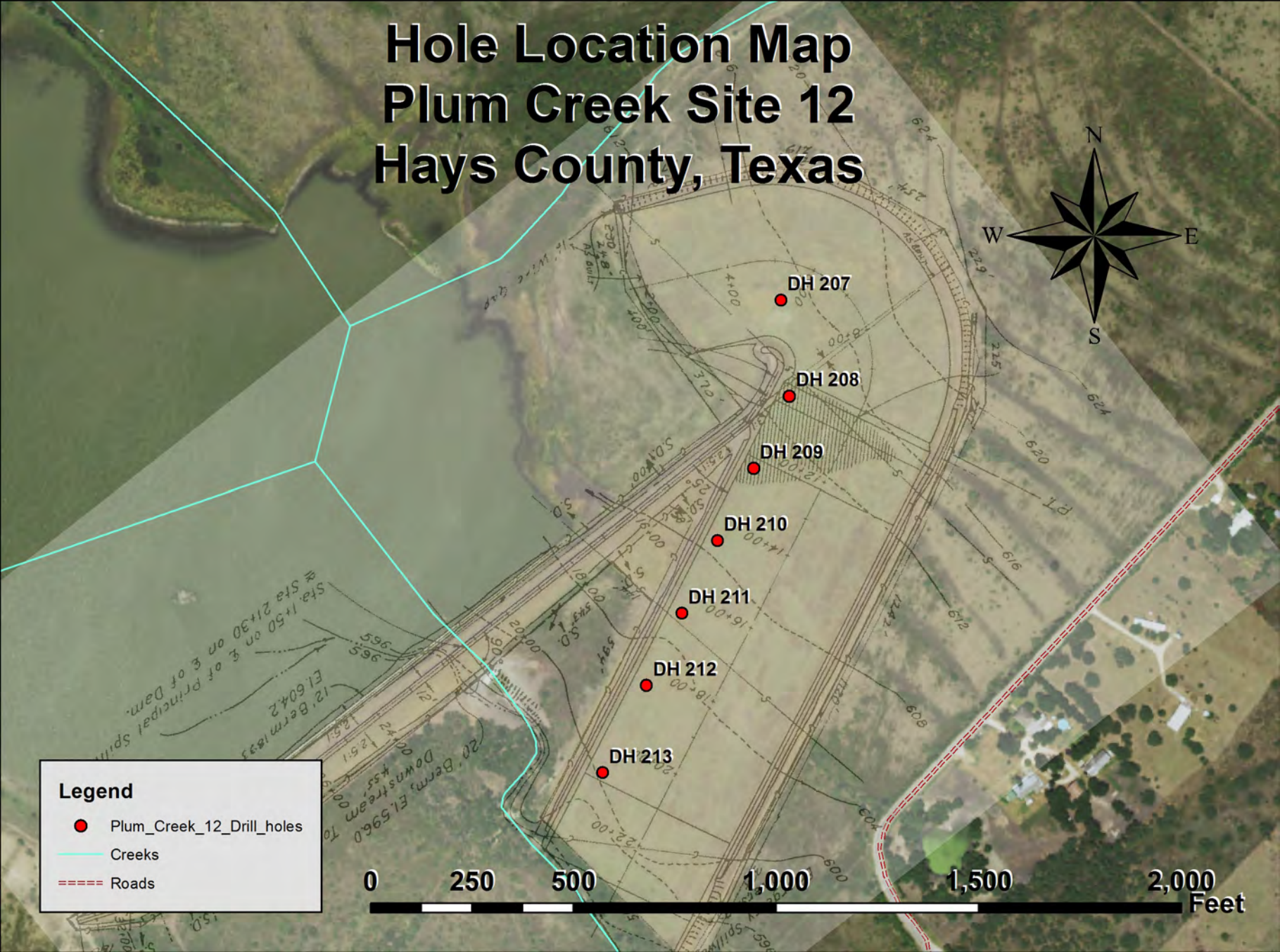


Hole Location Map Plum Creek Site 12 Hays County, Texas



Legend

- Plum_Creek_12_Drill_holes
- Creeks
- ==== Roads



LOG OF TEST HOLES

WATERSHED Plum Creek		SUB-WATERSHED		SITE NO. 12
LOCATION Auxiliary Spillway	DATE 8/20/2014	LAT/LONG -97.770166 30.038211 Approx.		STATE Texas
LOGGED BY Moffatt		PROJECT : WP-07 _____ WP-08 _____ FP-03 _____ P.L.-46 _____		
DRILLING EQUIPMENT Mobile B-57		LOCTION OF HOLES Forebay		

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM	TO					NO	TYPE	FROM	TO	REC %	DISP FT	AMT
		FT	FT							FT	FT			
207	612.778	0	0.5	Clay, silty, dry to slightly moist, highly plastic, stiff, shiny, black. Push 0-2.5,		CH	HS	.1	small	0	0.5			
	~5+40			refusal at 0.5 in gravel, sample fell out of tube.				.2	3"P	5	7.5	100		
	CL AS	0.5	4	Gravel, fine to coarse grained, sand, fine to coarse grained, silty, slight clay,		GM	HS							
	94' Right			dry to slightly moist, medium dense to dense, brown with multi color gravel.										
		4	7.5	Claystone, silty, weathered, thin bedded to laminated, soft rock, slightly		CS	HS							
				moist, breaks down to moderately to highly plastic silty clay, fractured, light										
				brown mottled light gray										

LOG OF TEST HOLES

WATERSHED Plum Creek		SUB-WATERSHED		SITE NO. 12
LOCATION Auxiliary Spillway	DATE 8/19/2014	LAT/LONG -97.770110 30.037561 Approx.		STATE Texas
LOGGED BY Moffatt		PROJECT : WP-07 _____ WP-08 _____ FP-03 _____ P.L.-46 _____		
DRILLING EQUIPMENT Mobile B-57		LOCTION OF HOLES Crest		

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM	TO					NO	TYPE	FROM	TO	REC %	DISP FT	AMT
		FT	FT							FT	FT			
208	615.058	0	1	Clay, silty, dry to slightly moist, highly plastic, stiff, shiny, black (topsoil)		CH	HS	.1	3" P	0	1.5			
	~10+51	1	4	Clay, silty, fine to coarse gravel stiff, dry to slightly moist, highly plastic,		GC	HS	.2	small	5	5.5			
	CL AS			black with multi color gravel (fill). Push 0' - 2.5', refusal at 1.5 in gravel, taco				.3	small	6	9			
	173' Right			tube, contact topsoil/GC in tube				.4	3" P	10	11.5			
		4	5.5	Clay, silty, slight fine grain gravel, dry to slightly moist, stiff, shiny, roots,		CH	HS	.5	3" P	15	17.5	100		
				highly plastic, black (old topsoil layer?). Push 5' - 7.5', refusal in GC material										
				sample fell out of tube, recovered 4"										
		5.5	9	Gravel, sandy, clay, dry to slightly moist, dense, clay moderately plastic,		GM	HS							
				brown with multi color gravel (high terrace deposit). Sample from 6' - 9' has		GC								
				mechanically broken gravel pieces in it.										
		9	17.5	Claystone, weathered, thin bedded to laminated, soft rock, slightly moist,		CS	HS							
				silty, breaks down to highly plastic silty clay, blocky, vertical fractures,										
				grayish brown to gray. Push 10' - 12.5', refusal @11.5' vertical fracture with										
				black fill at 10', less weathered below 13', Push 15' - 17.5' almost sheared										
				head from tube.										

LOG OF TEST HOLES

WATERSHED Plum Creek		SUB-WATERSHED		SITE NO. 12
LOCATION Auxiliary Spillway	DATE 8/20/2014	LAT/LONG -97.770394 30.037071 Approx.		STATE Texas
LOGGED BY Moffatt		PROJECT: WP-07 _____ WP-08 _____ FP-03 _____ P.L.-46 _____		
DRILLING EQUIPMENT Mobile B-57		LOCTION OF HOLES Exit Slope, ~ 200 DS Crest		

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM	TO					NO	TYPE	FROM	TO	REC %	DISP FT	AMT
		FT	FT							FT	FT			
209	610.436	0	1.5	Clay, silty, dry to slightly moist, highly plastic, stiff, shiny, black (topsoil fill)		CH	HS	.1	3" P	2.5	4			
	~12+25	1	4	Clay, silty, slight gravel, stiff, dry to slightly moist, highly plastic, shiny,		CH	HS	.2	small	7.5	10			
	CL AS			black. Push 2.5' - 5', refusal at 4' in gravel				.3	3" P	10	12.5	100		
	170' Right	4	7	Gravel, fine to coarse grained, sand, fine to coarse grained, dry to slightly		GM	HS							
				moist, silty, dense, brown with multi color gravel (high terrace deposit).										
		7	12.5	Claystone, highly weathered, thin bedded to laminated, soft rock, slightly		CS	HS							
				moist, silty, breaks down to highly plastic silty clay, blocky, light brown										
				mottled gray. Push 7.5' - 10' sample crumbled and fell out of tube, no										
				recovery,										

LOG OF TEST HOLES

WATERSHED Plum Creek		SUB-WATERSHED		SITE NO. 12
LOCATION Auxiliary Spillway	DATE 8/20/2014	LAT/LONG -97.770680 30.036587 Approx.		STATE Texas
LOGGED BY Moffatt		PROJECT : WP-07 _____ WP-08 _____ FP-03 _____ P.L.-46 _____		
DRILLING EQUIPMENT Mobile B-57		LOCATION OF HOLES Exit Slope, ~ 400 DS Crest		

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM	TO					NO	TYPE	FROM	TO	REC %	DISP FT	AMT
		FT	FT							FT	FT			
210	607.976	0	4	Clay, silty, dry to slightly moist, highly plastic, stiff, shiny, black (topsoil)		CH	HS	.1	3" P	2.5	5	100		
	~14+48			Push 2.5' - 5' contact with material below in tube				.2	3" P	10	12.5	100		
	CL AS	4	8	Gravel, fine to coarse grained, sand, fine to coarse grained, dry to slightly		GC	HS							
	170' Right			silty, clay, stiff, highly plastic brown with multi color gravel (high terrace		GM								
				deposit).										
		8	12.5	Claystone, highly weathered, thin bedded to laminated, soft rock, slightly		CS	HS							
				moist, silty, breaks down to highly plastic silty clay, blocky, light brown										
				mottled gray.										

LOG OF TEST HOLES

WATERSHED Plum Creek		SUB-WATERSHED		SITE NO. 12
LOCATION Auxiliary Spillway	DATE 8/20/2014	LAT/LONG -97.770963 30.036096 Approx.		STATE Texas
LOGGED BY Moffatt		PROJECT : WP-07 _____ WP-08 _____ FP-03 _____ P.L.-46 _____		
DRILLING EQUIPMENT Mobile B-57		LOCTION OF HOLES Exit Slope, ~ 600 DS Crest		

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM	TO					NO	TYPE	FROM	TO	REC %	DISP FT	AMT
		FT	FT							FT	FT			
211	605.461	0	4	Clay, silty, dry to slightly moist, highly plastic, stiff, shiny, slight fine grain		CH	HS	.1	3" P	7.5	10	100		
	~16+49			gravel, black										
	CL AS	4	6	Gravel, fine to coarse grained, sand, fine to coarse grained, dry to slightly		GM	HS							
	170' Right			moist, silty, medium dense to dense, brown with multi color gravel.										
		6	10	Claystone, silty, weathered, thin bedded to laminated, soft rock, slightly		CS	HS							
				moist, breaks down to highly plastic silty clay, vertical fractures (blocky),										
				light grayish brown										

LOG OF TEST HOLES

WATERSHED Plum Creek		SUB-WATERSHED		SITE NO. 12
LOCATION Auxiliary Spillway	DATE 8/20/2014	LAT/LONG -97.771246 30.035609 Approx.		STATE Texas
LOGGED BY Moffatt		PROJECT : WP-07 _____ WP-08 _____ FP-03 _____ P.L.-46 _____		
DRILLING EQUIPMENT Mobile B-57		LOCTION OF HOLES Exit Slope, ~ 800 DS Crest		

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM	TO					NO	TYPE	FROM	TO	REC	DISP	AMT
		FT	FT							FT	FT	%	FT	
212	602.732	0	2	Clay, silty, dry to slightly moist, highly plastic, stiff, shiny, black		CH	HS							
	~18+40	2	6	Gravel, fine to coarse grained, sand, fine to coarse grained, silty, slight clay,										
	CL AS			dry to slightly moist, medium dense to dense very slightly to non-plastic,		GM	HS							
	164' Right			brown with multi color gravel.										
		6	7	Claystone, silty, weathered, thin bedded to laminated, soft rock, slightly		CS	HS							
				moist, breaks down to moderately to highly plastic silty clay, light grayish										
				brown										

LOG OF TEST HOLES

WATERSHED Plum Creek		SUB-WATERSHED		SITE NO. 12
LOCATION Auxiliary Spillway	DATE 8/20/2014	LAT/LONG -97.771594 30.035020 Approx.		STATE Texas
LOGGED BY Moffatt		PROJECT : WP-07 _____ WP-08 _____ FP-03 _____ P.L.-46 _____		
DRILLING EQUIPMENT Mobile B-57		LOCTION OF HOLES Exit		

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM	TO					NO	TYPE	FROM	TO	REC %	DISP FT	AMT
		FT	FT							FT	FT			
213	599.608	0	1.5	Clay, silty, dry to slightly moist, highly plastic, stiff, shiny, black		CH	HS							
	~20+83	1.5	4	Gravel, fine to coarse grained, sand, fine to coarse grained, silty, dry to		GM	HS							
	CL AS			slightly moist, dense, brown with multi color gravel.										
	160' Right	4	5	Claystone, silty, weathered, thin bedded to laminated, soft rock, slightly		CS	HS							
				moist, breaks down to moderately to highly plastic silty clay, light grayish										
				brown										

SAMPLE LIST FOR SOIL MECHANICS LABORATORY

STATE: TX

COUNTY: Hays

SITE : Plum Creek Site12 (Flood Control Structure)

PROJECT TYPE:	SITES
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PROGRAM (Source of Funds):

CONTACT PERSON: [Bryan S. Moffatt](#)

PHONE/ FAX: 817.233.6268

Index Tests = gradation, water content, LL, PI, Crumb, Double Hydrometer, Gs

[illegible]

PLUM CREEK 12

HAYS CO. , TEXAS

7.2

5'-7.5'

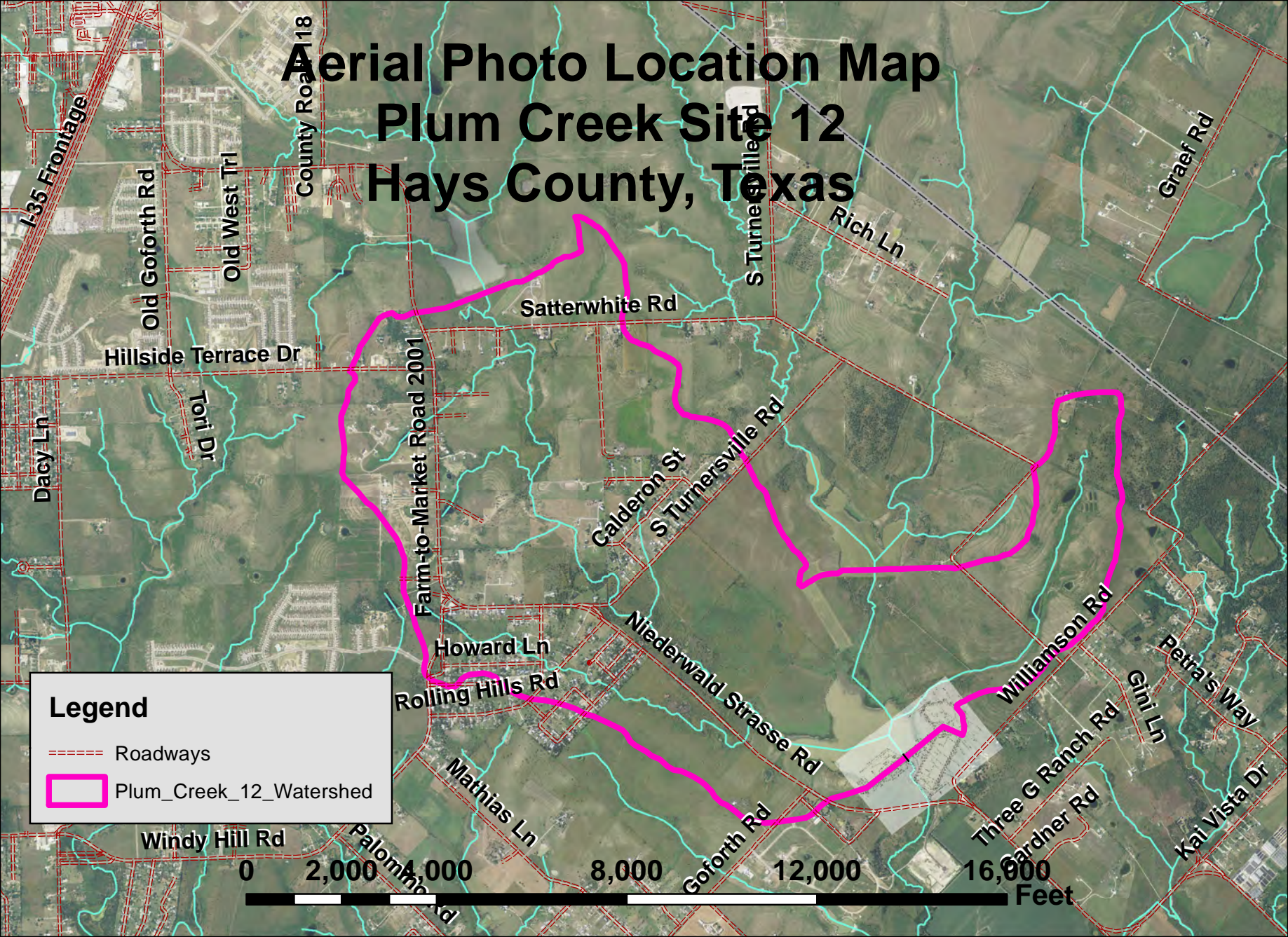
FOREMAN ANDREAS SPURWAY



Aerial Photo Location Map

Plum Creek Site 12

Hays County, Texas



Legend

----- Roadways

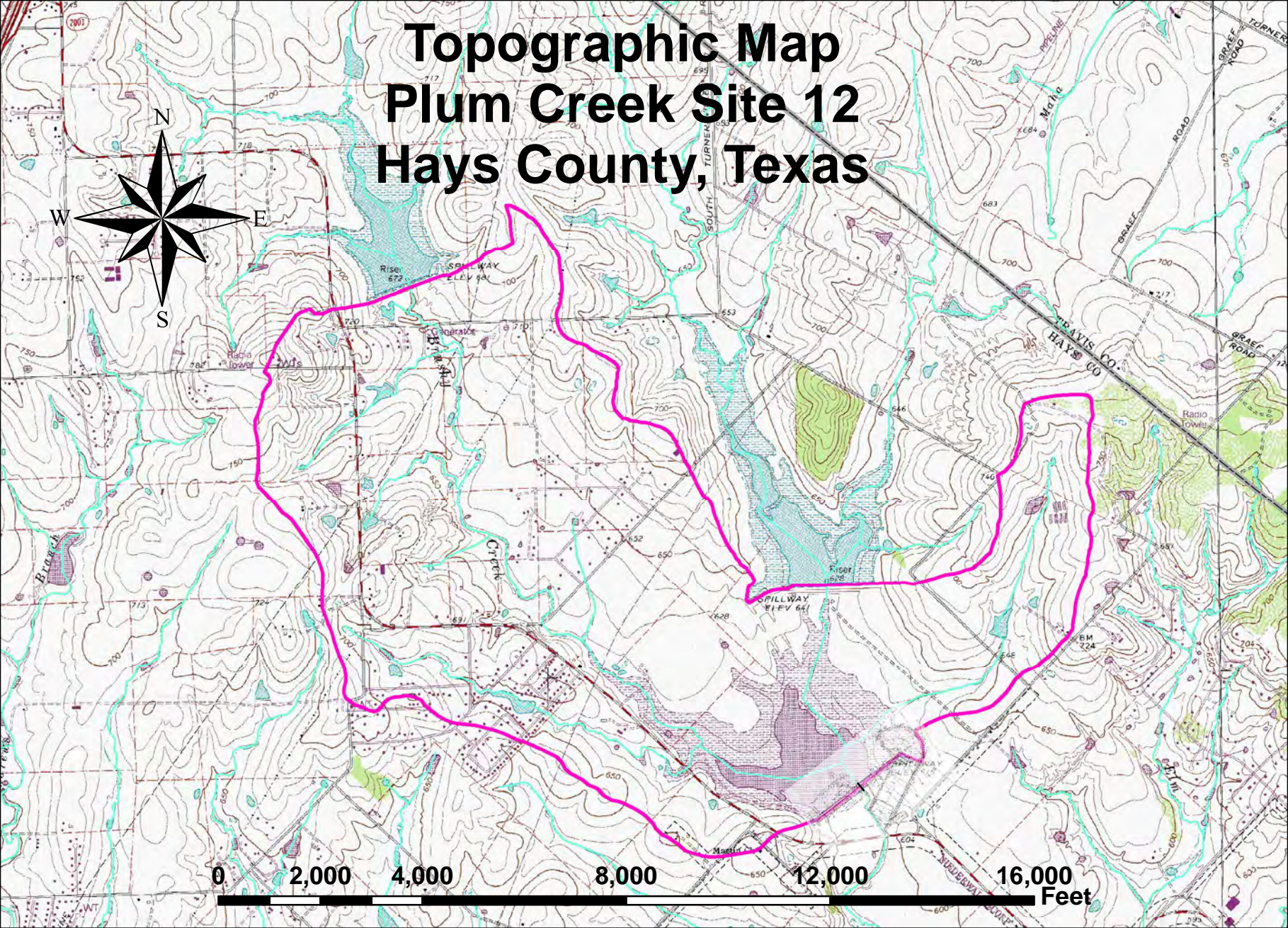
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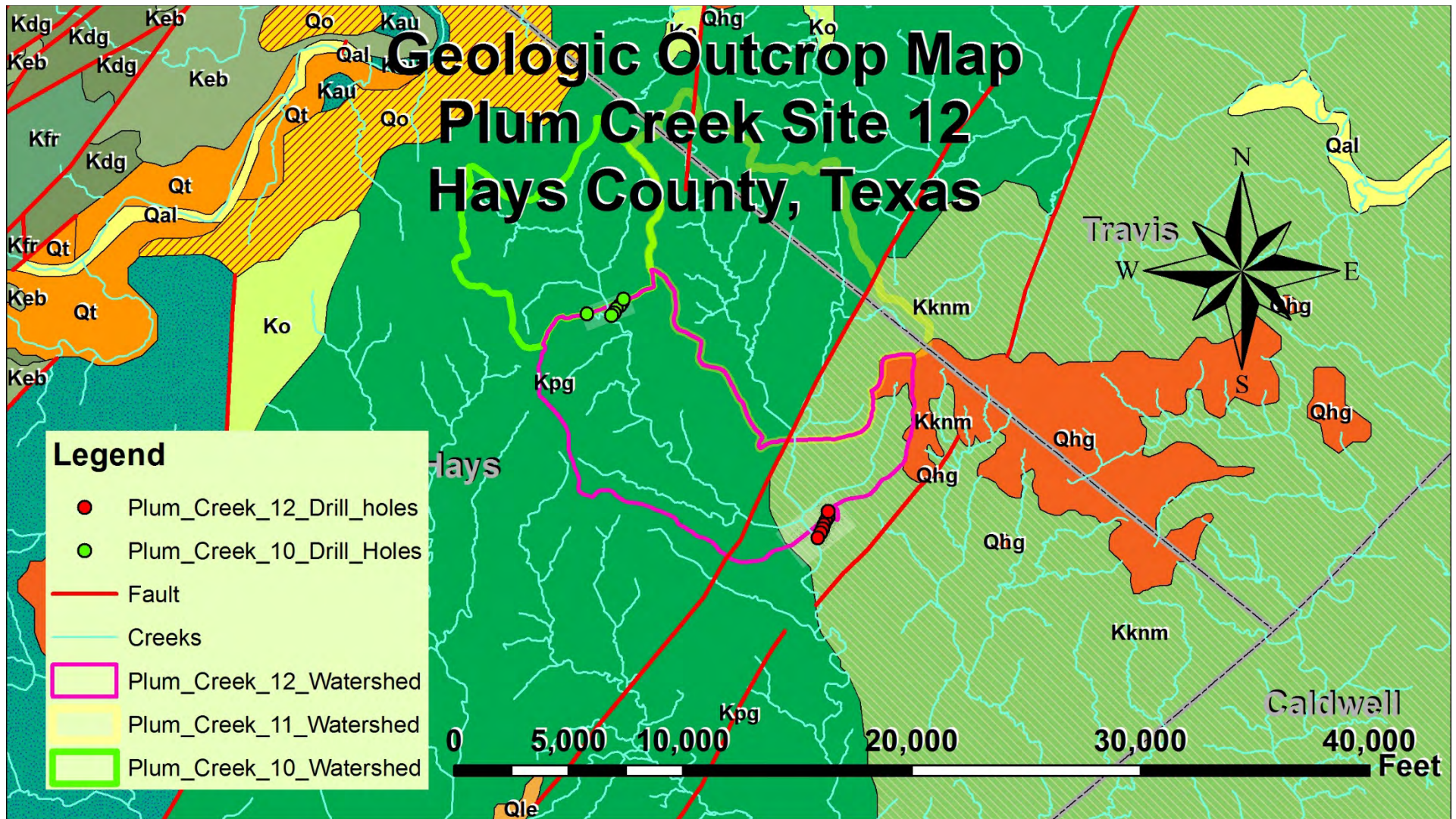
0 2,000 4,000 8,000 12,000 16,000 Feet

Topographic Map Plum Creek Site 12 Hays County, Texas






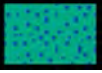





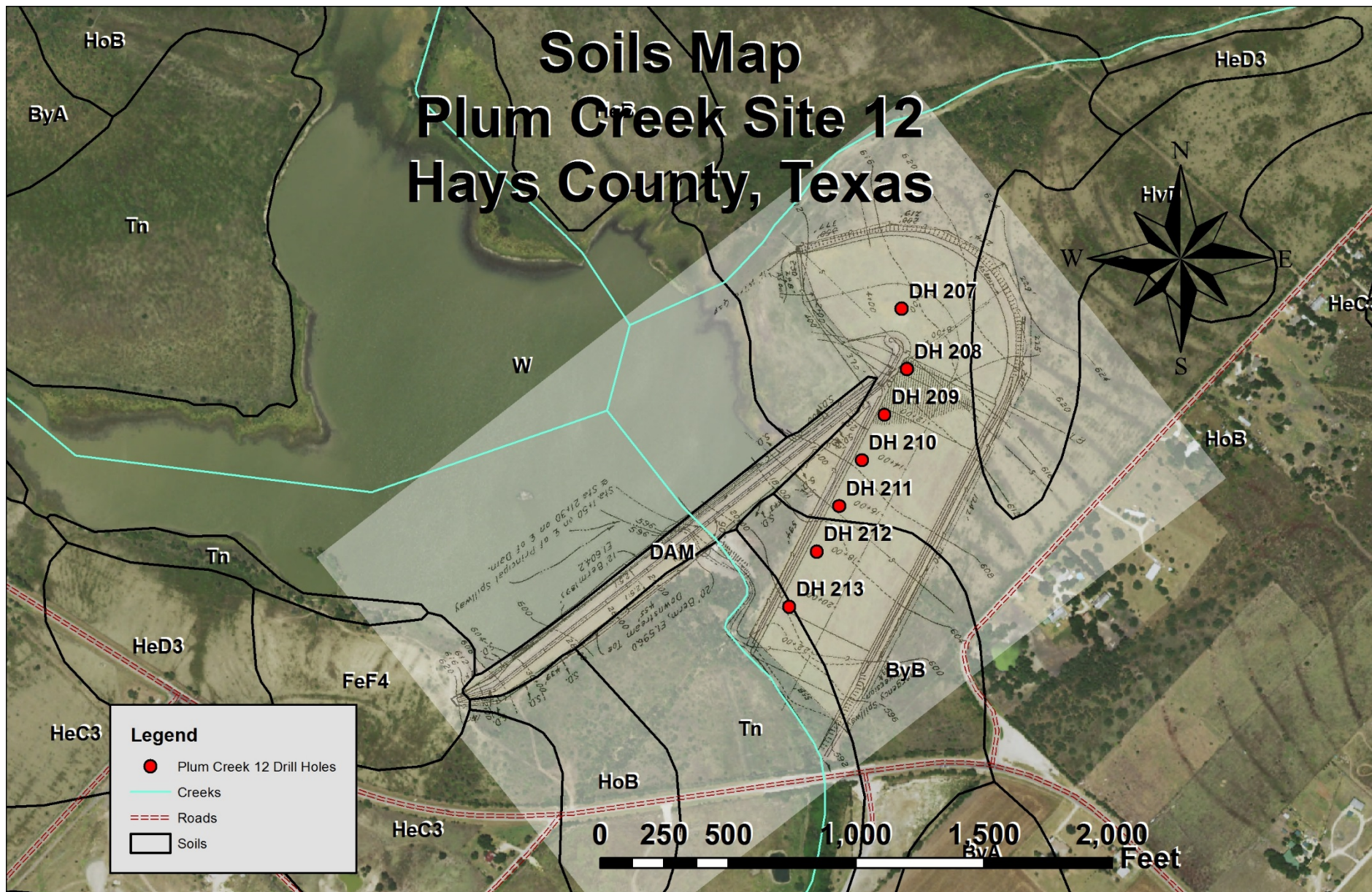
0 2,000 4,000 8,000 12,000 16,000 Feet





Modified from: Geologic Atlas of Texas, Austin Sheet, Bureau of Economic Geology, The University of Texas Austin, 1974

 Qal Quaternary Alluvium	 Qo Quaternary Onion Creek Marl	 Ko Cretaceous Ozan Formation
 Qt Quaternary Fluvial Terrace	 Kknm Cretaceous Navarro Group and Marlbrook Marl	 Kau Cretaceous Austin Chalk
 Qhg Quaternary Fluvial Terrace High Gravel	 Kpg Cretaceous Pecan Gap	 Keb Cretaceous Eagle Ford and Buda



Base Map: USDA/NRCS 2014 NAIP from <http://datagateway.nrcs.usda.gov/>, Soils from USDA/NRCS SOIL Survey Geographic (SSURGO), Hays County, Texas, 2003, As-built from NRCS Texas State Office Files, 07/07/1963, Georeferenced with ArcGIS 10.2 03/18/2015, Creeks from National Hydrology Database, Roads from TNRIS <http://tnris.org/data-download/#/statewide>, Texas Strategic Mapping Program (StratMap) 2006, Hole Location from field survey 08/20/2014

Engineering Properties

Comal and Hays Counties, Texas

[Absence of an entry indicates that the data were not estimated. This report shows only the major soils in each map unit]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
ByA:												
Branyon	0-6	Clay	CH	A-7-6	0	0	95-100	85-100	80-100	75-100	54-80	35-55
	6-44	Clay, silty clay	CH	A-7-6	0	0	95-100	85-100	80-100	75-100	54-80	35-55
	44-80	Clay, silty clay	CH	A-7	0	0	90-100	85-100	80-100	75-100	54-80	38-60
ByB:												
Branyon	0-6	Clay	CH	A-7-6	0	0	95-100	85-100	80-100	75-100	54-80	35-55
	6-48	Clay, silty clay	CH	A-7-6	0	0	95-100	85-100	80-100	75-100	54-80	35-55
	48-80	Clay, silty clay	CH	A-7	0	0	90-100	85-100	80-100	75-100	54-80	38-60
DAM:												
Dams	---	---	---	---	---	---	---	---	---	---	---	---
FeF4:												
Ferris, severely eroded	0-12	Clay	CH	A-7-6	0	0	92-100	92-100	75-100	75-100	51-76	35-55
	12-35	Clay, silty clay	CH	A-7-6	0	0	92-100	92-100	75-100	72-100	51-78	35-56
	35-60	Clay, silty clay	CH	A-7-6	0	0	92-100	92-100	85-100	75-100	61-100	42-75
HeC3:												
Heiden, eroded	0-13	Clay	CH	A-7-6	0	0	95-100	90-100	80-100	75-99	51-80	32-55
	13-22	Clay, silty clay	CH	A-7-6	0	0	95-100	90-100	80-100	75-99	51-80	32-55
	22-58	Clay, silty clay	CH, CL	A-7-6	0	0	95-100	90-100	75-100	70-90	49-80	32-55
	58-80	Clay	CH, CL	A-7-6	0	0	92-100	92-100	85-100	70-90	49-80	32-55

Engineering Properties

Comal and Hays Counties, Texas

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
HeD3:												
Heiden, eroded	0-13	Clay	CH	A-7-6	0	0	95-100	90-100	80-100	75-99	51-80	32-55
	13-28	Clay, silty clay	CH	A-7-6	0	0	95-100	90-100	80-100	75-99	51-80	32-55
	28-57	Clay, silty clay	CH, CL	A-7-6	0	0	95-100	90-100	75-100	70-90	49-80	32-55
	57-80	Clay	CH, CL	A-7-6	0	0	92-100	92-100	85-100	70-90	49-80	32-55
HoB:												
Houston Black	0-5	Clay	CH	A-7-6	0	0	97-100	96-100	94-100	88-98	58-90	34-60
	5-50	Clay, silty clay	CH	A-7-6	0	0	98-100	98-100	92-100	88-97	58-98	37-72
	50-77	Clay, silty clay	CH	A-7-6	0	0	94-100	93-100	87-100	84-99	51-99	32-78
HvD:												
Houston Black	0-5	Gravelly clay	CH	A-7-6	0	0-5	55-80	55-80	55-80	50-75	58-90	34-60
	5-54	Clay, silty clay	CH	A-7-6	0	0	98-100	98-100	92-100	88-97	58-98	37-72
	54-77	Clay, silty clay	CH	A-7-6	0	0	94-100	93-100	87-100	84-99	51-99	32-78
Tn:												
Tinn	0-25	Clay	CH, CL	A-7	0	0	95-100	95-100	85-100	80-100	45-75	25-54
	25-60	Clay, silty clay	CH	A-7	0	0	95-100	90-100	80-100	80-100	55-75	35-54
	60-80	Clay, silty clay	CH	A-7	0	0	95-100	90-100	80-100	80-100	55-75	35-54
W:												
Water	---	---	---	---	---	---	---	---	---	---	---	---