Texas Commission on Environmental Quality
Municipal Solid Waste Landfill Site
Soil Liner Evaluation Report

******Read These Instructions Before Completing This Form******

This form is to be completed by a qualified independent third-party professional engineer experienced in geotechnical engineering and soils testing or a graduate geologist whose education and/or experience is in engineering geology and geotechnical soils testing. The evaluator must have experience with the proper methods of constructing soil liners and be able to interpret these geotechnical test results to ensure they meet the requirements of the commission's rules.

A professional engineer or geologist with geotechnical experience or a member of his or her staff qualified by training and experience shall monitor liner construction, but the final evaluation must be made by the aforementioned engineer or geologist.

The purpose of the soil liner evaluation report is to assure that groundwater, as defined in the commission's rules, is protected from contamination resulting from the storage, processing, or disposal of municipal solid waste. This soil liner evaluation is required to document that in-situ soil and/or constructed soil liners meet the commission's regulatory requirements prior to construction of a geomembrane liner, leachate collection system, or filling operations. This evaluation is in addition to soils data obtained to meet the permit requirements. For this reason, prior geotechnical data in itself shall not be considered a substitute for laboratory soils testing necessary to provide proper documentation and subsequent verification of the soil conditions of each trench or disposal area prior to solid waste disposal.

Data and information required in this form are to provide the basis of the evaluation made by the certifying engineer or geoscientist. This report is to be supplemented with those quality control tests detailed in the permit's liner quality control plan and shell be the basis of documentation of the quality control and acceptance of an in-situ or constructed liner.

Attach additional sheets as needed and on each sheet identify the appropriate part and paragraph number for each reference.

Important: Three *signed and dated* copies of this form, which includes one original copy, plus all attachments (Drawings, comments, etc.) for each copy must be provided to the commission.

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Municipal Solid Waste Landfill Site
Soil Liner Evaluation Report

Part A: Facility Identification

Permittee: _____

Permit No.: _____ Operational Classification Type: _____

County: _____

Part B: General Information

1. What type of liner is required by the permit and is detailed in the site development plan?

   _____

   _____

2. Does the site development plan require a leachate collection system for this liner system?

   _____

3. Date of the current liner quality control plan used to develop this SLER. _____

Part C: Locations and/or Description of Areas Currently Being Evaluated

1. Attach to this report a copy of the latest approved sectorized fill layout plan showing the areas or sectors of the landfill site currently under evaluation and showing areas previously filled and currently receiving waste. The required grid system must be shown on this drawing.

2. On a sketch or drawing of the area(s) under evaluation, indicate the following:

   a. Location and pertinent identifying information relating to all soil borings, core samples, observation trenches, and in-situ soil tests that were collected or conducted to accomplish this evaluation.

   b. Boundary lines distinguishing the bottom and sidewall areas of the trenches or fill areas being evaluated.

   c. Location and proper designation of constructed or in-situ liners.

3. Present evaluation location and area of coverage.

   a. Trench, sector, or area identification or number (give station, grid coordinates, boundary limits of this evaluation). _____

   b. Excavation depth _____ ft., length at top of excavation _____ ft., width at top of excavation _____ ft., and ratio of side slopes _____ : _____.

c. Total number of square feet of liner evaluated for the floor, _____ ft.², and for each individual side slope: (1) _____ ft.²; (2) _____ ft.²; (3) _____ ft.²; (4) _____ ft.²; (if evaluated area has more than four sides, list all other below).

_____

_____

Part D: Soil Evaluations Conducted During the Current Study

1. Were all the soils tests and the rate of testing preformed in accordance with the current liner quality control plan? _____

   If not, please explain. _____

2. Dates liner was under construction. _____

3. Dates the professional of record (POR) visited the site. _____

4. Name & dates of the POR's technician was on-site. _____

   _____

5. Summarize the test results of **in-situ soils only,** if tested, provided they are allowed as an alternate liner by the permit.

In-Situ Sidewall Areas

Test locations must be noted on the sketch required by Part C, Paragraph 2 and are identified as follows: _____

_____

Tests Conducted on Sidewall Areas	Number of Tests	Range of Values (where appropriate)
Soil Classification (USC)		
Fraction Passing No. 200 Sieve (%)		
Moisture Content (%)		
Liquid Limit (Minus No. 40 Sieve)		
Plasticity Index (Minus No. 40 Sieve)		
Dry Density		
Coefficient of Permeability (cm/sec.)		
Number of samples tested oriented in the horizontal direction?		
Method used to determine permeability?		

In Situ Bottom Areas

Test locations must be noted on the sketch required by Part C, Paragraph 2 and are identified as follows: _____

_____

Tests Conducted on Bottom Areas	Number of Tests	Range of Values (where appropriate)
Soil Classification (USC)		
Fraction Passing No. 200 Sieve (%)		
Moisture Content (%)		
Liquid Limit (Minus No. 40 Sieve)		
Plasticity Index (Minus No. 40 Sieve)		
Dry Density		
Coefficient of Permeability (cm/sec.)		
Method used to determine permeability?		

Part E: Evaluation Results

1. Status of In-Situ Soils

   a. Do the test results of samples taken from the bottom and sidewalls of the disposal area evaluated satisfy the requirements for in-situ liners, or does the presence of joints, fractures or bedding planes, indicate the need for a constructed liner to meet the requirements of the commission's rules? (Note: The use of in-situ soils as an alternative liner system must be so indicated within the permit to be considered acceptable regardless of the results of the tests).

   _____

   b. If the answer to a. above is no, give a detailed explanation based on test data and depth documentation that will support this conclusion.

   _____

   _____

   _____

   _____

   (Please use additional paper if necessary for full explanation)

2. Status of Installed Liners

   a. Was the approved liner quality control plan followed? _____

   b. If not followed, why? _____

_____

c. Was the liner construction completed prior to the certifying engineer's or geoscientist's final field visit? _____

d. How much overlap length is incorporated in the "tie-in" of this liner with the previously constructed liner? _____ ft. Was the tie-in done in "stair-step" fashion with maximum step heights of 12 inches? _____. If not, describe tie-in. _____

_____

e. How were sample holes and nuclear-density gauge pin/probe holes backfilled?

_____

_____

f. Does this liner require any ballast to overcome hydrostatic pressure? _____

If so, how much was placed? _____. (If ballast is placed, submit groundwater elevation data to substantiate the adequacy of its thickness. Note: Ballast thickness must be based on highest seasonal water table elevation).

g. Has the protective cover been constructed, if required? _____

h. Attach all field test and laboratory test data concerning soil liner construction. This data must include copies of **all laboratory permeability test work sheets,** including a sample calculation of the permeability values obtained in accordance with the utilized method(s) (please show all calculations), and documentation of the thickness of the liner, protective cover where required, leachate collection system, and ballast.

3. Evaluation of Liner Boundary Markers

Are boundary markers in place at the time of this SLER submittal (see rules in Title 30 Texas Administrative Code, Chapter 330, Section 330.143.)? _____

Part F: Signature of the Professional of Record

I certify that the liner has been constructed as designed in accordance with the issued permit and in general compliance with the regulations.

Affix Professional Engineer's Seal (Date & Sign)

[seal]

_____
(typed or printed name)

_____
(phone number)

_____
(date signed)

_____
(fax number)

_____
(company or business name)

_____
(address, city, zip code)

Note: A professional engineer must be registered in Texas.

Part G: Signature of Permittee

I have read and fully understand the findings of this SLER submittal.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____
(signature)

_____
(typed or printed name)

_____
(title)

_____
(date signed)

_____
(phone number)

_____
(fax number)

_____
(company or business name)

_____
(*address, city, state, zip code*)