

Floodplain Protection Plan for Geronimo and Alligator Creeks' Watersheds



Geronimo & Alligator Partnership Meeting

GBRA River Annex

August 10, 2010



Lance Klein, P.E., C.F.M

M&S Engineering, LLC

Floodplain Protection Plan for Geronimo and Alligator Creeks' Watersheds



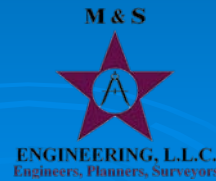
Lance Klein with M&S Engineering

- Purpose of Public Meeting
 - Overview of Purpose of Study
 - Overview of Work Completed to Date
 - Public Workshop to Review Preliminary Maps
 - Second of Three Meetings (Final Meeting in July)

Floodplain Protection Plan for Geronimo and Alligator Creeks' Watersheds



Introduction of Participants:



Floodplain Protection Plan for Geronimo and Alligator Creeks' Watersheds



Purpose of Study

- Texas Water Development Board (TWDB) Application
- Local Matching Funds from Study Participants
- Hydrologic and Hydraulic Modeling – Flood Maps
- Identify Five Potential Flood Mitigation Projects
- Final Document to be Use for Grant Applications to Implement Projects



Floodplain Protection Plan for Geronimo and Alligator Creeks' Watersheds



Texas Water Development Board Application Local Matching Funds

- ✓ Guadalupe County Officials Started Application Process with TWDB Nearly Two Years Ago.
- ✓ Application Requesting Matching Funds from the TWDB to Study the Geronimo and Alligator Creeks Watersheds Formally Approved Summer 2009.
- ✓ Local Matching Funds - \$165,000 Provided by TWDB and Local Matching Provided Equal Amount.
- ✓ Total Effort: \$330,000.



Re-Printed in
2005

PRELIMINARY
DEC 2 & 2015

Study Dated
February 1976

MAP SCALE 1" = 100'

PANEL 0140F

FIRM
FLOOD INSURANCE RATE MAP
GUADALUPE COUNTY,
TEXAS
AND INCORPORATED AREAS

PANEL 140 OF 400
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SHEET
GUADALUPE COUNTY, NEW-CORPUS CHRISTI AREA	4800A	040	F
NEW-BIRMINGHAM, CITY OF	4800B	040	F
OSAGE, CITY OF	4800C	040	F

NOTE TO USER: This map number should never be used in insurance applications. The Community number and sheet number should be used in insurance applications for the subject community.

MAP NUMBER
48167C0140F

EFFECTIVE DATE

Federal Emergency Management Agency



Hydrologic and Hydraulic Modeling – Flood Maps

- ✓ Existing Flood Maps Developed in mid 1970's.....Out Dated!!
- ✓ Hydrologic and Hydraulic Models needed to be created from scratch.
- ✓ Floodplains needed to be recalculated and redrawn.

WSP2 REG 02/13/76
REV 02/13/76

8040F LIST OF INPUT DATA

WSP2 TITLE GUADALUPE COUNTY, TEXAS, FLOOD INSURANCE STUDY 02-10-76

WSP2 ISSUE 1400

WSP2 FIRM 1400

WSP2 COMMENT SET UP REACH AND ROAD DATA FOR ALL SECTIONS

WSP2 COMMENT BEGIN REACH AND ROAD DATA FOR GERONIMO CREEK

REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
ROAD	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REACH	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	2																		

Floodplain Protection Plan for Geronimo and Alligator Creeks' Watersheds



Public Input/"On the Ground" Information is Critical

- Meeting #1
 - Gained valuable input from public regarding flooding
 - Residents filled out survey forms
 - Written questions were submitted and answered
 - Problem areas were identified
- Meeting #2
 - Public response to preliminary floodplain
 - Public comment on preliminary floodplain in light of recent flood event

Identify Five Potential Flood Mitigation Projects

- From Public Input, Cost/Benefit Analysis, and Hydrologic/Hydraulic Modeling, Identify Five Potential Flood Mitigation Projects
 - Structural Options: Re-grading Channels, Reshaping Channels, Storm Water Retention/Detention Ponds, etc.
 - Non Structural Options: More Stringent Floodplain Development Policies, Land Use Restrictions, Additional Water Detention Requirements, etc.

Final Use of Study – Use for Grant Applications to Implement Projects



Floodplain Protection Plan for Geronimo and Alligator Creeks' Watersheds



Work Completed to Date

- Detailed Topographic Survey Completed
 - Aerial survey was completed in January 2010 for the Guadalupe County portion of the watershed.
 - Detailed survey was performed for all crossing on the main creek channels.
 - 2-foot contours were generated and updated aerial photographs provided.
 - Used for creation of Hydraulic Model.
- Flood Flows Calculated
 - Hydrologic model was created and completed.
- Draft Flood Maps Developed
 - Flood flows inputted into hydraulic model and executed.
 - Inundation patterns were delineated.
- Draft Flood Maps Compared to Existing FIRM
- Flood Mitigation Projects Identified to Date by Oversight Committee

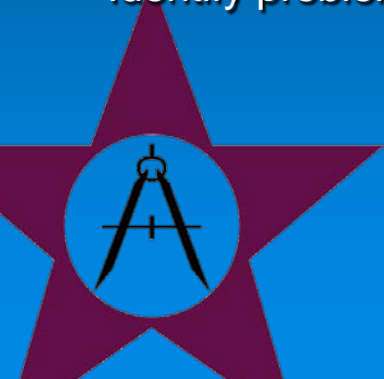
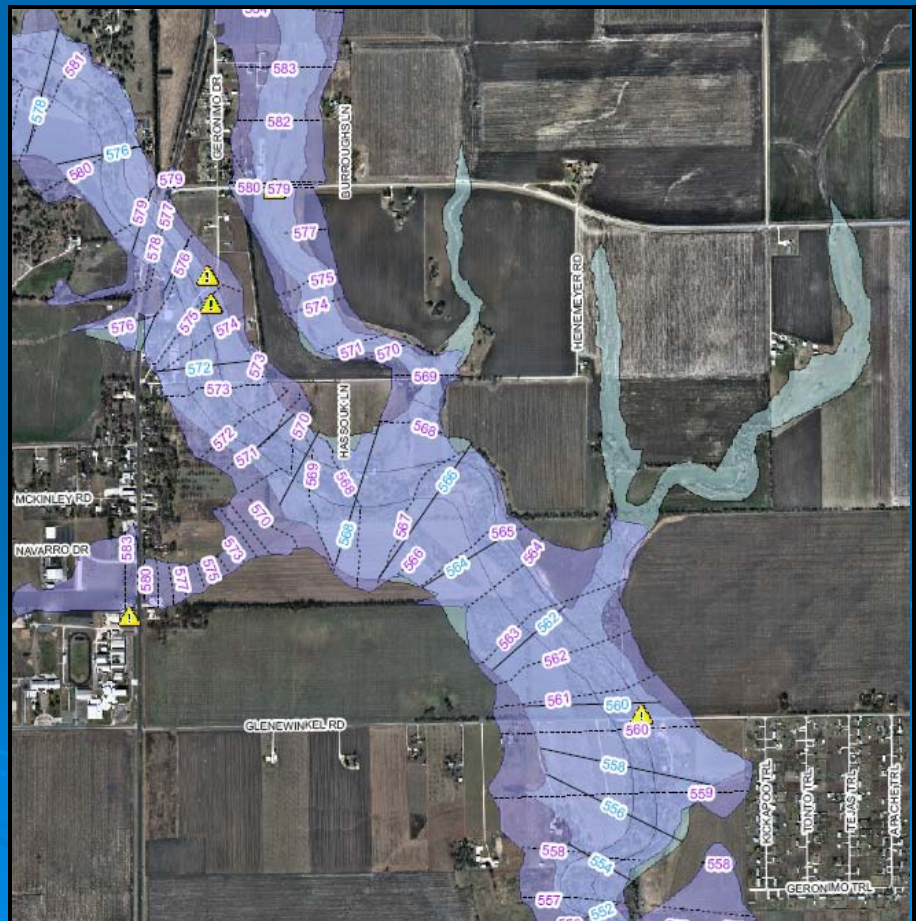


Floodplain Protection Plan for Geronimo and Alligator Creeks' Watersheds



Draft Flood Maps Compare to Existing FIRM

- Visual Inspections
- Flood Water Elevation Comparisons
- Check for Accuracy
- Identify problem areas



Floodplain Protection Plan for Geronimo and Alligator Creeks' Watersheds



Flood Mitigation Projects Identified to Date by Oversight Committee

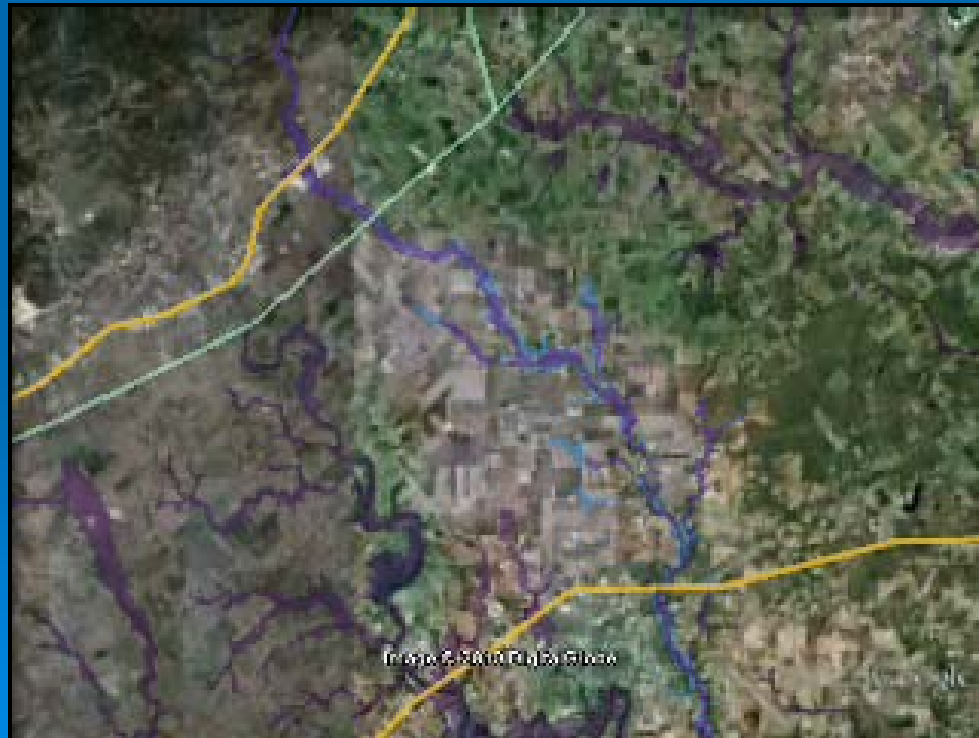
- Regional Detention Ponds
- Regional Detention Regulations
- Creek Channelization
- Brush Removal in Channel and Overbanks
- Bridge and Low Water Crossing Modifications
- Flood Early Warning System
- Buy Outs for Repetitive Loss Structures



Floodplain Protection Plan for Geronimo and Alligator Creeks' Watersheds



Tour of Preliminary 100-Year Floodplain



Floodplain Protection Plan for Geronimo and Alligator Creeks' Watersheds



Questions & Comments

Lance Klein, P.E., C.F.M

lklein@msengr.com

(830) 228-5446



M&S Engineering, LLC