



**Halff Associates, Inc.**  
100 NE Loop 410, Suite 701  
San Antonio, Texas 78216  
(210) 798-1895

March 19, 2025

Administrative Exception / Variance Request Review  
City of San Antonio  
Development Services Department  
1901 S. Alamo  
San Antonio, Texas 78204

**RE: Seeling Drainage Phase IV Project**  
**Project Number 23-03944**  
***Floodplain Variance Request***  
**Unified Development Code: Appendix F – Floodplains – Areas of Special Flood**  
**Subdivision C – Floodplain Development Permits – Section 35-F124(c)(2)**

- ☒ Administrative Exception [Floodplain Variance]
- ☐ Environmental Variance
- ☐ Subdivision Platting Variance – Time Extension

Dear Development Services,

### **Introduction & Code Issue**

This letter requests a Variance Request for the Seeling Drainage Phase IV Project, also known as Seeling Channel Phase IV, along Seeling Blvd. between Lowery Drive and Alazan Creek in San Antonio, TX. The Variance Request is for Appendix F – Floodplains – Areas of Special Flood – Subdivision C – Floodplain Development Permits – Section 34-F124 of the San Antonio Unified Development Code (UDC) which states that, “(c) An increase in water surface elevation is permitted solely when all the following conditions are met: 1. Property owner owns both sides of the floodplain and the increase in the regulatory floodplain is contained in a dedicated drainage easement or right-of-way; 2. Increase in water surface elevation for the effective and regulatory floodplains do not exceed six (6) inches; 3. No increase in water surface elevations or velocities upstream or downstream outside of the owner’s property limits; and 4. For Capital Improvement Projects, rises in water surface elevations and velocities within the studied reach will be permitted if items (c) (1) and (3) above are met.” Although the criteria for (c) (1), (3), and (4) are met, there are observed water surface elevation increases downstream of the Capital Improvement Project’s (CIP) limits along Alazan Creek that exceed the six (6) inch threshold.

### **Project Background**

Halff analyzed the existing drainage conditions of the Alazan Creek and Alazan Unnamed Tributary, both of which directly contribute to Woodlawn Lake. It was determined that approximately 2,000 acres ( $\pm$  3.1 square miles) of runoff drains to and through the Seeling Drainage Phase IV Project, inundating multiple properties along Placid Drive and Seeling Boulevard, which can be seen in **Exhibit 1** (attached). Downstream of the Phase IV project, Alazan Creek receives an additional  $\pm$  350 acres ( $\pm$  0.55 square miles) of runoff before reaching Woodlawn Lake. Prior to the Phase IV improvements, a majority of the upstream runoff bypasses the upstream areas of Alazan Creek (Seeling Channel Phase III) prior to entering the channel near the Morning Glory crossing (Seeling Channel Phase II). As a result of the Phase IV

improvements, all the upstream runoff is contained along/underneath Placid Drive and Seeling Boulevard and enters the upstream end of Alazan Creek (Seeling Channel Phase III), formerly inundating areas of St. Cloud Road east/southeast of the CIP limits. Refer to **Exhibit 1** (attached) for an illustration of the Seeling Channel CIP Phases I – IV limits.

Halff considered a variety of upstream improvements during the 2021 Preliminary Engineering Report (PER) ranging from channel improvements, incorporation of regional detention, and the upsizing of existing underground storm water infrastructure. Following the construction of Seeling Channel Phases I, II, and III, Alazan Creek has additional freeboard capacity with the intent to be able to receive additional storm water runoff due to upstream improvements planned with future phases (i.e. Phase IV). As such, the Phase IV Drainage Project was designed to mitigate the flood risk observed along Placid Drive and Seeling Boulevard, downstream of Donaldson Avenue, by upsizing the area's storm drain system(s). The primary drainage improvements consist of two (2) additional 10-foot x 10-foot box culverts, 340 linear feet of curb inlets, and an improved earthen channel. Refer to **Exhibit 2** (attached) for an illustration of the Phase IV Project Layout and proposed improvements.

### *Discussion & Justification*

Following these improvements, all upstream runoff is being concentrated towards the Phase IV outfall to Alazan Creek during the one hundred (100)-year ultimate storm event, resulting in immediate downstream water surface elevation increases. It should be noted that this watershed is assumed to be fully developed and as such, the one hundred (100) and one hundred (100)-year future conditions are nearly equivalent. These increased flows are continually observed along Alazan Creek downstream of the Phase IV CIP limits due to the increased efficiency of the upstream storm water infrastructure. As the existing storm drain system along Seeling Boulevard is undersized, less surface runoff is directed to Alazan Creek, resulting in the inundation of multiple properties. Once the storm drain system is expanded, following the Phase IV improvements, more surface runoff is intercepted and conveyed towards Alazan Creek, which results in the expected water surface elevation (WSE) increases downstream. With increased efficiency, the time to peak also occurs earlier than Pre-Project Conditions. The water surface elevation increases are most pronounced downstream of St. Cloud Road and at Morning Glory where local storm water infrastructure, outside of the Phase IV limits, also outfalls to Alazan Creek. Here, the local runoff and Post-Project flows have more coincidental peaks, resulting in increased water surface elevations. However, closer to the Kampmann Boulevard and Woodlawn Lake confluence, the Post-Project time to peak occurs even earlier ( $\pm 35$  minutes), reducing the potential of coincidental peaks in downstream areas, ensuring that adverse impacts outside of CoSA Right of Way (ROW) are avoided.

The greatest increase in water surface elevations between Pre- and Post-Project Conditions occurs near the Morning Glory crossing ( $\pm 0.78$  feet) but Alazan Creek has approximately 3.50 feet of freeboard remaining at this location following the Phase IV improvements. Along Alazan Creek where Section 34-F124 (c) (2) of the UDC is non-compliant, the average water surface elevation increases are  $\pm 0.64$  feet ( $\pm 7.7$  inches) with Alazan Creek maintaining an average freeboard of  $\pm 4.40$  feet over the same area. The lowest Post-Project freeboard occurs immediately upstream of the Huisache Avenue crossing and still maintains  $\pm 1.77$  feet. With this in mind, all Post-Project water surface elevation increases along Alazan Creek, within the limits of remapping, are well contained within the channel and City of San Antonio Right of Way (ROW), supporting the notion that this "[Variance Request] will not be contrary to the spirit and intent of the UDC and the specific regulations from which an exception is requested." None of the Post-Project WSE increases will adversely impact any roadway crossings or properties adjacent to Alazan Creek.

Refer to **Exhibit 3** and **Table 1** (attached) for an illustration of where the water surface elevation increases are non-compliant with UDC Section 34-F124 (c) and where the Variance Request is being requested. This area is confined between *Nodes 100.60* and *100.39*, representative of approximately 3,400 feet along Alazan Creek. Refer to **Table A**, below, for a summary of the non-compliant WSE increases and remaining freeboard along Alazan Creek.

	Minimum WSE Increase (Post-Project) (ft)	Maximum WSE Increase (Post-Project) (ft)	Average WSE Increase (Post-Project) (ft)	Minimum Freeboard Remaining (Post-Project) (ft)	Maximum Freeboard Remaining (Post-Project) (ft)	Average Freeboard Remaining (Post-Project) (ft)
	0.51	0.78	0.64	1.77	6.75	4.40
<b>Node Location (See Exhibit 3)</b>	100.58	100.46.1	<i>100.60 thru 100.39</i>	AZC-005-013	100.52	<i>100.60 thru 100.39</i>

*Table A: Hydraulic Summary of Non-Compliant WSE Increases & Remaining Freeboard*

- As a result of the Seeling Channel Phase IV Capital Improvement Project, storm water infrastructure along Alazan Creek and Alazan Unnamed Tributary operates more efficiently, resulting in a one hundred (100)-year ultimate storm event time to peak that occurs  $\pm$  35 minutes earlier than Pre-Project Conditions, reducing the likelihood of coincidental peaks near Woodlawn Lake and ensuring no adverse impacts; and...
- Within Alazan Creek the reported water surface elevation increases, specifically the areas that exceed the six (6) inch threshold, remain contained within the available freeboard (average of 4.40 feet remaining Post-Project) of the concrete channel and do not impact properties outside of those owned and maintained by the City of San Antonio; and...
- The freeboard in the Alazan Creek concrete was designed and constructed for the expressed purpose of providing the Seeling Channel Phase IV Project, and other potential upstream storm water improvements, the capacity needed to safely convey storm water runoff downstream; and...
- Following the Seeling Channel Phase IV Capital Improvement Project, the reported Post-Project water surface elevations, within the proposed limits of remapping, still maintain a minimum freeboard of one (1) foot during the one hundred (100)-year ultimate storm event as Alazan Creek continues to have sufficient capacity to receive upstream flow.

### Summary of Hardship

The following responses are provided in accordance with the Floodplain Variance Request hardship standard outlined in the revised November 19, 2021, Information Bulletin (IB) 124 AE/VR memorandum:

- *"If the applicant complies strictly with the provisions of these regulations, he/she can make no reasonable use of his/her property; and...*

The subject property that is non-compliant with UDC Section 34-F124 (c), currently owned by the City of San Antonio, is inundated by a FEMA regulatory floodplain. The drainage channel in question where the water surface elevation increases are encountered was designed and

constructed with previous capital project phases for the explicit and sole purpose of providing flood conveyance and flood reduction. As such, any other developed use of this area, along Alazan Creek (Seeling Channel), would be difficult to accomplish. In addition, all of the non-compliant floodplain inundation area is contained within the channel with freeboard remaining Post-Project.

- *“The hardship relates to the applicant’s land, rather than personal circumstances;”*

The subject property is encumbered by the mapped FEMA floodplain. Previous phases of the Seeling Channel Drainage Improvement Projects have provided Alazan Creek with additional freeboard that the Seeling Channel Phase IV Project will utilize to increase channel conveyance and reduce flood risk to surrounding properties. As such, the hardship is not a personal circumstance, but rather one that applies to the subject property alone.

- *The hardship is unique, or nearly so, rather than one shared by many surrounding properties; and...*

The mapped 1% annual chance (100-Year storm event) floodplain, within the limits of the non-compliant area, only impacts the subject property (i.e. drainage channel) and does not impact adjacent residential and/or commercial properties. The hardship is unique to the subject property and does not extend to any additional properties beyond those within the floodplain inundation area.

- *“The hardship is not the result of the applicant’s own action;”*

The City of San Antonio is a participating community in FEMA’s National Flood Insurance Program (NFIP) and is required to maintain updated floodplain mapping that meets FEMA’s requirements, at a minimum. As such, the Phase IV Project is obligated to strive for compliance with the City’s floodplain ordinance, which details both required actions to revise a FEMA floodplain (i.e. C/LOMR) and maximum allowable water surface elevation increases (i.e. 0.50 feet). If the Floodplain Variance Request for non-compliant water surface elevation increases is not approved, the required FEMA CLOMR will not be approved, and the Phase IV Project will not be constructed. This would be a substantial loss to the City’s Public Works Department managing flood risk and the property owners would have benefited from this project.

- *“The granting of the exception/variance will not be injurious to other property and will not prevent the orderly subdivision of other property in the area in accordance with these regulations;”*

Despite the non-compliant water surface elevation increases being modeled approximately 3,200 to 3,400 feet downstream of the project area, these rises do not adversely impact any adjacent properties as demonstrated by the results in **Table 1** (attached). These water surface elevation increases only apply to and impact the subject property. The Seeling Channel Phase IV Project conveys additional surface runoff to the channel (subject property) and utilizes a portion of the available freeboard while not exceeding the channel’s design capacity or minimum freeboard requirements. As a result, multiple properties and structures will be removed from the regulatory floodplain upstream.

- *“The variance is the minimum necessary, considering the flood hazard, to afford relief;”*

Construction of the Seeling Channel Phase IV Project will not require any additional variances related to the floodplain, at this time.

- *“There is good and sufficient cause;”*

The Seeling Channel Phase IV Project was designed for the City of San Antonio Public Works Department as bond-funded project. This project is an extension of the three (3) previous Seeling Channel project phases and will continue to provide the benefits of flood risk reduction and reduced insurance premiums to surrounding properties. Therefore, the public interest appears to be served with no measurable adverse impacts should this variance be approved.

- *“Failure to grant the variance will result in exceptional hardship to the applicant;”*

Without an approved variance, the subsequent FEMA C/LOMR will not be approved, and this project will not be constructed. As such, this will serve as a considerable loss to the City of San Antonio Public Works Department in managing flood risk and, more importantly, the properties and residents of this area that would benefit from these floodplain reductions.

- *“The granting of the exception/variance will not result in increases flood heights, cause an additional threat to public safety, result in extraordinary public expense, or conflict with the existing local laws or ordinances;”*

The granting of this variance will not result in additional threat to public safety, as the water surface increases will be contained within the drainage channel designed with adequate freeboard. Granting of this variance will not result in extraordinary public expense, as the Phase IV Project is already funded for construction through the City’s 2022 Bond Program, and the project is not dependent on any other projects to be constructed. Lastly, granting of this variance will not knowingly conflict with any other existing laws and ordinances.

## Conclusions

During the PER, design, and CLOMR processes, Halff has closely monitored the water surface elevation increases downstream of the CIP limits along Alazan Creek. Halff, following continued coordination with the City of San Antonio – Storm Water Engineering (SWE) Department, *“has taken all practicable measures to minimize any adverse impacts on the public health, safety and public welfare”* and asserts that all proposed WSE increases associated with the Phase IV project are contained within the channel, and hence are contained within existing CoSA drainage ROW and/or drainage easements. Halff also believes that *“under [these] circumstances, the public interest underlying the proposed exception outweighs the public interest underlying the particular regulation for which the exception/variance is granted.”*

Following the construction of Seeling Channel Phase IV, areas along and adjacent to both Seeling Boulevard and Placid Drive will experience considerable flood reductions which results in the removal of multiple properties and structures from the regulatory floodplain, which can be seen in **Exhibit 4** (attached). In addition, the entirety of the project area will experience improved transportation mobility



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and safety. Halff believes that the project's benefits greatly outweigh the non-compliant WSE increases observed downstream, which remain contained within the channel.

As a result of the Seeling Channel Phases I, II, and III improvements, Alazan Creek was provided additional freeboard to be able to receive future upstream runoff within the watershed. The Phase IV project, an extension of Phases I – III, conveys additional surface runoff to the channel and utilizes a portion of this available freeboard while not exceeding the channel's design capacity or minimum freeboard requirements. This ensures that only the City of San Antonio is impacted within the areas of non-compliance of UDC Section 35-F124(c)(2).

In conclusion, after careful evaluation of the hydraulic calculations, design, and modeling associated with the Seeling Drainage Phase IV Project, Halff believes that:

- *"The exception will not be contrary to the spirit and intent of [the San Antonio UDC] and the specific regulations from which an exception is requested; and...*
- *The applicant has taken all practicable measures to minimize any adverse impacts on the public health, safety and public welfare; and...*
- *Under the circumstances, the public interest underlying the proposed exception outweighs the public interest underlying the particular regulation for which the exception is granted"; and...*

Therefore, in the professional opinion of Halff, *the proposed Administrative Exception/Variance remains in harmony with the spirit and purpose of the San Antonio UDC as it will not adversely affect the health, safety, or welfare of the public.*

Sincerely,

A blue ink signature of Josh Logan, consisting of a stylized first name and a long, sweeping horizontal line.

Josh Logan, P.E., CFM  
Senior Project Manager

A blue ink signature of Andrew Rademacher-Howe, featuring a stylized first name and a horizontal line.

Andrew Rademacher-Howe, P.E., CFM  
Deputy Project Manager

**HALFF ASSOCIATES, INC.**

**Attachments:**

Attachment A – CoSA AE/VR Application  
Attachment B – Exhibits  
Attachment C – Tables



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<b><u>For Office Use Only:</u></b>	AEVR #:	Date Received:
<b><u>DSD – Director Official Action:</u></b>		
<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED W/ COMMENTS	<input type="checkbox"/> DENIED
Signature:		Date:
Printed Name:	Title:	
Comments:		

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**ATTACHMENT A**  
**CoSA AE/VR APPLICATION**





# CITY OF SAN ANTONIO

## DEVELOPMENT SERVICES DEPARTMENT

1901 S. Alamo, San Antonio, TX 78204

### ADMINISTRATIVE EXCEPTION/VARIANCE REQUEST APPLICATION

<b>Project Name:</b>	Seeling Drainage Phase IV Project
<b>A/P # /PPR # /Plat #</b>	City of San Antonio Project Number 23-03944
<b>Date:</b>	February 27, 2025
<b>Code Issue:</b>	Increase in 1% AC water surface elevation greater than 6"
<b>Code Sections:</b>	35-F124(c)(2)

<b>Submitted By:</b>	<input checked="" type="checkbox"/> Owner	<input type="checkbox"/> Owners Agent * (Requires notarized Letter of Agent)
<b>Owners Name:</b> Eric Salazar, PE, Senior Engineer/Project Manager		
<b>Company:</b> City of San Antonio, Public Works Department		
<b>Address:</b> 100 W. Houston St., 15th Floor		<b>Zip Code:</b> 78205
<b>Tel #:</b> 210.207.8128 <b>Fax#</b>		<b>E-Mail:</b> eric.salazar@sanantonio.gov
<b>Consultant:</b> Josh Logan, PE, CFM		
<b>Company:</b> Halff Associates, Inc.		
<b>Address:</b> 100 NE Loop 410, Suite 701		<b>Zip Code:</b> 78216
<b>Tel #:</b> 210.798.1895 <b>Fax#</b>		<b>E-Mail:</b> jlogan@halff.com
<b>Signature:</b> <i>Eric Salazar, P.E.</i>		

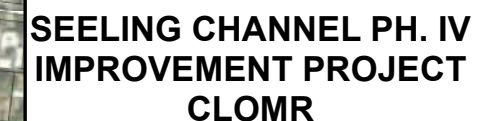
#### Additional Information – Subdivision Plat Variances & Time Extensions

- ☐ Time Extension ☐ Sidewalk ☒ Floodplain Permit ☐ Completeness Appeal  
☐ Other \_\_\_\_\_
- City Council District 7 Ferguson Map Grid \_\_\_\_\_ Zoning District \_\_\_\_\_
- San Antonio City Limits ☒ Yes ☐ No
- Edwards Aquifer Recharge Zone? ☐ Yes ☒ No
- Previous/existing landfill? ☐ Yes ☒ No
- Parkland Greenbelts or open space? Floodplain? ☒ Yes ☐ No

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## **ATTACHMENT B EXHIBITS**



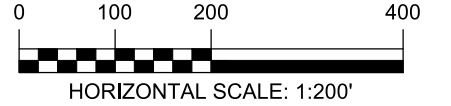








COSA 2023 PARCELS

1 inch = 600 feet







100 YEAR FLOOD PLAIN BOUNDARY	
EXIST ROW	
ADD ALT 1 BOUNDARY	
ADD ALT 2 BOUNDARY	
BORE HOLE	
PROPERTY ID	

1. CONTRACTOR SHALL REFER TO GEOTECHNICAL REPORT FOR ALL BORE HOLE INFORMATION.
2. FOR ALL PROPERTY INFORMATION REFER TO PROPERTY DATA SHEET.
3. SEE DEMO AND REMOVAL SHEET FOR CHANNEL WORK FOR CONSTRUCTION / DEMOLITION DEBRIS IF IT IS ENCOUNTERED.
4. STORAGE OF EQUIPMENT AND MATERIALS WILL NOT BE ALLOWED IN THIS FLOODPLAIN.
5. THE DELINEATION OF THE 100-YEAR FLOODPLAIN IS DERIVED FROM THE PRELIMINARY VERSION OF PANEL. NO. 48029C0383H, WHICH IS PART OF THE FLOOD INSURANCE RATE MAPS (FIRM) ISSUED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FOR BEXAR COUNTY, TEXAS, DATED JUNE 19, 2020, AND HAS BEEN UPDATED TO REFLECT THE APPROVAL OF LOMR 23-06-1883P, DATED APRIL 2024.

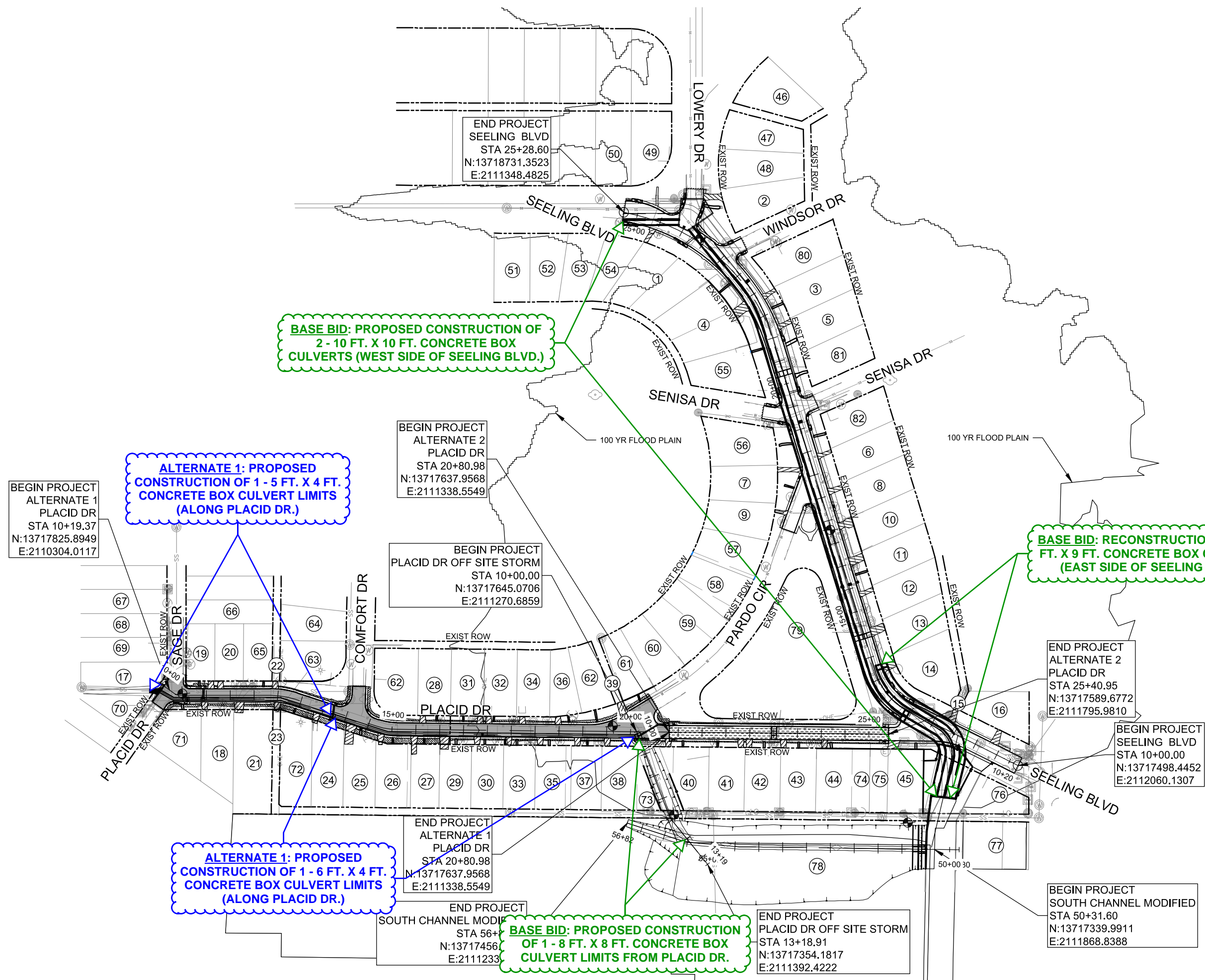
PRELIMINARY FOR REVIEW ONLY		
THESE DOCUMENTS ARE PRELIMINARY AND SUBJECT TO CHANGE. THEY ARE NOT INTENDED FOR CONSTRUCTION OR PERMIT PURPOSES. THEY WERE PREPARED BY, OR UNDER THE SUPERVISION OF:		
ANDREW W. RADEMACHER-HOWE	145814	8/28/2024
NAME	P.E. #	DATE
MARCUS E. GARCIA	130164	8/28/2024
NAME	P.E. #	DATE



SEELING CHANNEL PHASE IV

EXHIBIT 2  
PROJECT LAYOUT

COSA - 95%	PROJECT No. 23-03944		DATE: Sep 2024
DRWN BY: AC & EO	DSGN BY: AC & EO	CHKD BY: MEG	SHEET No











## KEY TO FEATURES

- NOTES:**



01/16/202



**MINIMUM FREEBOARD REMAINING:  
1.77 FT. APPROX. 300 LF  
UPSTREAM OF HUISACHE AVE.**

**COMPARISON OF REPRESENTATIVE  
1%-ANNUAL-CHANCE DISCHARGES**

**ALAZAN CREEK**  
**MT-2 FORM 2 - LOCATION #2**

CONTOURS SHOWN ON THIS EXHIBIT ARE BASED ON 2021 LIDAR DATA OBTAINED FROM TNRIS/TXGIO. THE HYDRAULIC MODELING AND FLOODPLAIN MAPPING FOR THIS CIP ARE BASED ON THE DIGITAL ELEVATION MODEL (DEM) SURFACE CREATED FROM THE 2021 LIDAR POINT DATA MENTIONED PREVIOUSLY. THIS MAY RESULT IN SOME DISCREPANCIES BETWEEN THE DISPLAYED CONTOURS AND THE DEM SURFACE USED DURING MODELING AND MAPPING.

AERIAL TOPOGRAPHIC INFORMATION: 2021 LIDAR  
SOURCE: TEXAS NATURAL RESOURCES INFORMATION SYSTEM  
AND TEXAS GEOGRAPHIC INFORMATION OFFICE  
DATE: DATA DERIVED FROM 2021 LIDAR DATA AND WAS  
PRODUCED USING ESTABLISHED TECHNIQUES,  
METHODOLOGIES, AND EQUIPMENT.  
HORIZONTAL ACCURACY: COMPILED TO MEET 11' AT 95% (RMSE)  
VERTICAL ACCURACY: COMPILED TO MEET 0.60' AT 95% (RMSE)  
WITH CONTOURS, BREAKLINES, AND POINTS



AREA IN VIOLATION OF UDC SECTION 34-F124 (C). SEE ATTACHED HYDRAULIC TABLES, SPECIFICALLY TABLE 1.

MINIMUM FREEBOARD REMAINING: 1.77 FT. APPROX. 300 LF UPSTREAM OF HUISACHE AVE.

CONTOURS NOTES:

CONTOURS SHOWN ON THIS EXHIBIT ARE BASED ON 2021 LIDAR DATA OBTAINED FROM TNRIS/TXGEO. THE HYDRAULIC MODELING AND FLOODPLAIN MAPPING FOR THIS CIP ARE BASED ON THE DIGITAL ELEVATION MODEL (DEM) SURFACE CREATED FROM THE 2021 LIDAR POINT DATA MENTIONED PREVIOUSLY. THIS MAY RESULT IN SOME DISCREPANCIES BETWEEN THE DISPLAYED CONTOURS AND THE DEM SURFACE USED DURING MODELING AND MAPPING.

TOPOGRAPHIC SURVEY INFORMATION:

VERTICAL DATUM: NAVD 88

AERIAL TOPOGRAPHIC INFORMATION: 2021 LIDAR  
SOURCE: TEXAS NATURAL RESOURCES INFORMATION SYSTEM AND TEXAS GEOGRAPHIC INFORMATION OFFICE  
DATE: DATA DERIVED FROM 2021 LIDAR DATA AND WAS PRODUCED USING ESTABLISHED TECHNIQUES, METHODOLOGIES, AND EQUIPMENT.  
HORIZONTAL ACCURACY: COMPILED TO MEET 11' AT 95% (RMSE)  
VERTICAL ACCURACY: COMPILED TO MEET 0.60' AT 95% (RMSE)  
WITH CONTOURS, BREAKLINES, AND POINTS

COMPARISON OF REPRESENTATIVE 1%-ANNUAL-CHANCE DISCHARGES  
ALAZAN CREEK  
MT-2 FORM 2 - LOCATION #1

THE EFFECTIVE 100-YEAR FLOODPLAIN (ZONE AE) REFERENCED IS FROM DFIRM PANELS 48029C0381H AND 48029C0383H, EFFECTIVE JUNE 19, 2020 AND APRIL 8, 2024, RESPECTIVELY.



SEELING CHANNEL  
PHASE IV  
IMPROVEMENT  
PROJECT CLOMR

KEY TO FEATURES

- XPSWMM NETWORK NODES (100-YEAR WSEL)
- TOP WIDTH CROSS SECTION (XPSWMM)
- TOP WIDTH CROSS SECTION (DFIRM)
- DFIRM CROSS SECTIONS
- XPSWMM LINK TYPE
  - CLOSED CONDUIT
  - OPEN CHANNEL
- PHASE IV PROJECT ALIGNMENT
- PROPOSED CONDITIONS 100-YR FLOODPLAIN
- CORRECTED EFFECTIVE 100-YR FLOODPLAIN
- EFFECTIVE 100-YR FLOODPLAIN (ZONE AE)
- REVISION BOUNDARY
- COSA 2023 PARCELS
- ALAZAN CREEK AND ALAZAN UNNAMED TRIBUTARY

NOTES:  
1. TOP WIDTH CROSS SECTIONS (XPSWMM) ARE CONSISTENT WITH SECTIONS TAKEN ACROSS AND CLIPPED TO THE PROPOSED CONDITIONS 100-YEAR FLOODPLAIN EXTENTS.  
2. TOP WIDTH CROSS SECTIONS (DFIRM) ARE CONSISTENT WITH SECTIONS TAKEN ACROSS AND CLIPPED TO THE PROPOSED CONDITIONS 100-YEAR FLOODPLAIN EXTENTS ALONG THE DFIRM CROSS SECTIONS AND PROVIDE ADDITIONAL REFERENCE POINTS FOR RESULTS COMPARISON.



01/16/2025

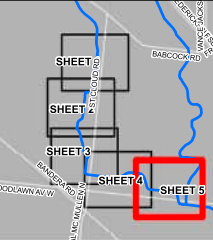
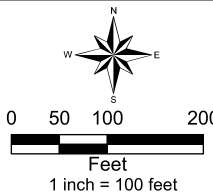
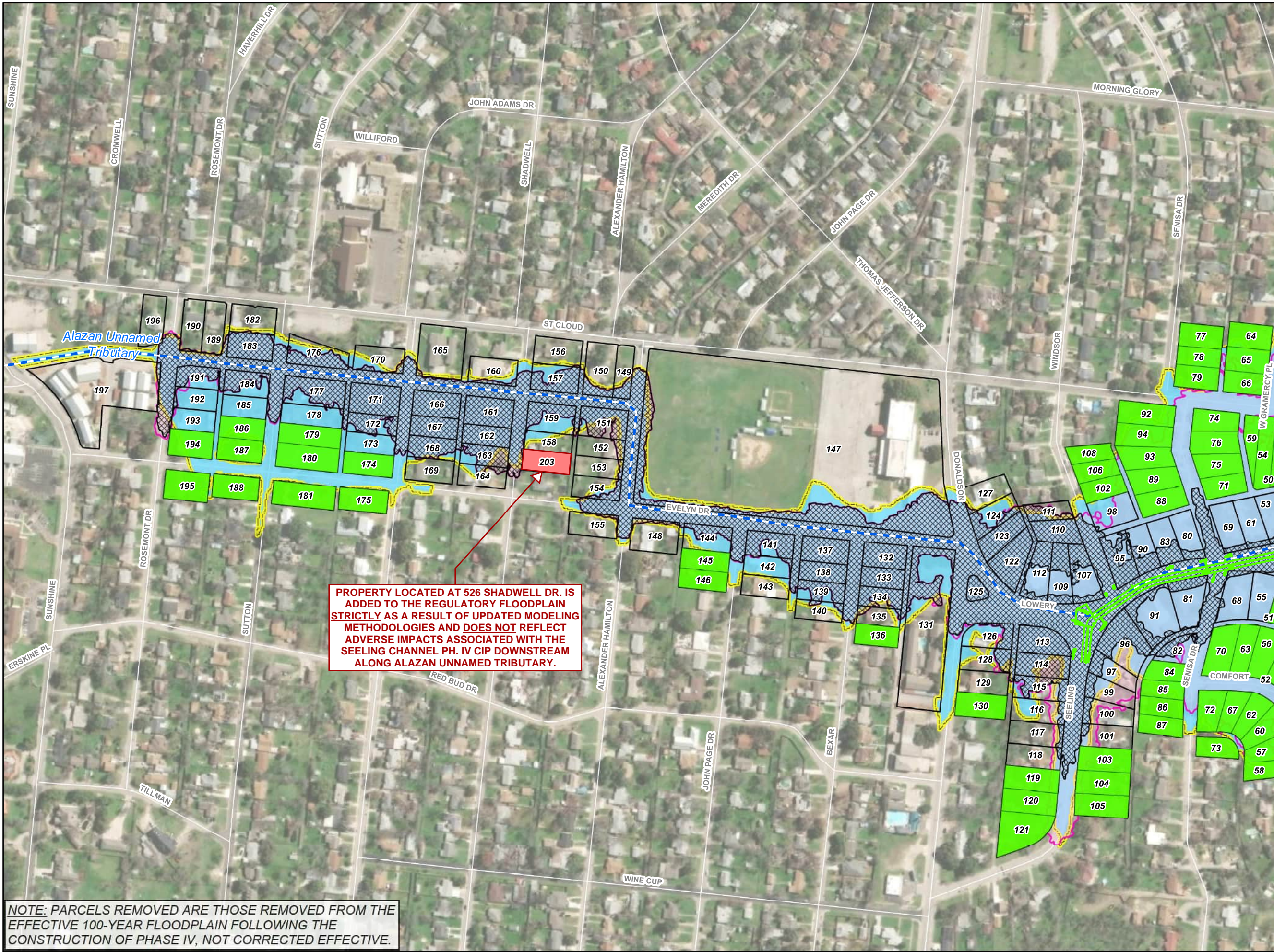


EXHIBIT 3:  
CERTIFIED  
TOPOGRAPHIC  
WORKMAP

SHEET 3 OF 3







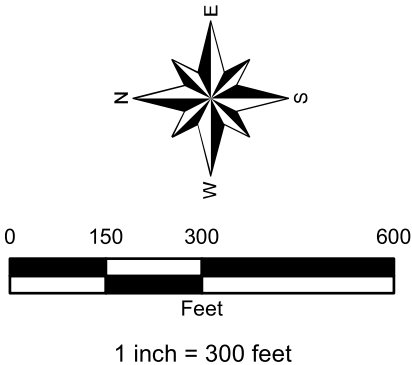
SEELING CHANNEL PH. IV  
IMPROVEMENT PROJECT  
CLOMR

KEY TO FEATURES

- ALAZAN UNNAMED TRIBUTARY
- PHASE IV PROJECT ALIGNMENT
- PARCELS ADDED
- PARCELS REMOVED
- PARCELS AFFECTED
- PROPOSED CONDITIONS 100-YR FLOODPLAIN
- CORRECTED EFFECTIVE 100-YR FLOODPLAIN
- EFFECTIVE 100-YR FLOODPLAIN

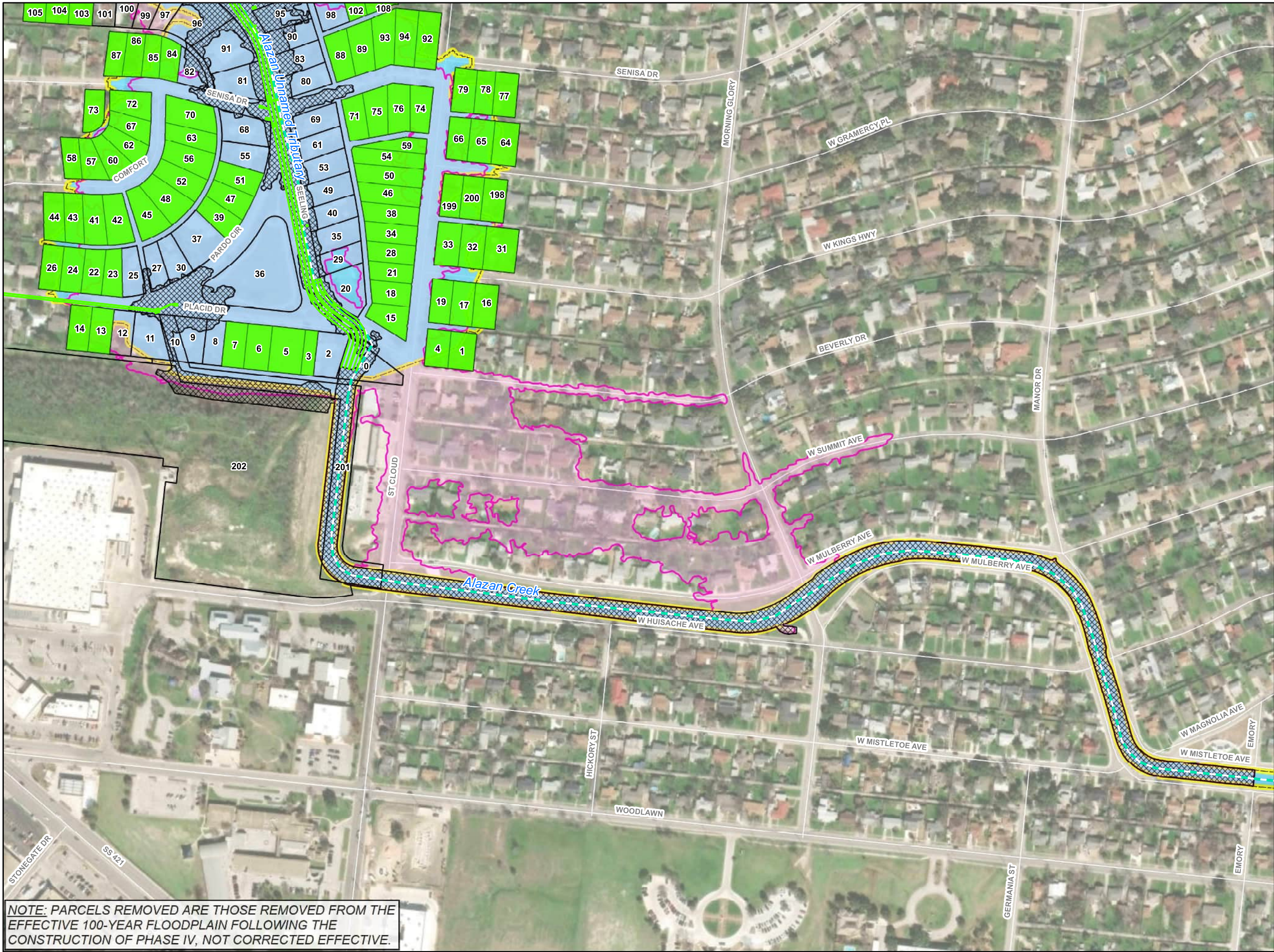
EXHIBIT 4:  
AFFECTED PARCELS  
MAP

SHEET 1 OF 2



NOTE: PARCELS REMOVED ARE THOSE REMOVED FROM THE EFFECTIVE 100-YEAR FLOODPLAIN FOLLOWING THE CONSTRUCTION OF PHASE IV, NOT CORRECTED EFFECTIVE.





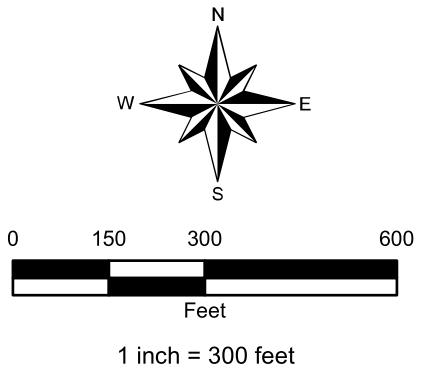
## SEELING CHANNEL PH. IV IMPROVEMENT PROJECT CLOMR

### KEY TO FEATURES

- ALAZAN CREEK CL
- ALAZAN UNNAMED TRIBUTARY CL
- PHASE IV PROJECT ALIGNMENT
- PARCELS ADDED
- PARCELS REMOVED
- PARCELS AFFECTED
- PROPOSED CONDITIONS 100-YR FLOODPLAIN
- CORRECTED EFFECTIVE 100-YR FLOODPLAIN
- EFFECTIVE 100-YR FLOODPLAIN

### EXHIBIT 4: AFFECTED PARCELS MAP

SHEET 2 OF 2



NOTE: PARCELS REMOVED ARE THOSE REMOVED FROM THE EFFECTIVE 100-YEAR FLOODPLAIN FOLLOWING THE CONSTRUCTION OF PHASE IV, NOT CORRECTED EFFECTIVE.



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## **ATTACHMENT C TABLES**

**TABLE 1.**  
**ALAZAN CREEK FREEBOARD ANALYSIS**

**AREA NOT COMPLIANT WITH UDC  
SECTION 34-F124 (C). REFER TO  
EXHIBIT 3 FOR AN ILLUSTRATION  
OF THESE EXTENTS.**

**FREEBOARD ALONG ALAZAN CREEK  
REMAINS (POST-PROJECT) WITHIN  
AREA WHERE VARIANCE TO UDC  
SECTION 34-F124 (C) IS REQUESTED.**

**AREA NOT COMPLIANT WITH UDC  
SECTION 34-F124 (C). REFER TO  
EXHIBIT 3 FOR AN ILLUSTRATION  
OF THESE EXTENTS.**

NOTES	UPSTREAM NODE (CEM/PCM)	PROJECT LINK NAME (CEM/PCM)	SHAPE	CORRECTED EFFECTIVE (CEM)			PROPOSED CONDITIONS (PCM)			COMPARISON (PCM-CEM)
				WSEL <sub>100</sub> (ft)	TOP OF BANK (ft)	FREEBOARD (ft)	WSEL <sub>100</sub> (ft)	TOP OF BANK (ft)	FREEBOARD (ft)	WSEL <sub>100</sub> (ft)
ALAZAN CREEK										
Outfall to Seeling Channel Phase III (Alazan Creek)	100.60	_100.60	Concrete Channel	690.71	697.75	7.04	691.23	697.75	6.52	0.52
Confluence w/ Alazan Creek (West)	100.58	_100.58	Concrete Channel	690.95	697.08	6.13	691.46	697.08	5.62	0.51
	100.57	_100.57	Concrete Channel	690.79	696.81	6.02	691.40	696.81	5.41	0.62
	100.56	_100.56	Concrete Channel	690.66	696.16	5.50	691.28	696.16	4.88	0.62
	100.54	_100.54	Concrete Channel	690.25	697.00	6.75	690.88	697.00	6.12	0.64
US St. Cloud	100.53	_100.53	Concrete Channel	690.15	697.00	6.85	690.79	697.00	6.21	0.64
St. Cloud	100.52	_100.52	Bridge	690.11	697.50	7.39	690.75	697.50	6.75	0.64
St. Cloud	100.52	_100.52	Bridge	690.11	697.50	7.39	690.75	697.50	6.75	0.64
DS St. Cloud & Confluence w/ Bandera Rd. Outfall	100.51	_100.51	Concrete Channel	689.14	694.97	5.83	689.74	694.97	5.23	0.60
	100.50	_100.50	Concrete Channel	689.03	693.79	4.76	689.67	693.79	4.12	0.64
	100.49	_100.49	Concrete Channel	688.61	692.85	4.24	689.27	692.85	3.58	0.66
	100.48	_100.48	Concrete Channel	688.34	692.32	3.98	689.01	692.32	3.31	0.67
Hickory St.	100.47	_100.47	Concrete Channel	688.09	691.97	3.88	688.78	691.97	3.19	0.69
	AZC-005-012	_100.46	Concrete Channel	687.54	691.83	4.29	688.31	691.83	3.52	0.77
US Morning Glory	100.46.1	_100.46.1	Concrete Channel	687.19	691.58	4.39	687.97	691.58	3.61	0.78
Morning Glory	100.45	_100.45	Bridge	687.05	690.90	3.85	687.81	690.90	3.09	0.76
Morning Glory	100.45	_100.45	Bridge	687.05	690.90	3.85	687.81	690.90	3.09	0.76
DS Morning Glory	100.44	_100.44	Concrete Channel	686.26	690.65	4.39	686.88	690.65	3.77	0.62
	100.43	_100.43	Concrete Channel	686.08	690.83	4.75	686.68	690.83	4.15	0.60
	100.42	_100.42	Concrete Channel	686.12	689.93	3.81	686.71	689.93	3.22	0.59
	100.41	_100.41	Concrete Channel	685.73	689.13	3.40	686.29	689.13	2.84	0.56
US Huisache Ave.	AZC-005-013	100.40	Concrete Channel	685.66	687.98	2.32	686.21	687.98	1.77	0.55
Huisache Ave.	100.39	_100.39	Bridge	685.47	688.88	3.41	685.95	688.88	2.93	0.48
Huisache Ave.	100.39	_100.39	Bridge	685.47	688.88	3.41	685.95	688.88	2.93	0.48
DS Huisache Ave.	100.38	_100.38	Concrete Channel	684.23	686.67	2.44	684.39	686.67	2.28	0.15
	100.37	_100.37	Concrete Channel	684.07	685.23	1.16	684.18	685.23	1.05	0.11
	100.36	_100.36	Concrete Channel	683.98	685.23	1.25	684.05	685.23	1.18	0.07
Emory St.	AZC-005-014	_100.35	Concrete Channel	683.87	685.34	1.47	683.91	685.34	1.43	0.04

**Notes:**

1. Regarding Freeboard, (+) values are indicative of WSELs being contained within Alazan Creek / Seeling Channel (i.e. freeboard available).

2. Previous comment is not applicable to Column 11 (COMPARISONS) where values shown represent the observed changes between Pre- and Post-Project Conditions.