

**NEW BOSTON LANDFILL
APPENDIX IIJ
FLOODPLAIN DOCUMENTATION**

**NEW BOSTON LANDFILL
CONDITIONAL LETTER OF MAP REVISION (CLOMR)
APPROVAL FOR NEW BOSTON LANDFILL EXPANSION
(PERMIT NO. MSW 576B) DATED JULY 26, 2001**



Federal Emergency Management Agency

Washington, D.C. 20472

JUL 26 2001

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 01-06-1395R

The Honorable James Carlow
County Judge
Bowie County
P.O. Box 248
New Boston, TX 75570

Community: Bowie County, TX
Community No.: 481194

104

Dear Judge Carlow:

This responds to a request that the Federal Emergency Management Agency (FEMA) comment on the effects that a proposed project would have on the effective Flood Insurance Rate Map (FIRM) for your community in accordance with Part 65 of the National Flood Insurance Program (NFIP) regulations. A Conditional Letter of Map Revision (CLOMR) was issued on June 21, 1995 (Case No. 95-06-269R), to evaluate the effects that proposed expansion of the New Boston Landfill, which is located on the west bank of Rice Creek between Interstate Highway 30 (I-30) and U.S. Highway 82 (US82), would have on the flood hazard information shown on the effective FIRM. The June 21 CLOMR also included channel improvements, a sedimentation pond on the east bank of Rice Creek just upstream of US82, and several culverts beneath access roads to the landfill. In a letter dated June 4, 2001, Mr. Charlie Thompson, Floodplain Administrator, County of Bowie, requested that FEMA evaluate the effects that additional expansion of the landfill site, a shift of a portion of the Rice Creek channel between I-30 and US82 to the eastern edge of the property, enlargement of the existing detention/sedimentation pond at the southern end of the site, and construction of an additional pond on the northern edge of the property would have on the flood hazard information shown on the effective FIRM.

All data required to complete our review of this CLOMR request were submitted with letters from Mr. Thompson.

We reviewed the submitted data and the data used to prepare the effective FIRM for your community and determined that the proposed project meets the minimum floodplain management criteria of the NFIP. We believe that, if the proposed project is constructed as shown on the submitted work map entitled "Proposed Conditions Rice Creek Hec-Ras Section Locations, Figure 5: New Boston Landfill Expansion Waste Management," prepared by Murray, Thomas & Griffin, Inc., dated May 31, 2001, and the data listed below are received, a revision to the FIRM would be warranted.

As a result of the proposed project, including those project elements reviewed for the June 21 CLOMR, the width of the Special Flood Hazard Area (SFHA), the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), will decrease compared to the effective SFHA width along Rice Creek from US82 to approximately 100 feet upstream. The maximum decrease in SFHA width, approximately 230 feet, will occur approximately 50 feet upstream of US82.

IIA-3.1.1

NEW BOSTON LANDFILL
TECHNICALLY COMPLETE JUNE 10, 2002

IIJ-1

As a result of the proposed project, the Rice Creek channel will be realigned to the eastern edge of the New Boston Landfill, so the SFHA along Rice Creek also will shift to the eastern edge of the property. The base flood will be contained within the realigned Rice Creek channel.

As a result of the proposed project, the water-surface elevations (WSELs) associated with the base flood will increase in some areas and decrease in other areas compared to the existing conditions base flood WSELs. The maximum increase in base flood WSEL, 0.4 foot, will occur at the north property boundary approximately 220 feet downstream of I-30. The maximum decrease in base flood WSEL, 0.3 foot, will occur at the south property boundary approximately 50 feet upstream of US82. All increases in base flood WSEL will occur within the New Boston Landfill, and no insurable structures will be affected.

Upon completion of the project, your community may submit the data listed below and request that we make a final determination on revising the effective FIRM.

- Detailed application and certification forms, which were used in processing this request, must be used for requesting final revisions to the maps. Therefore, when the map revision request for the area covered by this letter is submitted, Form 1, entitled "Revision Requester and Community Official Form," must be included. (A copy of this form is enclosed.)
- The detailed application and certification forms listed below may be required if as-built conditions differ from the preliminary plans. If required, please submit new forms (copies of which are enclosed) or annotated copies of the previously submitted forms showing the revised information.

Form 4, entitled "Riverine Hydraulic Analysis Form"

Form 5, entitled "Riverine/Coastal Mapping Form"

Hydraulic analyses, for as-built conditions, of the base flood must be submitted with Form 4, and a topographic work map showing the revised floodplain and floodway boundaries must be submitted with Form 5.

- Effective June 1, 2000, FEMA revised the fee schedule for reviewing and processing requests for conditional and final modifications to published flood information and maps. In accordance with this schedule, the current fee for this map revision request is \$3,400 and must be received before we can begin processing the request. Please note, however, that the fee schedule is subject to change, and requesters are required to submit the fee in effect at the time of the submittal. Payment of this fee shall be made in the form of a check or money order, made payable in U.S. funds to the National Flood Insurance Program, or by credit card. The payment must be forwarded to the following address:

Federal Emergency Management Agency
Fee-Charge System Administrator
P.O. Box 3173
Merrifield, VA 22116-3173

- As-built plans, certified by a registered professional engineer, of all proposed project elements

IIA-3.1.2

NEW BOSTON LANDFILL
TECHNICALLY COMPLETE JUNE 10, 2002

- Community acknowledgment of the map revision request

After receiving appropriate documentation to show that the project has been completed, FEMA will initiate a revision to the FIRM.

The basis of this CLOMR is, in whole or in part, a channel-modification/culvert project. NFIP regulations, as cited in Paragraph 60.3(b)(7), require that communities assure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management regulations. Consequently, the ultimate responsibility for maintenance of the modified channel and culvert rests with your community.

This CLOMR is based on minimum floodplain management criteria established under the NFIP. Your community is responsible for approving all floodplain development and for ensuring all necessary permits required by Federal or State law have been received. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If the State, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please contact the Consultation Coordination Officer (CCO) for your community. Information on the CCO for your community may be obtained by calling the Director, Mitigation Division of FEMA in Denton, Texas, at (940) 898-5127. If you have any questions regarding this CLOMR, please call our Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Sincerely,



Katie Paulson, Program Specialist
Hazards Study Branch
Hazard Mapping Division

For: Matthew B. Miller, P.E., Chief
Hazards Study Branch
Hazard Mapping Division

Enclosures

cc: Mr. Charlie Thompson
Floodplain Administrator
County of Bowie

IIA-3.1.3

NEW BOSTON LANDFILL
TECHNICALLY COMPLETE JUNE 10, 2002



NATIONAL FLOOD INSURANCE PROGRAM
FEMA MAP COORDINATION CONTRACTOR

June 15, 2001

Mr. Charlie Thompson
Floodplain Administrator
Bowie County Courthouse
P.O. Box 248
New Boston, TX 75570-0248

IN REPLY REFER TO:
Case No.: 01-06-1395R
Community: Bowie County, TX
Community No.: 481194

316-ACK.FRQ

Dear Mr. Thompson:

This responds to your request dated June 4, 2001, that the Federal Emergency Management Agency (FEMA) issue a conditional revision to the Flood Insurance Rate Map (FIRM) for the above-referenced community. Pertinent information about the request is listed below.

Identifier:	New Boston Landfill – 2001 Expansion
Flooding Source:	Rice Creek
FIRM Panel Affected:	0200 B

We have completed an inventory of the items that you submitted. We have received the data and the review and processing fee (\$3,100) required to begin a detailed technical review of your request. If additional data are required, we will inform you within 60 days of the date of this letter.

When you write us about your request, please include the case number referenced above in your letter.

If you have general questions about your request, FEMA policy, or the National Flood Insurance Program, please call the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, please call me at (703) 317-6250.

Sincerely,

Monther S. Madanat, Director
Technical Services Division
Michael Baker Jr., Inc.

cc: Mr. David A. Williams, P.E.
Project Manager
Murray Thomas and Griffin, Inc.

3601 Eisenhower Avenue, Suite 600, Alexandria, Virginia 22304-8425 PH: 703.960.8800 FX: 703.960.9125

Michael Baker Jr., Inc., under contract with the FEDERAL EMERGENCY MANAGEMENT AGENCY, is a
Map Coordination Contractor for the National Flood Insurance Program

IIA-3.2
NEW BOSTON LANDFILL
TECHNICALLY COMPLETE JUNE 10, 2002
IIJ-4

COUNTY OF BOWIE

B1-State Justice Center
100 North State Line Avenue
Texarkana, Texas 75501

Bowie County Courthouse
Post Office Box 248
New Boston, Texas 75570-0248



FEMA LOMR Depot
C/O PBS&J
12101 Indian Creek Court
Beltsville, MD, 20705

CERTIFIED MAIL
(7099 3220 0010 2257 2854)

Re: Application for Conditional Letter Of Map Revision (CLOMR)
Rice Creek
New Boston Landfill – 2001 Expansion

Gentlemen:

The office of the Bowie County Floodplain Administrator has reviewed and approved the enclosed submittal for a Conditional Letter of Map Revision for the above mentioned project along Rice Creek located in community #481194, panel number 0200B.

We are enclosing the floodplain study and the review fee check in the amount of \$3,100.00.

We request that this submittal be reviewed at your earliest convenience. If you have any questions please contact me at 903 628-6791.

Sincerely,

A handwritten signature in black ink, appearing to read "Charlie Thompson", written over a horizontal line.

Charlie Thompson
Floodplain Administrator
Bowie County, Texas

Cc: David A. Williams, MTG Engineers

4. ENCROACHMENT INFORMATION

1. Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?
 Yes No

If Yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency.

2. Does the development in the floodway cause the 1% annual chance (base) elevation to increase at any location by more than 0.000 feet? Yes No N/A

3. Does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the base flood elevation to increase at any location by more than one foot (or other increase limit if community or state has adopted more stringent criteria - even if a floodway has not been delineated by FEMA)? Yes No

If the answer to either items is Yes, please attach documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted.

5. MAINTENANCE RESPONSIBILITY

The community is willing to assume responsibility for performing overseeing compliance with the maintenance and operation plans of the New Boston Landfill Expansion
 (Name)

flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

Operation and maintenance plans are attached. Yes No N/A

6. REVIEW FEE

The review fee for the appropriate request category has been included. Yes No N/A Fee amount: \$3,100
 OR

This request is based on a federally sponsored flood-control project where 50 percent or more of the project's cost is federally sponsored, or the request is based on detailed hydrologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate studies conducted by FEMA and shown on the effective FIRM; thus the project is fee exempt. Yes

Please see Instructions for Fee Amounts

7. SIGNATURE

Note: I understand that my signature indicates that all information submitted in support of this request is correct

David A. Williams, PE
 Signature of Revision Requester
David A. Williams, P.E., Project Manager
 Printed Name and Title of Revision Requester
Murray, Thomas & Griffin, Inc.
 Company Name
 Telephone No.: 903-838-8533 Date: 5-31-2001

Note: Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.

Charles M. Thompson
 Signature of Community Official
Charles M. Thompson Flood Plain Admin
 Printed Name and Title of Community Official
Bowie County
 Community Name
903.628.6791 Date: 6-1-2001

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is in accordance with 44 CFR Ch. 1, Sect 65.2

[Signature]
 Signature

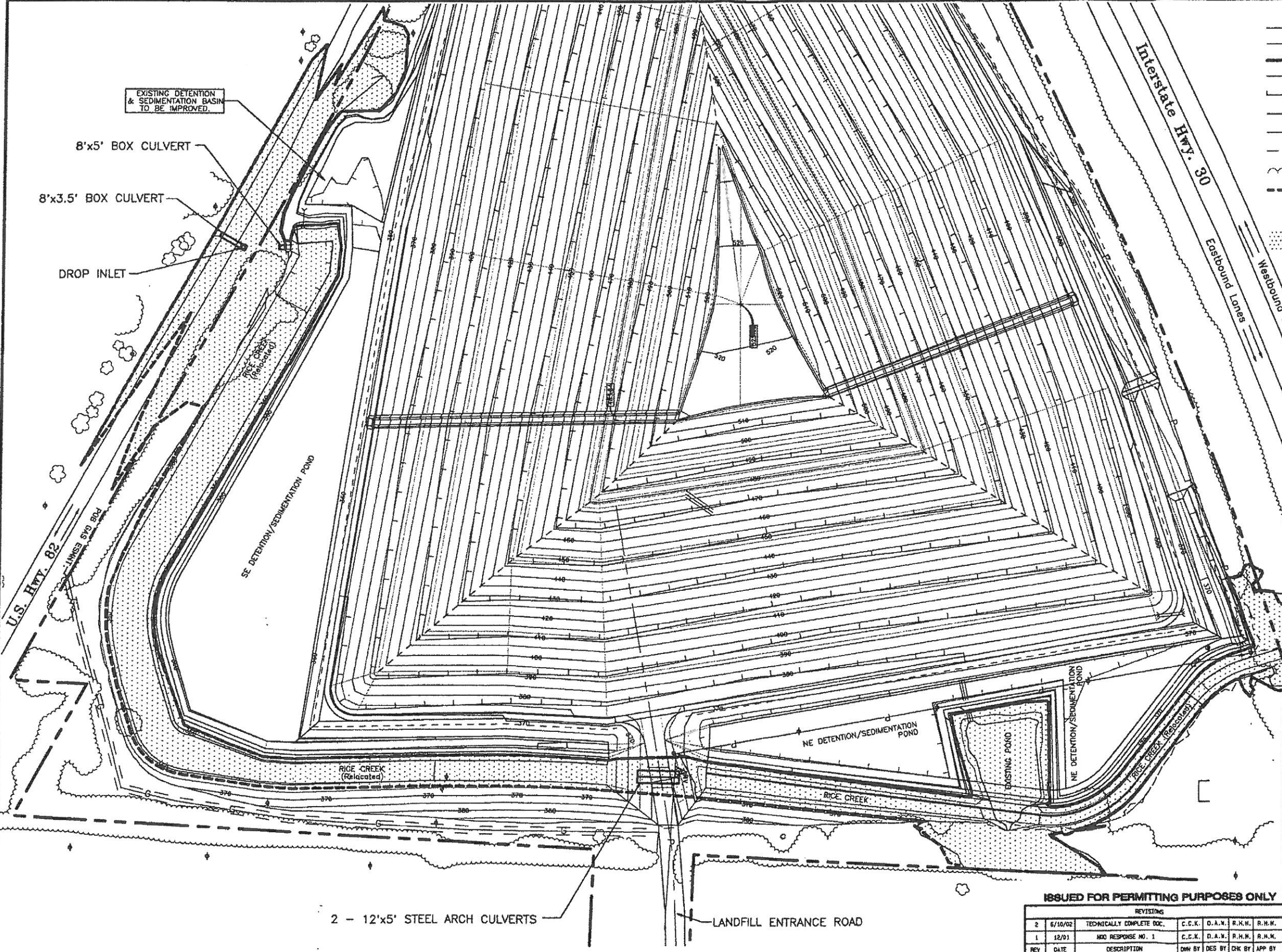
Padinare V. Unnikrishna, P.E.
 Printed Name and Title of Revision Requester

Registr. No. 87314 Expires (Date) 06/30/2001 State Texas

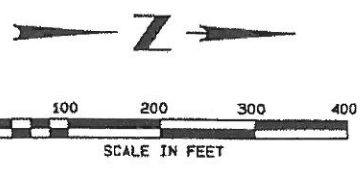
Type of License/Expertise: Engineer / Water Resources

Check which forms have been included with this request

Form Name and (Number)	Required if
<input checked="" type="checkbox"/> Hydrologic (3)	new or revised discharges
<input checked="" type="checkbox"/> Hydraulic (4)	new or revised water-surface elevations
<input type="checkbox"/> Mapping (5)	floodplain/floodway changes
<input type="checkbox"/> Channelization (6)	channel is modified
<input checked="" type="checkbox"/> Bridge/Culvert (7)	addition/revision of bridge/culvert
<input type="checkbox"/> Levee/Floodwall (8)	addition/revision of levee/floodwall
<input type="checkbox"/> Coastal (9)	new or revised coastal elevations
<input type="checkbox"/> Coastal Structures (10)	addition/revision of coastal structure
<input type="checkbox"/> Dam (11)	addition/revision of dam
<input type="checkbox"/> Alluvial Fan (12)	structures proposed on alluvial fan



- LEGEND**
- 10' CONTOUR LINE (FT-MSL)
 - 5' CONTOUR LINE (FT-MSL)
 - PROPERTY LINE AND PERMIT BOUNDARY
 - EDGE OF PAVEMENT/ROAD
 - LANDFILL DRAINAGE TERRACE
 - P — POWER LINE
 - G — GAS MAIN
 - EASEMENT LINE
 - ~ ~ ~ EXISTING TREELINE
 - - - - PROPOSED 100 YEAR FLOOD PLAIN LIMITS
 - FEMA 100 YEAR FLOOD PLAIN (APPROXIMATE ZONE)
 - PROPOSED FLOOD PLAIN DELINEATION



**100-YEAR FLOOD PLAIN DELINEATION:
PROPOSED CONDITIONS**

WM
**NEW BOSTON LANDFILL
PERMIT AMENDMENT**

BIGGS & MATHEWS
ENVIRONMENTAL
CONSULTING ENGINEERS
5450-A E. LOOP 820 S.
FORT WORTH, TEXAS

MTG ENGINEERS
3405 BOWELL LANE, P.O. BOX 2784, TEXARKANA, TEXAS 75001
CIVIL • ENVIRONMENTAL • SURVEYING
Phone (903) 838-8533 Fax (903) 832-4700

ISSUED FOR PERMITTING PURPOSES ONLY

REV	DATE	DESCRIPTION	OWN BY	DES BY	CHK BY	APP BY	CHK.	RHM	LL: ATT 6A-A.4
2	6/10/02	TECHNICALLY COMPLETE DOC.	C.C.K.	D.A.N.	R.H.N.	R.H.N.	DSN.	DAH	DATE : 05/01
1	12/01	NO RESPONSE NO. 1	C.C.K.	D.A.N.	R.H.N.	R.H.N.	DWN.	CKK	SCALE : GRAPHIC

**NEW BOSTON LANDFILL
LETTER OF MAP REVISION REQUEST
JUNE, 2013**

LETTER OF MAP REVISION REQUEST

NEW BOSTON LANDFILL

Bowie County, Texas

FEMA Community Number 481194

COPY

Prepared for:

Waste Management of Texas, Inc.

June, 2013

Prepared by:



P.O. Box 3786 - 5930 Summerhill Rd
Texarkana, Texas 75503
Telephone: 903.838.8533
Facsimile 903.832.4700

TEXAS BOARD OF PROFESSIONAL ENGINEERS
FIRM REGISTRATION NO. F-354

TEXAS BOARD OF PROFESSIONAL LAND SURVEYORS
FIRM REGISTRATION NO. 101011

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2. Existing/Effective HEC-HMS Model
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5. FEMA Forms

1.0 INTRODUCTION

1.1 Purpose:

The purpose of this study is to document the flood plain along a reach of Rice Creek and its tributary in Bowie County, Texas. The reach is illustrated in Figure 1 and extends from Interstate Highway 30 downstream to US Highway 82 across property wholly owned by Western Waste of Texas, LLC and operated Waste Management of Texas, Inc. under Texas Commission on Environmental Quality (TCEQ) Municipal Solid Waste Permit No. 576B . This study documents that the improvements made to Rice Creek under an expired Conditional Letter of Map Revision submitted in 2001 and future development activities are in accordance with established regulations and as part of an effort to maintain the accuracy of Flood Insurance Rate Map (FIRM) panels. This report contains the forms and supporting documentation required for the LOMR request.

1.2 Background

The study area is located in Bowie County, Texas (FEMA Community # 481194), immediately to the west of the City of New Boston, between Interstate Highway 30 and U.S. Highway 82 as shown in Figure 1, Study Area Map. The entire study area is owned by Western Waste of Texas, LLC with the western portion being utilized for a municipal solid waste landfill (TCEQ Permit No. 576B) and the eastern portion of the site being utilized for a soil borrow area. The future use of the eastern portion of the site will be utilized for landfill expansions in the future. A municipal solid waste landfill site has been in existence within the study area since 1968. During the life of the site, two different Conditional Letter of Map Revision (CLOMR) requests have been submitted to FEMA and approved. However, neither of these requests has been followed up with a Letter of Map Revision (LOMR) request prior to expiration of the CLOMR.

Currently, the predominance of surface water enters the landfill from the north and has defined entry points due to the culvert structures on Interstate 30. Rice Creek traverses through the central part of the study area and is an intermittent flow stream with the primary flow occurring during rain events. The study area is located near the headwaters of this creek.

The Federal Emergency Management Agency (FEMA) has defined the limits of the 100-year floodplain in the vicinity of the landfill as Zone A; no base flood elevations have been

determined by FEMA. The existing Flood Insurance Rate Map (FIRM) for the study area is Map Number 48037C0300D with an effective date of October 19, 2010. See Figure 2 for a firmette depicting the project area.

1.3.1 Existing / Effective FIRM Conditions

The existing/effective FIRM conditions include the active western landfill, detention basins, and access roadway as shown in Figure 3. The drainage features relative to the landfill were developed in accordance with Texas Administrative Code §330.307, Flood Protection for Landfills and FEMA requirements. The current FIRM map for the area with an effective date of October 19, 2010 does not reflect the current conditions of the study area.

The site conditions presented in the 2001 CLOMR were constructed in compliance with that document and are presented in this request as the existing conditions. These conditions include a relocation of Rice Creek with a landfill roadway crossing of the creek with the flow conveyed by two (2) 12' X 5' steel arch culverts. Additionally, a new detention/sedimentation pond was constructed on the northern portion of the site along with improvements to the two (2) existing detention/sedimentation ponds.

The hydrologic and hydraulic analysis of the existing/effective FIRM conditions accounts for these improvements.

1.3.2 Future Conditions

All future expansions of the landfill facility and associated storm water drainage improvements will be developed consistent with TCEQ and FEMA requirements. The future construction for the landfill facility includes the construction of drainage channels and storm water detention/sedimentation basins to insure existing drainage patterns and base flood elevations are not altered.

The hydrologic and hydraulic analysis of the existing/effective FIRM conditions will not be altered by and future development.

1.4 Study Methodology

The hydrologic and hydraulic methods utilized in the study are consistent with FEMA, TCEQ and Bowie County requirements. The analysis included the following:

- Collection and analysis of topography of the study areas, soil maps and land use data.
- Construction of hydrological models utilizing the United States Army Corps of Engineers (COE) HEC-HMS Version 3.5 software for computation of the peak flow rates for the existing/effective FIRM conditions. Computations of peak flow rates are based on the 24-hour, 100-year storm event for Bowie County, Texas.
- Construction of the hydraulic model using the COE HEC-RAS Version 4.1.0 software for determinations of flood elevations under peak flows for the existing/effective FIRM conditions.
- Delineation of the flood plain obtained through the hydraulic analysis.

2.0 Hydrologic Analysis

Hydrologic modeling of the study area was conducted using the USACE HEC-HMS (Version 3.5) software package to model the peak flow rate resulting from the 24-hour, 100-year design storm rate.

2.1 Precipitation

Precipitation data was obtained from the United States Geological Survey (USGS) in cooperation with TxDOT, taken from the Atlas of Depth-Duration Frequency of Precipitation Annual Maxima for Texas (Scientific Investigations Report 2004-5041.) The design storm with return period of 100 years and duration of 24-hours was adopted for the analysis. The intensity of precipitation was assumed constant for each 15-minute time interval, which is averaged over each 5-minute time step. Rainfall was assumed to be evenly distributed over the entire study area for each time interval.

2.2 Precipitation Losses

Precipitation losses (that is, the portion of precipitation that does not contribute to the runoff) were calculated using the Natural Resource Conservation Service (NRCS) – formerly, Soil Conservation Service (SCS) - Curve Number (CN) method. CN is a function of soil cover, land use, and antecedent moisture conditions. Information on soil characteristics was obtained from the Soil Survey of Bowie County, Texas, prepared by the SCS (Soil Conservation Service, 1978). A soil survey map is included in Appendix 1. Using this map, the hydrologic soil group of the subarea was determined and the CN was established for the soil group based on land use practice and hydrologic condition of the soil cover (Soil Conservation Service, 1986).

The majority of the off-site areas are listed as Hydrologic Soil Group C and were assigned a CN value of 79. On-site areas are listed as Soil Group D and were assigned a CN value of 84.

2.3 Hydrograph Method

The Snyder Unit Hydrograph Method was used to construct unit hydrographs for the drainage areas for this study. This approach is based on a relationship of the form (Ponce, 1989):

$$t_p = C_t (LL_c)^{0.3}$$

where

t_p = time from the centroid of rainfall excess to peak of hydrograph

L = length of main stream

L_c = flow distance from center of area of basin to outlet

Peak flow (Q_p) is given by:

$$Q_p = \frac{C_p A}{t_l}$$

where

C_p = coefficient accounting for flood wave and storage conditions

t_l = watershed lag time

The Espey "10-Minute Method" was used to estimate Snyder unit hydrograph parameters t_l and C_p . t_l values generally ranged from 14 minutes to 39 minutes for each sub-basin analyzed and C_p values ranged from 0.67 to 0.72. The lower the value of C_p , the greater is the capability for catchment storage.

Catchment discretization for the existing/effective FIRM condition is shown in Figures 4.

2.4 Flood Routing

Flood routing procedures are used to predict changes in the flow hydrograph as the flow passes through a reservoir. The lumped or hydrologic routing is based on the principle of mass conservation, which states that the change in flow per unit length in a control volume is balanced by the change in flow area per unit time. This is expressed as (Ponce, 1989):

$$\frac{\partial Q}{\partial x} + \frac{\partial A}{\partial t} = 0$$

where Q = flow rate, A = flow area, x = space (length), and t = time. In terms of inflow and outflow, this equation is expressed as:

$$I - O = \frac{dS}{dt}$$

where I = inflow, O = outflow and S = storage.

Reservoir routing and channel reach routing of flow through detention ponds were conducted using the hydrologic routing procedure known as the Modified Pul's method. The discretization of the mass conservation equation results in the following form (Ponce, 1989):

$$\frac{2S_2}{\Delta t} + O_2 = I_1 + I_2 + \frac{2S_1}{\Delta t} - O_1$$

in which the unknown values (S2 and O2) are on the left hand side of the equation and the known values (inflows, initial outflow and storage) are on the right side. The unknown values are calculated at each time step using elevation-storage and elevation-outflow relationships. Elevation-storage relationships were obtained from the topographic information. Elevation-outflow relationships were obtained from the

hydraulic properties of the outlet works of the detention ponds and the storage-discharge properties of the reservoirs and channels.

3.0 Summary of Results

The HEC-HMS model output for the existing/effective conditions is included in Appendix 3. Table 1 represents a summary of these flows which are consistent with flows developed in the previously approved CLOMR.

TABLE 1. COMPUTED WATER SURFACE FLOWS AT MAJOR POINTS IN THE STUDY AREA

LOCATION	RIVER STATION	PEAK FLOW RATE (CFS)
North Property Boundary	4572.48	304.50
East Tributary Intersection	3975.84	507.10
US Highway 82	1188.00	555.90

3.0 Hydraulic Analysis

The COE Hydrologic Engineering Center's River Analysis System (HEC-RAS) program was developed to simulate one-dimensional, steady flow, water surface profile computations of streams and hydraulic structures. The HEC-RAS model represents drainage systems as a full network of reaches representing river segments, junctions for river confluences and obstructions such as bridges, culverts, and weirs. The program uses the energy and momentum equations to determine water surface profiles. The modeling results in the computation of flood profiles of the streams in a drainage area.

3.1 Water Surface Profile

For the evaluation, HEC-RAS version 4.1.0 was used to determine water surface profiles of the existing streams crossing the site being Rice Creek and its northeastern tributary. The existing/effective FIRM conditions hydrologic runoff developed from HEC-HMS in Appendix 3 provides the precipitation runoff data for this water surface profile determination.

3.2 River Network Schematization

The modeled drainage system is geometrically represented in the HEC-RAS model by a River System Schematic that utilizes information from the drainage system such as connectivity, cross-sectional data, and hydraulic structure parameters. The River System Schematic was developed by dividing the drainage system into reaches between confluences. Each reach is geometrically defined by cross-sectional data input at numerous stations along the reach. Any channel obstructions are also entered as cross-sectional data.

3.3 Reach Characteristics

Reach characteristics are determined at each reach station. Reach characteristics include the reach length, roughness, cross-section, elevation and expansion/contraction coefficient.

Channel roughness is estimated using Manning's n values. The n values were determined based on the composition of the existing channels.

Expansion and contraction coefficients for abrupt stream cross-sectional variations were determined based on the degree of change.

3.4 Flow Data

Storm runoff data generated during the HEC-HMS simulation is entered into the HEC-RAS model as steady flow data. For the HEC-RAS simulation, the peak flow rates generated from the HEC-HMS model were utilized. Flow data for each storm event analyzed was entered at the corresponding reach station to generate the individual stormwater surface profile.

Since this analysis involved mixed flow regime, both upstream and downstream boundary conditions were required. At the furthest downstream locations, the boundary conditions were taken as the normal depth based on the existing stream slope.

For the HEC-RAS analysis, the 100-year, 24-hour storms were analyzed, generating a water surface profiles for the existing/effective FIRM condition.

3.5 HEC-RAS Results

Computed water surface elevations and the associated 100-year floodplain for the existing/effective FIRM condition are shown in Figure 6. The HEC-RAS model summary table for this condition is included in Appendix 3. Table 2 below provides a summary of the computed water surface elevations at the major points through the study area.

TABLE 2. COMPUTED WATER SURFACE ELEVATIONS AT MAJOR POINTS IN THE STUDY AREA

LOCATION	RIVER STATION	WATER SURFACE ELEVATION (FEET)
North Property Boundary	4572.48	369.67
East Tributary Intersection	3975.84	369.24
Upstream of Entry Road Culvert	3368.64	366.87
US Highway 82	1188.00	360.50

4.0 Summary

This report summarizes the results from the hydrological and hydraulic analysis for the existing/effective FIRM conditions of the study area. The hydrological analysis was performed based on the 24-hour, 100 year design storm. Using this discharge, the hydraulic analysis was performed resulting in computed water surface elevations for the design storm. The computed water surface elevation was utilized to delineate the corresponding floodplain. The results of this study are consistent with the 2001 CLOMR and extend the study along the east tributary to Rice Creek.

References:

Soil Conservation Service, Soil Survey of Bowie County, Texas, U. S. Department of Agriculture, 1978.

Soil Conservation Service, Urban Hydrology of Small Watersheds, U. S. Department of Agriculture, June 1986.

Texas Department of Transportation, Design Division, Hydraulic Design Manual, October 2011.

U. S. Army Corps of Engineers, River Analysis System (HEC-RAS), Hydraulic Reference Manual, Version 4.1, Hydrologic Engineering Center, January 2010.

U. S. Army Corps of Engineers, River Analysis System (HEC-RAS), User's Manual, Version 4.1, Hydrologic Engineering Center, January 2010.

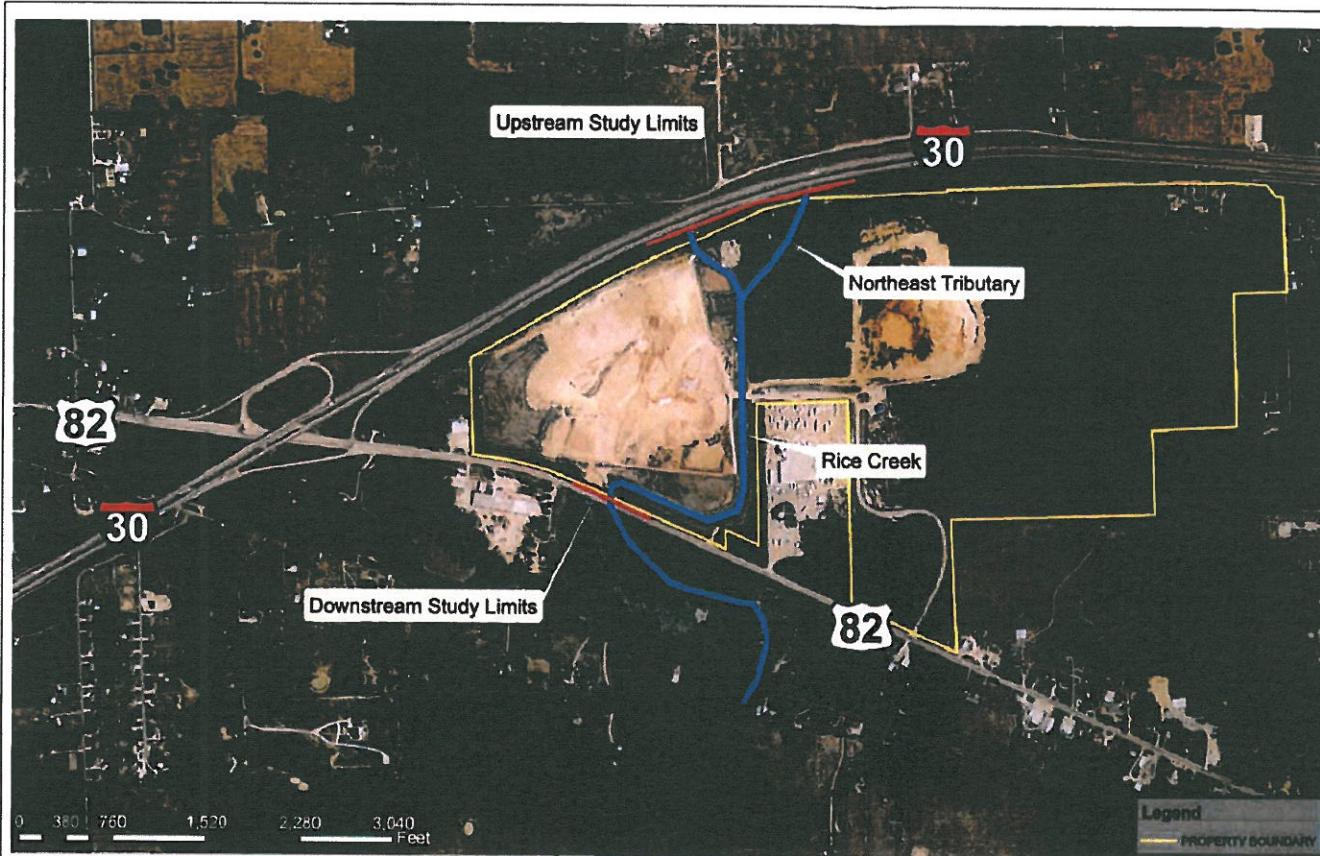
U. S. Army Corps of Engineers, Hydrologic Modeling System (HEC-HMS), Technical Reference Manual, Hydrologic Engineering Center, March 2000.

U. S. Army Corps of Engineers, Hydrologic Modeling System (HEC-HMS), User's Manual, Version 3.5, Hydrologic Engineering Center, August 2010.

USGS. Atlas of Depth-Duration Frequency of Precipitation Annual Maxima for Texas, 2004. Web. Spring 2012.

Ponce, V. M., Engineering Hydrology, Principles and Practice, Prentice Hall, 1989.

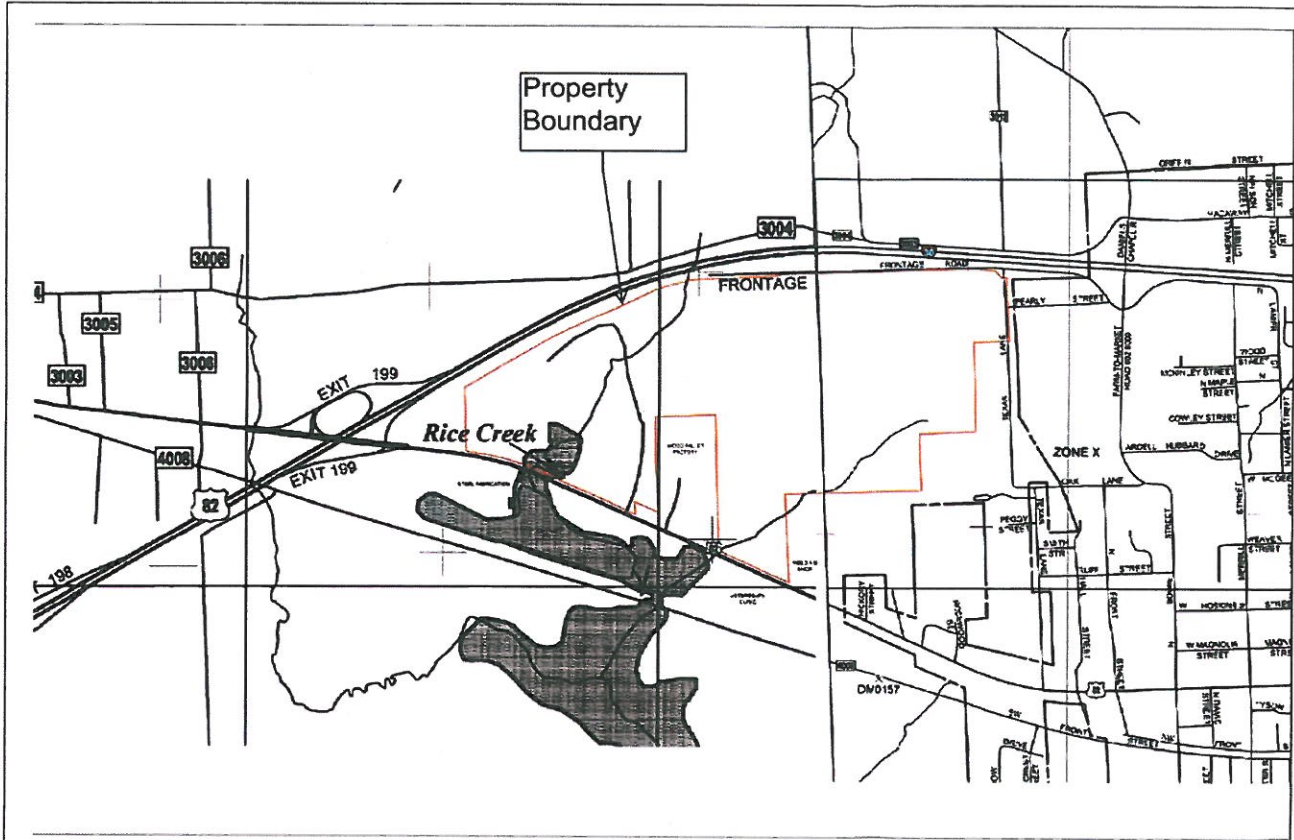
11J-21



N

ISSUED FOR PERMITTING PURPOSES ONLY

FIGURE 1 STUDY AREA		MTG <i>engineers & surveyors</i>
WASTE MANAGEMENT OF TEXAS, INC. NEW BOSTON LANDFILL LOMR REQUEST		
Date	Revision/Description	3450 SUMMERHILL RD., P.O. BOX 9106 TEXARKANA, TEXAS 75901 P: 409.888.6699 F: 409.882.4100 www.mtgengineers.com
Drawn By B.A.M.	Checked By D.A.H.	Project No. 107004
		Date 6/2013
		File No. Sheet No. 1 OF 1



N

LEGEND

SPREAD FLOOD HAZARD AREA (SFHA) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood) is shown in the map. The flood map is a technical drawing of a map of the area. The flood hazard areas are shown in the map. The flood hazard areas are shown in the map. The flood hazard areas are shown in the map.

ZONE X
100 Year Flood Hazard Area

ZONE AE
100 Year Flood Hazard Area

ZONE A
100 Year Flood Hazard Area

FLOODWAY AREAS IN ZONE AE

The floodway is the area of a water body and adjacent land areas that must be kept free of obstructions to maintain the floodway's capacity to convey the design flood discharge in flood stage.

OTHER FLOOD AREAS

OTHER AREAS

ZONE 1
Area designated to be added to the 1% annual chance flood area in which flood heights are substantially less than the 1% annual chance flood.

ZONE 2
COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

ONE-DAY PREDICTED AREAS (OPA)

OPA areas and OPA are normally located within or adjacent to local flood hazard areas.

BOUNDARIES

----- Floodway boundary
----- National boundary
----- Zone boundary
----- OPA boundary
----- OPA boundary

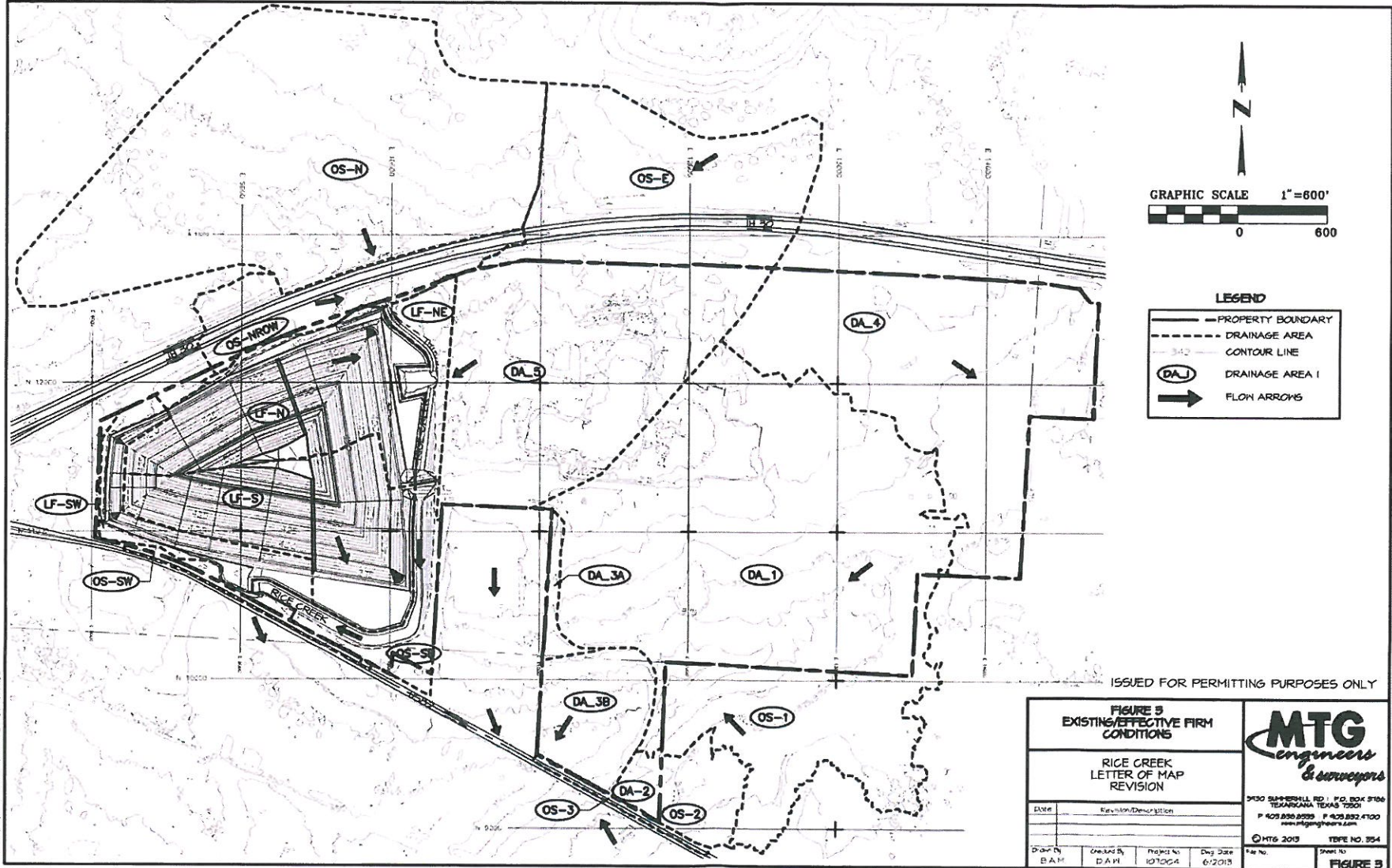
Map Scale: 1" = 1000 feet

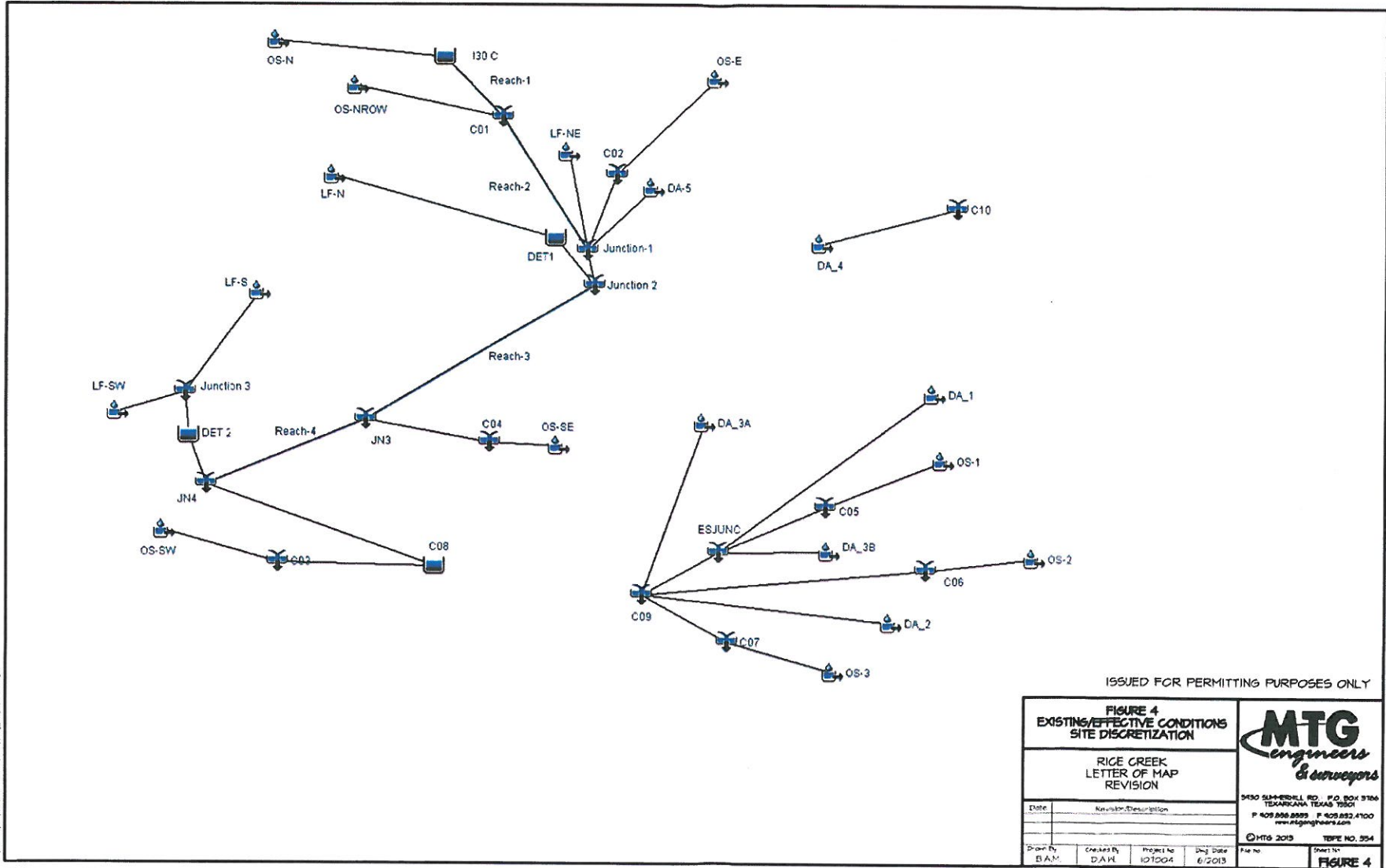
NOTES:

THIS MAP HAS BEEN COMPILED FROM FEMA FLOOD INSURANCE RATE MAPS (FIRM) OF BOKIE COUNTY AND INCORPORATED AREAS COMMUNITY PANEL NUMBER 48031C0300D AND 48031C0285D, EFFECTIVE DATE: OCTOBER 14, 2010

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FIGURE 2 FLOOD INSURANCE RATE MAP		MTG <i>engineers & surveyors</i>
WASTE MANAGEMENT OF TEXAS, INC. NEW BOSTON LANDFILL LOMR REQUEST		
Date	Revision/Description	3430 SANDHILL RD. 1 P.O. BOX 3104 TEXARKANA TEXAS 75502 P 409.833.8933 F 409.832.4100 www.mtgengineers.com
Drawn By B.A.H.	Checked By D.A.H.	
Project No. 107004	Draw Date 6/2013	<input checked="" type="checkbox"/> MTG 2013 T&PE NO. 354 File No. Sheet No.
		1 OF 1





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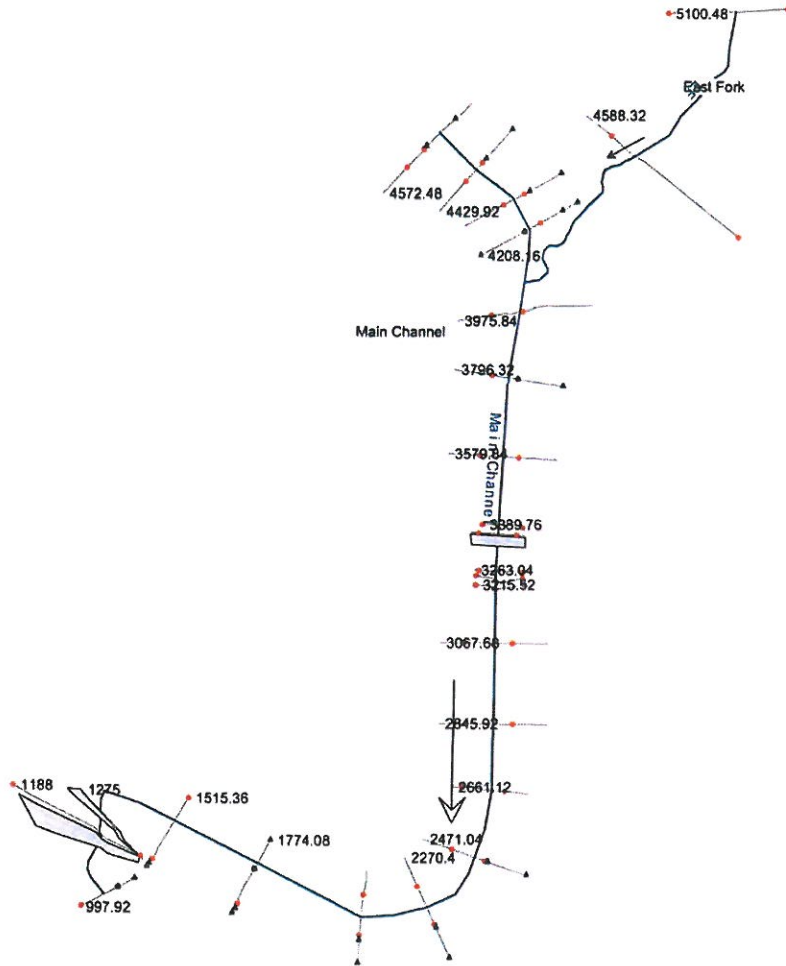
FIGURE 4 EXISTING/EFFECTIVE CONDITIONS SITE DISCRETIZATION	
RICE CREEK LETTER OF MAP REVISION	
Date:	Revision/Description:
Drawn By: BAM	Checked By: DAM
Project No: 101004	Sheet No: 6/2013

MTG
engineers & surveyors

5930 SILVERHILL RD., P.O. BOX 3706
TEXARKANA, TEXAS 75781
P 409.866.8893 F 409.832.4100
www.mtgengineers.com

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FIGURE 4

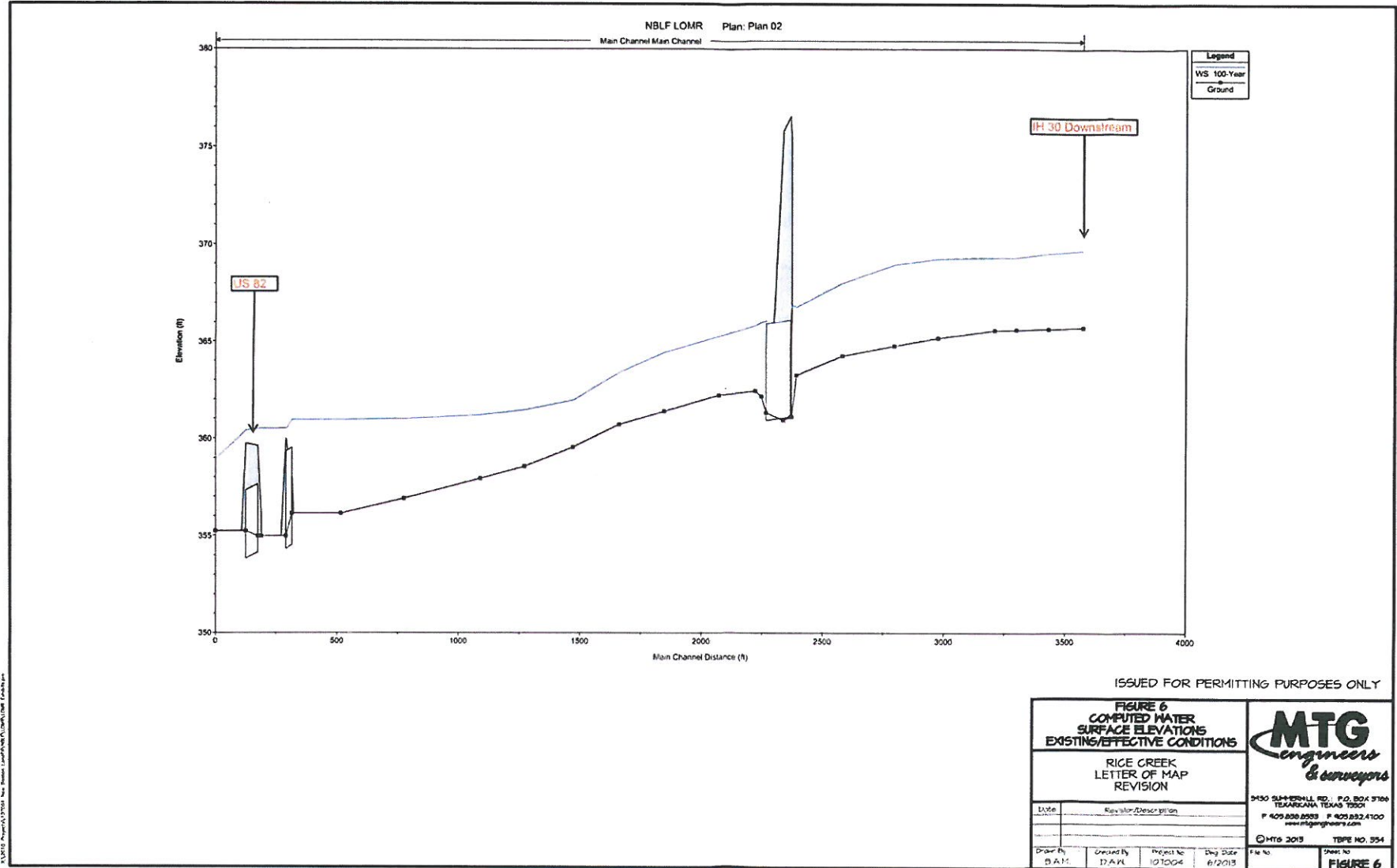


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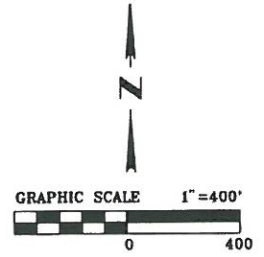
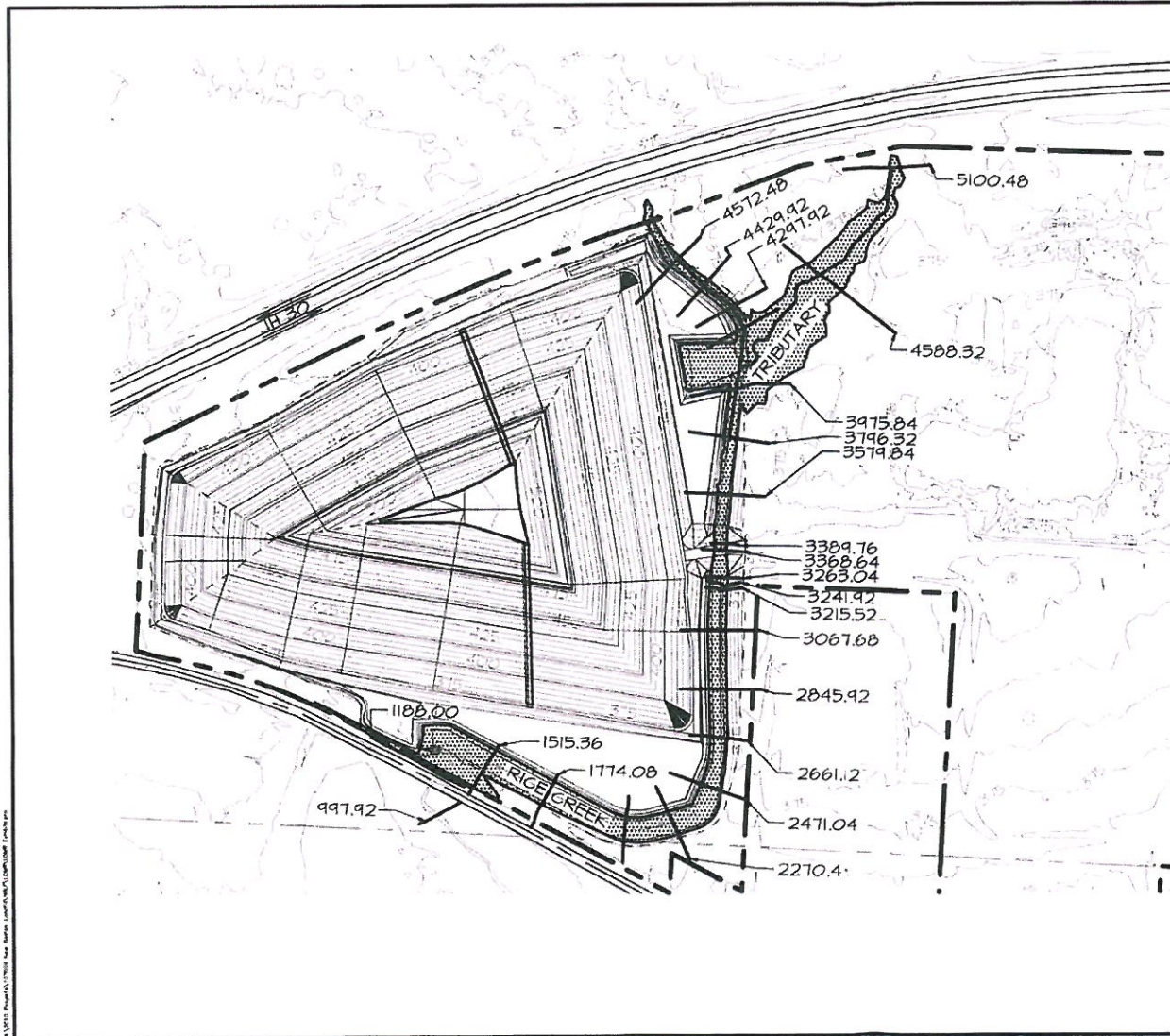
FIGURE 5 EXISTING/EFFECTIVE CONDITIONS CROSS SECTION LAYOUT		
RICE CREEK LETTER OF MAP REVISION		
Date	Revision/Description	
Drawn By	Checked By	Project No.
B.A.M.	D.A.R.	107004
Eng. Used	6/2013	TSR# NO. 354
Scale No.	FIGURE 5	

3430 SUMMERHILL RD., P.O. BOX 3704
 TECUMSCA, TEXAS 75001
 P. 409.598.8993 F. 409.502.4100
 www.mtgeng.com

New Boston Landfill
 Rev. 0, 7/8/13
 Attachment C2, Appendix C2-C



11-27

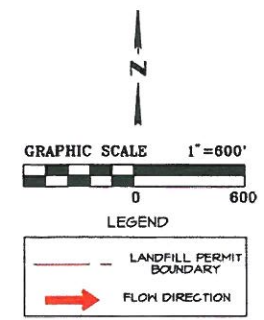
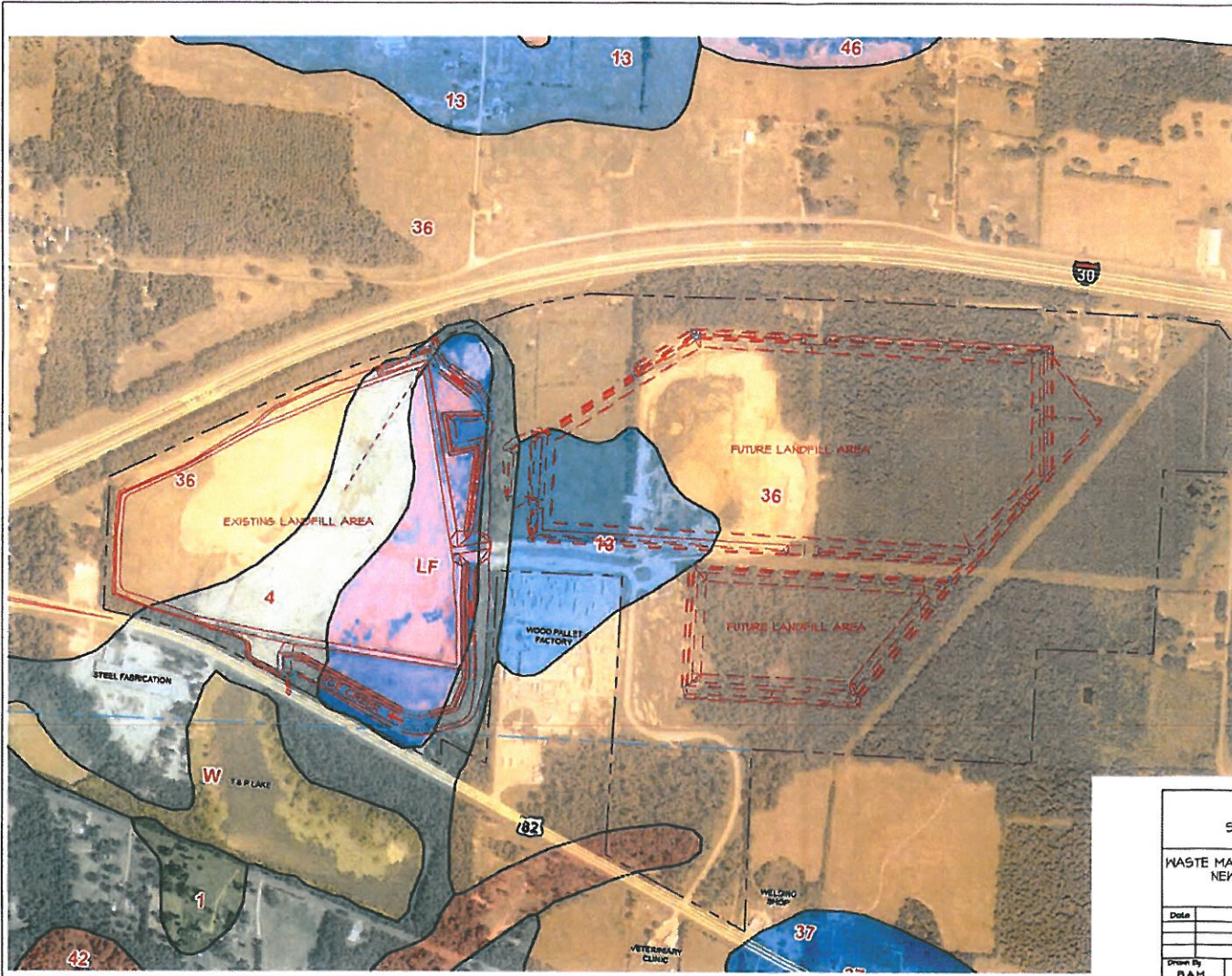


LEGEND

	PROPERTY BOUNDARY
	CROSS SECTION & RIVER STATION
	CONTOUR LINE
	100-YEAR FLOODPLAIN EXTENTS

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FIGURE 7 100-YEAR FLOOD PLAIN DELINEATION EXISTING EFFECTIVE CONDITIONS		MTG <i>engineers & surveyors</i>
RICE CREEK LETTER OF MAP REVISION		
Date	Revision/Description	9130 SHERWELL RD., P.O. BOX 3706 TEXARKANA, TEXAS 75201 P 409.838.8993 F 409.832.4300 www.mtgengineers.com
Drawn By B.A.M.	Created By D.A.M.	© MTG 2013
Project No 107004	Draw Date 6/2013	Sheet No 354
		FIGURE 7



Legend

SOIL INDEX

MUSYM

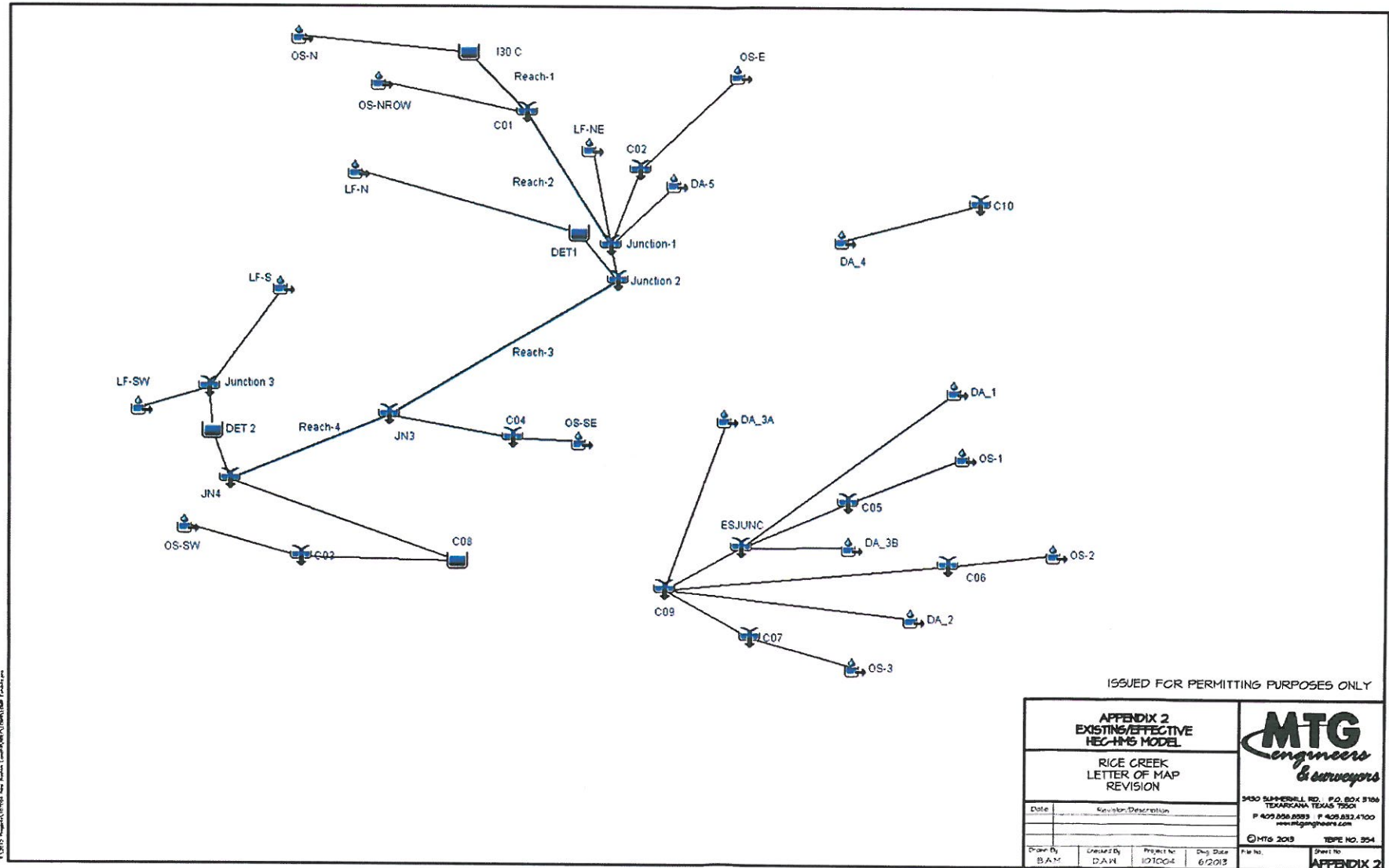
- 1-Austin-Muskogee complex
- 4-Anna loam, 1 to 3 percent slopes
- 13-Eyba very fine sandy loam, 0 to 3 percent slopes
- 36-Saayer silt loam, 0 to 3 percent slopes
- 37-Saayer-Urban land complex, 0 to 3 percent slopes
- 42-Thomas fine sandy loam, frequently flooded
- 46-Woodall very fine sandy loam, 5 to 12 percent slopes
- LF-Lands
- W-Water



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APPENDIX I SOIL SURVEY MAP		
WASTE MANAGEMENT OF TEXAS, INC., NEW BOSTON LANDFILL LOMR REQUEST		
Date	Revision/Description	
Drawn By B.A.H.	Checked By D.A.H.	Project No. 101004 Date 6/2013 File No. Sheet No. 1 OF 1

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ISSUED FOR PERMITTING PURPOSES ONLY

APPENDIX 2 EXISTING/EFFECTIVE HEC-HMS MODEL		MTG <i>engineers & surveyors</i>
RICE CREEK LETTER OF MAP REVISION		
Date	Revision/Description	3430 SUMMERHILL RD., P.O. BOX 5106 TEXARKANA, TEXAS 75501 P 409.853.8893 F 409.853.4700 www.mtgengineers.com
		© MTG 2013 T&E NO. 254
Drawn By B.A.M.	Checked By D.A.H.	Project No. 107004
		Sheet No. APPENDIX 2
		Proj. Date 6/2013

APPENDIX 3
HEC-HMS MODEL SUMMARY TABLE

Project: Project 3 Simulation Run: 3-20-2013 Exist/Effective Q100

Start of Run: 01Jan2012, 00:00 Basin Model: mod south det basin
End of Run: 02Jan2012, 00:00 Meteorologic Model: nb100in.dat
Compute Time: 13Feb2013, 14:44:54 Control Specifications: New Boston Land Fill

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
C01	0.1863	304.5	01Jan2012, 12:50	72.5
C02	0.0673	131.2	01Jan2012, 12:40	25.6
C03	0.0047	13.1	01Jan2012, 12:25	1.9
C04	0.0160	38.0	01Jan2012, 12:30	6.1
C05	0.0520	106.6	01Jan2012, 12:40	19.8
C06	0.0119	29.7	01Jan2012, 12:30	4.5
C07	0.0025	9.7	01Jan2012, 12:15	1.2
C08	0.4912	545.6	01Jan2012, 13:10	179.9
C09	0.2520	475.1	01Jan2012, 12:40	95.9
C10	0.0964	164.8	01Jan2012, 12:50	36.5
DA_1	0.1572	281.7	01Jan2012, 12:45	59.6
DA_2	0.0037	9.9	01Jan2012, 12:25	1.4
DA_3A	0.0035	8.1	01Jan2012, 12:35	1.3
DA_3B	0.0212	48.1	01Jan2012, 12:35	8.1
DA_4	0.0964	164.8	01Jan2012, 12:50	36.5
DA-5	0.0904	166.6	01Jan2012, 12:45	34.3
DET1	0.0502	36.6	01Jan2012, 13:50	19.1
DET 2	0.0645	33.2	01Jan2012, 13:15	22.7
ESJUNC	0.2304	428.9	01Jan2012, 12:40	87.5
I30 C	0.1618	279.8	01Jan2012, 12:50	61.3
JN3	0.4220	535.1	01Jan2012, 12:50	161.6
JN4	0.4865	559.3	01Jan2012, 12:55	184.1
Junction-1	0.3558	483.8	01Jan2012, 12:45	136.4
Junction 2	0.4060	507.1	01Jan2012, 12:50	155.6
Junction 3	0.0645	142.8	01Jan2012, 12:35	26.8
LF-N	0.0502	103.0	01Jan2012, 12:40	20.7

APPENDIX 3
HEC-HMS MODEL SUMMARY TABLE

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
LF-NE	0.0118	26.5	01Jan2012, 12:40	4.9
LF-S	0.0481	113.1	01Jan2012, 12:35	19.9
LF-SW	0.0164	32.6	01Jan2012, 12:50	6.9
OS-1	0.0520	106.6	01Jan2012, 12:40	19.8
OS-2	0.0119	29.7	01Jan2012, 12:30	4.5
OS-3	0.0025	9.7	01Jan2012, 12:15	1.2
OS-E	0.0673	131.2	01Jan2012, 12:40	25.6
OS-N	0.1618	285.1	01Jan2012, 12:45	61.4
OS-NROW	0.0245	89.8	01Jan2012, 12:15	11.2
OS-SE	0.0160	38.0	01Jan2012, 12:30	6.1
OS-SW	0.0047	13.1	01Jan2012, 12:25	1.9
Reach-1	0.1618	279.7	01Jan2012, 12:55	61.3
Reach-2	0.1863	203.4	01Jan2012, 13:30	71.7
Reach-3	0.4060	506.4	01Jan2012, 12:50	155.5
Reach-4	0.4220	531.4	01Jan2012, 12:55	161.4
Total Outfall	0.7432	946.1	01Jan2012, 12:55	275.8

APPENDIX 5
HEC-RAS MODEL SUMMARY TABLE

HEC-RAS Plan: Plan 02 Profile: 100-Year

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Wdth (ft)	Froude # Chl
Main Channel	Main Channel	4572.48	100-Year	304.50	365.70	369.67	367.79	369.76	0.001550	2.40	126.74	139.46	0.26
Main Channel	Main Channel	4429.92	100-Year	304.50	365.64	369.52	367.22	369.58	0.000891	1.98	153.99	154.65	0.20
Main Channel	Main Channel	4297.92	100-Year	304.50	365.59	369.30	367.53	369.41	0.001947	2.68	113.66	135.64	0.30
Main Channel	Main Channel	4208.16	100-Year	304.50	365.56	369.29	367.62	369.31	0.000466	1.30	291.72	212.43	0.14
Main Channel	Main Channel	3975.84	100-Year	507.10	365.16	369.24		369.25	0.000172	0.97	570.60	225.26	0.09
Main Channel	Main Channel	3796.32	100-Year	507.10	364.76	368.94	367.31	369.15	0.003244	3.64	139.19	158.57	0.39
Main Channel	Main Channel	3579.84	100-Year	507.10	364.25	368.02		368.29	0.004946	4.20	120.65	48.65	0.47
Main Channel	Main Channel	3389.76	100-Year	507.10	363.24	366.79		367.16	0.007155	4.91	103.23	43.37	0.56
Main Channel	Main Channel	3368.64	100-Year	507.10	361.09	366.87	364.57	367.03	0.001950	3.20	158.47	46.86	0.31
Main Channel	Main Channel	3363.04											
Main Channel	Main Channel	3263.04	100-Year	507.10	361.31	366.08		366.24	0.002198	3.19	158.77	51.28	0.32
Main Channel	Main Channel	3241.92	100-Year	507.10	362.15	366.00		366.18	0.003121	3.43	147.65	57.14	0.38
Main Channel	Main Channel	3215.52	100-Year	507.10	362.43	365.83		366.08	0.005043	4.01	126.33	55.66	0.47
Main Channel	Main Channel	3087.68	100-Year	507.10	362.20	365.27		365.45	0.003274	3.42	148.38	60.12	0.38
Main Channel	Main Channel	2845.92	100-Year	507.10	361.38	364.45		364.66	0.003824	3.68	137.89	56.19	0.41
Main Channel	Main Channel	2661.12	100-Year	507.10	360.70	363.40		363.71	0.007061	4.43	114.34	55.98	0.55
Main Channel	Main Channel	2471.04	100-Year	507.10	359.54	361.97	361.29	362.29	0.007823	4.59	110.47	151.71	0.57
Main Channel	Main Channel	2270.4	100-Year	507.10	358.55	361.47	359.96	361.57	0.001807	2.50	202.63	150.09	0.28
Main Channel	Main Channel	2090.88	100-Year	507.10	357.93	361.21	359.41	361.29	0.001282	2.23	227.14	141.50	0.24
Main Channel	Main Channel	1774.08	100-Year	507.10	356.90	361.01	358.20	361.05	0.000449	1.57	323.13	157.29	0.15
Main Channel	Main Channel	1515.36	100-Year	555.90	356.14	360.96	357.59	360.98	0.000177	0.92	602.69	214.54	0.09
Main Channel	Main Channel	1275											
Main Channel	Main Channel	1188	100-Year	555.90	354.97	360.50	357.08	360.50	0.000020	0.34	1632.26	460.39	0.03
Main Channel	Main Channel	1172.26											
Main Channel	Main Channel	997.92	100-Year	555.90	355.23	358.96	357.86	359.06	0.002464	2.54	218.70	165.14	0.32
EF	East Fork	5100.48	100-Year	202.60	375.27	376.91	376.57	376.97	0.005726	1.92	105.77	157.43	0.41
EF	East Fork	4588.32	100-Year	202.60	369.98	370.64	370.64	370.84	0.042269	3.54	57.28	152.27	1.02

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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	City of Katy	TX	48473C	0005D	C2/08/83
480287	Harris County	TX	48201C	0220G	C9/28/90
481194	Bowie County	TX	48037C	0300D	10/19/10

2. a. Flooding Source: Rice Creek

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

3. Project Name/Identifier: 107004 New Boston 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)

- | | | | |
|---|--|---|---|
| <input type="checkbox"/> Physical Change | <input type="checkbox"/> Improved Methodology/Data | <input type="checkbox"/> Regulatory Floodway Revision | <input type="checkbox"/> Base Map Changes |
| <input type="checkbox"/> Coastal Analysis | <input checked="" type="checkbox"/> Hydraulic Analysis | <input checked="" type="checkbox"/> Hydrologic Analysis | <input type="checkbox"/> Corrections |
| <input type="checkbox"/> Weir-Dam Changes | <input type="checkbox"/> Levee Certification | <input type="checkbox"/> Alluvial Fan Analysis | <input type="checkbox"/> Natural Changes |
| <input type="checkbox"/> New Topographic Data | <input type="checkbox"/> Other (Attach Description) | | |

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

b. The area of revision encompasses the following structures (check all that apply)

Structures: Channelization Levee/Floodwall Bridge/Culvert
 Dam Fill Other (Attach Description)

6. Documentation of ESA compliance is submitted (required to initiate CLOMR review). Please refer to the instructions for more information.

C. REVIEW FEE

Has the review fee for the appropriate request category been included? Yes Fee amount: \$5,000
 No. Attach Explanation

Please see the DHS-FEMA Web site at http://www.fema.gov/plan/prevent/fhm/fm_fees.shtm for Fee Amounts and Exemptions.

D. SIGNATURE

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: David A. Williams P.E.	Company: MTG Engineers & Surveyors, Inc.	
Mailing Address: 5930 Summerhill Road	Daytime Telephone No.: 9038388533	Fax No.: 9038324700
Signature of Requester (required): <i>David A. Williams</i>		E-Mail Address: dwilliams@mtgengineers.com
Date: 6/25/2013		

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirements for when fill is placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. For Conditional LOMR requests, the applicant has documented Endangered Species Act (ESA) compliance to FEMA prior to FEMA's review of the Conditional LOMR application. For LOMR requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA's process. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title: Cherrie Curtis, Flood Plain Administrator	Community Name: Bowie County	
Mailing Address: 710 James Bowie Drive New Boston, TX 75570	Daytime Telephone No.: 903-628-6705	Fax No.: 903-628-4008
Community Official's Signature (required): <i>Cherrie Curtis</i>		E-Mail Address:
Date: 6-28-13		

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information data, hydrologic and hydraulic analysis and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms Instructions. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

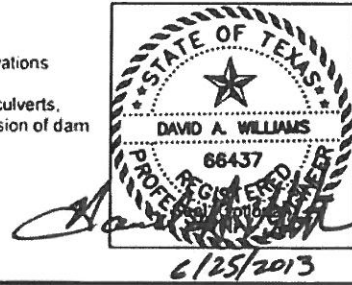
Certifier's Name: David A. Williams	License No.: 66437	Expiration Date: 6/30/14
Company Name: MTG Engineers & Surveyors, Inc.	Telephone No.: 903-838-8533	Fax No.: 903-832-4700
Signature: <i>David A. Williams</i>	Date: 6/25/2013	E-Mail Address: dwilliams@mtgengineers.com

Ensure the forms that are appropriate to your revision request are included in your submittal.

Form Name and (Number)

Required if ...

- | | |
|---|---|
| <input checked="" type="checkbox"/> Riverine Hydrology and Hydraulics Form (Form 2) | New or revised discharges or water-surface elevations |
| <input type="checkbox"/> Riverine Structures Form (Form 3) | Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam |
| <input type="checkbox"/> Coastal Analysis Form (Form 4) | New or revised coastal elevations |
| <input type="checkbox"/> Coastal Structures Form (Form 5) | Addition/revision of coastal structure |
| <input type="checkbox"/> Alluvial Fan Flooding Form (Form 6) | Flood control measures on alluvial fans |



U.S. DEPARTMENT OF HOMELAND SECURITY
 FEDERAL EMERGENCY MANAGEMENT AGENCY
RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 1560-0016
 Expires February 28, 2014

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.5 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 a valid OMB control number appears in the upper right corner of this form. 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).

Flooding Source: Rice Creek

Note: Fill out one form for each flooding source studied

A. HYDROLOGY

1. Reason for New Hydrologic Analysis (check all that apply)

- Not revised (skip to section B)
 No existing analysis
 Improved data
 Alternative methodology
 Proposed Conditions (CLOMR)
 Changed physical condition of watershed

2. Comparison of Representative 1%-Annual-Chance Discharges

Location	Drainage Area (Sq. Mi.)	Effective/F S (cfs)	Revised (cfs)
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3. Methodology for New Hydrologic Analysis (check all that apply)

- Statistical Analysis of Gage Records
 Precipitation/Runoff Model → Specify Model: HEC-HMS
 Regional Regression Equations
 Other (please attach description)

Please enclose all relevant models in digital format, maps, computations (including computation of parameters), and documentation to support the new analysis.

4. Review/Approval of Analysis

If your community requires a regional, state, or federal agency to review the hydrologic analysis, please attach evidence of approval/review.

5. Impacts of Sediment Transport on Hydrology

Is the hydrology for the revised flooding source(s) affected by sediment transport? Yes No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation..

B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevations (ft.)	
			Effective	Proposed/Revised
Downstream Limit*	<u>X-Section North of US 82</u>	<u>1188</u>	<u>360.50</u>	<u>360.50</u>
Upstream Limit*	<u>X-Section South of IH 30</u>	<u>4572.48</u>	<u>369.67</u>	<u>369.67</u>

*Proposed/Revised elevations must tie-into the Effective elevations within 0.5 foot at the downstream and upstream limits of revision.

2. Hydraulic Method/Model Used: HEC-RAS

3. Pre-Submittal Review of Hydraulic Models*

DHS-FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS.

4.

<u>Models Submitted</u>	<u>Natural Run</u>		<u>Floodway Run</u>		<u>Datum</u>
	File Name:	Plan Name:	File Name:	Plan Name:	
Duplicate Effective Model*	_____	_____	_____	_____	_____
Corrected Effective Model*	File Name: _____	Plan Name: _____	File Name: _____	Plan Name: _____	_____
Existing or Pre-Project Conditions Model	File Name: _____	Plan Name: _____	File Name: _____	Plan Name: _____	_____
Revised or Post-Project Conditions Model	File Name: _____	Plan Name: _____	File Name: _____	Plan Name: _____	_____
Other - (attach description)	File Name: _____	Plan Name: _____	File Name: _____	Plan Name: _____	_____

* For details, refer to the corresponding section of the instructions.

Digital Models Submitted? (Required)

C. MAPPING REQUIREMENTS

A certified topographic work map must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks and the referenced vertical datum (NGVD, NAVD, etc.).

Digital Mapping (GIS/CADD) Data Submitted (preferred)

Topographic Information: Field Survey and Aerial Survey

Source: MTG Engineers & Surveyors/Aero-Metrics Inc.

Date: February 2012

Accuracy: Field Survey = 0.2'/Aerial Survey = 2'

Note that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM must tie-in with the effective floodplain and regulatory floodway boundaries. Please attach a copy of the effective FIRM and/or FBFM, at the same scale as the original, annotated to show the boundaries of the revised 1%-and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%-and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area on revision.

Annotated FIRM and/or FBFM (Required)

D. COMMON REGULATORY REQUIREMENTS*

1. For LOMR/CLOMR requests, do Base Flood Elevations (BFEs) increase? Yes No
- a. For CLOMR requests, if either of the following is true, please submit evidence of compliance with Section 65.12 of the NFIP regulations:
- The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot compared to pre-project conditions.
 - The proposed project encroaches upon a SFHA with or without BFEs established and would result in increases above 1.00 foot compared to pre-project conditions.
- b. Does this LOMR request cause increase in the BFE and/or SFHA compared with the effective BFEs and/or SFHA? Yes No
If Yes, please attach proof of property owner notification and acceptance (if available). Elements of and examples of property owner notifications can be found in the MT-2 Form 2 Instructions.
2. Does the request involve the placement or proposed placement of fill? Yes No
If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(A)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.
3. For LOMR requests, is the regulatory floodway being revised? Yes No
If Yes, attach evidence of regulatory floodway revision notification. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway. (Not required for revisions to approximate 1%-annual-chance floodplains [studied Zone A designation] unless a regulatory floodway is being established. Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.)
4. For CLOMR requests, please submit documentation to FEMA and the community to show that you have complied with Sections 9 and 10 of the Endangered Species Act (ESA).

For actions authorized, funded, or being carried out by Federal or State agencies, please submit documentation from the agency showing its compliance with Section 7(a)(2) of the ESA. Please see the MT-2 instructions for more detail.

* Not inclusive of all applicable regulatory requirements. For details, see 44 CFR parts 60 and 65.

**FEDERAL EMERGENCY MANAGEMENT AGENCY
PAYMENT INFORMATION FORM**

Community Name: **Bowie County**

Project Identifier: **107004 New Boston Landfill**

THIS FORM MUST BE MAILED, ALONG WITH THE APPROPRIATE FEE, TO THE ADDRESS BELOW OR FAXED TO THE FAX NUMBER BELOW.

Type of Request:

- | | | |
|--|---|---|
| <input type="checkbox"/> MT-1 application | } | FEMA Project Library
847 South Pickett St.
Alexandria, VA 22304
FAX (703) 212-4090 |
| <input checked="" type="checkbox"/> MT-2 application | | |
| <input type="checkbox"/> EDR application | | |

Request No : _____ (if known)

Amount: \$5,000.00

INITIAL FEE* FINAL FEE FEE BALANCE** MASTER CARD VISA CHECK MONEY ORDER

*Note: Check only for EDR and/or Alluvial Fan requests (as appropriate).

**Note: Check only if submitting a corrected fee for an ongoing request.

COMPLETE THIS SECTION ONLY IF PAYING BY CREDIT CARD

CARD NUMBER

EXP. DATE

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Month	Year		

Date _____

Signature _____

NAME (AS IT APPEARS ON CARD): _____
(please print or type)

ADDRESS: _____
(for your credit card receipt-please print or type)

DAYTIME PHONE: _____