

**Preliminary Basis of Design Report
Sanitary Sewer
For
Finish Line Auto Club – Northsight
13875 N. Northsight Blvd
Scottsdale, Arizona**

FINAL Basis of Design Report

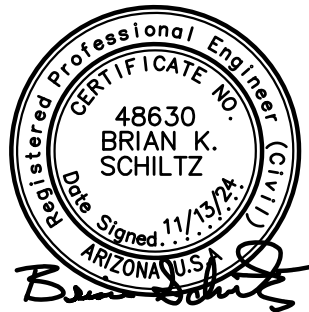
- APPROVED
- APPROVED AS NOTED
- REVISE AND RESUBMIT



Disclaimer: If approved; the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance. For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY JCampo

DATE 1/21/2025



See red lines within report and on plans.

November 2024

Prepared by:
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Scottsdale, AZ 85258

PRELIMINARY BASIS OF DESIGN REPORT
SANITARY SEWER
FOR
**FINISH LINE AUTO CLUB –
NORTHSIGHT
13875 N. NORTHSIGHT BLVD
SCOTTSDALE, ARIZONA**

PREPARED FOR

LGE CORPORATION
1200 NORTH 52ND STREET
PHOENIX, AZ 85008

PREPARED BY

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H.E. PROJECT NO.: LGEC325

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1.0 INTRODUCTION

This preliminary sewer report has been prepared under a contract from LGE Corporation, developer of the Finish Line Auto Club project. The purpose of this report is to provide a preliminary sewer analysis, as required by the City of Scottsdale, to support this development. This report has been prepared according to the procedures detailed in Chapter 7 of the City of Scottsdale's Design Standards & Policies Manual (Reference 1).

The project is located at the east corner of North 87th Street and Northsight Boulevard within the City of Scottsdale, Maricopa County, Arizona. The parcel is bound North 87th Street to the north, by a private drive and commercial developments to the east, and by a fully improved Northsight Boulevard to the south. The site is specifically located within a portion of the southeast quarter of Section 12, Township 3 north, Range 4 east of the Gila and Salt River Base and Meridian. Figure 1, in Appendix A, illustrates the location of the project site in relation to the City of Scottsdale street system.

The proposed development consists of four commercial buildings with associated parking on approximately 4.51 net acres of land. Improvements to be made on-site include the proposed buildings, underground retention, parking, landscaping, and utilities.

Existing sewer stub shall be abandoned and permanently capped at property line. Commercial properties required to have 6-inch service line. Sec 7-1.409

2.0 EXISTING SITE CONDITIONS

The existing site consists of a single building banking establishment and associated parking. There are four driveways to the site. A single 4-inch sewer line serves the existing establishment. This 4-inch line drains to an 8-inch main in North 87th Street. The 87th Street main drains to a 15-inch main in North Northsight Boulevard. There is an existing 8-inch sewer line enveloped by a 10-foot existing private sewer easement that resides in the easterly private driveway.

3.0 PROPOSED SANITARY SEWER SYSTEM

This development proposes multiple building sewer connections that drain to a private main. The private main drains to the existing 15-inch public main in North Northsight Boulevard. The location of the existing sewer mains and the location of the proposed sewer system are identified on the Conceptual Utility Plan located in Appendix A of this report.

Collectively the proposed buildings will have an estimated Average Daily Flow of 6,720 GPD and a Peak Hour Flow of 21.0 GPM. The sewer demand was calculated in accordance with Figure 7-1.2 of the City of Scottsdale Design Standards and Policy Manual (Reference 1). See the demand calculations in Appendix B.

The sewer flow calculations are included in Appendix B. The calculations are based on the peak flow for the development, 21.0 GPM. The highest calculated d/D ratio for the 6-inch is 0.083. The highest calculated d/D ratio for the 8-inch main is 0.159. The 6-inch sewer line flowing full, analyzed with a minimum slope of 1.2-percent, provides a discharge capacity of 209 GPM with a velocity of 3.44 ft/s. The 8-inch sewer line flowing full, analyzed with a minimum slope of 0.5-percent, provides a discharge capacity of 290 GPM with a velocity of 2.69 ft/s. These values are within the limits specified in Section 7-1.404 of the Scottsdale Design Standards & Policies Manual.

All sanitary sewer pipe material for this project has been designated as PVC SDR-35. All fittings are PVC. Trenching and bedding details for this project are to be per MAG Standard Specifications Section 601. Trench width above the installed pipe may be as wide as necessary to properly brace/install the work. Bedding, backfill and compaction shall be installed per MAG Standard Specification 601.4.

4.0 CONCLUSIONS

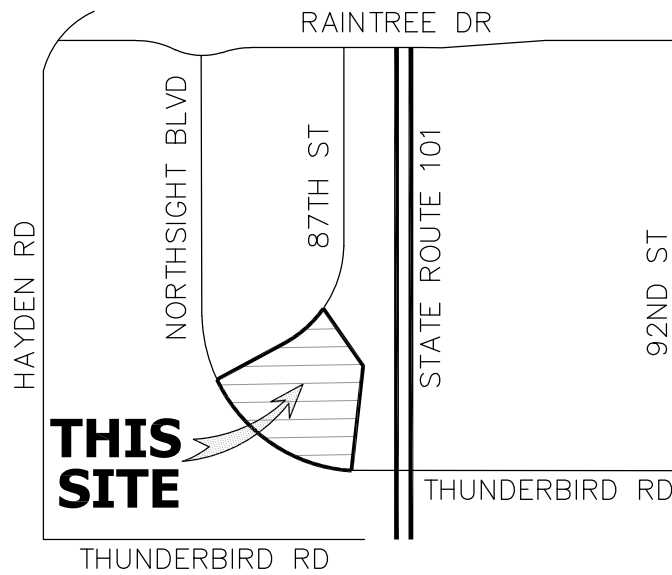
Based on the results of this study, it can be concluded that:

- The proposed sewer system is adequate to service the development.

5.0 REFERENCES

- 1) *City of Scottsdale Design Standards & Policies Manual*, January 2018.

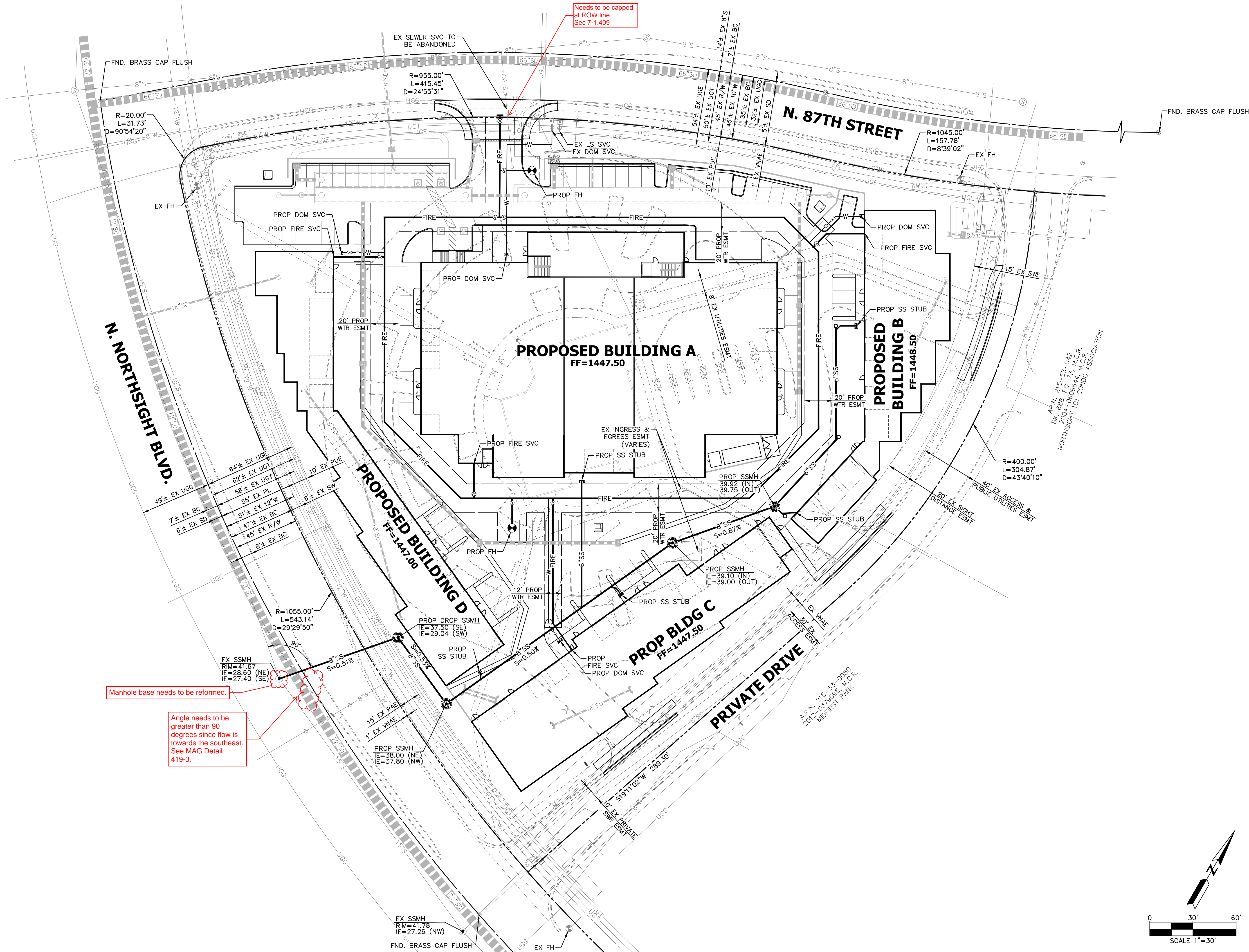
APPENDIX A
FIGURES



NTS

VICINITY MAP

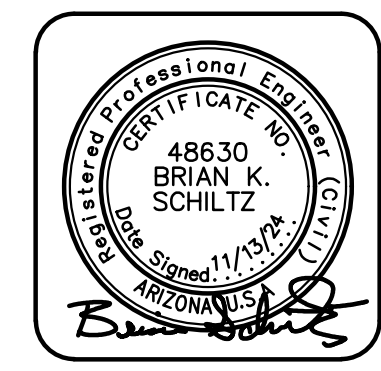
VICINITY MAP FIGURE 1



NO.	DATE	REVISION	BY

DESIGN BY: BKS
 DRAWN BY: MM
 CHECKED BY: BKS

HUNTER
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 10446 NORTH 74TH STREET SUITE 140
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**CONCEPTUAL UTILITY PLAN
 FOR
 FINISH LINE - NORTHSIGHT
 13875 N. NORTHSIGHT BLVD
 SCOTTSDALE, ARIZONA**

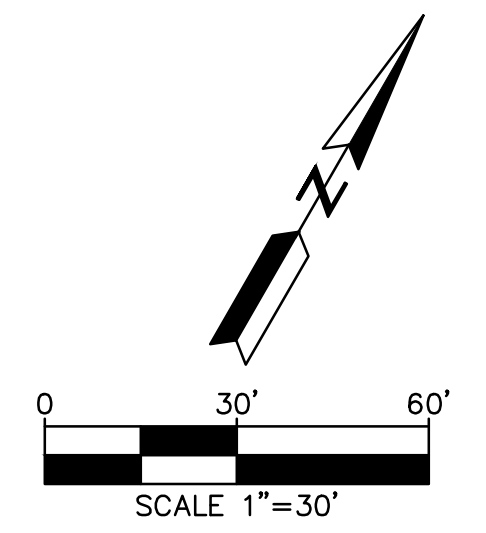


THESE PLANS ARE NOT APPROVED FOR CONSTRUCTION WITHOUT AN APPROVED SIGNATURE FROM THE GOVERNING MUNICIPALITY.

**PROJECT NAME:
 FINISH LINE
 NORTHSIGHT**

HE NO.: LGEC325
 SCALE: 1"=30'

SHEET:
C3



**APPENDIX B
CALCULATIONS**

Project: Finish Line - Northsight
 Project No.: LGEC325
 City: Scottsdale
 Date: 11/7/2024

PROJECTED SANITARY SEWER LOADS

Building	Units (ea)	Average Day Sewer Demand (gpd) Per Table 7-1.2 Average Day Sewer Demand		Peaking Factor	Average Daily Flow (gpd)	Average Daily Flow (gpm)	Peak Flow (gpm)
Building A	18	140	gpd/unit	4.5	2,520	1.8	7.9
Building B	9	140	gpd/unit	4.5	1,260	0.9	3.9
Building C	8	140	gpd/unit	4.5	1,120	0.8	3.5
Building D	13	140	gpd/unit	4.5	1,820	1.3	5.7
Total Buiding	48				6,720	4.7	21.0

6-inch SS Worksheet for Circular Channel

Project Description

Worksheet	6-inch SS
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data

Mannings Coeffic	0.013
Channel Slope	0.012000 ft/ft
Diameter	6.0 in
Discharge	3.9 gpm

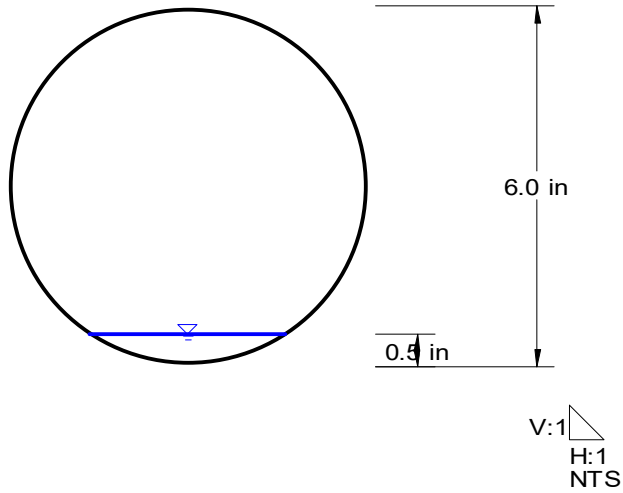
Results

Depth	0.5 in
Flow Area	0.0 ft ²
Wetted Perime	0.29 ft
Top Width	0.00 ft
Critical Depth	0.05 ft
Percent Full	8.3 %
Critical Slope	0.008491 ft/ft
Velocity	1.12 ft/s
Velocity Head	0.02 ft
Specific Energ	0.7 in
Froude Numbe	1.17
Maximum Disc	297 gpm
Discharge Full	276 gpm
Slope Full	0.000002 ft/ft
Flow Type	Supercritical

6-inch SS Cross Section for Circular Channel

Project Description	
Worksheet	6-inch SS
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data	
Mannings Coeffic	0.013
Channel Slope	0.012000 ft/ft
Depth	0.5 in
Diameter	6.0 in
Discharge	3.9 gpm



6-inch SS d/D=0.65 Worksheet for Circular Channel

Project Description

Worksheet	6-inch SS d/D=0.65
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Discharge

Input Data

Mannings Coeffic	0.013
Channel Slope	0.012000 ft/ft
Depth	3.9 in
Diameter	6.0 in

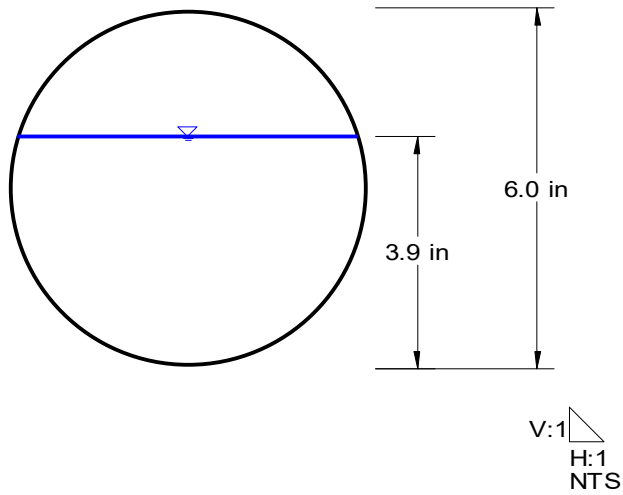
Results

Discharge	209 gpm
Flow Area	0.1 ft ²
Wetted Perime	0.94 ft
Top Width	0.00 ft
Critical Depth	0.35 ft
Percent Full	65.0 %
Critical Slope	0.009994 ft/ft
Velocity	3.44 ft/s
Velocity Head	0.18 ft
Specific Energ	6.1 in
Froude Numbe	1.14
Maximum Disc	297 gpm
Discharge Full	276 gpm
Slope Full	0.006866 ft/ft
Flow Type	Supercritical

6-inch SS d/D=0.65
Cross Section for Circular Channel

Project Description	
Worksheet	6-inch SS d/D=0.65
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Discharge

Section Data	
Mannings Coeffic	0.013
Channel Slope	0.012000 ft/ft
Depth	3.9 in
Diameter	6.0 in
Discharge	209 gpm



8-inch SS Worksheet for Circular Channel

Project Description

Worksheet	8-inch SS
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data

Mannings Coeffic	0.013
Channel Slope	0.005000 ft/ft
Diameter	8.0 in
Discharge	21 gpm

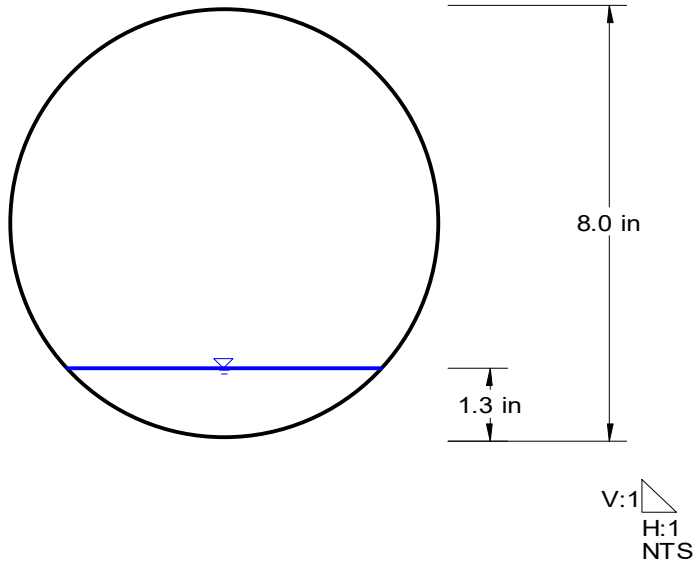
Results

Depth	1.3 in
Flow Area	0.0 ft ²
Wetted Perime	0.55 ft
Top Width	0.00 ft
Critical Depth	0.10 ft
Percent Full	15.9 %
Critical Slope	0.006897 ft/ft
Velocity	1.31 ft/s
Velocity Head	0.03 ft
Specific Energ	1.6 in
Froude Numbe	0.85
Maximum Disc	413 gpm
Discharge Full	383 gpm
Slope Full	0.000015 ft/ft
Flow Type	Subcritical

8-inch SS Cross Section for Circular Channel

Project Description	
Worksheet	8-inch SS
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data	
Mannings Coeffic	0.013
Channel Slope	0.005000 ft/ft
Depth	1.3 in
Diameter	8.0 in
Discharge	21 gpm



8-inch SS d/D=0.65 Worksheet for Circular Channel

Project Description

Worksheet	8-inch SS d/D=0.65
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Discharge

Input Data

Mannings Coeffic	0.013
Channel Slope	0.005000 ft/ft
Depth	5.2 in
Diameter	8.0 in

Results

Discharge	290 gpm
Flow Area	0.2 ft ²
Wetted Perime	1.25 ft
Top Width	0.00 ft
Critical Depth	0.38 ft
Percent Full	65.0 %
Critical Slope	0.007522 ft/ft
Velocity	2.69 ft/s
Velocity Head	0.11 ft
Specific Energ	6.6 in
Froude Numbe	0.77
Maximum Disc	413 gpm
Discharge Full	383 gpm
Slope Full	0.002861 ft/ft
Flow Type	Subcritical

8-inch SS d/D=0.65
Cross Section for Circular Channel

Project Description	
Worksheet	8-inch SS d/D=0.65
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Discharge

Section Data	
Mannings Coeffic	0.013
Channel Slope	0.005000 ft/ft
Depth	5.2 in
Diameter	8.0 in
Discharge	290 gpm

