



Project No. 0771-368-11-123
August 10, 2023

Eric Clegg
MC-124
Waste Permits Division
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

Re: Response to Technical Notice of Deficiency Letter –Major Amendment Application
Turkey Creek Landfill
Alvarado, Johnson County, Texas
MSW Permit No. 1417D
RN100825462/CN601668486
Tracking No. 28144376 [273413701]

Dear Mr. Clegg:

On behalf of Texas Regional Landfill Company, LP, please find enclosed one original and three copies of the replacement pages for the referenced permit amendment application. The attached replacement pages were developed to incorporate comments included in your letter dated March 24, 2023. A copy of this submittal is placed in the Alvarado Public Library and the site operating record.

The enclosed table contains each comment identified by the TCEQ and a response to each below the comment. In addition, a minor revision was made to Appendix IIID for consistency of geosynthetic specifications and updates were made to Appendix IIIC and the SOP for consistency with the addition of a leachate evaporator (modification currently under review).

During the course of your review, if you need additional information or have any questions, please call.

Sincerely,

A handwritten signature in black ink, appearing to read 'Nevzat Turan', is written over a light blue horizontal line.

Nevzat Turan, P.E.
Principal

Attachments: Attachment 1: TCEQ Comments and Responses
Attachment 2: Revision Pages (RLSO Format)
Attachment 3: Revision Pages (Clean Format)

cc: Gary Bartels, Texas Regional Landfill Company, LP
Alvarado Public Library

ATTACHMENT 1
TCEQ COMMENTS AND RESPONSES

NOD ID	ID	MRI ID	App. Part	Citation	Location	T/NT	2nd NOD Type	NOD Description
NT1	1	213	Part II	330.547(b)		NT	Incomplete	Provide response from FEMA regarding the site's CLOMR request once received. Response: FEMA is currently reviewing our responses to their comments; however, the CLOMR application has been approved by Johnson County. Approval from the local governmental entity with jurisdiction over construction within the floodplain (Johnson County) is included in the signed MT-2 Form 1 as page IIIF-G-A-39 and 40, as required by 330.63(c)(2)(D)(i). Please note that by signing the MT-2 Form 1, Johnson County has found that the proposed improvements are designed to meet all community floodplain management requirements.
NT2	2	337	Part III	330.63(c)(2)(D)(i)	Volume I - Part I/IIC and Volume 3, Appendix IIIF-G	NT	Incomplete	Submit approval letter/document from FEMA and Johnson County once received. Response: As noted above, FEMA review of the technical design and demonstrations is ongoing. The approval from Johnson County for the proposed development is included in Appendix IIIF-G-A.
NT3	3	338	Part III	330.63(c)(2)(D)(ii)		NT	Incomplete	Submit approval letter/document from Johnson County once received. Response: The approval from Johnson County for the proposed development is included in pages IIIF-G-A-39 and 40.
NT4	4	339	Part III	330.63(c)(2)(D)(iii)		NT	Incomplete	Submit approval letter/document from FEMA once received. Response: As indicated, the FEMA review process for the technical design and demonstrations is ongoing. FEMA approval will be submitted once it is received.
NT5	5	606	Part III	330.409(f)	Volume 4, Part III, Appendix IIIH - GWSAP, Section 6	NT	Omitted	Include all required text in the GWSAP instead of only referencing rule for this item and for MRI IDs 607 through 623. Response: All required text were included in the GWSAP for this item and MRI IDs 607 through 623.
NT6	6	638	Part III	330.421(a)(1)(B)	Volume 4, Part III, Appendix IIIH - GWSAP, Section 2.3	NT	Omitted	Include all required text in the GWSAP instead of only referencing rule for this item and for MRI IDs 639 through 640, 643, and 650 through 653. Response: All required text were included in the GWSAP for this item and MRI IDs 639 through 640, 643, and 650 through 653.

NT7	7	933	Part IV	330.173(f)	NA	NT	Omitted	<p>Include the required text in the application in Part IV.</p> <p>Response: Section 1 - Introduction of the SOP has been updated to indicate that Turkey Creek Landfill will accept Class 1 waste and will comply with the requirements of §330.173 as well as the TCEQ issued permit.</p>
NT8	8	934	Part IV	330.173(g)	NA	NT	Omitted	<p>Include the required text in the application in Part IV.</p> <p>Response: Appendix IVC has been updated to address this comment.</p>
NT9	9	935	Part IV	330.173(h)	NA	NT	Omitted	<p>Include the required text in the application in Part IV.</p> <p>Response: Section 4.20.7.6 of the SOP includes the requirements to prepare and submit a Class 1 report by the 25th of each month.</p>
NT10	10	941	Part IV	335.585(b)	NA	NT	Omitted	<p>The site manages Class 1 waste so all text relating to 30 TAC §330.179(a) requirements and by reference §335.585, 586, 587, 588, 589, and 590(25) must be included to satisfy this comment and MRI IDs 942 through 966 and 968 through 987.</p> <p>Response: §335.580(c) specifically states that Subchapter T of the 30 TAC 335 regulations do not apply to “municipal solid waste facilities at which nonhazardous industrial waste is managed.” The Turkey Creek Landfill is a MSW facility that manages nonhazardous industrial waste; therefore, MRI IDs 942 through 966 and 968 through 987, which include Titles 30 TAC §330.585, §330.586, §330.587, §330.588, and §330.588, do not apply.</p>

ATTACHMENT 2
REVISION PAGES
(RLSO FORMAT)

Signature Page

Site Operator or Authorized Signatory

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: Gary Bartels Title: Southern Region Engineer

Email Address: gary.bartels@wasteconnections.com

Signature: *Gary J Bartels* Date: 8/10/2023

Operator or Principal Executive Officer Designation of Authorized Signatory

To be completed by the operator if the application is signed by an authorized representative for the operator.

I hereby designate _____ as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

Operator or Principal Executive Officer Name: _____

Email Address: _____

Signature: _____ Date: _____

Notary

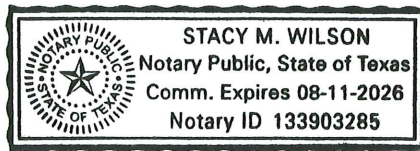
SUBSCRIBED AND SWORN to before me by the said Gary Bartels

On this 10th day of August, 2023

My commission expires on the 11th day of August, 2026

Stacy M. Wilson

Notary Public in and for
TARRANT County, Texas



Note: Application Must Bear Signature and Seal of Notary Public

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

VOLUME 2 OF 6

Prepared for
Texas Regional Landfill Company, LP

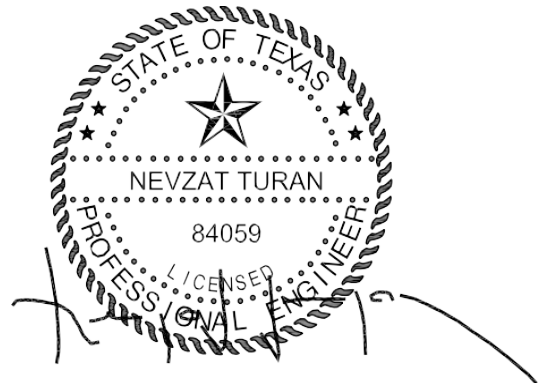
February 2022
Revised November 2022

Revised August 2023

Prepared by

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08/10/2023



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JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

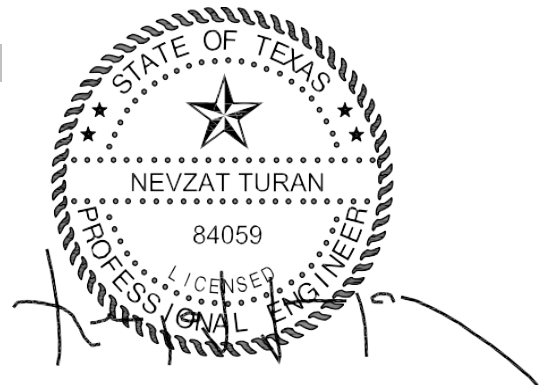
**PART III – SITE DEVELOPMENT PLAN
APPENDIX IIIC
LEACHATE AND CONTAMINATED WATER
MANAGEMENT PLAN**

Prepared for

Texas Regional Landfill Company, LP

February 2022

Revised August 2023



Prepared by

08/10/2023

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WCG Project No. 0771-368-11-123

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5 LEACHATE AND CONTAMINATED WATER DISPOSAL

5.1 Leachate Storage System Operation and Disposal

Leachate that is generated at the site will be conveyed to the leachate collection sumps. Leachate levels in the sumps are measured to evaluate leachate production and fluctuations. The depth of leachate in the sump will be monitored by the pressure transducer to provide direct read-out of the leachate level in the sump (e.g., typically the leachate level is shown on a continuous digital display at the sump, as the pressure transducers provide a constant determination of the leachate levels in the sump). Leachate will be pumped from the leachate sumps and transferred to the leachate storage tank via the forcemain (see Figure 4-1 for location).

The collected leachate will be either recirculated (refer to Section 5.2) or transferred from the leachate storage tank into a tanker truck for transportation directly to the liquid waste bulking facility, a properly permitted privately-owned off-site facility, or a POTW for treatment. For leachate that is transported off-site, sampling and analysis will be limited to the disposal facility's requirements.

The facility will also have an option to evaporate leachate using an on-site portable evaporator. If used, the portable evaporator will be incorporated into the facility's air permit and will operate under the provisions of the air permit. The evaporator will not be placed in the buffer zone, easements, or an area that may impair traffic or other operations. The portable evaporator, when placed outside developed waste fill area will be inside dual containment. All piping, tanks, operation areas, and loading areas associated with leachate evaporation will be within secondary containment (e.g., dual-contained pipes, vessels, and bermed areas). The evaporator will receive liquid from feeder storage tanks via plumbing using a dual-contained pipe (outside the developed limits of waste). The feeder tanks will be dual-contained and located by the evaporator. The feeder tanks will receive offsite leachate and contaminated water generated at the landfills (only Type I MSW and Type IV) owned and operated by TRLC (no liquids from other landfills or sources will be accepted for evaporation). Area TRLC landfills will submit a permit modification to obtain TCEQ authorization prior to sending leachate/contaminated water to Turkey Creek Landfill. Liquids from the area TRLC landfills will be trucked to the evaporator feeder tanks and will not be stored anywhere else at Turkey Creek Landfill. Offsite leachate/contaminated water from the area TRLC landfills will not be recirculated at Turkey Creek Landfill. The leachate evaporator is expected to generate sludge from evaporating leachate. This sludge will be taken to the solidification facility that exists at the site for solidification and disposal of solidified sludge within a Class 1 cell. Liquid waste received at the site for solidification will not be allowed to be evaporated.

5.2 Leachate Recirculation Plan

The main purpose of recirculating leachate at this facility is to enhance the ability to manage and control leachate. Additionally, in an effort to promote an increase in waste compaction, leachate recirculation will provide the opportunity to create a uniform moisture content throughout the waste at the working face. The additional moisture will help stabilize the waste mass, thus providing for an increased compaction of the waste. The leachate will be better managed because the recirculation of leachate through the waste mass allows for treatment of the leachate to occur through physical, biological, and chemical interactions with the organic and some inorganic portions of the waste. This increases the rate of waste decomposition and stabilization, as well as increasing the rate of landfill gas recovery. Recirculation of leachate also facilitates dust control at the working face.

Consistent with Title 30 TAC §330.177, recirculation of leachate will only occur over areas underlain by a Subtitle D liner system. Leachate will be recirculated by surface spraying at the working face. Leachate will be distributed from a tanker truck or other comparable equipment using a spray bar or hose to distribute

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

**PART III – SITE DEVELOPMENT PLAN
APPENDIX IIID
LINER QUALITY CONTROL PLAN**

Prepared for

Texas Regional Landfill Company, LP

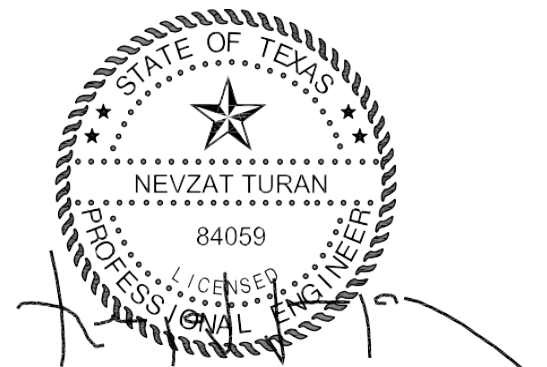
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08/10/2023

WCG Project No. 0771-368-11-123

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**Table 3-5
Geotextile and Drainage Geocomposite Required Testing and Properties¹**

Responsible Party	Material	Test	Standard	Required Bottom Liner Property ⁴	Required Overliner Property ⁴
Manufacturer	Geotextile (before lamination)	Unit Weight	ASTM D 5261	8 oz/sy	6 oz/sy
		Apparent Opening Size	ASTM D 4751	0.180 mm	0.25 mm
		Grab Strength	ASTM D 4632	220 lb	157 lb
		Grab Elongation	ASTM D 4632	50%	50%
		Tear Strength	ASTM D 4533	95 lb	55 lb
		Puncture Strength	ASTM D 6241	575 lb	310 lb
		Permeability	ASTM D 4491	1.3 cm ⁻¹	0.2 cm/s
		UV Stability	ASTM D 4355	70%	50%
Manufacturer	HDPE Geonet (before lamination)	Density	ASTM D 1505	0.94 g/cm ³	0.94 g/cm ³
		Thickness	ASTM D 5199	0.25 0.22 inch	0.30 inch
		Carbon Black Content	ASTM D 1603	2%	2%
		Tensile Strength	ASTM D 7179	55 lb/in	75 lb/in
		Compressive Strength	ASTM D 6364		120 lb/in ²
		Transmissivity	ASTM D 4716	14.49 gpm/ft	9.0 gpm/ft
Third Party Laboratory	Drainage Geocomposite	Transmissivity	ASTM D 4716	See Note 2	See Notes 2 and 3
		Strength	ASTM D 5321	See Table 6-1	See Table 6-1
Manufacturer		Ply Adhesion	ASTM D 7005	1.0 lb/in	1.0 lb/in

¹ The minimum testing frequency will be one test sample per 100,000 square feet. The drainage geocomposite is single-sided for the floor grades of the bottom liner. The drainage geocomposite will be double-sided for the sideslopes of the bottom liner and all overliner areas.

² As noted in Appendix IIC, Appendices IIC-A and IIC-B, the transmissivity of the bottom liner single-sided geocomposite will be measured at a gradient of 0.015 under normal pressures of 1,000, 5,000 and 11,850 psf (or higher) boundary conditions consisting of soil/geocomposite/geomembrane with minimum seating time of 100 hours will be run for the first 100,000 square feet of liner construction. For each additional 100,000 square feet of single-sided geocomposite placement area, one additional transmissivity test will be run under the maximum normal stress (i.e., 11,850 psf) with all the other assumptions the same as the first three tests. The minimum transmissivity will be 7.41x10⁻⁴ m²/s. The transmissivity of the bottom sidewall liner double-sided geocomposite will be measured at a minimum gradient of 0.33 under normal pressures of 1,000, 5,000 and 11,850 psf (or higher), boundary conditions consisting of soil/geocomposite/geomembrane with a minimum seating time of 100 hours. The minimum transmissivity will be 7.37x10⁻⁵ m²/s. For each additional 100,000 square feet of double-sided geocomposite placement area, one additional transmissivity test will be run under the maximum normal stress (i.e., 11,850 psf) with all the other assumptions the same as the first three tests. As shown in Appendix IIC-A, the HELP Model was developed for a 220-mil geocomposite. 220-mil geocomposite may be utilized as long as the required values (eg. transmissivity) are met.

³ As noted in Appendix IIC, Appendices IIC-A and IIC-B, the transmissivity of the overliner double-sided 0.3 inch geocomposite will be measured at a minimum gradient of 0.01 under normal pressures of 1,000, 3,000 and 6,360 psf (or higher), boundary conditions consisting of soil/geocomposite/geomembrane with minimum seating time of 100 hours. The minimum transmissivity will be 5.16x10⁻³ m²/s. For each additional 100,000 square feet of double-sided geocomposite placement area, one additional transmissivity test will be run under the maximum normal stress (i.e., 6,360 psf) with all the same assumptions as the first three tests.

⁴ Minimum required property values for the geotextile and drainage geocomposite transmissivity are based on calculations provided in Appendices IIC-A and IIC-B. The geonet properties are based on values specified by multiple manufacturers which are consistent with GRI-GM-4. In addition, each material will be tested prior to construction to verify that it meets the minimum required properties. At the time of each construction event, an updated GRI-GM-4 will be used if available.

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

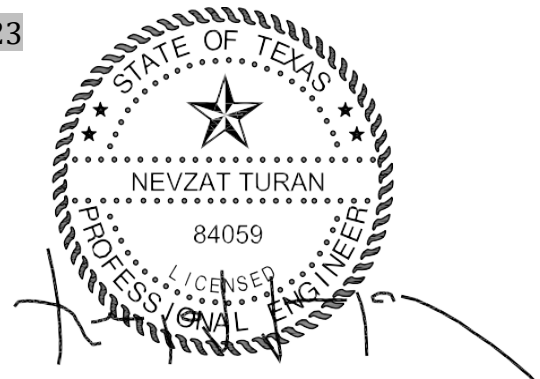
MAJOR PERMIT AMENDMENT APPLICATION

VOLUME 3 OF 6

Prepared for
Texas Regional Landfill Company, LP
February 2022

Revised August 2023

Prepared by



08/10/2023

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**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

**PART III – SITE DEVELOPMENT PLAN
APPENDIX III F
SURFACE WATER DRAINAGE PLAN**

Prepared for

Texas Regional Landfill Company, LP

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APPENDIX IIIF-G

EXCERPTS FROM PROPOSED CLOMR



08/10/2023

CONTENTS

FLOODPLAIN SUMMARY

IIIF-G-1

APPENDIX IIIF-G-A

Excerpts from the Proposed CLOMR Application



08/10/2023

APPENDIX III F-G-A

EXCERPTS FROM THE PROPOSED CLOMR APPLICATION



08/10/2023

CONDITIONAL LETTER OF MAP REVISION REQUEST

TURKEY CREEK LANDFILL

JOHNSON COUNTY, TEXAS

Prepared for

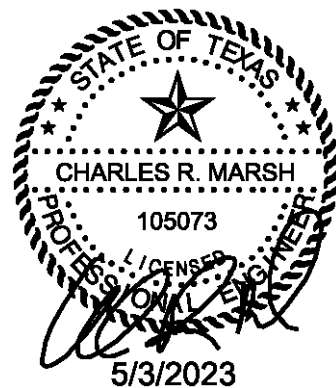
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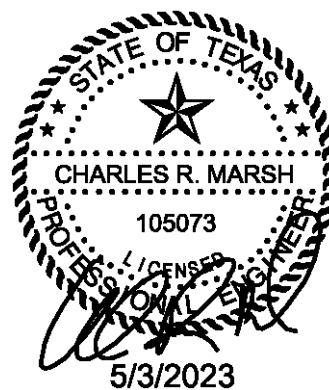
Fort Worth, Texas 76109

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WCG Project No. 0771-368-11-123

CONTENTS

1	INTRODUCTION	1
1.1	Purpose	1
1.2	Project Background	2
1.3	Proposed Site Development	3
1.4	Scope	3
1.5	Scenarios Investigated	4
	1.5.1 Effective Condition	4
	1.5.2 Post-Project Condition	5
1.6	Concepts and Methods	6
2	HYDRAULIC ANALYSES	8
2.1	Description of Computer Program	8
2.2	Schematization	8
2.3	Boundary Conditions	8
2.4	Manning's Coefficient	9
3	RESULT OF ANALYSIS	10
	REFERENCES	15



CONTENTS (CONTINUED)

APPENDIX A

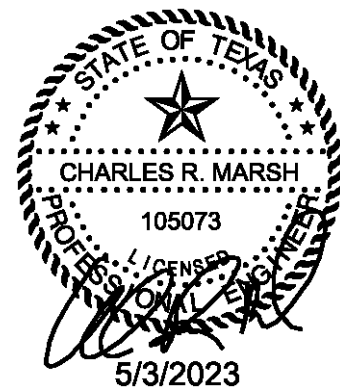
Drawings

- A.1 Site Location Map
- A.2 Flood Insurance Rate Map (FIRM)
- A.3 Existing Site Plan
- A.4 Effective Floodplain
- A.5 Post-Project Floodplain
- A.6 Effective Condition Profile
- A.7 Post-Project Condition Profile
- A.8 Revised Flood Insurance Rate Map (FIRM)

APPENDIX B

FEMA Certification Forms

- B.1 Form 1 – Overview and Concurrence Form
- B.2 Form 2 – Riverine Hydrology and Hydraulics Form
 - Form 2 – Tributary A to Turkey Creek
 - Form 2 – Tributary B to Turkey Creek
 - Form 2 – Turkey Creek
 - Attachment 1 – Turkey Creel Landfill Datum Statement
- B.3 Form 3 – Riverine Structures Form
 - Form 3 – Tributary A to Turkey Creek
 - Form 3 – Tributary B to Turkey Creek
 - Form 3 – Turkey Creek
 - Attachment 1 – Erosion Protection Plan
 - Attachment 2 – Culvert Information
 - Attachment 3 – Bridge Information



APPENDIX C

Hydrologic Analysis

APPENDIX D

Excerpts from TxDOT I-35W Highway Impairment Plans

APPENDIX E

Tributary A and B to Turkey Creek Maintenance and Operations Plan

1 INTRODUCTION

1.1 Purpose

The purpose of this study is to request a Conditional Letter of Map Revision (CLOMR) from Johnson County and the Federal Emergency Management Agency (FEMA) for proposed revisions to Flood Hazard Zones within a 219.6-acre tract of land in Johnson County, Texas. This property is owned by Texas Regional Landfill Company, LP. All proposed revisions are within the property and associated with the existing Turkey Creek Landfill which is operated within its boundaries. The proposed revisions to the landfill design are necessary to increase the landfill capacity as part of ongoing efforts to address long term waste disposal needs of the communities in Johnson and surrounding counties. The proposed expansion to the landfill will increase the currently permitted 146.4 acres (per MSW 1417C and MSW 1417D – Part I/II-1-1) waste disposal area to 171.9 acres, once the proposed expansion is approved by Texas Commission of Environment Equality (TCEQ).

A general site location map is shown on Figure 1.1, showing the landfill being located approximately 2.5 miles south of Alvarado, Texas. The site entrance is located off the Southbound Interstate Highway 35 West (IH-35W) Frontage Road immediately north at County Road 107.

This CLOMR request has been developed to obtain approval to revise the Flood Insurance Rate Map (FIRM) if the proposed expansion of the landfill and its infrastructure is constructed as proposed. The scope of this study is limited to two unnamed tributaries of Turkey Creek near the landfill, referenced as Tributary A to Turkey Creek (Tributary A) which is located west of the landfill, Tributary B to Turkey Creek (Tributary B) which is located southeast of the landfill, and Turkey Creek which is located north of the landfill. Tributary A is proposed to be impacted by the west landfill expansion area, Tributary B is proposed to be impacted by southeast landfill expansion area, and the Turkey Creek overbank floodplain is proposed to be impacted by a detention pond on the north end of the site.

These waterways are shown on the aerial photo included in Figure 1.2. This CLOMR will allow for the relocation of portions of the two Tributaries, construction of the northern pond, and the continued development of the existing landfill operation as demonstrated on Figure 1.3. Figures 1.4 and 1.5 demonstrate comparisons of the current and proposed conditions of the landfill property. A summary of the effective

and post-project floodplain delineations are provided on Figures 1.6 and 1.7, respectively and listed below.

- **Relocation of the Tributary A.** Tributary A currently flows through the west landfill expansion area as it traverses southwest to northeast. This CLOMR proposes to relocate the Tributary around the west parts of the proposed expansion area footprint. The proposed relocated channel ties into the existing Tributary A alignment within the landfill permit boundary at the upstream and downstream end of the project. At the north side of the landfill property boundary, the original Tributary stays unchanged as it continues downstream towards Turkey Creek, as depicted on Figure 1.3.
- **Relocation of the Tributary B.** Tributary B currently flows through the southeast landfill expansion area as it travels south to northeast. This CLOMR proposes to relocate the Tributary around the east parts of the proposed expansion area footprint. Relocation of the Tributary ends upstream of the existing culverts that run underneath southbound IH-35W frontage road at the landfill property boundary and the original Tributary continues downstream of the culvert towards Turkey Creek as depicted on Figure 1.3.
- **Turkey Creek Overbank Floodplain Development.** Turkey Creek currently flows north of the permit boundary with the Zone A floodplain encroaching along the north edge of the site. This CLOMR proposes to construct a detention pond and channel along the northern edge of the landfill to provide additional onsite detention, as depicted on Figure 1.3.

The results of this study will be used to revise floodplain boundaries and to provide FEMA with the required technical data to issue a CLOMR for the proposed project. The proposed Tributary relocations included in this CLOMR request is detailed on the drawings presented in Appendix A.

1.2 Project Background

The Turkey Creek Landfill is an existing Type I municipal solid waste (MSW) landfill operating under TCEQ Permit No. MSW-1417C. The existing landfill currently provides solid waste disposal services for residences and businesses in Johnson County and communities in surrounding counties. With this expansion, the landfill disposal footprint will increase from approximately 146.4 acres currently permitted by the TCEQ to 171.9 acres. Turkey Creek Landfill is owned and operated by Texas Regional Landfill Company, LP. As shown on Figure 1.1, the site is located approximately 2.5 miles south of Alvarado, Texas. The site entrance is located off the Southbound Interstate Highway 35 West (IH-35W) Frontage Road immediately north of County Road 107. Figure 1.2 shows the existing landfill development, as well as the proposed landfill expansion area, on a recent aerial photograph. For over 35 years, the landfill has been a part of the community and is one of the main

providers of waste disposal services to the residents and businesses of Johnson County and surrounding areas.

1.3 Proposed Site Development

As demonstrated on Figure 1.3, relative to the currently permitted landfill configuration, the landfill is proposed to develop on the west and southeast side of the existing disposal area. Figures 1.4 and 1.5 show the Zone A, existing and post-project floodplain delineations for the different site conditions for both models discussed in this CLOMR. The specifics of each condition are discussed in Sections 1.5.1 and 1.5.2, respectively. The post-project condition includes proposed revisions to the floodplain, as discussed in Section 1.5.2 and shown in detail on Figure 1.7.

1.4 Scope

The scope of this study is limited to the Tributary A west of the landfill area, Tributary B southeast of the landfill area, and Turkey Creek north of the landfill areas, as shown on Figure 1.3. The proposed landfill development included in this CLOMR request is detailed on Figure 1.7 and the drawings presented in Appendix A.

The following conditions are included in this CLOMR request and shown on Figures 1.4 and 1.5.

- Duplicate Effective Conditions – The Turkey Creek Landfill is located near the Zone A floodplain of Turkey Creek and Steams A and B. No waterway analyzed has a detailed study associated with the floodplain delineation on the effective FIRM, and no base flood elevations have been established. Therefore, the effective condition floodplain is based on the graphical delineation on the effective FIRM only.
- Existing Conditions – The existing condition represents the current existing conditions of the three waterways. For tributaries A and B, existing hydrologic models were developed for the current conditions. The existing condition was developed by using composite topography and on-site survey. Peak flow rates for the tributaries were calculated using HEC-1 modeling software. Turkey Creek flow rates were provided in the drainage analysis performed by TxDOT for the Turkey Creek, IH-35W Bridge Crossing. The TxDOT drainage analysis is included in Appendix D. The three waterways were modeled in HEC-RAS as separate rivers. Tributary A, Tributary B, and Turkey Creek waterways are shown on Figures 1.6 and 1.7.
- Post-Project Condition – The post-project condition represents the proposed condition of the landfill development after the landfill expansion, and related site improvements have been made as shown on Figure 1.7. Refer to Drawing A.8 for tie-in locations between proposed and effective floodplains.

For Tributary A, the post-project hydraulic models include effective condition cross sections A-1500 through A-5600 (called A-1500 through A-5430 in post-project condition). Because the relocated Tributary A channel length is different than the effective channel length, cross sections upstream of cross section A-1500 were renamed to represent the cross section location along the Tributary centerline.

For Tributary B, the effective condition hydraulic model includes cross sections B-0 through B-3350 (called B-0 through B-3310 in the post-project condition). Because the relocated Tributary B channel length is different than the effective channel length, cross sections upstream of cross section B-520 were renamed to represent the cross section location along the Tributary centerline. Also included in the post-project condition is a tributary-to-Tributary B named “Tributary B West to Turkey Creek (Tributary B West).” Tributary B West runs east of Tributary B along the southern side of the landfill area as shown on Figure 1.7. For Tributary B West, the post-project hydraulic model includes cross sections BW-100 through BW-1050. Cross sections B-2585 through B-3310 were modeled on a separate reach named “Tributary B South.”

For Turkey Creek, the existing and post-project conditions hydraulic model include cross sections TC-0 through TC-5600.

1.5 Scenarios Investigated

The analysis for all scenarios investigated in this CLOMR are discussed in detail below. The HEC-RAS output files and hydraulic models for each condition are provided electronically. The existing and proposed waterway layouts with details of the hydraulic structures modeled can be found on Figures 1.4 and 1.5.

1.5.1 Existing Condition

The existing condition of Tributary A, Tributary B, and Turkey Creek (Figure 1.4) contains Zone A flood hazard areas as shown on the effective FIRM panels for the area. These floodplain delineations were not based on a detailed study and were therefore not used as the basis of comparison for the CLOMR. Detailed existing hydrologic and hydraulic models were developed for the three waterways to establish the baseline 100-year floodplain areas, as shown on Figure 1.6. The existing condition was created using composite topography from FirmaTek and LIDAR data from the Texas Natural Resources Information System (TNRIS).

A 42-inch corrugated metal pipe, running underneath the landfill’s perimeter road southwest of the disposal area, was modeled in Tributary A. Two 42-inch corrugated metal pipes running underneath County Road 313 were modeled in Tributary B. In addition, a series of box culverts running underneath IH-35W and access roads were modeled. The culverts included a 5-foot by 14-foot box culvert underneath the west access road, three 5-foot by 6-foot box culverts underneath IH-

35W, and three 4-foot by 5-foot box culverts underneath the east access road. The culverts underneath I-35W were modeled with the bottom 2 feet blocked based on photographs of the culverts. This provides a conservative analysis as the blocked culverts results in higher water surface elevations in comparison to a clean, unblocked condition. For Turkey Creek, a 230-foot bridge was modeled with six sets of 16-inch piers.

1.5.2 Post-Project Condition

- **Tributary A to Turkey Creek:** The post-project condition hydraulic model for Tributary A incorporates the proposed relocation of Tributary A included in the proposed landfill development, shown on Figure 1.5 and Drawing A.5 (Post-Project 100-Year Floodplain Delineation). The proposed landfill development relocates the existing Tributary A around the west side of the landfill disposal footprint, to allow for the development of a continuous landfill disposal area. The runoff entering Tributary A from upTributary areas of the landfill discharges into Tributary A at the same location as in the effective condition.

The proposed Tributary relocation includes an earthen section with typical sideslopes of 2.5:1, an armored section with a left sideslope of 1.5:1, a right sideslope of 2.5:1, and a detention pond with three 54-inch corrugated metal pipes (CMP) Gabions will be used at the beginning of the channel to prevent erosion. Within the armored section of the channel, the left sideslope will be lined with gabions and the bottom and right sideslopes will be lined with Turf Mat. An Erosion Protection Plan with additional information is provided in Appendix B.3, Attachment 1.

Cross sections A-1750 through A-4510 in Tributary A were added to the post-project hydraulic model. Cross sections upstream of A-4510 in Tributary A were renamed to represent the change in flow length from the Tributary relocation. The cross section A-1500 remains consistent with the effective condition. The limits of the 100-year floodplain, as well as tie-in points, are shown on Figure 1.7. A profile of the study area is also shown on Drawing A.7 in Appendix A.

- **Tributary B to Turkey Creek:** The post-project condition hydraulic model is illustrated on Figure 1.5. The proposed landfill development relocates the existing Tributary B around the southeast side of the landfill disposal footprint, to allow for the development of a continuous landfill disposal area. The runoff entering Tributary B from upstream areas of the landfill discharges into Tributary B at the same downstream location as in the effective condition.

The proposed Tributary relocation includes an earthen portion with typical sideslopes of 2.5:1 throughout the channel and a detention pond with five 42-inch Reinforced Concrete Pipes (RCP). After the detention pond, flow exits the site through the existing culverts underneath IH-35W and access

roads. Gabions and turf reinforcement mats will be used to reduce velocities and prevent erosion in several locations. Locations of the erosion structures are shown on Figure 1.5, and an Erosion Protection Plan is provided in Appendix B.3, Attachment 1.

Cross sections upstream of B-2585 in Tributary B were renamed to represent the change in flow length from the Tributary relocation. The cross sections B-0 through B-520 remain consistent with the effective condition. The limits of the 100-year floodplain, as well as tie-in points, are shown on Figure 1.7. A profile of the study area is also shown on Drawing A.7 in Appendix A.

- Tributary B West to Turkey Creek: The post-project condition hydraulic model includes the Tributary B West tributary of Tributary B included in the proposed landfill development, shown on Figure 1.5. The proposed landfill development adds Tributary B West south of the landfill disposal area to add capacity and storage for upstream flow. A profile of the study area is also shown on Drawing A.7.
- Turkey Creek: The post-project condition hydraulic model is illustrated on Figure 1.7. The proposed landfill development includes a detention pond and a channel on the north end of the landfill to provide additional storage and detention for runoff developed within the landfill permit boundary.

Cross sections TC-1500 through TC-2800 were modified to include the detention pond and channel. These areas were modeled as ineffective flow areas as they do not convey flow but do act as storage.

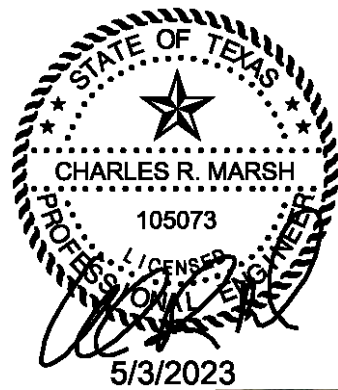
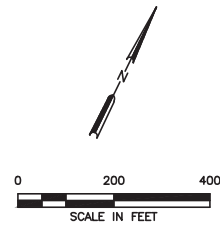
1.6 Concepts and Methods

The hydrologic and hydraulic methods employed in this study are consistent with the requirements of FEMA, Johnson County, and the Texas Department of Environmental Quality. Peak flow rates were determined from a hydrologic analysis of the study area. The 100-year storm event within the study area were evaluated using the HEC-1 modeling software. Hydrologic calculations are presented in Appendix C. The USACE HEC-RAS (Ref. 2) computer program, Version 6.2.0, was used to determine water surface profiles and floodplain limits. The floodplain presented in this study represent effective and post-project conditions (after completion of proposed development). Analyses of the peak flow rates, floodplains and floodplain limits, for these conditions proceeded in the following sequence:

- (1) Peak flow rates for tributaries A and B were calculated using HEC-1 modeling software. HEC-1 output files can be found in Appendix C. Peak flow rates were calculated by a USGS Regression Analysis for Turkey Creek and can be found in Appendix C.
- (2) Hydraulic models were developed to evaluate flood elevations for the tributaries under peak flow conditions using HEC-RAS.

- (3) The floodplains were delineated using the results of the hydraulic modeling.

Peak flow rates, water surface elevations, and floodway boundaries are based on 100-year storm frequency.

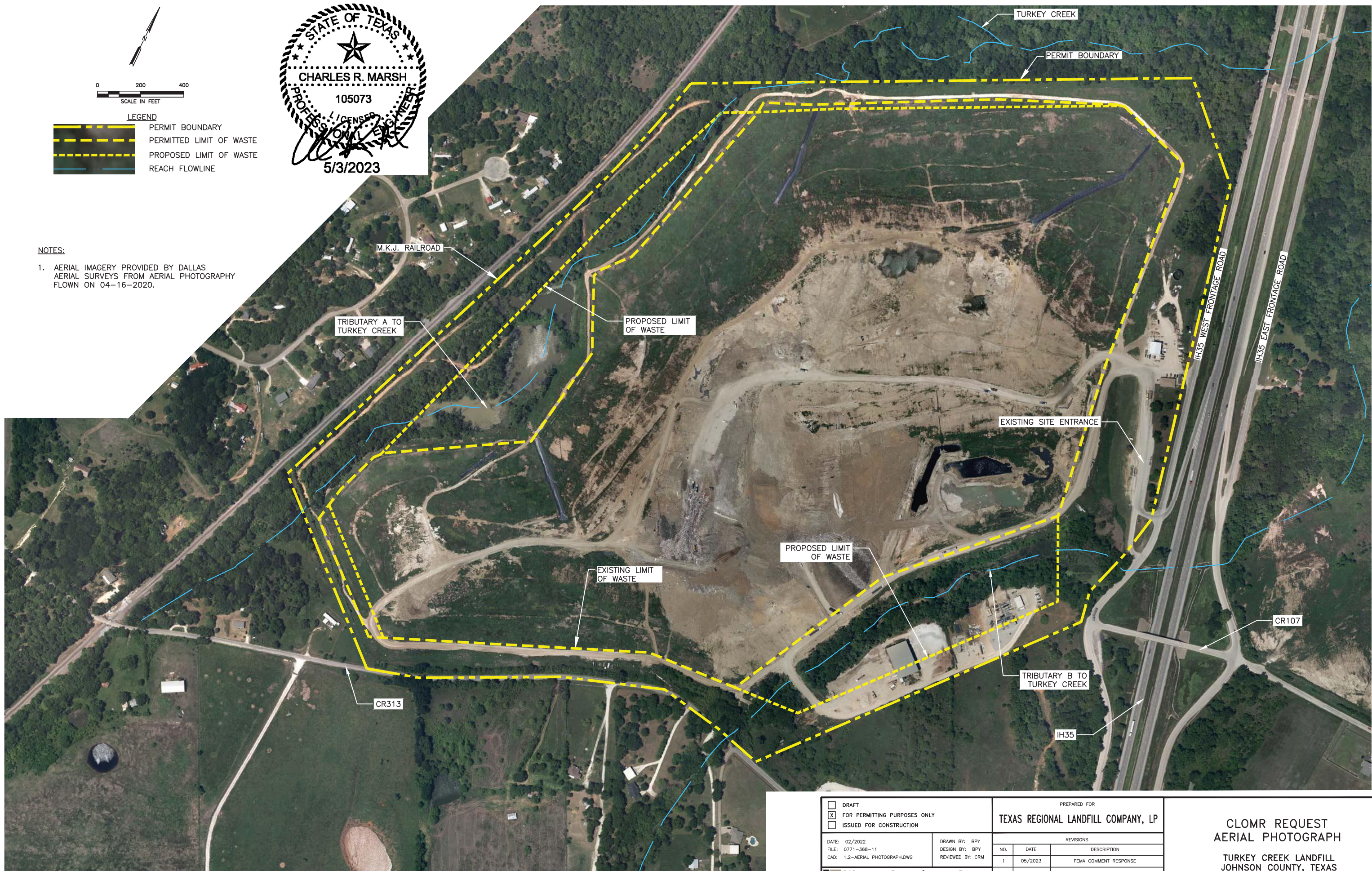


LEGEND

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE
	REACH FLOWLINE

NOTES:

1. AERIAL IMAGERY PROVIDED BY DALLAS AERIAL SURVEYS FROM AERIAL PHOTOGRAPHY FLOWN ON 04-16-2020.



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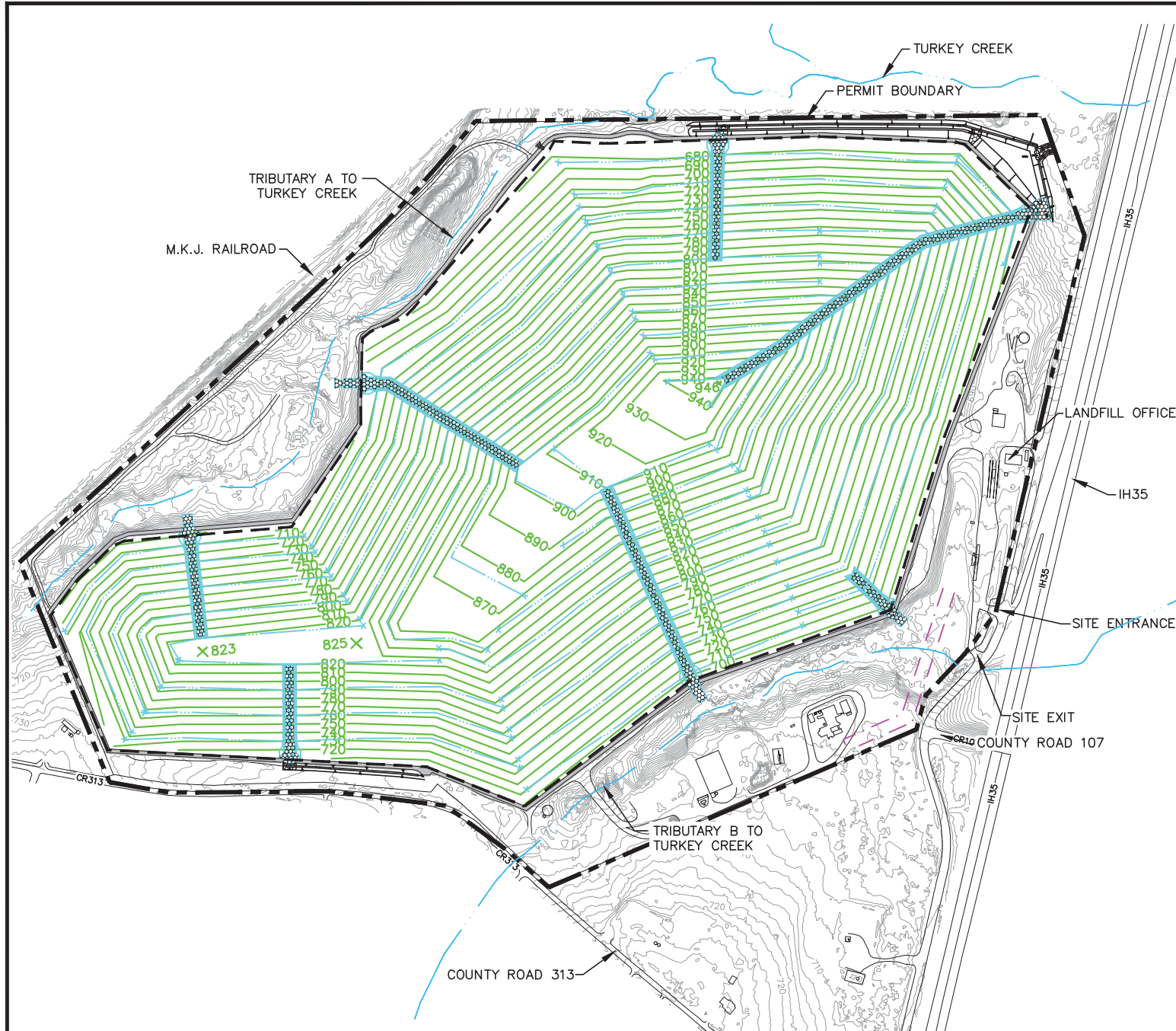
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**TURKEY CREEK LANDFILL
 JOHNSON COUNTY, TEXAS**

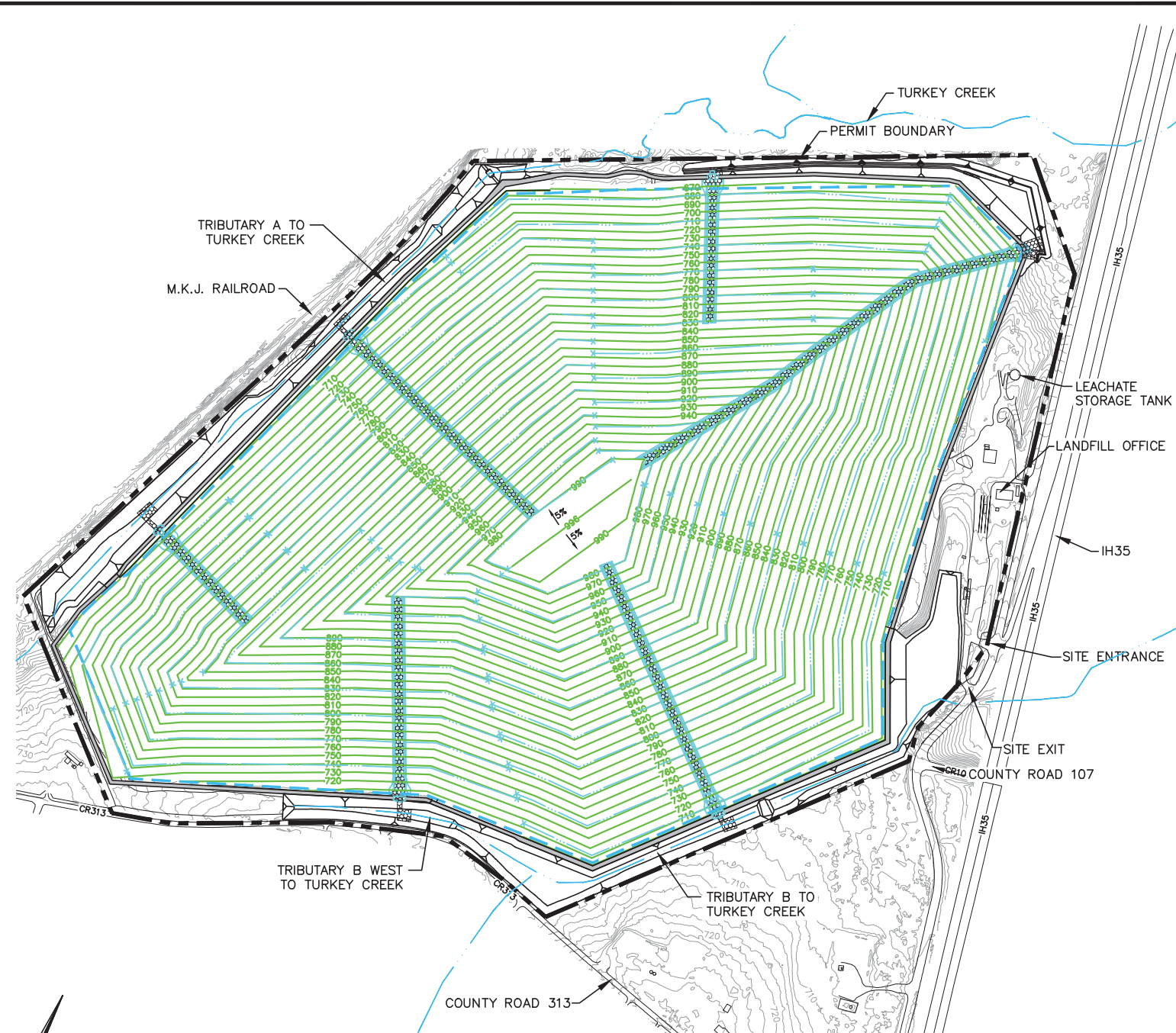
WWW.WCGRP.COM **FIGURE 1.2**

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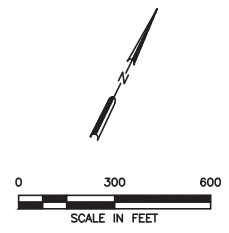
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PERMITTED LANDFILL COMPLETION PLAN



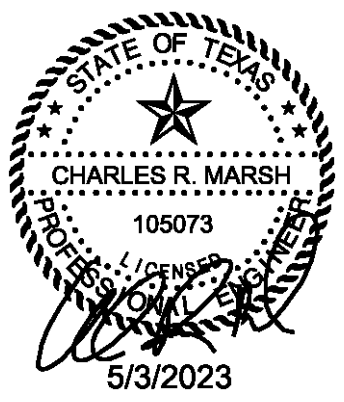
PROPOSED LANDFILL COMPLETION PLAN



LEGEND

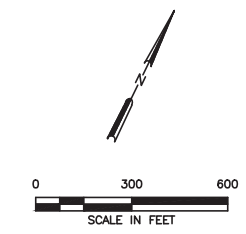
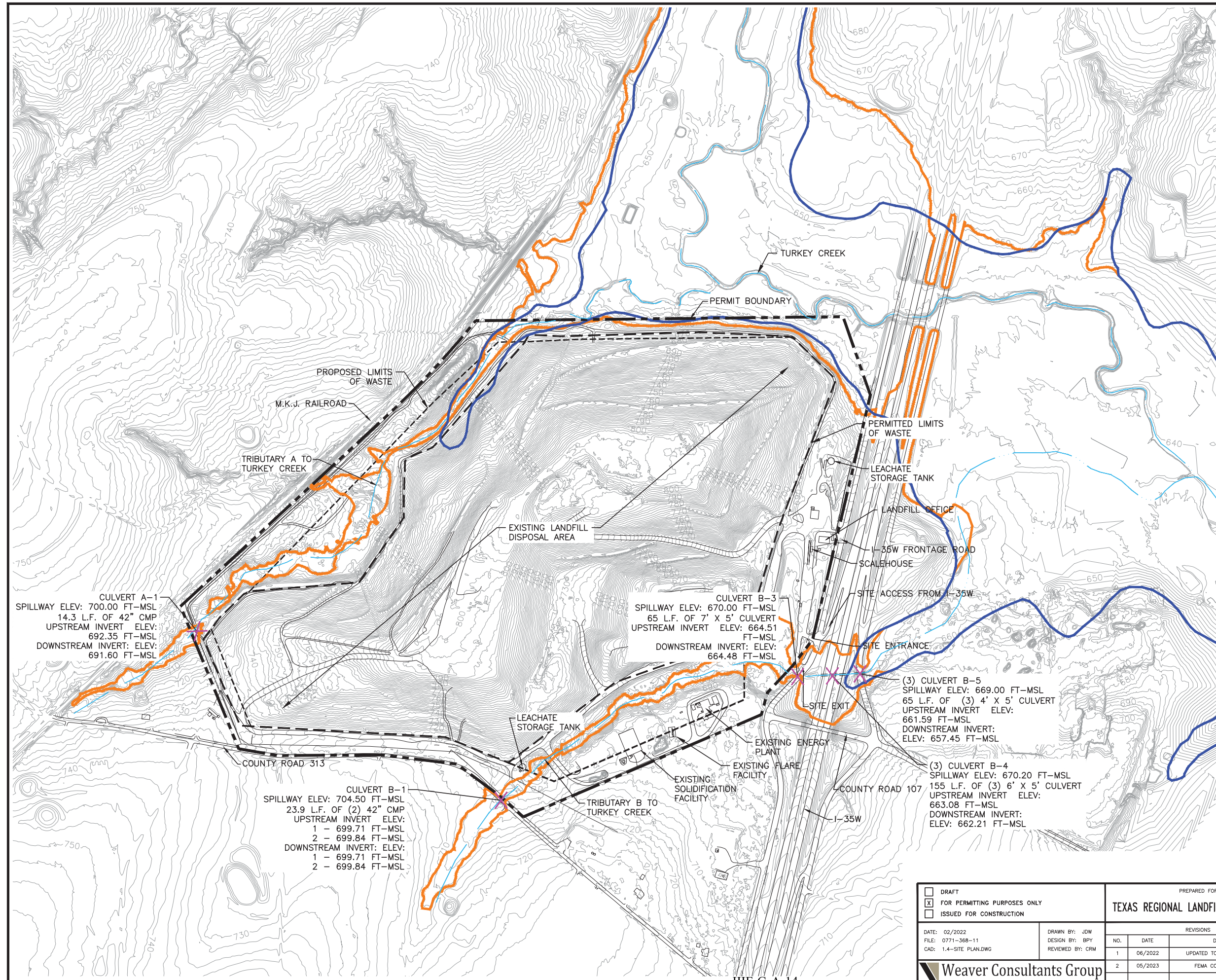
	PERMIT BOUNDARY
	LIMITS OF WASTE
	EXISTING CONTOUR
	EASEMENT
	FINAL COVER CONTOUR
	REACH FLOWLINE
	DRAINAGE LETDOWN
	DRAINAGE SWALE

- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN ON 01-08-2021.
 - PERMITTED LANDFILL COMPLETION PLAN, INCLUDING DRAINAGE FACILITIES HAS BEEN OBTAINED FROM THE CURRENT SITE DEVELOPMENT PLAN APPROVED BY TCEQ ON 10-08-2020.



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NO.	DATE	DESCRIPTION							
1	05/2023	FEMA COMMENT RESPONSE							
Weaver Consultants Group TBPE REGISTRATION NO. F-3727			WWW.WCGRP.COM	FIGURE 1.3					

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LEGEND

	PERMIT BOUNDARY
	PERMITTED LIMITS OF WASTE
	PROPOSED LIMITS OF WASTE
	EXISTING CONTOUR (SEE NOTE 1)
	REACH FLOWLINE
	ZONE A 100-YEAR FLOODPLAIN (SEE NOTE 2)
	EXISTING 100-YEAR FLOODPLAIN (SEE NOTE 2)
	EXISTING CULVERT



- NOTES:**
- COMPOSITE TOPOGRAPHY PROVIDED BY AERIAL PHOTOGRAPHY BY FIRMATEK FLOWN ON 01-08-2021, AND 2013 LIDAR DATA PROVIDED BY TEXAS NATURAL RESOURCES INFORMATION SYSTEM.
 - ZONE A 100-YEAR FLOODPLAIN REPRODUCED FROM FEMA FIRM PANELS 48251C0350J. EXISTING FLOODPLAIN DELINEATED FROM HEC-RAS MODELING BASED ON PEAK FLOWS ESTIMATED FROM HEC-1.

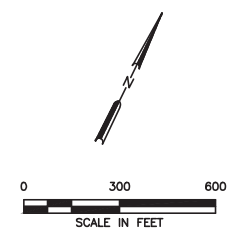
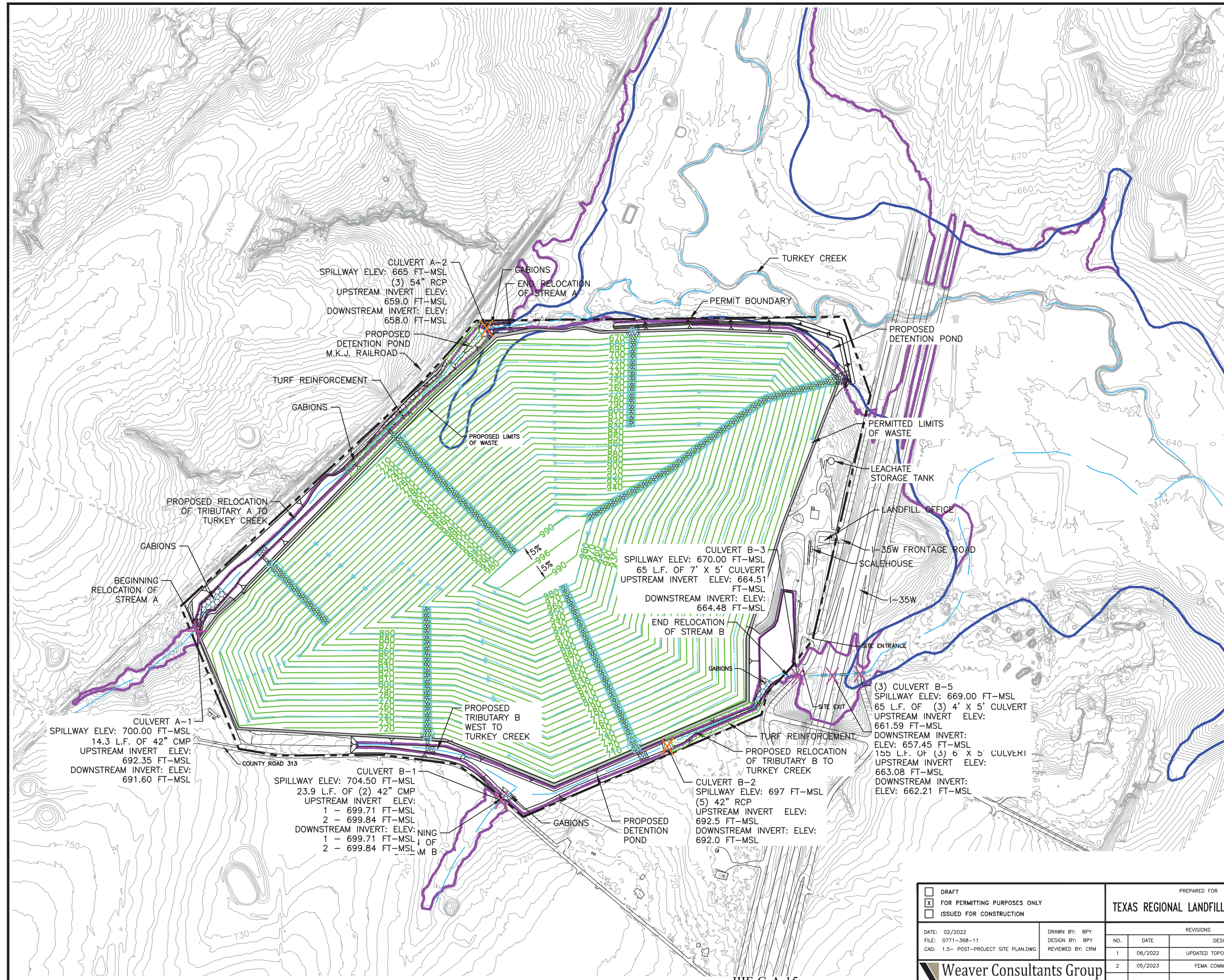
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DATE: 02/2022	DRAWN BY: JDW	<table border="1"> <thead> <tr> <th colspan="3">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>06/2022</td> <td>UPDATED TOPOGRAPHIC INFORMATION.</td> </tr> <tr> <td>2</td> <td>05/2023</td> <td>FEMA COMMENT RESPONSE</td> </tr> </tbody> </table>	REVISIONS			NO.	DATE	DESCRIPTION	1	06/2022	UPDATED TOPOGRAPHIC INFORMATION.	2	05/2023	FEMA COMMENT RESPONSE
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TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS	
WWW.WCGRP.COM	FIGURE 1.4

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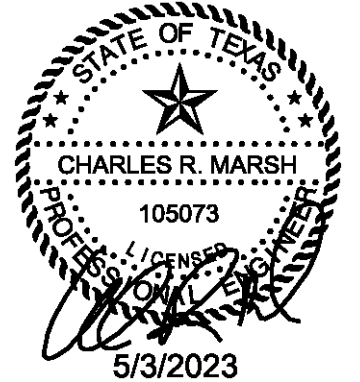
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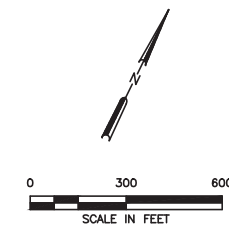
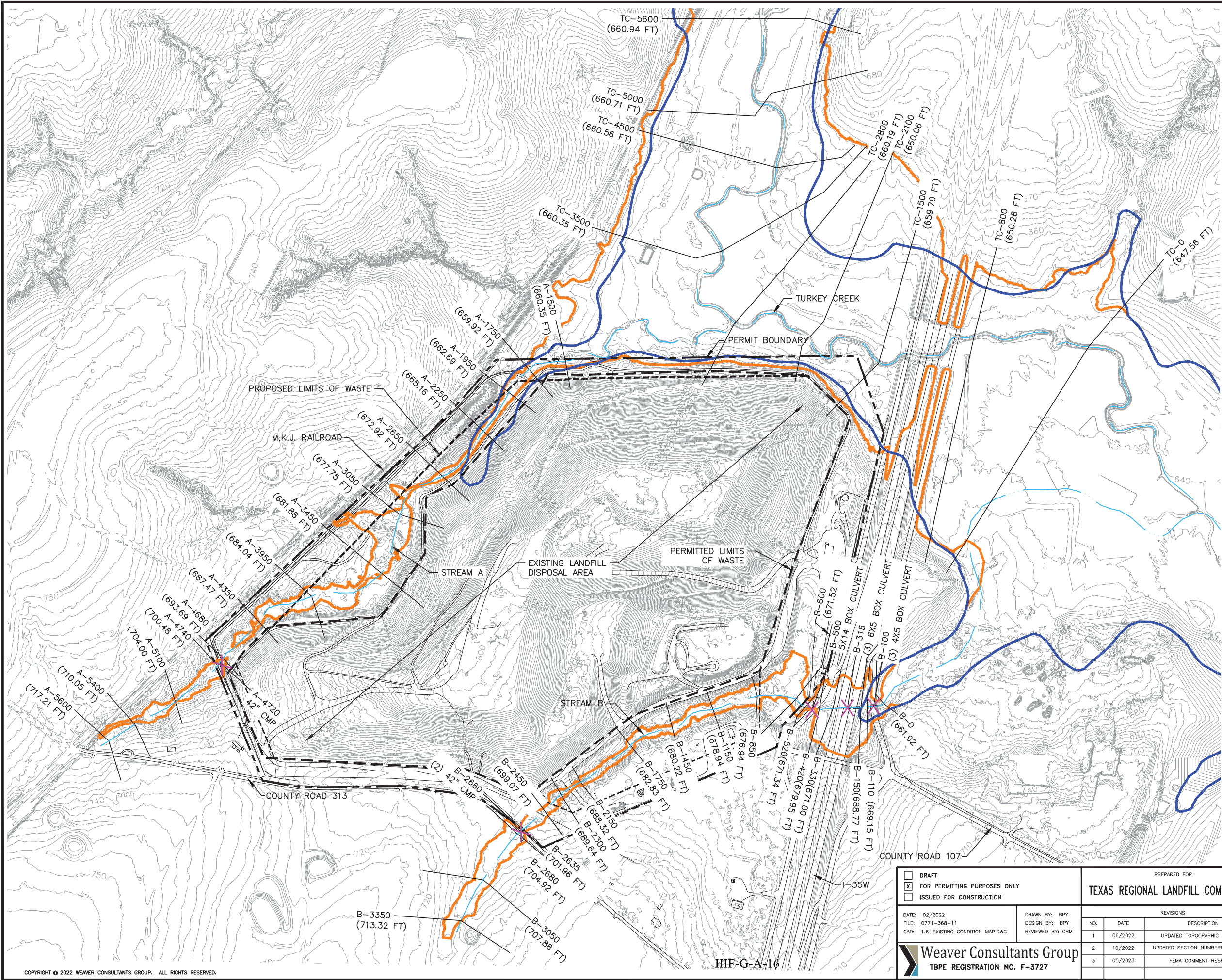
	PERMIT BOUNDARY
	PERMITTED LIMITS OF WASTE
	PROPOSED LIMITS OF WASTE
	EXISTING CONTOUR (SEE NOTE 1)
	PROPOSED FINAL COVER CONTOUR
	REACH FLOWLINE
	DRAINAGE SWALE
	ZONE A 100-YEAR FLOODPLAIN (SEE NOTE 3)
	POST-PROJECT 100-YEAR FLOODPLAIN
	EXISTING CULVERT
	PROPOSED CULVERT
	GABIONS (SEE NOTE 2)
	TURF REINFORCEMENT MAT (SEE NOTE 2)



- NOTES:**
1. COMPOSITE TOPOGRAPHY PROVIDED BY AERIAL PHOTOGRAPHY BY FIRMATEK FLOWN ON 01-08-2021, AND 2013 LIDAR DATA PROVIDED BY TEXAS NATURAL RESOURCES INFORMATION SYSTEM.
 2. SEE APPENDIX B.3, ATTACHMENT 1 FOR AN EROSION PROTECTION PLAN FOR STREAM A AND B.
 3. ZONE A 100-YEAR FLOODPLAIN REPRODUCED FROM FEMA FIRM PANELS 48251C0350J. POST-PROJECT FLOODPLAIN DELINEATED FROM HEC-RAS MODELING BASED ON PEAK FLOWS ESTIMATED FROM HEC-1.

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		2	05/2023	FEMA COMMENT RESPONSE	
				FIGURE 1.5	



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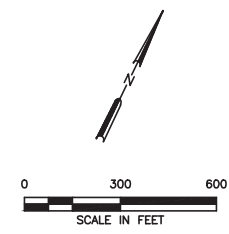
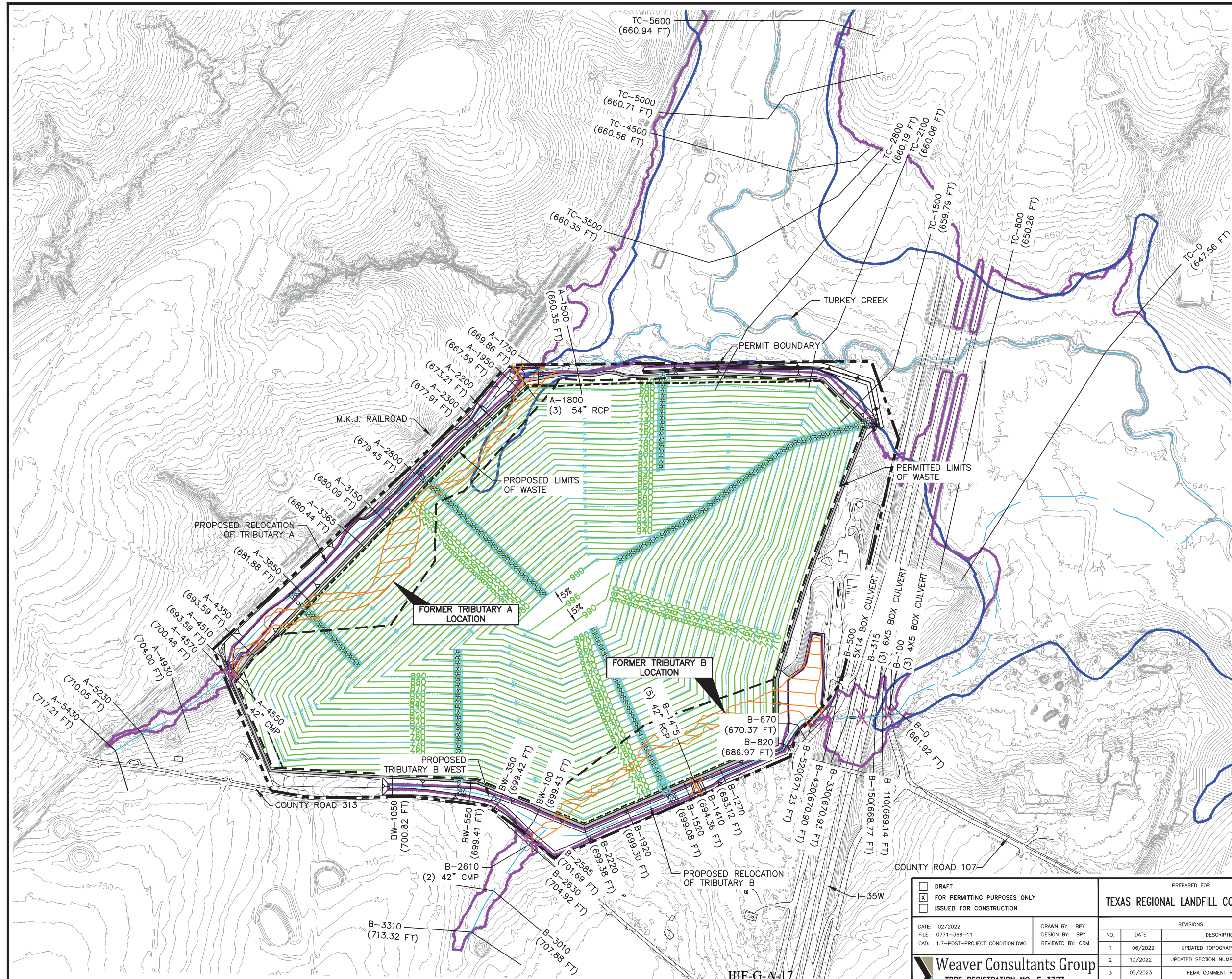
	PERMIT BOUNDARY
	PERMITTED LIMITS OF WASTE
	PROPOSED LIMITS OF WASTE
	EXISTING CONTOUR (SEE NOTE 1)
	A-4350 HEC-RAS CROSS SECTION AND 100-YEAR FLOODPLAIN ELEVATION (687.71 FT)
	REACH FLOWLINE
	ZONE A 100-YEAR FLOODPLAIN (SEE NOTE 2)
	EXISTING 100-YEAR FLOODPLAIN
	EXISTING CULVERT



- NOTES:**
- COMPOSITE TOPOGRAPHY PROVIDED BY AERIAL PHOTOGRAPHY BY FIRMATEK FLOWN ON 01-08-2021, BY DALLAS AERIAL SURVEYS FLOWN ON 02-25-2017, AND NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS TOPOGRAPHY TAKEN IN 2007.
 - ZONE A 100-YEAR FLOODPLAIN REPRODUCED FROM FEMA FIRM PANELS 48251C0350J. EXISTING FLOODPLAIN DELINEATED FROM HEC-RAS MODELING BASED ON PEAK FLOWS ESTIMATED FROM HEC-1.
 - STREAM B FLOWS NORTH EASTERLY APPROXIMATELY 0.71 MILES FROM THE LANDFILL PERMIT BOUNDARY BEFORE IT DISCHARGES TO TURKEY CREEK (SEE FIGURE A.8).

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		3	05/2023	FEMA COMMENT RESPONSE		FIGURE 1.6

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LEGEND

	PERMIT BOUNDARY
	PERMITTED LIMITS OF WASTE
	PROPOSED LIMITS OF WASTE
	EXISTING CONTOUR (SEE NOTE 1)
	PROPOSED FINAL COVER CONTOUR
	HEC-RAS CROSS SECTION AND 100-YEAR FLOODPLAIN ELEVATION (A-4350 (687.71 FT))
	REACH FLOWLINE
	DRAINAGE SWALE
	ZONE A 100-YEAR FLOODPLAIN (SEE NOTE 2)
	FORMER STREAM LOCATION
	POST-PROJECT 100-YEAR FLOODPLAIN
	EXISTING CULVERT
	PROPOSED CULVERT



- NOTES:**
- COMPOSITE TOPOGRAPHY PROVIDED BY AERIAL PHOTOGRAPHY BY FIRMATEK FLOWN ON 01-08-2021, BY DALLAS AERIAL SURVEYS FLOWN ON 02-25-2017, AND NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS TOPOGRAPHY TAKEN IN 2007.
 - ZONE A 100-YEAR FLOODPLAIN REPRODUCED FROM FEMA FIRM PANELS 48251C0350J. POST-PROJECT FLOODPLAIN DELINEATED FROM HEC-RAS MODELING BASED ON PEAK FLOWS ESTIMATED FROM HEC-1.
 - STREAM B FLOWS NORTH EASTERLY APPROXIMATELY 0.71 MILES FROM THE LANDFILL PERMIT BOUNDARY BEFORE IT DISCHARGES TO TURKEY CREEK (SEE FIGURE A.8).

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DATE: 02/2022	DRAWN BY: BPY	<table border="1"> <thead> <tr> <th colspan="3">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>06/2022</td> <td>UPDATED TOPOGRAPHIC INFORMATION.</td> </tr> <tr> <td>2</td> <td>10/2022</td> <td>UPDATED SECTION NUMBERS/ELEVATIONS</td> </tr> <tr> <td>3</td> <td>05/2023</td> <td>FEMA COMMENT RESPONSE</td> </tr> </tbody> </table>	REVISIONS			NO.	DATE	DESCRIPTION	1	06/2022	UPDATED TOPOGRAPHIC INFORMATION.	2	10/2022	UPDATED SECTION NUMBERS/ELEVATIONS	3	05/2023	FEMA COMMENT RESPONSE
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CLOMR REQUEST
POST-PROJECT CONDITION MAP
 TURKEY CREEK LANDFILL
 JOHNSON COUNTY, TEXAS
 WWW.WCGRP.COM **FIGURE 1.7**

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2 HYDRAULIC ANALYSES

2.1 Description of Computer Program

The hydraulic modeling of Tributary A, Tributary B, and Turkey Creek was conducted using the HEC-RAS, River Analysis System computer program, Version 6.2.0 (Ref. 2). HEC-RAS was developed by the USACE Hydrologic Engineering Center to simulate steady flow water surface profiles. The computational procedure used in the program is based on the solution of the one-dimensional energy equation with energy loss due to friction. The modeling process results in the computation of flood profiles for the Tributaries in a drainage area.

2.2 Schematization

Drawings A.4 and A.5 show the cross section locations for the effective and post-project conditions, respectively, of the Tributary A, Tributary B, and Turkey Creek. Profiles of the waterways are shown on Drawings A.6 through A.9. For the analysis of flow through Tributaries, the boundary geometry of the channels is specified in terms of cross sections and reach lengths. Cross sections were located at intervals along the Tributaries to characterize the flow carrying capability and to accurately represent the Tributary and floodplain geometry.

2.3 Boundary Conditions

As shown on Drawing A.2 (Appendix A), base flood elevations have not been determined for Tributary A, Tributary B, or Turkey Creek. The boundary conditions for the three flooding sources are summarized below in Table 2-1.

Table 2-1
Existing and Post-Project Boundary Conditions

Flooding Source	Upstream Boundary Condition	Downstream Boundary Condition
Turkey Creek	N/A	A normal depth boundary condition was used for both the existing and post-project conditions
Tributary A to Turkey Creek	A normal depth boundary condition was used for the existing and post-project conditions	For both the existing and post-project condition the water surface elevation in TC-3500 in Turkey Creek was used as the boundary condition.
Tributary B to Turkey Creek	A normal depth boundary condition was used for the existing and post-project conditions	A normal depth boundary condition was used for the existing condition. For the post-project condition, the calculated water surface from the existing condition was used as a known water surface condition.

2.4 Manning's Coefficient

For tributaries A and B, Manning's coefficients (n values) utilized for the main channel and overbanks are 0.04 within the study area. To provide for a conservative analysis, it was assumed that the channel and floodplain areas will not be maintained and remain in their natural conditions. These values represent unmaintained, natural vegetation conditions in both the main channel and floodplain areas. In the post-project condition gabions and Turf Mat will be used at various places in both Tributary A and B. The locations of these erosion prevention structures are shown on Figure 1.5. A Manning's value of 0.04 was used for the gabions and the Turf Mat, consistent with vegetated C350 Turf Reinforcement Mat. For details of the gabions and Turf Mat, see Appendix B.3, Attachment 1. A Manning's value of 0.024 was used for corrugated metal pipe culverts, and a value of 0.013 was used for reinforced concrete pipes and concrete channels. The Manning's values are consistent with the HEC-RAS Reference Manual.

For Turkey Creek, the Manning's coefficients utilized for the main channel are 0.04. The left and the right overbanks were modeled as 0.08 and 0.07, respectively. The right overbank was considered to be a less forested area; therefore, was modeled with a lower Manning's n. In the post-project condition, the proposed berm and channel improvements were modeled with a 0.03 to 0.04 Manning's n.

3 RESULTS OF ANALYSIS

3.1 Hydraulic Analysis Results

The existing and post-project 100-year floodplains for the Tributary A, Tributary B, and Turkey Creek model are delineated on Drawings A.4 and A.5, respectively. In accordance with FEMA requirements the post-project water surface for tributaries A and B is equal to, or lower than the existing condition water surface in the cross sections upstream and downstream of the relocations. In Turkey Creek the post-project water surface is equal to, or lower than the existing conditions. Summaries of flood elevations, and velocities within the study area are presented in Tables 3-1 through 3-3. The output files and hydraulic models are provided electronically.

3.1.1 Tributary A Results

For Tributary A, comparisons between existing and post-project conditions are limited to upstream cross sections A-4740 through A-5600 (called A-4740 through A-5430 in post-project condition) and the downstream cross section A-1500. As shown in Table 3-1, the water surface in the upstream and downstream cross sections are equal to, or lower than the existing condition.

Velocities are approximately the same in both the existing and post-project conditions in the equivalent upstream and downstream cross sections. Within the relocated channel, velocities remain non-erosive in the earthen sections. Higher velocities are found at the beginning of the channel, through the armored section, and after the detention pond spillway which are accounted for with gabions and Turf Mat structures. Locations of the erosion prevention structures are shown on Figure 1.5. An Erosion Protection Plan detailing the protection measures can be found in Appendix B.3, Attachment 1.

3.1.2 Tributary B Results

For Tributary B, comparisons between existing and post-project conditions are limited to upstream cross sections B-2639 through B-3350 (called B-2985 through B-3310 in post-project conditions) and downstream cross sections B-0 through B-520. As shown in Table 3-2, the water surfaces in the upstream cross sections are equal to or lower than the existing condition. The downstream cross section is also equivalent in both conditions.

The velocities are approximately the same in both the existing and post-project conditions in the equivalent upstream and downstream cross sections. Within the relocated channel, velocities remain non-erosive in the earthen section. Higher velocities are found at the beginning of the channel, after the detention pond spillway, and before flow enters the open area are accounted for with gabions and Turf Mat. Locations of the erosion prevention structures are shown on Figure 1.5. An Erosion Protection Plan, detailing the erosion protection measures can be found in Appendix B.3, Attachment 1.

3.1.3 Turkey Creek Results

For Turkey Creek, comparisons between existing and post-project conditions include all cross sections TC-0 through TC-5600. As shown in Table 3-3, the water surface is equal to, or lower than the existing conditions. Velocities also remain the same in the post-project condition when compared to the existing condition.

**Table 3-1
Comparison of 100-Year Water Surface Elevations and Flow Velocities
Tributary A Existing and Post-Project Conditions**

100-Year Flood Event							
Cross Section Numbers		Existing			Post-Project		
		Flow Rate	Natural WSEL	Main Channel Velocity	Flow Rate	Natural WSEL	Main Channel Velocity
Existing	Post-Project	(cfs)	(feet-msl)	(feet/sec)	(cfs)	(feet-msl)	(feet/sec)
A-5600	A-5430	195	717.21	6.78	195	717.21	6.78
A-5400	A-5230	195	710.05	6.36	195	710.05	6.36
A-5100	A-4930	195	704	6.08	195	704	6.08
A-4740 ¹	A-4570	195	700.48	0.38	195	700.48	0.38
---	A-4510*	---	---	---	194	---	---
---	A-4350*	---	---	---	194	693.59	7.72
A-4680*	---	194	693.69	7.33	---	---	---
---	A-3850*	---	---	---	216	681.88	2.39
A-4350*	---	194	687.47	6.07	---	---	---
---	A-3365*	---	---	---	639	680.44	2.51
A-3950*	---	245	684.04	1.04	---	---	---
---	A-3150*	---	---	---	639	680.09	2.11
A-3450*	---	738	681.88	5.97	---	---	---
---	A-2800*	---	---	---	799	679.45	5.16
A-3050*	---	780	677.75	4	---	---	---
---	A-2300*	---	---	---	799	677.91	5.56
A-2650*	---	780	672.92	7.72	---	---	---
---	A-2200*	---	---	---	810	673.21	8.72
A-2250*	---	780	665.16	6.69	---	---	---
---	A-1950*	---	---	---	810	669.91	7.78
A-1950*	---	780	662.69	4.74	---	---	---
---	A-1750*	---	---	---	741	667.59	1.03
A-1750*	---	780	659.92	7.17	---	659.86	9.4
A-1500	A-1500	780	660.35	0.97	749	660.35	0.94

* Proposed Tributary relocation occurs in these cross section numbers. In this range, existing and post-project results are not directly comparable.

¹ UpTributary of existing cross section A-4740, cross sections in the existing and post-project conditions are located in the same physical location. Cross section numbers are different due to the stream length added by the proposed creek relocations.

Table 3-2
Comparison of 100-Year Water Surface Elevations and Flow Velocities
Tributary B Existing and Post-Project Conditions

100-Year Flood Event							
Cross Section Numbers		Existing			Post-Project		
		Flow Rate	Natural WSEL	Main Channel Velocity	Flow Rate	Natural WSEL	Main Channel Velocity
Existing	Post-Project	(cfs)	(feet-msl)	(feet/sec)	(cfs)	(feet-msl)	(feet/sec)
Tributary B							
B-3350	280	280	712.32	3.03	280	712.32	3.03
B-3050	280	280	707.88	4.37	280	707.88	4.37
B-2680	280	280	704.92	0.86	280	704.92	0.86
B-2635 ¹	279	279	701.96	6.97	279	701.69	7.93
B-2450*	279	279	699.07	5.4	---	---	---
---	---	---	---	---	627	699.38	1.67
B-2300*	279	279	689.64	1.11	---	---	---
---	---	---	---	---	627	699.3	1.86
B-2150*	626	627	688.32	8.27	---	---	---
---	---	---	---	---	1084	699.08	2.57
B-1750*	626	627	682.83	5.11	---	---	---
---	---	---	---	---	685	694.36	7.55
B-1450*	626	627	680.22	5.28	---	---	---
---	---	---	---	---	685	693.12	6.6
B-1150*	626	627	678.94	3.62	---	---	---
---	---	---	---	---	685	686.97	8.59
B-850*	626	627	676.94	4.76	---	---	---
---	---	---	---	---	685	670.37	22.71
B-600*	626	627	671.39	5.56	---	---	---
B-520	780	812	671.34	1.89	724	671.23	1.77
B-420	777	816	670.95	2.78	715	670.9	2.49
B-330	777	816	671	1.53	715	670.93	1.36
B-150	1132	1079	668.77	6.15	1065	668.77	6.07
B-110	1132	1079	669.15	1.97	1065	669.14	1.95
B-0	1132	1079	661.92	9.14	1065	661.92	9.02
Tributary B West							
---	BW-1050*	---	---	---	412	700.82	4.49
---	BW-550*	---	---	---	412	699.41	3.12
---	BW-350*	---	---	---	412	699.42	1.3
---	BW-100*	---	---	---	412	699.43	0.45

* Proposed Tributary relocation occurs in these cross section numbers. In this range, existing and post-project results are not directly comparable.

¹ UpTributary of existing cross section B-2635, cross sections in the existing and post-project conditions are located in the same physical location. Cross section numbers are different due to the stream length added by the proposed creek relocations,

Table 3-3
Comparison of 100-Year Water Surface Elevations and Flow Velocities
Turkey Creek Existing and Post-Project Conditions

100-Year Flood Event							
Cross Section Numbers		Effective			Post-Project		
		Flow Rate	Natural WSEL	Main Channel Velocity	Flow Rate	Natural WSEL	Main Channel Velocity
Effective	Post-Project	(cfs)	(feet-msl)	(feet/sec)	(cfs)	(feet-msl)	(feet/sec)
Turkey Creek							
TC-5800	TC-5800	21194	660.94	5.17	21194	660.94	5.17
TC-5200	TC-5200	21194	660.71	4.07	21194	660.71	4.07
TC-4700	TC-4700	21194	660.56	3.86	21194	660.56	3.86
TC-3700	TC-3700	21194	660.35	2.95	21194	660.35	2.95
TC-3000	TC-3000	21194	660.19	3.76	21194	660.19	3.76
TC-2300	TC-2300	21194	660.06	3.55	21194	660.06	3.55
TC-1700	TC-1700	21194	659.79	4.59	21194	659.79	4.59
TC-1000	TC-1000	21194	650.26	8.75	21194	650.26	8.75
TC-0	TC-0	21194	647.56	8.25	21194	647.56	8.25

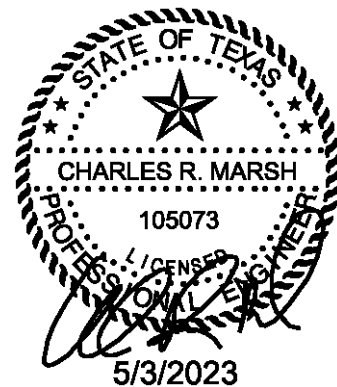
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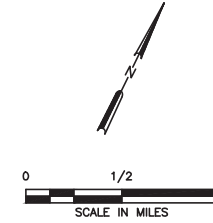
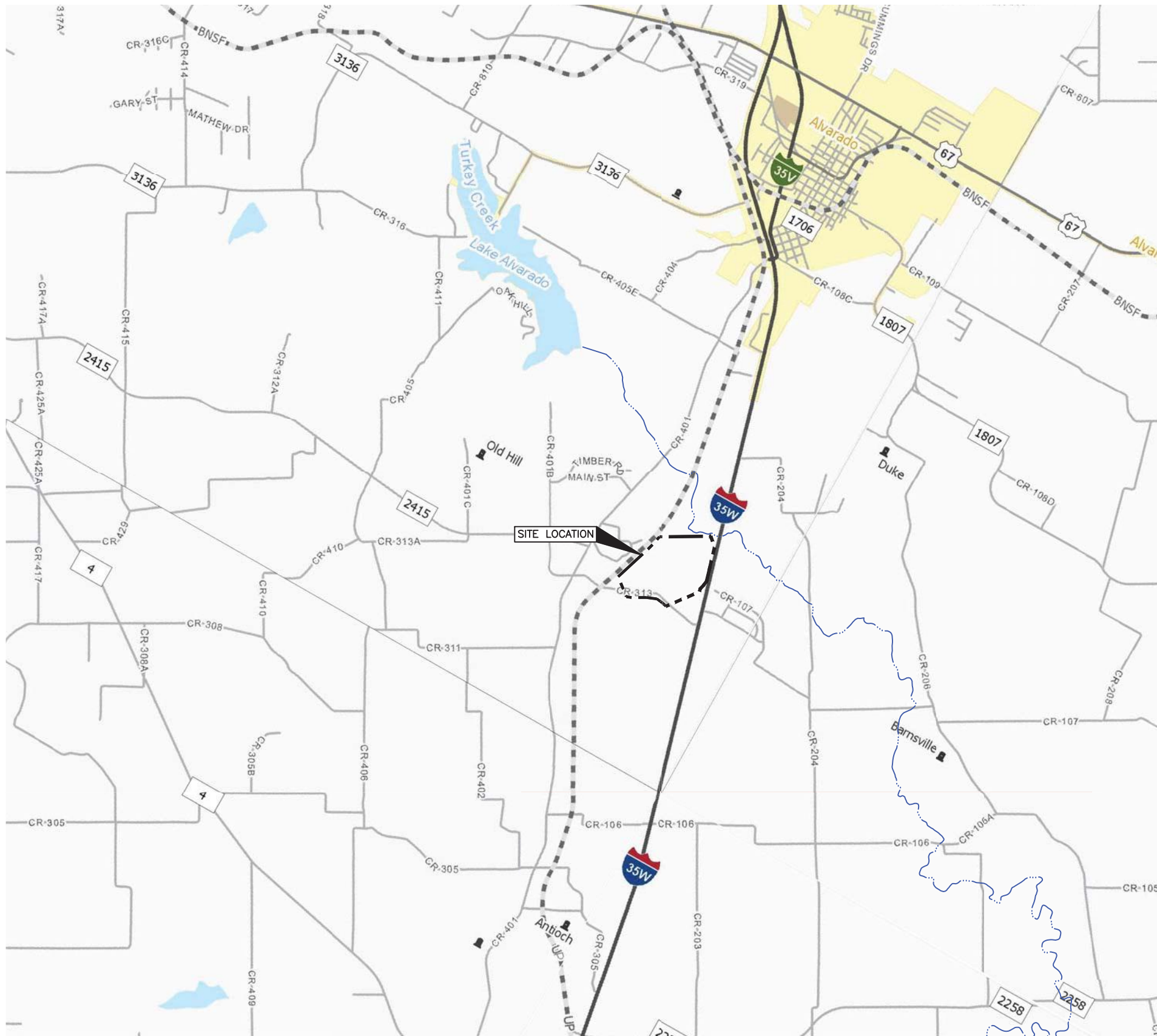
1. Federal Emergency Management Agency, *Flood Insurance Rate Map, Johnson County, Texas and Unincorporated Areas, City of Grandview, et. al., Community – Panel Numbers 4808790350J and 4808810350J*.
2. U.S. Army Corps of Engineers, *HEC-RAS River Analysis System Applications Guide*, Hydrologic Engineering Center, May 2021.

APPENDIX A

DRAWINGS

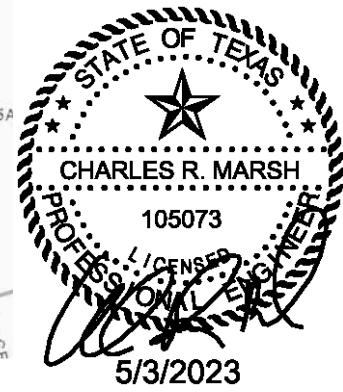
- A.1 Site Location Map
- A.2 Flood Insurance Rate Map (FIRM)
- A.3 Existing Site Plan
- A.4 Effective Floodplain and Floodway Delineations
- A.5 Post-Project Floodplain and Floodway Delineations
- A.6 Effective Condition Profile Tributaries A and B
- A.7 Effective Condition Profile Turkey Creek
- A.8 Post-Project Condition Profile Tributaries A, B, and B West
- A.9 Post-Project Condition Profile Turkey Creek
- A.10 Revised Flood Insurance Rate Map (FIRM)





LEGEND
 - - - - - PROPERTY/PERMIT BOUNDARY
 - - - - - CREEK FLOW LINE

- Unincorporated Community
- ⊛ County Seat
- ⊕ Border Crossing
- ⊠ Cemetery
- ⊠ Cemetery (Inside City)
- ⊕ Deep Draft Port
- ⊕ Shallow Draft Port
- Railroad
- Dam
- River or Stream
- TXDOT District
- Lakes
- Education
- Military
- Airport Runway
- Airport
- Prison
- Parks and Other Public Land






















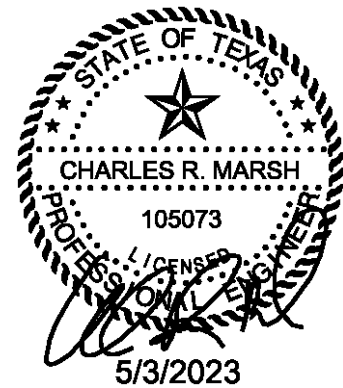
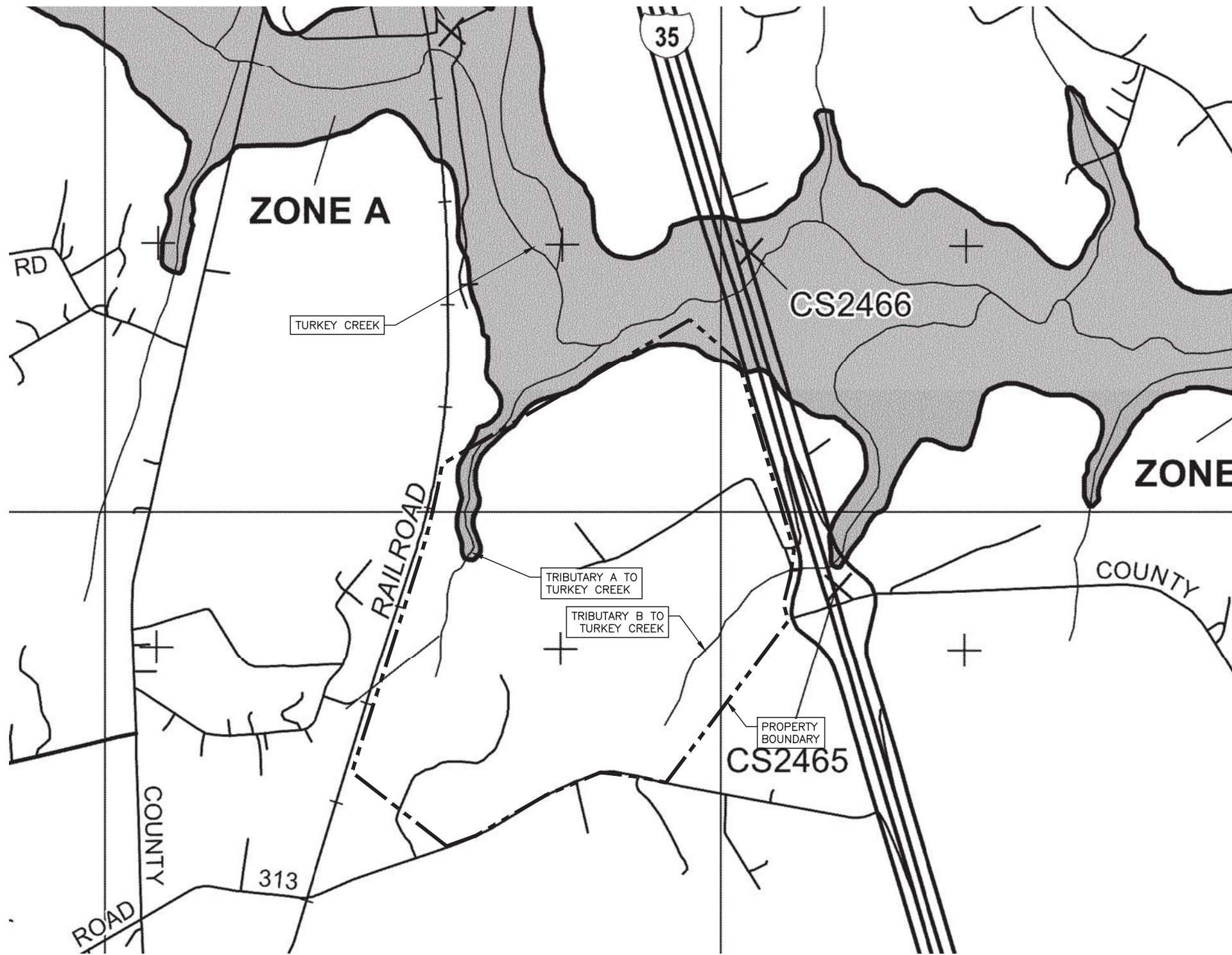
NOTE:
 1. REPRODUCED FROM 2018 TEXAS DEPARTMENT OF TRANSPORTATION COUNTY MAPS, JOHNSON COUNTY.

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	TEXAS REGIONAL LANDFILL COMPANY, LP										
DATE: 02/2022 FILE: 0771-368-11 CAD: A.1-SITE LOCATION MAP.DWG	DRAWN BY: JDW DESIGN BY: BPY REVIEWED BY: CRM	WWW.WCGRP.COM									
Weaver Consultants Group TBPE REGISTRATION NO. F-3727											
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NO.	DATE	DESCRIPTION									

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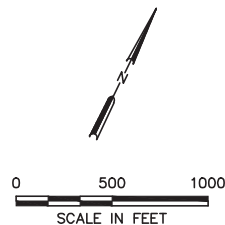
LEGEND

-  **SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**
The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.
 - ZONE A** No Base Flood Elevations determined.
 - ZONE AE** Base Flood Elevations determined.
 - ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
 - ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
 - ZONE AR** Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
 - ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
 - ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevation determined.
 - ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
 -  **FLOODWAY AREAS IN ZONE AE**
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
 -  **OTHER FLOOD AREAS**
 - ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
 -  **OTHER AREAS**
 - ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
 - ZONE D** Areas in which flood hazards are undetermined, but possible.
 -  **COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**
 -  **OTHERWISE PROTECTED AREAS (OPAs)**
- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
-  1% Annual Chance Floodplain Boundary
 -  0.2% Annual Chance Floodplain Boundary
 -  Floodway boundary
 -  Zone D boundary
 -  CBRS and OPA boundary
 -  Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevation flood depths, or flood velocities.
 -  Base Flood Elevation line and value; elevation in feet*
(EL 987)
 -  Base Flood Elevation value where uniform within zone; elevation in feet*
- *Referenced to the North American Vertical Datum of 1988
-   Cross section line
 -   Transect line
 - 45° 02' 08", 93° 02' 12" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
 - 3100000 FT 5000-foot ticks: Texas State Plane North Central Zone (FIPS Zone 4202), Lambert Conformal Conic projection
 - 49890000 N 1000-meter Universal Transverse Mercator grid values, zone 14
 - DX5510 X Bench mark (see explanation in Notes to Users section of this FIRM panel)
 - * M1.5 River Mile
-  **PROPERTY BOUNDARY**




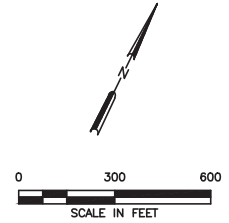
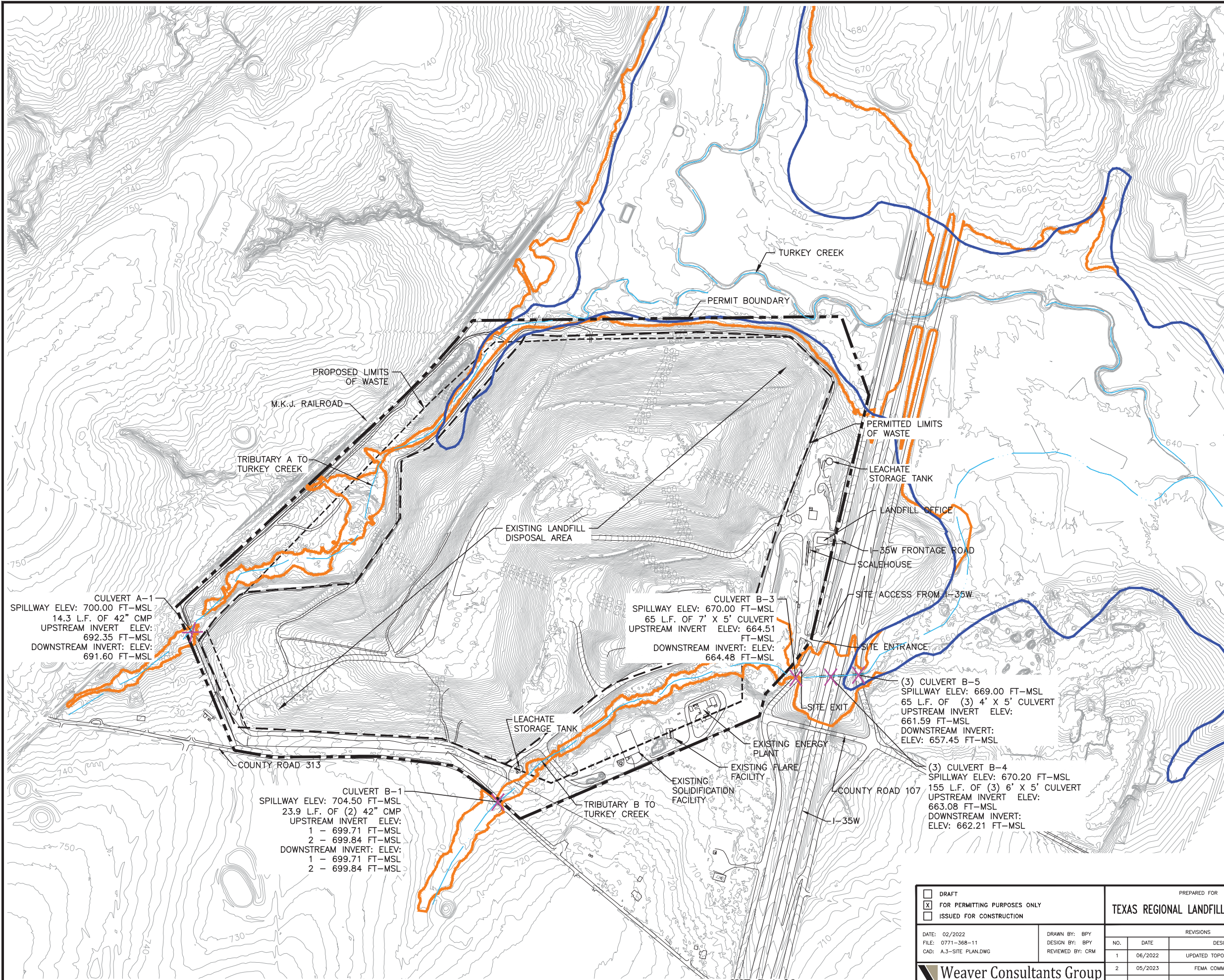
NOTES:

1. REPRODUCED FROM FEMA FIRM NUMBERS 4808810350J AND 4808790350J FOR CITY OF GRANDVIEW, AND JOHNSON COUNTY, UNINCORPORATED AREAS, EFFECTIVE DECEMBER 4TH, 2010.



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NO.	DATE	DESCRIPTION									
1	06/2022	UPDATED FLOODPLAIN									
2	05/2023	FEMA COMMENT RESPONSE									
 Weaver Consultants Group TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM FIGURE A.2									



LEGEND

- PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- EXISTING CONTOUR (SEE NOTE 1)
- REACH FLOWLINE
- ZONE A 100-YEAR FLOODPLAIN (SEE NOTE 2)
- EXISTING 100-YEAR FLOODPLAIN (SEE NOTE 2)
- EXISTING CULVERT



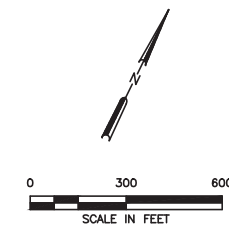
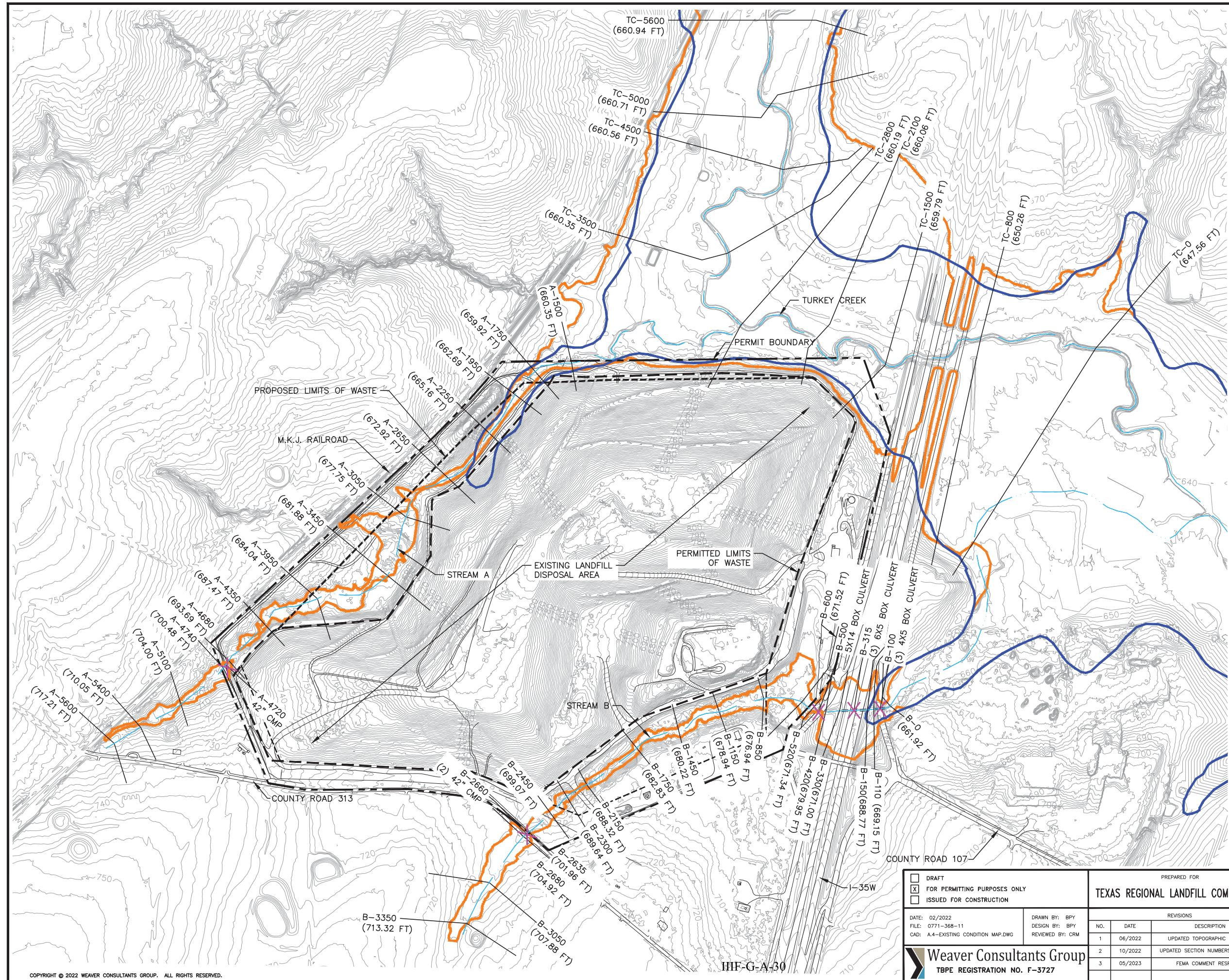
- NOTES:**
- COMPOSITE TOPOGRAPHY PROVIDED BY AERIAL PHOTOGRAPHY BY FIRMATEK FLOWN ON 01-08-2021, AND 2013 LIDAR DATA PROVIDED BY TEXAS NATURAL RESOURCES INFORMATION SYSTEM.
 - ZONE A 100-YEAR FLOODPLAIN REPRODUCED FROM FEMA FIRM PANELS 48251C0350J. EXISTING FLOODPLAIN DELINEATED FROM HEC-RAS MODELING BASED ON PEAK FLOWS ESTIMATED FROM HEC-1.

<input type="checkbox"/> DRAFT	PREPARED FOR	TEXAS REGIONAL LANDFILL COMPANY, LP												
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CAD: A.3-SITE PLAN.DWG	REVIEWED BY: CRM													
Weaver Consultants Group TBPE REGISTRATION NO. F-3727														

CLOMR REQUEST EXISTING SITE PLAN TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS	
WWW.WCGRP.COM	FIGURE A.3

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LEGEND

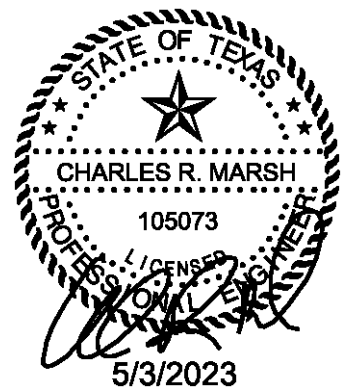
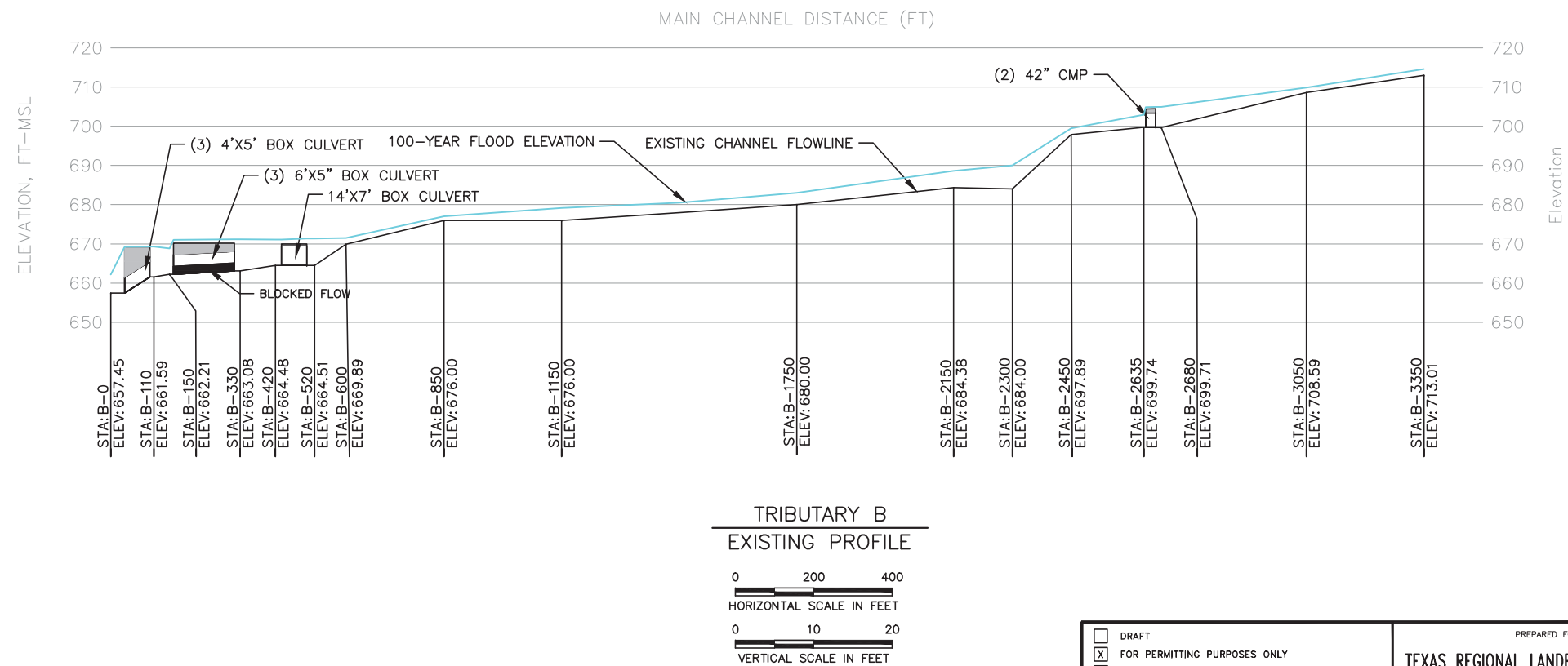
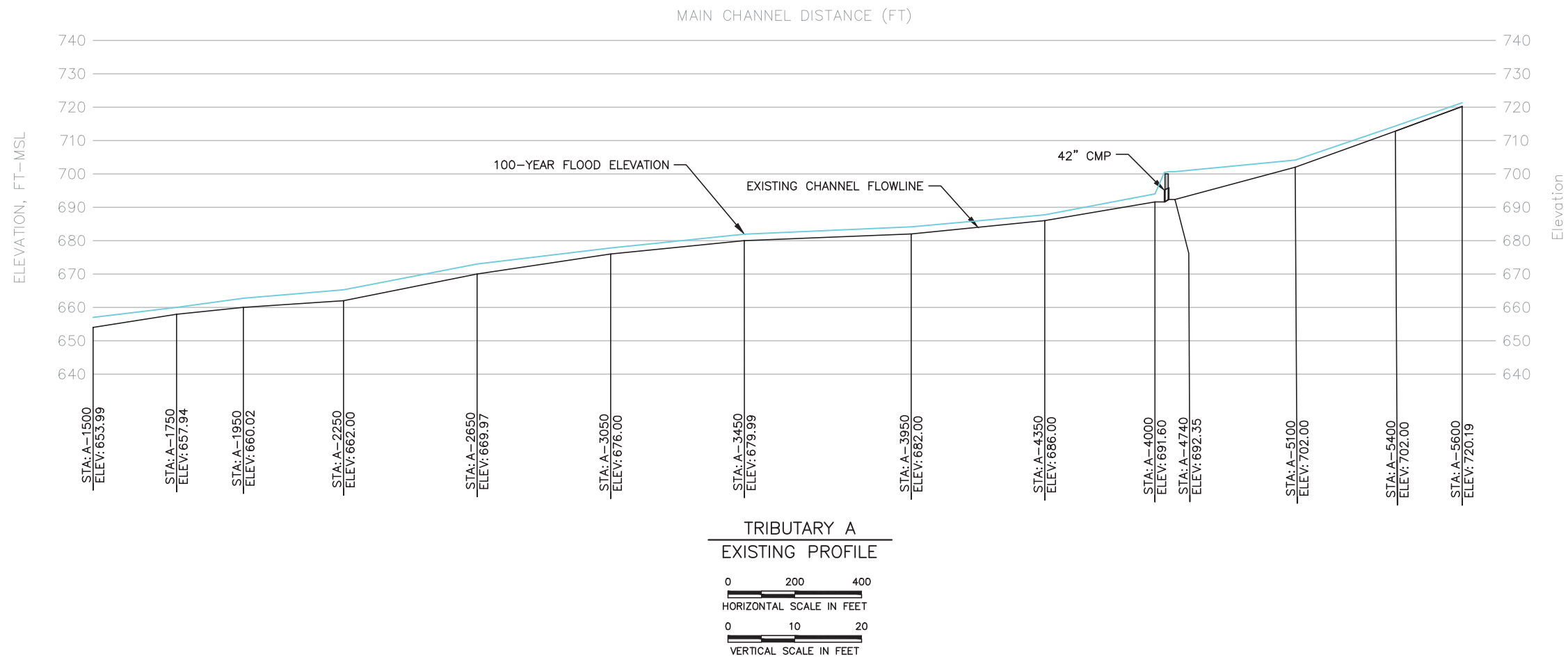
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	PERMITTED LIMITS OF WASTE
	PROPOSED LIMITS OF WASTE
	EXISTING CONTOUR (SEE NOTE 1)
	HEC-RAS CROSS SECTION AND 100-YEAR FLOODPLAIN ELEVATION
	REACH FLOWLINE
	ZONE A 100-YEAR FLOODPLAIN (SEE NOTE 2)
	EXISTING 100-YEAR FLOODPLAIN
	EXISTING CULVERT



- NOTES:**
- COMPOSITE TOPOGRAPHY PROVIDED BY AERIAL PHOTOGRAPHY BY FIRMATEK FLOWN ON 01-08-2021, BY DALLAS AERIAL SURVEYS FLOWN ON 02-25-2017, AND NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS TOPOGRAPHY TAKEN IN 2007.
 - ZONE A 100-YEAR FLOODPLAIN REPRODUCED FROM FEMA FIRM PANELS 48251C0350J. EXISTING FLOODPLAIN DELINEATED FROM HEC-RAS MODELING BASED ON PEAK FLOWS ESTIMATED FROM HEC-1.
 - STREAM B FLOWS NORTH EASTERLY APPROXIMATELY 0.71 MILES FROM THE LANDFILL PERMIT BOUNDARY BEFORE IT DISCHARGES TO TURKEY CREEK (SEE FIGURE A.8).

<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		TEXAS REGIONAL LANDFILL COMPANY, LP	CLOMR REQUEST EXISTING CONDITION MAP															
	DATE: 02/2022 FILE: 0771-368-11 CAD: A.4-EXISTING CONDITION MAP.DWG				DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM	TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS													
DATE: 02/2022 FILE: 0771-368-11 CAD: A.4-EXISTING CONDITION MAP.DWG		Weaver Consultants Group TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM															
		<table border="1"> <thead> <tr> <th colspan="3">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>06/2022</td> <td>UPDATED TOPOGRAPHIC INFORMATION.</td> </tr> <tr> <td>2</td> <td>10/2022</td> <td>UPDATED SECTION NUMBERS/ELEVATIONS</td> </tr> <tr> <td>3</td> <td>05/2023</td> <td>FEMA COMMENT RESPONSE</td> </tr> </tbody> </table>		REVISIONS			NO.	DATE	DESCRIPTION	1	06/2022	UPDATED TOPOGRAPHIC INFORMATION.	2	10/2022	UPDATED SECTION NUMBERS/ELEVATIONS	3	05/2023	FEMA COMMENT RESPONSE	FIGURE A.4
REVISIONS																			
NO.	DATE	DESCRIPTION																	
1	06/2022	UPDATED TOPOGRAPHIC INFORMATION.																	
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3	05/2023	FEMA COMMENT RESPONSE																	

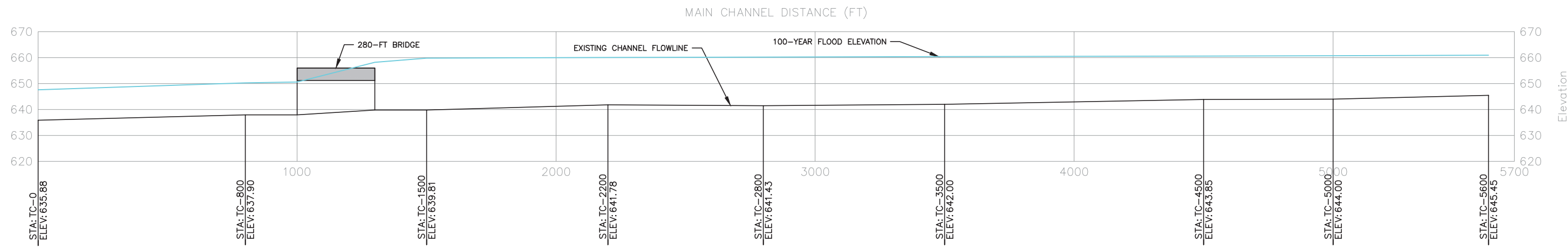
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 COPYRIGHT © 2022 WEAVER CONSULTANTS GROUP. ALL RIGHTS RESERVED.



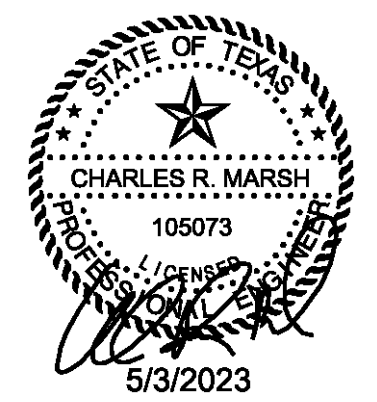
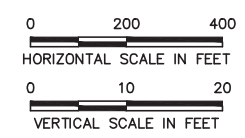
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	DATE: 02/2022 FILE: 0771-368-11 CAD: A.6-EFFECTIVE PROFILE.DWG		
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1 05/2023 FEMA COMMENT RESPONSE			
Weaver Consultants Group TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM	FIGURE A.6

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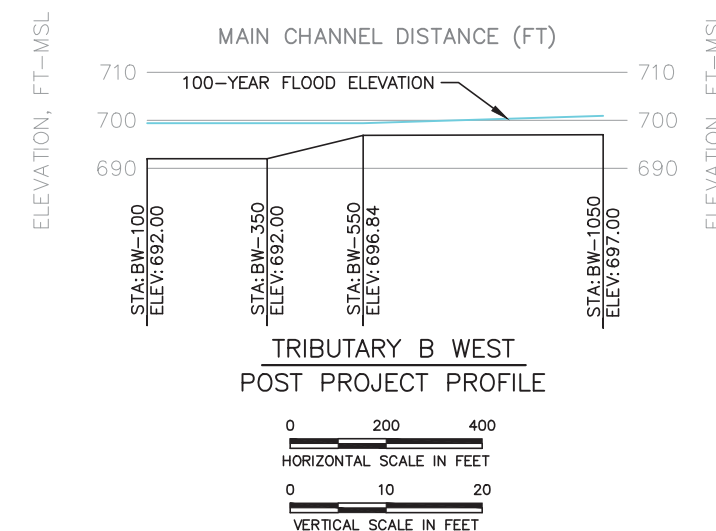
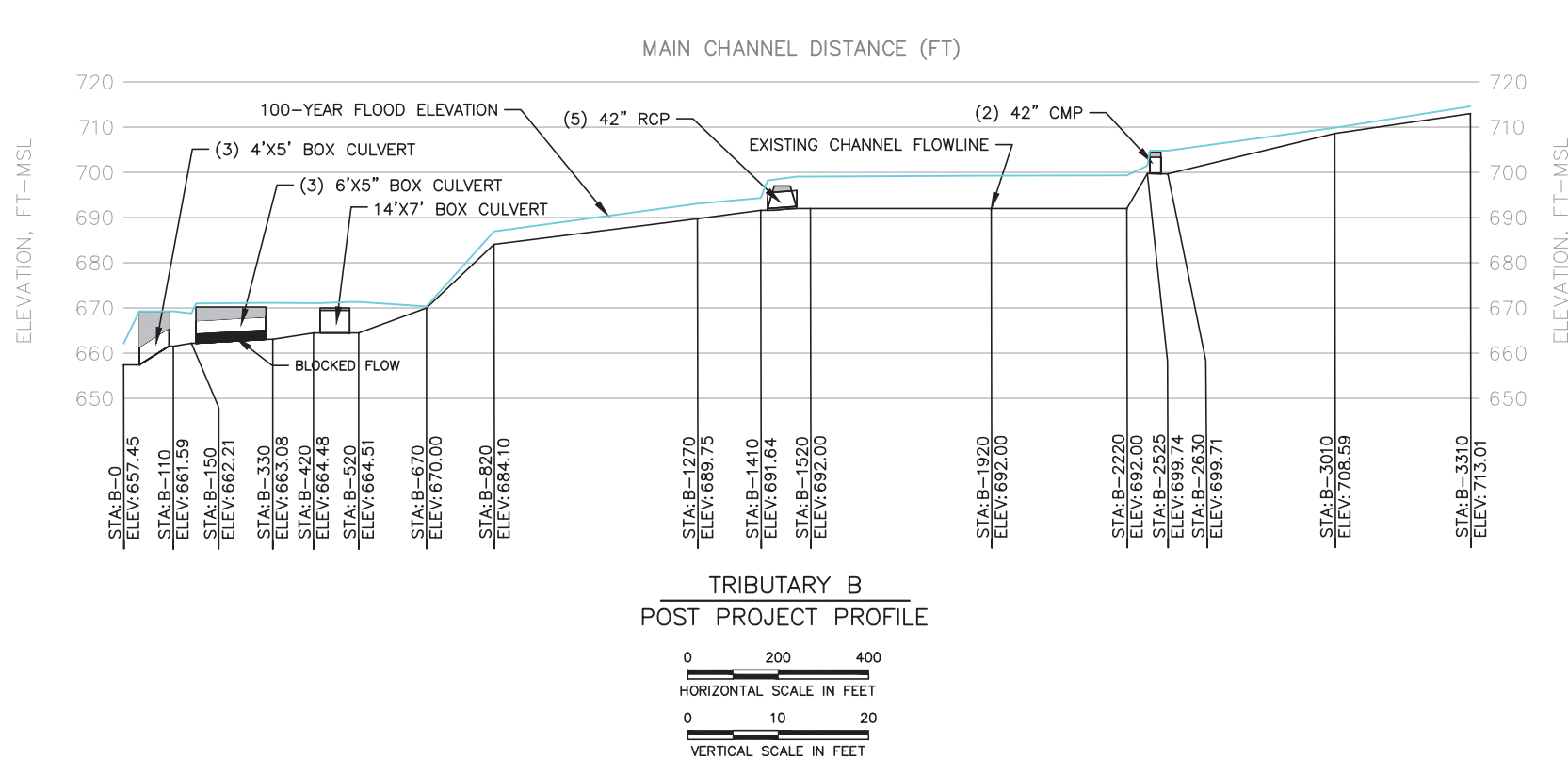
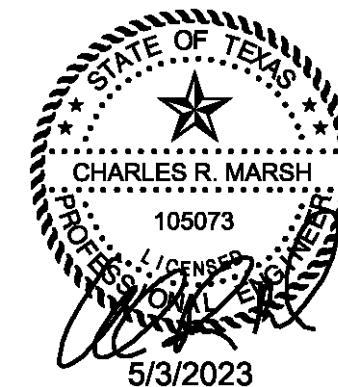
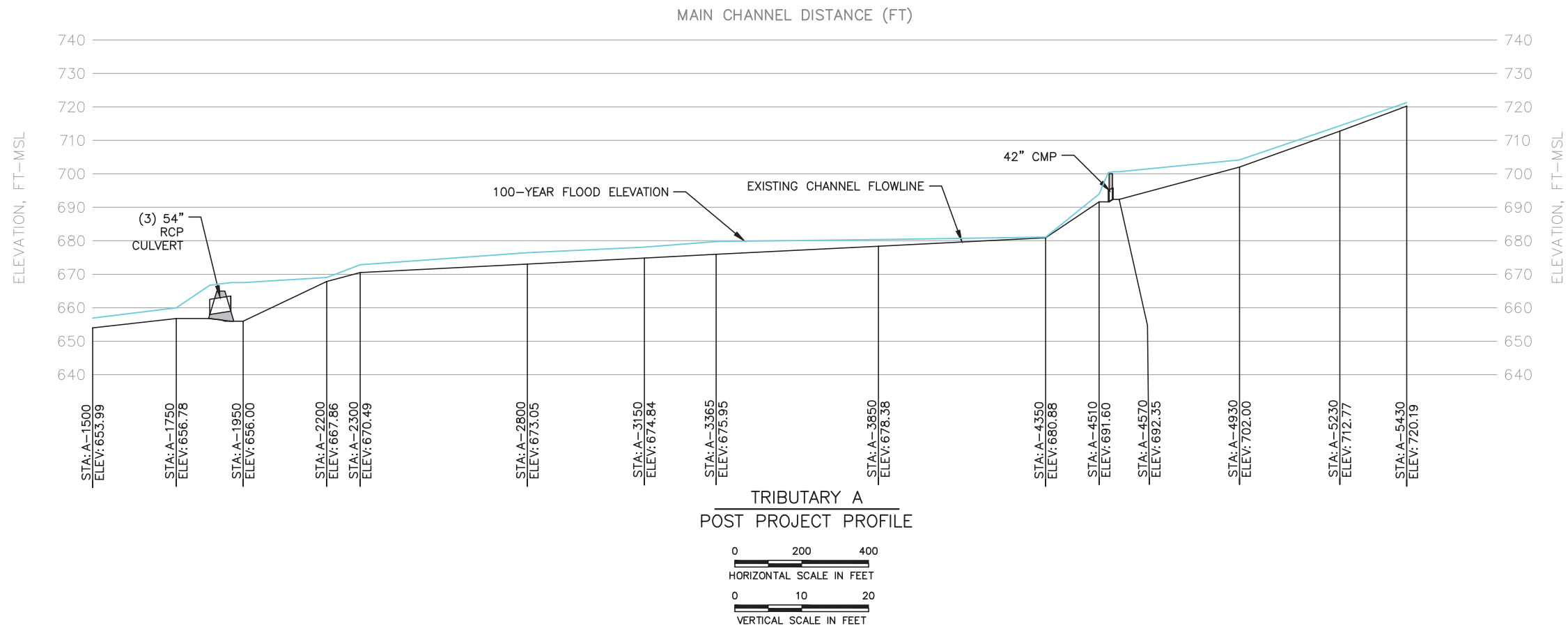
TURKEY CREEK
EXISTING PROFILE



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DATE: 06/2022 FILE: 0771-368-11 CAD: A.7-EFFECTIVE PROFILE.DWG	DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM	REVISIONS		
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		2	05/2023	FEMA COMMENT RESPONSE
Weaver Consultants Group TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM		FIGURE A.7

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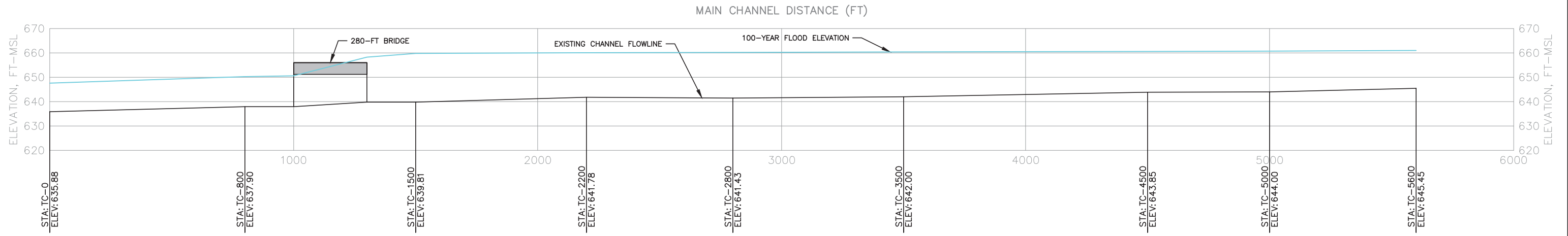
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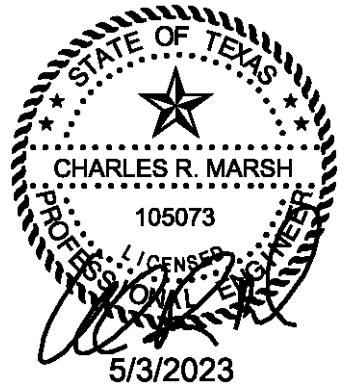
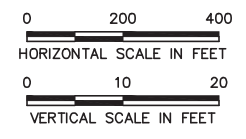
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	DATE: 02/2022 FILE: 0771-368-11 CAD: A.8-POST-PROJECT PROFILE.DWG	DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>05/2023</td> <td>FEMA COMMENT RESPONSE</td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION	1
NO.	DATE	DESCRIPTION						
1	05/2023	FEMA COMMENT RESPONSE						
Weaver Consultants Group TBPE REGISTRATION NO. F-3727			WWW.WCGRP.COM FIGURE A.8					

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TURKEY CREEK
POST PROJECT PROFILE



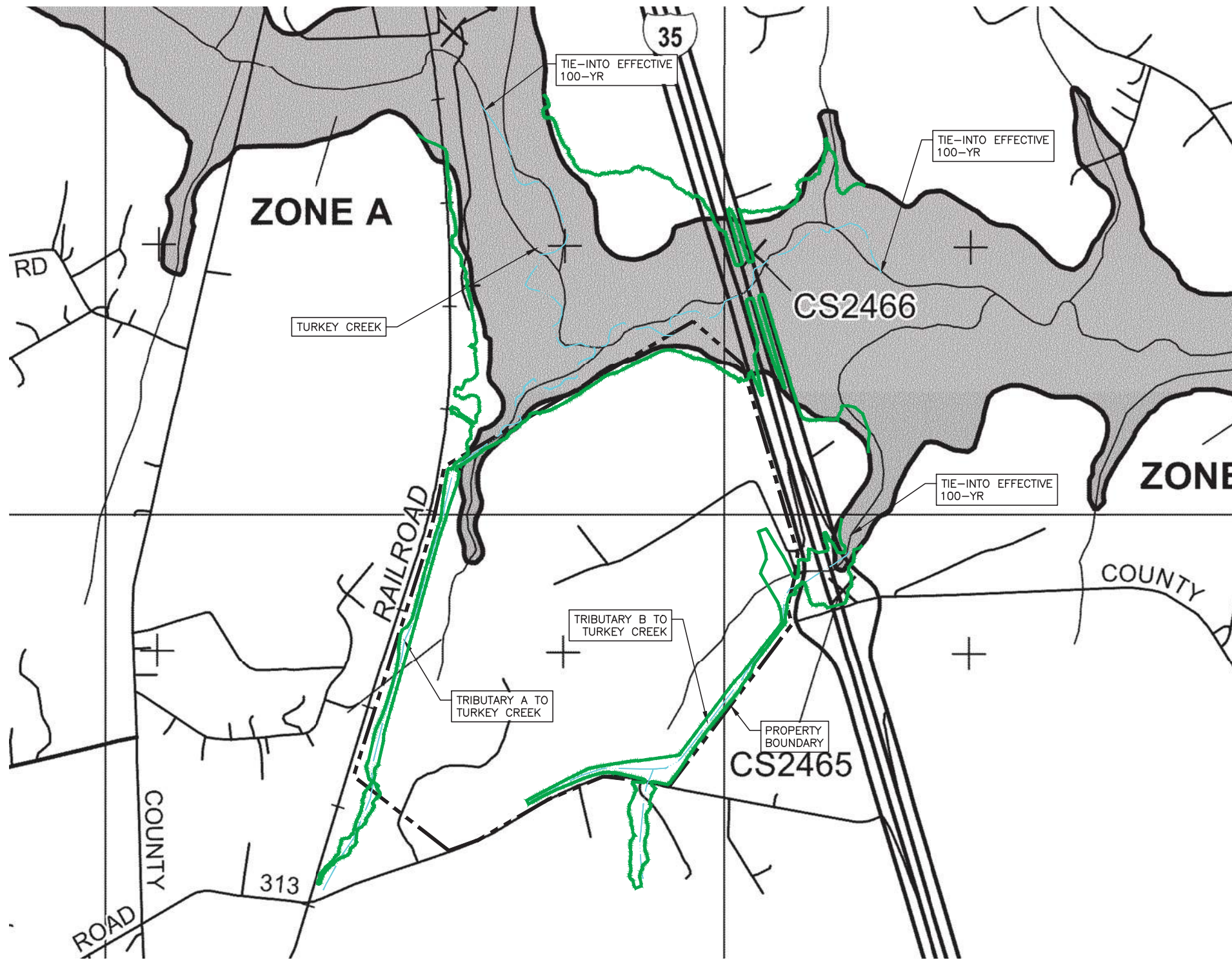
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	TEXAS REGIONAL LANDFILL COMPANY, LP			
DATE: 06/2022 FILE: 0771-368-11 CAD: A.9-POST-PROJECT PROFILE.DWG	DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM	REVISIONS		
		NO.	DATE	DESCRIPTION
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		2	05/2023	FEMA COMMENT RESPONSE
Weaver Consultants Group TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM		
		FIGURE A.9		

III-F-G-A-35

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LEGEND

- SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
The 1% annual chance flood (100-year flood), also known as the "base flood," is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.
- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevation determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
- FLOODWAY AREAS IN ZONE AE
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
- OTHER FLOOD AREAS
- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- OTHER AREAS
- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS
- OTHERWISE PROTECTED AREAS (OPAs)
CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% Annual Chance Floodplain Boundary
- 0.2% Annual Chance Floodplain Boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevation flood depths, or flood velocities.
- Base Flood Elevation line and value; elevation in feet* (EL 987)
- Base Flood Elevation value where uniform within zone; elevation in feet*
- *Referenced to the North American Vertical Datum of 1988
- Cross section line
- Transect line
- 45° 02' 08", 93° 02' 12" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
- 3100000 FT 5000-foot ticks: Texas State Plane North Central Zone (FIPS Zone 4202), Lambert Conformal Conic projection
- 49890000 N 1000-meter Universal Transverse Mercator grid values, zone 14
- DX5510 Bench mark (see explanation in Notes to Users section of this FIRM panel)
- * M1.5 River Mile
- PROPERTY BOUNDARY
- REVISED STREAMLINE
- POST-PROJECT 100-YEAR FLOODPLAIN



NOTES:

1. REPRODUCED FROM FEMA FIRM NUMBERS 4808810350J AND 4808790350J FOR CITY OF GRANDVIEW, AND JOHNSON COUNTY, UNINCORPORATED AREAS, EFFECTIVE DECEMBER 4TH, 2010.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR TEXAS REGIONAL LANDFILL COMPANY, LP	CLOMR REQUEST REVISED FLOOD INSURANCE RATE MAP (FIRM) TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS									
DATE: 02/2022 FILE: 0771-368-11 CAD: A.10-FIRM.DWG	DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM	REVISIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>06/2022</td> <td>UPDATED FLOODPLAIN</td> </tr> <tr> <td>2</td> <td>05/2023</td> <td>FEMA COMMENT RESPONSE</td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION	1	06/2022	UPDATED FLOODPLAIN	2	05/2023	FEMA COMMENT RESPONSE
NO.	DATE	DESCRIPTION									
1	06/2022	UPDATED FLOODPLAIN									
2	05/2023	FEMA COMMENT RESPONSE									
Weaver Consultants Group TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM FIGURE A.10									

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APPENDIX B
FEMA CERTIFICATION FORMS

APPENDIX B.1

FORM 1 – OVERVIEW AND CONCURRENCE FORM

U.S. DEPARTMENT OF HOMELAND SECURITY
 FEDERAL EMERGENCY MANAGEMENT AGENCY
OVERVIEW & CONCURRENCE FORM

*O.M.B No. 1660-0016
 Expires February 28, 2014*

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

CLOMR: A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).

LOMR: A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72)

B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Example: 480301 480287	City of Katy Harris County	TX TX	48473C 48201C	0005D 0220G	02/08/83 09/28/90
480879	Johnson County, Unincorporated Areas	TX	48251C	0350J	12/04/12

2. a. Flooding Source: Turkey Creek Tributaries

b. Types of Flooding: Riverine Coastal Shallow Flooding (e.g., Zones AO and AH)
 Alluvial fan Lakes Other (Attach Description)

3. Project Name/Identifier: Turkey Creek Landfill

4. FEMA zone designations affected: A (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

Physical Change Improved Methodology/Data Regulatory Floodway Revision Base Map Changes
 Coastal Analysis Hydraulic Analysis Hydrologic Analysis Corrections
 Weir-Dam Changes Levee Certification Alluvial Fan Analysis Natural Changes
 New Topographic Data Other (Attach Description)

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

VOLUME 4 OF 6

Prepared for

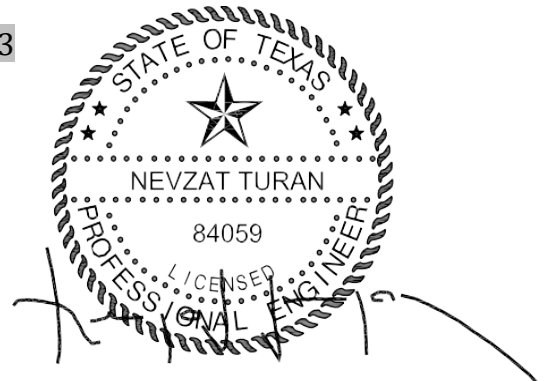
Texas Regional Landfill Company, LP

February 2022

Revised November 2022

Revised August 2023

Prepared by



08/10/2023

Weaver Consultants Group, LLC
TBPE Registration No. F-3727
6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0771-368-11-123

This document is intended for permitting purposes only.

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

**PART III – SITE DEVELOPMENT PLAN
APPENDIX IIIH
GROUNDWATER SAMPLING AND ANALYSIS PLAN**

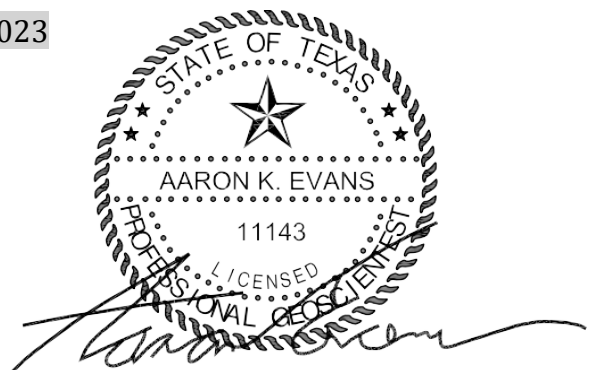
Prepared for

Texas Regional Landfill Company, LP

February 2022

Revised November 2022

Revised August 2023



Prepared by

08/10/2023

Weaver Consultants Group, LLC
TBPE Registration No. F-3727
6420 Southwest Blvd., Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0771-368-11-123

wells installations (MW-36, MW-28, MW-39, MW-42, MW-43, and MW-44) are estimated from the existing subsurface and topographic data. These data are summarized in Figure IIIH-A-2 (Groundwater Monitoring Well Details). Typical groundwater monitoring well specifications are depicted in Figure IIIH-A-3. Review of monitoring well installation records indicate that the facility's existing monitoring wells, and the existing piezometers scheduled for future conversion to monitoring wells, are constructed in accordance with the requirements of Title 30 TAC §330.421.

All parts of the groundwater monitoring system will be operated and maintained so that they perform to design specifications throughout the life of the monitoring program. Any monitoring well that is damaged to the extent that it is no longer suitable for sampling will be reported to the TCEQ who may make a determination about whether to repair or replace the well. Well plugging and abandonment will be performed by a Texas-licensed monitoring well driller in accordance with TCEQ and any other applicable regulatory requirements. No monitoring well will be plugged and abandoned without prior written authorization from TCEQ. Any new or replacement monitoring well installation will be performed in accordance with Title 30 TAC §330.421 by a Texas-licensed monitoring well driller. Monitoring well construction will provide for the maintenance of the integrity of the borehole, collection of representative groundwater samples from the uppermost aquifer, and prevention of migration of groundwater and surface water within the borehole in accordance with Title 30 TAC §330.421(a).

Future monitoring wells will be installed with the diameter of the boring that is at least four inches larger than the diameter of the casing. When the boring is in hard rock, a smaller annulus may be approved by TCEQ. A log of the boring will be made by or under the supervision of a licensed professional geoscientist or engineer who is familiar with the geology of the area, and will be sealed, signed, and dated by the licensed professional.

The screened section of monitoring wells will be compatible with the casing (both will generally be of the same material). The screen will not involve the use of any glues or solvents for construction. A wire-wound screen is recommended to provide maximum inflow. Field-cut slots are not permitted for well screen. Filter cloth will not be used. A blank-pipe sediment trap, typically one to two feet, will be installed below the screen. A bottom cap is typically placed on the bottom of the sediment trap. The sediment trap will not extend through the lower confining layer of the water-bearing zone being sampled. Screen sterilization methods will be the same as those for casing. Selection of the size of the screen opening will be done by a person experienced with such work and will include consideration of the distribution of particle sizes both in the water-bearing zone and in the filter pack surrounding the screen. The screen opening will not be larger than the smallest fraction of the filter pack.

Where monitoring wells are installed in unusual conditions, all aspects of the installation will be approved in writing in advance by TCEQ. Such aspects include, for example, the use of cellar-type enclosures for the top-well equipment or multiple completions in a single hole.

Monitoring well installation and construction details will be submitted on forms available from the TCEQ and will be completed and submitted within 60 days of well completion. A copy of the detailed geologic log of the boring, a description of development procedures, any particle size or other sample data from the well, and a site map drawn to scale showing the location of all monitoring wells and the point of compliance will be submitted to the executive director at the same time. The licensed driller will be familiar with the forms required by other agencies; a copy of those forms must also be submitted to TCEQ.

2.3 Groundwater Monitoring Program

Facility detection monitoring wells will be sampled semi-annually for the detection monitoring parameters listed in 40 Code of Federal Regulations (CFR), Part 258, Appendix I, which are also listed in Table 5-1 in Section 5.1. Details regarding groundwater sampling, analyses, and statistical comparison procedures are discussed in the following sections of Appendix IIIH.

In accordance with Title 30 TAC §403(e)(3), Texas Regional Landfill Company, LP will promptly notify the executive director, and any local pollution agency with jurisdiction that has requested to be notified, in writing of changes in facility construction or operation or changes in adjacent property that affect or are likely to affect the direction and rate of groundwater flow and the potential for detecting groundwater contamination and that may require the installation of additional monitoring wells or sampling points. Such additional wells or sampling points require a modification of the site development plan which will be requested in accordance with Title 30 TAC §305.70(j).

constituents if the landfill demonstrates that the constituents are not reasonably expected to be in or derived from the waste contained in the unit.

If the concentrations of all 40 CFR Part 258, Appendix II constituents are shown to be at or below background values, using the statistical procedures in §330.405(f), for two consecutive sampling events, the owner or operator will notify the Executive Director in writing and return to detection monitoring if approved.

If the concentrations of any 40 CFR Part 258, Appendix II constituents are above background values, but all concentrations are below the groundwater protection standard established under subsection (h) or (i) of §330.409, using the statistical procedures in §330.405(f) of this title, the owner or operator shall continue assessment monitoring in accordance with §330.409.

Not later than 60 days after each sampling event, Texas Regional Landfill Company, LP (TRLIC) will determine whether any 40 CFR Part 258, Appendix II constituents were detected at statistically significant levels above the groundwater protection standard established under subsection (h) or (i) of §330.409 in any sampling event. If the groundwater protection standard has been exceeded, TRLIC will notify the executive director and appropriate local government officials in writing within seven days of this determination.

TRLIC will also:

- characterize the nature and extent of the release by installing additional monitoring wells as necessary;
- install at least one additional monitoring well between the monitoring well with the statistically significant level and the next adjacent wells along the point of compliance before the next sampling event and sample these wells in accordance with subsection (d)(1) of §330.409;
- notify in writing all persons that own or occupy the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site as indicated by sampling of wells in accordance with §330.409(d)(1); and
- initiate an assessment of corrective measures as required by §330.411 within 90 days of the notice to TCEQ.

TRLIC may demonstrate that a source other than the landfill caused the contamination or that the statistically significant level resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. In making a demonstration under §330.409(g)(2), the TRLIC will:

- notify the executive director in writing within 14 days of determining a statistically significant level above the groundwater protection standard at the point of compliance that the TRLC intends to make a demonstration under this paragraph;
- within 90 days of determining a statistically significant level above the groundwater protection standard, submit a report to TCEQ that demonstrates that a source other than the landfill caused the contamination or that the statistically significant level resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The report will be prepared and certified by a qualified groundwater scientist;
- not filter the groundwater samples for constituents addressed by the demonstration prior to laboratory analysis. TCEQ may also require TRLC to provide analysis of landfill leachate to support the demonstration; and
- continue to monitor in accordance with the assessment monitoring program established under §330.409.

If a successful demonstration is made, the TRLC will continue monitoring in accordance with the assessment monitoring program required by §330.409 and may return to detection monitoring if the 40 CFR Part 258, Appendix II constituents are at or below background as specified in subsection (e) of §330.409. Until a successful demonstration is made, TRLC will comply with paragraph §330.409(g)(1), including initiating an assessment of corrective measures.

If the TRLC determines that the assessment monitoring program no longer satisfies the requirements of §330.409, the TRLC must, within 90 days, submit an application for a permit amendment or modification to make any appropriate changes to the monitoring program.

The TRLC will establish a groundwater protection standard for each 40 CFR Part 258, Appendix II constituent detected in the point of compliance monitoring wells. The groundwater protection standard will be:

- for constituents for which a maximum contaminant level (MCL) has been promulgated under 40 CFR Part 141, Safe Drinking Water Act (codified), §1412, the MCL for that constituent;
- for constituents for which MCLs have not been promulgated, the background concentration for the constituent established from wells in accordance with §330.405(d); or

- for constituents for which the background level is higher than the MCL identified under paragraph (1) of §330.409 or health-based levels identified under §330.409(i), the background concentration.

TCEQ may establish an alternative groundwater protection standard for 40 CFR Part 258, Appendix II constituents for which MCLs have not been established. These groundwater protection standards will be appropriate health-based levels that satisfy either the criteria of §330.409(i)(1) - (4), inclusive or comply with §330.409(i)(5).

The TRLC will submit an annual assessment monitoring report within 60 days after the facility's second semiannual groundwater sampling event that includes the following information determined since the previously submitted report:

- a statement whether a statistically significant level above a groundwater protection standard established in subsection (h) or (i) of §330.409 has occurred in any well during the previous calendar year period and the status of any statistically significant level events.

6.4 Corrective Action Monitoring

Detection of assessment monitoring constituents at statistically significant levels, as defined in Title 30 TAC §330.409, could result in corrective action monitoring. Groundwater monitoring for the purpose of corrective action assessment and remediation will be conducted in accordance with Title 30 TAC §330.411 through §330.415, and in consultation with TCEQ. At a minimum, the assessment will address the following:

- a characterization of the contaminated groundwater, including concentrations of assessment constituents as defined in 30 TAC §330.409;
- the concentration limit for each constituent found in the groundwater;
- detailed plans and an engineering report describing the corrective action to be taken;
- a description of how the groundwater monitoring program will demonstrate the adequacy of the corrective action; and
- a schedule for submittal of the above information provided the owner or operator obtains written authorization from the executive director prior to submittal of the complete permit application.

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

VOLUME 6 OF 6

Prepared for

Texas Regional Landfill Company, LP

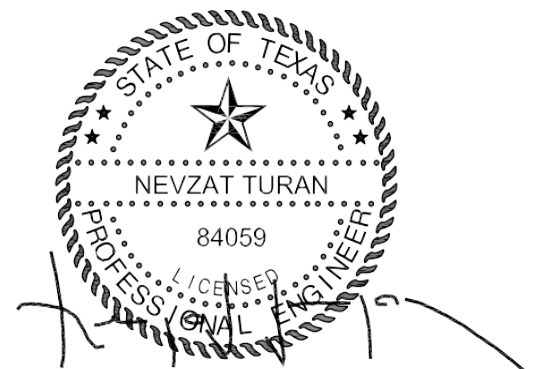
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Prepared by

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**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

PART IV – SITE OPERATING PLAN

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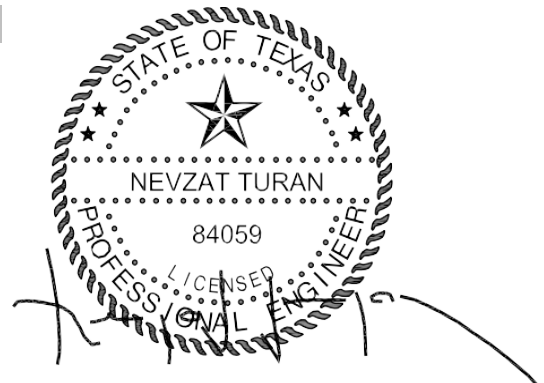
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4.21 Prevention of Discharge of Contaminated Water

The Landfill Manager will implement necessary steps to control and prevent the discharge of contaminated water from the facility. No discharge of contaminated water will occur without obtaining specific written authorization from the TCEQ prior to the discharge. All water contacting waste or contaminated soils will be treated as contaminated water. Runon and runoff for the 25-year, 24-hour storm event will be controlled following the procedures set forth in the Groundwater and Surface Water Protection Plan and the Leachate and Contaminated Water Management Plan. The landfill will be operated consistent with Title 30 TAC §330.15(h) regarding discharge of solid wastes or pollutants into waters of the United States.

4.22 Leachate and Contaminated Water Management Plan

Leachate and contaminated water will be controlled at the Turkey Creek Landfill as specified in the Leachate and Contaminated Water Management Plan. Consistent with Title 30 TAC §330.177, recirculation of leachate or gas condensate generated at the site will only occur over the areas underlain by a Subtitle D liner system (i.e., composite liner system with a leachate collection system). Leachate will be recirculated from a water truck or other comparable equipment using a spray bar or hose to distribute leachate back to the working face (i.e., within the active waste fill area that is contained by the containment berm).

The following performance standards will govern the application rate of leachate recirculation.

- The rate of leachate recirculation will not exceed the moisture holding capacity of the landfill. For example, the application rate will be applied so that no seeps or ponding is observed in the vicinity of the recirculation area. In addition, leachate recirculation over a specific phase will cease if the leachate flow rate to a sump approaches the capacity of the pump within the sump. If this occurs, recirculation activities will move to another phase.
- Leachate recirculation will not occur immediately before, during, or immediately after rainfall events, or during freezing temperatures that could affect the holding-capacity of the waste.
- Leachate recirculation will not occur during high wind events.

The Class 1 or MSW leachate generated from the landfill will be recirculated to the landfill working face, and excess quantities of leachate will be directed to the leachate storage facilities where it will be transported to the liquid waste bulking facility using a tanker truck or other compatible equipment, an onsite mobile leachate evaporator, a properly permitted privately-owned off-site facility, or a POTW for treatment using third party trucks. Per Title 30 TAC §330.991(a)(7) leachate recirculation will not exceed 100,000 gallons per day. Offsite leachate will be transported to the Turkey Creek Landfill and will be placed in the evaporator feeder tanks located within secondary containment. Leachate generated from offsite sources will not be recirculated or placed in the site's leachate storage tanks (refer to Appendix IIIC – Leachate and Contaminated Water Management Plan, Section 5.1).

- Results from gas monitoring events and any remediation plans relating to explosive and other gases
- Unit design documentation for the placement of leachate or gas condensate in the landfill
- Remediation plans for explosive and other gases, if applicable
- All inspection logs and reports and all demonstrations, certifications, findings, monitoring, testing, and analytical data relating to groundwater monitoring and corrective action
- Closure plans and monitoring, testing, or analytical data relating to closure requirements
- Postclosure care plans and monitoring, testing, or analytical data relating to postclosure requirements
- Cost estimates and financial assurance documentation relating to financial assurance for closure and postclosure care
- Copies of all correspondence and responses relating to the operation of the facility, modifications to the permit, approvals, and other matters pertaining to technical assistance
- Any and all documents, manifests, scale tickets, generator waste profile sheets, etc., involving special waste
- Documentation for the operations of the portable leachate evaporator. The documentation will include but not be limited to the location of the evaporator, the amount of liquid evaporated, sources of liquid including amount of liquid accepted from the area TRLC landfills, the amount of sludge, generated, and documentation that the solidified sludge is disposed of at the Class 1 cell.
- RACM Acceptance Records
- Class 1 non-hazardous industrial waste profile and acceptance records
- A record of each unauthorized material removal event
- Annual waste acceptance rate documentation including Quarterly and Annual Solid Waste Summary Reports. Waste reports will be prepared and submitted in accordance with the site-applicable requirements of Title 30 TAC §330.675.
- A record of alternate operations hours
- Access control breach and repair notices
- Other documents as specified by the approved permit or by the executive director of the TCEQ

The Landfill Manager will retain all information contained within the Site Operating Record and all plans required for the facility for the life of the facility including the postclosure care period. The above listed items will be incorporated into the Site Operating Record within seven working days of the completion of the item/record or receipts of the analytical data. Physical space limitations may warrant the offsite storage of non-electronic (paper) records older than five years at a nearby records storage facility or corporate office.

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

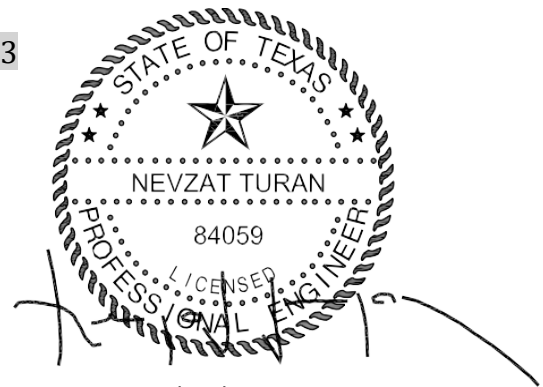
**PART IV – SITE OPERATING PLAN
APPENDIX IVC
SPECIAL WASTE ACCEPTANCE PLAN**

Prepared for

Texas Regional Landfill Company, LP

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WCG Project No. 0771-368-11-123

1 INTRODUCTION

1.1 Objectives of Special Waste Acceptance Plan

This Special Waste Acceptance Plan (SWAP) outlines the acceptance criteria and the review and approval process that will be used to accept certain "special waste" as defined by the Texas Commission on Environmental Quality (TCEQ) for disposal at the Turkey Creek Landfill (MSW Permit No. 1417C). The Turkey Creek Landfill (TCLF) is owned and operated by Texas Regional Landfill Company, LP (TRLC). TRLC is subject to the site operating in compliance with §330.173 per TCEQ issued permit. This SWAP defines the procedures to be followed in determining whether the landfill may accept a waste for disposal, and it outlines the procedures for identifying and preventing the disposal of unacceptable wastes which are delivered to the facility.

The objectives of the SWAP are as follows.

- Verify that the waste is not a regulated hazardous waste.
- Verify that the waste meets permit criteria for acceptance at the landfill.
- Verify that the waste meets facility criteria for acceptance at the landfill.
- Establish the necessary conditions to ensure the safe and environmentally sound management (handling, storage, processing and disposal) of the waste.

1.2 Special Wastes Regulations

The TCEQ's solid waste regulations define a special waste as a "solid waste or combination of solid wastes that because of its quantity, concentration, physical or chemical characteristics, or biological properties requires handling and disposal to protect the human health or the environment" (refer to Title 30 TAC §330.3(148)). Although the regulations identify specific waste streams as special wastes, the rules also include the above catch-all provision. This broad definition of special waste covers many wastes that are routinely disposed at Municipal Solid Waste Landfill Facilities (MSWLFs).

The TCEQ rules specifically provide that the receipt of certain types of special waste does not require waste-specific or site-specific written approval of the Executive Director if handled in accordance with the noted provisions for each waste (e.g., Title 30 TAC §330.171(c) and (d) and §330.173(e) and (i) – (j) of the rules). By way

production of oil or gas or geothermal resources regulated by the Railroad Commission of Texas under Section 91.101, Natural Resources Code.

Class 1 Industrial Solid Waste:

An industrial solid waste is a Class 1 waste if:

- it contains specific constituents which equal or exceed the levels listed in Title 30 TAC §335.521(a)(1) (relating to Appendix I, Table 1) as determined by the methods outlined in Title 30 TAC §335.505(1) (relating to Class 1 Waste Determination);
- it is Class 1 ignitable as determined by the methods outlined in §335.505(2) (relating to Class 1 Waste Determination);
- it is Class 1 corrosive as determined by the methods outlined in §335.505(3) (relating to Class 1 Waste Determination);
- it contains total recoverable cyanides equal to or greater than 20 parts per million;
- there is an absence of analytical data and/or documented process knowledge (as described in §335.511 (relating to Use of Process Knowledge)) which proves a waste is Class 2 or Class 3;
- it is identified as a Class 1 waste in §335.508 (relating to Classification of Specific Industrial Solid Wastes); or
- it is not a hazardous waste pursuant to §335.504 (relating to Hazardous Waste Determination) and a generator chooses to classify the waste as Class 1 waste.

All shipments of Class 1 non-hazardous waste will be accompanied by a manifest. A qualified designated TCLF representative will sign the manifest for any authorized shipments of Class 1 waste. TCLF will not accept or sign for shipments of Class 1 waste which authorized by the TCEQ permit. TCLF will retain a copy of the manifest for a period of three years. This time period is automatically extended if any enforcement action involving the Turkey Creek landfill is initiated or pending by TCEQ.

The TRLC will submit to the TCEQ a written report of Class 1 waste received. This report will be submitted no later than the 25th day of the month following the month in which the waste was received. Reports will be submitted consistent with §30.173(h). Monthly reports will be submitted for each month, including the months in which no Class 1 waste is received.

Class 2 Industrial Solid Waste:

An industrial solid waste is a Class 2 waste if:

- it is not a hazardous waste pursuant to Title 30 TAC §335.504 (relating to Hazardous Waste Determination);
- it is not a Class 1 waste pursuant to Title 30 §335.505 (relating to Class 1 Waste Determination); and
- it is not a Class 3 waste because:
 - it cannot qualify as a Class 3 waste pursuant to Title 30 TAC §335.507 (relating to Class 3 Waste Determination); or
 - a generator chooses not to classify the waste as a Class 3 waste.

Any waste designated as a Class 2 waste under Title 30 TAC §335.508 (relating to Classification of Specific industrial Solid Wastes) is a Class 2 waste.

Class 3 Industrial Solid Waste:

An industrial solid waste is a Class 3 waste if:

- it is not a hazardous waste pursuant to Title 30 TAC §335.504 of this title (relating to Hazardous Waste Determination);
- it does not meet any of the Class 1 waste criteria set forth in Title 30 TAC §335.505 of this title (relating to Class 1 Waste Determination);
- it is inert; and
- it is essentially insoluble.

Class 3 wastes include, but are not limited to, materials such as rock, brick, glass, dirt, and certain plastics and rubber which are not readily decomposable.

The TRLC will complete the following waste analysis activities for commercial industrial nonhazardous wastes:

- Before treating, storing, or disposing of any waste, the landfill will obtain a chemical and physical analysis of a representative sample of the waste. At a minimum, the analysis will contain all the information in accordance with §335.587.
 - A waste generator's records of analyses performed on the waste or studies conducted on waste generated from processes similar to that which generated the waste to be managed at the facility, may be included in the data base required to comply with §335.587(a)(1)(A).
 - Arranging for the generator of the waste to supply the information required by §335.587(a)(1)(B). If the generator does not supply the information, and the landfill chooses to accept a waste, the landfill is responsible for obtaining the information required to comply with §335.587.
- The analysis may include data developed under §335 Subchapter R (relating to Waste Classification), and existing published or documented data on a waste or on such waste generated from similar processes.
- The analysis will be repeated as necessary to ensure that it is accurate and up-to-date. At a minimum, the analysis will be repeated:
 - when the facility is notified, or has reason to believe, that the process or operation generating the waste has changed; and
 - when the results of the inspection required in §335.587(a)(4) indicate that the waste received at the facility does not match the waste designated on the accompanying manifest or shipping paper.

- The TRLC will inspect and, if necessary, analyze each waste received at the TCLF to determine whether it matches the identity of the waste specified on the accompanying manifest or shipping paper.

The TRLC will develop and follow this written waste analysis plan which describes the procedures to comply with §335.587(a). The TRLC will keep this plan at the facility.

Leachate

A liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.

Municipal Solid Waste Landfill Facility (MSWLF) Unit

A discrete area of land or an excavation that receives household waste and that is not a land application unit, surface impoundment, injection well, or waste pile under 40 CFR §257.2. A MSWLF unit also may receive other types of RCRA Subtitle D wastes, such as commercial solid waste, non-hazardous sludge, conditionally-exempt, small-quantity generator waste, and industrial solid waste. A MSWLF unit may be a new unit, an existing unit, or a lateral expansion of a unit.

Pollution Control Waste

Any solid waste generated as a direct or indirect result from the removal of contaminants from the air, water, or land which may pose a present or potential threat to human health or the environment or with inherent properties which make the disposal of such waste in a landfill difficult to manage by normal means.

RCRA

Resource Conservation and Recovery Act of 1976, as amended, 42 U.S.C. §§ 6901 *et seq.*

Sludge

Any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility, exclusive of the treated effluent from a wastewater treatment plant.

.3.

ATTACHMENT 3
REVISION PAGES
(CLEAN FORMAT)

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

VOLUME 2 OF 6

Prepared for

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February 2022

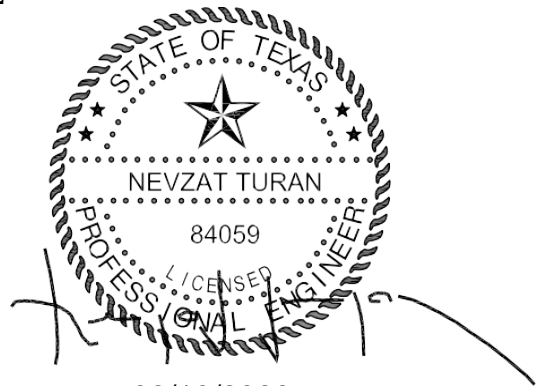
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**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

**PART III – SITE DEVELOPMENT PLAN
APPENDIX IIIC
LEACHATE AND CONTAMINATED WATER
MANAGEMENT PLAN**

Prepared for

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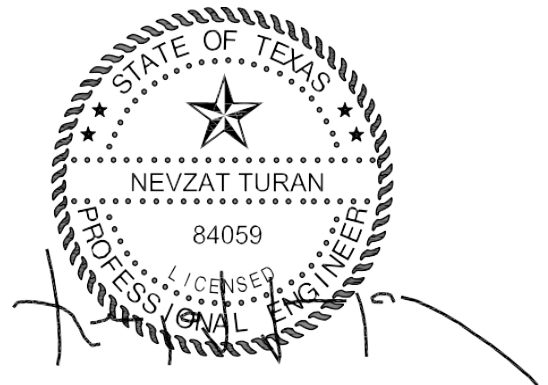
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5 LEACHATE AND CONTAMINATED WATER DISPOSAL

5.1 Leachate Storage System Operation and Disposal

Leachate that is generated at the site will be conveyed to the leachate collection sumps. Leachate levels in the sumps are measured to evaluate leachate production and fluctuations. The depth of leachate in the sump will be monitored by the pressure transducer to provide direct read-out of the leachate level in the sump (e.g., typically the leachate level is shown on a continuous digital display at the sump, as the pressure transducers provide a constant determination of the leachate levels in the sump). Leachate will be pumped from the leachate sumps and transferred to the leachate storage tank via the forcemain (see Figure 4-1 for location).

The collected leachate will be either recirculated (refer to Section 5.2) or transferred from the leachate storage tank into a tanker truck for transportation directly to the liquid waste bulking facility, a properly permitted privately-owned off-site facility, or a POTW for treatment. For leachate that is transported off-site, sampling and analysis will be limited to the disposal facility's requirements.

The facility will also have an option to evaporate leachate using an on-site portable evaporator. If used, the portable evaporator will be incorporated into the facility's air permit and will operate under the provisions of the air permit. The evaporator will not be placed in the buffer zone, easements, or an area that may impair traffic or other operations. The portable evaporator, when placed outside developed waste fill area will be inside dual containment. All piping, tanks, operation areas, and loading areas associated with leachate evaporation will be within secondary containment (e.g., dual-contained pipes, vessels, and bermed areas). The evaporator will receive liquid from feeder storage tanks via plumbing using a dual-contained pipe (outside the developed limits of waste). The feeder tanks will be dual-contained and located by the evaporator. The feeder tanks will receive offsite leachate and contaminated water generated at the landfills (only Type I MSW and Type IV) owned and operated by TRLC (no liquids from other landfills or sources will be accepted for evaporation). Area TRLC landfills will submit a permit modification to obtain TCEQ authorization prior to sending leachate/contaminated water to Turkey Creek Landfill. Liquids from the area TRLC landfills will be trucked to the evaporator feeder tanks and will not be stored anywhere else at Turkey Creek Landfill. Offsite leachate/contaminated water from the area TRLC landfills will not be recirculated at Turkey Creek Landfill. The leachate evaporator is expected to generate sludge from evaporating leachate. This sludge will be taken to the solidification facility that exists at the site for solidification and disposal of solidified sludge within a Class 1 cell. Liquid waste received at the site for solidification will not be allowed to be evaporated.

5.2 Leachate Recirculation Plan

The main purpose of recirculating leachate at this facility is to enhance the ability to manage and control leachate. Additionally, in an effort to promote an increase in waste compaction, leachate recirculation will provide the opportunity to create a uniform moisture content throughout the waste at the working face. The additional moisture will help stabilize the waste mass, thus providing for an increased compaction of the waste. The leachate will be better managed because the recirculation of leachate through the waste mass allows for treatment of the leachate to occur through physical, biological, and chemical interactions with the organic and some inorganic portions of the waste. This increases the rate of waste decomposition and stabilization, as well as increasing the rate of landfill gas recovery. Recirculation of leachate also facilitates dust control at the working face.

Consistent with Title 30 TAC §330.177, recirculation of leachate will only occur over areas underlain by a Subtitle D liner system. Leachate will be recirculated by surface spraying at the working face. Leachate will be distributed from a tanker truck or other comparable equipment using a spray bar or hose to distribute

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
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MAJOR PERMIT AMENDMENT APPLICATION

**PART III – SITE DEVELOPMENT PLAN
APPENDIX IIID
LINER QUALITY CONTROL PLAN**

Prepared for

Texas Regional Landfill Company, LP

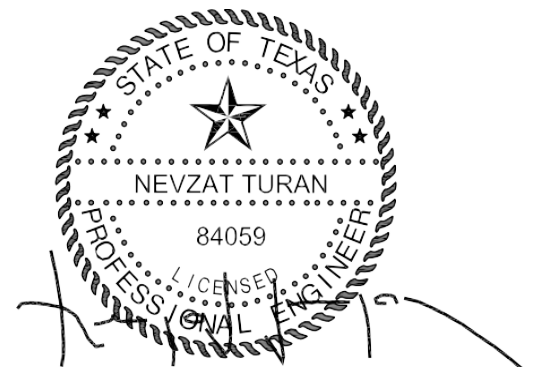
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**Table 3-5
Geotextile and Drainage Geocomposite Required Testing and Properties¹**

Responsible Party	Material	Test	Standard	Required Bottom Liner Property ⁴	Required Overliner Property ⁴
Manufacturer	Geotextile (before lamination)	Unit Weight	ASTM D 5261	8 oz/sy	6 oz/sy
		Apparent Opening Size	ASTM D 4751	0.180 mm	0.25 mm
		Grab Strength	ASTM D 4632	220 lb	157 lb
		Grab Elongation	ASTM D 4632	50%	50%
		Tear Strength	ASTM D 4533	95 lb	55 lb
		Puncture Strength	ASTM D 6241	575 lb	310 lb
		Permeability	ASTM D 4491	1.3 cm ⁻¹	0.2 cm/s
		UV Stability	ASTM D 4355	70%	50%
Manufacturer	HDPE Geonet (before lamination)	Density	ASTM D 1505	0.94 g/cm ³	0.94 g/cm ³
		Thickness	ASTM D 5199	0.22 inch	0.30 inch
		Carbon Black Content	ASTM D 1603	2%	2%
		Tensile Strength	ASTM D 7179	55 lb/in	75 lb/in
		Compressive Strength	ASTM D 6364		120 lb/in ²
		Transmissivity	ASTM D 4716	14.49 gpm/ft	9.0 gpm/ft
Third Party Laboratory	Drainage Geocomposite	Transmissivity	ASTM D 4716	See Note 2	See Notes 2 and 3
		Strength	ASTM D 5321	See Table 6-1	See Table 6-1
Manufacturer			Ply Adhesion	ASTM D 7005	1.0 lb/in

¹ The minimum testing frequency will be one test sample per 100,000 square feet. The drainage geocomposite is single-sided for the floor grades of the bottom liner. The drainage geocomposite will be double-sided for the sideslopes of the bottom liner and all overliner areas.

² As noted in Appendix IIIC, Appendices IIIC-A and IIIC-B, the transmissivity of the bottom liner single-sided geocomposite will be measured at a gradient of 0.015 under normal pressures of 1,000, 5,000 and 11,850 psf (or higher) boundary conditions consisting of soil/geocomposite/geomembrane with minimum seating time of 100 hours will be run for the first 100,000 square feet of liner construction. For each additional 100,000 square feet of single-sided geocomposite placement area, one additional transmissivity test will be run under the maximum normal stress (i.e., 11,850 psf) with all the other assumptions the same as the first three tests. The minimum transmissivity will be 7.41x10⁻⁴ m²/s. The transmissivity of the bottom sidewall liner double-sided geocomposite will be measured at a minimum gradient of 0.33 under normal pressures of 1,000, 5,000 and 11,850 psf (or higher), boundary conditions consisting of soil/geocomposite/geomembrane with a minimum seating time of 100 hours. The minimum transmissivity will be 7.37x10⁻⁵ m²/s. For each additional 100,000 square feet of double-sided geocomposite placement area, one additional transmissivity test will be run under the maximum normal stress (i.e., 11,850 psf) with all the other assumptions the same as the first three tests. As shown in Appendix IIIC-A, the HELP Model was developed for a 220-mil geocomposite. 220-mil geocomposite may be utilized as long as the required values (eg. transmissivity) are met.

³ As noted in Appendix IIIC, Appendices IIIC-A and IIIC-B, the transmissivity of the overliner double-sided 0.3 inch geocomposite will be measured at a minimum gradient of 0.01 under normal pressures of 1,000, 3,000 and 6,360 psf (or higher), boundary conditions consisting of soil/geocomposite/geomembrane with minimum seating time of 100 hours. The minimum transmissivity will be 5.16x10⁻³ m²/s. For each additional 100,000 square feet of double-sided geocomposite placement area, one additional transmissivity test will be run under the maximum normal stress (i.e., 6,360 psf) with all the same assumptions as the first three tests.

⁴ Minimum required property values for the geotextile and drainage geocomposite transmissivity are based on calculations provided in Appendices IIIC-A and IIIC-B. The geonet properties are based on values specified by multiple manufacturers which are consistent with GRI-GM-4. In addition, each material will be tested prior to construction to verify that it meets the minimum required properties. At the time of each construction event, an updated GRI-GM-4 will be used if available.

**TURKEY CREEK LANDFILL
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TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

VOLUME 3 OF 6

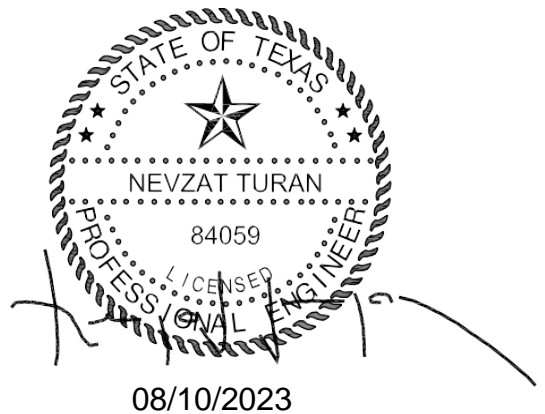
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JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

**PART III – SITE DEVELOPMENT PLAN
APPENDIX III F
SURFACE WATER DRAINAGE PLAN**

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APPENDIX IIIF-G
EXCERPTS FROM PROPOSED CLOMR



08/10/2023

CONTENTS

FLOODPLAIN SUMMARY

IIIF-G-1

APPENDIX IIIF-G-A

Excerpts from the Proposed CLOMR Application



08/10/2023

APPENDIX III F-G-A

EXCERPTS FROM THE PROPOSED CLOMR APPLICATION



08/10/2023

CONDITIONAL LETTER OF MAP REVISION REQUEST

TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS

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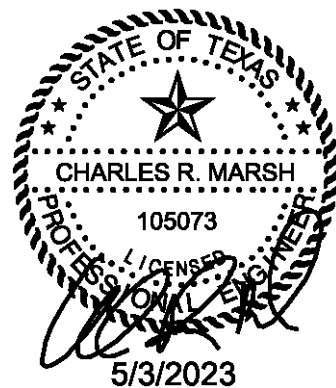
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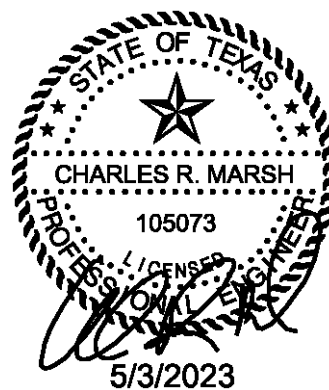
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CONTENTS

1	INTRODUCTION	1
1.1	Purpose	1
1.2	Project Background	2
1.3	Proposed Site Development	3
1.4	Scope	3
1.5	Scenarios Investigated	4
	1.5.1 Effective Condition	4
	1.5.2 Post-Project Condition	5
1.6	Concepts and Methods	6
2	HYDRAULIC ANALYSES	8
2.1	Description of Computer Program	8
2.2	Schematization	8
2.3	Boundary Conditions	8
2.4	Manning's Coefficient	9
3	RESULT OF ANALYSIS	10
	REFERENCES	15



CONTENTS (CONTINUED)

APPENDIX A

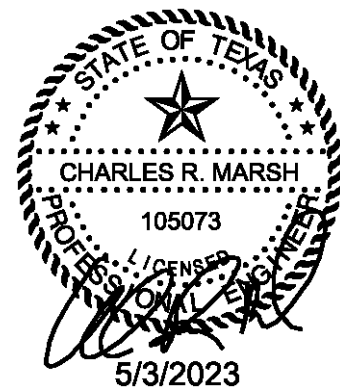
Drawings

- A.1 Site Location Map
- A.2 Flood Insurance Rate Map (FIRM)
- A.3 Existing Site Plan
- A.4 Effective Floodplain
- A.5 Post-Project Floodplain
- A.6 Effective Condition Profile
- A.7 Post-Project Condition Profile
- A.8 Revised Flood Insurance Rate Map (FIRM)

APPENDIX B

FEMA Certification Forms

- B.1 Form 1 – Overview and Concurrence Form
- B.2 Form 2 – Riverine Hydrology and Hydraulics Form
 - Form 2 – Tributary A to Turkey Creek
 - Form 2 – Tributary B to Turkey Creek
 - Form 2 – Turkey Creek
 - Attachment 1 – Turkey Creel Landfill Datum Statement
- B.3 Form 3 – Riverine Structures Form
 - Form 3 – Tributary A to Turkey Creek
 - Form 3 – Tributary B to Turkey Creek
 - Form 3 – Turkey Creek
 - Attachment 1 – Erosion Protection Plan
 - Attachment 2 – Culvert Information
 - Attachment 3 – Bridge Information



APPENDIX C

Hydrologic Analysis

APPENDIX D

Excerpts from TxDOT I-35W Highway Impairment Plans

APPENDIX E

Tributary A and B to Turkey Creek Maintenance and Operations Plan

1 INTRODUCTION

1.1 Purpose

The purpose of this study is to request a Conditional Letter of Map Revision (CLOMR) from Johnson County and the Federal Emergency Management Agency (FEMA) for proposed revisions to Flood Hazard Zones within a 219.6-acre tract of land in Johnson County, Texas. This property is owned by Texas Regional Landfill Company, LP. All proposed revisions are within the property and associated with the existing Turkey Creek Landfill which is operated within its boundaries. The proposed revisions to the landfill design are necessary to increase the landfill capacity as part of ongoing efforts to address long term waste disposal needs of the communities in Johnson and surrounding counties. The proposed expansion to the landfill will increase the currently permitted 146.4 acres (per MSW 1417C and MSW 1417D – Part I/II-1-1) waste disposal area to 171.9 acres, once the proposed expansion is approved by Texas Commission of Environment Equality (TCEQ).

A general site location map is shown on Figure 1.1, showing the landfill being located approximately 2.5 miles south of Alvarado, Texas. The site entrance is located off the Southbound Interstate Highway 35 West (IH-35W) Frontage Road immediately north at County Road 107.

This CLOMR request has been developed to obtain approval to revise the Flood Insurance Rate Map (FIRM) if the proposed expansion of the landfill and its infrastructure is constructed as proposed. The scope of this study is limited to two unnamed tributaries of Turkey Creek near the landfill, referenced as Tributary A to Turkey Creek (Tributary A) which is located west of the landfill, Tributary B to Turkey Creek (Tributary B) which is located southeast of the landfill, and Turkey Creek which is located north of the landfill. Tributary A is proposed to be impacted by the west landfill expansion area, Tributary B is proposed to be impacted by southeast landfill expansion area, and the Turkey Creek overbank floodplain is proposed to be impacted by a detention pond on the north end of the site.

These waterways are shown on the aerial photo included in Figure 1.2. This CLOMR will allow for the relocation of portions of the two Tributaries, construction of the northern pond, and the continued development of the existing landfill operation as demonstrated on Figure 1.3. Figures 1.4 and 1.5 demonstrate comparisons of the current and proposed conditions of the landfill property. A summary of the effective

and post-project floodplain delineations are provided on Figures 1.6 and 1.7, respectively and listed below.

- **Relocation of the Tributary A.** Tributary A currently flows through the west landfill expansion area as it traverses southwest to northeast. This CLOMR proposes to relocate the Tributary around the west parts of the proposed expansion area footprint. The proposed relocated channel ties into the existing Tributary A alignment within the landfill permit boundary at the upstream and downstream end of the project. At the north side of the landfill property boundary, the original Tributary stays unchanged as it continues downstream towards Turkey Creek, as depicted on Figure 1.3.
- **Relocation of the Tributary B.** Tributary B currently flows through the southeast landfill expansion area as it travels south to northeast. This CLOMR proposes to relocate the Tributary around the east parts of the proposed expansion area footprint. Relocation of the Tributary ends upstream of the existing culverts that run underneath southbound IH-35W frontage road at the landfill property boundary and the original Tributary continues downstream of the culvert towards Turkey Creek as depicted on Figure 1.3.
- **Turkey Creek Overbank Floodplain Development.** Turkey Creek currently flows north of the permit boundary with the Zone A floodplain encroaching along the north edge of the site. This CLOMR proposes to construct a detention pond and channel along the northern edge of the landfill to provide additional onsite detention, as depicted on Figure 1.3.

The results of this study will be used to revise floodplain boundaries and to provide FEMA with the required technical data to issue a CLOMR for the proposed project. The proposed Tributary relocations included in this CLOMR request is detailed on the drawings presented in Appendix A.

1.2 Project Background

The Turkey Creek Landfill is an existing Type I municipal solid waste (MSW) landfill operating under TCEQ Permit No. MSW-1417C. The existing landfill currently provides solid waste disposal services for residences and businesses in Johnson County and communities in surrounding counties. With this expansion, the landfill disposal footprint will increase from approximately 146.4 acres currently permitted by the TCEQ to 171.9 acres. Turkey Creek Landfill is owned and operated by Texas Regional Landfill Company, LP. As shown on Figure 1.1, the site is located approximately 2.5 miles south of Alvarado, Texas. The site entrance is located off the Southbound Interstate Highway 35 West (IH-35W) Frontage Road immediately north of County Road 107. Figure 1.2 shows the existing landfill development, as well as the proposed landfill expansion area, on a recent aerial photograph. For over 35 years, the landfill has been a part of the community and is one of the main

providers of waste disposal services to the residents and businesses of Johnson County and surrounding areas.

1.3 Proposed Site Development

As demonstrated on Figure 1.3, relative to the currently permitted landfill configuration, the landfill is proposed to develop on the west and southeast side of the existing disposal area. Figures 1.4 and 1.5 show the Zone A, existing and post-project floodplain delineations for the different site conditions for both models discussed in this CLOMR. The specifics of each condition are discussed in Sections 1.5.1 and 1.5.2, respectively. The post-project condition includes proposed revisions to the floodplain, as discussed in Section 1.5.2 and shown in detail on Figure 1.7.

1.4 Scope

The scope of this study is limited to the Tributary A west of the landfill area, Tributary B southeast of the landfill area, and Turkey Creek north of the landfill areas, as shown on Figure 1.3. The proposed landfill development included in this CLOMR request is detailed on Figure 1.7 and the drawings presented in Appendix A.

The following conditions are included in this CLOMR request and shown on Figures 1.4 and 1.5.

- Duplicate Effective Conditions – The Turkey Creek Landfill is located near the Zone A floodplain of Turkey Creek and Steams A and B. No waterway analyzed has a detailed study associated with the floodplain delineation on the effective FIRM, and no base flood elevations have been established. Therefore, the effective condition floodplain is based on the graphical delineation on the effective FIRM only.
- Existing Conditions – The existing condition represents the current existing conditions of the three waterways. For tributaries A and B, existing hydrologic models were developed for the current conditions. The existing condition was developed by using composite topography and on-site survey. Peak flow rates for the tributaries were calculated using HEC-1 modeling software. Turkey Creek flow rates were provided in the drainage analysis performed by TxDOT for the Turkey Creek, IH-35W Bridge Crossing. The TxDOT drainage analysis is included in Appendix D. The three waterways were modeled in HEC-RAS as separate rivers. Tributary A, Tributary B, and Turkey Creek waterways are shown on Figures 1.6 and 1.7.
- Post-Project Condition – The post-project condition represents the proposed condition of the landfill development after the landfill expansion, and related site improvements have been made as shown on Figure 1.7. Refer to Drawing A.8 for tie-in locations between proposed and effective floodplains.

For Tributary A, the post-project hydraulic models include effective condition cross sections A-1500 through A-5600 (called A-1500 through A-5430 in post-project condition). Because the relocated Tributary A channel length is different than the effective channel length, cross sections upstream of cross section A-1500 were renamed to represent the cross section location along the Tributary centerline.

For Tributary B, the effective condition hydraulic model includes cross sections B-0 through B-3350 (called B-0 through B-3310 in the post-project condition). Because the relocated Tributary B channel length is different than the effective channel length, cross sections upstream of cross section B-520 were renamed to represent the cross section location along the Tributary centerline. Also included in the post-project condition is a tributary-to-Tributary B named “Tributary B West to Turkey Creek (Tributary B West).” Tributary B West runs east of Tributary B along the southern side of the landfill area as shown on Figure 1.7. For Tributary B West, the post-project hydraulic model includes cross sections BW-100 through BW-1050. Cross sections B-2585 through B-3310 were modeled on a separate reach named “Tributary B South.”

For Turkey Creek, the existing and post-project conditions hydraulic model include cross sections TC-0 through TC-5600.

1.5 Scenarios Investigated

The analysis for all scenarios investigated in this CLOMR are discussed in detail below. The HEC-RAS output files and hydraulic models for each condition are provided electronically. The existing and proposed waterway layouts with details of the hydraulic structures modeled can be found on Figures 1.4 and 1.5.

1.5.1 Existing Condition

The existing condition of Tributary A, Tributary B, and Turkey Creek (Figure 1.4) contains Zone A flood hazard areas as shown on the effective FIRM panels for the area. These floodplain delineations were not based on a detailed study and were therefore not used as the basis of comparison for the CLOMR. Detailed existing hydrologic and hydraulic models were developed for the three waterways to establish the baseline 100-year floodplain areas, as shown on Figure 1.6. The existing condition was created using composite topography from FirmaTek and LIDAR data from the Texas Natural Resources Information System (TNRIS).

A 42-inch corrugated metal pipe, running underneath the landfill’s perimeter road southwest of the disposal area, was modeled in Tributary A. Two 42-inch corrugated metal pipes running underneath County Road 313 were modeled in Tributary B. In addition, a series of box culverts running underneath IH-35W and access roads were modeled. The culverts included a 5-foot by 14-foot box culvert underneath the west access road, three 5-foot by 6-foot box culverts underneath IH-

35W, and three 4-foot by 5-foot box culverts underneath the east access road. The culverts underneath I-35W were modeled with the bottom 2 feet blocked based on photographs of the culverts. This provides a conservative analysis as the blocked culverts results in higher water surface elevations in comparison to a clean, unblocked condition. For Turkey Creek, a 230-foot bridge was modeled with six sets of 16-inch piers.

1.5.2 Post-Project Condition

- **Tributary A to Turkey Creek:** The post-project condition hydraulic model for Tributary A incorporates the proposed relocation of Tributary A included in the proposed landfill development, shown on Figure 1.5 and Drawing A.5 (Post-Project 100-Year Floodplain Delineation). The proposed landfill development relocates the existing Tributary A around the west side of the landfill disposal footprint, to allow for the development of a continuous landfill disposal area. The runoff entering Tributary A from upTributary areas of the landfill discharges into Tributary A at the same location as in the effective condition.

The proposed Tributary relocation includes an earthen section with typical sideslopes of 2.5:1, an armored section with a left sideslope of 1.5:1, a right sideslope of 2.5:1, and a detention pond with three 54-inch corrugated metal pipes (CMP) Gabions will be used at the beginning of the channel to prevent erosion. Within the armored section of the channel, the left sideslope will be lined with gabions and the bottom and right sideslopes will be lined with Turf Mat. An Erosion Protection Plan with additional information is provided in Appendix B.3, Attachment 1.

Cross sections A-1750 through A-4510 in Tributary A were added to the post-project hydraulic model. Cross sections upstream of A-4510 in Tributary A were renamed to represent the change in flow length from the Tributary relocation. The cross section A-1500 remains consistent with the effective condition. The limits of the 100-year floodplain, as well as tie-in points, are shown on Figure 1.7. A profile of the study area is also shown on Drawing A.7 in Appendix A.

- **Tributary B to Turkey Creek:** The post-project condition hydraulic model is illustrated on Figure 1.5. The proposed landfill development relocates the existing Tributary B around the southeast side of the landfill disposal footprint, to allow for the development of a continuous landfill disposal area. The runoff entering Tributary B from upstream areas of the landfill discharges into Tributary B at the same downstream location as in the effective condition.

The proposed Tributary relocation includes an earthen portion with typical sideslopes of 2.5:1 throughout the channel and a detention pond with five 42-inch Reinforced Concrete Pipes (RCP). After the detention pond, flow exits the site through the existing culverts underneath IH-35W and access

roads. Gabions and turf reinforcement mats will be used to reduce velocities and prevent erosion in several locations. Locations of the erosion structures are shown on Figure 1.5, and an Erosion Protection Plan is provided in Appendix B.3, Attachment 1.

Cross sections upstream of B-2585 in Tributary B were renamed to represent the change in flow length from the Tributary relocation. The cross sections B-0 through B-520 remain consistent with the effective condition. The limits of the 100-year floodplain, as well as tie-in points, are shown on Figure 1.7. A profile of the study area is also shown on Drawing A.7 in Appendix A.

- Tributary B West to Turkey Creek: The post-project condition hydraulic model includes the Tributary B West tributary of Tributary B included in the proposed landfill development, shown on Figure 1.5. The proposed landfill development adds Tributary B West south of the landfill disposal area to add capacity and storage for upstream flow. A profile of the study area is also shown on Drawing A.7.
- Turkey Creek: The post-project condition hydraulic model is illustrated on Figure 1.7. The proposed landfill development includes a detention pond and a channel on the north end of the landfill to provide additional storage and detention for runoff developed within the landfill permit boundary.

Cross sections TC-1500 through TC-2800 were modified to include the detention pond and channel. These areas were modeled as ineffective flow areas as they do not convey flow but do act as storage.

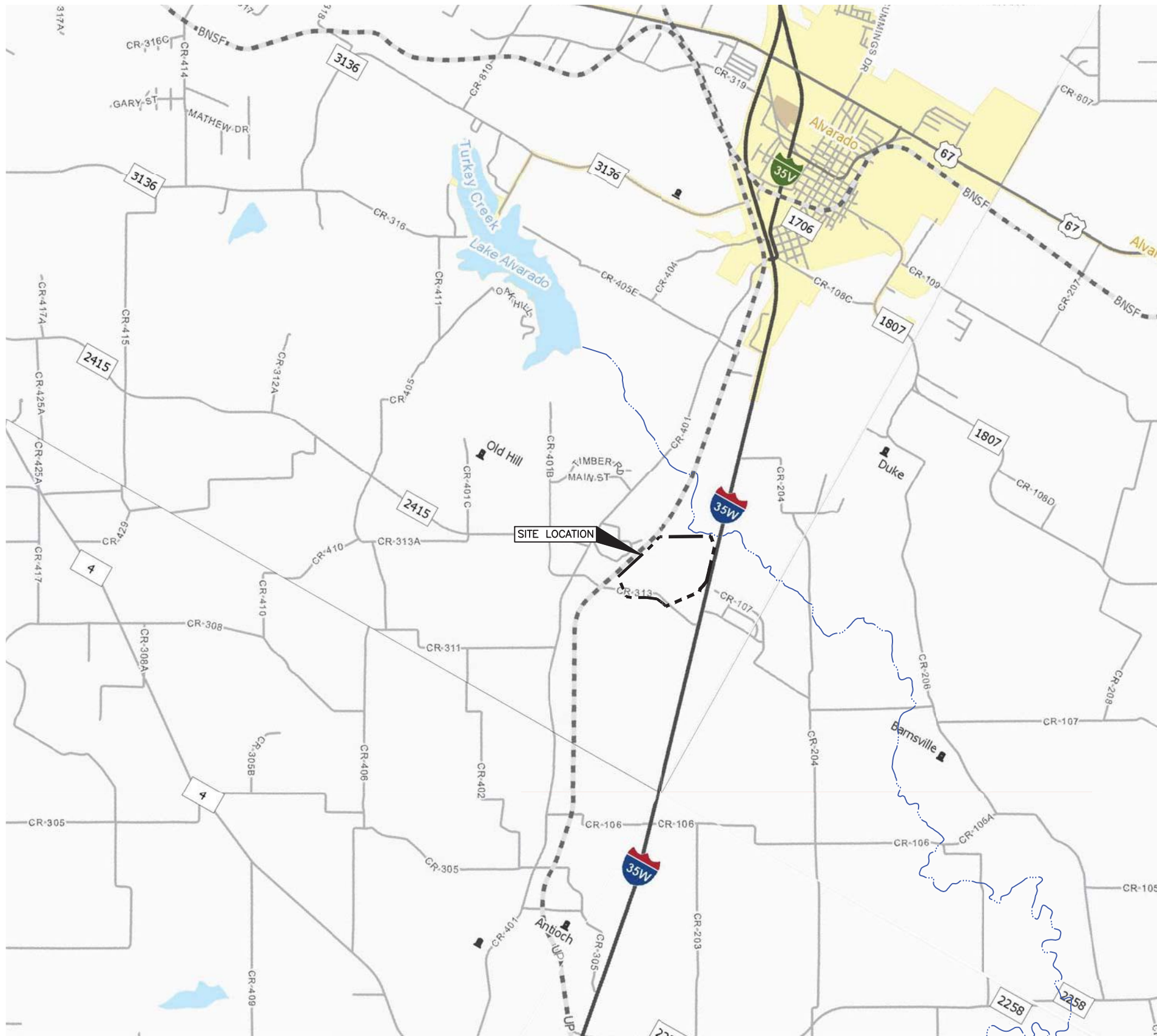
1.6 Concepts and Methods

The hydrologic and hydraulic methods employed in this study are consistent with the requirements of FEMA, Johnson County, and the Texas Department of Environmental Quality. Peak flow rates were determined from a hydrologic analysis of the study area. The 100-year storm event within the study area were evaluated using the HEC-1 modeling software. Hydrologic calculations are presented in Appendix C. The USACE HEC-RAS (Ref. 2) computer program, Version 6.2.0, was used to determine water surface profiles and floodplain limits. The floodplain presented in this study represent effective and post-project conditions (after completion of proposed development). Analyses of the peak flow rates, floodplains and floodplain limits, for these conditions proceeded in the following sequence:

- (1) Peak flow rates for tributaries A and B were calculated using HEC-1 modeling software. HEC-1 output files can be found in Appendix C. Peak flow rates were calculated by a USGS Regression Analysis for Turkey Creek and can be found in Appendix C.
- (2) Hydraulic models were developed to evaluate flood elevations for the tributaries under peak flow conditions using HEC-RAS.

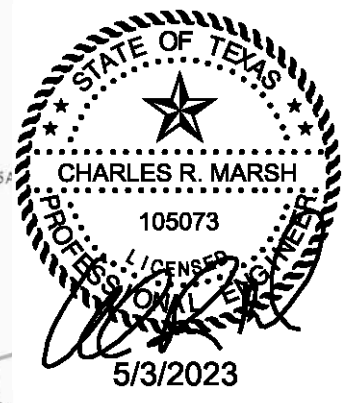
- (3) The floodplains were delineated using the results of the hydraulic modeling.

Peak flow rates, water surface elevations, and floodway boundaries are based on 100-year storm frequency.



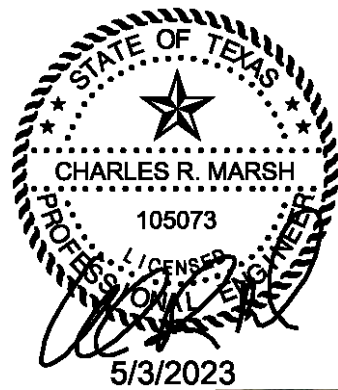
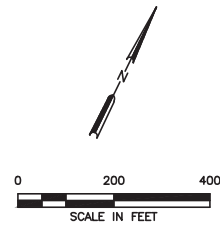
LEGEND
 - - - - - PROPERTY/PERMIT BOUNDARY
 - - - - - CREEK FLOW LINE

- Unincorporated Community
- ⊛ County Seat
- ⊕ Border Crossing
- ⊠ Cemetery
- ⊠ Cemetery (Inside City)
- ⊕ Deep Draft Port
- ⊕ Shallow Draft Port
- Railroad
- Dam
- River or Stream
- TXDOT District
- Lakes
- Education
- Military
- Airport Runway
- Airport
- Prison
- Parks and Other Public Land



NOTE:
 1. REPRODUCED FROM 2018 TEXAS DEPARTMENT OF TRANSPORTATION COUNTY MAPS, JOHNSON COUNTY.

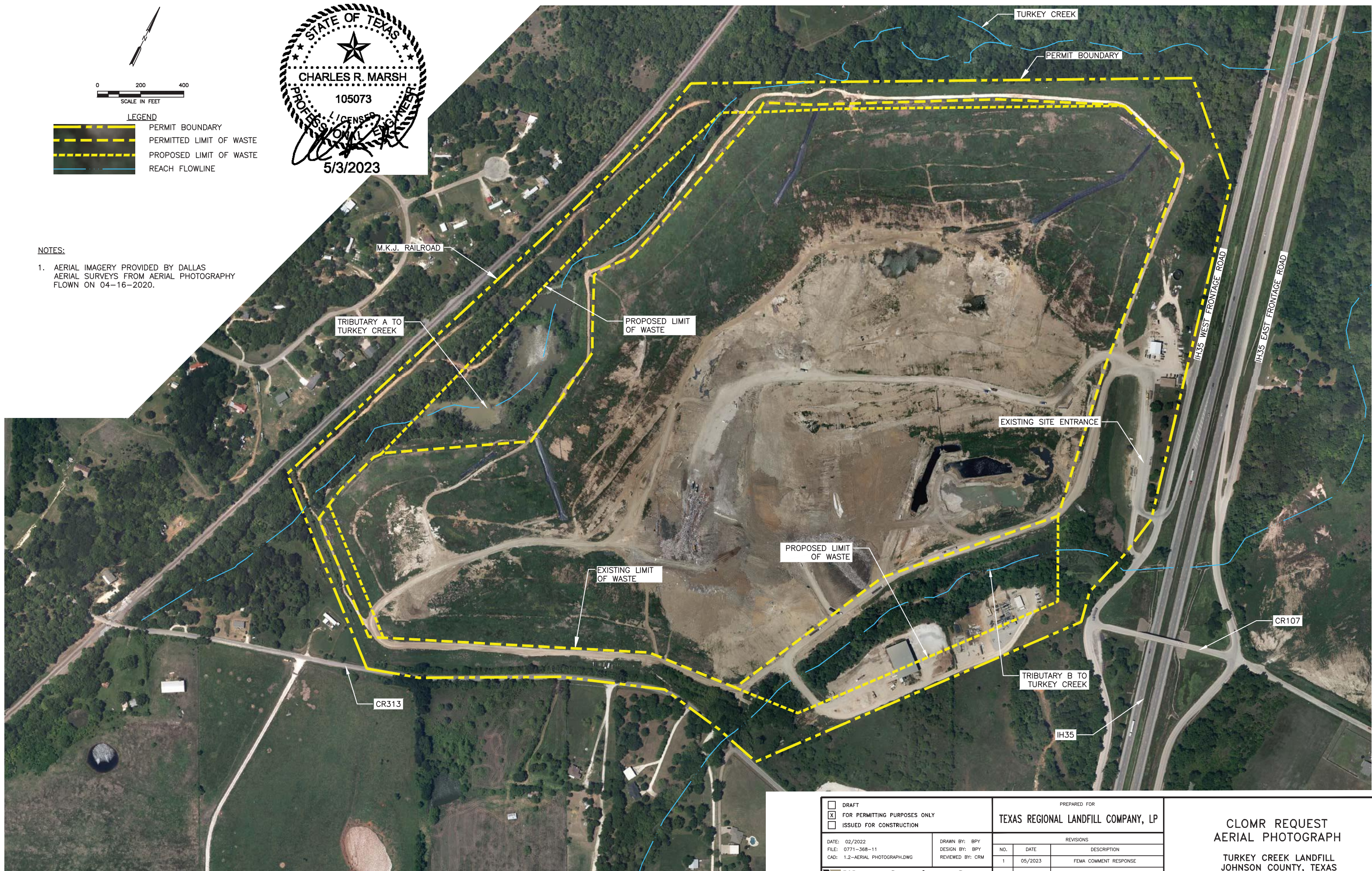
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	DATE: 02/2022 FILE: 0771-368-11 CAD: 1.1-SITE LOCATION MAP.DWG		DRAWN BY: RAA DESIGN BY: BPY REVIEWED BY: CRM											
Weaver Consultants Group TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION									
NO.	DATE	DESCRIPTION												
WWW.WCGRP.COM		FIGURE 1.1												



LEGEND

	PERMIT BOUNDARY
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	PROPOSED LIMIT OF WASTE
	REACH FLOWLINE

- NOTES:**
1. AERIAL IMAGERY PROVIDED BY DALLAS AERIAL SURVEYS FROM AERIAL PHOTOGRAPHY FLOWN ON 04-16-2020.

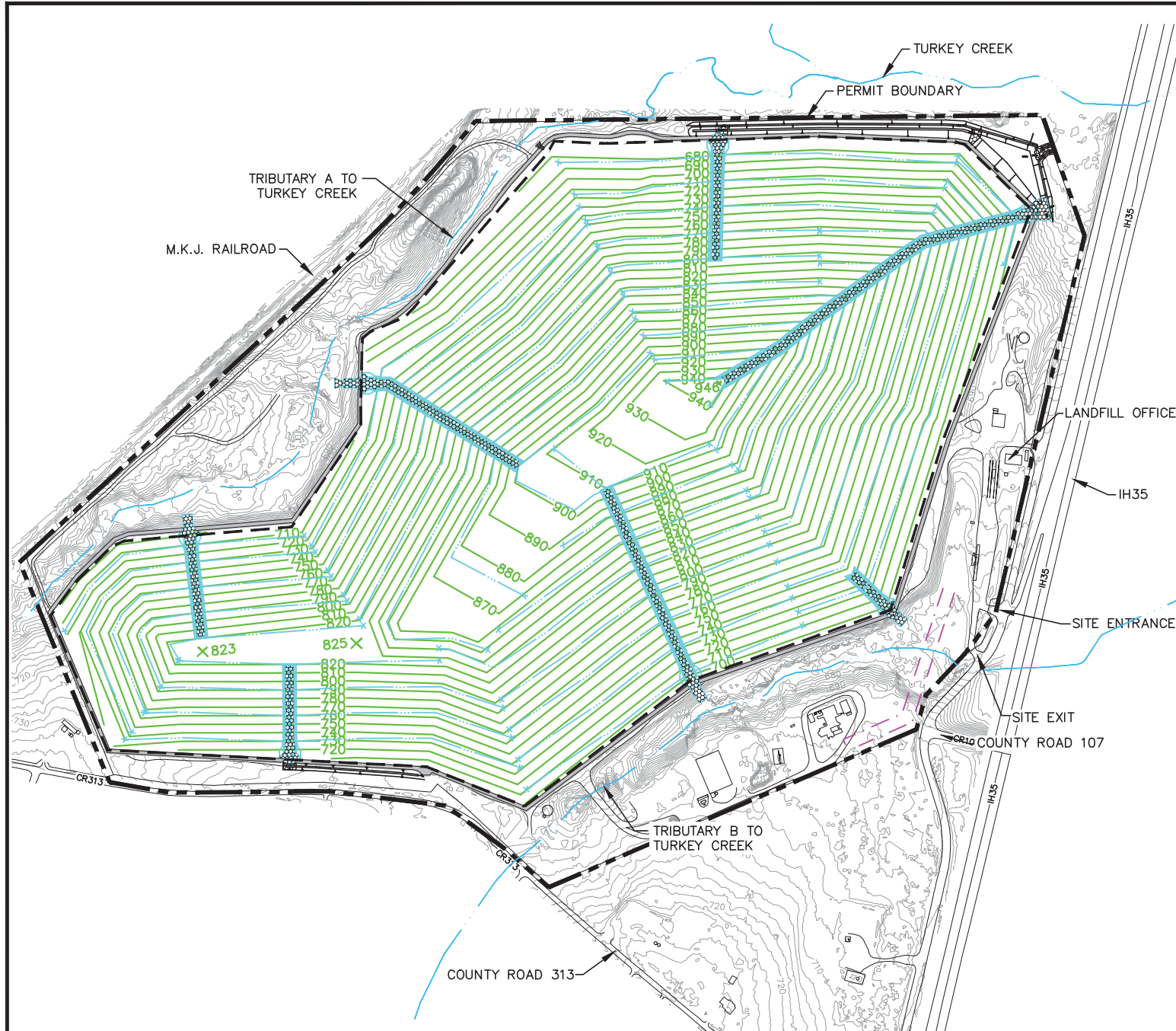


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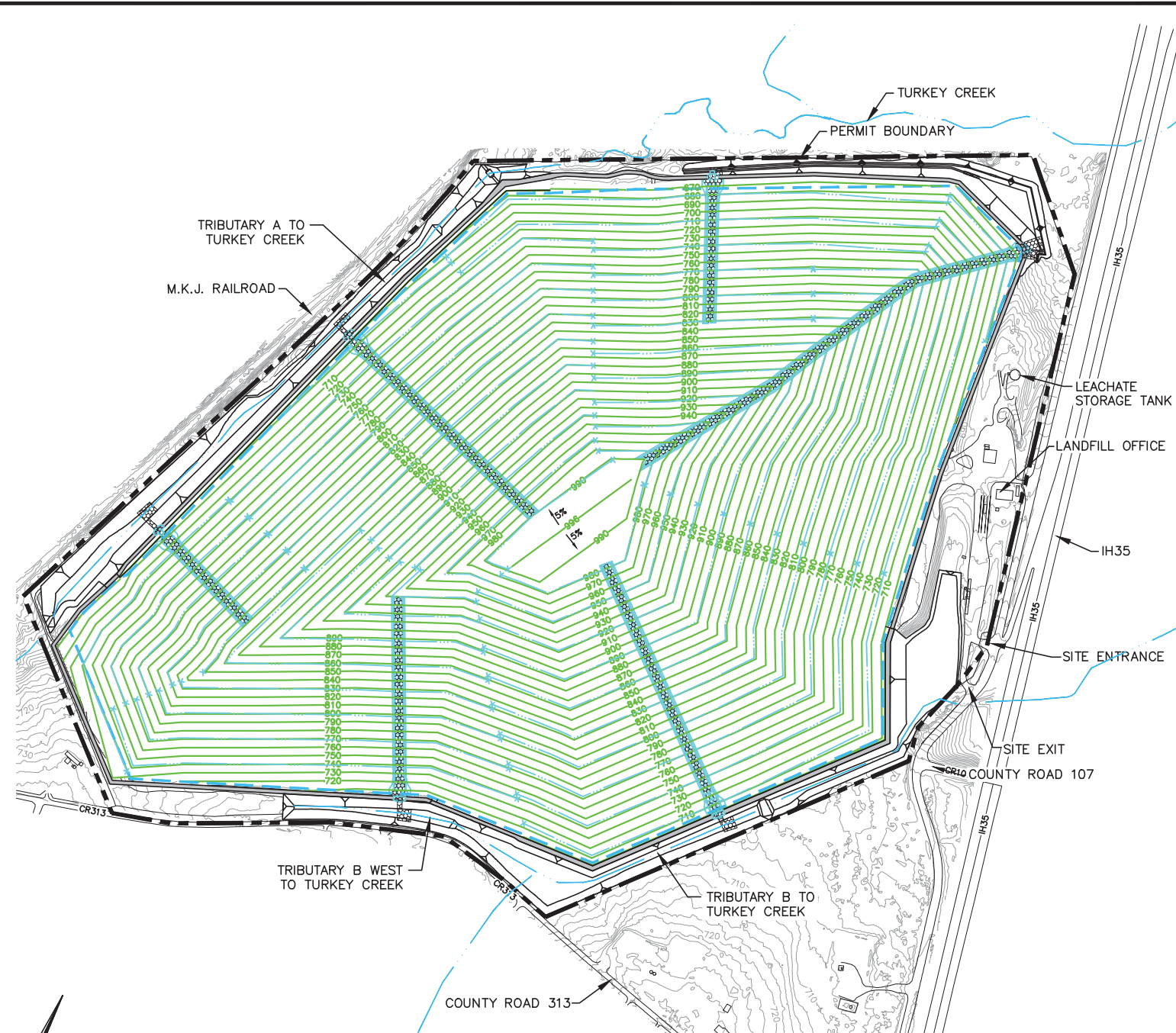
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TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS	
WWW.WCGRP.COM	FIGURE 1.2

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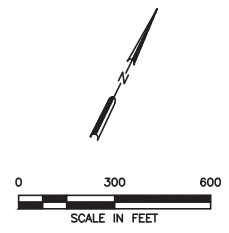
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PERMITTED LANDFILL COMPLETION PLAN



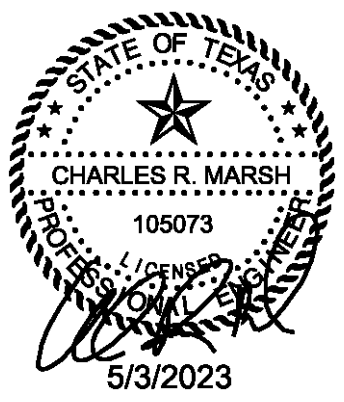
PROPOSED LANDFILL COMPLETION PLAN



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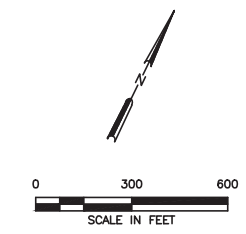
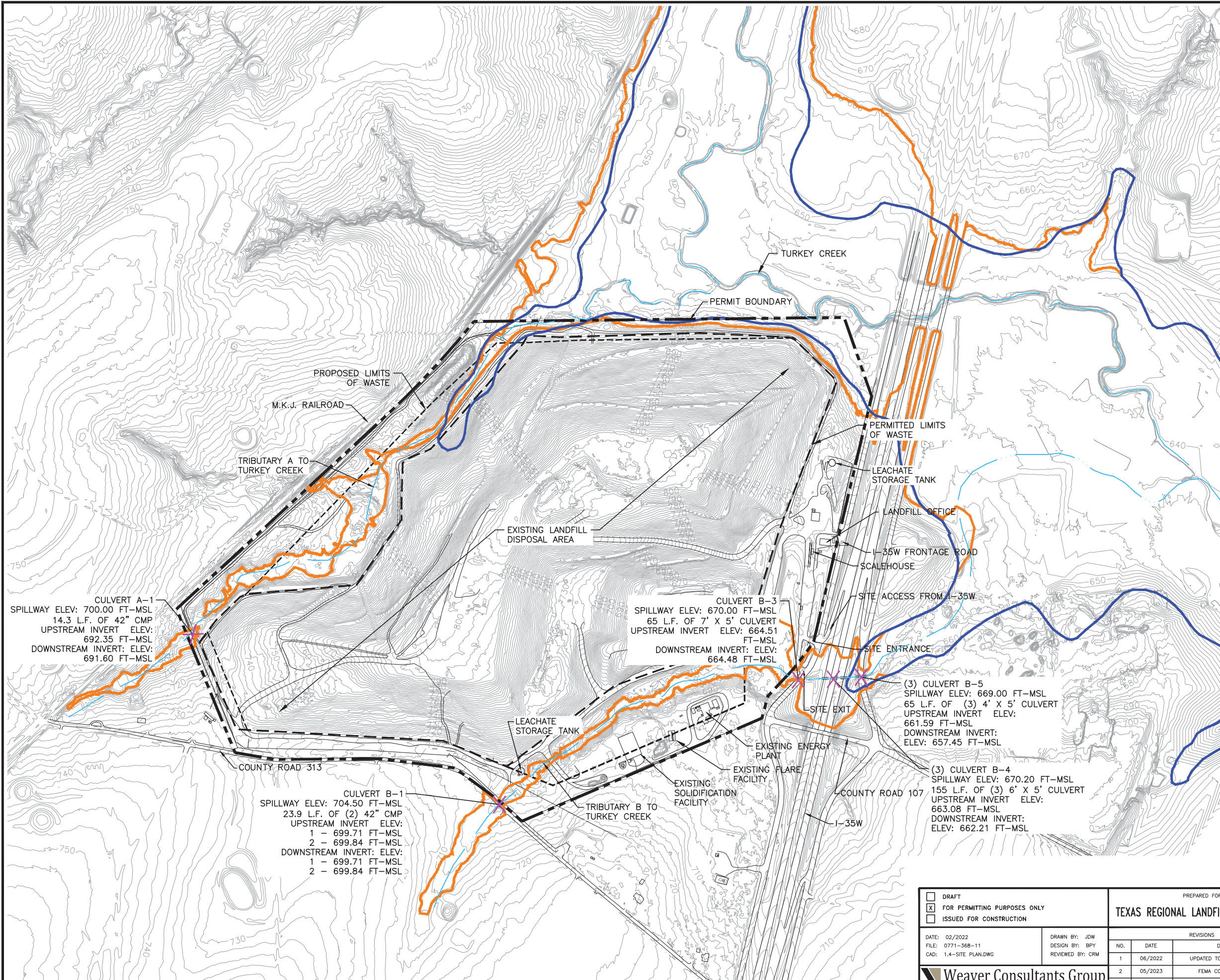
	PERMIT BOUNDARY
	LIMITS OF WASTE
	EXISTING CONTOUR
	EASEMENT
	FINAL COVER CONTOUR
	REACH FLOWLINE
	DRAINAGE LETDOWN
	DRAINAGE SWALE

- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN ON 01-08-2021.
 - PERMITTED LANDFILL COMPLETION PLAN, INCLUDING DRAINAGE FACILITIES HAS BEEN OBTAINED FROM THE CURRENT SITE DEVELOPMENT PLAN APPROVED BY TCEQ ON 10-08-2020.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		TEXAS REGIONAL LANDFILL COMPANY, LP	CLOMR REQUEST EXPANSION COMPARISON SUMMARY TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS					
	DATE: 02/2022 FILE: 0771-368-11 CAD: 1.3-LANDFILL COMP. PLAN.DWG	DRAWN BY: RAA DESIGN BY: BPY REVIEWED BY: CRM			REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>05/2023</td> <td>FEMA COMMENT RESPONSE</td> </tr> </tbody> </table>		NO.	DATE	DESCRIPTION
NO.	DATE	DESCRIPTION							
1	05/2023	FEMA COMMENT RESPONSE							
Weaver Consultants Group TBPE REGISTRATION NO. F-3727			WWW.WCGRP.COM	FIGURE 1.3					

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LEGEND

- PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- EXISTING CONTOUR (SEE NOTE 1)
- REACH FLOWLINE
- ZONE A 100-YEAR FLOODPLAIN (SEE NOTE 2)
- EXISTING 100-YEAR FLOODPLAIN (SEE NOTE 2)
- X EXISTING CULVERT



- NOTES:**
- COMPOSITE TOPOGRAPHY PROVIDED BY AERIAL PHOTOGRAPHY BY FIRMATEK FLOWN ON 01-08-2021, AND 2013 LIDAR DATA PROVIDED BY TEXAS NATURAL RESOURCES INFORMATION SYSTEM.
 - ZONE A 100-YEAR FLOODPLAIN REPRODUCED FROM FEMA FIRM PANELS 48251C0350J. EXISTING FLOODPLAIN DELINEATED FROM HEC-RAS MODELING BASED ON PEAK FLOWS ESTIMATED FROM HEC-1.

CULVERT A-1
 SPILLWAY ELEV: 700.00 FT-MSL
 14.3 L.F. OF 42" CMP
 UPSTREAM INVERT ELEV:
 692.35 FT-MSL
 DOWNSTREAM INVERT: ELEV:
 691.60 FT-MSL

CULVERT B-3
 SPILLWAY ELEV: 670.00 FT-MSL
 65 L.F. OF 7' X 5' CULVERT
 UPSTREAM INVERT ELEV: 664.51
 FT-MSL
 DOWNSTREAM INVERT: ELEV:
 664.48 FT-MSL

(3) CULVERT B-5
 SPILLWAY ELEV: 669.00 FT-MSL
 65 L.F. OF (3) 4' X 5' CULVERT
 UPSTREAM INVERT ELEV:
 661.59 FT-MSL
 DOWNSTREAM INVERT:
 ELEV: 657.45 FT-MSL

(3) CULVERT B-4
 SPILLWAY ELEV: 670.20 FT-MSL
 155 L.F. OF (3) 6' X 5' CULVERT
 UPSTREAM INVERT ELEV:
 663.08 FT-MSL
 DOWNSTREAM INVERT:
 ELEV: 662.21 FT-MSL

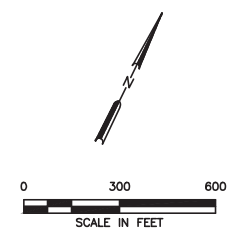
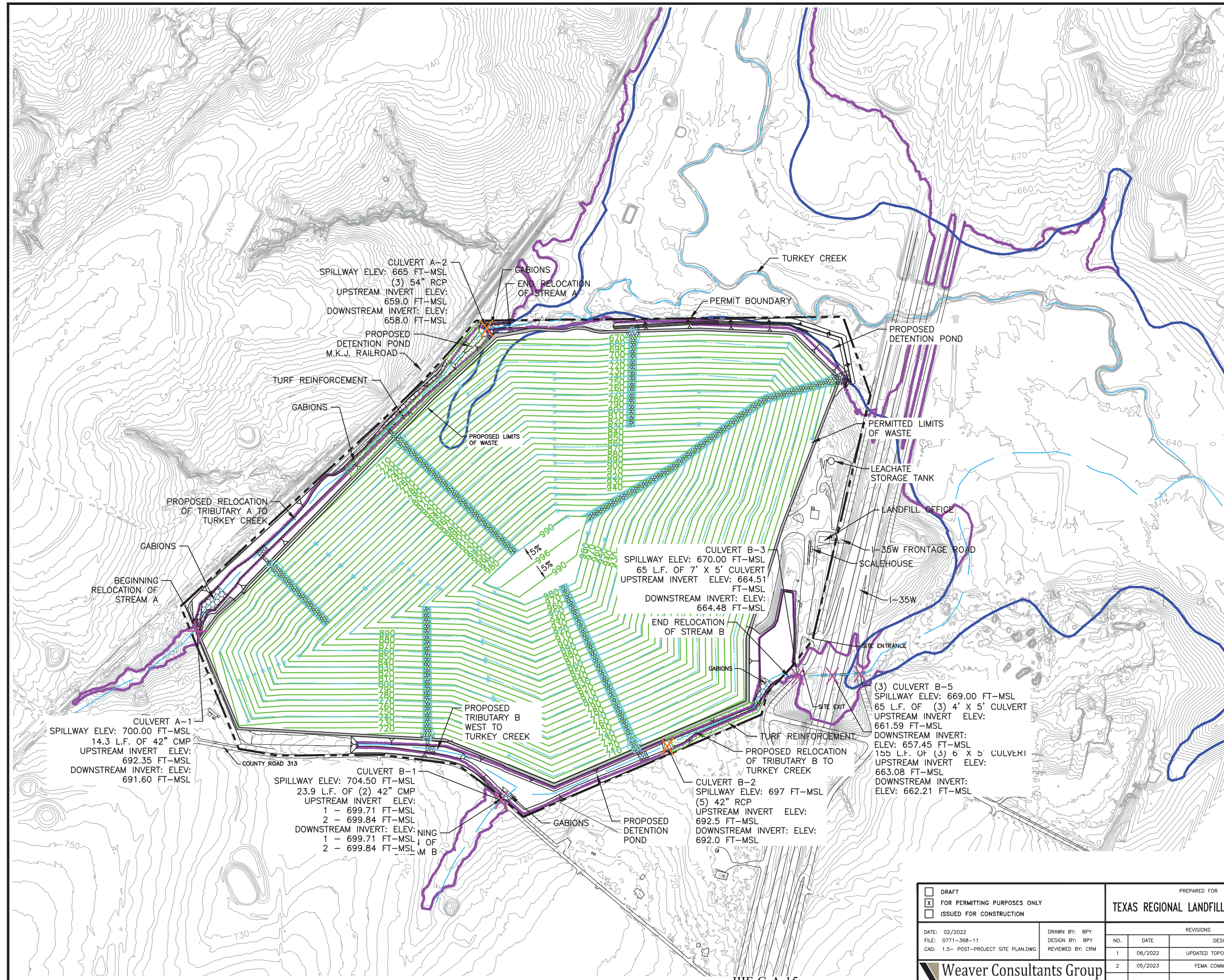
CULVERT B-1
 SPILLWAY ELEV: 704.50 FT-MSL
 23.9 L.F. OF (2) 42" CMP
 UPSTREAM INVERT ELEV:
 1 - 699.71 FT-MSL
 2 - 699.84 FT-MSL
 DOWNSTREAM INVERT: ELEV:
 1 - 699.71 FT-MSL
 2 - 699.84 FT-MSL

IIIF-G-A-14

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	DATE: 02/2022 FILE: 0771-368-11 CAD: 1.4-SITE PLAN.DWG	DRAWN BY: JDW DESIGN BY: BPY REVIEWED BY: CRM		
		1	06/2022	UPDATED TOPOGRAPHIC INFORMATION.
		2	05/2023	FEMA COMMENT RESPONSE
Weaver Consultants Group TBPE REGISTRATION NO. F-3727			WWW.WCGRP.COM	FIGURE 1.4

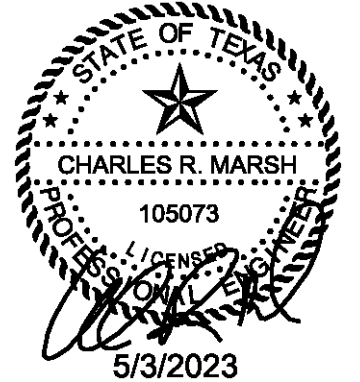
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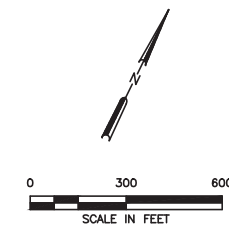
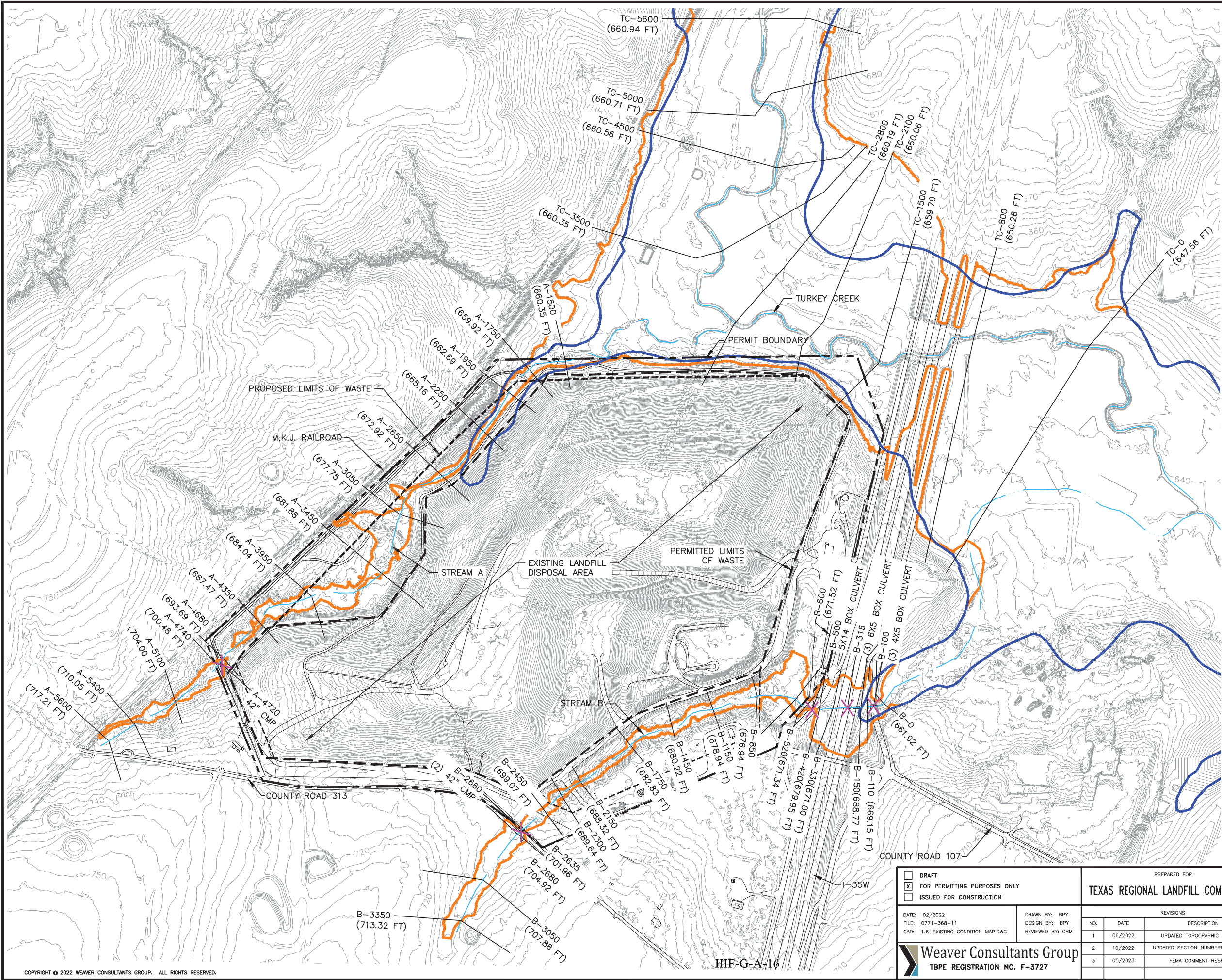
	PERMIT BOUNDARY
	PERMITTED LIMITS OF WASTE
	PROPOSED LIMITS OF WASTE
	EXISTING CONTOUR (SEE NOTE 1)
	PROPOSED FINAL COVER CONTOUR
	REACH FLOWLINE
	DRAINAGE SWALE
	ZONE A 100-YEAR FLOODPLAIN (SEE NOTE 3)
	POST-PROJECT 100-YEAR FLOODPLAIN
	EXISTING CULVERT
	PROPOSED CULVERT
	GABIONS (SEE NOTE 2)
	TURF REINFORCEMENT MAT (SEE NOTE 2)



- NOTES:**
1. COMPOSITE TOPOGRAPHY PROVIDED BY AERIAL PHOTOGRAPHY BY FIRMATEK FLOWN ON 01-08-2021, AND 2013 LIDAR DATA PROVIDED BY TEXAS NATURAL RESOURCES INFORMATION SYSTEM.
 2. SEE APPENDIX B.3, ATTACHMENT 1 FOR AN EROSION PROTECTION PLAN FOR STREAM A AND B.
 3. ZONE A 100-YEAR FLOODPLAIN REPRODUCED FROM FEMA FIRM PANELS 48251C0350J. POST-PROJECT FLOODPLAIN DELINEATED FROM HEC-RAS MODELING BASED ON PEAK FLOWS ESTIMATED FROM HEC-1.

IIF-G-A-15

<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		TEXAS REGIONAL LANDFILL COMPANY, LP	CLOMR REQUEST POST-PROJECT SITE PLAN	
	DATE: 02/2022 FILE: 0771-368-11 CAD: 1.5- POST-PROJECT SITE PLAN.DWG	DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM			
		NO.	DATE	DESCRIPTION	
		1	06/2022	UPDATED TOPOGRAPHIC INFORMATION.	
		2	05/2023	FEMA COMMENT RESPONSE	
Weaver Consultants Group TBPE REGISTRATION NO. F-3727			WWW.WCGRP.COM		FIGURE 1.5



LEGEND

	PERMIT BOUNDARY
	PERMITTED LIMITS OF WASTE
	PROPOSED LIMITS OF WASTE
	EXISTING CONTOUR (SEE NOTE 1)
	HEC-RAS CROSS SECTION AND 100-YEAR FLOODPLAIN ELEVATION
	REACH FLOWLINE
	ZONE A 100-YEAR FLOODPLAIN (SEE NOTE 2)
	EXISTING 100-YEAR FLOODPLAIN
	EXISTING CULVERT



- NOTES:**
- COMPOSITE TOPOGRAPHY PROVIDED BY AERIAL PHOTOGRAPHY BY FIRMATEK FLOWN ON 01-08-2021, BY DALLAS AERIAL SURVEYS FLOWN ON 02-25-2017, AND NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS TOPOGRAPHY TAKEN IN 2007.
 - ZONE A 100-YEAR FLOODPLAIN REPRODUCED FROM FEMA FIRM PANELS 48251C0350J. EXISTING FLOODPLAIN DELINEATED FROM HEC-RAS MODELING BASED ON PEAK FLOWS ESTIMATED FROM HEC-1.
 - STREAM B FLOWS NORTH EASTERLY APPROXIMATELY 0.71 MILES FROM THE LANDFILL PERMIT BOUNDARY BEFORE IT DISCHARGES TO TURKEY CREEK (SEE FIGURE A.8).

<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION		PREPARED FOR TEXAS REGIONAL LANDFILL COMPANY, LP	
DATE: 02/2022 FILE: 0771-368-11 CAD: 1.6-EXISTING CONDITION MAP.DWG		DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM	
Weaver Consultants Group TBPE REGISTRATION NO. F-3727		REVISIONS	
NO.	DATE	DESCRIPTION	
1	06/2022	UPDATED TOPOGRAPHIC INFORMATION.	
2	10/2022	UPDATED SECTION NUMBERS/ELEVATIONS	
3	05/2023	FEMA COMMENT RESPONSE	

CLOMR REQUEST
EXISTING CONDITION MAP
 TURKEY CREEK LANDFILL
 JOHNSON COUNTY, TEXAS
 WWW.WCGRP.COM **FIGURE 1.6**

O:\0771\368\EXPANSION 2021\CLOMR\1.6-EXISTING CONDITION MAP.dwg, by:crm, 1:2
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2 HYDRAULIC ANALYSES

2.1 Description of Computer Program

The hydraulic modeling of Tributary A, Tributary B, and Turkey Creek was conducted using the HEC-RAS, River Analysis System computer program, Version 6.2.0 (Ref. 2). HEC-RAS was developed by the USACE Hydrologic Engineering Center to simulate steady flow water surface profiles. The computational procedure used in the program is based on the solution of the one-dimensional energy equation with energy loss due to friction. The modeling process results in the computation of flood profiles for the Tributaries in a drainage area.

2.2 Schematization

Drawings A.4 and A.5 show the cross section locations for the effective and post-project conditions, respectively, of the Tributary A, Tributary B, and Turkey Creek. Profiles of the waterways are shown on Drawings A.6 through A.9. For the analysis of flow through Tributaries, the boundary geometry of the channels is specified in terms of cross sections and reach lengths. Cross sections were located at intervals along the Tributaries to characterize the flow carrying capability and to accurately represent the Tributary and floodplain geometry.

2.3 Boundary Conditions

As shown on Drawing A.2 (Appendix A), base flood elevations have not been determined for Tributary A, Tributary B, or Turkey Creek. The boundary conditions for the three flooding sources are summarized below in Table 2-1.

Table 2-1
Existing and Post-Project Boundary Conditions

Flooding Source	Upstream Boundary Condition	Downstream Boundary Condition
Turkey Creek	N/A	A normal depth boundary condition was used for both the existing and post-project conditions
Tributary A to Turkey Creek	A normal depth boundary condition was used for the existing and post-project conditions	For both the existing and post-project condition the water surface elevation in TC-3500 in Turkey Creek was used as the boundary condition.
Tributary B to Turkey Creek	A normal depth boundary condition was used for the existing and post-project conditions	A normal depth boundary condition was used for the existing condition. For the post-project condition, the calculated water surface from the existing condition was used as a known water surface condition.

2.4 Manning's Coefficient

For tributaries A and B, Manning's coefficients (n values) utilized for the main channel and overbanks are 0.04 within the study area. To provide for a conservative analysis, it was assumed that the channel and floodplain areas will not be maintained and remain in their natural conditions. These values represent unmaintained, natural vegetation conditions in both the main channel and floodplain areas. In the post-project condition gabions and Turf Mat will be used at various places in both Tributary A and B. The locations of these erosion prevention structures are shown on Figure 1.5. A Manning's value of 0.04 was used for the gabions and the Turf Mat, consistent with vegetated C350 Turf Reinforcement Mat. For details of the gabions and Turf Mat, see Appendix B.3, Attachment 1. A Manning's value of 0.024 was used for corrugated metal pipe culverts, and a value of 0.013 was used for reinforced concrete pipes and concrete channels. The Manning's values are consistent with the HEC-RAS Reference Manual.

For Turkey Creek, the Manning's coefficients utilized for the main channel are 0.04. The left and the right overbanks were modeled as 0.08 and 0.07, respectively. The right overbank was considered to be a less forested area; therefore, was modeled with a lower Manning's n. In the post-project condition, the proposed berm and channel improvements were modeled with a 0.03 to 0.04 Manning's n.

3 RESULTS OF ANALYSIS

3.1 Hydraulic Analysis Results

The existing and post-project 100-year floodplains for the Tributary A, Tributary B, and Turkey Creek model are delineated on Drawings A.4 and A.5, respectively. In accordance with FEMA requirements the post-project water surface for tributaries A and B is equal to, or lower than the existing condition water surface in the cross sections upstream and downstream of the relocations. In Turkey Creek the post-project water surface is equal to, or lower than the existing conditions. Summaries of flood elevations, and velocities within the study area are presented in Tables 3-1 through 3-3. The output files and hydraulic models are provided electronically.

3.1.1 Tributary A Results

For Tributary A, comparisons between existing and post-project conditions are limited to upstream cross sections A-4740 through A-5600 (called A-4740 through A-5430 in post-project condition) and the downstream cross section A-1500. As shown in Table 3-1, the water surface in the upstream and downstream cross sections are equal to, or lower than the existing condition.

Velocities are approximately the same in both the existing and post-project conditions in the equivalent upstream and downstream cross sections. Within the relocated channel, velocities remain non-erosive in the earthen sections. Higher velocities are found at the beginning of the channel, through the armored section, and after the detention pond spillway which are accounted for with gabions and Turf Mat structures. Locations of the erosion prevention structures are shown on Figure 1.5. An Erosion Protection Plan detailing the protection measures can be found in Appendix B.3, Attachment 1.

3.1.2 Tributary B Results

For Tributary B, comparisons between existing and post-project conditions are limited to upstream cross sections B-2639 through B-3350 (called B-2985 through B-3310 in post-project conditions) and downstream cross sections B-0 through B-520. As shown in Table 3-2, the water surfaces in the upstream cross sections are equal to or lower than the existing condition. The downstream cross section is also equivalent in both conditions.

The velocities are approximately the same in both the existing and post-project conditions in the equivalent upstream and downstream cross sections. Within the relocated channel, velocities remain non-erosive in the earthen section. Higher velocities are found at the beginning of the channel, after the detention pond spillway, and before flow enters the open area are accounted for with gabions and Turf Mat. Locations of the erosion prevention structures are shown on Figure 1.5. An Erosion Protection Plan, detailing the erosion protection measures can be found in Appendix B.3, Attachment 1.

3.1.3 Turkey Creek Results

For Turkey Creek, comparisons between existing and post-project conditions include all cross sections TC-0 through TC-5600. As shown in Table 3-3, the water surface is equal to, or lower than the existing conditions. Velocities also remain the same in the post-project condition when compared to the existing condition.

**Table 3-1
Comparison of 100-Year Water Surface Elevations and Flow Velocities
Tributary A Existing and Post-Project Conditions**

100-Year Flood Event							
Cross Section Numbers		Existing			Post-Project		
		Flow Rate	Natural WSEL	Main Channel Velocity	Flow Rate	Natural WSEL	Main Channel Velocity
Existing	Post-Project	(cfs)	(feet-msl)	(feet/sec)	(cfs)	(feet-msl)	(feet/sec)
A-5600	A-5430	195	717.21	6.78	195	717.21	6.78
A-5400	A-5230	195	710.05	6.36	195	710.05	6.36
A-5100	A-4930	195	704	6.08	195	704	6.08
A-4740 ¹	A-4570	195	700.48	0.38	195	700.48	0.38
---	A-4510*	---	---	---	194	---	---
---	A-4350*	---	---	---	194	693.59	7.72
A-4680*	---	194	693.69	7.33	---	---	---
---	A-3850*	---	---	---	216	681.88	2.39
A-4350*	---	194	687.47	6.07	---	---	---
---	A-3365*	---	---	---	639	680.44	2.51
A-3950*	---	245	684.04	1.04	---	---	---
---	A-3150*	---	---	---	639	680.09	2.11
A-3450*	---	738	681.88	5.97	---	---	---
---	A-2800*	---	---	---	799	679.45	5.16
A-3050*	---	780	677.75	4	---	---	---
---	A-2300*	---	---	---	799	677.91	5.56
A-2650*	---	780	672.92	7.72	---	---	---
---	A-2200*	---	---	---	810	673.21	8.72
A-2250*	---	780	665.16	6.69	---	---	---
---	A-1950*	---	---	---	810	669.91	7.78
A-1950*	---	780	662.69	4.74	---	---	---
---	A-1750*	---	---	---	741	667.59	1.03
A-1750*	---	780	659.92	7.17	---	659.86	9.4
A-1500	A-1500	780	660.35	0.97	749	660.35	0.94

* Proposed Tributary relocation occurs in these cross section numbers. In this range, existing and post-project results are not directly comparable.

¹ UpTributary of existing cross section A-4740, cross sections in the existing and post-project conditions are located in the same physical location. Cross section numbers are different due to the stream length added by the proposed creek relocations.

Table 3-2
Comparison of 100-Year Water Surface Elevations and Flow Velocities
Tributary B Existing and Post-Project Conditions

100-Year Flood Event							
Cross Section Numbers		Existing			Post-Project		
		Flow Rate	Natural WSEL	Main Channel Velocity	Flow Rate	Natural WSEL	Main Channel Velocity
Existing	Post-Project	(cfs)	(feet-msl)	(feet/sec)	(cfs)	(feet-msl)	(feet/sec)
Tributary B							
B-3350	280	280	712.32	3.03	280	712.32	3.03
B-3050	280	280	707.88	4.37	280	707.88	4.37
B-2680	280	280	704.92	0.86	280	704.92	0.86
B-2635 ¹	279	279	701.96	6.97	279	701.69	7.93
B-2450*	279	279	699.07	5.4	---	---	---
---	---	---	---	---	627	699.38	1.67
B-2300*	279	279	689.64	1.11	---	---	---
---	---	---	---	---	627	699.3	1.86
B-2150*	626	627	688.32	8.27	---	---	---
---	---	---	---	---	1084	699.08	2.57
B-1750*	626	627	682.83	5.11	---	---	---
---	---	---	---	---	685	694.36	7.55
B-1450*	626	627	680.22	5.28	---	---	---
---	---	---	---	---	685	693.12	6.6
B-1150*	626	627	678.94	3.62	---	---	---
---	---	---	---	---	685	686.97	8.59
B-850*	626	627	676.94	4.76	---	---	---
---	---	---	---	---	685	670.37	22.71
B-600*	626	627	671.39	5.56	---	---	---
B-520	780	812	671.34	1.89	724	671.23	1.77
B-420	777	816	670.95	2.78	715	670.9	2.49
B-330	777	816	671	1.53	715	670.93	1.36
B-150	1132	1079	668.77	6.15	1065	668.77	6.07
B-110	1132	1079	669.15	1.97	1065	669.14	1.95
B-0	1132	1079	661.92	9.14	1065	661.92	9.02
Tributary B West							
---	BW-1050*	---	---	---	412	700.82	4.49
---	BW-550*	---	---	---	412	699.41	3.12
---	BW-350*	---	---	---	412	699.42	1.3
---	BW-100*	---	---	---	412	699.43	0.45

* Proposed Tributary relocation occurs in these cross section numbers. In this range, existing and post-project results are not directly comparable.

¹ UpTributary of existing cross section B-2635, cross sections in the existing and post-project conditions are located in the same physical location. Cross section numbers are different due to the stream length added by the proposed creek relocations,

**Table 3-3
Comparison of 100-Year Water Surface Elevations and Flow Velocities
Turkey Creek Existing and Post-Project Conditions**

100-Year Flood Event							
Cross Section Numbers		Effective			Post-Project		
		Flow Rate	Natural WSEL	Main Channel Velocity	Flow Rate	Natural WSEL	Main Channel Velocity
Effective	Post-Project	(cfs)	(feet-msl)	(feet/sec)	(cfs)	(feet-msl)	(feet/sec)
Turkey Creek							
TC-5800	TC-5800	21194	660.94	5.17	21194	660.94	5.17
TC-5200	TC-5200	21194	660.71	4.07	21194	660.71	4.07
TC-4700	TC-4700	21194	660.56	3.86	21194	660.56	3.86
TC-3700	TC-3700	21194	660.35	2.95	21194	660.35	2.95
TC-3000	TC-3000	21194	660.19	3.76	21194	660.19	3.76
TC-2300	TC-2300	21194	660.06	3.55	21194	660.06	3.55
TC-1700	TC-1700	21194	659.79	4.59	21194	659.79	4.59
TC-1000	TC-1000	21194	650.26	8.75	21194	650.26	8.75
TC-0	TC-0	21194	647.56	8.25	21194	647.56	8.25

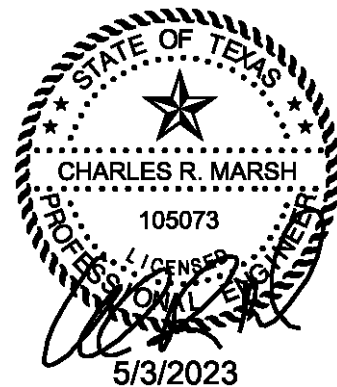
REFERENCES

1. Federal Emergency Management Agency, *Flood Insurance Rate Map, Johnson County, Texas and Unincorporated Areas, City of Grandview, et. al., Community – Panel Numbers 4808790350J and 4808810350J*.
2. U.S. Army Corps of Engineers, *HEC-RAS River Analysis System Applications Guide*, Hydrologic Engineering Center, May 2021.




















APPENDIX A

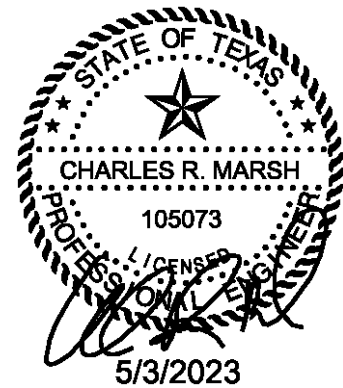
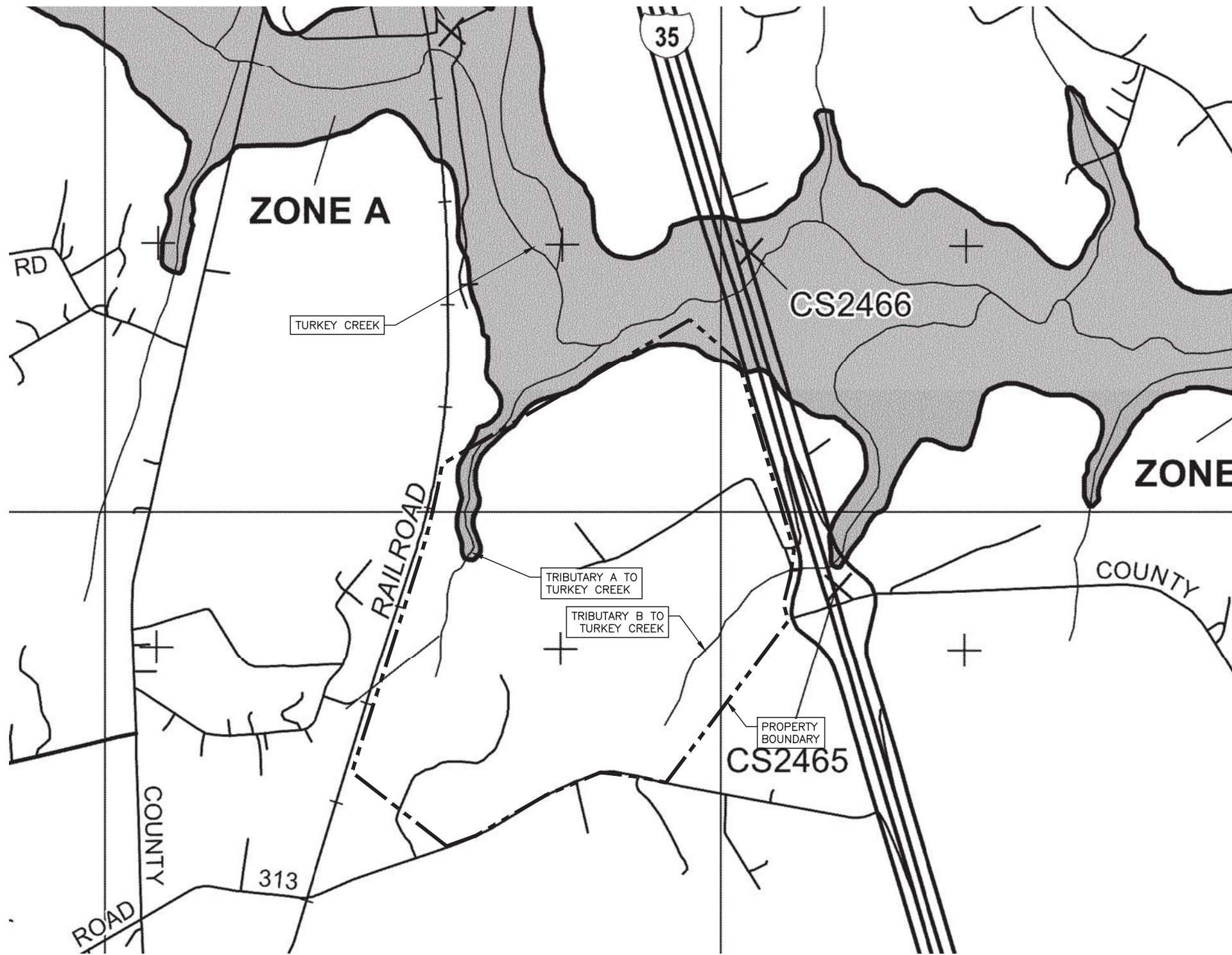
DRAWINGS

- A.1 Site Location Map
- A.2 Flood Insurance Rate Map (FIRM)
- A.3 Existing Site Plan
- A.4 Effective Floodplain and Floodway Delineations
- A.5 Post-Project Floodplain and Floodway Delineations
- A.6 Effective Condition Profile Tributaries A and B
- A.7 Effective Condition Profile Turkey Creek
- A.8 Post-Project Condition Profile Tributaries A, B, and B West
- A.9 Post-Project Condition Profile Turkey Creek
- A.10 Revised Flood Insurance Rate Map (FIRM)



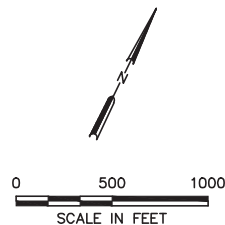
LEGEND

-  **SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**
The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.
 - ZONE A** No Base Flood Elevations determined.
 - ZONE AE** Base Flood Elevations determined.
 - ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
 - ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
 - ZONE AR** Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
 - ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
 - ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevation determined.
 - ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
 -  **FLOODWAY AREAS IN ZONE AE**
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
 -  **OTHER FLOOD AREAS**
 - ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
 -  **OTHER AREAS**
 - ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
 - ZONE D** Areas in which flood hazards are undetermined, but possible.
 -  **COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**
 -  **OTHERWISE PROTECTED AREAS (OPAs)**
- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
-  1% Annual Chance Floodplain Boundary
 -  0.2% Annual Chance Floodplain Boundary
 -  Floodway boundary
 -  Zone D boundary
 -  CBRS and OPA boundary
 -  Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevation flood depths, or flood velocities.
 -  Base Flood Elevation line and value; elevation in feet*
(EL 987)
 -  Base Flood Elevation value where uniform within zone; elevation in feet*
- *Referenced to the North American Vertical Datum of 1988
-   Cross section line
 -   Transect line
 - 45° 02' 08", 93° 02' 12" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
 - 3100000 FT 5000-foot ticks: Texas State Plane North Central Zone (FIPS Zone 4202), Lambert Conformal Conic projection
 - 49890000 N 1000-meter Universal Transverse Mercator grid values, zone 14
 - DX5510 X Bench mark (see explanation in Notes to Users section of this FIRM panel)
 - * M1.5 River Mile
-  **PROPERTY BOUNDARY**



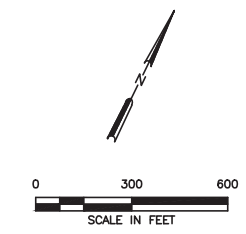
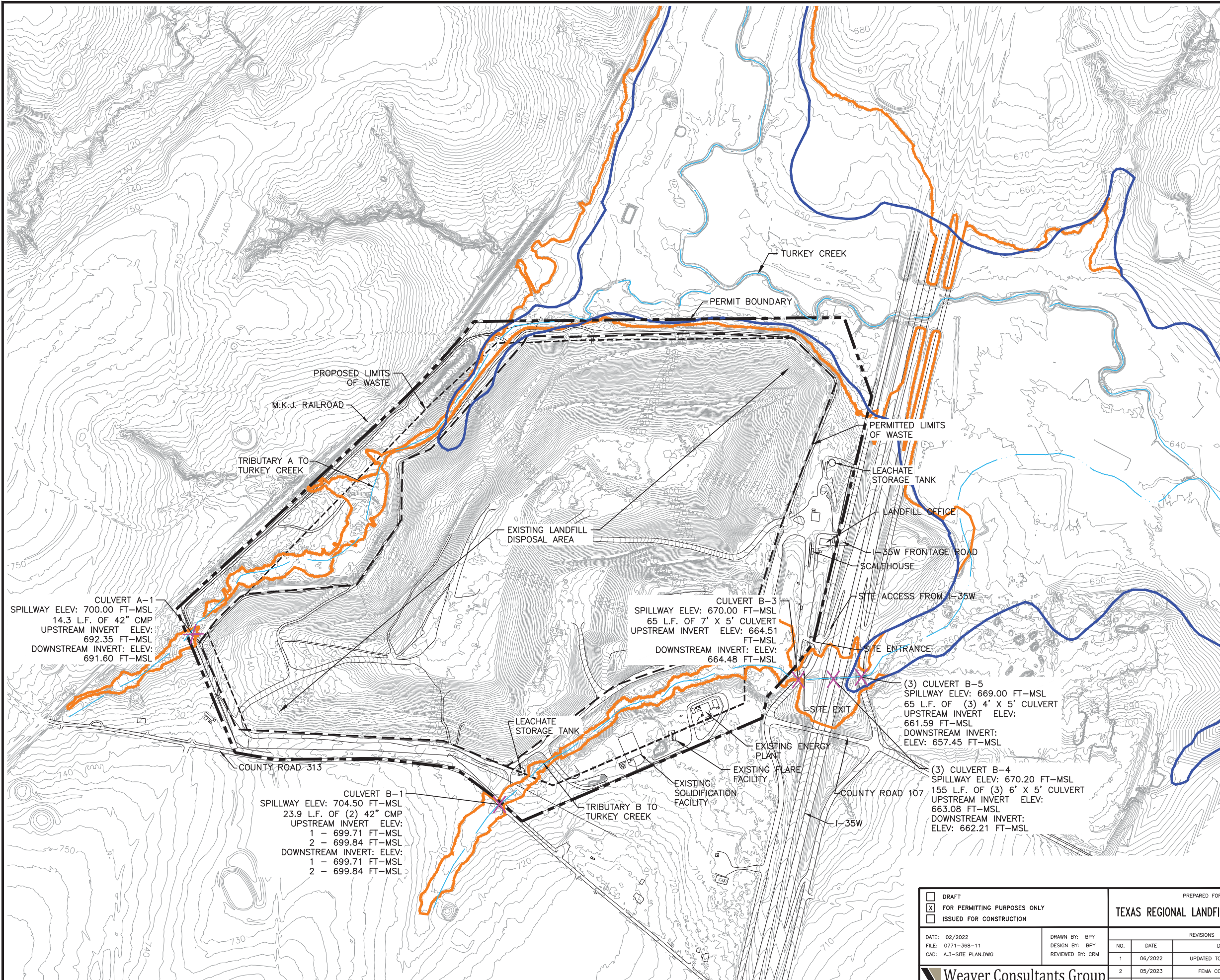
NOTES:

1. REPRODUCED FROM FEMA FIRM NUMBERS 4808810350J AND 4808790350J FOR CITY OF GRANDVIEW, AND JOHNSON COUNTY, UNINCORPORATED AREAS, EFFECTIVE DECEMBER 4TH, 2010.



IIIF-G-A-28

<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR TEXAS REGIONAL LANDFILL COMPANY, LP	CLOMR REQUEST FLOOD INSURANCE RATE MAP (FIRM) TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS									
DATE: 02/2022 FILE: 0771-368-11 CAD: A.10-FIRM.DWG	DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM	REVISIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>06/2022</td> <td>UPDATED FLOODPLAIN</td> </tr> <tr> <td>2</td> <td>05/2023</td> <td>FEMA COMMENT RESPONSE</td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION	1	06/2022	UPDATED FLOODPLAIN	2	05/2023	FEMA COMMENT RESPONSE
NO.	DATE	DESCRIPTION									
1	06/2022	UPDATED FLOODPLAIN									
2	05/2023	FEMA COMMENT RESPONSE									
Weaver Consultants Group TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM FIGURE A.2									



LEGEND

- PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- EXISTING CONTOUR (SEE NOTE 1)
- REACH FLOWLINE
- ZONE A 100-YEAR FLOODPLAIN (SEE NOTE 2)
- EXISTING 100-YEAR FLOODPLAIN (SEE NOTE 2)
- X EXISTING CULVERT



- NOTES:**
- COMPOSITE TOPOGRAPHY PROVIDED BY AERIAL PHOTOGRAPHY BY FIRMATEK FLOWN ON 01-08-2021, AND 2013 LIDAR DATA PROVIDED BY TEXAS NATURAL RESOURCES INFORMATION SYSTEM.
 - ZONE A 100-YEAR FLOODPLAIN REPRODUCED FROM FEMA FIRM PANELS 48251C0350J. EXISTING FLOODPLAIN DELINEATED FROM HEC-RAS MODELING BASED ON PEAK FLOWS ESTIMATED FROM HEC-1.

CULVERT A-1
 SPILLWAY ELEV: 700.00 FT-MSL
 14.3 L.F. OF 42" CMP
 UPSTREAM INVERT ELEV:
 692.35 FT-MSL
 DOWNSTREAM INVERT: ELEV:
 691.60 FT-MSL

CULVERT B-3
 SPILLWAY ELEV: 670.00 FT-MSL
 65 L.F. OF 7' X 5' CULVERT
 UPSTREAM INVERT ELEV: 664.51
 FT-MSL
 DOWNSTREAM INVERT: ELEV:
 664.48 FT-MSL

(3) CULVERT B-5
 SPILLWAY ELEV: 669.00 FT-MSL
 65 L.F. OF (3) 4' X 5' CULVERT
 UPSTREAM INVERT ELEV:
 661.59 FT-MSL
 DOWNSTREAM INVERT:
 ELEV: 657.45 FT-MSL

(3) CULVERT B-4
 SPILLWAY ELEV: 670.20 FT-MSL
 155 L.F. OF (3) 6' X 5' CULVERT
 UPSTREAM INVERT ELEV:
 663.08 FT-MSL
 DOWNSTREAM INVERT:
 ELEV: 662.21 FT-MSL

CULVERT B-1
 SPILLWAY ELEV: 704.50 FT-MSL
 23.9 L.F. OF (2) 42" CMP
 UPSTREAM INVERT ELEV:
 1 - 699.71 FT-MSL
 2 - 699.84 FT-MSL
 DOWNSTREAM INVERT: ELEV:
 1 - 699.71 FT-MSL
 2 - 699.84 FT-MSL

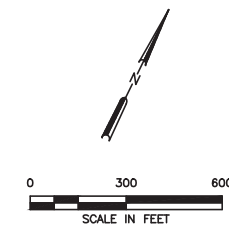
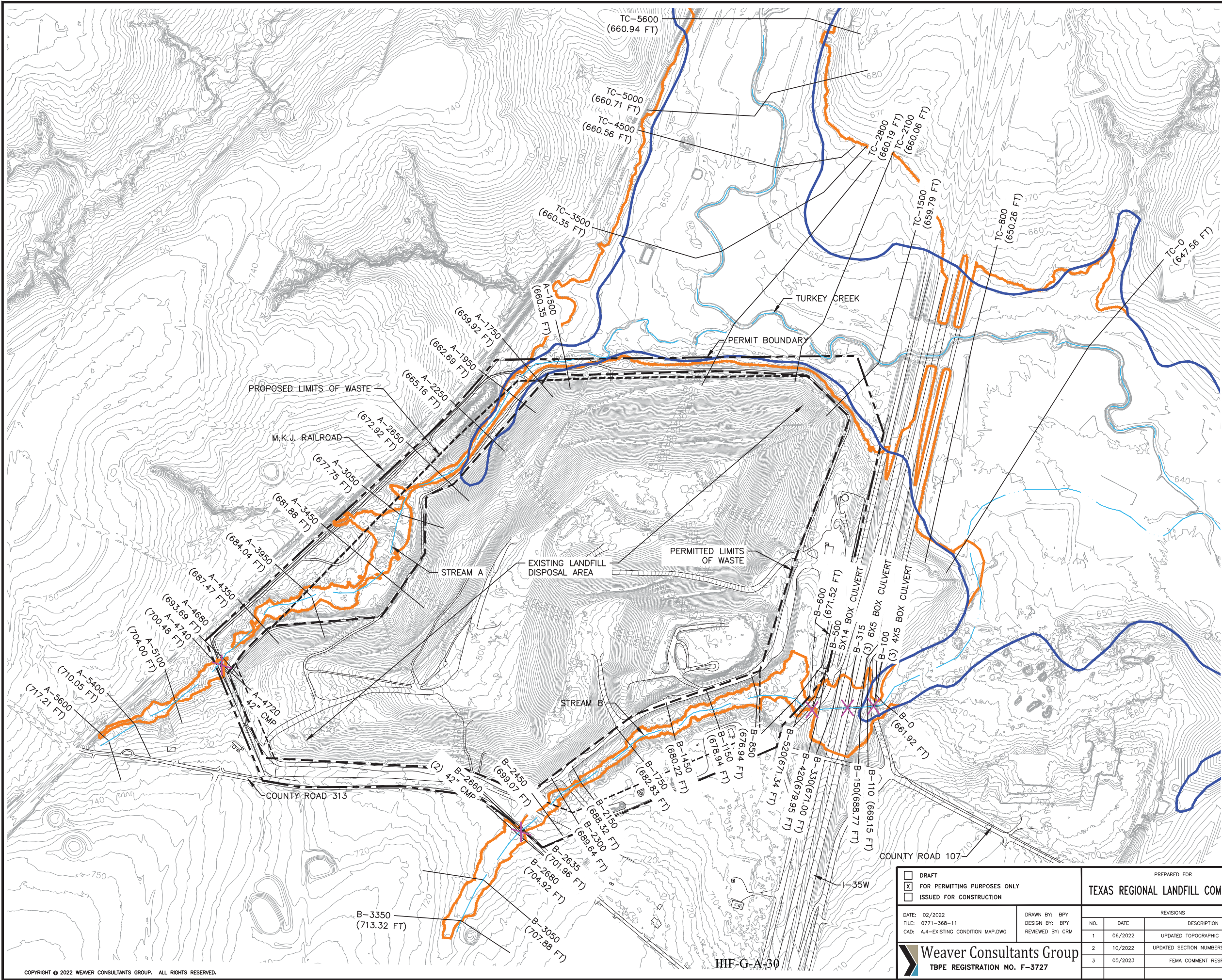
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DATE: 02/2022	DRAWN BY: BPY	<table border="1"> <thead> <tr> <th colspan="2">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>06/2022 UPDATED TOPOGRAPHIC INFORMATION.</td> </tr> <tr> <td>2</td> <td>05/2023 FEMA COMMENT RESPONSE</td> </tr> </tbody> </table>	REVISIONS		NO.	DESCRIPTION	1	06/2022 UPDATED TOPOGRAPHIC INFORMATION.	2	05/2023 FEMA COMMENT RESPONSE
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NO.	DESCRIPTION									
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2	05/2023 FEMA COMMENT RESPONSE									
FILE: 0771-368-11	DESIGN BY: BPY									
CAD: A.3-SITE PLAN.DWG	REVIEWED BY: CRM									

Weaver Consultants Group TBPE REGISTRATION NO. F-3727	
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CLOMR REQUEST EXISTING SITE PLAN TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS	
WWW.WCGRP.COM	FIGURE A.3

IIF-G-A-29

0:\0771\368\EXPANSION 2021\CLOMR\A.3-EXISTING SITE PLAN.dwg - byoung, 1:2



LEGEND

- PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- 750 EXISTING CONTOUR (SEE NOTE 1)
- A-4350 HEC-RAS CROSS SECTION AND 100-YEAR FLOODPLAIN ELEVATION (687.71 FT)
- REACH FLOWLINE
- ZONE A 100-YEAR FLOODPLAIN (SEE NOTE 2)
- EXISTING 100-YEAR FLOODPLAIN
- X EXISTING CULVERT



- NOTES:**
- COMPOSITE TOPOGRAPHY PROVIDED BY AERIAL PHOTOGRAPHY BY FIRMATEK FLOWN ON 01-08-2021, BY DALLAS AERIAL SURVEYS FLOWN ON 02-25-2017, AND NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS TOPOGRAPHY TAKEN IN 2007.
 - ZONE A 100-YEAR FLOODPLAIN REPRODUCED FROM FEMA FIRM PANELS 48251C0350J. EXISTING FLOODPLAIN DELINEATED FROM HEC-RAS MODELING BASED ON PEAK FLOWS ESTIMATED FROM HEC-1.
 - STREAM B FLOWS NORTH EASTERLY APPROXIMATELY 0.71 MILES FROM THE LANDFILL PERMIT BOUNDARY BEFORE IT DISCHARGES TO TURKEY CREEK (SEE FIGURE A.8).

<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION		PREPARED FOR TEXAS REGIONAL LANDFILL COMPANY, LP		
DATE: 02/2022 FILE: 0771-368-11 CAD: A.4-EXISTING CONDITION MAP.DWG	DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM	REVISIONS		
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		2	10/2022	UPDATED SECTION NUMBERS/ELEVATIONS
		3	05/2023	FEMA COMMENT RESPONSE

**CLOMR REQUEST
 EXISTING CONDITION MAP**

**TURKEY CREEK LANDFILL
 JOHNSON COUNTY, TEXAS**

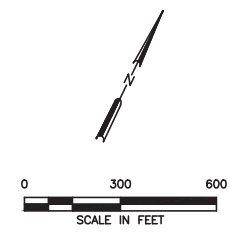
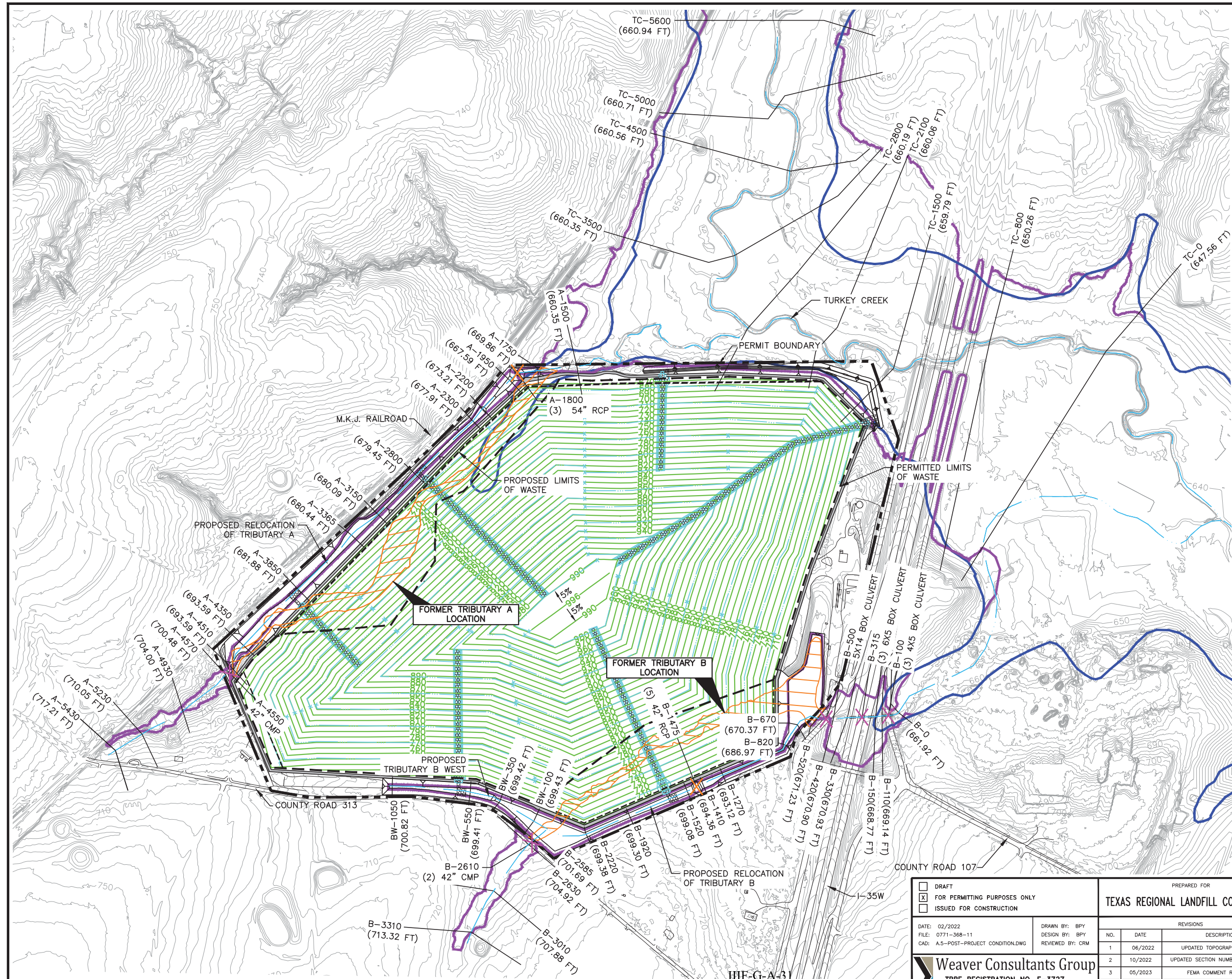
 WWW.WCGRP.COM **FIGURE A.4**

Weaver Consultants Group
 TBPE REGISTRATION NO. F-3727

III-G-A-30

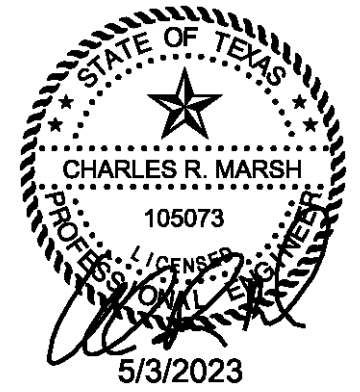
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C:\0771\368\EXPANSION 2021\CLOMR\A.5-POST-PROJECT CONDITION MAP.dwg, byoung, 1:2



LEGEND

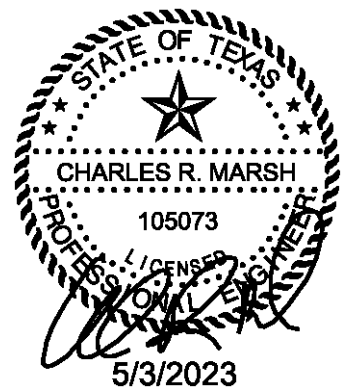
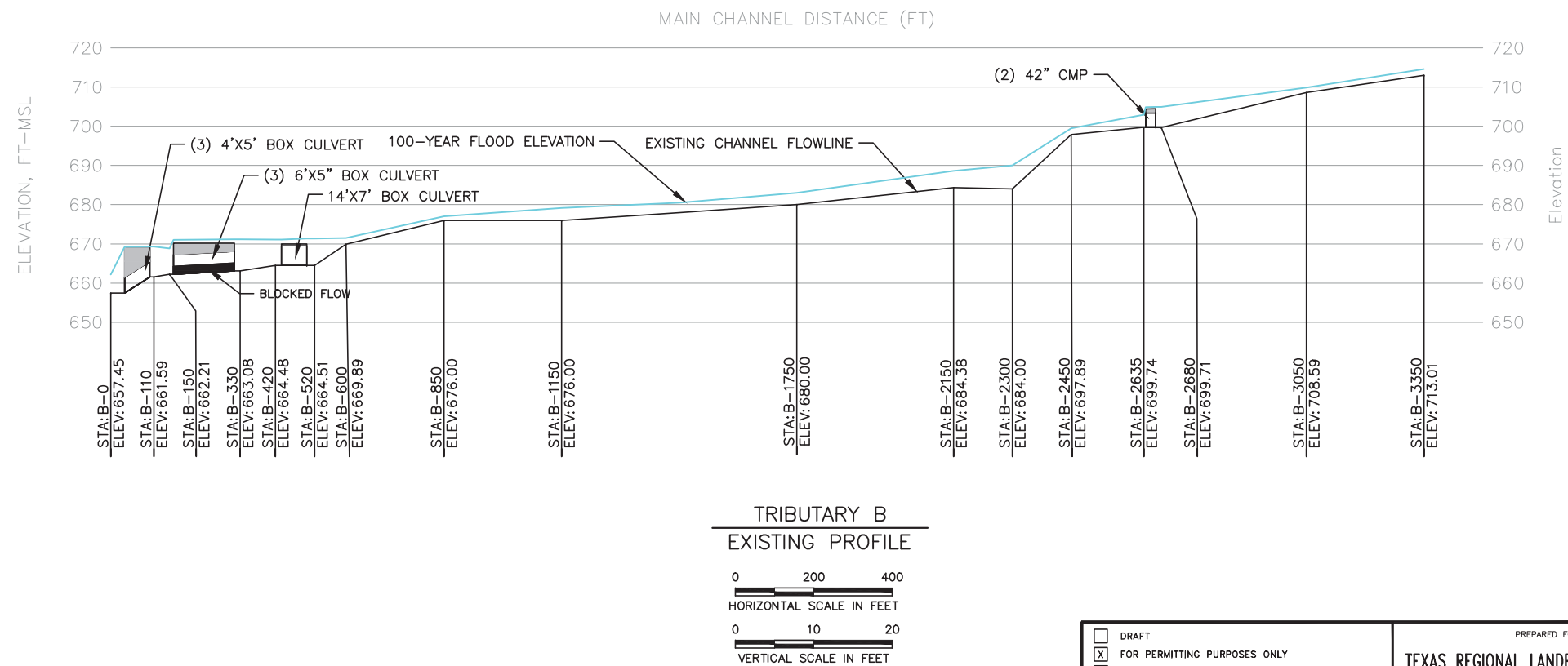
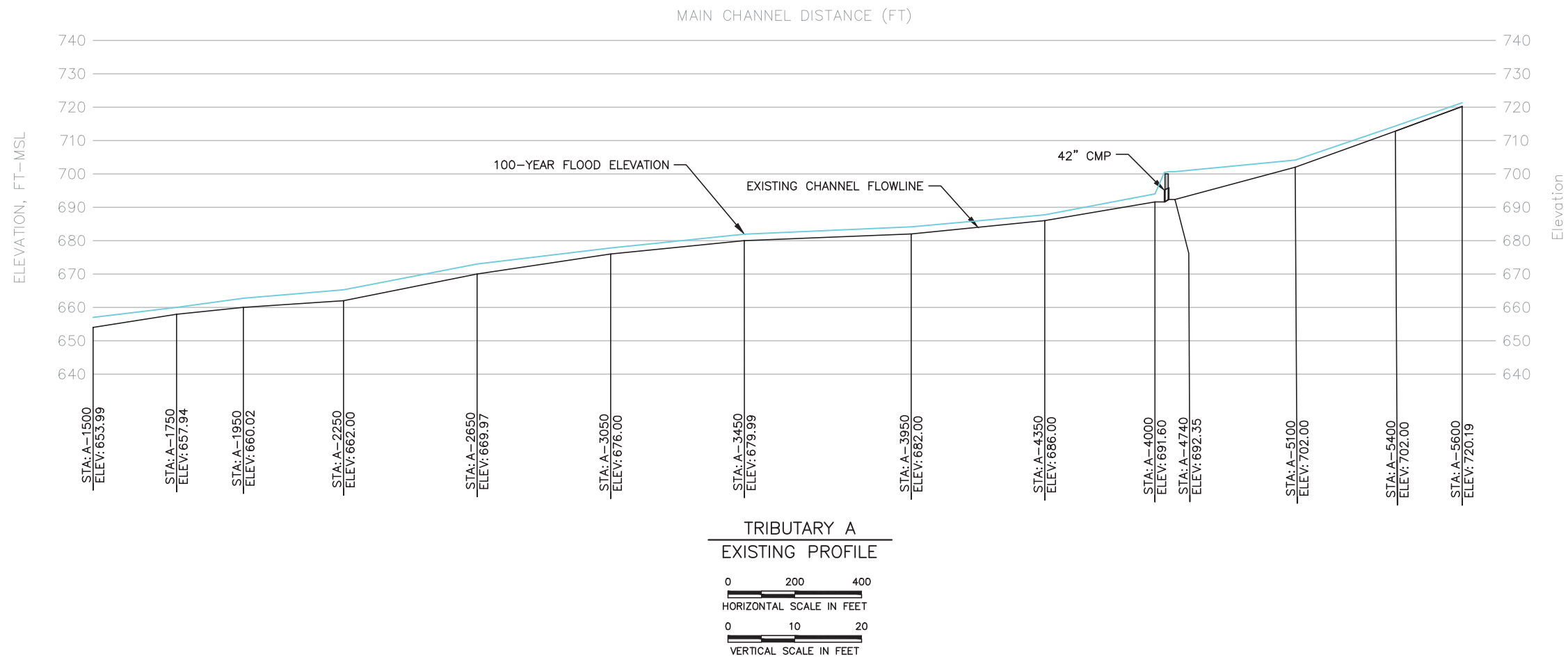
	PERMIT BOUNDARY
	PERMITTED LIMITS OF WASTE
	PROPOSED LIMITS OF WASTE
	EXISTING CONTOUR (SEE NOTE 1)
	PROPOSED FINAL COVER CONTOUR
	A-4350 HEC-RAS CROSS SECTION AND 100-YEAR FLOODPLAIN ELEVATION (687.71 FT)
	REACH FLOWLINE
	DRAINAGE SWALE
	ZONE A 100-YEAR FLOODPLAIN (SEE NOTE 2)
	FORMER STREAM LOCATION
	POST-PROJECT 100-YEAR FLOODPLAIN
	EXISTING CULVERT
	PROPOSED CULVERT



- NOTES:**
- COMPOSITE TOPOGRAPHY PROVIDED BY AERIAL PHOTOGRAPHY BY FIRMATEK FLOWN ON 01-08-2021, BY DALLAS AERIAL SURVEYS FLOWN ON 02-25-2017, AND NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS TOPOGRAPHY TAKEN IN 2007.
 - ZONE A 100-YEAR FLOODPLAIN REPRODUCED FROM FEMA FIRM PANELS 48251C0350J. POST-PROJECT FLOODPLAIN DELINEATED FROM HEC-RAS MODELING BASED ON PEAK FLOWS ESTIMATED FROM HEC-1.
 - STREAM B FLOWS NORTH EASTERLY APPROXIMATELY 0.71 MILES FROM THE LANDFILL PERMIT BOUNDARY BEFORE IT DISCHARGES TO TURKEY CREEK (SEE FIGURE A.8).

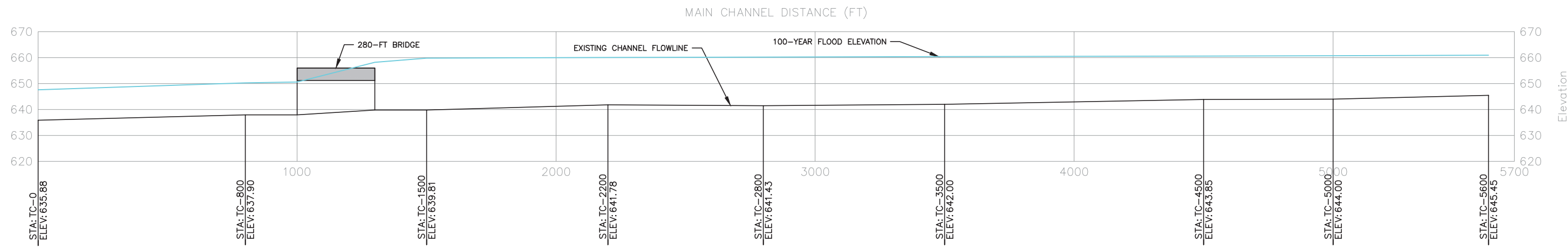
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<input type="checkbox"/> ISSUED FOR CONSTRUCTION																	
DATE: 02/2022	DRAWN BY: BPY	<table border="1"> <thead> <tr> <th colspan="3">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>06/2022</td> <td>UPDATED TOPOGRAPHIC INFORMATION.</td> </tr> <tr> <td>2</td> <td>10/2022</td> <td>UPDATED SECTION NUMBERS/ELEVATIONS</td> </tr> <tr> <td>3</td> <td>05/2023</td> <td>FEMA COMMENT RESPONSE</td> </tr> </tbody> </table>	REVISIONS			NO.	DATE	DESCRIPTION	1	06/2022	UPDATED TOPOGRAPHIC INFORMATION.	2	10/2022	UPDATED SECTION NUMBERS/ELEVATIONS	3	05/2023	FEMA COMMENT RESPONSE
REVISIONS																	
NO.	DATE		DESCRIPTION														
1	06/2022	UPDATED TOPOGRAPHIC INFORMATION.															
2	10/2022	UPDATED SECTION NUMBERS/ELEVATIONS															
3	05/2023	FEMA COMMENT RESPONSE															
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CAD: A.5-POST-PROJECT CONDITION.DWG	REVIEWED BY: CRM																
Weaver Consultants Group TBPE REGISTRATION NO. F-3727																	

CLOMR REQUEST
POST-PROJECT CONDITION MAP
 TURKEY CREEK LANDFILL
 JOHNSON COUNTY, TEXAS
 WWW.WCGRP.COM **FIGURE A.5**

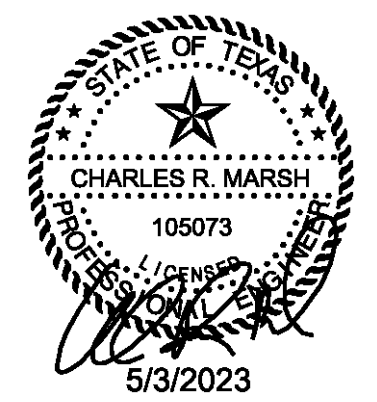
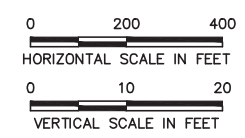


<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR TEXAS REGIONAL LANDFILL COMPANY, LP		CLOMR REQUEST EXISTING CONDITION PROFILE TRIBUTARY A AND B	
	DATE: 02/2022 FILE: 0771-368-11 CAD: A-6-EFFECTIVE PROFILE.DWG		DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM	
REVISIONS		TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS		
NO. DATE DESCRIPTION		WWW.WCGRP.COM FIGURE A.6		
1 05/2023 FEMA COMMENT RESPONSE				
Weaver Consultants Group TBPE REGISTRATION NO. F-3727				

IIIF-G-A-32



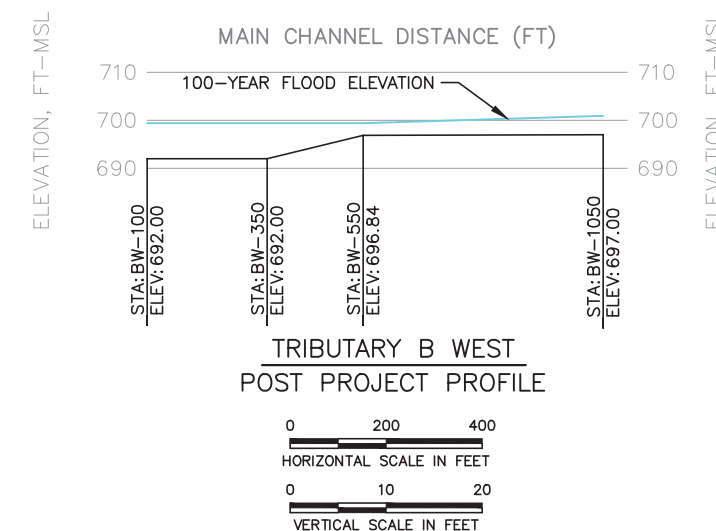
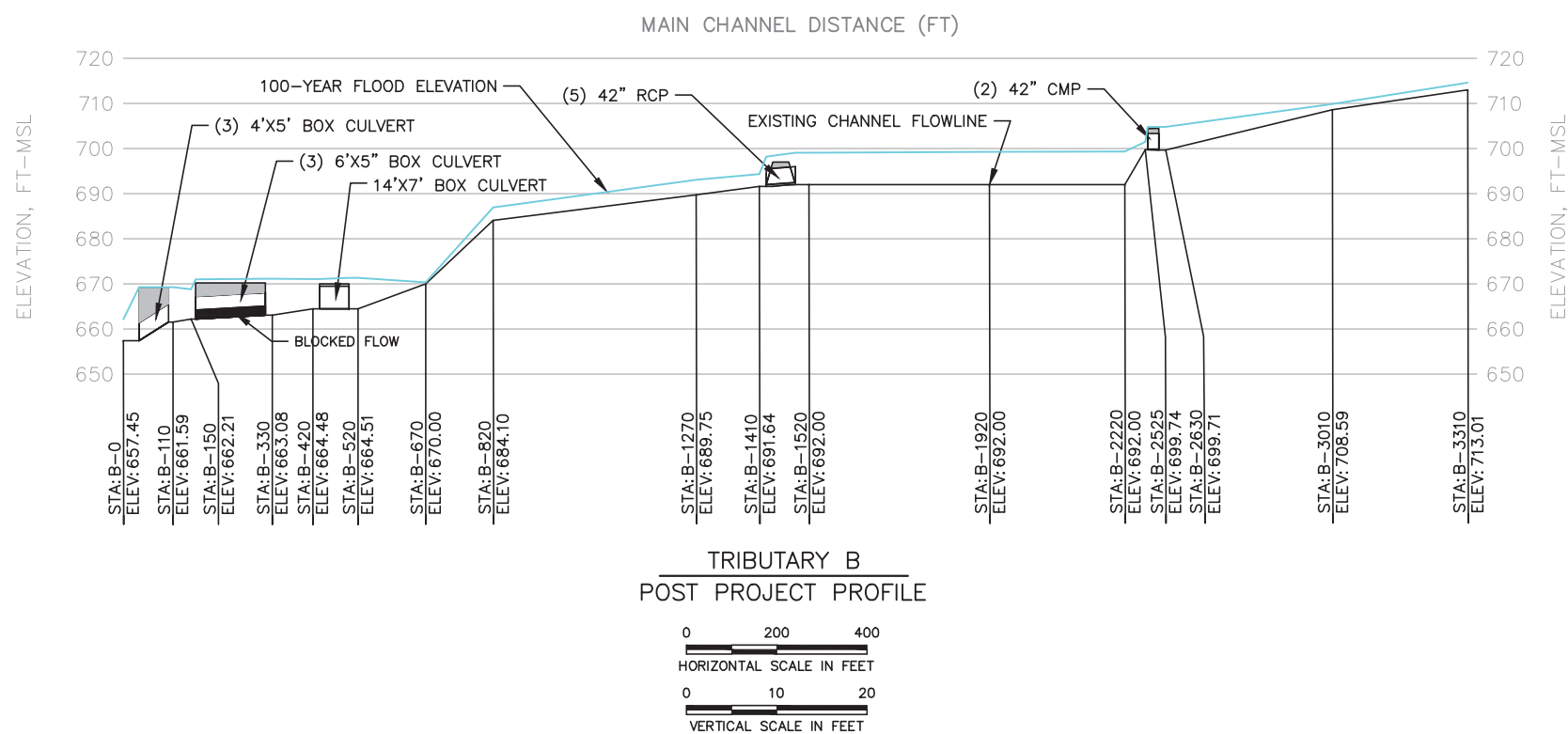
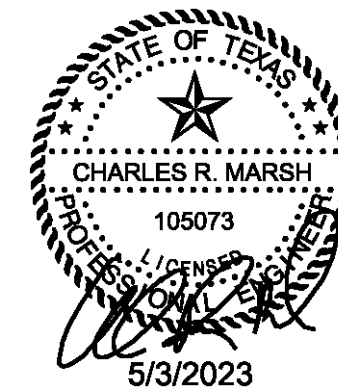
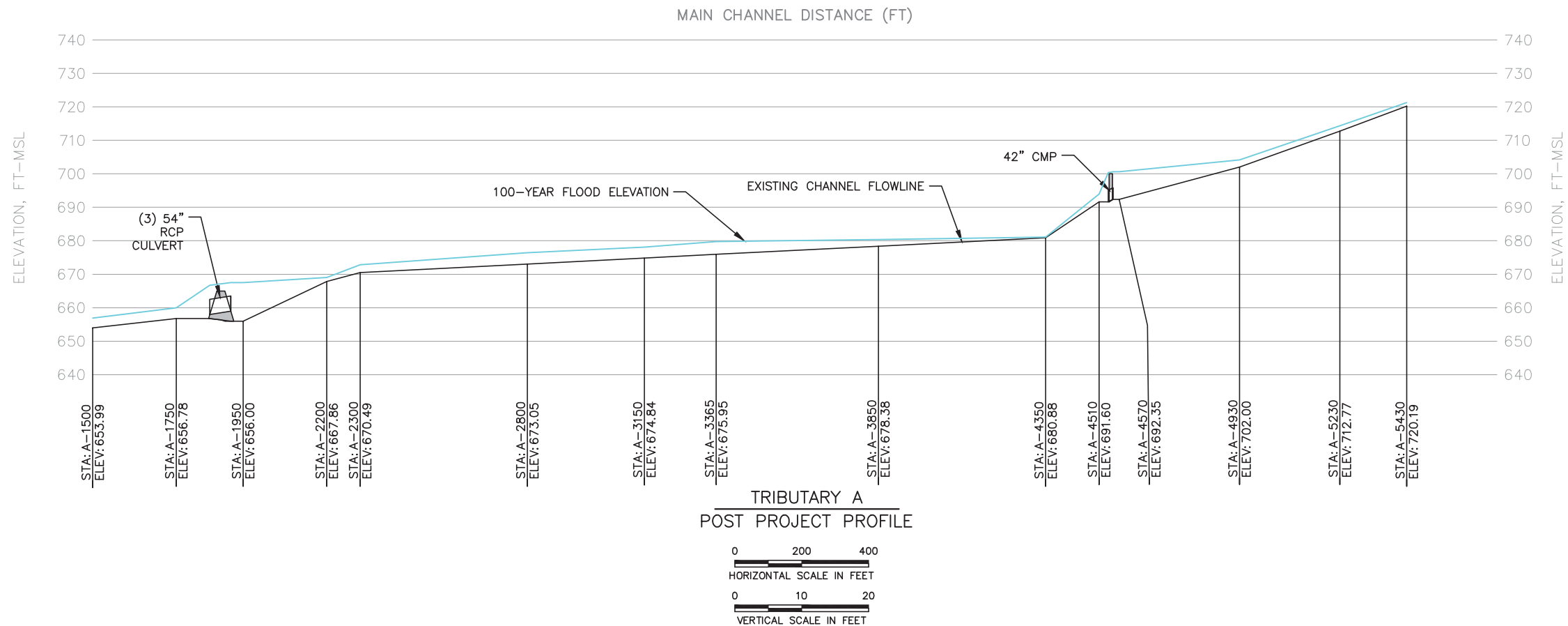
TURKEY CREEK
EXISTING PROFILE



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		CLOMR REQUEST EXISTING CONDITION PROFILE TURKEY CREEK TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS	
	TEXAS REGIONAL LANDFILL COMPANY, LP			
DATE: 06/2022 FILE: 0771-368-11 CAD: A.7-EFFECTIVE PROFILE.DWG	DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM	REVISIONS		
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		2	05/2023	FEMA COMMENT RESPONSE
Weaver Consultants Group TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM		FIGURE A.7

III-F-G-A-33

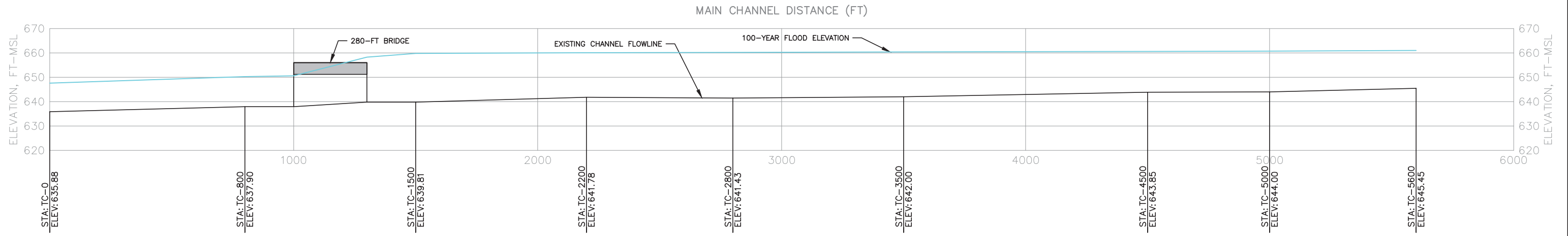
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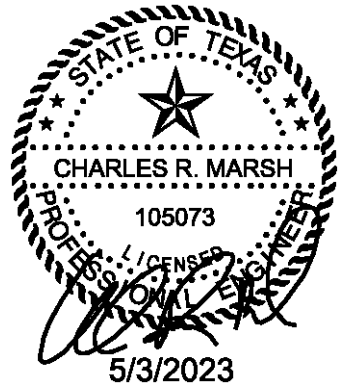
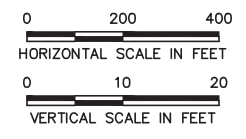
<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		TEXAS REGIONAL LANDFILL COMPANY, LP CLOMR REQUEST POST-PROJECT CONDITION PROFILE STREAMS A, B, AND B WEST TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS						
	DATE: 02/2022 FILE: 0771-368-11 CAD: A.8-POST-PROJECT PROFILE.DWG			DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM					
WEAVER CONSULTANTS GROUP TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>05/2023</td> <td>FEMA COMMENT RESPONSE</td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION	1	05/2023	FEMA COMMENT RESPONSE	WWW.WCGRP.COM FIGURE A.8
NO.	DATE	DESCRIPTION							
1	05/2023	FEMA COMMENT RESPONSE							

IIIF-G-A-34

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TURKEY CREEK
POST PROJECT PROFILE



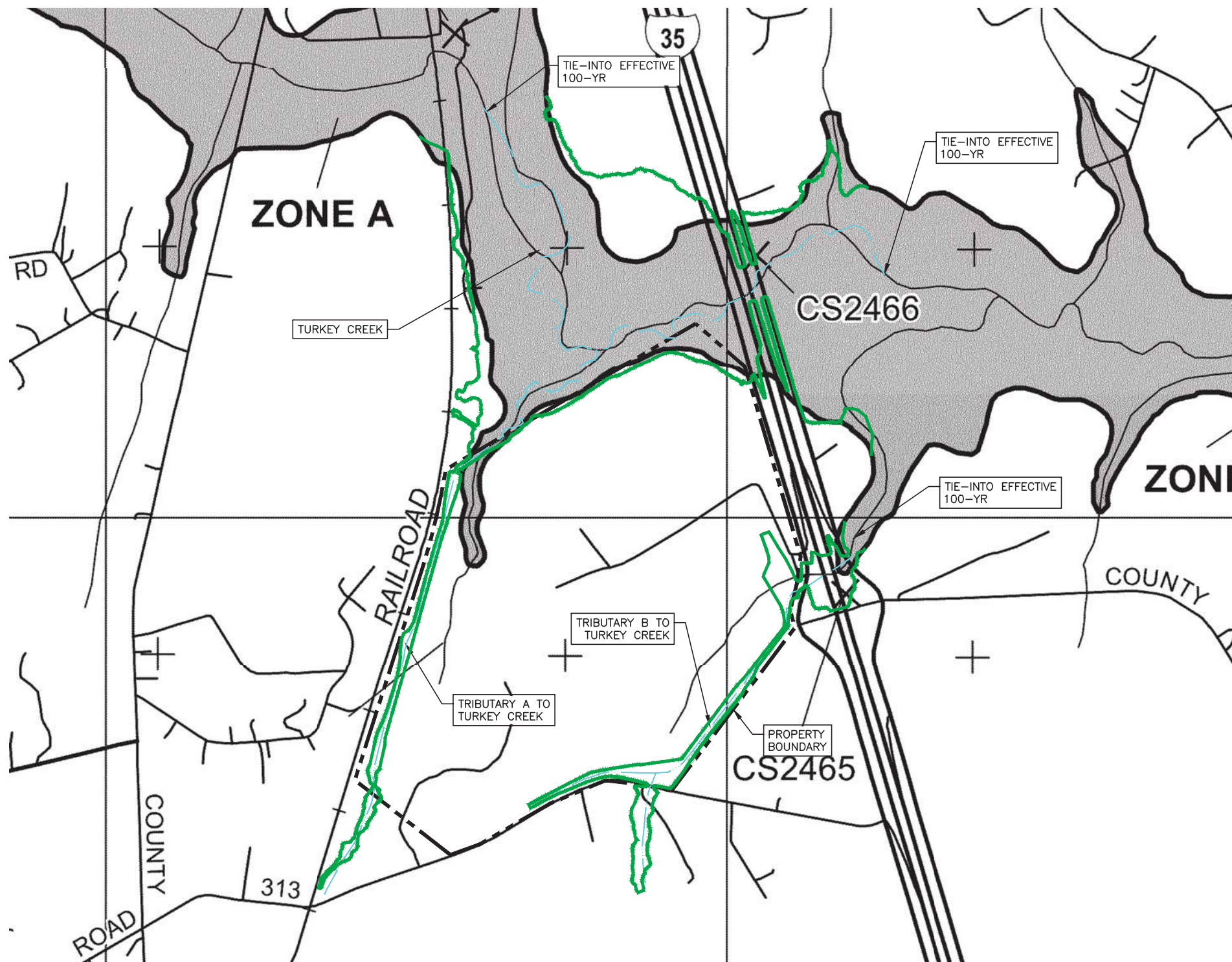
<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		CLOMR REQUEST POST-PROJECT CONDITION PROFILE TURKEY CREEK TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS	
	TEXAS REGIONAL LANDFILL COMPANY, LP			
DATE: 06/2022 FILE: 0771-368-11 CAD: A.9-POST-PROJECT PROFILE.DWG	DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM	REVISIONS		
		NO.	DATE	DESCRIPTION
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		2	05/2023	FEMA COMMENT RESPONSE
Weaver Consultants Group TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM		FIGURE A.9

III-F-G-A-35

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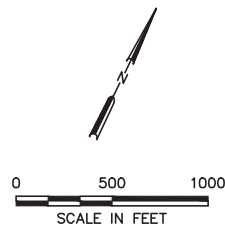
LEGEND

- SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
The 1% annual chance flood (100-year flood), also known as the "base flood," is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.
 - ZONE A** No Base Flood Elevations determined.
 - ZONE AE** Base Flood Elevations determined.
 - ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
 - ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
 - ZONE AR** Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
 - ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
 - ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevation determined.
 - ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
 - FLOODWAY AREAS IN ZONE AE
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
 - OTHER FLOOD AREAS
 - ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
 - OTHER AREAS
 - ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
 - ZONE D** Areas in which flood hazards are undetermined, but possible.
 - COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS
 - OTHERWISE PROTECTED AREAS (OPAs)
- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% Annual Chance Floodplain Boundary
 - 0.2% Annual Chance Floodplain Boundary
 - Floodway boundary
 - Zone D boundary
 - CBRS and OPA boundary
 - Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevation flood depths, or flood velocities.
 - Base Flood Elevation line and value; elevation in feet* (EL 987)
 - Base Flood Elevation value where uniform within zone; elevation in feet*
- *Referenced to the North American Vertical Datum of 1988
- Cross section line
 - Transect line
 - 45° 02' 08", 93° 02' 12" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
 - 3100000 FT 5000-foot ticks: Texas State Plane North Central Zone (FIPS Zone 4202), Lambert Conformal Conic projection
 - 49890000 N 1000-meter Universal Transverse Mercator grid values, zone 14
 - DX5510 X Bench mark (see explanation in Notes to Users section of this FIRM panel)
 - * M1.5 River Mile
 - PROPERTY BOUNDARY
 - REVISED STREAMLINE
 - POST-PROJECT 100-YEAR FLOODPLAIN



NOTES:

1. REPRODUCED FROM FEMA FIRM NUMBERS 4808810350J AND 4808790350J FOR CITY OF GRANDVIEW, AND JOHNSON COUNTY, UNINCORPORATED AREAS, EFFECTIVE DECEMBER 4TH, 2010.



IIIF-G-A-36

<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR TEXAS REGIONAL LANDFILL COMPANY, LP	CLOMR REQUEST REVISED FLOOD INSURANCE RATE MAP (FIRM) TURKEY CREEK LANDFILL JOHNSON COUNTY, TEXAS									
DATE: 02/2022 FILE: 0771-368-11 CAD: A.10-FIRM.DWG	DRAWN BY: BPY DESIGN BY: BPY REVIEWED BY: CRM	REVISIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>06/2022</td> <td>UPDATED FLOODPLAIN</td> </tr> <tr> <td>2</td> <td>05/2023</td> <td>FEMA COMMENT RESPONSE</td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION	1	06/2022	UPDATED FLOODPLAIN	2	05/2023	FEMA COMMENT RESPONSE
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2	05/2023	FEMA COMMENT RESPONSE									
Weaver Consultants Group TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM FIGURE A.10									

APPENDIX B
FEMA CERTIFICATION FORMS

APPENDIX B.1

FORM 1 – OVERVIEW AND CONCURRENCE FORM

U.S. DEPARTMENT OF HOMELAND SECURITY
 FEDERAL EMERGENCY MANAGEMENT AGENCY
OVERVIEW & CONCURRENCE FORM

*O.M.B No. 1660-0016
 Expires February 28, 2014*

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

- CLOMR: A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).
- LOMR: A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72)

B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Example: 480301 480287	City of Katy Harris County	TX TX	48473C 48201C	0005D 0220G	02/08/83 09/28/90
480879	Johnson County, Unincorporated Areas	TX	48251C	0350J	12/04/12

2. a. Flooding Source: Turkey Creek Tributaries

- b. Types of Flooding: Riverine Coastal Shallow Flooding (e.g., Zones AO and AH)
 Alluvial fan Lakes Other (Attach Description)

3. Project Name/Identifier: Turkey Creek Landfill

4. FEMA zone designations affected: A (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

- Physical Change Improved Methodology/Data Regulatory Floodway Revision Base Map Changes
 Coastal Analysis Hydraulic Analysis Hydrologic Analysis Corrections
 Weir-Dam Changes Levee Certification Alluvial Fan Analysis Natural Changes
 New Topographic Data Other (Attach Description)

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

VOLUME 4 OF 6

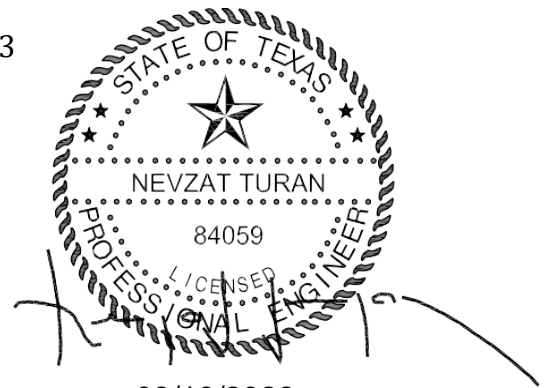
Prepared for

Texas Regional Landfill Company, LP

February 2022

Revised November 2022

Revised August 2023



Prepared by

08/10/2023

Weaver Consultants Group, LLC
TBPE Registration No. F-3727
6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0771-368-11-123

This document is intended for permitting purposes only.

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

**PART III – SITE DEVELOPMENT PLAN
APPENDIX IIIH
GROUNDWATER SAMPLING AND ANALYSIS PLAN**

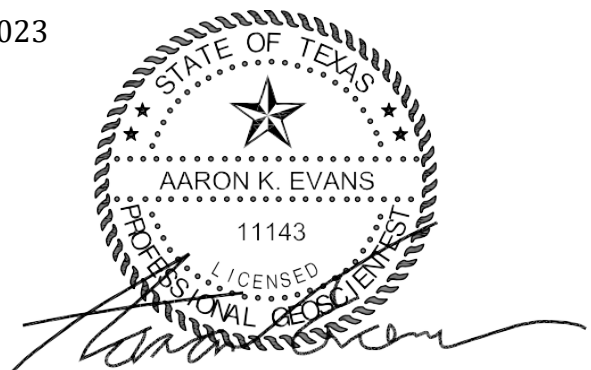
Prepared for

Texas Regional Landfill Company, LP

February 2022

Revised November 2022

Revised August 2023



Prepared by

08/10/2023

Weaver Consultants Group, LLC
TBPE Registration No. F-3727
6420 Southwest Blvd., Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0771-368-11-123

wells installations (MW-36, MW-28, MW-39, MW-42, MW-43, and MW-44) are estimated from the existing subsurface and topographic data. These data are summarized in Figure IIIH-A-2 (Groundwater Monitoring Well Details). Typical groundwater monitoring well specifications are depicted in Figure IIIH-A-3. Review of monitoring well installation records indicate that the facility's existing monitoring wells, and the existing piezometers scheduled for future conversion to monitoring wells, are constructed in accordance with the requirements of Title 30 TAC §330.421.

All parts of the groundwater monitoring system will be operated and maintained so that they perform to design specifications throughout the life of the monitoring program. Any monitoring well that is damaged to the extent that it is no longer suitable for sampling will be reported to the TCEQ who may make a determination about whether to repair or replace the well. Well plugging and abandonment will be performed by a Texas-licensed monitoring well driller in accordance with TCEQ and any other applicable regulatory requirements. No monitoring well will be plugged and abandoned without prior written authorization from TCEQ. Any new or replacement monitoring well installation will be performed in accordance with Title 30 TAC §330.421 by a Texas-licensed monitoring well driller. Monitoring well construction will provide for the maintenance of the integrity of the borehole, collection of representative groundwater samples from the uppermost aquifer, and prevention of migration of groundwater and surface water within the borehole in accordance with Title 30 TAC §330.421(a).

Future monitoring wells will be installed with the diameter of the boring that is at least four inches larger than the diameter of the casing. When the boring is in hard rock, a smaller annulus may be approved by TCEQ. A log of the boring will be made by or under the supervision of a licensed professional geoscientist or engineer who is familiar with the geology of the area, and will be sealed, signed, and dated by the licensed professional.

The screened section of monitoring wells will be compatible with the casing (both will generally be of the same material). The screen will not involve the use of any glues or solvents for construction. A wire-wound screen is recommended to provide maximum inflow. Field-cut slots are not permitted for well screen. Filter cloth will not be used. A blank-pipe sediment trap, typically one to two feet, will be installed below the screen. A bottom cap is typically placed on the bottom of the sediment trap. The sediment trap will not extend through the lower confining layer of the water-bearing zone being sampled. Screen sterilization methods will be the same as those for casing. Selection of the size of the screen opening will be done by a person experienced with such work and will include consideration of the distribution of particle sizes both in the water-bearing zone and in the filter pack surrounding the screen. The screen opening will not be larger than the smallest fraction of the filter pack.

Where monitoring wells are installed in unusual conditions, all aspects of the installation will be approved in writing in advance by TCEQ. Such aspects include, for example, the use of cellar-type enclosures for the top-well equipment or multiple completions in a single hole.

Monitoring well installation and construction details will be submitted on forms available from the TCEQ and will be completed and submitted within 60 days of well completion. A copy of the detailed geologic log of the boring, a description of development procedures, any particle size or other sample data from the well, and a site map drawn to scale showing the location of all monitoring wells and the point of compliance will be submitted to the executive director at the same time. The licensed driller will be familiar with the forms required by other agencies; a copy of those forms must also be submitted to TCEQ.

2.3 Groundwater Monitoring Program

Facility detection monitoring wells will be sampled semi-annually for the detection monitoring parameters listed in 40 Code of Federal Regulations (CFR), Part 258, Appendix I, which are also listed in Table 5-1 in Section 5.1. Details regarding groundwater sampling, analyses, and statistical comparison procedures are discussed in the following sections of Appendix IIIH.

In accordance with Title 30 TAC §403(e)(3), Texas Regional Landfill Company, LP will promptly notify the executive director, and any local pollution agency with jurisdiction that has requested to be notified, in writing of changes in facility construction or operation or changes in adjacent property that affect or are likely to affect the direction and rate of groundwater flow and the potential for detecting groundwater contamination and that may require the installation of additional monitoring wells or sampling points. Such additional wells or sampling points require a modification of the site development plan which will be requested in accordance with Title 30 TAC §305.70(j).

constituents if the landfill demonstrates that the constituents are not reasonably expected to be in or derived from the waste contained in the unit.

If the concentrations of all 40 CFR Part 258, Appendix II constituents are shown to be at or below background values, using the statistical procedures in §330.405(f), for two consecutive sampling events, the owner or operator will notify the Executive Director in writing and return to detection monitoring if approved.

If the concentrations of any 40 CFR Part 258, Appendix II constituents are above background values, but all concentrations are below the groundwater protection standard established under subsection (h) or (i) of §330.409, using the statistical procedures in §330.405(f) of this title, the owner or operator shall continue assessment monitoring in accordance with §330.409.

Not later than 60 days after each sampling event, Texas Regional Landfill Company, LP (TRL) will determine whether any 40 CFR Part 258, Appendix II constituents were detected at statistically significant levels above the groundwater protection standard established under subsection (h) or (i) of §330.409 in any sampling event. If the groundwater protection standard has been exceeded, TRL will notify the executive director and appropriate local government officials in writing within seven days of this determination.

TRL will also:

- characterize the nature and extent of the release by installing additional monitoring wells as necessary;
- install at least one additional monitoring well between the monitoring well with the statistically significant level and the next adjacent wells along the point of compliance before the next sampling event and sample these wells in accordance with subsection (d)(1) of §330.409;
- notify in writing all persons that own or occupy the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site as indicated by sampling of wells in accordance with §330.409(d)(1); and
- initiate an assessment of corrective measures as required by §330.411 within 90 days of the notice to TCEQ.

TRL may demonstrate that a source other than the landfill caused the contamination or that the statistically significant level resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. In making a demonstration under §330.409(g)(2), the TRL will:

- notify the executive director in writing within 14 days of determining a statistically significant level above the groundwater protection standard at the point of compliance that the TRLC intends to make a demonstration under this paragraph;
- within 90 days of determining a statistically significant level above the groundwater protection standard, submit a report to TCEQ that demonstrates that a source other than the landfill caused the contamination or that the statistically significant level resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The report will be prepared and certified by a qualified groundwater scientist;
- not filter the groundwater samples for constituents addressed by the demonstration prior to laboratory analysis. TCEQ may also require TRLC to provide analysis of landfill leachate to support the demonstration; and
- continue to monitor in accordance with the assessment monitoring program established under §330.409.

If a successful demonstration is made, the TRLC will continue monitoring in accordance with the assessment monitoring program required by §330.409 and may return to detection monitoring if the 40 CFR Part 258, Appendix II constituents are at or below background as specified in subsection (e) of §330.409. Until a successful demonstration is made, TRLC will comply with paragraph §330.409(g)(1), including initiating an assessment of corrective measures.

If the TRLC determines that the assessment monitoring program no longer satisfies the requirements of §330.409, the TRLC must, within 90 days, submit an application for a permit amendment or modification to make any appropriate changes to the monitoring program.

The TRLC will establish a groundwater protection standard for each 40 CFR Part 258, Appendix II constituent detected in the point of compliance monitoring wells. The groundwater protection standard will be:

- for constituents for which a maximum contaminant level (MCL) has been promulgated under 40 CFR Part 141, Safe Drinking Water Act (codified), §1412, the MCL for that constituent;
- for constituents for which MCLs have not been promulgated, the background concentration for the constituent established from wells in accordance with §330.405(d); or

- for constituents for which the background level is higher than the MCL identified under paragraph (1) of §330.409 or health-based levels identified under §330.409(i), the background concentration.

TCEQ may establish an alternative groundwater protection standard for 40 CFR Part 258, Appendix II constituents for which MCLs have not been established. These groundwater protection standards will be appropriate health-based levels that satisfy either the criteria of §330.409(i)(1) - (4), inclusive or comply with §330.409(i)(5).

The TRLC will submit an annual assessment monitoring report within 60 days after the facility's second semiannual groundwater sampling event that includes the following information determined since the previously submitted report:

- a statement whether a statistically significant level above a groundwater protection standard established in subsection (h) or (i) of §330.409 has occurred in any well during the previous calendar year period and the status of any statistically significant level events.

6.4 Corrective Action Monitoring

Detection of assessment monitoring constituents at statistically significant levels, as defined in Title 30 TAC §330.409, could result in corrective action monitoring. Groundwater monitoring for the purpose of corrective action assessment and remediation will be conducted in accordance with Title 30 TAC §330.411 through §330.415, and in consultation with TCEQ. At a minimum, the assessment will address the following:

- a characterization of the contaminated groundwater, including concentrations of assessment constituents as defined in 30 TAC §330.409;
- the concentration limit for each constituent found in the groundwater;
- detailed plans and an engineering report describing the corrective action to be taken;
- a description of how the groundwater monitoring program will demonstrate the adequacy of the corrective action; and
- a schedule for submittal of the above information provided the owner or operator obtains written authorization from the executive director prior to submittal of the complete permit application.

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

VOLUME 6 OF 6

Prepared for

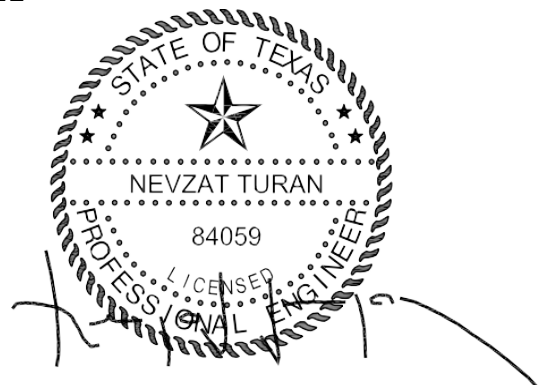
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February 2022

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This document is intended for permitting purposes only.

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

PART IV – SITE OPERATING PLAN

Prepared for

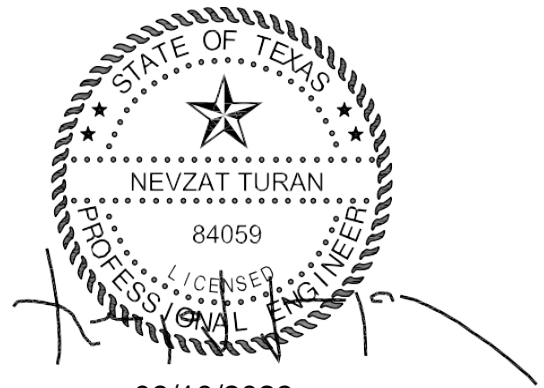
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4.21 Prevention of Discharge of Contaminated Water

The Landfill Manager will implement necessary steps to control and prevent the discharge of contaminated water from the facility. No discharge of contaminated water will occur without obtaining specific written authorization from the TCEQ prior to the discharge. All water contacting waste or contaminated soils will be treated as contaminated water. Runon and runoff for the 25-year, 24-hour storm event will be controlled following the procedures set forth in the Groundwater and Surface Water Protection Plan and the Leachate and Contaminated Water Management Plan. The landfill will be operated consistent with Title 30 TAC §330.15(h) regarding discharge of solid wastes or pollutants into waters of the United States.

4.22 Leachate and Contaminated Water Management Plan

Leachate and contaminated water will be controlled at the Turkey Creek Landfill as specified in the Leachate and Contaminated Water Management Plan. Consistent with Title 30 TAC §330.177, recirculation of leachate or gas condensate generated at the site will only occur over the areas underlain by a Subtitle D liner system (i.e., composite liner system with a leachate collection system). Leachate will be recirculated from a water truck or other comparable equipment using a spray bar or hose to distribute leachate back to the working face (i.e., within the active waste fill area that is contained by the containment berm).

The following performance standards will govern the application rate of leachate recirculation.

- The rate of leachate recirculation will not exceed the moisture holding capacity of the landfill. For example, the application rate will be applied so that no seeps or ponding is observed in the vicinity of the recirculation area. In addition, leachate recirculation over a specific phase will cease if the leachate flow rate to a sump approaches the capacity of the pump within the sump. If this occurs, recirculation activities will move to another phase.
- Leachate recirculation will not occur immediately before, during, or immediately after rainfall events, or during freezing temperatures that could affect the holding-capacity of the waste.
- Leachate recirculation will not occur during high wind events.

The Class 1 or MSW leachate generated from the landfill will be recirculated to the landfill working face, and excess quantities of leachate will be directed to the leachate storage facilities where it will be transported to the liquid waste bulking facility using a tanker truck or other compatible equipment, an onsite mobile leachate evaporator, a properly permitted privately-owned off-site facility, or a POTW for treatment using third party trucks. Per Title 30 TAC §330.991(a)(7) leachate recirculation will not exceed 100,000 gallons per day. Offsite leachate will be transported to the Turkey Creek Landfill and will be placed in the evaporator feeder tanks located within secondary containment. Leachate generated from offsite sources will not be recirculated or placed in the site's leachate storage tanks (refer to Appendix IIIC – Leachate and Contaminated Water Management Plan, Section 5.1).

- Results from gas monitoring events and any remediation plans relating to explosive and other gases
- Unit design documentation for the placement of leachate or gas condensate in the landfill
- Remediation plans for explosive and other gases, if applicable
- All inspection logs and reports and all demonstrations, certifications, findings, monitoring, testing, and analytical data relating to groundwater monitoring and corrective action
- Closure plans and monitoring, testing, or analytical data relating to closure requirements
- Postclosure care plans and monitoring, testing, or analytical data relating to postclosure requirements
- Cost estimates and financial assurance documentation relating to financial assurance for closure and postclosure care
- Copies of all correspondence and responses relating to the operation of the facility, modifications to the permit, approvals, and other matters pertaining to technical assistance
- Any and all documents, manifests, scale tickets, generator waste profile sheets, etc., involving special waste
- Documentation for the operations of the portable leachate evaporator. The documentation will include but not be limited to the location of the evaporator, the amount of liquid evaporated, sources of liquid including amount of liquid accepted from the area TRLC landfills, the amount of sludge, generated, and documentation that the solidified sludge is disposed of at the Class 1 cell.
- RACM Acceptance Records
- Class 1 non-hazardous industrial waste profile and acceptance records
- A record of each unauthorized material removal event
- Annual waste acceptance rate documentation including Quarterly and Annual Solid Waste Summary Reports. Waste reports will be prepared and submitted in accordance with the site-applicable requirements of Title 30 TAC §330.675.
- A record of alternate operations hours
- Access control breach and repair notices
- Other documents as specified by the approved permit or by the executive director of the TCEQ

The Landfill Manager will retain all information contained within the Site Operating Record and all plans required for the facility for the life of the facility including the postclosure care period. The above listed items will be incorporated into the Site Operating Record within seven working days of the completion of the item/record or receipts of the analytical data. Physical space limitations may warrant the offsite storage of non-electronic (paper) records older than five years at a nearby records storage facility or corporate office.

**TURKEY CREEK LANDFILL
JOHNSON COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1417D**

MAJOR PERMIT AMENDMENT APPLICATION

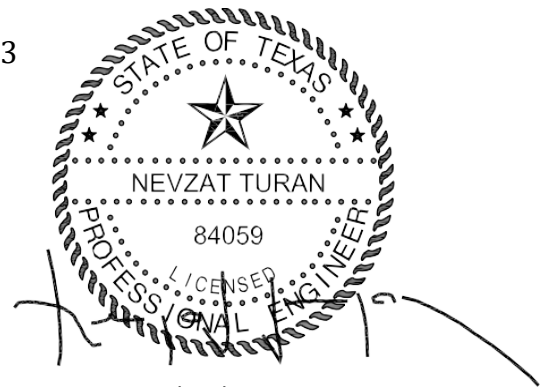
**PART IV – SITE OPERATING PLAN
APPENDIX IVC
SPECIAL WASTE ACCEPTANCE PLAN**

Prepared for

Texas Regional Landfill Company, LP

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08/10/2023

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1 INTRODUCTION

1.1 Objectives of Special Waste Acceptance Plan

This Special Waste Acceptance Plan (SWAP) outlines the acceptance criteria and the review and approval process that will be used to accept certain "special waste" as defined by the Texas Commission on Environmental Quality (TCEQ) for disposal at the Turkey Creek Landfill (MSW Permit No. 1417C). The Turkey Creek Landfill (TCLF) is owned and operated by Texas Regional Landfill Company, LP (TRLC). TRLC is subject to the site operating in compliance with §330.173 per TCEQ issued permit. This SWAP defines the procedures to be followed in determining whether the landfill may accept a waste for disposal, and it outlines the procedures for identifying and preventing the disposal of unacceptable wastes which are delivered to the facility.

The objectives of the SWAP are as follows.

- Verify that the waste is not a regulated hazardous waste.
- Verify that the waste meets permit criteria for acceptance at the landfill.
- Verify that the waste meets facility criteria for acceptance at the landfill.
- Establish the necessary conditions to ensure the safe and environmentally sound management (handling, storage, processing and disposal) of the waste.

1.2 Special Wastes Regulations

The TCEQ's solid waste regulations define a special waste as a "solid waste or combination of solid wastes that because of its quantity, concentration, physical or chemical characteristics, or biological properties requires handling and disposal to protect the human health or the environment" (refer to Title 30 TAC §330.3(148)). Although the regulations identify specific waste streams as special wastes, the rules also include the above catch-all provision. This broad definition of special waste covers many wastes that are routinely disposed at Municipal Solid Waste Landfill Facilities (MSWLFs).

The TCEQ rules specifically provide that the receipt of certain types of special waste does not require waste-specific or site-specific written approval of the Executive Director if handled in accordance with the noted provisions for each waste (e.g., Title 30 TAC §330.171(c) and (d) and §330.173(e) and (i) – (j) of the rules). By way

production of oil or gas or geothermal resources regulated by the Railroad Commission of Texas under Section 91.101, Natural Resources Code.

Class 1 Industrial Solid Waste:

An industrial solid waste is a Class 1 waste if:

- it contains specific constituents which equal or exceed the levels listed in Title 30 TAC §335.521(a)(1) (relating to Appendix I, Table 1) as determined by the methods outlined in Title 30 TAC §335.505(1) (relating to Class 1 Waste Determination);
- it is Class 1 ignitable as determined by the methods outlined in §335.505(2) (relating to Class 1 Waste Determination);
- it is Class 1 corrosive as determined by the methods outlined in §335.505(3) (relating to Class 1 Waste Determination);
- it contains total recoverable cyanides equal to or greater than 20 parts per million;
- there is an absence of analytical data and/or documented process knowledge (as described in §335.511 (relating to Use of Process Knowledge)) which proves a waste is Class 2 or Class 3;
- it is identified as a Class 1 waste in §335.508 (relating to Classification of Specific Industrial Solid Wastes); or
- it is not a hazardous waste pursuant to §335.504 (relating to Hazardous Waste Determination) and a generator chooses to classify the waste as Class 1 waste.

All shipments of Class 1 non-hazardous waste will be accompanied by a manifest. A qualified designated TCLF representative will sign the manifest for any authorized shipments of Class 1 waste. TCLF will not accept or sign for shipments of Class 1 waste which authorized by the TCEQ permit. TCLF will retain a copy of the manifest for a period of three years. This time period is automatically extended if any enforcement action involving the Turkey Creek landfill is initiated or pending by TCEQ.

The TRLC will submit to the TCEQ a written report of Class 1 waste received. This report will be submitted no later than the 25th day of the month following the month in which the waste was received. Reports will be submitted consistent with §30.173(h). Monthly reports will be submitted for each month, including the months in which no Class 1 waste is received.

Class 2 Industrial Solid Waste:

An industrial solid waste is a Class 2 waste if:

- it is not a hazardous waste pursuant to Title 30 TAC §335.504 (relating to Hazardous Waste Determination);
- it is not a Class 1 waste pursuant to Title 30 §335.505 (relating to Class 1 Waste Determination); and
- it is not a Class 3 waste because:
 - it cannot qualify as a Class 3 waste pursuant to Title 30 TAC §335.507 (relating to Class 3 Waste Determination); or
 - a generator chooses not to classify the waste as a Class 3 waste.

Any waste designated as a Class 2 waste under Title 30 TAC §335.508 (relating to Classification of Specific industrial Solid Wastes) is a Class 2 waste.

Class 3 Industrial Solid Waste:

An industrial solid waste is a Class 3 waste if:

- it is not a hazardous waste pursuant to Title 30 TAC §335.504 of this title (relating to Hazardous Waste Determination);
- it does not meet any of the Class 1 waste criteria set forth in Title 30 TAC §335.505 of this title (relating to Class 1 Waste Determination);
- it is inert; and
- it is essentially insoluble.

Class 3 wastes include, but are not limited to, materials such as rock, brick, glass, dirt, and certain plastics and rubber which are not readily decomposable.

The TRLC will complete the following waste analysis activities for commercial industrial nonhazardous wastes:

- Before treating, storing, or disposing of any waste, the landfill will obtain a chemical and physical analysis of a representative sample of the waste. At a minimum, the analysis will contain all the information in accordance with §335.587.
 - A waste generator's records of analyses performed on the waste or studies conducted on waste generated from processes similar to that which generated the waste to be managed at the facility, may be included in the data base required to comply with §335.587(a)(1)(A).
 - Arranging for the generator of the waste to supply the information required by §335.587(a)(1)(B). If the generator does not supply the information, and the landfill chooses to accept a waste, the landfill is responsible for obtaining the information required to comply with §335.587.
- The analysis may include data developed under §335 Subchapter R (relating to Waste Classification), and existing published or documented data on a waste or on such waste generated from similar processes.
- The analysis will be repeated as necessary to ensure that it is accurate and up-to-date. At a minimum, the analysis will be repeated:
 - when the facility is notified, or has reason to believe, that the process or operation generating the waste has changed; and
 - when the results of the inspection required in §335.587(a)(4) indicate that the waste received at the facility does not match the waste designated on the accompanying manifest or shipping paper.

- The TRLC will inspect and, if necessary, analyze each waste received at the TCLF to determine whether it matches the identity of the waste specified on the accompanying manifest or shipping paper.

The TRLC will develop and follow this written waste analysis plan which describes the procedures to comply with §335.587(a). The TRLC will keep this plan at the facility.

Leachate

A liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.

Municipal Solid Waste Landfill Facility (MSWLF) Unit

A discrete area of land or an excavation that receives household waste and that is not a land application unit, surface impoundment, injection well, or waste pile under 40 CFR §257.2. A MSWLF unit also may receive other types of RCRA Subtitle D wastes, such as commercial solid waste, non-hazardous sludge, conditionally-exempt, small-quantity generator waste, and industrial solid waste. A MSWLF unit may be a new unit, an existing unit, or a lateral expansion of a unit.

Pollution Control Waste

Any solid waste generated as a direct or indirect result from the removal of contaminants from the air, water, or land which may pose a present or potential threat to human health or the environment or with inherent properties which make the disposal of such waste in a landfill difficult to manage by normal means.

RCRA

Resource Conservation and Recovery Act of 1976, as amended, 42 U.S.C. §§ 6901 *et seq.*

Sludge

Any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility, exclusive of the treated effluent from a wastewater treatment plant.