

## Chapter NR 510

## PRE-FEASIBILITY REPORTS FOR LANDFILLS

NR 510.01	Purpose.
NR 510.02	Applicability.
NR 510.03	Definitions.
NR 510.04	General submittal requirements.

NR 510.05	Specific geotechnical information.
NR 510.06	Data presentation.
NR 510.07	Data analysis and design recommendations.

**Note:** Corrections made under s. 13.93 (2m) (b) 7., Stats., Register, August, 1997, No. 500.

**NR 510.01 Purpose.** The purpose of this chapter is to ensure that efficient, nuisance-free and environmentally acceptable solid waste management procedures are practiced in this state and to outline recommended investigations regarding pre-feasibility reports for proposed new landfills or expansions of existing landfills. The purpose of submitting a pre-feasibility report is to obtain a revised opinion from the department on the potential a proposed property has for development as a landfill and the advisability of spending additional time and funds to prepare a feasibility report. This chapter is adopted under ch. 289, Stats., and s. 227.11, Stats.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88; am. Register, June, 1996, No. 486, eff. 7-1-96.

**NR 510.02 Applicability. (1)** Except as otherwise provided, this chapter governs all landfills as defined in s. 289.01 (20), Stats., except landfills regulated under ch. NR 503, hazardous waste facilities as defined in s. 291.01 (8), Stats., and regulated under chs. NR 660 to 679 and metallic mining operations as defined in s. 293.01 (9), Stats., and regulated under ch. NR 182.

**(2)** This chapter does not apply to the design, construction or operation of industrial wastewater facilities, sewerage systems and waterworks treating liquid wastes approved under s. 281.41, Stats., or permitted under ch. 283, Stats., nor to facilities used solely for the disposal of liquid municipal or industrial wastes which have been approved under s. 281.41, Stats., or permitted under ch. 283, Stats., except for facilities used for the disposal of solid waste.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88; correction in (1) made under s. 13.93 (2m) (b) 7., Stats., Register, May, 1995, No. 473; am. (1), Register, June, 1996, No. 486, eff. 7-1-96; correction in (1) made under s. 13.93 (2m) (b) 7., Stats.

**NR 510.03 Definitions.** The terms used in this chapter are defined in s. NR 500.03.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88.

**NR 510.04 General submittal requirements.**

**(1) GENERAL PROVISIONS.** Prior to submitting a feasibility report, an applicant may submit a pre-feasibility report for review by the department. If a pre-feasibility report is submitted, it shall address s. NR 500.05 and the requirements of this chapter.

**(2) CONTENTS. (a)** A pre-feasibility report shall identify the project title; name, address and phone number of the primary contacts including the proposed landfill's owner, operator and any consultants; present property owner; and proposed landfill location by quarter-quarter section.

**(b)** The report shall identify any conflicts with the locational criteria and performance standards specified in s. NR 504.04 for landfills except for s. NR 504.04 (4) (d) to (f), any other constraints on site feasibility previously identified by the department, and provide the additional information, changes in design, or other circumstances which warrant a review by the department of its initial site report opinion regarding the potential of the property for development as a landfill.

**(3) DEPARTMENT RESPONSE.** Using the information in the pre-feasibility report, the department shall review its initial site report opinion under s. NR 509.05 (2) regarding the potential of the proposed property for development as a landfill and may, at its discretion, revise the previously issued opinion. The department shall issue a revised opinion, or confirm its previous initial site report opinion, as to whether the proposed property has potential, limited potential, or little or no potential for development as a landfill within 60 days of receipt of the pre-feasibility report. A favorable opinion under this chapter does not guarantee a favorable feasibility determination.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88; r. and recr. Register, June, 1996, No. 486, eff. 7-1-96.

**NR 510.05 Specific geotechnical information.** The applicant shall perform field investigations to define the subsurface soils, depth to bedrock, type of bedrock, depth to groundwater, and groundwater flow direction at the proposed landfill's location. The results of this investigation shall be described in the narrative section of report. All raw data collected for borings, well construction and borehole abandonment shall be submitted on forms in accordance with s. NR 507.14 (5). All raw data for laboratory tests and water level measurements shall be included in the report appendix.

**(1) BORINGS.** Borings installed to investigate the site specific geology shall be:

**(a)** Extended a minimum of 25 feet below the anticipated sub-base grade. If the boring is located outside the anticipated limits of filling, the applicable sub-base grade is the elevation of the bottom of the anticipated liner system nearest to the borehole.

**(b)** Located in or within 300 feet of the anticipated limits of filling.

**(c)** Logged and samples shall be collected and retained in accordance with s. NR 507.05 (2) and (3).

**(d)** Abandoned in accordance with ss. NR 141.25 and 507.08 if not converted to wells.

**(2) WELLS.** Based on existing information, observation wells installed to investigate the site-specific hydrogeology shall be:

**(a)** Constructed so that the water table intersects the well screen at all times during the year.

**(b)** Located no more than 300 feet from the anticipated limits of filling.

**(c)** Designed, installed, developed and documented in accordance with ch. NR 141 and ss. NR 507.06, 507.07 and 507.14. All requirements contained in s. NR 508.10 also apply. Alternative methods of well design and installation which achieve comparable results shall be approved by the department prior to well construction.

**Note:** NR 508.10 was repealed eff. 7-1-96.

**(3) FIELD DIRECTION.** A professional geologist or qualified technician who is directly supervised by a professional geologist shall observe and direct the drilling of all borings and the installation, development and abandonment of all wells. The professional geologist or qualified technician who is directly supervised by a professional geologist shall also visually describe and classify all geologic samples.

**(4) LABORATORY AND FIELD ANALYSES.** Laboratory and field analyses conducted to identify the specific geologic and hydrogeologic conditions at the proposed landfill's location shall:

(a) Include testing a minimum of one representative sample from each major soil unit encountered. Each representative sample shall be analyzed for grain-size distribution using mechanical and hydrometer methods and Atterberg limits as appropriate for the particular type of material and be classified according to the unified soil classification system.

**Note:** A major soil unit is defined in s. NR 500.03(138).

(b) All available groundwater or surface water quality data which have been obtained from sampling at the proposed landfill's location shall be submitted in the report. Any environmental monitoring data included in the report shall be submitted on department forms or on diskette.

**Note:** The department recommends that any site-specific geotechnical investigation for an initial site report or a pre-feasibility report not be initiated prior to receiving the department's initial site inspection evaluation of the proposed property. The department also recommends that any follow up studies and evaluations requested by the department in its initial site inspection evaluation to determine compliance with the locational criteria and performance standards of s. NR 504.04 be completed to the degree possible prior to submitting an initial site report or a pre-feasibility report. For example: If the department requests an archeological investigation or an endangered resources study to be completed, such information should be included in the initial site report or a pre-feasibility report. However, if the proposed landfill will have an impact on a wetland, the practicable alternative analysis required by ch. NR 103 should be submitted with the initial site report or pre-feasibility report, but the identification of the wetland functional values and the significance of the potential adverse impact upon those functional values may be submitted with either the initial site report, the pre-feasibility report or the feasibility report.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88; r. and recr. Register, June, 1996, No. 486, eff. 7-1-96.

**NR 510.06 Data presentation.** The results of any subsurface investigations shall be presented on 24" x 36" plan sheets unless an alternative size is approved by the department, as follows:

**(1) TOPOGRAPHIC MAP.** A topographic map of the area within 1,500 feet of the anticipated limits of filling shall be submitted showing the anticipated limits of filling, property boundaries, homes, buildings, cultural features, water supply wells, and the location of soil borings and wells for the proposed landfill. For a proposed contiguous, horizontal or vertical expansion of an existing landfill the topographic map shall also include the location of all borings and wells for the existing landfill. The base map may consist of an enlarged 7.5 minute USGS map or other map having a minimum scale of 1" = 500' with contour intervals sufficient to show relief.

**(2) GEOLOGIC CROSS-SECTIONS.** Geologic cross-sections shall be constructed and submitted if more than 4 borings have been installed. For a proposed contiguous, horizontal or vertical expansion of an existing landfill, all borings and wells for the existing landfill shall be included on the geologic cross-sections. Where more than one interpretation can be reasonably made when evaluating heterogeneities within the unconsolidated deposits, assume that the heterogeneities are continuous. The following information shall be presented on the geologic cross-sections:

(a) A dashed line or question mark for inferred boundaries, a number or symbol to label major soil units and a key containing a description of the soil units.

(b) The anticipated sub-base, base and final grades for the proposed facility.

(c) All boring logs, the USCS classifications and the geologic origin for each major soil unit. The results of all lab tests shall be presented beside the boring.

(d) Well construction details shown to scale including the well screen and filter pack length, the location of the upper and lower seals, and stabilized water level elevations measured on the same day. When 2 or more water table observation wells are presented on a cross-section, a line representing the water table elevation shall be drawn on the cross-section. The date the measurements were taken shall be specified in the key.

**(3) WATER TABLE MAP.** A water table contour map shall be submitted when 4 or more observation wells have been installed to define the site-specific hydrogeology. The map shall be based on stabilized water levels recorded on the same day from the observation wells installed at the proposed landfill's location and show the wells and the measured water level at each well. For a proposed contiguous, horizontal or vertical expansion of an existing landfill, the water table contour map shall include the observation wells and measured water table elevations at each well for the existing landfill. The topographic map shall be used as a base map. If more than one set of water levels has been taken, the water table contours shall be based on the set of data which indicates the highest water table. Any observed variations in flow direction shall be discussed in the narrative of the report. Inferred contours made beyond the extent of the well field shall be shown with dashed lines.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88; renum. from NR 510.09; am. (intro.), (1), (2) (intro.), (a), (c), (d), (3), Register, June, 1996, No. 486, eff. 7-1-96.

**NR 510.07 Data analysis and design recommendations.** The report shall include an analysis of the results from the regional geotechnical information and land use information contained in the initial site report and from the subsurface investigations; give preliminary conclusions and recommendations on landfill development; and include a discussion of the following items:

**(1) LOCATIONAL CRITERIA AND PERFORMANCE STANDARDS.** The potential for the proposed landfill to meet the locational criteria and performance standards in s. NR 504.04.

**(2) FACTORS AFFECTING DEVELOPMENT.** A discussion of the geologic environment including those factors which may affect the development, design or operation of the proposed landfill.

**(3) EXISTING FACILITY PERFORMANCE.** For a proposed contiguous, horizontal or vertical expansion of an existing landfill, the compliance status and performance of the existing landfill shall be evaluated.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88; renum. from NR 510.10 and am. (intro.), (2), r. (3) and (4), cr. (3), Register, June, 1996, No. 486, eff. 7-1-96.