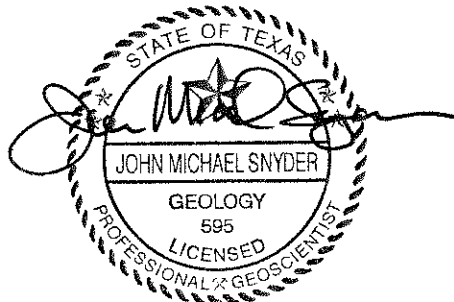


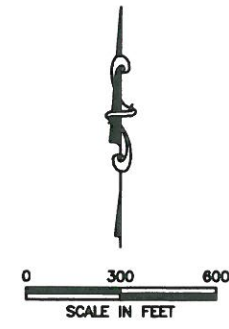
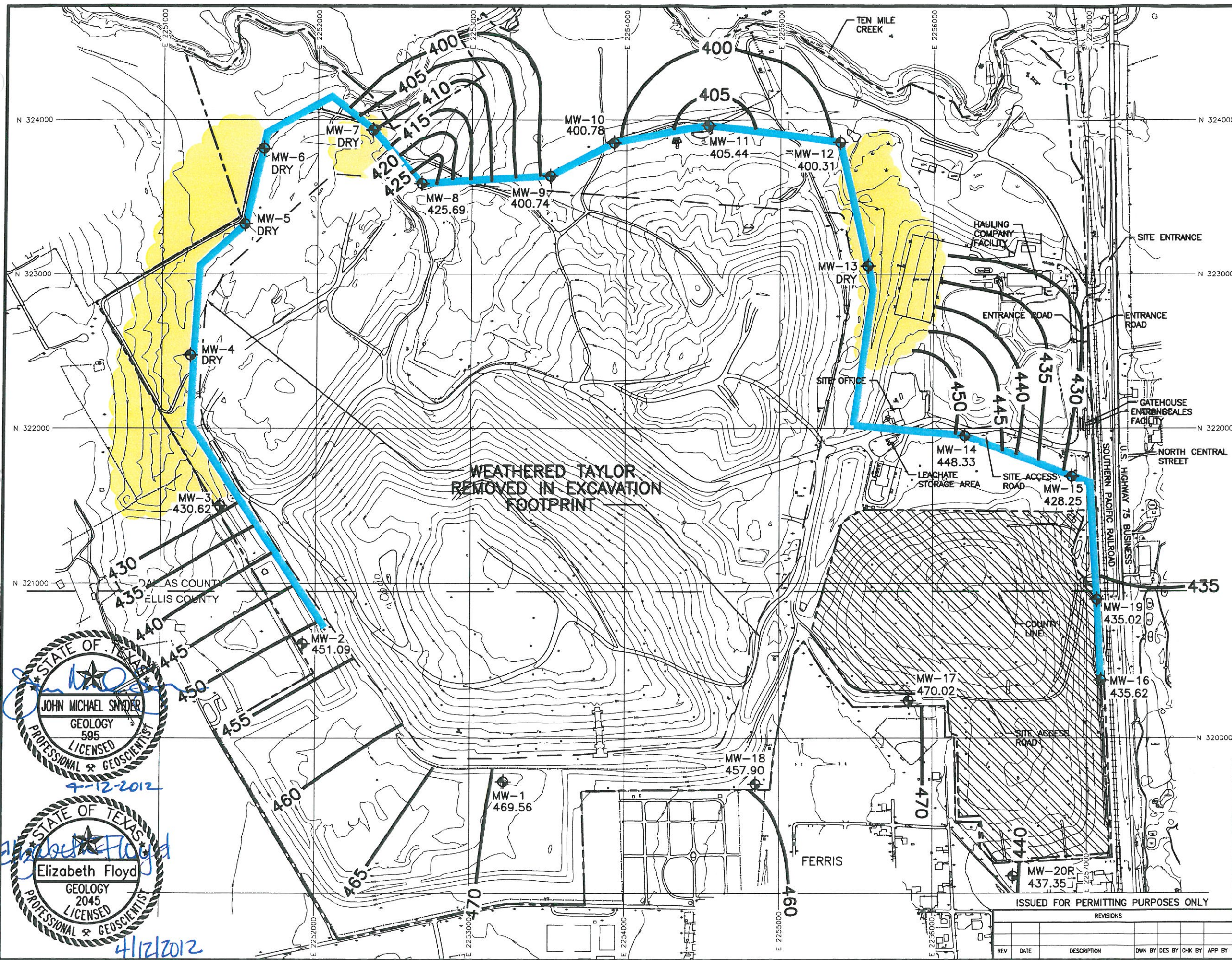
SKYLINE LANDFILL
APPENDIX E6
SITE HYDROGEOLOGIC DATA

Potentiometric Surface Maps	E6-1 through E6-5
Groundwater Velocity Calculations	E6-6
Pre-Excavation Potentiometric Surface Map – June 1991	E6-7
Topographic Influences to Groundwater Flow	E6-8
Conceptual Hydrogeologic Cross Section	E6-9
Conceptual Hydrogeologic Flow Model	E6-10



4-12-2012

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- LEGEND**
- PERMIT BOUNDARY
 - LANDFILL FOOTPRINT
 - PROPOSED POINT OF COMPLIANCE LINE
 - ⊕ MW-5 EXISTING MONITORING WELL
 - 400 GROUNDWATER CONTOUR
 - GROUNDWATER ABSENT
 - ▨ PRE-SUBTITLE D AREA WITH FINAL COVER

- NOTES:**
1. MONITORING WELL LOCATION MAP MODIFIED FROM ORIGINAL HDR DRAWING.
 2. EXISTING CONTOURS COMPILED BY AEROMETRIC FROM AERIAL PHOTOGRAPHY. FLOWN MARCH 6, 2011. COORDINATE SYSTEM IS BASED ON TEXAS STATE PLANE NAD 27, TEXAS NORTH CENTRAL ZONE, US FEET.

Professional Engineer/Geoscientist stamps for:

- JOHN MICHAEL SNYDER, GEOLOGY 595, LICENSED, dated 9-12-2012
- Elizabeth Floyd, GEOLOGY 2045, LICENSED, dated 4/12/2012

**WEATHERED TAYLOR
REMOVED IN EXCAVATION
FOOTPRINT**

**POTENTIOMETRIC SURFACE
DECEMBER 2005**

**WASTE MANAGEMENT OF TEXAS, INC.
SKYLINE LANDFILL
MAJOR PERMIT AMENDMENT**

BIGGS & MATHEWS
ENVIRONMENTAL
CONSULTING ENGINEERS
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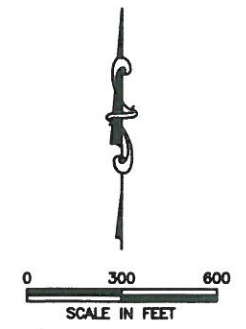
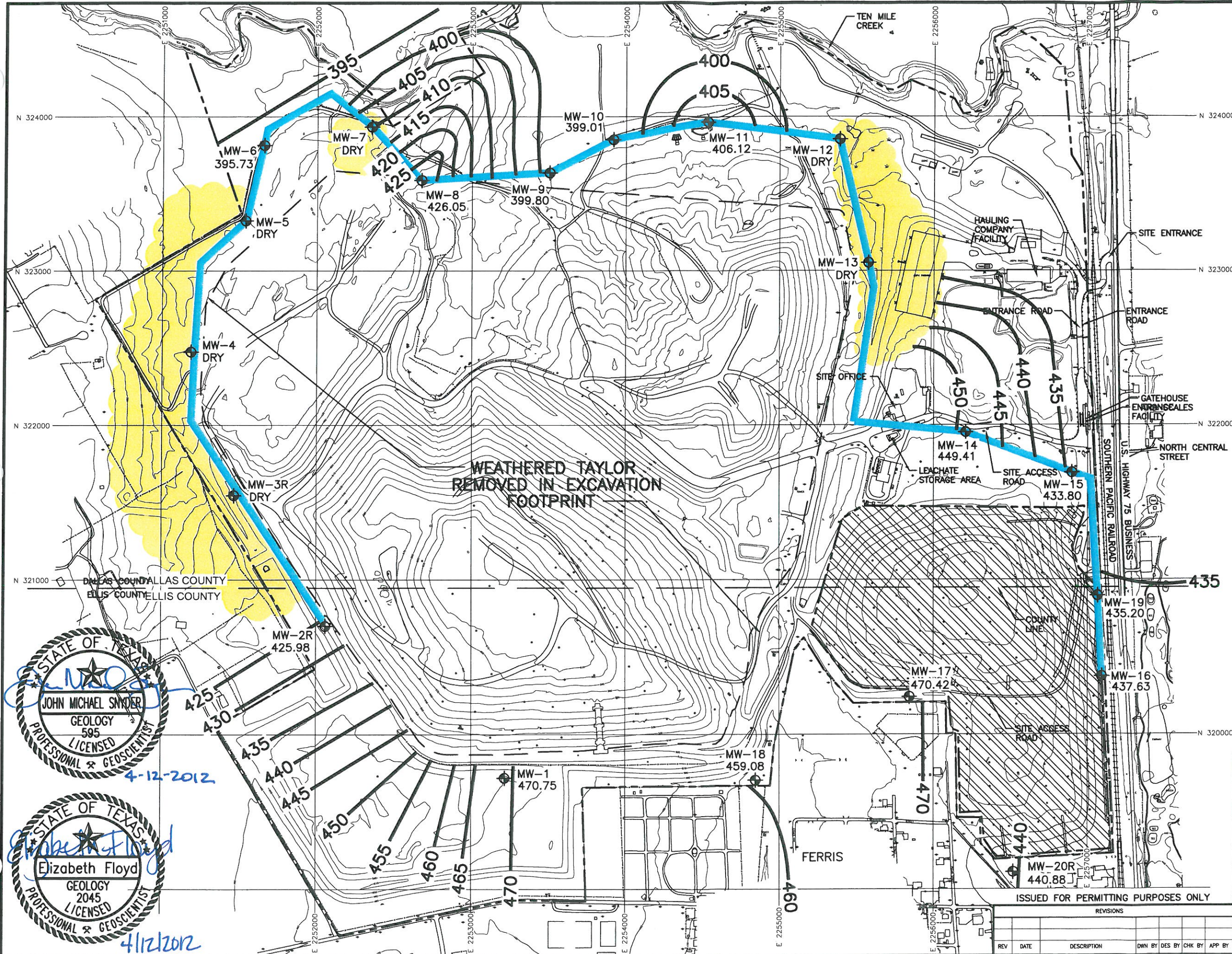
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REVISIONS		DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

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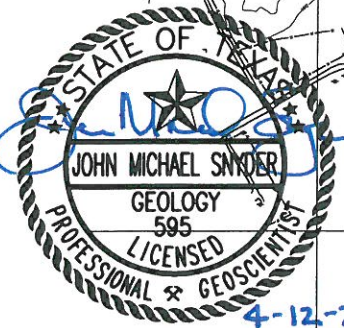
FIGURE **E6-1**

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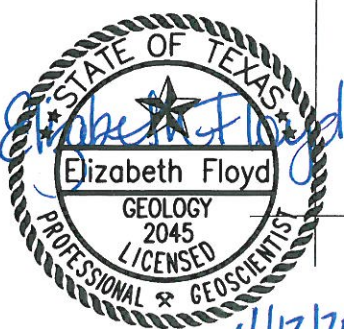


- LEGEND**
- PERMIT BOUNDARY
 - LANDFILL FOOTPRINT
 - PROPOSED POINT OF COMPLIANCE LINE
 - MW-5 EXISTING MONITORING WELL
 - 400 GROUNDWATER CONTOUR
 - GROUNDWATER ABSENT
 - PRE-SUBTITLE D AREA WITH FINAL COVER

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4-12-2012



4/12/2012

**POTENTIOMETRIC SURFACE
DECEMBER 2008**

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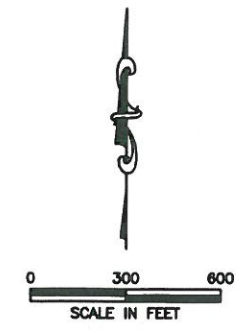
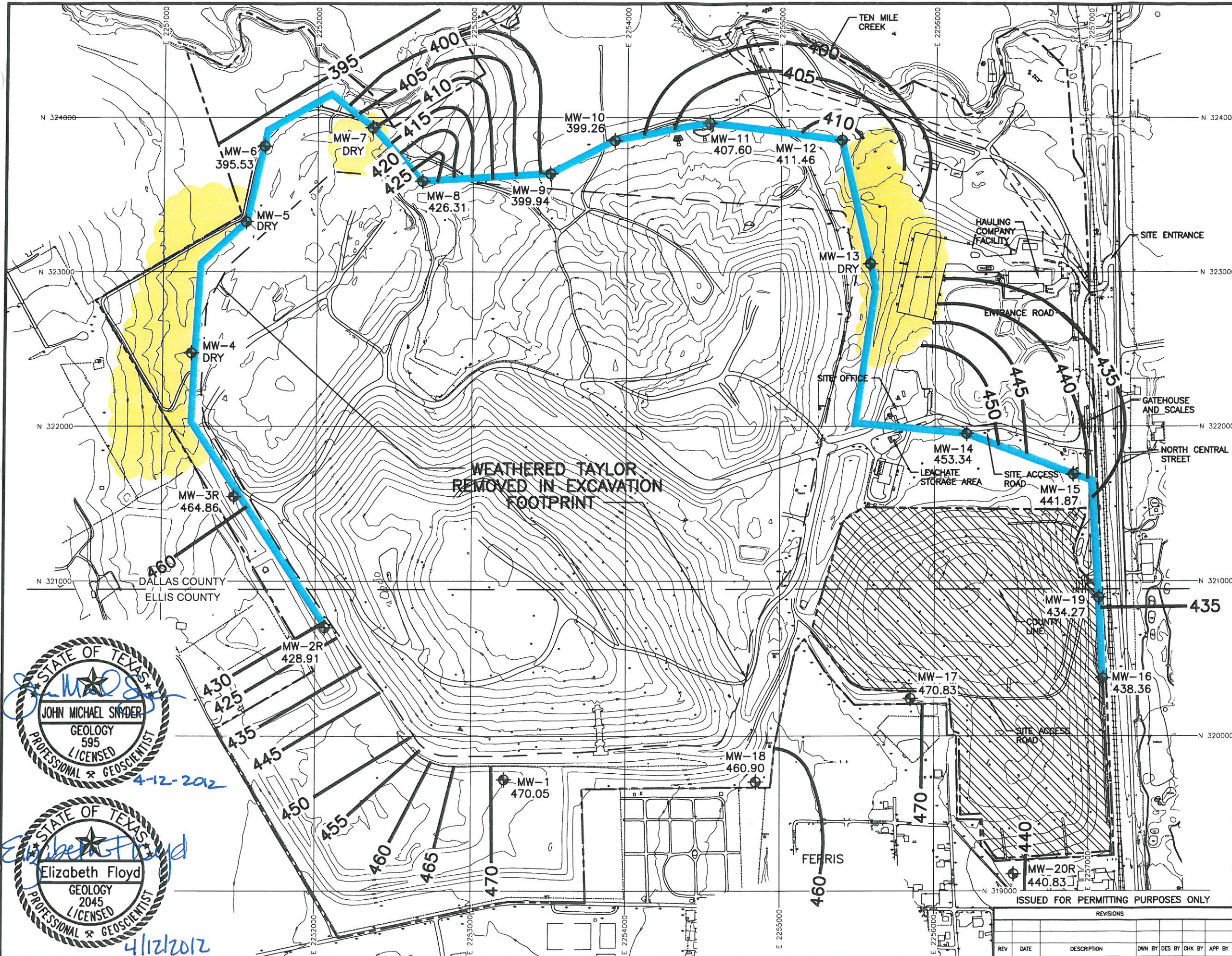
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REVISIONS		DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

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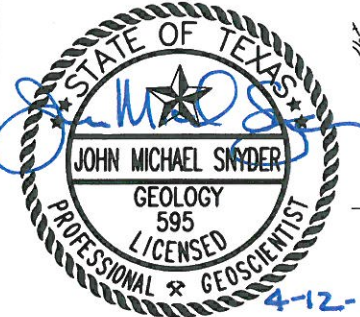


- LEGEND**
- PERMIT BOUNDARY
 - - - LANDFILL FOOTPRINT
 - PROPOSED POINT OF COMPLIANCE LINE
 - ⊕ MW-5 EXISTING MONITORING WELL
 - 400 GROUNDWATER CONTOUR
 - GROUNDWATER ABSENT
 - PRE-SUBTITLE D AREA WITH FINAL COVER

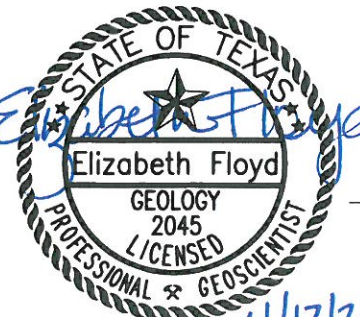
- NOTES:**
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 2. EXISTING CONTOURS COMPILED BY AEROMETRIC FROM AERIAL PHOTOGRAPHY. FLOWN MARCH 6, 2011. COORDINATE SYSTEM IS BASED ON TEXAS STATE PLANE NAD 27, TEXAS NORTH CENTRAL ZONE, US FEET.

WEATHERED TAYLOR REMOVED IN EXCAVATION FOOTPRINT

DALLAS COUNTY
ELLIS COUNTY



4-12-2012



4/12/2012

POTENTIOMETRIC SURFACE
JUNE 2009
WASTE MANAGEMENT OF TEXAS, INC.
SKYLINE LANDFILL
MAJOR PERMIT AMENDMENT

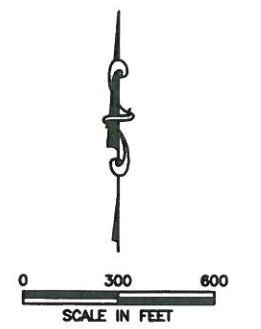
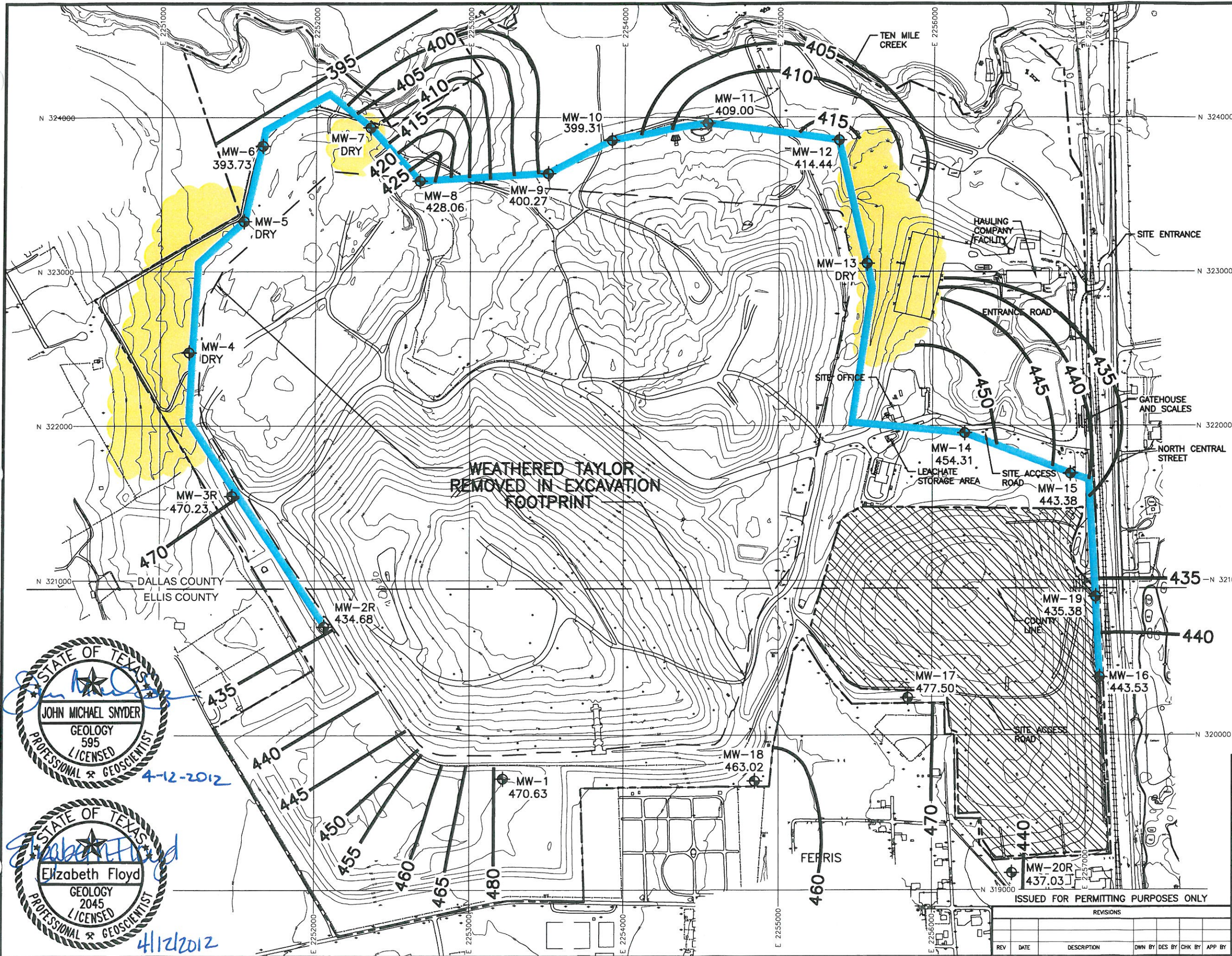


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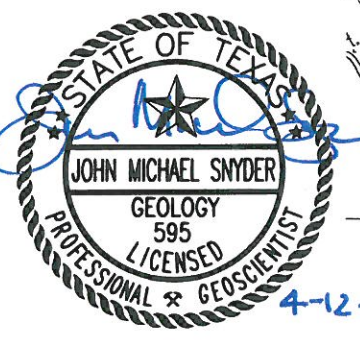
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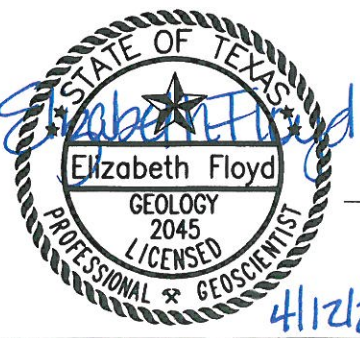


- LEGEND**
- PERMIT BOUNDARY
 - LANDFILL FOOTPRINT
 - PROPOSED POINT OF COMPLIANCE LINE
 - ⊕ MW-5 EXISTING MONITORING WELL
 - 400 GROUNDWATER CONTOUR
 - GROUNDWATER ABSENT
 - PRE-SUBTITLE D AREA WITH FINAL COVER

- NOTES:**
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4-12-2012



4/12/2012

**POTENTIOMETRIC SURFACE
DECEMBER 2009**

**WASTE MANAGEMENT OF TEXAS, INC.
SKYLINE LANDFILL
MAJOR PERMIT AMENDMENT**



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ENVIRONMENTAL
CONSULTING ENGINEERS

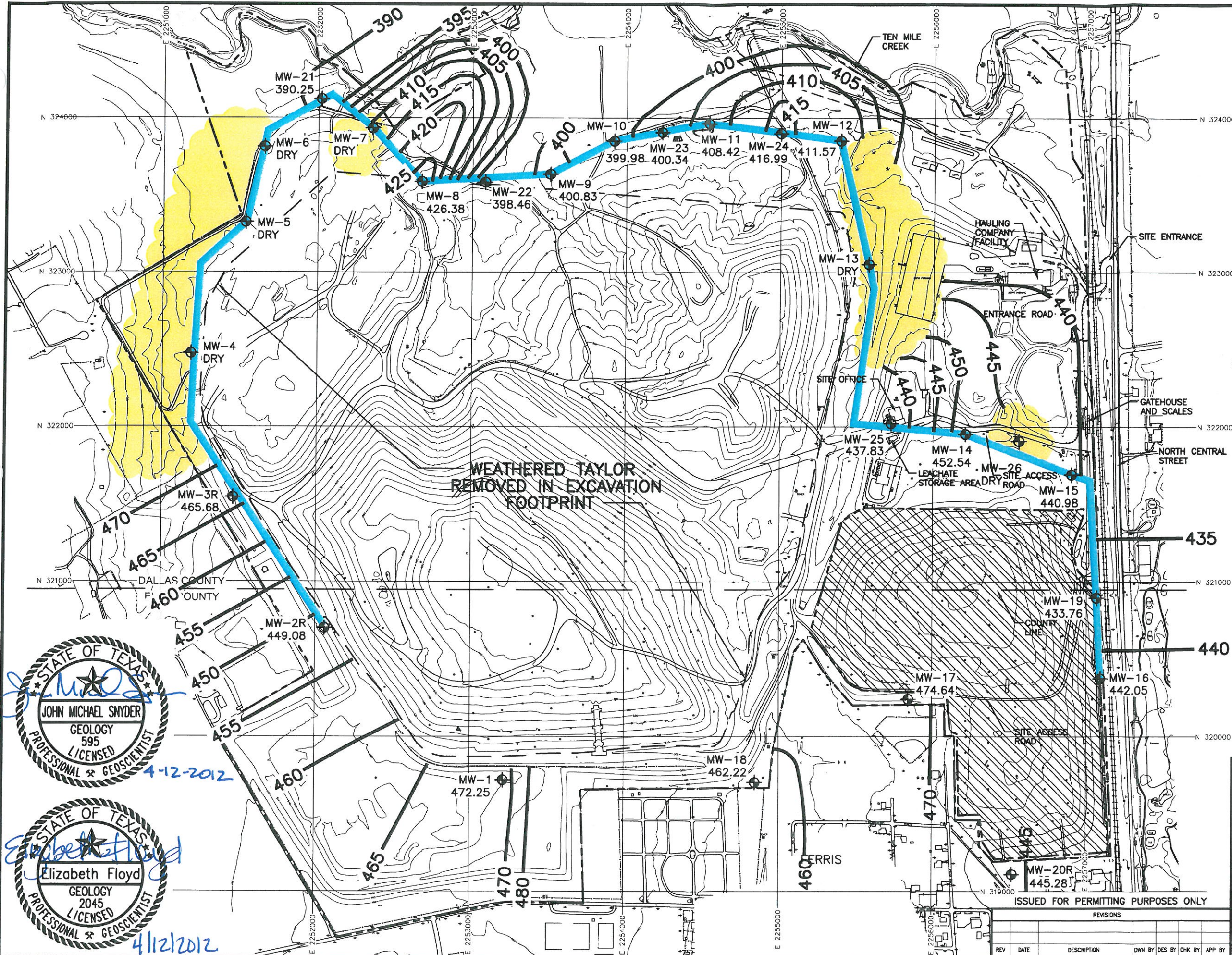
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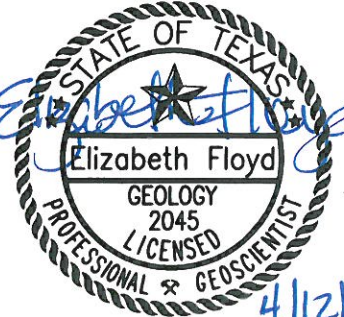
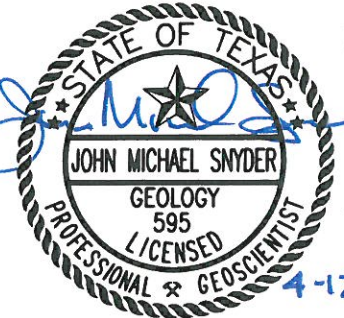
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- LEGEND**
- PERMIT BOUNDARY
 - LANDFILL FOOTPRINT
 - PROPOSED POINT OF COMPLIANCE LINE
 - ⊕ MW-5 EXISTING MONITORING WELL
 - 400 GROUNDWATER CONTOUR
 - GROUNDWATER ABSENT
 - ▨ PRE-SUBTITLE D AREA WITH FINAL COVER

- NOTES:**
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**WEATHERED TAYLOR
REMOVED IN EXCAVATION
FOOTPRINT**

**POTENTIOMETRIC SURFACE
JUNE 2010**

**WASTE MANAGEMENT OF TEXAS, INC.
SKYLINE LANDFILL
MAJOR PERMIT AMENDMENT**

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TBPE FIRM NO. F-256 TBPG FIRM NO. 50222

DSN. ESF DATE : 04/12 FIGURE
DWN. SRC SCALE : GRAPHIC E6-5
CHK. JMS DWG : E6-5_PSurf_6-10.dwg



COMPUTATION SHEET

Project Title: Waste Management - Skyline RDF

101.01.120

Description: Groundwater Flow Velocity Calculations

Sheet 1 1

Prep. By: ESF Date: 10/19/2011 Checked by JMS

Date: 10/20/2011

GROUNDWATER VELOCITY CALCULATIONS

Uppermost Aquifer

2010

$$V = \frac{Ki}{n_e}$$

WHERE:

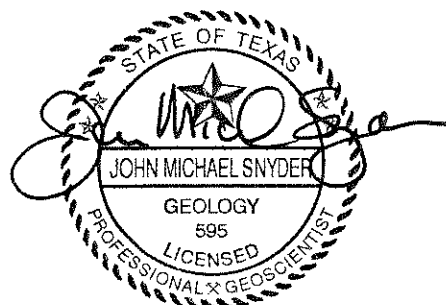
V = Groundwater Flow Velocity

K = Hydraulic Conductivity

i = Hydraulic Gradient

n_e = Effective Porosity

$$\begin{aligned} K &= 4.23E-09 \text{ cm/sec} \\ i &= 0.023 \text{ ft/ft} \\ n_e &= 0.05 \end{aligned}$$



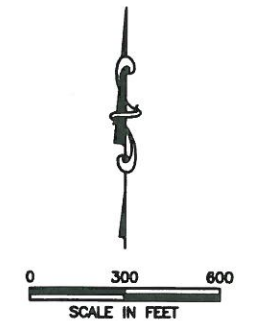
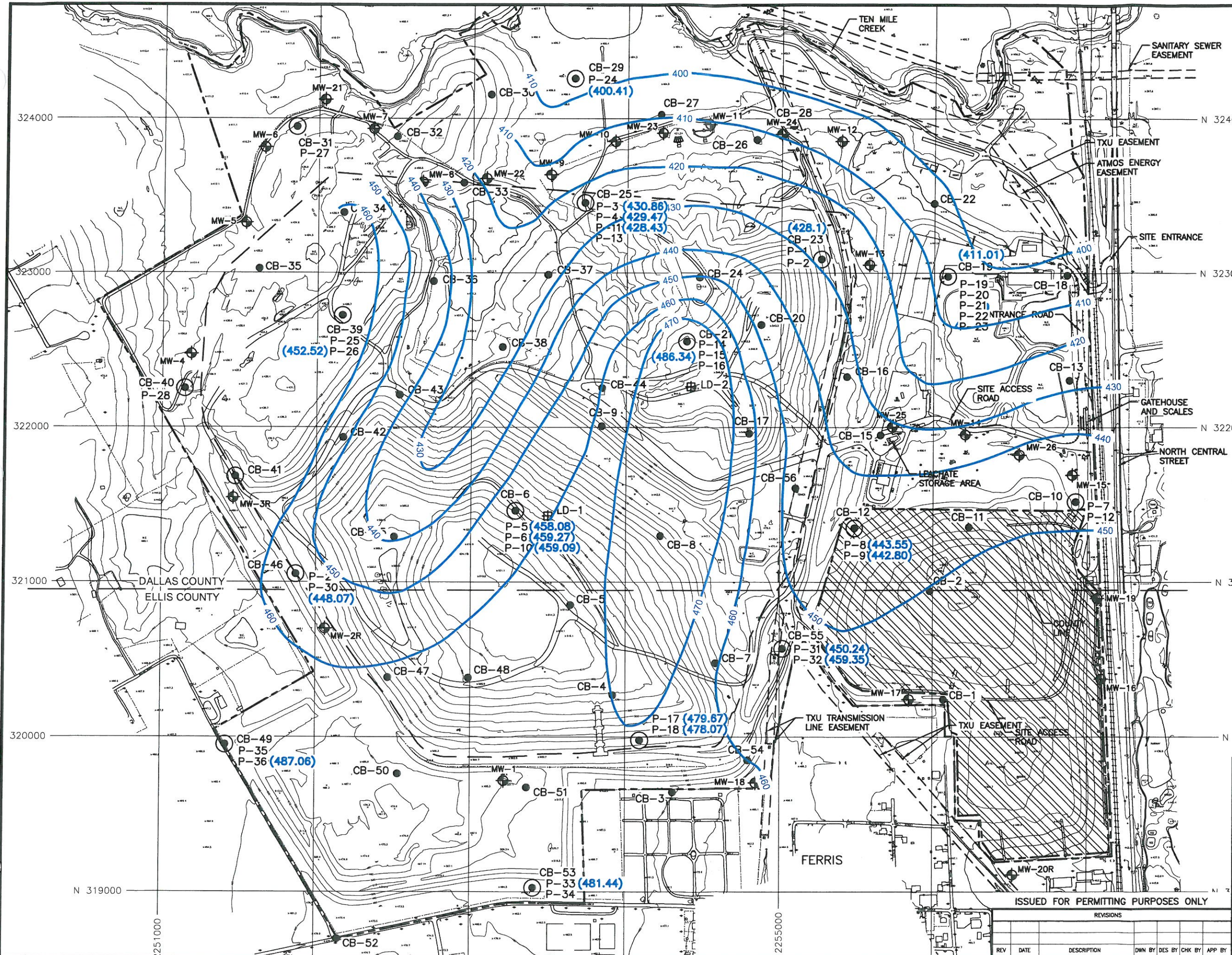
4-12-2012

$$\begin{aligned} V &= \frac{4.23E-09 \times 0.023}{0.05} \times 2835 = 5.516E-07 \text{ ft/day} \\ &= 5.516E-07 \times 365 = 2.01E-04 \text{ ft/year} \end{aligned}$$

- Hydraulic Conductivity value (K) from site specific field permeability tests (HDR, 1993)
- Hydraulic Gradient value (i) from June 2010 potentiometric surface maps (see Figure E6-5)
- Effective porosity value (n_e) from the lithologic materials represented in the geologic units (HDR, 1993)

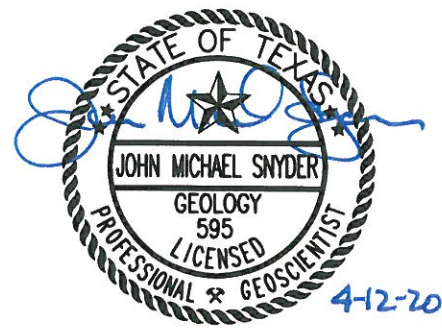
Figure E6-6

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- LEGEND**
- PERMIT BOUNDARY
 - LANDFILL FOOTPRINT
 - 450 GROUNDWATER CONTOUR
 - MW-5 EXISTING MONITORING WELL
 - CB-15 BORING
 - P-1 PIEZOMETER
 - ▨ PRE-SUBTITLE D AREA WITH FINAL COVER

- NOTES:**
1. MONITORING WELL LOCATION MAP MODIFIED FROM ORIGINAL HDR DRAWING.
 2. EXISTING CONTOURS COMPILED BY AEROMETRIC FROM AERIAL PHOTOGRAPHY, FLOWN MARCH 6, 2011. COORDINATE SYSTEM IS BASED ON TEXAS STATE PLANE NAD 27, TEXAS NORTH CENTRAL ZONE, US FEET.



**POTENTIOMETRIC SURFACE MAP
JUNE 1991 PRE-EXCAVATION
WASTE MANAGEMENT OF TEXAS, INC.
SKYLINE LANDFILL
MAJOR PERMIT AMENDMENT**



**BIGGS & MATHEWS
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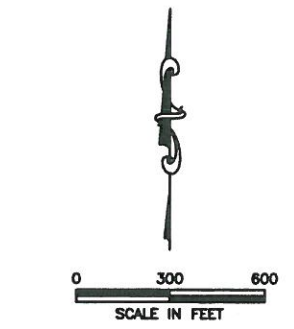
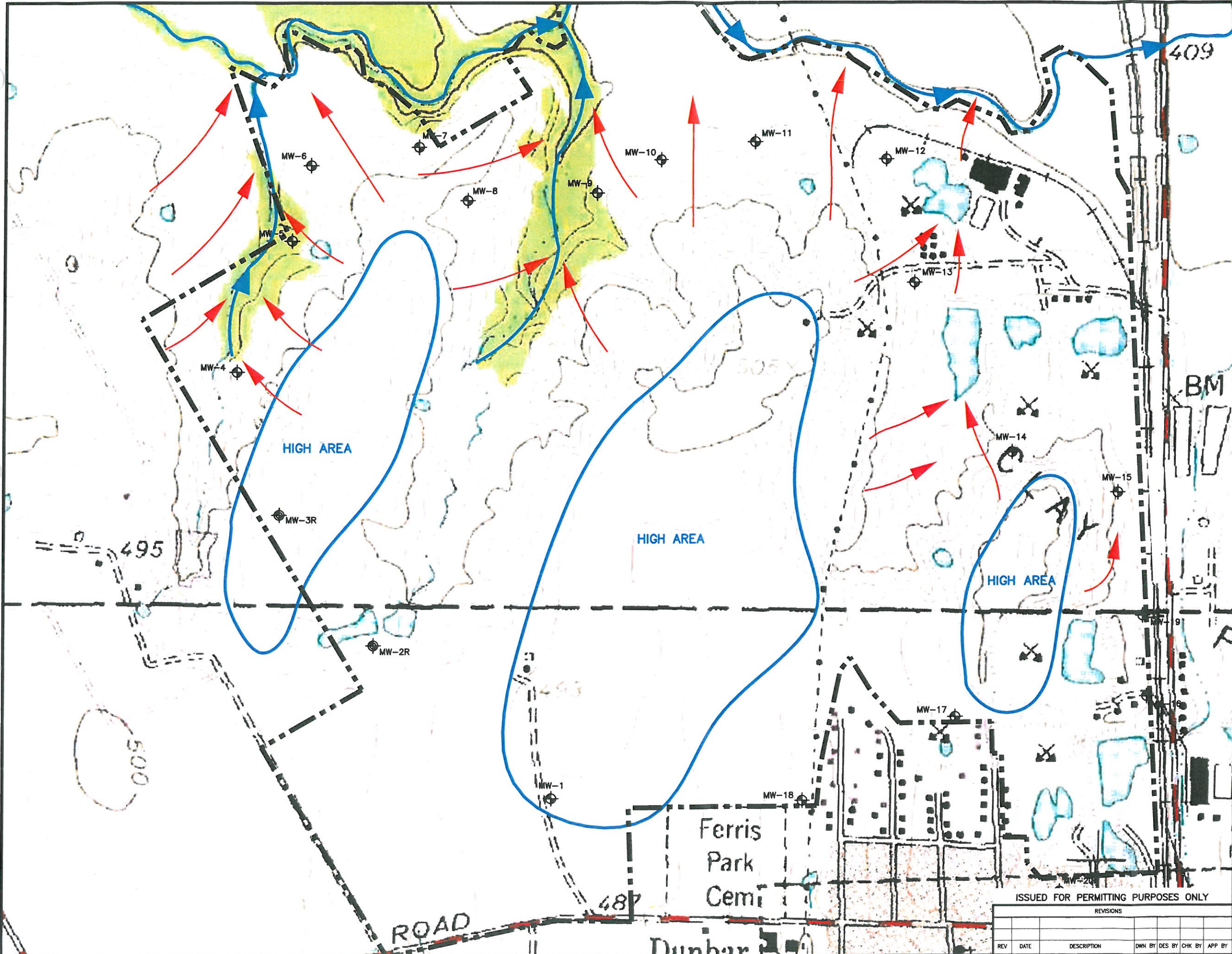
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REVISIONS				DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DSN. ESF	DATE : 04/12	FIGURE E6-7
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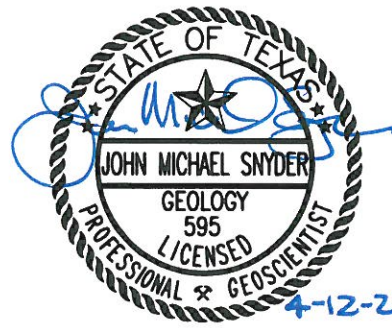
TBPE FIRM NO. F-256 TBPG FIRM NO. 50222

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- LEGEND**
- PERMIT BOUNDARY
 - ← SECONDARY ROUTE'S
- ROAD CLASSIFICATION**
- Heavy-duty
 - Medium-duty
 - Light-duty
 - Unimproved dirt
 - Interstate Route
 - U.S. Route

FERRIS, TEX.
 SW/4 SEAGOVILLE 15' QUADRANGLE
 N3230-W9637.5/7.5
 1959
 AMS 6549 11 SW SERIES VBR2



TOPOGRAPHIC MAP SHOWING TOPOGRAPHIC INFLUENCES TO GROUNDWATER FLOW
WASTE MANAGEMENT OF TEXAS, INC.
SKYLINE LANDFILL
MAJOR PERMIT AMENDMENT

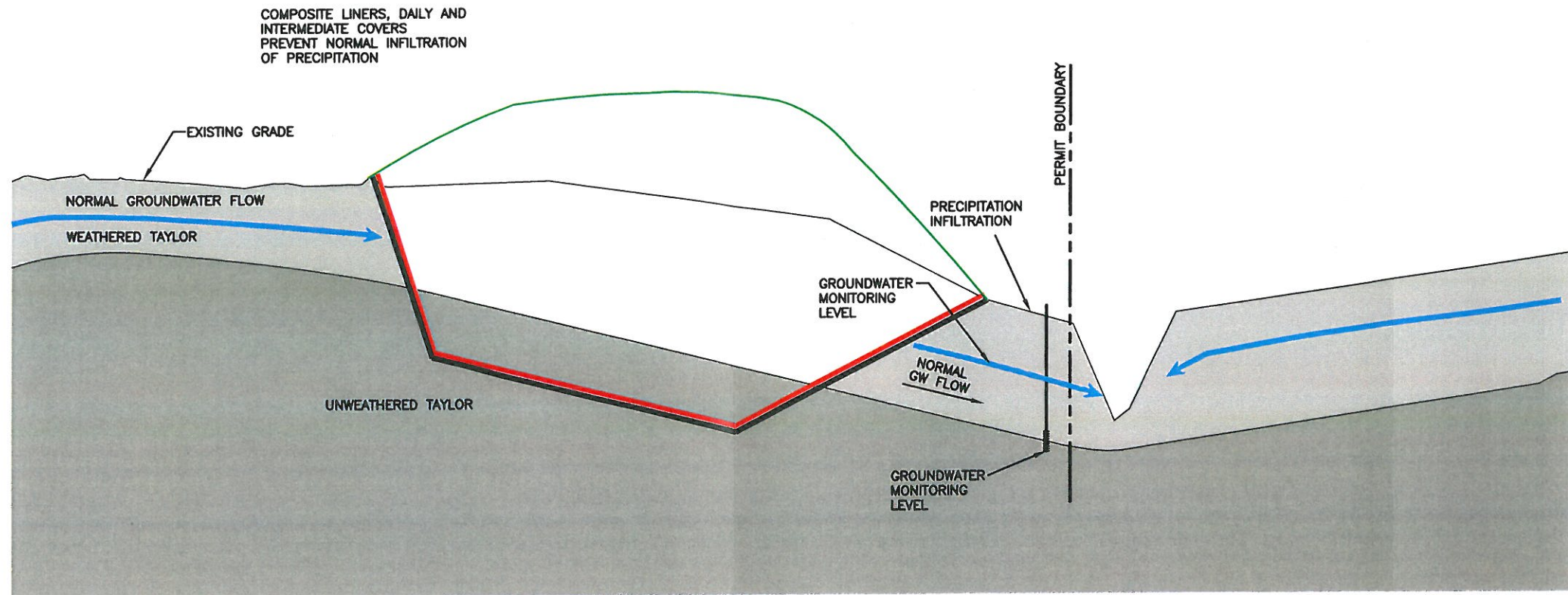


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DSN.	ESF	DATE :	04/12			FIGURE	
DWN.	SRC	SCALE :	GRAPHIC			E6-8	
CHK.	JMS	DWG :	E6-8_Topolinfluence.dwg				
REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY	

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Elizabeth Floyd
 STATE OF TEXAS
 GEOLOGY
 2045
 LICENSED
 PROFESSIONAL GEOSCIENTIST

John Michael Snyder
 STATE OF TEXAS
 GEOLOGY
 595
 LICENSED
 PROFESSIONAL GEOSCIENTIST

4/12/2012

4-12-2012

CONCEPTUAL HYDROGEOLOGIC CROSS SECTION

WASTE MANAGEMENT OF TEXAS, INC. SKYLINE LANDFILL MAJOR PERMIT AMENDMENT

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TBPE FIRM NO. F-256 TBPG FIRM NO. 50222

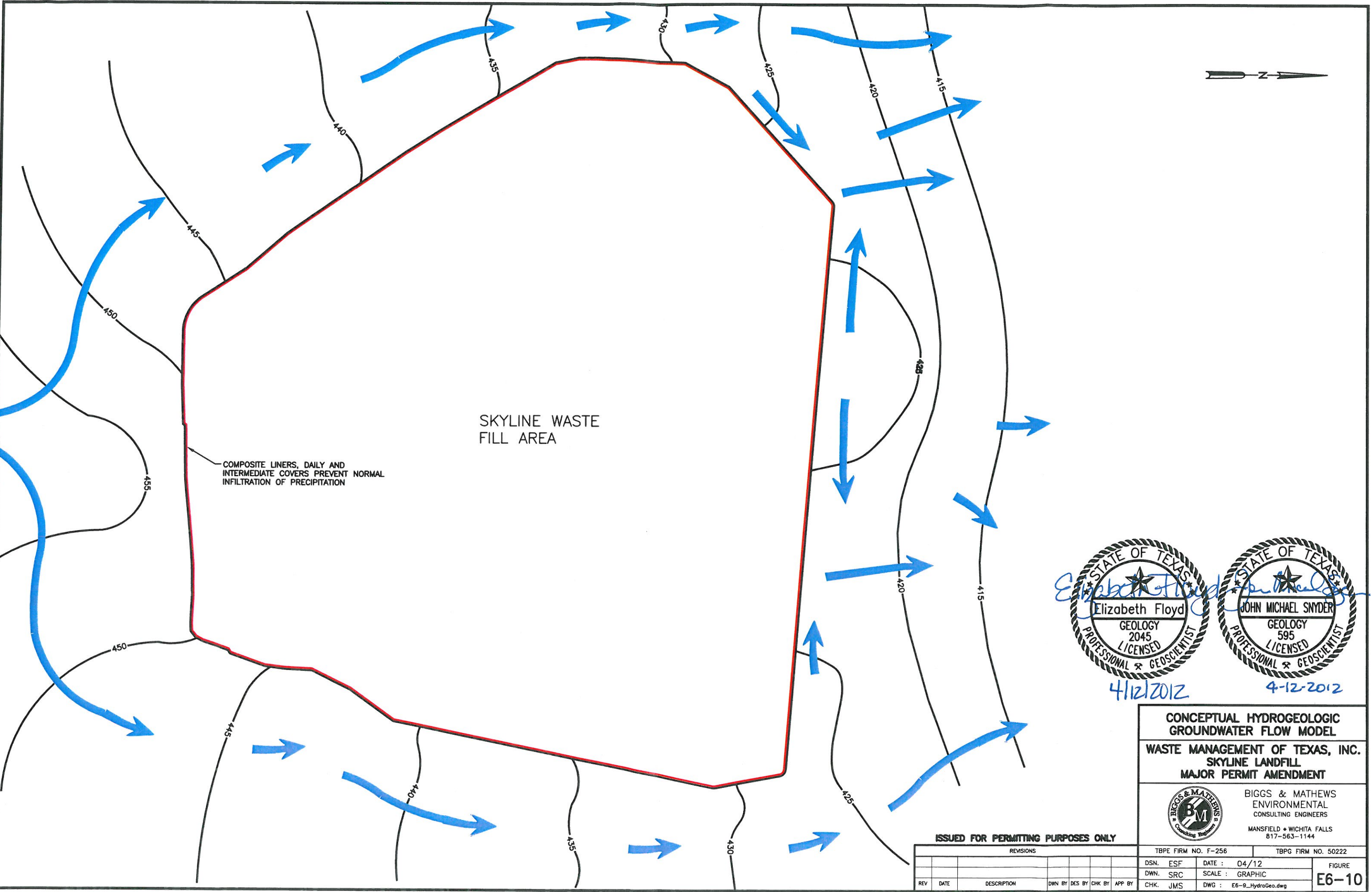
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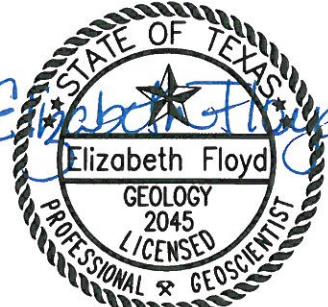
FIGURE
E6-9

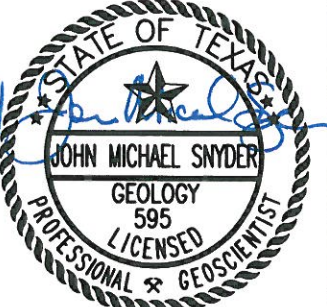
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REVISIONS						
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 Elizabeth Floyd
 GEOLOGY 2045
 LICENSED PROFESSIONAL GEOSCIENTIST
 4/12/2012


 JOHN MICHAEL SNYDER
 GEOLOGY 595
 LICENSED PROFESSIONAL GEOSCIENTIST
 4-12-2012

**CONCEPTUAL HYDROGEOLOGIC
 GROUNDWATER FLOW MODEL**
WASTE MANAGEMENT OF TEXAS, INC.
SKYLINE LANDFILL
MAJOR PERMIT AMENDMENT


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REVISIONS						TBPE FIRM NO. F-256	TBPG FIRM NO. 50222
REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY	FIGURE
							E6-10

DSN. ESF DATE : 04/12
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 CHK. JMS DWG : E6-9_HydroGeo.dwg