Drainage Reports

Abbreveated Water & Sewer Need Reports

Water Study

Wastewater Study

Stormwater Waiver Application

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Larson

FILE COPY

Sewer Basis of Design Report

For

Christian Brothers Automotive

Scottsdale, ARIZONA

PREPARED FOR:

SRA 360
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Phoenix, Arizona 85054

PREPARED BY:

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October 11, 2018

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Appendix:

Sewer Exhibit

Calculations

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Introduction

The proposed Christian Brothers Automotive (The Project) is located at 7225 East Williams Drive in Scottsdale Road. The parcel number for this project is 212-02-983. The Project consists of adding a building, curbing, refuse container, valley gutter, utilities, catch basin, storm drain pipe, retention basin, drywell and landscaping. The building is 5,832 square feet in size. The Project is located just East of the intersection of Scottsdale Road at Williams Drive. See Location Map below:

The Project will not alter the existing zoning, which is C-3. The surrounding area at his locations is commercial businesses and consists of commercial services and offices. The existing site is undeveloped land. The new building will remain consistent with the City of Scottsdale's general plan. The adjacent parcel to the north is currently undeveloped land that consists of dirt. The project proposes. The project proposes 16,196 square feet of open space/ landscape area and 38,621 square feet of impervious area.

Design Documentation

Wastewater Design Flows are based on criteria provided in the City of Scottsdale's Design Standards & Policies Manual Chapter 7 dated 2018. This criteria was compared to the

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information provided in Chapter 9 Title 18 of the Arizona Administrative Code and was more conservative, thus satisfying both codes. Specifically, the design criteria used are as follows:

- Average Daily Flow 0.5 Gallons/SF/Day
- Peaking Factor (peak hour) 3
- Minimum Full Flow Velocity 2.5 ft/s
- Maximum Full Flow Velocity 10 ft/s
- Manning's Coefficient (n): 0.013

Wastewater Calculations are attached in the Appendix for reference. The Manning Equation was utilized to analyze the proposed system.

Existing Conditions

The Project will not alter the existing zoning, which is C-3. The existing site is currently undeveloped land.

According to the Sewer Asbuilts obtained this site does not contain an existing sewer tap. A new 6" PVC sewer service will tie into the existing City of Scottsdale's 8" line in Williams Drive.

Proposed Conditions

The attached Wastewater Exhibit shows the tie in location for the proposed sewer. This Project proposes to use 6-inch SDR35 PVC pipe. The tie in is seen in the Utility Plan. All maintenance of the private onsite system is the responsibility of the owner.

Computations

Based on the attached calculations, the projected Peak flow discharge into the City of Scottsdale's Wastewater System is 8,748 GPD or 6.08 GPM and the projected average daily flow discharge is 2,916 GPD or 2.025 GPM. The proposed wastewater collection system is designed to provide adequate capacity to serve the proposed Project. The proposed pipe is SDR35 PVC at 6 inch diameter. The slope is proposed between 2% and 5% and the depth of cover of the pipe will be a minimum of 48" to top of pipe.

Summary

The Proposed Wastewater Distribution System has been analyzed to ensure all City of Scottsdale Design Standards and Policies Manual Chapter 7 requirements are being met. Figure 7.1-2 of that manual provided the demand and peaking factors included in the analysis and stated in this report. The Appendix includes computations of the system with the pipe running full to ensure velocity requirements and sizing of the system meets the City of Scottsdale's requirements.

Enclosed is a set of drawings and spreadsheets which summarize the design and capacity of the system. The spreadsheets show the average daily flow rate and peak flow rates for the

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project. This project is proposed to start as soon as approval is obtained and completed within 6 months. Please refer to the attached Utility Plan for layout of the sewer lines and connections.

Thank you for your prompt review of the proposed wastewater collection system.

Sincerely,

Larson Engineering, Inc.

Michael Hreha, P.E.
Land Development Manager

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UTILITY PLAN

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CALCULATIONS

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Christian Brothers Automotive							
Wastewater Flows							
Description	Use	Bldg Sqft	Demand ADF (Gal/SF/Day)	Avg. Daily Flow (GPD)	Peak Factor	Peak Flow (GPD)	Peak Daily Flow (GPM)
Commercial/Retail	Commerical	5,832	0.5	2,916	3	8,748	6.08
Demand and Peak Factors based on City of Scottsdale's Design Standards & Policies Manual Chapter 7 Dated January 2010.							

Christian Brothers Automotive					
Pipe Diameter (in)	Pipe Length (FT)	Pipe Slope(%)	Peak Daily Flow (gpm)	Max Capacity (GPM)	Velocity (ft/sec)
6	150	3.0%	6.08	437.2	5.0