

**INTEGRATED STORMWATER MANAGEMENT
SEDIMENT AND EROSION CONTROL
BEST MANAGEMENT PRACTICES PLAN**

**Eads Poltevent No. 1 Well
Section 34, T7S-R12E
St. Tammany Parish, Louisiana**

Lafayette
135 Regency Square
Lafayette, LA 70508
P. O. Box 52106 (70505)
337.237.2200 phone
337.232.3299 fax

New Orleans
1100 Poydras, Suite 1550
New Orleans, LA 70163
P. O. Box 57089 (70157-7089)
504.582.2201 phone
504.582.2210 fax

Baton Rouge
445 North Blvd., Suite 601
Baton Rouge, LA 70802
225.344.8701 phone
337.232.3299 fax

Houston
5005 Riverway Dr., Suite 300
Houston, TX 77056
713.840.9995 phone
713.840.9997 fax

Shreveport
401 Market St., Suite 1300
Shreveport, LA 71101
318.222.0040 phone
318.222.0042 fax

www.fenstermaker.com

**Prepared For:
Helis Oil & Gas Company, L.L.C.**

September 2014



Engineers • Surveyors
Environmental Consultants



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1.0 Introduction

1.1 Purpose

Helis Oil & Gas Company, L.L.C. (referred to hereafter as "Helis or the "Company") has proposed an exploration and production project (the "Helis Project") that will be conducted in two, separate phases (referred to hereafter as "Phase 1" and "Phase 2" respectively). Phase 1 will include the development of a drill site for the drilling of a vertical well from which geologic information will be obtained to confirm the production potential of a sub-surface geologic formation over two miles below the land surface from which Helis seeks to extract oil and/or gas. Helis will design and construct the vertical well to accommodate production, so if, as Helis anticipates, the geologic data collected from the vertical well confirms the potential for economically viable mineral production from this deep formation, Helis intends to implement Phase 2 which will consist of the development of the drill site to support the drilling, development and production of minerals from a horizontal well to be advanced from the vertical well drilled in Phase 1 into the aforementioned deep sub-surface geologic formation.

This document will serve as the plan for the management and control of stormwater generated during Phase 1 of the Helis Project i.e., the construction of a drill pad, and the drilling of a vertical well (referred to hereafter as the "project"). The project site is located approximately 5.88 miles northeasterly from Mandeville, Louisiana (See Appendix A).

1.2 Plan Contents

This plan has been prepared in accordance with good engineering practices and identifies potential contaminants to which stormwater originating at the site might come into contact during well pad construction and well vertical drilling operations. The plan describes the structural controls and Best Management Practices (BMPs), that will be implemented at the site by Helis and its Contractors performing activities at the site (hereafter "Contractors") to minimize the potential for the discharge of pollutants in stormwater generated at the site.

All Helis and Contractor personnel utilized during well pad construction and well drilling operations shall comply with and adhere to the BMP document standards, other permit provisions, and all environmental performance requirements to complete this project.

- If a conflict exists with these BMP practices, company personnel including contractors shall bring such conflicts to the attention of Helis immediately;
- Helis will decide as to the meaning and intent of any portion of the BMP document and have the right to correct any errors or omissions;
- Helis is the final authority on all the issues concerning the compliance and execution of this BMP document.

2.0 Permits

Helis will be responsible for the acquisition of all applicable federal, state and local permits. Copies of these permits will be provided to all facility personnel including contractors as applicable prior to initiation of any work. Helis will advise facility personnel and contractors to site specific permit considerations such as wetlands, cultural resources, or threatened and endangered species. Facility personnel and contractors shall adjust to any new BMPs accordingly. Helis or its' assignees will make all the appropriate permit notifications based on activities with respect to construction, drilling, completion, and operational schedules.

In the unlikely event an unauthorized spill or discharge occurs at the site, onsite personnel and/or requested contractor shall immediately notify Helis. Helis or the Contractor at Helis's request shall timely make the necessary notifications to the appropriate regulatory authority. Onsite personnel including subject contractors, as requested, will coordinate with Helis on the appropriate remedial actions to resolve any issues of non-compliance. Helis will act as the primary contact for all coordination activities with respect to environmental agencies.

Helis will also develop an Emergency Action Plan which will be implemented at the site should an emergency condition arise during drilling operations, including the failure of any on-site containment system.

3.0 Site Description

3.1 Description and Nature of Project Activities

This project consists of the following general site activities: well pad construction and well drilling.

Project construction activities may include all, but are not limited to, the following: clearing, grading, stringing, bending, welding, ditching, backfill, detention, road construction (existing road improvements), spreading gravel/lime stone, laying wood pallets/board mats, laying pipe, building structural foundations, and pouring/spreading concrete.

3.2 Description of the Intended Sequence of Major Activities

The project will consist of the following activities in the general order that they are listed:

- > Clearing
- > Grading
- > Excavation
- > Detention
- > Road Construction (Existing Road Improvement)
- > Drill pad Construction
- > Final Grading
- > Final Stabilization
- > Well Drilling

The major activities, specific to the Contractor's anticipated sequence of execution for the well pad's construction, are installation of erosion and sedimentation controls, existing access road improvement (placement of gravel or other stabilizing material in low areas), drill pad construction, drill pad grading/final stabilization with non-native earthen fill, excavation of borrow ditch, construction of earthen ring levees and placement of board mats.

All other listed activities will not have any additional impact to the location beyond final stabilization of the site.

3.3 Estimates of the Total Area of the Site and Total Area Expected to be Disturbed:

Total Area to be disturbed for this Project:

- Approximately ± 3.21 acres for drill pad and general facility layout, of which contains ± 2.81 acres of wetland impacts,
- Approximately ± 0.32 acres for access road improvements which are located entirely in wetlands.
*See Appendix A
- Wetland Maps: *See Appendix B

3.4 Summary of Potential Discharges associated with Project Activities

This plan outlines specific measures to be implemented at the project site for the purpose of minimizing potential pollutants that may otherwise impact stormwater runoff from the site area as a result of the activities described above. In order to contain and manage stormwater runoff, a ring levee will be constructed around the proposed drill-pad. Helis will use a self-contained, closed loop mud system to drill the vertical well; no reserve or production pits will be used in the drilling of the well. Deck drainage from the drilling rig, including stormwater falling onto the drilling rig, shall be collected in the rig basement and transported off-site for treatment/disposal.

It is anticipated that the remainder of the stormwater generated at the site will be comprised of uncontaminated stormwater (referred to hereafter simply as non-contact stormwater). In its initial 404 permit application for the project site, Helis proposed the construction of a 10.35 acre drill pad area inclusive of a 300'x300' pond 10' in depth to be used for non-contact stormwater management at the drill site. Helis has reduced the drill pad area from the originally proposed 10.35 acres to 3.21 acres in compliance with recommendations made by the State Geologist during a Geological Review of the Helis Project. This greatly reduced pad size will not accommodate a surface pond for stormwater management and has reduced the non-contact stormwater retention capacity of the site.

In order to effectively manage non-contact stormwater without the aid of a surface pond, the drill pad site will be designed so that non-contact stormwater drains to a shallow collection area/basin. Non-contact stormwater accumulating in the collection area/basin will be pumped through a filtration system and into a series of temporary storage tanks with additional intervening filtration between the tanks. The non-contact stormwater in the last temporary storage tank in the series will be subject to controlled discharge from the site.

Non-contact stormwater will be visually monitored to confirm the absence of visible sheen, or floating or settleable solids or visible foam (other than trace amounts) prior to final discharge from the site.

Other potential concerns for sources of pollutants include non-hazardous waste, sanitary waste, hazardous substances, hazardous material storage areas, waste storage disposal areas, and process areas. In addition, boards, pallets, normal trash, plastic, and other types of debris should be considered as potential discharge materials associated with the project activities.

3.5 Receiving Waters and Wetlands

From the project area, stormwater general direction of flow will traverse southwesterly within an area swamp until abutting the northern I-12 corridor. Stormwater flow then turns northwesterly within a near roadside ditch/canal before crossing the I-12 corridor in a southwesterly direction. Stormwater flow will continue in a southwesterly direction before draining into Bayou Castine. Bayou Castine waters ultimately drain into Lake Pontchartrain. Measures will be taken to insure the minimal amount of erosion possible as well as the least impact on the receiving bodies of water. The surrounding wetlands/waters have been identified and provisions for reducing potential impacts to wetlands are presented in a US Army Corps of Engineers permit application (MVN 2013-02952-ETT). See Appendix B.

3.6 Endangered Species

After a review of the proposed project and its proximity to any Endangered species, it has been determined that the stormwater discharge(s) from project activities and implementation of the BMPs to control stormwater runoff are not likely to adversely affect any species or their critical habitat.

3.7 Historic Places

After a review of the proposed project and its proximity to any Historic Places, it has been determined that the stormwater discharge(s), from project activities and implementation of the BMPs to control stormwater runoff are not likely to adversely affect any Historic Places.

4.0 Controls and Best Management Practices

4.1 Non-Structural Best Management Practices (BMPs)

4.1.1 Housekeeping

The following good housekeeping practices shall be followed on-site during all phases of the project:

- Store only the amount of fuel necessary for fueling generators and other equipment necessary for rig operations; motor vehicles and heavy equipment will be fueled off-site, there should be no fuel stored on-site for the fueling of motor vehicles or heavy equipment;
- Plainly label containers (e.g., Used Oil, Spent Solvents, etc.) that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur;
- All materials stored on site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure;
- Products shall be kept in their original containers with the original manufacturer's label and stored neatly and orderly;
- Substances shall not be mixed with one another unless recommended by the manufacturer;
- Whenever possible, all of the product shall be used before disposal of the container;
- Manufacturers' recommendations for proper use and disposal shall be followed; and
- The site superintendent shall inspect daily to ensure proper use and disposal of materials onsite.

4.1.2 Minimizing Exposure

All of the potential pollutants handled during well pad construction, well drilling and well completion are to be transported in closed containers. In addition, Hells personnel are to be present for all drop-off and pickup activities. At no time should there be any potential pollutants left unattended at the site.

Inventory of Materials for Pollution Prevention

The following materials and/or substances listed below may be present onsite during Phase 1 drilling operations:

- > Concrete
- > Detergents
- > Paints (enamels and latex)

- > Metal studs
- > Fertilizers
- > Fuels
- > Cleaning solvent
- > Lubricants
- > Wood
- > Pipe Coatings/Lubricants
- > Various metal materials
- > Plastic
- > Welding rods
- > Miscellaneous rubber types, vinyl, gaskets
- > Process oils and miscellaneous chemicals

These practices shall be used to reduce the risks associated with hazardous materials, if hazardous materials are used onsite.

All materials used throughout the project should be kept in original containers unless they are non-resealable.

Original labels and material safety data (MSDS/SDS) must be retained.

If surplus product must be disposed of, manufacturers' or local and state recommended methods for proper disposal shall be followed.

4.1.3 Emergency Action Plan

Hells will also develop an Emergency Action Plan which will be implemented at the site should an emergency condition arise during drilling operations, including the failure of any on-site containment system.

4.2 Erosion & Sediment Control Measures

As previously mentioned in §3.4, a ring levee will be built around the drill pad location (See Appendix A). Utilized as a major measure of control, the ring levee will greatly reduce potential erosion and sediment impacts during construction activities at the site location. The ring levee will also allow controlled discharges of uncontaminated stormwater off-site.

4.2.1 Erosion Control Measures

During Phase 1 of the Hells Project, stormwater runoff will continue to be conveyed via sheet flow in the general direction of Bayou Castine which will ultimately drain into Lake Pontchartrain. Project activities should not alter the pre-construction flow; however, runoff within the project area will be controlled by the measures set forth within this plan. The construction activities of grading, trench digging, and backfilling will represent the highest potential for erosion and for maximum pollutant loading of suspended solids in stormwater runoff from the site.

Areas will be stabilized in a timely manner by establishing groundcover through seeding when construction activities have ceased in an area of the project. Establishing a ground cover protects the soil surface from the erosive force of raindrops, promotes infiltration, and provides a barrier to protect against sediment removal due to sheet runoff. Most of the native vegetation will be disturbed when grading the site; however, priority will be given to completing slopes and stabilizing slopes and ditches to reduce erosion potential to the extent that it is practical. See §4.2.4 for details on stabilization practices.

4.2.2 Sediment Control Measures

Sediment controls are the last means of defense to prevent sediment problems associated with project activities. Sediment control is any practice that traps soil particles after they have been detached and moved by erosive forces of wind and water. The use of sediment control measures during and after project activities serves to protect the quality of receiving waters by preventing sediments from moving offsite. Most of the sediment control methods take advantage of the reduced ability of water to carry sediment when its velocity is reduced. Examples of Temporary Sediment Control BMPs include, but are not limited to, Sand Bag Berms, Silt Fencing, Rock Berms, Brush Berms, Hay Bale Dikes, Sediment Traps, and Sediment Basins. See §4.2.5 for details on structural practices.

Silt fences and hay bales will be used at appropriate locations to prevent siltation into the receiving waters. Silt fences and hay bales are effective measures to reduce the velocity of stormwater runoff and to reduce the amount of suspended solids from the discharge. Project contractors will actively maintain the silt fences and hay bales until all project phases are complete and the site is stabilized. In addition, site contractors shall take measures to protect any storm drains along the access route. These controls will be maintained until the disturbed soil of the project area has been stabilized.

4.2.3 Short Term Goals and Criteria for Erosion and Sediment Controls

- Erosion and sediment controls should be designed to retain sediment on-site to the maximum extent practicable.
- All control measures must be properly selected, installed, and maintained in accordance with the manufacturers' specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, Helis will replace or modify the control for site situations.
- If sediments escape the project site, off-site accumulations of sediment will be removed at a frequency sufficient to minimize off-site impacts.
- Sediment will be removed from stormwater collection areas when design capacity has been reduced by 50%.
- Litter, construction debris, and any chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, daily removal, etc.).

- Ensure that silt fences are intact and that there are no gaps at the fence-ground interface or tears along the length of the fence. If gaps or tears are found, they should be repaired or the fabric should be replaced promptly. Accumulated sediments should be removed from the fence base when the sediment reaches one-third to one-half the height of the fence.
- Large debris, trash, and leaves should be removed from check dams (hay bales). The center of a check dam should always be lower than its edges. If erosion or heavy flows cause the edges of a dam to fall to a height equal to or below the height of the center, repairs should be promptly made. Accumulated sediment should be removed from the upstream side of a check dam when the sediment has reached a height of approximately one-half the original height of the dam (measured at the center).

4.2.4 Stabilization Practices

The site stabilization practices to be implemented by Hells include, but are not limited to, soil compaction and seeding of disturbed soil once backfilling and/or grading is complete. General stabilization practices may include, but are not limited to, establishment of temporary or permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures.

Stabilization measures shall be initiated as soon as practicable in portions of the site where project activities have temporarily or permanently ceased, but in no case more than 14 days after the project activity in that portion of the site has temporarily or permanently ceased. Once grading of the site is complete, a vegetative buffer of hydro-mulch will be applied along all road edges, drop inlets, and along the receiving waters. See "Typical Details" in Appendix C for Temporary Erosion Controls.

4.2.5 Structural Practices

Silt fences will be installed around the perimeter of the project site and along the bank of receiving waters where erosion may occur in the form of sheet or rill erosion. Hay bales will be installed in natural drainage features as a temporary sediment check dam.

General structural practices may include, but are not limited to, silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent stormwater collection area(s)/basin(s). These structural controls need to be utilized in critical areas to divert sheet flow.

4.3 Control of Other Potential Sources of Stormwater Contamination during Project Activities

The following sections describe the control measures to be used at the project site to prevent and/or minimize the contamination of stormwater from other potential sources of pollution on-site.

4.3.1 Non-Hazardous Waste

Non-hazardous waste generated during construction and post-construction phases shall be stored primarily within commercial waste containers (e.g., roll-off boxes, dumpsters, metal drums). These containers will be located in various areas around the jobsite where work activities are concentrated. Waste containers shall not be located within established stormwater drainage areas, nor will waste be allowed to collect outside of the containers. Waste containers shall be emptied for off-site disposal by a licensed contractor. Other solid materials, including building materials, shall not be discharged to surrounding waters. Solid materials refer to such items as boards, wrapping materials, bricks and concrete debris, and land clearing debris such as leaves and tree limbs.

4.3.2 Hazardous Materials, Waste and Storage Areas

Common hazardous substances that are typically used or generated as waste during jobsite activities include: Petroleum products and lubricants; solvents and thinners; acids and bases; waste oil; used oil filters; and paint wastes. Personnel in contact with hazardous substances shall receive proper training in the measures used to avoid spills, leaks, or discharges to the ground. BMPs shall be applied, as appropriate, to eliminate or reduce the potential for generation of hazardous waste. Spill control equipment (e.g., spill pads, booms, and spill absorbents) shall be provided in an adjacent area appropriate to the type of jobsite activity being performed.

On-site storage areas for hazardous substances shall be designed and maintained to prevent and/or minimize any contact with stormwater. Hazardous waste and/or material containers shall be kept closed at all times, except when filling or dispensing product. Any long-term/permanent hazardous storage areas shall be designed and installed with an underlying impermeable surface (e.g., concrete, plastic lining) surrounded by curbing, dikes or other means to contain spills and prevent releases to the surrounding environment.

4.3.3 Sanitary Wastes

All sanitary wastewater from temporary facilities located at the jobsite (trailers, portable toilets, red fox units, etc.) will be removed for off-site disposal by a licensed contractor. No sanitary wastewater will be discharged during any phase at the project site. Applicable permits to the project will be applied for to meet local, state, and federal requirements.

4.3.4 Vehicle Maintenance/Refueling Areas

Except for emergency situations, vehicle maintenance, repair, refueling, and cleaning shall be performed off-site in order to minimize the potential for contamination of stormwater by oil and grease. Used or spent fluids resulting from emergency vehicle maintenance activities shall be collected in a sealed and marked container and removed from the site as required. All related waste collected from the site will be disposed off-site at a registered waste disposal facility. During the well pad construction and drilling phases of the project, there shall be no onsite storage of gasoline/diesel for the purpose of refueling on-road vehicles or heavy equipment.

4.3.5 Off-Site Vehicle Tracking

BMPs will be used in the minimization of vehicle tracking of sediments off-site and minimization of dust generation. During all phases of operations, the jobsite will have limited access, and gravel drives will be used at the entrances to undeveloped areas.

4.3.6 Spill Response

Spill response equipment and materials (e.g., shovels, absorbent pads, booms, metal waste drums) shall be available in sufficient supplies and of appropriate type to address spills of hazardous materials, oils, lubricants, and related waste. Spill response equipment and supplies shall be located in areas where hazardous materials, oils and lubricants are used, processed and/or stored. In the event of a spill, onsite personnel and/or designated contractor shall immediately contact the Helix supervisor to initiate proper cleanup and response activities. Helix will develop an Emergency Action Plan which will be implemented when necessary to respond to emergency conditions at the site.

4.3.7 Management of Runoff

- Stormwater runoff will be reduced to minimize pollutants in discharges by utilizing diversion, infiltration, and/or containment tactics as necessary.
- There shall be no discharge of floating solids, visible foam in other than trace amounts, no free oil or other oily materials, no toxic materials in quantities such as to cause toxicity to aquatic organisms.
- There should be no visible sheen or stains attributable to any discharge.

5.0 Site Planning and Management

Prior to initiation, the Contractor will coordinate erosion and sediment control devices in addition to other control measures with Helis to outline general devices to be implemented and to identify site-specific practices as determined by requisite permits.

The Contractor will designate training and recordkeeping practices for the responsible parties.

5.1 Responsible Parties

The Contractor will be responsible for identifying the responsible parties for the implementation of worker training and site inspection for compliance with erosion and sediment control devices in addition to other control measures. Helis will provide to the Contractor a designated person for review and approval of general and specific control devices.

5.2 Training

Contract Personnel Training:

The Contractor shall be responsible for the development and implementation of training for all personnel necessary to complete contract project activities.

BMP Inspector Selection and Training:

Both primary and secondary site inspectors will be identified and trained by the Company to conduct BMP inspections of the project site. These inspectors will be trained on: (1) All BMPs to be implemented at the project site; (2) Proper use of the inspection checklist (See Appendix D); and (3) the documentation and reporting of findings.

Safety Statement:

Inspections should only be conducted when conditions are deemed safe to traverse the site. All hazards present should be considered and assessed prior to conducting inspections. Appropriate actions must be taken to minimize any negative impacts and/or threats.

5.3 Inspection and Record Keeping

5.3.1 Inspections

Inspections are an integral part of regularly performed maintenance activities which are cleaning, repair, and replacement necessary to ensure the integrity and effectiveness of sediment and erosion control devices.

Three types of BMP inspections are performed: routine inspections, inspections performed before rain events, and inspections performed after rain events.

Routine inspections are an integral part of regularly performed maintenance activities which are cleaning, repair, and replacement, necessary to ensure the integrity and effectiveness of the erosion and sediment control devices. Routine inspection and maintenance minimizes the work required to prepare a site before a rain event, and helps protect a site from unforeseen rain events.

To prepare for impending rain events, the Contractor should walk the project site and ensure that the control devices are cleaned out and operating properly. Planning and preparation minimize the risk of on or off-site property damage occurring because of inoperative or malfunctioning control devices.

Inspections after rain events help to prepare the site for the next rain event. Typically within 48-hours after a rain event, but within 24-hours if the rain event is greater than 0.5-inches, the Contractor will inspect, clean, and repair the site's control devices. Disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in this plan document will be inspected to ensure proper operation. Where discharge locations or points are accessible, they will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site will be inspected for evidence of off-site sediment tracking.

5.3.2 Record Keeping

The Company requires Contractor maintain proper documentation on record of qualifications, training, and inspections associated with the implementation of erosion and sediment control devices. Inspections should be maintained by using the checklist located in **Appendix D**. If the site is audited, the contractor will have proof of inspection. It is important to keep adequate documentation of date of inspections, findings, and remedial actions. Copies should be forwarded to Hellis' main point of contact (MPOC).

6.0 Maintenance

Maintenance of erosion and sediment control devices in addition to other control measures will be conducted in a timely manner once the need for maintenance activities are deemed necessary. If during inspections, an erosion or sediment control device requiring maintenance is identified, the maintenance will be accomplished prior to the next anticipated storm event, or as necessary to maintain the continued effectiveness of the control device. When maintenance of the control device cannot be accomplished prior to the next storm event, the maintenance will be scheduled and performed as soon as practicable.

Necessary control devices will be installed regardless of whether subsequent activities would require their replacement or cause their destruction.

Except for sediment basins, all accumulated sediment shall be removed from structural controls when sediment deposits reach 1/3 to 1/2 the height of the control. For stormwater collection areas/ basins, accumulated sediment shall be removed when the capacity has been reduced by 50%. All removed sediment deposits shall be properly disposed. Non-functioning controls shall be repaired, replaced or supplemented with functional controls within 24 hours of discovery or as soon as field conditions allow.

7.0 Inspections

A sample inspection form has been provided in **Appendix D**. Inspections shall be performed:

- At least once every 7 days, or
- At least once every 14 days, before anticipated storm events (or series of storm events such as intermittent showers over one or more days) and within 24 hours of the end of a storm event of 0.5 inches or greater.

Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures will be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site will be inspected for evidence of off-site sediment tracking.

8.0 APPENDICES

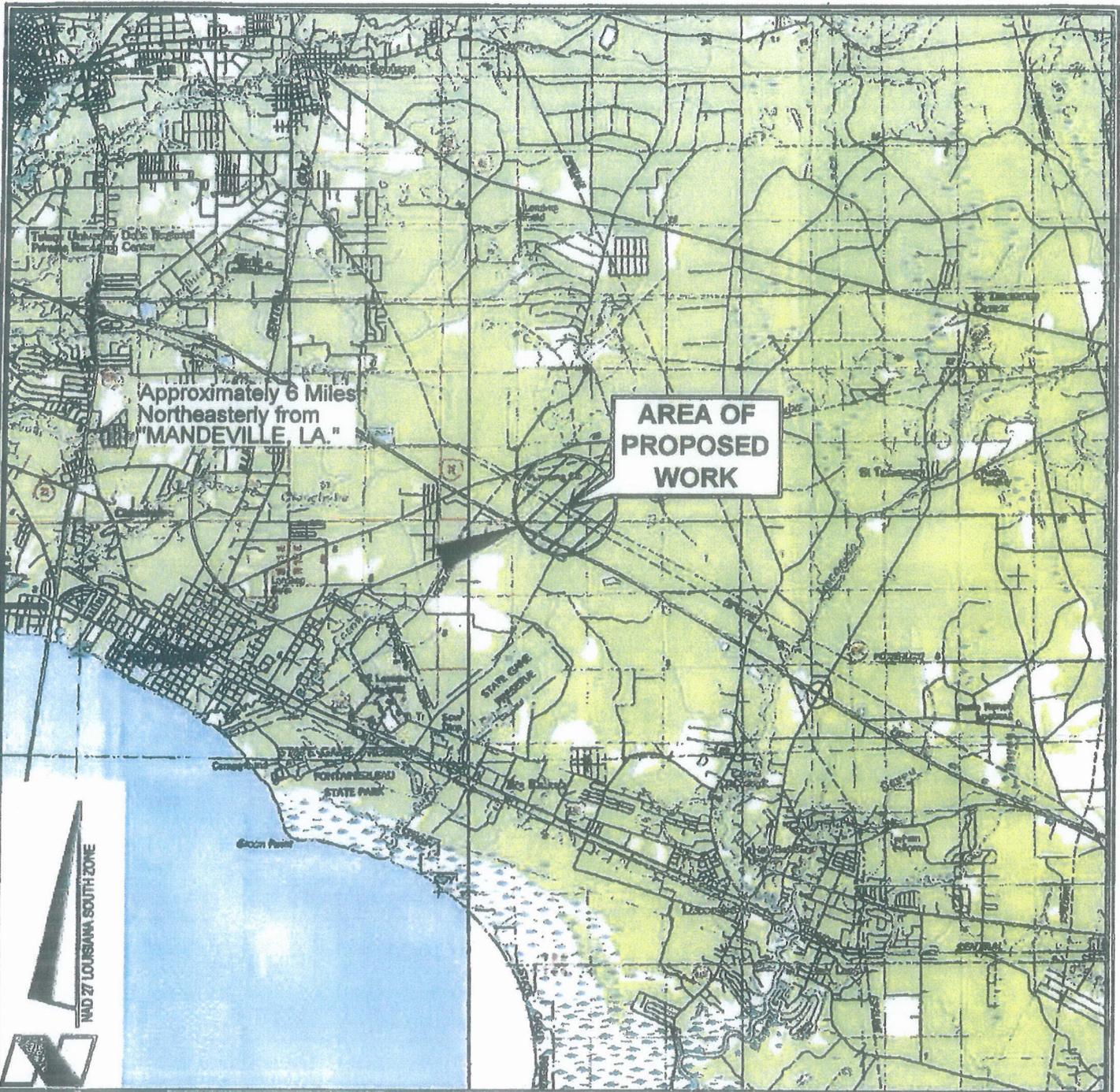
8.2 Appendix A: Permit Drawings

8.3 Appendix B: Wetland Maps

8.4 Appendix C: Temporary Erosion Controls

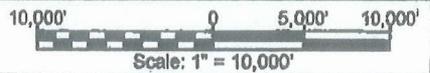
8.5 Appendix D: Site Inspection Form

8.1 - APPENDIX A
PERMIT DRAWINGS



NOTE:
 THE CONTENTS OF THESE PLANS ARE INTENDED
 EXCLUSIVELY FOR THE PURPOSE OF OBTAINING
 ENVIRONMENTAL COMPLIANCE PERMITS

VICINITY MAP



HELIS OIL & GAS COMPANY, L.L.C.
 PROPOSED DRILLSITE & STRUCTURES
Eads Poitevent No. 1 Well
 Section 34, T7S-R12E
 St. Tammany Parish, Louisiana



Lafayette New Orleans Houston
 135 Regency Sq. Lafayette, LA 70508
 Ph. 337-237-2200 Fax. 337-232-3289
www.fenstermaker.com

DRAWN BY: TSM	REVISED: 3/14/2014
PROJ. MGR.: RLL	08/28/2014
	09/05/2014
FILENAME: T:\2013\2130980\DWG\ENVIRONMENTAL\Poitevent COE 082814.dwg	

DATE: 1/15/2014
SHEET 1 OF 8 SHEETS



Proposed Bypass Area, Wing, Culverts & Structures - (NAD83)
 LAT. 30°24'09"
 LONG. 89°58'06"
 See Sheets 3 & 4

Proposed Bypass Area - (NAD83)
 LAT. 30°23'49"
 LONG. 89°58'17"
 See Sheet 5

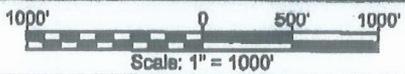
Existing Access Road - To be Boarded (±8717'x14')

Proposed Drillsite & Structures
 Helis Oil & Gas Company, L.L.C.
 Eads Poitevent No. 1 Well
 (NAD27)
 X= 2,427,211
 Y= 628,309
 (NAD83)
 LAT. 30°23'16"
 LONG. 89°58'43"
 See Sheets 6 & 7



NOTE:
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PROJECT PLAN VIEW

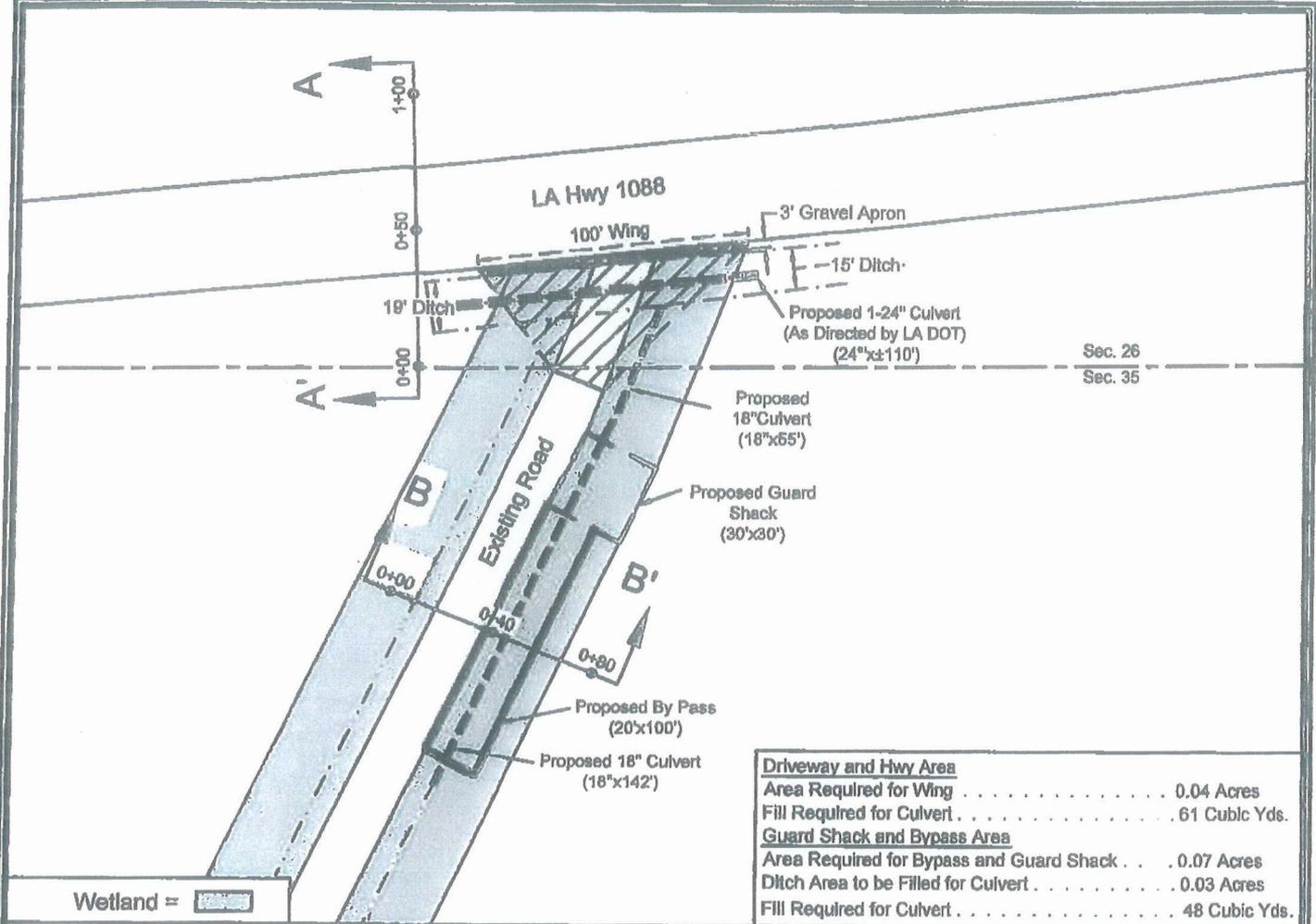


HELIS OIL & GAS COMPANY, L.L.C.
PROPOSED DRILLSITE & STRUCTURES
Eads Poitevent No. 1 Well
 Section 34, T7S-R12E
 St. Tammany Parish, Louisiana



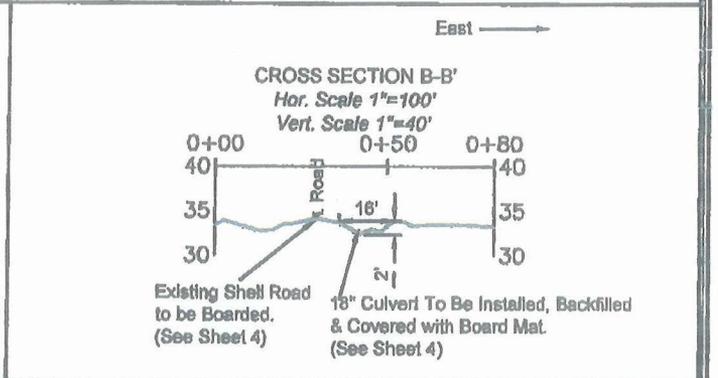
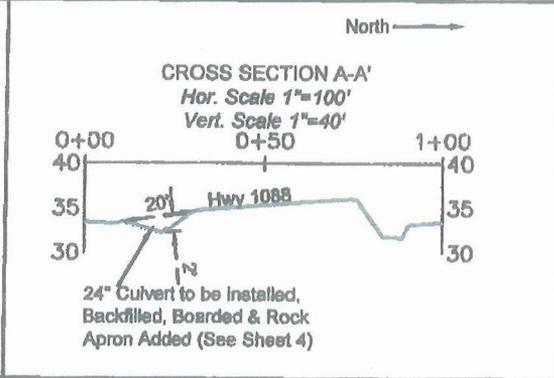
Lafayette New Orleans Houston
 135 Regency Sq. Lafayette, LA 70508
 Ph. 337-237-2200 Fax. 337-232-3299
 www.fenstermaker.com

DRAWN BY: TSM	REVISED: 3/14/2014	DATE: 1/15/2014
PROJ. MGR.: RLL	08/28/2014	SHEET 2 OF 8 SHEETS
FILENAME: T:\2013\2130980\DWG\ENVIRONMENTAL\Poitevent COE 082814.dwg		



Driveway and Hwy Area	
Area Required for Wing	0.04 Acres
Fill Required for Culvert	61 Cubic Yds.
Guard Shack and Bypass Area	
Area Required for Bypass and Guard Shack	0.07 Acres
Ditch Area to be Filled for Culvert	0.03 Acres
Fill Required for Culvert	48 Cubic Yds.

Wetland = [shaded area]



NOTE:
THE CONTENTS OF THESE PLANS ARE INTENDED EXCLUSIVELY FOR THE PURPOSE OF OBTAINING ENVIRONMENTAL COMPLIANCE PERMITS

PLAN VIEW DRIVEWAY, GUARD SHACK & BYPASS

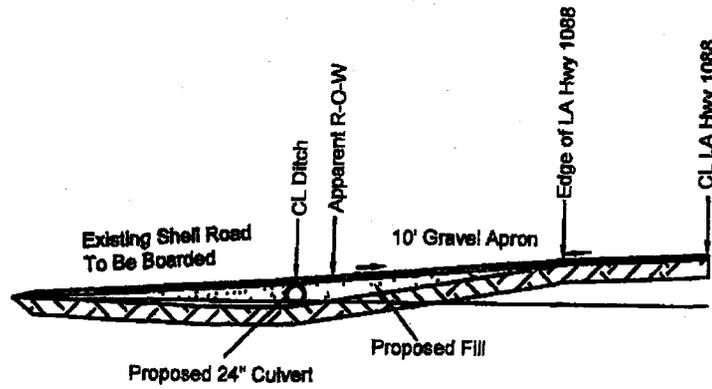


HELIS OIL & GAS COMPANY, L.L.C.
PROPOSED DRILLSITE & STRUCTURES
Eads Poitevent No. 1 Well
Section 34, T7S-R12E
St. Tammany Parish, Louisiana



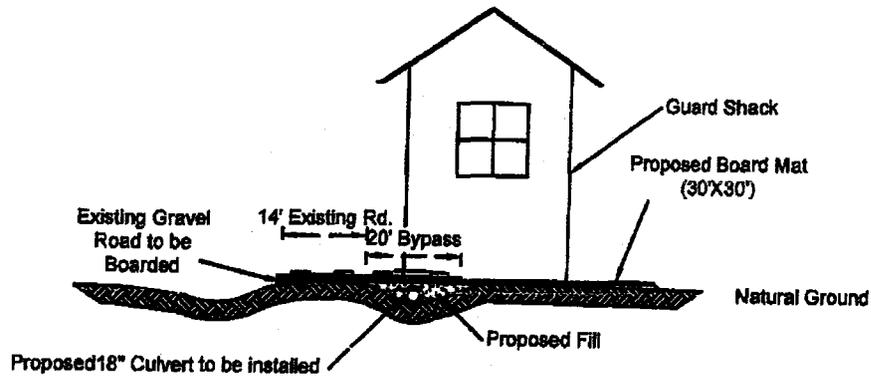
Lafayette New Orleans Houston
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Ph. 337-237-2200 Fax. 337-232-3299
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FILENAME: T:\2013\2130960\DWG\ENVIRONMENTAL\Poitevent COE 082814.dwg	09/05/2014	



TYPICAL DRIVEWAY WITH CULVERT INSTALLATION

No Scale



TYPICAL BYPASS, GUARD SHACK & CULVERT INSTALLATION

No Scale

NOTE:
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EXCLUSIVELY FOR THE PURPOSE OF OBTAINING
ENVIRONMENTAL COMPLIANCE PERMITS

HELIS OIL & GAS COMPANY, L.L.C.

PROPOSED DRILLSITE & STRUCTURES

Eads Poitevent No. 1 Well

Section 34, T7S-R12E

St. Tammany Parish, Louisiana



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REVISED: 3/14/2014

DATE: 1/15/2014

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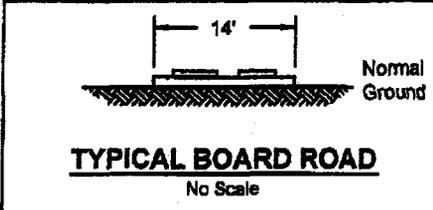
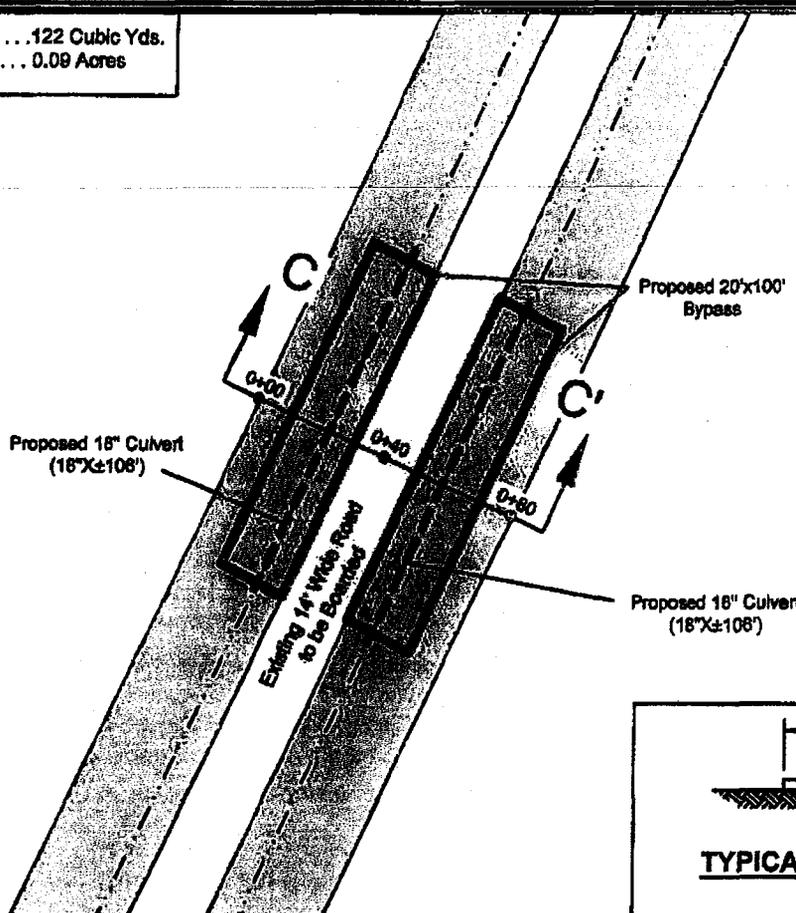
08/28/2014

SHEET 4 OF 8 SHEETS

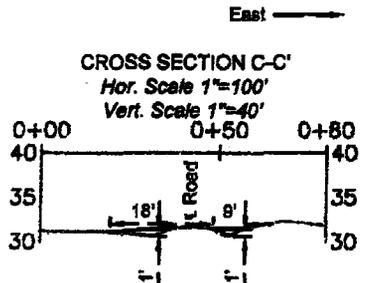
09/05/2014

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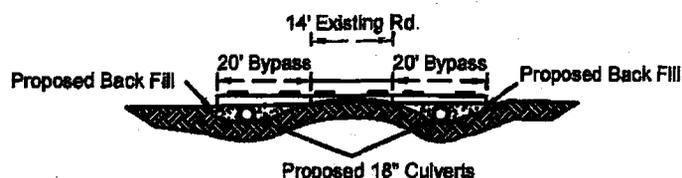
Fill Required for Culverts. 122 Cubic Yds.
 Area Required for Culverts. 0.09 Acres



Wetland =



18" Culvert To Be Installed on the East and West Side of the Exist Road, Backfilled & Covered with Board Mat for Bypass (20'X100') Existing Road to be Boarded.



NOTE:
 THE CONTENTS OF THESE PLANS ARE INTENDED EXCLUSIVELY FOR THE PURPOSE OF OBTAINING ENVIRONMENTAL COMPLIANCE PERMITS

PLAN VIEW BYPASS

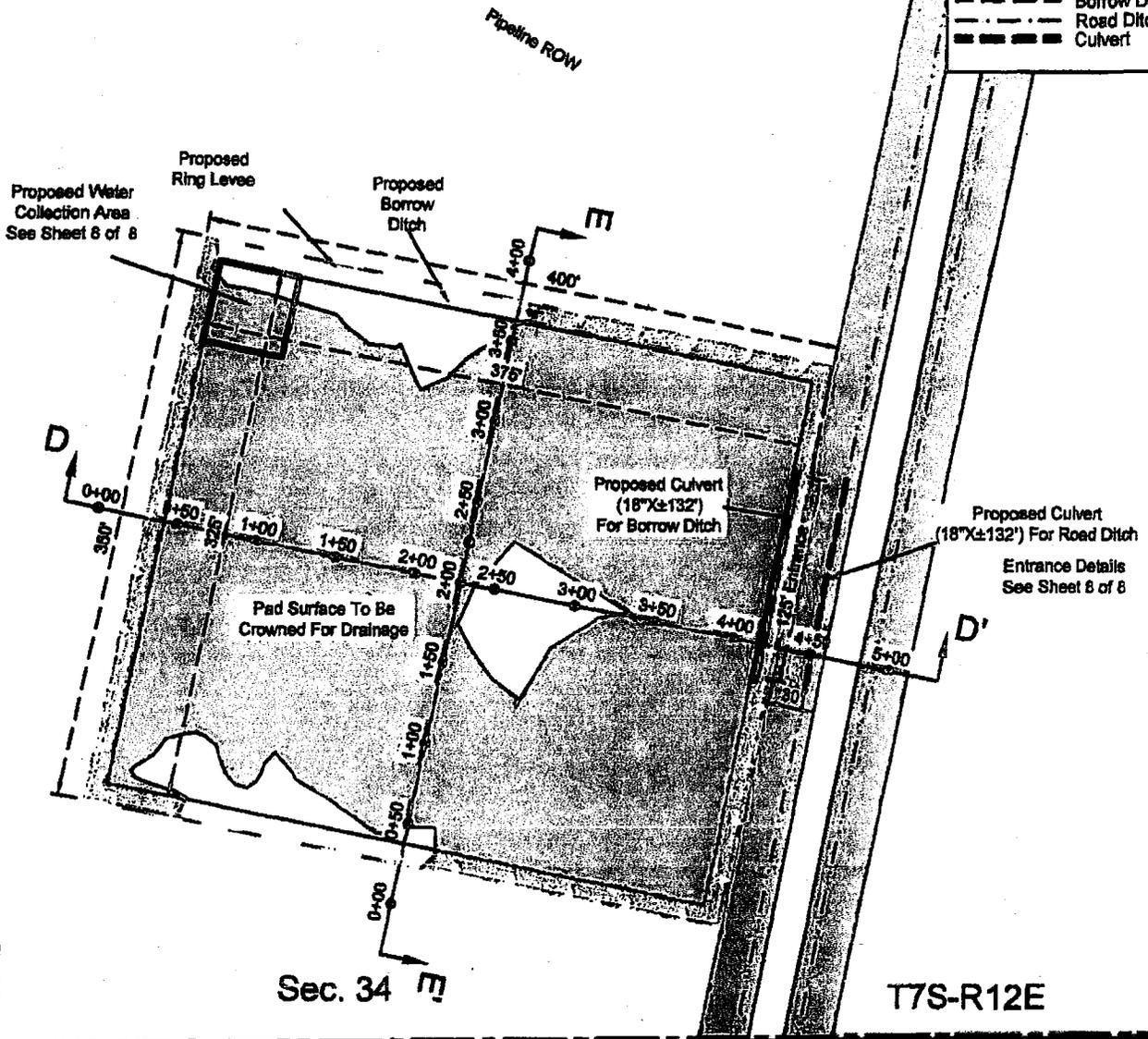


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 PROPOSED DRILLSITE & STRUCTURES
 Eads Poitevent No. 1 Well
 Section 34, T7S-R12E
 St. Tammany Parish, Louisiana



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FILENAME: T:\2013\2130980\DWG\ENVIRONMENTAL\Poitevent COE 082814.dwg		

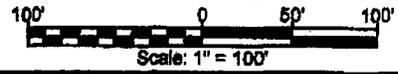


Excavation/Fill Required for Borrow Ditch/Ring Levee . . .	492 Cubic Yds.
Fill Required for Drill Pad	10,776 Cubic Yds.
Fill Required for Entrance	1,500 Cubic Yds.
Area Required for Entrance	0.09 Acres
Wetland = Wetland Area	2.81 Acres



NOTE:
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PLAN VIEW PAD AREA

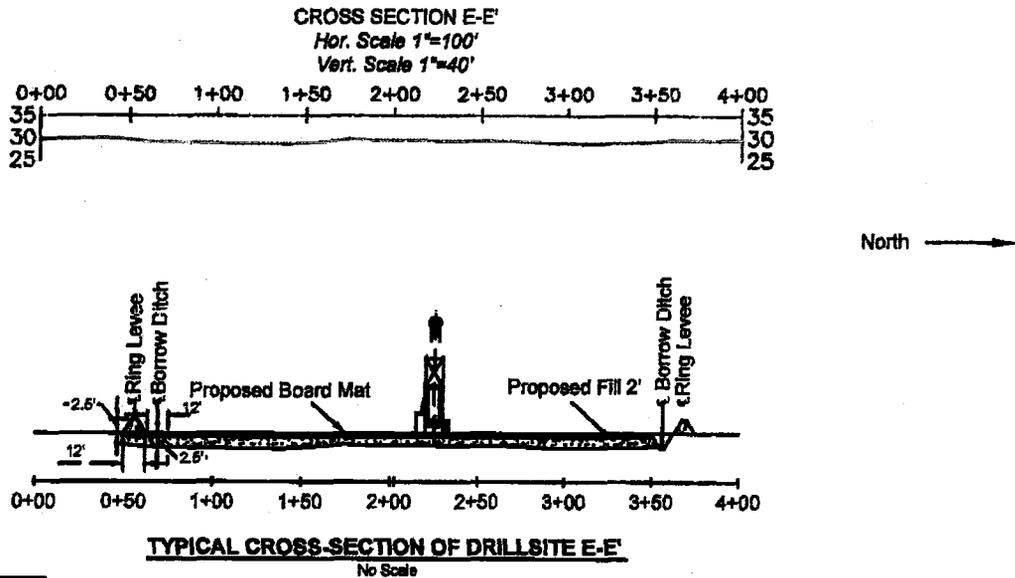
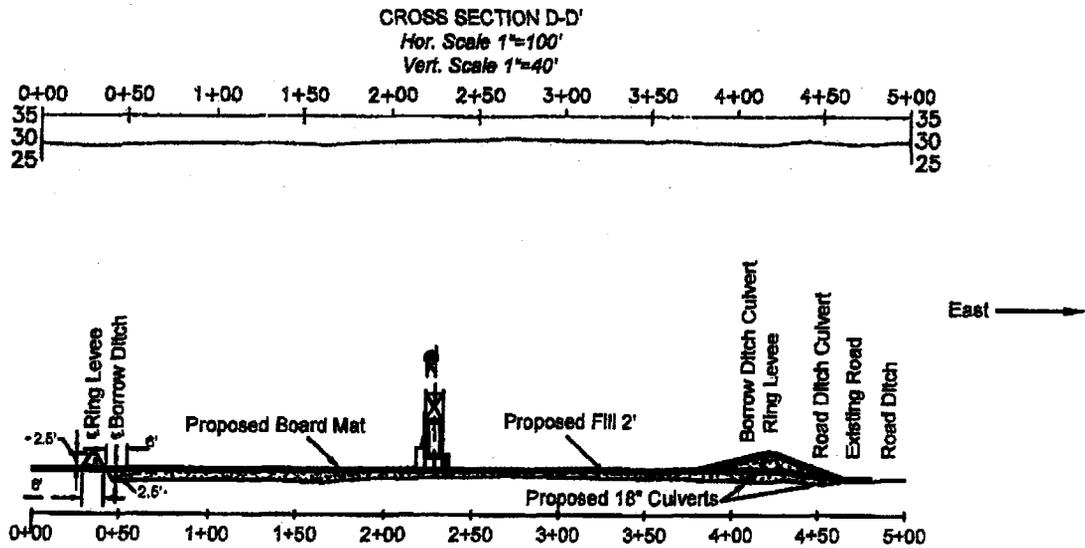


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St. Tammany Parish, Louisiana



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 135 Regency Sq. Lafayette, LA 70508
 Ph. 337-237-2200 Fax. 337-232-3289
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Eads Poitevent No. 1 Well
Section 34, T7S-R12E
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REVISED: 3/14/2014

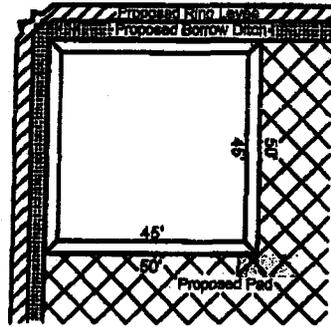
DATE: 1/15/2014

PROJ. MGR.: RLL

08/28/2014

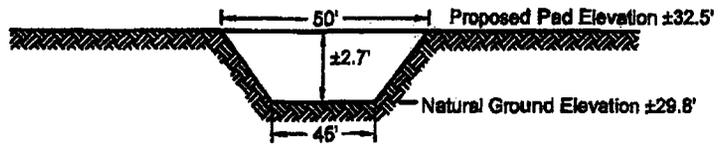
SHEET 7 OF 8 SHEETS

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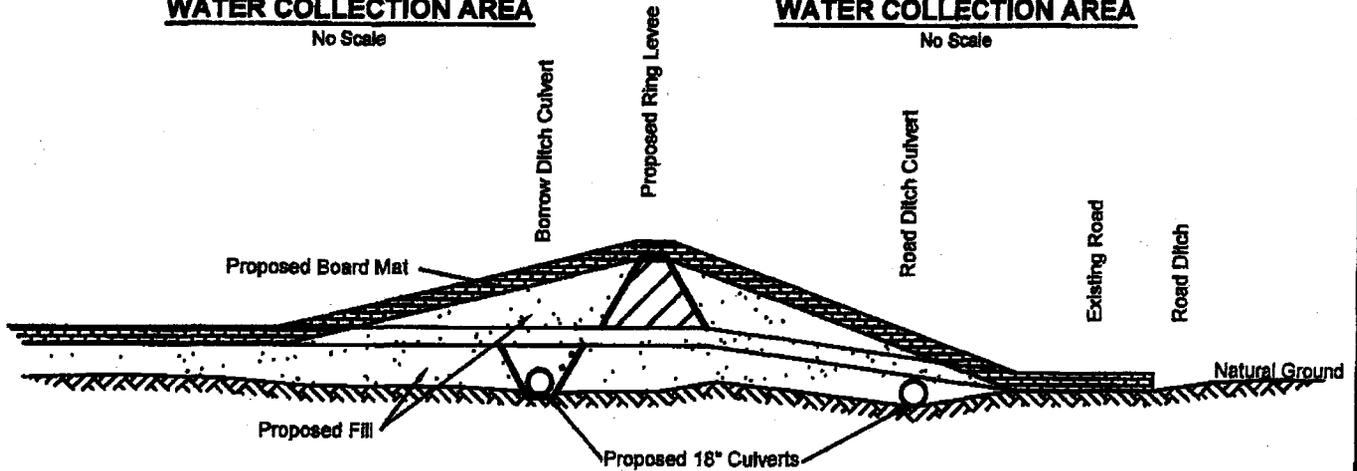
PLAN VIEW OF TYPICAL WATER COLLECTION AREA

No Scale



PROFILE OF TYPICAL WATER COLLECTION AREA

No Scale



PROFILE OF TYPICAL PAD ENTRANCE

No Scale

NOTES:

1. Material for drillsite levees will be taken from within the leveed perimeter.
2. Closure procedures, including onshore land treatment and/or offsite disposal of mud pit contents and other drilling residuals, shall be conducted in accordance with appropriate Federal and State Regulations.
3. In order to ensure the safety of all parties, the permittee shall contact the Louisiana ONE CALL System (1-800-272-3020), a minimum of 48 hours prior to the commencement of any excavation (Digging, Dredging, Jetting, etc.) or demolition activity.

NOTES - DRY HOLE SCENARIO

1. The boards will be removed from the access road and drill pad.
2. The drill site and ring levees will be degraded within 90 days following abandonment. The levee material will be deposited, to the maximum extent practicable, into the borrow areas from which the material was excavated and the area will be leveled to as near pre-project conditions as practicable.
3. The drill pad site will be allowed to naturally re-vegetate.

DISCLAIMER: At this time, C.H. Fenstermaker & Associates, LLC has not performed nor was asked to perform any type of engineering, hydrological modeling, flood plain, or "No Rise" certification analyses, including but not limited to determining whether the project will impact flood hazards in connection with federal/FEMA, state, and/or local laws, ordinances and regulations. Accordingly, Fenstermaker makes no warranty or representation of any kind as to the foregoing issues, and persons or entities using this information shall do so at their own risk.

NOTE:
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HELIS OIL & GAS COMPANY, L.L.C.

PROPOSED DRILLSITE & STRUCTURES

Eads Poitevent No. 1 Well

Section 34, T7S-R12E

St. Tammany Parish, Louisiana



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REVISED: 3/14/2014

DATE: 1/15/2014

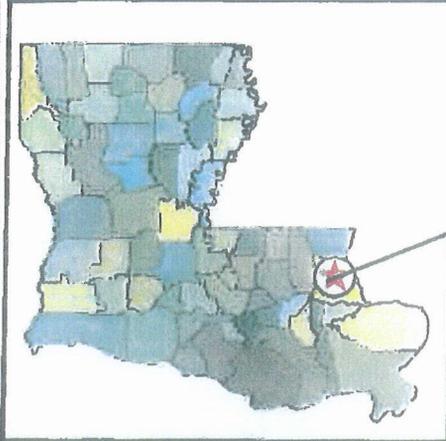
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08/28/2014

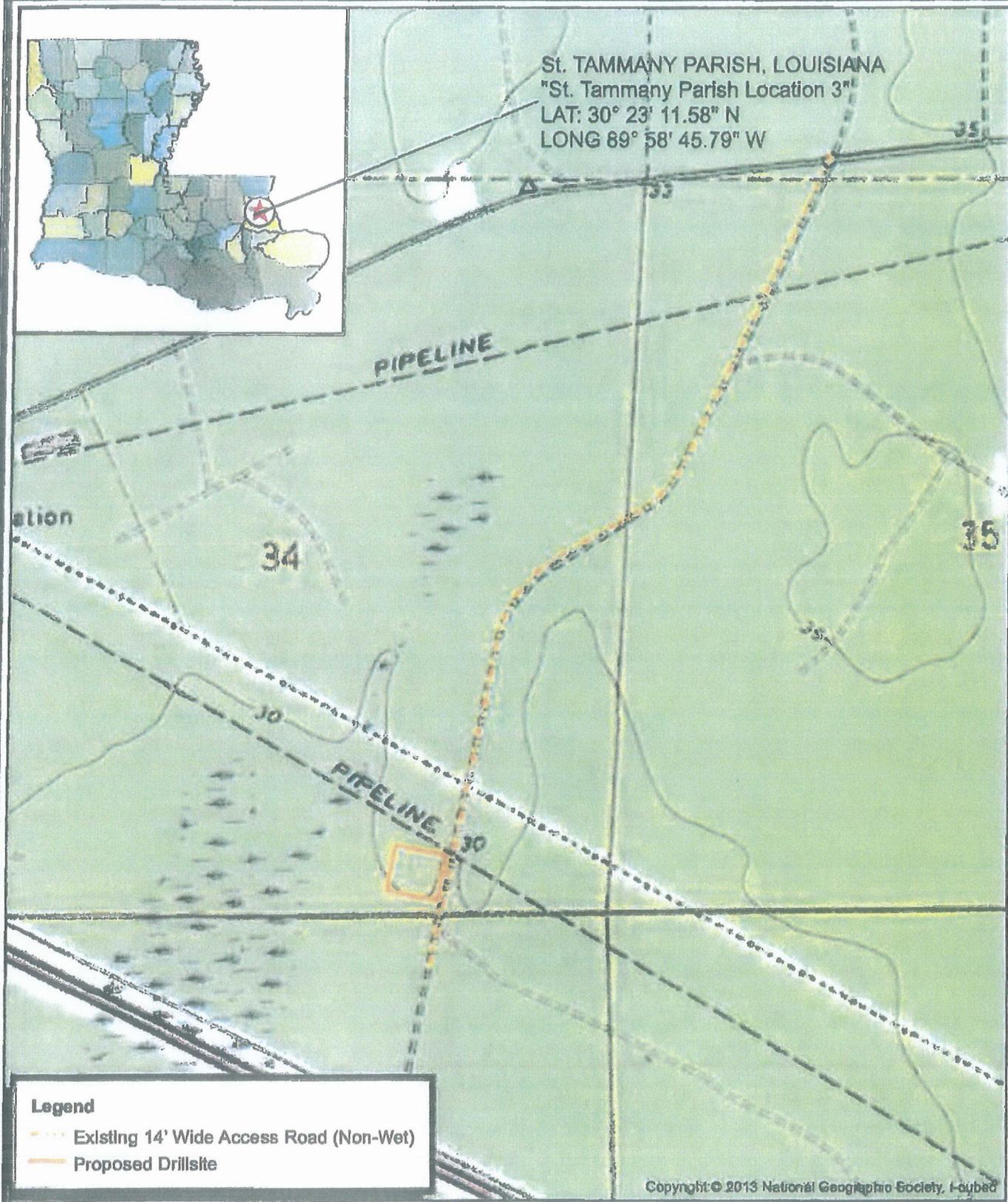
SHEET 8 OF 8 SHEETS

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8.2 - APPENDIX B
WETLAND MAPS



St. TAMMANY PARISH, LOUISIANA
"St. Tammany Parish Location 3"
LAT: 30° 23' 11.58" N
LONG 89° 58' 45.79" W



Legend

-  Existing 14' Wide Access Road (Non-Wet)
-  Proposed Drillsite

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FIGURE 1 : VICINITY
(NGS TOPO) MAP

Hells Oil & Gas Company, L.L.C.
St. Tammany Parish Location 3
SECTION 34 & 35; T 7S - R 12E
St. TAMMANY PARISH, LOUISIANA
1/16/2014



Legend

- Delineation Plot
- Existing Access Road
- Proposed Drillsite

St. Tammany Parish Soils

- Mt; Myatt fine sandy loam; 85% Hydric
- My; Myatt fine sandy loam, frequently flooded; 85% Hydric
- St; Stough fine sandy loam; 0% Hydric

**FIGURE 2 : AERIAL & SOILS
(1000 DOQQ) MAP**



Hells Oil & Gas Company, L.L.C.
 St. Tammany Parish Location 3
 SECTION 34 & 35: T 7S - R 12E
 St. TAMMANY PARISH, LOUISIANA
 1/17/2014



FIGURE 3 : AERIAL & SOILS
(2001 D000) MAP



Legend

- Delineation Plot
- Road Side Ditch (Other Waters : Sec. 404)
- Existing 14' Wide Access Road (Non-Wet)
- Exposed Ditch
- Non-Wet
- Wetland (Sec. 404)
- Figure 4.1



**FIGURE 4 : EXPANDED
(BING HYBRID) DETAIL MAP**
Hels Oil & Gas Company, L.L.C.
St. Tammany Parish Location 3
SECTION 34 & 35: T 7N - R 12E
ST. TAMMANY PARISH, LOUISIANA
1/12/2014



Plot # 2 (12/13/2013)
WET
LAT: 30° 23' 11" N
LONG: 89° 53' 11" W

Plot # 1 (10/20/13)
NON WET
LAT: 30° 23' 17" N
LONG: 89° 58' 43" W

Plot # 3 (08/20/13)
NON WET
LAT: 30° 23' 14" N
LONG: 89° 50' 43" W

Wetland

Legend

- Delineation Plot
- Proposed Drilists
- Existing 14' Access Road (Non-Wet)
- Non-Wet
- Wetland (Sec. 404)

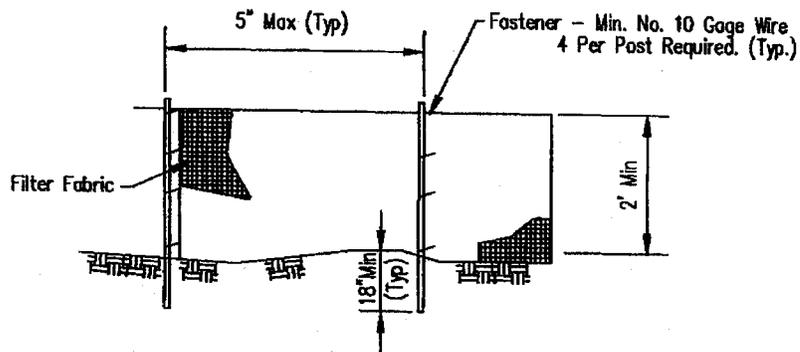


**FIGURE 4.1 : WETLAND
(SING HYBRID) DETAIL**
Hills Oil & Gas Company, L.L.C.
St. Tammany Parish Location 3
SECTION 34 & 35: T 75 - R 18 E
ST TAMMANY PARISH, LOUISIANA
1/17/2014

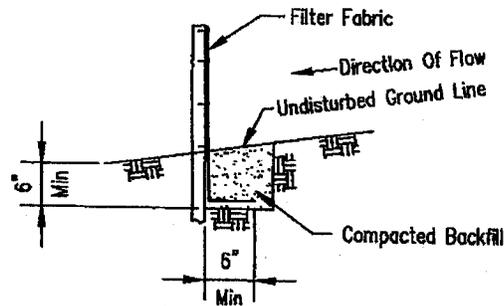
8.3 - APPENDIX C

TEMPORARY EROSION CONTROLS

(Typical diagrams prepared by the Natural Resources Conservation Service)



ELEVATION



FABRIC ANCHOR DETAIL

NOTES:

1. Temporary sediment fence shall be installed prior to any grading work in the area to be protected. They shall be maintained throughout the construction period and removed in conjunction with the final grading and site stabilization.
2. Filter fabric shall meet the requirements of material specification 592 Geotextile Table 1 or 2, Class I with equivalent opening size of at least 30 for nonwoven and 50 for woven.
3. Fence posts shall be either wood post with a minimum cross-sectional area of 3.0 sq. in. or a standard steel post.

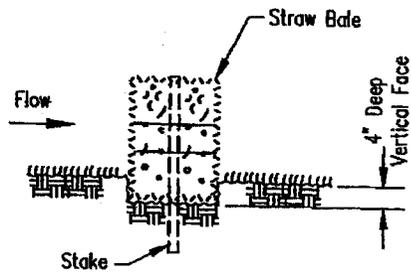
Drawn	J. DANONIS	7/96
Checked		
Approved		

SILT FENCE

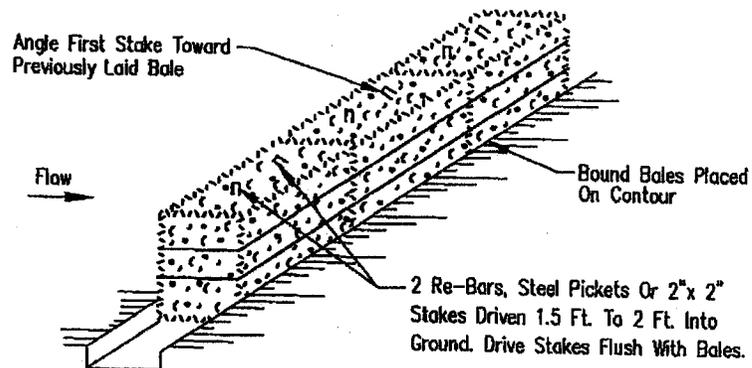


IL-ENG-49

AUTOCAD2006



BEDDING DETAIL



ANCHORING DETAIL

NOTES:

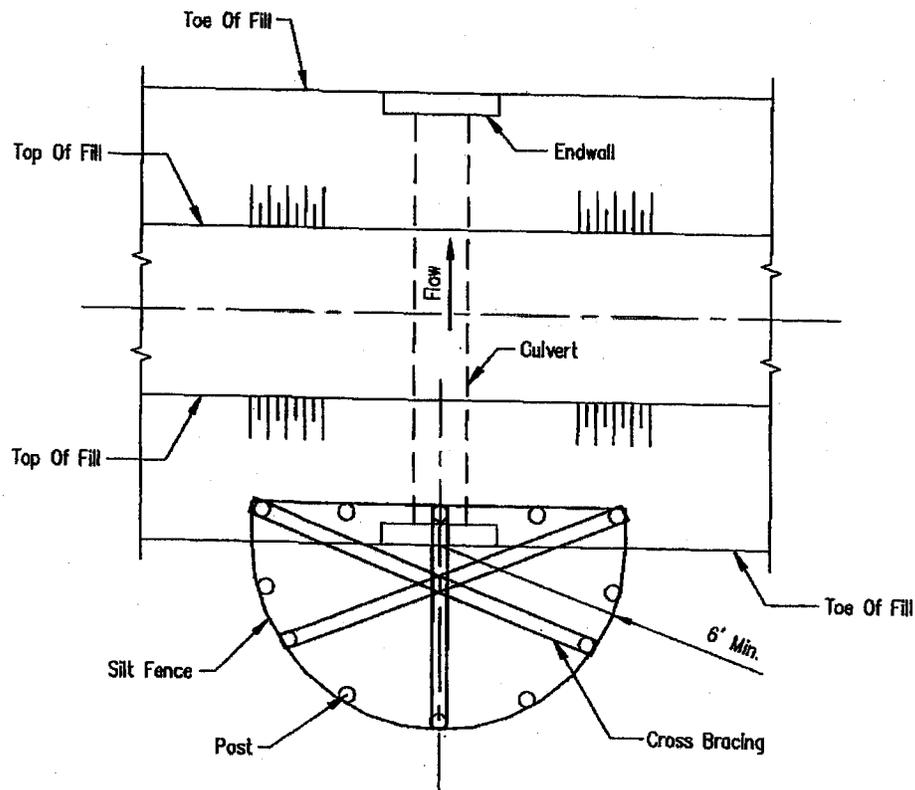
1. Bales shall be placed at the top of slope or on the contour and in a row with ends tightly abutting the adjacent bales.
2. Each bale shall be embedded in the soil a minimum of 4", and placed so that bindings are horizontal.
3. Bales shall be securely anchored in place by either two stakes or re-bars driven through the bale. The first stake in each bale shall be driven toward the previously laid bale at an angle to force the bales together. Stakes shall be driven flush with the bale.
4. Inspection shall be frequent and repair replacement shall be made promptly as needed.
5. Bales shall be removed when they have served their usefulness so as not to block or impede storm flow or drainage.

Design	U. GUNOKS	7/05
Drawn		
Checked		
Approved		

**STRAW BALE BARRIER
SEDIMENT CONTROL**



U. - ENG - 51



PLAN VIEW

NOTES:

1. The silt fence shall meet the requirements as shown on standard drawing IL-ENG-49 SILT FENCE except the maximum post spacing shall be 3 feet and the tops of posts shall be cross braced.
2. Sediment shall be removed when the sediment has accumulated to one-half the height of the silt fence.
3. The maximum drainage area to the culvert being protected is 1 acre.

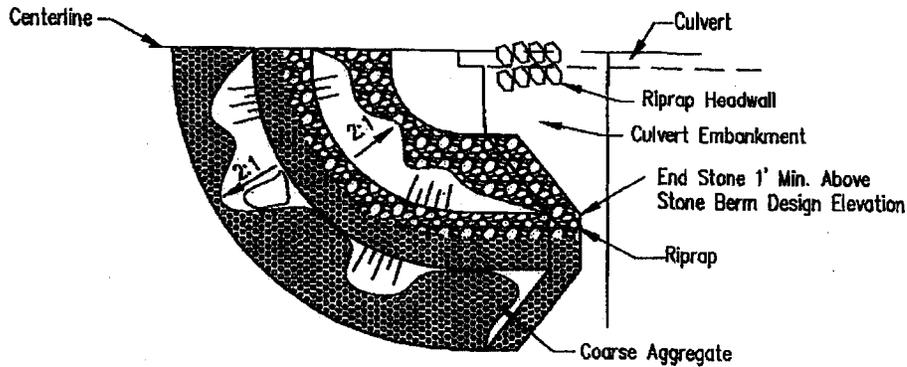
DESIGNED	DATE
DRAWN	BY
CHECKED	DATE
APPROVED	DATE

**CULVERT INLET PROTECTION
SILT FENCE**

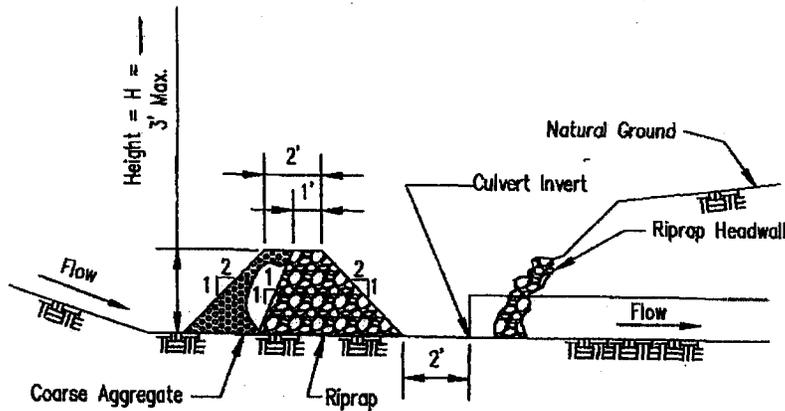


IL-ENG-59
Sheet 1 of 1

AUTOCAD2006



HALF PLAN VIEW



CROSS SECTION ON PIPE CENTERLINE

Notes:

1. Sediment shall be removed when the sediment has accumulated to one-half the height of the stone berm.
2. Coarse aggregate shall meet one of the following IDOT coarse aggregate gradations, CA-1, CA-2, CA-3 or CA-4.
3. Riprap shall meet IDOT gradation RR-3 or RR-4. Any permanent riprap such as for the culvert headwall, shall meet IDOT Quality Designation A.
4. Coarse aggregate and riprap shall be placed according to construction specification 25 ROCKFILL using placement Method 1 and Class III compaction.
5. The maximum drainage area to the culvert being protected is 3 acres.
6. See plans for H dimension.
7. Tie the stone berm into the culvert embankment a minimum of 1 foot above the design elevation of the stone berm.

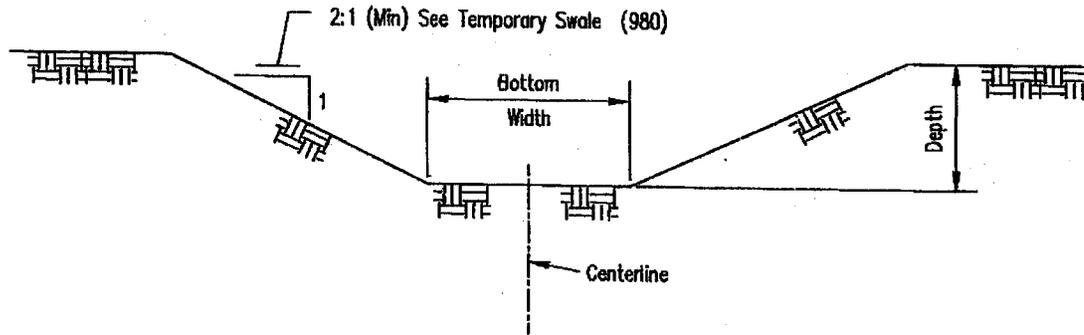
	<p>CULVERT INLET PROTECTION STONE</p>
<p>NRC National Resource Conservation Service United States Department of Agriculture</p>	<p>Project No. IL-ENG-60</p>

AUTOCAD2006

Reach No.			
From Station			
To Station			
Grade, %			
Drainage Area, AC			
Construction Layout Data			
Top Width, Ft.			
Bottom Width			
Side Slope			
Depth, Ft.			
Stabilization Material			

NOTES:

1. All trees, stumps, brush and debris shall be removed from the construction area and disposed of properly.
2. When required, topsoil shall be salvaged and spread uniformly over disturbed areas.
3. Spoil material from construction will be deposited in low areas or otherwise spread so as not to interfere with flow of water into the swals. Any earth fill shall be compacted to prevent differential settlement in the completed swale. The swale will be constructed to the specified grade, width and depth.
4. If required, excelsior blankets shall meet the requirements of material specification 802 EXCELSIOR BLANKETS and jute netting shall meet the requirements of 801 JUTE NETTING.



SECTION

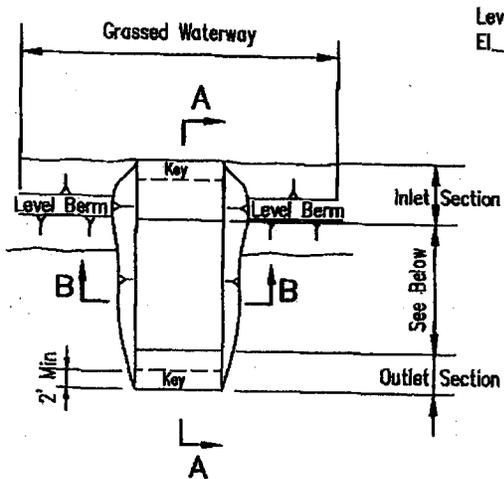
Designed	M. QUINONES	7/02
Drawn		
Checked		
Approved		

TEMPORARY VEGETATED SWALE PLAN

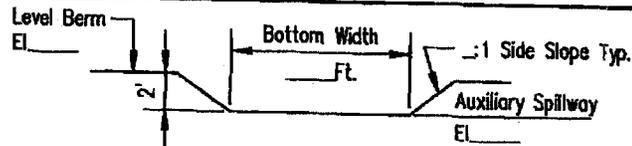


File No.
IL-ENG-57
Sheet 1 of 1

AUTOCAD2006



PLAN VIEW

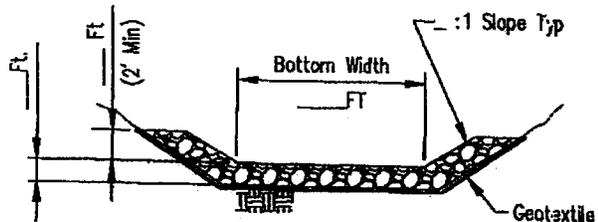


**AUXILIARY SPILLWAY
CROSS SECTION**

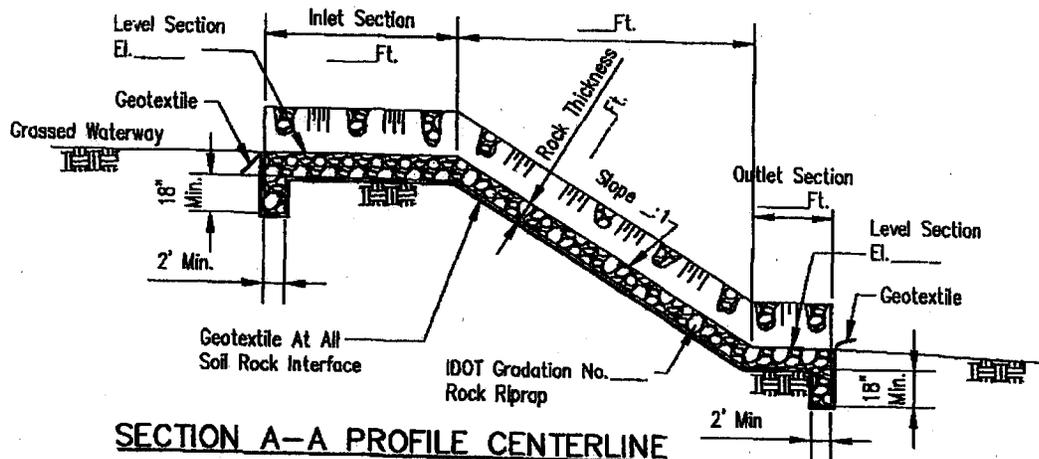
(See Plan View)

Or

To Be Built On The _____ Side
(Looking Downstream) As Staked In The Field



SECTION B-B



SECTION A-A PROFILE CENTERLINE

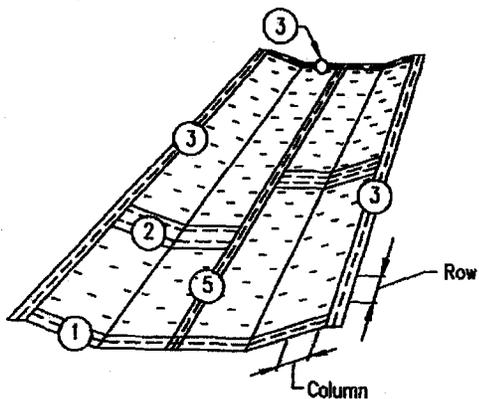
CONSTRUCTION NOTES:

1. This standard does not apply to rock outlets with two feet or less of overfall.
2. Rock size shall be IDOT Quality Designation A Gradation No. _____
3. Geotextile (non-woven) minimum criteria:
 Weight of Geotextile (oz/sq.yd.) _____ 6
 Tensile strength (lb) ASTM D 4632 _____ 180
 Elongation at failure (%) ASTM D 4632 _____ ≥ 50
 Puncture (lb) ASTM D 4833 _____ 80
 Ultraviolet light ASTM D 4355 _____ 70
 Apparent opening size (AOS) ASTM D 4751 _____ max 40 sieve
 Permittivity sec⁻¹ ASTM D 4491 _____ 0.70
4. Geotextile fabric shall extend around the upstream and downstream cutoff trenches, shall be keyed into upstream of the upper cutoff trench. Any splices shall overlap 24 inches.
5. The rock shall be compacted with the placement equipment to increase in-place density. The complete job shall be present a workmanlike finish.

TABLE OF QUANTITIES	
Rock Riprap	_____ tons
Geotextile	_____ sq.yd.

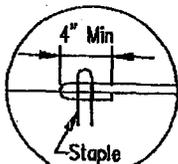
Benchmark Description
 TBM: _____
 Elev.: _____

ROCK RIPRAP CHUTE
 NCRS
 National Resource Conservation Service
 United States Department of Agriculture
 IL-ENG-184
 Sheet 1 of 1

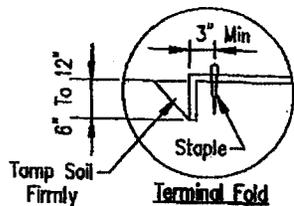


NOTES:

1. On erosion control paper, check slots, in ditch channel shall be spaced so that one occurs within each 50' on slopes of more than 4% and less than 6%. On slopes of 6% or more, they shall be spaced so that one occurs within each 25'.
2. Staples are to be placed alternately, in columns approximately 2' apart and in rows approximately 3' apart. Approximately 175 staples are required per 4' x 225' roll of material and 125 staples are required per 4' x 150' roll of material.
3. Erosion control material shall be placed loosely over ground surface. Do not stretch.
4. All terminal ends and transverse laps shall be stapled at approximately 12" intervals.

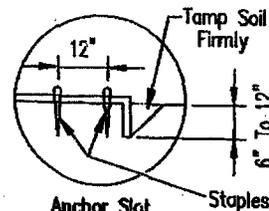


Terminal Fold
Jute Mesh Only



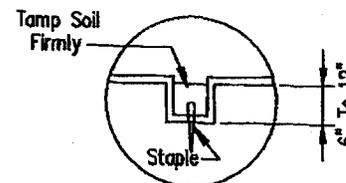
Terminal Fold
Excelsior Blanket
Erosion Control Paper

DETAIL 1



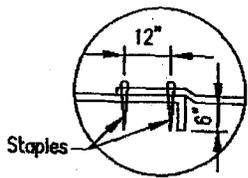
Anchor Slot
Jute Mesh
Excelsior Blanket
Erosion Control Paper

DETAIL 3



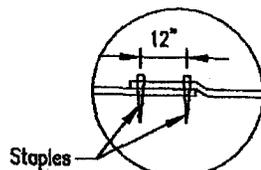
Check Slot
Erosion Control Paper

DETAIL 4

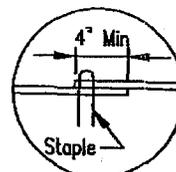


Junction Slot
Jute Mesh
Erosion Control Paper

DETAIL 2

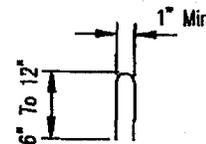


Junction Slot
Excelsior Blanket



Lap Joint
Jute Mesh
Erosion Control Paper
Excelsior Blanket Shall
Be Butted Together

DETAIL 5



STAPLE DETAIL

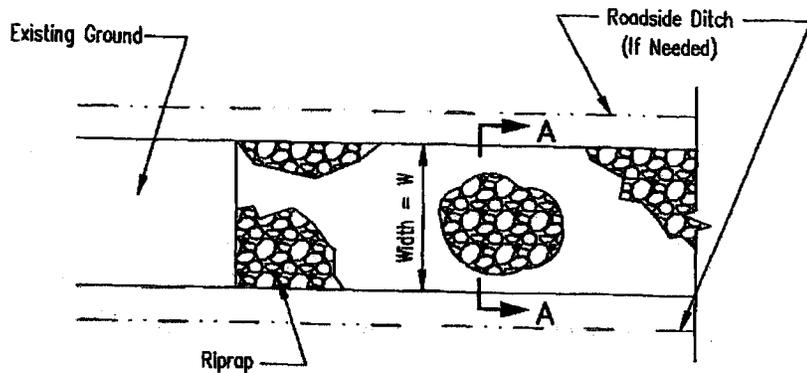
Checked	U. GARDNER	7/08
Drawn		
Checked		
Approved		

**EROSION BLANKET
INSTALLATION DETAILS**

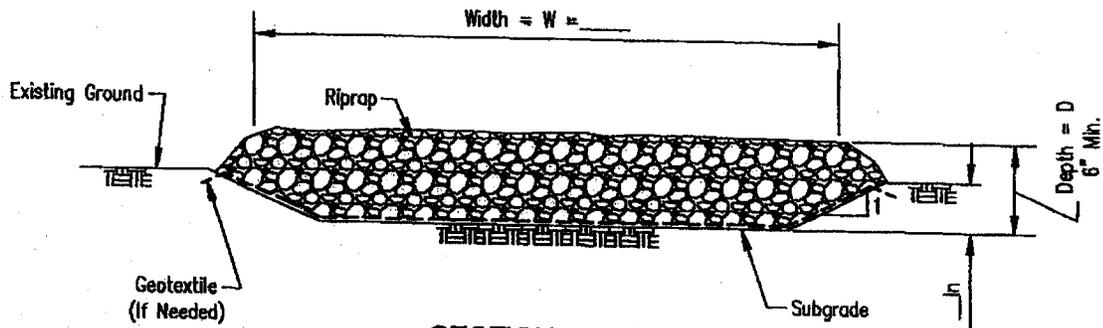


File No.
IL-ENG-61
Drawing No.

AUTOCAD2006



PLAN VIEW



SECTION A-A

NOTES:

1. Rock shall meet one of the following IDOT course aggregate gradations, CA-1, CA-2, CA-3 or CA-4 and be placed according to construction specification 25 ROCKFILL using placement Method 1 and Class III compaction.
2. See plans for construction road location, D and W dimensions.
3. Minimum width is 14 feet for one-way traffic and 20 feet for two-way traffic. Two-way traffic widths shall be increased a minimum of 4 feet for trailer traffic. Depending on the type of vehicle or equipment, speed, loads, climatic and other conditions under which vehicles and equipment operate an increase in the minimum widths may be required.
4. Roadway shall follow the contour of the natural terrain to the extent possible.
5. Geotextile (non-woven) minimum criteria:

Weight of Geotextile (oz/sq.yd.)	6
Tensile strength (lb) ASTM D 4632	180
Elongation at failure (%) ASTM D 4632	≥50
Puncture (lb) ASTM D 4833	80
Ultraviolet light ASTM D 4355	70
Apparent opening size (AOS) ASTM D 4751	max 40 sieve
Permittivity sec ⁻¹ ASTM D 4491	0.70
6. Any geotextile splices shall overlap a minimum of 18 inches, with upstream or upslope geotextile overlapping the abutting downslope geotextile.

Date		Scale	
Drawn	J. QUINCY	Checked	
Approved		Approved	

CONSTRUCTION ROAD STABILIZATION



File No.
IL-ENG-58
Drawing No.

8.4 - APPENDIX D
Site Inspection Plan

Helis Oil & Gas Company, LLC

SECP BMP Inspection Checklist

NOTE: Upon discovery of major BMP deficiencies, the inspector will immediately notify the Helis site manager and take action to correct the situation as appropriate. Corrective actions taken on all deficiencies will be noted on inspection sheet (below).

Field/Facility: Eads Poitevent No. 1 Well, Section 34, T7S-R12E		Inspection Date:	
Inspection	Acceptable	Unacceptable	Not Applicable
Silt Fences:			
Integrity / Intact			
Fence / Ground Interface (gaps, tears, etc.)			
Accumulated sediment (remove if up to or over 1/3 – 1/2 fence height)			
Complete perimeter coverage			
Complete coverage on receiving water banks			
Remarks / Corrective Actions:			
Check Dams (hay bales / straw wattles / brush piles):			
Debris, trash, leaves (remove)			
Integrity (center of dam lower than edges)			
Accumulated sediment (remove from upstream side if 1/2 dam height measured from center)			
Coverage in natural drainage features			
Stakes / re-bars (flush with bale, keeping bales together)			
Remarks / Corrective Actions:			
Flow Lines:			
Droplets of stored materials			
Discoloration			
Corrosion			
Bowing of pipe between supports			
Evidence of stored materials seepage from valves or seals			
Localized dead vegetation			
Remarks / Corrective Actions:			
Vegetative Cover:			
Maintenance / status of natural vegetative buffer			
Soil compaction / disturbed soil seeding needs (backfilled and/or graded areas completed)			
Hydromulch (applied along road edges, drop inlets and receiving waters if grading is complete)			
General stabilization measures needed for areas approaching 14 days of inactivity			
Remarks / Corrective Actions:			

Geotextiles:			
Filter fabric on silt fencing			
Condition of exposed material (overlaps, wear)			
Anchoring (staples, stakes, sandbags, keyed-in)			
Washout / breakage			
Remarks / Corrective Actions:			
Drainage / Diversion Ditches:			
Diversion shape intact			
Debris, excess sedimentation			
Remarks / Corrective Actions:			
Roadside Ditches:			
Debris, excess sedimentation			
Vegetation state (only remove if flow is blocked)			
Remarks / Corrective Actions:			
Roadway Surface Grades:			
Inspect grade for erosion			
Remarks / Corrective Actions:			
Well Pad Surface Grades:			
Inspect grade for erosion			
Remarks / Corrective Actions:			
Wing Ditches / Turnouts:			
Debris, excess sedimentation			
Remarks / Corrective Actions:			
Cross-Drain Culvert:			
Examine for scour or sedimentation at inlet and outlet			
Remarks / Corrective Actions:			
Spill / Stain:			
Droplets of stored materials			
Discoloration			
Evidence of stored materials seepage from valves or seals			
Localized dead vegetation			
Remarks / Corrective Actions:			
Stabilized Construction Entrance:			
Integrity			

Remarks / Corrective Actions:			
Cattle Guards:			
Integrity			
Remarks / Corrective Actions:			
Signage (Lease / Warning):			
Clear, unobstructed			
Remarks / Corrective Actions:			
Tank Labels:			
Clear, unobstructed			
Remarks / Corrective Actions:			
Storage Containers:			
Is excess diesel stored onsite			
Are containers plainly labeled (that are susceptible to spill or leakage)			
Are materials stored in a neat, orderly manner			
Are products kept in original, labeled containers			
Are potential pollutants transported in closed containers			
Are potential pollutants left unattended			
Remarks / Corrective Actions:			
Material Handling / Disposal:			
Are substances mixed in accordance with manufacturers recommendations			
Are partially filled containers being disposed of			
Are manufacturer disposal recommendations / warnings being followed			
Remarks / Corrective Actions:			
Discharge Locations / Points:			
If accessible, determine whether erosion measures are effective in preventing significant impacts			
Remarks / Corrective Actions:			
Safety System:			
Remarks / Corrective Actions:			
Equipment Condition:			

Remarks / Corrective Actions:			
Pollution Controls & Secondary Containment:			
Structural integrity and the presence of oil sheens or accumulations			
Visible cracks or seepage in berm or containment			
Erosion or damage to berm or containment			
Spilled material or stressed vegetation surrounding area			
Storm water drain line valves locked			
Remarks / Corrective Actions:			

Signature _____