August 10th, 2021

## olsson

Lee's Summit, Missouri Development Services - Engineering Division Attn: Sue Pyles 220 SE Green Street Lee's Summit, Missouri 64063

## Re: Sanitary Sewer Memo for "Lee's Summit Logistics" Project 1220 NW Main Street, Lee's Summit, MO

This memorandum and the attached exhibits are intended to provide an overview of the sanitary sewer systems for the project located at 1220 NW Main Street. Current conditions on the site consist of open green space. It is assumed the existing sanitary main that runs throughout the site was designed to handle the future development within this space.

The proposed conditions consist of three (3) industrial warehouses ranging from 100,000 sf to 500,000 sf. As stated above, the site has existing public main extension that cuts through the proposed site. With that, the proposed service for each building will involve sanitary sewer service lines connections in lull of a sanitary sewer main. These connections will be made from building MEP rooms to existing sewer main. The proposed sanitary sewer design will keep the same drainage patterns as the existing system. Additionally, the new service lines will utilize gravity flow to connect to the existing gravity main.

## **Existing Sanitary Sewer Main Extension:**

Per survey information, the northern portion of the project will utilize the existing 24" RCP sanitary sewer main, while the southern building will utilize the existing 12" VCP sanitary sewer main. Per the survey information, given the flowlines and distance, slope, etc. the capacity of each line is listed below:

Existing Sanitary Sewer 24" Pipe diameter 24" RCP at 2.10% grade with a capacity of 32.87 cfs. Proposed Site Flow Rate: 1.15 cfs Existing Pipe without Proposed Site Flow Rate: 32.87 cfs

Existing Sanitary Sewer 36" Pipe diameter 36" RCP at 1.53% grade with a capacity of 82.72 cfs. Proposed Site Flow Rate: 1.15 cfs Existing Pipe without Proposed Site Flow Rate: 82.72 cfs

Olsson is still working with the City on additional information such as the watershed boundary, that is generated by the City of Lee's Summit. This will help determine the exact capacity of the existing line and location in which is best for the proposed service line connections. Per the calculations above, and dependent on the overall watershed for these particular sanitary sewer mains, it appears that the total sewer of the site would be within the appropriate capacity of the

existing pipes. Olsson will continue to work with City staff on the sanitary sewer capacity memo and determination of existing conditions. Please find the attached calculations to help explain the sanitary sewer capacity.

If you have any further questions, please contact me at 913.381.1170 or <u>Imoore@olsson.com</u>.

Sincerely,

Luke Moore OLSSON Terry Parsons, P.E. **OLSSON** 



<u>Attachments include</u> Project Superbowl Capacity Calculations

• General Layout "Exhibit A"

Project Name: Project Number:	Lee's Summit Logistics - Sanitary Sewer 021-04157							
Description:	Sanitary Sewer Analysis - Line Capacity	Date Printed:	8/10/2021					
Design Flow All Phases Commerical   Proposed Drainage Area Drainage Area TO Existing 24" Ma   Total Acres 76.37 ac   Total Lots 3   Peak Hourly Flow   Industrial 0.015 cfs/ac		in		Assumption of 306 ac. per contours, etc. Howeve our capacity as you see below, the watershed sho — consists of at least 1500 ac. in order for the capac				
Calculated Total	1.146 cfs			to make sense. C	ity staff to v	erify watershed of		
Overall Drainage	Area TO Existing 36" Main			existing sanitary s	ewer main.	•		
Total Acres Total Lots	229.63 ac Unknown							
Peak Hour Commercia	ly Flow a 0.011 cfs/ac							
Calculated Total	2.526 cfs							
			PIPE AREA CA	PACITY CALCULATION TABLE	-			
	SANITARY AREAS	T	Design F	lows	1	Pipe Flow Calcul		

PIPE AREA CAPACITY CALCULATION TABLE													
SANITARY AREAS				Design Flows				Pipe Flow Calculations					
Upstream	Downstream	Watershed			Infiltartion/Inflow		Total	Max Design Q	Pipe Size Length Q Capacity		Manning's		
		Acreage	Land Use	cfs/Acre	Allowance	cfs/Acre	cfs/Acre	(cfs)	(inches)	(feet)	% Slope	(cfs)	n
Service Lines			Industrial										
	Existing 24" Pipe	76.37		0.0150	System	0.0015	0.0150	1.1456	24.00	462.00	2.10	32.87	0.01
Existing 24" Pipe			Industrial										
	Existing 36" Pipe	229.63		0.0110	System	0.0015	0.0125	2.8704	36.00	500.00	1.53	82.72	0.01

CAPACITY / FLOW SUMMARY TABLE									
Upstream	Minimum Slope	Pipe Size	Capacity	Calculated	Max Design	Calculated Capacity	Max Design		
Manhole	%	In	(cfs)	Total Q (cfs)	Q (cfs)	Used (%)	Capacity Used (%)		
Existing 24" Pipe	2.10	24.00	32.87	1.15	1.15	3%	3%		
Existing 36" Pipe	1.53	36.00	82.72	2.53	2.87	3%	3%		
Max Design Capac	city < or = 78% of	Pipe Capacity	CHECK OK						



							son.com
AREA 10	LOT AREA						ww.ols:
	37.90 ACRES						70 w
	13.29 ACRES						13 381 1
	24.63 ACRES						TEL 9
	3.14 ACRES					200	0
	78.96 ACRES					Suite	3-475
						street,	6621
	YLINE					33rd S	rk, KS
						Vest 1	ind Pa
MA FLC	DOD PLAIN LIMITS					7301 \	Overla
	Y LOT LINE			â	S		-
					Iш		
			L		I –		
				/	• ⊢ • ≃		
			-	7	ш		
				1	-		
			(		0		
				<u> </u>	~		
					-		
			4				
				L			
					<b>L</b>		
					1		
		BΥ					
							NS
		NO					<u>ISIO</u>
		SCRIPTI					REV
		NS DES					
		EVISIO					
VELC	PER	~		_			
0		DATE					
							-
ARC	<u>CHITECT</u>	S R					
							2021
					⊢		
				Ś	KEE S		
					N ST		
ZON	ING			С С	MAIN		
78 067	8 (0+)	LAN					
/0.90/0	D ACE)	<u> </u>	ר⊿		RO		
			АКҮ		JOR JOR		
		ר <i>ד</i>	MIN	FNT			
			ΥEL	Mac			
	Road	GEN	ר	VEL (	NEF SNEF		
	solon			Ш С	2 CO FO FO		URI
	Dog Dog						SSC
	Tudor Road				IMH.		Γ, MI
				U U	ORT		
Ching	nan Road				Ź		SUI
on 31, 7	[48N, R31W						S Ш
<u>، /////</u> ale: 1"	= 2000'	drawn t	oy:		0		
		checke approve QA/QC	d by: ed by: by:			EN EN	1 <u>G</u> 1 <u>G</u> 1 <u>G</u>
		project drawing	no.: 9 <u>60</u> GI	= <u>N01</u>	021 021041	-041 57.dv	57 <u>Ng</u> 21
			S	HE	ET	io/20	<u> </u>

C104