Duncanville City Council
Regular Meeting Agenda
City Council Briefing Room and City Council Chamber
Duncanville City Hall, 203 E. Wheatland Road
Duncanville, TX 75116
(972) 780-5017

Tuesday, August 18, 2026
6:00 PM - Work Session/Briefing
7:00 PM - Regular Session
or immediately following the 6:00 PM Work Session/Briefing

The Duncanville City Hall is accessible to people with disabilities. If you need assistance in participating in this meeting due to a disability as defined under the ADA, please call 972-780-5017 or email city.secretary@duncanvilletx.gov at least three (3) business days prior to the scheduled meeting to request accommodation.

As authorized by Section 551.071 of the Texas Government Code, this meeting may be convened into closed Executive Session for the purposes of seeking confidential legal advice from the City Attorney on any item on the agenda at any time during the meeting.

Pursuant to Texas Government Code 551.127, one or more members of the governing body may appear via videoconference call. The presiding officer and a quorum of the City Council must be physically present at the above stated location.

The City of Duncanville reserves the right to reconvene, recess or align the Regular Session or called Executive Session or order of business at any time prior to adjournment at the direction and agreement of Mayor and Council.

This is an open meeting conducted in-person and will be broadcast by website and social media channels.

To view the live meeting or previous meetings click on the link below.
https://duncanvilletx.new.swagit.com/views/454/

To speak during public comments, please complete a comment card and give it to the receptionist before the regular session.

To submit a comment via email the following information is required:
- Submit a comment by 4:00 PM on Tuesday, August 18, 2026.
- Email city.secretary@duncanvilletx.gov
- Email title: Public Comment – Tuesday, August 18, 2026.
- First Name, Last Name, and Address

WORK SESSION / BRIEFING

1. DISCUSS AGENDA ITEMS

2. CITY COUNCIL CALENDAR

A. 2026 August, September, October Calendars

3. BRIEFINGS / PRESENTATIONS

A. Briefing on Duncanville Arts Commission's Arts Funding Policy and Grant Guidelines

B. Briefing on Texas Senate Bill 785 (SB785) pertaining to the allowance of new

HUD-code manufactured homes.

EXECUTIVE SESSION

A. City Council shall convene into closed session for consultation with City Attorney pursuant to Texas Government Code Section 551.071 regarding Life School vs. the City of Duncanville- Life School of Dallas d/b/a Life School v. City of Duncanville, et al., Cause No. DC-25-14028, In the District Court of Dallas County, Texas, 134th Judicial District.

B. City Council shall convene into closed session for consultation with City Attorney pursuant to Texas Government Code Section 551.071 regarding property located 1507 Sharon Dr, City of Duncanville, Dallas County, Texas- Natalie Ortiz v. The Board of Adjustment of the City of Duncanville, et al., Cause No. DC-26-05689, In the District Court of Dallas County, Texas, 116th Judicial District.

C. City Council shall convene into closed session for consultation with City Attorney pursuant to Texas Government Code Section 551.071 regarding property 711 East Camp Wisdom Road, Duncanville, Dallas County Texas; Capitol O Motel.

D. City Council shall convene into closed session for consultation with City Attorney pursuant to Texas Government Code Section 551.071 regarding John Douglas Jenkins v. City of Duncanville, Texas.

REGULAR SESSION - CONVENE INTO THE COUNCIL CHAMBERS (7:00 P.M. OR IMMEDIATELY FOLLOWING THE 6:00 PM WORK SESSION/BRIEFING)

CALL TO ORDER

INVOCATION - Chaplain Moises Ruiz

PLEDGES - PLEDGE OF ALLEGIANCE; TEXAS PLEDGE OF ALLEGIANCE

4. REPORTS

A. Mayor's Report

B. Councilmembers' Reports

C. City Manager's Report

5. PROCLAMATIONS AND PRESENTATIONS

6. CITIZENS' INPUT

In-person citizen comments will be heard during the Regular Session. In keeping with the City Council's Rules of Procedure adopted on June 4, 2024, electronic mail comments will no longer be read aloud. Paper copies will be provided to the City Council at the dais. The comments will be made a part of the public record in the minutes. "Pursuant to Section 551.007 of the Texas Gov't Code, any member of the public has the opportunity to address the City Council concerning any matter of public business or any posted agenda item; however, the Act prohibits the City Council from deliberating any issues not on the public agenda and such non-agenda issues may be referred to City staff for research and any future action; all persons addressing are subject to council adopted rules and limitations permitted by law" At this time, two-minute comments will be taken from the audience on any topic. To address the Council, please submit a fully completed request card to the City Secretary prior to the beginning of the Citizens' Input portion of the Council meeting. In

accordance with the Texas Open Meetings Act, the City Council cannot discuss issues raised or make any decisions at this time. Issues may be referred to City Staff for research and possible future action.

7. CONSENT AGENDA

The following may be acted upon in one motion. A City Councilmember may request items be removed from the Consent Agenda for individual consideration.

A. Consider the minutes for the August 4, 2026, City Council Meeting and the August 6, 2026, Budget Workshop.

B. Consider a Resolution for reappointments to Boards and Commissions for terms expiring August 31, 2026.

C. Consider a Civil Service Ordinance amending the Police Classifications for Police Lieutenant and Police Sergeant and updating the Civil Service Pay Plan

D. Consider an Ordinance amending the FY 2025-2026 budget by appropriating revenue received and amending expenditures in the Utility and PEG (Public Education Government) Fund.

E. Consider a Resolution Declaring No Award Made for Request for Proposals for Third-Party Operations and Management Services at Duncanville Fieldhouse

F. Consider a Resolution adopting the Drainage Master Plan and Stream Condition Assessment as prepared by Freese & Nichols.

8. ITEMS FOR INDIVIDUAL CONSIDERATION

A. Take any necessary action as a result of the Executive Session.

B. Consider the appointment of five Comprehensive Plan Implementation Committee (CPIC) members and a non-voting Councilmember.

C. Consider a Resolution Approving the Arts Commission's Grant Recommendations.

9. STAFF AND BOARD REPORTS

A. Receive the Financial Report as of June 30, 2026.

B. Staff briefing on the Purchase and Assignment Agreement for the DCEDC's ownership interest in Main Station, Ltd.

ADJOURNMENT

I, the undersigned authority, do hereby certify that this Notice of Meeting was posted in accordance with the regulations of the Texas Open Meetings Act on the bulletin board located outside the entrance to the City of Duncanville City Hall, next to the entryway doors, a place convenient and readily accessible to the general public, as well as to the City’s website www.duncanvilletx.gov and

said Notice was posted **by** the following date and time: **Tuesday, August 11, 2026, by 5:30 P.M.** and remained posted for at least two hours after said meeting was convened.

Chiquita Taylor
City Secretary

"Guns prohibited on these premises by state law unless licensed under Chapter 411, Tex. Gov. Code. Section 46.035 Texas Penal Code."

"Las armas de fuego están prohibidas en estas instalaciones por la ley estatal a menos que estén autorizadas bajo el Capítulo 411 del Código de Gobierno de Texas. Sección 46.035 del Código Penal de Texas."

Council Calendar August 2026

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2	3	4 City Council Meeting 6 PM (Briefing Room & Council Chambers)	5 Civil Service Commission Meeting 103 E. Wheatland Rd. 5:00 PM	6 Budget Retreat Briefing Room 9:00 AM Library Advisory Board 6:30 PM Library Meeting Rooms	7 Legislative Breakfast Methodist Charlton 7:15 AM - 9:00 AM	8
9	10 Follow-up FY27 Budget Briefing Room Park Board Meeting 6:30 PM Senior Center Planning & Zoning Meeting 7:00 PM Council Chambers	11	12 Boards and Commissions Expo 6:30 PM-8:00 PM Senior Center	13 Community Engagement Advisory Board Meeting 6:30 PM Briefing Room	14 Legislative Breakfast Methodist Charlton 7:15 AM - 9:00 AM (Duncanville)	15 Duncan Switch 9:00 AM–3:00 PM 100 James Collins Blvd
16	17 Keep Duncanville Beautiful 7:00PM Briefing Room	18 City Council Meeting 6 PM (Briefing Room & Council Chambers)	19	20	21 Legislative Breakfast Methodist Charlton 7:15 AM - 9:00 AM	22
23	24 DCEDC Meeting 6:00 PM Briefing Room	25 Arts & Commissions 6:30 PM Briefing Room	26	27 Coffee with the Mayor 12:00- 1:00 PM Senior Center Audit Committee Meeting TBD Briefing Room	28 Legislative Breakfast Methodist Charlton 7:15 AM - 9:00 AM	29
30	31					

Council Calendar SEPTEMBER 2026

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1 City Council Meeting 6 PM (Briefing Room & Council Chambers)	2	3	4	5
6	7 Closed for the Labor Day Holiday	8	9	10 Friends Member Review 4:00 PM- 7:00 PM Community Engagement Advisory Board 6:30 PM Briefing Room	11 Library Book Sale 10:00 AM – 5:30 PM	12 Library Book Sale 9:00 AM – 3:30 ½ Price 1 PM-3:30PM Fiesta de las Americas 4:00 PM-10:00 PM Armstrong Park
13	14 Planning & Zoning Meeting Briefing Room 6:00PM Park Board Meeting 6:30 PM 103 E Wheatland	15 City Council Meeting 6 PM (Briefing Room & Council Chambers)	16	17	18	19 Best SW Hispanic Heritage Festival 5PM-10PM Valley Ridge Park Cedar Hill Duncan Switch 9:00 AM–3:00 PM 100 James Collins Blvd
20	21 Keep Duncanville Beautiful 7:00 PM Briefing Room	22	23	24 Coffee with the Mayor 12:00 PM Senior Center	25	26
27	28 DCEDC Meeting Council Chambers 6:00 PM	29 Arts Commission Meeting 6:30 PM Briefing Room	30			

Council Calendar OCTOBER 2026

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2	3
4	5	6 Strategic Planning FY2026-27 Briefing Rm Special Meeting Briefing Room 5:00 PM National Night Out	7	8 Community Engagement Advisory Board 6:30 PM Briefing Room	9	10
11	12 Planning & Zoning Meeting Briefing Room 6:00 PM	13	14	15 TIF Board Meeting Briefing Room 6:00PM	16	17 Duncan Switch 9:00 AM–3:00 PM 100 James Collins Blvd
18	19 Keep Duncanville Beautiful Briefing Room 7:00 PM	20 City Council Meeting 6:00 PM (Briefing Room & Council Chambers)	21	22 Coffee with the Mayor 12:00 PM Senior Center	23 Boo Bash 26' Fieldhouse 1700 S. Main 6:00 PM	24
25	26 DCEDC Meeting Council Chambers 6:00 PM	27 Arts Commission Meeting 6:30 PM Briefing Room	28	29	30	31

STAFF REPORT

MEETING: City Council - August 18, 2026

TITLE:
Briefing on Duncanville Arts Commission's Arts Funding Policy and Grant Guidelines

Vision Statement:
"Duncanville, a City of Champions, is a safe, vibrant, diverse community committed to excellence in education, business, and good governance."

Pillar:
Healthy, Active, and **Creative** Communities

STAFF RESPONSIBLE:
Alex Hamby, Communications and Marketing Administrator

BACKGROUND/HISTORY:
On April 22, 2025, the Duncanville Arts Commission adopted the Arts Funding Policy & Grant Guidelines to establish a transparent framework for administering arts funding. The City Council subsequently adopted the policy on June 3, 2025, and later revised it through Revision I, which the City Council adopted on March 3, 2026.

POLICY EXPLANATION:
The Arts Funding Policy & Grant Guidelines establishes the framework for administering the City of Duncanville's arts grant program, including Annual Arts Program Grants, Single Project Support Grants, and Public Art Grants. The policy outlines funding sources, application procedures, evaluation criteria, reporting requirements, and oversight responsibilities to ensure public funds are administered in a fair, transparent, and consistent manner.

The policy establishes general eligibility requirements for applicants, including the ability to demonstrate organizational or project readiness, compliance with applicable laws and City requirements, and a public purpose for the proposed project. It also identifies categories of applicants and projects that are not eligible for funding, as well as prohibited uses of grant funds. These include, among other restrictions, capital improvements, retroactive funding, private non-public events, commercial enterprises, and political or religious programming.

The purpose of this briefing is to provide the City Council with an overview of the existing policy provisions related to general eligibility, ineligibility, funding restrictions, and prohibited uses.

FUNDING SOURCE:
N/A

ACTION ALTERNATIVES:

1. Approve.
2. Disapprove
3. Other actions as directed by Council.

ATTACHMENTS:
2026-03-03 - Arts Funding Policy and Grant Guidelines, Eligibility and Restrictions

DUNCANVILLE ARTS COMMISSION

Arts Funding Policy & Grant Guidelines

REVISION I
[Resolution No. 2026-609 - Adopted March 3, 2026.]

Contact Information

Duncanville Arts Commission
203 E. Wheatland Rd.
Duncanville, Texas 75116
(972) 780-5000
arts@duncanvilletx.gov

Duncanville Arts Commission
203 E. Wheatland Rd.
Duncanville, Texas 75116
(972) 780-5000
arts@duncanvilletx.gov

Dear Community Partners and Arts Supporters,

The Duncanville Arts Commission is pleased to present the *Arts Funding Policy & Grant Guidelines*. This document reflects our city's continued commitment to fostering a thriving, inclusive, and economically vibrant arts ecosystem.

The Duncanville Arts Commission serves as an advisory board to the City Council, championing initiatives that engage residents and visitors through artistic expression, public art, and cultural events. These efforts support placemaking, strengthen our local economy, and reinforce Duncanville's identity as the City of Champions.

The funding guidelines outlined herein are supported by the City's Hotel Occupancy Tax (HOT) revenue, as well as other public and private sources, and are designed to support:

- Nonprofit arts organizations through Annual Arts Program Grants;
- Artists, individuals, and organizations through Single Project Support Grants;
- Permanent installations of public visual art through Public Art Grants.

All applicants must reside or operate within Duncanville and propose projects that are accessible to the public and aligned with the city's cultural and economic goals.

All interested applicants are encouraged to attend one of our quarterly information sessions and review this policy in detail before applying. The Arts Commission remains committed to transparency, accountability, and equitable funding opportunities for all members of our creative community.

Thank you for your partnership and continued support of the arts in Duncanville.

Duncanville Arts Commission
arts@duncanvilletx.gov

Mission of the Duncanville Arts Commission

The Duncanville Arts Commission serves as an advisory body to the City Council and City management in matters involving the arts. The Commission promotes public and private collaboration to foster a thriving cultural landscape. Its responsibilities include:

1. **Enriching Community Life:** Promoting a vibrant and inclusive arts environment that enhances the quality of life for residents and visitors to the City of Champions.
2. **Advising on Expenditures:** Recommending the use of public funds to support, promote, and sustain the arts in Duncanville.
3. **Evaluating Funding Proposals:** Reviewing grant applications and project proposals to ensure alignment with city goals and funding requirements.
4. **Assessing Arts Impact:** Submitting an annual "State of the Arts" report to City Council summarizing the year's activities, progress, and recommendations.

Funding Sources, Authorization, and Obligation

Primary Funding Source: Hotel Occupancy Tax (HOT)

The Duncanville Arts Fund is primarily supported by an allocation of up to 15% of the City's annual Hotel Occupancy Tax (HOT) revenue, as authorized by City Council. These funds are designated to support arts initiatives that enhance tourism and promote Duncanville's hotel and convention industry.

Authorized Uses of HOT Funds

Per Texas Tax Code §351.101 and Attorney General Opinions GA-0124, KP-0131, and KP-0350, HOT funds must directly promote tourism and the hotel/convention industry. Eligible uses include support for:

- Music (instrumental/vocal)
- Dance
- Drama
- Folk art
- Creative writing
- Architecture and design
- Visual arts (painting, sculpture, photography, crafts)
- Media arts (film, radio, television, sound recording)
- Other performing, visual, and literary arts

All funded activities must demonstrate a direct connection to tourism.

Supplementary Funding Sources

The Arts Fund may also receive supplemental support from:

- Corporate sponsorships
- Public/private grants
- Individual and corporate donations
- Partnerships with nonprofit and cultural organizations

Non-HOT Funding Uses

Projects funded through non-HOT sources must align with the Commission's mission and comply with:

- State procurement laws
- City of Duncanville financial policies and procedures

Grant Categories and Definitions

Applicants may only apply for **one grant** per fiscal year.

1. Annual Arts Program Grants

Purpose: To support nonprofit organizations presenting a full season of arts programming.

- **Eligibility:** 501(c)(3) nonprofit arts organizations only
- **Funding Limit:** Up to $20,000
- **Eligible Uses:** Operations, production, artist fees, venue rental
- **Requirement:** Must occur within the Duncanville, Texas city limits and serve a public purpose
- **Acknowledgment:** City and/or Commission logo must appear in all marketing

2. Single Project Support Grants

Purpose: To support a single public-facing arts project or event.

- **Eligibility:** Individuals, nonprofits, businesses, city departments, and the Duncanville Arts Commission
- **Funding Limit:**
  - Up to $2,500 (city departments)
  - Up to $3,000 (first-time applicants)
  - Up to $10,000 (returning applicants)
- **Disbursement:** Non-reimbursable
- **Requirement:** Must occur within the Duncanville, Texas city limits and serve a public purpose
- **Acknowledgment:** City and/or Commission logo must appear in all marketing

3. Public Art Grants

Purpose: To support the creation and installation of permanent, publicly accessible visual art (ex. murals, sculptures, functional art, mosaic or tile installations, interactive installations, landmarks, historical markers, etc.).

- **Eligibility:** Individual artists, teams, nonprofits, or the Arts Commission
- **Ineligible Uses:** Landscaping, performing/literary arts unless visually expressed
- **Requirement:** Must occur in Duncanville and serve a public purpose
- **Acknowledgment:** City and/or Commission logo must appear in all marketing

Options:

- **Call for Artists:** Issued by the Commission for a specific site/theme; finalists may receive a compensation amount as determined by the Commission for posted projects; unanimous (9-0) vote required for selection.
- **Artist-Initiated Proposal:** Artist submits complete proposal with property owner support.

Mural Projects and Sec. 16A-39 Compliance

- Murals are defined by Sec. 16A-39 of the Duncanville Code of Ordinances as paintings, designs, or artistic works applied to an exterior wall or to a fence for aesthetic purposes.
- Any Public Art Grant proposal that includes a mural must comply with all requirements of Sec. 16A-39, including but not limited to permitting, design and placement review, construction standards, content limitations, and ongoing maintenance obligations.
- Applicants proposing mural projects are strongly encouraged to review Sec. 16A-39 in full prior to submitting an Arts Grant application and to consult with City staff to confirm location, eligibility, and compliance.
- For mural projects, the property owner remains responsible for the maintenance, repair, and, if necessary, removal of the mural in accordance with Sec. 16A-39, regardless of the source or amount of Arts Grant funding awarded.
- The Arts Commission may recommend funding for a mural project only if the proposal is consistent with Sec. 16A-39 and all other applicable City codes and policies.

Eligibility and Restrictions

General Eligibility

- Applicants must be 18 years of age or older
- Applicants may reside outside Duncanville, but their proposed event or project must take place within the Duncanville, Texas city limits or have a direct and demonstrable connection to the city (e.g., public art installation, community programming, venue partnership)
- Must be in good standing with IRS, State of Texas, and City of Duncanville
- Applications must be complete and demonstrate capacity to execute the project
- A specific project or event date must be included in the application to be considered for funding
- Demonstrating multiple funding sources is recommended

Ineligibility and Funding Restrictions

Not Eligible:

- Full-time City employees
- Applicants submitting multiple proposals per cycle
- Artists funded within the current fiscal year
- Applicants who contact elected officials or Commission members regarding an application during the grant cycle
- Applicants who have received a prior grant but have not yet completed the funded project or have failed to submit the required final report are ineligible for new funding until all obligations are fulfilled.
- Applications submitted without a budget may be considered incomplete and ineligible for review

Prohibited Uses:

- Capital improvements or land purchases
- Political or religious programming
- Academic class credit projects
- Retroactive funding
- Private, non-public events*
- Fundraisers, receptions, or parties
- Deficit or litigation support
- School-funded workshops
- Programs lacking public access
- Commercial enterprises or retail activities

* A private, non-public event that limits access to a specific group of individuals and is not open to the general public and requires invitation, membership, registration, or tickets that are not advertised or available to the broader community.

Best Practices: Timing of Application and Project

When to Apply

Applicants should apply during the grant cycle that precedes the start of their project by at least 60–90 days. This ensures:

- The project is not already underway (retroactive funding is prohibited).
- There is adequate time for:
    - Staff eligibility review
    - Arts Commission evaluation
    - City Council approval
    - Processing of grant paperwork and vendor setup
    - Grant payment

When to Hold the Event or Begin the Project

- Projects and events must not begin until after City Council approval for that grant cycle. If you begin your project before approval, you will not be eligible for funding.
- In general, projects should be completed within the same fiscal year (October 1 – September 30).
- If your event happens on a specific annual date (such as Juneteenth, Christmas, or a fall festival), you are strongly encouraged to apply at least one full cycle in advance to ensure funding can be approved in time.
- Cycle 4 projects (the final cycle of the year) are awarded after the fiscal year ends. These projects are allowed to take place in the next fiscal year and will not affect your eligibility to apply for other grants in that new fiscal year.

Commissioner & Staff Participation

- Arts Commission members may apply but must recuse themselves from discussions and decisions related to applications they are affiliated with
- Contract/temporary City employees may apply with written disclosure

Application Procedures & Grant Cycle Schedule

How to Apply

1. **Review Guidelines**
    1. Applicants planning a public art project that includes a mural must review Sec. 16A-39 (Murals) of the Duncanville Code of Ordinances to ensure their proposed design, location, and materials comply with all City requirements.
2. **Preliminary Submission (Optional):** Staff may review for completeness
3. **Final Submission:** Must include application, budget, proof of eligibility, and vendor packet
    1. For projects that include a mural, applicants are required to submit, or have already submitted, a mural sign permit application to the City at the same time as the Arts Grant application so that permitting and grant review can proceed on parallel timelines.
4. **Staff Review:** Confirm eligibility and compliance
5. **Commission Review:** Presented at Regular or Special Meeting
6. **Council Approval:** Required for all grant awards
7. **Diversified Funding Plan:** Applicants are strongly encouraged to pursue additional funding sources. This grant program is designed to *supplement* existing project funding, not to serve as the sole source of financial support.
    a. Arts grant funds are limited and allocated to be distributed equitably across four grant cycles per fiscal year. Applicants are encouraged to plan and apply accordingly.
    b. Award decisions are based on two key factors:
        i. The availability of funds at the time of review
        ii. The merit, clarity, and public value of the proposed event or project
    c. Funding amounts may be less than the amount requested, and approval of a grant does not guarantee full funding or that future funding will be provided. Applicants should not rely solely on Arts Commission funds and are encouraged to secure additional sources of support to successfully carry out their projects.

FY 2025–2026 Quarterly Schedule

Q1: Sep 2025–Nov 2025 - Complete

- Aug: Marketing and Info Session
- Sept 1–30: Application Period
- Sep 30: **Application Deadline**
- Oct TBD: Commission Review
- Nov 4: Council Approval
- Nov: Grant Disbursements

Q2: Dec 2025–Feb 2026 - Complete

- Nov: Marketing
- Dec 2–31: Application Period
- Dec 31: **Application Deadline**
- Jan 12: Commission Review
- Feb 3: Council Briefing
- Feb 17: Council Consideration
- Feb: Grant Disbursements

Q3: Mar 2026–May 2026

- Feb: Marketing
- Mar 2–31: Application Period
- Mar 31: **Application Deadline**
- Apr TBD: Commission Review
- May 5: Council Briefing
- May 19: Council Consideration
- May: Grant Disbursements

Q4: Jun 2026–Aug 2026

- May: Marketing
- Jun 1–30: Application Period
- Jun 30: **Application Deadline**
- Jul TBD: Commission Review
- Aug 4: Council Briefing
- Aug 18: Council Consideration
- Aug: Grant Disbursements

TBD: Applications will be reviewed during an Arts Commission Special Meeting, date to be decided by the Commission.

Review Process, Scoring & Appeals

Evaluation Criteria

- **Funding availability**
  Grant amounts are subject to budget limitations and may be adjusted based on demand and available funds.
- **Artistic merit and creativity**
  The proposal demonstrates originality, artistic quality, and cultural value.
- **Community engagement and tourism benefit**
  The event or project shows potential to involve the public and enhance Duncanville's appeal as a cultural destination.
- **Accessibility and inclusivity**
  Efforts are made to ensure the event or project is welcoming and accessible to diverse audiences, including individuals with disabilities.
- **Application completeness and clarity**
  The submission includes all required documentation and clearly explains the who, what, when, where, why, and how of the proposal.
- **Project feasibility and readiness**
  A detailed budget and clear execution plan are included, demonstrating that the applicant has thoughtfully planned and can carry out the event or project as proposed.
- **Connection to Duncanville**
  The project must take place in Duncanville and serve a public purpose that reflects or uplifts the local community.
- **Prior engagement with City or Commission programs**
  Preference may be given to applicants who have a record of positive participation or demonstrated accountability in past Commission-supported projects.

Funding Recommendations

- May be adjusted based on available resources
- Modified budgets may be required if awarded less than requested
- Recommendations are submitted to Council for final approval

Funding Disbursement

- Funds are typically available within two weeks of Council approval
- Timelines may vary based on administrative processes

Appeals Process

- Applicants who wish to challenge a funding decision must submit a written appeal by email within 10 calendar days from the date on their funding notification, clearly stating the specific decision or concern they are appealing.
- Appeals must cite specific concerns, no new project content
- Appeals will be presented to Council by staff
- Applicants are encouraged to attend the appeal meeting

Reporting & Oversight

Grantee Responsibilities

- Grant recipients are required to submit a final report **within 45 days of completing their project or event**, based on the completion date provided in the original application. This report helps demonstrate how funds were used, the impact of the project, and supports future funding efforts. Failure to submit a timely report may affect future eligibility
- Include documentation of:
    - Project outcomes
    - Financial details
    - Attendance and public engagement
    - Tourism or hotel impact (if applicable)
- Failure to report will result in ineligibility for four (4) grant cycles

Oversight & Administration

- The Arts Commission oversees program delivery and reports to City Council
- Annual and as-needed reports will summarize:
    - Use of funds
    - Economic and tourism impact
    - Grantee outcomes
    - Policy effectiveness

Policy Review & Amendments

- This policy will be reviewed annually for alignment with:
    - State law
    - Fiscal and procurement policies
    - Evolving community and cultural needs
- City Council reserves the right to amend this policy at any time

Award Acceptance & Declination

All grant applicants will be notified of award decisions by email following the City Council's review.

- **Acceptance of Award**
  Grant recipients must reply to the notification email to formally accept the award. By doing so, the recipient agrees to fulfill all obligations outlined in the Arts Grant Policy, including appropriate use of funds, public acknowledgment requirements, and submission of final reports and documentation. Acceptance constitutes a binding agreement to carry out the proposed project as described.

- **Declination of Award**
  Applicants who do not respond to the award notification email within **5 business days** will be considered to have declined the award, and the funds may be reallocated. Applicants may also formally decline the award by replying via email with written notice of their decision.

Unused Funds and Future Eligibility

If a funded event or project does not occur, the applicant must notify the Duncanville Arts Commission and City of Duncanville in writing. Any grant funds that have been disbursed must be returned or repaid in full to the City of Duncanville within 30 days of notification.

Once the cancellation has been properly communicated and the funds have been returned, the applicant will be eligible to apply for future arts grants. Failure to return funds or provide notice may result in disqualification from future funding opportunities**.**

Non-Performance and Future Ineligibility

If a funded project or event does not occur as described in the grant application, and the applicant fails to:

- Provide a final report,
- Return or repay any disbursed funds, and
- Notify the Duncanville Arts Commission in writing,

the applicant will be ineligible for future arts grants from the City of Duncanville.

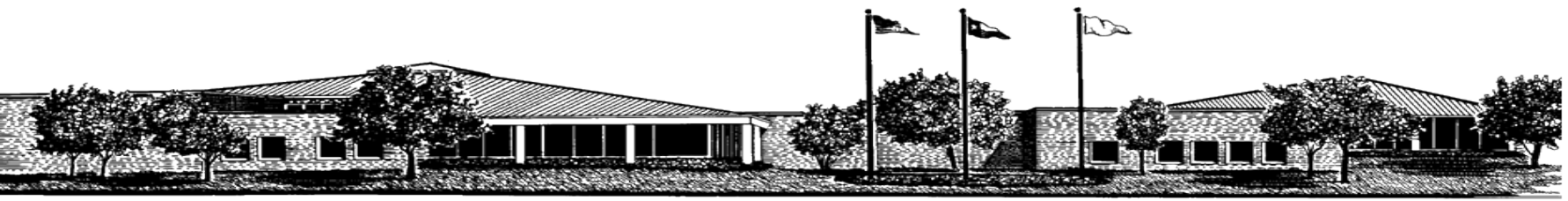
To remain eligible, applicants must fulfill all grant obligations, including timely communication, accurate reporting, and financial reconciliation, regardless of whether the funded project takes place. Failure to meet these responsibilities constitutes a breach of grant terms.

Version History

Arts Commission Adoption: April 22, 2025

City Council Adoption: June 3, 2025

City Council Revision 1 Adoption: March 3, 2026



ART GRANT ELIGIBILITY AND RESTRICTIONS

AUGUST 18, 2026

ALEX HAMBY, COMMUNICATIONS AND MARKETING ADMINISTRATOR

City of Duncanville

Duncanville
City of Champions



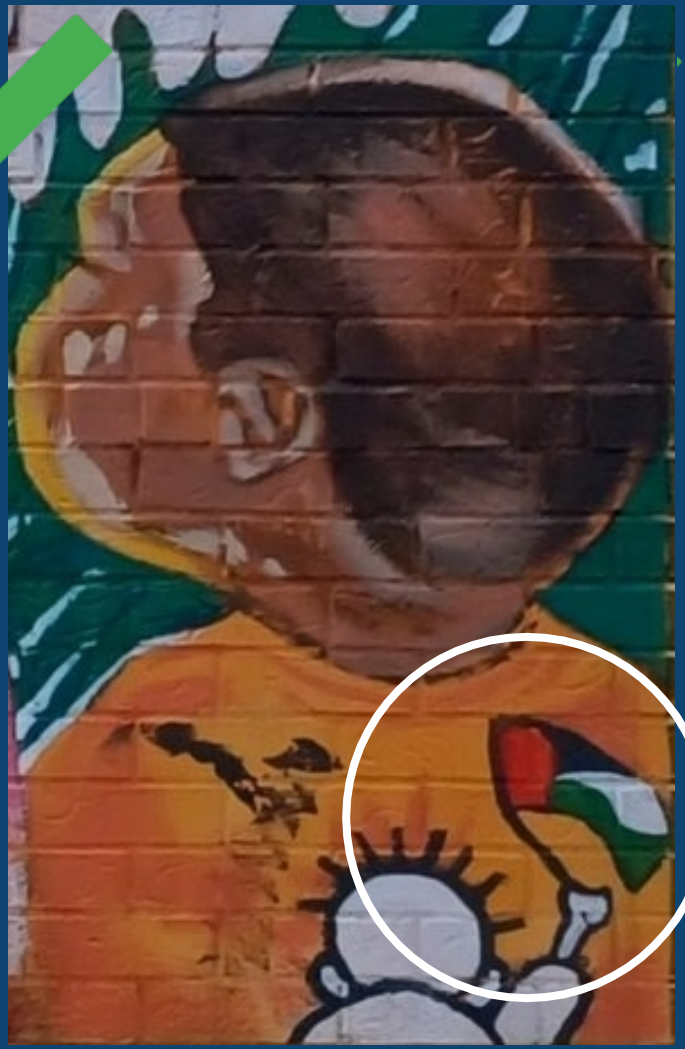
City of Duncanville

Duncanville
City of Champions



City of Duncanville

Duncanville
City of Champions





City of Duncanville

Duncanville
City of Champions

POLICY HISTORY

- Arts Commission Adopted: April 22, 2025
- City Council Adopted: June 3, 2025
- City Council Revision 1 Adopted: March 3, 2026

GENERAL ELIGIBILITY

- Applicants must be 18 years of age or older
- Applicants may reside outside Duncanville, but their proposed event or project must take place within the Duncanville, Texas city limits or have a direct and demonstrable connection to the city (e.g., public art installation, community programming, venue partnership)
- Must be in good standing with IRS, State of Texas, and City of Duncanville
- Applications must be complete and demonstrate capacity to execute the project
- A specific project or event date must be included in the application to be considered for funding
- Demonstrating multiple funding sources is recommended

City of Duncanville

Duncanville
City of Champions

NOT ELIGIBLE

- Full-time City employees
- Applicants submitting multiple proposals per cycle
- Artists funded within the current fiscal year
- Applicants who contact elected officials or Commission members regarding an application during the grant cycle
- Applicants who have received a prior grant but have not yet completed the funded project or have failed to submit the required final report are ineligible for new funding until all obligations are fulfilled.
- Applications submitted without a budget may be considered incomplete and ineligible for review

PROHIBITED USES

- Capital improvements or land purchases
- Political or religious programming
- Academic class credit projects
- Retroactive funding
- Private, non-public events*
  - A private, non-public event that limits access to a specific group of individuals and is not open to the general public and requires invitation, membership, registration, or tickets that are not advertised or available to the broader community.
- Fundraisers, receptions, or parties
- Deficit or litigation support
- School-funded workshops
- Programs lacking public access
- Commercial enterprises or retail activities

City of Duncanville

Duncanville
City of Champions

NEXT STEPS

- Policy as Tool for Vetting Applications.
- Recommendations?

City of Duncanville

Duncanville
City of Champions

THANK YOU

Any questions? Discussion.



BRIEFING AND DISCUSSION ON TEXAS SENATE BILL 785 (SB785) PERTAINING TO HUD-CODE MANUFACTURED HOMES

AUGUST 18, 2026

MARK RAUSCHER, ASSISTANT CITY MANAGER

City of Duncanville

Duncanville
City of Champions

To lead with integrity, foster inclusive civic engagement, and deliver measurable outcomes that strengthen community trust, elevate quality of life, and secure Duncanville's future as a City of Champions.

BACKGROUND

What SB 785 Requires:

- **No discriminatory permitting.** Cities cannot require a specific use permit (SUP) or similar special permit for a new HUD-code manufactured home if they do not require one for other residential housing in that zoning category.
  - This prevents cities from singling out manufactured homes for extra hurdles.
- **By-right zoning required.** Cities with zoning must allow new HUD-code manufactured homes by-right in at least one residential zoning classification (or equivalent district) and must show those areas on the zoning map.
- **Local authority preserved.** The law preserves local authority to determine exactly where and the size of the by-right permissible area for new manufactured homes.
  - Cities can no longer exclude manufactured housing entirely.
- **Effective 9/1/2026**

City of Duncanville

Duncanville
City of Champions

DUNCANVILLE ORDINANCE

- **Manufactured Homes vs. Mobile Homes:**
  - **HUD-Code Manufactured Homes** are factory-built residential homes constructed in compliance with federal HUD construction and safety standards including requirements for installation, foundation, and anchoring.
  - **Mobile Homes** are a factory-built dwelling constructed prior to the implementation of the federal HUD Code on June 15, 1976.
  - **HUD-Code Manufactured Homes** are a distinct, federally-regulated form of residential housing.
- **Duncanville's existing ordinance already allows HUD-Code Manufactured Homes:**
  - Existing ordinance limits the use to SF-43 districts by SUP only and requires the property to meet a one-acre minimum size.

City of Duncanville

Duncanville
City of Champions

EXAMPLES




HUD Code and Federal Standards
HUD CERTIFICATION LABEL
SERIAL NUMBER
DATE
JAN 15, 2026





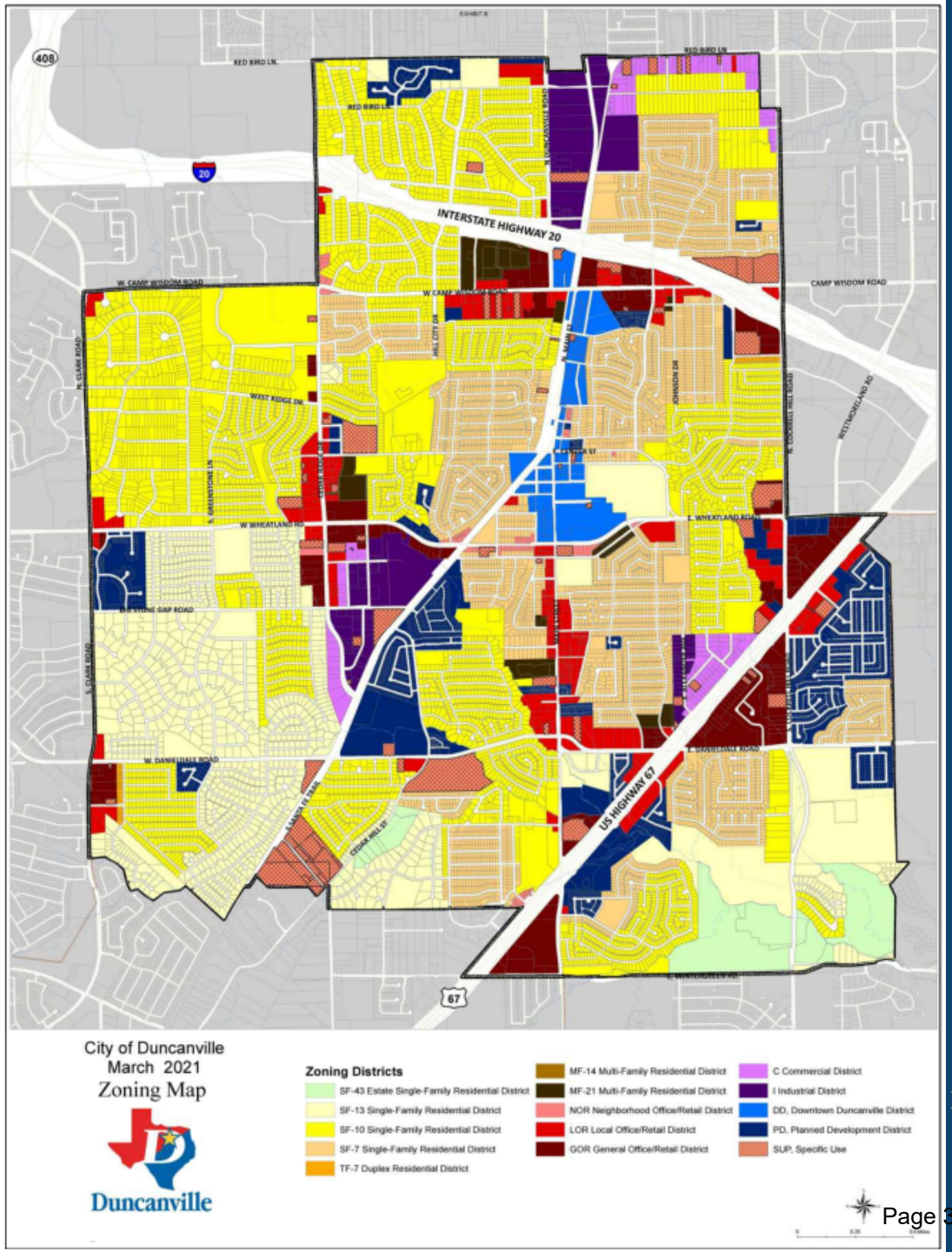


SOLUTION

Duncanville currently allows HUD-Code Manufactured Homes in SF-43 by SUP

Preferred approach is:

1. Amend the land use table to remove the SUP requirement for HUD-Code Manufactured Housing in SF-43 and allow “by-right” subject to the land use regulations for the zoning district:
   a. Tied into the municipal water/sewer systems.
   b. Have a permanent foundation and meet strict federal requirements for body and frame design, thermal protection, plumbing, electrical system, and fire safety.
   c. Installed using approved engineering standards and adherence to setback requirements.
   d. Provision of off-street parking (i.e., garages)
2. P&Z on 9/14 & City Council in October



City of Duncanville

Duncanville
City of Champions

THANK YOU

Any questions? Discussion.

City of Duncanville

Duncanville
City of Champions

Duncanville City Council Meeting Minutes
Tuesday, August 4, 2026

CALL TO ORDER

A regular meeting of the Duncanville City Council was called to order on Tuesday, August 4, 2026, at 6:00 PM in the Council Briefing Room at City Hall with a quorum to wit:

Council Present:	Mayor Greg Contreras Councilmember DeMonica Gooden Councilmember Don McBurnett Councilmember Jeremy Koontz Mayor Pro Tem Kyle Pennebaker
Council Arriving At:	Councilmember Jarred Davis arrived at 6:12 PM
Council Absent:	Councilmember Joe Veracruz

WORK SESSION / BRIEFING

1. DISCUSS AGENDA ITEMS

Mayor Contreras read the item into the record, and Interim City Manager Abernethy reviewed each item.

2. CITY COUNCIL CALENDAR

City Secretary Chiquita Taylor reviewed the council calendar.

3. BRIEFINGS / PRESENTATIONS

A. Briefing on the Library Community Needs Assessment Final Report Executive Summary

Presented by Sue Considine with Library Systems and Services (LS&S). Councilmember Koontz requested that the Library Board take on some of the priorities and discussions on the use of excess space created after the book inventory and purge. Councilmember Gooden requested a quarterly update on the progress of the Library.

B. Briefing on City Hall Ancillary Project and discuss next steps on the Police Building Bond Project

Presented by Project Manager Angel Deal, along with Rodney McManus and Larry Williams, with Kimley-Horn/ADG. Managing Director/CFO Richard Jackson reviewed the tax implications.

Mayor Contreras recessed the Briefing Session at 7:16 PM to convene the regular session.

DRAFT

EXECUTIVE SESSION

No executive session.

REGULAR SESSION - CONVENE INTO THE COUNCIL CHAMBERS (7:00 P.M. OR IMMEDIATELY FOLLOWING THE 6:00 PM WORK SESSION/BRIEFING)

The City Council convened into Regular Session in the Council Chambers at 7:25 PM with Mayor Contreras presiding.

Pastor Steve Boyer with Trinity Church delivered the Invocation.

Mayor Contreras led the Pledge of Allegiance and Texas Pledge.

4. REPORTS

A. Mayor's Report

Mayor Contreras did not have a report.

B. Councilmembers' Report

Councilmember McBurnett recognized the school district for its ribbon-cutting ceremonies at the new schools. Councilmember Koontz reported on serving on the North Central Texas Housing Finance Corporation and their program for first-time home buyers. He encouraged interested residents to apply. He also asked for support for legislation supporting state parks as part of his service to the State Parks Advisory Committee, and he encouraged everyone to support the Isabella restaurant on Main Street.

C. City Manager's Report

ICM Abernethy gave an update on the Automated Meter Infrastructure (AMI) project and the Cedar Ridge Road project. He recognized Fire Chief Chris Conneally for receiving an award from the Rotary Club. The Police promotional ceremony is this Friday, and Ron McCarty has been appointed Interim Assistant Chief. He also recognized the promotion of Marcela Perez to Economic Development Manager and reported on the updated council and mayor photos on the wall in the council chamber.

5. PROCLAMATIONS AND PRESENTATIONS

A. Briefing to Discuss Teen Council

Presented by Marketing and Communications Specialist Francisco Ramos and Lynn McGinley with the Community Engagement Advisory Board. Councilmember Davis said he appreciates the outreach to younger citizens.

6. CITIZENS' INPUT

DRAFT

Luis Moya 562 Falling Leaves Dr.
Car theft and trash pickups

Emily Bridges 418 Oleander St. (email)
Item 8D

Juan Sanchez - Las Ventanas Apartments (email)
Vacant land for soccer field

7. CONSENT AGENDA

The following may be acted upon in one motion. A City Councilmember may request items be removed from the Consent Agenda for individual consideration.

A. Consider the minutes for the July 9, 2026, Special Called Meeting and the July 21, 2026, City Council Meeting.

B. Consider a resolution authorizing approval of an expenditure of $236,820 for the Duncanville Community and Economic Development Corporation (DCEDC) to enter into a contract with the Better Block Foundation (501C3) for the design, installation and programming of the "Duncanville Better Block" demonstration project at South Main Street and East Wheatland Road.

Moved to individual consideration.

Presented by Economic Development Director Marlon Goff and Krista Nightingale with Better Block Foundation. Mayor Contreras asked questions about this being a temporary project and how the budget categories are calculated. Ms. Nightingale stated many of the projects started as temporary and have become permanent. They are considered temporary to allow the community an opportunity to test it out before committing. Mayor Contreras asked what kind of data is collected on the project. Ms. Nightingale reported that this included traffic-calming data and the number of people using the space. Councilmember Davis asked Ms. Nightingale to speak on the nexus of how these projects can become permanent installations. She stated that seventy-three percent of the projects have become permanent. It depends on community involvement and participation. Councilmember Koontz asked how this site was selected. She reported that this site was selected as it was a good place for a connection point in the city at Wheatland and Main.

Councilmember Jeremy Koontz made a motion to approve the item, Councilmember Jarred Davis seconded the motion. The vote was cast 5 for, 1 against (Councilmember Jeremy Koontz).

RES 2026-658

C. Consider an Ordinance amending the One Time Project

DRAFT

Fund of the FY 2025-26 Budget

Councilmember Don McBurnett made a motion to approve consent agenda items A and C; Councilmember Jarred Davis seconded the motion. The vote was cast 6 for, 0 against.

ORD 2594

8. ITEMS FOR INDIVIDUAL CONSIDERATION

A. Take any necessary action as a result of the Executive Session.

No executive session

B. Consider an Ordinance amending chapter 12, “miscellaneous offenses and provisions,” of the code of ordinances regulating parking on unimproved surfaces; providing purpose and intent; providing definitions; establishing applicability, parking standards, special event override procedures, exemptions, enforcement, and penalties; providing for severability; and providing an effective date.

Presented by Code Enforcement Superintendent Victor Pizarro. Councilmember Davis asked about vacant or unoccupied vehicles. Mr. Pizarro stated this is intended to be able to enforce the storage of junk vehicles and vehicles that are sitting or stored for long periods of time.

Councilmember Don McBurnett made a motion to approve the item, Councilmember Jarred Davis seconded the motion. The vote was cast 6 for, 0 against.

ORD 2595

C. **ZONE-2026-00013:** Consider a public hearing and request from Monte Anderson (owner) to amend the current Planned Development 1817 (PD-1817) to add the land use ‘tattoo shop’ as a permitted use on real property located at 100 S. Main Street**, legally described as Lot 1, Block A, Main Station on 1.31 acres in the City of Duncanville, Dallas County, Texas.**

Presented by City Planner Desiree Powell.

Mayor Contreras opened the public hearing at 9:00 PM
Spoke in support:
Monte Anderson 1210 Greenleaf
Mae De La Rosa 1107 Rock Springs Rd.

Spoke in opposition:

DRAFT

None

Councilmember Jarred Davis made a motion to close the public hearing; Councilmember Jeremy Koontz seconded the motion. The vote was cast 6 for, 0 against.
Mayor Contreras closed the public hearing at 9:04 PM.

Councilmember Don McBurnett made a motion to approve the item; Mayor Pro Tem Kyle Pennebaker seconded the motion. The vote was cast 6 for, 0 against.

PASSED

D. **ZONE-2026-00016:** Consider a public hearing and request from Daniel Lozano (applicant/owner) for a Zoning Change from Local Office/Retail (LOR) to Multi-Family Residential District 21 (MF-21) to develop residential structures on real property located at 1435 Candlelight Avenue**, legally described as Block L, Lot 1, Candlelight Estates 3rd Installment on 1.2 acres, City of Duncanville, Dallas County, Texas.**

Presented by Desiree Powell.
Mayor Contreras opened the public hearing at 9:14 PM
Spoke in support:
Applicant - Develex

Spoke in opposition:
Mae de la Rosa 1107 Rock Springs

Councilmember DeMonica Gooden made a motion to close the public hearing; Councilmember Don McBurnett seconded the motion. The vote was cast 6 for, 0 against.
The public hearing closed at 9:24 PM

Mayor Contreras stated he has concerns about the number of parking spaces available for guests and residents. This will add to a parking issue that is already a problem in the area.

Councilmember Jeremy Koontz made a motion to approve the item; Councilmember Don McBurnett seconded the motion. The vote was cast 0 for, 6 against.

FAILED

9. STAFF AND BOARD REPORTS

A. Report on Red, White, & Goals: 4th of July in Duncanville Recap

Presented by Special Event Planner Devon Handley.

DRAFT

B. Preview report on Festival de las Americas

Presented by Devon Handley.

C. Receive a report and discuss City Board and Commission updates

Presented by Chiquita Taylor. Through consensus, the council agreed to appoint returning applicants.

D. Receive a report, hold a discussion and provide staff direction on the Duncanville Fieldhouse Facilities Management RFP No. 26-0009.

Presented by Richard Abernethy. Through consensus, the Council agreed to pause the RFP process for third-party management of the Fieldhouse.

ADJOURNMENT

The meeting was adjourned at 10:32 PM.

APPROVED:

_____

CITY SECRETARY

DRAFT

Duncanville Budget Workshop Meeting Minutes
Thursday, August 6, 2026

CALL TO ORDER

A special meeting of the Duncanville City Council was called to order on Thursday, August 6, 2026, at 9:00 AM in the Council Briefing Room at City Hall with a quorum to wit:

Council Present:	Mayor Greg Contreras Councilmember DeMonica Gooden Councilmember Don McBurnett Councilmember Jeremy Koontz Mayor Pro Tem Kyle Pennebaker Councilmember Jarred Davis
Council Arriving At:	
Council Absent:	Councilmember Joe Veracruz

1. CITIZENS' INPUT

Patricia Ebert 115 S. Greenstone
Senior Bus Trips

2. REPORTS

A. Present, discuss, and deliberate all revenues, expenditures, and projects for the Fiscal Year 2026-2027 Proposed Annual Budget. The City Council may direct staff to make additions, deletions, or corrections to the proposed budget and projects per current and future goals.

FY 2026-27 Proposed Budget

Facilitated by Assistant Finance Director Jennifer Otey. The workshop began with the presentation of the Budget Video by Communications and Marketing Specialist Francisco Ramos.

Marlon Goff – DCEDC recap
Jennifer Otey– HOT Funds, Sanitation, Drainage, Utility Funds, General Fund Revenues & Expense Overview, and Mayor/Council
Craig Brasfield – Fieldhouse
Matt Bryant – Enterprise Funds

Mayor Contreras recessed the meeting at 11:29 AM

Councilmember Pennebaker exited the meeting at 11:30 AM
The meeting was reconvened at 12:30 PM.

DRAFT

Chiquita Taylor – City Secretary
Ashley Jacobs – Human Resources
Clayton Ganzer – Information Technology
Alex Hamby – Communications and Marketing
Hannah Olsen – Library
Richard Jackson – Fiscal Services

Councilmember Davis exited the meeting at 3:43 PM.

LaSheyla Jones – Planning and Permitting
Bart Stevenson – Parks and Recreation
Interim Chief Ron Wilcots – Police
Matt Bryant – Public Works
Chief Chris Conneally – Fire

B. Announcement of and establishing a budget and tax rate.

This item will be discussed at the August 10, 2026, Special Called meeting.

3. ROLL CALL VOTE

A. "The City Council shall vote to consider a maximum ad valorem tax rate for the fiscal year 2026-2027. This vote is NOT to adopt a property tax rate; that vote will be scheduled for a later date. The vote to consider a maximum ad valorem rate is a statutory requirement, Per Texas Code 26.06, and is not a vote to consider adoption of a tax rate."

This item will be considered at the August 10, 2026, Special Called meeting.

ADJOURNMENT

The meeting was adjourned at 5:19 PM.

APPROVED:

_____
CITY SECRETARY

DRAFT

STAFF REPORT

MEETING: City Council - August 18, 2026

TITLE:
Consider a Resolution for reappointments to Boards and Commissions for terms expiring August 31, 2026.

Vision Statement:
"Duncanville, a City of Champions, is a safe, vibrant, diverse community committed to excellence in education, business, and good governance."

Pillar:
Cultivate Community Trust:

- **Foster transparency, two-way communication, and active public participation.**

STAFF RESPONSIBLE:
Chiquita Taylor, City Secretary

BACKGROUND/HISTORY:
Each year, the board and commission members whose terms are ending in August of that year are given the opportunity to request reappointment to their current board or commission. In addition, the City advertises the need for new board and commission applicants through various media including the City's website, the Champion monthly newsletter, announcements during City Council meetings, and as a utility billing insert. In addition, the City communicated the need for additional board and commission members to the citizens on the City's LED sign at the corner of Main and Wheatland, posters in the City Hall lobby, as well as other forms of social media. These communication tools were successful resources for recruiting new applicants to fill the vacancies.

The City Council is reappointing returning board and commission members who are in good standing and have reapplied. Once appointments have been made by City Council, the new terms for each will begin immediately.

POLICY EXPLANATION:
City Council will need to formally appoint citizens to the Zoning Board of Adjustment, City Planning & Zoning and Commission, Community Engagement Board, Duncanville Community Economic Development Corporation Board (DCEDC), Duncanville Neighborhood Vitality Commission, Keep Duncanville Beautiful Board, Library Advisory Board, Park & Recreation Advisory Board, and TIF (Tax Increment Financing Reinvestment Zone Number One) to fill the vacancies created by terms expiring in August 2026 as well as resignations over the past year.

FUNDING SOURCE:
N/A

ACTION ALTERNATIVES:
1. Approve.
2. Disapprove
3. Other actions as directed by Council.

ATTACHMENTS:
Resolution - Board and Commission Reappointments, Exhibit A - Board Appointments 08-18-26

RESOLUTION NO.

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, APPROVING THE REAPPOINTMENT OF THE BOARDS AND COMMISSIONS WHICH ARE OUTLINED IN EXHIBIT A, WHICH IS ATTACHED HERETO AND INCORPORATED HEREIN BY REFERENCE; AND MEMBERS SHALL SERVE UPON SUCCESSFUL QUALIFICATION AND AFTER TAKING THE OATH; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the City of Duncanville, Texas has different Boards and Commissions including Zoning Board of Adjustment, City Planning Commission, Duncanville Community and Economic Development Corporation (DCEDC), Duncanville Neighborhood Vitality Commission, Keep Duncanville Beautiful Board, Library Advisory Board, Parks and Recreation Advisory Board, Community Engagement Board, Civil Service Commission, and Tax Increment Financing Reinvestment Zone Number One (TIF #1); and

WHEREAS, each year the Board and Commission members are given the opportunity to request reappointment to their current board or commission; and

WHEREAS, appointments to vacancies on the City's various boards and commissions are made each year by the end of August, and to fill any vacancies due to resignation; and

WHEREAS, the City Council of Duncanville, Texas, finds it to be in the public interest to make appointments to fill said vacancies.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, THAT:

SECTION 1. The City Council hereby approves the appointment of the board and commission, which are set forth in Exhibit A, which is attached hereto and incorporated herein by reference, and elected members shall serve upon successful qualification and taking the oath.

SECTION 2. This resolution shall take effect immediately upon passage.

DULY RESOLVED AND ADOPTED by the City Council of the City of Duncanville, Texas, on this the 18th day of August 2026.

APPROVED:

_____

Greg Contreras, Mayor

ATTEST:

_____

Chiquita Taylor, City Secretary

APPROVED AS TO FORM:

_____

Robert E. Hager, City Attorney

Exhibit A

City Council B&C (08-18-2026)

Planning and Zoning Commission
Appointments for 2-year Term 2026-2028
1. Stephanie Champagne
2. Izaiah Martin Salazar

Zoning Board of Adjustment
Appointments for 2-year Term 2026-2028
1. Constance Willis

Park and Recreation Advisory Board
Appointments for 2-year Term 2026-2028
1. Kim Malone

Library Advisory Board
Appointments for 2-year Term 2026-2028
1. Jan Knoll
2. Riley Pierce

DCEDC
Appointments for 2-year Term 2026-2028
1. Patrick Harvey
2. Carolyn Thompson

TIF
Appointments for 2-year Term 2026-2028
1. Kenneth Bain
2. Michael Hoffmeyer

Keep Duncanville Beautiful
Appointments for 2-year Term 2026-2028
1. Amy Robledo
2. Patsy Wheeler

Neighborhood Vitality
Appointments for 2-year Term 2026-2028
1. Jondwalyn Holbert

Exhibit A

Civil Service Commission
Appointments for 3-year Term 2026-2029
1. Doug Sisk

Arts Commission
Appointments for 3-year Term 2026-2029
1. Mary Anne Taylor

Community Engagement Board
Appointments for 3-year Term 2026-2028
1. Melonie Graves Davis

STAFF REPORT

MEETING: City Council - August 18, 2026

TITLE:
Consider a Civil Service Ordinance amending the Police Classifications for Police Lieutenant and Police Sergeant and updating the Civil Service Pay Plan

Vision Statement:
"Duncanville, a City of Champions, is a safe, vibrant, diverse community committed to excellence in education, business, and good governance."

Pillar:
Emphasize: Government Accountability, Customer Service, Efficiency and Process

STAFF RESPONSIBLE:
Robert Byrd

BACKGROUND/HISTORY:
Any changes made to Civil Service classifications, position numbers, or pay must be approved by ordinance by the City Council per §143.021 of the Texas Local Government Code.

One (1) additional Police Sergeant is recommended to be added to the classification for a new total of seven (7) Police Sergeants.
- This additional Police Sergeant position will supervise the Criminal Investigations Division.

One (1) additional Police Lieutenant is recommended to be added to the classification for a new total of six (6) Police Lieutenants.
- This additional Police Lieutenant position will become a Watch Commander on a day shift patrol platoon, giving each platoon a Watch Commander.

This will increase the total number of sworn officers from 65 to 67.

POLICY EXPLANATION:
Per Texas Local Government Code §143.021, the commission shall provide for the

classification of all firefighters and police officers. However, the municipality's governing body shall establish the classifications by ordinance. The governing body by ordinance shall prescribe the number of positions in each classification.

FUNDING SOURCE:

ORG and Object Number

N/A

Available Budget	**Purchase Amount**	**After Encumber**
N/A	N/A	N/A

ACTION ALTERNATIVES:

1. Approve.
2. Disapprove
3. Other actions as directed by Council.

ATTACHMENTS:

Civil Service Pay Plan Ordinance 8.18.2026

AN ORDINANCE OF THE CITY OF DUNCANVILLE, TEXAS

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DUNCANVILLE, TEXAS, CREATING CLASSIFIED POSITIONS UNDER CIVIL SERVICE IN THE POLICE DEPARTMENT; PROVIDING FOR A PAY SCALE UNDER CIVIL SERVICE FOR POLICE AND FIRE; REPEALING ALL ORDINANCES IN CONFLICT HEREWITH; AND, PROVIDING A SEVERABILITY CLAUSE; PROVIDING A REPEALING CLAUSE, AND PROVIDING AN EFFECTIVE DATE.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, THAT:

SECTION 1. The classified positions under Civil Service in the Police Department shall be as follows:

P1	Assistant Chief (appointed)	2
P2	Police Lieutenant	6
P3	Police Sergeant	7
P4	Police Patrol Officer	52

SECTION 2. The classified positions under Civil Service in the Fire Department shall be as follows:

F1	Assistant Fire Chief (appointed)	1
F2	Division Chief – EMS	1
F3	Battalion Chief	3
F3	Fire Marshal/Battalion Chief	1
F4	Fire Captain	6
F4	Deputy Fire Marshal/Captain	1
F5	Fire Engineer	6
F6	Fire Fighter	35

SECTION 3. The annual pay scale for each of the above-captioned classified positions shall be as follows:

POLICE DEPARTMENT

Time in Position with Duncanville

		START	1 YR	2 YR	3 YR	4 YR	5 YR	6 YR
P1	Assistant Police Chief	$159,434.28	164,967.58					
P2	Police Lieutenant	$122,265.41	125,933.32	129,711.54	133,603.38			
P3	Police Sergeant	$103,517.72	107,658.87	111,964.39	116,443.09			
P4	Police Officer (No Previous Experience)	$ 75,387.90	77,649.32	79,979.13	82,378.44	90,616.61	95,147.17	101,267.33
P4	Police Officer (1 year Credited Previous Experience)	$77,649.32	79,979.13	82,378.44	90,616.61	95,147.17	101,267.33	
P4	Police Officer (2 year Credited Previous Experience)	$79,979.13	82,378.44	90,616.61	95,147.17	101,267.33		
P4	Police Officer (3 year Credited Previous Experience)	$82,378.44	90,616.61	95,147.17	101,267.33			
P4	Police Officer (4 year Credited Previous Experience)	$90,616.61	95,147.17	101,267.33				
P4	Police Officer (5 year Credited Previous Experience)	$95,147.17	101,267.33					

Credited Previous Experience shall be defined as one year of credited experience for every full year actively employed as a full-time law enforcement officer in a municipality with a population of 30,000 or more, a county with a population of 125,000 or more or a state law enforcement agency, not to exceed five years of Credited Previous Experience.

Credited Previous Experience shall also be defined as one year of credited experience for every two full years actively employed as a full-time law enforcement officer in a municipality with a population of less than 30,000 or a county with a population of less than 125,000, not to exceed five years of Credited Previous Experience.

Credited Previous Experience shall also be defined as one year of credited experience for every two full years actively employed as a full-time law enforcement officer with any TCOLE certified organization other than a municipal police organization or a county sheriff's office

Police applicants with a minimum of one year full-time prior service as a police officer must possess a TCOLE license and/or have taken and passed the TCOLE state licensing exam to qualify for Credited Previous Experience and be placed in the current pay grade of the Duncanville Police Department compensation plan.

Credited Previous Experience will not apply if more than three years have passed since the most recent qualifying employment.

Population figures shall be based on current information from the UTSA Texas State Data Center or the latest United States census information if outside Texas.

FIRE DEPARTMENT

Time in Position with Duncanville

		START	1 YR	2 YR	3 YR	4 YR	5 YR	6 YR
F1	Assistant Fire Chief	$159,434.28	164,967.58					
F2	Division Chief - EMS	$151,004.16	155,534.71					
F3	Battalion Chief	$136,341.35	140,431.76	144,644.61	148,984.33			
F3	Fire Marshal	$ 136,341.35	140,431.76	144,644.61	148,984.33			
F4	Fire Captain	$118,830.27	122,395.58	126,067.90	129,849.43			
F4	Deputy Fire Marshal	$118,830.27	122,395.58	126,067.90	129,849.43			
F5	Fire Engineer	$105,739.74	108,412.31	110,581.06	113,172.31			
F6	Firefighter (No Previous Experience)	$ 75,387.90	77,649.32	79,979.13	82,378.44	90,616.61	95,147.17	97,891.76
F6	Firefighter (1 year Credited Previous Experience)	$ 77,649.32	79,979.13	82,378.44	90,616.61	95,147.17	97,891.76	
F6	Firefighter (2 year Credited Previous Experience)	$ 79,979.13	82,378.44	90,616.61	95,147.17	97,891.76		
F6	Firefighter (3 year Credited Previous Experience)	$ 82,378.44	90,616.61	95,147.17	97,891.76			
F6	Firefighter (4 year Credited Previous Experience)	$ 90,616.61	95,147.17	97,891.76				
F6	Firefighter (5 year Credited Previous Experience)	$ 95,147.17	97,891.76					

Credited Previous Experience shall be defined as one year of credited experience for every full year actively employed as a full-time Fire Fighter or Paramedic in a municipality or an Emergency Services District (ESD) with a population of 30,000 or more or a county with a population of 125,000 or more, not to exceed five years of Credited Previous Experience.

Credited Previous Experience shall also be defined as one year of credited experience for every two full years actively employed as a full-time Fire Fighter or Paramedic in a municipality or an Emergency Services District (ESD) with a population of less than 30,000 or a county with a population of less than 125,000, not to exceed five years of Credited Previous Experience.

Fire applicants with a minimum of one year full-time prior service as a Fire Fighter or Paramedic must be certified as a Fire Fighter with the Texas Commission on Fire Protection and/or be certified or have the ability to be certified as an EMT-Paramedic with the Texas Department of State Health Services to qualify for Credited Previous Experience and be placed in the current pay grade of the Duncanville Fire Department compensation plan.

Credited Previous Experience will not apply if more than three years have passed since the most recent qualifying employment.

Population figures shall be based on current information from the UTSA Texas State Data Center or the latest United States Census information if outside Texas.

SECTION 4. That should any sentence, paragraph, subdivision, clause, phrase or section of this Ordinance be adjudged or held to be unconstitutional, illegal or invalid, the same shall not affect the validity of this Ordinance as a whole, or any part or provision thereof other than the part so decided to be invalid, illegal or unconstitutional, and shall not affect the validity of the Code of Ordinances as a whole."

SECTION 5. That all Ordinances of the City of Duncanville heretofore adopted which are in conflict with the provisions of the Ordinance be, and the same are hereby repealed.

SECTION 6. That this Ordinance shall take effect on the 1st day of October, 2026.

DULY ORDAINED AND ADOPTED by the City Council of the City of Duncanville, Texas, on August 18, 2026.

APPROVED:

_____

Greg Contreras, Mayor

ATTEST:

_____

Chiquita Taylor, City Secretary

APPROVED AS TO FORM:

_____

Robert E. Hager, City Attorney

STAFF REPORT

MEETING: City Council - August 18, 2026

TITLE:
Consider an Ordinance amending the FY 2025-2026 budget by appropriating revenue received and amending expenditures in the Utility and PEG (Public Education Government) Fund.

Vision Statement:
"Duncanville, a City of Champions, is a safe, vibrant, diverse community committed to excellence in education, business, and good governance."

Pillar:
Cultivate Community Trust:

- **Foster transparency, two-way communication, and active public participation.**

STAFF RESPONSIBLE:
Jennifer Otey

BACKGROUND/HISTORY:
UTILITY FUND
The purpose of this ordinance is to amend the Utility Fund to recognize revenue received and amend expenditures. Trinity River Authority sent a "settle-up" refund from FY 2025. If actual flows and capital cost are less than projected, a refund is issued. The City received a refund in the amount of $944,819. The expenditure amendment is to cover the shortage to pay the remainder of the year for Trinity River Authority and Dallas Water Utilities. Amount needed for Trinity River Authority is $380,000. The amount projected for Dallas Water Utilities is $570,000.

PEG FUND
The Peg Fund currently has a budget of $50,000. An amendment of $28,000 is needed for a total of $78,000 to complete Phase I of the City Council Chambers AV refresh. There is sufficient resources in the fund from revenue collected to cover the expenditure. This project is intended to upgrade the back end processing equipment. This will give the ability to expand and add on features over the next 18 months. This

project is expected to be completed by September 30. This project will:

- Enable the ability to have, and stream, two different meetings at the same time. One from Council Chambers & one from the Briefing Room
- Add locally recorded backup of all meetings. Currently if something happens to the stream or internet, we lose that section of the meeting.
- Set a solid and system foundation to enable future growth and additions, such as:
    - Electronic voting
    - Digital name plates
    - Better in room audio
    - Audio & Video to overflow locations (Lobby, Senior Center, etc.)
    - Larger, higher quality, and more flexible display options
    - The ability to operate the system ourselves and not rely on 3rd party contractors
    - Higher quality TV video capabilities

POLICY EXPLANATION:
The Texas Local Government Code 102.010 allows for changes to the municipality's budget necessary for operations. Additionally, the City Council must approve budgetary amendments and a copy of the amendment shall be filed with the City Secretary's Office by law.

FUNDING SOURCE:
ORG and Object Number
N/A

Available Budget	**Purchase Amount**	**After Encumber**
N/A	N/A	N/A

ACTION ALTERNATIVES:
1. Approve.
2. Disapprove
3. Other actions as directed by Council.

ATTACHMENTS:
26 08.18 Amendment Exhibit A, 26 08.18 Amendment Ordinance

002 - WATER/SEWER UTILITY FUND SUMMARY

FY 2025-26 BUDGET AMENDMENTS - 08.18.26

REVENUES	ACTUALS YTD FY 25-26	BUDGET FY 25-26	AMENDMENT	REVISED BUDGET FY 25-26
53 - FINES & FEES	6,685	4,000		4,000
54 - INTERGOV REVENUES	0	0		
55 - INTEREST	159,734	105,000		105,000
57 - CHARGES FOR SERVICES	16,952,161	24,347,050		24,347,050
59 - OTHER SOURCES	979,058	40,000	944,819	984,819
TOTAL REVENUES	**$18,097,638**	**$24,496,050**	**$944,819**	**$25,440,869**

EXPENSES	ACTUALS YTD FY 25-26	BUDGET FY 25-26	AMENDMENT	REVISED BUDGET FY 25-26
002 - UTILITY FUND	3,521,897	5,897,319		5,897,319
02311000 - UTILITIES ADMINISTRATION	890,027	1,570,953		1,570,953
02312000 - WATER & SEWER SERVICES	12,269,752	15,164,445	950,000	16,114,445
02411000 - UTILITY CUSTOMER SERVICES	1,242,691	1,701,028		1,701,028
TOTAL EXPENDITURES	**$17,924,368**	**$24,333,745**	**$950,000**	**$25,283,745**
NET REVENUE OVER / (UNDER) EXPENDITURES	**$173,271**	**$162,305**	**($5,181)**	**$157,124**
BEGINNING FUND BALANCE	**$9,035,570**			**$9,035,570**
ENDING FUND BALANCE PROJECTED	**$9,197,875**			**$9,192,694**

215 - PEG FUND
SUMMARY
FY 2025-26 BUDGET AMENDMENTS - 08.18.26

REVENUES	ACTUALS YTD FY 25-26	BUDGET FY 25-26	AMENDMENT	REVISED BUDGET FY 25-26
55 - INTEREST	0	0		
56 - FRANCHISE FEE REV	15,249	40,000	0	40,000
58 - TRANSFER FROM FUNDS	0	0		
TOTAL REVENUES	**$15,249**	**$40,000**	**($0)**	**$40,000**

EXPENSES	ACTUALS YTD FY 25-26	BUDGET FY 25-26	AMENDMENT	REVISED BUDGET FY 25-26
21501080 - PEG NON-DEPARTMENTAL	0	50,000	28,000	78,000
TOTAL EXPENDITURES	**$0**	**$50,000**	**$28,000**	**$78,000**
NET REVENUE OVER / (UNDER) EXPENDITURES	**$15,249**	**($10,000)**	**($28,000)**	**($38,000)**
BEGINNING FUND BALANCE		**$94,340**		**$94,340**
ENDING FUND BALANCE PROJECTED		**$84,340**		**$56,340**

ORDINANCE NO.

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, AMENDING THE FY 2025-2026 BUDGET BY APPROPRIATING FUND BALANCE RESOURCES AND REVENUES RECEIVED AND AMENDING EXPENDITURES IN THE UTILITY FUND AND PEG FUND; EXCEPT AS AMENDED HEREIN SHALL BE IN FULL FORCE AND EFFECT; AUTHORIZING THE CITY MANAGER TO MAKE ADJUSTMENTS; PROVIDING FOR THE REPEAL OF ALL ORDINANCES IN CONFLICT; PROVIDING A SEVERABILITY CLAUSE; AND, PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the City Council adopted the 2025-2026 Budget by Ordinance 2549 on September 16, 2025; and

WHEREAS, the Texas Local Government Code 102.010, "Changes in Budget for Municipal Purposes", allows a municipality to amend its budgets as deemed necessary for municipal purposes; and

WHEREAS, the requested amendments, as referenced in “Exhibit A”, have sufficient revenue resources to cover amended expenditures; and

WHEREAS, the City Manager is submitting the amended budget of revenues and expenditures for conducting the affairs of the City for the Fiscal Year 2025-2026.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, THAT:

SECTION 1: The budget and fund accounts adopted therein for the Fiscal Year 2025-2026 shall be, and are hereby, amended as set forth in Exhibit “A” which is attached hereto and incorporated herein by reference for all purposes.

SECTION 2: The balance of the budget, as amended, except as amended herein, shall be in full force and effect.

SECTION 3: A copy of the Budget Amendment will be provided to the City Secretary’s Office as required by law.

DULY ORDAINED AND ADOPTED by the City Council of the City of Duncanville, Texas, on this the 18th day of August 2026.

APPROVED:

_____

Greg Contreras, Mayor

ATTEST:

_____

Chiquita Taylor, City Secretary

APPROVED AS TO FORM:

_____

Robert E. Hager, City Attorney

STAFF REPORT

MEETING: City Council - August 18, 2026

TITLE:
Consider a Resolution Declaring No Award Made for Request for Proposals for Third-Party Operations and Management Services at Duncanville Fieldhouse

Vision Statement:
"Duncanville, a City of Champions, is a safe, vibrant, diverse community committed to excellence in education, business, and good governance."

Pillar:
Emphasize: Government Accountability, Customer Service, Efficiency, and Process

STAFF RESPONSIBLE:
Richard Jackson
Elton Brock
Richard Abernethy

BACKGROUND/HISTORY:
The City of Duncanville issued RFP 26-0009 seeking proposals from qualified third-party firms for operations and management responsibilities for the Duncanville Fieldhouse. The solicitation was conducted in accordance with the City's procurement policies and procedures. The City received proposals that met the submission requirements.

Following receipt and compiling of the proposals and seeking additional direction from City Council, the decision was made not to move forward with awarding a contract for third-party management services at this time.

POLICY EXPLANATION:
Since the City Council has elected not to proceed with awarding a bid pursuant to RFP 26-0009, Council action is being requested to formally close out the solicitation. Not awarding a bid preserves the City's flexibility to determine the best operational approach and issue a new solicitation in the future if desired.

FUNDING SOURCE:

ORG and Object Number
N/A

Available Budget	Purchase Amount	After Encumber
N/A	N/A	N/A

ACTION ALTERNATIVES:

1. Approve.
2. Disapprove
3. Other actions as directed by Council.

ATTACHMENTS:
Fieldhouse Third Party Mgmt - BAFO Analysis 1, NO Award for Fieldhouse RFP, Resolution_Declaring No Award for Fieldhouse RFP Bid Submissions_CM

Duncanville Fieldhouse Third Party Mgmt - Analysis of Best and Final Offers

Duration	Description	Qty		Cost	Total	Kemper Sports	Eastern Sports	Own Your Own Time	Neltex Sports	Sports Facility
Years 1-2	Facility Use Fee (Rent) due to City Monthly - (Non-Negotiable - Flat Use Fee, includes water, electricity, gas, lawn services, building maintenance, general cleaning, pest control services, general building insurance, general internet services and trash services)	24	Cost of yearly operations is estimated to be $20,0000	$20,000.00	$480,000.00	**$480,000.00**	**$480,000.00**	**$480,000.00**	**NO BID**	**NO BID**
Years 1-2	Percentage of Facility Sub-Lease Fees	24	**$960,800**	____ %		**95%**	**0%**	**15%**	**NO BID**	**NO BID**
Years 1-2	Percentage of Facility Food and Beverage	24	**Current City operated $424,000-420,000 = $4,000 New Concessions Agreement = 120k lease**	____ %		**95%**	**0%**	**10%**	**NO BID**	**NO BID**
Years 1-2	Percentage of Facility Advertising Sponsorship	24	**$100,000**	____ %		**95%**	**0%**	**30%**	**NO BID**	**NO BID**
Years 1-2	Percentage of Parking Fees	24	**1/2 of $150,000**	____ %		**95%**	**0%**	**15%**	**NO BID**	**NO BID**
Optional Pricing:						**Optional: Rent:** As consideration for the mgmt services provided by KemperSports, the City shall pay Kemper Sports a mgmt fee equal to 5% of Revenue. The City shall retain the remaining ninety-five percent (95%). All facility operating expenses and costs shall be the responsiblity of the City and passed through at cost, without markup.	**Percentage of Net Operating Income: *20%*** Projected at $414,049 per year at maturity. Projected at $115,469 floor.	**None**	**NO BID**	**NO BID**

Procurement Actions Next Steps:

1. Assign Evaluation Committee Members
   Council Members Assigned:
   1
   2
   3
   City Staff Assigned:
   1 Elton Brock, Chief Procurement Officer
   2
   3
2. Conduct Initial Evaluation
3. Conduct Interviews and Final Negotiations
4. Conduct Final Evaluation
5. Make recommendation to City Council

ELECTRONICALLY DELIVERED

August 18, 2026

Notice: All Respondents and Participants

Subject: Notice of Non-Award of Solicitation Request for Proposals #26-0009 – Fieldhouse Third Party Operations and Management Services

Dear Participants and Respondents,

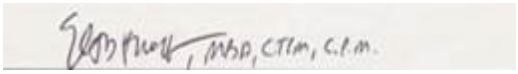
The City Council of Duncanville is releasing this notification to inform all respondents and participants that a “non-award” has been issued for this solicitation, in accordance with the terms outlined in the solicitation documents.

This decision has been made following further internal review of our operational requirements.

We appreciate your time, efforts, and communication to the City of Duncanville throughout this process.

Sincerely,

Best regards,



Elton D. Brock, MBA, CTPM, CTCM, CPSM, C.P.M.
Chief Procurement Officer
203 E. Wheatland
Duncanville, Texas 75116
972-780-5880

cc: City Manager’s Office

RESOLUTION NO _____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, DECLARING THAT NO AWARD SHALL BE MADE FOR REQUEST FOR PROPOSALS (RFP) 26-0009 FOR THIRD-PARTY OPERATIONS AND MANAGEMENT SERVICES AT THE DUNCANVILLE FIELDHOUSE; AND PROVIDING AN EFFECTIVE DATE

WHEREAS, the City issued Request for Proposals (RFP) 26-0009 seeking qualified firms to provide third-party operations and management services for the Duncanville Fieldhouse; and

WHEREAS, the City received proposals in response to RFP 26-0009; and

WHEREAS, after review and discussion, it has been decided to not move forward with awarding a contract for third-party operations and management services at this time; and

WHEREAS, the City Council finds it to be in the best interest of the City of Duncanville not to award a bid under RFP 26-0009.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, THAT:

SECTION 1: That no award shall be made for RFP 26-0009, Third-Party Operations and Management Services at the Duncanville Fieldhouse.

SECTION 2: This Resolution shall become effective immediately upon its passage.

DULY RESOLVED AND ADOPTED by the City Council of the City of Duncanville, Texas, on this the 18th day of August 2026.

APPROVED:

_____

Greg Contreras, Mayor

ATTEST:

_____

Chiquita Taylor, City Secretary

APPROVED AS TO FORM:

_____

Robert E. Hager, City Attorney

STAFF REPORT

MEETING: City Council - August 18, 2026

TITLE:
Consider a Resolution adopting the Drainage Master Plan and Stream Condition Assessment as prepared by Freese & Nichols.

Vision Statement:
"Duncanville, a City of Champions, is a safe, vibrant, diverse community committed to excellence in education, business, and good governance."

Pillar:
Cultivate Community Trust:

- **Foster transparency, two-way communication, and active public participation.**

Plan with Purpose:

- **Embed the Comprehensive Plan into daily operations, zoning, budgeting, and land use.**

STAFF RESPONSIBLE:
Matt Bryant
Shahad Mohammed

BACKGROUND/HISTORY:
In 2025, the City retained Freese & Nichols to develop a Drainage Master Plan (DMP) and conduct a Stream Condition Assessment (SCA). The DMP was developed to identify drainage needs, costs, and priorities for existing and projected drainage issues across the City's public drainage system. The SCA was conducted to assess the current condition of the City's creek and stream system and to develop conceptual alternatives to reduce erosion risks. The ultimate goal of these projects was to serve as a strategic guide for future drainage infrastructure improvements, long-term maintenance, and planning to address existing and future drainage needs. Freese & Nichols completed

both the DMP and SCA in Spring 2026 and presented their findings in a briefing to the City Council at the April 21, 2026, meeting. Due to the need for additional time to discuss the DMP and SCA findings, staff returned for a follow-up briefing on July 7, 2026.

Freese & Nichols prepared thorough reports detailing these projects. They are attached for review. In short, the efforts identified/considered the following capital projects:

- Six flood management projects that address roadway overtopping, structural flooding, and undersized drainage infrastructure (DMP)
- Two flood management projects from the Dallas County Inland Port Flood Protection Planning Study (DMP)
- Three asset protection projects in locations where erosion, scour, and channel instability are actively threatening City-owned infrastructure, including sanitary sewer crossings and stormwater facilities (SCA)

Additional recommendations were made regarding the development of a capital program in response to their findings, project funding considerations, next steps, and long-term program considerations. The hope is that, by implementing the recommendations outlined by Freese & Nichols, staff will be better positioned to address immediate infrastructure risks, reduce long-term flood impacts, and establish a sustainable and effective approach to stormwater management.

POLICY EXPLANATION:
Staff requests City Council's adoption of the Drainage Master Plan and Stream Condition Assessment. The findings and recommendations of these efforts will support informed decision-making for the long-term management of the City's drainage system, including but not limited to the following goals:

- developing a phased capital improvement program to address identified deficiencies
- pursue grant and funding opportunities
- drainage utility fee assessment
- establishing a drainage policy and design standards/specifications

FUNDING SOURCE:

ORG and Object Number
N/A

Available Budget	**Purchase Amount**	**After Encumber**
N/A	N/A	N/A

ACTION ALTERNATIVES:

1. Approve.
2. Disapprove
3. Other actions as directed by Council.

ATTACHMENTS:

DMP and SCA Resolution, Final Report_Drainage Master Plan, Final Report_Stream Condition Assessment

RESOLUTION NO.

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, ADOPTING THE DRAINAGE MASTER PLAN AND STREAM CONDITION ASSESSMENT AS PREPARED BY FREESE & NICHOLS, INC.; AND, PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the City of Duncanville, Texas, desires to continue its commitment to making improvements to the quality and capacity of the drainage infrastructure; and

WHEREAS, in April 2025, the City retained Freese & Nichols, Inc. to develop a Drainage Master Plan and conduct a Stream Condition Assessment;

WHEREAS, the DMP was developed to identify drainage needs, costs, and priorities for existing and projected drainage issues across the City's public drainage system; and

WHEREAS, the SCA was conducted to assess the current condition of the City's creek and stream system and to develop conceptual alternatives to reduce erosion risks; and

WHEREAS, the findings and recommendations of the Drainage Master Plan and Stream Condition Assessment support informed decision-making for the long-term management of the City's drainage system.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, THAT:

SECTION 1: The City Council of Duncanville, Texas, hereby adopts the Drainage Master Plan and Stream Condition Assessment as prepared by Freese & Nichols, Inc.

SECTION 2: This Resolution shall become effective immediately upon its passage.

DULY RESOLVED AND ADOPTED by the City Council of the City of Duncanville, Texas, on this the 18th day of August 2026.

APPROVED:

_____

Greg Contreras, Mayor

ATTEST:

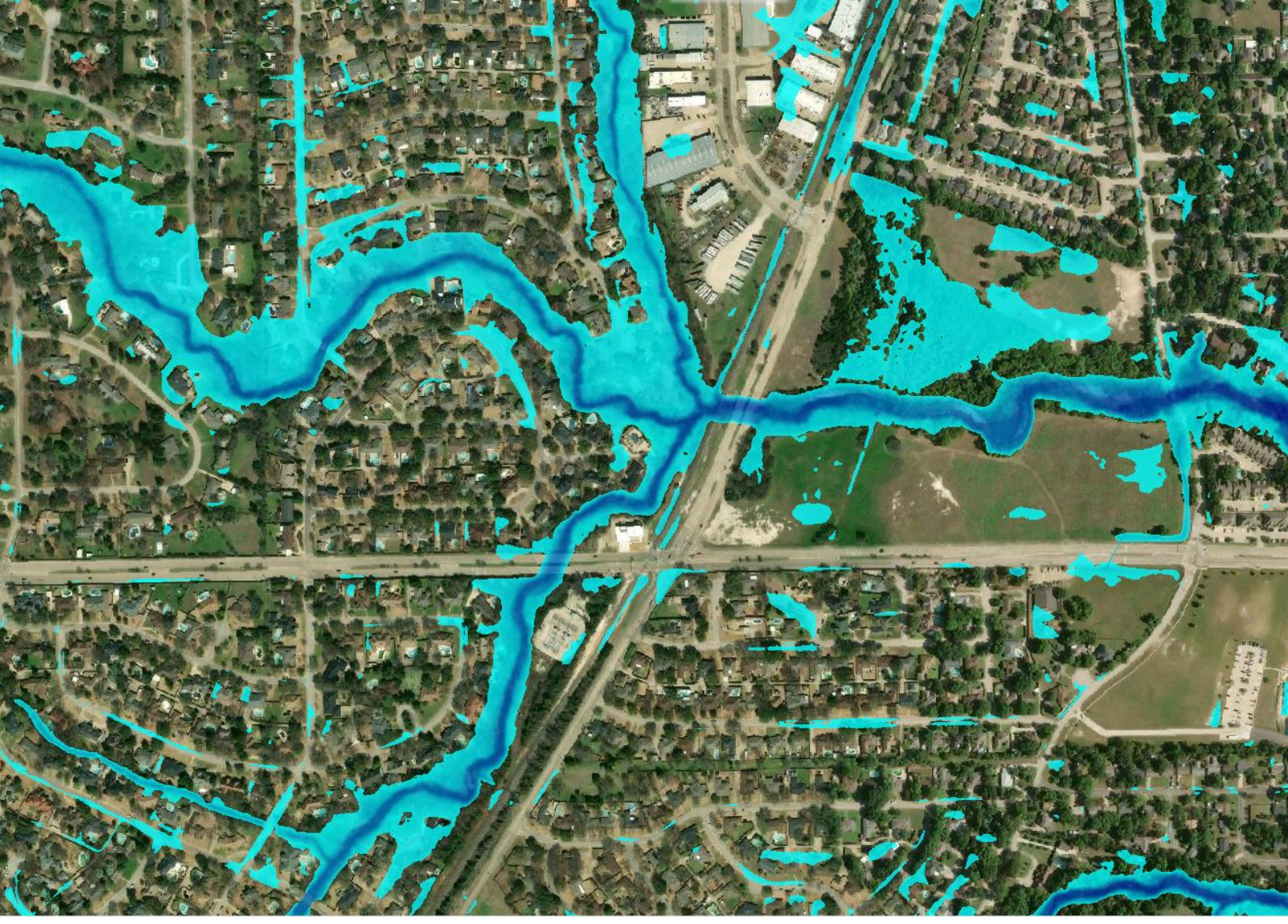
_____

Chiquita Taylor, City Secretary

APPROVED AS TO FORM:

_____

Robert E. Hager, City Attorney



Duncanville Drainage Master Plan

Report

May 29, 2026

Duncanville
City of Champions

FREESE AND NICHOLS

12770 Merit Drive
Suite 900
Dallas, Texas 75251

Innovative approaches
Practical results
Outstanding service

DUNCANVILLE MASTER DRAINAGE PLAN

Prepared for:

City of Duncanville

May 29, 2026

Prepared by:

FREESE AND NICHOLS, INC.
12770 Merit Drive, Suite 900
Dallas, Texas 75251
214-217-2200

Innovative approaches
Practical results
Outstanding service

DUNCANVILLE MASTER DRAINAGE PLAN

Prepared for:

City of Duncanville



05/20/2026

Prepared by:

FREESE AND NICHOLS, INC.
12770 Merit Drive, Suite 900
Dallas, Texas 75251
214-217-2200

DNV25453

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

1.0 INTRODUCTION 5

2.0 DATA COLLECTION 7

2.1 Dallas County Inland Port Study 7

3.0 IDENTIFICATION OF NEEDED DRAINAGE IMPROVEMENTS 9

3.1 Screening Assessment 9

3.1.1 Public Outreach/Staff Interviews 9

3.1.2 Rain-on-Mesh 10

3.1.3 Selection of Sites 14

3.2 Green Hills Road 16

3.2.1 Existing Conditions 16

3.2.2 Proposed Conditions 18

3.3 Greenstone Lane 21

3.3.1 Existing Conditions 21

3.3.2 Proposed Conditions 23

3.4 Alexander Avenue 26

3.4.1 Existing Conditions 26

3.4.2 Proposed Conditions 28

3.5 Cedar Hill Road 31

3.5.1 Existing Conditions 31

3.5.2 Proposed Conditions 33

3.6 Sunset Village 37

3.6.1 Existing Conditions 37

3.6.2 Proposed Conditions 40

3.7 Fairmeadows 44

3.7.1 Existing Conditions 44

3.7.2 Proposed Conditions 46

4.0 PROJECT PRIORITIZATION 49

4.1 Project Types 49

4.2 Prioritization Criteria 49

4.3 Evaluation Metrics and Weights 51

4.3.1 Excel-based Scoring and Prioritization Tool 53

4.4 CIP Project Prioritization 55

4.4.1 Prioritization Results 55
4.5 Implementation Considerations and Recommendations 58
5.0 DRAINAGE POLICY AND DESIGN STANDARDS REVIEW 60
5.1 Drainage Policy Review and Recommendations 60
5.1.1 Level of Service and Risk Tolerance 60
5.1.2 Floodplain Management and Regulation 61
5.1.3 Development Requirements 61
5.1.4 Operations, Maintenance, and Data 62
5.2 Guidance on Construction Details and Specifications 62
5.2.1 Review of Drainage Details 63
5.2.2 Framework for Developing City Standards 64
6.0 COST ESTIMATION AND FUNDING STRATEGIES 66
6.1 External Funding Mechanisms 66
6.2 Local (Internal) Funding Mechanisms 66
6.3 Funding Sources Most Applicable to Duncanville 67
6.4 Project Funding Matrix 67
6.5 Recommended Funding Strategy 71
7.0 CONCLUSIONS AND RECOMMENDATIONS 72
7.1 Capital Projects 72
7.2 Capital Program Strategy 72
7.3 Funding Strategy Alignment 73
7.4 Immediate Next Steps 74
7.5 Long-Term Program Considerations 74

Table of Figures

Figure 2-1. Inland Port Beaver Creek Drive Project Workmap 8
Figure 2-2. Inland Port Tenmile Creek Project Workmap 9
Figure 3-1. Staff and Resident Identified Areas of Concern 10
Figure 3-2. ROM Mesh Drainage Area 11
Figure 3-3: Sites Selected for Detailed H&H Analysis 15
Figure 3-4. Green Hills Road Water Surface Elevation Profile - Existing Conditions 17
Figure 3-5. 100-year Floodplain at Green Hills Road – Existing Conditions 17
Figure 3-6. Green Hills Road Water Surface Elevation Profile – Proposed Conditions 19
Figure 3-7. 100-year Floodplain at Green Hills Road – Proposed Conditions 19
Figure 3-8: Green Hills Road - Floodplain Comparison 20
Figure 3-9. Greenstone Lane Water Surface Elevation Profile – Existing Conditions 22
Figure 3-10. 100-year Floodplain at Greenstone Lane – Existing Conditions 22

Figure 3-11. Greenstone Lane Water Surface Elevation Profile – Proposed Conditions 24
Figure 3-12. 100-year Floodplain at Greenstone Lane – Proposed Conditions..... 24
Figure 3-13: Greenstone Lane - Floodplain Comparison 25
Figure 3-14. Alexander Avenue Water Surface Elevation Profile – Existing Conditions 27
Figure 3-15. 100-year Floodplain at Alexander Avenue – Existing Conditions..... 27
Figure 3-16. Alexander Avenue Water Surface Elevation Profile – Proposed Conditions 29
Figure 3-17. 100-year Floodplain at Alexander Avenue – Proposed Conditions..... 29
Figure 3-18: Alexander Avenue - Floodplain Comparison..... 30
Figure 3-19. Cedar Hill Road Water Surface Elevation Cross-Section – Existing Conditions32
Figure 3-20. 100-year Floodplain at Cedar Hill Road – Existing Conditions 33
Figure 3-21. Cedar Hill Road Water Surface Elevation Cross-Section – Proposed Conditions 34
Figure 3-22. 100-year Floodplain at Cedar Hill Road – Proposed Conditions 35
Figure 3-23: Cedar Hill - Floodplain Comparison..... 36
Figure 3-24. Sunset Village Storm Drain Schematic – Existing Conditions 37
Figure 3-25. Sunset Village Drive (left) Water Surface Elevation Profile (right) – Existing Conditions..... 39
Figure 3-26. 100-year Floodplain at Sunset Village – Existing Conditions 40
Figure 3-27. Sunset Village Drive (left) Water Surface Elevation Profile (right) – Proposed Conditions..... 41
Figure 3-28. 100-year Floodplain at Sunset Village – Proposed Conditions 42
Figure 3-29: Sunset Village Storm Drain - Floodplain Comparison 43
Figure 3-30. 100-year Floodplain at Fairmeadows – Existing Conditions 45
Figure 3-31. 100-year Floodplain at Fairmeadows – Proposed Conditions 47
Figure 3-32: Fairmeadows Storm Drain - Floodplain Comparison 48
Figure 4-1. Flood Management Project Rating Form - Example..... 54

Table of Tables

Table 2-1. Summary of Studies Provided by the City..... 7
Table 2-2. Inland Port Study FMPs within City of Duncanville limits..... 7
Table 3-1. Roughness Classifications 12
Table 3-2. Land Use and Soil Curve Number..... 13
Table 3-3. HEC-HMS Rainfall Input..... 14
Table 3-4. Depth Over Green Hills Road – Existing Conditions..... 17
Table 3-5. Depth Over Greenstone Lane – Existing Conditions 21
Table 3-6. Depth Over Alexander Avenue – Existing Conditions 26
Table 3-7. Depth Over Cedar Hill Road – Existing Conditions..... 32
Table 3-8. Depth Over Sunset Village Drive – Existing Conditions..... 39
Table 4-1. Prioritization Criteria..... 50
Table 4-2. Prioritization Criteria – Flood Management..... 50
Table 4-3. Prioritization Criteria – Asset Protection..... 50
Table 4-4. Flood Management Evaluation Metrics Weights..... 52
Table 4-5. Asset Protection Evaluation Metrics Weights 52
Table 4-6. Flood Management Prioritization Results 56

Table 4-7. Asset Protection Prioritization Results 57
Table 6-1. CIP Funding Matrix 69
Table 6-2. Conservative Scenario Debt Service 70

Table of Appendices

Appendix A: References
Appendix B: Survey Results
Appendix C: Opinion of Probable Construction Costs (OPCCs)
Appendix D: Prioritization Criteria Metrics
Appendix E: Drainage Policy Recommendations
Appendix F: Cost Estimation and Funding Strategies
Appendix G: Stream Condition Assessment (SCA)
Appendix H: Dallas County Inland Port Study

EXECUTIVE SUMMARY

The City of Duncanville completed this Drainage Master Plan (DMP) to better understand existing flood risks, identify critical drainage needs, and establish a clear and defensible strategy for prioritizing and funding future capital improvements. This study builds upon previous efforts and incorporates updated data, public input, and hydraulic modeling to support long-term stormwater planning and decision-making.

Project Identification

The study began with a citywide screening assessment that combined public outreach, staff input, and a two-dimensional hydraulic model to identify areas potentially at risk of flooding. Based on this assessment, six priority flood-prone locations were selected for detailed evaluation: Green Hills Road, Greenstone Lane, Alexander Avenue, Cedar Hill Road, Sunset Village, and Fairmeadows.

At each location, detailed hydraulic models were developed to evaluate existing conditions and identify conceptual improvement solutions. These solutions were developed to improve roadway level of service, reduce flood risk to structures, and increase system capacity while considering site-specific constraints and potential downstream impacts.

In parallel, a Stream Condition Assessment was performed to evaluate channel stability and identify locations where erosion and scour are actively threatening public infrastructure. This effort complements the flood management analysis by documenting existing geomorphic conditions of Mauk Branch and Tenmile Creek and evaluating the need for projects along these reaches.

Capital Improvement Program Overview

The study identified a total of 11 capital improvement projects, including:

- **6 flood management projects** developed as part of this DMP
- **2 flood management projects** from the Dallas County Inland Port Flood Protection Planning Study
- **3 asset protection projects** developed through the Stream Condition Assessment

The total planning-level cost of the recommended program is approximately **$41 million**.

These projects address a range of drainage challenges across the City, including roadway overtopping, structural flooding, undersized storm drain systems, and erosion-related threats to existing infrastructure.

Flood Management Projects

Flood management projects focus on reducing flooding impacts to roadways and structures, primarily during large storm events. The conceptual improvements generally include upsizing culverts, raising roadway profiles, and upsizing storm drain systems to increase conveyance capacity and reduce flood risk. A summary of each flood management project in priority order is provided below:

1. **Sunset Village Storm Drain Improvements ($2.1M):** Upsizing of the existing storm drain system to reduce flooding affecting residential properties; removes the majority of structures from the 100-year floodplain.
2. **Greenstone Lane Culvert Improvements ($2.6M):** Replacement and expansion of existing culverts and roadway modifications to reduce overtopping and improve hydraulic capacity.
3. **Green Hills Road Culvert Improvements ($2.3M):** Culvert upgrades and roadway raising to improve crossing performance and reduce flood risk to nearby structures.
4. **Cedar Hill Road Bridge Improvements ($2.1M):** Bridge widening and roadway elevation to improve safety and reduce overtopping at a frequently used crossing.
5. **Inland Port – Tenmile Creek Channel Improvements ($6.8M):** Regional channel improvements and detention to increase conveyance and reduce flood risk along Tenmile Creek.
6. **Fairmeadows Storm Drain Improvements ($8.8M):** Installation of a new bypass storm drain system to address capacity limitations and reduce flooding within a residential neighborhood.
7. **Alexander Avenue Culvert Improvements ($1.6M):** Targeted culvert and roadway improvements to increase conveyance capacity at a constrained crossing.
8. **Inland Port – Beaver Creek Culvert Improvements ($9.7M):** Large-scale culvert improvements and detention to address regional drainage constraints and reduce flooding risk.

Asset Protection Projects

Asset protection projects address locations where erosion, scour, and channel instability are actively threatening existing City infrastructure. Unlike flood management projects, these improvements are focused on preventing infrastructure failure and maintaining system functionality. The asset protection projects, listed below in priority order, were identified through the Stream Condition Assessment and represent locations with more immediate risk.

1. **Area 1 – 20-inch Sanitary Sewer Crossing ($2.7M):** Bank stabilization and structural protection to prevent failure of an exposed sanitary sewer crossing.
2. **Area 2 – 18-inch Sanitary Sewer Crossing ($1.1M):** Stabilization measures to address erosion threatening an aerial sewer crossing.

3. **Area 3 – Stormwater Flume Replacement ($1.5M):** Replacement and stabilization of an undermined stormwater structure and associated infrastructure. Protects a water line underneath the flume.

Project Prioritization Framework

One of the primary goals of the DMP was to develop a consistent, transparent, and data-driven capital project prioritization framework that compiles, scores, and ranks the City's CIP portfolio, enabling leadership to allocate funding based on a systematic assessment of business risk exposure and long-term community benefit. An Excel-based prioritization tool was developed to support the prioritization methodology, incorporating multiple criteria, including public health and safety, flood risk reduction, infrastructure condition, cost-benefit, and implementation considerations. The tool is designed to be flexible and can be used by the City to evaluate future projects, update priorities, and support long-term capital planning decisions.

Flood management and asset protection projects were evaluated separately due to their differing objectives and scoring methodologies. This distinction is important, as the two project types should not be combined into a single ranking or directly compared.

Funding Strategy

The funding analysis indicates that while state and federal funding programs can provide cost-sharing opportunities, they are competitive and limited. These programs should be pursued opportunistically but should not be relied upon as the primary funding strategy. Low-interest loan programs through the Texas Water Development Board (TWDB) represent a more reliable funding option; however, they require repayment and therefore depend on a stable local funding source.

Local funding will be essential. The City's current Stormwater Utility Fee of $5 per Equivalent Residential Unit (ERU) is relatively low compared to peer communities and limits the City's ability to implement projects at the scale identified in this plan. A **Stormwater Utility Fee Assessment** is recommended to evaluate current revenues and expenditures, assess alternative rate structures, and develop a revised fee that provides a sustainable funding source for capital improvements, operations, and long-term system maintenance.

Policy and Standards Recommendations

In addition to identifying capital improvement projects, this DMP evaluated the City's existing drainage policies and design standards and identified several opportunities to improve clarity and consistency. Key recommendations include clarifying level-of-service (LOS) expectations, strengthening floodplain

management and downstream impact criteria, and standardizing hydrologic and hydraulic modeling requirements. These updates will help reduce ambiguity during design and development review and support more consistent decision-making. The DMP also recommends improving development review processes and enhancing data and documentation practices to support more efficient project delivery. Developing City-specific drainage construction details and technical specifications is recommended to improve consistency in design and construction and reduce reliance on multiple external standards. Collectively, these updates will strengthen the City's stormwater management framework and better support implementation of future drainage improvements.

DMP Implementation Strategy

The following implementation strategy summarizes the key actions the City should take to advance the recommendations of this plan.

Near-Term Priority

1. **Advance Asset Protection Projects into Design and Construction:** Initiate design efforts for the highest-priority asset protection projects to address infrastructure currently at risk of failure.

2. **Begin Implementation of Policy and Standards Updates:** Initiate updates to drainage policies, development requirements, and design standards to improve consistency, reduce risk, and streamline project delivery.

3. **Conduct a Stormwater Utility Fee Assessment and Update:** Evaluate current revenues and expenditures, assess alternative rate structures, and develop a revised fee that provides a sustainable funding source for capital improvements, operations, and long-term system maintenance.

Mid-Term Strategy

4. **Initiate Project Development for Flood Management Projects:** Advance top-ranked flood management projects through a structured **Project Development** phase to refine feasibility, scope, cost, and implementation considerations prior to full design.

Long-Term Implementation – Capital Improvement Program

5. As funding becomes available and projects advance, the City can proceed with design and construction of flood management projects based on priority and available resources.

1.0 INTRODUCTION

The City of Duncanville initiated this Drainage Master Plan (DMP) to evaluate existing drainage conditions, identify areas of flood risk, and develop a strategic framework for prioritizing and implementing stormwater infrastructure improvements. This DMP builds upon previous drainage and watershed studies conducted within and around the City, including the 1999 Duncanville Drainage Master Plan, subsequent stream stability evaluations, and the recent Dallas County Inland Port Flood Protection Planning Study. By integrating these past efforts with updated data, public input, and modern hydraulic modeling techniques, this DMP provides a current and defensible evaluation of the City's stormwater program.

The primary objectives of this DMP are to:

- Identify and evaluate areas subject to flooding or drainage deficiencies
- Develop conceptual improvement solutions for priority locations
- Establish a consistent, data-driven methodology for prioritizing capital improvement projects
- Evaluate potential funding strategies to support implementation
- Provide recommendations to improve drainage policies, standards, and long-term system management

To achieve these objectives, the DMP included a citywide screening assessment using a two-dimensional hydraulic model, supported by public outreach and coordination with City staff. Based on this assessment, six priority locations were selected for detailed hydraulic analysis and development of conceptual improvement solutions.

In parallel, a Stream Condition Assessment was conducted to evaluate channel stability and identify areas where erosion and scour are impacting City infrastructure. The results of this effort complement the flood management analysis by addressing risks associated with potential infrastructure degradation and asset protection.

The outcomes of this DMP include a set of recommended capital improvement projects, organized into flood management and asset protection categories, along with an implementation strategy and a prioritization framework designed to support long-term capital planning. In addition, the study provides

guidance on funding strategies, drainage policy updates, and development of design standards to improve consistency and efficiency in future project delivery.

This report is intended to serve as a planning-level document to guide decision-making. The conceptual improvements and cost estimates presented herein are not final designs but provide a basis for future project development, design, and implementation.

The remainder of this report is organized as follows:

- **Chapter 2** summarizes data collection and review of previous studies
- **Chapter 3** describes the identification and evaluation of drainage improvements
- **Chapter 4** presents the project prioritization framework and results
- **Chapter 5** provides recommendations for drainage policies and design standards
- **Chapter 6** outlines cost estimates and funding strategies
- **Chapter 7** summarizes key conclusions and recommendations

The Duncanville DMP provides the City with a comprehensive and actionable framework for addressing drainage challenges. By prioritizing asset protection projects, advancing flood management projects through structured development, strengthening local funding mechanisms, and updating policies and standards, the City will be better positioned to reduce flood risk, protect public infrastructure, and implement a sustainable stormwater program.

2.0 DATA COLLECTION

The City provided several studies, listed in **Table 2-1**, which have previously analyzed the hydrologic and hydraulic conditions in Duncanville. The 1999 DMP and the 2006 Bentle Branch studies were reviewed for background information only and did not influence the identification of proposed projects. The Dallas County Inland Port Flood Planning Study (2025) was reviewed to identify areas where flood mitigation efforts were already addressed, helping to avoid duplication of projects. Additional discussion of this study is provided in **Section 2.1**.

Table 2-1. Summary of Studies Provided by the City

Study Name	Year Completed	Performed By
Duncanville Drainage Master Plan	1999	Freese and Nichols, Inc.
Bentle Branch Stream Stability Study and Stormwater Master Plan Update	2006	Halff Associates
Dallas County Inland Port Flood Planning Study	2025	Halff Associates; APM & Associates, Inc.

The City also provided public works construction and drainage plans documenting drainage infrastructure throughout the City. Plans dated from 1980 and after were compiled into a GIS polygon layer, locating the area that each plan set covered. Plan sets were roughly georeferenced to 177 different areas. These plan sets were used to identify existing infrastructure during the detailed hydraulic analysis.

2.1 DALLAS COUNTY INLAND PORT STUDY

As part of the Dallas County Inland Port Flood Protection Planning Study completed in 2025, Halff Associates and APM & Associates, Inc. performed a study of the Tenmile Creek watershed. From this study, two Flood Mitigation Projects (FMPs) within the City of Duncanville were developed for inclusion in the Trinity Regional Flood Plan. These FMPs are listed in **Table 2-2**.

Table 2-2. Inland Port Study FMPs within City of Duncanville limits

FMP	Planning Level Cost Estimate
Beaver Creek Dr Culvert Crossing Improvements	$9.7 million
Tenmile Creek Channel Improvements	$6.8 million

These projects were incorporated into the DMP and included in the list of projects ranked using the project prioritization framework discussed in **Section 4.0**. Workmaps describing the conceptual solutions at Beaver Creek Drive and Tenmile Creek are shown in **Figure 2-1** and **Figure 2-2,** respectively. More information about the study, as it pertains to the City of Duncanville, can be found within the excerpt of the Inland Port Study report (**Appendix H**).



Figure 2-1. Inland Port Beaver Creek Drive Project Workmap

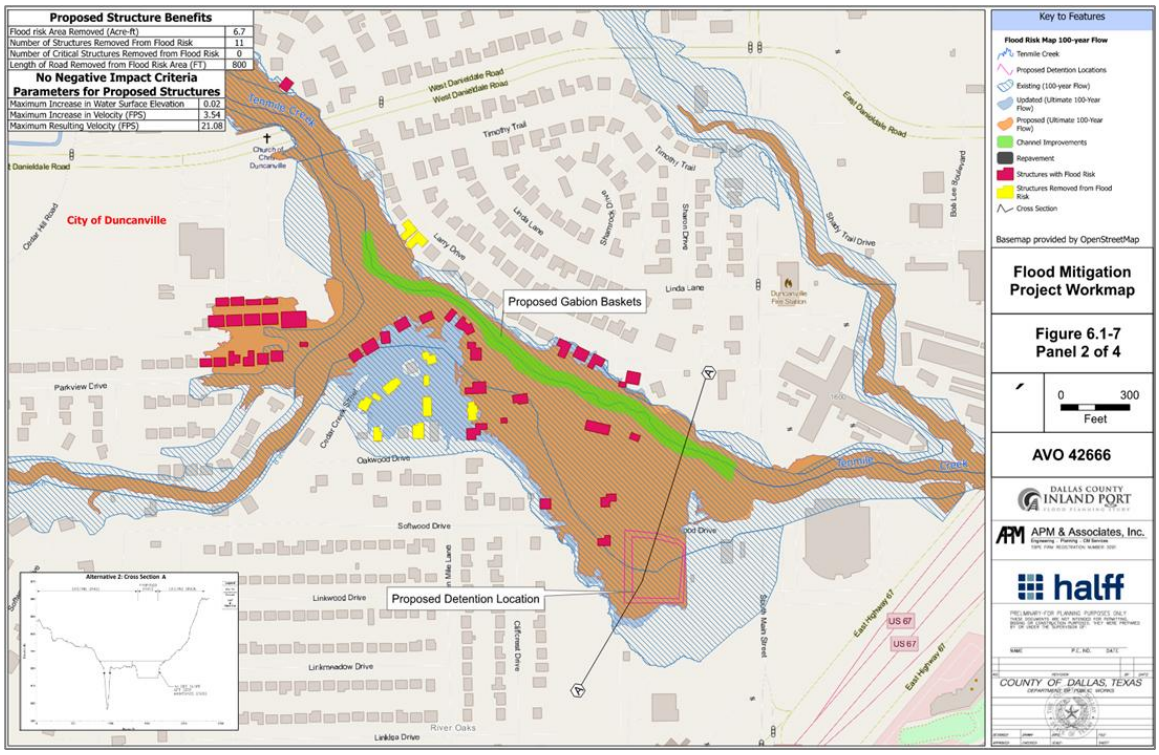


Figure 2-2. Inland Port Tenmile Creek Project Workmap

3.0 IDENTIFICATION OF NEEDED DRAINAGE IMPROVEMENTS

The largest component of the DMP consisted of identifying needed drainage improvements throughout the City. The goal of this task was to provide a defensible and data-driven assessment of flood risk that could be used to prioritize areas of concern and support future capital improvement planning. The methodology for identifying and evaluating these needs is described in the following subsections.

3.1 SCREENING ASSESSMENT

3.1.1 Public Outreach/Staff Interviews

To initiate the identification of needed drainage improvements, FNI coordinated with City staff to develop and publish a GIS web-survey to gather input from residents regarding areas of flooding concern throughout the City. The survey was posted on the City website and available from August 26, 2025, to November 22, 2025. The responses received are included in **Appendix B.** Additionally, FNI conducted interviews with City staff to identify areas known to experience frequent flooding based on operational experience. Together, these efforts resulted in a Citywide map of reported areas of concern with

associated spatial data (**Figure 3-1**). These results were considered as part of the screening assessment and site selection process for detailed hydraulic modeling (**Section 3.1.3**).

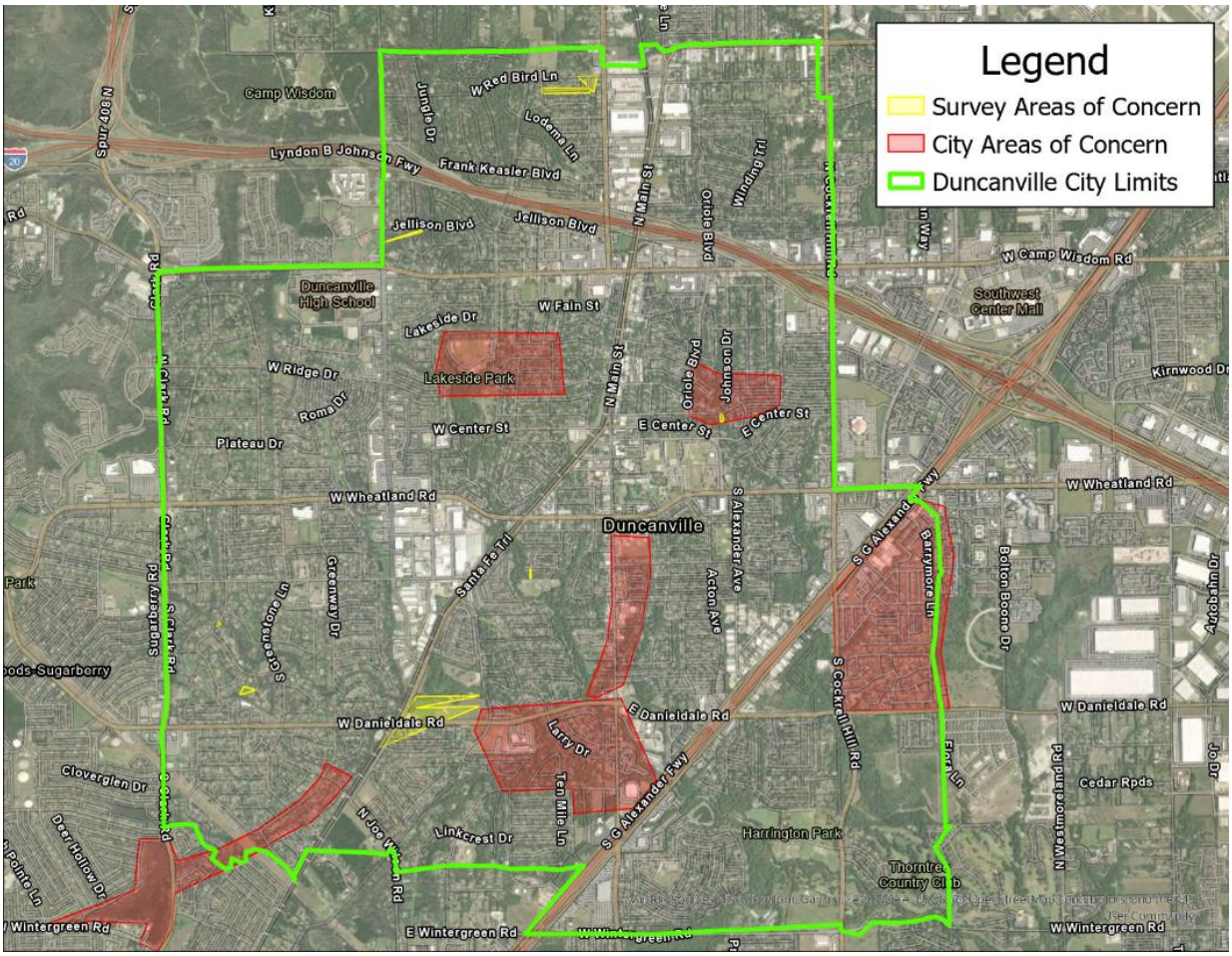


Figure 3-1. Staff and Resident Identified Areas of Concern

3.1.2 Rain-on-Mesh

A two-dimensional (2D) rain-on-mesh (ROM) model of the City was developed using the Hydrologic Engineering Center (HEC) River Analysis System (RAS) program version 6.6 (USACE, 2024). The results from this model were used to identify areas that are potentially at risk of flooding. ROM models apply precipitation to a grid of cells (mesh) and simulate runoff routed between cells. A 100-by-100-ft cell mesh was generated, encompassing the entire City area and contributing drainage area outside the City borders. **Figure 3-2** shows the mesh boundary compared to Duncanville's City Limits.

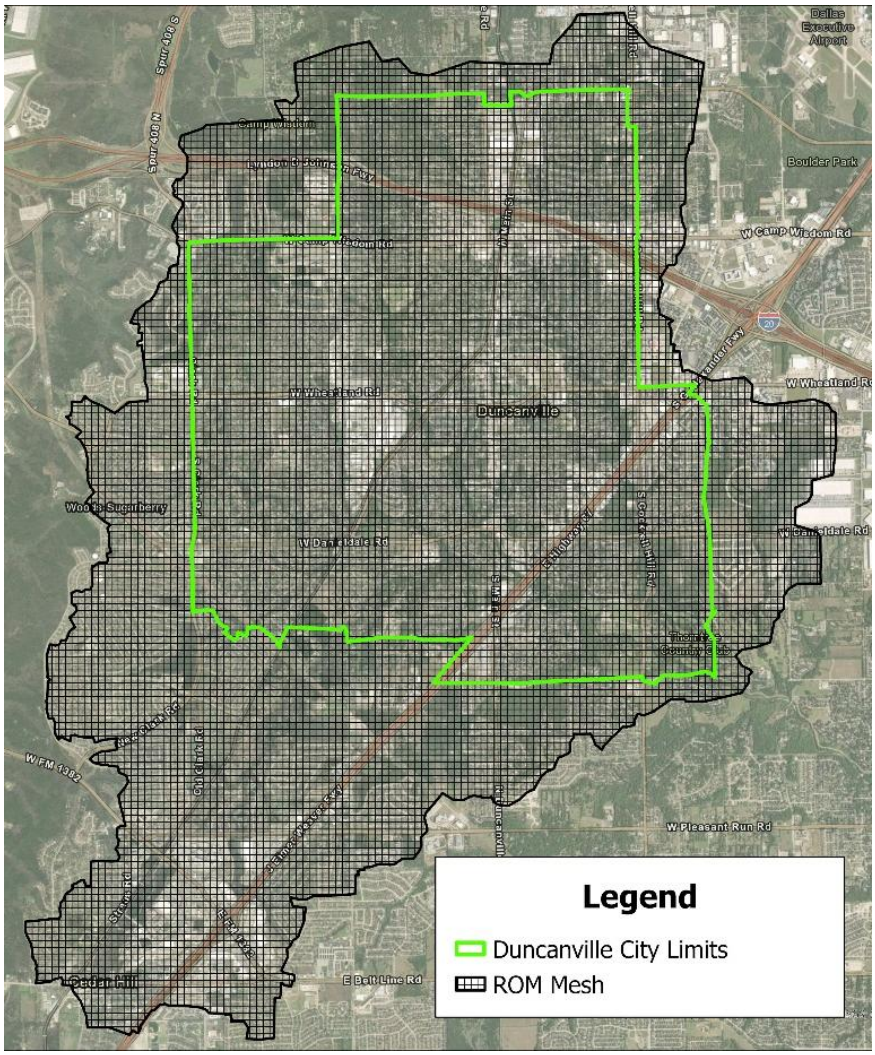


Figure 3-2. ROM Mesh Drainage Area

LiDAR (Light Detection and Ranging) data (USGS, 2018) at 1-m resolution (1-meter by 1-meter raster grid cells) was used to represent the terrain in existing conditions. Significant culvert crossings were included as terrain modifications using the Texas Department of Transportation (TxDOT) Bridges GIS dataset (TxDOT, 2025a). TxDOT Roadway GIS data was also incorporated to establish road centerlines as break lines (TxDOT, 2025b). Mesh cells align to break lines, providing more definition in these areas by better capturing roadway grading. Storm drain GIS data provided by the City was used to identify the locations and lengths of stormwater pipes. This data was filtered to greater than 1,300 LF to identify major trunklines, which were modeled as terrain modifications with an assumed 4-ft square cross-section.

The U.S. Geological Survey (USGS) produces National Land Cover Database (NLCD) raster data at 30-m resolution (USGS, 2021). This data classifies land using a modified Anderson Level II classification system to assign Manning's n values representing roughness. The NLCD dataset was modified to account for

roadway pavement that was not captured in the raster. Additionally, areas that experience water depth greater than two feet during a 2-year storm were classified as rivers with a modified Manning's n. The land cover classifications and their associated roughness are summarized in **Table 3-1**.

Table 3-1. Roughness Classifications

Classification Name	Manning's n
No Data	0.04
Roads	0.015
Open Water	0.035
Developed, Open Space	0.04
Developed, Low Intensity	0.05
Developed, Medium Intensity	0.12
Developed, High Intensity	0.15
Barren Land Rock-Sand-Clay	0.035
Deciduous Forest	0.15
Evergreen Forest	0.1
Mixed Forest	0.12
Shrub-Scrub	0.08
Grassland-Herbaceous	0.04
Pasture-Hay	0.04
Cultivated Crops	0.04
Woody Wetlands	0.1
Emergent Herbaceous Wetlands	0.07
River	0.04

The North Central Texas Council of Governments' 2020 Land Use data set (NCTCOG, 2020) and USDA SSURGO 2003 soil data (NRCS, 2003) were used to calculate the Curve Number (CN), which represents infiltration. The NCTCOG Land Use categories were matched with equivalent categories from the integrated Stormwater Management (iSWM) Technical Manual (NCTCOG, 2014). This manual assigns CN by hydrologic soil group to each of these categories utilizing the Soil Conservation Survey (SCS) Curve Number Method. **Table 3-2** summarizes CN by land use and soil group.

Table 3-2. Land Use and Soil Curve Number

NCTCOG Land Use	iSWM Equivalent	Curve Number			
		Soil A	Soil B	Soil C	Soil D
Flood Control	Woods – Good	30	55	70	77
Utilities	Open Space – Good	39	61	74	80
Parks-recreation					
Cemeteries					
Vacant					
Residential Acreage					
Improved Acreage					
Single Family	Medium-Density Residential Quarter	61	75	83	87
Multi-family	High-Density Residential	77	85	90	92
Group Quarters					
Hotel-motel					
Mobile Home					
Industrial	Industrial	81	88	91	93
Office	Commercial	89	92	94	95
Retail					
Institutional-semi-public					
Education					
Communication					
Venue					
Parking	Paved Streets and Roads	98	98	98	98
Railroad					
Runway					
Airport					
Small Water Bodies	Water	100	100	100	100
No Data	No Data	99	99	99	99

Precipitation hydrographs for the model were generated using the HEC Hydrologic Modeling System (HMS) program version 4.9 (USACE, 2022). The rainfall input for the 2- and 100-year storm was obtained from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14, Volume 11, Version 2 point precipitation frequency estimates for Dallas County (NOAA, 2018), shown in **Table 3-3**. The HEC-HMS model uses these values to generate a basin-averaged hydrograph, which is input into HEC-RAS. The precipitation hydrograph is applied across the entire 2D mesh. Outfalls were also delineated using boundary condition lines at low points along the mesh's perimeter. The boundary conditions at these outfalls were set to normal depth at a slope of 0.01. Simulations were executed for the 2- and 100-year storm events at a computation interval of 30 seconds.

Table 3-3. HEC-HMS Rainfall Input

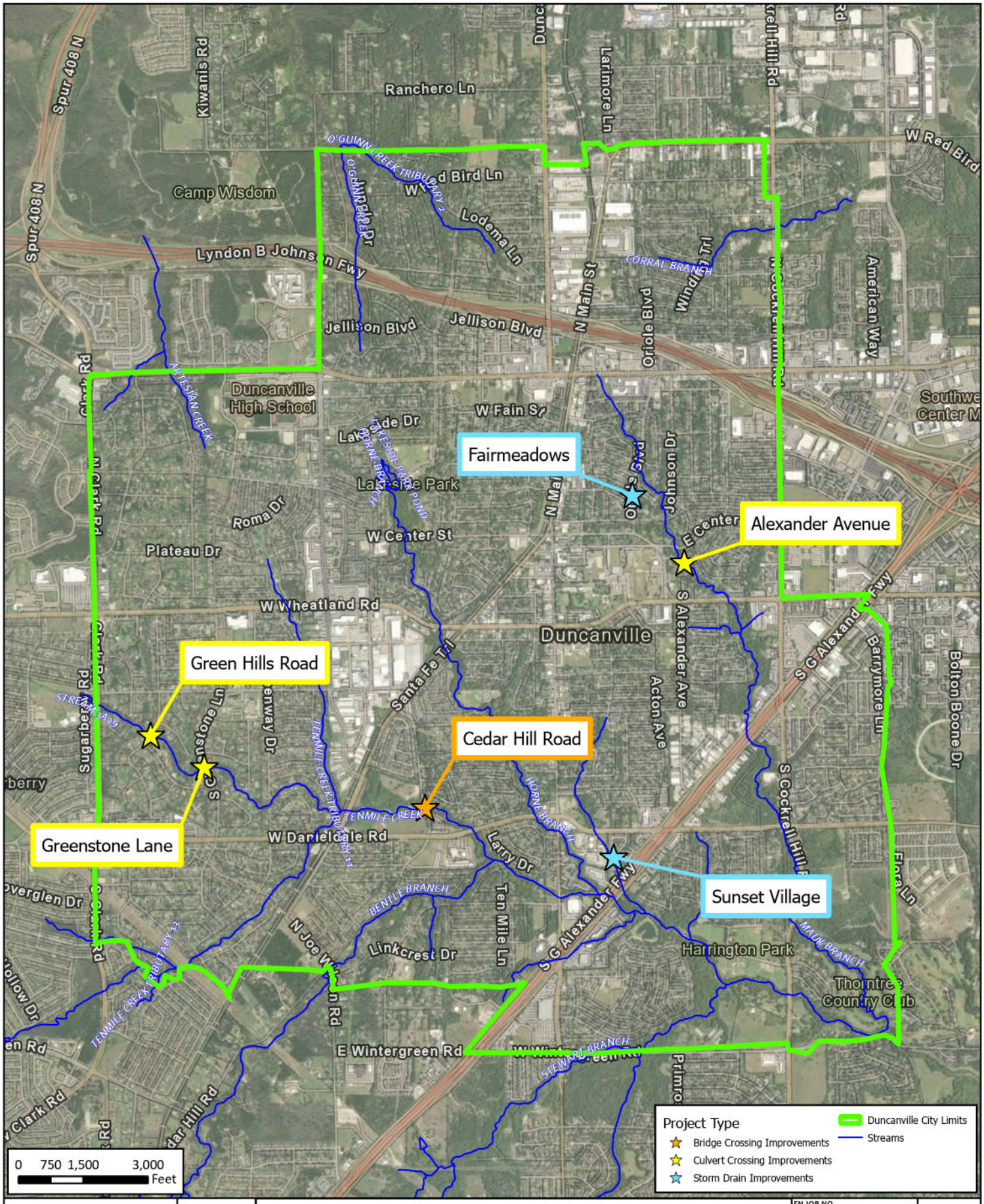
Duration	Depth (in)	
	2-year Storm	100-year Storm
5 minutes	0.50	1.01
15 minutes	0.99	2.01
1 hour	1.81	3.70
2 hours	2.23	4.81
3 hours	2.49	5.54
6 hours	2.95	6.85
12 hours	3.45	8.18
1 day	4.00	9.58

3.1.3 Selection of Sites

The inundation depth results from HEC-RAS were reviewed to evaluate the impacts of flooding on structures and roadways throughout the City. Depths less than 0.5 feet were filtered out to focus the screening assessment on areas that could potentially experience more significant flooding. Building footprint data were intersected with the depth results to identify locations of structural inundation, and roadway crossings were evaluated for potential overtopping.

A workshop was held with City staff on September 15, 2025, to review preliminary modeling results in conjunction with public input gathered during outreach efforts. Based on this discussion, six priority areas were recommended by FNI and approved by the City for further evaluation and development of conceptual improvements: Green Hills Road, Greenstone Lane, Alexander Avenue, Cedar Hill Road, Sunset Village storm drain, and Fairmeadows storm drain. These six sites are shown in **Figure 3-3**.

The following sections describe the detailed hydraulic modeling approach and alternatives analysis performed for each of the selected project areas. During the analysis, the proposed improvements were evaluated for compliance with City drainage criteria and verification that the project would not result in adverse impacts downstream and to adjacent properties.



FREESE AND NICHOLS
12770 Merit Drive, Suite 900
Dallas, TX 75251
214-217-2200 | www.freese.com

Sites Selected for Detailed H&H Analysis

City of Duncanville, Texas

FN JOB NO	DNV25453
FILE	DMP_Final_Exhibits
DATE	4/24/2026
SCALE	1:35,000
DRAFTED	08751

Figure 3-3

Path: H:\STORMWATER\Final Exhibits\Exhibits\Map\DMP_Final_Exhibits\DMP_Final_Exhibits.aprx

3.2 GREEN HILLS ROAD

Green Hills Road is located in the southwestern portion of the City, connecting W. Wheatland Road to W. Danieldale Road. Green Hills Road crosses Stream 3A29 just south of Big Stone Gap Road. This site was identified as a potentially hazardous crossing based on ROM modeling results indicating significant overtopping.

3.2.1 Existing Conditions

The existing culvert is a two 10’ x 6’ reinforced concrete box (RCB) culvert that is 44 ft long. The 2025 TxDOT Bridges SNBI dataset provided dimensions; aerial imagery verified a flared wingwall; and terrain was used to estimate invert elevations. Existing conditions were evaluated by developing a detailed hydraulic model that truncates the ROM model to the project area and refines the 2D computational grid to 50-by-50-foot cells with a 5-second timestep. The existing culvert was modeled as an SA/2D connection for the 2-, 10-, 50-, and 100-year storm events.

Inflow boundary conditions were applied at major riverine and storm drain crossings along the model 2D boundary. ROM precipitation inputs were retained to represent runoff generated within the contributing drainage area. Outflow boundary conditions were applied around the perimeter of the 2D mesh to allow runoff to exit the system, using a normal depth boundary condition with a slope of 0.001 ft/ft. A normal depth boundary condition was also applied at the downstream outfall, based on a channel slope of 0.01 ft/ft derived from terrain data.

Table 3-4 summarizes the modeled roadway inundation depths for the modeled events. **Figure 3-4** displays the water surface elevation (WSE) profiles along the stream centerline. Model results indicate that the roadway overtops during the 2-year event, resulting in a level of service (LOS) less than the 2-year event. **Figure 3-5** Shows the results of the 100-year storm event for the Green Hills Road site. Depth results are filtered to values greater than 0.5 ft to evaluate potential flooding above an assumed finished floor elevation (FFE) of 0.5 ft. These results indicate that five residential structures are potentially at risk of flooding during the 100-year event. At the structures, modeled flooding depths up to one foot were observed.

Table 3-4. Depth Over Green Hills Road – Existing Conditions

Return Period (yrs)	Depth Over Roadway (ft)
2	0.5
10	1.8
50	2.8
100	3.0

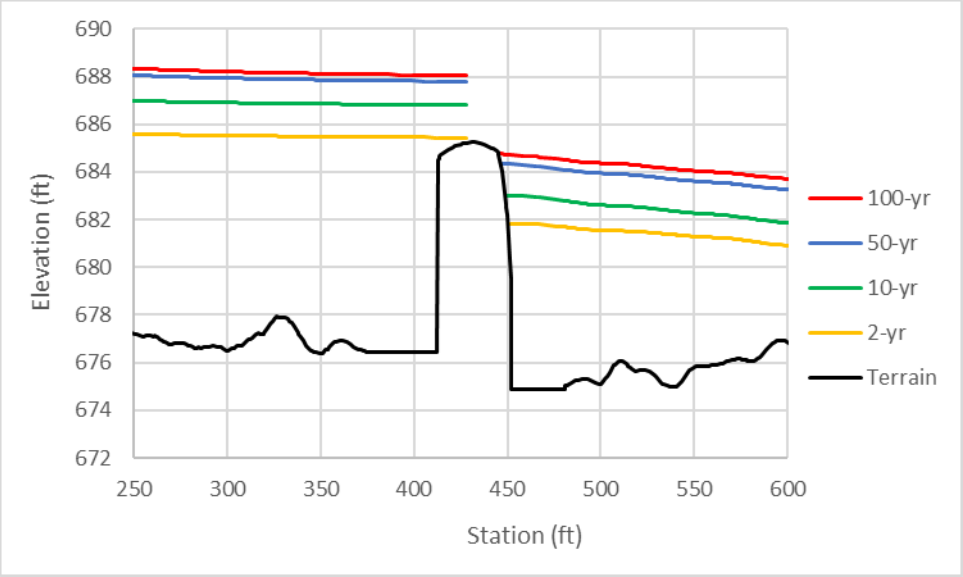


Figure 3-4. Green Hills Road Water Surface Elevation Profile - Existing Conditions

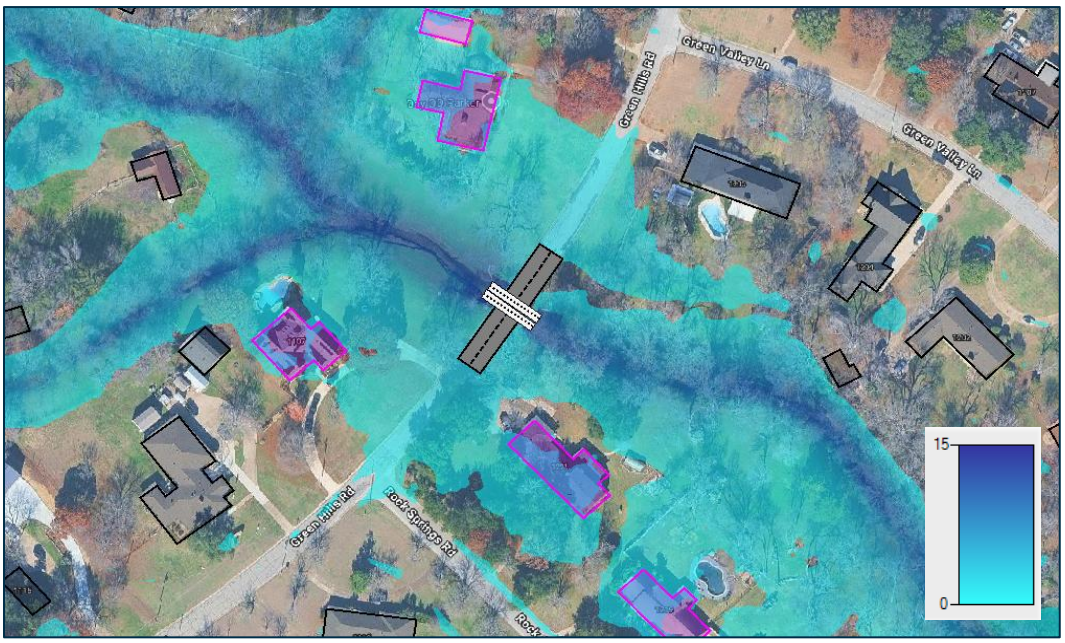


Figure 3-5. 100-year Floodplain at Green Hills Road – Existing Conditions

3.2.2 Proposed Conditions

The goal of the alternative analysis was to achieve a 100-year level of service (LOS), consistent with city drainage criteria. Alternative crossing configurations were also evaluated for compliance with the criteria, including a minimum of two feet of freeboard, no increase in WSE, and no increase in erosive velocities.

As the existing culvert was considered undersized for the 100-year event, the analysis focused on upsizing the culvert to improve conveyance. The culvert opening was increased incrementally, with culvert sizes and configurations evaluated in conjunction with roadway profile adjustments to raise the road out of the floodplain and satisfy freeboard requirements.

The proposed conceptual solution for Green Hills Road consists of upsizing the existing culverts and raising the roadway profile at the crossing. Six 10’ x 7’ concrete box culverts are proposed in place of the existing two 10’ x 6’ concrete box culverts. The proposed conceptual solution also requires raising the roadway by approximately four feet at the crossing low point and transitioning back into the existing roadway, resulting in approximately 850 linear feet of modified roadway. The conceptual solution includes channel grading at the crossing to accommodate the widened culvert opening and installation of riprap to protect the channel and minimize the potential for erosion. While channel grading is needed at the crossing, no other channel modifications are needed along the channel upstream or downstream of the crossing.

Figure 3-6 shows the proposed WSE profile at Green Hills Road, and **Figure 3-7** shows the proposed 100-year floodplain, filtered to depths greater than 0.5 ft. With implementation of this conceptual solution, model results show that the Green Hills Road crossing achieves a 100-year LOS with two feet of freeboard, significantly improving roadway safety during major storm events and meeting city criteria. The proposed improvements also reduce WSE both upstream and downstream of the crossing, removing three nearby structures from the 100-yr floodplain and reducing flooding depths for the remaining two properties. Modeling results indicate an approximate 0.5 ft reduction in 100-yr flood depths at the those structures. The planning-level cost for this conceptual solution is estimated at $2.3 million. A detailed Opinion of Probable Construction Cost (OPCC) is provided in **Appendix C**.

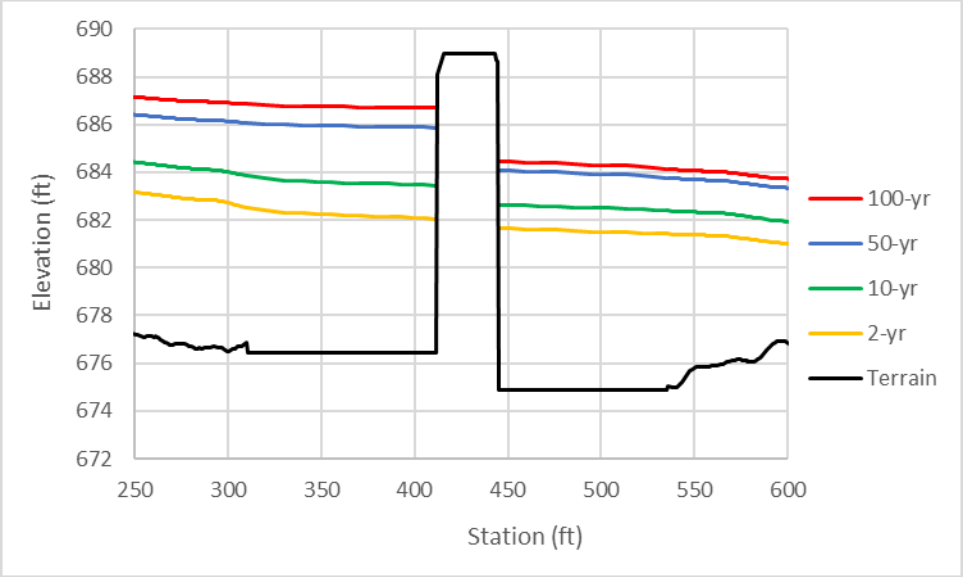


Figure 3-6. Green Hills Road Water Surface Elevation Profile – Proposed Conditions

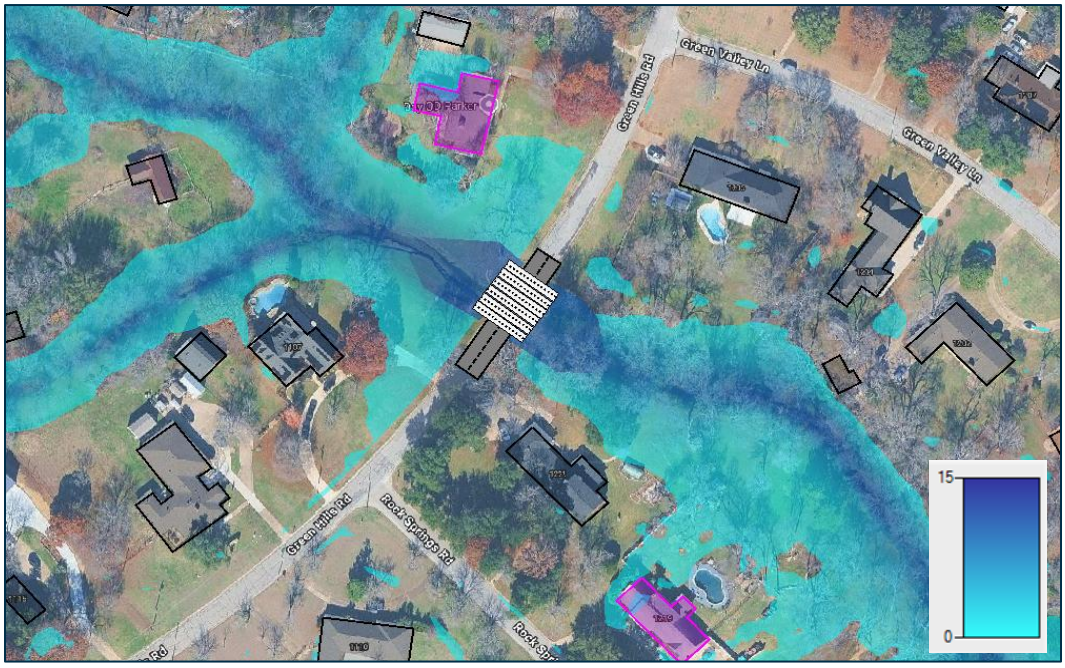
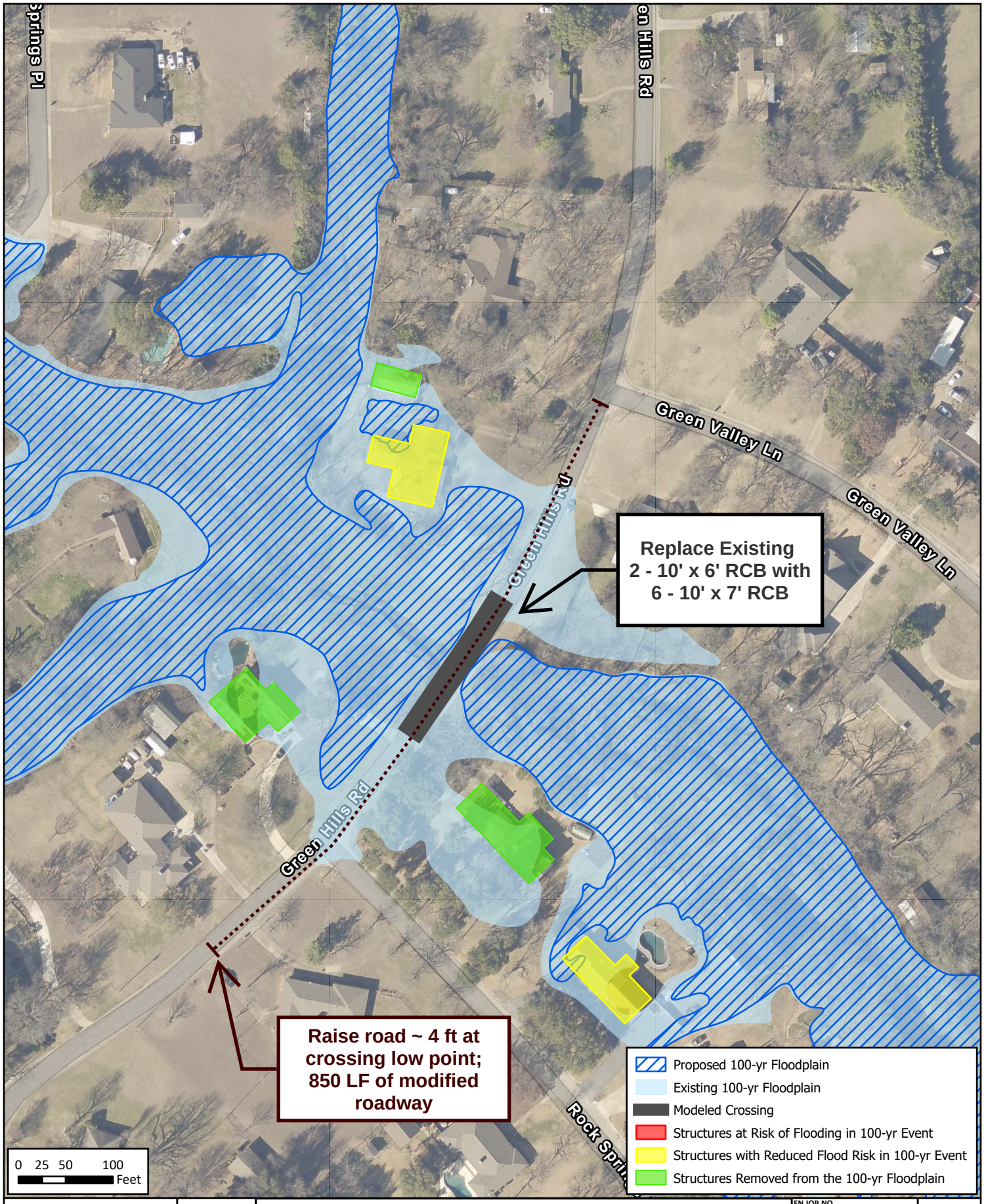


Figure 3-7. 100-year Floodplain at Green Hills Road – Proposed Conditions

Figure 3-8 presents a comparison of the existing and proposed 100-year floodplains, with proposed improvements annotated with callouts. Structures removed from the 100-year floodplain are shown in green, while structures remaining within the floodplain but experiencing a reduction in flooding are shown in yellow.



FREESE AND NICHOLS
12770 Merit Drive, Suite 900
Dallas, TX 75251
214-217-2200 | www.freese.com

Green Hills Road

City of Duncanville, Texas

FN JOB NO	DNV25453
FILE	DMP_Final_Exhibits
DATE	4/30/2026
SCALE	1:1,600
DRAFTED	03880

FIGURE 3-8

Path: H:\STORMWATER\Final Exhibits\Exhibits\Map\DMP_Final_Exhibits\DMP_Final_Exhibits.aprx

3.3 GREENSTONE LANE

Greenstone Lane crosses Stream 3A29 in the southwestern portion of the City, approximately 1,800 ft downstream of Green Hills Lane. This site was identified as a potentially hazardous crossing based on ROM modeling results indicating significant overtopping.

3.3.1 Existing Conditions

Due to its close proximity to Green Hills Road, the Greenstone Lane crossing was evaluated within the same detailed HEC-RAS model developed for the Green Hills Road project area. This approach enabled simultaneous evaluation of potential hydraulic interactions between the two crossings. The existing cross drainage infrastructure consists of three 8' x 7' RCB culverts that are 50 ft long. Culvert and roadway information was obtained from plan set "Green Hills, Fourth Installment, Third Section" dated January 5th, 1971.

The existing culverts were modeled as an SA/2D connection for the 2-, 10-, 50-, and 100-year storm events. **Table 3-5** summarizes the modeled depths over the roadway for the evaluated events, and **Figure 3-9** presents the WSE profile along the stream centerline. Model results indicate that the roadway overtops during the 2-year event, resulting in a LOS less than the 2-year event. **Figure 3-10** shows the 100-year results, filtered to depths greater than 0.5 ft. One structure downstream of the crossing is potentially at risk in the 100-year storm event. At the structure, modeled flooding depths up to one foot were observed.

Table 3-5. Depth Over Greenstone Lane – Existing Conditions

Return Period (yrs)	Depth Over Roadway (ft)
2	0.7
10	2.2
50	2.9
100	3.2

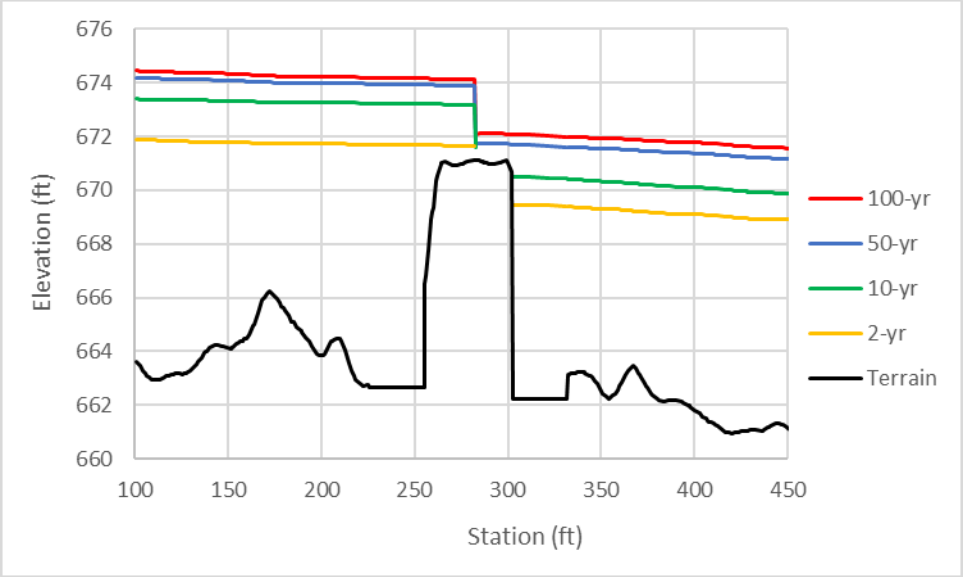


Figure 3-9. Greenstone Lane Water Surface Elevation Profile – Existing Conditions

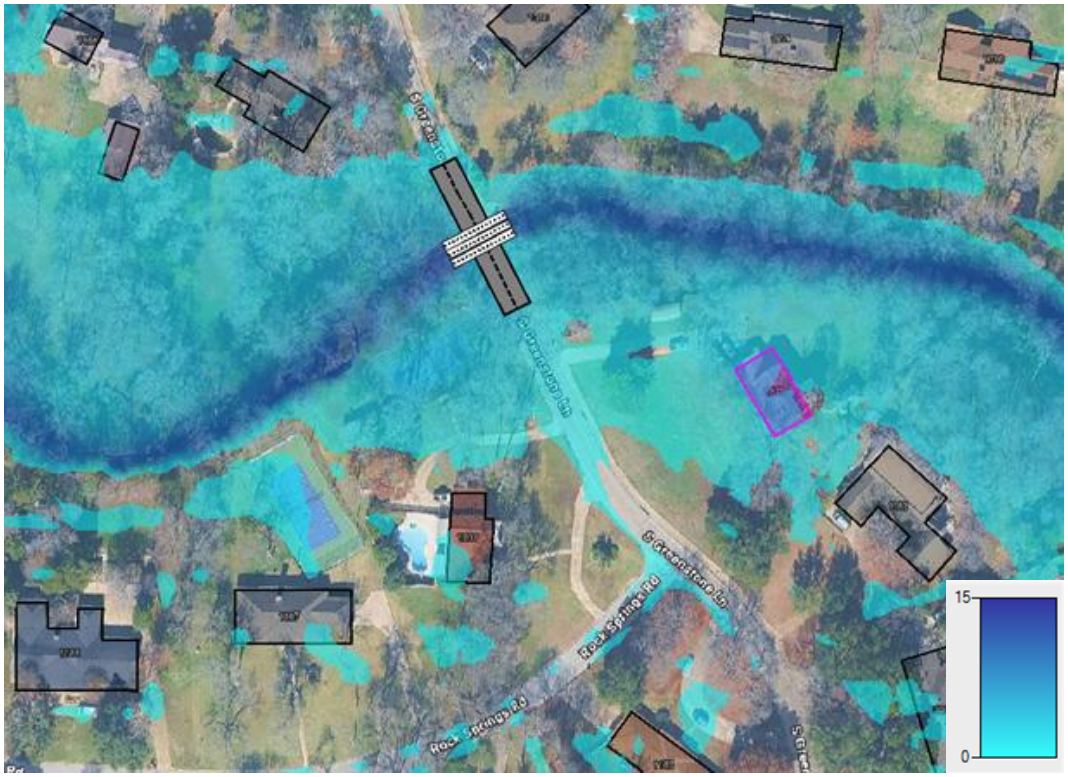


Figure 3-10. 100-year Floodplain at Greenstone Lane – Existing Conditions

3.3.2 Proposed Conditions

The proposed solution to reduce flood risk at the Greenstone Lane crossing is similar to the one recommended for the Green Hills Road crossing upstream. Achieving a 100-year LOS at this location requires both increased conveyance capacity beneath the roadway and an increase in roadway elevation. However, raising the roadway limits overflows during larger events and could result in localized increases in WSE upstream. This effect is observed around Rock Springs Road. Additional storm drain inlets would be required near the intersection of Rock Springs Road and Greenstone Lane to mitigate WSE increases.

Given these considerations, the proposed conceptual solution for the Greenstone Lane crossing consists of upsizing the existing drainage infrastructure from three 8' x 7' concrete box culverts to six 10' x 10' concrete box culverts. The proposed solution also requires raising the roadway by approximately five feet at the crossing low point and transitioning back into the existing roadway, resulting in approximately 600 linear feet of modified roadway.

The conceptual solution also includes channel grading at the crossing to accommodate the widened culvert opening and installation of riprap to protect the channel and minimize the potential for erosion. While channel grading is needed at the crossing, no other channel modifications are needed along the channel upstream or downstream of the crossing.

Figure 3-11 shows the proposed WSE profile at Greenstone Lane, and **Figure 3-12** shows the proposed 100-year floodplain. With implementation of this conceptual solution, model results show that the Greenstone Lane crossing achieves a 100-year LOS with two feet of freeboard, significantly improving roadway safety during major storm events and meeting city criteria. The proposed improvements also reduce WSE downstream of the crossing, thereby reducing flood risk to the nearby structure. Model results showed a reduction of about one foot of depth at the structure. The planning-level cost for this conceptual solution is estimated at $2.6 million. A detailed OPCC is provided in **Appendix C.**

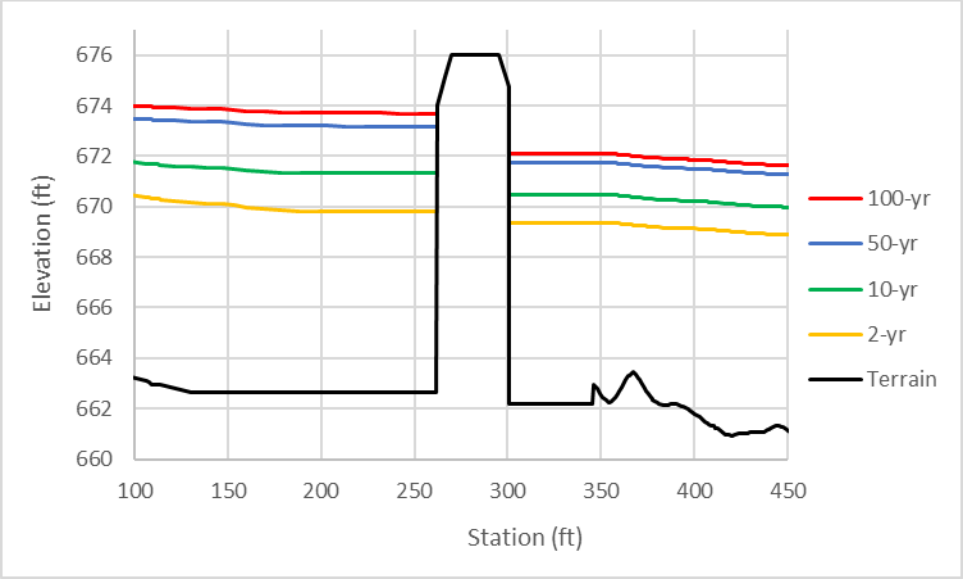


Figure 3-11. Greenstone Lane Water Surface Elevation Profile – Proposed Conditions

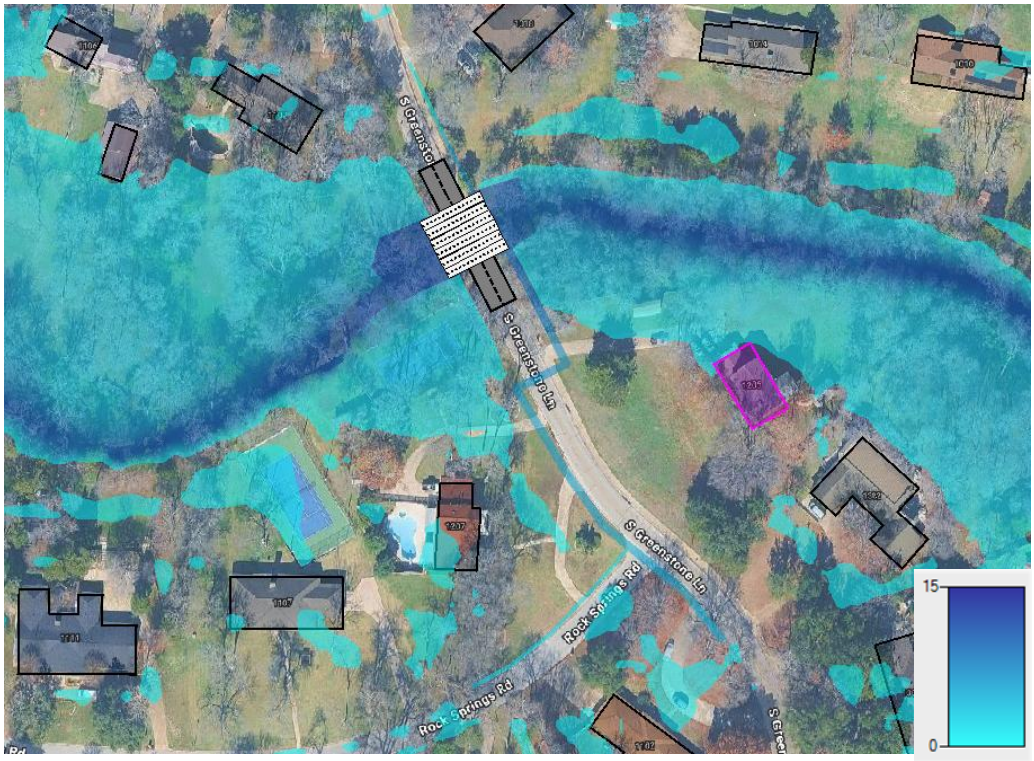
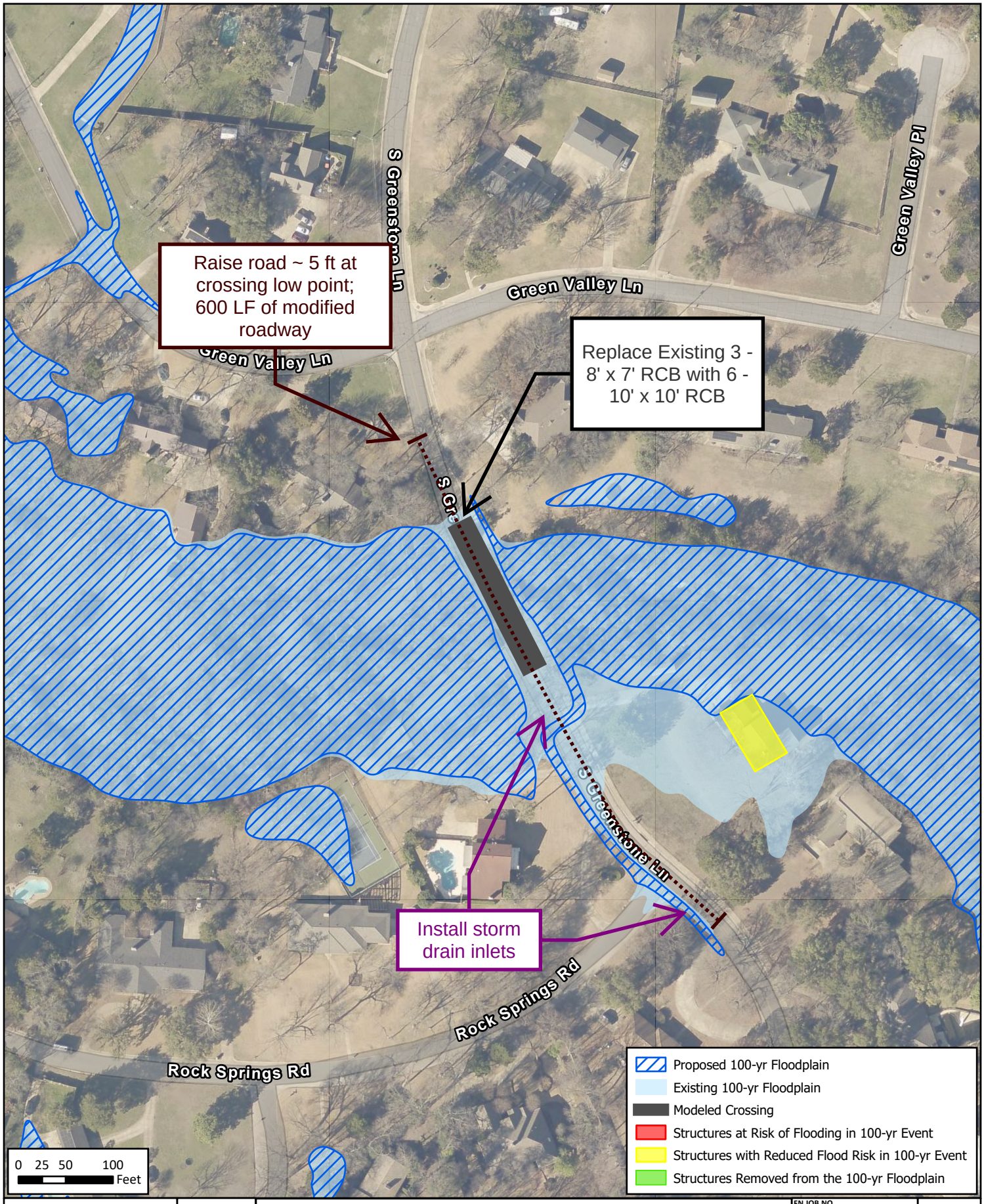


Figure 3-12. 100-year Floodplain at Greenstone Lane – Proposed Conditions

Figure 3-13 presents a comparison of the existing and proposed 100-year floodplains, with proposed improvements annotated with callouts. The downstream structure is highlighted in yellow to indicate a reduction in flood risk resulting from the proposed improvements.



FREESE AND NICHOLS
12770 Merit Drive, Suite 900
Dallas, TX 75251
214-217-2200 | www.freese.com

Greenstone Lane

City of Duncanville, Texas

FN JOB NO	DNV25453
FILE	DMP_Final_Exhibits
DATE	4/30/2026
SCALE	1:1,600
DRAFTED	03880

FIGURE 3-13

Path: H:\STORMWATER\Final Exhibits\Exhibits\Map\DMP_Final_Exhibits\DMP_Final_Exhibits.aprx

3.4 ALEXANDER AVENUE

Alexander Avenue crosses Mauk Branch near the eastern City limits, just north of E. Wheatland Road. This site was identified as a potentially hazardous crossing based on ROM modeling results indicating significant overtopping.

3.4.1 Existing Conditions

The existing culvert at Alexander Avneue is a three 10' x 8' RCB culvert that is about 46 ft long. At the Center Street crossing upstream, there is a three 10' x 9' RCB culvert that is 70 ft long. At Wheatland Road downstream, there is a three 10' x 8' RCB culvert that is about 94 ft long. Culvert and roadway information was obtained from the 2025 TxDOT Bridges SNBI dataset and "Mauk Branch Erosion Control Improvements Wheatland Road to Alexander Avenue" plan set dated November 4th. SA/2D connections were used for the culvert crossings at E. Center Street, Alexander Avenue, and Wheatland Avenue for the 2-, 10-, 50-, and 100-year storm events.

Existing conditions were evaluated by developing a detailed hydraulic model that truncates the ROM model to the project area and refines the 2D computational grid. Inflow boundary conditions were applied at major riverine and storm drain crossings along the model 2D boundary. ROM precipitation inputs were retained to represent runoff generated within the contributing drainage area. Outflow boundary conditions were applied around the perimeter of the 2D mesh to allow runoff to exit the system, using a normal depth boundary condition with a slope of 0.001 ft/ft. A normal depth boundary condition was also applied at the downstream outfall, based on a channel slope of 0.005 ft/ft derived from terrain data.

Table 3-6 summarizes the modeled roadway inundation depths over the roadway for the simulated events. **Figure 3-14** shows the WSE profile along the stream centerline. Model results indicate that the existing roadway has a 10-year LOS. **Figure 3-15** shows the 100-year depth results, filtered to show depths greater than 0.5 ft. These results indicate one structure is potentially at risk of flooding in the 100-year event. At the structure, modeled flooding depths up to three feet were observed.

Table 3-6. Depth Over Alexander Avenue – Existing Conditions

Return Period (yrs)	Depth Over Roadway (ft)
2	-
10	-
50	0.9
100	1.6

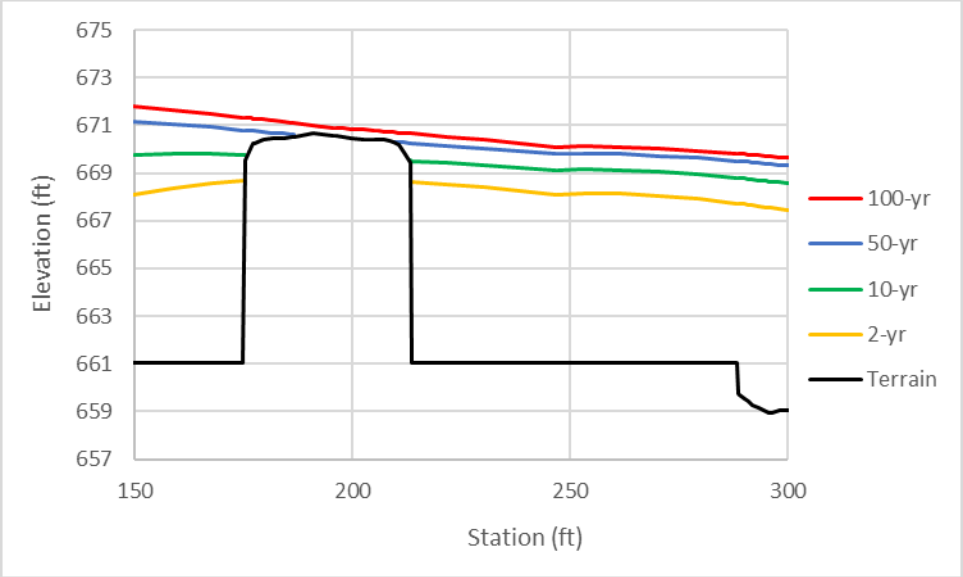


Figure 3-14. Alexander Avenue Water Surface Elevation Profile – Existing Conditions

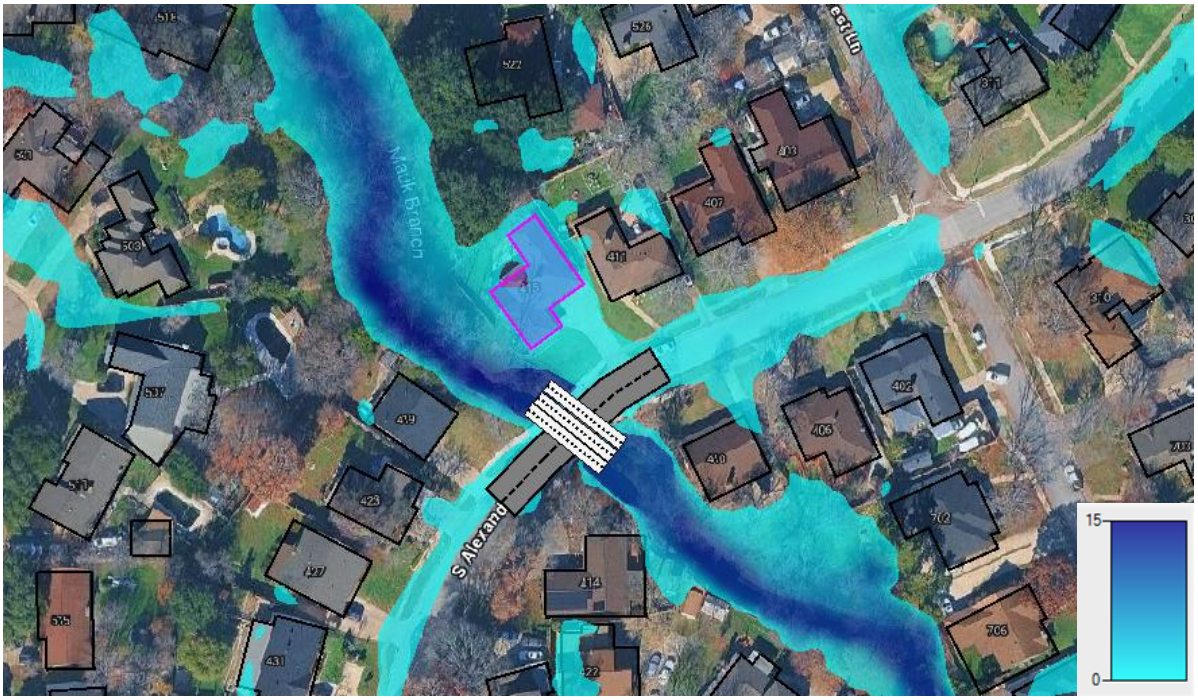


Figure 3-15. 100-year Floodplain at Alexander Avenue – Existing Conditions

3.4.2 Proposed Conditions

Similar to the Green Hills Road and Greenstone Lane culvert crossings, the alternatives analysis focused on reducing flood risk at the Alexander Avenue crossing. The evaluation focused only on removing the roadway from the 100-year floodplain.

Site-specific constraints limited feasible improvement options at this crossing. The crossing and Mauk Branch channel corridor are fully built out and surrounded by residential properties, restricting options to widen the channel or crossing. As a result, increasing hydraulic capacity through channel widening was deemed infeasible. Raising the roadway was determined to provide not only the required freeboard but also the additional vertical clearance needed to increase conveyance through the crossing. However, the extents of the raised roadway needed to be limited to reduce impacts to adjacent driveways and sidewalks that must tie into the revised roadway profile.

The proposed conceptual solution consists of upsizing the existing culverts and raising the roadway profile. Four 9’ x 9’ concrete box culverts are proposed in place of the existing three 10’ x 8’ concrete box culverts. The proposed solution includes raising the roadway by approximately four feet at the crossing low point and transitioning back into the existing roadway, resulting in approximately 400 linear feet of modified roadway.

While raising the roadway eliminates overtopping during the 100-year event, it can also restrict runoff from adjacent residential properties that previously drained toward the roadway near the crossing. As a result, localized increases in upstream WSE were observed near S. Forest Lane. Additional storm drain inlets are proposed near the intersection of S. Forest Lane and Alexander Avenue to capture that localized runoff, improve drainage along the roadway, and mitigate WSE increases. Due to the constrained channel and surrounding development, these improvements do not provide flood relief to the upstream structure that is potentially at risk in existing conditions.

Figure 3-16 shows the proposed WSE profile along the stream centerline. **Figure 3-17** shows the proposed 100-year floodplain. With this conceptual improvement, model results show that the Alexander Avenue crossing achieves a 100-year LOS. While some roadway flooding remains to the west of the crossing, this is attributable to overflow from adjacent roadways draining toward the crossing and is fully contained within the ROW. The planning-level cost for this conceptual solution is estimated at $1.6 million. A detailed OPCC is provided in **Appendix C.**

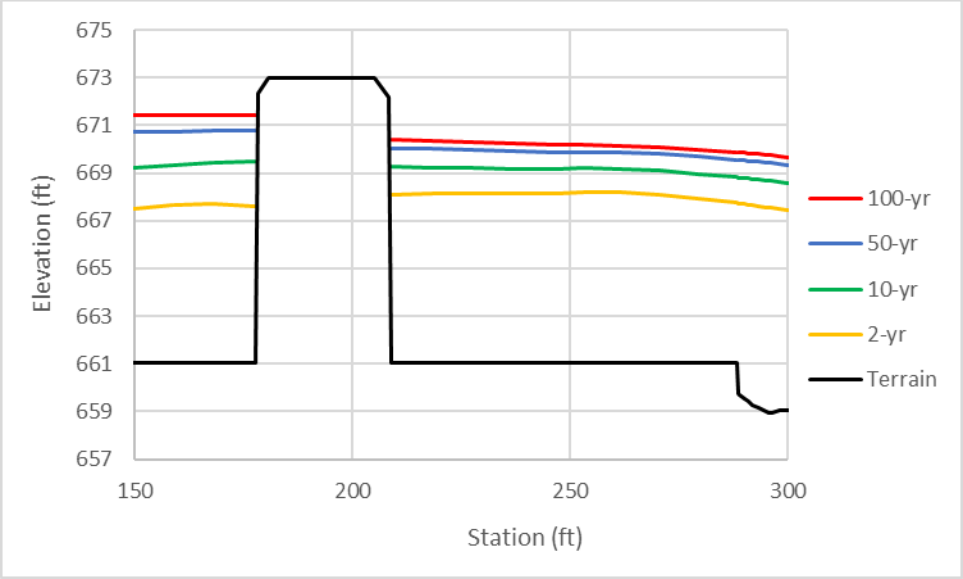


Figure 3-16. Alexander Avenue Water Surface Elevation Profile – Proposed Conditions

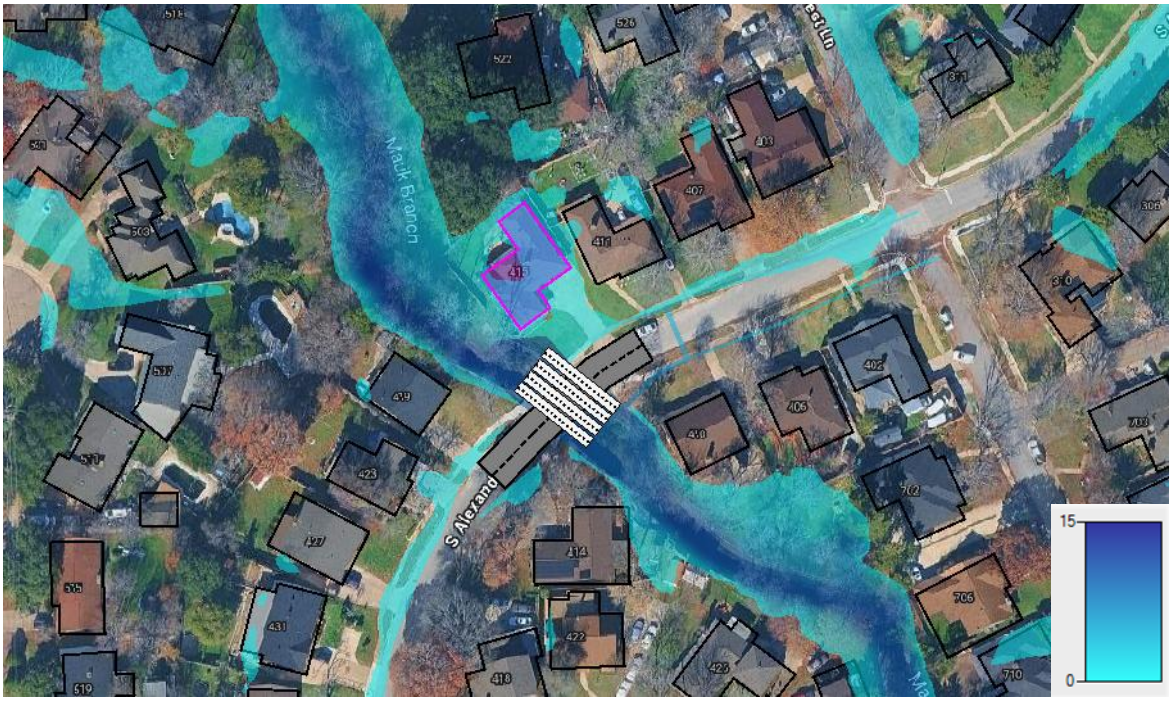
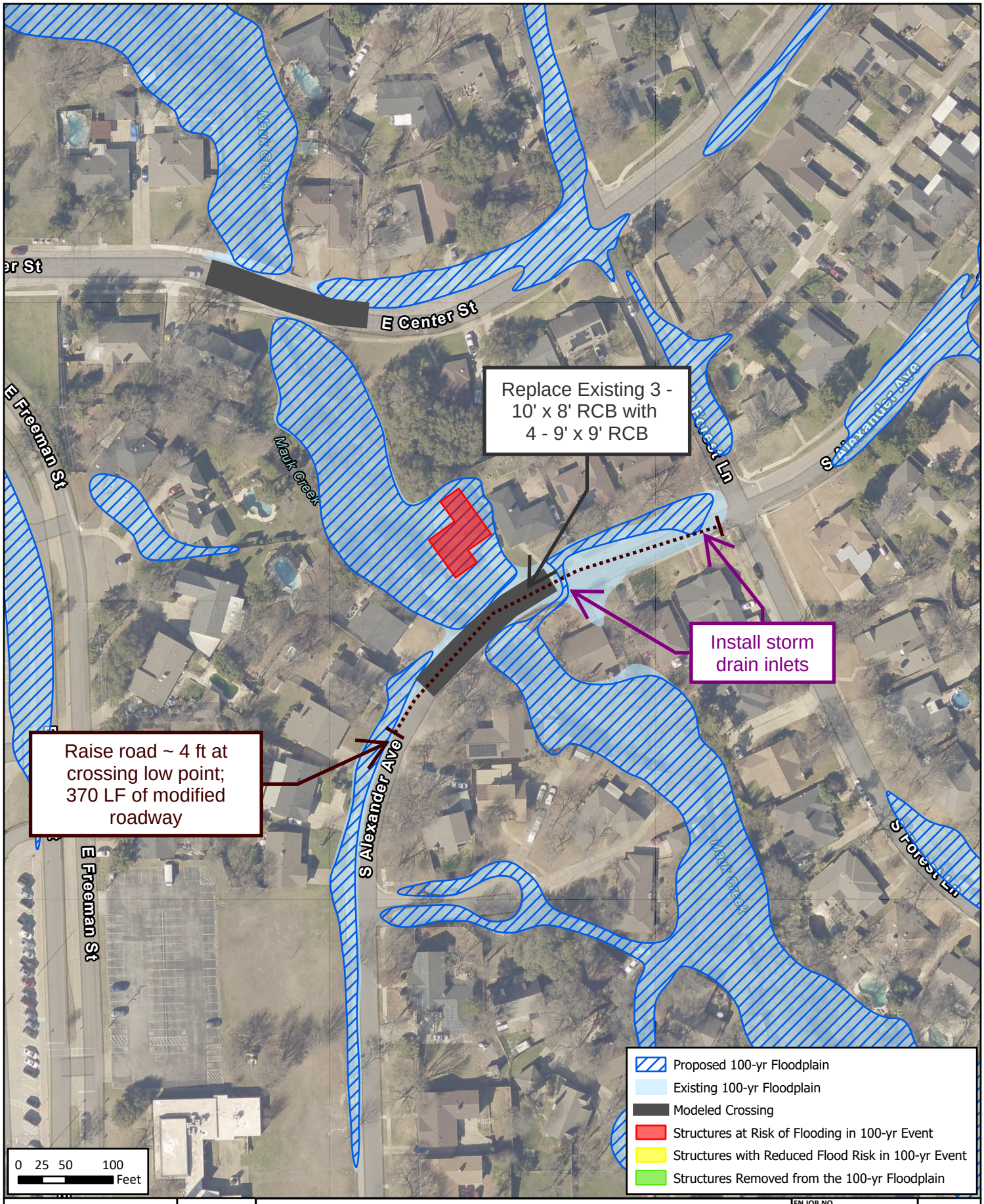


Figure 3-17. 100-year Floodplain at Alexander Avenue – Proposed Conditions

Figure 3-18 presents a comparison of the existing and proposed 100-year floodplains, with proposed improvements annotated with callouts. The upstream structure is shown in red to indicate minimal reductions in water surface elevation and no meaningful flood risk benefit from the proposed crossing improvements.



FREESE AND NICHOLS
12770 Merit Drive, Suite 900
Dallas, TX 75251
214-217-2200 | www.freese.com

Alexander Avenue

City of Duncanville, Texas

FN JOB NO	DNV25453
FILE	DMP_Final_Exhibits
DATE	4/30/2026
SCALE	1:1,600
DRAFTED	03880

FIGURE 3-18

Path: H:\STORMWATER\Final Exhibits\Exhibits\Map\DMP_Final_Exhibits\DMP_Final_Exhibits.aprx

3.5 CEDAR HILL ROAD

Cedar Hill Road crosses Tenmile Creek in the south-central portion of the City, just downstream of the Charles F. Ladd Nature Preserve. This site was identified as a potentially hazardous crossing based on ROM modeling results indicating significant overtopping.

3.5.1 Existing Conditions

There is an existing 90-ft span bridge with one pier at Cedar Hill Road. Bridge and roadway information were estimated based on aerial imagery and existing terrain. The bridge was modeled with an assumed thickness of two feet. One pier was observed in Google Earth Street View and included in the model with an assumed width of one foot. There are several storm drains discharging to Tenmile Creek detailed in the following plan sets:

- Explorer Street Storm Drain: Duncanville Industrial District No. 7; Acrey Roberts Pierson Inc.; January 1979
- A.T.S.F Railroad Culvert: Duncanville Industrial District No. 7; Acrey Roberts Pierson Inc.; January 1979
- Cedar Ridge Road Storm Drain: Cedar Ridge Road in Duncanville Industrial District; Acrey Roberts Pierson Inc.; November 1982
- Alameda Avenue Storm Drain: Santa Fe Village – Section One; Pinkerton and Associates, Inc.; June 1984
- Big Stone Gap Road Storm Drain: Santa Fe Village – Section One; Pinkerton and Associates, Inc.; June 1984
- Cedar Hill Road Storm Drain: Santa Fe Village – Section One; Pinkerton and Associates, Inc.; June 1984
- Danieldale Road Culvert: County of Dallas, TX, Department of Public Works Project No. 490-440: Danieldale Drive from Clark Road to Main Street; Hogan and Rasor Inc.; May 1987

Existing conditions were evaluated by developing a detailed hydraulic model that truncates the ROM model to the project area and refines the 2D computational grid. The bridge was modeled as an SA/2D connection for the 2-, 10-, 50-, and 100-year storm events, and the storm drains were added as terrain modifications to account for flow approaching the bridge.

Inflow boundary conditions were applied at major riverine and storm drain crossings along the model 2D boundary. ROM precipitation inputs were retained to represent runoff generated within the contributing

drainage area. Outflow boundary conditions were applied around the perimeter of the 2D mesh to allow runoff to exit the system, using a normal depth boundary condition with a slope of 0.001 ft/ft. A normal depth boundary condition was also applied at the downstream outfall, based on a channel slope of 0.012 ft/ft derived from terrain data.

Table 3-7 summarizes the modeled roadway inundation depths for these events, and **Figure 3-19** shows the WSE at the bridge cross-section. The results indicate that the existing roadway has a 10-year LOS. **Figure 3-20** shows the 100-year depth results, filtered to depths greater than 0.5 ft. These results indicate seven structures are potentially at risk of flooding during the 100-year event. At the structures, modeled flooding depths up to 1.7 feet were observed.

Table 3-7. Depth Over Cedar Hill Road – Existing Conditions

Return Period (yrs)	Depth Over Roadway (ft)
2	-
10	-
50	0.7
100	1.3

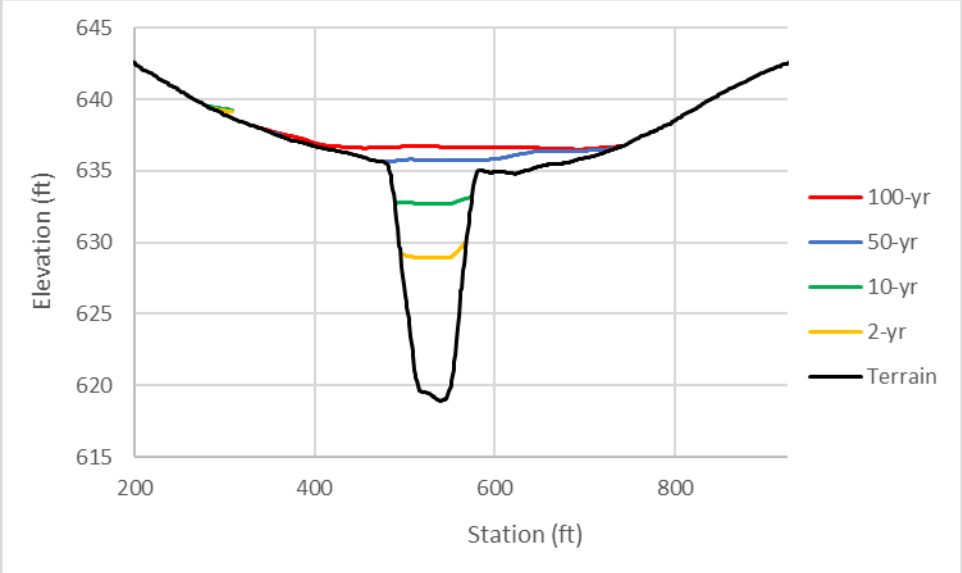


Figure 3-19. Cedar Hill Road Water Surface Elevation Cross-Section – Existing Conditions

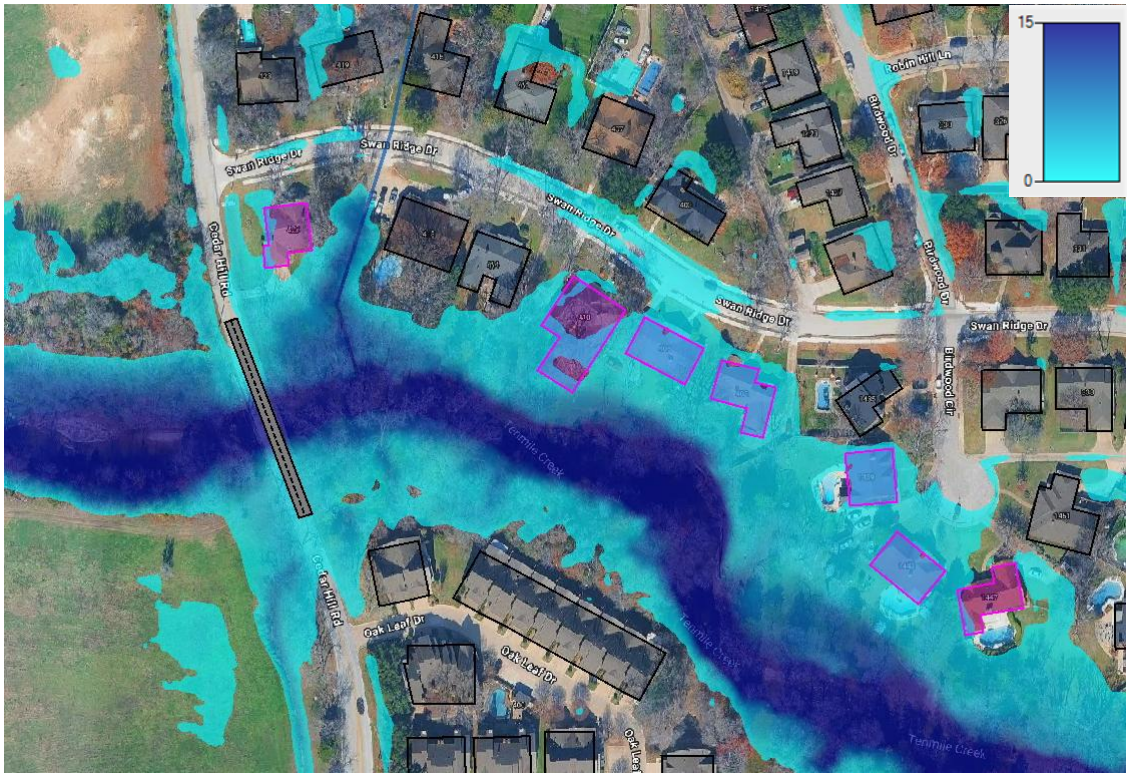


Figure 3-20. 100-year Floodplain at Cedar Hill Road – Existing Conditions

3.5.2 Proposed Conditions

The alternatives analysis focused on achieving a 100-year LOS and reducing flood risk at the Cedar Hill Road bridge crossing, consistent with the alternatives analysis performed for the culvert crossings. The initial objective at this location was to provide a 100-year LOS at the bridge while also reducing flood risk to the downstream residential structures.

As part of this objective, alternatives were tested that utilized the nature preserve upstream as natural detention to reduce WSE downstream. Hydraulic modeling demonstrated that achieving meaningful downstream WSE reductions would require substantial excavation within the upstream nature preserve. The magnitude of excavation needed, in combination with the presence of multiple existing utility crossings beneath the preserve, introduced significant constructability, utility coordination, and cost considerations. Additionally, increased upstream detention volumes resulted in higher upstream WSE at the crossing, requiring the roadway to be raised significantly to prevent overtopping. This would impact adjacent properties along Cedar Hill Road and could require property acquisition or residential buyouts.

Based on these factors, alternatives involving upstream detention were determined to be infeasible for implementation at this site.

Given these limitations, the alternatives analysis shifted focus to addressing the roadway crossing hazard itself. Cedar Hill Road is a frequently used neighborhood roadway that would experience overtopping during major storm events, posing a safety concern for residents. The proposed conceptual solution consists of raising the roadway and bridge structure out of the 100-year floodplain and widening the opening beneath the bridge. The proposed solution also requires raising the roadway by approximately six feet at the crossing low point and transitioning back into the existing roadway, resulting in approximately 700 linear feet of modified roadway. This includes increasing the span of the bridge to 175 feet in width.

Figure 3-21 shows the proposed WSE at the bridge cross-section, and **Figure 3-22** shows the proposed 100-year floodplain. With implementation of this conceptual solution, model results show that the Cedar Hill Road crossing achieves a 100-year LOS with at least two feet of freeboard, significantly improving roadway safety during major storm events. Model results showed a reduction of up to 0.2 feet of depth around the structures downstream. The planning-level cost for this conceptual solution is estimated at $2.1 million. A detailed OPCC is provided in **Appendix C.**

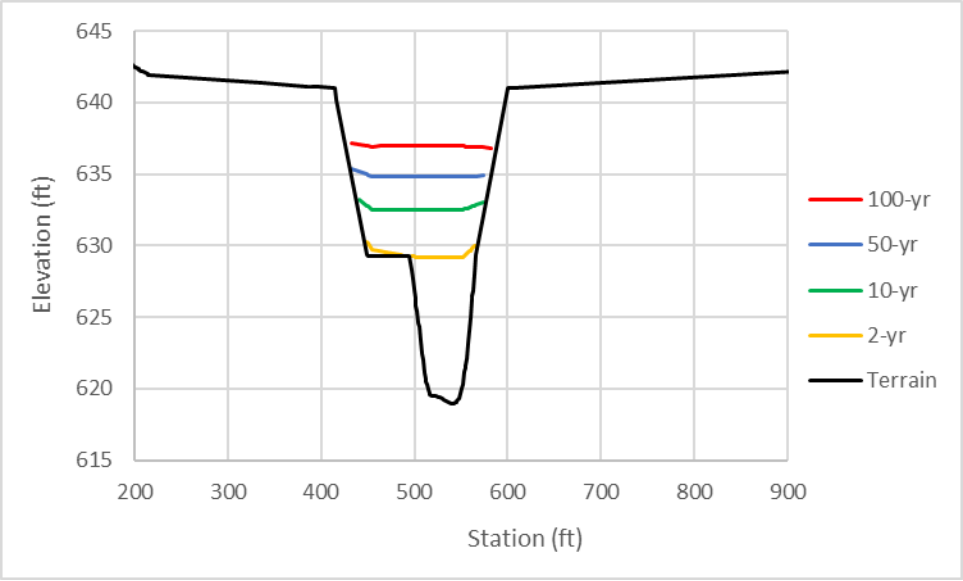


Figure 3-21. Cedar Hill Road Water Surface Elevation Cross-Section – Proposed Conditions

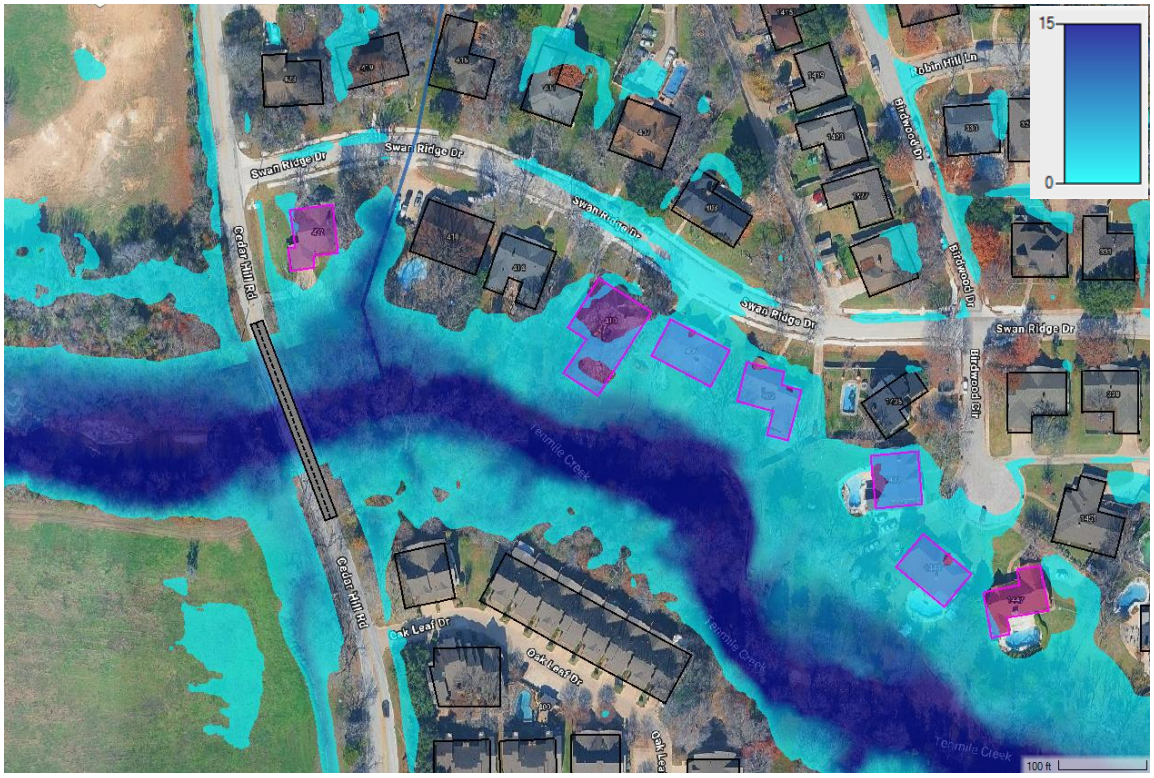
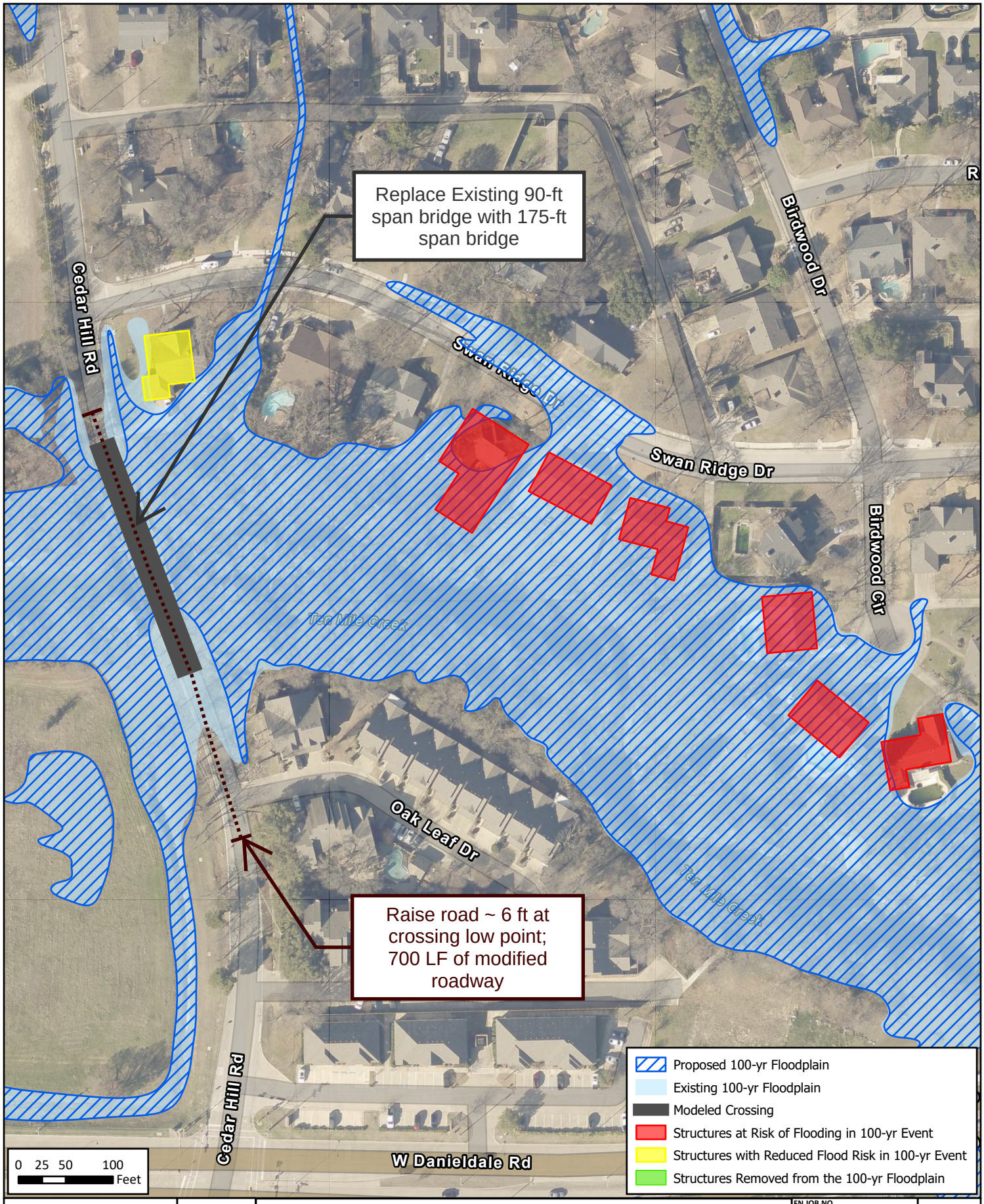


Figure 3-22. 100-year Floodplain at Cedar Hill Road – Proposed Conditions

Figure 3-23 presents a comparison of the existing and proposed 100-year floodplains, with proposed improvements annotated with callouts. Structures highlighted in yellow experience a reduction in flood risk, while structures shown in red indicate minimal reductions in water surface elevation and no meaningful flood risk benefit from the proposed crossing improvements.



FREESE AND NICHOLS
12770 Merit Drive, Suite 900
Dallas, TX 75251
214-217-2200 | www.freese.com

Cedar Hill Road

City of Duncanville, Texas

FN JOB NO	DNV25453
FILE	DMP_Final_Exhibits
DATE	4/30/2026
SCALE	1:1,600
DRAFTED	03880

FIGURE 3-23

Path: H:\STORMWATER\Final Exhibits\Exhibits\Map\DMP_Final_Exhibits\DMP_Final_Exhibits.aprx

3.6 SUNSET VILLAGE

The Sunset Village development is located directly southwest of the intersection between East Danieldale Road and S. G. Alexander Freeway (Hwy 67). This area was identified as a flood-prone location based on ROM modeling results. Potential flooding conditions are anticipated for 16 properties due to an undersized storm drain system along Sunset Village Drive.

3.6.1 Existing Conditions

Figure 3-24 shows a schematic of the storm drains and structures included in the ROM model. An open drainage channel south of E. Danieldale Road transitions to a closed storm drain system composed of two 51" diameter pipes underneath Sunset Village Drive. Flow from this system discharges to an opening adjacent to the southbound frontage road of Highway 67 and is conveyed beneath the freeway by two 8' x 6' box culverts before discharging to Tenmile Creek downstream.

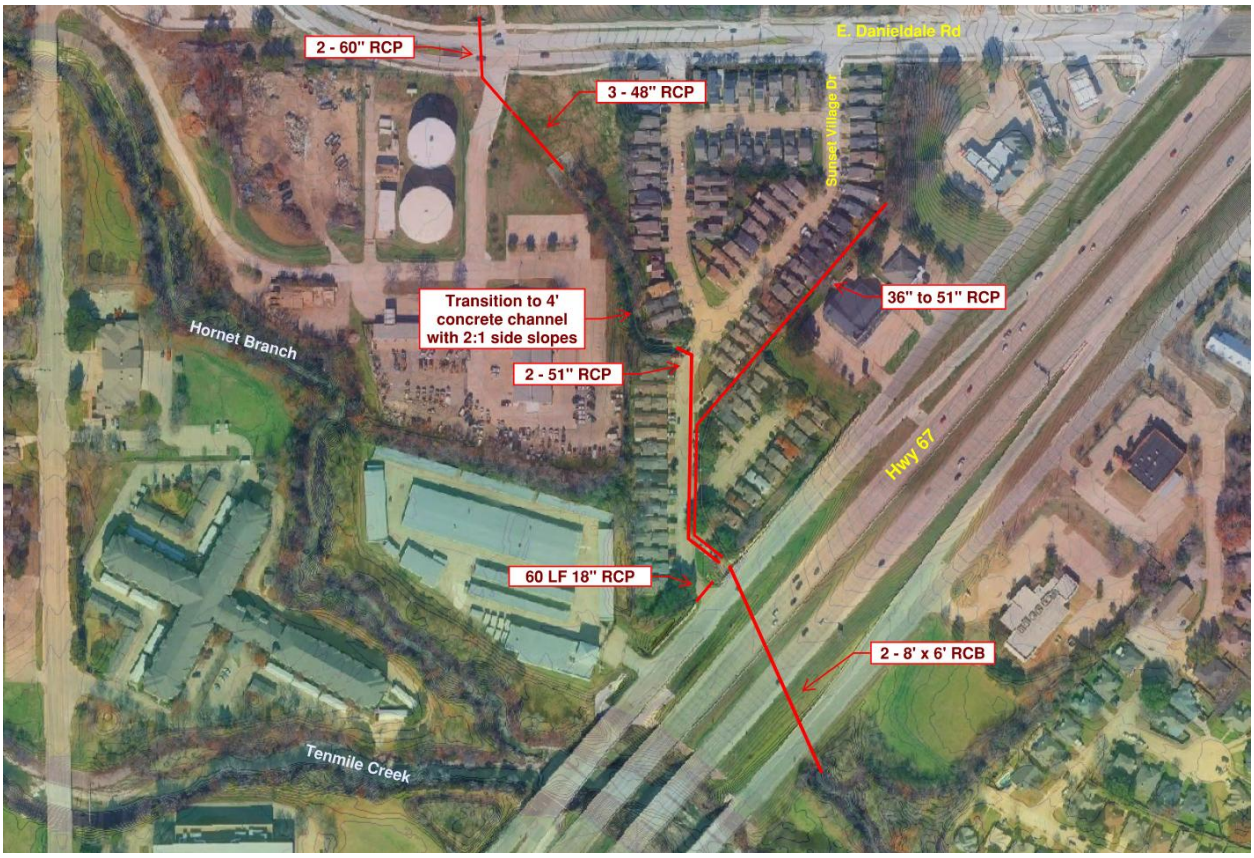


Figure 3-24. Sunset Village Storm Drain Schematic – Existing Conditions

The configuration of these structures was determined using various plan sets obtained from the City:

- Sunset Village Drive Storm Drain: Sunset Village; Pinkerton and Associates. Inc; March 1983
- Highway 67: Sunset Village; Pinkerton and Associates. Inc; March 1983
- E Danieldale Rd Storm Drain: Rock Crest Dr. & Shady Trail Drive; C.G.M. Engineering Corp; April 1987

The ROM model was truncated to the project area and refined to 50-by-50-ft cells with a 5-second timestep to provide a more detailed analysis of existing conditions. The two 51" storm drain pipes and two 8' x 6' culvert crossing downstream were modeled as SA/2D connections, while other minor storm drains and culverts were modeled as terrain modifications.

Inflow boundary conditions were applied at major riverine and storm drain crossings along the model 2D boundary. ROM precipitation inputs were retained to represent runoff generated within the contributing drainage area. Outflow boundary conditions were applied around the perimeter of the 2D mesh to allow runoff to exit the system, using a normal depth boundary condition with a slope of 0.001 ft/ft. Two downstream outfall boundary conditions were also specified: one at the Tenmile Creek mainstem and one at the tributary outfall from the culvert beneath the freeway. Both downstream outfalls were assigned a normal depth boundary condition with a slope of 0.0025 ft/ft to account for backwater effects from the downstream confluence.

The ROM model was run for the 2-, 10-, 50-, and 100-year storm events. **Table 3-8** summarizes the depth over Sunset Village Drive for these events. **Figure 3-25** shows the WSE profile along the storm drain centerline at Sunset Village Drive. These results indicate that the existing storm drain system has a 10-year LOS. Further, the 1983 storm drain plan sets indicate a 100-yr design flow of approximately 400 cfs, while modeled upstream flows are approximately twice as large, indicating the culvert is undersized under present-day hydrologic conditions.

Figure 3-26 depicts the 100-year depth results, filtered to 0.5 ft, showing that 16 structures are potentially at risk of flooding during the 100-year event. At the structures, modeled flooding depths up to three feet were observed.

Table 3-8. Depth Over Sunset Village Drive – Existing Conditions

Return Period (yrs)	Depth Over Roadway (ft)
2	-
10	-
50	1.9
100	2.1

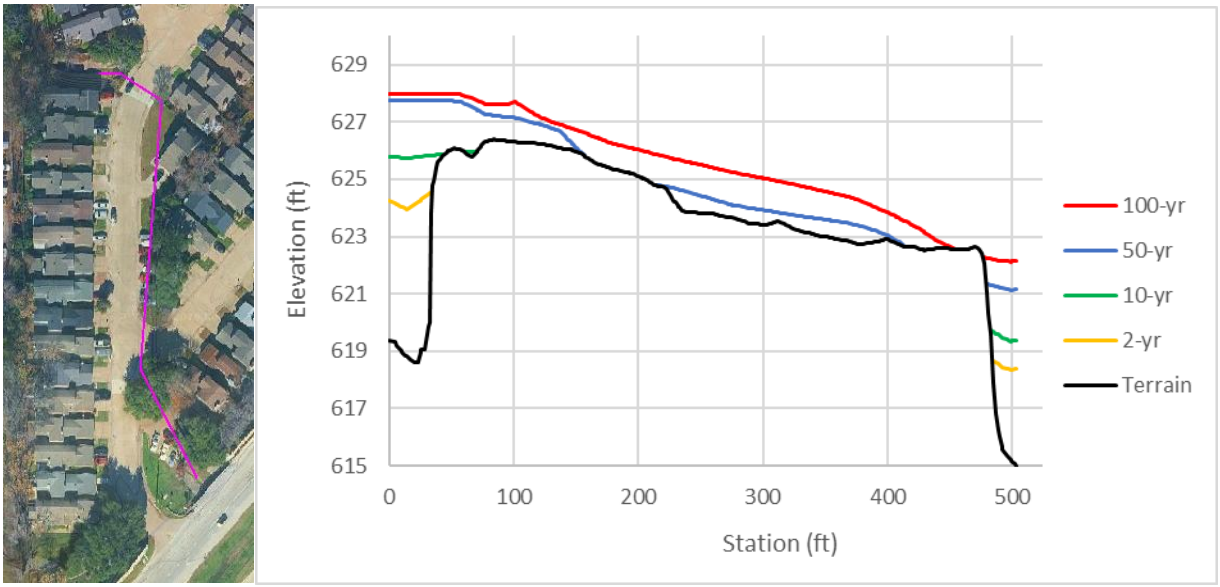


Figure 3-25. Sunset Village Drive (left) Water Surface Elevation Profile (right) – Existing Conditions

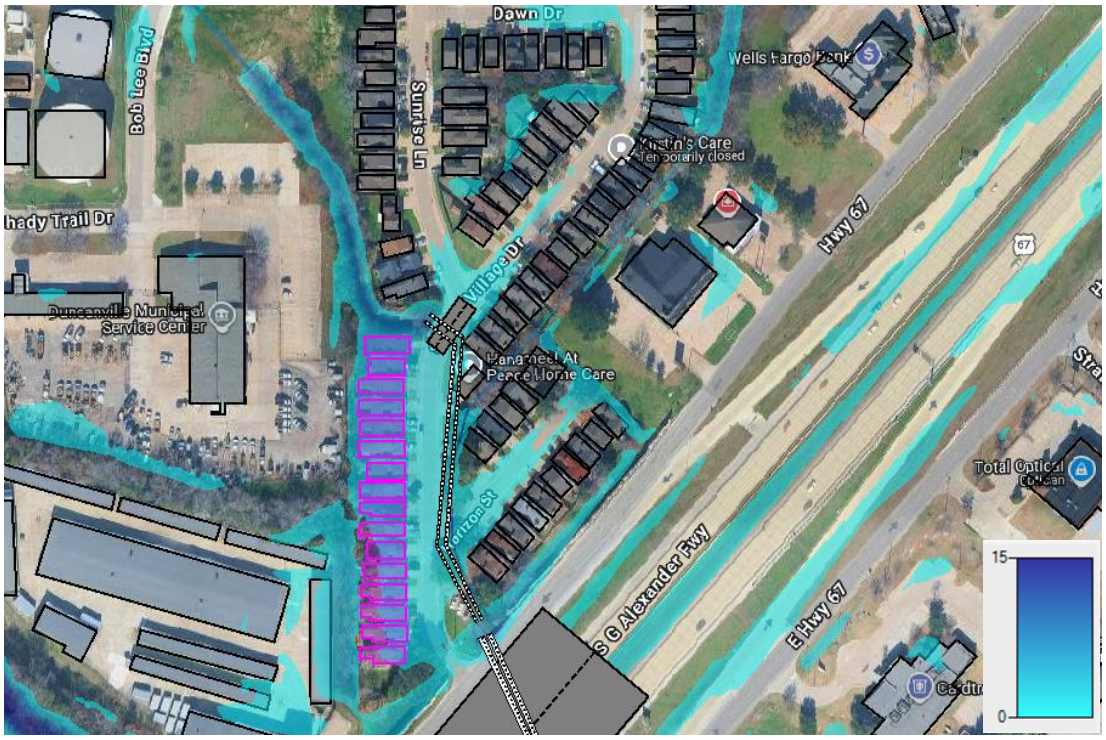


Figure 3-26. 100-year Floodplain at Sunset Village – Existing Conditions

3.6.2 Proposed Conditions

The main objective at this location is to provide a 100-year LOS at the Sunset Village Drive crossing and reduce flood risk to the 16 residential structures. As part of the analysis, alternatives were tested to upsize the culvert crossing downstream, at Highway 67, to determine whether backwater effects from that crossing were contributing to flooding at Sunset Village Drive. Modeling showed that upsizing the downstream Highway 67 crossing did not result in significant upstream benefits. Additionally, Highway 67 is under TxDOT jurisdiction, which limits the feasibility of implementing improvements there as part of this project. Based on these findings and the documented difference between design and modeled flows under existing conditions, the storm drain crossing at Sunset Village Drive was identified as the primary hydraulic constraint.

Due to the roadway profile and the steep grade required to tie into the Highway 67 southbound frontage road, raising Sunset Village Drive was not considered a viable option. As a result, upsized culvert alternatives were evaluated using the existing roadway vertical profile while maintaining a minimum of two feet of cover over the proposed culverts.

Additional culvert alignments and downstream outfall locations were evaluated to avoid increasing conveyance to the existing Highway 67 culvert. However, maintaining the existing alignment did not result in adverse impacts at the downstream crossing. Retaining the current routing also minimizes construction complexity and cost by avoiding significant excavation and rerouting of the storm drain system.

The proposed conceptual solution for Sunset Village Drive consists of upsizing the existing storm drain from two 51" concrete pipes to two 10' x 5' concrete box culverts (477 feet long). **Figure 3-27** shows the proposed WSE profile at Sunset Village Drive, and **Figure 3-28** shows the proposed 100-year floodplain. While this solution results in approximately 0.7 feet of freeboard during the 100-year event, it removes 12 properties from the 100-year floodplain and reduces flooding depths for the remaining four properties. Modeling results indicate an approximate one-foot reduction in 100-year flood depths at those remaining properties. The planning-level cost for this conceptual solution is estimated to be $2.1 million. A detailed OPCC is provided in **Appendix C.**

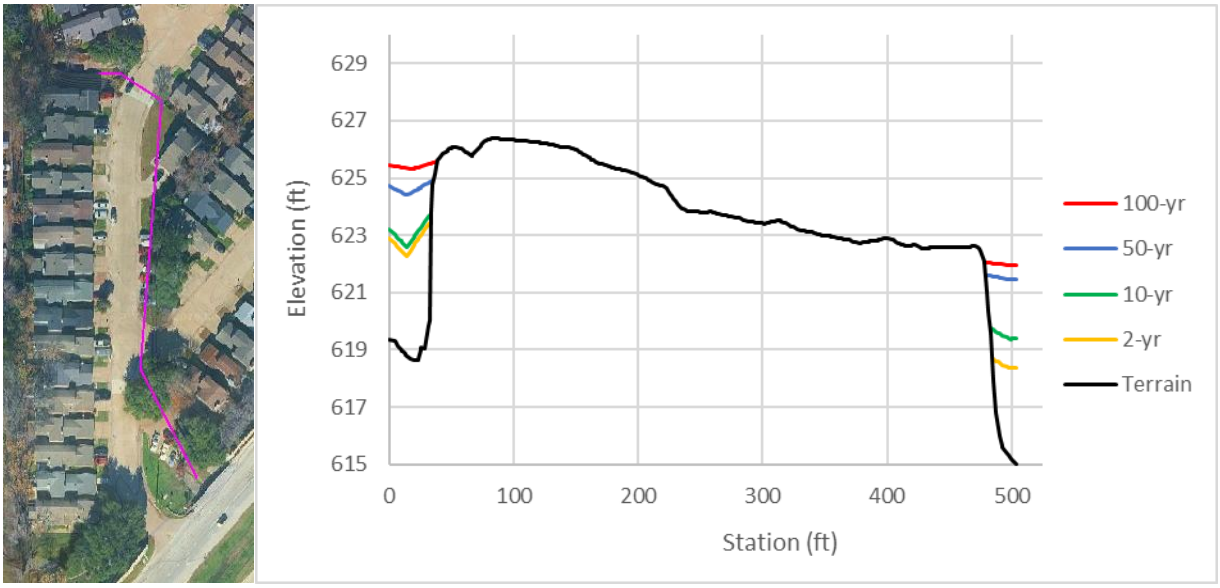
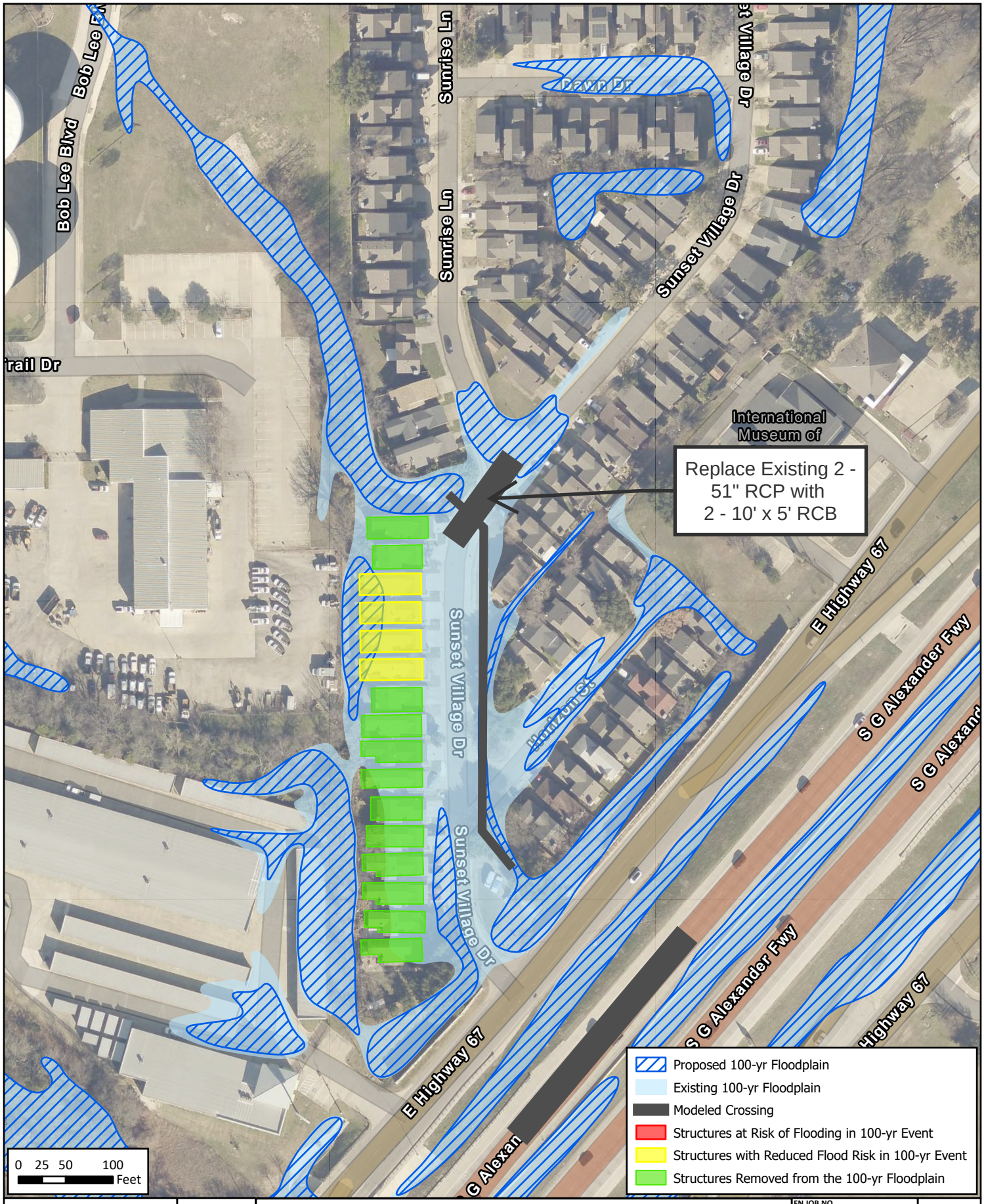


Figure 3-27. Sunset Village Drive (left) Water Surface Elevation Profile (right) – Proposed Conditions



Figure 3-28. 100-year Floodplain at Sunset Village – Proposed Conditions

Figure 3-29 presents a comparison of the existing and proposed 100-year floodplains, with proposed improvements annotated with callouts. The 12 structures removed from the 100-year floodplain are shown in green, while the remaining four structures are shown in yellow to represent the reduction in flooding observed from the proposed project.



FREESE AND NICHOLS
12770 Merit Drive, Suite 900
Dallas, TX 75251
214-217-2200 | www.freese.com

Sunset Village

City of Duncanville, Texas

FN JOB NO	DNV25453
FILE	DMP_Final_Exhibits
DATE	4/30/2026
SCALE	1:1,600
DRAFTED	03880

FIGURE 3-29

Path: H:\STORMWATER\Final Exhibits\Exhibits\Map\DMP_Final_Exhibits\DMP_Final_Exhibits.aprx

3.7 FAIRMEADOWS

The Fairmeadows neighborhood is located just east of North Main Street and north of East Cherry Street. From the screening assessment, significant flooding was observed at the two apartment complex buildings along N. Merrill Avenue and E. Davis Street.

3.7.1 Existing Conditions

The Fairmeadows storm drain system consists of two upstream collection segments that converge and discharge to an outfall at Oriole Boulevard. One segment collects runoff from inlets behind the shopping center near N. Main Street and Camp Wisdom Road, while the other collects runoff from the residential area between Fain Street and N. Main Street. These flows combine at N. Merrill Avenue and are conveyed through two 48" RCPs before transitioning to larger downstream pipes and discharging to a tributary of Mauk Branch at Oriole Boulevard. The configuration of these structures was determined using various plan sets obtained from the City:

- W. Fain Alley Storm Drain: Proposed Drainage Improvements within Easement to North of West Fain Street from North Horne Street to Smith Street; Duncanville Department of Public Works; February 1999
- W. Fain Street to Main Street: Proposed Drainage & Utility Improvements Along Walnut Street from West Fain Street to North Main Street; Duncanville Department of Public Works; June 1997
- Main Street to Camp Wisdom Road Storm Drain: Paving & Drainage Improvements on Main Street from Center Street to Camp Wisdom Road; Hogan & Rasor, Inc.; August 1983
- Main Street to Oriole Boulevard Storm Drain and Culverts: Proposed Drainage & Utility Improvements Along North Branch Tributary of Mauk Branch from Calder Avenue to East Cherry Street; Duncanville Department of Public Works; May 1999

Existing conditions were evaluated by developing a detailed hydraulic model that truncates the ROM model to the project area and refines the 2D computational grid. ROM precipitation inputs were retained to represent runoff generated within the contributing drainage area. No additional inflow boundary conditions were applied, as there are no riverine inflows into the system. The 2D mesh boundary was delineated to include the full drainage area contributing to the storm drain system. All storm drains and

culverts in the project area were modeled as terrain modifications. The outflow boundary conditions around the perimeter and at the outflow represent free flow conditions.

Near the Fairmeadows neighborhood, significant flooding was observed at N. Merrill Avenue, with depths around two to three feet observed during the 100-year event. Evaluating the existing storm drain hydraulic grade line (HGL) indicated that the system is undersized for the 100-year flow. The model yielded results for the 2-, 10-, 50-, and 100-year storms, revealing that the storm drain system has a LOS of less than the 10-year event. **Figure 3-26** depicts the 100-year depth results, filtered to 0.5 ft, showing that two apartment buildings are potentially at risk of flooding during the 100-year event. Modeling results show flooding depths of up to two feet adjacent to these buildings. The model also shows flooding conditions along North Merrill Avenue and East Davis Drive, with water depths up to three feet observed.

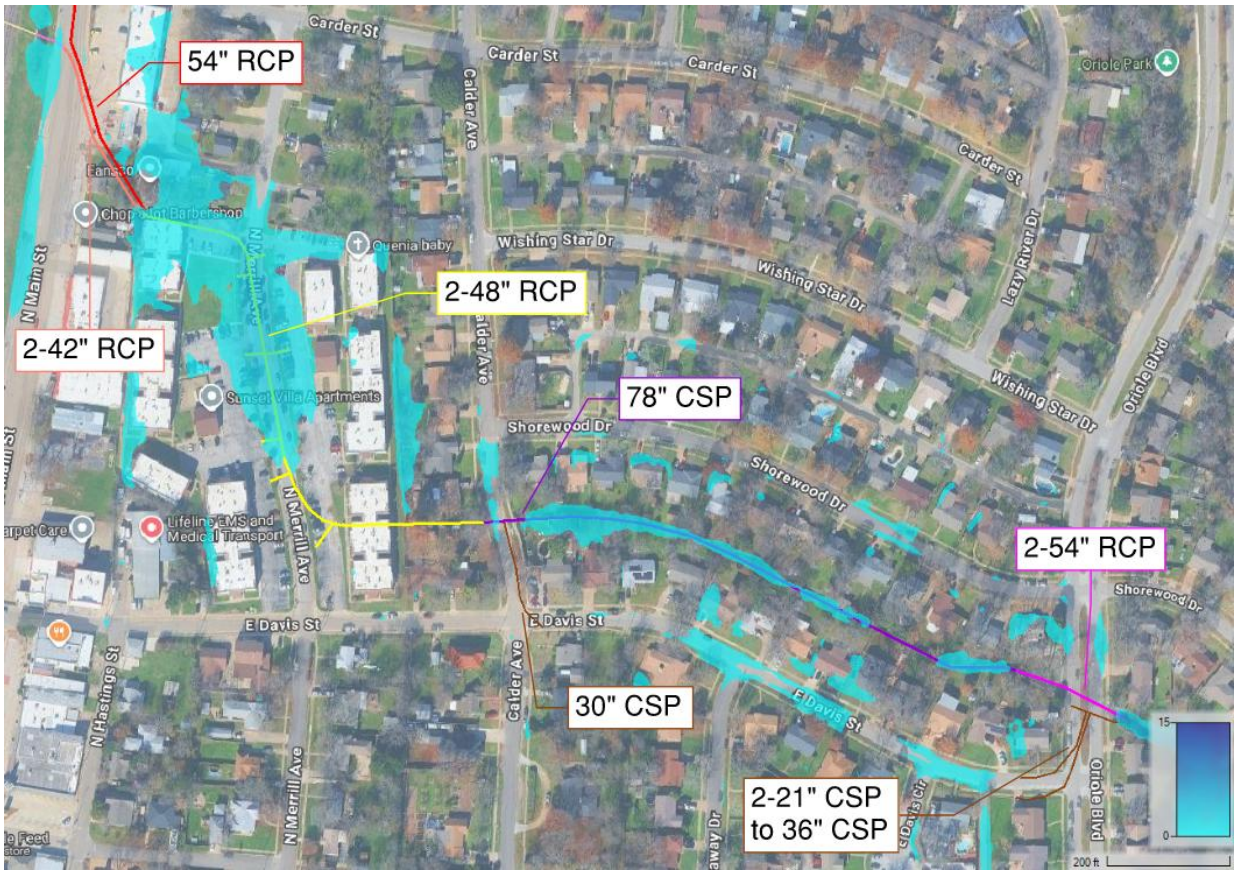


Figure 3-30. 100-year Floodplain at Fairmeadows – Existing Conditions

3.7.2 Proposed Conditions

Alternatives were evaluated with the objective of achieving a 100-year LOS and reducing flood risk at the Fairmeadows neighborhood.

Alternatives were evaluated from downstream to upstream to determine whether downstream constraints were contributing to flooding observed at Merrill Avenue. Upsizing the downstream 2 - 54" RCP crossing at Oriole Boulevard and the 78" corrugated steel pipe (CSP) segment running from Calder Avenue to Oriole Boulevard did not result in a measurable reduction in flooding at N. Merrill Avenue. This analysis identified the 2-48" RCP segment from Main Street to Calder Avenue as the primary hydraulic constraint within the system.

Upsizing the 2-48" RCP to convey the 100-year event resulted in a significant reduction in flooding at N. Merrill Avene; however, this improvement also increased flows to the downstream 78" CSP, requiring that segment to be upsized as well. The 78" CSP runs behind residential properties between Calder Avenue and Oriole Boulevard, where replacement would involve substantial challenges such as limited access and potential impacts to private property. Additionally, a portion of the existing 2 - 48" RCP is located beneath an apartment building, significantly limiting feasible improvement options to that segment. Vertical constraints within the existing infrastructure result in further restrictions of improvements and require proposed improvements to closely match existing elevations.

Given these constraints, a bypass alignment was evaluated to increase system conveyance while keeping construction within public right-of-way (ROW) and avoiding impacts to existing structures. The proposed conceptual solution allows the existing 2 - 48" RCP segment to remain in place beneath the apartment building to Calder Avenue, while retaining the existing 78" CSP to collect runoff from backyard inlets and Calder Avenue. A new bypass storm drain system is proposed along N. Merrill Avenue. A 2 – 4' x 4' RCB will connect to the existing 54" RCP and 2 - 42" RCP system at Main Street and extend along N. Merril Avenue for about 200 feet. Then the bypass will expand to 2 – 6' x 4' RCB for about 2,000 feet along E. Davis Street. This bypass will remain within the ROW along Merrill, E. Davis Street, and Oriole Boulevard before its outfall to the tributary downstream.

This proposed approach provides the hydraulic capacity required to convey the 100-year event while minimizing construction related impacts to private property and existing infrastructure. **Figure 3-31** shows the 100-year proposed depth results, filtered to depths greater than 0.5 ft. Model results showed a reduction of one to three feet of depth around the apartments and along N. Merrell Avenue. The planning-

level cost for this conceptual solution is estimated to be $8.8 million. A detailed OPCC is provided in **Appendix C.**

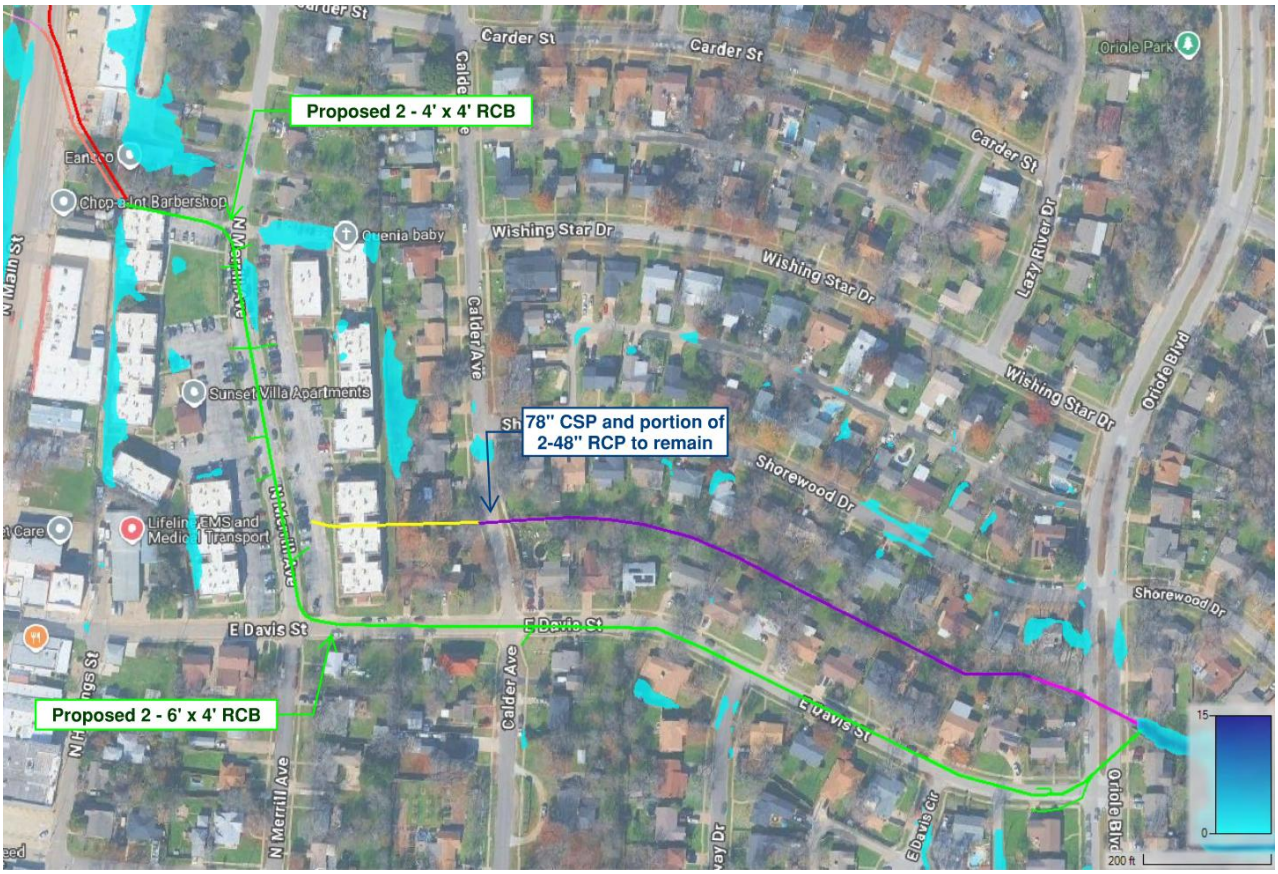
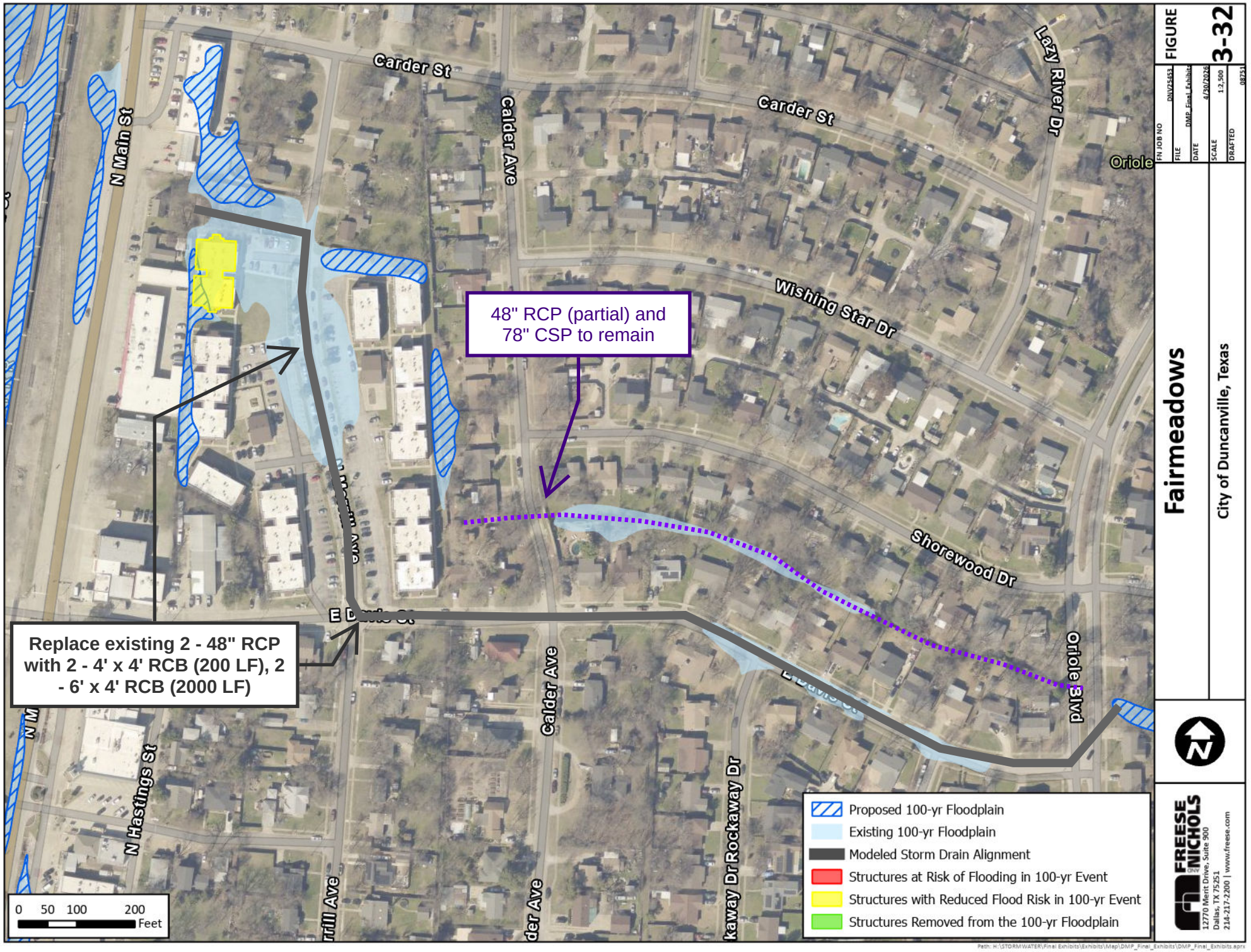


Figure 3-31. 100-year Floodplain at Fairmeadows – Proposed Conditions

Figure 3-32 presents a comparison of the existing and proposed 100-year floodplains, with proposed improvements annotated with callouts. The two apartment complex buildings are highlighted in yellow to indicate the reduction in flood risk resulting from the proposed improvements.


Carder St
Carder St
Calder Ave
N Main St
Lazy River Dr
Oriole
Wishing Star Dr
48" RCP (partial) and
78" CSP to remain
Shorewood Dr
Oriole Blvd
Calder Ave
N Hastings St
Replace existing 2 - 48" RCP
with 2 - 4' x 4' RCB (200 LF), 2
- 6' x 4' RCB (2000 LF)
Proposed 100-yr Floodplain
Existing 100-yr Floodplain
Modeled Storm Drain Alignment
Structures at Risk of Flooding in 100-yr Event
Structures with Reduced Flood Risk in 100-yr Event
Structures Removed from the 100-yr Floodplain
0 50 100 200
Feet
FIGURE
3-32
Fairmeadows
City of Duncanville, Texas
FREESE NICHOLS
12770 Merit Drive, Suite 900
Dallas, TX 75251
214-217-2200 | www.freese.com

4.0 PROJECT PRIORITIZATION

One of the primary goals of the Duncanville Drainage Master Plan was to develop a consistent, transparent, and data-driven capital project prioritization framework that compiles, scores, and ranks the City's CIP portfolio, enabling leadership to allocate funding based on a systematic assessment of business risk exposure and long-term community benefit. The following sections outline the recommended scoring and ranking system for project prioritization developed collaboratively by FNI and City staff.

4.1 PROJECT TYPES

The projects considered in the prioritization process are grouped into two categories based on their primary objectives:

- **Flood Management** – Projects aimed at improving drainage infrastructure to mitigate flooding risks.
- **Asset Protection** – Projects aimed at protecting or repairing public infrastructure. These projects help maintain the stability and functionality of critical public assets.

These project types are separated to reflect their differing purposes, performance measures, and evaluation criteria. As a result, flood management and asset protection projects are assessed and prioritized independently within their respective categories, rather than combined into a single ranking. This approach enables a more consistent and meaningful comparison of projects with similar objectives and provides a clearer basis for investment decisions.

4.2 PRIORITIZATION CRITERIA

The first step in creating a prioritization methodology is to redefine the overarching prioritization criteria used in project evaluations. **Table 4-1** lists the five prioritization criteria selected by City Staff, which reflect current City priorities and consolidate a set of related business risk exposure considerations.

The relative priority of each criterion was established during the December 10, 2025, workshop with City staff. The prioritization criteria and weights for the Flood Management and Asset Protection project categories are listed in **Table 4-2** and **Table 4-3**.

Table 4-1. Prioritization Criteria

Prioritization Criteria	Types of Considerations
Public Health and Safety	- Threat to emergency access and/or critical facilities - Safety threats due to erosion - Presence of impounded water bodies and/or state-regulated dams
Flood Hazard Reduction	- Street flooding - Structural flooding - Non-structural flooding
Infrastructure Conditions	- Structural conditions - Consequence and risk of failure
Cost-Benefit	- Total project cost - Cost effectiveness - Project benefits
Implementation Considerations	- Overall project implementation complexity - Right-of-way/easement availability - Permitting and/or mitigation requirements - Utility impact and/or relocation – Citizen's complaints history - Coherence with other City initiatives - Anticipated funding mechanism - Grant and loan funding availability

Table 4-2. Prioritization Criteria – Flood Management

Prioritization Criteria	Weight
Public Health and Safety	20%
Flood Hazard Reduction	30%
Existing Infrastructure Condition	25%
Cost-Benefit	15%
Implementation Considerations	10%

Table 4-3. Prioritization Criteria – Asset Protection

Prioritization Criteria	Weight
Public Health and Safety	25%
Existing Infrastructure Condition	50%
Cost-Benefit	15%
Implementation Considerations	10%

4.3 EVALUATION METRICS AND WEIGHTS

Once the overarching prioritization criteria were selected and weights were assigned, the next step was to develop the specific evaluation metrics for project scoring. These metrics were designed to balance practicality and completeness, allowing City staff to effectively differentiate between projects while maintaining a manageable and transparent evaluation process.

The evaluation metrics were selected based on the following key factors:

- **Practicality** – The scoring process should be efficient and repeatable.
- **Prioritization Needs** – Metrics should effectively differentiate between projects and guide capital investment decisions.
- **Objectivity and Measurability** – Where possible, scoring should rely on quantifiable data rather than subjective judgment.
- **Minimized Administrative Burden** – Where possible, metrics should require minimal additional effort for data collection while still providing meaningful insights.
- **Alignment with a Business Risk Exposure Philosophy** – The evaluation framework should support risk-based decision-making and long-term infrastructure planning.

The evaluation metric weights were established during the December 10, 2025, workshop with City staff (**Table 4-4** and **Table 4-5)**. While these values provide a structured framework for project evaluation, they are not fixed and may be adjusted as the City's priorities evolve. **Appendix D** provides descriptions for all metrics under each prioritization criterion.

Table 4-4. Flood Management Evaluation Metrics Weights

Prioritization Criteria	Prioritization Weight	Metric	Metric Weight
Public Health and Safety	20%	Emergency Access	45%
		Erosion Threat Level - Rate	35%
		Impounded Water Infrastructure	20%
Flood Hazard Reduction	30%	Street Flooding	50%
		Structural Flooding	40%
		Non-Structural Flooding	10%
Existing Infrastructure Condition	25%	Physical Condition	45%
		Consequence/Risk of Failure	55%
Cost-Benefit	15%	Cost per Structure Removed OR Cost per Person Removed (for Hazardous Crossings)	100%
Implementation Considerations	10%	Implementation Constraints	40%
		Known Complaint History	25%
		Opportunity for Collaboration	20%
		Possibility of Funding (i.e., Grants or Loans)	15%

Table 4-5. Asset Protection Evaluation Metrics Weights

Prioritization Criteria	Prioritization Weight	Metric	Metric Weight
Public Health and Safety	25%	Potential Public Threat	45%
		Erosion Threat Level - BEHI	35%
		Impounded Water Infrastructure	20%
Existing Infrastructure Condition	50%	Physical Condition	45%
		Consequence/Risk of Failure	55%
Cost-Benefit	15%	Cost per Year of Service Life Restored	100%
Implementation Considerations	10%	Implementation Constraints	40%
		Known Complaint History	25%
		Opportunity for Collaboration	20%
		Possibility for Grant Funding (i.e., Grants or Loans)	15%

4.3.1 Excel-based Scoring and Prioritization Tool

An **Excel-based tool** was developed to support the implementation of the recommended scoring and prioritization methodology. Standardized scoring instructions have been developed for each metric and are included within the tool. The tool standardizes evaluations, improves data management, and enhances decision-making. It incorporates prioritization criteria, evaluation metrics, and weighting recommendations.

This tool provides the City with a user-friendly, adaptable, and structured approach to project evaluation. It is designed to be:

- **Easy to use** – Incorporates Project Rating Forms and dropdown menus to streamline data entry.
- **Standardized** – Reduces subjectivity by providing clear scoring guidance and predefined evaluation metrics.
- **Flexible** – Allows for future updates to criteria weights and scoring thresholds based on evolving priorities.

The Excel-based tool contains multiple tabs, each serving a specific function in the scoring and ranking process. It features a scoring guidance section explaining the evaluation metrics and provides scoring recommendations.

The **Project Rating Forms** use dropdown menus for making selections for each metric and calculate scores automatically, reducing manual input errors. The tool keeps records of evaluation metric scores, weighted prioritization scores and final total scores for all project entries. An example of the Project Rating Forms interface for Flood Management projects is provided in **Figure 4-1. Appendix D** provides a detailed description of the tool's features, functionality, and benefits.

Duncanville
City of Champions

Capital Improvement Program
Project Rating Form: Flood Management

Step-by-step instructions:
1. Fill out the Project Name and Date Identified. Project ID should be auto-filled sequentially.
2. Make all criteria selections in the yellow cells.
3. Confirm the total score in the summary box. Hit the "Completeness Check" button to search for errors.
4. Hit the "Submit Data" button to send this project to the list.
5. Review the running list of projects in the "FM Project List" Tab
6. The "Edit Existing Project" button deletes the specified project from the list and pulls its info here. Don't forget to resubmit.

Project ID:	Project Name:	Date Identified:	Project Cost:
100	Example Project	4/14/2026	$2,000,000

COMPLETENESS CHECK

EDIT EXISTING PROJECT

SUBMIT DATA

SUMMARY	RAW SCORE	WEIGHTED SCORE
Public Health and Safety (20%)	46.5	9.3
Implementation Considerations (10%)	42.5	4.3
Existing Infrastructure Condition (25%)	100	25.0
Cost-Benefit (15%)	70	10.5
Flood Hazard Reduction (30%)	43.8	13.2
Total		62.2

Public Health and Safety (20%)

		Points
Emergency Access	Depth > 6" 10yr	8
Erosion Threat Level - Rate	Moderately Slow	3
Impounded Water Infrastructure	Projects not involving impounded water	0

Implementation Considerations (10%)

		Points
Implementation Constraints	Moderate	5
Known Complaint History	One-off event, isolated complaint	3
Opportunity for Collaboration	Not applicable	0
Possibility of Funding (i.e. Grants or Loans)	Yes	10

Implementation Comments
Please explain the selected level of implementation constraints.

Figure 4-1. Flood Management Project Rating Form - Example

4.4 CIP PROJECT PRIORITIZATION

The primary objective of the Drainage Master Plan is to establish a prioritized list of capital improvements that will guide the City's long-term investments in flood risk reduction and infrastructure asset protection. The flood mitigation concepts described in **Section 3**, together with the asset protection projects identified by FNI in the Stream Condition Assessment (**Appendix G**), were evaluated and ranked using the Excel-based prioritization tool. In addition, two projects developed as part of the Inland Port Flood Protection Planning Study (see **Section 2.1**) were incorporated into the evaluation to provide a more comprehensive program-level assessment.

It is important to note that this ranking process is not intended to provide a prioritized list that the City must complete in order without exception. Practical considerations, such as budget limitations, evolving community priorities and initiatives, and potential project interdependencies, will influence the timing and order of project delivery. However, this prioritization framework provides a consistent, data-driven basis for comparing projects and supports informed decision-making by identifying those improvements that deliver the greatest overall benefit to the City.

4.4.1 Prioritization Results

The application of the prioritization framework resulted in two independently ranked project lists corresponding to the distinct project types evaluated in this study. Flood management projects—including the six concepts developed as part of this Drainage Master Plan and two projects from the Inland Port Flood Protection Planning Study—were scored and prioritized relative to one another based on the criteria shown in **Table 4-2**. Separately, asset protection projects identified in the Stream Condition Assessment (**Appendix G**) were evaluated using a different set of criteria, as shown in **Table 4-3**.

Because these project types address different objectives and were evaluated using different metrics, they are not directly comparable and were not ranked within a single combined list. The resulting prioritized project lists are presented in **Table 4-6** (Flood Management Projects) and **Table 4-7** (Asset Protection Projects). These tables show the scores for each evaluation metric and the combined total score. These results provide a structured basis for decision-making; however, the City will ultimately determine how to allocate funding between flood risk reduction and asset protection initiatives based on its priorities, available resources, and implementation strategy.

Table 4-6. Flood Management Prioritization Results

Rank	Project Title	Project Cost	Prioritization Criteria Score					
			Public Health and Safety (Max = 20)	Flood Hazard Reduction (Max = 30)	Implementation Considerations (Max = 10)	Existing Infrastructure Condition (Max = 25)	Cost-Benefit (Max = 15)	Total Score
1	Sunset Village Storm Drain Improvements	$2,100,000	3.6	13.6	3.5	7.5	15.0	43.2
2	Greenstone Lane Culvert Improvements	$2,600,000	7.0	16.5	3.5	9.8	4.5	41.2
3	Green Hills Rd Culvert Improvements	$2,300,000	3.5	15.7	4.3	7.5	4.5	35.4
4	Cedar Hill Bridge Improvements	$2,100,000	10.6	9.7	3.5	9.8	1.5	35.0
5	Inland Port: Tenmile Creek Channel Improvements	$6,800,000	3.9	7.5	3.5	7.5	10.5	32.9
6	Fairmeadows Storm Drain Improvements	$8,800,000	0.0	13.4	3.9	10.3	4.5	32.0
7	Alexander Avenue Culvert Improvements	$1,600,000	2.1	11.3	3.5	7.5	4.5	28.9
8	Inland Port: Beaver Creek Drive Culvert Improvements	$9,700,000	2.1	6.6	3.5	7.5	1.5	21.2

Table 4-7. Asset Protection Prioritization Results

Rank	Project Title	Project Cost	Prioritization Criteria Score				
			Public Health and Safety (Max = 25)	Implementation Considerations (Max = 10)	Existing Infrastructure Condition (Max = 50)	Cost-Benefit (Max = 15)	Total Score
1	Area 1: 20-inch Sanitary Sewer Crossing on Mauk Branch	$2,670,000	17.8	7.0	36.3	4.5	65.5
2	Area 2: 18-inch Sanitary Sewer Crossing on Mauk Branch	$1,050,000	13.4	7.0	36.3	7.5	64.1
3	Area 3: Concrete Stormwater Flume on Tenmile Creek	$1,470,000	8.9	7.0	36.3	7.5	59.6

4.5 IMPLEMENTATION CONSIDERATIONS AND RECOMMENDATIONS

The prioritization results presented in **Section 4.4.1** provide a structured basis for evaluating projects within each category; however, the City must determine how to allocate funding between flood management and asset protection initiatives. Based on the findings of this study, it is recommended that near-term investments prioritize asset protection projects, as they address infrastructure currently at risk of damage or failure due to ongoing erosion and channel instability.

Field observations conducted as part of the Stream Condition Assessment (**Appendix G**) identified multiple locations where active bank erosion, scour, and structural instability are directly impacting critical City infrastructure, including sanitary sewer crossings and stormwater conveyance systems. In several cases, infrastructure is already undermined or located within areas of "Very High" erosion potential, indicating a heightened risk of near-term failure if no action is taken. These conditions represent immediate and tangible risks to public infrastructure, service continuity, and public safety. As such, advancing these projects into design and construction should be considered a high priority.

Flood management projects, while also important, primarily address risks associated with larger storm events that occur less frequently. These projects provide significant long-term benefits in terms of flood risk reduction; however, the urgency of implementation is generally lower compared to asset protection needs that involve existing infrastructure degradation. Given typical budget constraints, it is recommended that the City pursue a phased approach to flood management projects by advancing high-priority concepts through a Project Development phase before full design.

The **Project Development** phase serves as an intermediate step between planning-level concepts and capital project delivery. This step is essentially a pre-design planning phase activity that focuses on the following key elements:

1. **Feasibility Assessment** — Evaluate whether a project is technically, financially, and logistically viable before progressing. This includes a high-level engineering analysis to confirm that the proposed solution is appropriate.

2. **Scope Refinement** — Clearly define the project's limits, potential design constraints, integration with existing infrastructure, and all major cost elements.

3. **Preliminary Budgeting** – Develop 10-20% design-level cost estimates, that include all major cost elements, to better align project expectations with available funding.

4. **Schedule Development** – Establish realistic project timelines, accounting for potential delays due to permitting, land acquisition, or environmental constraints.

5. **Risk Identification** – Analyze potential risks related to property ownership, easements, permitting, and constructability and determine mitigation strategies.

Incorporating this step allows the City to better define flood management projects, reduce uncertainty, and position them for future funding opportunities without prematurely committing significant resources to full design.

In summary, a balanced implementation strategy is recommended in which the City advances asset protection projects into design and construction in the near term to address immediate infrastructure risks, while concurrently investing in Project Development efforts for top-ranked flood management projects. This approach supports both short-term risk mitigation and long-term flood risk reduction, while promoting efficient use of available funding and improving overall program delivery.

5.0 DRAINAGE POLICY AND DESIGN STANDARDS REVIEW

5.1 DRAINAGE POLICY REVIEW AND RECOMMENDATIONS

The following sections summarize the outcomes of a comprehensive review of the City of Duncanville's existing drainage policies, floodplain ordinance, and supporting technical criteria. This effort included coordination with City staff to identify current challenges, inconsistencies, and areas where existing standards could be clarified or improved.

Based on this review, a set of 27 specific recommendations was developed to update the City's drainage policies. These recommendations are intended to improve clarity, enhance consistency in hydrologic and hydraulic (H&H) analyses, reduce conflicting or outdated standards, streamline the development review process, and minimize the need for variance requests.

To support implementation and communication, the recommendations have been organized into four key policy areas:

- Level of Service and Risk Tolerance
- Floodplain Management and Regulation
- Development Requirements
- Operations, Maintenance, and Data

The recommended drainage policy updates provide a comprehensive framework for improving how the City of Duncanville manages flood risk, regulates development, and implements drainage infrastructure projects. By clarifying expectations, standardizing technical approaches, and improving internal processes, these recommendations position the City to make more consistent, transparent, and data-driven decisions moving forward.

A complete listing of the recommended policy modifications is included in **Appendix E** for reference and future implementation.

5.1.1 Level of Service and Risk Tolerance

This category focuses on defining the City's desired level of flood protection and establishing clear, measurable criteria for evaluating impacts to the drainage system.

Several recommendations address the need to formalize a consistent level of service (LOS), including alignment with a 100-year design standard for critical infrastructure. In addition, the recommendations

introduce more clearly defined no-adverse-impact criteria to evaluate downstream effects of proposed developments and capital projects. These criteria are intended to reduce ambiguity in determining acceptable changes in WSE, flow rates, and floodplain limits.

Other recommendations in this category focus on standardizing key design parameters such as roadway overtopping thresholds and freeboard requirements. Collectively, these updates provide a more consistent framework for assessing flood risk and making design decisions, while improving transparency for both City staff and developers.

5.1.2 Floodplain Management and Regulation

Recommendations in this category aim to strengthen the City's regulatory framework for managing floodplain development and preserving the function of natural drainage systems.

Key updates include clarification of the relationship between FEMA-regulated floodplains and locally defined floodplain limits, as well as more explicit criteria for evaluating floodplain encroachments and impacts to valley storage. The recommendations also emphasize the importance of maintaining conveyance capacity and, where feasible, protecting natural stream systems.

In addition, this category includes improvements to permitting processes and coordination requirements, including alignment with FEMA submittal expectations and applicable environmental regulations. These updates are intended to reduce uncertainty during project review and improve consistency in how floodplain impacts are evaluated and approved.

5.1.3 Development Requirements

This category represents the largest group of recommendations and focuses on improving how new development and redevelopment projects are evaluated and designed to avoid creating or exacerbating drainage issues.

A primary emphasis is on standardizing downstream impact analyses, including a clearer definition of the required study limits (zone of influence) and expectations for demonstrating that no adverse impact occurs. Recommendations also address the need for improved coordination between adjacent developments and consistency in modeling assumptions.

Additional updates focus on standardizing H&H methodologies, including required modeling approaches, rainfall data (e.g., NOAA Atlas 14), and routing procedures. Detention design criteria are also refined, including guidance on setbacks, emergency overflow pathways, and overall system performance.

Finally, several recommendations aim to improve the development review process itself, including introducing pre-development coordination requirements and clarifying submittal expectations. These changes are intended to streamline reviews, reduce the need for iterative comments, and improve predictability for applicants.

5.1.4 Operations, Maintenance, and Data

This category focuses on improving the City's internal processes, data management practices, and overall clarity of design standards. Recommendations include clarifying the distinction between flood studies and final design submittals, which will help streamline the review process and align expectations at different project stages. Updates also emphasize the use of consistent and high-quality data sources, such as LiDAR and surveyed information, to support more reliable modeling results.

Several recommendations address the need to consolidate and clarify applicable design criteria, including removal of outdated references and better alignment between City standards and external guidance documents. In addition, improvements to submittal formats, including digital data requirements, are proposed to enhance efficiency and recordkeeping.

Collectively, these updates are intended to modernize the City's drainage review framework, improve decision-making consistency, and support more efficient long-term management of the stormwater system.

5.2 GUIDANCE ON CONSTRUCTION DETAILS AND SPECIFICATIONS

The following section describes the evaluation of the City of Duncanville's current approach to drainage construction details and technical specifications and provides guidance to support the development of City-specific standards. This task included (1) reviewing and commenting on draft drainage details provided by the City, and (2) outlining a practical framework for establishing a consistent set of construction details and specifications for future use.

At present, the City does not maintain a formal set of standard drainage construction details and typically relies on regional references, such as the North Central Texas Council of Governments (NCTCOG) or the

Texas Department of Transportation (TxDOT) standards. While this approach provides flexibility, it can lead to inconsistencies in design, review, and construction.

The development of standardized drainage construction details and technical specifications represents a key opportunity for the City to improve consistency, streamline project delivery, and reduce ambiguity during design and construction. The review of draft details highlighted several areas where clarification and standardization would be beneficial, while the recommended implementation framework provides a practical path forward that can be scaled based on available resources.

5.2.1 Review of Drainage Details

As part of this effort, FNI reviewed marked-up drainage details provided by the City of Duncanville, derived from a nearby municipality and used as a reference in developing the City's own drainage details. The full set of reviewed drawings, including City and FNI comments and recommendations, was provided to the City as part of the DMP submittal.

The review focused on identifying opportunities to improve clarity, consistency, and constructability, as well as alignment with regional practices. The primary themes addressed during the review included:

- **Consistency with Regional Standards:** Evaluation of whether details align with commonly used NCTCOG and TxDOT standards, including consideration of standard inlet sizes, materials, and construction practices to support regional familiarity and competitive bidding.
- **Detail Completeness and Applicability:** Identification of missing or commonly used details (e.g., headwalls, riprap, inlet protection) and recommendations to expand the detail library to better reflect typical drainage system components.
- **Material and Construction Requirements:** Clarification of material specifications, including concrete strength, reinforcement requirements, embedment conditions, and allowable pipe materials, to reduce ambiguity during construction.
- **Constructability and Field Implementation:** Review of details for practical construction considerations, such as constructability of inlets and manholes, compatibility with existing infrastructure, and avoidance of construction practices that may lead to field conflicts (e.g., pipe connections, step configurations, or installation methods).

- **Standardization of City Preferences:** Incorporation of City-specific preferences, such as manhole lid types, structural configurations, and detail modifications, to create a consistent and recognizable standard across projects.
- **Coordination Between Details and Specifications:** Identification of potential conflicts between graphical details and written specifications, with emphasis on the need for alignment between the two to avoid discrepancies during bidding and construction.

Overall, the review confirmed that adopting and refining a set of standard details—rather than relying solely on external references—would improve consistency, reduce review time, and enhance construction quality.

5.2.2 Framework for Developing City Standards

Based on the review and coordination with City staff, FNI developed a recommended phased approach for establishing City-specific drainage construction details and technical specifications.

Near-Term Approach

In the near term, the City can improve consistency by formalizing its use of existing regional standards. This includes identifying a defined set of preferred reference sources (e.g., NCTCOG, TxDOT, or peer City standards) for commonly used drainage components and directing designers and contractors to these references. Where multiple sources are used, the City should verify that selected details and specifications are compatible and do not introduce conflicting requirements for the same bid item.

In parallel, the City can develop supplemental specifications to modify or clarify regional standards for local preferences. These supplements may address items such as approved materials, testing requirements, and acceptance criteria, allowing the City to establish consistency without fully developing standalone specifications.

Intermediate Approach

As resources allow, the City should begin developing a curated set of preferred drainage construction details. This process includes:

- Identifying the most commonly used drainage elements
- Evaluating available regional and peer City details

- Determining which details to adopt as-is, modify, or replace
- Incorporating City-specific design preferences and requirements

This step creates a hybrid system that leverages established standards while tailoring them to local needs.

Long-Term Approach

In the long term, the City can establish a fully developed and internally consistent set of drainage construction details and technical specifications. This includes:

- Developing a complete library of City standard details
- Preparing coordinated technical specifications aligned with those details
- Conducting internal review and stakeholder coordination
- Formally adopting and publishing standards for use in design and construction

As part of this process, the City may continue to rely on regional specifications (e.g., NCTCOG) as a base document, supplemented by City-specific modifications where needed. This approach is consistent with practices used by peer communities and allows for efficient maintenance of standards over time

6.0 COST ESTIMATION AND FUNDING STRATEGIES

This chapter summarizes potential funding mechanisms for implementing the recommended drainage capital improvement projects. Due to the evolving and competitive nature of funding programs at the state and federal levels, this discussion is not intended to be exhaustive. Instead, it focuses on identifying the funding approaches most relevant to the City of Duncanville and demonstrating how those mechanisms could be applied to the identified projects.

Funding sources are categorized into external funding mechanisms, including state and federal grants and loans, and local funding mechanisms, including City revenues, taxes and fees, debt instruments, and locally established funding tools. Detailed descriptions of individual funding programs, including eligibility requirements, benefits, constraints, and potential roadblocks, are provided in **Appendix F**.

6.1 EXTERNAL FUNDING MECHANISMS

External funding mechanisms consist primarily of state and federal grant and loan programs administered by agencies such as the Texas Water Development Board (TWDB), Federal Emergency Management Agency (FEMA), and U.S. Environmental Protection Agency (EPA). These programs can significantly reduce the City's cost to implement drainage improvements, particularly for projects that reduce flood risk, improve conveyance, or mitigate impacts to structures insured under the National Flood Insurance Program (NFIP).

While external funding can provide substantial cost sharing, these programs are typically competitive and subject to eligibility criteria, environmental review requirements, and fixed application schedules. In most cases, external funding must be supplemented with local funding sources to provide matching funds, repay loans, or finance portions of projects that are not grant-eligible.

6.2 LOCAL (INTERNAL) FUNDING MECHANISMS

Local funding mechanisms provide the foundation for implementing drainage capital improvements and are generally required regardless of whether external funding is pursued. These mechanisms include City revenues such as:

- General Fund
- Stormwater Utility Fees
- Sales tax reallocations

- City-issued debt (General Obligation bonds or Certificates of Obligation)
- Other locally authorized funding tools

Local funding sources are critical to covering the City's share of project costs, supporting debt service, and providing financial flexibility to advance projects that are not eligible for state or federal assistance. In practice, implementation of the recommended drainage CIPs will require a strategic combination of local funding mechanisms, with external funding pursued where feasible to reduce the overall cost to the City.

6.3 FUNDING SOURCES MOST APPLICABLE TO DUNCANVILLE

Based on the scale, scope, and eligibility requirements of the eleven potential CIPs identified in this plan, four external funding programs were determined to be the most applicable to the City of Duncanville:

- Flood Infrastructure Fund (FIF)
- Texas Water Development Fund (DFund)
- Clean Water State Revolving Fund (CWSRF)
- Flood Mitigation Assistance (FMA)

These programs offer opportunities for grants, low-interest loans, or a combination of both, and are commonly used by Texas communities to fund flood mitigation and stormwater infrastructure projects. When applied strategically and in coordination with local funding mechanisms, these programs have the potential to substantially reduce the City's financial burden. While additional funding programs were evaluated, the programs listed above were determined to be the most relevant for the projects included in the funding analysis presented in **Section 6.4**.

6.4 PROJECT FUNDING MATRIX

Table 6-1 represents a funding matrix based on the researched funding mechanisms and known project scopes. The purpose of the funding matrix is to show the relevant funding options for each ranked project identified in this master plan. Although many funding options were researched, only the relevant funding options are shown in **Table 6-1**. Using the associated cost for each CIP, the following two funding scenarios were analyzed:

- Conservative Projection; no external cost sharing

- Grant-Assisted Projection; maximum external cost sharing

For the conservative funding scenario, it is assumed that none of the projects will benefit from cost sharing. Under this scenario, the full financial burden of addressing the CIPs falls on the City. The projects would have to be paid for through the General Fund, GO Bonds, a Stormwater Utility Fee, or the 4B sales tax corporation. As a result, the total cost to the City is $41,194,000.

For the grant-assisted funding scenario, it is assumed that the projects will benefit from the highest amount of cost sharing with state and federal agencies. Certain federal and state grant programs place limits on the amount of funds that can be awarded to each applicant. For example, the Flood Mitigation Assistance Grant (FMA) does not award more than $3.3 million to any one community during any five-year period. Keeping limits in mind, the federal and state grants were used strategically for each project to reduce the total cost to the City.

Table 6-1. CIP Funding Matrix

Rank	Score	Project ID	Project	Funding Options							Planning Level Cost
				GO Bonds	Stormwater Utility Fee	4B Sales Tax	Federal/State Grants/Loans[1]				
							FMA[2] (Grant)	CWSRF (Loan)	DFund (Loan)	FIF (Grant)	
1	42.35	FM004	Sunset Village Storm Drain Improvements	Applies	Applies	Applies	75/25	100	100	N/A	$2,100,000
2	41.20	FM002	Greenstone Lane Culvert Improvements	Applies	Applies	Applies	75/25	100	100	N/A	$2,600,000
3	35.40	FM001	Green Hills Rd Culvert Improvements	Applies	Applies	Applies	75/25	100	100	N/A	$2,300,000
4	35.00	FM008	Cedar Hill Bridge Improvements	Applies	Applies	Applies	N/A	100	100	N/A	$2,100,000
5	32.85	FM007	Inland Port: Tenmile Creek Channel Improvements	Applies	Applies	Applies	75/25	100	100	50/50	$6,800,000
6	32.00	FM005	Fairmeadows Storm Drain Improvements	Applies	Applies	Applies	75/25	100	100	N/A	$8,800,000
7	28.85	FM003	Alexander Avenue Culvert Improvements	Applies	Applies	Applies	N/A	100	100	N/A	$1,600,000
8	21.15	FM006	Inland Port: Beaver Creek Drive Culvert Improvements	Applies	Applies	Applies	75/25	100	100	50/50	$9,700,000
1A	65.50	AP001	Area 1 - 20" Sanitary Sewer Crossing on Mauk Branc	Applies	Applies	Applies	N/A	100	100	N/A	$2,670,000
2A	64.13	AP002	Area 2 - 18" Sanitary Sewer Crossing on Mauk Branch	Applies	Applies	Applies	N/A	100	100	N/A	$1,050,000
3A	59.63	AP003	Area 3 - Concrete SW Flume on Tenmile Creek	Applies	Applies	Applies	N/A	100	100	N/A	$1,474,000
										Total	**$41,194,000**

[1] *Only relevant grants/loans for the listed projects are shown. The listed ratios are percentages of federal/state contribution/local contribution. Principal and interest on loans are repaid in full.*

[2] *Funding limits for project grants are no more than $20,000,000 State-wide during any five-year period, and no more than $3,300,000 to any one community during any five-year period.*

As is seen in **Table 6-1**, cost sharing with state and federal agencies can be very beneficial for the City and may result in up to approximately 70% savings. However, even under an optimized scenario, the City would still need to cover about $12.2 million in costs for the 11 listed projects. These will likely need to be paid by the 4B sales tax, general fund, and/or a stormwater utility fee. Note loans will be repaid in full.

Regardless of the local funding mechanism used, the City would need to issue general obligation bonds to cover the remaining project cost. **Table 6-2** shows the resulting bond repayment options required to pay back the project costs, assuming no cost sharing with state and federal agencies is considered.

Table 6-2. Conservative Scenario Debt Service

Bond Amount	**$5,194,000**	**$9,894,000**	**$14,294,000**	**$22,694,000**	**$41,194,000**
Projects Included (ID)	AP001 AP002 AP003	AP001 AP002 AP003 FM004 FM002	AP001 AP002 AP003 FM004 FM002 FM001 FM008	AP001 AP002 AP003 FM004 FM002 FM001 FM008 FM007 FM003	AP001 AP002 AP003 FM004 FM002 FM001 FM008 FM007 FM003 FM005 FM005
Annual Payment Required[1]	$416,800	$794,000	$1,147,000	$1,820,000	$3,305,000
% Increase needed to fund through SWUF	20%	50%	80%	135%	255%
Flat Rate Residential Required*	$6.00	$7.50	$9.00	$11.75	$17.75
Commercial per ERU Increase Needed*	$6.00/ERU	$7.50/ERU	$9.00/ERU	$11.75/ERU	$17.75/ERU

[1]Assumed 5 % interest rate and 20-year term by FNI
**Includes projected coverage for budgeted ongoing O&M Expenses, a more in-depth analysis is recommended to evaluate potential rate increases (numbers shown are for high-level planning purposes)*

6.5 RECOMMENDED FUNDING STRATEGY

The funding analysis presented in this chapter demonstrates that while state and federal funding programs can provide meaningful cost sharing, they should not be relied upon as the primary funding strategy for the City's drainage capital improvement program. Many of the recommended projects are not considered strong candidates for highly competitive grant programs due to eligibility constraints, funding caps, and benefit-cost ratio requirements. As shown in **Table 6-1**, even under an optimized grant-assisted scenario, the City would still be responsible for approximately $12.2 million in project costs.

Given these limitations, the most reliable and effective funding approach for the City is a combination of local funding sources and low-interest financing. Programs administered by the Texas Water Development Board (TWDB), such as the Clean Water State Revolving Fund (CWSRF) and Development Fund (DFund), provide favorable loan terms and should be considered a primary external funding tool. However, these loans must ultimately be repaid and therefore require a stable and sufficient local revenue source.

Local funding mechanisms, particularly the Stormwater Utility Fee, will play a critical role in implementing the recommended projects. Duncanville's current stormwater utility fee of $5 per Equivalent Residential Unit is relatively low compared to peer communities and limits the City's ability to fund capital improvements at the scale identified in this plan. The funding scenarios presented in **Table 6-2** indicate that even modest capital programs would require significant increases to the existing fee structure to support debt service and ongoing operations.

The following steps are recommended to address the identified funding gap and position the City for successful implementation of the recommended projects:

- Conduct a feasibility assessment of stormwater utility revenues and expenditures to better understand current funding capacity and future needs.
- Perform a comprehensive stormwater utility fee assessment to evaluate potential rate adjustments and alternative fee structures.
- Implement an updated stormwater utility fee that provides a sustainable funding source for design, construction, and long-term maintenance of drainage infrastructure.

In summary, while external funding should be pursued opportunistically, the City's ability to implement the recommended capital improvements within a reasonable timeframe will depend primarily on strengthening its local funding framework. Establishing a sustainable and adequately funded stormwater utility program will be essential to advancing both near-term and long-term drainage infrastructure investments.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 CAPITAL PROJECTS

The Duncanville Drainage Master Plan identified and evaluated drainage-related risks across the City using a combination of public input, citywide hydraulic modeling, and detailed project-level analyses. This effort identified six flood management projects that address roadway overtopping, structural flooding, and undersized drainage infrastructure. In addition, two flood management projects from the Dallas County Inland Port Flood Protection Planning Study were also considered.

Three asset protection projects were included from the Stream Condition Assessment effort. These projects focused on locations where erosion, scour, and channel instability are actively threatening City-owned infrastructure, including sanitary sewer crossings and stormwater facilities.

The total planning-level cost of the combined capital improvement program is approximately $41 million. While implementation of these projects would reduce flood risk and improve system performance, the scale of investment required necessitates a strategic and phased approach to project delivery.

7.2 CAPITAL PROGRAM STRATEGY

The prioritization framework developed as part of this study provides a consistent and data-driven basis for evaluating projects; however, it is not intended to function as a rigid implementation sequence. Rather, it should be used as a decision-support tool alongside funding availability, project readiness, and infrastructure risk considerations.

A key recommendation of this study is to maintain separate implementation tracks for flood management and asset protection projects. These project types serve different purposes, are evaluated using different criteria, and should not be combined into a single prioritized list or forced to compete directly for funding.

To support this process, an Excel-based scoring and prioritization tool was developed to implement the recommended methodology. The tool standardizes project evaluation through predefined criteria, metrics, and weighting, and incorporates user-friendly features such as dropdown selections, automated scoring, and organized data management. It is designed to be adaptable and can be updated over time as new projects are identified or as City priorities evolve. This tool provides the City with a practical mechanism to consistently evaluate and compare projects, maintain transparency in decision-making, and support long-term capital planning efforts.

Based on the results of the Stream Condition Assessment and project prioritization, near-term capital investments should prioritize asset protection projects. These projects address infrastructure that is currently experiencing erosion, scour, or structural degradation and is at risk of failure if no action is taken. Advancing these projects into design and construction will reduce the likelihood of emergency repairs, service disruptions, and higher long-term costs.

Flood management projects remain critical to the City's long-term flood risk reduction strategy. However, given their complexity, cost, and lower risk immediacy, it is recommended that these projects advance first through a Project Development phase before full design. This phase should focus on confirming feasibility, refining scope, identifying constraints, improving cost estimates, and evaluating implementation risks. Advancing projects through this step will improve project readiness, reduce uncertainty, and support more efficient delivery of capital improvements.

This dual-track approach allows the City to address immediate infrastructure risks while continuing to make progress toward long-term flood mitigation goals.

7.3 FUNDING STRATEGY ALIGNMENT

The funding analysis completed as part of this study highlights both opportunities and limitations associated with external funding sources. While state and federal grant programs can provide meaningful cost sharing, they are highly competitive and subject to eligibility constraints, funding caps, and application timing. As a result, these programs should be pursued opportunistically but should not be relied upon as the primary funding strategy for the City's drainage capital program.

Low-interest loan programs administered by the Texas Water Development Board (TWDB), such as the Clean Water State Revolving Fund (CWSRF) and Development Fund (DFund), represent a more reliable external funding mechanism. However, these loans must be repaid and therefore require a stable and sufficient local funding source.

Local funding mechanisms will ultimately determine the City's ability to implement the recommended projects. The current stormwater utility fee provides limited revenue relative to the scale of identified needs and will constrain the City's ability to advance projects within a reasonable timeframe. Strengthening the City's local funding framework, particularly through the stormwater utility fee, will be essential to delivering the capital improvement program.

7.4 IMMEDIATE NEXT STEPS

The following actions are recommended to advance the recommendations of this study:

6. **Advance Asset Protection Projects into Design and Construction:** Initiate design efforts for the highest-priority asset protection projects to address infrastructure currently at risk of failure.
7. **Begin Implementation of Policy and Standards Updates:** Initiate updates to drainage policies, development requirements, and design standards to improve consistency, reduce risk, and streamline project delivery.
8. **Conduct a Stormwater Utility Fee Assessment and Update:** Evaluate current revenues and expenditures, assess alternative rate structures, and develop a revised fee that provides a sustainable funding source for capital improvements, operations, and long-term system maintenance.
9. **Initiate Project Development for Flood Management Projects:** Advance top-ranked flood management projects through a structured Project Development phase to refine feasibility, scope, cost, and implementation considerations prior to full design.

7.5 LONG-TERM PROGRAM CONSIDERATIONS

The Drainage Master Plan should be viewed as a living document that supports ongoing capital planning and decision-making. The prioritization framework and project rankings provide a defensible starting point; however, they should be revisited and updated as new data becomes available, projects advance, and City priorities evolve. Over time, the City should continue to:

- Update and refine hydraulic models and system data.
- Reassess project priorities using the prioritization tool as new projects are identified.
- Coordinate drainage improvements with other capital projects to maximize efficiency.
- Monitor system performance and maintenance needs to inform future investments.

By implementing the recommendations outlined in this chapter, the City of Duncanville will be better positioned to address immediate infrastructure risks, reduce long-term flood impacts, and establish a sustainable and effective approach to stormwater management.

DUNCANVILLE DRAINAGE MASTER PLAN APPENDICES

APPENDIX A: REFERENCES

National Oceanic and Atmospheric Administration (NOAA). 2018. Precipitation Frequency for Texas, USA – NOAA Atlas 14 Volume 11. Available online at the following link: https://hdsc.nws.noaa.gov/pfds/pfds_gis.html. Accessed 08/06/2025.

Natural Resources Conservation Service (NRCS), United States Department of Agriculture (USDA). 2003. Soil Survey Geographic (SSURGO) Database. Available online at the following link: https://websoilsurvey.sc.egov.usda.gov/. Accessed 07/30/2025.

North Central Texas Council of Governments (NCTCOG). 2014. Integrated Stormwater Management (iSWM) Technical Manual, Hydrology. Available online at the following link: https://iswm.nctcog.org/Documents/technical_manual/Hydrology_4-2020.pdf. Accessed 07/30/2025.

North Central Texas Council of Governments (NCTCOG), Research and Information Services (RIS). 2020. Land Use Inventory. Available online at the following link: https://data-nctcoggis.hub.arcgis.com/. Accessed 07/30/2025.

Texas Department of Transportation (TxDOT). 2025a. TxDOT Bridges SNBI. Available online at the following link: https://gis-txdot.opendata.arcgis.com/datasets/8eed197947bd4936aff4eab4eda9d55e_0/explore?location=31.159218%2C-100.035906%2C6. Accessed 07/30/2025.

Texas Department of Transportation (TxDOT). 2025b. TxDOT Roadways. Available online at the following link: https://gis-txdot.opendata.arcgis.com/datasets/008906d83772435bb757cb76c9644e5d_0/explore?location=31.121288%2C-100.055171%2C6. Accessed 07/30/2025.

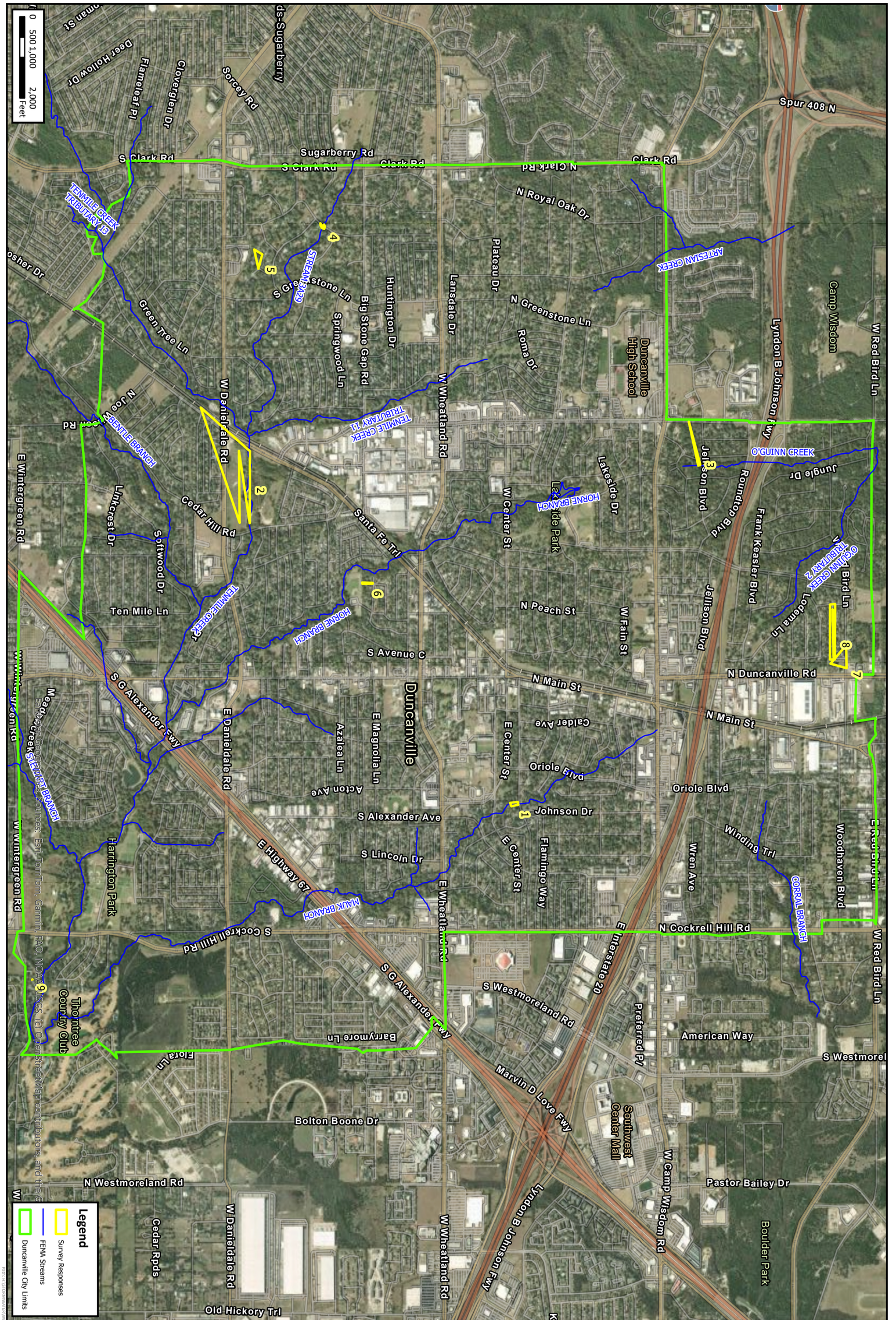
United States Army Corps of Engineers (USACE), Hydrologic Engineering Center. 2022. HEC-HMS Version 4.9, Davis, California.

United States Army Corps of Engineers (USACE), Hydrologic Engineering Center. 2024. HEC-RAS Version 6.6, Davis, California.

United States Geological Survey (USGS). 2018. LiDAR. Available online at the following link: https://www.usgs.gov/products/maps/gis-data. Accessed 07/30/2025.

United States Geological Survey (USGS). 2021. National Land Cover Database (NLCD). Available online at the following link: https://www.sciencebase.gov/catalog/item/655ceb8ad34ee4b6e05cc51a. Accessed 07/30/2025.

APPENDIX B: SURVEY RESULTS



FREESE AND NICHOLS
12770 Merit Drive, Suite 900
Dallas, Texas 75251
214-217-2200

Survey Responses

City of Duncanville, Texas

FN JOB NO	XXXXXXXX
FILE	Working_CAB
DATE	5/1/2026
SCALE	1:26,000
DRAFTED	03880

EXHIBIT 1

OBJECTID *	Impact	Frequency	Cause	Comments	Entity	Name	Number	Email	Address	Intensity
1	Natural Area	Every couple of months	Unmaintained drainage system	The waterway under the bridge is blocked, also there is no erosion control and the trees are being undercut and falling. Our fence was washed out and we keep losing land. There is one tree that will fall and when it does it will hit someone's house.	Private Resident	Erika Browning	496848384	erika.d.browning@gmail.com	442 E Cherry St	Only during heavy or prolonged rain events
2	Natural Area	Twice a year	<Null>	Plastic, styrofoam and household trash get trapped by trees, etc	<Null>	Brenda Jones	9728244528	<Null>	<Null>	Only during heavy or prolonged rain events
3	Natural Area	Once a year	Upstream issues directs water to location	There is a whole branch of O'Guinn Creek missing on this map. It originates west of Cedar Ridge around the Shell Station/ school complex, drains through a culvert under Cedar Ridge to the lots 810 & 814 N Cedar Ridge, which have been for sale for a while, then runs east through the properties on the south side of the 700 block of Jellison, before it merges with the other branch on the unbuildable lot 706 Jellison, that we own. Ever since 810, 814, 818 Cedar Ridge have been mostly cleared of their dense vegetation and 807 Sherrill Dr has been allowed to be partly deforrested and graded, the intensity of flash floods in the creek have changed. In 2024 we observed 2 storm events, where the water level on our 706 Jellison property (very prone to erosion), have reached levels never seen before in 10 years. The creek level actually exceeded the hight of the culvert under Jellison. If the 3 lots on Cedar Ridge were ever developed and sealed, flash floods could become catastrophic downstream!	Private Resident	Christian Dozzler	<Null>	dozzler@gmx.net	<Null>	Only during flash floods
4	Roadway	Every couple of months	<Null>	The creek over tops the bridge on Green Hills Road	<Null>	Thomas Gwynn	(972) 296-1698	t_gwynn@charter.net	1221 Rock Springs Rd	<Null>
5	Building(s)	Every couple of months	Undersized or lack of drainage system	I have tried to attach videos and picture but they will not submit. Please let me know if I can email the files	Private Resident	Gabriel Sanchez	4692306007	gs0496@yahoo.com	1307 heather glen st.	Every time it rains
6	Building(s)	Several times a month	Undersized or lack of drainage system	<Null>	Private Resident	Cristina Sanchez	<Null>	<Null>	333 W Shaw	Every time it rains
7	Roadway	Several times a month	Undersized or lack of drainage system	lots of debris covers drainage as well	Private Resident	Maria Nunez	2144755633	angel3162004@hotmail.com	342 London Ln	Every time it rains
8	Building(s)	Every couple of months	Other	It seems we are on the forgotten side of Duncanville only when elections happen are we remembered. We have no side walks our lawns flood we have to dig in order for the water to soak down. There is no real drainage system here	Private Resident	Maria	<Null>	<Null>	<Null>	Every time it rains
9	Building(s)	Once a year	Downstream issues backs up water	SERIOUS CONCERN: Ten-Mile Creek has impacted HOMES on East Wintergreen Road - 1003, 1007, 1011, 1015, 1019, 1023.	Private Resident	JUDY WHETZEL	972-741-4800	judywhetzel9301@charter.net	1007 East Wintergreen Road, Duncanville 75137	Only during heavy or prolonged rain events

APPENDIX C: OPINION OF PROBABLE CONSTRUCTION COSTS (OPCCS)

City of Duncanville Drainage Master Plan

Opinion of Probable Construction Cost
Green Hills Road

ACCOUNT NO.	ESTIMATOR	CHECKED BY	DATE
DNV25453	SMC	EAS	February 27, 2026

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
Bid Items					
1	General Items (10%)	1	LS	$132,300	$132,300
2	Headwall and Culvert Removal	1	LS	$62,000	$62,000
3	Remove Existing Inlet	2	EA	$1,250	$2,500
4	Remove Existing Lateral	30	LF	$50	$1,500
5	Remove and Replace Curb and Gutter	1800	LF	$50	$90,000
6	Asphalt Pavement Replacement	2400	SY	$110	$264,000
7	Install 10' Curb Inlet	2	EA	$7,000	$14,000
8	Install Lateral to Inlet	30	LF	$150	$4,500
9	Install 10' x 7' RCB	360	LF	$1,600	$576,000
10	18" Rip Rap	1350	SY	$130	$175,500
11	Headwall	2	EA	$30,000	$60,000
12	Excavation and Embankment	1	LS	$10,000	$10,000
13	Utilities Contingency (5%)	1	LS	$63,000	$63,000
		PROJECT SUBTOTAL:			$1,455,300
	Design Fee	15	%	$218,295	$218,295
	Contingency	40	%	$582,120	$582,120
		PROJECT SUBTOTAL:			**$2,255,715**
Project Total					**$2,300,000**

NOTE:

1. General Items contigenency includes miscellaneous items such as Site Preparation, SWPPP, Traffic Control and Tree Removal.
2. The Utilities Contingency includes items for minor service adjustments and does not represent major adjustments or improvements.

Disclaimer: The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to the Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

City of Duncanville Drainage Master Plan

Opinion of Probable Construction Cost
Greenstone Lane

ACCOUNT NO.	ESTIMATOR	CHECKED BY	DATE
DNV25453	SMC	EAS	February 27, 2026

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
Bid Items					
1	General Items (10%)	1	LS	$150,743	$150,743
2	Headwall and Culvert Removal	1	LS	$66,500	$66,500
3	Remove Existing Inlet	4	EA	$1,250	$5,000
4	Remove Existing Lateral	50	LF	$50	$2,500
5	Remove and Replace Curb and Gutter	1600	LF	$50	$80,000
6	Sidewalk Removal	330	SY	$15	$4,950
7	Sidewalk Replacement	330	SY	$100	$33,000
8	Concrete Pavement Replacement	2140	SY	$120	$256,800
9	Install 10' Curb Inlet	4	EA	$7,000	$28,000
10	Install Lateral to Inlet	50	LF	$150	$7,500
11	Install 10' x 10' RCB	390	LF	$1,800	$702,000
12	18" Rip Rap	1380	SY	$130	$179,400
13	Headwall	2	EA	$30,000	$60,000
14	Excavation and Embankment	1	LS	$10,000	$10,000
15	Utilities Contingency (5%)	1	LS	$71,783	$71,783
		PROJECT SUBTOTAL:			$1,658,176
	Design Fee	15	%	$248,726	$248,726
	Contingency	40	%	$663,270	$663,270
		PROJECT SUBTOTAL:			**$2,570,172**
Project Total					**$2,600,000**

NOTE:

1. General Items contigenency includes miscellaneous items such as Site Preparation, SWPPP, Traffic Control and Tree Removal.
2. The Utilities Contingency includes items for minor service adjustments and does not represent major adjustments or improvements.

Disclaimer: The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to the Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

City of Duncanville Drainage Master Plan

Opinion of Probable Construction Cost
Alexander Avenue

ACCOUNT NO.	ESTIMATOR	CHECKED BY	DATE
DNV25453	SMC	EAS	February 27, 2026

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
Bid Items					
1	General Items (10%)	1	LS	$89,765	$89,765
2	Headwall and Culvert Removal	1	LS	$50,000	$50,000
3	Remove Existing Inlet	6	EA	$1,250	$7,500
4	Remove Existing Lateral	30	LF	$50	$1,500
5	Remove and Replace Chain Link Fence	40	LF	$70	$2,800
6	Remove and Replace Curb and Gutter	800	LF	$50	$40,000
7	Sidewalk Removal	360	SY	$15	$5,400
8	Sidewalk Replacement	360	SY	$100	$36,000
9	Concrete Pavement Replacement	1070	SY	$120	$128,400
10	Concrete Driveway Replacement	100	SY	$90	$9,000
11	Install 10' Curb Inlet	3	EA	$7,000	$21,000
12	Install Lateral to Inlet	30	LF	$150	$4,500
13	Install 9' x 9' RCB	280	LF	$1,400	$392,000
14	18" Rip Rap	610	SY	$130	$79,300
15	Bridge Safety Rail	50	LF	$150	$7,500
16	Headwall	2	EA	$30,000	$60,000
17	Excavation and Embankment	1	LS	$10,000	$10,000
18	Utilities Contingency (5%)	1	LS	$42,745	$42,745
		PROJECT SUBTOTAL:			$987,410
	Design Fee	15	%	$148,111	$148,111
	Contingency	40	%	$394,964	$394,964
		PROJECT SUBTOTAL:			**$1,530,485**
Project Total					**$1,600,000**

NOTE:

1. General Items contigenency includes miscellaneous items such as Site Preparation, SWPPP, Traffic Control and Tree Removal.
2. The Utilities Contingency includes items for minor service adjustments and does not represent major adjustments or improvements.

Disclaimer: The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to the Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

City of Duncanville Drainage Master Plan

Opinion of Probable Construction Cost
Cedar Hill Road

ACCOUNT NO.	ESTIMATOR	CHECKED BY	DATE
DNV25453	SMC	EAS	February 27, 2026

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
Bid Items					
1	General Items (10%)	1	LS	$124,638	$124,638
2	Remove Cedar Hill Bridge	1	EA	$9,000	$9,000
3	Cedar Hill Bridge Structure	1	LS	$500,000	$500,000
4	Concrete Approach Slab	960	SY	$300	$288,000
5	Remove and Replace Curb and Gutter	350	LF	$50	$17,500
6	Concrete Pavement Replacement	2120	SY	$120	$254,400
7	Concrete Driveway Replacement	17	SY	$90	$1,530
8	18" Rip Rap	820	CY	$130	$106,600
9	Excavation and Embankment	1	LS	$10,000	$10,000
10	Utilities Contingency (5%)	1	LS	$59,352	$59,352
		PROJECT SUBTOTAL:			$1,371,020
	Design Fee	15	%	$205,653	$205,653
	Contingency	40	%	$548,408	$548,408
		PROJECT SUBTOTAL:			**$2,125,080**
Project Total					**$2,130,000**

NOTE:

1. General Items contigenency includes miscellaneous items such as Site Preparation, SWPPP, Traffic Control and Tree Removal.
2. The Utilities Contingency includes items for minor service adjustments and does not represent major adjustments or improvements.

Disclaimer: The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to the Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

City of Duncanville Drainage Master Plan

Opinion of Probable Construction Cost
Sunset Village

ACCOUNT NO.	ESTIMATOR	CHECKED BY	DATE
DNV25453	SMC	EAS	February 27, 2026

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
Bid Items					
1	General Items (10%)	1	LS	$123,905	$123,905
2	Headwall and Culvert Removal	1	LS	$80,000	$80,000
3	Remove Existing Inlet	2	EA	$1,250	$2,500
4	Remove Existing Lateral	50	LF	$50	$2,500
5	Remove and Replace Curb and Gutter	960	LF	$50	$48,000
6	Sidewalk Removal	430	SY	$15	$6,450
7	Sidewalk Replacement	430	SY	$100	$43,000
8	Concrete Pavement Replacement	1280	SY	$120	$153,600
9	Install 10' Curb Inlet	2	EA	$7,000	$14,000
10	Install Lateral to Inlet	50	LF	$150	$7,500
11	Install 10' x 5' RCB	500	LF	$1,500	$750,000
12	Trench Safety	500	LF	$5	$2,500
13	Headwall	2	EA	$30,000	$60,000
14	Excavation and Embankment	1	LS	$10,000	$10,000
15	Utilities Contingency (5%)	1	LS	$59,003	$59,003
		PROJECT SUBTOTAL:			$1,362,958
	Design Fee	15%	%	$204,444	$204,444
	Contingency	40%	%	$545,183	$545,183
		PROJECT SUBTOTAL:			**$2,112,585**
Project Total					**$2,120,000**

NOTE:

1. General Items contigenency includes miscellaneous items such as Site Preparation, SWPPP, Traffic Control and Tree Removal.
2. The Utilities Contingency includes items for minor service adjustments and does not represent major adjustments or improvements.

Disclaimer: The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to the Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

City of Duncanville Drainage Master Plan

Opinion of Probable Construction Cost
Fairmeadows

ACCOUNT NO.	ESTIMATOR	CHECKED BY	DATE
DNV25453	SMC	EAS	February 27, 2026

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
Bid Items					
1	General Items (10%)	1	LS	$516,054	$516,054
2	Headwall and Culvert Removal	1	LS	$79,000	$79,000
3	Remove Existing Inlet	6	EA	$1,250	$7,500
4	Remove Existing Lateral	144	LF	$50	$7,200
5	Remove Existing 48" RCP	700	LF	$90	$63,000
6	Remove and Replace Curb and Gutter	4400	LF	$50	$220,000
7	Sidewalk Removal	1960	LF	$15	$29,400
8	Sidewalk Replacement	1960	LF	$100	$196,000
9	Concrete Pavement Replacement	5870	SY	$120	$704,400
10	Asphalt Pavement Replacement (Parking lot)	470	SY	$110	$51,700
11	Install 10' Curb Inlet	6	EA	$7,000	$42,000
12	Install Lateral to Inlet	144	LF	$150	$21,600
13	Install 6'x4' RCB	4000	LF	$750	$3,000,000
14	Install 4' x 4' RCB	400	LF	$650	$260,000
15	6'x6' Juction Box	4	EA	$18,000	$72,000
16	7'x7' Junction Box	4	EA	$20,000	$80,000
17	Trench Safety	2200	LF	$5	$11,000
18	Headwall	2	EA	$30,000	$60,000
19	Excavation and Embankment	1	LS	$10,000	$10,000
20	Utilities Contingency (5%)	1	LS	$245,740	$245,740
		PROJECT SUBTOTAL:			$5,676,594
	Design Fee	15	%	$851,489	$851,489
	Contingency	40	%	$2,270,638	$2,270,638
		PROJECT SUBTOTAL:			**$8,798,721**
Project Total					**$8,800,000**

NOTE:

1. General Items contingency includes miscellaneous items such as Site Preparation, SWPPP, Traffic Control and Tree Removal.
2. The Utilities Contingency includes items for minor service adjustments and does not represent major adjustments or improvements.

Disclaimer: The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to the Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

APPENDIX D: PRIORITIZATION CRITERIA METRICS

APPENDIX D

PRIORITIZATION CRITERIA METRICS

DUNCANVILLE DRAINAGE MASTER PLAN

1.0 PRIORITIZATION CRITERIA METRICS

One of the primary goals of the Duncanville Drainage Master Plan was to develop a consistent, transparent, and data-driven capital project prioritization framework that compiles, scores, and ranks the City's CIP portfolio, enabling leadership to allocate funding based on a systematic assessment of business risk exposure and long-term community benefit.

The first step in creating a prioritization methodology is to redefine the overarching prioritization criteria used in project evaluations. The following prioritization criteria were selected by City Staff:

- Public Health and Safety
- Flood Hazard Reduction
- Infrastructure Conditions
- Cost-Benefit
- Implementation Considerations

Specific evaluation metrics were developed for each criterion to facilitate project scoring and ranking. These metrics were designed to balance practicality and completeness, allowing the City to effectively differentiate between projects while maintaining a manageable and transparent evaluation process.

The following sections describe the evaluation metrics under each prioritization criterion. Standardized scoring instructions were developed for each metric and are included within the Excel-based scoring and prioritization tool (see **Section 1.6**).

1.1 PUBLIC HEALTH AND SAFETY

Emergency Access: This metric considers the lowest return-period storm event that results in flooding depths greater than 6 inches on roadways designated for emergency access.

Potential Public Threat: For Asset Protection projects, this metric evaluates the potential consequences of infrastructure failure, including property damage, impacts to utilities, risks to public safety, public health concerns (e.g., sewage releases or water line breaks), and the potential for loss of life.

Erosion Threat Level – Rate: For Flood Management projects, this metric evaluates the rate of streambank erosion based on observable field conditions, including vegetative cover, bank slope, and evidence of past channel modifications. Lower erosion rates are typically associated with stable conditions, such as dense

vegetative cover and flatter bank slopes, while higher rates indicate unstable conditions characterized by sparse vegetation, steeper banks, or active erosion. Projects are assigned higher scores where erosion is occurring more rapidly, reflecting a greater need for stabilization.

Erosion Threat Level – BEHI: For Asset Protection projects, this metric evaluates the susceptibility of streambanks to erosion using the Bank Erosion Hazard Index (BEHI), a field-based assessment method that considers factors such as bank height, slope, soil composition, vegetation, and channel conditions. Projects are assigned scores based on the relative erosion threat at the site, with higher scores corresponding to greater instability and potential for channel migration, infrastructure exposure, and sediment loading. Armored or stable banks receive minimal scores, while sites classified as high or very high BEHI represent actively eroding conditions that may require more immediate intervention.

Impounded Water Infrastructure: This metric assesses project interaction with impounded water infrastructure, accounting for both the presence of impoundments and their regulatory hazard classification, which reflects the potential consequences of failure.

1.2 FLOOD HAZARD REDUCTION

Street Flooding – Frequency: This metric considers the lowest return-period storm event where the depth of flooding is greater than 6 inches or greater than top of curb.

Street Flooding – Severity: The estimated 100-year street flood depth at the site of interest or project area.

Structural Flooding – Frequency: This metric considers the lowest return-period storm event that causes structural flooding.

Structural Flooding – Severity:

- **Number of Structures Inundated:** Number of structures inundated by the 100-year storm event.
- **Maximum Flooding Depth:** Maximum flooding depth during the 100-year storm event.

Non-Structural Flooding: This metric considers the lowest return-period storm event that results in flooding depths exceeding 12 inches in non-structural areas, such as parking lots, parks, and other open spaces. Used as an indicator of nuisance or functional flooding rather than structural risk.

1.3 EXISTING INFRASTRUCTURE CONDITION

Physical Condition: This metric reflects the physical condition of the assets under consideration, which varies by project type. The Pipeline Assessment Certification Program (PACP) rating system was selected to classify storm drain systems. Flood Management projects should be scored based on the unique attributes of each asset (e.g. Earthen Channels, Concrete Channels, Culvert/Bridges). The options for both project categories are outlined below:

Storm Drainage:

- PACP Rating 1: Excellent (Failure unlikely in the foreseeable future)
- PACP Rating 2: Good, Minor defects (20 years or more)
- PACP Rating 3: Fair, Moderate defects (10-20 years)
- PACP Rating 4: Poor, Severe defects (5-10 years)
- PACP Rating 5: Immediate Attention, very severe defects (has failed or will likely fail within the next 5 years)

Flood Management and Asset Protection:

- Excellent
- Good (Minor defects)
- Fair (Moderate defects)
- Poor (Severe defects)
- Immediate Attention (Failure in progress)

Consequence/Risk of Failure: This metric relates to the consequence of failure and the scalable risk that could occur if an asset fails. It considers the type of asset and the potential impact of its failure on individuals, communities, and even the City as a whole.

1.4 COST-BENEFIT

Cost per Structure Removed: This metric evaluates a project's cost efficiency by dividing the total project cost by the number of structures removed from the 100-year floodplain. Lower values indicate more cost-effective projects in terms of reducing structural flood risk. It is important to note that this metric applies only to properties or structures that obtain a 100-year LOS for Flood Management projects.

Cost per Person Removed: This metric evaluates the cost effectiveness of projects that mitigate hazardous roadway overtopping by relating project cost to the reduction in public exposure to flooding

risk. It is applied only to flood management projects involving hazardous road crossings. The metric is based on Annual Average Daily Traffic (AADT) and the change in roadway level of service (LOS) between pre-project and post-project conditions. For this analysis, LOS is defined as the maximum storm event (by recurrence interval (RI)) that can be safely conveyed beneath a roadway crossing without overtopping (e.g., 2-year, 10-year, or 100-year event). Projects that increase the LOS—thereby reducing the frequency of overtopping—and that serve higher traffic volumes provide greater benefit and result in more favorable scores.

$$Cost\ per\ Person\ Removed = \frac{Project\ Cost\ (\$)}{AADT * 365 * \left(\frac{1}{PreProject\ RI} - \frac{1}{PostProject\ RI}\right)}$$

Cost per Year of Service Life Restored: This metric evaluates the cost effectiveness of asset protection projects by relating the total project cost to the estimated extension in service life provided by the improvement. It is calculated as the project cost divided by the number of years of service life restored through repair, stabilization, or replacement of the asset. Projects that extend the useful life of infrastructure for a longer period at a lower cost receive higher scores.

1.5 IMPLEMENTATION CONSIDERATIONS

Implementation Constraints: This metric represents the administrative or regulatory difficulty of implementing a given project. Constraints and difficulties in implementation can range from construction issues to physical and political constraints.

Known Complaint History: This metric evaluates the documented history of drainage-related issues based on citizen complaints and/or maintenance work orders. Projects are assigned higher scores when the frequency of reported problems is higher, reflecting areas with recurring concerns and a demonstrated need for improvement. Locations with no known issues receive the lowest scores, while those with multiple or frequent complaints indicate persistent problems and a higher priority for intervention.

Opportunity for Collaboration: This metric evaluates the potential to coordinate project design and construction with other City departments, such as streets, water, and wastewater. Projects that align with planned improvements or infrastructure needs in the same area may offer opportunities for cost savings, reduced disruption, and more efficient implementation.

Possibility of Funding (i.e., Grants or Loans): This metric evaluates whether a project has the potential to secure external funding through grants, loans, or similar programs. Projects identified as eligible for funding or as strongly aligned with funding program criteria receive a positive score, while those without such opportunities do not.

1.6 EXCEL-BASED SCORING AND PRIORITIZATION TOOL

An Excel-based tool was developed to support the implementation of the recommended scoring and prioritization methodology. The tool standardizes evaluations, improves data management, and enhances decision-making. It incorporates the prioritization criteria, evaluation metrics, and weighting recommendations previously described.

This tool is a practical and adaptable solution for implementing the recommended scoring methodology. Designed for ease of use, transparency, and efficiency, it will help City staff make better-informed decisions regarding project prioritization and capital investment. This tool offers several advantages:

- **Standardization** – Uses structured scoring forms and dropdown selections, reducing inconsistencies.
- **Automation** – Eliminates manual score calculations and automatically ranks projects.
- **Transparency** – Provides a clear rationale for project prioritization, eliminating subjectivity.
- **Data Accessibility** – Stores all project scores in a single location, simplifying historical project tracking.
- **Customizability** – Allows future updates to weights, scoring criteria, and dropdown options.

The spreadsheet contains multiple **color-coded tabs**, each serving a specific function in the scoring and ranking process:

Guidance (Yellow) — A reference guide explaining evaluation metrics, scoring recommendations, and project ID formatting.

Project-Specific Tabs (Blue for Flood Management, Magenta for Asset Protection) — These tabs correspond to each project category and follow a structured workflow for digital data entry and storage.

- **Input Forms**

  Purpose: Digital data entry and additional desktop-based project assessments.

  Functionality:

- Requires general project details (Project ID, Name, Entry Date, Project Cost).
- Uses **dropdown menus** for evaluation metric selection, reducing manual input errors.
- Runs a **data completeness check**, identifying any missing fields.
- **Automated scoring:** The spreadsheet calculates scores for each prioritization criterion and total score as evaluation metrics selections are entered.
- **Record Keeping:** The "Submit Data" button saves the project details to the **Project List** tab and clears the **Input Form** for the next entry.
- **Data Correction or Updates:** The "Edit Existing Project" button allows retrieving data for any previously entered project. This function allows the user to update project data, correct errors, and rescore the project.

- **Calculations Tabs**

  Purpose: Provide supporting formulas to determine Cost-Benefit metrics.

  Functionality:

  - Calculates Cost per Structure Removed for Flood Management projects.
  - Calculates Cost per Person Removed for Hazardous Crossing projects.
  - Calculates Cost per Years of Service Life Restored for Asset Protection projects.

- **Project List**

  Purpose: Stores all scored projects for each category.

  Contents: Keeps records of evaluation metric scores, weighted prioritization scores and final total scores.

  Benefit: Provides a centralized database for prioritization.

Data Management Tabs - These tabs manage dropdown selections and criteria weights.

- **Criteria Weights**

  Purpose: Contains prioritization criteria and evaluation metrics weights.

Functionality: Users can modify weights to reflect changing priorities.

Error Prevention: Built-in Conditional Formatting prevents invalid weight inputs.

- **Dropdowns**

  Purpose: Contains valid selections and associated scores for each evaluation metric.

  Functionality:

  - Each evaluation metric has 3 to 6 valid entries, with scores ranging from 0 to 10 points.
  - Entries were approved by City Staff but remain adjustable based on future implementation experience. This flexibility will help refine project differentiation over time.

APPENDIX E: DRAINAGE POLICY RECOMMENDATIONS

Comment No.	City of Dallas Designate Design Manual reference			FNI Comments/Recommendations
	Section #	Section Title	Page #	
1	N/A	N/A	N/A	The City currently references the City of Dallas Drainage Design Manual; however, applicability is not clearly defined on the City's website. It is recommended that the City update its website to clearly identify which drainage criteria apply within the City of Duncanville. A dedicated "References" section may be included, but the City should clearly distinguish which criteria are adopted versus those that are supplemental or for reference only, to avoid confusion and ensure consistent application.
2	N/A	N/A	N/A	The City's website includes an iSWM Criteria Manual for Site Development and Construction (dated April 2011) that has been modified for the City of Duncanville; however, based on discussions with City staff, this manual is no longer in use. It is recommended that the City remove this document from its website to avoid confusion and ensure that only current and applicable criteria are referenced by developers and design engineers.
3	1.4.1	Drainage Design Process	4	The applicability of water quality requirements from the City of Dallas Drainage Design Manual is currently unclear. The City should determine whether these water quality standards are intended to be enforced within Duncanville. If not, it is recommended that water quality requirements be excluded from future criteria manuals to avoid confusion and ensure the document reflects only applicable standards.
4	1.4.5	Pre-Development Meeting	5	The City currently reviews Flood Studies and Design documents concurrently. It is recommended that the Flood Study be reviewed and approved first to identify any major conceptual or hydraulic issues early in the process, prior to detailed design efforts. Additionally, it is recommended that the City require a Pre-Development Meeting for all proposed developments. The potential impact of a project is often more dependent on its geographic location than its size, and early coordination can help identify critical drainage considerations. This meeting would also provide an opportunity for the developer to obtain relevant existing studies and data from the City, which could be leveraged to streamline analysis and improve the accuracy of impact assessments.
5	2.2.1.2	Rainfall Intensity (i)	10	The manual does not currently include a table of rainfall intensity values. It is recommended that the City include a standardized table of rainfall intensities for required design storms. For consistency, the City should adopt a single representative coordinate to define rainfall depths across the entire City, and values should be based on NOAA Atlas 14 data to reflect current standards.
6	2.2.1.3	Time of Concentration (Tc) - Sheet Flow	10	P2 rainfall depth value should be based on the Rainfall Intensity table referenced in comment #5
7	2.2.2.1	SCS Unit Hydrograph Method	12	Regarding the use of existing hydrologic models, FNI recommends including a specific statement indicating that the developer is responsible for requesting existing models and coordinating with adjacent developments occurring in parallel.
8	2.2.2.1	SCS Unit Hydrograph Method - Rainfall	13	SCS Type III distribution is based on very old data. FNI recommends using the NOAA Atlas 14 rainfall data and applying a frequency distribution in to develop nested intensity hydrographs.
9	2.2.2.1	SCS Unit Hydrograph Method - Drainage Area Delineation	13	This section appears to use the term "area of consideration" to refer to the "Zone of Influence" of a proposed development, and adopts the typical 10% rule to determine the downstream limit of an H&H study. FNI recommends including a statement indicating the following: "In order to establish the zone of influence from a proposed development and to determine the impacts to the downstream properties or facilities, a downstream assessment is required. For watersheds of one hundred (100 ac) acres or less at any proposed outfall, the downstream assessment may use the 10% rule of thumb or a detailed study in order to determine the zone of influence. The ten percent (10%) rule states the Zone of Influence is considered to be the point where the drainage area controlled by the drainage facility comprises ten percent (10%) of the total drainage area. For example, the Zone of Influence for a 10-acre development ends at the point downstream where the overall watershed is 100 acres or greater. **For all other watersheds, the zone of influence will be defined by a detailed hydrologic and hydraulic analysis.**"

Comment No.	City of Dallas Designate Design Manual reference			FNI Comments/Recommendations
	Section #	Section Title	Page #	
10	2.2.2.2	Use of Other Hydrograph Method	14	It is recommended that the City standardize allowable methods and, for consistency, require use of the SCS Unit Hydrograph method for hydrologic modeling unless otherwise approved by the City.
11	2.2.2.3	Flood Routing	15	FNI recommends including the following language: "The Modified Puls method is the City-preferred flood routing method and shall be used for all streams located within a FEMA-designated Zone AE floodplain **or any non-regulatory floodplain within City limits**. The Modified Puls method must also be used for any stream/floodplain where significant backwater is expected or significant overbank storage exists. **The Modified Puls routing methodology shall be used for any routing reach in HEC-HMS that has an associated reach modeled in HEC-RAS.** Other approved methods suitable for streams where the Modified Puls is not required are also discussed in the following subsections. Methods not listed below may only be used with approval of the Director.
12	2.2.2.3	Flood Routing - Modified Puls Method	15	FNI recommends using the Travel time computed by the HEC-RAS model within each routing reach instead of equation 2.17.
13	2.2.2.3	Flood Routing - Muskingum-Cunge Method	15	FNI recommends specifically disallowing use of this method for long conduits. It is technically incorrect to do so.
14	2.2.2.3	Flood Routing - Reservoir Routing	15	FNI recommends replacing the first sentence of this section with the following: "Hydrograph routing through a reservoir can be computed **with a reservoir element in HEC-HMS, unless significantly influenced by tailwater conditions.**"
15	2.3.1	Design Objectives	16	The No Adverse Impacts (NAI) criteria are not clearly defined in this document. FNI recommends adding a table with specific criteria and threshold values to determine NAI. For example: - No new or increased flooding (0.00 feet) of existing insurable (FEMA) structures (habitable buildings). - No increase (0.00 feet) in 2-, 5-, 10-, 25- and 100-year water surface elevations. - Proposed channel velocities for 2-, 5-, 10-, 25- and 100-year storms cannot exceed the applicable maximum permissible velocities. - If existing channel velocities exceed maximum permissible velocities, no more than a 5% increase in velocities will be allowed. - No increase in downstream discharges (0 cfs) caused by the proposed development will be permitted. - Floodplain alterations shall result in no loss (0%) of valley storage for the 100-year storm for a major creek and a 15% maximum loss of valley storage for any other tributary, except at bridge and culvert crossings where it can be proven that there are no detrimental effects downstream. **(COD's Floodplain and Escarpment Zone Regulations (51A-5.100) includes a section on valley storage criteria. FNI considers these criteria appropriate. Does Duncanville agree with these criteria?)**
16	2.3.2	Downstream Analysis	17	Same issue as in comment #7. The 10% rule is just an initial approximation and should not be used to define the zone of influence when detailed H&H model results are available.
17	4.2.2	Freeboard / Minimum Clearance	67	FNI recommends updating the second paragraph to read: "Bridges should be designed with a minimum of 2 feet of freeboard from the low chord to the 1% annual chance flood elevation **(under fully developed hydrologic conditions)** unless a low water crossing is approved by the Director."
18	4.7	Roadway Overtopping	70	Seems like an unnecessary section. What purpose does this section serve if other criteria require 2 feet of freeboard over the 1% water surface elevation?
19	5.1	General	74	FNI recommends updating the second paragraph to read: "Preservation of creeks in their natural condition is preferred. In the event that it is necessary to utilize a constructed open channel, it shall be designed to convey the full design discharge, the 1% annual chance storm event **under fully developed hydrologic conditions**."
20	6.2.1	Design Guidance - Site Considerations	85	FNI recommends additional building setback distances for detention basins. 10 ft should be the standard. 5 ft should require director approval.

Comment No.	City of Dallas Designate Design Manual reference			FNI Comments/Recommendations
	Section #	Section Title	Page #	
21	6.2.1	Design Guidance - Freeboard and Emergency Spillway	85	The emergency spillway capacity section lacks a discussion regarding an emergency overflow pathway. FNI recommends adding the following language: "Freeboard and Emergency Spillway – Where earth embankments are used to temporarily impound the required detention, the top of the embankment will be a minimum of 2.0 feet above the maximum 1% annual chance flood level. In addition, an emergency spillway will be provided at the maximum 1% annual chance flood level to ensure that the undetained 0.2% annual chance flood event does not overtop the embankment. **Under no circumstances should the emergency overflow have a direct path to any buildings or other structures used for human occupancy, commerce, or industry. An emergency overflow path between the proposed detention pond and the proposed outfall shall be identified and clearly indicated on the construction plans."**
22	8.1	General	110	**Important:** FNI recommends clarifying that the City's local floodplain is also a consideration, not just the regulatory FEMA floodplain (SFHA). The COD floodplain regulations (Article V Section 51A) defines a floodplain as follows: "(16) FLOODPLAIN (FP) means any land area susceptible to inundation by the design flood, even if the land has not been formally designated as an FP area on the Regulatory Floodplain Maps." **If Duncanville has any City defined floodplains, FNI recommends referencing them in Criteria.**
23	8.2.1	Hydraulic Modeling	111	COD Design Manual indicates that "Cross sections used in the hydraulic analysis shall be representative of current channel and floodplain conditions obtained by surveying." FNI recommends allowing the use of the best available LiDAR data as a source of topographic information to supplement survey data.
24	8.6	FEMA Coordination	114	Update first sentence to read: "Coordination with FEMA may be necessary if development is proposed within an existing **Special Flood Hazard Area (SFHA)**.
25	9.2.3	Section 404 Permitting	119	FNI recommends adopting the following language as part of the downstream assessment requirements for the City of Duncanville: "The Engineer must provide proof of compliance with applicable federal, state, and local environmental regulations upon request by the City. Potential applicable regulations and permits may include, but are not limited to: a. Section 404 of the Clean Water Act (33 USC 1344); b. Section 106 of NHPA; c. Water Rights; d. Section 303(d) impaired waters; e. Migratory Bird Treaty Act; f. Water Well Drilling; g. Threatened and Endangered Species Act; h. The Texas Archeological and Research Laboratory Requirements; i. The Antiquities Code of Texas; j. Air Quality; and, k. TCEQ Dam Requirements. The Engineer is responsible for providing documentation of the relevant USACE approved permits prior to beginning modification to the floodplain, or for providing a signed and sealed statement detailing why such permits are unnecessary. A preliminary Section 404 permitting evaluation shall be included as part of the downstream assessment report for the development. Should mitigation be required under Section 404 of the Clean Water Act, the areas shall be identified on the engineering construction plans.
26	10.3	Documentation Requirements	127	FNI recommends creating a separate Checklist to outline the minimum requirements for a downstream assessment.
27	10.3.1	Drainage Reports	127	Hard copies for drainage reports may not be necessary. Consider allowing just digital submittals or limit hard copies to the final approved drainage report.

APPENDIX F: COST ESTIMATION AND FUNDING STRATEGIES

APPENDIX F

COST ESTIMATION AND FUNDING STRATEGIES

DUNCANVILLE MASTER DRAINAGE PLAN

TABLE OF CONTENTS

1.0 FUNDING OPPORTUNITIES 2
1.1 External Funding Mechanisms 2
1.1.1 State and Federal Grants and Loans 2
1.2 Internal Funding Mechanisms 16
1.2.1 General Fund 16
1.3 Internal Funding Mechanisms: Taxes and Fees 19
1.3.1 Sales Tax Reallocation Election (HB 157) 19
1.3.2 Stormwater Utility Fee 22
1.3.3 4B Sales Tax Fund 24
1.4 Internal Funding Mechanisms: City-Issued Debt 26
1.4.1 General Obligation Bonds (GO Bonds) 26
1.4.2 Certificates of Obligation (COs) 27
1.5 Internal Funding Mechanisms: Establishment of Special Districts 28
1.5.1 Public Improvement District (PID) 28
1.5.2 Water Control and Improvement District (WCID) 28
1.5.3 Municipal Utility District (MUD) 29
1.5.4 Drainage District (DD) 29
1.5.5 Local Improvement District (LID) 29
1.5.6 Flood Control District (FCD) 30
1.5.7 Tax Increment Reinvestment Zone (TIRZ) 30
1.5.8 Municipal Development District (MDD) 30
1.6 Project Funding Matrix 31
1.7 Recommended Funding Strategy 34

1.0 FUNDING OPPORTUNITIES

The following are funding mechanisms which could pay for all or part of the identified drainage CIPs. Due to the volatile and rapidly changing nature of funding sources, this is not meant to be an exhaustive list of funding mechanisms and is instead intended to provide information for a wide variety of stormwater-related projects. These mechanisms are presented in order of funding mechanisms external to the city followed by internal funding mechanisms internal to the city.

In general, four external funding mechanisms stand out as the most applicable to the 11 CIP projects listed in this document. The funding mechanisms are as follows:

- Flood Infrastructure Fund (FIF)
- Texas Water Development Fund (DFund)
- Clean Water State Revolving Loan Fund (CWSRF)
- Flood Mitigation Assistance (FMA)

1.1 EXTERNAL FUNDING MECHANISMS

1.1.1 State and Federal Grants and Loans

A grant is one of the ways federal and state governments fund ideas and projects to provide public services and stimulate the economy. Grants support critical recovery initiatives and mitigation activities, innovative research, and many other programs listed in the Catalog of Federal Domestic Assistance (CFDA). Grants are provided by many state and federal agencies, their availability varies throughout the year, and funds are awarded based on approval of an entity's application. Each grant has specific criteria that must be met. Loan programs offer debt similar to issuing GO Bonds or COs but often times are offered at lower interest rates than the City can get on the open market. These programs typically offer loan terms up to 30 years or more and in some cases, offer grants within the specific program and other special features such as multi-year funding and deferral of principal and interest. It is important to note, however, that these loan programs will often times extend project schedules and require environmental studies and supplemental conditions be added to contract documents. Most also require the use of domestically sourced materials and require the payment of Davis-Bacon Act wages to laborers and mechanics. A descriptive list of several state and federal funding programs applicable to stormwater projects is provided in the following sections.

1.1.1.1 Flood Infrastructure Fund (FIF); sponsored by the Texas Water Development Board (TWDB)

Purpose

The FIF program assists in the financing of drainage, flood mitigation, and flood control projects, including: planning and design activities, work to obtain necessary regulatory approvals, and construction and/or implementation of flood projects. The FIF program allows for a wide range of flood projects. Only Flood Management Evaluations (FME), Flood Mitigation Projects (FMP), and Flood Management Strategies (FMS) recommended in an Amended Regional Flood Plan approved by the TWDB are eligible for financial assistance.

Under the FME category, eligible applicants conduct studies to identify, assess, and quantify flood risk or identify, evaluate, and recommend flood risk reduction solutions. These studies involve planning of entire watersheds, as required by the TWDB regional flood planning program, to better inform the development of strategies using structural and nonstructural measures before a flood event. This may include determining and describing issues from or related to flooding, identifying, and planning solutions to flooding issues, and estimating the benefits and costs of these solutions. Under the FMP category, eligible applicants may undertake activities to construct or rehabilitate structural flood mitigation improvements or implement non-structural improvements.

FMS are flood risk reduction solution ideas and strategies that do not belong in FME or FMP categories. Examples may include regulatory enhancements, development of entity wide buyout programs, and public outreach and education. This category may include projects that can be implemented quickly and are understood to be immediately effective in protecting life and property. Eligible FMS Category projects include warning systems, crossing barriers, gages, and public education and outreach.

The FIF program may also provide an eligible applicant's non-federal share for a federal grant program, such as the FMA program. Both grants at various amounts and 0% interest rate loans are available, with the grant depending on the applicant's average annual household income level. In its first funding round, the TWDB committed over $513 million to 138 projects. In the 2024-2025 round (the program's second round), the FIF had a total capacity of $375 million. In addition, the 88th Legislature added the FIF to the list of programs eligible to receive funding from the Texas Water Fund and in 2025 voters approved, through Proposition 4, up to $1 billion per year in sales and use taxes to be transferred to the Texas Water Fund after the first $46.5 billion collected. This additional funding is due to become available in Fall of 2029.

Constraints

At least for now, the FIF has limited funding and the TWDB only offered $375 million for the 2024-2025 program cycle. Also, only projects in the current Texas Regional Flood Plans are eligible with no opportunity to advance studies funded by the 2020 funding cycle to actual projects. In addition, only complete projects as listed in the regional plans are eligible and phasing or partial projects are not allowed. Lastly, while Proposition 4 authorizes up to $1 billion per year, the FIF program must share these funds with other programs and the earliest these funds may become available is September 1, 2029, due to program development and Legislative appropriation.

Benefits

State programs with state-level requirements, federal financial assistance requirements do not apply unless required by other cross-cutting federal laws. Also, projects that are currently listed in the regional flood plans have already been defined, scored, and ranked and therefore, it is fairly certain which projects will be funded in the 2024-2025 program years. In addition, household income is considered on a project benefit area basis and therefore, while Duncanville may not qualify for grant on a community-wide (city limit) basis, it may still have projects that do qualify to receive grant funding.

Potential Applications

Potential applicants may include planning phase activities such as preliminary engineering, project design, feasibility assessments, coordination and development of regional projects, obtaining regulatory approvals, and hydraulic and hydrologic studies; construction/rehabilitation phase activities such as drainage infrastructure (e.g., channels, ditches, ponds, pipes, etc.), flood control infrastructure, flood mitigation infrastructure, retention basins, detention ponds, sustainable infrastructure, nonstructural flood mitigation, development of or amendments to flood related codes, permeable pavement, erosion control, levees, pump stations, rehabilitation of existing infrastructure taking into consideration methods of improving resiliency (not including costs associated with current or future operations and maintenance activities), property acquisitions determined to be the best solution for highest-risk properties, restoration of riparian corridors, floodplains, coastal areas, and wetlands, natural erosion and runoff control; and other projects such as flood early warning systems, stream gauges, educational campaigns, and crossing barriers.

Potential Roadblocks

Even if it is determined that the City has high-priority stormwater projects, if these same projects are not in a regional flood plan, they are not eligible for FIF funding. Also, Duncanville must gain the support of other communities if its project(s) extend outside of the City's limits. This can sometime be difficult, contentious, or even impossible. Lastly, many times, communities struggle to provide the additional funding needed to complete a project when 100% grant is not offered or in the case of 0% interest rate loans, may not currently have the debt service capacity to repay even a 30-year loan.

1.1.1.2 Texas Water Development Fund (Dfund); sponsored by the Texas Water Development Board

The Texas Water Development Fund (DFund) program is a state funded loan program that enables the Board to fund multiple eligible components in one loan, e.g. an application for funding of stormwater, water and wastewater components can be processed in a single loan. The DFund can fund all phases of a project including planning (both environmental and engineering), acquisition, design, and construction. DFund provide loans, at rates equivalent to the Texas AAA bond rate, to political subdivisions for:

- Flood Control
    - construction of storm water retention basins
    - enlargement of stream channels
    - modification or reconstruction of bridges
    - acquisition of floodplain land for use in public open space
    - relocation of residents of buildings removed from a floodplain
    - public beach re-nourishment
    - flood warning systems
    - control of coastal erosion
    - development of flood management plans
- Water Supply
    - wells
    - retail distribution and wholesale transmission lines
    - system acquisitions
    - pumping facilities
    - storage reservoirs and tanks
    - water treatment plants
    - purchase of water rights

- Wastewater Systems
    - sewer treatment plants
    - collection systems
    - system acquisitions
    - nonpoint source pollution abatement
    - development of new municipal solid waste disposal facilities

Purpose

To fund multiple eligible components in one loan, e.g. an application for funding of stormwater, water and wastewater components can be processed in a single loan.

Constraints

Bonds are sold to fund DFund loans and are only sold once per year in June. Also, interest rates are based on the Texas AAA bond rate and no interest rates subsidies are offered on loans. This program does not offer grants.

Benefits

Up to a $6 billion rolling authorization creates a large program capacity; no federal requirements, and flexibility to fund various projects with one loan.

Potential Applications

The planning, acquisition, design, and construction of many diverse water, wastewater, and flood control/stormwater projects.

Potential Roadblocks

Timing. Applications are only accepted once per year (October -December) and the TWDB only funds loans after June of each year.

1.1.1.3 Clean Water State Revolving Loan Fund (CWSRF) sponsored by the Texas Water Development Board with support of the EPA

The Clean Water State Revolving Fund (CWSRF) program is a federal-state partnership that provides communities with a permanent, independent source of low-cost financing for a wide range of water quality infrastructure projects. Using a combination of federal and state funds, state CWSRF programs provide loans and grants to eligible recipients to:

- Construct municipal wastewater facilities
- Control nonpoint sources of pollution
- Manage, reduce, or treat stormwater
- Create green infrastructure projects
- Protect estuaries
- Fund other water quality projects

Under the CWSRF, EPA provides grants to all 50 states plus Puerto Rico to capitalize state CWSRF programs. The states contribute an additional 20 percent to match the federal grants. The 51 CWSRF programs function like environmental infrastructure banks by providing low cost funding to eligible recipients for wastewater and stormwater infrastructure projects. As money is paid back into the state's revolving loan fund, the state makes new loans to other recipients for high priority, eligible activities. Repayments of loan principal and interest earnings are recycled back into individual state CWSRF programs to finance new projects that allow the funds to "revolve" at the state level over time. Under the CWSRF, states may provide various types of assistance, including loans, grants, refinancing, purchasing, or guaranteeing local debt and environmental needs. The CWSRF has been well funded by the Infrastructure Investment and Jobs Act for the federal fiscal years 2022-2026, Texas state fiscal years 2023-2027.

Purpose

To finance a wide variety of water quality and stormwater projects at interest rates lower than Duncanville can access on the open market. In addition, and for specific reasons like disadvantaged communities or green projects, grants (called principal forgiveness) are available.

Constraints

Projects are invited to participate based on a rating criteria. This criteria favors systems under TCEQ/EPA enforcement or projects that discharge to an impaired waterway, or small, rural, and disadvantaged communities.

Benefits

Low rates and some grants available.

Potential Applications

- Wastewater collection

- Wastewater treatment
- Projects that reduce or eliminate Non-point source pollution
- Projects that manage, reduce, or treat stormwater

Potential Roadblocks

- Scoring
- Annual program funding capacities

1.1.1.4 Flood Mitigation Assistance (FMA) Grant Program; sponsored by the Federal Emergency Management Agency (FEMA)

Purpose

The FMA program is authorized by Section 1366 of the National Flood Insurance Act of1968, as amended with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FMA provides funding to states, territories, federally recognized Tribes and local communities for projects and planning that reduce or eliminate long-term risk of flood damage to structures insured under the NFIP. FMA funding is also available for management costs. Generally, local communities will sponsor applications on behalf of homeowners and then submit the applications to the state, which then submits the application to FEMA. For fiscal year 2023 (the last reported), FEMA announced selections of 193 sub applications totaling $715 million in FMA grant funding.

Constraints

Requirements include community participation in the National Flood Insurance Program (NFIP), mitigated property insured by NFIP, a FEMA-approved hazard mitigation plan (HMAP), and that the CIP be cost-beneficial having a benefit-cost ratio of at least 1.0.

Benefits

Normally, funding is appropriated by Congress annually. For projects involving Severe Repetitive Loss Properties, the grant will cover 100% of the project. For projects involving Repetitive Loss Properties, the grant will cover 90% of the project. Finally, for projects involving NFIP insured properties, the grant will cover 75% of the project while the local government must pay for 25% of the project. Also, the FMA program has been very well-funded through 2026 by the Infrastructure Invest and Jobs Act.

Potential Applications

Potential applications include acquisition for demolition or relocation, structure elevation or reconstruction, dry floodproofing, minor localized flood reduction projects, HMAP (flood hazard only) development or update.

Potential Roadblocks

The FMA program is a competitive grant program, and FEMA chooses the applicants to be funded based on the applicant's ranking of the project and eligibility and cost-effectiveness of the project. The application deadline is typically in October.

1.1.1.5 Other Funding Opportunities

1. Hazard Mitigation Grant Program (HMGP); sponsored by FEMA

Purpose

The purpose of HMGP is to help communities implement hazard mitigation measures following a Presidential Major Disaster Declaration in the areas of the state, Tribe, or territory requested by the Governor or Tribal Executive. The key purpose of this grant is to enact mitigation measures that reduce the risk of loss of life and property from future disasters. HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

Constraints

Applicants must have a FEMA-approved Hazard Mitigation Plan (HMP) and projects must be cost-beneficial. The foundational requirement, however, is the grant is only applicable following a Presidential Disaster Declaration.

Benefits

The benefits of HMGP include support for risk reduction activities, improvement of resiliency, elimination of the impact of future events, long-term solutions to problems, cost-effective solutions, and help to avoid repetitive damage from disasters. FEMA provides up to 75% of the funds for mitigation projects under HMGP. The remaining 25% will be the City's local share and can come from a variety of sources.

Potential Applications

Develop hazard mitigation plans and build or rebuild in ways that reduce or mitigate future disaster losses in their communities. HMGP may fund projects for:

- Planning-related activities related to the update of FEMA-approved Hazard Mitigation Plans, integrating risk assessment or mitigation strategy information from mitigation plans, building capacity through technical assistance, and evaluating the adoption of risk reduction ordinances.
- Retrofitting existing buildings to make them less susceptible to damage from a variety of natural hazards.
- Purchasing hazard prone property to remove people and structures from harm's way.
- Utility and infrastructure retrofits to reduce risk of failure caused by natural hazards.
- Drainage improvement projects to reduce potential for flood damage.
- Slope stabilization projects to reduce risk to people and structures
- Developing and adopting hazard mitigation plans, which are required for state, local, tribal and territorial governments to receive funding for their hazard mitigation projects.
- Using aquifer storage and recovery, floodplain and stream restoration, flood diversion and storage, or green infrastructure methods to reduce the impacts of flood and drought.

Potential Roadblocks

While HMGP is authorized anywhere within a state that has received a disaster declaration, TDEM many times will prioritize funding to the areas under the disaster declaration.

2. Continuing Authorities Program; sponsored by the United States Army Corps of Engineers (USACE)

This program allows the USACE to plan, design, and construct smaller projects without specific authorization from Congress. The potential sponsor must request the USACE to investigate potential flood risk management issues that might fit the program. Once the USACE determines that the project fits the program, the District will request funds to initiate a reconnaissance effort to determine potential federal interest in proceeding to a feasibility study. There are three authorities available for this program:

- Section 14 – Emergency Streambank and Shoreline Protection
- Section 205 – Small Flood Risk Management Projects
- Section 208 – Clearing and Snagging of Waterways

Constraints

Section 14: The Corps of Engineers is authorized to construct bank protection works to protect endangered highways, highway bridge approaches, and other essential, important public works, such as

municipal water supply systems and sewage disposal plants, churches, hospitals, schools, and non-profit public services and known cultural sites that are endangered by flood-caused bank or shoreline erosion. Privately owned property and facilities are not eligible for protection under this authority. Each project is limited to a total federal cost of $15 million, including feasibility study, design, and construction costs. Section 205: Before the federal government can participate in implementing a flood risk management project, a planning study must be conducted to determine if the project is economically justified (benefits exceed the costs), technically feasible, and environmentally acceptable. Planning studies are typically conducted in two phases - reconnaissance and feasibility. Section 208: In the interest of flood control, the Corps of Engineers can conduct clearing, snagging, or channel excavation. Limited embankment construction can be provided by utilizing the materials from the cleaning operation.

Benefits

The first $100,000 of the Planning Design Analysis phase is a federal expense. All PDA costs after the first $100,000 are cost-shared 50/50. Most construction costs are cost shared 65% federal and 35% non-federal.

Potential Applications

Potential applications include flood risk management, ecosystem restoration, erosion control, streambank restoration, and multipurpose projects.

Potential Roadblocks

Formal assurance in the form of a Project Partnership Agreement must be executed with the project sponsor. The USACE would oversee project construction; however, once constructed, the operation and maintenance of the project would be the responsibility of the project sponsor.

3. Emergency Watershed Protection (EWP) Program; sponsored by the Natural Resources Conservation Service (NRCS)

Purpose

The objective of the EWP Program is to assist sponsors, landowners, and operators in implementing emergency recovery measures for runoff retardation and erosion prevention to relieve imminent hazards to life and property created by a natural disaster that causes a sudden impairment of a watershed. Financial assistance for flood protection projects is made available following a Presidential Disaster Declaration. Applicants submit requests immediately following a disaster in anticipation of future funding through disaster declaration. This grant applies to the construction of projects that: (1) provide protection

from flooding or soil erosion, (2) remove debris that would affect runoff or erosion, and (3) restore hydraulic capacity following a disaster.

Constraints

All EWP work must reduce threats to life and property and must be economically, environmentally, and socially defensible and sound from a technical standpoint. EWP cannot solve problems that existed before the disaster or to improve the level of protection above that which existed before a disaster. It cannot fund operation and maintenance work or repair private or public transportation facilities or utilities. The work cannot adversely affect downstream water rights and fund cannot be used to install measures not essential to the reduction of hazards.

Sponsors must submit a formal request to the State Conservationist for assistance within 60 days of the natural disaster occurrence, or 60 days from the date when access to the sites becomes available.

Benefits

The NRCS may bear up to 75% (90% within limited resource areas as identified by the U.S. Census data) of the construction cost of emergency measures. Thus, the local government must cover the other 25% of the cost.

Potential Applications

Potential applications are limited for the CIPs in Duncanville since the grant does not apply to pre-existing conditions and may only be applied immediately after a disaster has occurred.

Potential Roadblocks

Potential roadblocks exist due to the program requirements since the grant does not apply to pre-existing conditions and may only be applied immediately after a disaster has occurred.

4. Watershed Protection and Flood Prevention Program; sponsored by NRCS

Purpose

The Watershed and Flood Prevention Operations (WFPO) Program provides technical and financial assistance in carrying out works of improvement to protect, develop, and utilize the land and water resources in watersheds. The program provides cost sharing funds to state agencies for flood mitigation projects including floodwater dams, floodplain easements and flood-proofing of residential and commercial structures.

Constraints

Sponsoring local organizations can request that watershed project plans be authorized for Federal Watershed Operations funding assistance. Watershed plans involving federal contributions of more than $5,000,000 for contribution, or construction of any single structure having a capacity more than 2,500 ac-ft, require Congressional approval. Criteria for being an eligible authorized watershed project are:

- Public sponsorship
- Watershed projects up to and including 250,000 acres
- Benefits that are directly related to agriculture, including rural communities that are at least 20% of the total benefits of the project

Benefits

Cost sharing varies and availability of the grant is annually. This grant program is applicable to the Duncanville CIPs.

Potential Applications

Potential applications include flood damage mitigation through dams, easements, and flood-proofing, agricultural/rural water supply projects, water quality projects, water conservation projects, groundwater recharge projects, public fish and wildlife habitat conservation, and public water-based recreation projects.

Potential Roadblocks

The watershed area must not exceed 250,000 acres, the capacity of a single structure is limited to 25,000 acre-ft of total capacity, and 12,500 acre-ft of floodwater detention capacity. The watershed meets this criterion, but the CIPs must also meet the latter two requirements.

5. Economic Development Assistance Programs (EDAP); sponsored by the U.S. Economic Development Administration (EDA)

Purpose

Under the EDAP Federal Funding Opportunity (FFO) announcement, EDA will make construction, non-construction, and revolving loan fund investments under the Public Works and Economic Adjustment Assistance (EAA) Programs. Grants made under these programs must support development in economically distressed areas of the United States by fostering job creation and attracting private investment. The cost-sharing amount varies.

Constraints

• The expected maximum award amount from the EDA is $5,000,000 with an expected minimum award amount of $600,000. An area receiving this grant must be considered economically distressed and the project must support the creation of new, permanent jobs or at least maintain current job levels. To be considered economically distressed, the applicable region must meet the following criteria:

• A 24-month unemployment rate that is at least 1 percentage point greater than the national average

• Per capita income that is not more than 80% of the national average

• "Special Need," as determined by EDA and as discussed in Section C.3. of the application instructions

Benefits

There are no submission deadlines under this opportunity. Proposals and applications are accepted on an ongoing basis until the publication of a new EDAP FFO. Applicants may be from rural or urban areas. As previously mentioned, the cost-sharing varies, but generally, the amount of the EDA grant may not exceed 50% of the total cost of the project. Projects may receive up to an additional 30% based on the relative needs of the region in which the project will be located.

Potential Applications

Potential applications of this program are public works projects such as water and sewer system improvements, industrial parks, shipping and logistics facilities, etc.

Potential Roadblocks

The City of Duncanville is unlikely to be considered an "economically distressed area," and is thus unlikely to receive this grant.

6. Nonpoint Source Grant Program [Section 319 (h)]; sponsored by the U.S. Environmental Protection Agency (EPA)

Purpose

The 1987 amendments to the Clean Water Act (CWA) established the Section 319 Nonpoint Source (NPS) Management Program. Under Section 319, states, territories, and Tribes receive grant money that supports a wide variety of activities including technical assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific nonpoint source

implementation projects. In 2022, $21.2 million in grant money was awarded. The Texas NPS Management Program is Texas' comprehensive strategy for addressing NPS pollution. The most recent program publication, the Nonpoint Source Pollution Management Annual Report was submitted to the EPA by the Governor in 2024 Annual. The types of projects covered by this program are watershed protection plans in priority watershed, NPS portion of Total Maximum Daily Load (TMDL) implementation plans, surface water quality monitoring, data analysis and modeling, best management practices (BMPs), and public outreach/education. In 2024, TCEQ funded 35 projects totaling approximately $11.6 million.

Constraints

The NPS Grant Program is administered by the Texas Commission on Environmental Quality (TCEQ) and the Texas State Soil and Water Conservation Board (TSSWCB) for providing funding as grants to cooperating entities for activities that address the goals and objectives stated in the Texas NPS Management Program. The agencies request proposals during each grant cycle. They should stress interagency coordination, demonstrate new or innovative technologies, use comprehensive strategies that have statewide applicability, and stress public participation. They should also include a Quality Assurance Project Plan (QAPP). This grant is more applicable to water quality projects, not stormwater drainage projects.

Benefits

Cost sharing is 60% federal, 40% local governments.

Potential Applications

Potential applications are limited for the CIPs in Duncanville, but may include watershed assessment, planning, implementation, demonstration and education projects with the boundaries of impaired watersheds.

Potential Roadblocks

The grant cycle has defined open periods. It will be important to apply when the new cycle has started. The City of Duncanville may not be within the boundaries of an impaired watershed.

1.2 INTERNAL FUNDING MECHANISMS

1.2.1 General Fund

A general fund is a financial term referring to a nonprofit entity's financial pool of resources. This term traditionally refers to a fund used by a government or university because for-profit businesses use a general ledger to monitor finances. From a general fund, all operating expenses, services and employee payrolls are provided. The money for this fund comes from several sources, depending on the institution. The bulk of a governmental fund is drawn from taxes. No matter if it is a state, local or national government, taxpayers are primarily the people helping fund services and operation. Beyond taxes, a government makes other income from having a surplus from the previous fund, from interest on investments and from charging fees, such as entry fees into parks.

Purpose

A City's primary operating account for paying essential, day-to-day services police, fire, parks, libraries, and general government administration, funded mainly by property taxes, sales tax, and fees, ensuring core civic functions run smoothly and transparently. In essence, if a service isn't funded by a dedicated revenue source (like water bills for water service), it's usually paid for by the General Fund, making it the backbone of local government operations.

Constraints

Constraints include revenue volatility (reliance on taxes, limited control over sources), spending mandates (state laws, debt), restricted funds (earmarked for specific uses like grants), and fund balance policies, requiring careful budgeting for essential services like public safety while managing unpredictable economic downturns and maintaining reserves, often leading to freezes on hiring and capital projects during shortfalls.

Benefits

- Funds Core Services: It pays for essential public safety (police, fire), parks & recreation, libraries, street maintenance, and general government operations (city council, HR, finance).
- Provides Flexibility: It covers general revenues not tied to specific projects, allowing the city council to allocate funds to community-desired programs.
- Ensures Stability: A healthy fund balance helps absorb revenue shortfalls during economic downturns and prevents sudden budget cuts, stabilizing services.

- Supports Capital Projects: It often provides funding or transfers to larger projects like new facilities or major infrastructure through the Capital Improvement Program (CIP).
- Enhances Borrowing Power: Reserves can reduce borrowing costs and improve the city's credit rating.
- Promotes Transparency: It serves as the primary accounting tool, with revenues (taxes, fees, fines) and expenditures clearly tracked, enabling public accountability.
- Manages Day-to-Day Operations: It handles the bulk of a city's daily administrative and operating expenses.

Potential Applications

- Public Safety & Emergency Services: Police, Fire, EMS, Emergency Management, Animal Control.
- Public Works & Infrastructure: Street maintenance, traffic control, engineering, planning, community development.
- General Government: Mayor & Council, City Manager's Office, Finance, HR, Legal, IT.
- Cultural & Recreational: Libraries, Parks & Recreation, community beautification.
- Community Services: Utility assistance, neighborhood enhancement, code compliance.
- Debt Service: Paying principal and interest on general obligation bonds.
- Capital Projects: Funding smaller capital needs or supplementing larger projects.
- Emergency Reserves: Maintaining fund balances to address unexpected events.

Potential Roadblocks

A city's general fund faces several potential roadblocks related to revenue stability, escalating expenditures, and governance challenges.

- Revenue Roadblocks
    - Limited Tax Authority: State laws often restrict the types of taxes a city can impose or the rates it can charge (e.g., limits on property or sales taxes), limiting local "fiscal space".
    - Economic Downturns: Recessions can lead to significant and sudden drops in tax revenues, such as sales and property taxes, making it difficult to cover essential services and potentially tripling projected budget gaps.

- Revenue Volatility: Over-reliance on specific revenue streams (like hotel taxes or building permits) that are vulnerable to market fluctuations can create budget instability.
- Inadequate Grant Funding: While grants are a potential source of funding, they are often restricted to specific projects, time-sensitive, and do not cover general operating costs. Securing them can also be a challenge due to lack of staff expertise or complex compliance requirements.

• Expenditure Roadblocks

- Escalating Costs: Uncontrollable expenditure drivers like increased pension obligations, rising healthcare costs, and the need for competitive employee compensation to address staffing shortages can strain the general fund.
- Unfunded Mandates: Cities may struggle to manage the costs associated with mandates from state and federal governments without receiving sufficient accompanying funds.
- Aging Infrastructure: The high cost of maintaining and upgrading aging infrastructure often creates a gap between available funds and actual needs.
- Competing Priorities: The general fund must balance numerous competing demands, such as public safety, infrastructure, social services, and education, making it difficult to allocate sufficient resources to all areas.

• Governance and Management Roadblocks

- Political Factors: Frequent changes in leadership, a lack of political support for long-term solutions, and differing priorities among local stakeholders can hamper consistent fiscal planning.
- Lack of Long-Term Planning: A failure to conduct regular analysis and monitoring of fund balances and economic trends can lead to insufficient reserves to handle emergencies or unforeseen economic shifts.
- Administrative Inefficiency: Bureaucratic delays, a lack of transparency, and insufficient administrative capacity for financial planning and project management can hinder effective use of funds.

- Public Perception and Opposition: Community opposition or a lack of public support for necessary measures, such as tax increases or service cuts, can present a significant political and practical roadblock.

1.3 INTERNAL FUNDING MECHANISMS: TAXES AND FEES

1.3.1 Sales Tax Reallocation Election (HB 157)

Texas law allows cities to hold an election to reallocate sales tax revenue. Cities may hold elections to adopt sales taxes (general revenue or dedicated) in any increment of one eighth of one percent, so long as the total city sales tax does not exceed the maximum two-percent local sales tax cap. In other words, cities now have increased flexibility to reallocate city sales taxes in a way that makes sense to the city and its residents. The election can be initiated at the discretion of the city council or by a petition signed by 20 percent of the number of voters who cast ballots in the most recent regular municipal elections.

Purpose

To give cities more financial flexibility by allowing them to hold elections to reallocate existing local sales tax revenue (up to the 2% state cap) for different needs, such as streets or economic development, without increasing the overall local tax rate. Essentially, it lets cities shift funds between dedicated local sales taxes (like for street maintenance or community development) after voter approval, enabling better alignment with current funding priorities.

Constraints

- Overall Local Sales Tax Cap: The combined rate of all local sales and use taxes imposed by a municipality and other local political subdivisions cannot exceed 2% at any single location within the city limits. The maximum combined state and local sales tax rate in Texas is 8.25%.
- Tax Rate Increments: Any increase or decrease in dedicated sales taxes must be in increments of one-eighth of one percent (0.125%).
- Voter Approval: The reallocation and changes to the dedicated sales tax rates must be approved by voters in a local election.
- Dedicated Purpose Requirement: Reallocated funds must still be used for specific, dedicated purposes, such as economic development corporations, street maintenance, or crime control and prevention districts; they are not for general revenue use.

- Notice to Sellers: Any change in the local sales tax rate or boundary is effective on the first day of a calendar quarter, provided that a minimum of 120 days' notice is given to sellers to allow them time to update their systems.
- Existing Agreements: Municipalities must navigate existing agreements and statutory rules regarding sales tax sourcing, which can be complex, especially concerning online and interstate sales, and are subject to ongoing legal interpretation and potential legislative changes.

Benefits

- Greater Financial Flexibility: HB 157 allows city councils to review and, with voter approval, reclaim sales tax revenue previously dedicated to specific entities (like Economic Development Corporations (EDCs), Crime Control and Prevention Districts, or street maintenance) and move it to the city's general fund.
- Broader Economic Development Tools: Once in the general fund, the city council can use the revenue for a wider range of economic development initiatives through Chapter 380 agreements, which are much broader incentive tools than those available to EDCs. Funds can be used for grants, loans, and other programs that promote general economic development and commercial activity.
- Funding for Diverse Municipal Needs: Cities can reallocate funds to address pressing general needs, such as street maintenance and repair, capital improvements, upgrades and maintenance of existing facilities and equipment, and property tax relief.
- No Increase in Total Tax Rate: The reallocation occurs within the existing total sales tax rate (the combined state and local rate, typically capped at 8.25% in total), meaning consumers do not pay more in sales tax. The change simply shifts how the local portion of the tax is distributed.
- Local Voter Approval: The process requires a majority vote of qualified local voters in a specific election held for that purpose, ensuring the community has a direct say in how its local sales tax revenue is utilized.

Potential Applications

- Enhanced Economic Development: Cities can shift funds to Economic Development Corporations (EDCs) for business growth, job creation, or downtown revitalization.

- Property Tax Relief: Reallocate existing sales tax to reduce reliance on property taxes for residents.
- Targeted Infrastructure Funding: Fund specific needs like street maintenance, parks, or public safety (crime control) through dedicated sales taxes.
- Flexibility & Responsiveness: Gives local governments power to respond to changing community priorities through voter-approved changes.
- Incremental Changes: Allows for adjustments in 1/8th of a percent increments, offering fine-tuned control.

Potential Roadblocks

- Voter Rejection: The most direct roadblock is that voters may simply reject the proposed changes during the election. Citizens have previously expressed frustration over a lack of involvement in tax decisions and may oppose measures that do not clearly provide relief or that they view as increasing their tax burden in other forms.
- Low Voter Turnout: The outcome of a sales tax reallocation election can be heavily influenced by voter turnout. Elections held during a general election typically have much higher turnout than those held in May, potentially leading to different outcomes depending on when the measure is placed on the ballot.
- Revenue Volatility: For local governments considering reallocating from a stable property tax to a more fluctuating sales tax, there is a risk that sales tax revenues might not meet projections, especially during economic downturns. This could diminish funds available for essential county or city services.
- Legislative and Political Deadlock: The process has faced political disagreements at the state level, with the House and Senate deadlocked over various versions of property and sales tax bills. This indicates ongoing political friction that could complicate implementation or future adjustments to the law.
- Disputes Over Local Control: Some local officials believe that the authority to initiate tax elections should rest with elected officials (e.g., commissioners courts) who can analyze the financial data, rather than allowing citizens to petition for such elections. Mandating elections or imposing strict revenue caps can be seen as an infringement on local decision-making power.

- Legal Challenges: Changes to tax sourcing rules and related legislation have been subject to legal battles in the past, particularly regarding online sales tax collection. New interpretations or applications of HB 157 could potentially face similar court challenges.

1.3.2 Stormwater Utility Fee

The City of Duncanville currently has a stormwater utility fee. The state of Texas provides municipalities with the opportunity to establish a stormwater utility, which is a legal mechanism used to generate revenue to finance the city's cost to provide and manage stormwater services in the city. The Texas Municipal Drainage Utility Systems Act [Local Government Code 552 Subchapter C] authorizes cities in Texas to establish a municipal stormwater utility system to "protect the public health and safety in municipalities from loss of life and property caused by surface water overflows, surface water stagnation, and pollution arising from non-point source runoff within the boundaries of the established service area…" [LGC 552.042(3)]. To provide these services, municipalities are authorized to assess fees to users of the stormwater utility system.

The stormwater utility fee is a service fee and must be based on the projected cost of providing stormwater service within the city's jurisdiction. Some stormwater-related costs that are allowed by state law [LGC 552.044(2)] to be included in the development of the projected revenue needs for stormwater service include the following:

- Property acquisition
- Service fees (architectural, engineering, legal, surveys, etc.)
- Capital (equipment, machinery, furniture, facilities, etc.)
- Funding and finance costs for construction projects
- Debt service
- Administration

When developing the fee rate for users, classification of affected properties must be nondiscriminatory, equitable, and reasonable. Specific requirements and allowances to exempt certain property owners and property types, respectively, are established in the law. The statute [LGC 552.053(c)] and recent amendments [LGC 580.003] specifically restrict the city from assessing the stormwater utility fee on certain types of property:

- Property with proper construction and maintenance of a wholly sufficient and

privately-owned drainage system [LGC 552.053(c)(1)]

• Property held and maintained in its natural state, until such time that the property is developed and all the public infrastructure constructed has been accepted by the municipality in which the property is located for maintenance [LGC 552.053(c)(2)]

• A subdivided lot, until a structure has been built on the lot and a certificate of occupancy has been issued by the municipality in which the property is located [LGC 552.053(c)(3)]

• A State agency or public institution of higher education [LGC 580.003]

The city is also provided the opportunity to exempt certain properties from the stormwater utility fee without regard to the properties' impacts to the storm system. The following property is allowed by law [LGC 552.053(a), (b), and (d)] to be exempted from the stormwater utility fee:

- County property
- City property
- School district property
- Property owned by a tax-exempt religious institution
- Closed cemetery

Purpose

To generate revenue to finance the city's cost to provide and manage stormwater services in the city.

Constraints

A stormwater fee must be based on the projected cost of providing stormwater service within the city's jurisdiction and certain properties are or may be exempted from the fee.

Benefits

Provides a source of revenue for a service that otherwise generates none as compared with a water or wastewater utility.

Potential Applications

- Property acquisition
- Service fees (architectural, engineering, legal, surveys, etc.)
- Capital (equipment, machinery, furniture, facilities, etc.)
- Funding and finance costs for construction projects

- Debt service
- Administration

Potential Roadblocks

- Creation of a stormwater utility and associated fee require a majority vote of a City Council after public notice and hold a public hearing.
- Public opposition
- With respect to fees, whether flat or variable, perception of fairness
- Administrative burdens
- Data availability and complexity
- Enforcement issues
- Conflicting regulations
- Certain properties are exempt from paying stormwater utility fees

1.3.3 4B Sales Tax Fund

Purpose

The use of the sales tax for economic development purposes has been one of the most popular and effective tools used by cities to promote economic development. According to the most recent publicly available data, more than 718 cities have levied an economic development sales tax in 2023. These cities have cumulatively raised more than $1.6 billion in additional sales tax revenue dedicated to the promotion of local economic development. Of these cities, 197 have adopted a Type A economic development sales tax, and 521 cities have adopted a Type B economic development sales tax.

Constraints

There are several important differences between Type A and Type B sales taxes for economic development. Type A and Type B taxes can be distinguished on the following grounds: 1) the authorized use of the tax proceeds; 2) the oversight procedure regarding project expenditures; and 3) the means for adopting and altering the tax by election. The Type B tax also can be used to fund the provision of land, buildings, equipment, facilities, expenditures, targeted infrastructure and improvements that are for the creation or retention of primary jobs for projects such as manufacturing and industrial facilities, research and development facilities, military facilities, including closed or realigned military bases, transportation facilities, sewage or solid waste disposal facilities, recycling facilities, air or water pollution control facilities, distribution centers, small warehouse facilities, primary job training facilities for use by

institutions of higher education, regional or national corporate headquarters facilities, eligible job training classes, certain career centers and certain infrastructural improvements that promote or develop new or expanded business enterprises. However, unlike the Type A tax, the Type B tax can additionally fund projects that are typically considered to be community development initiatives. For example, authorized categories under Type B include, among other items, land, buildings, equipment, facilities, expenditures, and improvements for professional and amateur sports facilities, park facilities and events, entertainment and tourist facilities, and affordable housing. Also, the Type B tax may be expended for the development of water supply facilities or water conservation programs. If the city is eligible to adopt a Type B tax, it may propose a tax rate equal to one-eighth, one-fourth, three-eighths or one-half of one percent. The city may not adopt a sales tax rate that would result in a combined rate of all local sales taxes that would exceed two percent. As Duncanville is currently at the maximum sales tax rate, the use of 4B Sales Tax would not result in additional revenue, rather it would be a reallocation of current revenues.

Benefits

Every Texas city is eligible to adopt a Type B sales tax if the combined local sales tax rate does not exceed two percent.

Potential Applications

Type B corporations may provide land, buildings, equipment, facilities and improvements found by the board of directors to promote or develop new or expanded business enterprises that create or retain primary jobs, including a project to provide:

- Transportation facilities (including but not limited to airports, hangars, airport maintenance and repair facilities, air cargo facilities, related infrastructure located on or adjacent to an airport facility, ports, mass commuting facilities and parking facilities)
- Sewage or solid waste disposal facilities
- Air or water pollution control facilities
- Facilities for furnishing water to the public
- Public safety facilities
- Streets and roads
- Drainage and related improvements
- Demolition of existing structures
- General municipally owned improvements

- Any improvements or facilities that are related to any of those projects and any other projects that the board in its discretion determines promoted or develops new or expanded business enterprises that create or retain primary jobs.

Potential Roadblocks

Any drainage improvements would have to be approved by the Type B corporation board.

1.4 INTERNAL FUNDING MECHANISMS: CITY-ISSUED DEBT

1.4.1 General Obligation Bonds (GO Bonds)

Purpose

A general obligation bond (GO bond) is a common type of municipal bond that is secured by the local government's general operating revenues and taxing power. As a bond used to finance public projects, the issuer (i.e., the local government) owes the bond holders a debt and is obliged to pay them interest and/or to repay the principal at the maturity date. Most GO bond pledges at the local government level include a pledge to levy a property tax to meet debt service requirements. The City can issue GO bonds to finance CIPs, as they are considered long-term municipal financial solutions.

Constraints

Two conditions must be met before a city can issue GO bonds:

1. There must be a specific provision in the city charter that allows the issuance of bonds for the specified purpose of stormwater drainage improvements, and
2. The voters must approve the bond issuance at an election held on the issue.

Before a local government can receive a GO bond, the capital market evaluates the creditworthiness of the government but does not specifically evaluate the technical and marketing risk of any project.

Benefits

Because the credit of a municipality stands behind GO bonds, they typically have high bond ratings. In other words, they have a high assessment of the likelihood the debt will be repaid, resulting in high-quality bonds that offer good protection for principal and interest payments. The reason for this high rating is the municipality's power of taxation: a city or town always has the option of raising tax rates or levying new taxes to meet its obligation to bondholders. Thus, it is rare for a municipality to default on its GO bonds. GO bonds are also paired with low interest rates because the investor risk is minimal resulting from guarantees by the city's tax-collecting capacity.

1.4.2 Certificates of Obligation (COs)

COs were initially authorized by Texas' Certificate of Obligation Act of 1971. Cities, counties and health or hospital districts can use them to fund the construction, demolition, or restoration of structures; purchase materials, supplies, equipment, machinery, buildings, land and rights-of-way; and pay for related professional services. COs are issued for terms of up to 50 years (increased from 40 years per Tex. Gov't Code §1373 (2025) and usually are supported by property taxes or other local revenues. COs often are associated with emergency spending, but their use isn't restricted to such purposes. They can be used to fund public works as part of standard local government operations.

Commissioner's courts, city councils and health or hospital district boards opting to issue COs must post a description of the projects to be financed in local newspapers at least twice, first more than 30 days before the governing body's vote on the CO issuance and again a week after the initial posting. These postings must describe the general purpose and amount of the debt to be issued, name the method of repayment, and list the time and place of the governing body's vote. COs do not require voter approval unless 5 percent of qualified voters within the jurisdiction petition for an election on the spending in question. COs provide local governments with important flexibility when they need to finance projects quickly, as with reconstruction after a disaster or as a response to a court decision requiring capital spending. But the way COs circumvent voter approval has made them controversial in the past, leading to 2015 legislation restricting their use.

Purpose

Allow cities, counties, and hospital districts finance capital projects like infrastructure (roads, water systems), buildings, and equipment without a voter election, offering quick funding for urgent needs (disaster recovery, court orders) or standard improvements, secured by taxes or revenues, but they've become controversial for bypassing voter approval for some projects, leading to increased transparency rules.

Constraints

Upon petition of 5 percent of the qualified voters, an election must be held.

Benefits

Do not need an election unless 5 percent of the qualified voters for same. Allow local governments to start important projects immediately and spread costs over time, sharing the burden with future residents.

Potential Applications

Fund construction, renovation, or acquisition of public works, facilities, land, equipment, and professional services (engineers, lawyers). Examples of use include improving streets, water, and sewer systems, building public safety facilities or justice centers, and acquiring necessary equipment, vehicles, or land.

Potential Roadblocks

COs have become controversial for bypassing voter approval for some projects, leading to increased transparency rules.

1.5 INTERNAL FUNDING MECHANISMS: ESTABLISHMENT OF SPECIAL DISTRICTS

A special district is a political subdivision established to provide a single public service (such as water supply or sanitation) within a specific geographic area.

1.5.1 Public Improvement District (PID)

A PID is a special assessment area created at the request of the property owners in the district. These owners pay a supplemental assessment with their taxes, which the PID uses for services above and beyond existing City services. A PID may be formed to perform any of the following improvements:

- Water, wastewater, health and sanitation, or drainage improvements
- Street and sidewalk improvements
- Mass transit improvements
- Parking improvements
- Library improvements

1.5.2 Water Control and Improvement District (WCID)

A WCID is a political subdivision of the state of Texas, and is empowered to purchase, construct, operate, and maintain everything necessary to provide water, wastewater, and drainage services. Through "general law," a district may be created by the TCEQ or the county commissioner's court. WCIDs have

broad authority to supply and store water for domestic, commercial, and industrial use; to operate sanitary wastewater systems; and to provide irrigation, drainage, and water quality services.

1.5.3 Municipal Utility District (MUD)

A MUD is a special-purpose district that provides public utilities (such as electricity, natural gas, sewage treatment, waste collection/management, wholesale telecommunications, water) to district residents. MUDs engage in the supply of water, conservation, irrigation, drainage, firefighting, solid waste (garbage) collection and disposal (including recycling activities), wastewater (sewage) treatment, and recreational facilities. A MUD can require its customers to use its solid waste services as a condition for receiving other MUD services. A MUD may provide solid waste and recycling services through a private company. While they can develop, maintain, or acquire parks or recreational facilities, MUDs are prohibited from issuing bonds to pay for these facilities. They can, however, set and charge user fees.

1.5.4 Drainage District (DD)

Most DDs (or drainage improvement districts, DID) are administered by an internal drainage board (IDB), which are single purpose local drainage authorities, dealing with the drainage and water level management of clean water only. Each DD has a defined area, and the IDB only has powers to deal with matters affecting that area. An example of an established DD in Texas is the City of Garland. They established a DD to assist residential and commercial property owners who are experiencing property damage due to erosion from creeks or other bodies of water within the City.

1.5.5 Local Improvement District (LID)

An LID is a method by which a group of property owners can share in the cost of transportation infrastructure improvements or other types of public improvements such as installing water and sanitary sewer lines. Most LIDs involve improving a street, building sidewalks, and installing a stormwater management system. An LID can also be used to install sidewalks on existing streets that previously have been accepted for maintenance by the City. When property owners decide they want to form a LID, they assume responsibility to pay for the project if the project is approved by City Council. The City works with property owners to determine the scope of the project and develops an assessment methodology. A variety of methods are used, including square footage, linear footage or equivalent dwelling unit. Sometimes a combination of these methods is used, but square footage is most commonly used for projects in residential areas.

1.5.6 Flood Control District (FCD)

The role of the FCD is to reduce flood risk and conserve stormwater runoff while improving water quality, providing recreation opportunities, and enhancing open space where feasible. For example, the Harris County FCD roles include widening and deepening bayous to carry more stormwater and reduce the size of floodplains, excavating stormwater detention basins to safely store millions of gallons of stormwater, implementing voluntary home buyouts, and maintaining drainage infrastructure by addressing erosion, slope failure, and sediment build-up. FCDs are generally capital improvement programs that address flooding from a regional perspective.

1.5.7 Tax Increment Reinvestment Zone (TIRZ)

A TIRZ is a political subdivision of a municipality or county in Texas created to implement tax increment financing. They may be initiated by the city or county or by petition of owners whose total holdings in the zone consist of a majority of the appraised property value. To get funding for a TIRZ area, applicants should follow three steps.

- Property owners possessing 50% or more of the appraised value of a district submit a petition to the county, city, or town requesting a TIRZ be set up, or the local government may decide to create one. A specific lifetime for the TIRZ is determined. A TIRZ may only be city-initiated if less than 10% of its land area consists of residential area.
- For the purposes of existing tax-collecting entities (water districts, counties, etc.) the assessed values of properties within the new TIRZ are frozen. It is assumed that property values will increase over the lifetime of the TIRZ; the property taxes collected on this increase constitute the "increment".
- The municipality or county passes an ordinance establishing a governing board for the TIRZ and the zone as a legal entity itself. The board then meets to create a budget for the lifetime of the zone, establishing what projects it will undertake and how they will be financed. This plan is passed as another ordinance.

1.5.8 Municipal Development District (MDD)

An MDD is created to generate economic development and growth opportunities within the boundaries of the district. To create an MDD, a city must call an election through an order that defines the proposed boundaries of the district. The ballot at this election must be printed to allow voting for or against the

proposition. In the order calling the election, the city may provide that the district boundaries will automatically conform to future changes in the city's boundaries. If the voters turn down the creation of the district, a subsequent election to establish a district may not be held within a year of the first election. The MDD is funded through a local sales tax. State law permits a tax rate of one-eighth to one-half of one percent.

1.6 PROJECT FUNDING MATRIX

Based on the researched funding mechanisms and known project scopes, FNI created the funding matrix shown in **Table 1**. The purpose of the funding matrix is to show the relevant funding options for each of the ranked projects identified by FNI. Although many funding options were researched, only the relevant funding options are shown in **Table 1**. Using the associated cost for each CIP, the following two funding scenarios were analyzed:

- Conservative Projection; no external cost sharing
- Grant-Assisted Projection; maximum external cost sharing

For the conservative funding scenario, it is assumed that none of the projects will benefit from cost sharing. Under this scenario the full financial burden of addressing the CIPs falls on the City. The projects would have to be paid for through the General Fund, GO Bonds, a Stormwater Utility Fee, or the 4B sales tax corporation. As a result, the total cost to the City is $41,194,000.

For the grant-assisted funding scenario, it is assumed that the projects will benefit from the highest amount of cost sharing with state and federal agencies. Certain federal and state grant programs place limits on the amount of funds that can be awarded to each applicant. For example, the Flood Mitigation Assistance Grant (FMA) does not award more than $3.3 million to any one community during any five year period. Keeping limits in mind, the federal and state grants were used strategically for each project to reduce the total cost to the City.

Table 1: CIP Funding Matrix

Rank	Score	Project ID	Project	Funding Options							Planning Level Cost
				GO Bonds	Stormwater Utility Fee	4B Sales Tax	Federal/State Grants/Loans[1]				
							FMA[2] (Grant)	CWSRF (Loan)	DFund (Loan)	FIF (Grant)	
1	42.35	FM004	Sunset Village Storm Drain Improvements	Applies	Applies	Applies	75/25	100	100	N/A	$2,100,000
2	41.20	FM002	Greenstone Lane Culvert Improvements	Applies	Applies	Applies	75/25	100	100	N/A	$2,600,000
3	35.40	FM001	Green Hills Rd Culvert Improvements	Applies	Applies	Applies	75/25	100	100	N/A	$2,300,000
4	35.00	FM008	Cedar Hill Bridge Improvements	Applies	Applies	Applies	N/A	100	100	N/A	$2,100,000
5	32.85	FM007	Inland Port: Tenmile Creek Channel Improvements	Applies	Applies	Applies	75/25	100	100	50/50	$6,800,000
6	32.00	FM005	Fairmeadows Storm Drain Improvements	Applies	Applies	Applies	75/25	100	100	N/A	$8,800,000
7	28.85	FM003	Alexander Avenue Culvert Improvements	Applies	Applies	Applies	N/A	100	100	N/A	$1,600,000
8	21.15	FM006	Inland Port: Beaver Creek Drive Culvert Improvements	Applies	Applies	Applies	75/25	100	100	50/50	$9,700,000
1A	65.50	AP001	Area 1 - 20" Sanitary Sewer Crossing on Mauk Branch (Retaining Wall)	Applies	Applies	Applies	N/A	100	100	N/A	$2,670,000
2A	64.13	AP002	Area 2 - 18" Sanitary Sewer Crossing on Mauk Branch (Retaining Wall + Floodplain Bench Grading)	Applies	Applies	Applies	N/A	100	100	N/A	$1,050,000
3A	59.63	AP003	Area 3 - Concrete SW Flume on Tenmile Creek (Streambank Grading + Flume Reconstruction)	Applies	Applies	Applies	N/A	100	100	N/A	$1,474,000
										Total	**$41,194,000**

[1] *Only relevant grants/loans for the listed projects are shown. The listed ratios are percentages of federal/state contribution/local contribution. Principal and interest on loans are repaid in full.*

[2] *Funding limits for project grants are no more than $20,000,000 State-wide during any five-year period, and no more than $3,300,000 to any one community during any five-year period.*

As is seen in **Table 1**, cost sharing with state and federal agencies can be very beneficial for the City and may result in up to approximately 70% savings. However, even under an optimized scenario, the city would still need to cover about $12.2 million in costs for the 11 listed projects. These will likely need to be paid by the 4B sales tax, general fund, and/or a stormwater utility fee. Note loans will be repaid in full.

Regardless of the local funding mechanism used, general obligation bonds would need to be issued for the remaining project cost to the city. **Table 2** shows the resulting bond repayment options required to pay back the project costs, assuming no cost sharing with state and federal agencies is considered.

Table 2: Conservative Scenario Debt Service

Bond Amount	**$5,194,000**	**$9,894,000**	**$14,294,000**	**$22,694,000**	**$41,194,000**
Projects Included (ID)	AP001 AP002 AP003	AP001 AP002 AP003 FM004 FM002	AP001 AP002 AP003 FM004 FM002 FM001 FM008	AP001 AP002 AP003 FM004 FM002 FM001 FM008 FM007 FM003	AP001 AP002 AP003 FM004 FM002 FM001 FM008 FM007 FM003 FM005 FM005
Annual Payment Required[1]	$416,800	$794,000	$1,147,000	$1,820,000	$3,305,000
% Increase needed to fund through SWUF	20%	50%	80%	135%	255%
Flat Rate Residential Required*	$6.00	$7.50	$9.00	$11.75	$17.75
Commercial per ERU Increase Needed*	$6.00/ERU	$7.50/ERU	$9.00/ERU	$11.75/ERU	$17.75/ERU

[1]*Assumed 5 % interest rate and 20-year term by FNI*

**Includes projected coverage for budgeted ongoing O&M Expenses, a more in-depth analysis is recommended to evaluate potential rate increases (numbers shown are for high-level planning purposes)*

1.7 RECOMMENDED FUNDING STRATEGY

The funding analysis presented in this chapter demonstrates that while state and federal funding programs can provide meaningful cost sharing, they should not be relied upon as the primary funding strategy for the City's drainage capital improvement program. Many of the recommended projects are not considered strong candidates for highly competitive grant programs due to eligibility constraints, funding caps, and benefit-cost ratio requirements. As shown in **Table 2**, even under an optimized grant-assisted scenario, the City would still be responsible for approximately $12.2 million in project costs.

Given these limitations, the most reliable and effective funding approach for the City is a combination of local funding sources and low-interest financing. Programs administered by the Texas Water Development Board (TWDB), such as the Clean Water State Revolving Fund (CWSRF) and Development Fund (DFund), provide favorable loan terms and should be considered a primary external funding tool. However, these loans must ultimately be repaid and therefore require a stable and sufficient local revenue source.

Local funding mechanisms, particularly the Stormwater Utility Fee, will play a critical role in implementing the recommended projects. Duncanville's current stormwater utility fee of $5 per Equivalent Residential Unit is relatively low compared to peer communities and limits the City's ability to fund capital improvements at the scale identified in this plan. The funding scenarios presented in **Table 2** indicate that even modest capital programs would require significant increases to the existing fee structure to support debt service and ongoing operations.

The following steps are recommended to address the identified funding gap and position the City for successful implementation of the recommended projects:

- Conduct a feasibility assessment of stormwater utility revenues and expenditures to better understand current funding capacity and future needs.
- Perform a comprehensive stormwater utility fee assessment to evaluate potential rate adjustments and alternative fee structures.
- Implement an updated stormwater utility fee that provides a sustainable funding source for design, construction, and long-term maintenance of drainage infrastructure.

In summary, while external funding should be pursued opportunistically, the City's ability to implement the recommended capital improvements within a reasonable timeframe will depend primarily on strengthening its local funding framework. Establishing a sustainable and adequately funded stormwater utility program will be essential to advancing both near-term and long-term drainage infrastructure investments.

APPENDIX G: STREAM CONDITION ASSESSMENT (SCA)

Innovative approaches
Practical results
Outstanding service





Stream Condition Assessment

FINAL REPORT

Prepared for:

Duncanville
City of Champions

MARCH 23, 2026

Prepared by:

FREESE AND NICHOLS, INC.
801 Cherry Street, Suite 2800
Fort Worth, Texas 76102
817-735-7300

FREESE AND NICHOLS

Innovative approaches
Practical results
Outstanding service

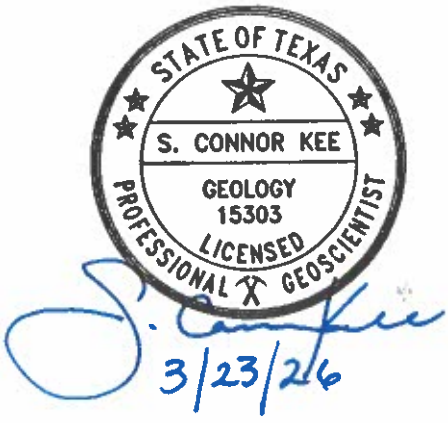
Stream Condition Assessment

FINAL REPORT

Prepared for:

Duncanville
City of Champions





FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

Prepared by:

FREESE AND NICHOLS, INC.
801 Cherry Street, Suite 2800
Fort Worth, Texas 76102
817-735-7300

TABLE OF CONTENTS

EXECUTIVE SUMMARY ES-1

1.0 INTRODUCTION 1

2.0 PROJECT AREA DESCRIPTION 2

2.1 Topography, Geology, and Soils 2
2.2 Project Area Development 3

3.0 GEOMORPHIC ASSESSMENT 4

3.1 Geomorphic Assessment Methods 4
3.1.1 Documentation of Existing Conditions 4
3.1.2 Streambank Erosion Assessment 6
3.1.3 Cross-Sections & Profiles 6
3.2 Geomorphic Assessment Results & Discussion: Mauk Branch 7
3.2.1 Overview of Channel Morphology 8
3.2.2 Observed Infrastructure and Potential Project Areas 10
3.3 Geomorphic Assessment Results & Discussion: Tenmile Creek 12
3.3.1 Overview of Channel Morphology 13
3.3.2 Observed Infrastructure and Potential Project Areas 14

4.0 LIDAR ANALYSIS 16

4.1 LiDAR Analysis Methods 16
4.2 LiDAR Analysis Results & Discussion 16

5.0 SETBACK ANALYSIS 17

5.1 Setback Analysis Methods 17
5.2 Setback Analysis Results & Discussion 18

6.0 PROJECT IDENTIFICATION & SELECTION 19

7.0 CONCEPTUAL ALTERNATIVES 21

7.1 Area 1 – 20-inch Sanitary Sewer Crossing on Mauk Branch 22
7.2 Area 2 – 18-inch Sanitary Sewer Crossing on Mauk Branch 24
7.3 Area 3 – Concrete Stormwater Flume on Tenmile Creek 26
7.4 Permitting Considerations 28

8.0 SUMMARY & RECOMMENDATIONS 29

9.0 REFERENCES 30

LIST OF FIGURES

Figure 2.1 – Geomorphic Setting and Soils of the Project Area 3
Figure 3.1 – Channel Evolution Model Diagram 5
Figure 3.2 – Mauk Branch BEHI Rating Distribution 8
Figure 3.3 – Mauk Branch Representative Conditions 9
Figure 3.4 – Tenmile Creek BEHI Rating Distribution 13
Figure 3.5 – Tenmile Creek Representative Conditions 14
Figure 5.1 – Setback Analysis Methodology 18
Figure 7.1 – Annotated Photographs of Area 1 23
Figure 7.2 – Annotated Photographs of Area 2 25
Figure 7.3 – Annotated Photograph of Area 3 27

LIST OF TABLES

Table 3.1 – Mauk Branch Dimensions and Morphology Parameters 7
Table 3.2 – Mauk Branch Observed Issues and Potential Project Areas 11
Table 3.3 – Tenmile Creek Dimensions and Morphology Parameters 12
Table 3.4 – Tenmile Creek Observed Issues and Potential Project Areas 15
Table 6.1 – Bank Erosivity Scoring 19
Table 6.2 – Current Condition Scoring 19
Table 6.3 – Infrastructure Priority Weights 20
Table 7.1 – Summary of Alternatives 22

EXHIBITS

Exhibit 1	Project Overview
Exhibits 2A – 2C	Geomorphic Assessment Maps – Mauk Branch
Exhibits 3A – 3E	Geomorphic Assessment Maps – Tenmile Creek
Exhibits 4A – 4C	LiDAR Comparison & Setback Analysis – Mauk Branch
Exhibits 5A – 5E	LiDAR Comparison & Setback Analysis – Tenmile Creek
Exhibits 6A – 6B	Conceptual Alternative 1 Layout & Opinion of Probable Construction Cost (OPCC)
Exhibits 7A – 7B	Conceptual Alternative 2 Layout & OPCC
Exhibits 8A – 8B	Conceptual Alternative 3 Layout & OPCC

APPENDICES

Appendix A	Field Photographs
Appendix B	Representative Bank Erosion Hazard Index (BEHI) Forms
Appendix C	Cross Sections & Longitudinal Profile
Appendix D	Summary of Infrastructure and Erosion Issues with Scores and Ranks

EXECUTIVE SUMMARY

The City of Duncanville, TX (City) contracted Freese and Nichols, Inc. (FNI) to perform a pilot stream condition assessment of selected stream reaches across the City. FNI geomorphologists and engineers conducted a geomorphic assessment along City-selected reaches of Mauk Branch and Tenmile Creek, totaling approximately 16,820 collective linear feet (LF), on November 18 and 19, 2025. The overall objectives of this assessment were to document existing geomorphic conditions of Mauk Branch and Tenmile Creek and evaluate the need for projects along these reaches.

The geomorphic assessment included photo documentation, streambank erosion potential mapping using the bank erosion hazard index (BEHI) methodology, and stream cross-section and profile measurements. Additional desktop analyses included a review of existing data to establish current watershed conditions (topography, geology, soils, and project area development) as well as a LiDAR analysis and a setback analysis. In general, both reaches have cut down to bedrock and are in a state of widening via streambank erosion and block/cantilever failure of bedrock bluffs.

FNI observed 41 instances of infrastructure and erosion concerns along the assessment reaches (20 along Mauk Branch and 21 along Tenmile Creek). Of these 41 total items, FNI considers 20 of them to present issues that warrant additional consideration or the potential development of projects. FNI developed a weighted ranking equation to prioritize these 20 potential project areas, where projects with the largest weighted score ranked highest for prioritization. The equation accounts for bank erosivity of nearby streambanks, current conditions of the at-risk infrastructure, and the type of at-risk infrastructure.

FNI collaborated with the City to select three areas (Areas 1 through 3) from the ranked list to develop conceptual alternatives for, including conceptual level cost estimates. Given that several of the ranked areas were confirmed to be either abandoned or owned by the Trinity River Authority (TRA), the three selected areas are of lower rank than the top three.

- Area 1 involves protecting a 20-inch sanitary sewer line threatened by erosion on Mauk Branch via the installation of approximately 140 LF of modular block retaining wall roughly 27 feet high. A conceptual opinion of probable construction costs (OPCC) of $2,670,000 was estimated for Area 1 for bank protection.

- Area 2 involves protecting an 18-inch aerial sanitary sewer line threatened by scour on Mauk Branch via the construction of approximately 125 LF of modular block retaining wall, installation of 115 LF of rock toe protection, and establishing a 10-foot floodplain bench. A conceptual OPCC of $1,050,000 was estimated for Area 2.

- Area 3 involves replacing and protecting an undermined concrete flume and protecting a water line crossing of Tenmile Creek by establishing a point bar with a 20:1 slope, grading a bank at a stable 3:1 slope, and vegetating the area with native plantings and seeding to establish robust riparian vegetation. A conceptual OPCC of $1,474,000 was estimated for Area 3.

In addition to the conceptual alternatives and cost estimates provided for the selected project areas, the City can use the results of this assessment to inform other projects in the future (i.e., consider projects at other ranked areas documented in this report) and as a baseline for existing geomorphic conditions along the study reaches of Mauk Branch and Tenmile Creek. Additional stream condition assessments can be undertaken along other reaches as desired to provide additional insight into existing conditions and project needs across the City.

1.0 INTRODUCTION

The City of Duncanville, TX (City) contracted Freese and Nichols, Inc. (FNI) to perform a pilot stream condition assessment of selected stream reaches across the City. Following discussions with FNI, the City selected two reaches for evaluation: one along Mauk Branch from East Wheatland Road to East Danieldale Road and one along Tenmile Creek from South Main Street to the City limits (**Exhibit 1**).

As part of this effort, a team of FNI geomorphologists and engineers conducted a geomorphic assessment along the selected reaches of Mauk Branch and Tenmile Creek, totaling approximately 16,820 collective linear feet (LF), on November 18 and 19, 2025 (**Exhibit 1**). The overall objectives of this assessment were to document existing geomorphic conditions of Mauk Branch and Tenmile Creek and evaluate the need for projects along these reaches. FNI assessed historic conditions, channel morphology, stability, and erosion and used the results to inform the development of three conceptual alternatives for addressing erosion concerns in City-selected project areas.

This effort included both a desktop and field component. The desktop component included a review of existing data to establish current watershed conditions (topography, geology, soils, and project area development) as well as a LiDAR analysis and a setback analysis. The field component included three tasks: documentation of existing conditions, a streambank erosion assessment, and cross section and profile measurements.

2.0 PROJECT AREA DESCRIPTION

This section describes the existing conditions of the Mauk Branch and Tenmile Creek watersheds, including the geographic setting, topography, geology and soils, and channel morphology. FNI collected this information during a desktop analysis of available data, including topographic maps, aerial photographs, soil survey reports (NRCS, 2025), and geologic maps (Bureau of Economic Geology, 1992). FNI obtained additional information from visual observations, photographs, and measurements collected during the field investigation.

2.1 TOPOGRAPHY, GEOLOGY, AND SOILS

The Mauk Branch and Tenmile Creek watersheds are sub-watersheds of the West Fork Trinity River in the Trinity River Basin. The drainage area of Mauk Branch from its headwaters to the confluence with Tenmile Creek is approximately 2.7 square miles, and the drainage area of Tenmile Creek from its headwaters to the confluence with Bee Branch just downstream of the City limits is roughly 12.8 square miles. The project site is in the Northern Blackland Prairie ecoregion of the Great Plains physiographic province. The soils throughout both reaches are dominated by the Frio silty clay, a well-drained, dark grayish brown clay soil with moderately slow permeability (Hydrologic Soil Group C). It is associated with floodplains and is moderately blocky, hard, and susceptible to cracking when dry but very plastic when wet. Other soil units in the area include the Austin-Lewisville complex, which has similar properties to the Frio clay but is associated with the surrounding uplands. The geologic unit that underlies these soils is the Austin Chalk, which is a grayish-white to white ledge-forming chalk alternating with medium gray marl. These soil and geologic units are typically susceptible to slaking (an erosional process driven by successive wet-dry cycles). Therefore, even the presence of compact soils or bedrock might not preclude the possibility of future erosion or streambed/bank adjustment. A diagram illustrating the geomorphic setting of the study area is shown in **Figure 2.1**.

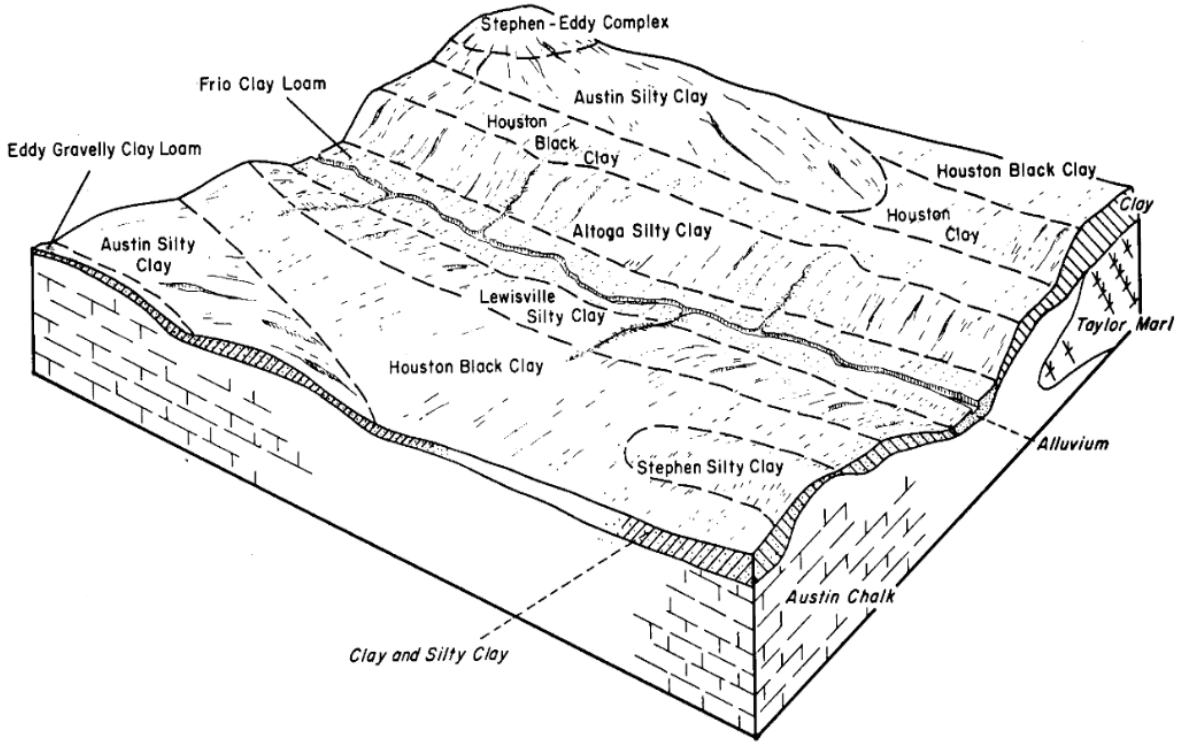


Figure 2.1 – Geomorphic Setting and Soils of the Project Area
Adapted from the Soil Conservation Service (now the Natural Resource Conservation Service) (1969).

2.2 PROJECT AREA DEVELOPMENT

The land surrounding the two assessment reaches of Mauk Branch and Tenmile Creek was primarily undeveloped or used as rangeland until residential development began in the 1960s. Construction and expansion of S. G. Alexander Freeway (TX-67) began in the early 1970s, and commercial developments around the new highway increased throughout the 1980s and 1990s. Overall, development (both residential and commercial) continued until it reached its present state in the early 2010s, leaving only a few parks and forested buffers along the creeks. Waterview Park and Harrington Park were constructed along the assessment reach of Tenmile Creek by 1989, with the latter replacing a water treatment facility that had existed since 1968.

3.0 GEOMORPHIC ASSESSMENT

3.1 GEOMORPHIC ASSESSMENT METHODS

The geomorphic assessment covered approximately 6,980 LF of Mauk Branch from East Wheatland Road to East Danieldale Road and 9,840 LF of Tenmile Creek from South Main Street to the City limits. All observations describe the left and right bank while looking in the downstream direction. This report refers to stream stationing that proceeds from upstream to downstream at 100-foot intervals. **Exhibits 2A through 2C** and **Exhibits 3A through 3E** show photograph locations, areas with existing infrastructure, and streambank erosion potential ratings along the assessment reaches of Mauk Branch and Tenmile Creek, respectively. These maps serve as a tool for quickly identifying problem area locations, general erosion potential, and overall geomorphic conditions along the study reach.

3.1.1 Documentation of Existing Conditions

Field teams photographed all locations with a GPS-enabled digital camera. Representative photographs and selected photographs of areas of interest are shown in **Appendix A**. Field notes taken during the site visit document stream conditions at the time of the assessment and identify definitive characteristics of stream erosion, lateral and/or vertical stability, and potential threats to City property and infrastructure. FNI noted bank stability, degree of erosion, and geomorphic processes using the methodologies developed by Thorne (1998), Montgomery and Buffington (1998), Henshaw and Booth (2000), and Rosgen (2006). Field teams recorded a combination of quantitative and qualitative data, including approximate width and depth of channel, valley width, streambed characteristics (general substrate composition, bedrock outcrops, etc.) and notable changes in geomorphic characteristics (valley widening or narrowing, channelization, etc.).

Field observations were framed in the context of the Channel Evolution Model (CEM), a conceptual model that describes how streams change through time (**Figure 3.1**). Generally, the model states that streams downcut or incise (i.e., erode vertically into the streambed) in response to disturbances within the watershed (e.g., changes in hydrology due to development), then widen (i.e., erode laterally into streambanks), and then finally reach a new dynamic equilibrium where they are stable until a new disturbance restarts the cycle.

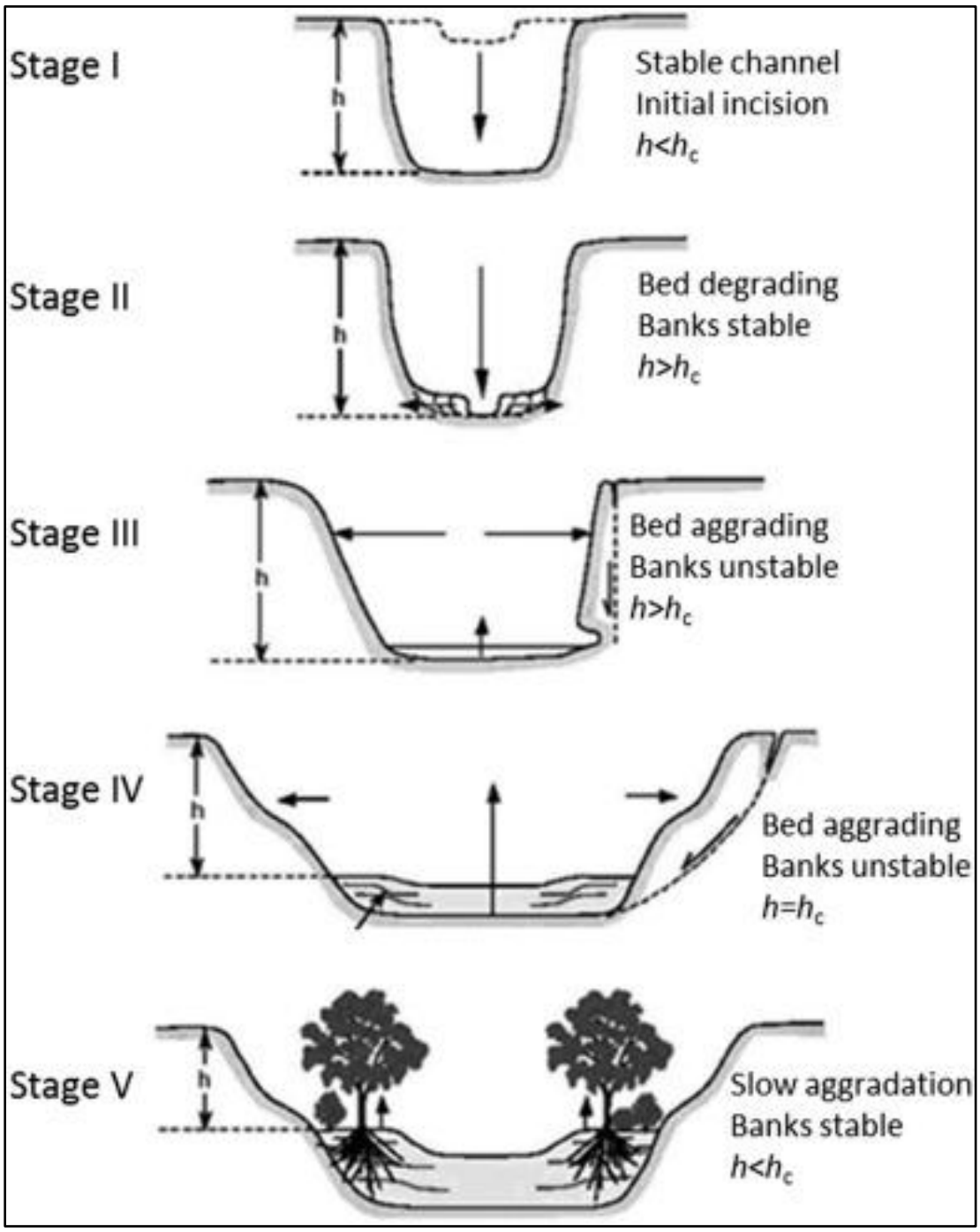


Figure 3.1 – Channel Evolution Model Diagram
Adapted from Schumm et al. (1984).

3.1.2 Streambank Erosion Assessment

FNI assessed lateral streambank stability and bank erosion potential using the bank erosion hazard index (BEHI) methodology developed by Rosgen (2006) (**Appendix B**). This rapid field assessment evaluates bank height ratio, rooting depth, rooting density, surface protection, bank angle, and bank material type and assigns an erosion potential rating ranging from "Very Low" to "Extreme".

At the beginning of the field investigation, field teams evaluated the BEHI ratings along a "calibration reach" using BEHI rating forms, proceeding downstream, and recording changes in BEHI rating along both the left and right banks. After completing the calibration reach, field teams then assessed the BEHI ratings of the remaining length of channel without using forms but based on the similarity of the observed banks to the calibration reach. The field teams assessed new calibration reaches periodically to "re-calibrate" the eye and at marked changes in geomorphology. The field assessment emphasized assessing erosion in the proximity of existing protection and infrastructure to identify if remedial action is required. The final product is a GIS shapefile of bank lines that are color coded to the applicable BEHI ratings along each bank. This data is used to identify erosion areas and locations where projects are needed to protect City property and infrastructure. The City can also use the data in the future to assess maintenance needs and evaluate changes in channel geometry, bank slopes, substrate, vegetation, and flow conditions.

Note that the BEHI methodology does not apply to all streambanks; common examples include armored streambanks (those fully armored with riprap, concrete, cut stone, bag walls, articulated concrete blocks, etc.) and point bars (natural depositional features on the insides of meander bends where erosion does not occur). Rather than leave blank spaces in the BEHI dataset where these exceptions occur, FNI added two additional mapping categories to the dataset to document them: "Armored" and "Point Bar."

3.1.3 Cross-Sections & Profiles

FNI measured five cross sections (two along Mauk Branch and three along Tenmile Creek) and two longitudinal profiles (one along each assessment reach) to characterize existing channel conditions (**Appendix C**). Field teams collected additional data at each cross section to evaluate potential changes in cross-sectional form through time. This data included observations of channel condition, bed and bank material, bank vegetation, and channel substrate, as well as measurements of water surface and thalweg elevations.

3.2 GEOMORPHIC ASSESSMENT RESULTS & DISCUSSION: MAUK BRANCH

This section describes field observations made along Mauk Branch during the geomorphic assessment. It also includes discussion of observed erosion issues and existing conditions. A summary of average geomorphic parameters measured along the assessment reach of Mauk Branch is provided in **Table 3.1**. Analysis of the erosion ratings estimated in the field shows that a BEHI rating of "Moderate" was the most common bank condition along Mauk Branch (**Figure 3.2**). Additionally, "High" and "Very High" ratings account for over 31% of mapped streambank conditions, suggesting that a large portion of Mauk Branch is laterally unstable. Erosion potential mapping resulting from the BEHI analysis is shown in **Exhibits 2A through 2C**.

Table 3.1 – Mauk Branch Dimensions and Morphology Parameters
These data were estimated in the field, as well as from measured cross sections, photographs, aerial imagery, and LiDAR (1-meter, 2019).

Parameter	Cross Section 1	Cross Section 2
Bankfull Width (ft)	20.9	18.8
Bankfull Mean Depth (ft)	1.9	1.0
Bankfull Max Depth (ft)	2.5	1.7
Bankfull Area (ft^2)	38.8	18.2
Left Bank Slope (°)	25.6	39.6
Right Bank Slope (°)	33.9	79.4
Entrenchment Ratio (ft/ft)	1.5	1.8
Width/Depth Ratio (ft/ft)	11.2	19.4
Bank Height Ratio (ft/ft)	3.0	7.1
Channel Bed Slope (ft/ft)	0.0068	
Channel Length (LF)	6,691	
Valley Length (ft)	5,650	
Sinuosity	1.18	
Dominant Bed Substrate	Bedrock	

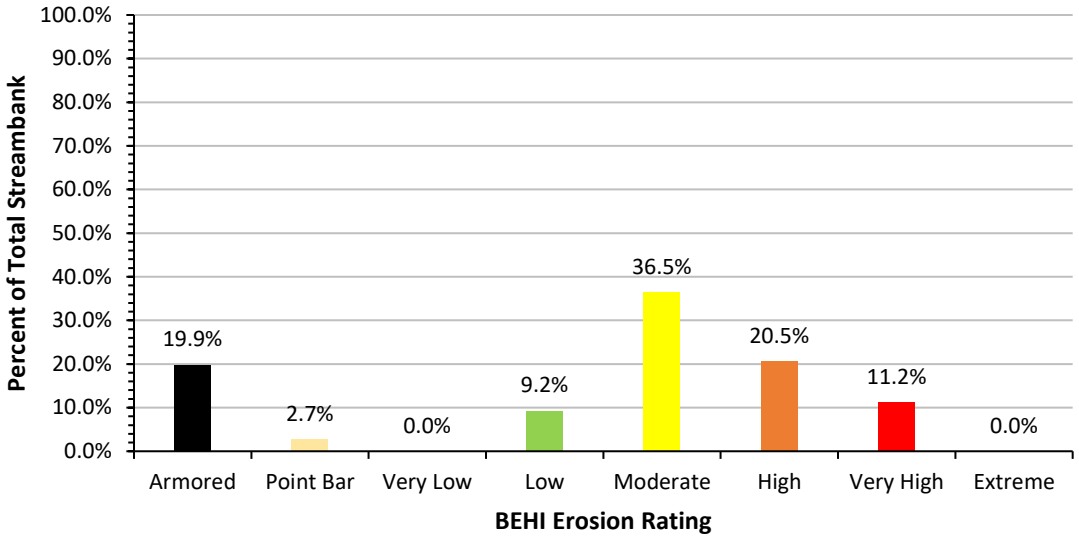


Figure 3.2 – Mauk Branch BEHI Rating Distribution
"Moderate" was the most prevalent rating along the study reach.

3.2.1 Overview of Channel Morphology

The study reach is characterized by an incised and moderately entrenched channel with banks varying in height between 5 and 15 feet. Side slopes are generally mild (roughly 30 degrees), except along banks exhibiting "Very High" erosion potential. Most of the reach is influenced by exposed Austin Chalk bedrock in the bed (and along the banks from station 58+00 onward) (**Figure 3.3**); this bedrock appears to be more resistant to slaking than the marl found elsewhere in the metroplex (e.g., in areas that are frequently wet, it does not crumble to the touch) but is still susceptible to block and cantilever failure. A forested buffer is present along most of the reach.

Field observations of fallen trees and streambank erosion on the outsides of meander bends, coupled with existing channel dimensions suggest that the reach is in a state of widening (Stage III of the CEM). This is further supported by the presence of bedrock along the streambed, which suggests that historic downcutting has already occurred. Downstream of station 58+00, the extensive presence and influence of the bedrock along both the bed and banks acts to slow the channel evolution process. Rapid reach-scale changes (both vertically and laterally) are therefore unlikely; instead, future change will likely be isolated to areas where block or cantilever failure of the bedrock occurs and/or along outside meander bends with "High" or "Very High" BEHI ratings.

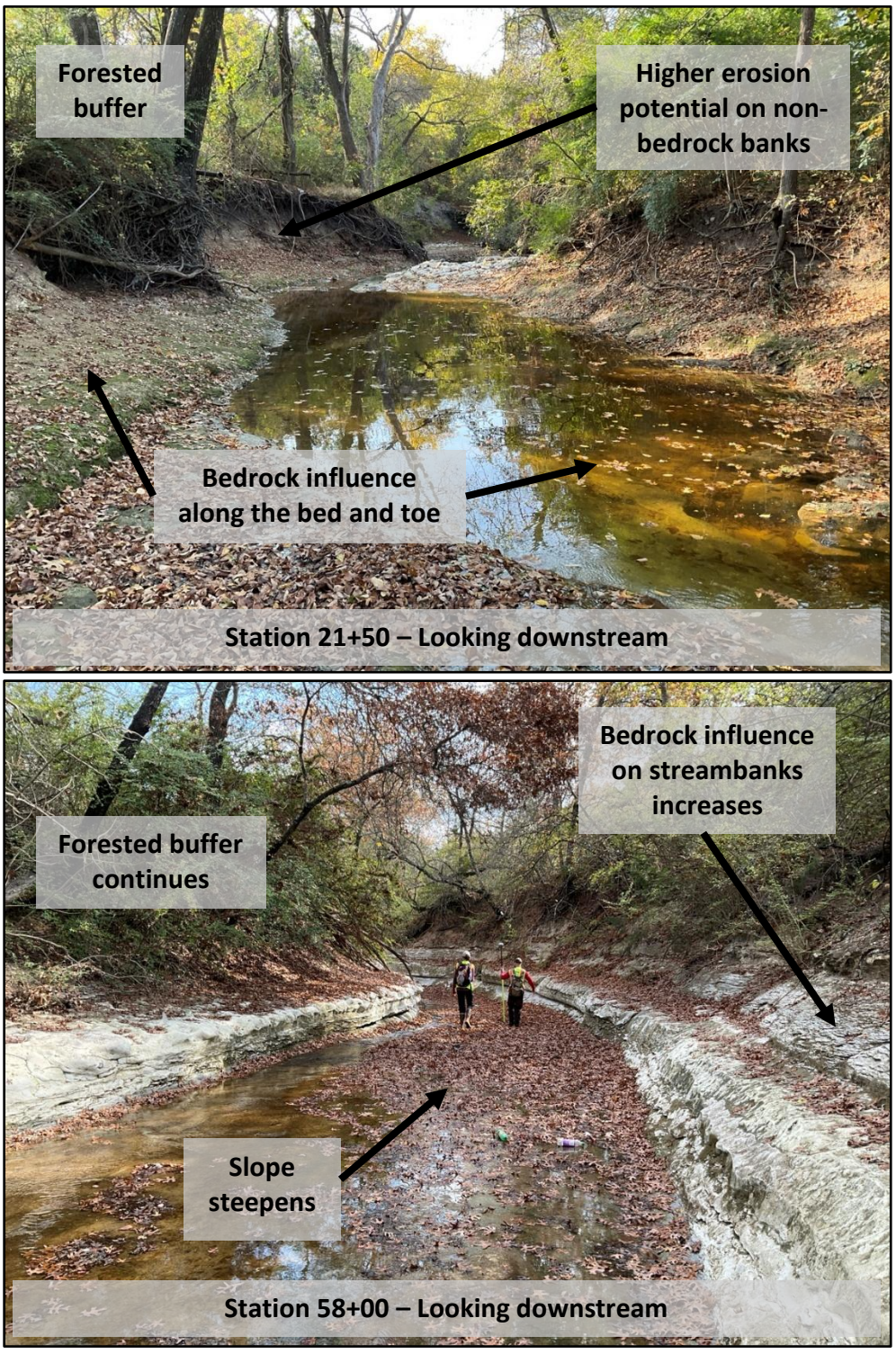


Figure 3.3 – Mauk Branch Representative Conditions

In the upper portions of the reach, bedrock influence was mostly limited to the bed (top); bedrock influence in the banks increased downstream of station 58+00 (bottom).

3.2.2 Observed Infrastructure and Potential Project Areas

FNI documented 20 instances of infrastructure and erosion concerns along the assessment reach of Mauk Branch, including:

- 8 stormwater outfalls experiencing varying degrees of scour and undermining
- 2 box culverts with sedimentation issues (at East Wheatland Road and East Danieldale Road)
- 2 retaining walls in fair to good condition
- 1 modular block wall in poor condition
- 6 sanitary sewer crossings in various conditions
- 1 drainage feature/steep bank near station 26+50

Of the 20 total items, FNI considers 10 of them to present issues that warrant additional consideration or the potential development of projects, as summarized in **Table 3.2**. The most prominent issues that warrant attention involve the aerial sanitary sewer crossings, particularly those near stations 31+00 and 51+50. A complete list of infrastructure observed along Mauk Branch is presented in **Appendix D**.

Table 3.2 – Mauk Branch Observed Issues and Potential Project Areas

Infrastructure	Station	Appendix A Photos	Observed Issues	Recommended Action
8-inch Sanitary Sewer Crossing	4+50	6	Erosion on right bank and scour around piers	Repair/replace; stabilize bank
18-inch Sanitary Sewer Crossing	9+00	11	Significant debris accumulation; scour around piers	Maintenance
30-inch Stormwater Outfall	12+00	14	Flowline is ~28 inches above bed elevation; tree root and bedrock holding grade under flume	Repair/replace
Steep drainage feature	26+50	23-24	"High" erosion potential bank; ~30 feet tall; geotechnical stability of concern	Monitor
20-inch Sanitary Sewer Crossing	31+00	28	Left bank eroded around pipe with no visible protection.	Repair and stabilize bank (**Alternative 1**)
Modular block wall	34+00	30	Grouted rock at the toe of the wall is undermined by at least 2 feet; the wall likely protects a continuation of the 20-inch sanitary sewer	Monitor
18-inch Sanitary Sewer Crossing	51+50	42	Right bank eroded around pipe	Repair and stabilize bank (**Alternative 2**)
24-inch Stormwater Outfall	57+00	45	Flume is undermined and flowline is ~10 feet above the stream bed	Repair/replace
60-inch Stormwater Outfall	59+50	47	Flume is partially undermined and flowline is ~10 feet above the stream bed	Repair/replace
East Danieldale Road Culvert	66+25	51-52; 54	Left cell is partially blocked with sediment deposition and vegetation	Maintenance

3.3 GEOMORPHIC ASSESSMENT RESULTS & DISCUSSION: TENMILE CREEK

This section describes field observations made along Tenmile Creek during the geomorphic assessment. It also includes discussion of observed erosion issues and existing conditions. A summary of average geomorphic parameters measured along the study reach of Tenmile Creek is provided in **Table 3.3**. Analysis of the erosion ratings estimated in the field shows that a BEHI rating of "Moderate" was the most common bank condition along Tenmile Creek (**Figure 3.4**) followed by "Low", suggesting relative stability along most of the reach. The prevalence of "Low" BEHI ratings can be partially attributed to the significant bedrock influence on the channel bed and banks throughout the reach, which generally reduces the potential for streambank erosion (though block and cantilever failure are still possible). Erosion potential mapping resulting from the BEHI analysis is shown in **Exhibit 3A through 3E**.

Table 3.3 – Tenmile Creek Dimensions and Morphology Parameters
These data were estimated in the field, as well as from measured cross sections, photographs, aerial imagery, and LiDAR (1-meter, 2019).

Parameter	Cross Section 1	Cross Section 2	Cross Section 3
Bankfull Width (ft)	27.94	47.06	45.07
Bankfull Mean Depth (ft)	1.36	0.93	0.79
Bankfull Max Depth (ft)	1.45	1.21	1.16
Bankfull Area (ft^2)	38.03	43.86	35.47
Left Bank Slope (°)	22.5	44.2	37.7
Right Bank Slope (°)	28.4	89.1	67.0
Entrenchment Ratio (ft/ft)	1.22	1.10	1.21
Width/Depth Ratio (ft/ft)	20.54	50.60	57.05
Bank Height Ratio (ft/ft)	11.37	11.99	17.02
Channel Bed Slope (ft/ft)	0.00421		
Channel Length (LF)	9,830.0		
Valley Length (ft)	8,553.5		
Sinuosity	1.15		
Dominant Bed Substrate	Bedrock		

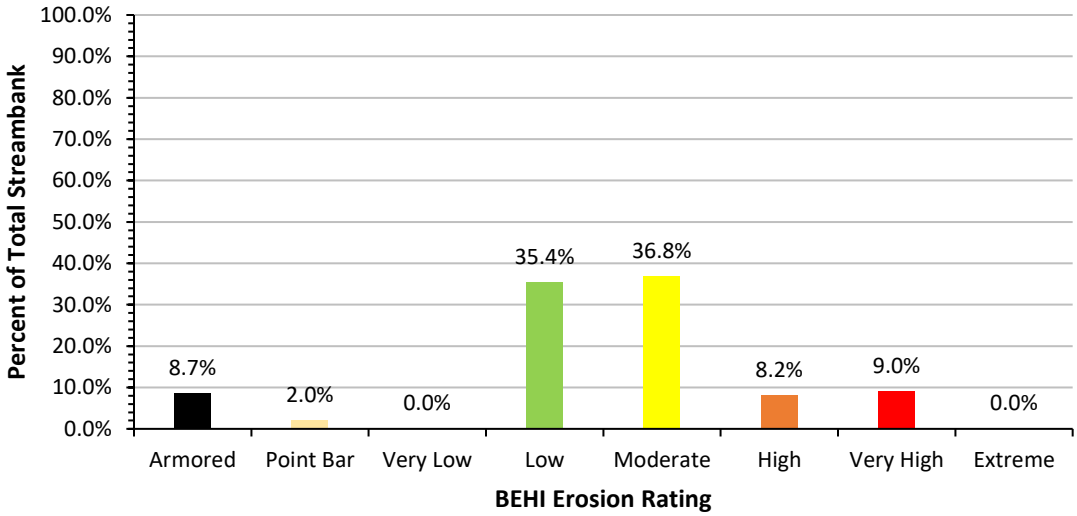


Figure 3.4 – Tenmile Creek BEHI Rating Distribution
"Moderate" was the most prevalent rating along the study reach, followed by "Low."

3.3.1 Overview of Channel Morphology

The study reach is characterized by a deeply incised and entrenched channel with banks varying in height between 10 and 25 feet. Side slopes vary, ranging from mild (between 20 and 30 degrees) to severe (60 to 90 degrees), with the steeper banks often coinciding with "Very High" erosion potential ratings or the outsides of meander bends. The entire reach is dominated by exposed Austin Chalk bedrock in both the bed and banks (**Figure 3.5**); this bedrock appears to be more resistant to slaking than the marl found elsewhere in the metroplex (e.g., rock in areas that are frequently wet do not crumble to the touch) but is still susceptible to block and cantilever failure. A forested buffer is present along most of the reach.

Field observations of fallen trees and streambank erosion on the outsides of meander bends, coupled with existing channel dimensions suggest that the reach is in a state of widening (Stage III of the CEM). This is further supported by the presence of bedrock along the streambed, which suggests that historic downcutting has already occurred. The extensive presence and influence of the bedrock along both the bed and banks acts to slow the channel evolution process. This influence is much stronger on the main stem of Tenmile Creek compared to its tributaries (e.g., Mauk Branch), and this is reflected in the significantly higher percentage of "Low" BEHI ratings that account for bedrock banks. As a result, rapid reach-scale changes (both vertically and laterally) are unlikely; instead, future change will likely be isolated to areas where block or cantilever failure of the bedrock occurs and/or along outside meander bends that lack bedrock influence and have "High" or "Very High" BEHI ratings.

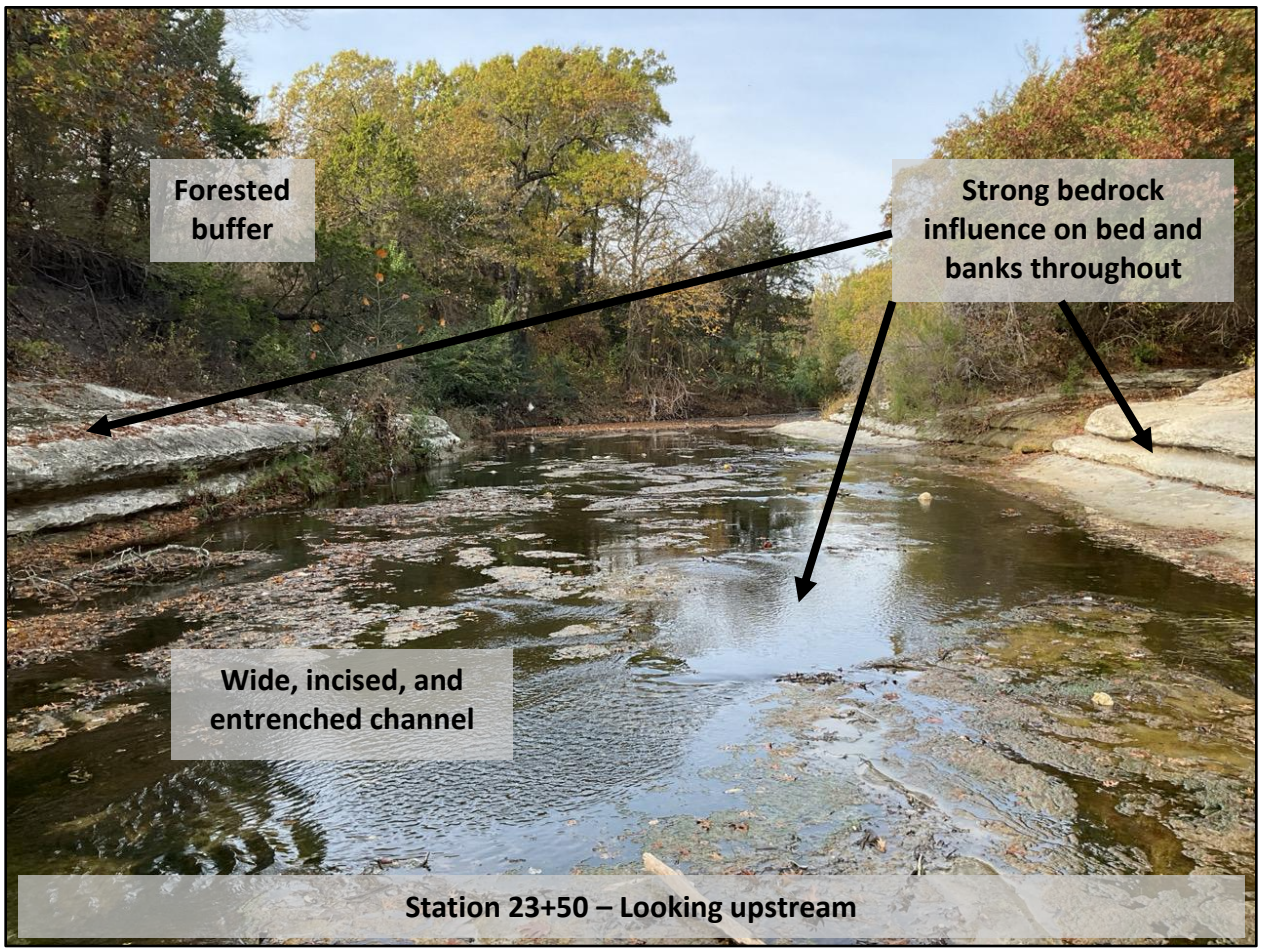


Figure 3.5 – Tenmile Creek Representative Conditions

3.3.2 Observed Infrastructure and Potential Project Areas

FNI documented 21 instances of infrastructure and erosion concerns along the assessment reach of Tenmile Creek, including:

- 7 stormwater outfalls experiencing varying degrees of scour and undermining
- 4 retaining walls in various conditions
- 7 sanitary sewer crossings in various conditions, at least 4 of which are likely Trinity River Authority (TRA) lines
- 2 other pipe crossings that may be abandoned
- 1 undermined stormwater flume near station 28+50

Of the 21 total items, FNI considers 10 of them to present issues that warrant additional consideration or the potential development of projects, as summarized in **Table 3.4**. The most prominent issues that warrant attention involve the aerial sanitary sewer crossings, particularly those at stations 50+50 and 98+00. However, as stated above, these crossings likely belong to TRA, and therefore the remaining areas of concern that the City should consider are threatened outfalls and flumes, such as the one at station 28+50. A complete list of infrastructure observed along Tenmile Creek is presented in **Appendix D**.

Table 3.4 – Tenmile Creek Observed Issues and Potential Project Areas

Infrastructure	Station	Appendix A Photos	Observed Issues	Recommended Action
18-inch Stormwater Outfall	5+00	60	Outfall is located 6-8 feet above water surface. Rock riprap has been partially dislodged	Monitor
Concrete Bag Wall	5+50	61	Significant erosion on downstream end, and evidence of settling and vertical cracking on wall	Repair/replace and stabilize bank
Stormwater Flume	28+50	76	Flume is undermined, approximately 12 feet above channel bed	Repair/replace
36-inch Sanitary Sewer	50+50	85-86	Right bank eroded around pipe with no visible protection. Pipe also exposed in right bank of Steward Branch	Repair/replace and stabilize bank
Stormwater Concrete Bag Wall Flume	55+50	89	Lower portion of bag wall is partially undermined	Repair/replace
Unmapped Pipes	58+00	90	Potentially abandoned. Bank has eroded around end of pipes	Repair/remove and stabilize bank
18-inch Abandoned Pipe	79+00	102	Pipe is bent and exposed along channel bed. Some debris accumulation	Remove pipe
Stormwater Outfall	82+00	104	Outfall is partially undermined and flowline is ~8 feet above the water surface	Repair/replace
48-inch and 24-inch Stormwater Pipes	94+00	109	Bank has eroded around pipes	Repair/replace and stabilize bank
36-inch Sanitary Sewer Crossing	98+00	111	Downstream end of gabion wall has eroded and settled. Unmapped exposed pipe visible.	Repair/replace and stabilize bank

4.0 LIDAR ANALYSIS

4.1 LIDAR ANALYSIS METHODS

FNI performed a LiDAR comparison to supplement observations made during the geomorphic assessment. FNI subtracted 2009 elevation data from 2019 elevation data (both 1-meter resolution LiDAR datasets) using ArcGIS Pro software. The result was a raster showing elevation changes over the course of that 10-year period (**Exhibit 4A through 4C** for Mauk Branch and **Exhibits 5A through 5E** for Tenmile Creek). Negative numbers (shown on the exhibits in shades of red) represent erosion that has occurred over the 10-year time gap, while positive numbers (shown on the exhibits in shades of blue) represent deposition that has occurred.

4.2 LIDAR ANALYSIS RESULTS & DISCUSSION

Results correspond well with observed erosion areas mapped in the field using BEHI. Examples include the “Very High” rating along the right bank of Mauk Branch near station 63+50 and the “High” and “Very High” areas along Tenmile Creek beginning near station 48+00. In other cases, such as at Tenmile Creek station 64+00, the LiDAR analysis shows a significant amount of change where the current BEHI rating is “Moderate” or “Low;” this can be explained via a few scenarios. First, it is possible that upper layers of soil retreated or eroded between 2009 and 2019, leaving behind a bedrock bank or shelf that resulted in a lower BEHI rating in the present. Second, it is also possible that adjustment of the bank was actively occurring between 2009 and 2019 but has since stabilized (e.g., a steep, bare bank that might have been rated as “High” in 2009 subsequently eroded until it reached a more stable slope and became established with vegetation, resulting in a “Moderate” or “Low” rating in the present). In general, the results of this analysis provide a useful visualization of the widening and streambank retreat that is occurring along the study reaches of Mauk Branch and Tenmile Creek.

5.0 SETBACK ANALYSIS

5.1 SETBACK ANALYSIS METHODS

FNI conducted a high-level erosion hazard setback analysis along delineated streams throughout the City. The purpose of this analysis was to provide high-level, conservative estimates of appropriate setback distances from the top of the streambanks. FNI delineated an erosion hazard zone (EHZ) in ArcGIS Pro software by projecting a line with an assumed stable slope of 3H:1V (33%) from a point offset 10 feet from the toe of slope to the ground surface (**Figure 5.1**). This approach is similar to protocols used by other cities in the metroplex (Halff, 1998). Since the risk of erosion and geotechnical failure generally increases with increasing bank steepness, especially beyond 1H:1V, a slope of 3H:1V represents a relatively stable slope where erosion and failure risks are lower and is suitable for EHZ delineation. Note that there are numerous methods for delineating EHZs, many of which use even shallower slopes (e.g., 4:1) or involve more in-depth analyses better suited to smaller study areas. Additionally, due to the high-level nature of this effort, FNI made the following assumptions:

- Toe widths are constant for the delineated streams as follows:
    - 60 feet wide for Tenmile Creek along its entire length within City limits
    - 30 feet wide for major tributaries (Mauk Branch, Horne Branch, etc.) along their entire lengths within City limits
    - 10 feet wide for all other minor tributaries along their entire lengths within City limits
- The potential downcutting elevation is three feet (a conservative value given that existing conditions suggest future downcutting is unlikely, as discussed in **Section 3** above)

These assumptions allowed for efficient, City-wide delineation at the cost of accuracy. Where desired, more accurate erosion hazard setbacks could be estimated using toe widths measured in the field.

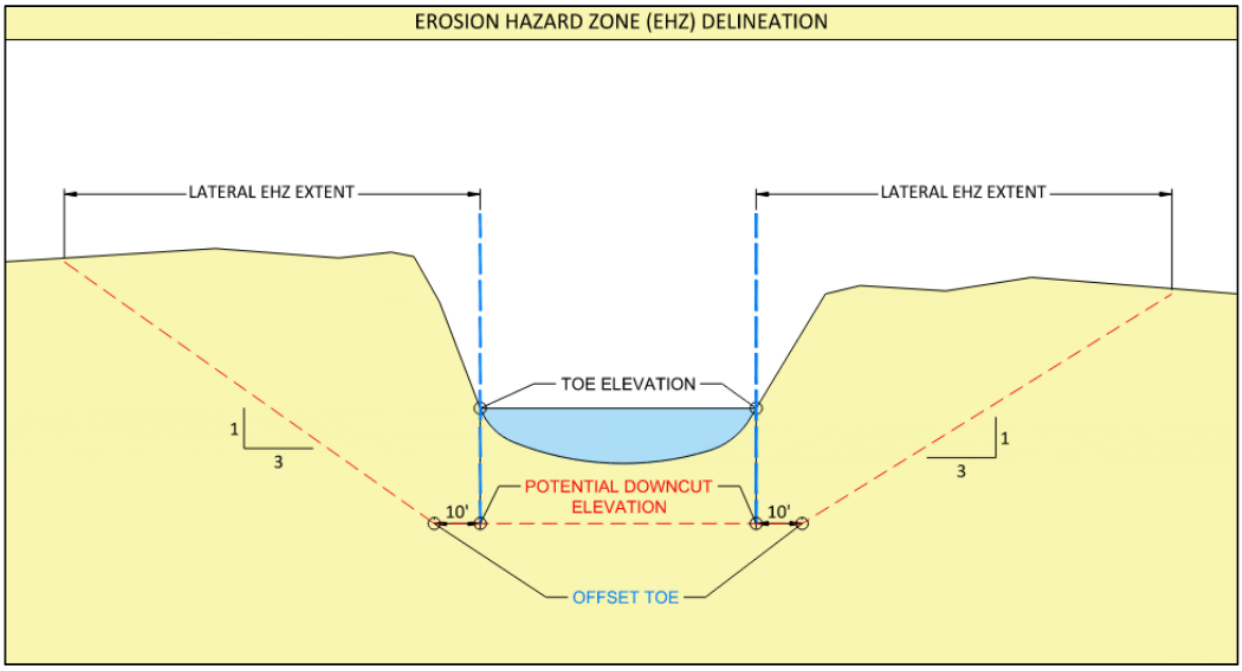


Figure 5.1 – Setback Analysis Methodology

5.2 SETBACK ANALYSIS RESULTS & DISCUSSION

A sample of the results of the City-wide setback analysis – the EHZ adjacent to the assessment reaches of Mauk Branch and Tenmile Creek – is shown in **Exhibit 4A through 4C** (Mauk Branch) and **Exhibit 5A through 5E** (Tenmile Creek). The resulting EHZ generally ranges from 40-60 feet from the top of the bank along Mauk Branch and 50-70 feet from the top of bank along Tenmile Creek. Some outliers occur in locations where smoothing of the EHZ around meander bends or between streams results in a larger setback distance (e.g., station 18+00 on Tenmile Creek).

Note that this analysis is one methodology for recommending setback distances away from the channel and does not include estimates of erosion rates or timeframes for channel adjustment. EHZs provide high-level estimates for the potential room a stream may need to adjust, and do not represent areas guaranteed to be threatened by erosion. Rather, they are useful as a planning tool when constructing infrastructure and designing spaces adjacent to streams and rivers. Ideally infrastructure is placed outside the EHZ; however, in cases where this is not possible or not desired, additional analyses such as the BEHI mapping and LiDAR comparison described above can be used to more accurately understand erosion and channel adjustment in that area and preventative measures (bank stabilization, stream restoration, etc.) can be considered.

6.0 PROJECT IDENTIFICATION & SELECTION

FNI used observations of bank stability and infrastructure condition at 41 total instances of infrastructure to score and rank potential project areas within the study reaches. FNI developed a weighted ranking equation to prioritize potential project areas (**Equation 1**), where projects with the largest weighted score ranked highest for prioritization.

$$\boldsymbol{Weighted\ Score} = [\boldsymbol{Bank\ Erosivity\ Score} + (\mathbf{1.5} \times \boldsymbol{Current\ Condition\ Score})] \times \boldsymbol{Infrastructure\ Priority}$$

Equation 1

The bank erosivity score is based on the BEHI rating of nearby banks (**Table 6.1**) and reflects the potential risk associated with future bank erosion. Banks with "Extreme" erosion potential are scored the highest while armored banks are scored the lowest because they are considered to have a low risk of erosion (but there is still potential for bank armoring to become undermined from scour).

Table 6.1 – Bank Erosivity Scoring

BEHI Rating	Bank Erosivity Score
Armored	0.5
Low	1.0
Moderate	2.0
High	3.0
Very High	4.0
Extreme	5.0

The current condition score is based on field observations related to scour, structural support, material condition, and cracking (**Table 6.2**) which inform the need for present action to prevent failure. The current condition score reflects present conditions and communicates the urgency with which action needs to be taken.

Table 6.2 – Current Condition Scoring

Infrastructure Condition	Current Condition Score
Good	1.0
Fair	2.0
Poor	3.0
Critical	4.0
Failed	5.0

The infrastructure type determines the "Infrastructure Priority" weighting modifier used in **Equation 1** (**Table 6.3**). Infrastructure with the highest consequence of failure has the highest weight and infrastructure with a localized or otherwise limited consequence of failure has the lowest weight. Infrastructure with an indirect impact on other high priority infrastructure was weighted as moderate.

Table 6.3 – Infrastructure Priority Weights

Priority Category	Infrastructure Priority
High (e.g., sanitary sewers)	1.00
Moderate (e.g., bag walls)	0.75
Low (e.g., stormwater outfalls)	0.50

In **Equation 1**, the bank erosivity score is combined with a weighted current condition score. The current condition score is weighted more heavily than the bank erosivity score because it conveys the need for present action based on observable evidence, while bank erosivity reflects the potential risk of future bank erosion. The combined erosivity and current condition score is multiplied by the infrastructure priority modifier to calculate the final weighted score.

The objective of the weighted ranking system was to identify high priority areas within the study reaches to move forward to the conceptual design phase. Infrastructure in "Good" or "Fair" condition was assumed to require no action and was excluded from project rankings. The top-ranking project areas were discussed with the City in a meeting on December 11, 2025, and the City selected three project areas to progress to the conceptual design phase (**Section 7.0**). **Appendix D** presents the full list of ranked projects.

The following three areas were selected for conceptual design based on rank and City input:

Area 1 – 20-inch Sanitary Sewer Crossing on Mauk Branch (Overall ranking: 4)

Area 2 – 18-inch Sanitary Sewer Crossing on Mauk Branch (Overall ranking: 5)

Area 3 – Concrete Stormwater Flume on Tenmile Creek (Overall ranking: 11)

Note that the three selected project areas rank outside the top three. Many of the highest ranked potential project areas involved infrastructure that was either abandoned or owned by Others, as indicated by GIS data and confirmed during discussions with the City. Only infrastructure owned by the City was considered to progress to conceptual design; thus, lower ranking projects were selected to progress to conceptual design.

7.0 CONCEPTUAL ALTERNATIVES

This section describes the conceptual alternatives developed to protect City infrastructure at the three project areas (Areas 1 through 3) described in **Section 6.0** above. At these locations, bank erosion threatens City infrastructure and FNI recommends taking action to mitigate erosion risks. The conceptual alternatives for these areas provide improvements to protect a 20-inch sanitary sewer crossing on Mauk Branch, an 18-inch sanitary sewer crossing on Mauk Branch, and a concrete stormwater flume and water line on Tenmile Creek, respectively.

The following factors were qualitatively considered during the development of these alternatives:

- Potential for floodplain impacts
- The erosion hazard setback
- Additional benefits for other City infrastructure
- Available property
- Section 404 environmental impacts
- Tree removal
- Stream morphology
- Connection/consistency with existing infrastructure
- Public safety

All three alternatives propose bank stabilization elements including retaining walls, armored channel toes, and grading. In all three areas, City infrastructure is located within the erosion hazard setback and is not expected to be relocated. Additionally, it is important to note that all three alternatives represent concepts focused on protecting City infrastructure at the specified locations of concern and do not represent improvements that holistically address any stream stability issues throughout the study reach of Mauk Branch or Tenmile Creek. Exhibits depicting the alternatives along with Opinions of Probable Construction Cost (OPCCs) are included in **Exhibits 6A and 6B**, **Exhibits 7A and 7B**, and **Exhibits 8A and 8B**, respectively. Potential utility conflicts, hydraulic modeling, geotechnical analysis, and detailed permitting efforts should be considered before detailed design of the preferred alternative(s) progresses. Additionally, the exact location and depth of nearby sewer lines and other utilities should be verified with survey or subsurface utility engineering. High-level permitting considerations for these alternatives are discussed in **Section 7.4**. A summary of proposed improvements, costs, and environmental permitting options for each alternative is shown in **Table 7.1**.

Table 7.1 – Summary of Alternatives

Area/Alternative #	Proposed Improvements	Possible Permitting Approach*	Estimated Cost
1	Modular Block Retaining Wall, Rock Riprap Transitions	NWP 13 with PCN	$2,670,000
2	Modular Block Retaining Wall, Rock Toe Protection, Floodplain Bench	NWP 13 with PCN	$1,050,000
3	Replace Flume, Establish Point Bar Slope, Grade Bank Slope, Vegetate with Native Plants	NWP 3 with PCN	$1,474,000

**Related to improvements constructed within the OHWM. NWP = Nationwide Permit; PCN = Pre-construction Notification.*

7.1 AREA 1 – 20-INCH SANITARY SEWER CROSSING ON MAUK BRANCH

In Area 1, the primary concern is erosion on the left bank that is threatening the aerial 20-inch sanitary sewer crossing (**Figure 7.1**). The erosion potential of the left bank is "Very High" and there is significant scour at the location where the pipe enters the left bank. There are no visible piers or pipe protection within or near the bank, causing Area 1 to be an area of high concern due to increased risk of compromise or failure of the crossing. The right bank is armored with a concrete bag wall and the pipe crossing at the right bank appears to be stable. Site constraints at Area 1 include tall steep banks (>25 feet) and the proximity of adjacent development. The use of stable, vegetated slopes in Area 1 is limited due to the lack of space needed to grade back the bank slope. Development of adjacent properties constrains the stream corridor, necessitating the use of a modular block wall instead of vegetated slopes.



Figure 7.1 – Annotated Photographs of Area 1
Looking downstream (top) and at the left bank (bottom) near station 31+00 of Mauk Branch

To address erosion around the sanitary sewer crossing and bank, the proposed improvements at Area 1 involve the installation of approximately 140 LF of modular block retaining wall, approximately 27 feet high, to protect the 20-inch sanitary sewer line (**Exhibit 6A**). Approximately 1,250 cubic yards (CY) of fill will be placed to establish a smooth transition to the meander bend to alleviate scour at the bank toe. A portion of the fill will be within the 100-year floodplain (the 100-year water surface elevation is approximately 637 feet) (FEMA, 2014), but the majority of fill will be placed above the 100-year water surface.

The modular block wall transitions via rock riprap to a tie-in point with the natural bank to mitigate the "Very High" erosion potential observed during the geomorphic assessment. Where possible, slopes will be re-graded to have a slope no greater than 3:1, however, tie-in points will require steeper slopes to tie into the existing grade. All disturbed slopes shall be revegetated with native seeding and plantings to promote long-term bank stability.

A conceptual OPCC of $2,670,000 was estimated for Area 1 (**Exhibit 6B**).

7.2 AREA 2 – 18-INCH SANITARY SEWER CROSSING ON MAUK BRANCH

In Area 2, the primary concern is erosion on the right bank around the aerial 18-inch sanitary sewer crossing (**Figure 7.2**). The erosion potential of the right bank is "Very High" and there is significant scour at the location where the pipe enters the bank. Per City staff, there is a pier buried in the bank; the location of pipe supports should be confirmed during detailed design. The left bank is rated as having "Moderate" erosion potential and there was not notable erosion around the pipe crossing on the left bank. Despite the presence of a potential pipe support near the erosion on the right bank, Area 2 remains an area of high concern because the "Very High" erosion potential suggests that the right bank could rapidly erode, putting existing infrastructure at a high risk for damage or failure. Area 2 site constraints include an upstream stormwater outfall which limits the upstream tie-in elevation of the floodplain bench.



Figure 7.2 – Annotated Photographs of Area 2
Looking at the left bank (top) and downstream (bottom) at the crossing near station 51+50 of Mauk Branch

To address bank stability and erosion around the sanitary sewer crossing, the proposed improvements at Area 2 involve the installation of approximately 125 LF of modular block retaining wall, 115 LF of rock toe protection, and establishing a 10-foot floodplain bench to protect the 18-inch aerial sanitary sewer line (**Exhibit 7A**).

There is an established, well-vegetated floodplain bench in the reach upstream of the sanitary sewer crossing. The bench appears to end abruptly near the aerial pipe crossing where most of the erosion is localized. Re-establishing the floodplain bench can help mitigate scour caused by a sudden reduction in the channel flow width and reduces the flow velocity within the channel cross section. The existing floodplain bench upstream of the 18-inch crossing is approximately 2 feet above the thalweg. Rock toe protection will be placed in Area 2 along the toe of the floodplain bench at a height of 2 feet above the thalweg to mimic the upstream channel dimensions while providing additional protection against erosion. The modular block wall (approximately 9 feet high) provides slope stability and protects the pipe crossing on the right bank from localized scour. Additionally, the modular block wall ties into the natural banks smoother than vegetated slopes due to the steepness of the existing banks.

A conceptual OPCC of $1,050,000 was estimated for Area 2 (**Exhibit 7B**).

7.3 AREA 3 – CONCRETE STORMWATER FLUME ON TENMILE CREEK

Area 3 is located on the inside of a meander bend on Tenmile Creek where a deep scour pool has undermined the footer of an existing rectangular concrete stormwater flume (**Figure 7.3**). Additionally, in some places the top of the flume protrudes approximately 2 feet above the existing ground. During high flow events, this can obstruct flow and cause localized scour around the protrusion. City staff stated that the flume protects an 8-inch water line at this location. Although the water line was not observed in the field, GIS data indicates a water line in the vicinity. The left bank has “Moderate” erosion potential, and most of the observed erosion in the field was at the toe of the bank. The outer bend is composed of Austin Chalk bedrock. Although the right bank is near vertical, the erosion potential was also characterized as “Moderate” because bedrock is more resistant to erosion. Site constraints at Area 3 include the scour pool, the prominence of bedrock in the channel and banks, and two existing TRA sanitary sewer lines that run parallel to the left bank of Tenmile Creek.



Figure 7.3 – Annotated Photograph of Area 3
Looking along the left bank of Tenmile Creek near station 28+50

To address bank erosion at the flume and water line crossing, the proposed improvements at Area 3 involve establishing a point bar with a 20:1 slope and grading the bank at a stable 3:1 slope. Both the point bar and stable slope will be vegetated with native plantings and seeding to establish robust riparian vegetation (**Exhibit 8A**). The existing undermined flume will be removed and replaced to match the proposed grade and rock riprap will be placed at the flume outfall to protect against erosion. Both the footer of the flume and rock riprap will be keyed into bedrock to safeguard against further channel and bank erosion.

Currently, the depth and location of the water line are unknown and need to be verified with subsurface utility engineering (SUE) in a later design phase. Additional protection for the water line, such as encasement or relocation, may be needed based on the SUE results.

A conceptual OPCC of $1,474,000 was estimated for Area 3 (**Exhibit 8B**).

7.4 PERMITTING CONSIDERATIONS

The United States Army Corps of Engineers (USACE) regulates the discharge of dredged and fill material into waters of the U.S. (WOTUS), including wetlands, under Section 404 of the Clean Water Act (Section 404). It is FNI's understanding that Mauk Branch and Tenmile Creek (perennial streams) are considered WOTUS by the USACE. Any activity (including construction access and staging areas) which would result in the discharge of dredged or fill material into Mauk Branch, Tenmile Creek, or other WOTUS would require USACE authorization under Section 404. The alternatives described above were evaluated for impacts to WOTUS and Section 404 permitting. As currently proposed, Area 1 involves the placement of 1,250 CY of fill material into Mauk Branch, requiring authorization under Section 404. If Area 2 and 3 involve the discharge of dredged or fill material into Mauk Branch or Tenmile Creek, they would also require authorization under Section 404. Note that these are preliminary considerations; further evaluation and coordination with regulatory agencies, including the Texas Historical Commission (THC), should be expected if any alternatives are pursued.

Nationwide Permit (NWP) 13 – *Bank Stabilization* – authorizes bank stabilization activities necessary for erosion control or prevention if all NWP 13 terms and conditions – including NWP General Conditions and NWP Regional Conditions within the Fort Worth District – are met. PCN submittal is required if the bank stabilization activity:

1. Involves discharges of fill material into special aquatic sites, including wetlands and riffle and pool complexes
2. Exceeds 500 LF in length
3. Will involve the discharge of fill material greater than an average of one cubic yard per running foot (as measured along the length of the treated bank) below the plane of the ordinary mark (OHWM)
4. Triggers concerns related to General Condition 18 (*Endangered Species*) or General Condition 20 (*Historic Properties*)

The District Engineer can waive the PCN criteria limits of items 1-3 by making a written determination that the discharge of fill material will result in no more than minimal adverse environmental effects.

NWP 3 – *Maintenance* – authorizes the repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, provided that the structure or fill is not to be put to uses differing from those specified or contemplated for it. Minor deviations in the structure's configuration or filled area

that are necessary to make the repair, rehabilitation, or replacement are authorized. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill. PCN submittal is required if the bank stabilization activity triggers concerns related to General Condition 18 (*Endangered Species*) or General Condition 20 (*Historic Properties*).

FNI anticipates that the alternatives for Area 1 and Area 2 described above can be authorized under NWP 13 and Area 3 can be authorized under NWP 3. Authorization for all areas would require a PCN based on the potential to impact endangered species and/or cultural resources.

If the proposed activities are authorized by NWP 13 or NWP 3 but would result in losses to wetlands and/or open waters greater than 0.1 acre, or impacts to streams greater than 0.03 acre, they would also require mitigation to offset these losses to WOTUS. Acceptable sources of mitigation include the purchase of wetland or stream mitigation bank credits from a mitigation bank which services the HUC-8 watershed of the project area. If no mitigation banks are present to service the proposed project, the project would require permittee-responsible mitigation, which would likely include the acquisition of a conservation easement as well as monitoring of the mitigation area.

8.0 SUMMARY & RECOMMENDATIONS

FNI geomorphologists and engineers conducted a geomorphic assessment along two City-selected reaches of Mauk Branch and Tenmile Creek to document existing geomorphic conditions and evaluate the need for projects along these reaches. The assessment included photo documentation, streambank erosion potential mapping, and cross-section and profile measurements. Other desktop analyses included a LiDAR analysis and a setback analysis. FNI developed a weighted ranking equation based on streambank erosivity, current conditions of at-risk infrastructure, and the type of at-risk infrastructure to prioritize 20 potential project areas that were documented during the assessment. FNI developed conceptual level alternatives and cost estimates for three of these areas (Areas 1 through 3) chosen by the City.

In addition to the conceptual alternatives and cost estimates provided for the selected project areas, the City can use the results of this assessment to inform other projects in the future (i.e., consider projects at other ranked areas documented in this report) and as a baseline for existing geomorphic conditions along the study reaches of Mauk Branch and Tenmile Creek. Additional stream condition assessments can be undertaken along other reaches as desired to provide additional insight into existing conditions and project needs across the City.

9.0 REFERENCES

Bureau of Economic Geology. 1992. Geologic Map of Texas: University of Texas at Austin, Virgil E. Barnes, project supervisor, B.M. Hartmann, and D.F. Scranton, cartography, scale 1:500,000.

Dick, B.M., Hey, R., Peralta, P., Jewell, I., Simon, P. and Peszlen, I., 2014. Estimating annual riverbank erosion rates – a dendrogeomorphic method. River Research and Applications, 30(7), pp.845-856.

Federal Emergency Management Agency (FEMA). 2014. FIRM Panel 0470K, Map Number 48113C0470K.

Halff Associates, Inc. 1998. Stream Bank Stabilization Manual for the Cities of Plano, Garland, McKinney, and Allen.

Henshaw, P.C. and D.B. Booth. 2000. Natural restabilization of stream channels in urban watersheds: Journal of the American Water Resources Association, v. 36, p. 1219–1236.

Montgomery, D.R. and J.M. Buffington. 1998. Channel processes, classification and response: in Stream ecology and management, R. Naiman and R. Bilby, editors. Springler-Verlag New York, Inc., p. 13-42.

Natural Resources Conservation Service (NRCS), United States Department of Agriculture. 2025. Web Soil Survey. Available online at the following link: https://websoilsurvey.sc.egov.usda.gov/. Accessed 11/13/2025.

Rosgen, D.L. 1996. Applied River Morphology. Wildland Hydrology Books, Fort Collins, Colorado.

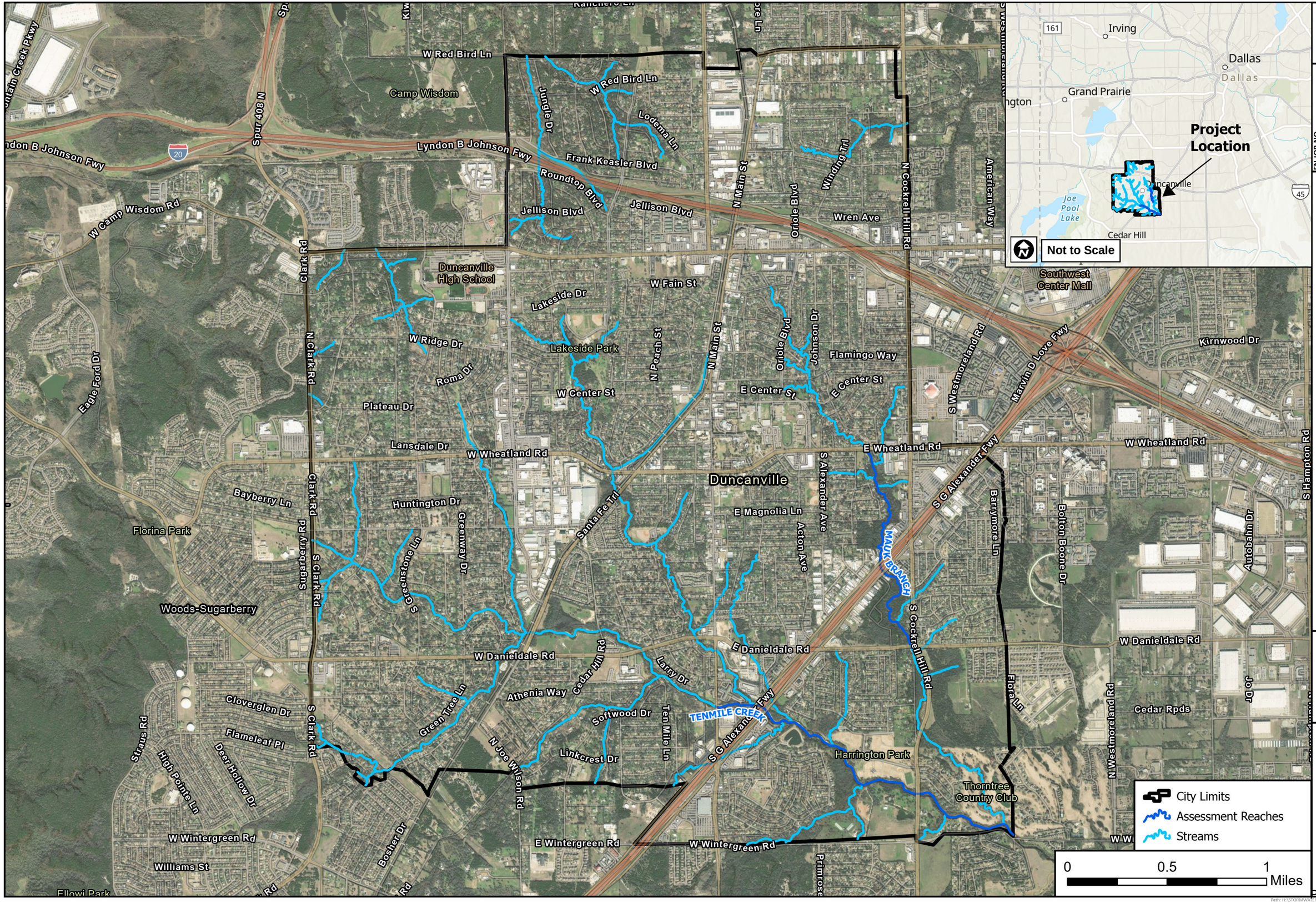
Rosgen, D.L. 2006. Watershed Assessment of Stream Stability and Sediment Supply (WARSSS). Wildland Hydrology Books, Fort Collins, Colorado.

Schumm, S.A., Harvey, M.D. and Watson, C.C. 1984. Incised channels morphology, dynamics, and control: Littleton, CO, Water Resources Publications, 200 p.

Soil Conservation Service (now the Natural Resource Conservation Service). 1969. Soil Survey of Collin County, Texas.

Thorne, C.R. 1998. Stream Reconnaissance Handbook. John Wiley and Sons, Chichester, England, 133 pp.

EXHIBITS



City of Duncanville, TX
Stream Condition Assessment
Project Overview

EXHIBIT 1

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	January 2026
SCALE	1:26,758
DRAFTED	SCK

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\WQ\Projects\Working_SCK\Working_SCK.aprx

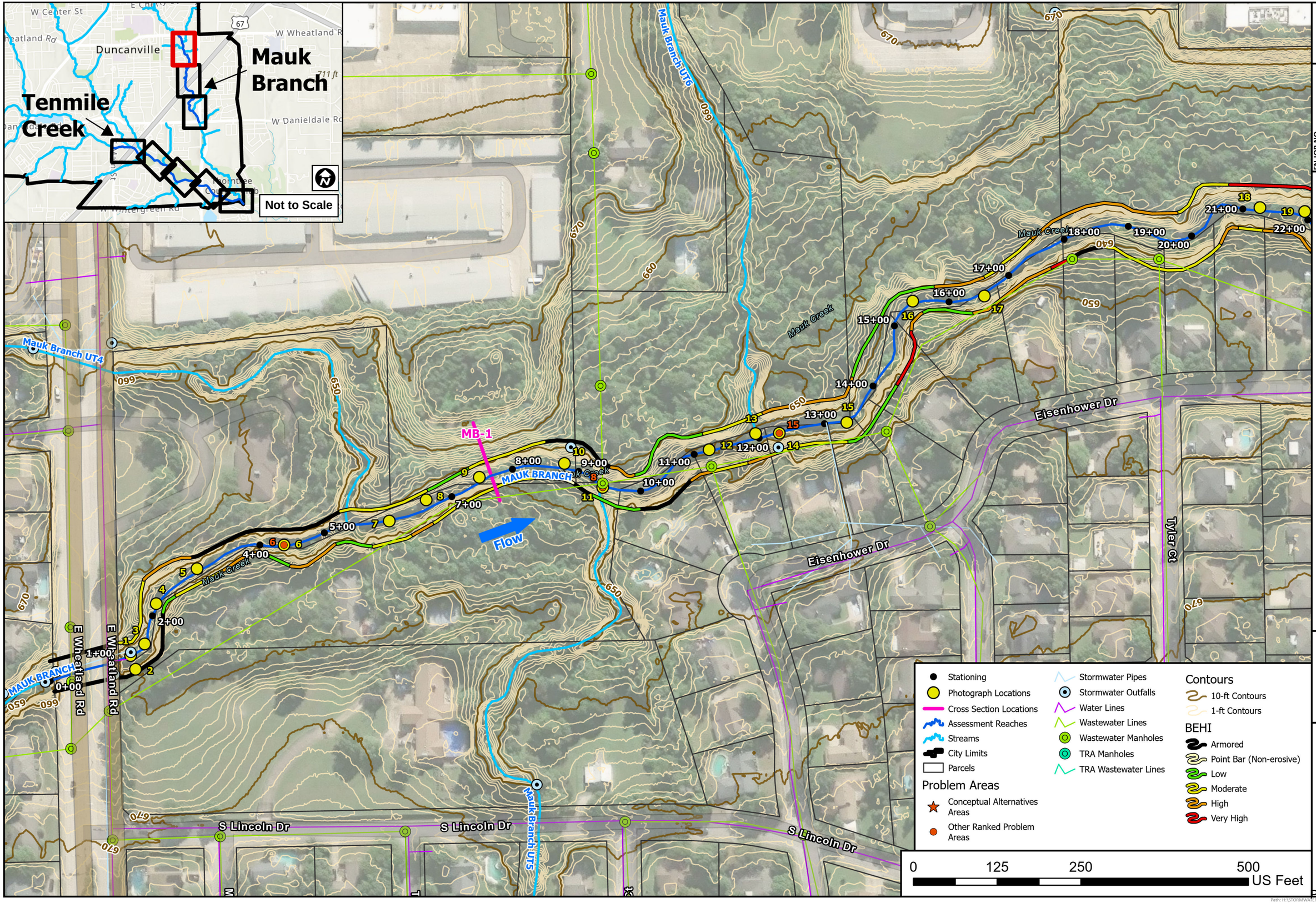


EXHIBIT **2A**

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment
Geomorphic Assessment

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\WORK\Working_SCK\Working_SCK.aprx

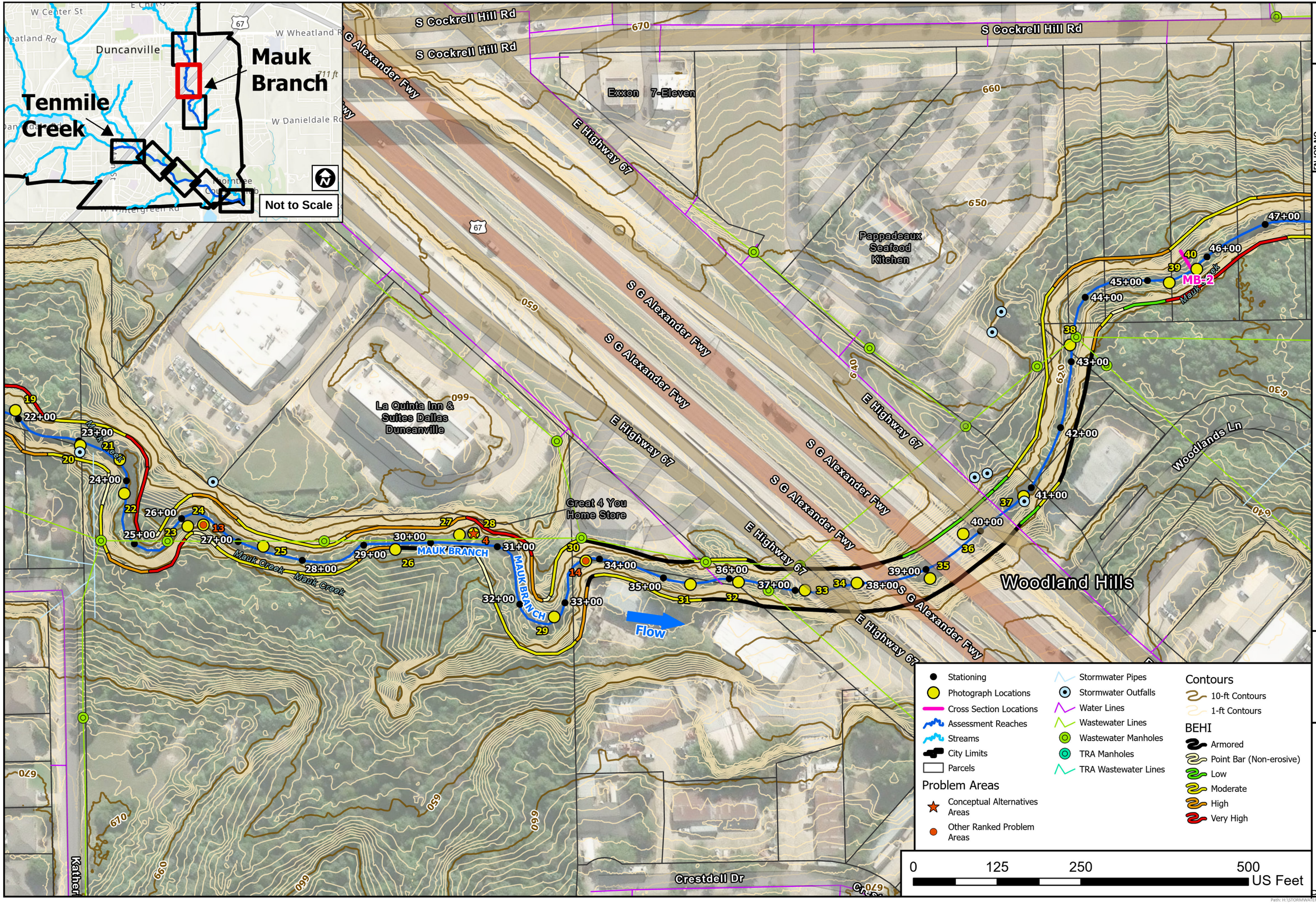


EXHIBIT **2B**

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

Geomorphic Assessment

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\WORK\Working_SCK\Working_SCK.aprx

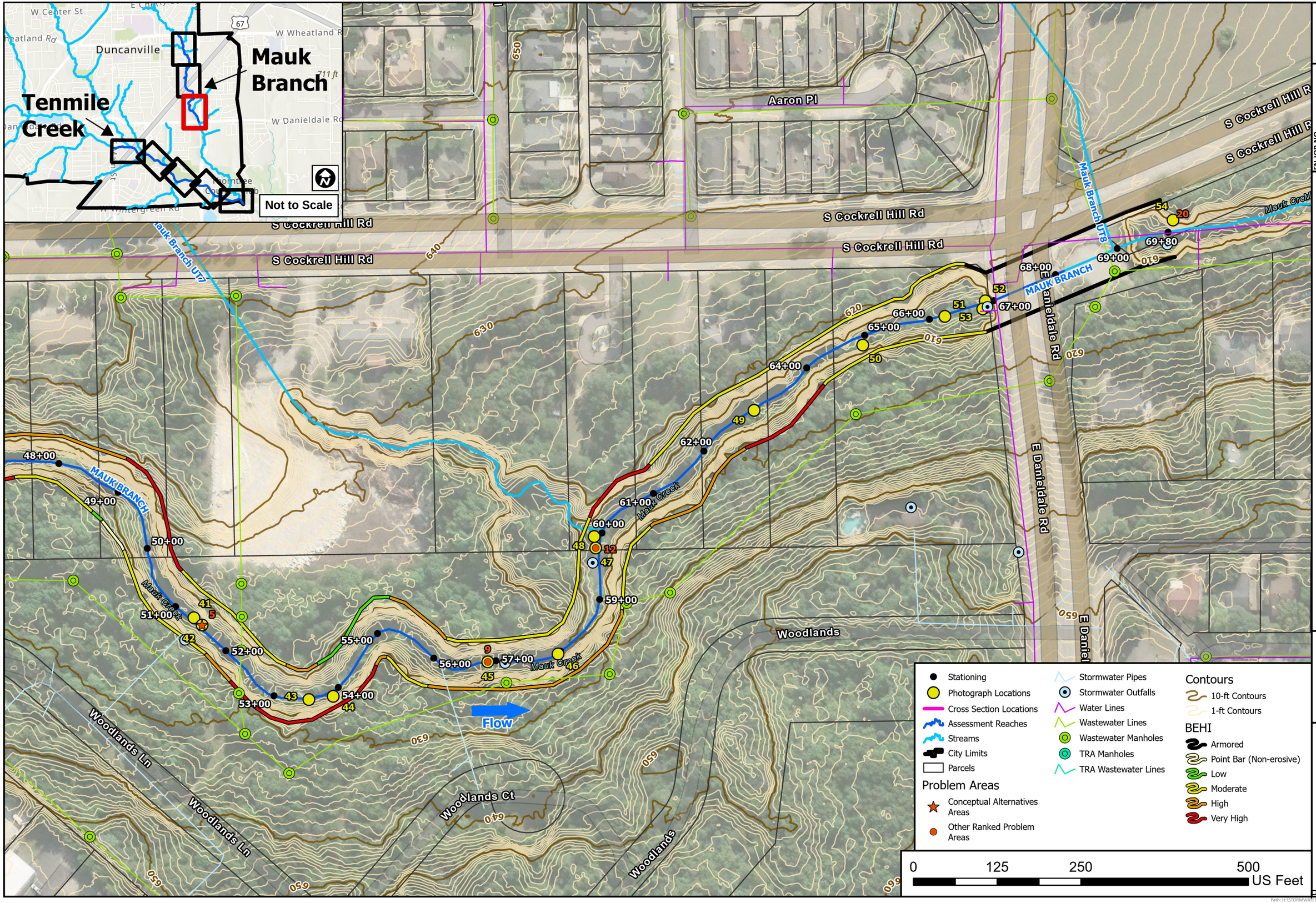


EXHIBIT **2C**

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

Geomorphic Assessment

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\Working\Working_SCK\Working_SCK.aprx

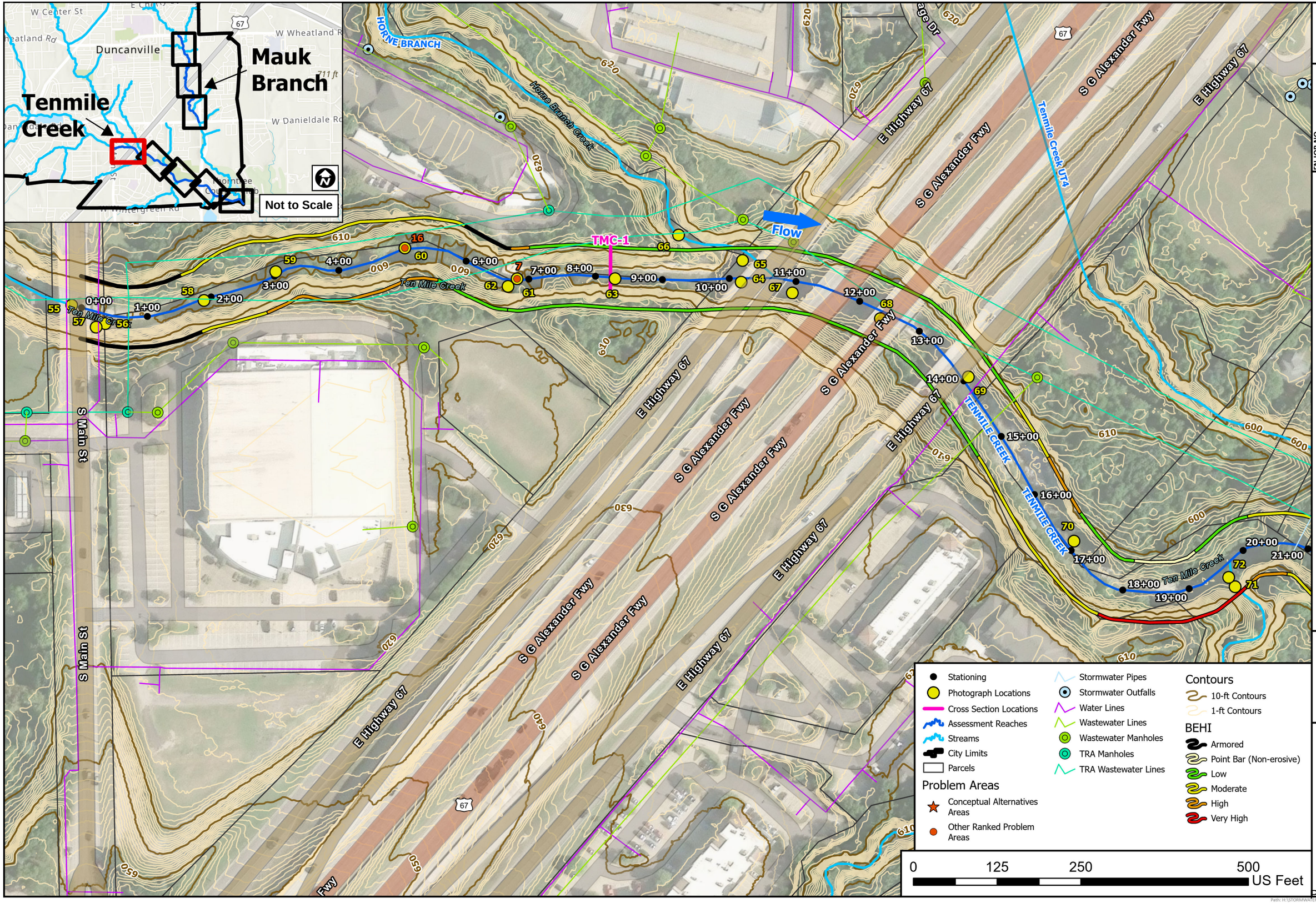


EXHIBIT 3A

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

Geomorphic Assessment

FREESE NICHOLS AND
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

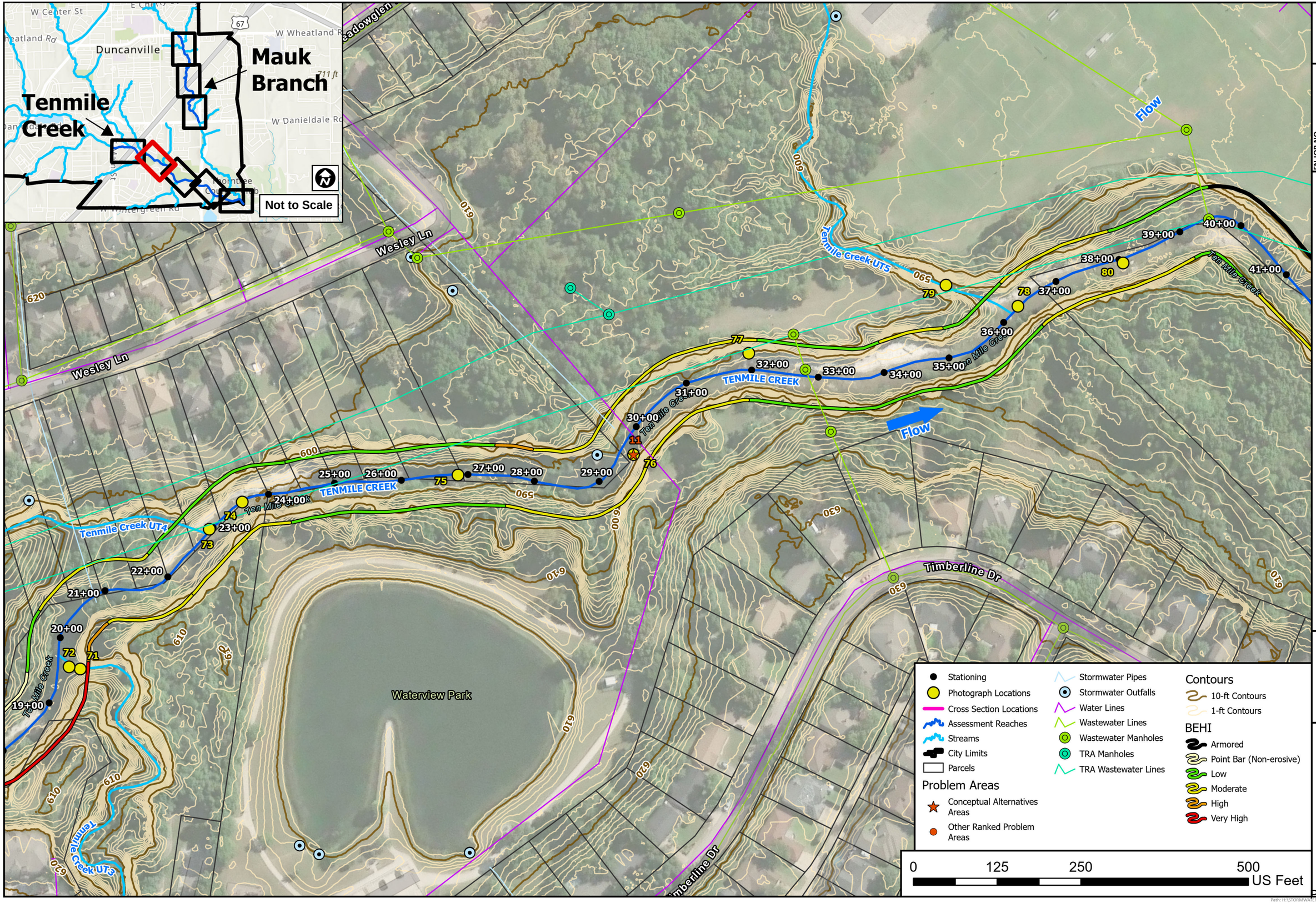


EXHIBIT **3B**

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

Geomorphic Assessment

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\WORK\Working_SCK\Working_SCK.aprx

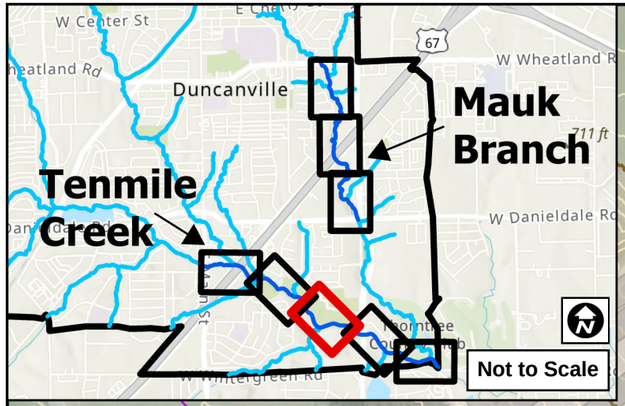


EXHIBIT 3C

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment
Geomorphic Assessment

Harrington Park

Ten Mile Creek

TENMILE CREEK

STEWART BRANCH

Flow

40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00

81 82 83 84 85 86 87 88 89 90 91 17 18

610 600 590 580 620 630 640

Stationing
Photograph Locations
Cross Section Locations
Assessment Reaches
Streams
City Limits
Parcels

Problem Areas
Conceptual Alternatives Areas
Other Ranked Problem Areas

Stormwater Pipes
Stormwater Outfalls
Water Lines
Wastewater Lines
Wastewater Manholes
TRA Manholes
TRA Wastewater Lines

Contours
10-ft Contours
1-ft Contours

BEHI
Armored
Point Bar (Non-erosive)
Low
Moderate
High
Very High

0 125 250 500 US Feet

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\Working_SCK\Exhibit_3C.aprx

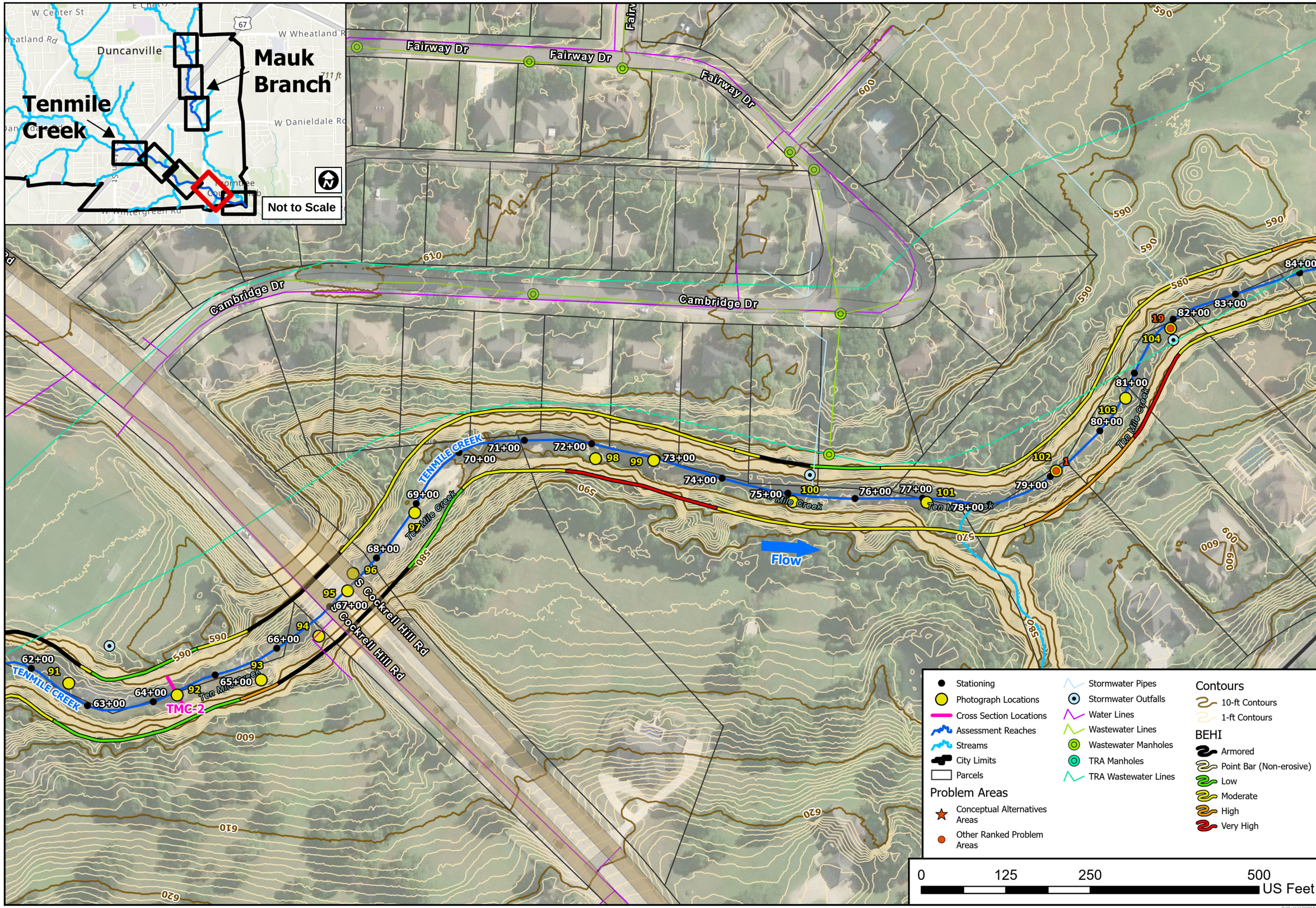


EXHIBIT 3D

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

Geomorphic Assessment

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

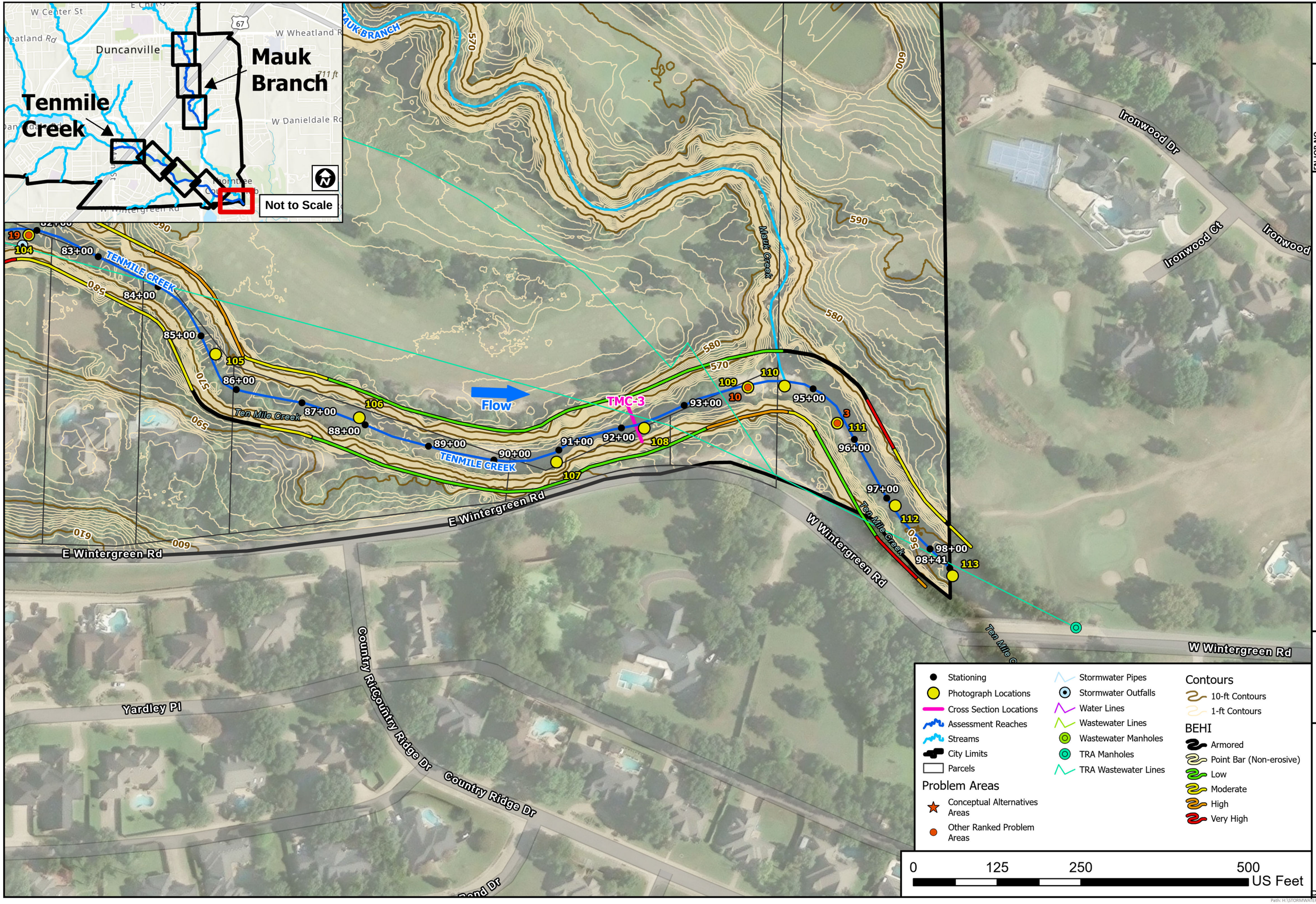


EXHIBIT **3E**

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

Geomorphic Assessment

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\Working\Working_SCK\Working_SCK.aprx

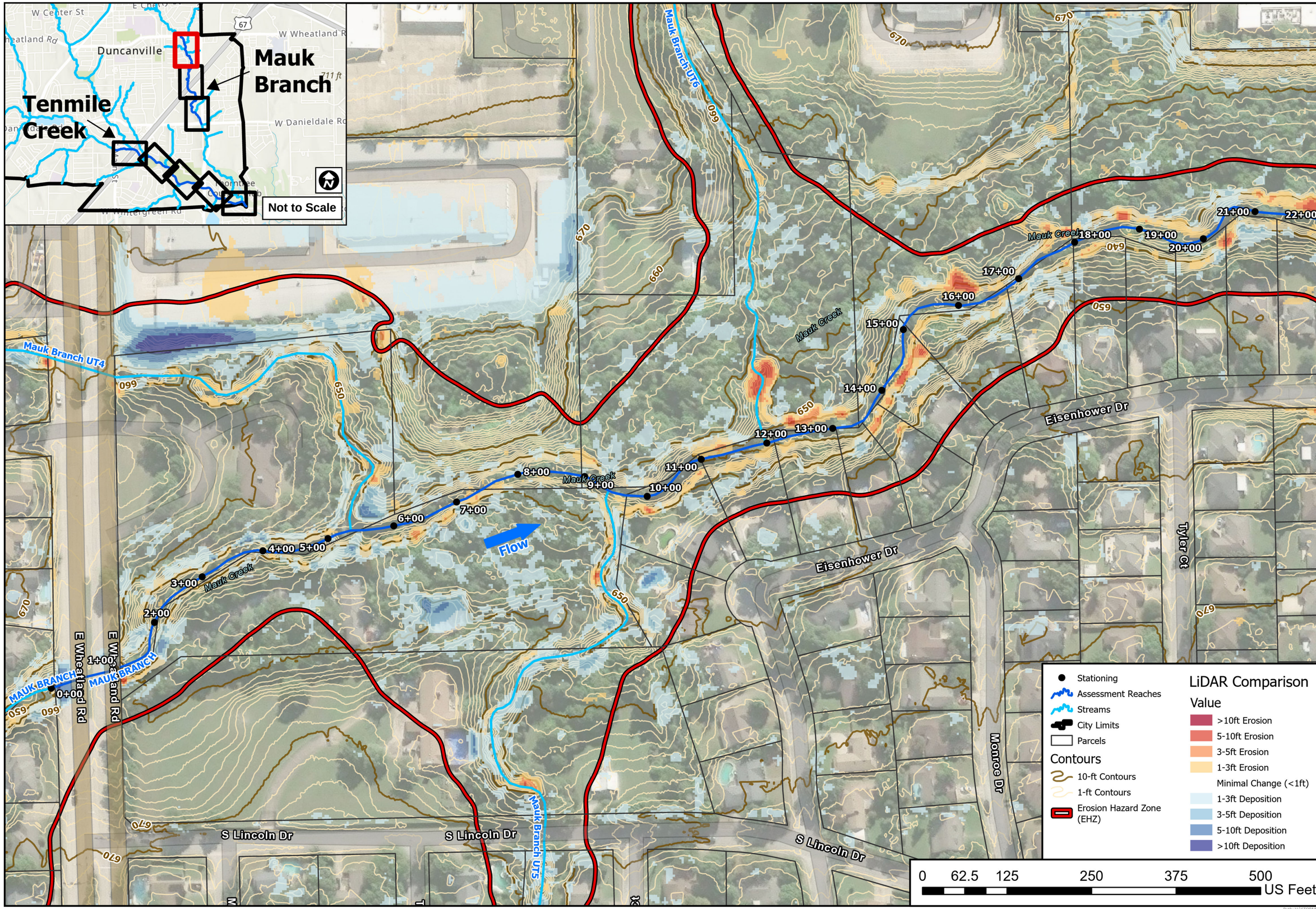


EXHIBIT 4A

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

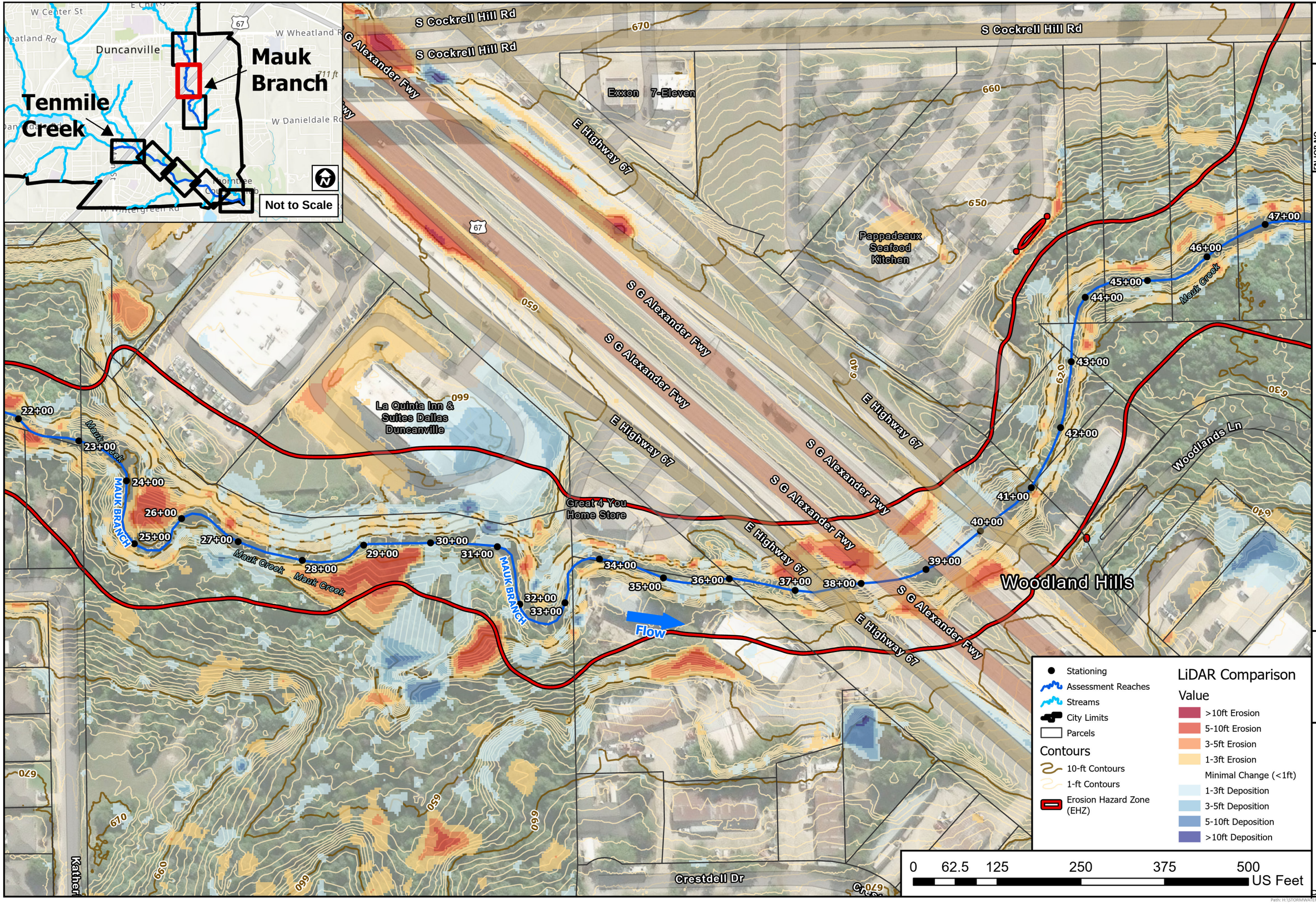


EXHIBIT **4B**

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\Working\Working_SCK\Working_SCK.aprx

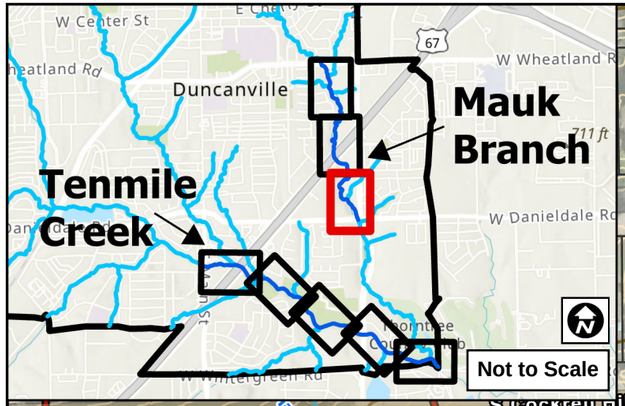


EXHIBIT **4C**

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

Stationing
Assessment Reaches
Streams
City Limits
Parcels

Contours
10-ft Contours
1-ft Contours
Erosion Hazard Zone (EHZ)

LiDAR Comparison
Value
>10ft Erosion
5-10ft Erosion
3-5ft Erosion
1-3ft Erosion
Minimal Change (<1ft)
1-3ft Deposition
3-5ft Deposition
5-10ft Deposition
>10ft Deposition

0 62.5 125 250 375 500 US Feet

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\Working\Working_SCK\Working_SCK.aprx

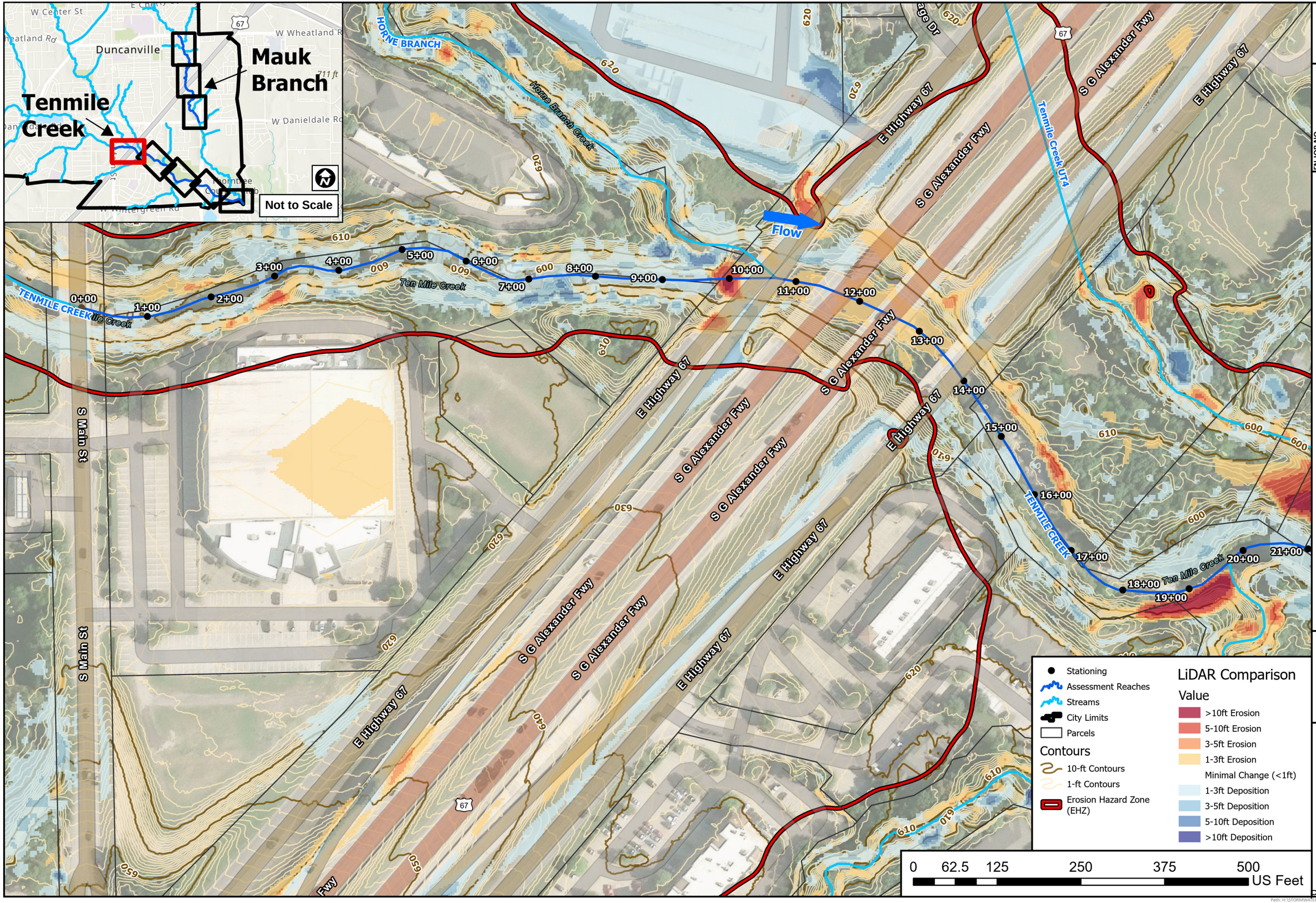


EXHIBIT **5A**

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\NTD\Working_SCK\Working_SCK.aprx

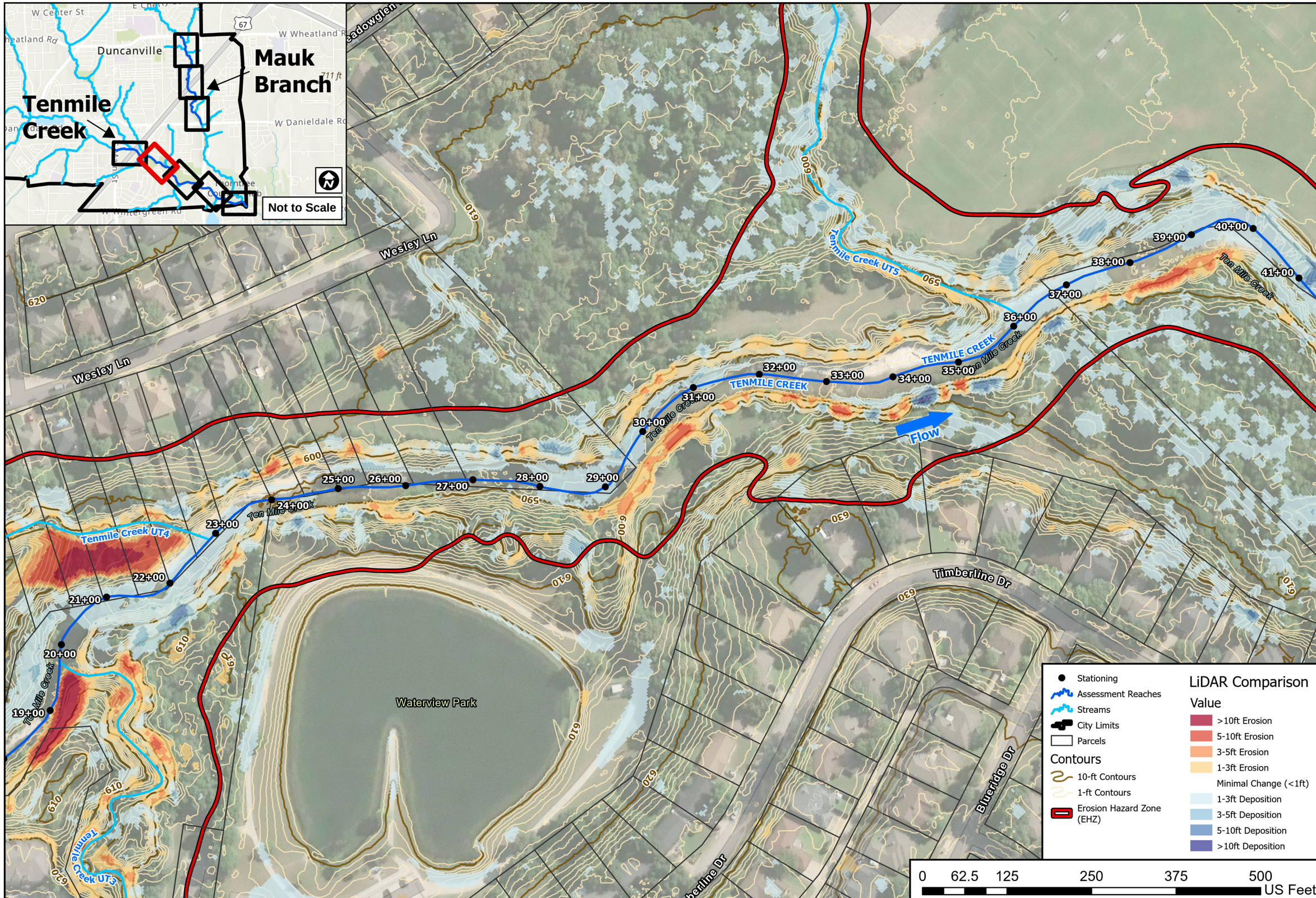


EXHIBIT 5B

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

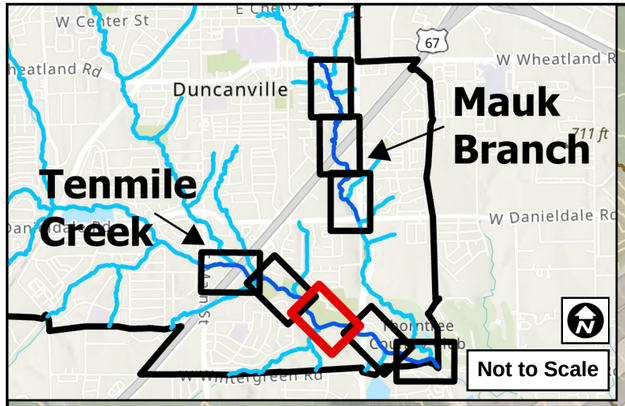


EXHIBIT 5C

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

Harrington Park

Ten Mile Creek

TENMILE CREEK

Flow

Stewart Branch

Stationing
Assessment Reaches
Streams
City Limits
Parcels

Contours
10-ft Contours
1-ft Contours
Erosion Hazard Zone (EHZ)

LiDAR Comparison
Value
>10ft Erosion
5-10ft Erosion
3-5ft Erosion
1-3ft Erosion
Minimal Change (<1ft)
1-3ft Deposition
3-5ft Deposition
5-10ft Deposition
>10ft Deposition

0 62.5 125 250 375 500 US Feet

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\Working_SCK\Working_SCK.aprx

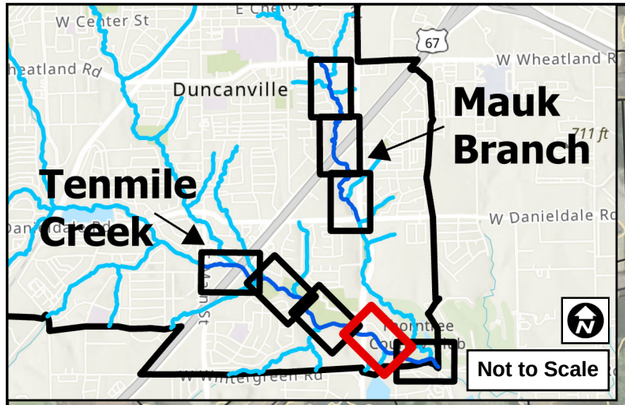


EXHIBIT **5D**

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

Fairway Dr
Cambridge Dr
S Cockrell Hill Rd
TENMILE CREEK
Ten Mile Creek
Flow
610
600
590
580
570
620

62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00 75+00 76+00 77+00 78+00 79+00 80+00 81+00 82+00 83+00 84+00

- Stationing
- Assessment Reaches
- Streams
- City Limits
- Parcels

Contours
- 10-ft Contours
- 1-ft Contours
- Erosion Hazard Zone (EHZ)

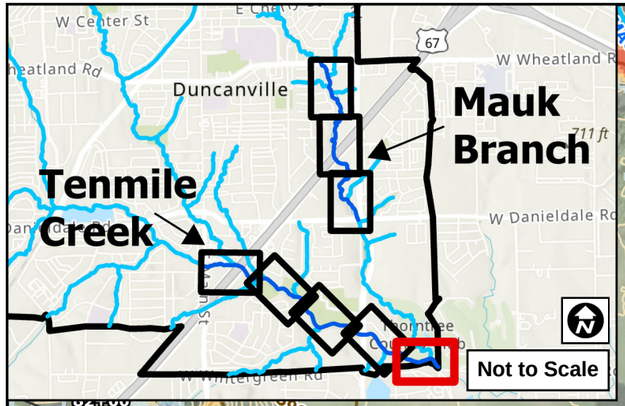
LiDAR Comparison
Value
- >10ft Erosion
- 5-10ft Erosion
- 3-5ft Erosion
- 1-3ft Erosion

Minimal Change (<1ft)
- 1-3ft Deposition
- 3-5ft Deposition
- 5-10ft Deposition
- >10ft Deposition

0 62.5 125 250 375 500 US Feet

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\NTD21805\Working_SCK\Working_SCK.aprx



- Stationing
- Assessment Reaches
- Streams
- City Limits
- Parcels

Contours

- 10-ft Contours
- 1-ft Contours
- Erosion Hazard Zone (EHZ)

LiDAR Comparison

Value

- >10ft Erosion
- 5-10ft Erosion
- 3-5ft Erosion
- 1-3ft Erosion
- Minimal Change (<1ft)
- 1-3ft Deposition
- 3-5ft Deposition
- 5-10ft Deposition
- >10ft Deposition

0 62.5 125 250 375 500 US Feet

EXHIBIT 5E

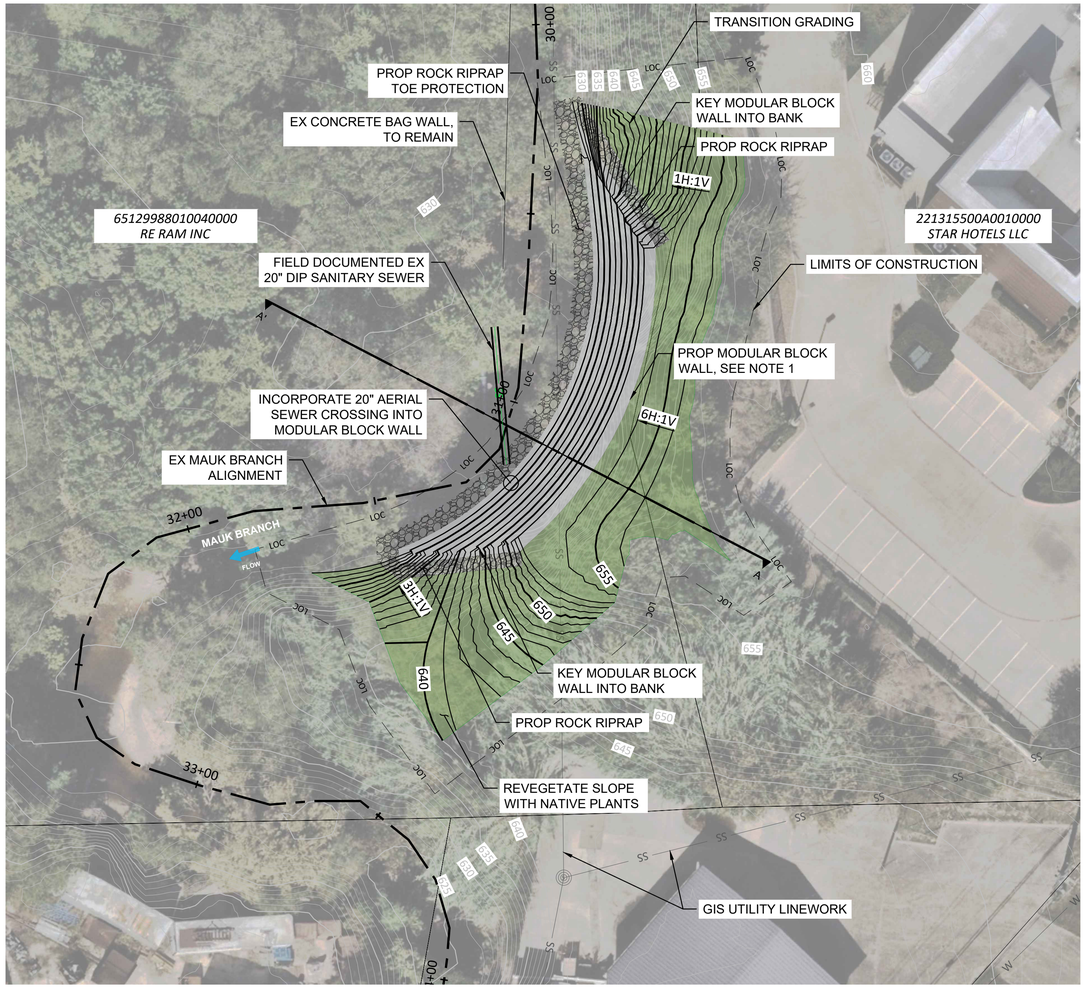
FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

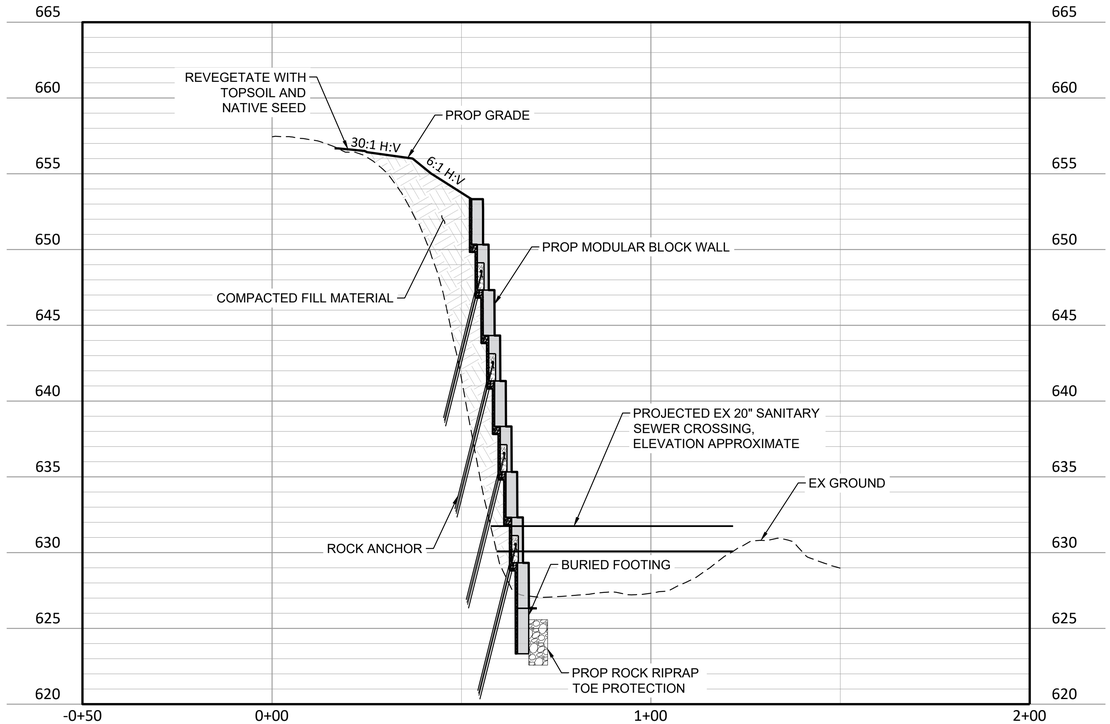
City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\Working\Working_SCK\Working_SCK.aprx





PROFILE A-A'

NOTES:

1. GABION WALL MAY BE USED IN LIEU OF MODULAR BLOCK WALL.
2. ADDITIONAL STRUCTURAL SUPPORT MAY BE NEEDED FOR AERIAL SEWER CROSSING. THIS IS TO BE EVALUATED IN DETAILED DESIGN.
3. ALL DISTURBED SLOPES SHALL BE REVEGETATED WITH NATIVE SEEDING AND PLANTINGS.
4. THE INFORMATION SHOWN IS APPROXIMATE BASED ON BEST AVAILABLE GIS DATA AND 2019 USGS LIDAR, AND SHOULD BE VERIFIED PRIOR TO DESIGN.
5. GEOTECHNICAL DESIGN OF MODULAR BLOCK WALL TO BE COMPLETED AT A LATER DESIGN PHASE.

LEGEND

- ROCK RIPRAP
- MODULAR BLOCK WALL
- NATIVE SEED

N

0 20' 40'
SCALE IN FEET

CONCEPTUAL DESIGN

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMIA FAIK,COMMITTING TO ISSUANCE OF FINAL DOCUMENTS. TEXAS NO. 144924 ON DATE: 1/XX/2026 IT SHALL NOT BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, Texas 76102
Phone - (817) 735-7300
Web - www.freese.com

CITY OF DUNCANVILLE, TEXAS
STREAM CONDITION ASSESSMENT
AREA 1
20" SANITARY SEWER CROSSING

NO.	ISSUE	BY	DATE

F&N JOB NO. DNV25515
DATE MARCH 2026
DESIGNED JFS
DRAWN EAL
REVISED ####
CHECKED
FILE NAME ALT 1 - PP01.dwg

Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
VERIFY SCALE 0 1

SHEET
EXHIBIT 6A
SEQ.

ACAD Rel: 25.1s (LMS Tech)
Filename: T:\ER\CAD\ALT 1 - PP01.dwg
Last Saved: 3/3/2026 3:01 PM Saved By: 09175

Plot Date: 3/3/2026 3:02 PM Plot By: 09175 Filename: T:\ER\CAD\ALT 1 - PP01.dwg

Exhibit 6B

City of Duncanville
Conceptual Design - 20" Sanitary Sewer, Mauk Branch
Opinion of Probable Construction Cost

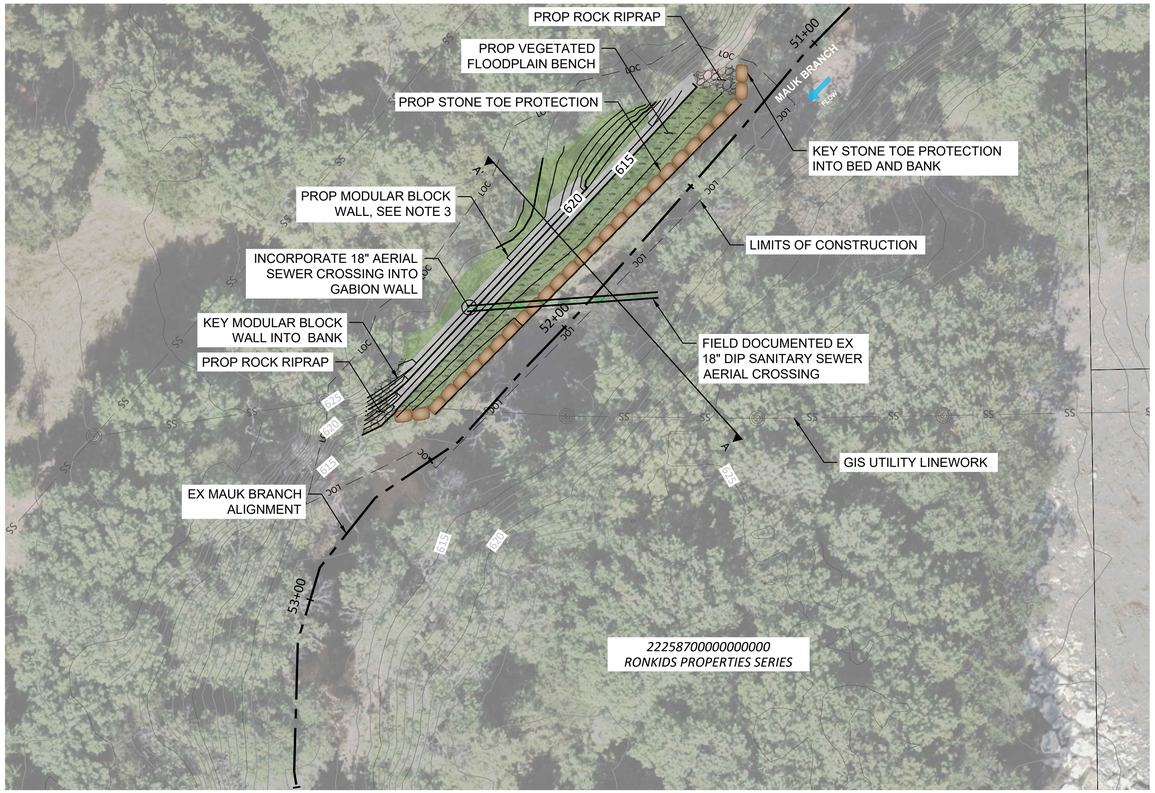
ACCOUNT NO.	ESTIMATOR	CHECKED BY	DATE
DNV25515	EAL	JFS	March 3, 2026

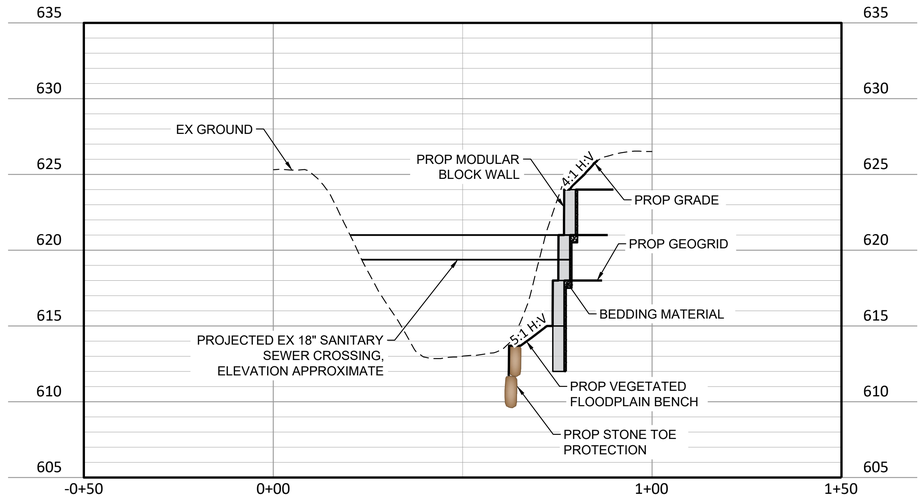
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CONSTRUCTION					
1	Mobilization (10%)	1	LS	$ 151,000	$ 151,000
2	Site Preparation	1	LS	$ 149,000	$ 149,000
3	Demolition & Tree Removal	1	LS	$ 50,000	$ 50,000
4	Excavation and Fill Onsite	120	CY	$ 25	$ 3,000
5	Borrow	620	CY	$ 80	$ 49,600
6	Modular Blocks	2,500	SF	$ 250	$ 625,000
7	Rock Anchor	69	EA	$ 5,000	$ 345,000
8	Biodegradable Erosion Control Matting	480	SY	$ 40	$ 19,200
9	Rock Riprap	140	CY	$ 450	$ 63,000
10	Topsoil (6")	80	CY	$ 100	$ 8,000
11	Revegetation (Seeding)	450	SY	$ 100	$ 45,000
12	Temporary Irrigation and Watering	1	LS	$ 50,000	$ 50,000
13	Contingency for Utility Maintenance and Repair	1	LS	$ 100,000	$ 100,000
				SUBTOTAL:	**$ 1,657,800**
			CONTINGENCY PERCENTAGE:	40%	$ 663,120
				CONSTRUCTION SUBTOTAL:	**$ 2,320,920**
			DESIGN FEE:	15%	$ 348,138
				PROJECT TOTAL:	**$ 2,670,000**

Notes:

1. Costs provided are based on 2025 values. Verification of costs should be performed prior to budgeting.
2. FNI OPCC classified as an AACE Class 4 Estimate with accuracy range or -30 to + 50.
3. FNI OPCC does not include costs associated with permitting, surveying, or geotechnical design.
4. Assumes no public or franchise utilities will be relocated.
5. Site Preparation includes, SWPPP, erosion control devices, and care of water during construction.
6. Demolition includes, but is not limited to tree removal.
7. Assumes no easements required as part of the proposed improvements.
8. Revegetation includes temporary and permanent seeding in disturbed areas.
9. Modular Block Wall includes bedding material.
10. Assumed Rock Riprap Protection depth of 3' and 6" bedding material.
11. Erosion control matting assumed in revegetation areas.

Disclaimer: The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable construction costs provided herein are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.





PROFILE A-A'

NOTES:

1. VEGETATED FLOODPLAIN BENCH SHALL BE REVEGETATED WITH NATIVE RIPARIAN PLANTINGS AND LIVE CUTTINGS.
2. STANDARD BOULDER SIZE FOR STONE TOE PROTECTION IS 4'(L) x 3'(W) x 2'(H).
3. GABION WALL MAY BE USED IN LIEU OF MODULAR BLOCK WALL.
4. ALL DISTURBED SLOPES SHALL BE REVEGETATED WITH NATIVE SEEDING AND PLANTINGS.
5. THE INFORMATION SHOWN IS APPROXIMATE BASED ON BEST AVAILABLE GIS DATA AND 2019 USGS LIDAR, AND SHOULD BE VERIFIED PRIOR TO DESIGN.
6. ADDITIONAL STRUCTURAL SUPPORT MAY BE NEEDED FOR AERIAL SEWER CROSSING. THIS IS TO BE EVALUATED IN DETAILED DESIGN.
7. GEOTECHNICAL DESIGN OF MODULAR BLOCK WALL TO BE COMPLETED AT A LATER DESIGN PHASE.

LEGEND

- ROCK RIPRAP
- MODULAR BLOCK WALL
- RIPARIAN VEGETATION
- NATIVE SEED
- STONE TOE PROTECTION

N

0 20' 40'

SCALE IN FEET

CONCEPTUAL DESIGN

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

NOT FOR CONSTRUCTION

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF: JAIMA FAIK,COMMITTING# TEXAS NO. 144924 ON DATE: 1/XX/2026 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, Texas 76102
Phone - (817) 735-7300
Web - www.freese.com

CITY OF DUNCANVILLE, TEXAS

STREAM CONDITION ASSESSMENT

AREA 2

18" SANITARY SEWER CROSSING

F&N JOB NO.	DNV25515
DATE	MARCH 2026
DESIGNED	JFS
DRAWN	EAL
REVISED	####
CHECKED	
FILE NAME	ALT 2 - PP02.dwg

NO.	ISSUE	BY	DATE

Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

VERIFY SCALE 0 1

SHEET
EXHIBIT 7A

SEQ.

ACAD Rel: 25.1s (LMS Tech)
Filename: T:\ER\CAD\ALT 2 - PP02.dwg
Last Saved: 3/3/2026 2:24 PM Saved By: 09175

Plot Date: 3/3/2026 2:45 PM Plot By: 09175 Filename: T:\ER\CAD\ALT 2 - PP02.dwg

Exhibit 7B

City of Duncanville
Conceptual Design - 18" Sanitary Sewer, Mauk Branch
Opinion of Probable Construction Cost

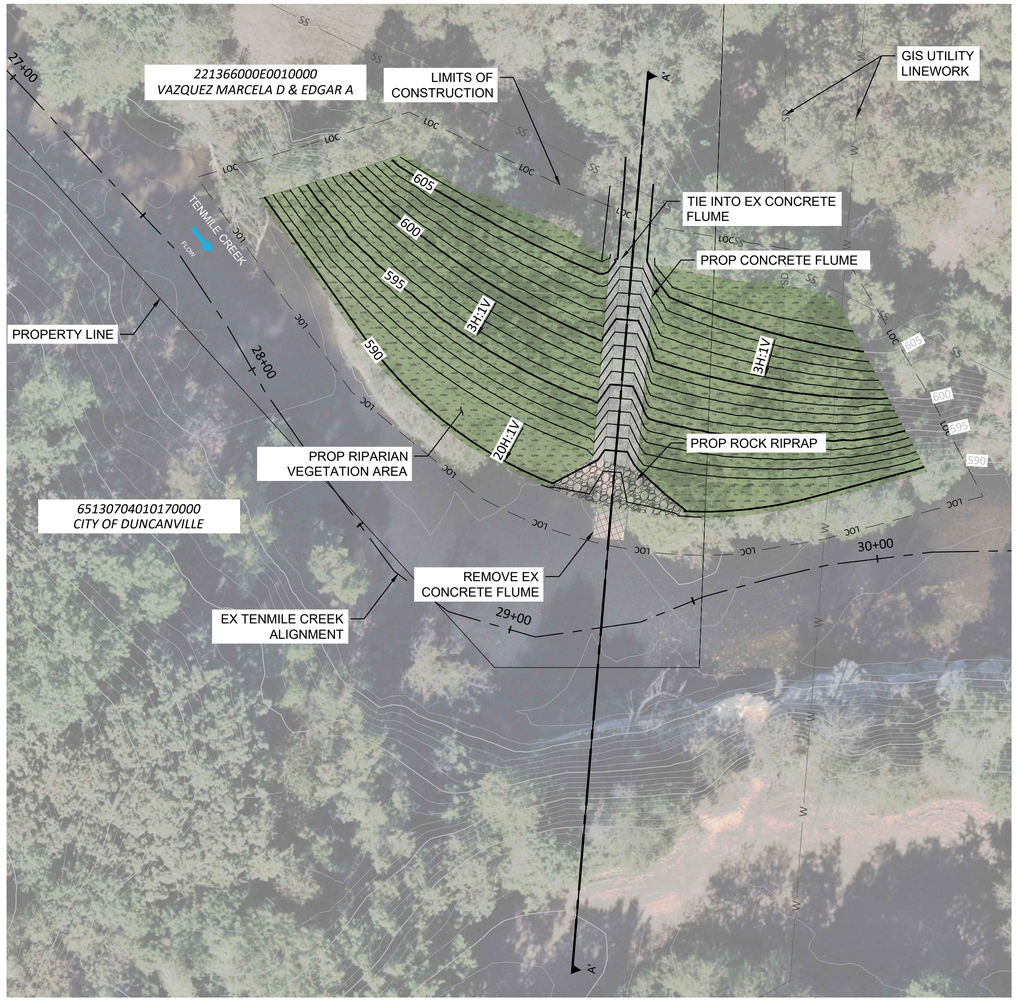
ACCOUNT NO.	ESTIMATOR	CHECKED BY	DATE
DNV25515	EAL	JFS	March 3, 2026

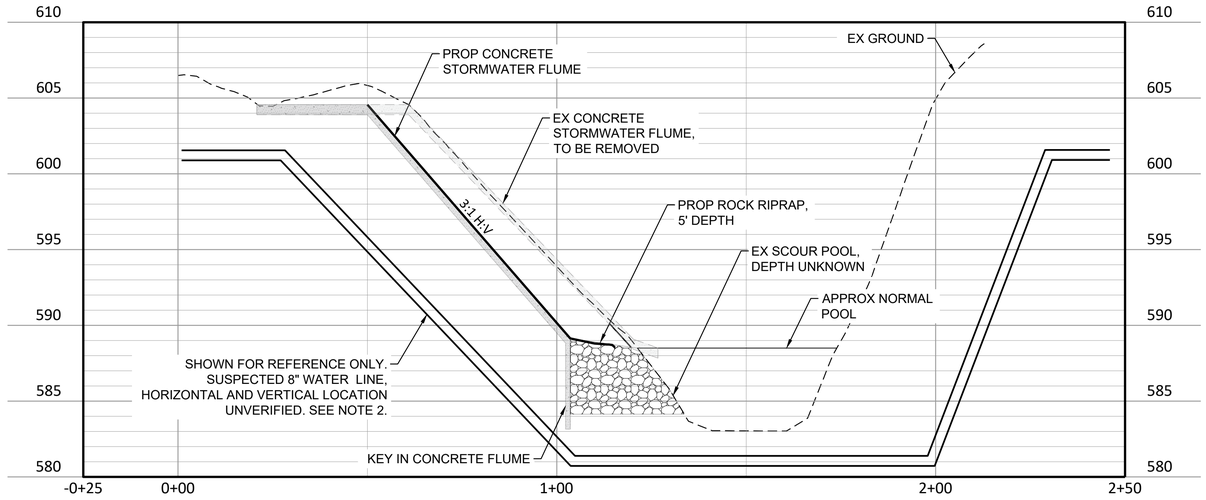
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CONSTRUCTION					
1	Mobilization (10%)	1	LS	$ 60,000	$ 60,000
2	Site Preparation	1	LS	$ 149,000	$ 149,000
3	Demolition & Tree Removal	1	LS	$ 50,000	$ 50,000
4	Unclassified Excavation (Haul Excess)	400	CY	$ 30	$ 12,000
5	Modular Block Wall with Geogrid	840	SF	$ 250	$ 210,000
6	Stone Toe Protection	140	LF	$ 150	$ 21,000
7	Biodegradable Erosion Control Matting	200	SY	$ 40	$ 8,000
8	Rock Riprap	30	CY	$ 450	$ 13,500
9	Topsoil (6")	40	CY	$ 100	$ 4,000
10	Riparian Plantings - Floodplain Bench	100	SY	$ 75	$ 7,500
11	Revegetation (Seeding)	170	SY	$ 100	$ 17,000
12	Temporary Irrigation and Watering	1	LS	$ 50,000	$ 50,000
13	Contingency for Utility Maintenance and Repair	1	LS	$ 50,000	$ 50,000
				SUBTOTAL:	**$ 652,000**
			CONTINGENCY PERCENTAGE:	40%	$ 260,800
				CONSTRUCTION SUBTOTAL:	**$ 912,800**
			DESIGN FEE:	15%	$ 136,920
				PROJECT TOTAL:	**$ 1,050,000**

Notes:

1. Costs provided are based on 2025 values. Verification of costs should be performed prior to budgeting.
2. FNI OPCC classified as an AACE Class 4 Estimate with accuracy range or -30 to + 50.
3. FNI OPCC does not include costs associated with permitting, surveying, or geotechnical design.
4. Assumes no public or franchise utilities will be relocated.
5. Site Preparation includes, SWPPP, erosion control devices, and care of water during construction.
6. Demolition includes, but is not limited to tree removal.
7. Assumes no easements required as part of the proposed improvements.
8. Revegetation includes temporary and permanent seeding in disturbed areas including the floodplain bench.
9. Stone toe protection assumes 2 layers of stacked stone with the dimensions 4'(L) 3'(W) 2'(H).
10. Modular Block Wall includes modular blocks, geogrid, and bedding material.
11. Assumed Rock Riprap Protection depth of 3' and 6" bedding material.
12. Erosion control matting assumed in revegetation areas.

Disclaimer: The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable construction costs provided herein are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.





PROFILE A-A'

LEGEND

ROCK RIPRAP

CONCRETE

RIPARIAN VEGETATION

NOTES:

1. THE INFORMATION SHOWN IS APPROXIMATE BASED ON BEST AVAILABLE GIS DATA AND 2019 USGS LIDAR, AND SHOULD BE VERIFIED PRIOR TO DESIGN.
2. ADDITIONAL SURVEY AND SUE DATA NEEDED IN DETAILED DESIGN TO VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES.
3. ADDITIONAL STRUCTURAL SUPPORT MAY BE NEEDED FOR WATER LINE CROSSING. THIS IS TO BE EVALUATED IN DETAILED DESIGN.
4. RIPRAIAN VEGETATION AREA AND 3:1 SLOPES SHALL BE REVEGETATED WITH NATIVE RIPARIAN PLANTINGS AND LIVE CUTTINGS.
5. ALL DISTURBED AREAS SHALL BE REVEGETATED WITH NATIVE SEEDING.

N

0 20' 40'
SCALE IN FEET

CONCEPTUAL DESIGN

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF: JAIMAHFAR,COMMITTEE=3-6 TEXAS NO. 144824 ON DATE: 1/XX/2026 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, Texas 76102
Phone - (817) 735-7300
Web - www.freese.com

CITY OF DUNCANVILLE, TEXAS

STREAM CONDITION ASSESSMENT

AREA 3
CONCRETE STORMWATER FLUME

F&N JOB NO.	DNV25515
DATE	MARCH 2026
DESIGNED	JFS
DRAWN	EAL
REVISED	####
CHECKED	
FILE NAME	ALT 3 - PP03.dwg

NO.	ISSUE	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1

SHEET
EXHIBIT 8A

SEQ.

ACAD Rel: 25.1s (LMS Tech)
Filename: T:\ER\CAD\ALT 3 - PP03.dwg
Last Saved: 3/4/2026 10:24 AM Saved By: 09175

Plot Date: 3/4/2026 10:25 AM Plot By: 09175 Filename: T:\ER\CAD\ALT 3 - PP03.dwg

Exhibit 8B

City of Duncanville
Conceptual Design - Stormwater Flume, Tenmile Creek
Opinion of Probable Construction Cost

ACCOUNT NO.	ESTIMATOR	CHECKED BY	DATE
DNV25515	EAL	JFS	March 3, 2026

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CONSTRUCTION					
1	Mobilization (10%)	1	LS	$ 84,000	$ 84,000
2	Site Preparation	1	LS	$ 287,000	$ 287,000
3	Demolition & Tree Removal	1	LS	$ 75,000	$ 75,000
4	Unclassified Excavation (Haul Excess)	780	CY	$ 30	$ 23,400
5	Reinforced Concrete Flume (12' wide) w/ Cutoff Wall	100	SY	$ 250	$ 25,000
6	Biodegradable Erosion Control Matting	980	SY	$ 40	$ 39,200
7	Rock Riprap	60	CY	$ 450	$ 27,000
8	Topsoil (6")	170	CY	$ 100	$ 17,000
9	Riparian Plantings	930	SY	$ 75	$ 69,750
10	Revegetation (Seeding)	930	SY	$ 100	$ 93,000
11	Temporary Irrigation and Watering	1	LS	$ 75,000	$ 75,000
12	Contingency for Utility Protection	1	LS	$ 100,000	$ 100,000
				SUBTOTAL:	**$ 915,350**
			CONTINGENCY PERCENTAGE:	40%	$ 366,140
				CONSTRUCTION SUBTOTAL:	**$ 1,281,490**
			DESIGN FEE:	15%	$ 192,224
				PROJECT TOTAL:	**$ 1,474,000**

Notes:

1. Costs provided are based on 2025 values. Verification of costs should be performed prior to budgeting.
2. FNI OPCC classified as an AACE Class 4 Estimate with accuracy range or -30 to + 50.
3. FNI OPCC does not include costs associated with permitting, surveying, or geotechnical design.
4. Assumes no franchise utilities will be relocated.
5. Site Preparation includes, SWPPP, erosion control devices, and care of water during construction.
6. Demolition includes, but is not limited to tree and concrete flume removal.
7. Assumes no easements required as part of the proposed improvements.
8. Riparian Plantings includes 3:1 slopes and riparian vegetation area.
9. Revegetation includes temporary and permanent seeding in disturbed areas including the riparian vegetation area.
10. Reinforced concrete flume is a trapezoid with a 6' bottom width, depth of 1.5', and 2:1 side slopes.
11. Assumed Rock Riprap Protection depth of 5' and 6" bedding material.
12. Erosion control matting assumed in revegetation areas.
13. Utility protection may include but is not limited to concrete encasement or utility relocation.

Disclaimer: The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable construction costs provided herein are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

APPENDIX A
FIELD PHOTOGRAPHS

MAUK BRANCH



Photo 1 – STA 1+00 – 21-inch stormwater outfall inside East Wheatland Road culvert



Photo 2 – STA 1+25 – Looking downstream from East Wheatland Road.

MAUK BRANCH



Photo 3 – STA 1+50 – Looking upstream at the East Wheatland Road culvert.



Photo 4 – STA 2+00 – Erosion undermining the downstream end of the concrete head wall.

MAUK BRANCH



Photo 5 – Near STA 3+00 – Looking downstream along the left bank at a concrete bag wall.



Photo 6 – Near STA 4+50 – **Problem area rank: 6**. Private 8-inch utility crossing, looking downstream. Local scour around piers and on right bank.

MAUK BRANCH



Photo 7 – STA 6+00 – Looking downstream, increased prominence of bedrock benches.



Photo 8 – Near STA 6+50 –Potential drainage feature on left bank indicated by trash accumulation and local scour.

MAUK BRANCH

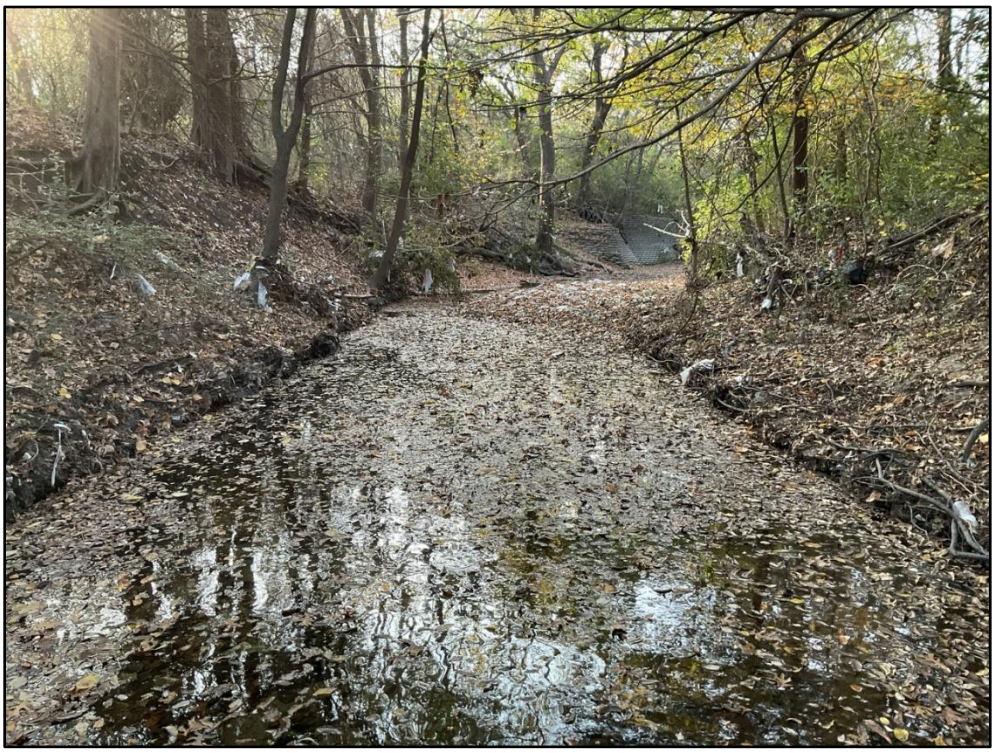


Photo 9 – STA 7+50 – Location of Mauk Branch cross section 1, looking downstream.



Photo 10 – STA 8+50 – Concrete stormwater flume on the left bank. 30-inch corrugated metal outfall located at the top of the concrete flume.

MAUK BRANCH



Photo 11 – Near STA 9+00 – **Problem area rank: 8**. 18-inch sanitary sewer crossing, looking upstream. Some bed scour and significant debris accumulation on upstream side.



Photo 12 – Near STA 11+00 – Looking downstream, the left bank exhibits a "Moderate" BEHI rating.

MAUK BRANCH



Photo 13 – STA 12+00 – Looking upstream along Mauk Branch Unnamed Tributary 6.



Photo 14 – Near STA 12+00 – **Problem area rank: 15**. 30-inch concrete stormwater outfall on right bank. Flow line is approximately 28 inches above bed elevation.

MAUK BRANCH



Photo 15 – STA 13+50 – This bank exhibits a "Low" BEHI rating – although the bank is steep, it is composed of bedrock that reduces the overall bank erosion potential.



Photo 16 – STA 15+50 – Looking downstream. Both banks exhibit a "Low" BEHI rating.

MAUK BRANCH



Photo 17 – STA 16+50 – Looking downstream at representative channel conditions.



Photo 18 – Near STA 21+50 – Looking downstream. Left bank exhibits “High” BEHI rating.

MAUK BRANCH



Photo 19 – STA 22+00 – Looking downstream at channel bar composed of broken bedrock and concrete debris. Large broken tree downstream as well.



Photo 20 – STA 23+00 – 30-inch concrete stormwater outfall in good condition.

MAUK BRANCH



Photo 21 – STA 24+00 – Looking downstream at a section of channel with less bedrock influence on the bed. Sediment deposition on the right bank is a point bar on the inside of a meander bend.



Photo 22 – STA 24+50 – Looking downstream where the bedrock influence returns.

MAUK BRANCH



Photo 23 – STA 26+00 – Looking downstream, left bank is tall and steep. At this location, geotechnical bank failure is of greater concern than stream bank erosion.



Photo 24 – STA 26+50 – **Problem area rank: 13**. Steep drainage feature on left bank, likely from mapped stormwater outfall. The outfall was inaccessible in the field due to the height and steepness of the bank.

MAUK BRANCH



Photo 25 – STA 27+50 – Looking downstream at representative conditions.



Photo 26 – STA 29+50 – Concrete bag wall in good condition.

MAUK BRANCH



Photo 27 – STA 30+00 – Looking upstream. The channel corridor narrows between Sta. 29+00 – 30+50 where the channel is confined by a concrete bag wall on the right bank and bedrock on the left bank.



Photo 28 – STA 31+00 – **Problem area rank: 4 (★ Area 1 ★)**. Looking downstream. A 20-inch sanitary sewer crossing emerges from a bag wall on the right bank. The left bank is heavily eroded around the pipe with no observed protection.

MAUK BRANCH



Photo 29 – STA 32+50 – Looking downstream at erosion on outer right bank. Fallen tree and broken concrete protection.



Photo 30 – Near STA 34+00 – **Problem area rank: 14**. Modular articulated block wall in poor condition. Grouted riprap toe is undercut by roughly two feet.

MAUK BRANCH

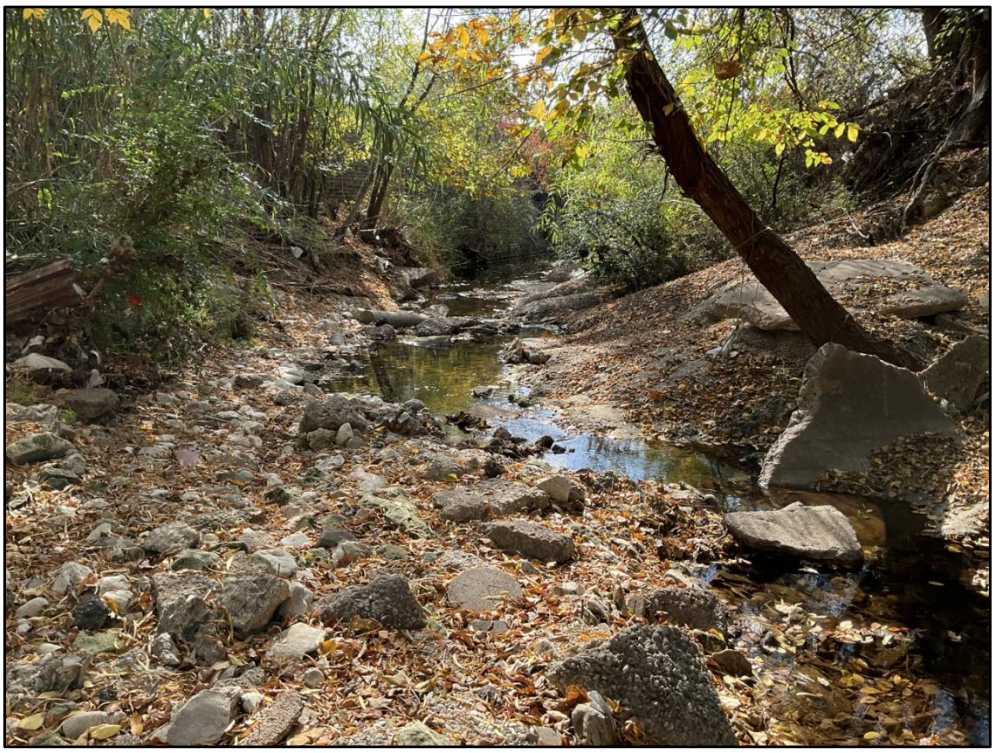


Photo 31 – STA 35+50 – Looking downstream at steeper section stabilized with rock riprap and concrete debris.



Photo 32 – STA 36+00 – Concrete encasement observed in stream bed. Some local scour of concrete, but generally in fair condition. No exposure where encasement intersects stream banks.

MAUK BRANCH



Photo 33 – STA 37+00 – Looking upstream at an 8-inch sanitary sewer crossing in fair condition. There is some local scour around the pier on the left bank and some breakage of the gabion baskets on the right bank.



Photo 34 – STA 38+00 – Looking downstream at conditions under Highway 67.

MAUK BRANCH



Photo 35 – STA 39+00 – 36-inch concrete stormwater outfall.



Photo 36 – STA 40+00 – 48-inch concrete stormwater outfall.

MAUK BRANCH



Photo 37 – STA 40+50 – 18-inch concrete stormwater outfall with flume.



Photo 38 – STA 43+00 – Looking upstream at a 36-inch aerial sanitary sewer crossing. The crossing appears to be in good condition.

MAUK BRANCH



Photo 39 – STA 45+00 – Looking downstream. The right bank exhibits “Very High” BEHI rating.



Photo 40 – STA 45+50 – Looking downstream at the location of Mauk Branch cross section 2.

MAUK BRANCH



Photo 41 – Near STA 51+50 – 42-inch concrete stormwater outfall.



Photo 42 – Near STA 51+50 – **Problem area rank: 5 (★ Area 2 ★)**. Looking downstream at an 18-inch aerial sanitary sewer crossing. Significant scour on the right bank.

MAUK BRANCH



Photo 43 – STA 53+50 – Small drainage feature on right bank.



Photo 44 – Near STA 54+00 – Looking downstream at representative channel conditions.

MAUK BRANCH



Photo 45 – Near STA 57+00 – **Problem area rank: 9**. 24-inch concrete stormwater outfall. Flowline is approximately 10 feet above the existing stream bed.



Photo 46 – STA 58+00 – Looking downstream where the channel bed visibly steepens into bedrock.

MAUK BRANCH



Photo 47 – STA 59+50 – **Problem area rank: 12**. 60-inch concrete stormwater outfall. Flowline is approximately 10 feet above the existing stream bed.



Photo 48 – STA 60+00 – Looking upstream at Mauk Branch Unnamed Tributary 7.

MAUK BRANCH



Photo 49 – STA 63+00 – Looking downstream at representative channel conditions.



Photo 50 – STA 65+00 – Fallen tree across channel (evidence of widening).

MAUK BRANCH



Photo 51 – STA 66+00 – Looking downstream at the Eeast Danieldale Road culvert.



Photo 52 – STA 66+00 – Significant deposition in left cell of East Danieldale Road culvert.

MAUK BRANCH



Photo 53 – STA 67+00 – 21-inch concrete stormwater outfall in right cell of East Danieldale Road culvert.



Photo 54 – STA 69+00 – **Problem area rank: 20**. Looking upstream at the other side of the East Danieldale Road culvert. Trees are growing out of well-established sediment deposition in the left cell.

TENMILE CREEK



Photo 55 – Near STA 0+00 – Conditions at South Main Street, looking upstream at broken concrete protection in channel.



Photo 56 – STA 0+50 – 60-inch concrete stormwater outfall.

TENMILE CREEK



Photo 57 – STA 0+50 – 36-inch aerial sanitary sewer crossing. Minor scour and debris build up.

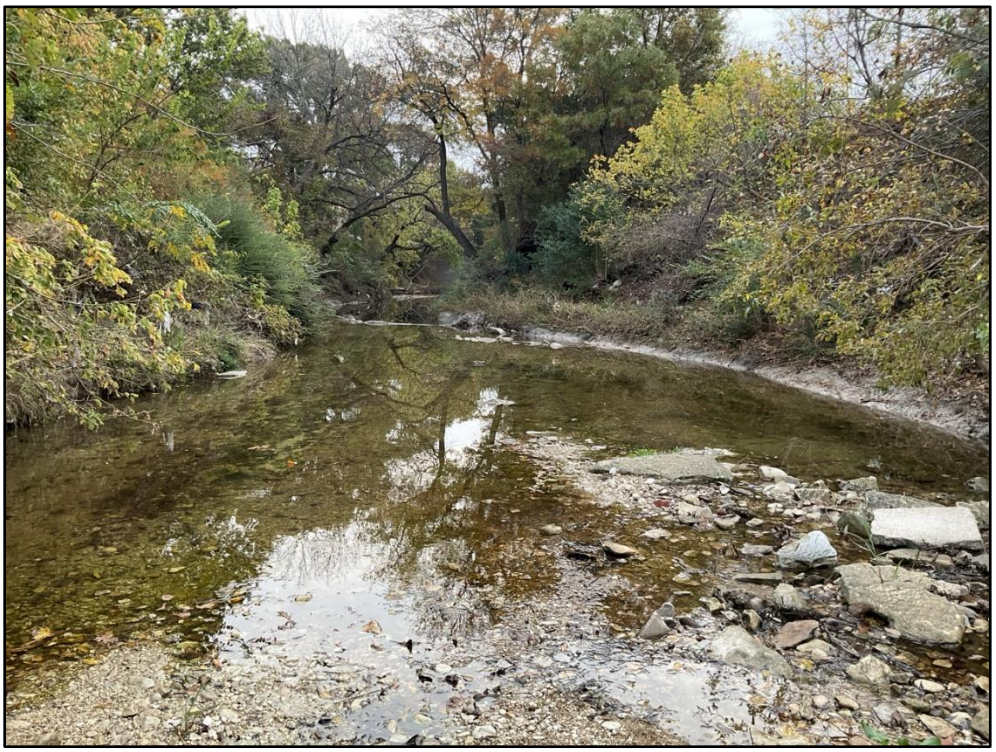


Photo 58 – STA 2+00 – Looking downstream at transition from concrete bank protection to natural banks.

TENMILE CREEK



Photo 59 – Near STA 3+00 – Looking downstream at a significant scour pool.



Photo 60 – STA 5+00 – **Problem area rank: 16**. 18-inch corrugated plastic stormwater outfall with small concrete flume and rock riprap, approximately 6 to 8 feet above the water surface.

TENMILE CREEK



Photo 61 – Near STA 5+50 – **Problem area rank: 7**. Concrete bag wall on left bank. There is significant erosion on downstream end of wall and evidence of vertical settling and cracking on the wall.



Photo 62 – STA 6+50 –Increased bedrock influence on channel bed and banks, looking downstream.

TENMILE CREEK



Photo 63 – Near STA 8+50 – Looking downstream at the location of Tenmile Creek cross section 1.



Photo 64 – STA 10+00 – Looking upstream at two-foot bedrock knickpoint immediately upstream of Highway 67.

TENMILE CREEK



Photo 65 – STA 10+00 – Looking upstream along Horne Branch.



Photo 66 – Near STA 10+00 – Two 36-inch aerial sanitary sewer crossings at Horne Branch.

TENMILE CREEK



Photo 67 – STA 11+00 – 36-inch concrete stormwater outfall between gabion baskets.



Photo 68 – STA 12+50 – Looking upstream at conditions under Highway 67; significant bedrock influence.

TENMILE CREEK



Photo 69 – STA 14+50 – Two 18-inch aerial utility crossings appear to be in fair condition with notable bed scour at central pier.



Photo 70 – STA 17+00 – Channel conditions looking downstream.

TENMILE CREEK



Photo 71 – STA 19+50 – Looking upstream along Tenmile Creek Unnamed Tributary 3.

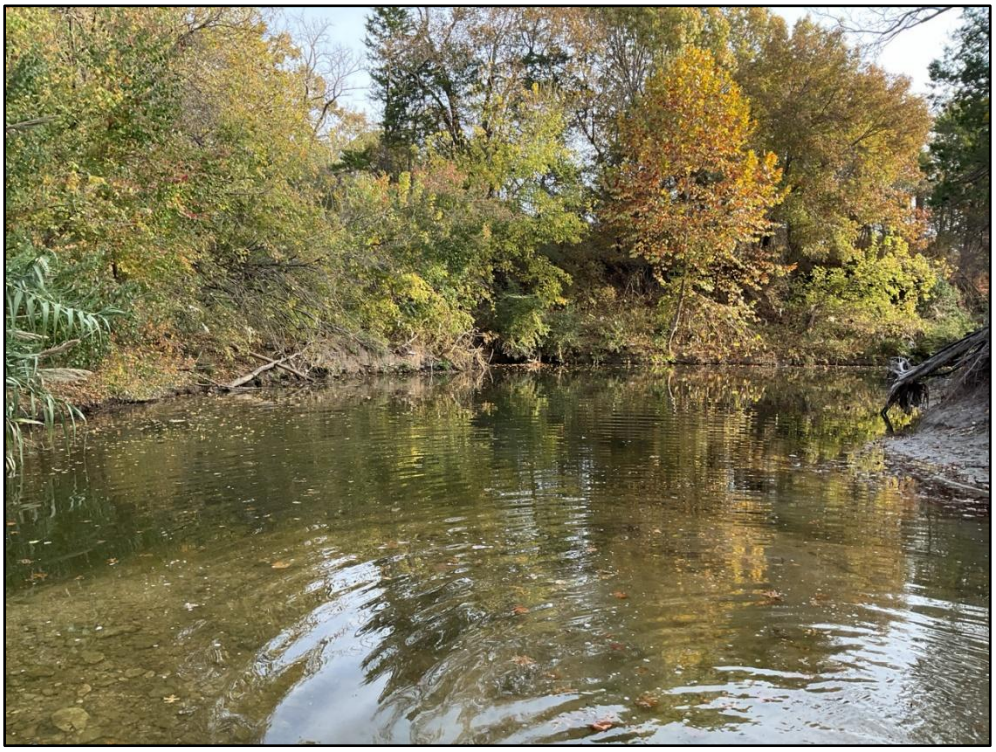


Photo 72 – Near STA 19+50 – Looking downstream at a deep scour pool.

TENMILE CREEK



Photo 73 – STA 23+00 – Looking upstream along Tenmile Creek Unnamed Tributary 4.



Photo 74 – STA 23+50 – Looking upstream; bedrock influence on channel bed and banks.

TENMILE CREEK



Photo 75 – Near STA 26+50 – Vegetated channel bench.



Photo 76 – STA 28+50 – **Problem area rank: 11 (★ Area 3 ★)**. Looking upstream at a concrete stormwater flume located on a deep scour pool. The flume is undermined and approximately 12 feet above the channel bed elevation.

TENMILE CREEK



Photo 77 – STA 32+00 – 8-inch aerial sanitary sewer crossing. Minor scour around in-channel piers.

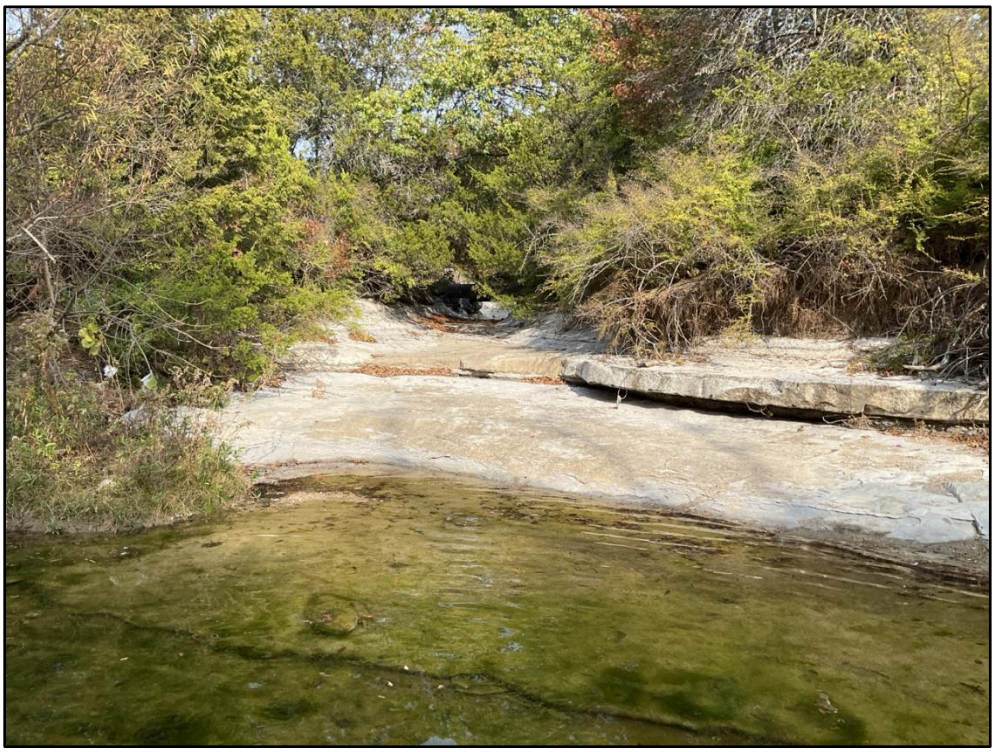


Photo 78 – STA 36+00 – Looking upstream at Tenmile Creek Unnamed Tributary 5.

TENMILE CREEK



Photo 79 – Near STA 36+50 – Two 36-inch aerial sanitary sewer crossings on Tenmile Creek Unnamed Tributary 5 in fair condition. Moderate deterioration of grouted rock riprap at banks and minor pier scour.



Photo 80 – STA 38+00 – Looking upstream at a small knickpoint in bedrock.

TENMILE CREEK



Photo 81 – Near STA 41+00 – Concrete bag wall in fair condition, looking upstream. Some erosion on downstream end and minor toe scour.



Photo 82 – STA 42+50 – Looking downstream at a riffle like section over boulders, cobbles, and concrete debris.

TENMILE CREEK



Photo 83 – STA 48+50 – Looking downstream. The right bank exhibits a “Very High” BEHI score.



Photo 84 – STA 49+50 – A point bar on the left bank.

TENMILE CREEK



Photo 85 – STA 50+50 – Looking downstream at a 36-inch aerial sanitary sewer crossing. Some piers on left bank appear to be leaning. See **Photo 86** for right bank condition.



Photo 86 – STA 50+50 – **Problem area rank: 2**. Looking downstream at a 36-inch aerial sanitary sewer crossing (also see **Photo 85**). No visible protection on right bank. The pipe is exposed on the right bank of Stewart Branch (at the right edge of the photo).

TENMILE CREEK



Photo 87 – Near STA 50+50 – Looking upstream along Stewart Branch.



Photo 88 – STA 54+50 – Representative channel conditions, looking downstream.

TENMILE CREEK



Photo 89 – STA 55+50 – **Problem area rank: 17**. Concrete bag wall flume; lower portion is partially undermined.



Photo 90 – STA 58+00 – **Problem area rank: 18**. Unmapped, likely abandoned pipes protruding from the left bank.

TENMILE CREEK



Photo 91 – STA 61+00 – Looking upstream at concrete bag wall in fair condition.



Photo 92 – STA 64+50 – Looking downstream at the location of Tenmile Creek cross section 2.

TENMILE CREEK



Photo 93 – Near STA 66+00 – Looking downstream at a concrete bag wall at South Cockrell Hill Road. Bag wall in fair condition, with some erosion at the upstream end and a trench in the channel bed along to toe.



Photo 94 – STA 66+50 – 30-inch concrete stormwater outfall with flume on the right bank.

TENMILE CREEK



Photo 95 – Near STA 67+50 – Conditions under South Cockrell Hill Road, looking downstream.



Photo 96 – STA 67+50 – 30-inch concrete stormwater outfall with flume on the left bank.

TENMILE CREEK



Photo 97 – STA 69+00 – Large mid-channel bar, looking downstream.



Photo 98 – STA 72+00 – Looking upstream, flow hugs right bank. A linear pour of concrete is located on the bedrock adjacent to flow.

TENMILE CREEK



Photo 99 – STA 73+00 – Fallen tree in channel and “Very High” BEHI score.



Photo 100 – STA 75+00 – 21-inch concrete stormwater outfall with flume at top of concrete bag wall.

TENMILE CREEK



Photo 101 – STA 77+00 – Looking upstream along Tenmile Creek Unnamed Tributary 6.



Photo 102 – STA 79+00 – **Problem area rank: 1**. Unmapped, potentially abandoned 18-inch pipe. The pipe is exposed along the entire channel bed with some debris accumulation.

TENMILE CREEK



Photo 103 – STA 80+50 – Looking downstream, representative channel conditions.



Photo 104 – STA 82+00 – **Problem area rank: 19**. Concrete stormwater outfall. Flowline is approximately 8 feet above the water surface.

TENMILE CREEK



Photo 105 – STA 85+50 – Looking downstream at concrete bag wall in good condition.



Photo 106 – STA 88+00 – 48-inch concrete stormwater outfall on right bank with patch of moss below.

TENMILE CREEK



Photo 107 – STA 91+00 – Looking downstream, the right bank is near vertical bedrock.



Photo 108 – STA 92+00 – Location of Tenmile Creek cross section 3, looking downstream.

TENMILE CREEK



Photo 109 – STA 94+00 – **Problem area rank: 10**. 24- and 48-inch corrugated metal pipe stormwater outfalls on right bank.



Photo 110 – STA 94+50 – Looking upstream along Mauk Branch.

TENMILE CREEK



Photo 111 – STA 94+50 – **Problem area rank: 3**. Gabion wall along the left bank. The downstream end of the wall has eroded and settled and there is an unmapped exposed pipe.



Photo 112 – STA 97+00 – 36-inch aerial sanitary sewer crossing, looking downstream. Right bank protection is undermined.

TENMILE CREEK

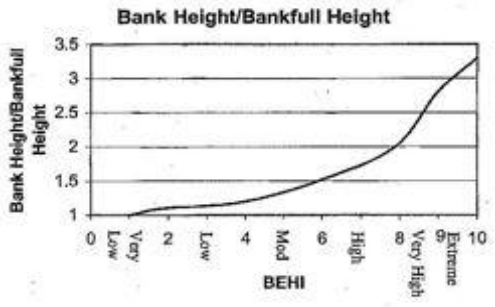


Photo 113 – STA 98+50 – Looking downstream at Wintergreen Road.

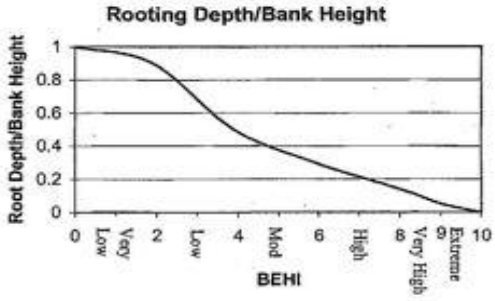
APPENDIX B
REPRESENTATIVE BANK EROSION HAZARD INDEX (BEHI) FIELD FORMS

BEHI Variable Worksheet

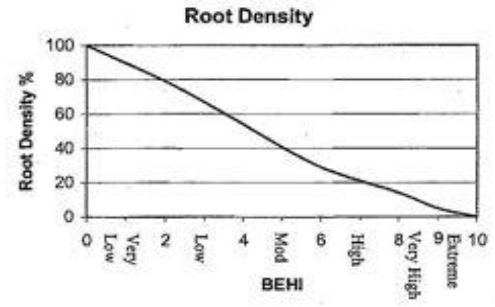
Stream:	Mauk Branch		**Station/Cross Section:**	13+50	
Stream Type:	F	**Valley Type:**	**Reach:**	**Date:**	Nov. 18, 2025
Observers:	SCK, JFS, EAL		**Photos:**		



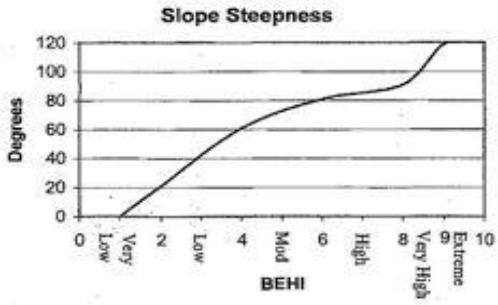
A	**Bank Ht**	12
B	**Bankfull Ht**	2
C	**(A/B)**	6
⇨		10.0



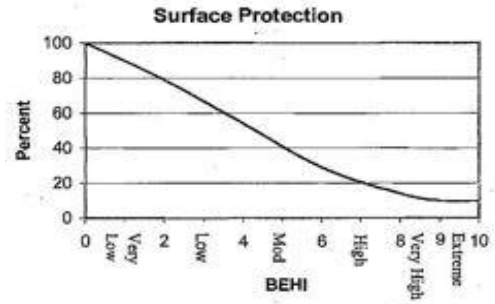
D	**Root Depth**	3
A	**Bank Ht**	12
E	**(D/A)**	0.25
⇨		6.5



F	**Root Density**	30
G	**(F*E)**	7.5
⇨		8.7



H	**Slope**	70
⇨		5.0



I	**Surface Protection**	10
⇨		9.0

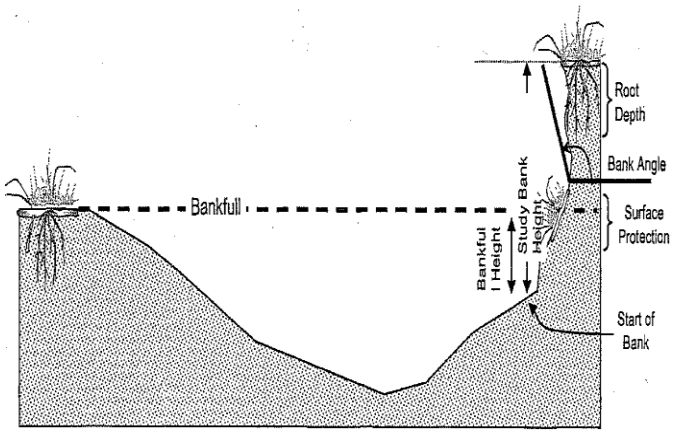
Bank Material Adjustment		
Bedrock	(Overall Very Low BEHI)	-20.0
Boulders	(Overall Low BEHI)	
Cobble	(-10 if uniform medium to large)	
Gravel	(+5-10 depending on % sand)	
Sand	(+10)	
Silt/Clay	(No adjustment; -20 if mostly clay)	

Stratification Adjustment	
Add 5-10 points, depending on position of unstable layers in relation to bankfull stage	0.0

VERY LOW	LOW	MODERATE	HIGH	VERY HIGH	EXTREME
5 - 9.5	10 - 19.5	20 - 29.5	30 - 39.5	40 - 45	46 - 50

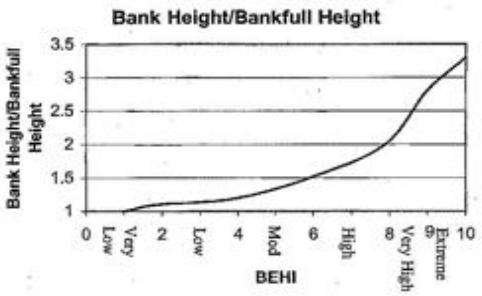
⇨ **ADJECTIVE RATING** and **TOTAL SCORE**: **Low** / 19.2



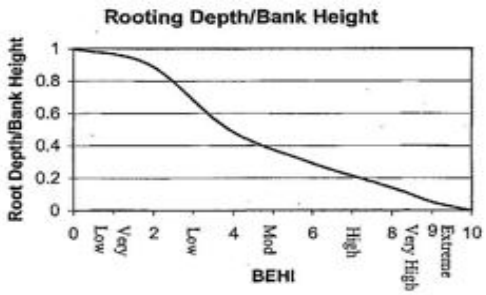


BEHI Variable Worksheet

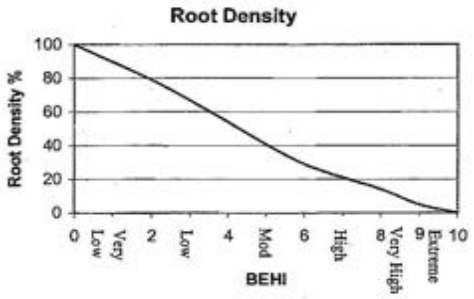
Stream:	Tenmile Creek		**Station/Cross Section:**	68+00	
Stream Type:	F	**Valley Type:**	**Reach:**	**Date:**	Nov. 19, 2025
Observers:	SCK, JFS, EAL		**Photos:**		



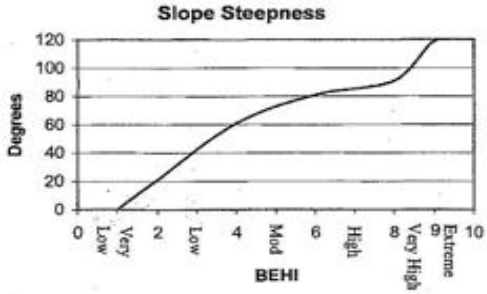
A	**Bank Ht**	5
B	**Bankfull Ht**	2
C	**(A/B)**	2.5
⇨		8.6



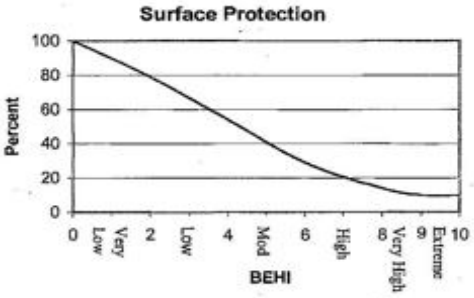
D	**Root Depth**	5
A	**Bank Ht**	5
E	**(D/A)**	1
⇨		1.0



F	**Root Density**	80
G	**(F*E)**	80
⇨		1.9



H	**Slope**	25
⇨		2.2



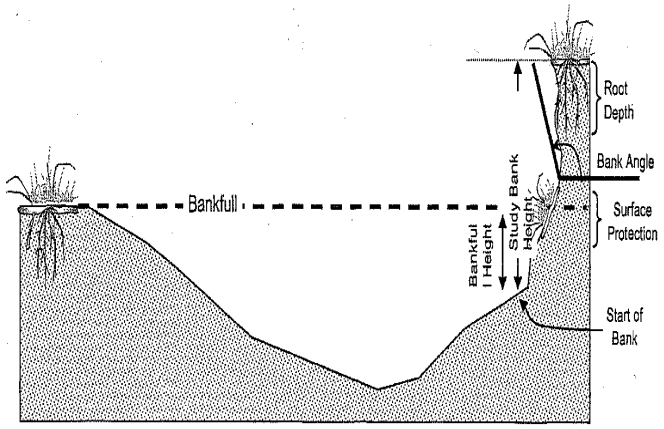
I	**Surface Protection**	80
⇨		1.9

Bank Material Adjustment		
Bedrock	(Overall Very Low BEHI)	0.0
Boulders	(Overall Low BEHI)	
Cobble	(-10 if uniform medium to large)	
Gravel	(+5-10 depending on % sand)	
Sand	(+10)	
Silt/Clay	(No adjustment; -20 if mostly clay)	

Stratification Adjustment	
Add 5-10 points, depending on position of unstable layers in relation to bankfull stage	0.0

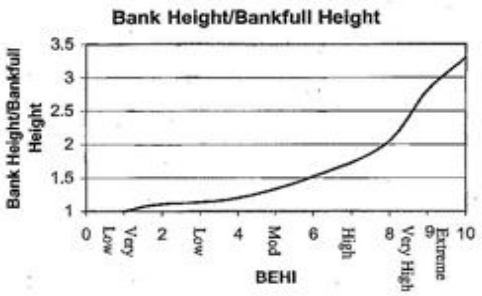
VERY LOW	LOW	MODERATE	HIGH	VERY HIGH	EXTREME		
5 - 9.5	10 - 19.5	20 - 29.5	30 - 39.5	40 - 45	46 - 50	⇨	**ADJECTIVE RATING** and **TOTAL SCORE** → Low / 15.6



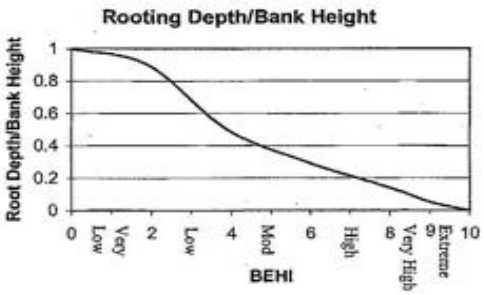


BEHI Variable Worksheet

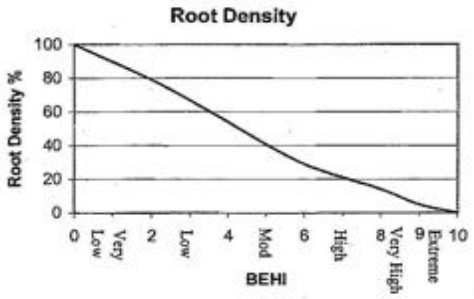
Stream:	Mauk Branch		**Station/Cross Section:**	1+50	
Stream Type:	F	**Valley Type:**	**Reach:**	**Date:**	Nov. 18, 2025
Observers:	SCK, JFS, EAL		**Photos:**		



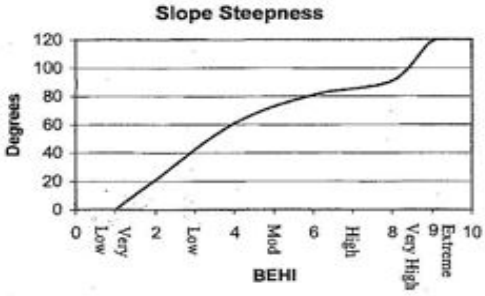
A	**Bank Ht**	6
B	**Bankfull Ht**	2
C	**(A/B)**	3
⇨		9.2



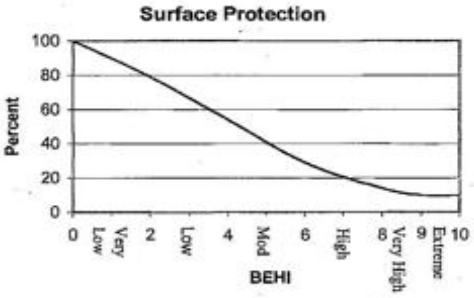
D	**Root Depth**	6
A	**Bank Ht**	6
E	**(D/A)**	1
⇨		1.0



F	**Root Density**	40
G	**(F*E)**	40
⇨		5.1



H	**Slope**	30
⇨		2.4



I	**Surface Protection**	40
⇨		5.1

Bank Material Adjustment		
Bedrock	(Overall Very Low BEHI)	0.0
Boulders	(Overall Low BEHI)	
Cobble	(-10 if uniform medium to large)	
Gravel	(+5-10 depending on % sand)	
Sand	(+10)	
Silt/Clay	(No adjustment; -20 if mostly clay)	

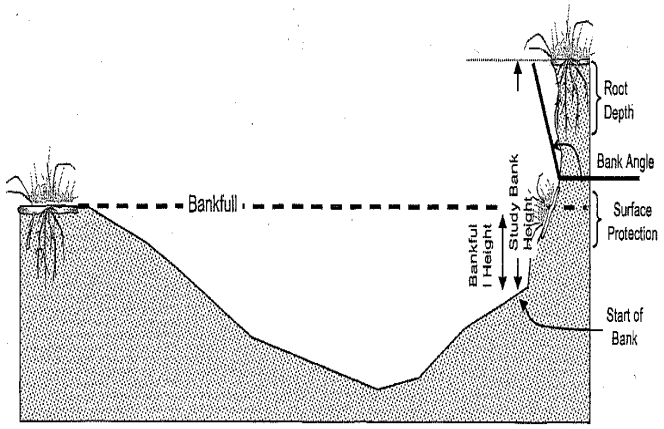
Stratification Adjustment	
Add 5-10 points, depending on position of unstable layers in relation to bankfull stage	0.0

VERY LOW	LOW	MODERATE	HIGH	VERY HIGH	EXTREME		
5 - 9.5	10 - 19.5	20 - 29.5	30 - 39.5	40 - 45	46 - 50	⇨	**ADJECTIVE RATING** and **TOTAL SCORE**

Moderate

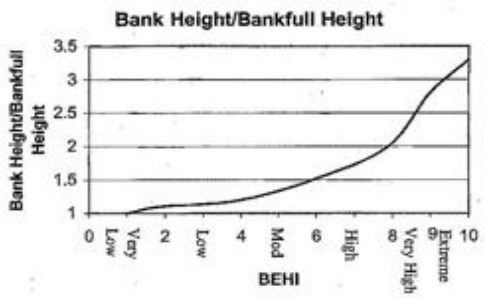
22.9



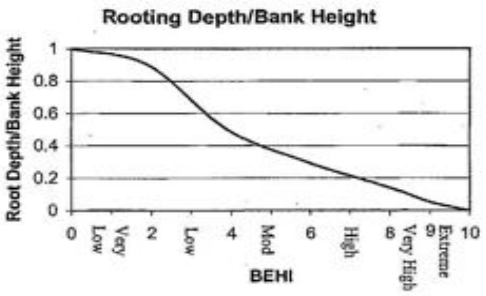


BEHI Variable Worksheet

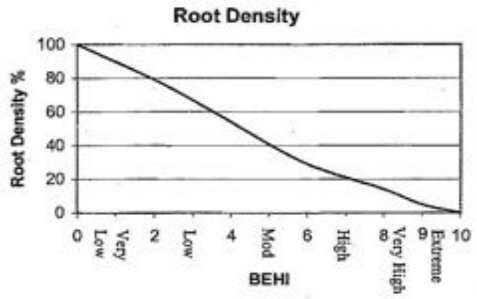
Stream:	Mauk Branch		**Station/Cross Section:**	2+30	
Stream Type:	F	**Valley Type:**	**Reach:**	**Date:**	Nov. 18, 2025
Observers:	SCK, JFS, EAL		**Photos:**		



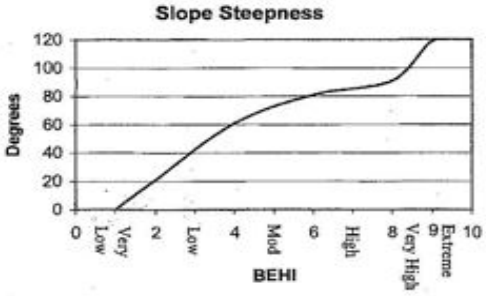
A	**Bank Ht**	10
B	**Bankfull Ht**	2
C	**(A/B)**	3.8
⇨		10.0



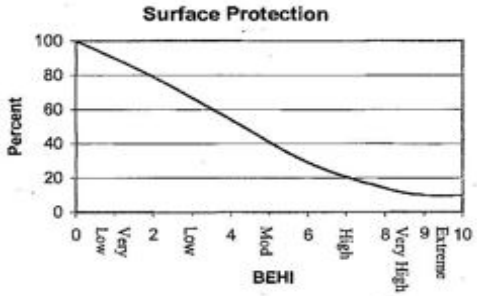
D	**Root Depth**	5
A	**Bank Ht**	10
E	**(D/A)**	0.5
⇨		3.9



F	**Root Density**	30
G	**(F*E)**	15
⇨		7.9



H	**Slope**	90
⇨		7.9



I	**Surface Protection**	20
⇨		7.2

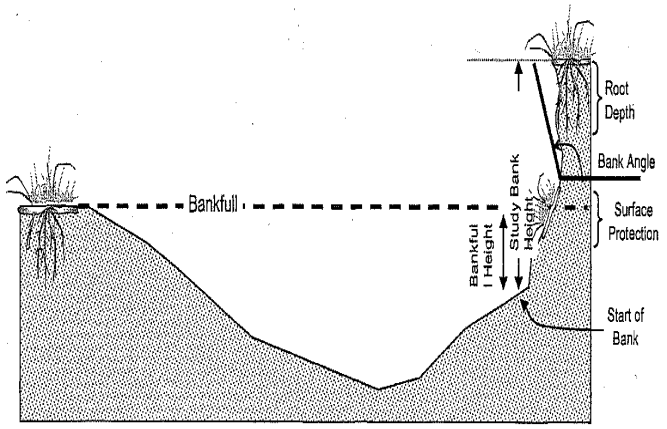
Bank Material Adjustment		
Bedrock	(Overall Very Low BEHI)	0.0
Boulders	(Overall Low BEHI)	
Cobble	(-10 if uniform medium to large)	
Gravel	(+5-10 depending on % sand)	
Sand	(+10)	
Silt/Clay	(No adjustment; -20 if mostly clay)	

Stratification Adjustment	
Add 5-10 points, depending on position of unstable layers in relation to bankfull stage	0.0

VERY LOW	LOW	MODERATE	HIGH	VERY HIGH	EXTREME
5 - 9.5	10 - 19.5	20 - 29.5	30 - 39.5	40 - 45	46 - 50

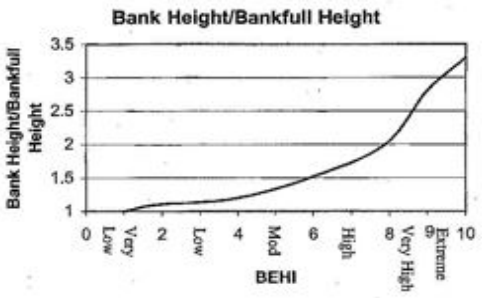
⇨ **ADJECTIVE RATING** and **TOTAL SCORE**: **High** / 36.9



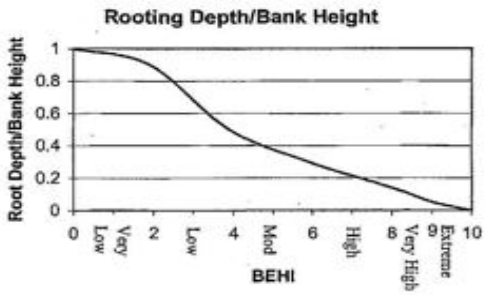


BEHI Variable Worksheet

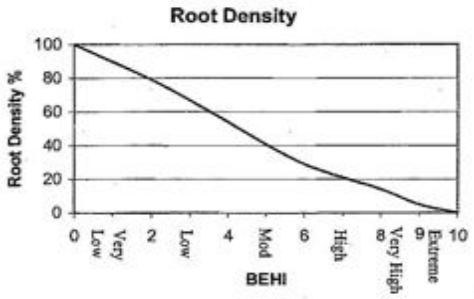
Stream:	Tenmile Creek		**Station/Cross Section:**	95+50	
Stream Type:	F	**Valley Type:**	**Reach:**	**Date:**	Nov. 19, 2025
Observers:	SCK, JFS, EAL		**Photos:**		



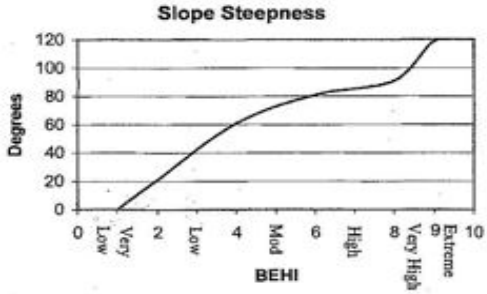
A	**Bank Ht**	10
B	**Bankfull Ht**	2
C	**(A/B)**	5
⇨		10.0



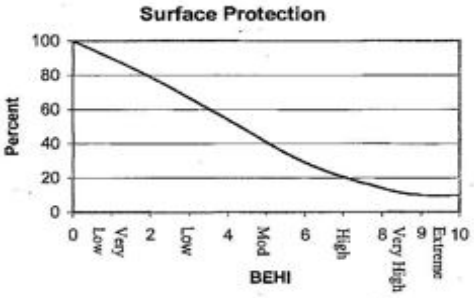
D	**Root Depth**	3
A	**Bank Ht**	10
E	**(D/A)**	0.3
⇨		5.9



F	**Root Density**	10
G	**(F*E)**	3
⇨		9.5



H	**Slope**	90
⇨		7.9



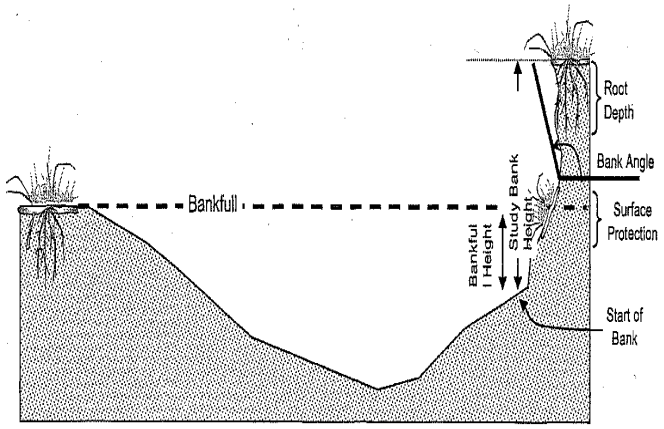
I	**Surface Protection**	10
⇨		9.0

Bank Material Adjustment		
Bedrock	(Overall Very Low BEHI)	0.0
Boulders	(Overall Low BEHI)	
Cobble	(-10 if uniform medium to large)	
Gravel	(+5-10 depending on % sand)	
Sand	(+10)	
Silt/Clay	(No adjustment; -20 if mostly clay)	

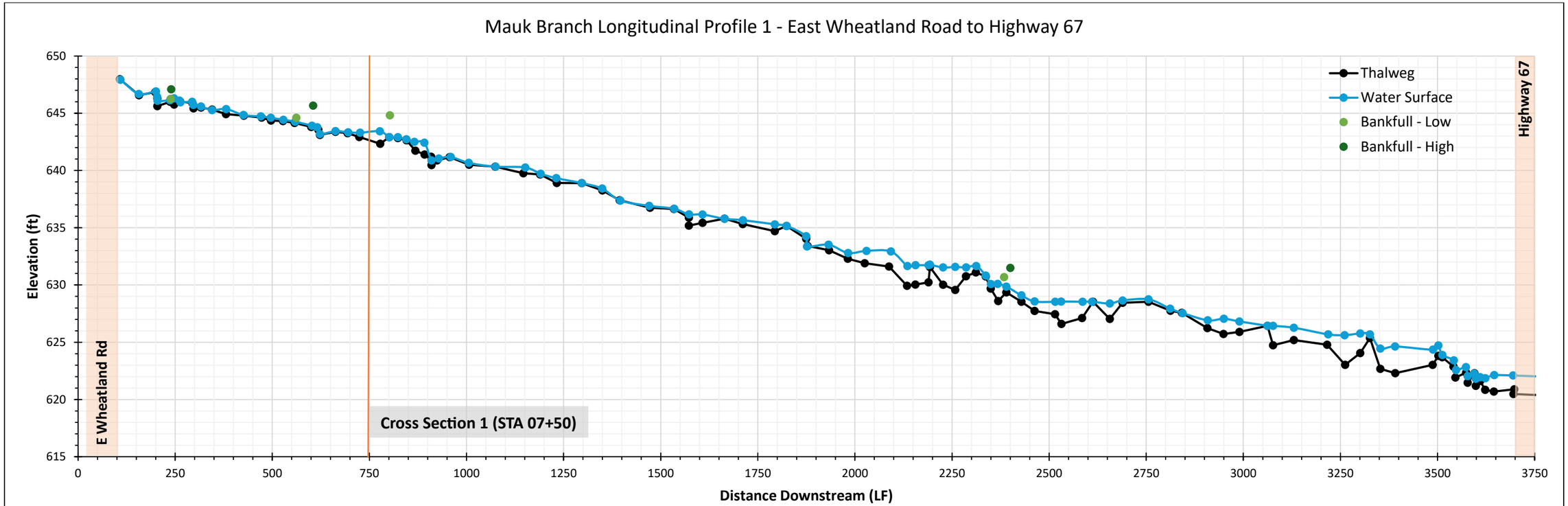
Stratification Adjustment	
Add 5-10 points, depending on position of unstable layers in relation to bankfull stage	0.0

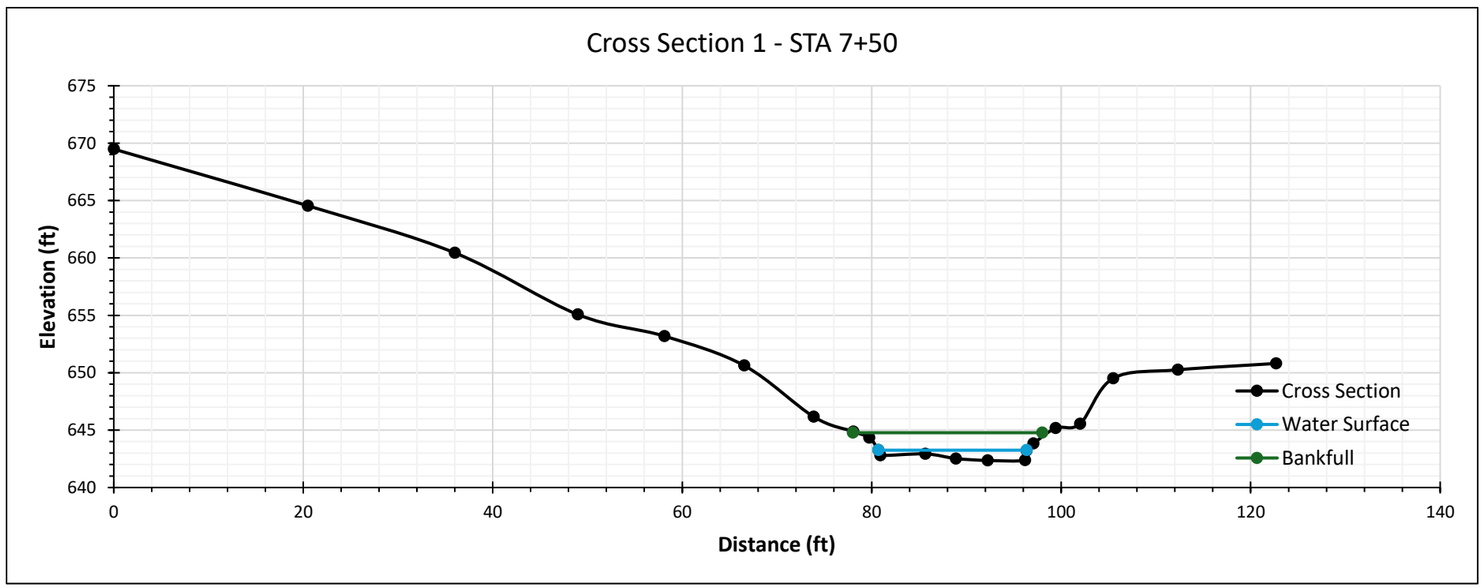
VERY LOW	LOW	MODERATE	HIGH	VERY HIGH	EXTREME		
5 - 9.5	10 - 19.5	20 - 29.5	30 - 39.5	40 - 45	46 - 50	⇨	**ADJECTIVE RATING** and **TOTAL SCORE** → Very High / 42.3





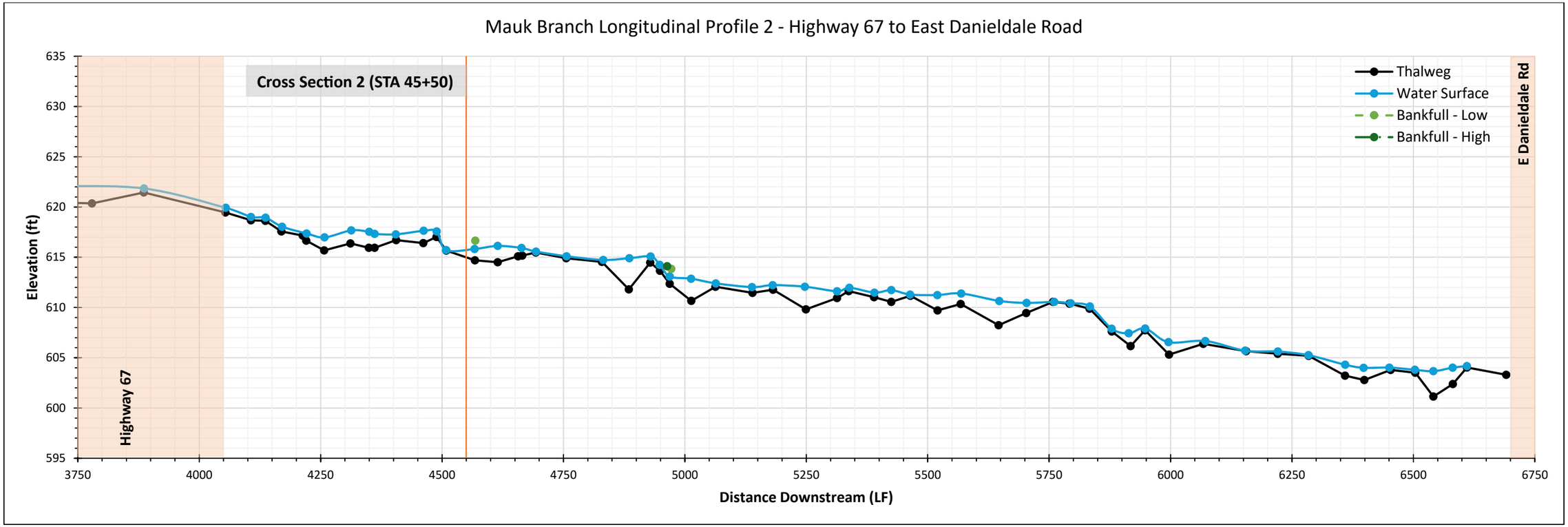
APPENDIX C
CROSS SECTIONS & LONGITUDINAL PROFILE

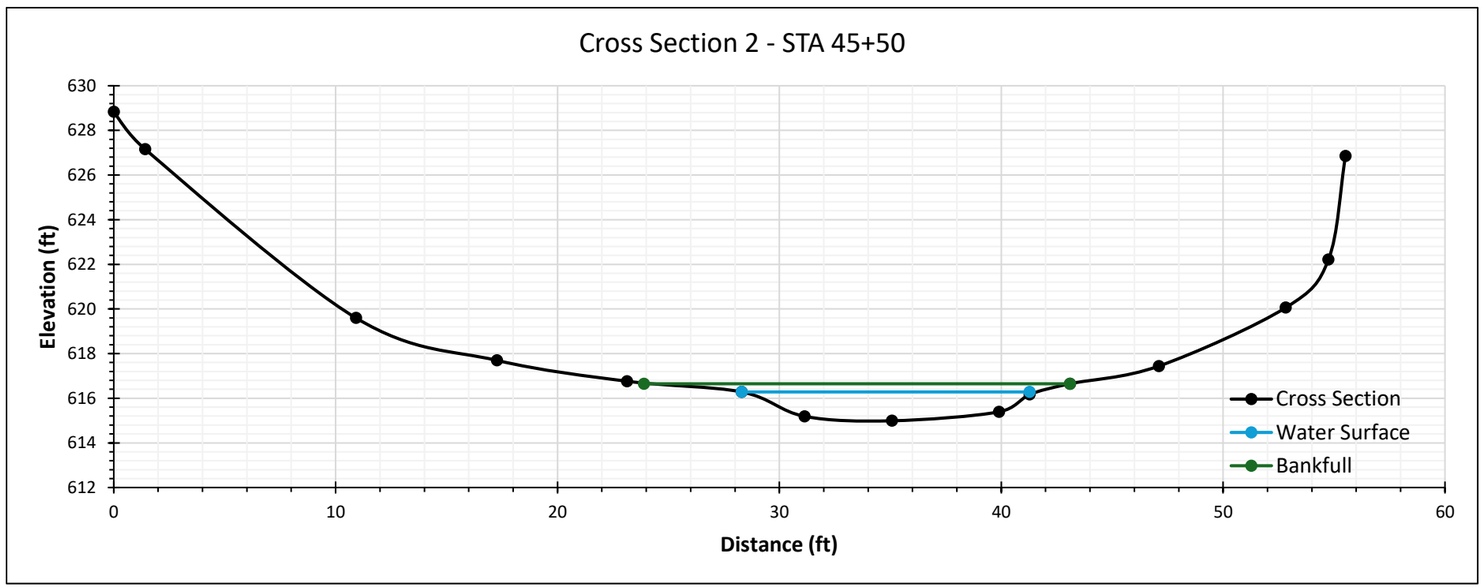






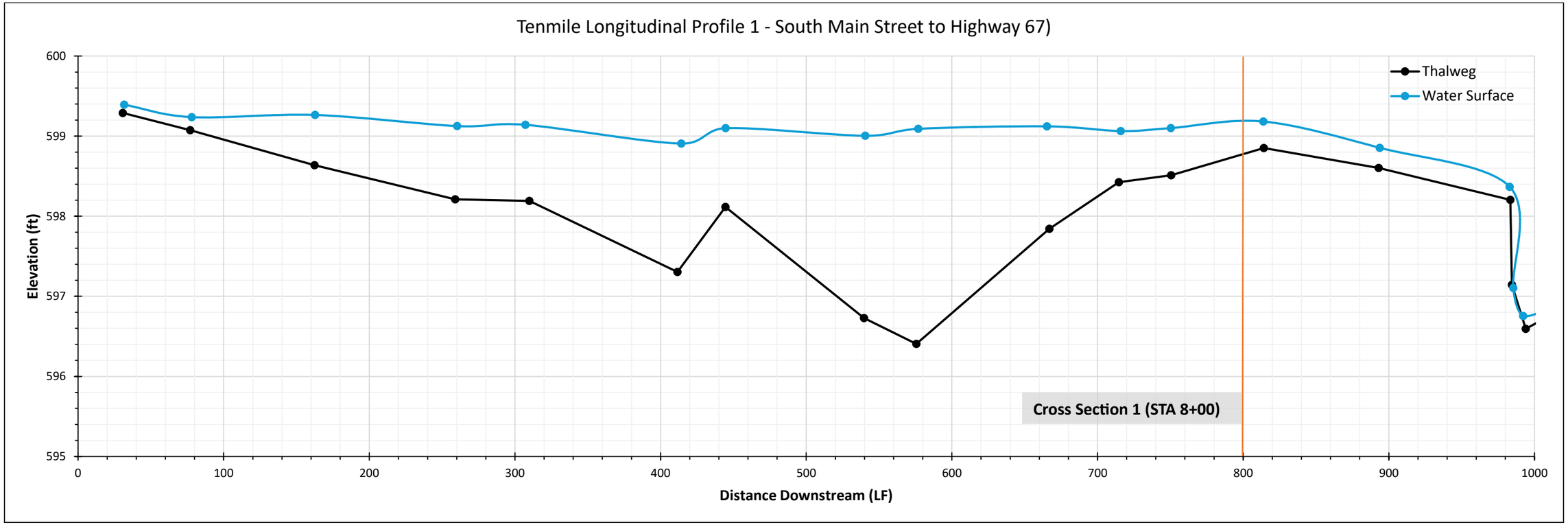
Representative conditions near Cross Section 1 (STA 7+50)

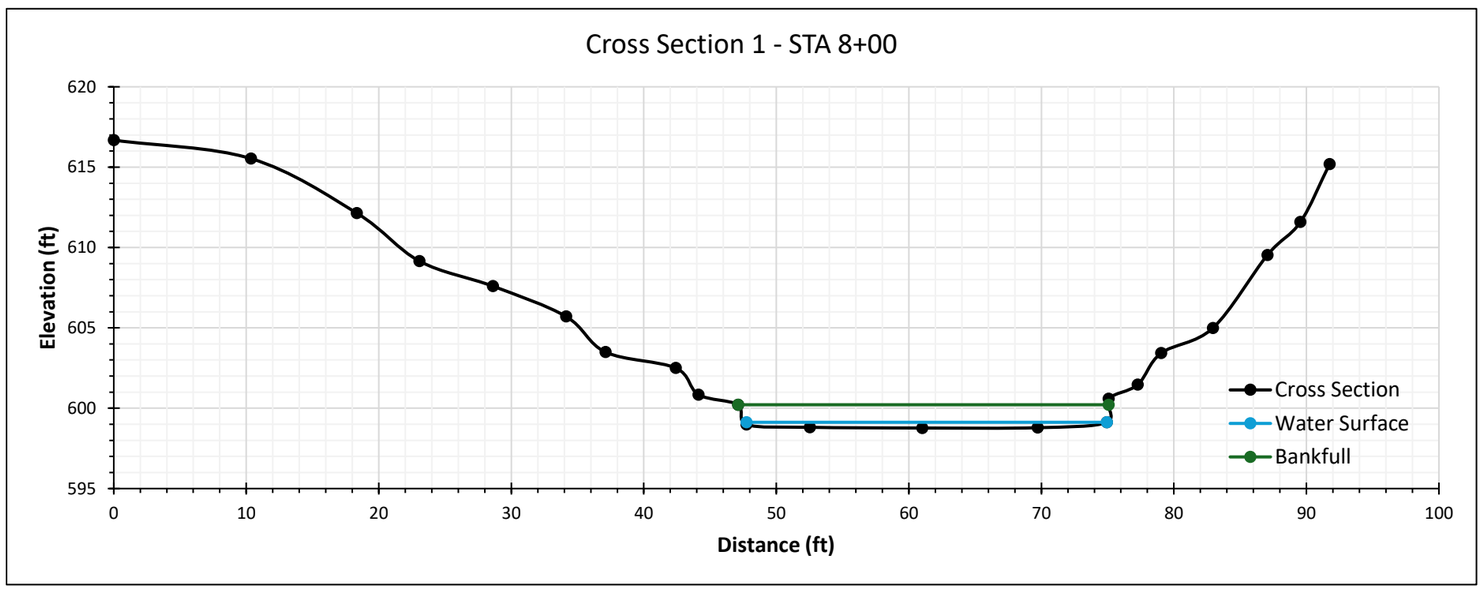




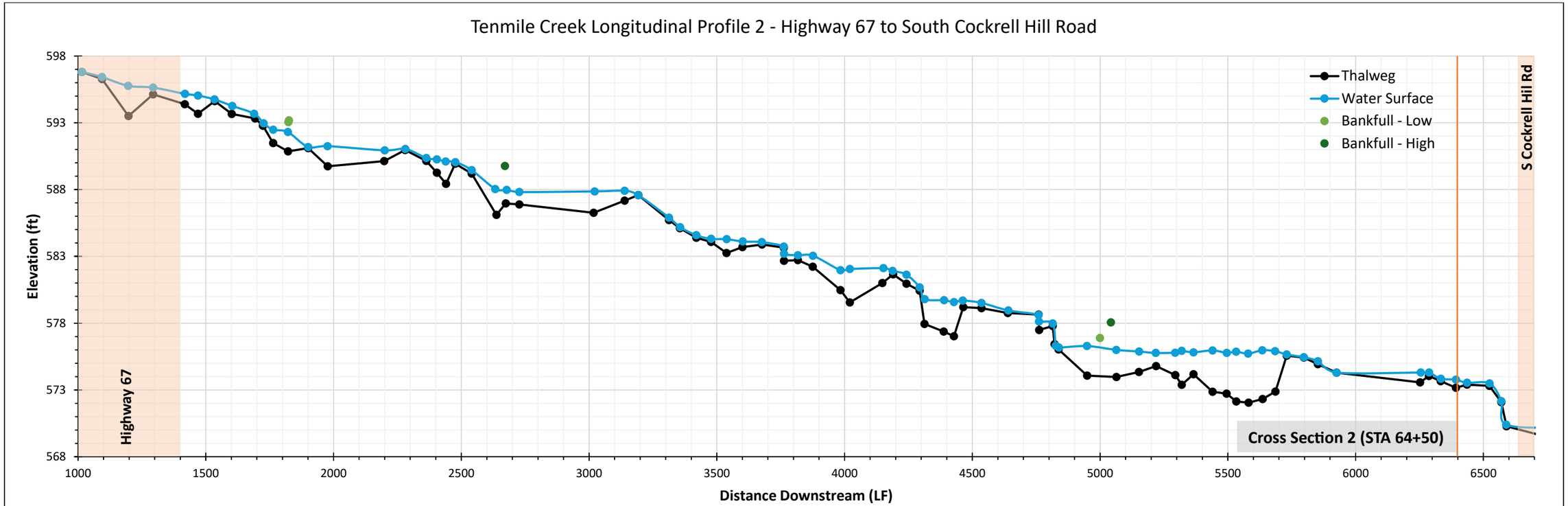


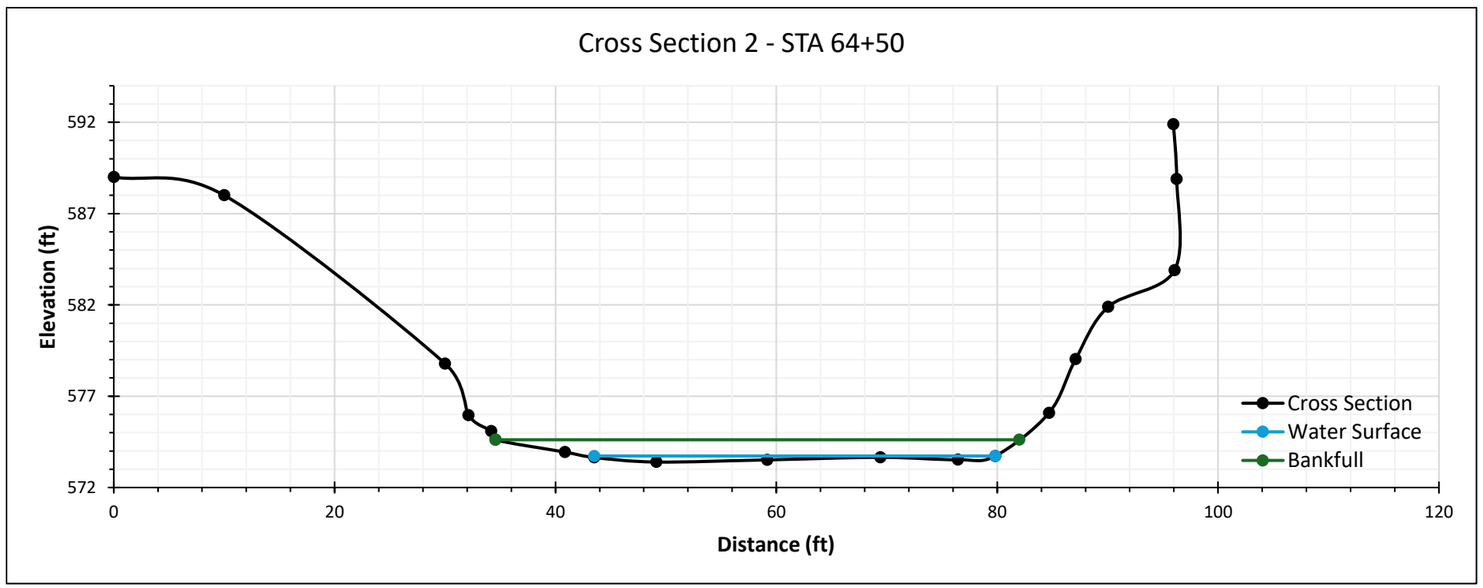
Representative conditions near Cross Section 2 (STA 45+50)

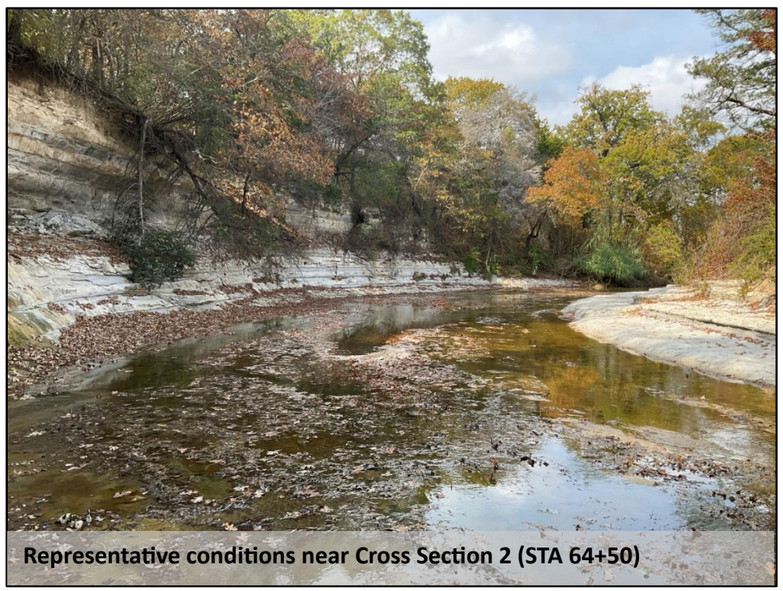


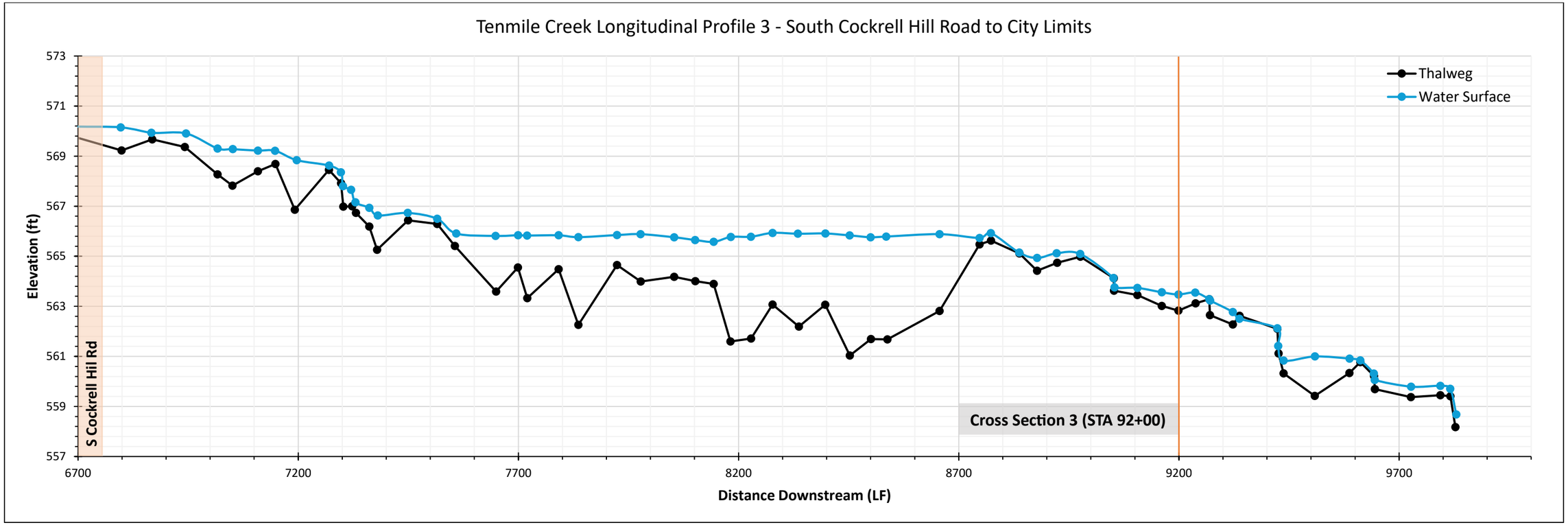


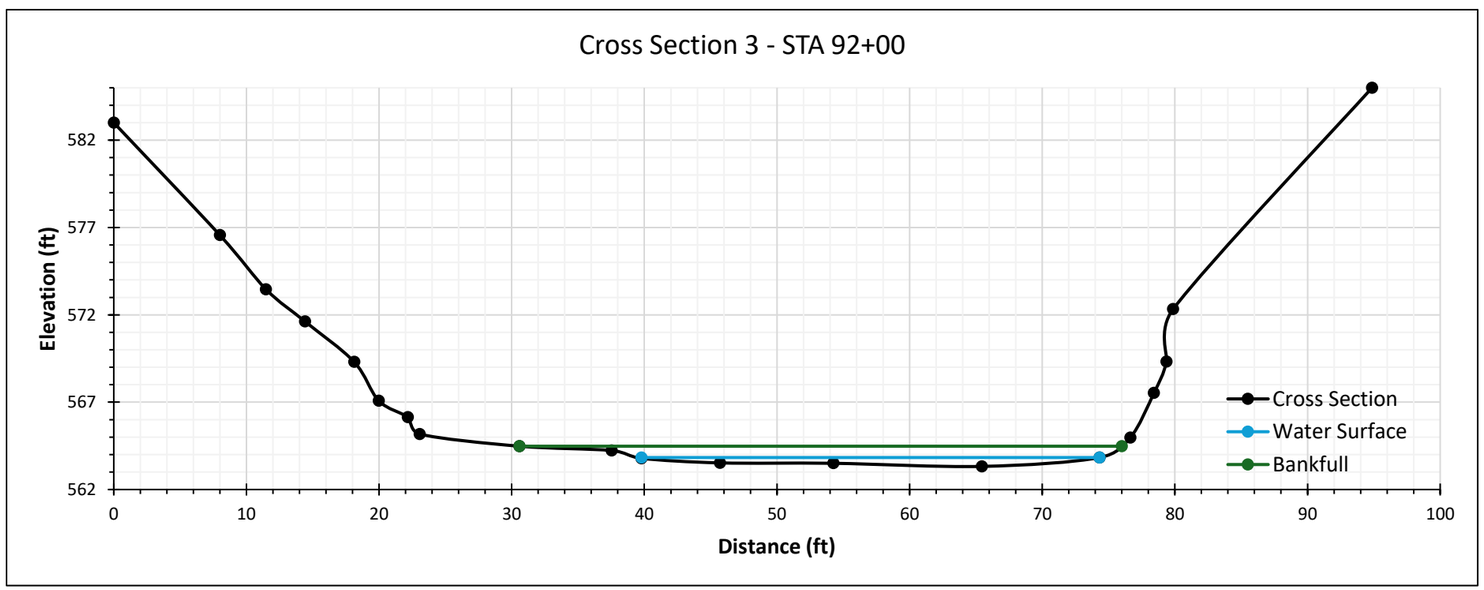

Representative conditions near Cross Section 1 (STA 08+00)

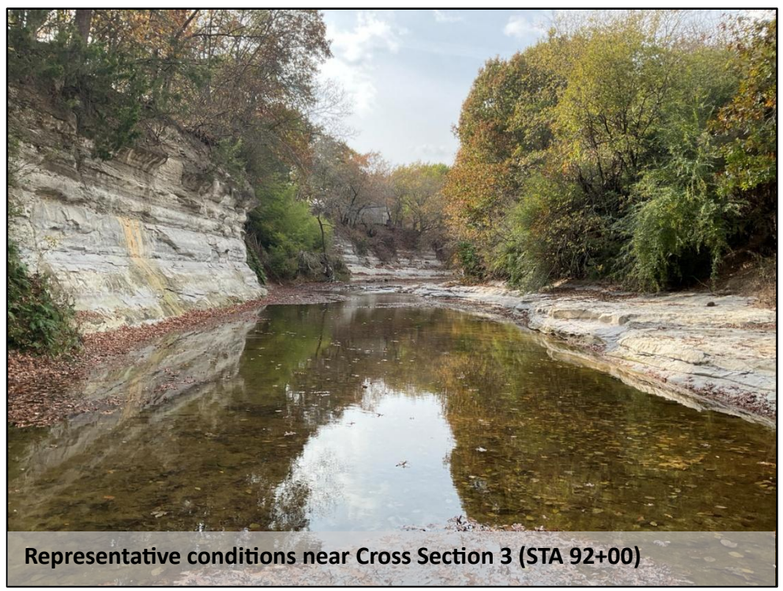





Representative conditions near Cross Section 2 (STA 64+50)






Representative conditions near Cross Section 3 (STA 92+00)

APPENDIX D
SUMMARY OF INFRASTRUCTURE AND EROSION ISSUES WITH SCORES AND RANKS

Table D.1 Scored and Ranked Observed Infrastructure - Mauk Branch

STA	Rank*	Stream	Description	Bank	BEHI	BEHI Score	Infrastructure Type	Infrastructure Priority	Scour	Condition	Current Condition Score	Total Score
123	--	MAUK BRANCH	21" STM Outfall	Right	Armored	0.5	STM	0.5	None	Fair	2	1.8
149	--	MAUK BRANCH	3 cell 8‘ x 9 1/2‘ box culverts	Both	Armored	0.5	STM	0.5	None	Fair	2	1.8
208	--	MAUK BRANCH	head/wing wall footing	Right	Armored	0.5	Other	0.75	Minor	Fair	2	2.6
289	--	MAUK BRANCH	Bag wall	Left	Armored	0.5	Other	0.75	None	Good	1	1.5
448	6	MAUK BRANCH	8" aerial pipe crossing	Right	High	3	SS	1	Moderate	Poor	3	7.5
855	--	MAUK BRANCH	30" STM outfall - corrugated metal	Left	Armored	0.5	STM	0.5	Minor	Fair	2	1.8
913	8	MAUK BRANCH	18" SS aerial crossing - ductile iron	Both	Armored	0.5	SS	1	Significant	Poor	3	5.0
1223	15	MAUK BRANCH	30" STM outfall - concrete	Right	Moderate	2	STM	0.5	Significant	Poor	3	3.3
2306	--	MAUK BRANCH	30" STM outfall - concrete	Right	Moderate	2	STM	0.5	Minor	Good	1	1.8
2642	13	MAUK BRANCH	Steep drainage feature; likely from mapped STM outfall	Left	High	3	STM	0.5	Significant	Poor	3	3.8
3091	**4**	**MAUK BRANCH**	**20" SS - steel**	**Left**	**Very High**	**4**	**SS**	**1**	**Significant**	**Critical**	**4**	**10.0**
3378	14	MAUK BRANCH	Modular block wall	Left	Armored	0.5	Other	0.75	Significant	Poor	3	3.8
3687	--	MAUK BRANCH	8" SS - steel	Left	Armored	0.5	SS	1	Minor	Fair	2	3.5
4080	--	MAUK BRANCH	18" STM outfall - concrete	Right	Low	1	STM	0.5	None	Fair	2	2.0
4299	--	MAUK BRANCH	36" SS - steel	Left	Moderate	2	SS	1	Minor	Fair	2	5.0
5135	--	MAUK BRANCH	42" STM outfall - concrete	Right	Moderate	2	STM	0.5	None	Fair	2	2.5
5162	**5**	**MAUK BRANCH**	**18" SS - ductile iron**	**Right / Left**	**Moderate**	**2**	**SS**	**1**	**Significant**	**Critical**	**4**	**8.0**
5688	9	MAUK BRANCH	24" STM outfall - concrete	Right	High	3	STM	0.5	Significant	Critical	4	4.5
5944	12	MAUK BRANCH	60" STM outfall - concrete	Right	Moderate	2	STM	0.5	Significant	Critical	4	4.0
6619	20	MAUK BRANCH	2 cell 30‘ x 11‘ concrete ConSpan; E. Danieldale Rd.	Both	Armored	0.5	STM	0.5	Aggradation	Poor	3	2.5

* Infrastructure in 'Good' or 'Fair' condition excluded from rankings.
Highlighted and bolded entries were selected for conceptual aternatives analysis

Table D.2 Scored and Ranked Observed Infrastructure - Tenmile Creek

STA	Rank*	Stream	Description	Bank	BEHI	BEHI Score	Infrastructure Type	Infrastructure Priority	Scour	Condition	Current Condition Score	Total Score
46	--	TENMILE CREEK	60" STM outfall - concrete	Right	Armored	0.5	STM	0.5	None	Fair	2	1.8
57	--	TENMILE CREEK	36" SS - concrete, TRA	Both	Armored	0.5	SS	1	Minor	Fair	2	3.5
501	16	TENMILE CREEK	18" STM outfall - corrugated plastic	Left	Moderate	2	STM	0.5	Moderate	Poor	3	3.3
550	7	TENMILE CREEK	Bag wall	Left	High	3	Other	0.75	Significant	Poor	3	5.6
918	--	TENMILE CREEK	36" SS - concrete x2, TRA	Both	Moderate	2	SS	1	Moderate	Fair	2	5.0
1441	--	TENMILE CREEK	18" SS & W - steel	Both	Low	1	SS	1	Moderate	Fair	2	4.0
2854	**11**	**TENMILE CREEK**	**STM outfall/flume**	**Left**	**Moderate**	**2**	**STM**	**0.5**	**Significant**	**Critical**	**4**	**4.0**
3193	--	TENMILE CREEK	8" SS - steel	Both	Moderate	2	SS	1	Minor/Moderate	Fair	2	5.0
3585	--	TENMILE CREEK	36" SS - concrete x2, TRA	Both	Low	1	SS	1	Moderate	Fair	2	4.0
4100	--	TENMILE CREEK	Bag wall	Left	High	3	Other	0.75	Moderate	Fair	2	4.5
5035	2	TENMILE CREEK	36" SS - ductile iron, TRA	Right	Very High	4	SS	1	Moderate	Critical	4	10.0
5536	17	TENMILE CREEK	Bag wall	Left	Moderate	2	STM	0.5	Moderate	Poor	3	3.3
5811	18	TENMILE CREEK	Terracotta & plastic abandoned pipes	Left	Moderate	2	STM	0.5	Significant	Poor	3	3.3
6360	--	TENMILE CREEK	21" STM outfall - corrugated plastic	Left	Low	1	STM	0.5	None	Fair	2	2.0
7506	--	TENMILE CREEK	21" STM outfall	Left	Armored	0.5	STM	0.5	None	Fair	2	1.8
7913	1	TENMILE CREEK	18" Steel pipe - abandoned?	Right	High	3	SS	1	Significant	Failed	5	10.5
8187	19	TENMILE CREEK	STM Outfall - Concrete	Right	Moderate	2	STM	0.5	Moderate	Poor	3	3.3
8578	--	TENMILE CREEK	Bag wall	Right	Armored	0.5	Other	0.75	Minor	Good	1	1.5
8783	--	TENMILE CREEK	48" STM outfall - concrete	Right	Low	1	STM	0.5	None	Fair	2	2.0
9397	10	TENMILE CREEK	48" & 24" STM Outfall - corrugated metal	Right	High	3	STM	0.5	Significant	Critical	4	4.5
9785	3	TENMILE CREEK	36" SS - steel, TRA	Right	Very High	4	SS	1	Significant	Critical	4	10.0

* Infrastructure in 'Good' or 'Fair' condition excluded from rankings.
Highlighted and bolded entries were selected for conceptual aternatives analysis

APPENDIX H: DALLAS COUNTY INLAND PORT STUDY

Contents

6.1 Tenmile Creek

6.1.1 Introduction and Background

I. Community and Watershed Description

II. Watershed History

III. Purpose

IV. Principal Flooding Problems

V. Community Involvement

6.1.2 Survey

6.1.3 Study Procedure

I. Previous Studies

II. Topographic Data

III. Data Collection

IV. Hydrology Analysis

A. Drainage Areas

B. Hydrologic Parameters

V. Hydraulic Analysis

VI. Results of Hydrologic and Hydraulic Analysis

VII. Floodplain Mapping

VIII. Flood Risk Analysis

6.1.4 Flood Mitigation Projects (FMP)

I. Project Considerations

II. Project 1- Culvert Improvement at Beaver Creek Drive

A. 2024 FMP Concepts

B. Alternative Hydrology and Hydraulics

C. Alternatives Detail Summary

D. Construction Costs

E. Permitting

F. Benefit-Cost Analysis

III. Project 2- Channel Improvements at Cedar Creek Drive

A. 2024 FMP Concepts

B. Alternative Hydrology and Hydraulics

C. Alternatives Detail Summary

D. Construction Costs

E. Permitting

F. Benefit Cost Analysis

IV. Project 3- Flood Structure Improvements at Ernie Roberts Park

A. 2024 FMP Concepts

B. Alternative Hydrology and Hydraulics

C. Alternatives Detail Summary

D. Construction Costs

E. Permitting

F. Benefit Cost Analysis

V. Project 4- Road Improvements at Main Street in Lancaster

A. 2024 FMP Concepts

B. Alternative Hydrology and Hydraulics

C. Alternatives Detail Summary

D. Construction Costs

E. Permitting

F. Benefit Cost Analysis

6.1.5 Flood Mitigation Strategies

I. Property Acquisitions

II. Emergency Warning Systems

6.1.6 Recommendations

I. Alternative Analysis

II. Funding

A. TWDB Flood Infrastructure Fund

B. Flood Mitigation Assistance

C. Building Resilient Infrastructure and Communities

D. Hazard Mitigation Grant Program

6.1 Tenmile Creek

6.1.1 Introduction and Background

I. Community and Watershed Description

The Tenmile Creek Watershed is located within the cities of Dallas, Cedar Hill, Duncanville, DeSoto, Lancaster, and Ferris in southern Dallas County, Texas. It covers a total of 77 square miles and 28.3 stream miles. Major road crossings along Tenmile Creek include:

- Briar Hill Circle
- Danieldale Road
- Cedar Hill Road
- Highway 67
- Wintergreen Road
- Hampton Road
- Polk Street
- Interstate-35
- Bluegrove Road
- Nokomis Road
- Interestate-45
- Beaver Creek Drive
- Santa Fe Trail
- Main Street
- Cockrell Hill Road
- Westmoreland Road
- Pleasant Run Road
- The Meadows Parkway
- Houston School Road
- Highway 342
- Loop 9
- Parkinson Road

Tenmile Creek Watershed is located within the 10-digit Hydrologic Unit Code (HUC-10) 1203010502 “Tenmile Creek- Trinity River”. Tenmile Creek is contained within twelve (12) effective Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panels 48113C0465K, 48113C0470K, 48113C0605K, 48113C0610K, 48113C0680K, 48113C0690K, 48113C0660K, 48113C0670K, 48113C0665K, 48113C0635K, 48113C0630K, and 48113C065K all dated July 7, 2014. The Tenmile Creek Watershed contains several major tributaries including Bentle Branch, Bee Branch, Mauk Branch, Horne Branch, Stream 3A29, Stewart Branch, Health Creek, Stream 3A18, Stream 3A17, Spring Creek, Stream 3A8, Stream 3A81, Tenmile Creek Tributary 5, Stream 3A13, Stream 3A18, Stream 3A6, Deep Branch, Halls Branch, Keller Branch, Stream 3A1, and Stream 3A4. **Figure 6.1-1: Study Area Map** is included in Appendix A and shows the project extents.

The Tenmile Creek Watershed has ground elevations ranging from 695 feet in the upper reaches to a low of approximately 340 feet at the confluence with the Trinity River. The existing conditions show deep, well-defined channels, with depths ranging from 3 feet to 25 feet. The natural stream is earthen or rock, with a few locations of artificial channel improvements including riprap, gabion baskets, and concrete. Most of the stream crossings are concrete bridges, and several stream crossings restrict natural flow and cause water to backup and overflow.

II. Watershed History

The Tenmile Creek Watershed has been extensively studied since the original United States Army Corps of Engineers (USACE) Flood Insurance Rate Study completed in May 1979. Below is a summary of the history of these watershed studies.

- 1979 – USACE Flood Insurance Rate Study
  - The original hydrologic and hydraulic study was prepared by the USACE Fort Worth District and completed in May 1979. This includes all of Tenmile Creek from the headwaters in Cedar Hill to the confluence with the Trinity River.
- 1983- Revision of USACE Flood Insurance Rate study
  - The USACE Fort Worth district revised the 1979 Study throughout the cities of DeSoto and Lancaster.
- 1986 Flood Control Feasibility Study of Tenmile Creek & Tributaries for the City of Duncanville
  - Halff was hired by the City of Duncanville to complete a hydrologic and hydraulic analysis for Tenmile Creek and six of its major tributaries within Duncanville. Future land use was used to determine the 100-year floodplain extents. Improvements to minimize flood risk were also considered.
- 2001 Drainage Master Plan- City of DeSoto
  - Teague, Nall and Perkins, Inc. completed hydrology and hydraulics for the portion of the Tenmile Creek watershed within the City of DeSoto. In addition, several improvement projects were identified and recommended.
- 2006- Bentle Branch Stream Stability and Stormwater Master Plan Update- City of Duncanville
  - Halff partnered with the City of Duncanville to update Bentle Branch modeling, in the upstream portion of the Tenmile Creek Watershed. Fully-developed hydrology and hydraulics were developed as a part of this study to create 100-year floodplain maps.
- 2008 Lancaster Master Drainage Plan
  - In 2008, Freese and Nichols completed a detailed hydraulic and hydrologic restudy to determine existing and fully-developed conditions discharges for the Tenmile Creek watershed. Existing and fully-developed floodplains were created using the updated hydraulic model. Fifty-six (56) existing and potential problems areas were identified and ranked according to implementation priority.
- 2012 Southern Dallas County Infrastructure Analysis
  - CDM Smith completed an infrastructure assessment, including stormwater infrastructure. This assessment was prepared for the North Central Texas Council of Governments, the City of Dallas, the City of Ferris, the City of Hutchins, the City of Lancaster, the City of Wilmer, and Dallas County. This study made recommendations for upgrades to existing bridge and culverts throughout the Tenmile Creek watershed.
- 2022 Base Level Engineering (BLE) study
  - A BLE study using approximate methods was completed for FEMA in 2022 for the entirety of Tenmile Creek Watershed, including major tributaries.
- 2023 Lancaster Master Drainage Plan
  - In 2021, the City of Lancaster hired Pacheco Koch to update the Stormwater Master Drainage Plan from 2008, including the portion of Tenmile Creek and each of the tributaries within Lancaster. For this study, land use was updated, as well as terrain data and any structural changes. In addition, 23 capital improvement projects were identified.

III. Principal Flooding Problems

Cities throughout the Tenmile Creek Watershed have had a history of flooding issues. Due to the growing urbanization of the watershed, much of the City's existing infrastructure does not provide adequate capacity to convey high flood flows. Existing development that is subject to flooding is primarily residential but also includes commercial properties. Major flood events along Tenmile Creek have been reported in May 1908, April 1942, June 1946, May 1957, May 1979, April 1985, July 2004, August 2022, and October 2023.

There are approximately 422 residential structures, 41 commercial structures, and 23 public structures located within the limits of the Tenmile Creek FEMA effective 100-year floodplain. The effective study for Tenmile Creek is based on the USACE study and utilizes HEC-1 and HEC-2 from an analysis completed in July of 1980.

6.1.2 Survey

Official field surveys were conducted by Arredondo, Zepeda, and Brunz (AZB) and Halff. Survey was collected for Tenmile Creek in the summer of 2023 throughout the cities of Dallas, Duncanville, and DeSoto, as well as unincorporated areas. The City of Lancaster was excluded from survey since topographic and structure data throughout this portion of Tenmile Creek was taken from the Lancaster Master Drainage Plan (MDP). Survey consisted of both channel and structure surveys. All major bridge and culvert structure crossings were surveyed along Tenmile Creek, excluding Hampton Road, Interstate-35, and Loop 9, which have as-built data available. A table of survey locations is included in **Appendix 6.1-4** and are shown in **Figure 6.1-2: Survey Map**.

6.1.3 Study Procedure

I. Previous Studies

The 2023 Lancaster MDP was used as a base for the portion of Tenmile Creek within the City of Lancaster. Drainage areas, curve numbers and time of concentrations were taken directly from the Lancaster MDP with minor changes along the boundaries to account for changes in terrain and storm sewer system. Routing was updated to match the newly created storage-discharge tables and number of subreaches were recalculated. Cross sections were taken from the Lancaster MDP and updated with reach lengths and centerlines. Where needed, minor changes were made to ineffectives, n-values, and bank stations to stay consistent with the remainder of the watershed.

The 2006 Bentle Branch Stream Stability and Stormwater Master Plan Update was also used in this study. The drainage areas, curve numbers, time of concentrations, and routing data were taken directly from the previous study and included in the updated Hydrologic Engineering Center - Hydrologic Modeling System (HEC-HMS) model.

II. Data Collection

The following is a summary of reports and data collected for the watershed from previous studies.

- 2006 Bentle Branch Stream Stability and Stormwater Master Plan Update, developed by Halff
    - HEC-HMS model version 3.
        - The headwaters extend south into the City of Cedar Hill until the City of Duncanville boundary at the confluence of Tenmile Creek.
        - This study utilizes fully-developed landuse conditions based on zoning files to establish flows.
- 2023 Lancaster Master Drainage Plan, developed by Pacheco Koch
    - HEC-HMS model version 4.2.1
        - The hydrologic models through Lancaster model major tributaries including Deep Branch, Halls Branch, Keller Branch, Mill Creek, Stream 3A5, Stream 3A6, Unnamed Tributary 1, Unnamed Tributary 2, and Unnamed Tributary 3. In addition, it modeled Tenmile Creek from Interstate-35 to approximately 2 miles downstream of Nokomis Road.
        - This study utilizes fully-developed land use conditions based on future land use from the City of Lancaster to establish flows.
    - HEC-RAS model version 5.0.7
        - The hydraulic model for Tenmile Creek extends from east of Interstate-35 to approximately 1,500 ft upstream of Ferris Road.
- 2022 Base Level Engineering (BLE) Data, developed for FEMA
    - HEC-RAS model version 5.0.7
        - The hydraulic model for all tributaries within the Tenmile Creek Watershed were obtained.
    - Spatial files
        - Drainage areas, cross sections, stream centerlines, and floodplains were obtained throughout the watershed.
- As-builts were obtained from the City of DeSoto for crossings along Tenmile Creek, Stream 3A17, Stream 3A18, Stream 3A8, Stream 3A81, Spring Creek, and Tenmile Creek Tributary 5, where available. In addition, as-builts were obtained for Interstate-35 and Loop 9.

III. Hydrology Analysis

A detailed hydrologic analysis was performed on Tenmile Creek watershed utilizing the United States Army Corps of Engineers (USACE) HEC-HMS software, version 4.8. The following tributaries are included as part of this project:

- Bee Branch
- Bentle Branch Tributary 1
- Halls Branch
- Keller Branch
- Mill Branch Tributary 2
- Stream 3A1
- Stream 3A13
- Stream 3A18
- Stream 3A4
- Stream 3A8
- Tenmile Creek DS Tributary 2.1
- Bentle Branch
- Bentle Branch Tributary 2
- Heath Creek
- Mauk Branch
- Spring Creek
- Stream 3A10
- Stream 3A15
- Stream 3A19
- Stream 3A6
- Stream 3A8 Tributary 1
- Tenmile Creek Tributary 1
- Deep Branch
- Bentle Branch Tributary 3
- Horne Branch
- Mill Branch
- Stewart Branch
- Stream 3A10 Tributary 1
- Stream 3A17
- Stream 3A22
- Stream 3A6 Tributary 1
- Stream 4A2
- Tenmile Creek Tributary 11

- Tenmile Creek Tributary 5
- Tributary 3A5

The USACE Hydrologic Engineering Center Hydrologic Modeling System (HEC-HMS, Version 4.8) was utilized for the hydrologic modeling. Rainfall events selected for this study include the 10-, 50-, and 100-year frequency floods.

A. Drainage Areas

The total area of the Tenmile Creek watershed is 77 square miles. The Bentle Branch study includes 39 subbasins. The Lancaster MDP study includes 170 basins. This study includes 129 newly delineated subbasins as shown on **Figure 6.1-3: Drainage Area Map.** The newly delineated subbasins were based on the 2022 BLE study and further refined based on 2017 terrain and storm sewer lines. Subbasins were split at confluences and major roads, whenever possible. **Appendix 6.1-4** lists the basin areas calculated per subbasin.

B. Hydrologic Parameters

A discussion of hydrologic parameters including precipitation, curve numbers, unit hydrographs, routing, and gage analysis is included in **Appendix 6.1-2** of the report. In addition, fully-developed landuse classification are shown in **Figure 6.1-4: Land Use Map** and soils classification are shown in **Figure 6.1-5: Soils Map.**

IV. Hydraulic Analysis

A hydraulic analysis was performed utilizing the USACE HEC-RAS software, version 6.2. The purpose of the analysis was to develop flood profiles for the 10-, 50-, and 100-year storm events for fully developed (ultimate) conditions. The Tenmile Creek model analysis begins at New Clark Road in Cedar Hill and ends at its confluence with the Trinity River. Hydraulic parameters are discussed in **Appendix 6.1-2.**

In this report, results and analysis based on the FEMA effective model are called 'existing' conditions. The revised existing model, updated with new LIDAR data, surveys, or geometric changes, is referred to as 'updated' analysis.

V. Results of Hydrologic and Hydraulic Analysis

The results of the fully-developed hydrologic analysis show slightly higher discharges than the existing study. This reflects the expected increases in discharges for fully-developed flows. The increase in discharges can also be attributed to the use of updated topography and more detailed hydrologic modeling. Tables with existing discharges, updated discharges, and a discharge comparison can be found in **Appendix 6.1-4.**

Results of the hydraulic analysis are depicted on the floodplain exhibits provided in this report. Water surface elevations are generally lower than the existing water surface elevations. This can be attributed to updated topography and an updated modeling platform. Differences in water surface elevation compared to the existing Base Flood Elevations (BFE) are listed in **Appendix 6.1-4**.

VI. Floodplain Mapping

After the hydraulic analysis was complete, a floodplain was delineated to determine the extent of the 100-year storm event throughout the watershed. The model cross sections water surface elevations were used to generate the water surface DEM to delineate the floodplain.

No floodway or BFEs were created as a part of this project. **Figure 6.1-6: Floodplain Overview Workmap** shows the updated 100-year floodplain.

VII. Flood Risk Analysis

Once the updated analysis was completed, a flood risk analysis was performed to identify and quantify the extent of flood problems.

During the 100-year storm event, 259 structures are estimated to be at risk, including 229 residential structures, encompassing a total population of 687 people. In addition, 11 critical facilities are at flood risk. There are 11 roads overtopped and approximately 2.4 miles of roads at flood risk along Tenmile Creek during the 100-year event.

6.1.4 Flood Mitigation Projects (FMP)

Flood Mitigation Projects were identified through a detailed flood risk analysis aimed at reducing the impact of flooding on vulnerable areas within the Tenmile Creek Watershed. Four (4) areas were identified based on the number of buildings impacted during a flood event and the scale of mitigation necessary. These selections were then refined further, considering permitting challenges and constructability constraints. The following are the four projects.

- Project 1- Culvert Improvement at Beaver Creek Drive
- Project 2- Channel Improvements at Cedar Creek Drive
- Project 3- Project 3- Flood Structure Improvements at Ernie Roberts Park
- Project 4- Road Improvements at Main Street in Lancaster

In addition, each project was evaluated to meet the Texas Water Development Board's (TWDB) "no negative impact" criteria, which include the following requirements:

- Stormwater must not increase inundation in areas beyond the public right-of-way, project property, or easement.
- Stormwater must not increase inundation of storm drainage networks, channels, and roadways beyond design capacity.
- Maximum increase of one-dimensional (1-D) water surface elevation must round to 0.0 feet (<0.05 ft) measured along the hydraulic cross section.
- The maximum increase in hydrologic peak discharge must be less than 0.5 percent when measured at key computational nodes (sub-basins, junctions, reaches, reservoirs, etc.).

I. Project 1- Culvert Improvement at Beaver Creek Drive

A. 2024 FMP Concepts

Project 1 is located in the City of Duncanville. The existing culverts located at Briar Hill Circle and Beaver Creek Drive are inadequate, causing the roads to flood during 50-year and 100-year storm events. This flooding obstructs access to the neighborhood east of Tenmile Creek, affecting 92 homes. Project 1 aims to replace the culverts under Beaver Creek Drive to ensure the road remains passable during a 100-year storm, thereby restoring access to all 92 residences.

B. Alternative Hydrology and Hydraulics

All hydrologic and hydraulic modeling was based on the fully-developed updated model developed as a part of this study and outlined in Section 6.1.3 of this report.

The HEC-RAS model existing conditions plan was revised to reflect changes proposed as a part of Project 1. The key modifications from updated conditions to the Project 1 are outlined below:

- Structure 144962 was changed from 4-10'x10' Reinforced Concrete Box (RCB) to 4-12'x12' RCB. An additional two feet of clearance was included between the culverts to address potential constructability challenges. The entrance coefficient was changed to 0.2 to reflect a proposed headwall with sides extended straight. Ineffective areas and rails were also adjusted to reflect a larger culvert opening.
- The channel's Manning's roughness coefficient (n-value) was adjusted from 0.045 to 0.035 at cross sections 145716, 144934, and 144842 to account for the proposed riprap.

After updating the HEC-RAS model, the storage discharge relationships were exported and incorporated into the Project 1 HEC-HMS model. This action was taken to ensure that there would be no negative downstream effects from the alterations in storage volume or timing due to the introduction of structural alternatives.

To mitigate potential increases in downstream discharges, a 68.4 acre-foot pond was introduced into the HMS model. The detention pond design was evaluated using an elevation-storage table and an outflow structure to determine the required amount of storage capacity necessary to alleviate downstream impacts. Additionally, a diversion structure was added to redirect flows from Tenmile Creek into the pond, allowing for controlled detention before discharging back to Tenmile Creek. Due to the conceptual level of the study, the specifications of the diversion structure were not evaluated. **Table 6.1-2: Proposed Detention Results** shows the HMS results.

Table 6.1-2: Proposed Detention Results

Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage (ac-ft)	Peak Elevation (ft)	Top of Dam (ft)
150.0	66.3	68.4	708.7	710.0

C. Alternatives Detail Summary

The peak flows were input into the alternative HEC-RAS model to generate a revised water surface profile and further evaluate impacts. With the above changes, there are decreases in discharge up to 100 cfs, and no increases in discharge. Water surface elevations decrease by up to 3.06 feet within the project area. Outside of the project area, there are four rises in water surface elevation of up to 0.03 feet (rounding to 0.0), which is in compliance with the TWDB criteria. The results of this scenario show no negative impact as specified by the TWBD criteria. The proposed changes and proposed floodplain can be found in **Figure 6.1-7: Flood Mitigation Project Workmap, Panel 1**.

D. Construction Costs

Probable construction costs were determined for Project 1, including costs associated with the design and construction of the alternative. Unit cost rates were obtained from the 2023 Texas Department of Transportation (TxDOT) unit cost rate tables and adjusted, if necessary, based on similar projects in the region. The Opinion of Probable Construction Costs (OPCC) accounts for mobilization (10 percent of construction costs), paving, drainage items, property acquisitions, utility relocation allowances (adjusted based on the number of conflicts), and contingencies (25 percent of total costs).

Right-of-way acquisition costs were determined for each alternative based on the parcels impacted by the alternative. Property appraised values were obtained from Dallas County Appraisal District (DCAD). Project 1 requires three property acquisitions: one is owned by the City of Dallas and the other two are commercial properties within the City of Cedar Hill.

Due to the conceptual nature of the study, all excavation calculations are based on HEC-RAS data. No survey information was obtained for the alternatives section of this study. **Table 6.1-3: Project 1 Opinion of Probable Construction Costs** shows a summary of costs associated with Project 1, and **Appendix 6.1-7** contains itemized probable construction cost tables.

Table 6.1-3: Project 1 Opinion of Probable Construction Costs

Item	Cost ($)
Mobilization	733,000
Paving	52,000
Drainage Items	6,180,000
Acquisitions	740,000
Utility Relocation	30,000
Contingency	1,940,000
Total	**9,700,000**

E. Permitting

Possible permitting requirements were identified for Project 1.

The USACE regulates the discharge of dredged or fill material into the waters of the United States, which includes any part of the surface water tributary system down to the smallest of streams, lakes, ponds, and adjacent wetlands. An Ordinary High Water Mark (OHWM) is a natural line on the shore establish by water level fluctuations, and can be surveyed to determine the regulatory extents of the waters of the U.S. Since Project 1 involves riprap and culvert improvements within the OHWM, a permit from the USACE under Section 404 of the Clean Water Act is required. A Nationwide Permit (NWP), specifically NWP 13 for "Bank Stabilization" or NWP 14 for "Linear Transportation Projects" are likely applicable as the proposed actions are expected to cause minimal adverse effects on the aquatic environment. Otherwise, an Individual Permit (IP) would be filed to include a more thorough review of the potential environmental and socioeconomic effects of the proposed activity. Furthermore, as a federal permit, all actions associated with the proposed activity must demonstrate

compliance with the Endangered Species Act and Section 106 of the National Historic Preservation Act. This proposed activity will further require coordination with the Texas Historical Commission (THC) and comply with the State Antiquities Act.

In addition, Section 401 of the Clean Water Act requires that an applicant seeking a federal permit must provide State certification ensuring that any discharges from the facility would comply with the Act's requirements, including water quality standards. The Texas Commission on Environmental Quality (TCEQ), which is the state delegated agency responsible for compliance of Section 401 of the Clean Water Act, employes a two-tiered process to assess potential impacts to waters of the state. Tier I certification is applicable to projects with direct impacts less than three acres or 1,500 linear feet of streams. Tier II certification involves a complete description of impacts to waters of the United States, discussion of water quality impacts, and a detailed alternatives analysis. The Section 401 permitting process is done in conjunction with the Section 404 permitting process.

F. Benefit-Cost Analysis

A Benefit-Cost Ratio (BCR) analysis was conducted to identify which project yields the best benefit considering the probable construction cost and the value of properties partially or entirely removed from the high-risk flood areas. The 2024 TWDB Benefit Cost Analysis (BCA) Input Workbook was used to quantify the projects economic impact. Average annual benefits were determined by subtracting the average annual damages for the Project 1 (improved) channel conditions from those for the updated channel conditions. The BCR ratio was calculated by dividing the average annual benefits by the alternative probable construction annualized costs. The BCR was used to determine the economic strength of a project. Alternatives with BCR greater than 1.0 have annual benefits that outweigh the reduction in annual damage and represent a feasible alternative. All benefit-cost calculations are included in **Appendix 6.1-8**.

The average annual costs and benefits were calculated for a 30-year period of analysis. The primary benefit of Project 1 is providing access to 92 homes during a storm event, which is not quantifiable in the given TWDB BCA Input Workbook. Additional benefits include removing 270 feet of road from flood risk, as well as removing two houses from flood risk. The proposed project results in a BCR of 0.8.

Project 1 has a BCR of less than 1. However, the primary benefit of this project could not be quantified using the TWDB BCA workbook or the FEMA BCA Calculator. The critical problem in Project 1 is that during major storm events, roads are overtopped, making homes inaccessible. This situation prevents residents from reaching safety and restricts emergency vehicles from accessing the neighborhood in case of medical emergencies. Since these houses are not located within the floodplain, the benefits are not recognized by either BCA tool. However, reconstructing Beaver Creek Drive will render 92 homes accessible, benefiting approximately 276 individuals.

II. Project 2- Channel Improvements at Cedar Creek Drive

A. 2024 FMP Concepts

Project 2 is located in the City of Duncanville. There are approximately 48 houses along Parkview Drive, Cedar Creek Street, and Ten Mile Lane within the updated 100-year floodplain. Project 2 proposes a detention pond on the south side of Softwood Drive and gabion baskets along the channel to increase storage capacity and lower the water surface elevation in this area. These proposed changes will remove 16 houses from the floodplain, including Cedar Creek Street and Tenmile Lane, during the 100-year storm event. Additionally, this project reduces flood depths for 9 houses during the 100-year storm event.

B. Alternative Hydrology and Hydraulics

All hydrologic and hydraulic modeling was based on the fully-developed updated modeling developed as a part of this study and outlined in Section 6.1.3 of this report. The HEC-RAS model updated conditions plan was revised to reflect changes proposed as a part of Project 2. The modifications from existing conditions to Project 2 are outlined below:

- The channel Manning's n-value for cross sections 137734 through 135855 was changed from 0.045 to 0.03 to reflect the proposed gabion basket channel lining in this area.
- The geometry of cross sections 136147 and 136047 was modified to reflect the proposed detention pond. The proposed detention pond is located on the southwest corner of Softwood Drive and South Main Street. The proposed pond has a surface area of approximately 1.75 acres and a depth of 6 feet to provide approximately 10.5 acre-feet of additional storage.

After updating the HEC-RAS model, the storage discharge relationships were exported and incorporated into the Project 2 HEC-HMS model. This action was taken to ensure that there would be no negative downstream effects from the alterations in storage volume or timing due to the introduction of structural alternatives.

C. Alternatives Detail Summary

The peak flows were input into the Project 2 HEC-RAS model to generate a revised water surface profile and further evaluate impacts. The proposed modifications result in decrease in discharges of up to 200 cfs and increases in discharge of 100 cfs. Water surface elevations decrease by up to 2.16 feet within the project area. Outside the project area, there are minor increases of up to 0.02 feet (rounding to 0.0 feet), due to the changes in discharges. Although there are some increases in discharge, these are less than 0.5% compared to the updated analysis discharges. Therefore, the results from this scenario meet the TWDB criteria for no negative impact. The proposed changes and proposed floodplain can be found in **Figure 6.1-7: Flood Mitigation Project Workmap, Panel 2**.

D. Construction Costs

Probable construction costs were determined for Project 2, including costs associated with the design and construction of the alternative. Unit cost rates were obtained from the 2023 TxDOT unit cost rate tables and adjusted, if necessary, based on similar projects in the region. The Opinion of Probable Construction Costs for Project 2 include mobilization (10 percent of construction costs), drainage items, property acquisitions, and contingencies (25 percent of total costs).

Right-of-way acquisition costs were determined for each alternative based on the parcels impacted by the alternative. In Project 2, one property easement would be required to mitigate for valley storage along a private property. The easement cost was based on the property appraised values obtained from DCAD. No further property acquisitions would be required for this project.

Due to the conceptual nature of the study, all excavation calculations are based on HEC-RAS data. No survey information was obtained for the alternatives section of this study. **Table 6.1-4: Project 2 Opinion of Probable Construction Costs** shows a summary of costs associated with Project 2, and **Appendix 6.1-7** contains itemized probable construction cost tables.

Table 6.1-4: Project 2 Opinion of Probable Construction Costs

Item	Cost ($)
Mobilization	620,000
Drainage Items	4,542,000
Acquisitions	198,000
Contingency	1,340,000
Total	**6,800,000**

E. Permitting

Possible permitting requirements were identified for Project 2.

The USACE regulates the discharge of dredged or fill material into the waters of the United States, which includes any part of the surface water tributary system down to the smallest of streams, lakes, ponds or other water body on those streams and adjacent wetlands. An Ordinary High Water Mark (OHWM) is a natural line on the shore establish by water level fluctuations, and can be surveyed to determine the regulatory extents of the waters of the U.S. Since gabion baskets are proposed for Project 2 within the OHWM, a permit from the USACE under Section 404 of the Clean Water Act would be necessary. A Nationwide Permit (NWP) applies when the discharge of dredged and fill materials is expected to have minimal adverse impacts on the aquatic environment. Due to the extent of the channel improvements, it is unlikely that the improvements would meet the NWP requirements and would need to be authorized under an Individual Permit (IP). An IP includes a more thorough review of the potential environmental and socioeconomic effects of the proposed activity. Furthermore, as a federal permit, all actions associated with the proposed activity must demonstrate compliance with the Endangered Species Act and Section 106 of the National Historic Preservation Act. This proposed activity will further require coordination with the Texas Historical Commission (THC) and comply with the State Antiquities Act.

In addition to Section 404, Section 401 of the Clean Water Act requires that an applicant seeking for a federal permit must provide a State certification ensuring that any discharges from the facility would comply with the Act's requirements, including water quality standards. The Texas Commission on Environmental Quality (TCEQ), which is the state delegated agency responsible for compliance of Section 401 of the Clean Water Act, employs a two-tiered process to assess potential impacts to waters of the state. Tier II certification involves a complete description of impacts to waters of the United States, discussion of water quality impacts, and a detailed alternatives analysis. A Tier II certification would be required for Project 2 since the proposed channel improvements are greater than 1,500 linear feet. The Section 401 permitting process is done in conjunction with the Section 404 permitting process.

No additional permitting is anticipated for Project 2.

F. Benefit Cost Analysis

A Benefit-Cost Ratio (BCR) analysis was conducted to identify which project yields the best benefit considering the probable construction cost and the value of properties partially or entirely removed from the high-risk flood areas. The 2024 TWDB BCA Input Workbook was used to quantify the projects economic impact. Average annual benefits were determined by subtracting the average annual damages for the Project 2 (improved) channel conditions from those for the updated channel conditions. The BCR ratio was calculated by dividing the average annual benefits by the alternative probable construction annualized costs. The BCR was used to determine the economic strength of a project. Alternatives with BCR greater than 1.0 have annual benefits that outweigh the reduction in annual damage and represent a feasible alternative. All benefit-cost calculations are included in **Appendix 6.1-8**.

The average annual costs and benefits were calculated for a 30-year period of analysis. The primary benefit of Project 2 is removing 16 houses from the 100-year floodplain resulting in a reduction of approximately $3,790,000 in residential flood damage or $38,000 annually. The proposed project results in a BCR of 0.2.

III. Project 3- Flood Structure Improvements at Ernie Roberts Park

A. 2024 FMP Concepts

Project 3 is located in the City of DeSoto. Approximately 60 houses are within the 100-year floodplain to the north of Pleasant Run Road. Additionally, during the 100-year storm event, North Hampton Road experiences partially overtopping, with approximately 1 foot of flooding on its southbound side. Project 3 proposes to remove the weir crossing at Roy Orr Trail approximately 615 feet downstream of Hampton Road, construct of a berm on the left overbank of Tenmile Creek on the east side of Hampton Road, and channel benching with landscaping on the left overbank of Tenmile Creek near Hampton Road. This project removes the flooding risk for North Hampton Road and removes 16 houses from the floodplain, while also reducing flood depths for 34 houses during the 100-year storm event.

B. Alternative Hydrology and Hydraulics

All hydrologic and hydraulic modeling was based on the fully-developed updated modeling developed as a part of this study and outlined in Section 6.1.3 of this report.

The HEC-RAS model updated conditions plan was revised to reflect changes proposed as a part of Project 3. The key modifications from existing conditions to Project 3 are outlined below:

- The geometry of cross sections 117246 through 115469 and 114987 through 114257 was modified to reflect the proposed channel benching in the left overbank of Tenmile Creek. The bottom of the benched area begins outside of the ordinary high-water mark and is sloped at 2%. The sides of the benched area are sloped at 25%.
- The geometry of cross sections 115104-114257 was modified to reflect the proposed berm located in the left overbank. The berm height varies from 0.9 feet to 6.8 feet and is approximately 900 feet long.
- The Inline structure representing the trail pedestrian crossing at station 114400 was removed.
- The Manning's n-value in the left overbank of cross section 114987 was changed from 0.055 to 0.07 to reflect proposed landscaping.

After updating the HEC-RAS model, an analysis of valley storage was computed to ensure that there were no adverse impacts downstream due to the proposed changes. Impacts to valley storage were evaluated based on the HEC-RAS model, by calculating the difference in volume on-site between the updated and the proposed Project 3 conditions.

Besides the modifications to the RAS model, a flap gate is suggested to be installed at the end of the storm sewer system located south of the alley behind Charles Street. This flap gate will prevent backflow from Tenmile Creek from entering the neighborhood through the existing storm sewer system.

C. Alternatives Detail Summary

With the above changes, there is a 2.8% gain in valley storage, shown in **Appendix 6.1-4**. Water surface elevations decrease by up to 1.44 feet within the project area and there are no rises in water surface elevation. The results of this scenario show no negative impact as specified by the TWBD criteria. The proposed changes and proposed floodplain can be found in **Figure 6.1-7: Flood Mitigation Project Workmap, Panel 3**.

D. Construction Costs

Probable construction costs were determined for Project 3, including costs associated with the design and construction of the alternative. Unit cost rates were obtained from the 2023 TxDOT unit cost rate tables and adjusted, if necessary, based on similar projects in the region. Alternative probable construction costs include mobilization (10 percent of construction costs), drainage items, property acquisitions, and contingencies (25 percent of total costs).

Right-of-way acquisition costs were determined for each alternative based on the parcels impacted by the alternative. Property appraised values were obtained from DCAD. Project 3 utilizes land on 13 parcels, 6 of which are owned by the City of DeSoto, and 7 commercial properties that would require property acquisitions.

Due to the conceptual nature of the study, all excavation calculations are based on HEC-RAS data. No survey information was obtained for the alternatives section of this study. **Table 6.1-1: Project 3 Opinion of Probable Construction Costs** shows a summary of costs associated with Project 3, and **Appendix 6.1-7** contains itemized probable construction cost tables.

Table 6.1-1: Project 3 Opinion of Probable Construction Costs

Item	Cost ($)
Mobilization	810,000
Drainage Items	6,395,000
Acquisitions	25,000
Contingency	1,807,000
Total	**9,100,000**

Permitting costs have not been included as a part of the construction costs.

E. Permitting

Several permitting requirements were identified as a part of Project 3.

The USACE regulates the discharge of dredged or fill material into the waters of the United States, which includes any part of the surface water tributary system down to the smallest of streams, lakes, ponds or other water body on those streams and adjacent wetlands. An Ordinary High Water Mark (OHWM) is a natural line on the shore establish by fluctuations of water, and can be surveyed to determine the regulatory extents of the waters of the U.S. For Project 3, since a weir is proposed to be removed within the OHWM, the USACE, under Section 404 of the Clean Water Act would require a permit. A Nationwide Permit (NWP) is used when the discharge of dredged and fill materials are expected to result in less than minimal adverse impacts to the aquatic environment. It is likely that the weir removal would meet the requirements for NWP 53, “Removal of Low-Head Dams”. Furthermore, as a federal permit, all actions associated with the proposed activity must demonstrate compliance with the Endangered Species Act and Section 106 of the National Historic Preservation Act. This proposed activity will further require coordination with the Texas Historical Commission (THC) and comply with the State Antiquities Act.

The channel benching proposed in Project 3 was designed to avoid the OHWM, however, a survey would be required to determine the regulatory extents of the OHWM and confirm that the project does not encroach on these extents. The State Antiquities Act is also in effect due to channel benching, and a cultural resource survey may be required. Lastly, because Project 3 is located near a current USACE project, it would require Section 408 coordination with USACE to ensure that it will not decrease the usefulness of the established USACE project.

F. Benefit Cost Analysis

A Benefit-Cost Ratio (BCR) analysis was conducted to identify which project yields the best benefit considering the probable construction cost and the value of properties partially or entirely removed from the high-risk flood areas. The 2024 TWDB BCA Input Workbook was used to quantify the projects economic impact. Average annual benefits were determined by subtracting the average annual damages under the Project 3 (improved) channel conditions from those for the updated channel conditions. The BCR ratio was calculated by dividing the average annual benefits by the alternative probable construction annualized costs. The BCR was used to determine the economic strength of a project. Alternatives with BCR greater than 1.0 have annual benefits that outweigh the reduction in annual damage and represent a feasible alternative. All benefit-cost calculations are included in **Appendix 6.1-8**.

The average annual costs and benefits were calculated for a 30-year period of analysis. The primary benefit of Project 3 is removing 16 houses and 1 commercial structure from the 100-year floodplain resulting in a reduction of approximately $10,143,400 in residential flood damage or $101,400 annually. The proposed project results in a BCR of 0.2.

IV. Project 4- Road Improvements at Main Street in Lancaster

A. 2024 FMP Concepts

Project 4 is located in the City of Lancaster. Currently, there are multiple sections of West Main Street that are overtopped during the 50- and 100-year storm events, restricting access to the Creek Wood Estates on the south side of West Main Street. Project 4 proposes to raise West Main Street, bench the channel upstream of South Houston School Road, and add a concrete lining on Tenmile Creek downstream of South Houston School Road. These proposed changes will take approximately 2,600 feet of Main Street and three houses out of the floodplain.

B. Alternative Hydrology and Hydraulics

All hydrologic and hydraulic modeling was based on the fully-developed updated modeling developed as a part of this study and outlined in Section 6.1.3 of this report.

The HEC-RAS model updated conditions plan was revised to reflect changes proposed as a part of Project 2. The modifications from existing conditions to Project 4 are outlined below:

- The geometry of cross sections 94269-93277 was modified to reflect channel benching in the left overbank of Tenmile Creek.
- The geometry of cross sections 93277-91760 and cross sections 89857-89191 was modified to reflect the reconstruction of West Main Street.

- The channel n-value for cross sections 90897-88419 was changed from 0.05 to 0.02 to reflect the proposed concrete lining along this section of Tenmile Creek.

After updating the HEC-RAS model, the storage discharge relationships were exported and incorporated into the Project 4 HEC-HMS model. This action was taken to ensure that there would be no negative downstream effects from the alterations in storage volume or timing due to the introduction of structural alternatives.

C. Alternatives Detail Summary

The peak flows were input into the Project 4 HEC-RAS model to generate a revised water surface profile and further evaluate impacts. With the above changes, there are decreases in discharge up to 900 cfs and increases in discharge of 100 cfs. Water surface elevations decreased by up to 2.72 feet within the project area and there are no increases in water surface elevation outside of the project area. Although there are increases in discharge, the increase is less than 0.5% when compared to the updated analysis discharges, therefore the results of this scenario show no negative impact as specified by the TWDB criteria. The proposed changes and proposed floodplain can be found in **Figure 6.1-7: Flood Mitigation Project Workmap, Panel 4**.

D. Construction Costs

Probable construction costs were determined for Project 4, including costs associated with the design and construction of the alternative. Unit cost rates were obtained from the 2023 TxDOT unit cost rate tables and adjusted, if necessary, based on similar projects in the region. Alternative probable construction costs include mobilization (10 percent of construction costs), paving, drainage items, property acquisitions, utilities relocation allowances (adjusted based on the number of conflicts), and contingencies (25 percent of total costs).

Right-of-way acquisition costs were determined for each alternative based on the parcels impacted by the alternative. Property appraised values were obtained from DCAD. Project 4 would require 4 total acquisitions within the City of Lancaster. Three of the acquisitions are for commercial properties, and one is for a residential property.

Due to the conceptual nature of the study, all excavation calculations are based on HEC-RAS data. No survey information was obtained for the alternatives section of this study. **Table 6.1-2: Project 4 Opinion of Probable Construction Costs** shows a summary of costs associated with Project 4, and **Appendix 1.6-7** contains itemized probable construction cost tables.

Table 6.1-2: Project 4 Opinion of Probable Construction Costs

Item	Cost ($)
Mobilization	2,610,000
Paving	2,303,000
Drainage Items	22,200,000
Acquisitions	449,000
Contingency	6,890,000
Total	**34,500,000**

E. Permitting

Possible permitting requirements were identified for Project 4.

The USACE regulates the discharge of dredged or fill material into the waters of the United States, which includes any part of the surface water tributary system down to the smallest of streams, lakes, ponds or other water body on those streams and adjacent wetlands. An Ordinary High Water Mark (OHWM) is a natural line on the shore establish by fluctuations of water, and can be surveyed to determine the regulatory extents of the waters of the U.S. For Project 4, since 2,600 ft of concrete lining is proposed within the OHWM, the USACE, under Section 404 of the Clean Water Act would require a permit. A Nationwide Permit (NWP) is used when the discharge of dredged and fill materials are expected to result in less than minimal adverse impacts to the aquatic environment. Due to the length of concrete lining, it is unlikely that the improvements would meet the NWP requirements and would need to be authorized under an Individual Permit (IP). An IP includes a more thorough review of the potential environmental and socioeconomic effects of the proposed activity. Furthermore, as a federal permit, all actions associated with the proposed activity must demonstrate compliance with the Endangered Species Act and Section 106 of the National Historic Preservation Act. This proposed activity will further require coordination with the Texas Historical Commission (THC) and comply with the State Antiquities Act.

The channel benching proposed in Project 4 was designed to avoid the OHWM, however, a survey would be required to determine the regulatory extents of the OHWM and confirm that the project does not encroach on these extents.

In addition to Section 404, Section 401 of the Clean Water Act requires that an applicant for a federal permit provide a State certification that any discharges from the facility would comply with the Act, including water quality standard requirements. The Texas Commission on Environmental Quality (TCEQ), the state delegated agency for compliance of Section 401 of the Clean Water Act, has a two-tiered process to determine potential impacts to waters of the state. Tier II certification involves a complete description of impacts to waters of the United States, discussion of water quality impacts, and a detailed alternatives analysis. A Tier II certification would be required for Project 4 since the proposed channel lining is greater than 1,500 linear feet. The Section 401 permitting process is done in conjunction with the Section 404 permitting process.

F. Benefit Cost Analysis

A Benefit-Cost Ratio (BCR) analysis was conducted to identify which project yields the best benefit considering the probable construction cost and the value of properties partially or entirely removed from the high-risk flood areas. The 2024 TWDB BCA Input Workbook was used to quantify the projects economic impact. Average annual benefits were determined by subtracting the average annual damages under the Project 4 (improved) channel conditions from those for the updated channel conditions. The BCR ratio was calculated by dividing the average annual benefits by the alternative probable construction annualized costs. The BCR was used to determine the economic strength of a project. Alternatives with BCR greater than 1.0 have annual benefits that outweigh the reduction in annual damage and represent a feasible alternative. All benefit-cost calculations are included in **Appendix 6.1-8**.

The average annual costs and benefits were calculated for a 30-year period of analysis. The primary benefit of Project 4 is removing approximately 0.5 miles of Main Street and 3 houses from the 100-year floodplain resulting in a reduction of $648,706 in flood damages or $6,500 annually. The proposed project results in a BCR of 0.4.

V. Other Project Considerations

Besides the four proposed projects presented above, several alternative approaches such as regional detention, bridge reconstruction, and channelization were also explored to mitigate flood risk in the Tenmile Creek

Watershed. However, these options were deemed unfeasible or ineffective. The projects from the Lancaster MDP were also evaluated for this project, but due to increases in the discharges and in 100-year design event, they were ultimately considered impractical for this study.

Flood Mitigation Projects (FMPs) in the Tenmile Creek Watershed are constrained by the large discharges in the watershed and built out conditions in the upper portion of the watershed. Additionally, the no negative impact criteria defined by Texas Water Development Bord (TWDB) pose challenges to the cost-effectiveness of the considered projects, given likelihood of downstream impacts in structural projects.

The details of projects evaluated but not considered for the Regional Flood Planning Group Flood Infrastructure Fund (RFPG FIF) are listed below:

- City of Duncanville
  - **Charles Ladd Nature Preserve**: The preserve was evaluated for flood mitigation potential. Since allowable changes to the Preserve were minimal, decreases in discharge were negligible and did not result in benefits for structures downstream.
  - **Briar Hill Circle Bridge Improvements:** Improvements were considered but excluded from this evaluation since improvements at Beaver Creek Drive result in the same benefits for the community while minimizing costs. Beaver Creek Drive improvements are included in Section 6.1.4-I
- City of DeSoto
  - **Lisa Lane Neighborhood:** An evaluation was conducted to remove the houses south of Lisa Lane from flood risk. However, structural alternatives in this area result in negative downstream impacts with little room to mitigate for increases in discharge.
- City of Lancaster
  - **South Dallas Avenue Bridge**: A bridge improvement was considered as the road is overtopped for the 50-year storm event and above. Several challenges were presented including its proximity to Old Red Oak Road, which is a historic bridge, and negative downstream impacts. Ultimately this was not included in the RFPG because it is controlled by TxDOT.
  - **South Houston School Road Bridge:** This bridge improvement project laid out in the Lancaster MDP was considered since the road is overtopped for the 10-year storm event and above. This alternative was deemed unfeasible as there are many houses in the floodplain that could not tie-in with a raised bridge.
  - **Other Lancaster MDP Projects:** Other projects from the Lancaster MDP, including the Nokomis Road Bridge Improvements and the South Blue Grove Road Bridge Improvements, were also considered. With updated fully-developed flows, the solutions presented in the MDP are not adequate to provide protection for the 10-year storm event. Raising the road above the proposed MDP solution also presents challenges tying in with the existing driveways in the area.

6.1.5 Flood Mitigation Strategies

I. Property Acquisitions

Flood Mitigation Strategies have been considered throughout the Tenmile Creek Watershed. Due to the size of Tenmile Creek and the developed nature of much of the watershed, structural flood mitigation projects can become expensive quickly with little reduction in annual damages. Property acquisitions are a feasible flood mitigation strategy that maximize the benefit-cost ratio without the constraints of structural projects.

The updated analysis revealed that 182 structures are currently in an area of flood risk, including 49 in the City of Duncanville, 60 in the City of DeSoto, 49 in the City of Lancaster, and 24 in unincorporated areas. The FMPs listed in Section 6.1.4 have been used to divide out possible areas for property acquisitions. In addition, three other areas have been highlighted for potential property acquisitions in areas where structural projects were not possible.

Table 6.1-3: Property Acquisition Costs shows the costs for each of the areas.

Table 6.1-3: Property Acquisition Costs

Area	Cost (in millions $)	No. of Buyouts	City
FMP 1	[1]	[1]	Duncanville
FMP 2	14.9	40[2]	Duncanville
FMP 3	17.4	60	DeSoto
FMP 4	14.4	49	Lancaster

[1] The benefits of FMP 1 cannot be replicated with buyouts. Therefore, this FMP was left out of the evaluation.
[2] There are 49 structures flooded in total, however, 9 of these are portable structures at the Village Tech School which can be moved outside of the flood risk area. Therefore, only 40 structures are recommended for a buyout.

II. Emergency Warning Systems

Emergency Warning Systems are a valuable resource for communities during storm events. There are 11 roads overtopped in the updated analysis. Road reconstruction projects can be costly and difficult to build in fully-developed areas. Therefore, installing an emergency warning system on roads at risk of flooding can be highly beneficial. This system alerts drivers to possible flooding and allows for road closures when they become impassable due to flooding.

6.1.6 Recommendations

I. Alternative Analysis

Based on the FMP analysis, any structural project would not provide enough reduction in annual damages to warrant the expense of such large projects. Therefore, property acquisitions are recommended to reduce flood risk throughout the watershed. Property acquisitions are a common Flood Mitigation Strategy and provides the

highest benefit-cost ratio of 1.0. Additionally, they allow each City the flexibility to buyout structures in high-risk areas throughout their jurisdiction as funding becomes available.

II. Funding

A. TWDB Flood Infrastructure Fund

The primary source of funding that has been considered throughout the project is TWDB's Flood Infrastructure Fund (FIF). The TWDB's FIF provides loans and grants for flood control, flood mitigation, and other drainage projects. Grant funding is based on the City's economic health relative to state-wide medians such as the annual median household income, unemployment rate, population decline, whether the city is classified as rural based on population, and if the project is considered to be "Green" or nature-based. These factors affect what percentage of a project is eligible to be funded by the FIF on a sliding scale starting from 50% to 90% of the potential costs.

Applications for FIFs require a BCA, a memorandum of understanding for political subdivisions affected by the project, an affidavit for collaboration for entities affected by the project. They are applicable only for future projects without funding from other sources, and require an updated study, that the City meet or exceed National Flood Insurance Program (NFIP) minimum standards for floodplain ordinances, and document potential operations and management costs for this project which are not eligible costs for FIF funding.

All of the FMPs proposed in Section 6.1.4 meet the no negative impact criteria required for a FIF.

B. Flood Mitigation Assistance

Flood Mitigation Assistance (FMA) is funded by FEMA and administered by TWDB and can provide an additional source of funding. FMA provides funds for drainage improvements and property acquisitions as well as other flood risk reduction projects. Grant funding is based on the City's economic health and the frequency of flood loss in the area. These factors affect what percentage of a project is eligible to be funded by FEMA on a sliding scale starting from 75% to 100% of potential costs. To receive funding, projects must prove to be cost-effective, reduce risk to insured properties, and be identified in FEMA-approved hazard mitigation plan.

C. Building Resilient Infrastructure and Communities

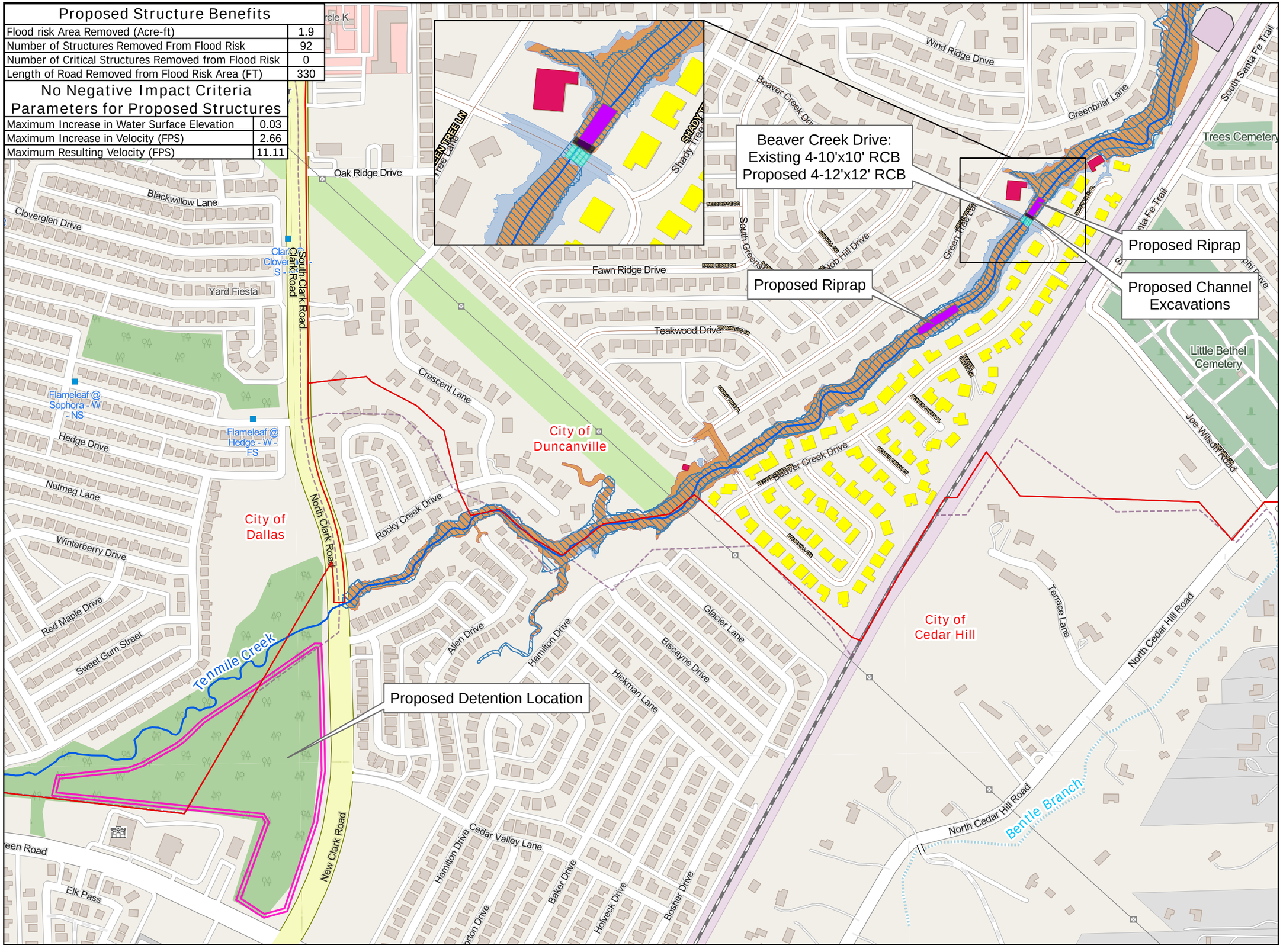
The Building Resilient Infrastructure is funded by FEMA and can provide an additional source of funding for drainage improvements, property acquisitions, and flood warning systems, as well as other flood risk reduction projects. Grant funding is based on the City's economic health and can be funded either 75% or 90%. To receive funding, project must have a benefit-cost ratio of greater than one (1) and be identified in FEMA-approved hazard mitigation plan. In addition, the state must have received a major disaster declaration within the past seven years.

D. Hazard Mitigation Grant Program

The Hazard Mitigation Grant Program (HMGP) is funded by FEMA and can provide an additional source of funding for drainage improvements, property acquisitions, and flood warning systems, as well as other flood risk reduction projects. Grants are funded at 75% after a federally declared disaster. To receive funding, projects must prove to be cost-effective.

Proposed Structure Benefits	
Flood risk Area Removed (Acre-ft)	1.9
Number of Structures Removed From Flood Risk	92
Number of Critical Structures Removed from Flood Risk	0
Length of Road Removed from Flood Risk Area (FT)	330

No Negative Impact Criteria Parameters for Proposed Structures	
Maximum Increase in Water Surface Elevation	0.03
Maximum Increase in Velocity (FPS)	2.66
Maximum Resulting Velocity (FPS)	11.11



Key to Features

Flood Risk Map 100-year Flow

- Tenmile Creek
- Proposed Detention Location
- Cities
- Existing (100-year Flow)
- Updated (Ultimate 100-Year Flow)
- Proposed (Ultimate 100-Year Flow)
- Channel Updates
- Proposed Riprap
- Channel Excavation
- Number of Structures Removed From Flood Risk
- Structures with Flood Risk

Basemap provided by OpenStreetMap

Flood Mitigation Project Workmap

Figure 6.1-7 Panel 1 of 4

0 500 Feet

AVO 42666

DALLAS COUNTY INLAND PORT FLOOD PLANNING STUDY

APM & Associates, Inc.
Engineering . Planning . CM Services
TBPE FIRM REGISTRATION NUMBER: 3091

halff

PRELIMINARY-FOR PLANNING PURPOSES ONLY
THESE DOCUMENTS ARE NOT INTENDED FOR PERMITTING, BIDDING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF:

NAME P.E. NO. DATE

NO.	REVISION	BY	DATE

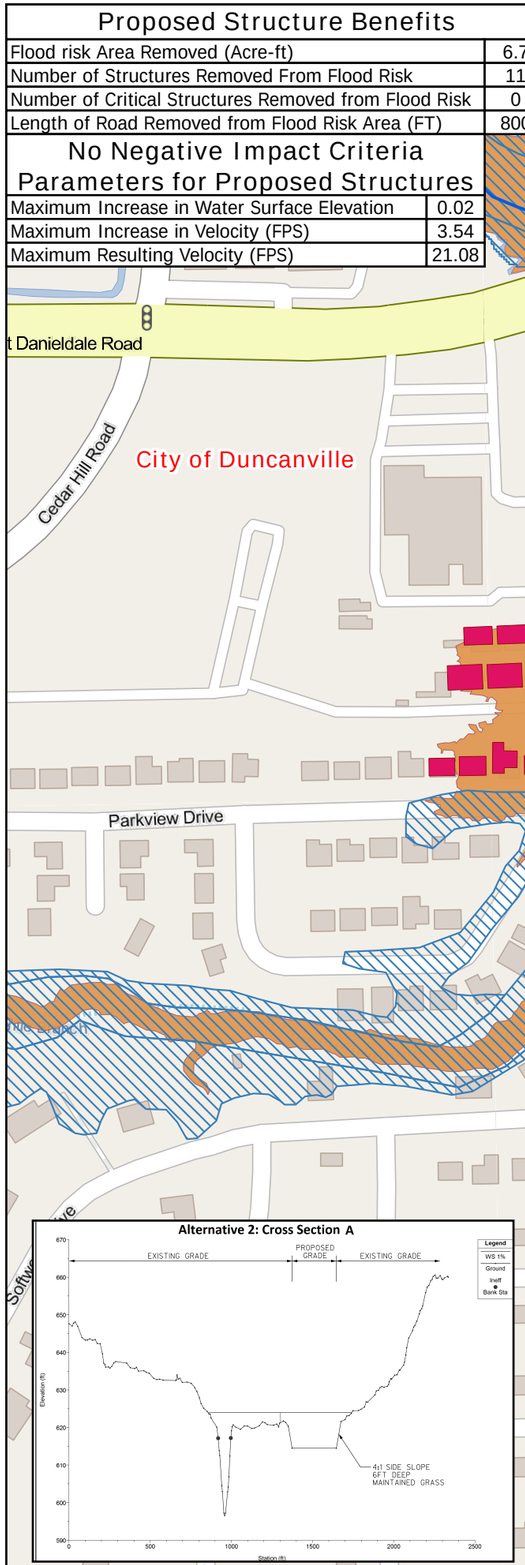
COUNTY OF DALLAS, TEXAS
DEPARTMENT OF PUBLIC WORKS

THE COUNTY OF DALLAS STATE OF TEXAS

DESIGNED: DRAWN: DATE: FILE:
APPROVED: CHECKED: SCALE:

Proposed Structure Benefits	
Flood risk Area Removed (Acre-ft)	6.7
Number of Structures Removed From Flood Risk	11
Number of Critical Structures Removed from Flood Risk	0
Length of Road Removed from Flood Risk Area (FT)	800

No Negative Impact Criteria Parameters for Proposed Structures	
Maximum Increase in Water Surface Elevation	0.02
Maximum Increase in Velocity (FPS)	3.54
Maximum Resulting Velocity (FPS)	21.08



West Danieldale Road
West Danieldale Road
East Danieldale Road
t Danieldale Road
Tenmile Creek
Church of Christ Duncanville
City of Duncanville
Cedar Hill Road
Timothy Trail
Timothy Trail
Linda Lane
Shamrock Drive
Larry Drive
Sharon Drive
Linda Lane
Shady Trail Drive
Bob Lee Boulevard
Duncanville Fire Station
Proposed Gabion Baskets
Parkview Drive
Cedar Creek Stream
Oakwood Drive
Softwood Drive
Mile Lane
Cliffcrest Drive
Linkwood Drive
Linkmeadow Drive
River Oaks
Linklea Drive
Proposed Detention Location
South Main Street
East Highway 67
US 67
US 67
East Highway 67
1600
Tenmile
Creek

Key to Features

Flood Risk Map 100-year Flow

- Tenmile Creek
- Proposed Detention Locations
- Existing (100-year Flow)
- Updated (Ultimate 100-Year Flow)
- Proposed (Ultimate 100-Year Flow)
- Channel Improvements
- Repavement
- Structures with Flood Risk
- Structures Removed from Flood Risk
- Cross Section

Basemap provided by OpenStreetMap

Flood Mitigation Project Workmap

Figure 6.1-7 Panel 2 of 4

0 300
Feet

AVO 42666

DALLAS COUNTY INLAND PORT FLOOD PLANNING STUDY

APM & Associates, Inc.
Engineering . Planning . CM Services
TBPE FIRM REGISTRATION NUMBER: 3091

halff

PRELIMINARY-FOR PLANNING PURPOSES ONLY
THESE DOCUMENTS ARE NOT INTENDED FOR PERMITTING, BIDDING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF:

NAME P.E. NO. DATE

NO.	REVISION	BY	DATE

COUNTY OF DALLAS, TEXAS
DEPARTMENT OF PUBLIC WORKS

THE STATE OF TEXAS

DESIGNED	DRAWN	DATE	FILE
APPROVED	CHECKED	SCALE	

Innovative approaches
Practical results
Outstanding service





Stream Condition Assessment

FINAL REPORT

Prepared for:

Duncanville
City of Champions

MARCH 23, 2026

Prepared by:

FREESE AND NICHOLS, INC.
801 Cherry Street, Suite 2800
Fort Worth, Texas 76102
817-735-7300

FREESE AND NICHOLS

Innovative approaches
Practical results
Outstanding service

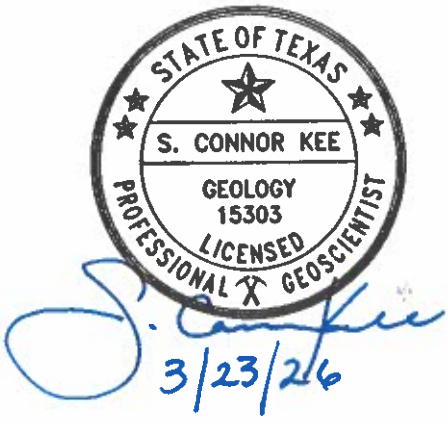
Stream Condition Assessment

FINAL REPORT

Prepared for:

Duncanville
City of Champions





FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

Prepared by:

FREESE AND NICHOLS, INC.
801 Cherry Street, Suite 2800
Fort Worth, Texas 76102
817-735-7300

TABLE OF CONTENTS

EXECUTIVE SUMMARY ES-1

1.0 INTRODUCTION 1

2.0 PROJECT AREA DESCRIPTION 2

2.1 Topography, Geology, and Soils 2
2.2 Project Area Development 3

3.0 GEOMORPHIC ASSESSMENT 4

3.1 Geomorphic Assessment Methods 4
3.1.1 Documentation of Existing Conditions 4
3.1.2 Streambank Erosion Assessment 6
3.1.3 Cross-Sections & Profiles 6
3.2 Geomorphic Assessment Results & Discussion: Mauk Branch 7
3.2.1 Overview of Channel Morphology 8
3.2.2 Observed Infrastructure and Potential Project Areas 10
3.3 Geomorphic Assessment Results & Discussion: Tenmile Creek 12
3.3.1 Overview of Channel Morphology 13
3.3.2 Observed Infrastructure and Potential Project Areas 14

4.0 LIDAR ANALYSIS 16

4.1 LiDAR Analysis Methods 16
4.2 LiDAR Analysis Results & Discussion 16

5.0 SETBACK ANALYSIS 17

5.1 Setback Analysis Methods 17
5.2 Setback Analysis Results & Discussion 18

6.0 PROJECT IDENTIFICATION & SELECTION 19

7.0 CONCEPTUAL ALTERNATIVES 21

7.1 Area 1 – 20-inch Sanitary Sewer Crossing on Mauk Branch 22
7.2 Area 2 – 18-inch Sanitary Sewer Crossing on Mauk Branch 24
7.3 Area 3 – Concrete Stormwater Flume on Tenmile Creek 26
7.4 Permitting Considerations 28

8.0 SUMMARY & RECOMMENDATIONS 29

9.0 REFERENCES 30

LIST OF FIGURES

Figure 2.1 – Geomorphic Setting and Soils of the Project Area 3
Figure 3.1 – Channel Evolution Model Diagram 5
Figure 3.2 – Mauk Branch BEHI Rating Distribution 8
Figure 3.3 – Mauk Branch Representative Conditions 9
Figure 3.4 – Tenmile Creek BEHI Rating Distribution 13
Figure 3.5 – Tenmile Creek Representative Conditions 14
Figure 5.1 – Setback Analysis Methodology 18
Figure 7.1 – Annotated Photographs of Area 1 23
Figure 7.2 – Annotated Photographs of Area 2 25
Figure 7.3 – Annotated Photograph of Area 3 27

LIST OF TABLES

Table 3.1 – Mauk Branch Dimensions and Morphology Parameters 7
Table 3.2 – Mauk Branch Observed Issues and Potential Project Areas 11
Table 3.3 – Tenmile Creek Dimensions and Morphology Parameters 12
Table 3.4 – Tenmile Creek Observed Issues and Potential Project Areas 15
Table 6.1 – Bank Erosivity Scoring 19
Table 6.2 – Current Condition Scoring 19
Table 6.3 – Infrastructure Priority Weights 20
Table 7.1 – Summary of Alternatives 22

EXHIBITS

Exhibit 1	Project Overview
Exhibits 2A – 2C	Geomorphic Assessment Maps – Mauk Branch
Exhibits 3A – 3E	Geomorphic Assessment Maps – Tenmile Creek
Exhibits 4A – 4C	LiDAR Comparison & Setback Analysis – Mauk Branch
Exhibits 5A – 5E	LiDAR Comparison & Setback Analysis – Tenmile Creek
Exhibits 6A – 6B	Conceptual Alternative 1 Layout & Opinion of Probable Construction Cost (OPCC)
Exhibits 7A – 7B	Conceptual Alternative 2 Layout & OPCC
Exhibits 8A – 8B	Conceptual Alternative 3 Layout & OPCC

APPENDICES

Appendix A	Field Photographs
Appendix B	Representative Bank Erosion Hazard Index (BEHI) Forms
Appendix C	Cross Sections & Longitudinal Profile
Appendix D	Summary of Infrastructure and Erosion Issues with Scores and Ranks

EXECUTIVE SUMMARY

The City of Duncanville, TX (City) contracted Freese and Nichols, Inc. (FNI) to perform a pilot stream condition assessment of selected stream reaches across the City. FNI geomorphologists and engineers conducted a geomorphic assessment along City-selected reaches of Mauk Branch and Tenmile Creek, totaling approximately 16,820 collective linear feet (LF), on November 18 and 19, 2025. The overall objectives of this assessment were to document existing geomorphic conditions of Mauk Branch and Tenmile Creek and evaluate the need for projects along these reaches.

The geomorphic assessment included photo documentation, streambank erosion potential mapping using the bank erosion hazard index (BEHI) methodology, and stream cross-section and profile measurements. Additional desktop analyses included a review of existing data to establish current watershed conditions (topography, geology, soils, and project area development) as well as a LiDAR analysis and a setback analysis. In general, both reaches have cut down to bedrock and are in a state of widening via streambank erosion and block/cantilever failure of bedrock bluffs.

FNI observed 41 instances of infrastructure and erosion concerns along the assessment reaches (20 along Mauk Branch and 21 along Tenmile Creek). Of these 41 total items, FNI considers 20 of them to present issues that warrant additional consideration or the potential development of projects. FNI developed a weighted ranking equation to prioritize these 20 potential project areas, where projects with the largest weighted score ranked highest for prioritization. The equation accounts for bank erosivity of nearby streambanks, current conditions of the at-risk infrastructure, and the type of at-risk infrastructure.

FNI collaborated with the City to select three areas (Areas 1 through 3) from the ranked list to develop conceptual alternatives for, including conceptual level cost estimates. Given that several of the ranked areas were confirmed to be either abandoned or owned by the Trinity River Authority (TRA), the three selected areas are of lower rank than the top three.

- Area 1 involves protecting a 20-inch sanitary sewer line threatened by erosion on Mauk Branch via the installation of approximately 140 LF of modular block retaining wall roughly 27 feet high. A conceptual opinion of probable construction costs (OPCC) of $2,670,000 was estimated for Area 1 for bank protection.

- Area 2 involves protecting an 18-inch aerial sanitary sewer line threatened by scour on Mauk Branch via the construction of approximately 125 LF of modular block retaining wall, installation of 115 LF of rock toe protection, and establishing a 10-foot floodplain bench. A conceptual OPCC of $1,050,000 was estimated for Area 2.

- Area 3 involves replacing and protecting an undermined concrete flume and protecting a water line crossing of Tenmile Creek by establishing a point bar with a 20:1 slope, grading a bank at a stable 3:1 slope, and vegetating the area with native plantings and seeding to establish robust riparian vegetation. A conceptual OPCC of $1,474,000 was estimated for Area 3.

In addition to the conceptual alternatives and cost estimates provided for the selected project areas, the City can use the results of this assessment to inform other projects in the future (i.e., consider projects at other ranked areas documented in this report) and as a baseline for existing geomorphic conditions along the study reaches of Mauk Branch and Tenmile Creek. Additional stream condition assessments can be undertaken along other reaches as desired to provide additional insight into existing conditions and project needs across the City.

1.0 INTRODUCTION

The City of Duncanville, TX (City) contracted Freese and Nichols, Inc. (FNI) to perform a pilot stream condition assessment of selected stream reaches across the City. Following discussions with FNI, the City selected two reaches for evaluation: one along Mauk Branch from East Wheatland Road to East Danieldale Road and one along Tenmile Creek from South Main Street to the City limits (**Exhibit 1**).

As part of this effort, a team of FNI geomorphologists and engineers conducted a geomorphic assessment along the selected reaches of Mauk Branch and Tenmile Creek, totaling approximately 16,820 collective linear feet (LF), on November 18 and 19, 2025 (**Exhibit 1**). The overall objectives of this assessment were to document existing geomorphic conditions of Mauk Branch and Tenmile Creek and evaluate the need for projects along these reaches. FNI assessed historic conditions, channel morphology, stability, and erosion and used the results to inform the development of three conceptual alternatives for addressing erosion concerns in City-selected project areas.

This effort included both a desktop and field component. The desktop component included a review of existing data to establish current watershed conditions (topography, geology, soils, and project area development) as well as a LiDAR analysis and a setback analysis. The field component included three tasks: documentation of existing conditions, a streambank erosion assessment, and cross section and profile measurements.

2.0 PROJECT AREA DESCRIPTION

This section describes the existing conditions of the Mauk Branch and Tenmile Creek watersheds, including the geographic setting, topography, geology and soils, and channel morphology. FNI collected this information during a desktop analysis of available data, including topographic maps, aerial photographs, soil survey reports (NRCS, 2025), and geologic maps (Bureau of Economic Geology, 1992). FNI obtained additional information from visual observations, photographs, and measurements collected during the field investigation.

2.1 TOPOGRAPHY, GEOLOGY, AND SOILS

The Mauk Branch and Tenmile Creek watersheds are sub-watersheds of the West Fork Trinity River in the Trinity River Basin. The drainage area of Mauk Branch from its headwaters to the confluence with Tenmile Creek is approximately 2.7 square miles, and the drainage area of Tenmile Creek from its headwaters to the confluence with Bee Branch just downstream of the City limits is roughly 12.8 square miles. The project site is in the Northern Blackland Prairie ecoregion of the Great Plains physiographic province. The soils throughout both reaches are dominated by the Frio silty clay, a well-drained, dark grayish brown clay soil with moderately slow permeability (Hydrologic Soil Group C). It is associated with floodplains and is moderately blocky, hard, and susceptible to cracking when dry but very plastic when wet. Other soil units in the area include the Austin-Lewisville complex, which has similar properties to the Frio clay but is associated with the surrounding uplands. The geologic unit that underlies these soils is the Austin Chalk, which is a grayish-white to white ledge-forming chalk alternating with medium gray marl. These soil and geologic units are typically susceptible to slaking (an erosional process driven by successive wet-dry cycles). Therefore, even the presence of compact soils or bedrock might not preclude the possibility of future erosion or streambed/bank adjustment. A diagram illustrating the geomorphic setting of the study area is shown in **Figure 2.1**.

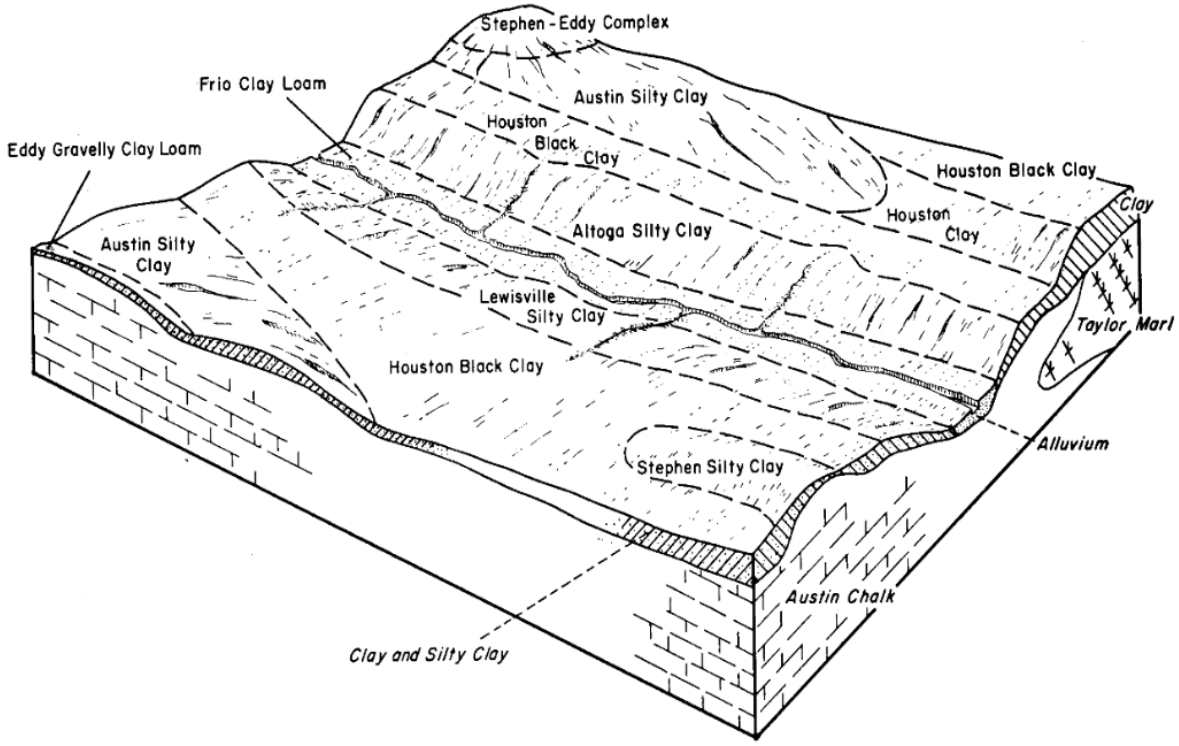


Figure 2.1 – Geomorphic Setting and Soils of the Project Area
Adapted from the Soil Conservation Service (now the Natural Resource Conservation Service) (1969).

2.2 PROJECT AREA DEVELOPMENT

The land surrounding the two assessment reaches of Mauk Branch and Tenmile Creek was primarily undeveloped or used as rangeland until residential development began in the 1960s. Construction and expansion of S. G. Alexander Freeway (TX-67) began in the early 1970s, and commercial developments around the new highway increased throughout the 1980s and 1990s. Overall, development (both residential and commercial) continued until it reached its present state in the early 2010s, leaving only a few parks and forested buffers along the creeks. Waterview Park and Harrington Park were constructed along the assessment reach of Tenmile Creek by 1989, with the latter replacing a water treatment facility that had existed since 1968.

3.0 GEOMORPHIC ASSESSMENT

3.1 GEOMORPHIC ASSESSMENT METHODS

The geomorphic assessment covered approximately 6,980 LF of Mauk Branch from East Wheatland Road to East Danieldale Road and 9,840 LF of Tenmile Creek from South Main Street to the City limits. All observations describe the left and right bank while looking in the downstream direction. This report refers to stream stationing that proceeds from upstream to downstream at 100-foot intervals. **Exhibits 2A through 2C** and **Exhibits 3A through 3E** show photograph locations, areas with existing infrastructure, and streambank erosion potential ratings along the assessment reaches of Mauk Branch and Tenmile Creek, respectively. These maps serve as a tool for quickly identifying problem area locations, general erosion potential, and overall geomorphic conditions along the study reach.

3.1.1 Documentation of Existing Conditions

Field teams photographed all locations with a GPS-enabled digital camera. Representative photographs and selected photographs of areas of interest are shown in **Appendix A**. Field notes taken during the site visit document stream conditions at the time of the assessment and identify definitive characteristics of stream erosion, lateral and/or vertical stability, and potential threats to City property and infrastructure. FNI noted bank stability, degree of erosion, and geomorphic processes using the methodologies developed by Thorne (1998), Montgomery and Buffington (1998), Henshaw and Booth (2000), and Rosgen (2006). Field teams recorded a combination of quantitative and qualitative data, including approximate width and depth of channel, valley width, streambed characteristics (general substrate composition, bedrock outcrops, etc.) and notable changes in geomorphic characteristics (valley widening or narrowing, channelization, etc.).

Field observations were framed in the context of the Channel Evolution Model (CEM), a conceptual model that describes how streams change through time (**Figure 3.1**). Generally, the model states that streams downcut or incise (i.e., erode vertically into the streambed) in response to disturbances within the watershed (e.g., changes in hydrology due to development), then widen (i.e., erode laterally into streambanks), and then finally reach a new dynamic equilibrium where they are stable until a new disturbance restarts the cycle.

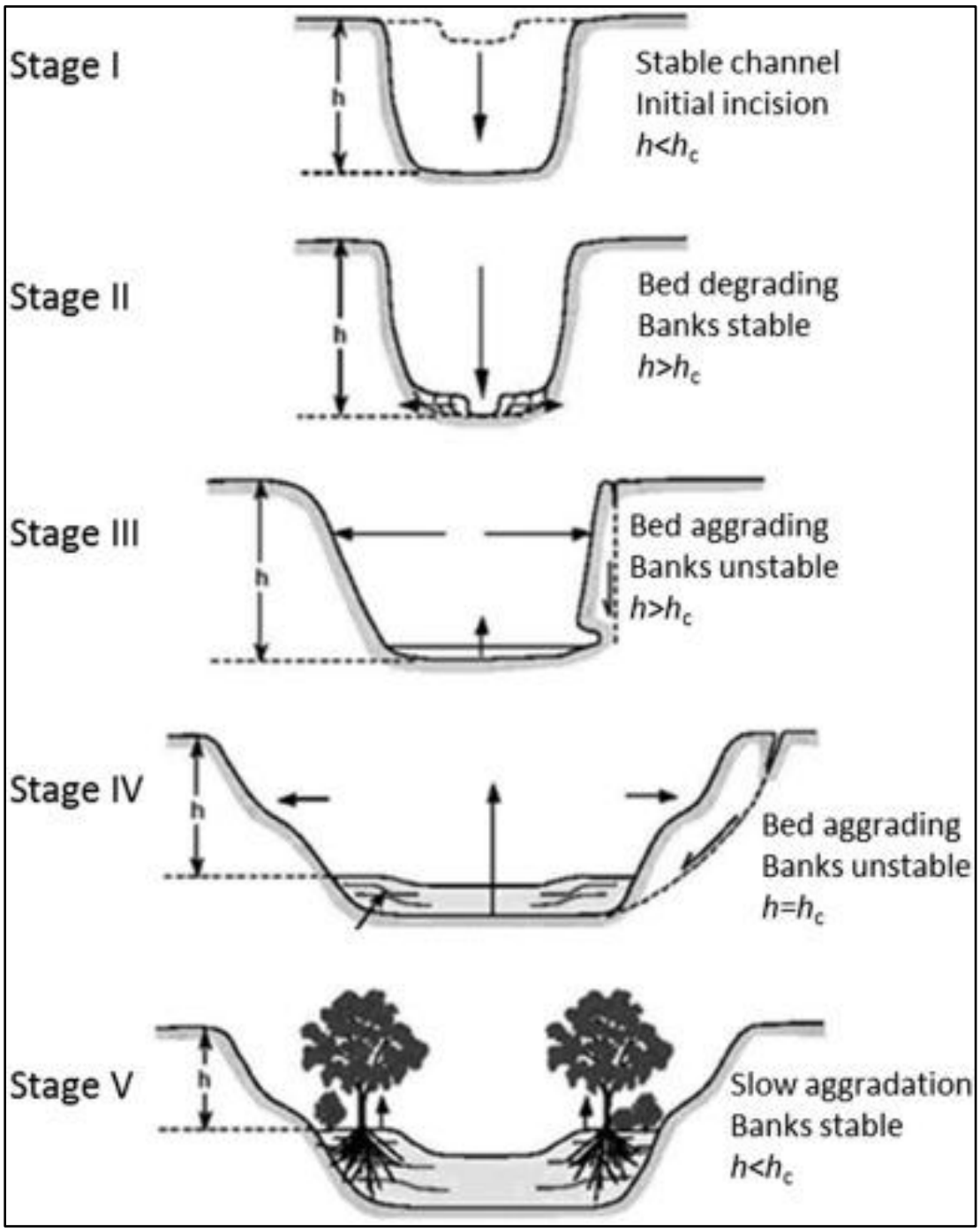


Figure 3.1 – Channel Evolution Model Diagram
Adapted from Schumm et al. (1984).

3.1.2 Streambank Erosion Assessment

FNI assessed lateral streambank stability and bank erosion potential using the bank erosion hazard index (BEHI) methodology developed by Rosgen (2006) (**Appendix B**). This rapid field assessment evaluates bank height ratio, rooting depth, rooting density, surface protection, bank angle, and bank material type and assigns an erosion potential rating ranging from "Very Low" to "Extreme".

At the beginning of the field investigation, field teams evaluated the BEHI ratings along a "calibration reach" using BEHI rating forms, proceeding downstream, and recording changes in BEHI rating along both the left and right banks. After completing the calibration reach, field teams then assessed the BEHI ratings of the remaining length of channel without using forms but based on the similarity of the observed banks to the calibration reach. The field teams assessed new calibration reaches periodically to "re-calibrate" the eye and at marked changes in geomorphology. The field assessment emphasized assessing erosion in the proximity of existing protection and infrastructure to identify if remedial action is required. The final product is a GIS shapefile of bank lines that are color coded to the applicable BEHI ratings along each bank. This data is used to identify erosion areas and locations where projects are needed to protect City property and infrastructure. The City can also use the data in the future to assess maintenance needs and evaluate changes in channel geometry, bank slopes, substrate, vegetation, and flow conditions.

Note that the BEHI methodology does not apply to all streambanks; common examples include armored streambanks (those fully armored with riprap, concrete, cut stone, bag walls, articulated concrete blocks, etc.) and point bars (natural depositional features on the insides of meander bends where erosion does not occur). Rather than leave blank spaces in the BEHI dataset where these exceptions occur, FNI added two additional mapping categories to the dataset to document them: "Armored" and "Point Bar."

3.1.3 Cross-Sections & Profiles

FNI measured five cross sections (two along Mauk Branch and three along Tenmile Creek) and two longitudinal profiles (one along each assessment reach) to characterize existing channel conditions (**Appendix C**). Field teams collected additional data at each cross section to evaluate potential changes in cross-sectional form through time. This data included observations of channel condition, bed and bank material, bank vegetation, and channel substrate, as well as measurements of water surface and thalweg elevations.

3.2 GEOMORPHIC ASSESSMENT RESULTS & DISCUSSION: MAUK BRANCH

This section describes field observations made along Mauk Branch during the geomorphic assessment. It also includes discussion of observed erosion issues and existing conditions. A summary of average geomorphic parameters measured along the assessment reach of Mauk Branch is provided in **Table 3.1**. Analysis of the erosion ratings estimated in the field shows that a BEHI rating of "Moderate" was the most common bank condition along Mauk Branch (**Figure 3.2**). Additionally, "High" and "Very High" ratings account for over 31% of mapped streambank conditions, suggesting that a large portion of Mauk Branch is laterally unstable. Erosion potential mapping resulting from the BEHI analysis is shown in **Exhibits 2A through 2C**.

Table 3.1 – Mauk Branch Dimensions and Morphology Parameters
These data were estimated in the field, as well as from measured cross sections, photographs, aerial imagery, and LiDAR (1-meter, 2019).

Parameter	Cross Section 1	Cross Section 2
Bankfull Width (ft)	20.9	18.8
Bankfull Mean Depth (ft)	1.9	1.0
Bankfull Max Depth (ft)	2.5	1.7
Bankfull Area (ft^2)	38.8	18.2
Left Bank Slope (°)	25.6	39.6
Right Bank Slope (°)	33.9	79.4
Entrenchment Ratio (ft/ft)	1.5	1.8
Width/Depth Ratio (ft/ft)	11.2	19.4
Bank Height Ratio (ft/ft)	3.0	7.1
Channel Bed Slope (ft/ft)	0.0068	
Channel Length (LF)	6,691	
Valley Length (ft)	5,650	
Sinuosity	1.18	
Dominant Bed Substrate	Bedrock	

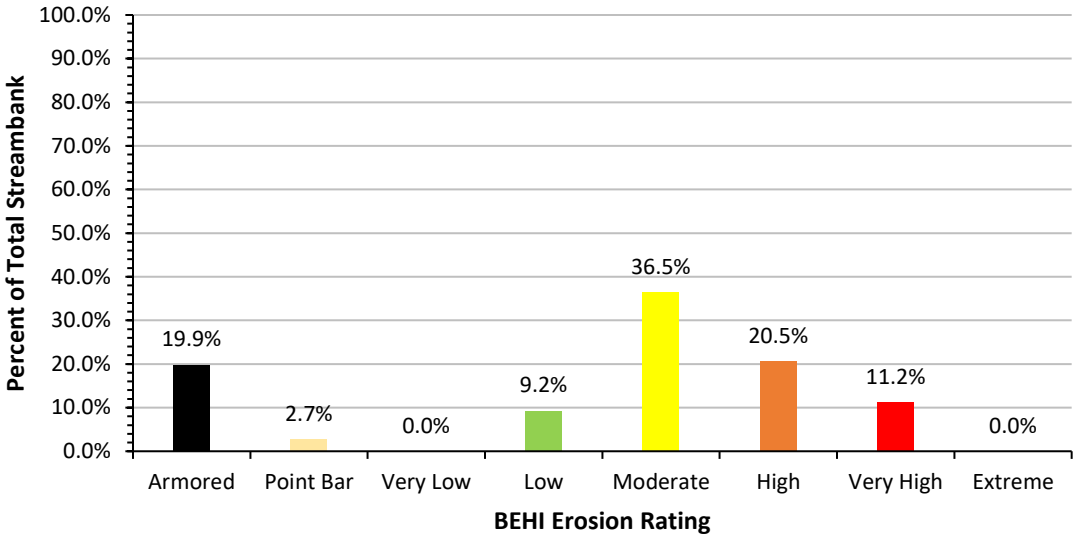


Figure 3.2 – Mauk Branch BEHI Rating Distribution
"Moderate" was the most prevalent rating along the study reach.

3.2.1 Overview of Channel Morphology

The study reach is characterized by an incised and moderately entrenched channel with banks varying in height between 5 and 15 feet. Side slopes are generally mild (roughly 30 degrees), except along banks exhibiting "Very High" erosion potential. Most of the reach is influenced by exposed Austin Chalk bedrock in the bed (and along the banks from station 58+00 onward) (**Figure 3.3**); this bedrock appears to be more resistant to slaking than the marl found elsewhere in the metroplex (e.g., in areas that are frequently wet, it does not crumble to the touch) but is still susceptible to block and cantilever failure. A forested buffer is present along most of the reach.

Field observations of fallen trees and streambank erosion on the outsides of meander bends, coupled with existing channel dimensions suggest that the reach is in a state of widening (Stage III of the CEM). This is further supported by the presence of bedrock along the streambed, which suggests that historic downcutting has already occurred. Downstream of station 58+00, the extensive presence and influence of the bedrock along both the bed and banks acts to slow the channel evolution process. Rapid reach-scale changes (both vertically and laterally) are therefore unlikely; instead, future change will likely be isolated to areas where block or cantilever failure of the bedrock occurs and/or along outside meander bends with "High" or "Very High" BEHI ratings.

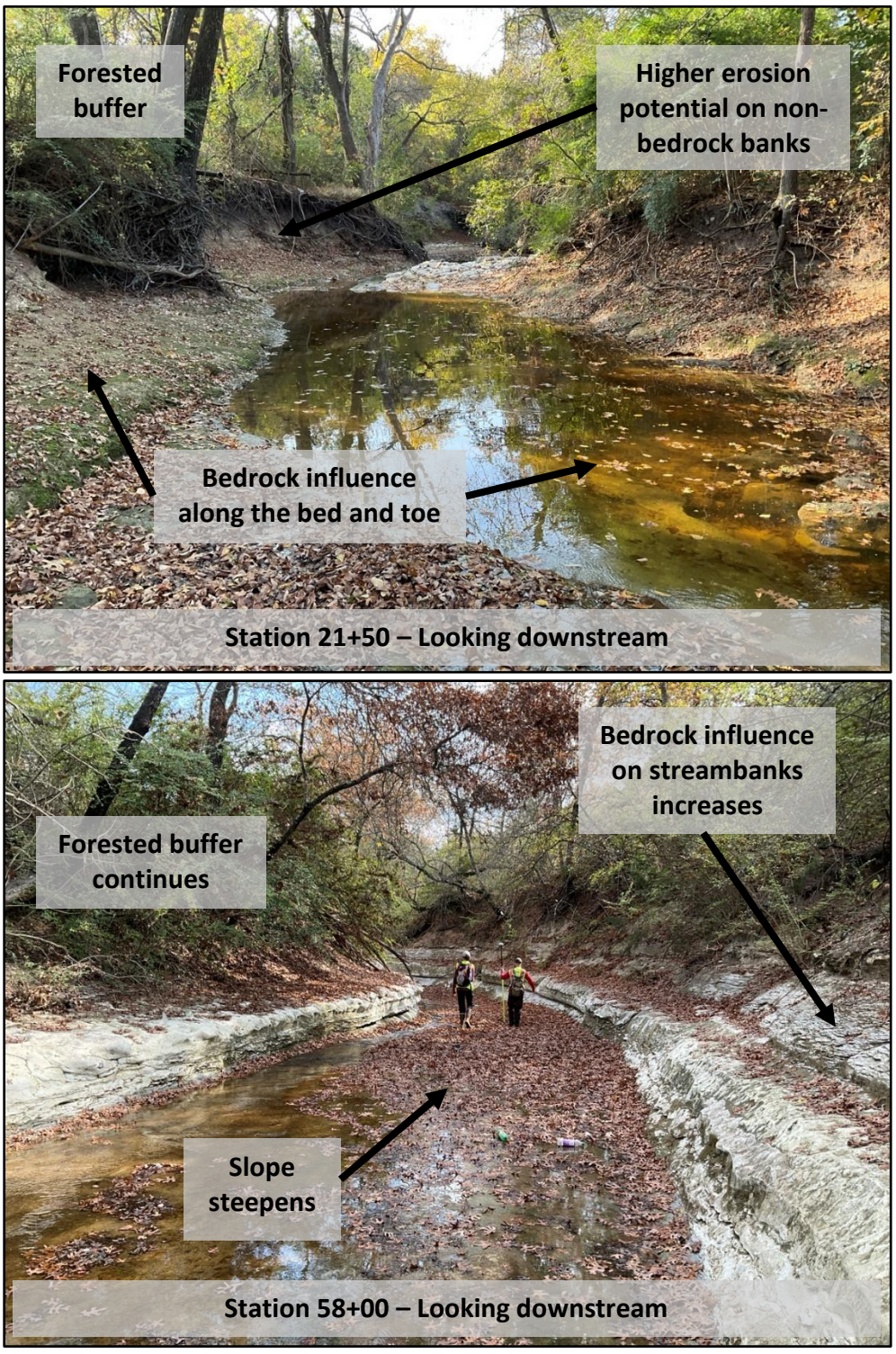


Figure 3.3 – Mauk Branch Representative Conditions

In the upper portions of the reach, bedrock influence was mostly limited to the bed (top); bedrock influence in the banks increased downstream of station 58+00 (bottom).

3.2.2 Observed Infrastructure and Potential Project Areas

FNI documented 20 instances of infrastructure and erosion concerns along the assessment reach of Mauk Branch, including:

- 8 stormwater outfalls experiencing varying degrees of scour and undermining
- 2 box culverts with sedimentation issues (at East Wheatland Road and East Danieldale Road)
- 2 retaining walls in fair to good condition
- 1 modular block wall in poor condition
- 6 sanitary sewer crossings in various conditions
- 1 drainage feature/steep bank near station 26+50

Of the 20 total items, FNI considers 10 of them to present issues that warrant additional consideration or the potential development of projects, as summarized in **Table 3.2**. The most prominent issues that warrant attention involve the aerial sanitary sewer crossings, particularly those near stations 31+00 and 51+50. A complete list of infrastructure observed along Mauk Branch is presented in **Appendix D**.

Table 3.2 – Mauk Branch Observed Issues and Potential Project Areas

Infrastructure	Station	Appendix A Photos	Observed Issues	Recommended Action
8-inch Sanitary Sewer Crossing	4+50	6	Erosion on right bank and scour around piers	Repair/replace; stabilize bank
18-inch Sanitary Sewer Crossing	9+00	11	Significant debris accumulation; scour around piers	Maintenance
30-inch Stormwater Outfall	12+00	14	Flowline is ~28 inches above bed elevation; tree root and bedrock holding grade under flume	Repair/replace
Steep drainage feature	26+50	23-24	"High" erosion potential bank; ~30 feet tall; geotechnical stability of concern	Monitor
20-inch Sanitary Sewer Crossing	31+00	28	Left bank eroded around pipe with no visible protection.	Repair and stabilize bank (**Alternative 1**)
Modular block wall	34+00	30	Grouted rock at the toe of the wall is undermined by at least 2 feet; the wall likely protects a continuation of the 20-inch sanitary sewer	Monitor
18-inch Sanitary Sewer Crossing	51+50	42	Right bank eroded around pipe	Repair and stabilize bank (**Alternative 2**)
24-inch Stormwater Outfall	57+00	45	Flume is undermined and flowline is ~10 feet above the stream bed	Repair/replace
60-inch Stormwater Outfall	59+50	47	Flume is partially undermined and flowline is ~10 feet above the stream bed	Repair/replace
East Danieldale Road Culvert	66+25	51-52; 54	Left cell is partially blocked with sediment deposition and vegetation	Maintenance

3.3 GEOMORPHIC ASSESSMENT RESULTS & DISCUSSION: TENMILE CREEK

This section describes field observations made along Tenmile Creek during the geomorphic assessment. It also includes discussion of observed erosion issues and existing conditions. A summary of average geomorphic parameters measured along the study reach of Tenmile Creek is provided in **Table 3.3**. Analysis of the erosion ratings estimated in the field shows that a BEHI rating of "Moderate" was the most common bank condition along Tenmile Creek (**Figure 3.4**) followed by "Low", suggesting relative stability along most of the reach. The prevalence of "Low" BEHI ratings can be partially attributed to the significant bedrock influence on the channel bed and banks throughout the reach, which generally reduces the potential for streambank erosion (though block and cantilever failure are still possible). Erosion potential mapping resulting from the BEHI analysis is shown in **Exhibit 3A through 3E**.

Table 3.3 – Tenmile Creek Dimensions and Morphology Parameters
These data were estimated in the field, as well as from measured cross sections, photographs, aerial imagery, and LiDAR (1-meter, 2019).

Parameter	Cross Section 1	Cross Section 2	Cross Section 3
Bankfull Width (ft)	27.94	47.06	45.07
Bankfull Mean Depth (ft)	1.36	0.93	0.79
Bankfull Max Depth (ft)	1.45	1.21	1.16
Bankfull Area (ft^2)	38.03	43.86	35.47
Left Bank Slope (°)	22.5	44.2	37.7
Right Bank Slope (°)	28.4	89.1	67.0
Entrenchment Ratio (ft/ft)	1.22	1.10	1.21
Width/Depth Ratio (ft/ft)	20.54	50.60	57.05
Bank Height Ratio (ft/ft)	11.37	11.99	17.02
Channel Bed Slope (ft/ft)	0.00421		
Channel Length (LF)	9,830.0		
Valley Length (ft)	8,553.5		
Sinuosity	1.15		
Dominant Bed Substrate	Bedrock		

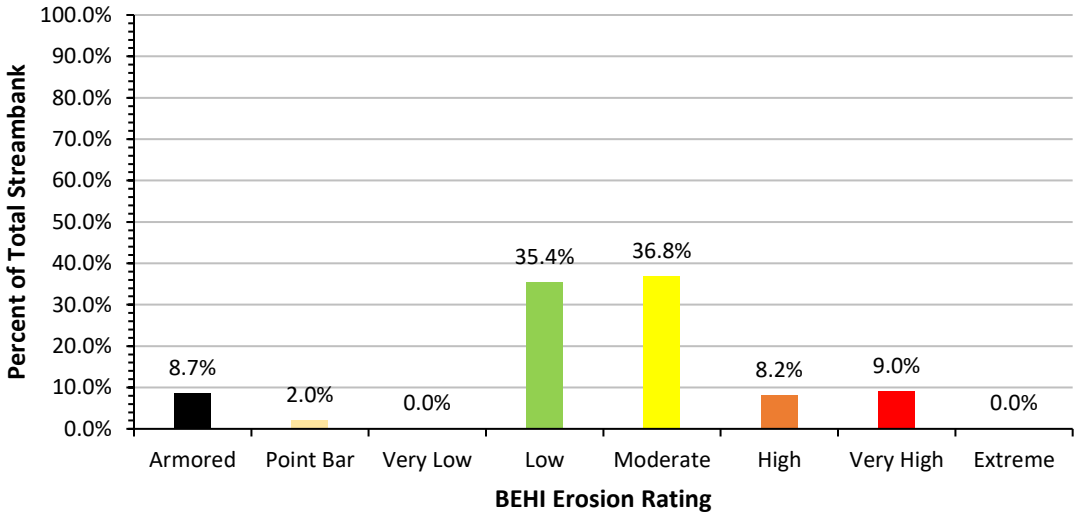


Figure 3.4 – Tenmile Creek BEHI Rating Distribution
"Moderate" was the most prevalent rating along the study reach, followed by "Low."

3.3.1 Overview of Channel Morphology

The study reach is characterized by a deeply incised and entrenched channel with banks varying in height between 10 and 25 feet. Side slopes vary, ranging from mild (between 20 and 30 degrees) to severe (60 to 90 degrees), with the steeper banks often coinciding with "Very High" erosion potential ratings or the outsides of meander bends. The entire reach is dominated by exposed Austin Chalk bedrock in both the bed and banks (**Figure 3.5**); this bedrock appears to be more resistant to slaking than the marl found elsewhere in the metroplex (e.g., rock in areas that are frequently wet do not crumble to the touch) but is still susceptible to block and cantilever failure. A forested buffer is present along most of the reach.

Field observations of fallen trees and streambank erosion on the outsides of meander bends, coupled with existing channel dimensions suggest that the reach is in a state of widening (Stage III of the CEM). This is further supported by the presence of bedrock along the streambed, which suggests that historic downcutting has already occurred. The extensive presence and influence of the bedrock along both the bed and banks acts to slow the channel evolution process. This influence is much stronger on the main stem of Tenmile Creek compared to its tributaries (e.g., Mauk Branch), and this is reflected in the significantly higher percentage of "Low" BEHI ratings that account for bedrock banks. As a result, rapid reach-scale changes (both vertically and laterally) are unlikely; instead, future change will likely be isolated to areas where block or cantilever failure of the bedrock occurs and/or along outside meander bends that lack bedrock influence and have "High" or "Very High" BEHI ratings.

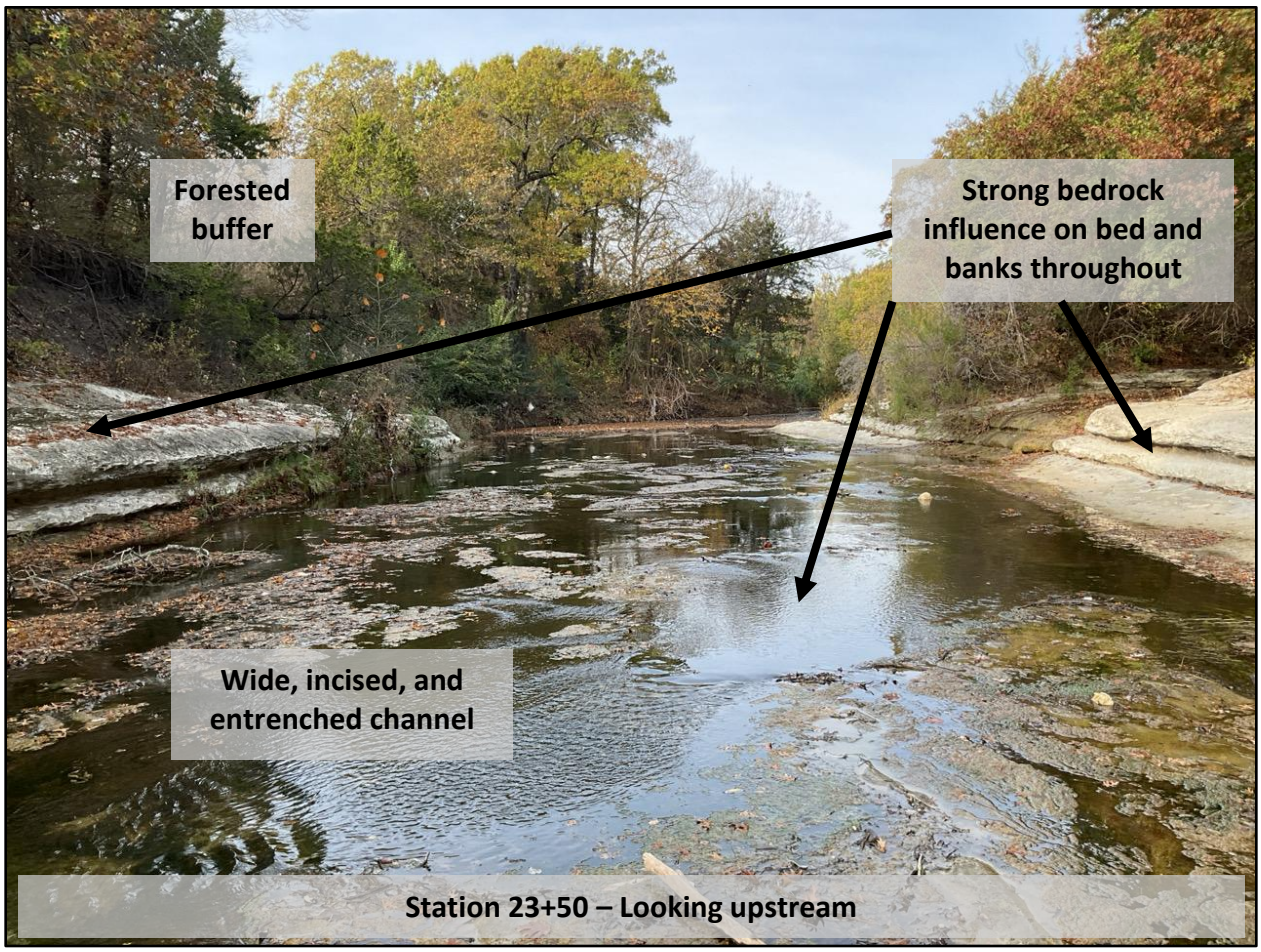


Figure 3.5 – Tenmile Creek Representative Conditions

3.3.2 Observed Infrastructure and Potential Project Areas

FNI documented 21 instances of infrastructure and erosion concerns along the assessment reach of Tenmile Creek, including:

- 7 stormwater outfalls experiencing varying degrees of scour and undermining
- 4 retaining walls in various conditions
- 7 sanitary sewer crossings in various conditions, at least 4 of which are likely Trinity River Authority (TRA) lines
- 2 other pipe crossings that may be abandoned
- 1 undermined stormwater flume near station 28+50

Of the 21 total items, FNI considers 10 of them to present issues that warrant additional consideration or the potential development of projects, as summarized in **Table 3.4**. The most prominent issues that warrant attention involve the aerial sanitary sewer crossings, particularly those at stations 50+50 and 98+00. However, as stated above, these crossings likely belong to TRA, and therefore the remaining areas of concern that the City should consider are threatened outfalls and flumes, such as the one at station 28+50. A complete list of infrastructure observed along Tenmile Creek is presented in **Appendix D**.

Table 3.4 – Tenmile Creek Observed Issues and Potential Project Areas

Infrastructure	Station	Appendix A Photos	Observed Issues	Recommended Action
18-inch Stormwater Outfall	5+00	60	Outfall is located 6-8 feet above water surface. Rock riprap has been partially dislodged	Monitor
Concrete Bag Wall	5+50	61	Significant erosion on downstream end, and evidence of settling and vertical cracking on wall	Repair/replace and stabilize bank
Stormwater Flume	28+50	76	Flume is undermined, approximately 12 feet above channel bed	Repair/replace
36-inch Sanitary Sewer	50+50	85-86	Right bank eroded around pipe with no visible protection. Pipe also exposed in right bank of Steward Branch	Repair/replace and stabilize bank
Stormwater Concrete Bag Wall Flume	55+50	89	Lower portion of bag wall is partially undermined	Repair/replace
Unmapped Pipes	58+00	90	Potentially abandoned. Bank has eroded around end of pipes	Repair/remove and stabilize bank
18-inch Abandoned Pipe	79+00	102	Pipe is bent and exposed along channel bed. Some debris accumulation	Remove pipe
Stormwater Outfall	82+00	104	Outfall is partially undermined and flowline is ~8 feet above the water surface	Repair/replace
48-inch and 24-inch Stormwater Pipes	94+00	109	Bank has eroded around pipes	Repair/replace and stabilize bank
36-inch Sanitary Sewer Crossing	98+00	111	Downstream end of gabion wall has eroded and settled. Unmapped exposed pipe visible.	Repair/replace and stabilize bank

4.0 LIDAR ANALYSIS

4.1 LIDAR ANALYSIS METHODS

FNI performed a LiDAR comparison to supplement observations made during the geomorphic assessment. FNI subtracted 2009 elevation data from 2019 elevation data (both 1-meter resolution LiDAR datasets) using ArcGIS Pro software. The result was a raster showing elevation changes over the course of that 10-year period (**Exhibit 4A through 4C** for Mauk Branch and **Exhibits 5A through 5E** for Tenmile Creek). Negative numbers (shown on the exhibits in shades of red) represent erosion that has occurred over the 10-year time gap, while positive numbers (shown on the exhibits in shades of blue) represent deposition that has occurred.

4.2 LIDAR ANALYSIS RESULTS & DISCUSSION

Results correspond well with observed erosion areas mapped in the field using BEHI. Examples include the “Very High” rating along the right bank of Mauk Branch near station 63+50 and the “High” and “Very High” areas along Tenmile Creek beginning near station 48+00. In other cases, such as at Tenmile Creek station 64+00, the LiDAR analysis shows a significant amount of change where the current BEHI rating is “Moderate” or “Low;” this can be explained via a few scenarios. First, it is possible that upper layers of soil retreated or eroded between 2009 and 2019, leaving behind a bedrock bank or shelf that resulted in a lower BEHI rating in the present. Second, it is also possible that adjustment of the bank was actively occurring between 2009 and 2019 but has since stabilized (e.g., a steep, bare bank that might have been rated as “High” in 2009 subsequently eroded until it reached a more stable slope and became established with vegetation, resulting in a “Moderate” or “Low” rating in the present). In general, the results of this analysis provide a useful visualization of the widening and streambank retreat that is occurring along the study reaches of Mauk Branch and Tenmile Creek.

5.0 SETBACK ANALYSIS

5.1 SETBACK ANALYSIS METHODS

FNI conducted a high-level erosion hazard setback analysis along delineated streams throughout the City. The purpose of this analysis was to provide high-level, conservative estimates of appropriate setback distances from the top of the streambanks. FNI delineated an erosion hazard zone (EHZ) in ArcGIS Pro software by projecting a line with an assumed stable slope of 3H:1V (33%) from a point offset 10 feet from the toe of slope to the ground surface (**Figure 5.1**). This approach is similar to protocols used by other cities in the metroplex (Halff, 1998). Since the risk of erosion and geotechnical failure generally increases with increasing bank steepness, especially beyond 1H:1V, a slope of 3H:1V represents a relatively stable slope where erosion and failure risks are lower and is suitable for EHZ delineation. Note that there are numerous methods for delineating EHZs, many of which use even shallower slopes (e.g., 4:1) or involve more in-depth analyses better suited to smaller study areas. Additionally, due to the high-level nature of this effort, FNI made the following assumptions:

- Toe widths are constant for the delineated streams as follows:
    - 60 feet wide for Tenmile Creek along its entire length within City limits
    - 30 feet wide for major tributaries (Mauk Branch, Horne Branch, etc.) along their entire lengths within City limits
    - 10 feet wide for all other minor tributaries along their entire lengths within City limits
- The potential downcutting elevation is three feet (a conservative value given that existing conditions suggest future downcutting is unlikely, as discussed in **Section 3** above)

These assumptions allowed for efficient, City-wide delineation at the cost of accuracy. Where desired, more accurate erosion hazard setbacks could be estimated using toe widths measured in the field.

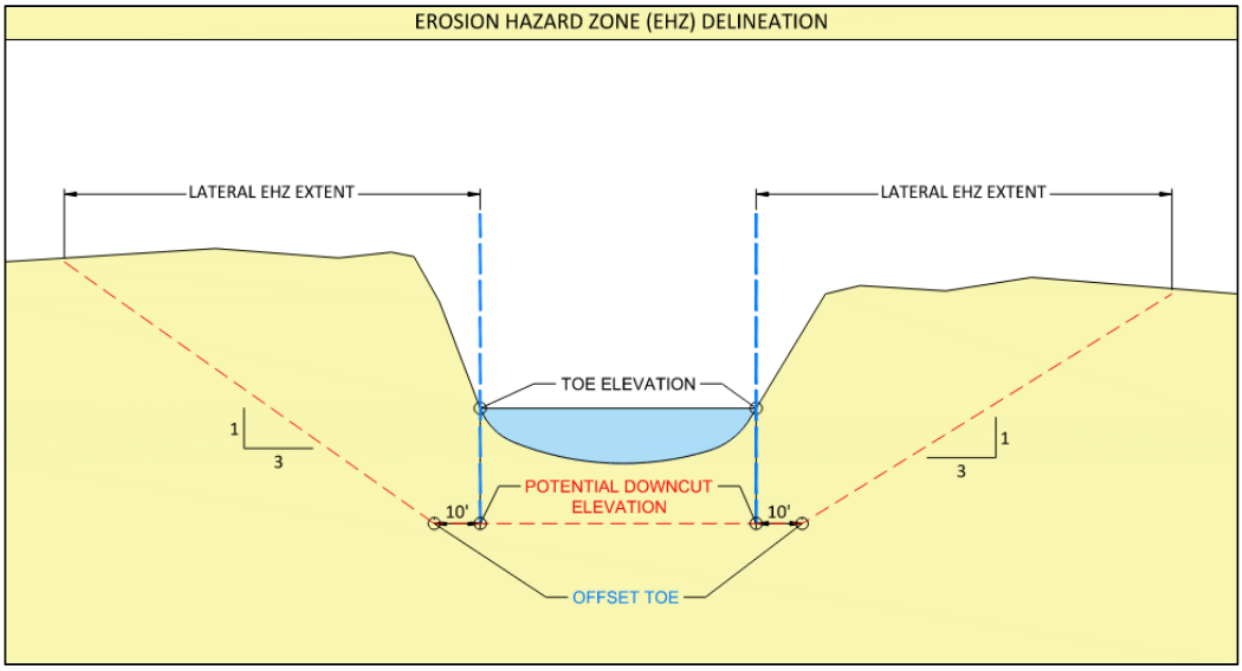


Figure 5.1 – Setback Analysis Methodology

5.2 SETBACK ANALYSIS RESULTS & DISCUSSION

A sample of the results of the City-wide setback analysis – the EHZ adjacent to the assessment reaches of Mauk Branch and Tenmile Creek – is shown in **Exhibit 4A through 4C** (Mauk Branch) and **Exhibit 5A through 5E** (Tenmile Creek). The resulting EHZ generally ranges from 40-60 feet from the top of the bank along Mauk Branch and 50-70 feet from the top of bank along Tenmile Creek. Some outliers occur in locations where smoothing of the EHZ around meander bends or between streams results in a larger setback distance (e.g., station 18+00 on Tenmile Creek).

Note that this analysis is one methodology for recommending setback distances away from the channel and does not include estimates of erosion rates or timeframes for channel adjustment. EHZs provide high-level estimates for the potential room a stream may need to adjust, and do not represent areas guaranteed to be threatened by erosion. Rather, they are useful as a planning tool when constructing infrastructure and designing spaces adjacent to streams and rivers. Ideally infrastructure is placed outside the EHZ; however, in cases where this is not possible or not desired, additional analyses such as the BEHI mapping and LiDAR comparison described above can be used to more accurately understand erosion and channel adjustment in that area and preventative measures (bank stabilization, stream restoration, etc.) can be considered.

6.0 PROJECT IDENTIFICATION & SELECTION

FNI used observations of bank stability and infrastructure condition at 41 total instances of infrastructure to score and rank potential project areas within the study reaches. FNI developed a weighted ranking equation to prioritize potential project areas (**Equation 1**), where projects with the largest weighted score ranked highest for prioritization.

$$\boldsymbol{Weighted\ Score} = [\boldsymbol{Bank\ Erosivity\ Score} + (\mathbf{1.5} \times \boldsymbol{Current\ Condition\ Score})] \times \boldsymbol{Infrastructure\ Priority}$$

Equation 1

The bank erosivity score is based on the BEHI rating of nearby banks (**Table 6.1**) and reflects the potential risk associated with future bank erosion. Banks with "Extreme" erosion potential are scored the highest while armored banks are scored the lowest because they are considered to have a low risk of erosion (but there is still potential for bank armoring to become undermined from scour).

Table 6.1 – Bank Erosivity Scoring

BEHI Rating	Bank Erosivity Score
Armored	0.5
Low	1.0
Moderate	2.0
High	3.0
Very High	4.0
Extreme	5.0

The current condition score is based on field observations related to scour, structural support, material condition, and cracking (**Table 6.2**) which inform the need for present action to prevent failure. The current condition score reflects present conditions and communicates the urgency with which action needs to be taken.

Table 6.2 – Current Condition Scoring

Infrastructure Condition	Current Condition Score
Good	1.0
Fair	2.0
Poor	3.0
Critical	4.0
Failed	5.0

The infrastructure type determines the "Infrastructure Priority" weighting modifier used in **Equation 1** (**Table 6.3**). Infrastructure with the highest consequence of failure has the highest weight and infrastructure with a localized or otherwise limited consequence of failure has the lowest weight. Infrastructure with an indirect impact on other high priority infrastructure was weighted as moderate.

Table 6.3 – Infrastructure Priority Weights

Priority Category	Infrastructure Priority
High (e.g., sanitary sewers)	1.00
Moderate (e.g., bag walls)	0.75
Low (e.g., stormwater outfalls)	0.50

In **Equation 1**, the bank erosivity score is combined with a weighted current condition score. The current condition score is weighted more heavily than the bank erosivity score because it conveys the need for present action based on observable evidence, while bank erosivity reflects the potential risk of future bank erosion. The combined erosivity and current condition score is multiplied by the infrastructure priority modifier to calculate the final weighted score.

The objective of the weighted ranking system was to identify high priority areas within the study reaches to move forward to the conceptual design phase. Infrastructure in "Good" or "Fair" condition was assumed to require no action and was excluded from project rankings. The top-ranking project areas were discussed with the City in a meeting on December 11, 2025, and the City selected three project areas to progress to the conceptual design phase (**Section 7.0**). **Appendix D** presents the full list of ranked projects.

The following three areas were selected for conceptual design based on rank and City input:

Area 1 – 20-inch Sanitary Sewer Crossing on Mauk Branch (Overall ranking: 4)

Area 2 – 18-inch Sanitary Sewer Crossing on Mauk Branch (Overall ranking: 5)

Area 3 – Concrete Stormwater Flume on Tenmile Creek (Overall ranking: 11)

Note that the three selected project areas rank outside the top three. Many of the highest ranked potential project areas involved infrastructure that was either abandoned or owned by Others, as indicated by GIS data and confirmed during discussions with the City. Only infrastructure owned by the City was considered to progress to conceptual design; thus, lower ranking projects were selected to progress to conceptual design.

7.0 CONCEPTUAL ALTERNATIVES

This section describes the conceptual alternatives developed to protect City infrastructure at the three project areas (Areas 1 through 3) described in **Section 6.0** above. At these locations, bank erosion threatens City infrastructure and FNI recommends taking action to mitigate erosion risks. The conceptual alternatives for these areas provide improvements to protect a 20-inch sanitary sewer crossing on Mauk Branch, an 18-inch sanitary sewer crossing on Mauk Branch, and a concrete stormwater flume and water line on Tenmile Creek, respectively.

The following factors were qualitatively considered during the development of these alternatives:

- Potential for floodplain impacts
- The erosion hazard setback
- Additional benefits for other City infrastructure
- Available property
- Section 404 environmental impacts
- Tree removal
- Stream morphology
- Connection/consistency with existing infrastructure
- Public safety

All three alternatives propose bank stabilization elements including retaining walls, armored channel toes, and grading. In all three areas, City infrastructure is located within the erosion hazard setback and is not expected to be relocated. Additionally, it is important to note that all three alternatives represent concepts focused on protecting City infrastructure at the specified locations of concern and do not represent improvements that holistically address any stream stability issues throughout the study reach of Mauk Branch or Tenmile Creek. Exhibits depicting the alternatives along with Opinions of Probable Construction Cost (OPCCs) are included in **Exhibits 6A and 6B**, **Exhibits 7A and 7B**, and **Exhibits 8A and 8B**, respectively. Potential utility conflicts, hydraulic modeling, geotechnical analysis, and detailed permitting efforts should be considered before detailed design of the preferred alternative(s) progresses. Additionally, the exact location and depth of nearby sewer lines and other utilities should be verified with survey or subsurface utility engineering. High-level permitting considerations for these alternatives are discussed in **Section 7.4**. A summary of proposed improvements, costs, and environmental permitting options for each alternative is shown in **Table 7.1**.

Table 7.1 – Summary of Alternatives

Area/Alternative #	Proposed Improvements	Possible Permitting Approach*	Estimated Cost
1	Modular Block Retaining Wall, Rock Riprap Transitions	NWP 13 with PCN	$2,670,000
2	Modular Block Retaining Wall, Rock Toe Protection, Floodplain Bench	NWP 13 with PCN	$1,050,000
3	Replace Flume, Establish Point Bar Slope, Grade Bank Slope, Vegetate with Native Plants	NWP 3 with PCN	$1,474,000

**Related to improvements constructed within the OHWM. NWP = Nationwide Permit; PCN = Pre-construction Notification.*

7.1 AREA 1 – 20-INCH SANITARY SEWER CROSSING ON MAUK BRANCH

In Area 1, the primary concern is erosion on the left bank that is threatening the aerial 20-inch sanitary sewer crossing (**Figure 7.1**). The erosion potential of the left bank is "Very High" and there is significant scour at the location where the pipe enters the left bank. There are no visible piers or pipe protection within or near the bank, causing Area 1 to be an area of high concern due to increased risk of compromise or failure of the crossing. The right bank is armored with a concrete bag wall and the pipe crossing at the right bank appears to be stable. Site constraints at Area 1 include tall steep banks (>25 feet) and the proximity of adjacent development. The use of stable, vegetated slopes in Area 1 is limited due to the lack of space needed to grade back the bank slope. Development of adjacent properties constrains the stream corridor, necessitating the use of a modular block wall instead of vegetated slopes.



Figure 7.1 – Annotated Photographs of Area 1
Looking downstream (top) and at the left bank (bottom) near station 31+00 of Mauk Branch

To address erosion around the sanitary sewer crossing and bank, the proposed improvements at Area 1 involve the installation of approximately 140 LF of modular block retaining wall, approximately 27 feet high, to protect the 20-inch sanitary sewer line (**Exhibit 6A**). Approximately 1,250 cubic yards (CY) of fill will be placed to establish a smooth transition to the meander bend to alleviate scour at the bank toe. A portion of the fill will be within the 100-year floodplain (the 100-year water surface elevation is approximately 637 feet) (FEMA, 2014), but the majority of fill will be placed above the 100-year water surface.

The modular block wall transitions via rock riprap to a tie-in point with the natural bank to mitigate the "Very High" erosion potential observed during the geomorphic assessment. Where possible, slopes will be re-graded to have a slope no greater than 3:1, however, tie-in points will require steeper slopes to tie into the existing grade. All disturbed slopes shall be revegetated with native seeding and plantings to promote long-term bank stability.

A conceptual OPCC of $2,670,000 was estimated for Area 1 (**Exhibit 6B**).

7.2 AREA 2 – 18-INCH SANITARY SEWER CROSSING ON MAUK BRANCH

In Area 2, the primary concern is erosion on the right bank around the aerial 18-inch sanitary sewer crossing (**Figure 7.2**). The erosion potential of the right bank is "Very High" and there is significant scour at the location where the pipe enters the bank. Per City staff, there is a pier buried in the bank; the location of pipe supports should be confirmed during detailed design. The left bank is rated as having "Moderate" erosion potential and there was not notable erosion around the pipe crossing on the left bank. Despite the presence of a potential pipe support near the erosion on the right bank, Area 2 remains an area of high concern because the "Very High" erosion potential suggests that the right bank could rapidly erode, putting existing infrastructure at a high risk for damage or failure. Area 2 site constraints include an upstream stormwater outfall which limits the upstream tie-in elevation of the floodplain bench.



Figure 7.2 – Annotated Photographs of Area 2
Looking at the left bank (top) and downstream (bottom) at the crossing near station 51+50 of Mauk Branch

To address bank stability and erosion around the sanitary sewer crossing, the proposed improvements at Area 2 involve the installation of approximately 125 LF of modular block retaining wall, 115 LF of rock toe protection, and establishing a 10-foot floodplain bench to protect the 18-inch aerial sanitary sewer line (**Exhibit 7A**).

There is an established, well-vegetated floodplain bench in the reach upstream of the sanitary sewer crossing. The bench appears to end abruptly near the aerial pipe crossing where most of the erosion is localized. Re-establishing the floodplain bench can help mitigate scour caused by a sudden reduction in the channel flow width and reduces the flow velocity within the channel cross section. The existing floodplain bench upstream of the 18-inch crossing is approximately 2 feet above the thalweg. Rock toe protection will be placed in Area 2 along the toe of the floodplain bench at a height of 2 feet above the thalweg to mimic the upstream channel dimensions while providing additional protection against erosion. The modular block wall (approximately 9 feet high) provides slope stability and protects the pipe crossing on the right bank from localized scour. Additionally, the modular block wall ties into the natural banks smoother than vegetated slopes due to the steepness of the existing banks.

A conceptual OPCC of $1,050,000 was estimated for Area 2 (**Exhibit 7B**).

7.3 AREA 3 – CONCRETE STORMWATER FLUME ON TENMILE CREEK

Area 3 is located on the inside of a meander bend on Tenmile Creek where a deep scour pool has undermined the footer of an existing rectangular concrete stormwater flume (**Figure 7.3**). Additionally, in some places the top of the flume protrudes approximately 2 feet above the existing ground. During high flow events, this can obstruct flow and cause localized scour around the protrusion. City staff stated that the flume protects an 8-inch water line at this location. Although the water line was not observed in the field, GIS data indicates a water line in the vicinity. The left bank has “Moderate” erosion potential, and most of the observed erosion in the field was at the toe of the bank. The outer bend is composed of Austin Chalk bedrock. Although the right bank is near vertical, the erosion potential was also characterized as “Moderate” because bedrock is more resistant to erosion. Site constraints at Area 3 include the scour pool, the prominence of bedrock in the channel and banks, and two existing TRA sanitary sewer lines that run parallel to the left bank of Tenmile Creek.



Figure 7.3 – Annotated Photograph of Area 3
Looking along the left bank of Tenmile Creek near station 28+50

To address bank erosion at the flume and water line crossing, the proposed improvements at Area 3 involve establishing a point bar with a 20:1 slope and grading the bank at a stable 3:1 slope. Both the point bar and stable slope will be vegetated with native plantings and seeding to establish robust riparian vegetation (**Exhibit 8A**). The existing undermined flume will be removed and replaced to match the proposed grade and rock riprap will be placed at the flume outfall to protect against erosion. Both the footer of the flume and rock riprap will be keyed into bedrock to safeguard against further channel and bank erosion.

Currently, the depth and location of the water line are unknown and need to be verified with subsurface utility engineering (SUE) in a later design phase. Additional protection for the water line, such as encasement or relocation, may be needed based on the SUE results.

A conceptual OPCC of $1,474,000 was estimated for Area 3 (**Exhibit 8B**).

7.4 PERMITTING CONSIDERATIONS

The United States Army Corps of Engineers (USACE) regulates the discharge of dredged and fill material into waters of the U.S. (WOTUS), including wetlands, under Section 404 of the Clean Water Act (Section 404). It is FNI's understanding that Mauk Branch and Tenmile Creek (perennial streams) are considered WOTUS by the USACE. Any activity (including construction access and staging areas) which would result in the discharge of dredged or fill material into Mauk Branch, Tenmile Creek, or other WOTUS would require USACE authorization under Section 404. The alternatives described above were evaluated for impacts to WOTUS and Section 404 permitting. As currently proposed, Area 1 involves the placement of 1,250 CY of fill material into Mauk Branch, requiring authorization under Section 404. If Area 2 and 3 involve the discharge of dredged or fill material into Mauk Branch or Tenmile Creek, they would also require authorization under Section 404. Note that these are preliminary considerations; further evaluation and coordination with regulatory agencies, including the Texas Historical Commission (THC), should be expected if any alternatives are pursued.

Nationwide Permit (NWP) 13 – *Bank Stabilization* – authorizes bank stabilization activities necessary for erosion control or prevention if all NWP 13 terms and conditions – including NWP General Conditions and NWP Regional Conditions within the Fort Worth District – are met. PCN submittal is required if the bank stabilization activity:

1. Involves discharges of fill material into special aquatic sites, including wetlands and riffle and pool complexes
2. Exceeds 500 LF in length
3. Will involve the discharge of fill material greater than an average of one cubic yard per running foot (as measured along the length of the treated bank) below the plane of the ordinary mark (OHWM)
4. Triggers concerns related to General Condition 18 (*Endangered Species*) or General Condition 20 (*Historic Properties*)

The District Engineer can waive the PCN criteria limits of items 1-3 by making a written determination that the discharge of fill material will result in no more than minimal adverse environmental effects.

NWP 3 – *Maintenance* – authorizes the repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, provided that the structure or fill is not to be put to uses differing from those specified or contemplated for it. Minor deviations in the structure's configuration or filled area

that are necessary to make the repair, rehabilitation, or replacement are authorized. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill. PCN submittal is required if the bank stabilization activity triggers concerns related to General Condition 18 (*Endangered Species*) or General Condition 20 (*Historic Properties*).

FNI anticipates that the alternatives for Area 1 and Area 2 described above can be authorized under NWP 13 and Area 3 can be authorized under NWP 3. Authorization for all areas would require a PCN based on the potential to impact endangered species and/or cultural resources.

If the proposed activities are authorized by NWP 13 or NWP 3 but would result in losses to wetlands and/or open waters greater than 0.1 acre, or impacts to streams greater than 0.03 acre, they would also require mitigation to offset these losses to WOTUS. Acceptable sources of mitigation include the purchase of wetland or stream mitigation bank credits from a mitigation bank which services the HUC-8 watershed of the project area. If no mitigation banks are present to service the proposed project, the project would require permittee-responsible mitigation, which would likely include the acquisition of a conservation easement as well as monitoring of the mitigation area.

8.0 SUMMARY & RECOMMENDATIONS

FNI geomorphologists and engineers conducted a geomorphic assessment along two City-selected reaches of Mauk Branch and Tenmile Creek to document existing geomorphic conditions and evaluate the need for projects along these reaches. The assessment included photo documentation, streambank erosion potential mapping, and cross-section and profile measurements. Other desktop analyses included a LiDAR analysis and a setback analysis. FNI developed a weighted ranking equation based on streambank erosivity, current conditions of at-risk infrastructure, and the type of at-risk infrastructure to prioritize 20 potential project areas that were documented during the assessment. FNI developed conceptual level alternatives and cost estimates for three of these areas (Areas 1 through 3) chosen by the City.

In addition to the conceptual alternatives and cost estimates provided for the selected project areas, the City can use the results of this assessment to inform other projects in the future (i.e., consider projects at other ranked areas documented in this report) and as a baseline for existing geomorphic conditions along the study reaches of Mauk Branch and Tenmile Creek. Additional stream condition assessments can be undertaken along other reaches as desired to provide additional insight into existing conditions and project needs across the City.

9.0 REFERENCES

Bureau of Economic Geology. 1992. Geologic Map of Texas: University of Texas at Austin, Virgil E. Barnes, project supervisor, B.M. Hartmann, and D.F. Scranton, cartography, scale 1:500,000.

Dick, B.M., Hey, R., Peralta, P., Jewell, I., Simon, P. and Peszlen, I., 2014. Estimating annual riverbank erosion rates – a dendrogeomorphic method. River Research and Applications, 30(7), pp.845-856.

Federal Emergency Management Agency (FEMA). 2014. FIRM Panel 0470K, Map Number 48113C0470K.

Halff Associates, Inc. 1998. Stream Bank Stabilization Manual for the Cities of Plano, Garland, McKinney, and Allen.

Henshaw, P.C. and D.B. Booth. 2000. Natural restabilization of stream channels in urban watersheds: Journal of the American Water Resources Association, v. 36, p. 1219–1236.

Montgomery, D.R. and J.M. Buffington. 1998. Channel processes, classification and response: in Stream ecology and management, R. Naiman and R. Bilby, editors. Springler-Verlag New York, Inc., p. 13-42.

Natural Resources Conservation Service (NRCS), United States Department of Agriculture. 2025. Web Soil Survey. Available online at the following link: https://websoilsurvey.sc.egov.usda.gov/. Accessed 11/13/2025.

Rosgen, D.L. 1996. Applied River Morphology. Wildland Hydrology Books, Fort Collins, Colorado.

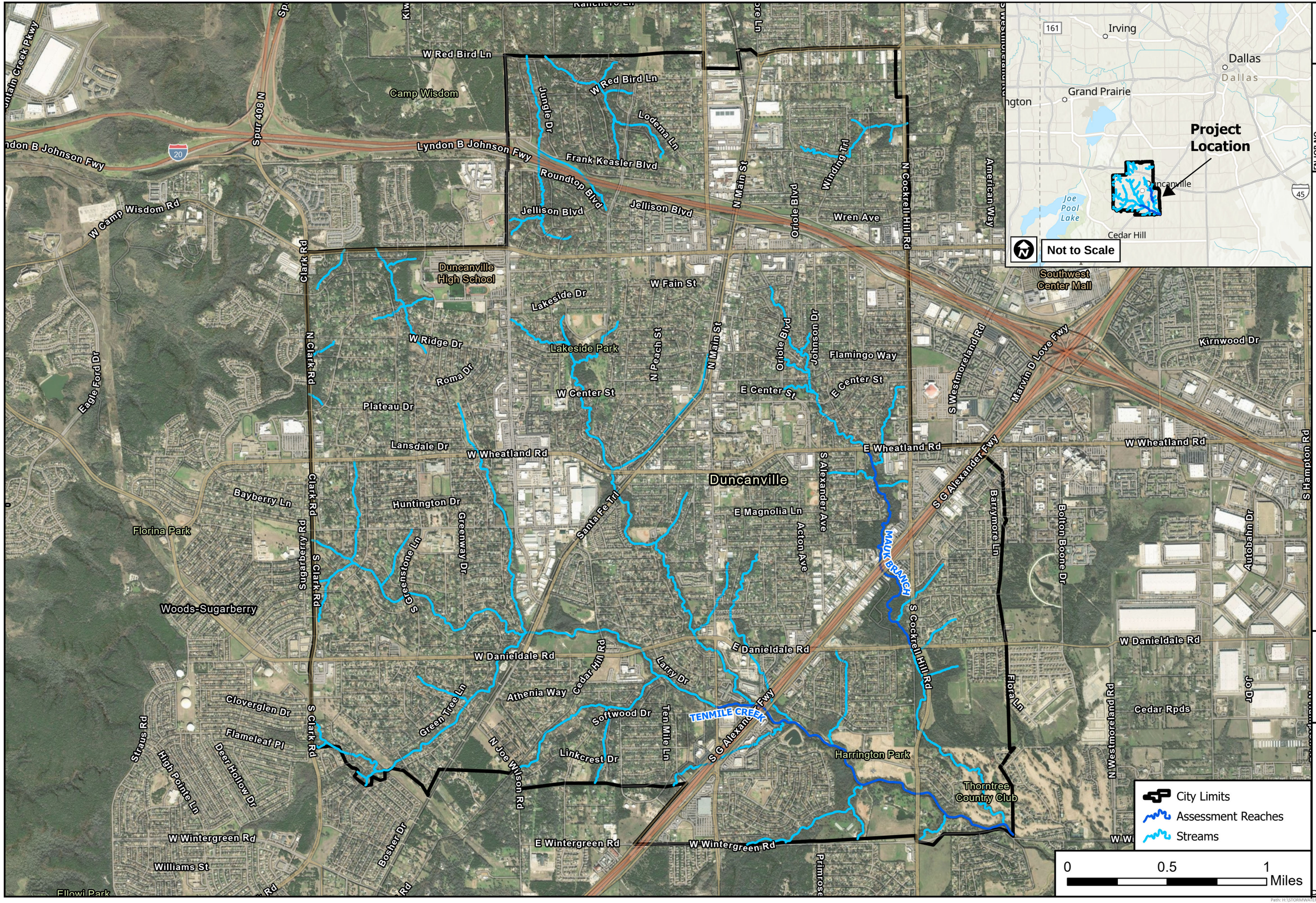
Rosgen, D.L. 2006. Watershed Assessment of Stream Stability and Sediment Supply (WARSSS). Wildland Hydrology Books, Fort Collins, Colorado.

Schumm, S.A., Harvey, M.D. and Watson, C.C. 1984. Incised channels morphology, dynamics, and control: Littleton, CO, Water Resources Publications, 200 p.

Soil Conservation Service (now the Natural Resource Conservation Service). 1969. Soil Survey of Collin County, Texas.

Thorne, C.R. 1998. Stream Reconnaissance Handbook. John Wiley and Sons, Chichester, England, 133 pp.

EXHIBITS



City of Duncanville, TX
Stream Condition Assessment
Project Overview

EXHIBIT 1

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	January 2026
SCALE	1:26,758
DRAFTED	SCK

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\Working\Working_SCK\Working_SCK.aprx

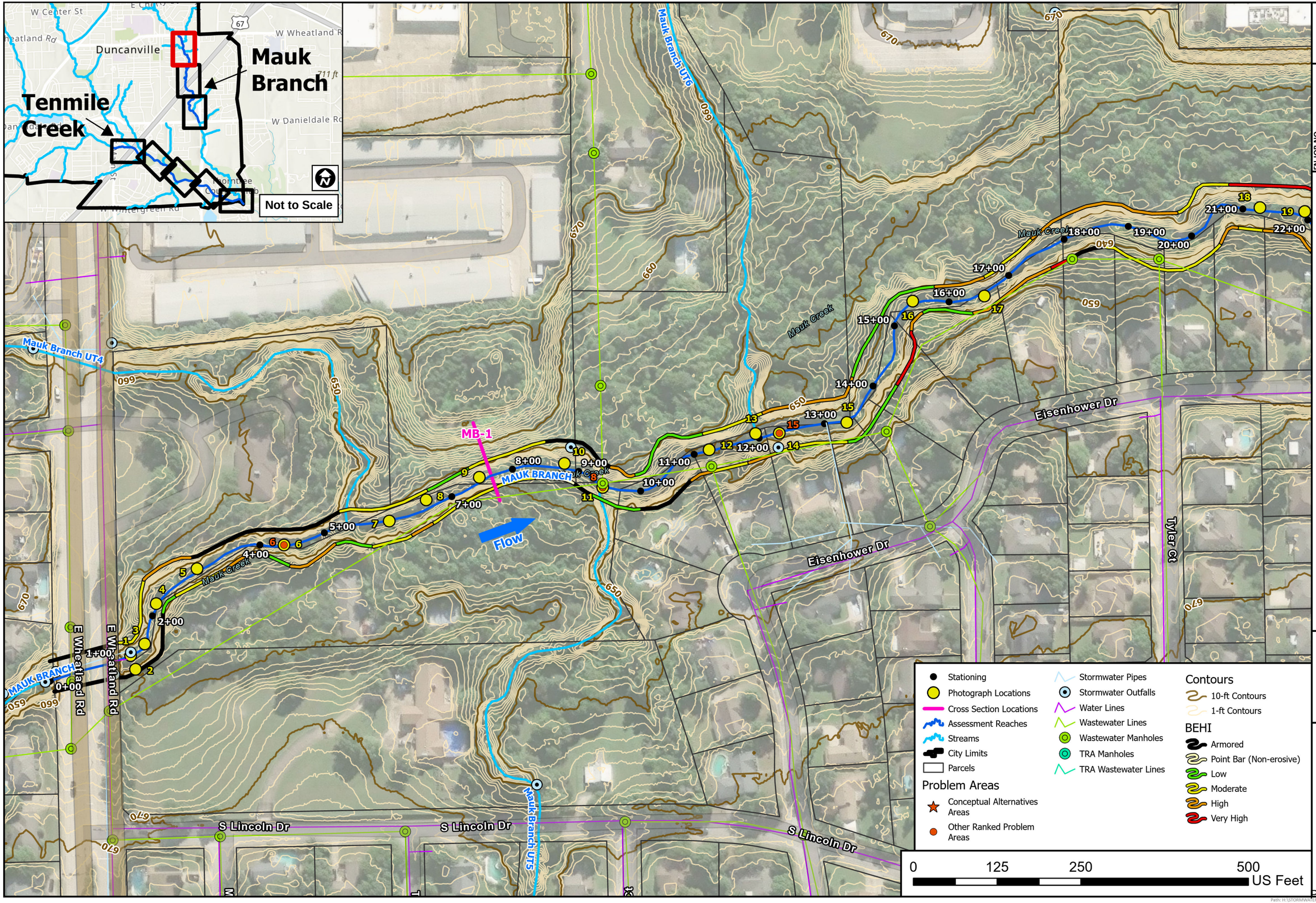


EXHIBIT **2A**

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment
Geomorphic Assessment

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\WORK\Working_SCK\Working_SCK.aprx

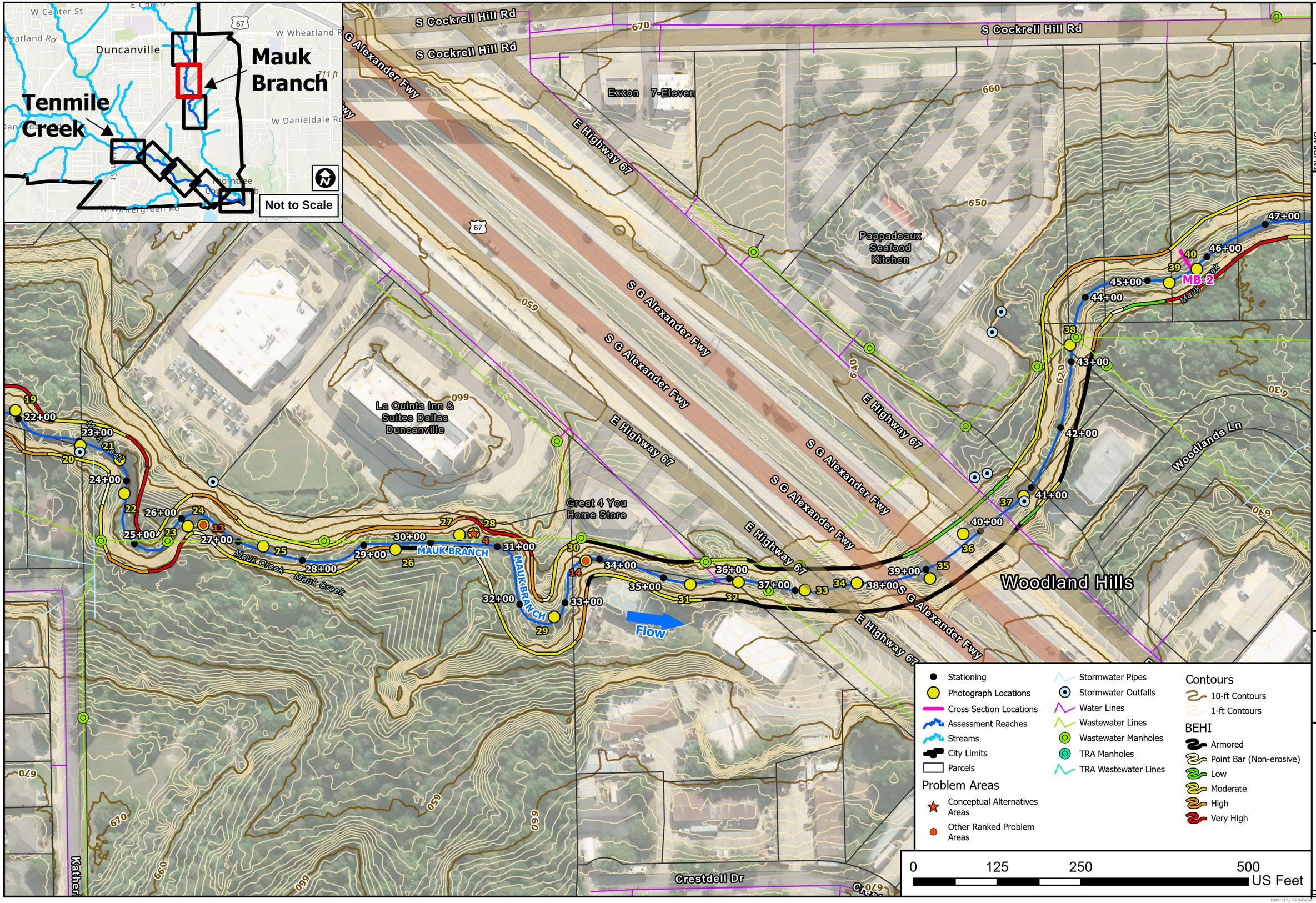


EXHIBIT **2B**

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

Geomorphic Assessment

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\WORK\Working_SCK\Working_SCK.aprx

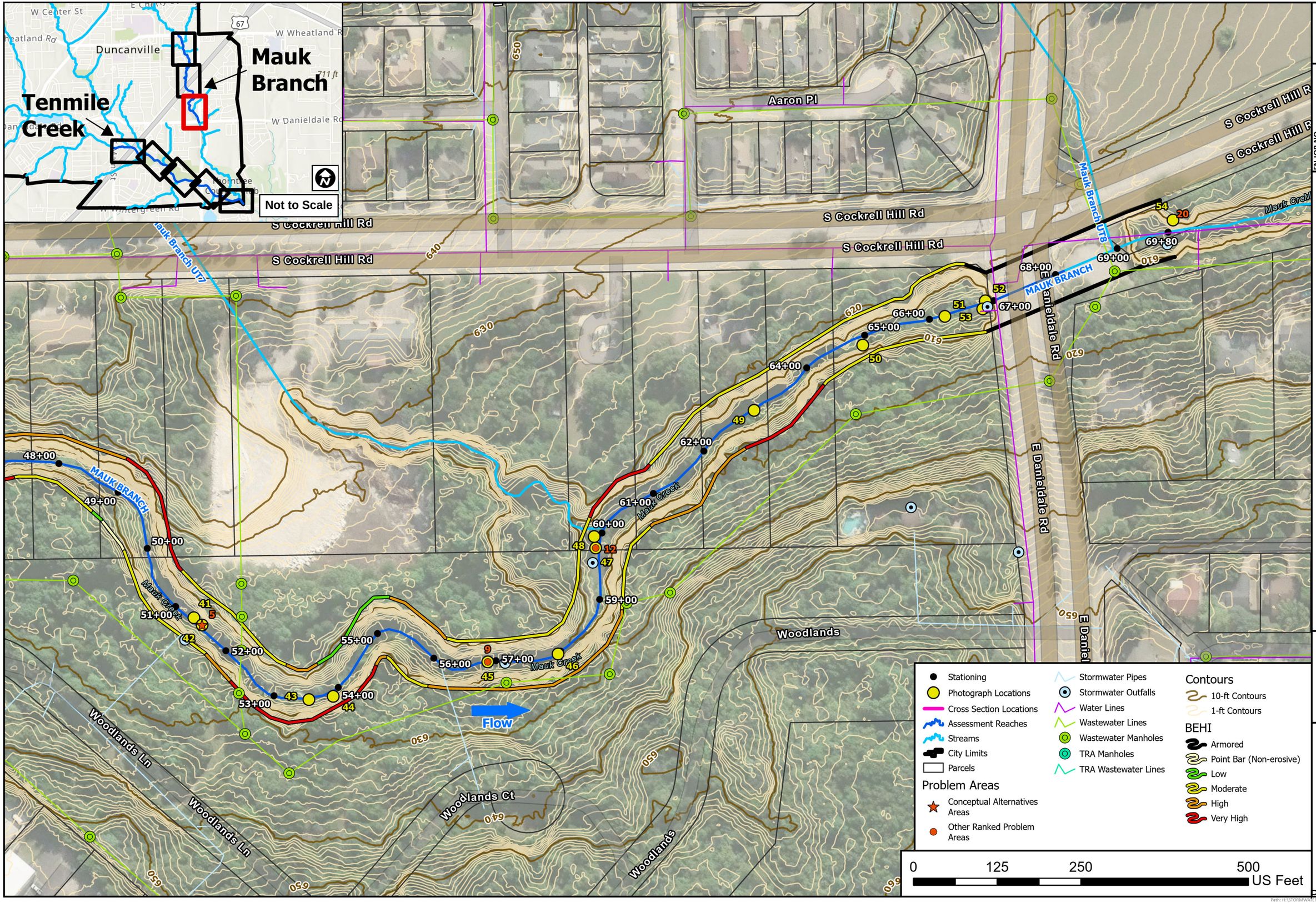


EXHIBIT **2C**

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

Geomorphic Assessment

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\Working\Working_SCK\Working_SCK.aprx

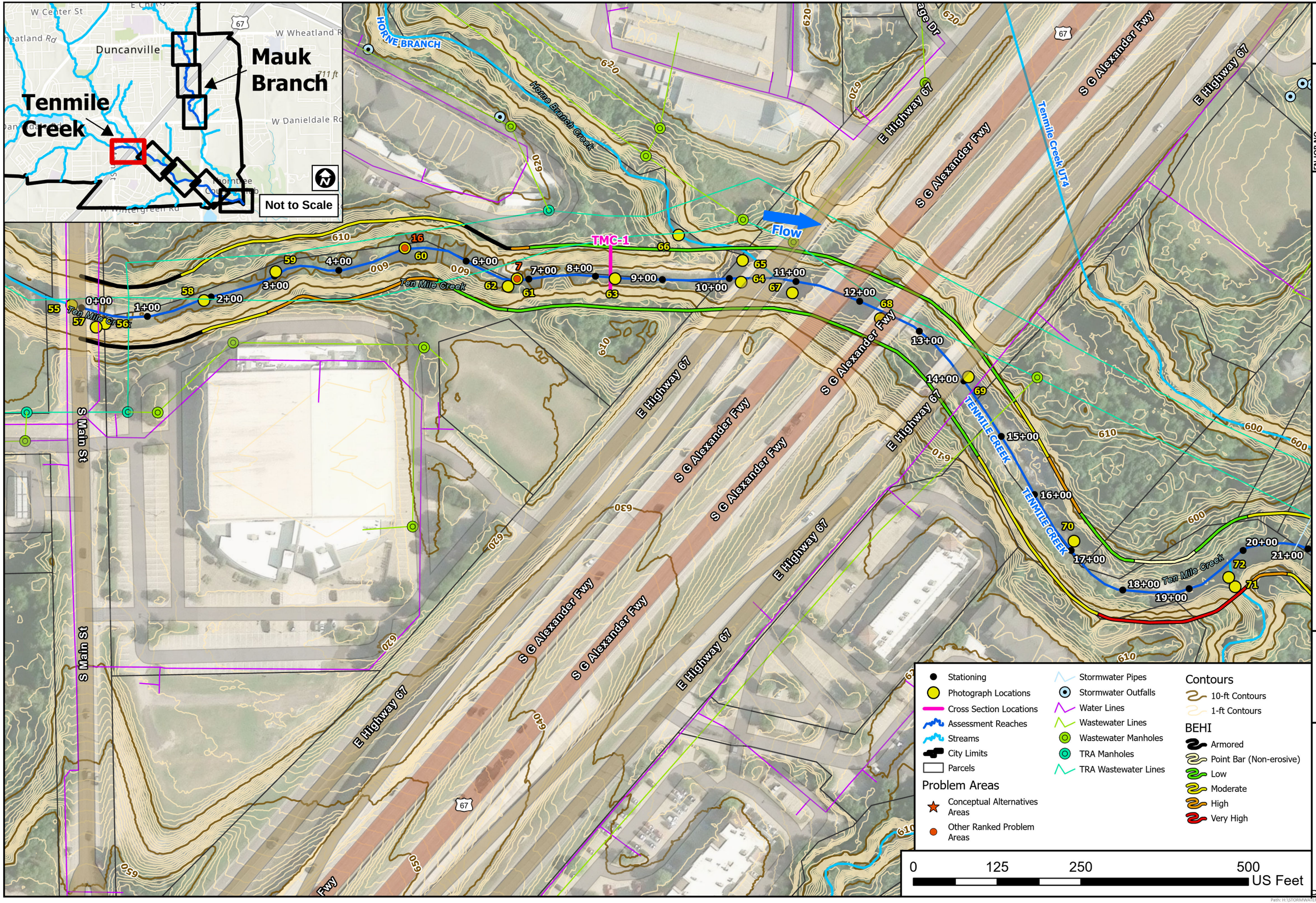


EXHIBIT **3A**

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

Geomorphic Assessment

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\Duncanville\Working_SCK\Working_SCK.aprx

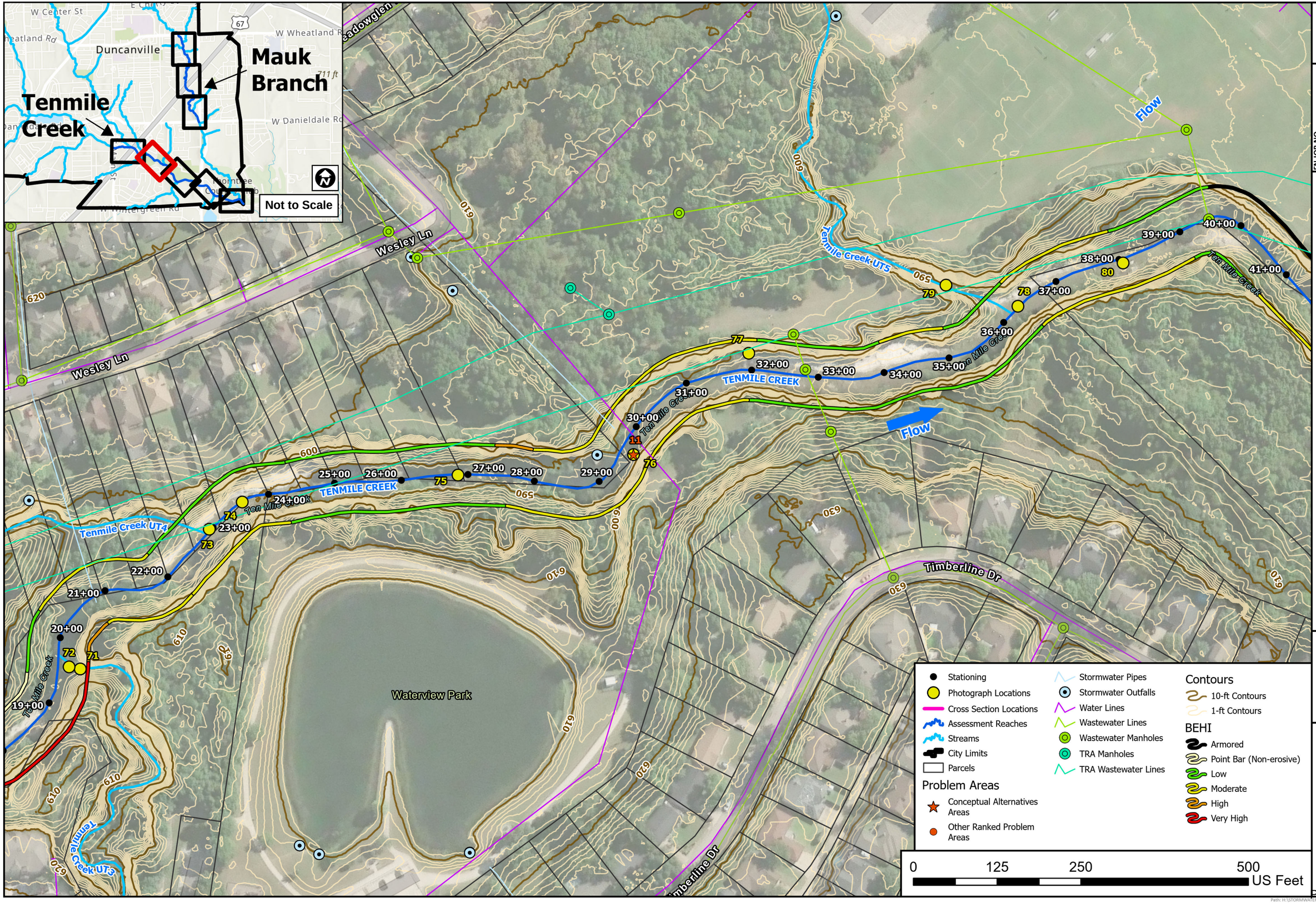


EXHIBIT **3B**

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

Geomorphic Assessment

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\WORK\Working_SCK\Working_SCK.aprx

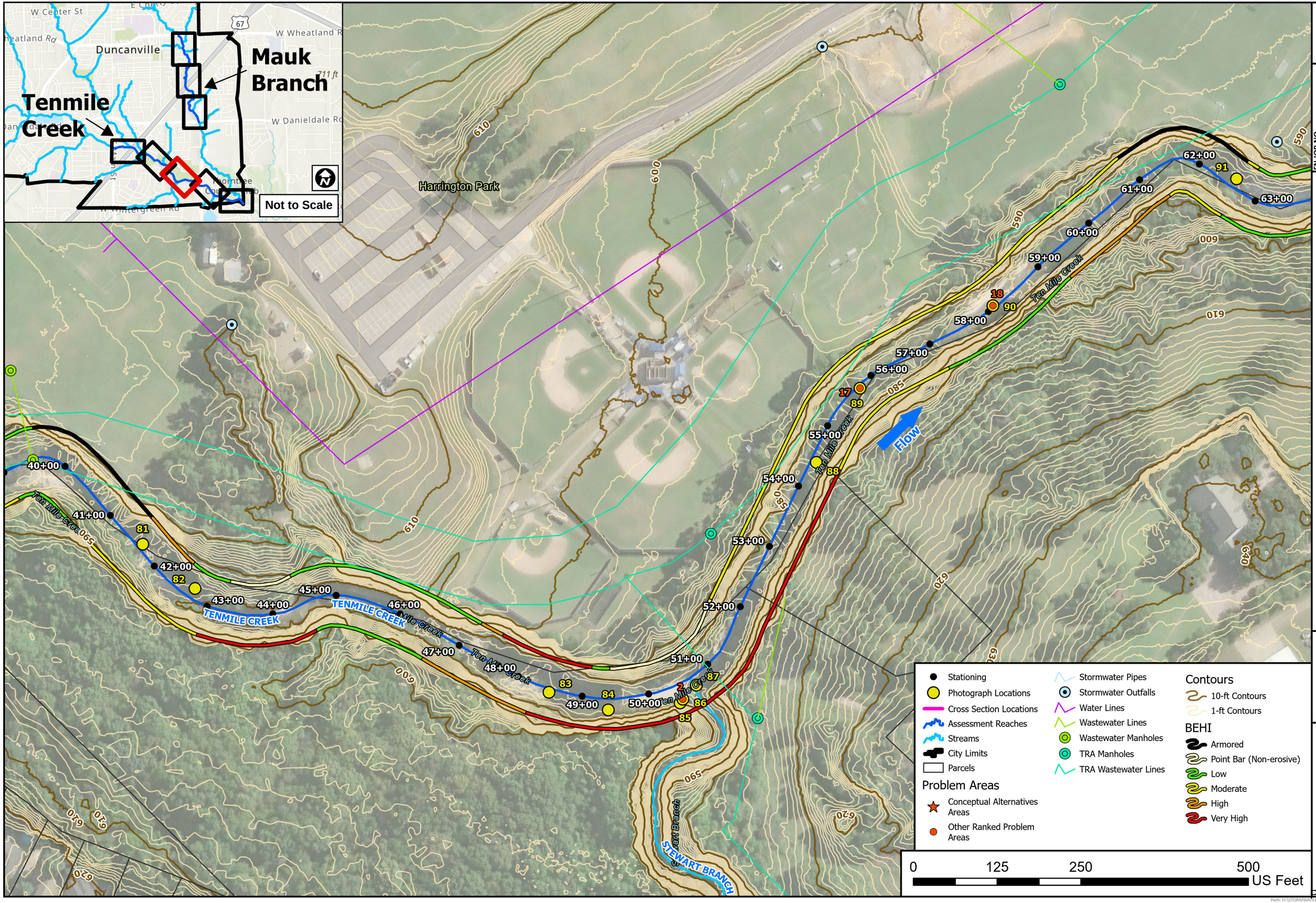


EXHIBIT **3C**

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment
Geomorphic Assessment

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\Working_SCK\Working_SCK.aprx

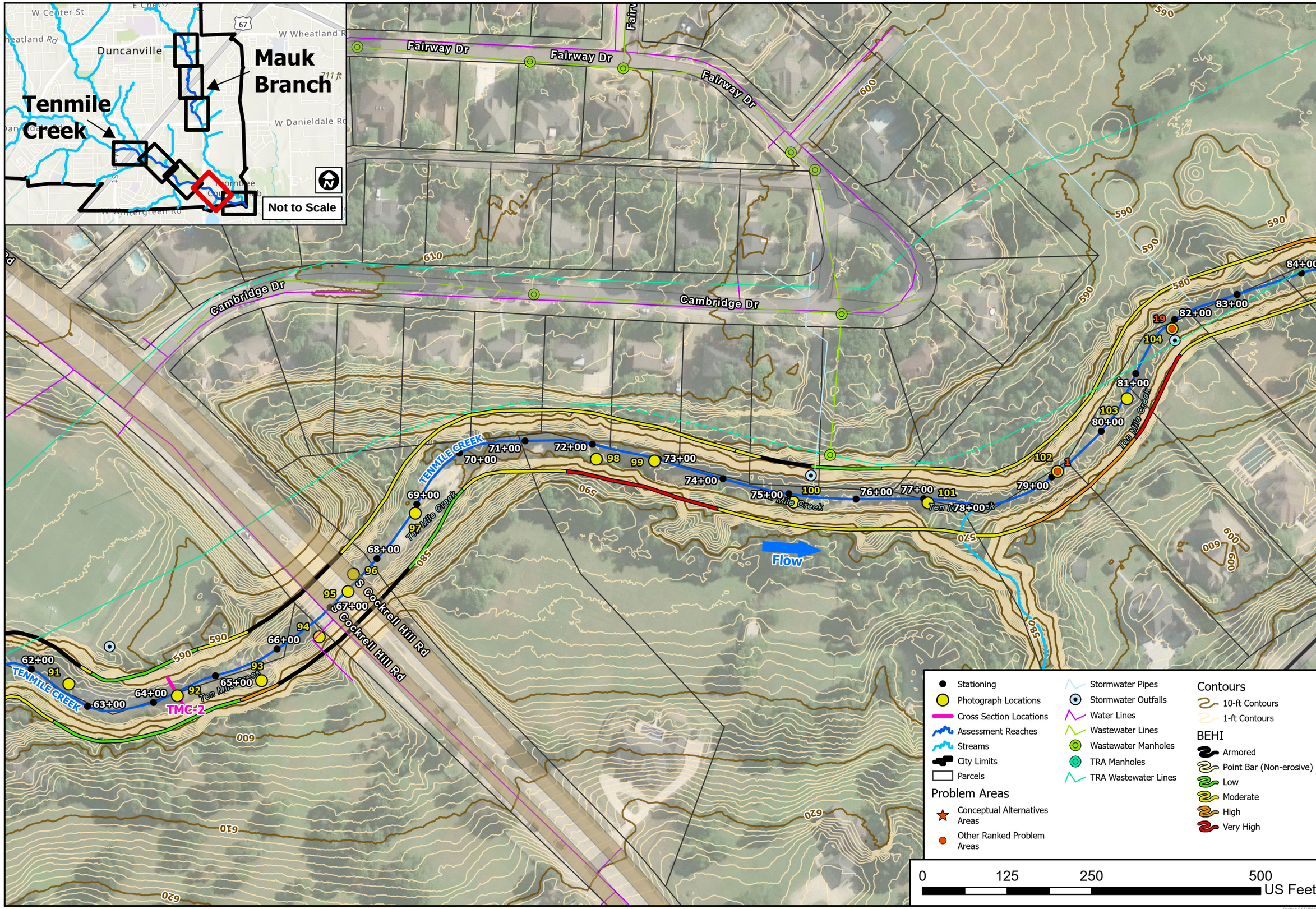


EXHIBIT 3D

FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

Geomorphic Assessment

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

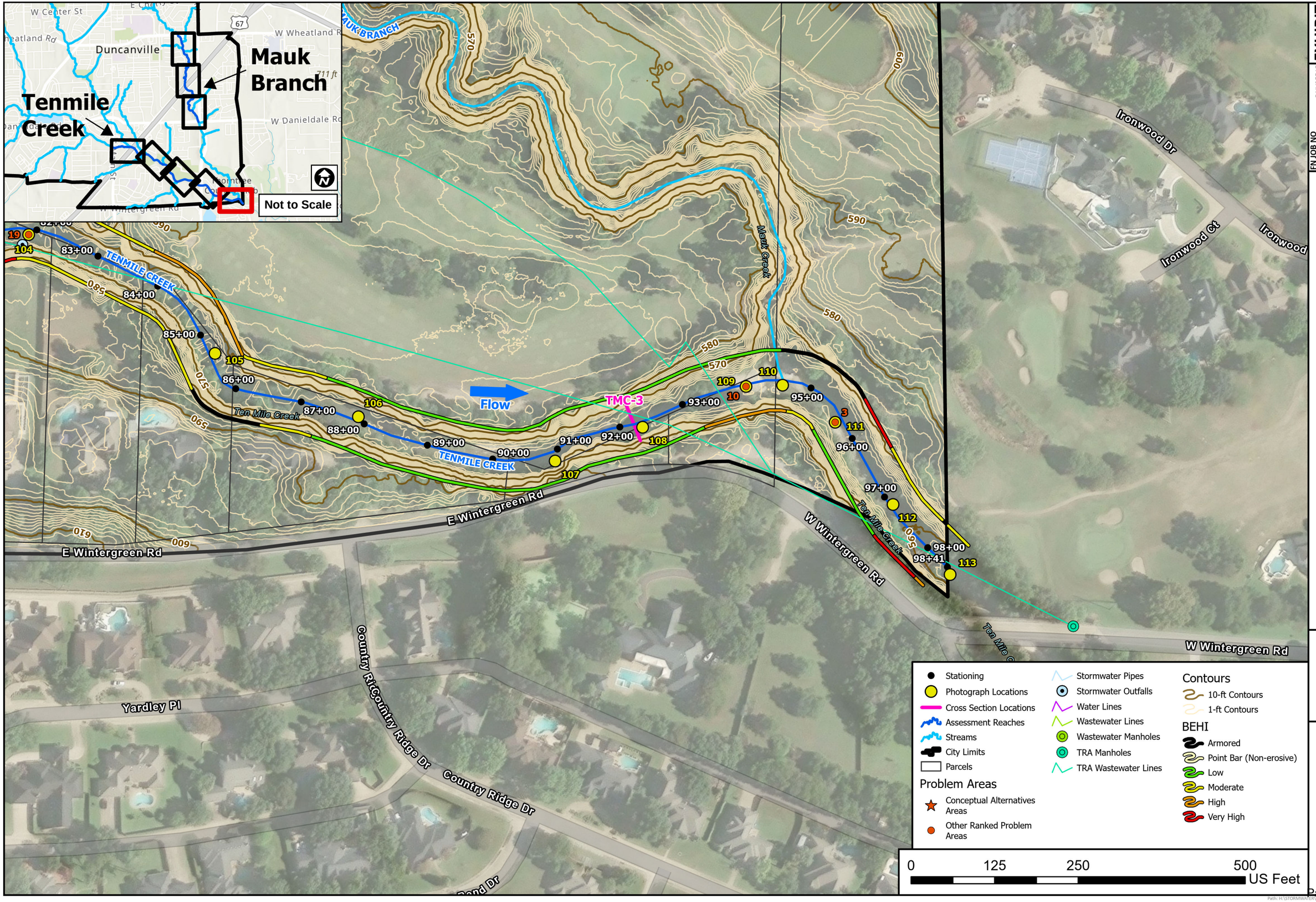


EXHIBIT **3E**

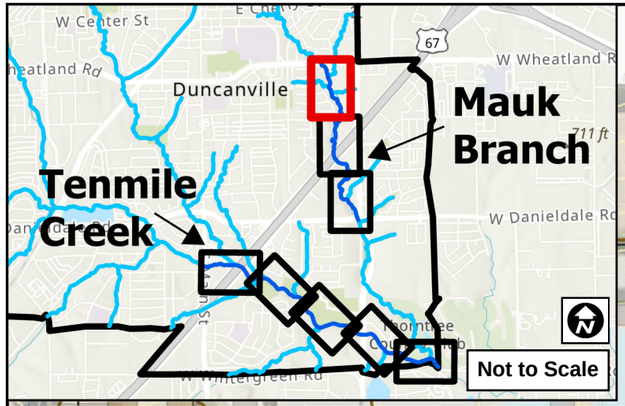
FN JOB NO	DNV25515
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

Geomorphic Assessment

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\Working\Working_SCK\Working_SCK.aprx



4A

EXHIBIT

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

Mauk Branch UT6
Mauk Branch UT4
Mauk Branch UT5
Mauk Creek
MAUK BRANCH
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
Flow
E Wheatland Rd
S Lincoln Dr
Eisenhower Dr
Tyler Ct
Monroe Dr
670
660
650
640
699

- Stationing
- Assessment Reaches
- Streams
- City Limits
- Parcels

Contours
- 10-ft Contours
- 1-ft Contours
- Erosion Hazard Zone (EHZ)

LiDAR Comparison
Value
- >10ft Erosion
- 5-10ft Erosion
- 3-5ft Erosion
- 1-3ft Erosion
- Minimal Change (<1ft)
- 1-3ft Deposition
- 3-5ft Deposition
- 5-10ft Deposition
- >10ft Deposition

0 62.5 125 250 375 500 US Feet

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\WORK\Working_SCK\Working_SCK.aprx

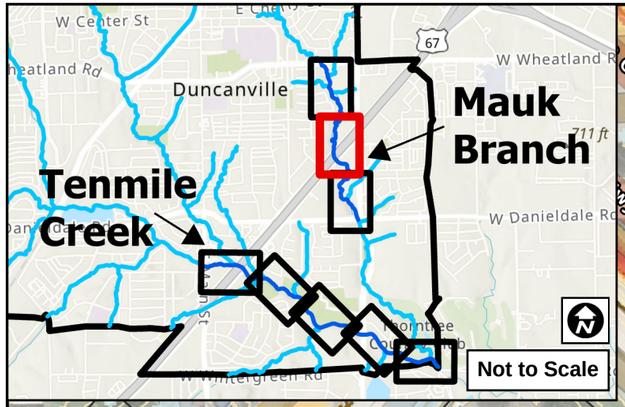


EXHIBIT 4B

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

S Cockrell Hill Rd
S G Alexander Fwy
E Highway 67
Exxon
7-Eleven
Pappadeaux Seafood Kitchen
La Quinta Inn & Suites Dallas Duncanville
Great 4 You Home Store
Woodland Hills
Woodlands Ln
Crestdell Dr
Mauk Creek
MAUK BRANCH
22+00
23+00
24+00
25+00
26+00
27+00
28+00
29+00
30+00
31+00
32+00
33+00
34+00
35+00
36+00
37+00
38+00
39+00
40+00
41+00
42+00
43+00
44+00
45+00
46+00
47+00
Flow

- Stationing
- Assessment Reaches
- Streams
- City Limits
- Parcels

Contours
- 10-ft Contours
- 1-ft Contours
- Erosion Hazard Zone (EHZ)

LiDAR Comparison
Value
- >10ft Erosion
- 5-10ft Erosion
- 3-5ft Erosion
- 1-3ft Erosion
- Minimal Change (<1ft)
- 1-3ft Deposition
- 3-5ft Deposition
- 5-10ft Deposition
- >10ft Deposition

0 62.5 125 250 375 500 US Feet

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\Working\Working_SCK\Working_SCK.aprx

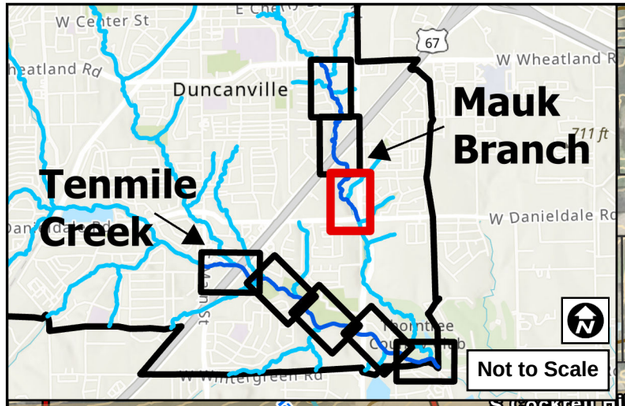


EXHIBIT **4C**

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

S Cockrell Hill Rd
Aaron Pl
E Danieldale Rd
Woodlands
Woodlands Ln
Woodlands Ct
Mauk Branch UT7
Mauk Branch UT8
MAUK BRANCH
Mauk Creek
Flow
48+00
49+00
50+00
51+00
52+00
53+00
54+00
55+00
56+00
57+00
58+00
59+00
60+00
61+00
62+00
63+00
64+00
65+00
66+00
67+00
68+00
69+00
69+80
610
620
630
640
650

- Stationing
- Assessment Reaches
- Streams
- City Limits
- Parcels

Contours
- 10-ft Contours
- 1-ft Contours
- Erosion Hazard Zone (EHZ)

LiDAR Comparison
Value
- >10ft Erosion
- 5-10ft Erosion
- 3-5ft Erosion
- 1-3ft Erosion

Minimal Change (<1ft)
- 1-3ft Deposition
- 3-5ft Deposition
- 5-10ft Deposition
- >10ft Deposition

0 62.5 125 250 375 500 US Feet

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\WORK\Working_SCK\Working_SCK.aprx

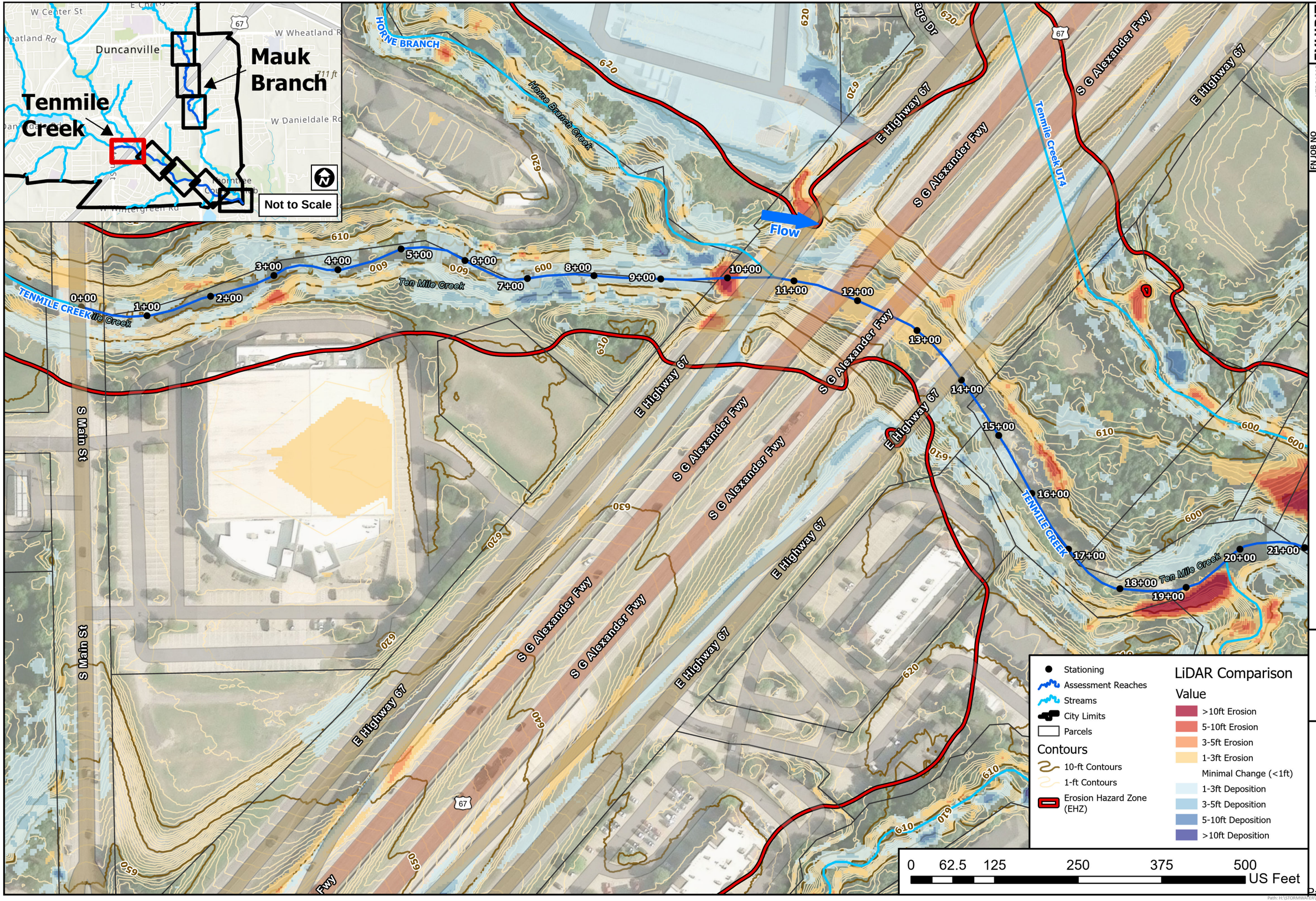


EXHIBIT **5A**

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment
LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\NTD\Working_SCK\Working_SCK.aprx

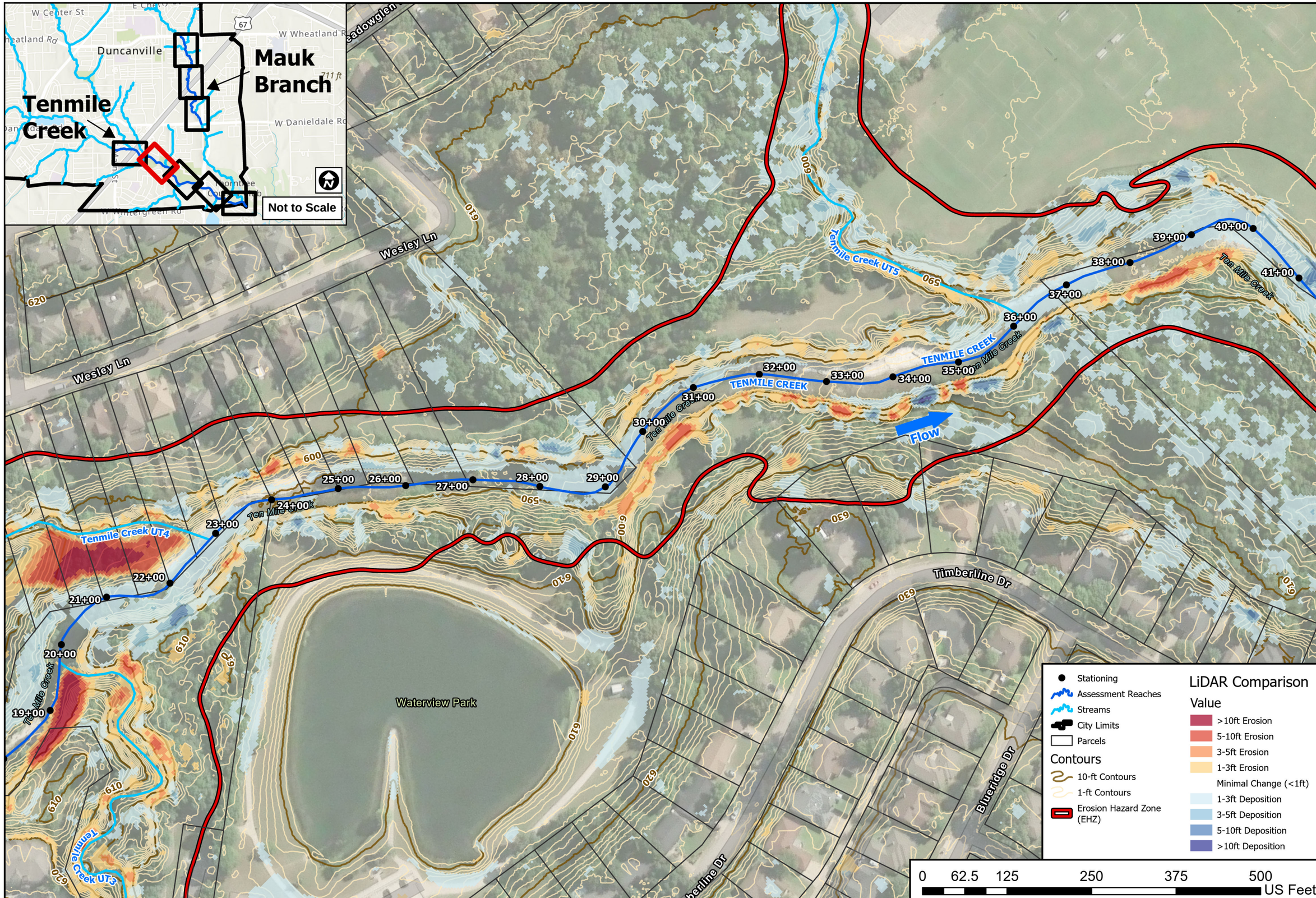


EXHIBIT 5B

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

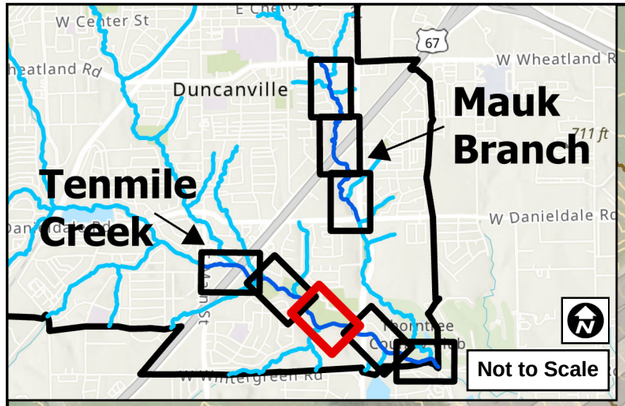


EXHIBIT **5C**

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

Harrington Park

Ten Mile Creek

TENMILE CREEK

Stewart Branch

Flow

40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00

Stationing
Assessment Reaches
Streams
City Limits
Parcels

Contours
10-ft Contours
1-ft Contours
Erosion Hazard Zone (EHZ)

LiDAR Comparison
Value
>10ft Erosion
5-10ft Erosion
3-5ft Erosion
1-3ft Erosion
Minimal Change (<1ft)
1-3ft Deposition
3-5ft Deposition
5-10ft Deposition
>10ft Deposition

0 62.5 125 250 375 500 US Feet

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\NTD21805\Working_SCK\Exhibit_5C.aprx

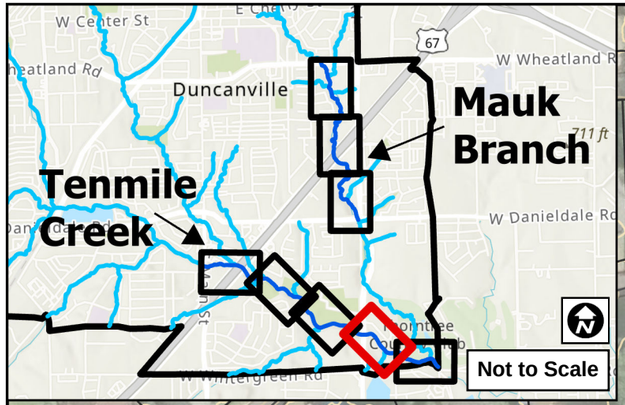


EXHIBIT 5D

FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

Fairway Dr
Cambridge Dr
S Cockrell Hill Rd
TENMILE CREEK
Ten Mile Creek
Flow
610
600
590
580
570
620
62+00
63+00
64+00
65+00
66+00
67+00
68+00
69+00
70+00
71+00
72+00
73+00
74+00
75+00
76+00
77+00
78+00
79+00
80+00
81+00
82+00
83+00
84+00

- Stationing
- Assessment Reaches
- Streams
- City Limits
- Parcels

Contours
- 10-ft Contours
- 1-ft Contours
- Erosion Hazard Zone (EHZ)

LiDAR Comparison
Value
- >10ft Erosion
- 5-10ft Erosion
- 3-5ft Erosion
- 1-3ft Erosion
- Minimal Change (<1ft)
- 1-3ft Deposition
- 3-5ft Deposition
- 5-10ft Deposition
- >10ft Deposition

0 62.5 125 250 375 500 US Feet

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491

Path: H:\STORMWATER\NTD21805\Working_SCK\Working_SCK.aprx

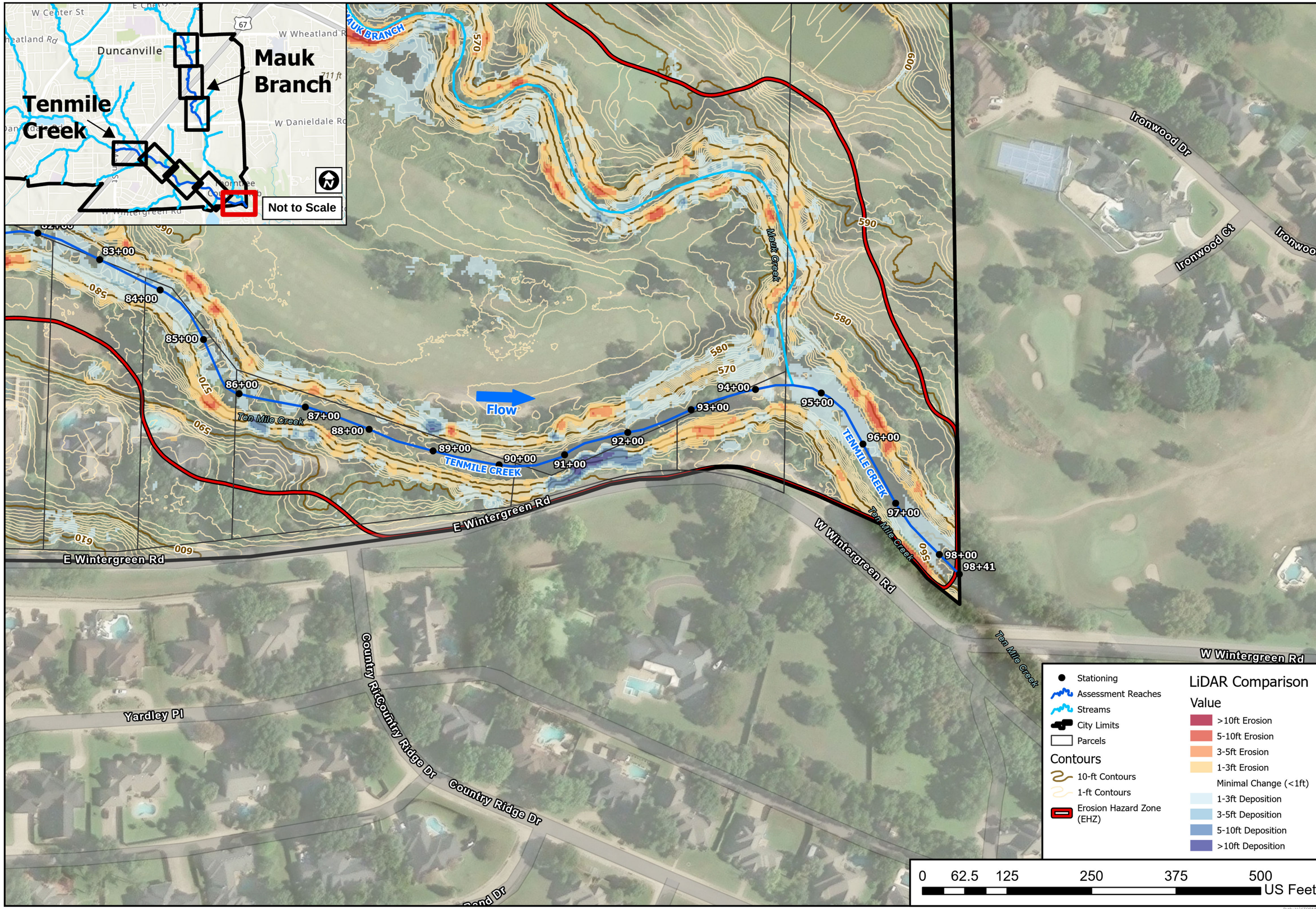


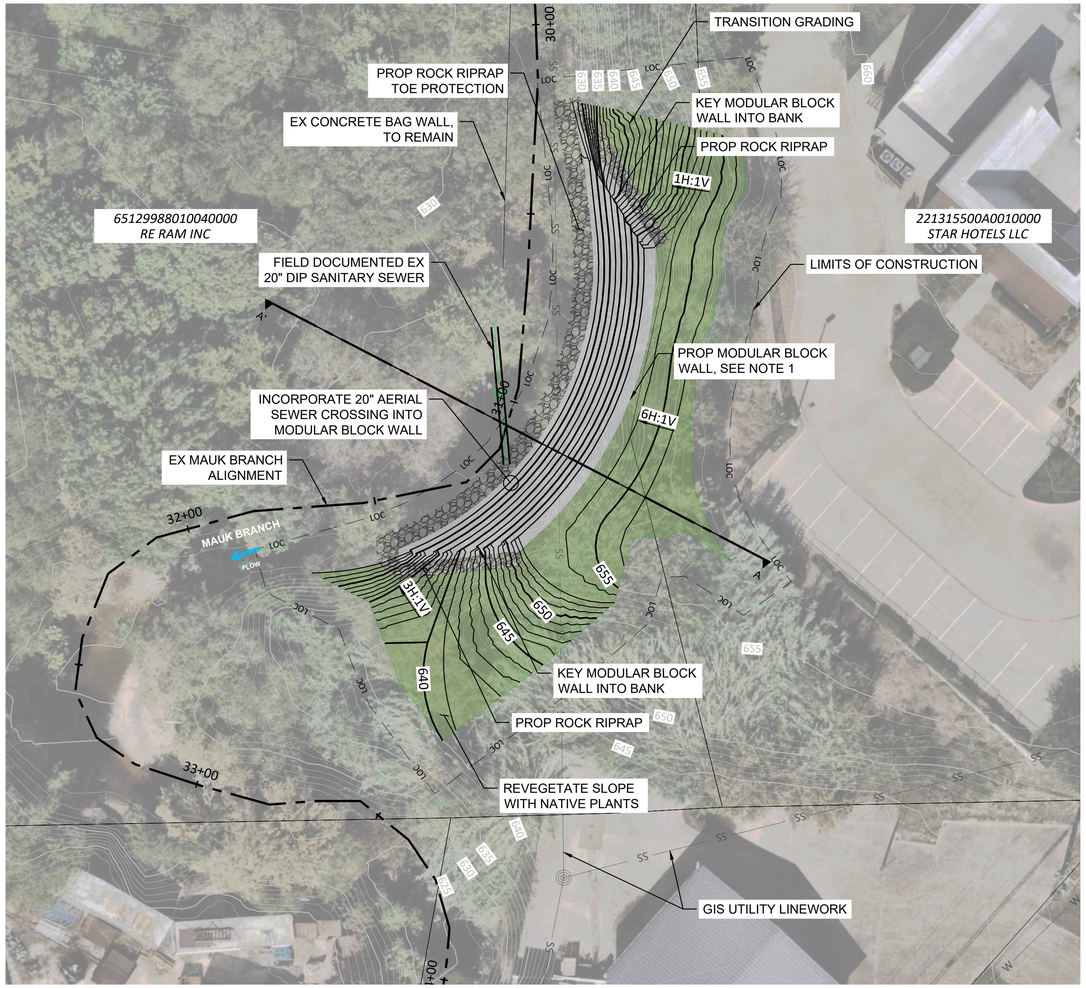
EXHIBIT 5E

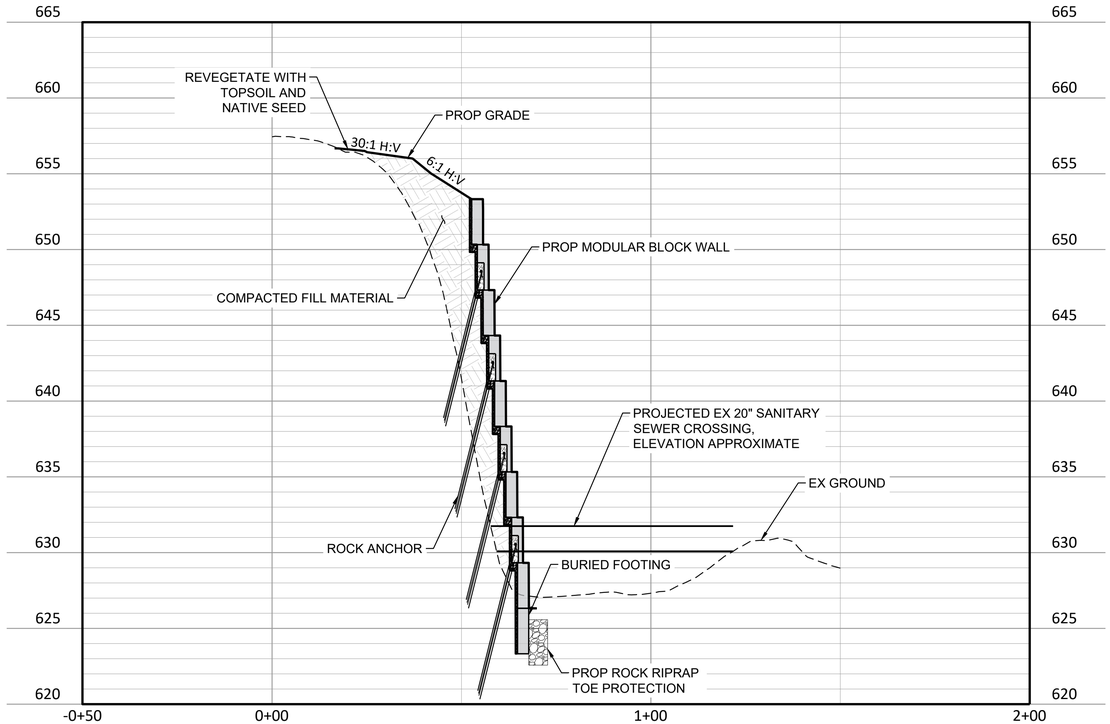
FN JOB NO	NTD21805
FILE	Working_SCK
DATE	March 2026
SCALE	1:1,508
DRAFTED	SCK

City of Duncanville, TX
Stream Condition Assessment

LiDAR Comparison: 2009 to 2019 (1-meter Resolution)

FREESE AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
(P) 817-735-7300 (F) 817-735-7491





PROFILE A-A'

NOTES:

1. GABION WALL MAY BE USED IN LIEU OF MODULAR BLOCK WALL.
2. ADDITIONAL STRUCTURAL SUPPORT MAY BE NEEDED FOR AERIAL SEWER CROSSING. THIS IS TO BE EVALUATED IN DETAILED DESIGN.
3. ALL DISTURBED SLOPES SHALL BE REVEGETATED WITH NATIVE SEEDING AND PLANTINGS.
4. THE INFORMATION SHOWN IS APPROXIMATE BASED ON BEST AVAILABLE GIS DATA AND 2019 USGS LIDAR, AND SHOULD BE VERIFIED PRIOR TO DESIGN.
5. GEOTECHNICAL DESIGN OF MODULAR BLOCK WALL TO BE COMPLETED AT A LATER DESIGN PHASE.

LEGEND

- ROCK RIPRAP
- MODULAR BLOCK WALL
- NATIVE SEED

N

0 20' 40'
SCALE IN FEET

CONCEPTUAL DESIGN

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF: JAMIA FAIK,COMMITTING TO TEXAS NO. 144924 ON DATE: 1/XX/2026 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, Texas 76102
Phone - (817) 735-7300
Web - www.freese.com

CITY OF DUNCANVILLE, TEXAS
STREAM CONDITION ASSESSMENT
AREA 1
20" SANITARY SEWER CROSSING

NO.	ISSUE	BY	DATE

F&N JOB NO. DNV25515
DATE MARCH 2026
DESIGNED JFS
DRAWN EAL
REVISED ####
CHECKED
FILE NAME ALT 1 - PP01.dwg

Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
VERIFY SCALE 0 1

SHEET
EXHIBIT 6A
SEQ.

ACAD Rel: 25.1s (LMS Tech)
Filename: T:\ER\CAD\ALT 1 - PP01.dwg
Last Saved: 3/3/2026 3:01 PM Saved By: 09175

Plot Date: 3/3/2026 3:02 PM Plot By: 09175 Filename: T:\ER\CAD\ALT 1 - PP01.dwg

Exhibit 6B

City of Duncanville
Conceptual Design - 20" Sanitary Sewer, Mauk Branch
Opinion of Probable Construction Cost

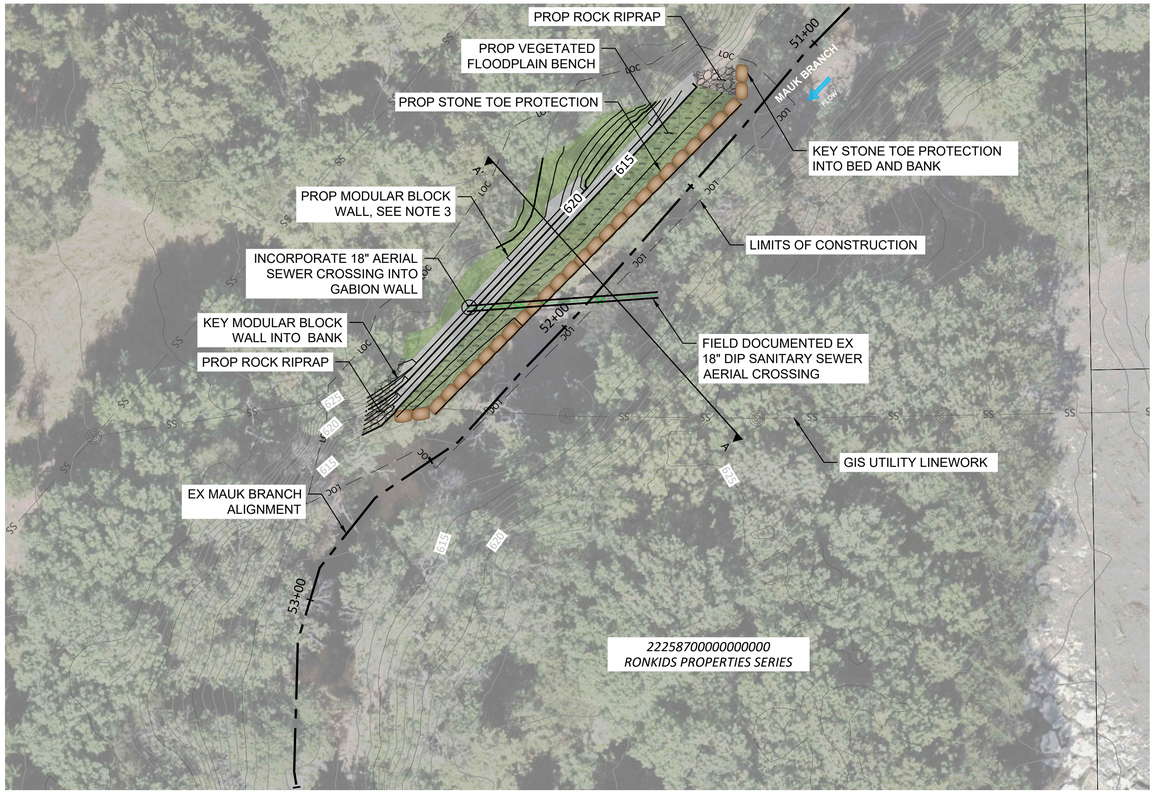
ACCOUNT NO.	ESTIMATOR	CHECKED BY	DATE
DNV25515	EAL	JFS	March 3, 2026

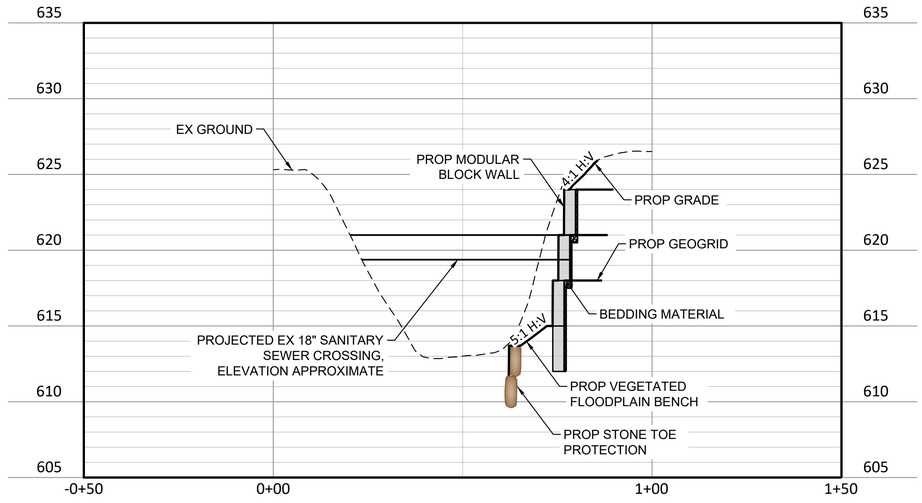
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CONSTRUCTION					
1	Mobilization (10%)	1	LS	$ 151,000	$ 151,000
2	Site Preparation	1	LS	$ 149,000	$ 149,000
3	Demolition & Tree Removal	1	LS	$ 50,000	$ 50,000
4	Excavation and Fill Onsite	120	CY	$ 25	$ 3,000
5	Borrow	620	CY	$ 80	$ 49,600
6	Modular Blocks	2,500	SF	$ 250	$ 625,000
7	Rock Anchor	69	EA	$ 5,000	$ 345,000
8	Biodegradable Erosion Control Matting	480	SY	$ 40	$ 19,200
9	Rock Riprap	140	CY	$ 450	$ 63,000
10	Topsoil (6")	80	CY	$ 100	$ 8,000
11	Revegetation (Seeding)	450	SY	$ 100	$ 45,000
12	Temporary Irrigation and Watering	1	LS	$ 50,000	$ 50,000
13	Contingency for Utility Maintenance and Repair	1	LS	$ 100,000	$ 100,000
				SUBTOTAL:	**$ 1,657,800**
			CONTINGENCY PERCENTAGE:	40%	$ 663,120
				CONSTRUCTION SUBTOTAL:	**$ 2,320,920**
			DESIGN FEE:	15%	$ 348,138
				PROJECT TOTAL:	**$ 2,670,000**

Notes:

1. Costs provided are based on 2025 values. Verification of costs should be performed prior to budgeting.
2. FNI OPCC classified as an AACE Class 4 Estimate with accuracy range or -30 to + 50.
3. FNI OPCC does not include costs associated with permitting, surveying, or geotechnical design.
4. Assumes no public or franchise utilities will be relocated.
5. Site Preparation includes, SWPPP, erosion control devices, and care of water during construction.
6. Demolition includes, but is not limited to tree removal.
7. Assumes no easements required as part of the proposed improvements.
8. Revegetation includes temporary and permanent seeding in disturbed areas.
9. Modular Block Wall includes bedding material.
10. Assumed Rock Riprap Protection depth of 3' and 6" bedding material.
11. Erosion control matting assumed in revegetation areas.

Disclaimer: The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable construction costs provided herein are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.





PROFILE A-A'

NOTES:

1. VEGETATED FLOODPLAIN BENCH SHALL BE REVEGETATED WITH NATIVE RIPARIAN PLANTINGS AND LIVE CUTTINGS.
2. STANDARD BOULDER SIZE FOR STONE TOE PROTECTION IS 4'(L) x 3'(W) x 2'(H).
3. GABION WALL MAY BE USED IN LIEU OF MODULAR BLOCK WALL.
4. ALL DISTURBED SLOPES SHALL BE REVEGETATED WITH NATIVE SEEDING AND PLANTINGS.
5. THE INFORMATION SHOWN IS APPROXIMATE BASED ON BEST AVAILABLE GIS DATA AND 2019 USGS LIDAR, AND SHOULD BE VERIFIED PRIOR TO DESIGN.
6. ADDITIONAL STRUCTURAL SUPPORT MAY BE NEEDED FOR AERIAL SEWER CROSSING. THIS IS TO BE EVALUATED IN DETAILED DESIGN.
7. GEOTECHNICAL DESIGN OF MODULAR BLOCK WALL TO BE COMPLETED AT A LATER DESIGN PHASE.

LEGEND

- ROCK RIPRAP
- MODULAR BLOCK WALL
- RIPARIAN VEGETATION
- NATIVE SEED
- STONE TOE PROTECTION

N

0 20' 40'

SCALE IN FEET

CONCEPTUAL DESIGN

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

NOT FOR CONSTRUCTION

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF: JAIMA FAIK,COMMITTING# TEXAS NO. 144924 ON DATE: 1/XX/2026 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, Texas 76102
Phone - (817) 735-7300
Web - www.freese.com

CITY OF DUNCANVILLE, TEXAS

STREAM CONDITION ASSESSMENT

AREA 2

18" SANITARY SEWER CROSSING

F&N JOB NO.	DNV25515
DATE	MARCH 2026
DESIGNED	JFS
DRAWN	EAL
REVISED	####
CHECKED	
FILE NAME	ALT 2 - PP02.dwg

NO.	ISSUE	DATE	BY

Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

VERIFY SCALE 1 0

SHEET
EXHIBIT 7A

SEQ.

ACAD Rel: 25.1s (LMS Tech)
Filename: T:\ER\CAD\ALT 2 - PP02.dwg
Last Saved: 3/3/2026 2:24 PM Saved By: 09175

Plot Date: 3/3/2026 2:45 PM Plot By: 09175 Filename: T:\ER\CAD\ALT 2 - PP02.dwg

Exhibit 7B

City of Duncanville
Conceptual Design - 18" Sanitary Sewer, Mauk Branch
Opinion of Probable Construction Cost

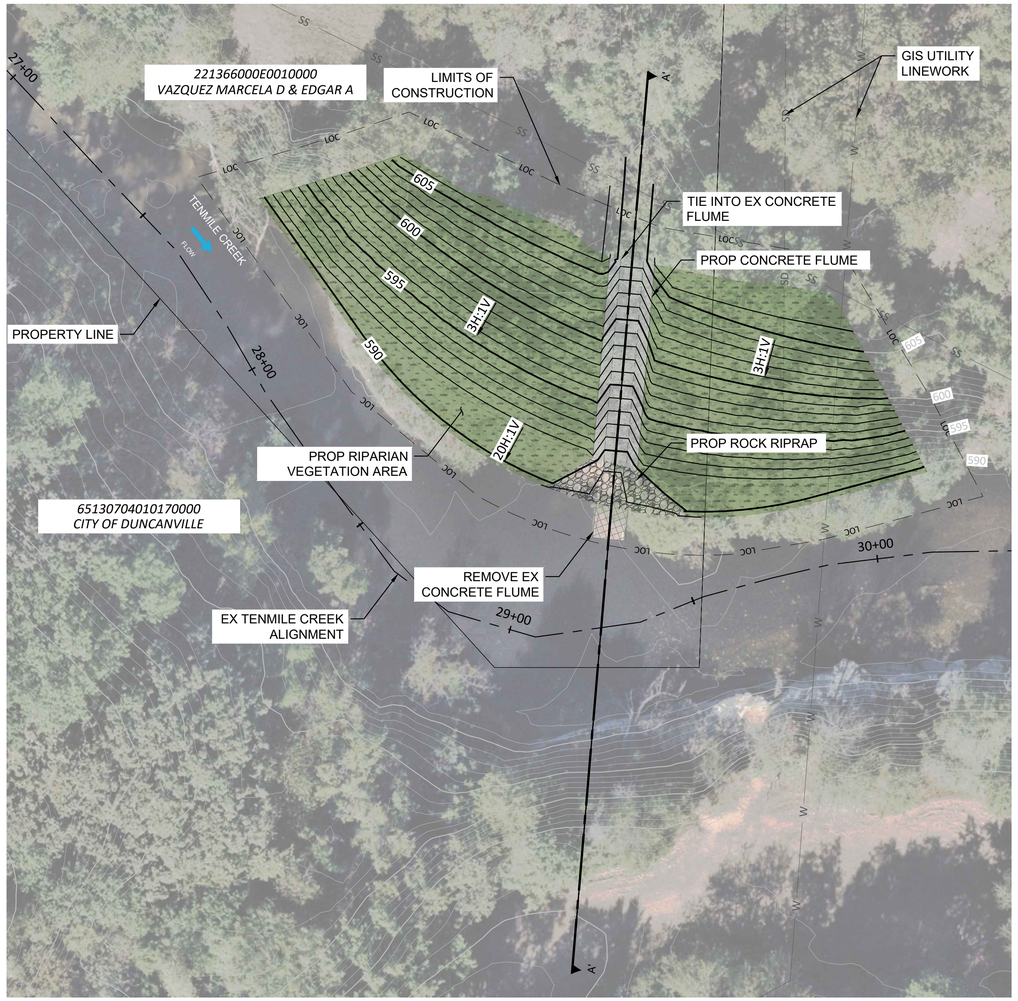
ACCOUNT NO.	ESTIMATOR	CHECKED BY	DATE
DNV25515	EAL	JFS	March 3, 2026

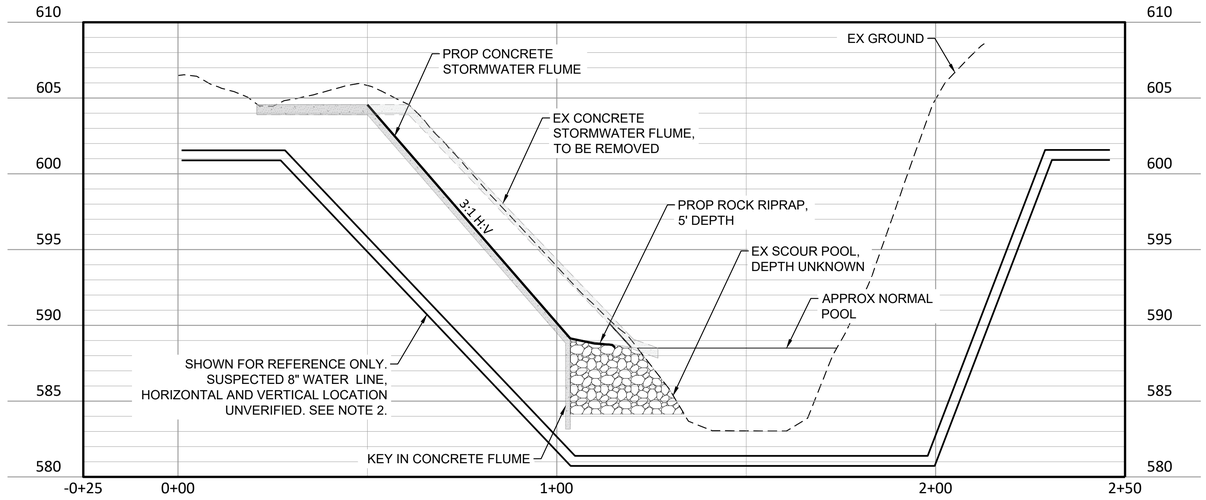
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CONSTRUCTION					
1	Mobilization (10%)	1	LS	$ 60,000	$ 60,000
2	Site Preparation	1	LS	$ 149,000	$ 149,000
3	Demolition & Tree Removal	1	LS	$ 50,000	$ 50,000
4	Unclassified Excavation (Haul Excess)	400	CY	$ 30	$ 12,000
5	Modular Block Wall with Geogrid	840	SF	$ 250	$ 210,000
6	Stone Toe Protection	140	LF	$ 150	$ 21,000
7	Biodegradable Erosion Control Matting	200	SY	$ 40	$ 8,000
8	Rock Riprap	30	CY	$ 450	$ 13,500
9	Topsoil (6")	40	CY	$ 100	$ 4,000
10	Riparian Plantings - Floodplain Bench	100	SY	$ 75	$ 7,500
11	Revegetation (Seeding)	170	SY	$ 100	$ 17,000
12	Temporary Irrigation and Watering	1	LS	$ 50,000	$ 50,000
13	Contingency for Utility Maintenance and Repair	1	LS	$ 50,000	$ 50,000
				SUBTOTAL:	**$ 652,000**
			CONTINGENCY PERCENTAGE:	40%	$ 260,800
				CONSTRUCTION SUBTOTAL:	**$ 912,800**
			DESIGN FEE:	15%	$ 136,920
				PROJECT TOTAL:	**$ 1,050,000**

Notes:

1. Costs provided are based on 2025 values. Verification of costs should be performed prior to budgeting.
2. FNI OPCC classified as an AACE Class 4 Estimate with accuracy range or -30 to + 50.
3. FNI OPCC does not include costs associated with permitting, surveying, or geotechnical design.
4. Assumes no public or franchise utilities will be relocated.
5. Site Preparation includes, SWPPP, erosion control devices, and care of water during construction.
6. Demolition includes, but is not limited to tree removal.
7. Assumes no easements required as part of the proposed improvements.
8. Revegetation includes temporary and permanent seeding in disturbed areas including the floodplain bench.
9. Stone toe protection assumes 2 layers of stacked stone with the dimensions 4'(L) 3'(W) 2'(H).
10. Modular Block Wall includes modular blocks, geogrid, and bedding material.
11. Assumed Rock Riprap Protection depth of 3' and 6" bedding material.
12. Erosion control matting assumed in revegetation areas.

Disclaimer: The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable construction costs provided herein are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.





PROFILE A-A'

NOTES:

1. THE INFORMATION SHOWN IS APPROXIMATE BASED ON BEST AVAILABLE GIS DATA AND 2019 USGS LIDAR, AND SHOULD BE VERIFIED PRIOR TO DESIGN.
2. ADDITIONAL SURVEY AND SUE DATA NEEDED IN DETAILED DESIGN TO VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES.
3. ADDITIONAL STRUCTURAL SUPPORT MAY BE NEEDED FOR WATER LINE CROSSING. THIS IS TO BE EVALUATED IN DETAILED DESIGN.
4. RIPRAIAN VEGETATION AREA AND 3:1 SLOPES SHALL BE REVEGETATED WITH NATIVE RIPARIAN PLANTINGS AND LIVE CUTTINGS.
5. ALL DISTURBED AREAS SHALL BE REVEGETATED WITH NATIVE SEEDING.

LEGEND

ROCK RIPRAP

CONCRETE

RIPARIAN VEGETATION

N

0 20' 40'
SCALE IN FEET

CONCEPTUAL DESIGN

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW AND INTERIM APPROVAL UNDER THE AUTHORITY OF: JAMIAH FAIK,COMMITMENT# 3-E TEXAS NO. 144824 ON DATE: 1/XX/2026 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

FREESE NICHOLS
801 Cherry Street, Suite 2800
Fort Worth, Texas 76102
Phone - (817) 735-7300
Web - www.freese.com

CITY OF DUNCANVILLE, TEXAS

STREAM CONDITION ASSESSMENT

AREA 3 CONCRETE STORMWATER FLUME

F&N JOB NO. DNV25515
DATE MARCH 2026
DESIGNED JFS
DRAWN EAL
CHECKED
REVISED ####

NO.	ISSUE	BY	DATE

FILE NAME ALT 3 - PP03.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET EXHIBIT 8A
SEQ.

ACAD Rel: 25.1s (LMS Tech)
Filename: T:\ER\CAD\ALT 3 - PP03.dwg
Last Saved: 3/4/2026 10:24 AM Saved By: 09175

Plot Date: 3/4/2026 10:25 AM Plot By: 09175 Filename: T:\ER\CAD\ALT 3 - PP03.dwg

Exhibit 8B

City of Duncanville
Conceptual Design - Stormwater Flume, Tenmile Creek
Opinion of Probable Construction Cost

ACCOUNT NO.	ESTIMATOR	CHECKED BY	DATE
DNV25515	EAL	JFS	March 3, 2026

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CONSTRUCTION					
1	Mobilization (10%)	1	LS	$ 84,000	$ 84,000
2	Site Preparation	1	LS	$ 287,000	$ 287,000
3	Demolition & Tree Removal	1	LS	$ 75,000	$ 75,000
4	Unclassified Excavation (Haul Excess)	780	CY	$ 30	$ 23,400
5	Reinforced Concrete Flume (12' wide) w/ Cutoff Wall	100	SY	$ 250	$ 25,000
6	Biodegradable Erosion Control Matting	980	SY	$ 40	$ 39,200
7	Rock Riprap	60	CY	$ 450	$ 27,000
8	Topsoil (6")	170	CY	$ 100	$ 17,000
9	Riparian Plantings	930	SY	$ 75	$ 69,750
10	Revegetation (Seeding)	930	SY	$ 100	$ 93,000
11	Temporary Irrigation and Watering	1	LS	$ 75,000	$ 75,000
12	Contingency for Utility Protection	1	LS	$ 100,000	$ 100,000
				SUBTOTAL:	**$ 915,350**
				CONTINGENCY PERCENTAGE: 40%	$ 366,140
				CONSTRUCTION SUBTOTAL:	**$ 1,281,490**
				DESIGN FEE: 15%	$ 192,224
				PROJECT TOTAL:	**$ 1,474,000**

Notes:

1. Costs provided are based on 2025 values. Verification of costs should be performed prior to budgeting.
2. FNI OPCC classified as an AACE Class 4 Estimate with accuracy range or -30 to + 50.
3. FNI OPCC does not include costs associated with permitting, surveying, or geotechnical design.
4. Assumes no franchise utilities will be relocated.
5. Site Preparation includes, SWPPP, erosion control devices, and care of water during construction.
6. Demolition includes, but is not limited to tree and concrete flume removal.
7. Assumes no easements required as part of the proposed improvements.
8. Riparian Plantings includes 3:1 slopes and riparian vegetation area.
9. Revegetation includes temporary and permanent seeding in disturbed areas including the riparian vegetation area.
10. Reinforced concrete flume is a trapezoid with a 6' bottom width, depth of 1.5', and 2:1 side slopes.
11. Assumed Rock Riprap Protection depth of 5' and 6" bedding material.
12. Erosion control matting assumed in revegetation areas.
13. Utility protection may include but is not limited to concrete encasement or utility relocation.

Disclaimer: The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable construction costs provided herein are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

APPENDIX A
FIELD PHOTOGRAPHS

MAUK BRANCH



Photo 1 – STA 1+00 – 21-inch stormwater outfall inside East Wheatland Road culvert



Photo 2 – STA 1+25 – Looking downstream from East Wheatland Road.

MAUK BRANCH



Photo 3 – STA 1+50 – Looking upstream at the East Wheatland Road culvert.



Photo 4 – STA 2+00 – Erosion undermining the downstream end of the concrete head wall.

MAUK BRANCH



Photo 5 – Near STA 3+00 – Looking downstream along the left bank at a concrete bag wall.



Photo 6 – Near STA 4+50 – **Problem area rank: 6**. Private 8-inch utility crossing, looking downstream. Local scour around piers and on right bank.

MAUK BRANCH



Photo 7 – STA 6+00 – Looking downstream, increased prominence of bedrock benches.



Photo 8 – Near STA 6+50 –Potential drainage feature on left bank indicated by trash accumulation and local scour.

MAUK BRANCH

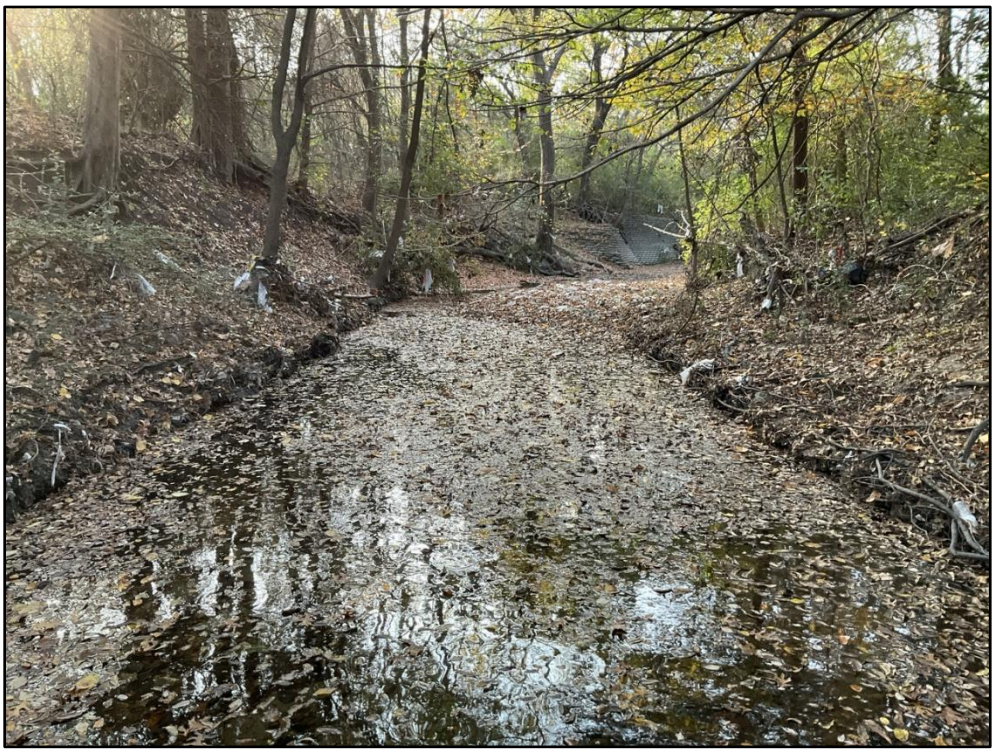


Photo 9 – STA 7+50 – Location of Mauk Branch cross section 1, looking downstream.



Photo 10 – STA 8+50 – Concrete stormwater flume on the left bank. 30-inch corrugated metal outfall located at the top of the concrete flume.

MAUK BRANCH



Photo 11 – Near STA 9+00 – **Problem area rank: 8**. 18-inch sanitary sewer crossing, looking upstream. Some bed scour and significant debris accumulation on upstream side.



Photo 12 – Near STA 11+00 – Looking downstream, the left bank exhibits a "Moderate" BEHI rating.

MAUK BRANCH



Photo 13 – STA 12+00 – Looking upstream along Mauk Branch Unnamed Tributary 6.



Photo 14 – Near STA 12+00 – **Problem area rank: 15**. 30-inch concrete stormwater outfall on right bank. Flow line is approximately 28 inches above bed elevation.

MAUK BRANCH



Photo 15 – STA 13+50 – This bank exhibits a "Low" BEHI rating – although the bank is steep, it is composed of bedrock that reduces the overall bank erosion potential.



Photo 16 – STA 15+50 – Looking downstream. Both banks exhibit a "Low" BEHI rating.

MAUK BRANCH



Photo 17 – STA 16+50 – Looking downstream at representative channel conditions.



Photo 18 – Near STA 21+50 – Looking downstream. Left bank exhibits “High” BEHI rating.

MAUK BRANCH



Photo 19 – STA 22+00 – Looking downstream at channel bar composed of broken bedrock and concrete debris. Large broken tree downstream as well.



Photo 20 – STA 23+00 – 30-inch concrete stormwater outfall in good condition.

MAUK BRANCH



Photo 21 – STA 24+00 – Looking downstream at a section of channel with less bedrock influence on the bed. Sediment deposition on the right bank is a point bar on the inside of a meander bend.



Photo 22 – STA 24+50 – Looking downstream where the bedrock influence returns.

MAUK BRANCH



Photo 23 – STA 26+00 – Looking downstream, left bank is tall and steep. At this location, geotechnical bank failure is of greater concern than stream bank erosion.



Photo 24 – STA 26+50 – **Problem area rank: 13**. Steep drainage feature on left bank, likely from mapped stormwater outfall. The outfall was inaccessible in the field due to the height and steepness of the bank.

MAUK BRANCH



Photo 25 – STA 27+50 – Looking downstream at representative conditions.



Photo 26 – STA 29+50 – Concrete bag wall in good condition.

MAUK BRANCH



Photo 27 – STA 30+00 – Looking upstream. The channel corridor narrows between Sta. 29+00 – 30+50 where the channel is confined by a concrete bag wall on the right bank and bedrock on the left bank.



Photo 28 – STA 31+00 – **Problem area rank: 4 (★ Area 1 ★)**. Looking downstream. A 20-inch sanitary sewer crossing emerges from a bag wall on the right bank. The left bank is heavily eroded around the pipe with no observed protection.

MAUK BRANCH



Photo 29 – STA 32+50 – Looking downstream at erosion on outer right bank. Fallen tree and broken concrete protection.



Photo 30 – Near STA 34+00 – **Problem area rank: 14**. Modular articulated block wall in poor condition. Grouted riprap toe is undercut by roughly two feet.

MAUK BRANCH

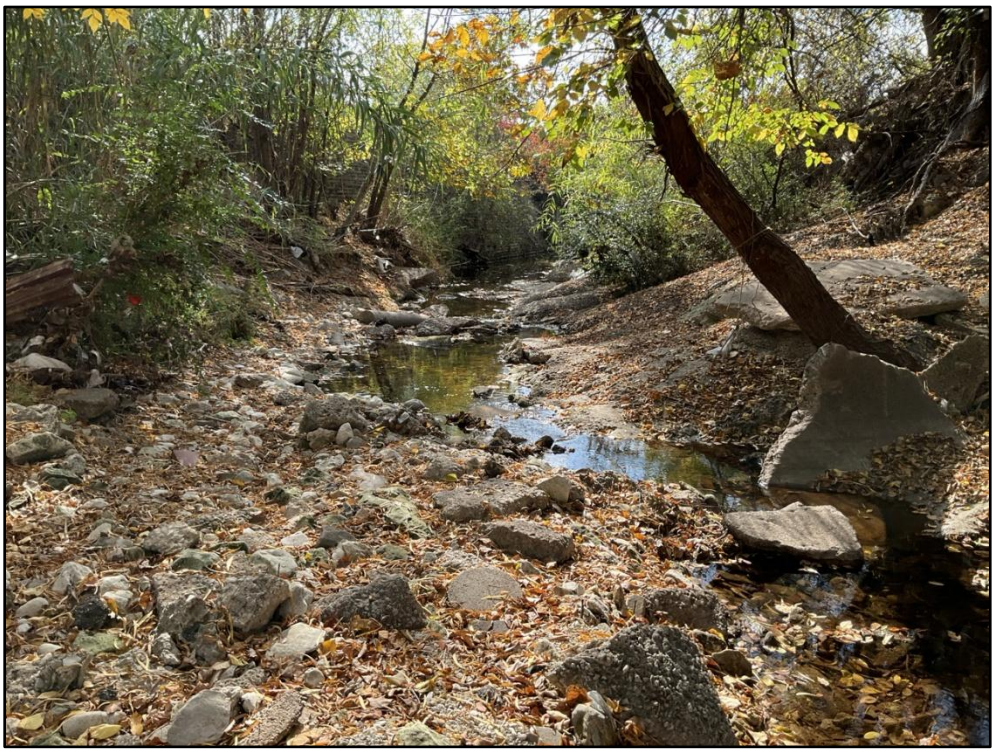


Photo 31 – STA 35+50 – Looking downstream at steeper section stabilized with rock riprap and concrete debris.



Photo 32 – STA 36+00 – Concrete encasement observed in stream bed. Some local scour of concrete, but generally in fair condition. No exposure where encasement intersects stream banks.

MAUK BRANCH



Photo 33 – STA 37+00 – Looking upstream at an 8-inch sanitary sewer crossing in fair condition. There is some local scour around the pier on the left bank and some breakage of the gabion baskets on the right bank.



Photo 34 – STA 38+00 – Looking downstream at conditions under Highway 67.

MAUK BRANCH



Photo 35 – STA 39+00 – 36-inch concrete stormwater outfall.



Photo 36 – STA 40+00 – 48-inch concrete stormwater outfall.

MAUK BRANCH



Photo 37 – STA 40+50 – 18-inch concrete stormwater outfall with flume.



Photo 38 – STA 43+00 – Looking upstream at a 36-inch aerial sanitary sewer crossing. The crossing appears to be in good condition.

MAUK BRANCH



Photo 39 – STA 45+00 – Looking downstream. The right bank exhibits “Very High” BEHI rating.



Photo 40 – STA 45+50 – Looking downstream at the location of Mauk Branch cross section 2.

MAUK BRANCH



Photo 41 – Near STA 51+50 – 42-inch concrete stormwater outfall.



Photo 42 – Near STA 51+50 – **Problem area rank: 5 (★ Area 2 ★)**. Looking downstream at an 18-inch aerial sanitary sewer crossing. Significant scour on the right bank.

MAUK BRANCH



Photo 43 – STA 53+50 – Small drainage feature on right bank.



Photo 44 – Near STA 54+00 – Looking downstream at representative channel conditions.

MAUK BRANCH



Photo 45 – Near STA 57+00 – **Problem area rank: 9**. 24-inch concrete stormwater outfall. Flowline is approximately 10 feet above the existing stream bed.



Photo 46 – STA 58+00 – Looking downstream where the channel bed visibly steepens into bedrock.

MAUK BRANCH



Photo 47 – STA 59+50 – **Problem area rank: 12**. 60-inch concrete stormwater outfall. Flowline is approximately 10 feet above the existing stream bed.



Photo 48 – STA 60+00 – Looking upstream at Mauk Branch Unnamed Tributary 7.

MAUK BRANCH



Photo 49 – STA 63+00 – Looking downstream at representative channel conditions.



Photo 50 – STA 65+00 – Fallen tree across channel (evidence of widening).

MAUK BRANCH



Photo 51 – STA 66+00 – Looking downstream at the Eeast Danieldale Road culvert.



Photo 52 – STA 66+00 – Significant deposition in left cell of East Danieldale Road culvert.

MAUK BRANCH



Photo 53 – STA 67+00 – 21-inch concrete stormwater outfall in right cell of East Danieldale Road culvert.



Photo 54 – STA 69+00 – **Problem area rank: 20**. Looking upstream at the other side of the East Danieldale Road culvert. Trees are growing out of well-established sediment deposition in the left cell.

TENMILE CREEK



Photo 55 – Near STA 0+00 – Conditions at South Main Street, looking upstream at broken concrete protection in channel.



Photo 56 – STA 0+50 – 60-inch concrete stormwater outfall.

TENMILE CREEK



Photo 57 – STA 0+50 – 36-inch aerial sanitary sewer crossing. Minor scour and debris build up.

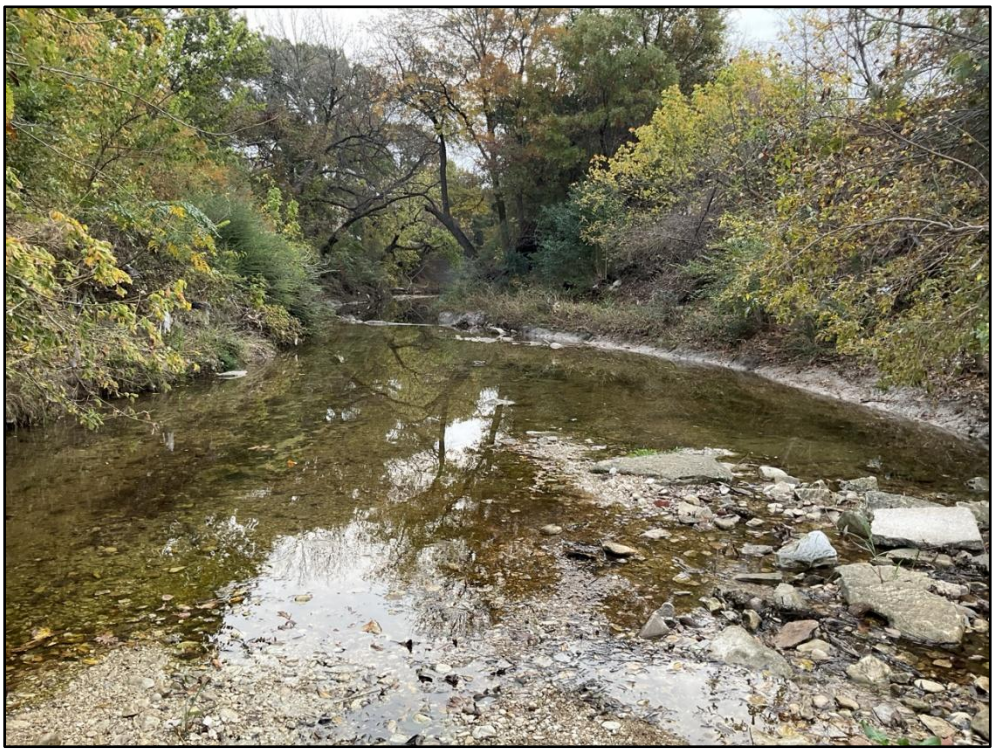


Photo 58 – STA 2+00 – Looking downstream at transition from concrete bank protection to natural banks.

TENMILE CREEK



Photo 59 – Near STA 3+00 – Looking downstream at a significant scour pool.



Photo 60 – STA 5+00 – **Problem area rank: 16**. 18-inch corrugated plastic stormwater outfall with small concrete flume and rock riprap, approximately 6 to 8 feet above the water surface.

TENMILE CREEK



Photo 61 – Near STA 5+50 – **Problem area rank: 7**. Concrete bag wall on left bank. There is significant erosion on downstream end of wall and evidence of vertical settling and cracking on the wall.



Photo 62 – STA 6+50 –Increased bedrock influence on channel bed and banks, looking downstream.

TENMILE CREEK



Photo 63 – Near STA 8+50 – Looking downstream at the location of Tenmile Creek cross section 1.



Photo 64 – STA 10+00 – Looking upstream at two-foot bedrock knickpoint immediately upstream of Highway 67.

TENMILE CREEK



Photo 65 – STA 10+00 – Looking upstream along Horne Branch.



Photo 66 – Near STA 10+00 – Two 36-inch aerial sanitary sewer crossings at Horne Branch.

TENMILE CREEK



Photo 67 – STA 11+00 – 36-inch concrete stormwater outfall between gabion baskets.



Photo 68 – STA 12+50 – Looking upstream at conditions under Highway 67; significant bedrock influence.

TENMILE CREEK



Photo 69 – STA 14+50 – Two 18-inch aerial utility crossings appear to be in fair condition with notable bed scour at central pier.



Photo 70 – STA 17+00 – Channel conditions looking downstream.

TENMILE CREEK



Photo 71 – STA 19+50 – Looking upstream along Tenmile Creek Unnamed Tributary 3.

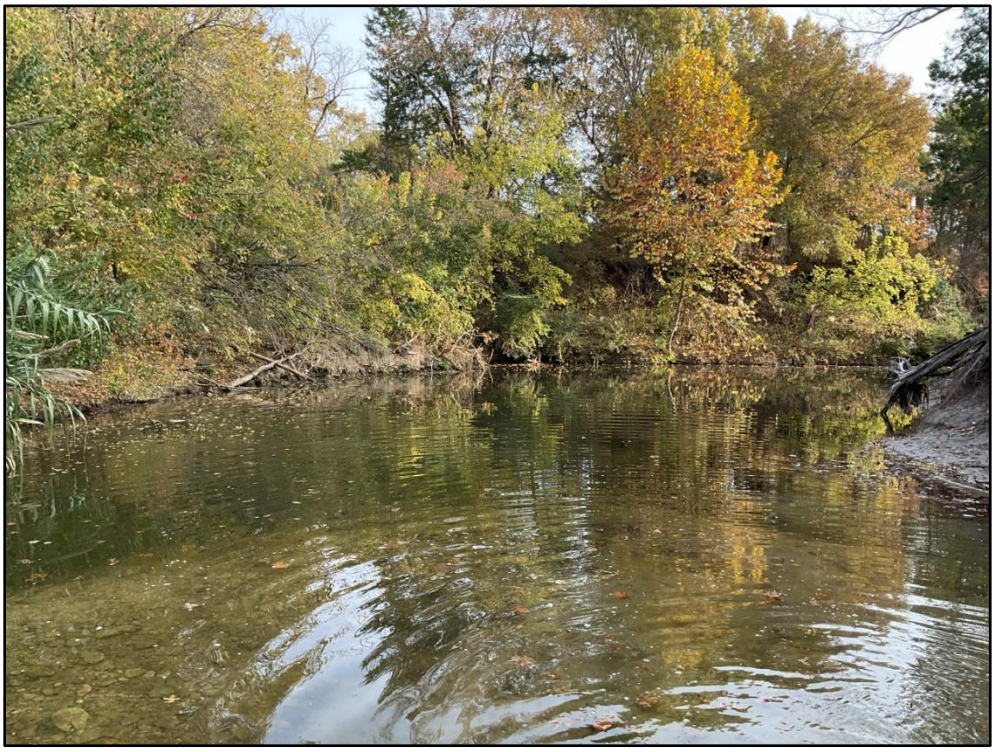


Photo 72 – Near STA 19+50 – Looking downstream at a deep scour pool.

TENMILE CREEK



Photo 73 – STA 23+00 – Looking upstream along Tenmile Creek Unnamed Tributary 4.



Photo 74 – STA 23+50 – Looking upstream; bedrock influence on channel bed and banks.

TENMILE CREEK



Photo 75 – Near STA 26+50 – Vegetated channel bench.



Photo 76 – STA 28+50 – **Problem area rank: 11 (★ Area 3 ★)**. Looking upstream at a concrete stormwater flume located on a deep scour pool. The flume is undermined and approximately 12 feet above the channel bed elevation.

TENMILE CREEK



Photo 77 – STA 32+00 – 8-inch aerial sanitary sewer crossing. Minor scour around in-channel piers.

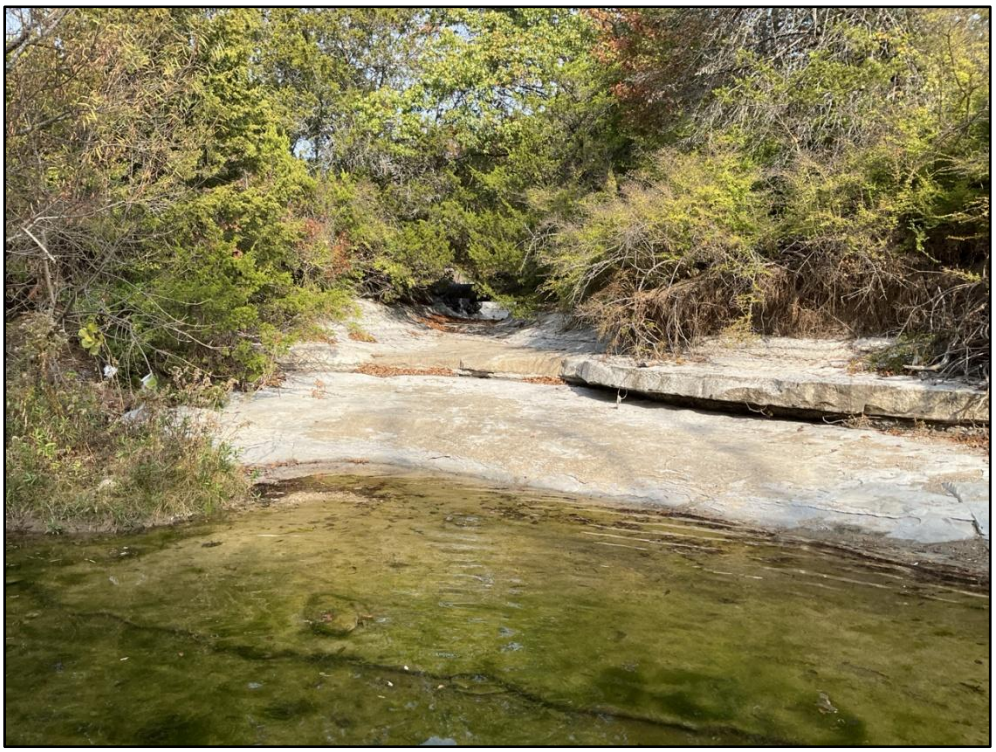


Photo 78 – STA 36+00 – Looking upstream at Tenmile Creek Unnamed Tributary 5.

TENMILE CREEK



Photo 79 – Near STA 36+50 – Two 36-inch aerial sanitary sewer crossings on Tenmile Creek Unnamed Tributary 5 in fair condition. Moderate deterioration of grouted rock riprap at banks and minor pier scour.



Photo 80 – STA 38+00 – Looking upstream at a small knickpoint in bedrock.

TENMILE CREEK



Photo 81 – Near STA 41+00 – Concrete bag wall in fair condition, looking upstream. Some erosion on downstream end and minor toe scour.



Photo 82 – STA 42+50 – Looking downstream at a riffle like section over boulders, cobbles, and concrete debris.

TENMILE CREEK



Photo 83 – STA 48+50 – Looking downstream. The right bank exhibits a “Very High” BEHI score.



Photo 84 – STA 49+50 – A point bar on the left bank.

TENMILE CREEK



Photo 85 – STA 50+50 – Looking downstream at a 36-inch aerial sanitary sewer crossing. Some piers on left bank appear to be leaning. See **Photo 86** for right bank condition.



Photo 86 – STA 50+50 – **Problem area rank: 2**. Looking downstream at a 36-inch aerial sanitary sewer crossing (also see **Photo 85**). No visible protection on right bank. The pipe is exposed on the right bank of Stewart Branch (at the right edge of the photo).

TENMILE CREEK



Photo 87 – Near STA 50+50 – Looking upstream along Stewart Branch.



Photo 88 – STA 54+50 – Representative channel conditions, looking downstream.

TENMILE CREEK



Photo 89 – STA 55+50 – **Problem area rank: 17**. Concrete bag wall flume; lower portion is partially undermined.



Photo 90 – STA 58+00 – **Problem area rank: 18**. Unmapped, likely abandoned pipes protruding from the left bank.

TENMILE CREEK



Photo 91 – STA 61+00 – Looking upstream at concrete bag wall in fair condition.



Photo 92 – STA 64+50 – Looking downstream at the location of Tenmile Creek cross section 2.

TENMILE CREEK



Photo 93 – Near STA 66+00 – Looking downstream at a concrete bag wall at South Cockrell Hill Road. Bag wall in fair condition, with some erosion at the upstream end and a trench in the channel bed along to toe.



Photo 94 – STA 66+50 – 30-inch concrete stormwater outfall with flume on the right bank.

TENMILE CREEK



Photo 95 – Near STA 67+50 – Conditions under South Cockrell Hill Road, looking downstream.



Photo 96 – STA 67+50 – 30-inch concrete stormwater outfall with flume on the left bank.

TENMILE CREEK



Photo 97 – STA 69+00 – Large mid-channel bar, looking downstream.



Photo 98 – STA 72+00 – Looking upstream, flow hugs right bank. A linear pour of concrete is located on the bedrock adjacent to flow.

TENMILE CREEK



Photo 99 – STA 73+00 – Fallen tree in channel and “Very High” BEHI score.



Photo 100 – STA 75+00 – 21-inch concrete stormwater outfall with flume at top of concrete bag wall.

TENMILE CREEK



Photo 101 – STA 77+00 – Looking upstream along Tenmile Creek Unnamed Tributary 6.



Photo 102 – STA 79+00 – **Problem area rank: 1**. Unmapped, potentially abandoned 18-inch pipe. The pipe is exposed along the entire channel bed with some debris accumulation.

TENMILE CREEK



Photo 103 – STA 80+50 – Looking downstream, representative channel conditions.



Photo 104 – STA 82+00 – **Problem area rank: 19**. Concrete stormwater outfall. Flowline is approximately 8 feet above the water surface.

TENMILE CREEK



Photo 105 – STA 85+50 – Looking downstream at concrete bag wall in good condition.



Photo 106 – STA 88+00 – 48-inch concrete stormwater outfall on right bank with patch of moss below.

TENMILE CREEK



Photo 107 – STA 91+00 – Looking downstream, the right bank is near vertical bedrock.



Photo 108 – STA 92+00 – Location of Tenmile Creek cross section 3, looking downstream.

TENMILE CREEK



Photo 109 – STA 94+00 – **Problem area rank: 10**. 24- and 48-inch corrugated metal pipe stormwater outfalls on right bank.



Photo 110 – STA 94+50 – Looking upstream along Mauk Branch.

TENMILE CREEK



Photo 111 – STA 94+50 – **Problem area rank: 3**. Gabion wall along the left bank. The downstream end of the wall has eroded and settled and there is an unmapped exposed pipe.



Photo 112 – STA 97+00 – 36-inch aerial sanitary sewer crossing, looking downstream. Right bank protection is undermined.

TENMILE CREEK

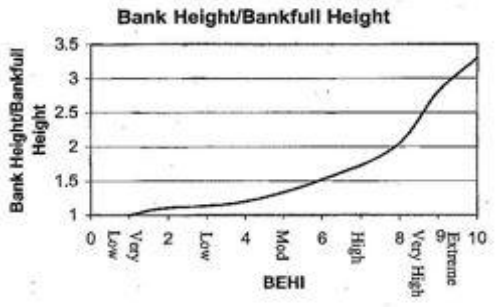


Photo 113 – STA 98+50 – Looking downstream at Wintergreen Road.

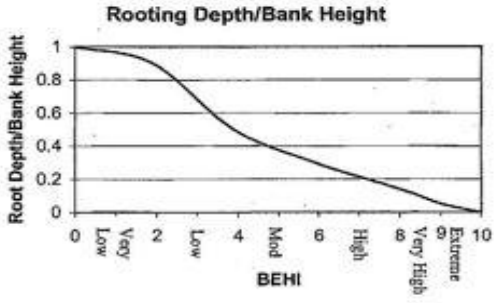
APPENDIX B
REPRESENTATIVE BANK EROSION HAZARD INDEX (BEHI) FIELD FORMS

BEHI Variable Worksheet

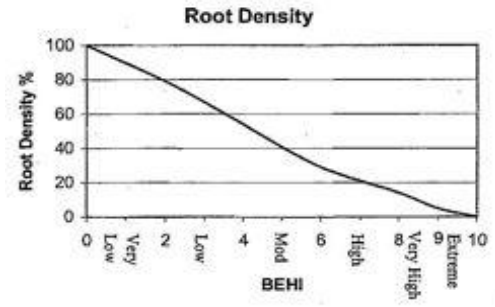
Stream:	Mauk Branch		**Station/Cross Section:**	13+50	
Stream Type:	F	**Valley Type:**	**Reach:**	**Date:**	Nov. 18, 2025
Observers:	SCK, JFS, EAL		**Photos:**		



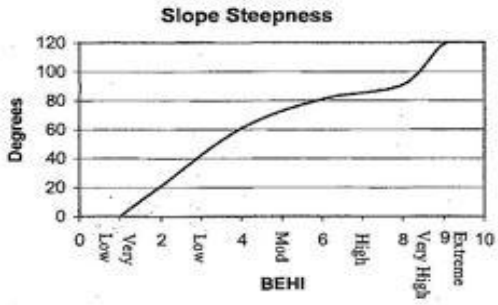
A	**Bank Ht**	12
B	**Bankfull Ht**	2
C	**(A/B)**	6
⇨		10.0



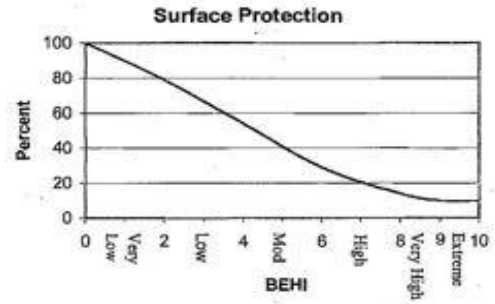
D	**Root Depth**	3
A	**Bank Ht**	12
E	**(D/A)**	0.25
⇨		6.5



F	**Root Density**	30
G	**(F*E)**	7.5
⇨		8.7



H	**Slope**	70
⇨		5.0



I	**Surface Protection**	10
⇨		9.0

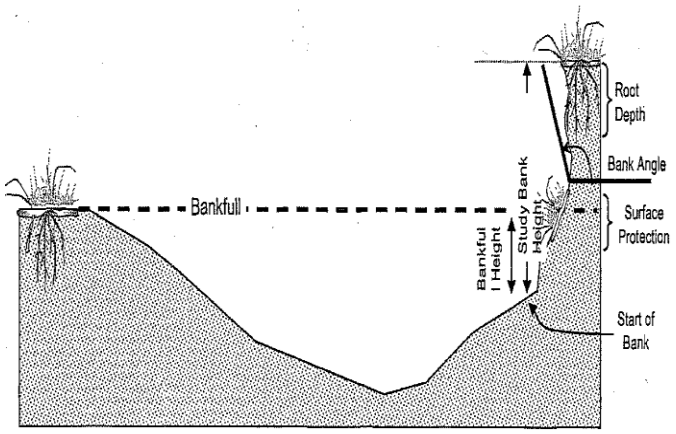
Bank Material Adjustment		
Bedrock	(Overall Very Low BEHI)	-20.0
Boulders	(Overall Low BEHI)	
Cobble	(-10 if uniform medium to large)	
Gravel	(+5-10 depending on % sand)	
Sand	(+10)	
Silt/Clay	(No adjustment; -20 if mostly clay)	

Stratification Adjustment	
Add 5-10 points, depending on position of unstable layers in relation to bankfull stage	0.0

VERY LOW	LOW	MODERATE	HIGH	VERY HIGH	EXTREME
5 - 9.5	10 - 19.5	20 - 29.5	30 - 39.5	40 - 45	46 - 50

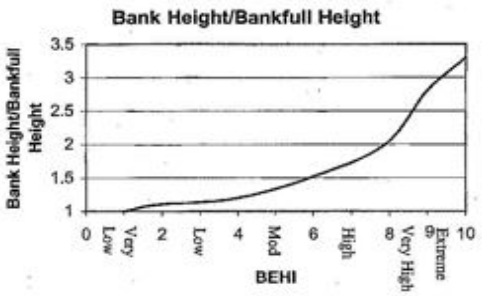
⇨ **ADJECTIVE RATING** and **TOTAL SCORE**: **Low** / 19.2



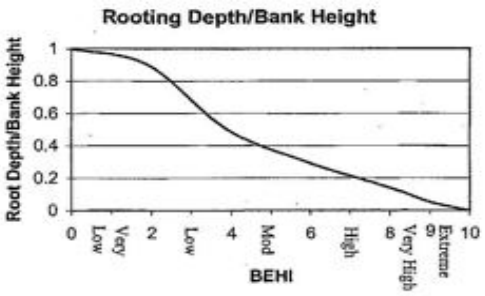


BEHI Variable Worksheet

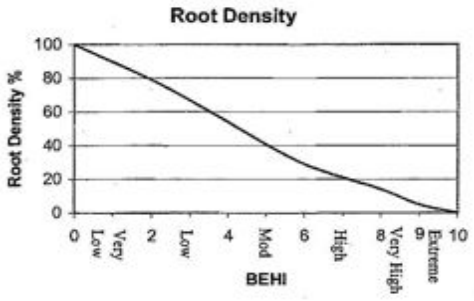
Stream:	Tenmile Creek		**Station/Cross Section:**	68+00	
Stream Type:	F	**Valley Type:**	**Reach:**	**Date:**	Nov. 19, 2025
Observers:	SCK, JFS, EAL		**Photos:**		



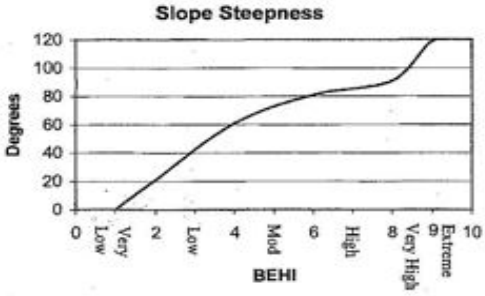
A **Bank Ht**	5
B **Bankfull Ht**	2
C **(A/B)**	2.5
⇨	8.6



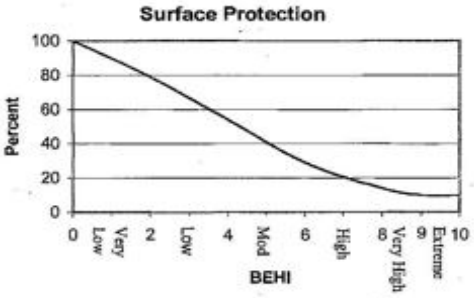
D **Root Depth**	5
A **Bank Ht**	5
E **(D/A)**	1
⇨	1.0



F **Root Density**	80
G **(F*E)**	80
⇨	1.9



H **Slope**	25
⇨	2.2



I **Surface Protection**	80
⇨	1.9

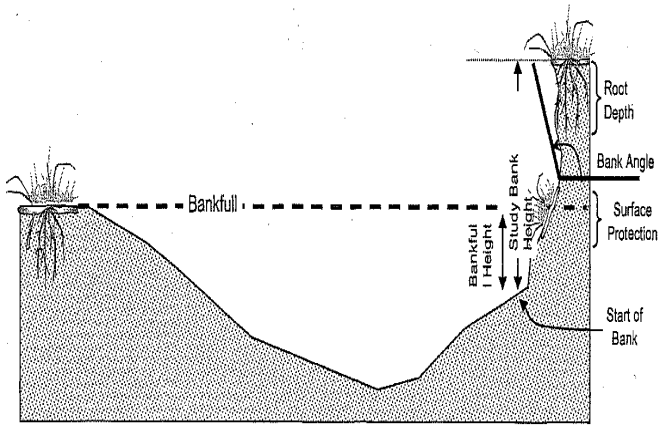
Bank Material Adjustment		
Bedrock	(Overall Very Low BEHI)	0.0
Boulders	(Overall Low BEHI)	
Cobble	(-10 if uniform medium to large)	
Gravel	(+5-10 depending on % sand)	
Sand	(+10)	
Silt/Clay	(No adjustment; -20 if mostly clay)	

Stratification Adjustment	
Add 5-10 points, depending on position of unstable layers in relation to bankfull stage	0.0

VERY LOW	LOW	MODERATE	HIGH	VERY HIGH	EXTREME		
5 - 9.5	10 - 19.5	20 - 29.5	30 - 39.5	40 - 45	46 - 50	⇨	**ADJECTIVE RATING** and **TOTAL SCORE**

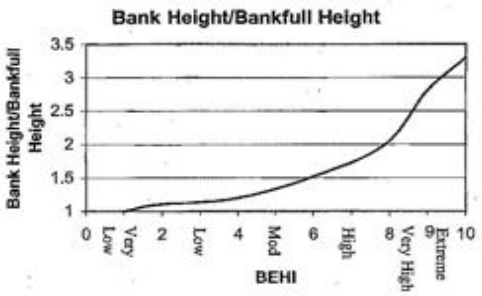
Low
15.6





BEHI Variable Worksheet

Stream:	Mauk Branch		**Station/Cross Section:**	1+50	
Stream Type:	F	**Valley Type:**	**Reach:**	**Date:**	Nov. 18, 2025
Observers:	SCK, JFS, EAL		**Photos:**		

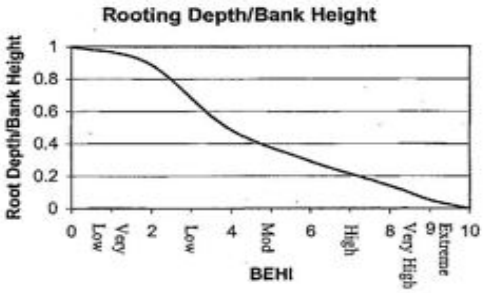


A **Bank Ht**: 6

B **Bankfull Ht**: 2

C **(A/B)**: 3

⇨ 9.2

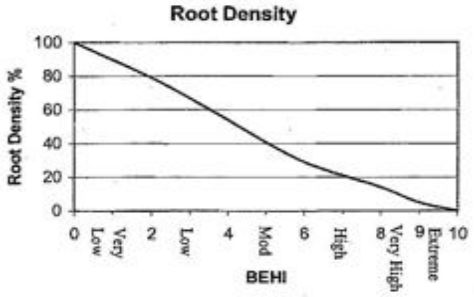


D **Root Depth**: 6

A **Bank Ht**: 6

E **(D/A)**: 1

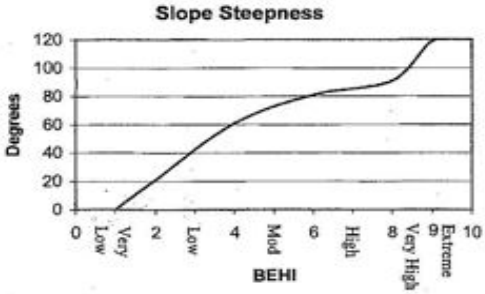
⇨ 1.0



F **Root Density**: 40

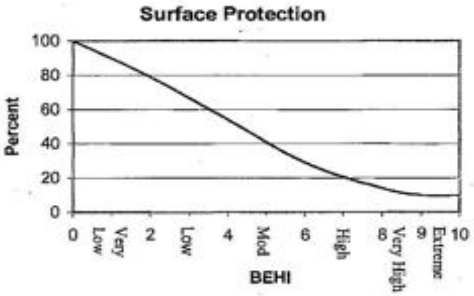
G **(F*E)**: 40

⇨ 5.1



H **Slope**: 30

⇨ 2.4



I **Surface Protection**: 40

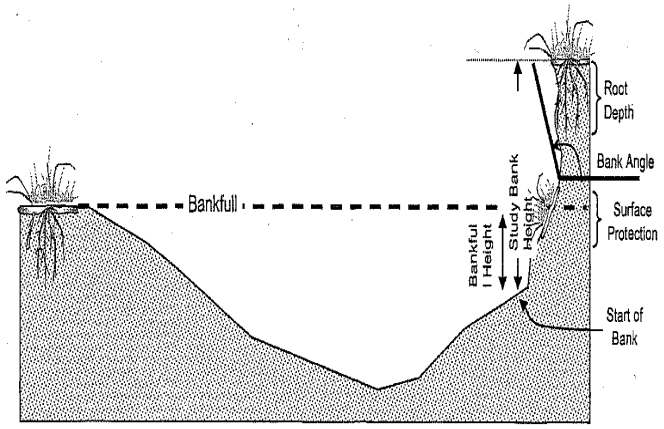
⇨ 5.1

Bank Material Adjustment		0.0
Bedrock	(Overall Very Low BEHI)	
Boulders	(Overall Low BEHI)	
Cobble	(-10 if uniform medium to large)	
Gravel	(+5-10 depending on % sand)	
Sand	(+10)	
Silt/Clay	(No adjustment; -20 if mostly clay)	

Stratification Adjustment	0.0
Add 5-10 points, depending on position of unstable layers in relation to bankfull stage	

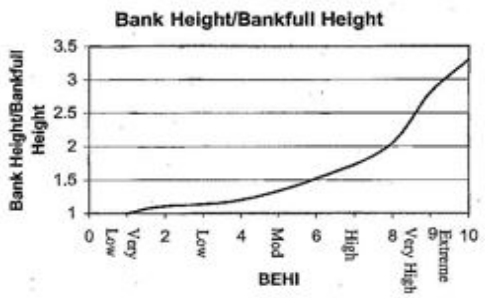
VERY LOW	LOW	MODERATE	HIGH	VERY HIGH	EXTREME	⇨	**ADJECTIVE RATING**	**Moderate**
							and	22.9
5 - 9.5	10 - 19.5	20 - 29.5	30 - 39.5	40 - 45	46 - 50		**TOTAL SCORE**	



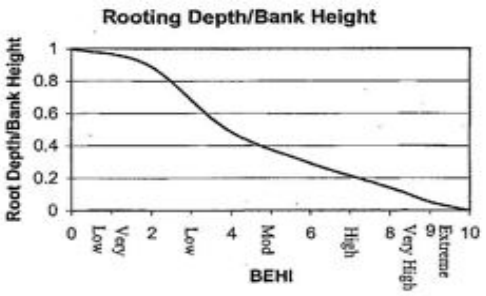


BEHI Variable Worksheet

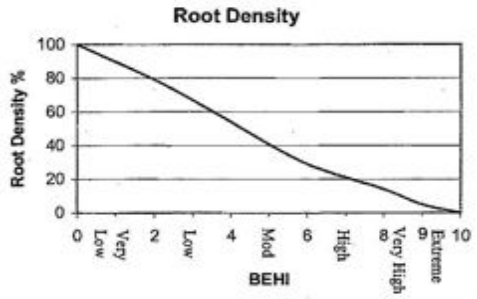
Stream:	Mauk Branch		**Station/Cross Section:**	2+30	
Stream Type:	F	**Valley Type:**	**Reach:**	**Date:**	Nov. 18, 2025
Observers:	SCK, JFS, EAL		**Photos:**		



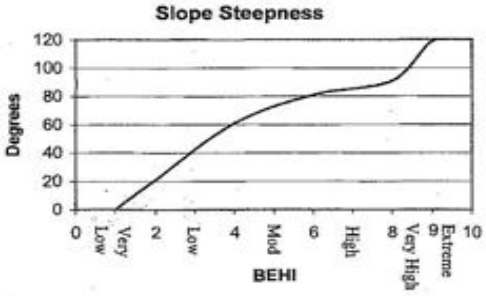
A	**Bank Ht**	10
B	**Bankfull Ht**	2
C	**(A/B)**	3.8
⇨		10.0



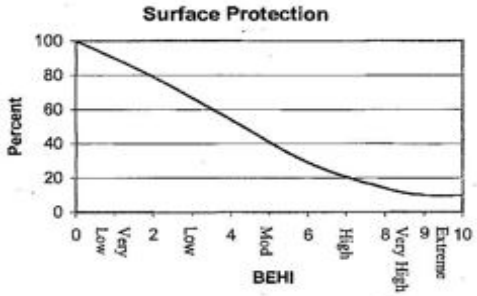
D	**Root Depth**	5
A	**Bank Ht**	10
E	**(D/A)**	0.5
⇨		3.9



F	**Root Density**	30
G	**(F*E)**	15
⇨		7.9



H	**Slope**	90
⇨		7.9



I	**Surface Protection**	20
⇨		7.2

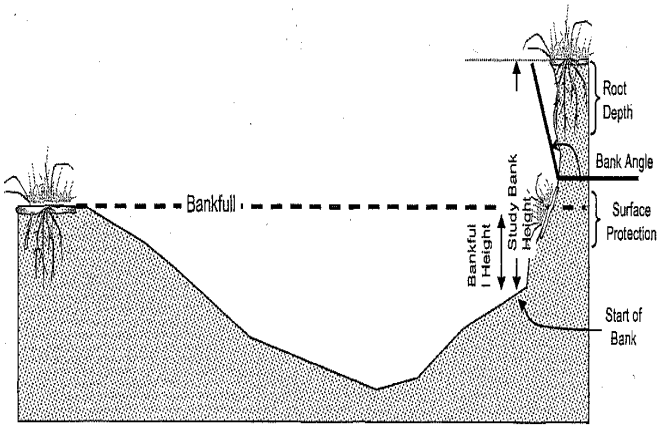
Bank Material Adjustment		
Bedrock	(Overall Very Low BEHI)	0.0
Boulders	(Overall Low BEHI)	
Cobble	(-10 if uniform medium to large)	
Gravel	(+5-10 depending on % sand)	
Sand	(+10)	
Silt/Clay	(No adjustment; -20 if mostly clay)	

Stratification Adjustment	
Add 5-10 points, depending on position of unstable layers in relation to bankfull stage	0.0

VERY LOW	LOW	MODERATE	HIGH	VERY HIGH	EXTREME
5 - 9.5	10 - 19.5	20 - 29.5	30 - 39.5	40 - 45	46 - 50

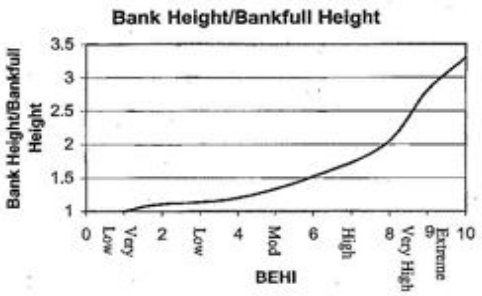
⇨ **ADJECTIVE RATING** and **TOTAL SCORE**: **High** / 36.9



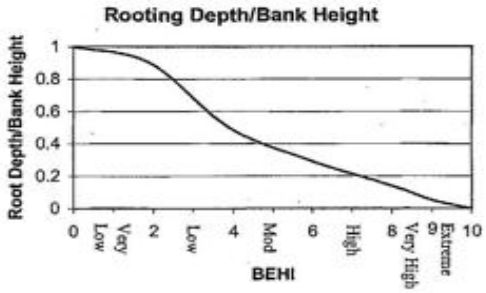


BEHI Variable Worksheet

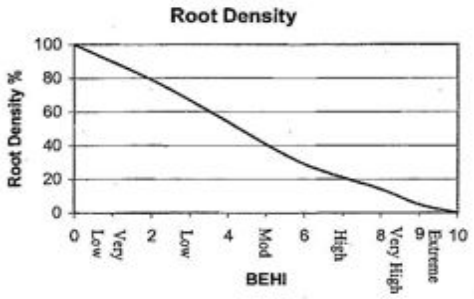
Stream:	Tenmile Creek		**Station/Cross Section:**	95+50	
Stream Type:	F	**Valley Type:**	**Reach:**	**Date:**	Nov. 19, 2025
Observers:	SCK, JFS, EAL		**Photos:**		



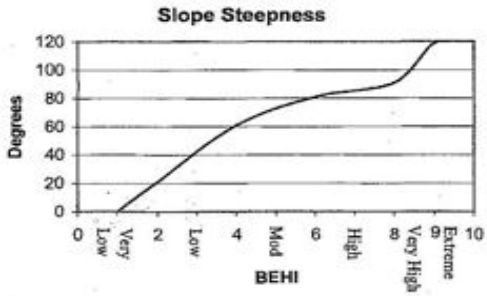
A	**Bank Ht**	10
B	**Bankfull Ht**	2
C	**(A/B)**	5
⇨		10.0



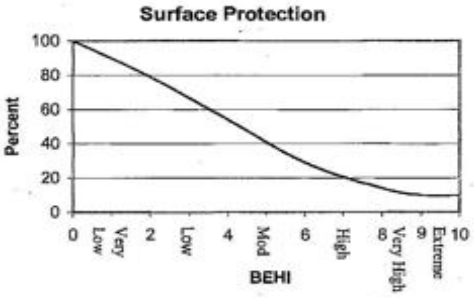
D	**Root Depth**	3
A	**Bank Ht**	10
E	**(D/A)**	0.3
⇨		5.9



F	**Root Density**	10
G	**(F*E)**	3
⇨		9.5



H	**Slope**	90
⇨		7.9



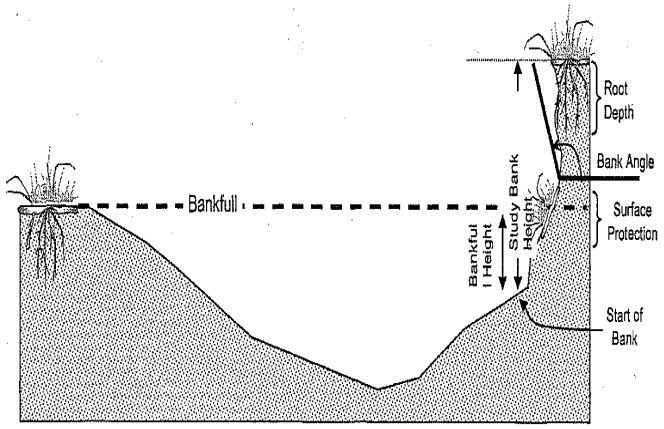
I	**Surface Protection**	10
⇨		9.0

Bank Material Adjustment		
Bedrock	(Overall Very Low BEHI)	0.0
Boulders	(Overall Low BEHI)	
Cobble	(-10 if uniform medium to large)	
Gravel	(+5-10 depending on % sand)	
Sand	(+10)	
Silt/Clay	(No adjustment; -20 if mostly clay)	

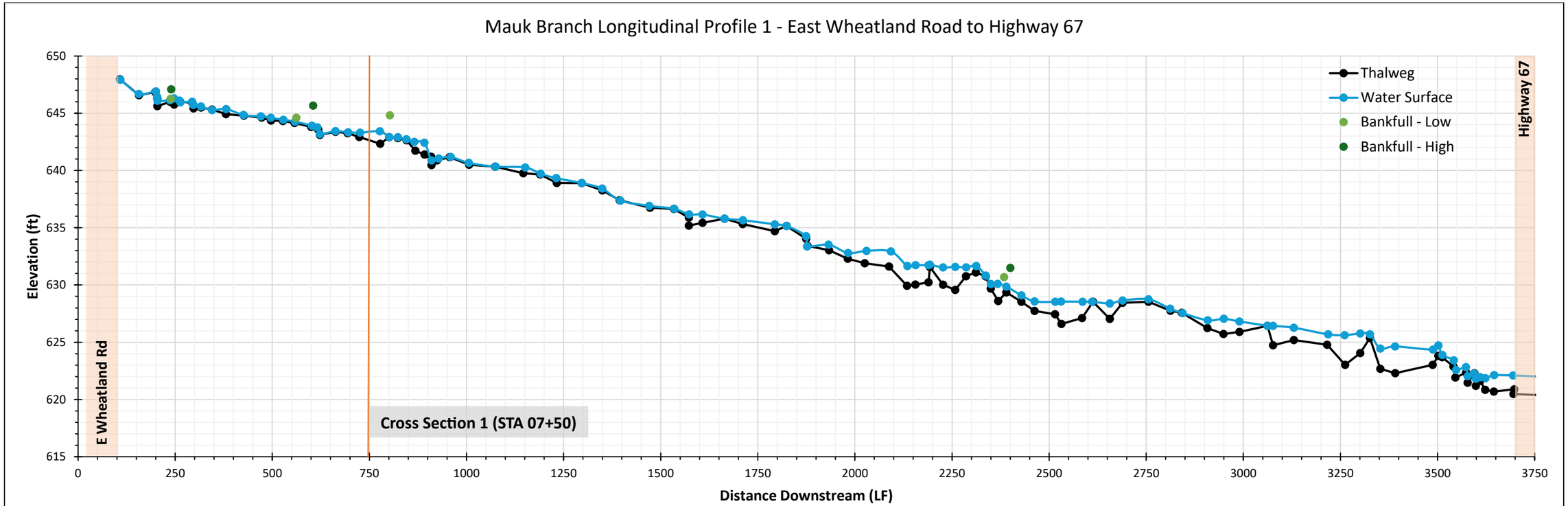
Stratification Adjustment	
Add 5-10 points, depending on position of unstable layers in relation to bankfull stage	0.0

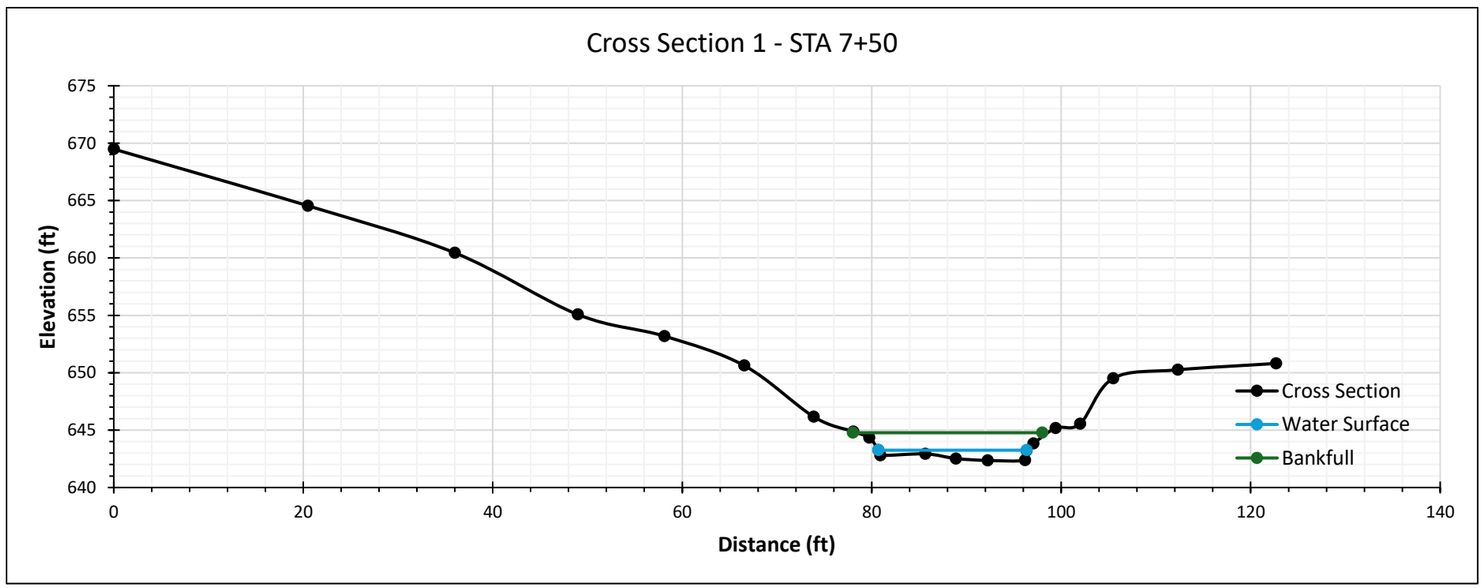
VERY LOW	LOW	MODERATE	HIGH	VERY HIGH	EXTREME		
5 - 9.5	10 - 19.5	20 - 29.5	30 - 39.5	40 - 45	46 - 50	⇨	**ADJECTIVE RATING** and **TOTAL SCORE** → Very High / 42.3



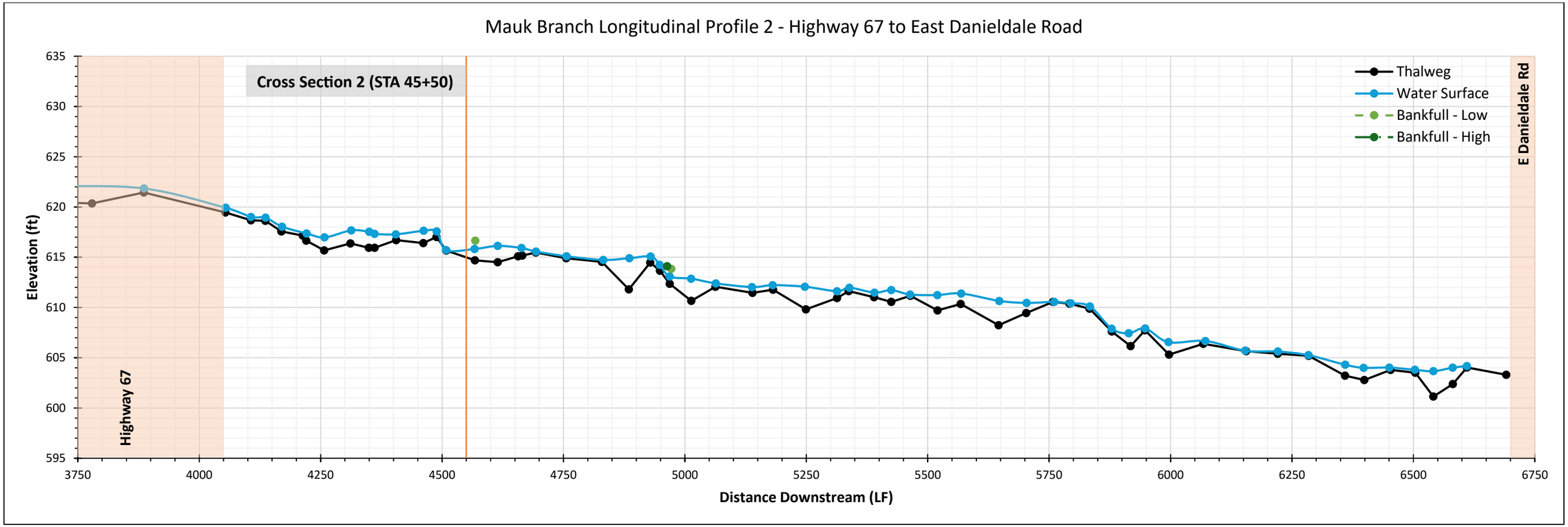


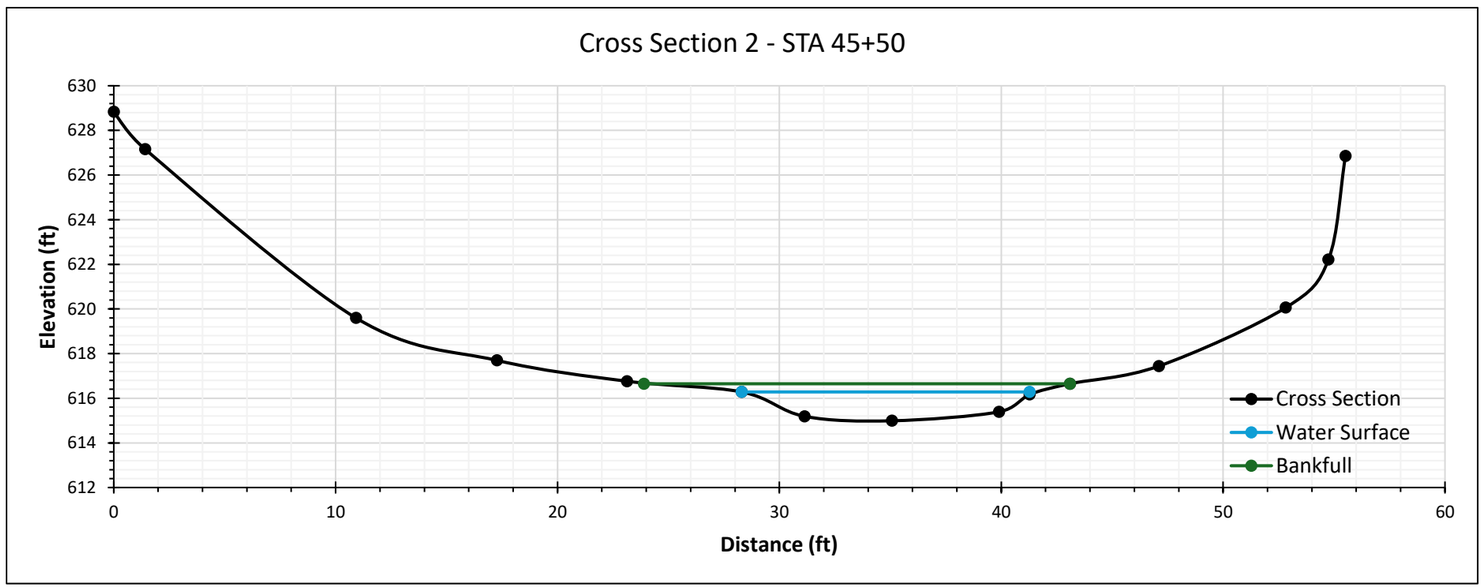
APPENDIX C
CROSS SECTIONS & LONGITUDINAL PROFILE



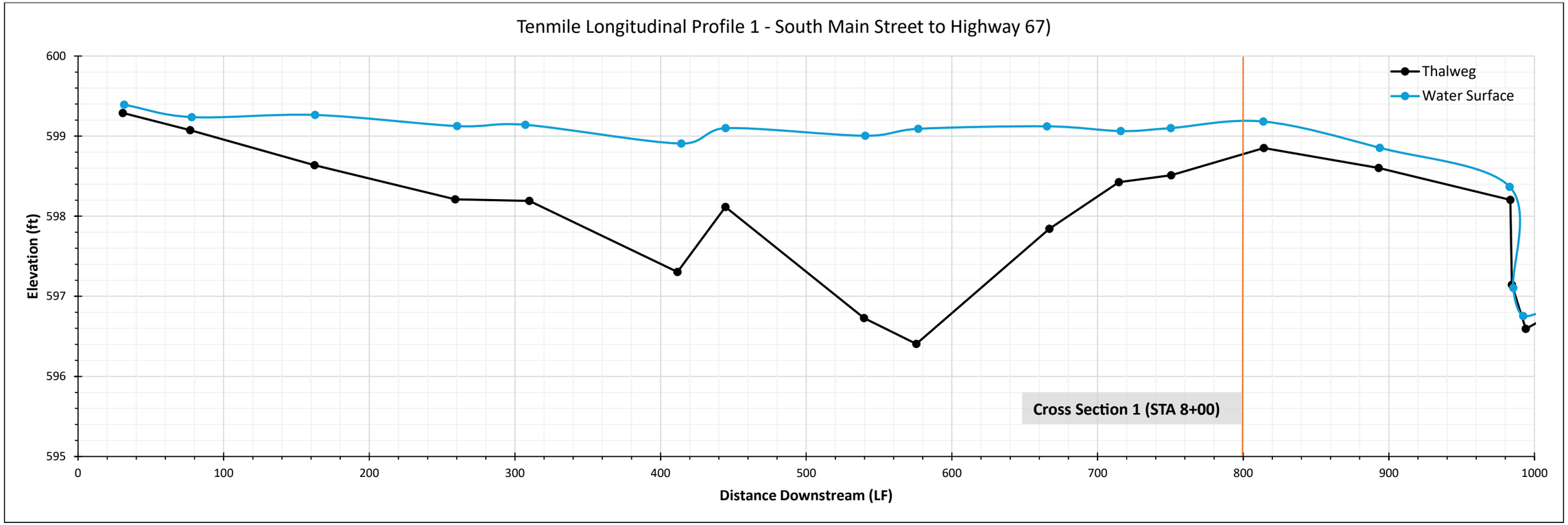


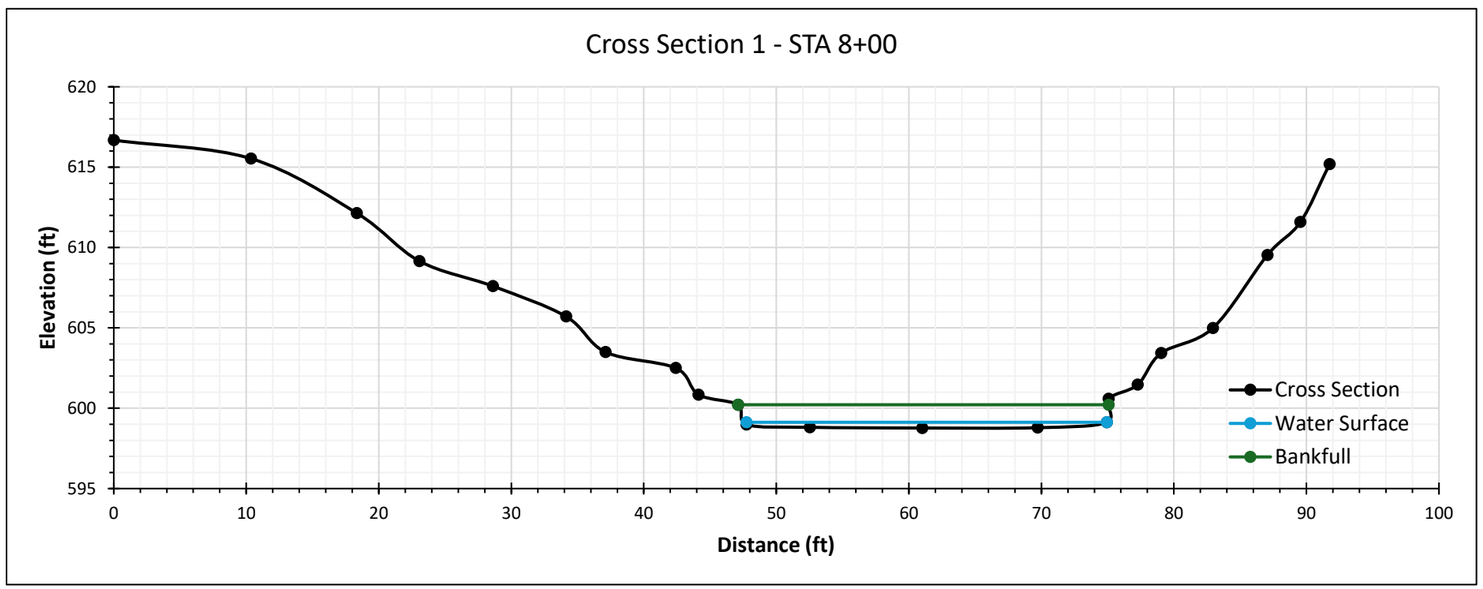

Representative conditions near Cross Section 1 (STA 7+50)



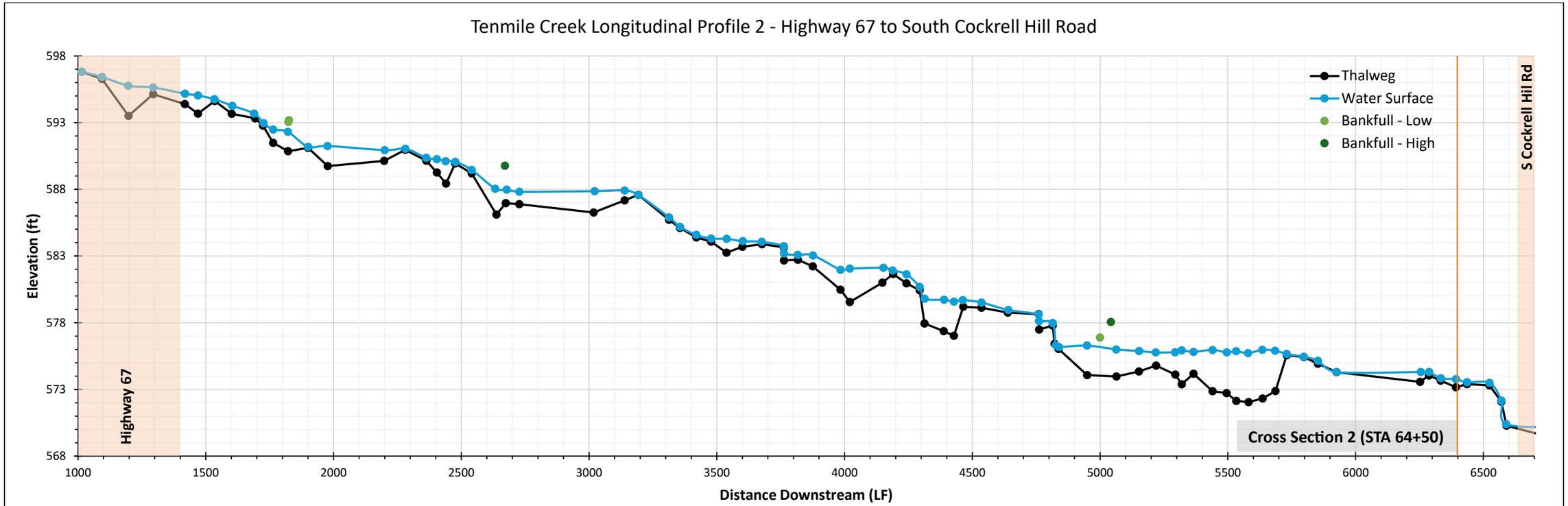


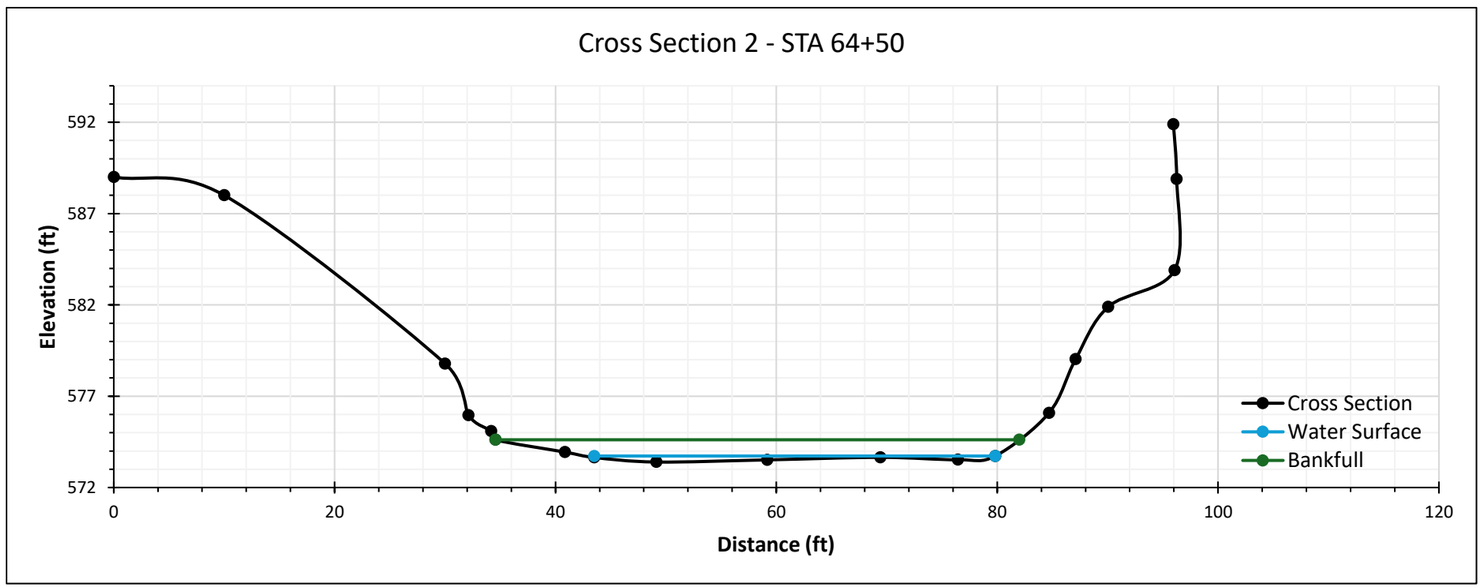

Representative conditions near Cross Section 2 (STA 45+50)

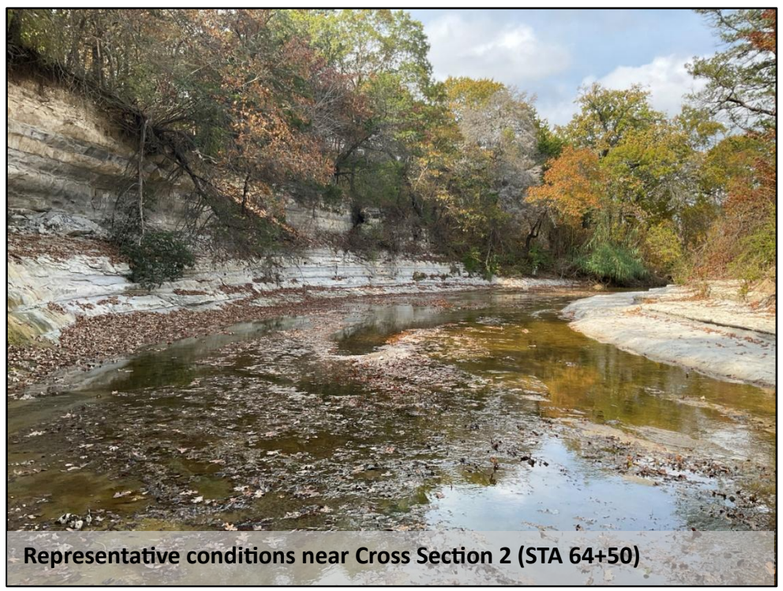




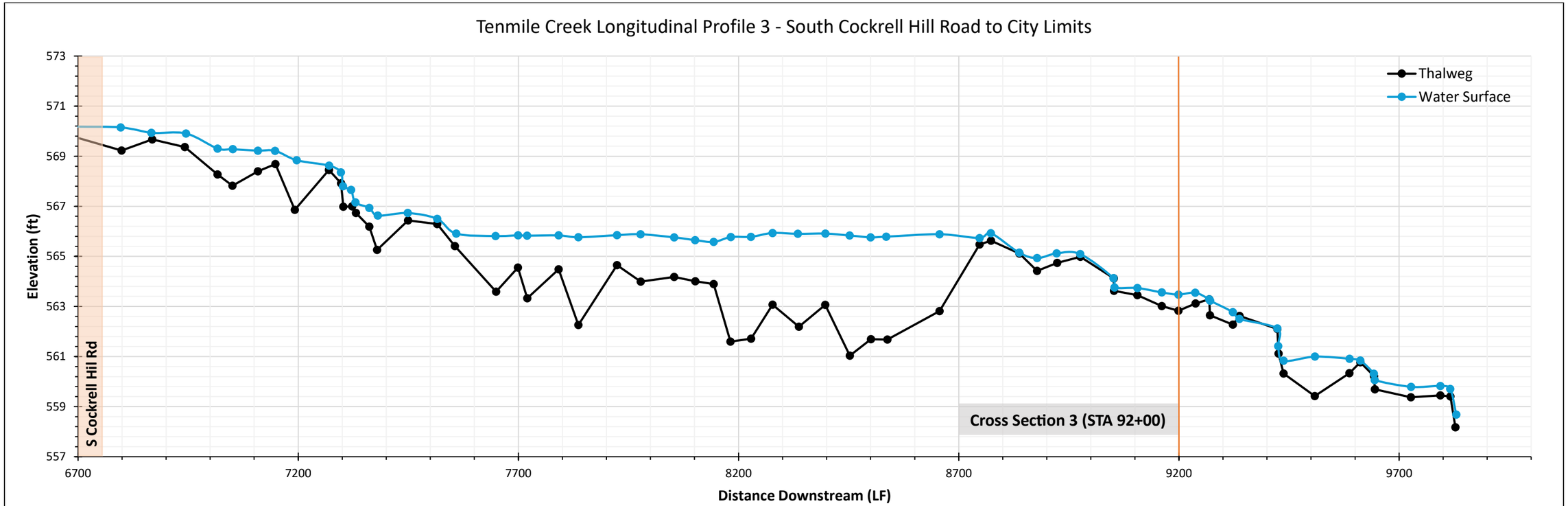

Representative conditions near Cross Section 1 (STA 08+00)

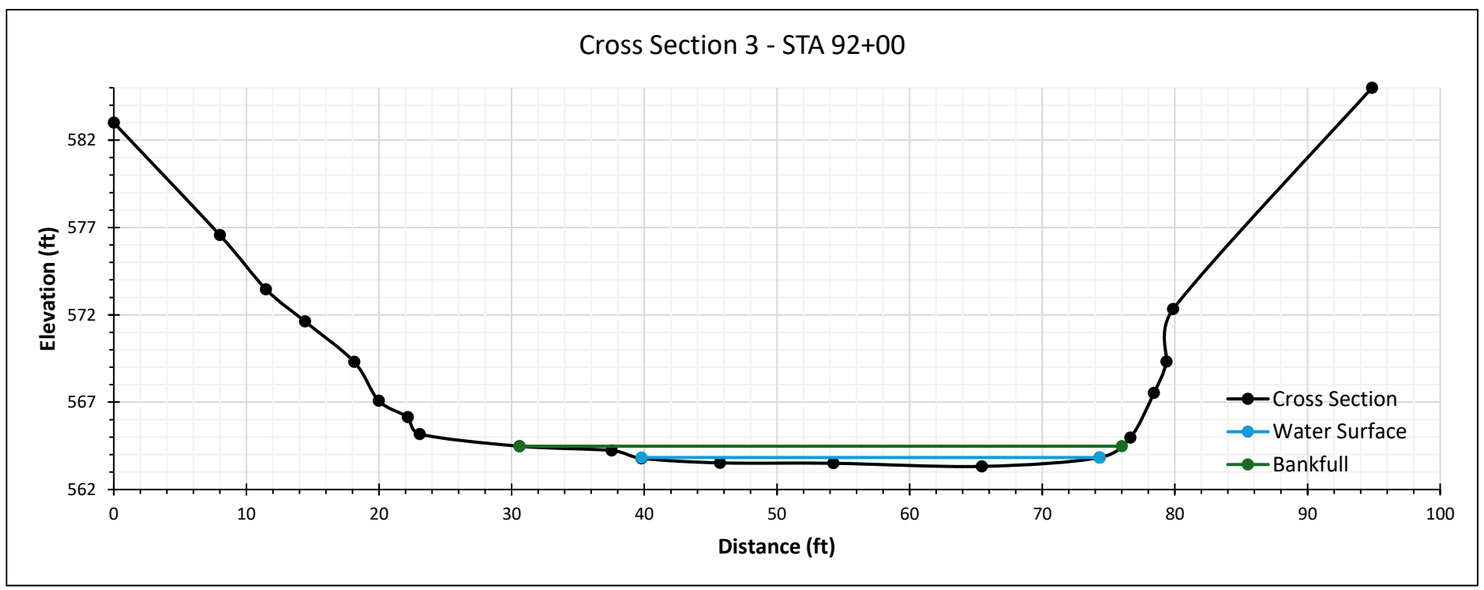


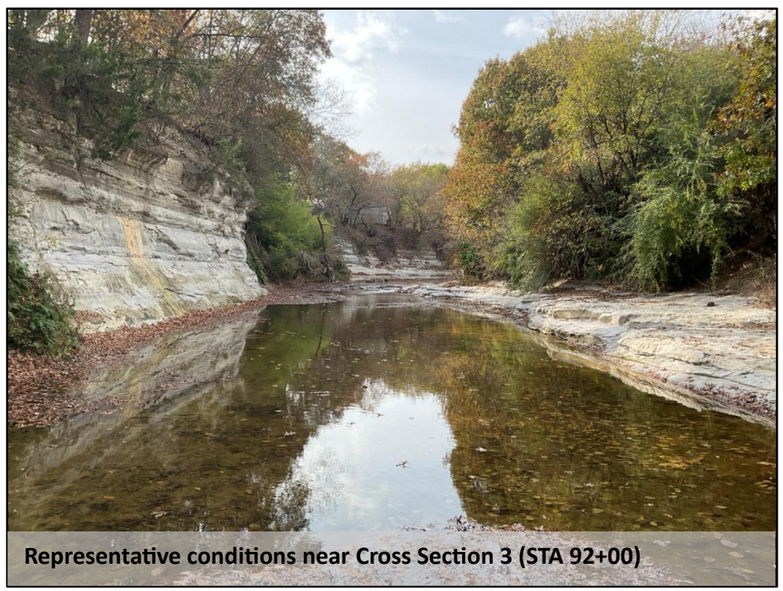




Representative conditions near Cross Section 2 (STA 64+50)







Representative conditions near Cross Section 3 (STA 92+00)

APPENDIX D
SUMMARY OF INFRASTRUCTURE AND EROSION ISSUES WITH SCORES AND RANKS

Table D.1 Scored and Ranked Observed Infrastructure - Mauk Branch

STA	Rank*	Stream	Description	Bank	BEHI	BEHI Score	Infrastructure Type	Infrastructure Priority	Scour	Condition	Current Condition Score	Total Score
123	--	MAUK BRANCH	21" STM Outfall	Right	Armored	0.5	STM	0.5	None	Fair	2	1.8
149	--	MAUK BRANCH	3 cell 8‘ x 9 1/2‘ box culverts	Both	Armored	0.5	STM	0.5	None	Fair	2	1.8
208	--	MAUK BRANCH	head/wing wall footing	Right	Armored	0.5	Other	0.75	Minor	Fair	2	2.6
289	--	MAUK BRANCH	Bag wall	Left	Armored	0.5	Other	0.75	None	Good	1	1.5
448	6	MAUK BRANCH	8" aerial pipe crossing	Right	High	3	SS	1	Moderate	Poor	3	7.5
855	--	MAUK BRANCH	30" STM outfall - corrugated metal	Left	Armored	0.5	STM	0.5	Minor	Fair	2	1.8
913	8	MAUK BRANCH	18" SS aerial crossing - ductile iron	Both	Armored	0.5	SS	1	Significant	Poor	3	5.0
1223	15	MAUK BRANCH	30" STM outfall - concrete	Right	Moderate	2	STM	0.5	Significant	Poor	3	3.3
2306	--	MAUK BRANCH	30" STM outfall - concrete	Right	Moderate	2	STM	0.5	Minor	Good	1	1.8
2642	13	MAUK BRANCH	Steep drainage feature; likely from mapped STM outfall	Left	High	3	STM	0.5	Significant	Poor	3	3.8
3091	**4**	**MAUK BRANCH**	**20" SS - steel**	**Left**	**Very High**	**4**	**SS**	**1**	**Significant**	**Critical**	**4**	**10.0**
3378	14	MAUK BRANCH	Modular block wall	Left	Armored	0.5	Other	0.75	Significant	Poor	3	3.8
3687	--	MAUK BRANCH	8" SS - steel	Left	Armored	0.5	SS	1	Minor	Fair	2	3.5
4080	--	MAUK BRANCH	18" STM outfall - concrete	Right	Low	1	STM	0.5	None	Fair	2	2.0
4299	--	MAUK BRANCH	36" SS - steel	Left	Moderate	2	SS	1	Minor	Fair	2	5.0
5135	--	MAUK BRANCH	42" STM outfall - concrete	Right	Moderate	2	STM	0.5	None	Fair	2	2.5
5162	**5**	**MAUK BRANCH**	**18" SS - ductile iron**	**Right / Left**	**Moderate**	**2**	**SS**	**1**	**Significant**	**Critical**	**4**	**8.0**
5688	9	MAUK BRANCH	24" STM outfall - concrete	Right	High	3	STM	0.5	Significant	Critical	4	4.5
5944	12	MAUK BRANCH	60" STM outfall - concrete	Right	Moderate	2	STM	0.5	Significant	Critical	4	4.0
6619	20	MAUK BRANCH	2 cell 30‘ x 11‘ concrete ConSpan; E. Danieldale Rd.	Both	Armored	0.5	STM	0.5	Aggradation	Poor	3	2.5

* Infrastructure in 'Good' or 'Fair' condition excluded from rankings.
Highlighted and bolded entries were selected for conceptual aternatives analysis

Table D.2 Scored and Ranked Observed Infrastructure - Tenmile Creek

STA	Rank*	Stream	Description	Bank	BEHI	BEHI Score	Infrastructure Type	Infrastructure Priority	Scour	Condition	Current Condition Score	Total Score
46	--	TENMILE CREEK	60" STM outfall - concrete	Right	Armored	0.5	STM	0.5	None	Fair	2	1.8
57	--	TENMILE CREEK	36" SS - concrete, TRA	Both	Armored	0.5	SS	1	Minor	Fair	2	3.5
501	16	TENMILE CREEK	18" STM outfall - corrugated plastic	Left	Moderate	2	STM	0.5	Moderate	Poor	3	3.3
550	7	TENMILE CREEK	Bag wall	Left	High	3	Other	0.75	Significant	Poor	3	5.6
918	--	TENMILE CREEK	36" SS - concrete x2, TRA	Both	Moderate	2	SS	1	Moderate	Fair	2	5.0
1441	--	TENMILE CREEK	18" SS & W - steel	Both	Low	1	SS	1	Moderate	Fair	2	4.0
2854	**11**	**TENMILE CREEK**	**STM outfall/flume**	**Left**	**Moderate**	**2**	**STM**	**0.5**	**Significant**	**Critical**	**4**	**4.0**
3193	--	TENMILE CREEK	8" SS - steel	Both	Moderate	2	SS	1	Minor/Moderate	Fair	2	5.0
3585	--	TENMILE CREEK	36" SS - concrete x2, TRA	Both	Low	1	SS	1	Moderate	Fair	2	4.0
4100	--	TENMILE CREEK	Bag wall	Left	High	3	Other	0.75	Moderate	Fair	2	4.5
5035	2	TENMILE CREEK	36" SS - ductile iron, TRA	Right	Very High	4	SS	1	Moderate	Critical	4	10.0
5536	17	TENMILE CREEK	Bag wall	Left	Moderate	2	STM	0.5	Moderate	Poor	3	3.3
5811	18	TENMILE CREEK	Terracotta & plastic abandoned pipes	Left	Moderate	2	STM	0.5	Significant	Poor	3	3.3
6360	--	TENMILE CREEK	21" STM outfall - corrugated plastic	Left	Low	1	STM	0.5	None	Fair	2	2.0
7506	--	TENMILE CREEK	21" STM outfall	Left	Armored	0.5	STM	0.5	None	Fair	2	1.8
7913	1	TENMILE CREEK	18" Steel pipe - abandoned?	Right	High	3	SS	1	Significant	Failed	5	10.5
8187	19	TENMILE CREEK	STM Outfall - Concrete	Right	Moderate	2	STM	0.5	Moderate	Poor	3	3.3
8578	--	TENMILE CREEK	Bag wall	Right	Armored	0.5	Other	0.75	Minor	Good	1	1.5
8783	--	TENMILE CREEK	48" STM outfall - concrete	Right	Low	1	STM	0.5	None	Fair	2	2.0
9397	10	TENMILE CREEK	48" & 24" STM Outfall - corrugated metal	Right	High	3	STM	0.5	Significant	Critical	4	4.5
9785	3	TENMILE CREEK	36" SS - steel, TRA	Right	Very High	4	SS	1	Significant	Critical	4	10.0

* Infrastructure in 'Good' or 'Fair' condition excluded from rankings.
Highlighted and bolded entries were selected for conceptual aternatives analysis

STAFF REPORT

MEETING: City Council - August 18, 2026

TITLE:
Consider the appointment of five Comprehensive Plan Implementation Committee (CPIC) members and a non-voting Councilmember.

Vision Statement:
"Duncanville, a City of Champions, is a safe, vibrant, diverse community committed to excellence in education, business, and good governance."

Pillar:
Plan with Purpose:

- **Embed the Comprehensive Plan into daily operations, zoning, budgeting, and land use.**

STAFF RESPONSIBLE:
LaSheyla Jones
Angel Deal

BACKGROUND/HISTORY:
The 2040 Comprehensive Plan and Economic Strategy was adopted on December 16, 2025, by Resolution No. 2025-584. The plan establishes the Comprehensive Plan Implementation Committee and its members. The applicants were interviewed, and the following applicants would like to be considered for appointment to the CPIC Committee:

Danielle Zarate
Mike Hoffmeyer
Sarah Mitchell
John Cruz
Beth Farrell

POLICY EXPLANATION:
Resolution 2025-584 establishes the City of Duncanville Comprehensive Plan

Implementation Committee (CPIC) and its membership guidelines. Each membership is for a two-year term. The provision of the committee shall sunset and expire on September 30, 2030, unless extended by action of City Council or otherwise repealed.

FUNDING SOURCE:

ORG and Object Number

N/A

Available Budget	**Purchase Amount**	**After Encumber**
N/A	N/A	N/A

ACTION ALTERNATIVES:

1. Approve.
2. Disapprove
3. Other actions as directed by Council.

ATTACHMENTS:

None

STAFF REPORT

MEETING: City Council - August 18, 2026

TITLE:
Consider a Resolution Approving the Arts Commission's Grant Recommendations.

Vision Statement:
"Duncanville, a City of Champions, is a safe, vibrant, diverse community committed to excellence in education, business, and good governance."

Pillar:
Healthy, Active, **Creative** Communities

STAFF RESPONSIBLE:
Alex Hamby, Communications and Marketing Administrator

BACKGROUND/HISTORY:
The City Council adopted the Arts Funding Policy and Grant Guidelines on June 3, 2025 (Resolution No. 2025-488), and adopted amendments to that policy on March 3, 2026. The policy establishes three grant types: Annual Arts Program Grants, Single Project Support Grants, and Public Art Grants, and provides guidelines for applying. Funding is primarily supported by the City's Hotel Occupancy Tax (HOT) revenue and is intended to support public-facing arts programs that enhance quality of life, tourism, and community identity.

The application window for the 4th quarter grant cycle of Fiscal Year 2025-2026 was June 1 through June 30, 2026, and was promoted and made available online.

A total of 4 applications were received. The Duncanville Arts Commission evaluated each during its July 28, 2026, Regular Meeting and has made recommendations to the City Council based on the criteria outlined in the adopted policy and guidelines.

POLICY EXPLANATION:
The City of Duncanville established the Duncanville Arts Fund to promote, create, and support art that enhances tourism and benefits the hotel and convention industry. Funded by 15% of annual Hotel Occupancy Tax (HOT) revenue, the program supports a wide range of eligible art forms, including music, dance, theater, visual arts, design,

and media arts.

The Duncanville Arts Commission administers the fund, reviews applications, and makes funding recommendations to the City Council, which retains final approval authority. All expenditures must comply with the Texas Tax Code and Attorney General's opinions on HOT fund use, and they must directly promote tourism. Quarterly reports to Council track the fund’s use and impact, and an annual review ensures alignment with legal requirements and community goals

FUNDING SOURCE:

ORG and Object Number

11011000-700450

Available Budget	**Purchase Amount**	**After Encumber**
$36,617	$10,000	$26,617

ACTION ALTERNATIVES:

1. Approve.
2. Disapprove
3. Other actions as directed by Council.

ATTACHMENTS:

Resolution FY 2025-2026 Q4 Arts Grant Funding Awards_Updated, Arts & Business Networking Mixer_Redacted, Duncanville Arts Commission Arts, KidsVenture Outdoor Mural, Exterior Mural, Mind Yo Business_Redacted, Mind_Yo_Business_Project_Budget, The Brilliance of Difference_Redacted, 2026-08-18 - Grant Applicants

RESOLUTION NO. [ ]

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, APPROVING FUNDING FOR ARTS GRANTS AS RECOMMENDED BY THE DUNCANVILLE ARTS COMMISSION; PROVIDING THE COUNCIL WITH THE OPTION TO AMEND INDIVIDUAL GRANT AMOUNTS; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, on July 28, 2026, the City of Duncanville's Arts Commission completed review of applications submitted during the City's June 2026 Arts Grant application period; and

WHEREAS, the Arts Commission has evaluated each application and provided funding recommendations to the City Council for its consideration; and

WHEREAS, the City Council desires to approve funding for arts grant applicants (Exhibit A) and expressly reserves the right to modify, increase, or decrease any individual award amount at its sole discretion prior to final approval.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, THAT:

SECTION 1. The City Council hereby approves the funding awards as set forth above, with the understanding that it may revise any award amount at its discretion before final approval.

SECTION 2. This Resolution shall become effective immediately upon its passage.

DULY RESOLVED AND ADOPTED by the City Council of the City of Duncanville, Texas, on the 18th day of August 2026.

APPROVED:

_____

Greg Contreras, Mayor

ATTEST:

_____

Chiquita Taylor, City Secretary

APPROVED AS TO FORM:

_____

Robert E. Hager, City Attorney

EXHIBIT A

Recommended Arts Grant Funding Awards

The following funding recommendations for the City of Duncanville's Fiscal Year 2025–2026 Fourth Quarter Arts Grant cycle were developed by the Duncanville Arts Commission following review and evaluation of all eligible applications submitted during the June 2026 grant period. The listed award amounts reflect the Commission's recommended allocations for each project or program and are presented to the City Council for consideration, with the understanding that the Council may amend individual amounts at its discretion prior to final approval.

- The Brilliance of Difference – Jesus Cancel - $0
- Old Rail Station Arts & Business Mixer – Arts Commission - $4,000
- KidsVenture Outdoor Mural – KidsVenture Indoor Park - $3,000
- Mind Yo Business – Cheryl Clark - $3,000

Wednesday, June 24, 2026

Arts Grant Application

Have you read and understood the Arts Funding Policy and Grant Guidelines? Yes

By checking "Yes," you confirm that you have reviewed the current Arts Funding Policy and Grant Guidelines in full and understand the eligibility criteria, reporting requirements, and obligations associated with this grant application.

Section 1: General Information

Applicant Name (Individual or Organization) Duncanville Arts Commission

Project Lead (if different) Angela Thorpe-Harris / Patricia Coleman

Mailing Address Duncanville City Hall, 203 E. Wheatland Rd.
Duncanville, TX, 75116

Phone Number (972) 345-9734

Email athorpe@sbcglobal.net

How do you prefer to be contacted? Text

Are you a first-time applicant? No

Section 2: Eligibility

Check all that apply: Duncanville Arts Commission

Do you live or operate a business/studio within Duncanville, TX city limits? Yes

Section 3: Grant Type

Select the grant category for which you are applying (select one): Single Project Support Grant

Section 4: Project Information

Project/Event Title Arts & Business Networking Mixer

Brief Project Summary (2-3 sentences)

Networking mixer promoting at a minimum 9 Duncanville businesses and anticipate participation of approximately 20-30 Duncanville artists showcasing their work. There will be a variety of visual, musical, dancing and culinary artist.

Project Start Date Thursday, September 24, 2026

Project End Date Thursday, September 24, 2026

Do you have a confirmed location for this event or project? Yes

Location(s)

Old Rail Station
202 W. Center Street
Duncanville, TX

Is this project open to the public? Yes

Section 5: Narrative

Please answer the following questions in no more than 250 words each.

Describe the purpose and artistic vision of the proposed project.

We are anticipating the participation of 20-30 local artist who will have an opportunity to display 2-3 pieces of their artwork to the public. There will be paintings, sculptures, etc. Envision an art walk throughout the property.

How will the project serve the Duncanville community and promote public access?

This is an opportunity for the eight businesses that are currently operating at this location to introduce and market themselves to the public. Awareness of the wonderful new businesses housed in this location and it is a nice variety. There is everything from a dental office; dog grooming to a dance studio.

How will your project promote tourism or economic development within Duncanville?

This event provides marketing benefits for the local businesses and entrepreneurs who are considering utilizing the location to launch a business. The event will also increase visibility and opportunities for artist and consumers to utilize available space for possible events at various Duncanville locations.

List the individuals and organizations involved in planning or executing the project.

Duncanville Arts Commission
City of Duncanville staff
Duncanville Arts Foundation
Old Rail Station - Mr. Tim Maiden / Gabrielle McBay

Briefly describe your marketing plan.

Advertisement via Flyers, Posters, FaceBook, Instagram, D'Ville Voices Podcast, Email, Text messaging, City Calendar, etc. Will encourage all the artists, businesses and organizations to market to all their friends, family and various contacts.

How will you evaluate the success and impact of your project?

Attendance, attendee feedback and a survey will be the primary source of assessment.

Section 6: Budget

Total Project Budget	$4,000
Amount requested from the Duncanville Arts Commission/City Council	$4,000
Please attach a detailed budget	Duncanville Arts Commission Arts.docx

Section 7: Required Documents

Document Checklist

- Completed application form. *required
- Narrative responses (Section 5) *required

Section 8: Acknowledgements

By signing below, I affirm that all information provided is accurate and complete.

Signature

Name Angela Thorpe-Harris

Property Owner Authorization (Required for Public Art Installations on Private Property)

I, the undersigned property owner or authorized representative, grant permission for the proposed public art installation to be placed at the property listed below. I understand that this project is part of the Duncanville Arts Commission grant program and agree to allow public access for viewing and participation as described in the applicant's proposal.

Property Owner Name Angela Thorpe-Harris

Property Address [redacted]

Duncanville Arts Commission Arts & Business Networking

Budget

Expenses:

Catering	$3,000
Marketing	$500
Miscellaneous	$500
Total Expenses	$4,000

Tuesday, June 30, 2026

Arts Grant Application

Have you read and understood the Arts Funding Policy and Grant Guidelines? Yes

By checking "Yes," you confirm that you have reviewed the current Arts Funding Policy and Grant Guidelines in full and understand the eligibility criteria, reporting requirements, and obligations associated with this grant application.

Section 1: General Information

Applicant Name (Individual or Organization) KidsVenture Indoor Park

Project Lead (if different) KidsVenture Indoor Park

Mailing Address 615 S Cockrell Hill Rd
Duncanville, TX, 75137

Phone Number (817) 851-8623

Email kidsventurepg@gmail.com

How do you prefer to be contacted? Text

Website or Social Media (if applicable)
www.kidsventurepg.com

https://www.facebook.com/people/KidsVenture-Indoor-Action-Park/61591251910729/

Are you a first-time applicant? Yes

Section 2: Eligibility

Check all that apply: Business Entity

Do you live or operate a business/studio within Duncanville, TX city limits? Yes

Section 3: Grant Type

Select the grant category for which you are applying (select one): Single Project Support Grant

Section 4: Project Information

Project/Event Title KidsVenture Outdoor Mural

Brief Project Summary (2-3 sentences)

KidsVenture Indoor Action Park serves as a vital, vibrant hangout for young families in Duncanville, offering a safe, engaging, and inclusive space where local parents and children can connect and build community. To further elevate this welcoming atmosphere, we are commissioning a vibrant outdoor mural on our property. Designed to serve as a beautiful visual gateway, this public artwork will celebrate the spirit of our neighborhood and warmly welcome visitors and residents alike to the City of Duncanville. By transforming our exterior into a colorful landmark, this project will enhance local civic pride, support community beautification efforts, and create an inspiring first impression for everyone entering our city.

Project Start Date Friday, February 27, 2026

Project End Date Monday, August 31, 2026

Do you have a confirmed location for this event or project? Yes

Location(s)

615 S Cockrelll Hill Rd Duncanville TX 75137

Is this project open to the public? Yes

Admission Fee (if any) 20

Section 5: Narrative

Please answer the following questions in no more than 250 words each.

Describe the purpose and artistic vision of the proposed project.

Wwe are commissioning a vibrant outdoor mural on our property facing the Wheatland/S Cockrellhill. Designed to serve as a beautiful visual gateway, this public artwork will celebrate the spirit of our neighborhood and warmly welcome visitors and residents alike to the City of Duncanville.

How will the project serve the Duncanville community and promote public access?

By transforming our exterior into a colorful landmark, this project will enhance local civic pride, support community beautification efforts, and create an inspiring first impression for everyone entering our city.

How will your project promote tourism or economic development within Duncanville?

KidsVenture serves as a vital hangout spot for young families in Duncanville regardless of rain or shine. We also offers an indoor cafe serving locally sourced pastry, cold drinks and coffee.

List the individuals and organizations involved in planning or executing the project.

Andrew Zheng - President/Director
Omar Ali - Store Operator
KidsVenture Indoor Action Park - the operating entity

Briefly describe your marketing plan.

We will actively promote the project and engage the community through targeted social media campaigns and word-of-mouth advocacy, all while delivering a family-oriented, fun environment.

How will you evaluate the success and impact of your project?

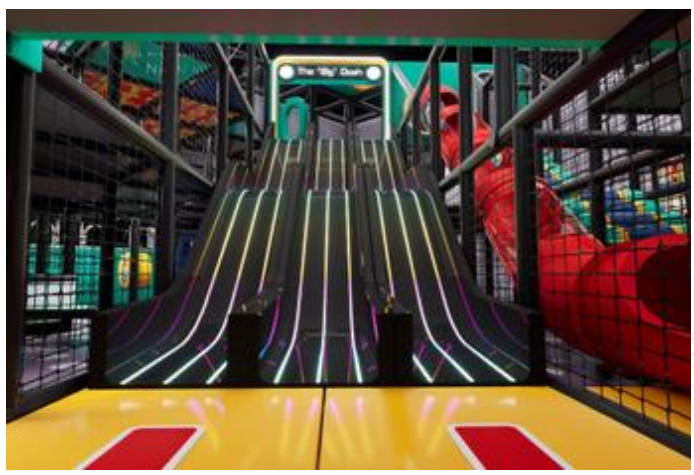
Our goal for this project is to create a lasting, positive impact for Duncanville families by offering a welcoming, family-friendly hangout space.

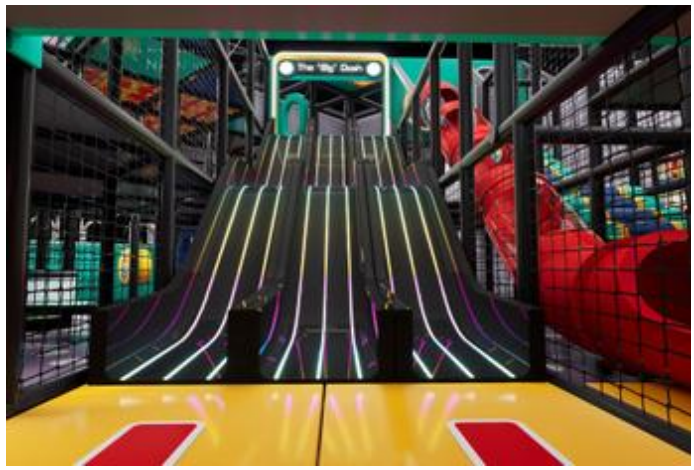
Applicants are encouraged to submit a 30-second video introducing their project. This video will be shown to the Arts Commission during their review process and to the City Council before they make their final decision. Please consider uploading your video here are sending it to arts@duncanvilletx.gov.























Section 6: Budget

Total Project Budget	878,500
Amount requested from the Duncanville Arts Commission/City Council	120,000
Matching Funds (cash/in-kind)	100,000
Please attach a detailed budget	KidsVenture Budget.pdf

Section 7: Required Documents

Document Checklist

- Completed application form. *required
- Narrative responses (Section 5) *required
- Detailed project budget (Section 6) *required
- Proof of Duncanville residency or business operation. *required
- City of Duncanville Vendor Packet (below) *required

Section 8: Acknowledgements

By signing below, I affirm that all information provided is accurate and complete.

Signature



Name Andrew Zheng

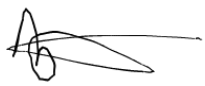
Property Owner Authorization (Required for Public Art Installations on Private Property)

I, the undersigned property owner or authorized representative, grant permission for the proposed public art installation to be placed at the property listed below. I understand that this project is part of the Duncanville Arts Commission grant program and agree to allow public access for viewing and participation as described in the applicant's proposal.

Property Owner Name Andrew Zheng

Property Address 615 S Cockrell Hill Rd
Duncanville, TX, 75137

Property Owner Signature




VidsVenture
Indoor Action Park
PLAY • EXPLORE • LEARN
DUNCANVILLE, TX

Tuesday, June 30, 2026

Arts Grant Application

Have you read and understood the Arts Funding Policy and Grant Guidelines? Yes

By checking "Yes," you confirm that you have reviewed the current Arts Funding Policy and Grant Guidelines in full and understand the eligibility criteria, reporting requirements, and obligations associated with this grant application.

Section 1: General Information

Applicant Name (Individual or Organization) Cheryl Clark

Mailing Address [redacted]

Phone Number [redacted]

Email [redacted]

How do you prefer to be contacted? Email

Website or Social Media (if applicable)

www.cheworksit.com

Are you a first-time applicant? Yes

Section 2: Eligibility

Check all that apply: Individual Artist, Business Entity

Do you live or operate a business/studio within Duncanville, TX city limits? No

Section 3: Grant Type

Select the grant category for which you are applying (select one): Single Project Support Grant

Section 4: Project Information

Project/Event Title Mind Yo Business

Brief Project Summary (2-3 sentences)

Mind Yo Business is a contemporary stage production that uses humor and heartfelt storytelling to explore the dynamics of a close-knit family who gather weekly for dinner. As they grapple with topics like infertility, relationships, and personal expectations, the play examines how family involvement—though often well-meaning—can complicate deeply personal journeys. The production invites audiences to reflect on boundaries, empathy, and self-reflection, offering a relatable and culturally resonant narrative.

Project Start Date Saturday, October 3, 2026

Project End Date Saturday, October 3, 2026

Do you have a confirmed location for this event or project? Yes

Location(s)

Duncanville High School

Is this project open to the public? Yes

Admission Fee (if any) 35.00

Section 5: Narrative

Please answer the following questions in no more than 250 words each.

Describe the purpose and artistic vision of the proposed project.

The purpose of Mind Yo Business is to use live theater to foster meaningful conversations about infertility, family relationships, personal boundaries, and the lasting impact of family secrets. The production highlights the challenges many individuals face behind closed doors while encouraging greater empathy and understanding within families and communities.

Artistically, the project combines humor, authentic dialogue, and emotionally driven storytelling to create a relatable portrayal of a contemporary family navigating life's complexities. By balancing comedy with real-world issues, Mind Yo Business invites audiences to laugh, reflect, and engage in conversations that promote healing, self-awareness, and stronger family connections.

How will the project serve the Duncanville community and promote public access?

Mind Yo Business will serve the Duncanville community by expanding access to live theatrical arts and creating opportunities for residents to engage with locally produced entertainment. The project will provide performance opportunities for local actors, creatives, and production team members while contributing to the city's cultural and artistic landscape.

Public access will be promoted through performances that are open and accessible to community members, encouraging participation from diverse audiences. The production is designed to bring people together through shared experiences, foster community engagement, and demonstrate the power of the performing arts as a tool for connection, creativity, and dialogue.

How will your project promote tourism or economic development within Duncanville?

Mind Yo Business will contribute to Duncanville's cultural and economic vitality by attracting audiences to a locally produced theatrical event. Audience members attending performances may also support nearby restaurants, retail establishments, and other local businesses, generating additional economic activity within the community.

The project will further support economic development by providing paid and volunteer opportunities for local artists, performers, and creative professionals. By showcasing locally produced arts programming, the production helps strengthen Duncanville's reputation as a destination for community-centered cultural experiences.

List the individuals and organizations involved in planning or executing the project.

CHEWorksIt LLC – Project management, production oversight, marketing, community outreach, and event coordination.

Cheryl Joyner-Clark – Playwright, Producer and Project Director responsible for creative development, production planning, casting, and overall project execution.

Cast Members – Perform the scripted roles and participate in rehearsals and public performances.

Production Team – Supports staging, sound, lighting, props, costumes, and backstage operations.

Community Volunteers – Assist with event support, audience engagement, and production-day operations.

Briefly describe your marketing plan.

The marketing plan for Mind Yo Business will include a combination of social media promotion, digital advertising, community outreach, and word-of-mouth engagement. Promotional efforts will utilize CHEWorksIt Media & Production's online platforms, including Facebook, Instagram, TikTok, and YouTube, along with printed materials, community partnerships, and local outreach to increase awareness and encourage attendance. Marketing activities will begin prior to the production and continue through the performance period to maximize audience engagement.

How will you evaluate the success and impact of your project?

The success of Mind Yo Business will be evaluated through audience attendance, ticket sales, and community participation. Following each performance, audience members will be invited to participate in brief post-show interviews and complete a short survey to share their experiences, discuss the production's themes, and provide feedback on its impact. Additional evaluation will include audience testimonials, social media engagement, and overall community response to measure the project's reach and inform future productions.

Section 6: Budget

Total Project Budget	8,560.00
Amount requested from the Duncanville Arts Commission/City Council	3,000
Please attach a detailed budget	PDF Mind_Yo_Business_Project_Budget.pdf

Section 7: Required Documents

Document Checklist

- Completed application form. *required
- Narrative responses (Section 5) *required
- Detailed project budget (Section 6) *required

City of Duncanville Vendor Packet (below) *required

Section 8: Acknowledgements

By signing below, I affirm that all information provided is accurate and complete.

Signature



Name Cheryl Clark

Property Owner Authorization (Required for Public Art Installations on Private Property)

I, the undersigned property owner or authorized representative, grant permission for the proposed public art installation to be placed at the property listed below. I understand that this project is part of the Duncanville Arts Commission grant program and agree to allow public access for viewing and participation as described in the applicant's proposal.

PROJECT BUDGET

Total Project Budget	$8,560

Expense	Amount
Venue Rental (10 hrs @ $140/hr)	**$1,400**
Parking Lot Use	**$110**
Custodial Services	**$500**
Security (3 hrs @ $50/hr)	**$150**
Police Officer (3 hrs @ $70/hr)	**$210**
Maintenance/Grounds (3 hrs @ $50/hr)	**$150**
Production Support (10 hrs @ $70/hr)	**$700**
Furniture Rental	**$240**
Lead Cast Stipends (5 × $250)	**$1,250**
Supporting Cast Stipends (6 × $150)	**$900**
Stage Manager	**$500**
Marketing & Advertising	**$1,200**
Programs & Printing	**$350**
Props & Set Materials	**$800**
TOTAL PROJECT BUDGET	**$8,560**

GRANT REQUEST

Expense	Grant Funds Requested
Venue Rental	$1,400
Lead Cast Stipends	$1,250
Programs & Printing	$350
TOTAL GRANT REQUEST	**$3,000**

FUNDING STATEMENT

The total project budget for *Mind Yo Business* is $8,560. The requested grant amount of $3,000 will support venue rental, lead cast stipends, and programs and printing. The remaining project costs will be supported through CheWorksIt Media & Production, earned revenue, and other project resources.

Tuesday, June 16, 2026

Arts Grant Application

Have you read and understood the Arts Funding Policy and Grant Guidelines? Yes

By checking "Yes," you confirm that you have reviewed the current Arts Funding Policy and Grant Guidelines in full and understand the eligibility criteria, reporting requirements, and obligations associated with this grant application.

Section 1: General Information

Applicant Name (Individual or Organization) Jesus Cancel

Mailing Address [redacted]

Phone Number [redacted]

Email [redacted]

How do you prefer to be contacted? Text

Are you a first-time applicant? Yes

Section 2: Eligibility

Check all that apply: Individual Artist

Do you live or operate a business/studio within Duncanville, TX city limits? No

Section 3: Grant Type

Select the grant category for which you are applying (select one): Public Art Grant

Section 4: Project Information

Project/Event Title The Brilliance of Difference

Brief Project Summary (2-3 sentences)

The introduction of reverse painting and plexiglass art that is totally new to the art world will draw people

to Duncanville. In art the door is always open for something new.

Project Start Date Tuesday, June 30, 2026

Project End Date Sunday, August 30, 2026

Do you have a confirmed location for this event or project? Yes

Location(s)
The Old Rail Station

Is this project open to the public? Yes

Section 5: Narrative

Please answer the following questions in no more than 250 words each.

Describe the purpose and artistic vision of the proposed project.

The purpose is to open the minds of art lovers to something new, different, unique and vibrant in a medium that's unfamiliar to art enthusiasts. The wonders of plexiglass are yet to be revealed!

How will the project serve the Duncanville community and promote public access?

Duncanville needs to be noticed. We always hear of other cities and events that we visit. Outstanding, unusual art will draw buyers, collectors, curators, art lovers and many of interest with just minimal media coverage. Magnificent art from angles unknown is a story on it's own but just imagine if Duncanville introduced this art!

How will your project promote tourism or economic development within Duncanville?

Ft. Worth has a three day event every year, Dallas as well and Frisco is coming up but they don't have one artist that when you look at their art, you immediately identify the art with the artist. Like Picaso, a Rembranbt, Basquiat or Matisse or Ju-K by my cuts, style, medium and boldness within the realm of wall sculptured art. My art identifies me and my art comes out of Duncanville, just for the record.

List the individuals and organizations involved in planning or executing the project.

Ron Thompson
The Duncanville Arts Commission
Tim Maiden
The Old Rail Station/ The Junction

Briefly describe your marketing plan.

Instagram
Facebook
TikTok
The Dallas Morning News
Flyers/ Word of Mouth

How will you evaluate the success and impact of your project?

A combination of attendance/sales and being SMART
Specific- clearly define what needs to be achieved
Measurable - tracking data
Achievable - realistic reachable resources
Relevant - aligned objectives/long term vision
Time-bound - governed by deadlines and milestones

Applicants are encouraged to submit a 30-second video introducing their project. This video will be shown to the Arts Commission during their review process and to the City Council before they make their final decision. Please consider uploading your video here are sending it to arts@duncanvilletx.gov.

FLV 20260615_143647.flv

Section 6: Budget

Total Project Budget $3000

Amount requested from the Duncanville Arts Commission/City Council $3000

Matching Funds (cash/in-kind) $200

Please attach a detailed budget

PDF Ju-K_Art_in_Duncanville_Detail_Budge....pdf

Section 7: Required Documents

Document Checklist

- Completed application form. *required
- Narrative responses (Section 5) *required
- Detailed project budget (Section 6) *required
- Proof of Duncanville residency or business operation. *required
- City of Duncanville Vendor Packet (below) *required
- IRS 501(c)(3) determination letter (if applicable)
- Property owner support letter (*required for Public Art Grant)
- Portfolio or artistic samples (*required for individual artists)

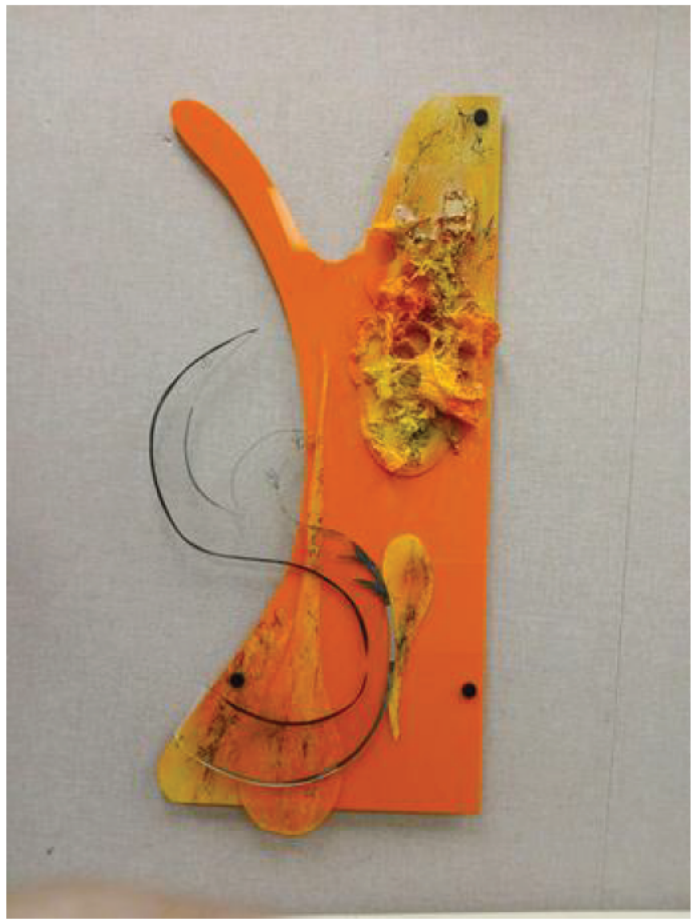
Upload required documents











Scanned_from_a_Lexmark_Multifuncti....pdf

Section 8: Acknowledgements

By signing below, I affirm that all information provided is accurate and complete.

Signature



Name Jesus Cancel

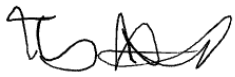
Property Owner Authorization (Required for Public Art Installations on Private Property)

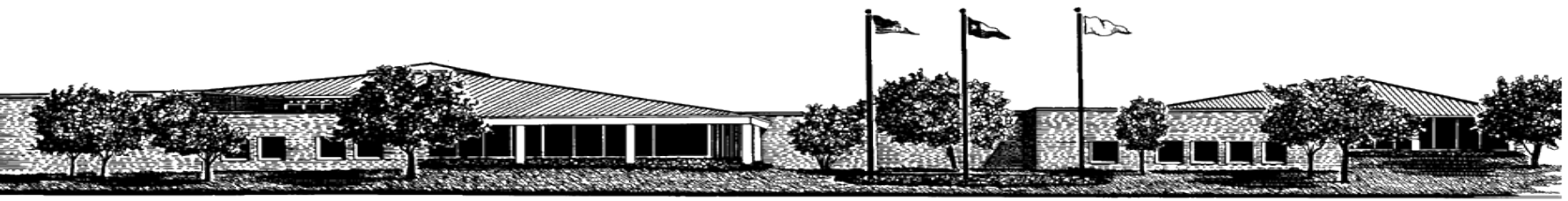
I, the undersigned property owner or authorized representative, grant permission for the proposed public art installation to be placed at the property listed below. I understand that this project is part of the Duncanville Arts Commission grant program and agree to allow public access for viewing and participation as described in the applicant's proposal.

Property Owner Name Tim Maiden

Property Address 202 W. Center St
Duncanville , Texas , 75116

Property Owner Signature





ARTS COMMISSION GRANT RECOMMENDATIONS

AUGUST 18, 2026

ALEX HAMBY, COMMUNICATIONS AND MARKETING ADMINISTRATOR

City of Duncanville

Duncanville
City of Champions

To lead with integrity, foster inclusive civic engagement, and deliver measurable outcomes that strengthen community trust, elevate quality of life, and secure Duncanville's future as a City of Champions.

ART GRANTS TIMELINES



- Applications Accepted June 1 – 30
- The Arts Commission Reviewed and Voted on Recommendations During their July 28 Regular Meeting
- 4 Applications Received and Reviewed

City of Duncanville

Duncanville
City of Champions

ARTS & BUSINESS MIXER

- Arts Commission
- Single Project Support Grant
- Networking mixer promoting at a minimum 9 Duncanville businesses and anticipate participation of approximately 20-30 Duncanville artists showcasing their work. There will be a variety of visual, musical, dancing and culinary artist.
- Requested: $4,000
- Commission Recommend: $4,000

City of Duncanville

Duncanville
City of Champions

KIDSVENTURE OUTDOOR MURAL

- KidsVenture Indoor Park
- Single Project Support Grant
- KidsVenture Indoor Action Park serves as a vital, vibrant hangout for young families in Duncanville, offering a safe, engaging, and inclusive space where local parents and children can connect and build community. To further elevate this welcoming atmosphere, we are commissioning a vibrant outdoor mural on our property. Designed to serve as a beautiful visual gateway, this public artwork will celebrate the spirit of our neighborhood and warmly welcome visitors and residents alike to the City of Duncanville. By transforming our exterior into a colorful landmark, this project will enhance local civic pride, support community beautification efforts, and create an inspiring first impression for everyone entering our city.
- Requested: $120,000
- Commission Recommend: $3,000

MIND YO BUSINESS

- Cheryl Clark
- Single Project Support Grant
- Mind Yo Business is a contemporary stage production that uses humor and heartfelt storytelling to explore the dynamics of a close-knit family who gather weekly for dinner. As they grapple with topics like infertility, relationships, and personal expectations, the play examines how family involvement—though often well-meaning—can complicate deeply personal journeys. The production invites audiences to reflect on boundaries, empathy, and self-reflection, offering a relatable and culturally resonant narrative.
- Requested: $3,000
- Commission Recommend: $3,000

MIND YO BUSINESS

- Jesus Cancel
- Public Art Grant
- The introduction of reverse painting and plexiglass art that is totally new to the art world will draw people to Duncanville. In art the door is always open for something new.
- Requested: $3,000
- Commission Recommend: $0

BUDGET

- Requested: $130,000
- Available Budget: $36,617
- Arts Commission Recommends: $10,000
- After Encumber: $26,617

- FY2025-2026 Grant Cycles **Complete**

City of Duncanville

Duncanville
City of Champions

THANK YOU

Any questions? Discussion.

City of Duncanville

Duncanville
City of Champions

STAFF REPORT

MEETING: City Council - August 18, 2026

TITLE:
Receive the Financial Report as of June 30, 2026.

Vision Statement:
"Duncanville, a City of Champions, is a safe, vibrant, diverse community committed to excellence in education, business, and good governance."

Pillar:
Cultivate Community Trust:

- **Foster transparency, two-way communication, and active public participation.**

STAFF RESPONSIBLE:
Jennifer Otey

BACKGROUND/HISTORY:
Highlights of the third quarter as of June 30, 2026. Across all funds, total revenue collected was $75.9 million. This equates to 70.3% of the budget. Total expenditures to date were $67.7 million, which equates to 53.9% of the budget. The benchmark for 9 months into the fiscal year is 75%.

The City receives the bulk of property tax revenue in the months of December–February. Total tax received through June is $23.7 million, which is 98.8% of the tax budget. Sales tax revenue received to date through March is $6 Million. This amount is for seven months of collections through April, since payments are 2 months behind. Sales tax to date is 0.32% more than during the same time period last year. HdL Companies forecasts stagnant, flat growth for Construction and Manufacturing and small growth in General Retail of 0.5% over the next 2 quarters. With the uncertainty regarding the price of gas and like expenditures, consumer spending has shifted to necessities and store-brand alternatives. The retail category makes up nearly 50% of sales tax earned in the City. The City budgeted conservatively for sales tax growth and, therefore, actual sales tax payments are trending in line with the budget.

The quarterly report can be viewed through the OpenGov portal by clicking the link below.

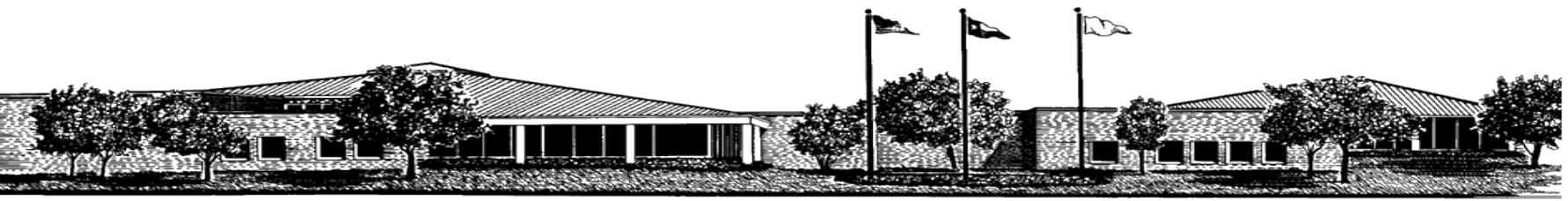
Quarterly Report as of June 30, 2026

POLICY EXPLANATION:
The financial report is provided on a quarterly basis. Internally, the finance department has a goal to have all entries in by the 20th day of the following month. Due to the timing of reviewing content and posting the agenda, it is not feasible to have the report ready by the first meeting of the following month. Therefore, the report is provided at the second meeting of the month.

FUNDING SOURCE:
NA

ACTION ALTERNATIVES:
There is no action to be taken for this item.

ATTACHMENTS:
26 06.30 Quarterly Financial Report



FINANCE REPORT AS OF JUNE 30, 2026

JENNIFER OTEY, ASSISTANT FISCAL SERVICES DIRECTOR

AUGUST 18, 2026

City of Duncanville

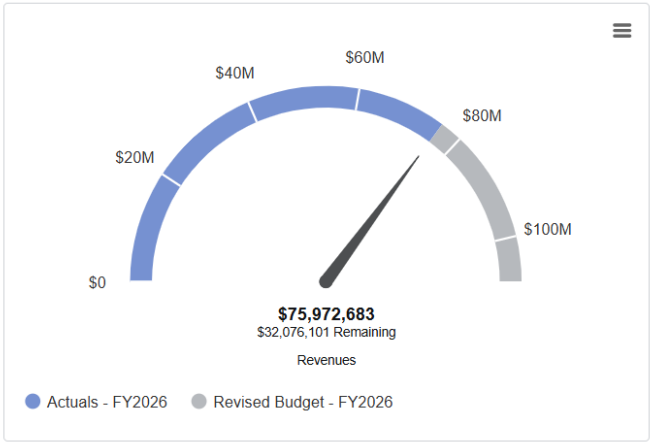
Duncanville
City of Champions

To lead with integrity, foster inclusive civic engagement, and deliver measurable outcomes that strengthen community trust, elevate quality of life, and secure Duncanville's future as a City of Champions.

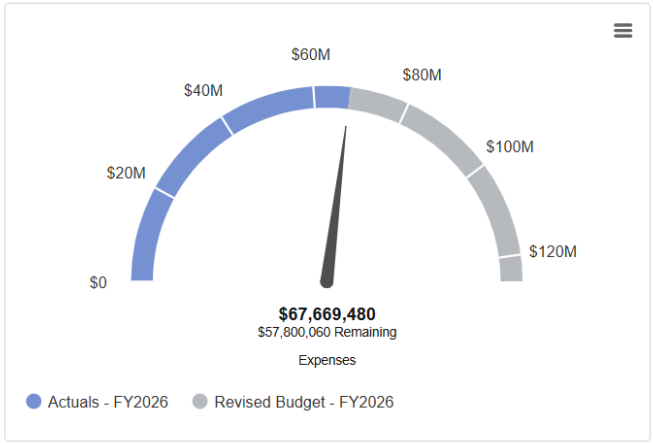
FY 2026 – QUARTERLY FINANCIAL REPORT

- Third quarter: October – June 30
- Benchmark / Target = 75%
- OpenGov report

ALL FUNDS



Data Updated: Jul 29, 2026, 4:41 AM



Data Updated: Jul 29, 2026, 4:41 AM

City of Duncanville

Duncanville
City of Champions

STAFF REPORT

MEETING: City Council - August 18, 2026

TITLE:
Staff briefing on the Purchase and Assignment Agreement for the DCEDC's ownership interest in Main Station, Ltd.

Vision Statement:
“Duncanville, a City of Champions, is a safe, vibrant, diverse community committed to excellence in education, business, and good governance.”

Pillar:
Resilient Community and Economic Development

STAFF RESPONSIBLE:
Marlon Goff

BACKGROUND/HISTORY:
A. Project Origins and Development Context

Main Station Duncanville, Ltd. was organized as a Texas limited partnership pursuant to the Agreement of Limited Partnership dated April 25, 2003. The entity was created as part of the development plan for Main Station Railroad Flats — a two-story mixed-use building containing approximately 22,000 square feet of office, retail, restaurant, and residential loft space, situated on Lot 1, Block A of Main Station Addition in the City of Duncanville, Dallas County, Texas (Volume 2003018, Page 00039, Dallas County Map Records).

The General Partner of the Partnership is MARA Inc., a Texas corporation, with Monte Anderson serving as President. The Duncanville Community and Economic Development Corporation (DCEDC), a Texas non-profit corporation, entered the partnership as a Limited Partner — reflecting DCEDC's statutory authority under Chapter 505 of the Texas Local Government Code to invest in projects that generate economic activity and tax revenue within the City.

The economic motive for public participation was a fundamental market gap. South Main Street commercial rents at the time of development were approximately $6.00 per

square foot annually, while the project's proforma required rents of $14.00–$16.00 per square foot to justify the cost of new construction. No private developers or investors were identified or positioned to bridge that gap without public incentives. The DCEDC's equity helped make the project financially feasible.

Per Schedule A of the Partnership Agreement, the DCEDC committed a total capital contribution of $805,093.00 in exchange for a 32% limited partnership interest — an interest that, per Section 6.2A of the Agreement, may not be reduced without DCEDC's expressed consent. The Anderson General Partner Group (MARA Inc. as General Partner, plus Monte and Rosa Anderson as limited partners) held a combined 68% interest, with Monte and Rosa Anderson's 67% limited partner share structured to allow partial transfer to incoming investors under controlled conditions (Section 5.2C).

The DCEDC's $805,093 contribution was structured as five allotments under Section 6.1B of the Partnership Agreement, as follows:

Investment Component	Amount	Source / Notes
DCEDC Total Capital Contribution	$805,093	Schedule A, LP Agreement (Apr. 25, 2003): land ($125K stipulated value), professional fees ($85,500), interior finish ($215K), periodic cash ($295,317), prepaid interest ($84,276)
— Land Contribution (stipulated value)	$125,000	DCEDC conveyed land to Partnership via Special Warranty Deed; appraised at $182K, stipulated at $125K
— Professional Fee Reimbursements	$85,500	Arch./engineering/permit/legal/appraisal fees paid prior to execution
— Interior Finish Contribution	$215,000	Retail/restaurant interior finish; drawn after Construction Loan exhausted
— Periodic Cash Contributions (construction)	$295,317	16.4% of each approved draw request after $200K Non-Bank Loan funded
— Prepaid Interest Contribution	$84,276	Applied to prepaid interest on Construction Loan at closing (§6.1B.3b)
DCEDC Ownership Interest	**32%**	Schedule A, LP Agreement; interest may not be reduced without DCEDC consent
Total Project Cost	~$3,000,000	Approximately $2M construction loan + DCEDC contributions + costs
Construction Loan — Original (Bank of DeSoto)	$1,500,000	Secured bank loan; Non-Bank Loan (Options RE Investments) up to $500K, unsecured.
Refinancing (Texas Brand Bank, 2016)	$1,500,000	Resolution No. 2016-12065B, City Council (Dec. 6, 2016); 60-month term; MARA Inc. as GP, DCEDC as LP signed Certification & Authorization

Proposed Buyout — Anderson's Calculation (Aug. 2025)	$670,098	32% × $2,094,056 net value (sale at $4,335,000 less closing costs, deposits, Harmony Bank loans, Options RE loan + interest)
Partnership Final Buyout Offer (Dec. 2025)	**$695,000**	The buyout figure is acknowledged by Anderson as exceeding the calculated value, reviewed by DCEDC Board President Harvey and ACM Rauscher

The Partnership Agreement established a term running through December 31, 2032, unless sooner terminated (Section 2.3). Section 15.14 of the Agreement further provides a buy-sell mechanism available to either the General Partner Group or DCEDC after the tenth anniversary of the certificate of occupancy — a provision that has been available to both parties for well over a decade.

Appraised Value History and Tax Generation

At project completion, the property was appraised at approximately $1,800,000 by the Dallas Central Appraisal District — below total project cost, consistent with the above-market rent subsidy baked into the development model. Since the 2004 tax year, the property has carried a certified taxable value on the DCAD rolls each year. The full year-by-year taxable value history for 2004–2025 is set forth in the attachments to this report, along with estimated ad valorem tax generated for each taxing jurisdiction (City of Duncanville, Duncanville ISD, Dallas County, Dallas County Community College District, and Parkland Hospital District).

The property's valuation history reflects the full commercial real estate cycle: values peaked near $2,600,000 in 2007, declined through the 2008–2015 post-recession period to a trough of $1,670,310, and subsequently recovered to $2,590,000 as of the 2024 and 2025 tax years. Over the 22-year period of ownership, Main Station has been an annual contributor to the local tax base and overall valuation of the City. This includes **estimated property tax** and **retail sales tax revenue** of more than **$1 million** collected and remitted **to the City of Duncanville**.

Valuation Analysis and Buyout Negotiations (2025)

In mid-2025, Options Real Estate initiated buyout discussions with DCEDC staff, referencing a commercial investment property analysis prepared by Marcus & Millichap — one of the leading national investment property brokerage firms. On August 13, 2025, Monte Anderson communicated his proposal to then-Economic Development Director Victor Barrera, proposing a sale price of $4,335,000, described as the midpoint between Marcus & Millichap's high and low valuation determinations for the property under an NNN (triple-net) investment analysis.

From that proposed sale price, Anderson deducted the following obligations to arrive at net distributable value:

Closing Costs (7%)	$303,450
Security Deposits	$19,900
Harmony Bank — Loan #1	$1,136,000
Harmony Bank — Loan #2	$127,000
Original Options RE Loan	$371,000
Accrued Interest on Options RE Loan	$283,594
Net Value to Partners	$2,094,056
DCEDC's 32% Share of Partnership Net Value	$670,097.92
Negotiated Purchase of DCEDC Ownership Share	**$695,000**

The Draft Purchase and Assignment Agreement for the DCEDC's ownership interest in Main Station, Ltd. has not been distributed to the partners by the attorney at the time of this staff report and agenda packet submission. However, the terms included in the report are representative of the good faith negotiations between the Limited Partners and authorized representatives. This item will appear before the DCEDC Board at the August 24, 2026, Regular Meeting for consideration and formal action.

POLICY EXPLANATION:

Main Station Duncanville, Ltd. was organized as a Texas limited partnership pursuant to the Agreement of Limited Partnership dated April 25, 2003. The DCEDC Board has been briefed on the proposed action and has been represented by the Board President and City Attorney during negotiations and meetings with the General Partners.

FUNDING SOURCE:

ORG and Object Number

N/A

Available Budget	**Purchase Amount**	**After Encumber**
N/A	N/A	N/A

ACTION ALTERNATIVES:

1. Approve.
2. Disapprove
3. Other actions as directed by Council.

ATTACHMENTS:

04.25.2003 Agreement of Limited Partnership, Amended and Restated Assignment of Interest in Limited Partnership, Property Tax Revenue Summary, Sales Tax Revenue Estimate

AGREEMENT OF LIMITED PARTNERSHIP

FOR

MAIN STATION DUNCANVILLE, LTD.

MARA Inc., a Texas corporation (the "Company"), as General Partner, and the Persons identified as limited partners on Schedule A attached hereto, as Limited Partners, hereby form and establish a limited partnership (the "Partnership") pursuant to the Revised Limited Partnership Act of the State of Texas by entering into this Agreement of Limited Partnership for Main Station Duncanville, Ltd. dated as of April 25, 2003.

NOW, THEREFORE, the Company, as General Partner, and the persons identified as limited partners on Schedule A attached hereto, as Limited Partners, do hereby adopt, ratify and approve this Agreement of Limited Partnership for Main Station Duncanville, Ltd.

ARTICLE I.

DEFINITIONS

Act. The Texas Revised Limited Partnership Act, Article 6132a-1, Texas Revised Civil Statutes, as from time to time amended.

Affiliate. Any Person that directly (or indirectly through one or more intermediaries) controls, is controlled by, or is under common control with, another Person.

Agreement. This Agreement, including Schedule A and Schedule B, as originally executed and as subsequently amended from time to time.

Approval of the Partners or *Approved by the Partners.* Partners holding eighty percent (80%) of the total Interests in the Partnership.

Approved Budget. A pro forma line item budget of all costs and expenses, including debt service, anticipated to be required to operate and maintain the assets of the Partnership for the period of time covered by the budget, that has been Approved by the Partners.

Approved Plans. The plans and specifications for the Project prepared by McCarthy Hammers Architects, Job No. 02018, dated November 25, 2002.

Assignment of Partnership Interests. That certain Assignment, Pledge and Security Agreement to Secure Performance dated of even date herewith, executed by the Company and Monte and Rosa Anderson for the benefit of DCEDC.

Bankruptcy. Bankruptcy under the federal Bankruptcy Code or insolvency under any state insolvency act.

Business Day. Any day other than a Saturday, Sunday and those legal public holidays specified in 5 U.S.C. § 6103(a), as amended from time to time.

Capital Account. The capital account maintained for each Partner pursuant to Section 6.4 of this Agreement.

Capital Contribution. The total amount of cash or the fair market value of property contributed to the Partnership by all the Partners or any one Partner, as the case may be.

Certificate. The Certificate of Limited Partnership for the Partnership, filed with the Secretary of State of Texas as required by the Act and as provided by this Agreement.

Code. The Internal Revenue Code of 1986, as it has been and may be amended from time to time.

Company. MARA Inc., a Texas corporation.

Construction Loan. The loans to be made to the Partnership not to exceed the aggregate amount of $2,000,000.00, with the proceeds of the Construction Loan to be used to pay for the construction of the Project on the Land in accordance with the Approved Plans. The Construction Loan will be comprised of two loans: (i) a loan in an amount no less than $1,500,000.00 from the Bank of DeSoto (the "Bank Loan"); and (ii) a loan in an amount not to exceed $500,000.00 from Options Real Estate Investments, Inc. (the "Non-Bank Loan"). The Bank Loan will be secured by, among other things, a lien against the Real Property. The Non-Bank Loan will be unsecured.

DCEDC. Duncanville Community and Economic Development Corporation, a Texas non-profit corporation.

General Partner. The Company or any successor General Partner admitted pursuant to Article XI of this Agreement.

General Partner Group. The General Partner, any and all of its Affiliates that own Interests in the Partnership, any transferees who obtain Interests in the Partnership, pursuant to

Section 5.2C of this Agreement, from Monte and Rosa Anderson, and the heirs, successors, and assigns of all of the foregoing Persons.

Interest. All rights and interests of a Partner under this Agreement and the Act, including (i) the right of a Partner, expressed as a percentage on Schedule A, to receive distributions of revenues, allocations of income and loss and distributions of liquidation proceeds under this Agreement, and (ii) all voting rights or rights to consent set forth in this Agreement.

Land. The land situated in the City of Duncanville, Dallas County, Texas, being more particularly described on Schedule B attached hereto.

Limited Partners. The Persons identified as limited partners on Schedule A and any Persons subsequently admitted as Limited Partners under the terms of this Agreement.

Notification. A writing containing any information required by this Agreement communicated to any Person, which may be personally delivered, sent by registered or certified mail, postage prepaid, return receipt requested, or sent by facsimile transmission if promptly confirmed by registered or certified mail, to such Person, at the last known address of such Person on the Partnership records. Any such Notification shall deemed to be given (i) when delivered, in the case of personal delivery, (ii) upon the earlier of receipt or three (3) business days after the date on which it is deposited in a regularly maintained receptacle for the deposit of United States mail, addressed and sent as aforesaid, in the case of registered or certified mail, and (iii) upon receipt by the addressee, in the case of facsimile transmission. Any communication containing information sent to any Person other than as required by the foregoing sentences, but which is actually received by such Person, shall constitute Notification as of the date of such receipt for all purposes of this Agreement.

Operating Expenses. The costs, expenses, or charges incurred by the Partnership in holding, owning and operating the Partnership Property, including without limitation, taxes, interest and third party debt amortization, insurance premiums, repairs, maintenance, management fees, advertising expenses, professional fees, wages, utility costs, and all other expenses reasonably incurred in the day-to-day operation of the Partnership's business.

Partners. At any time, the Persons who then own Interests in the Partnership. The initial Partners are listed on Schedule A.

Partnership. Main Station Duncanville, Ltd., the limited partnership created and existing pursuant hereto.

Partnership Property or Properties. All interests, properties, and rights of any type owned by the Partnership, whether owned by the Partnership at the date of its formation or thereafter acquired, including, without limitation, the Real Property.

Person. Any natural person, limited liability company, general partnership, limited partnership, corporation, joint venture, trust, business trust, cooperative, or association.

Project. A two-story building containing approximately 22,000 square feet of office, retail, and residential space, with retail space and lofts or apartments for lease on the second floor and office and retail space for lease on the first floor, together with all parking areas and utilities serving such building.

Real Property. The Land; all buildings, structures and other improvements from time to time constructed, installed, or situated on the Land, including, without limitation, the Project, and any renovations thereto or replacements thereof; and all right, title, and interest of the Partnership in and to adjacent alleys, streets, easements, or rights of way serving or benefitting such property.

Schedule A. The schedule attached hereto and labeled Schedule A.

Schedule B. The schedule attached hereto and labeled Schedule B.

Transfer. Any change in the record ownership of an Interest, whether made voluntarily or involuntarily by operation of law, including, but not limited to, the following:

1. a sale or gift to any Person;

2. a transfer to the personal representative of the estate of a Partner upon such Partner's death, and any subsequent transfer from such personal representative to the heirs or devisees of the deceased Partner under his will or by the laws of descent and distribution;

3. a transfer to a judicially appointed personal representative as a result of the adjudication by a court of competent jurisdiction that the transferor Partner is mentally incompetent to manage his person or property;

4. a transfer to the transferor Partner's spouse or former spouse, or heirs of such spouse or former spouse, in connection with a division of their community or other property upon the death of the transferor Partner, divorce or the death of such spouse;

5. a general assignment for the benefit of creditors, or any assignment to a creditor resulting from the creditor's foreclosure upon or execution against such Interest;

6. the filing by the transferor Partner of a voluntary Bankruptcy petition; or

7. the entry of a judicial order granting the relief requested by the petitioner in an involuntary Bankruptcy proceeding filed against the transferor Partner.

ARTICLE II.

THE PARTNERSHIP

Section 2.1 *Formation of Partnership*. The Partners hereby agree to establish a limited partnership, effective as of the date hereof, on the terms of this Agreement. The General Partner filed a Certificate of Limited Partnership on October 30, 2002. This Agreement is intended to amend and restate any prior oral or written partnership agreement for the Partnership and is to be effective as of the date hereof. The Partners acknowledge that DCEDC was not a party to such prior partnership agreement and DCEDC was not a Partner prior to the date hereof. The General Partner shall additionally comply with all other legal requirements for the formation and operation of the Partnership. Except as herein stated, the Act shall govern the rights and liabilities of the Partners.

Section 2.2 *Qualification in Other Jurisdictions*. Prior to the Partnership conducting business in any jurisdiction other than Texas, the General Partner shall cause the Partnership to comply, to the extent those matters are reasonably within the control of the General Partner, with all requirements necessary to qualify the Partnership as a foreign limited partnership in that jurisdiction. At the request of the General Partner, each Partner shall execute, acknowledge, swear to, and deliver all certificates and other instruments conforming with this Agreement that are necessary or appropriate to qualify, continue and terminate the Partnership as a foreign limited partnership in all such jurisdictions in which the Partnership may conduct business.

Section 2.3 *Term*. Pursuant to the Act, the term of the Partnership commenced upon the date of the filing of the Certificate. The Partnership shall exist until December 31, 2032, unless sooner terminated in accordance with this Agreement.

Section 2.4 *Merger*. The Partnership may merge with or into another limited partnership or other entity, or enter into an agreement to do so, subject to the requirements of Section 10.2.

Section 2.5 *References to Limited Partners*. The General Partner shall make every effort to ensure that the parties who deal with the Partnership do not believe that any of the

Limited Partners is a general partner. All references to the Limited Partners' involvement in the Partnership's business shall clearly identify that status.

ARTICLE III.

NAME; PLACE OF BUSINESS; REGISTERED OFFICE AND AGENT

Section 3.1 *Name*. The name of the Partnership is "Main Station Duncanville, Ltd." The Real Property shall be held in the name of the Partnership.

Section 3.2 *Assumed Names*. The General Partner shall cause the Partnership to do business under the name "Main Station Duncanville, Ltd." and shall not do business under any assumed names without Approval of the Partners. In connection with the use of any such assumed names, the General Partner shall cause the Partnership to comply with the Texas Assumed Business or Professional Name Act, as amended.

Section 3.3 *Registered Office; Registered Agent; Principal Office in the United States; Other Offices*. The registered office of the Partnership required by the Act to be maintained in the State of Texas shall be 1801 North Hampton Road, Suite 400, DeSoto, Texas 75115, or such other office (which need not be a place of business of the Partnership) as the General Partner may designate from time to time by notice to the Partners and in the manner provided by law. The registered agent of the Partnership in the State of Texas shall be Monte Anderson, or such other Person or Persons as the General Partner may designate from time to time in the manner provided by law. The principal office of the Partnership in the United States shall be 1801 North Hampton Road, Suite 400, DeSoto, Texas 75115, or such other place within the State of Texas as the General Partner may designate from time to time, and the Partnership shall maintain records there as required by Section 1.07 of the Act and shall keep the street address of such principal office at the registered office of the Partnership in the State of Texas. The Partnership may have such other offices as the General Partner may designate from time to time.

ARTICLE IV.

PURPOSE

The purpose of the Partnership is (a) to acquire the Land, (b) to improve the Land by construction of the Project in accordance with the Approved Plans, (c) to own, develop, lease, manage, and sell the Real Property, (d) to borrow money for the construction and development of the Project, and (e) to take any other action that may be incidental, proper, advisable, or convenient to accomplish the foregoing purposes and that is not forbidden by the law of the jurisdiction in which the Real Property is located. Except for the foregoing, the Partnership shall not engage in any other business or activity without the Approval of the Partners.

ARTICLE V.

PARTNERS

Section 5.1 *Initial Partners.* The names and addresses of the initial Partners of the Partnership are as set forth on Schedule A of this Agreement. At the date hereof, there are no other Partners of the Partnership, and no other Person has any right to take part in the ownership or management of the Partnership.

Section 5.2 *Admission of Additional Partners.* Additional Partners of the Partnership may be admitted as follows:

A. If the proposed additional Partner desires to purchase his Interest from the Partnership, such purchase may be made and the admission of the additional Partner shall become effective only if the identity of the proposed additional Partner and the amount of the Capital Contribution to be made by him in exchange for his Interest is first unanimously approved by the existing Partners.

B. If the proposed additional Partner desires to acquire his Interest in a Transfer from an existing Partner, such Transfer may be made and the admission of the additional Partner shall become effective only in accordance with Sections 11.2, 11.3, and 11.4 hereof; provided, however, that a Transfer of an Interest pursuant to or in connection with the Assignment of Partnership Interests shall be exempt from such requirements to the extent provided in Section 11.10 hereof. All other attempted Transfers of any interest or right, or any part thereof, in or in respect of the Partnership, shall be null and void *ab initio*.

C. The Partners acknowledge the intent of Monte and Rosa Anderson to sell part of their sixty-seven percent (67%) Interest as Limited Partners in the Partnership to one or more existing Partners or to one or more new Partners. Notwithstanding Sections 5.2A and 5.2B above, the Partners hereby consent to any Transfer or Transfers by Monte and Rosa Anderson of their Interests as Limited Partners so long as Monte and Rosa Anderson do not convey, in the aggregate, more than eighteen percent (18%) of the total outstanding Interests in the Partnership. Such Interests of Monte and Rosa Anderson shall be transferred by execution by the transferee of an agreement adopting this Agreement, and assuming the rights, powers, obligations, restrictions, and liabilities of Monte and Rosa Anderson as a Limited Partner under this Agreement with respect to the Interest transferred and upon execution of such agreement the transferee shall be deemed admitted as a Limited Partner without the requirement of any action by the other Partners; provided, however, that the transferee expressly will not assume the rights, powers, obligations, restrictions, and liabilities of MARA Inc., as General Partner, in connection with the acquisition of such Interests.

ARTICLE VI.

CAPITAL CONTRIBUTIONS AND INTERESTS

Section 6.1 Contributions.

A. *Capital Contributions.* Each Partner shall contribute to the capital of the Partnership the amount set forth as such Partner's Capital Contribution on Schedule A. Such Capital Contribution shall be in the form of cash, real property interests, or services rendered to the Partnership, as specified in this Article VI and on Schedule A.

B. *DCEDC Contributions.* DCEDC shall, simultaneously with the execution of this Agreement, execute a special warranty deed conveying the Land to the Partnership (the "Land Contribution"). DCEDC has obtained an appraisal indicating that the value of the Land is $182,000.00, and DCEDC purchased the Land from the City of Duncanville for a purchase price of $182,000.00. Notwithstanding the foregoing, the Partners hereby stipulate that the agreed value of the Land Contribution for the purpose of this Agreement is $125,000.00. In addition, DCEDC will, as the remaining portion of its Capital Contribution, provide certain professional fee reimbursements, the interior finish contribution and cash contributions, more particularly described as follows:

1. *Professional Fee Reimbursements.* Prior to the date hereof, DCEDC has paid architect fees, engineering fees, permit fees, appraisal fees, legal fees, and fees to Options Real Estate Investments, Inc. incurred by the Partnership in connection with the completion of the Project in the aggregate amount of $85,500.00. DCEDC will not be required to pay any additional amounts for professional fees incurred by the Partnership as part of its capital contribution.

2. *Interior Finish Contribution.* DCEDC shall contribute $215,000.00 toward the cost of the interior finish for retail and restaurant space in the Project; provided, however, such contribution shall not be paid until the Partnership has exhausted all funding under the Construction Loan. It is expressly understood and agreed that the General Partner may use DCEDC's finish contribution for any retail or restaurant space without restrictions as to any particular tenant. At such time as the Partnership has exhausted all funding under the Construction Loan, the General Partner shall submit to DCEDC a draw request, together with (a) invoices of the general contractor aggregating at least the amount requested for costs which were not paid from draws under the Construction Loan or previous payments by DCEDC, and (b) final lien waivers and/or releases of liens from the general contractor and all subcontractors associated with the interior finish work (collectively, the "Construction Documentation") to evidence that all interior finish costs for such tenant's space have been paid through the date of such draw request. The interior finish contribution shall be paid by DCEDC to the Partnership

no later than (10) days following receipt of the Construction Documentation. DCEDC shall not be required to pay more than $215,000.00 in the aggregate for interior finish costs incurred by the Partnership. If, upon completion of the interior finish for all the restaurant and retail space for the Project, DCEDC has contributed less than $215,000.00 for interior finish costs, then DCEDC shall contribute to the Partnership the difference between (i) $215,000.00, and (ii) the amount previously contributed to the Partnership for interior finish costs, for use by the Partnership for other Operating Expenses.

3. *Additional Cash Contributions.*

(a) *Periodic Cash Contributions.* In addition to the interior finish contribution described in Section 6.1B.2 above, DCEDC shall contribute to the Partnership an additional $295,317.00, in the aggregate, during construction of the Project, at the times and in the amounts described below. The first $200,000.00 required for construction of the Project shall be funded by proceeds of the Non-Bank Loan, and DCEDC shall have no obligation to fund any portion of such construction costs. The General Partner shall deliver to DCEDC copies of draw requests to the lender on the Non-Bank Loan, evidencing the funding of at least $200,000.00 under the Non-Bank Loan. After at least $200,000.00 of construction costs have been funded under the Non-Bank Loan, DCEDC shall pay to the Partnership 16.4% of the amount of each draw request thereafter submitted by the Partnership to, and approved for funding by, the Lenders, to be paid as hereafter described. The General Partner shall deliver to DCEDC copies of such draw request submitted to, and approved for funding by, the lenders under the Bank Loan and the Non-Bank Loan (collectively the "Lenders"), together with all supporting documentation for such request required by Lenders (collectively, "the Draw Request") including, without limitation, all Construction Documentation for the work described in the Draw Request. No later than ten (10) days following DCEDC's receipt of such Draw Request and Construction Documentation, DCEDC shall pay to the Partnership 16.4% of the total amount submitted by the Partnership to, and approved for funding by, the Lenders, as set forth on the Draw Request. DCEDC's cash contribution pursuant to this paragraph shall in no event exceed $295,317.00. If, at such time as the entire loan amount under the Construction Loan has been funded, DCEDC has contributed less than $295,317.00 pursuant to this paragraph, then DCEDC shall contribute to the Partnership the difference between (i) $295,317.00, and (ii) the amount previously contributed to the Partnership pursuant to this paragraph, for use by the Partnership for other Operating Expenses.

(b) *Prepaid Interest Contribution.* Simultaneously with the closing of the Construction Loan, DCEDC shall make a cash contribution to the Partnership equal to $84,276.00, which will be applied by the Partnership to the payment of prepaid interest on the Construction Loan. If the prepaid interest required under the Construction Loan exceeds $84,276.00, the excess amount payable to Lender at closing shall be paid by the Partnership. If the prepaid interest required to be paid on the Construction Loan is less than $84,276.00, the

excess of (i) the amount contributed by DCEDC for prepaid interest, over (ii) the actual amount of prepaid interest, shall be used by the Partnership for other Operating Expenses.

4. *Basement.* All of the Partners acknowledge that they have been advised of the existence of an underground basement on the Land. The Partners do not anticipate that the existence of the basement will impede the construction of the Project in accordance with the Approved Plans or add any additional, unforeseen costs. In the event the Partnership reasonably believes, at any time during construction of the Project, that additional excavation or fill work is necessary as a direct result of the existence of the basement, DCEDC shall reimburse the Partnership for the reasonable cost of such work to the extent Partnership funds or loan proceeds from the Construction Loan are not available for such work.

By execution of this Agreement, the Partners hereby stipulate that the aggregate of the agreed value of DCEDC's Land Contribution, the professional fee reimbursements, the interior finish contribution, and the additional cash contributions is $805,093.00, which entitles DCEDC to the Percentage Interest set forth on Schedule A, regardless of the timing of the payment of such contributions.

C. *Construction Loan.* DCEDC's obligation to make the Land Contribution set forth in Section 6.1B above shall be conditioned upon the Company's ability to obtain the Construction Loan for the Project. The terms of the Construction Loan shall be subject to the Approval of the Partners. The Partners agree that DCEDC shall not be required to guarantee the Construction Loan. The satisfaction of this condition shall be evidenced by the closing and funding of the Construction Loan. If satisfaction of such condition does not occur on or before sixty (60) days following the date hereof, DCEDC may at any time thereafter elect to dissolve the Partnership by delivery of written notice to the Company. In the event of such election by DCEDC, the Partnership shall execute a special warranty deed conveying the Land back to DCEDC, and the Partners shall have no further obligations hereunder.

Section 6.2 Interests.

A. *Percentage Interests.* Upon making the Land Contribution by DCEDC, DCEDC shall own the respective percentage Interest set forth opposite its name on Schedule A. Upon the closing of the Construction Loan, Monte and Rosa Anderson shall own the respective percentage Interest set forth opposite their names on Schedule A. Upon making the Capital Contribution specified on Schedule A by the Company, the Company shall own the respective percentage Interest set forth opposite its name on Schedule A. The percentage Interest of each Partner may not be reduced without such Partner's consent.

B. *Certificates Representing Interests.* The Interests of the Partners may be evidenced by certificates issued by the Partnership, which, if issued, shall be in such form, and

incorporate such legends, recitals and provisions, as the General Partner shall deem necessary or advisable. If certificates are issued, the General Partner shall establish reasonable procedures for the delivery and re-issuance of certificates in connection with Transfers of Interests, split-ups or combinations of certificates, loss or destruction of certificates, and other eventualities. Among other matters, such procedures may set forth required fees, indemnifications, documentation, and signatures (including guarantees thereof) to be obtained from parties requesting re-issuance of certificates. Such procedures need not be incorporated into this Agreement, but a copy thereof shall be delivered to the Partners.

Section 6.3 No Further Capital Contributions.

A. No Partner shall be obligated to make any Capital Contribution other than that set forth opposite such Partner's name on Schedule A unless additional Capital Contributions are Approved by the Partners for some reasonable business purpose. Without the Approval of the Partners, the General Partner shall not permit or accept any Capital Contributions by any Partner beyond those specified on Schedule A. This provision of this Agreement may not be amended without the Approval of the Partners.

B. In the event that an additional Capital Contribution is Approved by the Partners for some reasonable business purpose as provided above, notice thereof will promptly be sent to all Partners. Within thirty (30) days of such notice (or such other time period as may be Approved by the Partners), each Partner will make its proportionate share of such Capital Contribution (based on its respective percentage Interest) to the Partnership in immediately available funds or in accordance with such other payment terms as may be specified in such notice. If any Partner fails to make such additional Capital Contribution, then such Partner's Interest shall be proportionately reduced to reflect the reduced percentage of the total Capital Contributions that such Partner's total Capital Contributions then represent. In addition, all amounts that would otherwise be distributed by the Partnership to the defaulting Partner will instead be distributed proportionately to the Partner(s) who increase their additional Capital Contributions to make up the shortfall caused by such default, until such time as such Partners have been repaid the full amount of such shortfall, plus interest at the rate of fifteen percent (15%) per annum (such shortfall, plus interest thereon, being collectively referred to as the "Preferred Yield") on such amount outstanding from time to time, until such Partners have been repaid in full.

Section 6.4 Capital Accounts. A capital account shall be established and maintained for each Partner. Each Partner's capital account (a) shall be increased by (i) the amount of money contributed by that Partner to the Partnership, (ii) the fair market value of any property contributed by that Partner to the Partnership (net of liabilities secured by the contributed property at the time of contribution that the Partnership is considered to assume or take subject to under Section 752 of the Code), and (iii) allocations to that member of Partnership income and

gain (or items thereof), including income and gain exempt from tax and income and gain described in Treas. Reg. § 1.704-1(b)(2)(iv)(g), but excluding income and gain described in Treas. Reg. § 1.704-1(b)(4)(i), and (b) shall be decreased by (i) the amount of money distributed to that Partner by the Partnership, (ii) the fair market value of any property distributed to that member by the Partnership (net of liabilities secured by the distributed property at the time of distribution that the member is considered to assume or take subject to under Section 752 of the Code), (iii) allocations to that Partner of expenditures of the Partnership described in Section 705(a)(2)(B) of the Code, and (iv) allocations of Partnership loss and deduction (or items thereof), including loss and deduction described in Treas. Reg. § 1.704-1(b)(2)(iv)(g), but excluding items described in clause (b)(iii) above and loss or deduction described in Treas. Reg. § 1.704-1(b)(4)(i) or § 1.704-1(b)(4)(iii). The Partners' capital accounts also shall be maintained and adjusted as permitted by the provisions of Treas. Reg. § 1.704-1(b)(2)(iv)(f) and as required by the other provisions of Treas. Reg. §§ 1.704-1(b)(2)(iv) and 1.704-1(b)(4), including adjustments to reflect the allocations to the Partners of depreciation, depletion, amortization, and gain or loss, as computed for book purposes rather than the allocation of the corresponding items as computed for tax purposes, as required by Treas. Reg. § 1.704-1(b)(2)(iv)(g). A Partner that has more than one Interest shall have a single capital account that reflects all its Interests, regardless of the class of Interests owned by that Partner and regardless of the time or manner in which those Interests were acquired. On the transfer of all or part of an Interest, the capital account of the transferor that is attributable to the transferred Interest or part thereof shall carryover to the transferee Partner in accordance with the provisions of Treas. Reg. § 1.704-1(b)(2)(iv)(l).

Section 6.5 Return of Capital Contributions. Except as otherwise provided herein or in the Act, no Partner shall have the right to withdraw, or receive any return of, his Capital Contribution.

Section 6.6 Interest. No interest shall be paid by the Partnership on Capital Contributions or on balances in Partners' Capital Accounts.

Section 6.7 Loans From Partners. Loans by a Partner to the Partnership ("Partner Loans") shall not be considered Capital Contributions. If any Partner shall make a Partner Loan to the Partnership, the making of such Partner Loan shall not result in any increase in the amount of the Capital Account of such Partner. Partner Loans shall be a debt of the Partnership to such Partner and shall be payable or collectible only out of the Partnership assets in accordance with the terms and conditions upon which such advances are made. The repayment of Partner Loans to the Partnership upon liquidation shall be subject to the order of priority set forth in Section 13.4 hereof.

ARTICLE VII.

ALLOCATIONS AND DISTRIBUTIONS

Section 7.1 Allocation of Income and Loss.

A. Except as may be required by Section 704(c) of the Code and Treas. Reg. § 1.704-1(b)(2)(iv)(f)(4), the income, gains, losses, deductions, and credits (or items thereof) of the Partnership shall be shared by the Partners in accordance with their respective percentage Interests; provided, however, that if an additional Capital Contribution is Approved by the Partners, and one or more Partners fail to make the additional Capital Contribution, the distributions of income shall be modified in accordance with Section 6.3. It is the intention of the Partners that allocations of income, gains, losses, deductions, and credits (or items thereof) pursuant to this Section 7.1 be in accordance with the Partner's Interests for tax purposes.

B. All items of income, gain, loss, deduction, and credit allocable to any Interest that may have been transferred shall be allocated between the transferor and the transferee based on the portion of the calendar year during which each was recognized as owning that Interest, without regard to the results of Partnership operations during any particular portion of that calendar year and without regard to whether cash distributions were made to the transferor or the transferee during that calendar year; provided, however, that this allocation must be made in accordance with a method permissible under Section 706 of the Code and the regulations thereunder.

Section 7.2 Determination of Income and Loss. At the end of each fiscal year of the Partnership, income, gain, loss, deduction, and credit (or items thereof) shall be determined for the accounting period then ending and shall be allocated to the Partners in accordance with Section 7.1.

Section 7.3 Cash Distributions. Commencing no later than the end of the Partnership's first fiscal quarter, the General Partner shall, at least quarterly, balance the Partnership's accounts and distribute to the Partners, in accordance with their respective Interests, the amount by which cash on hand exceeds the amount necessary to meet the current costs, expenses, and liabilities of the Partnership (including, without limitation, a reasonably adequate reserve for working capital and contingencies). The Partnership shall not make any distribution to the Partners if, immediately after giving effect to the distribution, all liabilities of the Partnership, other than liabilities to Partners with respect to their Interests and liabilities for which the recourse of creditors is limited to specified property of the Partnership, exceed the fair value of Partnership Property, except that the fair value of Partnership Property that is subject to a liability for which recourse of creditors is limited shall be included in the Partnership assets only to the extent that the fair value of that Partnership Property exceeds that liability.

Section 7.4 Distributions of Other Property. From time to time, the General Partner also may cause property of the Partnership other than cash to be distributed to the Partners, which distribution must be made in accordance with the Partners' respective Interests and may be made subject to existing liabilities and obligations. Immediately prior to such distribution, the capital accounts of the members shall be adjusted as provided in Treas. Reg. § 1.704-1(b)(2)(iv)(f).

ARTICLE VIII.

OWNERSHIP OF PARTNERSHIP PROPERTY

Partnership Property shall be deemed to be owned by the Partnership as an entity, and no Partner, individually or collectively, shall have any ownership interest in such Partnership Property or any portion thereof. All Partnership Property, both real and personal, presently owned or hereafter acquired by the Partnership, shall be held in the name of the Partnership.

ARTICLE IX.

FISCAL MATTERS; BOOKS AND RECORDS

Section 9.1 Bank Accounts; Investments. Capital Contributions, revenues and any other Partnership funds shall be deposited by the General Partner in a bank account established in the name of the Partnership. No other funds shall be deposited into Partnership bank accounts. Funds deposited in the Partnership's bank accounts may be withdrawn only to pay Partnership debts or obligations or to be distributed to the Partners pursuant to this Agreement.

Section 9.2 Records Required by Act; Right of Inspection.

A. *Records Required.* During the term of the Partnership and for a period of four (4) years thereafter, the General Partner, at the expense of the Partnership, shall maintain in the Partnership's principal office in the United States specified in Section 3.3 hereof all records required to be kept pursuant to the Act, including, without limitation, a current list of the names, addresses and Interests held by each of the Partners (including the dates on which each of the Partners became a Partner), copies of federal, state and local information or income tax returns for each of the Partnership's six (6) most recent tax years, copies of this Agreement and the Certificate, including all amendments or restatements of each, and correct and complete books and records of account of the Partnership.

B. *Right of Inspection.* On written request stating the purpose, a Partner or an assignee of a Partner's Interest (an "Eligible Person") may examine and copy in person or by the Eligible Person's representative, at any reasonable time, for any proper purpose, and at the Eligible Person's expense, records required to be maintained under the Act and such other information regarding the business, affairs, and financial condition of the Partnership as is just and reasonable for the Eligible Person to examine and copy. Upon written request by any Eligible Person made to the General Partner at the address of the Partnership's principal office in the United States specified in Section 3.3 hereof, the Partnership shall provide to the Eligible Person without charge true copies of (i) this Agreement and the Certificate and all amendments or restatements of each, and (ii) any of the tax returns of the Partnership described in Section 9.2A. above.

Section 9.3 Books and Records of Account. The General Partner, at the expense of the Partnership, shall maintain for the Partnership adequate books and records of account that shall

be maintained on the cash method of accounting and on a basis consistent with appropriate provisions of the Code, containing, among other entries, a Capital Account for each Partner.

Section 9.4 Tax Returns and Information. The Partners intend for the Partnership to be treated as a partnership for tax purposes. The General Partner shall prepare or cause to be prepared all federal, state and local income and other tax returns that the Partnership is required to file. Within the shorter of (i) such period as may be required by applicable law or regulation, or (ii) seventy-five (75) days after the end of each calendar year, the General Partner shall send or deliver to each Person who was a Partner at any time during such prior year such tax information as shall be reasonably necessary for the preparation by such Person of his federal income tax return and state income and other tax returns.

Section 9.5 Delivery of Financial Statements to Partners.

A. *Financial Statements.*

1. *Annual Partnership Statements.* As to each fiscal year of the Partnership, the General Partner shall send to each Partner a copy of (i) a balance sheet of the Partnership as of the end of the fiscal year, (ii) an income statement of the Partnership for such year, and (iii) a statement showing the revenues distributed by the Partnership to Partners in respect of such year. Such financial statements shall be delivered no later than ninety (90) days following the end of the fiscal year to which the statements apply. Unless a Partner requests in writing, prior to the end of the fiscal year to which the financial statements apply, that the financial statements be audited (in which case Section 9.6 below shall apply), such statements need not be audited.

2. *Quarterly Financial Statements of the Andersons.* No later than thirty (30) days following the end of each fiscal quarter, the General Partner shall make available to DCEDC, for review at the office of the General Partner, a current financial statement of Monte and Rosa Anderson prepared by a Certified Public Accountant and certified by Monte and Rosa Anderson to be true and correct.

B. *Materially Adverse Developments.* The General Partner shall report to the Limited Partners any significant development which materially adversely affects the Partnership and/or the Real Property or other Partnership Property, as soon as practical following the occurrence of such development.

Section 9.6 Audits at Request of Partner. Any Partner shall have the right to have an audit of the Partnership books conducted. The cost of the audit shall be borne by the Partnership. The audit shall be performed by an accounting firm acceptable to the General Partner and the Partner requesting the audit. Not more than one (1) audit shall be required by any or all of the Partners for any fiscal year.

Section 9.7 Fiscal Year. The Partnership's fiscal year shall end on December 31 of each calendar year.

Section 9.8 Tax Elections. The Partnership shall make the following elections on the appropriate tax returns:

(a) to adopt the calendar year as the Partnership's fiscal year;

(b) to adopt the cash method of accounting and to keep the Partnership's books and records on the income-tax method;

(c) to adjust the basis of Partnership properties, pursuant to Section 754 of the Code, upon the written request of any Partner if a distribution of Partnership property as described in Section 734 of the Code occurs or if a transfer of Interest as described in Section 743 of the Code occurs;

(d) to amortize the organizational expenses of the Partnership ratably over a period of sixty (60) months as permitted by Section 709(b) of the Code; and

(e) any other election the General Partner may deem appropriate and in the best interests of the Partners.

Neither the Partnership nor any Partner may make an election for the Partnership to be excluded from the application of the provisions of subchapter K of chapter 1 of subtitle A of the Code or any similar provisions of applicable state law.

Section 9.9 "Tax Matters Partner". The General Partner shall be the "tax matters partner" of the Partnership pursuant to Section 6231(a)(7) of the Code. The General Partner shall take action as may be necessary to cause each other Partner to become a "notice partner" within the meaning of Section 6223 of the Code. The General Partner shall inform each other Partner of all significant matters that may come to its attention in its capacity as "tax matters partner" by giving notice thereof on or before the fifth Business Day after becoming aware thereof, and within that time, shall forward to each other Partner copies of all significant written communications it may receive in that capacity. The General Partner may not take any action contemplated by Sections 6222 through 6232 of the Code without the Approval of the Partners, but this sentence does not authorize the General Partner to take any action left to the determination of an individual Partner under Sections 6222 through 6232 of the Code.

ARTICLE X.

MANAGEMENT OF THE PARTNERSHIP

Section 10.1 Management; Preparation of Budget. The powers of the Partnership shall be exercised by or under the authority of, and the business and affairs of the Partnership shall be managed under the direction of, the General Partner. Any Person dealing with the Partnership, other than a Partner, may rely on the authority of the General Partner and its managers and officers in taking any action in the name of the Partnership without inquiry into the provisions or compliance herewith, regardless of whether that action is actually taken in accordance with the provisions of this Agreement. The General Partner shall prepare a detailed budget and pro forma income and expense statement, for review, comment, and Approval of the Partners, before the commencement of substantial Partnership activities and annually thereafter. After discussion and revision, as needed, the budget shall be finalized and on Approval of the Limited Partners, shall become the Approved Budget for the period covered by it.

Section 10.2 Powers of General Partner. The General Partner shall have no power to cause the Partnership to do any act outside the purpose of the Partnership as set forth in Article IV hereof. Subject to the foregoing limitation and all other limitations in this Agreement, the General Partner shall have full, complete, and exclusive power to manage and control the Partnership, and shall have the authority to take any action reasonably deemed necessary, convenient, or advisable to conduct the business of the Partnership, including, but not limited to, the power and authority on behalf of the Partnership:

1. to take and hold all Property and assets of the Partnership, real, personal, and mixed, in the name of the Partnership;

2. to execute and deliver, on behalf of the Partnership, all documents necessary and appropriate in connection with the consummation of the Construction Loan;

3. to expend the Partnership's Capital Contributions and revenues to pay (a) all Operating Expenses incurred in the conduct of the Partnership's business and that are reflected in an Approved Budget; and (b) any item not reflected on an Approved Budget, provided the cost of such item (or series of items if related) does not exceed $5,000.00; and to execute and deliver all checks, drafts, endorsements and other orders for the payment thereof;

4. to employ agents, employees, accountants, lawyers, clerical help, and such other assistance and services as may seem proper, and to pay therefor such remuneration as the General Partner may deem reasonable and appropriate;

5. to purchase, lease, rent, or otherwise acquire or obtain the use of office equipment, materials, supplies, and all other kinds and types of personal property, and to incur expenses for travel, telephone, telegraph and for such other things, services and facilities, as may be deemed necessary, convenient or advisable for carrying on the business of the Partnership;

6. to carry, at the expense of the Partnership, insurance of the kinds and in the amounts that the General Partner deem advisable or make other arrangements for payment of losses or liabilities to protect the Partnership or the Partners, officers, agents and employees of the Partnership against loss or liability;

7. to negotiate the terms and conditions of and execute all agreements (including, without limitation, all tenant leases), arrangements, documents, and instruments necessary or helpful in conducting the business of the Partnership, including contracts with third parties, leasing agents, and property managers, subject to the requirements of Section 11.9 herein;

8. to maintain the Partnership's books and records; and

9. to sue and be sued, complain and defend in the name and on behalf of the Partnership.

The enumeration of powers in this Agreement shall not limit the general or implied powers of the General Partner or any additional powers provided by law. Notwithstanding the foregoing, the General Partner may not do any of the following, without the Approval of the Partners:

1. Purchase any real property other than the Real Property;

2. Expend funds of the Partnership for items not reflected on an Approved Budget when the cost of such item (or series of items if related) is greater than $5,000.00; or

3. Borrow money from any Person (including Partner Loans) for any Partnership purpose or obligate the Partnership to repay any borrowed money (other than the Construction Loan and usual and customary operating expenses and trade debt), or encumber or hypothecate Partnership Property as security for the repayment of any borrowed money, other than in connection with the Construction Loan.

Furthermore, notwithstanding the foregoing, the General Partner may not cause the Partnership to sell, exchange, master lease, assign, transfer, convey, or otherwise dispose of all or any substantial part of the Real Property without the Approval of the Partners. Finally, notwithstanding the foregoing, the General Partner may not cause the Partnership to do any of the following without the unanimous written consent of the Partners:

1. Merge with or into another limited partnership, corporation, limited liability company or other entity, regardless of whether the Partnership is the surviving entity of such merger;

2. Reorganize the Partnership;

3. Take any action in contravention of this Agreement or the Act;

4. Make an assignment for the benefit of creditors of the Partnership or file a voluntary petition under the federal Bankruptcy Code or any state insolvency law on behalf of the Partnership;

5. Confess any judgment against the Partnership; or

6. Do any act that would make it impossible to carry on the normal and ordinary business of the Partnership.

Section 10.3 *Payments to the General Partner and its Affiliates.* In the event the Partnership makes any payments for costs, expenses, or services to the General Partner or its Affiliates, the amount paid shall not exceed the reasonable and customary amount charged for such cost, expense or service by an unrelated third party.

Section 10.4 *Standard of Care.* The business of the Partnership shall be operated and managed by the General Partner to the best of its ability, in a careful and prudent manner, and in accordance with good industry practice and consistent with its fiduciary duty to the Limited Partners.

Section 10.5 *Compensation.* Except as otherwise expressly provided herein, the General Partner and its Affiliates shall not be entitled to receive compensation from the Partnership.

ARTICLE XI.

RIGHTS, POWERS AND OBLIGATIONS OF PARTNERS

Section 11.1 *Authority; Liability to Third Parties.* No Partner (other than the General Partner) has the authority or power to act for or on behalf of the Partnership, to do any act that would be binding on the Partnership, or to incur any expenditures on behalf of the Partnership. No Limited Partner shall be liable for the debts, obligations, or liabilities of the Partnership, including under a judgment decree or order of a court.

Section 11.2 *Transfers of Interests.* A Partner may make a Transfer of its Interest, in whole or in part, only upon compliance with the following procedure:

A. The Partner or the transferee must file with the Partnership a written and dated instrument of such Transfer, in form and substance reasonably satisfactory to the General Partner, executed by both the transferor and the transferee, which instrument shall (i) contain the acceptance by the transferee of all of the terms and provisions of this Agreement, to the extent applicable to an assignee of an Interest, (ii) contain such representations as the General Partner may deem necessary or advisable to assure that such Transfer need not be registered under any applicable federal or state securities laws, (iii) instruct the General Partner as to the Interest transferred and to whom and at what address Partnership distributions and Notifications in respect of such Interest should henceforth be sent, and (iv) contain any information required under the Code that is requested by the General Partner.

B. Unless expressly waived by the General Partner, the transferor or transferee shall deliver to the Partnership an opinion of counsel acceptable to the General Partner that (i) such Transfer is exempt from the registration requirements of the Securities Act of 1933, as amended, applicable state securities laws, and any rules or regulations promulgated thereunder, and will not otherwise cause the Partnership to be in violation of such laws and regulations, (ii) the Transfer will not result in the termination of the Partnership within the meaning of Section 708(b) of the Code, and (iii) the Transfer will not adversely affect the status of the Partnership as a partnership under the Code.

C. The transferor Partner and the transferee shall have received a written acknowledgment from the General Partner that the Transfer has been Approved by the Partners of the Partnership; provided, however, that the Interest of any individual Partners shall be transferable without the Approval of the Partners if both of the following factors apply: (i) such Transfer occurs by reason of the death of the Partner and each transferee is a member of such

Partner's immediate family (i.e., spouse, parent or child of such Partner), or a trust, corporation or other entity controlled by or for the benefit of such Partner or members of such Partner's immediate family; and (ii) each transferee otherwise complies with the provisions of paragraphs A and B of this Section 11.2 (except that the instrument described in Section 11.2A need not be executed by the transferring Partner).

Section 11.3 Effect of Transfer of Interest. A Transfer of an Interest pursuant to Section 11.2 above does not entitle the transferee to become, or to exercise rights or powers of, a Partner. A Transfer only entitles the transferee to receive cash distributions and allocations of Partnership profits and losses to the extent of the Interest transferred. Until the transferee is admitted as a Partner pursuant to Section 11.4 below, the transferor Partner shall continue to be a Partner and to be entitled to exercise any rights or powers of a Partner with respect to the Interest transferred.

Section 11.4 Admission of Transferee as Partner. A transferee of a Partner's Interest desiring to be admitted as a Partner must execute a counterpart of, or an agreement adopting, this Agreement. The admission of such transferee (including, without limitation, a transferee by reason of the death of a Partner) is subject to the unanimous approval of the Partners. Upon admission of the transferee as a Partner, the transferee shall have, to the extent of the Interest transferred, the rights and powers and shall be subject to the restrictions and liabilities of a Partner under this Agreement and the Act. The transferee shall also be liable, to the extent of the Interest transferred, for the unfulfilled obligations, if any, of the transferor Partner arising before its admission (as though the transferee partner had been a Partner when the obligations were incurred), except to the extent otherwise provided at the time of the Partner's admission to the Partnership. Whether or not the transferee of an Interest becomes a Partner, the transferor Partner is not released from any liability to the Partnership under this Agreement or the Act.

Section 11.5 Transfer of General Partner's Interests. Except pursuant to the Assignment of Partnership Interests, the General Partner may not assign, transfer, sell, give, pledge, encumber, or otherwise dispose of its interest as General Partner in the Partnership, unless required to do so by the terms of Section 11.7 below. The General Partner acknowledges that the Limited Partners have agreed to become Limited Partners of the Partnership with the understanding that they will deal with Monte Anderson, and that the Limited Partners are relying on their relationship with and the experience of Monte Anderson in agreeing to form the Partnership.

Section 11.6 Preferential Right to Purchase Partnership Interest. Except for a Transfer to an Affiliate or a Transfer by Monte and Rosa Anderson permitted by Section 5.2C herein or a Transfer resulting from the exercise of any rights and remedies under the Assignment of Partnership Interests, if any Partner should desire to sell all or any part of its Interest in the Partnership to any party, the other Partners shall have the prior and preferential right and option to purchase, in proportion to their respective Interests, the Interest hereunder desired to be sold by the selling Partner, such option to be upon the same terms and conditions as the selling Partner is willing to accept from the prospective purchaser (and the Partners hereby agree that no Partner shall agree to any sale other than for cash), less any brokerage commissions or fees to be paid in any such sale to a third party.

A. The terms and conditions upon which any selling Partner desires to sell all or any part of its Interest hereunder shall be set out in a written offer signed by the prospective purchaser or purchasers and shall provide for the consideration to be paid in cash. The selling Partner shall thereafter deliver to each of the other Partners a fully executed counterpart of the contract relating to the contemplated sale.

B. The other Partners shall have fifteen (15) days from the date of receipt of the executed copies of said contract to advise in writing the Partner contemplating such sale of their desire to purchase all or some portion of the Interest which is the subject of such contemplated sale. Failure of any Partner to advise in writing the selling Partner of such Partner's desire to purchase its proportionate part of such Interest within such fifteen (15) day period shall be deemed conclusively a rejection of such right to purchase.

C. Should any Partner elect not to purchase its proportionate part of the Interest which is the subject of the contemplated sale, the selling Partner shall promptly so notify the Partners that did elect to purchase their proportionate part and such other Partners shall have the right as a group to purchase such part in proportion to their then Interests or in such other proportions as they may collectively determine, by giving the selling Partner written notice thereof within the ten (10) day period next following receipt of the notice from the selling Partner described in this Section 11.6C. Likewise, the failure of such Partners as a group to advise the selling Partner in writing of their desire to purchase all of such additionally available Interest in the manner and within the time permitted shall be conclusively deemed a rejection of such right to purchase.

D. If all or any of the non-selling Partners desire to exercise their preferential right and option to purchase under Section 11.6B (and, if applicable, Section 11.6C) above and so notify the selling Partner pursuant to Section 11.6B (and, if applicable Section 11.6C) above, such Partners shall close the purchase of such Interest prior to the expiration of thirty (30) days after the last to occur of their elections, payment for such Interest being in accordance with the terms and provisions of the third-party offer.

E. This preferential right to purchase shall be of no force and effect unless the other Partners shall offer to purchase the entire Interest offered for sale by the selling Partner.

F. From the date of the election by the other Partners not to exercise their respective preferential rights and options to purchase all of the Interest which is the subject of the contemplated sale or the date upon which such right expires, whichever occurs first, the Partner desiring to sell its Interest as reflected by such contract, during the period of ninety (90) days thereafter, may sell such Interest to the purchaser or purchasers named in the contract delivered to the other Partners. If the said sale is not consummated within such period, the right of the selling Partner to make such sale free from the provisions of the refusal right herein shall expire, and a new contract must thereafter be submitted to the other Partners should the selling Partner desire to make a sale of its Interest hereunder.

G. Any assignment or disposition of any Interest hereunder made in accordance with the foregoing shall expressly provide that the new owner shall acquire such Interest subject to the provisions hereof and shall assume the obligations of the selling Partner

but without the release of the selling Partner of its obligations hereunder attributable to the period during which it was a Partner; provided, however, that the transferee of an interest of a Limited Partner shall not be entitled to become a substitute Limited Partner unless all other conditions to transfer as set forth in this Article XI have been met to the General Partner's reasonable satisfaction.

Section 11.7 Resignation or Removal of the General Partner.

A. The General Partner shall not resign without the Approval of the Partners prior to the tenth anniversary of the date on which the certificate of occupancy for the Project is issued.

B. In the event the General Partner commits a "material breach" (defined in Section 11.7D below) of this Agreement, the General Partner may be removed by notice of Partners holding at least fifty percent (50%) of the Interests of the Partners (exclusive of the Interests held by the General Partner Group), communicated in writing to the General Partner.

C. In the event the General Partner is removed for a material breach of this Agreement, a new General Partner shall be elected by Approval of the Partners (exclusive of all Interests held by the General Partner Group) and shall be admitted to the Partnership as the General Partner. The removed General Partner's one percent (1%) Interest shall be automatically transferred to the newly elected General Partner as of the date the prior General Partner is removed without necessity of any further action. The removed General Partner shall not have any management responsibility and shall no longer take part in the management of the Partnership or any projects or properties, shall have no authority to act, sign for, or bind the Partnership, and all management and other agreements entered into by the Partnership with the General Partner or its Affiliates, at the option of the successor General Partner, shall be null and void, thereby relieving the Partnership of any obligation to make further payments with respect to any of such agreements. The removed General Partner shall remain liable for all liabilities of the Partnership accruing before such removal. Except as expressly provided herein, the removed General Partner shall not be liable for any debts or obligations of the Partnership incurred after removal.

D. For purposes of this Section 11.7, the term "material breach" shall mean the occurrence of any of the following:

(i) the violation or breach as a result of bad faith or gross negligence of any material term hereof or material fiduciary obligation owed by the General Partner to the Partnership or Limited Partners;

(ii) the appointment of a receiver for all or substantially all of the assets of the General Partner and the failure to have such receiver discharged within sixty (60) days of such appointment; or

(iii) the bringing of any legal action against the General Partner by a creditor of the General Partner, or an Affiliate of the General Partner, resulting in the attachment, garnishment, or sequestration of any portion of the General Partner's Interest and the

failure of the General Partner to have such attachment, garnishment, or sequestration discharged within sixty (60) days of such event.

With respect to the events described in clauses (i), (ii), and (iii) above, the General Partner shall be deemed removed upon delivery to it of notice of its removal. Subject to Section 11.7C above, upon the removal of the General Partner, the General Partner shall continue to hold any Limited Partner Interests it held prior to its removal as General Partner with all of the rights and duties pertaining thereto.

E. Upon the occurrence of the Bankruptcy of the General Partner, such General Partner shall be deemed removed without necessity of action by the other Partners.

F. Upon the resignation or removal of the General Partner, such General Partner shall use reasonable good faith efforts in assisting the Partners in finding a successor property manager for the Project.

Section 11.8 *Other Business.* The Partners may engage in or possess interests in other business ventures (unconnected with the Partnership) of every kind and description, independently or with others, including businesses competitive with that of the Partnership. Neither the Partnership nor the other Partners shall have any rights in or to such independent ventures or the income or profits therefrom.

Section 11.9 *Transactions Involving General Partner.* It is agreed that the Partnership will enter into a management agreement with Trinidad Property Management, an Affiliate of General Partner, and a leasing agreement with Options Real Estate Investments, Inc., an Affiliate of General Partner, for the management and leasing of the Project, which agreements shall contain terms and conditions that are reasonable and customary in the Dallas metropolitan area for similar services, and pursuant to which the Partnership shall pay such reasonable and customary fees as would otherwise be paid to unrelated third parties for such management and leasing services. At the request of any Limited Partner, the General Partner shall provide satisfactory evidence that the fees being charged do not exceed the customary amounts charged for such services by unrelated third parties. Copies of the management agreement and leasing agreement shall remain on file at the Partnership's registered office, and will be made available to any Limited Partner upon request. Except as described in this Section 11.9 and except for the Non-Bank Loan, the General Partner shall not enter into any other agreements with its Affiliates without the Approval of the Partners.

Section 11.10. Notwithstanding anything contained in this Article XI to the contrary, any Transfer pursuant to or in connection with the Assignment of Partnership Interests shall be exempt from the restrictions and requirements of this Article XI, so long as the transferee provides the General Partner (or any successor General Partner, as the case may be) with all necessary information required under Section 11.2A above. Without limiting the foregoing, any Transfer pursuant to or in connection with the Assignment of Partnership Interests shall not require action by the other Partners, and the transferee shall immediately upon the exercise of its rights and remedies under the Assignment of Partnership Interests be deemed admitted as a Partner and entitled to exercise the rights and powers of a Partner. Such transferee shall not, however, be liable for any unfulfilled obligations of the transferor Partner arising before the

admission of the transferee Partner. Upon any transfer of the Interest of the General Partner pursuant to the Assignment of Partnership Interests, the General Partner shall be deemed removed without necessity of action by the other Partners, and the transferee Partner shall be deemed the new General Partner.

ARTICLE XII.

MEETINGS OF PARTNERS

Section 12.1 Place of Meetings. All meetings of Partners shall be held at the registered office of the Partnership as provided in Section 3.3 above, or at such other place within the State of Texas as may be designated by the General Partner or Partners calling the meeting.

Section 12.2 Special Meetings. Special meetings of the Partners may be called by resolution of the General Partner or by Partners holding ten percent (10%) or more of the Interests, for the purpose of addressing any matter upon which the Partners may vote under this Agreement. Partners may call a meeting by delivering to the General Partner one or more written requests signed by the requisite number of Partners, stating that the signing Partners wish to call a meeting and indicating the specific purpose for which the meeting is to be held. Action at the meeting shall be limited to those matters specified in the call of the meeting.

Section 12.3 Notice. A Notification of all meetings, stating the place, day, and hour of the meeting, and in the case of a special meeting, the purpose or purposes for which the meeting is called, shall be delivered not less than ten (10) nor more than sixty (60) days before the meeting to each Partner entitled to vote.

Section 12.4 Waiver of Notice. Attendance of a Partner at a meeting shall constitute a waiver of Notification of the meeting, except where such Partner attends for the express purpose of objecting to the transaction of any business on the ground that the meeting is not lawfully called or convened. Notification of a meeting may also be waived in writing. Attendance at a meeting is not a waiver of any right to object to the consideration of matters required to be included in the Notification of the meeting but not so included, if the objection is expressly made at the meeting.

Section 12.5 Quorum. Partners holding at least 80% of the Interests in the Partnership shall constitute a quorum at any meeting of the Partners, whether present in person or by proxy.

Section 12.6 Voting.

A. *Voting and Voting Power.* All Partners shall be entitled to vote at meetings. Partners may vote either in person or by proxy at any meeting. Each Partner's percentage voting power at a meeting shall be in proportion to his percentage Interest.

B. *Voting on Matters Other than the Election of General Partner.* With respect to any matter other than the election of a substitute General Partner or a matter for which the affirmative vote of Partners owning a specified portion of the Interests is required by the Act

or this Agreement, the Approval of the Partners at a meeting at which a quorum is present shall be the act of the Partners.

C. *Voting in the Election of General Partner.* In the event of removal or resignation of the General Partner, a successor General Partner shall be elected only by the Approval of the Partners (exclusive of any Interests owned by the removed General Partner and its Affiliates).

D. *Change in Voting Percentages.* No provision of this Agreement requiring that any action be taken only upon approval of Partners holding a specified percentage of Interests may be modified, amended, or repealed, unless such modification, amendment, or repeal is approved by Partners holding at least such percentage of Interests.

Section 12.7 *Conduct of Meetings.* The General Partner shall have full power and authority concerning the manner of conducting any meeting of the Partners, including, without limitation, the determination of Persons entitled to vote, the existence of a quorum, the satisfaction of the requirements of this Article XII, the conduct of voting, the validity and effectiveness of any proxies, and the determination of any controversies, votes, or challenges arising in connection with or during the meeting or voting. The General Partner shall designate a Person to serve as chairman of any meeting and shall further designate a Person to take minutes of any meeting.

Section 12.8 Action by Written Consent. Any action that may be taken at a meeting of the Partners may be taken without a meeting if a consent in writing, setting forth the action to be taken, shall be signed by Partners holding the percentage of Interests required to approve such action under the Act or this Agreement. Such consent shall have the same force and effect as a vote of the signing Partners at a meeting duly called and held pursuant to this Article XII. No prior notice from the signing Partners to the General Partner or other Partners shall be required in connection with the use of a written consent pursuant to this Section. Notification of any action taken by means of a written consent of less than all of the Partners shall, however, be sent within a reasonable time after the date of the consent by the General Partner to all of the Partners who did not sign the consent.

Section 12.9 Proxies. A Partner may vote either in person or by proxy executed in writing by the Partner. A facsimile, telegram, telex, cablegram, or similar transmission by the Partner, or a photographic, photostatic, facsimile, or similar reproduction of a writing executed by the Partner shall be treated as an execution in writing for purposes of this Section. Proxies for use at any meeting of Partners or in connection with the taking of any action by written consent shall be filed with the General Partner, before or at the time of the meeting or execution of the written consent, as the case may be. All proxies shall be received and taken charge of and all ballots shall be received and canvassed by the General Partner who shall decide all questions touching upon the qualification of voters, the validity of the proxies, and the acceptance or rejection of votes, unless an inspector or inspectors shall have been appointed by the chairman of the meeting, in which event such inspector or inspectors shall decide all such questions. No proxy shall be valid after eleven (11) months from the date of its execution unless otherwise provided in the proxy. A proxy shall be revocable unless the proxy form conspicuously states that the proxy is irrevocable and the proxy is coupled with an interest. Should a proxy designate

two or more Persons to act as proxies, unless such instrument shall provide to the contrary, a majority of such Persons present at any meeting at which their powers thereunder are to be exercised shall have and may exercise all the powers of voting or giving consents thereby conferred, or if only one be present, then such powers may be exercised by that one; or, if an even number attend and a majority do not agree on any particular issue, the Partnership shall not be required to recognize such proxy with respect to such issue if such proxy does not specify how the Interests that are the subject of such proxy are to be voted with respect to such issue.

ARTICLE XIII.

DISSOLUTION AND WINDING UP

Section 13.1 *Events Causing Dissolution*. The Partnership shall be dissolved upon the first of the following events to occur:

A. the expiration of the term of the Partnership set forth in Section 2.3 of this Agreement;

B. the written consent of the Partners holding no less than eighty percent (80%) of the Interests of the Partnership at any time to dissolve and wind up the affairs of the Partnership;

C. the death, Bankruptcy, or dissolution of the General Partner, the removal of the General Partner pursuant to Section 11.7 hereof (except in connection with the exercise of rights and remedies under the Assignment of Partnership Interests), or the occurrence of any other event that terminates the continued membership of the General Partner in the Partnership, unless within ninety (90) days of the occurrence of such event, all remaining Partners agree in writing to continue the business of the Partnership and, to the extent that they so desire, all agree to the appointment, effective as of the date of occurrence of such event, of a new general partner; or

D. the occurrence of any other event that causes the dissolution of a limited partnership under the Act.

Section 13.2 *Winding Up*. If the Partnership is dissolved pursuant to Section 13.1, the Partnership's affairs shall be wound up as soon as reasonably practicable in the manner set forth below.

A. *Appointment of Liquidator*. The winding up of the Partnership's affairs shall be supervised by a liquidator. The liquidator shall be the General Partner or, if the General Partner has been removed pursuant to Section 11.7 hereof, a liquidator or liquidating committee Approved by the Partners (the "Liquidator").

B. *Powers of Liquidator*. In winding up the affairs of the Partnership, the Liquidator shall have full right and unlimited discretion, for and on behalf of the Partnership:

1. to prosecute and defend civil, criminal, or administrative suits;

2. to collect Partnership assets, including obligations owed to the Partnership;

3. to settle and close the Partnership's business;

4. to dispose of and convey all Partnership Property for cash, and in connection therewith to determine the time, manner, and terms of any sale or sales of Partnership Property, having due regard for the activity and condition of the relevant market and general financial and economic conditions;

5. to pay, out of the proceeds of the disposition of Partnership Property, all reasonable selling costs and other expenses incurred in connection with the winding up;

6. to discharge the Partnership's known liabilities and, if necessary, to set up, for a period not to exceed five (5) years after the date of dissolution, such cash reserves as the Liquidator may deem reasonably necessary for any contingent or unforeseen liabilities or obligations of the Partnership;

7. to distribute any remaining proceeds from the sale of Partnership Property to the Partners;

8. to prepare, execute, acknowledge, and file any certificates, tax returns, or instruments necessary or advisable under any applicable law to effect the winding up and termination of the Partnership; and

9. to exercise, without further authorization or consent of any of the parties hereto or their legal representatives or successors in interest, all of the powers conferred upon the General Partner under the terms of this Agreement to the extent necessary or desirable, in the good faith judgment of the Liquidator, to perform its duties and functions. The Liquidator (if not the General Partner) shall not be liable as a partner to the Partners and shall, while acting in such capacity on behalf of the Partnership, be entitled to the indemnification rights set forth in the Act and in Article XIV hereof.

Section 13.3 *Compensation of Liquidator.* The Liquidator appointed as provided herein shall be entitled to receive such reasonable compensation for its services as shall be agreed upon by the Liquidator and Approved by the Partners.

Section 13.4 *Distribution of Partnership Property and Proceeds of Sale Thereof.*

A. *Order of Distribution.* Upon completion of all desired sales of Partnership Property, and after payment of all selling costs and expenses, the Liquidator shall distribute the proceeds of such sales, and any Partnership Property that is to be distributed in kind, to the following groups in the following order of priority:

1. to the extent permitted by law, to satisfy Partnership liabilities to creditors, including Partner Loans, whether by payment or establishment of reserves;

2. to satisfy Partnership obligations to Partners to pay past-due Partnership distributions;

3. to the Partners, in accordance with the positive balances in their respective Capital Accounts; and

4. to the Partners in accordance with their respective Interests.

B. *Insufficient Assets.* The claims of each priority group specified above shall be satisfied in full before satisfying any claims of a lower priority group. If the assets available for disposition are insufficient to dispose of all of the claims of a priority group, the available assets shall be distributed in proportion to the amounts owed to each creditor or the respective Capital Account balances or Interests of each Partner in such group.

Section 13.5 *Final Audit.* Within a reasonable time following the completion of the liquidation, the Liquidator shall supply to each of the Partners a statement which shall set forth the assets and the liabilities of the Partnership as of the date of complete liquidation and each Partner's pro rata portion of distributions pursuant to Section 13.4.

Section 13.6 *Deficit Capital Accounts.* Notwithstanding anything to the contrary contained in this Agreement, and notwithstanding any custom or rule of law to the contrary, to the extent that the deficit, if any, in the Capital Account of any Partner results from or is attributable to deductions or losses of the Partnership (including non-cash items such as depreciation), or distributions of money pursuant to this Agreement to all Partners in proportion to their respective Interests, upon dissolution of the Partnership, such deficit shall not be an asset of the Partnership and such Partners shall not be obligated to contribute such amount to the Partnership to bring the balance of such Partner's Capital Account to zero. Any contributions required under this Section by the General Partner must be made no later than the end of the taxable year within which the liquidation occurs or, if later, within ninety (90) days after the date of liquidation.

ARTICLE XIV.

INDEMNIFICATION AND INSURANCE

Section 14.1 *Indemnification and Advance of Expenses.* The Partnership (but not the Limited Partners) shall indemnify and/or advance expenses to a Person who was, is, or is threatened to be made a named defendant or respondent in a proceeding because the person is or was a Partner, officer, employee, or agent of the Partnership. This indemnification shall be effective only if the Person indemnified has satisfied the standard of conduct set forth in Section 11.02 of the Act. Notwithstanding the foregoing, this indemnification shall in no event be applicable to a proceeding in which the General Partner has been found to be liable for intentional misconduct, gross negligence or fraud in the performance of the General Partner's duty to the Partnership or the Limited Partners. Any indemnification pursuant to this Section 14.1 shall be satisfied from and limited to the Partnership Property, and no Limited Partner shall have personal liability on account thereof.

Section 14.2 *Insurance.* Subject to Section 11.18 of the Act, the Partnership may purchase and maintain insurance or another arrangements on behalf of any Person who is or was a Partner, employee, agent or other Person identified in Section 14.1 above against any liability asserted against him or incurred by him in such a capacity or arising out of his status as such a Person, whether or not the Partnership would have the power to indemnify him against that liability under Section 14.1 or otherwise.

Section 14.3 *Limit on Liability of Partners.* The indemnification set forth in this Article XIV shall in no event cause the Partners to incur any personal liability beyond their total Capital Contributions, nor shall it result in any liability of the Partners to any third party.

ARTICLE XV.

MISCELLANEOUS PROVISIONS

Section 15.1 *Entire Agreement.* This Agreement contains the entire agreement among the Partners relating to the subject matter hereof and all prior agreements relative hereto which are not contained herein are terminated.

Section 15.2 *Law Governing.* This Agreement shall be governed by and construed in accordance with the local, internal laws of the State of Texas. In particular, this Agreement is intended to comply with the requirements of the Act. In the event of a direct conflict between the provisions of this Agreement and the mandatory provisions of the Act, the Act will control.

Section 15.3 *Conference Telephone Meetings.* Meetings of the Partners may be held by means of conference telephone or similar communications equipment so long as all Persons participating in the meeting can hear each other. Participation in a meeting by means of conference telephone shall constitute presence in person at such meeting, except where a Person participates in the meeting for the express purpose of objecting to the transaction of any business thereat on the ground that the meeting is not lawfully called or convened.

Section 15.4 *Successors and Assigns.* This Agreement shall be binding upon and shall inure to the benefit of the Partners and their respective heirs, legal representatives, successors, and assigns.

Section 15.5 *Severability.* This Agreement is intended to be performed in accordance with, and only to the extent permitted by, all applicable laws, ordinances, rules, and regulations. If any provision of this Agreement or the application thereof to any Person or circumstance shall, for any reason and to any extent, be invalid or unenforceable, but the extent of such invalidity or unenforceability does not destroy the basis of the bargain among the Partners as expressed herein, the remainder of this Agreement and the application of such provision to other Persons or circumstances shall not be affected thereby, but rather shall be enforced to the greatest extent permitted by law.

Section 15.6 *Amendment.* Except as expressly provided herein, this Agreement may be amended only by action of Partners holding at least eighty percent (80%) of the Interests of the Partnership.

Section 15.7 Headings. The Article and Section headings appearing in this Agreement are for convenience of reference only and are not intended, to any extent or for any purpose, to limit or define the text of any Article or Section.

Section 15.8 Construction. Whenever required by the context, as used in this Agreement, the singular number shall include the plural, and vice versa, and the gender of all words used shall include the masculine, feminine, and the neuter. Unless expressly stated herein, all references to Articles and Sections refer to articles and sections of this Agreement, and all references to Schedules are to schedules attached hereto, each of which is made a part hereof for all purposes.

Section 15.9 Offset. Whenever the Partnership is to pay any sum to any Partner, any amounts that Partner owes the Partnership may be deducted from that sum before payment.

Section 15.10 Effect of Waiver or Consent. A waiver or consent, express or implied, to or of any breach or default by any Person in the performance by that Person of its obligations with respect to the Partnership is not a consent or waiver to or of any other breach or default in the performance by that Person of the same or any other obligations of that Person with respect to the Partnership. Failure on the part of a Person to complain of any act of any Person or to declare any Person in default with respect to the Partnership, irrespective of how long that failure continues, does not constitute a waiver by that Person of its rights with respect to that default until the applicable statute-of-limitations period has run.

Section 15.11 Further Assurances. In connection with this Agreement and the transactions contemplated hereby, each Partner shall execute and deliver any additional documents and instruments and perform any additional acts that may be necessary or appropriate to effectuate and perform the provisions of this Agreement and those transactions.

Section 15.12 Waiver of Certain Rights. Each Partner irrevocably waives any right it may have to maintain any action for dissolution of the Partnership or for partition of the property of the Partnership.

Section 15.13 Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be an original, but all of which taken together shall constitute a single document. This Agreement shall be binding upon each Partner upon execution, regardless of whether any other Partner has executed the same or a different counterpart. A photocopy or telecopy of an executed counterpart of this Agreement shall be sufficient to bind the Partner(s) whose signature(s) appear thereon.

Section 15.14 Buy-Sell. At any time after the tenth (10th) anniversary of the issuance of the certificate of occupancy for the Project, DCEDC and the General Partner Group shall each have the right to initiate the buy-sell procedures in this Section 15.14. For the purpose of this Section 15.14, the General Partner Group must act collectively. The references in this Section 15.14 to an Interest transferred hereunder when referring to the General Partner Group shall mean and refer to the Interests of all Partners of the General Partner Group. Subject to the foregoing, either (i) the General Partner Group or (ii) DCEDC (either such party being referred to as the "Initiating Partner") may purchase the entire Interests of all the other Partners (the

"Responding Partners") or sell all of its Interest to the Responding Partners upon the following terms:

A. The Initiating Partner shall notify the Responding Partners in writing of such Partner's determination of the valuation of the Partnership Property, as though free and clear of debt financing. Within thirty (30) days after such notice, the Responding Partners shall inform the Initiating Partner in writing that either (i) the Responding Partners agree with the Initiating Partner's determination of the valuation of the Partnership Property and agree that such valuation shall be utilized in determining the Option Price (as hereinafter defined) pursuant to Section 15.14B below, or (ii) the Responding Partners disagree with the Initiating Partner's determination of such valuation. If the Initiating Partner and all the Responding Partners do not agree as to the valuation of the Partnership Property, then they shall immediately select an independent, qualified appraiser to determine the fair market value of the Partnership Property. If such Partners fail to agree as to the selection of an appraiser, the Initiating Partner shall select, and the Responding Partners (as a group) shall select, an independent, qualified appraiser with at least five (5) years experience in commercial real estate appraising and such appraisers so selected shall appoint a third qualified appraiser having at least five (5) years experience in commercial real estate appraising. The appraiser(s) so selected shall proceed to determine promptly the fair market value of the Partnership Property. Each appraiser shall deliver a written report of its appraisal to all the Partners. The determination of fair market value by the appraisers shall be final and binding upon the Initiating Partner and the Responding Partners. If the appraisers so selected are unable to agree upon the fair market value, the fair market value determinations of all such appraisers shall be totaled and the total divided by the number of appraisals, with the resultant average to be conclusive and binding on all Partners as to the fair market value of the Partnership Property; provided, however, that if any fair market value determination of any such appraiser deviates by more than ten percent (10%) from the median of all such determinations, the fair market value shall be the average of the two (2) determinations closest in amount and such average of the two (2) closest determinations shall be conclusive and binding upon all parties as to the fair market value of the Partnership Property. The fees and expenses of the appraisers shall be borne equally by the Initiating Partner and the Responding Partners. However, if each Partner selects an appraiser, each Partner shall pay the fees and expenses of the appraiser selected by such Partner. All references to the terms "Partner" or "Partners" which appear in this Section 15.14 mean the Initiating Partner and the Responding Partners.

B. Following determination of the valuation of the Partnership Property, either by agreement of the Initiating Partner and Responding Partners or by determination of the fair market value thereof by appraisers in the manner set forth in Section 15.14A above, the Initiating Partner, if such Partner so desires, shall notify the Responding Partners in writing of its offer to purchase the Interest of the Responding Partners or to sell such Initiating Partner's Interest to the Responding Partners. This offer to buy or sell shall state the agreed upon valuation or the fair market value of the Partnership Property as determined in accordance with Section 15.14A above. The price payable as to any Partner (the "Option Price") shall be that amount which the Partner would receive pursuant to Section 13.4 of this Agreement if (i) the Partnership Property then held by the Partnership was sold for cash as of the date of the Initiating Partner's offer to purchase the Responding Partner's Interest for the agreed to valuation or the fair market value, (ii) all third-party lenders and all Partner Loans were paid in accordance with their terms,

and (iii) the remaining proceeds were distributed. The only assets of the Partnership to be considered are the Partnership Property and cash available for distribution, and the only liabilities to be considered are the liabilities directly related to the Partnership Property, Partner Loans, and reasonably estimated current operating expenses. Potential closing costs, commissions, reserves and other expenses are not to be taken into account in ascertaining the Option Price.

C. Within thirty (30) days after the receipt of such offer, the Responding Partners shall deliver to the Initiating Partner, written notification of either:

(i) Such Responding Partners' agreement to sell its Interest at the Option Price applicable to the Responding Partner; or

(ii) Such Responding Partners' election to purchase the entire Interest of the Initiating Partner at the Option Price applicable to the Initiating Partner.

Failure by any Responding Partner to respond within thirty (30) days shall be deemed to be an election by such Responding Partner to proceed under Section 15.14C(i) above.

D. In the event that (i) one or more of the Responding Partners elects, or is deemed to have elected, to sell its Interest (a "Non-Purchasing Partners"), and (ii) one or more of the other Responding Partners elects to purchase the Initiating Partner's Interest (the "Purchasing Partners"), the Initiating Partner shall promptly so notify the Purchasing Partners. Such Purchasing Partners shall have the right to purchase the Non-Purchasing Partners' portion of the Initiating Partner's Interest in proportion to their then Interests or in such other proportions as they may collectively determine, by giving the Initiating Partner written notice thereof within the ten (10) day period next following receipt of the notice from the Initiating Partner described in this Section 15.14D. The failure of such Purchasing Partners to advise the Initiating Partner in writing of their desire to purchase all of the Non-Purchasing Partners' portion of the Initiating Partner's Interest in the manner and within the time period provided shall be conclusively deemed a rejection of the right to purchase the Initiating Partner's Interest, and any prior exercise under Section 15.14C(ii) above shall be deemed null and void.

E. The Purchasing Partner(s), in addition to paying at the closing the Option Price, shall be obligated to purchase the Selling Partner(s)' (herein so called) interest in any Partner Loans, and the Selling Partner(s) shall be obligated to execute an assignment conveying such loans to the Purchasing Partner(s). The purchase price to be paid by the Purchasing Partner(s) for such Partner Loans shall be the outstanding amount of the loans, together with any accrued and unpaid interest due on such loans.

F. Any such purchase or sale shall be accomplished as follows:

(i) The Option Price, unless otherwise agreed, shall be paid in cash at closing.

(ii) The closing shall take place within ninety (90) days after the response date referred to in Section 15.14C above.

G. Upon receipt of the Option Price, the Selling Partner(s) shall execute and deliver all documents reasonably required to transfer its Interest(s) to the Purchasing Partner(s)(or its designated assigns). The Selling Partner(s) shall also execute such resignations and other documents as may be reasonably required by counsel for the Partnership to accomplish the withdrawal of the Selling Partner(s) as a Partner, and the Purchasing Partner(s) shall assume all of the Selling Partner(s)' obligations to the Partnership under any loans to the Partnership permitted by this Agreement, such assumptions to be in form reasonably satisfactory to counsel for the Selling Partner(s).

H. .It is expressly agreed that the remedy at law for breach of any of the obligations set forth in this Section 15.14 is inadequate in view of (i) the complexities and uncertainties in measuring the actual damages that would be sustained by reason of the failure of a Partner to comply fully with each of said obligations, and (ii) the uniqueness of the Partnership business and the Partners' relationships. Accordingly, each of the aforesaid obligations shall be, and is, hereby expressly made, enforceable by specific performance.

GENERAL PARTNER:

MARA INC.,
a Texas corporation

By: _____
Name: Monte Anderson
Title: President

LIMITED PARTNERS:

_____
Monte Anderson

_____
Rosa Anderson

DUNCANVILLE COMMUNITY AND
ECONOMIC DEVELOPMENT CORPORATION,
a Texas non-profit corporation

By: Sherri Ann Davis
Name: Sherri Ann Davis
Title: Vice-President DCEDC

By: Yvonne Crawford Fralicks
Name: YVONNE CRAWFORD FRALICKS
Title: Board Secretary

SCHEDULE A

PARTNERS

GENERAL PARTNER:

Name, Address, and Fax Number	Initial Capital Contribution	Interest
MARA Inc. 1801 N. Hampton Road Suite 400 DeSoto, Texas 75115 Fax Number: (972) 780-1716	$1.00 (Cash)	1%

LIMITED PARTNERS:

Name, Address, and Fax Number	Initial Capital Contribution	Interest
Monte and Rosa Anderson 1801 N. Hampton Road Suite 400 DeSoto, Texas 75115 Fax Number: (972) 780-1716	$2,000,000.00 (Obligation to provide for the Construction Loan to the Partnership in the amount of $2,000,000.00, either as borrowers, guarantors, or lenders, whether individually or through an Affiliate)	67%
Duncanville Community and Economic Development Corporation 203 E. Wheatland Road P.O. Box 380280 Duncanville, Texas 75138-0280 Attn: Director of Economic Development Fax Number: (972) 780-6493	$805,093.00 (Detailed in Section 6.1B)	32%

SCHEDULE B

Legal Description of Land

Being Lot 1, Block A of Main Station Addition, an addition to the City of Duncanville, Dallas County, Texas, according to the plat thereof recorded in Volume 2003018, Page 00039 of the Map Records of Dallas County, Texas.

AMENDED AND RESTATED
ASSIGNMENT OF INTEREST IN LIMITED PARTNERSHIP
(Main Station Duncanville, Ltd.)

This Amended and Restated Assignment of Interest in Limited Partnership (this "**Assignment**") is executed and entered into, by and among **MONTE ANDERSON** and **ROSA ANDERSON** (collectively, "**Assignor**"), to **REFUGIO BAHENA, MARIA BAHENA, EMILIANO BAHENA, MARIA ISABEL BAHENA, SANTOS BAHENA, ROSALIA BAHENA, DAVID SAUCEDA**, and **ANGEL HERNANDEZ** (collectively, "**Assignee**").

RECITALS

A. Pursuant to that certain Agreement of Limited Partnership for Main Station Duncanville, Ltd. dated as of April 25, 2003 (as amended, the "**Partnership Agreement**"), a Texas limited partnership known as Main Station Duncanville, Ltd. (the "**Partnership**") was formed. (All terms used in this Assignment which have initial capital letters and are not otherwise defined herein shall have the same meaning assigned to them in the Partnership Agreement.)

B. Pursuant to the Partnership Agreement, Assignor owned a 67% Interest in the Partnership, Duncanville Community and Economic Development Corporation, a Texas nonprofit corporation ("**DCEDC**"), owned a 32% Interest in the Partnership, and the General Partner owned a 1% Interest in the Partnership.

C. The Partnership Agreement acknowledged the intention of Assignor to sell and convey up to 18% of its Interest in the Partnership to one or more existing Partners or to one or more new Partners.

D. On or about August 5, 2009, Assignor and Assignee executed and delivered a certain Assignment of Interest in Limited Partnership (the "**Original Assignment**") whereby Assignor, with the approval of DCEDC, conveyed thirty-two percent (32%) of its limited partner interest in the Partnership to Assignee.

E. Prior to the execution hereof, REFUGIO BAHENA, MARIA BAHENA, ROSALIA BAHENA, and DAVID SAUCEDA have entered into an agreement by which any and all rights in and to their respective Interest shall be assigned and conveyed to SANTOS BAHENA.

F. Assignor and Assignee desire to unwind the transaction evidenced by the Original Assignment and deem such transaction void *ab initio* with respect to any Interest in excess of 17.4685%. Accordingly, Assignor and Assignee desire to amend and restate the Original Assignment in order to properly reflect the amount of Interest sold and conveyed to Assignee as of August 5, 2009, and to restate their agreement regarding such conveyance.

ASSIGNMENT

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor and Assignee hereby deem the transaction evidenced by the Original

Assignment void in *ab nitio* with respect to any Interest in excess of 17.4685%, and hereby amend and restate the Original Assignment in its entirety. Accordingly, Assignor does hereby grant, sell, convey, assign and deliver unto Assignee and their successors and assigns, a 17.4685% limited partner interest in the Partnership (the "**Partnership Interest**") together with all right, title and interest of Assignor from and after the Effective Date (as defined below) in and to any and all proceeds and distributions due or to become due to Assignor with respect to that Partnership Interest pursuant to the terms of the Partnership Agreement, and in and to the business, properties and assets, tangible or intangible, of the Partnership represented by such Partnership Interest, and any and all appurtenances belonging thereto (all of such right, title and interest is hereinafter referred to as the "**Assigned Interest**"). Assignor does hereby bind itself, its successors, assigns, and legal representatives to warrant and forever defend the Assigned Interest and all of the interests assigned hereby, unto Assignee and Assignee's successors and assigns against every person lawfully claiming or to claim the same or any part thereof by, through or under Assignor. Each Assignee hereby accepts from Assignor the assignment of the Assigned Interest and each Assignee agrees to become a substituted Limited Partner in the Partnership in the place and stead of Assignor. (The parties acknowledge and agree that the interest being assigned hereunder does not include a 49.5315% limited partnership interest in the Partnership which Assignor is retaining.)

The Assigned Interest shall be allocated among Assignee such that each Assignee shall own the Partnership Interest indicated as follows:

c. A 2.2188% Partnership Interest shall be assigned to Emiliano Bahena;

d. A 2.2180% Partnership Interest shall be assigned to Maria Isabel Bahena;

e. A 11.3429% Partnership Interest shall be assigned to Santos Bahena; and

d. A 1.6888% Partnership Interest shall be assigned to Angel Hernandez.

AGREEMENTS

1. Representations by Assignor. Assignor does hereby represent and warrant to Assignee and Assignee's successors and assigns that: (a) Assignor is the legal and beneficial owner and holder of the Assigned Interest; (b) Assignor has authority to convey good title to the Assigned Interest; and (c) the Assigned Interest is not subject to lien or assessment created by Assignor in favor of any of Assignor's creditors or any other person or entity, and to Assignor's knowledge, the Assigned Interest is not subject to lien or assessment created by operation of law or otherwise in favor of Assignor's creditors or any other person or entity. THE REPRESENTATIONS AND WARRANTIES OF ASSIGNOR SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER GUARANTEES, REPRESENTATIONS AND WARRANTIES OF ANY KIND, WHETHER WRITTEN, ORAL, EXPRESS OR IMPLIED, WITH RESPECT TO THE ASSIGNED INTEREST. ACCORDINGLY, ASSIGNOR HAS NOT MADE, AND SHALL NOT BE DEEMED, BY VIRTUE OF HAVING SOLD THE ASSIGNED INTEREST, OR OTHERWISE, TO HAVE MADE, ANY OTHER GUARANTEE, REPRESENTATION OR WARRANTY WHATSOEVER, WHETHER WRITTEN, ORAL, EXPRESS, OR IMPLIED, WITH RESPECT TO THE ASSIGNED INTEREST, IT BEING AGREED THAT ALL SUCH RISKS ARE TO BE BORNE BY ASSIGNEE.

2. Representations by Assignee. Each Assignee hereby represents and warrants to Assignor as follows:

(a) Each Assignee has full legal capacity, right and power to enter into this Assignment (including the consent of any party or court of law whose consent is required) and to accept the transfer of the Assigned Interest and assume the obligations of Assignor under the Partnership Agreement.

(b) The execution and delivery of this Assignment and each of the other documents and agreements described in or contemplated by this Assignment to be executed by each Assignee and the performance of the transactions contemplated herein and in each such other document have been duly authorized by all requisite action, and will not result in the breach of or default under any agreement, mortgage or other instrument to which it is a party or by which it is bound.

(c) Each Assignee is acquiring the Assigned Interest for its account, for investment only and not with a view to the sale or distribution thereof.

(d) Each Assignee recognizes that (i) the Assigned Interest has not been registered under the Securities Act of 1933, as amended (the "**Securities Act**"), in reliance upon an exemption from such registration, and agrees that it will not sell, offer for sale, transfer, pledge or hypothecate its interest in the Partnership in the absence of an effective registration statement covering such interests under the Securities Act, or an available exemption therefrom, unless such sale, offer of sale, transfer, pledge or hypothecation is exempt from registration, and (ii) the restrictions on transfer may severely affect the liquidity of its investment.

(e) Each Assignee has performed his or her own due diligence with respect to the risks and rewards of such Assignee's investment in the Partnership.

(f) Each Assignee agrees to execute such instrument or instruments as shall be reasonably required by the General Partner to signify such Assignee's agreement to be bound by and made a party to the provisions of the Partnership Agreement.

3. Assumption by Assignee. As further consideration for this Assignment and in reliance upon the above representations and warranties of Assignor, each Assignee by his or her acceptance of this Assignment hereby is admitted to the Partnership as a substituted Limited Partner and accepts and agrees to be bound by the terms and provisions of the Partnership Agreement and all amendments thereto, and assumes all of the duties, obligations and liabilities arising after the date hereof relating to the Partnership with respect to the Assigned Interest being assigned, including, but not limited to, those created under the Partnership Agreement and all amendments thereto.

4. Indemnification.

(a) Assignor hereby agrees to indemnify each Assignee and hold each of them harmless from any and all claims, demands, losses, damages, judgments, suits, actions and causes of action of any nature whatsoever ("**Claims**") relating to that portion of the Assigned Interest assigned to them, which Claims accrue prior to the Effective Date.

(b) Each Assignee hereby agrees to indemnify Assignor and hold them harmless from any and all Claims relating to the Assigned Interest accruing on or after the Effective Date.

(c) The indemnifications set forth in this Section shall survive the Effective Date and the transfer of the Assigned Interest hereunder.

5. Prorations. All incidents of ownership of the Assigned Interest, including, but not limited to, rights to distributions of profits or gains, obligations for assessments, and allocation of tax losses and gains shall be prorated as of the Effective Date. The right to distributions shall be deemed to vest on the date on which the distribution is made, and the obligation to contribute capital in response to an assessment shall be deemed to accrue on the date of the assessment.

6. Waivers and Consents. As of the date hereof, the General Partner and the undersigned Consenting Partner hereby consent to (a) the transfer by Assignor to Assignee of the Assigned Interest, and (b) the admission of each Assignee as substituted limited partner in the Partnership.

7. Ratification. In all other respects, the Partnership Agreement is ratified and confirmed.

8. Further Assurances. Each of Assignor and Assignee hereby agree to deliver all such further documents and take all such other and further action as may be necessary to effectuate the intent of this Assignment.

9. Applicable Laws. The laws of the State of Texas shall govern the validity, construction, interpretation and enforcement of this Assignment.

10. Assignment Irrevocable. This transfer and assignment is irrevocable.

11. Binding Effect. This Assignment shall be binding upon and inure to the benefit of Assignor and Assignee and their respective legal and personal representatives, heirs, successors and assigns.

EXECUTED to be effective as of August 5, 2009 (the "**Effective Date**").

[Signature Pages Follow]

Signature Page
to
Amended and Restated Assignment of Interest in Limited Partnership
(Main Station Duncanville, Ltd.)

ASSIGNOR:

MONTE ANDERSON

ROSA ANDERSON

Signature Page
to
Amended and Restated Assignment of Interest in Limited Partnership
(Main Station Duncanville, Ltd.)

ASSIGNEE:

REFUGIO BAHENA

MARIA BAHENA

EMILIANO BAHENA

MARIA ISABEL BAHENA

SANTOS BAHENA

ROSALIA BAHENA

DAVID SAUCEDA

ANGEL HERNANDEZ

Signature Page
to
Amended and Restated Assignment of Interest in Limited Partnership
(Main Station Duncanville, Ltd.)

ACKNOWLEDGED AND CONSENTED TO BY GENERAL PARTNER:

MARA INC., a Texas corporation,

By:_____
Monte Anderson
President

Signature Page
to
Amended and Restated Assignment of Interest in Limited Partnership
(Main Station Duncanville, Ltd.)

ACKNOWLEDGED AND CONSENTED TO BY THE CONSENTING PARTNER:

DUNCANVILLE COMMUNITY AND ECONOMIC DEVELOPMENT CORPORATION, a Texas non-profit corporation

By: Stan Smith
Name: STAN SMITH
Title: PRESIDENT - DCEDC

Main Station — Ad Valorem Property Tax Revenue Analysis (2004–2025)

| Source: Dallas Central Appraisal District / City Records

Year	Taxable Value	City Tax (est.)	ISD Tax (est.)	County Tax (est.)	College Tax (est.)	Hospital Tax (est.)	Total Tax Generated	Cumulative Total Tax	
2004	2,111,180	$13,585	$27,868	$4,799	$2,574	$5,728	$54,553	$54,553	
2005	2,204,210	$14,184	$29,096	$5,010	$2,687	$5,980	$56,957	$111,510	
2006	2,265,080	$14,576	$29,899	$5,149	$2,761	$6,145	$58,530	$170,039	
2007	2,600,000	$16,731	$34,320	$5,910	$3,169	$7,054	$67,184	$237,223	
2008	2,111,240	$13,586	$27,868	$4,799	$2,574	$5,728	$54,554	$291,778	
2009	1,866,120	$12,008	$24,633	$4,242	$2,275	$5,063	$48,221	$339,998	
2010	1,866,120	$12,008	$24,633	$4,242	$2,275	$5,063	$48,221	$388,219	
2011	1,670,310	$10,748	$22,048	$3,797	$2,036	$4,532	$43,161	$431,380	
2012	1,670,310	$10,748	$22,048	$3,797	$2,036	$4,532	$43,161	$474,540	
2013	1,782,610	$11,471	$23,530	$4,052	$2,173	$4,836	$46,063	$520,603	
2014	1,852,660	$11,922	$24,455	$4,211	$2,258	$5,026	$47,873	$568,476	
2015	1,900,000	$12,227	$25,080	$4,319	$2,316	$5,155	$49,096	$617,572	
2016	2,181,350	$14,037	$28,794	$4,958	$2,659	$5,918	$56,366	$673,938	
2017	2,181,350	$14,037	$28,794	$4,958	$2,659	$5,918	$56,366	$730,304	
2018	2,236,760	$14,394	$29,525	$5,084	$2,727	$6,068	$57,798	$788,102	
2019	2,236,760	$14,394	$29,525	$5,084	$2,727	$6,068	$57,798	$845,900	
2020	2,264,890	$14,575	$29,897	$5,148	$2,761	$6,145	$58,525	$904,425	
2021	2,264,890	$14,575	$29,897	$5,148	$2,761	$6,145	$58,525	$962,949	
2022	2,491,690	$16,034	$32,890	$5,664	$3,037	$6,760	$64,385	$1,027,335	
2023	2,491,690	$16,034	$32,890	$5,664	$3,037	$6,760	$64,385	$1,091,720	
2024	2,590,000	$16,094	$34,188	$5,887	$3,157	$7,027	$66,353	$1,158,073	
2025	2,590,000	$16,094	$34,188	$5,887	$3,157	$7,027	$66,353	$1,224,426	
TOTAL		**$304,062**	**$626,066**	**$107,807**	**$57,816**	**$128,675**	**$1,224,426**	**$13,613,062**	

Note: *Tax revenue estimates below are presented as estimates only based on approximate combined levies. City ≈ $0.6435/$100; ISD ≈ $1.32/$100; County ≈ $0.2273/$100; College ≈ $0.1219/$100; Hospital ≈ $0.2713/$100 this analysis reflects total property tax generated only.*

Main Station — Estimated Sales Tax Revenue Analysis (2004–2025)

Methodology: Ground-floor retail/restaurant SF × estimated taxable sales/SF ratio × combined state+local sales tax rate. Figures represented are only high-level estimates for staff analysis

Year	Occ. Rate	Leased SF	Rest. Sales/SF	Retail Sales/SF	Blended Sales/SF	Gross Taxable Sales	State Tax (6.25%)	City Tax (2.00%)	Total Sales Tax	Cumulative Total Tax			
2004	70%	7,700	$280.00	$160.00	$226.00	$1,740,200	$108,763	$34,804	**$143,567**	$143,567			
2005	75%	8,250	$287.00	$164.00	$231.65	$1,911,113	$119,445	$38,222	$157,667	$301,233			
2006	82%	9,020	$294.17	$168.10	$237.44	$2,141,695	$133,856	$42,834	$176,690	$477,923			
2007	88%	9,680	$301.53	$172.30	$243.38	$2,355,885	$147,243	$47,118	$194,360	$672,284			
2008	82%	9,020	$309.07	$176.61	$249.46	$2,250,156	$140,635	$45,003	$185,638	$857,922			
2009	68%	7,480	$309.07	$176.61	$249.46	$1,865,983	$116,624	$37,320	$153,944	$1,011,865			
2010	70%	7,700	$309.07	$176.61	$249.46	$1,920,865	$120,054	$38,417	$158,471	$1,170,336			
2011	72%	7,920	$310.61	$177.49	$250.71	$1,985,592	$124,099	$39,712	$163,811	$1,334,148			
2012	74%	8,140	$318.38	$181.93	$256.98	$2,091,797	$130,737	$41,836	$172,573	$1,506,721			
2013	78%	8,580	$326.34	$186.48	$263.40	$2,259,998	$141,250	$45,200	$186,450	$1,693,171			
2014	80%	8,800	$334.50	$191.14	$269.99	$2,375,894	$148,493	$47,518	$196,011	$1,889,182			
2015	80%	8,800	$342.86	$195.92	$276.74	$2,435,286	$152,205	$48,706	$200,911	$2,090,093			
2016	82%	9,020	$351.43	$200.82	$283.66	$2,558,573	$159,911	$51,171	$211,082	$2,301,175			
2017	84%	9,240	$360.22	$205.84	$290.75	$2,686,521	$167,908	$53,730	$221,638	$2,522,813			
2018	85%	9,350	$369.22	$210.98	$298.01	$2,786,412	$174,151	$55,728	$229,879	$2,752,692			
2019	86%	9,460	$378.45	$216.26	$305.46	$2,889,694	$180,606	$57,794	$238,400	$2,991,092			
2020	60%	6,600	$321.68	$183.82	$259.64	$1,713,644	$107,103	$34,273	$141,376	$3,132,468			
2021	72%	7,920	$321.68	$183.82	$259.64	$2,056,373	$128,523	$41,127	$169,651	$3,302,119			
2022	82%	9,020	$329.73	$188.41	$266.14	$2,400,547	$150,034	$48,011	$198,045	$3,500,164			
2023	84%	9,240	$337.97	$193.13	$272.79	$2,520,598	$157,537	$50,412	$207,949	$3,708,113			
2024	85%	9,350	$346.42	$197.95	$279.61	$2,614,339	$163,396	$52,287	$215,683	$3,923,796			
2025	85%	9,350	$355.08	$202.90	$286.60	$2,679,701	$167,481	$53,594	$221,075	$4,144,871			
TOTAL						**$50,240,864**	**$3,140,054**	**$1,004,817**	**$4,144,871**	**$4,144,871**	22-Year Estimate		

METHODOLOGY & DATA SOURCES	
Taxable Sales/SF Benchmarks:	Restaurant/food-service: $280/SF (2004 base) reflects ICSC and CoStar regional benchmarks for independent/neighborhood full-service restaurants in suburban DFW (comparable to DeSoto, Cedar Hill, Lancaster main street corridors). National median for independent restaurants: $250–$350/SF. General retail: $160/SF (2004 base) reflects small-format neighborhood service retail (hair/nail salons, boutiques, specialty goods). Source: ICSC Research, Cushman & Wakefield DFW Retail MarketBeat, CoStar Analytics.
Occupancy Assumptions:	Year-specific rates applied based on economic cycle, local market conditions, and observed Main Street performance. Recession years (2009–2011) discounted to 68–72%. COVID year (2020) reduced to 60% reflecting forced closures and limited capacity mandates. Stabilized years (2018–2019, 2022–2025) reflect 82–86% ground-floor occupancy, consistent with comparable neighborhood mixed-use in DFW.
Tenant Use Mix (55/45):	55% food/beverage, 45% general retail reflects Main Station's observed tenant profile as a neighborhood-serving destination with café, restaurant, and bar concepts anchoring the ground floor. Food/bev tenants typically generate 1.5–2x the taxable sales/SF of general retail, making this split material to the estimate.
Sales Tax Rate Calculation:	Texas state rate: 6.25% (constant throughout period). City of Duncanville local sales tax rate: 2.0%. This model reflects only the City's full 2.0% local rate; it does not separately reflect DCEDC's (Type B / 4B) share of the local rate. Total effective combined rate: 8.25% applied to estimated gross taxable sales. Note: some personal services (haircuts, nail care) are exempt from Texas sales tax; the blended rate implicitly discounts this through the conservative retail sales/SF assumption. Source: Texas Tax Code §151.051; Tex. Local Gov. Code Ch. 505.
Limitations:	These figures are high-level estimates for staff analysis and board presentation context. They are not verified against Texas Comptroller allocation records, DCEDC annual revenue reports, or tenant sales data. Actual collections may vary materially based on tenant mix, lease dates, sales performance, and exempt categories. If precise verification is needed, DCEDC should submit a public information request to the Texas Comptroller's office for allocation data by permit holder at this address.

KEY ASSUMPTIONS		
Ground-Floor Retail/Restaurant SF	**11,000 SF**	~22,000 SF total building (LP Agreement, Art. I); ground floor estimated at ~50% = 11,000 SF. Includes storefronts, restaurant space, and street-level office/retail. Upper floor = residential lofts/office (not taxable retail).
Est. Restaurant/Food Use Share	**55%**	Main Station has historically hosted food/beverage tenants (restaurants, café, bar) in the majority of its ground-floor space. 55% food/bev, 45% general retail reflects observed tenant mix for neighborhood mixed-use centers along urban main streets in DFW submarket. Adjust if lease abstracts indicate different split.
Avg. Ground-Floor Occupancy Rate	**78%**	78% long-run average reflects a downtown/Main Street mixed-use project with locally-owned tenants. Assumes higher vacancy in recessionary years (2009-2012: ~65-70%) and near-stabilized occupancy in mature years (2016+: ~85%). Year-specific occupancy rates applied in table below.
Restaurant Sales/SF — Base (2004)	**$280**	$280/SF base for independent/neighborhood restaurant — consistent with CoStar/Cushman & Wakefield DFW restaurant benchmarks for locally-owned, lower-volume full-service concepts (vs. $400-600/SF for chain fast-casual). Source: CoStar DFW Retail Market Reports; ICSC Research neighborhood retail benchmarks.
General Retail Sales/SF — Base (2004)	**$160**	$160/SF for neighborhood service retail (personal care, boutique, specialty goods) — conservative estimate for locally-owned small-format retail in a suburban Main Street context. National avg for neighborhood retail ~$200-250/SF; discounted for Duncanville market, tenant size, and lower traffic density vs. regional corridors.
Annual Sales/SF Growth Rate	**2.5%**	2.5% compound annual growth applied to base sales/SF — approximates long-run CPI + modest real sales growth for neighborhood retail in DFW. Moderated down in recession years (2009-2011: 0% growth). Reflects menu/price inflation and gradual sales maturation rather than volume expansion.
Texas State Sales Tax Rate	**6.25%**	6.25% — Texas state rate (constant throughout period). Source: Texas Tax Code §151.051.
City of Duncanville Sales Tax Rate	**2.00%**	2.0% — City of Duncanville total local sales tax rate. This model reflects the City's full 2.0% local allocation only; DCEDC's Type B (4B) share of the local rate is not broken out or separately reflected in this analysis. Combined with the 6.25% state rate = 8.25% total effective rate. Source: Texas Comptroller local sales tax allocations; Tex. Local Gov. Code Ch. 505.