

Self Assessment Matrix

Section 1 - Self-Assessment Matrix

The self-assessment matrix is provided to help communities and engineers determine and document the submittals required for each type of project in a manner consistent with Iowa Department of Natural Resources regulations.

In order to use the self-assessment matrix, first determine the project category or type based on the descriptions provided in Section 2 below. Find the project category and appropriate subcategories in the first four rows of the self-assessment matrix. Once the project category is found, identify the documentation submittals by looking down the column representing that project category. The required documents are identified in the first column of the matrix and align with the rows under each project category. Document descriptions are provided in Section 3 of these instructions.

Section 2 - Project Categories

The types of projects that require construction permits are listed across the top of the matrix. Most of these projects also require an appropriate measure of facility planning prior to issuance of a construction permit. Identify the type of project(s) included in the proposed planning using the top row of the Matrix. Types of projects covered in the assessment include Land Application, Minor Conveyance, Major Conveyance, Minor Treatment, and Major Treatment.

Land Application

Land application projects include systems that either strictly land apply or systems that discharge and land apply. The land application requirements listed only pertain to the land application portion of the systems. Please follow the process manual entitled, "Land Application Permitting Process" for these type of projects.

Minor Conveyance

Minor conveyance projects include SRF and non-SRF funded sanitary sewer extensions, realignment of or slope changes to minor sewers, replacement of minor sewers with different materials, and infiltration and inflow repair work. The term minor sewers typically means laterals, but may also include submains. As shown in the assessment matrix, several additional requirements are included in the SRF funded minor conveyance projects due to federal requirements.

The following definitions are given in the Iowa Wastewater Facilities Design Standards

Lateral – A sewer that discharges into a submain or other sewer and has no other common sewer tributary to it.

Submain – A sewer into which the wastewater from two or more lateral sewers is discharged and which discharges into a main or trunk.

Major Conveyance

Major conveyance projects include SRF and non-SRF funded projects that involve sewer mains, trunk sewers, interceptors, outfalls, equalization basins, pumping stations and outfalls. Work on these systems may include repairs and rehabilitation, construction of new facilities, realignment or slope changes to sewers, and other modifications of existing installations.

The following definitions are given in the Iowa Wastewater Facilities Design Standards

Main – The principal sewer to which submains are tributary; also called a trunk sewer.

Trunk – The principal sewer to which submains are tributary; also called a main sewer.

Interceptor – A sewer used to transport the flows from main and trunk sewers to a central point for treatment and discharge.

Outfall – A sewer that receives wastewater from a treatment plant and carries it to a point of final discharge.

Minor Treatment

Minor treatment projects involve work at existing treatment facilities. Most often, minor treatment projects include repairs and upgrades to existing equipment and/or unit processes. Other work at treatment facilities, such as changes to yard piping, gas piping, digester cover replacement, etc., may be considered minor treatment projects.

Major Treatment

Major treatment projects involve upgrades to existing facilities, installation of new treatment facilities, and replacement of existing facilities on site. For upgrades to existing facilities, the project may be considered a major project if it involves upgrades or changes to multiple unit processes and/or re-rating of the treatment system's volume or organic capacities.

Section 3 - Documentation Descriptions

Document submission is mandated by rules requirements and SRF funding requirements. Further, documentation is necessary to support review of the projects in accordance with wastewater design standards and the Iowa Administrative Code. The types of documentation used for facility planning and construction permitting are shown in the first column of the Self-Assessment Matrix. Types of documents include the Cover Letter, Design Criteria Summary, Flow and Load Report, the Wasteload Allocation Request, the Facility Plan, the Geotechnical Report, the Site Survey, the Antidegradation Alternatives Analysis, Preliminary Plans and Specifications, the Sewage Treatment Agreement, the Application Fee Form, Final Plans and Specifications, Addenda, Change Orders, the Operations and Maintenance Manuals, and the Design Schedules.

Cover Letter

Provide a detailed cover letter for all submittals identifying the applicant, the engineer, the project, a summary of the submittal package, and the requested action.

Design Criteria Summary

A report identifying the design criteria for the project may be required depending on the nature of the project. The development of the design criteria needs to be presented in full. This development shall include the existing design conditions as applicable. The report may also include the normalized volume and organic loading rates for new development (i.e., 0.17 lbs. per capita daily, etc.), and a discussion of extenuating circumstances if normalized rates do not fit within the normal ranges as outlined in the Iowa Wastewater Facilities Design Standards. Future growth allowances shall be shown with supporting data and calculations. Pertinent policies and ordinances that impact these loading rates shall be summarized with a copy provided in the appendix for the report. The design criteria may be submitted to the DNR independently to attain concurrence. Design criteria shall be included in all facility plans submitted.

What is meant by normalized volume and organic loadings in this section?

Flow and Load Report

A flow and load report for the project may be required depending on the nature of the project. The development of the flow and load report needs to be presented in full. This development shall include the existing flows and loads as applicable. The report may also include the normalized volume and organic loading rates for future growth, and a discussion of extenuating circumstances if normalized rates do not fit within the normal ranges as outlined in the Iowa Wastewater Facilities Design Standards. Future growth allowances shall be shown with supporting data and calculations. Pertinent policies and ordinances that that impact these loading rates shall be summarized with a copy provided in the appendix for the report. The flow and load report may be combined with the design criteria report. When flow and load reports and design criteria are submitted as one report, the two topics shall be presented as separate sections with appropriate reference between the sections. Flow and load reports may be submitted to the DNR independently to attain concurrence. Design flows and loads shall be included in all facility plans submitted and should be consistent with the flows and loads report.

Wasteload Allocation Request

A wasteload allocation request form must be completed and submitted before the IDNR can evaluate and determine the appropriate wasteload allocation for a given facility discharging to a specific stream. The NPDES permit limits cannot be determined without a completed wasteload allocation evaluation.

The NPDES permits are based on the design flows and loadings approved by the wastewater engineering section. Wasteload allocation evaluations requested and completed based on flows and loads which are never approved by the engineering staff will be for information purposes only.

Facility Plan

A facility plan may include comprehensive planning for a wastewater collection or treatment facility, or planning more limited in scope to address a specific issue within the wastewater system. In either case, the facility plan must include certain components in order to be considered complete for detailed review. The components listed in Exhibit 9B must be included with all facility plans if applicable. If a component listed on Exhibit 9B is not applicable, the applicant or engineer must state why. The Exhibit 9B checklist must be submitted with all facility plans. The assigned review engineer will then evaluate the completeness of the facility plan in accordance with Exhibit 9B. If the facility plan is missing a component from Exhibit 9B, the facility plan will be considered incomplete and will not undergo a detailed review, but it may undergo a concept review once the review of full submittals has been completed. The facility plan may be returned in accordance with the current wastewater engineering section records retention policy.

Any project, with the exception of minor sanitary sewer extensions, requires a Facility plan or preliminary engineering report in accordance with the adopted Iowa rules and Iowa Wastewater Facilities Design Standards Chapter 11 (rule by reference). However, there is flexibility to establish the scope and length of the report based on the nature of the project. Some of the projects may be less complex than others. Facility plans or engineering reports can be descriptive letter reports covering the necessary details and content requirements addressing the specific project. The reports must be certified, sealed, and signed by a licensed professional engineer in Iowa. The cover letter and report can be combined into one document and submitted to the Department.

At a minimum, the letter report should address in sufficient detail as to why the project is necessary and appropriate: Identify the problem, existing facilities and conditions, reasons for the problems, DNR enforcement activity, alternatives considered, what is anticipated to be fixed, anticipated results of the proposed improvements, conclusions, and recommendations, costs (if available), and anticipated project schedule. The above report may be submitted along with the complete construction permit application according to your needs and determination. If the project is not funded by CWSRF funds, it is not necessary to request a DNR project manager in advance since one will be assigned after the submittal. However, if your proposed project is non-funded and meets the requirements of Section 11.1.A of the Iowa Wastewater Facilities Design Standards where a construction permit is not required, the above requirements do not apply.

Geotechnical Report

A geotechnical report is required for the construction of earthen basins; most notably, lagoons and equalization basins. The geotechnical report must be prepared and signed by a licensed engineer, must include a USGS soils description of the site, and must include project specific information based on soil borings and other information collected for the site. The geotechnical report must be completed in accordance with the Iowa Wastewater Design Standards 18C.2. Supplement to Engineer's Report. Please use and attach geotechnical report checklist when submitting.

Site Survey

Treatment facility and equalization basin projects may require a site survey. The site survey is used to determine if the requirements for setback distances, identified in Iowa Administrative Code 567-64, have been met. Completed Schedules A, F, and G must be submitted before a site survey can be conducted. Location maps, as detailed in Schedule F or approved alternates, must be submitted prior to the site survey. The owner and/or engineer shall coordinate with and support the field office during the site survey.

Antidegradation Alternatives Analysis

Antidegradation alternatives analysis reports are a new requirement in Iowa for certain projects as of September 30, 2010. These reports require the engineer to evaluate ways to reduce and mitigate degradation of waterways. Some specific projects that may require an antidegradation alternatives analysis report include:

- Projects implementing a new or expanded discharge
- Projects for systems where the discharge limits may be relaxed
- Projects implementing chemical addition

Applicants will be notified when the wasteload allocation is prepared if an antidegradation alternatives analysis is required.

Preliminary Plans and Specifications

A preliminary plans and specifications, typically 60% complete, submittal along with the design schedule is an option to obtain reviewer's comments prior to submission of final plans and specifications. Specific questions regarding the design approach may be presented as part of this submittal.

Sewage Treatment Agreement

A sewage treatment agreement must be completed and submitted when the applicant will not provide treatment; usually for developments or conveyance projects to the city's disposal system.

Application Fee Form

A construction permit application fee form must be submitted along with payment for each construction permit application package. An application for construction permit is submitted after facility plan approval and detailed design is complete but before construction begins and preferably before the advertisement for bids.

Final Plans and Specifications

Final plans and specifications represent the detailed design for the system that will be constructed. Final plans and specifications must be approved and signed by (a) professionally licensed engineer(s). Final plans and specifications must be submitted as part of the construction permit application package. For SRF funded projects, required front end documentation must be included with final specifications.

Addenda

Addenda represent changes to the detailed plans and specifications. As a result, addenda must be approved by the DNR as part of construction permitting requirements.

Change Orders

Change orders represent changes to the approved detailed plans and specifications. Please consult with Section 11.5 of Chapter 11 to determine if a change order must be approved by the IDNR. Change order cost eligibility must also be reviewed for SRF funded projects.

Operations and Maintenance Manuals

Operations and maintenance manuals provide system operators with the information necessary to properly and safely operate, maintain, and repair a facility, unit process, or equipment. The submittal of final operations and maintenance manuals is required for wastewater treatment facilities prior to operations in accordance with 11.6 of the Iowa Wastewater Design Standards. A copy of O&M manuals required should be submitted to the respective FO staff.

Design Schedules

The design schedules below must be completed and submitted by the applicant to provide appropriate project information and design details for the review engineer.

- Schedule A - General
- Schedule B – Collection System
- Schedule C – Lateral Sewer
- Schedule D – Trunk and Interceptor Sewer
- Schedule E – Wastewater Pump Station
- Schedule F – Treatment Project Site Selection
- Schedule G – Treatment Project Design Data
- Schedules H1 – Schematic Flow Diagram
- Schedule H2 – Treatment Process Removal
- Schedule I – Screening, Grit Removal, and Flow Measurement
- Schedule J – Septic Tank System
- Schedule K1 – Controlled Discharge Pond
- Schedule K2 – Aerated Pond
- Schedule K3 – Anaerobic Lagoon
- Schedule L – Settling Tanks
- Schedule M – Fixed Film Reactors – Stationary Media
- Schedule N – Rotating Biological Contactors
- Schedule O – Aeration Tanks or Basins
- Schedule P – Gas Chlorination
- Schedule Q – Sludge Digestion and Holding
- Schedule R1 – Sludge Dewatering and Disposal
- Schedule R2a – Low Rate Land Application of Sludge Part 1

- Schedule R2b – Low Rate Land Application of Sludge Part 2

Section 4 – Common Errors and Omissions

This section describes the common errors and omissions encountered in document submittals. Documents containing these errors or omissions will not undergo review until the errors and omissions are corrected. Additionally, documents containing these errors or omissions may be returned in accordance with the Wastewater Engineering Section's current records retention policy.

The following items represent some examples of common errors and omissions encountered in document submittals relating to both facility planning and construction permitting processes.

- Failure to complete all sections and fill in all spaces on an application or Schedule. No lines should be left blank. Fill-in a line with "not applicable" and provide a short explanation if that data field does not apply to the project.
- The wrong application form, or schedule, was used was submitted, or the applicant did not submit all the necessary documents for review and approval.
- The Schedule A submittal was not signed by the applicant.
- Schedule A does not list the construction permit application forms submitted previously and/or the dates submitted
- Outdated construction permit application forms are submitted.
- The Facility Plan, Final Plans and Specifications, or other engineering work was not signed by a professionally licensed engineer.
- Copies of the application form or engineering documents were submitted rather than the originals so an original signature is not provided to the Department.
- Schedule F, with maps and a description of the project site, is not provided or is incomplete and/or is inadequate to conduct a site survey and verify site separation distances.
- A sewage treatment agreement is not provided when the applicant will not provide appropriate treatment and disposal.
- The facility descriptions are incomplete or missing.
- Failure to submit engineering and economic calculations to justify the designs and recommended system and alternative.
- The permit application fee form is missing.
- Failure to submit a geotechnical report in accordance with the guidelines provided in the Iowa Wastewater Facilities Design Standards.