

APR 08 2019

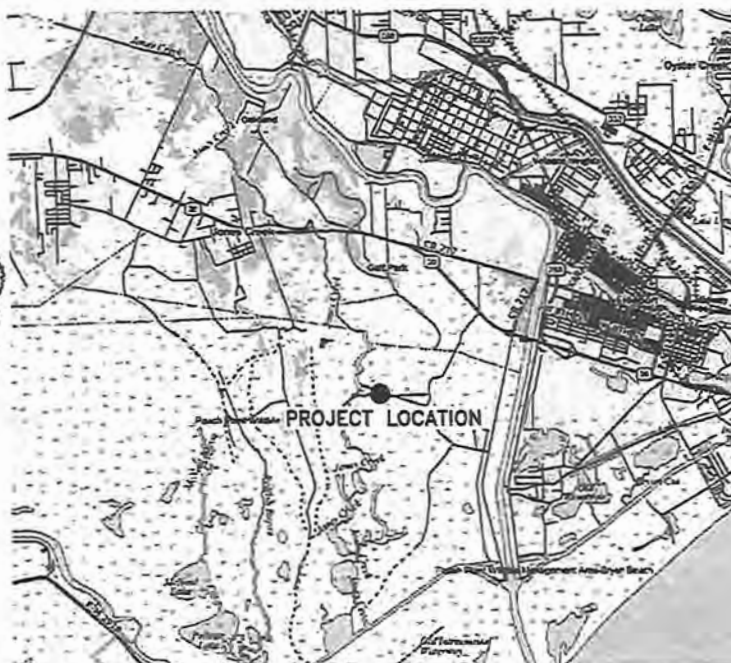


# DUCKS UNLIMITED, INC. JUSTIN HURST WMA RELIFT PUMP REPLACEMENT

BRAZORIA COUNTY  
IN COOPERATION WITH  
TEXAS PARKS & WILDLIFE DEPARTMENT



PROJECT LOCATION



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- 10 STRUCTURE DETAILS



**CAUTION:**  
The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

**DUCKS UNLIMITED, INC.**  
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C.O.G. No. T-001112 Expires 9/30/18

PROJECT NO. DU-TX-53-9  
**JUSTIN HURST WMA  
RELIFT PUMP REPLACEMENT**  
COVER SHEET  
SHEET 1 OF 10

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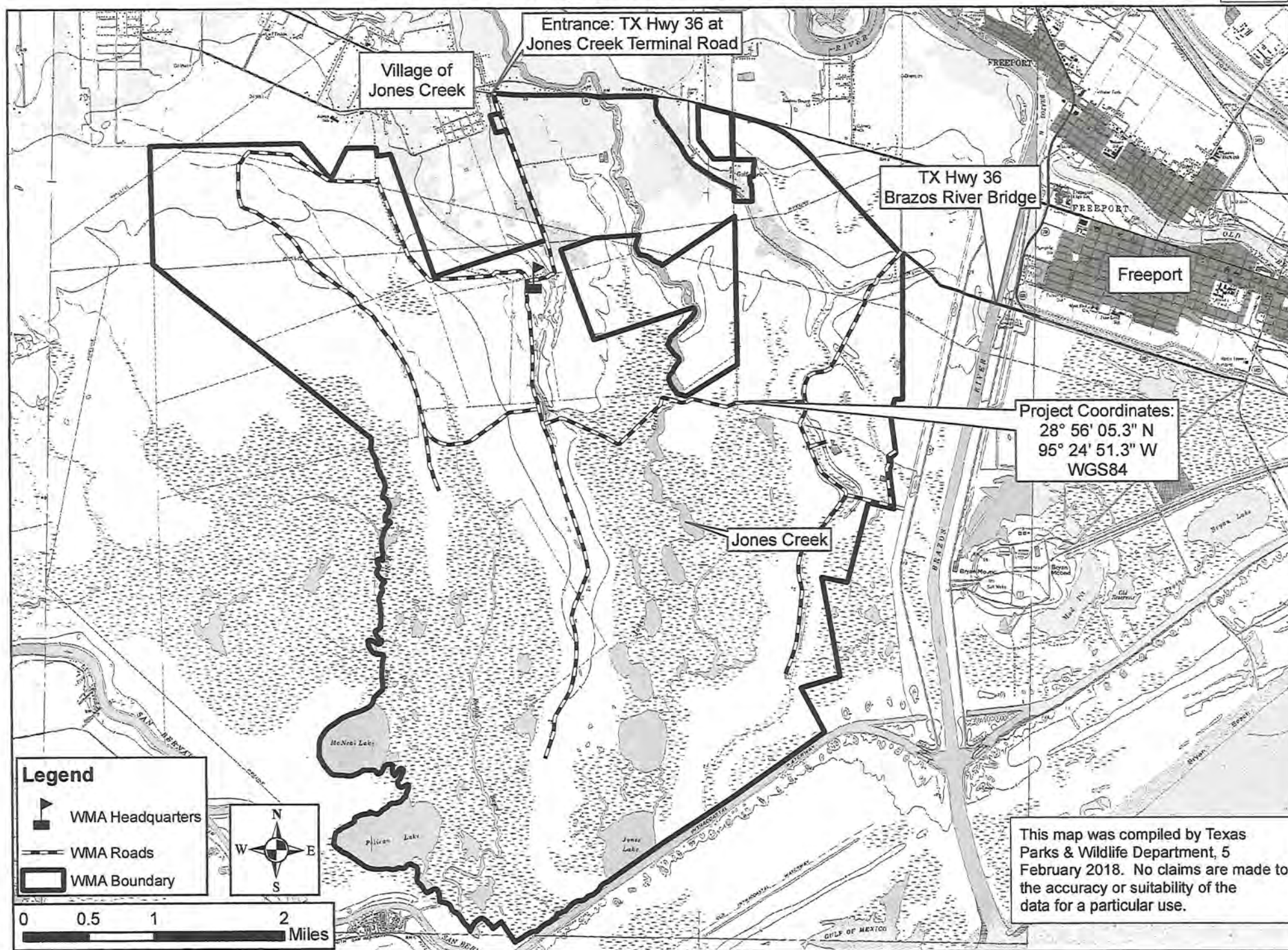
**Table 1.** Square footage, acreage, and cubic yards of unavoidable wetland impacts for proposed 1200 Acres Pump Replacement project at Justin Hurst Wildlife Management Area in Brazoria County, TX.

Total Wetland Impacts for 1200 Acres Pump Replacement				
ITEM:	IMPACT TYPE:	S.F.	AC.	C.Y.
Rip Rap (Pump Intake\Discharge)	fill	4069	0.09	283
Rip Rap (Levee #1)	fill	4176	0.10	155
Rip Rap (Ditch #1 Discharge)	fill	608	0.01	22.5
Soil (Levee #1)	fill	85,813	1.97	6,786
<b>Fill Totals:</b>		<b>94,666.00</b>	<b>2.17</b>	<b>7,246.50</b>
Ditch #1 (930 LF)	excavation	32,670	0.75	975.5
Existing Ditch Clean Out (3,148 LF)	excavation	86,248	1.98	5,784
<b>Excavation Totals:</b>		<b>118,918.00</b>	<b>2.73</b>	<b>6,759.50</b>



# Figure 1. 1200 Acres Pump Replacement- Vicinity Map

Justin Hurst Wildlife Management Area Brazoria County, Texas



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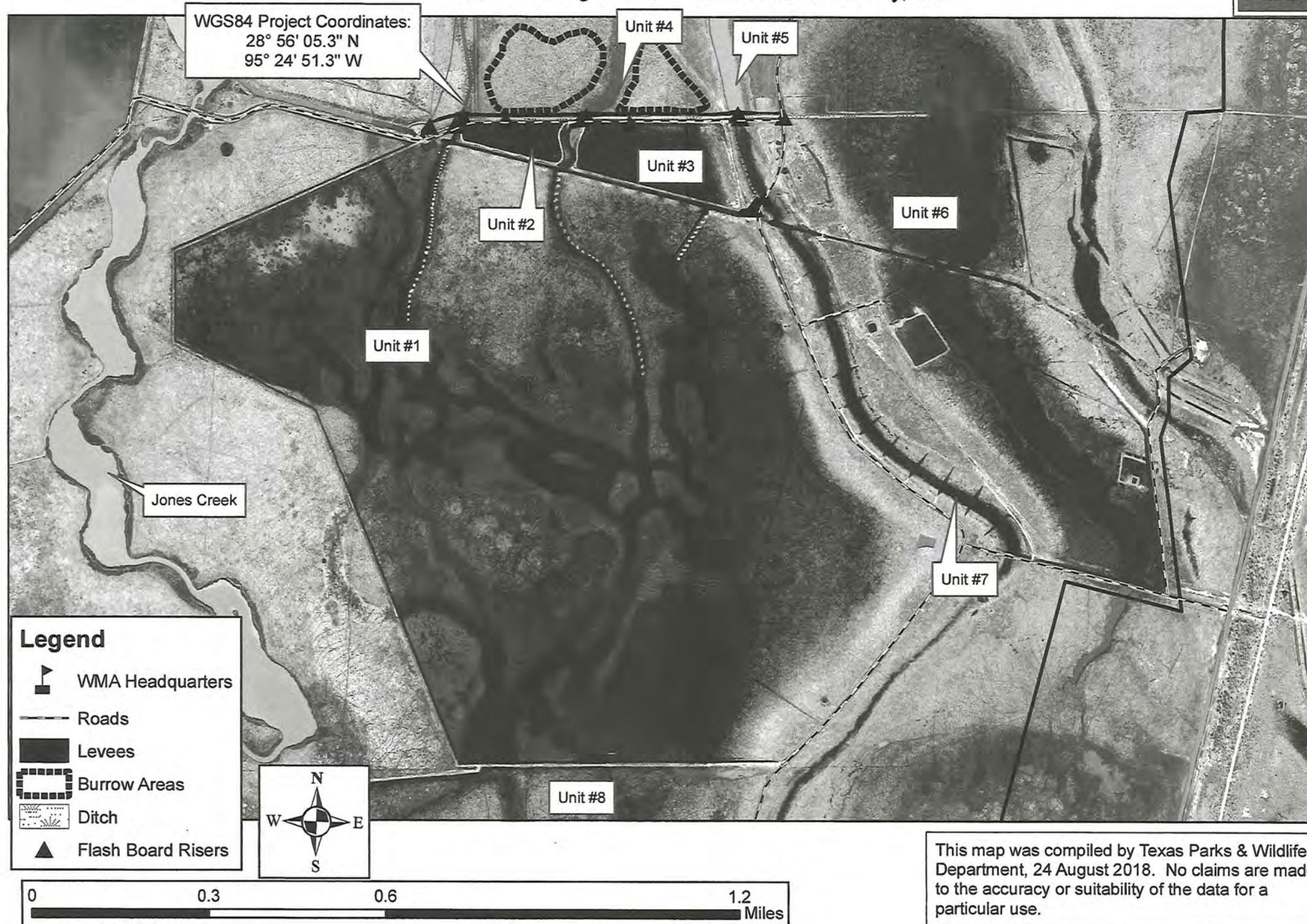
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# Figure 2. 1200 Acres Pump Replacement - Project Map

Justin Hurst Wildlife Management Area - Brazoria County, TX

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# Figure 3. 1200 Acres Pump Replacement -Plan View Map

Justin Hurst Wildlife Management Area - Brazoria County, TX



## Legend

- |  |              |  |                    |
|--|--------------|--|--------------------|
|  | Levees       |  | Ditch              |
|  | Burrow Areas |  | Flash Board Risers |



This map was compiled by Texas Parks & Wildlife Department, 27 March 2018. No claims are made to the accuracy or suitability of the data for a particular use.



# Figure 4. 1200 Acres Pump Replacement- Delineation Map

Justin Hurst Wildlife Management Area Brazoria County, Texas

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The on site delineation mostly corresponded with the National Wetland Inventory Map's data.

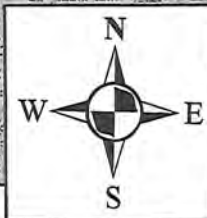
Exceptions are depicted below

Wetlands in these areas are not estuarine in nature. They are removed from tidal influence, above MHHW, and have vegetation indicative of palustrine wetlands

See Figure 7 for tide station data

## Legend

- Upland Delineation Pts
- Upland Areas
- Wetland Delineation Pts
- Wetland Areas
- National Wetland Inv. Map



This map was compiled by Texas Parks & Wildlife Department, 26 March 2019. No claims are made to the accuracy or suitability of the data for any particular use.

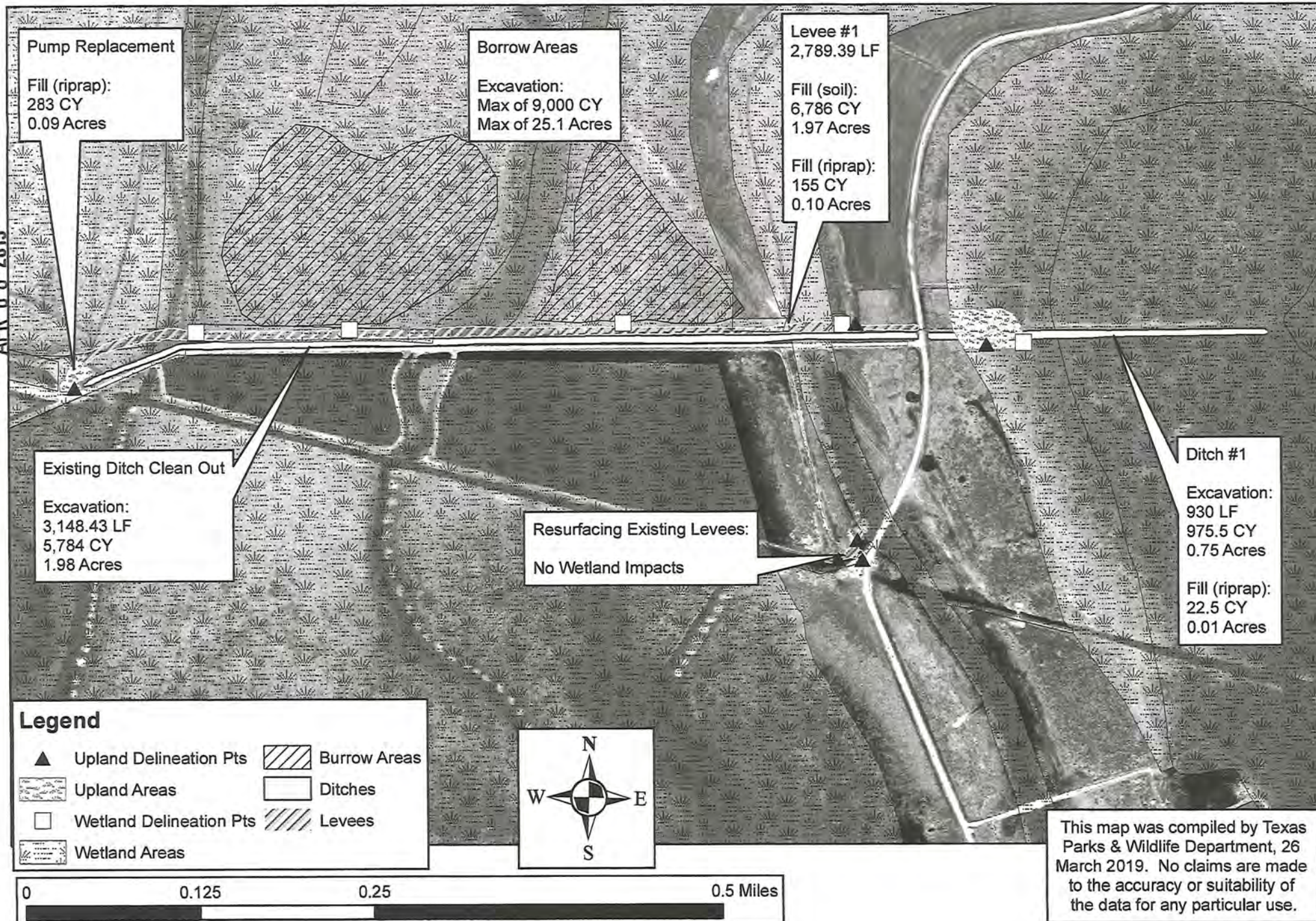
0 0.125 0.25 0.5 Miles



# Figure 5. 1200 Acres Pump Replacement- Wetland Impacts Map

Justin Hurst Wildlife Management Area Brazoria County, Texas

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# Figure 6. 1200 Acres Pump Replacement- Elevation Map

Justin Hurst Wildlife Management Area Brazoria County, Texas

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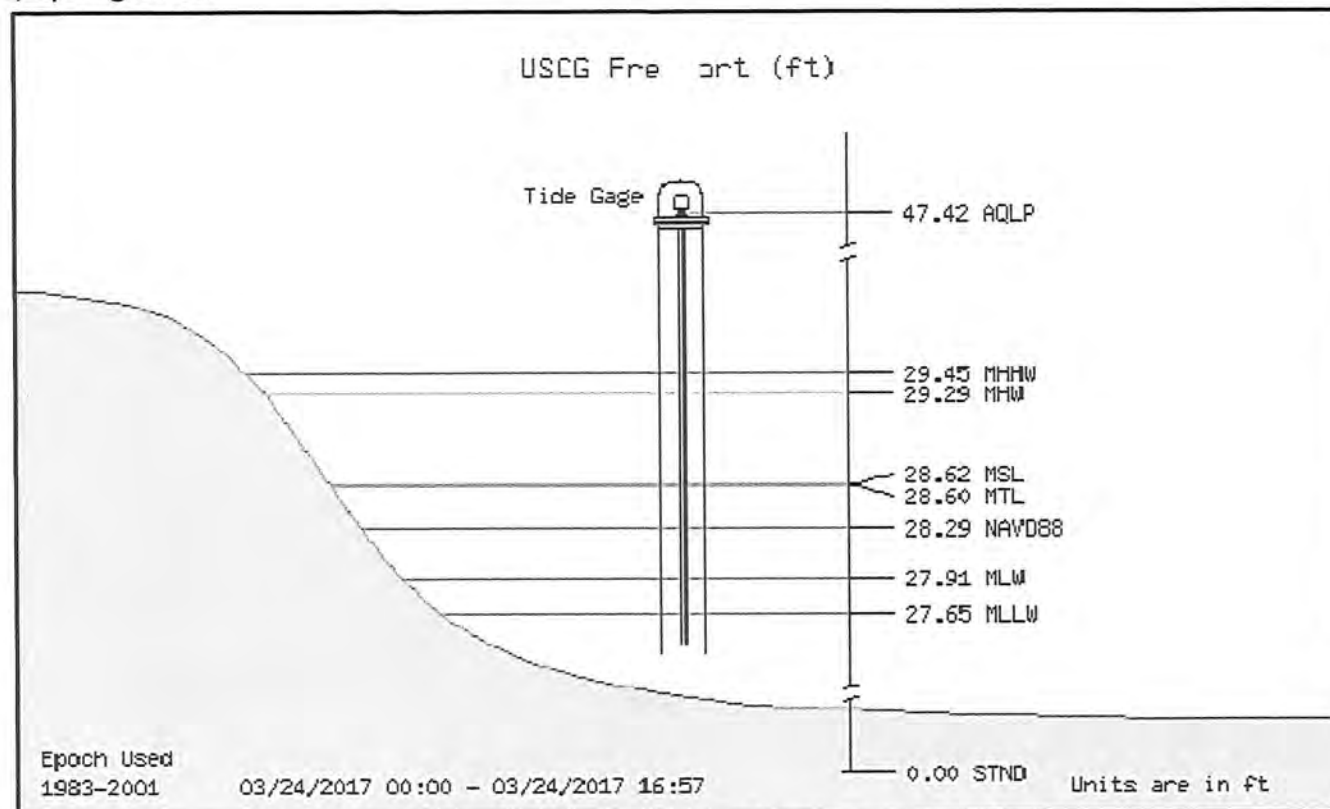
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**Figure 7.** Tide Station Data from USCG Freeport near the 1200 Acres Pump Replacement Project in Brazoria County, Texas, Spring 2019.

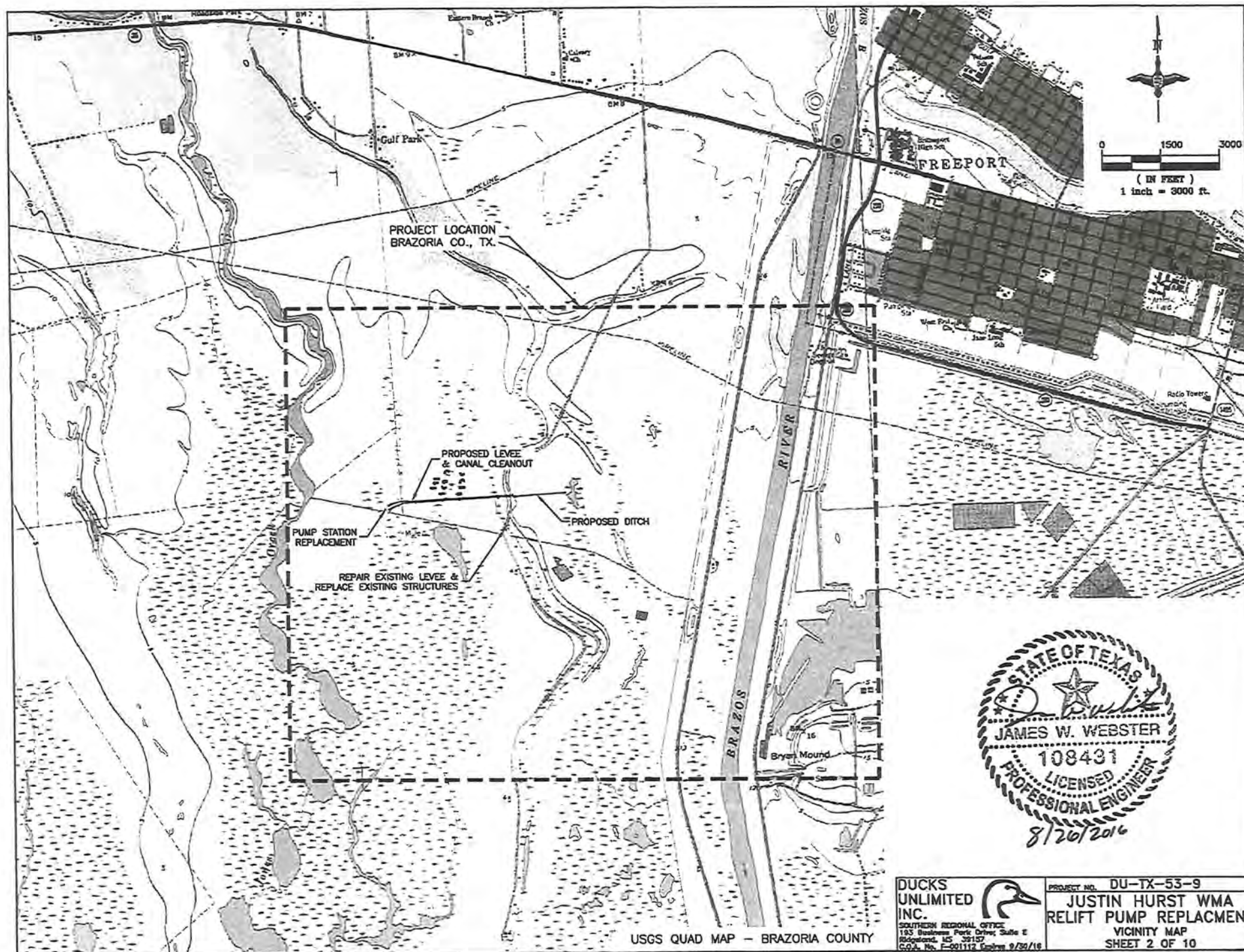
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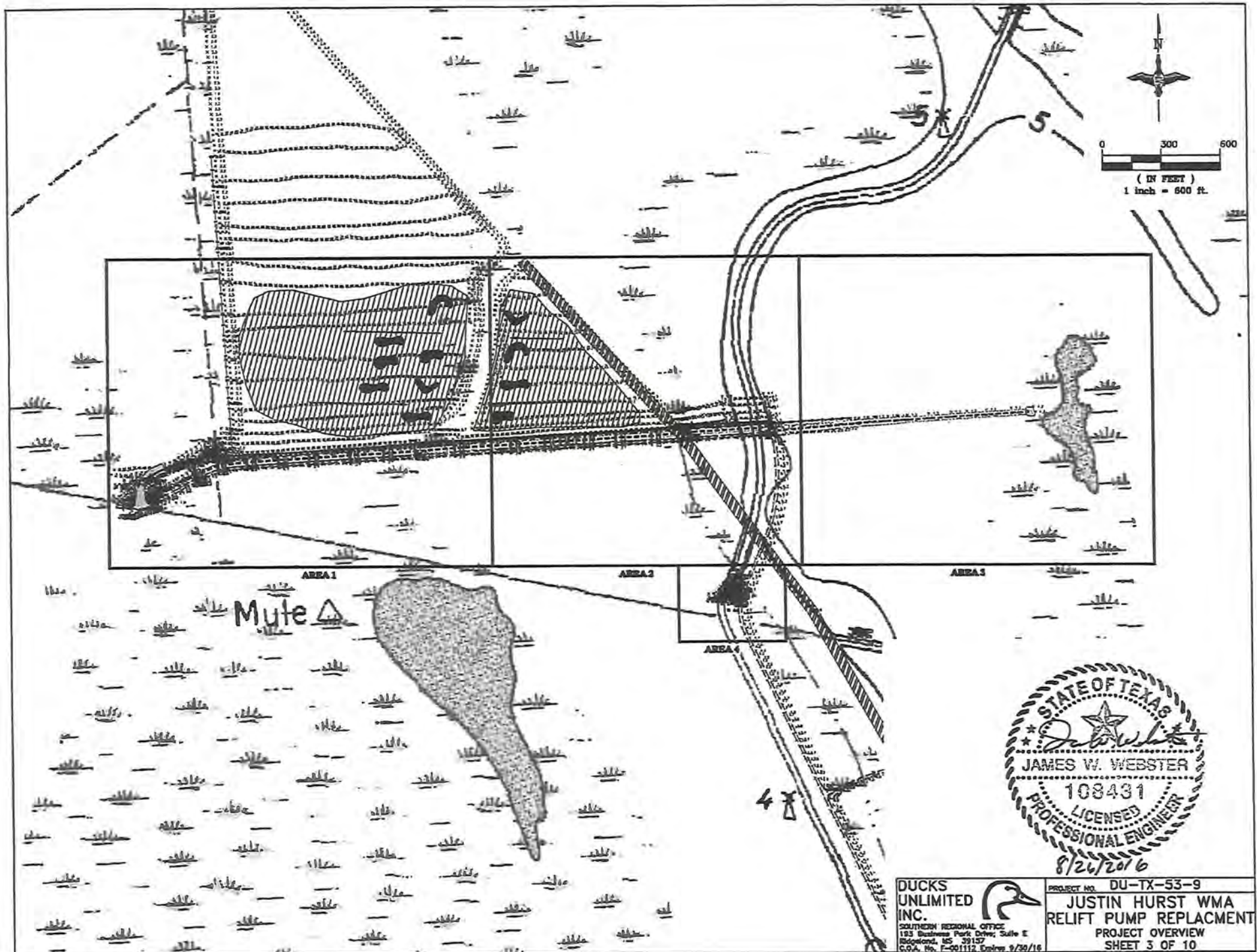
Available at: [http://lighthouse.tamucc.edu/illus/152?\\_ga=1.143603509.1630324249.1468336538](http://lighthouse.tamucc.edu/illus/152?_ga=1.143603509.1630324249.1468336538)

Station: 8772447, Freeport, TX		
	STND	NAVD88
MHHW	29.45	1.16
MHW	29.29	1.00
MSL	28.62	0.33
MTL	28.60	0.31
NAVD88	28.29	0.00
MLW	27.91	-0.38
MLLW	27.65	-0.64







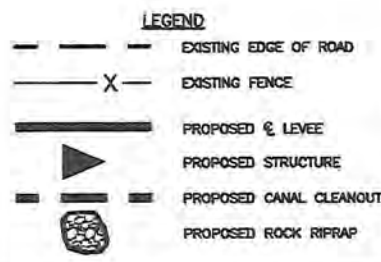
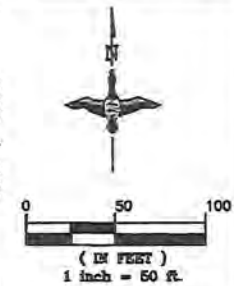
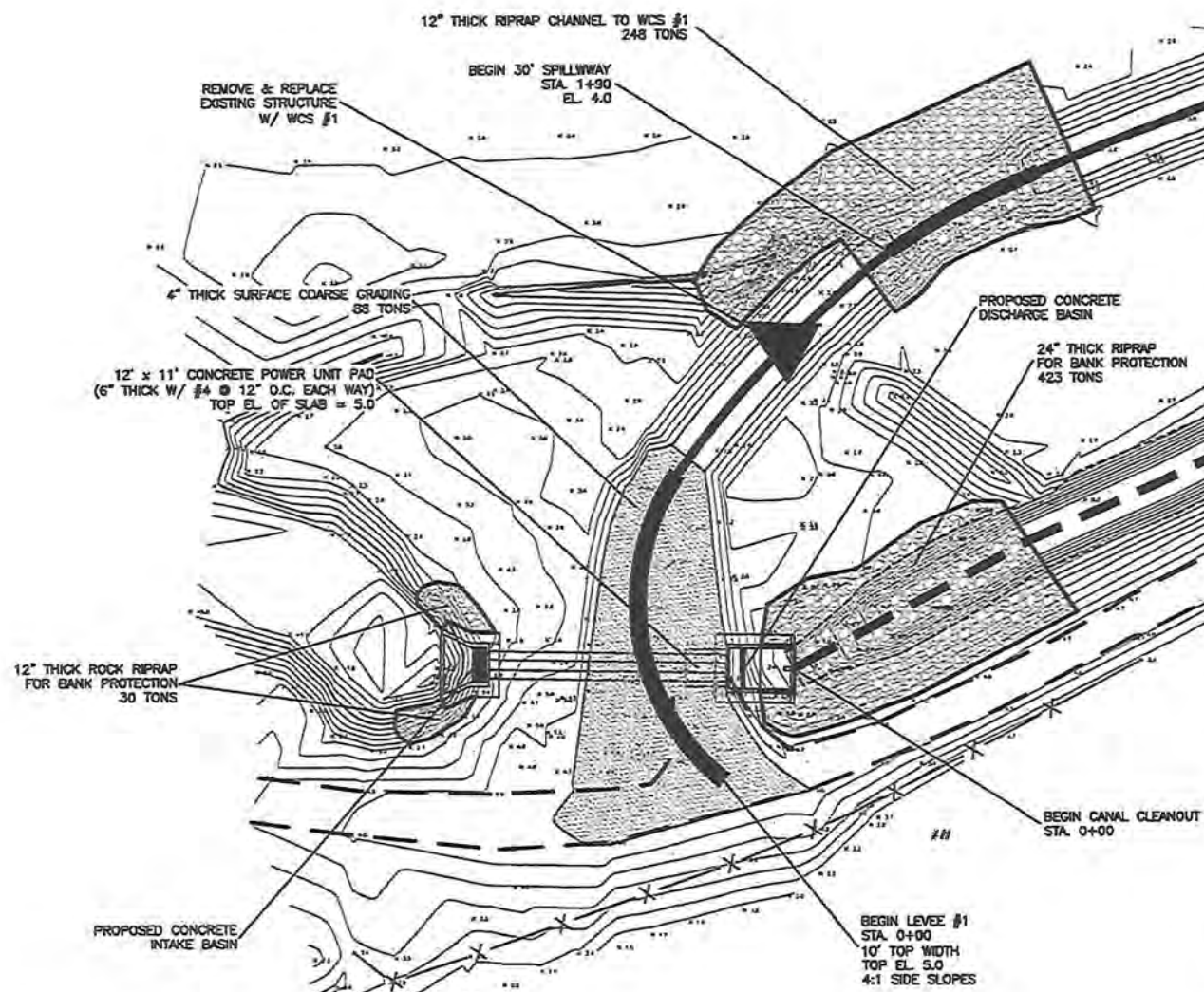


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PROJECT NO. DU-TX-53-9  
JUSTIN HURST WMA  
RELIFT PUMP REPLACEMENT  
PROJECT OVERVIEW  
SHEET 3 OF 10



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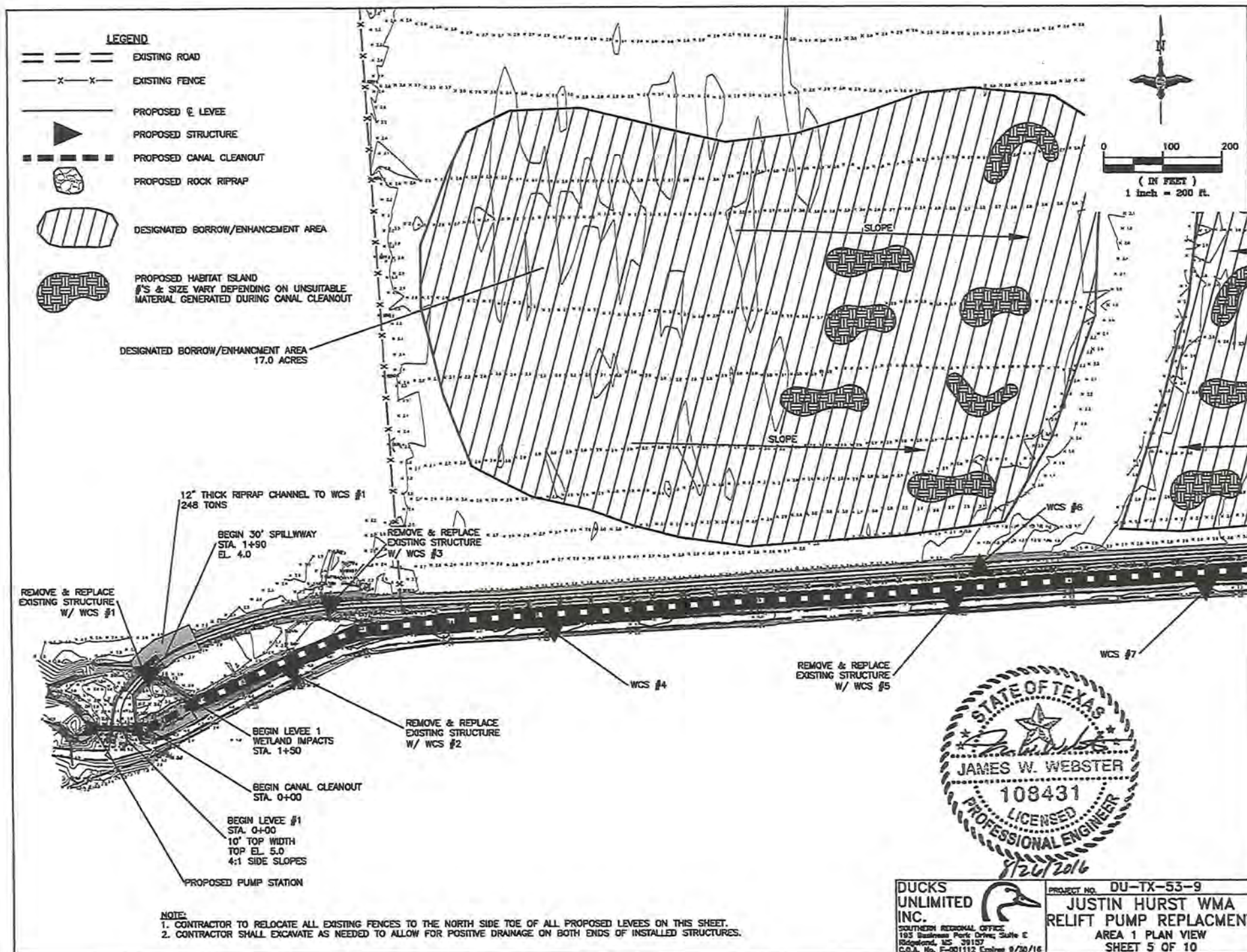
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1. CONTRACTOR TO RELOCATE ALL EXISTING FENCES TO THE NORTH SIDE TOE OF ALL PROPOSED LEVEES ON THIS SHEET.  
2. CONTRACTOR SHALL EXCAVATE AS NEEDED TO ALLOW FOR POSITIVE DRAINAGE ON BOTH ENDS OF INSTALLED STRUCTURES.



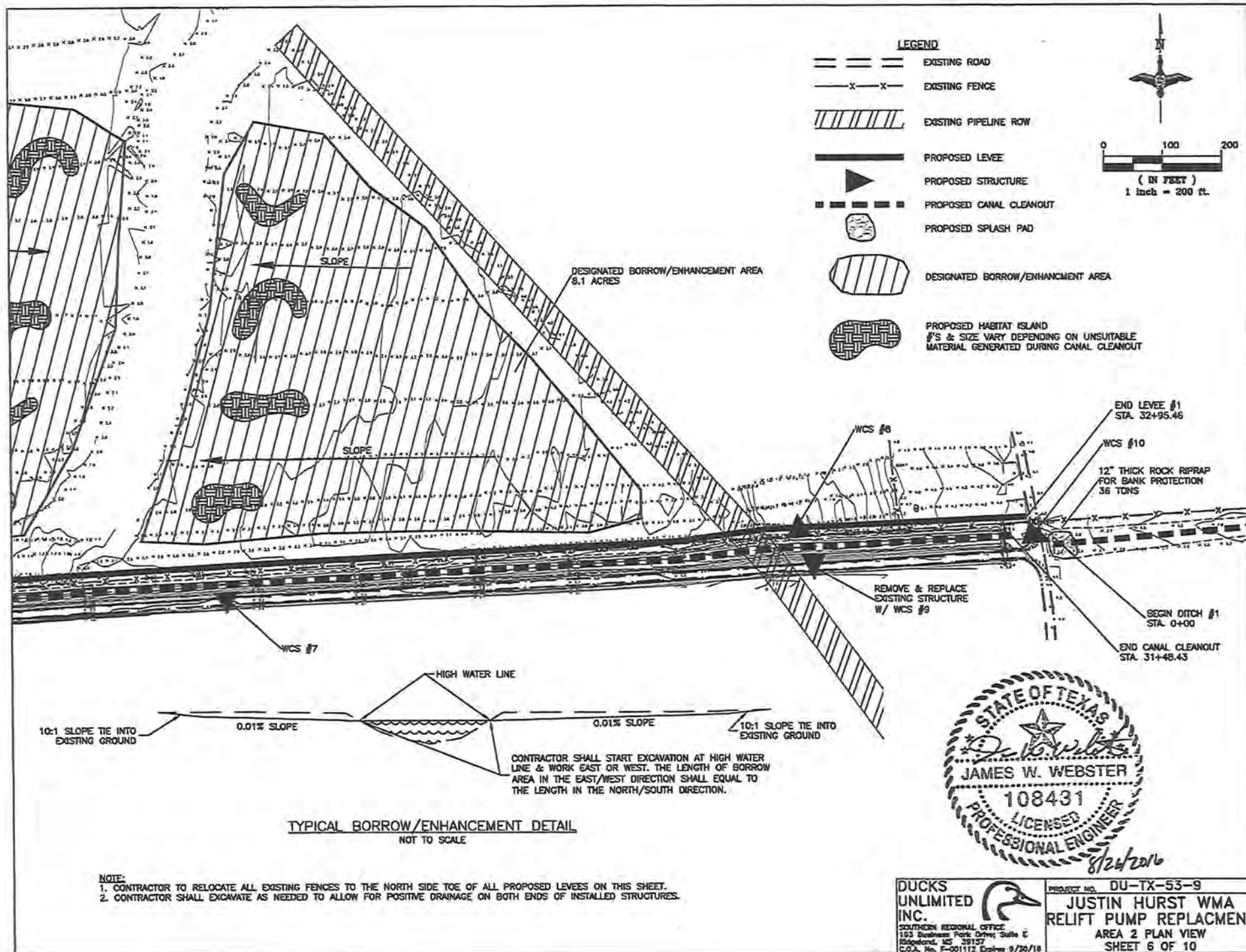
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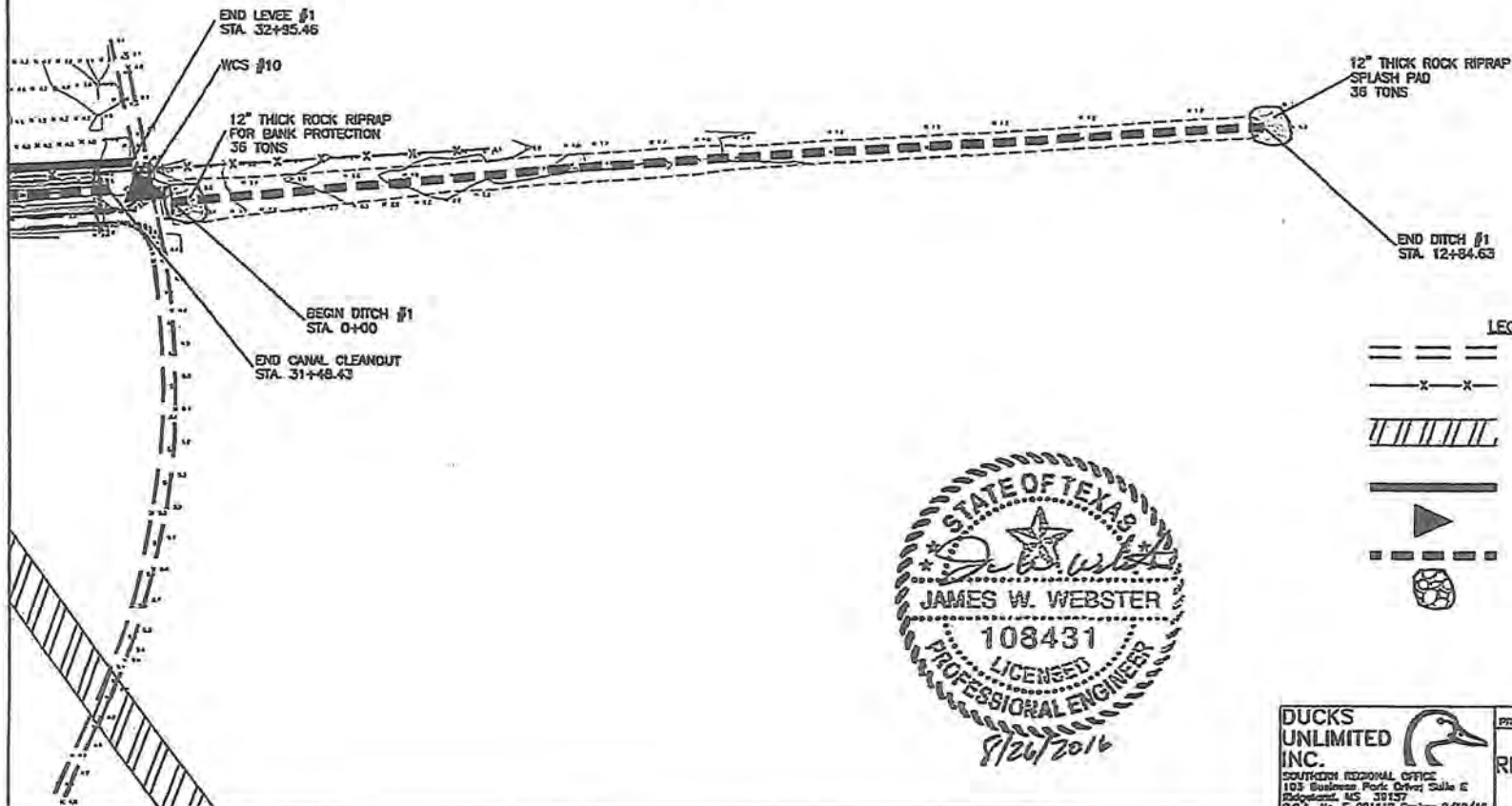
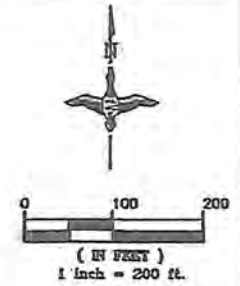




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**LEGEND**

- EXISTING ROAD
- EXISTING FENCE
- EXISTING PIPELINE ROW
- PROPOSED LEVEE
- PROPOSED STRUCTURE
- PROPOSED DITCH
- PROPOSED SPLASH PAD

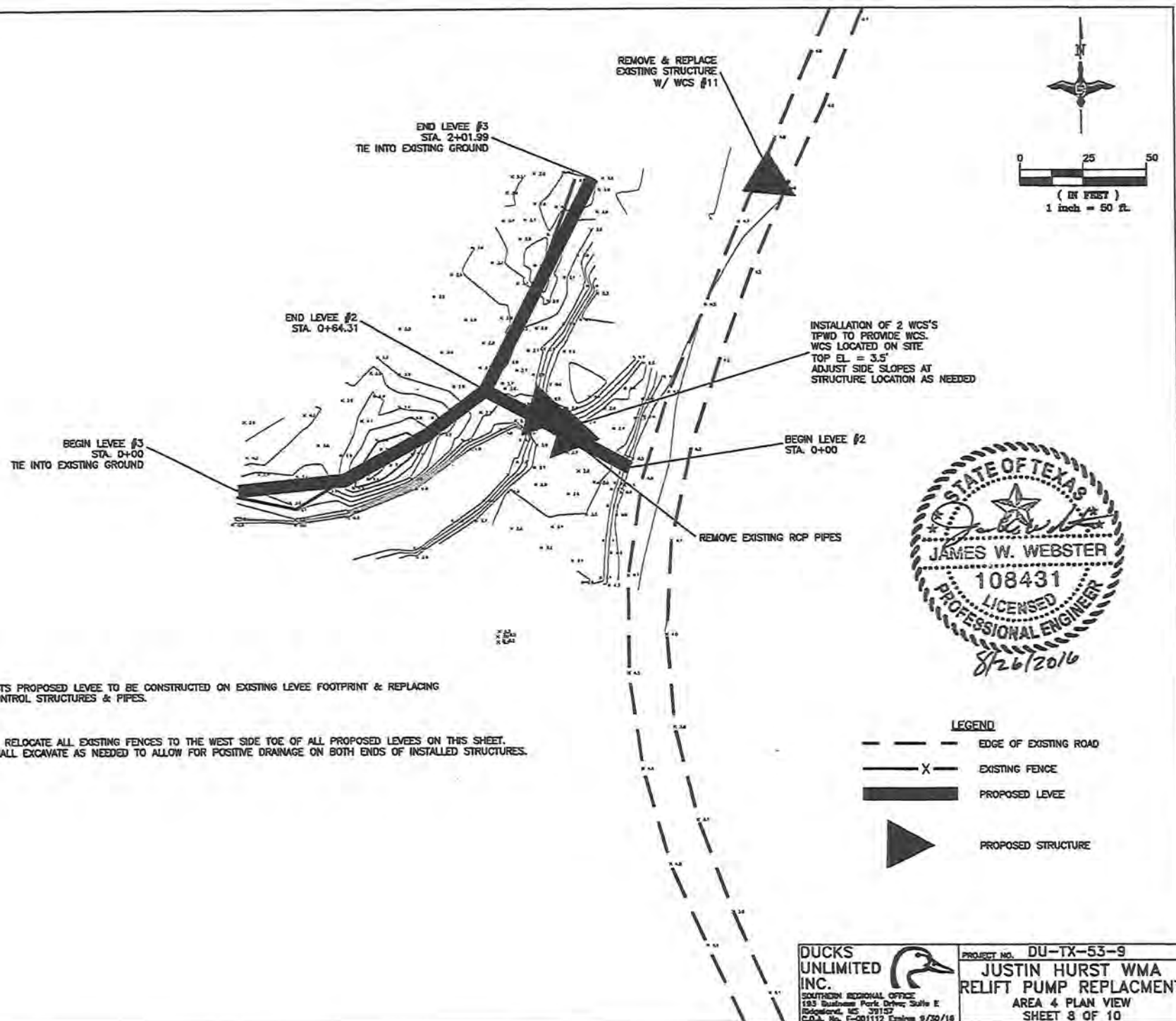


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PROJECT NO. DU-TX-53-9  
**JUSTIN HURST WMA  
RELIFT PUMP REPLACEMENT  
AREA 3 PLAN VIEW  
SHEET 7 OF 10**

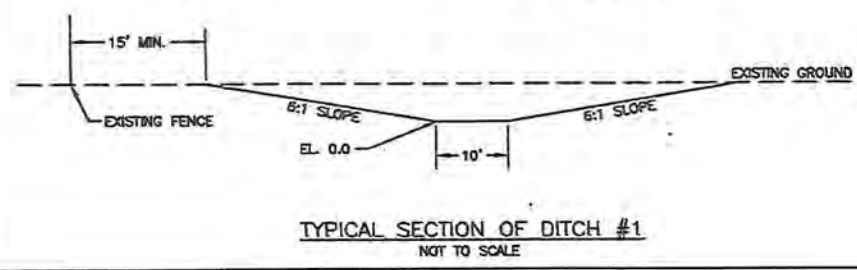
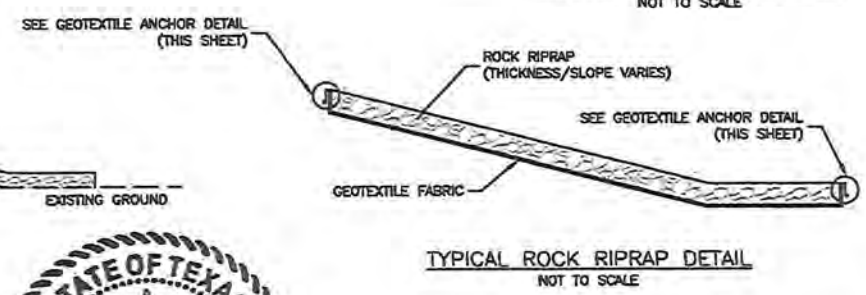
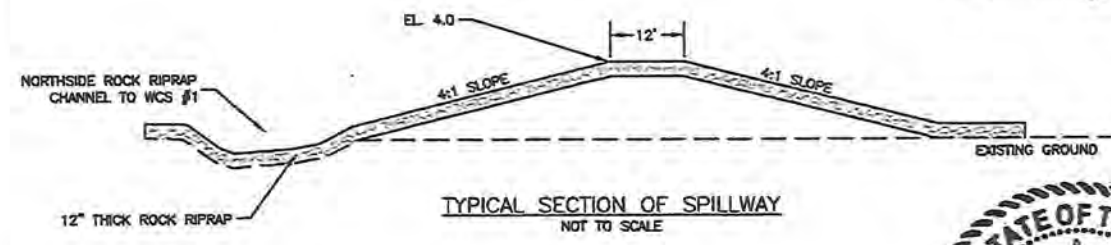
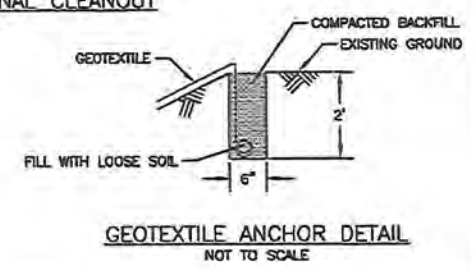
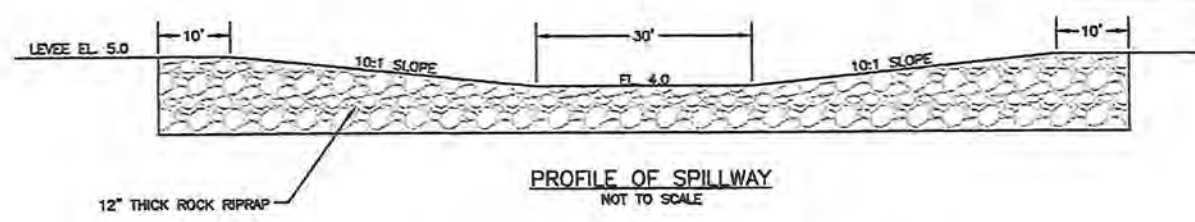
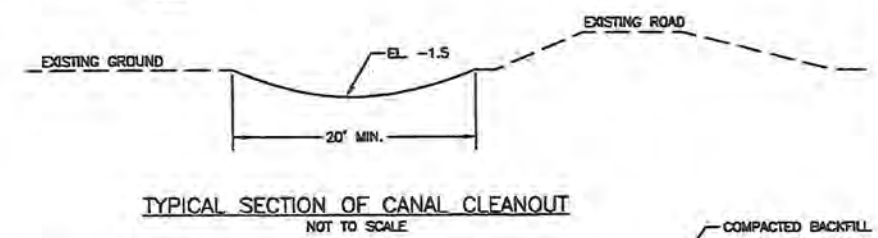
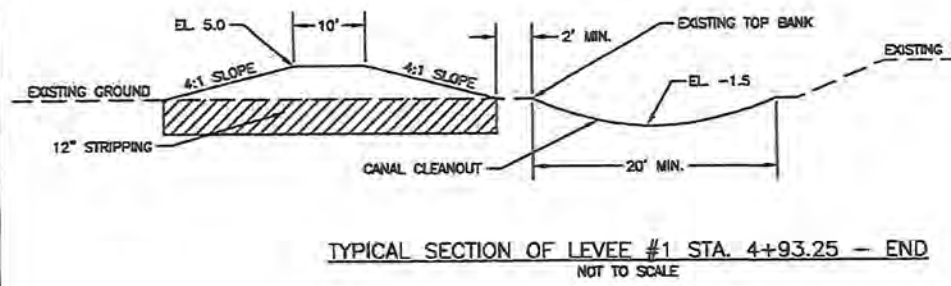
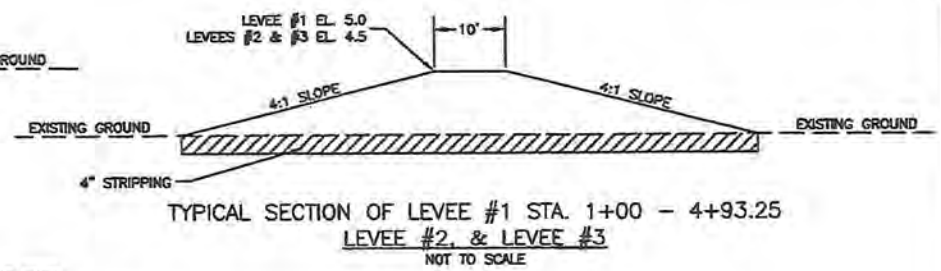
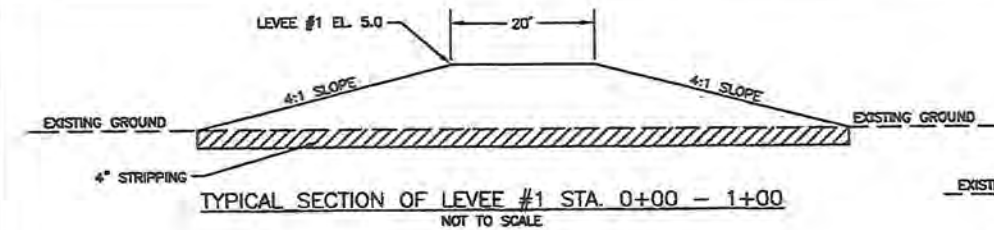


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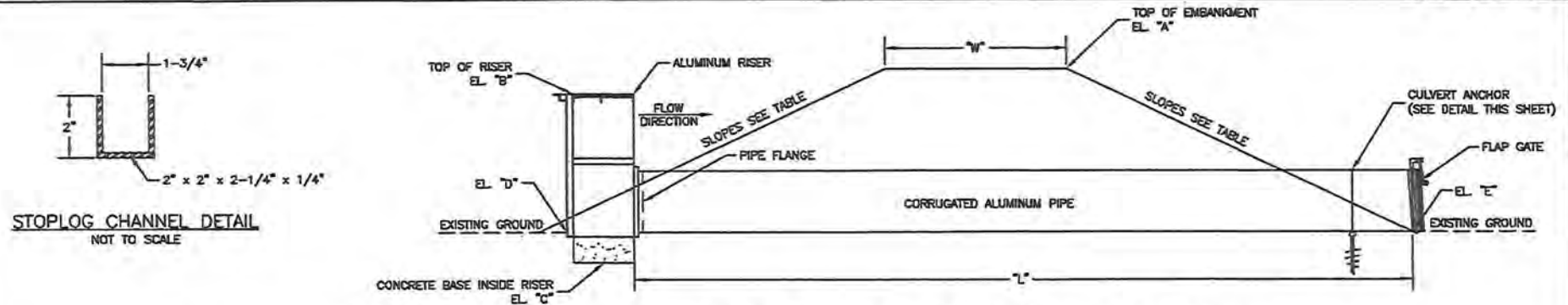
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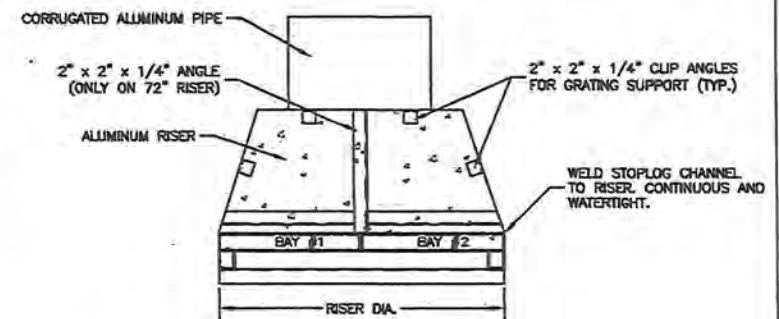
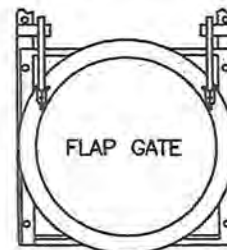
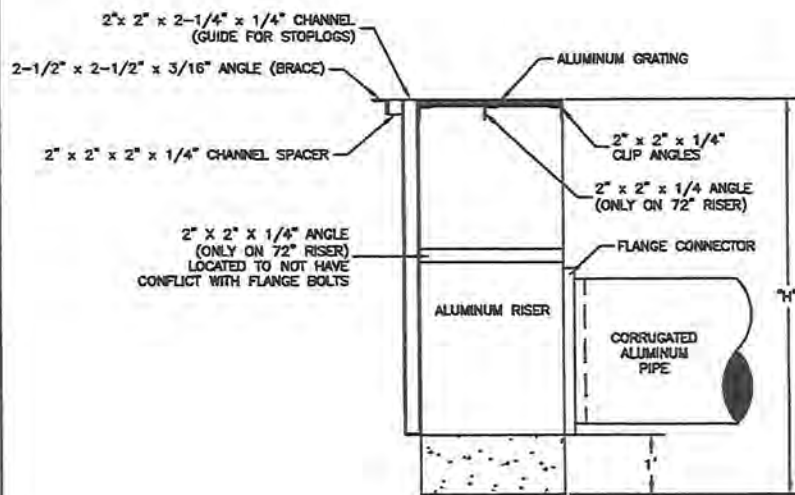


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NOTE: CONTRACTOR SHALL FURNISH, FABRICATE AND INSTALL STOPLOGS TO BE FABRICATED ALUMINUM. LENGTH OF STOPLOGS SHALL BE 1" LESS THAN DISTANCE BETWEEN CHANNELS.

**ALUMINUM STOPLOG DETAILS**  
NOT TO SCALE



NOTE:  
72" RISER SHALL HAVE TWO (2) BAYS.  
42" RISER SHALL HAVE ONLY ONE (1) BAY.

STRUCTURE	PIPE SIZE	RISER SIZE	EL. "A"	EL. "B"	EL. "C"	EL. "D"	EL. "E"	"W"	"L"	"H"	SLOPE	NO. OF STOPLOGS
WCS #1	30"	42"	5.0	4.0	-2.0	-1.0	-1.0	EXISTING	38'	6.0'	EXISTING	10
WCS #2	36"	72"	5.0	4.0	-2.0	-1.0	-1.0	EXISTING	38'	6.0'	EXISTING	20
WCS #3	30"	42"	5.0	4.0	-2.0	-1.0	-1.0	EXISTING	38'	6.0'	EXISTING	10
WCS #4	30"	42"	5.0	4.0	-2.0	-1.0	-1.0	EXISTING	38'	6.0'	EXISTING	10
WCS #5	36"	72"	5.0	4.0	-2.0	-1.0	-1.0	EXISTING	38'	6.0'	EXISTING	20
WCS #6	30"	42"	5.0	4.0	-2.0	-1.0	-1.0	EXISTING	38'	6.0'	EXISTING	10
WCS #7	36"	72"	5.0	4.0	-2.0	-1.0	-1.0	EXISTING	38'	6.0'	EXISTING	20
WCS #8	30"	42"	5.0	4.0	-2.0	-1.0	-1.0	EXISTING	38'	6.0'	EXISTING	10
WCS #9	36"	72"	5.0	4.0	-2.0	-1.0	-1.0	EXISTING	38'	6.0'	EXISTING	20
WCS #10	36"	72"	5.0	4.0	-2.0	-1.0	-1.0	EXISTING	82'	6.0'	EXISTING	20
WCS #11	36"	72"	4.2	3.5	-1.5	-0.5	-0.5	EXISTING	32'	5.0'	EXISTING	8

\* - FLAP GATE TO BE PLACED ON PIPE DISCHARGE



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**JUSTIN HURST WMA  
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STRUCTURE DETAILS  
SHEET 10 OF 10**