

# CITY OF ALBUQUERQUE

*Planning Department*  
Alan Varela, Director



*Mayor Timothy M. Keller*

May 8, 2023

Dustin Davidson, P.E.  
WSP  
2440 Louisiana Blvd NE Suite 400  
Albuquerque, NM 87110

**RE: Santa Barbara – Martineztown Roundabout  
Drainage Report  
Engineer's Stamp Date: 05/08/23  
Hydrology File: J14D205  
CPN: 752511**

Dear Mr. Davidson:

PO Box 1293

Based upon the information provided in your submittal received 04/24/2023, the Drainage Report is approved for Work Order.

Albuquerque

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Dough Hughes, PE, [jhughes@cabq.gov](mailto:jhughes@cabq.gov), 924-3420) 14 days prior to any earth disturbance.

NM 87103

[www.cabq.gov](http://www.cabq.gov)

If you have any questions, please contact me at 924-3995 or [rbrissette@cabq.gov](mailto:rbrissette@cabq.gov).

Sincerely,

Renée C. Brissette, P.E. CFM  
Senior Engineer, Hydrology  
Planning Department



# City of Albuquerque

Planning Department

Development & Building Services Division

## DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 11/2018)

**Project Title:** \_\_\_\_\_ **Building Permit #:** \_\_\_\_\_ **Hydrology File #:** \_\_\_\_\_

**DRB#:** \_\_\_\_\_ **EPC#:** \_\_\_\_\_ **Work Order#:** \_\_\_\_\_

**Legal Description:** \_\_\_\_\_

**City Address:** \_\_\_\_\_

**Applicant:** \_\_\_\_\_ **Contact:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Phone#:** \_\_\_\_\_ **Fax#:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

**Owner:** \_\_\_\_\_ **Contact:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Phone#:** \_\_\_\_\_ **Fax#:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

**TYPE OF SUBMITTAL:** \_\_\_\_\_ PLAT (\_\_\_\_# OF LOTS) \_\_\_\_\_ RESIDENCE \_\_\_\_\_ DRB SITE \_\_\_\_\_ ADMIN SITE

**IS THIS A RESUBMITTAL?:** \_\_\_\_\_ Yes \_\_\_\_\_ No

**DEPARTMENT:** \_\_\_\_\_ TRAFFIC/ TRANSPORTATION \_\_\_\_\_ HYDROLOGY/ DRAINAGE

Check all that Apply:

### TYPE OF SUBMITTAL:

- \_\_\_\_\_ ENGINEER/ARCHITECT CERTIFICATION
- \_\_\_\_\_ PAD CERTIFICATION
- \_\_\_\_\_ CONCEPTUAL G & D PLAN
- \_\_\_\_\_ GRADING PLAN
- \_\_\_\_\_ DRAINAGE MASTER PLAN
- \_\_\_\_\_ DRAINAGE REPORT
- \_\_\_\_\_ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
- \_\_\_\_\_ ELEVATION CERTIFICATE
- \_\_\_\_\_ CLOMR/LOMR
- \_\_\_\_\_ TRAFFIC CIRCULATION LAYOUT (TCL)
- \_\_\_\_\_ TRAFFIC IMPACT STUDY (TIS)
- \_\_\_\_\_ OTHER (SPECIFY) \_\_\_\_\_
- \_\_\_\_\_ PRE-DESIGN MEETING?

### TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- \_\_\_\_\_ BUILDING PERMIT APPROVAL
- \_\_\_\_\_ CERTIFICATE OF OCCUPANCY
- \_\_\_\_\_ PRELIMINARY PLAT APPROVAL
- \_\_\_\_\_ SITE PLAN FOR SUB'D APPROVAL
- \_\_\_\_\_ SITE PLAN FOR BLDG. PERMIT APPROVAL
- \_\_\_\_\_ FINAL PLAT APPROVAL
- \_\_\_\_\_ SIA/ RELEASE OF FINANCIAL GUARANTEE
- \_\_\_\_\_ FOUNDATION PERMIT APPROVAL
- \_\_\_\_\_ GRADING PERMIT APPROVAL
- \_\_\_\_\_ SO-19 APPROVAL
- \_\_\_\_\_ PAVING PERMIT APPROVAL
- \_\_\_\_\_ GRADING/ PAD CERTIFICATION
- \_\_\_\_\_ WORK ORDER APPROVAL
- \_\_\_\_\_ CLOMR/LOMR
- \_\_\_\_\_ FLOODPLAIN DEVELOPMENT PERMIT
- \_\_\_\_\_ OTHER (SPECIFY) \_\_\_\_\_

**DATE SUBMITTED:** \_\_\_\_\_ **By:** \_\_\_\_\_

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: \_\_\_\_\_

FEE PAID: \_\_\_\_\_

DEPARTMENT OF MUNICIPAL DEVELOPMENT

# SANTA BARBARA - MARTINEZTOWN ROUNDBABOUT

DRAINAGE MEMO  
CITY PROJECT NO. 7525.11



City of Albuquerque  
Planning Department  
Development Review Services  
HYDROLOGY SECTION  
**APPROVED**

DATE: 05/08/23  
BY: *Renée C. Brissette*  
HydroTrans # J14D205

THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE  
CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY  
ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT  
THE CITY OF ALBUQUERQUE FROM REQUIRING  
CORRECTION, OR ERROR OR DIMENSIONS IN PLANS,  
SPECIFICATIONS, OR CONSTRUCTIONS. SUCH APPROVED PLANS  
SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT  
AUTHORIZATION.

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# SIGNATURES

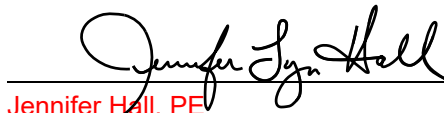
PREPARED BY



Dustin Davidson, PE, CFM  
Drainage Engineer



REVIEWED BY



Jennifer Hall, PE  
Lead Drainage Engineer

1	EXECUTIVE SUMMARY.....	1
2	INTRODUCTION.....	1
2.1	Scope .....	1
2.2	Existing Conditions .....	1
2.2.1	Edith Boulevard.....	1
2.2.2	Broadway Boulevard.....	1
2.2.3	Mountain Road .....	1
3	HYDROLOGY .....	1
3.1	Offsite hydrology .....	1
3.2	Onsite Hydrology .....	2
4	HYDRAULICS .....	2
4.1	Street Hydraulics .....	2
4.2	Storm Drain Hydraulics .....	3
5	PROPOSED CONDITIONS.....	3
5.1	Mountain Rd. and Broadway Blvd.....	3
5.2	Mountain Rd. and Edith Blvd.....	3
	BIBLIOGRAPHY .....	4
	TABLES	
	TABLE 1: INTERSECTION SPREAD AND DEPTH .....	2

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## APPENDICES

- A** STREET HYDRAULICS
- B** STORM DRAIN PROFILES



# 1 EXECUTIVE SUMMARY

New inlets, lateral pipes and manholes are proposed to replace the existing configuration due to shifts in the proposed curb line. The system of inlets on Mountain Rd. captures 100% of the peak runoff west of the roundabout at Edith Blvd. The proposed inlets at the Broadway Blvd. intersection are the same type as the existing inlets, so no increase in bypass occurs.

## 2 INTRODUCTION

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### 2.1 SCOPE

WSP was contracted to design roadway improvements on Mountain Rd. from Walter St. to Broadway Blvd. including a roundabout at the intersection of Mountain Rd. and Edith Blvd. An analysis of the proposed intersection was completed and is described in this memo.

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### 2.2 EXISTING CONDITIONS

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#### 2.2.1 EDITH BOULEVARD

Roadway runoff within Edith Boulevard is split at the south side of the Mountain Rd. and Edith Blvd. intersection. Two separate storm drain systems exist.

The system that drains to the south was constructed under City Project No. 08-592-59. The northern draining system was constructed under City Project No. 7963.05.

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#### 2.2.2 BROADWAY BOULEVARD

Two Type C Single inlets within the project limits connect to the Broadway Boulevard storm drain system constructed under City Project No. 08-571-57.

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#### 2.2.3 MOUNTAIN ROAD

Roadway runoff flows from east to west along Mountain Rd. leaving the project limits through two systems. The first system is drained by a series of seven inlet pairs, two of which are within the project limits, east of Edith Blvd. that capture the runoff with no bypass to Edith Blvd. and connect to the system running west in Mountain Rd then north in Edith Blvd. The other system is a pair of inlets east of Broadway Blvd. that connect to the Broadway Blvd. storm drain system.

The storm drain system in Mountain Rd. was constructed in 2010 under City Project No. 7969.93. This system starts as a 48" reinforced concrete pipe (RCP) at the I25 Southbound Frontage Road and upsizes to a 60" RCP at the connection to the Edith Blvd. storm drain system constructed under City Project No. 7963.05.

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## 3 HYDROLOGY

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### 3.1 OFFSITE HYDROLOGY

The project is within Basin BR5 of the Mid-Valley Drainage Management Plan (DMP). The Stormwater Management Model (SWMM) from the DMP was used to obtain the 100-year peak discharge rate on Mountain Rd. of 47.63 cfs at the Mountain Rd. and Edith Blvd. intersection. Side streets within the project limits contribute very little runoff to the project since

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Mountain Rd. is at an approximate grade break and the only runoff getting to Mountain Rd. is from small areas created by waterstops.

## 3.2 ONSITE HYDROLOGY

Zone 2 values from Table 6.2.14 of the City's Development Process Manual were used to determine the 100-year peak discharge rate of 14.06 cfs and 3.82 cfs for the north and south inlets at the intersection of Mountain Rd. and Broadway Blvd. respectively. Basins were delineated using the proposed roundabout grading, 2' contours, aerial imagery and a field inspection. The basins have a negligible percentage of pervious area, so the entire basin was conservatively taken as Land Treatment D. See **Exhibit 1** for the on-site basin.

$$Q = A \text{ (acres)} * \text{Yield} \left( \frac{\text{cfs}}{\text{acre}} \right) = 3.24 \text{ acres} * 4.34 \frac{\text{cfs}}{\text{acres}} = 14.06 \text{ cfs}$$

$$Q = A \text{ (acres)} * \text{Yield} \left( \frac{\text{cfs}}{\text{acre}} \right) = 0.88 \text{ acres} * 4.34 \frac{\text{cfs}}{\text{acres}} = 3.82 \text{ cfs}$$

The inlets east of Edith Blvd were analyzed as part of the series of seven inlets mentioned in [Section 2.2.3](#). The peak discharge rate for this series of inlets was obtained from the Mid-Valley Drainage Management Plan Hydraulics which includes offsite discharge from Tricore to the east.

## 4 HYDRAULICS

### 4.1 STREET HYDRAULICS

The series of seven Type A inlet pairs along Mountain Rd. east of Edith Blvd. and Type C Single inlets at the Broadway Blvd. intersection were analyzed for water spread and inlet capture in Bentley's FlowMaster. Printouts from the FlowMaster analysis can be found in **Appendix A**. Spread, depth, and bypass values at both intersections are shown in **Table 1** below.

All runoff from the east is captured in the series of Type A inlets along Mountain Rd. before the roundabout.

**Table 1: Intersection Spread and Depth**

INTERSECTION	SPREAD (FT)	DEPTH (IN)	BYPASS (CFS)
Mountain/Edith Westbound	4.4	1.1	0
Mountain/Edith Eastbound	4.4	1.1	0
Mountain/Broadway Westbound	20.4	4.9	8.9
Mountain/Broadway Eastbound	12.5	3.0	1.7

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## 4.2 STORM DRAIN HYDRAULICS

The existing storm drain, proposed inlets, and proposed laterals were analyzed using Bentley's StormCAD to ensure the 100-year Hydraulic Grade Line (HGL) and Energy Grade Line (EGL) meet City criteria. The HGL must be lower than the street surface or ground elevation and the EGL must be within the City's Right-of-Way. HEC-22 3rd Edition was used to calculate head losses.

## 5 PROPOSED CONDITIONS

New inlets on Mountain Rd. at the Edith Blvd. and Broadway Blvd. intersections are required due moved curb lines. The curb line is being moved approximately 30' to the north at the intersection with Edith Blvd. At the Broadway Blvd. intersection, the southern curb line is being moved approximately 2' to the north, and the northern curb line is being moved approximately 25' to the south.

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### 5.1 MOUNTAIN RD. AND BROADWAY BLVD.

Two new Single Type C Inlets are proposed to tie into the Broadway Blvd. storm drain system. The inlet draining the north side of Mountain Rd. will need a new lateral 18" pipe and 4' manhole to tie into the existing lateral pipe. The inlet draining the south side of Mountain Rd. ties directly into the existing 12" lateral pipe. Profiles of the proposed additions with the HGL and EGL plotted are included in **Appendix 2**.

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### 5.2 MOUNTAIN RD. AND EDITH BLVD

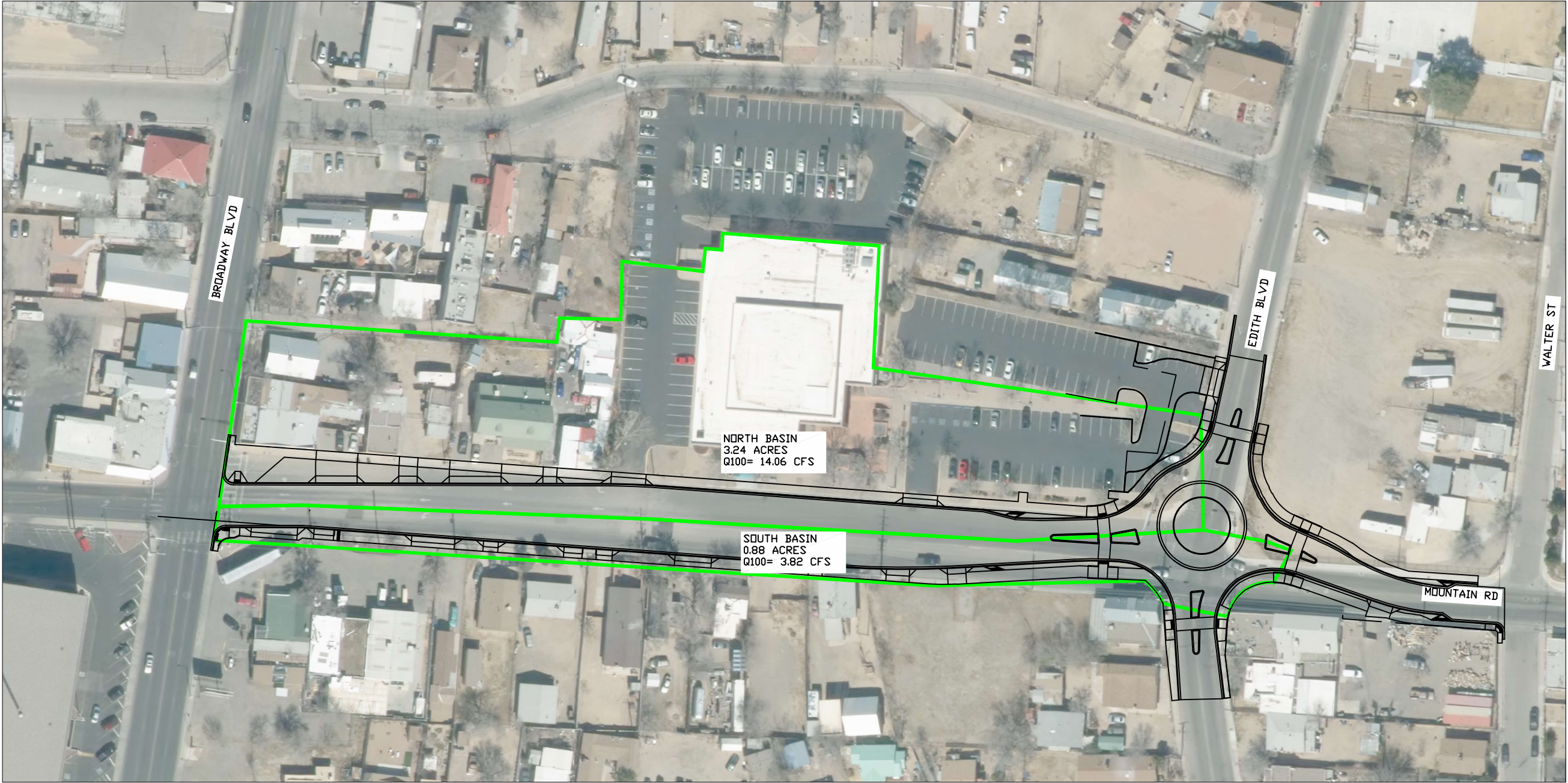
Two new Type A Double inlets are proposed to replace the existing inlets at the Edith Blvd. and Mountain Road intersection. New 24" lateral pipes will connect the inlets to a new 6' manhole. This manhole will connect to a new 8' manhole with a new 24" pipe. The 8' manhole is proposed to tie into the existing Edith Blvd. storm drain system. Profiles of the proposed conditions with the HGL and EGL plotted are included in **Appendix B**.



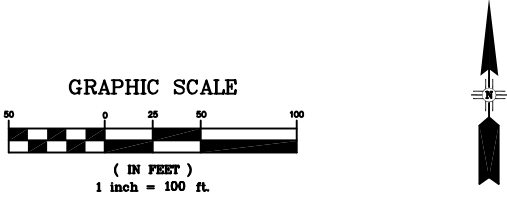



## BIBLIOGRAPHY

- Smith Engineering. (2012, April). Mid-Valley Drainage Management Plan
- City of Albuquerque. (2020, June). Development Process Manual



ON-SITE BASIN BOUNDARY



 <div>WSP USA INC. 2440 LOUISIANA BLVD. NE SUITE 400 ALBUQUERQUE, NM 87110 TEL: +1 505.881.5307 FAX: +1 505.81.7802</div>		CITY OF ALBUQUERQUE DEPARTMENT OF MUNICIPAL DEVELOPMENT ENGINEERING DIVISION SANTA BARBARA-MARTINEZTOWN MOUNTAIN ROAD ROUNDABOUT EXHIBIT 1 - ON-SITE BASIN MAP	
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	MO./DAY/YR.	MO./DAY/YR.
City Project No. COA 7525.11		Zone Map No. J14	Sheet

ENGINEER'S SEAL		SURVEY INFORMATION		BENCH MARKS		AS BUILT INFORMATION	
60% REVIEW SUBMITTAL NOT FOR CONSTRUCTION		FIELD NOTES		DATE		CONTRACTOR	
		NO.	BY	DATE		WORK STAKED BY	DATE
		NO.	DATE	ACS MONUMENT "9-J15" HAVING AN ELEVATION OF 5093.057		INSPECTOR'S VERIFICATION BY	DATE
		NO.	DATE			FIELD VERIFICATION BY	DATE
						MICRO-FILM INFORMATION	
						DESIGNED BY: WSP	DATE 9/28/2022
						DRAWN BY: WSP	DATE 9/28/2022
						CHECKED BY: WSP	DATE 9/28/2022
						RECORDED BY	DATE
						NO.	DATE

## APPENDIX

# A STREET HYDRAULICS



Worksheet : Broadway North

Calculations Messages

Solve For: Efficiency

Gutter Inlet Grate Curb

Discharge:	14.06	cfs	Intercepted Flow:	5.17	cfs
Slope:	0.005	ft/ft	Bypass Flow:	8.89	cfs
Gutter Width:	1.50	ft	Spread:	20.4	ft
Gutter Cross Slope:	0.020	ft/ft	Depth:	4.9	in
Road Cross Slope:	0.020	ft/ft	Flow Area:	4.2	ft <sup>2</sup>
Roughness Coefficient:	0.013		Gutter Depression:	0.0	in
			Total Depression:	6.0	in
			Velocity:	3.38	ft/s
			Splash Over Velocity:	9.87	ft/s
			Frontal Flow Factor:	1.000	
			Side Flow Factor:	0.151	
			Grate Flow Ratio:	0.185	
			Equivalent Cross Slope:	0.081	ft/ft
			Active Grate Length:	2.9	ft
			Length Factor:	0.043	
			Total Interception Length:	22.8	ft

Options

Calculation Successful.

Worksheet : Broadway South

Calculations Messages

Solve For: Efficiency

Gutter Inlet Grate Curb

Discharge:	3.82	cfs	Intercepted Flow:	2.16	cfs
Slope:	0.005	ft/ft	Bypass Flow:	1.66	cfs
Gutter Width:	1.50	ft	Spread:	12.5	ft
Gutter Cross Slope:	0.020	ft/ft	Depth:	3.0	in
Road Cross Slope:	0.020	ft/ft	Flow Area:	1.6	ft <sup>2</sup>
Roughness Coefficient:	0.013		Gutter Depression:	0.0	in
			Total Depression:	6.0	in
			Velocity:	2.44	ft/s
			Splash Over Velocity:	9.87	ft/s
			Frontal Flow Factor:	1.000	
			Side Flow Factor:	0.242	
			Grate Flow Ratio:	0.289	
			Equivalent Cross Slope:	0.116	ft/ft
			Active Grate Length:	2.9	ft
			Length Factor:	0.092	
			Total Interception Length:	10.6	ft

Options

Calculation Successful.



# City Project No. 7525.11 Martineztown Street Hydraulics

Worksheet: Frontage Rd

Calculations | Messages

Solve For: Efficiency

Gutter Inlet Grate Curb

Discharge:	49.63	cfs
Slope:	0.038	ft/ft
Gutter Width:	1.50	ft
Gutter Cross Slope:	0.020	ft/ft
Road Cross Slope:	0.020	ft/ft
Roughness Coefficient:	0.013	

Intercepted Flow:	13.61	cfs
Bypass Flow:	36.02	cfs
Spread:	22.4	ft
Depth:	5.4	in
Flow Area:	5.0	ft²
Gutter Depression:	0.0	in
Total Depression:	6.0	in
Velocity:	9.85	ft/s
Splash Over Velocity:	8.52	ft/s
Frontal Flow Factor:	0.880	
Side Flow Factor:	0.013	
Gutter Flow Ratio:	0.169	
Equivalent Cross Slope:	0.076	ft/ft
Active Grate Length:	2.2	ft
Length Factor:	0.071	
Total Interception Length:	73.6	ft

Worksheet: Mountain 1

Calculations | Messages

Solve For: Efficiency

Gutter Inlet Grate Curb

Discharge:	36.02	cfs
Slope:	0.038	ft/ft
Gutter Width:	1.50	ft
Gutter Cross Slope:	0.020	ft/ft
Road Cross Slope:	0.020	ft/ft
Roughness Coefficient:	0.013	

Intercepted Flow:	11.73	cfs
Bypass Flow:	24.29	cfs
Spread:	19.9	ft
Depth:	4.8	in
Flow Area:	4.0	ft²
Gutter Depression:	0.0	in
Total Depression:	6.0	in
Velocity:	9.09	ft/s
Splash Over Velocity:	8.52	ft/s
Frontal Flow Factor:	0.949	
Side Flow Factor:	0.015	
Gutter Flow Ratio:	0.109	
Equivalent Cross Slope:	0.083	ft/ft
Active Grate Length:	2.2	ft
Length Factor:	0.085	
Total Interception Length:	61.2	ft

Worksheet: Mountain 3

Calculations | Messages

Solve For: Efficiency

Gutter Inlet Grate Curb

Discharge:	14.91	cfs
Slope:	0.038	ft/ft
Gutter Width:	1.50	ft
Gutter Cross Slope:	0.020	ft/ft
Road Cross Slope:	0.020	ft/ft
Roughness Coefficient:	0.013	

Intercepted Flow:	6.96	cfs
Bypass Flow:	7.95	cfs
Spread:	14.3	ft
Depth:	3.4	in
Flow Area:	2.0	ft²
Gutter Depression:	0.0	in
Total Depression:	6.0	in
Velocity:	7.29	ft/s
Splash Over Velocity:	8.52	ft/s
Frontal Flow Factor:	1.060	
Side Flow Factor:	0.022	
Gutter Flow Ratio:	0.296	
Equivalent Cross Slope:	0.105	ft/ft
Active Grate Length:	2.2	ft
Length Factor:	0.142	
Total Interception Length:	36.6	ft

Options

Calculation Successful.

Worksheet: Mountain 2

Calculations | Messages

Solve For: Efficiency

Gutter Inlet Grate Curb

Discharge:	24.29	cfs
Slope:	0.038	ft/ft
Gutter Width:	1.50	ft
Gutter Cross Slope:	0.020	ft/ft
Road Cross Slope:	0.020	ft/ft
Roughness Coefficient:	0.013	

Intercepted Flow:	9.38	cfs
Bypass Flow:	14.91	cfs
Spread:	17.2	ft
Depth:	4.1	in
Flow Area:	2.9	ft²
Gutter Depression:	0.0	in
Total Depression:	6.0	in
Velocity:	8.24	ft/s
Splash Over Velocity:	8.52	ft/s
Frontal Flow Factor:	1.000	
Side Flow Factor:	0.018	
Gutter Flow Ratio:	0.217	
Equivalent Cross Slope:	0.092	ft/ft
Active Grate Length:	2.2	ft
Length Factor:	0.107	
Total Interception Length:	48.6	ft

Worksheet: Mountain 4

Calculations | Messages

Solve For: Efficiency

Gutter Inlet Grate Curb

Discharge:	7.93	cfs
Slope:	0.038	ft/ft
Gutter Width:	1.50	ft
Gutter Cross Slope:	0.020	ft/ft
Road Cross Slope:	0.020	ft/ft
Roughness Coefficient:	0.013	

Intercepted Flow:	4.71	cfs
Bypass Flow:	3.22	cfs
Spread:	11.3	ft
Depth:	2.7	in
Flow Area:	1.3	ft²
Gutter Depression:	0.0	in
Total Depression:	6.0	in
Velocity:	6.23	ft/s
Splash Over Velocity:	8.52	ft/s
Frontal Flow Factor:	1.000	
Side Flow Factor:	0.029	
Gutter Flow Ratio:	0.317	
Equivalent Cross Slope:	0.125	ft/ft
Active Grate Length:	2.2	ft
Length Factor:	0.206	
Total Interception Length:	25.3	ft

Worksheet: Mountain 5

Calculations | Messages

Solve For: Efficiency

Gutter Inlet Grate Curb

Discharge:	3.22	cfs
Slope:	0.038	ft/ft
Gutter Width:	1.50	ft
Gutter Cross Slope:	0.020	ft/ft
Road Cross Slope:	0.020	ft/ft
Roughness Coefficient:	0.013	

Intercepted Flow:	2.57	cfs
Bypass Flow:	0.65	cfs
Spread:	8.0	ft
Depth:	1.9	in
Flow Area:	0.6	ft²
Gutter Depression:	0.0	in
Total Depression:	6.0	in
Velocity:	4.97	ft/s
Splash Over Velocity:	8.52	ft/s
Frontal Flow Factor:	1.000	
Side Flow Factor:	0.043	
Gutter Flow Ratio:	0.423	
Equivalent Cross Slope:	0.161	ft/ft
Active Grate Length:	2.2	ft
Length Factor:	0.350	
Total Interception Length:	14.9	ft

Worksheet: Mountain 6

Calculations | Messages

Solve For: Efficiency

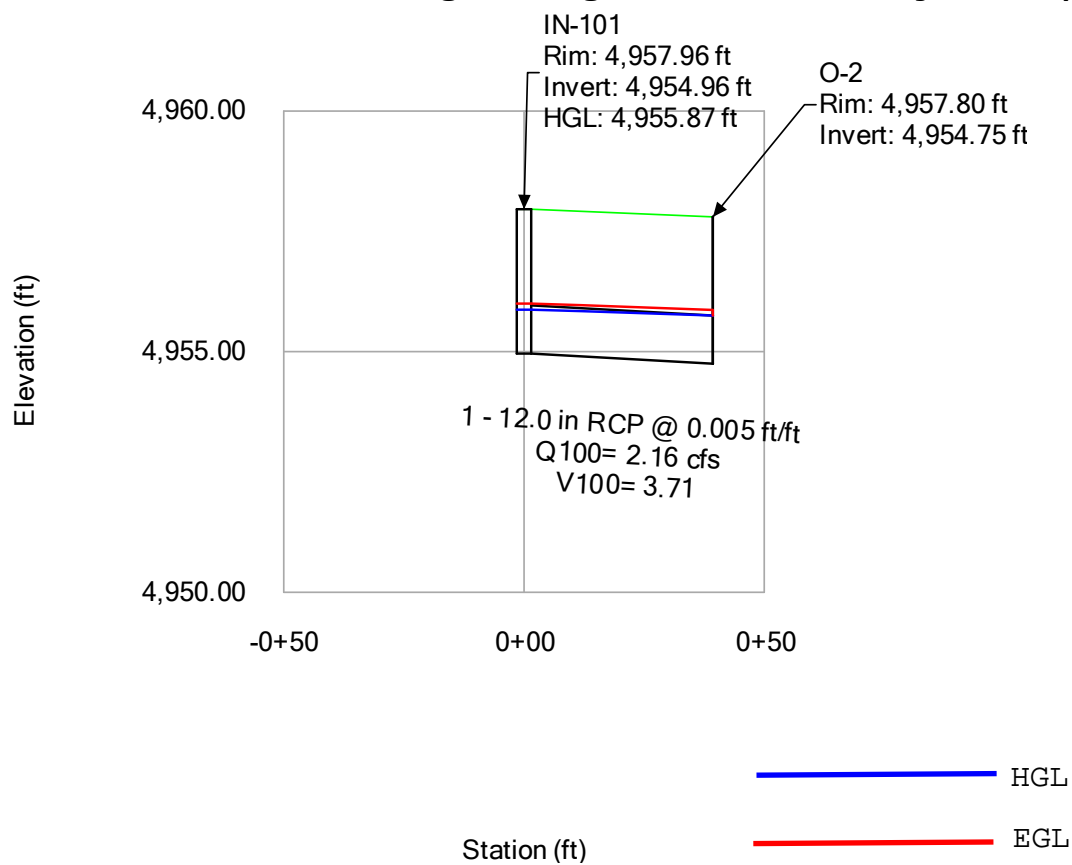
Gutter Inlet Grate Curb

Discharge:	0.65	cfs
Slope:	0.038	ft/ft
Gutter Width:	1.50	ft
Gutter Cross Slope:	0.020	ft/ft
Road Cross Slope:	0.020	ft/ft
Roughness Coefficient:	0.013	

Intercepted Flow:	0.65	cfs
Bypass Flow:	0.00	cfs
Spread:	4.4	ft
Depth:	1.1	in
Flow Area:	0.2	ft²
Gutter Depression:	0.0	in
Total Depression:	6.0	in
Velocity:	3.33	ft/s
Splash Over Velocity:	8.52	ft/s
Frontal Flow Factor:	1.000	
Side Flow Factor:	0.065	
Gutter Flow Ratio:	0.870	
Equivalent Cross Slope:	0.243	ft/ft
Active Grate Length:	2.2	ft
Length Factor:	0.877	
Total Interception Length:	5.9	ft

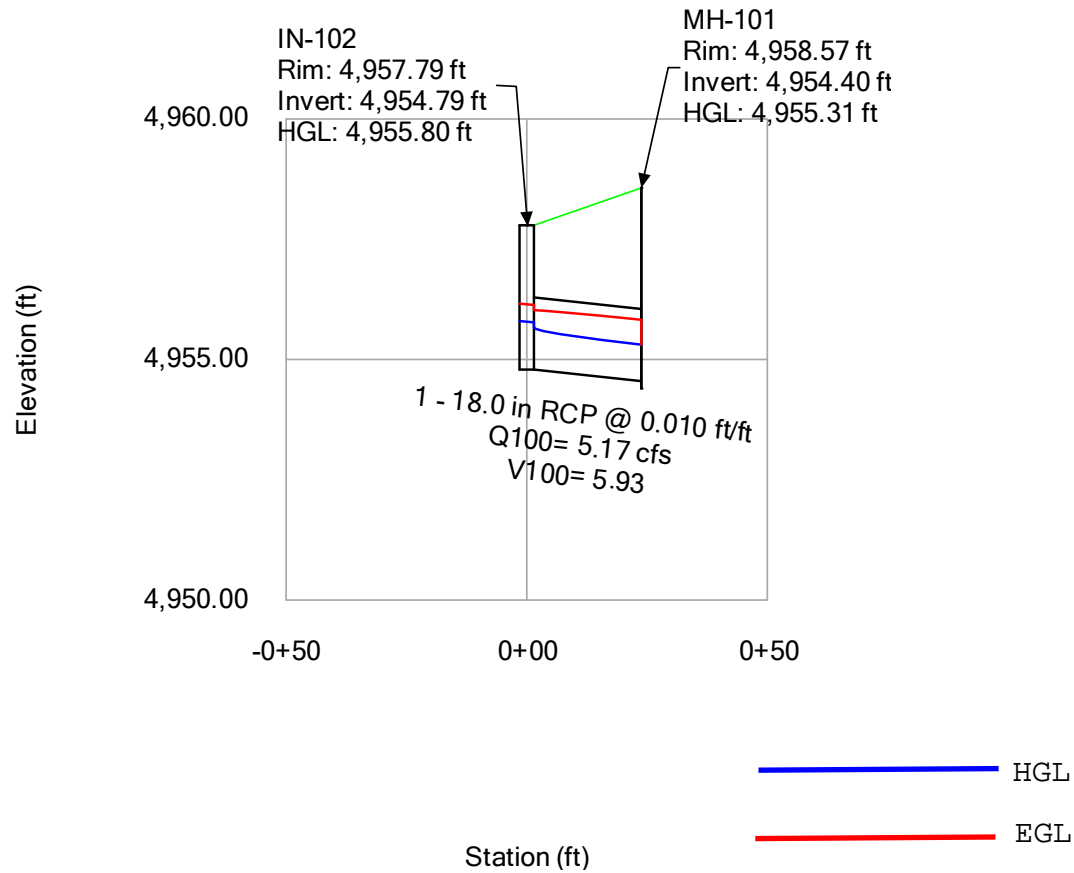
# B STORM DRAIN PROFILES

**Profile Report**  
**Engineering Profile - Broadway South (Broadway.stsw)**



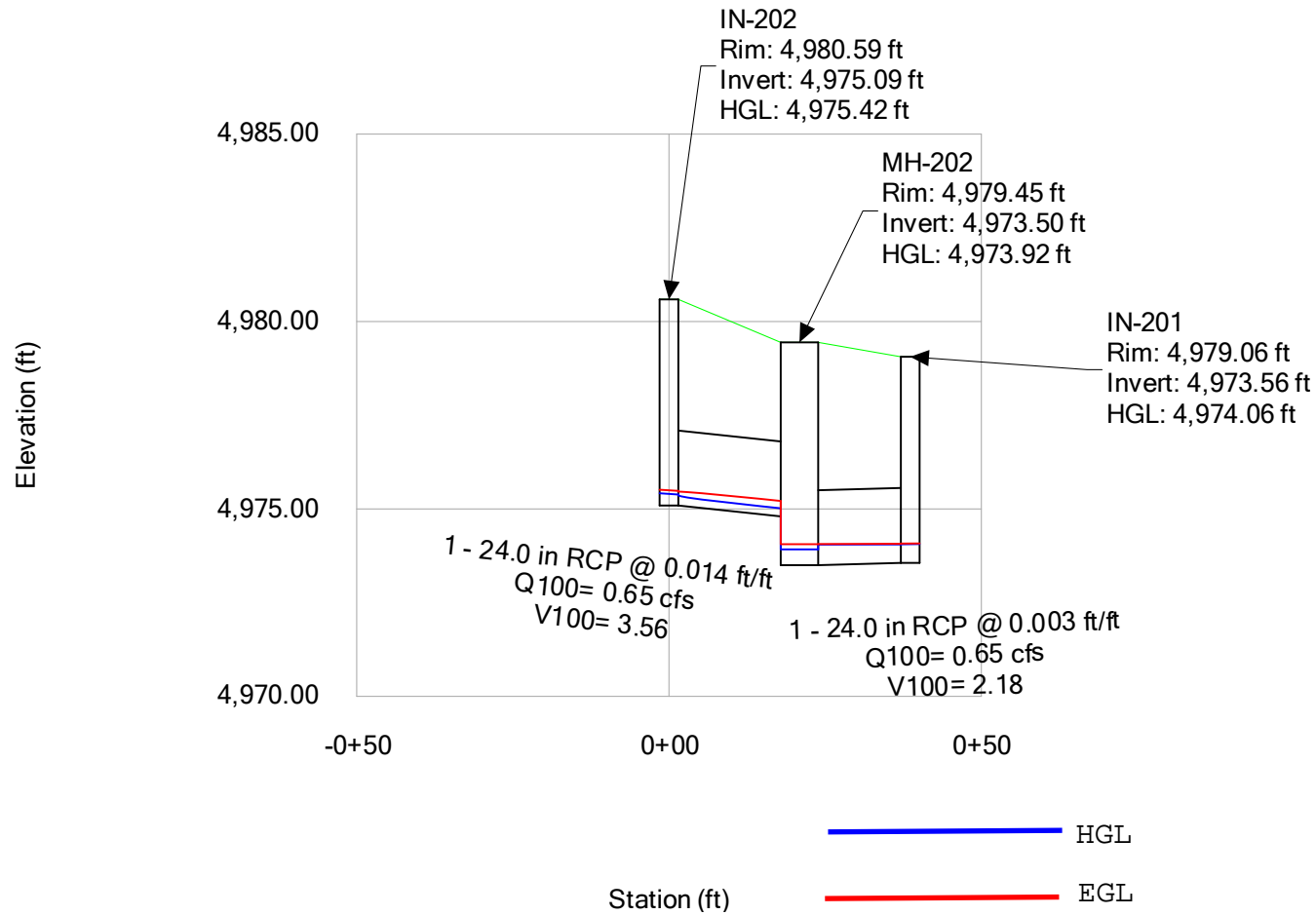
## Profile Report

### Engineering Profile - Broadway North (Broadway.stsw)





# **Profile Report** **Engineering Profile - Mountain/Edith Inlets (Edith.stsw)**



**Profile Report**  
**Engineering Profile - Mountian/Edith Manholes (Edith.stsw)**

