

RULE NO.: 161-23.04

NOTICE OF PROPOSED RULE

POSTING DATE: January 12, 2023

The Director of the Watershed Protection Department proposes to adopt the following rule after February 14, 2023.

Comments on the proposed rule are requested from the public. Comments should be submitted to Kelly Strickler, at kelly.strickler@austintexas.gov or (512) 974-1845. To be considered, comments must be submitted before February 13, 2023 the 32nd day after the date this notice is posted. A summary of the written comments received will be included in the notice of rule adoption that must be posted for the rule to become effective.

An affordability impact statement regarding the proposed rule has been obtained and is available by contacting Kelly Strickler at kelly.strickler@austintexas.gov or (512) 974-1845.

EFFECTIVE DATE OF PROPOSED RULE

A rule proposed in this notice may not become effective before the effective date established by a separate notice of rule adoption. A notice of rule adoption may not be posted before February 13, 2023 (the 32nd day after the date of this notice) or not after March 23, 2023 (the 70th day after the date of this notice).

If a proposed rule is not adopted on or before March 23, 2023, it is automatically withdrawn and cannot be adopted without first posting a new notice of a proposed rule.

BRIEF EXPLANATION OF PROPOSED RULE

Environmental Criteria Manual – 1.6.2 General Design Guidelines

- ECM 1.6.2.C.1.b.1 - Liner characteristics: Removes reference to standard detail 661-4 and replaces with reference to two new updated standard details 661-4A and 661-4B.

A copy of the complete text of the proposed rule is available for public inspection and copying at the following locations. Copies may be purchased at the locations at a cost of ten cents per page:

Watershed Protection Department, located at 505 Barton Springs Road, 12th Floor, and
Office of the City Clerk, City Hall, located at 301 West 2nd Street, Austin, Texas.


AUTHORITY FOR ADOPTION OF PROPOSED RULE

The authority and procedure for adoption of a rule to assist in the implementation, administration, or enforcement of a provision of the City Code is provided in Chapter 1-2 of the City Code. The authority to regulate water quality is established in Chapter 25-8 of the City Code.

CERTIFICATION BY CITY ATTORNEY

By signing this Notice of Proposed Rule (R161-23.04), the City Attorney certifies the City Attorney has reviewed the rule and finds that adoption of the rule is a valid exercise of the Director's administrative authority.

REVIEWED AND APPROVED



Jorge L. Morales, P.E., CFM, Director
Watershed Protection Department

Date: 01/03/2023

Anne
Morgan

Anne L. Morgan
City Attorney

Digitally signed by Anne Morgan
DN: cn=Anne Morgan, o=City of
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.gov, c=US
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Date: 1/4/2023

ECM 1.6.2 – General Design Guidelines

- C. Basin Liners. All wet ponds require an impermeable liner. Impermeable liners are also required for water quality basins located over the Edwards Aquifer Recharge Zone. If a liner is required and there are multiple controls in series, liners are only required for the first control in series. Impermeable liners may be clay, concrete, geosynthetic clay liner (GCL), geomembrane, or other approved liner, depending on the application. For water quality SCMs in the Edwards Aquifer Recharge Zone, clay liners are not acceptable. The analysis and design should entail a comprehensive review of the site-specific conditions to determine the most appropriate type of liner for the site, and should include a stability assessment of the pond side slope. The criteria in item 1. is applicable to any size basin or pond, while the criteria in item 2. may be applied to sedimentation basins, filtration basins and retention ponds that are less than 1,000 square feet in area. When required for sedimentation/filtration basins, the liner must underlie both the sedimentation basin and filtration basin and any gabion wall areas.

1. The following criteria applies to all SCMs where a basin liner is required:

There are a number of important engineering design and construction considerations for wet pond liners and other basin liners. A geotechnical engineer must be involved in all aspects of the liner design. All liner studies, plans, details, specifications and other related documents must be sealed by a geotechnical engineer. Careful attention must be paid to each of the following areas:

- a. Liner subgrade - A stable subgrade is very important in the construction of the pond or basin. Careful evaluation must be conducted to ensure the liner will be placed on a suitable base. If any voids are encountered, proper geotechnical analysis must be performed to ensure that the integrity of the liner can be maintained. Proof rolling must be conducted as necessary to determine the suitability of the subgrade, and any suspect areas must be reworked and recompact, or the weak soils removed and replaced with suitable fill material. The subgrade for geomembrane or GCL must be smooth and contain no particles greater than 0.375 inch diameter.
- b. Liner characteristics - At least three types of liners can be considered, including a clay liner of appropriate thickness and permeability, a geomembrane liner, and GCL. Alternative liner designs may also be considered.

- (1) If *geomembrane* is used, it must have a minimum thickness of thirty (30) mils and be ultraviolet resistant. Use of a geomembrane also requires that a suitable geotextile fabric be placed on the top and bottom of the membrane for puncture protection if any particles greater than 0.375 inch are present in the cover soil or subgrade surface, respectively. The geotextile material must have a minimum unit weight of 8 oz./sq. yd., a

minimum puncture strength of 125 lbs., a minimum Mullen Burst Strength of 400 psi, and a minimum tensile strength of 200 lbs. The designer must demonstrate the liner's impermeability, and the method of liner protection to be used during maintenance and sediment removal operations. Equivalent methods for protection of the geomembrane liner will be considered by the Watershed Protection Department on a case by case basis. Equivalency will be judged on the basis of ability to protect the geomembrane from puncture, tearing and abrasion. Individuals installing geomembrane liners must be trained and/or certified by the liner manufacturer. Standard Details ~~661-4~~661-4A, 661-4B, and 661-5 illustrate acceptable geomembrane liner end details for use on concrete walls, stacked stone walls, and earthen embankments.

- (2) If a **clay** liner is used, it must be designed for the site-specific conditions by a geotechnical engineer, and must have a minimum thickness of twelve (12) inches or greater. Coefficient of permeability must be 1×10^{-7} cm/sec or less. Other parameters must be as follows: plasticity index of not less than 15; liquid limit of not less than 30; and at least 30% clay particles passing the No. 200 sieve, with a maximum particle size of 1 inch. Soil must be processed to reduce clod size as much as possible prior to compaction and compaction of the lifts must be done using footed rollers. Clay compaction must be no less than 95% of Standard Proctor Density at or above optimum moisture content or 90% of Modified Proctor Density at a moisture content between 1% dry and 3% wet of optimum. Soil sampling and testing must be conducted on the borrow source and installed liner samples as applicable. Liner material verification sampling and testing should occur at frequencies which must be in accordance with the QA/QC plan. In-situ materials may be used if it can be demonstrated that all required liner parameters will be met. If the clay liner is to be overlain by a drainage layer, a suitable geotextile fabric must be placed on the surface of the liner prior to placement of the drainage layer to prevent plugging of the drain by the clay liner. Standard Detail 661-5 illustrates this placement.
- (3) Geomembrane or GCL liner placement over excavated rock requires installation of protective material to prevent damage to the liner. Examples of protective material include spray-on fiberglass, additional clay liner material, or placement of a geosynthetic fabric.
- (4) An **alternative liner design** may be approved by the Director of the Watershed Protection Department if it can be demonstrated by the responsible party that the liner is at least equivalent to or exceeds the above requirements.