



700 West Liberty Street | Louisville, KY 40203-1911  
Phone: 502.540.6000 | LouisvilleMSD.org

January 7, 2021

Jonathan Brannon (via e-mail)  
The Marian Group  
1122 Rogers Street  
Louisville, KY 40204

Re: Downstream Facilities Capacity for Crossings at Mill Creek Apartments

Dear Mr. Brannon:

MSD currently has capacity in our system for the above referenced development. Capacity is assured for 90 days. Capacity can be secured permanently by paying the sanitary sewer impact fees, as determined by the Lateral Extension Charge Worksheet. The worksheet will be generated once construction plans for the development are received.

Capacity is approved under the following conditions:

- Only capacity for 40,980 GPD can be approved, which is the remaining capacity in the system
- Construction of a lateral extension is required to serve the property
- In the absence of acceptable flow monitoring results, the Developer would need to upsize 1,324 feet of 8-inch sewer to 10-inch and upgrade the pump station to handle the increase in flow for the full requested capacity.
- Developer to install flow monitor and MSD do new drawdown to get a more accurate representation of current conditions. If this shows actual flows are less than calculated, there is a possibility the required can be approved without the system improvements.

If you have any questions, please call me at 540-6613.

Very Truly Yours,

Mark A. Sites, PE  
Development Infrastructure Planning Administrator

DFC, Crossings at Mill Creek Apartments, 4801 & 4717 Manslick Road & 1936 Bluegrass Avenue, LE1105428, Enterprise Zone, SCAP=COMBINED SYSTEM

cc: Matt Hemmerle, Milestone Design Group, Inc. (via e-mail)  
Mike Ballard, Metro Health and Wellness (via e-mail)  
MSD Distribution (via e-mail)  
File



FOR MSD USE ONLY  
LE1105428

## DOWNSTREAM FACILITIES CAPACITY REQUEST

**Date:** 11/30/20  
MM/DD/YYYY

**Sewer Service Area:**

**Name of Development:** Crossings at Mill Creek Apartments

**Address of Development:** 4801 & 4717 Manslick Road, & 1936 Bluegrass Avenue

**Block & Lot of Development:** 067h X 0016, 0011, 0010, 0019

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### Owner/Developer:

**Name:** Johathan Brannon

**Company:** The Marian Group

**Street:** 1122 Rogers Street

**City, State, Zip:** Louisville, Ky 40204

**Telephone #:** 502-297-8130

**E-Mail Address:** jonathan@wbcsarch.com

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### Design Firm/Contact:

**Name:** Matt Hemmerle

**Company:** Milestone Design Group, Inc.

**Street:** 108 Daventry Lane, Suite 300

**City, State, Zip:** Louisville, Ky 40223

**Telephone #:** 502-327-7073

**E-Mail Address:** mhemmerle@milestonedesign.org

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### Closest Sewer Connection:

**Record Number:** 09653-1      **Manhole Number:** 28139

**Wastewater Treatment Plant Service Area:** Morris Forman WWTP

**Attach Map with Site Labels & Manhole**      **(SUBMITTALS WITHOUT A MAP WILL BE REJECTED)**

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**Show Calculation:** 33 (1BR)\*200GPD + 66 (2BR)\*300GPD + 81(3BR)\*400GPD=58,800 GPD

**Amount of Flow (Based on MSD Standards):** 58,800 GPD

**Number of: Homes:**

**Apts.:** One BDR: 33 Two BDR: 66 Three BDR: 81

**Condos:** One BDR: Two BDR: Three BDR:

**Commercial (Describe):**

**Industrial (Describe):**

**Pump Station Needed:** Yes  No  **Recapture Area:** Yes  No

**ADDITIONAL COMMENTS:**

Combined System Catchment  
Enterprise Zone

PS  
MSD00002-PS  
MSD00080-PS

Comments: Gravity to Hazelwood Pump Station to Hazelwood Avenue Sewer to Manslick Ave Sewer to Mill Creek Trunk to Southwestern Outfall to Southwestern Pump Station to Southwestern Branch Interceptor to Morris Forner WQTC.

**For MSD Projects Only:**

Budget ID # \_\_\_\_\_

Estimated Completion Date: \_\_\_\_\_



# DOWNSTREAM FACILITIES CAPACITY REQUEST

FOR MSD USE ONLY

LE Record Number: LE 1105428

IOAP Project Area:

Enterprise Zone:

SCAP Basin: Combined System

### Capacity Determination:

Approved

Conditional Approval with downstream Inflow and Infiltration Fees

Conditional Approval:

LE Required, developer to install flow monitor

+ MSD to do new drawdown, ups. 2e 1,324 ft of 8" to 10"

Flow: 40,980 gpd

+ upgrade Pump Station

Until: 90 days

*If you wish to reserve capacity beyond the 90-day reservation period, please call the Development Team Manager)*

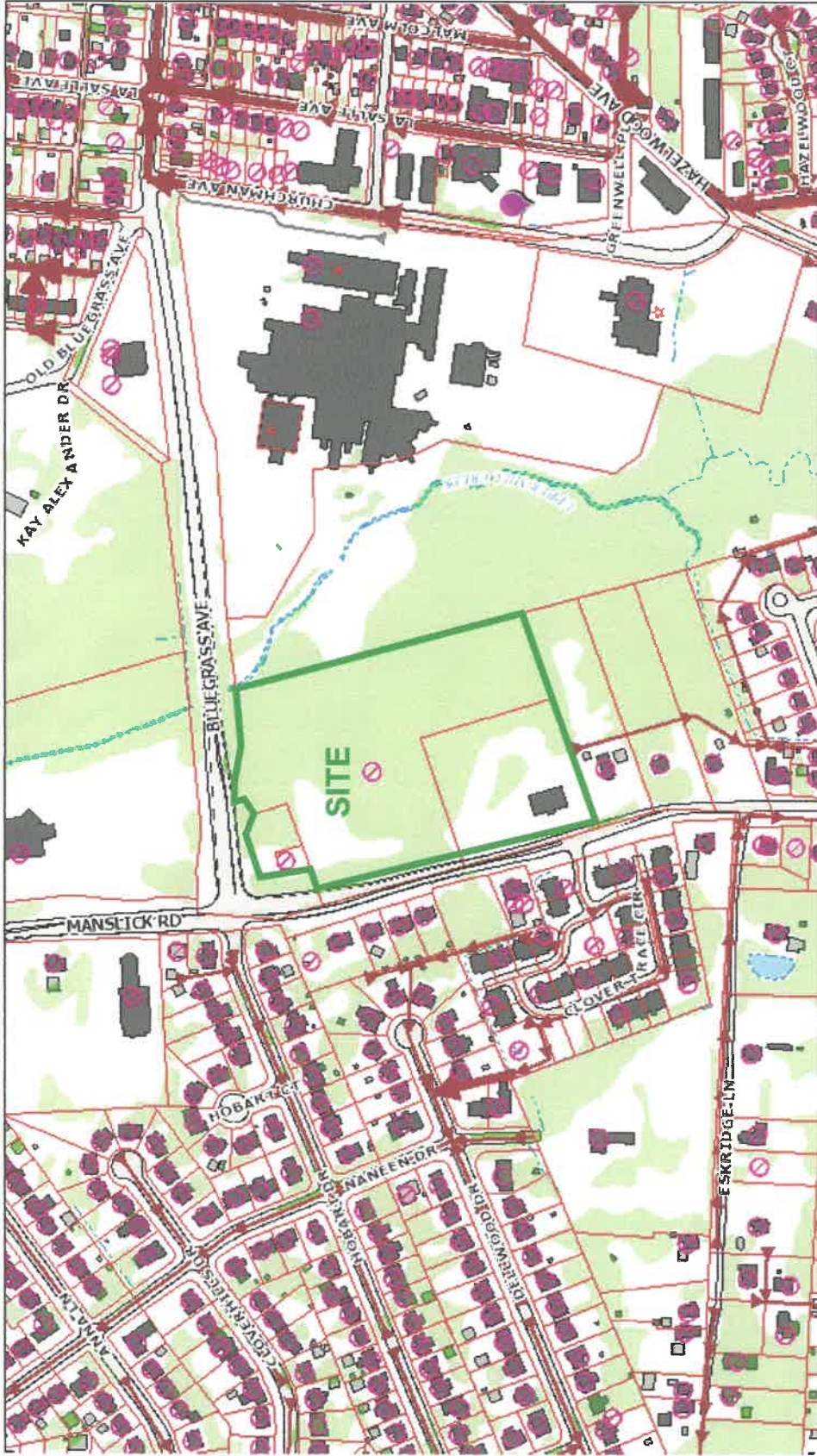
Not Approved:

MSD: M. L. [Signature]

Date: 1-7-21

Please retain this form to submit with Application for Approval of Sanitary Sewer Projects

Comments:



11/30/2020, 12:26:51 PM



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 This map is not a legal document and should only be used  
 for general reference and identification.

## Kim Loechle

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**From:** Casey DeYoung <cdeyoung@heritageeng.com>  
**Sent:** Wednesday, December 30, 2020 5:10 PM  
**To:** Joey Ashby  
**Cc:** Kim Loechle; Mark A. Sites; Brad Selch; Tony Marconi  
**Subject:** Crossings at Mill Creek Apartments  
**Attachments:** Crossings at Mill Creek Apartments Capacity Analysis\_12-30-20.pdf

[EXTERNAL]

Joey,

Attached is our memo for #8 on this week's hold list. Based on the analysis there is not sufficient capacity in the existing system for this development. The following options should be considered:

- Limit the approval to 40,980 GPD which is the remaining capacity in the system.
- Developer install flow monitor and MSD do new drawdown to get a more accurate representation of current conditions. If this shows actual flows are less than we calculated there is a possibility the request can be approved without system improvements.
- Developer upsize 1,324 ft of 8" to 10" and upgrade the pump station to handle the increase in flow.

Let me know if you have any questions.

Thanks,



*Casey DeYoung, P.E.*  
Project Engineer

642 South Fourth St, Suite 100  
Louisville, KY 40202 | P: 502-562-1412  
M: 502-938-4607



603 North Shore Dr, Suite 204  
Jeffersonville, IN 47130 | P: 812-280-8201  
www.heritageeng.com

[EXTERNAL email: STOP and THINK before responding, clicking on links or opening attachments.]

## MEMORANDUM

**Date:** December 30, 2020  
**From:** Tyler Pelton, E.I.T. (Heritage), Logan Dixon, P.E. (Heritage)  
**To:** Joey Ashby (MSD)  
**CC:** Casey DeYoung, P.E. (Heritage)  
**Subject:** Crossings at Mill Creek Apartments Capacity Analysis

### *Executive Summary*

This memorandum has been prepared to assist MSD in processing a capacity request for the Crossings at Mill Creek Apartments to add an additional 58,800 GPD of dry weather flow (DWF) to manhole (MH#28139). The dry weather flow (DWF) capacity of the Hazelwood Pump Station (HPS) and the sewer lines between the pump station and MH#28139 were examined. No DWF modelling data is available for this area since it is located in the combined sewer catchment. In September of 2017, drawdown tests completed for HPS determined the firm capacity to be 198 GPM (285,120 GPD). Using pump runtime data collected from the MSD PI server, along with the available drawdown data, the HPS was determined to have an average daily DWF of 25,308 GPD. This observed average DWF is less than the calculated average DWF capacity of the pump station (73,438 GPD), indicating that the current pump station has adequate capacity for existing DWF and an additional 48,130 GPD of average DWF capacity. The analysis area can be seen in Figure 1.

An analysis of the sewer system upstream of the pump station shows that 40,980 GPD of additional average DWF flow can be added to the system before surcharging from the under-capacity pipe downstream of MH#55666 exceed the crown of the pipe of the upstream MH#63931. Some surcharging exists at MH#55666 but is not within 6' of the ground elevation. The pipe at MH#63931 is less than 6' deep. Figures 2 – 4 shows the sewer pipes with existing flow, the maximum allowed flow, and the requested flow.

As can be seen from the summarized results, the pump station nor the sanitary sewers have capacity for the requested flow. Up to 40,980 GPD can be approved based on the existing system capacity. Pump upgrades and 1,324 ft of pipe upgrades (8-inch upsized to 10-inch) would be required to approve the full amount of requested flow. Alternatively, a flow monitor can be installed to verify the existing flow in the system. If the actual flows are less than the flows calculated in this analysis, the development could potentially be approved without requiring additional improvements to the existing system.

***Pump Station Analysis***

The existing average daily flow at the HPS was calculated by multiplying the daily pump runtimes by the pumping rates recorded during the drawdown test completed in September 2017. The flows were calculated and averaged for three separate dry weather periods during 2020. The daily flows and corresponding dates can be found in Table 1 below.

<b>Table 1: Observed Dry Weather Date</b>	
<b>Date</b>	<b>Calculated Flow (GPD)</b>
7/24/2020	22,880
9/07/20	22,033
11/01/20	31,010
<i>Average</i>	<i>25,308</i>

The daily flow is produced from a combination of waste water flow, and infiltration and inflow during and after rain events. It has been previously determined that the observed average daily DWF should be observed on the third day after a significant rainfall event. The average DWF dates selected for this analysis have an average flow of 25,308 GPD. Dry weather modeling data was unavailable due to the project area residing in the combined catchment.

At the pump station, a peaking factor of 3.88 was back calculated based on the pump station firm capacity (285,120 GPD) and the equation provided in section 15.4.1.c of the MSD Design Manual. The average DWF capacity of the pump station is calculated by dividing the firm capacity by the peaking factor which results in a total average DWF capacity of 73,438 GPD. Based on these observations, the HPS has a remaining average DWF capacity of 48,130 GPD. The results of this analysis are summarized in Table 2.

<b>Table 2: Hazelwood PS Flow Information</b>		
<i>A</i>	Existing Firm Capacity	285,120 GPD (198 gpm)
<i>B</i>	Peaking Factor	3.88
<i>C</i>	Existing ADWF Capacity ( <i>A/B</i> )	73,438 GPD
<i>D</i>	Existing ADWF	25,308 GPD
<i>E</i>	Remaining ADWF Capacity ( <i>C – D</i> )	48,130 GPD
<i>F</i>	Requested ADWF	58,800 GPD

***Sanitary Sewer Analysis***

To determine sewer line capacity, design flows and as-built data was input into an InfoWorksICM model between MH#28139 and the HPS. The design flow was calculated per



parcel utilizing the method identified in section 8.8.4 of the MSD Design Manual. Additional flow was added upstream until either the full flow capacity of a line with an upstream manhole less than 6’ deep was exceeded, or surcharging in the system came within 6’ of the ground elevation.

This analysis resulted in a system capacity of 552,900 GPD at the sewer line downstream of MH#55666. Once this system capacity is exceeded, surcharging originating at this sewer segment exceeds the crown of the shallow pipe at the next upstream MH#63931. The results of this analysis are summarized in table 3.

<b>Table 3: Sanitary Sewer Flow Data @ MH#55666</b>		
<i>A</i>	Existing System Capacity	552,900 GPD
<i>B</i>	Existing ADWF Capacity ( $A/5.0$ )	110,580 GPD
<i>C</i>	Existing ADWF	69,600 GPD
<i>D</i>	Remaining ADWF Capacity ( $B - C$ )	40,980 GPD

**Conclusion**






Based on the data presented in this analysis, the HPS has the capacity for 73,438 GPD of average DWF. There is currently 25,308 GPD of existing average DWF in the system. This leaves an additional 48,130 GPD of remaining capacity that can be allocated towards future buildout at the HPS. The sewer lines between the requested location and the HPS has an available capacity of 40,980 GPD. Therefore, the requested additional average DWF of 58,800 GPD exceeds capacity limitations at the HPS and existing sewer lines. Upgrades to the pump station and sanitary sewers will be necessary to adequately support the requested flow.

END OF MEMORANDUM

# Figure 1: Crossings at Mill Creek Apartments Capacity Request




Draft

## LEGEND

-  Service Area
-  Influent Sanitary Sewer Manhole
-  Influent Sewer Line
-  Pump Station
-  Sewer Manhole




## Force Main

## Pipe Diameter

-  0" - 4"
-  4" - 20"
-  20" - 95"

## Sanitary Sewer

## Pipe Diameter

-  0" - 8"
-  8" - 24"
-  24" - 220"



Map Created By: **HERITAGE ENGINEERING**

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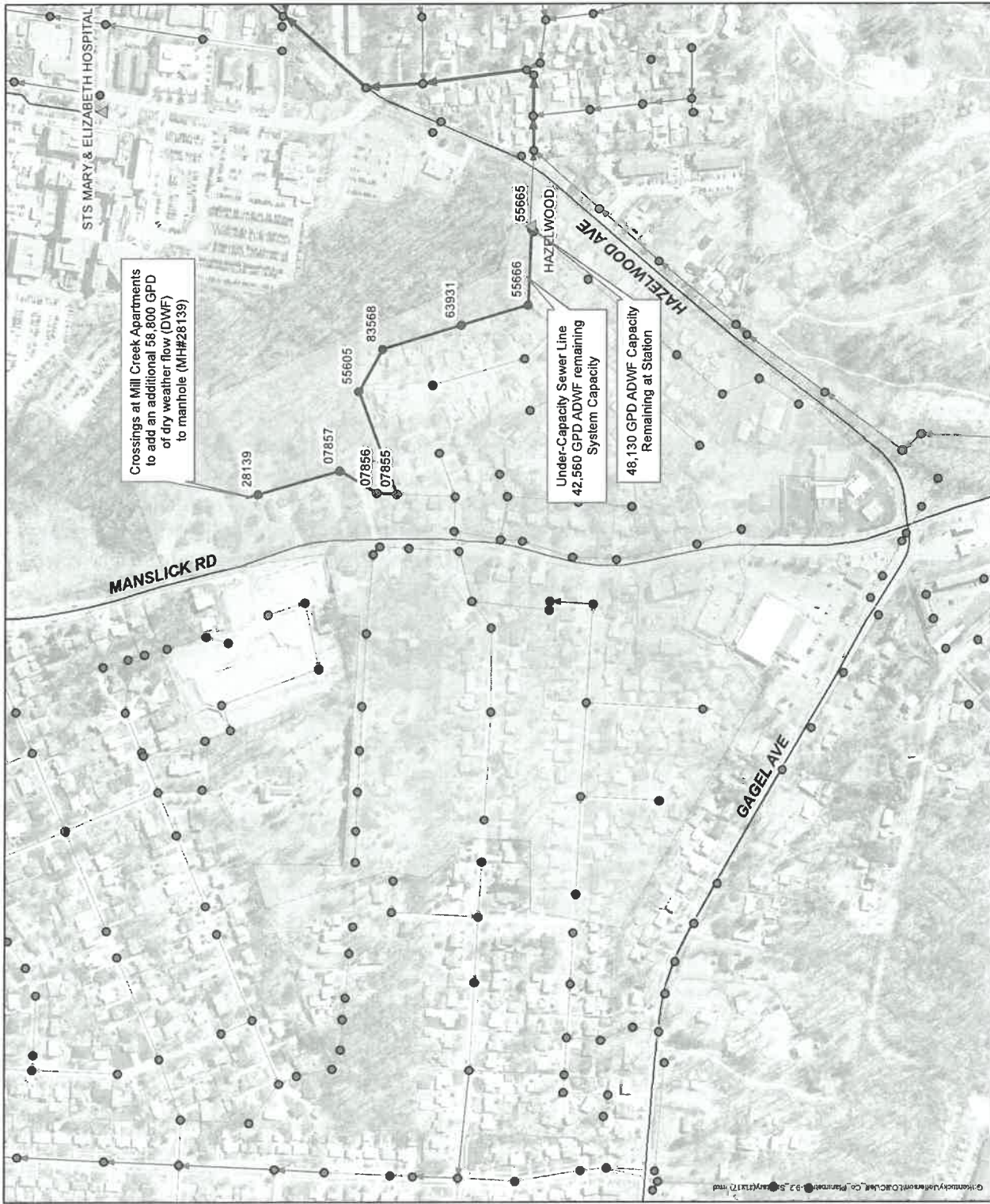


Figure 2 - Existing Flow

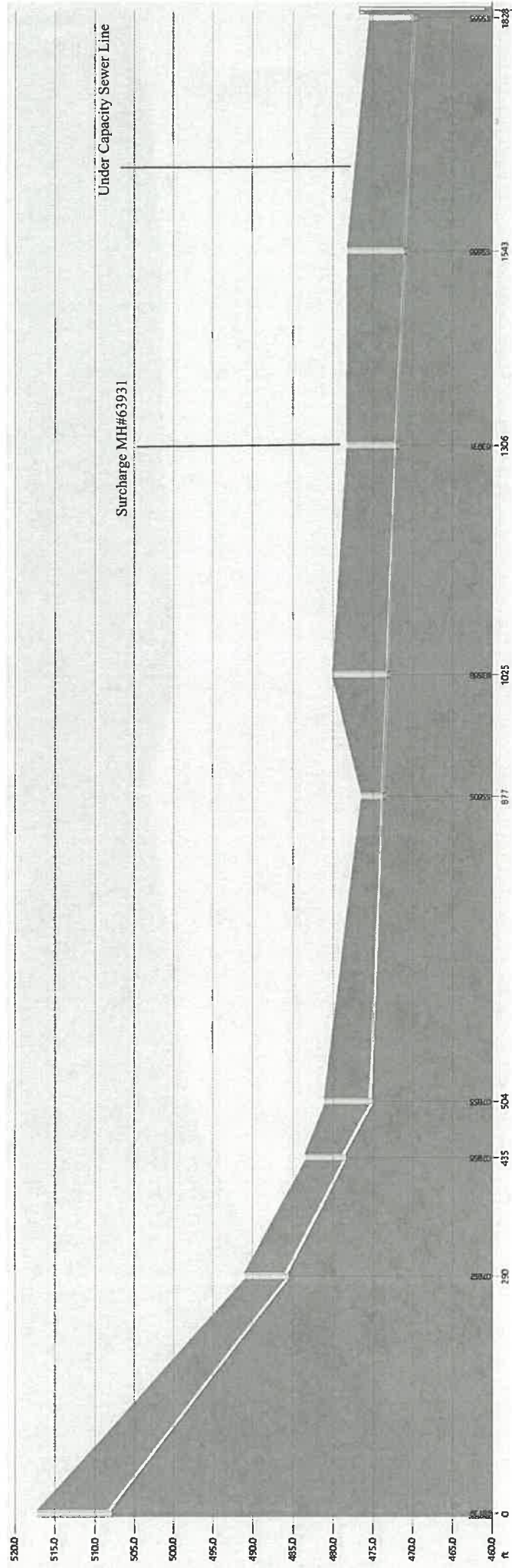


Figure 3 - Maximum Allowed Flow (42,560 GPD ADWF)

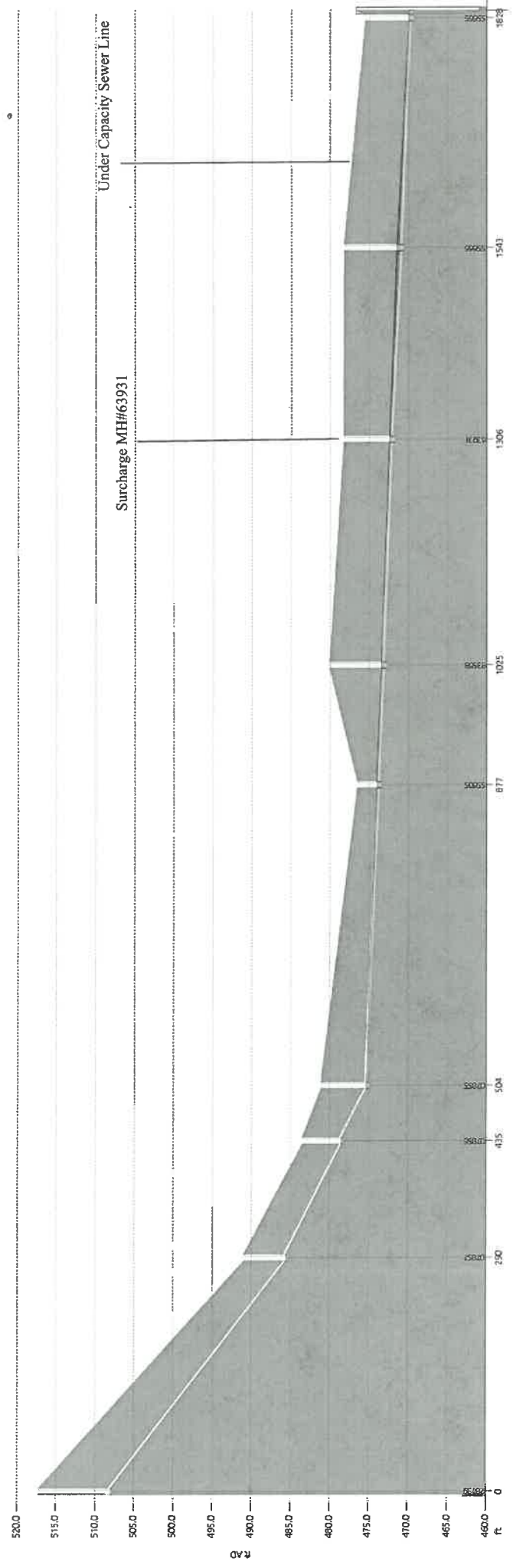


Figure 4 - Requested Flow (58,800 GPD ADWF)

