# STORM WATER MANAGEMENT PLAN

## LION & ROSE RESTAURANT
## AT DOMINION CREEK
### 23330 IH-10 W
### SAN ANTONIO, TX 78257

**RAMONES**

**ENGINEERING**

4/4/23

STATE OF TEXAS
NICHOLAS M. RAMONES
117112
LICENSED
PROFESSIONAL ENGINEER

**PREPARED BY:**
**RAMONES ENGINEERING PLLC**
**TBPE FIRM F-17682**
**PH: 210-882-8365**
**NRAMONES@RAMONESENGINEERING.COM**

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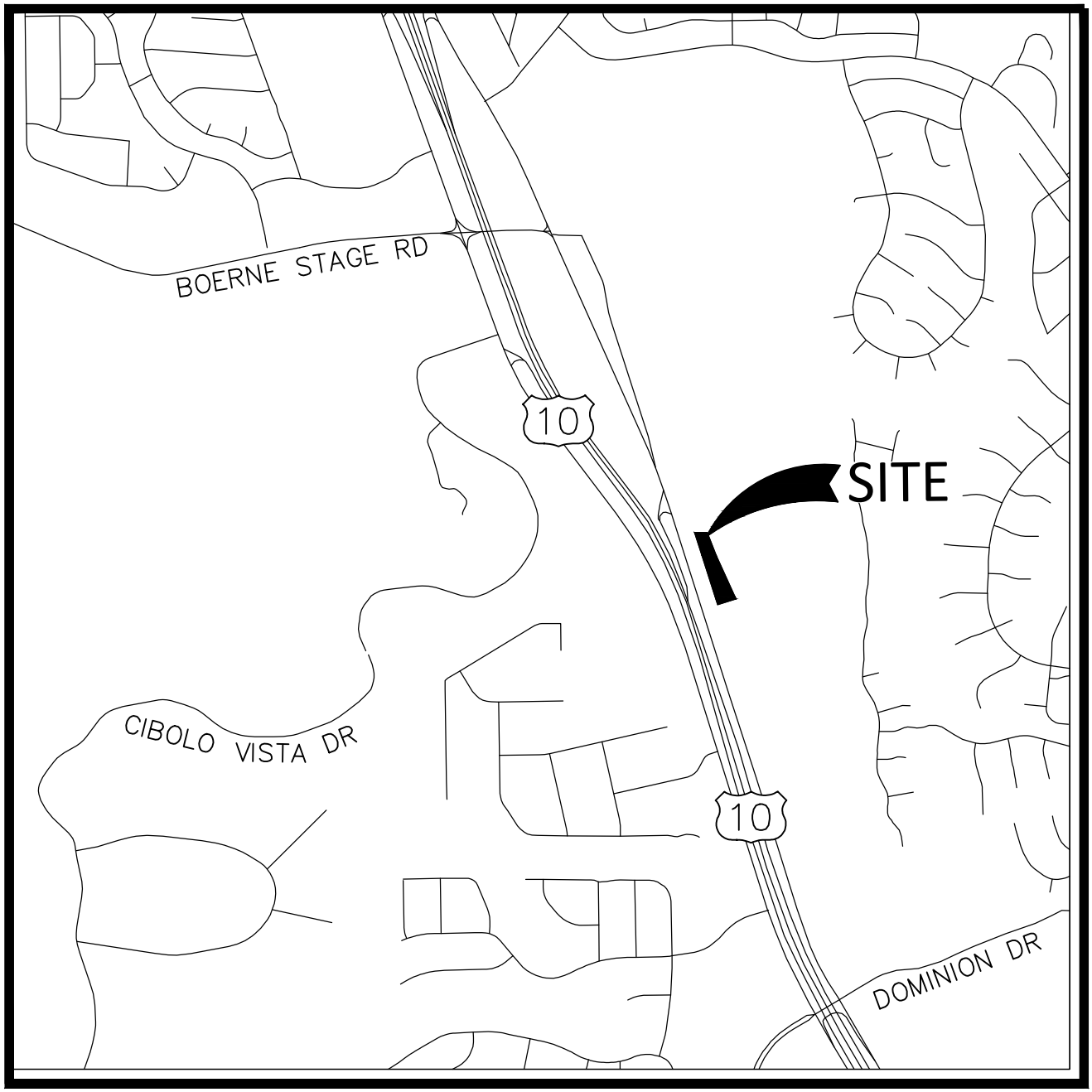



# ★ LOCATION MAP ★

# SECTION 1
# INTRODUCTION

## I. PROJECT OVERVIEW

The Lion & Rose Restaurant at Dominion Creek project is a proposed commercial development location within the City of San Antonio city limits, and more precisely located at 23330 I-10W, San Antonio, Texas 78257. The 1.80-acre site to be developed is a platted lot with a legal description of: Lot 3, Block 110, NCB 16386, Dominion Retail Subdivision Plat, recorded in Volume 9720, Pages 159-160, Deed and Plat Records of Bexar County, Texas.

A drainage study was performed during the platting of the property by KFW Engineers & Surveying, with the results of that study concluding that there would be no adverse impact downstream due to this development and that the site would qualify for payment of a Fee In-Lieu of Detention. This study will supplement the original analysis and update the hydrologic calculations using the latest rainfall values published in Atlas 14 and adopted by the City of San Antonio.

The objective of this report is to analyze and show that the Lion & Rose at Dominion Creek project complies with all requirements set forth in Section 35-504 of the San Antonio Unified Development Code (UDC) and does not have a significant adverse impact to any downstream properties or drainage facilities.

## II. SITE HYDROLOGY

The northeast boundary of the site lies directly adjacent to Leon Creek. All existing runoff from the site drains directly to the creek primarily via sheet flow. The proposed project will develop the southern half of the property with a restaurant facility and associated parking. All runoff from the developed portion will be captured by grate inlets within the parking area and conveyed to a single outfall structure located adjacent to Leon Creek. The northern portion of the site will remain undeveloped at this time, and the drainage allowed to continue to drain directly to Leon Creek. **Section 2** of this report provides the on-site hydrologic calculations completed using the Rational Method, as well as proposed impervious cover calculations.

## III. FLOOD STUDY

This project site is located directly adjacent to Leon Creek mainstem which is a studied floodplain with a Zone AE designation as shown on FEMA Map No. 48029C0115F. A FEMA Letter of Map Revision (LOMR 20-06-3342P) was completed in 2021 which revised the Zone AE limits to include modifications (fill) made to the site. The revised floodplain limits can be found on the FEMA Firmette included in **Appendix B** of this report. Since the time the LOMR became effective in 2021, the City of San Antonio (COSA) has now began requiring all flood studies to include the newly adopted Atlas-14 rainfall data. Discussions with Sabrina Santiago at COSA about this project concluded that an updated flood study would be required for the development of the site. Per COSA's request, an updated study was completed for the section of Leon Creek adjacent to the site and is presented in **Section 3** of this report.

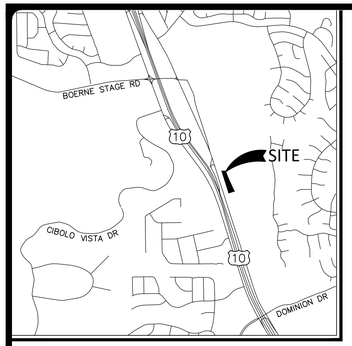
The base model was obtained from The San Antonio River Authority who just recently completed a updated study of the Leon Creek Watershed. This study included updated hydrology (with Atlas-14 values) as well as updated hydraulics, including the area of this proposed site. No changes were made to the Hydrology Model. For the Hydraulic model, no changes were made to the existing conditions model. The inundation limits for the 100-year existing have been provided in this report. For the proposed conditions, an updated model was created with a modified terrain to include the proposed site. The model was re-ran and the 100-year water surface and inundation limits were referenced to set the building location and finished floor elevation. The finished floor elevation of the proposed structure was set a minimum of 1.0' above the 1% ultimate flood elevation of the revised model. Additionally, per COSA, any fill placed within the existing 1% ultimate floodplain would require equal excavation to preserve floodplain volume. This excavation is proposed on the northern-end of the site in an area labeled "Floodplain Volume Excavation Area" which lies within the floodplain and in an existing drainage easement.

## IV. CONCLUSION

This study concludes that the increased runoff resulting from the proposed development will not produce a significant adverse impact to other properties, habitable structures, or drainage infrastructure systems to a point 2000 feet downstream. Downstream conditions in this reach have been field verified by myself of members of my staff. Therefore, the developer elects to pay a Fee in Lieu of on-site detention.

Nicholas M. Ramones, P.E.
TBPE License No. 117112

# SECTION 2
# ON-SITE HYDROLOGY




★ LOCATION MAP ★

## LION & ROSE RESTAURANT - DOMINION CREEK
RATIONAL METHOD
PEAK DISCHARGE CALCULATIONS

| POINT NO. | DRAINAGE AREAS (DA) | AREA (AC.) | RUNOFF COEFFICIENT C | TOTAL CA | TIME OF CONCEN-TRATION | INTENSITY | | | FLOW (Q=CIA) | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | $I_5$ | $I_{25}$ | $I_{100}$ | $Q_5$ | $Q_{25}$ | $Q_{100}$ | |
| | | | | | (MIN) | IN/HR | IN/HR | IN/HR | CFS | CFS | CFS | |
| **EXIST** | | | | | | | | | | | | |
| 1 | A | 1.06 | 0.39 | 0.41 | 16.0 | 5.14 | 7.15 | 8.94 | 2.1 | 3.0 | 3.7 | |
| 2 | B | 0.74 | 0.39 | 0.29 | 16.0 | 5.14 | 7.15 | 8.94 | 1.5 | 2.1 | 2.6 | |
| **PROP/ULT** | | | | | | | | | | | | |
| 1 | A | 1.06 | 0.87 | 0.92 | 5.2 | 7.86 | 11.02 | 13.88 | 7.2 | 10.2 | 12.8 | |
| 2 | B | 0.74 | 0.39 | 0.29 | 16.0 | 5.14 | 7.15 | 8.94 | 1.5 | 2.1 | 2.6 | |

## PROPOSED IMPERVIOUS COVER

| | |
|---|---|
| TOTAL SITE ACREAGE: | 1.800 AC / 78,400 SF |
| PROPOSED IMPERVIOUS COVER: | 0.960 AC / 41,800 SF |
| IMPERVIOUS COVER %: | 53.3% |

## LEGEND

- PROPOSED IMPERVIOUS COVER
- PROPOSED CONTOUR — 740
- EXISTING CONTOUR — 740
- PROPOSED GRATE INLET

UNPLATTED
JACK R. & GLADYS J. FLOURNOY
(VOL. 11017, PG. 1383, O.P.R.)
(7.338 ACRES)

LEON CREEK

EFFECTIVE 1% FLOODPLAIN LIMITS
(ZONE AE)
PER LOMR CASE NO. 20-06-3342P,
EFFECTIVE JUNE 28, 2021.
FEMA MAP NO. 48029C0095F

PROPERTY LINE

LOT 2, BLOCK 110
NCB 16386

FLOODPLAIN VOLUME
EXCAVATION AREA
GRADE @ 1.00% MIN
RE-VEGETATE WITH NATIVE
GRASSES

DA-B
0.74 AC.

LOT 3, BLOCK 110, NCB 16386
DOMINION RETAIL
(VOL. 9720, PG. 159-160, D.P.R.)
(1.800 ACRES)

DA-A
1.06 AC.

LION & ROSE
RESTAURANT
FFE=1120.50

LOT 5, BLOCK 110
NCB 16386

TXDOT LEASE AREA
(DOC. NO. 20190072236, O.P.R.)
(3.28 ACRES)

EFFECTIVE 1% FLOODPLAIN LIMITS
(ZONE AE)
PER LOMR CASE NO. 20-06-3342P,
EFFECTIVE JUNE 28, 2021.
FEMA MAP NO. 48029C0095F

EXIST. 2 ~ 4' X 2' M.B.C.
(TXDOT)

INTERSTATE HIGHWAY 10
(ASPHALT PAVEMENT)
(ROW VARIES)

EFFECTIVE 1% FLOODPLAIN LIMITS
(ZONE AE)
PER LOMR CASE NO. 20-06-3342P,
EFFECTIVE JUNE 28, 2021.
FEMA MAP NO. 48029C0095F

## LION & ROSE RESTAURANT - DOMINION CREEK
RATIONAL METHOD
TIME OF CONCENTRATION CALCULATIONS

| PT. NO. | OVERLAND FLOW (MANNING KINEMATIC EQUATION) $T_1 = \{0.42(nL)^{0.8} / (P2^{0.5}S^{0.4})\}$ | | | | CHANNEL FLOW (MANNING EQUATION) $T_3 = L / (60V)$ | | | | | TIME OF CONCENTRATION (MIN) |
|---|---|---|---|---|---|---|---|---|---|---|
| | LENGTH (FT) | MANNING'S N | SLOPE (FT/FT) | TRAVEL TIME (MIN) | LENGTH (FT) | MANNING'S N | SLOPE (FT/FT) | VELOCITY (FT/S) | TRAVEL TIME (MIN) | |
| **EXISTING** | | | | | | | | | | |
| **1** | 100 | 0.240 | 0.010 | **16.0** | | | | | | **16.0** |
| **2** | 100 | 0.240 | 0.010 | **16.0** | | | | | | **16.0** |
| **PROP/ULT** | | | | | | | | | | |
| **1** | 140 | 0.018 | 0.005 | **3.5** | 360 | 0.013 | 0.005 | 3.5 | **1.7** | **5.2** |
| **2** | 100 | 0.240 | 0.010 | **16.0** | | | | | | **16.0** |

## LION & ROSE - DOMINION CREEK
RATIONAL METHOD
DRAINAGE AREA CALCULATION SHEET

| DRAINAGE AREA | SLOPE 1%-3% | | | | | | |
|---|---|---|---|---|---|---|---|
| | TOTAL ACRES | A VG. RESIDENTIAL R-5, R-6 | UNDEVELOPED | GRASS COVER > 75% | SCHOOL SITE / R-4 | BUSINESS | TOTAL CA |
| | | 67 | 70 | 39 | 77 | 96 | |
| **EXIST** | | | | | | | |
| A | 1.06 | | | 1.06 | | | 0.41 |
| B | 0.74 | | | 0.74 | | | 0.29 |
| **PROP/ULT** | | | | | | | |
| A | 1.06 | | | | | 0.96 | 0.92 |
| B | 0.74 | | | 0.74 | | | 0.29 |

N

★ GRAPHIC SCALE ★

30 0 15 30 60

( IN FEET )
1 inch = 30 ft.

REVISIONS:

RAMONES ENGINEERING
611 W. MISTLETOE AVE | SAN ANTONIO, TX 78212 | 210.882.8385 | TBPELS F-17682

4/3/23

NICHOLAS M. RAMONES
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

PROP/ULT DRAINAGE MASTER
for
**LION & ROSE RESTAURANT AT DOMINION CREEK**
**23330 IH-10 W, SAN ANTONIO, TX 78257**

JOB #: C-2213
DATE: 1/28/2023
DESIGN: N.M.R.
DRAWN: N.M.R.
CHECKED:
SHEET: 1



Date: Apr 03, 2023, 1:29pm User ID: nick File: C:\Users\nick\Desktop\RAMONES\Projects\Working\C-2213\LNR_Dominion Creek Commercial\Construction Plans\Dominion Creek Retail.dwg

## LION & ROSE RESTAURANT - DOMINION CREEK

RATIONAL METHOD

PEAK DISCHARGE CALCULATIONS

| POINT NO. | DRAINAGE AREAS (DA) | AREA (AC.) | RUNOFF COEFFICIENT C | TOTAL CA | TIME OF CONCEN-TRATION | INTENSITY | | | FLOW (Q=CIA) | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | $I_5$ | $I_{25}$ | $I_{100}$ | $Q_5$ | $Q_{25}$ | $Q_{100}$ | |
| | | | | | (MIN) | IN/HR | IN/HR | IN/HR | CFS | CFS | CFS | |
| **EXIST** | | | | | | | | | | | | |
| 1 | A | 1.06 | 0.39 | 0.41 | 16.0 | 5.14 | 7.15 | 8.94 | 2.1 | 3.0 | 3.7 | |
| 2 | B | 0.74 | 0.39 | 0.29 | 16.0 | 5.14 | 7.15 | 8.94 | 1.5 | 2.1 | 2.6 | |
| **PROP/ULT** | | | | | | | | | | | | |
| 1 | A | 1.06 | 0.87 | 0.92 | 5.2 | 7.86 | 11.02 | 13.88 | 7.2 | 10.2 | 12.8 | |
| 2 | B | 0.74 | 0.39 | 0.29 | 16.0 | 5.14 | 7.15 | 8.94 | 1.5 | 2.1 | 2.6 | |

# LION & ROSE - DOMINION CREEK

## RATIONAL METHOD

## DRAINAGE AREA CALCULATION SHEET

| | SLOPE | | 1%-3% | | | | |
|---|---|---|---|---|---|---|---|
| DRAINAGE AREA | TOTAL ACRES | AVG. RESIDENTIAL R-5, R-6 | UNDEVELOPED | GRASS COVER > 75% | SCHOOL SITE / R-4 | BUSINESS | TOTAL CA |
| | | 67 | 70 | 39 | 77 | 96 | |
| **EXIST** | | | | | | | |
| A | 1.06 | | | 1.06 | | | 0.41 |
| B | 0.74 | | | 0.74 | | | 0.29 |
| **PROP/ULT** | | | | | | | |
| A | 1.06 | | | | | 0.96 | 0.92 |
| B | 0.74 | | | 0.74 | | | 0.29 |

# LION & ROSE RESTAURANT - DOMINION CREEK

## RATIONAL METHOD

## TIME OF CONCENTRATION CALCULATIONS

| PT. NO. | OVERLAND FLOW (MANNING KINEMATIC EQUATION) | | | | CHANNEL FLOW (MANNING EQUATION) | | | | | TIME OF CONCENTRATION (MIN) |
|---|---|---|---|---|---|---|---|---|---|---|
| | $T_1 = \{0.42(nL)^{0.8} / (P2)^{0.5}S^{0.4}\}$ | | | | $T_3 = L / (60V)$ | | | | | |
| | LENGTH (FT) | MANNING'S N | SLOPE (FT/FT) | TRAVEL TIME (MIN) | LENGTH (FT) | MANNING'S N | SLOPE (FT/FT) | VELOCITY (FT/S) | TRAVEL TIME (MIN) | |
| **EXISTING** | | | | | | | | | | |
| **1** | 100 | 0.240 | 0.010 | **16.0** | | | | | | **16.0** |
| **2** | 100 | 0.240 | 0.010 | **16.0** | | | | | | **16.0** |
| **PROP/ULT** | | | | | | | | | | |
| **1** | 140 | 0.018 | 0.005 | **3.5** | 360 | 0.013 | 0.005 | 3.5 | **1.7** | **5.2** |
| **2** | 100 | 0.240 | 0.010 | **16.0** | | | | | | **16.0** |

# SECTION 3
# FLOOD STUDY
# LEON CREEK

# Hydrology

# Leon Creek Watershed – Final Hydrology Report

2019 Professional Engineering Services for Floodplain Mapping - Leon and Medio Watersheds
January 2022

**Prepared for:**

San Antonio River Authority
100 E. Guenther Street
San Antonio, TX 78204

**Submitted by:**

AECOM
13640 Briarwick Drive
Suite 200
Austin, TX 78729

Halff Associates
100 NE Interstate 410 Loop
Suite 200
San Antonio, Texas 78216

# 1 Executive Summary

## 1.1 Introduction

The San Antonio River Authority (River Authority), originally formed in 1937 as the San Antonio River Canal and Conservancy District, encompasses Bexar, Wilson, Karnes, and Goliad Counties. Currently, the River Authority's jurisdiction covers 3,658 square miles (sq. mi.) in South Central Texas. However, concern for water quality and quantity in the San Antonio River Basin extends beyond these political boundaries since many factors outside of the River Authority jurisdiction contribute to the health and well-being of the river and their communities. The River Authority works with community leaders throughout the watershed to address these regional water issues and concerns.

The River Authority is "committed to safe, clean, and enjoyable creeks and rivers." Their mission is supported by maintaining and improving the accuracy of flood hazard data in the River Authority's Region, implementing outreach activities that increase the public awareness of flood risks, and promoting mitigation actions that reduce the flood risks. The long-term vision is to create well-informed and flood-safe communities in the region.

To fulfill their mission, the River Authority has partnered with the Federal Emergency Management Agency (FEMA) to maintain up-to-date flood hazard maps and develop other flood risk datasets. the River Authority contracted the AECOM-Halff Team (AECOM and Halff Associates, Inc. (Halff)) to perform flood studies and develop flood risk products to better represent the flood risk for the tributaries within the Medio Creek and Leon Creek Watersheds. This study was funded under Professional Engineering Services for Floodplain Mapping - Leon and Medio Watersheds. **Section 1.3** outlines the scope of this study in detail.

## 1.2 Study Area Description

The San Antonio River Basin is in the Texas-Gulf hydrologic region extending from and including the Sabine Pass to the Rio Grande Basin boundary and discharging into the Gulf of Mexico. The hydrologic sub-region for this study is the Central Texas Coastal sub-region. This sub-region is responsible for the coastal drainage and associated waters from the Colorado River Basin boundary to Aransas Pass and the Corpus Christi Bay drainage boundary. The Medina River Basin, which includes Leon and Medio Creeks is one of the five major sub-basins within the San Antonio River watershed. At its outlet, the Medina River Basin Hydrologic Unit Code (HUC) drainage area measures approximately 1,350 square miles (HUC-8 12100302). The hydrologic focus of this study was the creation and calibration of rainfall runoff models for Leon Creek, covering approximately 238 square miles. The study area for this Leon Creek hydrologic analysis is shown in **Figure 1.**

# 2 Detailed Hydrology

## 2.1 Precipitation and Areal Reduction

The precipitation depths and 24-hour distributions used for this study were derived from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14, Volume 11, Version 2 (2018) precipitation frequency estimates. The major San Antonio River watersheds were divided into five Precipitation Areas (PAs), as outlined in the Amendment to the *San Antonio Storm Water Design Criteria Manual* (2019). The northernmost precipitation area (PA1) is associated with the highest rainfall depth, and the rainfall depth decreases towards the south (in the direction of PA5). The Leon Creek Watershed encompasses areas PA2, PA3, and PA4, each containing 237, 210, and 50 sub-basins, respectively.

The precipitation hyetographs for PA2, PA3, and PA4 for various index areas (10, 12, 15, 20, 30, 50, 80, 150, 225, and 350 square miles) and with associated areal reduction factors applied were obtained from a DSS file provided by the River Authority (on Dec 20, 2018) entitled "A14 Bexar County Hyetographs.dss". The precipitation hyetographs cover various return periods (from 1 to 500 years) and are based on a 24-hour rainfall distribution with an intensity position at 50%.

For the Leon Creek hydrologic analysis, areal reduction results for the design storms were compared to the gage analysis performed at the two USGS gages located in the basin. The model results indicated that the areal reduced flows produced significantly lower peak flow rates than the gage statistical analysis. To better represent the statistical gage analysis results, the reported peak flows from the model reflected only the unreduced flows. A more detailed discussion is contained in the results discussion at the end of this report in **Section 3.**3.

## 2.2 Topographic Data

A 5-foot grid cell digital elevation model (DEM) was used for watershed delineation in the project area and was created from a mosaic of several topographic data sources.

Texas Natural Resources Information System (TNRIS) provided the best available data to leverage for the Leon Creek Watershed. Datasets used were TNRIS 2017 10 cm Central Texas Light Detection and Ranging (LiDAR) funded by the River Authority for their area and TNRIS 2010 50cm Bexar LiDAR.

The LiDAR dataset used for the Leon Creek watershed is a subset of the projects overall composite terrain dataset, which includes grid elevation data for both Medina and Leon Creek Watersheds. Within this composite terrain, the 2017 LiDAR covered all the Leon Creek watershed, so there was no need to fill in any missing areas with additional data.

The dataset is referenced using Texas South Central State Plane Coordinates (Feet), NAD83 (horizontal), NAVD 88 (vertical) (Feet), referring to the Projected Coordinate System of "NAD_1983_StatePlane_Texas_South_Central_FIPS_4204_Feet".

From this composite terrain dataset, a tile index was created for the project area and the mosaic was converted to ASCIIs. Visual inspection of the 5-foot grid cell DEMs was performed to ensure no voids and/or artifacts were present in the DEM. The DEM surface model was affirmed to be suitable for hydrologic takeoffs and for supporting other hydrologic analyses.

After the DEM was imported, an additional 50-foot DEM was imported into WTA (from the same mosaic and tile index) for hydro enforcement of the project area. Proprietary software was used to identify natural sinks, peaks, and flat areas in the 50-foot DEM surface. Elevations of the cells in the DEM were

algorithmically calculated and the best path to route flow was determined without filling sinks in the DEM. Once all calculations were completed, the flow was checked confirming that all drainage flowed downstream correctly and routed to the outfall of the watershed drainage area.

## 2.3 Basin Delineation

The WISE computer program was used to delineate drainage basins in shapefile format using the 50-foot resolution hydro-corrected DEM. Initially, basin break points were set by the user with a sub-basin target of one square mile (sq. mi.) in size. Break points were also set just upstream of stream confluences. Watersheds were then reviewed and aggregated according to the area criteria established in the *Draft San Antonio River Basin (SARB) Modeling Standards for Hydrology and Hydraulic Modeling* (2018). Watersheds in existing or high-potential urban areas were aggregated to create watershed areas with a target of approximately 1.5 sq. mi. Watersheds in rural areas were aggregated to create watershed areas of up to approximately 3 sq. mi. In many cases, watersheds were smaller than the SARB guidance due to the stream network geometry and the desire to capture flow points at key junctions. The watershed boundaries were checked using aerial photography and the underlying terrain to ensure that the presence of roadways, storm sewer systems, and hydraulic crossing structures (e.g. culverts) were captured in the delineated watersheds. This check resulted in modifications in the boundaries of select watersheds.

Sub-basins are each assigned two names based on different naming conventions: Stream Name and the HUC numbering systems. In the Stream Name convention, each sub-basin name starts with three letters representing an abbreviation for the name of the stream flowing through the sub-basin; these three letters are followed by the sub-basin ID. The sub-basin ID starts at 001 from the most upstream sub-basin at the top of the watershed and increase in the downstream direction. The sub-basin ID resets to 001 at the most upstream sub-basin of each stream with a unique acronym (three initial letters).

For the HUC numbering system, sub-basins are numbered using the HUC 14-digit number method, where the first 12 digits are the HUC-12 identifier and the last two digits are the study delineated sub-basin ID starting at 01. The sub-basin IDs begin at the top of the watershed and increase in the downstream direction to a maximum number of 144. The sub-basin ID resets to 01 at the top of each HUC-12. The Leon Creek watershed is composed of 462 sub-basins, which are contained within six HUC-12's.

The Stream Name is the primary naming convention for sub-basins in HMS, while the HUC Name is input in the "description" tab of each sub-basin (in HMS 4.6.1). **Figure 2** shows the resulting 462 Leon Creek basins with the Stream Name convention. The full list of basin names and associated parameters can be found in **Appendix B**.

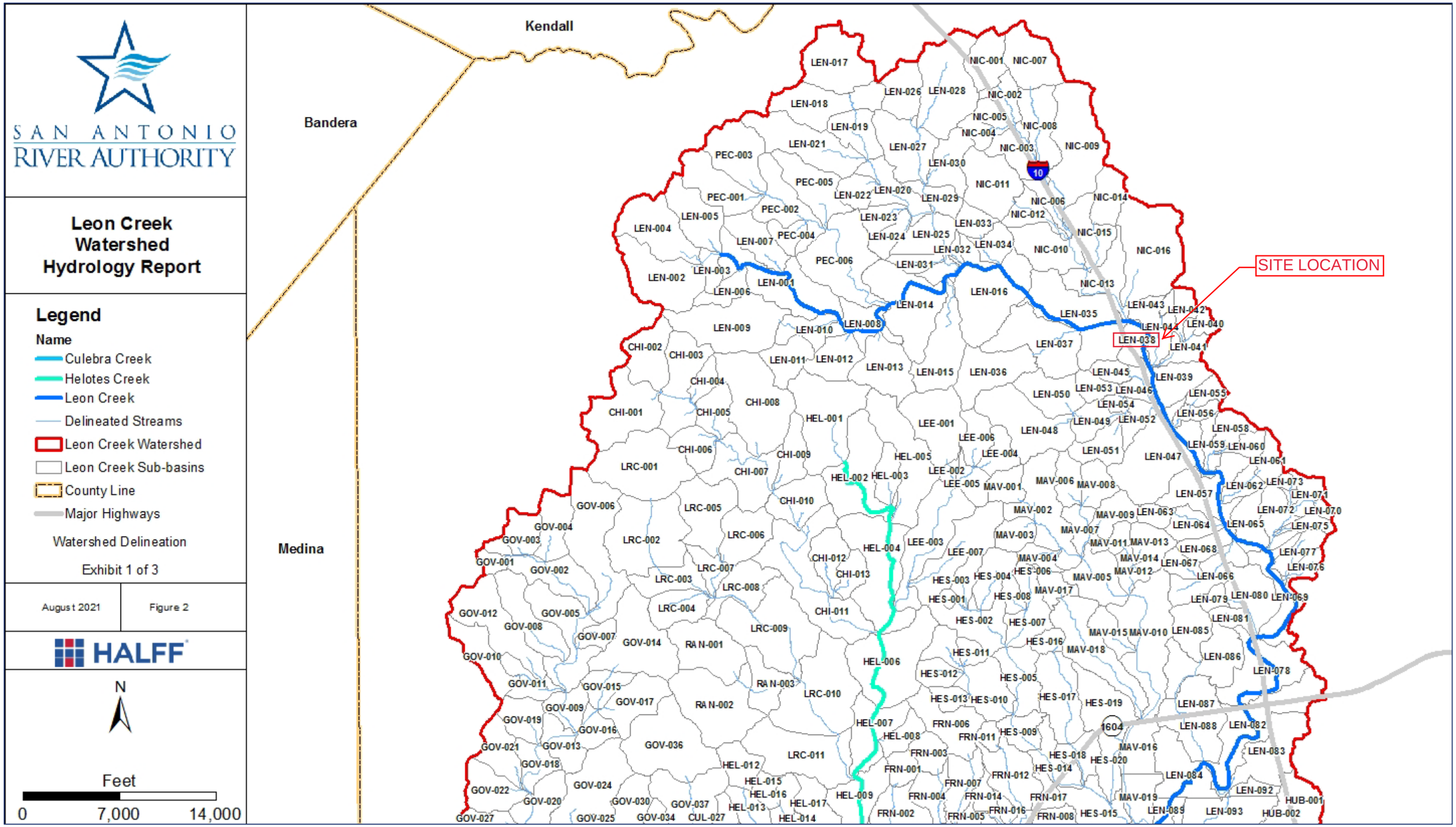



Figure 2a: Leon Creek Watershed Delineated Sub-Basins

| Location | Drainage Area $mi^2$ | 2-year 50% ACE | 10-year 10% ACE | 25-year 4% ACE | 50-year 2% ACE | 100-year 1% ACE | 1% Plus Rounded | 500-year 0.2% ACE |
|---|---|---|---|---|---|---|---|---|
| J-LEN-020 | 3.286 | 890 | 2049 | 2909 | 3624 | 4400 | 5951 | 6482 |
| J-LEN-020-022 | 2.558 | 753 | 1666 | 2330 | 2882 | 3486 | 4714 | 5108 |
| J-LEN-020-023 | 2.728 | 767 | 1728 | 2432 | 3022 | 3665 | 4957 | 5398 |
| J-LEN-020-024 | 2.915 | 799 | 1822 | 2578 | 3215 | 3907 | 5284 | 5761 |
| J-LEN-020-025 | 5.705 | 1754 | 3955 | 5569 | 6867 | 8253 | 11161 | 11972 |
| J-LEN-025 | 6.323 | 1827 | 4255 | 5998 | 7478 | 9024 | 12203 | 13133 |
| J-LEN-025-031 | 5.854 | 1722 | 3958 | 5578 | 6941 | 8367 | 11315 | 12191 |
| J-LEN-026 | 0.356 | 181 | 358 | 475 | 565 | 659 | 891 | 910 |
| J-LEN-027-028 | 1.259 | 596 | 1171 | 1557 | 1861 | 2177 | 2945 | 3033 |
| J-LEN-027-029 | 2.203 | 885 | 1870 | 2545 | 3088 | 3643 | 4927 | 5148 |
| J-LEN-029 | 2.419 | 916 | 1986 | 2717 | 3311 | 3922 | 5304 | 5576 |
| J-LEN-032 | 0.049 | 33 | 67 | 89 | 106 | 122 | 165 | 166 |
| J-LEN-032-034 | 17.121 | 3408 | 8062 | 12084 | 15503 | 19410 | 26250 | 30220 |
| J-LEN-033 | 0.185 | 145 | 284 | 372 | 436 | 499 | 675 | 667 |
| J-LEN-034 | 0.395 | 358 | 639 | 821 | 953 | 1083 | 1464 | 1440 |
| J-LEN-035 | 20.777 | 3723 | 9078 | 13641 | 17689 | 21953 | 29689 | 34053 |
| J-LEN-035-037 | 19.835 | 3607 | 8806 | 13254 | 17071 | 21330 | 28846 | 33466 |
| J-LEN-035-038 | 27.545 | 5584 | 13001 | 19119 | 24690 | 30028 | 40609 | 45849 |
| J-LEN-036 | 0.563 | 105 | 290 | 435 | 557 | 699 | 946 | 1094 |
| J-LEN-037 | 1.307 | 448 | 964 | 1341 | 1645 | 2010 | 2718 | 2946 |
| J-LEN-038 | 27.694 | 5569 | 12902 | 18958 | 24476 | 29908 | 40447 | 45698 |
| J-LEN-038-039 | 28.556 | 5685 | 13082 | 19203 | 24859 | 30365 | 41065 | 46494 |
| J-LEN-039 | 29.298 | 5750 | 13149 | 19216 | 24992 | 30630 | 41423 | 46978 |
| J-LEN-039-046 | 28.845 | 5695 | 13077 | 19173 | 24804 | 30396 | 41107 | 46592 |
| J-LEN-039-047 | 31.467 | 5883 | 13512 | 19722 | 25760 | 31668 | 42827 | 48919 |
| J-LEN-040 | 0.091 | 94 | 179 | 235 | 276 | 314 | 425 | 415 |
| J-LEN-041 | 0.862 | 571 | 1059 | 1393 | 1654 | 1907 | 2579 | 2622 |
| J-LEN-041-039 | 0.637 | 369 | 712 | 951 | 1136 | 1323 | 1789 | 1848 |
| J-LEN-041-042 | 0.257 | 192 | 375 | 497 | 589 | 679 | 918 | 918 |
| J-LEN-041-044 | 0.257 | 192 | 376 | 498 | 590 | 679 | 918 | 918 |
| J-LEN-043 | 0.047 | 64 | 112 | 141 | 161 | 182 | 246 | 236 |
| J-LEN-044 | 0.379 | 188 | 366 | 492 | 590 | 691 | 935 | 966 |
| J-LEN-045 | 0.137 | 71 | 167 | 233 | 283 | 334 | 451 | 464 |
| J-LEN-046 | 0.289 | 234 | 438 | 574 | 679 | 783 | 1058 | 1053 |
| J-LEN-047 | 32.800 | 6101 | 13853 | 20161 | 26362 | 32615 | 44108 | 50415 |
| J-LEN-047-056 | 31.467 | 5883 | 13508 | 19715 | 25752 | 31659 | 42815 | 48898 |
| J-LEN-047-057 | 33.303 | 6136 | 13904 | 20224 | 26470 | 32783 | 44335 | 50749 |
| J-LEN-048-050 | 1.187 | 53 | 316 | 511 | 679 | 880 | 1190 | 1596 |
| J-LEN-049 | 1.724 | 246 | 666 | 988 | 1255 | 1622 | 2194 | 2718 |
| J-LEN-049-051 | 1.187 | 50 | 299 | 485 | 655 | 861 | 1165 | 1583 |
| J-LEN-049-052 | 1.972 | 378 | 907 | 1301 | 1615 | 2007 | 2714 | 3280 |
| J-LEN-051 | 0.296 | 82 | 213 | 311 | 390 | 479 | 647 | 715 |
| J-LEN-052 | 2.169 | 526 | 1114 | 1549 | 1910 | 2310 | 3124 | 3715 |

SITE

| Effective Junction ID | Cumulative Basin Size (sq. mi.) | Effective Flow ($ft^3/s$) | | 2021 HMS Junction ID | Cumulative Basin Size (sq. mi.) | 2021 HMS Flow (ft3/s) |
|---|---|---|---|---|---|---|
| **Leon Creek** | | | | **Leon Creek** | | |
| JLC004 | 2.00 | 5347 | | J-LEN-003-005 | 2.01 | 2250 |
| LC-UNT3 | 2.89 | 6876 | | J-LEN-001-008 | 2.56 | 2901 |
| JLC008 | 4.86 | 10100 | | J-LEN-001-010 | 4.87 | 4819 |
| JLC012 | 16.86 | 29945 | | J-LEN-016-032 | 17.12 | 19565 |
| SITE JLC016 | 27.37 | 40605 | | J-LEN-035-038 | 27.55 | 30028 |
| JLC018 | 28.70 | 40519 | | J-LEN-038-039 | 28.56 | 30365 |
| JLC019 | 31.24 | 41409 | | J-LEN-039-047 | 31.47 | 31667 |
| JLC020 | 34.51 | 40869 | | J-LEN-057-065 | 34.03 | 32936 |
| JLC020A | 36.30 | 40994 | | J-LEN-065-072 | 36.46 | 33629 |
| JLC021 | 39.08 | 40158 | | J-LEN-078 | 38.65 | 33112 |
| JLC022 | 41.80 | 39297 | | J-LEN-084-089 | 41.79 | 33745 |
| JLC028 | 54.93 | 44221 | | J-LEN-089-090 | 54.96 | 36667 |
| JLC031 | 60.74 | 50362 | | J-LEN-090-091 | 58.03 | 37958 |
| JLC034 | 72.37 | 65571 | | J-LEN-098-099 | 72.52 | 44979 |
| JLC035 | 74.87 | 67238 | | J-LEN-099-100 | 73.75 | 45051 |
| JLC039 | 158.00 | 151276 | | J-LEN-CUL-101-049 | 158.26 | 84481 |
| JLC041 | 170.70 | 161139 | | J-LEN-102-105 | 170.68 | 93521 |
| JLC048 | 176.58 | 160560 | | J-SRC-019-LEN-109 | 176.40 | 95647 |
| JLC050 | 188.56 | 165690 | | J-LEN-109-114 | 187.91 | 99388 |
| JWV03 | 190.40 | 166349 | | J-LEN-109-116 | 190.91 | 100515 |
| JLC055 | 195.87 | 168375 | | J-LEN-114-122 | 196.60 | 102110 |
| JLC056 | 197.45 | 168881 | | J-LEN-118-124 | 197.59 | 102278 |
| JLC058 | 203.49 | 170640 | | J-LEN-126-129 | 203.63 | 104246 |
| JLC065 | 210.82 | 165065 | | J-LEN-131-135 | 210.02 | 105035 |
| JLC071 | 226.25 | 164192 | | J-LEN-INC-136-015 | 225.27 | 109231 |
| JLC072 | 228.43 | 157480 | | J-LEN-139 | 227.55 | 106279 |
| JLC074 | 231.30 | 152106 | | J-LEN-COM-143-007 | 236.36 | 105814 |
| Outlet | 236.93 | 146486 | | J-LEN-144 | 237.50 | 105464 |
| | | | | | | |
| **Leon Creek Tributary M** | | | | **Leon Creek Tributary M** | | |
| J-Leon 38 - LT-M1-UNT3 | 5.52 | 11610 | | J-LEN-020-025 | 5.70 | 8253 |
| | | | | | | |
| **Nichols Creek** | | | | **Nichols Creek** | | |
| JLTK004 | 2.08 | 4627 | | J-NIC-006-009 | 3.15 | 5565 |
| JLTK005 | 4.30 | 8213 | | J-NIC-006-010 | 4.13 | 7442 |
| JLTK009 | 5.32 | 8711 | | J-NIC-010-015 | 5.30 | 9369 |
| | | | | | | |
| **French Creek** | | | | **French Creek** | | |
| JFR012 | 11.07 | 20465 | | J-FRN-021-033 | 11.02 | 15846 |
| FR-8 ab LC | 11.63 | 19276 | | J-FRN-028 | 11.55 | 16060 |
| | | | | | | |
| **Government Canyon Creek** | | | | **Government Canyon Creek** | | |
| JGC004 | 2.26 | 5107 | | J-GOV-002-006 | 2.30 | 2471 |
| JGC016 | 10.25 | 18496 | | J-GOV-023-024 | 9.81 | 7564 |
| JGC024 | 17.40 | 27607 | | J-GOV-026-038 | 17.37 | 11406 |

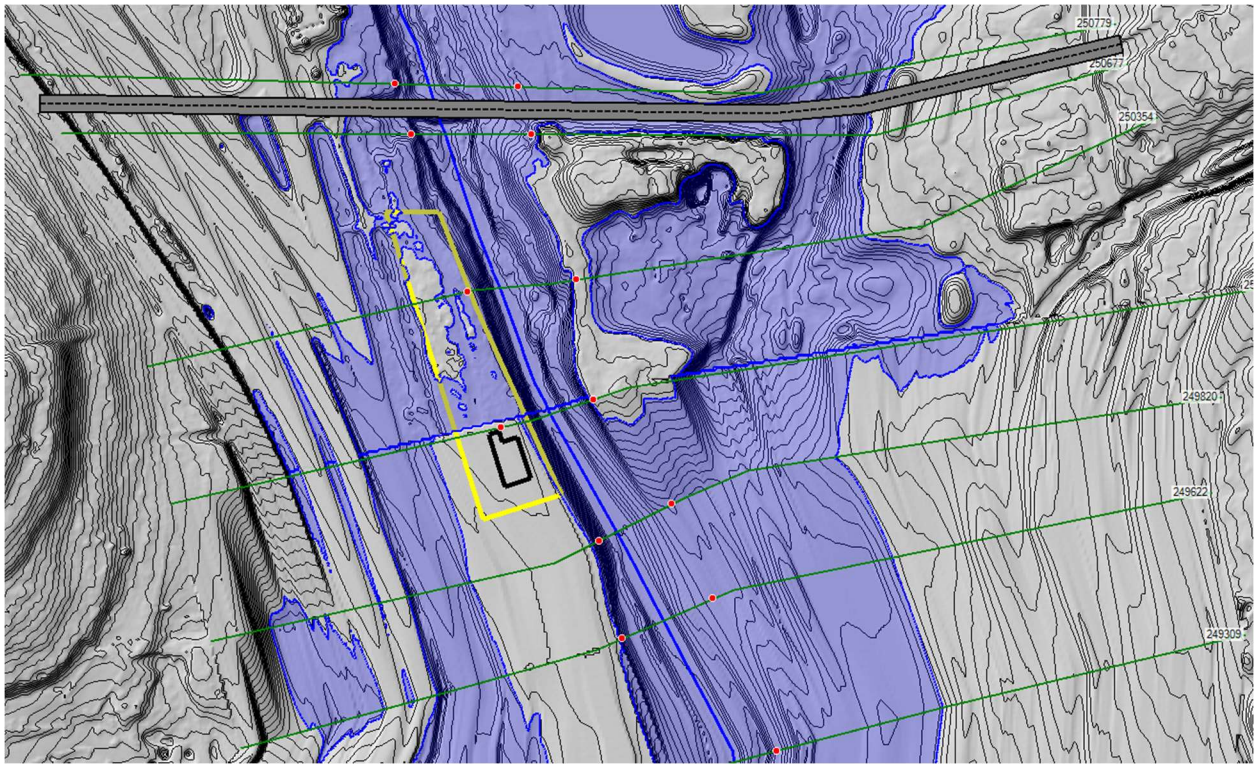
| Location | Drainage Area $mi^2$ | 2-year 50% ACE | 10-year 10% ACE | 25-year 4% ACE | 50-year 2% ACE | 100-year 1% ACE | 1% Plus Rounded | 500-year 0.2% ACE |
|---|---|---|---|---|---|---|---|---|
| J-LEN-020 | 3.286 | 992 | 2261 | 3193 | 3942 | 4752 | 6426 | 6907 |
| J-LEN-020-022 | 2.558 | 834 | 1815 | 2514 | 3095 | 3715 | 5024 | 5390 |
| J-LEN-020-023 | 2.728 | 851 | 1891 | 2642 | 3264 | 3935 | 5322 | 5721 |
| J-LEN-020-024 | 2.915 | 888 | 2001 | 2816 | 3480 | 4200 | 5680 | 6109 |
| J-LEN-020-025 | 5.705 | 1908 | 4257 | 5941 | 7291 | 8721 | 11795 | 12530 |
| J-LEN-025 | 6.323 | 1971 | 4558 | 6371 | 7905 | 9484 | 12826 | 13702 |
| J-LEN-025-031 | 5.854 | 1863 | 4258 | 5940 | 7364 | 8820 | 11928 | 12735 |
| J-LEN-026 | 0.356 | 181 | 358 | 475 | 565 | 659 | 891 | 910 |
| J-LEN-027-028 | 1.259 | 613 | 1195 | 1585 | 1891 | 2211 | 2989 | 3072 |
| J-LEN-027-029 | 2.203 | 908 | 1910 | 2591 | 3138 | 3698 | 5000 | 5212 |
| J-LEN-029 | 2.419 | 940 | 2024 | 2764 | 3369 | 3984 | 5388 | 5649 |
| J-LEN-032 | 0.049 | 33 | 67 | 89 | 106 | 122 | 165 | 166 |
| J-LEN-032-034 | 17.121 | 4729 | 10760 | 15480 | 19404 | 23657 | 31993 | 35332 |
| J-LEN-033 | 0.185 | 145 | 284 | 372 | 436 | 499 | 675 | 667 |
| J-LEN-034 | 0.395 | 360 | 640 | 821 | 953 | 1083 | 1465 | 1440 |
| J-LEN-035 | 20.777 | 5080 | 11789 | 17193 | 21507 | 26163 | 35382 | 39124 |
| J-LEN-035-037 | 19.835 | 4981 | 11550 | 16705 | 21019 | 25795 | 34884 | 38968 |
| J-LEN-035-038 | 27.545 | 6927 | 16076 | 23382 | 28856 | 34707 | 46938 | 51701 |
| J-LEN-036 | 0.563 | 128 | 330 | 485 | 614 | 763 | 1032 | 1172 |
| J-LEN-037 | 1.307 | 601 | 1161 | 1552 | 1863 | 2247 | 3039 | 3230 |
| SITE J-LEN-038 | 27.694 | 6904 | 15879 | 23036 | 28643 | 34531 | 46699 | 51522 |
| J-LEN-038-039 | 28.556 | 6993 | 16058 | 23313 | 29017 | 34994 | 47325 | 52308 |
| J-LEN-039 | 29.298 | 7052 | 16132 | 23356 | 29230 | 35240 | 47657 | 52615 |
| J-LEN-039-046 | 28.845 | 7000 | 16034 | 23203 | 29010 | 34996 | 47328 | 52310 |
| J-LEN-039-047 | 31.467 | 7349 | 16561 | 23974 | 30076 | 36254 | 49029 | 54411 |
| J-LEN-040 | 0.091 | 96 | 184 | 240 | 281 | 320 | 432 | 421 |
| J-LEN-041 | 0.862 | 753 | 1304 | 1655 | 1941 | 2213 | 2993 | 2959 |
| J-LEN-041-039 | 0.637 | 532 | 938 | 1208 | 1410 | 1611 | 2178 | 2166 |
| J-LEN-041-042 | 0.257 | 198 | 381 | 503 | 594 | 684 | 924 | 922 |
| J-LEN-041-044 | 0.257 | 198 | 382 | 504 | 595 | 684 | 925 | 927 |
| J-LEN-043 | 0.047 | 70 | 118 | 147 | 168 | 188 | 255 | 244 |
| J-LEN-044 | 0.379 | 335 | 557 | 704 | 816 | 927 | 1254 | 1239 |
| J-LEN-045 | 0.137 | 134 | 252 | 328 | 384 | 440 | 595 | 585 |
| J-LEN-046 | 0.289 | 318 | 550 | 698 | 805 | 913 | 1234 | 1199 |
| J-LEN-047 | 32.800 | 7632 | 16795 | 24135 | 30649 | 36951 | 49972 | 55693 |
| J-LEN-047-056 | 31.467 | 7347 | 16554 | 23994 | 30059 | 36233 | 49001 | 54371 |
| J-LEN-047-057 | 33.303 | 7683 | 16852 | 24209 | 30769 | 37111 | 50188 | 56002 |
| J-LEN-048-050 | 1.187 | 288 | 702 | 1000 | 1245 | 1520 | 2055 | 2410 |
| J-LEN-049 | 1.724 | 568 | 1187 | 1706 | 2094 | 2551 | 3450 | 3882 |
| J-LEN-049-051 | 1.187 | 267 | 662 | 958 | 1204 | 1488 | 2013 | 2377 |
| J-LEN-049-052 | 1.972 | 745 | 1491 | 2103 | 2564 | 3089 | 4178 | 4642 |
| J-LEN-051 | 0.296 | 177 | 350 | 471 | 564 | 662 | 895 | 923 |
| J-LEN-052 | 2.169 | 877 | 1705 | 2343 | 2843 | 3449 | 4665 | 5140 |

| Effective Junction ID | Cumulative Basin Size (sq. mi.) | Effective Flow ($ft^3/s$) | | 2021 HMS Junction ID | Cumulative Basin Size (sq. mi.) | 2021 HMS Flow (ft3/s) |
|---|---|---|---|---|---|---|
| **Leon Creek** | | | | **Leon Creek** | | |
| JLC004 | 2.00 | 5347 | | J-LEN-003-005 | 2.01 | 3296 |
| LC-UNT3 | 2.89 | 6876 | | J-LEN-001-008 | 2.56 | 4264 |
| JLC008 | 4.86 | 10100 | | J-LEN-001-010 | 4.87 | 7310 |
| JLC012 | 16.86 | 29945 | | J-LEN-016-032 | 17.12 | 24063 |
| JLC016 | 27.37 | 40605 | | J-LEN-035-038 | 27.55 | 34707 |
| JLC018 | 28.70 | 40519 | | J-LEN-038-039 | 28.56 | 34994 |
| JLC019 | 31.24 | 41409 | | J-LEN-039-047 | 31.47 | 36254 |
| JLC020 | 34.51 | 40869 | | J-LEN-057-065 | 34.03 | 37220 |
| JLC020A | 36.30 | 40994 | | J-LEN-065-072 | 36.46 | 37774 |
| JLC021 | 39.08 | 40158 | | J-LEN-078 | 38.65 | 37345 |
| JLC022 | 41.80 | 39297 | | J-LEN-084-089 | 41.79 | 38192 |
| JLC028 | 54.93 | 44221 | | J-LEN-089-090 | 54.96 | 41180 |
| JLC031 | 60.74 | 50362 | | J-LEN-090-091 | 58.03 | 42433 |
| JLC034 | 72.37 | 65571 | | J-LEN-098-099 | 72.52 | 53459 |
| JLC035 | 74.87 | 67238 | | J-LEN-099-100 | 73.75 | 52599 |
| JLC039 | 158.00 | 151276 | | J-LEN-CUL-101-049 | 158.26 | 97509 |
| JLC041 | 170.70 | 161139 | | J-LEN-102-105 | 170.68 | 110451 |
| JLC048 | 176.58 | 160560 | | J-SRC-019-LEN-109 | 176.40 | 111810 |
| JLC050 | 188.56 | 165690 | | J-LEN-109-114 | 187.91 | 116457 |
| JWV03 | 190.40 | 166349 | | J-LEN-109-116 | 190.91 | 117518 |
| JLC055 | 195.87 | 168375 | | J-LEN-114-122 | 196.60 | 118899 |
| JLC056 | 197.45 | 168881 | | J-LEN-118-124 | 197.59 | 119010 |
| JLC058 | 203.49 | 170640 | | J-LEN-126-129 | 203.63 | 120999 |
| JLC065 | 210.82 | 165065 | | J-LEN-131-135 | 210.02 | 121078 |
| JLC071 | 226.25 | 164192 | | J-LEN-INC-136-015 | 225.27 | 124584 |
| JLC072 | 228.43 | 157480 | | J-LEN-139 | 227.55 | 124129 |
| JLC074 | 231.30 | 152106 | | J-LEN-COM-143-007 | 236.36 | 121689 |
| Outlet | 236.93 | 146486 | | J-LEN-144 | 237.50 | 120078 |
| | | | | | | |
| **Leon Creek Tributary M** | | | | **Leon Creek Tributary M** | | |
| J-Leon 38 - LT-M1-UNT3 | 5.52 | 11610 | | J-LEN-020-025 | 5.70 | 8721 |
| | | | | | | |
| **Nichols Creek** | | | | **Nichols Creek** | | |
| JLTK004 | 2.08 | 4627 | | J-NIC-006-009 | 3.15 | 6467 |
| JLTK005 | 4.30 | 8213 | | J-NIC-006-010 | 4.13 | 8591 |
| JLTK009 | 5.32 | 8711 | | J-NIC-010-015 | 5.30 | 10530 |
| | | | | | | |
| **French Creek** | | | | **French Creek** | | |
| JFR012 | 11.07 | 20465 | | J-FRN-021-033 | 11.02 | 16503 |
| FR-8 ab LC | 11.63 | 19276 | | J-FRN-028 | 11.55 | 16687 |
| | | | | | | |
| **Government Canyon Creek** | | | | **Government Canyon Creek** | | |
| JGC004 | 2.26 | 5107 | | J-GOV-002-006 | 2.30 | 2675 |
| JGC016 | 10.25 | 18496 | | J-GOV-023-024 | 9.81 | 8004 |
| JGC024 | 17.40 | 27607 | | J-GOV-026-038 | 17.37 | 11913 |

SITE

# Hydraulics

# Existing



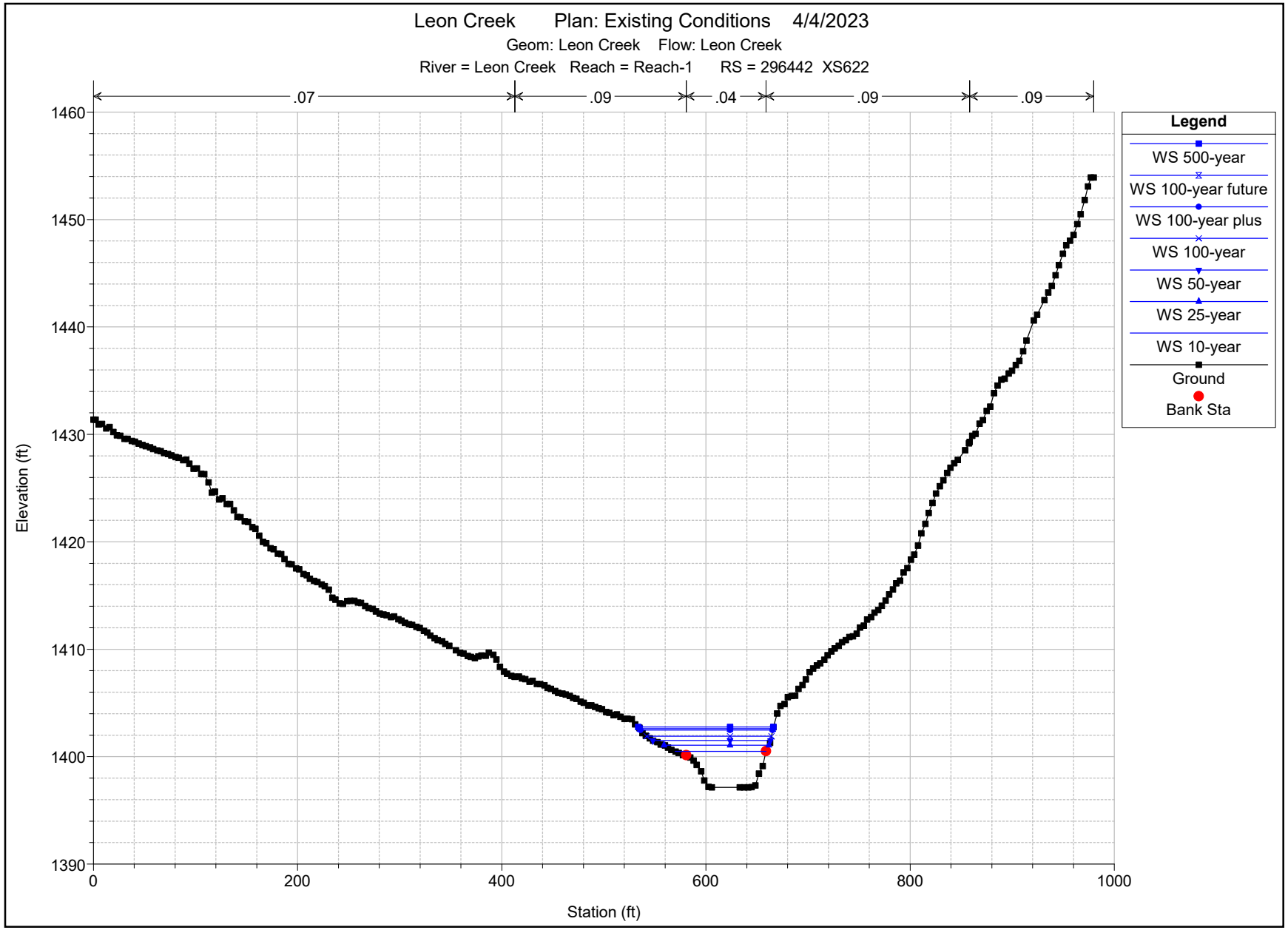

**HEC-RAS EXISTING MODEL**
**100-YR EXISTING INUNDATION**

HEC-RAS Plan: Existing Conditions Locations: User Defined

| River | Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| Leon Creek | Reach-1 | 250677 | 10-year | 13001.00 | 1100.73 | 1114.91 | 1111.99 | 1115.63 | 0.003617 | 7.28 | 2107.12 | 342.80 | 0.48 |
| Leon Creek | Reach-1 | 250677 | 25-year | 19119.00 | 1100.73 | 1116.91 | 1113.64 | 1117.80 | 0.003759 | 8.15 | 2906.24 | 573.10 | 0.50 |
| Leon Creek | Reach-1 | 250677 | 50-year | 24690.00 | 1100.73 | 1118.42 | 1114.63 | 1119.32 | 0.003195 | 8.41 | 3864.95 | 697.34 | 0.48 |
| Leon Creek | Reach-1 | 250677 | 100-year | 30028.00 | 1100.73 | 1119.80 | 1115.52 | 1120.65 | 0.002670 | 8.40 | 4889.30 | 804.67 | 0.45 |
| Leon Creek | Reach-1 | 250677 | 500-year | 45849.00 | 1100.73 | 1121.79 | 1118.61 | 1122.96 | 0.003113 | 10.13 | 6882.51 | 1171.64 | 0.49 |
| Leon Creek | Reach-1 | 250677 | 100-year plus | 40609.00 | 1100.73 | 1121.17 | 1117.69 | 1122.20 | 0.002915 | 9.48 | 6160.47 | 1089.04 | 0.47 |
| Leon Creek | Reach-1 | 250677 | 100-year future | 34707.00 | 1100.73 | 1120.40 | 1116.39 | 1121.36 | 0.002838 | 8.97 | 5396.90 | 896.43 | 0.46 |
| | | | | | | | | | | | | | |
| Leon Creek | Reach-1 | 250354 | 10-year | 13001.00 | 1100.37 | 1113.98 | | 1114.63 | 0.002573 | 7.08 | 2589.73 | 433.21 | 0.42 |
| Leon Creek | Reach-1 | 250354 | 25-year | 19119.00 | 1100.37 | 1115.96 | | 1116.72 | 0.002716 | 7.91 | 3667.78 | 653.69 | 0.44 |
| Leon Creek | Reach-1 | 250354 | 50-year | 24690.00 | 1100.37 | 1117.61 | | 1118.32 | 0.002534 | 7.91 | 4858.79 | 772.68 | 0.43 |
| Leon Creek | Reach-1 | 250354 | 100-year | 30028.00 | 1100.37 | 1119.13 | | 1119.79 | 0.002152 | 7.83 | 6107.77 | 915.91 | 0.40 |
| Leon Creek | Reach-1 | 250354 | 500-year | 45849.00 | 1100.37 | 1121.04 | | 1121.90 | 0.002596 | 9.26 | 8258.77 | 1355.25 | 0.45 |
| Leon Creek | Reach-1 | 250354 | 100-year plus | 40609.00 | 1100.37 | 1120.40 | | 1121.22 | 0.002575 | 8.92 | 7444.60 | 1208.70 | 0.44 |
| Leon Creek | Reach-1 | 250354 | 100-year future | 34707.00 | 1100.37 | 1119.68 | | 1120.43 | 0.002371 | 8.43 | 6639.97 | 1020.67 | 0.42 |
| | | | | | | | | | | | | | |
| Leon Creek | Reach-1 | 250086 | 10-year | 12902.00 | 1101.02 | 1113.55 | 1109.39 | 1113.90 | 0.002281 | 5.45 | 2825.21 | 404.77 | 0.34 |
| Leon Creek | Reach-1 | 250086 | 25-year | 18958.00 | 1101.02 | 1115.53 | 1110.54 | 1115.97 | 0.002277 | 6.09 | 3644.23 | 433.64 | 0.35 |
| Leon Creek | Reach-1 | 250086 | 50-year | 24476.00 | 1101.02 | 1117.13 | 1111.42 | 1117.63 | 0.002256 | 6.53 | 4402.40 | 699.88 | 0.36 |
| Leon Creek | Reach-1 | 250086 | 100-year | 29908.00 | 1101.02 | 1118.58 | 1112.18 | 1119.11 | 0.002803 | 7.48 | 5653.50 | 974.77 | 0.40 |
| Leon Creek | Reach-1 | 250086 | 500-year | 45698.00 | 1101.02 | 1120.42 | 1114.13 | 1121.06 | 0.003340 | 7.73 | 7592.39 | 1356.75 | 0.43 |
| Leon Creek | Reach-1 | 250086 | 100-year plus | 40447.00 | 1101.02 | 1119.79 | 1113.56 | 1120.40 | 0.003253 | 7.45 | 6863.94 | 1163.08 | 0.42 |
| Leon Creek | Reach-1 | 250086 | 100-year future | 34531.00 | 1101.02 | 1119.09 | 1112.79 | 1119.67 | 0.003095 | 7.72 | 6144.12 | 1049.36 | 0.42 |
| | | | | | | | | | | | | | |
| Leon Creek | Reach-1 | 249820 | 10-year | 13082.00 | 1099.91 | 1111.90 | 1110.10 | 1112.94 | 0.005482 | 8.70 | 1822.79 | 365.47 | 0.54 |
| Leon Creek | Reach-1 | 249820 | 25-year | 19203.00 | 1099.91 | 1114.09 | 1111.68 | 1115.11 | 0.004197 | 8.94 | 2653.64 | 423.27 | 0.49 |
| Leon Creek | Reach-1 | 249820 | 50-year | 24859.00 | 1099.91 | 1115.59 | 1112.75 | 1116.77 | 0.004121 | 9.72 | 3313.12 | 636.80 | 0.50 |
| Leon Creek | Reach-1 | 249820 | 100-year | 30365.00 | 1099.91 | 1116.93 | 1113.60 | 1118.18 | 0.003853 | 10.10 | 3966.45 | 725.51 | 0.49 |
| Leon Creek | Reach-1 | 249820 | 500-year | 46494.00 | 1099.91 | 1118.31 | 1114.49 | 1119.92 | 0.004735 | 11.97 | 5283.55 | 1125.88 | 0.56 |
| Leon Creek | Reach-1 | 249820 | 100-year plus | 41065.00 | 1099.91 | 1117.86 | 1114.30 | 1119.32 | 0.004406 | 11.31 | 4901.72 | 1002.96 | 0.53 |
| Leon Creek | Reach-1 | 249820 | 100-year future | 34994.00 | 1099.91 | 1117.55 | 1114.11 | 1118.73 | 0.003635 | 10.12 | 4661.63 | 919.51 | 0.48 |
| | | | | | | | | | | | | | |
| Leon Creek | Reach-1 | 249622 | 10-year | 13082.00 | 1098.82 | 1110.98 | 1108.67 | 1111.88 | 0.004771 | 7.92 | 1846.06 | 326.65 | 0.50 |
| Leon Creek | Reach-1 | 249622 | 25-year | 19203.00 | 1098.82 | 1113.35 | 1110.09 | 1114.31 | 0.003676 | 8.32 | 2659.45 | 532.38 | 0.46 |
| Leon Creek | Reach-1 | 249622 | 50-year | 24859.00 | 1098.82 | 1114.98 | 1111.23 | 1115.99 | 0.003333 | 8.75 | 3494.84 | 698.54 | 0.45 |
| Leon Creek | Reach-1 | 249622 | 100-year | 30365.00 | 1098.82 | 1116.33 | 1112.18 | 1117.43 | 0.003239 | 9.28 | 4245.23 | 856.16 | 0.45 |
| Leon Creek | Reach-1 | 249622 | 500-year | 46494.00 | 1098.82 | 1117.74 | 1114.86 | 1119.00 | 0.003605 | 10.49 | 6110.76 | 1128.28 | 0.49 |
| Leon Creek | Reach-1 | 249622 | 100-year plus | 41065.00 | 1098.82 | 1117.13 | 1114.19 | 1118.47 | 0.003799 | 10.46 | 5161.68 | 989.85 | 0.50 |
| Leon Creek | Reach-1 | 249622 | 100-year future | 34994.00 | 1098.82 | 1117.05 | 1112.90 | 1118.04 | 0.002832 | 8.99 | 5095.51 | 964.51 | 0.43 |
| | | | | | | | | | | | | | |
| Leon Creek | Reach-1 | 249309 | 10-year | 13082.00 | 1097.96 | 1110.29 | 1106.18 | 1110.97 | 0.001733 | 6.69 | 2092.84 | 280.97 | 0.39 |
| Leon Creek | Reach-1 | 249309 | 25-year | 19203.00 | 1097.96 | 1112.69 | 1107.72 | 1113.54 | 0.001642 | 7.61 | 2761.51 | 469.49 | 0.40 |
| Leon Creek | Reach-1 | 249309 | 50-year | 24859.00 | 1097.96 | 1114.16 | 1108.95 | 1115.24 | 0.001779 | 8.58 | 3323.31 | 737.92 | 0.42 |
| Leon Creek | Reach-1 | 249309 | 100-year | 30365.00 | 1097.96 | 1115.37 | 1110.01 | 1116.65 | 0.001910 | 9.43 | 4003.41 | 897.24 | 0.44 |
| Leon Creek | Reach-1 | 249309 | 500-year | 46494.00 | 1097.96 | 1116.91 | 1112.70 | 1118.20 | 0.001934 | 10.17 | 6135.29 | 1063.66 | 0.45 |

HEC-RAS Plan: Existing Conditions Locations: User Defined (Continued)

| River | Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| Leon Creek | Reach-1 | 249309 | 100-year plus | 41065.00 | 1097.96 | 1116.41 | 1111.80 | 1117.63 | 0.001873 | 9.79 | 5619.32 | 1011.56 | 0.44 |
| Leon Creek | Reach-1 | 249309 | 100-year future | 34994.00 | 1097.96 | 1115.51 | 1110.84 | 1117.15 | 0.002433 | 10.72 | 4085.61 | 918.10 | 0.50 |
| | | | | | | | | | | | | | |
| Leon Creek | Reach-1 | 249019 | 10-year | 13082.00 | 1096.40 | 1109.75 | 1105.32 | 1110.47 | 0.001711 | 6.89 | 2061.74 | 336.75 | 0.39 |
| Leon Creek | Reach-1 | 249019 | 25-year | 19203.00 | 1096.40 | 1112.32 | 1107.00 | 1113.07 | 0.001414 | 7.33 | 3235.29 | 609.98 | 0.37 |
| Leon Creek | Reach-1 | 249019 | 50-year | 24859.00 | 1096.40 | 1113.93 | 1108.49 | 1114.70 | 0.001335 | 7.73 | 4260.50 | 886.01 | 0.37 |
| Leon Creek | Reach-1 | 249019 | 100-year | 30365.00 | 1096.40 | 1115.21 | 1109.92 | 1116.06 | 0.001348 | 8.24 | 5414.75 | 1088.48 | 0.37 |
| Leon Creek | Reach-1 | 249019 | 500-year | 46494.00 | 1096.40 | 1116.19 | 1113.42 | 1117.60 | 0.002198 | 10.97 | 6488.40 | 1188.02 | 0.48 |
| Leon Creek | Reach-1 | 249019 | 100-year plus | 41065.00 | 1096.40 | 1115.79 | 1112.49 | 1117.07 | 0.002012 | 10.32 | 6038.05 | 1148.29 | 0.46 |
| Leon Creek | Reach-1 | 249019 | 100-year future | 34994.00 | 1096.40 | 1115.32 | 1111.11 | 1116.40 | 0.001714 | 9.34 | 5532.10 | 1099.48 | 0.42 |


Leon Creek Plan: Existing Conditions 4/4/2023
Geom: Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 296442 XS622
.07
.09
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Legend
WS 500-year
WS 100-year future
WS 100-year plus
WS 100-year
WS 50-year
WS 25-year
WS 10-year
Ground
Bank Sta
Elevation (ft)
1460
1450
1440
1430
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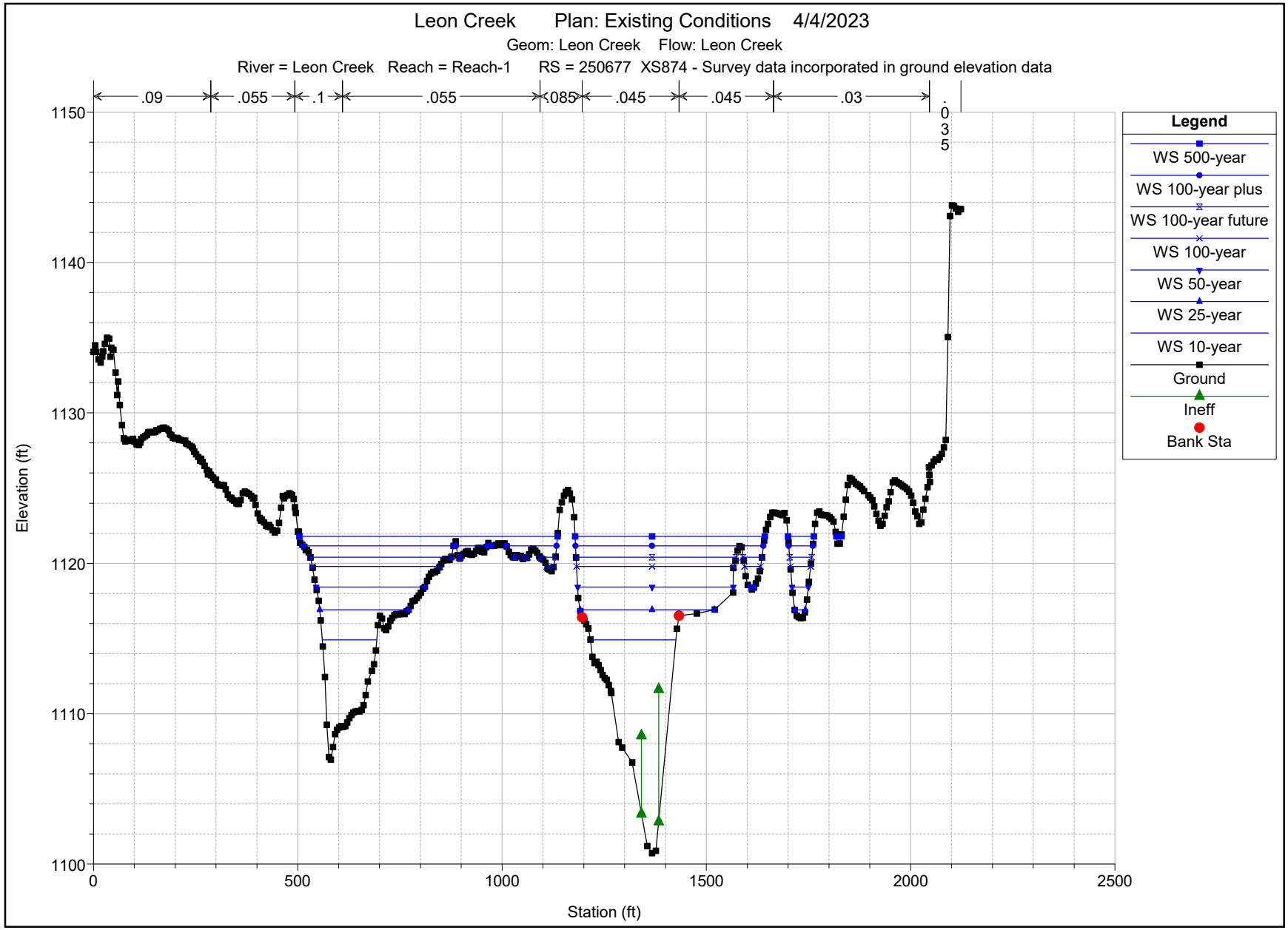
1410
1400
1390
0
200
400
600
800
1000
Station (ft)


Leon Creek Plan: Existing Conditions 4/4/2023
Geom: Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 250677 XS874 - Survey data incorporated in ground elevation data
.09
.055
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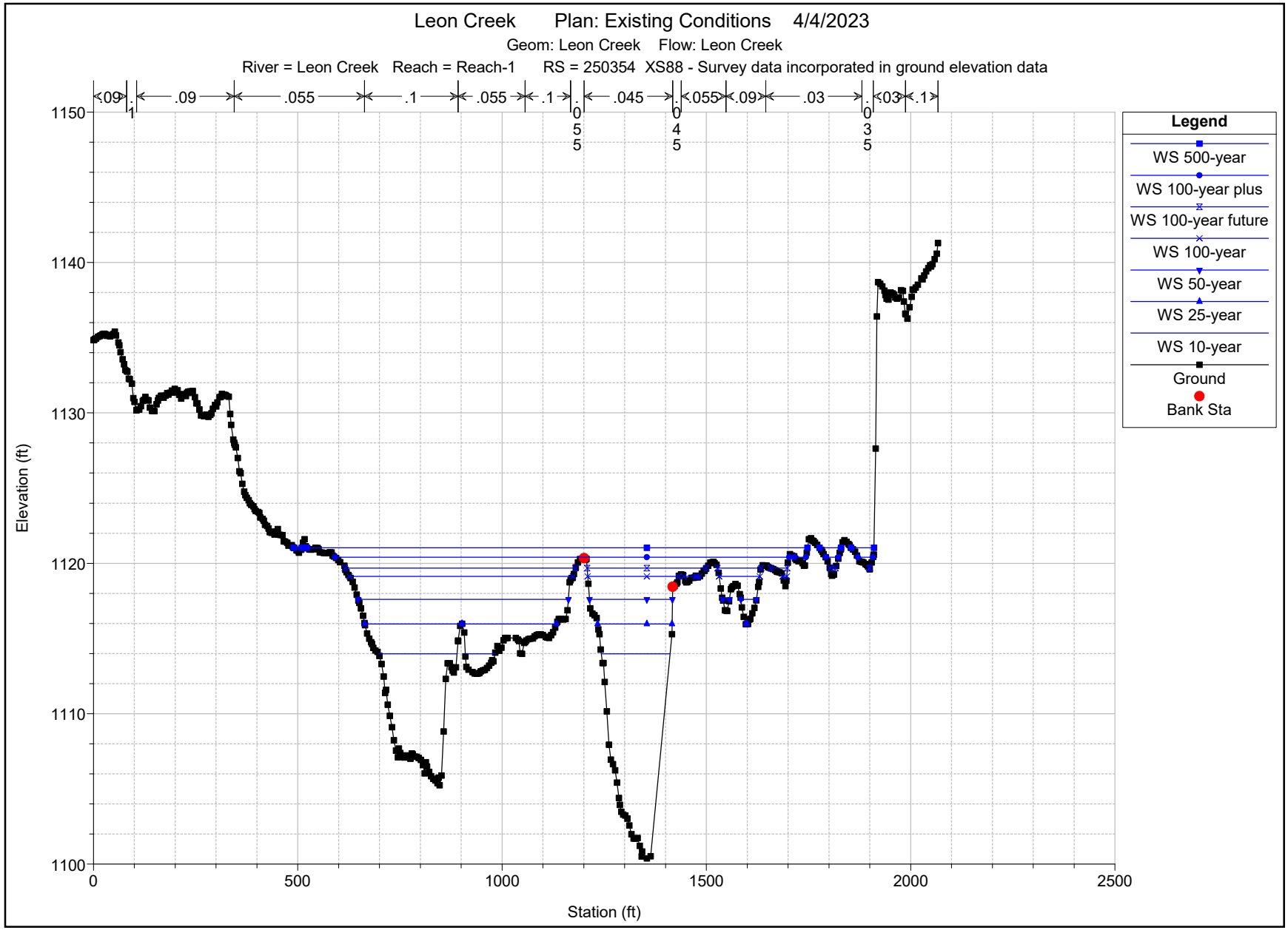
Legend
WS 500-year
WS 100-year plus
WS 100-year future
WS 100-year
WS 50-year
WS 25-year
WS 10-year
Ground
Ineff
Bank Sta
Elevation (ft)
1150
1140
1130
1120
1110
1100
0
500
1000
1500
2000
2500
Station (ft)


Leon Creek Plan: Existing Conditions 4/4/2023
Geom: Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 250354 XS88 - Survey data incorporated in ground elevation data
.09
.1
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Legend
WS 500-year
WS 100-year plus
WS 100-year future
WS 100-year
WS 50-year
WS 25-year
WS 10-year
Ground
Bank Sta
Elevation (ft)
1150
1140
1130
1120
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2000
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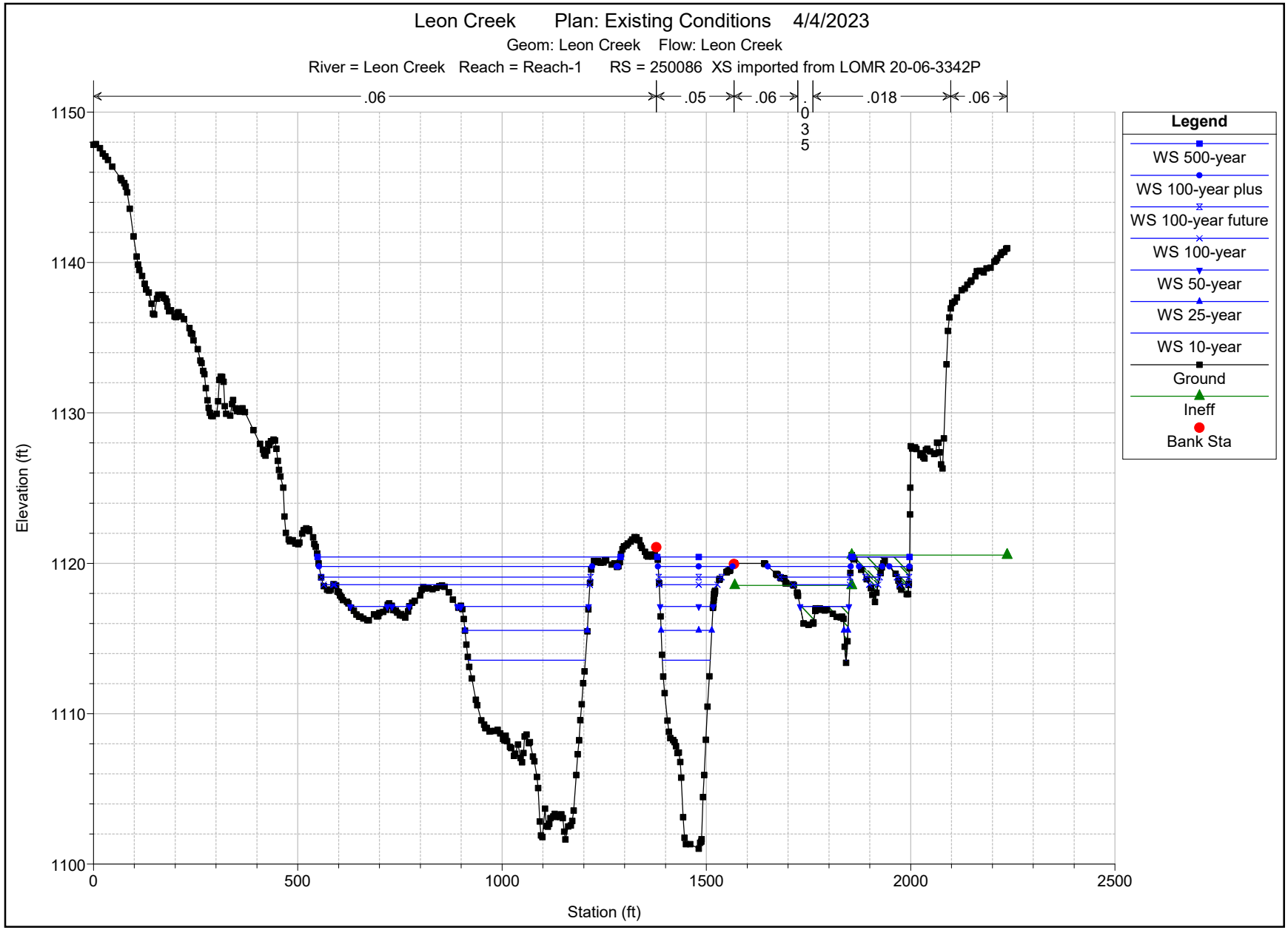
Station (ft)


Leon Creek Plan: Existing Conditions 4/4/2023
Geom: Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 250086 XS imported from LOMR 20-06-3342P
.06
.05
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.018
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Legend
WS 500-year
WS 100-year plus
WS 100-year future
WS 100-year
WS 50-year
WS 25-year
WS 10-year
Ground
Ineff
Bank Sta
Elevation (ft)
1150
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1130
1120
1110
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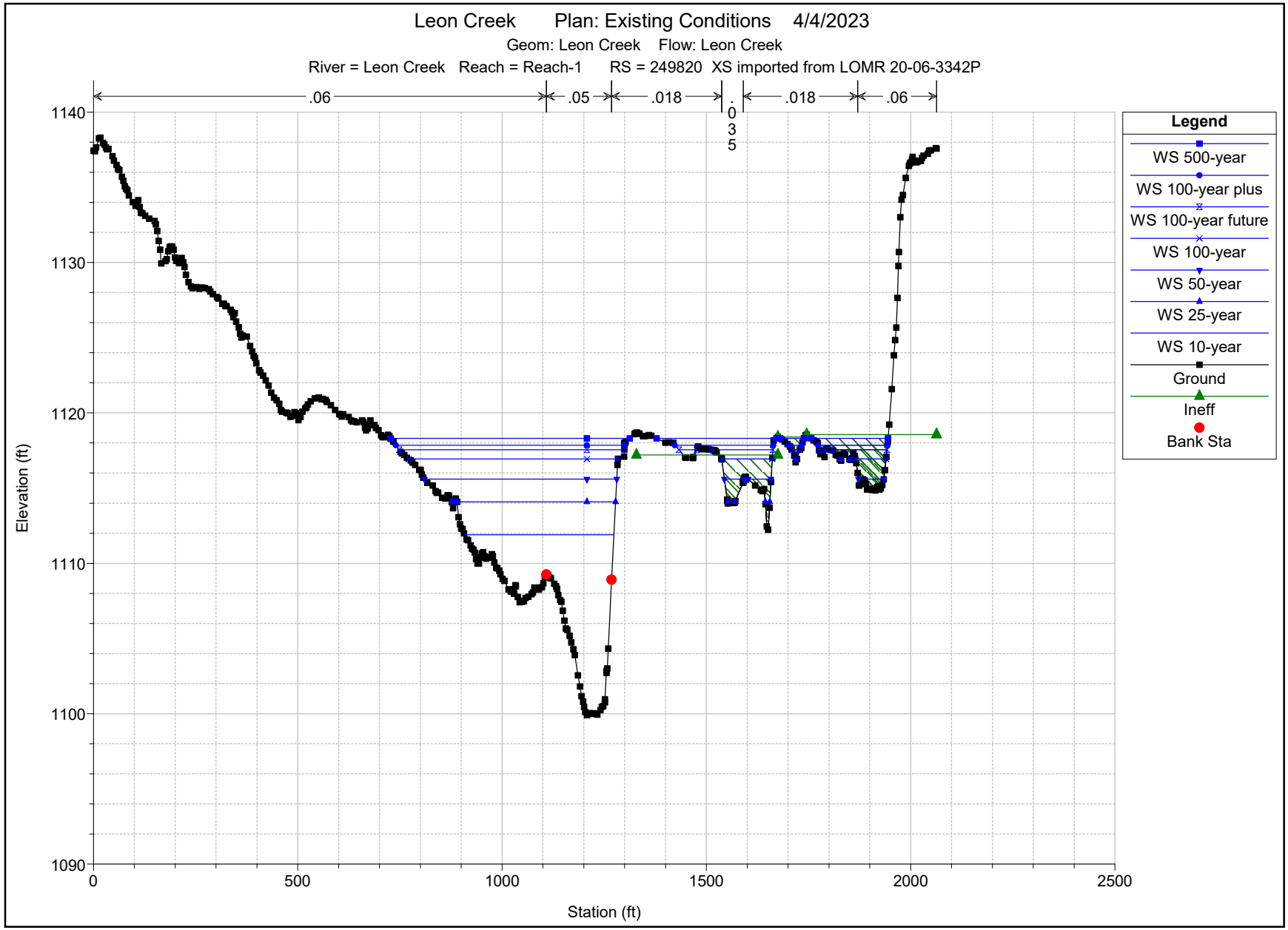
Station (ft)


Leon Creek Plan: Existing Conditions 4/4/2023
Geom: Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 249820 XS imported from LOMR 20-06-3342P
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Legend
WS 500-year
WS 100-year plus
WS 100-year future
WS 100-year
WS 50-year
WS 25-year
WS 10-year
Ground
Ineff
Bank Sta
Elevation (ft)
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1130
1120
1110
1100
1090
0
500
1000
1500
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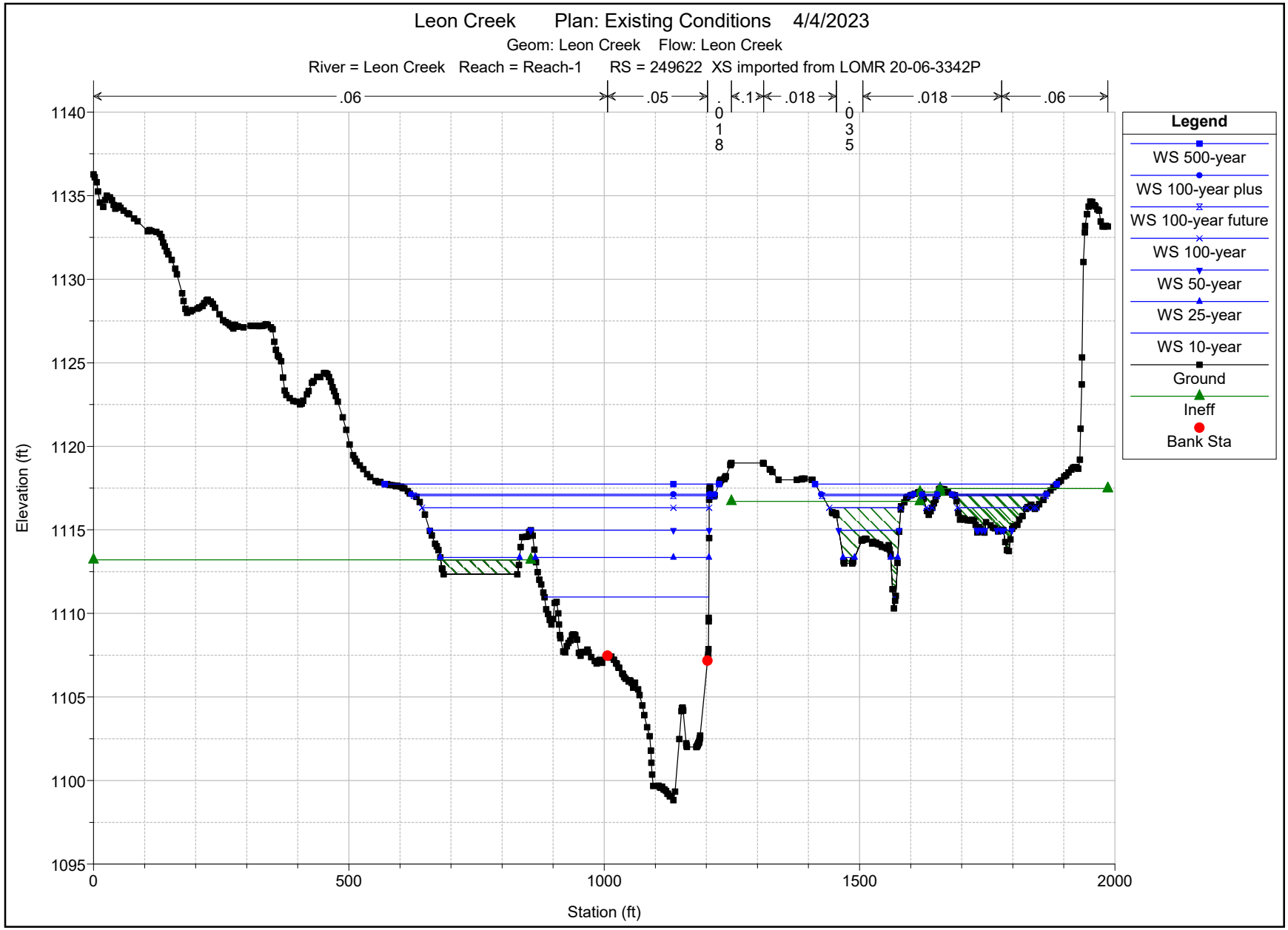
2500
Station (ft)


Leon Creek Plan: Existing Conditions 4/4/2023
Geom: Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 249622 XS imported from LOMR 20-06-3342P
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Legend
WS 500-year
WS 100-year plus
WS 100-year future
WS 100-year
WS 50-year
WS 25-year
WS 10-year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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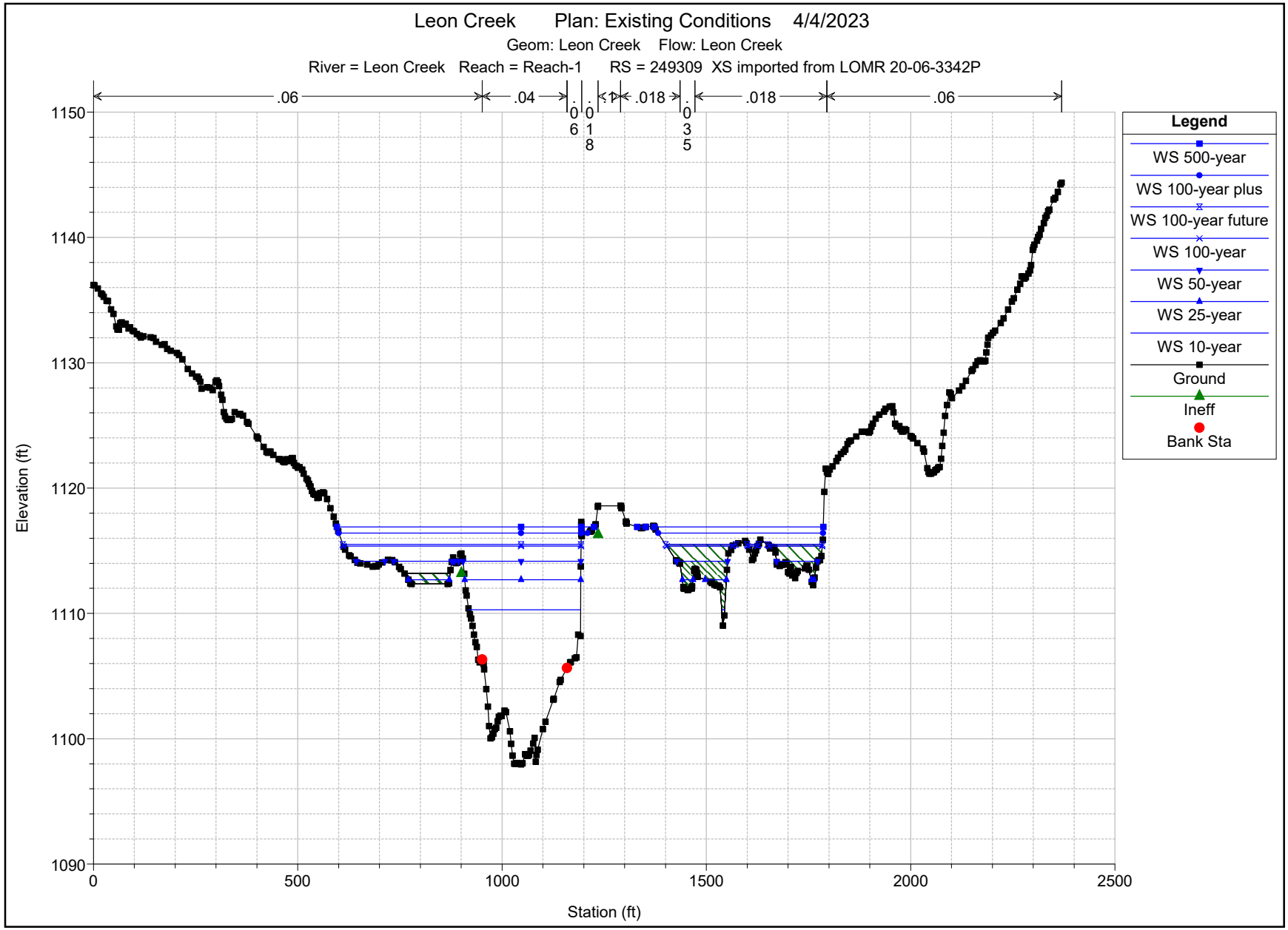
Leon Creek Plan: Existing Conditions 4/4/2023
Geom: Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 249309 XS imported from LOMR 20-06-3342P
.06
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Legend
WS 500-year
WS 100-year plus
WS 100-year future
WS 100-year
WS 50-year
WS 25-year
WS 10-year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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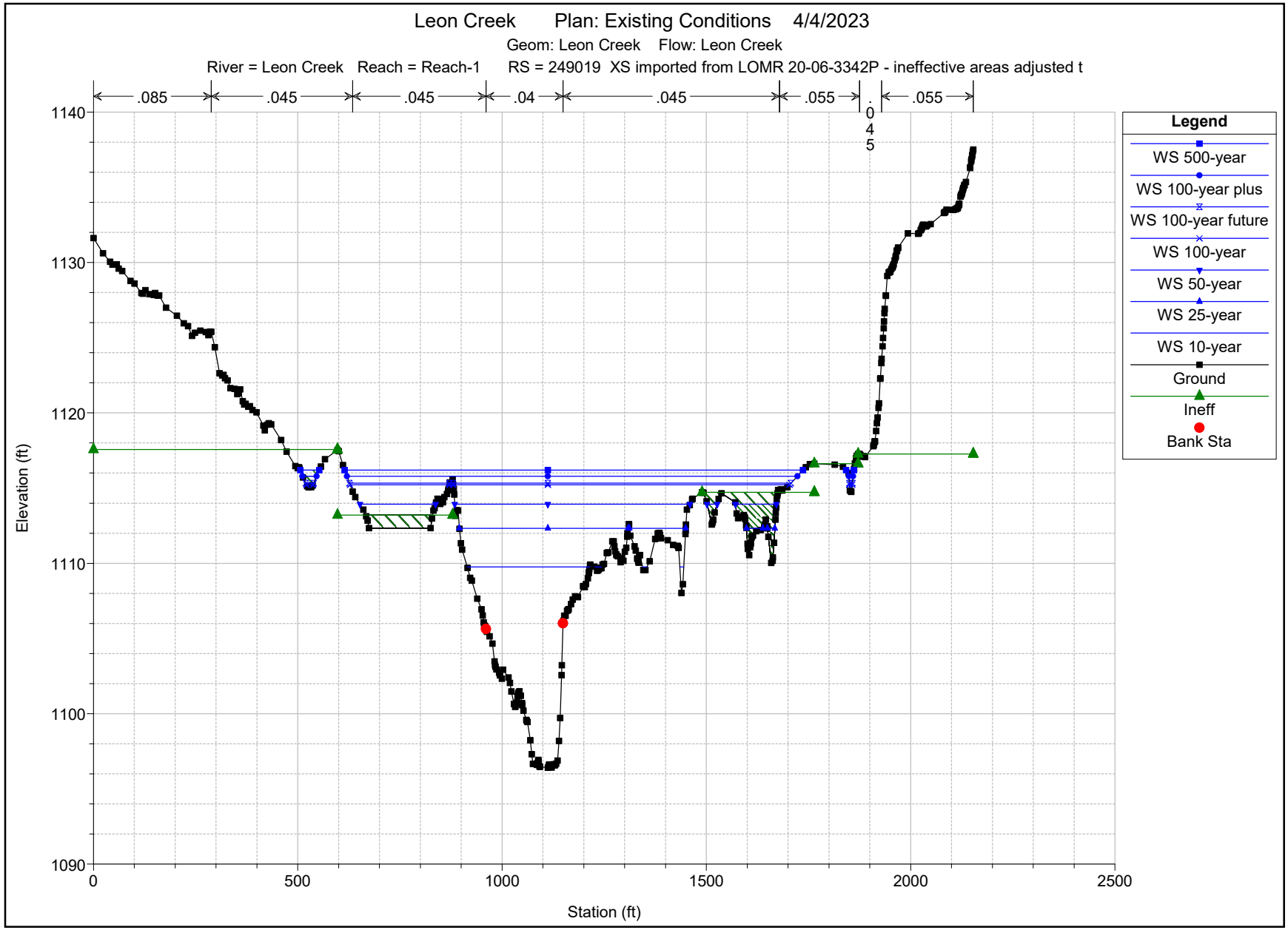
Leon Creek Plan: Existing Conditions 4/4/2023
Geom: Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 249019 XS imported from LOMR 20-06-3342P - ineffective areas adjusted t
.085
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Legend
WS 500-year
WS 100-year plus
WS 100-year future
WS 100-year
WS 50-year
WS 25-year
WS 10-year
Ground
Ineff
Bank Sta
Elevation (ft)
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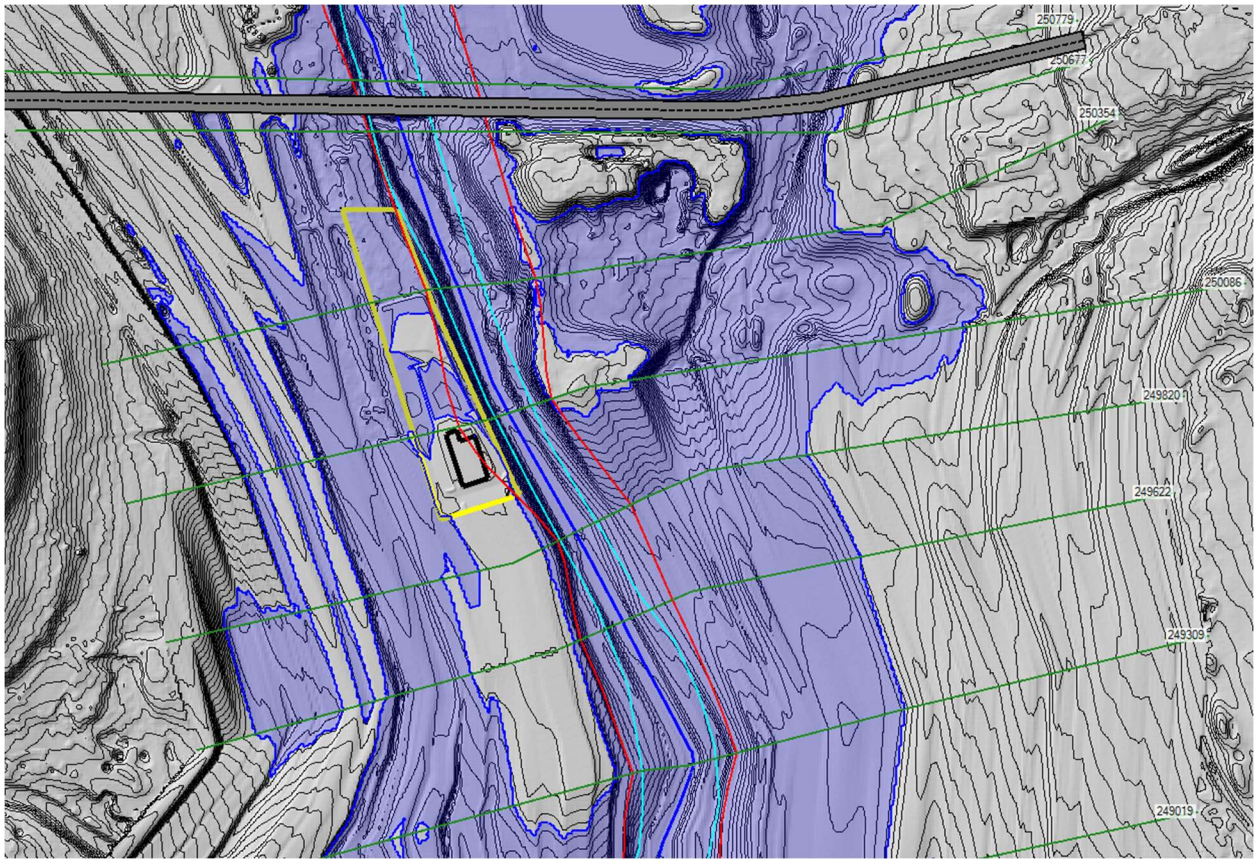
Station (ft)

# Proposed



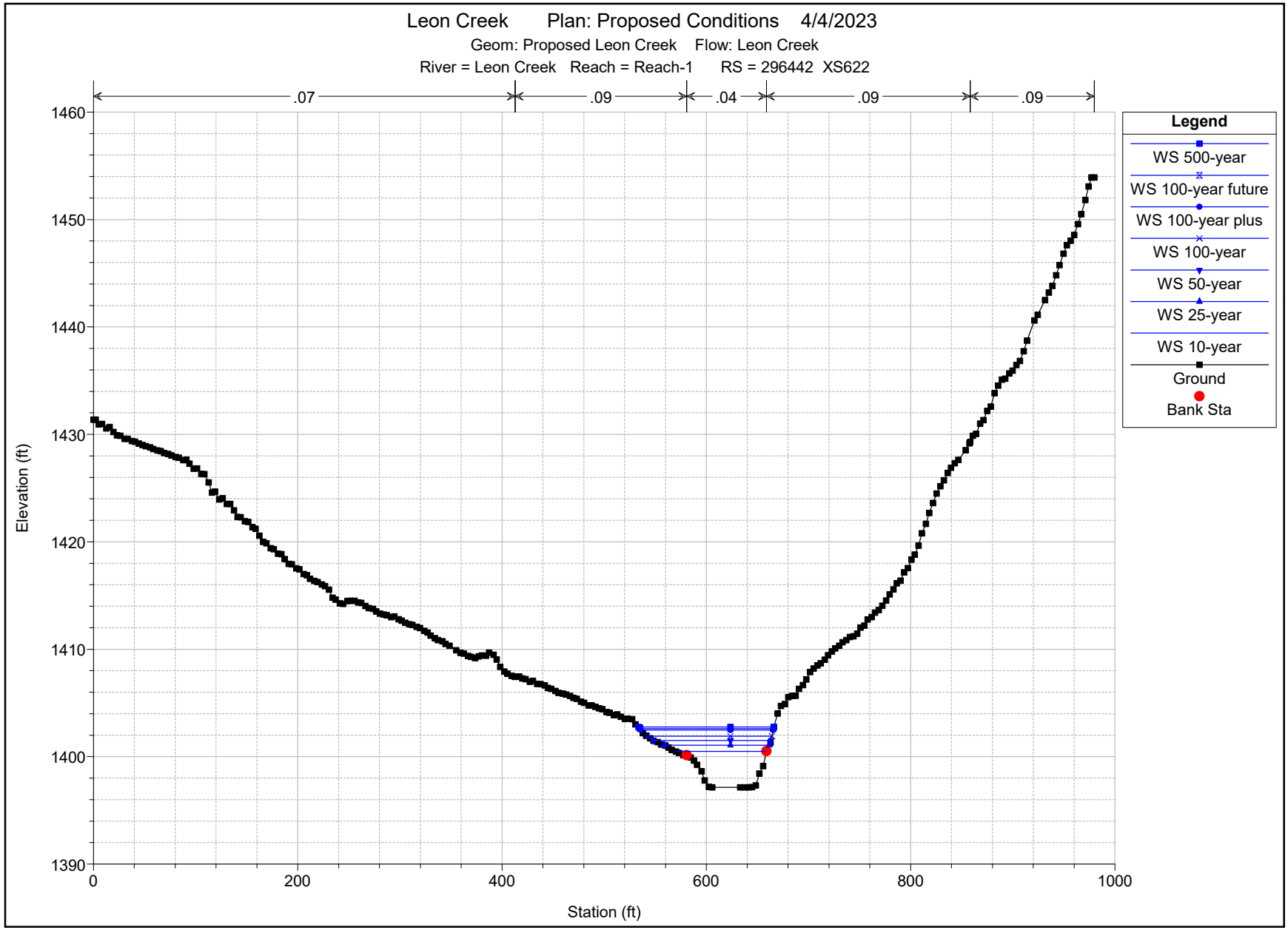

**HEC-RAS PROPOSED MODEL**
**100-YR FUTURE INUNDATION**

HEC-RAS Plan: Proposed Locations: User Defined

| River | Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| Leon Creek | Reach-1 | 250677 | 10-year | 13001.00 | 1100.73 | 1115.39 | 1111.99 | 1116.00 | 0.002942 | 6.75 | 2270.68 | 350.40 | 0.44 |
| Leon Creek | Reach-1 | 250677 | 25-year | 19119.00 | 1100.73 | 1117.38 | 1113.64 | 1118.14 | 0.003025 | 7.58 | 3182.50 | 609.81 | 0.45 |
| Leon Creek | Reach-1 | 250677 | 50-year | 24690.00 | 1100.73 | 1118.91 | 1114.63 | 1119.67 | 0.002585 | 7.81 | 4211.83 | 728.58 | 0.43 |
| Leon Creek | Reach-1 | 250677 | 100-year | 30028.00 | 1100.73 | 1120.33 | 1115.52 | 1121.06 | 0.002190 | 7.85 | 5327.40 | 869.93 | 0.41 |
| Leon Creek | Reach-1 | 250677 | 500-year | 45849.00 | 1100.73 | 1122.30 | 1118.61 | 1123.27 | 0.002531 | 9.37 | 7479.30 | 1206.48 | 0.45 |
| Leon Creek | Reach-1 | 250677 | 100-year plus | 40609.00 | 1100.73 | 1121.67 | 1117.69 | 1122.63 | 0.002579 | 9.16 | 6732.22 | 1166.81 | 0.45 |
| Leon Creek | Reach-1 | 250677 | 100-year future | 34707.00 | 1100.73 | 1120.92 | 1116.39 | 1121.74 | 0.002321 | 8.35 | 5902.02 | 1040.74 | 0.42 |
| | | | | | | | | | | | | | |
| Leon Creek | Reach-1 | 250354 | 10-year | 13001.00 | 1100.37 | 1114.65 | | 1115.18 | 0.002025 | 6.47 | 2902.23 | 487.73 | 0.37 |
| Leon Creek | Reach-1 | 250354 | 25-year | 19119.00 | 1100.37 | 1116.65 | | 1117.24 | 0.002174 | 7.08 | 4139.96 | 716.94 | 0.39 |
| Leon Creek | Reach-1 | 250354 | 50-year | 24690.00 | 1100.37 | 1118.28 | | 1118.86 | 0.001970 | 7.20 | 5388.90 | 801.22 | 0.38 |
| Leon Creek | Reach-1 | 250354 | 100-year | 30028.00 | 1100.37 | 1119.81 | | 1120.35 | 0.001697 | 7.17 | 6774.15 | 1047.14 | 0.36 |
| Leon Creek | Reach-1 | 250354 | 500-year | 45849.00 | 1100.37 | 1121.71 | | 1122.41 | 0.002021 | 8.44 | 9210.22 | 1446.85 | 0.40 |
| Leon Creek | Reach-1 | 250354 | 100-year plus | 40609.00 | 1100.37 | 1121.09 | | 1121.76 | 0.001998 | 8.14 | 8329.12 | 1362.68 | 0.39 |
| Leon Creek | Reach-1 | 250354 | 100-year future | 34707.00 | 1100.37 | 1120.35 | | 1120.96 | 0.001912 | 7.67 | 7391.03 | 1202.73 | 0.38 |
| | | | | | | | | | | | | | |
| Leon Creek | Reach-1 | 250086 | 10-year | 12902.00 | 1101.03 | 1113.82 | | 1114.38 | 0.005177 | 0.81 | 2909.30 | 404.76 | 0.05 |
| Leon Creek | Reach-1 | 250086 | 25-year | 18958.00 | 1101.03 | 1115.62 | | 1116.38 | 0.005348 | 0.89 | 3668.01 | 435.06 | 0.05 |
| Leon Creek | Reach-1 | 250086 | 50-year | 24476.00 | 1101.03 | 1117.20 | | 1118.04 | 0.005376 | 0.96 | 4522.15 | 707.90 | 0.05 |
| Leon Creek | Reach-1 | 250086 | 100-year | 29908.00 | 1101.03 | 1118.92 | | 1119.55 | 0.006840 | 1.15 | 5987.12 | 1031.89 | 0.06 |
| Leon Creek | Reach-1 | 250086 | 500-year | 45698.00 | 1101.03 | 1120.72 | | 1121.51 | 0.007047 | 1.27 | 8180.83 | 1394.31 | 0.06 |
| Leon Creek | Reach-1 | 250086 | 100-year plus | 40447.00 | 1101.03 | 1120.07 | | 1120.85 | 0.007273 | 1.24 | 7299.70 | 1272.88 | 0.06 |
| Leon Creek | Reach-1 | 250086 | 100-year future | 34531.00 | 1101.03 | 1119.35 | | 1120.08 | 0.007260 | 1.20 | 6451.61 | 1109.99 | 0.06 |
| | | | | | | | | | | | | | |
| Leon Creek | Reach-1 | 249820 | 10-year | 13082.00 | 1099.91 | 1111.90 | 1110.10 | 1112.94 | 0.005482 | 8.70 | 1822.79 | 365.47 | 0.54 |
| Leon Creek | Reach-1 | 249820 | 25-year | 19203.00 | 1099.91 | 1114.09 | 1111.68 | 1115.11 | 0.004197 | 8.94 | 2653.64 | 423.27 | 0.49 |
| Leon Creek | Reach-1 | 249820 | 50-year | 24859.00 | 1099.91 | 1115.59 | 1112.75 | 1116.77 | 0.004121 | 9.72 | 3313.12 | 636.80 | 0.50 |
| Leon Creek | Reach-1 | 249820 | 100-year | 30365.00 | 1099.91 | 1116.93 | 1113.60 | 1118.18 | 0.003853 | 10.10 | 3966.45 | 725.51 | 0.49 |
| Leon Creek | Reach-1 | 249820 | 500-year | 46494.00 | 1099.91 | 1118.31 | 1114.49 | 1119.92 | 0.004735 | 11.97 | 5283.55 | 1125.88 | 0.56 |
| Leon Creek | Reach-1 | 249820 | 100-year plus | 41065.00 | 1099.91 | 1117.86 | 1114.30 | 1119.32 | 0.004406 | 11.31 | 4901.72 | 1002.96 | 0.53 |
| Leon Creek | Reach-1 | 249820 | 100-year future | 34994.00 | 1099.91 | 1117.55 | 1114.11 | 1118.73 | 0.003635 | 10.12 | 4661.63 | 919.51 | 0.48 |
| | | | | | | | | | | | | | |
| Leon Creek | Reach-1 | 249622 | 10-year | 13082.00 | 1098.82 | 1110.98 | 1108.67 | 1111.88 | 0.004771 | 7.92 | 1846.06 | 326.65 | 0.50 |
| Leon Creek | Reach-1 | 249622 | 25-year | 19203.00 | 1098.82 | 1113.35 | 1110.09 | 1114.31 | 0.003676 | 8.32 | 2659.45 | 532.38 | 0.46 |
| Leon Creek | Reach-1 | 249622 | 50-year | 24859.00 | 1098.82 | 1114.98 | 1111.23 | 1115.99 | 0.003333 | 8.75 | 3494.84 | 698.54 | 0.45 |
| Leon Creek | Reach-1 | 249622 | 100-year | 30365.00 | 1098.82 | 1116.33 | 1112.18 | 1117.43 | 0.003239 | 9.28 | 4245.23 | 856.16 | 0.45 |
| Leon Creek | Reach-1 | 249622 | 500-year | 46494.00 | 1098.82 | 1117.74 | 1114.86 | 1119.00 | 0.003605 | 10.49 | 6110.76 | 1128.28 | 0.49 |
| Leon Creek | Reach-1 | 249622 | 100-year plus | 41065.00 | 1098.82 | 1117.13 | 1114.19 | 1118.47 | 0.003799 | 10.46 | 5161.68 | 989.85 | 0.50 |
| Leon Creek | Reach-1 | 249622 | 100-year future | 34994.00 | 1098.82 | 1117.05 | 1112.90 | 1118.04 | 0.002832 | 8.99 | 5095.51 | 964.51 | 0.43 |
| | | | | | | | | | | | | | |
| Leon Creek | Reach-1 | 249309 | 10-year | 13082.00 | 1097.96 | 1110.29 | 1106.18 | 1110.97 | 0.001733 | 6.69 | 2092.84 | 280.97 | 0.39 |
| Leon Creek | Reach-1 | 249309 | 25-year | 19203.00 | 1097.96 | 1112.69 | 1107.72 | 1113.54 | 0.001642 | 7.61 | 2761.51 | 469.49 | 0.40 |
| Leon Creek | Reach-1 | 249309 | 50-year | 24859.00 | 1097.96 | 1114.16 | 1108.95 | 1115.24 | 0.001779 | 8.58 | 3323.31 | 737.92 | 0.42 |
| Leon Creek | Reach-1 | 249309 | 100-year | 30365.00 | 1097.96 | 1115.37 | 1110.01 | 1116.65 | 0.001910 | 9.43 | 4003.41 | 897.24 | 0.44 |
| Leon Creek | Reach-1 | 249309 | 500-year | 46494.00 | 1097.96 | 1116.91 | 1112.70 | 1118.20 | 0.001934 | 10.17 | 6135.29 | 1063.66 | 0.45 |

HEC-RAS Plan: Proposed Locations: User Defined (Continued)

| River | Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| Leon Creek | Reach-1 | 249309 | 100-year plus | 41065.00 | 1097.96 | 1116.41 | 1111.80 | 1117.63 | 0.001873 | 9.79 | 5619.32 | 1011.56 | 0.44 |
| Leon Creek | Reach-1 | 249309 | 100-year future | 34994.00 | 1097.96 | 1115.51 | 1110.84 | 1117.15 | 0.002433 | 10.72 | 4085.61 | 918.10 | 0.50 |
| | | | | | | | | | | | | | |
| Leon Creek | Reach-1 | 249019 | 10-year | 13082.00 | 1096.40 | 1109.75 | 1105.32 | 1110.47 | 0.001711 | 6.89 | 2061.74 | 336.75 | 0.39 |
| Leon Creek | Reach-1 | 249019 | 25-year | 19203.00 | 1096.40 | 1112.32 | 1107.00 | 1113.07 | 0.001414 | 7.33 | 3235.29 | 609.98 | 0.37 |
| Leon Creek | Reach-1 | 249019 | 50-year | 24859.00 | 1096.40 | 1113.93 | 1108.49 | 1114.70 | 0.001335 | 7.73 | 4260.50 | 886.01 | 0.37 |
| Leon Creek | Reach-1 | 249019 | 100-year | 30365.00 | 1096.40 | 1115.21 | 1109.92 | 1116.06 | 0.001348 | 8.24 | 5414.75 | 1088.48 | 0.37 |
| Leon Creek | Reach-1 | 249019 | 500-year | 46494.00 | 1096.40 | 1116.19 | 1113.42 | 1117.60 | 0.002198 | 10.97 | 6488.40 | 1188.02 | 0.48 |
| Leon Creek | Reach-1 | 249019 | 100-year plus | 41065.00 | 1096.40 | 1115.79 | 1112.49 | 1117.07 | 0.002012 | 10.32 | 6038.05 | 1148.29 | 0.46 |
| Leon Creek | Reach-1 | 249019 | 100-year future | 34994.00 | 1096.40 | 1115.32 | 1111.11 | 1116.40 | 0.001714 | 9.34 | 5532.10 | 1099.48 | 0.42 |


Leon Creek Plan: Proposed Conditions 4/4/2023
Geom: Proposed Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 296442 XS622
.07
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Legend
WS 500-year
WS 100-year future
WS 100-year plus
WS 100-year
WS 50-year
WS 25-year
WS 10-year
Ground
Bank Sta
Elevation (ft)
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1450
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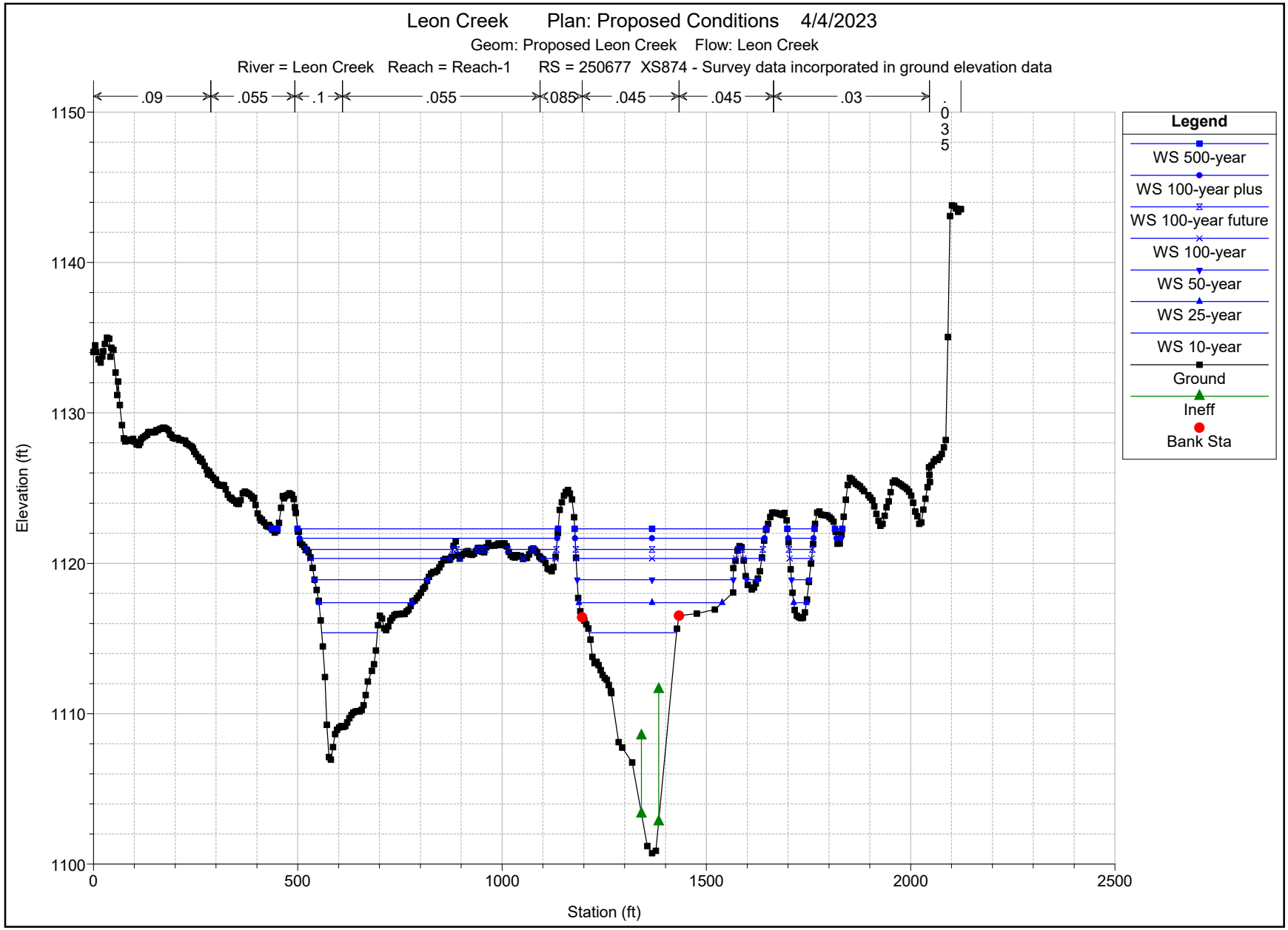
Station (ft)


Leon Creek Plan: Proposed Conditions 4/4/2023
Geom: Proposed Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 250677 XS874 - Survey data incorporated in ground elevation data
.09
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Legend
WS 500-year
WS 100-year plus
WS 100-year future
WS 100-year
WS 50-year
WS 25-year
WS 10-year
Ground
Ineff
Bank Sta
Elevation (ft)
1150
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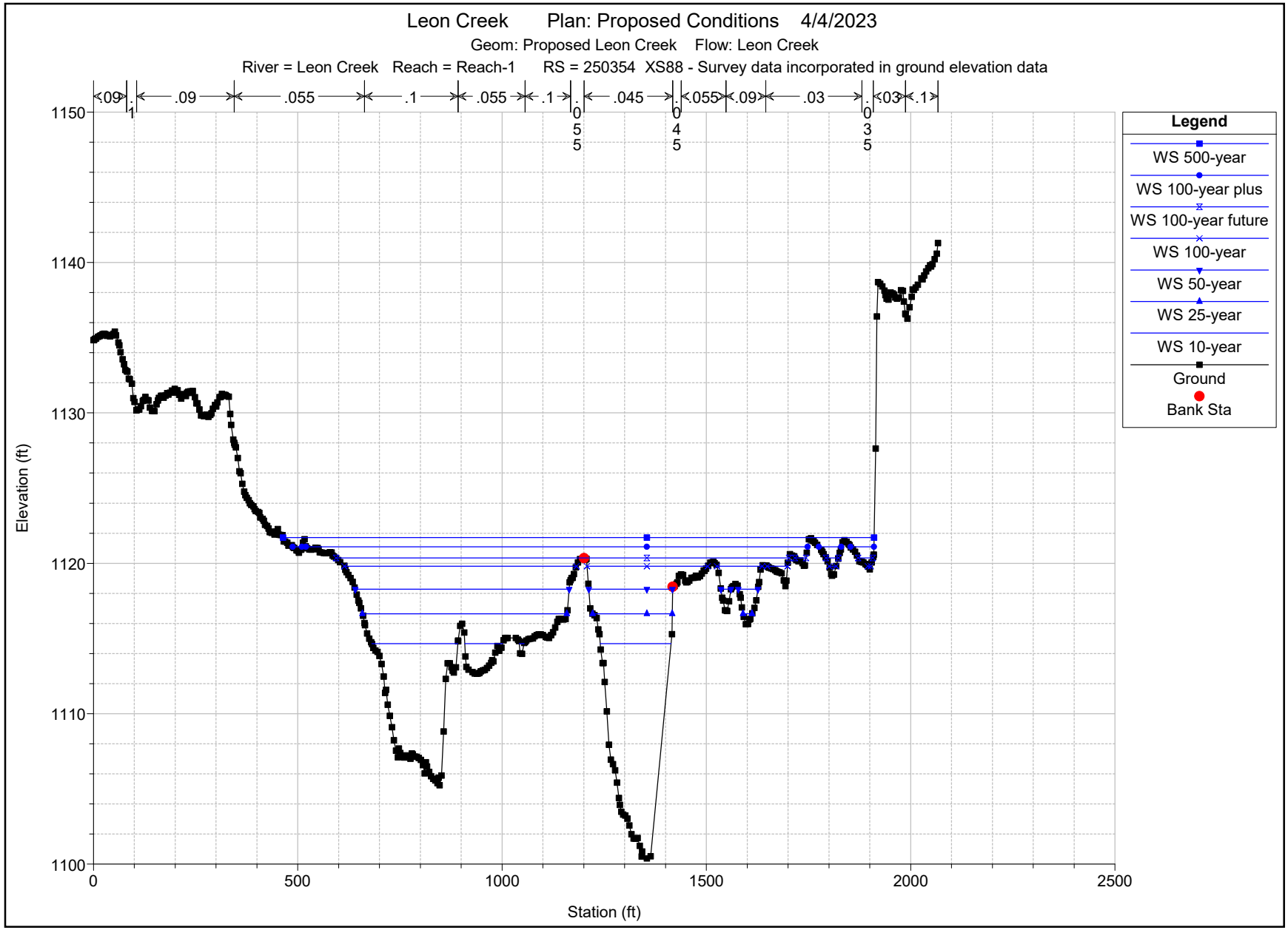
Station (ft)


Leon Creek Plan: Proposed Conditions 4/4/2023
Geom: Proposed Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 250354 XS88 - Survey data incorporated in ground elevation data
.09
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Legend
WS 500-year
WS 100-year plus
WS 100-year future
WS 100-year
WS 50-year
WS 25-year
WS 10-year
Ground
Bank Sta
Elevation (ft)
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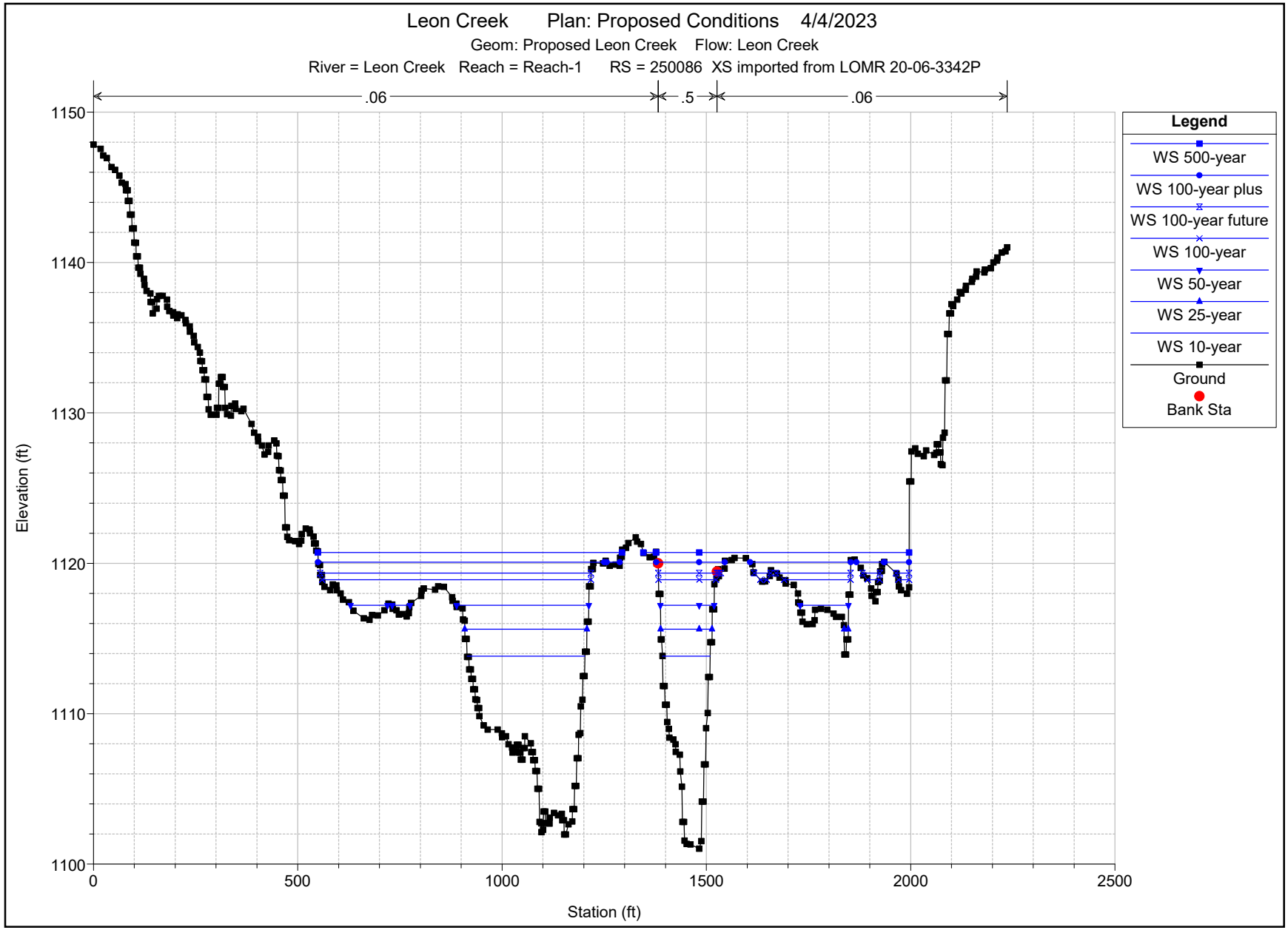
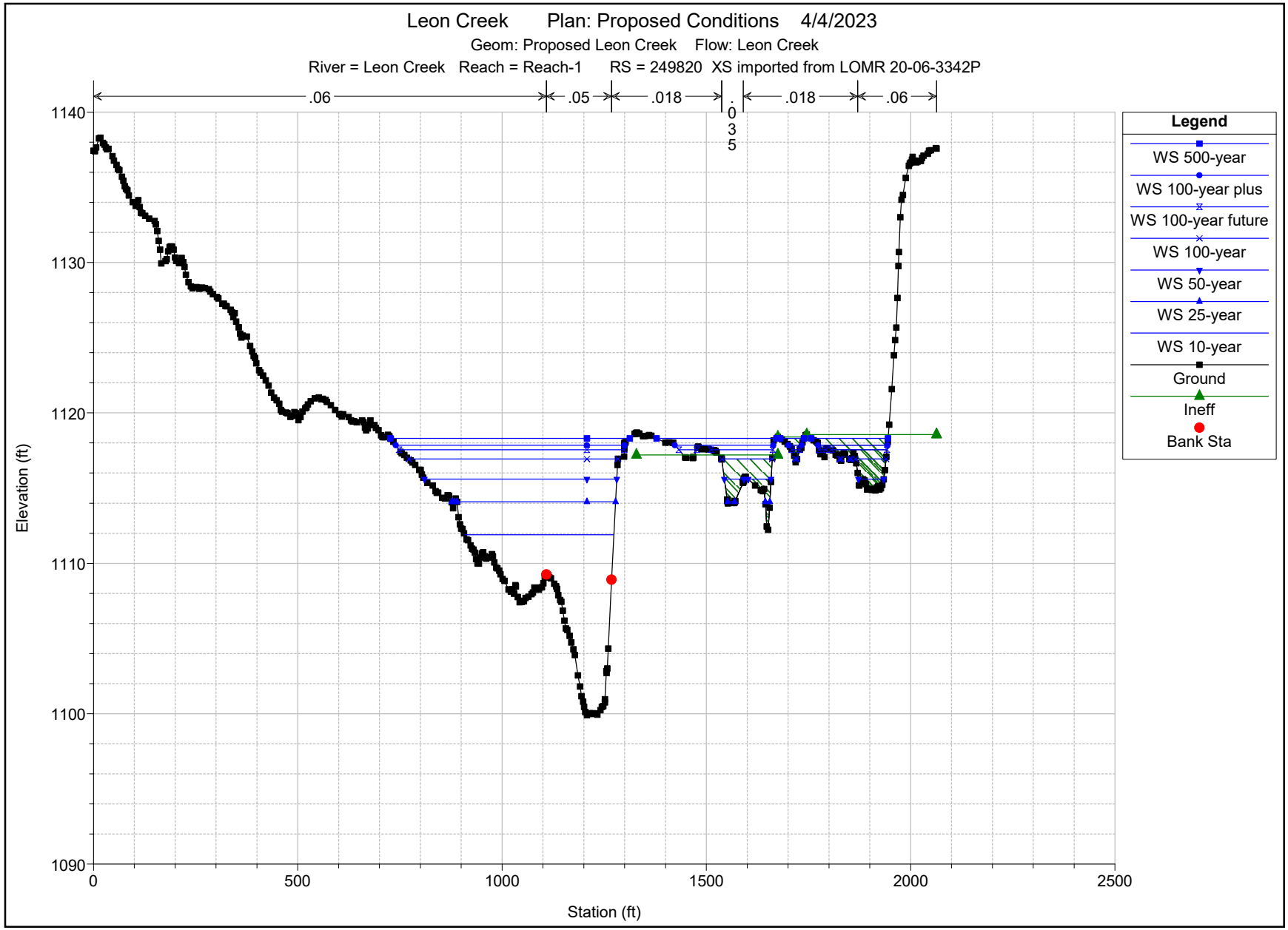
2500
Station (ft)


Leon Creek Plan: Proposed Conditions 4/4/2023
Geom: Proposed Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 250086 XS imported from LOMR 20-06-3342P
.06
.5
.06
Legend
WS 500-year
WS 100-year plus
WS 100-year future
WS 100-year
WS 50-year
WS 25-year
WS 10-year
Ground
Bank Sta
Elevation (ft)
1150
1140
1130
1120
1110
1100
0
500
1000
1500
2000
2500
Station (ft)


Leon Creek Plan: Proposed Conditions 4/4/2023
Geom: Proposed Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 249820 XS imported from LOMR 20-06-3342P
.06
.05
.018
.035
.018
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Legend
WS 500-year
WS 100-year plus
WS 100-year future
WS 100-year
WS 50-year
WS 25-year
WS 10-year
Ground
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Bank Sta
Elevation (ft)
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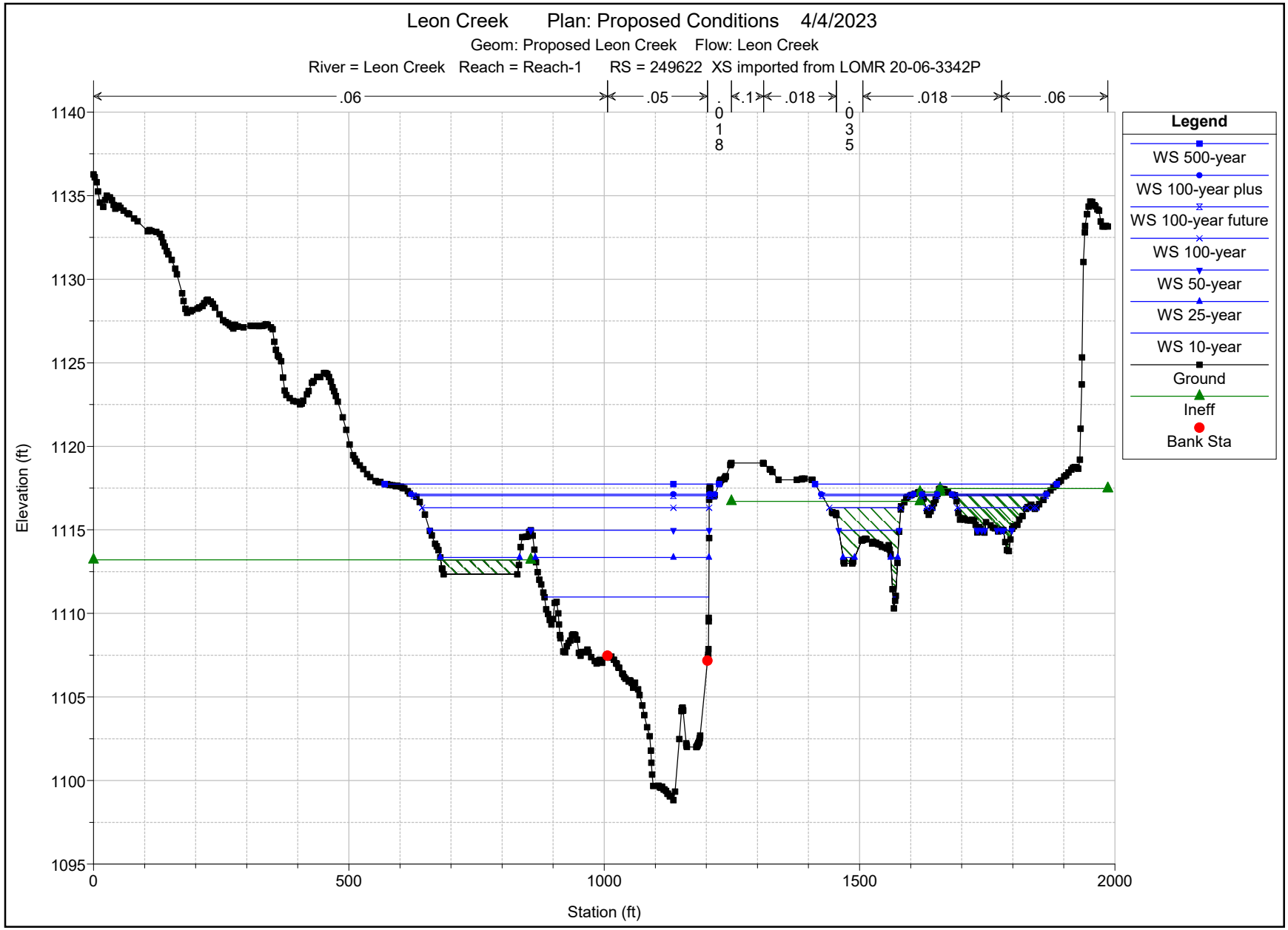
Station (ft)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Geom: Proposed Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 249622 XS imported from LOMR 20-06-3342P
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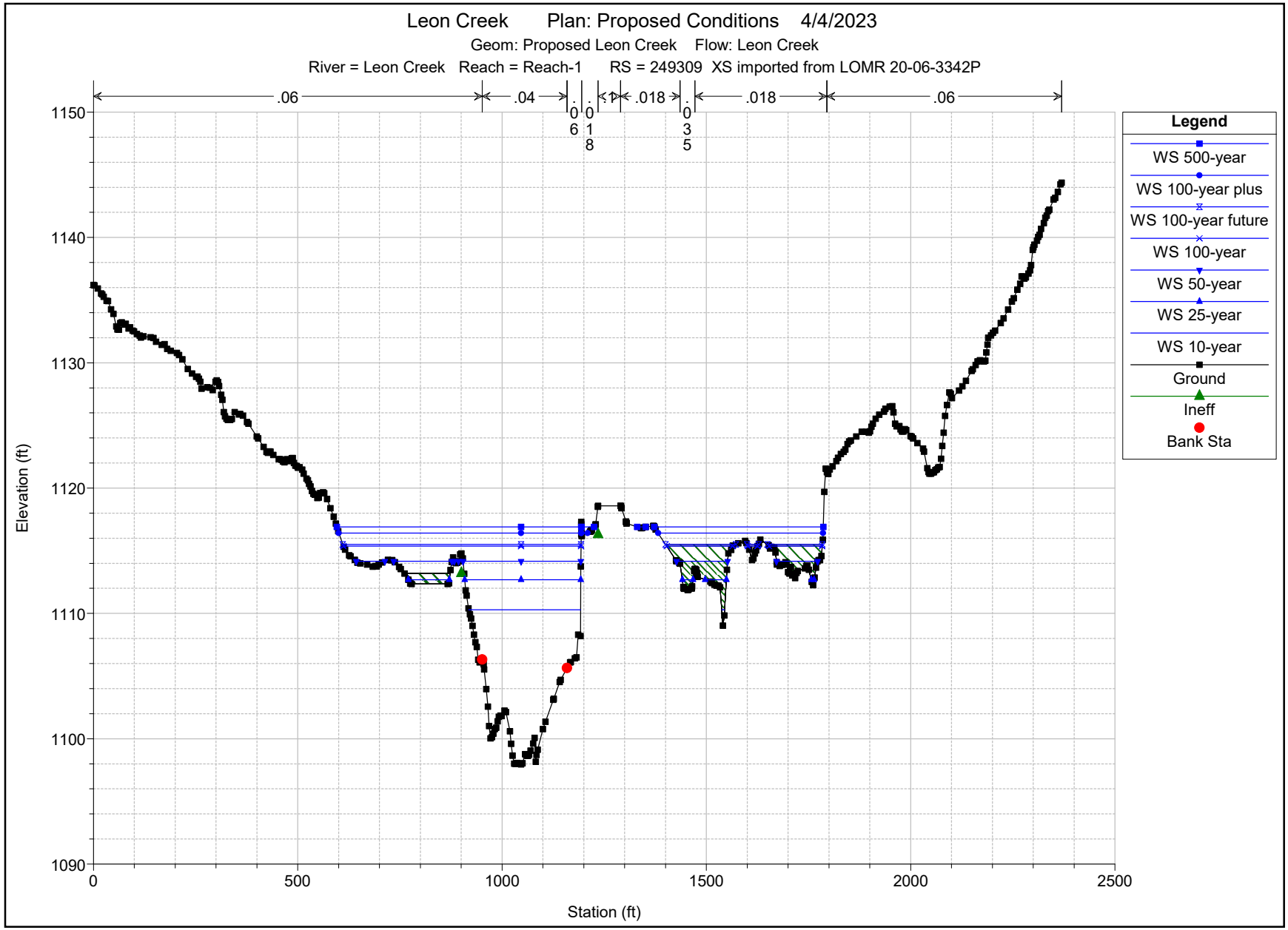
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Geom: Proposed Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 249309 XS imported from LOMR 20-06-3342P
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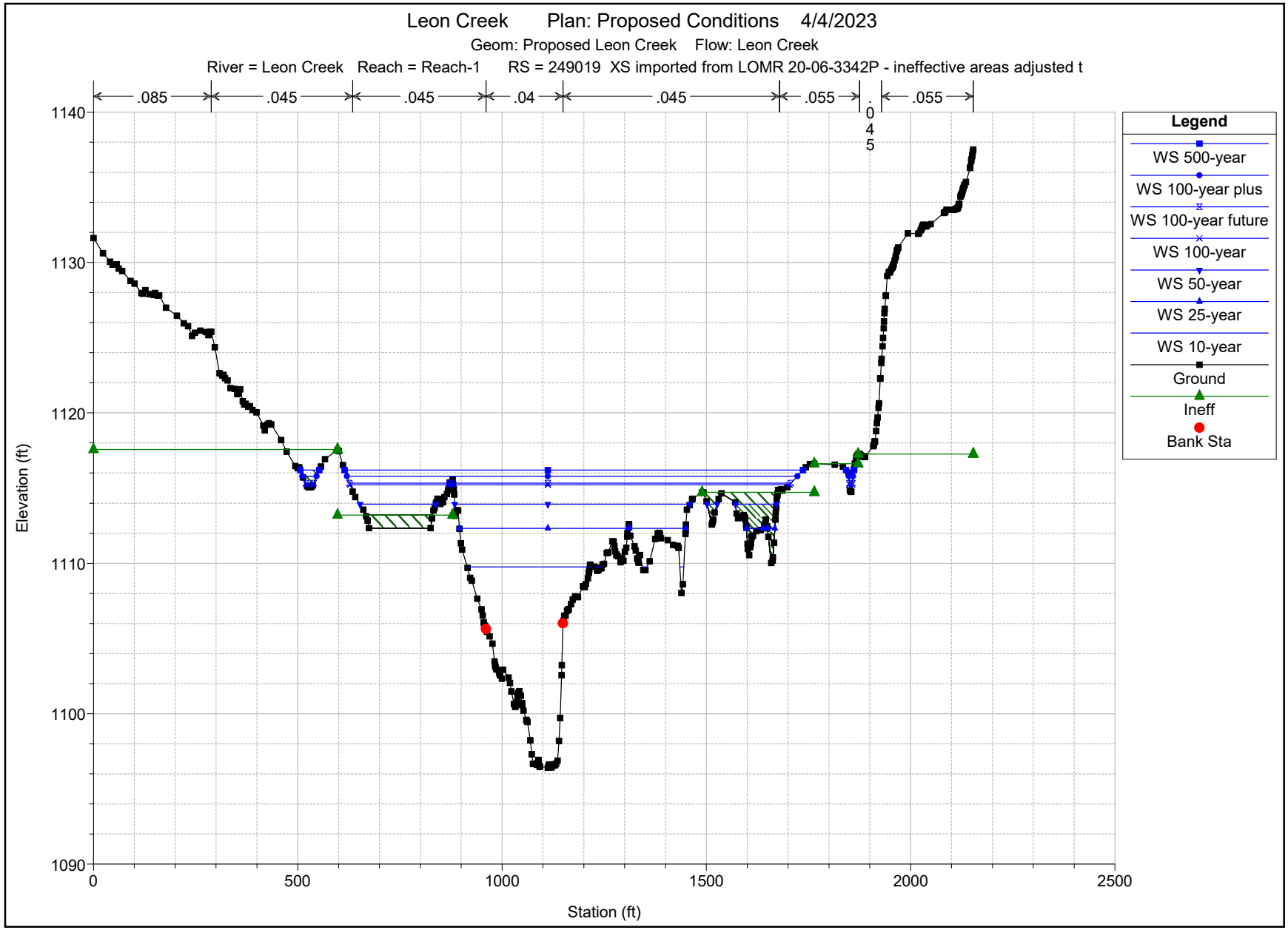
Leon Creek Plan: Proposed Conditions 4/4/2023
Geom: Proposed Leon Creek Flow: Leon Creek
River = Leon Creek Reach = Reach-1 RS = 249019 XS imported from LOMR 20-06-3342P - ineffective areas adjusted t
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WS 10-year
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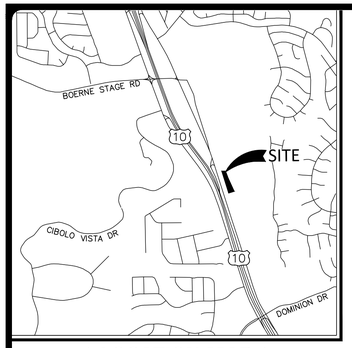
Station (ft)

# APPENDIX A
# EXHIBITS

# Proposed Site Plan



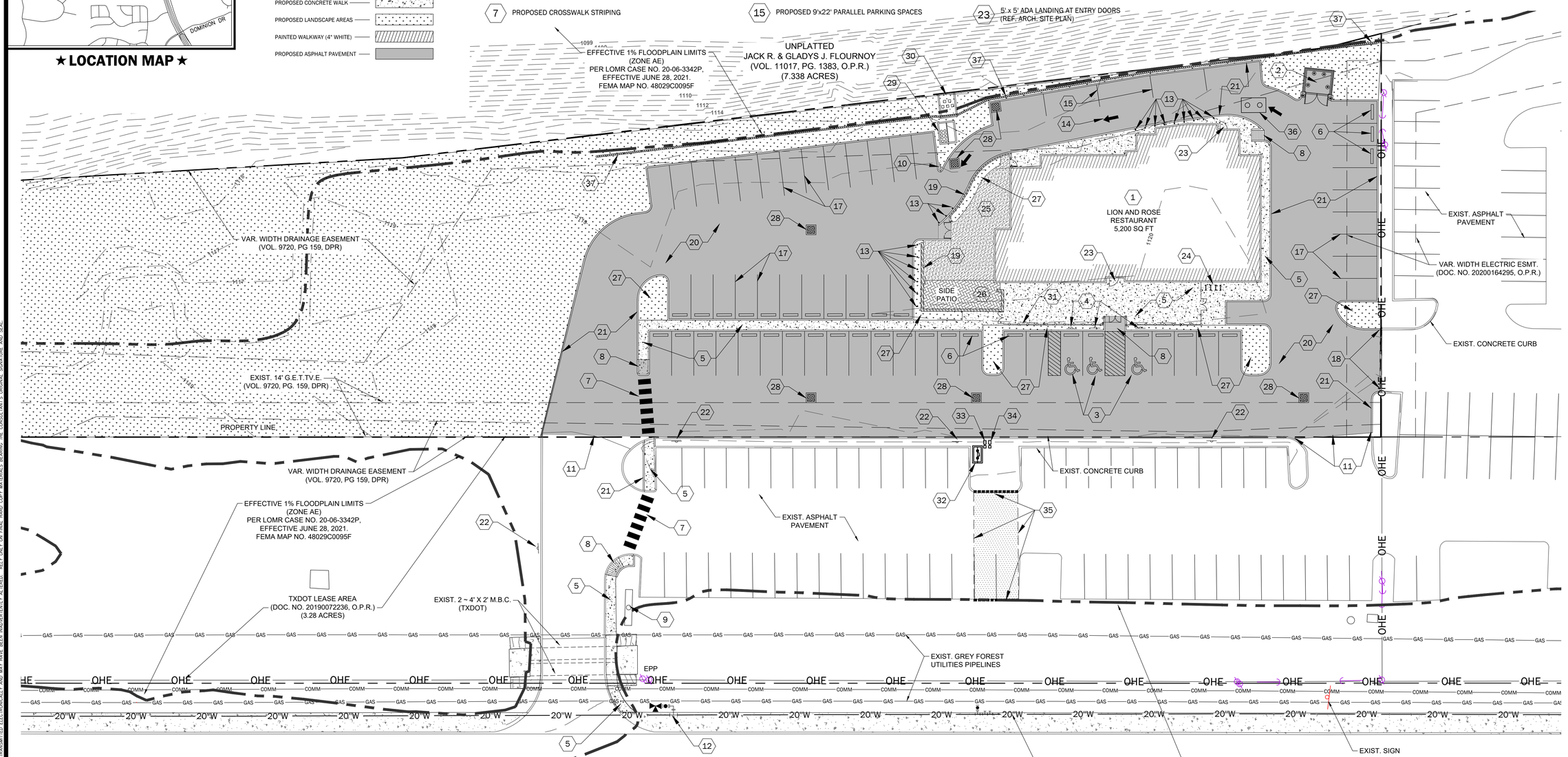

★ LOCATION MAP ★

## LEGEND

- EXISTING CONTOUR
- PROPERTY LINE
- EXISTING FENCE
- 100-YR EFFECTIVE FLOODPLAIN
- EXISTING 20" WATER MAIN — 20"W
- EXISTING SEWER MAIN — 33"SS
- EXISTING OVERHEAD ELECTRIC — OHE
- EXISTING GAS MAIN — GAS
- EXISTING COMMUNICATION LINE — COMM
- EXISTING UNDERGROUND ELECTRIC — UE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING POWER POLE — EPP
- PROPOSED CONCRETE WALK
- PROPOSED LANDSCAPE AREAS
- PAINTED WALKWAY (4" WHITE)
- PROPOSED ASPHALT PAVEMENT

## NOTES BY SYMBOL:

1. PROPOSED RESTAURANT STRUCTURE
2. DUMPSTER WITH ENCLOSURE WITH 7" THICK CONC. APRON REFER TO ARCH PLAN FOR DETAILS
3. ACCESSIBLE PARKING SPACE MARKINGS
4. ACCESSIBLE PARKING POLE SIGNAGE - 1 VAN ACCESSIBLE SIGN
5. PROPOSED CONCRETE SIDEWALK (REF. ARCH FOR STAINED CONCRETE LIMITS)
6. PROPOSED WHEELSTOP (TYP.)
7. PROPOSED CROSSWALK STRIPING
8. PROPOSED ACCESSIBLE RAMP & LANDING
9. PROPOSED PYLON SIGN (FOR REFERENCE ONLY - BY SEPARATE PERMIT)
10. PROPOSED "NO ENTRY" SIGN
11. SAWCUT & TIE TO EXISTING PAVEMENT AND CURB
12. PROPOSED FIRE HYDRANT
13. PROPOSED BOLLARDS
14. PROPOSED DRIVEWAY TRAFFIC FLOW DIRECTIONAL ARROW
15. PROPOSED 9'x22' PARALLEL PARKING SPACES
16. PROPOSED SITE LIGHTING (REF ELECTRICAL PLANS)
17. PROPOSED PARKING STRIPING (4" WHITE)
18. REMOVE EXIST. SAWTOOTH CURB & TIE TO EXIST. ASPHALT PAVEMENT & CONCRETE CURB
19. PROPOSED WALL (REF ARCH PLANS)
20. PROPOSED CONCRETE PAVEMENT (SEE PAVING PLAN)
21. PROPOSED CONCRETE CURB
22. PROPOSED FIRE LANE SIGN
23. 5'-x 5' ADA LANDING AT ENTRY DOORS (REF. ARCH. SITE PLAN)
24. PROPOSED BIKE RACKS (4 EA.)
25. PROPOSED ARTIFICIAL TURF AREA (REF ARCH PLANS)
26. PROPOSED SIDE PATIO WITH STAINED CONCRETE FLOORING (REF ARCH PLANS)
27. PROPOSED PLANTER (REF LANDSCAPE PLANS)
28. PROPOSED 3'x3' GRATE INLET
29. PROPOSED CONTECH JELLYFISH FILTER VAULT (TOP ELEV: 1120.67; INV OUT: 1115.00)
30. PROPOSED CONCRETE HEADWALL (SEE SITE DETAILS)
31. PROPOSED PATIO FENCE (REF ARCH PLANS)
32. FIRE SERVICE LINE DOUBLE CHECK DETECTOR ASSEMBLY VAULT
33. PROPOSED DOMESTIC WATER METER
34. PROPOSED IRRIGATION WATER METER
35. DEMO & REPLACE EXISTING ASPHALT PAVEMENT & CONCRETE CURB AS NEEDED FOR UTILITY INSTALLATION
36. PROPOSED GREASE TRAP (SEE UTILITY PLANS)
37. PROPOSED CONCRETE FENCE (REF ARCH PLANS)




## SITE PLAN NOTES:

1. ALL ACCESSIBLE RAMPS SHALL MEET ADA/TAS REQUIREMENTS.
2. SEE ARCHITECTURAL PLANS FOR STRUCTURAL/LANDSCAPE DIMENSION PLAN.
3. SEE ARCHITECTURAL/ELECTRICAL PLANS FOR LIGHTING DETAILS AND LOCATIONS.
4. ALL LIGHT POLE FOUNDATIONS, STANDS, AND FIXTURES TO BE DETERMINED BY THE ELECTRICAL ENGINEER.
5. REFERENCE LANDSCAPE PLANS FOR TREE PROTECTION PLANS/DETAILS.
6. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT OR LIMITS OF DIMENSIONS NECESSARY FOR CONSTRUCTION OF THE PROJECT.
7. ALL SIDEWALKS, CURBS, RAMPS AND DRIVE APPROACHES IN THE RIGHT OF WAY SHALL BE IN COMPLIANCE WITH CURRENT TEXAS ACCESSIBILITY STANDARDS AND CITY OF SAN ANTONIO DESIGN STANDARDS PRIOR TO FINAL INSPECTION APPROVAL.

INTERSTATE HIGHWAY 10
(ASPHALT PAVEMENT)
(ROW VARIES)

### LAND USE CHART

| PROPOSED DEVELOPMENT | LION & ROSE RESTAURANT |
|---|---|
| EXISTING ZONING | C-2 |
| PROPOSED USE | RESTAURANT |
| SITE AREA (AC) | 1.8 |
| LANDSCAPED AREA (SF) / (%) | 36,608 / 47% |
| IMPERVIOUS COVER (SF) / (%) | 41,800 / 53% |
| BUILDING AREA (SF) | 5,200 |
| MIN PARKING SPACES REQUIRED | 52 |
| MAX PARKING SPACES REQUIRED | 130 |
| PARKING SPACES PROVIDED | 63 |
| BIKE SPACES PROVIDED/REQUIRED | 4 / 4 |
| ADA SPACES PROVIDED/REQUIRED | 3 / 3 |

★ GRAPHIC SCALE ★

20 0 10 20 40

( IN FEET )
1 inch = 20 ft.

REVISIONS:

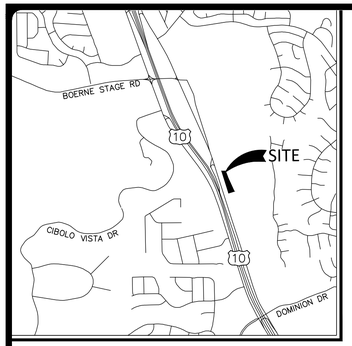
RAMONES ENGINEERING
611 W. MISTLETOE AVE | SAN ANTONIO, TX 78212 | 210.882.8365 | TBPELS F-17682

4/3/23
STATE OF TEXAS
NICHOLAS M. RAMONES
LICENSED CIVIL ENGINEER

PROPOSED SITE PLAN
for
# LION & ROSE RESTAURANT AT DOMINION CREEK
23330 IH-10 W, SAN ANTONIO, TX 78257

JOB #: C-2213
DATE: 1/28/2023
DESIGN: N.M.R.
DRAWN: N.M.R.
CHECKED:
SHEET: C-2.0

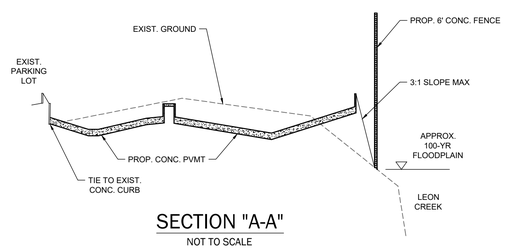
# Proposed Grading Plan



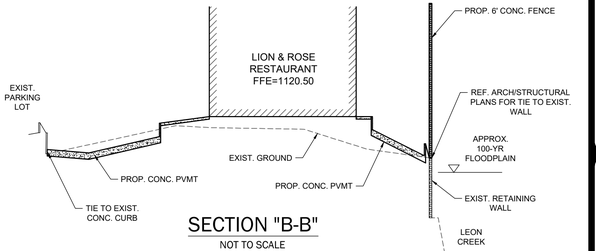

## ★ LOCATION MAP ★

# GRADING AND DRAINAGE NOTES:

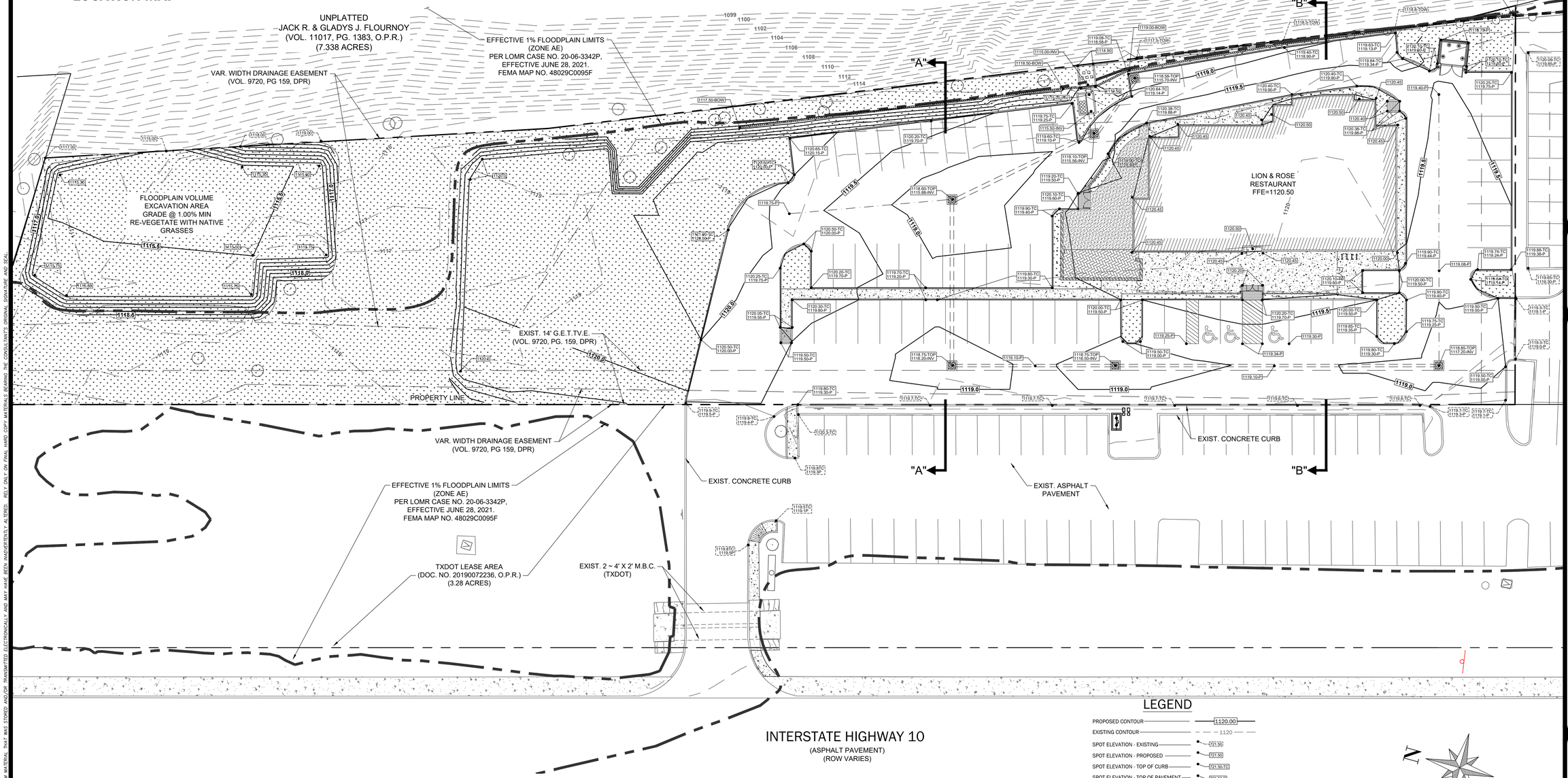
1. ALL GRADES AND CONTOURS SHOWN ARE FINAL, TOP OF FINISHED SURFACE ELEVATIONS. CONTRACTOR SHALL SUBTRACT PAVEMENT, BASE, TOPSOIL, MULCH, ETC. TO OBTAIN PROPER SUBGRADE ELEVATIONS.
2. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER. MINIMUM SLOPE 0.50%.
3. NO ABRUPT CHANGE OF GRADE SHALL OCCUR.
4. ALL DISTURBED AREAS SHALL BE REVEGETATED BY THE CONTRACTOR IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND ARCHITECTURAL LANDSCAPING PLANS.
5. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AT HIS EXPENSE.
6. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT WHERE NOT SPECIFICALLY COVERED IN THE PROJECT SPECIFICATIONS SHALL CONFORM TO ALL APPLICABLE CITY OF SAN ANTONIO SPECIFICATIONS FOR CONSTRUCTION AND BEXAR COUNTY PUBLIC WORKS STANDARD SPECIFICATIONS.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ORIGINAL, OR BETTER CONDITION, ANY DAMAGES DONE TO EXISTING SIGNS, UTILITIES, PAVEMENT, CURBS, SIDEWALKS OR DRIVEWAYS. (NO SEPARATE PAY ITEM)
8. DUE TO FEDERAL REGULATION TITLE 49, PART 192.181, CPS MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
9. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
11. ALL ON-SITE CURBS ARE 6" HIGH UNLESS OTHERWISE SPECIFIED.




## SECTION "A-A"
NOT TO SCALE




## SECTION "B-B"
NOT TO SCALE




## LEGEND

- PROPOSED CONTOUR — 1120.00
- EXISTING CONTOUR — 1120
- SPOT ELEVATION - EXISTING — 721.50
- SPOT ELEVATION - PROPOSED — 721.50
- SPOT ELEVATION - TOP OF CURB — 721.50-TC
- SPOT ELEVATION - TOP OF PAVEMENT — 721.50-P
- SPOT ELEVATION - TOP OF WALL — 721.50-TOW
- SPOT ELEVATION - BOTTOM OF WALL — 721.50-BOW
- SPOT ELEVATION - TOP OF INLET — 721.50-TOP
- SPOT ELEVATION - DRAIN INVERT — 721.50-INV
- PROPOSED GRATE INLET
- PROPOSED CONCRETE WALK
- PROPOSED LANDSCAPE AREAS

★ GRAPHIC SCALE ★

20 0 10 20 40

( IN FEET )
1 inch = 20 ft.

REVISIONS:

RAMONES ENGINEERING
611 W. MISTLETOE AVE | SAN ANTONIO, TX 78212 | 210.882.8365 | TBPELS F-17682

4/3/23

NICHOLAS M. RAMONES
LICENSED PROFESSIONAL ENGINEER

GRADING PLAN
for
**LION & ROSE RESTAURANT AT DOMINION CREEK**
**23330 IH-10 W, SAN ANTONIO, TX 78257**

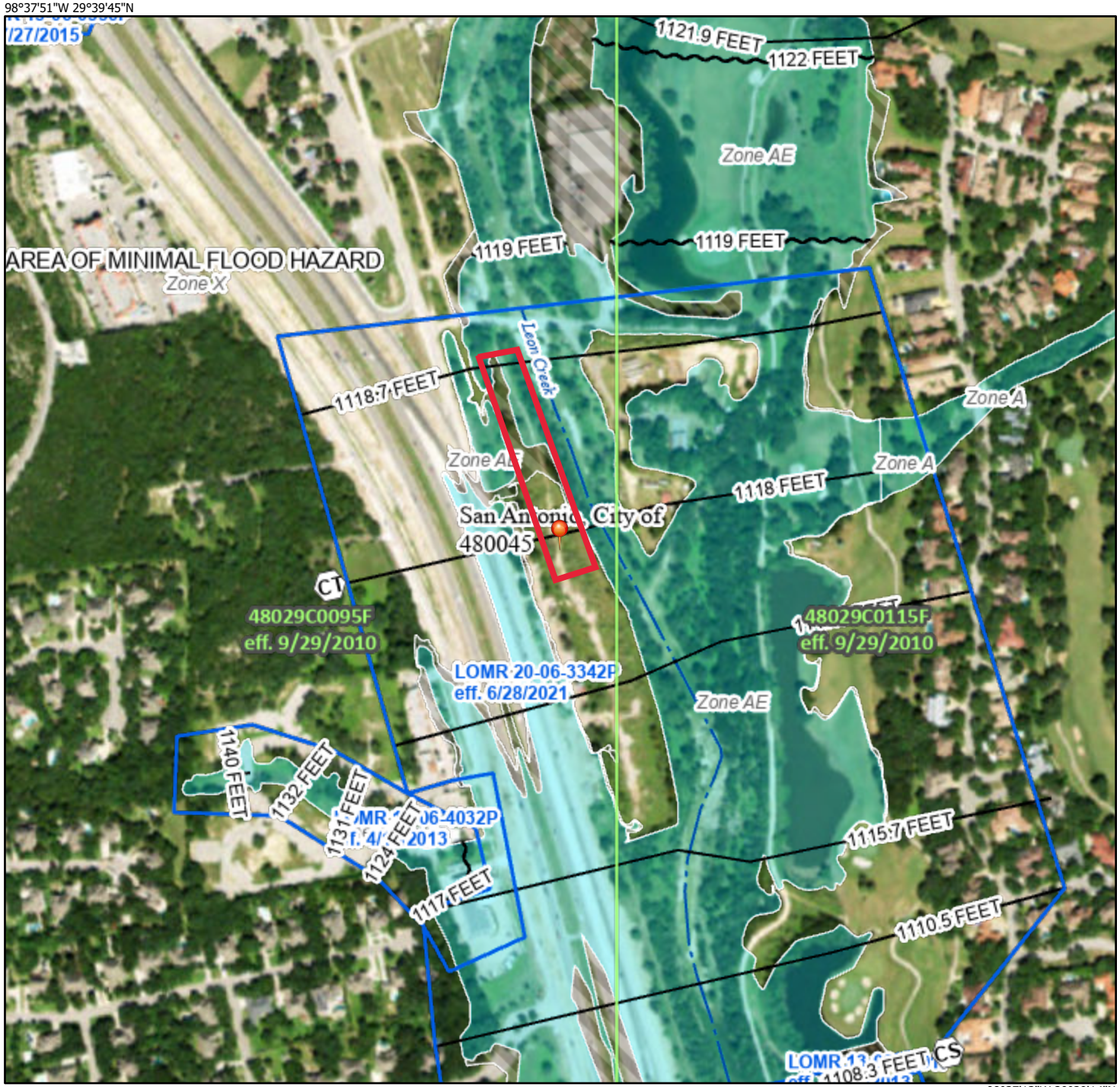
| | |
|---|---|
| JOB #: | C-2213 |
| DATE: | 1/28/2023 |
| DESIGN: | N.M.R. |
| DRAWN: | N.M.R. |
| CHECKED: | |
| SHEET : | C-6.0 |

# FEMA Firmette

# National Flood Hazard Layer FIRMette

FEMA

98°37'51"W 29°39'45"N




98°37'13"W 29°39'14"N

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

1:6,000

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

## Legend

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

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- 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
- 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 12/6/2022 at 10:56 AM 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.

# Recorded Subdivision Plat

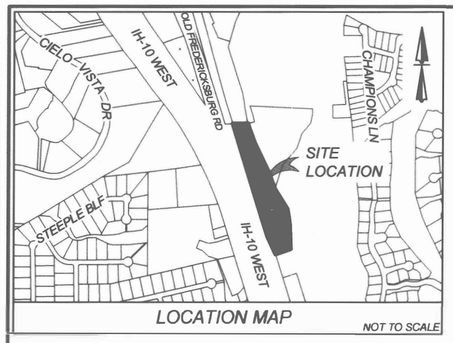
Plat Recorded on September 1, 2017
Volume 9720 Pages 159-163

THIS PLAT CONTAINS AMENDMENTS APPROVED BY THE DIRECTOR OF DEVELOPMENT SERVICES ON
8/16/17

# PLAT NUMBER 170007

PLAT ESTABLISHING
## DOMINION RETAIL

A 5.537 ACRE TRACT OF LAND, ESTABLISHING LOT 3, AND LOT 4, BLOCK 110, COUNTY BLOCK 16386, BEXAR COUNTY, TEXAS AND BEING THE SAME PROPERTY DESCRIBED IN DEED RECORDED IN VOLUME 14424, PAGE 1256 OF THE OFFICIAL PUBLIC RECORDS OF BEXAR COUNTY, TEXAS.



LOCATION MAP NOT TO SCALE

### IMPACT FEE PAYMENT NOTE:
WATER AND/OR WASTEWATER IMPACT FEES WERE NOT PAID AT THE TIME OF PLATTING FOR THIS PLAT. ALL IMPACT FEES MUST BE PAID PRIOR TO THE WATER METER SET AND/OR PRIOR TO THE WASTEWATER SERVICE CONNECTION.

### WASTEWATER EDU NOTE:
THE NUMBER OF WASTEWATER EQUIVALENT DWELLING UNITS (EDU's) PAID FOR THIS SUBDIVISION PLAT ARE KEPT ON FILE AT THE SAN ANTONIO WATER SYSTEM UNDER THE PLAT NUMBER ISSUED BY THE DEVELOPMENT SERVICE DEPARTMENT.

### ACCESS NOTE:
LOT OWNER(S) SHALL PROVIDE SHARED COMMON CROSS ACCESS IN ACCORDANCE WITH UDC 35-506(R)(3).

### BEXAR COUNTY MAINTENANCE NOTE:
THE MAINTENANCE OF ALL PRIVATE STREETS, OPEN SPACE, GREENBELTS, PARKS, DRAINAGE EASEMENTS AND EASEMENTS OF ANY NATURE WITHIN BORGFELD STORAGE SHALL BE THE RESPONSIBILITY OF THE LOT OWNERS OR THEIR SUCCESSORS AND NOT THE RESPONSIBILITY OF THE CITY OF SAN ANTONIO OR BEXAR COUNTY. TO INCLUDE BUT NOT LIMITED TO: LOT 1, BLOCK 21, C.B. 4852.

### SAWS HIGH PRESSURE NOTE:
A PORTION OF THE TRACT IS BELOW THE GROUND ELEVATION OF 1,215 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO.

### NOTES:
1. NO STRUCTURE, FENCES, WALLS OR OTHER OBSTRUCTIONS THAT IMPEDE DRAINAGE SHALL BE PLACED WITHIN THE LIMITS OF THE DRAINAGE EASEMENT SHOWN ON THIS PLAT. NO LANDSCAPING OR OTHER TYPE OF MODIFICATIONS, WHICH ALTER THE CROSS-SECTIONS OF THE DRAINAGE EASEMENT, AS APPROVED, SHALL BE ALLOWED WITHOUT THE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS. THE CITY OF SAN ANTONIO AND BEXAR COUNTY SHALL HAVE THE RIGHT TO INGRESS AND EGRESS OVER GRANTOR'S ADJACENT PROPERTY TO REMOVE ANY IMPEDING OBSTRUCTIONS PLACED WITHIN THE LIMITS OF SAID DRAINAGE EASEMENTS AND TO MAKE ANY MODIFICATIONS OR IMPROVEMENTS WITHIN SAID DRAINAGE EASEMENTS.
2. RESIDENTIAL FINISHED FLOOR ELEVATIONS MUST BE A MINIMUM OF EIGHT INCHES ABOVE FINISHED ADJACENT GRADE.
3. FINISHED FLOOR ELEVATIONS FOR STRUCTURES ON LOTS CONTAINING FLOODPLAIN OR ADJACENT TO THE FLOODPLAIN SHALL BE NO LESS THAN ONE FOOT ABOVE THE BASE FLOOD ELEVATION (BFE) OF THE REGULATORY FLOODPLAIN. NONRESIDENTIAL STRUCTURES SHALL BE ELEVATED OR FLOOD PROOFED TO NO LESS THAN ONE FOOT ABOVE THE BFE OF THE REGULATORY FLOODPLAIN.

### FLOODPLAIN NOTE:
THE VARIABLE WIDTH DRAINAGE EASEMENT OF RIGHT-OF-WAYS AND EASEMENTS WERE DELINEATED TO CONTAIN THE BOUNDARIES OF THE 1% ANNUAL CHANCE (100 YEAR) FLOOD ZONE ESTABLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) IN ACCORDANCE WITH LOMR 15-06-1357P EFFECTIVE MARCH 9, 2016 WHICH REVISES DFIRM PANEL 095, DATED SEPTEMBER 29, 2010, AND LOMR 15-06-2623P EFFECTIVE FEBRUARY 3, 2016 WHICH REVISES DFIRM PANEL 115, DATED SEPTEMBER 29, 2010, AND THE LOWER OF THE 4% ANNUAL CHANCE (25 YEAR) ULTIMATE PLUS FREEBOARD OR THE 1% ANNUAL CHANGE (100 YEAR) ULTIMATE DEVELOPMENT CONDITION WATER SURFACE ELEVATION. CONSTRUCTION WITHIN THESE EASEMENTS IS PROHIBITED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE BEXAR COUNTY OR CITY OF SAN ANTONIO FLOODPLAIN ADMINISTRATOR. BEXAR COUNTY OR SAN ANTONIO PUBLIC WORKS SHALL HAVE ACCESS TO THESE DRAINAGE EASEMENTS AS NECESSARY.

THE 1% ANNUAL CHANCE (100-YEAR) FLOODPLAIN LIMITS SHOWN ON THIS PLAT WERE DELINEATED UPON A CONDITIONAL LETTER OF MAP REVISIONS (CLOMR) STUDY PREPARED BY KFW ENGINEERS AND APPROVED BY FEMA ON OCTOBER 25, 2013 CASE NO. 13-06-3196R. NO BUILDING PERMITS WILL BE ISSUED WITHIN THE FLOODPLAIN LIMITS SHOWN HEREON TO BE THE CURRENTLY EFFECTIVE FEMA FLOODPLAIN. UNTIL SAID CLOMR STUDY IS ACCEPTED BY FEMA. CONSTRUCTION, IMPROVEMENTS, OR STRUCTURES WITHIN THE FLOODPLAIN ARE PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL FROM THE CITY OF SAN ANTONIO. FINISHED FLOOR ELEVATIONS FOR STRUCTURES ON LOTS CONTAINING FLOODPLAIN OR ADJACENT TO THE FLOODPLAIN SHALL BE NO LESS THAN ONE FOOT ABOVE THE BASE FLOOD ELEVATION (BFE) OF THE REGULATORY FLOODPLAIN. NONRESIDENTIAL STRUCTURES SHALL BE ELEVATED OR FLOOD PROOFED TO NO LESS THAN ONE FOOT ABOVE THE BFE OF THE

### C.P.S NOTES:
1. THE CITY OF SAN ANTONIO AS PART OF ITS ELECTRIC AND GAS SYSTEM (CITY PUBLIC SERVICE BOARD) IS HEREBY DEDICATED THE EASEMENTS AND RIGHTS-OF-WAY FOR ELECTRIC AND GAS DISTRIBUTION AND SERVICE FACILITIES IN THE AREAS DESIGNATED ON THIS PLAT AS "ELECTRIC EASEMENT", "ANCHOR EASEMENT", "SERVICE EASEMENT", "OVERHANG EASEMENT", "UTILITY EASEMENT", "GAS EASEMENT", AND "TRANSFORMER EASEMENT", FOR THE PURPOSE OF INSTALLING, CONSTRUCTING, RECONSTRUCTING, MAINTAINING, REMOVING, INSPECTING, PATROLLING, AND ERECTING POLES, HANGING OR BURYING WIRES, CABLES, CONDUITS, PIPELINES OR TRANSFORMERS, EACH WITH ITS NECESSARY APPURTENANCES, TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS OVER GRANTOR'S ADJACENT LAND, THE RIGHT TO RELOCATE SAID FACILITIES WITHIN SAID EASEMENT AND RIGHT-OF-WAY AREAS, AND THE RIGHT TO REMOVE FROM SAID LANDS ALL TREES OR PARTS THEREOF, OR OTHER OBSTRUCTIONS WHICH ENDANGER OR MAY INTERFERE WITH THE EFFECIENCY OF SAID LINES OR APPURTANCES THERETO. IT IS AGREED AND UNDERSTOOD THAT NO BUILDINGS, CONCRETE SLABS, OR WALLS WILL BE PLACED WITHIN SAID EASEMENT AREAS.
2. ANY CPS MONETARY LOSS RESULTING FROM MODIFICATIONS REQUIRED OF CPS ENERGY EQUIPMENT, LOCATED WITHIN SAID EASEMENT, DUE TO GRADE CHANGES OR GROUND ELEVATION ALTERATIONS SHALL BE CHARGED TO THE PERSON OR PERSONS DEEMED RESPONSIBLE FOR SAID GRADE CHANGES OR GROUND ELEVATION ALTERATION.
3. THIS PLAT DOES NOT AMEND, ALTER, RELEASE OR OTHERWISE AFFECT ANY EXISTING ELECTRIC, GAS, WATER, SEWER, DRAINAGE, TELEPHONE, CABLE EASEMENTS OR ANY OTHER EASEMENTS FOR UTILITIES UNLESS THE CHANGES TO SUCH EASEMENTS ARE DESCRIBED BELOW.

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### TXDOT NOTE
1. FOR RESIDENTIAL DEVELOPMENT DIRECTLY ADJACENT TO STATE RIGHT OF WAY, THE DEVELOPER SHALL BE RESPONSIBLE FOR ADEQUATE SET-BACK AND/OR SOUND ABATEMENT MEASURES FOR FUTURE NOISE MITIGATION.
2. MAXIMUM ACCESS POINTS TO STATE HIGHWAY FROM THIS PROPERTY WILL BE REGULATED AS DIRECTED BY "ACCESS MANAGEMENT MANUAL." THIS PROPERTY IS ELIGIBLE FOR A MAXIMUM COMBINED TOTAL OF TWO(2) ACCESS POINT(S) ALONG I-10 FRONTAGE BASED ON THE OVERALL PLATTED HIGHWAY FRONTAGE OF 1,401.58 L.F.

## LEGEND

| | | |
|---|---|---|
| O SIR | = | SET ½" IRON ROD WITH BLUE CAP STAMPED "KFW SURVEYING" |
| O FIR | = | FOUND 1/2" IRON ROD OR AS NOTED |
| ☒ TxDOT MON | = | TEXAS DEPARTMENT OF TRANSPORTATION MONUMENT TYPE I OR II AS NOTED |
| O FIP | = | FOUND IRON PIPE |
| O FPK | = | FOUND PK NAIL |
| R.O.W. | = | RIGHT-OF-WAY |
| D.P.R. | = | DEED AND PLAT RECORDS OF BEXAR COUNTY, TEXAS |
| O.P.R. | = | OFFICIAL PUBLIC RECORDS OF BEXAR COUNTY, TEXAS |
| | = | ULTIMATE 100-YEAR FEMA FLOOD PLAIN LINE |
| | = | CLOMR FLOOD PLAIN |
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### SURVEYOR NOTES:
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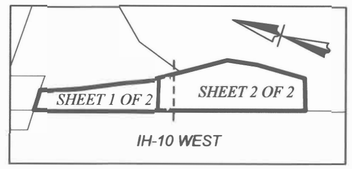
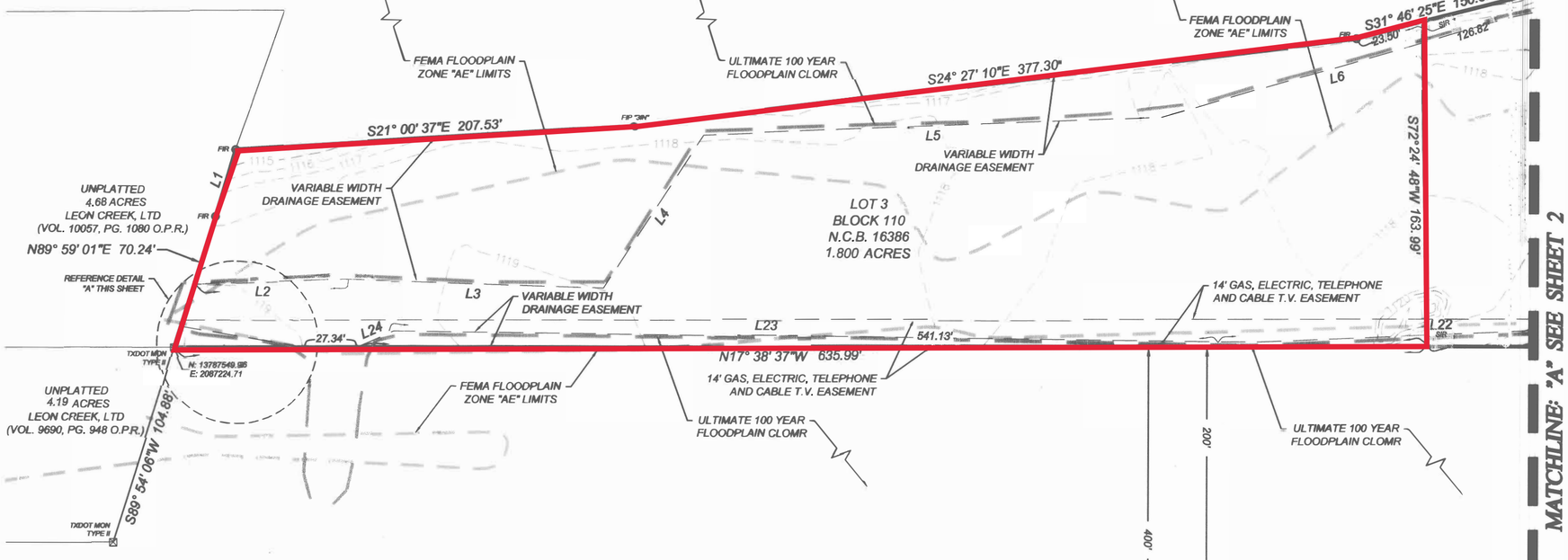
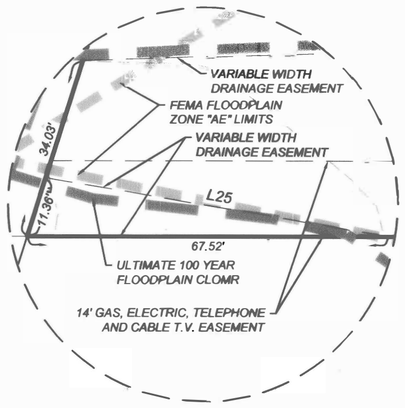
2. THE COORDINATES SHOWN HEREON ARE GRID WITH A COMBINED SCALE FACTOR OF 1.00017.
3. THE ELEVATIONS FOR THIS SURVEY ARE BASED ON NAVD88 (GEOID09A).



INDEX MAP
NOT-TO-SCALE



DETAIL "A"
SCALE 1" = 20'

STATE OF TEXAS
COUNTY OF BEXAR

I HEREBY CERTIFY THAT PROPER ENGINEERING CONSIDERATION HAS BEEN GIVEN THIS PLAT TO THE MATTERS OF STREETS, LOTS, AND DRAINAGE LAYOUT. TO THE BEST OF MY KNOWLEDGE THIS PLAT CONFORMS TO ALL REQUIREMENTS OF THE UNIFIED DEVELOPMENT CODE, EXCEPT FOR THOSE VARIANCES GRANTED BY THE SAN ANTONIO PLANNING COMMISSION

5/15/2017
BENJAMIN D. BUNKER — DATE
LICENSED PROFESSIONAL ENGINEER NO. 108512
KFW ENGINEERS
BBUNKER@KFWENGINEERS.COM
3421 PAESANOS PARKWAY, SUITE 200
SAN ANTONIO, TEXAS 78231
PHONE: 210-979-8444
FAX: 210-979-8441

STATE OF TEXAS
COUNTY OF BEXAR

I HEREBY CERTIFY THAT THE ABOVE PLAT CONFORMS TO THE MINIMUM STANDARDS SET FORTH BY THE TEXAS BOARD OF PROFESSIONAL LAND SURVEYING ACCORDING TO AN ACTUAL SURVEY MADE ON THE GROUND BY:

TERESA A. SEIDEL
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5672
KFW SURVEYING, LLC
TSEIDEL@KFWENGINEERS.COM
3421 PAESANOS PKWY., SUITE 101
SAN ANTONIO, TEXAS 78231
PHONE: 210-979-8444
FAX: 210-979-8441

6/2/2017


KFW ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231 • TBPE Firm #9513
Phone: (210) 979-8444 • Fax: (210) 979-8441 • TBPLS Firm #10122300


SCALE : 1"= 50'
0' 50' 100'

OWNER/DEVELOPER:
ABISO DOMINION CREEK, LP.
BLAKE HONIGBLUM
970 ISOM RD.
SAN ANTONIO, TEXAS 78216

STATE OF TEXAS
COUNTY OF BEXAR

THE OWNER OF LAND SHOWN ON THIS PLAT, IN PERSON OR THROUGH A DULY AUTHORIZED AGENT, DEDICATES TO THE USE OF THE PUBLIC, EXCEPT AREAS IDENTIFIED AS PRIVATE OR PART OF AN ENCLAVE OR PLANNED UNIT DEVELOPMENT, FOREVER ALL STREETS, ALLEYS, PARKS, WATERCOURSES, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSE AND CONSIDERATION THEREIN EXPRESSED.

OWNER/DEVELOPER:
ABISO DOMINION, LP.
BLAKE HONIGBLUM
970 ISOM RD.
SAN ANTONIO, TEXAS 78216

STATE OF TEXAS
COUNTY OF BEXAR

BEFORE ME, THE UNDERSIGNED AUTHORITY ON THIS DAY PERSONALLY APPEARED Blake Honigblum KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT, AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED AND IN THE CAPACITY THEREIN STATED.

GIVEN UNDER MY HAND AND SEAL OF OFFICE
THIS 2nd DAY OF June A.D. 2017
Gretchen H. Sellard
NOTARY PUBLIC BEXAR COUNTY TEXAS

GRETCHEN H. SELLARD
Notary Public
State of Texas
My Comm. Exp. 07-26-2018

THIS PLAT OF DOMINION RETAIL HAS BEEN SUBMITTED TO THE CITY OF SAN ANTONIO, TEXAS, AND HAVING BEEN REVIEWED BY THE DIRECTOR OF DEVELOPMENT SERVICES, IS HEREBY APPROVED IN ACCORDANCE WITH STATE OR LOCAL LAWS AND REGULATIONS, AND/OR WHERE ADMINISTRATIVE EXCEPTION(S) HAVE BEEN GRANTED.

DATED THIS 21 DAY OF June A.D. 20 17
BY: DIRECTOR OF DEVELOPMENT SERVICES

CITY OF SAN ANTONIO

STATE OF TEXAS
COUNTY OF BEXAR

I, _____, COUNTY CLERK OF BEXAR COUNTY, DO HEREBY CERTIFY THAT THIS PLAT WAS FILED FOR RECORD IN MY OFFICE, ON THE ____ DAY OF _____ A.D. 20__ AT ____ M. AND DULY RECORDED THE ____ DAY OF _____ A.D. 20__ AT ____ M. IN THE DEED AND PLAT RECORDS OF BEXAR COUNTY IN BOOK/VOLUME _____ ON PAGE _____

IN TESTIMONY WHEREOF, WITNESS MY HAND AND OFFICIAL SEAL OF OFFICE, THIS ____ DAY OF _____ A.D. 20__

COUNTY CLERK, BEXAR COUNTY, TEXAS
BY _____, DEPUTY

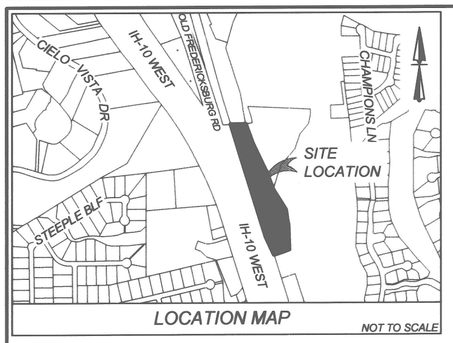


DRAWN BY: AB
Date: May 11, 2017, 10:13am User ID: abustillos
File: M:\554\02\01\Design\Civil\PLAT\PL5540201.dwg

THIS PLAT CONTAINS AMENDMENTS APPROVED BY THE DIRECTOR OF DEVELOPMENT SERVICES ON

6/16/17

Plat Recorded on September 1, 2017
Volume 9720 Pages 159-163




LOCATION MAP NOT TO SCALE

**IMPACT FEE PAYMENT NOTE:**

*WATER AND/OR WASTEWATER IMPACT FEES WERE NOT PAID AT THE TIME OF PLATTING FOR THIS PLAT. ALL IMPACT FEES MUST BE PAID PRIOR TO THE WATER METER SET AND/OR PRIOR TO THE WASTEWATER SERVICE CONNECTION.*

**WASTEWATER EDU NOTE:**

*THE NUMBER OF WASTEWATER EQUIVALENT DWELLING UNITS (EDU's) PAID FOR THIS SUBDIVISION PLAT ARE KEPT ON FILE AT THE SAN ANTONIO WATER SYSTEM UNDER THE PLAT NUMBER ISSUED BY THE DEVELOPMENT SERVICE DEPARTMENT.*

**ACCESS NOTE:**

*LOT OWNER(S) SHALL PROVIDE SHARED COMMON CROSS ACCESS IN ACCORDANCE WITH UDC 35-506(R(3).*

**BEXAR COUNTY MAINTENANCE NOTE:**

*THE MAINTENANCE OF ALL PRIVATE STREETS, OPEN SPACE, GREENBELTS, PARKS, DRAINAGE EASEMENTS AND EASEMENTS OF ANY NATURE WITHIN BORGFELD STORAGE SHALL BE THE RESPONSIBILITY OF THE LOT OWNERS OR THEIR SUCCESSORS AND NOT THE RESPONSIBILITY OF THE CITY OF SAN ANTONIO OR BEXAR COUNTY. TO INCLUDE BUT NOT LIMITED TO: LOT 1, BLOCK 21, C.B. 4852.*

**SAWS HIGH PRESSURE NOTE:**

*A PORTION OF THE TRACT IS BELOW THE GROUND ELEVATION OF 1,215 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO.*

**NOTES:**

1. *NO STRUCTURE, FENCES, WALLS OR OTHER OBSTRUCTIONS THAT IMPEDE DRAINAGE SHALL BE PLACED WITHIN THE LIMITS OF THE DRAINAGE EASEMENT SHOWN ON THIS PLAT. NO LANDSCAPING OR OTHER TYPE OF MODIFICATIONS, WHICH ALTER THE CROSS-SECTIONS OF THE DRAINAGE EASEMENT, AS APPROVED, SHALL BE ALLOWED WITHOUT THE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS. THE CITY OF SAN ANTONIO AND BEXAR COUNTY SHALL HAVE THE RIGHT TO INGRESS AND EGRESS OVER GRANTOR'S ADJACENT PROPERTY TO REMOVE ANY IMPEDING OBSTRUCTIONS PLACED WITHIN THE LIMITS OF SAID DRAINAGE EASEMENTS AND TO MAKE ANY MODIFICATIONS OR IMPROVEMENTS WITHIN SAID DRAINAGE EASEMENTS.*
2. *RESIDENTIAL FINISHED FLOOR ELEVATIONS MUST BE A MINIMUM OF EIGHT INCHES ABOVE FINISHED ADJACENT GRADE.*
3. *FINISHED FLOOR ELEVATIONS FOR STRUCTURES ON LOTS CONTAINING FLOODPLAIN OR ADJACENT TO THE FLOODPLAIN SHALL BE NO LESS THAN ONE FOOT ABOVE THE BASE FLOOD ELEVATION (BFE) OF THE REGULATORY FLOODPLAIN. NONRESIDENTIAL STRUCTURES SHALL BE ELEVATED OR FLOOD PROOFED TO NO LESS THAN ONE FOOT ABOVE THE BFE OF THE REGULATORY FLOODPLAIN.*

**FLOODPLAIN NOTE:**

*THE VARIABLE WIDTH DRAINAGE EASEMENT OF RIGHT-OF-WAYS AND EASEMENTS WERE DELINEATED TO CONTAIN THE BOUNDARIES OF THE 1% ANNUAL CHANCE (100 YEAR) FLOOD ZONE ESTABLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) IN ACCORDANCE WITH LOMR 15-06-1357P EFFECTIVE MARCH 9, 2016 WHICH REVISES DFIRM PANEL 095, DATED SEPTEMBER 29, 2010, AND LOMR 15-06-2623P EFFECTIVE FEBRUARY 3, 2016 WHICH REVISES DFIRM PANEL 115, DATED SEPTEMBER 29, 2010, AND THE LOWER OF THE 4% ANNUAL CHANCE (25 YEAR) ULTIMATE PLUS FREEBOARD OR THE 1% ANNUAL CHANGE (100 YEAR) ULTIMATE DEVELOPMENT CONDITION WATER SURFACE ELEVATION. CONSTRUCTION WITHIN THESE EASEMENTS IS PROHIBITED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE BEXAR COUNTY OR CITY OF SAN ANTONIO FLOODPLAIN ADMINISTRATOR. BEXAR COUNTY OR SAN ANTONIO PUBLIC WORKS SHALL HAVE ACCESS TO THESE DRAINAGE EASEMENTS AS NECESSARY.*

*THE 1% ANNUAL CHANCE (100-YEAR) FLOODPLAIN LIMITS SHOWN ON THIS PLAT WERE DELINEATED UPON A CONDITIONAL LETTER OF MAP REVISIONS (CLOMR) STUDY PREPARED BY KFW ENGINERS AND APPROVED BY FEMA ON OCTOBER 25, 2013 CASE NO. 13-06-3186R. NO BUILDING PERMITS WILL BE ISSUED WITHIN THE FLOODPLAIN LIMITS SHOWN HEREON TO BE THE CURRENTLY EFFECTIVE FEMA FLOODPLAIN, UNTIL SAID CLOMR STUDY IS ACCEPTED BY FEMA. CONSTRUCTION, IMPROVEMENTS, OR STRUCTURES WITHIN THE FLOODPLAIN ARE PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL FROM THE CITY OF SAN ANTONIO. FINISHED FLOOR ELEVATIONS FOR STRUCTURES ON LOTS CONTAINING FLOODPLAIN OR ADJACENT TO THE FLOODPLAIN SHALL BE NO LESS THAN ONE FOOT ABOVE THE BASE FLOOD ELEVATION (BFE) OF THE REGULATORY FLOODPLAIN. NONRESIDENTIAL STRUCTURES SHALL BE ELEVATED OR FLOOD PROOFED TO NO LESS THAN ONE FOOT ABOVE THE BFE OF THE*

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| | | |
|---|---|---|
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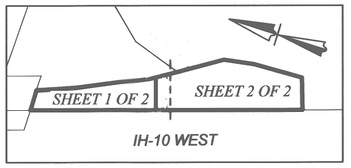
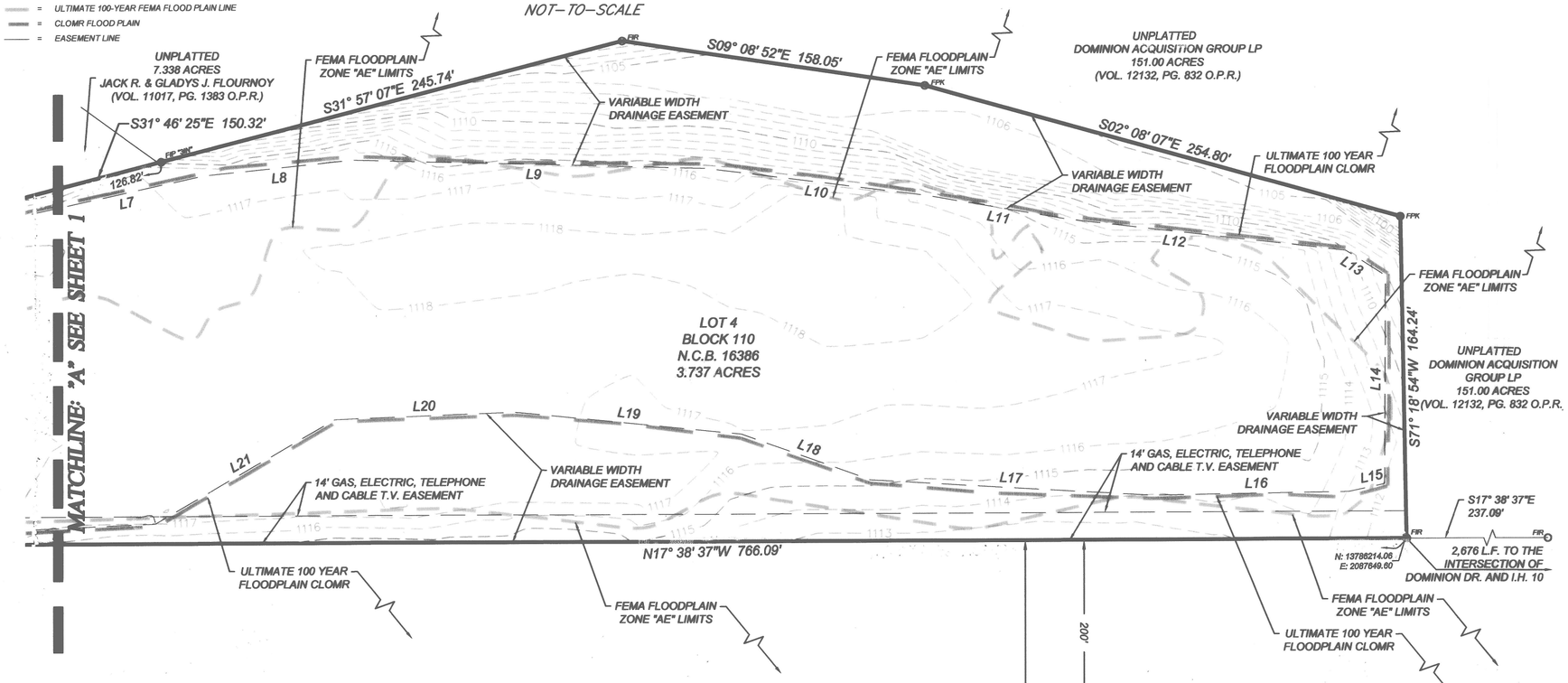



INDEX MAP
NOT–TO–SCALE




**INTERSTATE HIGHWAY 10**
**(VARIABLE WIDTH RIGHT-OF-WAY)**

| Line Table | | |
|---|---|---|
| LINE # | LENGTH | DIRECTION |
| L1 | 35.90 | N89°00'38"E |
| L2 | 77.38 | S19°23'16"E |
| L3 | 135.07 | S15°46'27"E |
| L4 | 94.13 | S74°14'37"E |
| L5 | 238.02 | S19°45'04"E |
| L6 | 186.28 | S33°29'46"E |
| L7 | 91.88 | S29°45'10"E |
| L8 | 76.62 | S23°17'23"E |
| L9 | 183.37 | S16°06'03"E |

| Line Table | | |
|---|---|---|
| LINE # | LENGTH | DIRECTION |
| L10 | 115.51 | S10°28'42"E |
| L11 | 74.55 | S07°58'38"E |
| L12 | 142.81 | S11°02'55"E |
| L13 | 24.24 | S14°36'14"W |
| L14 | 106.32 | S72°38'06"W |
| L15 | 18.84 | N29°20'38"W |
| L16 | 102.24 | N18°27'23"W |
| L17 | 145.13 | N14°18'09"W |
| L18 | 70.80 | N01°57'07"W |

| Line Table | | |
|---|---|---|
| LINE # | LENGTH | DIRECTION |
| L19 | 117.75 | N11°59'41"W |
| L20 | 92.99 | N19°48'06"W |
| L21 | 106.63 | N47°16'21"W |
| L22 | 195.93 | N19°58'21"W |
| L23 | 446.23 | N16°51'37"W |
| L24 | 20.74 | N41°21'56"W |
| L25 | 64.98 | N06°03'07"W |

STATE OF TEXAS
COUNTY OF BEXAR

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5/15/2017
DATE


BENJAMIN D. BUNKER
LICENSED PROFESSIONAL ENGINEER NO. 106512
KFW ENGINEERS
BBUNKER@KFWENGINEERS.COM
3421 PAESANOS PARKWAY, SUITE 200
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TERESA A. SEIDEL
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SAN ANTONIO, TEXAS 78231
PHONE: 210-979-8444
FAX: 210-979-8441


6/2/2017

# PLAT NUMBER 170007

*PLAT ESTABLISHING*
## DOMINION RETAIL

*A 5.537 ACRE TRACT OF LAND, ESTABLISHING LOT 3, AND LOT 4, BLOCK 110, COUNTY BLOCK 16386, BEXAR COUNTY, TEXAS AND BEING THE SAME PROPERTY DESCRIBED IN DEED RECORDED IN VOLUME 14424, PAGE 1256 OF THE OFFICIAL PUBLIC RECORDS OF BEXAR COUNTY, TEXAS.*


KFW ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231 • TBPE Firm #9513
Phone: (210) 979-8444 • Fax: (210) 979-8441 • TBPLS Firm #10122300


SCALE : 1"= 50'

0' 50' 100'

*OWNER/DEVELOPER:*
*ABISO DOMINION CREEK, LP.*
*BLAKE HONIGBLUM*
*970 ISOM RD.*
*SAN ANTONIO, TEXAS 78216*

*STATE OF TEXAS*
*COUNTY OF BEXAR*

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*SAN ANTONIO, TEXAS 78216*

GRETCHEN H. SELLARD
Notary Public
State of Texas
My Comm. Exp. 07-26-2018

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*GIVEN UNDER MY HAND AND SEAL OF OFFICE*
*THIS* 2nd *DAY OF* June *A.D.* 2017
Gretchen H. Sellard
*NOTARY PUBLIC* *BEXAR COUNTY TEXAS*

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*DATED THIS* 21 *DAY OF* June *A.D. 20* 17

*BY:* Melissa Ruiz
*DIRECTOR OF DEVELOPMENT SERVICES*

CITY OF SAN ANTONIO

*STATE OF TEXAS*
*COUNTY OF BEXAR*

*I,* _____, *COUNTY CLERK OF BEXAR COUNTY, DO HEREBY CERTIFY THAT THIS PLAT WAS FILED FOR RECORD IN MY OFFICE, ON THE* _____ *DAY OF* _____, *A.D. 20* ____ *AT* _____ *M. AND DULY RECORDED THE* _____ *DAY OF* _____, *A.D. 20* ____ *AT* _____ *M. IN THE DEED AND PLAT RECORDS OF BEXAR COUNTY IN BOOK/VOLUME* _____ *ON PAGE* _____.

*IN TESTIMONY WHEREOF, WITNESS MY HAND AND OFFICIAL SEAL OF OFFICE, THIS* _____ *DAY OF* _____ *A.D. 20* ____

*COUNTY CLERK, BEXAR COUNTY, TEXAS*
*BY:* _____, *DEPUTY*

PAGE 2 OF 2

DRAWN BY: AB

Date: May 11, 2017, 10:14am User ID: abustillos
File: M:\554\02\01\Design\Civil\PLAT\PL5540201.dwg

# APPENDIX B
# FORMS

# FILO Form

SWMP#_____

# REGIONAL STORM WATER MANAGEMENT PARTICIPATION FORM

## General Information

**Plat / AP #/ Other:** _____ Name of the Site: Lion & Rose at Dominion Creek ☒ **COSA (ICL)** ☐ **ETJ**

Address of the Site: 23330 I-10 W, San Antonio, Tx 78257 BCAD Parcel ID: **1271224**

Engineer/Contact: Nicholas Ramones, PE FIRM: 48029C0095F Phone: 210-882-8365

Owner/Developer: GC SA Properties LLC Phone: 210-645-4322

## Development Information

*The information is mandatory and will be used to calculate the participation fee and to track changes in impervious cover. FILO [Fee in Lieu of Detention] = Increased Impervious Cover (sq. ft.) multiplied by FILO Rate ($/sq. ft.)*

**Type of Development (FILO Rate $/sq. ft.):**

☐ Single Family ($ 0.15/sq. ft) ☐ Multi Family ($ 0.20/sq. ft.)

☐ Public Facilities ($ 0.20/sq. ft.) ☐ Industrial ($ 0.20/sq. ft) ☒ Commercial ($ 0.25/sq. ft.)

☐ Inc. of Imp. Cover < 100 sq. ft (No fee) ☐ Other (describe work type): _____

☐ Detention Provided (no fee) ☐ LID (potential reduction- contact TCI Storm Water staff)

**Is the property located in any of the development zones below?**

☐ ICRIP: Lot > 20,000 sq. ft. (50% Fee) ☐ ICRIP: Lot ≤ 20,000 sq. ft. (No Fee) ☐ IDZ (No Fee)

ICRIP Waiver # (required for reduced fee) _____

**FILO Previously Paid ($ or N/A)*:** _____ Paid Date: _____ Paid with Plat/Permit #: _____

| ☐ **Plat Application** | | ☒ **Building Permit Application** | | | |
|---|---|---|---|---|---|
| Platted Area (acres): | | (Increase)/Decrease in Impervious Cover (sq. ft.)*: [circle one] | 41,800 | FILO Rate ($/sq. ft.): | 0.25 |
| Total FILO ($): [Increased Imp. Cover X FILO Rate] | | FILO Previously Paid ($)*: | $0 | **Net FILO Due ($):** [Total - Previously Paid] | 10,450.00 |

**Please include supporting documentation as an attachment or in the drainage report.*

## Owners Acknowledgment

I am the owner(s) or an agent of the owner, authorized to execute this acknowledgement, of the above described property. It is acknowledged that the proposed development of the property will impact the above noted watershed and that said development falls under the provisions of ordinance No. 86711 passed and approved the 25th day of September, 1997 and subsequent amending ordinance 2013-01-31-0074 passed and approved the 31st day of January, 2013. Further, it is acknowledged that I have elected to pay a storm water development fee, in the applicable amount as set out in the current fee schedule, in lieu of constructing on-site detention facilities.

**OWNER(S) NAME:** Nicholas Ramones, PE (Agent) **OWNER:** N. Ramones 4/3/2023

Print Signature Date

## City Approval

It is acknowledged that the storm water development fee for development of property, as described above, is hereby accepted. It is further acknowledged that said fee shall be placed into the Regional Storm Water Management Program account and shall be used solely in the manner prescribed ordinance No. 86711 passed and approved the 25th day of September, 1997 and subsequent amending ordinance 2013-01-31-0074 passed and approved the 31st day of January, 2013.

**CITY:** _____ _____

Director of TCI or Designee Date

## County Approval (Applicable for ETJ only)

**COUNTY REPRESENTATIVE:** _____ _____

Signature Date

# Submittal Review Checklist

**CITY OF SAN ANTONIO**
**TRANSPORTATION & CAPITAL IMPROVEMENTS**
# Storm Water Engineering Review Team
# Submittal Review Checklist / Comments

| | |
|---|---|
| Date: 4/3/23 | Engr. of Record: **Nicholas Ramones, P.E.** |
| Project: **Lion & Rose at Dominion Creek** | Contact Name: **Nicholas Ramones, P.E.** |
| Type / City ID No.: | Phone Number: **210-882-8365** |
| Design Firm: **Ramones Engineering PLLC** | email: **NRamones@RamonesEngineering.com** |
| REVIEWER: | QA/QC: |
| Phone Number: | Team Leader: |
| Email: | SWE ID: |

| SUBMITTAL TYPE | SUBMITTED / REVIEWED |
|---|---|
| ☐ Major Plat ☐ Minor Plat | ☒ I. Storm Water Management Plan (SWMP) |
| ☐ MDP/ MPCD ☐ PUD | ☐ II. Construction Plans ☐ III. Plat |
| ☒ Building Permit ☐ RIO Zoning | ☒ IV. Floodplain Analysis |
| ☐ Low Impact Development (LID) | ☐ CLOMR ☐ LOMR ☒ Other |

To expedite review, please reference all City approved Plans, Plats, Building Permits or Floodplain Analyses associated with this development. Please provide as much information as available.

| **Parent Projects:** | **NUMBER** | **NAME** | **DATE** | **Approved SWMP*** |
|---|---|---|---|---|
| **MDP (MPCD)+:** | | | | ☐ |
| **PUD+:** | | | | ☐ |
| **Plat:** | 170007 | Dominion Retail | | ☒ |
| **Flood Study:** | | | | ☐ |
| **Building Permits:** | | | | |
| **Site:** | | | | ☐ |
| **Foundation:** | | | | ☐ |
| **Shell:** | | | | ☐ |

*Approved Storm Water Management Plan with included Adverse Impact Analysis. (Please note that further adverse impact analysis may be required.)

+ MDP = Master Development Plan, MPCD = Master Planned Community District, PUD = Planned Unit Development

For Resubmittals:

1. Please respond to each set of the comments with a cover letter. Concurrent reviews require separate resubmittal packages.
2. Submit one (1) signed/sealed copy and one (1) digital copy in the resubmittal package accompanied by original redlines if applicable.
3. Include certification that no changes or additions were made to plans or the report other than those addressing said comments. If other changes were made, please include a description of those changes.

# I. Storm Water Management Plan (SWMP)

| | | | STAFF USE ONLY | | |
|---|---|---|---|---|---|
| | N/A | Included | Complete | Incomplete | Comments |
| **A. GENERAL** | | | | | |
| 1. Signed, sealed & bound **Storm Water Management Plan (SWMP)** (one (1) hard copy and one (1) digital copy) | | x | | | |
| 2. **Introduction & Executive Summary** of existing conditions, proposed project, and methods used for analysis | | x | | | |
| 3. ***Adverse Impact Statement***: *"The increased runoff resulting from proposed development will not produce a significant adverse impact to other properties, habitable structures or drainage infrastructure systems to a point 2,000 feet downstream. Downstream conditions (including actual curb depth) in this reach have been field verified by myself or members of my staff. Therefore, the owner requests to participate in the Regional Storm Water Management Program by paying a fee-in-lieu-of onsite detention."* | | x | | | |
| 4. **Regional Storm Water Management Program Participation Form** | | x | | | |
| 5. **Project Location Map** | | x | | | |
| 6. **Digital Flood Insurance Rate Map (DFIRM)** with site superimposed | | x | | | |
| 7. ***Grading Plan*** *(Also required in construction plans)*<br>• *Lots grading properly according to FHA Lot Grading Type (A, B, C)*<br>• *Driveway Detail, reference to critical Type "C" lots*<br>• Check T-intersections, cul-de-sacs, and knuckles to make sure runoff is contained in streets<br>• Interceptor channels are required when:<br>o Offsite drainage area flowing onto site is greater than 3 acres, or<br>o Offsite drainage area flowing onto site is greater than 2 average residential lot depths | | x | | | |
| 8. **Aerial map**<br>• *To expedite review, delineate site boundaries, point 2,000 ft downstream, all downstream storm water facilities and other pertinent physiographic information.* | | x | | | |

| | | | | | |
|---|---|---|---|---|---|
| 9. **Onsite Drainage Area Map(s)** (to scale) for **Existing**, **Proposed**, **and Ultimate Conditions**:<br>• *Show Time of Concentration (Tc) pathways*<br>• *Show individual and overall drainage areas for the site. Indicate area of each watershed*<br>• *Show computation points and points of discharge; Table of hydrologic calculations for each individual and cumulative drainage area and points of discharge. Include acreage, runoff coefficients, Tc values, and rainfall intensities for the 5, 25, & 100-yr storm events, as applicable.* | | x | | | |
| *10. **Overall Drainage Area Map(s)** (to scale) for **Existing**, **Proposed**, and **Ultimate Conditions**:*<br>• *Include point 2,000 ft downstream (For lots less than three (3) acres in size adverse impact analysis need only extend to where tributary drainage areas equal to 100 acres)*<br>• *Show Time of Concentration (Tc) pathways*<br>• *Show individual and overall drainage areas for the site. Indicate area of each watershed*<br>• *Show computation points and points of discharge*<br>• *Table of hydrologic calculations for each individual and cumulative drainage area and points of discharge. Include acreage, runoff coefficients, Tc values, and rainfall intensities for the 5, 25, & 100-yr storm events, as applicable* | | x | | | |
| 11. **Impervious Cover Exhibit(s)**: Indicate existing and proposed impervious cover | | x | | | |
| 12. **Floodplain Submittal** is required if property is within, abutting, or adjacent to a floodplain, see Floodplain Section below. | x | | | | |
| 13. Verify if site is in a **Mandatory Detention Area** | x | | | | |
| **B. HYDROLOGY** | | | | | |
| 1. **Description of Method for Hydrologic Analysis Detailed runoff calculations include:**<br>• Hydrologic Calculation Methods (Reference Chapter 5, Hydrology):<br>  ○ Rational Method: Drainage area ≤ 200 acres<br>  • Detailed Time of Concentration (Tc) calculations;<br>  • Weighted runoff coefficients; Rainfall intensities;<br>  • Peak flow for Q5, Q25, Q100<br>  ○ SCS or other Hydrograph Method allowed for drainage areas > 20 acres and required for drainage areas > 200 acres<br>• Typical SCS programs used: HEC-HMS, Pond Pack, Hydraflow. XPStorm, etc.<br>• Provide all electronic files<br>• Detailed Time of Concentration/Lag Time calculations<br>• SCS curve number (CN) value: provide detailed calculations & Soil Survey Map or Geotechnical Report to support<br>  ○ Soil Survey Map of area (site delineated, soil type & acreage of each soil group)<br>• % Impervious Cover detailed calculations and exhibit<br>• Verify rainfall depths | | x | | | |

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|---|---|---|---|---|---|
| • Routing Values: Provide detailed calculations (types of routing are Modified Puls or Muskingam Cunge)<br>  o Verify Reach lengths for routing and velocities | | x | | | |
| 2. **Table comparing the Existing, Proposed, & Ultimate Condition Peak Flows (5, 25 and 100yr)** | | x | | | |
| **C. HYDRAULICS** | | | | | |
| 1. **General:**<br>• Storm water infrastructure for drainage areas < 100 ac, design for the Q25<br>• For all storm water facilities with drainage area ≥ 100ac, design for Q100 | | x | | | |
| 2. **Street Capacity:**<br>• Local 'A': Q5 contained within top of curb, Q25 contained within ROW<br>• Collector/Local 'B": Q25 contained within top of curb<br>• Primary/Secondary Arterial: Q25 contained within top of curb & one lane in each direction shall remain passable with a flow depth not to exceed 0.3 ft<br>• For drainage area > 100 acres, Q100 contained within top of curb. Use actual curb heights in calculations for existing streets (non-standard curbs, street overlays, etc.) | | x | | | |
| 3. **Dead end street draining to unpaved surface:**<br>• Runoff velocity < 6 fps.<br>• Ensure runoff will flow into drainage easement | | x | | | |
| 4. **Storm Drain:**<br>• Inlets designed for 25yr capacity<br>• HGL/EGL: provide detailed calcs (including junction losses). Show on S.D. profiles<br>• EGL: below top of curb and top of junction box or, if approved by City, specify bolted manhole covers.<br>• HGL: below gutter<br>• Min easement: 15 ft min or 6 ft from pipe limits<br>• Minimum Pipe Slope: 0.3%<br>• Minimum Cleaning Velocity: 3 fps for 5-yr (20% ac) storm<br>• Maximum Permissible Velocity:<br>  o Maximum Velocity for Trunk lines: 15 fps<br>  o Maximum Velocity for Laterals: No limit<br>• Slopes or velocities outside the allowable range may require additional certifications at permitting or final inspection and/or additional warranties.<br>• Reinforce Concrete Pipe required under public streets<br>• Pipe Diameter<br>  o Trunk Lines: Minimum 24 in diameter<br>  o Laterals and driveway crossings: <24 in diameter may be allowed on a case-by-case basis | | x | | | |
| 5. **Channels:** (provide detailed calculations)<br>• If Drainage area < 100ac : Contain W.S. for Q25 plus freeboard (see Table 9.3.14)<br>• If Drainage area ≥ 100ac : Contain W.S. for Q100 or Q25 plus freeboard, whichever is greater | | x | | | |

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| • Channel bend freeboard calculations (if centerline radius is < 3 times the bottom width)<br>• Verify if the channel has adequate drainage easement<br>• Include a channel maintenance schedule for new channels<br>• Verify Manning's Roughness Coefficient (n) (Reference Table 9.2.4.1)<br>• Earthen channel:<br>  o Verify 15 ft access easement on one side<br>  o Max 6 fps except as shown in Table 9.3.8<br>  o Pilot channel required if slope < 0.5%<br>  o Maximum 3:1 side slopes<br>• Concrete channel:<br>  o Verify 15 ft access easement on one side, 2 ft easement on the other<br>  o Minimum longitudinal slope: 0.4% or 0.1% with minimum cleaning velocity of 3 fps for existing Q5<br>  o For trapezoidal channels, maximum 1.5:1 side slope without geotech design<br>  o Handrails or fencing required for channels with vertical walls or side slopes > 2:1 when wall height exceeds 2 ft<br>  o Check outfall velocities<br>• Side-Lot Flumes:<br>  o Public Easements: verify 10 ft access easement on one side, 2 ft easement on the other<br>  o Private Easements: verify 2 ft easement on either side<br>  o Slope and velocity requirements are the same as for concrete channels.<br>• Turf Reinforcement Matting: 6 fps < V < 12 fps. If > 12 fps, engineer's report should certify that material is appropriate for velocity. Include manufacturer spec's & installation instructions. Engineer to certify at final inspection that material was installed correctly.<br>• Interceptor channel: Drainage easement shall extend a min of 2 ft on both sides of the channel<br>• Handrails or fencing required on vertical headwalls greater than 2 ft in height and wing walls with slopes steeper than 2:1 | | x | | | |
| 6. **Outfalls / Outlets / Transitions**<br>• When one channel discharges into another channel verify that storm water will be contained within the receiving channel. Verify that the outfall velocity into the receiving channel will not result in runoff jumping out of the receiving channel.<br>• Concrete rip rap or other velocity control/erosion protection measures may be required at pipe/channel and channel/channel intersections and transitions.<br>• If outfall velocity exceeds 6 fps at transition to earthen channel or other non-paved surface, provide energy dissipators or other velocity control measures<br>  o Verify that the proposed energy dissipator type is appropriate for the outfall conditions (Reference Chapter 10, Table 10.4.3)<br>  o Detailed calculations are required when energy dissipators are proposed<br>  o Provide retard spacing and concrete transition length where applicable<br>• Hydrograph timing & analysis of backwater may affect outfall and dissipator calculations | — | x | | | |

| **D. ADVERSE IMPACT ANALYSIS** | | | | | |
|---|---|---|---|---|---|
| 1. **Narrative**<br>• Provide an Adverse Impact Analysis and an Adverse Impact Statement<br>• Discuss in detail the downstream conditions<br>• Discuss if drainage patterns have changed from the previously approved MDP, if applicable | | x | | | |
| 2. **If site work permit ONLY with no increase in impervious cover –** Demonstrate that drainage patterns are not obstructed. Grading plan required. Detailed adverse impact analysis may be required. | x | | | | |
| 3. **Provide detailed hydrologic & hydraulic calculations from proposed development to 2,000 ft downstream**<br>• Verify hydrologic calculation method<br>• Compare existing, proposed, and ultimate peak flows<br>• Reference Checklist Section B | | x | | | |
| 4. **Street Capacity:**<br>• Local 'A': Q5 contained within top of curb, Q25 contained within ROW<br>• Collector/Local 'B": Q25 contained within top of curb<br>• Primary/Secondary Arterial: Q25 contained within top of curb & one lane in each direction shall remain passable with a flow depth not to exceed 0.3 ft<br>• For drainage area > 100 acres, Q100 contained within top of curb. Use actual curb heights in calculations for existing streets (non-standard curbs, street overlays, etc.)<br>• Velocity < 10 fps | | x | | | |
| 5. **Curb Inlets:**<br>• Opening capacity detailed calculations for Q25<br>• HGL/EGL: provide detailed calcs (including junction losses).<br>• EGL: below top of curb<br>• HGL: below gutter line | | x | | | |
| 6. **Storm Drain:**<br>• HGL/EGL: provide detailed calcs (show losses). Show on storm drain profiles.<br>• EGL: should be below junction box lid/manhole | | x | | | |
| 7. **Channels: (provide detailed calculations for Ultimate Q & Channel Capacity):**<br>• Contain ultimate Q25 plus freeboard or ultimate Q100, whichever is greater, within drainage easement/ROW & does not flood habitable structures. | | x | | | |
| 8. **Culvert:**<br>• Runoff should not overtop an existing structure under the roadway for the existing, proposed, and ultimate of the 5, 25, & 100 yr condition **OR**…<br>• A new culvert should be designed for the 25 yr ultimate for drainage areas ≤ 100 acres or 100-year for drainage areas greater than 100 acres | | x | | | |
| 9. **Low Water Crossings** (Provide detailed calculations and discuss):<br>• Low Water Crossing must not be classified as "Dangerous" during regulatory (5, 25, or 100 yr frequency) storm events<br>• If the WSE exceeds this criterion the crossing may be improved in lieu of providing onsite | | x | | | |

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| mitigation measures or paying a fee-in-lieu of detention. This is to be considered on a case by case basis and may require a developer agreement. | | | | | |
| 10. **Underground Utilities in Floodplain:**<br>• Provide buoyancy and scour calculations for the 5, 25, and 100 yr storm events<br>• Show any required concrete capping or encasement in construction plans | x | | | | |
| **E. DETENTION** | | | | | |
| 1. **Provide Drainage Area Map(s)** (to scale) for **Existing and Proposed Conditions:**<br>• Also include ultimate conditions, if applicable (phased construction, basin serving multiple lows, etc.)<br>• Include Time of Concentration/Lag time flow paths<br>• Modified Rational Method may be used for drainage areas up to 20 acres<br>• SCS Method to be used for drainage areas > 20 acres (i.e. HEC-HMS, Pond Pak, Hydraflow, etc.)<br>• SCS Method to be used for modeling multiple ponds, regardless of drainage area | | x | | | |
| 2. **Provide results in tabular format with detailed calculations for allowable/existing, proposed, and ultimate discharges from the structure** | | x | | | |
| 3. **Post- development discharges** from the pond for the 5, 25, and 100 yr must be equal to or less than existing conditions | | x | | | |
| 4. Provide inflow and **outflow hydrographs** for 5, 25, and 100 yr (proposed, ultimate) | | x | | | |
| 5. *Provide **required storage** for the 5, 25, and 100 yr (proposed, ultimate)* | | x | | | |
| 6. **Include stage vs. discharge and stage vs. storage tables** | | x | | | |
| 7. **Provide outlet rating curve** | | x | | | |
| 8. **Provide Pondpack, Hydraflow Hydrographs, or other applicable calculation files on CD** | | x | | | |
| 9. **Verify if pond qualifies as a TCEQ dam.** (Reference Chapter 13 for dam requirements) | x | | | | |
| 10. **Verify basin side slopes:**<br>• Maximum 3:1 for earthen berm/side slopes<br>• Concrete side slopes/walls may require structural details or geotech analysis depending on slope and height (see concrete channel wall requirements) | | x | | | |
| 11. **Check hydraulics of outlet structure:**<br>• Verify weir and orifice size(s) and elevation(s)<br>• Check effect of tail water elevation on outfall hydraulics<br>• Outfall velocity: maximum 6 fps (sandy soils may require a discharge velocity less than 6 fps)<br>• Provide energy dissipation if needed (include calculations and construction details) | | x | | | |

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|---|---|---|---|---|---|
| 12. **Verify design water surface elevations are below the top of pond:**<br>• 100 yr proposed/ultimate or 25 yr proposed/ultimate plus freeboard<br>• If TCEQ dam, provide auxiliary spillway | | x | | | |
| 13. **Restrictor plates** may be required for ponds with phased development | x | | | | |
| 14. **Provide pond grading on subdivision plat** | | x | | | |
| 15. **Provide detention pond construction plans** (signed & sealed), including but not limited to:<br>• Pond grading<br>• Notes for establishing vegetation<br>• Pond details, including cross-sections with design water surface elevations<br>• Outfall structure (pipe, weir, etc.) details<br>• Restrictor plate details, as applicable | | x | | | |
| 16. **Deferred Detention:**<br>• Detailed detention analysis and construction of ponds may be allowed on a case by case basis<br>• Preliminary detention calculations are still required at platting | x | | | | |
| 17. **Regional Storm Water Detention Facilities**:<br>• Provide 15 ft easement around top of bank and/or 100 yr flood inundation pool for maintenance [and public safety] purposes | x | | | | |
| 18. **Public Detention Facilities:**<br>• Provide access ramps with a maximum slope of 7:1 for access to the flow line of the facility (also recommended for private facilities) | x | | | | |
| 19. **Provide a signed Maintenance Agreement** | | x | | | |
| 20. **Drainage Easements for Detention Ponds:**<br>• Show detention pond easements on the plat when the detention is being designed and constructed as part of the plat<br>• Detention pond easements generally shall not be provided on the plat when detention is deferred | | x | | | |
| 21. **Detention Pond Conformance Letter:**<br>• Submit letter to TCI after pond is constructed<br>• Plat recordation, building permit approval, or certificate of occupancy may be withheld until letter is submitted by applicant and accepted by TCI<br>• Plat recordation will not be withheld when deferring detention | | x | | | |
| **F. OTHER** | | | | | |
| | | | | | |

# II. CONSTRUCTION PLANS

**Refer to Standard Details and Design Guidance Manual**

| | N/A | Included | STAFF USE ONLY: Complete | STAFF USE ONLY: Incomplete | Comments |
|---|---|---|---|---|---|
| **A. STREET PLANS** | | | | | |
| 1. **Signed and sealed Construction Plans**<br>• Submit one (1) hard copy and one (1) digital copy with original submittal and resubmittals;<br>• Once the plans are approved, additional hard copies of the plans may be requested for distribution to the City inspectors. | | x | | | |
| 2. **Slope to inlet:** min = 0.5% ; max = 4%<br>• Positive drainage provided to all inlets, including those located at the low point of (i.e. in the sag of) a vertical curve | | x | | | |
| 3. **Provide flow arrow for washout crowns** | | x | | | |
| 4. **Provide flow arrows and detailed grading at T-intersections, cul-de-sacs, and knuckles** as needed to make sure runoff is contained in streets | | x | | | |
| ***B. DRAINAGE PLANS*** | | | | | |
| 1. **Signed and sealed Construction Plans**<br>• Submit one (1) hard copy and one (1) digital copy with original submittal and resubmittals;<br>• Once the plans are approved, additional hard copies of the plans may be requested for distribution to the City inspectors. | | x | | | |
| 2. **Standard notes:**<br>• Improved earthen channels and detention ponds will be vegetated by seeding or siding. Eighty five percent (85%) of the channel surface area must have established vegetation before the City of San Antonio will accept the channel for maintenance<br>• All concrete lining shall develop a min. compressive strength of 3,000 psi in 28 days<br>• For normal conditions, the concrete lining shall be a minimum of five (5) inches thick and reinforced with **No. 4 round bars @ 18 inches on center each way or welded wire fabric of 6"x6" – W/D6 x W/D6.** Where surcharge, nature of ground, height and steepness of slope, etc. become critical, design shall be in accordance with latest structural standards. All concrete lining shall develop a minimum compressive strength of not less than three thousand (3,000) pounds per square inch in twenty-eight (28) days. The depth of all toe downs shall be 36 inches upstream, 24 inches downstream, and 18 inches for side slopes. The City's Construction Inspector may permit an 18" toe down in rock sub grade in lieu of the above toe down requirements. The horizontal dimensions of toe downs shall not be less than six (6) | | x | | | |

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|---|---|---|---|---|---|
| inches. | | | | | |
| 3. **Storm Drain:**<br>• Minimum easement required (15ft) or 6 ft from extreme limits of pipe<br>• Minimum 2' vertical/horizontal clearance between storm drain pipes and other utilities, or provide concrete encasement | | x | | | |
| 4. **Junction box:**<br>• Minimum 6 in clearance from O.D. of pipe to inside of junction box wall<br>• Invert of junction box to be shaped with concrete fill (2,500 psi min) to ensure drainage to outlet pipe | x | | | | |
| **C. STANDARD DETAIL SHEETS** | | | | | |
| 1. **Junction Box:**<br>• Check for standard junction box detail<br>• If proposed span larger than standard, reinforcement and concrete wall thickness calculations and a signed and sealed detail must be provided | x | | | | |
| 2. **Curb inlets** shall be per City standard details. Inlet extensions are acceptable as follows:<br>• Maximum of one (1) extension allowed for inlets on grade<br>• Inlet extensions are typically not allowed for sump inlets<br>• If proposing multiple extensions on grade or extensions for sump inlets, additional capacity calculations or non-standard detailed drawings may be required | x | | | | |
| 3. **Pipe Bedding and Backfill Details** *(See special detail)*<br>• Note on 2nd layer (Rocks not larger than 1 in) | x | | | | |
| 4. **Provide concrete collars at all tie-ins** | x | | | | |
| 5. **Grout should be added to spring line** | x | | | | |
| 6. **Weep Holes**:<br>• Required in rip rap and on headwalls 5ft and higher<br>• Place weep holes 6" above the toe at 10 ft o.c.<br>• Geo-fabric is to be placed behind the riprap to hold the gravel (1 cubic foot per weep hole) | x | | | | |
| **D. UTILITY LAYOUT** | | | | | |
| 1. **Lateral tie-ins** from properties to public storm drain systems<br>• Laterals < 24 in may be approved on a case by case basis | x | | | | |
| 2. **Utilities in the Floodplain**:<br>• Check if any proposed underground utility lines are in floodplain<br>• Buoyancy and scour calculations may be required | x | | | | |

| | | | | | |
|---|---|---|---|---|---|
| • Concrete capping or encasement may be required | | | | | |
| **E. GRADING PLAN** | | | | | |
| *1.* ***Grading Plan****:*<br>• Lots grading properly according to FHA Lot Grading Type (A, B, C)<br>• Driveway Detail, reference to critical Type "C" lots<br>• Check T-intersections, cul-de-sacs, and knuckles to make sure runoff is contained in streets<br>• Interceptor channels are required when:<br>o Offsite drainage area flowing onto site is greater than 3 acres, or<br>o Offsite drainage area flowing onto site is greater than 2 average residential lot depths | | x | | | |
| **F. OTHER** | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

# III. PLAT

| | N/A | Included | STAFF USE ONLY: Complete | STAFF USE ONLY: Incomplete | Comments |
|---|---|---|---|---|---|
| ***A. GENERAL*** | | | | | |
| 1. Provide one (1) hard copy and one (1) digital copy of the **Subdivision Plat** | | | | | |
| 2. **Existing Contours** | | x | | | |
| 3. **Finished/proposed Contours:**<br>• Street only if no significant site grading<br>• Provide detention pond contours on plat, unless detention is deferred | | x | | | |
| 3. **Label & dimension all drainage easements**<br>• Public easements: ≥100 acre drainage area or conveying runoff from public ROW or facilities; and/or containing FEMA floodplain<br>• Private easements: <100 acre drainage area and/or not conveying runoff from public ROW or facilities, except for some side-lot flumes<br>• Side-lot flumes: 10 ft access required for public easements; minimum 2 ft either side of channel for private easements | | —<br><br><br><br>x | | | |
| 4. **Verify continuation of Streets & Channels** | | x | | | |
| 5. **Delineate DFIRM 100 Yr Floodplain**<br>• Provide drainage easement to include the worst case of the FEMA 100 yr and the lesser of the Ultimate 100 yr or the Ultimate 25 yr plus freeboard floodplain or a combination thereof | x | | | | |
| 6. **NOTE:** Temporary easement to expire upon incorporation into platted public street ROW. | | | | | |
| 7. **NOTE:** No structures, fences, walls, or other obstructions that impede drainage shall be placed within the limits of the drainage easements shown on this plat. No landscaping or other type of modifications, which alter the cross-sections of the drainage easements, as approved, shall be allowed without the approval of the Director of TCI. The City of San Antonio and Bexar County shall have the right of ingress and egress over grantor's adjacent property to remove any impeding obstructions placed within the limits of said drainage easement and to make any modifications or improvements within said drainage easements. | | x | | | |
| 8. **NOTE**: Finish floor elevations must be a minimum of (8) inches above final adjacent grade (for residential lots only). | | x | | | |

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| 9. **NOTE:** Minimum finished floor elevations for residential and commercial lots shall be elevated at least one (1) foot higher than the computed water surface elevation for the 100 year ultimate development. | | x | | | |
| 10. **NOTE**: The maintenance of the detention pond and outlet structure shall be the responsibility of the lot owners or home owners association their successors or assignees and not the responsibility of the City of San Antonio and or Bexar County. | | x | | | |
| 11. To expedite the review of elevation certificates, indicate the specific minimum finish floor elevation for all lots adjacent to FEMA floodplains. | | x | | | |
| 12. **Deferred Detention**: Areas within the City Limits.<br>• Provide NOTE: Storm water detention is required for this property. Building permits for this property shall be issued only in conjunction with necessary storm water detention approved by the City of San Antonio. The property may be eligible to post a fee-in-lieu-of onsite detention (FILO) if offsite drainage conditions allow but only when approved by the City of San Antonio. Maintenance of onsite storm water detention shall be the sole responsibility of the lot owners and/or property owners association and their successors or assignees.<br>• Provide preliminary calculations of estimated detention basin size. | x | | | | |
| 13. **Easement Requirements:**<br>• Easements will be required for all detention facilities accepting runoff from properties other than the lot on which the detention pond exists or will be constructed. When detention is deferred, in lieu of providing an easement on the plat, TCI may require that a note be placed on the plat specifying which lot(s) will provide detention for other lots. TCI may require that an easement be established by separate instrument at building permit.<br>• For regional detention facilities the easement shall extend to a minimum of fifteen feet outside both the 100 yr pool and the structural improvements to facilitate maintenance as well as public safety. | | x | | | |
| **B. OTHER** | | | | | |
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# IV. FLOODPLAIN SUBMITTAL

| | | | STAFF USE ONLY | | |
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| | N/A | Included | Complete | Incomplete | Comments |
| **A. COSA FLOODPLAIN STUDY** | | | | | |
| 1. **Provide one (1) hard copy and one (1) digital copy of signed and sealed floodplain study.** | | | | | |
| 2. **Narrative:**<br>• Table of Contents and abstract or executive summary<br>• Introduction that includes project description and history, location, scope and objective of analysis, previous and related studies that may affect this analysis<br>• Summary, conclusions, and recommendations. Include the impact on the floodplain's Q, WSEL & velocity. | | | | | |
| 3. **Provide analysis of the following:**<br>• 25 yr existing and ultimate development plus required freeboard condition hydrologic and hydraulic analyses<br>• 100 yr existing and ultimate development condition hydrologic and hydraulic analyses | | | | | |
| 4. **Vicinity map** | | | | | |
| 5. ***Overall Aerial Drainage Area Map(s)*** *(signed and sealed):*<br>• Show Time of Concentration (Tc) pathways<br>• Show individual and overall drainage areas. Indicate area of each watershed<br>• Show computation points and points of discharge<br>• Show runoff coefficients and impervious cover percentage | | | | | |
| 6. **Topographic Work Map(s)** (signed and sealed):<br>• Existing conditions work map; showing existing contours, plan view of project limits, effective/existing cross sections, effective floodplain limits, property lines, etc.<br>• Proposed conditions work map; showing the existing and proposed contours where necessary, proposed cross sections, project limits, property lines, revised floodplain limits with drainage easements, etc. | | | | | |
| 7. **Grading Plan** (existing and finished contours) signed and sealed | | | | | |
| 8. **Channel Cross Sections** (existing superimposed on proposed) show the drainage easement, Manning's coefficients, property lines, structures, etc.) | | | | | |
| 9. **Plotted water surface profiles for the ultimate flows (if applicable)** | | | | | |

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| 10. **Easement for Floodplain**<br>• Provide drainage easement to include the worst case of the FEMA 100 yr (1% annual chance) and the lesser of the Ultimate 100 yr or the Ultimate 25 yr plus freeboard floodplain or a combination thereof<br>• Drainage easements that include FEMA floodplain shall be noted as public easements on plats and other easement documents | | | | | |
| 11. **Provide detailed Hydrology calculations**, see checklist Section I.B. | | | | | |
| 12. **Channel outfalls perpendicular to the floodplain:**<br>• Channel outfall must be taken to the invert of the floodplain or show the velocity to be less than 6 fps going down the side slope.<br>• 36 in toe-down required.<br>• Floodplain development permit is required if within the city limits | | | | | |
| 13. **Provide a summary table (or tables) of the hydraulic model** | | | | | |
| 14. **CD of all HEC-HMS, HEC-RAS, XP-SWMM, and/or other models used in analyses** | | | | | |
| 15. Is this development over the **Edwards Aquifer Recharge Zone?** | | | | | |
| 16. **Flood plain Development Permit Application** (1 copy) | | | | | |
| 17. **Elevation Certificates** (if applicable) | | | | | |
| 18. **Unflooded vehicular access** must be available to the development from a public street. | | | | | |
| 19. **If site is in ETJ, Bexar County is the Floodplain administrator**<br>• COSA Floodplain Development Permit is not required<br>• Coordinate necessary forms and submittal requirements with the County<br>• Bexar County signs the FEMA forms<br>• Verify drainage easement for ultimate conditions | | | | | |
| 20. **Contour Data:**<br>• If using agency provided 2 ft aerial contours or 1 ft Lidar contours, field verification is required | | | | | |
| 21. **Floodplain Reclamation:**<br>• Account for storage volume lost (with comparable excavation within the same creek floodplain) when reclamation of ineffective flow OR shallow flooding (overbank) areas is proposed<br>• If more than 320 acres drain to site, improvements to site may require an administrative exception | | | | | |
| 22. **Master Development Plans (MDP):**<br>• Provide hydraulic analysis of floodplains that are adjacent to this MDP or if no hydraulic study is being done provide the following note on the MDP with signatures of the Owner and Engineer: "The Floodplain limits on this Master Development Plan are estimated and subject | | | | | |

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| to change. Approval of subdivision plats associated with this Master Development Plan is subject to the review and approval of a Storm Water Management Plan in accordance with the City of San Antonio Unified Development Code."<br>• **Note that MDP's are conceptual in nature and ONLY conditional approvals shall be given. One condition is that at the time of platting, more detailed downstream analysis will be provided by the engineer.** | | | | | |
| **B. FEMA CLOMR / LOMR** | | | | | |
| 1. **Provide the applicable items listed in the COSA Floodplain Study above** | | | | | |
| 2. **MT-2 Form 1, Sec D:**<br>• Provide Owners and Engineer's original signature | | | | | |
| 3. **MT-2 Form 2, Sec A:**<br>• Provide an attached explanation if sediment transport is not considered | | | | | |
| 4. **MT-2 Form 2, Sec B.4:**<br>• Model names in this section must match the models listed in the CD | | | | | |
| 5. ***Detailed Map Revision Study:***<br>• Include 10, 50, 100 and 500 yr analyses | | | | | |
| 6. If applicable, provide **As-Built Grading Plan** with engineer's seal and signature. | | | | | |
| 7. Recommend providing **Check-RAS output** | | | | | |
| 8. **Provide models for effective, corrected effective, proposed, and ultimate (future) conditions** | | | | | |
| 9. **Provide existing and proposed FEMA DFIRM Maps with the following:**<br>• Existing – Label Map "Effective" and show the site boundaries<br>• Proposed – Label Map "Revised/ Proposed", show site boundaries, show only the proposed floodplain limits, floodplain must tie in with the existing floodplain upstream and downstream, show the proposed streets centerline only and label, show the upstream and downstream limits of study | | | | | |
| 10. Verify that **Environmental Site Assessment (ESA)** has been submitted (COSA will not review) | | | | | |
| **C. OTHER** | | | | | |
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## V. OTHER COMMENTS

| | N/A | Included | STAFF USE ONLY: Complete | STAFF USE ONLY: Incomplete | Comments |
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