SH 36 Stream Conditions Assessment and Evaluation Report – Level 1

Brazoria and Fort Bend Counties, Texas

2020

Prepared For:



Report Prepared By:

Ecosystem Planning and Restoration, LLC



Introduction

On October 31, 2008 the U.S. Army Corps of Engineers (USACE) issued a permit (SWG-2004-1704) authorizing impacts incurred from improvements to State Highway (SH) 36. The Texas Department of Transportation (TxDOT) proposes to widen existing SH 36 from Farm to Market (FM) 2218 to SH 35 to a 4-lane divided roadway. The permit authorized requires compensatory mitigation for regulated impacts to aquatic resources resulting in a no net loss of those resources. Additionally, based on the 2008 Compensatory Mitigation for Losses of Aquatic Resources Rule, all impacts to regulated waters of the U.S., including wetlands require mitigation to be implemented using a holistic approach while considering the functional capacity of the entire watershed, therefore maintaining the watershed's ability to support a diverse aquatic community comparable to reference systems within the region. As this rule is implemented across the country through Standard Operating Procedures developed by Interagency Review Teams, chaired by the USACE, compensatory stream mitigation is required.

Based on comments received from agencies during the public comment period for the proposed SH 36 USACE Permit Application regarding impacts associated with stream crossings, additional stream assessment was requested to ensure appropriate compensatory mitigation (in-kind mitigation) is developed for stream impacts.

In August 2015 and June 2018 a rapid visual field assessment in accordance with USACE-Galveston District SWG Stream Condition Assessment Standard Operating Procedure (SOP), approved June 2013, was performed for the SH 36 (from FM 2218 to SH 35) improvements project (**Figure 1**). The project area was reassessed in March 2020 to confirm existing conditions and scores.

During this assessment the team qualitatively evaluated stream habitat within the riparian corridor of each transect with respect to causes of habitat degradation and constraints to construction improvements.

Aquatic habitat is a function of the interaction between channel geomorphology, water quality, and riparian vegetation and thus serves as a general indicator of stream corridor health. Therefore, the field assessment consisted of a biologic and geomorphic component. Characteristics of biologic condition assessed included riparian vegetation, bed form diversity, aquatic life use, and the presence and frequency of habitat structures. Vegetation was evaluated based on the native or exotic/invasive dominance and diversity/richness evaluations. Bed form diversity is a qualitative measure of the amount and distribution of bed facet variation (steps, riffles, runs, pools, and glides). The presence and frequency of habitat structures was evaluated based on the existence or potential for benthic and aquatic diversity and richness.

Characteristics of geomorphic condition were qualitatively assessed and included erosion and vertical/horizontal stability. Erosion, identified by indicators of recent loss of soil/earth substrate, was evaluated based on active erosional processes. Vertical and horizontal stability was characterized by the potential of the channel to scour the existing bed and banks.

Ecosystem Planning and Restoration (EPR) performed a stream condition assessment for feet in August 2015 and June 2018 to determine the possible need for stream mitigation for unavoidable impacts required as part of the proposed construction of SH 36 from FM 2218 to SH 35 in Brazoria and Fort Bend Counties, Texas (**Figure 2**).

Existing Conditions

Seventeen streams were evaluated in Brazoria and Fort Bend Counties as part of the proposed SH 36 project. TxDOT proposes to widen existing SH 36 from FM 2218 to SH 35 to a 4-lane divided roadway within and outside of the existing right-of-way. Portions of the project will remain a 2-lane roadway, but will be improved. The existing SH 36 facility consists of a 2-lane roadway with periodic turning lanes. Culverts and bridges will be used at crossings within the project area. Specific design is depicted on the Plan and Profiles Exhibits included in the individual permit application.

Methodology/ Field Assessment

EPR performed a rapid visual field assessment in accordance with U.S. Army Corps of Engineers (USACE) Galveston District SWG Stream Condition Assessment Standard Operating Procedure (SOP-Level 1). The channels were evaluated using stream assessment transects. A transect is a set length of 350 linear feet (lf). Potential impacts of less than 500 lf to an ephemeral, intermittent or perennial stream were assessed using three, 350 lf transects placed no less than 125 lf apart and no greater than 200 lf apart. The functional condition of the streams were assessed at each transect using the following four parameters: Visual Channel Condition, Riparian Buffer, Desktop Aquatic Use, and Visual Channel Alteration. Each parameter is assigned a score and the scores are averaged to calculate the Condition Index (CI) for each transect. The formula used to calculate CI is shown below:

$$CI = (CV+BV+UV+AV) \div 4$$
; where

CV = Channel Condition Variable

BV = Riparian Buffer Variable

UV = Aquatic Use Variable

AV = Channel Alteration Variable

A single Reach Condition Index (RCI) was calculated for each stream having a potential unavoidable impact. The formula for determining RCI is as follows:

$$RCI = (\sum_{n=1}^{Y} CIn) \div Y$$
; where

CI = Condition Index for each Transect

Y = Number of Transects

Visual Channel Condition Parameter

To determine the channel condition, an evaluator assigned the channel a Channel Condition Value (CV). The Channel CV was determined by assessing the channel geometry, channel stability, and the channel's connection to the active floodplain. The channel condition was assessed in the field by visually determining the degree of incision and/or widening of the

channel. To determine the channel stability an evaluator looked for visual indicators of stability or instability. The channel's connection to the active floodplain was assessed in the field by visually determining the degree of incision of the channel.

Riparian Buffer Parameter

The riparian Buffer Value (BV) was visually assessed by the evaluator in the field. The percentage of each cover type occupying the riparian buffer area for 100 feet on each side of the ordinary high water mark (OHWM) of the Transect was recorded. The left bank and right bank were determined by facing downstream.

Desktop Aquatic Use Parameter

The Aquatic Use Parameter is based on the aquatic life use category score assigned to stream segments by the Texas Commission on Environmental Quality (TCEQ). For streams not classified by the TCEQ, the aquatic life use is presumed based on the stream flow type.

Visual Channel Alteration Parameter

The Transect was assessed for the extent of anthropogenic channel alterations to determine the appropriate Visual Channel Condition Alteration Variable (AV). Examples of the types of channel alteration that were noted include, but are not limited to, the following:

- Straightening of channel or other channelization
- Stream crossings (bridges and bottomless culverts)
- Riprap, articulated matting, concrete aprons, gabions, or concrete blocks along streambank or in streambed
- Manmade embankments on streambanks, including soil piles
- Constrictions to stream channel or immediate flood prone area such as any culverts, levees, weirs, and impoundments
- Livestock impacted channels

Impact Assessment

To conduct the impact assessment, a theoretical, or assumed post construction stream condition assessment was completed based upon the proposed design of the project.

The theoretical stream condition assessment was conducted based upon, but was not limited to, the following assumptions; outside of the roadway footprint and in bridged sections, stream channel and re-vegetation practices and BMPs would be constructed and designed according to county, agency, FEMA, and TxDOT criteria. This theoretical assessment resulted in a theoretical RCI for each stream. The Delta between the existing condition RCI and the theoretical RCI (dRCI) was used to calculate the functional loss to each stream resulting from the proposed project.

Impacts are characterized as one of five classifications based on the dRCI, and each classification has a corresponding Impact Factor (IF). The more severe the impact, the higher the IF. The formula shown below was used to determine the number of Debits each stream impact would require.

The summary of impacts and associated compensation requirement are presented in **Table 1** below.

Table 1: Summary of Stream Impacts for SH 36

Table 1: Summary of Stream Impacts for SH 36										
Stream Name	RCI	Proposed RCI	Delta	IF	Length (Linear Feet)	Compensation Requirement				
Water 2	2.413	2.240	0.173	2	109	38				
Water 3	1.897	1.713	0.184	2	351	130				
Water 4	2.503	2.197	0.306	2	225	138				
Water 5	1.910	1.777	0.133	2	223	60				
Water 6	1.573	1.380	0.193	2	234	91				
Water 7	1.857	1.653	0.204	2	293	120				
Water 8	1.587	1.383	0.204	2	240	98				
Water 9	1.747	1.743	0.004	2	125	1				
Water 10	1.520	1.517	0.003	2	150	1				
Water 11	1.503	1.500	0.003	2	159	1				
Water 12	1.760	1.757	0.003	2	192	2				
Water 13	1.563	1.340	0.223	2	268	120				
Water 16	1.797	1.507	0.290	5	223	324				
Water 18	1.510	1.500	0.010	5	151	8				
Water 23	2.047	1.303	0.744	5	292	1,087				
Water 24	2.197	1.967	0.230	2	697	321				

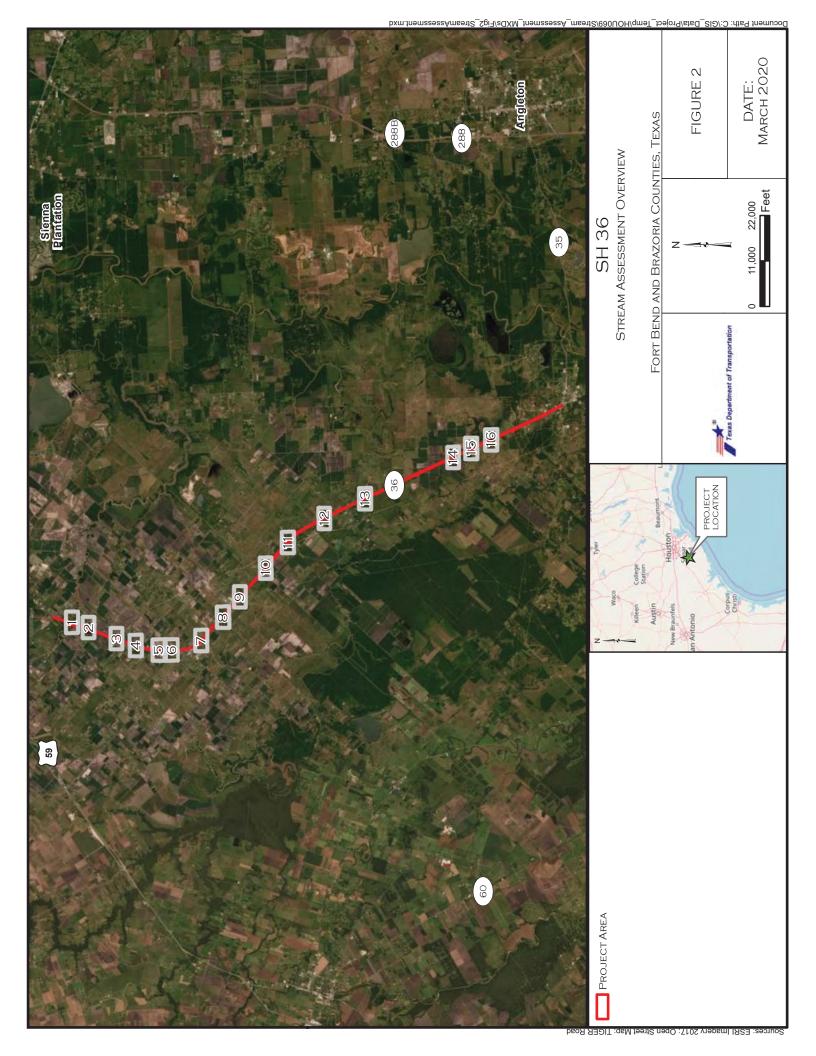
Water 25	2.540	1.857	0.683	2	1,1	109	1,515
		5,041					
		4,055					

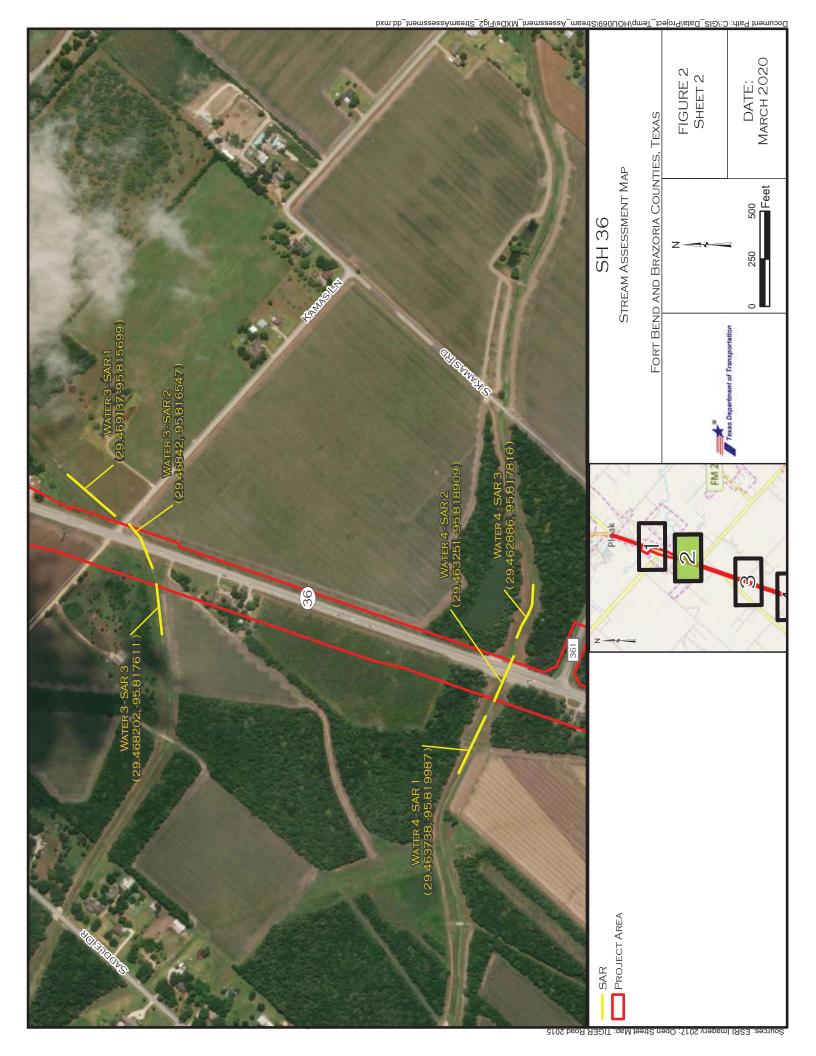
Summary/ Recommendations

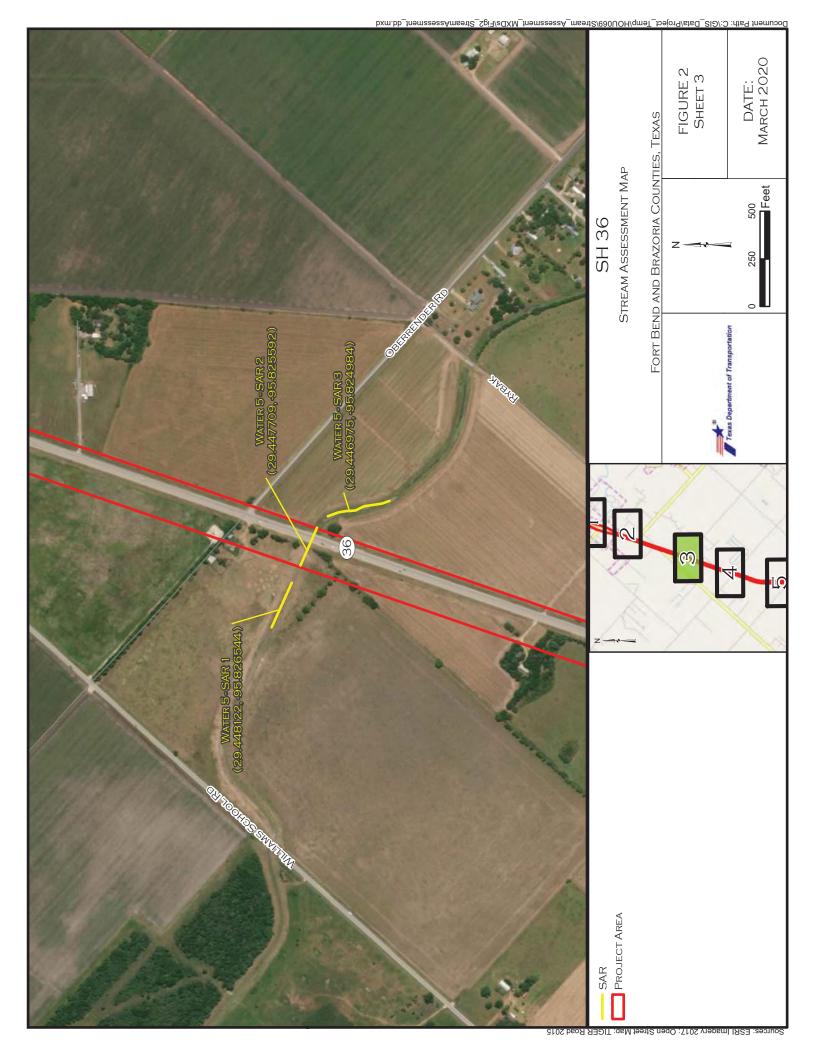
The proposed project consists of seventeen impacted stream crossings with potential linear feet impacts as listed above. The total length of potential stream temporary and permanent impacts within the proposed project is 5,041 linear feet. Impacts vary within each crossing, including culvert construction, grading, riprap, and bridging. Each stream length was divided into transects and a Stream Assessment Form was performed for each transect (**Appendix A**) to ensure the entire project site was evaluated. The total compensation requirement for this project is **4,055** compensation credits. Considering the need for water quality improvement and proposed unavoidable impacts, recommendations would be developed for water quality treatments including stream and buffer restoration and enhancement.

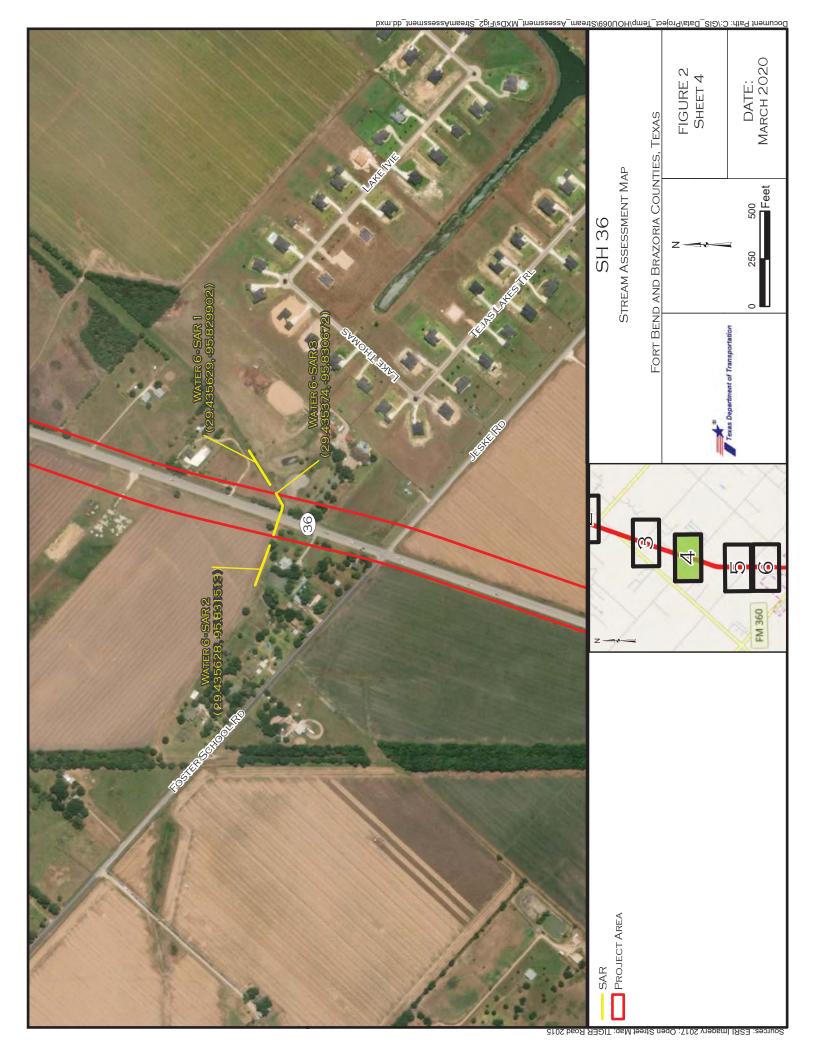
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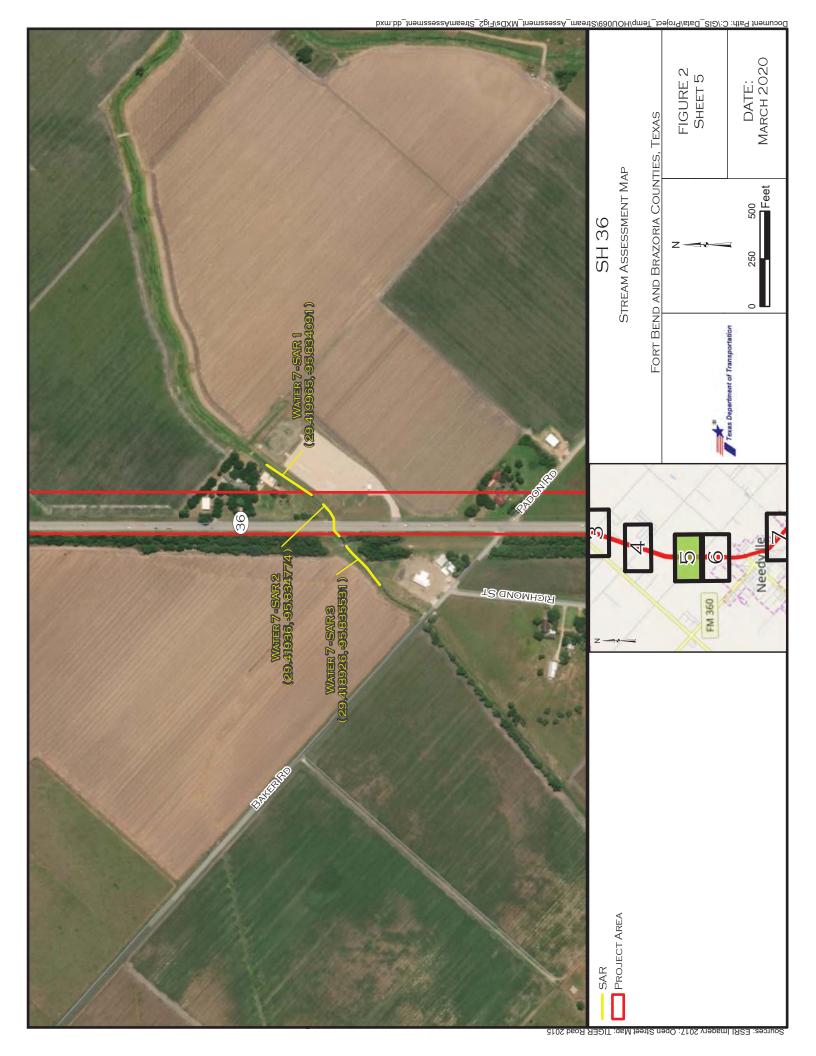
Stream Report Figures

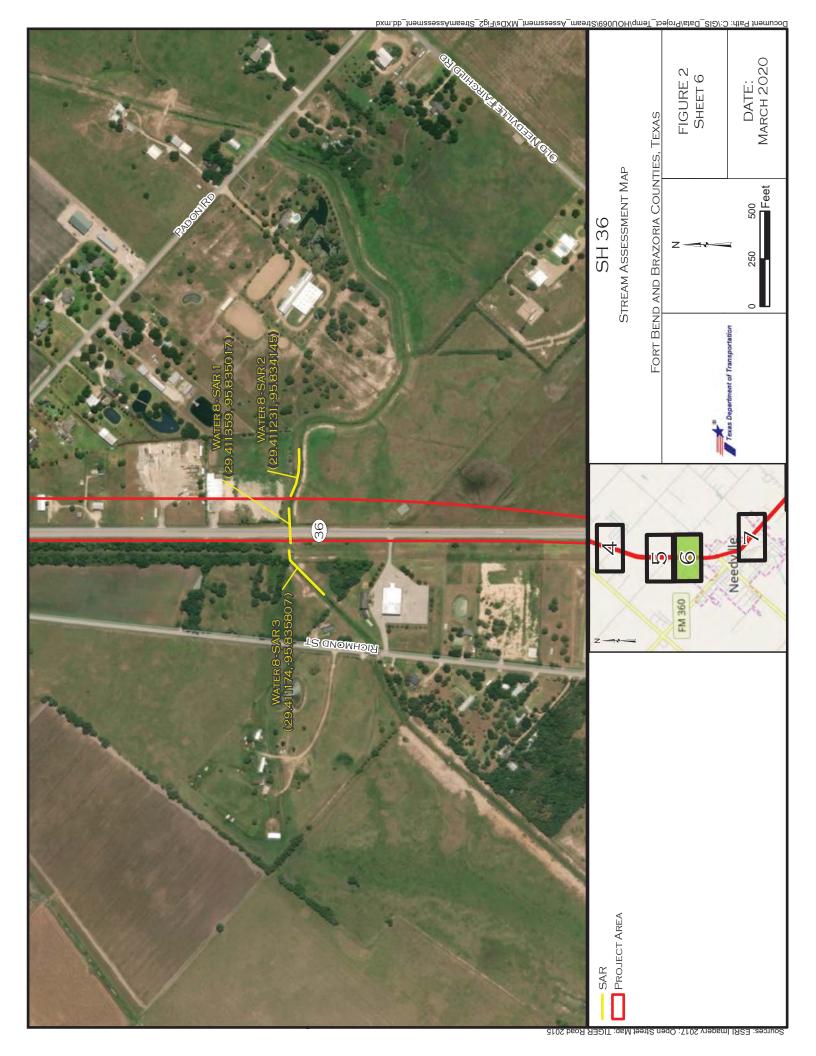


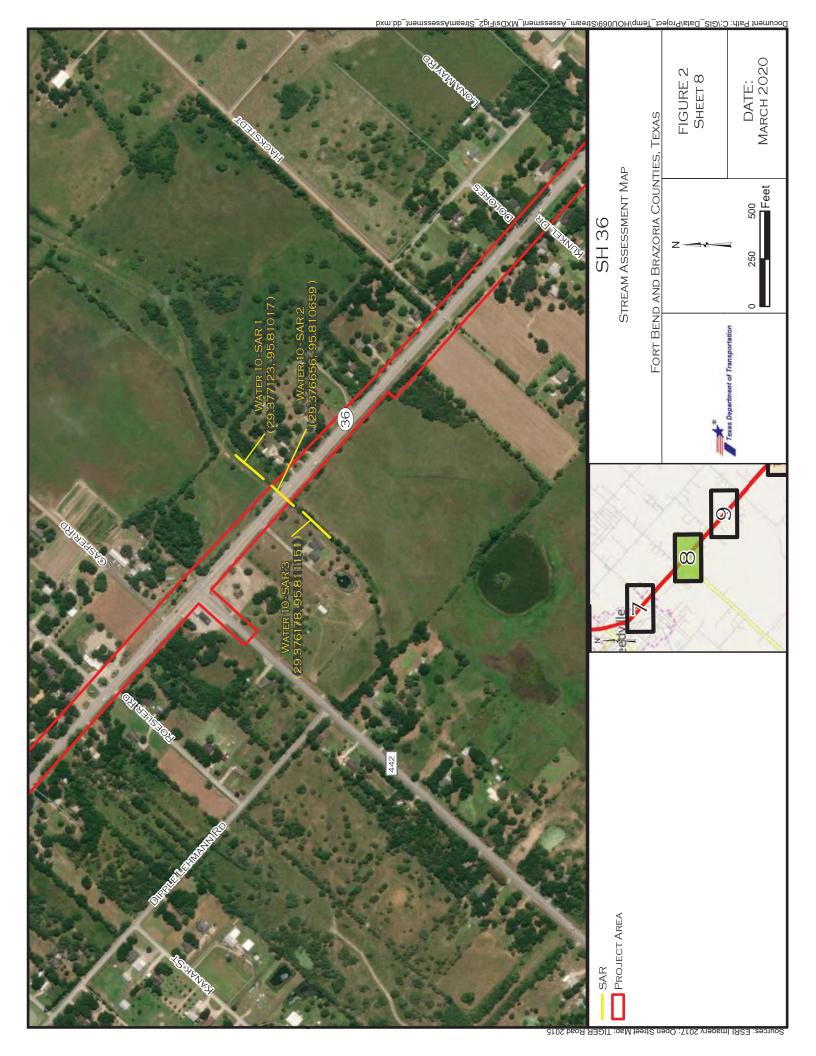


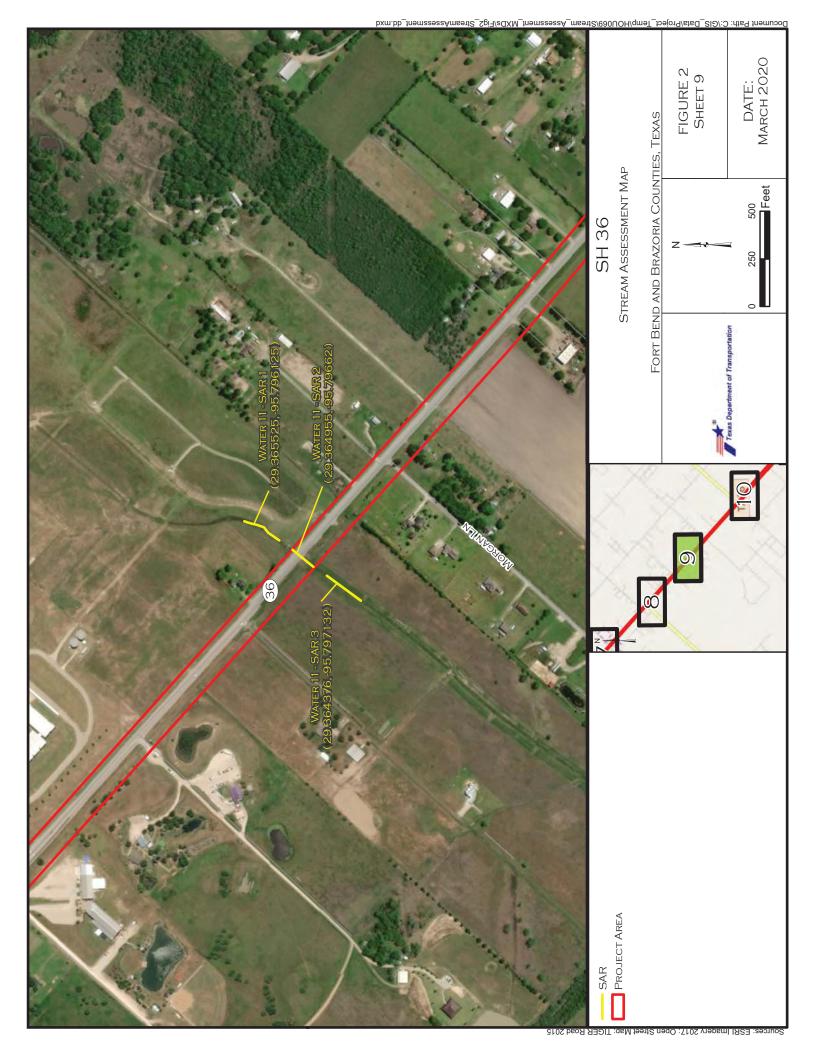


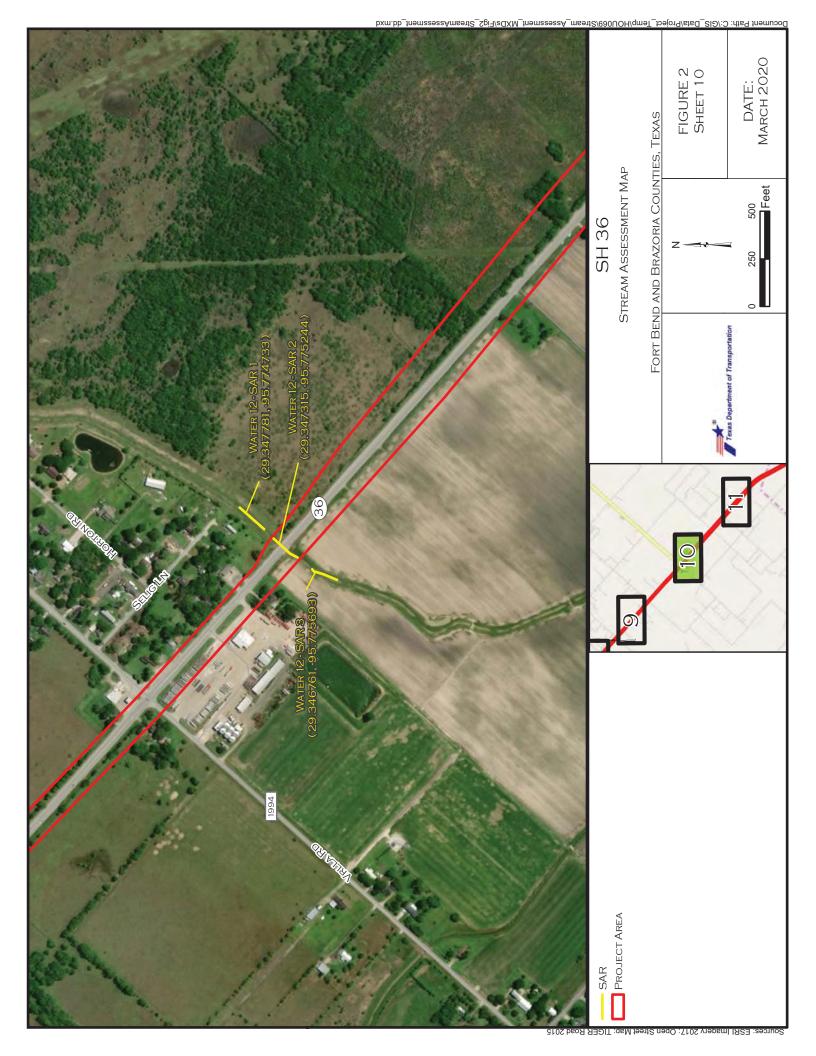


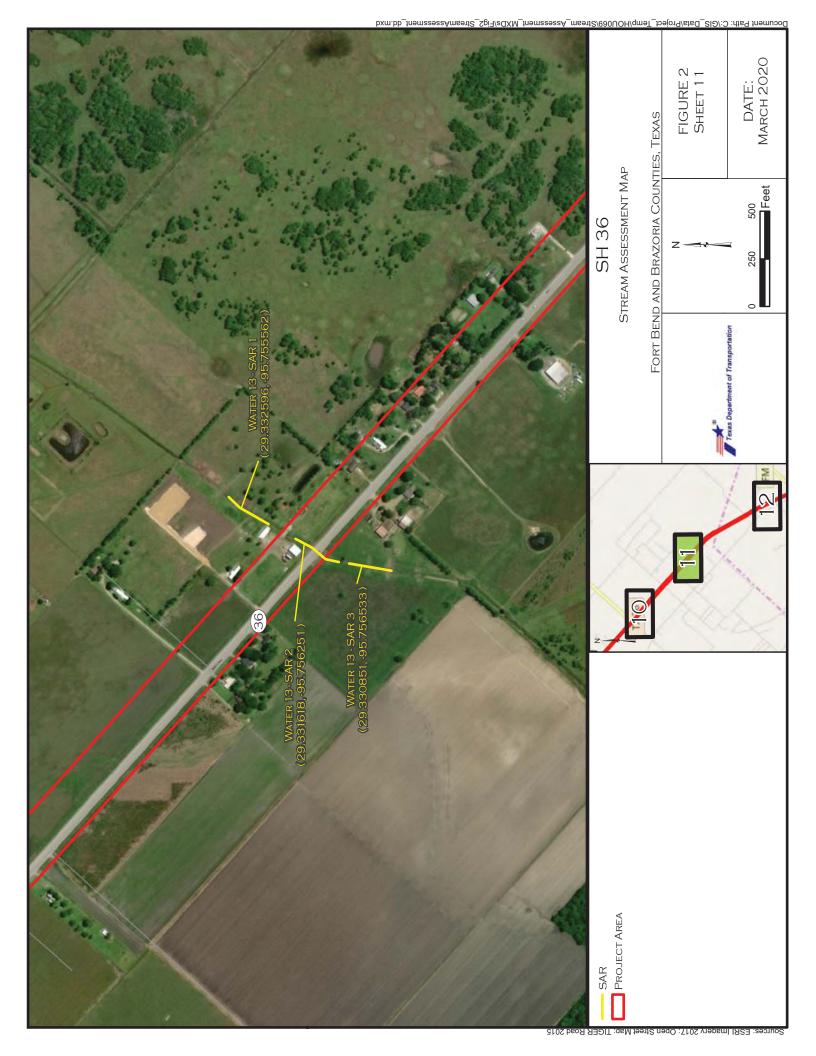


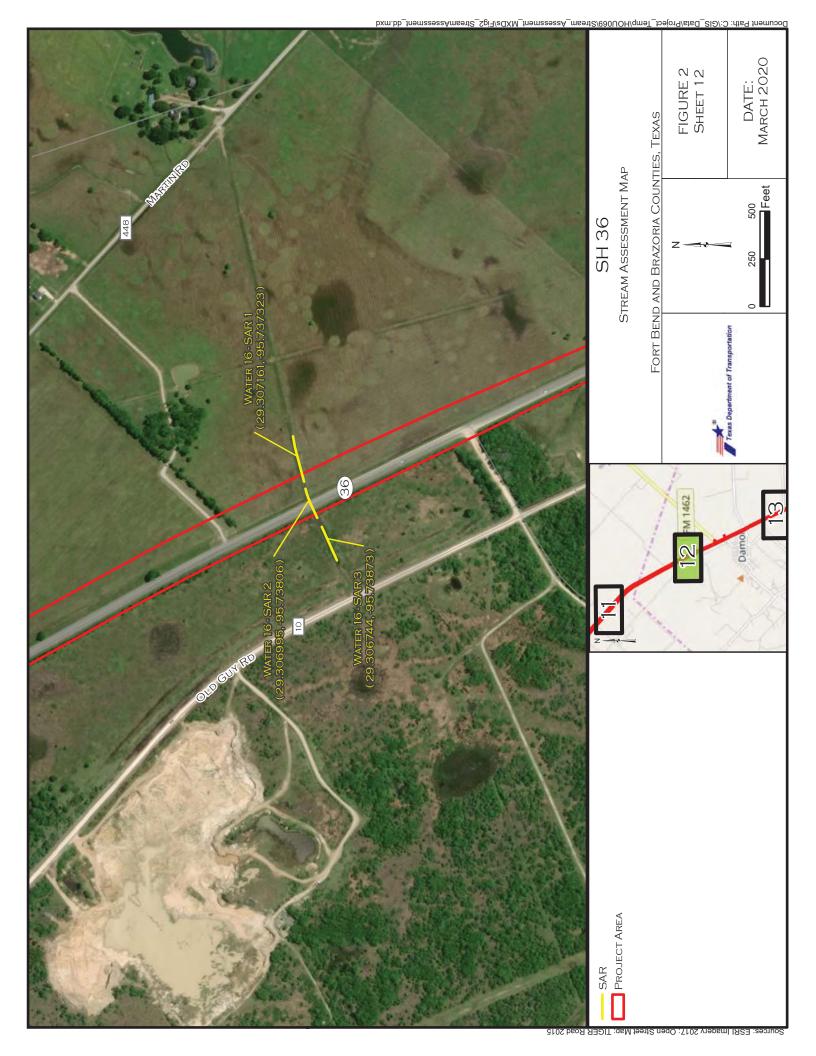


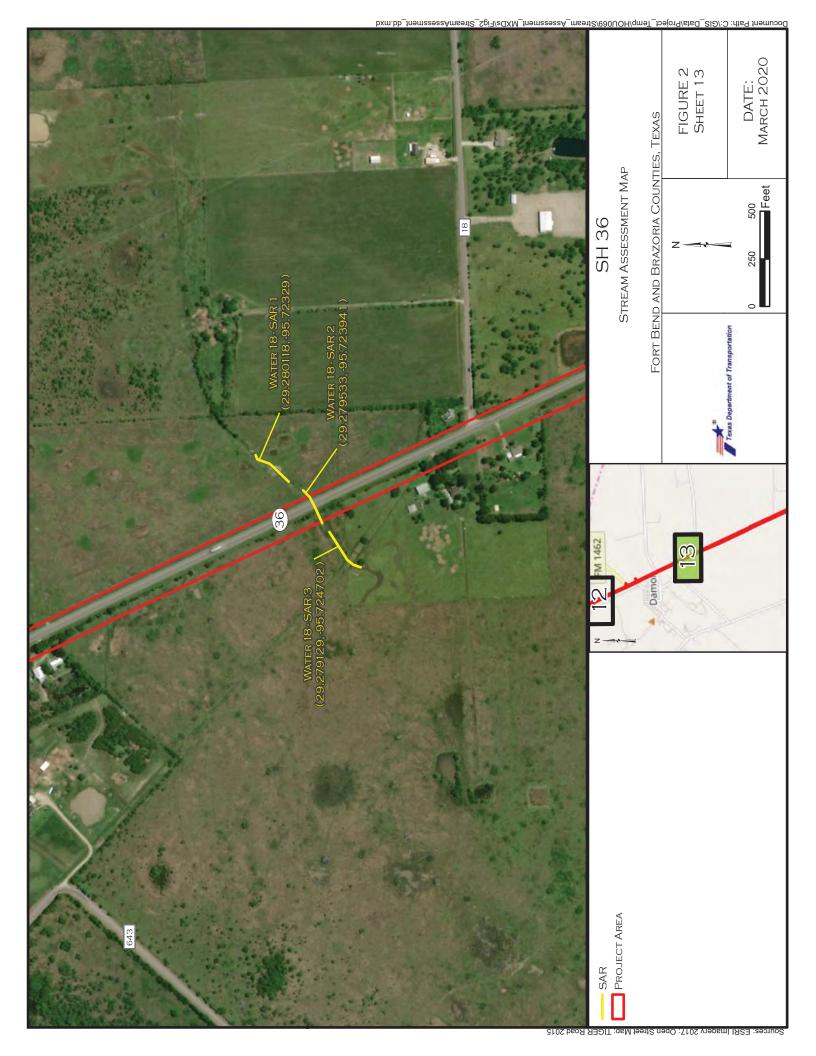


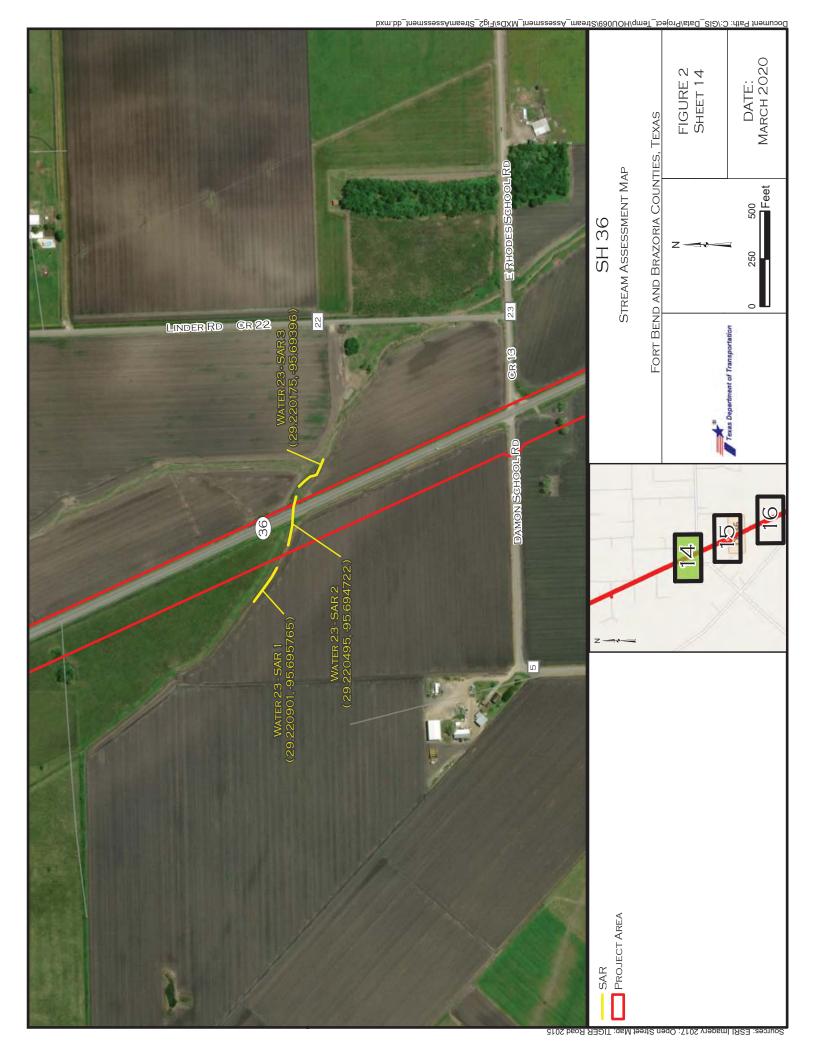


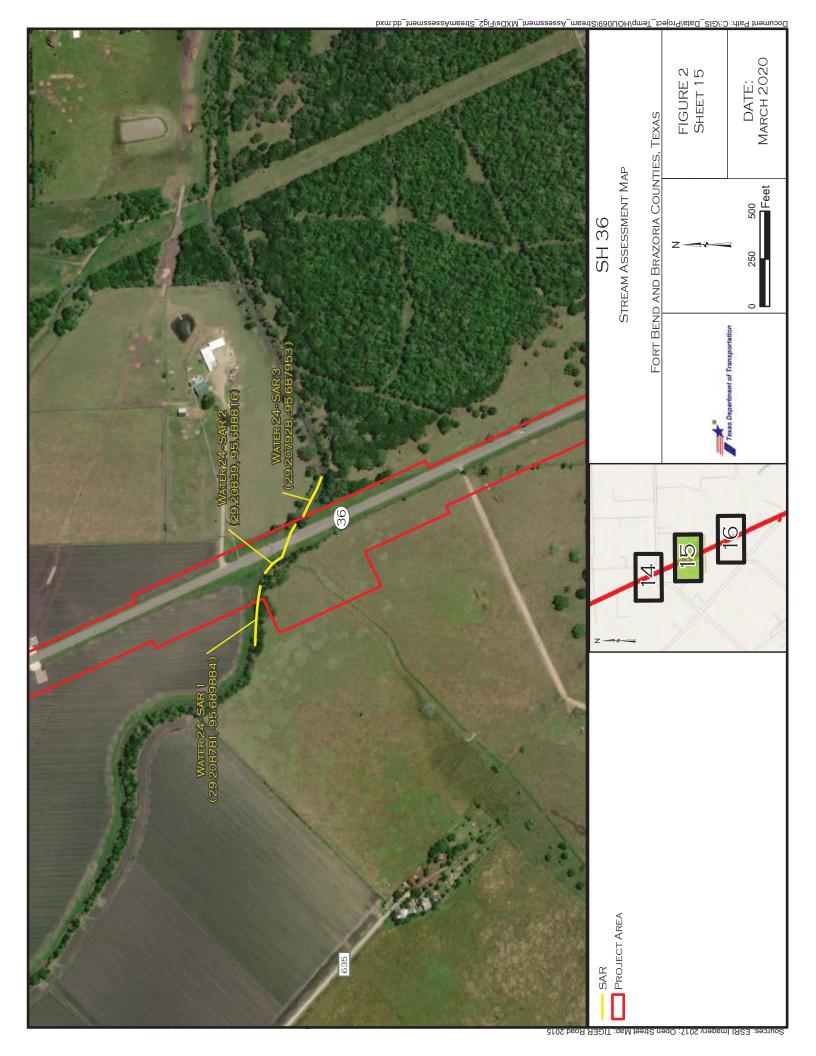


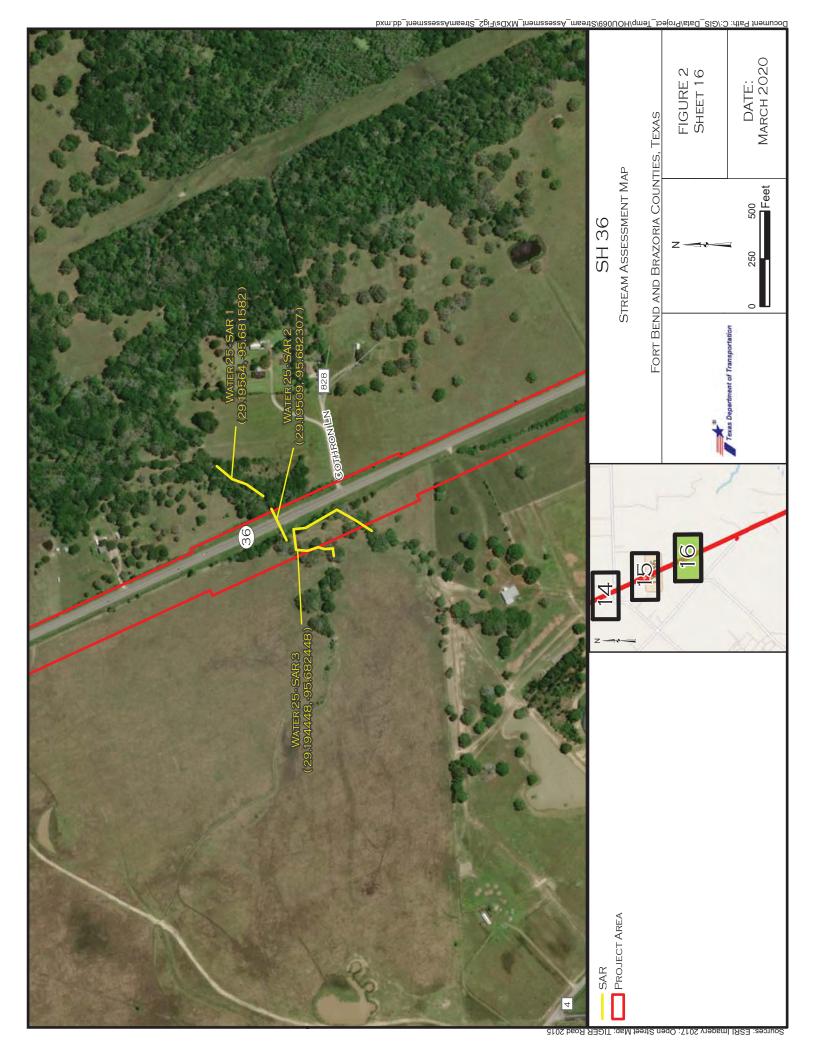


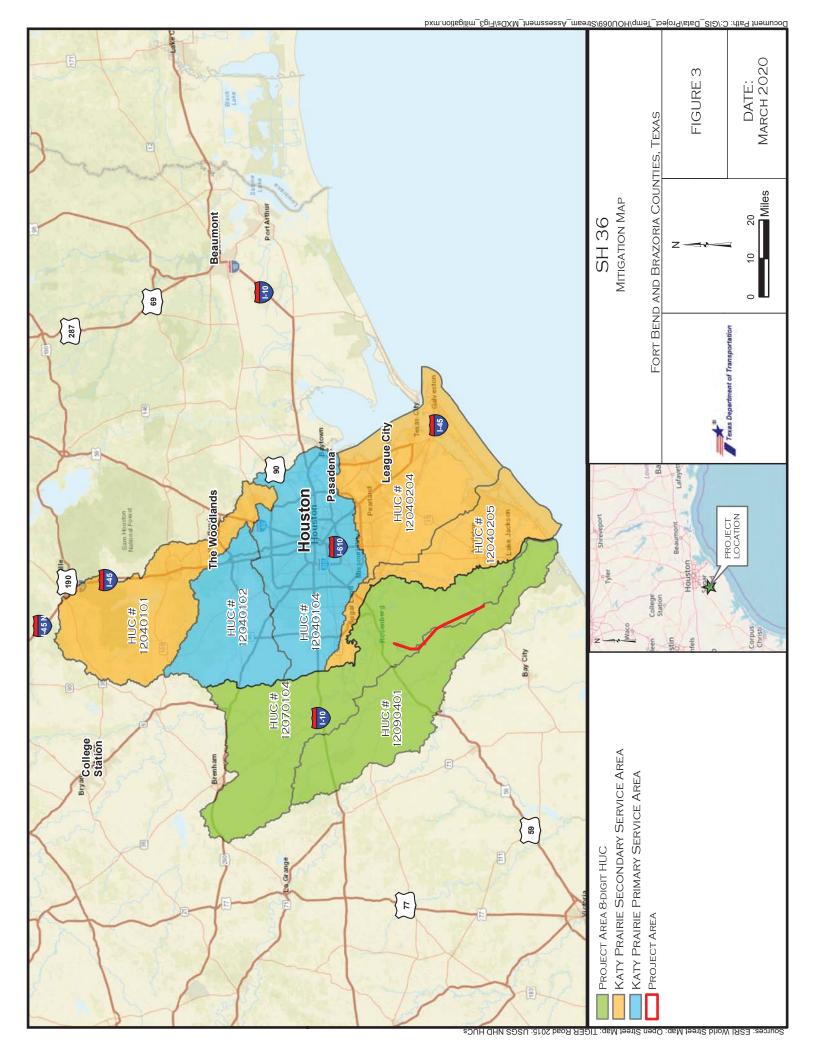












Level 1 – SOP Data Sheets Pre- Construction

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Upstream First Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 2 (Big Creek) 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel vertical banks with shallow root protection only present along 60-80% Transect, vegetative cover or natura reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect. floodplain. 5 2 Score 3.0 Notes: Channel has been widened and is eroding. Cattle pressure present. Natural flow and sinuosity present. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Both buffers dominated by grazed pasture 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 100% ΒV % Riparian Area> 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 2.00 Score Notes

Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	1	Upstream	l
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe	ı
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes levees, culverts, riprap, bulkheads armor, drop structures or withdraws structures. Evidence of past alterating and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Eviden- may be present, and stability are be Withdrawals, if pre observable affer	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration but stream pattern giginning to recover. seent, may have an but on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Eviden- is present, and s stability are r Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4		3	:	2	1	

Notes: Evidence of past alteration present, but stream pattern and stability are beginning to recover.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.50

INSERT PHOTOS:



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Middle at road crossing First 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 2 (Big Creek) 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25-50% of the Transect. Transect floodplain. Score 5 3.0 Notes: Bridge present and outside banks of stream. Cattle pressure present, degrading banks in portion via foot traffic. Does not appeat to have access to floodplain. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage No maintenance other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of transect grazed pasture and maintained ROW 100% 95% % Riparian Area> 5% Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.95 Left Bank Score > 2 1 Lt Bank CI > 1.95 1.95 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. 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Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	2	Middle	
4. CHANNEI	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or o	concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe	
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	5							

Notes: Rip rap present in areas, stream does not appear to be recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.24

INSERT PHOTOS:



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Downstream Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 2 (Big Creek) 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect. floodplain. 5 2 Score 3.0 Notes: Channel has been widened and is eroding. Cattle pressure present. Natural flow and sinuosity present. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer dominated by grazed pasture. 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	Downstream	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred- levees, culverts, armor, drop struct structures. Evidend may be present, I and stability are be Withdrawals, if pre observable affed	levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.		
SCORE	5	4		3		2	1	

Notes: Evidence of past alteration present, but stream pattern and stability are beginning to recover.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.50

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant	Date	
State Highway 36	TxDOT	6/29/2018	
Evaluator	HUC	Locality	
Arron Tuggle, Sa	lly Clark	12070104	SH36

Stream Name	Transect ID	Condition Index (RCI)	
Water 2	1	2.50	
Water 2	2	2.24	
Water 2	3	2.50	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

2.413

2.00

109.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 Upstream First Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 2 (Big Creek) Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosic course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut over or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 4 Score 5 3.0 Notes: Projected condition similar to existing transect 2. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Both buffers dominated by grazed pasture and maintained ROW 100% 95% % Riparian Area> 5% Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.95 Left Bank Score > 2 1 Lt Bank CI > 1.95 1.95 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennia streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 2.00 Score Notes: Aquatic use not anticipated to be impacted.

	St	ream Impact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	1	Upstream	
4. CHANNEI livestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or	concrete blocks, s	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Mar	ginal	Po	oor	Severe		
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, I and stability are be Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, rures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Eviden- is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and to trecovering, seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, fpresent, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4	;	3		2	1	

Notes: Projected condition similar to existing transect 2.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.24

INSERT PHOTOS:



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 Middle at road crossing First 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 2 (Big Creek) Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosic course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut over or natural rock is limited to 20otection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to along portions of the reach. Channe and transient sediments are found in the Transect and point bars and the Transect and 80% or more of the active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25-50% of the Transect. Transect floodplain. Score 5 3.0 Notes: Projected impacts will are not anticipated to significantly change the condition or function of this portion of Water 2. This transect is within the current crossing of SH 36. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of transect grazed pasture and maintained ROW 100% 95% % Riparian Area> 5% Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.95 Left Bank Score > 2 1 Lt Bank CI > 1.95 1.95 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennia streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nt Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 2.00 Score Notes: Projected impacts will are not anticipated to significantly change the condition or function of this portion of Water 2. This transect is within the current crossing of SH 36.

	St	ream Impact	Assessm	nent Fo	rm Page	2	
Project #	Applicant	Locality	Cowardin Class.	нис	Date	Transect #	Transect Description
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	2	Middle
4. CHANNEL livestock	_ ALTERATION: Stream crossi	ngs, riprap, concrete, gabions,	or concrete blocks, s	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect impacted by dredging, dams, dik levees, culverts, riprap, bulkheam armor, drop structures or withdra structures. Evidence of past altera may be present, but stream patte and stability have recovered. Withdrawals, if present, have n observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Eviden may be present, and stability are by Withdrawals, if propose observable affe	of the Transect is lging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Eviden- is present, and s stability are r Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal ce of past alteration tream pattern and ot recovering. seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	5	4		3		2	1

Notes: Rip rap present in areas, stream does not appear to be recovering. Projected impacts will are not anticipated to significantly change the condition or function of this portion of Water 2. This transect is within the current crossing of SH 36.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.24

INSERT PHOTOS:



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 **Downstream** Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 2 (Big Creek) Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosic course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut over or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 4 Score 5 3.0 Notes: Projected condition similar to existing transect 2. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer dominated by grazed pasture and maintained ROW 100% 95% % Riparian Area> 5% Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.95 Left Bank Score > 2 1 Lt Bank CI > 1.95 1.95 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 2.00 Score Notes: Aquatic use will remain Poor.

	St	ream Im	pact A	ssessm	ent Fo	rm Page	e 2	
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	3	Downstream
4. CHANNE ivestock	L ALTERATION: Stream cross	ings, riprap, concre	te, gabions, or o	concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Subop	timal	Mar	ginal	Po	oor	Severe
	Channelization, dredging, alteration or	Less than 30% of impacted by dredging		Between 30-60% impacted by dred	of the Transect is		of the Transect is ging, dams, dikes,	Between 90-100% of the Transect is
Channel Alteration	hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	levees, culverts, rij armor, drop structur structures. Evidence may be present, bu and stability hav Withdrawals, if pr observable aff	orap, bulkheads, res or withdrawal of past alteration at stream pattern re recovered. resent, have no	structures. Evidence may be present, the and stability are be Withdrawals, if pre	riprap, bulkheads, ures or withdrawal se of past alteration out stream pattern aginning to recover. seent, may have an et on flow, but no	levees, culverts, armor, drop structures. Eviden is present, and s' stability are n' Withdrawals, if pre observable affec	riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and tot recovering. esent, may have an t on both flow and or biota.	impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.

Notes: Projected condition similar to existing transect 2.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.24



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT		3/20/2020
Evaluators	3	HUC	Locality
Arron Tuggle, Sal	ly Clark	12070104	SH36

Stream Name	Transect ID	Condition Index (RCI)	
Water 2 - Post	1	2.24	
Water 2 - Post	2	2.24	
Water 2 - Post	3	2.24	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

2.240

2.00

109.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Upstream Second Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 3 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root treambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25-50% of the Transect Transect floodplain. 5 3.0 Score Notes: Channel is incised or has had its course widened. Erosional scars present. The stream does not have access to the active floodplain. Bulkheading or riprap is found along 25-50% of the Transect 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Buffer dominated by maintained ROW, row agriculture, and existing pavement 100% 25% 75% % Riparian Area> Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 40% 60% 100% Rt Bank CI > 1.25 Left Bank Score > 2 1 Lt Bank CI > 1.40 1.33 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 2.00 Score Notes

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.08



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order **TXDOT** 12070104 6/28/2018 Middle at road crossing Second 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 3 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25-50% of the Transect. Transect floodplain. 5 Score 2.0 Notes: Extensive riprap present around box culvert. Upstream of crossing no riprap but channel has been modified and channelized. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Buffer dominated on both sides by row agriculture, maintained ROW, and existing pavement 100% 60% 40% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 50% 50% 100% Rt Bank CI > 1.40 Left Bank Score > 2 1 Lt Bank CI > 1.50 1.45 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Impact	Assessm	nent Fo	rm Page	2		
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	2	Middle	
4. CHANNEI livestock	L ALTERATION: Stream cross	LTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions,						
	Optimal	Mar	ginal	Po	or	Severe		
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, diker levees, culverts, riprap, bulkheads armor, drop structures or withdraw structures. Evidence of past alterati may be present, but stream patter and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Eviden may be present, and stability are be Withdrawals, if pre observable affer	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Eviden- is present, and s stability are r Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal ce of past alteration tream pattern and ot recovering. seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4		3		2	1	

Notes: More than 90% of transect mimpacted by rip rap.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.61



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order 12070104 6/28/2018 Downstream of SH 36 Second 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 3 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chann and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. iprap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 4 Score 2.0 Notes: Channel over-widened; no point bars or benches. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Majority of buffer on both sides consists of maintained right of way 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 95% 5% 100% Rt Bank CI > Left Bank Score > 2 1 Lt Bank CI > 1.95 1.98 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Impact A	ssessm	ent Fo	rm Page	2		
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	downstream	
4. CHANNEI livestock	L ALTERATION: Stream cross	ERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions,						
	Optimal	Mar	ginal	Poor		Poor		Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred- levees, culverts, armor, drop struct structures. Evidend may be present, I and stability are be Withdrawals, if pre observable affed	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	ures or withdrawal ce of past alteration ream pattern and ot recovering. esent, may have an	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4	;	3		2	1	

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.00

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT		6/29/2018
Evaluators	S	HUC	Locality
Arron Tuggle, Sal	lly Clark	12070104	SH36

Stream Name	Transect ID	Condition Index (RCI)	
Water 3	1	2.08	
Water 3	2	1.61	
Water 3	3	2.00	
A T	CI		

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.897

2.00
351.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 Upstream Second Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark **Water 3 Post Construction** 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25-50% of the Transect Transect floodplain. 5 Score 2.0 Notes: Based on design, the new roadway will be built in this transect. Post construction condition anticipated to be similar to existing transect 2 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Buffer dominated by maintained ROW, row agriculture, and existing pavement 100% 90% 10% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 10% ΒV % Riparian Area> 90% 100% Rt Bank CI > 1.10 Left Bank Score > 1 2 Lt Bank CI > 1.10 1.10 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 2.00 Score Notes

	St	ream Imp	pact A	ssessm	ent Fo	rm Page	e 2	
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	1	Upstream
4. CHANNEL livestock	ALTERATION: Stream crossi	ings, riprap, concrete	e, gabions, or o	concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Suboptii	mal	Marg	ginal	Po	oor	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of th impacted by dredging levees, culverts, ripra armor, drop structures structures. Evidence of may be present, but s and stability have Withdrawals, if pres observable affec	g, dams, dikes, ap, bulkheads, as or withdrawal of past alteration stream pattern recovered. sent, have no	impacted by dredglevees, culverts, in armor, drop struct structures. Evidence may be present, it and stability are be Withdrawals, if pre	riprap, bulkheads, ures or withdrawal te of past alteration but stream pattern ginning to recover. sent, may have an at on flow, but no	impacted by dred levees, culverts, armor, drop struct structures. Eviden- is present, and s stability are n Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and toot recovering. seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	5	4		;	3		2	1
Notes		•		•		•		•

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.53



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 3/20/2020 Middle at road crossing Second 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 3 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25-50% of the Transect. Transect floodplain. 5 Score 2.0 Notes: Extensive riprap present around box culvert. Upstream of crossing no riprap but channel has been modified and channelized. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Buffer domianted on both sides by row agriculture, maintained ROW, and existing pavement 100% 60% 40% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 50% 50% 100% Rt Bank CI > 1.40 Left Bank Score > 2 1 Lt Bank CI > 1.50 1.45 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Impact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	2	Middle	
4. CHANNEL livestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or	concrete blocks, s	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Suboptimal	Mar	ginal	Po	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteratio may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, l and stability are be Withdrawals, if pre observable affer	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop structures. Eviden- is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and to trecovering. seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4	;	3		2	1	

Notes: More than 90% of transect mimpacted by rip rap.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.61



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 3/20/2020 Upstream of SH 36 Second Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 3 Post Cosntruction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 2.0 Notes: Channel over-widened; no point bars or benches. Impacts not anticipated. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 Scores Notes: Majority of buffer on both sides consists of maintained right of way. Buffer impacts not anticpated. 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 95% 5% 100% Rt Bank CI > 2.00 Left Bank Score > 2 1 Lt Bank CI > 1.95 1.98 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	downstream	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal	Marg	ginal	Po	or	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dredg levees, culverts, r armor, drop structus structures. Evidence may be present, be and stability are be Withdrawals, if pre	riprap, bulkheads, ures or withdrawal the of past alteration but stream pattern ginning to recover. usent, may have an tot on flow, but no	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	riprap, bulkheads, ures or withdrawal be of past alteration ream pattern and ot recovering. usent, may have an on both flow and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4	3	3		2	1	

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering. Channel will not be altered due to construction downstream of transect.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.00

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #		Date	
State Highway 36	TxDOT		3/20/2020
Evaluator	HUC	Locality	
Arron Tuggle, Sa	lly Clark	12070104	SH36

Stream Name	Transect ID	Condition Index (RCI)	
Water 3 Post	1	1.53	
Water 3 Post	2	1.61	
Water 3 Post	3	2.00	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.713

2.00

351.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler 8 Digit HUC File Number **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 Upstream Second Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 4 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Suboptimal Optimal Marginal Poor Severe Channel is over-widened or incised Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or excavated with vertical or latera tains a few areas of active erosi course widened. Indicators of with vertically or laterally unstable Visual banks. Visual indicators of over-Indicators of instability include vegetative cover or natural rock instability include the presence of erosional scars on 40-60% of the instability in the stream bank. Indicators of instability include the Channel shows very little incision or widening and little or no evidence of widening and incision include near Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. rooting depth, both banks are vertical or undercut, vegetative surface protection or natural rock is only found of the Transect, point bars and bankfull benches are likely presen rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along 60-80% of the Transect, vegetative Indicators of stability include greate than 80% vegetative cover on the **Parameter** or nickpoints associated with headcut cover or natural rock is limited to 20and transient sediment is present banks, stable point bars and bankfull along 10-40% of the stream bottom. The stream has access to bankfull benches or developed floodplains may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 20% or less of the Transect, the bank is sloughing and erosional scars or raw banks present on 80-100% of 40% of the Transect substantial benches may be present, mid-channe and transverse bars are rare or ediment deposition of uniformed-size material is present along 60-80% of transient. The stream has access to along portions of the reach. Channe may show evidence of past channel alteration, but should be exhibiting and transient sediments are found in 40-60% of the natural stream bed or bottom. The stream does not have the Transect and 80% or more of the natural streambed is covered by substantial sediment resulting in the Transect and point bars and bankfull benches are absent. The active floodplain or fully developed bankfull benches. No bulkheading or stream does not have access to an riprap may be present. notable recovery of a natural channel. Bulkhead and riprap are limited to 125% of the Transect. active floodplain. Bulkheading and iprap are present along 50-80% of the access to the active floodplain. readed channels. The stream does Bulkheading or riprap is found along 25-50% of the Transect. not have access to an active floodplain. CV Transec 5 3 3.0 Score Notes: Channel incised, channelized previously but recovering. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% The buffer is dominated by one or coverage with NO community Riparian species represer between 30-60% nore of the following: lawns, mower or maintained right-of-way, no-till wetlands present The area is dominated by impervious ithin the buffer surfaces, mine spoil lands, denuded surfaces, conventional tillage row Native woody species represent Native woody communty represents **Buffers** OR native woody coverage with NC greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, community species represent 30-60% coverage wetlands present No maintenance sparsely vegetated non-maintained irea, recently seeded and stabilized o wetlands are present. maintenance or grazing activities. crops, active feed lots or comparable other comparable condition or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 4 3 2 Notes: Both banks primary buffer dominated by maintained ROW. Outside maintained ROW mature, native forest present. 100% 65% 30% % Riparian Area> 5% Right Bank 2 1 4.5 CI= (Sum % RA * Scores*0.01)/2 % Riparian Area> 70% 30% 100% Rt Bank CI > 2.70 вν Left Bank Score > 2 4.5 Lt Bank CI > 2.75 2.73 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Aquatic Life Score of Minimal. Aquatic Life Score of Limited **AQUATIC** Aquatic Life Score of High. Perennia Intermittent Streams with Perennial Intermittent and ephemeral stream streams that have not been asses USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed that have not been assessed are also are also assumed to have an Aquation are also assumed to have an Aquatic assumed to have an Aquatic Life Life Score of High Life Score of Limited. Score of Minimal. UV 5 4 3 2 1 2.00 Score Notes

CHANNEL A	TXDOT ALTERATION: Stream crossi		SH 36						
	ALTERATION: Stream crossi		01100	Intermittent	12070104	06/28/2018	1	Upstream	
F		ings, riprap, conci	rete, gabions, or	concrete blocks, str	raightening of ch	annel, channeliza	ation, embankmer	nts, spoil piles, constrictions,	
	Optimal	Subo	otimal	Marg	inal	Po	oor	Severe	
Channel (Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levese, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of impacted by dred, levees, culverts, in armor, drop struct structures. Evidence may be present, be and stability ha Withdrawals, if probservable and stability harmonic may be present, be and stability harmonic may be present, be and stability harmonic may be present, but a stability harmonic may be present as the property of the pro	ging, dams, dikes, riprap, bulkheads, ures or withdrawal te of past alteration but stream pattern ave recovered. bresent, have no	structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover.		Between 60-90% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawals, if present, may have an observable affect on both flow and habitat or biota.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, firpap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	AV
SCORE	5	4	1	3			2	1	3.00
otes: Eviden	nce of past alteration pres			nd stability are					

INSERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler 8 Digit HUC File Number **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 2 Second Middle at road crossing Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 4 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Suboptimal Optimal Marginal Poor Severe Channel is over-widened or incised Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or excavated with vertical or latera tains a few areas of active erosi course widened. Indicators of with vertically or laterally unstable Visual hanks. Visual indicators of over-Indicators of instability include vegetative cover or natural rock instability include the presence of erosional scars on 40-60% of the instability in the stream bank. Indicators of instability include the Channel shows very little incision or widening and little or no evidence of widening and incision include near Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. rooting depth, both banks are vertical or undercut, vegetative surface protection or natural rock is only found of the Transect, point bars and bankfull benches are likely presen rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along 60-80% of the Transect, vegetative Indicators of stability include greate than 80% vegetative cover on the **Parameter** or nickpoints associated with headcut cover or natural rock is limited to 20and transient sediment is present banks, stable point bars and bankfull along 10-40% of the stream bottom. The stream has access to bankfull benches or developed floodplains may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 20% or less of the Transect, the bank is sloughing and erosional scars or raw banks present on 80-100% of 40% of the Transect substantial benches may be present, mid-channe and transverse bars are rare or ediment deposition of uniformed-size material is present along 60-80% of transient. The stream has access to along portions of the reach. Channe may show evidence of past channel alteration, but should be exhibiting and transient sediments are found in 40-60% of the natural stream bed or bottom. The stream does not have the Transect and 80% or more of the natural streambed is covered by substantial sediment resulting in the Transect and point bars and bankfull benches are absent. The active floodplain or fully developed bankfull benches. No bulkheading or stream does not have access to an riprap may be present. notable recovery of a natural channel. Bulkhead and riprap are limited to 125% of the Transect. active floodplain. Bulkheading and iprap are present along 50-80% of the access to the active floodplain. threaded channels. The stream does Bulkheading or riprap is found along 25-50% of the Transect. not have access to an active floodplain. CV Transect 2.0 Score Notes: Majority of transect within box culvert 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% The buffer is dominated by one or coverage with NO community Riparian nore of the following: lawns, mower or maintained right-of-way, no-till wetlands present necies renre The area is dominated by impervious ithin the buffer between 30-60% surfaces, mine spoil lands, denuded surfaces, conventional tillage row Native woody species represent Native woody communty represents **Buffers** OR native woody coverage with NO greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, community species represent 30-60% coverage sparsely vegetated non-maintained irea, recently seeded and stabilized o wetlands are present. vetlands present maintenance or grazing activities crops, active feed lots or comparable other comparable condition or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 4 3 Scores | V | 1.13.1 --- | --- | Notes: Buffer mixed; primary dominated by existing pavement and maintained ROW. Native, mature forest present in the secondary buffer area. 45% 30% 25% 100% % Riparian Area> Right Bank 2 4 1 CI= (Sum % RA * Scores*0.01)/2 % Riparian Area> 40% 30% 30% 100% Rt Bank CI > 2.20 вν Left Bank Score > 2 4 Lt Bank CI > 2.30 2.25 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Aquatic Life Score of Minimal. Aquatic Life Score of Limited **AQUATIC** Aquatic Life Score of High. Perennia Intermittent Streams with Perennial Intermittent and ephemeral stream streams that have not been asses USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed that have not been assessed are also are also assumed to have an Aquation are also assumed to have an Aquatic assumed to have an Aquatic Life Life Score of High Life Score of Limited. Score of Minimal. U۷ 5 4 3 2 1 2.00 Score Notes

Project #	Applicant Localit		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	2	Middle	
CHANNEL estock	L ALTERATION: Stream cross	sings, riprap, cond	rete, gabions, or	concrete blocks, st	traightening of ch	nannel, channeliza	ation, embankmer	nts, spoil piles, constrictions,	
	Optimal	Subo	ptimal	Marg	ginal	Pe	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by dred levees, culverts, armor, drop struc structures. Eviden may be present, and stability h Withdrawals, if	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ze of past alteration but stream pattern ave recovered. present, have no affect on flow.	impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration st may be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an V		Between 60-90% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawals, if present, may have an observable affect on both flow and habitat or biota.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	AV
SCORE	5		4	3	3		2	1	2.00
otes: Majoı	rity of transect within box	culvert							

INSERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler 8 Digit HUC File Number **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 3 Second downstream of crossing Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 4 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Suboptimal Optimal Marginal Poor Severe Channel is over-widened or incised Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or excavated with vertical or latera tains a few areas of active erosi course widened. Indicators of with vertically or laterally unstable Visual hanks. Visual indicators of over-Indicators of instability include vegetative cover or natural rock instability include the presence of erosional scars on 40-60% of the instability in the stream bank. Indicators of instability include the Channel shows very little incision or widening and little or no evidence of widening and incision include near Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. rooting depth, both banks are vertical or undercut, vegetative surface protection or natural rock is only found of the Transect, point bars and bankfull benches are likely presen rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along 60-80% of the Transect, vegetative Indicators of stability include greate than 80% vegetative cover on the **Parameter** or nickpoints associated with headcut cover or natural rock is limited to 20and transient sediment is present banks, stable point bars and bankfull along 10-40% of the stream bottom. The stream has access to bankfull benches or developed floodplains may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 20% or less of the Transect, the bank is sloughing and erosional scars or raw banks present on 80-100% of 40% of the Transect substantial benches may be present, mid-channe and transverse bars are rare or ediment deposition of uniformed-size material is present along 60-80% of transient. The stream has access to along portions of the reach. Channe may show evidence of past channel alteration, but should be exhibiting and transient sediments are found in 40-60% of the natural stream bed or bottom. The stream does not have the Transect and 80% or more of the natural streambed is covered by substantial sediment resulting in the Transect and point bars and bankfull benches are absent. The active floodplain or fully developed bankfull benches. No bulkheading or stream does not have access to an riprap may be present. notable recovery of a natural channel. Bulkhead and riprap are limited to 125% of the Transect. active floodplain. Bulkheading and iprap are present along 50-80% of the access to the active floodplain. threaded channels. The stream does Bulkheading or riprap is found along 25-50% of the Transect. not have access to an active floodplain. CV Transec 5 3 3.0 Score Notes: Channel incised, channelized previously but recovering. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% The buffer is dominated by one or coverage with NO community Riparian species represer between 30-60% nore of the following: lawns, mower or maintained right-of-way, no-till wetlands present The area is dominated by impervious ithin the buffer surfaces, mine spoil lands, denuded surfaces, conventional tillage row Native woody species represent Native woody communty represents **Buffers** OR native woody coverage with NC greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, community species represent 30-60% coverage sparsely vegetated non-maintained irea, recently seeded and stabilized o wetlands are present. vetlands present maintenance or grazing activities. crops, active feed lots or comparable other comparable condition or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 4 3 2 Notes: Both banks primary buffer dominated by maintained ROW. Outside maintained ROW mature, native forest present. 50% 50% 100% % Riparian Area> Right Bank 2 4.5 CI= (Sum % RA * Scores*0.01)/2 % Riparian Area> 65% 35% 100% Rt Bank CI > 3.25 вν Left Bank Score > 2 4.5 Lt Bank CI > 2.88 3.06 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Aquatic Life Score of Minimal. Aquatic Life Score of Limited **AQUATIC** Aquatic Life Score of High. Perennia Intermittent Streams with Perennial Intermittent and ephemeral stream streams that have not been asses USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed that have not been assessed are also are also assumed to have an Aquation are also assumed to have an Aquatio assumed to have an Aquatic Life Life Score of High Life Score of Limited. Score of Minimal. U۷ 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	downstream	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, I and stability are be Withdrawals, if pre observable affec	ce of past alteration but stream pattern	impacted by dred levees, culverts, armor, drop struct structures. Eviden is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. Issent, may have an at on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4	1 .	2	1	2		

Notes: Evidence of past alteration present, but stream pattern and stability are beginning to recover.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.77

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Project # Applicant			
	TxDOT		6/29/2018	
Evaluators	HUC	Locality		
Arron Tuggle, Sal				

Stream Name	Transect ID	Condition Index (RCI)	
Water 4	1	2.68	
Water 4	2	2.06	
Water 4	3	2.77	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

2.503

2.00

225.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 3/20/2020 Upstream Second Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 4 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Suboptimal Optimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised excavated with vertical or latera tains a few areas of active erosi course widened. Indicators of with vertically or laterally unstable Visual hanks. Visual indicators of over-Indicators of instability include vegetative cover or natural rock instability include the presence of erosional scars on 40-60% of the instability in the stream bank. Indicators of instability include the Channel shows very little incision or widening and little or no evidence of widening and incision include near Channel vertical banks with shallow root protection only present along 60-80% Transect, vegetative cover or natura reambed elevation located below the Condition erosion or unprotected banks. rooting depth, both banks are vertical or undercut, vegetative surface protection or natural rock is only found of the Transect, point bars and bankfull benches are likely presen rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along 60-80% of the Transect, vegetative Indicators of stability include greate than 80% vegetative cover on the **Parameter** cover or natural rock is limited to 20and transient sediment is present or nickpoints associated with headcut banks, stable point bars and bankfull along 10-40% of the stream bottom. The stream has access to bankfull benches or developed floodplains may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 20% or less of the Transect, the bank is sloughing and erosional scars or raw banks present on 80-100% of 40% of the Transect substantial benches may be present, mid-channe and transverse bars are rare or ediment deposition of uniformed-size material is present along 60-80% of transient. The stream has access to along portions of the reach. Channe may show evidence of past channel alteration, but should be exhibiting and transient sediments are found in 40-60% of the natural stream bed or bottom. The stream does not have the Transect and 80% or more of the natural streambed is covered by substantial sediment resulting in the Transect and point bars and bankfull benches are absent. The active floodplain or fully developed bankfull benches. No bulkheading or stream does not have access to an riprap may be present. notable recovery of a natural channel. Bulkhead and riprap are limited to 125% of the Transect. active floodplain. Bulkheading and iprap are present along 50-80% of the access to the active floodplain. readed channels. The stream does Bulkheading or riprap is found along 25-50% of the Transect. not have access to an active floodplain. CV Transect 2.0 Score Notes: New roadway will be constructed in Transect 1. Anticipated function and conditions similar to existing Transect 2. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% The buffer is dominated by one or coverage with NO community Riparian species represer between 30-60% nore of the following: lawns, mower or maintained right-of-way, no-till wetlands present The area is dominated by impervious ithin the buffer surfaces, mine spoil lands, denuded surfaces, conventional tillage row Native woody species represent Native woody communty represents **Buffers** OR native woody coverage with NC greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, community species represent 30-60% coverage wetlands present No maintenance sparsely vegetated non-maintained irea, recently seeded and stabilized o wetlands are present. maintenance or grazing activities. crops, active feed lots or comparable other comparable condition or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 3 Scores | Scores | Notes: Additional areas of poor and severe quality buffer will be cosntructed. 100% 55% 40% % Riparian Area> 5% Right Bank 2 4 1 CI= (Sum % RA * Scores*0.01)/2 % Riparian Area> 55% 40% 5% 100% Rt Bank CI > 1.70 вν Left Bank Score > 2 4 Lt Bank CI > 1.70 1.70 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Aquatic Life Score of Minimal. Aquatic Life Score of Limited **AQUATIC** Aquatic Life Score of High. Perennia Intermittent Streams with Perennial Intermittent and ephemeral stream streams that have not been asses USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed that have not been assessed are also are also assumed to have an Aquation are also assumed to have an Aquatio assumed to have an Aquatic Life Life Score of High Life Score of Limited. Score of Minimal. UV 5 4 3 2 1 2.00 Score Notes

Project #	••		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	1	Upstream	
CHANNEL A	ALTERATION: Stream cross	ings, riprap, cond	rete, gabions, or	concrete blocks, st	raightening of ch	annel, channeliza	ation, embankmer	nts, spoil piles, constrictions,	
	Optimal	Subo	ptimal	Marg	jinal	Po	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by dred levees, culverts, armor, drop struc structures. Eviden may be present, and stability h Withdrawals, if	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration but stream pattern ave recovered. present, have no offect on flow.	may be present, but stream pattern and stability are beginning to recover.		Between 60-90% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawals, if present, may have an observable affect on both flow and habitat or biota.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawalis, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	AV
SCORE	5		4	3	3		2	1	2.00
	oadway will be constructo Iditional rip rap in this tra		ct 1. Anticipa	ted function a	nd conditior	s similar to e	existing Trans	sect 2. Construction include	es new

INSERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler 8 Digit HUC File Number **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 3/20/2020 2 Second 12070104 Middle at road crossing Name(s) of Evaluator(s) Steam Name and Type Water 4 Post Construction Arron Tuggle, Sally Clark 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Suboptimal Optimal Marginal Poor Severe Channel is over-widened or incised Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or excavated with vertical or latera tains a few areas of active erosi course widened. Indicators of with vertically or laterally unstable Visual hanks. Visual indicators of over-Indicators of instability include vegetative cover or natural rock instability include the presence of erosional scars on 40-60% of the instability in the stream bank. Indicators of instability include the Channel shows very little incision or widening and little or no evidence of widening and incision include near Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. rooting depth, both banks are vertical or undercut, vegetative surface protection or natural rock is only found of the Transect, point bars and bankfull benches are likely presen rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along 60-80% of the Transect, vegetative Indicators of stability include greate than 80% vegetative cover on the **Parameter** cover or natural rock is limited to 20and transient sediment is present or nickpoints associated with headcut banks, stable point bars and bankfull along 10-40% of the stream bottom. The stream has access to bankfull benches or developed floodplains may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 20% or less of the Transect, the bank is sloughing and erosional scars or raw banks present on 80-100% of 40% of the Transect substantial benches may be present, mid-channe and transverse bars are rare or ediment deposition of uniformed-size material is present along 60-80% of transient. The stream has access to along portions of the reach. Channe may show evidence of past channel alteration, but should be exhibiting the Transect and 80% or more of the natural streambed is covered by substantial sediment resulting in and transient sediments are found in 40-60% of the natural stream bed or the Transect and point bars and bankfull benches are absent. The active floodplain or fully developed bankfull benches. No bulkheading or bottom. The stream does not have stream does not have access to an riprap may be present. notable recovery of a natural channel. Bulkhead and riprap are limited to 125% of the Transect. active floodplain. Bulkheading and iprap are present along 50-80% of the access to the active floodplain. readed channels. The stream does Bulkheading or riprap is found along not have access to an active floodplain. CV 25-50% of the Transect Transect 2.0 Score Notes: Majority of transect within box culvert. Channel condition will remain poor post construction of new lanes upstream of Transect 2. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% The buffer is dominated by one or coverage with NO community Riparian nore of the following: lawns, mower or maintained right-of-way, no-till wetlands present necies renre The area is dominated by impervious surfaces, mine spoil lands, denuded surfaces, conventional tillage row ithin the buffer between 30-60% Native woody species represent Native woody communty represents **Buffers** OR native woody coverage with NO greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, community species represent 30-60% coverage sparsely vegetated non-maintained irea, recently seeded and stabilized o wetlands are present. vetlands present maintenance or grazing activities crops, active feed lots or comparable other comparable condition or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Notes: Anticipated additional clearing and paving and reduction of marginal and poor quality buffer. 55% 100% % Riparian Area> 45% Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 % Riparian Area> 55% 45% 100% Rt Bank CI > вν 1.55 Left Bank Score > 2 Lt Bank CI > 1.55 1.55 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Aquatic Life Score of Minimal. Aquatic Life Score of Limited **AQUATIC** Aquatic Life Score of High. Perennia Intermittent Streams with Perennial Intermittent and ephemeral stream streams that have not been asse USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed that have not been assessed are also are also assumed to have an Aquation are also assumed to have an Aquatio assumed to have an Aquatic Life Life Score of High Life Score of Limited. Score of Minimal. UV 5 4 3 2 1 2.00 Score Notes: Aquatic use will remain poor.

Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	2	Middle	
. CHANNEI vestock	L ALTERATION: Stream cross	ings, riprap, cond	rete, gabions, or	concrete blocks, st	raightening of ch	annel, channeliza	ation, embankmer	nts, spoil piles, constrictions,	
	Optimal Subop		ptimal	Marginal		Poor		Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by dred levees, culverts, armor, drop struc structures. Eviden may be present, and stability h Withdrawals, if	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration but stream pattern ave recovered. present, have no affect on flow.	Between 30-60% of impacted by dredg levees, culverts, ri armor, drop structustructures. Evidence may be present, b and stability are beg Withdrawals, if presobservable affect observable affect of impacts of the structure.	ing, dams, dikes, prap, bulkheads, ures or withdrawal e of past alteration ut stream pattern ginning to recover. sent, may have and ton flow, but no	es, impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, wal amor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawalls, if present, may have an o observable affect on both flow and		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	AV
SCORE	5		4	3		2		1	2.00
lotes: Majo	rity of transect within box			Itered upstrea			IS REACH		
	REACH C	CIADITION	NDEA allu s	I KEAIVI CON		HO FOR IN	13 KEACH		
								CONDITION INDEX (CI) >>	1.89

INSERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 3/20/2020 3 Second 12070104 downstream of crossing Name(s) of Evaluator(s) Steam Name and Type Water 4 Post Construction Arron Tuggle, Sally Clark 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Suboptimal Optimal Marginal Poor Severe Channel is over-widened or incised Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or excavated with vertical or latera tains a few areas of active erosi course widened. Indicators of with vertically or laterally unstable Visual Indicators of instability include vegetative cover or natural rock instability include the presence of erosional scars on 40-60% of the banks. Visual indicators of overinstability in the stream bank. Indicators of instability include the Channel shows very little incision or widening and little or no evidence of widening and incision include near Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. rooting depth, both banks are vertical or undercut, vegetative surface protection or natural rock is only found of the Transect, point bars and bankfull benches are likely present rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along 60-80% of the Transect, vegetative Indicators of stability include greate than 80% vegetative cover on the **Parameter** cover or natural rock is limited to 20and transient sediment is present or nickpoints associated with headcut banks, stable point bars and bankfull along 10-40% of the stream bottom. The stream has access to bankfull benches or developed floodplains may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 20% or less of the Transect, the bank is sloughing and erosional scars or raw banks present on 80-100% of 40% of the Transect substantial benches may be present, mid-channe and transverse bars are rare or ediment deposition of uniformed-size material is present along 60-80% of transient. The stream has access to along portions of the reach. Channe may show evidence of past channel alteration, but should be exhibiting the Transect and 80% or more of the natural streambed is covered by substantial sediment resulting in and transient sediments are found in 40-60% of the natural stream bed or the Transect and point bars and bankfull benches are absent. The active floodplain or fully developed bankfull benches. No bulkheading or bottom. The stream does not have stream does not have access to an riprap may be present. notable recovery of a natural channel. Bulkhead and riprap are limited to 125% of the Transect. active floodplain. Bulkheading and iprap are present along 50-80% of the access to the active floodplain. readed channels. The stream does Bulkheading or riprap is found along not have access to an active CV 25-50% of the Transect Transec floodplain. 3.0 Score Notes: Construction of new roadway will be upstream of transect 3. Channel condition will remain marginal post construction as roadway is currently upstream. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% The buffer is dominated by one or coverage with NO community Riparian species represer between 30-60% nore of the following: lawns, mower or maintained right-of-way, no-till wetlands present The area is dominated by impervious ithin the buffer surfaces, mine spoil lands, denuded surfaces, conventional tillage row Native woody species represent Native woody communty represents **Buffers** OR native woody coverage with NC greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, community species represent 30-60% coverage wetlands present No maintenance sparsely vegetated non-maintained irea, recently seeded and stabilized o wetlands are present. maintenance or grazing activities. crops, active feed lots or comparable other comparable condition or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 100% 50% 50% % Riparian Area> Right Bank 2 4.5 CI= (Sum % RA * Scores*0.01)/2 % Riparian Area> 65% 35% 100% Rt Bank CI > 3.25 вν Left Bank Score > 2 4.5 Lt Bank CI > 2.88 3.06 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Aquatic Life Score of Minimal. Aquatic Life Score of Limited **AQUATIC** Aquatic Life Score of High. Perennia Intermittent Streams with Perennial Intermittent and ephemeral stream streams that have not been asses USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed that have not been assessed are also are also assumed to have an Aquation are also assumed to have an Aquatio assumed to have an Aquatic Life Life Score of High Life Score of Limited. Score of Minimal. UV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2									
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description		
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	downstream		
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock									
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe		
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes levees, culverts, riprap, bulkheads armor, drop structures or withdraws structures. Evidence of past alteratic may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dredging, dams, dikes, skidkes, levees, culverts, riprap, bulkheads, atteration a pattern and stability are beginning to recover. Withdrawals, if present, may have an vector and stability are beginning to recover.		impacted by dred levees, culverts, armor, drop struct structures. Eviden is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. Issent, may have an at on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.		
SCORE	5	4		2	1	2	4		

Notes: Construction is upstream of Transect 3 and the channel is not anticipated to be altered.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.77





Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Project # Applicant		
	TxDOT		3/20/2020
Evaluators	HUC	Locality	
Arron Tuggle, Sal	12070104	SH 36	

Stream Name	Transect ID	Condition Index (RCI)	
Water 4 Post	1	1.93	
Water 4 Post	2	1.89	
Water 4 Post	3	2.77	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

2.197

2.00
225.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** Third 12070104 6/28/2018 Upstream Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 5 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel vertical banks with shallow root protection only present along 60-80% Transect, vegetative cover or natura reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains ediment deposition of uniformed-size material is present along 60-80% of bank is sloughing and erosional scars or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 2 Score 2.0 Notes: Channel straightened and flattened. No point bars or bankfull benches present. No active floodplain. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row eater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer dominated by grazed pasture 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant	Loca	lity Cowardin Cla	ss. HUC	Date	Transect #	Transect Description			
	TXDOT	SH	36 Intermitten	t 12070104	06/28/2018	1	upstream of crossing			
4. CHANNEI ivestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabic	ns, or concrete block	s, straightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,			
	Optimal	Suboptimal	l N	/larginal	Poor		Severe			
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Trans impacted by dredging, dams, levees, culverts, riprap, bulk armor, drop structures or wit structures. Evidence of past a may be present, but stream y and stability have recover Withdrawals, if present, har observable affect on flores.	dikes, levees, culve armor, drop s structures. Evi may be prese and stability ar we no observable extracted by diverses, culve armor, drop s structures. Evi may be prese and stability ar withdrawals, i observable	50% of the Transect is dredging, dams, dikes, ritst, pirap, bulkheads, tructures or withdrawal dence of past alteration ent, but stream pattern et beginning to recover. f present, may have an affect on flow, but no fect on habitat or biota.	impacted by dred levees, culverts, armor, drop structures. Eviden- is present, and s stability are r Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.			
SCORE	5	4		3		2	4			

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.00



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 6/28/2018 Middle at crossing Third 12070104 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 5 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chann and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect. floodplain. 2 Score 5 2.0 Notes: Majority of channel is within box culvert, with some riprap present. Naturalized bottom through culvert. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized o other comparable condition. wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage No maintenance or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 43 2 Scores Notes: Majority of buffer existing pavement, maintained ROW, and grazed pasture with small portion of native woody vegetation in the secondary buffer. 50% 45% 100% % Riparian Area> 5% Right Bank 2 1 3 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 60% 35% 5% 100% Rt Bank CI > 1.60 Left Bank Score > 2 1 3 Lt Bank CI > 1.70 1.65 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description			
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	2	Middle			
4. CHANNEL livestock	_ ALTERATION: Stream cross	ings, riprap, concrete, gabions, or o	concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,			
	Optimal	Suboptimal	Marg	ginal	Poor		Severe			
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	Between 30-60% impacted by dredgetees, culverts, rarmor, drop structures. Evidenc may be present, E and stability are be Withdrawals, if pre observable affect observable affect of	riprap, bulkheads, ures or withdrawal the of past alteration but stream pattern ginning to recover. usent, may have an to on flow, but no	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre observable affect	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration ream pattern and ot recovering. ssent, may have an on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.			
SCORE	5	4	3	3		2	1			

Notes: Majority of transect within bridge-grade box culvert. Portions of transect outside of culvert do no appear to be recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.91



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order **TXDOT** 12070104 6/28/2018 Downstream of crossing Third 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 5 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 2 Score 2.0 Notes: Channel straightened and flattened. No point bars or bankfull benches present. No active floodplain. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row eater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer dominated by row agriculture and maintained grasses 100% 75% 25% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 70% 30% 100% Rt Bank CI > 1.25 Left Bank Score > 1 2 Lt Bank CI > 1.30 1.28 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description			
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	Downstream			
4. CHANNEL livestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or	concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,			
	Optimal	Suboptimal	Mar	ginal	Poor		Severe			
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidenc may be present, I and stability are be Withdrawals, if pre	ures or withdrawal ce of past alteration out stream pattern eginning to recover. esent, may have an ct on flow, but no	impacted by dred levees, culverts, armor, drop structures. Eviden- is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and to trecovering. seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.			
SCORE	5	4	1 :	3	1	2	1			

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.82



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	J 11		Date	
	TxDOT		6/29/2018	
Evaluator	Evaluators			
Arron Tuggle, Sa	lly Clark			

Stream Name	Transect ID	Condition Index (RCI)	
Water 5	1	2.00	
Water 5	2	1.91	
Water 5	3	1.82	
Average 1	RCI	1.910	
I 4F		1,7,1,0	

Average RCI 1.910
Impact Factor 0.00
Linear Feet of Impact 0.00
Compensation Requirement 0

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 3/20/2020 Upstream Third 12070104 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark **Water 5 Post Construction** 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect. floodplain. Score 5 1.5 Notes: New roadway will be constructed in Transect 1. Anticipated function and conditions similar to existing Transect 2. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer will be reduced and dominated by maintained ROW and pavement. 100% 50% 50% % Riparian Area> Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 50% 50% 100% Rt Bank CI > Left Bank Score > 2 1 Lt Bank CI > 1.50 1.50 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant Locality		Cowardin Class.	нис	Date	Transect #	Transect Description			
	TXDOT	SH 36		Intermittent	12070104	06/28/2018	1	upstream of crossing		
4. CHANNEL livestock	ALTERATION: Stream cross	ings, riprap, concrete	, gabions, or c	oncrete blocks, st	raightening of cha	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,		
	Optimal	Suboptir	mal	Marg	ginal	Poor		Severe		
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of th impacted by dredging levees, culverts, ripra armor, drop structures structures. Evidence of may be present, but s and stability have Withdrawals, if pres observable affec	g, dams, dikes, ap, bulkheads, s or withdrawal f past alteration stream pattern recovered. sent, have no	impacted by dredglevees, culverts, in armor, drop struct structures. Evidence may be present, it and stability are be Withdrawals, if pre	iprap, bulkheads, ures or withdrawal se of past alteration but stream pattern ginning to recover. sent, may have an st on flow, but no	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	riprap, bulkheads, ures or withdrawal be of past alteration ream pattern and ot recovering. usent, may have an on both flow and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.		
SCORE	5	4		;	3		2	1		

Notes: New roadway will be constructed in Transect 1. Anticipated function and conditions similar to existing Transect 2. Cosntruction includes new bridge and additional rip rap in this transect.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.63



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 3/20/2020 Middle at crossing Third 12070104 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark **Water 5 Post Construction** 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25-50% of the Transect. Transect floodplain. Score 5 2.0 Notes: Majority of transect within box culvert. Channel condition will remain poor post construction of new lanes upstream of Transect 2. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row eater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage No maintenance other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Anticipated additional clearing and paving and reduction of marginal and poor quality buffer. 100% 50% % Riparian Area> 50% Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 50% 50% 100% Rt Bank CI > Left Bank Score > 2 1 Lt Bank CI > 1.50 1.50 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2											
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description				
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	2	Middle				
4. CHANNEL livestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or	concrete blocks, s	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,				
	Optimal	Suboptimal	Mar	Marginal Poor		or	Severe				
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, I and stability are be Withdrawals, if pre	ures or withdrawal ce of past alteration out stream pattern eginning to recover. esent, may have an ct on flow, but no	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	riprap, bulkheads, tures or withdrawal be of past alteration tream pattern and ot recovering. esent, may have an t on both flow and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, fip resent, are large enough to have severe loss of flow and cause little to no habitat or biota.				
SCORE	5	4	;	3	:	2	1				

Notes: Majority of transect within box culvert. Channel will be altered upstream of Transect 2.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.88



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order **TXDOT** 3/20/2020 Downstream of crossing Third 12070104 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 5 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25-50% of the Transect. Transect floodplain. 5 Score 2.0 Notes: Construction of new roadway will be upstream of transect 3. Channel condition will remain poor post construction as roadway is currently upstream. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer will liekly not be imapcted by upstream construction 100% 75% 25% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 70% 30% 100% Rt Bank CI > 1.25 Left Bank Score > 1 2 Lt Bank CI > 1.30 1.28 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description			
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	Downstream			
4. CHANNEL livestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, o	concrete blocks, s	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,			
	Optimal	Mar	ginal	Poor		Severe				
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes levees, culverts, riprap, bulkheads armor, drop structures or withdraws structures. Evidence of past alteratir may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Eviden may be present, and stability are be Withdrawals, if pre observable affer	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop structures. Eviden- is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. ssent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.			
SCORE	5	4	1 :	3	1	2	1 1			

Notes: Construction is upstream of Transect 3 and the channel is not anticipated to be altered.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.82



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
	TxDOT		3/20/2020
Evaluators	Evaluators		
Arron Tuggle, Sal	ly Clark	12070104	SH 36

Stream Name	Transect ID	Condition Index (RCI)	
Water 5 Post	1	1.63	
Water 5 Post	2	1.88	
Water 5 Post	3	1.82	

Average RCI 1.777
Impact Factor 2.00
Linear Feet of Impact 223.00
Compenesation Requirement 91

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 Upstream Third Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 6 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chann and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 2.0 Notes: Degraded channel with no access to floodplain. Channelized with no benches or point bars. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Buffer dominated by row agriculture urban landscape, and maintained right of way 100% 60% 40% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 80% 20% 100% Rt Bank CI > 1.40 Left Bank Score > 1 2 Lt Bank CI > 1.20 1.30 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description			
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	1	upstream			
4. CHANNE ivestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or	concrete blocks, s	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,			
	Optimal	Suboptimal	Mar	ginal Poor		Severe				
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteratior may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, I and stability are be Withdrawals, if pre	ures or withdrawal be of past alteration out stream pattern ginning to recover.	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n	ures or withdrawal be of past alteration ream pattern and ot recovering. esent, may have an	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.			
		observable affect on flow.	observable affect	on habitat or biota.	habitat	or biota.				

Notes: No withdrawls or structures present but stream channel 100% impacted by alterations.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.58



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 Middle at crossing Thrid 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 6 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 2 Score 5 1.0 Notes: Majority of transect within box culvert and existing maintained ROW 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage No maintenance other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer mostly existing pavement and maintained ROW, with small area of native shrubs present 100% 50% 40% 10% % Riparian Area> Right Bank 1 2 3 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 50% 45% 100% Rt Bank CI > 1.60 Left Bank Score > 1 2 3 Lt Bank CI > 1.55 1.58 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Project #	Applicant Locality		Cowardin Class.	HUC	Date	Transect #	Transect Description		
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	2	at crossing	
. CHANNEI	L ALTERATION: Stream crossi	ings, riprap, conc	rete, gabions, or	concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Subo	Less than 30% of the Iransect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no becomble affect on flow.		ginal	P	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by drec levees, culverts, armor, drop struc structures. Eviden may be present, and stability h Withdrawals, if			of the Transect is jing, dams, dikes, jirap, bulkheads, ures or withdrawal e of past alteration ut stream pattern ginning to recover. sent, may have an t on flow, but no on habitat or biota.	impacted by dredging, dams, dikes, likheads, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal talteration or pattern or recover. by hove an withdrawals, if present, and stream pattern and stability are not recovering. but no observable affect on both flow and		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawalis, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	A۱
SCORE	5		4	3	3	2		1	2.0
lotes: Majoi	rity of transect impacted b	y existing cu	lvert						

ISERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order **TXDOT** 12070104 6/28/2018 Downstream of crossing Third 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 6 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 2.0 Notes: Degraded channel with no access to floodplain. Channelized with no benches or point bars. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of buffer dominated by maintained grasses 100% 95% % Riparian Area> 5% Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.95 Left Bank Score > 2 1 Lt Bank CI > 1.95 1.95 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description			
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	Downstream			
4. CHANNE ivestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or o	concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,			
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe			
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern	ins, dikes, likheads, likheads, likheads, likheads, armor, drop structures or withdrawal alteration in pattern and stability are beginning to recover. Withdrawals, if present, may have an expectable affect on flow, but no		Between 60-90% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawals, if present, may have an observable affect on both flow and habitat or biota.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of			
Alteration	structures or withdrawal structures within the Transect.	and stability have recovered. Withdrawals, if present, have no observable affect on flow.	Withdrawals, if pre observable affect	esent, may have an	Withdrawals, if pre observable affect	sent, may have an on both flow and	flow and cause little to no habitat or biota.			

Notes: No withdrawls or structures preent but stream channel 100% impacted by alterations.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.74



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Project # Applicant		Date
	TxDOT		6/29/2018
Evaluators	Evaluators		
Arron Tuggle, Sal	ly Clark	12070104.00	SH 36

Stream Name	Transect ID	Condition Index (RCI)	
Water 6	1	1.58	
Water 6	2	1.40	
Water 6	3	1.74	
	CT		

Average RCI 1.573
Impact Factor 2.00
Linear Feet of Impact 234.00
Compenesation Requirement 91

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 3/20/2020 Upstream Third 12070104 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark **Water 6 Post Construction** 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25-50% of the Transect. Transect floodplain. 5 Score 1.0 Notes: Channel will be straightened and bridged with full impact. While it will recover, it is anticipated to function similar to the existing Transect 2, where SH 36 is now. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Buffer will continue to be dominated by row agricultural, urban landscape, and maintained right of way 100% 50% 50% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 50% 50% 100% Rt Bank CI > Left Bank Score > 1 2 Lt Bank CI > 1.50 1.50 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

	St	ream Impa	ct Assessn	nent Fo	rm Page	2	
Project #	Applicant		cality Cowardin Class.	нис	Date	Transect #	Transect Description
	TXDOT	SF	I 36 Intermittent	12070104	06/28/2018	1	upstream
4. CHANNE ivestock	L ALTERATION: Stream crossi	ings, riprap, concrete, gab	ions, or concrete blocks, s	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Suboptimal	Mar	Marginal Poor			Severe
Channel	Channelization, dredging, alteration or hardening absent. Stream has	levees, culverts, riprap, bul	the Transect is ig, dams, dikes, rap, bulkheads, es or withdrawal of past alterant est terceovered. Seent, have no withdrawals, if present, may withdrawals, withdrawals, wi		impacted by dred levees, culverts,		Between 90-100% of the Transect is impacted by dredging, dams, dikes,
Alteration	unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	armor, drop structures or wi structures. Evidence of past may be present, but stream and stability have recove Withdrawals, if present, hi observable affect on fi	attraction a pattern ered. ave no cover a latteration and stability are b Withdrawals, if problems observable affe	ce of past alteration but stream pattern eginning to recover. esent, may have an ect on flow, but no	is present, and st stability are n Withdrawals, if pre observable affect	cures or withdrawal co of past alteration tream pattern and ot recovering. esent, may have an t on both flow and or biota.	levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biola.

Notes: Portions of transect 1 will be bridged/culverted.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.38



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 3/20/2020 Middle at crossing Thrid 12070104 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark **Water 6 Post Construction** 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 2 Score 1.0 Notes: The location of the crossing (bridge/culvert) will change slightly but remain within Transect 2. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row eater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer existing pavement and maintained ROW 100% 50% 50% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 50% 50% 100% Rt Bank CI > Left Bank Score > 1 2 Lt Bank CI > 1.50 1.50 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Project #		# Applicant Locality (Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	2	at crossing	
. CHANNEL	L ALTERATION: Stream crossi	ings, riprap, conc	rete, gabions, or	concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Subo	ptimal	Marg	ginal	Po	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern		Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no improved the control of the transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, may have an observable affect on flow, but he control of the transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an observable affect on flow, but he control of the transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an observable affect on flow, but he control of the transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an observable affect on flow, but he control of the transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	AV		
SCORE	5		4	3	3		2	1	2.0
lotes: Major	rity of transect impacted b	y proposed c	ulverts						

ISERT PHOTOS:

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order **TXDOT** 3/20/2020 Downstream of crossing Third 12070104 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 6 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. 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While it will recover, it is anticipated to function similar to the existing Transect 2, where SH 36 is now. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. 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No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of buffer dominated by maintained grasses and pavement 100% 50% 50% % Riparian Area> Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 50% 50% 100% Rt Bank CI > Left Bank Score > 2 1 Lt Bank CI > 1.50 1.50 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description			
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	Downstream			
4. CHANNEL livestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, o	concrete blocks, s	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,			
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe			
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes levees, culverts, riprap, bulkheads armor, drop structures or withdraws structures. Evidence of past alteratir may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Eviden may be present, and stability are be Withdrawals, if pre observable affer	may be present, but stream pattern and stability are beginning to recover.		of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. ssent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.			
SCORE	5	4	1 :	3	1	2	1 1			

Notes: Portions of transect 3 will be bridged/culverted.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.38



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Project # Applicant		Date
	TxDOT		3/20/2020
Evaluators	Evaluators		
Arron Tuggle, Sal	ly Clark	12070104	SH 36

Stream Name	Transect ID	Condition Index (RCI)	
Water 6 Post	1	1.38	
Water 6 Post	2	1.38	
Water 6 Post	3	1.38	
	CT		

Average RCI 1.380
Impact Factor 2.00
Linear Feet of Impact 234.00
Compenesation Requirement 91

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 Upstream Fourth Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 7 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chann and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of buffer maintaiend ROW with small grouping of native trees and brush. 100% 60% 20% 20% % Riparian Area> Right Bank 2 3 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 80% 20% 100% Rt Bank CI > Left Bank Score > 1 2 Lt Bank CI > 1.20 1.60 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description			
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	1	Upstream			
4. CHANNEI ivestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or o	concrete blocks, st	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,			
	Optimal	Suboptimal	Mar	ginal	Poor		Severe			
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred- levees, culverts, armor, drop struct structures. Evidend may be present, I and stability are be Withdrawals, if pre observable affed	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	tures or withdrawal to e of past alteration tream pattern and ot recovering. esent, may have an t on both flow and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.			
SCORE	5	4		3		2	4			

Notes: Some riprap present around old rail crossing. Channel does not appear to be recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.90



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 Middle at Crossing Fourth 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 7 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. iprap are present along 50-80% of the Transect. not have access to an active CV floodplain. 4 2 Score 5 1.0 Notes: Majority of crossing within culvert 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 4 3 2 Scores Notes: Crossing includes areas of maintained ROW, existing pavement, and a small wooded area of mixed vegetation. 100% 60% 35% % Riparian Area> 5% Right Bank 2 1 3 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 70% 25% 5% 100% Rt Bank CI > 1.70 Left Bank Score > 2 1 3 Lt Bank CI > 1.80 1.75 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

. CHANNEL	TXDOT			Cowardin Class.	HUC	Date	Transect #	Transect Description	
		TXDOT SH 36			12070104	06/28/2018	2	middle	
	. ALTERATION: Stream crossi	ngs, riprap, concr	rete, gabions, or	concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Subo	ptimal	Marg	ginal	Po	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered.		impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no			ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and iot recovering. seent, may have an t on both flow and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawalis, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	AV
SCORE	5	4	4	3	3		2	1	2.0
otes: Majori	ity of the transect within b		NDEY and (STREAM CON	IDITION IIN	ITS FOR TU	IC DEACH		

ISERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 Upstream of crossing Fourth 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 7 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chann and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. iprap are present along 50-80% of the Transect. not have access to an active CV floodplain. Score 5 2.0 Notes: Channel over-widened with no flood plain or benches. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 4 3 2 Scores Notes: Majority of buffer dominated by maintained grasses, with urban development and a small area of native brush present. 100% 90% 10% % Riparian Area> Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 80% 15% 100% Rt Bank CI > Left Bank Score > 2 1 3 Lt Bank CI > 1.90 1.90 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Impact A	ssessm	ent Fo	rm Page	2	
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT SH 36		Intermittent	12070104	06/28/2018	3	Downstream
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	Between 30-60% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an observable affect on flow, but no observable affect on habitat or biota.		Between 60-90% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawals, if present, may have an observable affect on both flow and habitat or biota.		Between 90-100% of the Transect is impacted by dredging, dams, dilkes, levees, culverts, firpap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	5	4		3		2	I 4

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.98



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
	TxDOT		6/29/2018
Evaluators	3	HUC	Locality
Arron Tuggle, Sal	ly Clark	12070104.00	SH 36

Stream Name	Transect ID	Condition Index (RCI)	
Water 7	1	1.90	
Water 7	2	1.69	
Water 7	3	1.98	
	CT		

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.857

2.00
293.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 3/20/2020 Upstream Fourth Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 7 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect. floodplain. 2 Score 5 2.0 Notes: Construction is not planned for upstream of the existign SH 36. Transect 1 condition should remain stable. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of buffer maintaiend ROW with small grouping of native trees and brush. 100% 60% 20% 20% % Riparian Area> Right Bank 2 3 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 80% 20% 100% Rt Bank CI > 2.00 Left Bank Score > 1 2 Lt Bank CI > 1.20 1.60 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Impa	act A	ssessm	ent Fo	rm Page	2	
Project #	Applicant	L	Locality	Cowardin Class.	HUC	Date Transect #		Transect Description
	TXDOT SH 36		SH 36	Intermittent	12070104	06/28/2018	1	Upstream
I. CHANNE vestock	L ALTERATION: Stream cross	ings, riprap, concrete, g	abions, or co	oncrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Suboptima	al	Marginal Poor		or	Severe	
	Channelization, dredging, alteration or	Less than 30% of the T impacted by dredging, day		Between 30-60% of the Transect is impacted by dredging, dams, dikes, levees, culverts, njrap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an observable affect on flow, but no observable affect on habitat or biota.		Between 60-90% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawals, if present, may have an observable affect on both flow and habitat or biota.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
Channel Alteration	hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	levees, culverts, riprap, armor, drop structures or structures. Evidence of pa may be present, but stre and stability have rec Withdrawals, if present observable affect or	bulkheads, r withdrawal ast alteration cam pattern covered. t, have no	armor, drop structures. Evidence may be present, be and stability are be Withdrawals, if pre observable affectives.	ures or withdrawal te of past alteration but stream pattern ginning to recover. sent, may have an to on flow, but no	levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre observable affect	tures or withdrawal to e of past alteration tream pattern and ot recovering. esent, may have an t on both flow and	levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or

Notes: Additional alteration and structure not planned for Transect 1

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.90





Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 3/20/2020 Middle at Crossing Fourth 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 7 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. 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Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 2 Score 5 1.0 Notes: Majority of crossing within existing culvert and will remain in similar condition post construction. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row eater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage No maintenance other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Post construction vegetation will be maintained ROW with additional pavement present 100% 65% 35% % Riparian Area> Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 75% 25% 100% Rt Bank CI > 1.65 Left Bank Score > 2 1 Lt Bank CI > 1.75 1.70 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

			Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	2	middle	
. CHANNEL	_ ALTERATION: Stream crossi	ngs, riprap, conci	rete, gabions, or	concrete blocks, str	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Subo	ptimal	Marg	ginal	Po	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, l and stability ha	but stream pattern ave recovered. present, have no	Between 30-60% impacted by dredg levees, culverts, r armor, drop structus structures. Evidence may be present, b and stability are bey Withdrawals, if predobservable affect observable affect	ging, dams, dikes, iprap, bulkheads, ures or withdrawal e of past alteration ut stream pattern ginning to recover. sent, may have an t on flow, but no	impacted by dred levees, culverts, armor, drop structures. Eviden is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and to recovering. seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	AV
SCORE	5		4	3	3		2	1	2.0
otes: Major	rity of the transect within b	oox culvert ONDITION I							

SERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order **TXDOT** 12070104 3/20/2020 Downstream of crossing Fourth 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 7 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25-50% of the Transect. Transect floodplain. 5 Score 1.0 Notes: Additional lane and bridge will be placed in this transect. Post construction stream condition will be similar to the existing transect 2. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of buffer dominated by maintained grasses and pavement. 100% 50% 50% % Riparian Area> Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 50% 50% 100% Rt Bank CI > Left Bank Score > 2 1 Lt Bank CI > 1.50 1.50 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Impa	ct As	ssessm	ent Fo	rm Page	2	
Project #	Applicant	Lo	ocality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	s	SH 36	Intermittent	12070104	06/28/2018	3	Downstream
4. CHANNEI	L ALTERATION: Stream cross	ings, riprap, concrete, gal	bions, or co	oncrete blocks, st	raightening of cha	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Suboptimal		Març	ginal	Po	or	Severe
	Channelization, dredging, alteration or hardening absent. Stream has	Less than 30% of the Tra impacted by dredging, dar	ms, dikes,	Between 30-60% impacted by dredglevees, culverts, r		impacted by dred	of the Transect is ging, dams, dikes,	Between 90-100% of the Transect is impacted by dredging, dams, dikes,
Channel Alteration	naturaling auseint, Subrain has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	levees, culverts, riprap, bi armor, drop structures or v structures. Evidence of pas may be present, but strean and stability have reco Withdrawals, if present, observable affect on	withdrawal st alteration m pattern evered. have no	armor, drop structi structures. Evidence may be present, be and stability are be Withdrawals, if pre	ures or withdrawal te of past alteration but stream pattern ginning to recover. sent, may have an at on flow, but no	structures. Evidend is present, and st stability are n Withdrawals, if pre	tures or withdrawal ce of past alteration tream pattern and ot recovering. esent, may have an t on both flow and	levees, culverts, fiprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.

Notes:Transect will contain new lanes and bridge/culvert

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.38

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
	TxDOT		6/29/2018
Evaluator	s	HUC	Locality
Arron Tuggle, Sa	lly Clark	12070104	SH 36

Stream Name	Transect ID	Condition Index (RCI)	
Water 7	1	1.90	
Water 7	2	1.68	
Water 7	3	1.38	
A T	CI		

Average RCI 1.653
Impact Factor 2.00
Linear Feet of Impact 293.00
Compenesation Requirement 120

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 Upstream Third Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 8 (Fairchilds Creek) 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 2.0 Notes: Channelized: over widened. No bankfull benches or active floodplain. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 4 3 2 Scores Notes: Majority of buffer dominated by maintained grasses with smaller areas of native woodland present in the secondary area of both banks 95% 100% % Riparian Area> 5% Right Bank 2 3 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 2.05 Left Bank Score > 2 3 Lt Bank CI > 2.05 2.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

	St	ream Imp	act A	ssessm	ent Fo	rm Page	2	
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT		SH 36	Intermittent 12070104		06/28/2018	1	Upstream
4. CHANNE ivestock	L ALTERATION: Stream cross							
	Optimal	Suboptim	nal	Març	ginal	Po	or	Severe
	Channelization, dredging, alteration or hardening absent. Stream has	Less than 30% of the impacted by dredging, levees, culverts, riprap	dams, dikes,	impacted by dredg levees, culverts, r		impacted by dred	of the Transect is ging, dams, dikes, riprap, bulkheads,	Between 90-100% of the Transect is impacted by dredging, dams, dikes,
Channel Alteration	unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	armor, drop structures of structures. Evidence of pray be present, but structures and stability have re Withdrawals, if present observable affects	or withdrawal past alteration tream pattern ecovered. ent, have no	structures. Evidence may be present, be and stability are be Withdrawals, if pre	out stream pattern ginning to recover. sent, may have an et on flow, but no	is present, and so stability are n Withdrawals, if pre	ce of past alteration ream pattern and ot recovering. esent, may have an e on both flow and	levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.

Notes: Riprap and structure present from old rail. Stream does not appear to be recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.76



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 Middle at crossing Third 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 8 (Fairchilds Creek) 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. iprap are present along 50-80% of the Transect. not have access to an active CV floodplain. 4 2 Score 5 1.0 Notes: Majority of transect within box culvert 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of the buffer existing pavement and culvert with maintained ROW also present 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 1 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	2	middle	
. CHANNEI vestock	L ALTERATION: Stream crossi	ings, riprap, conc	rete, gabions, or	concrete blocks, str	aightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Subo	ptimal	Marg	inal	P	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by drec levees, culverts, armor, drop struc structures. Eviden may be present, and stability h Withdrawals, if	of the Transect is lging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteratior but stream pattern lave recovered. present, have no affect on flow.	Between 30-60% of impacted by dredg levees, culverts, ri armor, drop structus structures. Evidence may be present, bi and stability are beg Withdrawals, if presobservable affect observable affect of servable affect of serv	ing, dams, dikes, prap, bulkheads, res or withdrawal e of past alteration at stream pattern jinning to recover. eent, may have an on flow, but no	impacted by drec levees, culverts, armor, drop struc structures. Eviden is present, and s stability are r Withdrawals, if pr observable affec	of the Transect is iging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and to recovering. seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	AV
SCORE	5		4	3			2	1	1.00
Notes: More	than 90% of channel at thi	is transect w	ithin culvert						
	REACH C	ONDITION	NDEX and S	STREAM CON	DITION UN	ITS FOR TH	IS REACH		

ISERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order **TXDOT** 12070104 6/28/2018 Downstream of crossing Third 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 8 (Fairchilds Creek) 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 2.0 Notes: Channel over-widending, erosional scars present. No active floodplain, small benches present. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of buffer consists of maintained ROW 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 90% 10% 100% Rt Bank CI > 2.00 Left Bank Score > 2 1 Lt Bank CI > 1.90 1.95 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

	St	ream Impac	Assessm	nent Fo	rm Page	2	
Project #	Applicant	Locali	y Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDPT	SH 36	intermittent	12070104	06/28/20118	3	Downstream of SH 36
4. CHANNEL livestock	ALTERATION: Stream cross	ngs, riprap, concrete, gabion	s, or concrete blocks, s	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transe impacted by dredging, dams, of levees, culverts, riprap, bulkh armor, drop structures or withd structures. Evidence of past alte may be present, but stream pe and stability have recovere Withdrawals, if present, have observable affect on flow	impacted by dred levees, culverts, armor, drop structuren and stability are be Withdrawals, if pre observable affer	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Eviden- is present, and s stability are n Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	5	4		3		2	1

Notes: Stream not recovering from previous alterations. Rip rap present along both banks, extending further on the right bank.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.74

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

TXDOT Third

Project #	Applicant		Date
	TxDOT		6/29/2018
Evaluator	s	HUC	Locality
Arron Tuggle, Sa	lly Clark	12070104.00	SH 36

Transect ID	Condition Index (RCI)	
1	1.76	
2	1.26	
3	1.74	
	1 2	Transect ID (RCI) 1 1.76 2 1.26

Average RCI 1.587
Impact Factor 2.00
Linear Feet of Impact 240.00
Compenesation Requirement 98

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 6/28/2018 Upstream Third 12070104 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 8 (Fairchilds Creek) Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect. floodplain. 2 Score 5 2.0 Notes: Construction is not planned for upstream of the existing SH 36. Transect 1 condition should remain stable. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 4 3 2 Scores Notes: Majority of buffer dominated by maintained grasses with smaller areas of native woodland present in the secondary area of both banks 95% 100% % Riparian Area> 5% Right Bank 2 3 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 2.05 Left Bank Score > 2 3 Lt Bank CI > 2.05 2.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2	
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	·	SH 36	Intermittent	12070104	06/28/2018	1	Upstream
4. CHANNEI ivestock				concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Severe
		1		Marginal Between 30-60% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration		ginal Poor of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal are of past alteration but stream pattern ginning to recover.		
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, I and stability h Withdrawals, if	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration but stream pattern ave recovered. present, have no offect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidenc may be present, I and stability are be Withdrawals, if pre	ging, dams, dikes, riprap, bulkheads, ures or withdrawal the of past alteration but stream pattern signning to recover. sent, may have an the or flow, but no	impacted by dred levees, culverts, armor, drop struc structures. Eviden is present, and s stability are r Withdrawals, if pro observable affec	ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and not recovering.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.76



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 6/28/2018 Middle at crossing Third 12070104 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 8 (Fairchilds Creek) Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect. floodplain. 2 Score 5 1.0 Notes: Majority of crossing within existing culvert and will remain in similar condition post construction. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row eater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage No maintenance other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 4 3 Scores Notes: Majority of the buffer existing pavement and culvery with maintained ROW also present. Should remain consisten (Poor) post construction 95% 100% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	2	middle	
. CHANNE	L ALTERATION: Stream cross	ings, riprap, conc	rete, gabions, or	concrete blocks, str	aightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Subo	ptimal	Marg	jinal	P	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by drec levees, culverts, armor, drop struc structures. Eviden may be present, and stability h Withdrawals, if	of the Transect is lging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteratio but stream pattern ave recovered. present, have no affect on flow.	Between 30-60% of impacted by dredg levees, culverts, if armor, drop structus structures. Evidence may be present, bi and stability are beg Withdrawals, if presobservable affect observable affect of servable affect of serv	ing, dams, dikes, prap, bulkheads, ures or withdrawal e of past alteration ut stream pattern ginning to recover. sent, may have an ton flow, but no	impacted by drec levees, culverts, armor, drop struc structures. Eviden is present, and s stability are r Withdrawals, if pr observable affec	of the Transect is jqing, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and tot recovering. seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	AV
SCORE	5		4	3	1		2	1	1.0
lotes: More	than 90% of channel at th	is transect w	ithin culvert						
	DEACH	CNIDITION	NDEV and	STREAM CON	IDITION LIN	ITC EOD TU	IS BEACH		
	REACH C		NDEY and	STREAM CON	אט אטוווטו	II S FOR IN	13 KEACH		

ISERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order **TXDOT** 3/20/2020 Downstream of crossing Third 12070104 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 8 (Fairchilds Creek) Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25-50% of the Transect. Transect floodplain. 5 Score 1.0 Notes: Additional lane and bridge will be placed in this transect. Post construction stream condition will be similar to the existing transect 2. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of buffer consists of maintained ROW. Additional pavement anticipated 100% 50% % Riparian Area> 50% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 50% 50% 100% Rt Bank CI > Left Bank Score > 2 1 Lt Bank CI > 1.50 1.50 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

	St	ream Impact A	ssessm	ent Fo	rm Page	2	
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 36	Intermittent	12070104	03/20/2020	3	Downstream
4. CHANNE ivestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or	concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no	impacted by dred levees, culverts, armor, drop struct structures. Evidenc may be present, I and stability are be Withdrawals, if pre	out stream pattern ginning to recover.	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal se of past alteration ream pattern and ot recovering. sent, may have an	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
	within the Transect.	observable affect on flow.	observable affect		habitat		

Notes: Additional lane and bridge will be placed in this transect.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.13

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

TXDOT Third

Project #	Applicant		Date
	TxDOT		3/20/2020
Evaluators	3	HUC	Locality
Arron Tuggle, Sal	ly Clark	12070104	SH 36

Stream Name	Transect ID	Condition Index (RCI)	
Water 8 Post	1	1.76	
Water 8 Post	2	1.26	
Water 8 Post	3	1.13	
	•	_	

Average RCI 1.383
Impact Factor 2.00
Linear Feet of Impact 240.00
Compenesation Requirement 98

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 Upstream of crossing Third Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 9 (Buffalo Creek) 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: The buffer consists of grazed pasture 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes:

	St	ream Impact A	ssessm	ent Fo	rm Page	2		
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	1	Upstream	
4. CHANNEL livestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or	concrete blocks, s	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, I and stability are be Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, rures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	riprap, bulkheads, ures or withdrawal be of past alteration ream pattern and ot recovering. sent, may have an on both flow and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, fpresent, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4	;	3	:	2	1	

Notes: Channel has been straightened and not allowed to recover.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.75

INSERT PHOTOS:



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 Middle at crossing Third 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 9 (Buffalo Creek) 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage No maintenance other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of transect existing pavement and maintained ROW 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 1 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
4. CHANNEI	L ALTERATION: Stream crossi	ings, riprap, conci	rete, gabions, or o	concrete blocks, st	raightening of ch	annel, channeliza	ition, embankmen	ts, spoil piles, constrictions,	
	Optimal	Subo	ptimal	Marg	ginal	P	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, l and stability h Withdrawals, if	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal ee of past alteration but stream pattern ave recovered. present, have no affect on flow.	Between 30-60% impacted by dred, levees, culverts, armor, drop struct structures. Evidenc may be present, t and stability are be Withdrawals, if pre observable affect observable affect.	ging, dams, dikes, riprap, bulkheads, ures or withdrawal se of past alteration but stream pattern ginning to recover. sent, may have an st on flow, but no	impacted by drec levees, culverts, armor, drop struc structures. Eviden is present, and s stability are I Withdrawals, if pr observable affec	of the Transect is dging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration stream pattern and not recovering. essent, may have an ct on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	A۱
SCORE	5		4	:	3		2	1	1.0
Notes: Majoi	rity of transect within box		NDEX and S	TREAM COM	NDITION UN	ITS FOR TH	IS REACH		
	1,2,1011.0							CONDITION INDEX (CI) >>	4.0
							Inc	CONDITION INDEX (CI) >>	1.0

NSERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order **TXDOT** 12070104 6/28/2018 Downstream of crossing Third 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 9 (Buffalo Creek) 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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No active floodplain. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 4 3 2 Scores Notes: Right bank dominated by maintained grasses and parking lot. Left bank mostly maintained with strip of native trees and brush along fenceline. 55% 45% 100% % Riparian Area> Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 70% 30% 100% Rt Bank CI > 1.55 Left Bank Score > 2 3 Lt Bank CI > 2.30 1.93 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Impact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	Downstream of crossing	
4. CHANNEL livestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or	concrete blocks, s	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Suboptimal	Mar	ginal	Po	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawa structures. Evidence of past alteratio may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, l and stability are be Withdrawals, if pre observable affer	of the Transect is ging, dams, dikes, riprap, bulkheads, rures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Eviden- is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and to trecovering, seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4	;	3		2	1	

Notes: Stream with enough room in modified channel to recover. No structure present.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.48



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
	TxDOT		6/29/2018
Evaluators	3	HUC	Locality
Arron Tuggle, Sal	ly Clark	12070104.00	SH 36

Stream Name	Transect ID	Condition Index (RCI)	
Water 9	1	1.75	
Water 9	2	1.01	
Water 9	3	2.48	

Average RCI 1.747
Impact Factor 2.00
Linear Feet of Impact 125.00
Compenesation Requirement 1

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 3/20/2020 Upstream of crossing Third Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 9 (Buffalo Creek) Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row eater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Buffer impacts are not anticipated and the buffer should remain consistent. 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes:

	St	ream Impact A	ssessm	ent Fo	rm Page	2		
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	3/20/2020	1	Upstream	
4. CHANNEL livestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or o	concrete blocks, st	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidenc may be present, I and stability are be Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, rures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal ce of past alteration tream pattern and ot recovering. seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, fpresent, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4	;	3	:	2	1	

Notes: No alterations are planned for this transect.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.75

INSERT PHOTOS:



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 3/20/2020 Middle at crossing Third 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 9 (Buffalo Creek) Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Additional buffer is likely to be converted to culvert and/or riprap 100% 100% % Riparian Area> Right Bank 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 1.00 Left Bank Score > 1 Lt Bank CI > 1.00 1.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT		SH 36	Intermittent	12070104	3/20/2020	2	at SH 36 crossing	
. CHANNEL	L ALTERATION: Stream crossi	ings, riprap, conc	rete, gabions, or	concrete blocks, stra	aightening of ch	annel, channeliza	ition, embankmen	ts, spoil piles, constrictions,	
0010011	Optimal	Subo	ptimal	Marg	inal	P	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by dred levees, culverts, armor, drop struc structures. Eviden may be present, and stability h Withdrawals, if	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration but stream pattern ave recovered. present, have no iffect on flow.	Between 30-60% of impacted by dredgi levees, culverts, rij armor, drop structu structures. Evidence may be present, bu and stability are beg Withdrawals, if pres observable affect observable affect of	ng, dams, dikes, orap, bulkheads, res or withdrawal of past alteration at stream pattern inning to recover. ent, may have an on flow, but no	impacted by drec levees, culverts, armor, drop struc structures. Eviden is present, and s stability are I Withdrawals, if pr observable affec	to of the Transect is gligng, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and not recovering. esent, may have an ct on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, firpap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	AV
SCORE	5		4	3			2	1	1.00
lotes: Major	rity of transect within box	culvert							

ISERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order **TXDOT** 12070104 3/20/2020 Downstream of crossing Third 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 9 (Buffalo Creek) Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. iprap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 3.0 Notes: No construction impacts are anticipated at this transect. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Impacts to the buffer are not anticipated in this transect. 100% 55% 45% % Riparian Area> Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 70% 30% 100% Rt Bank CI > 1.55 Left Bank Score > 2 3 Lt Bank CI > 2.30 1.93 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Im	pact A	ssessm	ent Fo	rm Page	e 2	
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT		SH 36	Intermittent	12070104	3/20/2020	3	Downstream of crossing
4. CHANNE ivestock	L ALTERATION: Stream cross	ings, riprap, concre	ete, gabions, or o	concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Subop	timal	Marg	ginal	Po	oor	Severe
	Channelization, dredging, alteration or	Less than 30% of		Between 30-60% impacted by dred	of the Transect is		of the Transect is	
Channel Alteration	hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	levees, culverts, rig armor, drop structur structures. Evidence may be present, bu and stability hav Withdrawals, if pr observable aff	res or withdrawal e of past alteration at stream pattern re recovered. resent, have no	levees, culverts, i armor, drop struct structures. Evidenc may be present, t and stability are be Withdrawals, if pre	iprap, bulkheads, ures or withdrawal se of past alteration but stream pattern ginning to recover. sent, may have an st on flow, but no	levees, culverts, armor, drop structures. Eviden is present, and s' stability are n' Withdrawals, if pre observable affec	ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and iot recovering. seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.

Notes: No alterations are planned for this transect.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.48



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
	TxDOT		3/20/2020
Evaluators	3	HUC	Locality
Arron Tuggle, Sal	ly Clark	12070104	SH 36

Stream Name	Transect ID	Condition Index (RCI)	
Water 9 Post	1	1.75	
Water 9 Post	2	1.00	
Water 9 Post	3	2.48	

Average RCI 1.743
Impact Factor 2.00
Linear Feet of Impact 125.00
Compenesation Requirement 1

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 Upstream Third Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 10 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chann and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. Score 5 2.0 Notes: Channel overwidened with excess sediment and vegetation creep. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row eater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 4 3 Scores Notes: Majority of buffer dominated by maintained grasses with small area of native brush along right bank and urban development along left bank. 85% 15% 100% % Riparian Area> Right Bank 2 3 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 85% 15% 100% Rt Bank CI > 2.15 Left Bank Score > 2 1 Lt Bank CI > 1.85 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

	St	ream Impact A	ssessm	ent Fo	rm Page	2			
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description		
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	1	Upstream of crossing		
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock									
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe		
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	Between 30-60% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an observable affect on flow, but no observable affect on flow, but no		Between 60-90% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawals, if present, may have an observable affect on both flow and habitat or biota.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.		
			3			2			

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.75





Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 12070104 6/28/2018 Middle at road crossing Third 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 10 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. iprap are present along 50-80% of the Transect. not have access to an active CV floodplain. 4 2 Score 5 1.0 Notes: Majority of transect within box culvert 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Majority of buffer existing pavement with small area of maintained ROW grasses 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 1 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	2	Middle	
. CHANNEL	L ALTERATION: Stream crossi	ngs, riprap, conc	ete, gabions, or	concrete blocks, stra	aightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Suboptimal		Marg	inal	Po	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levese, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by dred levees, culverts, armor, drop struc structures. Eviden may be present, and stability h Withdrawals, if	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration but stream pattern ave recovered. present, have no ffect on flow.	impacted by dredgi levees, culverts, rij armor, drop structu structures. Evidence may be present, bu and stability are beg Withdrawals, if pres observable affect	structures. Evidence of past alteration smay be present, but stream pattern and stability are beginning to recover.		of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration tream pattern and to recovering, seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, firpap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	AV
SCORE	5		4	3			2	1	1.00
lotes: Major	rity of transect within box	culvert							

ISERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order **TXDOT** 12070104 6/28/2018 Downstream of crossing Third 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 10 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chann and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 4 3 2 Scores Notes: Majority of both banks dominated by maintained grasses with an area of native woods along the right bank 100% 60% 40% % Riparian Area> Right Bank 2 3 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 2.40 Left Bank Score > 2 Lt Bank CI > 2.00 2.20 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

	Stream Impact Assessment Form Page 2						
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	downstream
4. CHANNEI livestock	L ALTERATION: Stream cross	n crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions,					
	Optimal	Suboptimal	Mar	Marginal		or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteratio may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, l and stability are be Withdrawals, if pre observable affer	of the Transect is Iging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration but stream pattern eginning to recover. ssent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Evident is present, and se stability are no Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. ssent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
	5	4	1 .	2		2	

Notes: Minimal structure present but stream has not recovered from past alterations.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.80

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
	TxDOT		6/29/2018
Evaluators	3	HUC	Locality
Arron Tuggle, Sal	ly Clark		

Stream Name	Transect ID	Condition Index (RCI)	
Water 10	1	1.75	
Water 10	2	1.01	
Water 10	3	1.80	
Average R	CI	1.520	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.520

2.00
150.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 3/20/2020 Upstream Third 12070104 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 10 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 2.0 Notes: Construction impacts are not anticipated upstream of the SH 36 crossing. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer impacts are not anticipated and the buffer should remain consistent. 100% 85% 15% % Riparian Area> Right Bank 2 3 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 85% 15% 100% Rt Bank CI > 2.15 Left Bank Score > 2 1 Lt Bank CI > 1.85 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

	Stream Impact Assessment Form Page 2								
Project #	Applicant	Localit	y Cowardin Class.	HUC	Date	Transect #	Transect Description		
	TXDOT	SH 36	Intermittent	12070104	3/20/2020 1		Upstream of crossing		
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock									
	Optimal	Suboptimal	Marginal		Poor		Severe		
Channel	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized.	levees, culverts, riprap, bulkhe	impacted by dred levees, culverts,	Between 30-60% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration smay be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an observable affect on flow, but no		Between 30-60% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an observable affect on flow, but no		of the Transect is ging, dams, dikes, riprap, bulkheads,	Between 90-100% of the Transect is impacted by dredging, dams, dikes,
Alteration	No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	armor, drop structures or withdi structures. Evidence of past alte may be present, but stream pa and stability have recovered Withdrawals, if present, have observable affect on flow.	awai ration ttern and stability are be Withdrawals, if pre	ce of past alteration but stream pattern eginning to recover. esent, may have an ct on flow, but no	is present, and so stability are n Withdrawals, if pre observable affec	cures or withdrawal co of past alteration tream pattern and ot recovering. esent, may have an t on both flow and or biota.	levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.		

Notes: No alterations are planned for this transect

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.75



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order **TXDOT** 3/20/2020 Middle at road crossing Third 12070104 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 10 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage No maintenance other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Additional buffer to be converted to pavement and riprap 100% 100% % Riparian Area> Right Bank 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 1.00 Left Bank Score > 1 Lt Bank CI > 1.00 1.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

. CHANNEL	TXDOT				HUC	Date	Transect #	Transect Description	
			SH 36	Intermittent	12070104	3/20/2020	2	Middle	
	ALTERATION: Stream crossi	ngs, riprap, conci	rete, gabions, or	concrete blocks, str	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Suboptimal		Marg	jinal	Po	oor	Severe	
Channal	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, l and stability ha	but stream pattern ave recovered. present, have no	impacted by dredg levees, culverts, r armor, drop structu structures. Evidenc may be present, b and stability are be Withdrawals, if pre- observable affec	structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover.		of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and to recovering, essent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	AV
SCORE	5		4	3	3		2	1	1.0
lotes: Majorii	ity of transect within box	culvert							

INSERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order **TXDOT** 3/20/2020 Downstream of crossing Third 12070104 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 10 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row eater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: No construction impacts are anticipated at this transect. 100% 60% 40% % Riparian Area> Right Bank 2 3 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 2.40 Left Bank Score > 2 Lt Bank CI > 2.00 2.20 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

	Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description		
	TXDOT	SH 36	Intermittent	12070104	3/20/2020 3		downstream		
4. CHANNE livestock	CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, estock								
	Optimal	Suboptimal	Marginal		Marginal		Poor		Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidenc may be present, I and stability are be Withdrawals, if pre	tures or withdrawal to e of past alteration but stream pattern eginning to recover. esent, may have an ot on flow, but no	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	riprap, bulkheads, ures or withdrawal be of past alteration ream pattern and ot recovering. usent, may have an on both flow and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.		

Notes: No alterations projected for this transect.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.80

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
	TxDOT		3/20/2020
Evaluator	s	HUC	Locality
Arron Tuggle, Sa	lly Clark	12070104	SH 36

Stream Name	Transect ID	Condition Index (RCI)	
Water 10 Post	1	1.75	
Water 10 Post	2	1.00	
Water 10 Post	3	1.80	
A T	CI	1.515	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.517

2.00
150.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 6/28/2018 Upstream of crossing Fourth 12070401 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 11 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. 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	Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description		
	TXDOT	SH 36	Ephemeral	12070104	06/28/2018	1	upstream		
4. CHANNE livestock	. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, restock								
	Optimal	Suboptimal	Marginal		Marginal		Poor		Severe
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	within the Transect.	observable affect on flow.	observable affect	on habitat or biota.	habitat	or biota.			

Notes Minimla structure but stream has not recovered from previous alteration

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.75

INSERT PHOTOS:



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 6/28/2018 Middle and crossing Fourth 12090401 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 11 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 4 2 Score 1.0 Majority of transect within box culvert 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Majority of transect within box culvert, small areas of maintained ROW present 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description			
	TXDOT	SH 36	Fourth	12070104	06/28/2018	2	middle			
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock										
	Optimal	Mar	ginal	Poor		Severe				
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Eviden may be present, I and stability are be Withdrawals, if pre observable affer	Between 30-60% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an observable affect on flow, but no observable affect on habitat or biota.		of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal as of past alteration ream pattern and ot recovering. ssent, may have an a on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.			
SCORE	5	4	;	3	:	2	1			

Notes: Majority of transect within box culvert

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.01



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 6/28/2018 Downstream Fourth 12090401 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 11 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer is grazed pasture 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 100% ΒV % Riparian Area> 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1.00 Score Notes

Stream Impact Assessment Form Page 2											
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description				
	TXDOT	SH 36	Ephemeral	12070104	06/28/2018	3	Downstream				
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock											
	Optimal	Mar	ginal	Poor		Severe					
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred- levees, culverts, armor, drop struct structures. Evidend may be present, I and stability are be Withdrawals, if pre observable affed	Between 30-60% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover.		of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal as of past alteration ream pattern and ot recovering. ssent, may have an a on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.				
	5	4	1	•		•					

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.75

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT		6/29/2018
Evaluators	S	HUC	Locality
Arron Tuggle, Sal	lly Clark	12070401	SH36

		Condition Index	
Stream Name	Transect ID	(RCI)	
Water 11	1	1.75	
Water 11	2	1.01	
Water 11	3	1.75	
A vious as T	CT	1.503	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.503

2.00

159.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 3/20/2020 Upstream of crossing Fourth 12070401 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Watr 11 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 2.0 Notes: Construction impacts are not anticipated upstream of the SH 36 crossing. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer impacts are not anticipated upstream of the SH 36 crossing. 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 100% ΒV % Riparian Area> 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description			
	TXDOT	SH 36	Ephemeral	12070104	3/20/2020	1	upstream			
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock										
	Optimal	Mar	ginal	Poor		Severe				
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteratio may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, I and stability are be Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration but stream pattern giginning to recover. seent, may have an but on flow, but no on habitat or biota.	is present, and stream pattern and stability are not recovering.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.			
SCORE	5	4	;	3	:	2	1	П		

Notes: Alterations impacts are not anticipated upstream of the SH 36 crossing.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.75

INSERT PHOTOS:



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 3/20/2020 Middle and crossing Fourth 12090401 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 11 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. 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Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

	St	ream Impa	ct As	sessm	ent Fo	rm Page	2				
Project #	Applicant	Lo	ocality	Cowardin Class.	HUC	Date	Transect #	Transect Description			
	TXDOT	s	SH 36	Fourth	12070104	3/20/2020	2	middle			
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock											
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Channel Alteration				Between 30-60% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover.		Between 60-90% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawals, if present, may have an observable affect on both flow and habitat or biota.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are			
			m pattern vered. have no	Withdrawals, if pre observable affect	sent, may have an t on flow, but no	Withdrawals, if pre observable affect	sent, may have an on both flow and	large enough to have severe loss of flow and cause little to no habitat or biota.			

Notes: Majority of transect within box culvert; will remain severe

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.00



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 3/20/2020 Downstream Fourth 12090401 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 11 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 2.0 Notes: No construction impacts are anticipated at this transect. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer impacts are not anticipated at this transect. 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 100% ΒV % Riparian Area> 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant	Locali	Cowardin Class.	нис	Date	Transect #	Transect Description			
	TXDOT	SH 3	Ephemeral Ephemeral	12070104	3/20/2020	3	Downstream			
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock										
	Optimal	Suboptimal	Mar	Marginal Poor		Severe				
	Channelization, dredging, alteration or		impacted by dred	may be present, but stream pattern and stability are beginning to recover.		of the Transect is ging, dams, dikes,	Between 90-100% of the Transect is			
Channel Alteration	hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	levees, culverts, riprap, bulkh armor, drop structures or with structures. Evidence of past alt may be present, but stream pi and stability have recovere Withdrawals, if present, have observable affect on flow	armor, drop structures. Evident may be present, and stability are be Withdrawals, if pre observable affer	ctures or withdrawal ace of past alteration but stream pattern eginning to recover. esent, may have an act on flow, but no	structures. Evidend is present, and so stability are no Withdrawals, if presented observable affects	riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. esent, may have an t on both flow and or biota.	impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habit			

Notes: Alterations are not planned at this transect.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >>

1.75





Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT		3/20/2020
Evaluators	3	HUC	Locality
Arron Tuggle, Sal	ly Clark	12070401	SH36

Stream Name	Transect ID	Condition Index (RCI)	
Water 11 Post	1	1.75	
Water 11 Post	2	1.00	
Water 11 Post	3	1.75	
A vious os T	CT	1.500	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.500

2.00
159.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 6/28/2018 Upstream Fourth 12070401 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 12 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. Score 5 2.0 Notes: Channel over widened. No floodplain or benches visible 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Majority of buffer maintained ROW and grazed pasture with urban development present. 100% 95% % Riparian Area> 5% Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > Left Bank Score > 2 1 Lt Bank CI > 1.95 1.95 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 2.00 Score Notes

	St	ream Imp	act A	ssessm	ent Fo	rm Page	2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description		
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	1	Upstream of crossing		
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock										
	Optimal	Suboptim	nal	Marg	ginal	Po	or	Severe		
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riorap, bulkheads, armor, drop	Optimal Suboptimal Less than 30% of the Transect is impacted by dredging, dams, dikead seves, culverts, riprap, bulkheads, armor, drop structures. Evidence of past alteratic riprap, bulkheads, armor, drop				Between 60-90% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawals, if present, may have an observable affect on both flow and habitat or biota.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of		
	structures or withdrawal structures		ent, have no	Withdrawals, if pre	t on flow, but no	Withdrawals, if pre observable affect	sent, may have an on both flow and	flow and cause little to no habitat or biota.		

Notes: Evidence of past alteration may be present, but stream pattern and stability are beginning to recover.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.24



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 6/28/2018 Mid at roadway crossing Fourth 12090401 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 12 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. iprap are present along 50-80% of the Transect. not have access to an active CV floodplain. 4 2 Score 5 1.0 Notes: Majority of transect within box culvert 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of buffer existing pavement/culvert with maintained ROW present 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 1 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description			
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	2	middle			
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock										
	Optimal	Mar	ginal	Poor		Severe				
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Eviden may be present, I and stability are be Withdrawals, if pre observable affer	Between 30-60% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an observable affect on flow, but no observable affect on flow, but no		of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal as of past alteration ream pattern and ot recovering. ssent, may have an a on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.			
SCORE	5	4		3		2	1			

Notes: Channel in this transect is within box culvert

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.26



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order State Highway 36 **TxDOT** 6/28/2018 Downstream of crossing Fourth 12090401 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 12 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 2.0 Notes: No active floodplain. Channel over widened with uniform sediment. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of buffer is row agriculture 100% 90% 10% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 10% ΒV % Riparian Area> 90% 100% Rt Bank CI > 1.10 Left Bank Score > 1 2 Lt Bank CI > 1.10 1.10 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 2.00 Score Notes

Stream Impact Assessment Form Page 2										
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description			
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	downstream			
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock										
	Optimal	Suboptimal	Marg	ginal	Po	or	Severe			
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, bul stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	Between 30-60% impacted by dred levees, culverts, i armor, drop struct structures. Evidenc may be present, t and stability are to Withdrawals, if pre observable affect observable affect	ging, dams, dikes, riprap, bulkheads, ures or withdrawal to of past alteration but stream pattern ginning to recover. sent, may have and on flow, but no	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre observable affect	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.			
SCORE	5	4	:	3		2	1			

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering. Riprap present along both banks.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.78



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT		6/29/2018
Evaluators	HUC	Locality	
Arron Tuggle, Sal	ly Clark	12070401	SH36

Stream Name	Transect ID	Condition Index (RCI)	
Water 12	1	2.24	
Water 12	2	1.26	
Water 12	3	1.78	

Average RCI 1.760
Impact Factor 2.00
Linear Feet of Impact 192.00
Compenesation Requirement 2

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 3/20/2020 Upstream Fourth 12070401 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 12 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 2.0 Notes: No construction impacts are anticipated at this transect. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: No buffer impacts are anticipated at this transect. 100% 95% % Riparian Area> 5% Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > Left Bank Score > 2 1 Lt Bank CI > 1.95 1.95 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Impa	act A	ssessm	ent Fo	rm Page	2	
Project #	Applicant	Le	ocality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT		SH 36	Intermittent	12070104	3/20/2020	1	Upstream of crossing
4. CHANNE ivestock	L ALTERATION: Stream cross	ings, riprap, concrete, ga	abions, or c	oncrete blocks, st	raightening of ch	annel, channeliza	tion, embankment	ts, spoil piles, constrictions,
	Optimal	Suboptimal	I	Març	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop	levees, culverts, riprap, b armor, drop structures or structures. Evidence of pas may be present, but strea	ams, dikes, bulkheads, withdrawal ast alteration am pattern	impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an V		Between 60-90% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawals, if present, may have an observable affect on both flow and habitat or biota.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
	structures or withdrawal structures within the Transect.	and stability have reco Withdrawals, if present, observable affect on	, have no	observable affect	t on flow, but no	observable affect	on both flow and	l

Notes: No alterations are anticipated at this transect.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.24



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 3/20/2020 Mid at roadway crossing Fourth 12090401 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 12 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. iprap are present along 50-80% of the Transect. not have access to an active CV floodplain. 2 Score 5 1.0 Notes: Majority of transect within box culvert; will remain severe 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage No maintenance other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Additional buffer impacts anticipated with roadway expansion 100% 100% % Riparian Area> Right Bank 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 1.00 Left Bank Score > 1 Lt Bank CI > 1.00 1.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Impact A	ssessm	ent Fo	rm Page	2	
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	2	middle
4. CHANNE ivestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or o	concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Suboptimal	Marg	ginal	Po	or	Severe
Channel	Channelization, dredging, alteration or hardening absent. Stream has	levees, culverts, riprap, bulkheads,	Between 30-60% impacted by dredg levees, culverts, r	ging, dams, dikes, iprap, bulkheads,	impacted by dred levees, culverts,	of the Transect is ging, dams, dikes, riprap, bulkheads,	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads,
Alteration	unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	structures. Evidence may be present, be and stability are be Withdrawals, if pre observable affect observable affect	out stream pattern ginning to recover. sent, may have an it on flow, but no	is present, and st stability are n Withdrawals, if pre	ce of past alteration ream pattern and ot recovering. esent, may have an e on both flow and	armor, drop stro, inpap, bulinieaus, armor, drop stro, brituctures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.

Notes: Channel in this transect iwill remain in box culvert; will remain Severe

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.25



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Transect Description Applicant** Date Transect # Stream Order State Highway 36 **TxDOT** 3/20/2020 Downstream of crossing Fourth 12090401 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 12 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 2.0 Notes: No construction impacts are anticipated at this transect. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: No buffer impacts are anticipated at this transect. 100% 90% 10% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 10% ΒV % Riparian Area> 90% 100% Rt Bank CI > 1.10 Left Bank Score > 1 2 Lt Bank CI > 1.10 1.10 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2							
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 36	Intermittent	12070104	3/20/2020	3	downstream
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Eviden may be present, I and stability are be Withdrawals, if pre observable affer	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Eviden- is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	5	4	;	3		2	1

Notes: No additional alterations are planned for this transect

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.78



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT	3/20/2020	
Evaluators	Evaluators		
Arron Tuggle, Sal	Arron Tuggle, Sally Clark		

Stream Name	Transect ID	Condition Index (RCI)	
Water 12 Post	1	2.24	
Water 12 Post	2	1.25	
Water 12 Post	3	1.78	

Average RCI 1.757
Impact Factor 2.00
Linear Feet of Impact 192.00
Compenesation Requirement 2

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 6/28/2018 Upstream Fourth 12070401 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 13 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25% of the Transect. 25-50% of the Transect. Transect floodplain. Score 5 2.0 Notes: Channel incised and straightened. Likely unfirm sediment and impeded flow. No benches observed and likely no floodplain. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 5 High = 4.5 Low = 4 3 2 Scores Notes: Right bank contains urban areas and grazed pasture. Left bank majority grazed pasture and maintained ROW, with smaller areas of development and native woody 55% 45% 100% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% 5% ΒV % Riparian Area> 90% 100% Rt Bank CI > 1.45 Left Bank Score > 2 1 3 Lt Bank CI > 2.00 1.73 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	1	Upstream	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe	
	Channelization, dredging, alteration or hardening absent. Stream has		es, impacted by dred	of the Transect is ging, dams, dikes,	impacted by dred	of the Transect is ging, dams, dikes,	Between 90-100% of the Transect is	
Channel Alteration	natering ausein. Orean in a unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	levees, culverts, riprap, bulkhea armor, drop structures or withdra structures. Evidence of past alters may be present, but stream patt and stability have recovered. Withdrawals, if present, have n observable affect on flow.	armor, drop structures. Evident may be present, and stability are be withdrawals, if pre observable affer	riprap, bulkneads, tures or withdrawal be of past alteration but stream pattern eginning to recover. esent, may have an ct on flow, but no on habitat or biota.	structures. Evidence is present, and stability are n Withdrawals, if pre observable affect	riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. esent, may have an t on both flow and or biota.	impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.68





Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 6/28/2018 Midsection Fourth 12090401 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 13 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 4 2 Score 5 1.0 Notes: Majority of transect with box culvert 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage No maintenance other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes Majority of transect with box culvert; maintained ROW present 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 1 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	2	middle	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Eviden may be present, I and stability are be Withdrawals, if pre observable affer	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	tures or withdrawal to e of past alteration tream pattern and ot recovering. esent, may have an t on both flow and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4	;	3		2	1	

Notes: Majority of transect with box culvert

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.01

INSERT PHOTOS:

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 6/28/2018 Downstream Fourth 12090401 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 13 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. 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No benches observed and likely no floodplain. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer consists of grazed pasture 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1.00 Score Notes

Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	downstream	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, l and stability are be Withdrawals, if pre observable affer	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Evident is present, and se stability are no Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. ssent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	1	1	3	1	2	1 4	

Notes: Minimal structure; Evidence of past alteration may be present, but stream pattern and stability are beginning to recover.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.00



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant	Date	
State Highway 36	TxDOT	6/29/2018	
Evaluator	Evaluators		
Arron Tuggle, Sa	12090401	SH36	

Stream Name	Transect ID	Condition Index (RCI)	
Water 13	1	1.68	
Water 13	2	1.01	
Water 13	3	2.00	

Average RCI 1.563
Impact Factor 2.00
Linear Feet of Impact 268.00
Compenesation Requirement 120

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 3/20/2020 Upstream Fourth 12070401 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 13 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. Score 5 1.0 Notes: New northbound lane will be in this transect, including culvert/bridge 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: New northbound lane will be in this transect. Transect will be largely pavement and well maintained ROW 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2								
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT		SH 36	Intermittent	12070104	3/20/2020	1	Upstream
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Subop	timal	Mar	ginal	Po	oor	Severe
	Channelization, dredging, alteration or	Less than 30% of impacted by dredg		impacted by dred	of the Transect is ging, dams, dikes,	impacted by dred	of the Transect is ging, dams, dikes,	Between 90-100% of the Transect is
Channel Alteration	hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	levees, culverts, ri armor, drop structu structures. Evidence may be present, be and stability ha Withdrawals, if p observable af	res or withdrawal e of past alteration ut stream pattern ve recovered. resent, have no	armor, drop struct structures. Evidend may be present, the and stability are be Withdrawals, if pre	out stream pattern eginning to recover. esent, may have an ot on flow, but no	structures. Evidend is present, and so stability are no Withdrawals, if presented observable affects	riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and lot recovering. esent, may have an t on both flow and or biota.	impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habit

Notes: New northbound lane will be in this transect, including culvert/bridge

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.01





Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 3/20/2020 Midsection Fourth 12090401 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 13 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage No maintenance other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes Majority of transect with box culvert; maintained ROW present; will remain poor quality 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 1 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. 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Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	3/20/2020	2	middle	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe	
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SCORE	5	4	;	3		2	1	

Notes: Majority of transect with box culvert

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.01

INSERT PHOTOS:



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 3/20/2020 Downstream Fourth 12090401 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 13 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 4 Score 5 2.0 Notes: Construction is not planned for this transect 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row eater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer impacts are not anticipated for this transect 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 100% ΒV % Riparian Area> 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	3/20/2020	3	downstream	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidenc may be present, I and stability are be Withdrawals, if pre	ures or withdrawal ce of past alteration out stream pattern eginning to recover. esent, may have an ct on flow, but no	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	riprap, bulkheads, tures or withdrawal be of past alteration tream pattern and ot recovering. esent, may have an t on both flow and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, fpresent, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4		3		2	1	

Notes: Alterations are not planned for this transect

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.00



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant	Date	
State Highway 36	TxDOT	3/20/2020	
Evaluator	Evaluators		
Arron Tuggle, Sa	12070401	SH36	

Stream Name	Transect ID	Condition Index (RCI)	
Water 13 Post	1	1.01	
Water 13 Post	2	1.01	
Water 13 Post	3	2.00	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.340

2.00
268.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Upstream of crossing Fourth Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 16 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. Score 5 2.0 Notes: Channel incised and likely dredged. No access to floodplain. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer consists of grazed pasture 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 2.00 Score Notes

	St	ream Impact A	Assessm	nent Fo	rm Page	2	
Project #	Applicant	Locality	Cowardin Class.	нис	Date	Transect #	Transect Description
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	1	upstream
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop	Less than 30% of the Transect is impacted by dredging, dams, dikes levees, culverts, riprap, bulkheads, armor, drop structures or withdrawa structures. Evidence of past alteratic may be present, but stream pattern	impacted by dred levees, culverts, armor, drop struct structures. Evidence may be present, l	of the Transect is lging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration but stream pattern	impacted by dred levees, culverts, armor, drop struct structures. Evidence is present, and st	ures or withdrawal be of past alteration ream pattern and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are
atoration	structures or withdrawal structures within the Transect.	and stability have recovered. Withdrawals, if present, have no observable affect on flow.	Withdrawals, if pre observable affect	eginning to recover. esent, may have an ct on flow, but no on habitat or biota.	Withdrawals, if pre observable affect	ot recovering. esent, may have an on both flow and or biota.	large enough to have severe loss of flow and cause little to no habitat or biota.

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering. Most of transect impacted by previous dredging.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.00



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Mid Section Fourth 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 16 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 4 2 Score 5 1.0 Notes: Majority of transect within box culvert 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row eater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Majority of transect within box culvert with small areas of maintained ROW 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 1 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Im	pact A	ssessm	ent Fo	rm Page	2	
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	2	at crossing
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal		Marg	ginal	Poor		Severe
	Channelization, dredging, alteration or hardening absent. Stream has	Less than 30% of impacted by dredgir levees, culverts, rip	ng, dams, dikes,	impacted by dred		impacted by dred	of the Transect is ging, dams, dikes, riprap, bulkheads,	Between 90-100% of the Transect is impacted by dredging, dams, dikes,
Channel Alteration	unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	armor, drop structur structures. Evidence may be present, bu and stability hav Withdrawals, if pre observable affe	res or withdrawal of past alteration at stream pattern re recovered. esent, have no	armor, drop struct structures. Evidenc may be present, t and stability are be Withdrawals, if pre observable affect observable affect	ures or withdrawal te of past alteration but stream pattern ginning to recover. sent, may have an at on flow, but no	armor, drop structures. Evidencis present, and sistability are ni Withdrawals, if preobservable affectives.	ures or withdrawal ce of past alteration tream pattern and ot recovering. esent, may have an t on both flow and or biota.	levees, cuiverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.

Notes: Majority of transect at existing box culvert

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.26

INSERT PHOTOS:



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Downstream Fourth 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 16 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains ediment deposition of uniformed-size material is present along 60-80% of bank is sloughing and erosional scars or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 2 Score 5 2.0 Notes: Channel incised and likely dredged. No access to floodplain. No benches visible. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer consists of over grazed pasture 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 2.00 Score Notes

Stream Impact Assessment Form Page 2							
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	downstream
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Mar	ginal	Po	oor	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dike levees, culverts, riprap, bulkheads armor, drop structures or withdraw structures. Evidence of past alterati may be present, but stream patter and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Eviden may be present, and stability are be Withdrawals, if pre observable affer	of the Transect is iging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration but stream pattern eginning to recover. ssent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Eviden- is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and to trecovering, seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	5	4		3		2	1

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering. Portion of transect impacted by previous dredging.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.13

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT		6/29/2018
Evaluator	s	HUC	Locality
Arron Tuggle, Sa	lly Clark	12070104	SH36

Stream Name	Transect ID	Condition Index (RCI)	
Water 16	1	2.00	
Water 16	2	1.26	
Water 16	3	2.13	

Average RCI 1.797
Impact Factor 5.00
Linear Feet of Impact 223.00
Compenesation Requirement 324

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 Upstream of crossing Fourth Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 16 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosic course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present and transient sediment is present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the or nickpoints associated with headcut cover or natural rock is limited to 20otection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chan and transverse bars are rare or The stream has access to bankfull diment deposition of uniformed-size bank is sloughing and erosional scars or raw banks present on 80-100% of benches or developed floodplains material is present along 60-80% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting 40-60% of the natural stream bed or bankfull benches are absent. The natural streambed is covered by bankfull benches. No bulkheading or bottom. The stream does not have stream does not have access to an substantial sediment resulting in riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream doe Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along iprap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect floodplain. 5 Score 2.0 Notes: Construction impacts are not anticipated for this transect; will remain Poor 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species représer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and coverage with NO less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer will remain grazed pasture 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennia streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High Score of Limited Score of Minimal ΠV 5 4 3 2 1 2.00 Score Notes

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2	
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT		SH 36	Intermittent	12070104	3/20/2020	1	upstream
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal Suboptimal		Mar	ginal	P	oor	Severe	
				Between 30-60%	of the Transact is	Retween 60-90%	of the Transect is	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.		iprap, bulkheads, ures or withdrawal te of past alteration but stream pattern ave recovered. present, have no	impacted by dred- levees, culverts, armor, drop struct structures. Evidenc may be present, I and stability are be Withdrawals, if pre observable affec	ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration but stream pattern ginning to recover. esent, may have an ct on flow, but no on habitat or biota.	impacted by drec levees, culverts, armor, drop struc structures. Eviden is present, and s stability are r Withdrawals, if probservable affec	lging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and not recovering. esent, may have an tt on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.00



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 Mid Section Fourth Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 16 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosic course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present and transient sediment is present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the or nickpoints associated with headcut cover or natural rock is limited to 20otection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chan and transverse bars are rare or The stream has access to bankfull diment deposition of uniformed-size bank is sloughing and erosional scars or raw banks present on 80-100% of benches or developed floodplains material is present along 60-80% of transient. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species représer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and coverage with NO less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 3 2 5 High = 4.5 Low = 4Scores Notes: Buffer will remain Severe with majority pavement 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 95% 5% 100% Rt Bank CI > Left Bank Score > 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennia streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High Score of Limited Score of Minimal ΠV 5 4 3 2 1 2.00 Score Notes

	St	ream Impa	act A	ssessm	ent Fo	rm Page	2	
Project #	Applicant	L	ocality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT		SH 36	Intermittent	12070104	3/20/2020	2	at crossing
4. CHANNE livestock	L ALTERATION: Stream cross	ings, riprap, concrete, ga	abions, or c	oncrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Optimal Suboptimal		Marq	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures	Less than 30% of the Ti impacted by dredging, de levees, culverts, riprap, t armor, drop structures or structures. Evidence of pa may be present, but strei and stability have reco Withdrawals, if present.	ams, dikes, bulkheads, withdrawal ast alteration am pattern covered.	impacted by dredg levees, culverts, r armor, drop struct structures. Evidenc may be present, b and stability are be Withdrawals, if pre	riprap, bulkheads, ures or withdrawal te of past alteration but stream pattern ginning to recover. sent, may have an	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal ce of past alteration tream pattern and ot recovering. ssent, may have an	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota
	within the Transect.	observable affect or		observable affect observable affect of	et on flow, but no on habitat or biota.	observable affect habitat	or biota.	Diota.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.26



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 **Downstream** Fourth Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 16 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised ains a few areas of active erosic course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present and transient sediment is present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the or nickpoints associated with headcut cover or natural rock is limited to 20otection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chan and transverse bars are rare or The stream has access to bankfull diment deposition of uniformed-size bank is sloughing and erosional scars or raw banks present on 80-100% of benches or developed floodplains naterial is present along 60-80% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches are absent. The bankfull benches. No bulkheading or bottom. The stream does not have stream does not have access to an riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream doe Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. iprap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 1.0 Notes: Proposed northbound lanes will be constructed in this transect. Channel will be culverted. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species représer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and coverage with NO less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Buffer will be impacted by additional pavement and maintained ROW 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 95% 5% 100% Rt Bank CI > 1.05 Left Bank Score > 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennia streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High Score of Limited Score of Minimal ΠV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2							
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 36	Intermittent	12070104	3/20/2020	3	downstream
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawa structures. Evidence of past alteratio may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, l and stability are be Withdrawals, if pre observable affer	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Eviden- is present, and s stability are r Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.

Notes: Proposed northbound lanes will be constructed in this transect. Channel will be culverted.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >>

1.26

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT		3/20/2020
Evaluators	3	HUC	Locality
Arron Tuggle, Sal	ly Clark	12070104	SH36

Stream Name	Transect ID	Condition Index (RCI)	
Water 16 Post	1	2.00	
Water 16 Post	2	1.26	
Water 16 Post	3	1.26	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.507

5.00
223.00
23.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Upstream of SH 36 Fourth Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 18 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 2.0 Notes: No access to active floodplain, no benches or point bars visible. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer consists of grazed pasture. 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 100% ΒV % Riparian Area> 100% Rt Bank CI > Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1.00 Score Notes

	St	ream Impact A	ssessm	ent Fo	rm Page	2	
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 36	Ephemeral	12070104	06/25/2018	1	Upstream
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Mar	ginal	Poor		Severe
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Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.75

INSERT PHOTOS:



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Mid Section Fourth 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 18 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 4 2 Score 5 2.0 Notes: Majority of transect with box culvert 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of transect with box culvert 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

	St	ream Impa	act A	ssessm	ent Fo	rm Page	e 2	
Project #			Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
			SH 36	Inermittent	12070104	06/28/2018	2	At SH 36 Crossing
4. CHANNE ivestock	L ALTERATION: Stream cross	ings, riprap, concrete, g	gabions, or c	oncrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Suboptima	ıal	Marginal		Poor		Severe
	Channeline des des de la constitución de	Less than 30% of the T		Between 30-60% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an observable affect on flow, but no observable affect on habitat or biota.		Between 60-90% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawals, if present, may have an observable affect on both flow and habitat or biota.		D. t
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by dredging, d levees, culverts, riprap, armor, drop structures or structures. Evidence of p may be present, but stre and stability have rec Withdrawals, if present observable affect o	, bulkheads, or withdrawal past alteration ream pattern ecovered. nt, have no	levees, culverts, r armor, drop structi structures. Evidend may be present, b and stability are be Withdrawals, if pre observable affec	riprap, bulkheads, ures or withdrawal te of past alteration but stream pattern ginning to recover. sent, may have an at on flow, but no	levees, culverts, armor, drop structures. Eviden is present, and s stability are n Withdrawals, if pre observable affec	riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and lot recovering. esent, may have an t on both flow and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.

Notes: Majority of transect with box culvert

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.26



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Downstream Fourth 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 18 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 Score 2.0 Notes: Channel incised with erosion present throughout. Floodplain not observed. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer consists of grazed pasture 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 100% ΒV % Riparian Area> 100% Rt Bank CI > Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1.00 Score Notes

Stream Impact Assessment Form Page 2							
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	downstream of SH 36
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidenc may be present, I and stability are be Withdrawals, if pre	ures or withdrawal ce of past alteration out stream pattern eginning to recover. esent, may have an ct on flow, but no	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal ce of past alteration tream pattern and ot recovering, seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	5	A		3		2	

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.75



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT		6/29/2018
Evaluators	HUC	Locality	
Arron Tuggle, Sal	12070104	SH36	

Stream Name	Transect ID	Condition Index (RCI)	
Water 18	1	1.75	
Water 18	2	1.26	
Water 18	3	1.75	
A T	CI		

Average RCI 1.587
Impact Factor 5.00
Linear Feet of Impact 151.00
Compenesation Requirement 8

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 Upstream of SH 36 Fourth Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 18 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosic course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present and transient sediment is present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut cover or natural rock is limited to 20otection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chan and transverse bars are rare or The stream has access to bankfull diment deposition of uniformed-size bank is sloughing and erosional scars or raw banks present on 80-100% of benches or developed floodplains naterial is present along 60-80% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches are absent. The bankfull benches. No bulkheading or bottom. The stream does not have stream does not have access to an riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream doe Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along iprap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect floodplain. 5 Score 2.0 Notes: No construction impacts are anticipated at this transect. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represe The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and coverage with NO less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No grazing activities Condition 1 3 2 5 High = 4.5 Low = 4Scores Notes: Buffer impacts are not anticipated at this transect. 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennia streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High Score of Limited Score of Minimal ΠV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Ephemeral	12070104	3/20/2020	1	Upstream	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal	Marg	ginal	Po	or	Severe	
Channal	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized.	levees, culverts, riprap, bulkheads,	impacted by dredg levees, culverts, r	riprap, bulkheads,	impacted by dred levees, culverts,	of the Transect is ging, dams, dikes, riprap, bulkheads,	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads,	
Channel Alteration	No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	structures. Evidence may be present, be and stability are be Withdrawals, if pre	but stream pattern eginning to recover. esent, may have an ct on flow, but no	is present, and so stability are n Withdrawals, if pre observable affec	thes of wintrawan be of past alteration tream pattern and ot recovering. esent, may have an t on both flow and or biota.	armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	

Notes: Alterations are not proposed at this transect

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.75



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 Mid Section Fourth Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 18 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosic course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species représer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and coverage with NO less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No grazing activities Condition 1 3 2 5 High = 4.5 Low = 4Scores Notes: Buffer will be entirely pavement and developed 100% 100% % Riparian Area> Right Bank CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > Left Bank Score > 1 Lt Bank CI > 1.00 1.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennia streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High Score of Limited Score of Minimal ΠV 5 4 3 2 1 1.00 Score Notes

Notes: Majority of transect within box culvert

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.00



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 **Downstream** Fourth Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 18 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosic course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represe The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and coverage with NO less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer will remain grazed pasture 100% 100% % Riparian Area> Right Bank 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 2.00 Left Bank Score > 2 Lt Bank CI > 2.00 2.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennia streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High Score of Limited Score of Minimal ΠV 5 4 3 2 1 1.00 Score Notes

Notes: Alterations are not proposed at this transect

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >>

1.75



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project # Applicant		Applicant		
State Highway 36	TxDOT		3/20/2020	
Evaluators	HUC	Locality		
Arron Tuggle, Sal	12070104	SH36		

Stream Name	Transect ID	Condition Index (RCI)	
Water 18 Post	1	1.75	
Water 18 Post	2	1.00	
Water 18 Post	3	1.75	
Average R	CI	1 500	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.500

5.00

151.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Upstream Third Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 23 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25-50% of the Transect. Transect floodplain. 5 Score 2.0 Notes: Channel is over-widened or incised with vertically or laterally unstable banks. Visual indicators of over-widening and incision include near vertical banks with shallow roc 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer consists of maintained ROW and row agriculture 100% 90% 10% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 1.10 Left Bank Score > 2 Lt Bank CI > 2.00 1.55 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2							
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 36	Ephemeral	12070104	06/28/2018	1	upstream of SH 36
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Marg	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dredglevees, culverts, armor, drop struct structures. Evidence may be present, the and stability are be Withdrawals, if pre	ures or withdrawal ce of past alteration out stream pattern eginning to recover. esent, may have an ct on flow, but no	impacted by dred levees, culverts, armor, drop structures. Eviden- is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	5	4	1 ;	3	l :	2	1 1

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.64



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Mid Section Third 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 23 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 4 2 Score 1.0 Notes: Majority of the transect is within a box culvert 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of the transect is within a box culvert 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2								
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Ephemeral	12070104	06/28/218	2	at crossing	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidenc may be present, I and stability are be Withdrawals, if pre	ures or withdrawal ce of past alteration out stream pattern eginning to recover. esent, may have an ct on flow, but no	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and st stability are n Withdrawals, if pre	riprap, bulkheads, tures or withdrawal be of past alteration tream pattern and ot recovering. esent, may have an t on both flow and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, fip resent, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4		3		2	1	

Notes: Majority of the transect is within a box culvert

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.01



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Downstream Third 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 23 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the not have access to an active CV 25-50% of the Transect. Transect floodplain. 5 Score 2.0 Notes: Channel is over-widened or incised with vertically or laterally unstable banks. Visual indicators of over-widening and incision include near vertical banks with shallow roc 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer is a combination of maintained grasses and row agriculture 100% 50% 50% % Riparian Area> Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 50% 50% 100% Rt Bank CI > Left Bank Score > 2 1 Lt Bank CI > 1.50 1.50 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2							
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 36	Ephemeral	12070104	06/28/2018	3	downstream of SH 36
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Mar	ginal	Po	oor	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect impacted by dredging, dams, dik levees, culverts, riprap, bulkhea armor, drop structures or withdra structures. Evidence of past altera may be present, bul stream patte and stability have recovered. Withdrawals, if present, have n observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Eviden may be present, and stability are by Withdrawals, if proobservable affe	of the Transect is Iging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration but stream pattern eginning to recover. ssent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Eviden- is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and to recovering. seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	5	4		3] :	2	1

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.88



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #		Date	
State Highway 36	TxDOT		6/29/2018
Evaluator	HUC	Locality	
Arron Tuggle, Sa	12070104.00	SH36	

Stream Name	Transect ID	Condition Index (RCI)	
Water 23	1	1.64	
Water 23	2	1.01	
Water 23	3	1.88	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.510

5.00

292.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** Third 12070104 3/20/2020 Upstream Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 23 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised ains a few areas of active erosic course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present and transient sediment is present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the or nickpoints associated with headcut cover or natural rock is limited to 20otection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chan and transverse bars are rare or The stream has access to bankfull diment deposition of uniformed-size bank is sloughing and erosional scars or raw banks present on 80-100% of benches or developed floodplains material is present along 60-80% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches are absent. The bankfull benches. No bulkheading or bottom. The stream does not have stream does not have access to an riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream doe Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along iprap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect floodplain. 5 Score 1.0 Notes: Proposed southbound lanes in this transect. Channel will be culverted 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represe The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and coverage with NO less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Buffer will be impacted by proposed construction and additional pavement 100% 90% 10% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 90% 10% 100% Rt Bank CI > 1.10 Left Bank Score > 2 Lt Bank CI > 1.10 1.10 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennia streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High Score of Limited Score of Minimal ΠV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2							
Project #	Applicant	Locality	Cowardin Class.	нис	Date	Transect #	Transect Description
	TXDOT	SH 36	Ephemeral	12070104	3/20/2020	1	upstream of SH 36
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe
Channel	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized.	Less than 30% of the Transect impacted by dredging, dams, dik levees, culverts, riprap, bulkhead armor, drop structures or withdra	impacted by dred levees, culverts, armor, drop struc	of the Transect is Iging, dams, dikes, riprap, bulkheads, tures or withdrawal	impacted by dred levees, culverts,	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads,
Alteration	No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	structures. Evidence of past altera may be present, but stream patte and stability have recovered. Withdrawals, if present, have n observable affect on flow.	may be present, and stability are be Withdrawals, if pre observable affe	ce of past alteration but stream pattern eginning to recover. esent, may have an ct on flow, but no on habitat or biota.	is present, and st stability are n Withdrawals, if pre observable affect	ce of past alteration ream pattern and ot recovering. esent, may have an ton both flow and or biota.	armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.

Notes: Proposed southbound lanes in this transect. Channel will be culverted

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.03



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** Third 12070104 3/20/2020 Mid Section Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 23 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised ains a few areas of active erosic course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present and transient sediment is present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the or nickpoints associated with headcut cover or natural rock is limited to 20otection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chan and transverse bars are rare or The stream has access to bankfull diment deposition of uniformed-size bank is sloughing and erosional scars or raw banks present on 80-100% of benches or developed floodplains material is present along 60-80% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting 40-60% of the natural stream bed or bankfull benches are absent. The natural streambed is covered by bankfull benches. No bulkheading or bottom. The stream does not have stream does not have access to an substantial sediment resulting in riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream doe Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along iprap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect floodplain. 5 Score 1.0 Notes: Majority of the transect is within a box culvert; will remain severe 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species représer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and coverage with NO less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Buffer will be further impacted via construction and addition of pavement 100% 100% % Riparian Area> Right Bank CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > Left Bank Score > 1 Lt Bank CI > 1.00 1.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennia streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High Score of Limited Score of Minimal ΠV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2							
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 36	Ephemeral	12070104	3/20/2020	2	at crossing
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidend may be present, I and stability are be Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration but stream pattern riginning to recover. seent, may have an at on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Eviden- is present, and s stability are r Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	_	4		,		2	

Notes: Majority of the transect is within a box culvert; will remain poor

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.00



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 **Downstream** Third Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 23 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised ains a few areas of active erosic course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present and transient sediment is present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the or nickpoints associated with headcut cover or natural rock is limited to 20otection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chan and transverse bars are rare or The stream has access to bankfull diment deposition of uniformed-size bank is sloughing and erosional scars or raw banks present on 80-100% of benches or developed floodplains naterial is present along 60-80% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting 40-60% of the natural stream bed or bankfull benches are absent. The natural streambed is covered by bankfull benches. No bulkheading or bottom. The stream does not have stream does not have access to an substantial sediment resulting in riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream doe Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. iprap are present along 50-80% of the Transect. not have access to an active CV floodplain. Score 5 2.0 Notes: Channel is not anticipated to be impacted in this transect. New construction is upstream 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represe The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and coverage with NO less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 4 3 2 Scores Notes: Buffer is a combination of maintained grasses and row agriculture; additional buffer impacts not anticipated 100% 50% % Riparian Area> 50% Right Bank 2 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 50% 50% 100% Rt Bank CI > Left Bank Score > 2 1 Lt Bank CI > 1.50 1.50 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennia streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High Score of Limited Score of Minimal ΠV 5 4 3 2 1 1.00 Score Notes

	St	ream Impact A	ssessm	ent Fo	rm Page	2		
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Ephemeral	12070104	3/20/2020	3	downstream of SH 36	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal	Mar	ginal	Po	Poor Severe		
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Evidenc may be present, I and stability are be Withdrawals, if pre	riprap, bulkheads, ures or withdrawal the of past alteration but stream pattern ginning to recover. usent, may have an out on flow, but no	impacted by dred levees, culverts, armor, drop struct structures. Evidend is present, and so stability are no Withdrawals, if pre	cures or withdrawal to e of past alteration tream pattern and ot recovering. esent, may have an ton both flow and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, fip resent, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4	;	3		2	1	

Notes: Alterations are not proposed at this transect

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.88



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT		3/20/2020
Evaluators	3	HUC	Locality
Arron Tuggle, Sal	ly Clark	12070104	SH36

Stream Name	Transect ID	Condition Index (RCI)	
Water 23 Post	1	1.03	
Water 23 Post	2	1.00	
Water 23 Post	3	1.88	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.303

5.00

292.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Upstream of SH 36 Second Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 24 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut over or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 2 Score 3.0 Notes: Channel is incised or has had its course widened. No or minimum access to floodplain. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of other comparable condition. wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 5 High = 4.5 Low = 4 3 2 Scores Notes: Right bank buffer is grazed pasture with mature oaks present along the margins of the riparian area. Left bank is maintained grasses and row agriculture. 70% 30% 100% % Riparian Area> Right Bank 2 3 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 85% 15% 100% Rt Bank CI > 2.30 Left Bank Score > 2 1 Lt Bank CI > 1.85 2.08 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

	St	ream Impact A	ssessm	nent Fo	rm Page	e 2		
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	1	upstream of SH 36	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								
	Optimal	Suboptimal	Mar	ginal	Po	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes levees, culverts, riprap, bulkheads, armor, drop structures or withdrawa structures. Evidence of past alteratic may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struct structures. Eviden may be present, I and stability are be Withdrawals, if pre observable affer	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Eviden- is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and to trecovering, seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4	;	3		2	1	

Notes: Evidence of past alteration may be present, but stream pattern and stability are beginning to recover.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.27



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Mid Section at SH 36 Second 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 24 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect. floodplain. 5 2 Score 2.0 Notes: Channel impacted and incised through crossing. Erosion present along both banks. No access to floodplain. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage No maintenance other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority ofbuffer developed roadway and maintained ROW 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

Stream Impact Assessment Form Page 2							
Project #	Applicant	Locality	Cowardin Class.	нис	Date	Transect #	Transect Description
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	2	at SH 36 crossing
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, diket levees, culverts, riprap, bulkheads armor, drop structures or withdraw structures. Evidence of past alterati may be present, but stream patter and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dred levees, culverts, armor, drop struc structures. Eviden may be present, and stability are b Withdrawals, if probservable affe	of the Transect is lging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struc structures. Eviden is present, and s stability are r Withdrawals, if pro observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal ce of past alteration tream pattern and ot recovering. seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	_	A	1	2	1	2	1 4

Notes: Evidence of past alteration is present, and stream pattern and stability are not recovering.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.76



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Downstream Second 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 24 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 2 Score 3.0 Notes: Channel is incised or has had its course widened. No or minimum access to floodplain. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Buffer contains mixed woodlands along both banks and maintained grasses/ROW 100% 65% 35% % Riparian Area> Right Bank 2 3 CI= (Sum % RA * Scores*0.01)/2 15% ΒV % Riparian Area> 85% 100% Rt Bank CI > 2.35 Left Bank Score > 2 3 Lt Bank CI > 2.15 2.25 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 2.00 Score Notes

Stream Impact Assessment Form Page 2							
Project #	Applicant	Locali	cy Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 3	Intermittent	12070104	06/28/2018	3	Downstream of SH 36
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transe impacted by dredging, dams, of levees, culverts, riprap, bulkh armor, drop structures or with structures. Evidence of past alt may be present, but stream pr and stability have recovere Withdrawals, if present, have observable affect on flow	impacted by dred levees, culverts, armor, drop structures. Eviden may be present, and stability are be Withdrawals, if pre observable affer	of the Transect is Iging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration but stream pattern eginning to recover. ssent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop struct structures. Evident is present, and se stability are no Withdrawals, if pre	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal be of past alteration tream pattern and ot recovering. seent, may have an ton both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	5	4	;	3] :	2	1

Notes: Evidence of past alteration may be present, but stream pattern and stability are beginning to recover.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.56



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT		6/29/2018
Evaluator	S	HUC	Locality
Arron Tuggle, Sa	lly Clark	12070104.00	SH36

Stream Name	Transect ID	Condition Index (RCI)	
Water 24	1	2.27	
Water 24	2	1.76	
Water 24	3	2.56	
(

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

2.197

2.00
697.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 Upstream of SH 36 Second Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 24 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect. floodplain. 5 Score 2.0 Notes: Southbound lanes will be constructed in this transect. Stream will be bridged and channel will be allowed to normalize. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 4 3 Scores Notes: Proposed southbound lanes in this transect. Buffer will be converted to pavement and maintained ROW 100% 70% 30% % Riparian Area> Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 30% ΒV % Riparian Area> 70% 100% Rt Bank CI > 1.30 Left Bank Score > 1 2 Lt Bank CI > 1.30 1.30 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 1.00 Score Notes

Stream Impact Assessment Form Page 2							
Project #	Applicant	Locali	cy Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 3	Intermittent	12070104	3/20/2020	1	upstream of SH 36
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							
	Optimal	Suboptimal	Mar	ginal	Po	oor	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transe impacted by dredging, dams, of levees, culverts, riprap, bulkh armor, drop structures or with structures. Evidence of past alt may be present, but stream pr and stability have recovere Withdrawals, if present, have observable affect on flow	impacted by dred levees, culverts, armor, drop structures. Eviden may be present, and stability are be Withdrawals, if pre observable affer	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal be of past alteration but stream pattern eginning to recover. essent, may have an ct on flow, but no on habitat or biota.	impacted by dred levees, culverts, armor, drop structures. Eviden- is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and to recovering. seent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	5	4		3] :	2	1

Notes: Channel will be rerouted to accomdate flow under bridge. Rip rap present along some of the channel

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.58



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 Mid Section at SH 36 Second 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 24 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 2 Score 2.0 Notes: Northbound lanes and bridge will remain. Channel will still be Poor. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage No maintenance other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of buffer developed roadway and maintained ROW 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Impact A	ssessm	ent Fo	rm Page	2		
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT	SH 36	Intermittent	12070104	3/20/2020	2	at SH 36 crossing	
4. CHANNEI livestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions, or	concrete blocks, st	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover		Between 60-90% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawals, if present, may have an observable affect on both flow and habitat or biota.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	
SCORE	5	4	;	3	:	2	1	

Notes: Channel will be beneath northbound brdige of SH 36 and continue to be Poor.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.76



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 Downstream Second Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 24 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 5 4 Score 3.0 Notes: Construction is not proposed for this transect 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer impacts are not anticipated at this transect 100% 65% 35% % Riparian Area> Right Bank 2 3 CI= (Sum % RA * Scores*0.01)/2 15% ΒV % Riparian Area> 85% 100% Rt Bank CI > 2.35 Left Bank Score > 2 3 Lt Bank CI > 2.15 2.25 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Impact A	ssessm	ent Fo	rm Page	e 2	
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 36	Intermittent	12070104	3/20/2020	3	Downstream of SH 36
4. CHANNEI livestock	L ALTERATION: Stream crossi	ings, riprap, concrete, gabions, or	concrete blocks, s	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Suboptimal	Mar	ginal	Po	oor	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawa structures. Evidence of past alteratio may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.	dams, dikes, bulkheads, bulkheads, brukheads ast alteration eam pattern covered. It, have no		is present, and stream pattern and stability are not recovering.		Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.
SCORE	5	4	;	3		2	1

Notes: Alterations are not proposed at this transect

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 2.56



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT		3/20/2020
Evaluator	s	HUC	Locality
Arron Tuggle, Sa	lly Clark	12070104	SH36

Stream Name	Transect ID	Condition Index (RCI)	
Water 24 Post	1	1.58	
Water 24 Post	2	1.76	
Water 24 Post	3	2.56	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.967

2.00
697.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Upstream of SH 36 Second Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 25 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect. floodplain. 5 2 Score 4.0 Notes: Channel is slightly incised and contains a few areas of active erosion. Developed floodplains and benches. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer consists of grazed pasture, mature pockets of oak forest 100% 50% 40% 10% % Riparian Area> Right Bank 2 1 4 CI= (Sum % RA * Scores*0.01)/2 30% ΒV % Riparian Area> 70% 100% Rt Bank CI > 1.80 Left Bank Score > 2 4 Lt Bank CI > 2.60 2.20 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 2.00 Score Notes

	Stream Impact Assessment Form Page 2								
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT		SH 36		12070104	06/28/2018	1	upstream of SH 36	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock									
	Optimal	may be present but stream pattern		Març	ginal	Po	oor	Severe	
	Channelization, dredging, alteration or			Between 30-60% of the Transect is impacted by dredging, dams, dikes, levees, culverts, fiprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability are beginning to recover. Withdrawals, if present, may have an observable affect on flow, but no observable affect on flow, but no		Between 60-90% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration is present, and stream pattern and stability are not recovering. Withdrawals, if present, may have an observable affect on both flow and habitat or biota.		Between 90-100% of the Transect is	
Channel Alteration	hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	armor, drop structure structures. Evidence may be present, but and stability have Withdrawals, if pre	es or withdrawal of past alteration t stream pattern e recovered. esent, have no	armor, drop structures. Evidence may be present, be and stability are be Withdrawals, if pre observable affect	ures or withdrawal te of past alteration but stream pattern ginning to recover. sent, may have an at on flow, but no	armor, drop structures. Evidencis present, and sistability are ni Withdrawals, if preobservable affectives.	tures or withdrawal ce of past alteration tream pattern and lot recovering. esent, may have an t on both flow and	impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habit	

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 3.05



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Mid Section Second 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 25 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row greater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Majority of transect at culvert 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 2.00 Score Notes

			Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	TXDOT		SH 36	Intermittent	12070104	06/28/2018	2	at crossing	
. CHANNEL	_ ALTERATION: Stream crossi	ngs, riprap, conc	rete, gabions, or	concrete blocks, st	raightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,	
	Optimal	Subo	ptimal	Marg	ginal	Po	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	impacted by dred levees, culverts, armor, drop struc structures. Eviden- may be present, and stability h	but stream pattern ave recovered. present, have no	Between 30-60% impacted by dredg levees, culverts, r armor, drop structus structures. Evidence may be present, b and stability are be Withdrawals, if pre observable affect observable affect	ging, dams, dikes, iprap, bulkheads, ures or withdrawal e of past alteration ut stream pattern ginning to recover. sent, may have an t on flow, but no	impacted by dred levees, culverts, armor, drop structures. Eviden is present, and s stability are n Withdrawals, if pre observable affec	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration tream pattern and to recovering, essent, may have an t on both flow and or biota.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawalis, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.	AV
SCORE	5		4	3	3		2	1	1.0
lotes: Major	rity of transect at crossing	ONDITION I	NDEV and (CTDEAM COL	IDITION UN	ITO FOR TH	IO DEAGU		

INSERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 6/28/2018 Downstream of SH 36 Second 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 25 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely present 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along prap are present along 50-80% of the Transect. not have access to an active CV 25-50% of the Transect. floodplain. 2 Score 5 4.0 Notes: Channel is slightly incised and contains a few areas of active erosion. Developed floodplains and benches. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer consists of mature columbia bottomlands with grazing pressure 100% 50% 50% % Riparian Area> Right Bank 4.5 4 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 50% 50% 100% Rt Bank CI > 4.25 Left Bank Score > 4.5 4 Lt Bank CI > 4.25 4.25 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	St	ream Impact	Assessm	ent Fo	rm Page	2	
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	SH 36	Intermittent	12070104	06/28/2018	3	downstream of SH 36
4. CHANNE livestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabions	, or concrete blocks, s	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe
	Channelization, dredging, alteration or hardening absent. Stream has	Less than 30% of the Transec impacted by dredging, dams, di levees, culverts, riprap, bulkhea	kes, levees, culverts,	of the Transect is ging, dams, dikes, riprap, bulkheads,		of the Transect is ging, dams, dikes, riprap, bulkheads,	Between 90-100% of the Transect is impacted by dredging, dams, dikes,
Channel Alteration	unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	armor, drop structures or withdr structures. Evidence of past alte may be present, but stream pat and stability have recovered Withdrawals, if present, have observable affect on flow.	armor, grop struct structures. Evidenc may be present, l and stability are be Withdrawals, if pre observable affec	tures or withdrawal ce of past alteration but stream pattern aginning to recover. asent, may have an ct on flow, but no on habitat or biota.	structures. Evidence is present, and stability are n Withdrawals, if pre observable affect	ures or withdrawal ce of past alteration ream pattern and ot recovering. esent, may have an c on both flow and or biota.	levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of flow and cause little to no habitat or biota.

Notes: Minimal structure impacts, stream no altered but impacted by presence of cattle.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 3.31

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT		6/29/2018
Evaluators	3	HUC	Locality
Arron Tuggle, Sal	ly Clark	12070104.00	SH36

Stream Name	Transect ID	Condition Index (RCI)	
Water 25	1	3.05	
Water 25	2	1.26	
Water 25	3	3.31	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

2.540

2.00

1109.00

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 Upstream of SH 36 Second Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 25 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcut over or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. 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RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer impacts will included conversion to pavement and maintained ROW 100% 95% % Riparian Area> 5% Right Bank 1 2 CI= (Sum % RA * Scores*0.01)/2 5% ΒV % Riparian Area> 95% 100% Rt Bank CI > 1.05 Left Bank Score > 2 Lt Bank CI > 1.05 1.05 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	Stream Impact Assessment Form Page 2								
Project #	Applicant	Locali	ty Cowardin Class.	нис	Date	Transect #	Transect Description		
	TXDOT	SH 3	Intermittent	12070104	3/20/2020	1	upstream of SH 36		
4. CHANNE livestock	L ALTERATION: Stream cross	ings, riprap, concrete, gabior	s, or concrete blocks, s	traightening of ch	annel, channeliza	tion, embankmen	ts, spoil piles, constrictions,		
	Optimal	Suboptimal	Mar	ginal	Po	or	Severe		
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop	levees, culverts, riprap, bulkh armor, drop structures or witho structures. Evidence of past alt may be present, but stream pa	dikes, seads, rawal eration attern control impacted by dred levees, culverts, armor, drop structures. Eviden may be present, and stability are by	may be present, but stream pattern and stability are beginning to recover.		of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal to of past alteration tream pattern and ot recovering.	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of		
	structures or withdrawal structures within the Transect.	and stability have recovere Withdrawals, if present, have observable affect on flow	observable affe	ct on flow, but no		esent, may have an t on both flow and or biota.	flow and cause little to no habitat or biota.		

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 1.26



Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 Mid Section Second 2 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 25 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosic course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or widening and little or no evidence of vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Channel protection only present along 60-80% Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Transect, vertical or undercut banks lepths, erosional scars present along rooting depth, both banks are vertical or undercut, vegetative surface Indicators of stability include greater bankfull benches are likely presen 60-80% of the Transect, vegetative **Parameter** than 80% vegetative cover on the r nickpoints associated with headcut and transient sediment is present cover or natural rock is limited to 20rotection or natural rock is only found banks, stable point bars and bankfull may be present and portions of the channel may be widening while other portions of the channel are narrowing. along 10-40% of the stream bottom 40% of the Transect, substantial along 20% or less of the Transect, the enches may be present, mid-chanr and transverse bars are rare or The stream has access to bankfull benches or developed floodplains diment deposition of uniformed-size bank is sloughing and erosional scars naterial is present along 60-80% of or raw banks present on 80-100% of transient. The stream has access to the Transect and 80% or more of the along portions of the reach. Channe and transient sediments are found in the Transect and point bars and active floodplain or fully developed may show evidence of past channel alteration, but should be exhibiting bankfull benches are absent. The stream does not have access to an natural streambed is covered by substantial sediment resulting in 40-60% of the natural stream bed or bankfull benches. No bulkheading or bottom. The stream does not have riprap may be present. notable recovery of a natural channe access to the active floodplain. active floodplain. Bulkheading and readed channels. The stream does Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. prap are present along 50-80% of the Transect. not have access to an active CV floodplain. 4 2 Score 5 1.0 Notes: Transect will remain largely culverted. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% Native woody communty represents surfaces, mine spoil lands, denuded **Buffers** OR native woody coverage with NO surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Additional pavement and extention of culvert will reduce maintained ROW within buffer 100% 100% % Riparian Area> Right Bank 1 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 100% 100% Rt Bank CI > 1.00 Left Bank Score > 1 Lt Bank CI > 1.00 1.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. termittent Streams with Perennial Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

TXDOT TERATION: Stream crossin Optimal nnelization, dredging, alteration or nardening absent. Stream has litered pattern or has normalized. o dams, dikes, levees, culverts, iprap, bulkheads, armor, drop uctures or withdrawal structures within the Transect.	Less than 30% of impacted by dredge levees, culverts, in armor, drop struct structures. Evidence may be present, it and stability he	of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal the of past alteration but stream pattern	Between 30-60% impacted by dredg levees, culverts, r armor, drop structu structures. Evidenc may be present, b	ginal of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal ee of past alteration but stream pattern	Between 60-90% impacted by dred levees, culverts, armor, drop struct structures. Evidence	of the Transect is ging, dams, dikes, riprap, bulkheads, tures or withdrawal ce of past alteration	Severe Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal	
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5		4	3	3		2	1	1.0
of	transect will remain	transect will remain within culver	transect will remain within culvert at crossing	5 4 3 transect will remain within culvert at crossing	5 4 3 transect will remain within culvert at crossing	5 4 3 transect will remain within culvert at crossing	5 4 3 2 transect will remain within culvert at crossing	5 4 3 2 1

INSERT PHOTOS:	

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC **Applicant** Date Transect # **Transect Description** Stream Order State Highway 36 **TxDOT** 12070104 3/20/2020 Downstream of SH 36 Second 3 Name(s) of Evaluator(s) Steam Name and Type Arron Tuggle, Sally Clark Water 25 Post Construction 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Optimal Suboptimal Marginal Poor Severe Channel is slightly incised and Channel is incised or has had its Channel is deeply incised or Channel is over-widened or incised tains a few areas of active erosio course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presence of banks. 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Because of extense conversion upstream, the condition of the channel downstream likely to be impacted. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represen greater than 60% Native woody coverage with NC The buffer is dominated by one or community Riparian more of the following: lawns, mowed or maintained right-of-way, no-till wetlands present species represer The area is dominated by impervious Native woody species represent within the buffer between 30-60% coverage with NO surfaces, mine spoil lands, denuded Native woody communty represents **Buffers** OR native woody surfaces, conventional tillage row ater than 60% of the coverage and less than 30% coverage with no cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized of wetlands are present community vetlands present maintenance or grazing activities crops, active feed lots or comparable species represent 30-60% coverage other comparable condition. or grazing with wetlands activities present. No maintenance or grazing activities Condition 1 2 5 High = 4.5 Low = 43 Scores Notes: Buffer is not anticipated to be impacted at this transect. 100% 50% 50% % Riparian Area> Right Bank 4.5 4 CI= (Sum % RA * Scores*0.01)/2 ΒV % Riparian Area> 50% 50% 100% Rt Bank CI > 4.25 Left Bank Score > 4.5 4 Lt Bank CI > 4.25 4.25 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Optimal Suboptimal Marginal Poor Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed Intermittent and ephemeral streams that have not been assessed are also nittent Streams with Perennial USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. Pools that have not been assessed are are also assumed to have an Aquatic also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited Score of Minimal HV 5 4 3 2 1 2.00 Score Notes

	Stream Impact Assessment Form Page 2							
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description
	TXDOT	TXDOT SH 36 Intermittent 12070104 3/20/2020 3				downstream of SH 36		
4. CHANNE livestock	L ALTERATION: Stream cross	ings, riprap, concrete	e, gabions, or o	concrete blocks, st	raightening of ch	annel, channelizat	ion, embankment	ts, spoil piles, constrictions,
	Optimal	Subopti	mal	Marg	ginal	Po	or	Severe
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No dams, dikes, levees, culverts, riprap, bulkheads, armor, drop	Suboptimal Less than 30% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Evidence of past alteration may be present, but stream pattern and stability have recovered. Withdrawals, if present, have no observable affect on flow.		impacted by dred levees, culverts, i armor, drop struct structures. Evidence may be present, b	ed by dredging, dams, dikes, culverts, niprap, bulkheads, drop structures or withdrawal ss. Evidence of past alteration by present, but stream pattern billity are beginning to recover. wals, if present, may have an vable affect on flow, but no		of the Transect is ging, dams, dikes, riprap, bulkheads, ures or withdrawal se of past alteration ream pattern and	Between 90-100% of the Transect is impacted by dredging, dams, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures. Withdrawals, if present, are large enough to have severe loss of
	structures or withdrawal structures within the Transect.	Withdrawals, if pres	recovered. sent, have no	Withdrawals, if pre	sent, may have an	Withdrawals, if pre	sent, may have an on both flow and	flow and cause little to no habitat or biota.

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE CONDITION INDEX (CI) >> 3.06

INSERT PHOTOS:



Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project #	Applicant		Date
State Highway 36	TxDOT		3/20/2020
Evaluators	3	HUC	Locality
Arron Tuggle, Sally Clark		12070104	SH36

Stream Name	Transect ID	Condition Index (RCI)	
Water 25 Post	1	1.25	
Water 25 Post	2	1.26	
Water 25 Post	3	3.06	
A T	CT	1.055	

Average RCI
Impact Factor
Linear Feet of Impact
Compenesation Requirement

1.857

2.00
1109.00
1515