

PHONE (225) 755-1000 FAX (225) 751-2010 www.c-ka.com



August 11, 2016

HOUSTON, TX PHONE (281) 397-9016 FAX (281) 397-6637

LAKE CHARLES, LA PHONE (337)625-6577 FAX (337)625-6580

SHREVEPORT, LA PHONE (318) 797-8636 FAX (318) 798-0478

Attn: Mr. Brian J. Bader
Department of the Army
Galveston District, Corps of Engineers
Regulatory Division
Evaluation Branch – North Evaluation Unit
2000 Fort Point Road
Galveston, Texas 77550

RE: Summary of Stream Assessments

Permit Application SWG-2015-00145

Corrigan OSB, L.L.C.

CK Associates' Project No. 12356

Dear Mr. Bader:

CK Associates (CK), on behalf of our client Corrigan OSB, L.L.C., conducted stream assessments in areas impacted by the proposed oriented strand board (OSB) facility and entrance road in Corrigan, Texas (Figure 1). This letter supersedes the correspondence of May 24, 2015 and is necessary because:

- 1) After review by Compliance, impacts to jurisdictional waters are associated with the construction of the plant access road and road crossing at Bear Creek (Figure 2). Other aquatic resources impacted within the project area were determined to be non-jurisdictional.
- 2) Impacts at the Bear Creek crossing have been reduced, the applicant has modified post construction plans to include replanting of native woody species along a portion of the area cleared during construction (Figure 3).
- 3) Assessment of an ephemeral tributary to Bear Creek that was rerouted and filled during road construction has been added (Figure 3).

METHODOLGY

On August, 26, 2014 and February 12, 2016, CK conducted site visits for delineation and assessment of the functional condition of ephemeral and intermittent streams in the vicinity of the Bear Creek crossing. A site visit with representatives of Compliance was conducted on June 10, 2016.

Prior to conducting the functional assessments, CK reviewed available data from the US Geological Survey (USGS) National Hydrography Data (NHD) Set, historic aerial photography, topographic maps, soil survey data, rainfall data, and stream gage records. The project area is located in headwaters of the Middle Neches Watershed (HUC – 1202002-0406) and has been actively managed for silviculture for decades. In addition to land disturbance associated with planting and harvesting trees, there are numerous fire breaks, logging roads, and low water crossings associated with timber operations within the project boundary. Streams in the project area exhibit symptoms (e.g. channel incision, channel

straightening, excess sediment deposition, lack of old growth specimens along smaller channels) of hydrologic alterations and land disturbance generally associated with silviculture, especially before the implementation of best management practices by the industry.

Construction of the entrance road to the OSB facility including a culverted crossing of has impacted two distinct jurisdictional waters: Bear Creek, an intermittent stream; and an unnamed ephemeral tributary to Bear Creek (Figures 2, 3). The impacts to the 430 linear feet of Bear Creek include: clearing/grading within the riparian zone, channel widening, installation of five (5) culverts measuring 10 feet in diameter and 174 feet in length, and installation of rip-rap for erosion control. Impacts to 180 linear feet of an unnamed ephemeral tributary include rerouting to join Bear Creek approximately 50 feet upstream of the former confluence and fill of the portion of the channel that was abandoned (Figure 3).

Ordinary High Water Mark (OHWM) was determined utilizing field indicators outlined in Regulatory Guidance Letter Number 05-05. Leaf litter disturbance, sediment stained leaves and debris, and changes in soil character were used as indicators of OHWM along transects in areas with poorly defined bed and bank. OHWM determinations along several transects were confirmed by USACE during the site visit on June 10, 2016.

Stream condition assessments and the calculation of debits were conducted following the procedures for outlined in the US Army Corps of Engineers – Galveston District Stream Condition Assessment 2013 manual. A total of 4 transects were evaluated. Transects (3) along Bear Creek were evaluated on Feb 12, 2016. The assessment for the unnamed ephemeral tributary was based on both observations and photographs taken August 26, 2014, before the channel was rerouted and filled and on observations made up-gradient of the disturbance on subsequent site visits. It was only possible to access one transect along the ephemeral tributary due to its length.

The distance along the channel between transect endpoints was measured with a hip chain or measuring tape and locations were mapped using a Trimble® GeoXT® Differential Global Positioning System (DGPS) utilizing real-time corrections. Transect endpoints for within each of the areas assessed are shown in Figure 4. Digital photographs were taken of the channel and banks at each transect (Attachment 1).

In addition, a theoretical stream condition assessment was developed for Bear Creek at the crossing and this value was used to calculate the Reach Condition Index Delta and determine the appropriate Impact Factor. Cleared areas in the riparian zone will be replanted with native hardwoods to the maximum extent practical taking into account the requirement to not plant trees that could fall on the power line (Figure 3).

A copy of the stream assessment data forms, the stream assessment summary form including the calculation of debits for the impacted streams is provided in Attachment A. Debits for impacts to Bear Creek were calculated based on the decrease in the Reach Condition Index (RCI) between pre and post construction (after replanting and reseeding) and the appropriate Impact Factor. Debits for impacts as a result of filling the ephemeral channel abandoned due to rerouting include an Impact Factor of 5.

RESULTS

The Reach Condition Index (RCI) for the 3 transects evaluated in Bear Creek ranged from 2.9 to 3.25. The RCI for in the short ephemeral drainage that was rerouted and filled was 1.73. The lowest RCI in

the intermittent section of Bear Creek was associated with bed and bank disturbance at the location of an historic low water crossing. It should be noted that the character of the Bear Creek changes along the three transects evaluated due to differences in topography and local geology. Transects 1 and 2 are located in an area with a steeper valley (colluvium) and have predominately limestone/mudstone beds. Stream bed along Transect 3 (alluvium) is predominately sand and gravel.

CONCLUSIONS

Based on the impacts to 610 linear feet of stream, the total debits calculated for the impacts associated with the entrance road and culverted crossing is 2288

If during your review, you or any members of your staff have any questions, please do not hesitate to contact me by phone at 225-755-1000 or by email at wade.bryant@c-ka.com.

Sincerely,

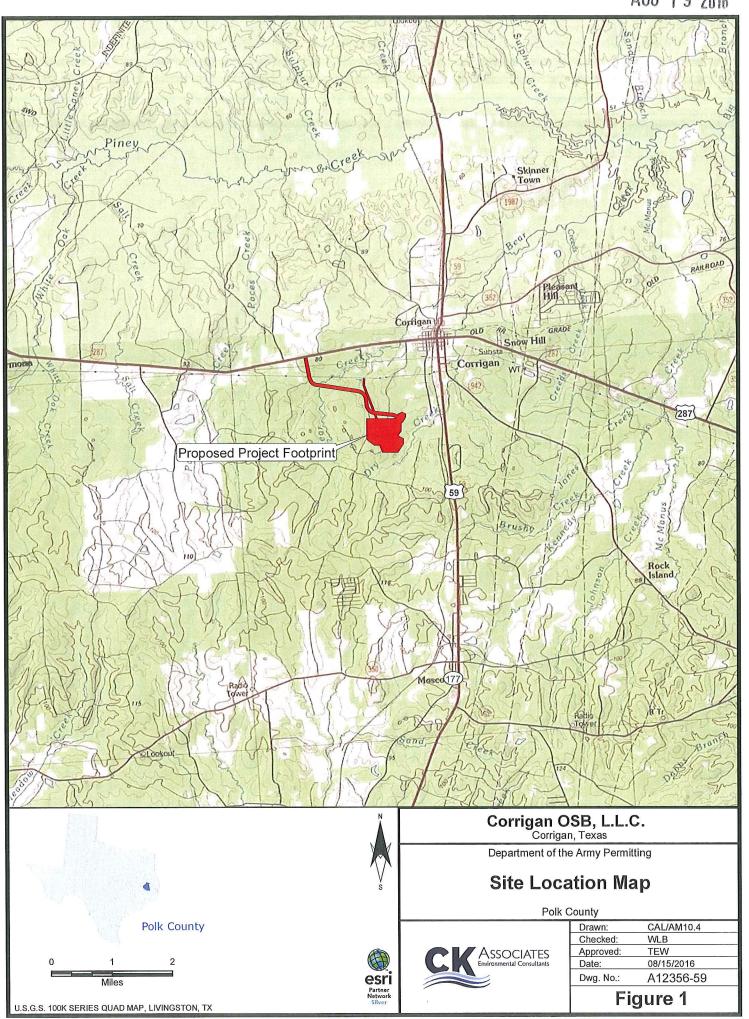
CK Associates

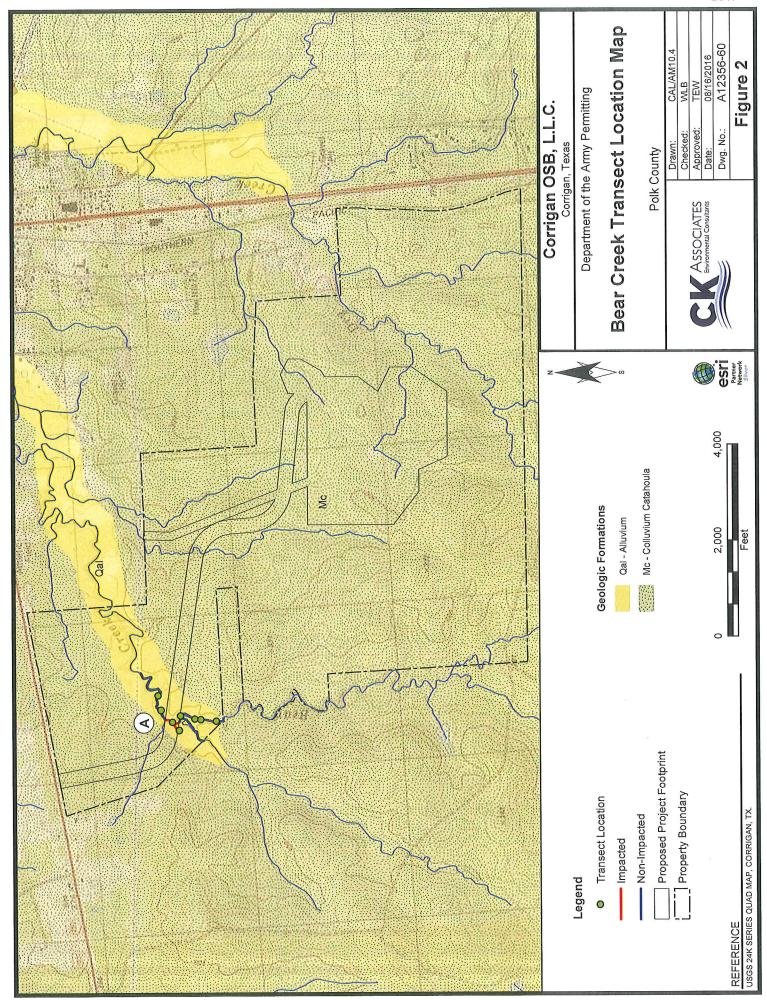
Wade Bryant

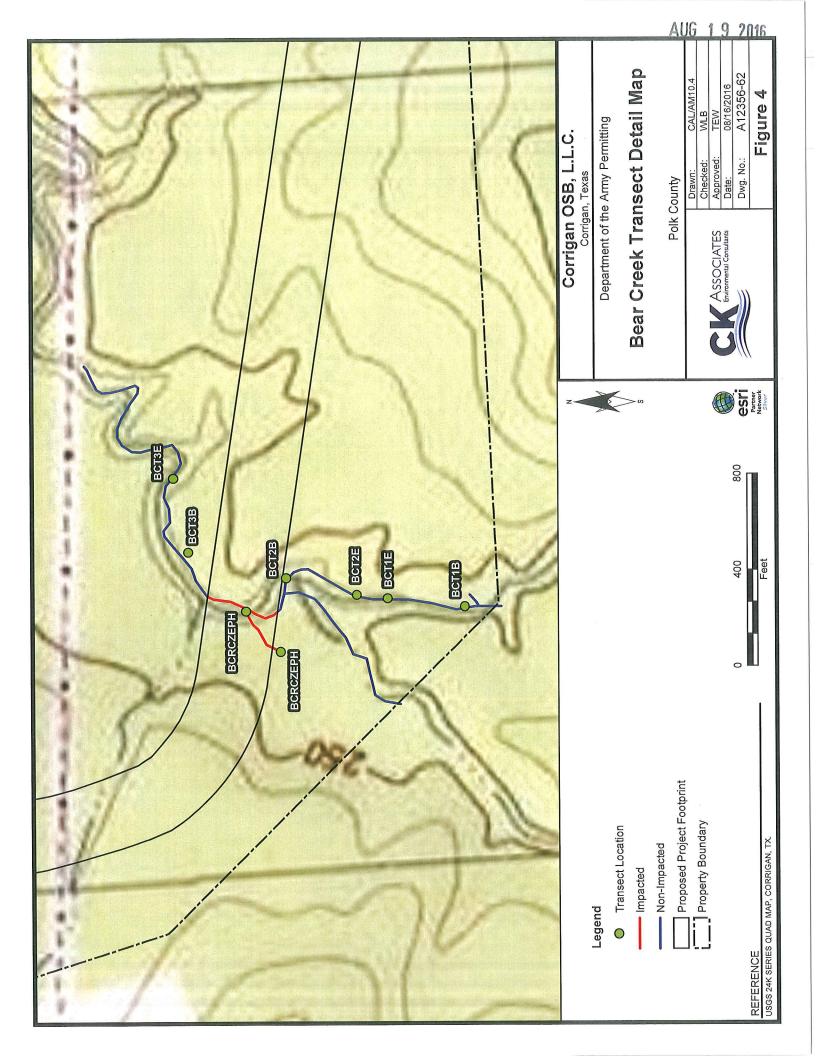
Senior Environmental Scientist

Attachments: FIGURES 1 – 4

LEVEL 1 ASSESSMENT WORKSHEETS & PHOTOGRAPHS







Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number **Applicant** Stream 8 Digit HUC Date Transect # **Transect Description** Order Corrigan OSB, L.L.C. 2 12020002 2/12/2016 BCRC2T1 Bear Creek SWG-2015-00145 Name(s) of Evaluator(s) Steam Name and Type Wade Bryant / Christina Perez Bear Creek - Intermittent 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Suboptimal Poor Severe Optimal Marginal Channel is slightly incised and Channel is incised or has had its Channel is over-widened or incised Channel is deeply incised or tains a few areas of active erosion course widened. Indicators of with vertically or laterally unstable excavated with vertical or lateral Visual Indicators of instability include instability include the presen banks. Visual indicators of overinstability in the stream bank Channel shows very little incision or Channel Indicators of instability include the vegetative cover or natural rock erosional scars on 40-60% of the widening and incision include near widening and little or no evidence of orotection only present along 60-80% of the Transect, point bars and bankfull benches are likely present Transect, vegetative cover or natura vertical banks with shallow root reambed elevation located below the erosion or unprotected banks. Indicators of stability include greater Condition rock only found on 40-60% of the Transect, vertical or undercut banks depths, erosional scars present along 60-80% of the Transect, vegetative rooting depth, both banks are vertical or undercut, vegetative surface Parameter than 80% vegetative cover on the and transient sediment is present r nickpoints associated with headcuts cover or natural rock is limited to 20 rotection or natural rock is only found banks, stable point bars and bankfull benches may be present, mid-channe along 10-40% of the stream bottom The stream has access to bankfull may be present and portions of the channel may be widening while other 40% of the Transect, substantial diment deposition of uniformed-siz along 20% or less of the Transect, the bank is sloughing and erosional scars and transverse bars are rare or benches or developed floodplains portions of the channel are narrowing material 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 may show evidence of past channel and transient sediments are found in the Transect and point bars and bankfull benches are absent. The the Transect and 80% or more of the natural streambed is covered by active floodplain or fully developed bankfull benches. No bulkheading or 40-60% of the natural stream bed or alteration, but should be exhibiting 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 channel Bulkhead and riprap are limited to 1-25% of the Transect. access to the active floodplain. active floodplain. Bulkheading and riprap are present along 50-80% of the threaded channels. The stream does Bulkheading or riprap is found along not have access to an active 25-50% of the Transect. Transect. floodplain. 3 5 3.0 Score Limestone and mudstone stream bottom , mostly run with riffle (outcrop) . Recent alluvium / transient sediment present > 40%. Bankfull benches present, some evidence of bank erosion. Most area of banks 3, some areas 4 (limestone control) and some 2 due to incised channels (sand banks as opposed to rock outcrops). Lowest entrenchment ration BFW = 30 and width at 2x bfw = 35 / = 1.16. Entrichment ratio ranges from 1.16 to 1.7. 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represent greater than 60% Native woody overage with NO The buffer is dominated by one or community Riparian The area is dominated by impervious wetlands present species represer more of the following: lawns, mowed Native woody species represent greater than 60% of the coverage and Native woody communty represents less than 30% coverage with no or maintained right-of-way, no-till cropland, actively grazed pasture, surfaces, mine spoil lands, denuded surfaces, conventional tillage row within the buffer between 30-60% Buffers OR native woody coverage with NC wetlands are present. community wetlands present maintenance or grazing activities. sparsely vegetated non-maintained crops, active feed lots or comparable species represent 30-60% coverage No maintenance ea, recently seeded and stabilized conditions other comparable condition. or grazing with wetlands activities. present. No maintenance or grazing activities Condition 2 3 5 High = 4.5Low = 4Scores Native woody > 60% No wetlands. SMZ intact oaks / cedar present. Evidence of historic logging adjacent to creek (stumps) 100% % Riparian Area> 0% 0% 100% 0% 0% 0% Right Bank 5 4.5 4 3 2 1 CI= (Sum % RA * Scores*0.01)/2 0% 0% 100% 0% 0% 0% 100% Rt Bank CI > 4.00 BV % Riparian Area> Left Bank Score > 5 4.5 4 3 2 1 Lt Bank CI > 4.00 4.00 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Poor Optimal Suboptimal Marginal Severe Aquatic Life Score of Limited. Aquatic Life Score of Minimal. Aquatic Life Score of High. Perennia streams that have not been assessed **AQUATIC** Intermittent Streams with Perennial Pools that have not been assessed are Intermittent and ephemeral streams that have not been assessed are also USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. are also assumed to have an Aquation also assumed to have an Aquatic Life assumed to have an Aquatic Life Life Score of High. Score of Limited. Score of Minimal. 4 3 2 5 2.00 Score Notes: intermittent

Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description	
	Corrigan OSB, L.L.	c.		ACCOME SANCER	12020002	2/12/2016	BCRC2T1	Intermittent	
. CHANNE vestock	L ALTERATION: Stream cross	ings, riprap, concre	ete, gabions, or	concrete blocks, str	aightening of ch	annel, channeliz	ation, embankmer	ts, spoil piles, constrictions,	
	Optimal	Subor	otimal	Marg	inal	P	oor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No darns, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	Less than 30% of impacted by dredg levees, culverts, ri armor, drop structus tructures. Evidence may be present, b and stability ha Withdrawals, if p observable af	ing, dams, dikes, prap, bulkheads, ires or withdrawal e of past alteratior ut stream pattem ve recovered. resent, have no	Between 30-60% of impacted by dredg levees, culverts, ri armor, drop structus structures. Evidence may be present, but and stability are beg Withdrawals, if pres observable affect observable affect o	ing, dams, dikes, prap, bulkheads, res or withdrawal e of past alteration at stream pattern inning to recover. ent, may have an on flow, but no	impacted by drei levees, culverts, armor, drop struc structures. Evider is present, and s stability are Withdrawals, if pu observable affer	6 of the Transect is dging, dams, dikes, riprap, bulkheads, tures or withdrawal noe of past alteration stream pattern and not recovering, resent, may have an ct on both flow and t 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	4.00
otes: T1 is	upstream of historic low v			T2), evidence					
ALI SANCHION DE LA CONTRACTION DEL CONTRACTION DE LA CONTRACTION D						Charles and Charles		CONDITION INDEX (CI) >>	

INSERT PHOTOS:	¥
	,
	9
	4
	·
	·

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler 8 Digit HUC Transect # **Transect Description** File Number **Applicant** Stream Date Order Corrigan OSB, L.L.C. 12020002 2/12/2016 BCRC2T2 Bear Creek SWG-2015-00145 Steam Name and Type Name(s) of Evaluator(s) Bear Creek - Intermittent Wade Bryant / Christina Perez 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Suboptimal Marginal Poor Severe Optimal £1/3 Channel is slightly incised and Channel is incised or has had its Channel is over-widened or incised Channel is deeply incised or course widened. Indicators of instability include the presence of with vertically or laterally unstable banks. Visual indicators of overexcavated with vertical or lateral instability in the stream bank. Itains a few areas of active erosic Indicators of instability include Visual Channel shows very little incision or widening and little or no evidence of Channel egetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the Transect, vegetative cover or natura rock only found on 40-60% of the vertical banks with shallow root depths, erosional scars present along streambed elevation located below the rooting depth, both banks are vertical otection only present along 60-80% Condition erosion or unprotected banks. of the Transect, point bars and Indicators of stability include greater bankfull benches are likely present and transient sediment is present along 10-40% of the stream bottom. Parameter Transect, vertical or undercut banks 60-80% of the Transect, vegetative or undercut, vegetative surface than 80% vegetative cover on the banks, stable point bars and bankfull or nickpoints associated with headcut may be present and portions of the cover or natural rock is limited to 20-40% of the Transect, substantial protection or natural rock is only found along 20% or less of the Transect, the penches may be present, mid-channe bank is sloughing and erosional scars The stream has access to bankfull channel may be widening while other ediment deposition of uniformed-siz and transverse bars are rare or transient. The stream has access to benches or developed floodplains along portions of the reach. Channe portions of the channel are narrowing and transient sediments are found in material is present along 60-80% of the Transect and point bars and or raw banks present on 80-100% of the Transect and 80% or more of the active floodplain or fully developed may show evidence of past channel 40-60% of the natural stream bed or bankfull benches are absent. The natural streambed is covered by bankfull benches. No bulkheading or alteration, but should be exhibiting notable recovery of a natural channe bottom. The stream does not have access to the active floodplain. stream does not have access to an active floodplain. Bulkheading and substantial sediment resulting in threaded channels. The stream doe riprap may be present. iprap are present along 50-80% of th Bulkhead and riprap are limited to 1-Bulkheading or riprap is found along not have access to an active 25% of the Transect. 25-50% of the Transect. Transect floodplain 4 2.8 5 Score Limestone bed rock and sand , mostly run. Recent alluvium / transient sediment present > 40% Bankfull benches present, some evidence of bank erosion. 32 feet at BFH and 45 at @2X BFH /Entrichment ratio = 1.4 Vegetation and channel form suggest this section may have been channelized / snagged in the pass to keep the low water crossing clear. Note this assessment was refined after field visit with compliance and additional measurments of entrinchment. Entrichment ratios range 1.2 - 1.6 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect. Optimal Suboptimal Marginal Poor Severe Native woody community species represent greater than 60% Native woody coverage with NO wetlands present within the buffer The buffer is dominated by one or community species represen between 30-60% more of the following: lawns, mowed or maintained right-of-way, no-till The area is dominated by impervious surfaces, mine spoil lands, denuded surfaces, conventional tillage row Riparian Native woody species represent reater than 60% of the coverage and Native woody communty represents **Buffers** OR native woody coverage with NC less than 30% coverage with no cropland, actively grazed pasture. community species represent wetlands present No maintenance sparsely vegetated non-maintained rea, recently seeded and stabilized of crops, active feed lots or comparable wetlands are present. maintenance or grazing activities. 30-60% coverage or grazing other comparable condition. with wetlands activities present. No maintenance or grazing activities 1 Condition High = 4.5Low = 43 2 Scores Native woody @ 60% up to 80 ft, No wetlands , 80-100 ft pine silviculture mixed with native hardwoods 20% 0% 0% 100% 0% 80% 0% % Riparian Area> Right Bank 2 1 3 5 4.5 Score > CI= (Sum % RA * Scores*0.01)/2 BV 0% 100% % Riparian Area> 0% 0% 80% 20% 0% Rt Bank CI > 3.80 Left Bank It Bank CI> 3.80 3.80 Score > 5 4.5 4 3 2 1 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. Intermittent Streams with Perennial Aquatic Life Score of Minimal. **AQUATIC** Aquatic Life Score of High. Perennial Intermittent and ephemeral streams streams that have not been assessed USE Aquatic Life Score of Exceptional. Aquatic Life Score of Intermediate. Pools that have not been assessed an that have not been assessed are also assumed to have an Aquatic Life Score of High. also assumed to have an Aquatic Life Score of Limited. assumed to have an Aquatic Life Score of Minimal. U۷ 3 2 2.00 4 5 Score вс

	St	ream Impact	Assessm	ent Fo	rm Pag	e 2				
Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Transect #	Transect Description			
THE REPORT OF THE PARTY.	Corrigan OSB, L.L.C	3.		12020002	2/12/2016	BCRC2T2	Intermittent			
4. CHANNE livestock	L ALTERATION: Stream crossi			La soldiere						
	Optimal	Suboptimal	Marg	inal	and the same	oor	Severe	i		
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, bulkhead armor, drop structures or withdraw structures. Evidence of past alterat may be present, but stream patte and stability have recovered. Withdrawals, if present, have no observable affect on flow,	impacted by dredg levees, culverts, ri amor, drop structures. Evidence may be present, be and stability are be	ing, dams, dikes, prap, bulkheads, ures or withdrawal e of past alteration ut stream pattern ginning to recover. sent, may have and on flow, but no	impacted by dre levees, culverts armor, drop stru structures. Evide is present, and stability are Withdrawals, if p observable affe	6 of the Transect is dging, dams, dikes, fiprap, bulkheads, fures or withdrawal nice of past alteration stream pattern and not recovering. resent, may have and t or both flow and t 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	ė.		2	1		3.00	
appears to I	oric low water crossing app oe the last limestone/muds ared to BCT1 (upgradient)	tone outcrop before tra	nisition to sandy							

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

		THE CONDITION INDEX (CI) >>	2.90
	,		
INSERT PHOTOS:			
a			
, x			
*			

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler **Transect Description** File Number 8 Digit HUC Date Transect # Applicant Stream Order Corrigan OSB, L.L.C. 2 12020002 2/12/2016 BCRC2T3 Bear Creek SWG-2015-00145 Steam Name and Type Name(s) of Evaluator(s) Bear Creek - Intermittent Wade Bryant / Christina Perez 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Severe Optimal Suboptimal Poor Channel is incised or has had its course widened. Indicators of instability include the presence of Channel is over-widened or incised Channel is slightly incised and Channel is deeply incised or excavated with vertical or lateral instability in the stream bank. tains a few areas of active erosio Indicators of instability include with vertically or laterally unstable Visual banks. Visual indicators of over-Channel shows very little incision or widening and little or no evidence of widening and incision include near vertical banks with shallow root depths, erosional scars present along vegetative cover or natural rock protection only present along 60-80% erosional scars on 40-60% of the Transect, vegetative cover or natura Indicators of instability include the Channel streambed elevation located below the rooting depth, both banks are vertical Condition erosion or unprotected banks. of the Transect, point bars and rock only found on 40-60% of the Indicators of stability include greater bankfull benches are likely present or undercut, vegetative surface protection or natural rock is only found along 20% or less of the Transect, the Parameter Transect vertical or undercut banks 60-80% of the Transect, vegetative than 80% vegetative cover on the banks, stable point bars and bankfull cover or natural rock is limited to 20 40% of the Transect, substantial and transient sediment is present nickpoints associated with headcut benches may be present, mid-channel and transverse bars are rare or transient. The stream has access to along 10-40% of the stream bottom may be present and portions of the channel may be widening while other portions of the channel are narrowing and transient sediments are found in The stream has access to bankfull ediment deposition of uniformed-siz bank is sloughing and erosional scars benches or developed floodplains along portions of the reach. Channe material is present along 60-80% of the Transect and point bars and or raw banks present on 80-100% of the Transect and 80% or more of the active floodplain or fully developed bankfull benches. No bulkheading or show evidence of past channel 40-60% of the natural stream bed or bankfull benches are absent. The natural streambed is covered by alteration, but should be exhibiting bottom. The stream does not have access to the active floodplain. stream does not have access to an active floodplain. Bulkheading and substantial sediment resulting in readed channels. The stream does riprap may be present. notable recovery of a natural channe iprap are present along 50-80% of th Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. not have access to an active Transect floodplain 3 2 5 2.5 Score Sand banks and bottom with extensive erosional features (incised and widened). 60 + % transient sediment, Valley, slope, and bank substrate different than BCT1 , BCT2 : BFW 83 and width at 2x bfh = 114, entrenchment ratio 1.37 Note see Geology map Texas - shows alluvium / colluvium boundary at location between T2-3 http://txpub.usgs.gov/DSS/texasgeology/?tooltipsShow=true&splashShow=true&overviewMapShow=false&basemap=esri_topo&basemapOpacity=1&showDataLayers=RockUni Poly250K&dataLayerOpacity=0.7&myLocationShow=true&myLocationZoomIn=0.75&extent=level:-94.84009,30.96980,6 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect Suboptimal Marginal Poor Optimal Severe Native woody community species represen greater than 60% Native woody coverage with NO wetlands present community The buffer is dominated by one or species represent between 30-60% nore of the following: lawns, mower or maintained right-of-way, no-till The area is dominated by impervious surfaces, mine spoil lands, denuded Riparian within the buffer Native woody communty represents **Buffers** Native woody species represent reater than 60% of the coverage and OR native woody community coverage with NO wetlands present. less than 30% coverage with no cropland, actively grazed pasture, surfaces, conventional tillage row sparsely vegetated non-maintained rea, recently seeded and stabilized o crops, active feed lots or comparable wetlands are present naintenance or grazing activities species represen No maintenance 30-60% coverage or orazina other comparable condition. present. No maintenance or grazing activities Condition 5 High = 4.5Low = 43 2 Scores left bank pine silviculture 80 - 100 feet from bank, Native hardwoodsmixed withsliviculture pines 0-80 feet from bank. Right bank mixed hardwoods and pine. 40% 0% 100% 0% 60% 0% % Riparian Area> 0% Right Bank 3 1 5 4.5 4 2 CI= (Sum % RA * Scores*0.01)/2 0% 0% 80% 0% 20% 20% 120% Rt Bank CI > 3.20 RV % Riparian Area> Left Bank 3.80 3.50 Score > 4.5 3 2 1 Lt Bank CI > 5 4 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ Suboptimal Marginal Poor Severe Optimal Aquatic Life Score of Limited. Aquatic Life Score of Minimal. AQUATIC Aquatic Life Score of High, Perennial Intermittent Streams with Perennial Intermittent and ephemeral streams streams that have not been assessed Pools that have not been assessed are also assumed to have an Aquatic Life Score of Limited. USE Aquatic Life Score of Exceptional Aquatic Life Score of Intermediate. that have not been assessed are also are also assumed to have an Aquatic Life Score of High. ed to have an Aquatic Life Score of Minimal. U۷ 4 3 2 2.00 5 Score Notes:intermittent

AUG 1 9 2016

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		10 2
Project # Applicant Locality Cov			Cowardin Class.	HUC	Date	Transect #	Transect Description		
2.725.48.77.74.26.77.72.2000	Corrigan OSB, L.L.	c.			12020002	2/12/2016	BCRC2T3	Intermittent	
I. CHANNE vestock	L ALTERATION: Stream cross	ings, riprap, conc	rete, gabions, or	concrete blocks, st	raightening of ch	annel, channeliz	ation, embankmer	nts, 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 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 ze of past alteration but stream pattern ave recovered, present, have no iffect on flow.	Between 30-60% impacted by dredg levees, culverts, r armor, drop structus tructures. Evidenc may be present, b and stability are betwithdrawals, if precobservable affect observable affect of	ing, 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 dre levees, culverts armor, drop structures. Evider is present, and stability are Withdrawals, if p observable affe	6 of the Transect is dging, dams, dikes, inprap, bulkheads, ctures or withdrawal nee of past alteration stream pattern and not recovering. resent, may have an ct on both flow and t or blota.	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 biola.	AV
SCORE	5		4	3			2	1	4.00
lotes: Evid	ence of historic snagging			e channel in the					
	REAGITO	CINDITION	TIDEN and C	TILLAM OUT	IDITION ON	I	AND DESCRIPTION OF THE PARTY OF	CONDITION INDEX (CI) >>	3.00
					*		1116	CONDITION INDEX (OI) >>	5.00

INSERT PHOTOS:		
		851

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler 8 Digit HUC Date Transect # **Transect Description** File Number **Applicant** Stream Order Corrigan OSB, L.L.C. 2 12020002 8/2/2016 **BCRC2 Impact** Bear Creek - Impact SWG-2015-00145 Steam Name and Type Name(s) of Evaluator(s **Bear Creek - Intermittent IMPACT** Wade Bryant / Christina Perez 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Severe Suboptimal Poor Optimal 613 Channel is incised or has had its course widened. Indicators of Channel is slightly incised and Channel is over-widened or incised Channel is deeply incised or with vertically or laterally unstable ntains a few areas of active erosio 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 protection only present along 60-80% erosional scars on 40-60% of the Transect, vegetative cover or natura widening and incision include near vertical banks with shallow root Indicators of instability include the reambed elevation located below th Channel Condition erosion or unprotected banks. rooting depth, both banks are vertical of the Transect, point bars and rock only found on 40-60% of the depths, erosional scars present along Indicators of stability include greater than 80% vegetative cover on the bankfull benches are likely present and transient sediment is present Transect, vertical or undercut banks, or nickpoints associated with headcuts 60-80% of the Transect, vegetative cover or natural rock is limited to 20 or undercut, vegetative surface protection or natural rock is only found along 20% or less of the Transect, the Parameter banks, stable point bars and bankfull 40% of the Transect, substantial along 10-40% of the stream bottom may be present and portions of the enches may be present, mid-channe and transverse bars are rare or The stream has access to bankfull benches or developed floodplains channel may be widening while other portions of the channel are narrowing rediment deposition of uniformed-siz material is present along 60-80% of the Transect and point bars and bank is sloughing and erosional scars or raw banks present on 80-100% of the Transect and 80% or more of the transient. The stream has access to along portions of the reach. Channe and transient sediments are found in active floodplain or fully developed bankfull benches. No bulkheading or 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 bottom. The stream does not have stream does not have access to an active floodplain. Bulkheading and substantial sediment resulting in threaded channels. The stream does riprap may be present. notable recovery of a natural channe access to the active floodplain. Bulkhead and riprap are limited to 1-25% of the Transect. Bulkheading or riprap is found along 25-50% of the Transect. riprap are present along 50-80% of the Transect. not have access to an active floodplain. 2.0 Culverts on Bed Rock, Fill, right of way , channel laid back along portiions that intersect the ROW drainage 250 / 430 feet with culverts or rip rap = 58% (2) , 152 (38 %) feet no widening, minimal disturbance inside OHWM, but riparian cleared for right of way, portions will be replanted with trees (see riparian below) 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect Marginal Poor Optimal Suboptimal Severe Native woody community species represen oreater than 60% Native woody coverage with NO wetlands present within the buffer community species represer The buffer is dominated by one or nore of the following: lawns, mower or maintained right-of-way, no-till The area is dominated by impervious surfaces, mine spoil lands, denuded Riparian Buffers Native woody species represent between 30-60% Native woody communty represents cropland, actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized o greater than 60% of the coverage and wetlands are present. OR native woody community coverage with NO wetlands present. less than 30% coverage with no surfaces, conventional tillage row maintenance or grazing activities. crops, active feed lots or comparable species represent No maintenance 30-60% coverage with wetlands or grazing activities. other comparable condition. present. No maintenance or grazing activities 1 Condition 2 5 High = 4.5Low = 4Scores Roadway = 1 / maintained right-of-way = 2, Replant native hardwoods= 4.5 South of road the ROW will be maintained to keep power line clear. 100% 40% 20% % Riparian Area> 0% 40% 0% 0% g North of ro Score > 5 4.5 4 3 2 1 CI= (Sum % RA * Scores*0.01)/2 0% 0% 40% 20% 100% Rt Bank CI > 2.80 RV % Riparian Area> 0% 40% Left Bank 2.80 Lt Bank CI > 2.80 Score > 5 4.5 4 3 2 1 3. AQUATIC USE: The Transect is assessed based on the aquatic life use category score assigned to the stream segment by the TCEQ. Suboptimal Optimal Marginal Poor Severe Aquatic Life Score of Minimal. Aquatic Life Score of Limited. AQUATIC Aquatic Life Score of High. Perennia Intermittent Streams with Perennial Intermittent and ephemeral streams streams that have not been assessed are also assumed to have an Aquatic that have not been assessed are also assumed to have an Aquatic Life Score of Minimal. USE Aquatic Life Score of Intermediate Pools that have not been assessed a Aquatic Life Score of Exceptional also assumed to have an Aquatic Life Life Score of High. Score of Limited 5 4 3 2 2.00 Score

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant	Applicant Locality Cowardin Class, HUC Date Transect # Transect Description					Transect Description		
THE PERSON NAMED IN COLUMN	Corrigan OSB, L.L.C.				12020002	8/2/2016	BCRC3IMPACT	Intermittent	
4. CHANNE	L ALTERATION: Stream cross	ings, riprap, cond	rete, gabions, or	concrete blocks, str	raightening of ch	annel, channeliz	zation, embankmer	nts, spoil piles, constrictions,	
We at the present about	Optimal	Subo	ptimal	Marg	jinal	till general F	Poor	Severe	
Channel Alteration	Channelization, dredging, alteration or hardening absent. Stream has unaltered pattern or has normalized. No darms, dikes, levees, culverts, riprap, bulkheads, armor, drop structures or withdrawal structures within the Transect.	nelization, dredging, alteration or ardening absent. Stream has lered pattern or has normalized. 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. 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 have recovered. 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.		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		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 blota.	AV		
SCORE	5		4	3	3		2	1	2.00
250 /430 feet with culverts or rip rap = 58% REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH									
			The September				THE	CONDITION INDEX (CI) >>	2.20

INSERT PHOTOS:	
El .	
15	
	2

Stream Assessment Data Form for Level 1 U.S. Army Corps of Engineers Galveston District Stahler File Number 8 Digit HUC Date Transect # **Transect Description Applicant** Stream Order Corrigan OSB, L.L.C. 12020002 8/26/2014 **BCRCEPH** Ephemeral -LB SWG-2015-00145 Steam Name and Type Name(s) of Evaluator(s) Ephemeral drainage into Bear Creek at Crossing Wade Bryant / Christina Perez 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation). Suboptimal Marginal Poor Severe Optimal Channel is slightly incised and Channel is incised or has had its Channel is over-widened or incised Channel is deeply incised or course widened. Indicators of excavated with vertical or lateral instability in the stream bank. tains a few areas of active erosio Indicators of instability include with vertically or laterally unstable Visual instability include the presence of Channel shows very little incision or Channel regetative cover or natural rock erosional scars on 40-60% of the widening and incision include near Indicators of instability include the widening and little or no evidence of erosion or unprotected banks. otection only present along 60-80% of the Transect, point bars and Transect, vegetative cover or natura rock only found on 40-60% of the vertical banks with shallow root depths, erosional scars present along streambed elevation located below the rooting depth, both banks are vertical Condition Indicators of stability include greater Parameter bankfull benches are likely present Transect, vertical or undercut banks 60-80% of the Transect, vegetative or undercut, vegetative surface than 80% vegetative cover on the banks, stable point bars and bankful and transient sediment is present along 10-40% of the stream bottom r nickpoints associated with headcuts may be present and portions of the cover or natural rock is limited to 20 40% of the Transect, substantial rotection or natural rock is only found long 20% or less of the Transect, the benches may be present, mid-channe ediment deposition of uniformed-siz bank is sloughing and erosional scars The stream has access to bankfull channel may be widening while othe and transverse bars are rare or material is present along 60-80% of the Transect and point bars and bankfull benches are absent. The benches or developed floodplains along portions of the reach. Channe portions of the channel are narrowing and transient sediments are found in or raw banks present on 80-100% of the Transect and 80% or more of the transient. The stream has access to active floodplain or fully developed may show evidence of past channel 40-60% of the natural stream bed or natural streambed is covered by bankfull benches. No bulkheading or alteration, but should be exhibiting notable recovery of a natural channe bottom. The stream does not have stream does not have access to an substantial sediment resulting in riprap may be present. access to the active floodplain. active floodplain. Bulkheading and riprap are present along 50-80% of the readed channels. The stream does not have access to an active Bulkhead and riprap are limited to 1-Bulkheading or riprap is found along 25% of the Transect. 25-50% of the Transect. Transect floodplain. 1.5 5 Incised and substantial sediment deposition. No floodplain. Evidence of historic straightening including vegetated spoil. Lack of old growth along channel suggests SMZ was 2. RIPARIAN BUFFERS: Assess both banks' 100-foot riparian areas along the entire Transect Optimal Suboptimal Marginal Poor Severe Native woody community species represent greater than 60% Native woody The buffer is dominated by one or overage with NO community Riparian wetlands present within the buffer species represent between 30-60% more of the following: lawns, mowed or maintained right-of-way, no-till The area is dominated by impervious surfaces, mine spoil lands, denuded surfaces, conventional tillage row Native woody species represent Native woody communty represents **Buffers** greater than 60% of the coverage and OR native woody coverage with NO less than 30% coverage with no cropland, actively grazed pasture, community species represent wetlands present. No maintenance sparsely vegetated non-maintained rea, recently seeded and stabilized of wetlands are present. maintenance or grazing activities. crops, active feed lots or comparable other comparable condition. 30-60% coverage or grazing with wetlands present. No activities maintenance or grazing activities 1 Condition 5 High = 4.5Low = 43 2 Riparian zone resurveyed after clear cutting. Clear Cut - timber harvest narrow smz 0% 20% 0% 80% 100% 0% 0% % Riparian Area> Right Bank 3 2 1 4.5 4 Score > 5 CI= (Sum % RA * Scores*0.01)/2 RV 0% 80% 100% Rt Bank CI > 1.40 % Riparian Area> 0% 0% 0% 20% Left Bank Lt Bank CI > 1.40 1.40 Score > 5 4.5 4 3 2 1 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. Intermittent Streams with Perennial Aquatic Life Score of Minimal. Intermittent and ephemeral streams **AQUATIC** Aquatic Life Score of High. Perennial streams that have not been assessed USE Aquatic Life Score of Exceptional. Aquatic Life Score of Intermediate. Pools that have not been assessed an that have not been assessed are also assumed to have an Aquatic Life Score of High. also assumed to have an Aquatic Life Score of Limited. assumed to have an Aquatic Life Score of Minimal. U۷ 1.00 Ephemeral - only carries water during storm events, no aquatic inverts observed, no crayfish

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	ect # Applicant Locality Cowardin Class. HUC Date Transect # Transect Desc						Transect Description		
	Corrigan OSB, L.L.C.		Act Comments of the Comment of the C		12020002	8/26/2014	BCRCEPH	Ephemeral -LB	
4. CHANNE livestock	L ALTERATION: Stream cross	ings, riprap, cond	rete, gabions, or	concrete blocks, str	raightening of ch	annel, channeliz	ation, embankmer	its, 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 darns, 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 ging, dams, dikes, iprap, bulkheads, tures or withdrawal ce of past alteration 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 biola.	AV	
SCORE	5		4	3			2	1	3.00
Evidence of	f historic channelization lik			ng. STREAM CON	IDITION UN	ITS FOR TH	IIS REACH		
	REAGHIC	CINDITION	NDLA and C	TILLAW CON	DITION OF	I	TO BE THE WAY TO SEE STATE OF	CONDITION INDEX (CI) >>	1.73
							1710	COMDITION INDEX (CI) >>	1.73

INSERT PHOTOS:		
£		
		,

Stream Assessment Summary Form (Form 2)

Galveston District Stream Condition Assessment SOP

Project#	Applicant	Date	
SWG-2015-00145	Corrigan OSB, LLC	8/10/2016	
Evaluators		HUC	Locality
Wade Bryant, Christina Preze		12020002	Polk County

	T (ID)	Condition Index		
Stream Name	Transect ID	(RCI)		
Bear Creek	BCRC2T1	3.25		
Bear Creek	BCRC2T2	2.90		
Bear Creek	BCRC2T3	3.00		
	Average	3.05		
Bear Creek	IMPACTED	2.20		
RCI Delta			0.850	
Impact Factor				Delta RCI 1 or less
Linear Feet of Impact			430	
Compenesation Requirem	ent		731	
Bear Creek Ephemeral	BCRCEPH	1.73	Filled	
RCI Delta			1.73	
Impact Factor			5	Filled
Linear Feet of Impact			180	
Compenesation Requirem	ent		1557	