PRELIMINARY DRAINAGE REPORT

Legacy North
NWC of Legacy Blvd. and Miller Rd.
Scottsdale, Arizona

Prepared For:

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Prepared By:

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Plan # 18-DR-2023
Case # _____
Q-S # _____
☒ Accepted
☐ Corrections
N.Baronas 12/14/2023
Reviewed By Date

Kimley»Horn

291878000
November 2023

Legacy North

MASTER & PRELIMINARY DRAINAGE REPORT

NOVEMBER 2023

Prepared By:

Kimley»Horn

Kimley»Horn

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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Dinerstein Companies is proposing to construct a multi-family development at the northwest corner of Legacy Boulevard and Miller Road in Scottsdale, Arizona. The project is anticipated to consist of multiple three-story apartment buildings and townhomes with associated parking and infrastructure improvements.

1.2 SITE LOCATION

The proposed Legacy North development encompasses approximately 18.6 net acres in a portion of Section 26, Township 4 North, Range 4 East of the Gila and Salt River Base and Meridian in Maricopa County, Arizona. More specifically, the site is bounded on the west by an APS substation, on the south by Legacy Boulevard and undeveloped desert, on the north by a multi-family complex, and on the east by the future Miller Road alignment and undeveloped desert. The site slopes from the northeast to the southwest at approximately 1.5%. See Appendix A for the Site Location Map and Legal Description. See Figure 1 in Appendix D for a Context Aerial Map.

The adjacent portion of Legacy Boulevard is fully improved, and off-site improvements to Legacy Boulevard will be limited to median modifications and a driveway entrance. The adjacent portion of Miller Road will be constructed with this project. Construction of the adjacent off-site improvements will be completed prior to, or concurrently with, the on-site multi-family development.

1.3 PURPOSE

This Preliminary Drainage Report is intended to satisfy City of Scottsdale requirements. This report provides a description of the current storm water drainage patterns and systems and a description of the required and proposed drainage improvements.

1.4 OBJECTIVES

This report provides a drainage plan for the site that is intended to meet the drainage standards and guidelines of the City of Scottsdale and the Flood Control District of Maricopa County (FCDMC). In particular, this report will demonstrate the following:

1. Any existing off-site flows from the adjacent properties will be handled and conveyed in a way consistent with the current drainage patterns.

2. Permanent drainage facilities, including retention basins and storm drain systems, will have a positive outfall and any detained storm water will be disposed of within 36 hours.

3. Drainage facilities will be designed such that the 100-year post-development flows are collected and conveyed in such a manner so as to not cause damage to buildings and property or exceed pre-development flows.

4. Stormwater retention is provided for the difference between the pre-development and post-development stormwater volume.

5. Building finished floor elevations will be determined in accordance with City of Scottsdale and FEMA Flood Zone Requirements.

2.0 DESCRIPTION OF EXISTING DRAINAGE CONDITIONS AND CHARACTERISTICS

2.1 EXISTING ON-SITE DRAINAGE CONDITIONS

The site currently consists of vacant, undeveloped land with sparse desert vegetation. The site is bounded on the west by an APS substation, on the south by Legacy Boulevard and undeveloped desert, on the north by a multi-family complex, and on the east by the future Miller Road alignment and undeveloped desert. The site slopes from the northeast to the southwest at approximately 1.5%.

Storm water from the site currently flows to the south as sheet flow to two storm drain culverts that direct the storm water under Legacy Boulevard onto the undeveloped land south of the site. Site-generated storm water ultimately reaches the Reach 11 (Dike 2) regional detention facility in the City of Phoenix.

Refer to Figure 2 in Appendix D for the Existing Conditions Exhibit.

2.2 EXISTING OFF-SITE DRAINAGE CONDITIONS

The parcel is affected by regional storm water runoff from area north and east of the site. Off-site storm water from an existing open channel located on the east side of Miller Road to the north of the development outfalls onto the site. This stormwater sheet flows southwest and combines with the site generated storm water to the existing culverts under Legacy Boulevard. Off-site storm water from the undeveloped land to the east flows southwest to a box culvert that directs water from the northeast corner of the Miller Road/Legacy Boulevard intersection to the southwest of said intersection.

The existence of these off-site flows was confirmed by the Crossroads East Drainage Infrastructure Phase 1 drainage report, infrastructure plans, and FLO-2D model prepared by Michael Baker International in March 2020. The FLO-2D model was reviewed and additional cross sections analyzed to determine the magnitude of off-site flows impacting the site. Approximately 101 cfs enters the site from the existing Miller Road corridor and open channel at the northeast corner of the site. This flow spreads and sheet flows southwest towards Legacy boulevard where it concentrates and enters the existing culverts under Legacy Boulevard.

Approximately 14 cfs enters the site at the at the southwest corner from an open channel that runs from west to east along the north side of Legacy Boulevard. This stormwater enters the existing culvert under Legacy Boulevard and continues south.

As mentioned above, the offsite flows that enter the site from the northeast Miller Road channel and southwest Legacy Boulevard Channel concentrate at the south side of the site and cross under Legacy Boulevard via two existing culverts. According to the FLO-2D model, the west culvert conveys 49 cfs and

the east culvert conveys 55 cfs. The stormwater conveyed by these existing culverts continues south and ultimately reaches the Reach 11 (Dike 2) regional detention facility.

Storm water runoff from the adjacent portion of Legacy Boulevard is collected in catch basins that convey storm water directly into the existing storm drain culverts under Legacy Boulevard. Off-site flows from Legacy Boulevard do not affect the site.

Refer to Figure 2 in Appendix D for the Existing Conditions Exhibit. Refer to Appendix C for the FLO-2D model exhibits.

2.4 FEMA FLOOD HAZARD AREAS

The site is located in Flood Zone “AO” according to the Flood Insurance Rate Map 04013C1320L, dated October 16, 2013. Zone “AO” is designated by FEMA as “areas of flood depths of 1 foot (usually sheet flow on sloping terrain) average depths determined for areas of alluvial fan flooding, velocities also determined.” Refer to Appendix B for the FEMA FIRMette map for the site.

A LOMR application has been submitted to and approved by the City of Scottsdale to revise the floodplain designation for the site from Zone “AO” to Zone “X” (shaded). Zone “X” is designated by FEMA as “areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.”

The City approved LOMR has also submitted to FEMA for their review and approval. The FEMA review process is anticipated to take six months or more before final approval or denial is granted. The on-site drainage design assumes that the LOMR will be approved by FEMA based on the recent approval of adjacent LOMRs. The site as currently designed will not meet Zone “AO” requirements and adjustments will be required if the LOMR is denied.

3.0 PROPOSED DRAINAGE PLAN

3.1 GENERAL DESCRIPTION

In the analysis of the proposed drainage conditions the following items are considered:

- Area Types (concrete pavement, building, and desert landscaping)
- Magnitude of areas
- Slopes
- Storm Drain

3.2 PROPOSED SITE CONDITIONS

The proposed site will be required to detain/retain the pre-development vs. post-development (pre vs. post) or first flush stormwater run-off volume, whichever is greater. The proposed retention system will also be

sized to prevent the post-development stormwater flow exiting the site from exceeding the existing condition.

Storm water generated by the site will be conveyed via sheet flow to a series of catch basins and underground storm drains. Storm water storage will be provided by 10-foot diameter CMP underground retention tanks near the south end of the site. The retention tanks will drain to a series of dual-chamber drywells that will dispose of the stormwater within 36 hours.

The proposed storm drain system will be designed in such a way that stormwater in excess of the pre- vs. post- or first flush run-off volume will be conveyed through storm drain pipes at the top of the underground retention tanks and flow to existing culverts under Legacy Boulevard.

Refer to Figure 4 in Appendix D for the Preliminary Grading and Drainage Plans.

3.3 PROPOSED OFF-SITE CONDITIONS

As previously noted, off-site improvements to Miller Road will be completed prior to, or concurrently with, the on-site multi-family development. Stormwater from the existing channel adjacent to Miller Road to the north will be collected along the east side of the proposed portion of Miller Road. The storm water will be piped along the west side of Miller Road and north side of Legacy Boulevard. The proposed conveyance pipe will connect to the existing culverts under Legacy Boulevard and stormwater will then continue south in accordance with its historical condition.

Due to limited right of way space, three surface catch basins will be installed along the east side of Miller Road to collect the existing channel flows. It is anticipated that the future development of the parcel east of Miller Road will replace these catch basins with a permanent headwall. Two curb catch basins will be installed on the east and west curbs of the proposed Miller Road improvements near the connection to the existing infrastructure. Storm water collected in these five catch basins will be conveyed under Miller Road before entering a sediment basin at the northeast corner of the proposed development. The headwall entering this sediment basin combined with the three catch basins located along the east side of Miller Road will provide maintenance access for city forces. Storm water routed through this basin will pond 2-feet in depth before overtopping a proposed weir structure and continuing south.

Sediment load calculations are typically reserved for natural washes and streams. Due to the built-out nature of the upstream watershed, existing and proposed sediment load calculations are ambiguous. It is anticipated that culvert pipe velocities, the proposed sediment basin, and multiple access locations will facilitate adequate sediment removal and maintenance access for the proposed infrastructure.

Refer to Figure 4 in Appendix D for the Preliminary Grading and Drainage Plans.

3.5 STORM WATER STORAGE REQUIREMENTS

The proposed development will be required to retain the greater of the pre- vs post- or first flush stormwater runoff. Refer to Table 1 below for a comparison of the two scenarios.

Table 1 Pre vs Post Volume and First Flush Retention Comparison

Pre- vs Post			
Cpost-Cpre [ΔC]	**Precipitation Depth [P] (in)**	**Area [A] (sf)**	**Required Volume [(ΔC*P*A)/12] (ft3)**
0.74-0.45=.29	2.38	895,500	51,603

First Flush			
Runoff Coefficient [C]	**Precipitation Depth [P] (in)**	**Area [A] (sf)**	**Required Volume [(C*P*A)/12] (ft3)**
1.0	0.5	895,500	37,313

Refer to Appendix C for the Hydrologic Calculations.

On-site storage will be provided in 10-foot diameter CMP underground storage tanks. The underground retention tanks will be drained in 36 hours or less via dual-chamber drywells. Outlet flow will be controlled via pipe size and . Stormwater runoff in excess of the pre-vs-post storage volume will be collected by the on-site storm drain system and will flow through storm drains at the top of the underground retention tanks to the proposed off-site stormwater conveyance pipe system located along Legacy Boulevard.

3.6 PRE- AND POST-DEVELOPMENT RUNOFF CHARACTERISTICS AT CONCENTRATION POINTS

The existing site consists of vacant desert landscape. Current topography indicates the site drains from the northeast to the southwest. The concentration points for the existing runoff are the two existing culverts under Legacy Boulevard at the south end of the site.

The pre- vs post-development stormwater runoff will be retained in underground retention tanks. Stormwater runoff in excess of the retained volume will flow through storm drains at the top of the underground retention tanks to the proposed storm drain system located along Legacy Boulevard. Similar to the existing condition, the stormwater runoff concentration point for the proposed development will be located at the south end of the site.

Refer to Figure 2 in Appendix D for the Existing Conditions Exhibit.

3.7 ADEQ AZPDES REQUIREMENTS

Prior to construction an executed Notice of Intent (NOI) shall be submitted to Arizona Department of Environmental Quality (ADEQ) in conformance with the Arizona Pollution Discharge Elimination System Permit (AZPDES) permit. The NOI and associated storm water management best management practices will remain active on the site until construction is complete and a Notice of Termination is filed with ADEQ in conformance with AZPDES permit.

3.8 PROJECT PHASING

This project will be constructed in a single phase.

4.0 DATA ANALYSIS METHODS

4.1 HYDROLOGIC PROCEDURES, PARAMETER SELECTION, AND ASSUMPTIONS

Hydrologic calculations for the site were performed using the rational equation in the FCDMC Drainage Design Manual Volume I, which is limited to drainage areas of up to 160 acres.

For analysis of the development, the site was sub-divided into 174 sub-basins consisting of pavement, landscaping, and building areas. Figure 3 in Appendix D identifies the drainage sub-basins and concentration points.

4.2 HYDRAULIC PROCEDURES, METHODS, PARAMETER SELECTION, AND ASSUMPTIONS

All flows for proposed conditions will be determined using the rational method as outlined by the Drainage Design Manual by Maricopa County Flood Control District. Due to the small nature of the watersheds for the individual sub-basins, a minimum time of concentration of five minutes will be assumed. All drainage basins will assume a runoff coefficient of 0.95 with the exception of the landscape sub-basins, which will utilize a runoff coefficient of 0.45 per the DS&PM.

The following criteria was used to size the proposed pipes for on-site storm water conveyance:

- A maximum allowable 100-year ponding depth of six inches above the catch basin grate.
- A minimum of 12 inches of freeboard between the 100-year ponding depth and the building finish floor elevation.
- The tailwater condition for the 100-year event will be assumed to be the surface basin high water or pipe crown at the pipe connection location, whichever is greater.
- The 10-year tailwater condition will be assumed to be free outfall.

The software program StormCAD, by Bentley Systems, was used for the hydraulic modeling. Refer to Appendix C for the 10-year and 100-year model results.

Storm drain catch basins will be sized using Equation 3.21 from the Drainage Design Manual for Maricopa County, Hydraulics. A 50% clogging factor will be applied in the analysis. Catch basin, orifice, and weir analysis will be provided with the final drainage report.

See Appendix C for sizing calculations for the underground storage tanks.

4.3 STORM WATER STORAGE CALCULATION METHODS AND ASSUMPTIONS

As previously noted, the proposed site will be required to retain the pre- vs- post stormwater runoff volume. Underground 10-foot diameter retention tanks will be used to store the site-generated stormwater. The required pre- vs post- volume is calculated based on Section 4-1.201.C.1.b of the City of Scottsdale 2018 Design Standards & Policies Manual (DS&PM):

$$V = (\Delta C * P * A)/12$$

Where: V = Required first flush volume (cubic feet)

ΔC = Weighted runoff coefficient for the proposed development – weighted runoff coefficient for the existing development

P = Precipitation depth of 2.38 inches

A = Contributing area (square feet)

5.0 CONCLUSION

5.1 OVERALL PROJECT

Based on the results of this Preliminary Drainage Report, the following can be concluded:

- Off-site stormwater that impacts the proposed site will be collected and conveyed in a way consistent with pre-development conditions.
- Treatment for the storm water first flush will be provided by 10-foot diameter CMP underground retention tanks.
- Off-site improvements to adjacent portions of Miller Road will include drainage facilities that will route off-site flows around the site.
- Based on the current Flood Insurance Rate Map (FIRM), the site is located in the Zone “AO”. A LOMR is anticipated to be approved that will revise the site to Zone “X”. Based on FEMA’s recent approval of adjacent LOMRs, the site has been design according to Zone “X” requirements. If the LOMR is denied, it will be necessary to modify the site design and finished floor elevations in order to meet Zone “AO” requirements.
- Per Maricopa County Drainage requirements, the finished floor elevation for the proposed buildings will be 1-ft above the 100 year off-site flow and above the ultimate outfall of the site.

This report is intended to provide a level of assurance that the site will adhere to all appropriate reviewing agency guidelines with respect to drainage and flood protection.

7.0 REFERENCES

1. City of Scottsdale, *Design Standards and Policies Manual, Chapter 4: Grading and Drainage,* January 2018.

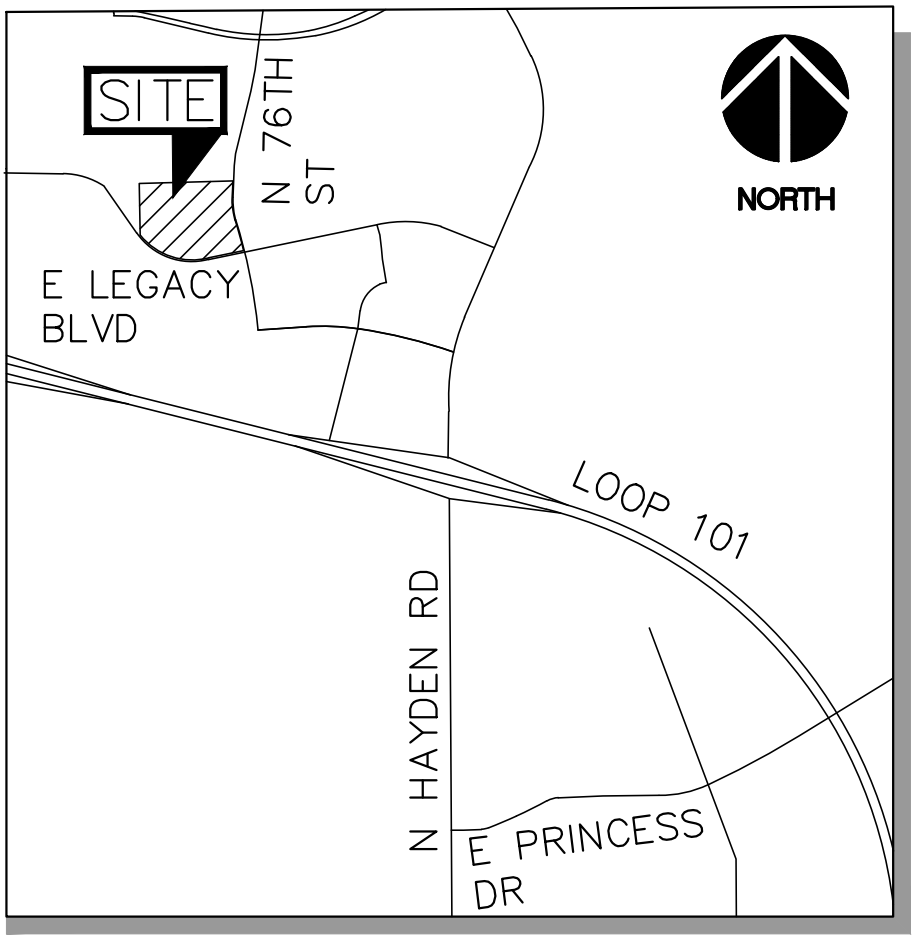
2. Michael Baker International, *Drainage Design Report for Crossroads East Drainage Infrastructure Phase 1,* March, 2020.

3. Federal Emergency Management Agency (FEMA), *Flood Insurance Rate Map (FIRM) of Maricopa County, Arizona and Incorporated Areas, Panel 1320 of 4425, Map Number 0413C1320L*, October 16, 2013.

4. Flood Control District of Maricopa County (FCDMC), *Drainage Design Manual for Maricopa County, Hydrology Volume, February*, 2008.

5. Flood Control District of Maricopa County (FCDMC), *Drainage Design Manual for Maricopa County, Hydraulics Volume,* January, 1996.

Appendix A – Site Location Map and Legal Descriptions



VICINITY MAP

SCOTTSDALE, AZ

N.T.S.

VICINITY MAP

N.T.S.

NORTH

Kimley»Horn

ALL THAT CERTAIN REAL PROPERTY IN THE COUNTY OF MARICOPA, STATE OF ARIZONA, DESCRIBED AS FOLLOWS:
THAT PORTION OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE
AND MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE CENTER OF SAID SECTION 26, BEING MARKED BY AN ADOT HIGHWAY DIVISION
ALUMINIUM CAP STAMPED LS16870, FROM WHICH THE EAST QUARTER CORNER OF SAID SECTION 26, BEING
MARKED BY THE GLO BRASS CAP STAMPED 1914 BEARS SOUTH 89 DEGREES 57 MINUTES 50 SECONDS
EAST, A DISTANCE OF 2641.99 FEET;

THENCE ALONG THE EAST–WEST MID–SECTION LINE, SOUTH 89 DEGREES 57 MINUTES 50 SECONDS EAST, A
DISTANCE OF 194.70 FEET TO A POINT ON THE CENTER LINE OF MILLER ROAD AS DEDICATED ON STATE
RIGHT OF WAY #16–119941 AND THE POINT OF BEGINNING;

THENCE ALONG SAID CENTER LINE OF MILLER ROAD, SOUTH 11 DEGREES 04 MINUTES 34 SECONDS EAST
182.59 FEET TO AN ANGLE POINT ON THE CENTER LINE OF SAID LEGACY ROAD;

THENCE DEPARTING SAID CENTER LINE OF MILLER ROAD ALONG THE CENTER LINE OF LEGACY BOULEVARD
AS DEDICATED IN STATE RIGHT OF WAY #16–119941, SOUTH 78 DEGREES 54 MINUTES 18 SECONDS WEST, A
DISTANCE OF 488.86 FEET TO THE BEGINNING OF A TANGENT CURVE TO THE RIGHT;

SAID CURVE BEING CONCAVE NORTHEASTERLY THROUGH AN ANGLE OF 45 DEGREES 06 MINUTES 31
SECONDS, HAVING A RADIUS OF 800.00 FEET, AN ARC LENGTH OF 629.84 FEET TO A POINT OF
INTERSECTION WITH A NON–TANGENTIAL LINE;

THENCE DEPARTING SAID CENTER LINE OF LEGACY BOULEVARD AS DEDICATED IN STATE RIGHT OF WAY
#16–119941, NORTH 00 DEGREES 02 MINUTES 30 SECONDS EAST FOR A DISTANCE OF 410.32 FEET TO A
POINT;

THENCE NORTH 00 DEGREES 00 MINUTES 44 SECONDS EAST, A DISTANCE OF 365.64 FEET TO A POINT;

THENCE NORTH 87 DEGREES 27 MINUTES 38 SECONDS EAST, A DISTANCE OF 948.33 FEET TO THE CENTER
LINE OF MILLER ROAD AS DEDICATED IN STATE RIGHT OF WAY #16–119941 AND A NON–TANGENTIAL CURVE
TO THE LEFT THROUGH AN ANGLE OF 11 DEGREES 21 MINUTES 57 SECONDS, HAVING A RADIUS OF 1610.00
FEET AND AN ARC LENGTH OF 319.38 FEET TO A POINT OF TANGENCY AND THE CENTER LINE OF MILLER
ROAD AS DEDICATED IN STATE RIGHT OF WAY #16–119941;

THENCE SOUTH 11 DEGREES 04 MINUTES 34 SECONDS EAST A DISTANCE OF 355.82 FEET TO THE POINT OF BEGINNING.

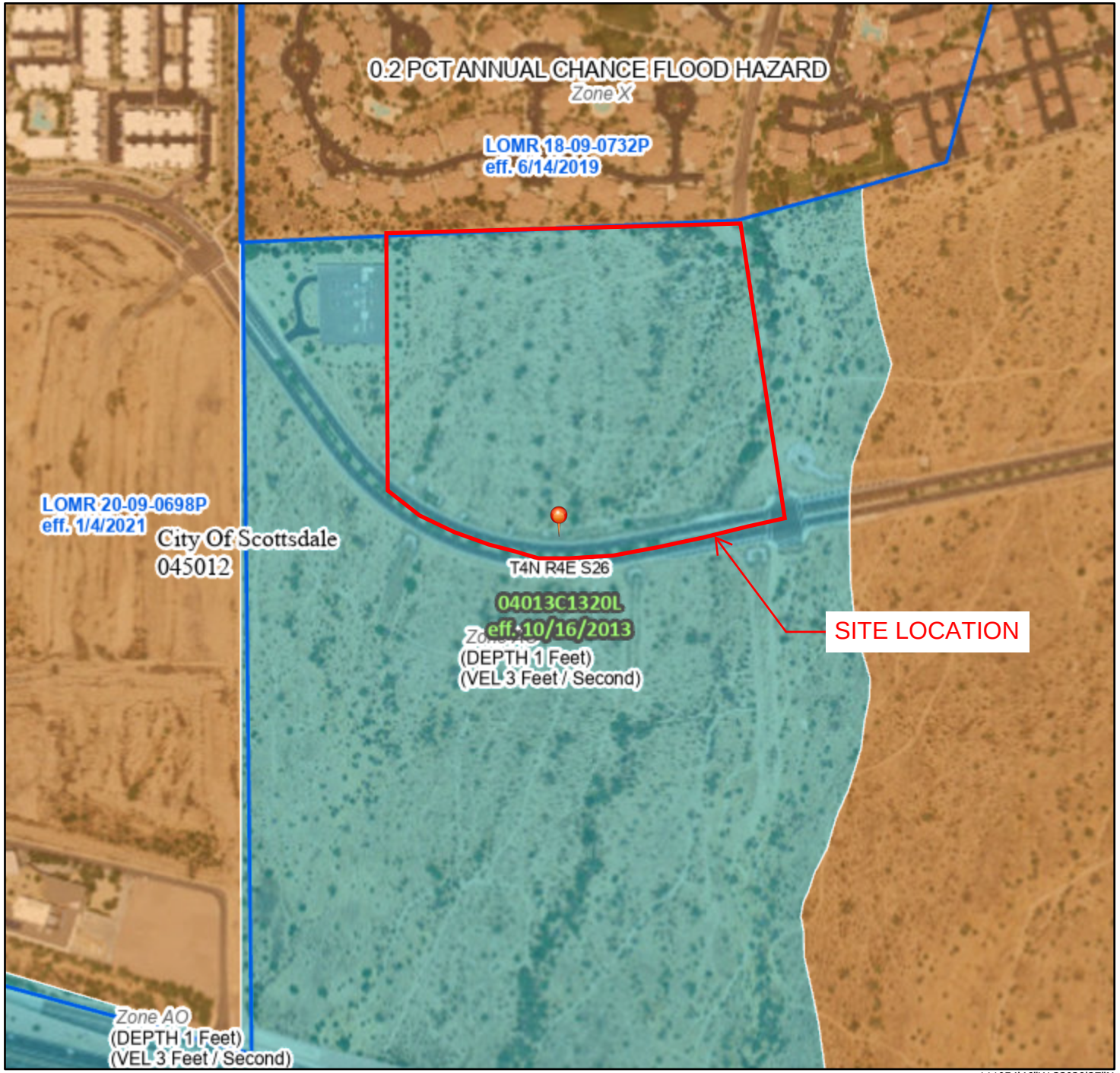
SAID PARCEL CONTAINS 895,495 SQUARE FEET, OR 20.5577 ACRES MORE OR LESS.

Appendix B – FEMA Flood Insurance Rate Map (FIRM)

National Flood Hazard Layer FIRMette

FEMA

111°55'24"W 33°39'57"N



111°54'46"W 33°39'27"N

Feet

0 250 500 1,000 1,500 2,000

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
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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 4/25/2023 at 12:24 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.

Appendix C – Hydrologic/Hydraulic Calculations

Overall Retention Summary - NWC Legacy Boulevard and Miller Road											
Drainage Area	Land Use	Area [A]		Pre-Exist. Runoff Coefficient, [C_{PRE}]	Post-Dev. Runoff Coefficient, [C_{POST}]	Runoff Coefficient [$C=C_{POST}-C_{PRE}$]	Precipitation Depth [P]	Required Storage (V_{REQ} = CPA/12)		Retention Basin	Catch Basin
		sf	ac				in	cf	ac-ft		
173	Building	3118	0.072	0.45	0.95	0.50	2.38	309	0.007	A	CBA31
174	Building	5695	0.131	0.45	0.95	0.50	2.38	565	0.013	A	CBA23
175	Building	3728	0.086	0.45	0.95	0.50	2.38	370	0.008	A	CBA28
176	Building	0	0.000	0.45	0.95	0.50	2.38	0	0.000	-	-
177	Building	0	0.000	0.45	0.95	0.50	2.38	0	0.000	-	-
178	Pavement	5665	0.130	0.45	0.95	0.50	2.38	562	0.013	B	CBB6
179	Landscaping	9252	0.212	0.45	0.45	0.00	2.38	0	0.000	OS	OS2
181	Building	6354	0.146	0.45	0.95	0.50	2.38	630	0.014	B	CBB1
182	Building	8584	0.197	0.45	0.95	0.50	2.38	851	0.020	B	CBB7
183	Building	8583	0.197	0.45	0.95	0.50	2.38	851	0.020	B	CBB10
184	Landscaping	5686	0.131	0.45	0.45	0.00	2.38	0	0.000	B	CBB4
185	Building	8583	0.197	0.45	0.95	0.50	2.38	851	0.020	B	CBB11
186	Pavement	1889	0.043	0.45	0.95	0.50	2.38	187	0.004	B	CBB12
187	Building	8583	0.197	0.45	0.95	0.50	2.38	851	0.020	B	CBB2
188	Building	8582	0.197	0.45	0.95	0.50	2.38	851	0.020	B	CBB2
192	Landscaping	3315	0.076	0.45	0.45	0.00	2.38	0	0.000	A	CBA25
193	Landscaping	2184	0.050	0.45	0.45	0.00	2.38	0	0.000	A	CBA23
194	Landscaping	1070	0.025	0.45	0.45	0.00	2.38	0	0.000	A	CBA23
195	Landscaping	5969	0.137	0.45	0.45	0.00	2.38	0	0.000	A	CBA24
196	Building	8583	0.197	0.45	0.95	0.50	2.38	851	0.020	A	CBA23
197	Building	8582	0.197	0.45	0.95	0.50	2.38	851	0.020	A	CBA21
199	Pavement	14896	0.342	0.45	0.95	0.50	2.38	1,477	0.034	A	CBA23
200	Building	691	0.016	0.45	0.95	0.50	2.38	69	0.002	A	CBA2
201	Building	24267	0.557	0.45	0.95	0.50	2.38	2,406	0.055	A	OS3
202	Building	8583	0.197	0.45	0.95	0.50	2.38	851	0.020	A	CBA2
203	Landscaping	3829	0.088	0.45	0.45	0.00	2.38	0	0.000	A	CBA21
204	Landscaping	2831	0.065	0.45	0.45	0.00	2.38	0	0.000	A	CBA21
206	Building	4226	0.097	0.45	0.95	0.50	2.38	419	0.010	A	CBA12
207	Landscaping	3895	0.089	0.45	0.45	0.00	2.38	0	0.000	A	CBA12
208	Building	4222	0.097	0.45	0.95	0.50	2.38	419	0.010	A	CBA12
209	Building	4225	0.097	0.45	0.95	0.50	2.38	419	0.010	A	CBA12
210	Landscaping	1863	0.043	0.45	0.45	0.00	2.38	0	0.000	A	CBA14
211	Building	4222	0.097	0.45	0.95	0.50	2.38	419	0.010	A	CBA12
212	Landscaping	866	0.020	0.45	0.45	0.00	2.38	0	0.000	A	CBA12
213	Landscaping	8303	0.191	0.45	0.45	0.00	2.38	0	0.000	A	CBA35
214	Landscaping	685	0.016	0.45	0.45	0.00	2.38	0	0.000	A	CBA12
215	Building	4222	0.097	0.45	0.95	0.50	2.38	419	0.010	A	CBA9
216	Landscaping	3909	0.090	0.45	0.45	0.00	2.38	0	0.000	A	CBA9
217	Building	4225	0.097	0.45	0.95	0.50	2.38	419	0.010	A	CBA9
218	Building	4222	0.097	0.45	0.95	0.50	2.38	419	0.010	A	CBA9
219	Landscaping	3875	0.089	0.45	0.45	0.00	2.38	0	0.000	A	CBA9
220	Building	4218	0.097	0.45	0.95	0.50	2.38	418	0.010	A	CBA6
221	Building	4222	0.097	0.45	0.95	0.50	2.38	419	0.010	A	CBA6
222	Building	3118	0.072	0.45	0.95	0.50	2.38	309	0.007	A	CBA6
223	Building	4222	0.097	0.45	0.95	0.50	2.38	419	0.010	A	CBA9
224	Landscaping	1734	0.040	0.45	0.45	0.00	2.38	0	0.000	A	CBA32
225	Landscaping	4471	0.103	0.45	0.45	0.00	2.38	0	0.000	A	CBA32
226	Building	4222	0.097	0.45	0.95	0.50	2.38	419	0.010	A	CBA32
227	Building	4225	0.097	0.45	0.95	0.50	2.38	419	0.010	A	CBA32
228	Building	3118	0.072	0.45	0.95	0.50	2.38	309	0.007	A	CBA11
229	Building	3118	0.072	0.45	0.95	0.50	2.38	309	0.007	A	CBA11
230	Pavement	8754	0.201	0.45	0.95	0.50	2.38	868	0.020	A	CBA6
231	Landscaping	4515	0.104	0.45	0.45	0.00	2.38	0	0.000	A	CBA7
232	Building	3118	0.072	0.45	0.95	0.50	2.38	309	0.007	A	CBA6
233	Building	3118	0.072	0.45	0.95	0.50	2.38	309	0.007	A	CBA33
234	Building	3118	0.072	0.45	0.95	0.50	2.38	309	0.007	A	CBA33
235	Building	3118	0.072	0.45	0.95	0.50	2.38	309	0.007	A	CBA31
236	Building	3118	0.072	0.45	0.95	0.50	2.38	309	0.007	A	CBA30
237	Building	2036	0.047	0.45	0.95	0.50	2.38	202	0.005	A	CBB9
238	Building	3118	0.072	0.45	0.95	0.50	2.38	309	0.007	A	CBA30
239	Landscaping	4010	0.092	0.45	0.45	0.00	2.38	0	0.000	A	CBA28
240	Building	3118	0.072	0.45	0.95	0.50	2.38	309	0.007	A	CBA10
241	Landscaping	3456	0.079	0.45	0.45	0.00	2.38	0	0.000	A	CBA8
242	Building	3118	0.072	0.45	0.95	0.50	2.38	309	0.007	A	CBA10
243	Landscaping	7973	0.183	0.45	0.45	0.00	2.38	0	0.000	A	CBA27
244	Landscaping	1818	0.042	0.45	0.45	0.00	2.38	0	0.000	A	CBA9
245	Pavement	2617	0.060	0.45	0.95	0.50	2.38	260	0.006	A	CBA30
246	Landscaping	11645	0.267	0.45	0.45	0.00	2.38	0	0.000	A	CBA29
247	Landscaping	121	0.003	0.45	0.45	0.00	2.38	0	0.000	A	CBA12
248	Landscaping	1823	0.042	0.45	0.45	0.00	2.38	0	0.000	A	CBA12
249	Pavement	2654	0.061	0.45	0.95	0.50	2.38	263	0.006	A	CBA33
250	Landscaping	2110	0.048	0.45	0.45	0.00	2.38	0	0.000	A	CBA26
251	Landscaping	2687	0.062	0.45	0.45	0.00	2.38	0	0.000	A	CBA21
252	Landscaping	4489	0.103	0.45	0.45	0.00	2.38	0	0.000	A	CBA2
253	Landscaping	3385	0.078	0.45	0.45	0.00	2.38	0	0.000	A	CBA2
254	Building	8594	0.197	0.45	0.95	0.50	2.38	852	0.020	A	CBA5
255	Landscaping	1417	0.033	0.45	0.45	0.00	2.38	0	0.000	A	CBA19
256	Building	8608	0.198	0.45	0.95	0.50	2.38	854	0.020	A	CBA26

Drainage Area	Land Use	Area [A]		Pre-Exist. Runoff Coefficient, [C_{PRE}]	Post-Dev. Runoff Coefficient, [C_{POST}]	Runoff Coefficient [$C=C_{POST}-C_{PRE}$]	Precipitation Depth [P]	Required Storage (V_{REQ} = CPA/12)		Retention Basin	Catch Basin
		sf	ac				in	cf	ac-ft		
259	Pavement	1921	0.044	0.45	0.95	0.50	2.38	190	0.004	A	CBA20
260	Pavement	1897	0.044	0.45	0.95	0.50	2.38	188	0.004	A	CBA1
262	Building	8749	0.201	0.45	0.95	0.50	2.38	868	0.020	A	CBA21
264	Building	17501	0.402	0.45	0.95	0.50	2.38	1,736	0.040	A	CBA2
265	Pavement	9234	0.212	0.45	0.95	0.50	2.38	916	0.021	A	CBA21
266	Landscaping	1842	0.042	0.45	0.45	0.00	2.38	0	0.000	A	CBA40
267	Landscaping	1846	0.042	0.45	0.45	0.00	2.38	0	0.000	A	CBA15
268	Landscaping	1344	0.031	0.45	0.45	0.00	2.38	0	0.000	A	-
269	Landscaping	1844	0.042	0.45	0.45	0.00	2.38	0	0.000	A	CBA39
270	Landscaping	1847	0.042	0.45	0.45	0.00	2.38	0	0.000	A	CBA13
271	Landscaping	4444	0.102	0.45	0.45	0.00	2.38	0	0.000	A	-
272	Landscaping	1842	0.042	0.45	0.45	0.00	2.38	0	0.000	A	CBA38
275	Landscaping	12851	0.295	0.45	0.45	0.00	2.38	0	0.000	B	CBB12
276	Landscaping	1844	0.042	0.45	0.45	0.00	2.38	0	0.000	A	CBA37
277	Landscaping	2965	0.068	0.45	0.45	0.00	2.38	0	0.000	A	-
278	Pavement	15364	0.353	0.45	0.95	0.50	2.38	1,524	0.035	B	CBB2
279	Landscaping	7732	0.178	0.45	0.45	0.00	2.38	0	0.000	B	CBA34
280	Landscaping	1674	0.038	0.45	0.45	0.00	2.38	0	0.000	A	CBA36
281	Landscaping	7091	0.163	0.45	0.45	0.00	2.38	0	0.000	A	-
282	Pavement	26816	0.616	0.45	0.95	0.50	2.38	2,659	0.061	OS	OS2
283	Pavement	1614	0.037	0.45	0.95	0.50	2.38	160	0.004	OS	OS1
284	Landscaping	4467	0.103	0.45	0.45	0.00	2.38	0	0.000	A	CBA18
285	Landscaping	1319	0.030	0.45	0.45	0.00	2.38	0	0.000	A	-
286	Landscaping	10597	0.243	0.45	0.45	0.00	2.38	0	0.000	A	CBA34
287	Landscaping	1842	0.042	0.45	0.45	0.00	2.38	0	0.000	A	CBA17
288	Landscaping	1621	0.037	0.45	0.45	0.00	2.38	0	0.000	A	-
289	Landscaping	1676	0.038	0.45	0.45	0.00	2.38	0	0.000	A	CBA41
290	Landscaping	1820	0.042	0.45	0.45	0.00	2.38	0	0.000	A	CBA16
291	Landscaping	1488	0.034	0.45	0.45	0.00	2.38	0	0.000	A	-
292	Pavement	1872	0.043	0.45	0.95	0.50	2.38	186	0.004	B	CBB3
293	Pavement	2294	0.053	0.45	0.95	0.50	2.38	227	0.005	B	CBB1
294	Pavement	9701	0.223	0.45	0.95	0.50	2.38	962	0.022	B	CBB11
295	Landscaping	2443	0.056	0.45	0.45	0.00	2.38	0	0.000	B	CBB2
296	Landscaping	1843	0.042	0.45	0.45	0.00	2.38	0	0.000	B	CBB7
297	Pavement	2443	0.056	0.45	0.95	0.50	2.38	242	0.006	A	CBA21
298	Building	8723	0.200	0.45	0.95	0.50	2.38	865	0.020	A	CBA25
299	Landscaping	3485	0.080	0.45	0.45	0.00	2.38	0	0.000	A	CBA21
300	Pavement	7228	0.166	0.45	0.95	0.50	2.38	717	0.016	A	CBA26
301	Pavement	5860	0.135	0.45	0.95	0.50	2.38	581	0.013	A	CBA19
302	Pavement	5071	0.116	0.45	0.95	0.50	2.38	503	0.012	A	CBA34
303	Landscaping	998	0.023	0.45	0.45	0.00	2.38	0	0.000	A	CBA26
304	Pavement	2607	0.060	0.45	0.95	0.50	2.38	259	0.006	A	CBA3
305	Pavement	8323	0.191	0.45	0.95	0.50	2.38	825	0.019	A	CBA2
306	Pavement	3489	0.080	0.45	0.95	0.50	2.38	346	0.008	A	CBA4
307	Landscaping	2191	0.050	0.45	0.45	0.00	2.38	0	0.000	A	CBA26
308	Landscaping	6585	0.151	0.45	0.45	0.00	2.38	0	0.000	A	CBA25
309	Landscaping	3174	0.073	0.45	0.45	0.00	2.38	0	0.000	A	CBA26
310	Pavement	8273	0.190	0.45	0.95	0.50	2.38	820	0.019	A	CBA25
311	Landscaping	1292	0.030	0.45	0.45	0.00	2.38	0	0.000	A	CBA5
312	Pavement	10516	0.241	0.45	0.95	0.50	2.38	1,043	0.024	A	CBA5
313	Landscaping	2379	0.055	0.45	0.45	0.00	2.38	0	0.000	A	CBA19
314	Pavement	9096	0.209	0.45	0.95	0.50	2.38	902	0.021	A	CBA19
315	Pavement	8184	0.188	0.45	0.95	0.50	2.38	812	0.019	A	CBA32
316	Pavement	3617	0.083	0.45	0.95	0.50	2.38	359	0.008	A	CBA31
317	Pavement	2617	0.060	0.45	0.95	0.50	2.38	260	0.006	A	CBA11
318	Pavement	2617	0.060	0.45	0.95	0.50	2.38	260	0.006	A	CBA10
319	Pavement	23040	0.529	0.45	0.95	0.50	2.38	2,285	0.052	A	CBA9
320	Landscaping	1850	0.042	0.45	0.45	0.00	2.38	0	0.000	A	CBA9
321	Building	17473	0.401	0.45	0.95	0.50	2.38	1,733	0.040	B	CBB5
322	Pavement	5570	0.128	0.45	0.95	0.50	2.38	552	0.013	B	CBB11
323	Landscaping	1128	0.026	0.45	0.45	0.00	2.38	0	0.000	B	CBB11
324	Landscaping	1160	0.027	0.45	0.45	0.00	2.38	0	0.000	B	CBB10
325	Landscaping	9003	0.207	0.45	0.45	0.00	2.38	0	0.000	OS	OS1
326	Landscaping	2049	0.047	0.45	0.45	0.00	2.38	0	0.000	B	CBB2
327	Landscaping	5281	0.121	0.45	0.45	0.00	2.38	0	0.000	A	CBA24
328	Landscaping	7641	0.175	0.45	0.45	0.00	2.38	0	0.000	B	CBB6
330	Pavement	5822	0.134	0.45	0.95	0.50	2.38	577	0.013	B	CBB5
331	Pavement	8766	0.201	0.45	0.95	0.50	2.38	869	0.020	B	CBB4
332	Landscaping	12835	0.295	0.45	0.45	0.00	2.38	0	0.000	B	CBA24
333	Pavement	11603	0.266	0.45	0.95	0.50	2.38	1,151	0.026	A	CBA24
334	Pavement	3771	0.087	0.45	0.95	0.50	2.38	374	0.009	B	CBB2
335	Pavement	4211	0.097	0.45	0.95	0.50	2.38	418	0.010	B	CBB4
336	Landscaping	1333	0.031	0.45	0.45	0.00	2.38	0	0.000	B	CBB2
337	Landscaping	1996	0.046	0.45	0.45	0.00	2.38	0	0.000	B	CBB4
338	Landscaping	11563	0.265	0.45	0.45	0.00	2.38	0	0.000	B	CBB9
339	Pavement	8112	0.186	0.45	0.95	0.50	2.38	804	0.018	B	CBB10
340	Pavement	2173	0.050	0.45	0.95	0.50	2.38	215	0.005	B	CBB8
341	Pavement	2541	0.058	0.45	0.95	0.50	2.38	252	0.006	B	CBB9
342	Landscaping	1375	0.032	0.45	0.45	0.00	2.38	0	0.000	B	CBB10

Drainage Area	Land Use	Area [A]		Pre-Exist. Runoff Coefficient, [C_{PRE}]	Post-Dev. Runoff Coefficient, [C_{POST}]	Runoff Coefficient [$C=C_{POST} - C_{PRE}$]	Precipitation Depth [P]	Required Storage (V_{REQ} = CPA/12)		Retention Basin	Catch Basin
		sf	ac				in	cf	ac-ft		
343	Pavement	9136	0.210	0.45	0.95	0.50	2.38	906	0.021	B	CBB7
344	Pavement	60476	1.388	0.45	0.95	0.50	2.38	5,997	0.138	OS	OS3
345	Pavement	21432	0.492	0.45	0.95	0.50	2.38	2,125	0.049	A	CBA12
TOTAL	**-**	**799,320**	**18.350**	**-**	**-**		**-**	**61,776**	**1.418**	**-**	-

Basin	Land Use	Pre-Exist. Runoff	Post-Dev. Runoff	Runoff Coefficient	Drainage Area (ft^2)	Required Volume (ft^3)	Provided Surface	Required Underground	Provided Underground	Surplus (ft^3)
A	Landscaping	0.45	0.45	0.00	178,896	0				
	Building	0.45	0.95	0.50	202,429	20,074				
	Pavement	0.45	0.95	0.50	177,989	17,651				
					559,314	37,725		37,725	37,778	53

Basin	Land Use	Pre-Exist. Runoff	Post-Dev. Runoff	Runoff Coefficient	Drainage Area (ft^2)	Required Volume (ft^3)	Provided Surface	Required Underground	Provided Underground	Surplus (ft^3)
B	Landscaping	0.45	0.45	0.00	71,635	0				
	Building	0.45	0.95	0.50	66,742	6,619				
	Pavement	0.45	0.95	0.50	86,887	8,616				
					225,264	15,235		15,235	15,394	159

Underground Retention Summary					
Retention Basin	**Required Volume**	**Diameter**	**Required Length**	**Provided Length**	**Provided Storage**
	cf	**ft**	**lf**	**lf CMP**	**cf**
A	37,725	10	481	481	37,778
B	15,235	10	194	196	15,394

Bleed-off Summary			
Retention Basin	**Volume**	**Disposal Rate**	**Drain Time**
	cf	**cfs**	**hr**
UA	37,778	0.50	21.0
UB	15,394	0.50	8.6

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Project:	Legacy & Miller
Proj #:	291878000
Date:	9/11/23
Prep by:	MHH
Check by:	CGF

Base Sheet Prepared By GA, Version 2

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
10-Yr	0.42	0.63	0.78	1.05	1.30
100-Yr	0.65	0.99	1.23	1.65	2.05
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
10-Yr	4.98	3.79	3.13	2.10	1.30
100-Yr	7.81	5.94	4.92	3.30	2.05

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. | 10-Yr | 100-Yr

1 | Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38 | Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	Minim allowed Tc,tot = 5.0 Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 10-Yr (cfs)	Minim allowed Tc,tot = 5.0 Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 100-Yr (cfs)
173	Building	0.072	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0472	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.5
174	Building	0.131	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0455	0	0.95	3.0	5.0	4.98	0.6	0.95	2.5	5.0	7.81	1.0
175	Building	0.086	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0467	0	0.95	3.0	5.0	4.98	0.4	0.95	2.6	5.0	7.81	0.6
176	Building	0.000	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0650	0	0.95	3.6	5.0	4.98	0.0	0.95	3.0	5.0	7.81	0.0
177	Building	0.000	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0650	0	0.95	3.6	5.0	4.98	0.0	0.95	3.0	5.0	7.81	0.0
178	Pavement	0.130	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0455	0	0.95	3.0	5.0	4.98	0.6	0.95	2.5	5.0	7.81	1.0
179	Landscaping	0.212	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0442	0	0.45	3.0	5.0	4.98	0.5	0.45	2.5	5.0	7.81	0.7
181	Building	0.146	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0452	0	0.95	3.0	5.0	4.98	0.7	0.95	2.5	5.0	7.81	1.1
182	Building	0.197	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0444	0	0.95	3.0	5.0	4.98	0.9	0.95	2.5	5.0	7.81	1.5
183	Building	0.197	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0444	0	0.95	3.0	5.0	4.98	0.9	0.95	2.5	5.0	7.81	1.5
184	Landscaping	0.131	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0455	0	0.45	3.0	5.0	4.98	0.3	0.45	2.5	5.0	7.81	0.5
185	Building	0.197	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0444	0	0.95	3.0	5.0	4.98	0.9	0.95	2.5	5.0	7.81	1.5
186	Pavement	0.043	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0485	0	0.95	3.1	5.0	4.98	0.2	0.95	2.6	5.0	7.81	0.3
187	Building	0.197	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0444	0	0.95	3.0	5.0	4.98	0.9	0.95	2.5	5.0	7.81	1.5
188	Building	0.197	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0444	0	0.95	3.0	5.0	4.98	0.9	0.95	2.5	5.0	7.81	1.5
192	Landscaping	0.076	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0470	0	0.45	3.0	5.0	4.98	0.2	0.45	2.6	5.0	7.81	0.3
193	Landscaping	0.050	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.2
194	Landscaping	0.025	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0501	0	0.45	3.2	5.0	4.98	0.1	0.45	2.7	5.0	7.81	0.1
195	Landscaping	0.000	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0650	0	0.45	3.6	5.0	4.98	0.0	0.45	3.0	5.0	7.81	0.0
196	Building	0.000	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0650	0	0.95	3.6	5.0	4.98	0.0	0.95	3.0	5.0	7.81	0.0
197	Building	0.197	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0444	0	0.95	3.0	5.0	4.98	0.9	0.95	2.5	5.0	7.81	1.5
199	Pavement	0.342	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0429	0	0.95	2.9	5.0	4.98	1.6	0.95	2.5	5.0	7.81	2.5

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
10-Yr	0.42	0.63	0.78	1.05	1.30
100-Yr	0.65	0.99	1.23	1.65	2.05
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
10-Yr	4.98	3.79	3.13	2.10	1.30
100-Yr	7.81	5.94	4.92	3.30	2.05

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Project: Legacy & Miller
Proj #: 291878000
Date: 9/11/23
Prep by: MHH
Check by: CGF

Base Sheet Prepared By GA, Version 2

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. | 10-Yr | 100-Yr

1 | Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38 | Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	Minim allowed Tc,tot = 5.0 Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 10-Yr (cfs)	Minim allowed Tc,tot = 5.0 Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 100-Yr (cfs)
200	Building	0.016	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0512	0	0.95	3.2	5.0	4.98	0.1	0.95	2.7	5.0	7.81	0.1
201	Building	0.557	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0416	0	0.95	2.9	5.0	4.98	2.6	0.95	2.4	5.0	7.81	4.1
202	Building	0.197	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0444	0	0.95	3.0	5.0	4.98	0.9	0.95	2.5	5.0	7.81	1.5
203	Landscaping	0.088	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0466	0	0.45	3.0	5.0	4.98	0.2	0.45	2.6	5.0	7.81	0.3
204	Landscaping	0.065	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0474	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.2
206	Building	0.097	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.95	3.0	5.0	4.98	0.5	0.95	2.6	5.0	7.81	0.7
207	Landscaping	0.089	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0466	0	0.45	3.0	5.0	4.98	0.2	0.45	2.6	5.0	7.81	0.3
208	Building	0.097	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.95	3.0	5.0	4.98	0.5	0.95	2.6	5.0	7.81	0.7
209	Building	0.097	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.95	3.0	5.0	4.98	0.5	0.95	2.6	5.0	7.81	0.7
210	Landscaping	0.043	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0486	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.2
211	Building	0.097	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.95	3.0	5.0	4.98	0.5	0.95	2.6	5.0	7.81	0.7
212	Landscaping	0.020	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0506	0	0.45	3.2	5.0	4.98	0.0	0.45	2.7	5.0	7.81	0.1
213	Landscaping	0.191	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0445	0	0.45	3.0	5.0	4.98	0.4	0.45	2.5	5.0	7.81	0.7
214	Landscaping	0.016	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0513	0	0.45	3.2	5.0	4.98	0.0	0.45	2.7	5.0	7.81	0.1
215	Building	0.097	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.95	3.0	5.0	4.98	0.5	0.95	2.6	5.0	7.81	0.7
216	Landscaping	0.090	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0465	0	0.45	3.0	5.0	4.98	0.2	0.45	2.6	5.0	7.81	0.3
217	Building	0.097	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.95	3.0	5.0	4.98	0.5	0.95	2.6	5.0	7.81	0.7
218	Building	0.097	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.95	3.0	5.0	4.98	0.5	0.95	2.6	5.0	7.81	0.7
219	Landscaping	0.089	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0466	0	0.45	3.0	5.0	4.98	0.2	0.45	2.6	5.0	7.81	0.3
220	Building	0.097	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.95	3.0	5.0	4.98	0.5	0.95	2.6	5.0	7.81	0.7
221	Building	0.097	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.95	3.0	5.0	4.98	0.5	0.95	2.6	5.0	7.81	0.7
222	Building	0.072	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0472	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.5

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
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Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
10-Yr	4.98	3.79	3.13	2.10	1.30
100-Yr	7.81	5.94	4.92	3.30	2.05

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Project: Legacy & Miller
Proj #: 291878000
Date: 9/11/23
Prep by: MHH
Check by: CGF

Base Sheet Prepared By GA, Version 2

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. | 10-Yr | 100-Yr

1 | Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38 | Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	Minim allowed Tc,tot = 5.0 Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 10-Yr (cfs)	Minim allowed Tc,tot = 5.0 Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 100-Yr (cfs)
223	Building	0.097	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.95	3.0	5.0	4.98	0.5	0.95	2.6	5.0	7.81	0.7
224	Landscaping	0.040	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0488	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
225	Landscaping	0.103	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0462	0	0.45	3.0	5.0	4.98	0.2	0.45	2.5	5.0	7.81	0.4
226	Building	0.097	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.95	3.0	5.0	4.98	0.5	0.95	2.6	5.0	7.81	0.7
227	Building	0.097	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.95	3.0	5.0	4.98	0.5	0.95	2.6	5.0	7.81	0.7
228	Building	0.072	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0472	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.5
229	Building	0.072	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0472	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.5
230	Pavement	0.201	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0444	0	0.95	3.0	5.0	4.98	1.0	0.95	2.5	5.0	7.81	1.5
231	Landscaping	0.104	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0462	0	0.45	3.0	5.0	4.98	0.2	0.45	2.5	5.0	7.81	0.4
232	Building	0.072	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0472	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.5
233	Building	0.072	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0472	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.5
234	Building	0.072	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0472	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.5
235	Building	0.072	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0472	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.5
236	Building	0.072	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0472	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.5
237	Building	0.047	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0483	0	0.95	3.1	5.0	4.98	0.2	0.95	2.6	5.0	7.81	0.3
238	Building	0.072	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0472	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.5
239	Landscaping	0.092	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0465	0	0.45	3.0	5.0	4.98	0.2	0.45	2.6	5.0	7.81	0.3
240	Building	0.072	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0472	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.5
241	Landscaping	0.079	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0469	0	0.45	3.0	5.0	4.98	0.2	0.45	2.6	5.0	7.81	0.3
242	Building	0.072	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0472	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.5
243	Landscaping	0.000	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0713	0	0.45	3.8	5.0	4.98	0.0	0.45	3.2	5.0	7.81	0.0
244	Landscaping	0.042	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0486	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1

Peak Flow Calculations Using The Rational Method

Project:	Legacy & Miller
Proj #:	291878000
Date:	9/11/23
Prep by:	MHH
Check by:	CGF

Base Sheet Prepared By GA, Version 2

Source of Rainfall Data --->NOAA Atlas 14

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
10-Yr	0.42	0.63	0.78	1.05	1.30
100-Yr	0.65	0.99	1.23	1.65	2.05
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
10-Yr	4.98	3.79	3.13	2.10	1.30
100-Yr	7.81	5.94	4.92	3.30	2.05

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. | 10-Yr | 100-Yr

1 | Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38 | Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	Minim allowed Tc,tot = 5.0 Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 10-Yr (cfs)	Minim allowed Tc,tot = 5.0 Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 100-Yr (cfs)
245	Pavement	0.060	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0476	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.4
246	Landscaping	0.267	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0436	0	0.45	2.9	5.0	4.98	0.6	0.45	2.5	5.0	7.81	0.9
247	Landscaping	0.003	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0560	0	0.45	3.3	5.0	4.98	0.0	0.45	2.8	5.0	7.81	0.0
248	Landscaping	0.042	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0486	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
249	Pavement	0.061	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0476	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.5
250	Landscaping	0.048	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0482	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.2
251	Landscaping	0.062	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0476	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.2
252	Landscaping	0.103	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0462	0	0.45	3.0	5.0	4.98	0.2	0.45	2.5	5.0	7.81	0.4
253	Landscaping	0.078	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0469	0	0.45	3.0	5.0	4.98	0.2	0.45	2.6	5.0	7.81	0.3
254	Building	0.197	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0444	0	0.95	3.0	5.0	4.98	0.9	0.95	2.5	5.0	7.81	1.5
255	Landscaping	0.033	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0493	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
256	Building	0.198	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0444	0	0.95	3.0	5.0	4.98	0.9	0.95	2.5	5.0	7.81	1.5
259	Pavement	0.044	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0485	0	0.95	3.1	5.0	4.98	0.2	0.95	2.6	5.0	7.81	0.3
260	Pavement	0.044	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0485	0	0.95	3.1	5.0	4.98	0.2	0.95	2.6	5.0	7.81	0.3
262	Building	0.201	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0444	0	0.95	3.0	5.0	4.98	1.0	0.95	2.5	5.0	7.81	1.5
264	Building	0.402	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0425	0	0.95	2.9	5.0	4.98	1.9	0.95	2.4	5.0	7.81	3.0
265	Pavement	0.212	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0442	0	0.95	3.0	5.0	4.98	1.0	0.95	2.5	5.0	7.81	1.6
266	Landscaping	0.042	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0486	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
267	Landscaping	0.042	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0486	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
268	Landscaping	0.031	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0494	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
269	Landscaping	0.042	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0486	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
270	Landscaping	0.042	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0486	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1

Peak Flow Calculations Using The Rational Method

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Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
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5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Project: Legacy & Miller
Proj #: 291878000
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Base Sheet Prepared By GA, Version 2

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. | 10-Yr | 100-Yr

1 | Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38 | Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	Minim allowed Tc,tot = 5.0 Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 10-Yr (cfs)	Minim allowed Tc,tot = 5.0 Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 100-Yr (cfs)
271	Landscaping	0.102	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0462	0	0.45	3.0	5.0	4.98	0.2	0.45	2.5	5.0	7.81	0.4
272	Landscaping	0.042	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0486	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
275	Landscaping	0.295	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0433	0	0.45	2.9	5.0	4.98	0.7	0.45	2.5	5.0	7.81	1.0
276	Landscaping	0.042	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0486	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
277	Landscaping	0.068	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0473	0	0.45	3.1	5.0	4.98	0.2	0.45	2.6	5.0	7.81	0.2
278	Pavement	0.353	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0428	0	0.95	2.9	5.0	4.98	1.7	0.95	2.4	5.0	7.81	2.6
279	Landscaping	0.178	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0447	0	0.45	3.0	5.0	4.98	0.4	0.45	2.5	5.0	7.81	0.6
280	Landscaping	0.038	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0488	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
281	Landscaping	0.163	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0449	0	0.45	3.0	5.0	4.98	0.4	0.45	2.5	5.0	7.81	0.6
282	Pavement	0.616	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0413	0	0.95	2.9	5.0	4.98	2.9	0.95	2.4	5.0	7.81	4.6
283	Pavement	0.037	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0489	0	0.95	3.1	5.0	4.98	0.2	0.95	2.6	5.0	7.81	0.3
284	Landscaping	0.103	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0462	0	0.45	3.0	5.0	4.98	0.2	0.45	2.5	5.0	7.81	0.4
285	Landscaping	0.030	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0495	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
286	Landscaping	0.243	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0438	0	0.45	2.9	5.0	4.98	0.5	0.45	2.5	5.0	7.81	0.9
287	Landscaping	0.042	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0486	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
288	Landscaping	0.037	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0489	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
289	Landscaping	0.038	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0488	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
290	Landscaping	0.042	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0486	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
291	Landscaping	0.034	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0492	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
292	Pavement	0.043	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0485	0	0.95	3.1	5.0	4.98	0.2	0.95	2.6	5.0	7.81	0.3
293	Pavement	0.053	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0480	0	0.95	3.1	5.0	4.98	0.2	0.95	2.6	5.0	7.81	0.4
294	Pavement	0.223	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0441	0	0.95	2.9	5.0	4.98	1.1	0.95	2.5	5.0	7.81	1.7

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Project:	Legacy & Miller
Proj #:	291878000
Date:	9/11/23
Prep by:	MHH
Check by:	CGF

Base Sheet Prepared By GA, Version 2

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
10-Yr	0.42	0.63	0.78	1.05	1.30
100-Yr	0.65	0.99	1.23	1.65	2.05
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr					
10-Yr	4.98	3.79	3.13	2.10	1.30
100-Yr	7.81	5.94	4.92	3.30	2.05

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. | 10-Yr | 100-Yr

1 | Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38 | Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	Minim allowed Tc,tot = 5.0 Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 10-Yr (cfs)	Minim allowed Tc,tot = 5.0 Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 100-Yr (cfs)
295	Landscaping	0.056	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0478	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.2
296	Landscaping	0.042	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0486	0	0.45	3.1	5.0	4.98	0.1	0.45	2.6	5.0	7.81	0.1
297	Pavement	0.056	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0478	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.4
298	Building	0.200	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0444	0	0.95	3.0	5.0	4.98	0.9	0.95	2.5	5.0	7.81	1.5
299	Landscaping	0.080	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0469	0	0.45	3.0	5.0	4.98	0.2	0.45	2.6	5.0	7.81	0.3
300	Pavement	0.166	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0449	0	0.95	3.0	5.0	4.98	0.8	0.95	2.5	5.0	7.81	1.2
301	Pavement	0.135	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0454	0	0.95	3.0	5.0	4.98	0.6	0.95	2.5	5.0	7.81	1.0
302	Pavement	0.116	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0458	0	0.95	3.0	5.0	4.98	0.6	0.95	2.5	5.0	7.81	0.9
303	Landscaping	0.023	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0502	0	0.45	3.2	5.0	4.98	0.1	0.45	2.7	5.0	7.81	0.1
304	Pavement	0.060	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0476	0	0.95	3.1	5.0	4.98	0.3	0.95	2.6	5.0	7.81	0.4
305	Pavement	0.191	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0445	0	0.95	3.0	5.0	4.98	0.9	0.95	2.5	5.0	7.81	1.4
306	Pavement	0.080	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0469	0	0.95	3.0	5.0	4.98	0.4	0.95	2.6	5.0	7.81	0.6

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Project:	Legacy & Miller
Proj #:	291878000
Date:	9/11/23
Prep by:	MHH
Check by:	CGF

Base Sheet Prepared By GA, Version 2

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
10-Yr	0.42	0.64	0.79	1.06	1.32
100-Yr	0.66	1.00	1.24	1.67	2.07
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
10-Yr	5.03	3.83	3.16	2.12	1.32
100-Yr	7.88	6.00	4.96	3.34	2.07

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. = 1

Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38

Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	10-Yr Minim allowed Tc,tot = 5.0 Cw AF=1.00	10-Yr Tc,calc (min)	10-Yr Tc,tot (min)	10-Yr i (in/hr)	10-Yr Q (cfs)	100-Yr Minim allowed Tc,tot = 5.0 Cw AF=1.00	100-Yr Tc,calc (min)	100-Yr Tc,tot (min)	100-Yr i (in/hr)	100-Yr Q (cfs)
307	Landscaping	0.050	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.45	3.1	5.0	5.03	0.1	0.45	2.6	5.0	7.88	0.2
308	Landscaping	0.151	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0451	0	0.45	3.0	5.0	5.03	0.3	0.45	2.5	5.0	7.88	0.5
309	Landscaping	0.073	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0471	0	0.45	3.0	5.0	5.03	0.2	0.45	2.6	5.0	7.88	0.3
310	Pavement	0.190	0.95	287	37.35	32.33	0.0175	A	-0.00625	0.04	0.0445	0	0.95	4.2	5.0	5.03	0.9	0.95	3.5	5.0	7.88	1.4
311	Landscaping	0.030	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0495	0	0.45	3.1	5.0	5.03	0.1	0.45	2.6	5.0	7.88	0.1
312	Pavement	0.241	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0439	0	0.95	2.9	5.0	5.03	1.2	0.95	2.5	5.0	7.88	1.8
313	Landscaping	0.055	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0479	0	0.45	3.1	5.0	5.03	0.1	0.45	2.6	5.0	7.88	0.2
314	Pavement	0.209	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0443	0	0.95	2.9	5.0	5.03	1.0	0.95	2.5	5.0	7.88	1.6
315	Pavement	0.188	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0445	0	0.95	3.0	5.0	5.03	0.9	0.95	2.5	5.0	7.88	1.4
316	Pavement	0.083	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0468	0	0.95	3.0	5.0	5.03	0.4	0.95	2.6	5.0	7.88	0.6
317	Pavement	0.060	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0476	0	0.95	3.1	5.0	5.03	0.3	0.95	2.6	5.0	7.88	0.4
318	Pavement	0.060	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0476	0	0.95	3.1	5.0	5.03	0.3	0.95	2.6	5.0	7.88	0.4
319	Pavement	0.529	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0417	0	0.95	2.9	5.0	5.03	2.5	0.95	2.4	5.0	7.88	4.0
320	Landscaping	0.042	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0486	0	0.45	3.1	5.0	5.03	0.1	0.45	2.6	5.0	7.88	0.2
321	Building	0.401	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0425	0	0.95	2.9	5.0	5.03	1.9	0.95	2.4	5.0	7.88	3.0
322	Pavement	0.128	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0456	0	0.95	3.0	5.0	5.03	0.6	0.95	2.5	5.0	7.88	1.0
323	Landscaping	0.026	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0499	0	0.45	3.1	5.0	5.03	0.1	0.45	2.6	5.0	7.88	0.1
324	Landscaping	0.027	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0498	0	0.45	3.1	5.0	5.03	0.1	0.45	2.6	5.0	7.88	0.1
325	Landscaping	0.207	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0443	0	0.45	2.9	5.0	5.03	0.5	0.45	2.5	5.0	7.88	0.7
326	Landscaping	0.047	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0483	0	0.45	3.1	5.0	5.03	0.1	0.45	2.6	5.0	7.88	0.2
327	Landscaping	0.121	0.45	270	45.95	43.91	0.0076	A	-0.00625	0.04	0.0457	0	0.45	5.4	5.4	5.03	0.3	0.45	4.5	5.0	7.88	0.4
328	Landscaping	0.175	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0447	0	0.45	3.0	5.0	5.03	0.4	0.45	2.5	5.0	7.88	0.6

Peak Flow Calculations Using The Rational Method

Project: Legacy & Miller
Proj #: 291878000
Date: 9/11/23
Prep by: MHH
Check by: CGF

Base Sheet Prepared By GA, Version 2

Source of Rainfall Data --->NOAA Atlas 14

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
10-Yr	0.42	0.64	0.79	1.06	1.32
100-Yr	0.66	1.00	1.24	1.67	2.07
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
10-Yr	5.03	3.83	3.16	2.12	1.32
100-Yr	7.88	6.00	4.96	3.34	2.07

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. | 1 | Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38

Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	10-Yr Minim allowed Tc,tot = 5.0 Cw AF=1.00	10-Yr Tc,calc (min)	10-Yr Tc,tot (min)	10-Yr i (in/hr)	10-Yr Q (cfs)	100-Yr Minim allowed Tc,tot = 5.0 Cw AF=1.00	100-Yr Tc,calc (min)	100-Yr Tc,tot (min)	100-Yr i (in/hr)	100-Yr Q (cfs)
330	Pavement	0.134	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0455	0	0.95	3.0	5.0	5.03	0.6	0.95	2.5	5.0	7.88	1.0
331	Pavement	0.201	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0444	0	0.95	2.9	5.0	5.03	1.0	0.95	2.5	5.0	7.88	1.5
332	Landscaping	0.295	0.45	420	43.95	40.44	0.0084	A	-0.00625	0.04	0.0433	0	0.45	6.4	6.4	4.79	0.6	0.45	5.3	5.3	7.88	1.0
333	Pavement	0.266	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0436	0	0.95	2.9	5.0	5.03	1.3	0.95	2.5	5.0	7.88	2.0
334	Pavement	0.087	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0466	0	0.95	3.0	5.0	5.03	0.4	0.95	2.6	5.0	7.88	0.6
335	Pavement	0.097	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.95	3.0	5.0	5.03	0.5	0.95	2.5	5.0	7.88	0.7
336	Landscaping	0.031	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0495	0	0.45	3.1	5.0	5.03	0.1	0.45	2.6	5.0	7.88	0.1
337	Landscaping	0.046	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0484	0	0.45	3.1	5.0	5.03	0.1	0.45	2.6	5.0	7.88	0.2
338	Landscaping	0.265	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0436	0	0.45	2.9	5.0	5.03	0.6	0.45	2.5	5.0	7.88	0.9
339	Pavement	0.186	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0446	0	0.95	3.0	5.0	5.03	0.9	0.95	2.5	5.0	7.88	1.4
340	Pavement	0.050	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.95	3.1	5.0	5.03	0.2	0.95	2.6	5.0	7.88	0.4
341	Pavement	0.058	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0477	0	0.95	3.1	5.0	5.03	0.3	0.95	2.6	5.0	7.88	0.4
342	Landscaping	0.032	0.45	100	1	0	0.0100	A	-0.00625	0.04	0.0494	0	0.45	3.1	5.0	5.03	0.1	0.45	2.6	5.0	7.88	0.1
343	Pavement	0.210	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0442	0	0.95	2.9	5.0	5.03	1.0	0.95	2.5	5.0	7.88	1.6
344	Pavement	1.388	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0391	0	0.95	2.8	5.0	5.03	6.6	0.95	2.3	5.0	7.88	10.4
345	Pavement	0.492	0.95	100	1	0	0.0100	A	-0.00625	0.04	0.0419	0	0.95	2.9	5.0	5.03	2.4	0.95	2.4	5.0	7.88	3.7

Scenario: 100-yr

Conduit Table - Time: 0.00 hours

Label	Start Node	Stop Node	Diameter (in)	Length (Unified) (ft)	Slope (Calculated) (ft/ft)	Flow (cfs)	Capacity (Full Flow) (cfs)	Invert (Start) (ft)	Invert (Stop) (ft)	Cover (Start) (ft)	Cover (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Velocity (ft/s)	Manning's n
CO-1	CB-1	O-2	12.0	2.0	0.080	4.50	10.06	26.66	26.50	5.05	5.28	28.69	28.66	5.73	0.013
CO-2	MH-1	O-1	30.0	66.4	0.010	34.10	40.90	25.81	25.15	6.14	5.53	29.12	28.66	6.95	0.013
CO-4	CB-2	O-3	12.0	21.0	0.080	2.60	10.06	27.97	26.30	7.17	9.26	28.66	28.66	10.75	0.013
CO-5	CB-3	MH-1	30.0	81.0	0.010	34.10	41.01	26.62	25.81	5.06	6.14	30.28	29.72	6.95	0.013
CO-6	T-1	CB-3	30.0	59.2	0.010	27.50	41.01	27.21	26.62	4.76	5.06	30.92	30.65	5.60	0.013
CO-7	CB-4	T-1	30.0	73.7	0.010	27.50	41.01	27.95	27.21	4.65	4.76	31.54	31.21	5.60	0.013
CO-8	CB-5	CB-4	30.0	103.0	0.005	27.10	29.00	28.46	27.95	4.43	4.65	32.38	31.93	5.52	0.013
CO-9	CB-6	CB-5	30.0	86.0	0.016	26.50	52.33	29.86	28.46	3.00	4.43	32.98	32.62	5.40	0.013
CO-10	T-2	CB-6	24.0	29.3	0.013	19.50	26.13	30.75	30.36	3.48	3.00	33.42	33.21	6.21	0.013
CO-11	MH-2	T-2	24.0	129.6	0.013	19.50	26.13	32.48	30.75	5.67	3.48	34.75	33.78	6.21	0.013
CO-12	CB-7	MH-2	12.0	59.6	0.017	0.70	4.64	34.49	33.48	3.72	5.67	35.24	35.23	4.26	0.013
CO-13	CB-8	CB-7	12.0	86.4	0.010	0.30	3.56	35.35	34.49	2.51	3.72	35.58	35.25	2.76	0.013
CO-14	T-3	MH-2	24.0	67.7	0.010	18.80	22.62	33.16	32.48	5.27	5.67	35.69	35.23	5.98	0.013
CO-15	CB-9	T-3	24.0	44.4	0.010	18.80	22.62	33.60	33.16	4.79	5.27	36.33	36.03	5.98	0.013
CO-16	T-4	CB-9	18.0	10.0	0.005	10.10	7.43	34.15	34.10	4.82	4.79	36.87	36.78	5.72	0.013
CO-17	T-5	T-4	18.0	97.8	0.005	10.10	7.43	34.64	34.15	5.15	4.82	38.08	37.18	5.72	0.013
CO-18	CB-10	T-5	12.0	58.4	0.039	1.50	7.00	37.14	34.89	3.00	5.40	38.54	38.44	1.91	0.013
CO-19	T-6	T-5	18.0	130.0	0.005	8.60	7.43	35.29	34.64	5.00	5.15	39.31	38.44	4.87	0.013
CO-21	CB-11	T-6	12.0	58.3	0.036	1.50	6.76	37.64	35.54	3.00	5.25	39.67	39.56	1.91	0.013
CO-22	CB-12	T-6	18.0	25.0	0.005	7.10	7.43	35.41	35.29	5.21	5.00	39.68	39.56	4.02	0.013
CO-23	CB-47	CB-9	12.0	167.3	0.023	1.10	5.43	37.99	34.10	4.00	5.29	38.43	36.78	5.42	0.013
CO-24	CB-13	CB-47	12.0	35.3	0.010	0.20	3.56	38.84	38.49	3.17	3.50	39.03	38.65	2.45	0.013
CO-25	CB-14	CB-47	12.0	12.7	0.007	0.80	3.03	38.58	38.49	3.43	3.50	38.96	38.84	3.25	0.013
CO-26	CB-15	CB-14	12.0	79.9	0.007	0.70	3.03	39.16	38.58	3.54	3.43	39.51	39.02	3.14	0.013
CO-27	CB-16	CB-15	12.0	53.4	0.007	0.60	3.03	39.54	39.16	3.16	3.54	39.87	39.57	3.00	0.013
CO-28	CB-17	CB-16	12.0	79.6	0.007	0.50	3.03	40.12	39.54	3.30	3.16	40.41	39.93	2.85	0.013
CO-29	CB-18	CB-17	12.0	58.1	0.007	0.40	3.03	40.54	40.12	3.00	3.30	40.80	40.47	2.67	0.013
CO-30	T-8	O-4	24.0	40.8	0.024	21.60	34.89	26.05	25.08	5.20	6.21	29.03	28.66	6.88	0.013
CO-31	MH-3	T-8	24.0	92.5	0.024	21.60	34.89	28.25	26.05	5.88	5.20	30.32	29.47	6.88	0.013
CO-32	CB-19	MH-3	24.0	70.3	0.015	21.60	28.16	29.34	28.25	4.34	5.88	31.40	30.76	6.88	0.013
CO-33	T-9	CB-19	24.0	104.6	0.021	17.30	32.58	31.51	29.34	3.41	4.34	33.01	31.77	10.53	0.013
CO-34	CB-20	T-9	12.0	54.6	0.005	3.40	2.50	31.78	31.51	3.49	4.41	34.02	33.52	4.33	0.013
CO-35	T-10	T-9	24.0	137.6	0.012	13.90	25.15	33.21	31.51	5.28	3.41	34.55	33.52	8.21	0.013

Conduit Table - Time: 0.00 hours

Label	Start Node	Stop Node	Diameter (in)	Length (Unified) (ft)	Slope (Calculated) (ft/ft)	Flow (cfs)	Capacity (Full Flow) (cfs)	Invert (Start) (ft)	Invert (Stop) (ft)	Cover (Start) (ft)	Cover (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Velocity (ft/s)	Manning's n
CO-36	CB-21	T-10	12.0	107.6	0.016	0.60	4.52	35.44	33.71	3.00	5.78	35.76	34.97	3.99	0.013
CO-36	T-11	T-10	24.0	14.0	0.016	13.30	28.98	33.44	33.21	5.12	5.28	34.86	34.97	9.03	0.013
CO-37	CB-22	T-11	12.0	95.2	0.031	1.00	6.25	36.87	33.94	3.47	5.62	37.29	35.20	5.83	0.013
CO-37	T-12	T-11	24.0	64.1	0.016	12.30	28.55	34.46	33.44	6.20	5.12	35.72	35.20	8.75	0.013
CO-38	CB-23	T-12	12.0	32.2	0.080	0.90	10.06	37.53	34.96	3.73	6.70	37.93	36.10	7.93	0.013
CO-39	MH-4	T-12	24.0	43.6	0.016	11.40	28.67	35.16	34.46	5.86	6.20	36.37	36.10	8.60	0.013
CO-40	T-13	MH-4	18.0	23.9	0.005	10.10	7.43	35.78	35.66	5.83	5.86	37.23	36.88	5.72	0.013
CO-41	T-14	T-13	18.0	71.2	0.005	10.10	7.43	36.14	35.78	5.69	5.83	38.20	37.54	5.72	0.013
CO-42	CB-24	T-14	12.0	58.4	0.043	1.50	7.37	39.14	36.64	3.00	5.69	39.66	38.55	7.37	0.013
CO-43	T-15	T-14	18.0	130.2	0.005	8.60	7.43	36.79	36.14	5.50	5.69	39.42	38.55	4.87	0.013
CO-44	CB-25	T-15	12.0	58.4	0.040	1.50	7.15	39.64	37.29	3.00	5.50	40.16	39.68	7.20	0.013
CO-45	CB-26	T-15	18.0	25.5	0.005	7.10	7.43	36.91	36.79	5.50	5.50	39.80	39.68	4.02	0.013
CO-46	T-16	CB-26	12.0	104.4	0.005	3.80	2.52	37.94	37.41	5.32	5.50	41.11	39.92	4.84	0.013
CO-47	CB-26	T-16	12.0	58.4	0.038	1.50	6.92	40.14	37.94	3.00	5.32	41.47	41.36	1.91	0.013
CO-48	T-17	T-16	12.0	58.3	0.005	2.30	2.52	38.23	37.94	4.79	5.32	41.61	41.36	2.93	0.013
CO-49	CB-27	T-17	12.0	11.8	0.005	2.30	2.52	38.29	38.23	4.58	4.79	41.74	41.69	2.93	0.013
CO-50	T-18	MH-4	12.0	114.4	0.013	1.30	4.14	37.70	36.16	6.95	5.86	38.18	36.78	4.66	0.013
CO-51	CB-28	T-18	12.0	18.4	0.080	0.70	10.06	39.16	37.70	5.03	6.95	39.51	38.31	7.36	0.013
CO-52	T-19	T-18	12.0	56.8	0.013	0.60	4.14	38.47	37.70	6.02	6.95	38.79	38.31	3.75	0.013
CO-53	CB-29	T-19	12.0	59.0	0.013	0.60	4.14	39.26	38.47	6.03	6.02	39.58	38.88	3.75	0.013
CO-54	CB-30	CB-29	12.0	58.1	0.010	0.50	3.56	39.84	39.26	5.45	6.03	40.13	39.64	3.20	0.013
CO-55	CB-31	CB-30	12.0	74.9	0.010	0.40	3.56	40.59	39.84	4.78	5.45	40.85	40.19	3.00	0.013
CO-56	CB-32	CB-31	12.0	58.1	0.010	0.30	3.56	41.17	40.59	4.20	4.78	41.40	40.90	2.76	0.013
CO-57	CB-33	CB-32	12.0	74.9	0.010	0.20	3.56	41.92	41.17	2.89	4.20	42.10	41.44	2.45	0.013
CO-58	CB-34	CB-33	12.0	53.1	0.010	0.10	3.56	42.45	41.92	2.45	2.89	42.58	42.14	1.99	0.013
CO-59	CB-35	T-20	12.0	50.5	0.028	3.70	6.00	27.45	26.01	3.00	5.97	30.23	29.69	4.71	0.013
CO-60	T-20	T-21	12.0	54.6	0.028	3.70	6.00	26.01	24.46	5.97	7.46	29.48	28.89	4.71	0.013
CO-61	T-21	O-5	12.0	2.3	0.028	3.70	6.00	24.46	24.40	7.46	7.51	28.68	28.66	4.71	0.013
CO-62	T-22	O-6	18.0	152.0	0.042	7.00	21.44	29.83	23.50	5.50	10.26	31.65	30.98	3.96	0.013
CO-63	CB-36	T-22	12.0	21.0	0.080	6.70	10.05	31.50	29.83	3.76	6.00	32.57	31.83	8.53	0.013
CO-64	T-23	T-22	18.0	54.1	0.035	0.30	19.74	31.74	29.83	4.17	5.50	31.94	31.83	4.08	0.013
CO-65	CB-37	T-23	18.0	45.1	0.040	0.30	20.98	33.54	31.74	2.50	4.17	33.74	32.00	4.24	0.013
CO-66	CB-38	O-7	18.0	9.0	0.080	2.80	29.66	29.15	28.44	4.15	5.11	30.99	30.98	1.58	0.013

Conduit Table - Time: 0.00 hours

Label	Start Node	Stop Node	Diameter (in)	Length (Unified) (ft)	Slope (Calculated) (ft/ft)	Flow (cfs)	Capacity (Full Flow) (cfs)	Invert (Start) (ft)	Invert (Stop) (ft)	Cover (Start) (ft)	Cover (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Velocity (ft/s)	Manning's n
CO-67	CB-39	O-8	24.0	122.1	0.025	19.40	35.91	31.00	27.92	5.40	5.43	32.58	30.98	11.65	0.013
CO-68	T-24	CB-39	24.0	147.8	0.005	15.30	16.00	31.74	31.00	5.06	5.40	33.75	33.07	4.87	0.013
CO-69	CB-40	T-24	12.0	33.1	0.059	1.60	8.65	34.20	32.25	2.16	5.55	34.74	34.01	8.41	0.013
CO-70	CB-41	T-24	24.0	10.2	0.005	13.70	16.30	31.79	31.74	4.87	5.06	34.05	34.01	4.36	0.013
CO-71	CB-42	CB-41	18.0	78.8	0.005	10.60	7.42	32.68	32.29	6.47	4.87	35.03	34.22	6.00	0.013
CO-72	CB-43	CB-42	18.0	81.1	0.005	10.20	7.43	33.09	32.68	6.10	6.47	36.13	35.36	5.77	0.013
CO-73	CB-44	CB-43	18.0	82.5	0.005	8.50	7.43	33.50	33.09	3.99	6.10	36.98	36.44	4.81	0.013
CO-74	CB-45	CB-44	12.0	84.4	0.005	1.40	2.52	34.42	34.00	5.65	3.99	37.39	37.26	1.78	0.013
CO-75	T-25	CB-44	18.0	31.5	0.013	4.10	12.07	33.92	33.50	3.94	3.99	37.31	37.26	2.32	0.013
CO-76	CB-46	T-25	18.0	51.7	0.013	4.10	12.07	34.60	33.92	3.03	3.94	37.44	37.36	2.32	0.013

Catch Basin Table - Time: 0.00 hours

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Flow (Additional Subsurface) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss Coefficient (Standard)
CB-1	32.71	26.66	4.50	28.95	28.69	Standard	0.500
CB-2	36.14	27.97	2.60	28.82	28.66	Standard	0.500
CB-3	34.18	26.62	6.60	30.65	30.28	Standard	0.500
CB-4	35.10	27.95	0.40	31.93	31.54	Standard	0.800
CB-5	35.39	28.46	0.60	32.62	32.38	Standard	0.500
CB-6	35.36	29.86	7.00	33.21	32.98	Standard	0.500
CB-7	39.21	34.49	0.40	35.25	35.24	Standard	0.600
CB-8	38.86	35.35	0.30	35.62	35.58	Standard	0.500
CB-9	40.39	33.60	7.60	36.78	36.33	Standard	0.800
CB-10	41.14	37.14	1.50	38.57	38.54	Standard	0.500
CB-11	41.64	37.64	1.50	39.70	39.67	Standard	0.500
CB-12	42.12	35.41	7.10	39.80	39.68	Standard	0.500
CB-13	43.01	38.74	0.20	39.06	39.03	Standard	0.500
CB-14	43.01	38.58	0.10	39.02	38.96	Standard	0.500
CB-15	43.70	39.16	0.10	39.57	39.51	Standard	0.500
CB-16	43.70	39.54	0.10	39.93	39.87	Standard	0.500
CB-17	44.42	40.12	0.10	40.47	40.41	Standard	0.500

Catch Basin Table - Time: 0.00 hours

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Flow (Additional Subsurface) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss Coefficient (Standard)
CB-18	44.54	40.54	0.40	40.85	40.80	Standard	0.500
CB-19	35.68	29.34	4.30	31.77	31.40	Standard	0.500
CB-20	36.27	31.78	3.40	34.16	34.02	Standard	0.500
CB-21	39.44	35.44	0.60	35.82	35.76	Standard	0.500
CB-22	41.34	36.87	1.00	37.37	37.29	Standard	0.500
CB-23	42.26	37.53	0.90	38.00	37.93	Standard	0.500
CB-24	43.14	39.14	1.50	39.76	39.66	Standard	0.500
CB-25	43.64	39.64	1.50	40.26	40.16	Standard	0.500
CB-26	43.91	36.91	3.30	39.92	39.80	Standard	0.500
CB-26	44.14	40.14	1.50	41.50	41.47	Standard	0.500
CB-27	43.87	38.29	2.30	41.80	41.74	Standard	0.500
CB-28	45.19	39.16	0.70	39.58	39.51	Standard	0.500
CB-29	46.29	39.26	0.10	39.64	39.58	Standard	0.500
CB-30	46.29	39.84	0.10	40.19	40.13	Standard	0.500
CB-31	46.37	40.59	0.10	40.90	40.85	Standard	0.500
CB-32	46.37	41.17	0.10	41.44	41.40	Standard	0.500
CB-33	45.81	41.92	0.10	42.14	42.10	Standard	0.500
CB-34	45.90	42.45	0.10	42.60	42.58	Standard	0.500
CB-35	31.45	27.45	3.70	30.40	30.23	Standard	0.500
CB-36	36.26	31.50	6.70	33.13	32.57	Standard	0.500
CB-37	37.54	33.54	0.30	33.78	33.74	Standard	0.500
CB-38	34.80	29.15	2.80	31.01	30.99	Standard	0.500
CB-39	38.40	31.00	4.10	33.07	32.58	Standard	0.600
CB-40	37.36	34.20	1.60	34.84	34.74	Standard	0.500
CB-41	38.66	31.79	3.10	34.22	34.05	Standard	0.600
CB-42	40.65	32.68	0.40	35.36	35.03	Standard	0.600
CB-43	40.69	33.09	1.70	36.44	36.13	Standard	0.600
CB-44	38.99	33.50	3.00	37.26	36.98	Standard	0.800
CB-45	41.07	34.42	1.40	37.42	37.39	Standard	0.500
CB-46	39.13	34.60	4.10	37.48	37.44	Standard	0.500

Manhole Table - Time: 0.00 hours

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Flow (Total Out) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss Coefficient (Standard)
MH-4	43.02	35.16	11.40	36.78	36.37	Standard	0.800
MH-2	40.15	32.48	19.50	35.23	34.75	Standard	0.800
MH-3	36.13	28.25	21.60	30.76	30.32	Standard	0.600
MH-1	34.45	25.81	34.10	29.72	29.12	Standard	0.800

Transition Table - Time: 0.00 hours

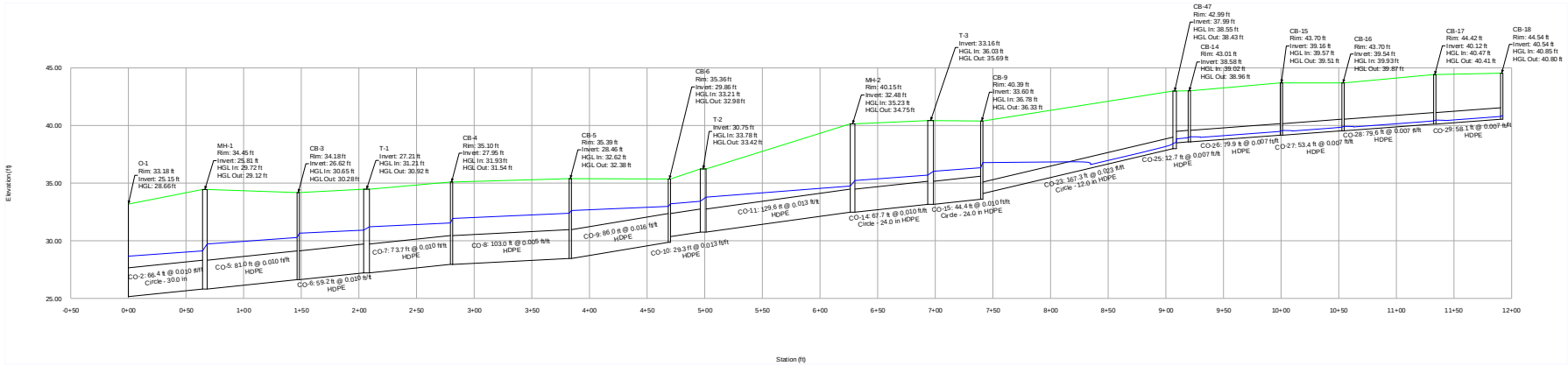
Label	Elevation (Top) (ft)	Elevation (Invert) (ft)	Flow (Total Out) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss Coefficient (Standard)
T-19	45.49	38.47	0.60	38.88	38.79	Standard	0.800
T-17	44.02	38.23	2.30	41.69	41.61	Standard	0.600
T-6	41.79	35.29	8.60	39.56	39.31	Standard	0.700
T-16	44.26	37.94	3.80	41.36	41.11	Standard	0.700
T-18	45.65	37.70	1.30	38.31	38.18	Standard	0.700
T-15	43.79	36.79	8.60	39.68	39.42	Standard	0.700
T-5	41.29	34.64	10.10	38.44	38.08	Standard	0.700
T-14	43.33	36.14	10.10	38.55	38.20	Standard	0.700
T-13	43.11	35.78	10.10	37.54	37.23	Standard	0.600
T-12	42.66	34.46	12.30	36.10	35.72	Standard	0.700
T-4	40.47	34.15	10.10	37.18	36.87	Standard	0.600
T-11	40.56	33.44	13.30	35.20	34.86	Standard	0.700
T-25	39.36	33.92	4.10	37.36	37.31	Standard	0.600
T-10	40.49	33.21	13.90	34.97	34.55	Standard	0.700
T-3	40.43	33.16	18.80	36.03	35.69	Standard	0.600
T-24	38.80	31.74	15.30	34.01	33.75	Standard	0.700
T-9	36.92	31.51	17.30	33.52	33.01	Standard	0.700
T-2	36.23	30.75	19.50	33.78	33.42	Standard	0.600
T-23	37.41	31.74	0.30	32.00	31.94	Standard	0.800
T-1	34.47	27.21	27.50	31.21	30.92	Standard	0.600
T-22	36.83	29.83	7.00	31.83	31.65	Standard	0.700
T-8	33.25	26.05	21.60	29.47	29.03	Standard	0.600
T-20	32.98	26.01	3.70	29.69	29.48	Standard	0.600

Transition Table - Time: 0.00 hours

Label	Elevation (Top) (ft)	Elevation (Invert) (ft)	Flow (Total Out) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss Coefficient (Standard)
T-21	32.92	24.46	3.70	28.89	28.68	Standard	0.600

Outfall Table - Time: 0.00 hours

Label	Elevation (Ground) (ft)	Elevation (Invert) (ft)	Boundary Condition Type	Elevation (User Defined Tailwater) (ft)	Hydraulic Grade (ft)	Flow (Total Out) (cfs)
O-1	33.18	25.15	User Defined Tailwater	28.66	28.66	34.10
O-2	32.78	26.50	User Defined Tailwater	28.66	28.66	4.50
O-3	36.56	26.30	User Defined Tailwater	28.66	28.66	2.60
O-4	33.29	25.08	User Defined Tailwater	28.66	28.66	21.60
O-5	32.91	24.40	User Defined Tailwater	28.66	28.66	3.70
O-6	35.26	23.50	User Defined Tailwater	30.98	30.98	7.00
O-7	35.05	28.44	User Defined Tailwater	30.98	30.98	2.80
O-8	35.35	27.92	User Defined Tailwater	30.98	30.98	19.40


O-1
Rim: 33.18 ft
Invert: 25.15 ft
HGL: 28.66 ft
MH-1
Rim: 34.45 ft
Invert: 25.81 ft
HGL In: 29.72 ft
HGL Out: 29.12 ft
CB-3
Rim: 34.18 ft
Invert: 26.62 ft
HGL In: 30.65 ft
HGL Out: 30.28 ft
T-1
Invert: 27.21 ft
HGL In: 31.21 ft
HGL Out: 30.92 ft
CB-4
Rim: 35.10 ft
Invert: 27.95 ft
HGL In: 31.93 ft
HGL Out: 31.54 ft
CB-5
Rim: 35.39 ft
Invert: 28.46 ft
HGL In: 32.62 ft
HGL Out: 32.38 ft
CB-6
Rim: 35.36 ft
Invert: 29.86 ft
HGL In: 33.21 ft
HGL Out: 32.98 ft
T-2
Invert: 30.75 ft
HGL In: 33.78 ft
HGL Out: 33.42 ft
MH-2
Rim: 40.15 ft
Invert: 32.48 ft
HGL In: 35.23 ft
HGL Out: 34.75 ft
T-3
Invert: 33.16 ft
HGL In: 36.03 ft
HGL Out: 35.69 ft
CB-9
Rim: 40.39 ft
Invert: 33.60 ft
HGL In: 36.78 ft
HGL Out: 36.33 ft
CB-14
Rim: 43.01 ft
Invert: 38.58 ft
HGL In: 39.02 ft
HGL Out: 38.96 ft
CB-47
Rim: 42.99 ft
Invert: 37.99 ft
HGL In: 38.55 ft
HGL Out: 38.43 ft
CB-15
Rim: 43.70 ft
Invert: 39.16 ft
HGL In: 39.57 ft
HGL Out: 39.51 ft
CB-16
Rim: 43.70 ft
Invert: 39.54 ft
HGL In: 39.93 ft
HGL Out: 39.87 ft
CB-17
Rim: 44.42 ft
Invert: 40.12 ft
HGL In: 40.47 ft
HGL Out: 40.41 ft
CB-18
Rim: 44.54 ft
Invert: 40.54 ft
HGL In: 40.85 ft
HGL Out: 40.80 ft
CO-2: 66.4 ft @ 0.010 ft/ft
Circle - 30.0 in
CO-5: 81.0 ft @ 0.010 ft/ft
HDPE
CO-6: 59.2 ft @ 0.010 ft/ft
HDPE
CO-7: 73.7 ft @ 0.010 ft/ft
HDPE
CO-8: 103.0 ft @ 0.005 ft/ft
HDPE
CO-9: 86.0 ft @ 0.016 ft/ft
HDPE
CO-10: 29.3 ft @ 0.013 ft/ft
HDPE
CO-11: 129.6 ft @ 0.013 ft/ft
HDPE
CO-14: 67.7 ft @ 0.010 ft/ft
Circle - 24.0 in HDPE
CO-15: 44.4 ft @ 0.010 ft/ft
Circle - 24.0 in HDPE
CO-23: 167.3 ft @ 0.003 ft/ft
Circle - 12.0 in HDPE
CO-25: 12.7 ft @ 0.007 ft/ft
HDPE
CO-26: 79.9 ft @ 0.007 ft/ft
HDPE
CO-27: 53.4 ft @ 0.007 ft/ft
HDPE
CO-28: 79.6 ft @ 0.007 ft/ft
HDPE
CO-29: 58.1 ft @ 0.007 ft/ft
HDPE
45.00
40.00
35.00
30.00
25.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
5+50
6+00
6+50
7+00
7+50
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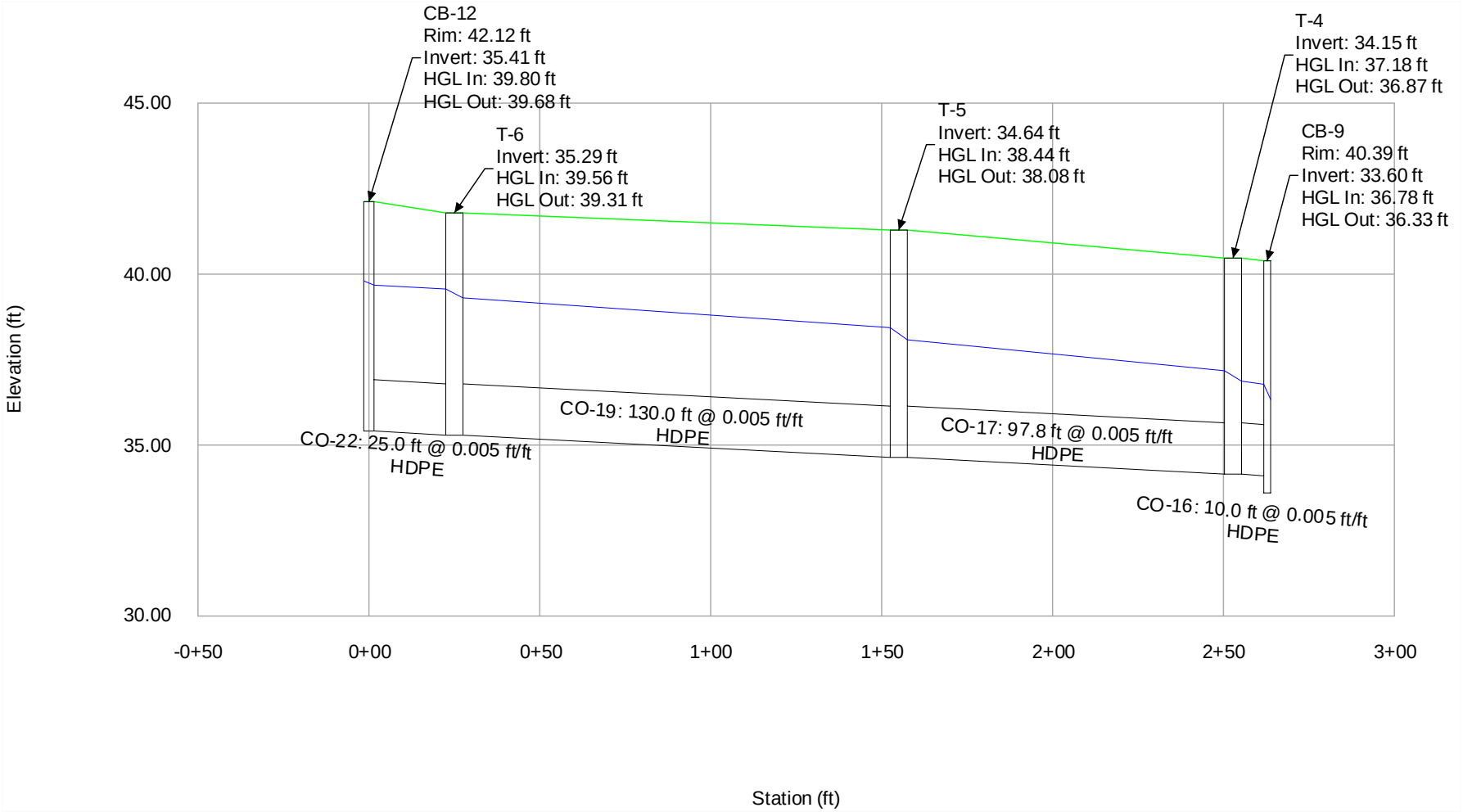
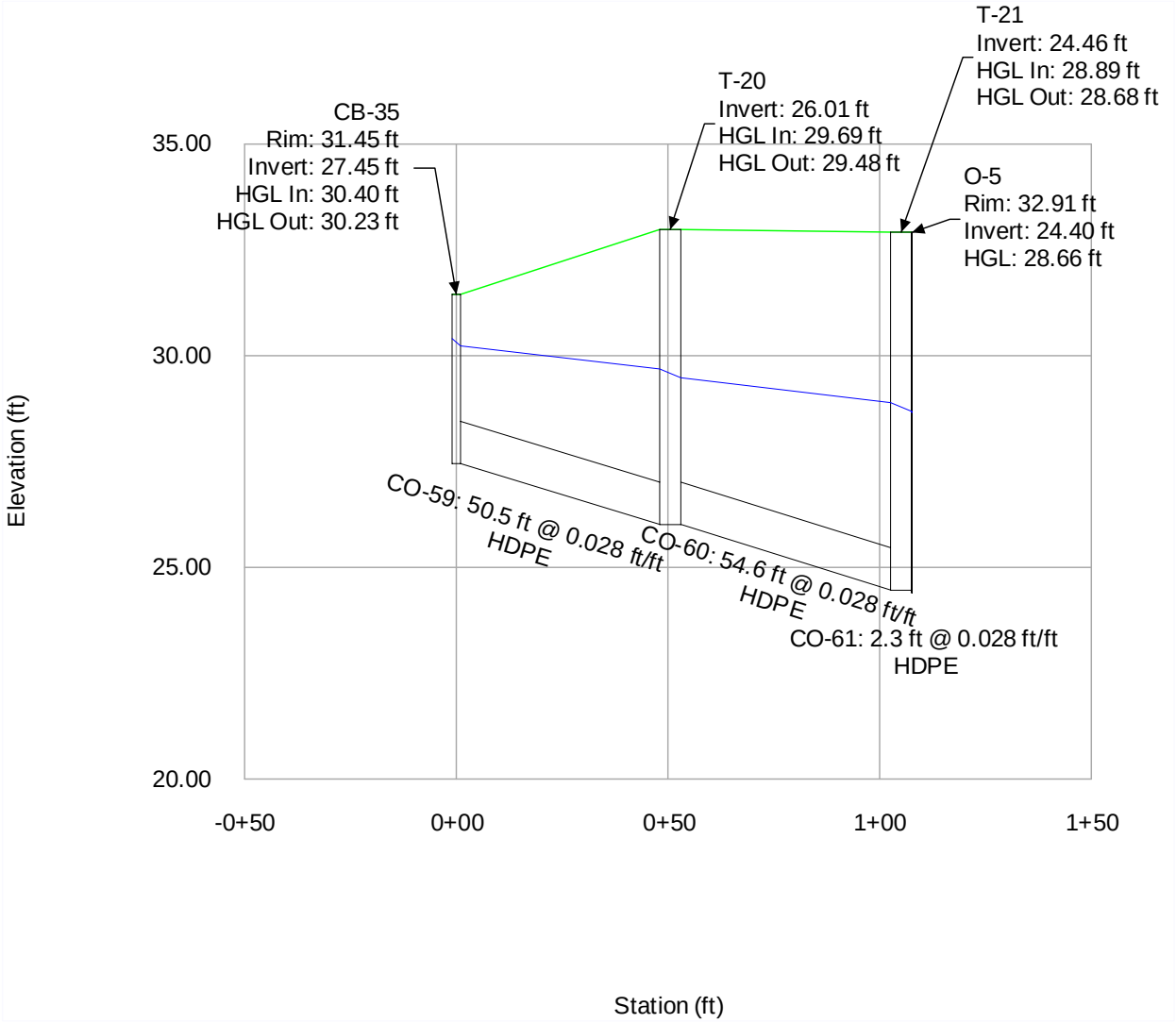
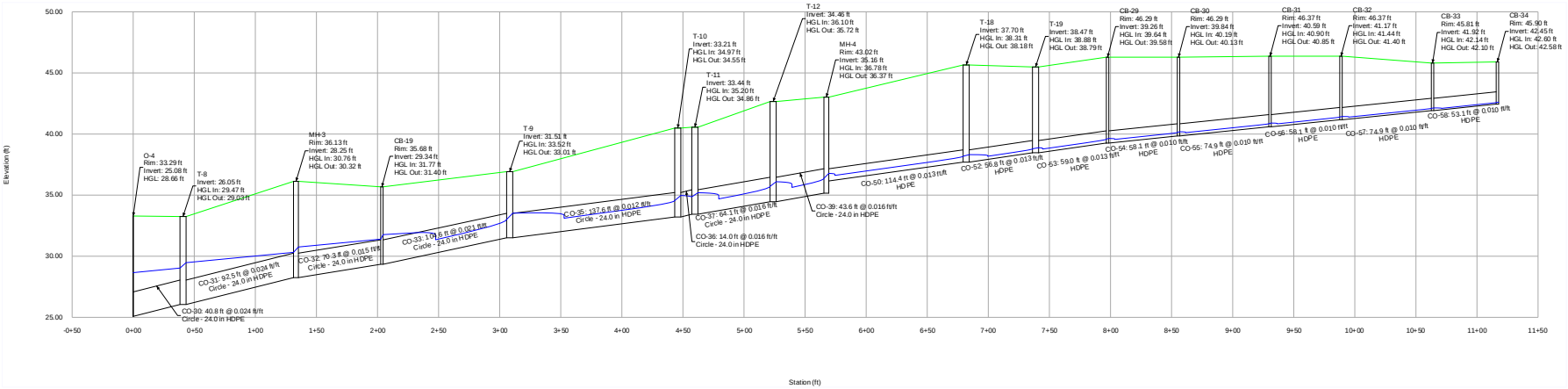
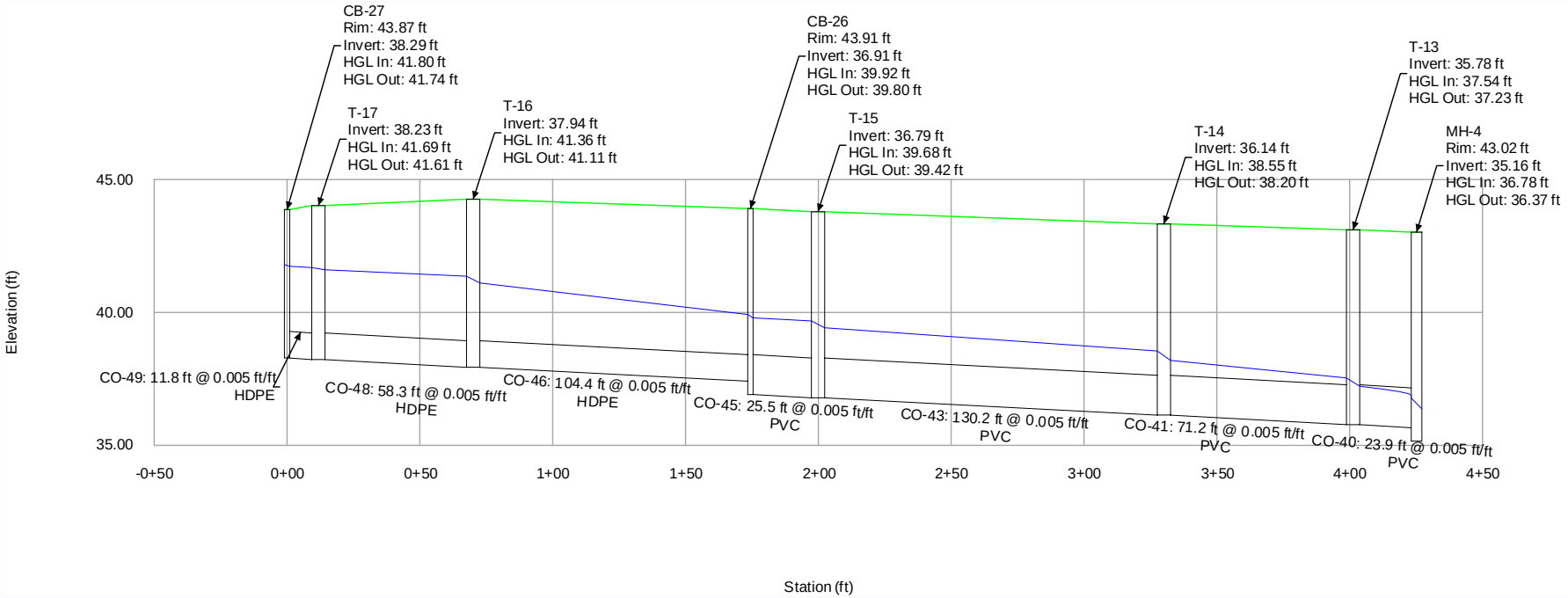
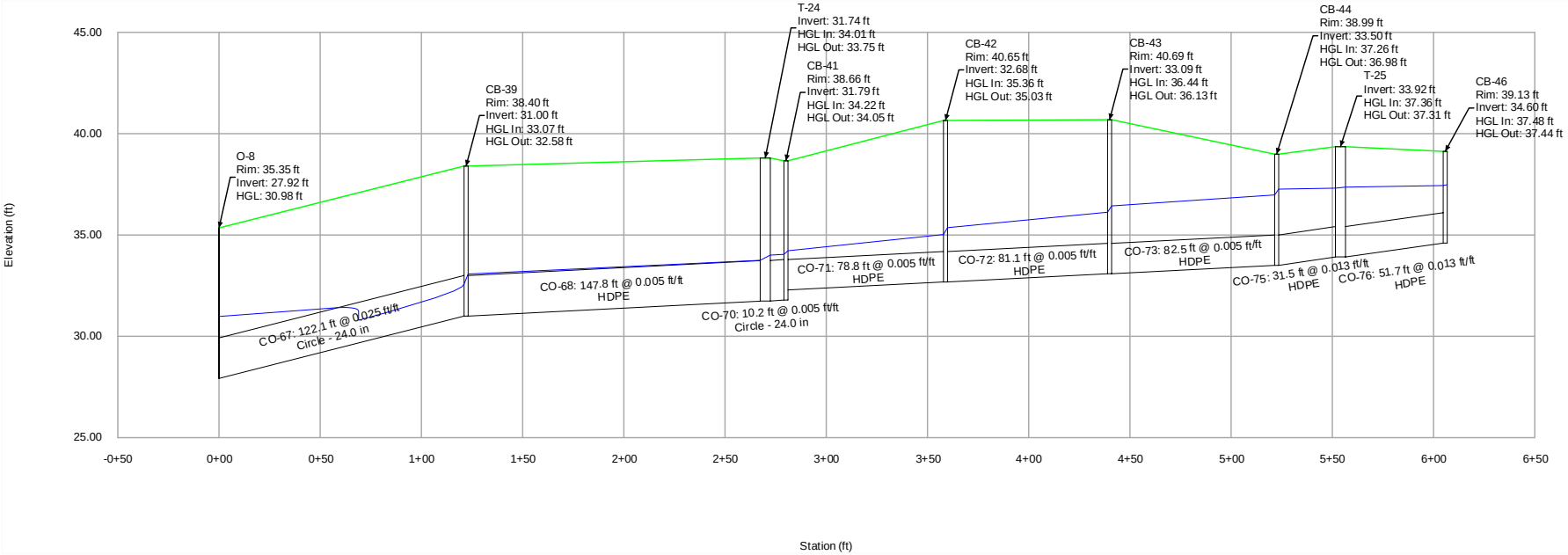
8+50
9+00
9+50
10+00
10+50
11+00
11+50
12+00
Station (ft)

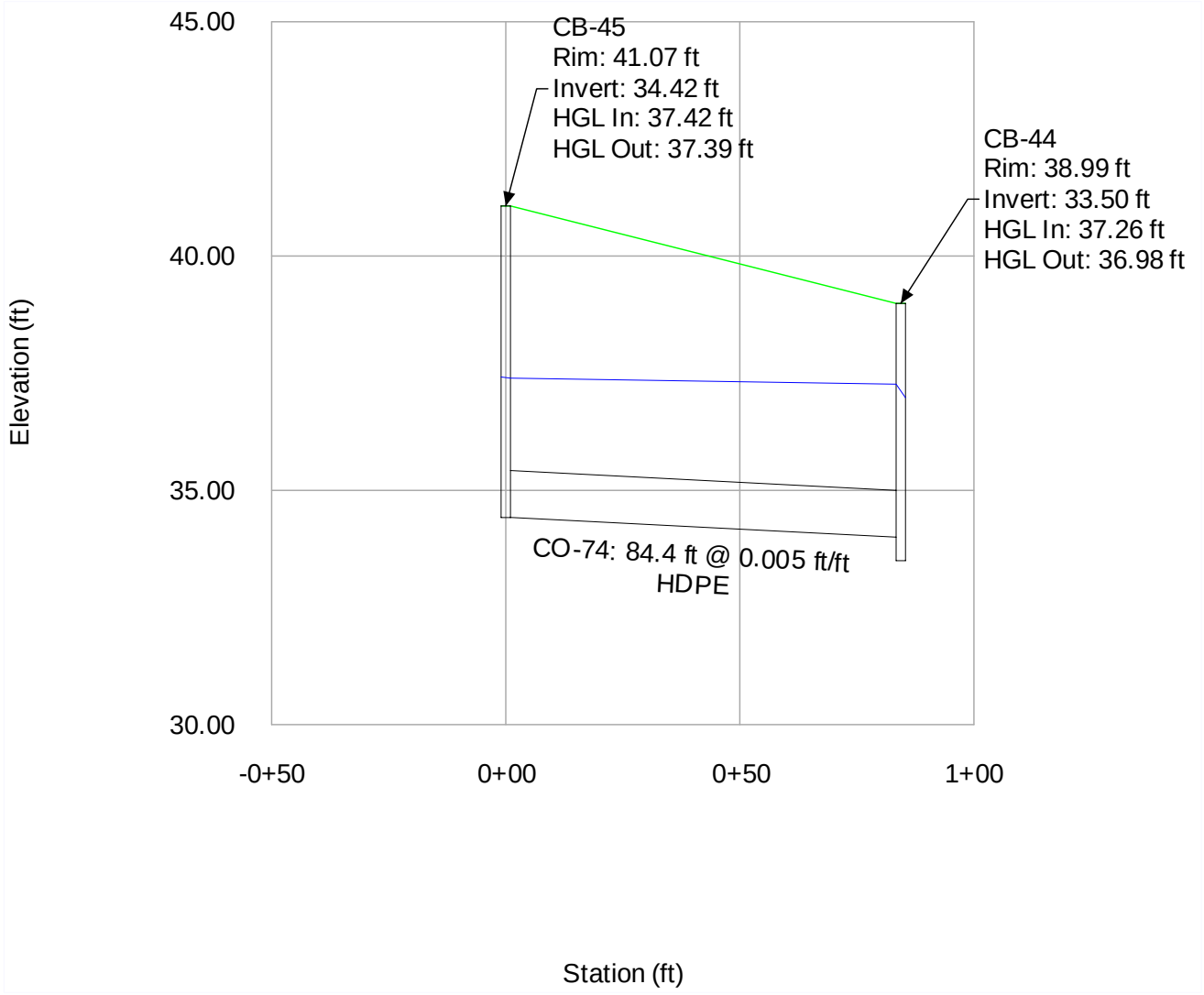

CB-12
Rim: 42.12 ft
Invert: 35.41 ft
HGL In: 39.80 ft
HGL Out: 39.68 ft
T-6
Invert: 35.29 ft
HGL In: 39.56 ft
HGL Out: 39.31 ft
T-5
Invert: 34.64 ft
HGL In: 38.44 ft
HGL Out: 38.08 ft
T-4
Invert: 34.15 ft
HGL In: 37.18 ft
HGL Out: 36.87 ft
CB-9
Rim: 40.39 ft
Invert: 33.60 ft
HGL In: 36.78 ft
HGL Out: 36.33 ft
CO-22: 25.0 ft @ 0.005 ft/ft
HDPE
CO-19: 130.0 ft @ 0.005 ft/ft
HDPE
CO-17: 97.8 ft @ 0.005 ft/ft
HDPE
CO-16: 10.0 ft @ 0.005 ft/ft
HDPE
45.00
40.00
35.00
30.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)

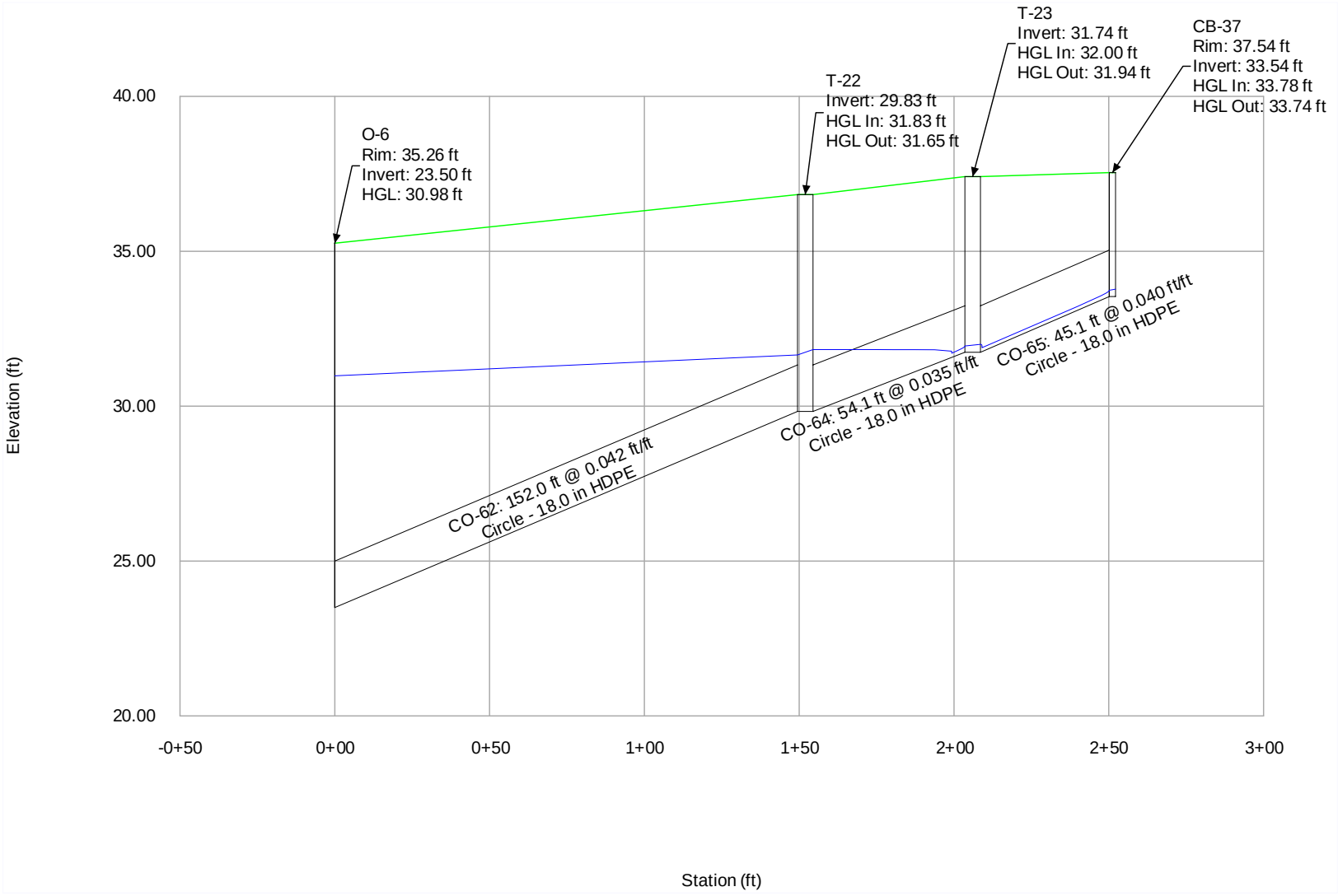

T-21
Invert: 24.46 ft
HGL In: 28.89 ft
HGL Out: 28.68 ft
T-20
Invert: 26.01 ft
HGL In: 29.69 ft
HGL Out: 29.48 ft
CB-35
Rim: 31.45 ft
Invert: 27.45 ft
HGL In: 30.40 ft
HGL Out: 30.23 ft
O-5
Rim: 32.91 ft
Invert: 24.40 ft
HGL: 28.66 ft
35.00
30.00
25.00
20.00
CO-59: 50.5 ft @ 0.028 ft/ft
HDPE
CO-60: 54.6 ft @ 0.028 ft/ft
HDPE
CO-61: 2.3 ft @ 0.028 ft/ft
HDPE
-0+50
0+00
0+50
1+00
1+50
Elevation (ft)
Station (ft)

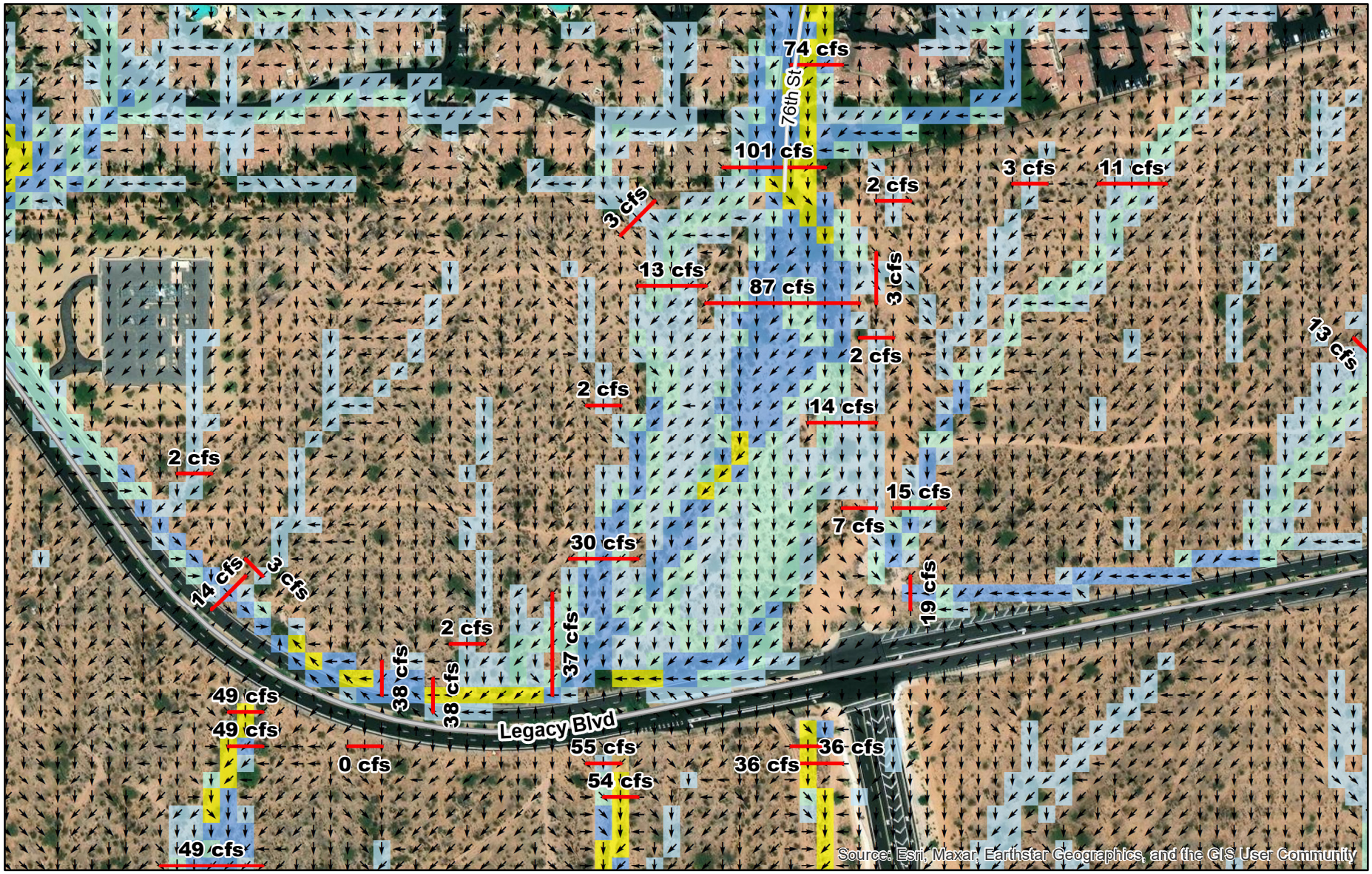

O-4
Rim: 33.29 ft
Invert: 25.08 ft
HGL: 28.66 ft
T-8
Invert: 26.05 ft
HGL In: 29.47 ft
HGL Out: 29.23 ft
MH-3
Rim: 36.13 ft
Invert: 28.25 ft
HGL In: 30.76 ft
HGL Out: 30.32 ft
CB-19
Rim: 35.68 ft
Invert: 29.34 ft
HGL In: 31.77 ft
HGL Out: 31.40 ft
T-9
Invert: 31.51 ft
HGL In: 33.52 ft
HGL Out: 33.01 ft
T-10
Invert: 33.21 ft
HGL In: 34.97 ft
HGL Out: 34.55 ft
T-11
Invert: 33.44 ft
HGL In: 35.20 ft
HGL Out: 34.86 ft
T-12
Invert: 34.46 ft
HGL In: 36.10 ft
HGL Out: 35.72 ft
MH-4
Rim: 43.02 ft
Invert: 35.16 ft
HGL In: 36.78 ft
HGL Out: 36.37 ft
T-18
Invert: 37.70 ft
HGL In: 38.31 ft
HGL Out: 38.18 ft
T-19
Invert: 38.47 ft
HGL In: 38.88 ft
HGL Out: 38.79 ft
CB-29
Rim: 46.29 ft
Invert: 39.26 ft
HGL In: 39.64 ft
HGL Out: 39.58 ft
CB-30
Rim: 46.29 ft
Invert: 39.84 ft
HGL In: 40.19 ft
HGL Out: 40.13 ft
CB-31
Rim: 46.37 ft
Invert: 40.59 ft
HGL In: 40.90 ft
HGL Out: 40.85 ft
CB-32
Rim: 46.37 ft
Invert: 41.17 ft
HGL In: 41.44 ft
HGL Out: 41.40 ft
CB-33
Rim: 45.81 ft
Invert: 41.92 ft
HGL In: 42.14 ft
HGL Out: 42.10 ft
CB-34
Rim: 45.90 ft
Invert: 42.45 ft
HGL In: 42.60 ft
HGL Out: 42.58 ft
CO-30: 40.8 ft @ 0.024 ft/ft
Circle - 24.0 in HDPE
CO-31: 92.5 ft @ 0.024 ft/ft
Circle - 24.0 in HDPE
CO-32: 70.3 ft @ 0.015 ft/ft
Circle - 24.0 in HDPE
CO-33: 109.8 ft @ 0.001 ft/ft
Circle - 24.0 in HDPE
CO-35: 137.6 ft @ 0.012 ft/ft
Circle - 24.0 in HDPE
CO-36: 14.0 ft @ 0.016 ft/ft
Circle - 24.0 in HDPE
CO-37: 64.1 ft @ 0.016 ft/ft
Circle - 24.0 in HDPE
CO-39: 43.6 ft @ 0.016 ft/ft
Circle - 24.0 in HDPE
CO-50: 114.4 ft @ 0.013 ft/ft
HDPE
CO-52: 56.8 ft @ 0.013 ft/ft
HDPE
CO-53: 59.0 ft @ 0.013 ft/ft
HDPE
CO-54: 58.1 ft @ 0.010 ft/ft
HDPE
CO-55: 74.9 ft @ 0.010 ft/ft
HDPE
CO-56: 58.1 ft @ 0.010 ft/ft
HDPE
CO-57: 74.9 ft @ 0.010 ft/ft
HDPE
CO-58: 53.1 ft @ 0.010 ft/ft
HDPE
Elevation (ft)
Station (ft)


CB-27
Rim: 43.87 ft
Invert: 38.29 ft
HGL In: 41.80 ft
HGL Out: 41.74 ft
T-17
Invert: 38.23 ft
HGL In: 41.69 ft
HGL Out: 41.61 ft
T-16
Invert: 37.94 ft
HGL In: 41.36 ft
HGL Out: 41.11 ft
CB-26
Rim: 43.91 ft
Invert: 36.91 ft
HGL In: 39.92 ft
HGL Out: 39.80 ft
T-15
Invert: 36.79 ft
HGL In: 39.68 ft
HGL Out: 39.42 ft
T-14
Invert: 36.14 ft
HGL In: 38.55 ft
HGL Out: 38.20 ft
T-13
Invert: 35.78 ft
HGL In: 37.54 ft
HGL Out: 37.23 ft
MH-4
Rim: 43.02 ft
Invert: 35.16 ft
HGL In: 36.78 ft
HGL Out: 36.37 ft
45.00
40.00
35.00
Elevation (ft)
CO-49: 11.8 ft @ 0.005 ft/ft
HDPE
CO-48: 58.3 ft @ 0.005 ft/ft
HDPE
CO-46: 104.4 ft @ 0.005 ft/ft
HDPE
CO-45: 25.5 ft @ 0.005 ft/ft
PVC
CO-43: 130.2 ft @ 0.005 ft/ft
PVC
CO-41: 71.2 ft @ 0.005 ft/ft
PVC
CO-40: 23.9 ft @ 0.005 ft/ft
PVC
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
Station (ft)

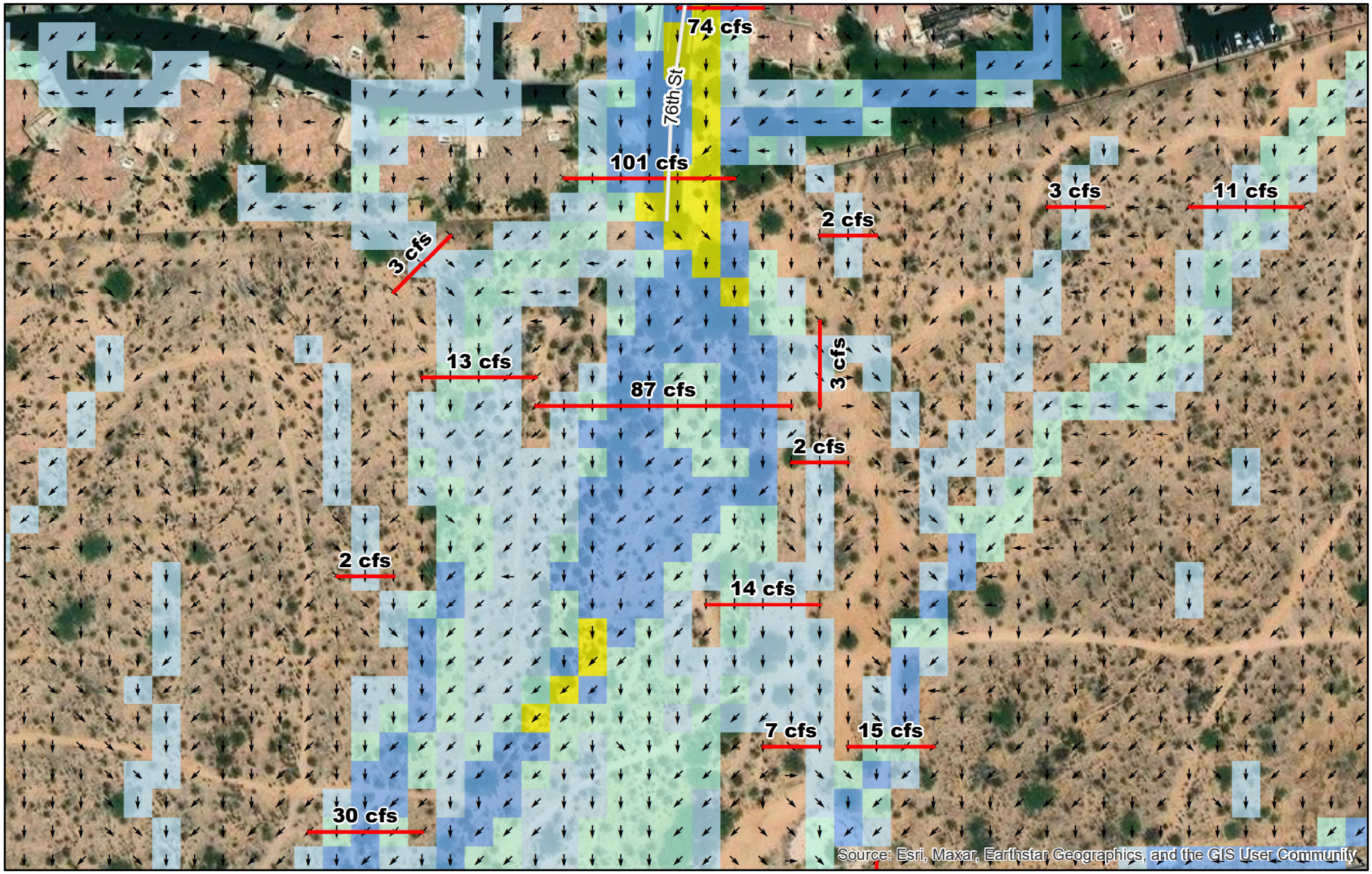

45.00
40.00
35.00
30.00
25.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
5+50
6+00
6+50
Station (ft)
O-8
Rim: 35.35 ft
Invert: 27.92 ft
HGL: 30.98 ft
CB-39
Rim: 38.40 ft
Invert: 31.00 ft
HGL In: 33.07 ft
HGL Out: 32.58 ft
T-24
Invert: 31.74 ft
HGL In: 34.01 ft
HGL Out: 33.75 ft
CB-41
Rim: 38.66 ft
Invert: 31.79 ft
HGL In: 34.22 ft
HGL Out: 34.05 ft
CB-42
Rim: 40.65 ft
Invert: 32.68 ft
HGL In: 35.36 ft
HGL Out: 35.03 ft
CB-43
Rim: 40.69 ft
Invert: 33.09 ft
HGL In: 36.44 ft
HGL Out: 36.13 ft
CB-44
Rim: 38.99 ft
Invert: 33.50 ft
HGL In: 37.26 ft
HGL Out: 36.98 ft
T-25
Invert: 33.92 ft
HGL In: 37.36 ft
HGL Out: 37.31 ft
CB-46
Rim: 39.13 ft
Invert: 34.60 ft
HGL In: 37.48 ft
HGL Out: 37.44 ft
CO-67: 122.1 ft @ 0.025 ft/ft
Circle - 24.0 in
CO-68: 147.8 ft @ 0.005 ft/ft
HDPE
CO-70: 10.2 ft @ 0.005 ft/ft
Circle - 24.0 in
CO-71: 78.8 ft @ 0.005 ft/ft
HDPE
CO-72: 81.1 ft @ 0.005 ft/ft
HDPE
CO-73: 82.5 ft @ 0.005 ft/ft
HDPE
CO-75: 31.5 ft @ 0.013 ft/ft
HDPE
CO-76: 51.7 ft @ 0.013 ft/ft
HDPE


45.00
40.00
35.00
30.00
Elevation (ft)
CB-45
Rim: 41.07 ft
Invert: 34.42 ft
HGL In: 37.42 ft
HGL Out: 37.39 ft
CB-44
Rim: 38.99 ft
Invert: 33.50 ft
HGL In: 37.26 ft
HGL Out: 36.98 ft
CO-74: 84.4 ft @ 0.005 ft/ft
HDPE
-0+50
0+00
0+50
1+00
Station (ft)

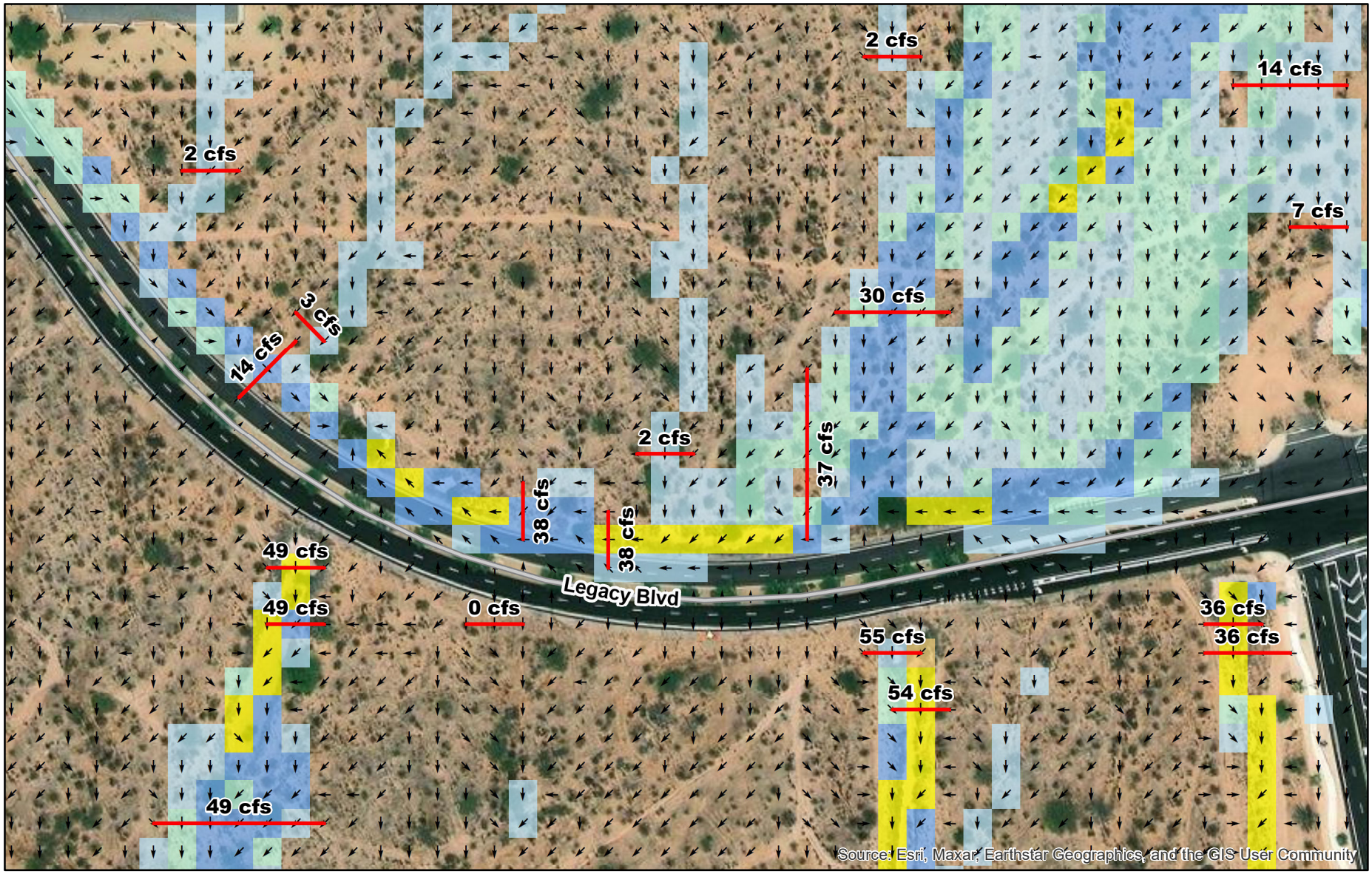

T-23
Invert: 31.74 ft
HGL In: 32.00 ft
HGL Out: 31.94 ft
CB-37
Rim: 37.54 ft
Invert: 33.54 ft
HGL In: 33.78 ft
HGL Out: 33.74 ft
T-22
Invert: 29.83 ft
HGL In: 31.83 ft
HGL Out: 31.65 ft
O-6
Rim: 35.26 ft
Invert: 23.50 ft
HGL: 30.98 ft
CO-65: 45.1 ft @ 0.040 ft/ft
Circle - 18.0 in HDPE
CO-64: 54.1 ft @ 0.035 ft/ft
Circle - 18.0 in HDPE
CO-62: 152.0 ft @ 0.042 ft/ft
Circle - 18.0 in HDPE
40.00
35.00
30.00
25.00
20.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)



Kimley»Horn Expect More. Experience Better.	Maricopa County, AZ	Legacy & Miller
	Figure 1. Discharge Map	



Kimley»Horn Expect More. Experience Better.	Maricopa County, AZ	Legacy & Miller
	Figure 2. Discharge Map	



Kimley»Horn Expect More. Experience Better.	Maricopa County, AZ	Legacy & Miller
	Figure 3. Discharge Map	

Appendix D – Figures

FIGURE 1: CONTEXT AERIAL PLAN

Kimley»Horn

K:\PHX_Civil\291878000 - Legacy & Miller\CADD\Exhibits\2023-06-14 Context Aerial.dwg Nov 30, 2023 Max.Halpert

APN: 212-43-601
OWNER: VILLAGE AT GREYHAWK
OWNERS ASSOCIATION
DOCUMENT NO. 2011-0525654 M.C.R.

APN: 212-36-009B
OWNER: ARIZONA PUBLIC
SERVICE ROW 14-110191
DOCUMENT NO. NOD-61106

A PORTION OF APN 212-36-009D
OWNER: ARIZONA STATE LAND DEPT
DOCUMENT NO. 1996-0355065 M.C.R.

MILLER ROAD

LEGACY BOULEVARD

PROPERTY LINE

N87°27'58"E
913.29'

EXST. OPEN CHANNEL

Q100=101 CFS

L=324.59'
R=645.00'

N00°01'04"E
365.64'

N00°00'34"W
2640.67'

N11°04'14"W
414.43'

EXST. RETENTION AREA

N00°02'50"E
349.10'

Q100=14 CFS

EXST. RETENTION AREA

N31°53'02"E
16.01'

S59°41'09"E
40.02'

S28°45'36"W
16.01'

R=750.00'
L=62.17'

EXST. H.W.

EXST. 29"X45" ELLIPTICAL CONCRETE PIPE CULVERT

EXST. CATCH BASIN

EXST. H.W.

Q100=49 CFS

S89°57'54"E
2640.94'

R=750.00'
L=521.63'

N78°54'38"E
25.00'

N11°05'22"W
20.00'

EXST. H.W.

S11°05'22"E
20.00'

N78°54'38"E
86.94'

N78°54'38"E
26.95'

EXST. 29"X45" ELLIPTICAL CONCRETE PIPE CULVERT

EXST. H.W.

Q100=55 CFS

EXST. HEADWALL

EXST. DIRT ROAD

N78°54'38"E
260.40'

PROPERTY LINE

EXST. 10'X3' CONCRETE BOX CULVERT

EXST. HEADWALL

Q100=36 CFS

N33°44'18"E
43.44'

N22°27'20"E
43.42'

GRAPHIC SCALE IN FEET
0 30 60 120

NORTH

FIGURE 2: EXISTING CONDITIONS EXHIBIT

Kimley»Horn

K:\PHX_Civil\291878000 - Legacy & Miller\CADD\Exhibits\Existing Conditions.dwg Nov 30, 2023 Robert.Hannen

E LEGACY BLVD

MILLER RD

LEGEND

12	PROPOSED CONTOUR
2	EXISTING CONTOURS
00	DRAINAGE AREA ID
	DRAINAGE AREA BOUNDARY
	INLET AREA BOUNDARY
	DRAINAGE FLOW DIRECTION

NORTH

GRAPHIC SCALE IN FEET
0 25 50 100

FIGURE 3: DRAINAGE AREA MAP

Kimley»Horn

K:\PHX_Civil\291878000 – Legacy & Miller\CADD\8780000R.dwg Nov 30, 2023 Max.Halpert

REV	DESCRIPTION	BY	DATE	APPR

GRADING AND DRAINAGE CONSTRUCTION NOTES

1. NYLOPLAST LANDSCAPE AREA DRAIN PER MAG STD DET 535, GRATE AND INVERT ELEVATIONS PER PLAN.
2. HDPE STORM DRAIN PIPE, LENGTH, SIZE, AND SLOPE PER PLAN.
3. HDPE STORM DRAIN BEND, INVERT AND ANGLE PER PLAN. SIZE TO MATCH ADJOINING PIPES.
4. HDPE STORM DRAIN TEE, INVERTS PER PLAN. SIZE TO MATCH ADJOINING PIPES.
8. 48" STORM DRAIN MANHOLE, PER MAG STD DET 520.
9. TYPE 'E' CATCH BASIN PER MAG STD DET 534, GRATE AND INVERT ELEVATIONS PER PLAN.
15. 3' WIDE CONCRETE VALLEY GUTTER.

NOTES:

1. ADD 1500' TO ALL ELEVATIONS.
2. ADD 0.5' TO PAVEMENT (P) ELEVATIONS TO OBTAIN TOP OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.
3. ALL SPOT ELEVATIONS ARE FINISHED GRADE PAVEMENT (P), GUTTER/GRATE (G), CONCRETE (C) OR SIDEWALK (SW) ELEVATIONS UNLESS OTHERWISE NOTED.

CIVIL ENGINEER

KIMLEY-HORN
7740 N. 16TH STREET
SUITE 300
PHOENIX, AZ 85020
PH: (602) 944-5500
CONTACT: GARRETT FRAME, PE

DEVELOPER/OWNER

THE DINERSTEIN COMPANY
1010 S. COAST HIGHWAY 101, STE 106
ENCINITAS, CA 92024

LAND SURVEYOR

SURVEY INNOVATION GROUP, INC
22425 N. 16TH STREET, SUITE 1
PHOENIX, ARIZONA 85024
PH: (480) 922-0780
CONTACT: MICHAEL A. BANTA, RLS

ARCHITECT

KTGY ARCHITECTURE + PLANNING
17911 VON KARMAN AVE, STE 200
IRVINE, CA 92614
PH: (949) 851-2133

LEGEND

- PROPERTY LINE
- RIGHT OF WAY LINE
- STREET CENTERLINE
- EASEMENT LINE
- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- PROPOSED SEWER MAIN
- PROPOSED STORM DRAIN
- HIGH POINT
- PROPOSED CONTOUR
- EXISTING CONTOURS
- PROPOSED PAVEMENT SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING SANITARY SEWER MANHOLE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED CATCH BASIN

BENCHMARK

PER SURVEY INNOVATION GROUP, THE BENCHMARK IS:
FOUND 2 1/2" STEEL PIPE 0.15' UP WITH 3 1/4" BLM BRASS CAP STAMPED "T4N R4E 1/4 S26 S35 1995"

ELEVATION = 1598.718 (NAVD88)

BASIS OF BEARING

PER SURVEY INNOVATION GROUP, THE BASIS OF BEARING IS THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, AS SHOWN IN BOOK 693, PAGE 3 MARICOPA COUNTY RECORDS.

SAID LINE BEARS SOUTH 89 DEGREES 58 MINUTES 20 SECONDS EAST.

FLOOD INFORMATION

ACCORDING TO THE FLOOD INSURANCE RATE MAP #04013C1320 L, DATED 10/16/2013, THIS PROPERTY IS LOCATED IN FLOOD ZONE "AO" IS DEFINED AS AREAS WITH BASE FLOOD ELEVATION OR DEPTH. (DEPTH1 FEET)(VEL 3 FEET/SECOND)

PENDING LOMR APPROVAL THIS PROPERTY WILL BE LOCATED IN FLOOD ZONE "X" IS DEFINED AS AREAS OF 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. THE SITE AS CURRENTLY DESIGNED WILL NOT MEET ZONE 'AO' REQUIREMENTS AND ADJUSTMENTS WILL BE REQUIRED IF LOMR IS DENIED.

THE LOWEST FLOOR ELEVATION(S) AND/OR FLOOD PROOFING ELEVATION(S) ON THIS PLAN ARE SUFFICIENTLY HIGH TO PROVIDE PROTECTION FROM FLOODING CAUSED BY A 100-YEAR STORM, AND ARE IN ACCORDANCE WITH SCOTTSDALE REVISED CODE, CHAPTER 37 – FLOODPLAIN AND STORMWATER REGULATION.

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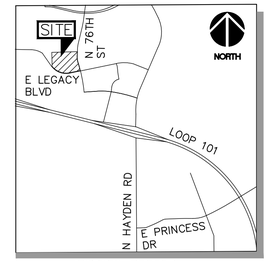
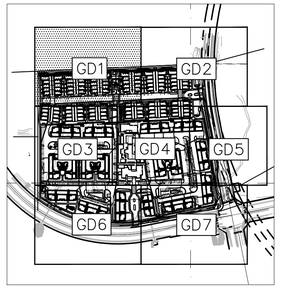
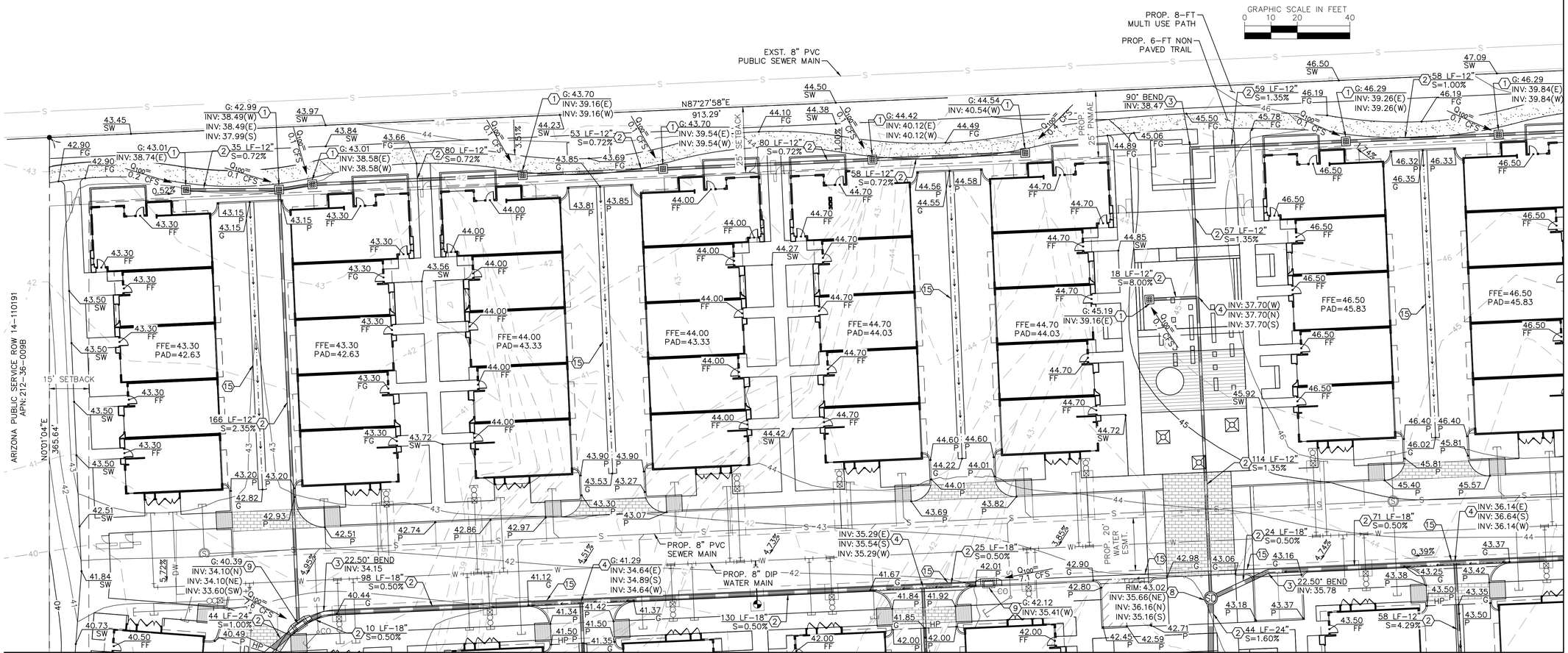


VICINITY MAP
SCOTTSDALE, AZ
N.T.S.



KEY MAP
N.T.S.

APN 212-43-601
VILLAGE AT GREYHAWK OWNERS ASSOCIATION
DOCUMENT NO. 2011-0525654 M.C.R.
ZONING: R-5



NWC LEGACY BLVD AND MILLER ROAD

PRELIMINARY GRADING PLAN

SCOTTSDALE, ARIZONA

PROJECT No.	291878000
SCALE (H):	1"=20'
SCALE (V):	NONE
DRAWN BY:	HDO
DESIGN BY:	RMH
CHECK BY:	CGF
DATE:	11/30/23

Registered Professional Engineer
CERTIFICATE NO.
64329
C. GARRETT FRAME
Date Signed 11/30/23
ARIZONA, USA
Expires 06/30/25

291878000Pre-GD.dwg

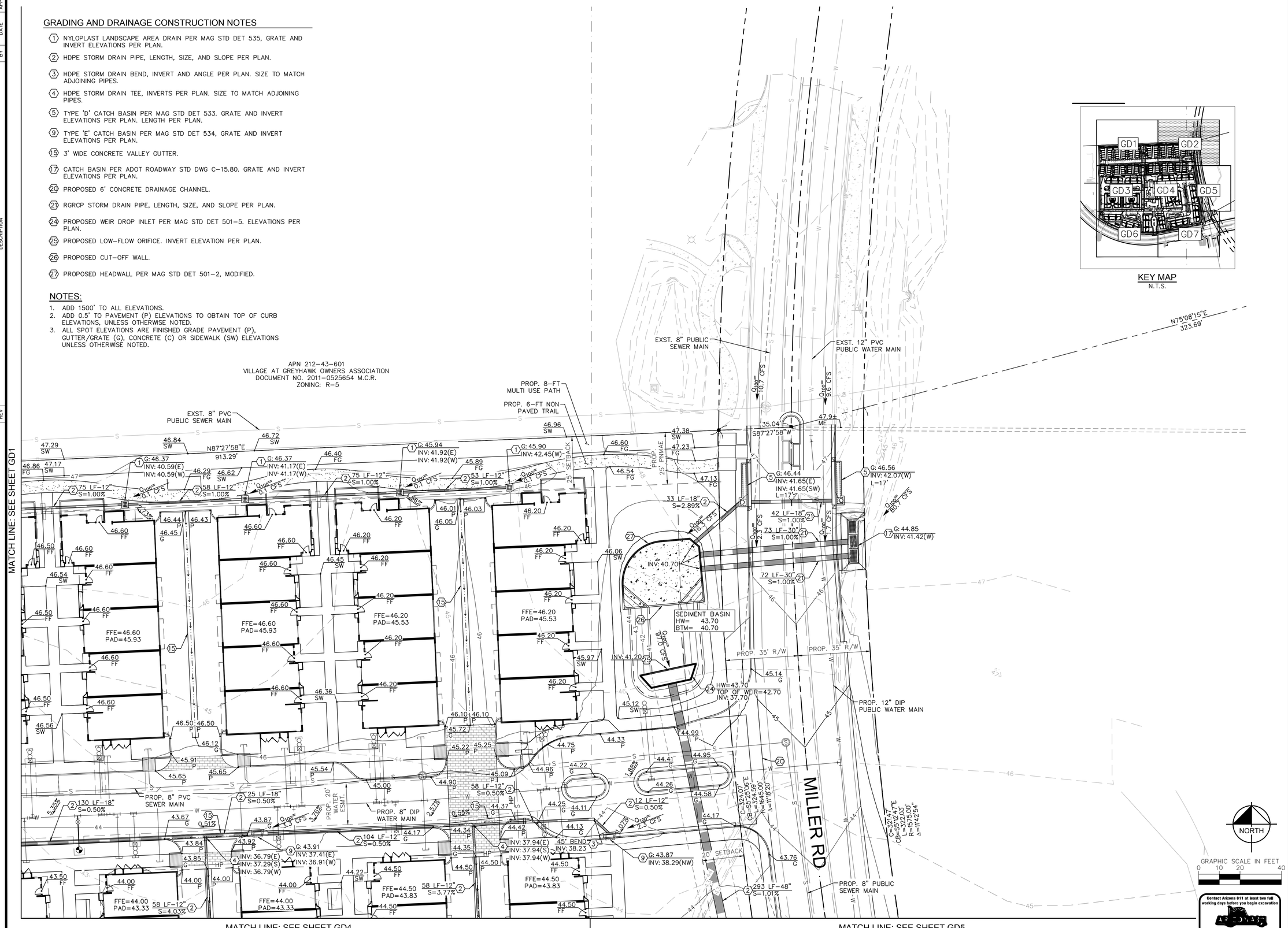
GD1
1 OF 7 SHEETS

GRADING AND DRAINAGE CONSTRUCTION NOTES

1. NYLOPLAST LANDSCAPE AREA DRAIN PER MAG STD DET 535, GRATE AND INVERT ELEVATIONS PER PLAN.
2. HDPE STORM DRAIN PIPE, LENGTH, SIZE, AND SLOPE PER PLAN.
3. HDPE STORM DRAIN BEND, INVERT AND ANGLE PER PLAN. SIZE TO MATCH ADJOINING PIPES.
4. HDPE STORM DRAIN TEE, INVERTS PER PLAN. SIZE TO MATCH ADJOINING PIPES.
5. TYPE 'D' CATCH BASIN PER MAG STD DET 533. GRATE AND INVERT ELEVATIONS PER PLAN. LENGTH PER PLAN.
9. TYPE 'E' CATCH BASIN PER MAG STD DET 534, GRATE AND INVERT ELEVATIONS PER PLAN.
15. 3' WIDE CONCRETE VALLEY GUTTER.
17. CATCH BASIN PER ADOT ROADWAY STD DWG C-15.80. GRATE AND INVERT ELEVATIONS PER PLAN.
20. PROPOSED 6' CONCRETE DRAINAGE CHANNEL.
21. RGRCP STORM DRAIN PIPE, LENGTH, SIZE, AND SLOPE PER PLAN.
24. PROPOSED WEIR DROP INLET PER MAG STD DET 501-5. ELEVATIONS PER PLAN.
25. PROPOSED LOW-FLOW ORIFICE. INVERT ELEVATION PER PLAN.
26. PROPOSED CUT-OFF WALL.
27. PROPOSED HEADWALL PER MAG STD DET 501-2, MODIFIED.

NOTES:

1. ADD 1500' TO ALL ELEVATIONS.
2. ADD 0.5' TO PAVEMENT (P) ELEVATIONS TO OBTAIN TOP OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.
3. ALL SPOT ELEVATIONS ARE FINISHED GRADE PAVEMENT (P), GUTTER/GRATE (G), CONCRETE (C) OR SIDEWALK (SW) ELEVATIONS UNLESS OTHERWISE NOTED.



KEY MAP
N.T.S.

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

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NWC LEGACY BLVD AND MILLER ROAD

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Expires 06/30/25

878000Pre-GD.dwg

GD2
2 OF 7 SHEETS

APPR.	DATE	BY	DESCRIPTION	REV

MATCH LINE: SEE SHEET GD1

MATCH LINE: SEE SHEET GD4

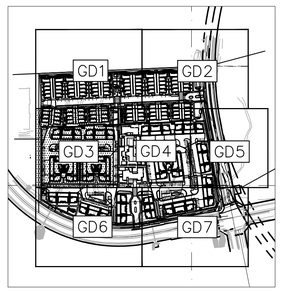
MATCH LINE: SEE SHEET GD6

GRADING AND DRAINAGE CONSTRUCTION NOTES

1. NYLOPLAST LANDSCAPE AREA DRAIN PER MAG STD DET 535, GRATE AND INVERT ELEVATIONS PER PLAN.
2. HDPE STORM DRAIN PIPE, LENGTH, SIZE, AND SLOPE PER PLAN.
3. HDPE STORM DRAIN BEND, INVERT AND ANGLE PER PLAN. SIZE TO MATCH ADJOINING PIPES.
6. 10' DIAMETER CMP UNDERGROUND RETENTION TANKS.
7. RETENTION TANK ACCESS RISER.
8. 48" STORM DRAIN MANHOLE, PER MAG STD DET 520.
9. TYPE 'E' CATCH BASIN PER MAG STD DET 534, GRATE AND INVERT ELEVATIONS PER PLAN.
10. MAXWELL PLUS OR APPROVED EQUAL DUAL CHAMBER DRYWELL.
14. TYPE 'F' CATCH BASIN PER MAG STD DET 535, GRATE AND INVERT ELEVATIONS PER PLAN.
15. 3' WIDE CONCRETE VALLEY GUTTER.
16. PROPOSED 2' CONCRETE DRAINAGE CHANNEL.
19. STORM DRAIN CONNECTION TO UNDERGROUND RETENTION TANK. INVERT PER PLAN.
22. RETENTION TANK ACCESS RISER WITH GRATED COVER.

NOTES:

1. ADD 1500' TO ALL ELEVATIONS.
2. ADD 0.5' TO PAVEMENT (P) ELEVATIONS TO OBTAIN TOP OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.
3. ALL SPOT ELEVATIONS ARE FINISHED GRADE PAVEMENT (P), GUTTER/GRATE (G), CONCRETE (C) OR SIDEWALK (SW) ELEVATIONS UNLESS OTHERWISE NOTED.



KEY MAP
N.T.S.

NORTH

GRAPHIC SCALE IN FEET
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ARIZONA811
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NWC LEGACY BLVD AND MILLER ROAD

PRELIMINARY GRADING PLAN

SCOTTSDALE, ARIZONA

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DESIGN BY:	RMH
CHECK BY:	CGF
DATE:	11/30/23

Registered Professional Engineer (Civil)
CERTIFICATE NO.
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C. GARRETT
FRAME
Date Signed 11/30/23
ARIZONA, U.S.A.
Expires 06/30/25

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GD3
3 OF 7 SHEETS

APPR.	DATE	BY	DESCRIPTION	REV

MATCH LINE: SEE SHEET GD1

MATCH LINE: SEE SHEET GD2

MATCH LINE: SEE SHEET GD3

MATCH LINE: SEE SHEET GD5

MATCH LINE: SEE SHEET GD6

MATCH LINE: SEE SHEET GD7

GRADING AND DRAINAGE CONSTRUCTION NOTES

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3. HDPE STORM DRAIN BEND, INVERT AND ANGLE PER PLAN. SIZE TO MATCH ADJOINING PIPES.
4. HDPE STORM DRAIN TEE, INVERTS PER PLAN. SIZE TO MATCH ADJOINING PIPES.
8. 48" STORM DRAIN MANHOLE, PER MAG STD DET 520.
9. TYPE 'E' CATCH BASIN PER MAG STD DET 534, GRATE AND INVERT ELEVATIONS PER PLAN.
14. TYPE 'F' CATCH BASIN PER MAG STD DET 535, GRATE AND INVERT ELEVATIONS PER PLAN.
15. 3' WIDE CONCRETE VALLEY GUTTER.
16. PROPOSED 2' CONCRETE DRAINAGE CHANNEL.

NOTES:

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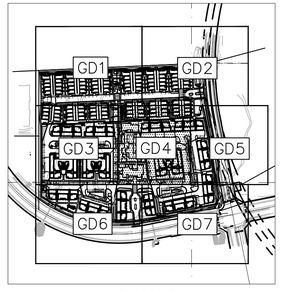

KEY MAP
N.T.S.

NORTH

GRAPHIC SCALE IN FEET
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NWC LEGACY BLVD AND MILLER ROAD

PRELIMINARY GRADING PLAN

SCOTTSDALE, ARIZONA

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SCALE (V):	NONE
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DESIGN BY:	RMH
CHECK BY:	HDO
DATE:	11/30/23

Registered Professional Engineer (Civil)
CERTIFICATE NO.
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C. GARRETT FRAME
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ARIZONA, U.S.A.
EXPIRES 06/30/25

291878000Pre-GD.dwg

GD4
4 OF 7 SHEETS

APPR. | DATE | BY | DESCRIPTION | REV

MATCH LINE: SEE SHEET GD2

MATCH LINE: SEE SHEET GD4

MATCH LINE: SEE SHEET GD7

APN 212-36-010
ARIZONA STATE LAND DEPARTMENT
ZONING: PCD

MILLER RD

20' SETBACK

22' SETBACK

PROP. 12" DIP PUBLIC WATER MAIN

PROP. 8" DIP WATER MAIN

PROP. 8" PUBLIC SEWER MAIN

PROP. 20' WATER ESMT.

PROP. 35' R/W

293 LF-48" S=1.01%

84 LF-12" S=0.50%

342 LF-48" S=1.00%

RIM: 41.00
INV: 34.74(N)
INV: 34.74(S)

G: 41.07
INV: 34.42(SW)

Q100= 14.4 CFS

FFE=42.00
PAD=41.33

FFE=40.00
PAD=39.33

FFE=38.50
PAD=37.83

S11°04'14"E 365.40'

N11°04'14"W 416.43'

S89°57'30"E 194.70'

N78°54'38"E 70.00'

S11°05'22"E 45.00'

N60°56'16"E 708.69'

GRADING AND DRAINAGE CONSTRUCTION NOTES

(2) HDPE STORM DRAIN PIPE, LENGTH, SIZE, AND SLOPE PER PLAN.

(8) 48" STORM DRAIN MANHOLE, PER MAG STD DET 520.

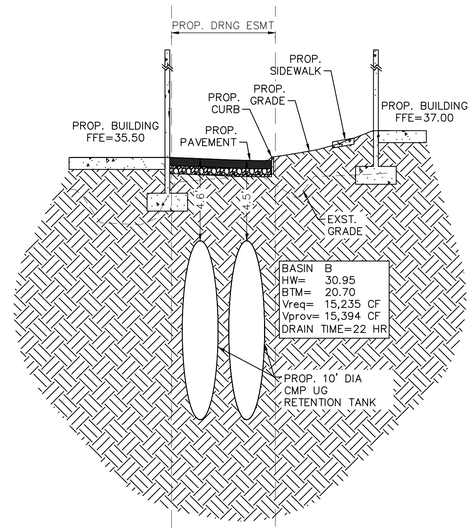
(9) TYPE 'E' CATCH BASIN PER MAG STD DET 534, GRATE AND INVERT ELEVATIONS PER PLAN.

(15) 3' WIDE CONCRETE VALLEY GUTTER.

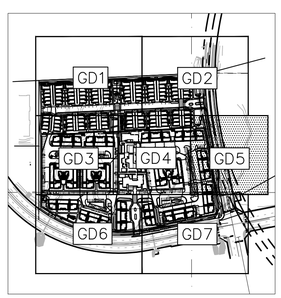
(16) PROPOSED 2' CONCRETE DRAINAGE CHANNEL.

NOTES:

1. ADD 1500' TO ALL ELEVATIONS.
2. ADD 0.5' TO PAVEMENT (P) ELEVATIONS TO OBTAIN TOP OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.
3. ALL SPOT ELEVATIONS ARE FINISHED GRADE PAVEMENT (P), GUTTER/GRATE (G), CONCRETE(C) OR SIDEWALK (SW) ELEVATIONS UNLESS OTHERWISE NOTED.



SECTION A
N.T.S.



KEY MAP
N.T.S.

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

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NWC LEGACY BLVD AND MILLER ROAD
SCOTTSDALE, ARIZONA

PRELIMINARY GRADING PLAN

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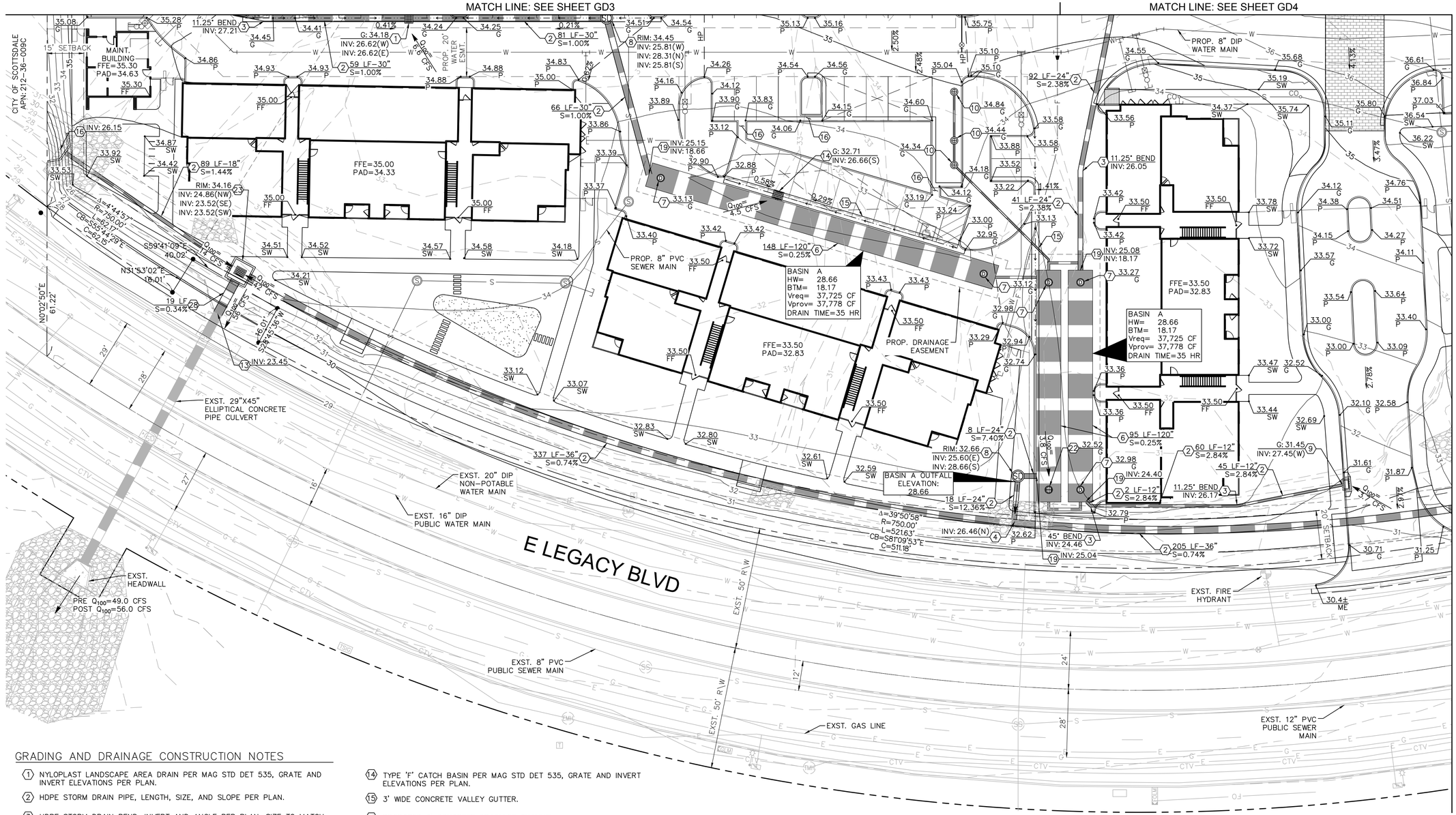
GD5
5 OF 7 SHEETS

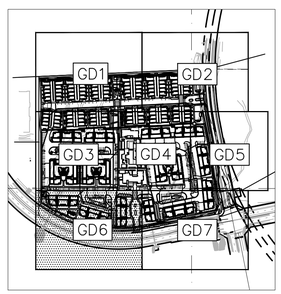


GRADING AND DRAINAGE CONSTRUCTION NOTES

1. NYLOPLAST LANDSCAPE AREA DRAIN PER MAG STD DET 535, GRATE AND INVERT ELEVATIONS PER PLAN.
2. HDPE STORM DRAIN PIPE, LENGTH, SIZE, AND SLOPE PER PLAN.
3. HDPE STORM DRAIN BEND, INVERT AND ANGLE PER PLAN. SIZE TO MATCH ADJOINING PIPES.
4. HDPE STORM DRAIN TEE, INVERTS PER PLAN. SIZE TO MATCH ADJOINING PIPES.
6. 10' DIAMETER CMP UNDERGROUND RETENTION TANKS.
7. RETENTION TANK ACCESS RISER.
8. 48" STORM DRAIN MANHOLE, PER MAG STD DET 520.
9. TYPE 'E' CATCH BASIN PER MAG STD DET 534, GRATE AND INVERT ELEVATIONS PER PLAN.
10. MAXWELL PLUS OR APPROVED EQUAL DUAL CHAMBER DRYWELL.
13. CONNECT TO EXISTING STORM DRAIN PIPE, INVERT PER PLAN.
14. TYPE 'F' CATCH BASIN PER MAG STD DET 535, GRATE AND INVERT ELEVATIONS PER PLAN.
15. 3' WIDE CONCRETE VALLEY GUTTER.
16. PROPOSED 2' CONCRETE DRAINAGE CHANNEL.
19. STORM DRAIN CONNECTION TO UNDERGROUND RETENTION TANK. INVERT PER PLAN.
22. RETENTION TANK ACCESS RISER WITH GRATED COVER.
23. PROPOSED JUNCTION STRUCTURE.
28. 29"X45" ELLIPTICAL CONCRETE PIPE CULVERT. LENGTH AND SLOPE PER PLAN.

NOTES:

1. ADD 1500' TO ALL ELEVATIONS.
2. ADD 0.5' TO PAVEMENT (P) ELEVATIONS TO OBTAIN TOP OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.
3. ALL SPOT ELEVATIONS ARE FINISHED GRADE PAVEMENT (P), GUTTER/GRATE (G), CONCRETE (C) OR SIDEWALK (SW) ELEVATIONS UNLESS OTHERWISE NOTED.



KEY MAP
N.T.S.

NORTH

GRAPHIC SCALE IN FEET
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NWC LEGACY BLVD AND MILLER ROAD

PRELIMINARY GRADING PLAN

SCOTTSDALE, ARIZONA

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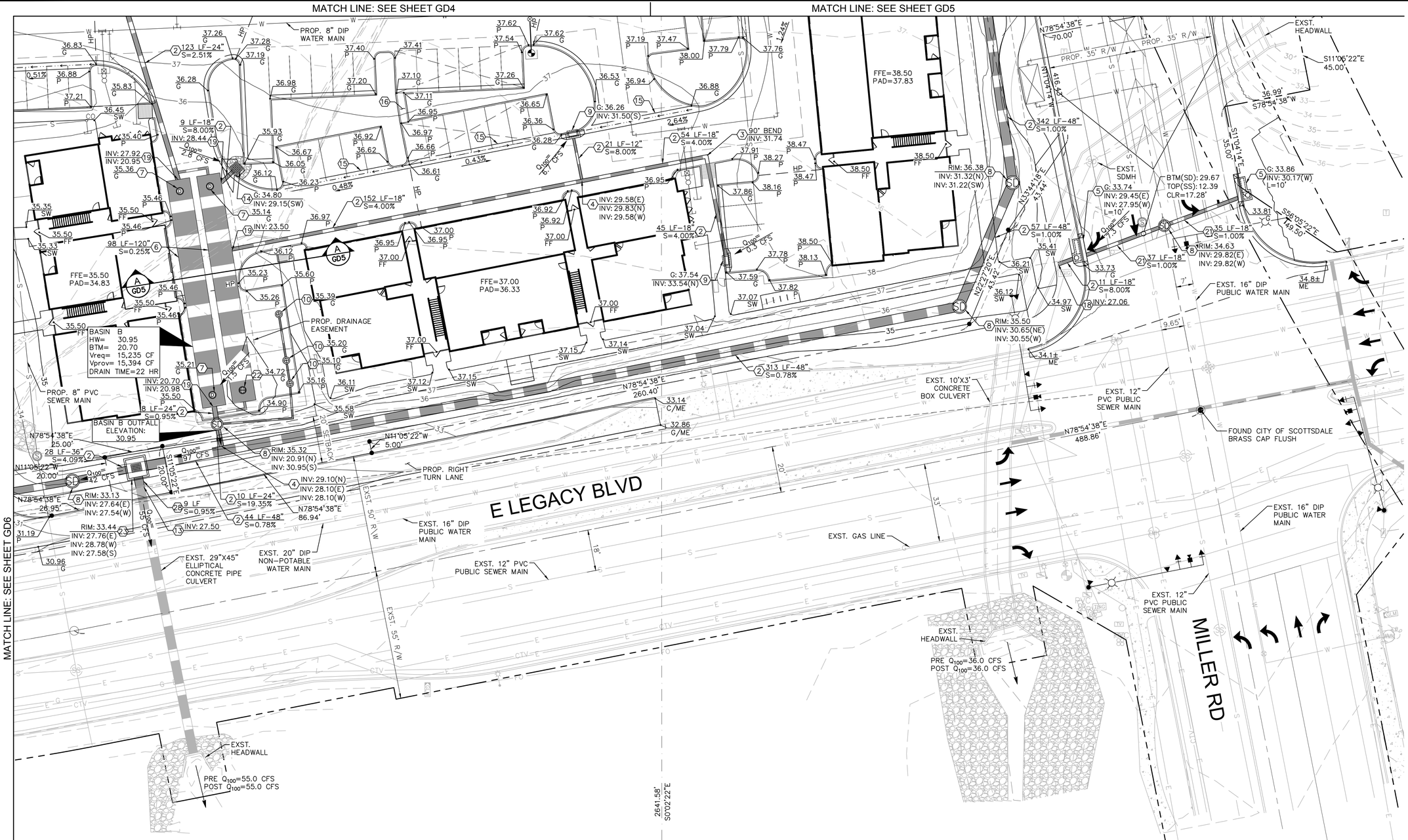
GD6
6 OF **7** SHEETS

MATCH LINE: SEE SHEET GD4

MATCH LINE: SEE SHEET GD5

MATCH LINE: SEE SHEET GD6



GRADING AND DRAINAGE CONSTRUCTION NOTES

2. HDPE STORM DRAIN PIPE, LENGTH, SIZE, AND SLOPE PER PLAN.
3. HDPE STORM DRAIN BEND, INVERT AND ANGLE PER PLAN. SIZE TO MATCH ADJOINING PIPES.
4. HDPE STORM DRAIN TEE, INVERTS PER PLAN. SIZE TO MATCH ADJOINING PIPES.
5. TYPE 'D' CATCH BASIN PER MAG STD DET 533. GRATE AND INVERT ELEVATIONS PER PLAN. LENGTH PER PLAN.
6. 10' DIAMETER CMP UNDERGROUND RETENTION TANKS.
7. RETENTION TANK ACCESS RISER.
8. 48" STORM DRAIN MANHOLE, PER MAG STD DET 520.
9. TYPE 'E' CATCH BASIN PER MAG STD DET 534, GRATE AND INVERT ELEVATIONS PER PLAN.
10. MAXWELL PLUS OR APPROVED EQUAL DUAL CHAMBER DRYWELL.
13. CONNECT TO EXISTING STORM DRAIN PIPE, INVERT PER PLAN.
14. TYPE 'F' CATCH BASIN PER MAG STD DET 535, GRATE AND INVERT ELEVATIONS PER PLAN.
15. 3' WIDE CONCRETE VALLEY GUTTER.
16. PROPOSED 2' CONCRETE DRAINAGE CHANNEL.
18. BORE AND CONNECT TO EXISTING BOX CULVERT. INVERT PER PLAN.
19. STORM DRAIN CONNECTION TO UNDERGROUND RETENTION TANK. INVERT PER PLAN.
21. RGRCP STORM DRAIN PIPE, LENGTH, SIZE, AND SLOPE PER PLAN.
22. RETENTION TANK ACCESS RISER WITH GRATED COVER.
23. PROPOSED JUNCTION STRUCTURE.
28. 29"X45" ELLIPTICAL CONCRETE PIPE CULVERT. LENGTH AND SLOPE PER PLAN.

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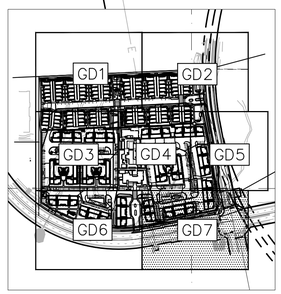

KEY MAP
N.T.S.

NORTH

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NWC LEGACY BLVD AND MILLER ROAD

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GD7
7 OF 7 SHEETS