

**Chevron Environmental Management  
Company**

**J.C. Wetlands Restoration Project  
(J.D. Murphree WMA)**

Construction Completion Report

April 2008

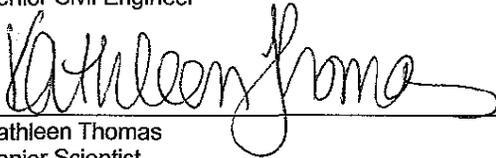
ARCADIS



Troy E. Hopper, P.E.  
Vice President  
ARCADIS Engineer-in-Charge



Mike Purvis, P.E.  
Senior Civil Engineer



Kathleen Thomas  
Senior Scientist

**J.C. Wetlands Restoration  
Project (J.D. Murphree WMA)**

Construction Completion Report

Prepared for:  
Chevron Environmental Management  
Company

Prepared by:  
ARCADIS  
2929 Briarpark Drive  
Suite 215  
Houston  
Texas 77042  
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Our Ref :  
B0045979 0000

Date:  
April 25, 2008

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## 1. Introduction

The “Old Gulf Oil Refinery” (Refinery) located at 1801 South Gulfway Drive in Port Arthur, Texas has been the home of a continuously operated refinery since 1902. Chevron U.S.A. (Chevron) owned and operated this refinery from 1984 when it acquired Gulf Oil Company until 1995 when Chevron sold the refinery to Premcor Refining Group, Inc.

In June 1999, using data gathered from various investigations and studies at the Refinery, State and Federal Trustees (Trustees) and Chevron began a cooperative assessment to evaluate potential damage to natural resources and resource services at the Refinery resulting from past releases from the Refinery. Based on this assessment, it was determined that Natural Resource Damages had occurred at the Refinery. As a result, the Trustees and Chevron entered into a Consent Decree on March 30, 2005 which identified three restoration actions Chevron is responsible to implement as compensation for the Natural Resource Damages caused by past releases at the Refinery. The three restoration actions include:

- The Jefferson County ("J.C.") Wetlands Restoration Project at the J.D. Murphree Wildlife Management Area.
- The Old River South ("ORS") Water Flow Enhancement Structures Restoration Project at the Lower Neches Wildlife Management Area; and
- The ORS Estuarine Marsh Complex and Coastal Wet Prairie Restoration Project at the Lower Neches Wildlife Management Area.

On behalf of Chevron, ARCADIS, Inc. (ARCADIS) has prepared this report to document the construction activities implemented for the J.C. Wetlands Restoration Project located at the J.D. Murphree Wildlife Management Area (WMA).

### 1.1 Site History

The J.D. Murphree WMA is owned by the Texas Parks and Wildlife Department (TPWD) and is located approximately five miles southwest of the city of Port Arthur, Texas. The project area includes two (2) leveed wetland management compartments that were constructed on the Big Hill Unit of the J.D. Murphree WMA between 1960 and 1963. These wetland compartments (numbers 8 & 9) are located east of Blind Bayou and north of the Intercoastal Waterway (ICWW) (Figure 1) (NOAA et. al 2004).

## 1.2 Project Background

Currently, the hydrology of the wetland units is managed by a system of water control structures and gravity flow. A large portion of Compartment 9 was impacted by soil deposited on the north shore of the ICWW during its construction in the early 1930s. The existing water control system requires that all water transferred from the ICWW to Compartment 8 pass through Compartment 9. Because Compartment 9 has a relatively higher elevation than Compartment 8, the amount of inundation in Compartment 8 is limited (NOAA et. al 2004).

The goals of the project (NOAA et. al 2004) were to:

- Restore and improve the control of freshwater that flows between compartments 8 and 9;
- Allow the hydrology within the compartments to be managed independently; and
- Improve management of undesirable vegetation.

## 2. J.C. Wetlands Restoration Project Requirements

The J.C. Wetlands Restoration Project is designed to restore and enhance the moist soil management capabilities in Marsh Compartments 8 and 9 of the J.D. Murphree WMA by improving the existing TPWD system of managing water levels within the wetland management compartments (see Figure 1).

The project consisted of replacing one existing water control structure located between compartments 8 and 9; installing a new water control structure on the north ditch in the northeast corner of compartment 9; and constructing a low-elevation earthen berm along the northeastern boundary of compartment 9 west of Magnolia Cut (Figure 2) (NOAA et. al 2004). An earthen plug was also constructed between compartments 8 and 9 and directs water from the existing water control structure in compartment 8 to the new water control structure (Figure 2). This allows compartment 9 to be managed independently of compartment 8.

The new water control structures will be used by TPWD staff to manage water circulation and flow dynamics more efficiently and restore historic seasonal hydrology. Improved water level control capabilities and the potential to increase salinity in this compartment will reduce the amount of chemical herbicide needed to control noxious

exotic freshwater vegetation. Installing these structures will restore and improve water management capabilities in the compartment and enhance approximately 600 acres of emergent marsh, supra-tidal marsh, and wet coastal prairie (NOAA et. al 2004).

As stated in Section III (A) of the Implementation Plan, the J.C. Wetlands Restoration Project was to be constructed with the materials and specifications contained in the conceptual design drawings. The conceptual project plans from Exhibit B of the Implementation Plan are included as Figure 3.

### 2.1 Water Control Structures

A preliminary topographic survey of the site was conducted in December 2006. This survey was used to gather site specific information regarding current elevations at the Site, which were used to generate the final set of Contract Drawings.

Section II (3) of the Implementation Plan states that, "*The depth of these structures shall be approved by the Trustees after Settling Defendants provide information about site conditions, based on visual observation and/or a survey.*" In accordance with Section II (3), a letter was sent to the Trustees stating the final elevations of the two water control structures (prior to commencement of construction) (see Appendix A). The final elevation was selected based on conversations with Mr. Jim Sutherlin of the Texas Parks and Wildlife Department (TPWD), in which he stated that the target elevations for the water control structures should reasonably match the lower elevations contained within the interior of Compartment 8 of the J.D. Murphree WMA. To identify the appropriate target elevation, approximately two dozen survey points were collected, with the help of TPWD, from various pools located within Compartment 8 during pre-construction survey activities. Based on this survey data and as indicated on the enclosed Contract Drawings, the two water control structures were installed to a final elevation of at least -2.0 feet NAVD88.

A post construction survey of the site was completed on April 11, 2008. The survey data confirms that the water control structures were installed at the correct elevations. The final As-Built Drawings, sealed by a Texas-licensed Professional Engineer, are included as Appendix B.

### 2.2 Earthen Berm

In accordance with Exhibit B (i) of the Implementation Plan, the earthen berm was to be constructed with the following specifications:

- 2:1 slope; and
- 400 ft long x 10 ft wide.

Based on initial survey data, it was determined that approximately 650 linear feet of low-berm would need to be constructed to meet the intended objective. The final berm layout is shown on Figure G100 of the As-Built Drawings included as Appendix B. This earthen berm was constructed to an elevation of approximately 3.0 feet NAVD88 to match the elevation of the earthen plug described below. The side slopes of the berm were constructed at slopes of approximately 5:1 instead of the originally specified 2:1 to minimize the potential damage to the berm caused by animals, such as alligators, climbing over the berm.

### 2.3 Earthen Plug

In accordance with Exhibit B (i) of the Implementation Plan, the earthen plug was to be constructed with the following specifications:

- Compacted clay from existing adjacent open water area and from placement area of structure; and
- Covered with 25- pound riprap.

The earthen plug was built in accordance with the specifications listed above. In place of rip rap, cabled concrete block mats were used to armor the top of the earthen plug. The concrete mats were easier to manage in the marsh and provide a smoother, more uniform surface and also provide superior erosion control. The final As-Built Drawings, sealed by a Texas-licensed Professional Engineer, are included in Appendix B.

## 3. J.C. Wetlands Restoration Project Summary

The construction of the J.C. Wetlands Restoration Project was completed during the week of March 10, 2008 with the final as-built survey being conducted on April 11, 2008. Troy Hopper, P.E., the certifying engineer for this project, visited the site on April 22, 2008 and confirmed that the project was constructed in accordance with the As-Built Drawings (Appendix B).

Discussions with the TPWD staff indicate that the project was successful and they have already begun to notice the improvements that the water control structure,

earthen berm and earthen plug provide. Photos of the construction activities and final structures in place, are included in Appendix C.

**4. References**

National Oceanic and Atmospheric Administration (NOAA), Texas Commission on Environmental Quality (TCEQ), Texas Parks and Wildlife Department (TPWD), Texas General Land Office (TXGLO), and The United States Fish and Wildlife Service (USFWS). 2004. Final – Restoration Plan and Environmental Assessment for the Old Gulf Refinery, Port Arthur, Jefferson County, Texas. September.

ARCADIS

**Figures**

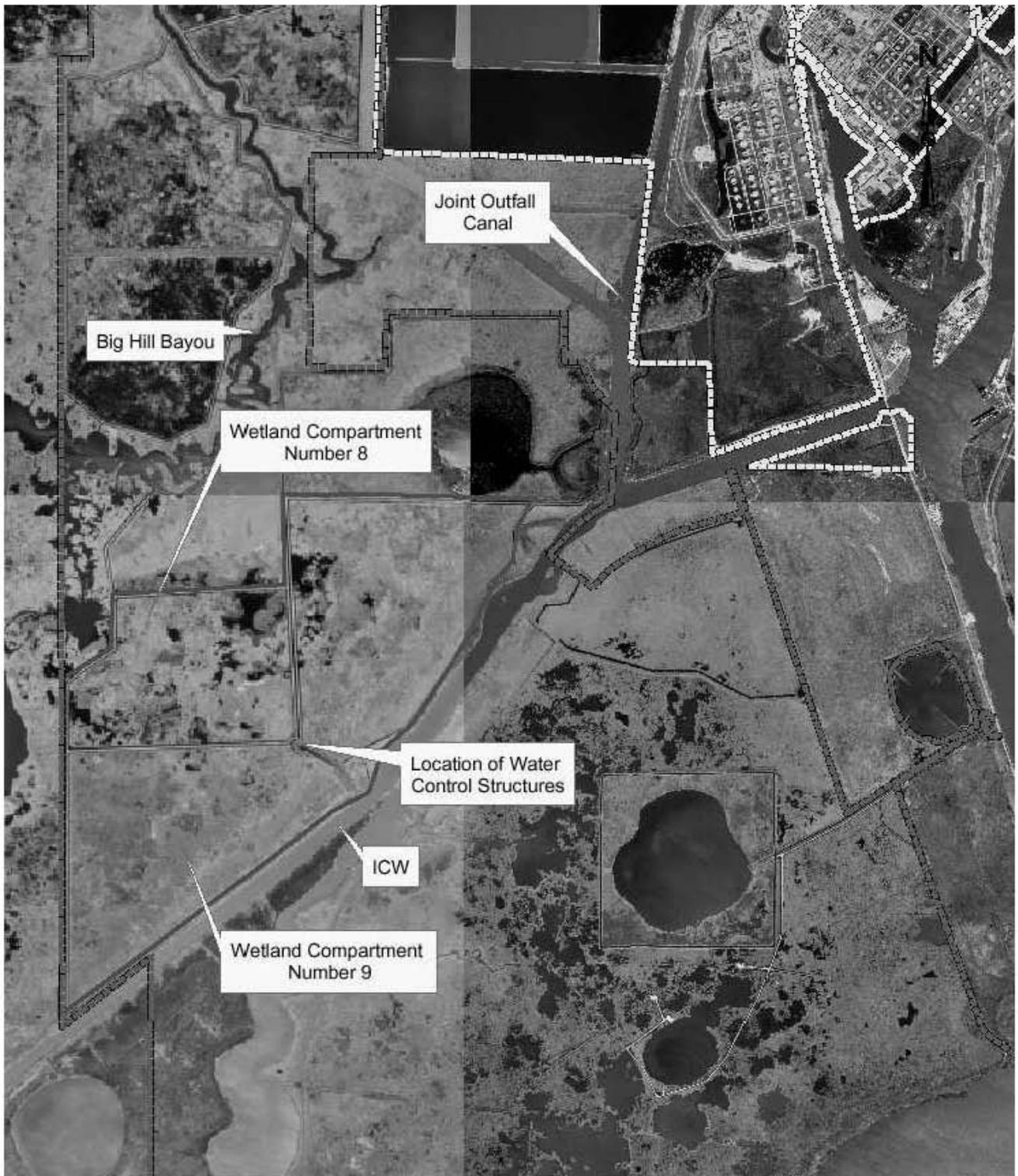


Figure 1

Exhibit B:  
Location of the Jefferson County Wetlands Restoration Project (J.D. Murphree WMA)

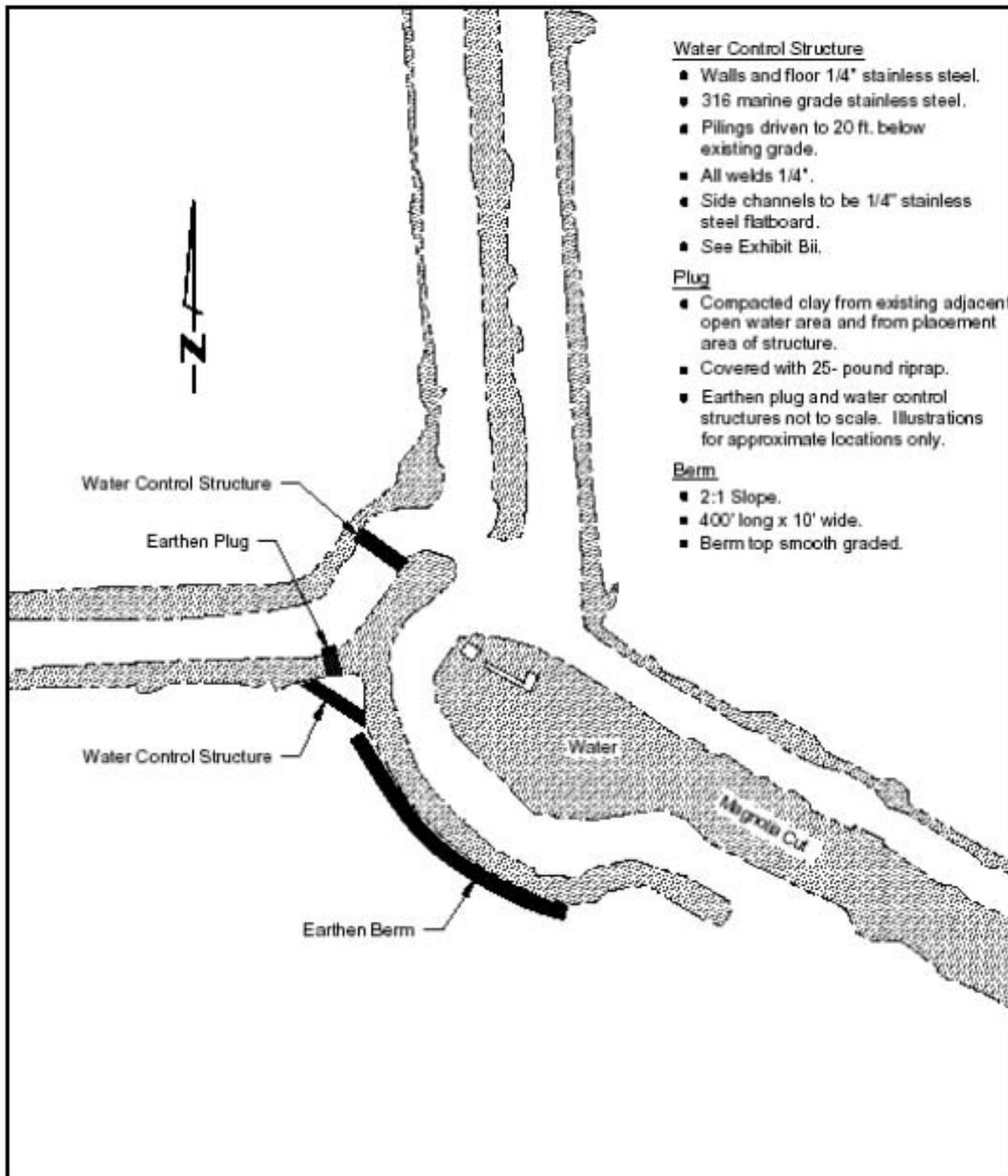
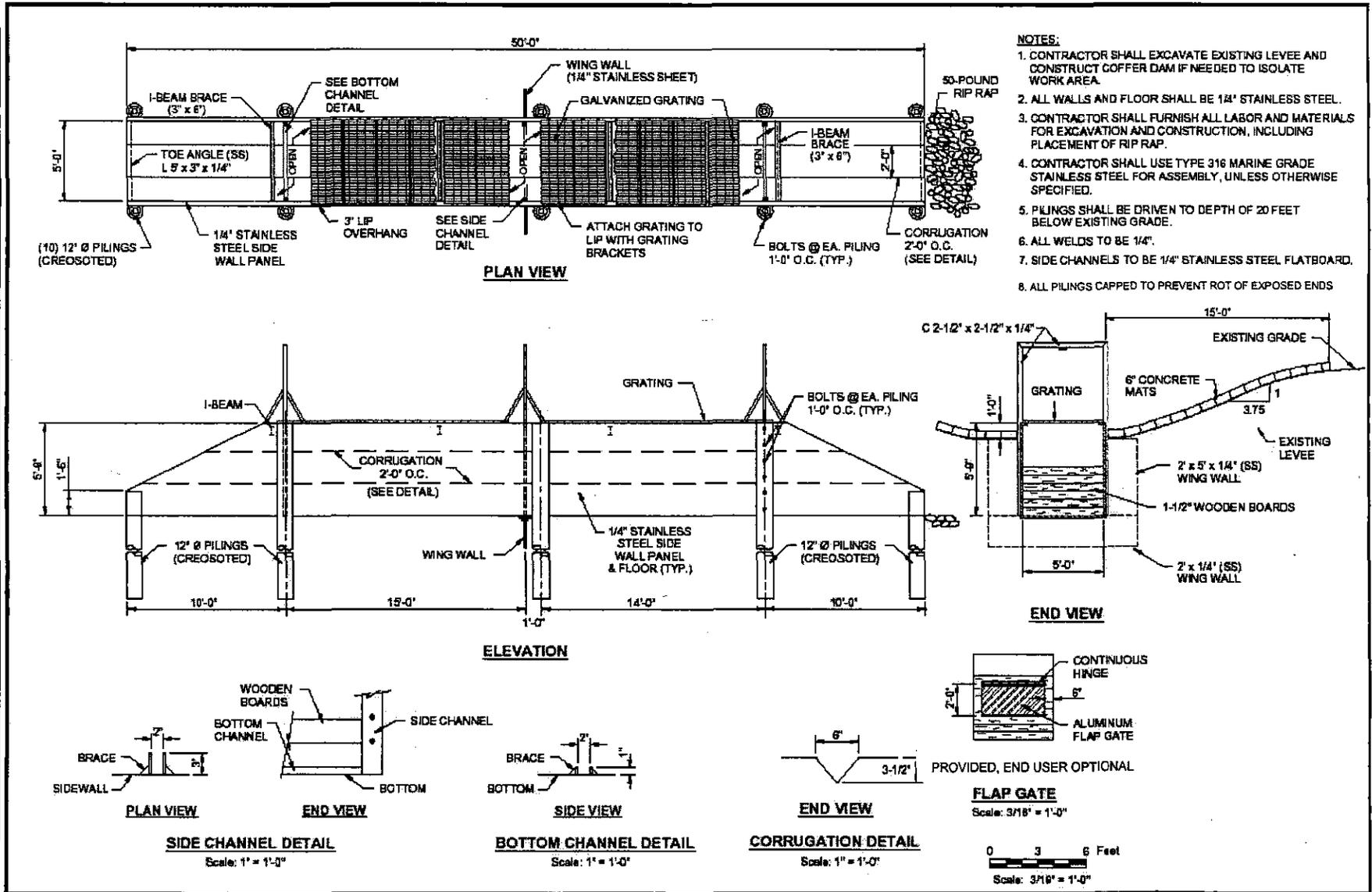


Figure 2

Exhibit B (i):  
 Inset Detail, Water Management Structural Improvements, Jefferson County Wetlands  
 Restoration Project (J.D. Murphree WMA)

Figure 3

Exhibit B (ii):  
Water Control Structure, J.D. Murphree WMA No. 8/9, Jefferson County, Texas



**Appendix A**

Correspondence

ARCADIS

**Appendix A**

Letter from Chevron to NOAA  
regarding permit submittal (9-29-  
05)



**Mr. Robert S. Gondek**  
Site Manager,  
Port Arthur & El Paso

**Chevron Environmental  
Management Company**

3400 Hwy. 365, Ste. 210  
Port Arthur, TX 77642  
Tel (713) 219-5230  
Fax (409) 626-3225  
GOND@chevron.com

September 29, 2005

Ms. Jessica White  
Coastal Resource Coordinator  
NOAA/NOS/OR&R/CPRD  
1445 Ross Avenue, MC 6SF-L  
Dallas, TX 75202

*Reference: United States vs. Chevron U.S.A. Inc., Chevron Environmental Management Company,  
and Chevron Phillips Chemical Company, LP, 2005*

Dear Ms. White:

In accordance with the Consent Decree filed on March 30, 2005, by the United States of America and the State of Texas vs. Chevron U.S.A. Inc., Chevron Environmental Management Company, and Chevron Phillips Chemical Company, LP (Implementation and Monitoring Plan for Restoration Projects, Section III. Construction Requirements), we are submitting a list of the permits which have been submitted as required for construction of the restoration projects associated with the decree. The restoration projects include: the Jefferson County Wetlands Restoration Project, the Old River South (ORS) Water Control Structures Restoration Project, and the ORS Marsh Complex and Wet Prairie Restoration Project.

The permits that have been submitted include:

- Pre-Construction Notification to Perform Work Under Nationwide Permit 27
  - Submitted to Mr. Bruce H. Bennett (Chief, North Evaluation Unit, United States Army Corps of Engineers (USACE), Galveston District, Galveston, Texas) on April 26, 2005. This permit was approved by the USACE on June 30, 2005.
- Permit (License) to Install Pipelines, Conduits, or Other Facilities Across Orange County, Texas Properties
  - Submitted to Mr. Les Anderson, P.E. (County Engineer, Orange County Road and Bridge Department, Orange County, TX) on September 29, 2005.

As the Chevron representative, I certify that these permits have been submitted with the appropriate regulatory agencies.

Per your letter on September 2, 2005 stating that you are now the designated representative for primary contact in the Project Review Group for the Chevron/Port Arthur Refinery site, we respectfully request that you notify the additional Trustee representatives.

September 29, 2005  
Page 2

Please do not hesitate to call me at (713) 219-5230 or Scott Strathouse with Blasland, Bouck & Lee, Inc. at (713) 785-1680 (extension 12) if you have any questions or require any additional information.

Sincerely,

Mr. Robert S. Gondek

RSG//

cc: Miss Vicki Cearley, SAIC Document Control, Port Arthur, TX  
Miss Sylvia Crawford, SAIC Document Control, San Antonio, TX

**Thomas, Kathleen**

---

**From:** ngw@postmaster.po  
**Sent:** Thursday, September 29, 2005 7:41 AM  
**To:** FAY, KATHLEEN; STRATHOUSE, SCOTT; Carow, John S (Steve.Carow)  
**Subject:** NOAA\_092905.doc  
**Attachments:** NOAA\_092905\_.doc

This letter was signed and sent via DHL overnight today. Thanks.

<<NOAA\_092905\_.doc>>

ARCADIS

**Appendix A**

Letter from Chevron to TPWD  
regarding update on permit status  
(7-12-06)



**Mr. Robert S. Gondek**  
Site Manager,  
Port Arthur & El Paso

**Chevron Environmental  
Management Company**

4800 Fournace Place  
BOB/E542C  
Bellaire, Texas 77401  
Tel (713) 432-2633  
Fax (713) 432-2627  
GOND@chevron.com

July 12, 2006

Mr. Andy Tirpak  
Natural Resource Trustee, Resource Protection  
Texas Parks and Wildlife Department  
Dickinson Resource Protection Office  
1502 Pine Drive (FM 517)  
Dickinson, TX 77539

*Reference: Update on Permit Status and Site Activities for Lower Neches Wildlife Management Area  
United States vs. Chevron U.S.A. Inc., Chevron Environmental Management Company,  
and Chevron Phillips Chemical Company, LP, 2005*

Dear Mr Tirpak:

Chevron Environmental Management Company (Chevron) is pleased to notify the Trustees that the permits submitted in accordance with the Consent Decree filed on March 30, 2005, by the United States of America and the State of Texas vs. Chevron U.S.A. Inc., Chevron Environmental Management Company, and Chevron Phillips Chemical Company, LP (Implementation and Monitoring Plan for Restoration Projects, Section III Construction Requirements) were approved by the Orange County Engineer on June 12, 2006. A copy of the permit which approves installation of the culverts along Bailey Road is attached for your files.

The surveying field activities and geotechnical field activities have been completed at both the Lower Neches and J.D. Murphree sites. The engineering design is being completed by Blasland, Bouck & Lee, Inc. (BBL) for the Lower Neches site and J.D. Murphree water control structure.

Installation of the culverts along Bailey Road is being coordinated with the Orange County Drainage District and BBL. Once a definitive schedule is agreed to for installing the culverts, Chevron will provide the Trustees with a detailed project schedule for construction and monitoring activities at the Lower Neches and J.D. Murphree sites.

Please do not hesitate to call me at (713) 432-2633 or Scott Strathouse with Blasland, Bouck & Lee, Inc. at (713) 785-1680 (extension 12) if you have any questions or require any additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Gondek", written over a white background.

Robert S. Gondek

July 12, 2006  
Page 2

RSG//bt

Attachment

cc: Ms. Gloria Delgadillo, Chevron Environmental Management Company, Port Arthur, TX  
Ms. Jessica White, NOAA, Dallas, TX  
Mr. Scott Strathouse, Blasland, Bouck & Lee, Inc., Houston, TX  
Mr. Jerry Hall, Blasland, Bouck & Lee, Inc, Houston, TX

**PERMIT (LICENSE) TO INSTALL PIPELINES, CONDUITS OR OTHER FACILITIES  
ACROSS ORANGE COUNTY, TEXAS PROPERTY**

**I. PARTIES**

**A. Licensor (Name and Address)**

County Judge  
Orange County, Texas  
Orange County Courthouse  
801 Division Street  
Orange, Texas 77630  
(409) 882-7070

**B. Licensee (Name and Address)**

Blasland, Bouck & Lee, Inc.  
(Agent for Chevron Environmental Management Co)  
2929 Briarpark Dr.  
Suite 329  
Houston, TX 77042

**II. RECITALS**

- A.** Licensor is the owner/processor of certain real property located in Orange County, Texas and further described in Exhibit "A" attached hereto
- B.** Licensee desires to acquire a license to install pipelines, conduits or other facilities on or across various roadways, drainage ditches and other real property owned or possessed by Orange County, Texas and further described in Exhibit "A" attached hereto

**III. GRANT OF LICENSE**

**A. License.**

- 1 Licensee shall have the right to install pipelines, conduits, or other facilities on or across roadways, drainage ditches and other real property owned or possessed by Orange County, Texas. A description of the pipelines, conduits and/or other facilities as well as a description of the particular roadways, drainage ditches and/or other real property over which the same will be installed is more particularly described in Exhibit "A" attached hereto and incorporated by reference, subject to the approval of the County Engineer and Commissioners' Court as indicated by their signature on Exhibit "A" in the spaces provided
- 2 In some cases, the Licensor does not own the fee to certain real property, but merely enjoys an easement over said real property. Any license granted by the Licensor is as to its interest only and does not relieve the Licensee from obtaining a license or other permission from other holders of interests in the real property made the basis of this license

- B **Consideration.** In consideration for the issuance of this license, the licensee agrees to abide by the terms and conditions of the Notice to Pipe Line Companies and Others issued by the Commissioners' Court of Orange County, Texas on April 8, 1974 and attached hereto as Exhibit "B" and incorporated by reference
- C. **Non-Assignability.** This license is personal to the Licensee and may not be transferred to any third person without the express written consent of the Licensor. In attempt to transfer this license in violation of this paragraph will render the license void
- D. **Termination, Modification and Removal.**
- 1 Improper Installation. If the Licensee fails to install the pipelines, conduits and/or other facilities as set forth in Exhibit "A" attached hereto, the Licensor shall give the Licensee seven (7) days written notice to remove and correct all items which are not installed in accordance with Exhibit "B". In the event that the Licensee fails to correct the installation within the time period specified, the Licensor shall have the right to revoke, without further notice, this License and remove all pipelines, conduits and other facilities of the Licensee
  - 2 Modification and Removal. Licensor does not waive any right of condemnation or eminent domain by the execution of this license agreement. The Licensee agrees to, within a reasonable amount of time after receipt of a written request by the Licensor, to temporarily or, if applicable, permanently move, or remove, any pipeline, conduit and/or other facility, at the Licensee's expense, in order to permit the widening and/or maintenance of the affected roadway, conduit or other real property owned or possessed by the Licensor
- E. **Indemnity.** Licensee shall hold harmless, defend, and indemnify Licensor against any suits, liabilities, claims, demands, or damages, including, but not limited to, personal injuries and attorney's fees, arising from Licensee's exercise of its rights and obligations conferred by this Agreement

EXECUTED this the 12th day of JUNE, 2006

**LICENSOR:**

By: *Archie Barber P.E.*  
County Engineer, Authorized representative of  
Orange County, Texas

**LICENSEE:**

By: *Tommy S. Huppert*  
Authorized Representative

EXHIBIT "A"

APPLICATION FOR PERMIT (LICENSE) TO INSTALL PIPELINES AND OTHER  
CONDUITS OR FACILITIES ON OR ACROSS EASEMENTS, ROADWAYS,  
DITCHES AND OTHER PROPERTY OWNED OR CONTROLLED BY ORANGE  
COUNTY, TEXAS.

- 1 List name, address and telephone number of Applicant (Licensee)  
Blasland, Bouck & Lee, Inc. (Agent for Chevron Environmental Mgmt. Co)  
2929 Briarpark Dr., Suite 329  
Houston, TX 77042  
(713) 785-1680
  
- 2 List the name, address and telephone number of the Contractor performing installation if different from the Applicant  
Orange County Drainage District  
8081 Old Hwy 90  
Orange, TX 77632  
(409) 745-3225
  
- 3 Provide a detailed description of the pipeline, conduit and/or other facility to be installed  
Four culvert systems will be installed beneath Bailey  
Road near Bridge City, Texas, as indicated in the  
attached plans. Each culvert system will consist of three  
4' x 4' concrete box culverts approximately 100 feet  
in length.
  
- 4 What is the estimated date of installation  
November/December 2005
  
- 5 Provide a detailed description of any and all Orange County property affected by the installation (Attach legal description or other identifying material if necessary)
  
- 6 Attach three (3) copies of any and all maps sketches or other material identifying the route of the proposed installation

EXHIBIT "B"

NOTICE TO PIPELINE COMPANIES AND OTHERS DESIRING PERMISSION TO  
INSTALL PIPELINES AND OTHER CONDUITS OR FACILITIES ON OR ACROSS  
EASEMENTS, ROADWAYS, DITCHES AND OTHER PROPERTY OWNED OR  
CONTROLLED BY ORANGE COUNTY, TEXAS

- I. Written permission or approval must be obtained from the Commissioners' Court or authorized representative of Orange County, Texas, before any pipeline or other facility including utilities is constructed on or across easements, ditches, roadways or fee lands owned or controlled by Orange County, Texas

A written application, in triplicate, for installations must be made by the owner of the pipeline or facility, preferably on forms similar to the attached application form or by letter, including all the information as contained thereon. In addition, sketches giving detailed information on type and manner of installation, a profile showing elevations, and a location map should accompany the applications. If the line crosses a series of the County's roadways or ditches, the route should be indicated in red on one copy of the County's map, to be enclosed with the application and sketches

THE FOLLOWING PARAGRAPHS PRESENT THE POLICIES OF  
ORANGE COUNTY, TEXAS

I A. All crossings of Orange County Roads will be by the Boring Method.

I B. On "wet" tide-water ditches and canals subject to dredging:

- IB-1. The method preferred by Orange County is to bury the line or other proposed facilities below the design bottom of the drainage canal so as to have not less than five feet of cover above the top of the pipe. "Design bottom" elevations of ditches will be provided by Orange County if available when furnished with exact locations of the proposed crossing. Horizontal clearance must be provided, as required by the County of Orange, as to allow for future widening of the canal or ditch.
- IB-2. An alternate method is to span the canal. If this alternate method is chosen the County of Orange will consider each crossing separately. In general, the minimum acceptable clearance between normal water level and bottom of pipeline will be 30 foot spans horizontal and 10 feet vertical.
- IB-3. When the above mentioned ditches are adjacent to a roadway, casing or other protection may be required.
- IB-4. Durable markers are required at points where buried pipeline crosses County right-of-way lines or land borders so that visual determination of the location of said pipe may be made without probing.

I.C. On "dry" upland ditches not subject to dredging:

I.C-1. The preferred method is to install the line or facility below the design bottom of the drainage canal or ditch so as to have not less than 3 feet of cover. Horizontal clearance must be provided for future widening, as required by Orange County.

I.C-2. If an alternate overhead method is chosen, the County will consider each crossing separately. In general, the minimum acceptable clearance between normal water level and the bottom of pipeline will be 30 foot span horizontal and 110 feet vertical.

I.C-3. When the mentioned ditches are adjacent to a roadway, casing or other protection may be required.

I.C-4. Durable markers are required at points where buried pipeline crosses County right-of-way lines or land borders so that visual determination of the location of said pipe may be made without probing.

II. PERMIT FEE:

Application for permits must be accompanied by a check made payable to Orange County and of an amount calculated according to the schedule shown here:

EACH APPLICATION:

Each Crossing	\$120.00
---------------	----------

III. APPLICANT'S BOND OR FINANCIAL GUARANTEE:

The county requires that each applicant furnish a bond or other guarantee, acceptable to the County, to insure that the crossing site or sites will be maintained and left in a condition satisfactory to the County during and after construction. The required value of such bond or guarantee will be calculated at \$20,000.00 per crossing.

A representative of the County will inspect the crossing sites after notification of completion and will report to the Commissioners' Court. If the crossing sites are satisfactory, the Commissioners' Court will release the bond. If the crossing sites have not been completed and cleaned in a manner satisfactory to the County, the Commissioners' Court will take any steps necessary to insure such completion at the expense of the applicant.

**IV. ORANGE COUNTY'S RESPONSIBILITY:**

**IV-A. BEFORE CONSTRUCTION:**

IV-A-1. Furnish this Notice, Application Form and Sample Sketch

IV-B-2. Furnish design information as available, assist applicant when deemed necessary, and process the applications. In event any special information is required, the cost of same shall be paid by applicant.

**IV-B. DURING CONSTRUCTION:**

IV-B-1. 

The County Engineer will issue a stop work order for any construction within a county right of way or county property when work damages roads, endangers public safety or is not in compliance with county policy.
--

**IV-C. AFTER CONSTRUCTION:**

IV-C-1. Inspect each site to insure satisfactory compliance with conditions

IV-C-2. Complete file and release applicant's bond after conditions have been complied with

**V. APPLICANT'S RESPONSIBILITIES:**

The applicant will bear full and sole responsibility for all damages and injuries which may be in any way connected or related to his work

**VI. FUTURE WORK BY APPLICANT:**

In the event that future widening or deeping of the roadway ditch is deemed necessary by the County, the Applicant will be required to make any necessary alterations or changes to the location of the line at his expense. This includes additional right-of-way when deemed necessary by the Commissioners' Court

**VII. ASSIGNMENT OF APPLICANTS:**

Privileges and Responsibilities

The County will conduct business only with the applicant unless evidence, satisfactory to the County, is submitted setting out some other person, firm, company or corporation as being the "Applicant-in-fact" or "Agent" and setting out that such other person, firm, company or corporation does in fact accept the privileges and responsibilities. When such evidence has been submitted and accepted by the County, the "Applicant-in-fact" becomes the Applicant in so far as each application and crossing is concerned. The benefits of locations and installation cannot be assigned without the acceptance of the attendant responsibilities

The Orange County Engineer will review the application in a timely fashion. The application, if satisfactory, will be approved and one copy will be returned for the applicant's records. No work can be done until application is approved.

NOTICE:

Granting of an application permit involves the specific location across an Orange County roadway or ditch only, and the obtaining of other rights or permits from owners or agencies is not the responsibility of Orange County.

Additional information can be obtained at the County Engineer's Office at the County Annex Building, 106 South Border Street, Room 1, Orange, Texas 77630.

ARCADIS

**Appendix A**

Letter from Chevron to TPWD  
regarding schedule for JD  
Murphree Project (1-14-08)



**Mr. Blake Hall**  
Project Manager,  
Port Arthur

**Chevron Environmental  
Management Company**

4800 Fournace Place  
BOB E542C  
Bellaire, TX 77401  
Tel (713) 432-2633  
Fax (713) 432-2627  
[BlakeHall@chevron.com](mailto:BlakeHall@chevron.com)

January 14, 2008

Mr. Andy Tirpak  
Texas Parks and Wildlife Department  
Dickinson Regional Office  
1502 FM 517 E  
Dickinson, Texas 77539

*Reference: Jefferson County Wetlands Restoration Project at J.D. Murphee Wildlife Management Area  
Construction Schedule  
Jefferson County, Texas*

Dear Mr. Tirpak:

In accordance with the Consent Decree filed on March 30, 2005, by the United States of America and the State of Texas vs. Chevron U.S.A. Inc., Chevron Environmental Management Company, and Chevron Phillips Chemical Company, LP (Implementation and Monitoring Plan for Restoration Projects, Section III. Construction Requirements), we are submitting the construction schedules for the *Jefferson County (J.C.) Wetlands Restoration Project* ("J.D. Murphee Wildlife Management Area (WMA) Restoration Site").

The construction of the two water flow enhancement structures, the low terrace berm, and adjacent ditch, and the plugging of the existing ditch at the J.D. Murphee WMA Restoration Site is proposed to begin on January 28, 2008 and will conclude in March 2008.

If you have any questions or require any additional information, please contact me at (713) 432-2633, Jerry Hall at (713) 954-6009, or Kathleen Thomas with ARCADIS at (713) 785-1680 (extension 13).

Sincerely,

A handwritten signature in black ink that reads "W. Blake Hall".

Blake Hall

Attachment

cc: Dr. Jerry Hall, Chevron Energy Technology Company, Houston, TX  
Ms. Gloria Delgadillo, Chevron Environmental Management Company, Port Arthur, TX  
Mr. Rob Anderson, ARCADIS, Pittsburgh, PA  
Ms. Kathleen Thomas, ARCADIS, Houston, TX  
Mr. Richard Cuneo, ChevronPhillips Chemical Company, Port Arthur, TX

ARCADIS

**Appendix A**

Letter from Chevron to TPWD  
regarding JD Murphree final  
elevations (2-11-08)



**Mr. Blake Hall**  
Project Manager,  
Port Arthur

**Chevron Environmental  
Management Company**

4800 Fournace Place  
BOB E542C  
Bellaire, TX 77401  
Tel (713) 432-2633  
Fax (713) 432-2627  
[BlakeHall@chevron.com](mailto:BlakeHall@chevron.com)

February 11, 2008

Mr. Don Pitts  
Texas Parks and Wildlife Department  
Trustee Program  
3000 South IH 35, Suite 375  
Austin, Texas 78704

**VIA EMAIL**

*Reference: Jefferson County Wetlands Restoration Project at J.D. Murphee Wildlife Management Area  
Water Control Structure Elevations  
Jefferson County, Texas*

Dear Mr. Pitts:

In accordance with the Consent Decree filed on March 30, 2005, by the United States of America and the State of Texas vs. Chevron U.S.A. Inc., Chevron Environmental Management Company, and Chevron Phillips Chemical Company, LP (Implementation and Monitoring Plan for Restoration Projects, Section III. Construction Requirements), this letter is being submitted to provide you with the final elevations for the two water control structures being installed as part of the *Jefferson County (J.C.) Wetlands Restoration Project* ("J.D. Murphee Wildlife Management Area (WMA) Restoration Site").

Based on conversations with Mr. Jim Sutherlin of the Texas Parks and Wildlife Department (TPWD), the target elevations for these water control structures should reasonably match the lower elevations contained within the interior of Compartment 8 of the JD Murphee WMA. To identify the appropriate target elevation, approximately two dozen survey points were collected, with the help of TPWD, from various pools located within Compartment 8 during pre-construction survey activities. Based on this survey data and as indicated on the enclosed design drawings, the two water control structures are to be installed to a final elevation of -2.0 feet NAVD88. It is anticipated that the actual installation of the two water control structures will begin on Thursday, February 14, 2008.

If you have any questions or require any additional information, please contact me at (713) 432-2633, Jerry Hall at (713) 954-6009, or Kathleen Thomas with ARCADIS at (713) 785-1680 (extension 13).

Sincerely,

Blake Hall

February 11, 2007

Page 2

Attachment

cc: Dr. Jerry Hall, Chevron Energy Technology Company, Houston, TX  
Ms. Gloria Delgadillo, Chevron Environmental Management Company, Port Arthur, TX  
Mr. Rob Anderson, ARCADIS, Pittsburgh, PA  
Ms. Kathleen Thomas, ARCADIS, Houston, TX  
Mr. Richard Cuneo, ChevronPhillips Chemical Company, Port Arthur, TX

ARCADIS

**Appendix A**

Letter from Chevron to TPWD  
regarding completion of final as-  
built survey at JD Murphree (4-17-  
08)



**Mr. Blake Hall**  
Project Manager,  
Port Arthur

**Chevron Environmental  
Management Company**  
4800 Fournace Place  
BOB E542C  
Bellaire, TX 77401  
Tel (713) 432-2633  
Fax (713) 432-2627  
[BlakeHall@chevron.com](mailto:BlakeHall@chevron.com)

April 17, 2008

Mr. Andy Tirpak  
Texas Parks and Wildlife Department  
Dickinson Regional Office  
1502 FM 517 E  
Dickinson, Texas 77539

*Reference: Jefferson County Wetlands Restoration Project at J.D. Murphree Wildlife Management Area  
Jefferson County, Texas*

Trustees:

According to Attachment A of the Consent Decree, Section III, C, 14 of the Consent Decree filed on March 30, 2005, by the United States of America and the State of Texas vs. Chevron U.S.A. Inc., Chevron Environmental Management Company and Chevron Phillips Chemical Company, LP (Chevron), Chevron has 14 days after the completion of the last flow enhancement structure at the J.D. Murphree WMA Restoration Site to submit a Notice of Construction Completion to the Trustees. As stated in our March 18, 2008 correspondence, construction was considered complete after the final as-built survey of the site was completed. This final as-built survey was completed on April 11, 2008.

The Notice of Construction Completion will be submitted to the Trustees by April 25, 2008.

We will be available the week of May 19, 2008 for the site visit, if this is convenient for the Trustees.

If you have any questions or require any additional information, please feel free to contact me at (713) 432-2633.

Sincerely,

A handwritten signature in black ink that reads "W. Blake Hall".

Blake Hall

cc: Dr. Jerry Hall, Chevron Energy Technology Company, Houston, TX  
Mr. Richard Cuneo, ChevronPhillips Chemical Company, Port Arthur, TX  
Mr. Rob Anderson, ARCADIS, Pittsburg, PA  
Mr. Mike Purvis, ARCADIS, Cary, NC  
Ms. Kathleen Thomas, ARCADIS, Houston, TX  
Mr. Ben Elliot, SAIC, San Antonio, TX  
Ms. Gloria Delgado, Chevron Environmental Management Company, Port Arthur, TX

ARCADIS

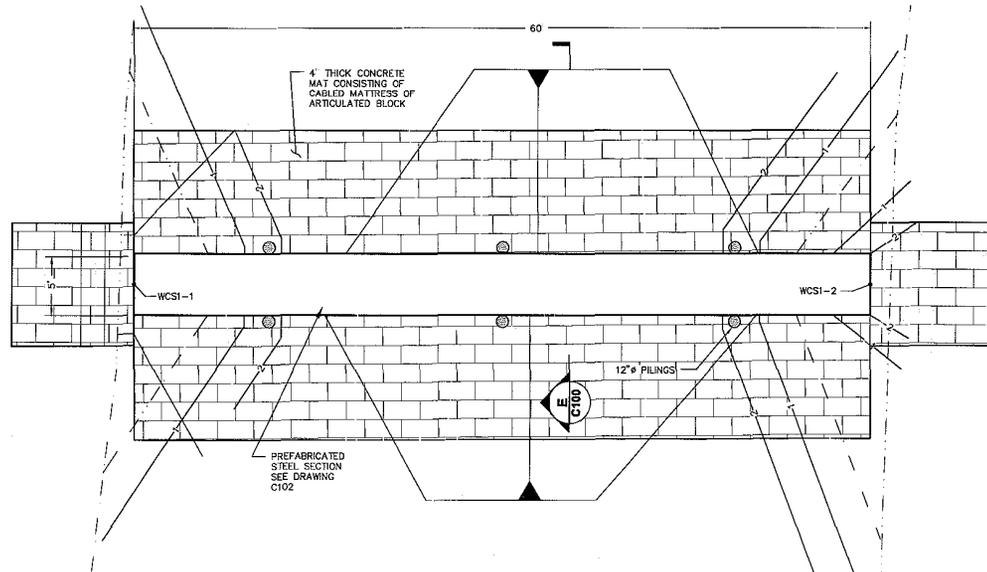
**Appendix B**

As-Built Drawings

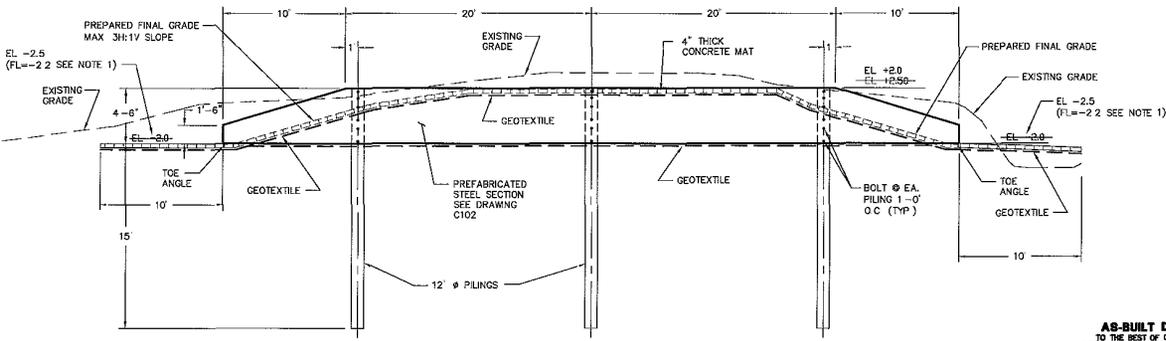




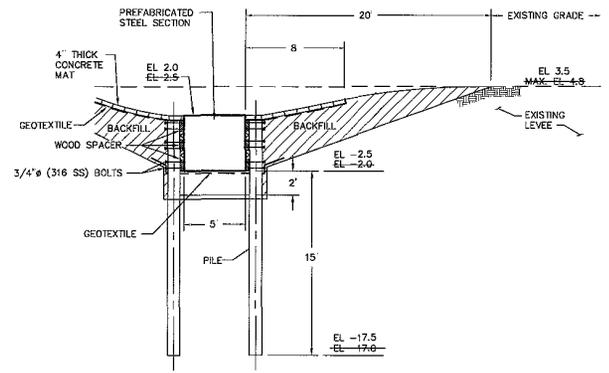
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**PLAN**



**CROSS-SECTION**



**CROSS-SECTION**

NOTE:

1. THE ACTUAL FLOW ELEVATION IS 3 INCHES HIGHER THAN THE INVERT ELEVATION OF THE STRUCTURES DUE TO THE BOTTOM CHANNELS FOR THE GATES AS SHOWN ON THE DETAILS ON FIGURE C103.

**AS-BUILT DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE  
 INFORMATION AND BELIEF, THESE RECORD  
 DRAWINGS SUBSTANTIALLY REPRESENT  
 THE PROJECT AS CONSTRUCTED.  
**ARCADIS U.S., INC.**

DATE 4-25-08 BY THH



THIS DRAWING WAS PREPARED AT THE SCALE(S) INDICATED. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN FEET AND INCHES. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED. USE THE GRAPHIC SCALE FIRST TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.

No.	Date	Revisions	Init.

Professional Engineer's Name  
**TROY E. HOPPER**  
 Professional Engineer's No.  
 PE-75953  
 State  
 TEXAS  
 Date Signed  
4-25-08  
 Project Mgr. Designated by  
 TEH GSC  
 Drawn by  
 HSI

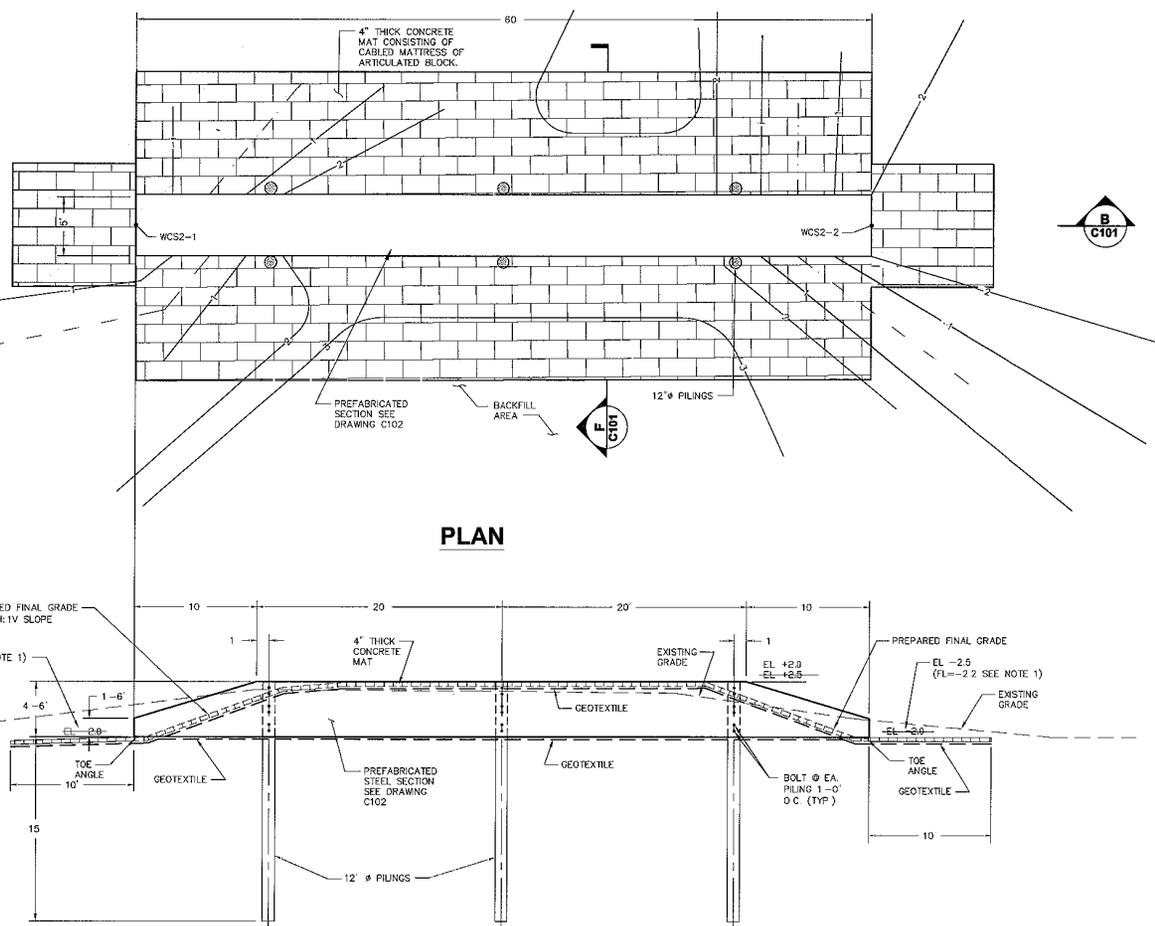


JEFFERSON COUNTY WETLAND RESTORATION PROJECT • JEFFERSON COUNTY, TEXAS  
 DESIGN PACKAGE NO. 2 - J.D. MURPHREE WMA SITE  
**WATER CONTROL STRUCTURE NO. 1**  
**AS-BUILT PLAN AND ELEVATION**

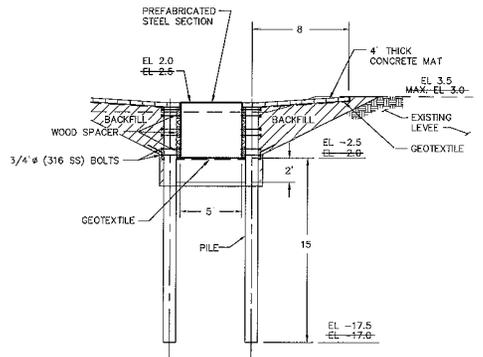
BBL Project No  
 80045979  
 Date  
 APRIL 2008  
 ARCADIS U.S., Inc.  
 2929 Briarpark Dr  
 Suite 215  
 Houston, TX 77042  
 713-785-1880

**C100**

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**PLAN**



**CROSS-SECTION** (F C101)

NOTE:  
 1. THE ACTUAL FLOW ELEVATION IS 3 INCHES HIGHER THAN THE INVERT ELEVATION OF THE STRUCTURES DUE TO THE BOTTOM CHANNELS FOR THE GATES AS SHOWN ON THE DETAILS ON FIGURE C103



**AS-BUILT DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE,  
 INFORMATION AND BELIEF, THESE RECORD  
 DRAWINGS SUBSTANTIALLY REPRESENT  
 THE PROJECT AS CONSTRUCTED.  
**ARCADIS U.S., INC.**  
 DATE: 4-25-08 BY: JHK

**CROSS-SECTION** (B G100)



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No.	Date	Revisions	INIT.

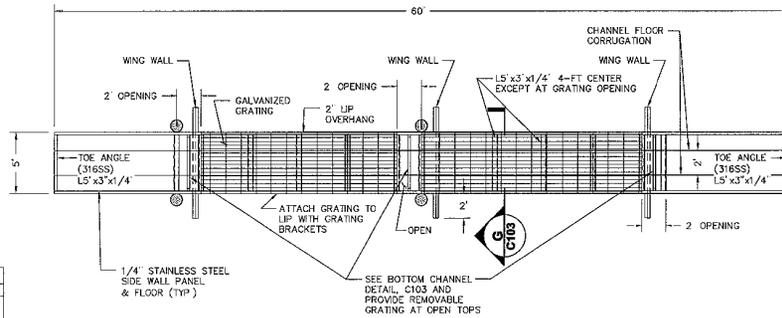
Professional Engineer's Name <b>TROY E. HOPPER</b>
Professional Engineer's No. PE-75953
State TEXAS
Date Signed 4-25-08
Project Mgr TEH
Designed by GSC
Drawn by HSI



JEFFERSON COUNTY WETLAND RESTORATION PROJECT • JEFFERSON COUNTY, TEXAS  
 DESIGN PACKAGE NO 2 - J.D MURPHREE WMA SITE  
**WATER CONTROL STRUCTURE No. 2**  
**AS-BUILT PLAN AND ELEVATION**

BSL Project No 80045979
Date APRIL 2008
ARCADIS U.S., Inc. 2929 Briarpark Dr Suite 215 Houston, TX 77042 713-785-1680

**C101**

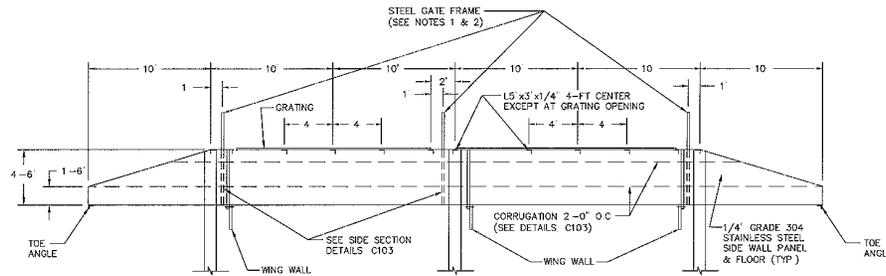


TOP

PREFABRICATED ITEMS			
NO.	ITEM	BY	DESCRIPTION
1	STEEL SECTIONS	CONTRACTOR	PREFABRICATED SECTION USE 1/4" GRADE 304 STAINLESS STEEL
2	GALVANIZE GRATING	CONTRACTOR	GALVANIZED STEEL
3	STEEL GATE FRAME	TPWD	G316 ANGLE FRAME
4	1/2" BOARD	TPWD	WOOD
5	FLAP GATE	CONTRACTOR	1/4" ALUMINUM FLAG GATE WITH CONTINUOUS HINGE

NOTES:

- STEEL FRAME ABOVE EACH CHANNEL GATE WILL BE PROVIDED BY TEXAS PARK & WILDLIFE (TPWD)
- CONTRACTOR SHALL CONSTRUCT SUPPORTING SOCKETS FOR THE GATE FRAME FOR INSERTION
- STEEL SECTIONS ARE IDENTICAL FOR BOTH WATER CONTROL STRUCTURE No 1 AND 2



ELEVATION



AS-BUILT DRAWINGS TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.  
**ARCADIS U.S., INC.**  
 DATE 4-25-08 BY *[Signature]*

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No.	Date	Revisions	INTL

Professional Engineer's Name <b>TROY E. HOPPER</b>	
Professional Engineer's No. PE - 75953	
State TEXAS	Date Signed 4-25-08
Project Mgr. TEH	Designed by GSC
	Drawn by HSI



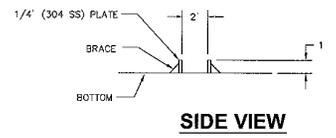
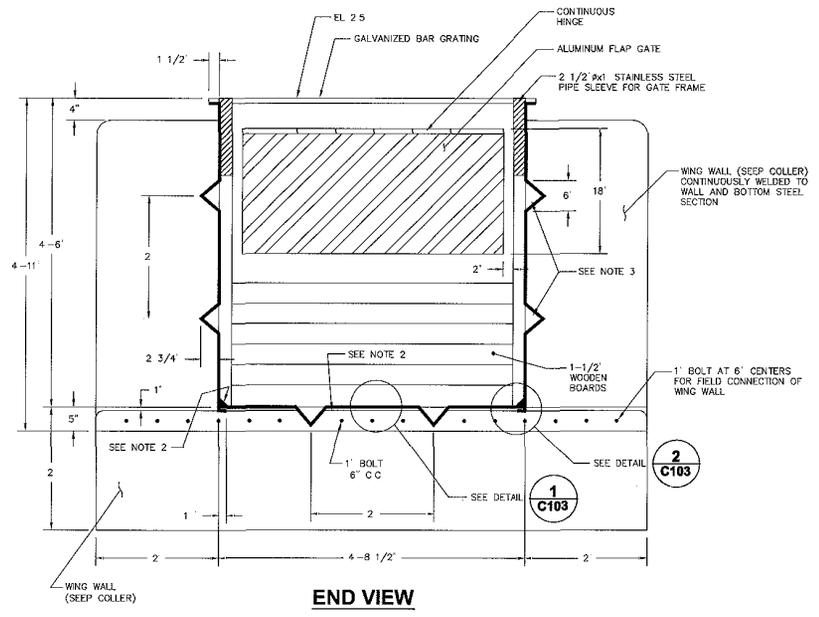
JEFFERSON COUNTY WETLAND RESTORATION PROJECT • JEFFERSON COUNTY, TEXAS  
 DESIGN PACKAGE NO. 2 - J.D. MURPHREE WMA SITE  
**WATER CONTROL STRUCTURE**  
**AS-BUILT PREFABRICATED STEEL SECTION**

RBL Project No B0045979
Date APRIL 2008
ARCADIS U.S., Inc. 2929 Briarpark Dr Suite 215 Houston, TX 77042 713-785-1680

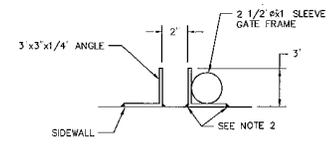
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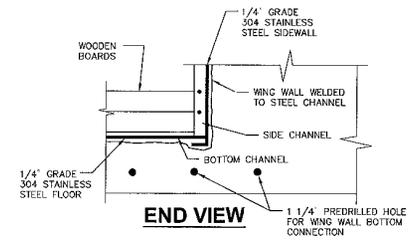
- NOTES:
- 1 ALL WALLS AND FLOOR SHALL BE 1/4" GRADE 304 STAINLESS STEEL
  - 2 ALL WELDS TO BE CONTINUOUS 1/4"
  - 3 WELD 1/4" PLATE TO COVER HOLES BETWEEN CHANNELS AND WALL \ BOTTOM CORRUGATIONS



**BOTTOM CHANNEL DETAIL**  
NTS  
1 C103



**PLAN VIEW**



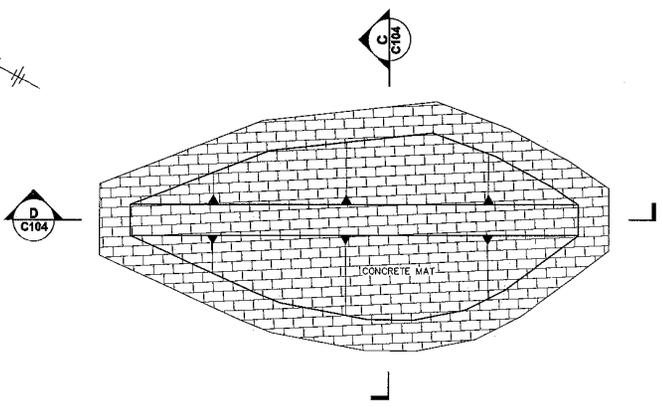
**SIDE CHANNEL DETAILS**  
NTS  
2 C103



AS-BUILT DRAWINGS TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.  
ARCADIS U.S., INC.  
DATE: 4-25-08 BY: JHL

THIS DRAWING WAS PREPARED AT THE SCALE(S) INDICATED. INADVERTENCES IN THE STATED SCALE(S) MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED. USE THE DRAWING SCALE BASIS TO DETERMINE THE ACTUAL SCALE(S) OF THIS DRAWING.	No. Date Revisions 1. 4/25/08	Professional Engineer's Name <b>TROY E. HOPPER</b> Professional Engineer's No. PE-75953 State TEXAS Date Signed 4-25-08	Project Mgr. CSC	Designed by H-SI	Drawn by H-SI	JEFFERSON COUNTY WETLAND RESTORATION PROJECT • JEFFERSON COUNTY, TEXAS DESIGN PACKAGE NO. 2 - J.D. MURPHREE WMA SITE <b>ARCADIS</b> <b>WATER CONTROL STRUCTURE</b> <b>AS-BUILT SECTIONS AND DETAILS</b>	BBL Project No B0045979 Date APRIL 2008 ARCADIS U.S., Inc. 2929 Briarpark Dr Suite 215 Houston, TX 77042 713-785-1680	<b>C103</b>

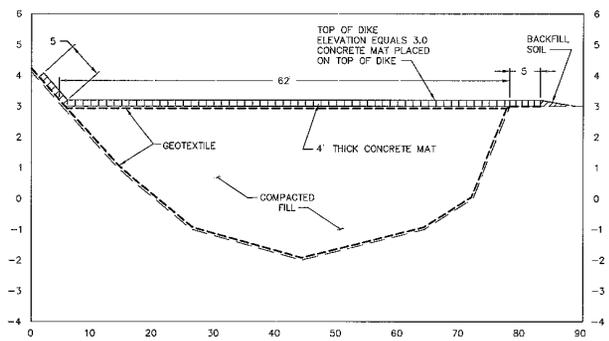
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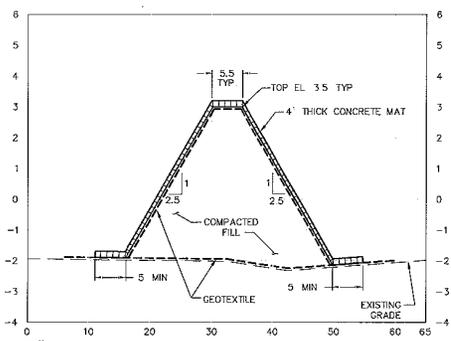
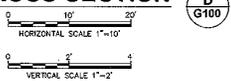
**PLAN**

**GENERAL NOTE:**

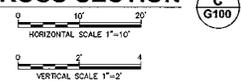
1. FILL MATERIAL MAY BE FROM BORROW AREA ON ADJACENT DIKE SEE G100 OR EXCAVATED AND STOCKPILE MATERIALS FROM THE WATER CONTROL STRUCTURES INSTALLATION.



**CROSS-SECTION**



**CROSS-SECTION**



**AS-BUILT DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE  
 INFORMATION AND BELIEF, THESE RECORD  
 DRAWINGS SUBSTANTIALLY REPRESENT  
 THE PROJECT AS CONSTRUCTED.  
**ARCADIS U.S., INC.**  
 DATE: 4-25-08 BY: JHL

SCALE AS NOTED				Professional Engineer's Name <b>TROY E. HOPPER</b>
				Professional Engineer's No. 75953
				State TEXAS
				Project Mgr. Designated by TEH GSC
				Drawn by HSI

No.	Date	Revisions	init	



JEFFERSON COUNTY WETLAND RESTORATION PROJECT • JEFFERSON COUNTY, TEXAS  
 DESIGN PACKAGE NO. 2 - J.D. MURPHREE WMA SITE  
**EARTHEN PLUG**  
**AS-BUILT PLAN AND SECTIONS**

BBL Project No  
 80045979  
 Date  
 APRIL 2008  
 ARCADIS U.S., Inc  
 2929 Briarpark Dr  
 Suite 210  
 Houston, TX 77042  
 713-785-1680

**C104**

ARCADIS

**Appendix C**

Photo Log



Existing water control structure from JD Murphree Wetland Compartment 8 consisting of a single 24" concrete pipe.



Stainless steel water control structure (at manufacturer's site).



Installation of water control structure.



Placement of concrete mats on water control structure.



Construction of earthen plug.



Close up view of water control structure inlet.



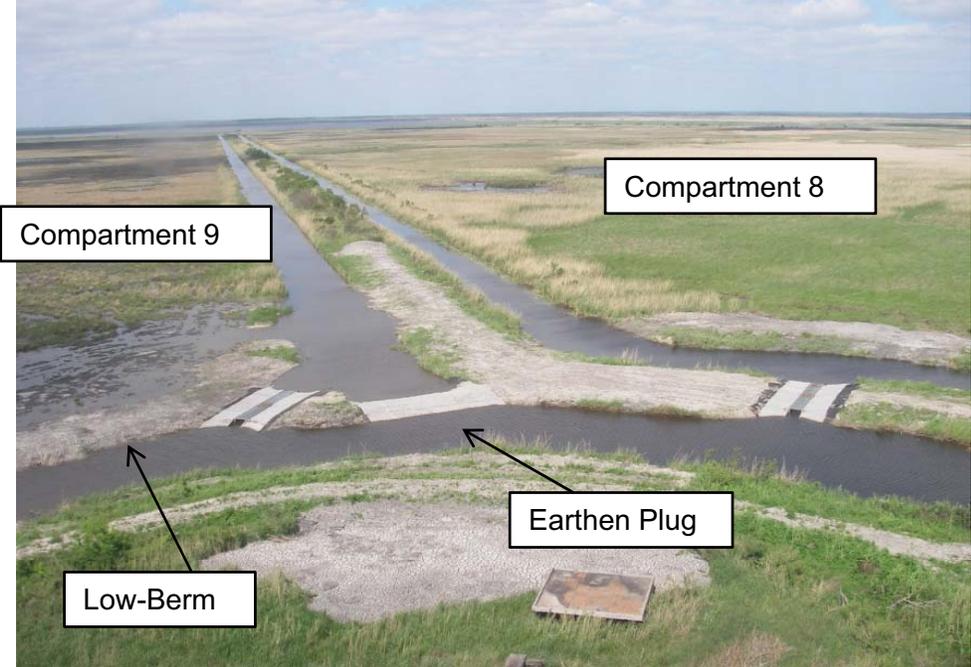
Water control structure.



Close up view of stainless steel gate.



Close up view of wooden slots used by TPWD to alter water flow.



Aerial view of completed water control structures and earthen plug.