



# WASTEWATER ENGINEERING

## Land Application Permitting Process Manual

Iowa Department of Natural Resources

July 2019

**Land Application Permitting Process**  
**Iowa Department of Natural Resources**  
**Wastewater Engineering Section**

**1) Owner hires Engineer:** Owner or Consulting Engineer conducts a self-assessment and determines that additional wastewater land application sites and/or storage, treatment and disposal systems are necessary. Once the owner identifies a need for wastewater construction improvement, the owner will contact with a consulting engineer (Engineer). The Engineer will investigate and evaluate the issue and make recommendations for needed improvements.

More information on hiring a consulting engineer can be found on the Iowa Engineering Society's web site at <http://www.iaengr.org>

**2) Engineer Contacts DNR and Submits Work Record Request:** After engineering services has been procured by the owner, the engineer will contact DNR Wastewater Engineering Section and submit a completed Work Record request for a Project Manager (PM) assignment and initiate a new work record/project. The Work Record Request (WRR) and Work Record instructions can be found on the DNR Wastewater Engineering Section webpage <https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Wastewater-Construction/Land-Application-Permits>.

[Work Record Request](#)

[Work Record Request Instructions](#)

All completed work record requests shall be submitted as an attachment and emailed to [wastewater-engineering@dnr.iowa.gov](mailto:wastewater-engineering@dnr.iowa.gov). The subject line of the email shall include Work Request-Facility Name – Work Title. An automated response will be sent to the requestor acknowledging DNR receipt of the work request. The engineer/owner will be notified if the Work Record Request is incomplete.

**3) Iowa DNR Assigns Project Manager (PM):** For Work Record Requests that are complete, an Iowa DNR Project Manager will be assigned and the Engineer/Owner will be notified by email. The assigned PM will be the point of contact and will manage review of the resulting work/project.

**4) PM Schedules Project Initiation Meeting (PIM):** The PM will work with the owner and engineer to schedule a Project Initiation Meeting within 30 days of the initial contact. Other parties involved in the project will also be invited, including other DNR staff or organizations assisting in application preparation, and others as appropriate.

The project initiation meeting is a major event in the project planning and permitting process. It is important to reach an understanding by all participants as to the scope of the facility planning, the goals of the project and the state review and permitting requirements. The owner or their representative and consultant engineer should attend the PIM. The PM will arrange to have appropriate DNR staff to attend the PIM, including field office staff.

The PM will review requirements, summarize procedures, and explain checklists, guidance, and applications as shown in this manual. The PM will seek agreement on the project scope and schedule from planning through construction.

The PM will collect contact names, phone, fax number and email addresses to enable future communications with all parties. PIM will determine the requirements for construction permit or facility plan/engineering report approval or both based on the scope of the project. If a construction permit is needed for a new structure or new land application sites are requested for approval, then a site survey will be required.

**5) Site Survey:** The owner has the option of hiring an engineering firm to conduct the survey to verify site separation distances or to have the survey conducted by the appropriate Iowa DNR Field Office staff. The site separation distances must satisfy the requirements specified in the Iowa Wastewater Facilities Design Standards of Chapter 21 and IAC 567 Chapter 64.

If the facility decides to have the Iowa DNR Field Office to conduct the site survey for new or additional land application, site survey requests must include at the least the following items in the submittals to the Field Office: ***legal descriptions of sites, site maps including the locations of the proposed monitoring wells, and number of acres per site.*** For treatment/storage, requests must include at the least the following items in the submittals to the Field Office: ***legal descriptions of sites and site maps including the 1500 feet radius to the proposed treatment/storage system.*** Construction Schedules A, F, G & S for only land application activities and Schedules A, F, G, S & Z, if wastewater treatment/storage is included.

*Field Office locations and contact information can be found at the following link:*

<http://www.iowadnr.gov/fieldoffice>

The engineer certified or the field office staff authorized site survey report must be submitted to the DNR PM for review and comments.

**6) Engineering Report/Facility Plan and Iowa Operating Permit Application:** Consulting Engineer prepares and submits three copies of the **completed** engineering report/facility plan and Iowa Operating Permit Application to the DNR wastewater engineering section for review and comments. A checklist is provided in Exhibit- LA1, which must be submitted along with the engineering report/facility plan.

a) If new or additional wastewater land application sites are requested, the engineering report/facility plan for the proposed sites must be prepared in accordance with the applicable Iowa Wastewater Facilities Design Standards Chapter 21, located at the following web link

<http://www.iowadnr.gov/portals/idnr/uploads/water/wastewater/dstandards/chapter21.pdf?amp;tabid=1316>.

b) If wastewater treatment or storage is requested, the engineering report/facility plan for treatment/storage must be prepared and submitted in accordance with the applicable Iowa Wastewater Facilities Design Standards Chapter 11 and the wastewater engineering construction permitting process manual.

c) If both (a) and (b) are requested, one engineering report/facility plan may be submitted, provided it is prepared in accordance with both the Iowa Wastewater Facilities Design Standards Chapter 21, the applicable Iowa Wastewater Facilities Design Standards Chapter 11 and the wastewater engineering construction permitting process manual.

Three copies of the facility plan and permit application shall be sent to:

Wastewater Engineering Section  
Iowa Department of Natural Resources  
502 E. 9<sup>th</sup> Street  
Des Moines, IA 50319

**7) Engineering Report/Facility Plan Approval:** DNR Project Manager approves Engineering Report/Facility Plan and the approval letter is mailed out to the owner, consulting engineer and DNR Field Office. **If no construction permit is required, the new or amended Iowa Operating Permit will be issued along with the facility plan approval.**

**8) Construction Permit Application:** If treatment/storage and or disposal mechanisms are requested, the consulting engineer must submit an appropriate construction permit application to the DNR project manager. At minimum, the package must include the following items:

- (a) Three copies of the final plans and specifications certified by an engineer licensed to practice in the State of Iowa.
- (b) Wastewater Construction Permit Application Schedule A.
- (c) Iowa DNR Wastewater Disposal System Construction Permit Application Fee Form with fee payment.
- (d) Appropriate construction permit application schedules applicable to the project.

Construction permit application forms can be found at: <https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Wastewater-Construction/Land-Application-Permits>

The package should be sent to:

Wastewater Engineering Section  
Iowa Department of Natural Resources  
502 E. 9<sup>th</sup> Street  
Des Moines, IA 50319

**9) Construction Permit/Iowa Operation Permit:** Upon completion of the application review the DNR Project Manager Issues the Construction Permit for treatment/storage and or disposal mechanisms as specified along with the new or amended Iowa Operation Permit.

## Exhibit LA1

Iowa Department of Natural Resources  
Wastewater Engineering Section

### Land Application Engineering Report Scope of Study Checklist

Facility Name: \_\_\_\_\_

Facility Location: \_\_\_\_\_

Facility Study Scope: \_\_\_\_\_

The **engineering report** shall contain pertinent information on the proposed site(s) including: location, geology, soil conditions, area for expansion, groundwater conditions and any other factors which may affect the feasibility and acceptability of the proposal. The **engineering report** shall also include pretreatment and storage requirements, a management program stating the objectives of the land application, the design application rates and monitoring. The source should be given for any information used by the consulting engineer in design.

Design Standard Section		Subsection N/A to Scope
<b>21.1</b>	<b>GENERAL DESIGN CONSIDERATIONS</b>	
21.1.1	Site Considerations	
21.1.1.1	Site Identification	
21.1.1.2	Site Criteria Initial Groundwater Quality	
21.1.2	Groundwater	
21.1.2.1	Fieldwork Determination	
21.1.2.2	Initial Groundwater Quality	
21.1.3	Geological Information	
21.1.3.1	Soil Profile	
21.1.3.2	Soil Requirements	
21.1.4	Initial Wastewater Analysis	
21.1.5	Preapplication Treatment	
21.1.6	Land Application Facility	
21.1.6.1	Hydraulic Loading Rate	
21.1.6.2	Nitrogen Loading	
21.1.6.3	Phosphorous Loading	
21.1.6.4	Trace Element Loading	
21.1.6.5	Salinity Restrictions	
21.1.6.6	Disinfection	
21.1.6.7	Crops and Vegetation	
21.1.7	Storage Facility	
21.1.7.1	Storage Time	
21.1.7.2	Construction	
21.1.7.3	Reliability	
21.1.7.4	Storage Option	
21.1.8	Reliability	
21.1.8.1	General	
21.1.8.2	Equipment	
21.1.8.3	Mannpower	
21.1.9	Monitoring Systems	
21.1.9.1	Frequency	
21.1.9.2	Parameters	
21.1.9.3	Location	
21.1.9.4	Operational	
21.1.10	Effluent and Groundwater Limitations	
21.1.10.1	Effluent	
21.1.10.2	Groundwater Limitations	
<b>21.2</b>	<b>SLOW RATE LAND APPLICATION</b>	
21.2.1	Site Criteria	
21.2.2	Groundwater	
21.2.2.1	Groundwater Table	
21.2.2.2	Under drain	
21.2.3	Geology	
21.2.4	Topography	
21.2.5	Trace Element Limitations	
21.2.6	Storage Requirements	
21.2.7	Application Restrictions	
21.2.7.1	Application Based on Permeability	
21.2.7.2	Application Based on Limiting Factor	
21.2.7.3	Application During Frost and Runoff	
21.2.7.4	Application to Public Use Areas	
21.2.8	Resting or Drving Period	
21.2.9	Land Owner Agreements	
21.2.10	Water Rights	
<b>21.3</b>	<b>OVERLAND FLOW</b>	
21.3.1	Groundwater	
21.3.2	Geology	
21.3.3	Topography	
21.3.3.1	Slope	
21.3.3.2	Length of Travel	
21.3.4	Storage Requirements	
21.3.5	Overland Flow Facility Design	
21.3.5.1	Hydraulic Loading	
21.3.5.2	Nitrogen Loading	
21.3.5.3	Distribution System	
21.3.5.4	Vegetation	
21.3.5.5	Access	
21.3.5.6	Collection Ditches	
	Additional Items:	