



April 18, 2024

Town of Prescott Valley
Public Works Department
(928) 759-3079

Re: Brakes Plus Wastewater Summary, Prescott Valley, Arizona

The proposed Brakes Plus (BP) project is located in the southwest part of Prescott Valley, Arizona, covering a portion of Section 14 of Township 14 North, Range 01 West of the Gila and Salt River Base & Meridian. The project is a development of vacant lot within the existing shopping center located at the southwest corner of Glassford Hill Road and Centre Court. The site is located on Yavapai Assessor's Parcel Number 103-02-762M, and it is 1.49 acres in size.

The property will be serviced by an existing gravity sewer along the west end of the property. A new four inch (4") sewer service will be installed to service the new building. The Brakes Plus building will have a sand and oil separator that services the janitor station and floor drains, while a standard sewer services will connect to the building to service the restroom. The design flow for the restaurant is calculated using ADEQ R18-9 Table 1 (attached) and are as follows:

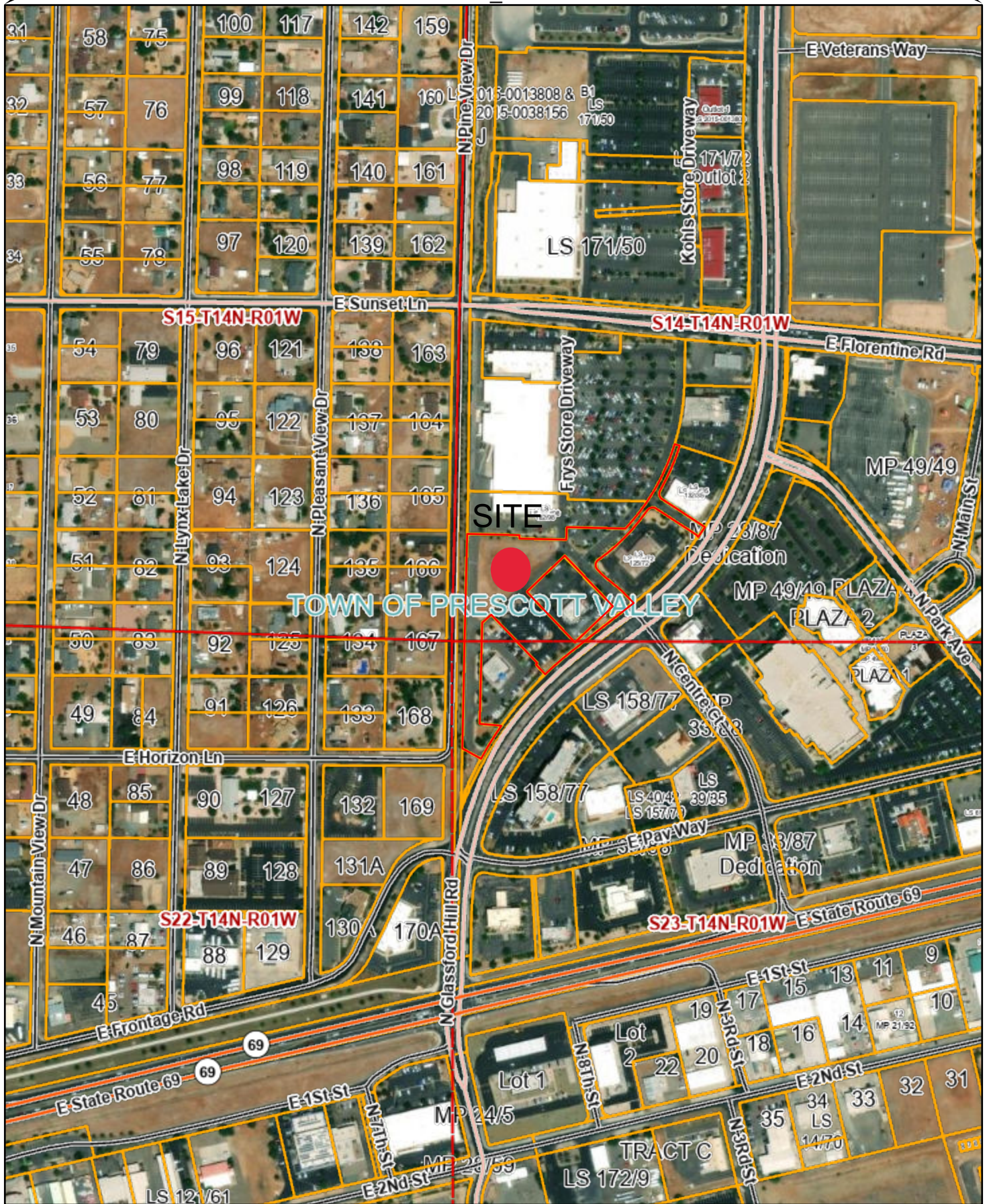
Wastewater Source	Applicable Unit	Unit Design Flow	Quantity	Design Flow (GPD)	Peak Design Flow (3xdesign)	Flow (gpm)
Service Station	1 st Bay	1000	1	1,000	3,000.00	2.08
With Toilet	Each Add. Bay	500	7	3,500	10,500.00	7.29
Total			8	4,500.00	13,500.00	9.37

The capacity of a four inch service is 120 gpm, therefore a single service is capable of servicing the proposed facility. The addition of 9.37 gpm (peak flow) to an eight inch sewer main at minimum slope is approximately 12%.

Respectfully Submitted,

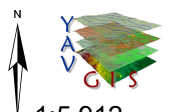
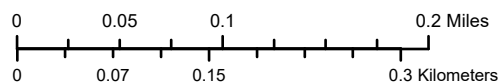


Scott A. Lyon, P.E., R.L.S.
President
Lyon Engineering & Surveying Inc.



Disclaimer:

Map and parcel information is believed to be accurate but accuracy is not guaranteed. No portion of the information should be considered to be, or used as, a legal document. The information is provided subject to the express condition that the user knowingly waives any and all claims for damages against Yavapai County that may arise from the use of this data.



1:5,912

Department of Environmental Quality – Water Pollution Control		Design Flow/Unit
Applicable Unit		Gal/day
Hotel/motel		
Without kitchen	Bed (2 person)	50
With kitchen	Bed (2 person)	60
Industrial facility		
Without showers	Employee	25
With showers	Employee	35
Cafeteria, add	Employee	5
Institutions		
Resident	Person	75
Nursing home	Person	125
Rest home	Person	125
Laundry		
Self service	Wash cycle	50
Commercial	Washing machine	Per manufacturer, if consistent with this Chapter
Office Building	Employee	20
Park (temporary use)		
Picnic, with showers, flush toilets	Parking space	40
Picnic, with flush toilets only	Parking space	20
Recreational vehicle, no water or sewer connections	Vehicle space	75
Recreational vehicle, with water and sewer connections	Vehicle space	100
Mobile home/Trailer	Space	250
Restaurant/Cafeteria	Employee	20
With toilet, add	Customer	7
Kitchen waste, add	Meal	6
Garbage disposal, add	Meal	1
Cocktail lounge, add	Customer	2
Kitchen waste disposal service, add	Meal	2
Restroom, public	Toilet	200
School		
Staff and office	Person	20
Elementary, add	Student	15
Middle and High, add	Student	20
with gym & showers, add	Student	5
with cafeteria, add	Student	3
Boarding, total flow	Person	100
Service Station with toilets	First bay	1000
	Each additional bay	500
Shopping Center, no food or laundry	Square foot of retail space	0.1
Store	Employee	20
Public restroom, add	Square foot of retail space	0.1
Swimming Pool, Public	Person	10
Theater		
Indoor	Seat	5
Drive-in	Car space	10

Note: Unit flow rates published in standard texts, literature sources, or relevant area or regional studies are considered by the Department, if appropriate to the project.

Historical Note

New Section adopted by final rulemaking at 7 A.A.R. 235, effective January 1, 2001 (Supp. 00-4). Amended by final rulemaking at 11 A.A.R. 4544, effective November 12, 2005 (05-3).

ARTICLE 4. NITROGEN MANAGEMENT GENERAL PERMITS

R18-9-401. Definitions

In addition to the definitions established in A.R.S. §§ 49-101 and 49-201 and A.A.C. R18-9-101, the following terms apply to this Article:

1. "Application of nitrogen fertilizer" means any use of a substance containing nitrogen for the commercial production of a crop or plant. The commercial production of a

crop or plant includes commercial sod farms and nurseries.

2. "Contact stormwater" means stormwater that comes in contact with animals or animal wastes within a concentrated animal feeding operation.
3. "Crop or plant needs" means the amount of water and nitrogen required to meet the physiological demands of a crop or plant to achieve a defined yield.
4. "Crop or plant uptake" means the amount of water and nitrogen that can be physiologically absorbed by the roots

Culvers Sewer Service Capacity

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	2.00000	%
Normal Depth	4.00	in
Diameter	4.00	in

Results

Discharge	120.79	gal/min
Flow Area	0.09	ft ²
Wetted Perimeter	1.05	ft
Hydraulic Radius	1.00	in
Top Width	0.00	ft
Critical Depth	0.29	ft
Percent Full	100.0	%
Critical Slope	0.01839	ft/ft
Velocity	3.08	ft/s
Velocity Head	0.15	ft
Specific Energy	0.48	ft
Froude Number	0.00	
Maximum Discharge	0.29	ft ³ /s
Discharge Full	0.27	ft ³ /s
Slope Full	0.02000	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Culvers Sewer Service Capacity

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	4.00	in
Critical Depth	0.29	ft
Channel Slope	2.00000	%
Critical Slope	0.01839	ft/ft