



Milwaukee Metropolitan Sewerage District

# Sewer Plan Review Submittal Toolkit

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## **1. Introduction**

The sewer plan review process provides a means for the District to assure that sewers, both public and private, tributary to the District's system are designed to conform to the Rules and Regulations of the Milwaukee Metropolitan Sewerage District. The District originally adopted the Rules and Regulations in 1982, and has made various updates since that time. For example, a major update was adopted in 1998 to include provisions related to implementation of the District's infiltration/inflow (I/I) control program. Review of local sewer plans was also a regular practice of the District's predecessor organization, the Sewerage Commission of the City of Milwaukee. Documentation of this activity dates back to the early 1920s.

The following chapters of the Rules and Regulations contain specific provisions relevant to the sewer plan review process and the District's authority to conduct such reviews:

- Chapter 2: Planning, Design, and Construction of Sewers and Ancillary Facilities
- Chapter 3: Infiltration and Inflow Control
- Chapter 7: Approval of Sewer Plans
- Chapter 13: Surface Water and Storm Water

The above chapters are included in Appendix A of this submittal kit (the District Rules and Regulations are also available electronically on the District's web site, [www.mmsd.com](http://www.mmsd.com)). Following are brief descriptions of the information included in each of the above chapters:

### Chapter 2: Planning, Design, and Construction of Sewers and Ancillary Facilities

This chapter contains District requirements for sewer plan submittals, including a description of sewer projects that must be submitted for approval, descriptions of construction and system plan requirements that must be followed when preparing plans for submittal, and other general requirements governing the submittal of plans. This section also establishes a 60-day District review period. Following District review, plans that require Wisconsin Department of Natural Resources (WDNR) approval are forwarded to the WDNR for its review and approval. The WDNR then advises the District of the results of its review. The District then notifies the community of its approval, conditional approval, or disapproval of submitted plans. The District considers the 60-day review period to begin with the submittal of a complete set of plans and specifications as outlined in Chapter 2, and to end with the forwarding of plans to the WDNR.

### Chapter 3: Infiltration and Inflow Control

This chapter contains District sewer design and construction requirements for the exclusion of infiltration to the maximum extent possible and the total exclusion of inflow for the structures described in the plans.

### Chapter 7: Approval of Sewer Plans

Chapter 7 contains a description of the approval process for sewer plans, specifically regarding the roles of the Executive Director and the Commission. This section details how base and peak flow allocations are utilized to determine approval of sewer plans. Chapter 7 also details pre-construction basin flow monitoring requirements and capacity utilization accounting procedures.

## Chapter 13: Surface Water and Storm Water

Chapter 13 contains information on watercourses and flood abatement procedures. Included in this section are guidelines on the submittal of storm water management plans for approval by the District. Chapter 13 is referenced in this submittal kit because the requirements that apply to storm water management structures are separate from those that apply to sewers, whether they be sanitary, combined, or storm sewers. Storm water management plan submittals should conform to the requirements of Chapter 13 and not the requirements for sanitary, combined, and storm sewers described in this kit.

### **2. Sanitary and Combined Sewer Plan Review Process**

The plan review process normally includes the following steps:

- Administrative review for completeness of submittal
- Engineering review for compliance with technical criteria
- Operations review of connections to MMSD facilities (if directly connected to District-owned sewer)
- Routing of plans conforming to Rules and Regulations to Executive Director for approval
- Submittal of plans to DNR for review
- Notification of the plan's originator
- Filing of the plans and findings
- Quality assurance inspection
- Submittal of as-built drawings by the municipality

A flow chart of the sanitary and combined sewer plan review process is shown in Figure 1. Each of the steps in the review is discussed below.

Administrative Review. When a sewer plan is submitted to the District, the plan set is logged into the District's tracking database. If a submittal is incomplete, the District calls the originator to request the missing information. When the submittal is complete, Engineering Review commences. The following types of information are tracked in the database for each submittal:

*General submittal information:*

- Name of municipality submitting plans
- Project name
- Unique numerical identifier of project
- Location of project within municipality
- Description of project (type, size of connections, length of sewer extensions, etc.)
- Determination of need for WDNR review of submittal

*Submittal review milestones:*

- Date submittal received by the District
- Date submittal considered complete and District began its technical review
- Date the District completed its technical review
- Date submitted to WDNR for review
- Date completed WDNR review received by the District
- Date of Commission (or Executive Director) approval
- Date approved plans returned to municipality

Engineering Review. During the Engineering Review, reviewers check for consistency with the District Rules and Regulations, the current District facility plan, and applicable design standards. Examples of items reviewed are:

- Whether area tributary to the proposed sewer is in the approved District service area
- Whether projected flows are within the planned growth allowance for the basin
- Compliance with NR210 and the state plumbing code
- Consistency of calculated flows with the District Rules and Regulations and the Facility Plan
- Compliance with District's requirements for water tightness and durability
- Whether proposed sewer will result in future operational problems for MMSD

Operations Review. If there are elements to the plan that may impact future District operations or if the plans include a direct connection to a District interceptor, they are forwarded to Contract Operations for further review of the potential impact on operations.

Routing of Recommendations to Executive Director. After completion of the District's engineering and operations review, recommendations for approval are sent to the Executive Director for action. Plans require Commission approval if they are not consistent with the Rules and Regulations or if they require an exemption.

Submittal of plans to DNR for review. After completion of District engineering and operations review, plans are forwarded to the WDNR for review, if required (neither private nor storm sewer plans require WDNR review). Municipalities are responsible for including with their submittals to the District any additional forms required by WDNR; the District will forward these forms to WDNR along with plans on behalf of municipalities. If WDNR approves the plans, an approval letter is sent to the District. Copies of WDNR forms that may be required for sewer plan reviews are provided in Appendix B (further information on the WDNR review process can be found at the following address: [www.dnr.state.wi.us/org/water/wm/glwsp/facilities/](http://www.dnr.state.wi.us/org/water/wm/glwsp/facilities/)).

Notification to Originator. Upon completion of MMSD Commission and WDNR action, the District notifies the plan originator of the action taken. District staff may notify the plan originator by telephone when either Executive Director or Commission approval occurs, prior to sending written approval.

Filing of Plans and Findings. Reviewed plans and the findings of the review are filed after completion of the review process.

Quality Assurance Inspection and Submittal of As-Built Drawings. The municipality must arrange for a quality assurance inspection during construction to ensure that the plans and specifications approved by the District are followed. Inspections must be performed according to the requirements in Section 2.304. Within six months of construction, the municipality must submit to the District as-built drawings of the constructed facilities.

### **3. Storm Sewer Plan Review Process**

The plan submittal process for storm sewer projects is similar to that for sanitary and combined sewers, but the review process for storm sewers is less extensive because storm sewers do not require District or WDNR approval. Communities must submit a local storm sewer system plan and construction plans and specifications to the District before the commencement of storm sewer construction. Chapter 2.212 outlines detailed requirements for storm sewer plan submittals. A flow chart of the storm sewer plan review process is shown in Figure 2.

#### **4. Plan Submittal Cover Sheet**

As part of its effort to increase the efficiency of sewer plan reviews, the District is implementing the use of a standard cover sheet to be used by municipalities submitting sewer plans for District review. This cover sheet will allow for direct routing of the sewer plans to the correct contact person at the District and will contain a checklist of required submittal items to assist municipalities in assembling complete applications. The District believes that use of this cover sheet will result in fewer delays in review caused by submittals not being addressed to the appropriate review staff and submittals that are incomplete, requiring review staff to follow up with municipality officials for further information. A copy of the required cover sheet is provided in Appendix C.

#### **5. Project Web Site**

The District has created a plan review project web site to enable communities to more easily track the review status of their sewer plan submittals and therefore better plan the schedules of their sewer projects. With this system, each community will be provided a login name and password to be used to login to the web site and view the review status of their active submittals, as well as those projects reviewed within the last one-year periods. Besides allowing for improved communication of plan review status, use of the web site will free up District review staff for reviewing plans instead of responding to community requests for review status, further minimizing the amount of time required for review. Detailed instructions on the use of the project web site are provided in Appendix D.

**Appendix B**

**WDR Forms for Sewer Plan Reviews**

Note: Use of this form is required by the Department for any sanitary sewer extension plan submittal filed pursuant to s. 144.04, Wis. Stats. The Department will not consider your plan application unless you complete and submit this extension request. Personally identifiable information found on this form is not intended to be used for any other purpose.

Submitted for review pursuant to section 144.04, Wis. Stats., are this form and (as applicable):

- |   |  |
|---|--|
| <input type="checkbox"/> A. Plans   | <input type="checkbox"/> E. Regional planning commission '208' review letter               |
| <input type="checkbox"/> B. Specifications and checklist  | <input type="checkbox"/> F. Environmental assessment screening worksheet information       |
| <input type="checkbox"/> C. General map of proposed sewer extension(s), outlined proposed service area, connection to the existing system, and floodplain contours and elevations if applicable | <input type="checkbox"/> G. Project description, design data                               |
| <input type="checkbox"/> D. Owner approval letter(s)  | <input type="checkbox"/> H. Erosion control information                                    |
|   | <input type="checkbox"/> I. Form 3400-95   |
|   | <input type="checkbox"/> J. A wetlands inventory map, with the project location delineated |

<p>1. Name of Municipality</p> <hr/> <p>Name of Sanitary District</p> <hr/> <p>Project Name or Identification</p> <hr/> <p>2. Sewage treatment plant to which extensions are tributary:</p> <hr/> <p>3. Name of Developer (if not municipality, an owner approval letter is required with this submittal):</p> <hr/> <p>Mailing Address</p> <hr/> <p>City, State, Zip Code</p> <hr/> <p>6. Erosion Control</p> <p>A. Does the municipality have an erosion control ordinance? <input type="checkbox"/> Yes <input type="checkbox"/> No        If yes, will compliance with the ordinance be required for this project? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>B. Do the plan sheets show the erosion control provisions? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>C. Do the specifications require that the erosion control measures be in place before construction begins and maintained during construction? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>7. Will this sewer extension result in a diversion of water from a water supply system that uses surface water from the Great Lakes to the Mississippi River Basin? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>8. Are there overflows or bypasses in the sewage system that function during periods of normal dry weather? <input type="checkbox"/> Yes <input type="checkbox"/> No        If yes, please identify and describe them:        _____        _____        _____        _____</p> <p>10. Does the proposed project involve sewer extension(s) which:</p> <p>A. passes through a state designated wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>B. If yes, is the wetland greater than 5 acres? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>C. has a pipe diameter greater than 18 inches? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>4. After installation, who will own and maintain the proposed sewers?</p> <hr/> <p>5. Proposed Service Area</p> <p>Immediate _____ acres Ultimate _____ acres</p> <hr/> <p>Population to be Served</p> <hr/> <p>Density/acre _____ Population _____</p> <hr/> <p>Per Capita Sewage Contribution</p> <hr/> <p>Average _____ GPD Peak _____ GPD</p> <hr/> <p>Design Flows</p> <p>Ultimate Average _____ CFS Ultimate Peak _____ CFS</p> <hr/> <p>Design BOD</p> <hr/> <p>Average _____ lb./day</p> <p>Are downstream sewers/lift stations in place and do they have the capacity to handle these ultimate flows? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>D. Is the sewer extension part of a construction site that will disturb 5 or more acres of land? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>E. If yes, has a Notice of Intent (Form 3400-161) for the construction site for coverage under a general construction site storm water discharge permit been submitted to the Dept. in accordance with Chapter NR 216, Wis. Adm Code? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Construction Site ID #, if known _____</p> <hr/> <p>9. Area there overflows or bypasses in the sewage system that function during periods of wet weather? <input type="checkbox"/> Yes <input type="checkbox"/> No        If yes, please identify and describe them:        _____        _____        _____        _____</p>
---	---

If 10B or 10C are answered "yes", please attach to this submittal, information to enable the completion of an environmental assessment screening worksheet (EASW). All state designated wetlands and environmental corridors must be delineated on the plans.

11. A. Does the sewer project involve construction within 500 feet of the ordinary high water mark or over or under or in waters of the state?  Yes  No
- If yes, has the DNR district water management coordinator been contacted for a Chapter 30 permit determination?  Yes  No
- B. Does the proposed sewer pass through a floodway or floodplain?  Yes  No
- If yes, indicate regional (100 year) flood elevation on plans: \_\_\_\_\_

12. A. Describe soil and groundwater conditions in the project area(s):  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- B. Will water be pumped from the excavation trench?  Yes  No
- C. Is dewatering expected for this project?  Yes  No
- D. If dewatering is expected, do the plans and specifications require the contractor to contact the Department's Private Water Supply Section for a permit for all wells installed or operated for which the single or aggregate capacity may be in excess of 70 gallons per minute?  Yes  No
- If yes, is the Department's Private Water Supply Section's address for well permits listed as:  
 Wisconsin Department of Natural Resources  Yes  No  
 Private Water Supply Section  
 Box 7921  
 Madison, Wisconsin 53707
- E. If dewatering is expected, has the Registry of Waste Disposal Sites in Wisconsin, the Leaking Underground Storage Tank Site List, the Annual Spills Report and local government been contacted to determine if there are any adjacent operating or abandoned sanitary landfills, leaking underground storage tanks or hazardous substance spills?  Yes  No
- Based on the above contacts, is it expected that dewatering will occur near an operating or abandoned landfill, leaking underground storage tank or a hazardous substance spill?  Yes  No
- If yes, do the plans and specifications contain clear instructions on dewatering in this area of concern and require the contractor to contact the Department's district solid waste coordinator for assistance prior to installing the dewatering well(s)?  Yes  No

13. List below all sewers to be constructed as part of this project:

Diameter (inches)	Length (feet)	Street Name or Easement Description	Material
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

- |  |   |
|--|---|
| 14. Who will be responsible for inspection of this project? (List name and/or title, if known) | 15. Are the plans signed and sealed by a registered Wisconsin professional engineer? <input type="checkbox"/> Yes <input type="checkbox"/> No |
|--|---|

16. Sewer Depth
- A. What is the minimum depth of cover for all the sewers in the project? \_\_\_\_\_ feet
- B. Will all sewers be installed deep enough to provide basement drainage for existing development?  Yes  No

17. Sewer Slope and Sizing

- A. Do all 8 inch diameter sewers have slopes of 0.4% or greater?  
 Yes  No
- B. Do any sewers have slopes greater than 20%?  
 Yes  No
- C. If the answer to B is yes, is the sewer anchored?  
 Yes  No  N/A
- D. Design calculations for all sewers with diameters greater than 8 inches are (✓ one):  
 Shown below  Attached

\_\_\_\_\_

\_\_\_\_\_

18. Sewer Separation Between Water Supplies

- A. Are all sewers at least 200 feet from public water supply wells?  
 Yes  No
- B. Are all sewers at least 50 feet from private water supply wells?  
 Yes  No
- C. What is the minimum horizontal separation between the sewer and existing or future water mains?  
\_\_\_\_\_ feet
- D. Where water mains cross over sewers, what is the minimum vertical separation?  
\_\_\_\_\_ inches
- E. Where sewers cross over water mains, what is the minimum vertical separation?  
\_\_\_\_\_ inches

19. Manhole Installation

- A. Is a manhole being constructed at the end of each sewer line?  
 Yes  No
- B. To the best of your knowledge, will all manholes that are shown on the plans be installed as a part of the project?  
 Yes  No
- C. What is the maximum sewer interval between manholes for this project?  
\_\_\_\_\_ feet
- D. Are the sewers straight in alignment between manholes?  
 Yes  No
- E. Is there a manhole present at changes in sewer grade and size and at all pipe intersections?  
 Yes  No
- F. Are there locations where the invert elevation of the entering sewer to a manhole is 2 feet or more above the spring line of the outgoing sewer?  
 Yes  No

If yes, list the location of all outside drops:

\_\_\_\_\_

\_\_\_\_\_

- G. Are the tops of all manholes at or above finished grade?  
 Yes  No

20. Clearwater

- A. To the best of your knowledge, will all storm and other clearwater including that from sump pumps, roof drains, cistern overflows, and building foundation drains be excluded for these proposed sanitary sewers?  
 Yes  No
- B. To the best of your knowledge, will these street and tributary building sewers be laid in such a manner as to minimize entrance of groundwater and will building sewers and drains be installed to conform with state plumbing regulations (s. ILHR 82.36(3)(c)1., Wis. Adm. Code)?  
 Yes  No

To the best of my knowledge and belief, the above information is true, complete and correct.

Signature of Consulting or Municipal Engineer Responsible for Preparing This Form

Date Signed

Wisconsin P.E. Number \_\_\_\_\_

Telephone Number (include area code) \_\_\_\_\_

LEAVE BLANK-FOR DNR USE ONLY

- Complex
- Noncomplex
- Eligible (NR 110.05, Wis. Adm. Code)

Reviewer's Signature

NOTE: Use of this form is required by the Department for any sanitary sewer construction request pursuant to s. 281.41, Wis. Stats. The Department will not consider your request unless you complete and submit this extension request. Personally identifiable information on this form is not intended to be used for any other purpose.

Sanitary sewers will be constructed in accordance with:

1. Standard specification for sewer and water construction in Wisconsin (\_\_\_\_\_ edition).  Yes  No  
Note: Standard specifications do not amply cover erosion control measures. Special provisions must be submitted.

2. Standard specifications on file.  Yes  No

Community Name: \_\_\_\_\_

Approval Number: \_\_\_\_\_

3. Specification enclosed (please fill out sections A through G below).  Yes  No  
Note: Specifications must be sealed by a professional engineer.

A. Pipe Material	Application Standard	Joint Type and Standard
Asbestos Cement	_____	_____
Cast Iron	_____	_____
Concrete	_____	_____
Vitrified Clay	_____	_____
Steel	_____	_____
Ductile Iron	_____	_____
PVC	_____	_____
ABS Composite	_____	_____

Is any pressure sewer pipe being used?  Yes  No

If yes, indicate type, standard and joints: \_\_\_\_\_

B. Is trench width adequate for pipe laying, jointing and placement of proper backfill?  Yes  No

C. Bedding type for pipe meets requirements of ASTM C12-81 or MOP 9?  Yes  No  
 Class A  Class B  Class C

Bedding material for PVC and ABS composite pipe meets requirements of ASTM D2321-80?  Yes  No  
 Class I  Class II  Class III

D. Suitable backfill material within 2 feet of pipe (no frozen or organic material or large stones)?  Yes  No

E. Infiltration - less than 200 gal/in/mi/day?  Yes  No

Test Procedure \_\_\_\_\_

F. PVC pipe deflection testing?  Yes  No  N/A

Method \_\_\_\_\_

---

G. Manholes:

Diameter \_\_\_\_\_

Material \_\_\_\_\_

Outside Drops \_\_\_\_\_

Water Tight Inlets and Outlets \_\_\_\_\_

Sketch Included \_\_\_\_\_

---

I certify that I have examined the above information and found it to be true, complete and correct to the best of my knowledge.

---

Signature of Consulting/Municipal Engineer Responsible for Form Preparation

Wisconsin P.E. Number

---

Name and Address of Owner (Clerk of Municipality, Sanitary District)

┌  
  
  
  
└

LEAVE BLANK - FOR DNR USE ONLY
Date of Receipt
Type of Project
DNR Region
Project Number

Description of Project (extension, lift station, well, stp, etc.; street or subdivision)

If you have any questions regarding the status of the project submitted, please contact one of the following DNR Program Bureaus:

Watershed Management - (608) 266-3221  
Drinking Water/Groundwater - (608) 266-0857

Name, Name of Firm, and Address of Consulting Engineer

┌  
  
  
  
└

LEAVE BLANK - FOR DNR USE ONLY
Date of Receipt
Type of Project
DNR Region
Project Number

Description of Project (extension, lift station, well, stp, etc.; street or subdivision)

If you have any questions regarding the status of the project submitted, please contact one of the following DNR Program Bureaus:

Watershed Management - (608) 266-3221  
Drinking Water/Groundwater - (608) 266-0857

**FAST-TRACK PROJECT APPROVAL  
REQUEST AND APPROVAL LETTER**

Form 3400-160

Rev. 1-98

**DO NOT REQUEST FAST-TRACK APPROVAL  
OR USE THIS FORM IF YOU ARE SEEKING  
STATE FINANCIAL ASSISTANCE FOR YOUR  
PROJECT.**

Date \_\_\_\_\_

Engineer's Project Number \_\_\_\_\_

Wisconsin Department of Natural Resources  
Point Source Technical Evaluation Section  
101 S. Webster Street  
P.O. Box 7921  
Madison, WI 53707-7921

Completion of this form is mandatory for all fast-track approval requests filed in accordance with NR 110, Wis. Adm. Code. Personally identifiable information found on this form is not intended to be used for any other purpose.

Dear WDNR Point Source Technical Evaluation Section:

I am submitting one copy of \_\_\_\_\_ for (check all that apply)

- a sanitary sewer extension;     a lift station;     a force main;

for \_\_\_\_\_.

Project construction will occur at the following locations:

Street

Pipe Size

Pipe Length

The proposed sewer extension(s) conform with the following:

<u>True</u>	<u>N/A</u>	<u>False</u>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Community is eligible for a sanitary sewer extension(s).
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Submitted on behalf of the community, OR an owner approval letter is attached.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Attached is a copy of the Regional Planning Commission conformance letter.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Attached are completed WDNR Forms 3400-59, 3400-95, and 3400-168 (if this project includes a lift station).
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sewers do not come within 50 feet of a private well OR 200 feet of a public well.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sewers do not impact <u>any</u> wetland.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Erosion control provisions consistent with "Wisconsin Construction Site Best Management Practice Handbook" or Wisconsin DOT's "Facilities Development Manual - Chapters 11 and 13" are on the plans sheets. If this project is part of a construction site that will disturb 5 or more acres of land, a Notice of Intent (Form 3400-161) for the construction site for coverage under a general construction site storm water discharge permit has been submitted to the Department in accordance with chapter NR 216, Wis. Adm. Code.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No sewer greater than 18 inches in diameter is included in this submittal, OR is within an approved sewer service area.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sewers and specifications are in conformance with NR 110, Wis. Adm. Code.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lift station designs conform with Department Form 3400-168.

I certify that, to the best of my knowledge, the above information is correct and true.

Preparer's Name	P.E. Number
Signature	Name of Firm

Name and Mailing Address of Community


**FOUR YEAR  
SANITARY SEWER EXTENSION APPROVAL**

Name and Mailing Address of Engineering Company

--

Dear Clerk:

The Division of Water has received a sanitary sewer extension request for your \_\_\_\_\_,  
submitted under the seal of \_\_\_\_\_  
of \_\_\_\_\_.

The Division has reviewed the certified information and is hereby conditionally approving the sewer extension numbered \_\_\_\_\_  
subject to the following conditions:

1. That a preconstruction conference be held to familiarize the contractor(s) and inspector(s) with the plans or plans and specifications and conditions of approval.
2. That a competent resident inspector be provided during the course of construction;
3. That erosion control provisions for this construction be consistent with "Wisconsin Construction Site Best Management Practice Handbook" or Wisconsin DOT's "Facilities Development Manual - Chapters 11 and 13";
4. If this project is part of a construction site that will disturb 5 or more acres of land, a Notice of Intent (Form 3400-161) for the construction site for coverage under a general construction site storm water discharge permit be submitted to the Department in accordance with chapter NR 216, Wis Adm. Code; that a general permit for the site be obtained prior to commencing any construction activity; and that the terms and conditions of the permit be complied with.
5. That no sewer construction occur within 100 feet of a wetland unless the sewer is located completely within the right-of-way of an existing road, nor within 50 feet of a private well or 200 feet of a public well.
6. That the appropriate DNR regional water management specialist be contacted to determine if any other permits are required, if the construction is within 1000 feet of any water body;
7. That no lateral connections be allowed to any sewers included in this approval from any structures located in wetlands.
8. That improvements be installed in accordance with the plans and specifications, NR 110, Wis. Adm. Code, the above conditions and any subsequent essential modification ordered by the Department through a revised approval letter; and
9. That upon written notification from the Department of any violation of the above condition(s), all construction activities must halt until the owner comes into full compliance with the condition(s) and receives written authorization from the Department to proceed.

Section Chief  
Point Source Technical Evaluation Section  
Bureau of Watershed Management

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

cc: \_\_\_\_ Region Water Leader

## LIFT STATION DESIGN CHECKLIST

Form 3400-168 Rev. 1-98

Note: Use of this form is required by the Department for any new lift-station and/or major modifications plan submittal filed pursuant to s. 281.41, Wis. Stats. The Department will not consider your plan application unless you complete and submit this lift-station request. Manufacturer's drawings and/or specifications reproduced from manufacturer's data and bearing the manufacturers' labels will not be accepted. Personally identifiable information on this form is not intended to be used for any other purpose.

### 1. Type of Lift Station:

A. What type of lift stations are provided? (check the box that applies)

- |  |  |                                       |  |   |
|--|--|---------------------------------------|--|---|
| <input type="checkbox"/> Wet well/Dry well         | <input type="checkbox"/> Submersible           | <input type="checkbox"/> Suction lift | ( <input type="checkbox"/> Self Primed | <input type="checkbox"/> Vacuum Primed) |
| <input type="checkbox"/> Septic Tank Effluent Pump | <input type="checkbox"/> Pneumatic Ejector     | <input type="checkbox"/> Screw Pump   |  |   |
| <input type="checkbox"/> Grinder Pump              | <input type="checkbox"/> Other (specify) _____ |                                       |  |   |

**Note: If only simplex grinder/effluent pump stations are provided, skip items 1B through 15, and 17.**

- B. Are motors and pumps readily removable without entry into the wet well for submersible lift station?  Yes  No  N/A
- C. Is the total suction lift 20 feet or less for suction lift pump station?  Yes  No  N/A
- ### 2. Design report and calculations:
- A. Have a design report and design calculations been submitted?  Yes  No
- ### 3. Location:
- A. Is the lift station located out of all floodway and/or flood fringe areas; or, is the lift station flood-proofed (two feet above the 100 year elevation or provided with water tight covers)?  Yes  No  N/A
- B. Is the lift station located at least 100 feet from private wells or 200 feet from public wells; or if not, has a variance from the Department's Private Water Systems Section and/or Public Water Systems Section been obtained and included with this submittal?  Yes  No
- C. Have the force main-well separation distance requirements of ss. NR 811.16 and NR 812.08, Wis. Adm. Code, been met; or if not, has a variance from the Department's Private Water Systems Section and/or Public Water Systems Section been obtained and included with this submittal?  Yes  No
- ### 4. Pump Cycle and Detention Time:
- A. Is the pump cycle (from on to off and then back to on) with any combination of influent flows and pumping rate at least five minutes or more?  Yes  No
- B. Is the total fill time between pump on and off elevations in the wet well at average design flow 30 minutes or less?  Yes  No
- ### 5. Wet Well/Dry Well Access:
- A. Are there no steps or ladders in the wet well (except for stairways in built-in-place lift stations)?  Yes  N/A
- B. Is the dry well (pump chamber) for factory built lift stations less than 20 feet deep, or if more than 20 feet, have provisions for an intermediate landing been provided at approximately mid-depth?  Yes  No  N/A
- C. Is the dry well (pump chamber) for built-in-place lift stations provided with both a stairway and an intermediate landing at a vertical interval of less than 12 feet regardless of the depth of the dry well?  Yes  No  N/A

- D. If a man lift or elevator is provided in lieu of landing requirements, has an emergency access been included in the design?  Yes  No  N/A
6. Caution Sign:
- A. Is a caution sign provided at top of entrance to wet well?  Yes  No
- B. Does the caution sign read: Caution: Dangerous/hazardous gases. Level 2 Confined space. Do not enter without proper equipment and supervision.  Yes  No
7. Ventilation:
- A. Is wet well vented to the atmosphere using an inverted "j" tube or other means?  Yes  No
- B. Is permanent mechanical ventilation provided for built-in-place lift station where stairways are installed in the wet well for routine entrance to inspect or maintain equipment?  Yes  No  N/A
- If yes, does the permanent mechanical ventilation provide one of the following provisions? (Check the box that applies.)  Yes  No  N/A
1.  At least 12 complete air changes per hour if ventilation is continuous?
2.  At least 30 complete air changes per hour if ventilation is intermittent?
- C. Does the permanent mechanical ventilation in dry well provide one of the following provisions? (Check the box that applies.)  Yes  No  N/A
1.  At least six complete air changes per hour if ventilation is continuous?
2.  At least 30 complete air changes per hour if intermittent?
3.  At least 30 complete air changes per hour for the first ten minutes and then automatically switch over to six complete air changes per hour if ventilation is intermittent?
4.  At least six complete air changes per hour when dry well is occupied and at least two complete air changes per hour when not occupied if ventilation is continuous?
- D. Is the fan wheel made of non-spark materials if wet well is mechanically ventilated?  Yes  No  N/A
- E. Are all permanent wet well and the dry well ventilation systems completely separate?  Yes  No  N/A
- F. Is all permanent intermittently operated ventilation equipment interconnected with the respective wet well or dry well lighting system?  Yes  No  N/A
- G. Is there a manual lighting/ventilation switch provided to override the automatic controls?  Yes  No  N/A
8. Heater/Dehumidifier:
- A. Are automatic heaters and/or dehumidifiers provided in the dry well?  Yes  No  N/A
9. Pumps and Piping:
- A. Are there at least two pumps, each capable of pumping the peak hourly design flow with the largest unit out of service, or if three pumps are used, can the remaining pumps convey the peak hourly design flow with the largest unit out of service?  Yes  No  N/A
- B. If a single pump serving 25 or fewer residential units is used, have provisions been made to add a second pump without requiring structural changes in the future?  Yes  No  N/A
- C. Are pump suction and discharge piping (except grinder/effluent and screw pumps) at least 4-inch in diameter, or if not, has a comminutor or mechanical bar screen or other suitable equipment been provided?  Yes  No  N/A
- D. Is there a running time meter provided for each pump?  Yes  No

10. Valves and Valve Vault

- A. Are all valves (except ball check valves which may be located in the wet well provided they can be removed without entering the wet well) located in a dry well or in a separate valve vault that is either an integral part of the lift station or near the lift station?  Yes  No
- B. Is the check valve (except ball check valves which may be placed in a vertical run) placed in a horizontal section of the discharge line?  Yes  No
- C. Does the valve vault drain to a wet well through a drain line which is equipped with a ball check valve and/or a gate valve and which extends below the low water level to prevent entry of hazardous gases to valve vault?  Yes  No  N/A

11. Force Main:

- A. Is a velocity of at least two feet per second maintained in the force main at the design pumping rate?  Yes  No
- B. Have the following provisions been made if the force main contains high points?  Yes  No  N/A

Check the box that applies:

- combination automatic air release and vacuum valve  an automatic air relief valve  
 a manual air relief valve  Other (specify) \_\_\_\_\_

12. Alarms:

- A. Does the alarm system activate in cases of power failure, pump failure and at low (if non-explosion proof motors are used for submersible lift station) and high water levels?  Yes  No
- B. Does the alarm system also include one of the following provisions or if not, has a written variance from the Department's Bureau of Watershed Management been obtained and included with this submittal to allow a visual and audible (light and horn) alarm system?  Yes  No

(Check the box that applies.)

- A radio conveyed system  Automatic telephone dialer system  
 Telemetered  Other (specify) \_\_\_\_\_

13. What type of liquid level controls are provided? (Check the box that applies.)

- Air bubbler  Pressure transducer  Encapsulated Float  Capacitance probe  
 Displacement switch  Ultrasonic  Other (specify) \_\_\_\_\_

**Note: If an air bubbler system is used, skip item 14A through 14I.**

14. Electrical Equipment:

- A. Is a weather proof junction box (for floats) located outside the wet well provided for on the plan sheets?  Yes  No
- B. Is another weather proof junction box for submersible pump motor cables located outside the wet well and provided for on the plan sheets?  Yes  No  N/A
- C. Are electrical conduits specified as rigid or intermediate metallic conduit (PVC conduit may be used between explosion proof seals and the control panel) and shown on the plan sheets?  Yes  No
- D. Is an explosion proof seal provided between the control panel and junction box, and shown on the plan sheets?  Yes  No
- E. Is another duct seal or silicon seal provided at the junction box to prevent moisture escaping from the wet well to the junction box and is the seal shown on the plan sheets?  Yes  No

- F. Is a redundant low level alarm for submersible pump provided and set such that the pump motor is totally submerged at all times to prevent ignition of explosive gases in the wet well, or is the pump motor rated explosion proof?  Yes  No  N/A
- G. Are all motor power cables and all other wiring in the wet well NEC rated SO or STO or better?  Yes  No
- H. Are electrical level control circuits using floats/electronic transducers intrinsically safe?  Yes  No
- I. Are the floats/transducers suspended in the wet well or mounted on a portable pole to facilitate maintenance?  Yes  No
- J. Is a weather proof fused disconnect switch or equivalent circuit breaker provided?  Yes  No
- K. Is a 110-volt ground fault circuit interrupter protected duplex receptacle provided at or near the control panel to facilitate maintenance?  Yes  No
15. Duplex Grinder Pump Lift Stations (Also applies to duplex septic tank effluent pumps):  Yes  No  N/A
- A. Does the grinder pump lift station serve 12 or less residential units?  Yes  No
- B. Is the motor five horsepower or less?  Yes  No
- C. What type of grinder pumps are provided? (Check the box that applies.)  
 Submersible  Nonsubmersible
- D. What is the size of pump opening and discharge line?  
Please specify: Pump opening \_\_\_\_\_ Discharge Line \_\_\_\_\_
16. Simplex Grinder Pump Lift Stations (Also applicable to simplex septic tank effluent pump stations):  Yes  No  N/A
- Yes  No
- A. Does the grinder pump serve three or less residential units?  Yes  No
- B. Is the motor five horsepower or less?  Yes  No
- C. What type of grinder pump is provided? (Check the box that applies.)  
 Submersible  Nonsubmersible
- D. Is the grinder pump located out of all floodway and/or flood fringe areas, or is the pump station flood-proofed (2 feet above the 100 year elevation or provided with water tight covers?)  Yes  No  N/A
- E. Do the plan sheets show the location of grinder pumps and pressure service laterals?  Yes  No
- F. Are the grinder pumps readily removable without entry into the wet well or without dewatering the wet well?  Yes  No
- G. Are all valves accessible for operation and maintenance purposes without entry into the wet well or without dewatering the wet well?  Yes  No
- H. Is a redundant check valve provided at the pump station if the grinder pump discharges to a common force main?  Yes  No  N/A
- I. Is the grinder pump station vented to atmosphere either from the wet well or from the service lateral?  Yes  No
- J. Are there no ladder or steps in the wet well?  Yes  N/A
- K. What is the size of pump opening and the discharge line?  
Please specify: Pump opening \_\_\_\_\_ Discharge line \_\_\_\_\_
- L. Is the velocity in the discharge line at least 2 feet per second but not more than 5 feet/sec?  Yes  No

- M. Is the total dynamic head less than 100 feet?  Yes  No
- N. Is a running time meter and hand/off/automatic selector switch provided?  Yes  No
- O. Have the pump station-well and force main-well separation distance requirements of ss. NR 811.16 and NR 812.08, Wis. Adm. Code, been met; or if not, has a variance from the Department's Private Water Systems Section and/or Public Water Systems Section been obtained and included with this submittal?  Yes  No  N/A
- P. Are audible and visual high water alarms provided?  Yes  No
- Q. Is the control panel located outside the wet well?  Yes  No
- R. Are two weather proof junction boxes (one for floats and the other for the submersible pump motor) provided, located outside the wet well, and shown on the plan sheet?  Yes  No  N/A
- S. Are level controls including low and high water alarm circuits provided with low voltage not to exceed 24 volts?  Yes  No  N/A
- T. Is an explosion proof seal provided between the junction box and the control panel and shown on the plan sheet?  Yes  No  N/A
- U. Are all cables in the wet well NEC rated for "extra hard use in damp locations"?  Yes  No  N/A
- V. Are there separate conduits for pump and control circuits?  Yes  No  N/A
- W. For submersible pumps, is the redundant low level alarm provided and set such that the pump motor is totally submerged at all times, or if not, is the pump motor rated explosion proof?  Yes  No  N/A
- X. For nonsubmersible pumps, is the weather proof motor completely isolated from wet well atmosphere in a separate gas tight housing?  Yes  No  N/A
17. Emergency operation for each lift station including duplex grinder/effluent pump lift station:
- A. Will emergency operation be provided during a power failure? How? (Check the box that applies.)  Yes  No
- |  |  |
|--|--|
| <input type="checkbox"/> On-site generator                         | <input type="checkbox"/> On-site gasoline or diesel driven engine                        |
| <input type="checkbox"/> A portable generator of adequate capacity | <input type="checkbox"/> Two independent electrical transmission routes                  |
| <input type="checkbox"/> A portable pump of adequate capacity      | <input type="checkbox"/> Holding capacity to hold minimum 24 hours based on average flow |
- B. If a portable generator or a portable pump serves more than three lift stations, has a written variance from the Department's Bureau of Watershed Management been obtained and submitted?  Yes  No  N/A
- C. If portable pump is used for emergency operation, have quick disconnect fittings/couplings (accessible without entering the lift station and/or valve manhole) been provided to the suction and/or discharge line?  Yes  No  N/A

To the best of my knowledge and belief, the above information is true, complete and correct.

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Signature of Consulting or Municipal Engineer Responsible for Preparing This Form

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Date Signed

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Wisconsin P.E. Number

**Appendix C**

**MMSD Sewer Plan Review Submittal Cover Sheet**

# MMSD Sewer Plan Review Request

Municipality: \_\_\_\_\_  
Name of contact person: \_\_\_\_\_  
Project name: \_\_\_\_\_

Date submitted: \_\_\_\_\_  
Telephone number: \_\_\_\_\_

Instructions: Fill out Section 1, 2, or 3 based on the type of sewer project proposed.

## 1. Sanitary and Combined Sewers

Project Type (check all that apply)

- Sanitary sewer extension
- Sanitary relay sewer
- Sanitary relief sewer
- Combined relief sewer
- Sewage lift station or force main (including any modifications that increase capacity)
- Private interceptor main sewers
- Other (indicate) \_\_\_\_\_

Submit the following with sanitary and combined sewer projects:

1. **Five (5)** copies of plans and specifications (plans and specifications need signature and seal of designer and signature of municipal official approving/submitting plans)
2. **Two (2)** copies of the relevant system plan
3. **Two (2)** copies of the design computations (not required for 8" diameter sanitary sewers designed to carry a peak flow less than or equal to 0.7 cubic feet per second (cfs) when ½ full)
4. SEWRPC 208 letter indicating conformance with regional land use plans (sanitary extensions only)
5. For public sewer systems, the following WDNR forms:
  - 3400-59
  - 3400-95 (not necessary if no sewer work included)
  - 3400-105
  - 3400-160 (only necessary if requesting "fast-track" review)
  - 3400-168 (only necessary if lift station included)

## 2. Storm Sewers

Project Type (check all that apply)

- Storm extension
- Storm relay
- Other (indicate) \_\_\_\_\_

Submit the following with storm sewer projects:

1. **One (1)** copy of the plans and specifications
2. **One (1)** copy of the relevant system plan
3. **One (1)** copy of the design computations

## 3. Other Review Request

Describe review request: \_\_\_\_\_

Contact the District to determine submittal requirements.

Submit completed submittal packages to:

**Debra Jensen, Planning Services Supervisor  
Milwaukee Metropolitan Sewerage District  
260 West Seeboth Street  
Milwaukee, WI 53204-1446**

## **Appendix D**

### **Project Web Site Instructions**

If Municipal staff would like access to the project web site to view the status of sewer plan submittals, the Municipal staff must contact Debra Jensen, Planning Services Supervisor (414-225-2143 or [djensen@mmsd.com](mailto:djensen@mmsd.com)) to create an account.