

CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director



Mayor Timothy M. Keller

October 19, 2023

Savina Garcia, PE
Huitt-Zollars, Inc.
333 Rio Rancho Drive NE
Rio Rancho, NM 87124

**RE: 20th St. & Bellamah Ave Improvements
Drainage Report
Engineer's Stamp Date: 10/18/23
Hydrology File: J13D221**

Dear Ms. Garcia:

Based upon the information provided in your submittal received 10/11/2023, the Drainage Report is approved for Work Order.

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 (Doug Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

Sincerely,

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

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov



City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (DTIS)

Project Title: 20th STREET & BELLAMAH AVENUE IMPROVEMENTS Hydrology File # _____

Legal Description: _____

City Address, UPC, OR Parcel: _____

Applicant/Agent: Mojgan Maadandar /Savina Garcia Contact: Mojgan Maadandar

Address: _____ Phone: 505-5065925

Email: mmaadandar@huitt-zollars.com

Applicant/Owner: _____ Contact: _____

Address: _____ Phone: _____

Email: _____

(Please note that a DFT SITE is one that needs Site Plan Approval & ADMIN SITE is one that does not need it.)

TYPE OF DEVELOPMENT: ☐ PLAT (#of lots) _____ ☐ RESIDENCE
☐ DFT SITE ☐ ADMIN SITE

RE-SUBMITTAL: ☐ YES ☒ NO

DEPARTMENT: ☐ TRANSPORTATION ☒ HYDROLOGY/DRAINAGE

Check all that apply under Both the Type of Submittal and the Type of Approval Sought:

TYPE OF SUBMITTAL:

- ☐ ENGINEER/ARCHITECT CERTIFICATION
- ☐ PAD CERTIFICATION
- ☐ CONCEPTUAL G&D PLAN
- ☒ GRADING & DRAINAGE PLAN
- ☐ DRAINAGE REPORT
- ☐ DRAINAGE MASTER PLAN
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL) ADMINISTRATIVE
- ☐ TRAFFIC CIRCULATION LAYOUT FOR DFT APPROVAL
- ☐ TRAFFIC IMPACT STUDY (TIS)
- ☐ STREET LIGHT LAYOUT
- ☐ OTHER (SPECIFY) _____

TYPE OF APPROVAL SOUGHT:

- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY
- ☐ CONCEPTUAL TCL DFT APPROVAL
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ SITE PLAN FOR BLDG PERMIT DFT 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
- ☐ OTHER (SPECIFY) _____

DATE SUBMITTED: 10/11/2023

GRADING & DRAINAGE MEMO FOR
**20TH STREET & BELLAMAH AVENUE
IMPROVEMENTS**

COA PROJECT NO: 617579

20TH STREET
MOUNTAIN RD TO BELLAMAH AVE

BELLAMAH AVE
RIO GRANDE BLVD TO 18TH ST

FINAL

PREPARED FOR
CITY OF ALBUQUERQUE

PREPARED BY
SAVINA GARCIA, P.E.

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED

DATE: 10/19/23
BY: *Renée C. Brissette*
HydroTrans # J13D221

CONCURRENCE: 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.

Designed By:

HUITT-ZOLLARS
Huitt-Zollars, Inc. Albuquerque
6501 Americas Pkwy NE, Suite 550
Albuquerque, New Mexico 87110
Phone (505) 883-8114 Fax (505) 883-5022

RENEE C. BRISSETTE, P.E. CFM
CITY OF ALBUQUERQUE

DATE

**ONE
ALBUQUE
RQUE**

city of albuquerque



Savina Garcia
SAVINA GARCIA, P.E.
HUITT-ZOLLARS

10.18.2023

DATE

Memorandum

DATE: October 11, 2023

TO: Renee Brissette, PE

FROM: Mojgan Maadandar, EI

CC: Savina Garcia, PE

SUBJECT: 20TH Street & Bellamah Avenue Improvements, COA # 617579

HZ PROJECT #: R311236.02

This report presents a comprehensive drainage analysis and design for the roadway improvement of Bellamah Avenue and 20th street in Sawmill Market area of Albuquerque, NM. This project involves modifications to Bellamah Avenue and 20th street. Including the reconstruction of two roads with new pavement, curb extensions (bulb outs), landscape, and new lighting. The drainage concept for this project aims to remain within the allowable discharge rate limits as defined in the approved 2014 drainage master plan. Additionally, it involves capturing runoff from impervious improvements through onsite water harvesting, and installation of new inlets. The project is situated on FEMA's Flood Insurance Rate Maps (FIRM) 35001C0331H, effective as of June 16, 2012. 20th street is designated as Zone AH with an elevation of 4959 ft. classifying it as a Special Flood Hazard Area with Base Flood Elevation. On the other hand, Bellamah Ave is designated as zone X, an area with reduced flood risk due to Levee. The Flood Insurance Rate Map is attached at the end of this report.

In the existing conditions, there are existing 18" Reinforced Concrete Pipes (RCP's in both 20th street and Bellamah Avenue. In the 20th street, in the southern section of the road, there is one drop inlet on the east side of the road. This drop inlet is connected to the main 18-inch RCP, which conveys water to an existing drainage system located on Mountain Rd.

On Bellamah Avenue, the existing storm drain system is connected to the storm drain system of Rio Grande Blvd in the west and 18th Ave in the east.

Existing conditions drainage basins were delineated based on our review of previously approved drainage reports in the watershed, LiDAR mapping and current development. Please refer to the Existing Conditions Drainage Basin Map.

This site is a road characterized by several road drainage sub-basins: Basin RD-EX1, Basin RD-EX3, Basin RD-EX5, Basin RD-EX7, and Basin RD-EX9. Sub-basin RD-EX1 drains away from our project toward 18th street. Similarly, Sub-basin RD-EX7 also drains away, toward Rio Grande Blvd. Meanwhile, both sub-basins RD-EX3 and RD-EX5 direct their flow toward 20th street. The combined flow from sub-basins RD-EX3, RD-EX5, and RD-EX9 then proceeds towards Mountain Rd. For visual reference, consult the Basin Maps.

Several off-site basins flow toward Bellamah Avenue and 20th Street. Basin F.3, Basin F.6, and Basin F.7, which are part of Hotel Chaco, drain into Bellamah Avenue and 20th street. Basin F.1, a smaller parking area, drains into Bellamah Avenue. Basin B.3, B.4, and Basin C drain into 20th street. Basin G.1, G.2, G.3, and G.4, they all drain to the south towards Bellamah Ave. Basin A,

Basin B, Basin C1, basin D which are part of the new development to the east of 20th St and south of Bellamah Ave, drain into both streets. Basin A and Basin B drain into Bellamah Ave and Basin C1 drain into drain to 20th street. You can find detailed information about the off-site run-off in Exhibit 1 Basin map.

In the developed condition, this site is a road characterized by several road drainage sub-basins: Basin RD-1, to Basin RD-20. These sub-basins have been delineated based on the low points and high points indicated on the plan and profile sheets. Each sub-basin represents half of the road due to road's crowning in the middle.

In summary, the delineation of developed conditions drainage basins was guided by factors such as road grade, low points, and high points. In essence, due to the decreased pavement area and impervious surface, surface flow under developed conditions is generally lower compared to existing conditions. However, to mitigate potential issues, it is advisable to install inlets at low points to prevent ponding or adjust the road's grade to direct the flow towards proposed inlets.

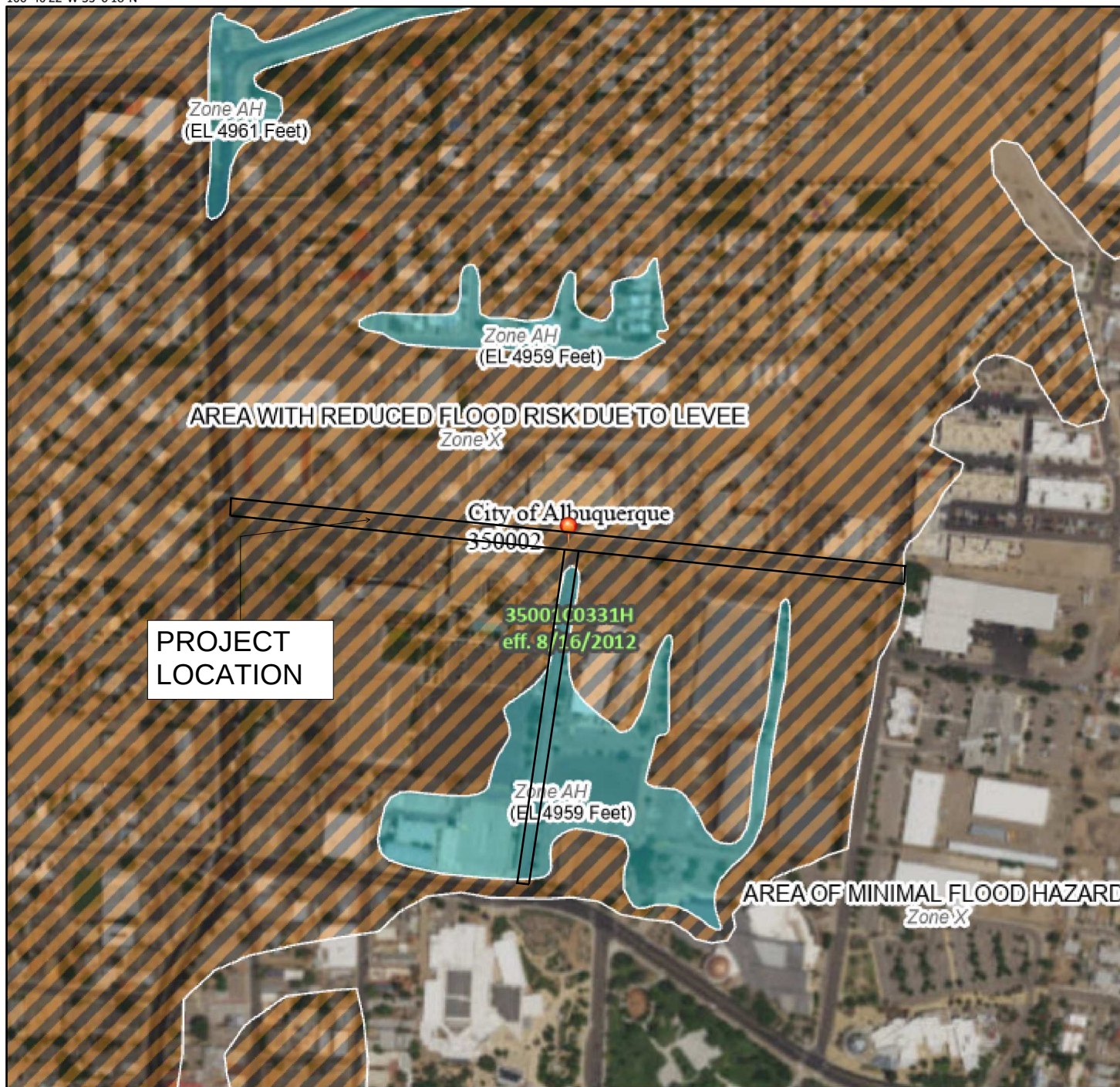
The majority of proposed roadway will consist of new pavement, curb extensions, and landscaping. While this leads to a reduction in impervious area and consequently less surface water, the addition of curb extensions could potentially result in water accumulations in low points. Therefore, we are proposing the installation of new inlets at the low points of curb extensions along both 20th street and Bellamah Avenue. Additionally, to further enhance drainage, we recommend incorporating curb cuts throughout both streets.

The StormCAD analysis for both the existing storm drain system and the proposed storm drain system has been provided and is attached. The profile view of the existing SD system clearly indicates that the system is currently operating at or near capacity. Additionally, the profile view of the proposed SD system demonstrates a modest improvement over the existing conditions, addressing some of the capacity issues. Furthermore, to enhance the drainage system, we propose the incorporation of curbcuts and small water harvesting areas along both Bellamah Avenue and 20th Street. These features will help detain runoff and contribute to improved drainage management.

National Flood Hazard Layer FIRMette



106°40'22"W 35°6'18"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



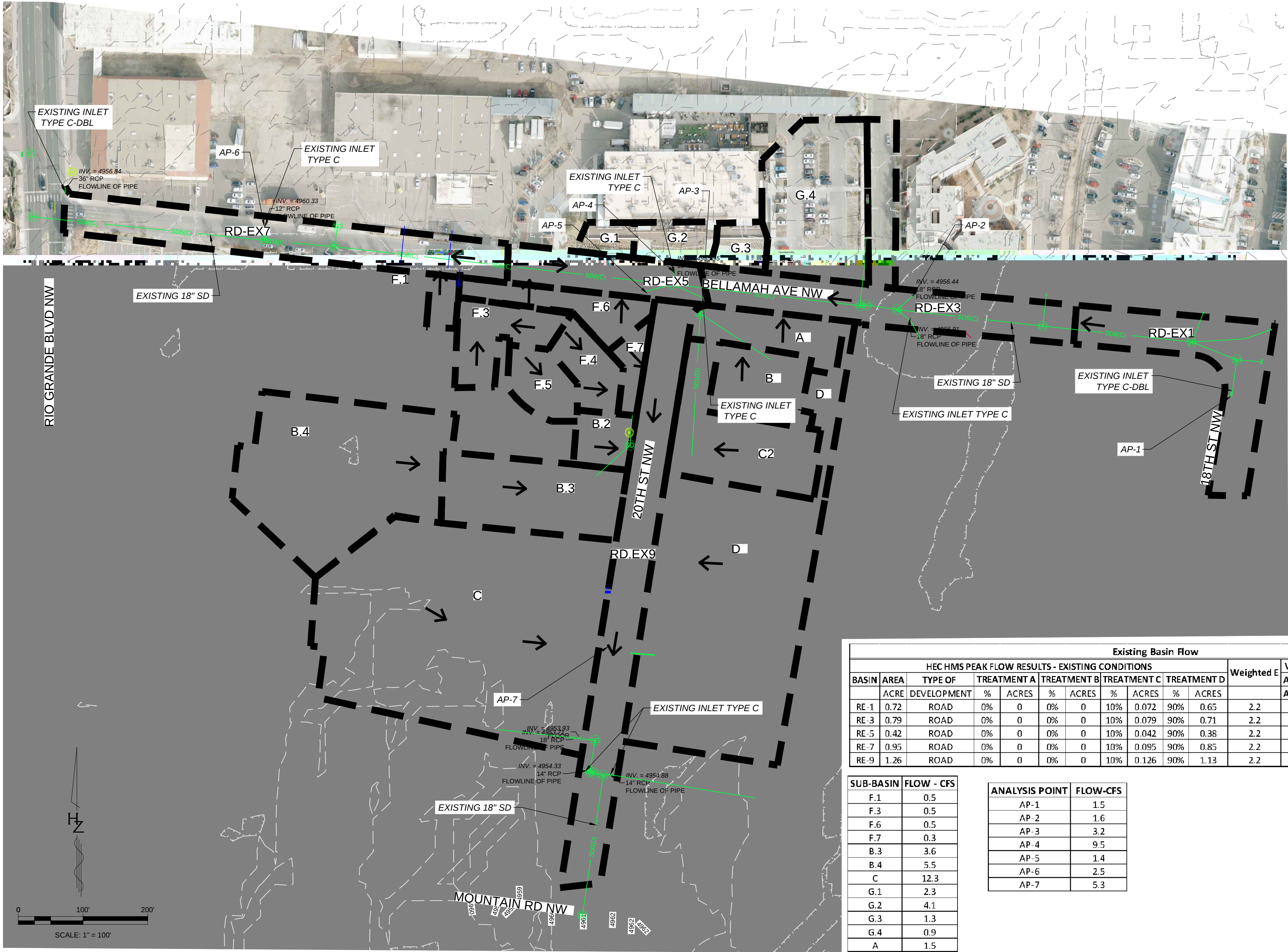
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/18/2023 at 5:47 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

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H:\proj\R311236.02 - Sawmill Roadway Design Task 3005 Design\05.2 Engineering by
Discipline\Drainage\BASIN\R311236.02_EX DRAIN BASIN-TEST.dwg
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Existing Basin Flow																		
HEC HMS PEAK FLOW RESULTS - EXISTING CONDITIONS											Weighted E	V-360	V-1440	V-4days	Q-100	Q-10	Q-2	
BASIN	AREA	TYPE OF	TREATMENT A		TREATMENT B		TREATMENT C		TREATMENT D			AC_FT	AC_FT	AC_FT	CFS	CFS	CFS	
	ACRE	DEVELOPMENT	%	ACRES	%	ACRES	%	ACRES	%	ACRES		AC_FT	AC_FT	AC_FT	CFS	CFS	CFS	
RE-1	0.72	ROAD	0%	0	0%	0	10%	0.072	90%	0.65	2.2	1.59	1.81	2.08	3.05	1.88	0.62	
RE-3	0.79	ROAD	0%	0	0%	0	10%	0.079	90%	0.71	2.2	1.75	1.99	2.28	3.34	2.06	0.68	
RE-5	0.42	ROAD	0%	0	0%	0	10%	0.042	90%	0.38	2.2	0.92	1.05	1.21	1.77	1.09	0.36	
RE-7	0.95	ROAD	0%	0	0%	0	10%	0.095	90%	0.85	2.2	2.09	2.37	2.73	4.00	2.47	0.82	
RE-9	1.26	ROAD	0%	0	0%	0	10%	0.126	90%	1.13	2.2	2.77	3.15	3.62	5.31	3.27	1.09	

SUB-BASIN	FLOW - CFS
F.1	0.5
F.3	0.5
F.6	0.5
F.7	0.3
B.3	3.6
B.4	5.5
C	12.3
G.1	2.3
G.2	4.1
G.3	1.3
G.4	0.9
A	1.5
B	1.6
C1	2.9
D	0.8

ANALYSIS POINT	FLOW-CFS
AP-1	1.5
AP-2	1.6
AP-3	3.2
AP-4	9.5
AP-5	1.4
AP-6	2.5
AP-7	5.3

LEGEND

DRAINAGE BASIN-EX
FLOW DIRECTION
EXISTING SD SYSTEM



Designed By:

HUITT-ZOLLARS
Huitt-Zollars, Inc. Albuquerque
6501 Americas Pkwy NE, Suite 550
Albuquerque, New Mexico 87110
Phone (505) 883-8114 Fax (505) 883-5022



CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

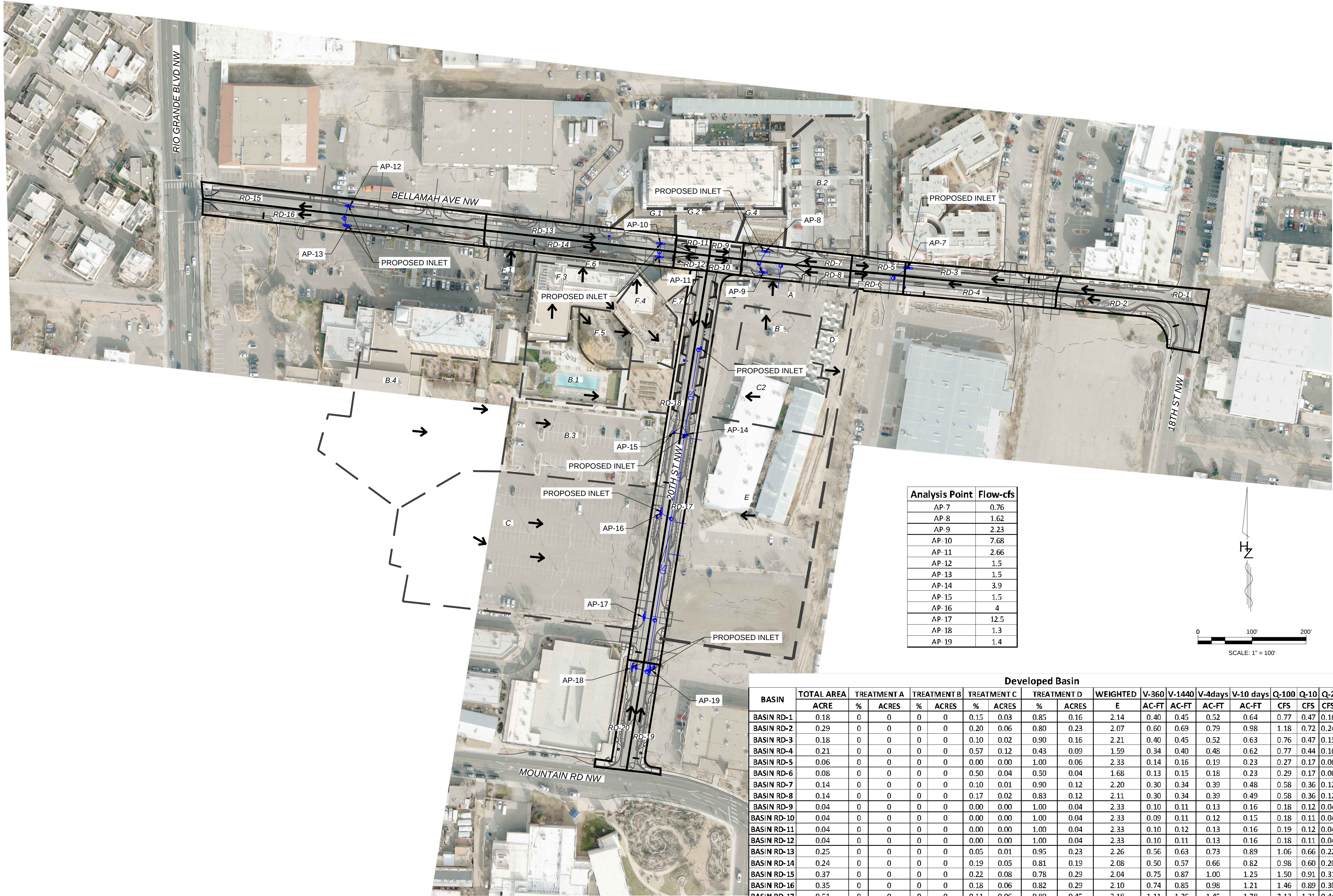
TITLE: **EXISTING BASIN MAP**

Design Review Committee	City Engineer	Mo./Day/Yr.	Mo./Day/Yr.
Last Update			
City Project No.	Zone Map No.	Sheet	Of

EXHIBIT 1

CONTROL NO. SHEET

Printed: 10/10/2023 10:23:44 AM By: Mmadanda, Migan
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Discipline\Drainage\BASIN\R311236.02_DEV\RAIN BASIN_NEW.dwg
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Analysis Point	Flow-cfs
AP-7	0.76
AP-8	1.62
AP-9	2.23
AP-10	7.68
AP-11	2.66
AP-12	1.5
AP-13	1.5
AP-14	3.9
AP-15	1.5
AP-16	4
AP-17	12.5
AP-18	1.3
AP-19	1.4

BASIN	Developed Basin																
	TOTAL AREA	TREATMENT A	TREATMENT B	TREATMENT C	TREATMENT D	WEIGHTED	V-360	V-1440	V-4days	V-10 days	Q-100	Q-10	Q-2				
	ACRE	%	ACRES	%	ACRES	%	ACRES	%	ACRES	E	AC-FT	AC-FT	AC-FT	AC-FT	CFS	CFS	CFS
BASIN RD-1	0.18	0	0	0	0.15	0.03	0.85	0.16	2.14	0.40	0.45	0.52	0.64	0.77	0.47	0.16	
BASIN RD-2	0.29	0	0	0	0.20	0.06	0.80	0.23	2.07	0.60	0.69	0.79	0.98	1.18	0.72	0.24	
BASIN RD-3	0.18	0	0	0	0.10	0.02	0.90	0.16	2.21	0.40	0.45	0.52	0.63	0.76	0.47	0.15	
BASIN RD-4	0.21	0	0	0	0.57	0.12	0.43	0.09	1.59	0.34	0.40	0.48	0.62	0.77	0.44	0.16	
BASIN RD-5	0.06	0	0	0	0.00	0.00	1.00	0.06	2.33	0.14	0.16	0.19	0.23	0.27	0.17	0.06	
BASIN RD-6	0.08	0	0	0	0.50	0.04	0.50	0.04	1.68	0.13	0.15	0.18	0.23	0.29	0.17	0.06	
BASIN RD-7	0.14	0	0	0	0.10	0.01	0.90	0.12	2.20	0.30	0.34	0.39	0.48	0.58	0.36	0.12	
BASIN RD-8	0.14	0	0	0	0.17	0.02	0.83	0.12	2.11	0.30	0.34	0.39	0.49	0.58	0.36	0.12	
BASIN RD-9	0.04	0	0	0	0.00	0.00	1.00	0.04	2.33	0.10	0.11	0.13	0.16	0.18	0.12	0.04	
BASIN RD-10	0.04	0	0	0	0.00	0.00	1.00	0.04	2.33	0.09	0.11	0.12	0.15	0.18	0.11	0.04	
BASIN RD-11	0.04	0	0	0	0.00	0.00	1.00	0.04	2.33	0.10	0.12	0.13	0.16	0.19	0.12	0.04	
BASIN RD-12	0.04	0	0	0	0.00	0.00	1.00	0.04	2.33	0.10	0.11	0.13	0.16	0.18	0.11	0.04	
BASIN RD-13	0.25	0	0	0	0.05	0.01	0.95	0.23	2.26	0.56	0.63	0.73	0.89	1.06	0.66	0.22	
BASIN RD-14	0.24	0	0	0	0.19	0.05	0.81	0.19	2.08	0.50	0.57	0.66	0.82	0.98	0.60	0.20	
BASIN RD-15	0.37	0	0	0	0.22	0.08	0.78	0.29	2.04	0.75	0.87	1.00	1.25	1.50	0.91	0.31	
BASIN RD-16	0.35	0	0	0	0.18	0.06	0.82	0.29	2.10	0.74	0.85	0.98	1.21	1.46	0.89	0.30	
BASIN RD-17	0.51	0	0	0	0.11	0.06	0.89	0.45	2.18	1.11	1.26	1.45	1.78	2.13	1.31	0.44	
BASIN RD-18	0.50	0	0	0	0.03	0.01	0.97	0.49	2.30	1.16	1.31	1.49	1.83	2.17	1.35	0.44	
BASIN RD-19	0.15	0	0	0	0.13	0.02	0.87	0.13	2.16	0.32	0.37	0.42	0.52	0.62	0.38	0.13	
BASIN RD-20	0.15	0	0	0	0.26	0.04	0.74	0.11	2.00	0.30	0.34	0.40	0.50	0.60	0.36	0.12	

LEGEND

DRAINAGE BASIN-DEV

FLOW DIRECTION

DRAINAGE BASIN-EX

PROPOSED SD SYSTEM



Designed By:

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CITY OF ALBUQUERQUE
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ENGINEERING DIVISION

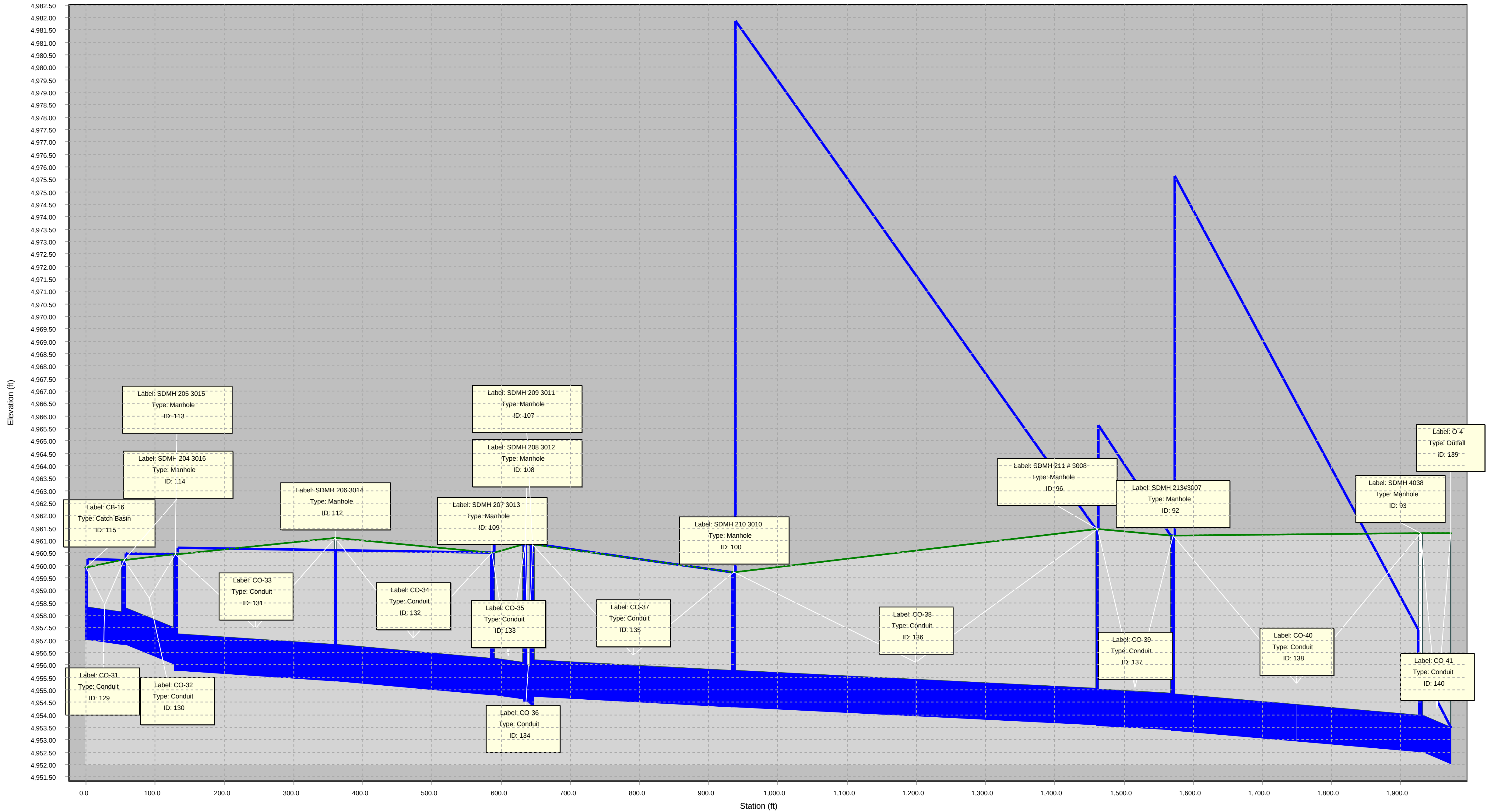
TITLE: DEVELOPED BASIN MAP

Design Review Committee	City Engineer	Mo./Day/Yr.	Mo./Day/Yr.
Last Update			
City Project No.	Zone Map No.	Sheet	Of
EXHIBIT 2			

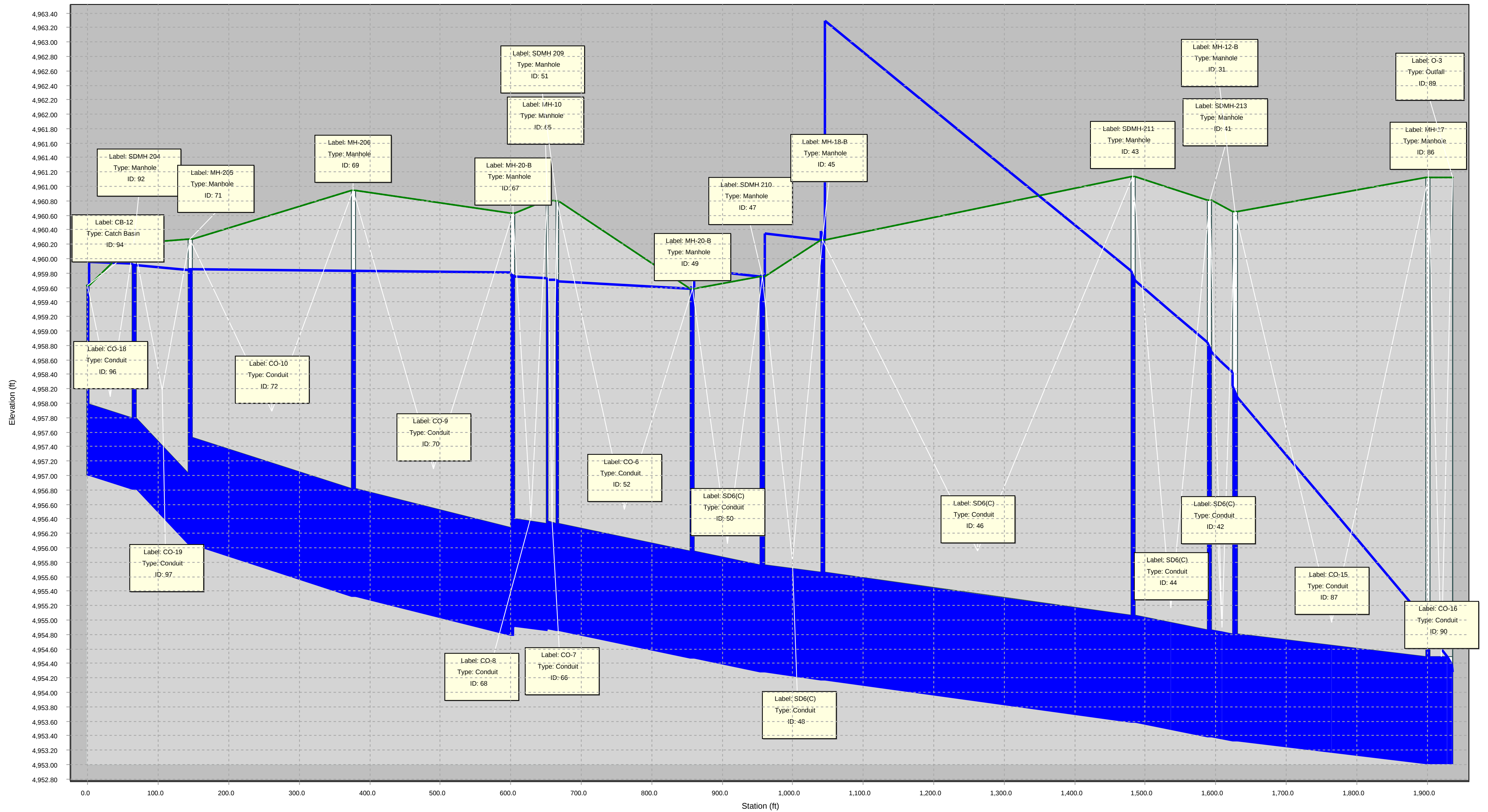
CONTROL NO. SHEET

ENGINEER'S SEAL		SURVEY INFORMATION		BENCH MARKS		AS BUILT INFORMATION	
PRELIMINARY NOT FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES. FOR REVIEW ONLY.		FIELD NOTES					
		NO.	BY	DATE			
DESIGNED BY: MM		DATE: August 21, 2023					
DRAWN BY: MM		DATE: August 21, 2023					
DWG NAME: R311236.02_DEV\RAIN BASIN_NEW.dwg		PROJECT #/ R311236.02					
CHECKED BY: SG		DATE: August 21, 2023					

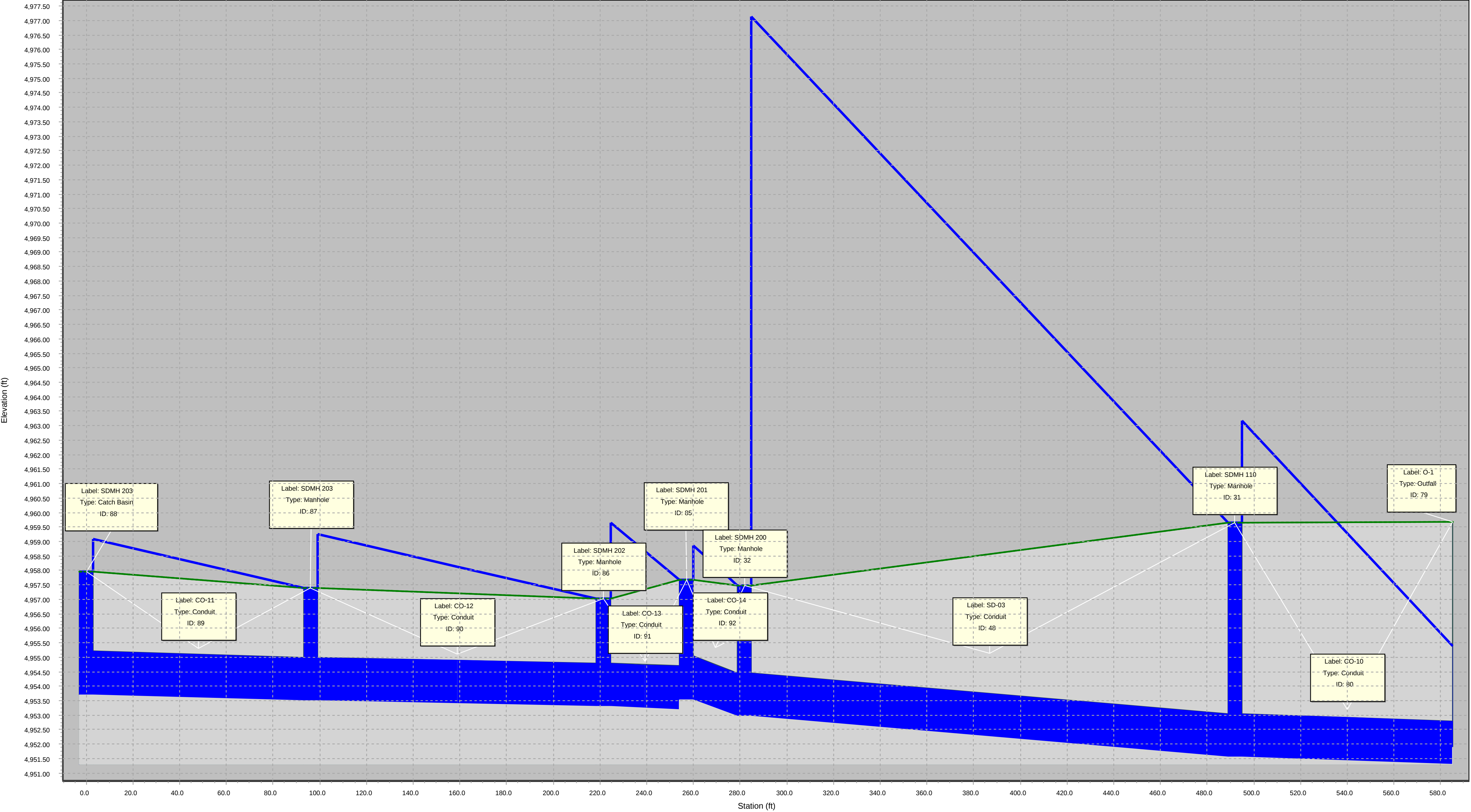
BELLAMAH AVENUE EXISTING STORM DRAIN



BELLAMAH AVENUE PROPOSED STORM DRAIN



20TH STREET EXISTING STORM DRAIN



20TH STREET PROPOSED STORM DRAIN

