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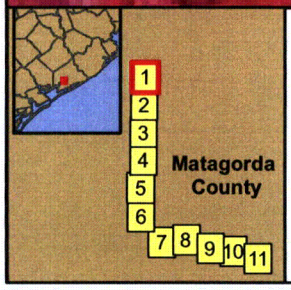


Stream S017
South Texas Project Units 3 & 4
Matagorda County, TX

Page 1 of 11

Water Flag
Top of Bank

0 25 50 100
Feet

Projection: Texas State Plane Central, NAD 1983, US Feet

Background: 2004 NAIP 1 M CIR Imagery

STPNOC

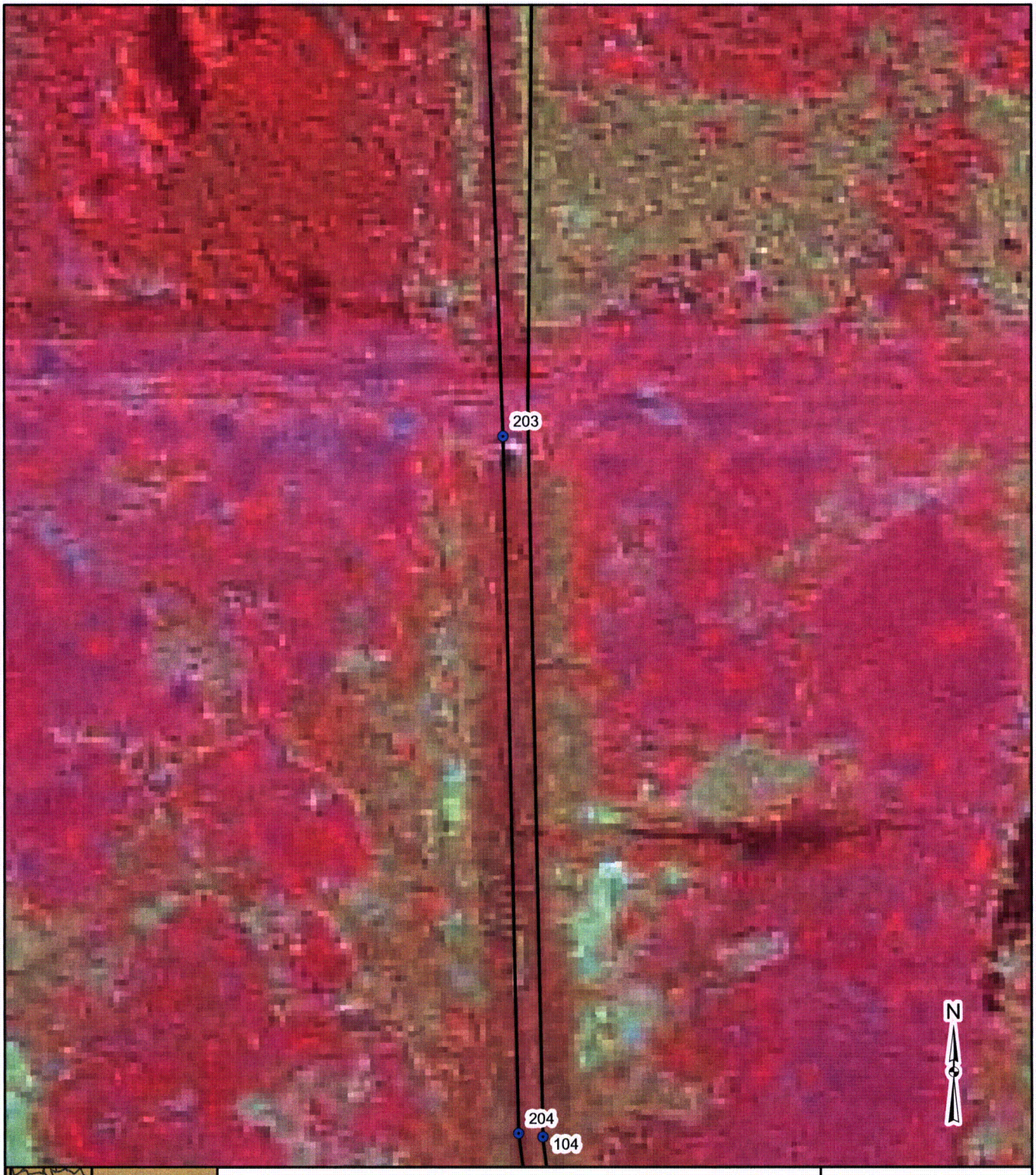
ENSR | AECOM

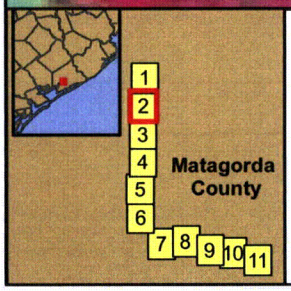
Date: September 10, 2008

Project No.: 10720-008

By: CJ Bowes

Location: G:\Projects\NRG\10720_011_STPRiverAquaticStudies\Mapbooks\Streams\s017.mxd





Stream S017
South Texas Project Units 3 & 4
Matagorda County, TX

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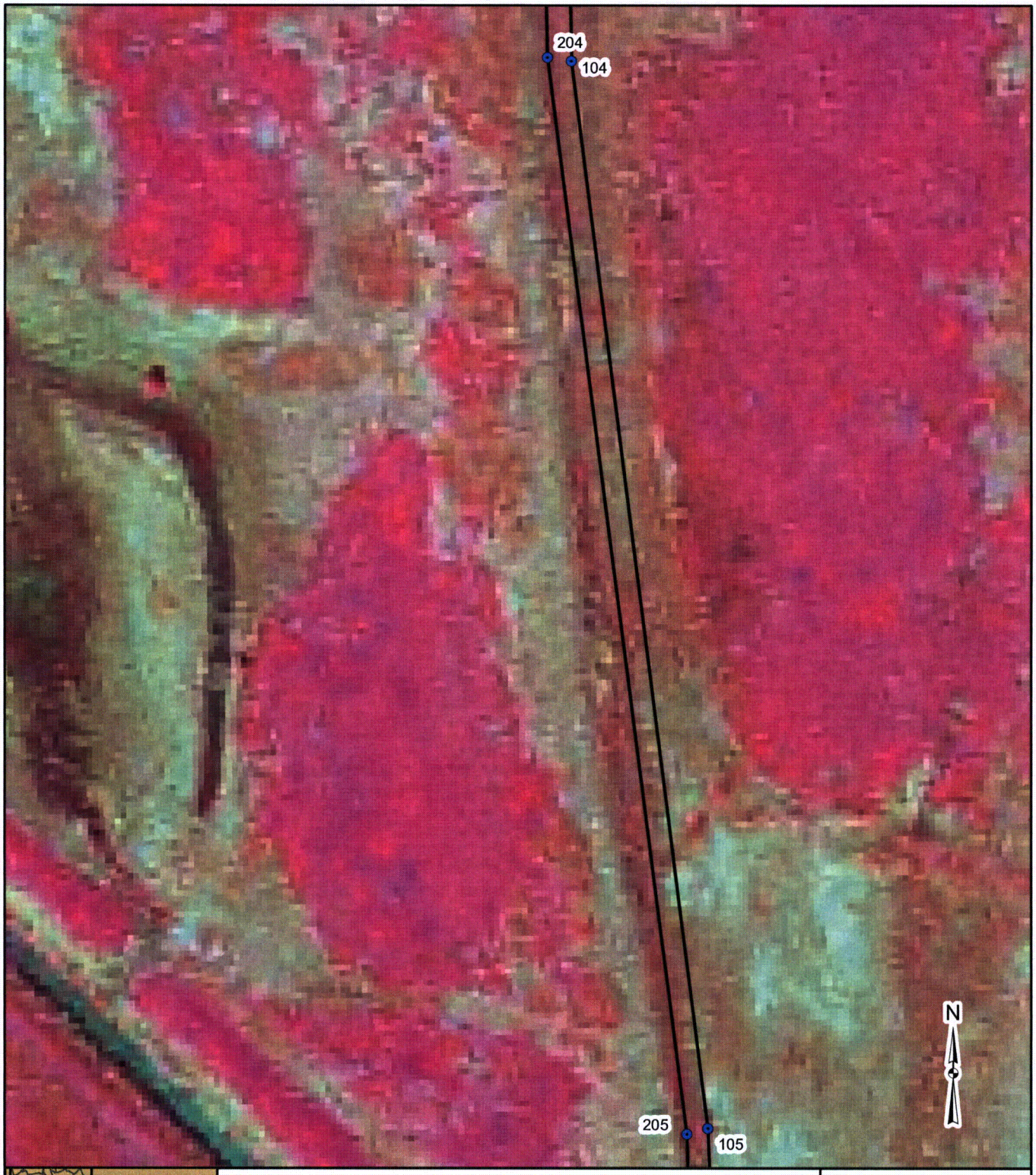

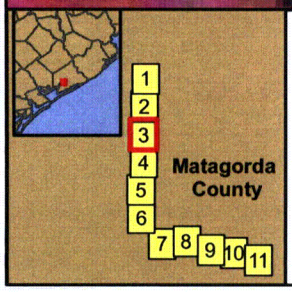

Stream S017
South Texas Project Units 3 & 4
Matagorda County, TX

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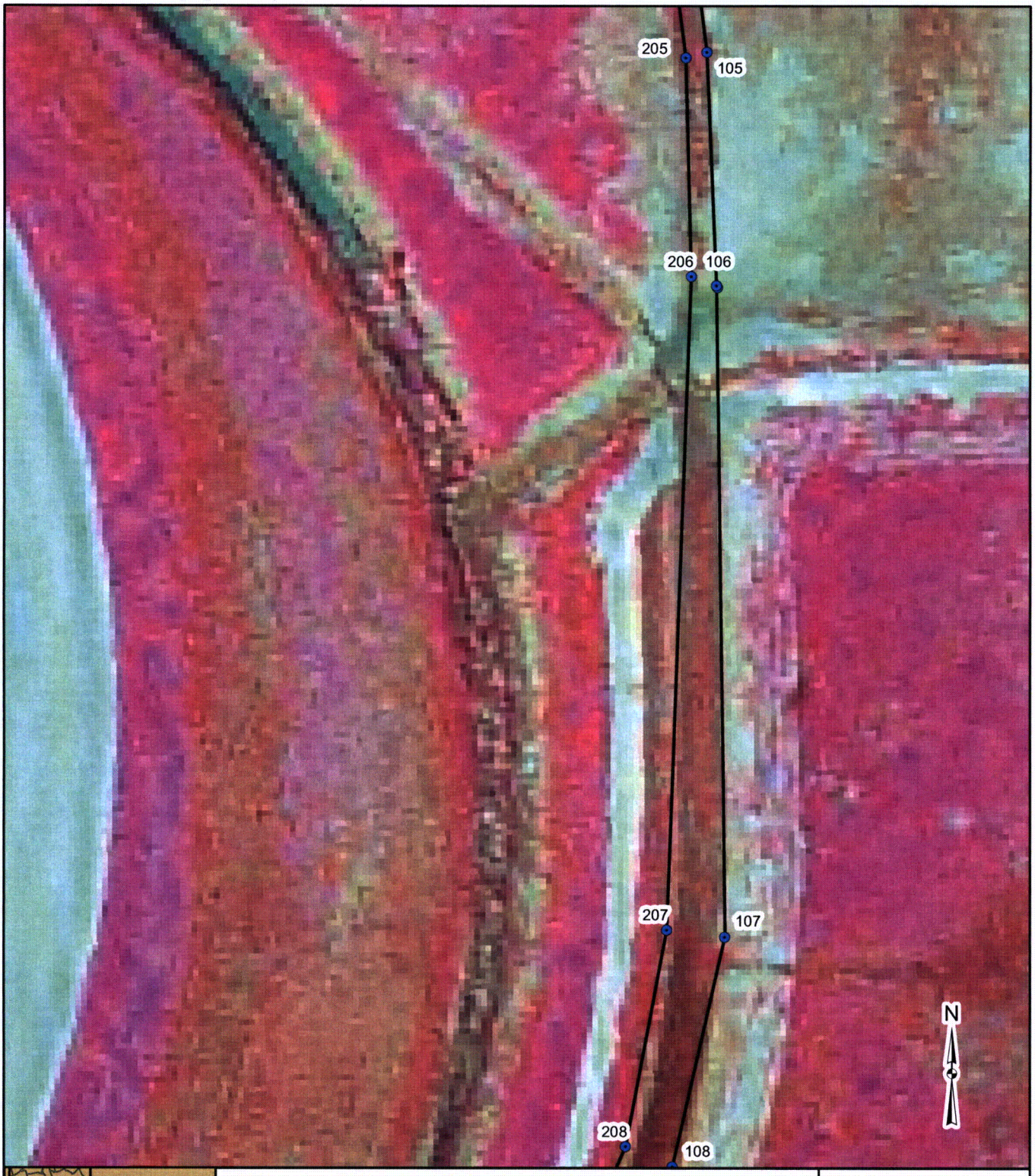

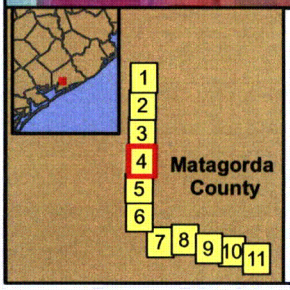

Stream S017
South Texas Project Units 3 & 4
Matagorda County, TX

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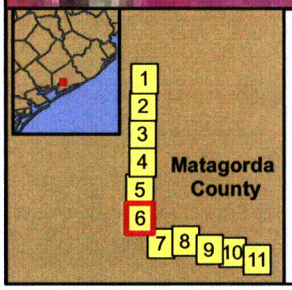

Stream S017
South Texas Project Units 3 & 4
Matagorda County, TX

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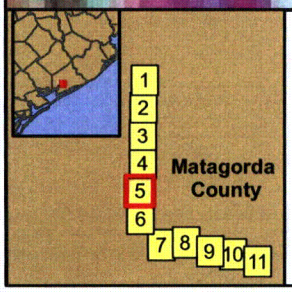

Stream S017
South Texas Project Units 3 & 4
Matagorda County, TX

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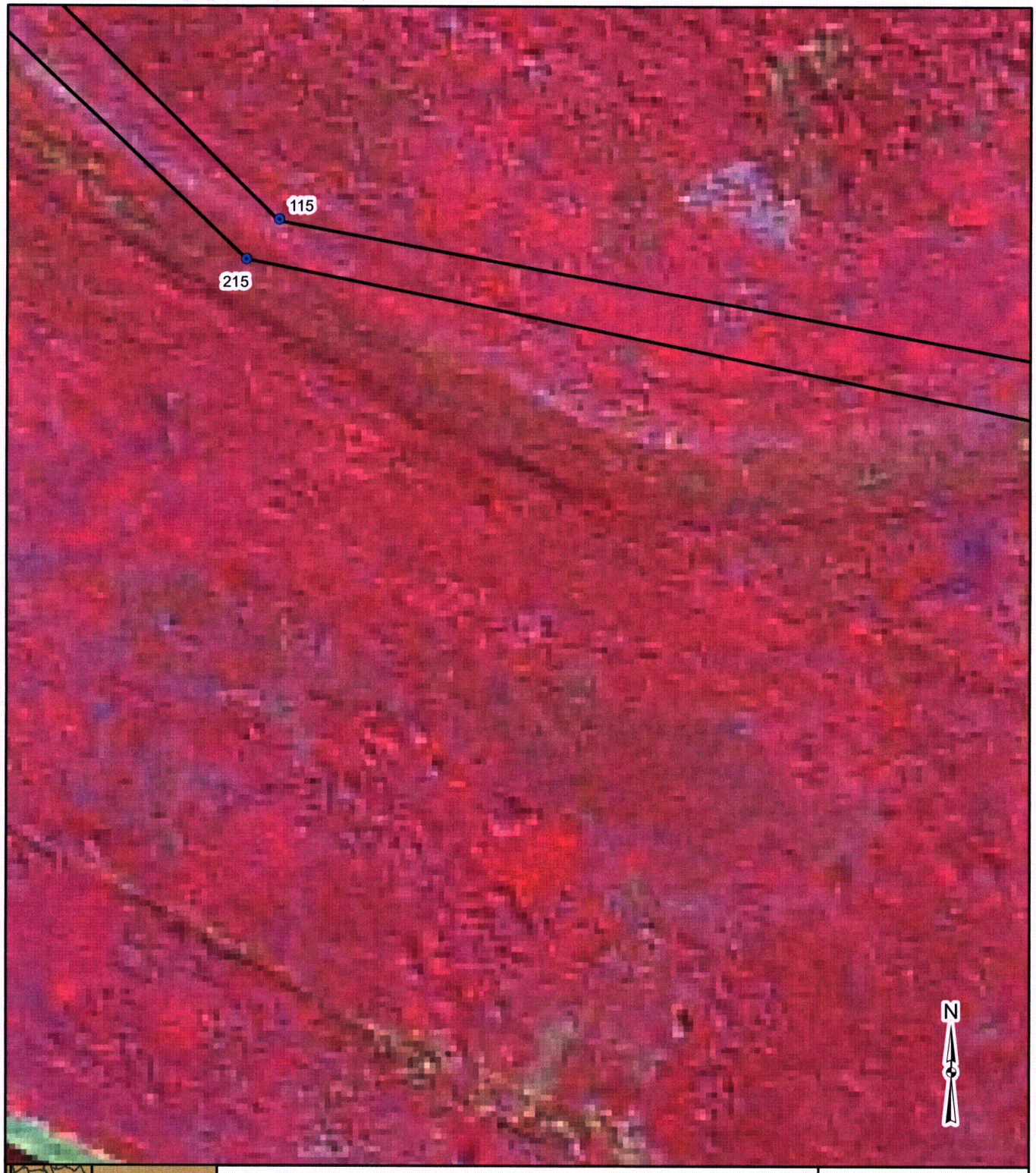

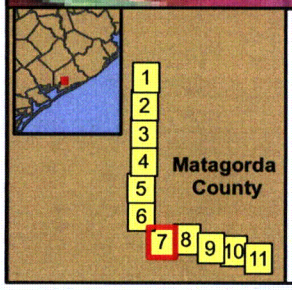

Stream S017
South Texas Project Units 3 & 4
Matagorda County, TX

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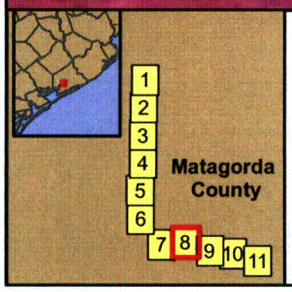

Stream S017
South Texas Project Units 3 & 4
Matagorda County, TX

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Water Flag
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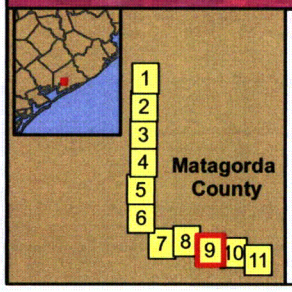

Stream S017
South Texas Project Units 3 & 4
Matagorda County, TX

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Water Flag
Top of Bank

0 25 50 100
Feet

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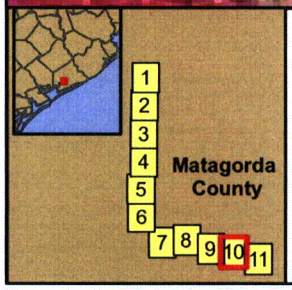

Stream S017
South Texas Project Units 3 & 4
Matagorda County, TX

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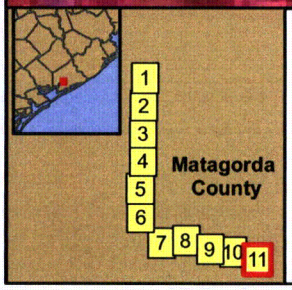

Stream S017
South Texas Project Units 3 & 4
Matagorda County, TX

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Top of Bank

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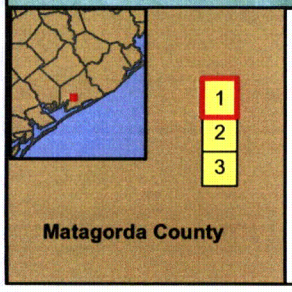

Stream S018
South Texas Project Units 3 & 4
Matagorda County, TX

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Water Flag
Top of Bank

0 25 50 100
Feet

Projection: Texas State Plane Central, NAD 1983, US Feet

Background: 2004 NAIP 1 M CIR Imagery

STPNOC

ENSR | AECOM

Date: September 10, 2008

Project No.: 10720-008

By: CJ Bowes

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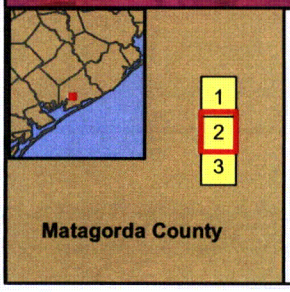

Stream S018
South Texas Project Units 3 & 4
Matagorda County, TX

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Water Flag
Top of Bank

0 25 50 100
Feet

Projection: Texas State Plane Central, NAD 1983, US Feet

Background: 2004 NAIP 1 M CIR Imagery

STPNOC

ENSR | AECOM

Date: September 10, 2008

Project No.: 10720-008

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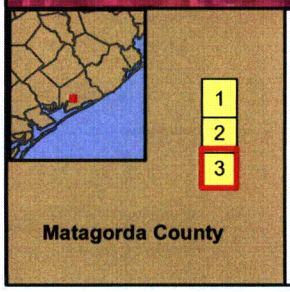

Stream S018
South Texas Project Units 3 & 4
Matagorda County, TX

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Water Flag
Top of Bank

0 25 50 100
Feet

Projection: Texas State Plane Central, NAD 1983, US Feet

Background: 2004 NAIP 1 M CIR Imagery

STPNOC

ENSR | AECOM

Date: September 10, 2008

Project No.: 10720-008

By: CJ Bowes

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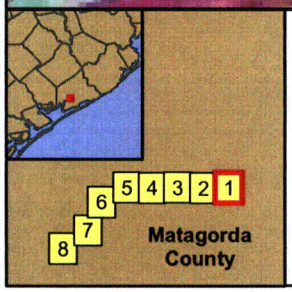

Stream S020
South Texas Project Units 3 & 4
Matagorda County, TX

Page 1 of 8

Water Flag
Top of Bank
Waterlines

0 25 50 100
Feet

Projection: Texas State Plane Central, NAD 1983, US Feet
Background: 2004 NAIP 1 M CIR Imagery

STPNOC

ENSR | AECOM

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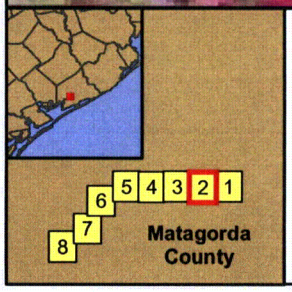

Stream S020
South Texas Project Units 3 & 4
Matagorda County, TX

Page 2 of 8

Water Flag
Top of Bank
Waterlines

0 25 50 100
Feet

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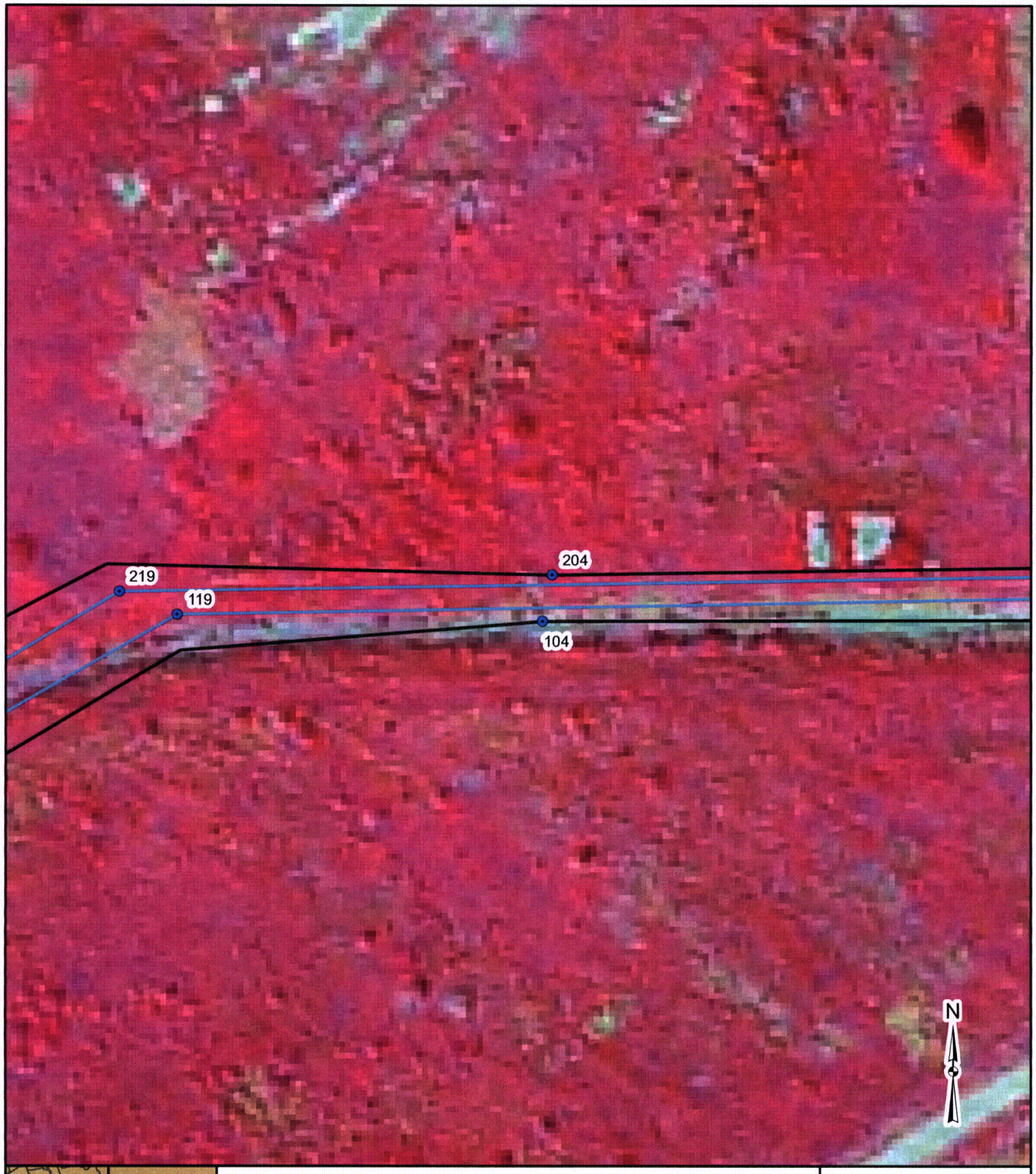

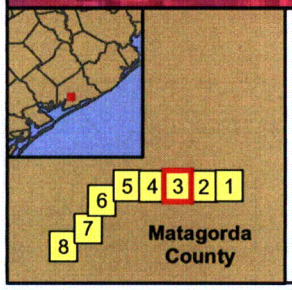

Stream S020
South Texas Project Units 3 & 4
Matagorda County, TX

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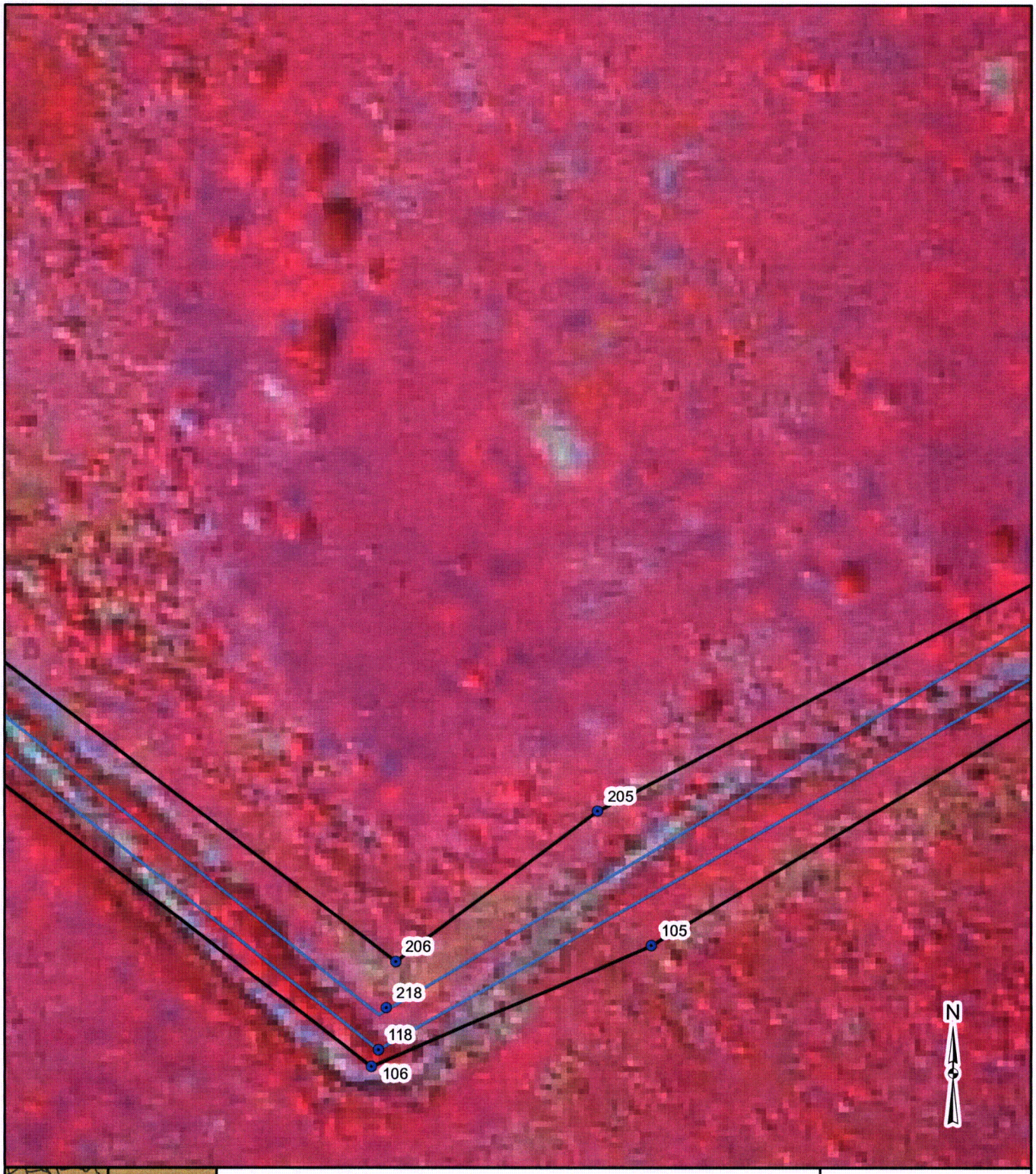

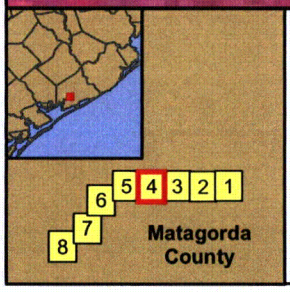

Stream S020
South Texas Project Units 3 & 4
Matagorda County, TX

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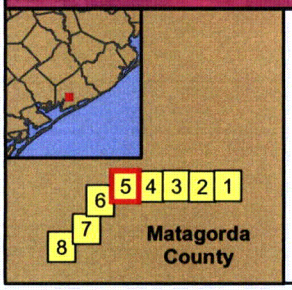

Stream S020
South Texas Project Units 3 & 4
Matagorda County, TX

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Water Flag
Top of Bank
Waterlines

0 25 50 100
Feet

Projection: Texas State Plane Central, NAD 1983, US Feet
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STPNOC

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Date: September 10, 2008
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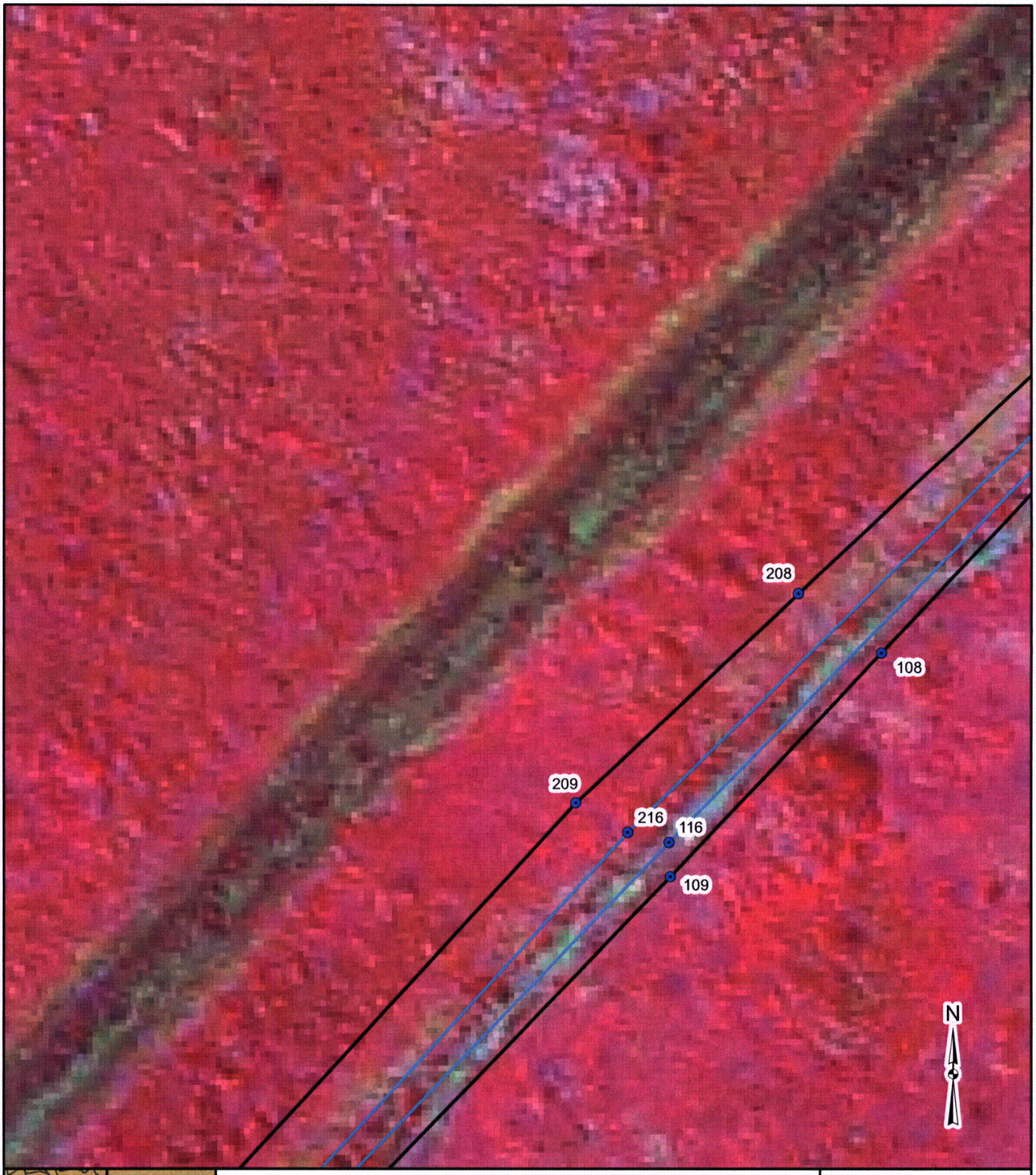

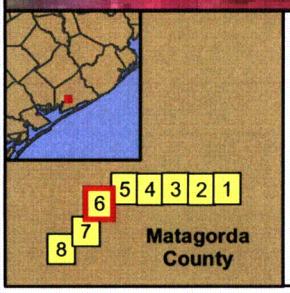

Stream S020
South Texas Project Units 3 & 4
Matagorda County, TX

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Water Flag
Top of Bank
Waterlines

0 25 50 100
Feet

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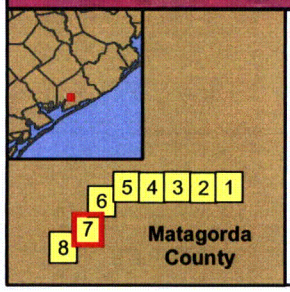

Stream S020
South Texas Project Units 3 & 4
Matagorda County, TX

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Water Flag
Top of Bank
Waterlines

0 25 50 100
Feet

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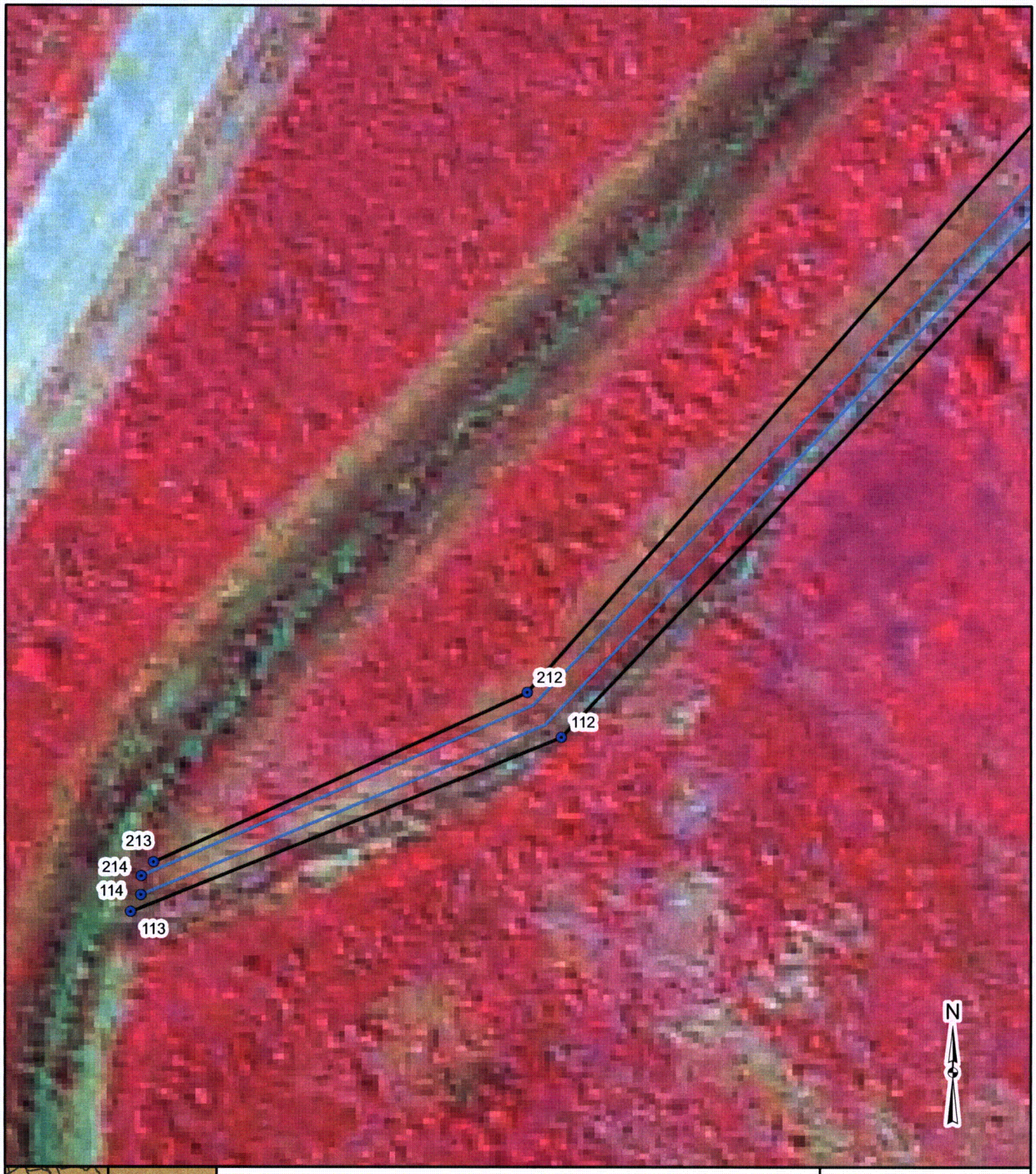

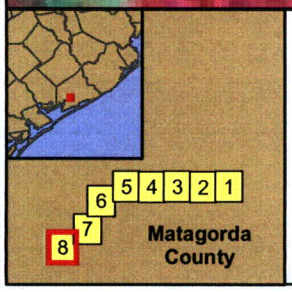

Stream S020
South Texas Project Units 3 & 4
Matagorda County, TX

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Water Flag
Top of Bank
Waterlines

0 25 50 100
Feet

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ENSR | AECOM

Date: September 10, 2008
Project No.: 10720-008
By: CJ Bowes

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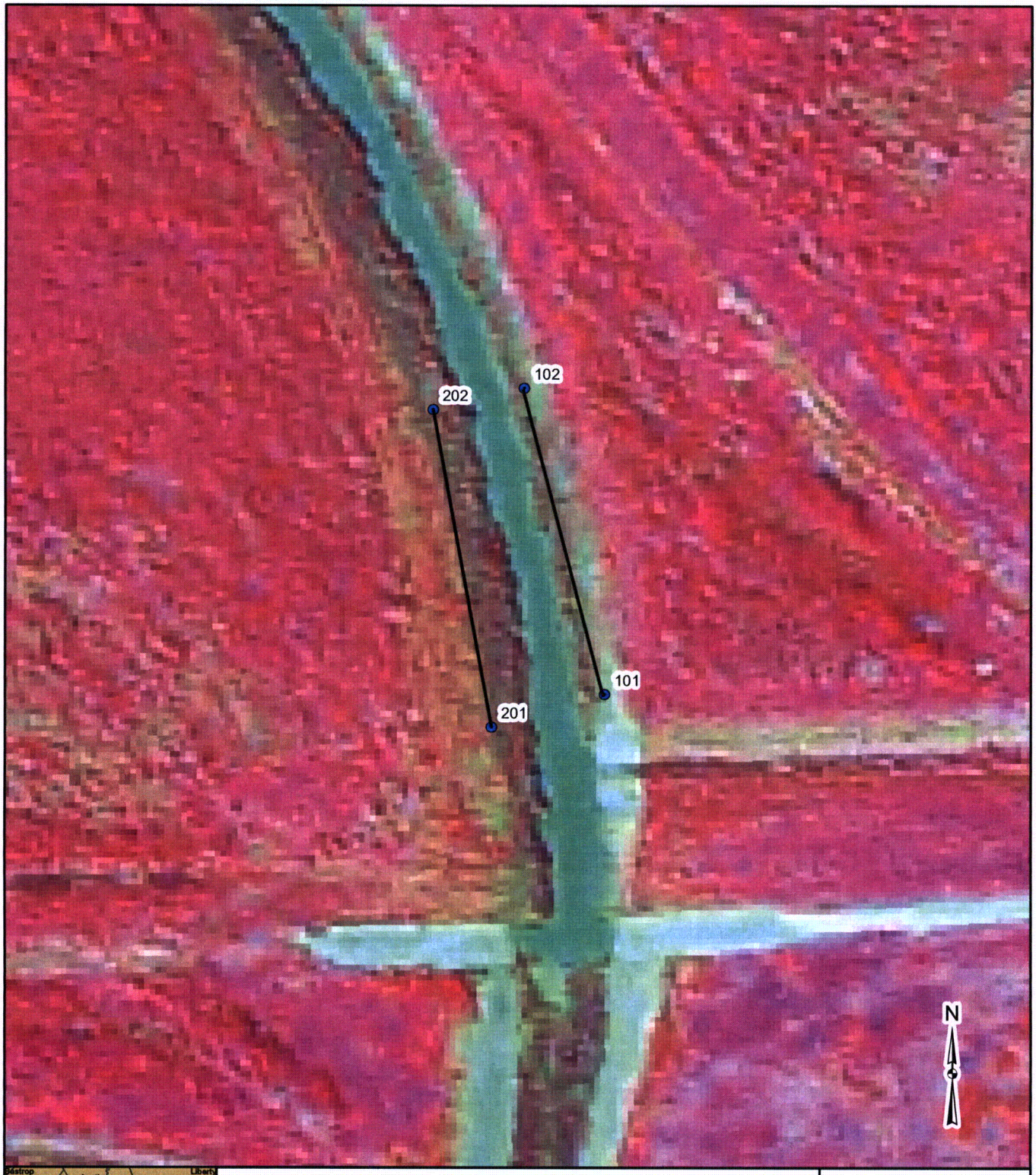


Stream S022
South Texas Project Units 3 & 4
Matagorda County, TX

Water Flag
Top of Bank

0 25 50 100
Feet

Projection: Texas State Plane Central, NAD 1983, US Feet

Background: 2004 NAIP 1 M CIR Imagery

STPNOC

ENSR | AECOM

Date: September 10, 2008

Project No.: 10720-008

By: CJ Bowes

ENSR/AECOM
4888 Loop Central Dr. Suite 600
Houston, TX. 77081
(713) 807-6503

WATERBODY

Waterbody Name:

Waterbody ID No.: S001

Centerline Re-Route Access Road Warehouse Site Other:

Associated Wetland No.:

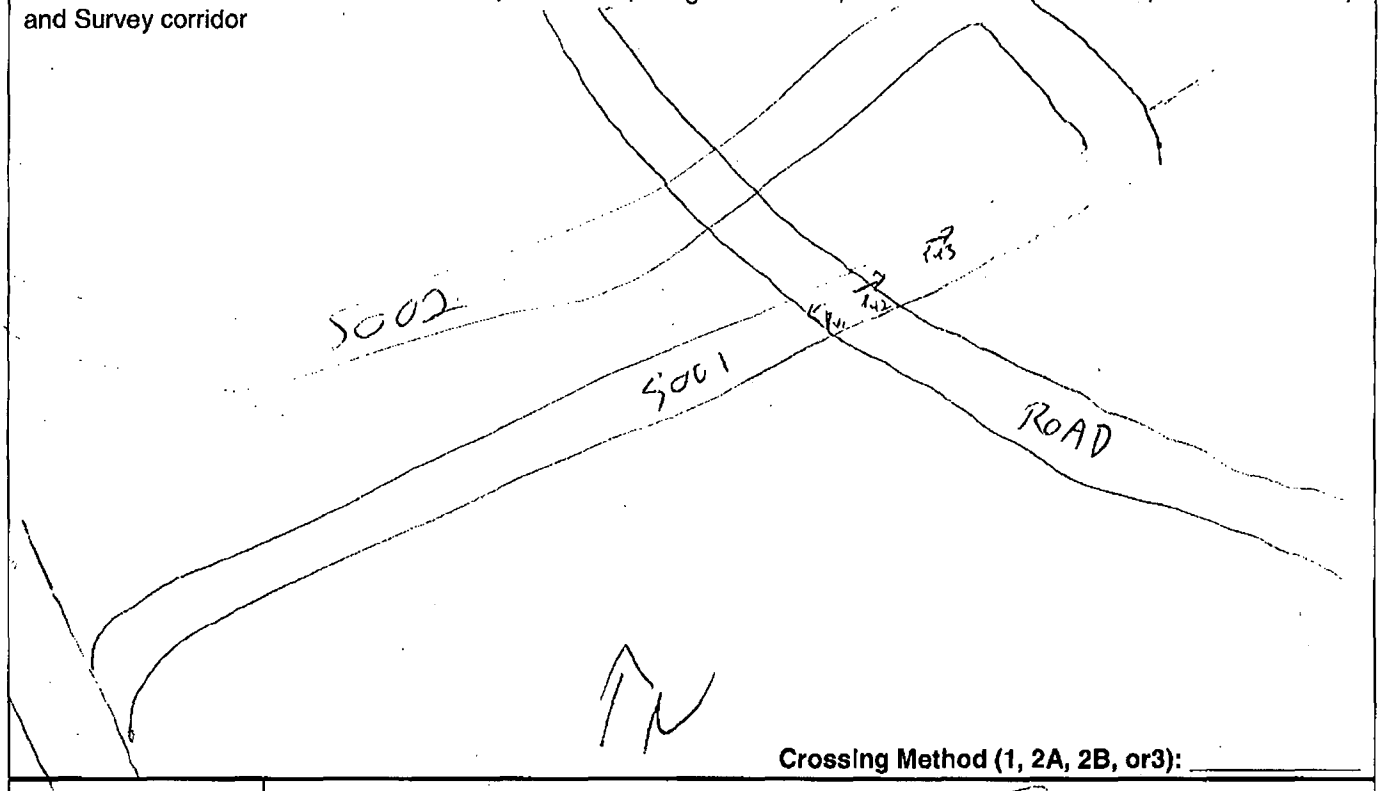
Date: 8/26/08	Client/Project Name & No.: STPNOC 10770-008	Milepost:
Investigators: T. WYCOFF, S. GRIFFITH	State/County/Municipality: TX/MATAGORDA	Quad Name:

Logbook No.:	Logbook Page No.:	Block/Lot/Tract No.:	Photo Roll:	Picture No.: 41, 42, 43

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Crossing Method (1, 2A, 2B, or3): _____

Waterbody Type	Lake	Pond	Borrow Pit	River	Stream	Ag. Ditch	Other: MANMADE DRAINAGE		
Stream Flow	Fast		Moderate		Slow		Very Slow		None
Flow type	Perennial		Intermittent		Direction: NE to SW				
Stream Depth (in.)	0-3	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): 6FT				Water Surface (at crossing location): 2FT				
Bank Height (ft.) (looking downstream else give direction you are facing here:_____)	Left	0-2	2-4		4-6		6-8	8+	
	Right	0-2	2-4		4-6		6-8	8+	
Bank Slope (°) (looking downstream else give direction you are facing here:_____)	Left	0-20	20-40		40-60		60-80	80+	
	Right	0-20	20-40		40-60		60-80	80+	

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WATERBODY

Waterbody ID No.: S001

Date: 8/26/08	Client/Project Name & No.: STPNOC 10770-008	Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Dry	Other:
Stream Substrate %	Bedrock____	Gravel_____	Sand_____	Silt/Clay 100%	Organic_____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Pools	Undercut Banks
	Overhanging trees/shrubs	In-stream emergent plants	In-stream submerged plants	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Wading Birds	Other:		
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plan: 20 (ft)				
	Circle vegetative layers: trees shrubs herbs Comments:				
	☐ Significant bare areas within riparian zone				
	☐ Evidence of non-buffered concentrated flows Other:				
Channel Condition	Channelization/Braiding	Unnatural straitening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	☐ Livestock access to riparian zone		☐ Manure in stream or on banks		
	☐ Waste discharge pipes present		☐ Other:_____		

T/E SPECIES / SUITABLE HABITAT	Habitat ID No.:
NONE OBSERVED	

Comments (e.g. pipeline crossing angle, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (Indicate)	☐ High	☐ Moderate	☐ Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

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WATERBODY

Waterbody Name:

Waterbody ID No.: S002

Centerline Re-Route Access Road Warehouse Site Other:

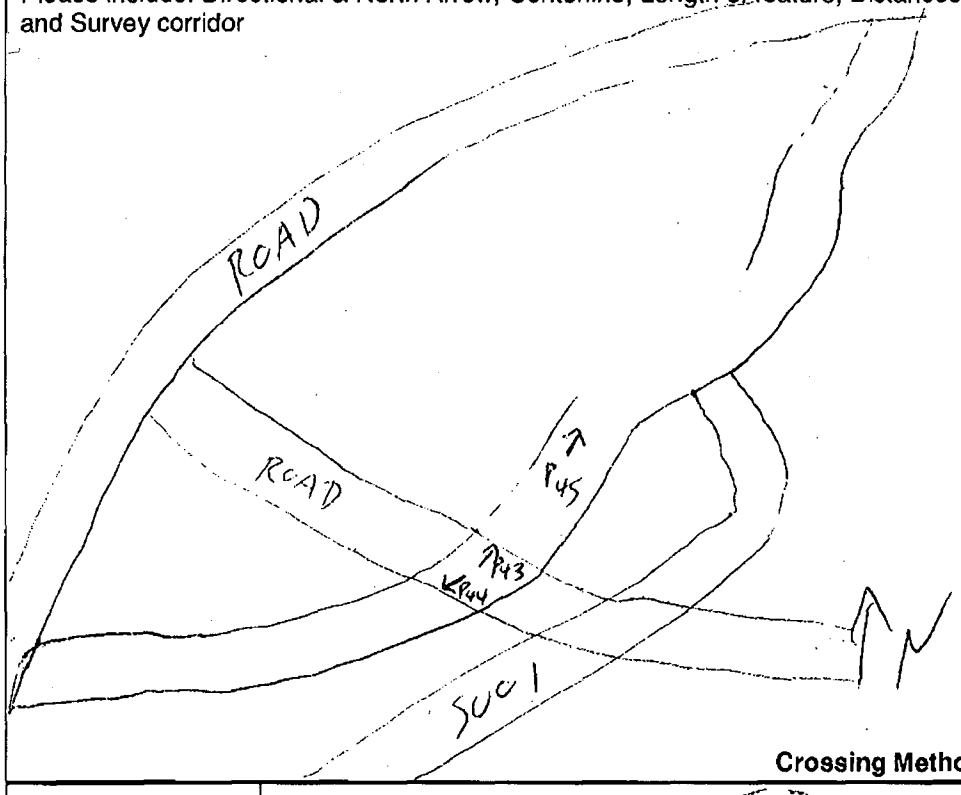
Associated Wetland No.:

Date: 8/27/08	Client/Project Name & No.: STPNOC 10720-008			Milepost:
Investigators: T. WYCOFF, S. GRIFFITH	State/County/Municipality: TX/MATAGORDA			Quad Name:
Logbook No.:	Logbook Page No.:	Block/Lot/Tract No.:	Photo Roll:	Picture No.: 43,44,45

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Crossing Method (1, 2A, 2B, or3): _____

Waterbody Type	Lake	Pond	Borrow Pit	River	Stream	Ag. Ditch	Other:		
Stream Flow	Fast		Moderate		Slow		Very Slow		None
Flow type	Perennial		Intermittent		Direction:_____				
Stream Depth (in.)	0-3	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): 8 ft				Water Surface (at crossing location): 15 ft				
Bank Height (ft.) (looking downstream else give direction you are facing here:_____)	Left	0-2	2-4		4-6	6-8	8+		
	Right	0-2	2-4		4-6	6-8	8+		
Bank Slope (°) (looking downstream else give direction you are facing here:_____)	Left	0-20	20-40		40-60	60-80	80+		
	Right	0-20	20-40		40-60	60-80	80+		

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WATERBODY

Waterbody ID No.: S 002

Date: 8/27/08	Client/Project Name & No.: STPNOC 16720-008	Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Dry	Other:
Stream Substrate %	Bedrock____	Gravel_____	Sand_____	Silt/Clay 100%	Organic____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Pools	Undercut Banks
	Overhanging trees/shrubs	In-stream emergent plants	In-stream submerged plants	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Wading Birds	Other COYOTE		
	Invertebrates:	Intolerant	Facultative	Tolerant	None

Riparian Zone

Width of natural vegetation zone from edge of active channel out onto flood plan: _____ (ft)

Circle vegetative layers: trees shrubs herbs Comments:

☐ Significant bare areas within riparian zone

☐ Evidence of non-buffered concentrated flows Other:

Channel Condition	Channelization/Braiding	Unnatural straitening	Downcutting	Dikes/Berms	Excessive bank erosion

Disturbances	☐ Livestock access to riparian zone	☐ Manure in stream or on banks
	☐ Waste discharge pipes present	☐ Other:_____

T/E SPECIES / SUITABLE HABITAT	**Habitat ID No.:**
NONE OBSERVED	

Comments (e.g. pipeline crossing angle, construction constraints, erosion potential, existing disturbances, and meanders)

SLOW FLOW ABOVE CONNECTION TO S001, LITTLE TO NO FLOW DOWNSTREAM

STREAM QUALITY (indicate) ☐ High ☐ Moderate ☐ Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

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WATERBODY

Waterbody Name:

Waterbody ID No.: S017

Centerline Re-Route Access Road Warehouse Site Other:

Associated Wetland No.:

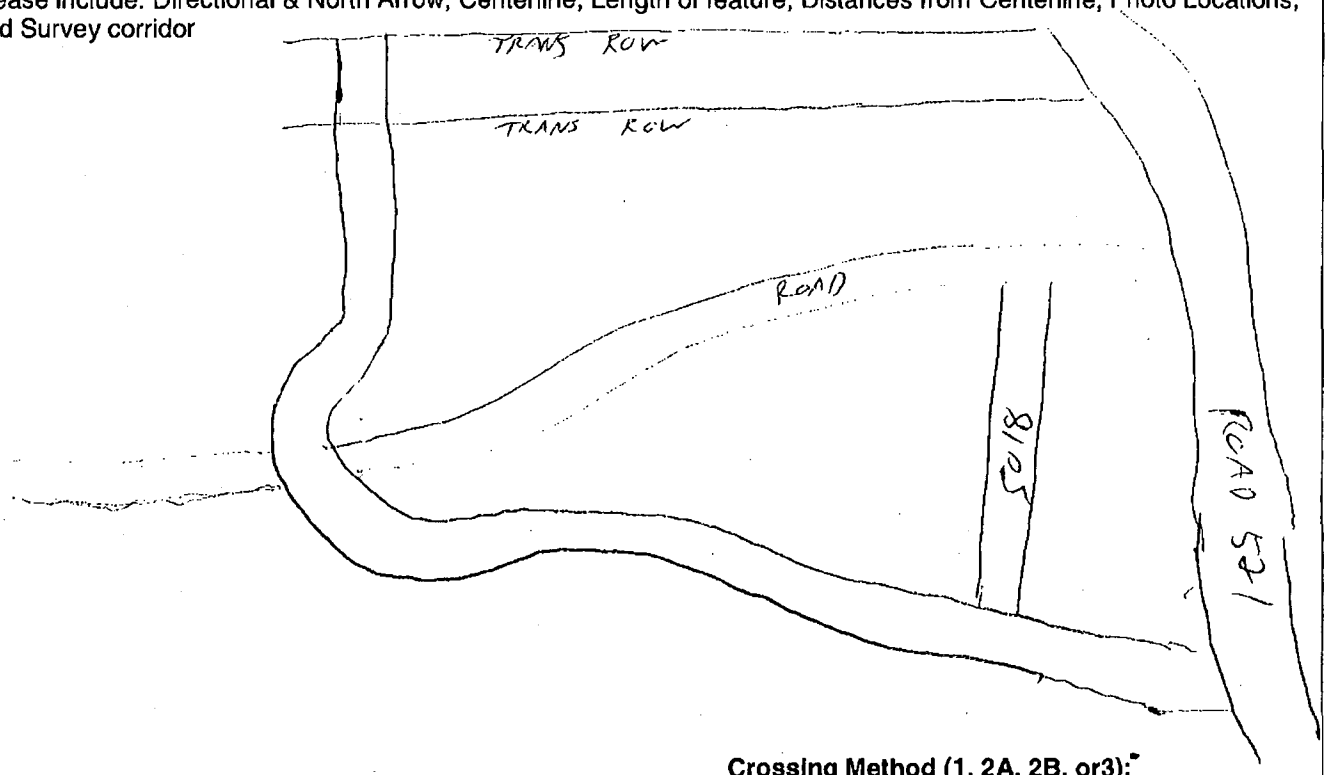
Date: 8/27/08	Client/Project Name & No.: STPNOC 1072-008	Milepost:
Investigators: T. WYCOFF, S. GRIFFITH	State/County/Municipality: TX / MATAGORDA	Quad Name:

Logbook No.:	Logbook Page No.:	Block/Lot/Tract No.:	Photo Roll:	Picture No.:

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Crossing Method (1, 2A, 2B, or3): _____

Waterbody Type	Lake	Pond	Borrow Pit	River	Stream	Ag. Ditch	Other: MANMADE DITCH		
Stream Flow	Fast		Moderate		Slow		Very Slow		None
Flow type	Perennial		Intermittent		Direction: N to S then NW to SE				
Stream Depth (In.)	0-3	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location):				Water Surface (at crossing location):				

Bank Height (ft.) (looking downstream else give direction you are facing here:_____)	Left	0-2	2-4	4-6	6-8	8+
	Right	0-2	2-4	4-6	6-8	8+
Bank Slope (°) (looking downstream else give direction you are facing here:_____)	Left	0-20	20-40	40-60	60-80	80+
	Right	0-20	20-40	40-60	60-80	80+

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WATERBODY

Waterbody ID No.: S017

Date: 8/21/08	Client/Project Name & No.: STPNOC 10720-008	Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Dry	Other:
Stream Substrate %	Bedrock____	Gravel_____	Sand_____	Silt/Clay 20	Organic 80
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Pools	Undercut Banks
	Overhanging trees/shrubs	In-stream emergent plants	In-stream submerged plants	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Wading Birds	Other:		
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plan: _____ (ft)				
	Circle vegetative layers: trees shrubs herbs Comments:				
	☐ Significant bare areas within riparian zone				
	☐ Evidence of non-buffered concentrated flows Other:				
Channel Condition	Channelization/Braiding	Unnatural straitening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	☐ Livestock access to riparian zone		☐ Manure in stream or on banks		
	☐ Waste discharge pipes present		☐ Other:_____		

T/E SPECIES / SUITABLE HABITAT	**Habitat ID No.:**
NONE OBSERVED	

Comments (e.g. pipeline crossing angle, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)	☐ High	☐ Moderate	☐ Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

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WATERBODY

Waterbody Name:

Waterbody ID No.: 5018

Centerline Re-Route Access Road Warehouse Site Other:

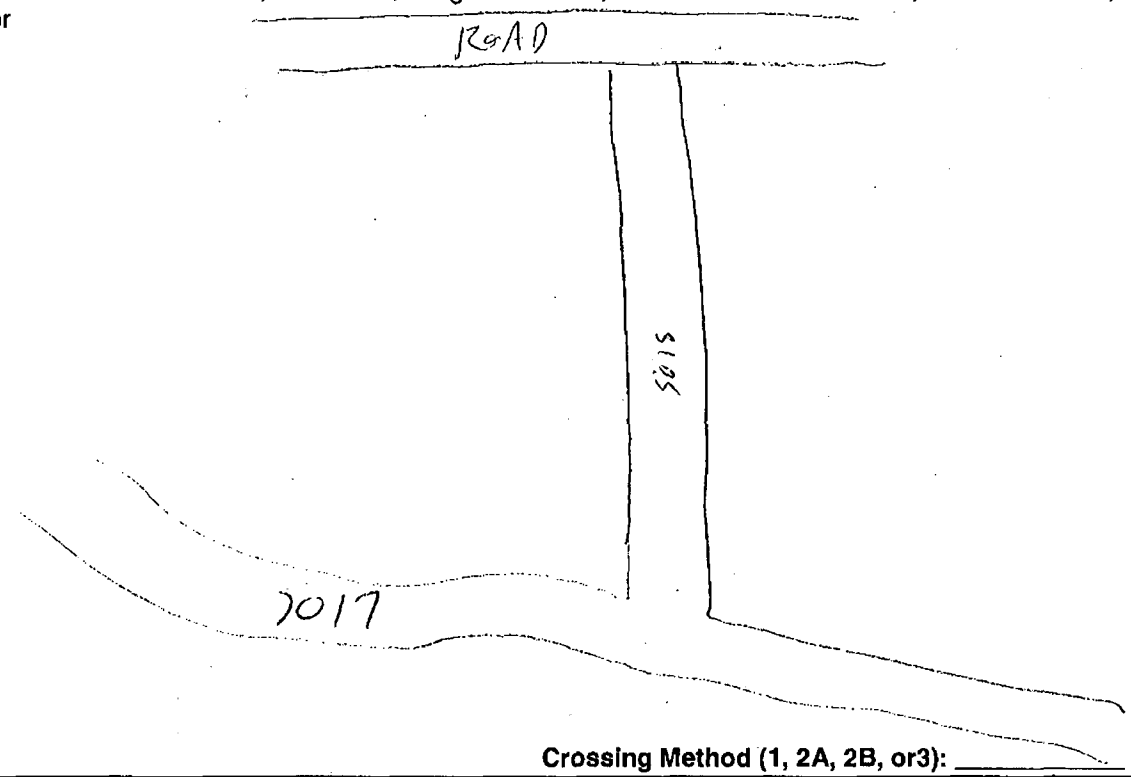
Associated Wetland No.:

Date: 8/27/08	Client/Project Name & No.: STPNOC 10130-008			Milepost:
Investigators: T. WYCOFF S. GRIFFITH	State/County/Municipality: TX / MATAGORDA			Quad Name:
Logbook No.:	Logbook Page No.:	Block/Lot/Tract No.:	Photo Roll:	Picture No.: 46

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Crossing Method (1, 2A, 2B, or3): _____

Waterbody Type	Lake	Pond	Borrow Pit	River	Stream	Ag. Ditch	Other MANMADE DITCH		
Stream Flow	Fast		Moderate		Slow		Very Slow		None
Flow type	Perennial		Intermittent		Direction: N to S				
Stream Depth (in.)	0-3	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location):				Water Surface (at crossing location):				

Bank Height (ft.) (looking downstream else give direction you are facing here:_____)	Left	0-2	2-4	4-6	6-8	8+
	Right	0-2	2-4	4-6	6-8	8+
Bank Slope (°) (looking downstream else give direction you are facing here:_____)	Left	0-20	20-40	40-60	60-80	80+
	Right	0-20	20-40	40-60	60-80	80+

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WATERBODY

Waterbody ID No.: 5018

Date: 8/27/08	Client/Project Name & No.: STPNOC 10720-008	Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Dry	Other:
Stream Substrate %	Bedrock_____	Gravel_____	Sand_____	Silt/Clay_____	Organic 100
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Pools	Undercut Banks
	Overhanging trees/shrubs	In-stream emergent plants	In-stream submerged plants	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Wading Birds	Other:		
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plan: _____ (ft)				
	Circle vegetative layers: trees shrubs herbs		Comments:		
	☐ Significant bare areas within riparian zone				
	☐ Evidence of non-buffered concentrated flows		Other:		
Channel Condition	Channelization/Braiding	Unnatural straitening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	☐ Livestock access to riparian zone		☐ Manure in stream or on banks		
	☐ Waste discharge pipes present		☐ Other:_____		

T/E SPECIES / SUITABLE HABITAT	**Habitat ID No.:**
NONE OBSERVED	

Comments (e.g. pipeline crossing angle, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) ☐ High ☐ Moderate ☐ Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

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WATERBODY

Waterbody Name:

Waterbody ID No.: S020

Centerline Re-Route Access Road Warehouse Site Other:

Associated Wetland No.:

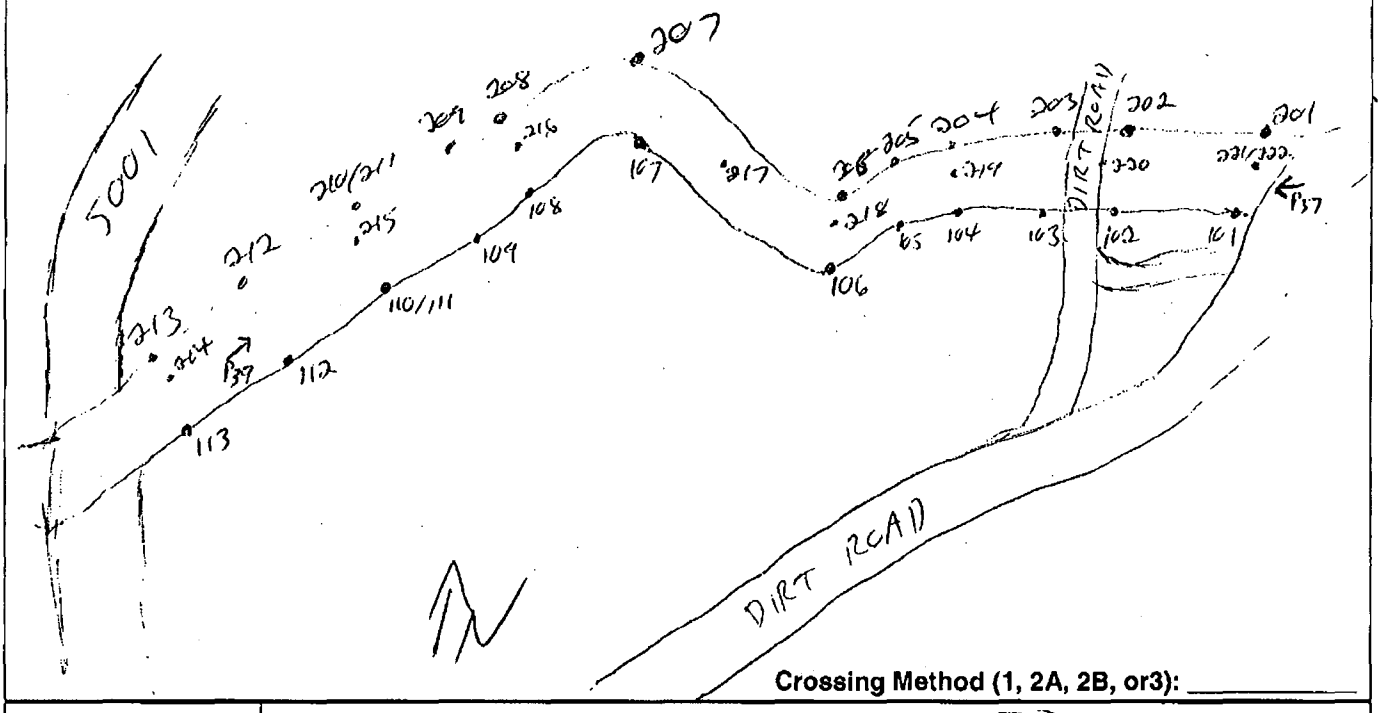
Date: 8/26/08	Client/Project Name & No.: STPNOC 10720-008	Milepost:
Investigators: T. WYCOFF, S. GRIFFITH	State/County/Municipality: TX/ MATAGORDA	Quad Name:

Logbook No.:	Logbook Page No.:	Block/Lot/Tract No.:	Photo Roll:	Picture No.: 37, 38, 39

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Crossing Method (1, 2A, 2B, or3): _____

Waterbody Type	Lake	Pond	Borrow Pit	River	Stream	Ag. Ditch	Other: MANMADE DRAINAGE		
Stream Flow	Fast		Moderate		Slow		Very Slow		None
Flow type	Perennial		Intermittent		Direction: E to W				
Stream Depth (in.)	0-3	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): 200 ft				Water Surface (at crossing location): 12 ft				
Bank Height (ft.) (looking downstream else give direction you are facing here:_____)	Left	0-2	2-4		4-6	6-8	8+		
	Right	0-2	2-4		4-6	6-8	8+		
Bank Slope (°) (looking downstream else give direction you are facing here:_____)	Left	0-20	20-40		40-60	60-80	80+		
	Right	0-20	20-40		40-60	60-80	80+		

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WATERBODY

Waterbody ID No.: 5020

Date: 8/26/08	Client/Project Name & No.: STPNOC 10720-008	Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Dry	Other:
Stream Substrate %	Bedrock____	Gravel____	Sand____	Silt/Clay 100	Organic____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Pools	Undercut Banks
	Overhanging trees/shrubs	In-stream emergent plants	In-stream submerged plants	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult) GAR	Fish (juvenile) Minnows	Frogs	Turtles
	Snakes	Wading Birds	Other Alligator		
	Invertebrates:	Intolerant	Facultative	Tolerant	None

Riparian Zone

Width of natural vegetation zone from edge of active channel out onto flood plan: 15 (ft)

Circle vegetative layers: trees shrubs herbs Comments:

☐ Significant bare areas within riparian zone

☐ Evidence of non-buffered concentrated flows Other:

Channel Condition	Channelization/Braiding	Unnatural straitening	Downcutting	Dikes/Berms	Excessive bank erosion

Disturbances

☐ Livestock access to riparian zone ☐ Manure in stream or on banks

☐ Waste discharge pipes present ☐ Other:

T/E SPECIES / SUITABLE HABITAT **Habitat ID No.:**

None observed

Comments (e.g. pipeline crossing angle, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) ☐ High ☐ Moderate ☐ Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present.

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WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

Centerline Re-Route Access Road Warehouse Site Other: **Wetland ID No.:** WAMA021

Date: 8/28/08	Client/Project Name & No.: STPNOC 10720-008	Point ID: Wetland Pt X Upland Pt
Investigators: T. WYCOFF, S. GRIFFITH	State/County/Municipality: TX / MATAGORDA	
Logbook No.:	Logbook Page No.:	Picture No.: 47, 48
Picture No:	Milepost:	

Wetland Quality: High Moderate Low **Wetland Type (circle one):** PFO PEM PSS Other:

DOMINANT PLANT SPECIES	Stratum	Indicator	NON-DOMINANT PLANT SPECIES	Stratum	Indicator
1. Eleocharis palustris	H	OBL	1.		
2. Solarin sp.	H	FAC/FACW	2.		
3. Cardiospermum halicacabum	V	FAC	3.		
4. Triadica Sebiferum	H/S	FACU+	4.		
5.			5.		
6.			6.		
7.			7.		
8.			8.		

Per Cent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 75%

REMARKS:

HYDROLOGY

Recorded Data? Describe: No Recorded Data?

Depth of Surface Water: — (in.)	
Depth to Free Water in Pit: — (in.)	
Depth to Saturated Soil: 0 (in.)	

Primary Wetland Indicators (circle those that apply):
Inundated; Sediment Deposits; Saturated in Upper 12 Inches; Water Marks; Drift Lines; Drainage Patterns in Wetlands

Secondary Wetland Indicators (2 or more required) (circle those that apply):
Oxidized Root Channels in Upper 12; FAC-Neutral Test; Water-Stained Leaves; Other (Explain in Remarks); Local Soil Survey Data

Remarks:

SOILS

Map Unit Name (Series and Phase): Drainage Class:

Taxonomy (Subgroup): Field Observations Confirm Mapped Type?

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle (Abundance/Contrast)	Texture, Concretions, Structure, etc.
0-18	A	10YR 3/1	NA	Clay

Circle those that Apply:
Histosol; Sulficidic Odor; Organic Streaking in Sandy Soils; Oxidized Rhizopheres; Concretions
Histic Epidedon; Aquic Moisture Regime; Organic Pans in Sandy Soils; Listed on Local Hydric Soils List; Gleyed Soil
High Organic Content; Other:

REMARKS:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	**Is This Sampling Point Within a Wetland?**	**YES**	**NO**
Wetland Hydrology Present?	Yes	No	**Is This An Isolated Wetland?**	**YES**	**NO**
Hydric Soils Present?	Yes	No			

Normal Circumstances? Significantly Disturbed: Potential Problem Area?

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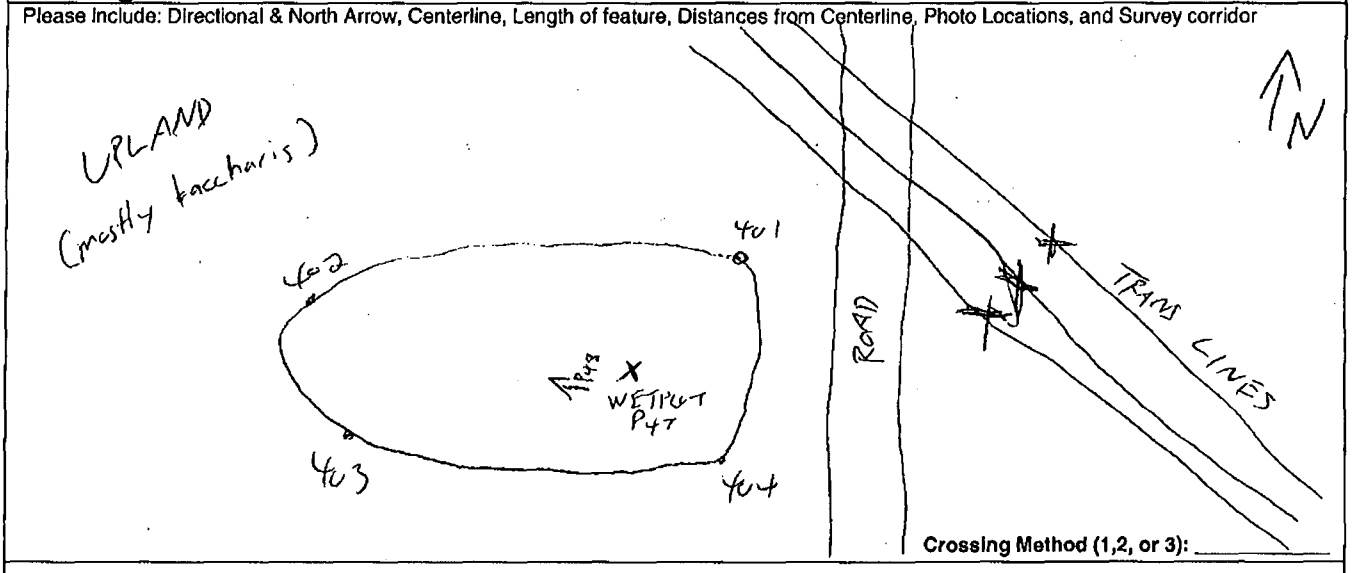
WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

Wetland ID No.: W4AMA021

Date: 8/28/08	Client/Project Name & No.: STP NOC - 1070 - 008	Point ID: Wetland Pt X Upland Pt ____
		Milepost:

Drawing

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Crossing Method (1,2, or 3): ____

Description of Wetland (include overall characteristics and provide unique descriptors):

LOW AREA BORDERED BY ROAD EASEMENT TO EAST AND BACCHARIS TO N, W, AND S.

T/E Species/Suitable Habitat:

NONE OBSERVED

Comments (i.e., angle at pipeline crossing, construction constraints, erosion potential, existing disturbances, and meanders):

RECENT RAINFALL

Crossing Methods and Wetland Quality Criteria: | (Circle the wetland quality characteristics observed)

Method 1: Wetland Method I can be used in wetlands where soils are dry enough at the time of construction to support equipment. This crossing method requires topsoil segregation, and requires no special stabilization techniques.
Wetland Method 2: Conventional Wetland Construction will be used for crossing wetlands with saturated soils or soils otherwise unable to support mainline construction equipment. Because the soils are saturated, there is a need to stabilize the ROW during construction
Wetland Method 3:, Push/Pull Wetland Construction will be used in large wetland areas where sufficient hydrology is present for floating the pipeline in the trench, and grade elevation over the length of the push/pull area will not require damming to maintain adequate water levels for floatation of the pipe.

HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area – diverse and mature vegetation types – hydrologic and soil indicators are characteristic of the specific community type – provides suitable habitat for wildlife – high quality perennial streams are often observed
MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas – slightly altered natural vegetation, hydrology and/ or soil characteristics – provides suitable habitat for wildlife and vegetation – associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed
LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology – hydroperiod alterations, if present, have directly affected plant species – community composition has changed – noticeable stress or death of plant species – soil subsidence may have occurred in areas with decreased hydroperiod – mechanical alteration of plant species or soils – grazing from livestock – channelization of stream courses or ditching – little suitable habitat for wildlife and vegetation – associated perennial or intermittent streams significantly disturbed

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WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

Centerline Re-Route Access Road Warehouse Site Other: **Wetland ID No.:** WIAMA022

Date: 8/28/08	Client/Project Name & No.: STPNOC 10720-008	Point ID: Wetland Pt X Upland Pt
Investigators: T. WYCOFF, S. GRIFFITH	State/County/Municipality: TX / MATAGORDA	

Logbook No.:	Logbook Page No.:	Picture No.: 50	Picture No:	Milepost:

Wetland Quality: High Moderate Low **Wetland Type (circle one):** PFO PEM PSS Other:

DOMINANT PLANT SPECIES	Stratum	Indicator	NON-DOMINANT PLANT SPECIES	Stratum	Indicator
1. Rosa bracteata	V/B	FACU*	1.		
2. Baccharis halimifolia	S	FACW-	2.		
3. Andropogon glomeratus	H	FACW+	3.		
4. Eleocharis palustris	H	OBL	4.		
5.			5.		
6.			6.		
7.			7.		
8.			8.		

Per Cent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 75%

REMARKS:

HYDROLOGY

Recorded Data?	Describe:	No Recorded Data?
Depth of Surface Water: — (in.)		
Depth to Free Water in Pit: — (in.)		
Depth to Saturated Soil: 0 (in.)		

Primary Wetland Indicators (circle those that apply):
Inundated; Sediment Deposits; Saturated in Upper 12 Inches; Water Marks; Drift Lines; Drainage Patterns in Wetlands

Secondary Wetland Indicators (2 or more required) (circle those that apply):
Oxidized Root Channels in Upper 12"; FAC-Neutral Test; Water-Stained Leaves; Other (Explain in Remarks); Local Soil Survey Data

Remarks:

SOILS

Map Unit Name (Series and Phase):	Drainage Class:
Taxonomy (Subgroup):	Field Observations Confirm Mapped Type?

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle (Abundance/Contrast)	Texture, Concretions, Structure, etc.
0-18	A	10YR 3/1	N/A	CLAY

Circle those that Apply:
Histosol; Sulfidic Odor; Organic Streaking in Sandy Soils; Oxidized Rhizospheres; Concretions
Histic Epidedon; Aquic Moisture Regime; Organic Pans in Sandy Soils; Listed on Local Hydric Soils List; Gleyed Soil
High Organic Content; Other:

REMARKS:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	**Is This Sampling Point Within a Wetland?**	YES	NO
Wetland Hydrology Present?	Yes	No	**Is This An Isolated Wetland?**	YES	NO
Hydric Soils Present?	Yes	No			

Normal Circumstances?	Significantly Disturbed:	Potential Problem Area?

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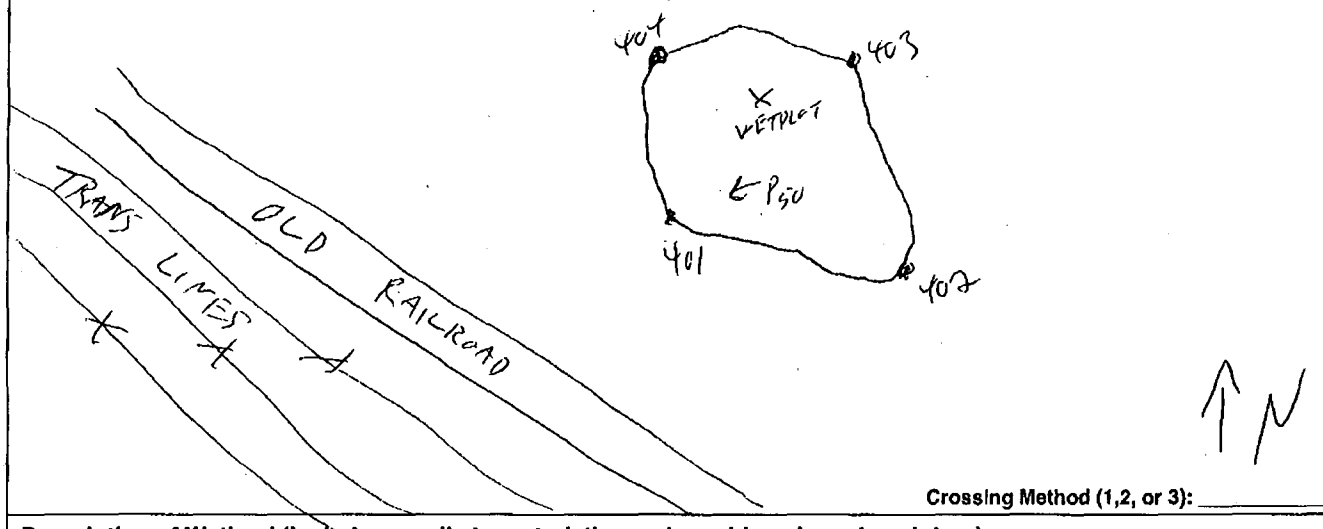
WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

Wetland ID No.: W4AMA022

Date: 8/28/08	Client/Project Name & No.: STPNOC 10720-008	Point ID: Wetland Pt ✓ Upland Pt_____
		Milepost:

Drawing

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Crossing Method (1,2, or 3): _____

Description of Wetland (include overall characteristics and provide unique descriptors):

T/E Species/Suitable Habitat:

NONE OBSERVED

Comments (i.e., angle at pipeline crossing, construction constraints, erosion potential, existing disturbances, and meanders):

Crossing Methods and Wetland Quality Criteria: (Circle the wetland quality characteristics observed)

Method 1: Wetland Method I can be used in wetlands where soils are dry enough at the time of construction to support equipment. This crossing method requires topsoil segregation, and requires no special stabilization techniques.
Wetland Method 2: Conventional Wetland Construction will be used for crossing wetlands with saturated soils or soils otherwise unable to support mainline construction equipment. Because the soils are saturated, there is a need to stabilize the ROW during construction
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HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area – diverse and mature vegetation types – hydrologic and soil indicators are characteristic of the specific community type – provides suitable habitat for wildlife – high quality perennial streams are often observed
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LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology – hydroperiod alterations, if present, have directly affected plant species – community composition has changed – noticeable stress or death of plant species – soil subsidence may have occurred in areas with decreased hydroperiod – mechanical alteration of plant species or soils – grazing from livestock – channelization of stream courses or ditching – little suitable habitat for wildlife and vegetation – associated perennial or intermittent streams significantly disturbed

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WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

Centerline Re-Route Access Road Warehouse Site Other: **Wetland ID No.:** W4MA023

Date: 8/28/08	Client/Project Name & No.: STPNOC 10730-008	Point ID: Wetland Pt X Upland Pt
Investigators: T. WYCOFF, S. GRIFFITH	State/County/Municipality:	
Logbook No.:	Logbook Page No.:	Picture No.: 51
Picture No:	Milepost:	

Wetland Quality: High Moderate Low **Wetland Type (circle one):** PFO PEM PSS Other:

DOMINANT PLANT SPECIES	Stratum	Indicator	NON-DOMINANT PLANT SPECIES	Stratum	Indicator
1. Typha domingensis	H	OBL	1.		
2. Cardiospermum halicacabum	V	FAC	2.		
3. Salix nigra	T	FACW+	3.		
4.			4.		
5.			5.		
6.			6.		
7.			7.		
8.			8.		

Per Cent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100%

REMARKS:

HYDROLOGY

Recorded Data? Describe: No Recorded Data?

Depth of Surface Water: — (in.)	
Depth to Free Water in Pit: — (in.)	
Depth to Saturated Soil: 0 (in.)	

Primary Wetland Indicators (circle those that apply):
Inundated; Sediment Deposits; Saturated in Upper 12 Inches; Water Marks; Drift Lines; Drainage Patterns in Wetlands

Secondary Wetland Indicators (2 or more required) (circle those that apply):
Oxidized Root Channels in Upper 12; FAC-Neutral Test; Water-Stained Leaves; Other (Explain in Remarks); Local Soil Survey Data

Remarks:

SOILS

Map Unit Name (Series and Phase):	Drainage Class:
Taxonomy (Subgroup):	Field Observations Confirm Mapped Type?

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle (Abundance/Contrast)	Texture, Concretions, Structure, etc.
0-18	A	10YR 3/1	N/A	Clay Clay

Circle those that Apply:
Histosol; Sulficidic Odor; Organic Streaking in Sandy Soils; Oxidized Rhizospheres; Concretions; Histic Epidedon; Aquic Moisture Regime; Organic Pans in Sandy Soils; Listed on Local Hydric Soils List; Gleyed Soil; High Organic Content; Other:

REMARKS:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	**Is This Sampling Point Within a Wetland?**	YES	NO
Wetland Hydrology Present?	Yes	No	**Is This An Isolated Wetland?**	YES	NO
Hydric Soils Present?	Yes	No			

Normal Circumstances?	Significantly Disturbed:	Potential Problem Area?

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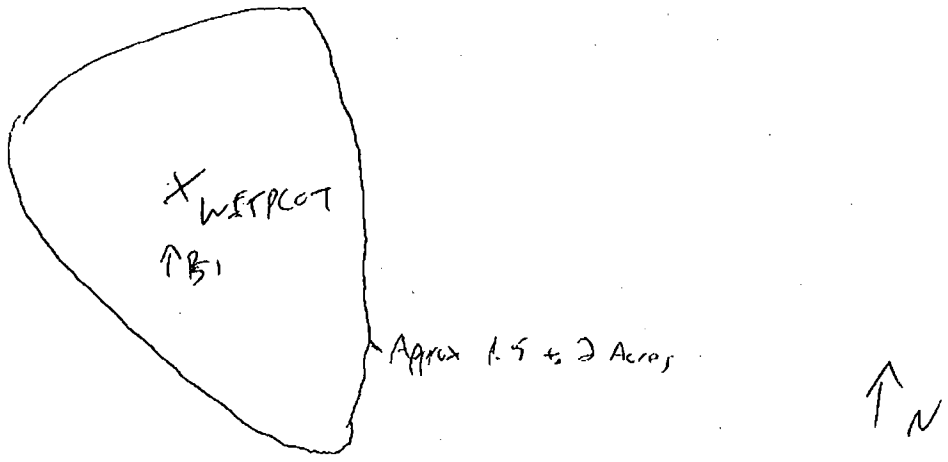
WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

Wetland ID No.: W4AMA023

Date: 8/28/08	Client/Project Name & No.: STPNOC 10120-008	Point ID: Wetland Pt Y Upland Pt ____
		Milepost:

Drawing

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Crossing Method (1,2, or 3): _____

Description of Wetland (include overall characteristics and provide unique descriptors):

T/E Species/Suitable Habitat:

Comments (i.e., angle at pipeline crossing, construction constraints, erosion potential, existing disturbances, and meanders):

Crossing Methods and Wetland Quality Criteria: (Circle the wetland quality characteristics observed)

Method 1: Wetland Method I can be used in wetlands where soils are dry enough at the time of construction to support equipment. This crossing method requires topsoil segregation, and requires no special stabilization techniques.
Wetland Method 2: Conventional Wetland Construction will be used for crossing wetlands with saturated soils or soils otherwise unable to support mainline construction equipment. Because the soils are saturated, there is a need to stabilize the ROW during construction
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LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology – hydroperiod alterations, if present, have directly affected plant species – community composition has changed – noticeable stress or death of plant species – soil subsidence may have occurred in areas with decreased hydroperiod – mechanical alteration of plant species or soils – grazing from livestock – channelization of stream courses or ditching – little suitable habitat for wildlife and vegetation – associated perennial or intermittent streams significantly disturbed

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WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

Centerline Re-Route Access Road Warehouse Site Other: **Wetland ID No.:** W4AMAOZY

Date: 8/28/08	Client/Project Name & No.: STPNOC 10720-008	Point ID: Wetland Pt X Upland Pt
Investigators: T WYCOFF, S GRIFFITH	State/County/Municipality: TX / MATAGORDA	
Logbook No.:	Logbook Page No.:	Picture No.: 52
Picture No:	Milepost:	

Wetland Quality: High Moderate Low **Wetland Type (circle one):** PFO (PEM) PSS Other:

DOMINANT PLANT SPECIES	Stratum	Indicator	NON-DOMINANT PLANT SPECIES	Stratum	Indicator
1. Eleocharis palustris	H	OBL	1.		
2. Typha domingensis	H	OBL	2.		
3. Triadica sebifera	S/T	FACW+	3.		
4. Salix nigra	S	FACW+	4.		
5. Pluchea camphorata	H	FACW-	5.		
6.			6.		
7.			7.		
8.			8.		

Per Cent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100%

REMARKS:

HYDROLOGY

Recorded Data?	Describe:	No Recorded Data?
Depth of Surface Water: — (in.)		
Depth to Free Water in Pit: — (in.)		
Depth to Saturated Soil: 0 (in.)		

Primary Wetland Indicators (circle those that apply):		Secondary Wetland Indicators (2 or more required) (circle those that apply):	
Inundated	Sediment Deposits	Oxidized Root Channels in Upper 12	FAC-Neutral Test
Saturated in Upper 12 Inches	Water Marks	Water-Stained Leaves	Other (Explain in Remarks)
Drift Lines	Drainage Patterns in Wetlands	Local Soil Survey Data	

Remarks:

SOILS

Map Unit Name (Series and Phase):	Drainage Class:
Taxonomy (Subgroup):	Field Observations Confirm Mapped Type?

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle (Abundance/Contrast)	Texture, Concretions, Structure, etc.
0-18	A	10YR 6/6		CLAY
0-18	A	10YR 4/2		CLAY

Circle those that Apply:

Histosol	Sulfidic Odor	Organic Streaking in Sandy Soils	Oxidized Rhizospheres	Concretions
Histic Epidedon	Aquic Moisture Regime	Organic Pans in Sandy Soils	Listed on Local Hydric Soils List	Gleyed Soil
High Organic Content	Other:			

REMARKS: Mix of two different clay soils

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	Is This Sampling Point Within a Wetland?	YES	NO
Wetland Hydrology Present?	Yes	No	Is This An Isolated Wetland?	YES	NO
Hydric Soils Present?	Yes	No			

Normal Circumstances?	Significantly Disturbed:	Potential Problem Area?

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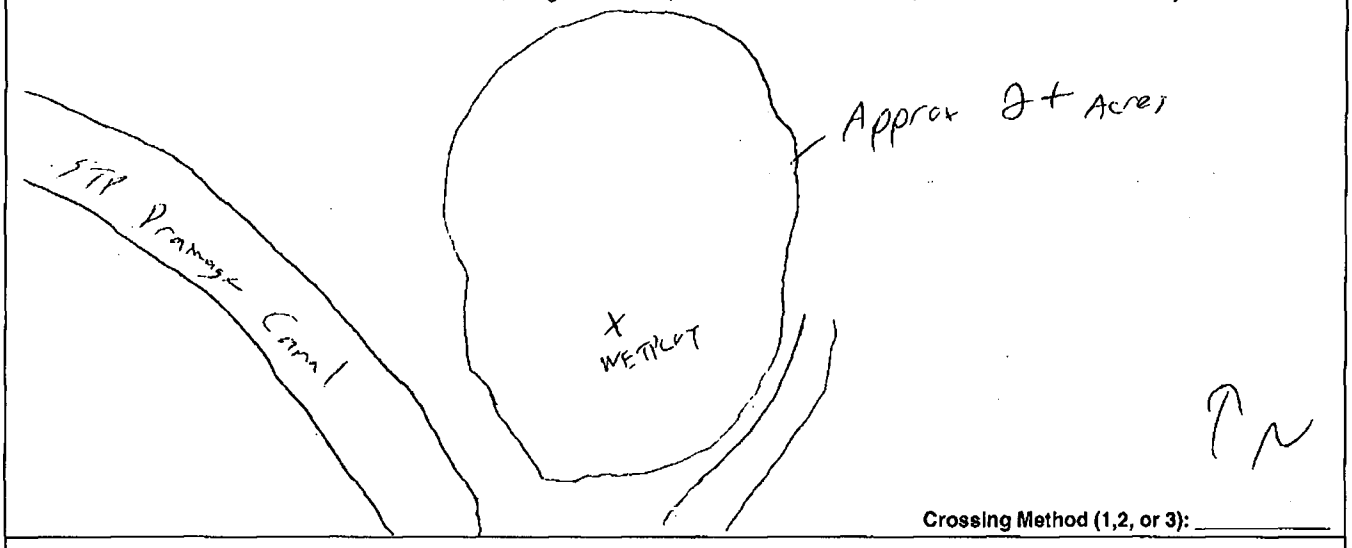
WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

Wetland ID No.: W4AMA024

Date: 8/28/08	Client/Project Name & No.: STPNOC 10720-002	Point ID: Wetland Pt X Upland Pt ____
		Milepost:

Drawing

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Crossing Method (1,2, or 3): _____

Description of Wetland (include overall characteristics and provide unique descriptors):

LARGE WETLAND HAD A CATTAIL PORTION, GRASSY PORTION, AND A LOW DEPRESSION THAT HAD EVIDENCE OF PONDING (CRACKED SOIL AND ALGAL CRUST)

T/E Species/Suitable Habitat:

NONE OBSERVED

Comments (i.e., angle at pipeline crossing, construction constraints, erosion potential, existing disturbances, and meanders):

Crossing Methods and Wetland Quality Criteria: (Circle the wetland quality characteristics observed)

Method 1: Wetland Method I can be used in wetlands where soils are dry enough at the time of construction to support equipment. This crossing method requires topsoil segregation, and requires no special stabilization techniques.
Wetland Method 2: Conventional Wetland Construction will be used for crossing wetlands with saturated soils or soils otherwise unable to support mainline construction equipment. Because the soils are saturated, there is a need to stabilize the ROW during construction
Wetland Method 3:, Push/Pull Wetland Construction will be used in large wetland areas where sufficient hydrology is present for floating the pipeline in the trench, and grade elevation over the length of the push/pull area will not require damming to maintain adequate water levels for floatation of the pipe.

HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area – diverse and mature vegetation types – hydrologic and soil indicators are characteristic of the specific community type – provides suitable habitat for wildlife – high quality perennial streams are often observed
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WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

Centerline · Re-Route · Access Road · Warehouse Site · Other: **Wetland ID No.:** W4AMA025

Date: 8/28/08	Client/Project Name & No.: 10720-008 STP NEC	Point ID: Wetland Pt X Upland Pt
Investigators: T. WYCOFF, S. GRIFFITH	State/County/Municipality: TX/MATAGORDA	
Logbook No.:	Logbook Page No.:	Picture No.: 53
Picture No:	Milepost:	

Wetland Quality: High Moderate Low | **Wetland Type (circle one):** PFO PEM PSS Other:

DOMINANT PLANT SPECIES	Stratum	Indicator	NON-DOMINANT PLANT SPECIES	Stratum	Indicator
1. Typha domingensis	H	OBL	1.		
2. Salix nigra	T	FACW+	2.		
3. Rhynchospora caduca	H	OBL	3.		
4. Phyla nodiflora	H	NO	4.		
5. Andropogon glomeratus	H	FACW+	5.		
6.			6.		
7.			7.		
8.			8.		

Per Cent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 80%

REMARKS:

HYDROLOGY

Recorded Data? Describe: No Recorded Data?

Depth of Surface Water: — (in.)	
Depth to Free Water in Pit: — (in.)	
Depth to Saturated Soil: 0 (in.)	

Primary Wetland Indicators (circle those that apply):
Inundated · Sediment Deposits · Saturated in Upper 12 Inches · Water Marks · Drift Lines · Drainage Patterns in Wetlands

Secondary Wetland Indicators (2 or more required) (circle those that apply):
Oxidized Root Channels in Upper 12 · FAC-Neutral Test · Water-Stained Leaves · Other (Explain in Remarks) · Local Soil Survey Data

Remarks:

SOILS

Map Unit Name (Series and Phase):	Drainage Class:
Taxonomy (Subgroup):	Field Observations Confirm Mapped Type?

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle (Abundance/Contrast)	Texture, Concretions, Structure, etc.
0-18	A	10YR 5/2	10YR 5/6 CCD	CONCRETIONS PRESENT

Circle those that Apply:
Histosol · Sulficidic Odor · Organic Streaking in Sandy Soils · Oxidized Rhizospheres · Concretions
Histic Epidedon · Aquic Moisture Regime · Organic Pans in Sandy Soils · Listed on Local Hydric Soils List · Gleyed Soil
High Organic Content · Other:

REMARKS:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No.	**Is This Sampling Point Within a Wetland?**	YES	NO
Wetland Hydrology Present?	Yes	No	**Is This An Isolated Wetland?**	YES	NO
Hydric Soils Present?	Yes	No			

Normal Circumstances? · Significantly Disturbed: · Potential Problem Area?

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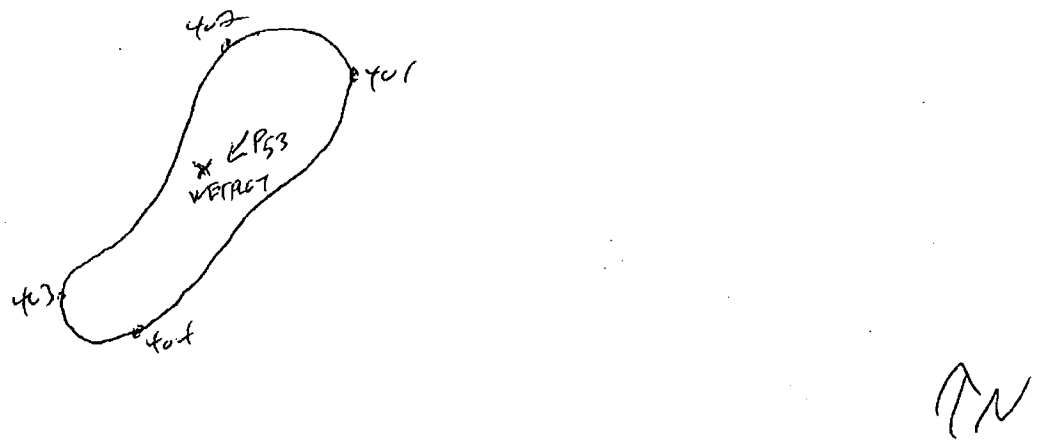
WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

Wetland ID No.: W4AMA025

Date: 8/28/08	Client/Project Name & No.: STPNOC K720-008	Point ID: Wetland Pt X Upland Pt ____
		Milepost:

Drawing

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Crossing Method (1,2, or 3): _____

Description of Wetland (include overall characteristics and provide unique descriptors):

LOW PONDED AREA WITH CRACKED SOIL AND ALGAL CRUST NEAR A TRANSMISSION ROW.

T/E Species/Suitable Habitat:

NONE OBSERVED

Comments (i.e., angle at pipeline crossing, construction constraints, erosion potential, existing disturbances, and meanders):

Crossing Methods and Wetland Quality Criteria: (Circle the wetland quality characteristics observed)

Method 1: Wetland Method I can be used in wetlands where soils are dry enough at the time of construction to support equipment. This crossing method requires topsoil segregation, and requires no special stabilization techniques.
Wetland Method 2: Conventional Wetland Construction will be used for crossing wetlands with saturated soils or soils otherwise unable to support mainline construction equipment. Because the soils are saturated, there is a need to stabilize the ROW during construction
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USACE Meeting Minutes Re: SWG-2007-786

Attendees:
Nicholas A. Laskowski – USACE Galveston District
Sam A. Damico – STPNOC
Kurtis K. Schlicht –ENSR
Travis A. Wycoff – ENSR

Topics addressed:

1. Per our conversation yesterday I have listed the necessary actions needed to assist in verifying the project. I have attached a map in an effort to clarify areas that require the necessary work. Below are listed the necessary actions. NOTE: All of jurisdictional features will need to be either surveyed or collected via GPS per the Galveston District GPS Protocol.

2. Little Robbins Slough will be jurisdictional (an RPW) Please instruct your consultants (ENSR) to delineate the extent of waters of the Slough (including either the ordinary high water mark and/or the abutting wetlands.) STPNOC concurs and instructs ENSR to delineate Little Robbins Slough and two associated drainages using OHWM.

3. Delineate the extents of the tributary (and all abutting wetlands) that flow into Kelly Lake. These waters may be jurisdictional. Per discussion between STPNOC and USACE the tributary will be delineated until leaving STPNOC property boundary. Kelly Lake will not be delineated.

4. Delineate the concrete pilot channels accept the water from the seep well along the MCR. And if there are areas that meet the three criteria to be a wetland per the 1987 Corps of Engineers Wetland Delineation Manual have the consultant delineate those portions separately. STPNOC inquired if this action would be necessary if the proposed project area and associated construction impacts were located north of the channels. USACE stipulated that if project site did not encompass these areas that delineation would be unnecessary.

5. Determine the water mark of the MCR at normal pool elevation (pool elevation) and use it to determine the MCR water line and acreage. STPNOC provided documentation that normal pool elevation is considered 49' MSL on the inside edge of the berm surrounding the MCR, which corresponds to an area of 7000 acres. USACE accepted the documentation as valid.

6. Identify "ALL" of the wetlands not abutting or neighboring a water of the U.S. on the tract and note the location (center point) and the approximate size (acres) of each wetland. USACE identified possible wetland areas from 1995 TNRIS aerial maps that were not delineated. STPNOC instructed ENSR to survey and document the presence/absence of wetlands in the suspect areas. ENSR agreed and will survey using GPS and field documentation at a date yet to be determined.

Other Topics Addressed:

- STPNOC will provide a revised project boundary.

- After the ENSR survey, USACE will provide jurisdictional determination verification on the project site and MCR, excluding the area including the channels along the northern border of the MCR.
- ENSR will delineate drainages using lines, and wetlands using a center point and acreage estimate, and place pin flags.
- ENSR will overlay wetlands and drainage features onto a 2004 aerial map for final jurisdictional verification upon recommendation by USACE.
- ENSR will complete Jurisdictional Determination Forms for each identified feature.
- The proposed project site will be known and demarcated as "Tract A", and the MCR will be "Tract B".
- USACE indicated that they would be available to assist the field investigation and subsequent figure generation via telephone.

3.0 Survey Results

The results of the wetland determination and delineation surveys for the Project area are presented in the following sections. Figures 4-1 to 4-6 (Attachment A) illustrate each of the wetland polygons identified. General description of the soils, hydrology, and vegetation are discussed within this section. Field data sheets completed during the surveys are presented in Attachment B and a photographic log is presented in Attachment C.

3.1 Wetlands

Based on the field surveys conducted in December 2006, February 2007, April 2008, and August 2008, 26 wetlands totaling 19.81 acres were identified in the survey areas for the proposed Project. Identified wetlands were identified as palustrine emergent (PEM), palustrine scrub shrub (PSS), or palustrine open water (POW) wetlands. Table 3.1 provides a summary of wetlands identified. Data supporting each of the identified wetland areas observed is discussed in the following sections.

Table 3.1. Summary of Wetlands Identified in the STPEGS Project.

Wetland Number	Wetland Feature GPS ID	Wetland Classification	Acreage	Impacts to Wetlands (No Impacts, Temporary, and Permanent)	Jurisdictional Status
Wet 001	W1AMA001	PEM	0.17	Permanent	Non-Jurisdictional
Wet 002	W1AMA004	PEM	0.39	No Impacts	Non-Jurisdictional
Wet 003	W1AMA007	PEM	0.29	No Impacts	Non-Jurisdictional
Wet 004	W2AMA001	PSS/PEM	0.40	No Impacts	Non-Jurisdictional
Wet 005	W1AMA003	PEM	0.23	No Impacts	Non-Jurisdictional
Wet 006	W2AMA005	PSS/PEM	0.23	No Impacts	Non-Jurisdictional
Wet 007	W1AMA004	PEM	0.63	No Impacts	Non-Jurisdictional
Wet 008	W2AMA007	PEM	0.40	No Impacts	Non-Jurisdictional
Wet 009	W2AMA006	PEM	0.11	No Impacts	Non-Jurisdictional
Wet 010	W2AMA008	PEM	0.53	No Impacts	Non-Jurisdictional
Wet 011	W1AMA006	PEM	0.42	No Impacts	Non-Jurisdictional
Wet 012	W1AMA007	PEM/POW	0.13	No Impacts	Non-Jurisdictional
Wet 013	W4AMA001	PSS	0.09	No Impacts	Non-Jurisdictional
Wet 014	W4AMA002	PEM	0.05	No Impacts	Non-Jurisdictional
Wet 015	W4AMA003	PSS/PEM	0.24	No Impacts	Non-Jurisdictional

Table 3.1. Summary of Wetlands Identified in the STPEGS Project (continued).					
Wet 016	W4AMA004	PSS	0.13	No Impacts	Non-Jurisdictional
Wet 017	W4AMA005	PSS/PEM	3.78	No Impacts	Non-Jurisdictional
Wet 018	W4AMA006	PSS/PEM	1.48	No Impacts	Non-Jurisdictional
Wet 019	W4AMA007	PEM	0.09	No Impacts	Non-Jurisdictional
Wet 020	W4AMA008	PEM	0.90	No Impacts	Non-Jurisdictional
Wet 021	W4AMA021	PEM	0.88	No Impacts	Non-Jurisdictional
Wet 022	W4AMA022	PEM/PSS	0.11	No Impacts	Non-Jurisdictional
Wet 023	W4AMA023	PEM/PSS	1.36	No Impacts	Non-Jurisdictional
Wet 024	W4AMA024	PEM	5.21	No Impacts	Non-Jurisdictional
Wet 025	W4AMA025	PEM	0.09	No Impacts	Non-Jurisdictional
Wet 026	W4AMA026	PEM/PSS	1.47	No Impacts	Non-Jurisdictional
TOTAL			**19.81**		

3.1.1 Wetland Vegetation

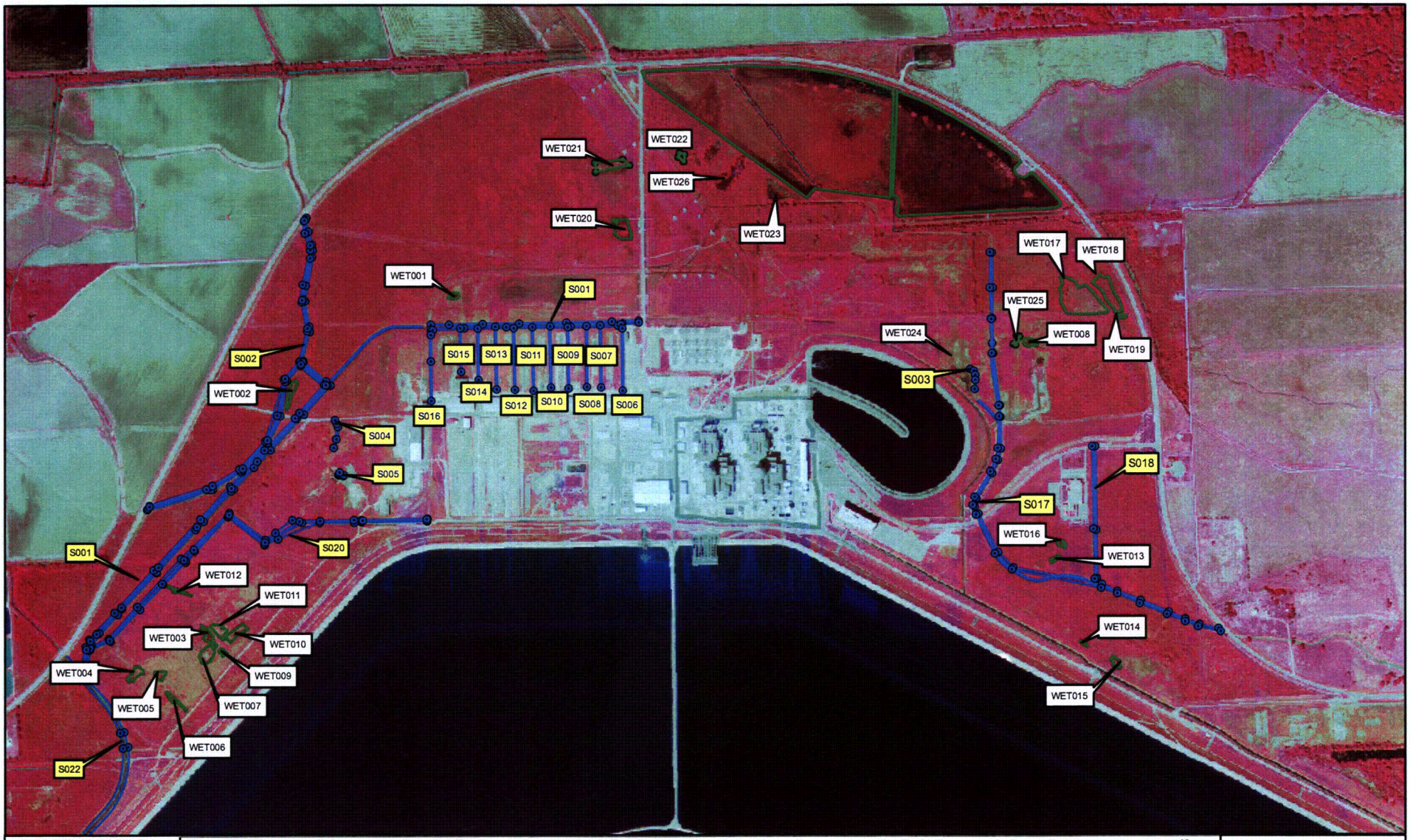
Twenty plant communities identified during the wetland surveys for the Project areas supported the criteria listed by USACE for hydrophytic vegetation and are associated with palustrine emergent and palustrine scrub shrub wetlands. The observed wetland vegetation was similar for each identified wetland with the dominant species being comprised of spike rush species (*Eleocharis tuberculosa, E. palustris, and E. montevidensis*), cattail (*Typha latifolia*), sea myrtle (*Baccharis halimifolia*), golden rod (*Solidago sp.*), knotgrass (*Paspalum distichum*), sedge species (*Carex sp.*), rush species (*Juncus sp.*) and bushy bluestem (*Andropogon glomeratus*). Refer to the USACE wetland field data sheets in Attachment B for more detail.

3.1.2 Hydrology

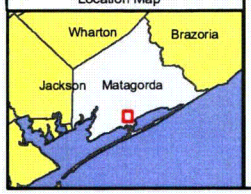
Topography in the Project site is generally flat with elevations near 30-ft above mean sea level (MSL) (Figure 5). Hydrology in the Project area is associated with soils of low permeability and slow water runoff attributed to gentle slopes from higher elevation to lower elevation moving south and east toward the Colorado River. There are numerous large and small man-made drainage features located through out the entire Property. Each of the small drainage ditches are located adjacent to existing plant buildings and parking areas and drain to the larger ditches that carry the water from the Project area. The larger drainage ditches act as major water conveyances that carry water over two miles to the Colorado River. Each of these drainage ditches are routinely maintained (mowed/cleared).

The wetland survey completed in February 2007 was conducted shortly (within 5 days) after a significant rainfall event. Therefore, each of the wetlands identified during these surveys were documented having saturated and inundated conditions.

FEMA Flood Hazard maps were reviewed to evaluate the location of the Project area within the 100-year floodplain. The entire Project area is considered to be outside the 100-year and 500-year zones (Figure 6). U.S. Fish and Wildlife Service NWI maps indicate that seven mapped wetlands are located within the Project area (Figure 7) and only one of the mapped wetlands is associated with the delineated wetlands, WET008.



Location Map



Wetlands
Water Flag
Wetland Flag
Water Line

General Wetlands Aerial Map (Revised)
South Texas Project Units 3 & 4
Matagorda County, TX

N W E S

Feet
0 750 1,500 3,000

Projection: NAD_1983_StatePlane_Texas_Central_FIPS_4203_Feet

Background: 2004 NAIP 1M CIR Imagery

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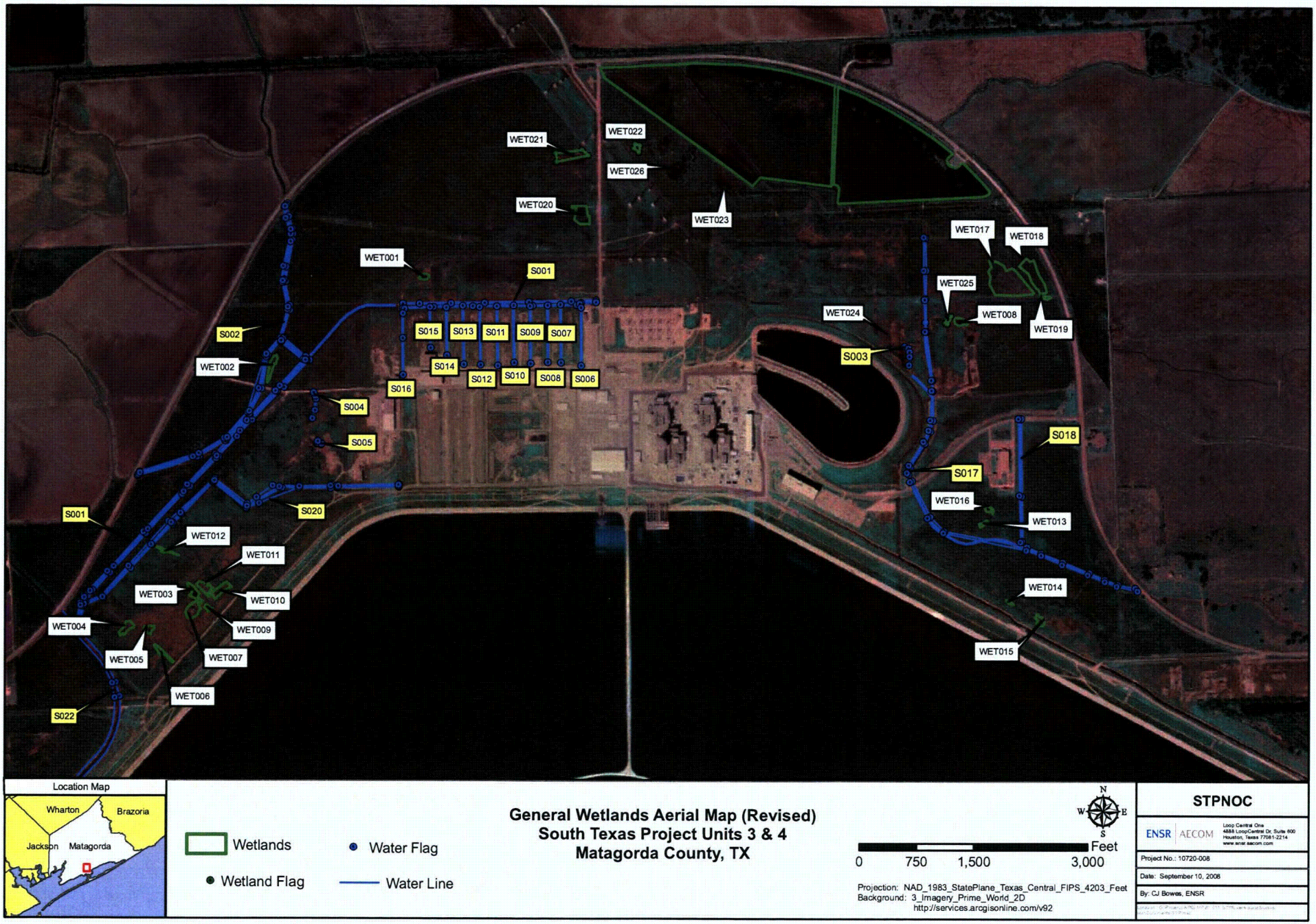
Project No.: 10720-008

Date: September 10, 2008

By: CJ Bowes, ENSR



General Wetlands Aerial Map (Revised)
South Texas Project Units 3 & 4
Matagorda County, TX

Projection: NAD_1983_StatePlane_Texas_Central_FIPS_4203_Feet
Background: 3_Imagery_Prime_World_2D
http://services.arcgisonline.com/v92

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