

JOINT PUBLIC NOTICE

January 13, 2014

United States Army
Corps of Engineers
New Orleans District
Regulatory Branch
Post Office Box 60267
New Orleans, Louisiana 70160-0267

State of Louisiana
Department of Environmental Quality
Water Quality Certification Section
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313

(504) 862-2675
Project Manager
Jamie Crowe
Jamie.M.Crowe@usace.army.mil
Permit Application Number
MVN 2013-1616 CO

(225) 219-3225
Project Manager
Elizabeth Johnson
WQC Application Number
WQC 140109-01

Interested parties are hereby notified that a permit application has been received by the New Orleans District of the U.S. Army Corps of Engineers pursuant to:
[X] Section 10 of the Rivers and Harbors Act of March 3, 1899 (30 Stat. 1151; 33 USC 403); and/or [X] Section 404 of the Clean Water Act (86 Stat. 816; 33 USC 1344).

Application has also been made to the Louisiana Department of Environmental Quality, Office of Environmental Services, for a Water Quality Certification (WQC) in accordance with statutory authority contained in LRS30:2047 A(3), and provisions of Section 401 of the Clean Water Act (P.L.95-17).

8-INCH HYDROGEN (H₂) LATERAL PIPELINE IN ST. JOHN THE BAPTIST PARISH

NAME OF APPLICANT: Praxair, Inc. c/o Ecology and Environment, Inc., 2900 Westfork Drive, Suite 401, Baton Rouge, Louisiana 70827.

LOCATION OF WORK: Within the Lake Pontchartrain Basin, in the Lake Maurepas hydrologic unit (HUC 08070204); Sections 90, 62, & 26, Township 11 south, Range 6 east; beginning at Praxair's 12-inch H₂ pipeline side tap valve 3 (30.09592°N, 90.60814°W) and transverses south, paralleling existing utility corridors, crossing US Highway 61 and Kansas City Southern Railroad, and ending at Marathon Garyville Refinery (30.07103°N, 90.60033°W), near Garyville, Louisiana, in St. John the Baptist Parish, as shown on the enclosed drawings.

CHARACTER OF WORK: The applicant proposes to install and maintain two miles of 8-inch H₂ lateral pipeline to allow for expansion of its South Louisiana pipeline system. The pipeline will be installed within a 70-foot temporary right-of-way (ROW) using a combination of conventional lay, push-pull, and horizontal directional drill (HDD) methods. After construction, the ROW will be reduced to a 10-foot maintained ROW.

Four access roads are proposed for use during construction of the project. Three of these roads are existing roads, two of which will require temporary board mats and corridor widening. One new 48' wide road will be constructed between US Highway 61 and mile 1.4 of the proposed pipeline. Temporary wetland impacts include the conversion of 4.4 acres of forested wetland to emergent wetlands and impacts to 1.4 acres of emergent marsh. Approximately 0.4 acre of forested wetlands will be permanently converted to emergent wetland due to project implementation. As compensation for unavoidable wetland impacts the applicant proposes to purchase wetland credits from a Corps approved mitigation bank located in the watershed.

The comment period for the Department of the Army Permit and the Louisiana Department of Environmental Quality WQC will close **20 days** from the date of this joint public notice. Written comments, including suggestions for modifications or objections to the proposed work, stating reasons thereof, are being solicited from anyone having interest in this permit and/or this WQC request and must be mailed, so as to be received before or by the last day of the comment period. Letters concerning the Corps of Engineers permit application must reference the applicant's name and the Permit Application Number, and be mailed to the Corps of Engineers at the address above, **ATTENTION: REGULATORY BRANCH**. The application for this proposed project is on file with the Louisiana Department of Environmental Quality and may be examined weekdays between 8:00 a.m. and 4:30 p.m. Copies may be obtained upon payment of costs of reproduction. Individuals or parties may request an extension of time in which to comment on the proposed work by writing or e-mailing the Corps of Engineers Project Manager listed above. Any request must be specific and substantively supportive of the requested extension, and received by this office prior to the end of the initial comment period. The Section Chief will review the request and the requestor will be promptly notified of the decision to grant or deny the request. If granted, the time extension will be continuous to the initial comment period and, inclusive of the initial comment period, will not exceed a total of 30 calendar days. Letters concerning the Water Quality Certification must reference the applicant's name and the WQC Application number and be mailed to the Louisiana Department of Environmental Quality at the address above.

Corps of Engineers Permit Criteria

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food

and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

The U.S. Army Corps of Engineers is soliciting comments from the public, federal, state, and local agencies and officials, Indian Tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the U.S. Army Corps of Engineers to determine whether to make, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

The New Orleans District is unaware of properties listed on the National Register of Historic Places near the proposed work. The possibility exists that the proposed work may damage or destroy presently unknown archeological, scientific, prehistorical, historical sites, or data. Issuance of this public notice solicits input from the State Archeologist and State Historic Preservation Officer regarding potential impacts to cultural resources.

Our initial finding is that the proposed work would neither affect any species listed as endangered by the U.S. Departments of Interior or Commerce, nor affect any habitat designated as critical to the survival and recovery of any endangered species. Although the Bald Eagle (*Haliaeetus leucocephalus*) has been delisted, the applicant stated that a final survey of the proposed ROW will be conducted prior to construction. A report will be sent to US Fish and Wildlife Service for review. Should a nest be found within the project area and a potential adverse impact determination made, Praxair will implement the National Bald Eagle Management Guidelines.

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The applicant's proposal would result in the destruction or alteration of **N/A acres** of EFH utilized by various life stages of red drum and penaeid shrimp. Our initial determination is that the proposed action would not have a substantial adverse impact on EFH or federally managed fisheries in the Gulf of Mexico. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service.

If the proposed work involves deposits of dredged or fill material into navigable waters, the evaluation of the probable impacts will include the application of guidelines established by the Administrator of the Environmental Protection Agency. Also, a certification that the proposed activity will not violate applicable water quality standards will be required from the Department of Environmental Quality, Office of Environmental Services, before a permit is issued.

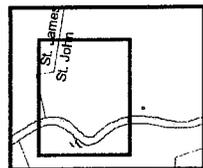
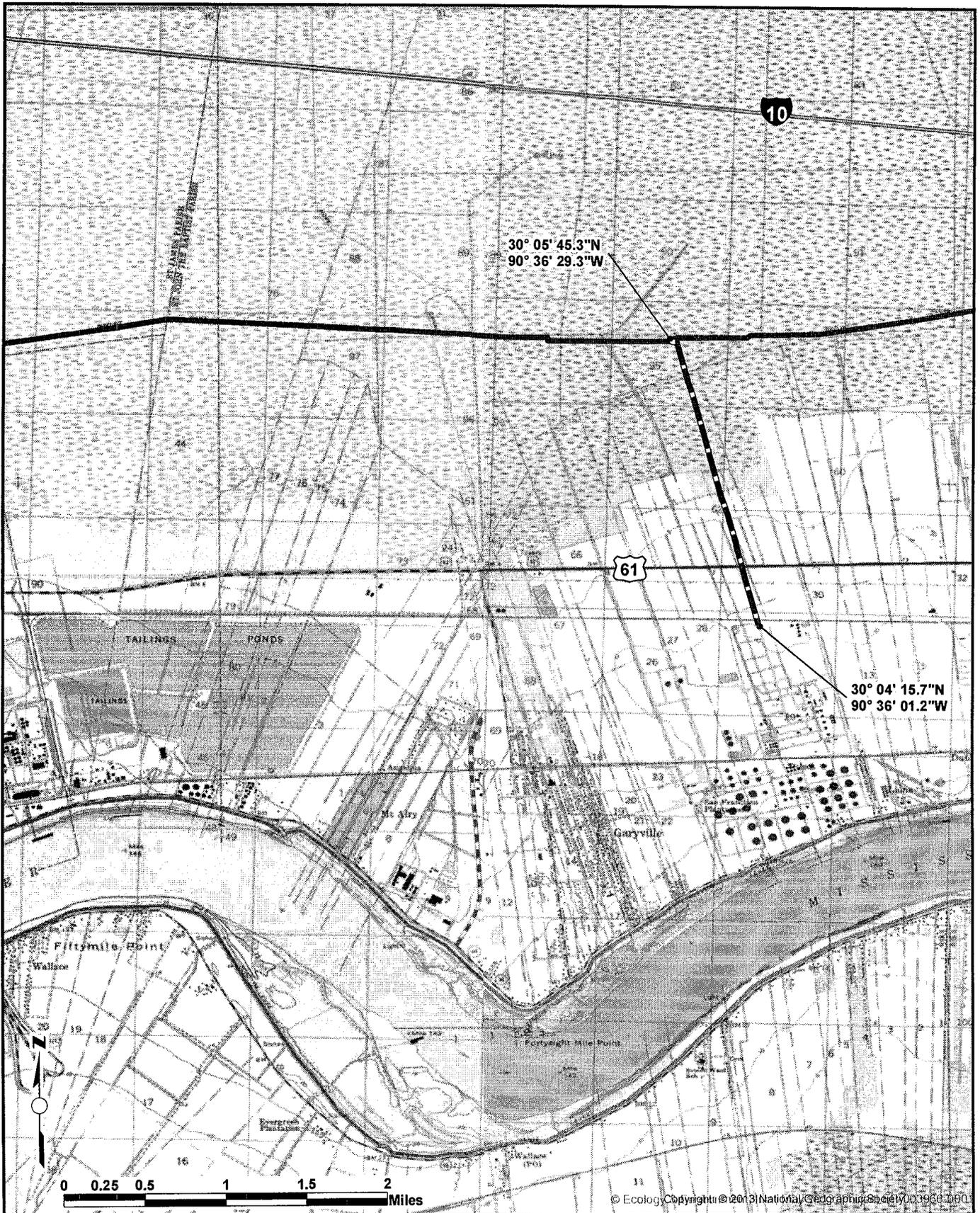
Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. You are requested to communicate the information contained in this notice to any other parties whom you deem likely to have interest in the matter.

The applicant has certified that the proposed activity described in the application complies with and will be conducted in a manner that is consistent with the Louisiana Coastal Resources Program. The Department of the Army permit will not be issued unless the applicant received approval or a waiver of the Coastal Use Permit by the Department of Natural Resources.

You are requested to communicate the information contained in this notice to any other parties whom you deem likely to have interest in the matter.

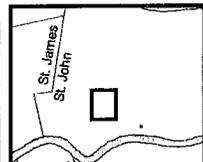
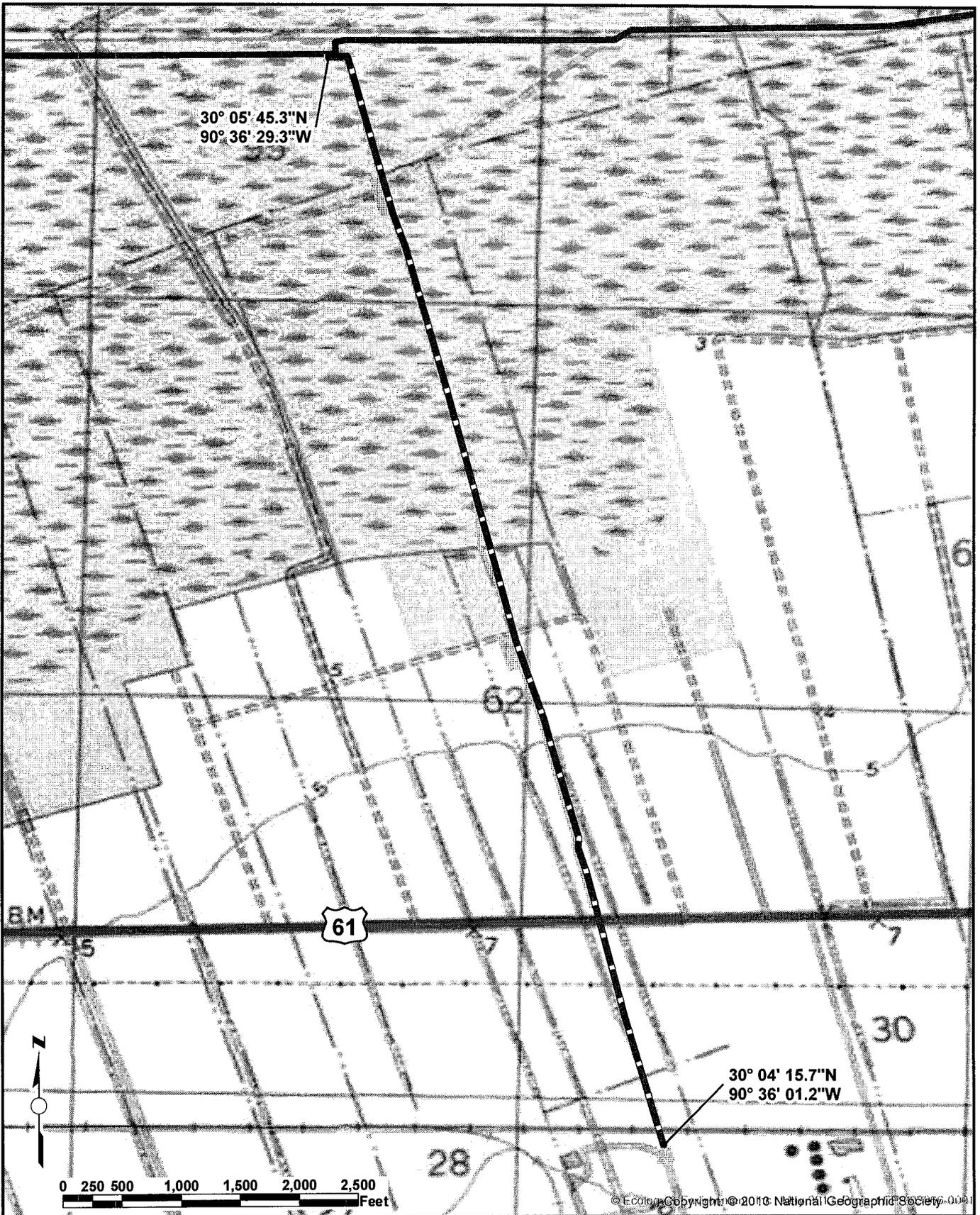
John M. Herman
Chief, Central Evaluation Section
Regulatory Branch

Enclosure



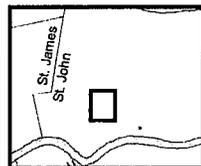
Site Vicinity Map 1
Praxair Marathon H2 Pipeline Lateral
Garyville, St. John the Baptist Parish, Louisiana

Legend	
	Marathon Lateral
	Pipeline Corridor
	Existing Praxair 12in.



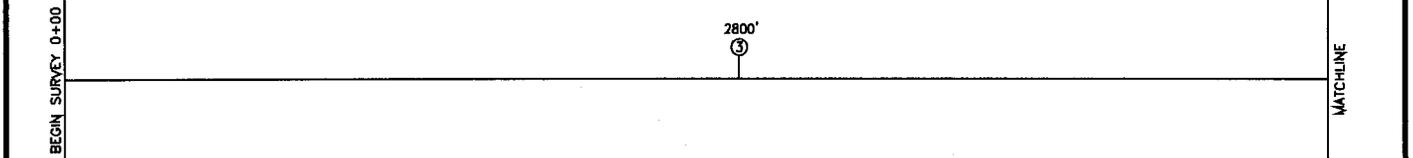
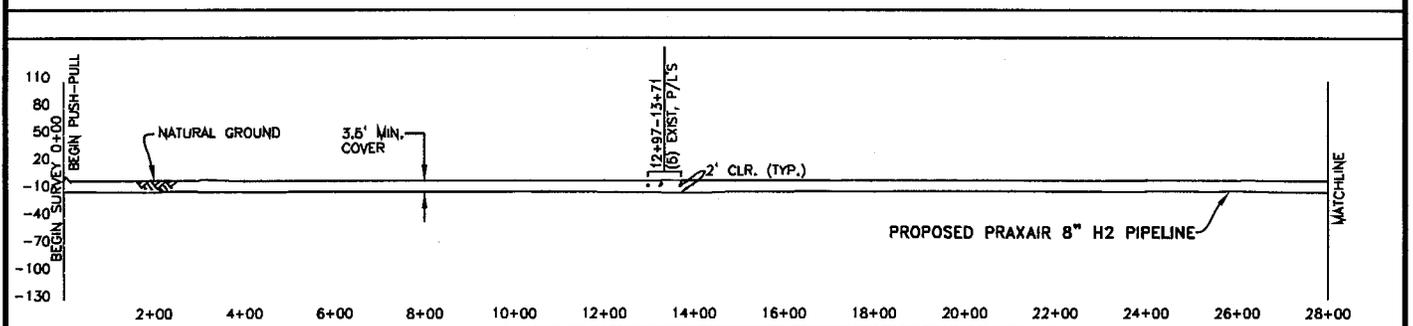
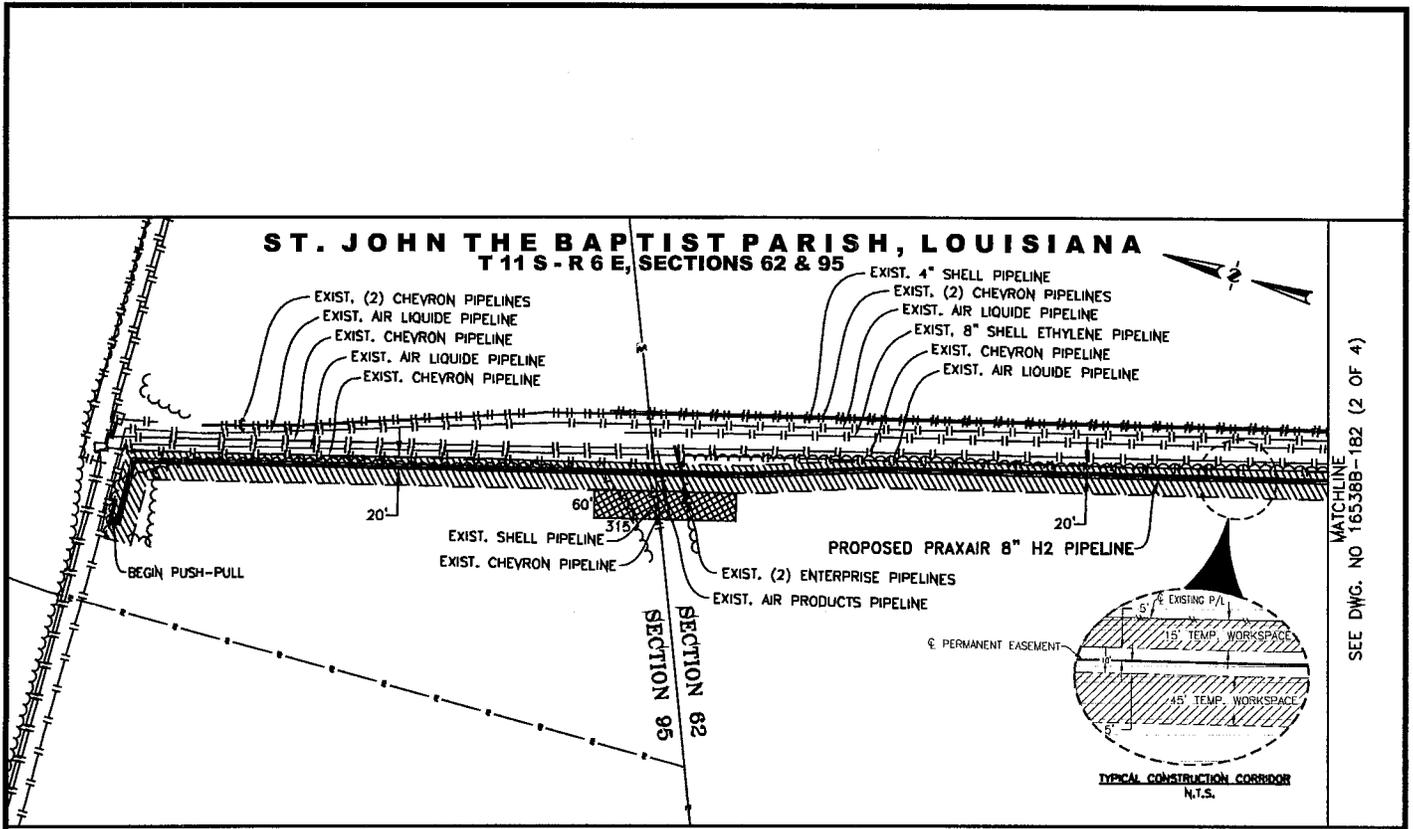
Site Vicinity Map 2
 Praxair Marathon H2 Pipeline Lateral
 Garyville, St. John the Baptist Parish, Louisiana

Legend	
	Marathon Lateral
	Pipeline Corridor
	Existing Praxair 12in.



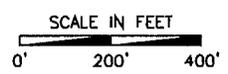
Site Aerial
Praxair Marathon H2 Pipeline Lateral
Garyville, St. John the Baptist Parish, Louisiana

Legend	
	Marathon Lateral
	Pipeline Corridor
	Existing Praxair 12in.



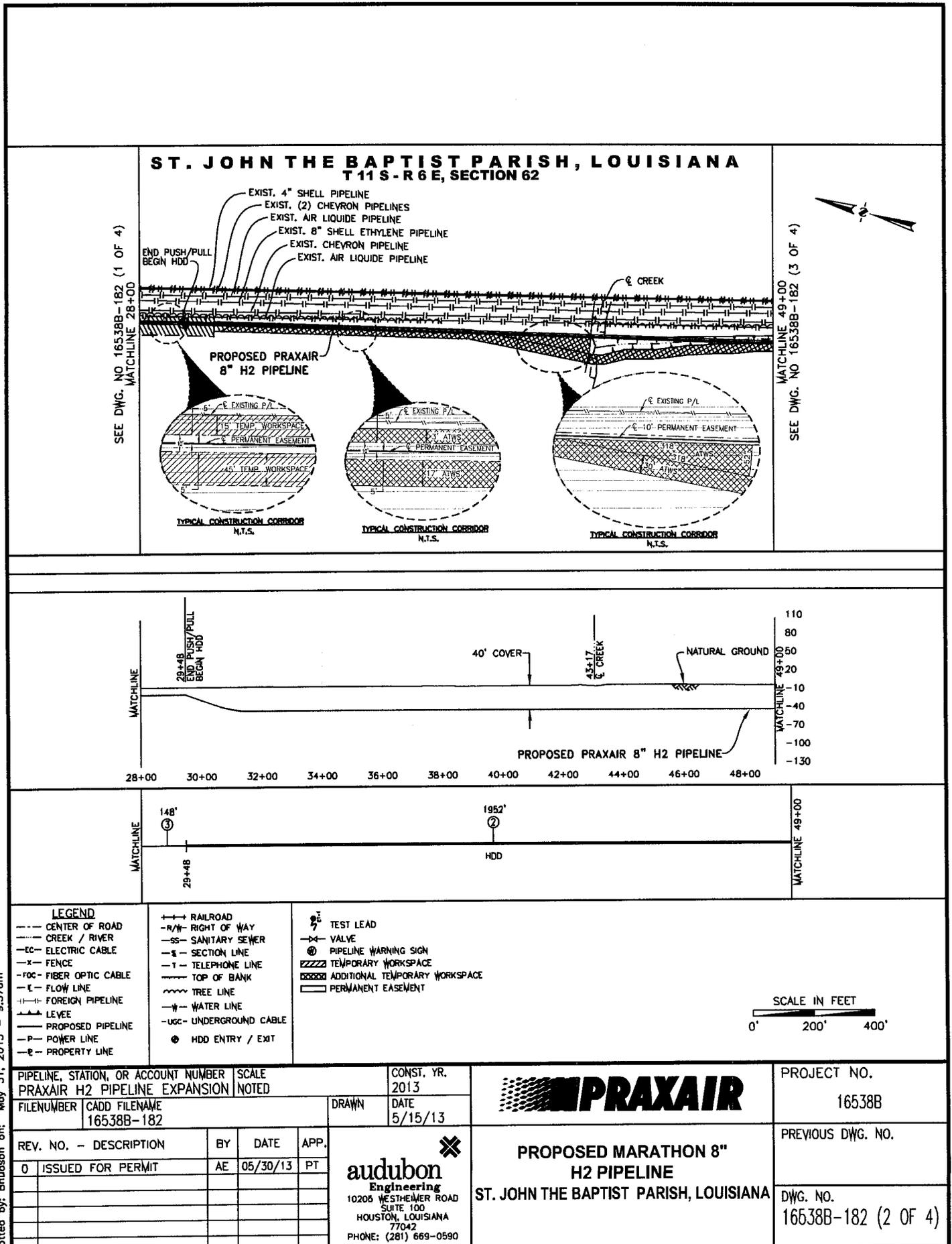
LEGEND	
--- CENTER OF ROAD	--- RAILROAD
--- CREEK / RIVER	-R/W- RIGHT OF WAY
-EC- ELECTRIC CABLE	-SS- SANITARY SEWER
-X- FENCE	-S- SECTION LINE
-FOC- FIBER OPTIC CABLE	-T- TELEPHONE LINE
-F- FLOW LINE	--- TOP OF BANK
-FP- FOREIGN PIPELINE	--- TREE LINE
--- LEVEE	-W- WATER LINE
--- PROPOSED PIPELINE	-UCC- UNDERGROUND CABLE
-P- POWER LINE	◆ HDD ENTRY / EXIT
-E- PROPERTY LINE	

⚡ TEST LEAD
⊗ VALVE
⊙ PIPELINE WARNING SIGN
▨ TEMPORARY WORKSPACE
▩ ADDITIONAL TEMPORARY WORKSPACE
□ PERMANENT EASEMENT

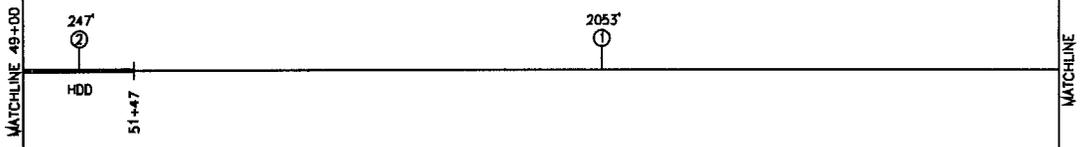
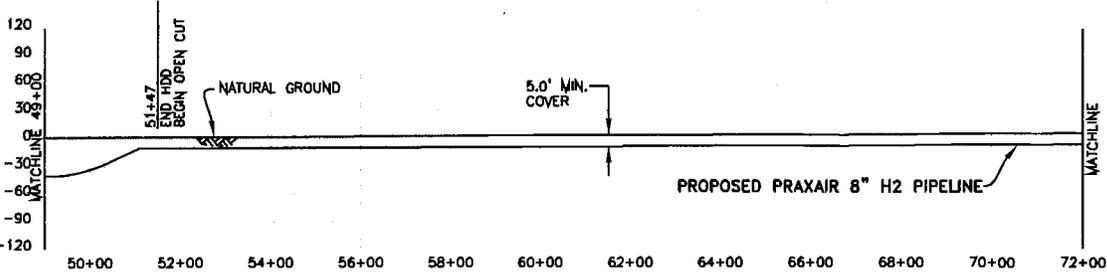
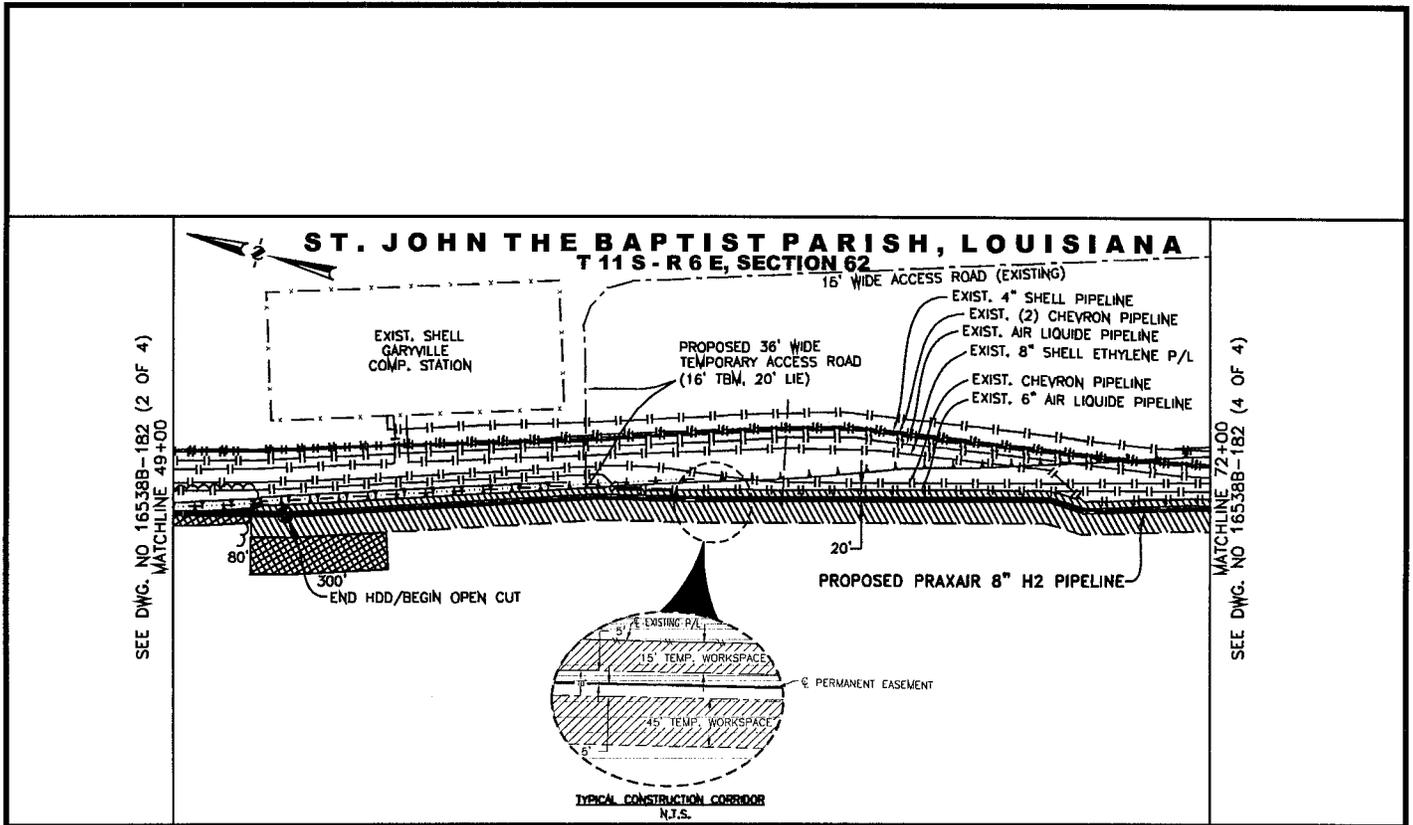


Plotted by: Bhudson on: May 31, 2013 - 10:02am

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR H2 PIPELINE EXPANSION		SCALE NOTED	CONST. YR. 2013		PROJECT NO. 165388
FILENUMBER 165388-182	CADD FILENAME 165388-182	DRAWN	DATE 5/15/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, LOUISIANA 77042 PHONE: (281) 669-0590	DWG. NO. 165388-182 (1 OF 4)
0 ISSUED FOR PERMIT	AE	05/30/13	PT		

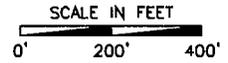


Plotted by: Bhudson on: May 31, 2013 - 9:57am



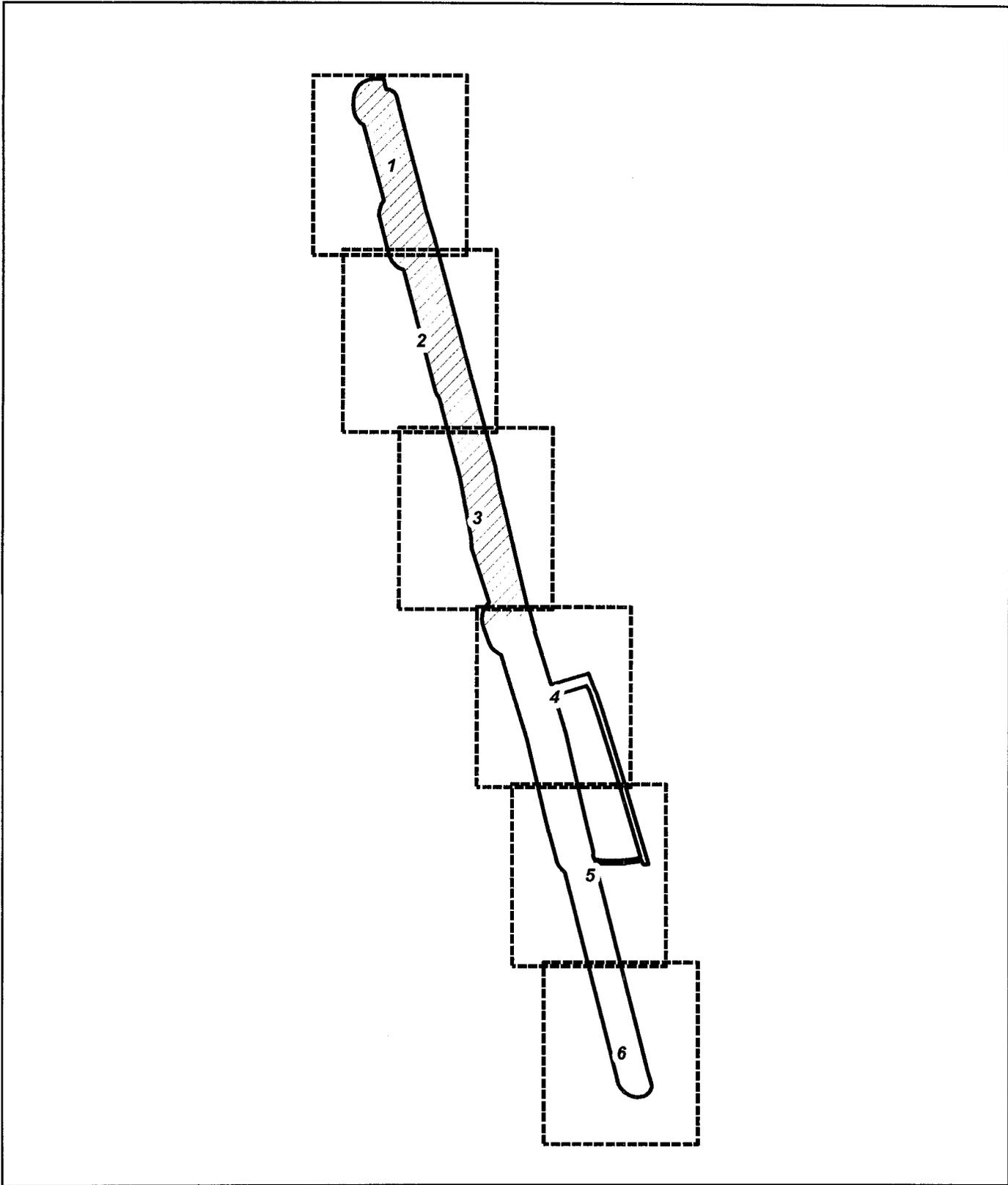
LEGEND

--- CENTER OF ROAD	--- R/W RIGHT OF WAY	⚡ TEST LEAD
--- CREEK / RIVER	--- SANITARY SEWER	⊗ VALVE
--- EC ELECTRIC CABLE	--- SECTION LINE	⊙ PIPELINE WARNING SIGN
--- FENCE	--- TELEPHONE LINE	▨ TEMPORARY WORKSPACE
--- FOC FIBER OPTIC CABLE	--- TOP OF BANK	▩ ADDITIONAL TEMPORARY WORKSPACE
--- F FLOW LINE	--- TREE LINE	▭ PERMANENT EASEMENT
--- FP FOREIGN PIPELINE	--- WATER LINE	
--- L LEVEE	--- USC UNDERGROUND CABLE	
--- P PROPOSED PIPELINE	⊙ HDD ENTRY / EXIT	
--- PL POWER LINE		
--- P PROPERTY LINE		



PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR H2 PIPELINE EXPANSION		SCALE NOTED	CONST. YR. 2013		PROJECT NO. 165388
FILENUMBER 165388-182	CADD FILENAME 165388-182	DRAWN	DATE 5/15/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, LOUISIANA 77042 PHONE: (281) 669-0590	DWG. NO. 165388-182 (3 OF 4)
0 ISSUED FOR PERMIT	AE	05/30/13	PT		PROPOSED MARATHON 8" H2 PIPELINE ST. JOHN THE BAPTIST PARISH, LOUISIANA

Plotted by: Bhudson on: May 31, 2013 - 9:58am



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0 500 1,000



Feet

0 0.05 0.1 0.2



Miles



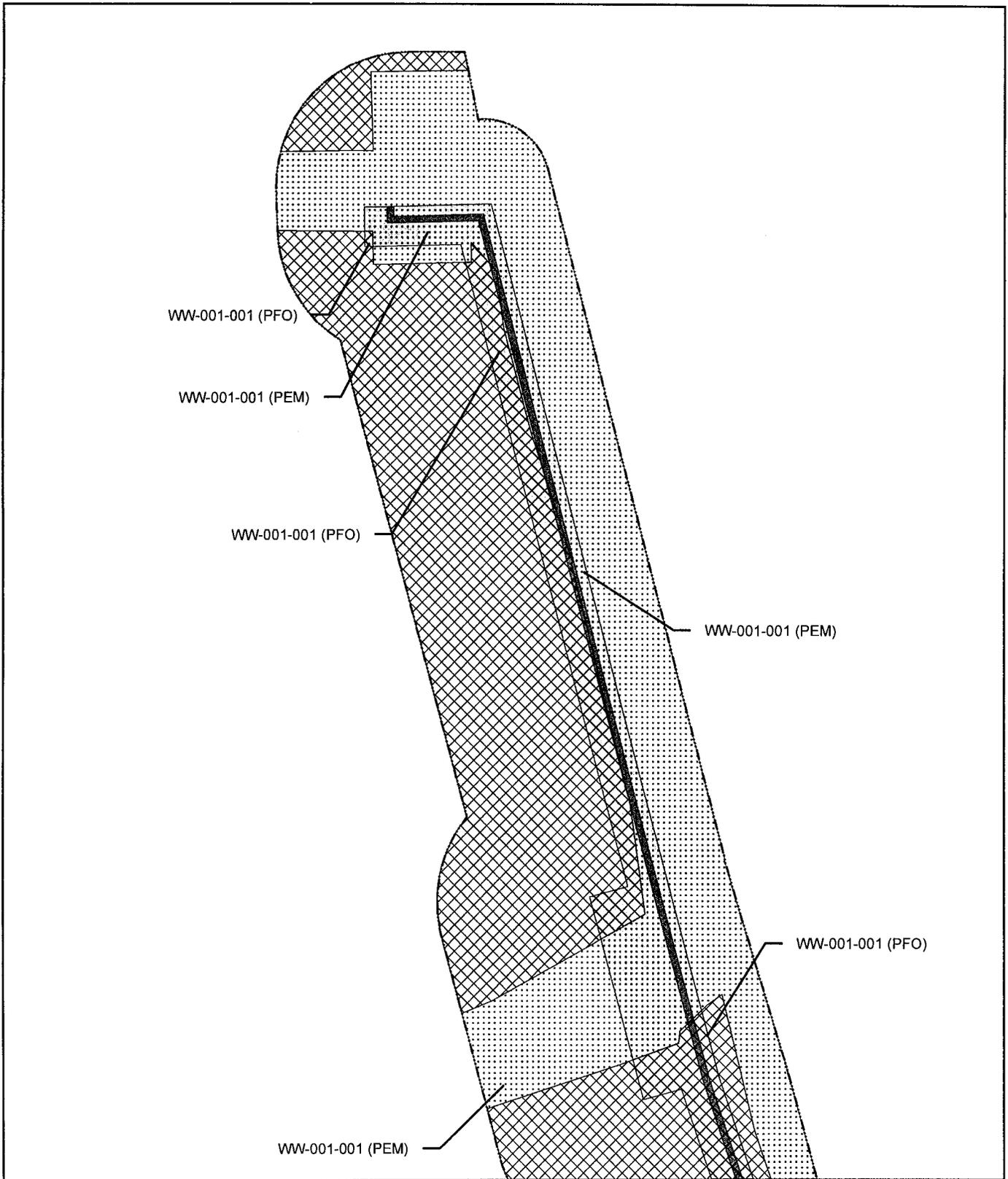
 Survey Corridor

 Map Index

 Wetland

Map Index

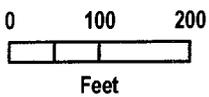
Surveyed Wetlands and Other Waters of the U.S.
and Intersection by Proposed Construction Area
Praxair Marathon H2 Pipeline Lateral

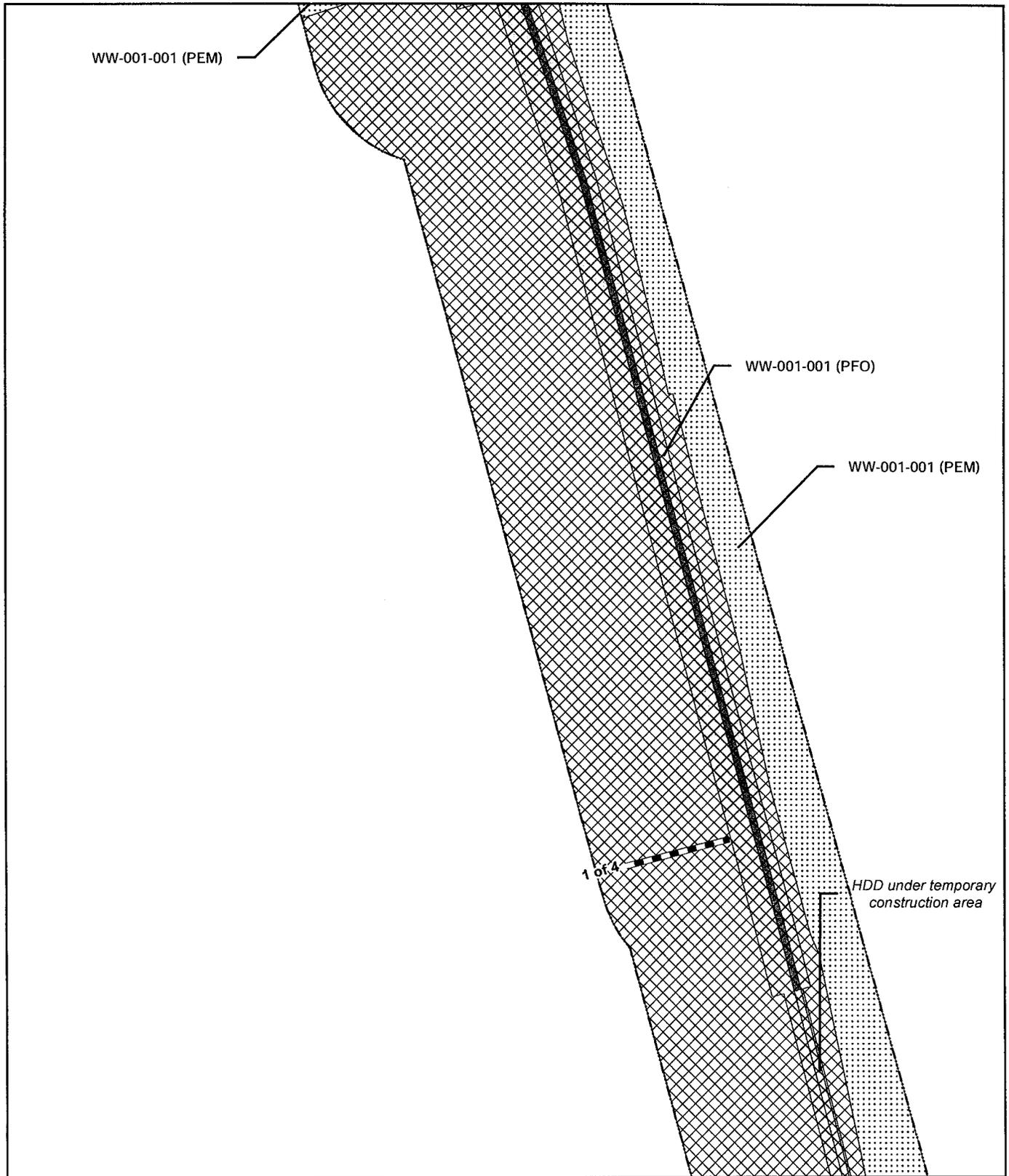


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-  Boundary of Survey
-  Limits of Construction
-  Permanent ROW
-  HDD
-  Stream
-  PEM Wetland
-  PFO Wetland
-  POW Wetland
-  Matchline 16538B-182

Frame-1
 Surveyed Wetlands and Other Waters of the U.S.
 and Intersection by Proposed Construction Area
 Praxair Marathon H2 Pipeline Lateral

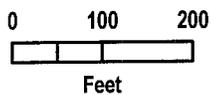


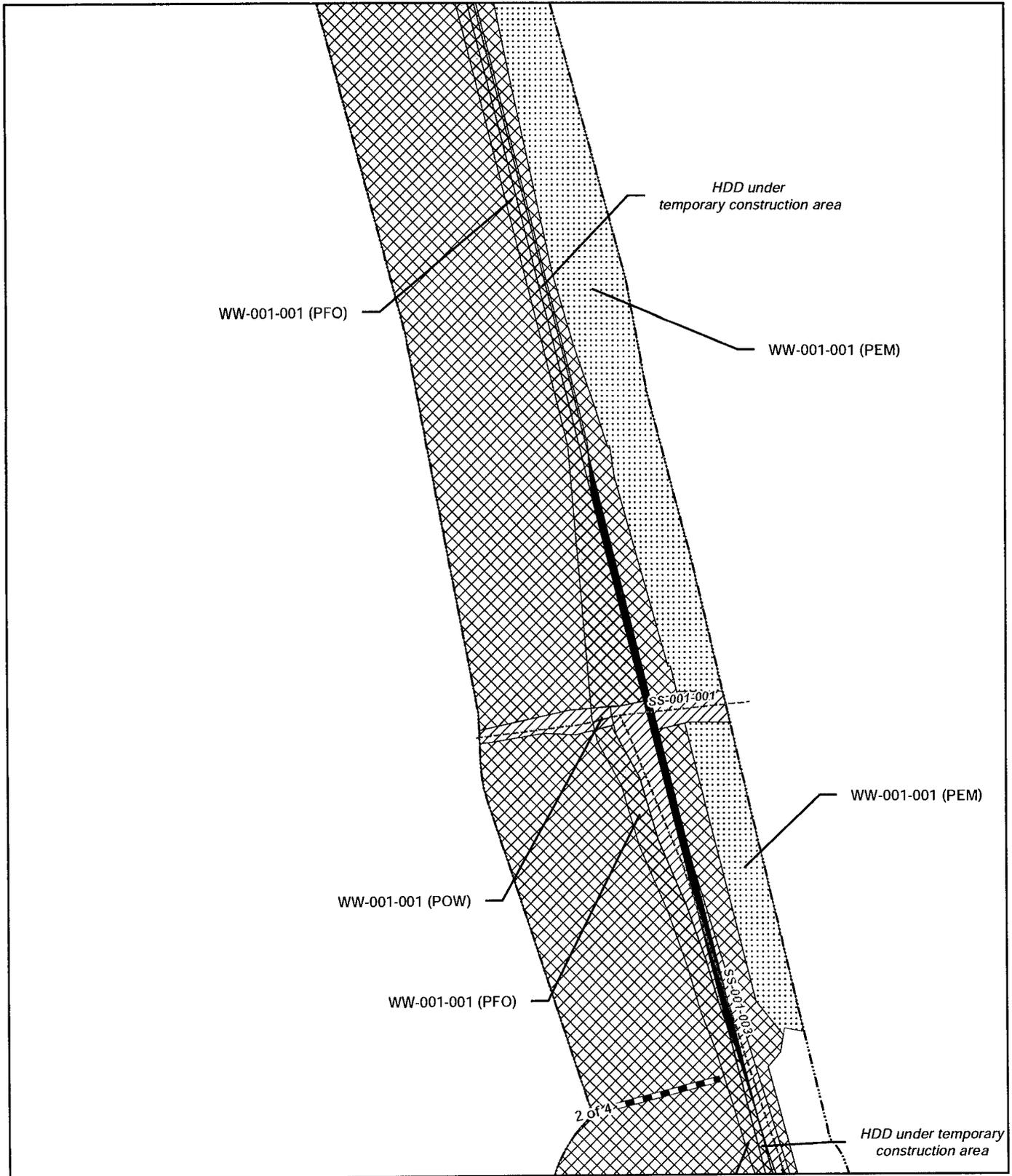


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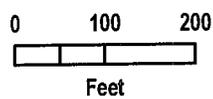
- Boundary of Survey
- Limits of Construction
- Permanent ROW
- HDD
- Stream
- PEM Wetland
- PFO Wetland
- POW Wetland
- Matchline 16538B-182

Frame-2
 Surveyed Wetlands and Other Waters of the U.S.
 and Intersection by Proposed Construction Area
 Praxair Marathon H2 Pipeline Lateral





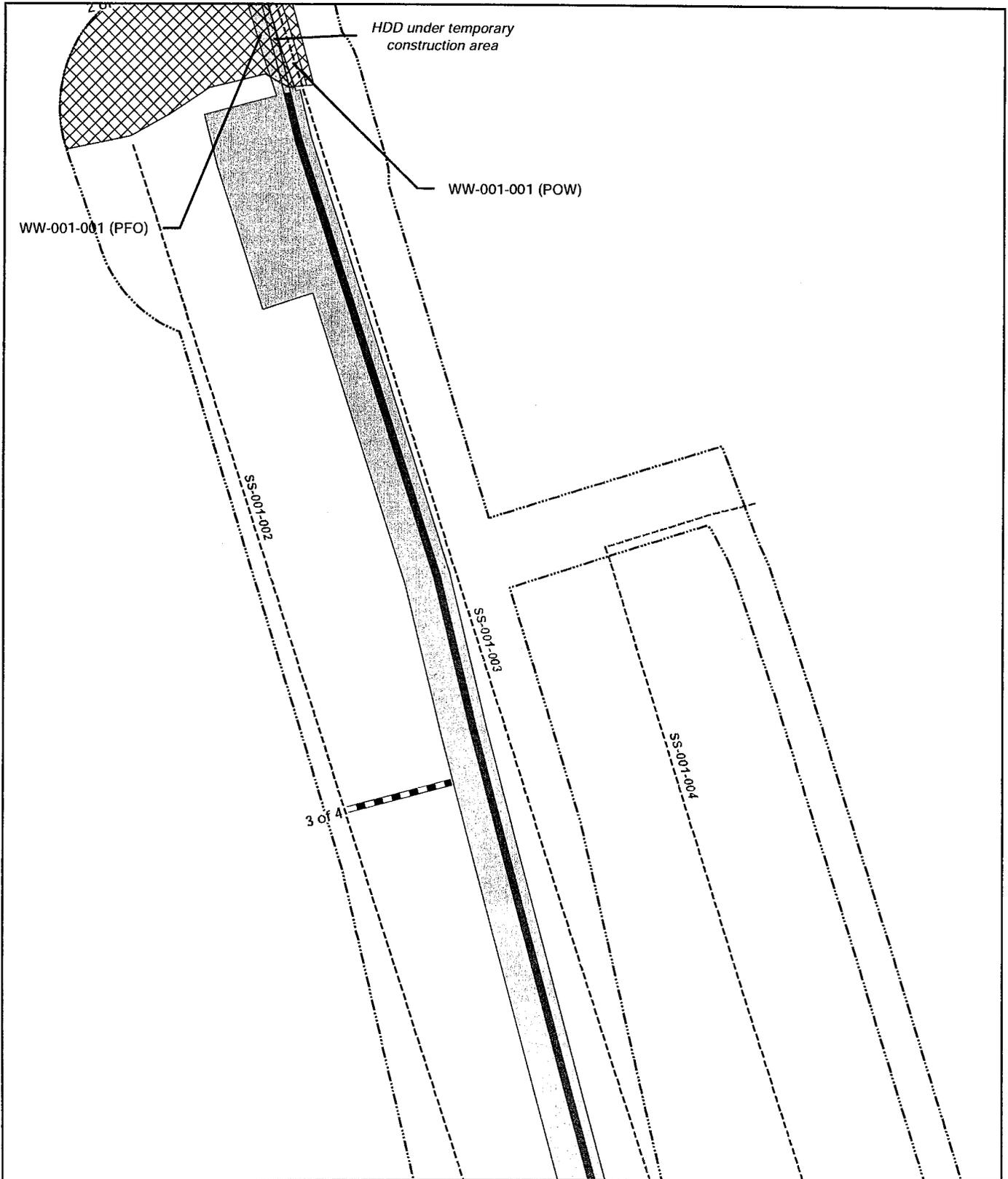
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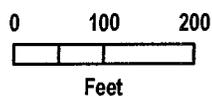
- Boundary of Survey
- Limits of Construction
- Permanent ROW
- HDD

- Stream
- PEM Wetland
- PFO Wetland
- POW Wetland
- Matchline 16538B-182

Frame-3
 Surveyed Wetlands and Other Waters of the U.S.
 and Intersection by Proposed Construction Area
 Praxair Marathon H2 Pipeline Lateral

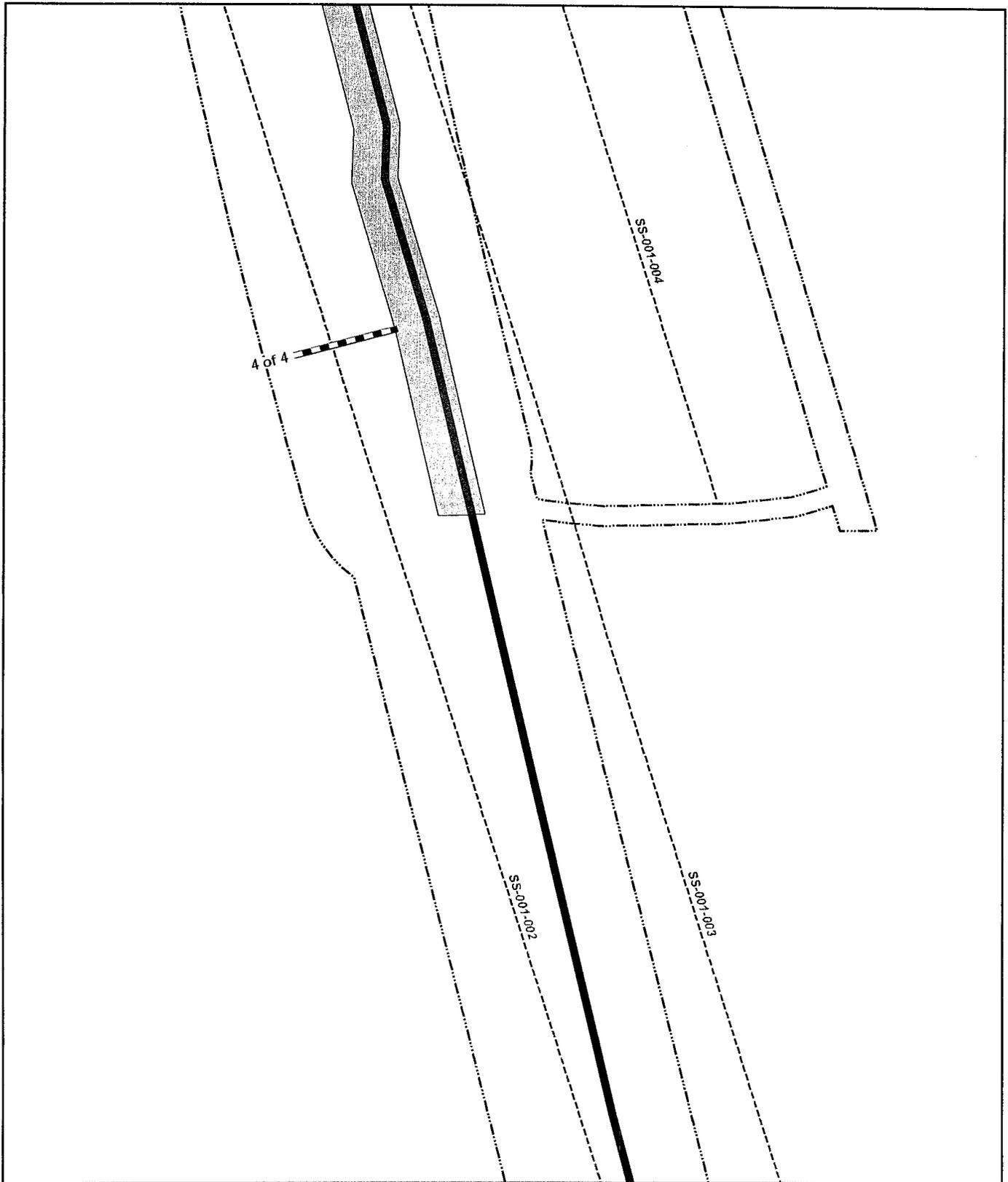


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- Boundary of Survey
- Limits of Construction
- Permanent ROW
- HDD
- Stream
- PEM Wetland
- PFO Wetland
- POW Wetland
- Matchline 16538B-182

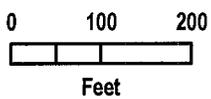
Frame-4
 Surveyed Wetlands and Other Waters of the U.S.
 and Intersection by Proposed Construction Area
 Praxair Marathon H2 Pipeline Lateral

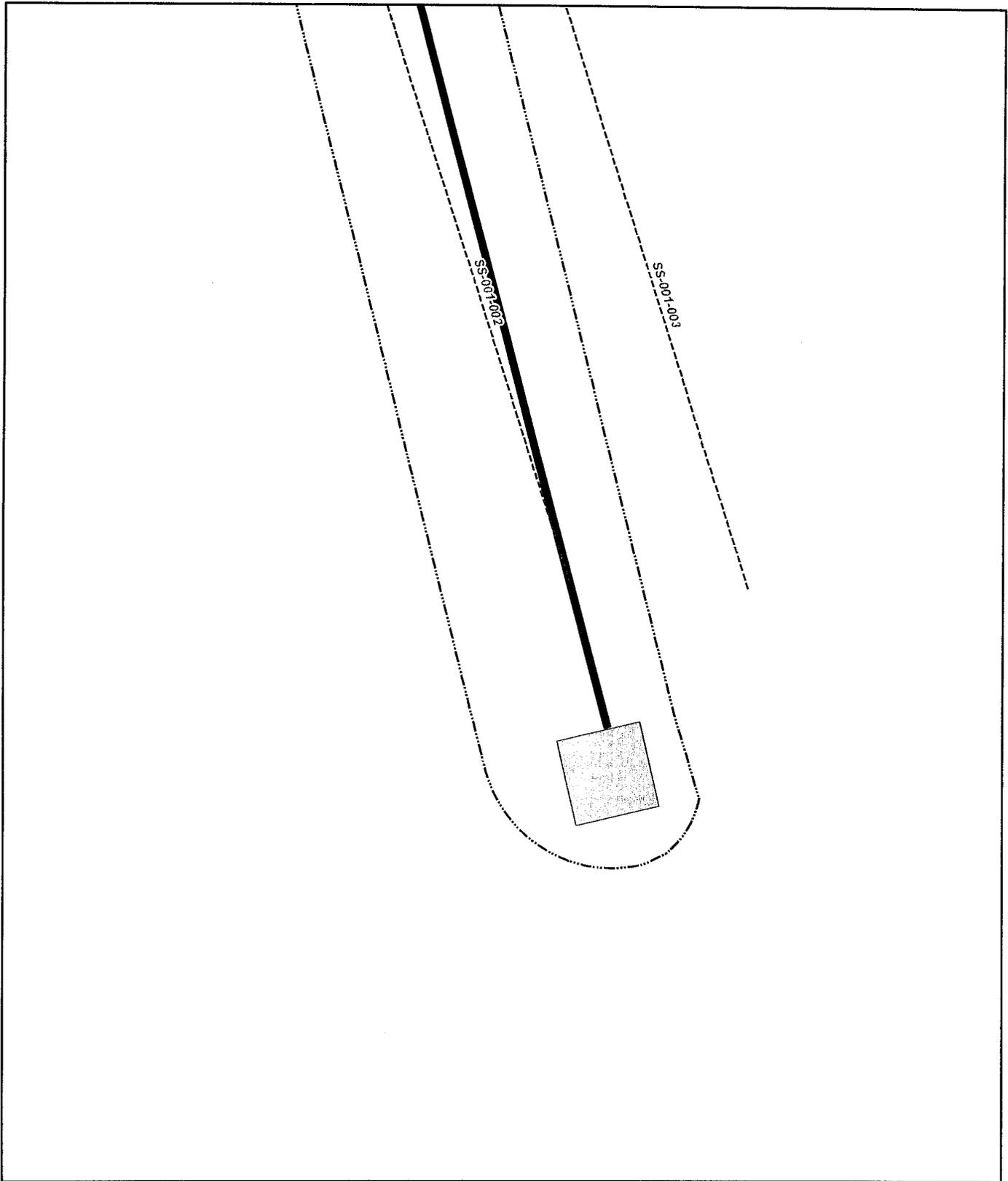


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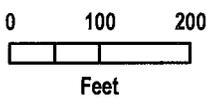
-  Boundary of Survey
-  Limits of Construction
-  Permanent ROW
-  HDD
-  Stream
-  PEM Wetland
-  PFO Wetland
-  POW Wetland
-  Matchline 16538B-182

Frame-5
 Surveyed Wetlands and Other Waters of the U.S.
 and Intersection by Proposed Construction Area
 Praxair Marathon H2 Pipeline Lateral





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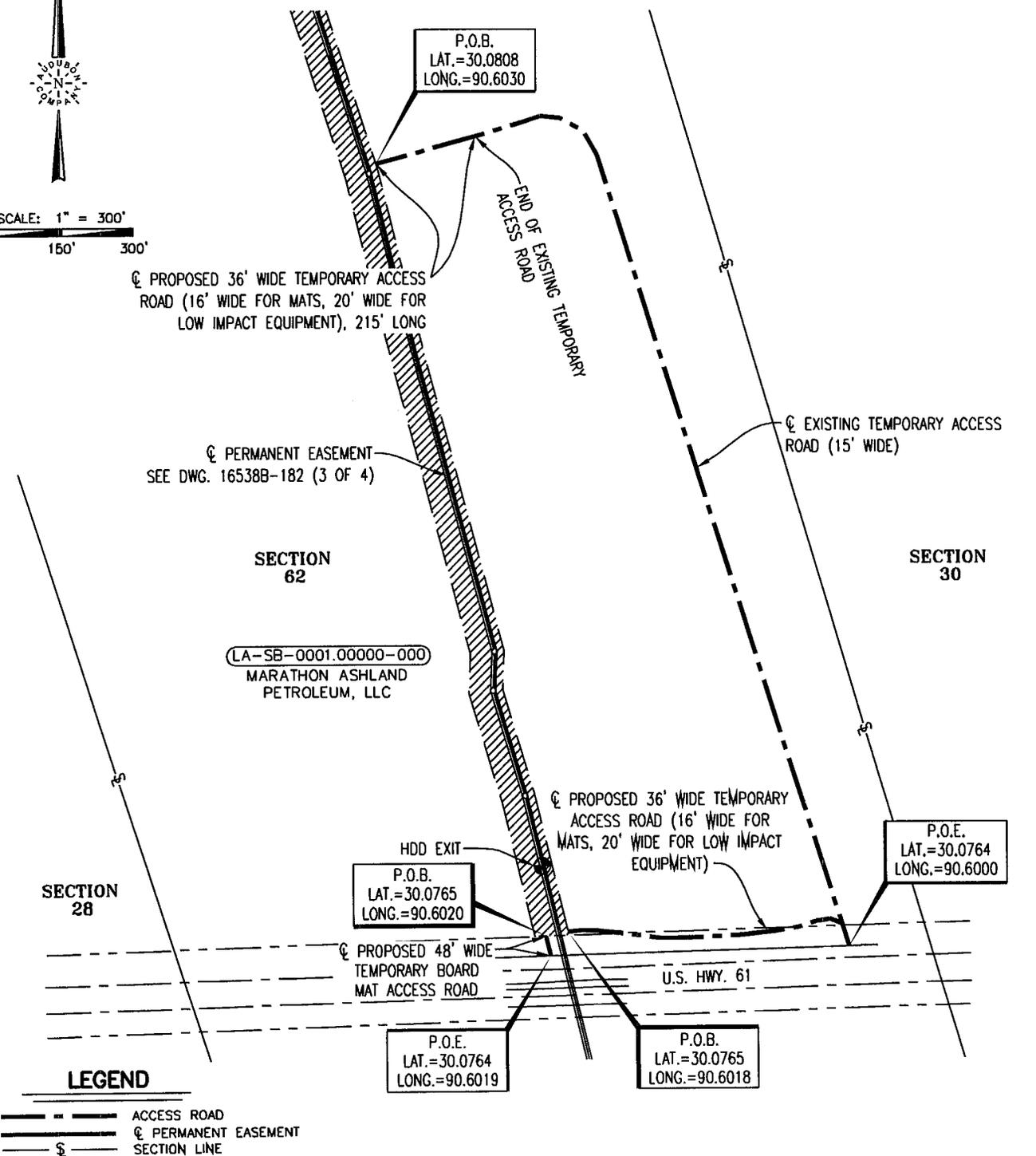
-  Boundary of Survey
-  Limits of Construction
-  Permanent ROW
-  HDD
-  Stream
-  PEM Wetland
-  PFO Wetland
-  POW Wetland
-  Matchline 16538B-182

Frame-6
 Surveyed Wetlands and Other Waters of the U.S.
 and Intersection by Proposed Construction Area
 Praxair Marathon H2 Pipeline Lateral

ST. JOHN THE BAPTIST PARISH, LOUISIANA
T 11 S - R 6 E



SCALE: 1" = 300'
 0' 150' 300'

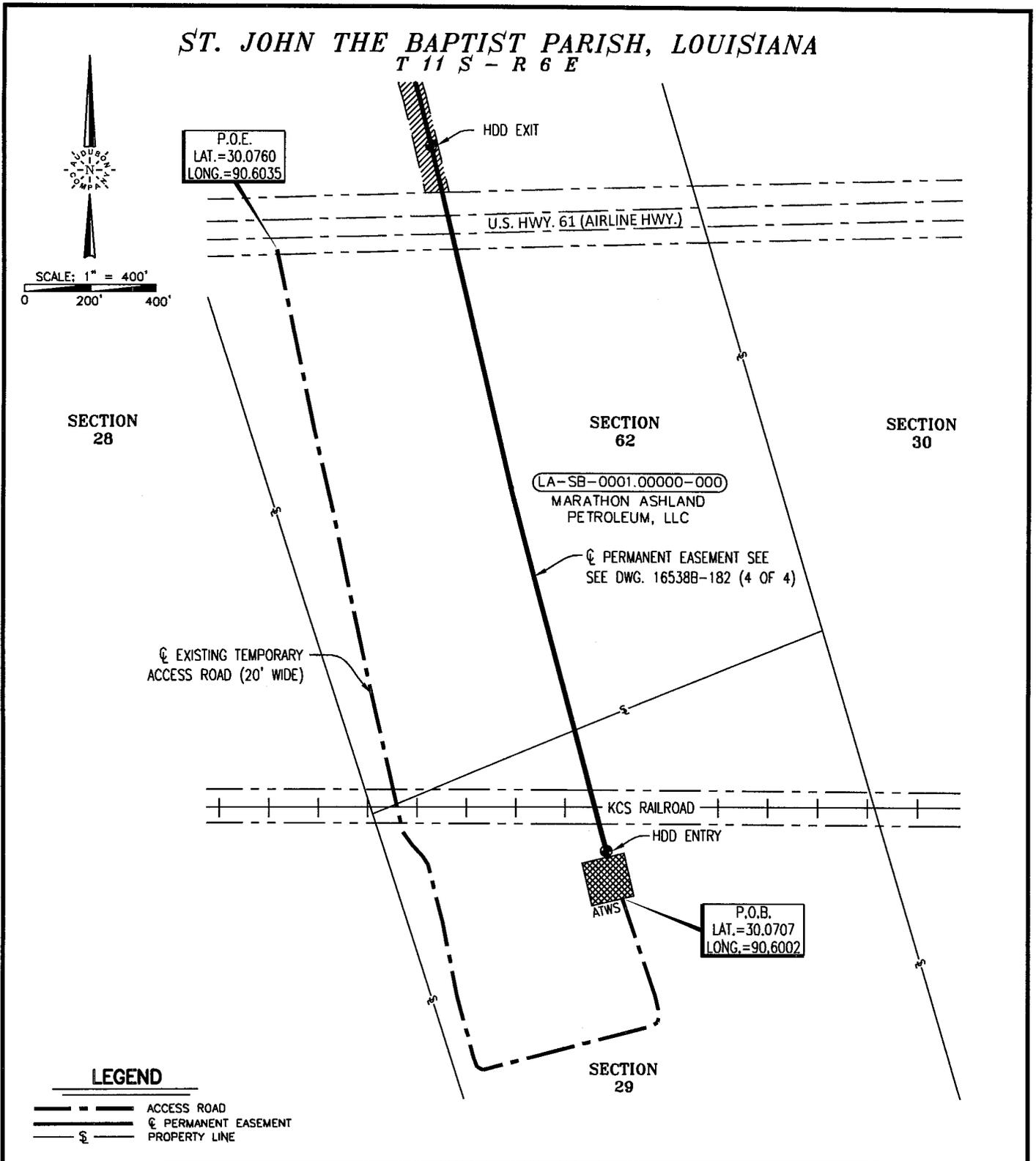


LEGEND

- ACCESS ROAD
- PERMANENT EASEMENT
- SECTION LINE

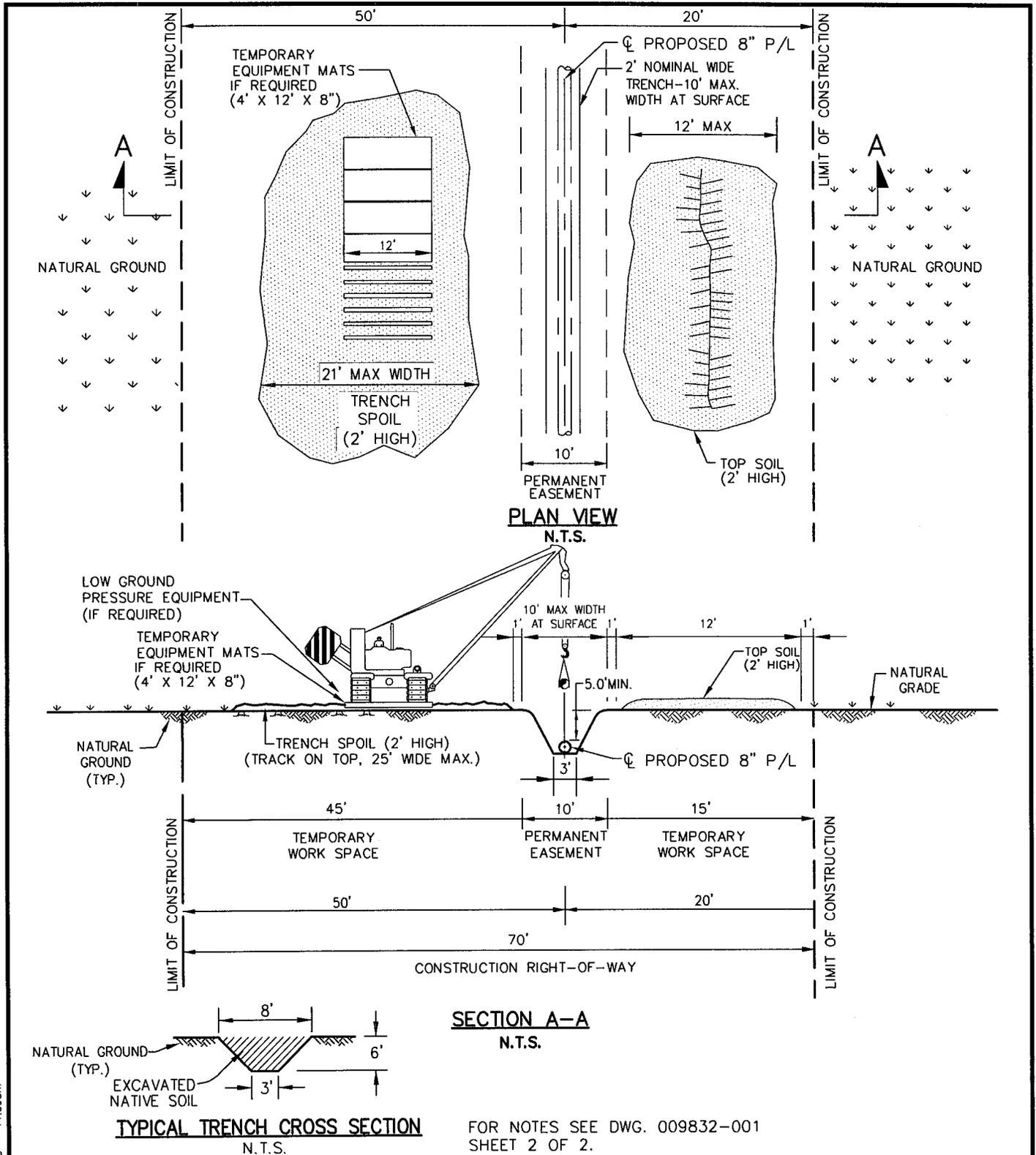
PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE NOTED	CONST. YR. 2013	PRAXAIR	PROJECT NO. 16538B
FILENUMBER 009832-AR1	CADD FILENAME 009832-AR1	DRAWN KB	DATE 05/15/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	audubon Engineering 10205 WESTHEIMER ROAD SUITE 600 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590	PROPOSED MARATHON 8" H2 PIPELINE TEMPORARY ACCESS ROAD ST. JOHN THE BAPTIST PARISH, LOUISIANA
A ISSUED FOR REVIEW	BH	05/15/13	PT		
0 ISSUED FOR PERMIT	AE	05/30/13	PT		
				DWG. NO. 009832-AR1	

Printed by: Rhudson on: 05/15/13 16:05am



Plotted by: Bhudson on: May 31, 2013 - 8:42am

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON P/L		SCALE NOTED	CONST. YR. 2013		PROJECT NO. 16538B
FILENUMBER 009832-AR2	CADD FILENAME 009832-AR2		DATE 05/15/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	audubon Engineering 10205 WESTHEWER ROAD SUITE 600 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590	PROPOSED MARATHON 8" H2 PIPELINE TEMPORARY ACCESS ROAD ST. JOHN THE BAPTIST PARISH, LOUISIANA
A ISSUED FOR REVIEW	BH	05/15/13	PT		
0 ISSUED FOR PERMIT	AE	05/30/13	PT		
				DWG. NO. 009832-AR2	



Plotted by: Bhudson on: May 30, 2013 11:09am

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.	CONST. YR. 2013	PRAXAIR	PROJECT NO. 165388
FILENUMBER 009832-001	CADD FILENAME 009832-001	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	TYPICAL CROSS SECTION (SINGLE) PIPELINE OPEN CUT INSTALLATION	SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT		DWG. NO. 009832-001
0 ISSUED FOR PERMIT	AE	05/30/13	PT		SHT. 1 OF 2
audubon Engineering 10205 WESTHEWER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590					

NOTES:

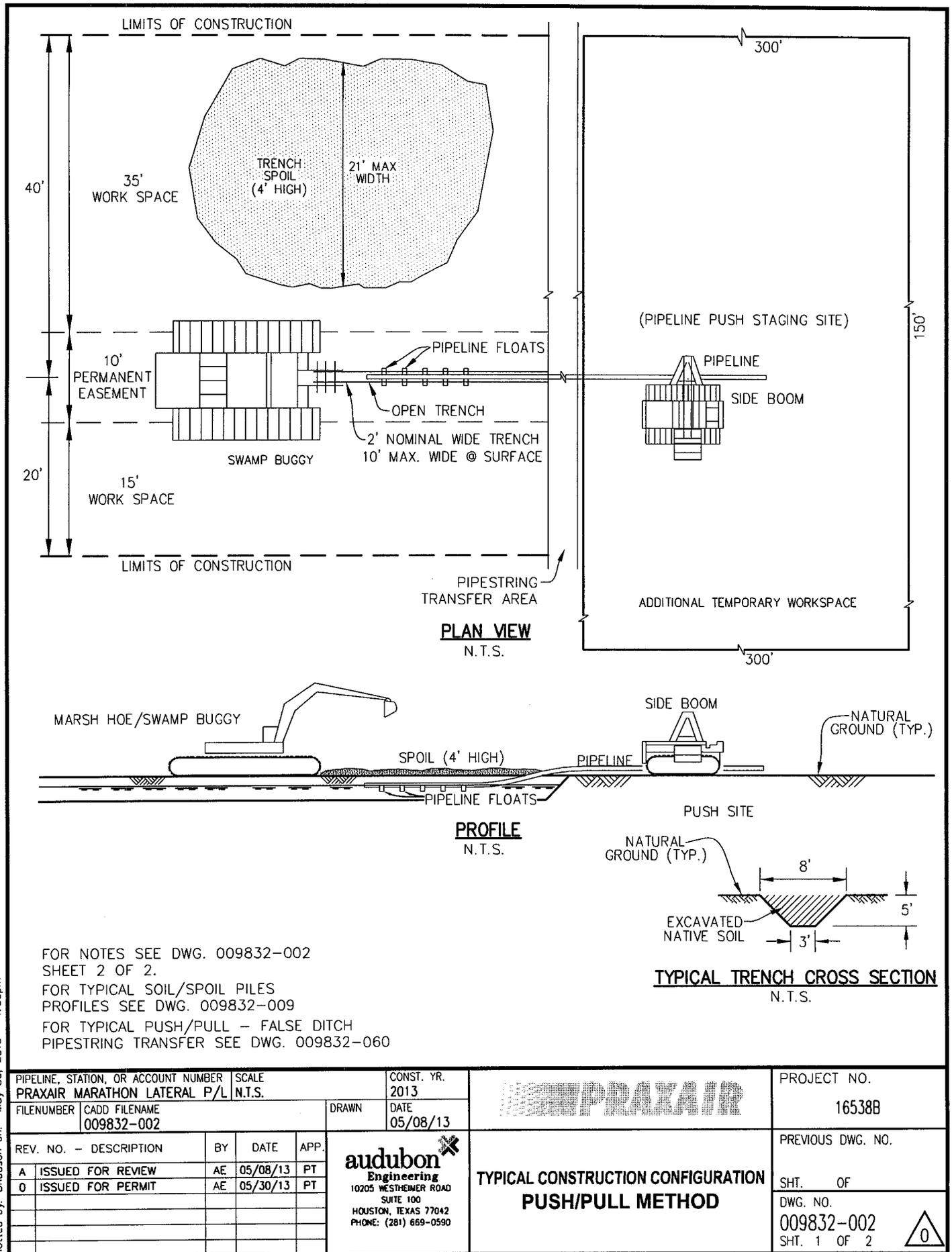
1. CONSTRUCTION RIGHT-OF-WAY (ROW) WILL TYPICALLY BE 70 FEET WIDE CONSISTING OF 10 FEET PERMANENT EASEMENT AND UP TO 60 FEET OF TEMPORARY WORKSPACE. ADDITIONAL TEMPORARY WORK SPACE (ATWS) WILL BE NECESSARY AT MAJOR ROAD, RAIL AND RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS SHOWN ON THE JOINT PERMIT PLAN AND PROFILE DRAWINGS.
2. UTILIZE THE "TRENCH ONLY" TOPSOIL SALVAGE METHOD AT LOCATIONS SUCH AS RIPARIAN AREAS OR AS DIRECTED BY THE PIPELINE INSPECTOR (PER LANDOWNER REQUEST).
3. FOR TRENCH ONLY STRIPPING, THE STRIPPED AREA SHALL BE WIDE ENOUGH TO ACCOMMODATE TRENCHING EQUIPMENT.
4. DEPTH OF TOPSOIL STRIPPING NOT TO EXCEED 18 INCHES.
5. STOCKPILE TOPSOIL AND TRENCH SPOIL AS SHOWN OR AS APPROVED BY THE PRAXAIR PIPELINE INSPECTOR. KEEP TOPSOIL AND SPOIL PILES CLEAN OF ALL CONSTRUCTION DEBRIS. MAINTAIN A MINIMUM 12 INCHES OF SEPARATION BETWEEN TOPSOIL AND TRENCH SPOIL PILES.
6. AVOID ADJACENT WETLANDS. INSTALL EROSION CONTROL MEASURES (STRAW BALES AND/OR SILT FENCE) AT DOWN SLOPE EDGE OF ROW ALONG WETLAND EDGE IF EVIDENT OR INSTALL BARRIER AT BOTH EDGES OF WETLAND.
7. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING.
8. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL AND TOPSOIL PILES.
9. TOPSOIL AND TRENCH SPOIL RELATIVE POSITIONS CAN, AS REQUIRED, BE REVERSED.
10. BACKFILL TRENCH WITH NATIVE MATERIAL AS EXCAVATED. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING.

FOR PLAN VIEW AND SECTION
SEE DWG. 009832-001 SHEET 1 OF 2.

Plotted by: Bhudson on: May 30, 2013 - 11:10am

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.	CONST. YR. 2013		PROJECT NO. 16538B
FILENUMBER 009832-001	CADD FILENAME 009832-001	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	 <p>TYPICAL CROSS SECTION (SINGLE) PIPELINE OPEN CUT INSTALLATION</p>	SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT		DWG. NO. 009832-001
0 ISSUED FOR PERMIT	AE	05/30/13	PT		SHT. 2 OF 2





Plotted by: Bhudson on: May 30, 2013 - 1:50pm

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.	CONST. YR. 2013		PROJECT NO. 165388
FILENUMBER 009832-002	CADD FILENAME	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	audubon Engineering 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590	SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT		DWG. NO.
0 ISSUED FOR PERMIT	AE	05/30/13	PT		009832-002
					SHT. 1 OF 2

**TYPICAL CONSTRUCTION CONFIGURATION
PUSH/PULL METHOD**



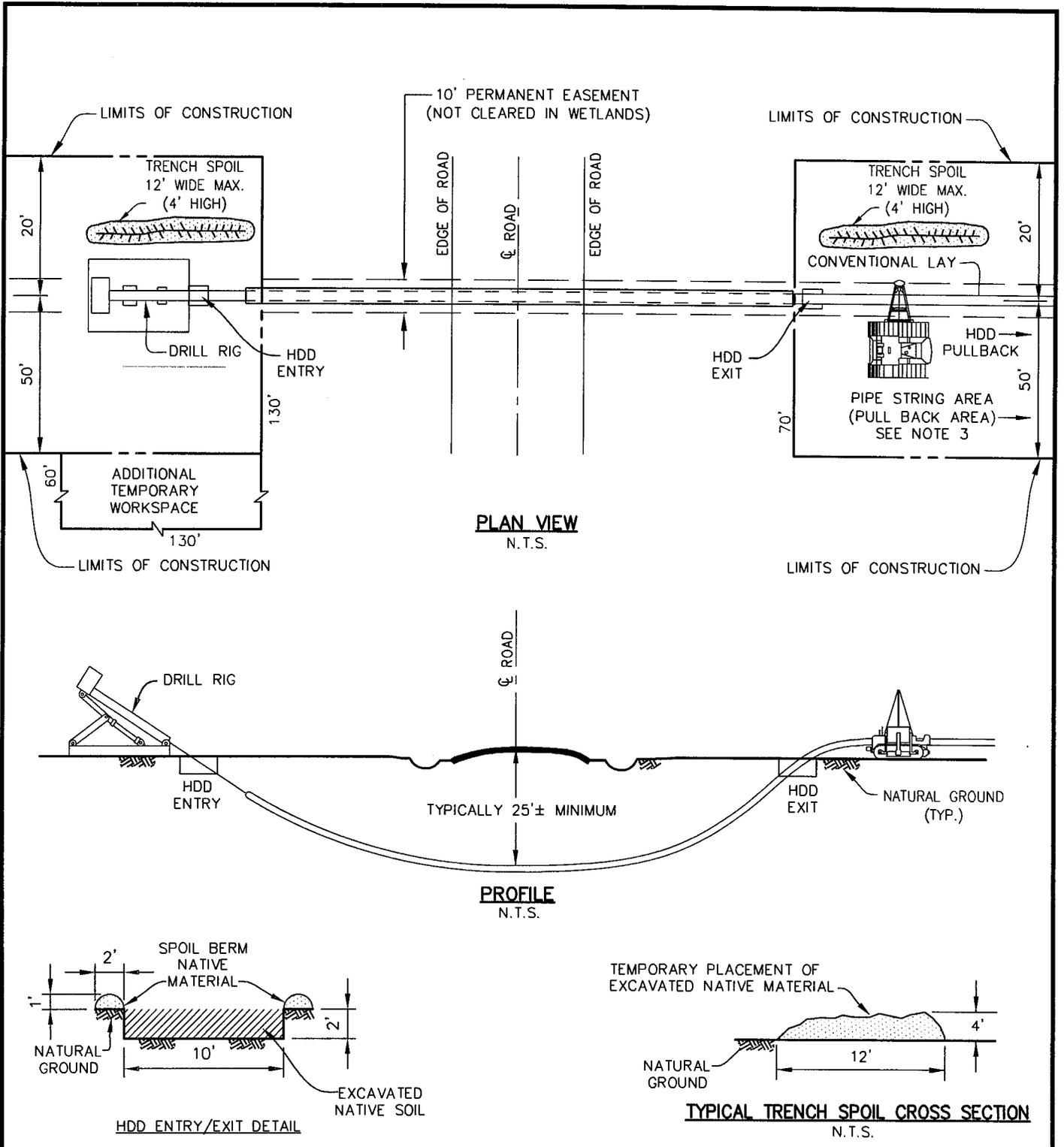
NOTES:

1. CONSTRUCTION RIGHT-OF-WAY (ROW) WILL TYPICALLY BE 60 FEET WIDE CONSISTING OF 10 FEET PERMANENT EASEMENT AND UP TO 50 FEET OF TEMPORARY WORKSPACE. ATWS WILL BE NECESSARY AT MAJOR ROAD, RAIL, AND RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS SHOWN ON THE JOINT PERMIT PLAN AND PROFILE DRAWINGS.
2. RESTRICT ROOT GRUBBING TO TRENCH AREA.
3. TOPSOIL SALVAGE IS NOT REQUIRED IN SATURATED SOIL.
4. UTILIZES AMPHIBIOUS EXCAVATORS AND SUPPORT EQUIPMENT.
5. KEEP SOIL PILES CLEAN OF ALL CONSTRUCTION DEBRIS.
6. LEAVE GAPS IN SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS.
7. FABRICATE PIPE IN ATWS STAGING AREAS AS INDICATED ON THE JOINT PERMIT PLAN AND PROFILE DRAWINGS.
8. FLOAT PIPE IN PLACE, LOWER IN, INSTALL TRENCH PLUGS AT WETLAND EDGES AS NEEDED AND BACKFILL IMMEDIATELY.
9. BACKFILL TRENCH WITH NATIVE MATERIAL AS EXCAVATED. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING.
10. INSTALL PERMANENT EROSION CONTROL AS NEEDED.

FOR PLAN VIEW AND PROFILE SEE DWG. 009832-002 SHEET 1 OF 2

Plotted by: Bhudson on: May 30, 2013 - 11:07am

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.		CONST. YR. 2013			PROJECT NO. 16538B	
FILENUMBER 009832-002	CADD FILENAME			DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.	
REV. NO. - DESCRIPTION	BY	DATE	APP.			TYPICAL CONSTRUCTION CONFIGURATION PUSH/PULL METHOD		SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT					DWG. NO.
0 ISSUED FOR PERMIT	AE	05/30/13	PT					009832-002
						SHT. 2 OF 2		



FOR NOTES SEE DWG. 009832-005
SHEET 2 OF 2.

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.	CONST. YR. 2013		PROJECT NO. 165388	
FILENUMBER 009832-005	CADD FILENAME 009832-005	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.	
REV. NO. - DESCRIPTION	BY	DATE	APP.	audubon Engineering 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590	TYPICAL ROAD OR CORRIDOR CROSSING HORIZONTAL DIRECTIONAL DRILL	
A ISSUED FOR REVIEW	AE	05/08/13	PT			SHT. OF
0 ISSUED FOR PERMIT	AE	05/30/13	PT			DWG. NO. 009832-005
						SHT. 1 OF 2



Plotted by: Bhudson on: May 30, 2013 - 1:16pm

NOTES:

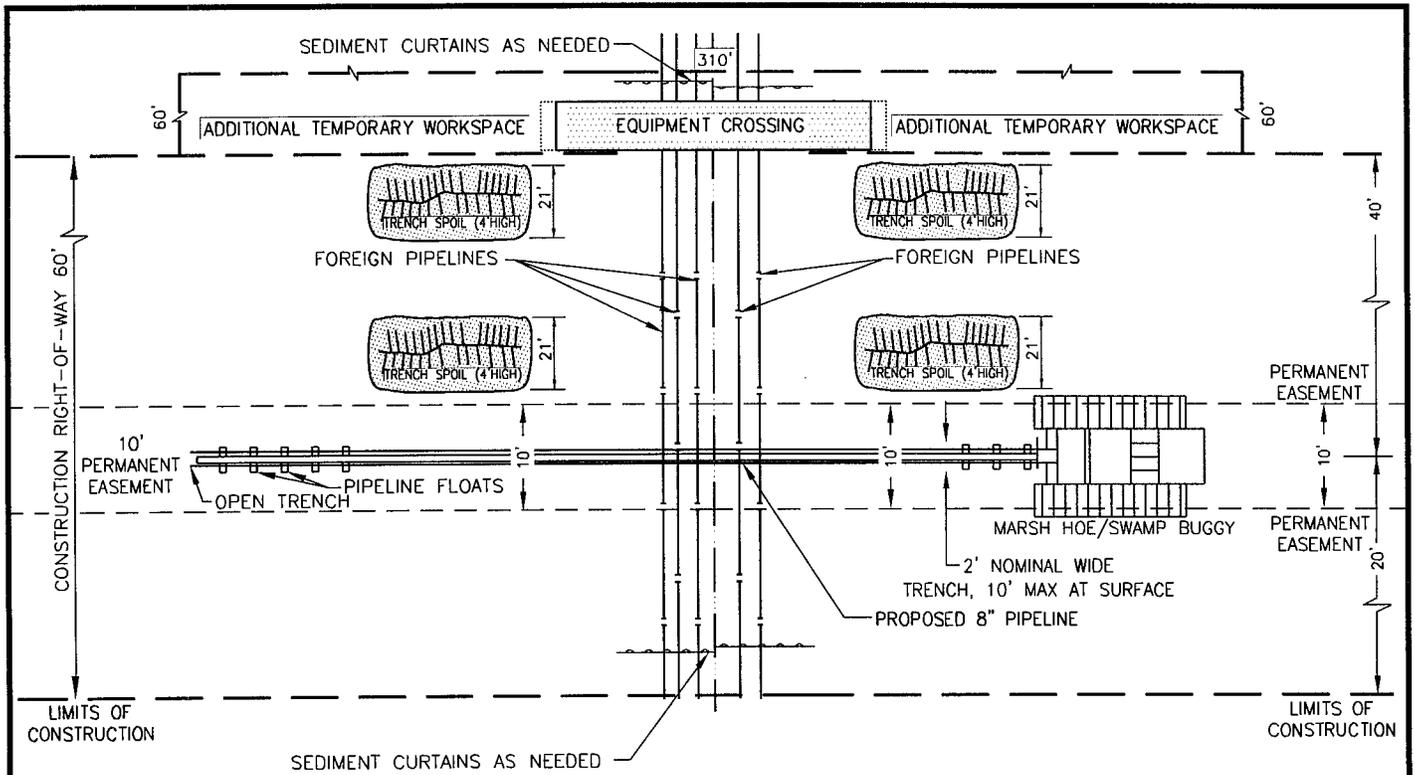
1. THIS METHOD MAY BE USED TO CROSS UNDER ONE OR MORE ROADS, RAILROADS, AND OTHER ITEMS LOCATED WITHIN CROSSING CORRIDOR.
2. ADDITIONAL TEMPORARY WORK SPACE (ATWS) WILL BE ESTABLISHED IN ADDITION TO THE TYPICAL 70-FOOT WIDE ROW AS SHOWN ABOVE OR ON THE JOINT PERMIT PLAN AND PROFILE DRAWINGS FOR PLACEMENT OF DRILL RIG AND SUPPORT EQUIPMENT AND SUPPLIES.
3. HDD PULL-BACK AREA WILL BE WITHIN THE 70-FOOT WIDE ROW AS SHOWN ABOVE OR ON THE JOINT PERMIT PLAN AND PROFILE DRAWINGS.
4. PLACE TEMPORARY BERMS OF EXCAVATED NATIVE MATERIAL DOWNSLOPE FROM AND ADJACENT TO DRILL ENTRY AND ANTICIPATED EXIT POINTS TO CONTAIN DRILLING MUD.
5. INSTALL SUITABLE DRILLING MUD TANKS TO PREVENT RELEASE TO ADJACENT WATERWAYS.
6. DISPOSE OF DRILLING MUD IN ACCORDANCE WITH APPROPRIATE REGULATORY REQUIREMENTS.
7. BACKFILL TRENCH WITH NATIVE MATERIAL AS EXCAVATED. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING.
8. INSTALL PERMANENT EROSION CONTROL AS NEEDED.

FOR PLAN VIEW AND PROFILE
SEE DWG. 009832-005 SHEET 1 OF 2.

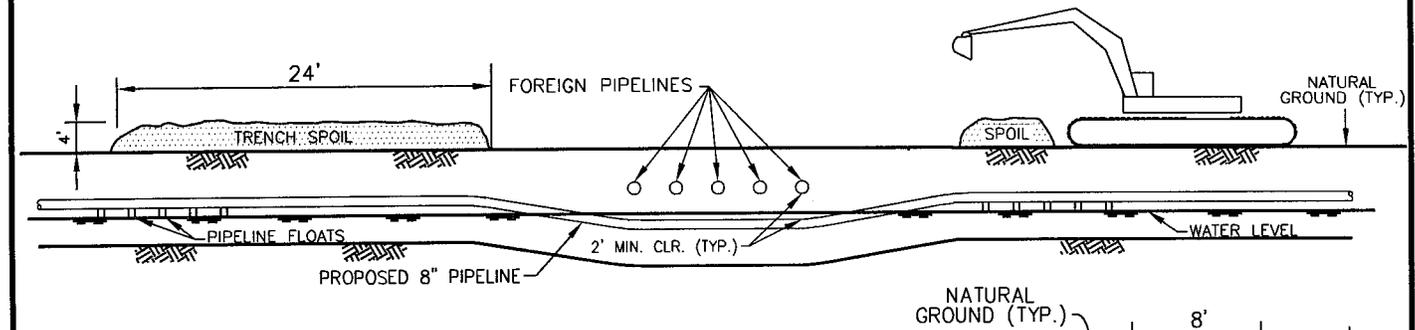
Plotted by: Bhudson on: May 30, 2013 - 1:16pm

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.	CONST. YR. 2013		PROJECT NO. 16538B
FILENUMBER 009832-005	CADD FILENAME 009832-005	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	 TYPICAL ROAD OR CORRIDOR CROSSING HORIZONTAL DIRECTIONAL DRILL	SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT		DWG. NO.
0 ISSUED FOR PERMIT	AE	05/30/13	PT		009832-005 SHT. 2 OF 2

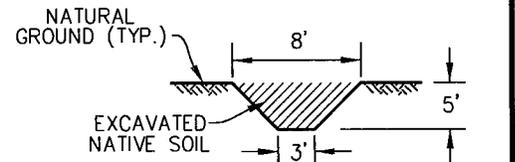




PLAN VIEW
N.T.S.



PROFILE
N.T.S.



TYPICAL TRENCH CROSS SECTION
N.T.S.

FOR TYPICAL SOIL/SPOIL PILE
PROFILES SEE DWG. 009832-009
FOR TYPICAL SEDIMENT BARRIER
PROFILE SEE DWG. 009832-178

FOR NOTES SEE DWG. 009832-006
SHEET 2 OF 2.

Plotted by: Bhudson on: May 30, 2013 - 1:23pm

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.	CONST. YR. 2013	PRAXAIR	PROJECT NO. 165388
FILENUMBER 009832-006	CADD FILENAME 009832-006	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	audubon Engineering 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590	SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT		DWG. NO. 009832-006
0 ISSUED FOR PERMIT	AE	05/30/13	PT		SHT. 1 OF 2

**TYPICAL
PIPELINE CORRIDOR CROSSING
PUSH-PULL METHOD**



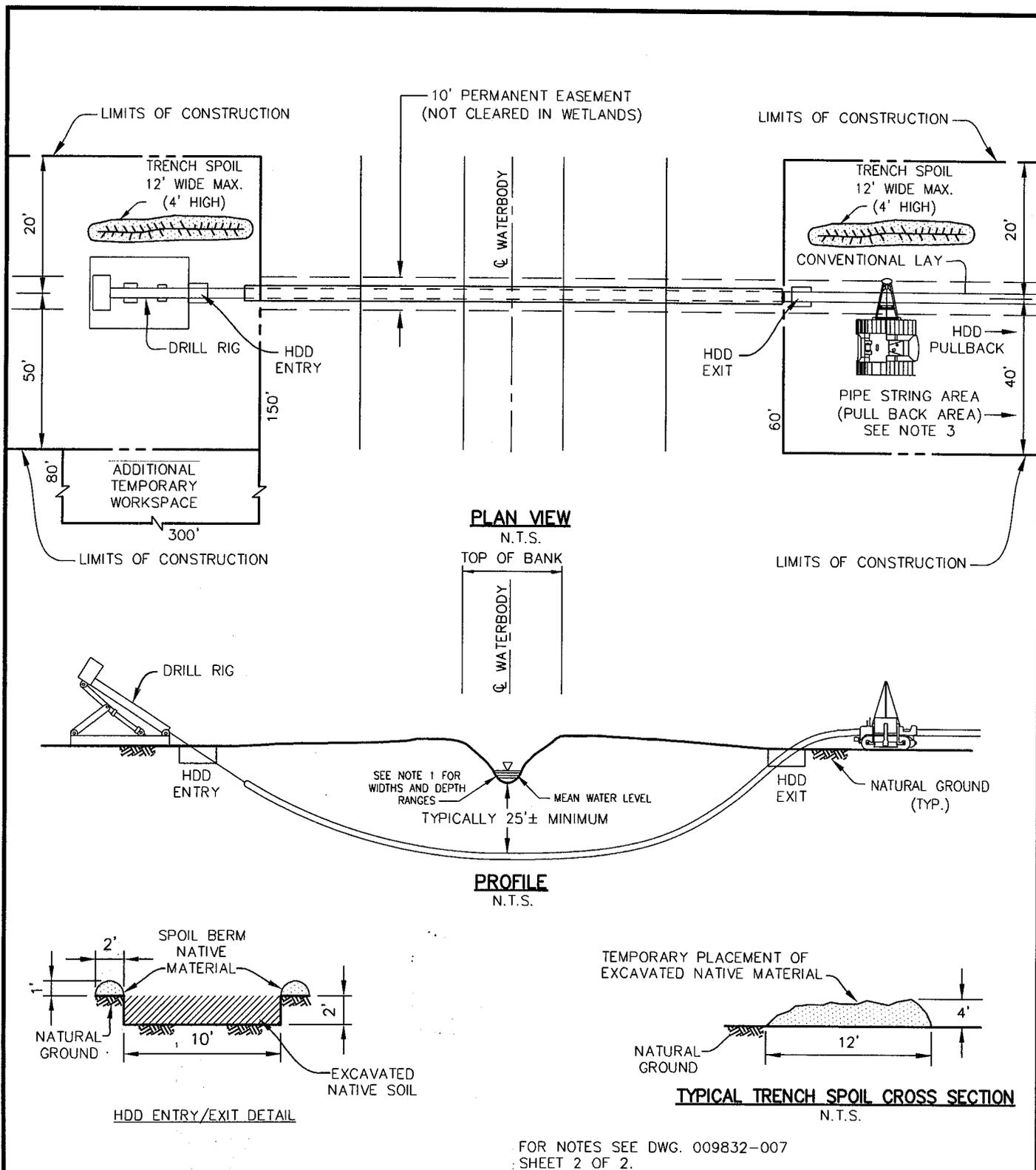
NOTES:

1. THIS METHOD MAY BE USED TO CROSS UNDER PIPELINE CORRIDORS IN SATURATED WETLANDS. MULTIPLE FOREIGN PIPELINES AND OTHER ITEMS MAY ALSO BE LOCATED WITHIN CROSSING CORRIDOR.
2. ADDITIONAL TEMPORARY WORK SPACE (ATWS) WILL BE ESTABLISHED IN ADDITION TO THE TYPICAL 60-FOOT WIDE ROW AS SHOWN ON TYPICAL OR ON THE JOINT PERMIT PLAN AND PROFILE DRAWINGS FOR PLACEMENT OF SUPPORT EQUIPMENT AND SUPPLIES.
3. INSTALL TEMPORARY VEHICLE CROSSING AS REQUIRED TO PREVENT DAMAGE TO FOREIGN PIPELINES. TIMBER MATS WILL TYPICALLY BE USED FOR CROSSINGS.
4. UTILIZES AMPHIBIOUS EXCAVATORS AND SUPPORT EQUIPMENT.
5. RESTRICT ROOT GRUBBING TO TRENCH AREA.
6. TOPSOIL SALVAGE IS NOT REQUIRED IN SATURATED SOIL.
7. KEEP SOIL PILES CLEAN OF ALL CONSTRUCTION DEBRIS.
8. LEAVE GAPS IN SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS.
9. FLOAT PIPE IN PLACE, LOWER IN, INSTALL TRENCH PLUGS AT WETLAND EDGES AS NEEDED AND BACKFILL IMMEDIATELY.
10. JETTING MAY BE UTILIZED UNDER FOREIGN PIPELINES. SEDIMENT CURTAINS MAY BE UTILIZED AS DIRECTED BY THE PIPELINE INSPECTOR TO CONTROL TURBIDITY.
11. BACKFILL TRENCH WITH NATIVE MATERIAL AS EXCAVATED. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING.
12. INSTALL PERMANENT EROSION CONTROL AS NEEDED.

FOR PLAN VIEW AND PROFILE
SEE DWG. 009832-006 SHEET 1 OF 2.

Plotted by: Bhudson on: May 30, 2013 - 1:20pm

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.		CONST. YR. 2013			PROJECT NO. 16538B		
FILENUMBER 009832-006	CADD FILENAME			DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.		
REV. NO. - DESCRIPTION	BY	DATE	APP.	 audubon Engineering 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590		TYPICAL PIPELINE CORRIDOR CROSSING PUSH-PULL METHOD			SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT						DWG. NO.
0 ISSUED FOR PERMIT	AE	05/30/13	PT						009832-006
							SHT. 2 OF 2		



Plotted by: Bhudson on: May 30, 2013 - 1:27pm

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.	CONST. YR. 2013		PROJECT NO. 16538B
FILENUMBER 009832-007	CADD FILENAME 009832-007	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	 TYPICAL WATERBODY CROSSING HORIZONTAL DIRECTIONAL DRILL	SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT		DWG. NO.
0 ISSUED FOR PERMIT	AE	05/30/13	PT		009832-007
					SHT. 1 OF 2



NOTES:

1. THIS METHOD MAY BE USED TO CROSS UNDER ONE OR MORE WATERWAYS THAT RANGE IN WIDTH FROM 2' TO 30' AND IN DEPTH FROM 0' TO 5'. ONE OR MORE ROADS, RAILROADS, AND OTHER ITEMS MAY ALSO BE LOCATED WITHIN CROSSING CORRIDOR. REFER TO "TYPICAL ROAD OR CORRIDOR CROSSING HORIZONTAL DIRECTIONAL DRILL" FOR SPECIFICS.
2. ADDITIONAL TEMPORARY WORK SPACE (ATWS) WILL BE ESTABLISHED IN ADDITION TO THE TYPICAL 70-FOOT WIDE ROW AS SHOWN ABOVE OR ON THE JOINT PERMIT PLAN AND PROFILE DRAWINGS FOR PLACEMENT OF DRILL RIG AND SUPPORT EQUIPMENT AND SUPPLIES.
3. HDD PULL-BACK AREA WILL BE WITHIN THE 60-FOOT WIDE ROW AS SHOWN ABOVE OR ON THE JOINT PERMIT PLAN AND PROFILE DRAWINGS.
4. THE LIMITS OF CONSTRUCTION SHALL BE A MINIMUM OF 100 FEET FROM EDGE OF WATERWAY. IF REQUIRED FOR TRACKING WIRES, LIMIT CLEARING IN RIPARIAN AREAS TO HAND BRUSH CUTTING. AS DIRECTED BY THE PIPELINE INSPECTOR, EROSION CONTROL MEASURES (STRAW BALES AND/OR SILT FENCE) SHALL BE INSTALLED ACROSS THE ROW FOLLOWING CLEARING AND MAINTAINED UNTIL CONSTRUCTION OF THE CROSSING.
5. INSTALL BERMS DOWNSLOPE FROM DRILL ENTRY AND ANTICIPATED EXIT POINTS TO CONTAIN DRILLING MUD.
6. INSTALL SUITABLE DRILLING MUD TANKS TO PREVENT RELEASE TO ADJACENT WATERWAYS.
7. DISPOSE OF DRILLING MUD IN ACCORDANCE WITH APPROPRIATE REGULATORY REQUIREMENTS.
8. BACKFILL TRENCH WITH NATIVE MATERIAL AS EXCAVATED. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING.
9. INSTALL PERMANENT EROSION CONTROL AS NEEDED.

FOR PLAN VIEW AND PROFILE
SEE DWG. 009832-007 SHEET 1 OF 2.



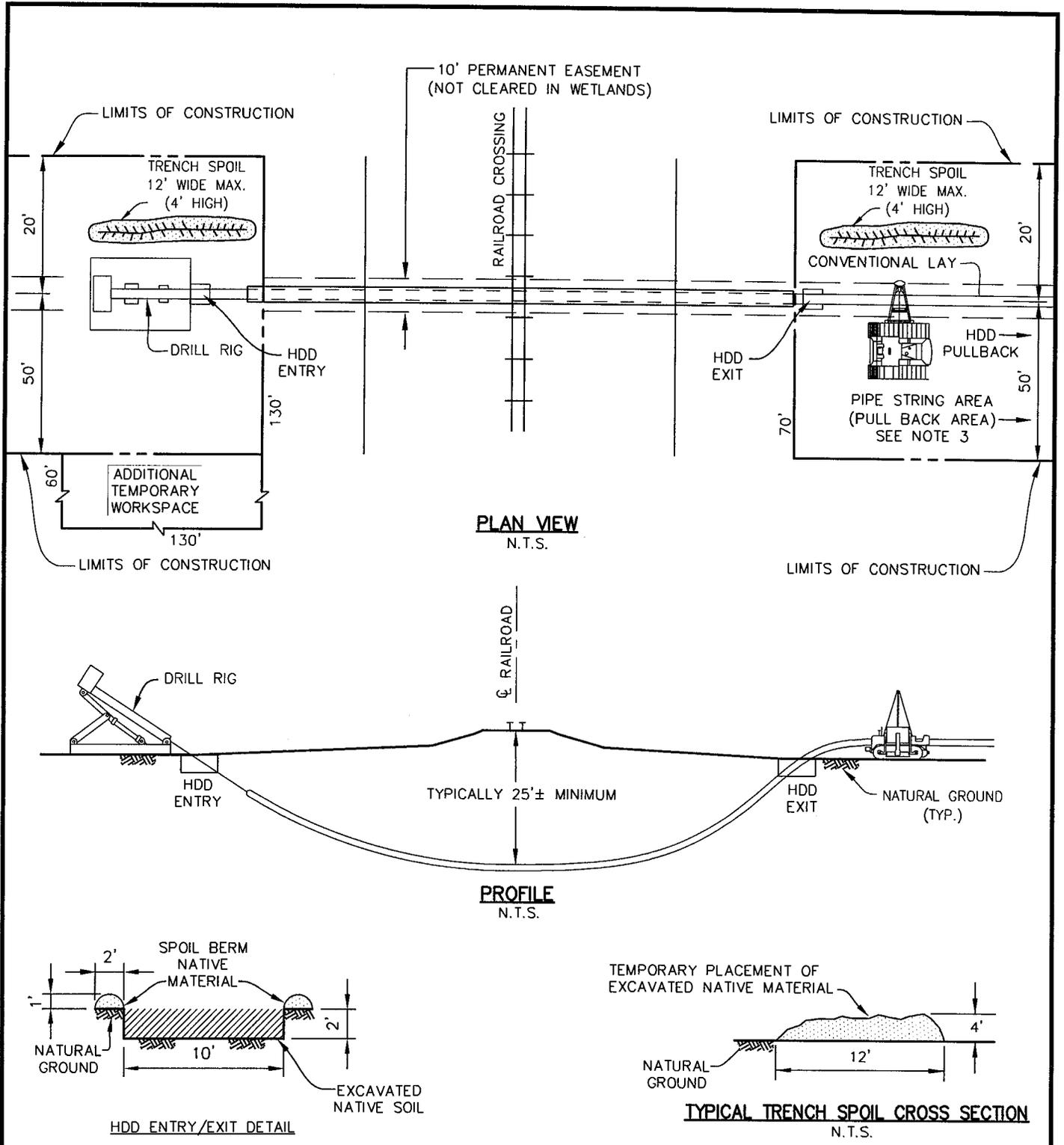
PROJECT NO. 16538B
PREVIOUS DWG. NO.
SHT. OF
DWG. NO. 009832-007
SHT. 2 OF 2

**TYPICAL
WATERBODY CROSSING
HORIZONTAL DIRECTIONAL DRILL**

audubon
Engineering
10205 WESTHEIMER ROAD
SUITE 100
HOUSTON, TEXAS 77042
PHONE: (281) 669-0590

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L	SCALE N.T.S.	CONST. YR. 2013	
FILENUMBER 009832-007	CADD FILENAME	DRAWN DATE 05/08/13	
REV. NO. - DESCRIPTION	BY	DATE	APP.
A ISSUED FOR REVIEW	AE	05/08/13	PT
0 ISSUED FOR PERMIT	AE	05/30/13	PT

Plotted by: Bhusdon on: May 30, 2013 - 1:27pm



FOR NOTES SEE DWG. 009832-008
SHEET 2 OF 2.

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.	CONST. YR. 2013		PROJECT NO. 165388
FILENUMBER 009832-008	CADD FILENAME 009832-008	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590	SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT		DWG. NO. 009832-008
0 ISSUED FOR PERMIT	AE	05/30/13	PT		SHT. 1 OF 2

TYPICAL RAILROAD CROSSING HORIZONTAL DIRECTIONAL DRILL



Plotted by: Bhudson on: May 30, 2013 - 1:30pm

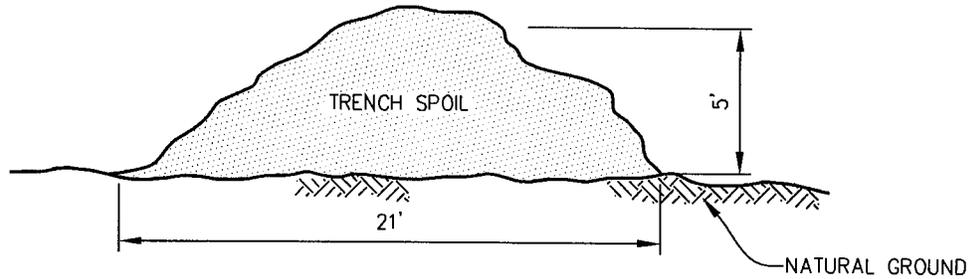
NOTES:

1. THIS METHOD MAY BE USED TO CROSS UNDER ONE OR MORE ROADS, RAILROADS, AND OTHER ITEMS LOCATED WITHIN CROSSING CORRIDOR.
2. ADDITIONAL TEMPORARY WORK SPACE (ATWS) WILL BE ESTABLISHED IN ADDITION TO THE TYPICAL 70-FOOT WIDE ROW AS SHOWN ABOVE OR ON THE JOINT PERMIT PLAN AND PROFILE DRAWINGS FOR PLACEMENT OF DRILL RIG AND SUPPORT EQUIPMENT AND SUPPLIES.
3. HDD PULL-BACK AREA WILL BE WITHIN THE 70-FOOT WIDE ROW AS SHOWN ABOVE OR ON THE JOINT PERMIT PLAN AND PROFILE DRAWINGS.
4. PLACE TEMPORARY BERMS OF EXCAVATED NATIVE MATERIAL DOWNSLOPE FROM AND ADJACENT TO DRILL ENTRY AND ANTICIPATED EXIT POINTS TO CONTAIN DRILLING MUD.
5. INSTALL SUITABLE DRILLING MUD TANKS TO PREVENT RELEASE TO ADJACENT WATERWAYS.
6. DISPOSE OF DRILLING MUD IN ACCORDANCE WITH APPROPRIATE REGULATORY REQUIREMENTS.
7. BACKFILL TRENCH WITH NATIVE MATERIAL AS EXCAVATED. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING.
8. INSTALL PERMANENT EROSION CONTROL AS NEEDED.

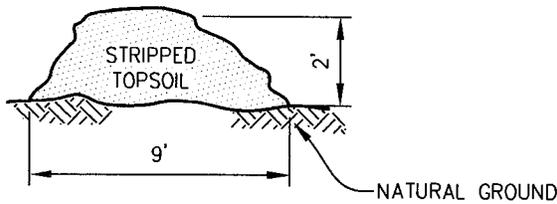
FOR PLAN VIEW AND PROFILE
SEE DWG. 009832-008 SHEET 1 OF 2.

Plotted by: Bhudson on: May 30, 2013 - 1:30pm

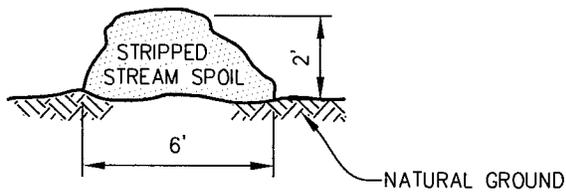
PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.	CONST. YR. 2013		PROJECT NO. 16538B
FILENUMBER 009832-008	CADD FILENAME	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	TYPICAL RAILROAD CROSSING HORIZONTAL DIRECTIONAL DRILL	SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT		DWG. NO.
0 ISSUED FOR PERMIT	AE	05/30/13	PT		009832-008
 10205 WESTHEMER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0690					SHT. 2 OF 2



TRENCH SPOIL
N.T.S.



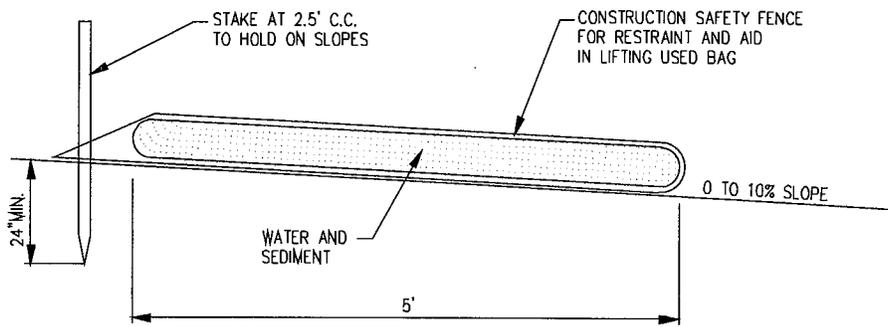
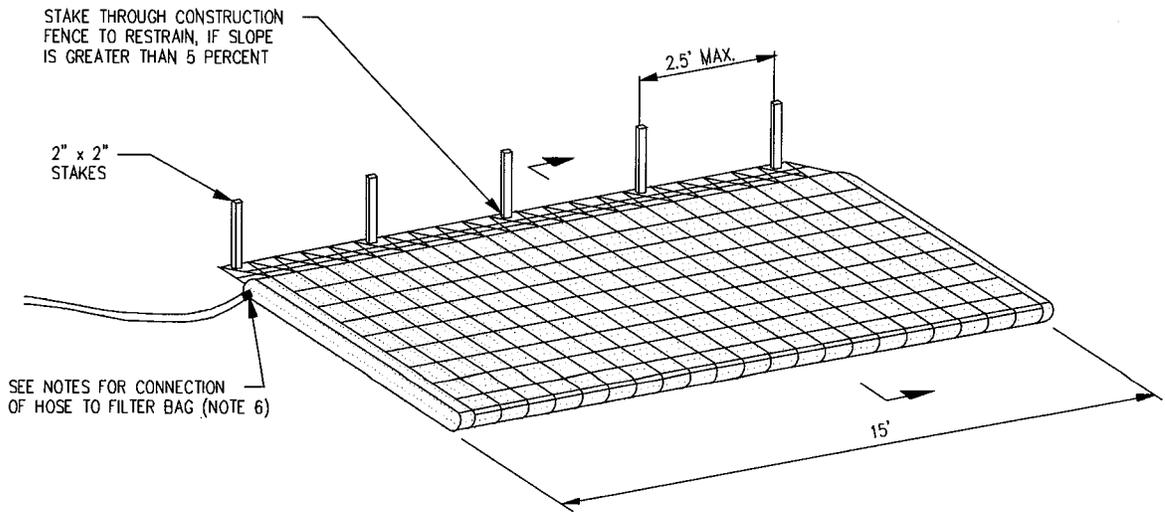
STRIPPED TOPSOIL
N.T.S.



STREAM SPOIL
N.T.S.

Plotted by: Bhudson on: May 30, 2013 - 1:32pm

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.	CONST. YR. 2013		PROJECT NO. 16538B
FILENUMBER 009832-009	CADD FILENAME 009832-009	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	TYPICAL SOIL/SPOIL PILES PROFILES	SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT		DWG. NO.
O ISSUED FOR PERMIT	AE	05/30/13	PT		009832-009
					SHT. 1 OF 1
 Engineering 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590					



SECTION

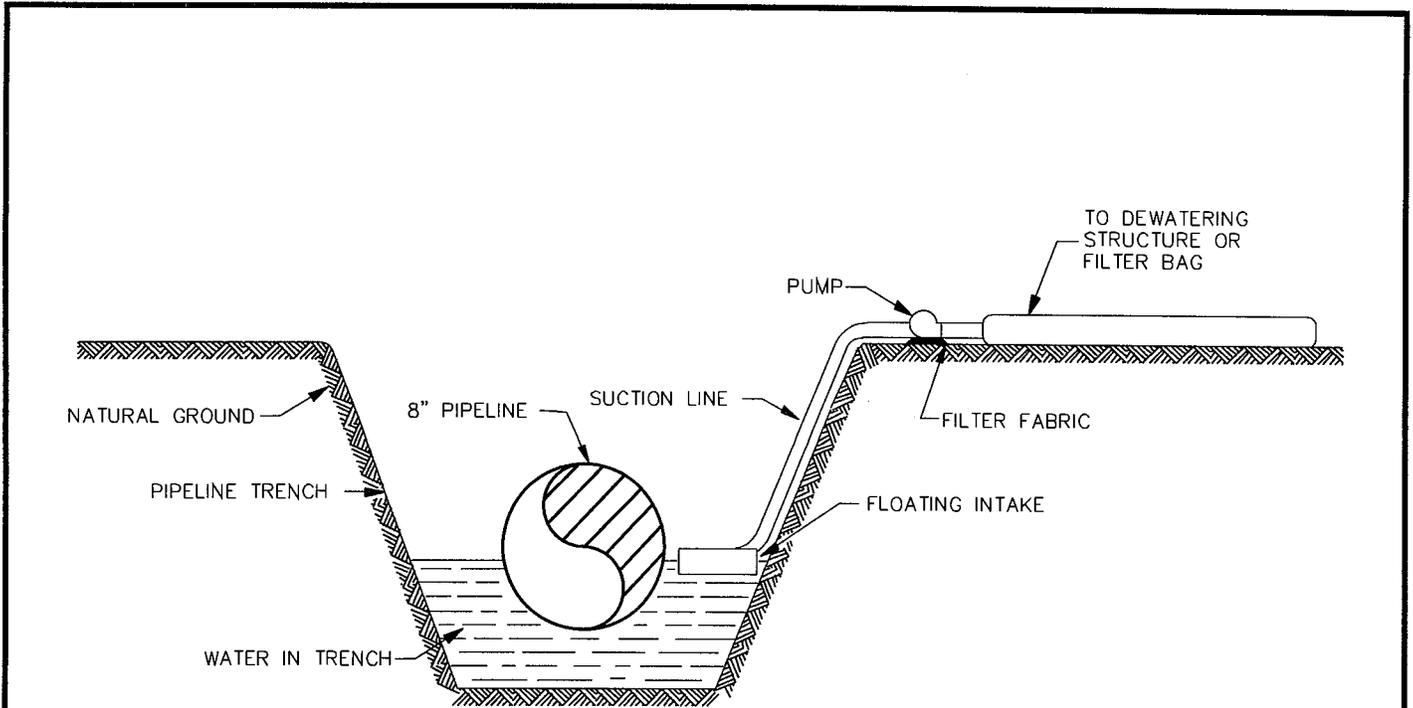
NOTES:

1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL, WELL VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS. WATER SHALL NOT BE DISCHARGED INTO WATERWAYS.
2. THE FILTER BAG MUST BE STAKED IN PLACE IF THE FILTER BAG IS PLACED ON A SLOPE GREATER THAN 5 PERCENT.
3. FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 300 GPM.
4. CONTRACTOR SHALL PROPERLY REMOVE AND PROPERLY DISPOSE OF USED FILTER BAGS IMMEDIATELY UPON COMPLETION OF DEWATERING OPERATIONS. UNDER NO CIRCUMSTANCES SHALL USED FILTER BAGS BE LEFT IN PLACE FOR A PERIOD OF TIME GREATER THAN 48 HOURS AFTER DEWATERING OPERATIONS ARE COMPLETE.
5. SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA WITHIN THE CONSTRUCTION CORRIDOR AND THE AREA SHALL BE STABILIZED AND REVEGETATED.
6. TO ATTACH HOSE, CUT OPEN CORNER OF FILTER BAG, GATHER UP MATERIAL AND CLAMP TO A SHORT SECTION OF STEEL PIPE. CLAMP HOSE TO OTHER END OF PIPE. BOTH CONNECTIONS SHALL BE WATERTIGHT.
7. CONTRACTOR SHALL ONLY INSTALL ONE DEWATERING HOSE PER FILTER BAG.

Plotted by: Bhudson on: May 30, 2013 - 2:08pm

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.		CONST. YR. 2013			PROJECT NO. 165388	
FILENUMBER 009832-017	CADD FILENAME 009832-017	DRAWN	DATE 05/08/13				PREVIOUS DWG. NO.	
REV. NO. - DESCRIPTION	BY	DATE	APP.	 audubon Engineering 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590			SHT. OF	
A ISSUED FOR REVIEW	AE	05/08/13	JV				DWG. NO.	
0 ISSUED FOR PERMIT	AE	05/30/13	PT				009832-017	
				TYPICAL FILTER BAG			SHT. 1 OF 1	





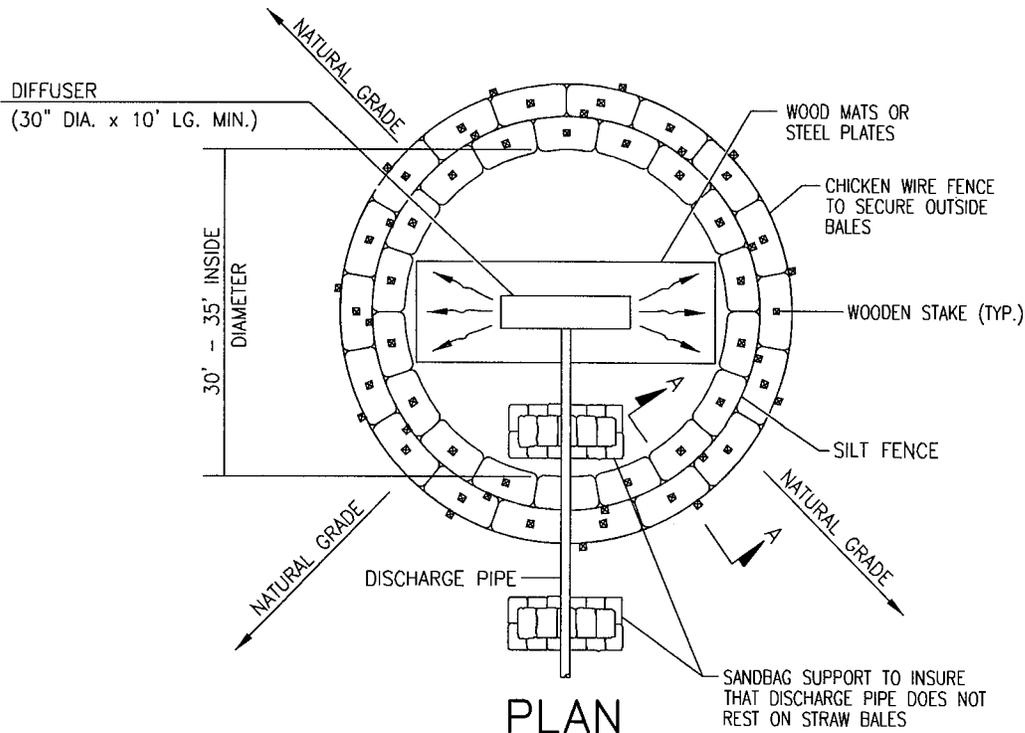
SECTION
N.T.S.

NOTES:

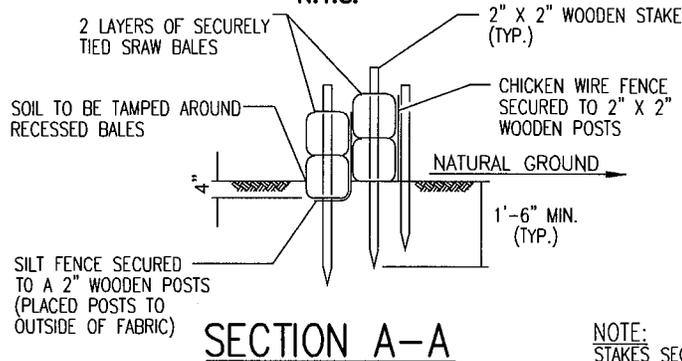
1. WATER PUMPED OUT OF TRENCH SHALL NOT BE DISCHARGED INTO WATERWAYS. WATER SHALL BE DISCHARGED INTO A FILTER BAG OR DEWATERING STRUCTURE.
2. PUMP SHALL BE CONTROLLED SO THAT DISCHARGE DOES NOT OVERFLOW DEWATERING STRUCTURE.
3. PUMP SUCTION HOSE MUST NOT BE ALLOWED TO COME IN CONTACT WITH TRENCH BOTTOM. PROVISIONS MUST BE MADE TO ELEVATE THE SUCTION HOSE TO AT LEAST ONE FOOT ABOVE THE BOTTOM OF THE PIPE TRENCH UNTIL BOTTOM DEWATERING IS NECESSARY.
4. DEWATERING SHALL NOT OCCUR DURING TIMES OF HEAVY RAINFALL EXCEPT AS REQUIRED TO PREVENT FLOODING OF CONSTRUCTION EQUIPMENT LOCATED IN BORE PITS AND TRENCHES.
5. PUMPS UTILIZED DURING DEWATERING SHALL BE PLACED WITHIN SECONDARY CONTAINMENT IF POSITIONED WITHIN 100 FEET OF A WETLAND OR WATERBODY.

Plotted by: Bhudson on: May 30, 2013 - 2:11pm

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.	CONST. YR. 2013		PROJECT NO. 16538B
FILENUMBER 009832-019	CADD FILENAME 009832-019	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	TYPICAL TRENCH DEWATERING	SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT		DWG. NO. 009832-019
D ISSUED FOR PERMIT	AE	05/30/13	PT		SHT. 1 OF 1
 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590					



PLAN
N.T.S.



SECTION A-A

NOTE:
STAKES SECURING SILT FENCE BETWEEN STRAW BALES ARE NOT SHOWN FOR CLARITY.

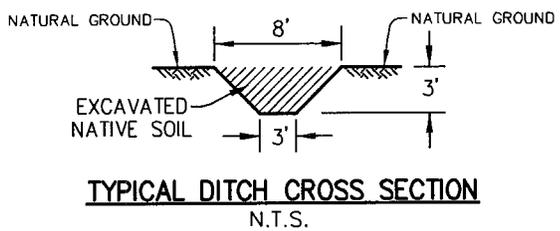
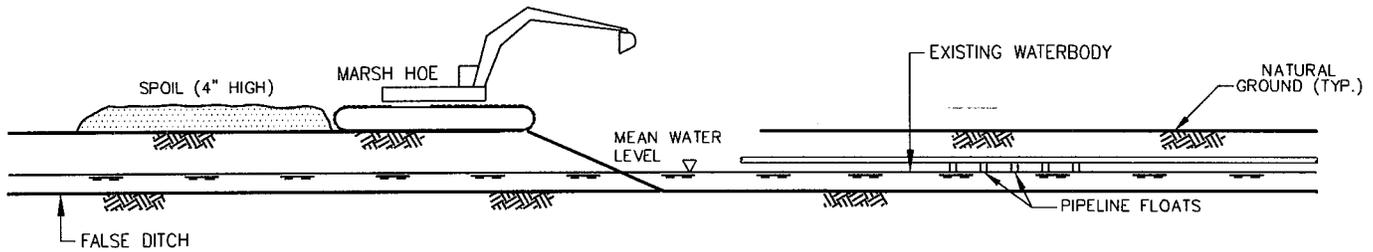
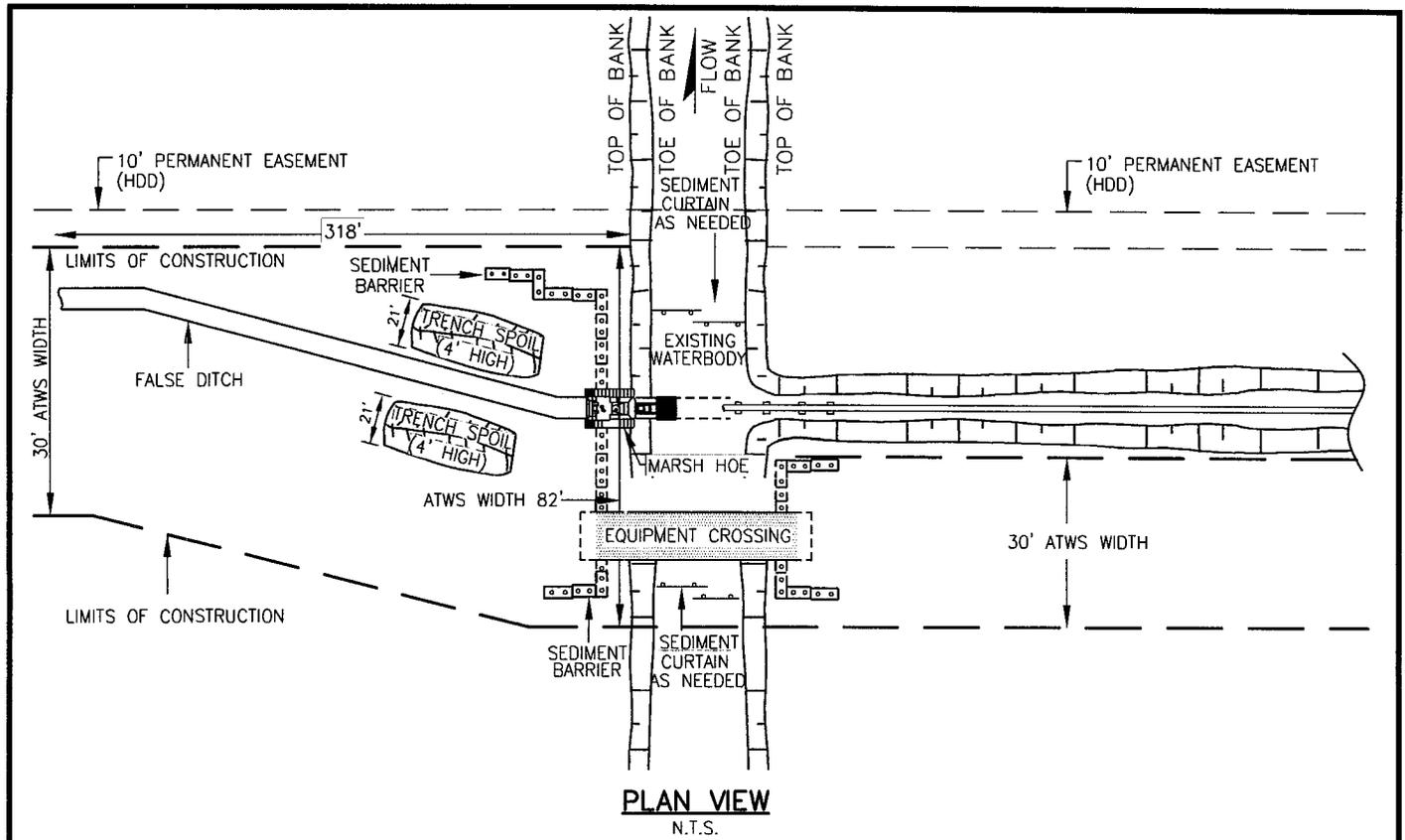
TYPICAL DEWATERING STRUCTURE (HYDROSTATIC TEST)

NOTES:

1. STRUCTURE SHALL BE PLACED ON A LEVEL WELL VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM THE STRUCTURE AND ANY WORK AREAS.
2. FLOW RATES THROUGH DISCHARGE AND DIFFUSER PIPE SHALL BE SUCH THAT STRUCTURE WILL NOT OVERFLOW.
3. A 30' X 30' RECTANGULAR STRUCTURE MAY BE SUBSTITUTED FOR THE CIRCULAR CONFIGURATION SHOWN.
4. DIMENSIONS SHOWN ARE THE MINIMUM ACCEPTABLE AND MAY BE VARIED DEPENDING UPON SPECIFIC LOCATION.

Plotted by: Bhudson on: May 30, 2013 - 2:14pm

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR MARATHON LATERAL P/L		SCALE N.T.S.	CONST. YR. 2013		PROJECT NO. 16538B
FILENUMBER 009832-020	CADD FILENAME 009832-020	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	TYPICAL DEWATERING STRUCTURE (HYDROSTATIC TEST)	SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT		DWG. NO.
0 ISSUED FOR PERMIT	AE	05/30/13	PT		009832-020
					SHT. OF 1
 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590					



PROFILE
N.T.S.

FOR TYPICAL SOIL/SPOIL PILE PROFILES SEE DWG. 009832-009
 FOR TYPICAL SEDIMENT BARRIER PROFILE SEE DWG. 009832-178
 FOR TYPICAL TRENCH PLUG PROFILE SEE DWG. 009832-148
 FOR NOTES SEE DWG. 009832-060 SHEET 2 OF 2.

Plotted by: Bhudson on: Jun 03, 2013 - 10:14am

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR HYDROGEN PIPELINE		SCALE N.T.S.	CONST. YR. 2013		PROJECT NO. 16538B
FILENUMBER 009832-060	CADD FILENAME 009832-060		DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	TYPICAL PUSH/PULL - FALSE DITCH PIPESTRING TRANSFER	SHT. OF
A ISSUED FOR REVIEW	AE	05/10/13	PT		DWG. NO.
0 ISSUED FOR PERMIT	AE	05/30/13	PT		009832-060
 audubon Engineering 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590				SHEET 1 OF 2 	SHT. 1 OF 2

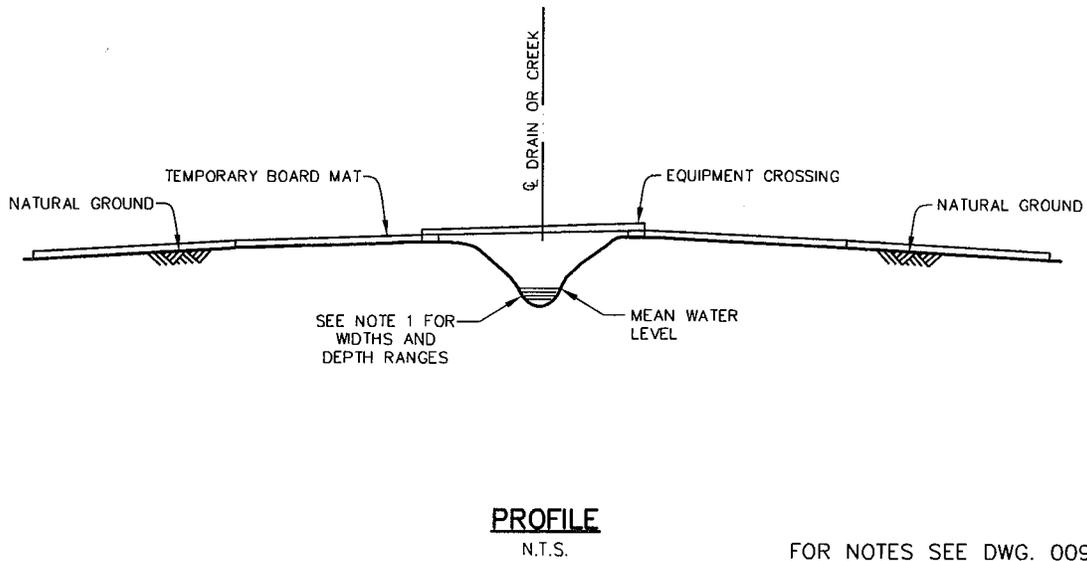
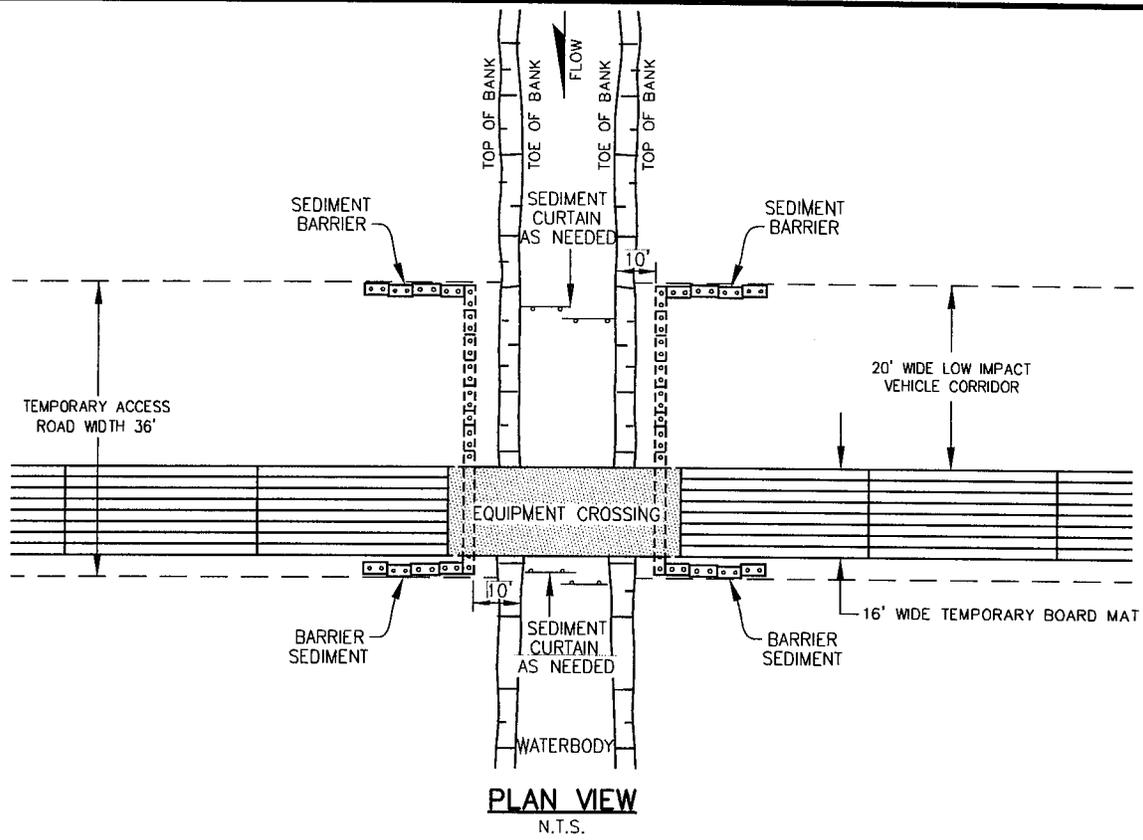
NOTES:

1. THIS METHOD MAY BE USED TO TRANSPORT PIPESTRING VIA FALSE DITCH AND EXTEND TRANSPORT AND MINIMIZE EXCAVATION IN WETLANDS BY UTILIZING EXISTING DITCHES THAT RANGE IN WIDTH FROM 10' TO 50' AND IN DEPTH FROM 0' TO 4'.
2. A 30' WIDE ADDITIONAL TEMPORARY WORK SPACE (ATWS) CORRIDOR WILL BE ESTABLISHED TO ALLOW PASSAGE OF AMPHIBIOUS EXCAVATORS AND SUPPORT EQUIPMENT. A 70' WIDE ATWS AT THE BEGINNING OF THE FALSE DITCH WILL REDUCE TO A 30' WIDE ATWS OVER 300', AS SHOWN ON THE PLAN AND PROFILE DRAWINGS.
3. INSTALL TEMPORARY VEHICLE CROSSING AS REQUIRED. VEHICLE CROSSINGS WILL BE USED FOR NON-DRY WATERWAYS. TIMBER MATS WILL TYPICALLY BE USED FOR CROSSINGS.
4. AS DIRECTED BY THE PIPELINE INSPECTOR, EROSION CONTROL MEASURES (STRAW BALES AND/OR SILT FENCE) SHALL BE INSTALLED ACROSS THE ROW FOLLOWING CLEARING AND GRADING AND MAINTAINED UNTIL CONSTRUCTION OF THE CROSSING. EROSION CONTROL MEASURES SHALL BE REINSTALLED IMMEDIATELY FOLLOWING BACKFILLING OF TRENCH AND STABILIZATION OF BANKS. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED AT THE END OF EACH WORK DAY.
5. RESTRICT ROOT GRUBBING TO TRENCH AREA.
6. TOPSOIL SALVAGE IS NOT REQUIRED IN SATURATED SOIL.
7. UTILIZES AMPHIBIOUS EXCAVATORS AND SUPPORT EQUIPMENT.
8. KEEP SOIL PILES CLEAN OF ALL CONSTRUCTION DEBRIS.
9. LEAVE GAPS IN SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS.
10. FLOAT PIPE IN PLACE, LOWER IN, INSTALL TRENCH PLUGS AT WETLAND EDGES AS NEEDED AND BACKFILL IMMEDIATELY.
11. BACKFILL TRENCH WITH NATIVE MATERIAL AS EXCAVATED. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING. RESTORE CROSSING CHANNEL TO PRE-CONSTRUCTION PROFILE AND SUBSTRATE.
12. INSTALL PERMANENT EROSION CONTROL AS NEEDED.

FOR PLAN VIEW AND PROFILE
SEE DWG. 009832-060 SHEET 1 OF 2.

Plotted by: Bhudson on: May 31, 2013 - 7:20am

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR HYDROGEN PIPELINE		SCALE N.T.S.		CONST. YR. 2013			PROJECT NO. 16538B		
FILENUMBER	CADD FILENAME 009832-060			DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.		
REV. NO. - DESCRIPTION	BY	DATE	APP.	 Engineering 10205 WESTHEWER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590		TYPICAL PUSH/PULL - FALSE DITCH PIPESTRING TRANSFER			SHT. OF
A ISSUED FOR REVIEW	AE	05/10/13	PT			DWG. NO.			
0 ISSUED FOR PERMIT	AE	05/30/13	PT			009832-060			
						SHT. 2 OF 2			



FOR NOTES SEE DWG. 009832-061 SHEET 2 OF 2.

Plotted by Bhudson on: Aug 14, 2013 - 8:57am

PIPELINE, STATION, OR ACCOUNT NUMBER		SCALE N.T.S.		CONST. YR. 2013		PRAXAIR	PROJECT NO. 165388	
FILENUMBER	CADD FILENAME 009832-061	DRAWN AE		DATE 08/12/13			PREVIOUS DWG. NO.	
REV. NO. - DESCRIPTION	BY	DATE	APP.	 audubon Engineering 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590		TYPICAL WATERBODY CROSSING TEMPORARY ACCESS ROAD		SHT. OF
0 ISSUED FOR PERMIT	AE	08/13/13	PT					DWG. NO. 009832-061
								SHT. 1 OF 2
								0

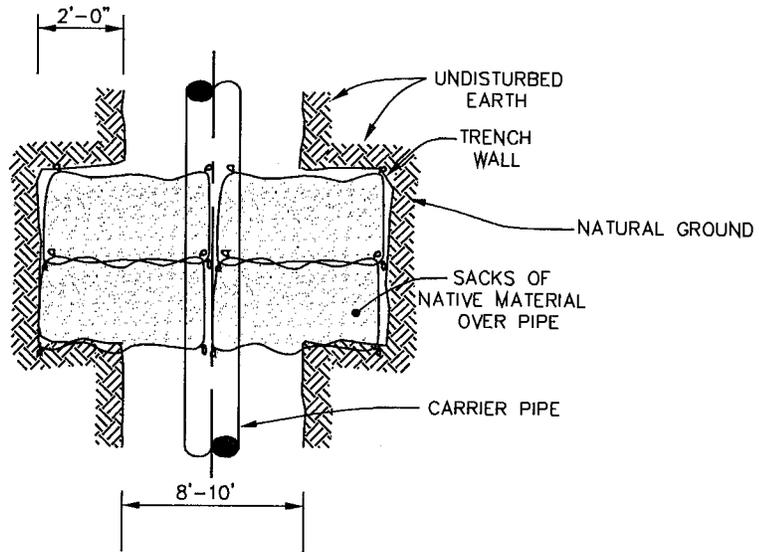
NOTES:

1. THIS METHOD APPLIES TO CROSSING WATERWAYS THAT RANGE IN WIDTH FROM 2' TO 20' AND IN DEPTH FROM 0' TO 6' AND WHERE NO FLOWING WATER IS PRESENT AT THE TIME OF CROSSING OR DOWNSTREAM SILTATION CAN BE AVOIDED WITH DEPLOYMENT OF TURBIDITY CURTAINS OR SIMILAR METHODS.
2. COMPLETE ALL WATERCOURSE ACTIVITIES AS EXPEDIENTLY AS POSSIBLE.
3. NO REFUELING OF MOBILE EQUIPMENT OR COATING ACTIVITIES WITHIN 100 FEET OF WATERBODY.
4. INSTALL TEMPORARY VEHICLE CROSSING AS REQUIRED. VEHICLE CROSSINGS WILL BE USED FOR NON-DRY WATERWAYS. TIMBER MATS WILL TYPICALLY BE USED FOR CROSSINGS UP TO 20 FT.
5. AS DIRECTED BY THE PIPELINE INSPECTOR, EROSION CONTROL MEASURES (STRAW BALES AND/OR SILT FENCE) SHALL BE INSTALLED ACROSS THE ROW AND MAINTAINED UNTIL REMOVAL OF THE TEMPORARY CROSSING. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW TRANSFER ACTIVITIES BUT MUST BE REPLACED AT THE END OF EACH WORK DAY.

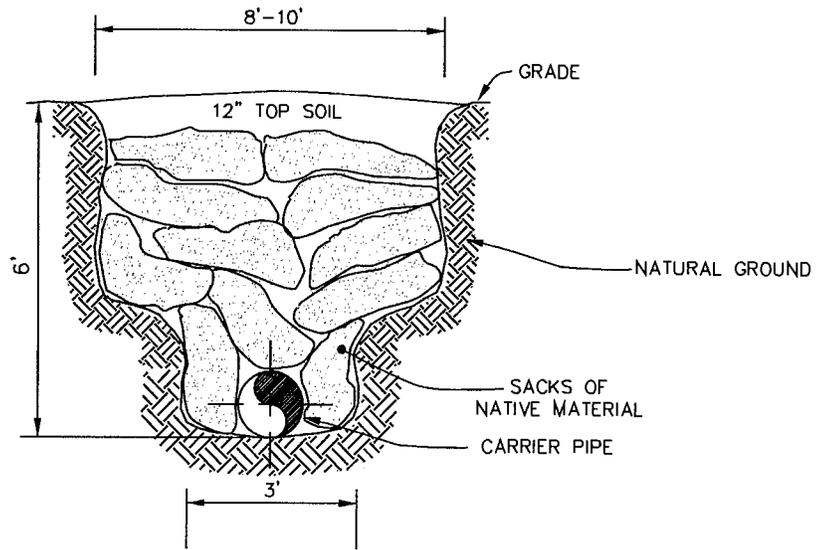
FOR PLAN VIEW AND PROFILE
SEE DWG. 009832-061 SHEET 1 OF 2.

Plotted by: Bhudson on: Aug 13, 2013 - 10:04am

PIPELINE, STATION, OR ACCOUNT NUMBER		SCALE N.T.S.		CONST. YR. 2013			PROJECT NO. 16538B	
FILENUMBER	CADD FILENAME	DRAWN	DATE					
	009832-061	AE	08/12/13					
REV. NO. - DESCRIPTION	BY	DATE	APP.	 <p>audubon Engineering 10205 WESTMEYER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590</p>		<p>TYPICAL WATERBODY CROSSING TEMPORARY ACCESS ROAD</p>		PREVIOUS DWG. NO.
0 ISSUED FOR PERMIT	AE	08/13/13	PT					SHT. OF
								DWG. NO.
								009832-061
					SHT. 2 OF 2			



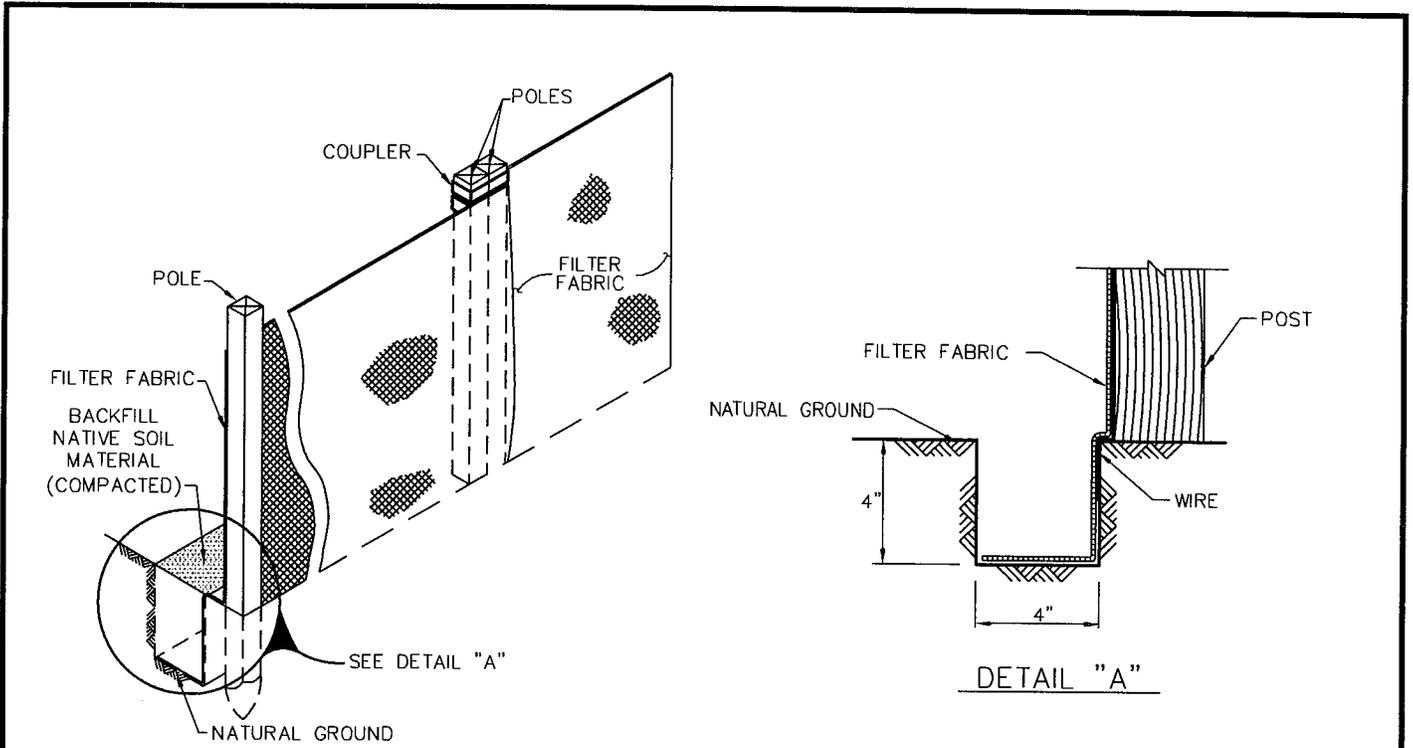
PLAN
N.T.S.



PROFILE
N.T.S.

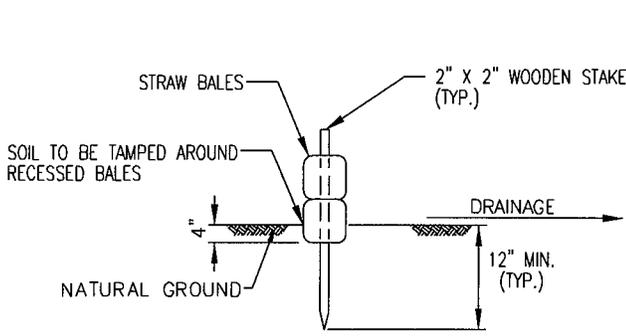
Plotted by: Bhudson on: May 31, 2013 - 7:22am

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR HYDROGEN PIPELINE		SCALE N.T.S.	CONST. YR. 2013		PROJECT NO. 16538B
FILENUMBER 009832-148	CADD FILENAME 009832-148	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	TYPICAL TRENCH PLUG	SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT		DWG. NO.
O ISSUED FOR PERMIT	AE	05/30/13	PT		009832-148
					SHT. 1 OF 1
 audubon Engineering 10205 WESTMEYER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590					



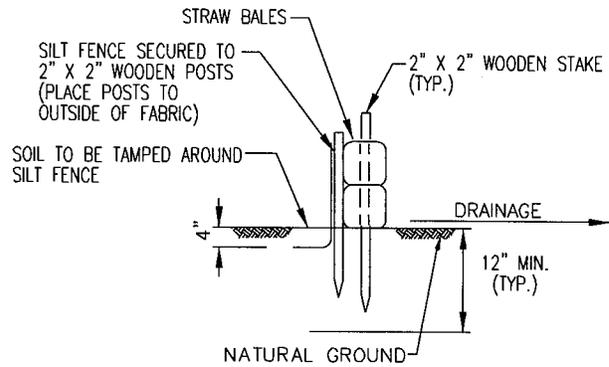
TYPICAL SILT FENCE

N.T.S.



TYPICAL STRAW BALE
SEDIMENT BARRIER

N.T.S.



TYPICAL STRAW BALE AND
SILT FENCE SEDIMENT BARRIER

N.T.S.

FOR NOTES SEE DWG. 009832-178
SHEET 2 OF 2.

Plotted by: Bhudson on: May 31, 2013 - 7:33am

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR HYDROGEN PIPELINE		SCALE N.T.S.	CONST. YR. 2013		PROJECT NO. 16538b
FILENUMBER 009832-178	CADD FILENAME 009832-178	DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.
REV. NO. - DESCRIPTION	BY	DATE	APP.	TYPICAL SEDIMENT BARRIERS	SHT. OF
A ISSUED FOR REVIEW	AE	05/08/13	PT		DWG. NO.
O ISSUED FOR PERMIT	AE	05/30/13	PT		009832-178
					SHT. 1 OF 2
 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, TEXAS 77042 PHONE: (281) 669-0590 TX. REG. NO. 8696 RENEWAL DATE: 5/31/2011					

NOTES:

1. SEDIMENT BARRIER MAY CONSIST OF SILT FENCE, STRAW BALES, OR A COMBINATION OF SILT FENCE AND STRAW BALES.
2. STRAW BALE SEDIMENT BARRIERS SHALL CONSIST OF A ROW OF STRAW BALES PLACED ON THE FIBER-CUT EDGE (TIES NOT IN CONTACT WITH THE GROUND). BALES SHALL BE TIGHTLY ABUTTED TO ONE ANOTHER. THE BARRIER SHALL BE ONLY ONE BALE HIGH.
3. ENTRENCH ("KEY") LEADING EDGE OF SEDIMENT BARRIER (SILT FENCE OR STRAW BALES) INTO THE GROUND TO A DEPTH OF 4" EXCEPT IN FROZEN OR SATURATED SOILS. PLACE NATIVE MATERIAL FROM "KEY" ON UPSTREAM SIDE OF SEDIMENT BARRIER TO PREVENT UNDERMINING.
4. WALK ON STRAW BALES TO INSURE ADEQUATE BALE-TO-SOIL CONTACT.
5. ANCHOR STRAW BALES SECURELY IN PLACE WITH TWO WOODEN OR REBAR STAKES.
6. DRIVEN THROUGH THE TOPS OF THE BALES. THE STAKES SHALL PENETRATE THE GROUND A DISTANCE OF 12" UNLESS ROCK OR A IMPERMEABLE LAYER IS ENCOUNTERED:

* THE FIRST, CENTER AND END BALES OF THE BARRIER SHALL HAVE STAKES DRIVEN VERTICALLY THROUGH THE BALE;

* BALES, OTHER THAN THOSE LOCATED AT THE ENDS OR CENTER OF THE BARRIER, SHALL HAVE THE FIRST STAKE DRIVEN THROUGH THE TOP OF THE BALE AT AN ANGLE SO THAT THE STAKE PASSES THROUGH THE PREVIOUSLY PLACED BALE, IN ORDER TO PROVIDE TIGHT CONTACT BETWEEN BALES. THE SECOND STAKE SHALL BE DRIVEN VERTICALLY THROUGH THE TOP OF THE BALE.

FOR PLAN VIEW AND PROFILE
SEE DWG. 009832-178 SHEET 1 OF 2.

Plotted by: Bhudson on: May 31, 2013 - 7:34am

PIPELINE, STATION, OR ACCOUNT NUMBER PRAXAIR HYDROGEN PIPELINE		SCALE N.T.S.		CONST. YR. 2013			PROJECT NO. 16538B		
FILENUMBER 009832-178	CADD FILENAME			DRAWN	DATE 05/08/13		PREVIOUS DWG. NO.		
REV. NO. - DESCRIPTION	BY	DATE	APP.	 <p>TYPICAL SEDIMENT BARRIERS</p>			SHT. OF		
A ISSUED FOR REVIEW	AE	05/08/13	PT				DWG. NO.		
0 ISSUED FOR PERMIT	AE	05/30/13	PT				009832-178		
				RENEWAL DATE: 5/31/2011			SHT. 2 OF 2		

