

**SEIS LAGOS WASTEWATER TREATMENT PLANT
CAPACITY ANALYSIS AND IMPACT OF PROPOSED
DEVELOPMENT REQUESTING SERVICE
JULY 19, 2021**

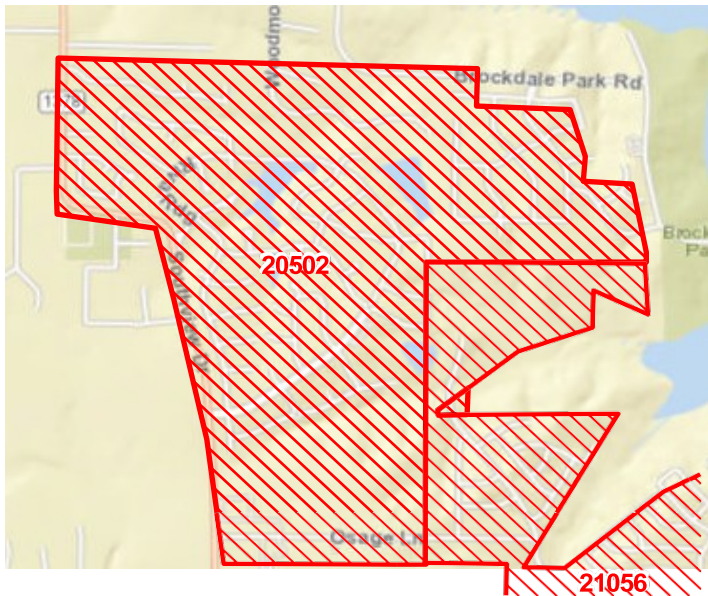
BACKGROUND

The purpose of this memorandum is to identify the impact of growth of the Seis Lagos Utility District (SLUD) related to the operation of the existing wastewater treatment plant (WWTP). The SLUD has been approached with a proposed development that would like to add 312 additional water and sanitary sewer connections within the existing Seis Lagos Utility District service area. The SLUD has a Certificate of Convenience and Necessity for their service area providing them the first responsibility and right to serve the area.

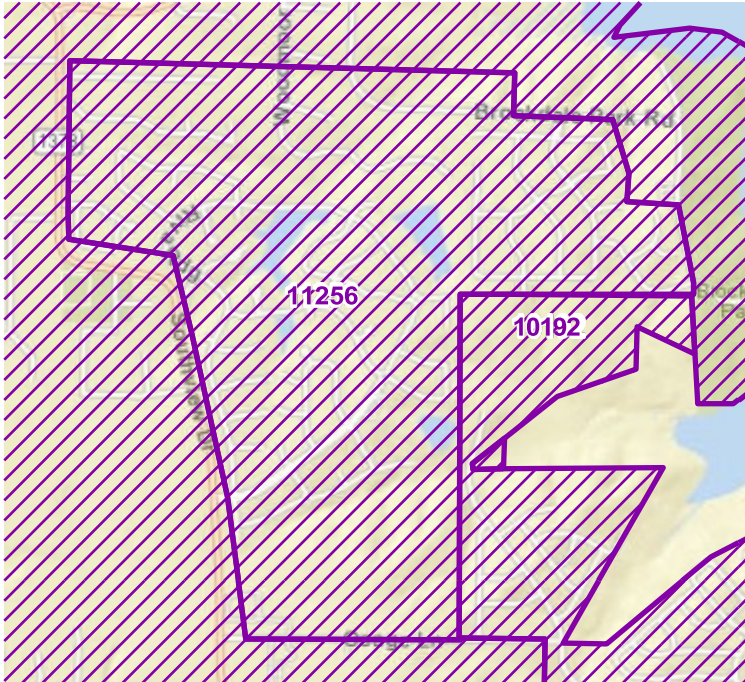
Seis Lagos Utility District Water and Wastewater Collection System Service Area

The Seis Lagos Utility District Area was developed beginning in 1973 with a limited area for development based on their creation. The SLUD currently has a CCN for both water services (#11256) and sanitary sewer services (#20502). Both boundaries include the currently developed area and the additional areas identified in previous studies for additional service by the SLUD.

The CCNs for water and sanitary sewer are shown on the drawings below. Both the water and the sanitary sewer CCNs were adopted in 1986. SLUD has been serving these areas continuously as additional development occurs.



SLUD SANITARY SEWER SERVICE CCN #20502



SLUD WATER SERVICE AREA CCN #11256

FIGURE 1 below shows the boundaries of the SLUD service area and the WWTP location. Prior to June 2021, there were approximately 649 active sanitary sewer connections within the SLUD service area. All areas of the Seis Lagos original boundary have been developed with some lots remaining available for new homes. All of the Camden Estates lots have been developed and are connected to the SLUD systems. The Brockdale area has been fully developed with infrastructure with a continuation of new homes being added. The SLUD service area includes:

- Seis Lagos Phases I – IV – 408 lots (when fully developed)
- Commons of Camden – 62 lots (when fully developed)
- Brockdale Phases I – IV – 206 lots (when fully developed)
- **Total – 676 lots**

Additional lands within the SLUD service area that are potentially subject to develop include:

- Schwartz property – 90 lots (previous SLUD planning fully developed)
- Handt property – 12 lots (previous SLUD planning fully developed)
- Equestrian Center property – 45 lots (previous SLUD planning fully developed)
- **Total – 147 lots**

TOTAL LOTS IN SLUD SERVICE AREA (PREVIOUS PLANNING) – 825 LOTS

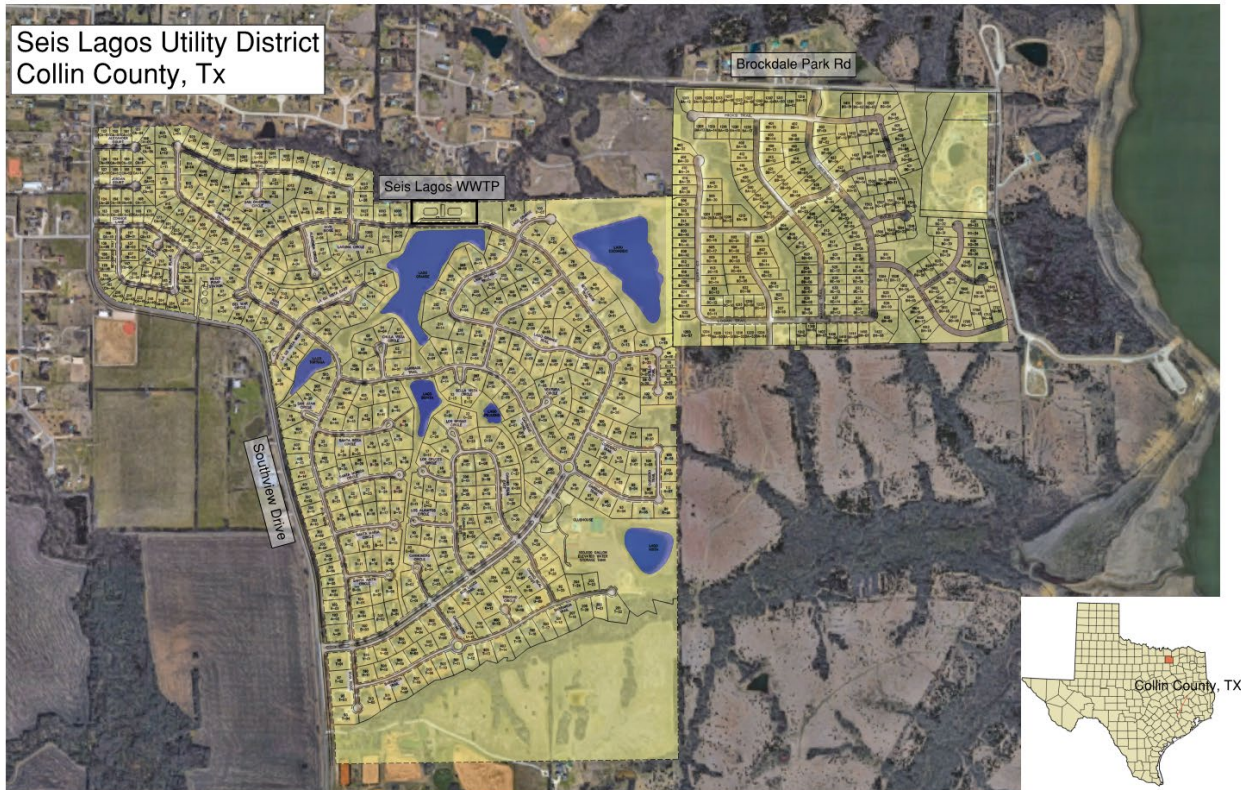


FIGURE 1 – SEIS LAGOS SERVICE AREA

The SLUD service area shown is consistent with the current CCN boundaries. Full development of the area identified as shown could lead to a total of approximately 825 sanitary sewer connections. There has not been interest in developing the currently undeveloped areas in previous years.

Seis Lagos Utility District Wastewater Treatment Plant

The Seis Lagos Utility District owns the existing wastewater treatment plant (WWTP) located in the district as shown on **FIGURE 1**. The plant is permitted in cooperation with the North Texas Municipal Water District (co-permittee) through the Texas Commission on Environmental Quality (TCEQ). The plant is operated by the North Texas Municipal Water District (NTMWD). The plant was constructed in 1974-75 with a capacity of 0.25 Million Gallons per Day (MGD). The plant has served the district throughout its development. The ongoing operation of the SLUD WWTP is regulated by the TCEQ.

The SLUD WWTP has provided quality service with the plant experiencing no violations from the TCEQ in recent years. As the number of connections has grown, the plant flows have increased. They have not however exceeded the permit requirements.

GROWTH OF THE SEIS LAGOS UTILITY DISTRICT

The SLUD has grown from its inception to today's development that includes a total of 649 active connections. The average daily flow rate for calendar year 2021 is 0.17 MGD.

Texas Commission on Environmental Quality (TCEQ) Regulations for WWTP

TCEQ regulations require the owner of a wastewater treatment plant to maintain flows of less than 75% of the capacity without improvements. At the point the plant averages 75% of the total capacity, the owner is required to begin the process of planning for an expansion to accommodate growth in the flows. At 90% of the total capacity, the owner is required to begin construction of needed improvements to meet the projected demands of the plant.

For the SLUD WWTP, the TCEQ thresholds are 0.188 MGD for 75% & 0.225 MGD for 90%.

For the period of January through May 2021, the SLUD WWTP averaged 68% of its average daily capacity. It is recommended that the SLUD WWTP be limited to an average daily flow rate of 80% of total capacity.

It is possible to obtain a waiver on the planning for additional capacity if there is evidence provided that the service area for the WWTP has reached full or mostly full development. This request to the TCEQ would represent that the WWTP would not require expansion even if it reached the threshold that required action. The table below indicates the TCEQ requirements as well as the current conditions for the existing system and the potential number of connections that can be served without plant expansion based on the current daily average flows and a cap of 80% of the total WWTP capacity.

SLUD WWTP – COMPARISON WITH TCEQ CRITERIA

SLUD WWTP TCEQ PERMIT CAPACITY	0.25 MGD
Current number of active connections	649
SLUD average daily flow – Jan-May 2021	0.175 MGD
TCEQ – 75% threshold begin design	0.188 MGD
TCEQ – 90% threshold begin construction	0.225 MGD
SLUD connections to reach 75% flow threshold*	697
SLUD connections to reach 80% flow threshold*	742
SLUD connections to reach 90% flow threshold*	834
* Based on current average flow rate per connection	

As shown in the volume of flows that were treated in 2021 through May, the WWTP is nearing the 75% threshold.

Wastewater Treatment Plant Capacity for Future Growth

The SLUD WWTP can accommodate additional connections within the 75% threshold based on an average for 2021 to date of 0.175 MGD. If the flow rate is compared to a total of 649 active connections, the total additional connections that can be accommodated is 48 connections. If the plant is permitted to reach 80% of the total flow rate, the number of connections as shown could reach 742. This will be exceeded by full buildout of the land under development (825 connections). The previous planning for a total of 825 lots would exceed the 80% recommended capacity limit.

It is recommended that the Seis Lagos Utility District maintain full development of the existing properties including the Seis Lagos Development (4 phases), the Commons of Camden, and the Brockdale (4 Phases) for an estimated total of 676 connections. An additional 66 connections served within the currently undeveloped tracts could be added without exceeding the recommended 80% flow rate for the WWTP. This would permit service to a total of 742 lots. At a time when the annual average WWTP flows exceed the 75% threshold (estimated to be 697 connections), a waiver from TCEQ from proceeding with design of a plant capacity expansion can be sought.

Adding the proposed 312 service connections for the proposed development would far exceed the permitted capacity of the WWTP and is not recommended.

Prepared by: McManus & Johnson Consulting Engineers, LLC; SLUD Contract Engineer