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Memorandum

Date: June 24, 2024

To: City of La Center

From: Chase Davison, Civil Designer
Joe Intermill, PE

RE: Breeze Creek Trails Subdivision: Pump Station #3 & 2" Force Main Capacity Check

SUMMARY – A 15 lot subdivision will be constructed upstream of Pump Station #3, this memo will provide calculations showing the increased flow from the 15 additional lots is below the allowable threshold for both the force main capacity as well as Pump Station #3.

Pump Station #3 Capacity Check:

Existing Gravity Flow Entering Pump Station #3:

"Holley Park"	39 Lots
"Parkside Estates"	46 Lots
"Lockwood Creek"	76 Lots
Post Office	1 ERU
Library	1 ERU
Total	163 ERU's

Existing Peak Flow = 163 ERU's x 270 GDP/ERU x 4.06 (Peaking Factor) = **178,680.6 GPD**

Proposed Breeze Creek Subdivision Gravity Flow Entering Pump Station #3:

"Breeze Creek"	15 Lots

Proposed Peak Flow = 15 ERU's x 270 GDP/ERU x 4.06 (Peaking Factor) = **16,443.0 GPD**

Total Flow Through Pump Station #3:

178,680.6 + 16,443.0 = 195,123.6 GPD = **135.5 GPM (Design Capacity = 160 GPM)**

Force Main Capacity Check:

Required Flow for 30 Lots:

30 ERU's x 270 GDP/ERU x 4.06 (Peaking Factor) = 32,886 GPD = **22.8 gpm**

Proposed 2" Force Main:

Area = $\pi(1)^2 = 3.14in^2 = 0.0218ft^2$ Assumed Flow = 3 $^{ft}/_{s}$

Pipe Flow Capacity = $0.0654^{ft3}/_{s}$ = **29.3gpm**