CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director

Mayor Timothy M. Keller

July 3, 2024

Sheila K. Johnson, P.E.
WHPacific, Inc.
6501 Americas Parkway NE, Suite 400
Albuquerque, NM 87110

RE: 12th Street Road Diet (CPN 718780)
Final Drainage Report
Engineer's Stamp Date: 06/19/24
Hydrology File: H13D120

Dear Ms. Johnson:

Based upon the information provided in your submittal received 06/19/2024, the Final 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 (Dough 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

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: 12th Street Road Diet Hydrology File # CPN 718780
Legal Description: 12th Street - from Sawmill Road to Railroad Spur (approx 350-ft North of Aspen Avenuye)
City Address, UPC, OR Parcel: same as above

Applicant/Agent: WHPacific, an NV5 Company Contact: Sheila Johnson
Address: 6501 Americas Parkway, Suite 400 Alb, NM 87110 Phone: (505) 348-5227
Email: sheila.johnson@nv5.com

Applicant/Owner: City of Albuquerque Contact: Abe J. Bortz-Johnson
Address: Department of Municipal Development Phone: (505) 768-2778
Email: abortz-johnson@cabq.gov

(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 City owned property - Roadway/Drainage Inprovements

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 -- Preliminary
- ☐ 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) Drainage Report

DATE SUBMITTED: June 18, 2024

REV. 09/13/23

CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director

Mayor Timothy M. Keller

April 9, 2024

Sheila K. Johnson, P.E.
WHPacific, Inc.
6501 Americas Parkway NE, Suite 400
Albuquerque, NM 87110

RE: 12th Street Road Diet (CPN 718780)
Preliminary Drainage Report
Engineer's Stamp Date: No Date
Hydrology File: H13D120

Dear Ms. Johnson:

Based upon the information provided in your submittal received 03/12/2024, the Final Drainage Report **is not** approved for Work Order. The following comments need to be addressed for approval of the above referenced project:

PO Box 1293

Albuquerque

NM 87103

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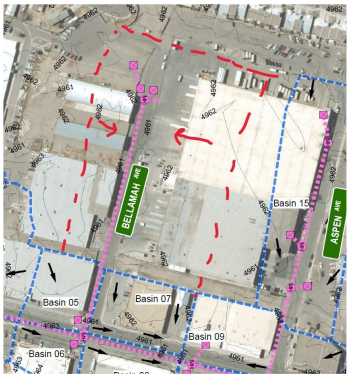
1. Please provide an engineer's stamp with a signature and date. Done

2. It appears that the drainage area for Bellahah Ave is missing in both the existing conditions and proposed conditions drainage maps. The Bellamah storm water flow rate had been taken from the 60% design for and included in this analysis, but that was not evident in this report. The drainage basins and hydrology from the Preliminary Drainage Report prepared for Bellamah (City Project 7703.72) have now been included on the basin map and hydrology. The storm runoff from Bellamah is included in the 12th Street storm drain. The basin divide is correct as shown in Basin 05 which is a high point in Bellamah Avenue – stormwater flows from the basin 5 divide west to a small sag in Bellamah Avenue that will be held in the future roadway improvement design. See revised figures and additional hydrology added in the Appendix.



3. At the intersection of 12th St and Sawmill, an existing Type A inlet is being replaced with a Type D grate inlet. Whenever this happens, a double Type D grate inlet always in needed. Please check the calculations, a single grate inlet will always only allow about half of the flow that typical inlet allows. The type D was replaced with double grate type D – There is a second type D at Bellamah and 12th Street which was made a double grate also.

4. This report uses Autodesk Storm and Sanitary Analysis. Please note that this program is not accepted by Hydrology. Hydraulic calculations must be performed along the Energy Grade Line using the Bernoulli Equation, per the DPM. The calculations presented in HEC-22, 3rd Edition agree with the DPM but the earlier editions (1st and 2nd) do not use Bernoulli's correctly. The City of Albuquerque- Hydrology Section accepts the manhole loss methodology presented in HEC-22, 3rd Edition, section 7.1.6.7 and rejects the two methods prescribed in HEC-22, 1st Edition and 2nd Edition. Programs proven to correctly apply HEC-22, 3rd Edition and correctly use Bernoulli's Equation, the momentum equation for junction losses, manhole losses, contraction losses, expansion losses, and bend losses per the DPM include, WSPGW - Water Surface Pressure Gradient by CivilDesign, HydroCAD, and Stormwater Studio by Hydrology Studio. StormCAD v8i SELECTseries5 (build 08.11.05.58) and later, by Bentley, is acceptable provided that the calculations are performed using HEC-22, 3rd Edition and the user selects the "Energy Grade" option for losses. Other software programs may also be used if shown to correctly apply these losses. We redid the model in Bentley StormCAD using the HEC-22, 3rd edition / selecting the Energy Grade option.

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

Sincerely,

Renée C. Brissette

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

12TH STREET ROAD DIET

FROM SAWMILL ROAD TO I-40 EB FRONTAGE ROAD

City Project No. 718780

FINAL DRAINAGE REPORT

Prepared for

City of Albuquerque

Department of Municipal Development

June 18, 2024

Prepared by

WHPacific
AN NV5 COMPANY

6501 Americas Parkway NE, Suite 400
Albuquerque, NM 87110
T 505.247.0294

www.nv5.com

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED

DATE: 07/03/24
BY: Renée C. Brissette
HydroTrans # H13D120

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.

ONE ALBUQUERQUE municipal development

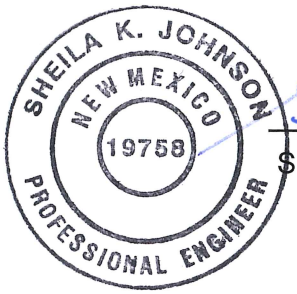
SIGNATURE PAGE

12TH STREET ROAD DIET

FROM SAWMILL ROAD TO I-40 EB FRONTAGE ROAD

Final Drainage Report

I, Sheila K. Johnson, hereby certify that I am a Registered Professional Engineer, registered in the state of New Mexico, and that the following report was prepared by me or under my direction and is true and correct to the best of my knowledge and belief.



Sheila K. Johnson, PE NMPE No. 19758

19 June 2024

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APPENDIX

1.0 INTRODUCTION

This project is located within the historic Sawmill Area in the northwest quadrant of the City of Albuquerque (City), New Mexico as shown in Figure 1. The project begins approximately 50-feet south of the intersection of 12th Street and Sawmill Road, extending north approximately 0.476 miles to the east bound Frontage Road. Within the project, 12th Street is classified as a Minor Arterial by the Mid-Region Council of Governments (2021), and it crosses local connector streets Bellamah Avenue and Aspen Road. The site layout is shown in Figure 2. The roadway currently provides access to businesses and is a link from I-40 to the residential area south of Sawmill Road.

The City Department of Municipal Development (DMD) has identified this project as an opportunity to meet the City's Complete Streets Ordinance and mitigate speed conflicts, as well as provide an option for safe transportation choices for commuter and daily travel needs within the area. This drainage analysis is in support of the roadway project. The intent is to improve roadway drainage, and to the extent possible considering the limitations of the existing area wide storm drain system, bring the local drainage system into compliance with the City Drainage Requirements.

Figure 1: Project Vicinity Map

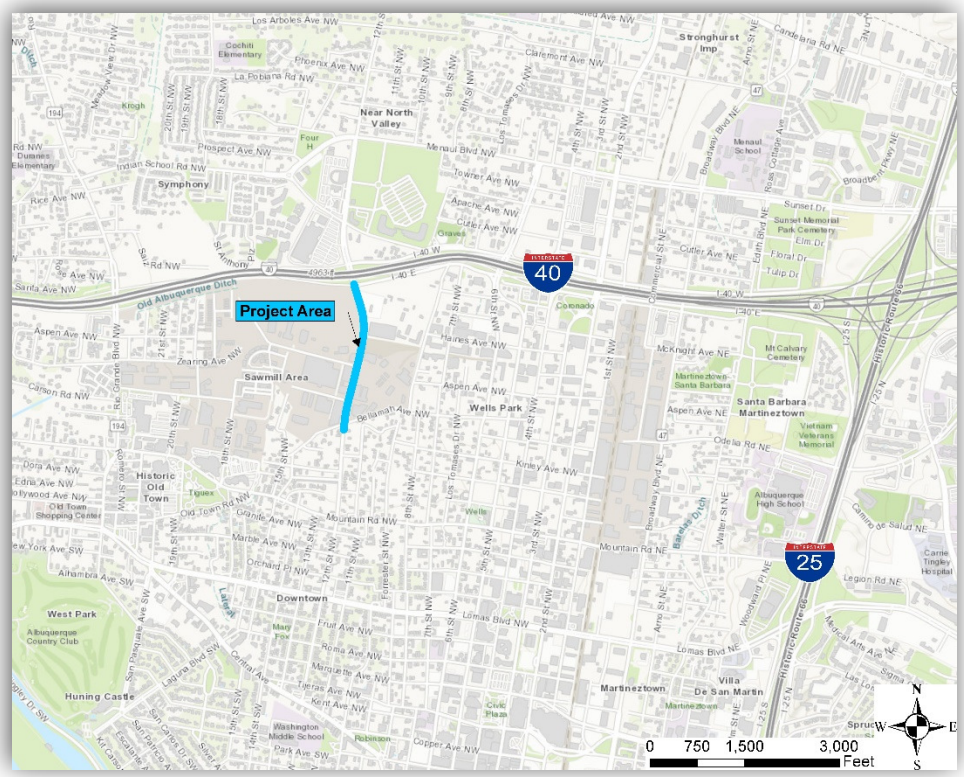


Figure 2: Local Vicinity Map

2.0 DRAINAGE CRITERIA

Drainage analysis for this project follows the procedures outlined in Chapter 6 of the City of Albuquerque, Development Process Manual, June 8, 2020 (DPM). Existing and proposed drainage conditions for the site were evaluated for the 10-year and 100-year storm events.

The local storm drain system consists of many small diameter lines of varying size and material and drop inlets that do not match the current DPM criteria. This is true of both the project system and the downstream outfall system so meeting City requirements for hydraulic grade line (HGL), spread, and depth is challenging or impossible in many locations.

Bringing the downstream system up to the current City standards is well beyond the scope of this project. Based on agreement with the City Staff, due to the limitations of the existing system outfall and similarly to the way drainage improvements associated with new developments in the area are being accomplished, it was decided this project will connect to the existing storm drain system using City standard drop inlets, but HGL, depth, and spread are dependent on the downstream system and do not strictly meet the requirements of the City drainage criteria.

12th Street is heavily used and the City wishes to have minimal traffic disruption with the project – both in construction time and construction traffic control closures. To this end, lateral lines will not be fully replaced. Instead of replacing the lateral line from the new, relocated inlet to the existing manhole, a junction box will be placed on the existing lateral to tie the new inlet to the existing manhole. In this way, trenching can be kept within the driving lane adjacent to the curb.

The existing storm drain is located in the center of 12th Street which would entail much more restrictive traffic control.

3.0 EXISTING DRAINAGE ANALYSIS

3.1. EXISTING SITE CONDITIONS

The terrain in and around the 12th Street corridor is extremely flat and stormwater tends to pond in any available low area. Drainage is accomplished via an existing storm drain that flows south to Sawmill Road then turns eastward within Sawmill Road. Adjacent properties drain to the 12th Street storm drain. The Sawmill Road storm drain is the outfall for this project. Figure 3, shown in the Appendix, is an Existing Conditions Drainage Map showing drainage basins and the location of the existing storm drain, manholes, and drop inlets.

The project is within an older part of Albuquerque and record drawings, drainage reports, or drainage analyses are not available for the original system. The only drainage reports or record drawings available are for recent developments that connect to the system. Existing storm drain information is primarily based on the project field survey and data gleaned from the 2002 City Facilities Maps. These maps indicated that many of the lines and drop inlets were built in the late 1960's or possibly earlier (noted as "no record" in City Facility Maps).

As noted in the project survey, the existing storm drain lines are a variety of sizes and materials. The trunk line pipe sizes vary from 12-inch, 14-inch, 18-inch and 24-inch pipes. Lateral lines in some cases were constructed as 8-inches. Pipe materials throughout the project consist of reinforced concrete pipe (RCP), asbestos cement pipe (AC), ductile iron pipe (DI), wrapped steel, or other unknown pipe materials. Drop inlets in the project vary in size and type depending on the era in which they were constructed. Most are not City standard inlets and many are quite small and clogged with sediment or debris.

Referring to Figure 3, Basins 11 and 13 drain to drop inlets located just north of the railroad crossing and from there to the drainage ditch parallel to the railroad and that drains eastward. The remaining basins, 03-10 and basin 15, all drain to the 12th Street storm drain as shown in Figure 3. The 12th Street storm drain main line will remain in its current condition but drop inlets will be replaced and relocated to match the City roadway improvement project.

Drainage improvements have recently been designed for a City project in Bellamah Avenue adjacent to this project (City Project No. 7703.72 – 60% plans and a Preliminary Drainage Report have been submitted). Runoff from the Bellamah Avenue project drains to the 12th Street storm drain. Basins labeled 1R through 3R and 5R through 8R were carried over from the Bellamah Avenue report and are shown on Figure 3. Runoff from the Bellamah Avenue basins is collected in the Bellamah storm drain approximately 4000 feet west of 12th Street in a small sag. The Bellamah storm drain connects into 12th Street and runoff from Bellamah is included in the stormwater calculations for the 12th Street storm drain.

A site visit was held on April 27, 2021 with City Staff and WHPacific project staff to review and confirm existing conditions. At this meeting, it was acknowledged that it is unlikely the downstream system has the capacity to pass the design storms and does not meet the City's standard drainage criteria.

HYDROLOGIC ANALYSIS

All drainage basins are less than 40-acres and consist nearly entirely of impervious area and 100% land treatment D has been used throughout. All of the basins are within Zone 2 and a minimum time of concentration of 12 minutes was used. Rational Equation performed within Bentley OpenFlows StormCAD Connect Edition Update 4 (StormCAD) was used to determine peak flow rates. A catchment report showing the parameters used in StormCAD and the results is included in the Appendix. Hydrology performed for the Bellamah Avenue roadway project is also included in the Appendix.

The proposed condition is the same as existing; some inlets will be adjusted to match a proposed low point, adjusted away from a handicap ramp, or an additional inlet added. However, the high points and basin limits are identical in the existing and proposed conditions and both are fully land treatment D, so a separate hydrologic analysis for the proposed condition was not done. Table 1 below shows the basin areas and peak flow rates for basins developed in this analysis and those developed in the Bellamah Avenue analysis. Detailed information is provided in the Appendix.

Table 1: Existing / Proposed Condition Peak Runoff

Basin ID	Area (acres)	10-year Peak Discharge (cfs)	100-year Peak Discharge (cfs)
1	0.50	1.34	2.15
2	0.58	1.57	2.51
3	2.75	7.46	11.95
4	0.61	1.65	2.65
5	0.89	2.41	3.86
6	0.66	1.79	2.87
7	1.69	4.57	7.32
8	1.90	5.16	8.26
9	1.86	5.03	8.06
10	2.19	5.92	9.49
11	1.14	3.10	4.96
12	Not Used		
13	3.36	9.12	14.60
14	3.27	8.87	14.21
15	3.25	8.79	14.08
1R	2.22	6.02	9.63
2R	4.31	11.68	18.70
3R	3.66	9.92	15.88
5R	0.10	0.27	0.44
6R	0.05	0.14	0.23
7R	0.31	0.85	1.37
8R	1.93	5.23	8.38

EXISTING HYDRAULICS

A hydraulic analysis of the storm drain line was modeled in StormCAD. One model was used for both the existing and proposed conditions. The main storm drain line and lateral sizes do not change with the proposed conditions. In addition to non-uniform pipe sizes and materials, the inlets within the project are small with small grates typical of inlets installed in older sections of Albuquerque prior to the use of City standard inlets.

Downstream conditions are unknown for the existing storm drain line in 12th Street and the downstream starting point for the model was set at the top of pipe in 12th Street.

The results of the analysis indicate the existing system is significantly undersized for the 10-year storm and severely undersized for the 100-year storm. Stormwater ponds on the streets until it can eventually drain. Within the gutter, flowline water is intercepted by intermediate inlets and the remaining stormwater settles and forms ponds at the inlets located in roadway sags. Since the storm drain pipes cannot convey the design storm flowrate, the time to drain and depth of

ponding at these locations is controlled by the downstream capacity of the storm drain system and runoff slowly drains out of the system as the downstream pipes drain. Anecdotal information from an area resident noted that stormwater that ponds at the drop inlets can last 24-hours or longer.

The analysis is therefore based on depth and spread within the street and containing the design storm within the curb or right of way.

Hydraulic results are shown in the Appendix – including a table with depth, spread, and velocity.

4.0 PROPOSED DRAINAGE ANALYSIS

The proposed roadway improvements will include narrowing of the roadway width while providing driving lanes and bicycle lanes in each direction. The proposed drainage system is very similar to the existing system. While the main line and lateral line are the same, drop inlets are proposed at the low points and on grade as needed, generally replacing the existing inlets, but adjusted to match the new roadway width and configuration. Current City standard structures are used to replace the existing inlets. Flow line elevations remained essentially the same in order to properly tie to the existing development.

A Proposed Condition Drainage Map is shown on Figure 4, included in the Appendix, indicating new drop inlets and line extensions schematically. Construction plans, at 90% completion, have been submitted to the City for review. The drainage system sheets are shown in the Appendix. Bellamah Avenue construction plans have been taken to the 60% completion stage and the storm drain sheets from these construction plans are also included in the Appendix.

The current storm drain main line is shallow (manhole depth varying from approximately 3-feet to 4.8 feet) and the resulting pipe cover is very shallow. This makes it impossible in some locations to achieve a minimum cover of 1-foot if using City minimum pipe size of 24-inch.

In the previous Bellamah Avenue Extension project (City Project No. 7703.72), the shallow cover available for a gravity storm drain was discussed with the City Maintenance Supervisor. WHPacific explained that the cover requirement could not be met using the City minimum pipe size of 24-inch diameter, and what was maintenance's opinion on using arch pipe versus smaller capacity round pipe.

He noted that while the many varied pipe sizes and materials that exist in this older part of town can occasionally be a challenge, the City maintenance crews are able to maintain and clean the storm drain. He recommended that we select the best option for the project and maintenance crews would work with it, however, round pipes are less costly and easier to obtain for both pipe and fittings and preferred over arch pipes.

Pipe class calculations were made, and as a result, all new lateral pipes will be round, Class IV Reinforced Concrete Pipe (RCP) and match the size of the downstream connector pipe.

The proposed lateral pipes connect to the existing lateral lines using a prefabricated junction box. This was done for the following reasons:

- To avoid many of the utility conflicts and required relocations that would arise from placing a new lateral line from a new, relocated drop inlet to the existing manhole in the center of the street. There are numerous existing utilities throughout the area.
- To avoid the complications for traffic during construction due to a trench extending to the center of the street. Several of the existing manholes are not only in the center of 12th Street, but also at the center intersections, thereby impacting Sawmill Road and Bellamah Avenue or Aspen Road.
- The construction time frame would also be lengthened if the laterals were extended to the center manholes.

PROPOSED HYDRAULIC ANALYSIS

The storm drain performance was modeled using StormCAD. Due to the unknown conditions in the outfall system, the hydraulic grade line was set at the top of pipe at the connecting existing manhole in 12th Street for the downstream control. Street velocity and depth, and spread were calculated using the proposed street section. Typically, the street cross slope will be 2% or greater in some places, and the longitudinal street slope varies from approximately 0.2% to 0.5%.

Results from the StormCAD model indicate the system is undersized for both the 10-year and 100-year storm events and the pipe conditions are surcharged. The HGL calculated by the model rises unrealistically high in the pipes, although it resets at the manholes. While this situation is not realistic as the stormwater would pond at the drop inlets rather than enter the pipes, it indicates that the system is overwhelmed in a large storm. Depth and spread were calculated within StormCAD to determine if the storm water depth would be contained within the curb. Depth and spread are calculated prior to any capture of stormwater by the drop inlets which would indicate a worst-case condition, representing the existing main line system being surcharged to the point that no inflow is accepted, however as the existing system in 12th Street drains, the storm runoff within the project area will drain out.

The StormCAD results show the spread is wider than allowable by City drainage criteria and the stormwater will pond at the sag inlets, but the 10-year storm will be contained within the 8-inch curb. In general, the 100-year storm will also be contained within the curb, with an exception at existing inlet CDI-10 north of Bellamah Avenue in which the 100-year ponding depth exceeds the curb height but is contained within the right of way. The StormCAD results for the 10-year and 100-year storms are included in the Appendix, shown in conduit, inlet, and manhole tables, including depth and spread.

5.0 CONCLUSION

The intent of the proposed drainage system planned for this project is to upgrade the older, smaller, non-standard drop inlets to the current City standard structures. The proposed inlet locations are similar to the existing but adjusted to match the narrowed road.

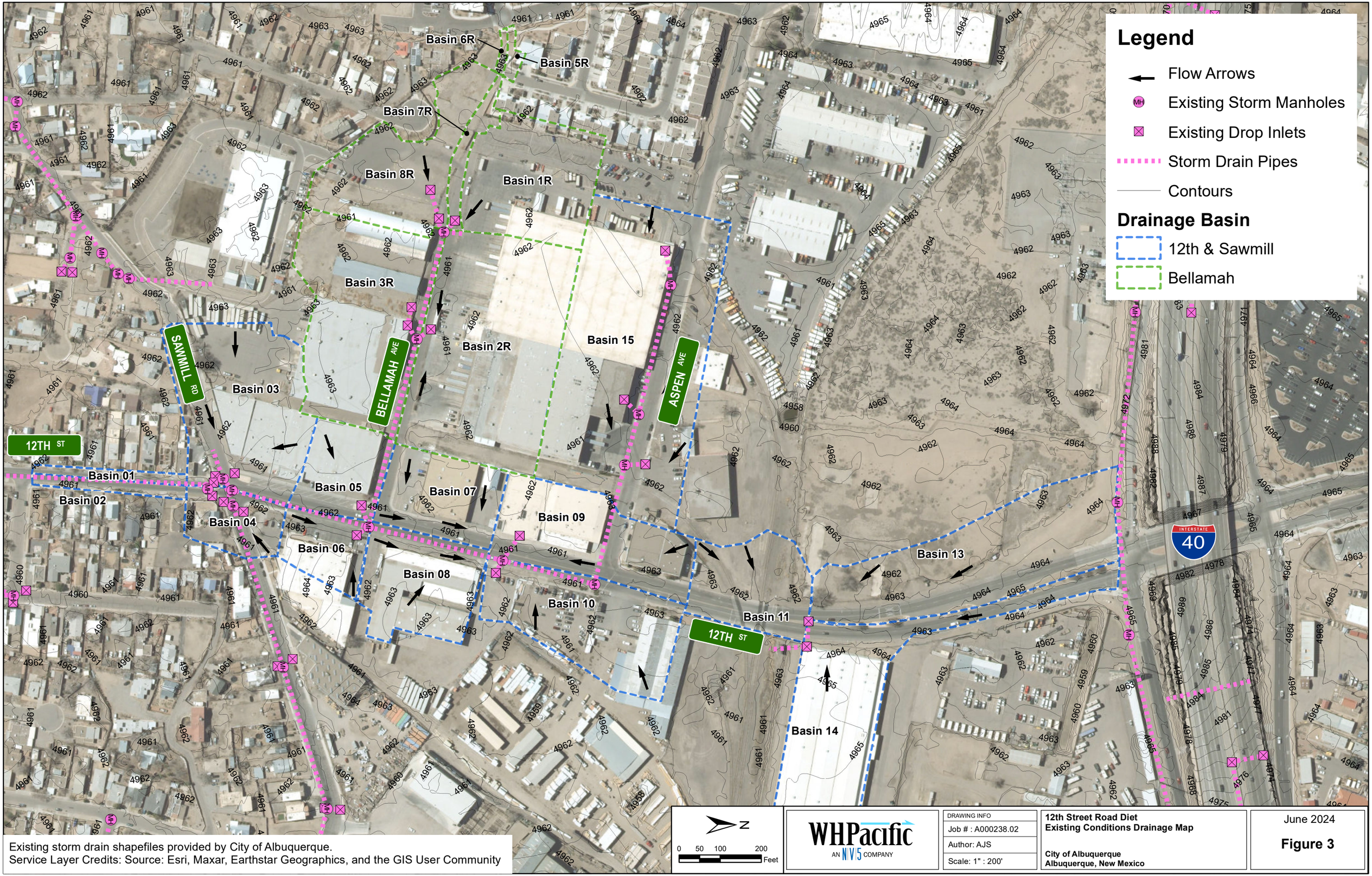
The outfall for the system is the storm drain line in Sawmill Road draining eastward. This line does not have capacity for the existing flow rates reaching it. The entire area is paved or impervious, so even in areas where the actual roadway width is narrower, the flow rates remain the same in proposed conditions as in the existing.

The new system will allow the storm runoff to pond and drain out as the downstream system allows. Ten-year water depths in the gutter do not exceed the 8-inch curb height, and the 100-year water depths in the gutter do not exceed the right of way (although much of the 100-year is contained within the 8-inch curbs). The spread does not meet City criteria for 10- or 100-year storms.

6.0 REFERENCES

- City of Albuquerque, Development Process Manual (DPM), June 8, 2020
- Bellamah Avenue Extension Preliminary Drainage Report City Project No. 7703.72, prepared by WHPacific, an NV5 Company, July 2022.

FIGURES



Existing storm drain shapefiles provided by City of Albuquerque.
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

WHPacific
AN NV5 COMPANY

DRAWING INFO
Job # : A000238.02
Author: AJS
Scale: 1" : 200'

12th Street Road Diet
Existing Conditions Drainage Map

City of Albuquerque
Albuquerque, New Mexico

June 2024

Figure 3

Legend

- Proposed Drop Inlets
- Proposed Storm Manhole
- Proposed Storm Drain Pipes
- Flow Arrows
- Existing Storm Manholes
- Existing Drop Inlets
- Existing Storm Drain Pipes
- Contours

Drainage Basins

- 12th & Sawmill
- Bellamah

Basin 6R
Basin 5R
Basin 7R
Basin 8R
Basin 1R
Basin 3R
Basin 2R
Basin 15
Basin 03
Basin 01
Basin 02
Basin 04
Basin 05
Basin 07
Basin 06
Basin 09
Basin 08
Basin 10
Basin 11
Basin 13
Basin 14

SAWMILL RD
BELLAMAH AVE
ASPEN AVE
12TH ST
INTERSTATE 40

Existing storm drain shapefiles provided by City of Albuquerque.
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

N

0 50 100 200 Feet

WHPacific
AN NV5 COMPANY

DRAWING INFO
Job # : A000238.02
Author:
Scale: 1" : 200'

12th Street Road Diet
Proposed Conditions Drainage Map

City of Albuquerque
Albuquerque, New Mexico

June 2024

Figure 4

APPENDIX

Land Treatment information from DPM 2020

Project Name: ***12th and Sawmill*** ***Analysis:*** ***Hydrology***
WHP Project No: ***229022-A000238.02***
City Project No: ***7150-593***
Site Location: ***Albuquerque, NM***

The following table is from DPM 2020

Section 6-2(A)(2) Land Treatments

All land areas are described by one of four basic land treatments or by a combination of the four land treatments. Land treatments are provided in TABLE 6.2.9.

TABLE 6.2.9 **Land Treatments**

Treatment	Land Condition
A (CN=77)	Soil uncompacted by human activity with 0 to 10% slopes. Native grasses, weeds, and shrubs in typical densities with minimal disturbance to grading, ground cover, and infiltration capacity.
B (CN=79)	Irrigated lawns, parks and golf courses with 0 to 10% slopes. Native grasses, weeds and shrubs, and soil uncompacted by human activity with slopes greater than 10% and less than 20%.
C (CN=86)	Soil compacted by human activity. Minimal vegetation. Unpaved parking, roads, trails. Most vacant lots. Gravel or rock (desert landscaping). Irrigated lawns and parks with slopes greater than 10%. Native grasses, weeds and shrubs, and soil uncompacted by human activity with slopes at 20%or greater. Native grass, weed and shrub areas with clay or clay loam soils, and other soils of very low permeability as classified by SCS Hydrologic Soil Group D.
D (CN=98)	Impervious areas, pavement, and roofs. Ponds, channels, and wetlands, even if seasonally dry.

Most watersheds contain a mix of land treatments. To determine proportional treatments, measure respective subareas. For large developed basins, the areal percentages in TABLE 6.2.10 may be used instead of specific measurement for treatment D.

TABLE 6.2.10 **Percent Treatment D (Impervious)**

Land Use	Percent
Commercial*	90
Single Family Residential N=units/acre, N≤6	$7*[(N^2) + (5N)]^{0.5}$
Multiple Unit Residential	
Detached*	60
Attached*	70
Industrial	
Light*	70
Heavy*	80
Parks, Cemeteries	7
Playgrounds	13
Schools	50
Collector & Arterial Streets	90

**Includes local streets*

TABLE 6.2.10 does not provide areal percentages for land treatments A, B, and C. Use of TABLE 6.2.10 will require additional analysis to determine the appropriate areal percentages of these land treatments.

Catchment - 100-year - Rational Equation within StormCAD

ID	Label	Outflow Element	Area (User Defined) (acres)	Runoff Coefficient (Rational)	Time of Concentration (hours)	Catchment Intensity (in/h)	Flow (Total Out) (cfs)	Notes
239	Basin-03B	DI-4	1.429	0.9	0.2	4.808	6.23	Basin 03x0.5
240	Basin-03A	CDI-2	1.429	0.9	0.2	4.808	6.23	Basin 03x0.5
241	Basin-04B	CDI-5	0.39	0.9	0.2	4.808	1.7	Basin-04A x 0.5
242	Basin-04A	CDI-3	0.39	0.9	0.2	4.808	1.7	Basin-04A x 0.5
243	Basin-01	CDI-1	0.209	0.9	0.2	4.808	0.91	
244	Basin-06	CDI-7	0.774	0.9	0.2	4.808	3.38	
245	Basin-05A	CDI-6	0.507	0.9	0.2	4.808	2.21	Basin-05A x 0.5
246	Basin-05B	CDI-8	0.507	0.9	0.2	4.808	2.21	Basin-05A x 0.5
247	Basin-08+10	CDI-10	3.833	0.9	0.2	4.808	16.72	
248	Basin-07+09	EX-CDI-10	3.416	0.9	0.2	4.808	14.9	
249	Basin-15	CDI-11	0.813	0.9	0.2	4.808	3.54	Basin 15 x 0.25
250	Basin-13	CDI-12	3.362	0.9	0.2	4.808	14.66	
251	Basin-14	CDI-13	2.93	0.9	0.2	4.808	12.78	
256	Basin-02	EX-CDI-01	0.261	0.9	0.2	4.808	1.14	
278	Basin-2R B	CB-6	1.077	0.9	0.2	4.808	4.7	Basin-2R X 0.25
279	Basin-2R A	CB-5	2.154	0.9	0.2	4.808	9.4	Basin-2R X 0.5
280	Basin-3R B	CB-8	1.646	0.9	0.2	4.808	7.18	Basin-3R X 0.5
281	Basin-3R A	CB-7	1.646	0.9	0.2	4.808	7.18	Basin-3R X 0.5
282	Basin-2R C	CB-Basin-2R C	1.077	0.9	0.2	4.808	4.7	Basin-2R X 0.25
283	Basin-1R	CB-9	2.04	0.9	0.2	4.808	8.9	
284	Basin-7R	CB-10	0.327	0.9	0.2	4.808	1.43	
285	Basin-8R	CB-11	1.98	0.9	0.2	4.808	8.64	
292	Basin-15 A	StartNullStruct16	2.438	0.9	0.2	4.808	10.63	Basin 15 x 0.75

Catchment - 10-year - Rational Equation within StormCAD

ID	Label	Outflow Element	Area (User Defined) (acres)	Runoff Coefficient (Rational)	Time of Concentration (hours)	Flow (Total Out) (cfs)	Notes
239	Basin-03B	DI-4	1.429	0.9	0.2	3.91	Basin 03x0.5
240	Basin-03A	CDI-2	1.429	0.9	0.2	3.91	Basin 03x0.5
241	Basin-04B	CDI-5	0.39	0.9	0.2	1.07	Basin-04A x 0.5
242	Basin-04A	CDI-3	0.39	0.9	0.2	1.07	Basin-04A x 0.5
243	Basin-01	CDI-1	0.209	0.9	0.2	0.57	
244	Basin-06	CDI-7	0.774	0.9	0.2	2.12	
245	Basin-05A	CDI-6	0.507	0.9	0.2	1.39	Basin-05A x 0.5
246	Basin-05B	CDI-8	0.507	0.9	0.2	1.39	Basin-05A x 0.5
247	Basin-08+10	CDI-10	3.833	0.9	0.2	10.49	
248	Basin-07+09	EX-CDI-10	3.416	0.9	0.2	9.35	
249	Basin-15	CDI-11	0.813	0.9	0.2	2.22	Basin 15 x 0.25
250	Basin-13	CDI-12	3.362	0.9	0.2	9.2	
251	Basin-14	CDI-13	2.93	0.9	0.2	8.02	
256	Basin-02	EX-CDI-01	0.261	0.9	0.2	0.71	
278	Basin-2R B	CB-6	1.077	0.9	0.2	2.95	Basin-2R X 0.25
279	Basin-2R A	CB-5	2.154	0.9	0.2	5.89	Basin-2R X 0.5
280	Basin-3R B	CB-8	1.646	0.9	0.2	4.5	Basin-3R X 0.5
281	Basin-3R A	CB-7	1.646	0.9	0.2	4.5	Basin-3R X 0.5
282	Basin-2R C	CB-Basin-2R C	1.077	0.9	0.2	2.95	Basin-2R X 0.25
283	Basin-1R	CB-9	2.04	0.9	0.2	5.58	
284	Basin-7R	CB-10	0.327	0.9	0.2	0.89	
285	Basin-8R	CB-11	1.98	0.9	0.2	5.42	
292	Basin-15 A	StartNullStruct16	2.438	0.9	0.2	6.67	Basin 15 x 0.75

10 & 100-Year Discharge for Small Watersheds - Proposed

Project Name: ***Bellamah Avenue Extension*** ***Analysis:*** ***Hydrology***
Project No: ***CCN20200896***
Site Location: ***Albuquerque, NM***

Zone2, 10 YR - USES A TIME OF CONCENTRATION OF 12 MINUTES

BASIN	Treatment	q(cfs/acre)	A (sq ft)	A (acres)	Q (cfs)	
1R	D	2.71	96705	2.22	6.02	
2R	D	2.71	187676	4.31	11.68	
3R	D	2.71	159397	3.66	9.92	
~~4R~~	~~D~~	~~2.71~~	~~46914~~	~~1.08~~	~~2.92~~	Basin drains out of project - Removed
5R	D	2.71	4416	0.10	0.27	
6R	D	2.71	2297	0.05	0.14	
7R	D	2.71	13709	0.31	0.85	
8R	D	2.71	84140	1.93	5.23	

Zone2, 100 YR - USES A TIME OF CONCENTRATION OF 12 MINUTES

BASIN	Treatment	q(cfs/acre)	A (sq ft)	A (acres)	Q (cfs)	
OFFSITE	D	4.34	481995	11.07	48.02	
1R	D	4.34	96705	2.22	9.63	
2R	D	4.34	187676	4.31	18.70	
3R	D	4.34	159397	3.66	15.88	
~~4R~~	~~D~~	~~4.34~~	~~46914~~	~~1.08~~	~~4.67~~	Basin drains out of project - Removed
5R	D	4.34	4416	0.10	0.44	
6R	D	4.34	2297	0.05	0.23	
7R	D	4.34	13709	0.31	1.37	
8R	D	4.34	84140	1.93	8.38	

Section 6-2(A)(5) **Peak Discharge Rate for Small Watersheds**

The peak discharge rate is given in TABLE 6.2.14 for small watersheds, less than or equal to 40 acres, where the time of concentration is assumed to be 12 minutes.

TABLE 6.2.14 **Peak Discharge**

Zone	Land Treatment			
	A	B	C	D
100-YEAR PEAK DISCHARGE (CSF/ACRE)				
1	1.54	2.16	2.87	4.12
2	1.71	2.36	3.05	4.34
3	1.84	2.49	3.17	4.49
4	2.09	2.73	3.41	4.78
2-YEAR PEAK DISCHARGE (CSF/ACRE)				
1	0.00	0.02	0.50	1.56
2	0.00	0.08	0.61	1.66
3	0.00	0.15	0.71	1.73
4	0.00	0.28	0.87	1.88
10-YEAR PEAK DISCHARGE (CSF/ACRE)				
1	0.30	0.81	1.46	2.57
2	0.41	0.95	1.59	2.71
3	0.51	1.07	1.69	2.81
4	0.70	1.28	1.89	3.04

To determine the peak rate of discharge,
1. Determine the area in each treatment, A_A, A_B, A_C, A_D
2. Multiply the peak rate for each treatment by the respective areas and sum to compute the total Q_P.

EQUATION 6.6 **Total Q_P** = $Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

From DPM 2020

Catch Basins - 10-year

ID	Label	Inlet	Elevation (Invert) (ft)	Length (ft)	Width (ft)	Carryover Rational Flow (cfs)	Total Rational Flow to Inlet (cfs)	Capture Efficiency (Calculated) (%)	Flow (Total Bypassed) (cfs)	Bypass Target	Spread / Top Width (ft)	Depth (Gutter) (in)	Notes	Hydraulic Grade Line (In) (ft)	Maximum Spread (ft)
191	CDI-6	TYPE D Double	4,959.00			0	1.39	100	0	CDI-8	10.2	2.4	TYPE D	4,961.21	8
192	CDI-7	TYPE A Single	4,959.50	3.67	2.95	0	2.12	91.4	0.18	CDI-10	11.9	2.9	TYPE A	4,961.17	8
196	CDI-8	TYPE A Single	4,959.12			0	1.39	100	0		3.8	3.3	TYPE C	4,960.79	8
197	CDI-11	TYPE A Single	4,959.10			0	2.22	90.8	0.2	EX-CDI-10	12.2	2.9	TYPE A	4,961.36	8
198	CDI-5	TYPE A Single	4,959.09			0	1.07	98	0.02		9.2	2.2	TYPE A	4,960.76	8
199	DI-4	TYPE D Double	4,958.55			0	3.91	100	0	CB-13	15	3.6	TYPE D	4,961.67	8
200	CDI-10	TYPE A Single	4,958.75			0.18	10.67	100	0		11.1	6.9	TYPE A	4,960.42	8
201	CDI-3	TYPE A Single	4,958.05			0	1.07	98	0.02		9.2	2.2	TYPE A	4,960.25	8
202	CDI-2	TYPE A Single	4,958.03			0	3.91	82	0.7	CDI-1	15	3.6	TYPE A	4,960.24	8
203	CDI-12	TYPE A Single	4,958.09			0	9.2	66.3	3.1		20.7	5	TYPE A	4,959.19	8
204	CDI-1	TYPE A Single	4,957.75			0.7	1.27	100	0		3.7	3.2	TYPE A	4,959.42	8
205	CDI-13	TYPE A Single	4,957.23			0	8.02	68.9	2.49		19.7	4.7	TYPE A	4,959.00	8
254	EX-CDI-01	TYPE A Single	4,958.14	3.67	2.95	0	0.71	100	0		3	2.6	24 x 24 inch Rec	4,960.67	8
255	EX-CDI-10	TYPE A Single	4,958.74	3.67	2.95	0.2	9.55	100	0		9.9	6.6	24 x 24 inch Rec	4,961.29	8
258	CB-5	TYPE C Single	4,958.83	2.95	2.92	0	5.89	50.9	2.89	CB-6	17.5	4.2		4,960.78	8
259	CB-6	TYPE A Single	4,958.89	3.67	2.95	3.29	6.24	100	0		6.7	5.7		4,960.71	8
260	CB-7	TYPE C Single	4,958.86			0	4.5	54.6	2.04	CB-8	15.9	3.8		4,960.80	8
261	CB-8	TYPE A Single	4,958.86	3.67	2.95	3.33	7.83	100	0		8	6.2		4,960.74	8
270	CB-9	TYPE D	4,959.52	76.75	25.5	0	5.58	100	0		12.8	3.1		4,961.43	8
271	CB-10	TYPE A Single	4,959.41			0	0.89	98.9	0.01	CB-Basin-2R C	8.6	2.1		4,962.10	8
272	CB-11	TYPE A Single	4,959.46			0	5.42	76.2	1.29	CB-8	17	4.1		4,961.86	8
273	CB-Basin-2R C	TYPE A Single	4,959.00			0.01	2.96	86.6	0.4	CB-6	13.5	3.2		4,961.32	8
286	CB-13	TYPE C Single	4,958.15	2.95	2.92	0	0	100	0		0	0		4,961.57	8

Conduit - 10-year

ID	Label	Start Node	Stop Node	Invert (Stop) (ft)	Length (User Defined) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Velocity (ft/s)	Depth (Out) (in)	Capacity (Full Flow) (cfs)	Flow / Capacity (Design) (%)	Capacity (Full Flow) (cfs)	Flow / Capacity (Design) (%)	Notes
158	Pipe - (17)	StartNullStruct16	MH-2	4,959.00	318.00	0.00	12.0	0.013	8.49	30.45	1.13	592	1.13	592	12 inch Concrete Pipe
160	Pipe - (2)	EX-MH-01	NullStruct26	4,957.50	157.10	0.00	18.0	0.013	0	38.48	0.11	0	0.11	0	ED SIZE AND MATERIAL UNKNOWN
162	Pipe - (14)	EX-MH-07	EX-MH-06	4,958.66	236.90	0.00	12.0	0.013	10.76	35.57	1.13	750.4	1.13	750.4	12 inch Corrugated HDPE Pipe
163	Pipe - (10)	Junction Box 5	EX-MH-05	4,958.46		0.01	8.0	0.013	3.84	44.29	1.37	97.9	1.37	97.9	8 inch Corrugated HDPE Pipe
164	Pipe - (11)	Junction Box 6	EX-MH-05	4,958.68		0.03	15.0	0.013	1.54	41.65	11.07	17.1	11.07	17.10	15 inch Corrugated HDPE Pipe
165	Pipe - (15)	EX-MH-06	EX-MH-05	4,958.46	334.50	0.00	8.0	0.013	79.46	44.29	0.22	12,659.30	0.22	12,659.30	15 inch Corrugated HDPE Pipe
166	Pipe - (16)	MH-1	EX-MH-05	4,958.32	412.60	0.00	12.0	0.013	20.56	45.97	2.1	1,534.70	2.1	1,534.70	10 inch Corrugated HDPE Pipe
167	Pipe - (20)	EX-MH-05	EX-MH-02	4,957.03	377.70	0.00	8.0	0.013	177.7	8	0.75	8,228.30	0.75	8,228.30	8 inch Corrugated HDPE Pipe
169	Pipe - (13)	EX-CDI-10	EX-MH-06	4,958.97	39.90	-0.01	12.0	0.013	12.16	31.85	2.7	353.3	2.7	353.3	14" ac
171	Pipe - (9)	Junction Box 3	EX-MH-02	4,957.03		0.05	18.0	0.013	2.17	52.05	23.01	16.7	23.01	16.7	18 inch Concrete Pipe
172	Pipe - (1)	EX-MH-01	EX-MH-02	4,957.27	30.60	0.01	18.0	0.013	1.07	49.17	9.11	20.9	9.11	20.9	18" REINFORCED CONCRETE PIPE
173	Pipe - (4)	Junction Box 1	EX-MH-02	4,957.27	22.70	0.03	18.0	0.013	1.8	49.17	18.18	17.5	18.18	17.5	18 inch Concrete Pipe
174	Pipe - (5)	EX-MH-02	EX-MH-03	4,956.59	89.30	0.01	18.0	0.013	39.87	56.71	7.37	955.4	7.37	955.40	18 inch Concrete Pipe
175	Pipe - (7)	EX-MH-03	O-1	4,956.16	382.30	0.00	24.0	0.013	23.01	23.95	7.13	1,013.70	7.13	1,013.70	24 inch Concrete Pipe
177	Pipe - (3)	EX-CDI-01	EX-MH-01	4,957.50	28.70	0.02	18.0	0.013	0.4	38.48	15.68	4.6	15.68	4.6	18 inch Concrete Pipe
209	Pipe - (34)	CDI-13	O-3	4,956.42	81.30	0.01	18.0	0.013	6.53	15.54	10.48	110.1	10.48	110.1	12 inch Concrete Pipe
212	Pipe - (6)	CDI-5	Junction Box 4	4,959.00	8.20	0.01	12.0	0.013	1.33	27.7	3.77	27.7	3.77	27.7	12 inch Concrete Pipe
213	Pipe - (11)	CDI-7	Junction Box 6	4,959.20	90.30	0.00	12.0	0.013	2.47	30.32	2.07	93.7	2.07	93.7	12 inch Concrete Pipe
214	Pipe - (10)	CDI-8	MH-1	4,958.68	13.30	0.03	12.0	0.013	1.77	35.43	6.49	21.4	6.49	21.4	12 inch Concrete Pipe
215	Pipe - (9)	DI-4	CB-13	4,958.20	58.70	0.01	18.0	0.013	2.21	40.44	8.11	48.2	8.11	48.2	18 inch Concrete Pipe
216	Pipe - (10) (1)	CDI-6	Junction Box 5	4,958.89	41.30	0.00	18.0	0.013	0.78	32.04	5.44	25.5	5.44	25.5	18 inch Concrete Pipe
217	Pipe - (22)	CDI-11	MH-2	4,959.07	10.30	0.00	12.0	0.013	2.57	29.61	1.92	105.1	1.92	105.1	12 inch Concrete Pipe
218	Pipe - (8)	CDI-3	Junction Box 2	4,957.82	15.00	0.02	18.0	0.013	0.59	40.07	12.89	8.1	12.89	8.1	18 inch Concrete Pipe
219	Pipe - (12)	CDI-10	Junction Box 7	4,958.68	5.80	0.01	12.0	0.013	13.58	29.52	3.89	274.2	3.89	274.2	12 inch Concrete Pipe
220	Pipe - (4)	CDI-2	Junction Box 1	4,957.95	28.90	0.00	18.0	0.013	1.82	38.12	5.72	56.1	5.72	56.1	18 inch Concrete Pipe
221	Pipe - (33)	CDI-12	CDI-13	4,957.33	76.70	0.01	18.0	0.013	6.14	20	10.46	58.4	10.46	58.4	12 inch Concrete Pipe
224	CO-1	CDI-1	EX-MH-01	4,957.27		0.06	12.0	0.013	1.62	41.24	8.59	14.8	8.59	14.8	
225	CO-2	Junction Box 4	EX-MH-03	4,956.54		0.12	18.0	0.013	0.59	57.31	36	2.9	36	2.9	
226	CO-3	Junction Box 2	EX-MH-03	4,956.54		0.08	18.0	0.013	0.58	57.31	28.9	3.6	28.9	3.60	
227	CO-4	EX-MH-08	MH-1	4,958.68		0.00	12.0	0.013	19.95	35.43	1.59	1,970.50	1.59	1,970.50	
228	CO-5	Junction Box 7	EX-MH-06	4,958.59		0.01	12.0	0.013	13.58	36.41	2.99	356.8	2.99	356.8	
229	CO-6	MH-2	EX-MH-07	4,958.90		0.00	12.0	0.013	10.81	38.33	1.42	599.3	1.42	599.3	
262	CO-7	CB-6	CB-5	4,958.86		0.00	12.0	0.013	7.94	23.04	1.04	600.8	1.04	600.80	
263	CO-8	CB-5	EX-MH-08	4,958.85		0.00	12.0	0.013	11.73	27.48	0.71	1,303.10	0.71	1,303.10	
264	CO-9	CB-8	CB-7	4,958.86		0.00	12.0	0.013	9.98	23.28	1.04	755.1	1.04	755.10	
265	CO-10	CB-7	EX-MH-08	4,958.85		0.00	12.0	0.013	13.08	27.48	0.95	1,082.60	0.95	1,082.60	
267	CO-11	MH-2	EX-MH-08	4,958.85		0.00	12.0	0.013	8.18	27.48	1.76	728.5	1.76	728.5	
269	CO-12	MH-3	MH-2	4,959.00		0.00	12.0	0.013	6.71	32.4	3.3	319	3.3	319	
274	CO-13	CB-9	CB-10	4,959.41		0.00	12.0	0.013	7.11	32.28	1.99	280	1.99	280	
275	CO-14	CB-10	MH-3	4,959.42		0.00	12.0	0.013	8.21	36.6	1.9	338.8	1.9	338.8	
276	CO-15	CB-11	MH-3	4,959.42		0.00	12.0	0.013	5.26	36.6	1.85	223.7	1.85	223.7	
277	CO-16	CB-Basin-2R C	MH-2	4,959.00		0.00	12.0	0.013	3.26	32.4	0.75	340.7	0.75	340.7	
287	CO-17	CB-13	Junction Box 3	4,958.15		0.01	12.0	0.013	4.9	37.49	2.46	156.4	2.46	156.4	

Manholes - 10-year

ID	Label	Set Rim to Ground Elevation?	Elevation (Rim) (ft)	Bolted Cover?	Entrance Loss Control Type	Elevation (Invert in 1) (ft)	Elevation (Invert Out) (ft)	Flow (Total Out) (cfs)	Depth (Out) (in)	Hydraulic Grade Line-In (ft)	Hydraulic Grade Line-Out (ft)	Headloss Method	Notes
140	EX-MH-07	TRUE	4,962.09	FALSE	Outlet Control	4,958.90	4958.90	8.45	38.33	4,962.09	4,962.09	HEC-22 Energy (Third Edition)	72 inch dia
141	EX-MH-05	TRUE	4,962.15	FALSE	Outlet Control	4,958.46	4958.50	62.03	46.21	4,962.15	4,962.15	HEC-22 Energy (Third Edition)	72 inch dia
143	EX-MH-06	TRUE	4,961.62	FALSE	Outlet Control	4,958.66	4958.57	27.74	36.65	4,961.62	4,961.62	HEC-22 Energy (Third Edition)	72 inch dia
146	EX-MH-02	TRUE	4,961.37	FALSE	Outlet Control	4,957.03	4957.03	70.45	52.05	4,961.37	4,961.37	HEC-22 Energy (Third Edition)	48 inch dia
147	EX-MH-03	TRUE	4,961.32	FALSE	Outlet Control	4,956.59	4956.54	72.3	57.31	4,961.32	4,961.32	HEC-22 Energy (Third Edition)	72 inch dia
151	EX-MH-01	TRUE	4,960.71	FALSE	Outlet Control	4,957.50	4957.50	1.9	41.24	4,960.71	4,960.71	HEC-22 Energy (Third Edition)	48 inch dia
157	EX-MH-08	TRUE	4,961.14	FALSE	Outlet Control	4,958.85	4958.85	31.33	27.48	4,961.14	4,961.14	HEC-22 Energy (Third Edition)	72 inch dia
185	Junction Box 4	TRUE	4,961.77	FALSE	Outlet Control	4,959.00	4958.59	1.04	32.68	4,961.32	4,961.32	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
186	Junction Box 6	TRUE	4,961.73	FALSE	Outlet Control	4,959.20	4959.20	1.89	30.32	4,961.73	4,961.73	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
187	MH-1	TRUE	4,961.63	FALSE	Outlet Control	4,958.68	4958.68	32.3	35.43	4,961.63	4,961.63	HEC-22 Energy (Third Edition)	4FT DIA TYPE C SDMH
188	Junction Box 3	TRUE	4,961.60	FALSE	Outlet Control	4,958.15	4958.15	3.84	39.16	4,961.42	4,961.41	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
189	Junction Box 5	TRUE	4,961.56	FALSE	Outlet Control	4,958.89	4958.89	1.34	37.19	4,961.56	4,961.56	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
190	MH-2	TRUE	4,961.54	FALSE	Outlet Control	4,959.00	4959.00	8.49	30.45	4,961.54	4,961.54	HEC-22 Energy (Third Edition)	4FT DIA TYPE C MH
193	Junction Box 2	TRUE	4,961.16	FALSE	Outlet Control	4,957.82	4957.82	1.03	40.07	4,961.16	4,961.16	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
194	Junction Box 7	TRUE	4,961.14	FALSE	Outlet Control	4,958.68	4958.68	10.67	29.52	4,961.14	4,961.14	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
195	Junction Box 1	TRUE	4,961.12	FALSE	Outlet Control	4,957.95	4957.95	3.18	38.2	4,961.12	4,961.12	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
266	MH-2	TRUE	4,961.70	FALSE	Outlet Control	4,959.00	4959.00	12.85	32.4	4,961.70	4,961.70	HEC-22 Energy (Third Edition)	
268	MH-3	TRUE	4,962.47	FALSE	Outlet Control	4,959.42	4959.42	10.54	36.6	4,962.47	4,962.47	HEC-22 Energy (Third Edition)	

Catch Basins - 100-year

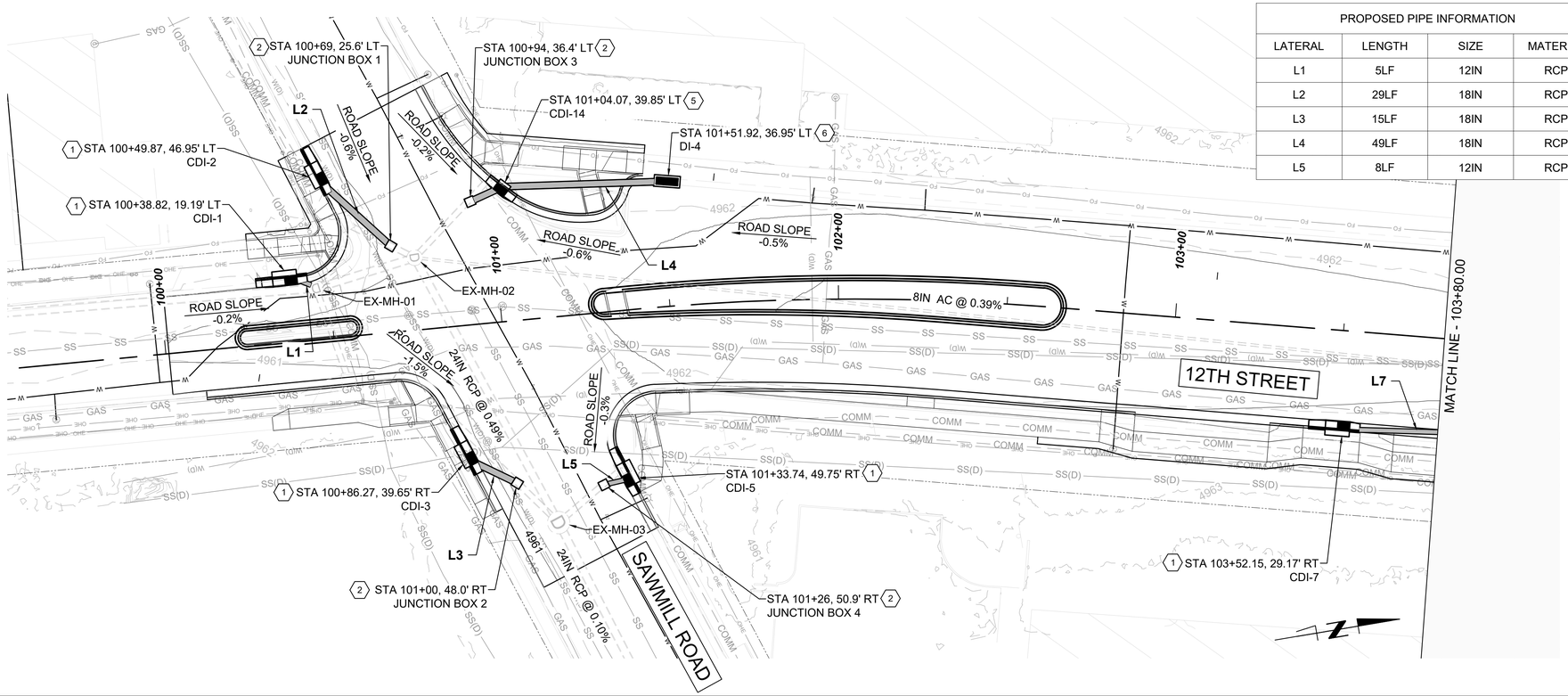
ID	Label	Inlet	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Length (ft)	Width (ft)	Carryover Rational Flow (cfs)	Total Rational Flow to Inlet (cfs)	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Bypass Target	Spread / Top Width (ft)	Depth (Gutter) (in)	Hydraulic Grade Line (In) (ft)	Maximum Spread (ft)
191	CDI-6	TYPE D Double	4,961.21	4,959.00			0	2.21	2.21	0	CDI-8	12.1	2.9	4,961.21	8
192	CDI-7	TYPE A Single	4,961.17	4,959.50	3.67	2.95	0	3.38	2.85	0.52	CDI-10	14.2	3.4	4,961.17	8
196	CDI-8	TYPE A Single	4,960.79	4,959.12			0	2.21	2.21	0		4.7	4	4,960.79	8
197	CDI-11	TYPE A Single	4,961.36	4,959.10			0	3.54	2.97	0.58	EX-CDI-10	14.5	3.5	4,961.36	8
198	CDI-5	TYPE A Single	4,960.76	4,959.09			0	1.7	1.6	0.1		11	2.6	4,960.76	8
199	DI-4	TYPE D Double	4,961.73	4,958.55			0	6.23	6.23	0	CB-13	17.9	4.3	4,961.73	8
200	CDI-10	TYPE A Single	4,960.42	4,958.75			0.52	17.24	17.24	0		17.1	8.4	4,960.42	8
201	CDI-3	TYPE A Single	4,960.25	4,958.05			0	1.7	1.6	0.1		11	2.6	4,960.25	8
202	CDI-2	TYPE A Single	4,960.24	4,958.03			0	6.23	4.59	1.64	CDI-1	17.9	4.3	4,960.24	8
203	CDI-12	TYPE A Single	4,959.76	4,958.09			0	14.66	8.47	6.2		24.7	5.9	4,959.56	8
204	CDI-1	TYPE A Single	4,959.42	4,957.75			1.64	2.55	2.55	0		5	4.3	4,959.42	8
205	CDI-13	TYPE A Single	4,959.00	4,957.23			0	12.78	7.7	5.08		23.4	5.6	4,959.00	8
254	EX-CDI-01	TYPE A Single	4,960.67	4,958.14	3.67	2.95	0	1.14	1.14	0		3.6	3	4,960.67	8
255	EX-CDI-10	TYPE A Single	4,961.29	4,958.74	3.67	2.95	0.58	15.48	15.48	0		15.6	8	4,961.29	8
258	CB-5	TYPE C Single	4,960.78	4,958.83	2.95	2.92	0	9.4	4.21	5.19	CB-6	20.9	5	4,960.78	8
259	CB-6	TYPE A Single	4,960.71	4,958.89	3.67	2.95	6.21	10.91	10.91	0		11.3	7	4,960.71	8
260	CB-7	TYPE C Single	4,960.80	4,958.86			0	7.18	3.46	3.71	CB-8	18.9	4.5	4,960.80	8
261	CB-8	TYPE A Single	4,960.74	4,958.86	3.67	2.95	6.52	13.69	13.69	0		14	7.6	4,960.74	8
270	CB-9	TYPE D	4,961.43	4,959.52	76.75	25.5	0	8.9	8.9	0		16.7	4	4,961.43	8
271	CB-10	TYPE A Single	4,962.10	4,959.41			0	1.43	1.37	0.06	CB-Basin-2R C	10.3	2.5	4,962.10	8
272	CB-11	TYPE A Single	4,961.86	4,959.46			0	8.64	5.83	2.8	CB-8	20.2	4.9	4,961.86	8
273	CB-Basin-2R C	TYPE A Single	4,961.32	4,959.00			0.06	4.76	3.74	1.02	CB-6	16.2	3.9	4,961.32	8
286	CB-13	TYPE C Single	4,961.57	4,958.15	2.95	2.92	0	0	0	0		0	0	4,961.57	8

Conduit - 100-year

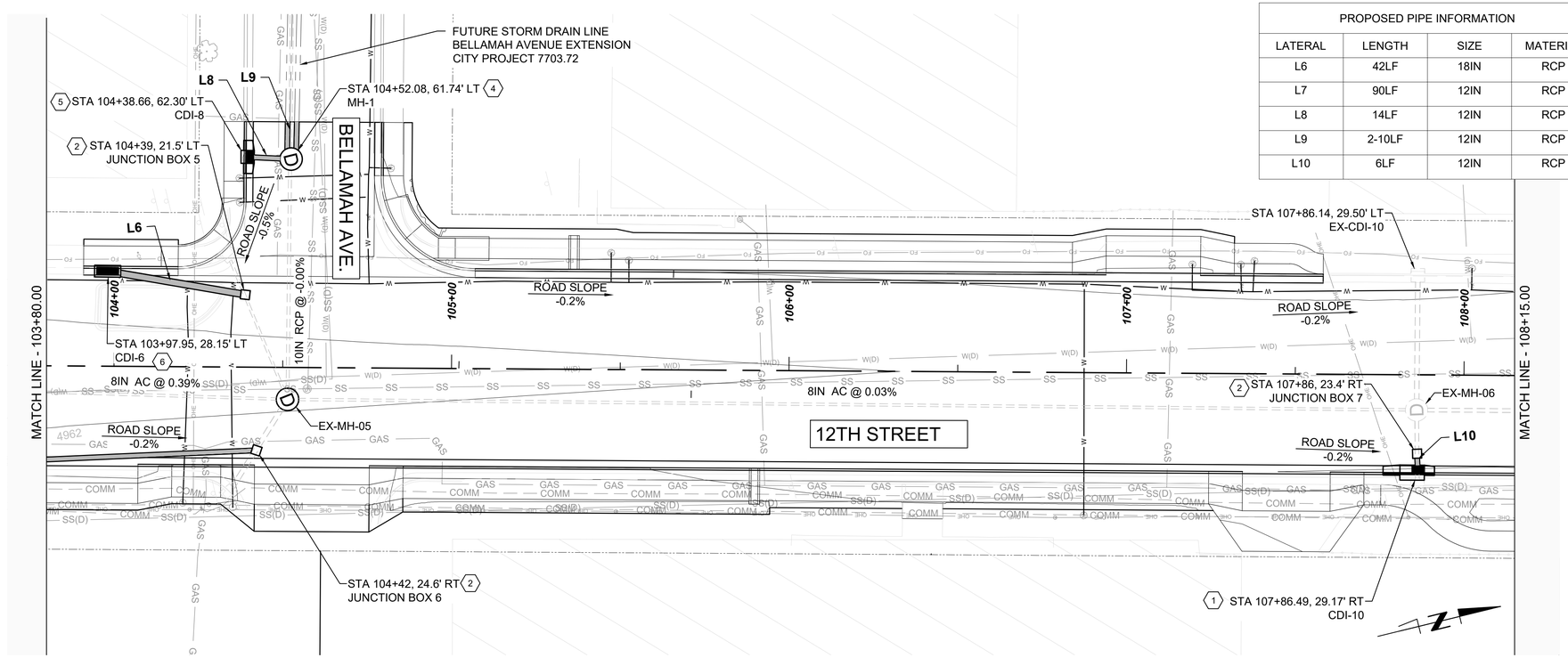
ID	Label	Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (User Defined) (ft)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Depth (Out) (in)	Capacity (Full Flow) (cfs)	Flow / Capacity (Design) (%)	Notes
158	Pipe - (17)	StartNullStruct16	4,959.32	MH-2	4,959.00	318.00	252.8	0.001	12.0	0.013	10.63	13.54	30.45	1.13	592	12 inch Concrete Pipe
160	Pipe - (2)	EX-MH-01	4,957.50	EndNullStruct26	4,957.50	157.10	157.1	0.000	18.0	0.013	0	0	38.48	0.11	0	ED SIZE AND MATERIAL UNKNOWN
162	Pipe - (14)	EX-MH-07	4,958.90	EX-MH-06	4,958.66	236.90	236.9	0.001	12.0	0.013	13.37	17.03	35.57	1.13	750.4	12 inch Corrugated HDPE Pipe
163	Pipe - (10)	Junction Box 5	4,958.89	EX-MH-05	4,958.46		33.4	0.013	8.0	0.013	2.17	6.21	44.29	1.37	97.9	8 inch Corrugated HDPE Pipe
164	Pipe - (11)	Junction Box 6	4,959.20	EX-MH-05	4,958.68		17.7	0.029	15.0	0.013	2.81	2.29	41.65	11.07	17.10	15 inch Corrugated HDPE Pipe
165	Pipe - (15)	EX-MH-06	4,958.57	EX-MH-05	4,958.46	334.50	334.5	0.000	8.0	0.013	45.16	129.36	44.29	0.22	12,659.30	15 inch Corrugated HDPE Pipe
166	Pipe - (16)	MH-1	4,958.68	EX-MH-05	4,958.32	412.60	71.2	0.001	12.0	0.013	52.51	33.43	45.97	2.1	1,534.70	10 inch Corrugated HDPE Pipe
167	Pipe - (20)	EX-MH-05	4,958.50	EX-MH-02	4,957.03	377.70	377.7	0.004	8.0	0.013	101.4	290.48	8	0.75	8,228.30	8 inch Corrugated HDPE Pipe
169	Pipe - (13)	EX-CDI-10	4,958.74	EX-MH-06	4,958.97	39.90	39.9	-0.006	12.0	0.013	15.48	19.71	31.85	2.7	353.3	14" ac
171	Pipe - (9)	Junction Box 3	4,958.15	EX-MH-02	4,957.03		23.3	0.048	18.0	0.013	6.17	3.49	52.05	23.01	16.7	18 inch Concrete Pipe
172	Pipe - (1)	EX-MH-01	4,957.50	EX-MH-02	4,957.27	30.60	30.6	0.008	18.0	0.013	3.59	2.03	49.17	9.11	20.9	18" REINFORCED CONCRETE PIPE
173	Pipe - (4)	Junction Box 1	4,957.95	EX-MH-02	4,957.27	22.70	7.9	0.030	18.0	0.013	4.56	2.58	49.17	18.18	17.5	18 inch Concrete Pipe
174	Pipe - (5)	EX-MH-02	4,957.03	EX-MH-03	4,956.59	89.30	89.3	0.005	18.0	0.013	115.23	65.21	56.71	7.37	955.40	18 inch Concrete Pipe
175	Pipe - (7)	EX-MH-03	4,956.54	O-1	4,956.16	382.30	382.3	0.001	24.0	0.013	118.19	37.62	23.99	7.13	1,013.70	24 inch Concrete Pipe
177	Pipe - (3)	EX-CDI-01	4,958.14	EX-MH-01	4,957.50	28.70	28.7	0.022	18.0	0.013	1.14	0.64	38.48	15.68	4.6	18 inch Concrete Pipe
209	Pipe - (34)	CDI-13	4,957.23	O-3	4,956.42	81.30	81.3	0.010	18.0	0.013	16.05	9.08	17.11	10.48	110.1	12 inch Concrete Pipe
212	Pipe - (6)	CDI-5	4,959.09	Junction Box 4	4,959.00	8.20	8.2	0.011	12.0	0.013	1.6	2.04	27.58	3.77	27.7	12 inch Concrete Pipe
213	Pipe - (11)	CDI-7	4,959.50	Junction Box 6	4,959.20	90.30	90.3	0.003	12.0	0.013	2.85	3.63	30.32	2.07	93.7	12 inch Concrete Pipe
214	Pipe - (10)	CDI-8	4,959.12	MH-1	4,958.68	13.30	13.3	0.033	12.0	0.013	2.21	2.81	35.43	6.49	21.4	12 inch Concrete Pipe
215	Pipe - (9)	DI-4	4,958.55	CB-13	4,958.20	58.70	48.9	0.006	18.0	0.013	6.23	3.53	40.44	8.11	48.2	18 inch Concrete Pipe
216	Pipe - (10) (1)	CDI-6	4,959.00	Junction Box 5	4,958.89	41.30	41.3	0.003	18.0	0.013	2.21	1.25	32.04	5.44	25.5	18 inch Concrete Pipe
217	Pipe - (22)	CDI-11	4,959.10	MH-2	4,959.07	10.30	10.3	0.003	12.0	0.013	2.97	3.78	29.61	1.92	105.1	12 inch Concrete Pipe
218	Pipe - (8)	CDI-3	4,958.05	Junction Box 2	4,957.82	15.00	16	0.015	18.0	0.013	1.6	0.9	40.07	12.89	8.1	18 inch Concrete Pipe
219	Pipe - (12)	CDI-10	4,958.75	Junction Box 7	4,958.68	5.80	5.8	0.012	12.0	0.013	17.24	21.95	29.52	3.89	274.2	12 inch Concrete Pipe
220	Pipe - (4)	CDI-2	4,958.03	Junction Box 1	4,957.95	28.90	28.9	0.003	18.0	0.013	4.59	2.6	38.12	5.72	56.1	18 inch Concrete Pipe
221	Pipe - (33)	CDI-12	4,958.09	CDI-13	4,957.33	76.70	76.7	0.010	18.0	0.013	8.47	6.59	20	10.46	58.4	12 inch Concrete Pipe
224	CO-1	CDI-1	4,957.75	EX-MH-01	4,957.27		8.3	0.058	12.0	0.013	2.55	3.25	41.24	8.59	14.8	
225	CO-2	Junction Box 4	4,958.59	EX-MH-03	4,956.54		17.5	0.117	18.0	0.013	1.6	0.9	57.31	36	2.9	
226	CO-3	Junction Box 2	4,957.82	EX-MH-03	4,956.54		16.9	0.076	18.0	0.013	1.58	0.9	57.31	28.9	3.60	
227	CO-4	EX-MH-08	4,958.85	MH-1	4,958.68		341.4	0.000	12.0	0.013	50.71	32.28	35.43	1.59	1,970.50	
228	CO-5	Junction Box 7	4,958.68	EX-MH-06	4,958.59		13	0.007	12.0	0.013	17.24	21.95	36.41	2.99	356.8	
229	CO-6	MH-2	4,959.00	EX-MH-07	4,958.90		65.2	0.002	12.0	0.013	13.4	17.07	38.33	1.42	599.3	
262	CO-7	CB-6	4,958.89	CB-5	4,958.86		35.3	0.001	12.0	0.013	10.91	13.89	23.04	1.04	600.80	
263	CO-8	CB-5	4,958.86	EX-MH-08	4,958.85		25.4	0.000	12.0	0.013	15.09	19.21	27.48	0.71	1,303.10	
264	CO-9	CB-8	4,958.89	CB-7	4,958.86		35.4	0.001	12.0	0.013	13.69	17.44	23.28	1.04	755.10	
265	CO-10	CB-7	4,958.86	EX-MH-08	4,958.85		14.1	0.001	12.0	0.013	17.14	21.82	27.48	0.95	1,082.60	
267	CO-11	MH-2	4,959.00	EX-MH-08	4,958.85		244.6	0.001	12.0	0.013	19.54	12.44	27.48	1.76	728.5	
269	CO-12	MH-3	4,959.42	MH-2	4,959.00		195.2	0.002	12.0	0.013	16.05	10.21	32.4	3.3	319	
274	CO-13	CB-9	4,959.52	CB-10	4,959.41		35.1	0.003	12.0	0.013	8.9	11.33	32.28	1.99	280	
275	CO-14	CB-10	4,959.49	MH-3	4,959.42		24.6	0.003	12.0	0.013	10.24	13.04	36.6	1.9	338.8	
276	CO-15	CB-11	4,959.46	MH-3	4,959.42		14.9	0.003	12.0	0.013	5.83	7.43	36.6	1.85	223.7	
277	CO-16	CB-Basin-2R C	4,959.01	MH-2	4,959.00		22.4	0.000	12.0	0.013	3.74	4.76	32.4	0.75	340.7	
287	CO-17	CB-13	4,958.20	Junction Box 3	4,958.15		10.5	0.005	12.0	0.013	6.17	7.86	35.73	2.46	156.4	

Manholes - 100-year

ID	Label	Set Rim to Ground Elevation?	Elevation (Rim) (ft)	Bolted Cover?	Entrance Loss Control Type	Elevation (Invert in 1) (ft)	Elevation (Invert Out) (ft)	Flow (Total Out) (cfs)	Depth (Out) (in)	Hydraulic Grade Line-In (ft)	Hydraulic Grade Line-Out (ft)	Headloss Method	Notes
140	EX-MH-07	TRUE	4,962.09	FALSE	Outlet Control	4,958.90	4958.90	13.37	38.33	4,962.09	4,962.09	HEC-22 Energy (Third Edition)	72 inch dia
141	EX-MH-05	TRUE	4,962.15	FALSE	Outlet Control	4,958.46	4958.50	101.4	46.21	4,962.15	4,962.15	HEC-22 Energy (Third Edition)	72 inch dia
143	EX-MH-06	TRUE	4,961.62	FALSE	Outlet Control	4,958.66	4958.57	45.16	36.65	4,961.62	4,961.62	HEC-22 Energy (Third Edition)	72 inch dia
146	EX-MH-02	TRUE	4,961.37	FALSE	Outlet Control	4,957.03	4957.03	115.23	52.05	4,961.37	4,961.37	HEC-22 Energy (Third Edition)	48 inch dia
147	EX-MH-03	TRUE	4,961.32	FALSE	Outlet Control	4,956.59	4956.54	118.19	57.31	4,961.32	4,961.32	HEC-22 Energy (Third Edition)	72 inch dia
151	EX-MH-01	TRUE	4,960.71	FALSE	Outlet Control	4,957.50	4957.50	3.59	41.24	4,960.71	4,960.71	HEC-22 Energy (Third Edition)	48 inch dia
157	EX-MH-08	TRUE	4,961.14	FALSE	Outlet Control	4,958.85	4958.85	50.71	27.48	4,961.14	4,961.14	HEC-22 Energy (Third Edition)	72 inch dia
185	Junction Box 4	TRUE	4,961.77	FALSE	Outlet Control	4,959.00	4958.59	1.6	32.73	4,961.32	4,961.32	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
186	Junction Box 6	TRUE	4,961.73	FALSE	Outlet Control	4,959.20	4959.20	2.81	30.32	4,961.73	4,961.73	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
187	MH-1	TRUE	4,961.63	FALSE	Outlet Control	4,958.68	4958.68	52.51	35.43	4,961.63	4,961.63	HEC-22 Energy (Third Edition)	4FT DIA TYPE C SDMH
188	Junction Box 3	TRUE	4,961.60	FALSE	Outlet Control	4,958.15	4958.15	6.17	40.03	4,961.51	4,961.49	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
189	Junction Box 5	TRUE	4,961.56	FALSE	Outlet Control	4,958.89	4958.89	2.17	37.19	4,961.56	4,961.56	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
190	MH-2	TRUE	4,961.54	FALSE	Outlet Control	4,959.00	4959.00	13.4	30.45	4,961.54	4,961.54	HEC-22 Energy (Third Edition)	4FT DIA TYPE C MH
193	Junction Box 2	TRUE	4,961.16	FALSE	Outlet Control	4,957.82	4957.82	1.58	40.07	4,961.16	4,961.16	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
194	Junction Box 7	TRUE	4,961.14	FALSE	t Control (Submer	4,958.68	4958.68	17.24	29.52	4,961.14	4,961.14	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
195	Junction Box 1	TRUE	4,961.12	FALSE	Outlet Control	4,957.95	4957.95	4.56	38.2	4,961.12	4,961.12	HEC-22 Energy (Third Edition)	2X2 JUNCTION BOX
266	MH-2	TRUE	4,961.70	FALSE	Outlet Control	4,959.00	4959.00	19.54	32.4	4,961.70	4,961.70	HEC-22 Energy (Third Edition)	
268	MH-3	TRUE	4,962.47	FALSE	Outlet Control	4,959.42	4,959.42	16.05	36.6	4,962.47	4,962.47	HEC-22 Energy (Third Edition)	



PROPOSED PIPE INFORMATION			
LATERAL	LENGTH	SIZE	MATERIAL
L1	5LF	12IN	RCP
L2	29LF	18IN	RCP
L3	15LF	18IN	RCP
L4	49LF	18IN	RCP
L5	8LF	12IN	RCP



PROPOSED PIPE INFORMATION			
LATERAL	LENGTH	SIZE	MATERIAL
L6	42LF	18IN	RCP
L7	90LF	12IN	RCP
L8	14LF	12IN	RCP
L9	2-10LF	12IN	RCP
L10	6LF	12IN	RCP

GENERAL NOTES

1. ALL STATIONS AND OFFSETS REFERENCE 12TH STREET CENTERLINE OF CONSTRUCTION UNLESS OTHERWISE NOTED.
2. ALL NEW STORM DRAIN WILL BE CLASS IV RCP.

KEYED NOTES

1. BUILD COA TYPE A CURB DROP INLET STD DWG 2201.
2. INSTALL PREFABRICATED CONCRETE JUNCTION BOX, ABQ VAULT 2X2XVB OR APPROVED EQUAL. SEE DETAIL ON SHEET 6-9.
3. BUILD 4' DIA MH PER COA STD DWG 2101.
4. BUILD 6' DIA MH PER COA STD DWG 2101.
5. BUILD COA TYPE C CURB DROP INLET STD DWG 2205.
6. BUILD COA TYPE DOUBLE GRATE D DROP INLET STD DWG 2206.
7. BUILD COA TYPE C DOUBLE GRATE DROP INLET STD DWG 2205.

LEGEND

- TELEPHONE/COMM. - CENTURYLINK
- ELECTRIC - PNM
- CATV - COMCAST
- FIBER OPTIC - CENTURYLINK
- NATURAL GAS - NM GAS CO
- WATER - ABCWUA
- SANITARY SEWER - ABCWUA
- STORM DRAIN - ABCWUA
- OH ELECTRIC - PNM
- EXISTING STORM DRAIN
- EXISTING STORM DRAIN MANHOLE
- EXISTING CDI
- PROPOSED TYPE A CDI
- PROPOSED TYPE C CDI
- PROPOSED TYPE C DOUBLE GRATE CDI
- PROPOSED TYPE D DOUBLE GRATE CDI
- PROPOSED JUNCTION BOX
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN PIPE

20 10 0 20 40

SCALE: 1" = 20'

CALL NM ONE-CALL SYSTEM SEVEN (7) DAYS PRIOR TO ANY EXCAVATION

CONSULTANTS
NV5
6501 AMERICAS PKWY NE SUITE 400
ALBUQUERQUE, NM 87110
P: 505.247.0294 WWW.NV5.COM

BENCH MARKS

PROJECT BENCHMARK: COA MONUMENT 12-J13

TO REACH THE STATION FROM THE INTERSECTION OF CENTRAL AVENUE AND 14TH STREET, TRAVEL NORTH ON 14TH STREET 0.8 MILE TO LOMAS BOULEVARD AND THE STATION ON THE LEFT IN THE NORTHWEST QUADRANT OF THE INTERSECTION.THE STATION MARK IS A CITY OF ALBUQUERQUE SURVEY CONTROL 3 1/4 INCH ALUMINUM DISC STAMPED "12-J13 1983" SET FLUSH WITH TOP OF THE CURB.

90%
NOT FOR CONSTRUCTION

SEAL

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DESIGNED BY:	SPH
DRAWN BY:	CPB
CHECKED BY:	---
DATE	6/2024

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

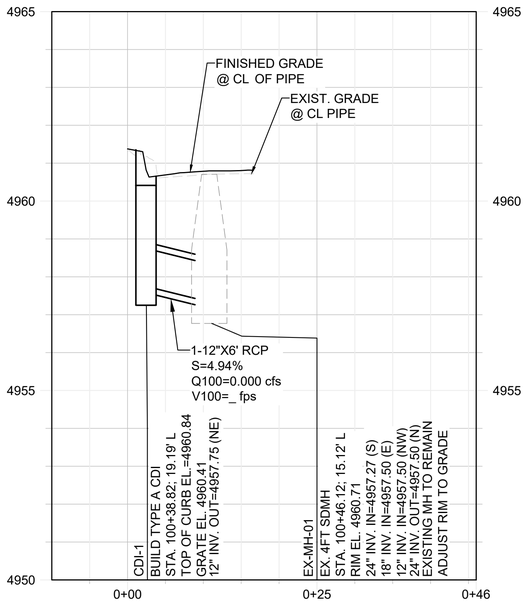
12TH STREET ROAD DIET

DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. H-13, J-13
		CITY PROJECT NO. 718780
		SHEET NO. 6 - 1

\\abq-file2\projects\Albuquerque, City of\229022-A000238.02\001_CCN7150.593\Plans\06_Sheets\740786_DR01.dwg

L1: CDI-01 -> EX-MH-01



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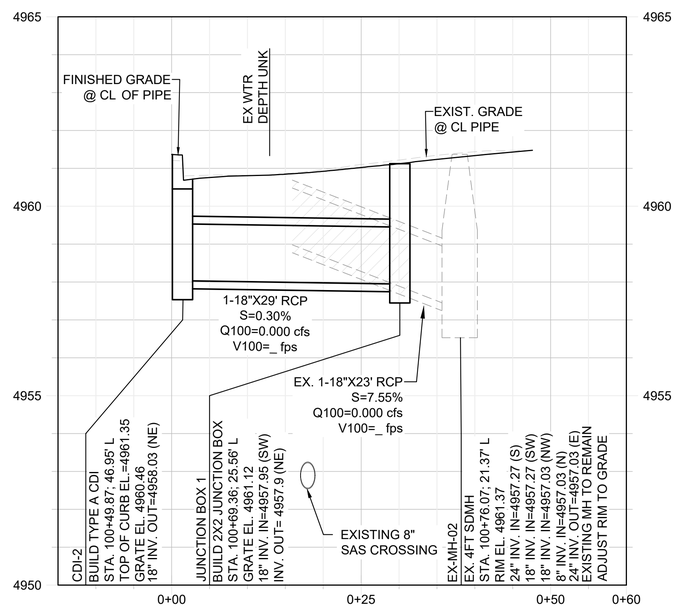

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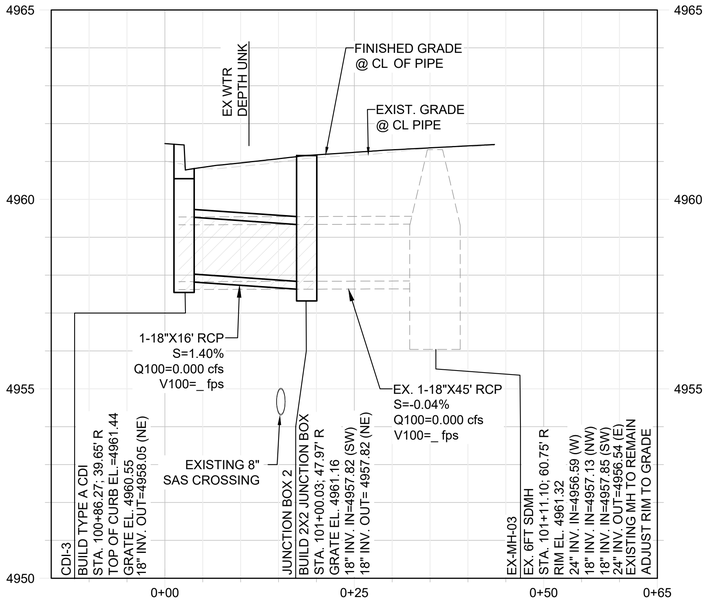
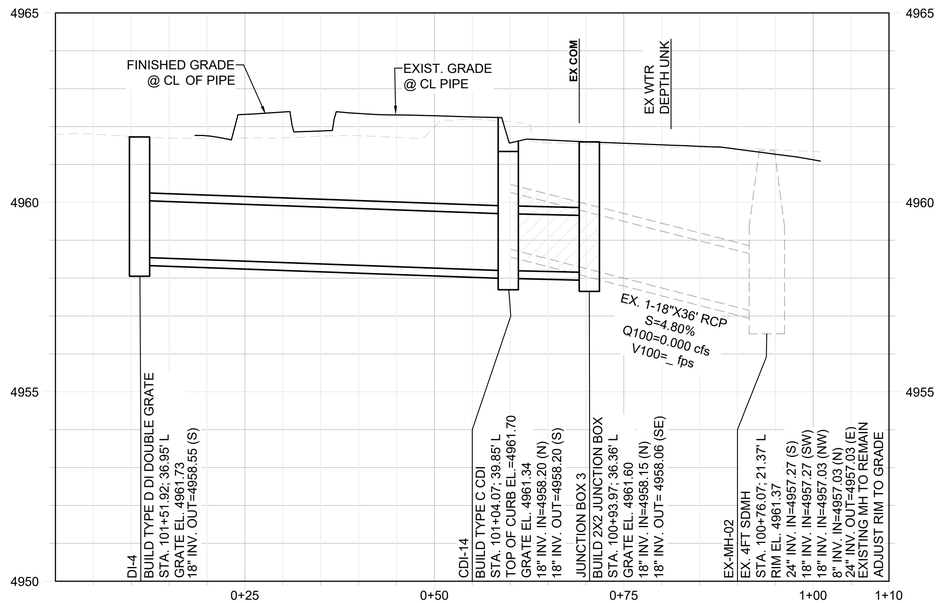


L4: CDI-04 -> EX-MH-02



GENERAL NOTES

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10 5 0 10 20

SCALE: 1" = 10'

VERTICAL SCALE:1"=2'
WHEN PLOTTED AT 22X34

CALL NM ONE-CALL
SYSTEM SEVEN (7) DAYS
PRIOR TO ANY EXCAVATION

CONSULTANTS
NV5
6501 AMERICAS PKWY NE, SUITE 400
ALBUQUERQUE, NM 87110
P: 505.247.0294 WWW.NV5.COM

BENCH MARKS

PROJECT BENCHMARK: COA MONUMENT 12-J13

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CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

12TH STREET ROAD DIET

STORM DRAIN LATERAL PROFILES

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. H-13, J-13
		CITY PROJECT NO. 718780
		SHEET NO. 6 - 2

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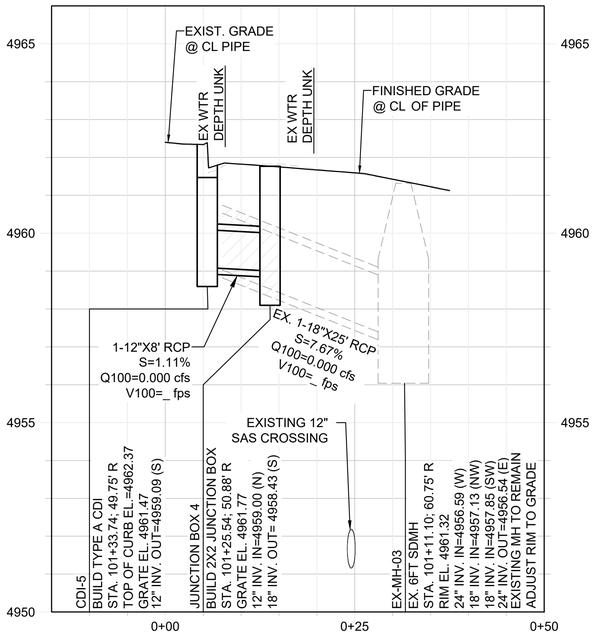
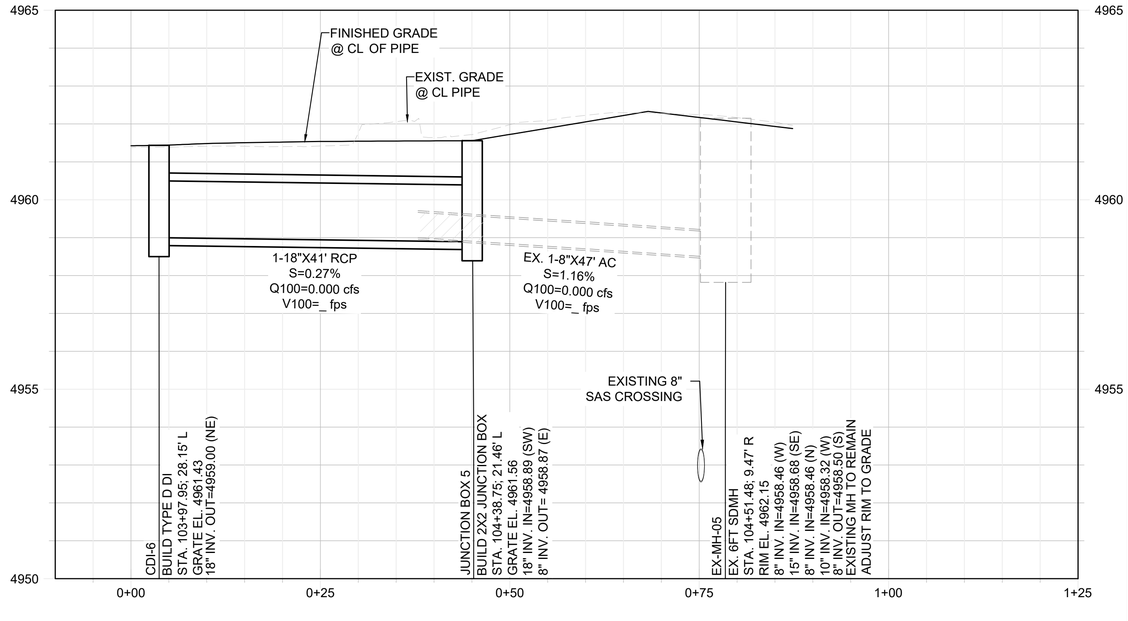
L5: CDI-05 -> EX-MH-03



L6: CDI-06-> EX-MH-05



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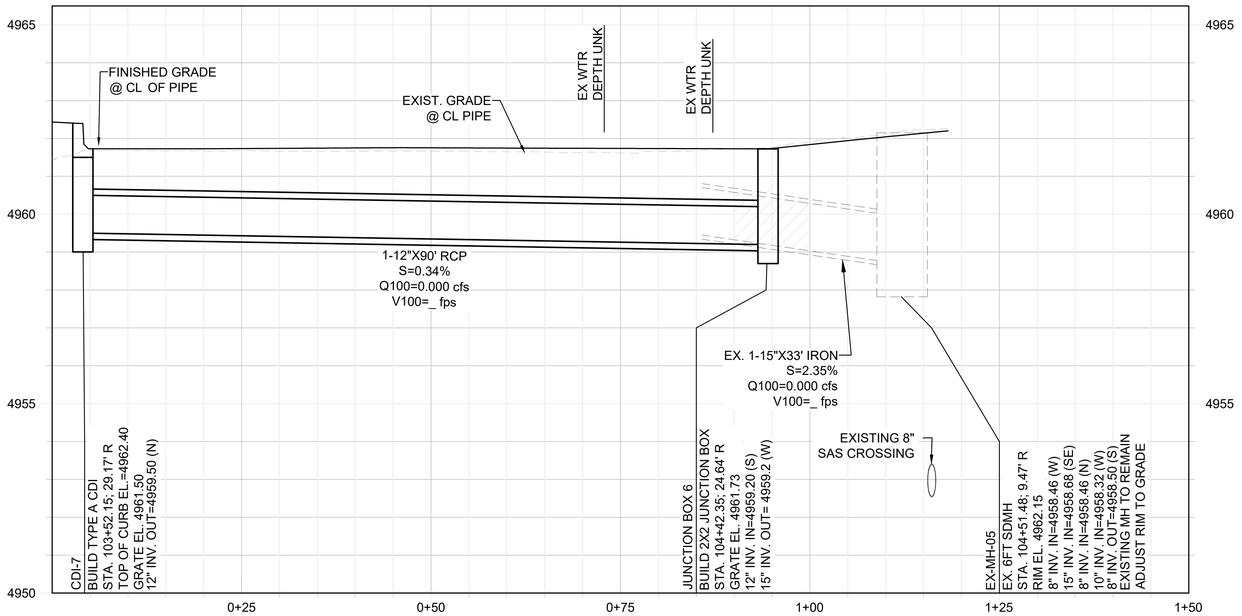

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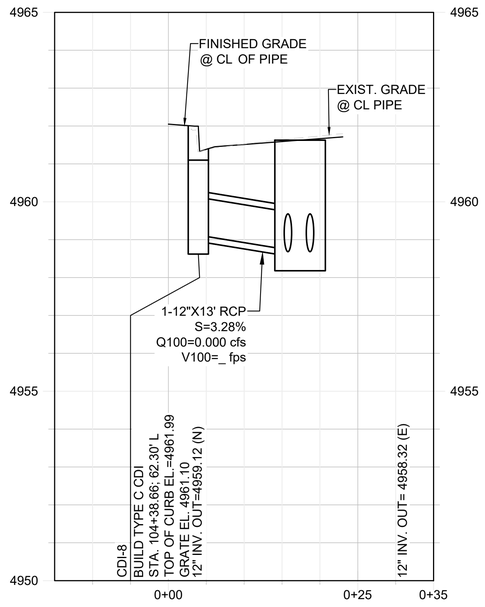
ENGINEERING DIVISION

12TH STREET ROAD DIET

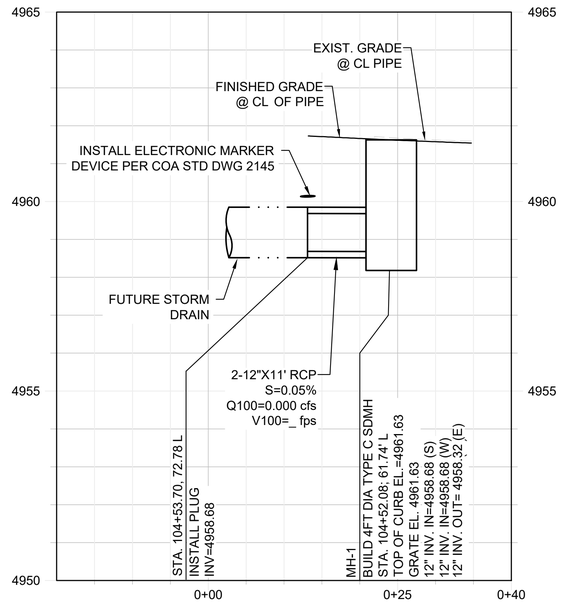
STORM DRAIN LATERAL PROFILES

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. H-13, J-13
		CITY PROJECT NO. 718780
		SHEET NO. 6 - 3

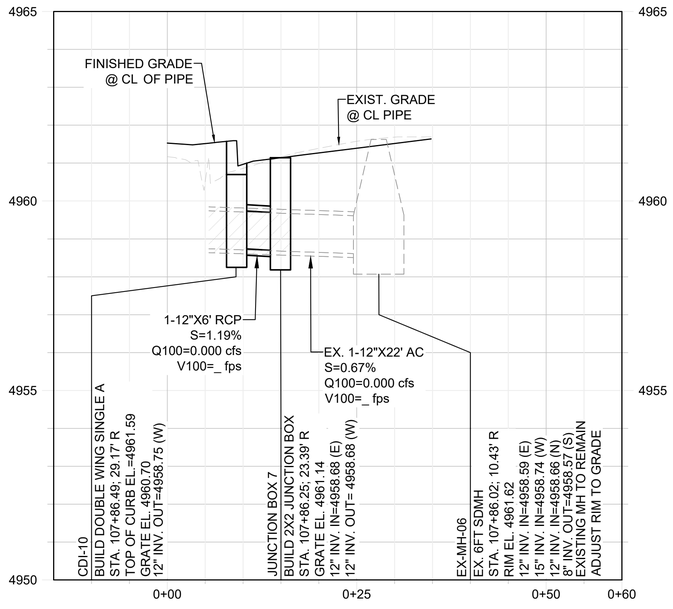
L8: CDI-08-> MH-1



L9: BELLAMAH STUB OUT> MH-1



L10: CDI-10 -> EX-MH-06



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BENCH MARKS

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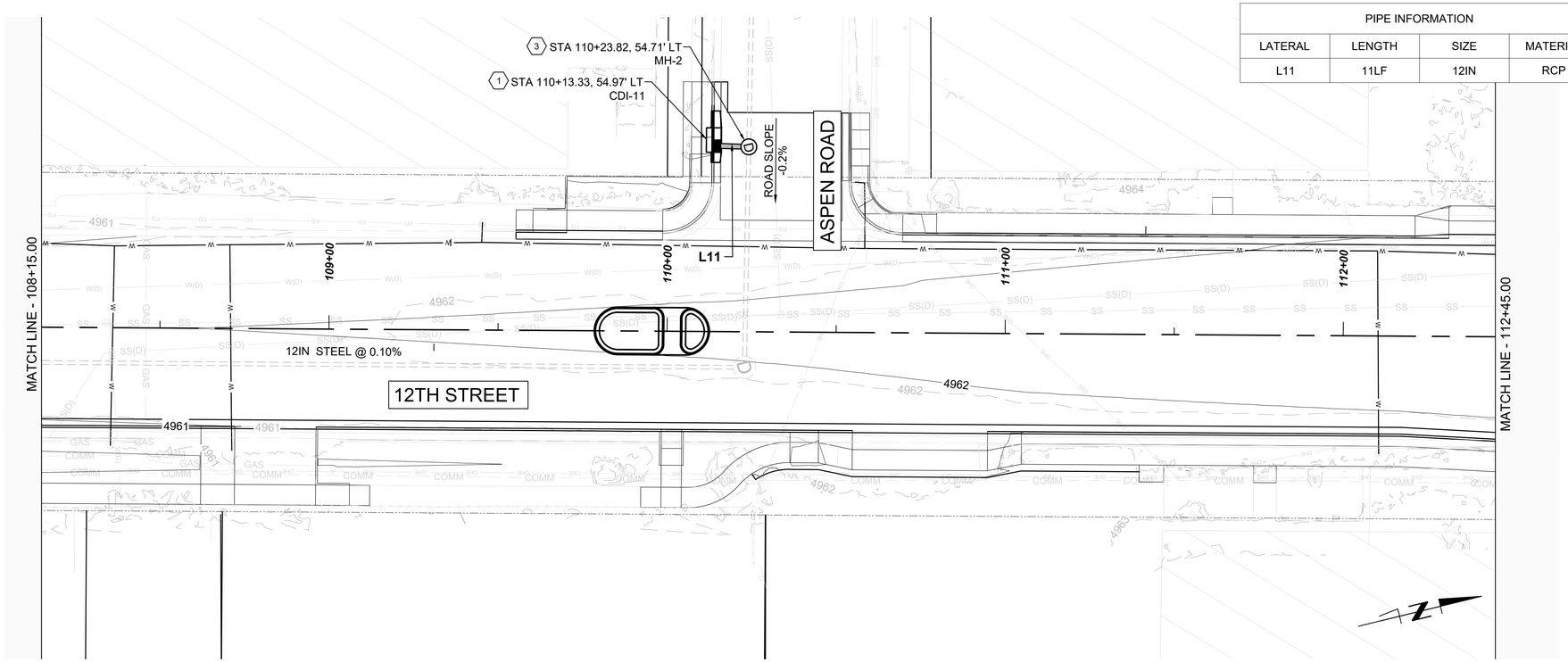
CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

12TH STREET ROAD DIET

STORM DRAIN LATERAL PROFILES

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. H-13, J-13
		CITY PROJECT NO. 718780
		SHEET NO. 6 - 4



PIPE INFORMATION			
LATERAL	LENGTH	SIZE	MATERIAL
L11	11LF	12IN	RCP

GENERAL NOTES

1. ALL STATIONS AND OFFSETS REFERENCE 12TH STREET CENTERLINE OF CONSTRUCTION UNLESS OTHERWISE NOTED.
2. ALL NEW STORM DRAIN WILL BE CLASS IV RCP.

KEYED NOTES

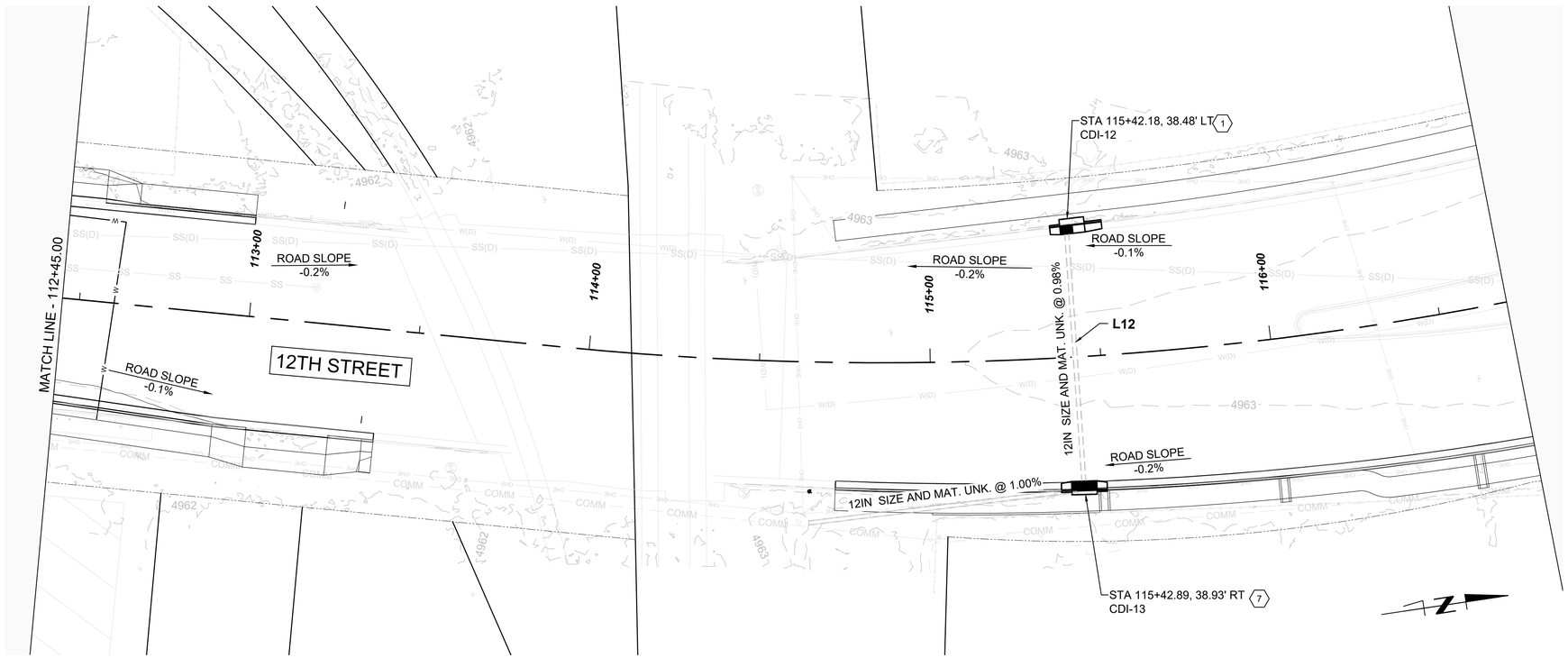
1. BUILD COA TYPE A CURB DROP INLET STD DWG 2201.
2. INSTALL PREFABRICATED CONCRETE JUNCTION BOX, ABQ VAULT 2X2XVB OR APPROVED EQUAL. SEE DETAIL ON SHEET 6-9.
3. BUILD 4' DIA MH PER COA STD DWG 2101.
4. BUILD 6' DIA MH PER COA STD DWG 2101.
5. BUILD COA TYPE C CURB DROP INLET STD DWG 2205.
6. BUILD COA TYPE DOUBLE GRATE D DROP INLET STD DWG 2206.
7. BUILD COA TYPE C DOUBLE GRATE DROP INLET STD DWG 2205.

LEGEND

- TELEPHONE/COMM. - CENTURYLINK
- ELECTRIC - PNM
- CATV - COMCAST
- FIBER OPTIC - CENTURYLINK
- NATURAL GAS - NM GAS CO
- WATER - ABCWUA
- SANITARY SEWER - ABCWUA
- STORM DRAIN - ABCWUA
- OH ELECTRIC - PNM
- EXISTING STORM DRAIN
- EXISTING STORM DRAIN MANHOLE
- EXISTING CDI
- PROPOSED TYPE A CDI
- PROPOSED TYPE C CDI
- PROPOSED TYPE C DOUBLE GRATE CDI
- PROPOSED TYPE D DOUBLE GRATE CDI
- PROPOSED JUNCTION BOX
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN PIPE

20 10 0 20 40

SCALE: 1" = 20'



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CITY OF ALBUQUERQUE
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ENGINEERING DIVISION

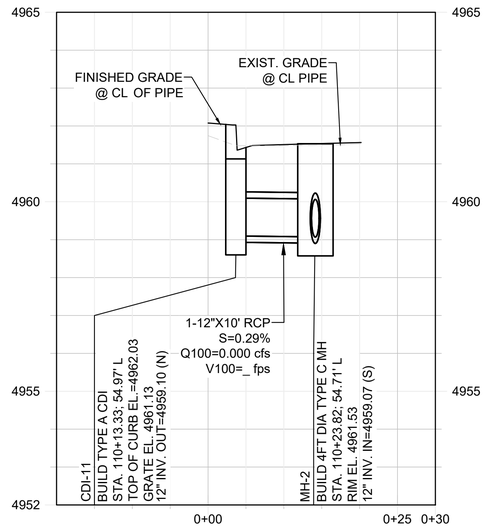
12TH STREET ROAD DIET

DRAINAGE PLAN

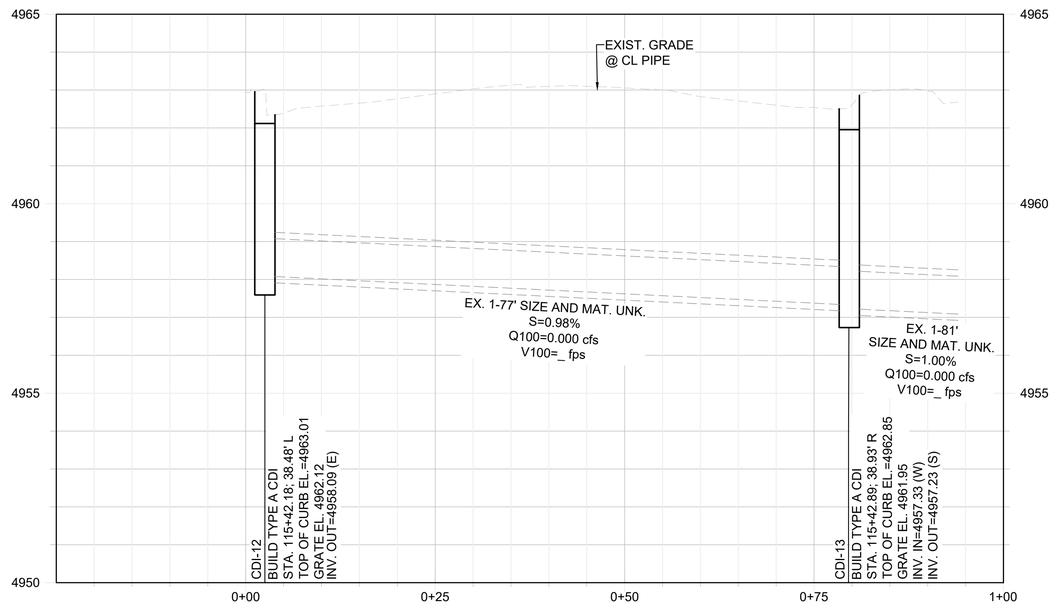
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. H-13, J-13
		CITY PROJECT NO. 718780
		SHEET NO. 6 - 5

\\abq-file2\projects\Albuquerque, City of\229022-A000238.02\001_CCN7150.593\Plans\06_Sheets\740786_DR01.dwg

L11: CDI-11-> MH-1



L12: CDI-13->CDI-12



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BENCH MARKS

PROJECT BENCHMARK: COA MONUMENT 12-J13

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CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

12TH STREET ROAD DIET

STORM DRAIN LATERAL PROFILES

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. H-13, J-13
		CITY PROJECT NO. 718780
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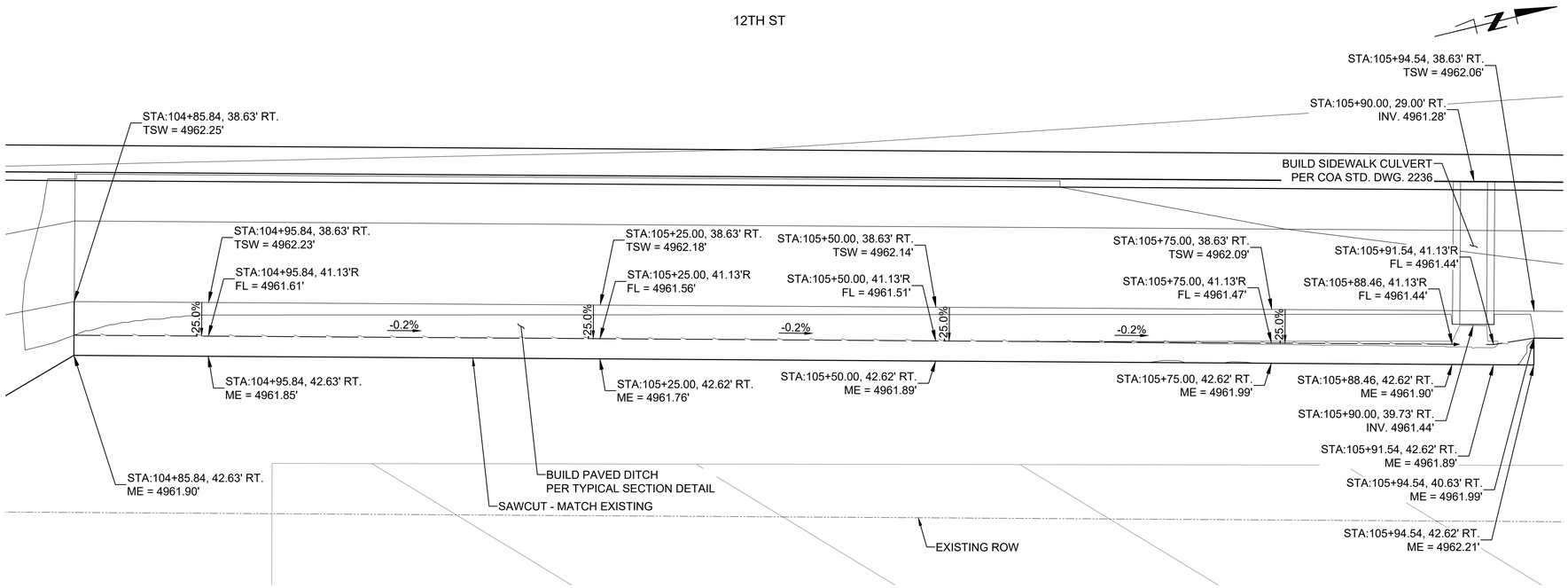
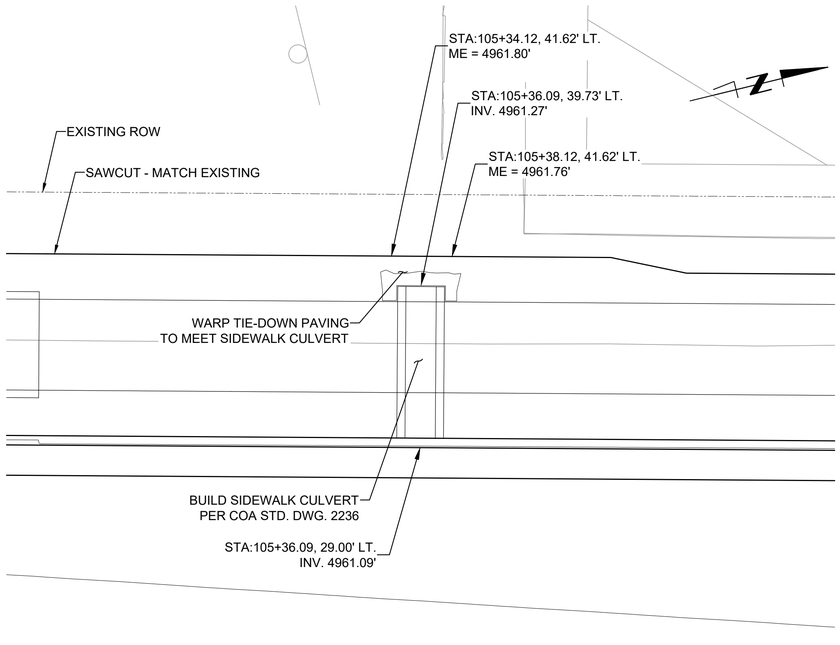
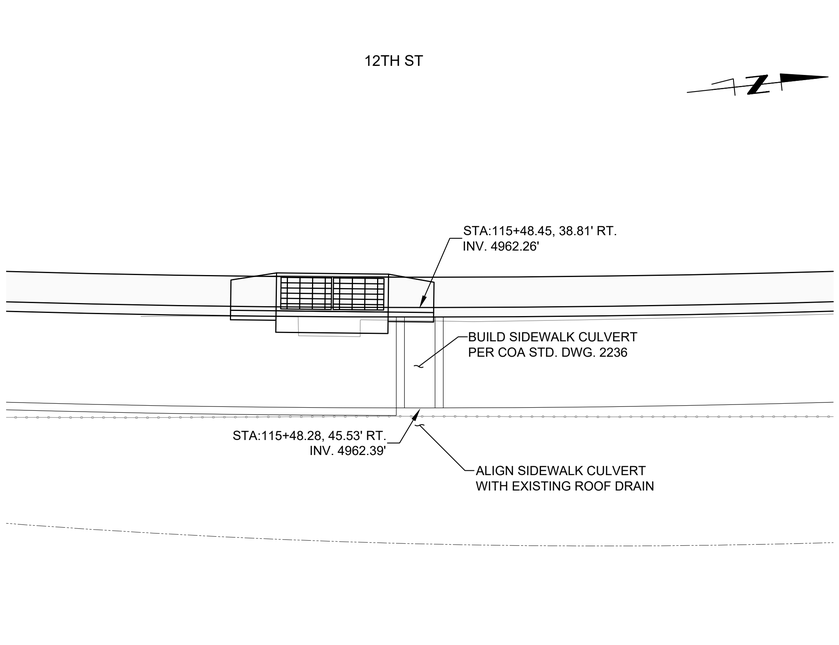


PAVED DITCH, SIDEWALK CULVERT, RT (STA. 104+85 TO STA. 105+94)



SIDEWALK CULVERT, LT (STA. 105+36)



SIDEWALK CULVERT, RT (STA 115+48)

CONSTRUCTION NOTES

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2. SEE COA STD. DWG. 2236 FOR ADDITIONAL SIDEWALK CULVERT DETAILS.

LEGEND

TSW	TOP OF SIDEWALK ELEVATION
FL	FLOW-LINE ELEVATION
ME	MATCH EXISTING ELEVATION
INV	INVERT ELEVATION (SW CULVERTS)

10 5 0 10 20

SCALE: 1" = 10'

811

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ENGINEERING DIVISION

12TH STREET ROAD DIET

SURFACE DRAINAGE DETAILS

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. H-13, J-13
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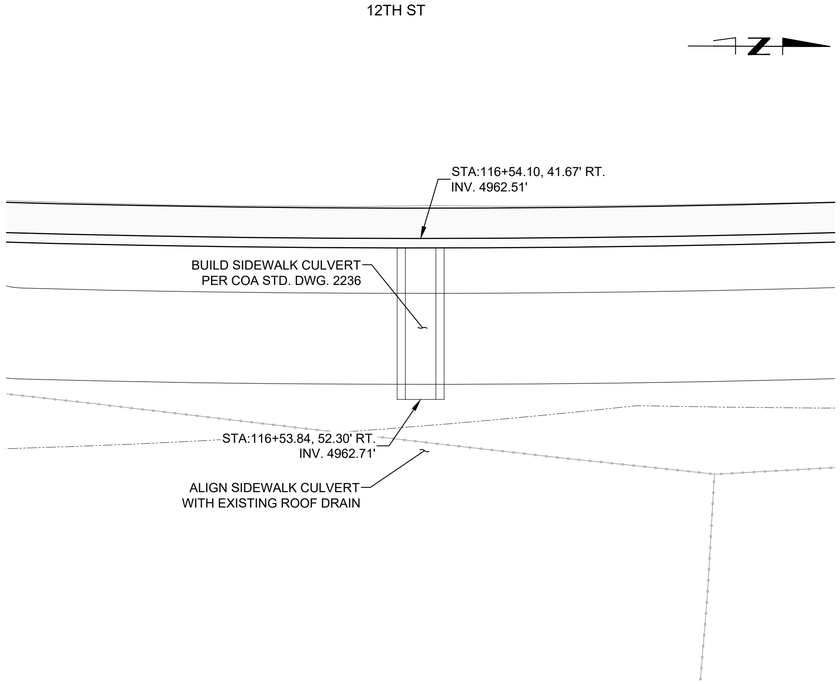
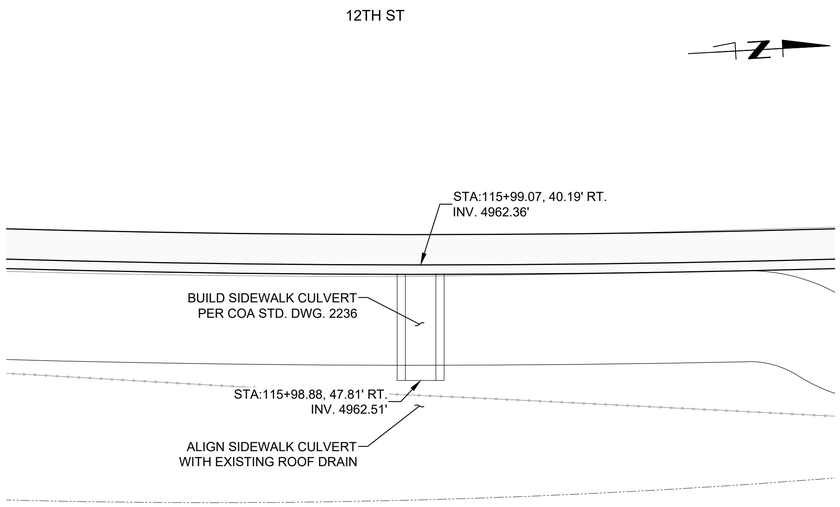
		SHEET NO. 6 - 7



SIDEWALK CULVERT, RT (STA. 116+54)



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12TH STREET ROAD DIET

SURFACE DRAINAGE DETAILS

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. H-13, J-13
		CITY PROJECT NO. 718780
		SHEET NO. 6 - 8

ALBUQUERQUE VAULT COMPANY

PRE-CAST CONCRETE PRODUCTS

300 Airport Dr., NW * Albuquerque, NM 87121 * Phone: 505-836-4404 / Fax: 505-836-5663

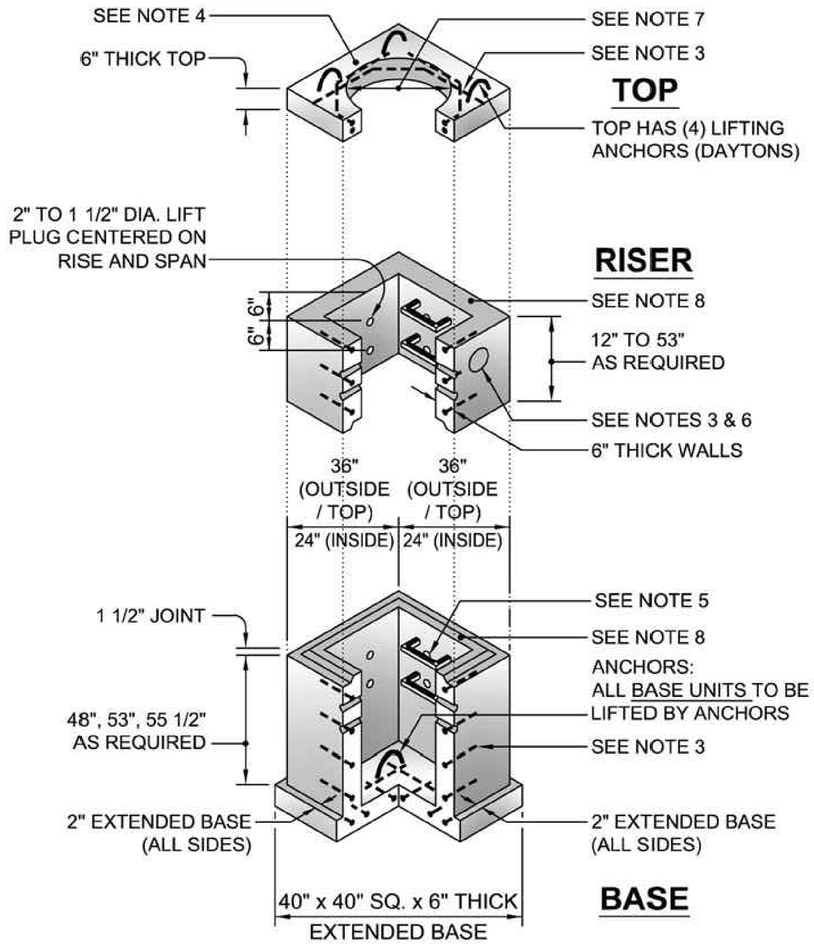
Detail # 2X2VB

Not To Scale | Dec., 2012

2 x 2 CONCRETE BOX

GENERAL NOTES:

1. Design specifications conform to latest ASTM C913 specifications for "Precast Concrete Water and Wastewater Structures."
2. Concrete compressive strength 4,000 psi minimum at 28 days.
3. Steel reinforcing design to conform to the requirements of ASTM C890 specifications for "Structural Design Loading for Water and Wastewater Structures" and shall utilize grade 60 rebars conforming to the requirements of ASTM A615 or WWF conforming to the requirements of ASTM A185 or both. As per C.O.A. Additional reinforcing provided at all openings. - Base slab: #4 rebar on 12" O/C - Walls: #4 rebar on 12" O/C - Top: (2) mats of #4 rebar on 6" O/C.
4. Designed for H-20-44 loading.
5. Steps per job requirements. Steps shall be steel reinforced copolymer polypropylene plastic and meet the requirements of ASTM C478. Center on access. Vertical spacing = 12".
6. Pipe penetration to be per job requirements. Pipe to be installed by contractor as per DOT requirements for mortar joint connections.
7. Access size, location and type per job requirements and to conform to C.O.A. standards or as otherwise specified. Supplied by either Albuquerque Vault or customer.
8. Joints to be sealed with butyl rubber joint stick sealant conforming to the requirements of ASTM C990, or mortar as per C.O.A. requirements, or both.
9. Excavation hole bottom shall be 2' wider & 2' longer than extended base dimensions.



CONSULTANTS

NV5

6501 AMERICAS PKWY NE, SUITE 400
ALBUQUERQUE, NM 87110
P: 505.247.0294 WWW.NV5.COM

BENCH MARKS

PROJECT BENCHMARK: COA MONUMENT 12-J13

TO REACH THE STATION FROM THE INTERSECTION OF CENTRAL AVENUE AND 14TH STREET, TRAVEL NORTH ON 14TH STREET 0.8 MILE TO LOMAS BOULEVARD AND THE STATION ON THE LEFT IN THE NORTHWEST QUADRANT OF THE INTERSECTION.THE STATION MARK IS A CITY OF ALBUQUERQUE SURVEY CONTROL 3 1/4 INCH ALUMINUM DISC STAMPED "12-J13 1983" SET FLUSH WITH TOP OF THE CURB.

90%

NOT FOR CONSTRUCTION

SEAL

NO.	DATE	DESCRIPTION	BY
		AS-BUILT INFORMATION	
		CONTRACTOR:	
		WORK STAKED BY: DATE:	
		INSPECTOR'S ACCEPTANCE BY: DATE:	
		FIELD VERIFICATION BY: DATE:	
		DRAWINGS CORRECTED BY: DATE:	

811

CALL NM ONE-CALL SYSTEM SEVEN (7) DAYS PRIOR TO ANY EXCAVATION

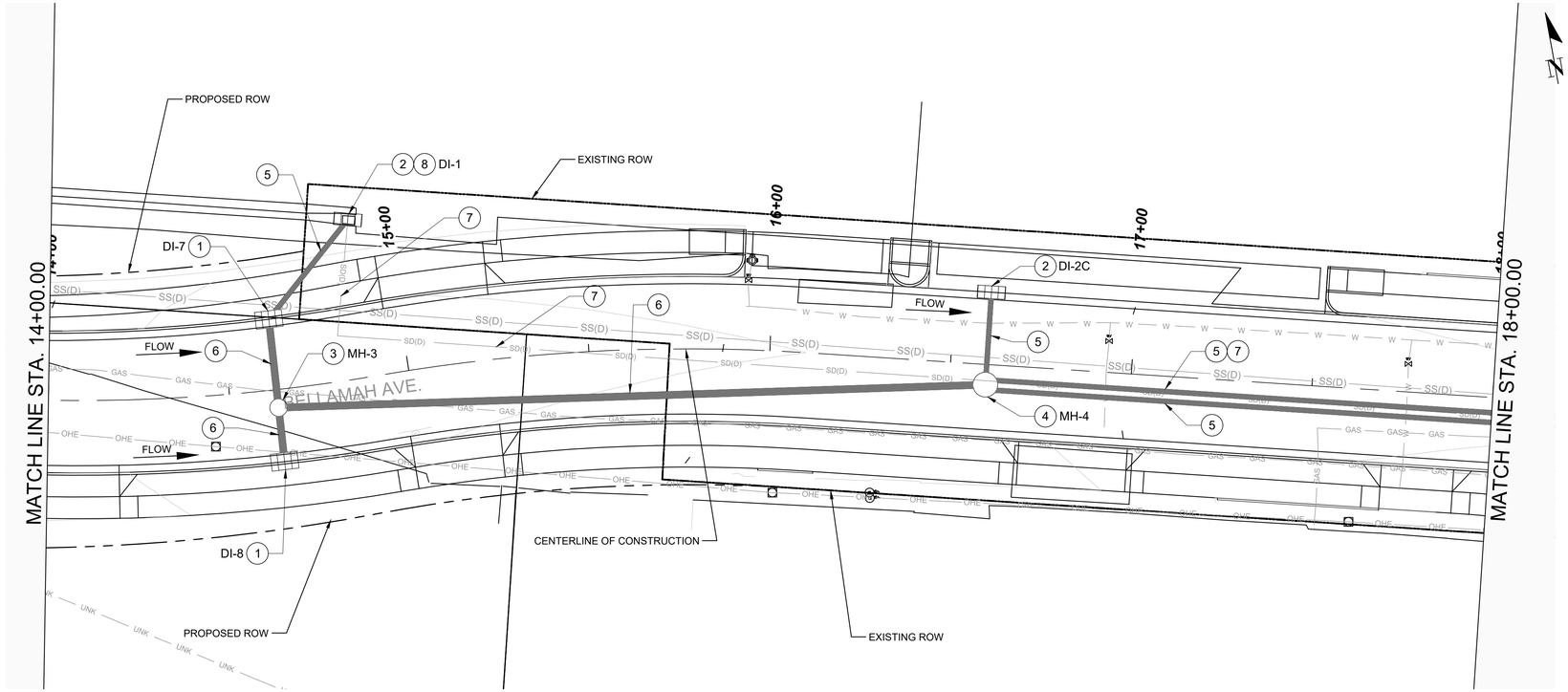
DESIGNED BY:	SPH
DRAWN BY:	CPB
CHECKED BY:	---
DATE	6/2024

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

12TH STREET ROAD DIET

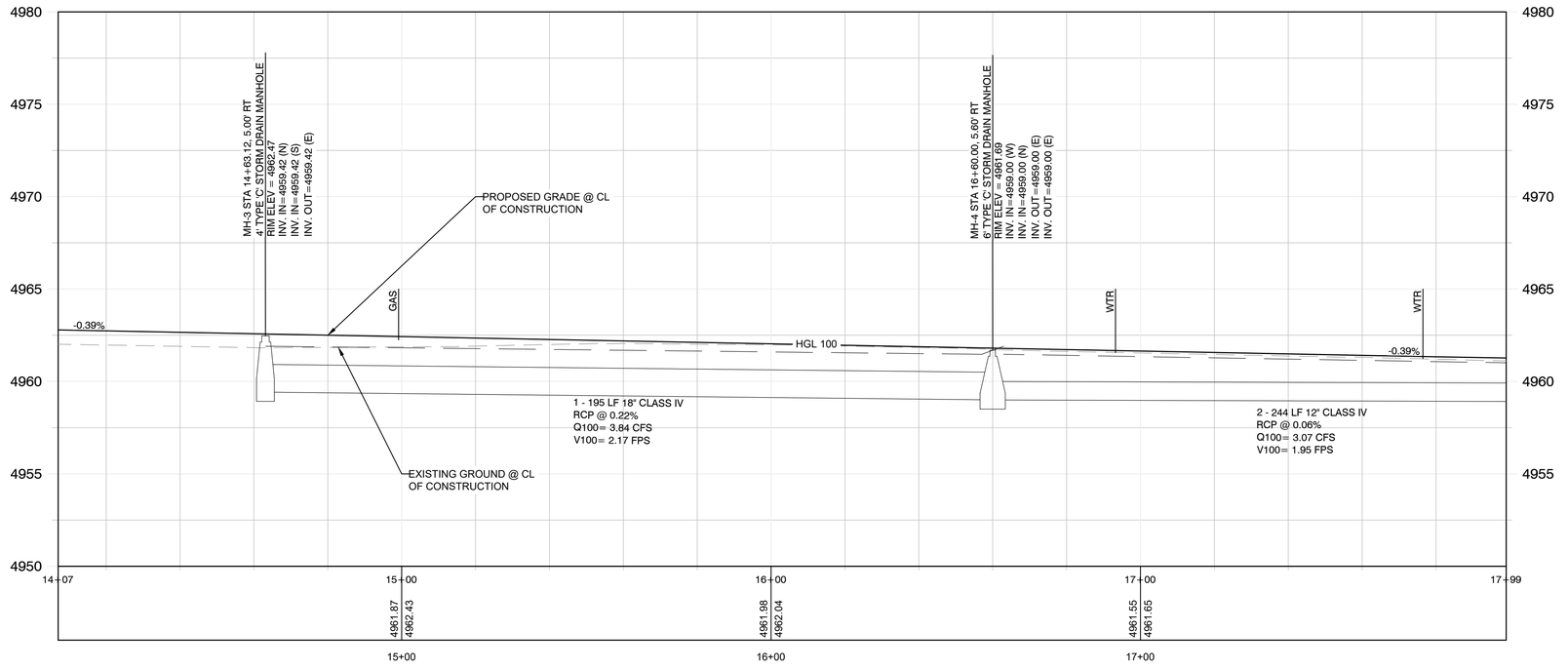
JUNCTION BOX DETAIL

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. H-13, J-13
		CITY PROJECT NO. 718780
		SHEET NO. 6 - 9



SCALE: 1" = 20' (BASED ON 22"x34" SHEET)

HORIZONTAL SCALE: 1:20 VERTICAL SCALE: 1"=4'



GENERAL NOTE:

1. STATION AND OFFSET FOR INLETS GIVEN TO FLOWLINE OF GUTTER UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET PROVIDED REFERENCE CENTERLINE ALIGNMENT OF ROADWAY.
3. THE TOP OF GRATE ELEVATION AT THE DOUBLE TYPE "D" DROP INLET REFERENCES THE MIDPOINT OF THE GRATE ALONG THE NORMAL FLOWLINE, SEE DOUBLE TYPE "D" INLET (DI) PLACEMENT LOCATION, SHEET 6 - 6.
4. PIPE LENGTHS ARE MEASURED FROM THE CENTER OF MANHOLE TO THE CENTER OF MANHOLE, FROM THE CENTER OF MANHOLE TO THE MIDPOINT OF THE GRATE OF INLETS, AND FROM THE MIDPOINT OF THE GRATE OF INLETS TO THE MIDPOINT OF THE GRATE OF INLETS.
5. FOR STORM INLET GUTTER TRANSITION, SEE COA STD. DWG. 2207.
6. IF WATER LINE IS IN CONFLICT WITH NEW STORM DRAIN, REROUTE PER WATER LINE CONFLICT DETAIL ON SHEET 6 - 6.

KEYED NOTES:

1. CONSTRUCT SINGLE TYPE "A" DROP INLET COA STD. DWG. 2201, SEE PLAN VIEW FOR GUTTER FLOW DIRECTION.
2. CONSTRUCT DOUBLE TYPE "D" DROP INLET COA STD. DWG. 2206
3. CONSTRUCT 4' TYPE "C" STORM DRAIN MANHOLE COA STD. DWG. 2208, SEE PLAN VIEW FOR GUTTER FLOW DIRECTION.
4. CONSTRUCT 6' TYPE "C" STORM DRAIN MANHOLE COA STD. DWG. 2208
5. INSTALL 12" CLASS IV RCP PIPE
6. INSTALL 18" CLASS IV RCP PIPE
7. REMOVE EXISTING STORM DRAIN PIPE
8. REMOVE EXISTING DROP INLET

CALL NM ONE-CALL SYSTEM SEVEN (7) DAYS PRIOR TO ANY EXCAVATION

CONSULTANTS
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BENCH MARKS

TO REACH THE STATION FROM THE INTERSECTION OF CENTRAL AND 14TH STREET, TRAVEL NORTH ON 14TH STREET 0.8 MILES TO LOMAS BOULEVARD AND THE STATION ON THE LEFT IN THE NORTHWEST QUADRANT OF THE INTERSECTION. THE STATION MARK IS A CITY OF ALBUQUERQUE SURVEY CONTROL 3 1" ALUMINUM DISC STAMPED "12-J13 1983" SET FLUSH WITH TOP OF THE CURB.

60%
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	DRAWINGS CORRECTED BY: DATE:	

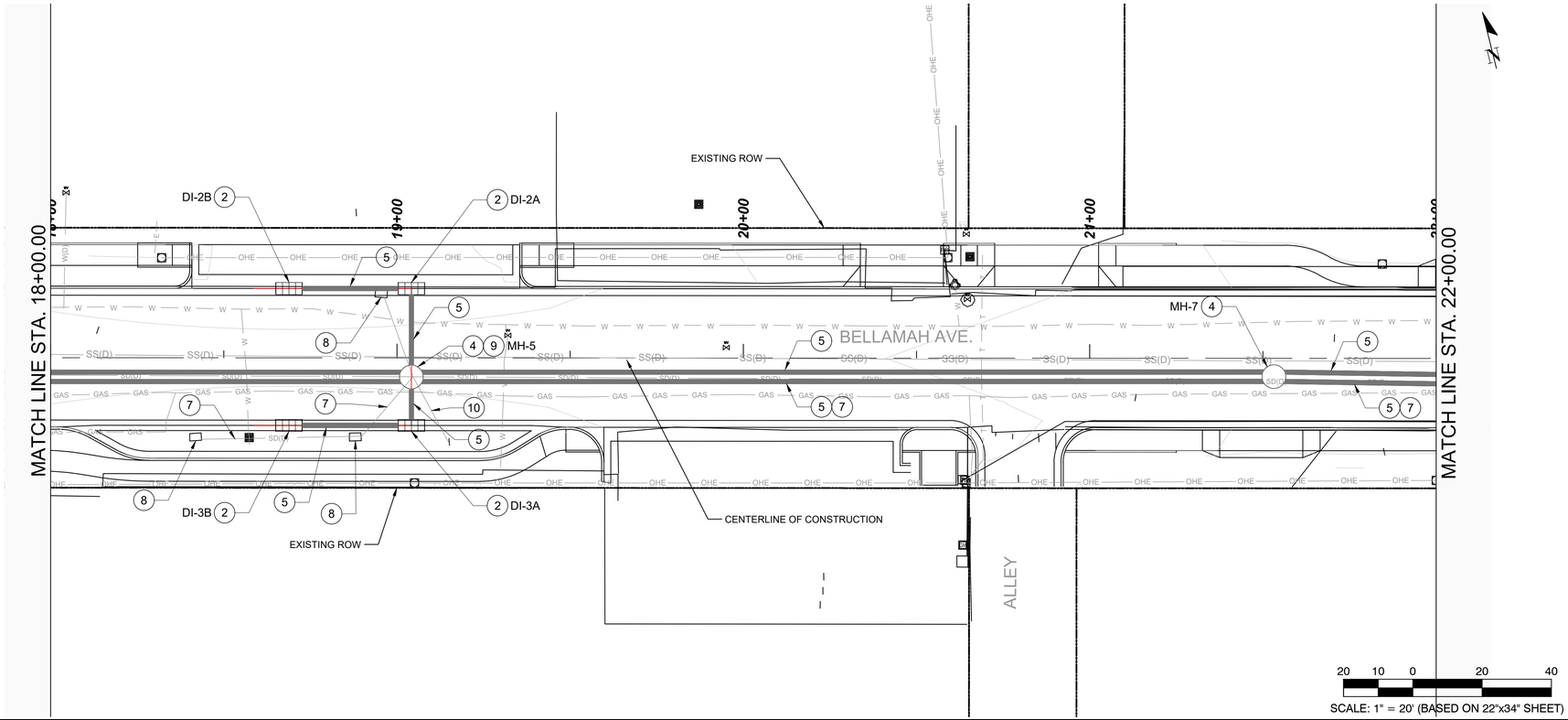
DESIGNED BY:	CT
DRAWN BY:	CT
CHECKED BY:	NV5
DATE	5/2022

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

BELLAMAH AVENUE EXTENSION

DRAINAGE PLAN AND PROFILE

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. J-13
		CITY PROJECT NO. 7703.72
		SHEET NO. 6 - 1



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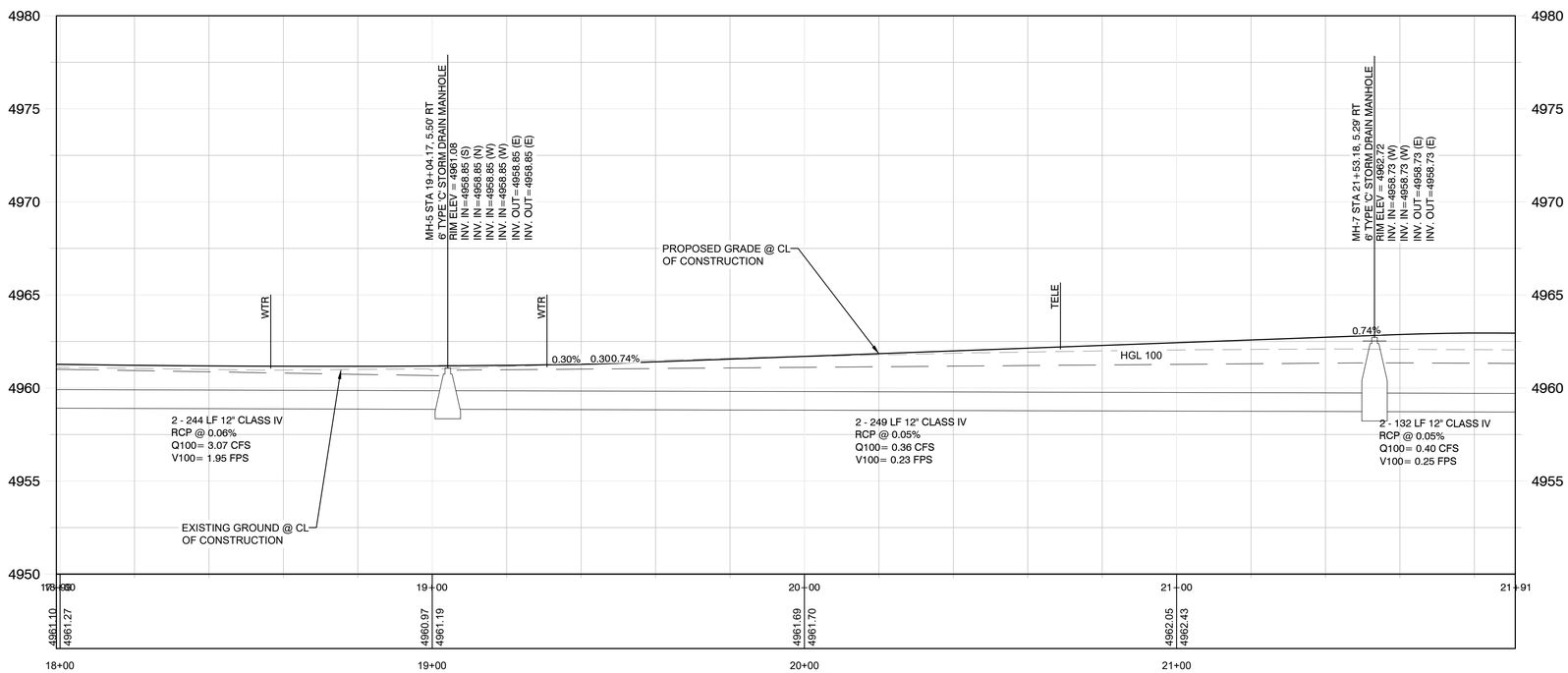

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		DRAWINGS CORRECTED BY: DATE:	

DESIGNED BY: CT
DRAWN BY: CT
CHECKED BY: NV5
DATE 1/2022

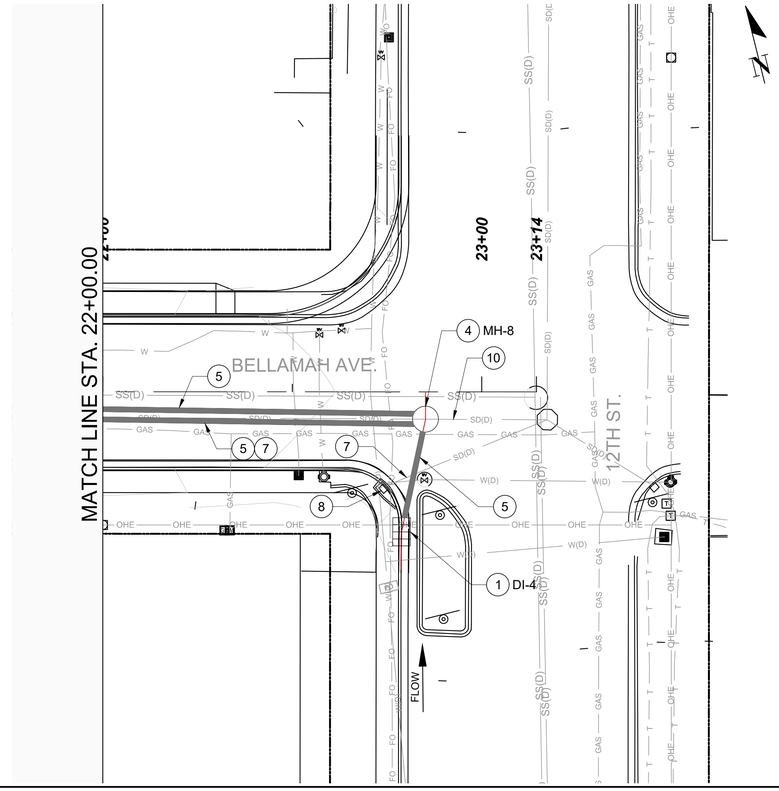
CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

BELLAMAH AVENUE EXTENSION

DRAINAGE PLAN AND PROFILE

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL

ZONE MAP NO. J-13
CITY PROJECT NO. 7703.72
SHEET NO. 6 - 2



20 10 0 20 40

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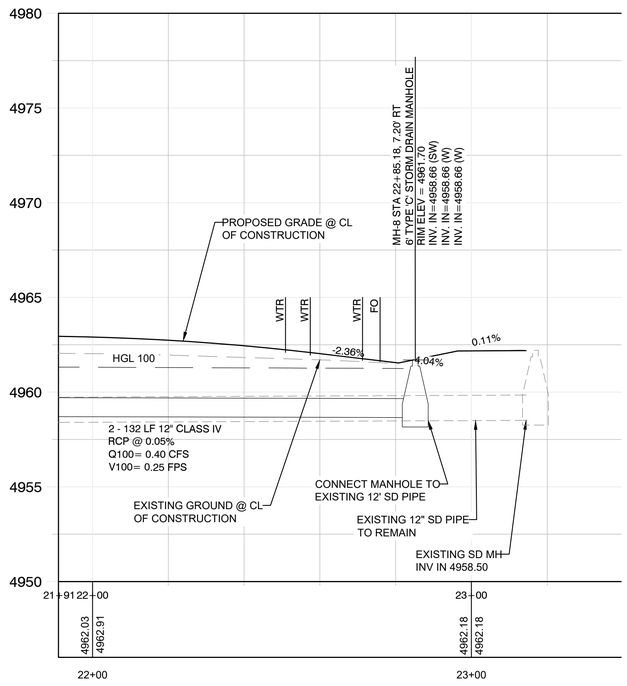

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811

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DESIGNED BY:	CT
DRAWN BY:	CT
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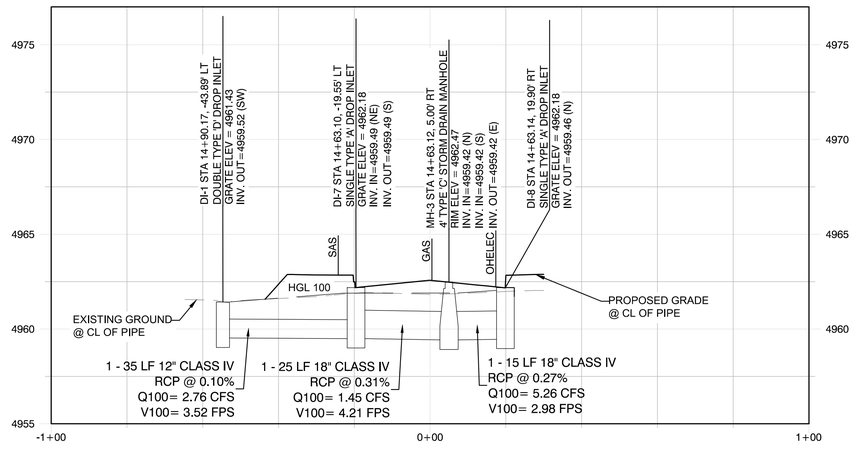
DATE	1/2022

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

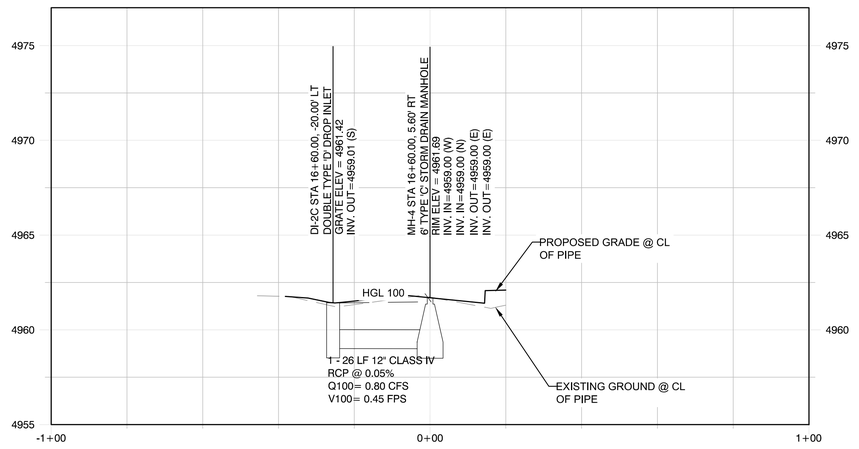
BELLAMAH AVENUE EXTENSION

DRAINAGE PLAN AND PROFILE

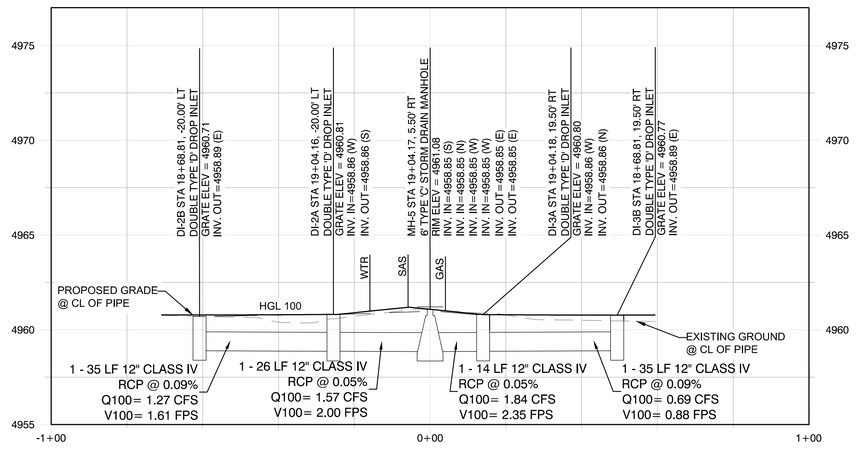
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. J-13
		CITY PROJECT NO. 7703.72
		SHEET NO. 6 - 3



STA 14+63.12



STA 16+60.00



STA 19+04.17

20 10 0 20 40

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BENCH MARKS

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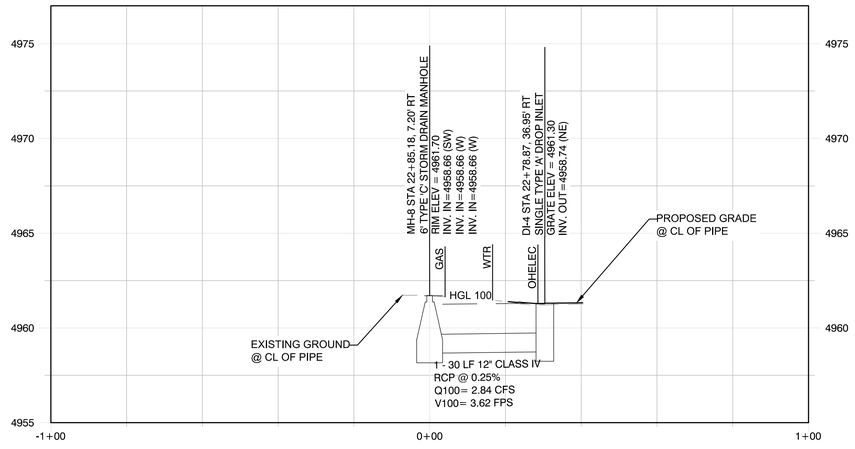
CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

BELLAMAH AVENUE EXTENSION

STORM DRAIN LATERAL PROFILES

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. J-13
		CITY PROJECT NO. 7703.72
		SHEET NO. 6 - 4



STA 22+85.18

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20 10 0 20 40

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DESIGNED BY:	CT
DRAWN BY:	CT
CHECKED BY:	NV5
DATE	1/2022

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

BELLAMAH AVENUE EXTENSION

STORM DRAIN LATERAL PROFILES

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. J-13
		CITY PROJECT NO. 7703.72
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