental document that will be issued at the end of the process. The final environmental document required also dictates the level of detail for the ER/EID. Figure A.1.2 below shows the basic decision-making process to use when determining the type of final environmental document. Please note, as previously mentioned, that it is the Applicant's responsibility to determine the type of final environmental document. For questions regarding the determination, please contact the Division's Environmental Review Coordinator.

For projects funded through a WW-HUC grant, WW-SEL, or WW-SRL, the "Prepare CE" in Figure 1.2 would be no final environmental document required.

Projects funded through the CDBG-I program will always require a minor ER.

Note: For projects that are funded only through the CDBG-I program or are jointly funded with the CDBG-I program, the minor ER format will always be used. Additionally, CDBG-I environmental documentation preparation falls under a *completely different process*.

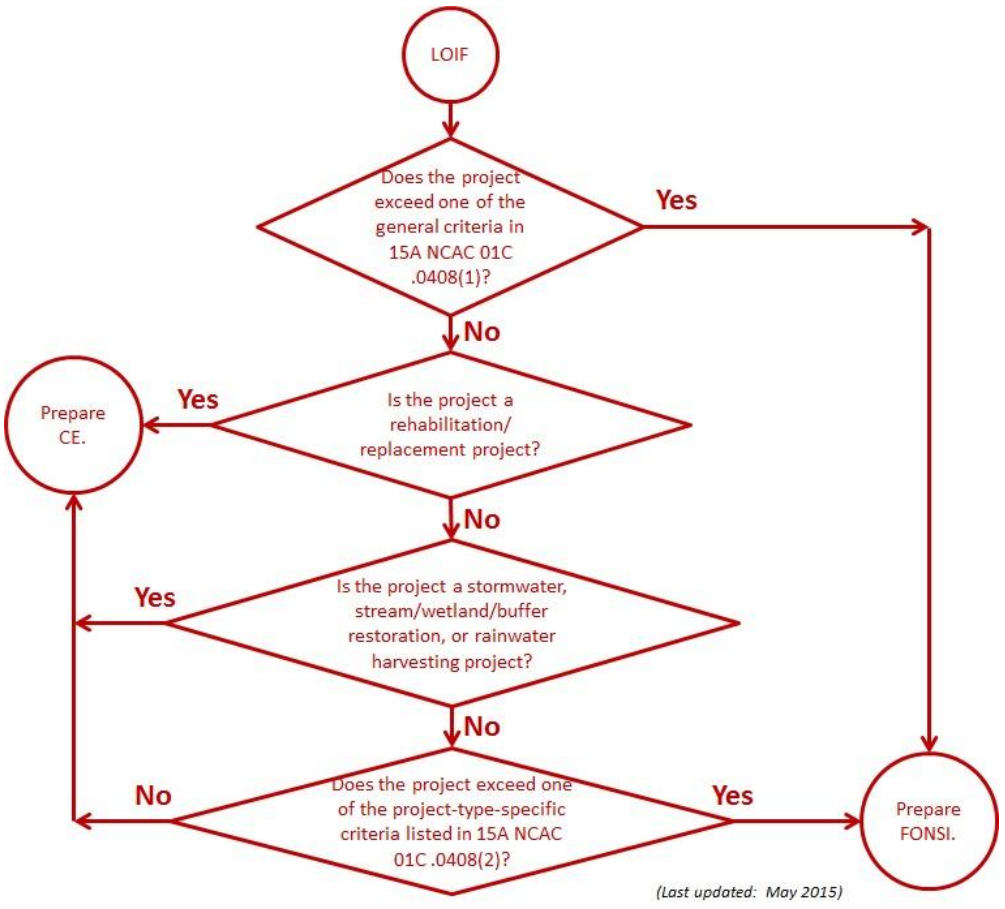

Figure A.1.2. Process Diagram for Determination of Final Environmental Document

If the project will require a CE, then use the minor ER/EID format. This format is mainly tabular in nature. It also contains workbooks prepared by the Division that may be used for some calculations. If preparing an ER/EID under this format, the workbooks and methodologies provided within this guidance must be used. Workbooks are available on the Division's website. Exceptions may be made only as noted within the guidance.

Project Manager – The Division's engineer responsible for managing the funding process from receipt of the ER/EID through construction. The Project Manager is the primary point of contact for questions.

If a project requires a FONSI or EIS, then it will require a major ER/EID. Prepare the ER/EID in the more narrative format of a report. Tables may be used to provide information succinctly. Additionally, the workbooks provided on the website may be used. Alternative methodologies for all calculations may be used. However, if using alternative methodologies, discuss the methodology used for the calculations and provide a sample so that the Project Manager assigned to the project can replicate the work.

For a minor ER/EID, the tables and workbooks provided by the Division must be used.

For a major ER/EID, alternative methodologies may be used.

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(Last updated: May 2015)

1.3 Funding Process

Since 2010, the Division has initiated a schedule to ensure that Applicants utilize program funds in an expeditious manner. The following subchapters discuss the funding process in general and then the ER/EID review process in specific.

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(Last updated: May 2015)

1.3.1 Overview

For all programs except the CDBG-I program, the funding process is a 24-month process that begins when the State Water Infrastructure Authority (the Authority) awards funding to an Applicant (see Figure A.1.3). The Division then sends a Letter of Intent to Fund to the Applicant. This letter contains a series of instructions as well as a list of milestones that need to be met. These milestones must be met by both the Applicant and the Division, or funding may be pulled and shifted into the following funding round. The ER/EID process occurs at the beginning of the funding process. The overall timeline of the funding process follows the SRF program timelines as set forth in the Intended Use Plan. The Division's website has the latest Intended Use Plan available for viewing.

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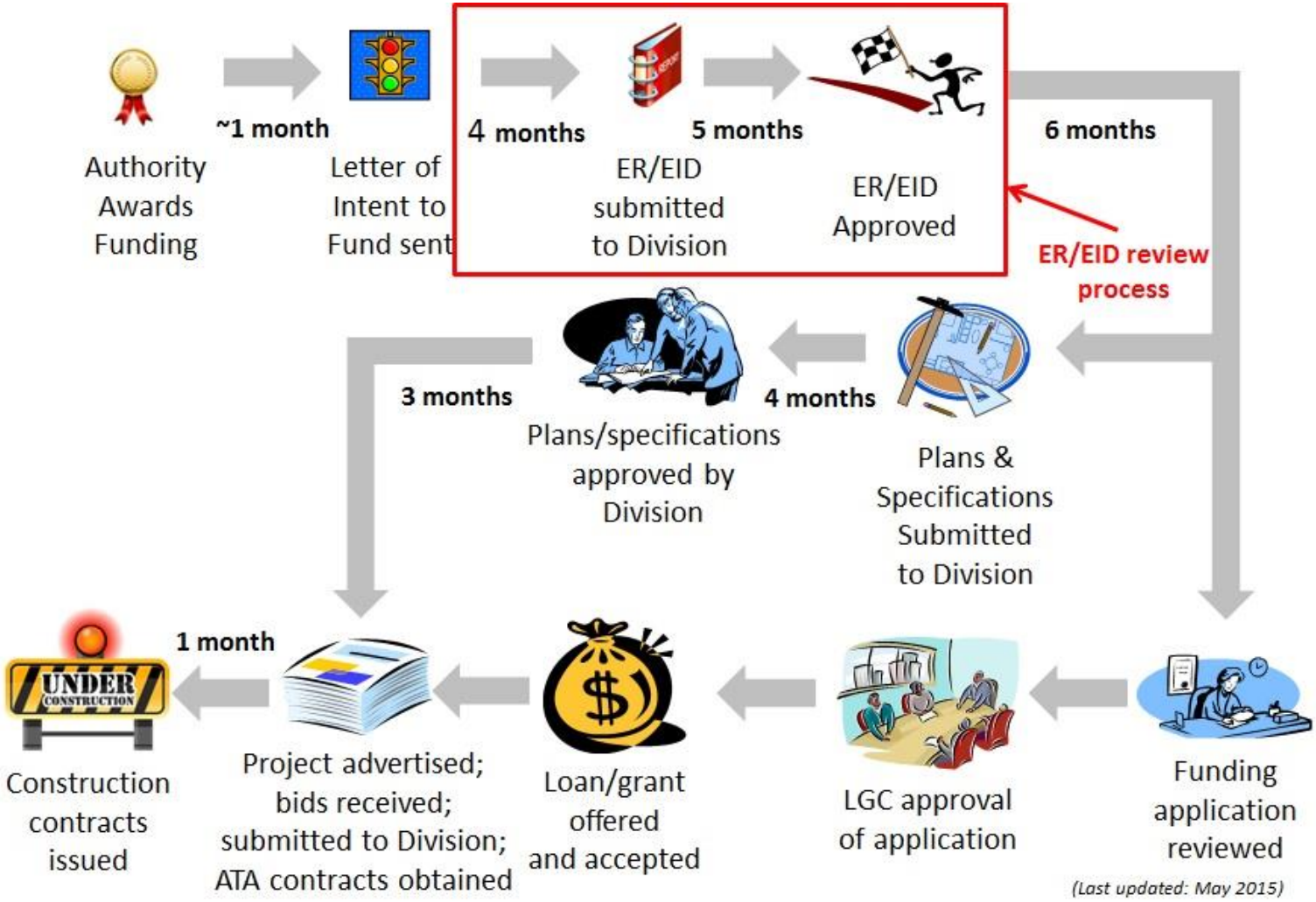

Figure A.1.3. Funding Process Overview

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For the CDBG-I program, the overall funding process is somewhat similar. The differences vary in the timelines. Additionally, the environmental documentation process occurs under a completely separate process that is discussed in detail during mandatory training as well as in specific guidance available on the Division's website.

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(Last updated: May 2015)

1.3.2 Engineering Report/Environmental Information Document Review Process

As discussed in Subchapter 1.3.1 of this part, the review of the ER/EID occurs early in the planning process. It is a nine-month process that requires that milestones be met both by the Applicant and Division staff.

The Applicant is responsible for ensuring that the initial submittal deadline is met by preparing an ER/EID that adheres to the requirements in Chapter 2 in Part A and the appropriate subchapters in Part B. Additionally, when Division staff send comments, the Applicant will be responsible for revising and resubmitting the ER/EID in a timely manner. Last, the Applicant will be responsible for responding to any additional comments so that the Division may approve the ER/EID by the date listed in the milestone letter.

Division staff must review the ER/EID in a timely manner and provide a thorough, clear set of comments. The Division is also responsible for working with the Applicant to resolve all technical and environmental issues. Additionally, if a FONSI is needed, the Division's Environmental Review Coordinator will coordinate as needed with any agencies that may have comments. The Environmental Review Coordinator will also prepare any required final environmental documentation.[4] Last, Division staff is responsible for drafting and transmitting the ER/EID approval letter so that the project may move into the bid and design phase of the funding process.

Figure A.1.4 shows an overview of ER/EID review process. The following sections discuss each step of the funding process in greater detail.

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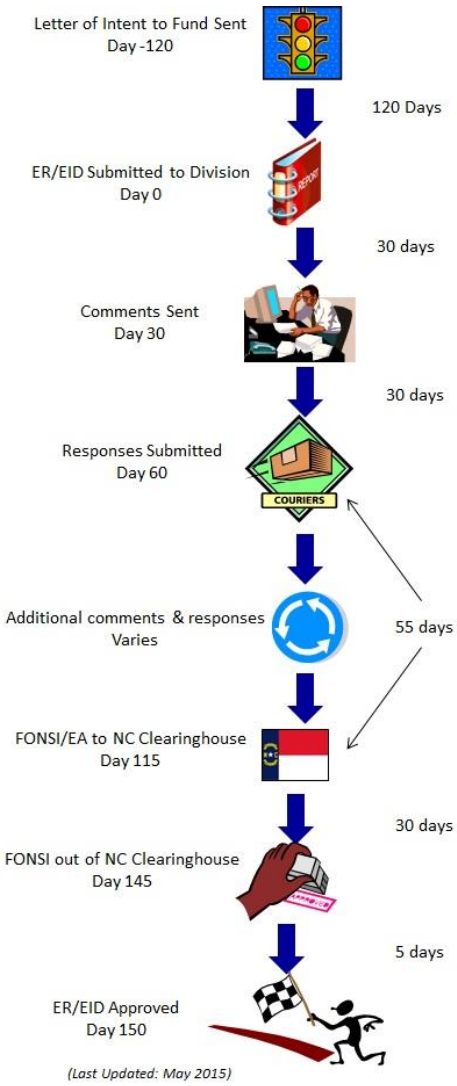

Figure A.1.4. Overview of ER/EID Review Timeline

[4] Note that for the CDBG-I program, *all* environmental reviews, including preparation of the final environmental document, are completed by the Responsible Entity. Instead, the Division has oversight responsibilities.

(Last updated: May 2015)

1.3.2.1 Engineering Report/Environmental Information Document Preparation and Submittal

Before beginning to prepare the ER/EID, the Applicant must determine what must be in the ER/EID in terms of tables as well as the level of detail required. Utilize the information found in Subchapter 1.1 of this part as well as Figure A.1.1.

When preparing the ER/EID, follow the outline shown in Subchapter 2.1.1 in of this part using the appropriate format (minor vs. major).

Once the Applicant has completed preparing the ER/EID, complete the Submittal Checklist found in Appendix B. A PDF and Word copy for use is also available on the Division's website. The Submittal Checklist provides information to the Division regarding information that the Division tracks for reporting purposes to the EPA and the North Carolina General Assembly (NCGA). It also provides contact information and a way for the Applicant to ensure that all portions of the ER/EID have been completed. If the Applicant fails to submit the Checklist for Initial Submittal, the Project Manager will contact the appropriate person and ask for a copy. The Division will not begin the review until the Project Manager receives this checklist.

Submit the ER/EID to the Division by the submittal deadline listed in the Letter of Intent to Fund (LOIF). The number of copies depends on the final environmental document as shown in Table A.1.1 below. In terms of meeting milestones, the initial ER/EID may be submitted ahead of

Table A.1.1. Number of Documents to Submit to the Division for Initial Submittal[1]

Funding Program	Final Environmental Document[2]	
	CE	**FONSI**
CWSRF	2 copies	19 copies
DWSRF	2 copies	19 copies
CDBG-I	2 copies	2 copies
HUC	2 copies	19 copies
SRL	2 copies	19 copies
SEL	2 copies	19 copies
Hybrid Funding	2 copies[3]	19 copies

[1]The Division has the discretion to ask for more copies if needed.

[2]For an EIS/ROD, please contact the Environmental Review Coordinator for the appropriate number of the ER/EIS to submit.

[3]For hybrid funding involving the CDBG-I program, only the ER will be submitted.

schedule. Doing this will further accelerate the funding process.

Note: The ER/EID must have a Professional Engineer's seal, date, and signature on the cover of the document. Otherwise, the Division will not begin review of the ER/EID.

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(Last updated: May 2015)

1.3.2.2 Initial Review of the Engineering Report/Environmental Information Document

Once the Division receives the ER/EID, the Project Manager and Environmental Review Coordinator will review it for adherence to the guidance found in Part B. They will generate a set of review comments. Additionally, if a FONSI is required, the Environmental Review Coordinator will send copies to SEPA Coordinator for the North Carolina Department of Environment and Natural Resources (DENR), the appropriate U.S. Army Corps of Engineers (USACE) field office, the appropriate U.S. Fish and Wildlife Service (FWS) field office, and the Department of Cultural Resources, the North Carolina Emergency Management Agency (NCEMA).

Comment package – Documentation sent by the Division to the Applicant that contains technical, environmental, and agency comments as well as a cover letter.

DENR – North Carolina Department of Environment and Natural Resources

USACE – U.S. Army Corps of Engineers

FWS – U.S. Fish and Wildlife Service

NCEMA – North Carolina Emergency Management Agency

These comments will be combined into a package that consists of

- Technical comments
- Environmental comments
- Agency comments (for projects requiring a FONSI or ROD)
- A comment cover letter

The comment cover letter will list the date by which the Applicant's responses to comments and a revised ER/EID are due back to the Division as well as the number of copies the Applicant needs to submit.

Please note that during this period, the Applicant and its consultant most likely will not be contacted by Division staff. This is because during this 30-day review period, Project Managers and the Environmental Review Coordinator are reviewing several ERs/EIDs simultaneously, potentially from different programs. The project manager will send all comments by the end of the 30-day window.

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1.3.2.3 Submittal of the Revised Engineering Report/Environmental Information Document

Once the Project Manager has sent the Applicant and its consultant the comment package containing the initial comments, The Applicant will need to prepare a revised ER/EID that

reflects the responses to those comments. The resubmittal package must contain the following items:

- Revised ERs/EIDs
- Response-to-Comment Document

Resubmittal package – The documentation sent by the Applicant to the Division that consists of the Checklist for Revised Reports, revised ERs/EIDs, and a response-to-comment document.

Response-to-Comment document – The document that details how the Applicant addresses each comment generated by the Division.

The revised ER/EID should incorporate all changes made in the ER/EID. How changes are shown is up to the Applicant and may be in the form of Track Changes, different color text, or other methods. Unless otherwise denoted by the comment package transmittal letter, submit two complete copies.

Do not send a partial submittal where only the pages that have changed are included. Partial submittals raise the risk of incomplete reports due to pagination and formatting issues. Additionally, Division staff will not be responsible for incorporating the changed pages into the ER/EID. If such a submittal is received, the Project Manager will contact the Applicant and ask for submittal of the entire ER/EID.

When preparing the ER/EID for resubmittal, all appendices save for those that change may be placed on a CD or DVD.

Unless otherwise denoted in the comment package, submit two *complete* copies of the revised ER/EID.

Another critical document for the resubmittal package is the response-to-comment document. Prepare this document so that each comment has a response. Responses should be detailed and references changes made to the ER/EID (e.g., "Changes have been made to Section 5.1 to reflect this response." This will enable Division staff review the revised ER/EID in an efficient manner.

For projects requiring a FONSI, the response-to-comment document and changes to the ER/EID should also reflect any comments from the environmental agencies. For any questions about how to respond to these comments, please contact the agency directly and update the Division's Environmental Review Coordinator, as they will be able to help the Applicant work with the appropriate agency(ies).

Send the resubmittal package to the Division within 30 days. The typical number of copies required is two copies. However, if the project is a FONSI, additional agencies may require revised copies. If that is the case, then the comment package transmittal letter will note the number of copies required.

For questions related to the number of copies required, please contact the Project Manager.

Sometimes, issues may arise that prevent meeting this deadline. Such issues may include personal matters, the need for more fieldwork, or the collection of more data. If this occurs, contact the Project Manager as soon as the need for the delay arises. While such a delay may not jeopardize funding, it does increase the potential not to meet the milestone of ER/EID approval. This may become an issue if a FONSI is required as the final environmental document.

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(Last updated: May 2015)

1.3.2.4 Iterative Process

Once the Project Manager receives the revised ER/EID and response-to-comment document, they will review it and may issue either minor comments or major comments. Additionally, for projects requiring a FONSI, copies of the ER/EID will be distributed to any agencies that had comments.

Minor comments consist of small items like adjusting a figure or changing a number. These comments may be dealt with via phone and/or e-mail. To respond to these minor comments, submit electronic copies of the page(s) that change. With the exception of the EID, those pages must have the PE seal, signature, and date. Most comments during this portion of the review process will be minor.

Sometimes, major comments may arise. These usually occur for the following reasons:

Minor comments – Comments by the Division during the iterative portion of the review process that may be dealt with by the submittal of individual pages in PDF format via e-mail.

Major comments – Comments made by the Division during the iterative process that require a full resubmittal of the ER/EID.

Formal comment package – The set of any technical, environmental, and/or agency comments that requires a full resubmittal of the ER/EID and a comment/response document.

Minor comments do not require a full resubmittal of comments while major comments do.

- The responses generate more questions that will impact the approval of the project.
- The response-to-comment document did not provide enough detail.
- The response-to-comment document did not address all comments.
- Agency comments were not appropriately addressed (FONSIs only).

If this occurs, the Project Manager and Environmental Review Coordinator will draft additional sets of comments, and any review agencies will send additional correspondence. These will be compiled in a formal comment package and sent to the Applicant and its consultant. To respond, submit a formal resubmittal package as described in Subchapter 1.3.2.3 of this part.

If the project requires a CE as a final environmental document, then will skip to Subchapter 1.3.2.6 of this part. If the project requires a FONSI, then you will proceed to the next section.

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1.3.2.5 Preparation of the Finding of No Significant Impact

For projects requiring a FONSI, an additional step must occur. First, once all technical and environmental issues are resolved, the Environmental Review Coordinator will contact the Applicant and ask that the public meeting be held. Please see Subchapter 9.2.2 of Part B for more information on what is required related to the public meeting.

FONSI/EA – Finding of No Significant Impact/Environmental Assessment

SCH – North Carolina State Clearinghouse

Once the Applicant has submitted all documentation associated with the public meeting, the Environmental Review Coordinator will prepare a Finding of No Significant Impact/Environmental Assessment (FONSI/EA). Once the Division Director has signed the FONSI/EA, it will go to the SCH for a 30-day public review where all agencies plus the public will have the opportunity to comment. The Division will also post the FONSI/EA on the website. Once this period passes, the SCH will send a memo to the Division that falls into one of three categories:

- No comment.
- Comments to be noted.
- Comments requiring changes in the document

If the SCH memo says, "No comment," then the project can be approved.

State Clearinghouse memos with comments to be noted usually contain information that can be incorporated into the project during the plan and bid documentation approval step of the funding process. The Project Manager will ensure that these documents contain these measures.

State Clearinghouse memos with substantive comments will require additional changes to the ER/EID. If that is the case, then you will need to revise the ER/EID, and the Environmental Review Coordinator will modify the FONSI/EA to incorporate those changes. The FONSI/EA will be resubmitted to the SCH, and additional review time must be allowed.[5]

Once any issues with the FONSI/EA have been resolved, the Division will approve the project.

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1.3.2.6 Project Approval

If a CE is the final environmental document, then the Project Manager and Environmental Review Coordinator will determine that all environmental and technical issues are resolved. Then they will ask for one final hard copy that incorporates all changes to the ER/EID and one electronic copy. They retain the hard copy in the project files until the project closes out (e.g., construction is finished) and will retain the electronic copy in the files that get archived.

For projects funded through the HUC, WW-SRL, or WW-SEL programs *only* that are below the minor construction activity criteria, the Environmental Review Coordinator will not prepare a final environmental document.

The Environmental Review Coordinator will draft the CE while the Project Manager drafts the approval letter.[6] Both will be signed by the SRF Section Chief or CDBG-I Unit Supervisor (for

[5] Additional review time may not have to be the entire 30 days. Review periods will be determined by the SCH on a case-by-case basis.

[6] For projects funded *only* with state funds (WW-HUC, WW-SRL, WW-SEL) that are below the minor construction activity requirements, only an approval letter will be prepared, as no final environmental document will be required.

CDBG-I projects only). Then, the Project Manager will send both a hard copy and e-copy of the approval letter and CE (if required).

If the project requires a FONSI, then Division will have already sent a copy of the FONSI/EA. The Project Manager will ask for one final hard copy and e-copy of the ER/EID. They will prepare the approval letter. Once the appropriate person has signed, then they will send both a hard copy and e-copy to the applicant.

Once the Applicant has received the e-copy, the ER/EID review process is complete, and the Applicant may proceed to the next stage of the funding process.

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(Last updated: May 2015)

1.3.2.7 Engineering Reports under the Community Development Block Grant for Infrastructure Program

For ERs that are prepared under the CDBG-I program, remember that only the ER portion of the outline in Part B will need to be completed. Additionally, timelines may vary slightly from other funding programs as this program matures. Please pay special attention to the milestones within the LOIF as well as timelines discussed during training. Once the timelines have been solidified, this guidance will be updated to reflect that.

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(Last updated: May 2015)

1.4 Additional Guidance (USDA Co-Funded Projects Only)

In some situations, projects funded by the Division may be co-funded by the United States Department of Agriculture (USDA). Because of the USDA's funding requirements, their ER guidelines have additional requirements. For these co-funded projects, ensure that the additional requirements found in the USDA guidance are also provided in the ER/EID. Doing so will allow for both agencies to complete their reviews in an efficient manner. For the additional sections required by the USDA guidance, make it clear that the information is provided for USDA funding purposes only.

For projects co-funded with USDA funds with a USDA ER/EID already prepared, the Division will require that all remaining information discussed in Part B of the guidance be supplied and may require the ER/EID be reformatted into the format discussed in this guidance.

If the Applicant had previously prepared an ER/EID under the USDA guidance, it may be acceptable; however, please note that all information required under Part B of this guidance must be included in the ER/EID. Division staff may make comments to ensure that all needed information is included. If necessary, Division staff may require that the information be reformatted to fit this guidance.

Additionally, the USDA will prepare a final environmental document. Note that if the final environmental document does not adequately describe the scope of the project, then the

Environmental Review Coordinator will prepare a final environmental document based on the SEPA criteria that will incorporate the scope of the project.

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(Last updated: May 2015)

2.0 Engineering Report/Environmental Information Document Basic Requirements

The following subchapters discuss the ER/EID outline. Additionally, they will provide the requirements for different features associated with the ER/EID.

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(Last updated: May 2015)

2.1 ER/EID Structure

2.1.1 Basic outline

The structure of the ER/EID follows a logical train of thought. Each section within the ER/EID builds upon the previous one to present a flow of discussion. The outline the ER/EID is as follows:

- Upfront Information
- Section 1. Executive Summary
- Section 2. Current Situation
- Section 3. Future Situation
- Section 4. Need and Purpose
- Section 5. Alternatives Analysis
  - Section 5.1. Alternatives Description
  - Section 5.2. Present Worth Analysis
- Section 6. Proposed Project Description
- Section 7. Environmental Information Document[7]
- Section 8. Financial Analysis
- Section 9. Public Participation

The ER/EID prepared must follow this outline.

The upfront information contains the Table of Contents and other similar information. See Chapter 0.0 of Part B for additional discussion.[8]

The Executive Summary is a "description of the project for busy people." It should capture the entire project so that local officials, the EPA, and other interested parties can quickly gain an understanding of the project. For more information related to how to prepare the Executive Summary, see Chapter 1.0 in Part B of this guidance.

The Current and Future Situations provide the basis that help to formulate the need and purpose of the project. See Chapters 2.0 and 3.0 of Part B of this guidance for more information.

[7] The Environmental Information Document is required for projects funded through all funding programs save for the CDBG-I program. The environmental documentation for the CDBG-I program is handled under separate guidance found on the Division's website.

[8] Section 0.0 is used to maintain the outline of the ER/EID for the discussion of requirements in the guidance.

The Need and Purpose chapter discusses how to formulate the need and purpose statement, which forms the backbone of the project. See Chapter 4.0 of Part B of this guidance for more information.

The Alternatives Analysis (Chapter 5.0 of Part B) discusses how the problem formulated in the need and purpose statement will be addressed. The description describes each of the alternatives considered while the present worth analysis provides cost estimates for each feasible alternative. Chapter 5.1 of Part B contains more information related to the alternatives description while Chapter 5.2 of Part B contains more information related to the present worth analysis.

The proposed project description provides the location of where the project in its entirety will be described. Chapter 6.0 of Part B contains more information related to this section.

The EID chapter will provide the environmental information that serves as the basis for the final environmental document. Chapter 7.0 of Part B contains more information related to the EID.

The financial analysis will provide information related to the financial impact to the Applicant. See Chapter 8.0 of Part B for more information.

Last, the public participation section details the requirements related to ensuring that the public is informed about the proposed project. See Chapter 9.0 of Part B for more information.

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(Last updated: May 2015)

2.1.2 Multiple Project Types

There may be occasions where you have a project that may contain multiple project types. If that occurs, then each project type must be addressed within the same ER/EID. This may especially occur with the CDBG-I program. The example in the purple box shows how an outline for an ER/EID with multiple project types might look. If you have a project with multiple project types and have questions about how to prepare the ER/EID, please contact the Division.

The only place where multiple project types will impact the structure of the ER/EID is in describing the current and future situations, the alternatives descriptions, and the present worth analysis. Present the remaining portions of the ER/EID as one unit.

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(Last updated: May 2015)

Upfront Information
1.0 Executive Summary
2.0 Current Situation
  2.1 Collection System Rehabilitation
  2.2 Collection System Expansion
3.0 Future Situation
  3.1 Collection System Rehabilitation
  3.2 Collection System Expansion
4.0 Project Need and Purpose
5.0 Alternatives Analysis
  5.1 Alternatives Description
    5.1.1 Collection System Rehabilitation
    5.1.2 Collection System Expansion
  5.2 Present Worth Analysis
    5.2.1 Collection System Rehabilitation
    5.2.2 Collection System Expansion
    5.2.3 Present Worth Analysis Summary
6.0 Proposed Project Description
7.0 Environmental Information Document
8.0 Financial Analysis
9.0 Public Participation

2.2 Tables

The minor ER/EID provides for the use of tables for the bulk of the information requested. Placing information in a tabular format allows for an efficient review by the Project Manager and the Environmental Review Coordinator. Number tables to go with specific sections of the ER/EID. For example, tables within the current situation may be named Table 2.1, Table 2.2, etc.[9] These tables will be available in Word files for use during ER/EID preparation.[10]

Make sure that all tables have a number and title and that all cells within the tables are completed. Incomplete tables will generate comments. If more information is necessary to explain data provided in the table, consider either footnotes to the table or a clear, concise explanation placed in text beneath the table.

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2.3 Figures

When appropriate, utilize figures to help describe the project. Figures are also helpful for those who are visually oriented because it allows them to gain a quick understanding of the project. Figures are also an easy way to describe the project and convey the location of associated resources and potential impacts. The following factors must be considered.

Figures should not be embedded in the text of the ER/EID but should be on separate pages.

- **Paper size.** Figures should not be embedded in the text of the ER/EID. Use a page that is a minimum size of 8.5 x 11 (letter) paper and a maximum size of 11 x 17 (tabloid) paper. This is because larger sizes may have to be folded several times and may fall out of the ER/EID and get lost.
- **Scale.** Figures must be at an appropriate scale to show the required information. For example, a project vicinity map would be at a greater scale than a project location map that shows the details.
- **Larger projects.** If a project is a large project such as a major interceptor, multiple maps may be required. If this is the case, provide an index map that shows the location of the different tiles with respect to the entire project.

When preparing figures, utilize the following tips:

[9] Tables in the workbooks have already been numbered; however, these numbers may be adjusted to fit the needs of your ER/EID.

[10] Tables in the Word file are protected; however, there is no password. To unlock files to edit, go to the Review tab in the ribbon. In the far right-hand corner, click on Protect Document and then click on Restrict Format and Editing. A Stop Protection button appears at the bottom-right corner of the screen. Click on that, and then editing will be allowed.

- **Consistent basemapping.** Throughout all of the figures within the ER/EID, utilize a basemapping set that is easy to read. For example, if using a set of roadway mapping as basemapping, carry that roadway mapping throughout the remainder of the ER/EID.
- **Good color contrasts.** Make sure that all features on the figures have good color contrast so that they are easy to discern. Use colors that are clearly different. Utilize shapes that have good contrast as well.
- **Aerial photography.** If aerial photography is used as basemapping, use black and white photography rather than color photography. This will allow any features shown in color to be easily discernible.
- **Good labeling.** Utilize good labeling or a legend to differentiate between the different features on the figures.

Good color contrasts – Orange, light blue, red, dark green

Not good color contrasts – medium blue, medium green, medium blue-green

Good shape contrasts – square, triangle, circle

Not good shape contrasts – octagon, circle, square with rounded corners

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(Last updated: May 2015)

2.4 Appendices

The appendices of the ER/EID contain supporting information for various portions of the ER/EID so that the body of the ER/EID consists only of required information. When preparing the appendices, utilize slip sheeting, tabs, or other ways of differentiating between each appendix. Also, to cut down on the amount of paper utilized to produce the ER/EID, place any appendices that are 25 sheets or greater on a CD or DVD. Then, in the appendices, reference the appropriate file on the CD or DVD for that particular appendix.

Appendices of 25 pages or more may be placed on a CD or DVD with reference to the appropriate file made in the appendix.

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2.5 Workbooks

The Division has developed workbooks for use in preparing the ER/EID. For minor ERs/EIDs, these workbooks must be used because they adhere to the methodologies described in Part B of this guidance. For major ERs/EIDs, they may be used, or alternative methodologies may be used. For major ERs/EIDs, the Division encourages their use.

These workbooks are in Excel format and are formatted so upon completion, the tables may be printed and placed directly into the body of the ER/EID. Each workbook begins with an Introduction worksheet that briefly

Workbooks – Excel files designed for use with portions of the guidance found within Part B to complete various calculations.

For minor ERs/EIDs, the workbooks must be used where required by Part B of the guidance.

For major ERs/EIDs, workbook use is optional but encouraged.

discusses what it contains. The next sheet is an Input sheet where the user enters the Applicant name, the project name, and any other required information. The workbook then carries this information forward to the remainder of the sheets.[11]

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[11] There are no passwords protecting the workbooks. To unlock workbooks for editing, go to the Review tab and click on Unprotect Sheet. Then edit as needed.

Part B
ER/EID Requirements

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0.0 Upfront Information

For use with projects funded or co-funded by the CWSRF, WW-HUC, WWSRL, WW-SEL, or CDBG-I programs.

The upfront information consists of information typically seen in the front of the ER/EID before the body of the report actually begins. It must include the following information:

If there is no PE seal on the ER/EID, then the Project Manager will not review the project until it is sealed.

Applicant – The local government unit or CDBG-I grant recipient who applied for project funding

- North Carolina Professional Engineer's seal on the cover or title page;
- Title page
- Table of Contents
- List of Tables
- List of Figures
- List of Appendices

Title page. Have a title page that lists the Applicant, the project title, the consultant, and their contact information. The project title should be equivalent to the title on the funding application and provide an overarching idea of the project under consideration.

Table of Contents, List of Tables, List of Figures. The ER/EID must also have a Table of Contents. The Table of Contents should list the sections that are in the report as well as the page numbers where these sections are located. If the ER/EID is primarily tables, then the Table of Contents may suffice as the list of Tables so long as the tables are incorporated into the Table of Contents. The List of Tables (if separate from the Table of Contents) and List of Figures should list each table and figure found within the document and reference page numbers where they are located. If tables or figures take up an entire page and cannot be inserted into the body of the ER/EID, then it is acceptable to list the table or figure as "Found After Page X" or something similar.

For initial submittals, all appendices over 25 pages may be placed on a CD or DVD.

List of Appendices. The List of Appendices must list a title for each appendix that provides enough description that shows at a glance what it contains. For appendices that contain a variety of items, specify in the List of Appendices what each appendix contains. For more information regarding appendices, see Subchapter 2.4 in Part A.

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To Executive Summary

(Last updated: May 2015)

1.0 Executive Summary

For use with projects funded or co-funded by the CWSRF, WW-HUC, WW-SRL, WW-SEL, and CDBG-I programs.

The project will expand approximately 3,100 l.f. of 8-inch pipe to 12-inch pipe. It will also rehabilitate 2,500 l.f. of 8-inch pipe, 1,000 l.f. of 10-inch pipe, and 500 l.f. of 12-inch pipe via CIPP. Last, the project will rehabilitate a 500 gpm pump station and install 5,000 l.f. of 2-inch force main.

The Executive Summary should provide a snapshot of the overall project. Draft the Executive Summary after drafting the ER/EID and use it to summarize the key points of the ER/EID. It should contain the following:

Project description. Mention the location of the project (county and/or city), and describe the various components of the project that captures the proposed project description as discussed in Chapter 6.0 of this part.

Project – The wastewater infrastructure that will be constructed to fulfill the purpose and need.

For projects that include capacity changes or like-for-like changes, list the current and proposed capacities. Include a project vicinity and project location figure and any other figures that would provide readers who would only review the Executive Summary with pertinent information about the project.

- **Project Vicinity Map.** One of the required maps is the project vicinity map. This map allows the reviewer to gain a general understanding of the project area and is critical to the review of the project since the reviewer most likely will not be familiar with the area. The vicinity map should contain the following:

    - Appropriate scaling to capture the vicinity of the project
    - The project
    - County/municipal limits as appropriate
    - Major highways
    - Major waterbodies
    - Appropriate labeling via labels or legend

    Note that the project vicinity map may be used by Division staff for final environmental documents. This map should be on a 8.5x11 (letter size) paper in order to meet the submittal requirements of the SCH.

- **Project Location Map.** The second required map is the project location map. This map should be at a closer scale than the project vicinity map and should show the following as applicable:

    If a roadway or waterbody is mentioned in the text, then it should be appropriately labeled on the figure for easy reference.

    - Individual project components
    - Waterbodies
    - Roadways
    - County/municipal limits
    - Appropriate labeling via labels or legend

The preferred format for a project location map is a USGS topographic map with the project location and each component clearly marked. However, if other mapping would better suit showing the project, then it may be used so long as the above-stated components are shown.

- **The reasons for the project.** Summarize the purpose and need for the proposed project. This may be one or two sentences that highlight what is described in more detail in Chapter 4.0 of this part.

The Town of Anytown falls under the rules for the Wandering River Basin. Constructing this series of stormwater BMPs along Meandering Stream will reduce the flow of nutrients into the stream and then the river.

- **The results of the alternatives analysis.** Briefly describe each of the alternatives considered in the alternatives analysis, including the No-Action Alternative. Discuss why each was rejected in favor of the Preferred Alternative and why the Preferred Alternative was accepted. Make sure to include both feasible and infeasible alternatives.

The Preferred Alternative consists of rehabilitating approximately 3,000 l.f. of 8-inch pipe via CIPP. This alternative has an estimated cost of $300,000. It was accepted because it had the lease environmental impact and least cost.

- **A summary of the environmental impacts and mitigative measures.** Discuss the environmental impacts of the project. Include any potentially significant impacts of the project and the mitigative measures that will be implemented to reduce those impacts.

- **Project funding and user fee increases (if applicable).** Provide information about how the project will be funded. Include total cost, sources of funding, and the amount of funding for each source. If the project contains loans, discuss how it will impact user fees.[12]

This project will be funded via a zero-interest loan through the CWSRF program. The total cost is $306,000 with the loan portion being $300,000. Stormwater user fees, currently at $50 a month, will rise to $50.50 due to the project.

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To Current Situation

(Last updated: May 2015)

[12] For the CWSRF, WW-SRL, and WW-SEL programs only.

2.0 Current Situation

The current situation helps to define the project need by ascertaining the current conditions in the area where the project will be constructed. Questions that the current situation seeks to answer may include, but are not limited to, the following:

- What water quality issues is a receiving stream for stormwater facing?
- What is the current status of a stream designated for restoration (e.g., perennial, intermittent)?
- How much rain flows from a roof designated for a rainwater harvesting project?

To aid in the preparation of the ER/EID, the Division has created both Excel workbooks and tables in Word. These are available on the Division's website. Each subchapter of this guidance will specify if tables and/or workbooks are required. Also, where major ERs/EIDs may occur, this guidance provides further direction in the gray boxes.

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To Stormwater Best Management Practices

To Stream/Buffer/Wetland Restoration

To Rainwater Harvesting

(Last updated: May 2015)

2.1 Reclaimed Water Systems

Updates to occur Summer 2015.

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To Future Situation

(Last updated: May 2015)

2.2 Stormwater Best Management Practices

Use this section for projects funded or co-funded with the CWSRF program.

The current situation should contain information regarding the existing land usage of the project area. Such information will enable the reviewer to gain a better understanding of the project area. It will also help to establish the need for the project. Complete the following sections according to the requirements below.

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(Last updated: May 2015)

2.2.1 Project Area Definition

Discuss in detail existing land use, watershed impairment, and drainage characteristics. Include information about the current population for the project area.

Requirements

- Provide a project area map. Show the following:
  - Location of the project
  - Clearly demarcated project boundaries
  - Roadways
  - Drainage features (e.g., streams, wetlands, buffers)
  - Existing stormwater measures
  - Existing impervious area
  - Any other relevant data

  The map must contain the basic features required in Subchapter 2.3 of Part A. These figures may be placed either in the body of the ER/EID or in an appendix with appropriate references made in the tables.

- Complete Table 2.1 to describe the project area and place it in the body of the ER/EID. Use surveying, aerial photography, and/or geographic information systems (GIS) to determine the existing impervious area.

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(Last updated: May 2015)

2.2.2 Existing Land Use

Part of determining the current situation is characterizing the existing land use patterns that are in the project area and all areas adjacent to the project area. Characterize the existing land use as discussed below.

1. Determine zoning and current land use.

Provide a brief discussion of the zoning and land use that encompasses the project site and project area. Provide a description of what each type of zoning means. Also, include the different types of land use, both in the project area and the drainage area. For example, a zoning classification of R-2 might mean residential usage at two dwelling units per acres, or the area may be considered low density with land uses of commercial.

Project site – The place where construction will occur.

Project area – The vicinity surrounding the project. Size of project area is determined based upon best professional judgment.

Requirements

- Complete Tables 2.2.1 and 2.2.2 which specifically break out and define land use and zoning categories.

- Provide figures for
  - Land use
  - Zoning

  These figures may be placed either in the body of the ER/EID or in an appendix with appropriate references made in the tables.

2. Determine soils and topographic information.

Discuss the soils that are found within the project site and the project area as well as the topography of the project site and project area.

Requirements

Provide the following maps:

- USGS topographic map. Utilize a USGS topographic map to show the project location and how it relates to the surrounding area.
- USGS soils map. Show the location of the project and associated soils. The figure must include
- A differentiation of the soils for the project site and the project area.
  - Project location
  - Roadways and water bodies
- Ensure that the map is on a scale that allows for easy discernment of the different soil types.
- Complete Table 2.2.3 and include it in the body of the ER/EID.
- Provide the soils and topographic maps in the body of the ER/EID or in an appendix of the ER/EID with the appropriate reference made in the table.
- Place all supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

2.2.3 Existing Watershed Condition

Another part of characterizing the watershed is to gain an understanding about the streams and other waterbodies within the watershed. Utilize information from the DWR to determine the classification of any streams located within the watershed. Discuss the classifications. Additionally, consult the most recent Integrated Report to determine if any of the waterbodies within the subwatershed are impaired. If they are, state as such and describe the type of impairment. Include information about both the classifications and impairments in an appendix of the ER/EID. For unnamed tributaries to streams, utilize the classification and use support status of the closest named stream downstream of the unnamed tributary.

Requirements

- Complete Table 2.3 and include it in the body of the ER/EID.
- Place all stream classification information with the appropriate streams highlighted and relevant pages from the most recent Integrated Report in an appendix of the ER/EID. List the appendix reference in the table.
- Label all appropriate streams on a figure and key it to the table. Reference the figure in the table.

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(Last updated: May 2015)

2.2.4 Existing Watershed Characterization

Characterize the existing watershed conditions in the watershed where the project will be located. The following steps show how to complete this characterization.

1. Provide an overall drainage area map and calculate the drainage area.

As most projects have a drainage area larger than the project area, show the location of the drainage areas as they relate to the project. This provides an understanding of how the project relates to the surrounding area. If there are multiple locations for this project, provide the drainage area in feet squared (ft^2) separately for each section. Then provide the total drainage area that will be impacted by the project.

Requirements

- Complete Table 2.4.1 and include it in the body of the ER/EID.
- Complete the drainage area map and key it to Table 2.4.1. The map must include
  - The drainage area
  - The project location
  - Roadways
  - Drainage features
- Include the figure in the body of the ER/EID or in an appendix with appropriate reference made in the table.

2. Provide additional off-site drainage areas.

Additional off-site drainage areas may be present that may impact the project.

Requirements

- Complete Table 2.4.2 and include it in the body of the ER/EID. Provide each drainage area in feet squared separately. Then total the amount.

- Include a figure in the ER/EID that is a scaled map showing how these off-site drainage areas relate to the project. Place the map in the body of the ER/EID or an appendix appropriately referenced in the table.

3. Provide the total existing impervious area.

Impervious area can impact the amount of flow to a best management practice (BMP) and must be characterized. Determine the existing impervious area in feet squared. If there are multiple locations of existing impervious area, then list each separately and total. Calculate the percentage of impervious area.

Requirements

- Complete Table 2.4.3 and include it in the body of the ER/EID.
- Include a figure that is a scaled map showing how these impervious areas relate to the project. Subchapter 3.6 of this part contains more information as to what to include. Key the map to the table. Place the map in the body of the ER/EID or an appendix appropriately referenced to the table.

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To Future Situation

(Last updated: May 2015)

2.3 *Stream/Buffer/Wetland Restoration*

Use this section for projects funded or co-funded with the CWSRF program.

The current situation must contain information regarding both the historical and existing land usage of the project site and area. Some of the topics below may or may not be applicable. Address topics that are applicable. If topics are not applicable, state as such and provide the reason it is not applicable.

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(Last updated: May 2015)

2.3.1 Project Location

Clearly identify the location of the project by describing the county and/or city where the project is located, intersections with other waterbodies, road crossings, and other landmarks that will enable the reader to identify the project area.

Requirements

- Complete Table 2.1 and place it in the body of the ER/EID.
- Prepare a project location figure that shows the information as follows:

- City and/or county boundaries
- Roadways and road crossings
- Intersections with other waterbodies
- Other landmarks as needed.

Include this figure in the body of the ER/EID or in an appendix with appropriate reference made in the table. This figure may be another figure referenced in the ER/EID. If this is the case, provide the appropriate reference in the table.

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(Last updated: May 2015)

2.3.2 Land Use

Land use, past, current, and future, has an impact on the watershed encompassing a stream and therefore can impact the quality of a stream.

Describe the historical land use of the subwatershed. Discuss any trends, especially loss of vegetative cover, that may be occurring toward either environmental degradation or environmental improvement. Use historical aerial photography if available.

Discuss the current land use of the subwatershed. The discussion must be based on land use plans and zoning.

Characterize the amount of impervious area by stating the percentage of the project area that is impervious. Discuss any impacts this may have on the current condition of the stream, wetland, or riparian buffer.

Requirements

- Complete Table 2.2a and/or 2.2b related to zoning and land use, respectively. Place each table in the body of the ER/EID. Complete both tables if both types of mapping are available or one or the other if only one type of mapping is available.

- Provide aerial photography in an appendix of the ER/EID and appropriately reference the appendix in the table. The photography must have:
  - The year it was taken
  - The location of the proposed project
  - Roadways with associated labeling
  - Waterbodies with associated labeling

- Provide land use and/or zoning figures. Each figure should have

  - The project location
  - Zoning and/or land use types clearly demarcated and keyed to the table(s)
  - Major roadways marked and labeled
  - Waterbodies marked and labeled

Place the figure in the body of the ER/EID or in appendix with the appendix appropriately referenced in the table.

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(Last updated: May 2015)

2.3.3 Stream Characteristics (if applicable)

If the project is a stream restoration project, describe the current state of the stream which includes the following information. If photographs are helpful in describing stream characteristics, reference them at appropriate places in the text.

- **Type of stream.** Discuss whether the stream is ephemeral, intermittent, or perennial. If the stream type changes within the segment to be restored, clearly label the transition points on the figure. Provide information about the methodology used to make the stream type determinations. If the Surface Water Identification Training and Certification (SWITC) may be used.

- **Stream patterns and hydrology.** Describe any evidence of altered stream patterns or hydrology. Include a discussion of the history of the stream alteration, if known. Also, discuss how the hydrology of the watershed served by the stream has changed over the past ten years. If aerial photos are available, include them in the discussion.

- **Excessive sedimentation.** Discuss any evidence of sedimentation. Include whether sedimentation patterns have changed in the past ten years. Identify any known contributing factors such as nearby developments or land use changes, especially whether vegetative cover has been reduced. Discuss whether the LGU is approved to oversee the sedimentation and erosion control locally. If so, include a summary of enforcement actions that have been taken. In addition, discuss whether ordinances exist to address sedimentation from previously developed areas where adequate ground cover is not suitably maintained.

- **Aquatic species/habitats and water quality monitoring.** Discuss the aquatic species present and habitat that currently exists. Include data from any chemical and biological monitoring that indicates potential impairment. If significant changes have been noted in recent years, describe the changes. The discussion of water quality monitoring should encompass the pass 20 years. Detail any trends that have resulted from the monitoring. Discuss any identified factors that have contributed to any significant changes in water quality monitoring during the time period for which data are available.

  Good – Structure has good integrity and has been regularly maintained.

  Fair – Structure has some integrity issues and has needed maintenance beyond routine maintenance.

  Poor – Structure is in bad shape and has not been maintained.

- **Presence of man-made structures.** Describe any man-made structures that have been installed in the stream such as riprap, culverts, bridges, pipes, weirs, or anything that limits stream flow, aquatic species migration, etc. Include the condition of the structures

(good, fair, or poor). Discuss the need to modify these structures to maintain or improve stream quality.

- **Topography.** Discuss the topography of the project site and project area and the natural drainage patterns. Describe how development might have shifted drainage patterns.

Requirements

- Complete Table 2.3 and include it in the body of the ER/EID.
- Provide any aerial photography that shows stream patterns and hydrology. The photography should include the following:
  - The location of the project
  - The location of roadways and with appropriate labeling
  - The location of waterbodies with appropriate labeling
- For excessive sedimentation, include copies of any ordinances related to erosion and sedimentation and include them in an appendix of the of the ER/EID. Appropriately reference the appendix in a table.
- Include any chemical and biological data monitoring indicating an impairment in an appendix. Appropriately reference the appendix in the table.
- Provide a USGS topographic map. The map should include the following:
  - The project location
  - The location of roadways with appropriate labeling
  - The location of waterbodies with appropriate labeling

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(Last updated: May 2015)

2.3.4 Stream Classification (if applicable)

Provide information about the stream classification, which is available from the DWR. If the stream is an unnamed tributary, take the classification from the closest downstream, named waterbody.

If the stream is an unnamed tributary, take the classification from the closest downstream, named waterbody.

Also, discuss whether or not the subwatershed is impaired. Consult the most recent version of the Integrated Report for a finalized list of streams. State the cause of the impairment.

Requirements

- Complete Table 2.4 and include it in the body of the ER/EID.
- Provide a figure that shows the location of all streams within the subwatershed where the project will be constructed. Include on the figure the following:
  - USGS basemapping, if possible
  - All streams marked, labeled, and keyed to the table

  - The boundaries of the subwatershed
  - All major roadways marked and labeled
  - The location of any impaired streams

- Provide a listing of stream classifications with the streams in the subwatershed marked. Place this in an appendix of the ER/EID with the appropriate reference in the table.

- Include from the latest final Integrated Report a listing of any impaired streams. Clearly mark those streams. Include this listing in an appendix of the ER/EID and appropriately reference the appendix in the table.

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(Last updated: May 2015)

2.3.5 Wetland Characteristics (if applicable)

For projects involving wetland restoration, describe the current state of the wetland, including the following specific items as well as any additional information that is important to understand the conditions of the project area. These items should be discussed in the context of the state criteria.

- **Wetland type.** Describe the type of wetland.

- **Wetland size.** Describe the size of the wetland in acres.

- **Wetland function and importance.** Discuss the primary function of the wetland and its importance to the local ecosystem. Discuss whether the wetland has experienced any filling and/or drainage related to natural or manmade causes. Note whether the function is impaired, and discuss any known stressors. Additionally, include information related to any impairments due to filling, draining, etc.

- **Species.** Describe what vegetative and animal species are present in the wetlands. Discuss the vegetative species and density. Discuss the wildlife habitat within the wetlands and whether it will be restored and how. Specifically discuss whether threatened and endangered species exist or might exist. If so, explain how the restoration project might benefit or impact those species.

- **Soil characteristics.** Discuss the types of soils that are present within the wetlands. Describe the frequency and degree of saturation.

- **Subwatershed impairment.** Discuss whether the subwatershed is impaired. Consult the most recent final Integrated Report for a finalized list of streams. State the cause of the impairment.

Requirements

- Complete Tables 2.5.1, 2.5.2, and 2.5.3 and include them in the body of the ER/EID.

- Complete a figure that shows the streams and wetlands within the subwatershed. The figures should include the following:
    - Project location
    - Streams and wetlands clearly demarcated, labeled, and keyed to the table
    - Major roadways clearly demarcated and labeled.

  Place the figure in the body of the ER/EID or in an appendix with the appendix appropriately referenced in the table.

- Provide a soils figure that shows the soil types within the subwatershed. The figure should include the following:

    - The project location clearly demarcated
    - The different soil series with the soil series keyed to Table 2.5.3. The series must be clearly defined via labeling and coloring.
    - Clearly demarcate major roads and waterbodies. Label these.

  Include the figure in the body of the ER/EID or an appendix with the appropriate reference in Table 2.5.3.

- Include any information related to impairments in an appendix and appropriately reference the appendix in the table.

- Provide supporting information related to the plant and animal species discussed in Table 2.5.2 in an appendix. Reference the appendix in the table.

- Provide a listing of impaired streams in an appendix to the ER/EID. Appropriately reference this information in Table 2.5.2.

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(Last updated: May 2015)

2.3.6 Riparian Buffer Characteristics (if applicable)

For all projects, include a general discussion about the riparian buffers surrounding the stream(s) and/or wetland(s) that will be restored. Describe the current state of the buffer and include the information below.

- **Vegetation.** Discuss the type of vegetation in the buffer and whether the vegetation type has changed in the past 20 years. Especially note if and/or when any degradation occurred.

- **Soil types.** Discuss the type of soil that is in the buffer. State whether any erosion has occurred over the past 20 years, whether channelized flow has or is occurring, and whether any bare areas exist.

- **Riparian buffer width.** Briefly discuss the buffer width (or ranges in width) and whether it has changed over the past 20 years (e.g., grown due to regulations or shrunk due to

development). Discuss areas where stormwater flows are conveyed through the buffer via ditches, pipes, etc.

Requirements

- Complete Table 2.6 and place it in the body of the ER/EID.
- Provide any aerial photography to give a historical perspective of the project site and area. These photos must contain the following:
    - The year(s) in which the photos were taken
    - The project location clearly demarcated
    - Waterbodies clearly demarcated and labeled
    - Major roadways clearly demarcated and labeled

  Place these photographs in an appendix and provide the appropriate reference in the table.

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To Future Situation

(Last updated: May 2015)

2.4 Rainwater Harvesting

Coming Soon

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3.0 Future Situation

The future situation helps to define the project need by ascertaining the future conditions in the area where the project will be constructed. Questions that the future situation seeks to answer may include, but are not limited to, the following:

- What equipment at the WWTP may fail in the future?
- What will be the flows of the WWTP by the 20-year planning window?
- What will happen if the lines in the project area are not rehabilitated?
- How will the future flows associated with the collection system expansion impact the downstream capacity of the system?
- What will be the reclaimed water demand in ten years?
- How will impervious changes impact the ability of BMPs to treat stormwater?
- What development will occur in the subwatershed surrounding the stream restoration?
- Will any more buildings be constructed that would be added to the rainwater harvesting system?

To aid in the preparation of the ER/EID, the Division has created both Excel workbooks and tables in Word. These are available on the Division's website. Each subchapter of this guidance will specify if tables and/or workbooks are required. Also, where major ERs/EIDs may occur, this guidance provides further direction in the gray boxes.

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(Last updated: May 2015)

3.1 Reclaimed Water Systems

Updates to occur Summer of 2015.

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3.2 Stormwater Best Management Practices

Use this section for projects funded or co-funded with the CWSRF program.

Use this section to define the future situation in terms of zoning, land use, drainage area, and percent impervious surface. This will help to establish the need for the project and will help ensure that the stormwater BMP is adequate for future stormwater flows.

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(Last updated: May 2015)

3.2.1 Land Use and Zoning Changes

Discuss any land use and/or zoning changes that may occur within the project site and project area. Provide mapping as discussed below to visually depict the changes to land use and zoning.

Requirements

- Complete Table 3.1 and place it in the body of the ER/EID.
- Provide figures that show both land use and/or zoning changes. The figures must show the following:
    - The project location
    - Land uses and zoning clearly demarcated and defined either in the table or additional text
    - Waterbodies clearly demarcated and labeled
    - Major roadways clearly demarcated and labeled
- Place the figure in the body of the ER/EID or in an appendix appropriately referenced to the table.
- Place any other information utilized in discussing land use and zoning changes (e.g., comprehensive land use plans) in an appendix and appropriately reference the appendix in the table.

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(Last updated: May 2015)

3.2.2 Future Development Impacts

The Applicant may have approved developments that may be in or adjacent to the project's drainage area. For any approved developments, describe in detail what each development will contain and when, in the 20-year life of the loan, it will be built. For example, the drainage area may in three years contain a development that consists of 40 single-family dwellings, ten duplexes, and a small shopping center, which could be built in Year 5.

Requirements

- Complete Table 3.2 and place it in the body of the ER/EID.
- Prepare a figure that shows the proposed developments. It must include the following:
    - The project location
    - The location of all developments keyed to the table
    - Waterbodies clearly demarcated and labeled
    - Major roadways clearly demarcated and labeled
- Place the figure in the body of the ER/EID or in an appendix with the appendix appropriately referenced in the table.

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(Last updated: May 2015)

3.2.3 Future Impervious Surface Area Changes

Due to development within the drainage area of interest, the amount of impervious area may increase. Discuss how each proposed development within the drainage area will increase impervious surface. For example, the development discussed in Subchapter 3.2.2 of this part will increase impervious surface in the drainage area from 45 percent to 55 percent.

If the impervious surface change is greater than ten percent (e.g., substantial), then the entirety of Table 3.2.1 must be completed.

Calculate the 1-year, 24-hour storm characterization in terms of runoff depth in inches, intensity in inches per hour, and the pre-development peak flows in cubic feet per second. This should be done for the existing condition and the future condition if there is expected to be a substantial increase in impervious surfaces for the area.

Requirements

- Complete Table 3.2.1 and place it in the body of the ER/EID.

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To Need and Purpose

(Last updated: May 2015)

3.3 Stream, Buffer, and Wetland Restoration

For use with projects funded or co-funded with the CWSRF program only.

The future situation should describe the anticipated future characteristics of the project area as a result of the project itself and of surrounding land use changes.

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(Last updated: May 2015)

3.3.1 Land Use Changes of Project Area

Discuss the future land use of the area and trends of the land use. Base the discussion on future land use plans and/or zoning information. If such information is not available, then provide the source from which you derived the future land use.

- Describe any proposed developments by providing the following:
- The name of the development
- A brief description of the development
- The size of the development in terms of acreage
- When developments will be constructed during the 20-year life of the loan.

Requirements

- Complete Tables 3.1 and 3.2 and place them in the body of the ER/EID.
- Prepare a figure that shows future land use. The figure should contain the following:
    - The project location
    - The land uses keyed and defined in Table 3.1
    - Waterbodies clearly demarcated and labeled
    - Major roadways clearly demarcated and labeled

  Place the figure in the body of the ER/EID or in an appendix with the appendix appropriately referenced in the table.
- Prepare a figure that shows the location of proposed developments. The figure should include the following:
    - The project location
    - The location of all proposed developments with these keyed to the table
    - Waterbodies demarcated and labeled
    - Major roadways demarcated and labeled
- Place the figure in the body of the ER/EID or in an appendix with the appendix appropriately referenced in the table.
- Provide any documentation (e.g., comprehensive land use plans) that discusses future land use and zoning in an appendix. Appropriately key the appendix the table.

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(Last updated: May 2015)

3.3.2 Floodplain Changes

Discuss any changes to the 100-year floodplain that may occur. Reference the appropriate Flood Insurance Rate Map (FIRM) panel number. Show the location of the current and future 100-year floodplain on a figure. Additionally, describe the change of impervious surface amounts that will occur due to land use changes within the project area.

Requirements

- Complete Table 3.3 and place it in the body of the ER/EID.
- Complete a figure showing the location of floodplains. The figure must contain:
    - The project location
    - The different floodplains with definitions described in the table
    - Waterbodies demarcated and labeled
    - Major roadways demarcated and labeled
- Place the figure in the body of the ER/EID or in an appendix with appropriate reference made in the table.

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To Need and Purpose

(Last updated: May 2015)

3.4 Rainwater Harvesting

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(Last updated: May 2015)

4.0 Need and Purpose

Use this section for projects funded or co-funded by the CWSRF, WW-HUC, WW-SRL, WW-SEL, or CDBG-I programs.

Often, a project's need and purpose are not readily evident unless the reader is already familiar with local conditions and the origins of the problems that give rise to the request for funding. The need and purpose statement, which is also required under NEPA or SEPA, provides a way to crystallize why the project is being proposed. The need and purpose for the ER and the EID should be the same in that it will clearly frame the problem and provide the basis for determining the solution.[13]

Use draft the need and purpose statement using the steps listed below.

1. Complete the analysis of the current and future situation according to the project type-specific guidelines in Subchapters 2.0 and 3.0 of this part.

The need and purpose should directly correlate to the analysis of the current and future situations associated with the project will help to define more clearly the need and purpose of the project.

2. Base the need statement on the results of the current and future situation analysis.

Use the need statement to answer, "Why does the Applicant need the project?" After the current and future situation analyses are complete, themes should emerge as needs for the project.

Additionally, the need statement should highlight why the project is a priority in the Applicant's capital improvement plan (CIP) or similar document. The box to the right shows an example need statement for a town has a WWTP that is in need not only of expansion to accommodate growth but also updating to make major repairs and meet discharge limits.

Need statement – A brief description of the reason why an Applicant must construct a project.

CIP – Capital improvement plan

The Town of Anytown is faced with an aging WWTP which contains equipment that is beyond the recommended lifespan. The Anytown CIP has made replacing this equipment a priority because of the impacts to O&M costs and effluent quality. Additionally, the DWR has required that all municipalities within the basin reduce their nutrient discharges into the river. Last, the Town is experiencing growth at moderate levels, and the WWTP is approaching 80 percent of the capacity and is required to begin planning for future needs with 90 percent reached within five years.

[13] Note that for the CDBG-I program, the need and purpose statement should be the same even though the Responsible Entity completes the environmental documentation. *The Responsible Entities and its representatives must work closely with the Recipient and its engineering consultants to ensure a consistent purpose and need statement.*

3. Draft the purpose statement.

The purpose statement should answer the question, "How will the Applicant address the project need?" Explain why this particular project has been proposed. Also provide the context in how the project fits with other related projects in the Applicant's CIP (e.g., the funded project may address only portions of the need, and subsequent phases may address the remaining need. The purple box shows an example of the purpose statement on the previous page.

Purpose statement – A brief description of how the project will address the need.

The purpose of the proposed project is to implement the Town's capital improvement plan to meet our regulatory obligations, protect the environment by improving treatment reliability, and accommodate future growth by the upgrade of the Anytown TTWP through process improvements.

3. Correlate the need to the purpose.

Correlate the need and purpose statements. Note that this section should be as short and succinct as possible. However, it should provide sufficient detail to correlate the statements. The two examples above can be combined into one paragraph for a complete need and purpose statement.

Requirements

Complete Section 4.0 within the ER/EID by writing a succinct need and purpose statement.

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To Alternatives Analysis

(Last updated: May 2015)

5.0 Alternatives Analysis

The alternatives analysis provides proposed solutions to the problem formulated by drafting the need and purpose statement. The entire analysis consists of two main parts:

- The alternatives description
- The present worth analysis

This subchapter details the requirements for each part, which will then feed into the proposed project description discussed in Chapter 6.0 of this part.

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(Last updated: May 2015)

5.1 Alternatives Description

For use with projects funded or co-funded by the CWSRF program.

The alternatives description discusses the different alternatives considered as solutions to the need and purpose. Most alternatives are specific to project type. However, the No-Action alternative must be considered for all projects. Subchapter 5.1.1 of this part discusses what the No-Action Alternative should include. Also, the analysis requires a discussion of the Preferred Alternative. Subchapter 5.1.2 of this part discusses what the Preferred Alternative must contain.

Requirements

For each alternative, complete Table 5.x provided in Chapter 5 of the Word document provided on the Division's website. The Division recommends completing the alternative that most likely will be the Preferred Alternative first, as some of the information for the rejected alternatives requires a comparison between the Preferred Alternative and the rejected alternative. The following cells must be completed as described below.

- **Description.** In this cell, provide all of the information discussed for your specific project type in Subchapter 5.1.3. If a figure is available, include the figure in the body of the ER/EID or an appendix and provide the appropriate reference in the table.

- **Alternative Feasibility.** Based upon the description, check the appropriate box as to whether it would be feasible to construct the project or infeasible. Subchapter 5.2 of this part defines feasible and infeasible projects.

- **Costs.** If the project is feasible, include both the capital cost and total present worth as calculated using the methodology discussed in Subchapter 5.2 of this part.

- **Water Use, Reuse, Recapture, and Conservation (CWSRF funded or co-funded projects only).** Due to the passage of the Water Resources Reform and Development Act of 2014 (WRRDA), all applicants are required to consider as part of the alternatives analysis the

WRRDA – Water Resources Reform and Development Act of 2014

impact of each alternative on water use, recapture, and conservation. For some project types (e.g., stormwater BMPs, collection system rehabilitation/replacement), this analysis will not apply due to the nature of the project type. Two examples would be the replacement of a pump station and force main in a collection system project or the construction of a wetland to serve as a stormwater BMP. The subchapters in Subchapter 5.1.3 of this part provide direction on how to address the water use, reuse, recapture, and conservation requirements.

- **Energy Conservation (CWSRF funded or co-funded projects only).** The passage of the WRRDA also requires Applicants to address energy conservation as part of the alternatives analysis. For some project types (e.g., stormwater BMPs, wetland/buffer/stream restoration), energy conservation will not be applicable. For other project types such as collection system rehabilitation/replacement or collection system expansion, the scope of the project may render this requirement not applicable. For other project types, the nature of the project type or scope of the project will require that the Applicant address this issue. The subchapters in Subchapter 5.1.3 of this part provide direction on how to address energy conservation requirements.

- **Environmental Impact Description.** In this cell, very briefly provide a qualitative description for the Preferred Alternative first. Then for each rejected alternative, qualitatively compare the alternative under consideration to the Preferred Alternative. The purple box to the right gives an example of an environmental impact description.

  The installation of the stormwater BMP will create potential impacts to water resources, Hollow Creek, and the aquatic species that live in the creek. To minimize these impacts, the Applicant will implement soil and erosion control measures.

- **Environmental Impact Analysis.** Check the appropriate box. For the Preferred Alternative, check the box Preferred Alternative. For the others, compare the qualitative impact descriptions as to whether it is greater than, less than, or the same as the Preferred Alternative.

- **Acceptance/Rejection.** Check the appropriate box as to whether the alternative considered is the Preferred Alternative (e.g., Accepted) or rejected.

- **Rationale for Acceptance/Rejection.** In this cell, describe why the alternative was either accepted as the Preferred Alternative or rejected. Consider such factors as the following:

  - Cost
  - Environmental impact/benefit
  - Safety
  - Long-range planning

  While slightly more expensive than the rehabilitation alternative, the constructed wetlands project will reduce the amount of nutrients that flow into Hollow Creek.

  Keep in mind that the Preferred Alternative may not necessarily be the least costly option, as other factors may be a consideration. The purple box to the right shows an example of how the Rationale for Acceptance/Rejection might be completed.

The remaining subchapters discuss what alternatives must be considered for each project type.

Major ERs/EIDs Only

- Narrative may be used for each alternative considered in the alternatives analysis.
- Complete the requirements as set forth in this subchapter and ensure that all elements discussed are included in the alternatives analysis.

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(Last updated: May 2015)

5.1.1 No-Action Alternative

For use with projects funded or co-funded by the CWSRF program.

The No-Action Alternative, which some people call the Do-Nothing alternative, must answer the question, "What would happen if the Applicant did nothing?" Discuss what will happen if no project were constructed. Detail information such as further equipment deterioration, higher operations and maintenance (O&M) costs, increased water quality impairment, and high safety risks to the general public and utility employees.

No-Action Alternative – The alternative that describes what happens if a project were not constructed.

O&M – Operations and maintenance

All projects must consider the No-Action Alternative as part of the alternatives analysis.

Note that many times, a No-Action Alternative may be considered infeasible, but on occasion, it may be feasible. If it is feasible, then complete a present worth analysis for it. The alternatives analysis for the No-Action Alternative will contain O&M costs and replacement costs but no capital costs. Please see Subchapter 5.2 of this part for definitions of "feasible" and "infeasible." The purple box to the right shows an example of a No-Action Alternative description.

If the No-Action Alternative were implemented, then the project would not be constructed. The pump station would continue to deteriorate with increasing O&M costs. Additionally spill risk would increase. Finally, worker safety would remain an issue.

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(Last updated: May 2015)

5.1.2 Preferred Alternative

For use with projects funded or co-funded by the CWSRF program.

Most of the time, the Preferred Alternative will be one of the alternatives described in Subchapter 5.1.4 of this part. Other times, the Preferred Alternative will not be any of those alternatives. If that is the case, thoroughly describe the Preferred Alternative using the tables discussed in Subchapter 5.1 of this subpart.

There may be cases in which there is only No-Action and a Preferred Alternative. If that is the case, then provide a justification as to why only these two alternatives were considered. However, note that for the vast majority of projects, all alternatives in the subchapters discussed must be considered.

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(Last updated: May 2015)

5.1.3 Water Resources Reform and Development Act of 2014 Requirements

For use with projects funded or co-funded by the CWSRF only.

If the Applicant's project will utilize a CWSRF loan, then the Applicant must take into consideration requirements related to the WRRDA, including water use, reuse, recapture, and conservation as well as energy conservation. The following subchapters provide guidance on how to address these two topics

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(Last updated: May 2015)

5.1.3.1 Water Use, Reuse, Recapture, and Conservation

For some project types, addressing issues related to water use, reuse, recapture, and conservation may not apply. These project types would be

- Stormwater best management practices
- Stream/buffer/wetland restoration

If this is the case, then in the section of Table 5.y related to water use, reuse, recapture, and conservation, check the first box that states that the project is not applicable to the water use, reuse, recapture, and conservation requirements due to project type. This must be done for all alternatives considered, including the No-Action Alternative.

For the other project types, the scope of the project may render addressing this issue as not applicable. For example, a collection system rehabilitation project may consist of replacing a pump station and force main. If this is the case, then in the section of Table 5.y related to water use, reuse, recapture, and conservation, check the second box stating that the project scope renders the project not applicable to the water use, reuse, recapture, and conservation requirements.

Other projects, especially those related to wastewater treatment plant expansions and reclaimed water, can involve water use, reuse, recapture, and conservation. If this is the case, then check the third box and complete the analysis for water use, reuse, recapture, and conservation as described below.

The analysis for water use, reuse, recapture, and conservation should be a qualitative and brief analysis that compares all rejected alternatives, including the No-Action Alternative, to the Preferred Alternative.

Begin with the Preferred Alternative. Check the appropriate box in Table 5.y. Briefly discuss how the project will impact water usage, including whether or not efforts will be made to reuse or recapture water and how water will be conserved. The purple box contains an example of how the text might look.

For the No-Action Alternative, check the appropriate box in Table 5.y. Briefly discuss how not implementing the project would impact water use, reuse, recapture, and conservation. The purple box to the right contains an example of how the text might.

For all other rejected alternatives, repeat the process, only compare the alternatives to the Preferred Alternative and check the appropriate box in Table 5.y. The purple box to the right contains an example of how the text might look for a WWTP expansion project.

Water Use, Reuse, Recapture, and Conservation – WWTP Expansion

Preferred Alternative

The WWTP expansion to project to allow for reuse will include the use of rainwater harvesting measures to harvest rain off of buildings as well as reclaimed water capabilities. Both the rainwater harvested and reclaimed water will be used to provide wash-down water at the WWTP. Reclaimed water will also be sold to local landscaping companies on a bulk level. Last, water conservation measures will be implemented inside all buildings and will include low-flow toilets and automatic faucets.

No-Action Alternative

Since the project would not be implemented under this project, no water use, reuse, recapture, or conservation measures will be implemented. The WWTP would continue to utilize outdated water fixtures and would not construct rainwater harvesting or reuse facilities.

Rejected Alternative

This alternative would incorporate the same measures as the Preferred Alternative. Therefore, water use, reuse, recapture, and conservation would be the same as the Preferred Alternative.

If water use, reuse, recapture, or conservation measures played a significant role in alternative acceptance, or rejection, state as such and *briefly* explain why this is the case. If the Preferred Alternative does not use, recapture, or conserve water as much as a rejected alternative, then state as such and *briefly* explain why the alternative was chosen despite this lack of conservation.

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(Last updated: May 2015)

5.1.3.2 Energy Conservation

For some project types, addressing energy conservation measures will not apply. These project types include the following:

- Stormwater BMPs
- Stream/buffer/wetlands restoration

- Rainwater harvesting

For other projects, the scope of the project may mean that energy conservation measures will not apply. Some examples of a project scope include:

- Replacement of pipe *only* during a collection system replacement/rehabilitation project
- Installation of a new interceptor *only*

Other projects, especially those related to the WWTP or pump stations, can have energy conservation impacts that must be discussed. The analysis for energy conservation should be brief and qualitative and compare all rejected alternatives, including the No-Action Alternative, to the Preferred Alternative. Note: If points were claimed for energy efficiency, then energy conservation should be discussed in greater detail than otherwise described in this subchapter. Refer to other tables within the ER/EID related to energy efficiency as needed.

For this analysis, begin with the Preferred Alternative. Check the appropriate box in Table 5.y. Discuss any energy efficiency measures that will be implemented as part of the project. The purple box at the right provides an example of how this example might look.

For the No-Action Alternative, check the appropriate box in Table 5.y. Briefly discuss how not implementing the project will impact energy usage. The purple box to the right provides an example of how this discussion might look.

Energy Conservation – Pump Station Replacement

Preferred Alternative

The Preferred Alternative will incorporate variable frequency drives, upgraded SCADA and solar panels. The VFDs at the reclaimed water pump station will allow for a more efficient usage of energy by adjusting the speed at which the pumps will operate. Additionally, the solar panels will provide energy to light the security lights around the pump station site. This will reduce the amount of energy drawn from the power grid.

No-Action Alternative

If the No-Action Alternative were implemented, then energy usage would continue to increase as the pumps and circuitry deteriorate.

Rejected Alternative

Alternative A would not include solar panels and would utilize pumps that are not VFDs but would include upgraded SCADA. Despite the upgraded SCADA, the pumps would not run as efficiently as the VFDs. Therefore, the energy conservation would be less than that of the Preferred Alternative.

For all other rejected alternatives, check the appropriate box in Table 5.y as to whether or not the energy conservation measures would save more or less energy than the Preferred Alternative. Briefly discuss why this would be so. The purple box to the right provides an example of how this discussion might look.

If energy conservation measures played a significant role in alternative acceptance, or rejection, state as such and *briefly* explain why this is the case. If the Preferred Alternative does conserve energy as much as a rejected alternative, then state as such and *briefly* explain why the alternative was chosen despite this lack of conservation.

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(Last updated: May 2015)

5.1.4 Project-Type-Specific Alternatives Descriptions

In addition to the No-Action Alternative and the Preferred Alternative (if different from the descriptions below), alternatives descriptions that are specific to the different project types considered in this guidance must be examined.

Each project type below will note the funding programs for which the subchapter may be used.

Each project type will note for which programs they can be used.

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(Last updated: May 2015)

5.1.4.1 Reclaimed Water Systems

Updates to occur Summer of 2015.

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5.1.4.2 Stormwater Best Management Practices

For use by projects funded or co-funded with the CWSRF funding program only.

Each alternatives description must include the following:

- A description of each alternative as discussed in the subchapters below. Where appropriate, include figures and maps.
- For feasible alternatives, preliminary design information for the project, including BMP used, BMP size, materials included, drainage area, etc.
- For feasible alternatives, the capital cost and present worth derived from the present worth analysis discussed in Subchapter 5.2 of this part.
- For all alternatives, a discussion regarding why the alternative was accepted or rejected (see Subchapter 5.1 of this part of the guidance).

The following subchapters describe these alternatives. Be sure to include the No-Action Alternative (see Subchapter 5.1.1 of this part of the guidance) as part of the analysis, and if the Preferred Alternative (see Subchapter 5.1.2 of this part of the guidance) is different from those discussed below, describe it as well.

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5.1.4.2.1 Alternatives Considered

Describe and provide an analysis of at least two BMPs that could be implemented in the project area. For each, discuss the following:

- Feasibility
- Environmental impacts (both construction and operational) and benefits (positive impacts) on both hydrology and pollutant removal
- Cost
- Estimated completion time, including construction sequence and schedule
- Maintenance
- NC Stormwater Manual sizing standards. Describe if the BMP is sized in accordance to the NC Stormwater BMP Manual.

Describe how each alternative will positively or negatively alter the watershed impairment as discussed in Subchapter 3.6.2 of this part. If the project will have no effect on this impairment, then state as such.

Include and reference any details and preliminary BMP sizing calculations in an appendix of the ER/EID. See the North Carolina Stormwater BMP Manual for additional information related to BMP sizing.

Maintenance is an ongoing legal requirement after the BMP is constructed. You must complete inspections at appropriate times throughout the year, and inspection records must be available upon request. Include the maintenance aspect for each alternative. The operations, maintenance, and replacement costs for any lost vegetation or BMP repairs must be included in the present worth analysis.

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5.1.4.2.2 Preferred Alternative

For the Preferred Alternative, include any descriptions, diagrams, and preliminary design criteria. Discuss any potential open space and recreational opportunities that would be associated with the project.

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To Present Worth Analysis

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(Last updated: May 2015)

5.1.4.3 *Stream, Buffer, and Wetland Restoration*

For use with the CWSRF funding program only.

Each alternatives description must include the following:

- A description of each alternative as discussed in the subchapters below. Where appropriate, include figures and maps.
- For feasible alternatives, preliminary design information for the project, including BMP used, BMP size, materials included, drainage area, etc.
- For feasible alternatives, the capital cost and present worth derived from the present worth analysis discussed in Subchapter 5.2 of this part.
- For all alternatives, a discussion regarding why the alternative was accepted or rejected (see Subchapter 5.1 of this part of the guidance).

The following subchapters describe these alternatives. Be sure to include the No-Action Alternative (see Subchapter 5.1.1 of this part of the guidance) as part of the analysis, and if the Preferred Alternative (see Subchapter 5.1.2 of this part of the guidance) is different from those discussed below, describe it as well.

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5.1.4.3.1 Alternatives Considered

Other alternatives than the No-Action Alternative detailed in Subchapter 5.1.1 of this part must include all feasible, environmentally sound options, and there must be at least one other alternative in addition to the Preferred Alternative discussed in Subchapter 5.1.2 of this part. Provide a separate discussion for each alternative that was considered. Alternatives may include different methods and techniques and/or different stream or wetland sections on which to focus efforts. Consider and discuss, as appropriate, the following topics:

- Methods and equipment that will be used for the restoration/enhancement project
- Ongoing maintenance
- Monitoring and/or other methods to evaluate progress
- Limitations on achievable goals, if any

Additionally, provide diagrams that show how these alternatives will be implemented.

Each alternative must describe the following:

- **Goals of the project.** Clearly explain the desired results of the project. Provide these results as specific goals and quantify whenever possible. Explain how quantitative goals will be measured and/or how qualitative goals will be assessed. Also, show how the goals of the project link back to the project need and purpose as discussed in Chapter 4.0 of this part.

- **Future monitoring.** Describe monitoring that will be conducted to evaluate progress toward the project goals in the short- and long-term. Include a discussion of the monitoring locations, monitoring frequency, and monitoring parameters that will be measured. Explain how future monitoring will be funded. Include a full copy of the monitoring report in an appendix of the ER/EID with appropriate reference made in the table.

- **Contingency plan.** If the goals discussed are not met, then explain what the contingency will be. Note whether any additional funding will be needed to implement contingency plans. If the proposed project is part of a multi-phase, long-range project, explain how not meeting the goals in this phase will impact future phases. Provide the contingency plan in an appendix in the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

5.1.4.3.2 Preferred Alternative

For the Preferred Alternative, explain in detail how the restoration/enhancement project will be accomplished. Consider and discuss, as appropriate, the following topics:

- Rationale for choosing this particular stream segment, wetland area, or riparian buffer zone
- Methods and equipment that will be used for the restoration/enhancement project
- How land use within the riparian buffers and project location can be controlled in the future (e.g., conservation easements)
- Vegetative species to be planted
- Ongoing maintenance
- Monitoring and/or other methods to evaluate progress
- Limitations on achievable goals, if any

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To Present Worth Analysis

(Last updated: May 2015)

5.1.4.4 Rainwater Harvesting

Coming Soon

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5.2 Present Worth Analysis

For use with projects funded or co-funded by the CWSRF program.

The present worth analysis is a numerical calculation that leads to vital information related to a project since many decisions related to the Preferred Alternative may consider project costs. To determine whether or not you need to complete a present worth analysis for an alternative, decide if the project is feasible.

A present worth analysis must be completed for feasible alternatives only.

Feasible alternatives are those that are constructible regardless of cost. Infeasible alternatives are those that are not constructible. *A present worth analysis should be conducted for all projects considered to be feasible, even if the project is a No-Action Alternative.*

Feasible – An alternative that can be constructed regardless of cost.

Infeasible – An alternative cannot be constructed.

The present worth analysis consists of four steps:

- Determination of capital costs
- Determination of replacement costs
- Determination of operations and maintenance (O&M) costs
- Calculation of total present worth

Example of infeasible alternatives:

- Replacement of lines under a building
- Relining pipe that has completely collapsed
- A No-Action Alternative for a pump station that has a history of Notices of Violations

Requirements

Do not place blank tables in the ER/EID. Only include those that you have completed as part of your analysis.

The Division's website contains a present worth analysis workbook that must be used for all projects with a minor ER/EID. The workbook contains the Table of Contents as well as a worksheet showing the equations that are used in calculating each step. Complete the tables in this workbook and place those used in the body of the ER/EID.

Major ERs/EIDs Only

- The Applicant's own calculations may be used for the present worth analysis, or the workbook provided by the Division may be used. If using alternate calculations, then both a justification for the different methodology and a sample calculation so that Division staff can replicate them.
- Any alternative methodologies used to calculate the present worth must fulfill the requirements as set forth in this subchapter.

The subchapters below discuss each step. For more information about the calculations used in the analysis, please see the workbook.

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(Last updated: May 2015)

5.2.1 Determination of Capital Costs

Capital costs related to the construction of the project and will be used not only for the present worth analysis but also for an analysis of the total project cost found in Chapter 8.0 of this part. The capital costs consist of the following:

- Construction costs
- Administrative costs
- Contingency costs

Unless adequate justification can be provided, use a 10 percent contingency for capital costs.

Construction costs consist of the cost for line items used to build the project (e.g., pipe installation, pumps, concrete). Administrative costs include costs such as mobilization and engineering fees.[14] For engineering services costs, include actual costs even though the eligible reimbursement costs may be less. Include the costs associated with patent fees, engineering, startup services, land and easements, etc. Contingency costs are defaulted to ten percent during the planning stage but may be adjusted to higher or lower *so long as justification is provided*. This contingency may also be adjusted later in the funding process.

In the workbook, complete the capital cost tables with the required information related to administrative costs, project components, unit costs, the type of unit (e.g., linear feet, cubic yard), and the quantity. The workbook will then calculate the total capital cost.

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(Last updated: May 2015)

5.2.2 Determination of Replacement Costs

Over the course of the 20-year project horizon used for grants and loans, equipment may need to be replaced. Consider the project life cycle for each major element of the project such as pipe, pumps, and BMP vegetation. Use the Life Cycle table in the workbook to list out those life cycles. Then complete the Replacement Costs – Entry table for each feasible alternative. The workbook will calculate the replacement costs in the appropriate years.

Examples of replacement costs:

- BMP vegetation
- Security fencing

When printing tables for the ER/EID body, there is no need to print the Replacement Cost Entry table.

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(Last updated: May 2015)

5.2.3 Determination of Operations and Maintenance Costs

The next step of the present worth analysis is to consider the O&M costs associated with each feasible alternative.

O&M – Operations and Maintenance

Yearly O&M costs – O&M that occurs an annual basis.

Intermittent O&M costs – O&M that occurs during the 20-year project horizon but not on a yearly basis.

[14] Not all administrative costs may be eligible. Please see the SRF eligibility guidance document for additional information.

The Division defines two types of O&M costs: annual and intermittent. Note that the O&M costs to be considered should be related to the project only. These costs will factor into the financial analysis discussed in Chapter 8.0 of this part.

Note that the No-Action Alternative may be feasible and have O&M costs only associated with it. For example, if a pump station can continue functioning if no action is taken, it may require increasing maintenance over the years. Additionally, keep in mind that O&M costs can be negative. If the pump station discussed above were replaced by a new pump station, then the O&M costs might decrease.

O&M Costs must relate to the project only.

Annual O&M costs consider costs that occur on an annual basis such as for salaries and benefits of additional employees for the project, chemical costs, and energy costs. For those costs, enter each as a line item in the Yearly O&M Costs tables in the workbook. Then print those tables and place them in the body of the ER/EID.

Yearly O&M Costs Examples

- Chemicals for wastewater treatment
- Energy usage
- Pipeline inspections
- Salaries for additional employees required for project

Intermittent O&M Costs

- Pump refurbishment
- BMP refurbishment
- Clarifier concrete maintenance

Intermittent O&M costs are those costs that may not occur on an annual basis but are O&M costs that will occur at some point during the 20-year project horizon. To analyze the intermittent O&M costs, go to the Intermittent O&M Entry sheet in the workbook and enter each intermittent O&M cost and a "Y" for each year it may occur. The workbook will calculate this particular cost. Print the appropriate sheets and place them in the body of the ER/EID.

For alternatives, the O&M costs can be negative if the alternative results in less maintenance costs.

When printing tables for the ER/EID body, you do not need to print the Intermittent O&M Entry table.

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To Alternatives Description

To Proposed Project Description

(Last updated: May 2015)

6.0 Proposed Project Description

For use with projects funded or co-funded by the CWSRF program.

The proposed project description plays a vital role, as Division staff use it to draft approval letters and final environmental documents and to compare to project scopes presented later in the funding process. Division staff will check this description to ensure that it matches the descriptions presented in the Executive Summary as well as the Alternatives Description for the Preferred Alternative. Because of this, the description must be detailed and accurate.

If the project involves multiple project types, then combine these types into one overall project description based upon the requirements below.

Requirements

Use a text format to complete the proposed project description. The description must be succinct yet contain the information required below.

All descriptions must include the following:

- General Description
  - Location of the project (e.g., county/municipality). Include location maps
  - Number of acres of land to be disturbed
- Environmental impacts
  - Stream and wetland impacts
  - Other environmental impacts, including site improvements to be made such as grading, filling, landscaping, etc.
  - All associated mitigative measures to minimize the impacts
- Project costs
  - Total present worth
  - Capital Cost

For stormwater and stream/wetland/buffer restoration projects:

- The length of stream, wetland, or buffer to be improved
- The sizing and type of stormwater BMP (stormwater BMP projects only)
- The size of the drainage area
- Amount of paved or otherwise impermeable surface within the drainage area

The stormwater best management practice proposed for construction consists of a series of .1-acre bioretention pond with a .25-acre constructed wetlands.

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To Environmental Information Document

(Last updated: May 2015)

7.0 Environmental Information Document

The Division requires some level of environmental review for all funding programs. As discussed in Subchapter 1.1 of Part A of this guidance, the level of environmental review depends upon the funding source and whether or not the project is above the minor construction activities criteria.

If the Applicant's project is funded or co-funded with CDBG-I funds, the environmental documentation preparation process is a completely separate process completed by the Responsible Entity.

Please note that the CDBG-I program has a separate environmental process that must be used if the Applicant's project is funded or co-funded with CDBG-I funds. Please see the CDBG-I web page on the Division's website for more information.

Projects that are funded through the WW-SRL, WW-SEL, or WW-HUC only are required to complete a limited EID to check for any issues that might trigger external agency concerns.

The remaining sections in this chapter provide an overview of the ER/EID and discuss specific requirements related to each of the resource categories.

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(Last updated: May 2015)

7.1 Purpose of the Environmental Information Document

When public grant and loan program funds administered by the Division are spent on a construction project, the project must be assessed for environmental impacts. The EID allows the Division, as well as other review agencies, to make determinations about the degree of impacts that can reasonably be expected to occur as a result of construction and operation associated with a proposed project. The EID may also be needed to comply with SEPA.

SEPA – State Environmental Policy Act

EID – Environmental information document

Projects seeking funding through the CWSRF, DWSRF, WW-HUC, DW-HUC, WW-SRL, or WW-SEL are subject to SEPA requirements. Even though CWSRF and DWSRF projects are subject to SEPA, there are some federal cross-cutting issues that may be applicable. The two programs are very similar, and environmentally speaking, both have a goal of preserving natural resources and minimizing environmental consequences.

For additional information, refer to EPA's NEPA Homepage and associated regulations and DENR's SEPA Web page and associated regulations.

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(Last updated: May 2015)

7.2 Impact Definition

When constructing a project, three types of impacts must be documented in the EID. These impacts are as follows:

- Direct impacts
- Secondary impacts
- Cumulative impacts

Benefit – A positive effect on the environment

Impact – A negative effect on the environment

SCI – Secondary and cumulative impacts

Secondary and cumulative impacts (SCI) are often assessed jointly. This subchapter discusses the different types of impacts, as well as the scope of impacts that must be considered. Environmental impacts can be both positive (hereafter known as benefits) or negative (hereafter known as impacts). The EID should include a discussion of both impacts and benefits. DENR's *Guidance for Preparing SEPA Documents and Addressing Secondary and Cumulative Impacts* is an excellent resource for additional information.

The following subchapters specifically define the three types of impacts.

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(Last updated: May 2015)

7.2.1 Direct Impacts

Direct Impact – Those effects on the environment that occur at the same time and place as the project.

Direct impacts are those effects on the environment that occur at the same time and place as the project. They are the most certain and predictable of the impacts.

Direct impacts include impacts from construction-related activities as well as impacts related to operation of a newly constructed or modified facility upon completion of construction. The EID must address direct impacts, which are typically the easiest to identify.

Examples of Construction Impacts

- Displacement of wildlife from clearing forests
- Air emissions from construction equipment
- Degradation of aquatic habitat from stream crossings

Examples of Operational Impacts

- Air emissions from generators
- Increased nutrient loading in a river due to WWTP discharge
- Noise from a pump station constructed near a neighborhood park

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(Last updated: May 2015)

7.2.2 Secondary Impacts

Secondary impacts are effects to the environment and natural resources that are more removed in time and distance from a project's construction and operation activities. Secondary impacts are also called "indirect impacts" and are often thought of as chain reaction processes where one action or result leads to another action or result. SEPA regulations (15A NCAC 01C .0103) define secondary impacts as

> *…indirect impacts caused by and resulting from a specific activity that occurs later in time or further removed in distance than direct impacts, but are reasonably foreseeable. Indirect impacts may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate and related effects on air and water and other natural systems, including ecosystems.*

Secondary impacts – Effects to the environment and natural resources that are more removed in time and distance from a project's construction and operation activities.

Example of Secondary Impacts

Construction of a residential subdivision as a result of a sewer expansion. The paved roads, driveways, and other impervious surfaces may cause pollutant runoff into nearby streams.

Secondary impacts associated with infrastructure projects are often related to residential, commercial, and industrial growth that the infrastructure project supports.

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7.2.3 Cumulative Impacts

Cumulative impacts are those effects that result from the project's direct impacts when added together with impacts from other past, present, and future projects that can be reasonably predicted. SEPA regulations define cumulative impacts as "environmental impacts resulting from incremental effects of an activity when added to other past, present, and reasonably foreseeable future activities regardless of what entities undertake such actions."

Evaluating cumulative impacts requires analysis of the "big picture" in terms of time and space. In some cases, cumulative impacts may be positive. These are an issue that must be considered any time that growth is anticipated in the project area, even if that growth is not facilitated by or connected to the project. If impacts from a project are minor and limited to construction only, they are less likely to contribute to cumulative impacts in the broader project area. Note that even minor impacts may

Cumulative impacts – Those effects that result from the project's direct impacts added together with impacts from other past, present, and future projects that can be reasonably predicted.

Cumulative impacts must be considered and discussed for any project that takes place in an area experiencing growth and development, even if the proposed project is not an expansion project.

Example of Negative Cumulative Impacts

Construction of collection system expansion + nearby highway expansion + new subdivision infrastructure = potential degradation of watershed

Example of Positive Cumulative Impacts

Stream and Wetlands restoration at the head of the watershed + Stormwater BMPs constructed for new subdivision + removal of structures from floodplain = potential improvement of water quality in streams.

be significant to a cumulative impacts analysis if those impacts are permanent in nature because minor permanent impacts from multiple projects can become significant when considered together.

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7.2.4 Scope of Impacts

The other factor to consider when evaluating impacts of the project is the scope of impacts. The scope of impacts is the area that should be investigated to identify impacts to various resources that are included in the impact analysis. The scope of impacts for direct impacts is more narrowly focused because it deals with impacts that occur in close proximity to the project. The scope of impacts for SCI is typically broader and will include areas that will be impacted by future growth and development in areas surrounding the project site. Table B.7.1 below identifies the scope of that should be considered for both direct impacts and SCI for each resource category.

The scope of impacts will differ by resource category and impact type.

Table B.7.1 Scope of Impacts for Resource Categories

Resource Category	Direct Impacts	SCI
Topography and Flood Plains	Project site	Existing and expanded service area
Soils	Project site	Existing and expanded service area
Prime and Unique Farmland	Project site	Existing and expanded service area
Land Use	Project site	Existing and expanded service area
Forest Resources	Project site	Existing and expanded service area
Wetlands & Streams	Project site and subbasins/watershed downstream of the project	Subbasin/watershed containing the existing and expanded service area as well as areas downstream
Water Resources	Subbasin/Watershed containing the project and downstream (for surface water) and aquifer below the project (for groundwater)	Subbasin/Watershed containing the project and expanded service area as well as areas downstream (for surface water) and aquifer below the project and expanded service areas (for groundwater)
Shellfish or Fish and Their Habitats	Subbasin/Watershed containing the project and downstream	Subbasin/Watershed containing the existing and expanded service areas
Wildlife and Natural Vegetation	Project site and T&E species adjacent to site	Existing and expanded service area
Public Lands, Scenic & Recreational Areas	Project site and areas immediately adjacent to the project site	Existing and expanded service area
Areas of Archaeological or Historical Value	Project site and areas immediately adjacent to the project site.	Existing and expanded service area

Table B.7.1 Scope of Impacts for Resource Categories		
Resource Category	**Direct Impacts**	**SCI**
Air Quality	Area immediately adjacent to site and area downwind of the project (area downwind of the project is included for operational impacts, not construction impacts)	Region containing the project site
Noise Levels	Project site and area adjacent to the project (area adjacent to the project is included for operational impacts, not construction impacts)	Existing and expanded service area
Introduction of Toxic Substances	Project site	Not applicable

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(Last updated: May 2015)

7.3 Preparing the Environmental Document

The EID must include the existing environmental characteristics, predicted environmental effects, environmental justice (where required), and mitigative measures. Each item that must be included is discussed in further detail below.

Many of the requirements for the EID are based upon the North Carolina Department of Administration's (DOA's) Environmental Assessment Guidelines.

For minor ERs/EIDs, each table must be completed according to the instructions in the relevant section of the guidance. The guidance document walks through the type of information that should be included within the tables. Note that limited EIDs for state-funded programs only will require select tables. Each section of the guidance will indicate whether that table must be completed for a limited EID, as will the tables provided in a separate document on the Division's website.

Only State-funded projects require a limited EID.

For a major ER/EID, a narrative format must be used. Refer to the guidance for the type of information that should be included, but note that a greater level of detail is expected in a major ER/EID. This additional detail is necessary for agency review and for Division staff to be able to prepare the final environmental document. Supporting information should be placed in an appendix of the ER/EID.

For minor ERs/EIDs, and limited EIDs, the tables contain cells for existing conditions, direct impacts, SCI, and mitigative measures.

- For each table, complete all cells. For resource categories where no impacts will occur even if the resources is present, state no impact and provide the reason why. The purple box to the right provides an example.

Though the project area contains three historic landmarks, no impacts will occur because the replacement of the pipe is located ½ mile from these landmarks.

- If an impact will occur, then provide a mitigative measure that will minimize or mitigate the impact.
- Copy and paste the table from the document provided on the Division's website into the body of the ER/EID.
- Where figures are required, provide the figures either in the body of the ER/EID or an appendix with the appendix appropriately referenced within the table.

For the existing conditions cell, describe the immediate project site and surrounding project area as it currently exists. Avoid the following common mistakes:

- Describing only resources that will be impacted by the project
- Describing only the immediate project site
- Putting N/A in the existing conditions cell because there will be no impacts

Project site – the area where the construction of the project will occur

Project area – The vicinity adjacent to the project site. Will vary depending upon the scope of impacts for the resource category.

All resources must be addressed, whether impacted by the project or not. The surrounding project area must be included. Refer to Table B.7.1 for more information on the scope of impacts, which defines the area that must be described.

Note that the area for existing impacts varies by the scope of impacts for the resource category.

The environmental impacts cells for both direct impacts and SCI are the most critical part of the EID. As discussed in Subchapter 7.2 of this part, the EID must address direct impacts, secondary impacts, and cumulative impacts. Address all resource categories as discussed in Subchapter 7.4 of this part. In the discussion for each resource, explain the rationale for conclusions. Consider the scope of impacts as discussed in Subchapter 7.2.4 of this part. For SCI, utilize the guidance discussed in Subchapter 7.2.2 of this part. Refer to Table B.7.1 for additional information on the scope of impacts that should be addressed for each resource category.

Keep in mind that a project can produce both environmental impacts and benefits. The focus of many EIDs tends to be on potentially negative impacts, but benefits should be discussed as well.

Be sure to describe both the impacts and benefits of a project.

Major ERs/EIDs Only

- Complete the EID in a narrative format and use tables where needed to accurately and succinctly present information.

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7.4 Resource Categories

The following subchapters address each resource category for the EID. Please note that the bold italics at the beginning of each subchapter as well as in the tables found in the document on the Division's website will denote for which funding program the table is required.

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(Last updated: May 2015)

7.4.1 Topography and Floodplains

For use for projects funded or co-funded with the CWSRF, WW-HUC, WW-SRL, and WW-SEL programs.

Requirements

- Complete the Table 7.1 and place it in the body of the ER/EID. The subchapters below discuss what the table should contain.
- Prepare a figure that shows the following:
  - The project location
  - The location of the 100-year floodplain and any floodways
  - Major roadways with appropriate labeling
  - Waterways with appropriate labeling

  Place the figure in the body of the ER/EID or in an appendix with the appropriate reference in the table.

  Note: The floodplain features may be included on an Environmental Features Figure that incorporates a variety of resources.
- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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7.4.1.1 Existing Conditions

Briefly describe the topography of the project site and project area, including landforms, slopes, and elevations.

Include a brief description of the geology of the area. Note any significant geological features.

Discuss whether the project will encroach on the 100-year floodplain. If the project is within or near the floodplain, note the floodplain areas on the figure. The

100-year floodplain – The areas that are expected to be inundated by the 1% annual chance flood (100 year flood)

Floodway – The channel of a stream, plus any adjacent floodplain areas, that must be kept free from encroachment so that the 1% annual chance flood can be carried without substantial increase in flood height.

figure must clearly delineate where the project is located in relation to the floodplain. The North Carolina Emergency Management Agency has digital floodplain data available for possible use in analysis. Distinguish between floodplain impacts and floodway impacts.

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(Last updated: May 2015)

7.4.1.2 Direct Impacts

For direct construction impacts, describe how the project will change existing topography on the project site. Note whether changes, if any, will be temporary or permanent.

Practicable – Capable of being done within existing constraints.

Identify encroachments of the project on floodplains and floodways. For floodplains, discuss whether the construction of the project will impact the 100-year floodplain. Discuss how any buildings or infrastructure built in the floodplain will be protected.

For projects funded through the CWSRF and DWSRF programs where there are proposed permanent changes to the 100-year floodplain (see Executive Order 11988), alternatives to the impact must be provided in the alternatives analysis. Impacts to the floodplain are only allowed where there is no practicable alternative. The test of what is practicable depends on the situation and includes consideration of all pertinent factors such as environment, cost, and technology. Clearly explain why alternatives that would not impact the floodplain were rejected.

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(Last updated: May 2015)

7.4.1.3 Secondary and Cumulative Impacts

For SCI, discuss the changes in topography in the existing and expanded service area which will be impacted by the project.

Note if there is a local floodway regulation program in place for the service area. Specify whether any local ordinances restrict building in the floodplain or floodway.

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7.4.1.4 Mitigative Measures

If there are no impacts, state N/A for mitigative measures. If there are any impacts, then briefly discuss any mitigative measures that may be in place, including ordinances related to restricting development in floodplains and floodways and what those restrictions are. Provide any ordinances on a CD or DVD in an appendix with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.2 Soils

For use with projects funded or co-funded by the CWSRF program and/or for projects requiring a FONSI.

Requirements

- Complete the Table 7.2 and place it in the body of the ER/EID. The subchapters below discuss what the table should contain.
- Prepare a figure that shows the following:
  - The project location
  - The location of the soils series from the Natural Resources Conservation Service (NRCS) soil survey within the project area
  - Major roadways with appropriate labeling
  - Waterways with appropriate labeling

  Place the figure in the body of the ER/EID or in an appendix with appropriate reference in the table.
- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.2.1 Existing Conditions

NCCGIA – North Carolina Center for Geographic Information and Analysis

NRCS – Natural Resources Conservation Service

Briefly describe the characteristics of the dominant soil units in the project area. Do not simply list the soil types. Note whether any soil types present a constraint to the project. This would include any fill, wetland soil types, etc. Note any soil contamination that exists. The North Carolina Center for Geographic Information and Analysis (NCCGIA) has links to digital layers of soils information. The Natural Resources Conservation Service (NRCS) also has large amounts of soils information available.

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(Last updated: May 2015)

7.4.2.2 Direct Impacts

For direct construction impacts, discuss whether the project will involve soil disturbance or contamination. Discuss the extent to which soil will be disturbed. If soil will be moved, identify the location to which it will be moved if known, or discuss contractor responsibilities with regard to moving or disposing of soil. Note whether soil is expected to be contaminated, and describe

the contamination if expected. Provide quantitative information (i.e., square feet to be disturbed or cubic yards to be moved) if known, but a qualitative discussion is also acceptable.

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(Last updated: May 2015)

7.4.2.3 Secondary and Cumulative Impacts

For SCI, describe how soils will be impacted in the existing and expanded service area, especially in terms of past, present, and future soil erosion due to the project. For example, if a WWTP were being built that would expand the service area, then the discussion of SCI would need to detail historical soil erosion trends as well as discuss the impacts that the project would have on soil erosion in the future. Discuss any turbidity stream violations that have occurred in the project area.

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(Last updated: May 2015)

7.4.2.4 Mitigative Measures

If there are no impacts, state N/A for mitigative measures. If there are any impacts, then briefly discuss any mitigative measures that may be in place, including ordinances related any erosion and sedimentation plans and associated permitting.

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(Last updated: May 2015)

7.4.3 Prime or Unique Farmland

For use with projects funded or co-funded by the CWSRF program and/or for projects requiring a FONSI.

Requirements

- Complete the Table 7.3 and place it in the body of the ER/EID. The subchapters below discuss what the table should contain.

- If prime or unique farmlands exist, prepare a figure that shows the following:
  - The project location
  - The location the prime and unique farmland soils series from the NRCS soil survey within the project area
  - Major roadways with appropriate labeling
  - Waterways with appropriate labeling

  Place the figure in the body of the ER/EID or in an appendix with the appropriate reference in the table.

- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

Note: The prime and unique farmland soils may be included on an Environmental Features Figure that incorporates a variety of resources.

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(Last updated: May 2015)

7.4.3.1 Existing Conditions

Note whether the project area includes any lands designated as prime or unique farmland by NRCS. If such lands are located in the area, discuss whether they are currently in agricultural use or other land use. Information from the NRCS may be helpful.

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(Last updated: May 2015)

7.4.3.2 Direct Impacts

Direct impacts to prime or unique farmland should be evaluated and discussed as follows:

1. Determine whether prime and unique farmland will be directly impacted by the project. If none will be impacted, state as such, and no further analysis is required.
2. Determine whether the land that will be impacted is currently in agricultural use. If not, state as such, and no further analysis is needed. If so, then estimate the acreage of land currently in agricultural use that will be lost from agricultural use or otherwise negatively impacted by the project.
3. Determine the percentage of prime or unique farmland in the county that will be lost from agricultural use or otherwise impacted. Divide the average expected to be impacted as determined in the previous step by the estimated total acreage of prime or unique farmland in the county.
4. If the percentage of impacted land is significant, discuss the implications of that loss.

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(Last updated: May 2015)

7.4.3.3 Secondary and Cumulative Impacts

For SCI, discuss past trends related to prime or unique farmland being taken out of agricultural production. For the future, discuss the impacts of the project on any prime or unique farmland in the existing and expanded service area, especially in terms of land being currently used for agricultural production. If possible, provide a quantitative amount of land currently in agricultural production that will be lost.

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(Last updated: May 2015)

7.4.3.4 Mitigative Measures

If there are no impacts, state N/A for mitigative measures. If there are any impacts, then briefly discuss any mitigative measures that may be in place, including ordinances related land use restrictions to preserve prime or unique farmlands. Include copies of these ordinances on a CD or DVD within an appendix with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.4 Land Use

For use with projects funded or co-funded by the CWSRF program and/or for projects requiring a FONSI.

Requirements

- Complete the Table 7.4 and place it in the body of the ER/EID. The subchapters below discuss what the table should contain.

- Recommended: Prepare a figure that shows the following:
    - The project location
    - The land use within the project area
    - Major roadways with appropriate labeling
    - Waterways with appropriate labeling

  Place the figure in the body of the ER/EID or in an appendix with the appropriate reference in the table.

  Figures that show zoning, future land use, and future zoning may also be prepared in accordance with the requirements above.

- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.4.1 Existing Conditions

Describe the current use of land at the project site and in the project area. Discuss how the current land use of the project site fits into the land use of the region in terms of conservation development and ecological function.

Provide the current zoning classification of the project site if applicable. For the figures mentioned above, consult with the county or Applicant's planning department for further information.

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(Last updated: May 2015)

7.4.4.2 Direct Impacts

For direct construction and operational impacts, discuss how land use on the project site will change and how the new use fits into the intended land use of the entire area in terms of conservation, development, ecological function, and quality of life. Identify whether local zoning or land use plans need to be changed.

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(Last updated: May 2015)

7.4.4.3 Secondary and Cumulative Impacts

Secondary and cumulative impacts often come into play with projects that are driven by growth.

For SCI, explain how land use in the existing and expanded service area is expected to change as a result of the project. Discuss whether new uses fit the intended land use of the entire area in terms of conservation, development, ecological function, and quality of life. Note whether local zoning or land use patterns will be changed in the existing and expanded service area of the project.

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(Last updated: May 2015)

7.4.4.4 Mitigative Measures

If there are no impacts, state N/A for mitigative measures. If there are any impacts, then briefly discuss any mitigative measures that may be in place, including ordinances related land use development. Refer to any land use plans or zoning ordinances as necessary. Include copies of these ordinances on a CD or DVD within an appendix with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.5 Forest Resources

For use with projects funded or co-funded by the CWSRF program and/or for projects requiring a FONSI.

- Complete the Table 7.5 and place it in the body of the ER/EID. The subchapters below discuss what the table should contain.
- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.5.1 Existing Conditions

Describe the type of forest resources (e.g., pines, hardwoods, mixed) on the project site and in the project area. Discuss whether the forest resources are old growth or new growth.

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(Last updated: May 2015)

7.4.5.2 Direct Impacts

Describe any direct construction impacts to forest resources as a result of project construction. If a forested area will be cleared, specify the acreage that will be cleared and describe the forestry practices to be used.

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(Last updated: May 2015)

7.4.5.3 Secondary and Cumulative Impacts

For SCI, describe past trends related to the loss of forest resources as well as expected future trends. If possible, approximate the amount of forestry acreage that might be lost due to the project in the existing and expanded service area.

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(Last updated: May 2015)

7.4.5.4 Mitigative Measures

If there are no impacts, state N/A for mitigative measures. If there are any impacts, then briefly discuss any mitigative measures that may be in place, including ordinances related forest preservation. Include copies of these ordinances on a CD or DVD within an appendix with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.6 Wetlands and Streams

For use with projects funded by CWSRF, WW-HUC, WW-SRL, and WW-SEL programs.

Requirements

- Complete Tables 7.6.1 and 7.6.2 (if needed) and place them in the body of the ER/EID. The subchapters below discuss what the tables should contain.
- Prepare a figure that shows the following:
  - The project location
  - Wetlands and streams within the project area with appropriate labeling
  - Major roadways with appropriate labeling
  - Stream and wetland crossings (if any) keyed to Table 7.6.2

  - *Note: The wetlands and streams mapping may be included on an Environmental Features Figure that incorporates a variety of resources.*
  Place the figure in the body of the ER/EID or in an appendix with appropriate reference made in the table.
- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.6.1 Existing Conditions

NWI – National Wetlands Inventory

FWS – U.S. Fish and Wildlife Service

Note whether any federally or state-regulated wetlands are present within the project area or on the project site. Identify when any delineations occurred, if applicable. Discuss the type, quality, function (e.g., flood control, wildlife habitat, groundwater recharge), and relative importance of wetlands in the project area to the total wetland resources of the larger area.

Identify and discuss any streams in the project area and on the project site (if applicable).

NCOneMap has a digital layer of the National Wetland Inventory (NWI) maps available for download, as does the U.S. Fish and Wildlife Service (FWS).

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(Last updated: May 2015)

7.4.6.2 Direct Impacts

For direct construction impacts, discuss the impacts to wetlands and streams as a result of project construction. For operational impacts, discuss the impacts to wetlands and streams due to long-term operation of the project. If a wetland will be filled as part of the project, indicate how many acres are involved and note the location of the fill on the figure. For impacts to streams, note the stream length in linear feet that will be affected. Discuss all stream crossings, including crossing methods used, as applicable. Crossings that will have no or minimal impact such as direct bore must be included.

For projects that involve collection systems or reclaimed water distribution lines, provide the following information in a table for each crossing:

- The stream/wetland crossing identified by a number and keyed to the map
- The diameter and type of line that will be installed
- The installation method
- The acreage (wetlands) and linear feet (streams) impacted
- Total the impacts at the bottom of the table

For direct operational impacts, discuss whether the operation of the project will have any impacts or benefits on subbasins or watersheds downstream of the project. For example, expanding a WWTP might remove a discharge upstream of an impaired stream, which would improve the quality of a stream not in the vicinity of the project by reducing the nutrient loading.

For projects funded through the CWSRF and DWSRF programs where there are proposed permanent impacts to wetlands (see Executive Order 11990), alternatives to the impacts must be provided in the alternatives analysis. Describe how impacts to wetlands have been avoided and minimized, and discuss why alternatives that would have lesser impacts to wetlands have been rejected.

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(Last updated: May 2015)

7.4.6.3 Secondary and Cumulative Impacts

For SCI, consider the long-term impacts to wetlands and streams that may result from diversion from, discharge to, or withdrawal from surface waters upstream of any wetland areas. Additionally, discuss past trends related to the loss/gain of wetlands and streams in the subbasin(s) or watershed(s) for the existing and expanded service area. Describe any potential losses or gains in the future as a result of the project. If possible, provide an estimate of the wetlands that may be gained or lost.

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(Last Updated: May 2015)

7.4.6.4 Mitigative Measures

If there are no impacts, state N/A for mitigative measures. If there are any impacts, then briefly discuss any mitigative measures that may be in place, including ordinances related the protection

of wetlands and streams. Include copies of these ordinances on a CD or DVD within an appendix with appropriate reference made in the table. If any permits from the U.S. Army Corps of Engineers (USACE) or the state are required, then provide a listing of these permits.

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(Last updated: May 2015)

7.4.7 Water Resources

For use with projects funded or co-funded by the CWSRF or DWSRF and/or for projects requiring a FONSI.

Requirements

- Complete the Table 7.7 and place it in the body of the ER/EID. The subchapters below discuss what the table should contain.
- Prepare a figure that shows the following:
  - The project location
  - Streams within the project area with appropriate labeling
  - Major roadways with appropriate labeling
  -
  - *Note: The stream mapping may be included on an Environmental Features Figure that incorporates a variety of resources.*
  Place the figure in the body of the ER/EID or in an appendix with the appropriate reference in the table.
- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.7.1 Existing Conditions

DWR – Division of Water Resources

Discuss surface water and groundwater resources in the project area and surface waters downstream. For surface waters, include the name, classification, and use support ratings. Also identify the river basin where the project is located. If there are unnamed streams in the project area, briefly describe them and use the classification of the closest downstream classified stream. The Division of Water Resources (DWR) has information that is helpful for this subchapter.

For groundwater, discuss the use, quantity, quality, depth, and recharge of groundwater resources in the project area, and identify the primary aquifer(s) in the project area. Specifically discuss any capacity use areas in the project area.

Identify the primary source(s) for drinking water in the project area.

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(Last updated: May 2015)

7.4.7.2 Direct Impacts

Describe the direct construction impacts to surface waters in the subbasin/watershed containing the project and downstream of the project in terms of water quality and quantity and whether there is the potential for stormwater runoff increases due to an increase in the amount of impervious surfaces. Identify the amount of impervious surface increase, if any.

Discuss any construction impacts to groundwater quality and quantity.

Also, characterize the direct, long-term operational impacts of the project. Be sure to consider issues such as increased sedimentation and stormwater runoff as well as impacts to surface water and groundwater quality and quantity. For example, a stormwater project might create erosion concerns while it is being built, but once constructed, it would reduce the amount of turbidity in a nearby stream.

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(Last updated: May 2015)

7.4.7.3 Secondary and Cumulative Impacts

For SCI, consider changes to water quality within the subbasin/watershed containing the project and the expanded service area, including impacts on erosion rates, sedimentation, and eutrophication. Note past and future trends related to water quality and stormwater runoff (e.g., increase in impervious surfaces). If possible, estimate the expected percentage of impervious surface area increase or decrease in the project area.

For example, constructing a collection system to take failing septic systems offline could cause potential adverse construction impacts related to erosion and sedimentation entering nearby waterways. However, the operational benefits would reduce the amount of fecal coliform entering nearby surface waters. For SCI, the new collection system could fuel growth within the service area, meaning that the subbasin/watershed containing the current and expanded service area could experience an increase in impervious surfaces area and stormwater runoff due to growth.

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(Last updated: May 2015)

7.4.7.4 Mitigative Measures

If there are no impacts, state N/A for mitigative measures. If there are any impacts, then briefly discuss any mitigative measures that may be in place, including ordinances and any erosion and sedimentation plans and associated permitting. Include any ordinances on a CD/DVD in an appendix to the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.8 Wild and Scenic Rivers

For use with projects funded or co-funded by the CWSRF program and/or for projects requiring a FONSI.

Requirements

- Complete the Table 7.8 and place it in the body of the ER/EID. The subchapters below discuss what the table should contain.
- Include any supporting information in an appendix to the EID. List the appendix reference in the table.

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(Last updated: May 2015)

7.4.8.1 Existing Conditions

Utilize the website for National Wild and Scenic Rivers System to determine if any wild and scenic rivers are located in the project area.

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(Last updated: May 2015)

7.4.8.2 Impacts and Mitigation

If there are designated Wild and Scenic Rivers within one mile of the project site, describe any construction and operational impacts. If impacts are anticipated, consult with the U.S. Fish and Wildlife Service to determine if mitigation is required. Discuss any mitigation that will be implemented as determined by the U.S. Fish and Wildlife Service.

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(Last updated: May 2015)

7.4.9 Coastal Resources

For use with projects funded or co-funded by the CWSRF or DWSRF and/or for projects requiring a FONSI.

Requirements

- Complete Table 7.9 in and place in the body of the EID.

The format of Table 7.9 is different from the other resource category tables.

- Place any supporting information in an appendix of the EID. List the appendix reference in the table.

CZMA – Coastal Zone Management Act

CAMA – Coastal Area Management Act

DCM – Division of Coastal Management

This table documents compliance with the Coastal Zone Management Act (CZMA) and Coastal Barrier Resources Act and Coastal Zone Management Act. Its format is a different from the other resource category tables.

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(Last updated: May 2015)

7.4.9.1 Coastal Area Management Act

Funded projects must demonstrate compliance with the Coastal Area Management Act (CAMA), which is administered through the Division of Coastal Management (DCM). First, determine whether the project is located in a CAMA county. If the project is located in a CAMA county and involves new construction, land conversion, major rehabilitation, or substantial improvement activities, then a consistency review is required. Refer to DCM's Federal Consistency Review webpage for additional information regarding consistency review. Discuss the consistency review in the table and include any correspondence with DCM in an appendix.

CAMA Counties:

Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Hertford, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell, Washington

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(Last updated: May 2015)

7.4.9.2 Coastal Barrier Resources Act

Under the Coastal Barriers Resources Act/Coastal Barrier Resource Improvement Act of 1990, certain communities are designated as Coastal Barrier Resources Systems (CBRS). The Act is intended to minimize loss of human life, wasteful expenditure of revenues, and damage to natural resources associated with barrier islands by restricting financial assistance for projects that encourage development of coastal barriers. If the project is located within a coastal county, determine if the project is located in a CBRS. The FWS has a CBRS Mapper available online to determine if a project is located in a CBRS community. If the project is located in CBRS community, Federal assistance is only allowed for certain exempted activities (e.g., a nature trail) after approval from the FWS (see 16 USC 3505 for exceptions to limitations on expenditures). A record project approval from the FWS must be provided; otherwise Federal funds cannot be used for the project.

CBRS – Coastal Barrier Resources Systems

FWS – U.S. Fish and Wildlife Service

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(Last updated: May 2015)

7.4.10 Shellfish, Fish, and Their Habitats

For use with projects funded or co-funded by the CWSRF, WW-HUC, WW-SRL, and WW-SEL programs.

Requirements

- Complete Table 7.10 and place it within the body of the ER/EID.
- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.10.1 Existing Conditions

Discuss whether there are any categories of shellfish beds and/or fish habitats at or near the project site and in the project area. Provide examples of specific species present. Note whether there are closed beds, highly productive areas, or spawning areas in the text. Include such areas on the Environmental Features Figure.

T&E – Threatened and endangered

NCCGIA – North Carolina Center for Geographic Information Analysis

NHP – North Carolina Natural Heritage Program

Note whether any aquatic threatened and endangered (T&E) species or identified habitats for T&E species are in or near the project area, particularly downstream of the project site. T&E species are a critical issue during review of the EID. Be sure to review both Federal and state T&E species lists. If T&E species are present, include a detailed discussion of the species present, their status, and their approximate locations. T&E species may be available through NCOneMap, which is part of the NCCGIA. Additionally, both the FWS and the North Carolina Natural Heritage Program (NHP) have data available related to T&E species. Typically, T&E species locations should be identified within a two-mile radius.

The existing conditions description applies to all shellfish, fish, and their habitats, not just T&E species.

Note that the existing conditions description applies to all shellfish, fish, and their habitats, not just to T&E species.

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(Last updated: May 2015)

7.4.10.2 Direct Impacts

Describe any construction impacts to shellfish, fish, and their habitats in the subbasin/watershed containing the project and downstream of the project. Additionally, characterize the operational impacts for this same area.

If there might be T&E species impacts, contact NHP as soon as possible. They may advise contact with the FWS if federally protected species are involved.

Specifically note any impacts to T&E species.

If T&E species are present within or downstream of the project area, be sure that the discussion clearly explains how impacts to such species will be minimized or avoided. If no impacts are anticipated, clearly support that position. If impacts are anticipated or possible, the Division highly recommends that the NHP be contacted as soon as possible. They may advise that the FWS be contacted as well if federally protected species are involved.

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(Last updated: May 2015)

7.4.10.3 Secondary and Cumulative Impacts

For SCI, discuss past trends related to fish, shellfish, and their habitats and then characterize potential future impacts.

For example, if the proposed project discussed in Subchapter 7.4.7.3 of this part were constructed, then the erosion and sedimentation from the project could negatively impact fish, shellfish, and their habitat downstream. However, the project would result in operational benefits because of an improvement of their habitats downstream. The SCI from the project could adversely impact fish, shellfish, and their habitats in waterbodies within the subbasin/watershed(s) containing the project and expanded service area.

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(Last updated: May 2015)

7.4.10.4 Mitigative Measures

If there are no impacts, state N/A for mitigative measures. If there are any impacts, then briefly discuss any mitigative measures that may be in place, including ordinances and any erosion and sedimentation plans and associated permitting. Include any ordinances on a CD/DVD in an appendix to the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.11 Wildlife and Natural Vegetation (Including Terrestrial T&E Species)

For use with projects funded or co-funded by the CWSRF, WW-HUC, WW-SRL, and WW-SEL programs.

Requirements

- Complete Table 7.11 and place it within the body of the ER/EID.
- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.11.1 Existing Conditions

Identify wildlife habitat that exists on the project site or in the project area. List specific species of dominant plants and animals that are indicative of the kind of habitat present.

The existing conditions description applies to all wildlife and natural vegetation, not just T&E species.

Note whether terrestrial T&E species and/or their habitats are located at or near the project site. T&E species are a critical issue during review of the EID. Be sure to review both federal and state T&E species lists. If T&E species are present, include a detailed discussion of the species present and their locations. T&E species may be available through NCOneMap, which is part of the NCCGIA. Additionally, both the FWS and the NHP have data available related to T&E species. Typically, T&E species locations can be identified within a two-mile radius.

Note that the existing conditions description applies to all wildlife and vegetation, not just T&E species.

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(Last updated: May 2015)

7.4.11.2 Direct Impacts

Describe the construction impacts to wildlife and natural vegetation. Quantify in acres the amount of natural vegetation that will be disturbed or destroyed by the project, and note whether such impacts will be short term or permanent. Note whether wildlife will be displaced, either temporarily or permanently, and identify surrounding areas or areas nearby that may provide similar habitat for relocation.

If there might be T&E species impacts, contact NHP as soon as possible. They may advise contact with the FWS if federally protected species are involved.

Specifically note any impacts to T&E species.

If T&E species are present within the project area, be sure that the discussion clearly explains how impacts to such species will be minimized or avoided. If no impacts are anticipated, clearly support that position. If impacts are anticipated or possible, the Division highly recommends that the NHP be contacted as soon as possible. They may advise that the FWS be contacted as well if federally protected species are involved.

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(Last updated: May 2015)

7.4.11.3 Secondary and Cumulative Impacts

For SCI, discuss past trends related to wildlife and natural vegetation within the existing and expanded service area. Then discuss future trends. If possible, provide an estimate of the potential loss of wildlife habitat.

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(Last updated: May 2015)

7.4.11.4 Mitigative Measures

If there are no impacts, state N/A for mitigative measures. If there are any impacts, then briefly discuss any mitigative measures that may be in place, including ordinances related T&E species and associated permitting. Include any ordinances on a CD/DVD in an appendix to the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.12 Public Lands and Scenic, Recreational, and State Natural Areas

For use with projects funded or co-funded by the CWSRF program and/or for projects requiring a FONSI.

Requirements

- Complete Table 7.12 and place it in the body of the ER/EID. The subchapters below discuss what the table should contain.
- Prepare a figure that shows the following:
  - The project location
  - The location of any scenic, recreational, or state natural areas keyed to the table
  - Major roadways with appropriate labeling
  - Waterbodies with appropriate labeling
  -
  - *Note: These resources may be included on an Environmental Features Figure that incorporates a variety of resources.*

  Place the figure in the body of the ER/EID or in an appendix with appropriate reference in the table.
- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.12.1 Existing Conditions

Describe any formally designated parkland, scenic, recreational, or state natural areas that are located within two miles of the project site or that are located outside of that radius but will be potentially impacted by the project. NCOneMap has some of this information available digitally.

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(Last updated: May 2015)

7.4.12.2 Direct Impacts

Discuss whether the project will impact formally designated parkland, scenic, recreational, or state natural areas on or adjacent to the project site due to the construction and operation of the project. Quantify any expected losses or areas of impaired use and discuss the significance of such losses or impairments. Also, discuss the loss of any informal scenic or recreational functions.

A project might consist of a pump station, force main, and collection system constructed next to a baseball field to take failing septic systems offline. Direct construction impacts to the baseball field might consist of inaccessibility and safety issues as well as noise and exhaust from construction vehicles. Operational impacts could include odor from the pump station and noise from the emergency generator usage and testing.

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(Last updated: May 2015)

7.4.12.3 Secondary and Cumulative Impacts

For SCI, discuss past trends of impacts to public lands and scenic, recreational, and state natural areas within the existing and expanded service area. Characterize potential future trends as well.

For the baseball field example, SCI would consist of development related to the collection system upstream of the pump station, which could create growth all around the baseball field.

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(Last updated: May 2015)

7.4.12.4 Mitigative Measures

If there are no impacts, state N/A for mitigative measures. If there are any impacts, then briefly discuss any mitigative measures that may be in place, including ordinances. Include any ordinances on a CD/DVD in an appendix to the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.13 Areas of Archaeological and Historical Value

For use with projects funded or co-funded by the CWSRF, WW-HUC, WW-SRL, and WW-SEL programs.

Requirements

- Complete the Table 7.13 and place it in the body of the ER/EID. The subchapters below discuss what the table should contain.
- Prepare a figure that shows the following:
    - The project location

- The location of any historic resources keyed to the table[15]
- Major roadways with appropriate labeling
- Waterbodies with appropriate labeling

•

• *Note: These resources may be included on an Environmental Features Figure that incorporates a variety of resources.*
Place the figure in the body of the ER/EID or in an appendix with the appropriate reference in the table.

- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.13.1 Existing Conditions

Identify and discuss any archaeological sites or historical resources that may potentially be impacted by the project. Identify any historic buildings located on the project site and their approximate age. Note any resources within the project area. Consult with the Department of Cultural Resources' State Historic Preservation Office (SHPO) for assistance. The SHPO will provide project review through mail or e-mail. Note that the SHPO will not release the precise location of archaeological resources to avoid looting of these resources.

SHPO – State Historic Preservation Office

The SHPO will not release the precise location of archaeological resources to avoid looting of these resources.

Include references to studies regarding archaeological or historical resources as applicable. If no studies are available, discuss if and how the site has been previously disturbed. Include correspondence with the SHPO and/or any agencies consulted for this review.

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(Last updated: May 2015)

7.4.13.2 Direct Impacts

Discuss the construction impacts of the project on areas of archaeological or historical value on the project site or within a radius specified by the SHPO. Generally, this radius should be within a quarter mile of the project site unless otherwise specified by the SHPO. State whether any historic building swill be destroyed or disturbed and, if so, note the location of such buildings on the Environmental Features Figure. Include photographs of

A pump station, force main, and collection system may be constructed with the pump station being at the edge of a cemetery. Direct construction impacts will occur in terms of construction noise and exhaust being generated. Operation could impact the cemetery if visitors had to listen to emergency generators and equipment testing or could smell any odors.

[15] The location of archaeological sites are confidential to avoid looting.

the relevant buildings on the site.

For operational impacts, discuss if any areas adjacent to the project site contain archaeological or historical resources. If they do, then describe the potential impacts.

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(Last updated: May 2015)

7.4.13.3 Secondary and Cumulative Impacts

For SCI, consider the existing and expanded service area. Describe past trends related to the loss/gain of archaeological or historical resources and detail what may occur in the future.

For the cemetery example above, SCI would occur if historic buildings and cemeteries were removed to accommodate growth in the future service area.

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(Last updated: May 2015)

7.4.13.4 Mitigative Measures

If there are no impacts, state N/A for mitigative measures. If there are any impacts, then briefly discuss any mitigative measures that may be in place, including ordinances. Include any ordinances on a CD/DVD in an appendix to the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.14 Air Quality

For use with projects funded or co-funded by the CWSRF program and/or for projects requiring a FONSI.

Requirements

- Complete the Table 7.14 and place it in the body of the ER/EID. The subchapters below discuss what the table should contain.
- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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(Last updated; May 2015)

7.4.14.1 Existing Conditions

DAQ – Division of Air Quality

EPA – U.S. Environmental Protection Agency

Discuss the ambient air quality and nonattainment areas and identify current sources of emissions from the project

site and project area. The EPA and DENR's Division of Air Quality (DAQ) provide information related to air quality issues within the state.

Discuss any previous odor problems or complaints due to existing facilities.

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(Last updated: May 2015)

7.4.14.2 Direct Impacts

Discuss any expected direct construction or operational impacts to air quality at and around the project site. Note whether impacts are related to construction or related to operational impacts.

Discuss whether open burning will occur. If it will, describe what will be burned.

Construction impacts can be emissions from construction equipment or smoke from open burning.

Operational impacts can be emissions that occur during generator testing and/or usage.

Consider whether general air quality degradation will occur as a direct construction impact.

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(Last updated: May 2015)

7.4.14.3 Secondary and Cumulative Impacts

For SCI, characterize any potential air quality degradation in the region containing the project. Discuss any past air quality trends and how SCI will affect future trends.

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(Last updated: May 2015)

7.4.14.4 Mitigative Measures

If there are no impacts, state N/A for mitigative measures. If there are any impacts, then briefly discuss any mitigative measures that may be in place, including ordinances. Discuss any permits that may be required. Include any ordinances on a CD/DVD in an appendix to the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.15 Noise Levels

For use with projects funded or co-funded by the CWSRF program and/or for projects requiring a FONSI.

Requirements

- Complete the Table 7.15 and place it in the body of the ER/EID. The subchapters below discuss what the table should contain.
- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.15.1 Existing Conditions

Discuss the current noise levels on the project site with examples of sources of noise on the project site or in the project rea. Include measureable benchmarks, if possible. Briefly discuss any local noise ordinances that are in place for the project area.

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(Last updated: May 2015)

7.4.15.2 Direct Impacts

Discuss whether noise levels are expected to change at or near the project site as a result of construction or operation of the project. If noise levels are expected to increase, discuss when the impacts will occur and the distance at which the increased noise will be heard. Discuss whether surrounding properties will be affected by noise levels.

Construction impacts may include noise from construction equipment.

Operational impacts may include noise from generators, blowers, and other machinery once the project is in operation.

For example, construction of a pump station and force main would cause construction noise. Once the project is operational, operational impacts could come from emergency generator testing and usage.

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(Last updated: May 2015)

7.4.15.3 Secondary and Cumulative Impacts

For SCI, characterize past trends related to noise in the existing and expanded service area. This can be a qualitative discussion related to land use changes over time that impact noise and should identify any specific developments that have had significant impact on noise levels. Then analyze potential future trends.

For the pump station and force main example, noise related to SCI would occur as the pump station and force main facilitated growth in the existing and expanded service area.

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(Last updated: May 2015)

7.4.15.4 Mitigative Measures

If there are no impacts, state N/A for mitigative measures. If there are any impacts, then briefly discuss any mitigative measures that may be in place, including ordinances. Discuss any permits that may be required. Include any ordinances on a CD/DVD in an appendix to the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.16 Introduction of Toxic Substances

For use with projects funded or co-funded by the CWSRF program and/or for projects requiring a FONSI.

Requirements

- Complete the Table 7.16 and place it in the body of the ER/EID. The subchapters below discuss what the table should contain.
- Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

For this resource category, only direct construction impacts need to be considered. Discuss the potential for the introduction of toxic substances. Be sure to consider that most construction activities have the potential to introduce toxic substances such as fuels, lubricants, etc. into the environment.

Note that most construction activities have the potential to introduce toxic substances related to construction equipment (fuels, lubricants, etc.).

Chemicals used in the wastewater (for wastewater projects) or water (for water projects only) treatment processes must be included in this discussion. Describe the type and extent of contamination that may reasonably be expected and the mitigative measures that will be implemented.

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(Last updated: May 2015)

7.4.17 Environmental Justice

For use with projects funded or co-funded by the CWSRF program.

Executive Order 12898 states that

> *Each federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under such programs, policies, and activities, because of their race, color, or national origin.*

EPA's Office of Environmental Justice is responsible for implementing Executive Order 12898 as it applies to EPA actions and programs. Environmental justice (EJ) strives to ensure that no racial, ethnic, or socioeconomic group bears a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. Environmental justice also includes giving all persons equal access to the decision-making process. As federally funded programs, the CWSRF and DWSRF programs are subject to policies established by the Office of Environmental Justice.

In terms of preparing an EID, an EJ analysis must be conducted to verify that EJ is achieved through the project. Consult EPA's guidance for additional information.

Requirements

- Complete the Table 7.17 and place it in the body of the ER/EID. The subchapters below discuss what the table should contain.
- If using the EJ View Tool, provide a copy of the maps in the body of the ER/EID that contains the following:
    - The project location with all components clearly marked. Note that you will need to include separate maps to illustrate percentage of minority populations and percentage below poverty level.
    - The location of all minority and low-income populations.
    -
    - Place the figure in the body of the ER/EID or in an appendix and check the appropriate box in the table.

Include any supporting information in an appendix of the ER/EID with appropriate reference made in the table.

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(Last updated: May 2015)

7.4.17.1 Existing Environmental Justice Characteristics

If there are anticipate EJ populations within the project area, the Division encourages Applicants to conduct public participation in these areas.

ACS – American Community Survey

The first step of the EJ analysis involves determining the presence of a significant minority or low-income population. EPA's EJ View can help identify minority and/or low-income populations in and near the project area. The tool will generate maps that can be printed and included with the EID to document this step of the analysis.[16] If another source of data is used to identify minority or low-income populations in the project area, document the process used. All maps must clearly show the project site. An alternative process may be used by following the steps below. Note that the most current American Community Survey (ACS) data must be used.

1. Census Block Groups and Census Tracts. Determine what Census block group(s) or tract(s) encompass the project area.
2. Collect minority and total population data using the ACS (can be done with GIS).[17]
3. Minority percentages. Calculate the total minority percentages in each block group. Fifty percent or greater shows a potential impact.
4. Low-income. Repeat for the low-income population using data for percent below poverty rate.

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(Last updated: May 2015)

7.4.17.2 Potential Impacts from Project

Analysis of EJ impacts should focus on impacts to the human environment such as noise and air.

If the analysis of Census block groups and tracts discussed above indicates that minority and/or low-income populations are greater than 50 percent of the total population at or near the project site, then proceed with determining what impacts the project will have on the identified minority and/or low-income population(s). Environmental justice issue may involve impacts to human health or related social or economic impacts. If minority and/or low-income populations are identified in the project rea, consider, for each resource category related to human impacts, whether such populations will be disproportionately affected. Describe the anticipated impacts as well as measures that will be taken to minimize the potential for harmful impacts. Be sure to include any efforts to ensure adequate opportunities for public participation. If significant impacts are anticipated, contact the Environmental Review Coordinator as soon as possible to discuss.

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[16] The EJ View replaces the older EnviroMapper tool.

[17] Note that as of 2010, EPA stopped tracking a lot of data associated with financial information to the block group level. Use tract data for percent of population below the poverty line.

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(Last updated: May 2015)

7.4.18 Mitigative Measures

For use with projects funded or co-funded by the CWSRF, WW-HUC, WW-SRL, and WW-SEL programs.

Requirements

- Complete Table 7.18 and place it in the body of the ER/EID.
- Per Subchapters 7.1 through 7.17 of this part, make sure that copies of any permits already obtained, ordinances, or other mitigative measure documentation are found in appendices of the ER/EID with appropriate reference made in the table. Ordinances may be placed on a CD/DVD.

For any potential impacts identified in the sections above, discuss mitigative measures. These may include actions specifically taken or actions deliberately avoided or limited in order to minimize impacts. Mitigative measures may also include actions taken to repair or compensate for damage done. Some specific examples of mitigative measures that might be applicable to a project include the following:

- Adhering to the requirements of a sedimentation and erosion control permit
- Conducting construction activities during daytime hours only to minimize impacts from noise on residential areas
- Constructing wetland habitats in a nearby area to replace wetlands that are filled
- Maintaining buffers that exceed regulatory requirements
- Installing an air pollution control device to minimize odors

Use the table to clearly identify the potential impact(s) and associated mitigative measure(s). Include all resource categories in the table. If additional explanation is needed, include a text discussion in addition to the table. Quantify impacts whenever possible. If no impacts have been identified, indicate “none” for impacts and “not applicable” for mitigative measures.

Major ERs/EIDs Only

- Provide the summary table as discussed above.
- Provide a narrative discussion for mitigative measures for each resource category for which impacts have been identified. If desired, the mitigative measures can be discussed as a subsection of each resource category section.

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To Financial Analysis

(Last updated: May 2015)

8.0 Financial Analysis

The financial analysis portion of the ER/EID describes how the project will be funded. Moreover, if the applicant is seeking a loan for the project, it provides ways to calculate how the loan may be repaid.

This subchapter will be broken out into different steps. The bold show which funding programs should use what steps. For questions, please contact the Project Manager.

The Division approaches the financial analysis differently because the means of funding the loan may vary from that of water and wastewater infrastructure. The green projects covered by this subchapter are as follows:

- Reclaimed water systems
- Stormwater BMPs
- Stream/Wetland/Buffer Restoration
- Rainwater Harvesting
- Energy generation projects completed under the WWTP rehabilitation project type

The way that the financial analysis is conducted may vary depending upon project type. Some projects may fund projects via user fees. Others may have other sources of revenue needed to pay loans. If funding projects via user fees (e.g., energy efficiency projects), then use the workbook for wastewater infrastructure. If funding projects via other sources of revenue, use the workbook for green infrastructure. Both workbooks are found on the Division's website.

Major ERs/EIDs Only

- Calculations for the financial analysis may be used, or the workbook provided by the Division may be used. If using calculations, then provide both a justification for the different methodology and sample calculation so that Division staff can replicate them.
- Any alternative methodologies used to calculate the financial impacts must fulfill the requirements as set forth in this subchapter.

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(Last updated: May 2015)

8.1 Determination of Funding Sources

For use with projects funded or co-funded by the CWSRF program.

Another part of the financial analysis is to look at the different funding sources for the project. Not only does this consider the funding sources offered by the Division, but it should also take

into account other funding sources the Applicant might use such as local funds or bonds. Use Table 8.1 in the workbook for green projects to enter all funding sources as described below.[18]

For the Funding Source column, use the pulldown menu to select the appropriate funding source(s).

Add the amounts for each funding source into the second column. The worksheet will automatically calculate the total funded amount.

Any loans from outside the Division (e.g., USDA Rural Development loan) should be listed as a loan on this table.

In the third column, specify the funding type. If the funding source is a loan, including any exterior loans, add the interest rate. For loans from the Division, the Letter of Intent to Fund (LOIF) will contain the interest rate for the project. Then add the repayment period for any loans, either from the Division or outside sources. Note that for Division loans, the maximum repayment period for loans is 20 years unless otherwise specified as a lesser amount.[19]

LOIF – Letter of Intent to Fund

Last, list the closing costs or administrative fees associated with the loan or the grant. For CWSRF, the closing fee is two percent and cannot be included in the loan amount. Based upon the type of award, the worksheet will adjust the total project cost.

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(Last updated: May 2015)

8.2 Determination of Loan Repayment Output

For use with projects funded or co-funded by the CWSRF program.

Once the funding sources have been determined, if there are any sources that are loans, either from the Division or outside the Division, then determine any principal and interest that will need to be repaid, which can impact user fees. The Division reviews only Year 1 because that is the year when the interest payment will be at its highest.

If completing a minor ER/EID, then Table 8.2 in the workbook for green projects will complete the calculation. Print this table and include it in the body of the ER/EID.

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(Last updated: May 2015)

[18] Note that for projects using only grants, this table may be Table 7.1. To change the table number, go to the Review tab and unlock both the workbook and the worksheet. There is no password associated with the workbook or worksheets.

[19] State law limits maximum loan terms to 20 years.

8.3 Determination of Year 1 Project Costs

For use with projects funded or co-funded with the CWSRF program.

Once the first year's principal and interest has been determined, calculate the Year 1 annual cost by using Table 8.3 in the green infrastructure workbook. In the spreadsheet, add the Year 1 total O&M costs in the gray cell. The workbook will then calculate the total Year 1 cost. Print this table and place it in the body of the ER/EID.

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(Last updated: May 2015)

8.4 Project Impacts

For use with projects funded or co-funded with the CWSRF program only.

8.4.1 Determination of Revenue Generation

For green projects, the revenue may be generated in many different ways. If revenue is generated via user rates across the entire service area population, then use the methodology discussed in Subchapter 8.1. If revenues are generated in another manner, such as stormwater user fees for a select group of reclaimed water customer, or power sales to power utilities, then utilize the methodology in this section.

In the Revenue Generation table in the workbook, enter each source of revenue, the revenue per unit, the unit, and then the quantity expected per year. The workbook will then calculate the revenue for each source and the total Year 1 revenue. Print this table and place it in the body of the ER/EID.

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(Last updated: May 2015)

8.4.2 Determination of Project Impact

Once the revenue has been determined, then compare the Year 1 project costs to the Year 1 project revenue. Table 8.5 in the green infrastructure workbook will complete the comparison and determine whether or not the revenue generated will be sufficient to cover the Year 1 total costs.

If the revenue is not sufficient, then describe how the Applicant will cover the costs of the loan.

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To Public Participation

(Last updated: May 2015)

9.0 Public Participation

For use with projects funded or co-funded with the CWSRF, WW-HUC, WW-SRL, and/or WW-SEL programs.

Public participation plays a vital role in the development of a project because it requires that the Applicant keep its citizens informed of projects that may impact them not only via user charges but also impacts to their water or sewer service. Maintaining contact with citizens also reduces the risk of court action later and can fulfill the requirements of SEPA or NEPA.

The following subchapters discuss the process to use to determine the level of public involvement and what is required for public involvement.

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(Last updated: May 2015)

9.1 Level of Public Involvement

The Division requires differing levels of public involvement that depends upon the type of environmental document your project will need as well as the type of project. Figure B.9.1 provides a flowchart related to determining the level of public involvement. First, examine the type of Division funding used for the project. If the project is funded or co-funded with CDBG-I funds, then the public participation process will be handled by the Responsible Entity via the environmental documentation process.

Responsible Entity – The unit of general local government legally responsible for the environmental review of the project.

Next, look at the type of environmental document that the project will require. If the project requires an EIS, then contact the Environmental Review Coordinator to determine the level of public involvement required. If the project requires a FONSI regardless of funding program, then complete all of the public meeting requirements that are discussed in Subchapter 9.2 below.

Third, examine project type. If the project is a wastewater treatment plant expansion, water treatment expansion, collection system expansion, or transmission and distribution system expansion, then you will need to look at your future flows.

Last, if the future flows will increase by twenty-five percent or greater, then you will need to complete all of the public involvement requirements discussed in Subchapter 9.2 regardless of the type of final environmental document for the project. The Division requires public participation for this large amount of increase in flow because such a large increase is most likely related to growth, and the public needs to understand how their user rates will be impacted to finance this growth.

If the project trips none of these triggers, then the Division will prepare the final environmental document and send it to the Applicant for their files.[20] Though not required, the Division also recommends that the Applicant place a copy of this on their website to keep citizens informed of the project. Additionally, the Division encourages other public involvement such as focus groups and additional public meetings if the scope of the project is large enough to have an impact on many people.

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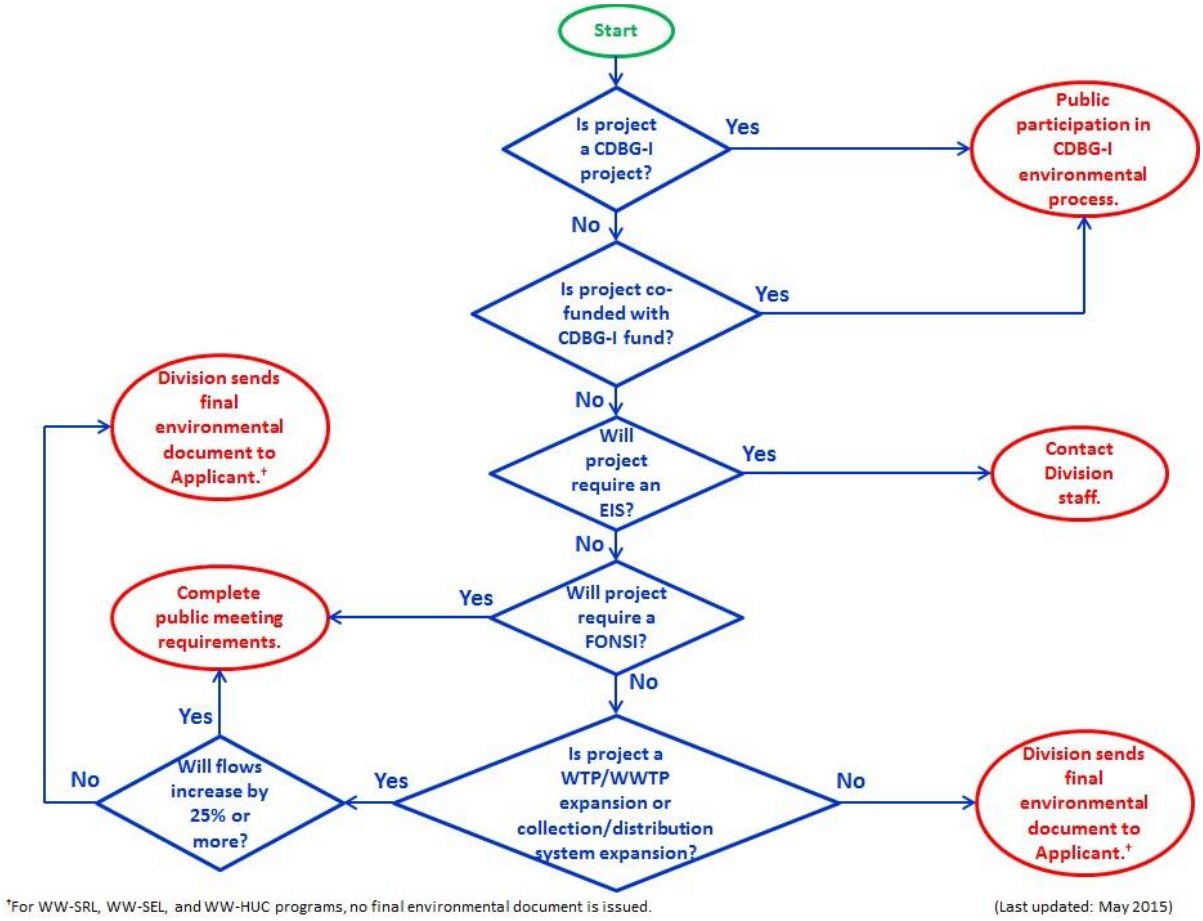

Figure B.9.1. Flow Diagram for Level of Public Involvement Required

[20] If the project is funded only through the WW-HUC, WW-SRL, or WW-SEL programs, then no final environmental document will be prepared.

9.2 Public Meeting Requirements

As discussed above, two levels of public involvement may occur. The first level is a low level of involvement. The second level of public involvement has more stringent requirements that must be completed before the Division can approve the document. The subsections below discuss these requirements. Use the flowchart in Figure B.9.1 to determine the level of public involvement for the project.

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(Last updated: May 2015)

9.2.1 Low Level of Public Involvements

For most projects, such as CEs for projects funded through the CWSRF program, the level of public involvement remains minimal. The Division will prepare a CE and send it to the Applicant as part of the approval package for the Applicant's files. The Division also recommends that the Applicant post a copy of the CE on its website and that the Applicant keep its citizens informed through whatever means are best.

CE – Categorical Exclusion

If the project is funded through the WW-SRL, WW-SEL, or WW-HUC programs only, then the will not send a CE, as there are no environmental clearances required. Instead, the Division recommends that the Applicant keep its citizens informed through whatever means are best.

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(Last updated: May 2015)

9.2.2 High Level of Public Involvement

The Division requires more public involvement if a project requires a FONSI as a final environmental document or if the project is an expansion project that will increase flows by 25 percent or greater. The following steps describe how to complete the public involvement process. While the Division encourages public involvement throughout the development of a project, this specific process will not occur until Division staff have completed their reviews and resolved all technical and environmental issues. Note that the public involvement discussed below must occur before any FONSI can be sent to the SCH.[21]

The public involvement process discussed below must occur before a FONSI can be sent to the SCH.

FONSI – Finding of No Significant Impact

SCH – State Clearinghouse

Note that due to the project's schedule with the Division, FONSI preparation is on a tight timeline and that the Applicant and Division must work closely together to ensure that public involvement is completed in a timely manner.

1. Advertise the public meeting.

Provide a two-week notification by advertising it in a

[21] For projects funded through the WW-SRL, WW-SEL, or WW-HUC that are expansion projects with flow increases of 25 percent or greater, this process must occur before the project can be approved.

local newspaper whose coverage encompasses the project area. The Division recommends utilizing other means such as advertising such as the Applicant's website. The advertisement must contain the following information:

- The time and location of the public meeting
- When and where a copy of the ER/EID can be reviewed
- A brief description of the proposed project
- The project cost, the amount of funding required, and the source(s) of funding.

Upon advertisement, make a copy of the ER/EID available for review at least two weeks prior to the public meeting. Consider placing it at an accessible location such as the Applicant's main offices or the public library.

Once advertisement is complete, attain a copy of the affidavit of publication and the advertisement itself, as the Applicant will need to submit this once the public meeting has occurred.

2. Hold the public meeting.

The Applicant has two options for the public meeting. It may hold it as part of a regularly scheduled council meeting or as a separate event. At this meeting, present the following information:

- An identification of the need and purpose of the project (e.g., the problem)
- A discussion of the alternatives considered, including the No-Action Alternative and the Preferred Alternative.
- An identification of the funding utilized and the amount(s) of funding sought
- Any required interlocal agreements
- The impact of the project on the monthly water or sewer bill for a typical residential user of 5,000 gallons per month (infrastructure projects only)
- How the loan will be repaid (green projects only)

When discussing changes to water or sewer rates, be specific by showing the rates before the project, the rates after the project, and the percent change.

The Applicant may also present other relevant information such as benefits of other grants, interest rate benefit of Division programs, regulatory requirements, etc. The Division requires that the Applicant prepare a handout or slides of the presentation, as this must be submitted (see below).

3. Report on the public meeting.

Once you have completed the public meeting, send the following to the Environmental Review Coordinator:

- A copy of the affidavit of publication
- A copy of the advertisement
- A copy of any presentation made (e.g., PowerPoint slides or handouts)
- Minutes or a detailed summary of the meeting.

The Division does not require a certified court reporter's transcript unless that is the typical procedure for the Applicant.

The Applicant may e-mail this information to the Environmental Review Coordinator, who will use this information to draft the FONSI. The summary may be either meeting minutes or a

certified copy of the meeting transcript. However, the Division does not require a court reporter's certified transcript unless that is the Applicant's typical procedure.

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(Last updated: May 2015)

Appendix A
Minor Construction Activities Criteria

Appendix A
Minor Construction Activities

15A NCAC 01C .0408 MINOR CONSTRUCTION ACTIVITIES

This Rule sets out the general and specific minimum criteria for construction activities. Construction and land disturbing activities must fall under both the general minimum criteria and any specific minimum criteria applicable to the project.

(1) General criteria. The following categories of land disturbing activity do not require preparation of an environmental document.

(a) In the 20 coastal counties, land disturbing activity that:

(i) is located more than 575 feet away from waters classified as High Quality Waters (HQW) or impacts less than five acres located all or in part within 575 feet of waters classified as High Quality Waters (HQW);

(ii) is located outside of any Outstanding Resource Waters (ORW) watershed or area that requires specific management actions to protect ORW waters as defined in 15A NCAC 02B .0225; and

(iii) impacts less than five acres located in any Outstanding Resource Waters (ORW) watershed or in any area that requires specific management actions to protect ORW waters as defined in 15A NCAC 02B .0225.

(b) Land disturbing activity outside the twenty coastal counties that:

(i) is located more than one mile from waters classified as HQW or impacts less than five acres located within one mile of and draining to waters classified as HQW;

(ii) is located outside of any Outstanding Resource Waters (ORW) watershed or area that requires specific management actions to protect ORW waters as defined in 15A NCAC 02B .0225;

(iii) impacts less than five acres located in any Outstanding Resource Waters (ORW) watershed or in any area that requires specific management actions to protect ORW waters as defined in 15A NCAC 02B .0225; and

(iv) is located more than 25 feet from any waters classified as Trout (Tr) waters or impacts less than five acres located all or in part within 25 feet of any waters classified as Trout (Tr) waters.

(c) Channel disturbance and land disturbing activities associated with non-compensatory stream restoration or stream enhancement.

(d) Land disturbing activities impacting wetlands if the activity will result in the loss of one acre or less of Class WL wetlands.

(e) Land disturbing activities impacting streams if the activity will result in channel disturbance of less than 500 linear feet of perennial streams. Land disturbing activities that impact 500 linear feet or more of perennial streams do not require preparation of an environmental document if stream restoration or stream enhancement is performed.

(2) Specific Criteria. Construction or expansion activities listed below require an environmental document if they exceed either the minimum criteria set out in Item (1) of this Rule or the thresholds established below.

(a) The following activities related to wastewater treatment systems.

(i) Relocation of discharge points within the same river basin;

(ii) New discharge facilities with a proposed permitted expansion of less than 500,000 gallons per day and producing an instream waste concentration of less than 33 percent during the 7-day 10-year low flow conditions;

(iii) Expansion of an existing discharge facility of less than 500,000 gallons per day additional flow;

(iv) New surface irrigation, high rate infiltration, or subsurface waste water systems with a proposed permitted capacity not exceeding 100,000 gallons per day;

(v) Reclaimed water utilization systems with reclaimed water utilization being the sole disposal option with a proposed permitted capacity not exceeding 200,000 gallons per day;

(vi) New reclaimed water utilization sites with a proposed permitted capacity not to exceed 500,000 gallons per day when the reclaimed water utilization system is required for compliance with any other wastewater disposal permit;

(vii) New reclaimed water utilization sites with a proposed permitted capacity not to exceed 1,000,000 gallons per day when the reclaimed water utilization system is not required for compliance with any other wastewater disposal permit;

(viii) New reclaimed water utilization distribution lines;

(ix) New permits or modification to existing permits for land application of residuals utilization, where less than 10 acres not previously permitted is prior converted within three years or will be converted from a non-plantation forested area to application area;

(x) New or expanding surface disposal sites disposing less than 3000 dry tons of residuals per year;

(xi) Gravity sewer extensions with less than three miles of new lines or lines of less than 18 inches in diameter; and

(xii) New or expanding individual pump stations and associated force mains with a proposed permitted capacity of less than 1750 gallons per minute.

(b) The following activities related to potable water systems.

(i) Improvements to water treatment plants that involve less than 1,000,000 gallons per day added capacity and total design withdrawal less than one-fifth of the 7-day, 10-year low flow of the contributing stream;

(ii) Improvements not intended to add capacity to the facility;

(iii) Installation of appurtenances in existing rights-of-way for streets or utilities, or water lines and appurtenances less than five miles in length and having only directional bore stream crossings or no stream crossings; and

(iv) Construction of water tanks, or booster pumping or secondary or remote disinfection stations.

(c) Groundwater withdrawals of less than 1,000,000 gallons per day where such withdrawals are not expected to cause alterations in established land use patterns, or degradation of groundwater or surface water quality.

(d) The following activities related to solid waste disposal:

(i) Construction of solid waste management facilities, other than landfills exempt pursuant to G.S. 130A-294 (a)(4), which store, treat, process incinerate, or dispose of less than 350 tons per day (averaged over one year) of solid waste; and

(ii) Disposal of solid waste by land application on 100 total acres or less, where less than 10 percent of the total land application area is converted from a non-plantation forested area.

(e) Development requiring a Coastal Area Management Act (CAMA) permit or State Dredge and Fill Law permit that does not involve:

(i) Construction of a new marina, or a 25% or greater expansion in the number of slips at existing and operating marinas;

(ii) Excavation of a new navigation channel. Maintenance activities associated with maintaining the traditional and established use of a channel and new excavation activities located entirely within 100 feet of the shoreline, or within 50 feet from the waterward edge of any existing or authorized docking facility and involving the

excavation of less than 5,000 square feet of public trust bottom do not constitute excavation of a new navigation channel for purposes of these rules.

(iii) Excavation of materials from aquatic environments for use for beach nourishment or other purposes not directly related to approved navigation projects;

(iv) A large scale beach nourishment or spoil deposition project. A project shall be considered large scale when it places more than a total volume of 200,000 cubic yards of sand at an average ratio of more than 50 cubic yards of sand per linear foot of shoreline;

(v) The salvaging of cut logs from public trust waters for commercial use, unless the salvage operation complies with any departmentally-approved best management practices developed for such activities;

(vi) The construction over state owned submerged lands of private bridges to privately owned islands, unless the length of the bridge is less than 50 feet; and

(vii) The excavation, dredging or other hydrodynamic manipulation of an inlet, inlet channel(s) or inlet shoal(s) for non-navigational purposes.

(f) Construction of a minor source or modification of a minor source of air emissions as defined in 15A NCAC 02D .0530, that are less than 100 tons per year or 250 tons per year as defined therein.

(g) Construction relating to the reclamation of underground storage tanks and restoration of groundwater quality.

(h) The construction, repair or removal of dams less than 25 feet in height and having less than 50 acre-feet of effective storage capacity.

(i) Any new construction for a building which involves all of the following;

(i) A footprint of less than 10,000 square feet;

(ii) A location that is not a National Register Archaeological site; and

(iii) The building's purpose is not for storage of hazardous waste.

(j) Demolition of or additions, rehabilitation or renovations to a structure not listed in the National Register of Historic places or less than 50 years of age.

(k) Routine grounds construction and landscaping of sidewalks, trails, walls, gates and related facilities, including outdoor exhibits.

(l) Installation of on-farm Best Management Practices that meet the standards of the North Carolina Soil and Water Conservation Commission and the federal Natural Resources Conservation Service.

(m) Construction or remodeling of swimming pools.

(n) Construction of a new two-lane road in accordance with DOT accepted design practices and DOT standards and specifications involving less than a total of 25 cumulative acres of ground surface limited to a single project, and not contiguous to any other project making use of this provision.

(o) Expansion of a two-lane road in accordance with DOT accepted design practices and DOT standards and specifications involving less than a total of 10 cumulative acres of ground surface limited to a single project, and not contiguous to any other project making use of this provision.

History Note: Authority G.S. 113A-4; 113A-6; 113A-9; 113A-10; 113A-11; 113A-12; 143B-10;

Eff. April 1, 2003.

Appendix B
Submittal Checklist

Submittal Checklist for Engineering Reports/Environmental Information Documents

(Last updated: June 2015)

This checklist must accompany the initial submittal of all Engineering Reports/Environmental Information Documents. If your submittal does not contain this checklist, the Project Manager will not start review until it is received.

A. Number of Reports Submitted

Number of Copies Submitted: ☐ 2 copies ☐ 19 copies (FONSIs only) ☐ Other:

B. Contact Information

Owner Information

Is the contact person (Elected Official or Authorized Representative) different from the application? ☐ Yes ☐ No

If Yes, complete the information below. If No, Continue to Consultant Information

First Name	Last Name	Suffix	Position	☐ Elected Official ☐ Authorized Representative

Mailing Address 1	Mailing Address 2	City	State	Zip Code

E-Mail Address	Phone Number	Extension (if applicable)

Consultant Information

Is the contact person different from the application? ☐ Yes ☐ No

If Yes, complete the information below. If No, continue to Environmental Information Document Contact Information.

Firm Name	First Name	Last Name	Suffix

Mailing Address 1	Mailing Address 2	City	State	Zip Code

E-Mail Address	Phone Number	Extension (if applicable)

Environmental Information Document Contact Information

Did a separate firm prepare the Environmental Information Document? ☐ Yes ☐ No

If Yes, complete the information below. If No, then continue to Part C (Project Information).

Firm Name	First Name	Last Name	Suffix

Mailing Address 1	Mailing Address 2	City	State	Zip Code

E-Mail Address	Phone Number	Extension (if applicable)

C. Project Information

Check all that apply in terms of project type. Note that for the CDBG-I program, projects in both wastewater and water may be checked.

☐ Wastewater Treatment Plant Equipment Repair and Replacement	☐ Water Treatment Plant Equipment Repair and Replacement

☐ Wastewater Treatment Plant Expansion ☐ Collection System Rehabilitation and Replacement ☐ Collection System Expansion ☐ Reclaimed Water ☐ Stormwater Best Management Practices ☐ Stream/Buffer/Wetland Restoration ☐ Rainwater Harvesting	☐ Water Treatment Plant Expansion ☐ Water Line Rehabilitation and Replacement ☐ Water Storage Repair/Replacement/Expansion ☐ Water Source Development

D. Environmental Information

Check the box for the appropriate final information document required for the project and based upon the minor construction activities listed in Appendix A of the guidance (CWSRF, DWSRF, SRL, SEL, and HUC only), and any discussion with Division staff. Note: Under the CDBG-I program, the Responsible Entity will be in charge of the environmental review process. The Consultant should check which environmental document the Responsible Entity is preparing.

Final Environmental Document

- ☐ Certificate of Exemption (CDBG-I only)
- ☐ Categorical Exclusion Subject to §58.5 (CDBG-I only)
- ☐ Categorical Exclusion (CWSRF and DWSRF only)
- ☐ Approval Only (SEL, SRL, HUC)
- ☐ Categorical Exclusion Not Subject to §58.5 (CDBG-I only)
- ☐ Finding of No Significant Impact (all funding programs)
- ☐ Record of Decision (all funding programs)

Check the box(es) for the river basin(s) where the project is found. This information is used for programmatic reporting purposes.

- ☐ Broad
- ☐ Cape Fear
- ☐ Catawba
- ☐ Chowan
- ☐ French Broad
- ☐ Hiwassee
- ☐ Little Tennessee
- ☐ Lumber
- ☐ Neuse
- ☐ New
- ☐ Pasquotank
- ☐ Roanoke
- ☐ Savannah
- ☐ Tar-Pamlico
- ☐ Watauga
- ☐ White Oak
- ☐ Yadkin

E. Funding Information

Estimated Project Cost

Provide the estimated Project Cost:

Funding Source(s)

Check the box(es) for each source of funding, including those outside of the Division. Place the amount(s) in the appropriate column.

☐ CWSRF – Base Program	$	☐ WW-HUC	$
☐ CWSRF – 0%	$	☐ DW-HUC	$
☐ CWSRF – Principal Forgiveness	$	☐ North Carolina Rural Center	$
☐ CWSRF – Green Project Reserve	$	☐ USDA Grant/Loan	$
☐ DWSRF – Base Program	$	☐ Bonds	$
☐ DWSRF – 0%	$	☐ Local Funds	$
☐ DWSRF – Principal Forgiveness	$	☐ Bank Loans	$
☐ CDBG-I	$	☐ Other, Specify:	$

F. Signature

This submittal checklist has been completed and is, to the best of my knowledge, accurate.

Signature:

Date: