



DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS, NEW ORLEANS DISTRICT  
7400 LEAKE AVE  
NEW ORLEANS, LA 70118-3651

August 15, 2022

Regulatory Division  
Central Evaluation Branch

Project Manager  
S. Gail Gainey  
(504) 862-1545  
Sandra.g.gainey@usace.army.mil

SUBJECT: MVN-2021-01219-CG

**PUBLIC NOTICE**

Interested parties are hereby notified that a permit application has been received by the New Orleans District of the US 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); [X] Section 404 of the Clean Water Act (86 Stat. 816; 33 USC 1344), and/or [X] Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 408).

**CONSTRUCTION OF AN AIR SEPARATION UNIT COMPLEX, WATER INTAKE STRUCTURES AND CLARIFIERS ON THE MISSISSIPPI RIVER LDB AT RM 185 IN ASCENSION PARISH**

**NAME OF APPLICANT:** Linde, Inc. c/o CK Associates, 8591 United Plaza Blvd., Suite 300, Baton Rouge, LA 70809.

**LOCATION OF WORK:** In the Mississippi River at RM 185, left descending bank, in Section 50, Township 9 South, Range 2 East and Sections 3 & 11, Township 10 South, Range 2 East, on LA Highway 30 in Geismar, Louisiana, in Ascension Parish, within the Pontchartrain and Mississippi River Basins in hydrologic units (HUC 08070204 and 08070100), as shown on the attached drawings (Latitude 30.21119 N, Longitude -91.003002 W).

**CHARACTER OF WORK:** The applicant has requested Department of the Army authorization to clear, grade, excavate and deposit fill and/or aggregate material to construct and maintain an air separation unit complex (Linde Geismar ASU Utility Island) to include parking lots, utilities, a water intake structure, clarifiers, pipelines, and appurtenant support structures. Approximately 28,600 cubic yards of material would be excavated and backfilled to install the pipelines and approx. 10,425 cubic yards of fill material will be hauled in to achieve required grade elevation requirements. The proposed project is situated on an approximately 81.2 acres that has been determined to contain forested and emergent wetlands and waters of the US. Of this, approximately 49.3 acres of wetlands and approx. 4.52 acres of waters of the US would be directly impacted in construction of the facility.

The applicant proposes to avoid additional direct impacts and minimize secondary impacts to the maximum extent practicable by avoiding 13.26 acres of jurisdictional aquatic resources, limiting

the construction activity to the designated construction areas onsite, disposing of all cleared vegetation from the pipeline construction workspace by chipping to be spread within the pipeline construction workspaces not to exceed a depth of 2-inches, and utilizing best management practices for erosion and siltation control during and after the construction phase of the project. As compensation for unavoidable wetland impacts, the applicant proposes to use a Corps approved mitigation bank within the watershed of impact.

The comment period for the Department of Army will close in **30 days** from the date of this 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 must be mailed so as to be received before or by the last day of the comment period. Letters and/or comments concerning the subject permit application must reference the applicant's name and the Permit Application Number and can be preferably emailed to the Corps of Engineers project manager listed above or forwarded to the Corps of Engineers at the address above, **ATTENTION: REGULATORY DIVISION, RGC, S. Gail Gainey**. This public notice is also available for review online at <https://go.usa.gov/xennJ>.

### **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.

This request will also be reviewed pursuant to Section 408 and USACE Engineering Circular (EC) 1165-2-220, which provides policy and procedural guidance for processing requests to alter USACE civil works projects.

The decision whether to grant permission for the requested alteration will be based on several factors. The benefits that reasonably may be expected to accrue from the proposal will be balanced against its reasonably foreseeable detriments. Review of the requests for modification will be reviewed by a USACE technical review team considering the following factors:

1) Potential to Impair the Usefulness of the Project. Proposed alterations will be reviewed to determine whether the alteration would limit the ability of the USACE project to function as authorized, or would compromise or change any authorized project conditions, purposes or outputs. If USACE determines that the usefulness of the authorized project would be impaired, the request will be denied.

2) Potential to be Injurious to the Public Interest. Proposed alterations will be reviewed to determine the probable impacts, including cumulative impacts, on the public interest. Factors that may be relevant to the public interest depend upon the type of USACE project being altered and may

include, but are not limited to, such things as conservation, economic development, historic properties, cultural resources, environmental impacts, water supply, water quality, flood hazards, floodplains, residual risk, induced damages, navigation, shore erosion or accretion, and recreation. This evaluation will consider information received from the interested parties, including tribes, agencies, and the public. The decision whether to approve an alteration will be determined by the consideration of whether benefits are commensurate with risks. If the potential detriments are found to outweigh the potential benefits, then it may be determined that the proposed alteration is injurious to the public interest.

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. Further, all factors that may be relevant to the proposal will be considered, including the potential cumulative effects associated with the proposed project. The Section 408 review will consider the potential impact to the usefulness of the Federal project and whether the proposed alteration would be injurious to the public interest. Policy and legal compliance will also be considered.

The New Orleans District utilizes the National Register of Historic Places to identify properties listed on or near the proposed work. The possibility exists that the proposed work may damage or destroy presently unknown archeological, scientific, prehistorical, historical sites, or data. However, extent of coverage and impacts is undetermined at this time pending a National Historic Preservation Act compliance determination. Copies of this notice are made available to the State Archeologist and the State Historic Preservation Officer.

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.

The New Orleans District has determined that the proposed project is located in waters known to be utilized by the West Indian Manatee (*Trichechus manatus*) and the Pallid Sturgeon (*Scaphirhynchus albus*). Utilizing the Information & Planning Consultation for Endangered Species in Louisiana protocol, dated January 27, 2020 between the U.S. Army Corps of Engineers, New Orleans and U.S. Fish and Wildlife Service, Ecological Services Office, the Corps has determined that with the inclusion of the Standard Manatee Conditions for In-Water Activities, proposed work is not likely to adversely affect the West Indian Manatee. Additionally, the proposed work has been determined not likely to adversely affect Pallid Sturgeon (*Scaphirhynchus albus*) as the project meets the 316(b) guidelines pertaining to impingement, entrainment, and entrapment.

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 0.25 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

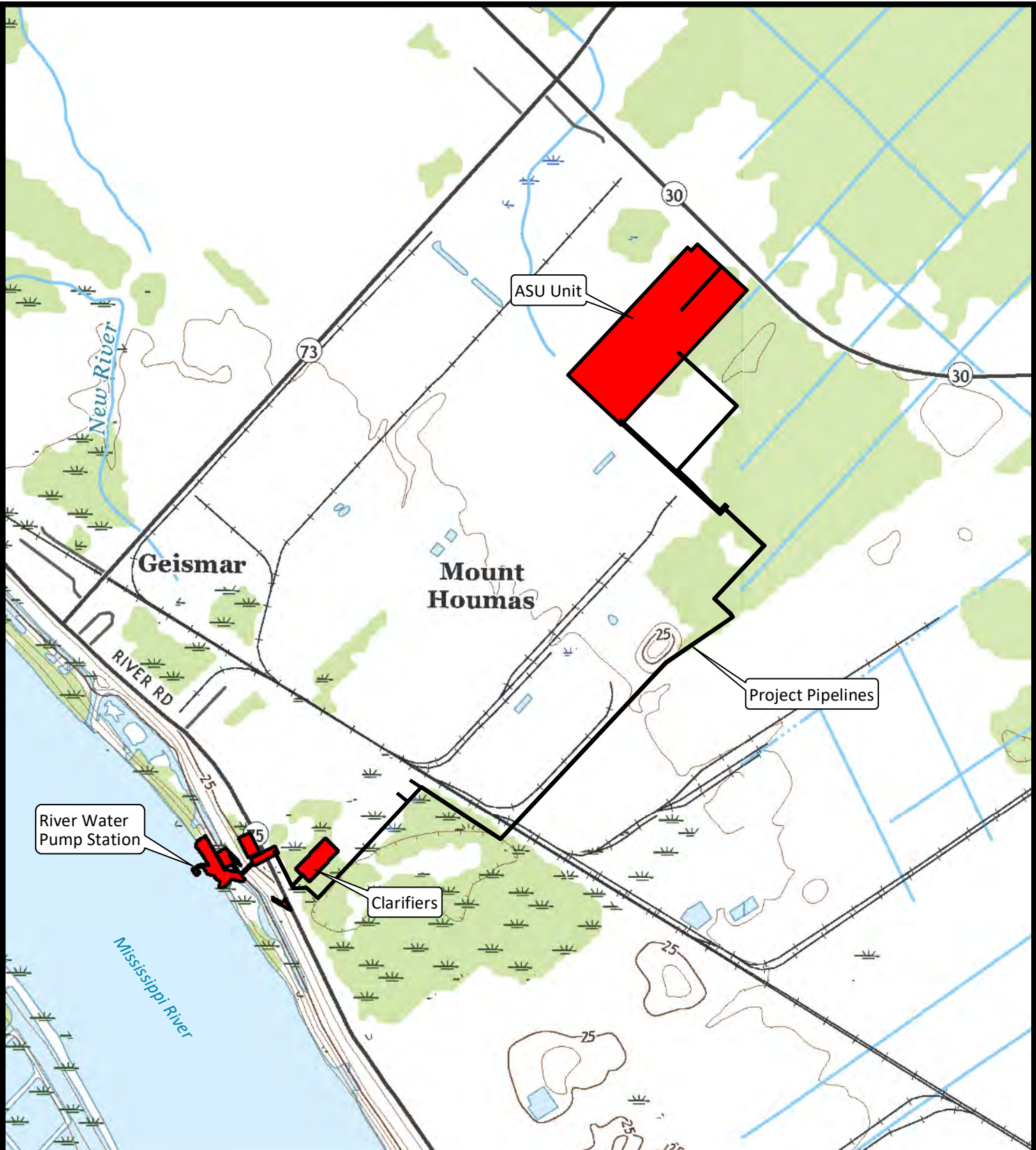
substantial adverse impact on EFH or federally managed fisheries in the Gulf of Mexico. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service.


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.

JOHN M. HERMAN  
Chief, Central Evaluation Branch  
Regulatory Division

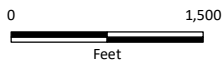
Enclosures



 Project Areas (81.2 Acres)



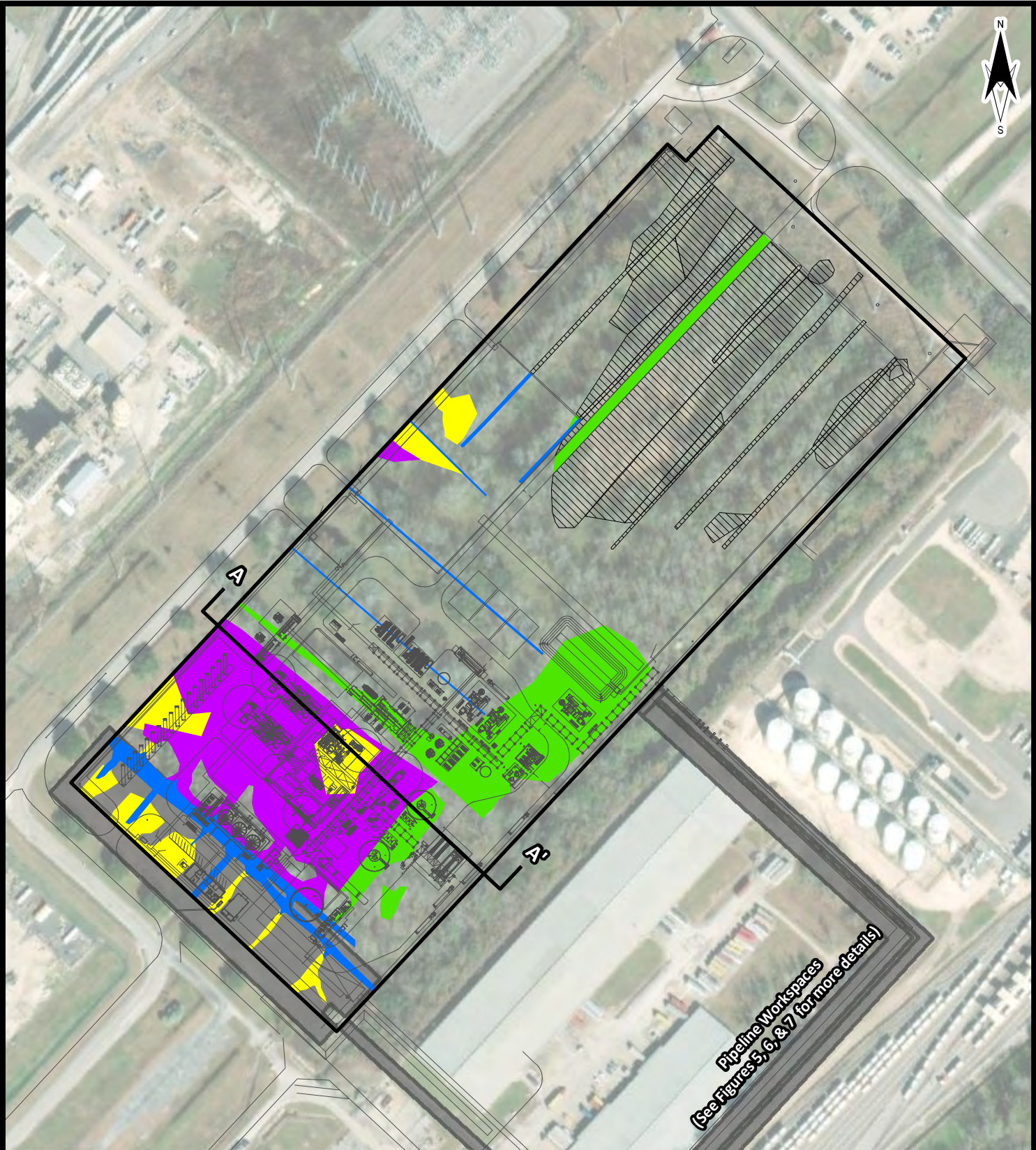
Ascension Parish



USGS 2018 Topo Maps, Carville & Gonzales, LA



<b>Linde Inc.</b> Geismar, Louisiana Linde Geismar ASU/Utility Island	
<b>Project Overview Map</b>	
Ascension Parish	
Drawn: OPB Date: 06/01/2022 Dwg. No.: PR0101-19007-08	Checked: OPB Approved: BLN
<b>Figure 1</b>	



Pipeline Workspaces  
(See Figures 5, 6, & 7 for more details)

- ASU Boundary (38.45 Acres)
- Other Project Areas
- Wetlands and Waters of the US to be Avoided (6.28 Acres)
- Wetland Impacts**
- Palustrine Emergent, Permanent (1.44 Acres)
- Palustrine Forested 1, Permanent (3.42 Acres)
- Palustrine Scrub/Shrub, Permanent (3.98 Acres)
- Waters of the US, Permanent (0.97 Acres)



**Linde Inc.**  
Geismar, Louisiana

Linde Geismar ASU/Utility Island

### Plan View ASU

Ascension Parish



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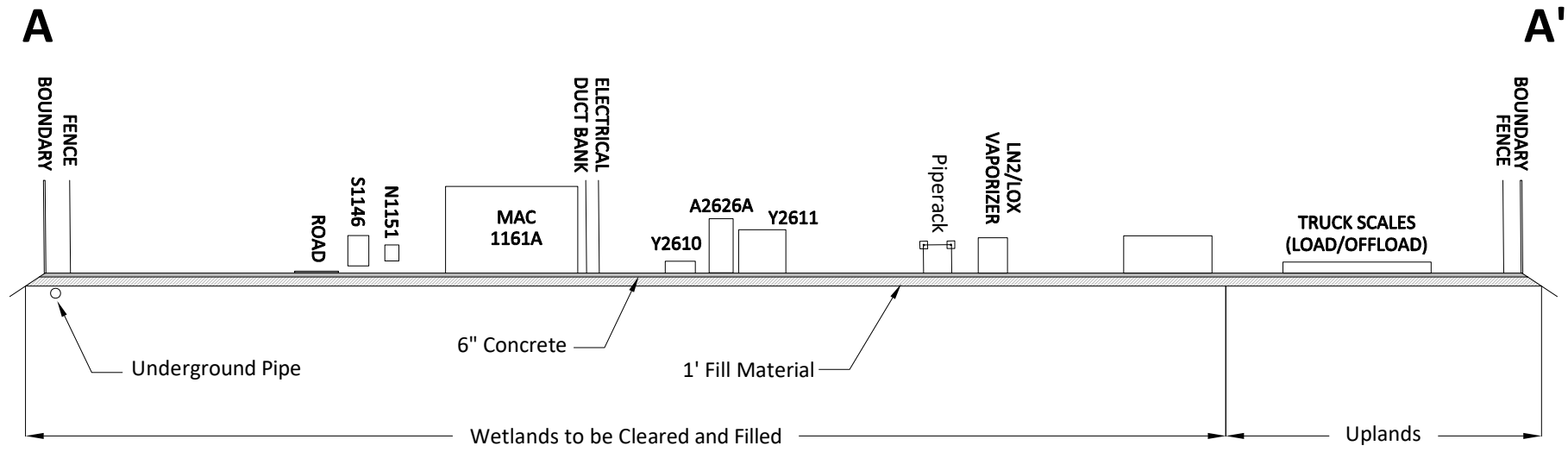
Date: 1/21/2022


Approved: BLN

Dwg. No.: PR0101-19007-21

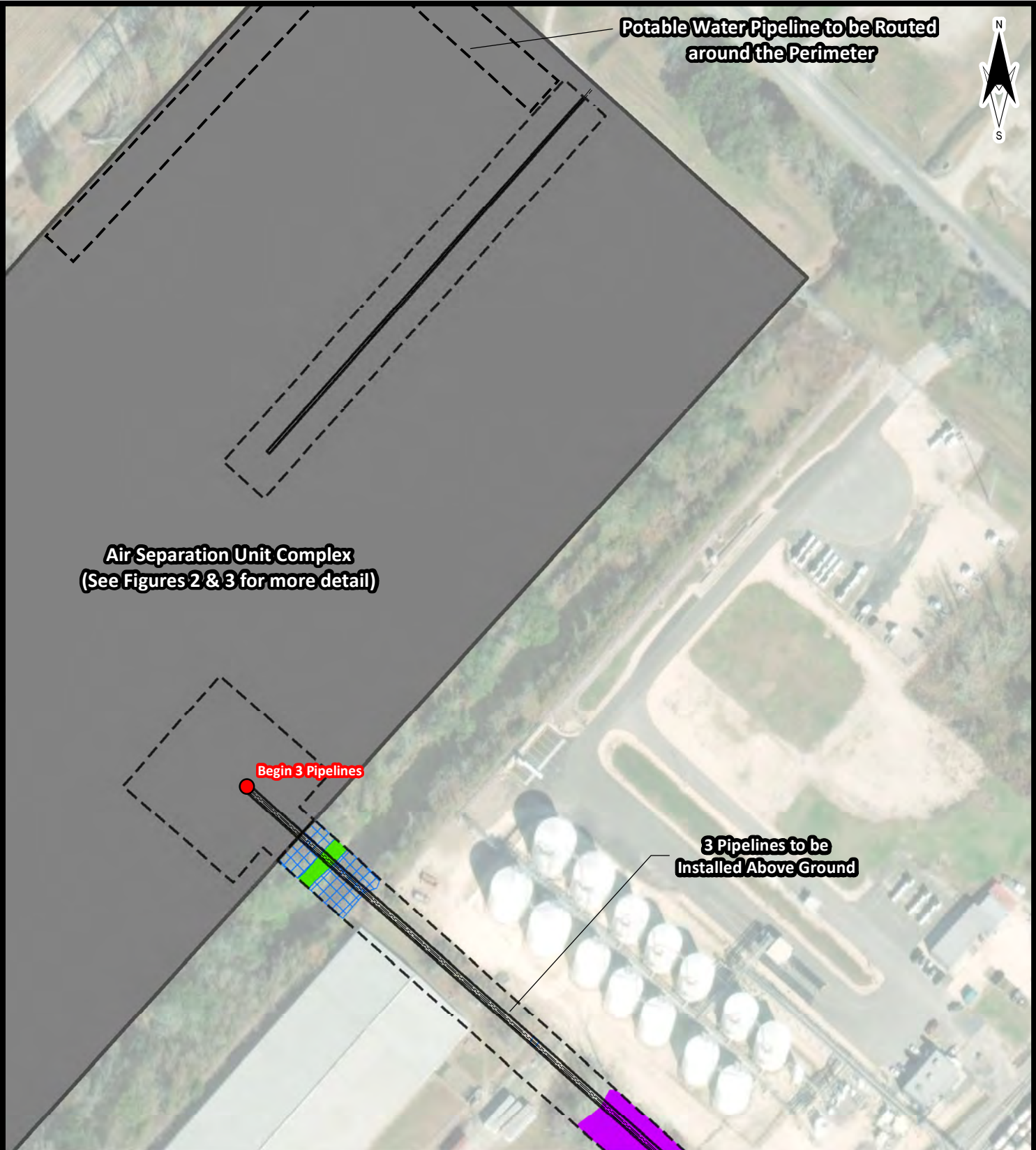
**Figure 2**

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<b>Linde Inc.</b> Geismar, Louisiana	
Linde Geismar ASU/Utility Island	
<b>A-A' Cross-Section ASU</b>	
Ascension Parish	
	Drawn: CAL Date: 6/14/2022 Dwg. No.: PR0101-19007-10
	Checked: OPB Approved: BLN <b>Figure 3</b>

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Wetland Impacts	Pipeline Workspaces
Palustrine Emergent, Temporary (2.09 Acres)	Permanent Easement
Palustrine Forested 1, Permanent (5.67 Acres)	Temporary Workspace
Palustrine Forested 1, Temporary (1.42 Acres)	Additional Temporary Workspace
Palustrine Forested 2, Permanent (0.13 Acres)	Other Project Areas
Palustrine Forested 2, Temporary (0.23 Acres)	Pipeline Centerlines
Palustrine Scrub/Shrub, Permanent (0.93 Acres)	
Palustrine Scrub/Shrub, Temporary (0.004 Acres)	
Waters of the US, Temporary (1.04 Acres)	

ESRI World Imagery 2020

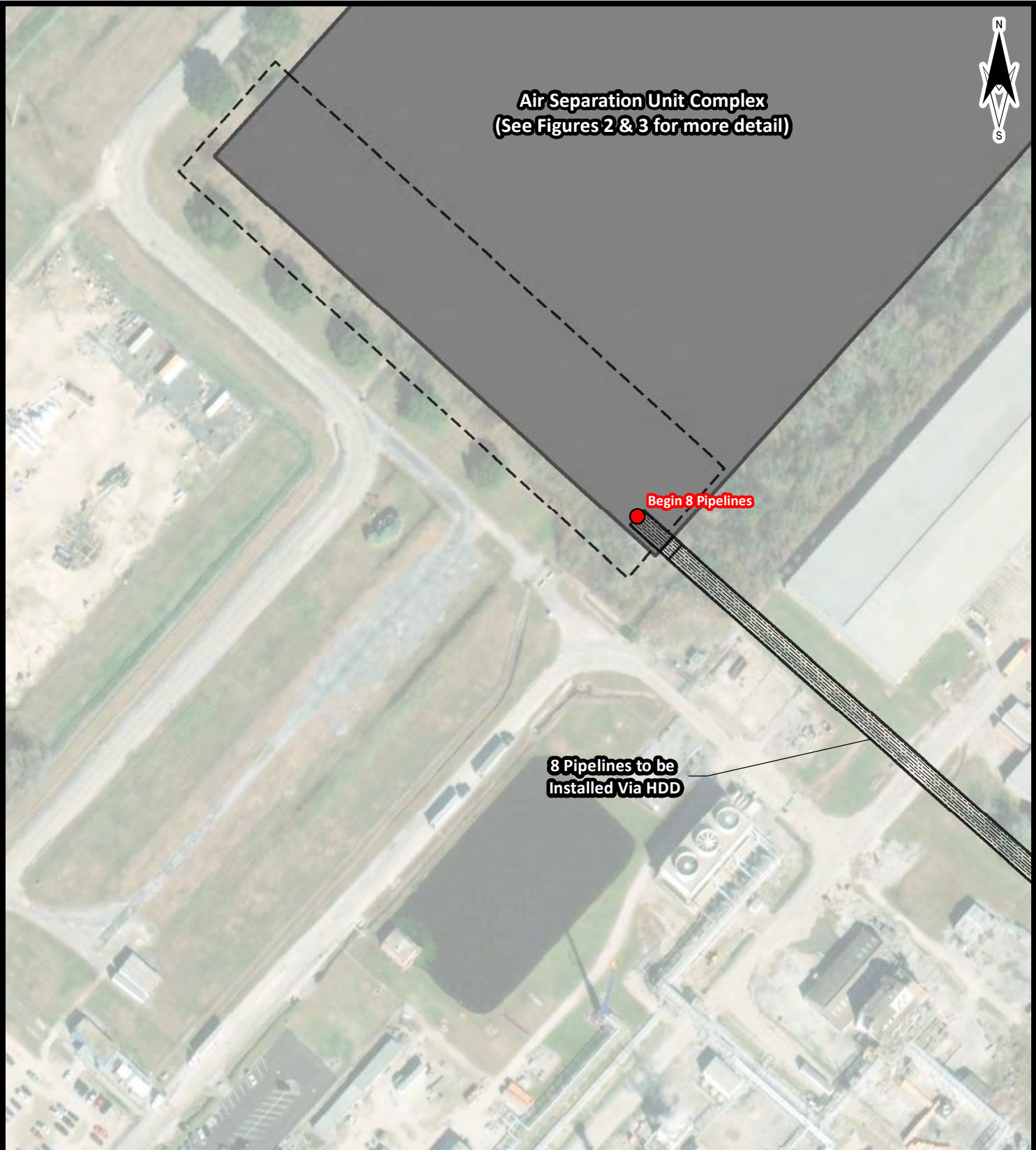
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<b>Linde Inc.</b> Geismar, Louisiana Linde Geismar ASU/Utility Island	
<b>Plan View Pipeline</b>	
Map 1 of 10 Ascension Parish	
Drawn: OPB Date: 6/1/2022 Dwg. No.: PR0101-19007-20	Checked: CAL Approved: BLN
<b>Figure 4</b>	





**Air Separation Unit Complex**  
 (See Figures 2 & 3 for more detail)



**Begin 8 Pipelines**

**8 Pipelines to be Installed Via HDD**

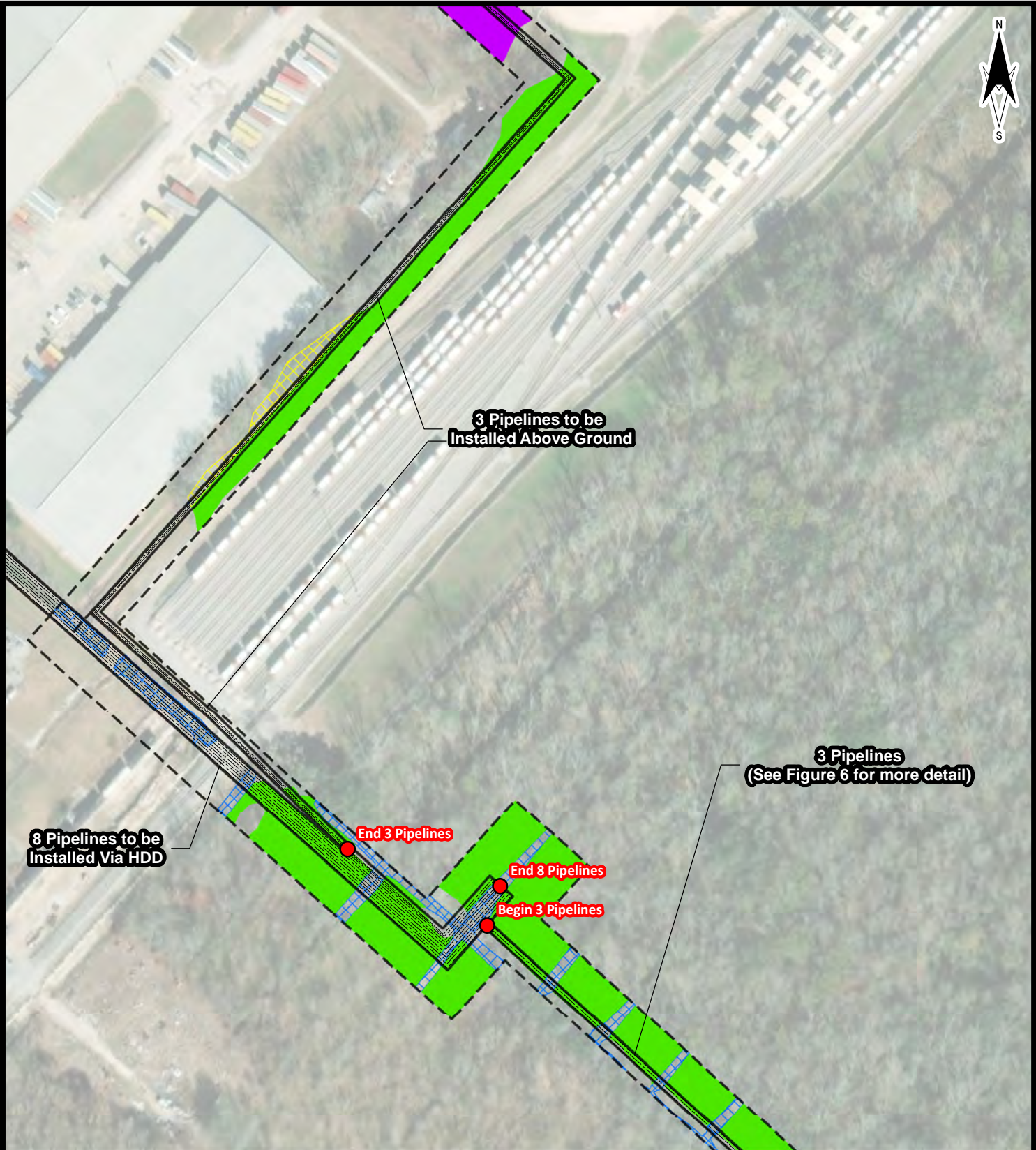
<b>Wetland Impacts</b>		<b>Pipeline Workspaces</b>	
Palustrine Emergent, Temporary (2.09 Acres)	Palustrine Forested 1, Permanent (5.67 Acres)	Permanent Easement	Temporary Workspace
Palustrine Forested 1, Temporary (1.42 Acres)	Palustrine Forested 2, Permanent (0.13 Acres)	Additional Temporary Workspace	Other Project Areas
Palustrine Forested 2, Temporary (0.23 Acres)	Palustrine Scrub/Shrub, Permanent (0.93 Acres)	Pipeline Centerlines	
Palustrine Scrub/Shrub, Temporary (0.004 Acres)	Waters of the US, Temporary (1.04 Acres)		

ESRI World Imagery 2020

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<b>Linde Inc.</b> Geismar, Louisiana	
Linde Geismar ASU/Utility Island	
<b>Plan View Pipeline</b>	
Map 2 of 10 Ascension Parish	
Drawn: OPB	Checked: CAL
Date: 6/1/2022	Approved: BLN
Dwg. No.: PR0101-19007-20	<b>Figure 4</b>

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**8 Pipelines to be Installed Via HDD**

**3 Pipelines to be Installed Above Ground**

**3 Pipelines (See Figure 6 for more detail)**

**End 3 Pipelines**

**End 8 Pipelines**

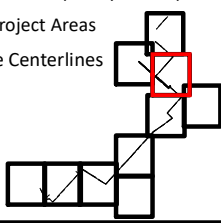
**Begin 3 Pipelines**

**Wetland Impacts**

	Palustrine Emergent, Temporary (2.09 Acres)
	Palustrine Forested 1, Permanent (5.67 Acres)
	Palustrine Forested 1, Temporary (1.42 Acres)
	Palustrine Forested 2, Permanent (0.13 Acres)
	Palustrine Forested 2, Temporary (0.23 Acres)
	Palustrine Scrub/Shrub, Permanent (0.93 Acres)
	Palustrine Scrub/Shrub, Temporary (0.004 Acres)
	Waters of the US, Temporary (1.04 Acres)

**Pipeline Workspaces**

	Permanent Easement
	Temporary Workspace
	Additional Temporary Workspace
	Other Project Areas
	Pipeline Centerlines



ESRI World Imagery 2020

**Linde Inc.**  
Geismar, Louisiana

Linde Geismar ASU/Utility Island

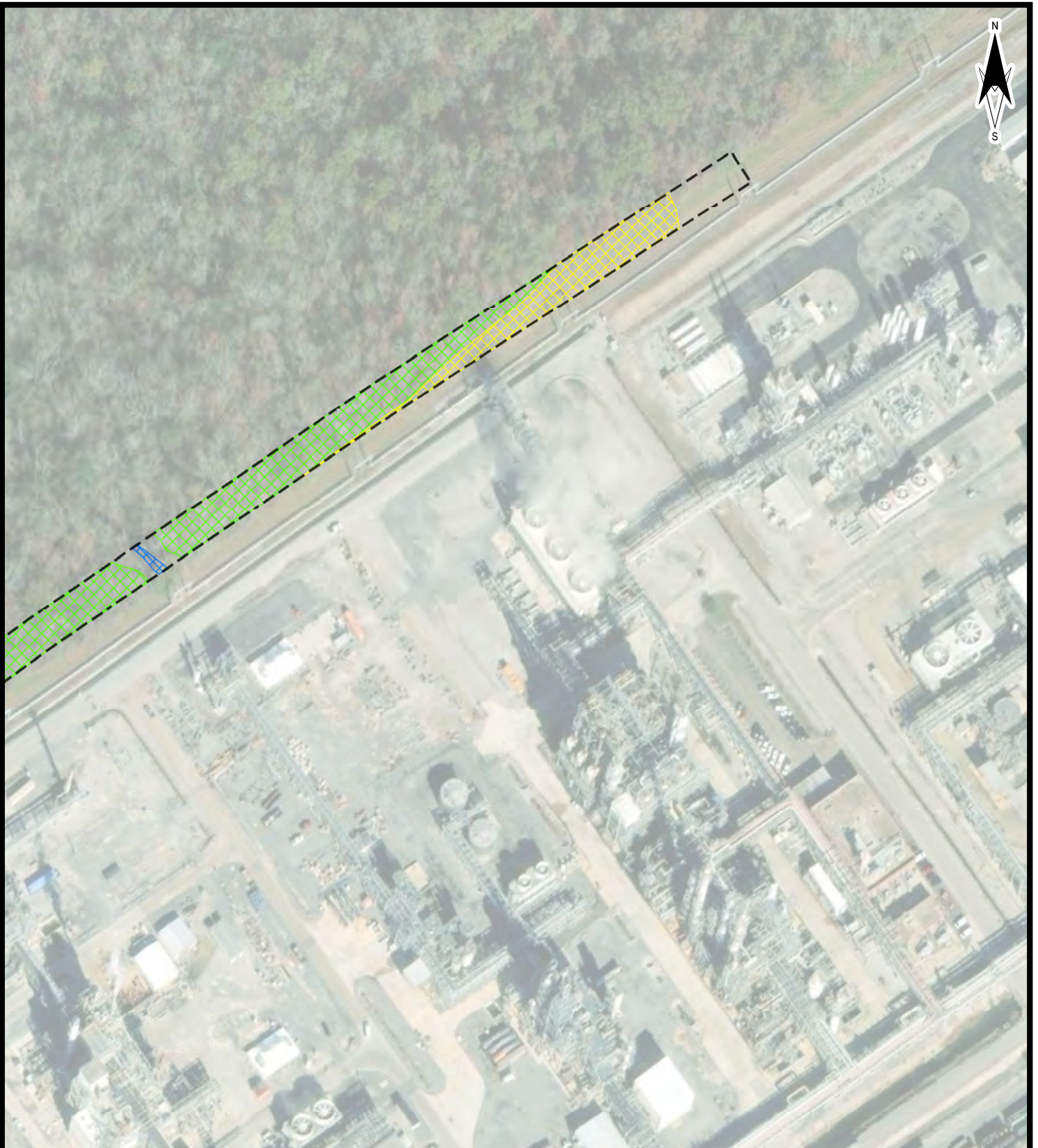
**Plan View Pipeline**

Map 3 of 10  
Ascension Parish











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


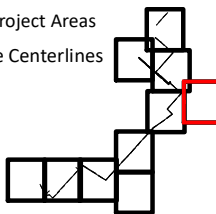
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**Wetland Impacts**

-  Palustrine Emergent, Temporary (2.09 Acres)
-  Palustrine Forested 1, Permanent (5.67 Acres)
-  Palustrine Forested 1, Temporary (1.42 Acres)
-  Palustrine Forested 2, Permanent (0.13 Acres)
-  Palustrine Forested 2, Temporary (0.23 Acres)
-  Palustrine Scrub/Shrub, Permanent (0.93 Acres)
-  Palustrine Scrub/Shrub, Temporary (0.004 Acres)
-  Waters of the US, Temporary (1.04 Acres)

**Pipeline Workspaces**

-  Permanent Easement
-  Temporary Workspace
-  Additional Temporary Workspace
-  Other Project Areas
-  Pipeline Centerlines



ESRI World Imagery 2020

**Linde Inc.**

Geismar, Louisiana

Linde Geismar ASU/Utility Island

**Plan View Pipeline**

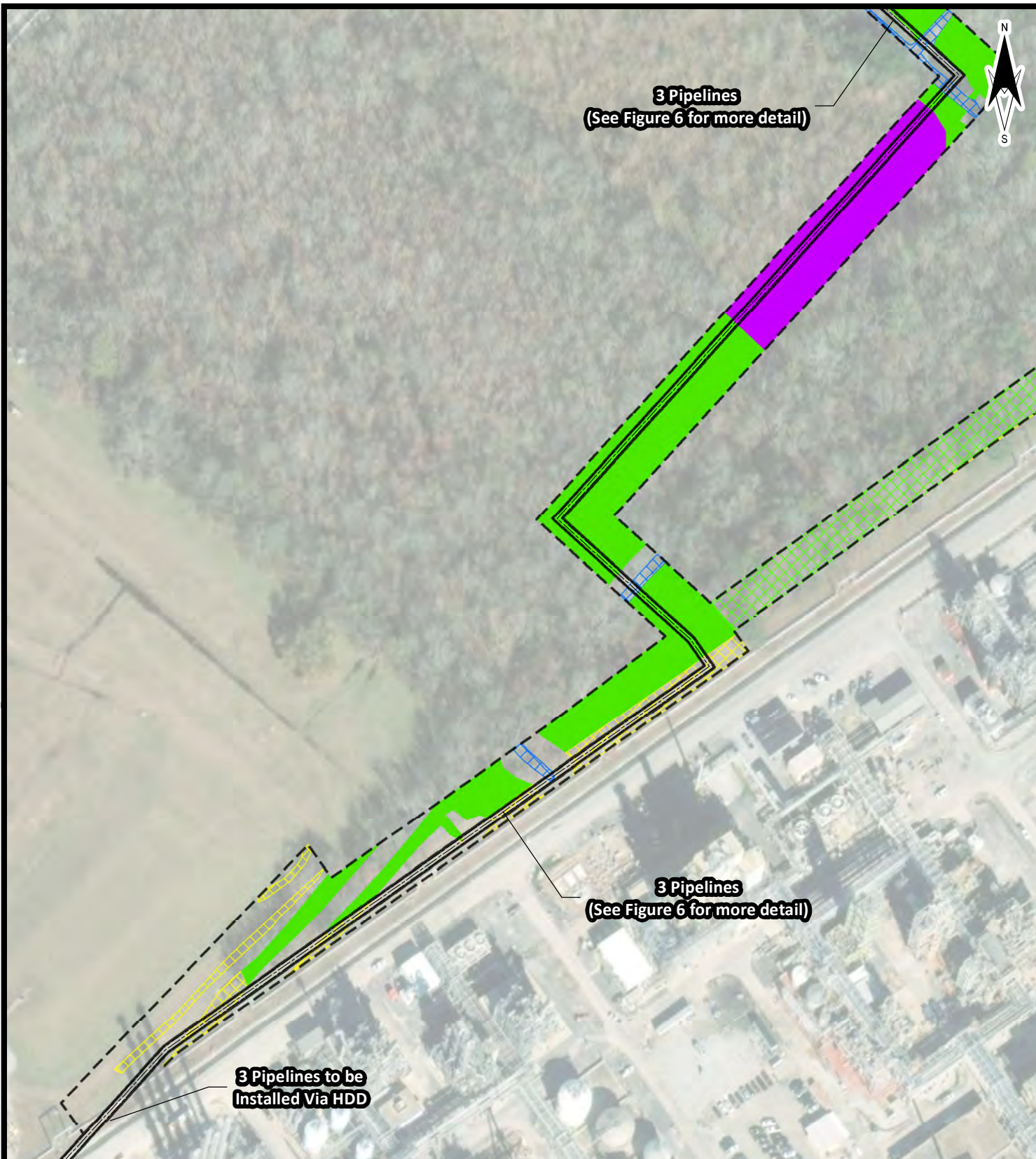
Map 4 of 10  
Ascension Parish



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Dwg. No.: PR0101-19007-20

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Approved: BLN

**Figure 4**

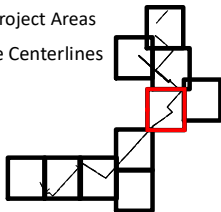
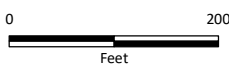


**Wetland Impacts**

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- Palustrine Forested 2, Permanent (0.13 Acres)
- Palustrine Forested 2, Temporary (0.23 Acres)
- Palustrine Scrub/Shrub, Permanent (0.93 Acres)
- Palustrine Scrub/Shrub, Temporary (0.004 Acres)
- Waters of the US, Temporary (1.04 Acres)

**Pipeline Workspaces**

- Permanent Easement
- Temporary Workspace
- Additional Temporary Workspace
- Other Project Areas
- Pipeline Centerlines



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<p><b>Linde Inc.</b> Geismar, Louisiana</p> <p>Linde Geismar ASU/Utility Island</p> <p><b>Plan View Pipeline</b></p> <p>Map 5 of 10 Ascension Parish</p>	
<p> <b>CK ASSOCIATES</b> Environmental Consultants</p>	<p>Drawn: OPB      Checked: CAL Date: 6/1/2022      Approved: BLN Dwg. No.: PR0101-19007-20</p>
<p><b>Figure 4</b></p>	

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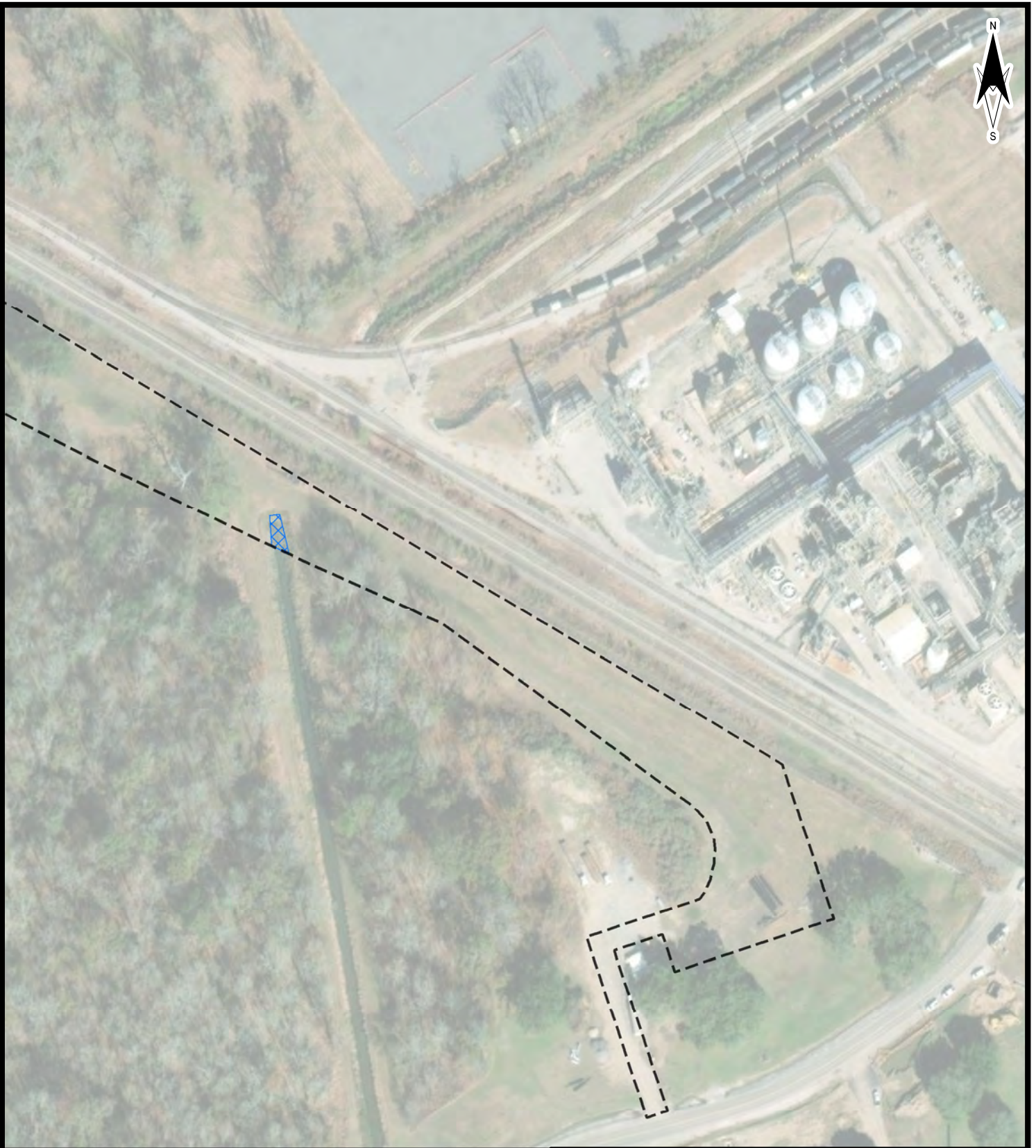


Wetland Impacts	Pipeline Workspaces
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Waters of the US, Temporary (1.04 Acres)	

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<b>Linde Inc.</b> Geismar, Louisiana Linde Geismar ASU/Utility Island	
<b>Plan View Pipeline</b> Map 6 of 10 Ascension Parish	
Drawn: OPB Date: 6/1/2022 Dwg. No.: PR0101-19007-20	Checked: CAL Approved: BLN
<b>Figure 4</b>	



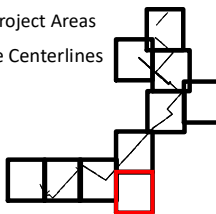
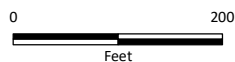
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**Wetland Impacts**

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- Waters of the US, Temporary (1.04 Acres)

**Pipeline Workspaces**

- Permanent Easement
- Temporary Workspace
- Additional Temporary Workspace
- Other Project Areas
- Pipeline Centerlines



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**Linde Inc.**  
Geismar, Louisiana

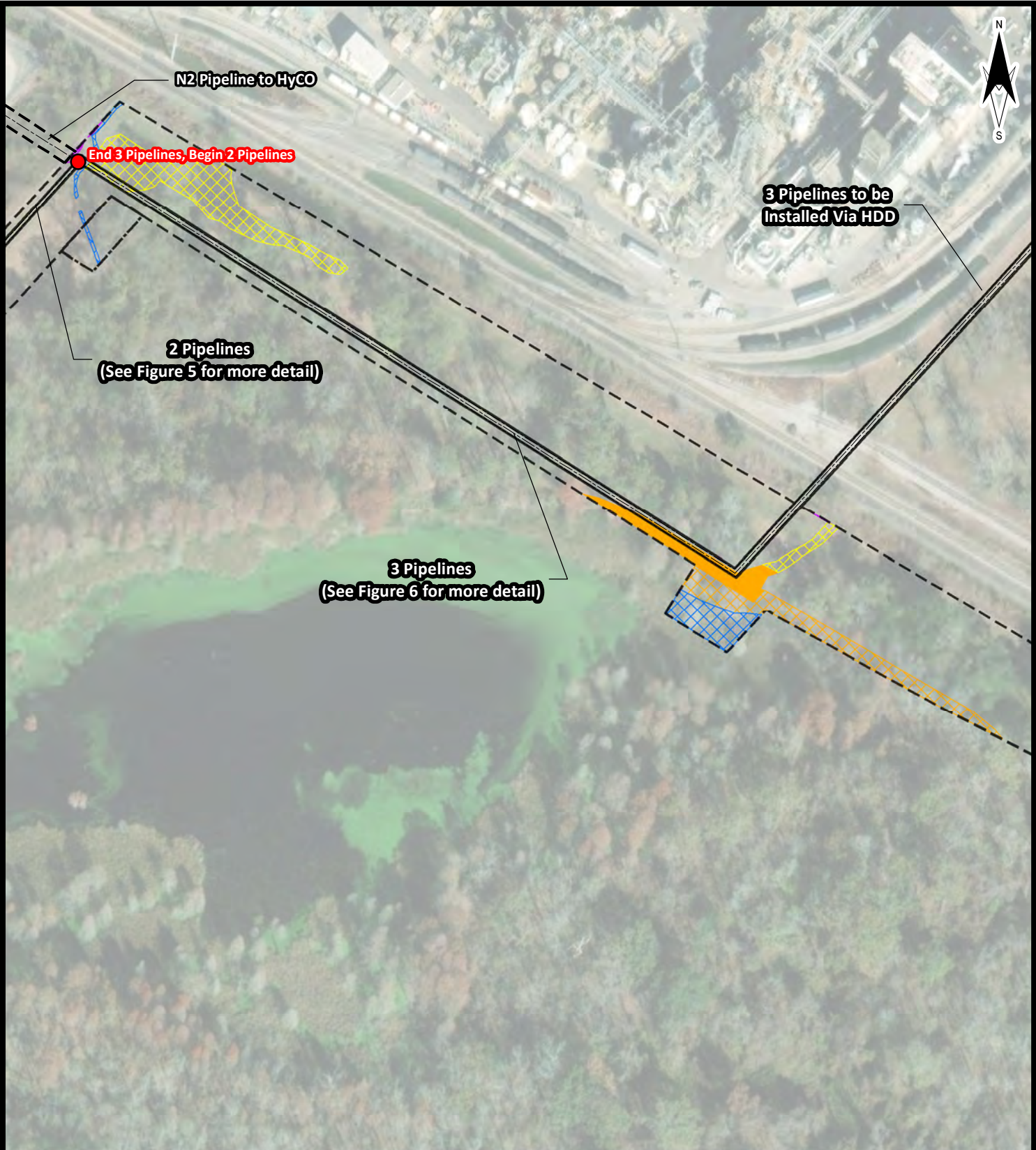
Linde Geismar ASU/Utility Island

**Plan View Pipeline**

Map 7 of 10  
Ascension Parish

	Drawn: OPB	Checked: CAL
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Dwg. No.: PR0101-19007-20	<b>Figure 4</b>	

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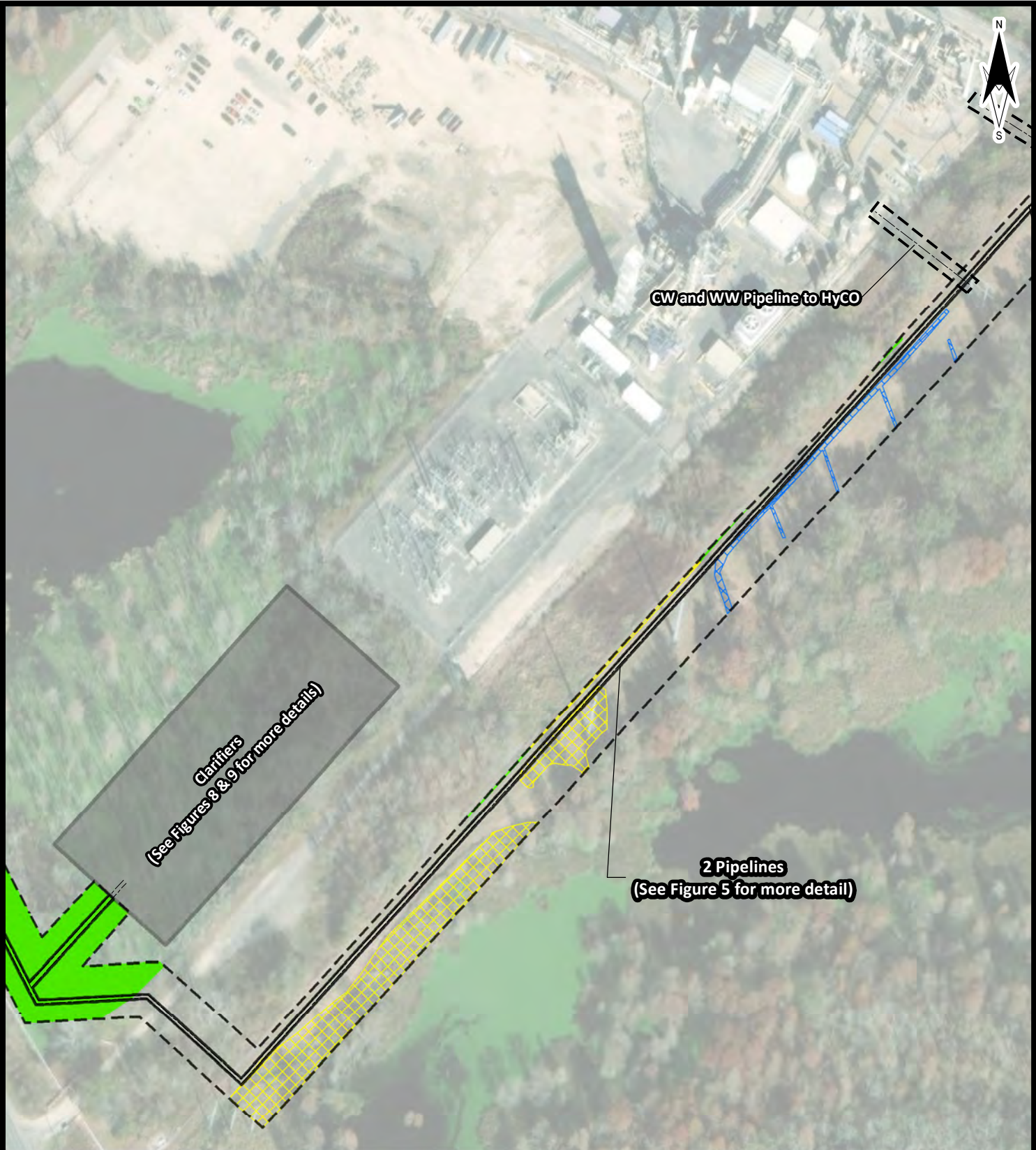
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Waters of the US, Temporary (1.04 Acres)	

ESRI World Imagery 2020

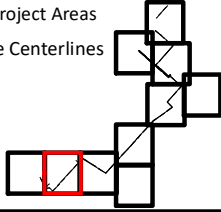
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<b>Linde Inc.</b> Geismar, Louisiana Linde Geismar ASU/Utility Island	
<b>Plan View Pipeline</b> Map 8 of 10 Ascension Parish	
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<b>Figure 4</b>	

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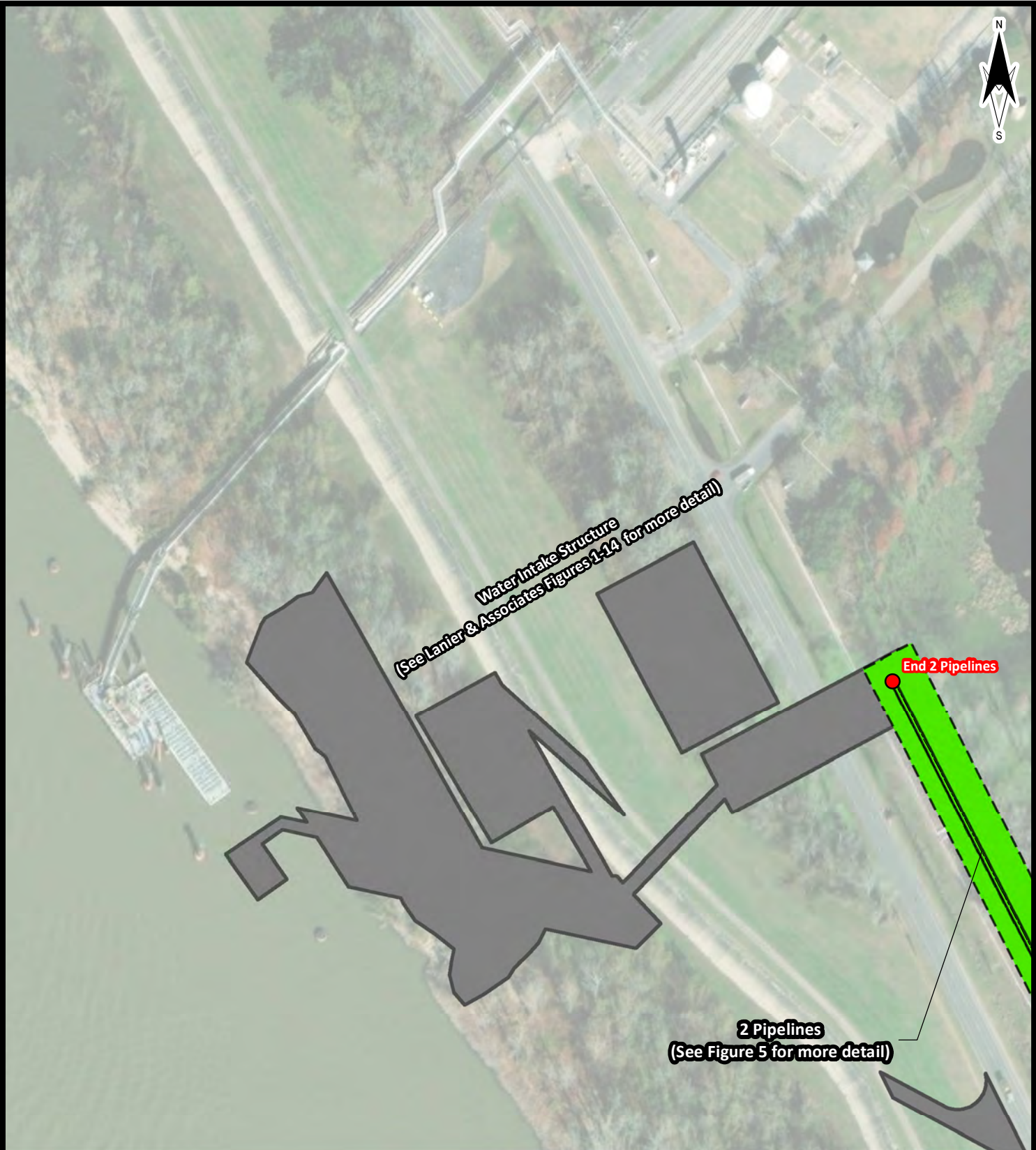
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<b>Linde Inc.</b> Geismar, Louisiana Linde Geismar ASU/Utility Island	
<b>Plan View Pipeline</b> Map 9 of 10 Ascension Parish	
Drawn: OPB Date: 6/1/2022 Dwg. No.: PR0101-19007-20	Checked: CAL Approved: BLN
<b>Figure 4</b>	





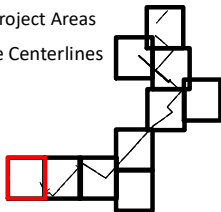


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- Palustrine Forested 1, Permanent (5.67 Acres)
- Palustrine Forested 1, Temporary (1.42 Acres)
- Palustrine Forested 2, Permanent (0.13 Acres)
- Palustrine Forested 2, Temporary (0.23 Acres)
- Palustrine Scrub/Shrub, Permanent (0.93 Acres)
- Palustrine Scrub/Shrub, Temporary (0.004 Acres)
- Waters of the US, Temporary (1.04 Acres)

**Pipeline Workspaces**

- Permanent Easement
- Temporary Workspace
- Additional Temporary Workspace
- Other Project Areas
- Pipeline Centerlines



ESRI World Imagery 2020

**Linde Inc.**

Geismar, Louisiana

Linde Geismar ASU/Utility Island

**Plan View Pipeline**

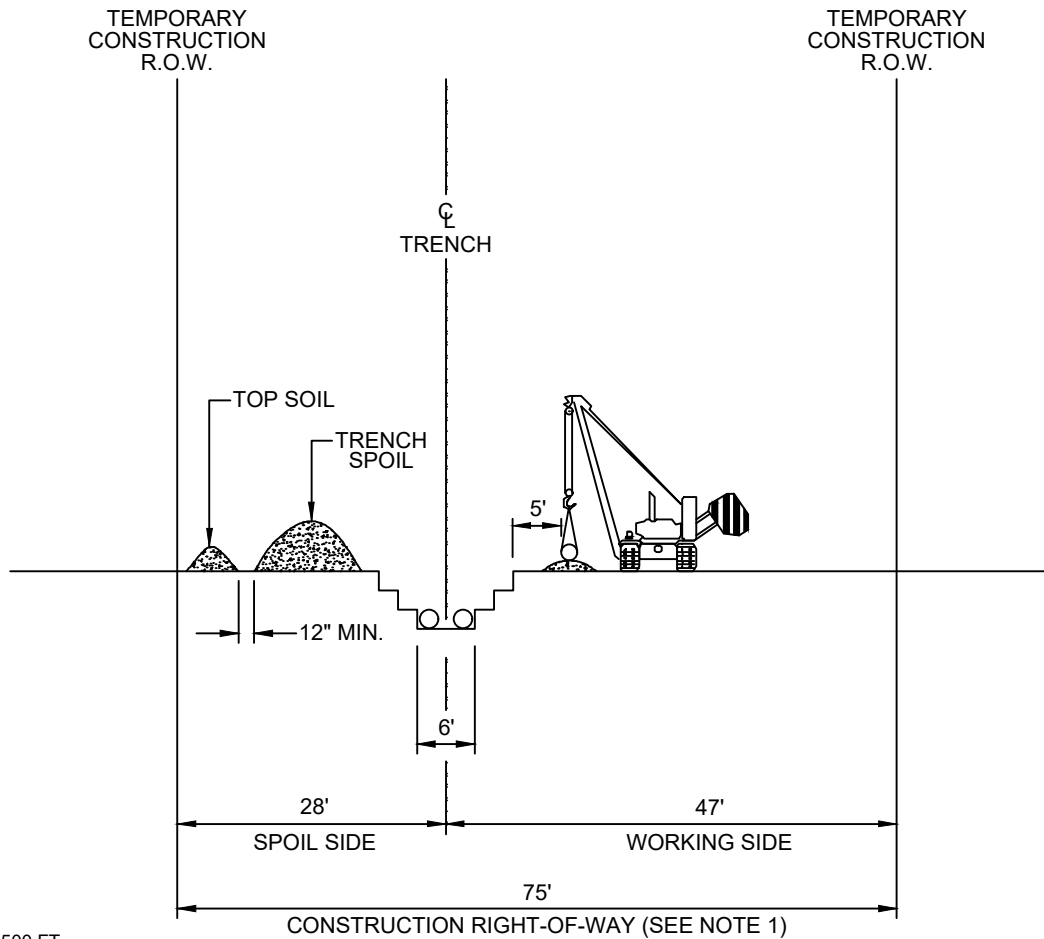
Map 10 of 10  
Ascension Parish



Drawn: OPB  
Date: 6/1/2022  
Dwg. No.: PR0101-19007-20

Checked: CAL  
Approved: BLN

**Figure 4**



TOTAL LENGTH: ±3,500 FT.  
 TOTAL VOLUME: ±7,800 CU. YDS.

PROFILE

NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 75 FEET.
2. UTILIZE THE "TRENCH ONLY" TOPSOIL SALVAGE METHOD AT LOCATIONS SUCH AS RIPARIAN AREAS OR UNMANAGED WOODLAND, WHERE IDENTIFIED ON THE CONSTRUCTION DRAWINGS, OR AS DIRECTED BY THE LINDE INSPECTOR.
3. FOR TRENCH ONLY STRIPPING, THE STRIPPED AREA SHALL BE WIDE ENOUGH TO ACCOMMODATE TRENCHING EQUIPMENT.
4. DEPTH OF TOPSOIL STRIPPING NOT TO EXCEED 12 INCHES.
5. STOCKPILE TOPSOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE LINDE 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. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING.
7. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL AND TOPSOIL PILES.
8. TEMPORARILY SUSPEND TOPSOIL HANDLING OPERATIONS DURING INORDINATELY WINDY/WET CONDITIONS UNTIL MITIGATIVE MEASURES TO MINIMIZE WIND/WATER EROSION CAN BE IMPLEMENTED.
9. TOPSOIL AND TRENCH SPOIL RELATIVE POSITIONS CAN, AS DIRECTED BY THE LINDE INSPECTOR, BE REVERSED.


K:\Projects\10.007113.0000 LEA-Geismar Pipelines\DWG\DWG Misc\Exhibits\TYPICALS.dwg



**PERCHERON**  
 PROFESSIONAL  
 SERVICES, L.L.C  
 1904 WEST GRAND  
 PARKWAY N. SUITE 200  
 KATY, TEXAS 77449  
 (832) 300-6400  
 TEXAS SURVEYING FIRM  
 LICENSE: 10020700

REV	DESCRIPTION	REVISION DATE	REV'D BY	RW'D BY	CHK'D BY	APP'D BY
A	ISSUE FOR PRELIMINARY REVIEW	01/25/22	NJF	HG	NJF	MB

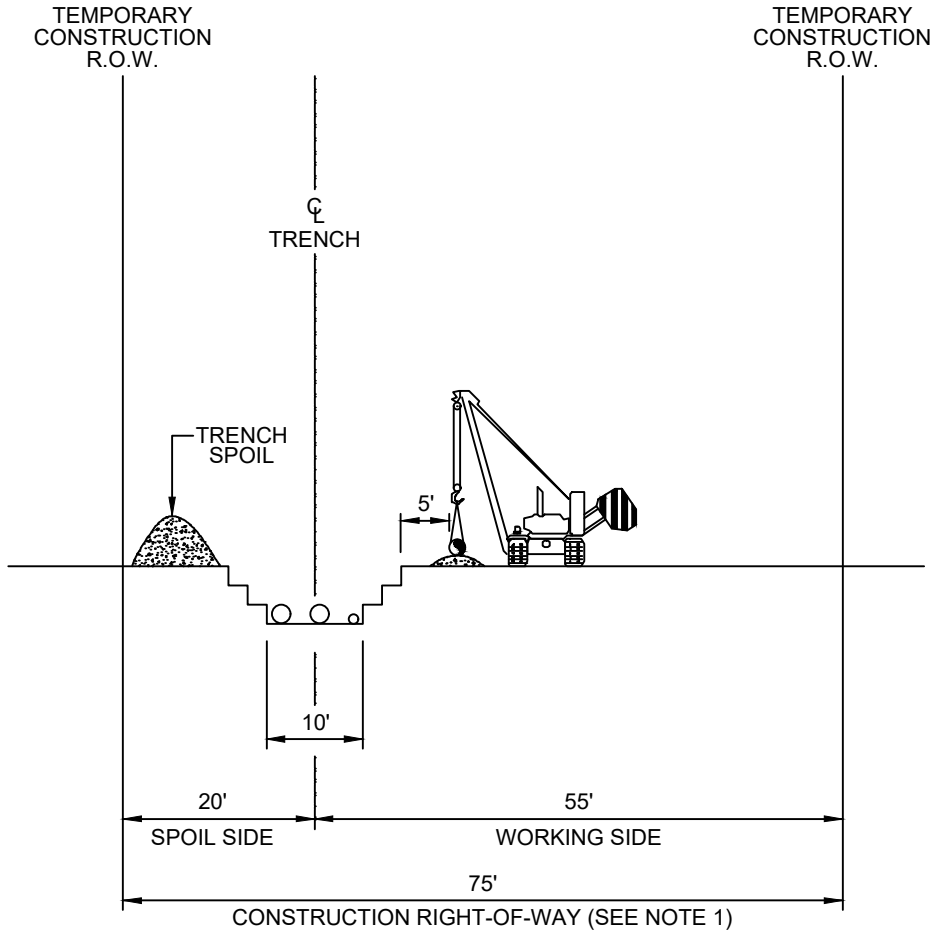
**PREPARED FOR**



SHEET	SCALE
1 OF 3	N.T.S.

**LINDE - GEISMAR PIPELINES  
 2 PIPELINE  
 TYPICAL CONSTRUCTION  
 R.O.W.  
 ASCENSION PARISH, LOUISIANA**

PROJECT NO.	DRAWING NO.
10.007113.0000	Figure 5



TOTAL LENGTH: ±6,400 FT.  
 TOTAL VOLUME: ±20,000 CU. YDS.

**PROFILE**

**NOTES:**

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 75 FEET.
2. UTILIZE THE "TRENCH ONLY" TOPSOIL SALVAGE METHOD AT LOCATIONS SUCH AS RIPARIAN AREAS OR UNMANAGED WOODLAND, WHERE IDENTIFIED ON THE CONSTRUCTION DRAWINGS, OR AS DIRECTED BY THE LINDE INSPECTOR.
3. FOR TRENCH ONLY STRIPPING, THE STRIPPED AREA SHALL BE WIDE ENOUGH TO ACCOMMODATE TRENCHING EQUIPMENT.
4. DEPTH OF TOPSOIL STRIPPING NOT TO EXCEED 12 INCHES.
5. STOCKPILE TOPSOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE LINDE 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. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING.
7. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL AND TOPSOIL PILES.
8. TEMPORARILY SUSPEND TOPSOIL HANDLING OPERATIONS DURING INORDINATELY WINDY/WET CONDITIONS UNTIL MITIGATIVE MEASURES TO MINIMIZE WIND/WATER EROSION CAN BE IMPLEMENTED.
9. TOPSOIL AND TRENCH SPOIL RELATIVE POSITIONS CAN, AS DIRECTED BY THE LINDE INSPECTOR, BE REVERSED.

K:\Projects\10.007113.0000 LEA-Geismar Pipelines\DWG\DWG Misc\Exhibits\TYPICALS.dwg

**PERCHERON**  
 PROFESSIONAL  
 SERVICES, L.L.C  
 1904 WEST GRAND  
 PARKWAY N. SUITE 200  
 KATY, TEXAS 77449  
 (832) 300-6400  
 TEXAS SURVEYING FIRM  
 LICENSE: 10020700

REV	DESCRIPTION	REVISION DATE	REV'D BY	RW'D BY	CHK'D BY	APP'D BY
A	ISSUE FOR PRELIMINARY REVIEW	01/25/22	NJF	HG	NJF	MB

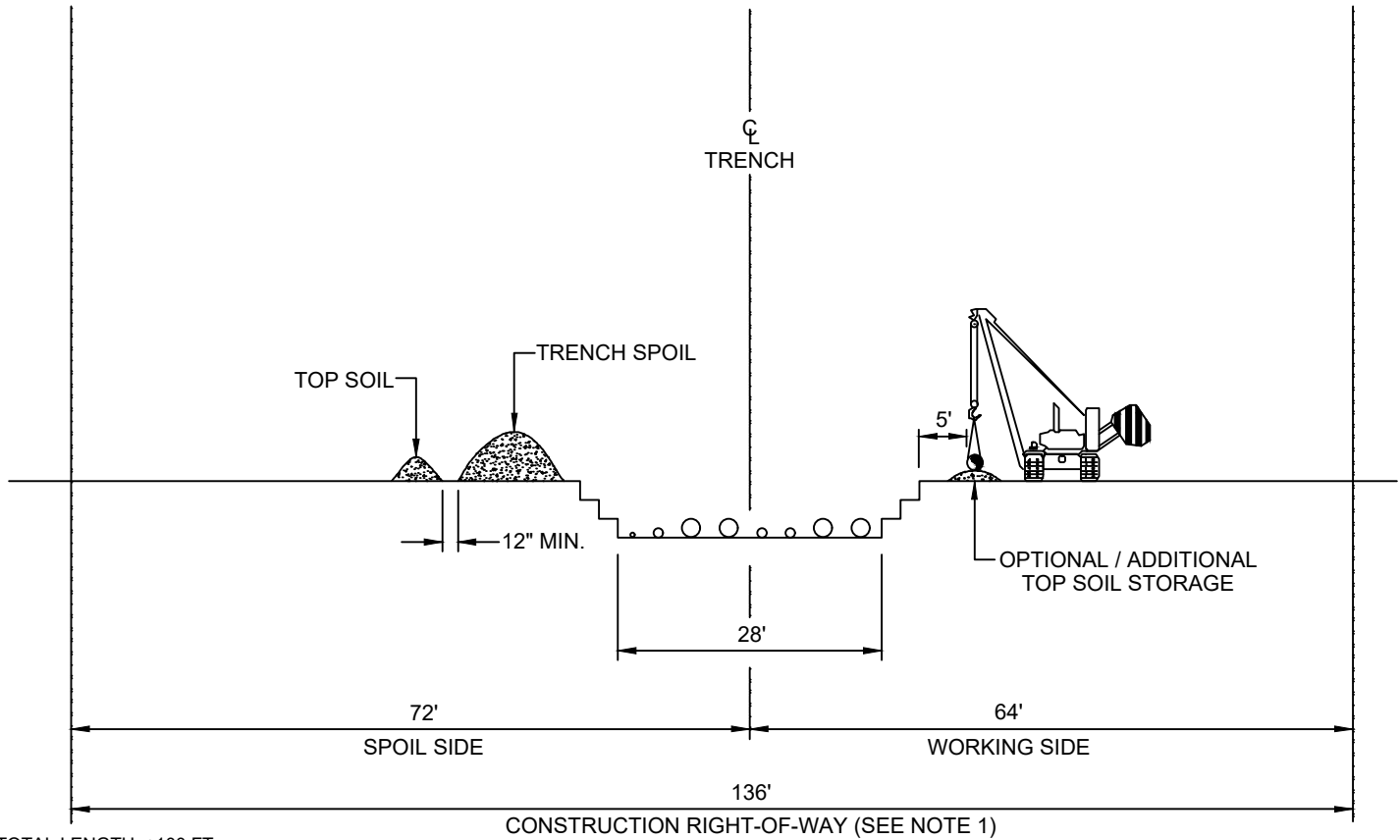


**LINDE - GEISMAR PIPELINES  
 3 PIPELINE  
 TYPICAL CONSTRUCTION  
 R.O.W.  
 ASCENSION PARISH, LOUISIANA**

SHEET	SCALE	PROJECT NO.	DRAWING NO.
2 OF 3	N.T.S.	10.007113.0000	Figure 6

TEMPORARY  
CONSTRUCTION  
R.O.W.

TEMPORARY  
CONSTRUCTION  
R.O.W.



TOTAL LENGTH: ±100 FT.  
TOTAL VOLUME: ±800 CU. YDS.

PROFILE

NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 75 FEET.
2. UTILIZE THE "TRENCH ONLY" TOPSOIL SALVAGE METHOD AT LOCATIONS SUCH AS RIPARIAN AREAS OR UNMANAGED WOODLAND, WHERE IDENTIFIED ON THE CONSTRUCTION DRAWINGS, OR AS DIRECTED BY THE LINDE INSPECTOR.
3. FOR TRENCH ONLY STRIPPING, THE STRIPPED AREA SHALL BE WIDE ENOUGH TO ACCOMMODATE TRENCHING EQUIPMENT.
4. DEPTH OF TOPSOIL STRIPPING NOT TO EXCEED 12 INCHES.
5. STOCKPILE TOPSOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE LINDE 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. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING.
7. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL AND TOPSOIL PILES.
8. TEMPORARILY SUSPEND TOPSOIL HANDLING OPERATIONS DURING INORDINATELY WINDY/WET CONDITIONS UNTIL MITIGATIVE MEASURES TO MINIMIZE WIND/WATER EROSION CAN BE IMPLEMENTED.
9. TOPSOIL AND TRENCH SPOIL RELATIVE POSITIONS CAN, AS DIRECTED BY THE LINDE INSPECTOR, BE REVERSED.

K:\Projects\10.007113.0000 LEA-Geismar Pipelines\DWG\DWG Misc\Exhibits\TYPICALS.dwg

**PERCHERON**  
PROFESSIONAL  
SERVICES, L.L.C  
1904 WEST GRAND  
PARKWAY N. SUITE 200  
KATY, TEXAS 77449  
(832) 300-6400  
TEXAS SURVEYING FIRM  
LICENSE: 10020700

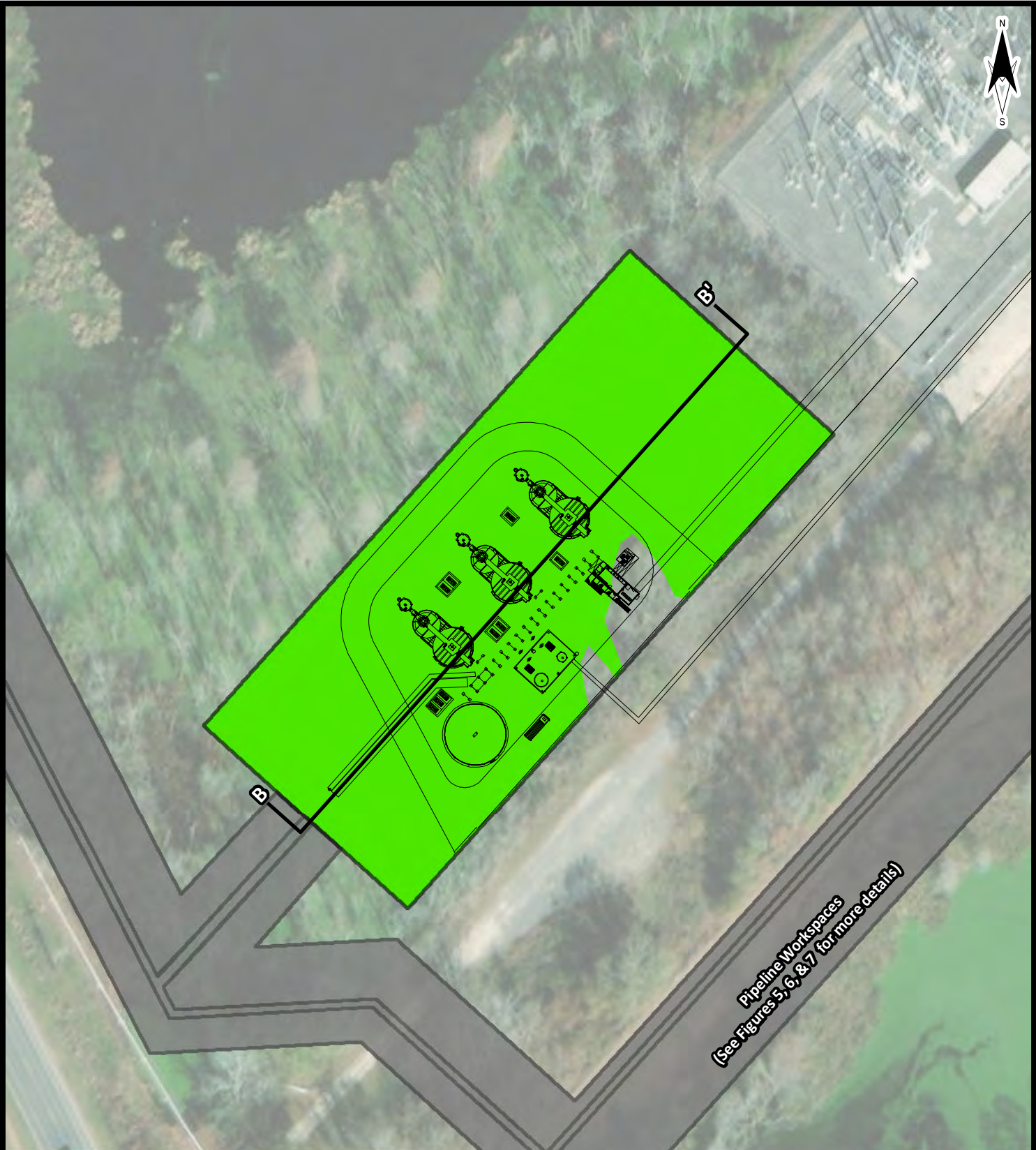
REV	DESCRIPTION	REVISION DATE	REV'D BY	RW'D BY	CHK'D BY	APP'D BY
A	ISSUE FOR PRELIMINARY REVIEW	01/25/22	NJF	HG	NJF	MB






**LINDE - GEISMAR PIPELINES  
8 PIPELINE  
TYPICAL CONSTRUCTION  
R.O.W.  
ASCENSION PARISH, LOUISIANA**

SHEET	SCALE	PROJECT NO.	DRAWING NO.
3 OF 3	N.T.S.	10.007113.0000	Figure 7

P:\G-N\Linde, Inc. - Geismar, LA - PR0101\19007 - Environmental Permitting Support\IMAGES AND MAPS\PRO101-19007-22\_Plan\_View\_Clarifier.mxd



**Pipeline Workspaces**  
 (See Figures 5, 6, & 7 for more details)

-  Clarifier Boundary (2.25 Acres)
-  Other Project Areas
- Wetland Impacts**
-  Palustrine Forested 1, Permanent (2.16 Acres)

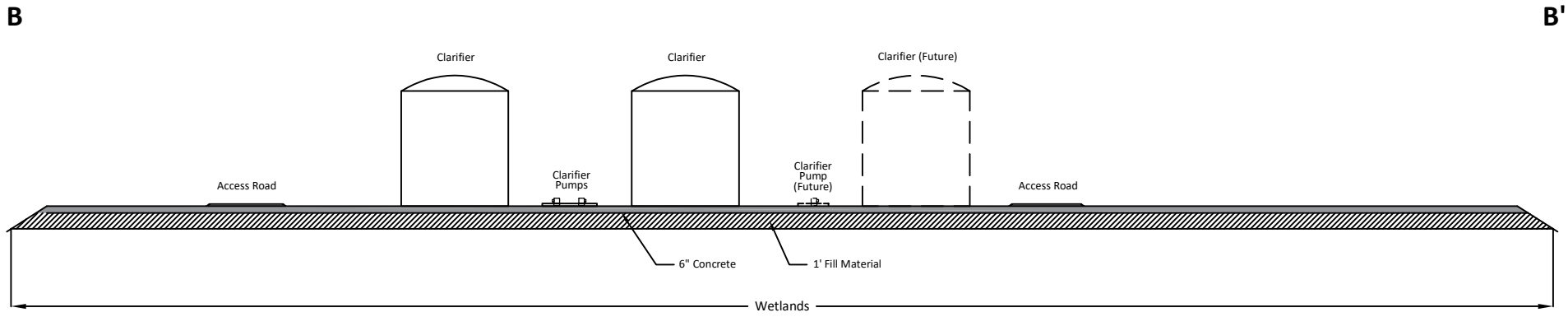


ESRI World Imagery 2020


<b>Linde Inc.</b> Geismar, Louisiana	
Linde Geismar ASU/Utility Island	
<b>Plan View Clarifiers</b>	
Ascension Parish	
Drawn: OPB Date: 1/21/2022	Checked: CAL Approved: BLN
Dwg. No.: PR0101-19007-22	<b>Figure 8</b>



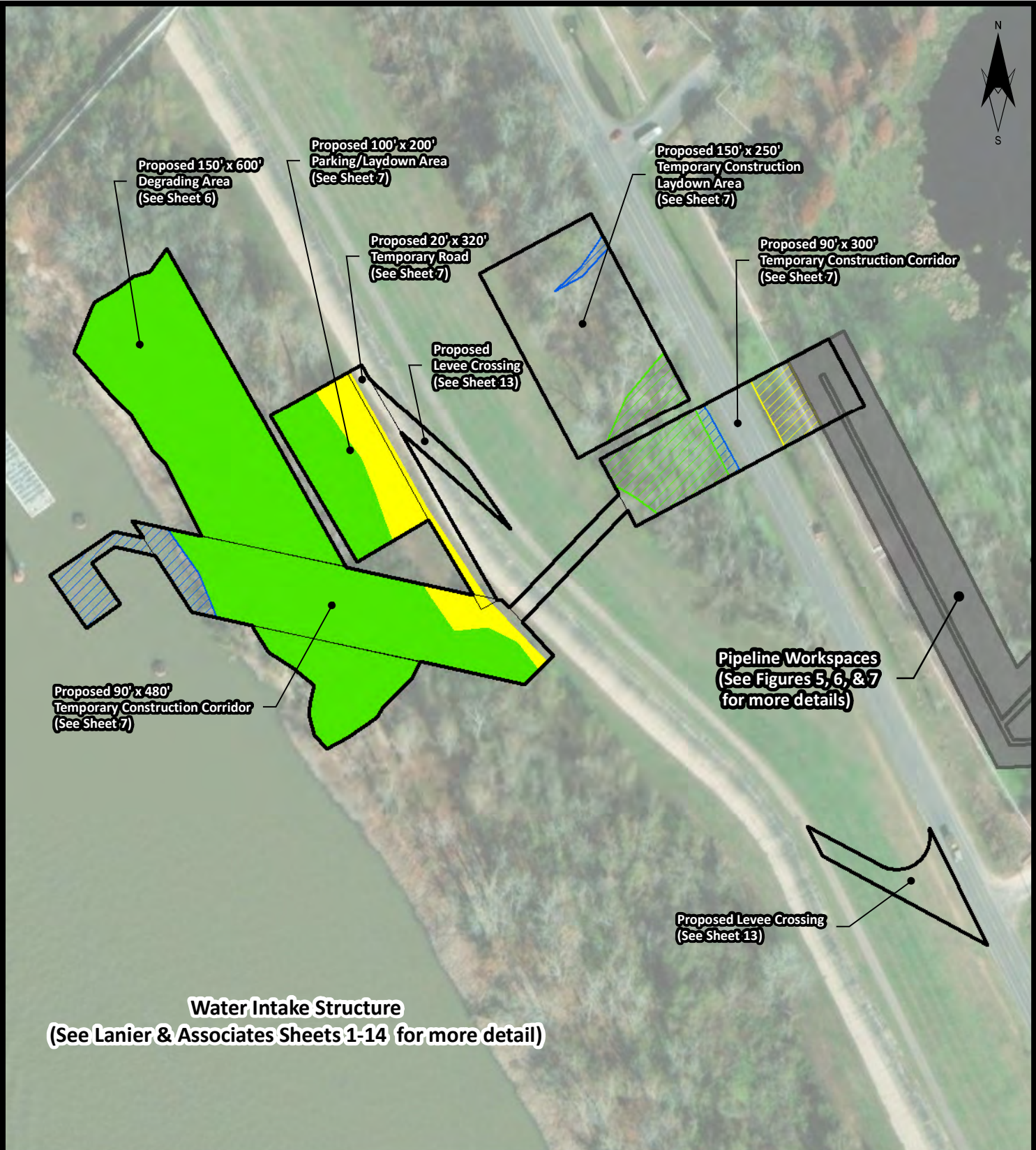
P:\G-N\Linde, Inc. - Geismar, LA - PR0101\19007 - Environmental Permitting Support\IMAGES AND MAPS\PRO101-19007-15\_BB\_CrossSection-Clarifiers.dwg 6/1/2022 9:59pm



Note: All clearing, staging, and construction workspaces are included within B-B'.

<b>Linde Inc.</b> Geismar, Louisiana	
Linde Geismar ASU/Utility Island	
<b>B-B' Cross-Section Clarifiers</b>	
Ascension Parish	
	Drawn: CAL Date: 6/1/2022
	Checked: OPB Approved: BLN
Dwg. No.: PR0101-19007-15	<b>Figure 9</b>

P:\G:\N\Linde, Inc. - Geismar, LA - PRO101\19007 - Environmental Permitting Support\IMAGES AND MAPS\PRO101-19007-23\_Plan\_View\_Water\_Intake\_Structure.mxd



Proposed 150' x 600'  
Degrading Area  
(See Sheet 6)

Proposed 100' x 200'  
Parking/Laydown Area  
(See Sheet 7)

Proposed 150' x 250'  
Temporary Construction  
Laydown Area  
(See Sheet 7)

Proposed 20' x 320'  
Temporary Road  
(See Sheet 7)

Proposed 90' x 300'  
Temporary Construction Corridor  
(See Sheet 7)

Proposed  
Levee Crossing  
(See Sheet 13)

Proposed 90' x 480'  
Temporary Construction Corridor  
(See Sheet 7)

Pipeline Workspaces  
(See Figures 5, 6, & 7  
for more details)

Proposed Levee Crossing  
(See Sheet 13)

**Water Intake Structure**  
(See Lanier & Associates Sheets 1-14 for more detail)

**Water Intake Structure Boundary**

**Other Project Areas**

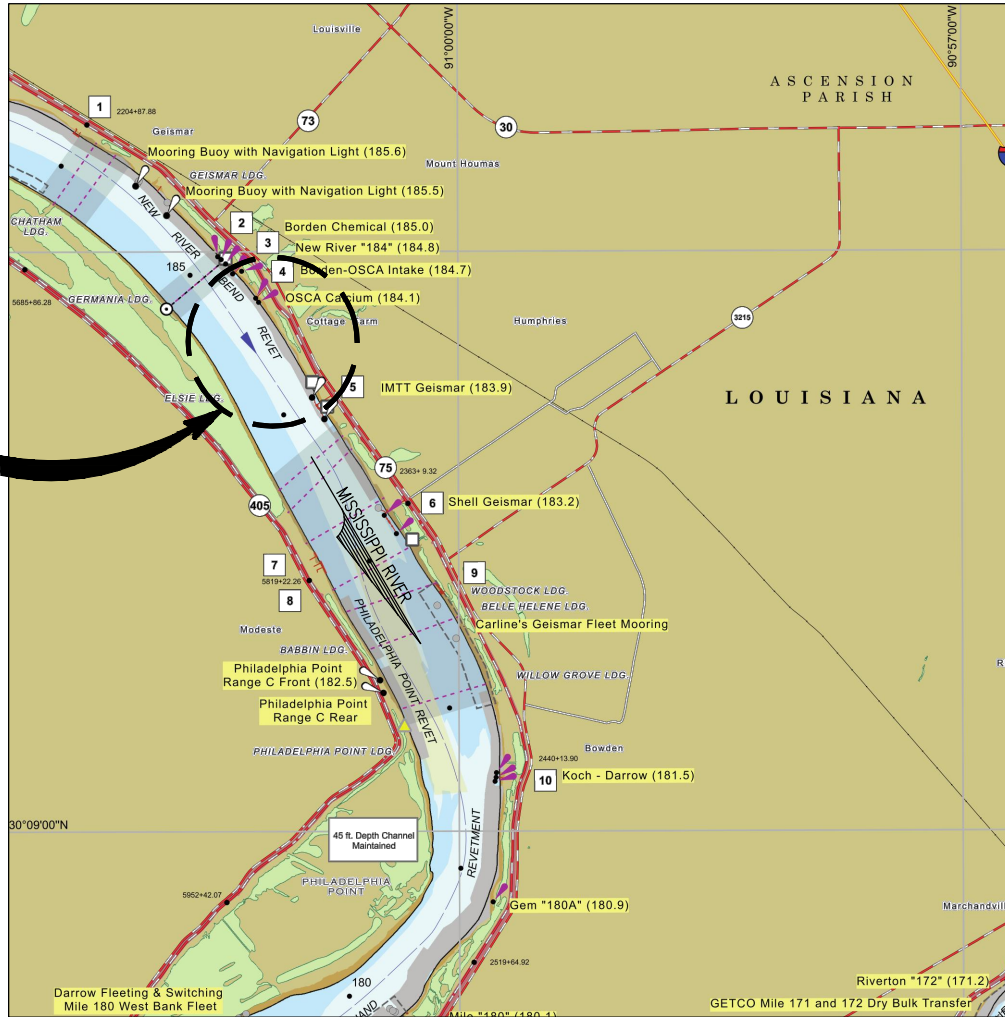
**Wetland Impacts**

- Palustrine Emergent, Permanent (0.32 Acres)
- Palustrine Emergent, Temporary (0.10 Acres)
- Palustrine Foreseted 1, Permanent (2.42 Acres)
- Palustrine Foreseted 1, Temporary (0.33 Acres)
- Waters of the US, Temporary (0.25 Acres)

0 150  
Feet

ESRI World Imagery 1/4/2021

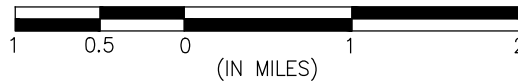
<p><b>Linde Inc.</b> Geismar, Louisiana</p>	
<p>Linde Geismar ASU/Utility Island</p>	
<p><b>Plan View</b> <b>Water Intake Structure</b></p>	
<p>Ascension Parish</p>	
<p>Drawn: OPB Date: 6/1/2022 Dwg. No.: PR0101-19007-23</p>	<p>Checked: OPJ Approved: BLN</p>
<p><b>Figure 10</b></p>	



**PROJECT  
SITE**

**VICINITY MAP**

ASCENSION PARISH  
LAT. 30° 11' 36" N  
LONG. 91° 01' 06" W



**GENERAL NOTES**

1. AS-BUILT DRAWINGS AND/OR PLANS SHALL HAVE WRITTEN ON THEM THE DATE OF COMPLETION OF SAID ACTIVITIES AND SHALL BE SUBMITTED TO THE LOUISIANA DEPARTMENT OF NATURAL RESOURCES, OFFICE OF COASTAL MANAGEMENT, P.O. BOX 44487, BATON ROUGE, LA 70804-4487 WITHIN 30 DAYS FOLLOWING PROJECT COMPLETION.
2. ALL STRUCTURES, FACILITIES, WELL AND PIPELINES/FLOWLINES OCCURRING IN OPEN WATER AREAS OR IN OILFIELD CANALS OR SLIPS SHALL BE REMOVED WITHIN 120 DAYS OF ABANDONMENT OF THE FACILITIES FOR THE HEREIN PERMITTED USE UNLESS PRIOR WRITTEN APPROVAL TO LEAVE SUCH STRUCTURES IN PLACE IS RECEIVED FROM THE COASTAL MANAGEMENT DIVISION. THIS CONDITION DOES NOT PRECLUDE THE NECESSITY FOR REVISING THE CURRENT PERMIT OR OBTAINING A SEPARATE COASTAL USE PERMIT, SHOULD ONE BE REQUIRED.
3. STRUCTURES MUST ALSO BE MARKED/LIGHTED IN ACCORDANCE WITH U.S. COAST GUARD REGULATIONS.
4. 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.
5. ALL ELEVATIONS REFER TO NAVD 88 UNLESS NOTED OTHERWISE.

ALAN J. ELMER, JR.  
LA PE #40800

**PRELIMINARY - FOR PERMIT PURPOSES ONLY**

REV  
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**LANIER & ASSOCIATES  
CONSULTING ENGINEERS  
INCORPORATED**

LA: EF-1120 TX: F-2981  
NEW ORLEANS • BEAUMONT • CORPUS CHRISTI • HOUSTON

GEISMAR LINDE, INC. LOUISIANA

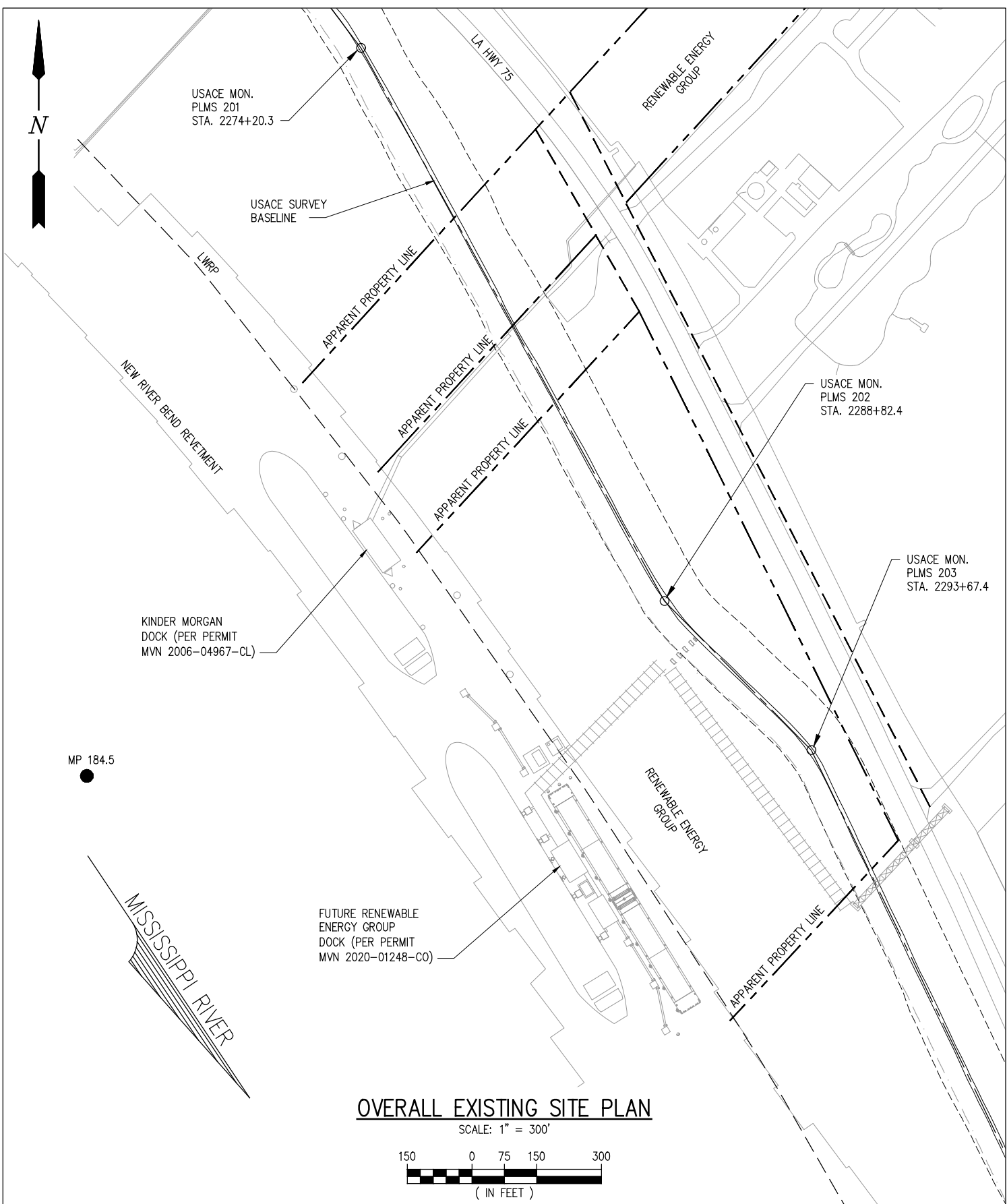
**PROPOSED NEW  
RAW WATER INTAKE STRUCTURE  
VICINITY MAP AND AREA MAP**

DATE JUNE 2022  
DESIGN AJE  
DRAWN CAP  
CHECK JEJ  
JOB NO. 11848  
SHEET No.

**1 OF 14**

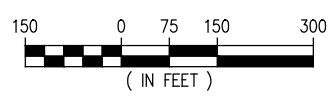


J:\110005\11848 LINDE RIVER PUMPS\DRAWINGS\PERMIT\11848-P2.DWG



### OVERALL EXISTING SITE PLAN

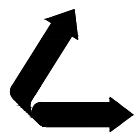
SCALE: 1" = 300'



ALAN J. ELMER, JR.  
LA PE #40800

## PRELIMINARY - FOR PERMIT PURPOSES ONLY

REV  
0



**LANIER & ASSOCIATES**  
**CONSULTING ENGINEERS**  
 INCORPORATED

LA: EF-1120 TX: F-2981  
 NEW ORLEANS • BEAUMONT • CORPUS CHRISTI • HOUSTON

GEISMAR

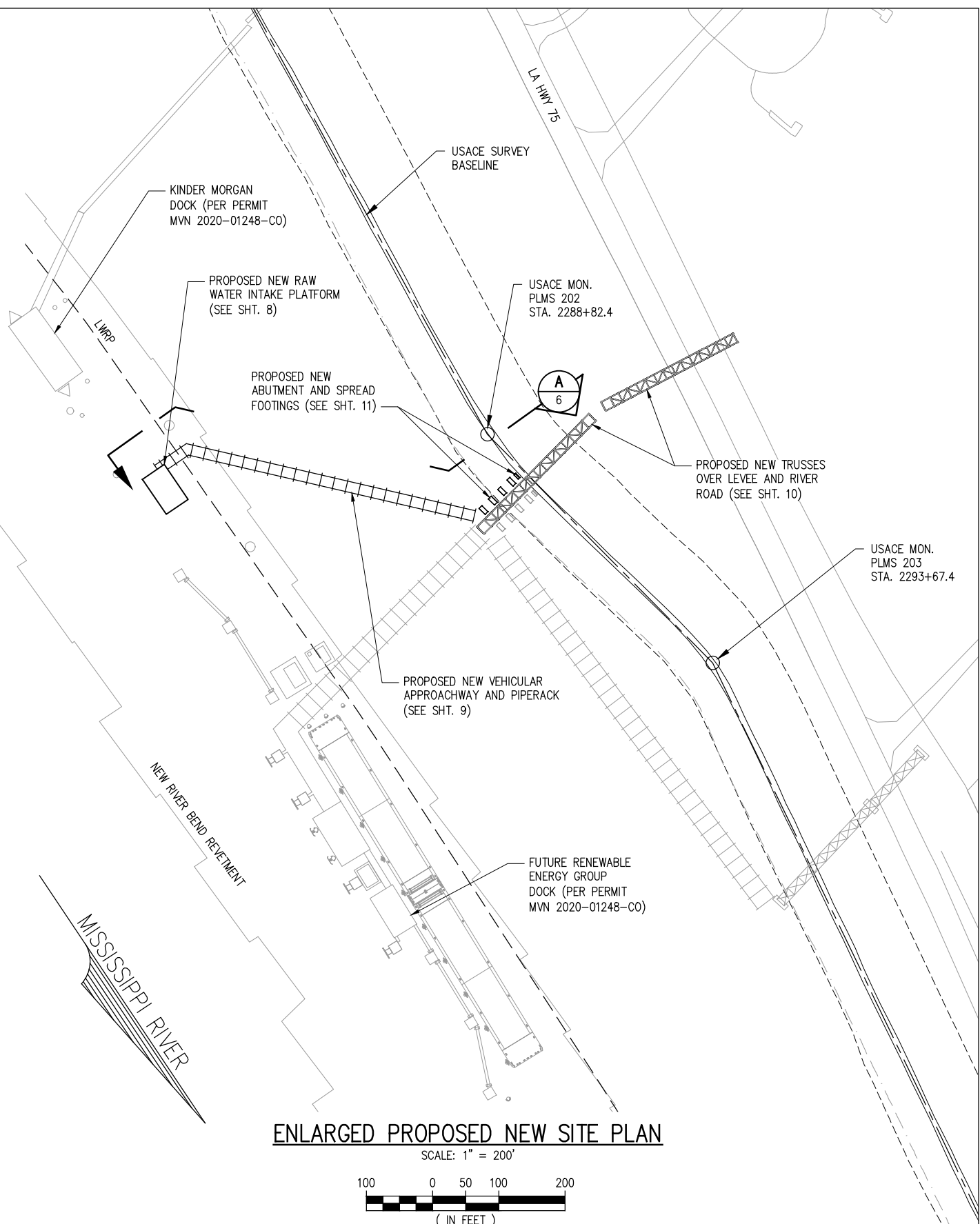
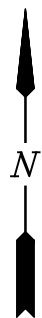
LINDE, INC.

LOUISIANA

**PROPOSED NEW**  
**RAW WATER INTAKE STRUCTURE**  
**OVERALL EXISTING SITE PLAN**

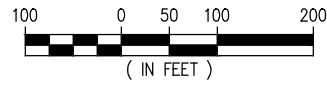
DATE	JUNE 2022
DESIGN	AJE
DRAWN	CAP
CHECK	JEJ
JOB NO.	11848
SHEET No.	2 OF 14

J:\110005\11848 LINDE RIVER PUMPS\DRAWINGS\PERMIT\11848-P3.DWG



**ENLARGED PROPOSED NEW SITE PLAN**

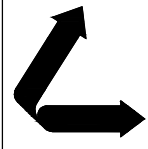
SCALE: 1" = 200'



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LA PE #40800

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LA: C-1120 TX: F-2981  
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GEISMAR **LINDE, INC.** LOUISIANA

**PROPOSED NEW  
RAW WATER INTAKE STRUCTURE  
PROPOSED NEW SITE PLAN**

DATE	JUNE 2022
DESIGN	AJE
DRAWN	CAP
CHECK	JEJ
JOB NO.	11848
SHEET No.	
	<b>3 OF 14</b>



USACE SURVEY  
BASELINE

PROPOSED 20' x 320'  
TEMP. ROAD  
(SEE SHT. 7)

PROPOSED 100' x 200'  
PARKING/LAYDOWN  
AREA (SEE SHT. 7)

PROPOSED  
LEVEE CROSSING  
(SEE SHT. 13)

PROPOSED 150' x 250'  
TEMP. CONSTRUCTION  
LAYDOWN AREA  
(APPROX. 0.86 ACRES)  
(SEE SHT. 7) (SIM)

PROPOSED 90' x 300'  
TEMP. CONSTRUCTION  
CORRIDOR (APPROX. 0.62  
ACRES) (SEE SHT. 7)  
(SIM)

PROPOSED 150' x 600'±  
DEGRADING AREA (APPROX.  
1.71 ACRES) (VOLUME =  
6,000 CU YDS) (SEE SHT. 6)

PROPOSED 90' x 480'±  
TEMP. CONSTRUCTION  
CORRIDOR (APPROX.  
1.00 ACRE) (SEE SHT. 7)

USACE MON.  
PLMS 202  
STA. 2288+82.4

USACE MON.  
PLMS 203  
STA. 2293+67.4

NEW STRUCTURES  
NOT SHOWN FOR  
CLARITY (SEE SHT. 3)

PROPOSED  
LEVEE CROSSING  
(SEE SHT. 13)

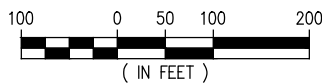
NEW RIVER BEND RETEMENT

MISSISSIPPI RIVER

KEY	
	DEGRADING AREA
	TEMP. CONSTRUCTION CORRIDOR & LAYDOWN
	PARKING/LAYDOWN AND ROAD ON BATTURE
	LEVEE ROAD CROSSING

### ENLARGED PROPOSED NEW CIVIL/SITWORK SITE PLAN

SCALE: 1" = 300'



ALAN J. ELMER, JR.  
LA PE #40800

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REV  
0



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GEISMAR

LINDE, INC.

LOUISIANA

**PROPOSED NEW  
RAW WATER INTAKE STRUCTURE  
PROPOSED NEW CIVIL/SITWORK SITE PLAN**

DATE JUNE 2022  
DESIGN AJE  
DRAWN CAP  
CHECK JEJ  
JOB NO 11848  
SHEET No.

**4 OF 14**



USACE MON.  
PLMS 201  
STA. 2274+20.3

USACE SURVEY  
BASELINE

DISPOSAL/PLACEMENT AREA




LWRP

NEW RIVER BEND RETEINTMENT

USACE MON.  
PLMS 202  
STA. 2288+82.4

GENERAL ROUTE  
FOR DISPOSAL

USACE MON.  
PLMS 203  
STA. 2293+67.4

KEY	
	DEGRADING AREA
	DISPOSAL/PLACEMENT AREA
	GENERAL TRUCK ROUTE

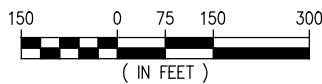
MP 184.5

DEGRADING AREA  
(SEE SHT. 6)

MISSISSIPPI RIVER

### PROPOSED EXCAVATION AND DEGRADING DISPOSAL PLAN

SCALE: 1" = 300'



ALAN J. ELMER, JR.  
LA PE #40800

**PRELIMINARY - FOR PERMIT PURPOSES ONLY**

REV  
0



**LANIER & ASSOCIATES**  
CONSULTING ENGINEERS  
INCORPORATED

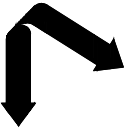
LA: EF-1120 TX: F-2981  
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GEISMAR **LINDE, INC.** LOUISIANA

**PROPOSED NEW  
RAW WATER INTAKE STRUCTURE  
PROPOSED DISPOSAL PLAN**

DATE JUNE 2022  
DESIGN AJE  
DRAWN CAP  
CHECK JEJ  
JOB NO. 11848  
SHEET No.

**5 OF 14**

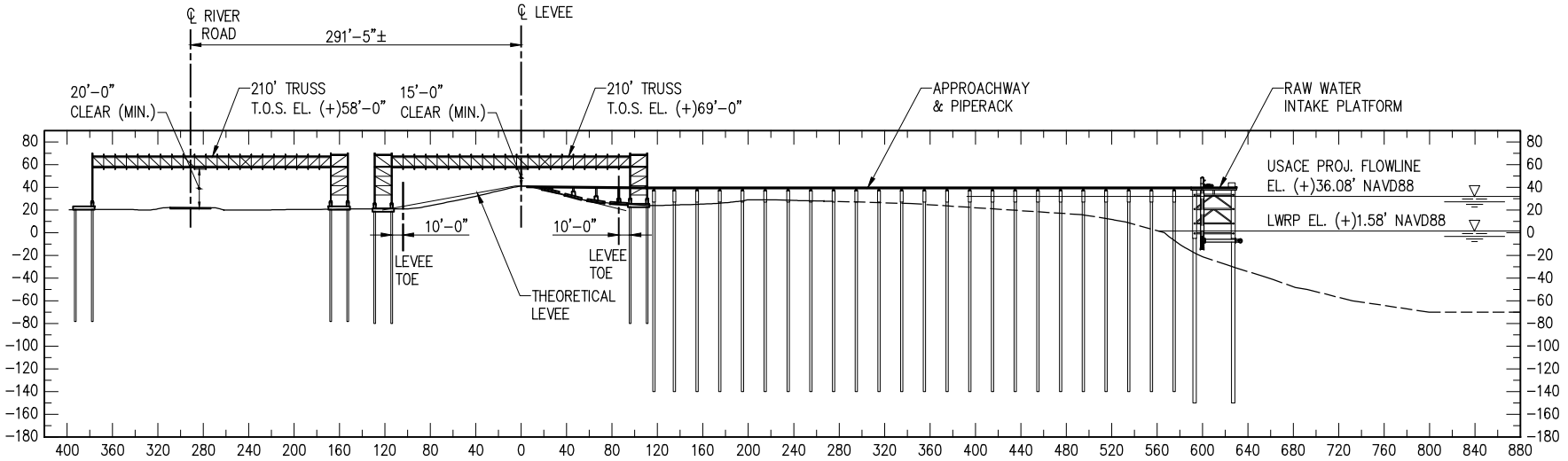


**LANIER & ASSOCIATES**  
**CONSULTING ENGINEERS**  
 INCORPORATED  
 LA: EF-1120 TX: F-2981  
 NEW ORLEANS • BEAUMONT • CORPUS CHRISTI • HOUSTON

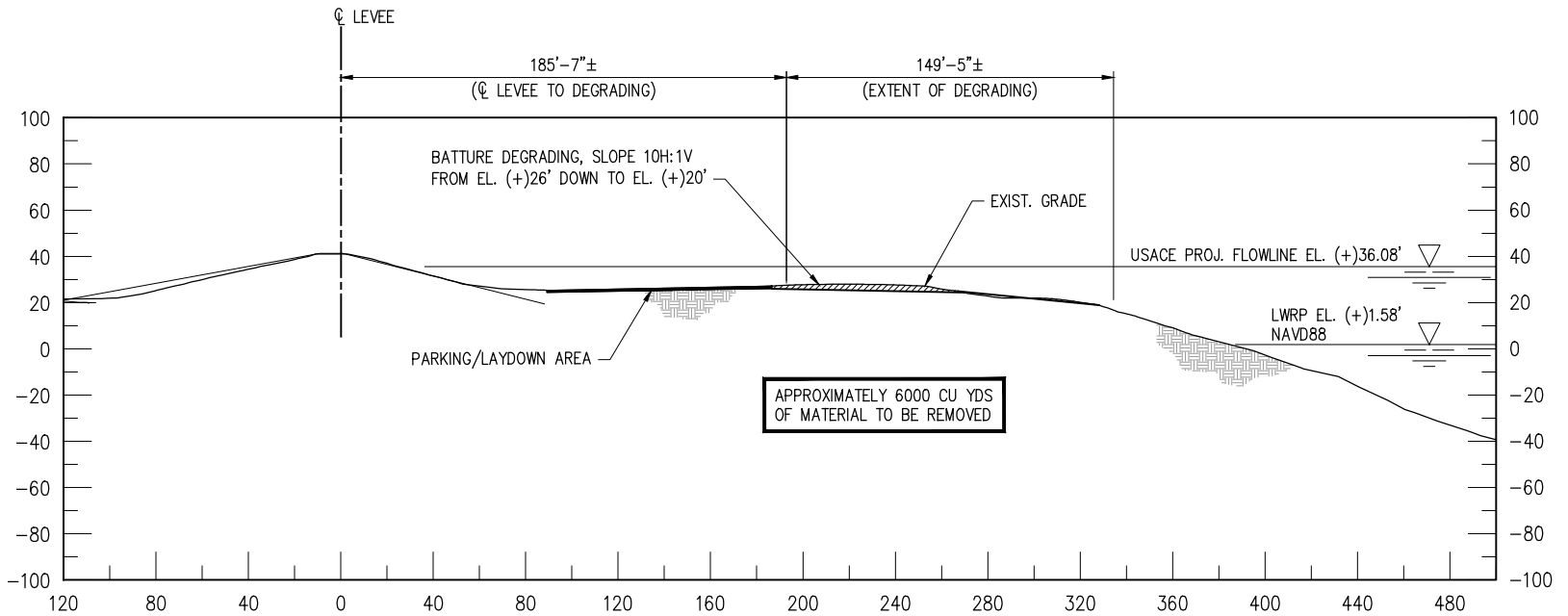
ALAN J. ELMER, JR.  
 LA PE #40800

**PRELIMINARY - FOR PERMIT PURPOSES ONLY**

REVISIONS  
 0



**SECTION A**  
 SCALE: 1" = 150'

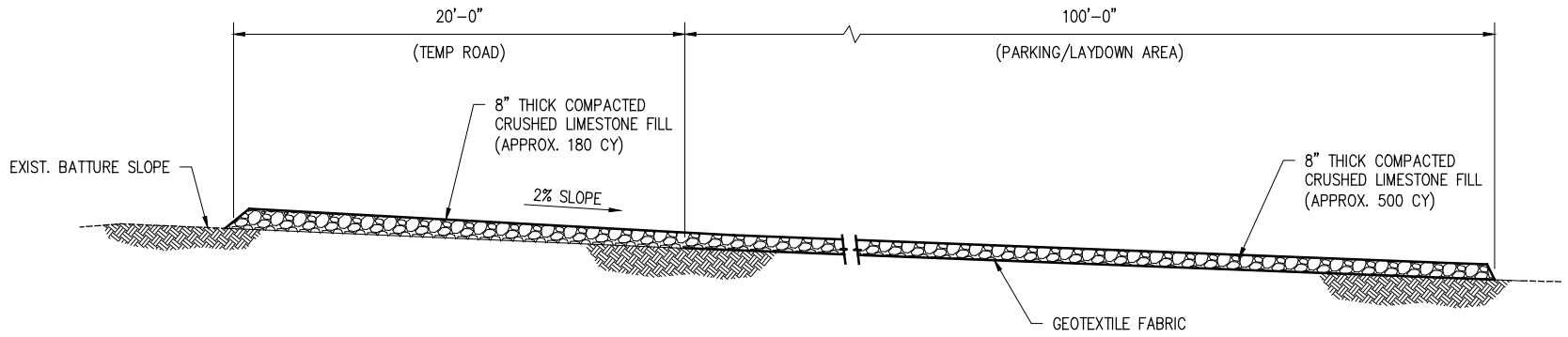


**TYPICAL SECTION AT DEGRADING**

SCALE: 1" = 80'  
 (REF. LOC. SHEETS 4 & 5)

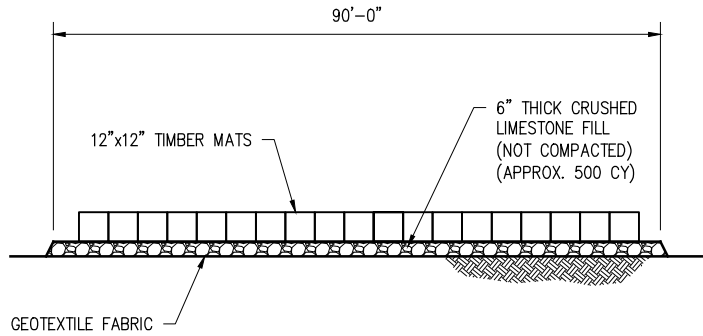
GEISMAR  
 LINDE, INC.  
 LOUISIANA  
**PROPOSED NEW**  
**RAW WATER INTAKE STRUCTURE**  
**CROSS SECTIONS**

DATE: JUNE 2022  
 DESIGN: AJE  
 DRAWN: DLL  
 CHECK: JCU  
 JOB NO: 11848  
 SHEET NO: 6 OF 14



**TEMP. ROAD & PARKING/LAYDOWN SECTION ON BATTURE**

SCALE: N.T.S.  
(REF. LOC. SHEET 4)



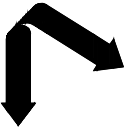
**TEMP. CONSTRUCTION CORRIDOR SECTION ON BATTURE**

SCALE: N.T.S.  
(REF. LOC. SHEET 4)

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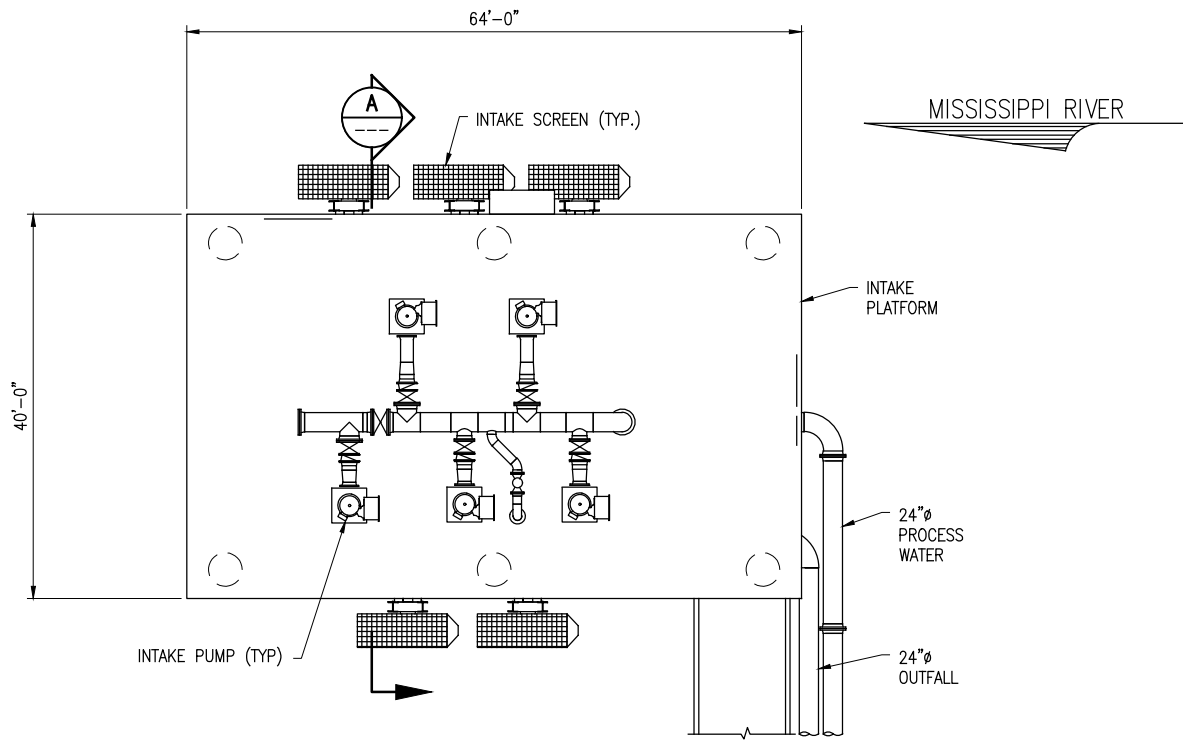
GEISMAR

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LOUISIANA

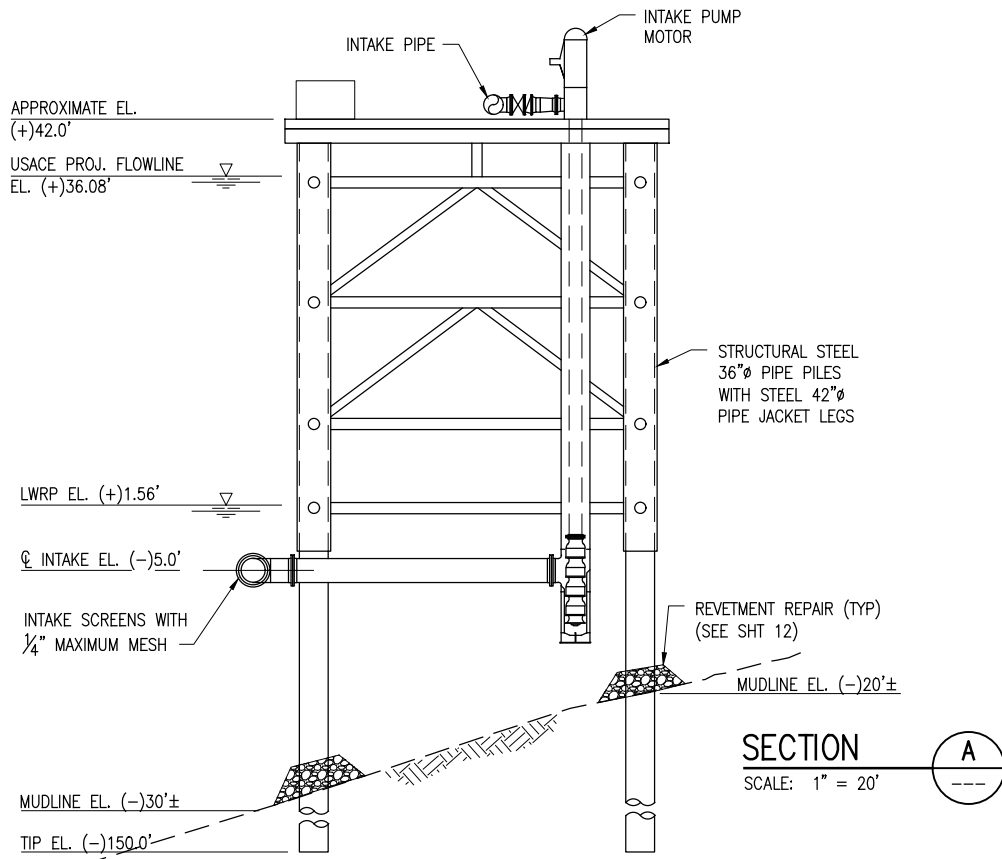
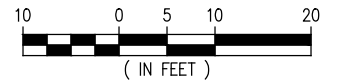
PROPOSED NEW  
RAW WATER INTAKE STRUCTURE  
TEMP. ROAD, LAYDOWN & CORRIDOR SECTIONS

DATE: JUNE 2022  
DESIGN: AJE  
DRAWN: DJL  
CHECK: JEU  
JOB NO: 11848  
SHEET NO: 7 OF 14



**PROPOSED NEW INTAKE PLATFORM PLAN**

SCALE: 1" = 20'



**SECTION**

SCALE: 1" = 20'

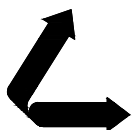


J:\110005\11848 LINDE RIVER PUMPS\DRAWINGS\PERMIT\11848-P8.DWG

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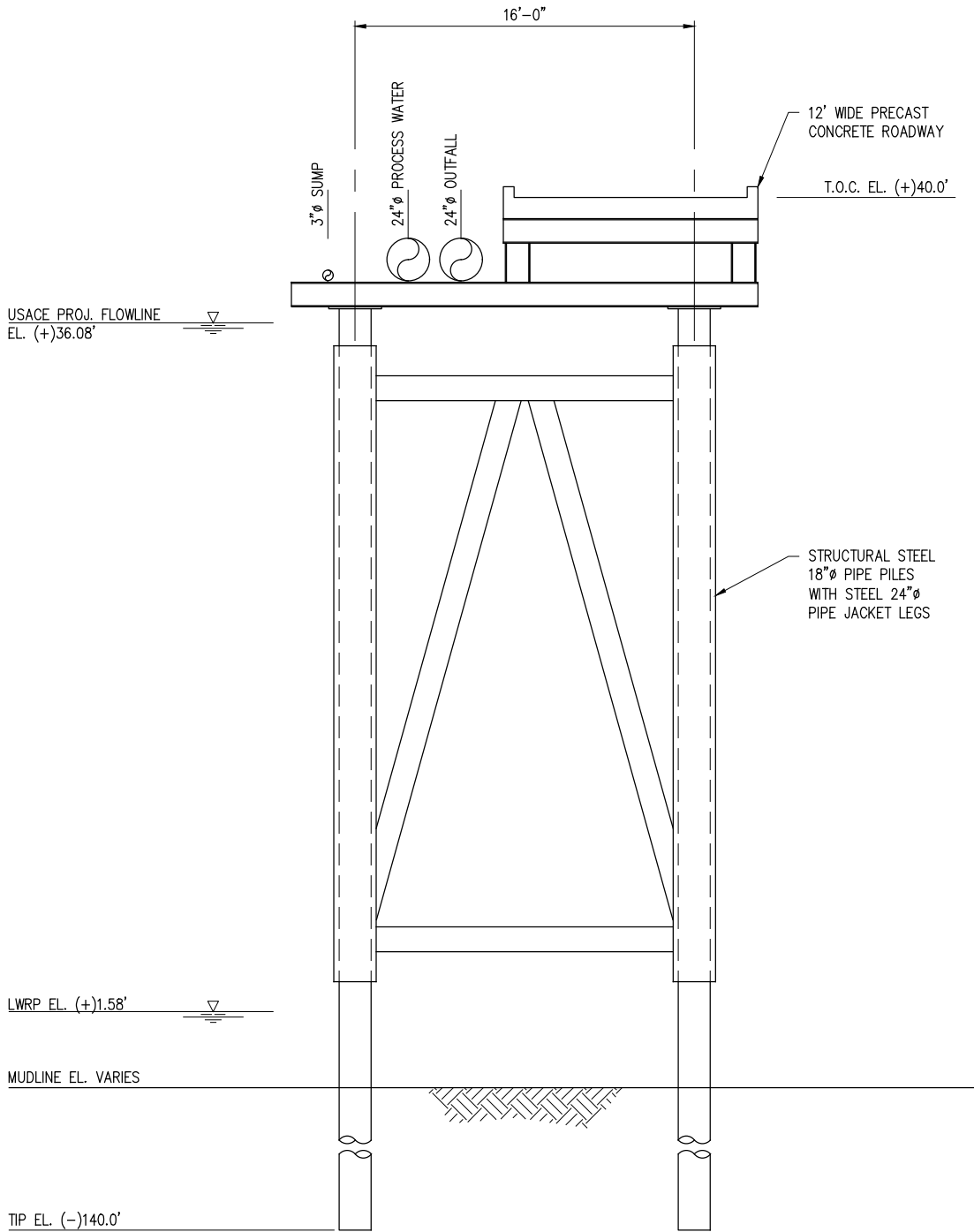
LOUISIANA

**PROPOSED NEW**  
**RAW WATER INTAKE STRUCTURE**  
**PROPOSED NEW INTAKE PLATFORM**

DATE JUNE 2022  
DESIGN AJE  
DRAWN CAP  
CHECK JEJ  
JOB NO 11848  
SHEET No.

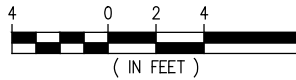
**8 OF 14**

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**TYPICAL APPROACHWAY & PIPERACK ELEVATION**

SCALE: 1/8" = 1'-0"  
(REF. LOC. SHEET 3)



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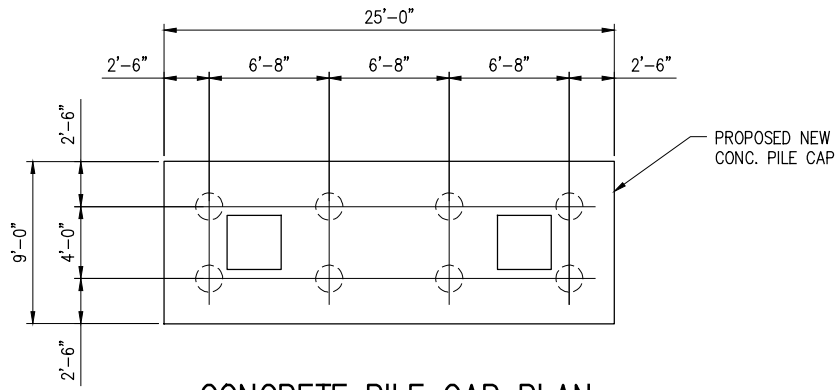
LOUISIANA

**PROPOSED NEW**  
**RAW WATER INTAKE STRUCTURE**  
**TYP. APPROACHWAY & PIPERACK ELEVATION**

DATE JUNE 2022  
DESIGN AJE  
DRAWN CAP  
CHECK JEJ  
JOB NO 11848  
SHEET No.

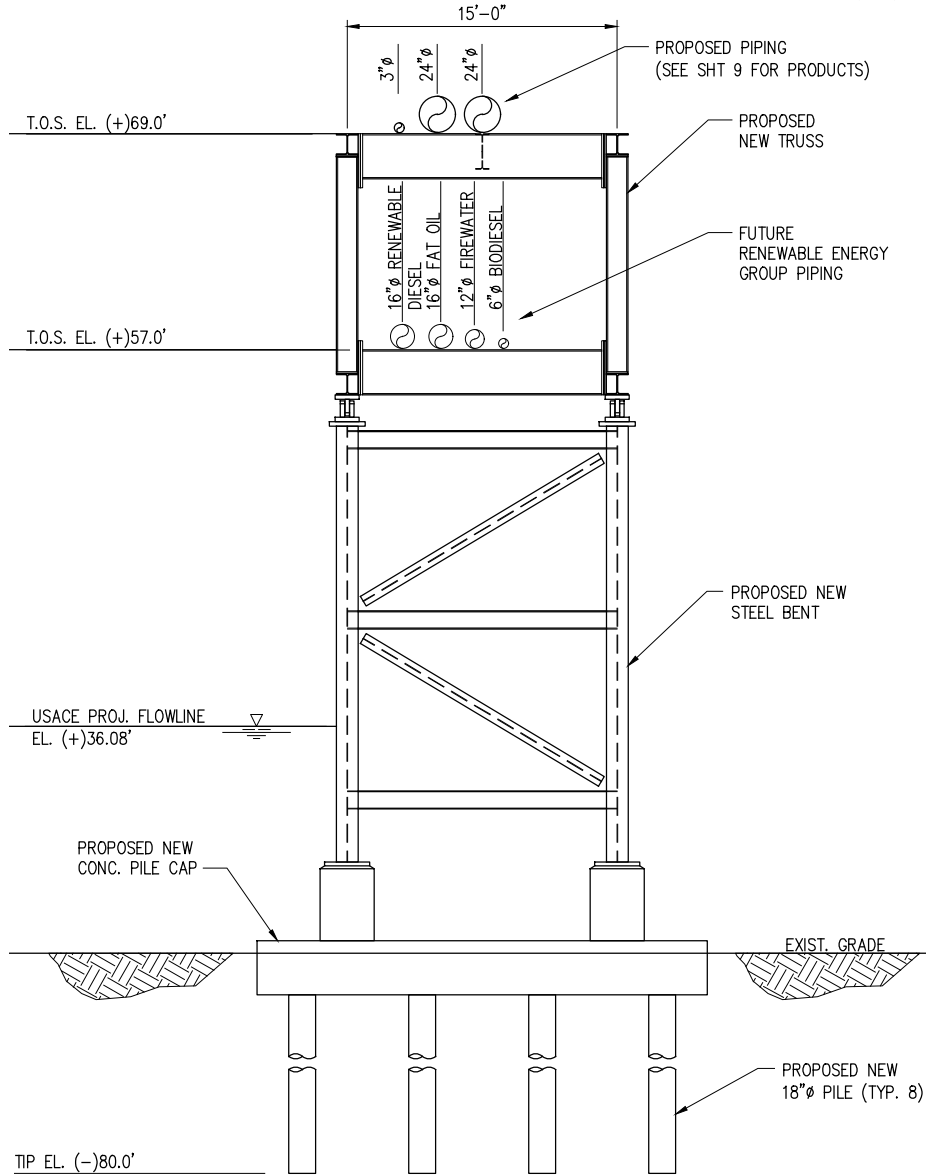
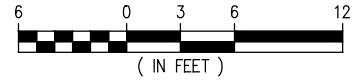
**9 OF 14**





**CONCRETE PILE CAP PLAN**

SCALE: 3/32" = 1'-0"



**TYPICAL TRUSS SECTION**

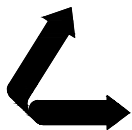
SCALE: 3/32" = 1'-0"

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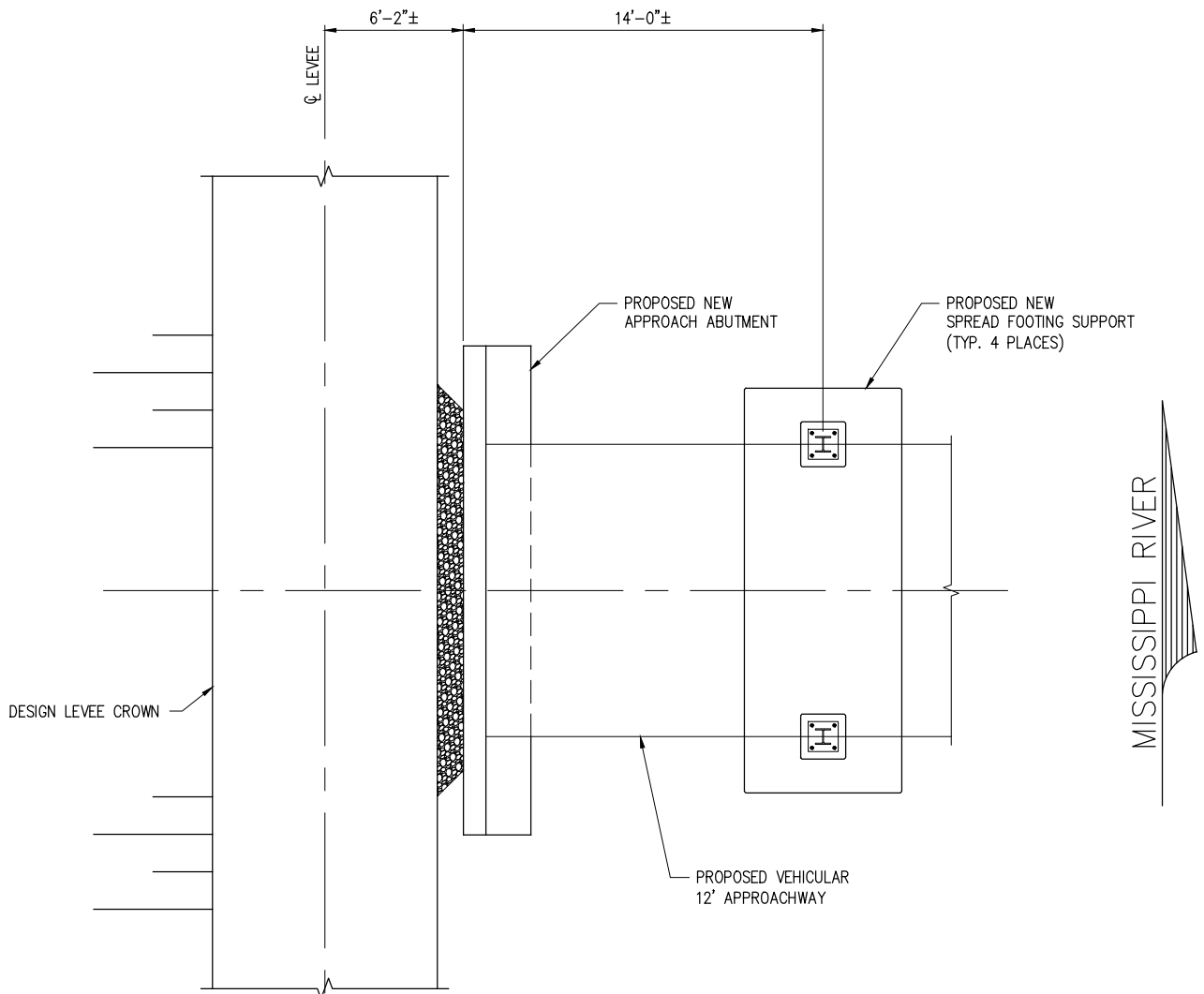
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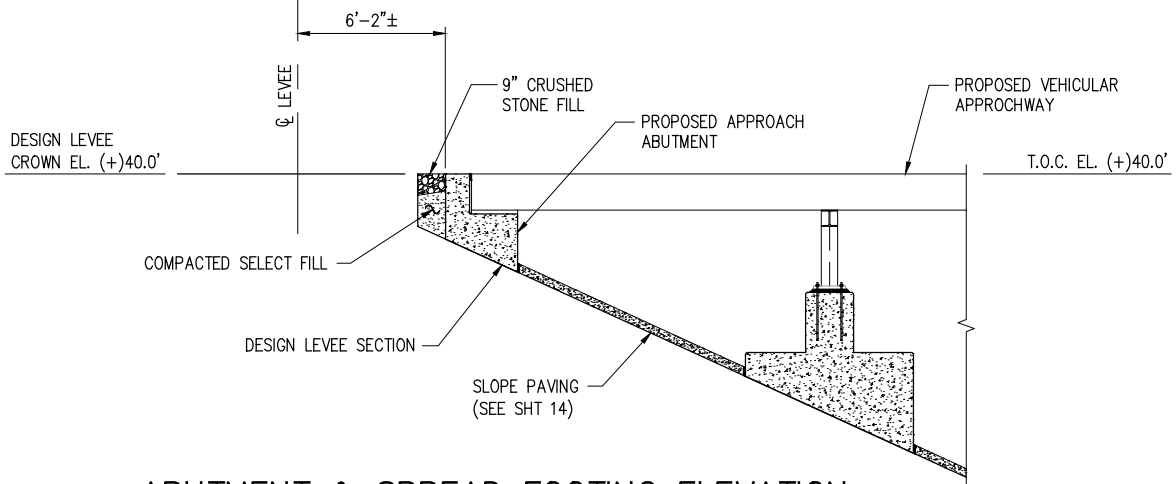
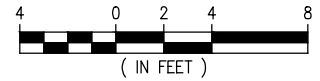
**PROPOSED NEW**  
**RAW WATER INTAKE STRUCTURE**  
**TYPICAL TRUSS SECTION**

DATE JUNE 2022  
DESIGN AJE  
DRAWN LPR  
CHECK JEJ  
JOB NO 11848  
SHEET No.

**10 OF 14**



**PLAN**



**ABUTMENT & SPREAD FOOTING ELEVATION**

SCALE: 1/8" = 1'-0"

J:\11000S\11848 LINDE RIVER PUMPS\DRAWINGS\PERMIT\11848-P11.DWG

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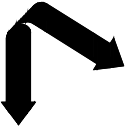
LA: EF-1120 TX: F-2981  
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**PROPOSED NEW**  
**RAW WATER INTAKE STRUCTURE**  
**ABUTMENT & SPREAD FOOTING PLAN & ELEVATION**

DATE JUNE 2022  
DESIGN AJE  
DRAWN LPR  
CHECK JEJ  
JOB NO 11848  
SHEET No.

**11 OF 14**



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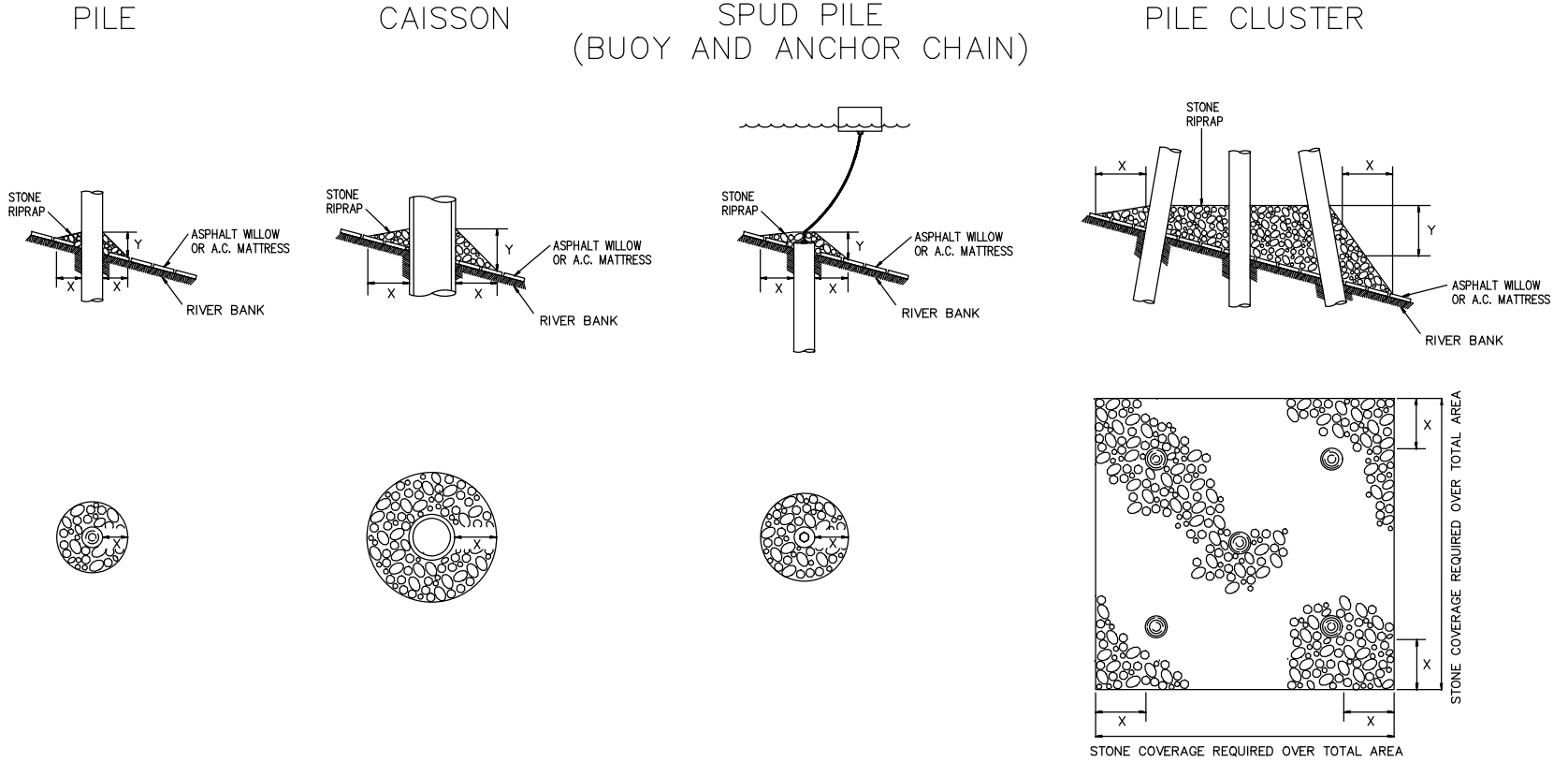
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**PROPOSED NEW**  
**RAW WATER INTAKE STRUCTURE**  
**REVESTMENT REPAIR**

DATE: JUNE 2022  
 DESIGN: AJE  
 DRAWN: LPR  
 CHECK: JEU  
 JOB NO: 11848  
 SHEET NO: 12 OF 14

REV 0

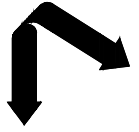


TOTAL AREA OF STONE RIPRAP = APPROX. 0.02 ACRES  
 TOTAL VOLUME OF STONE RIPRAP = 60 CU. YDS.

DEPTH OF WATER IN FEET AT POINT OF PENETRATION AT TIME OF STONE PLACEMENT	DIMENSIONS IN FEET FOR PROTECTION AREA REQUIRED							
	PILE		CAISSON		SPUD PILE (BUOY AND ANCHOR CHAIN)		PILE CLUSTER	
	X	Y	X	Y	X	Y	X	Y
1' - 10'	3	1.5	5	2			3	1
11' - 40'	5	2	8	3	7	3	6	2
41' - 60'	8	3	12	4	12	4	10	3

**NOTES:**

1. SIZE OF RIPRAP TO VARY BETWEEN 6 POUNDS AND 125 POUNDS WITH 40 PERCENT TO 60 PERCENT OF THE STONE WITHIN THE RANGE OF 25 POUNDS TO 75 POUNDS.
2. WHEN PENETRATING THE UPPER BANK PAVING IN A REVESTMENT AREA WITH PILES, CAISSONS AND/OR PILE CLUSTERS, A 10 INCH THICK RIPRAP STONE LAYER SHALL BE PLACED OVER ALL AREAS WHERE THE BANK PAVING IS DISTURBED BY DRIVING OPERATIONS.
3. WHEN USING AN ANCHOR CHAIN AND BUOY SYSTEM, THE ANCHOR CHAIN MUST BE ATTACHED AT THE TOP OF THE PILE TO MINIMIZE REVESTMENT DAMAGE.



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**PROPOSED NEW**  
RAW WATER INTAKE STRUCTURE  
LEVEE CROSSINGS DETAILS

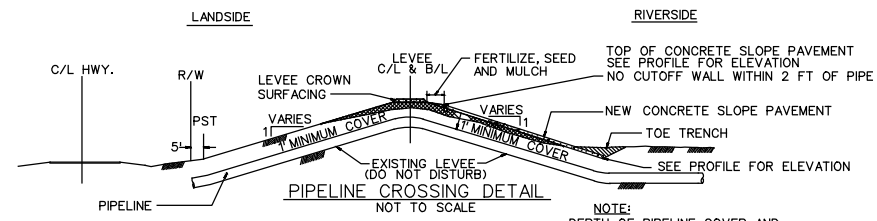
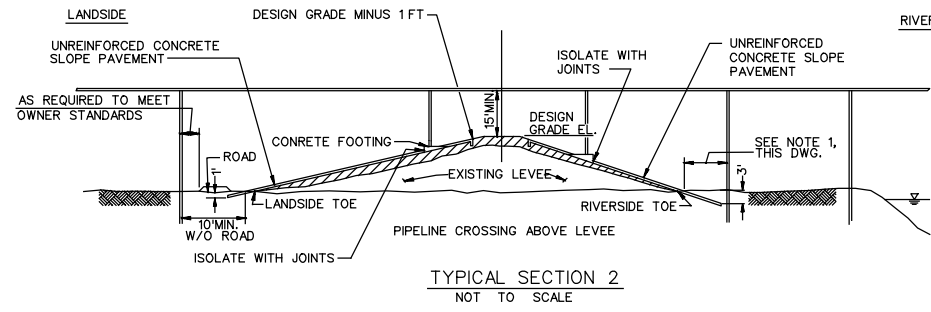
DATE	JUNE 2022
DESIGN	AJE
DRAWN	LPR
CHECK	JJC
JOB NO.	11848
SHEET NO.	13 OF 14

ALAN J. ELMER, JR. LA PE #40800

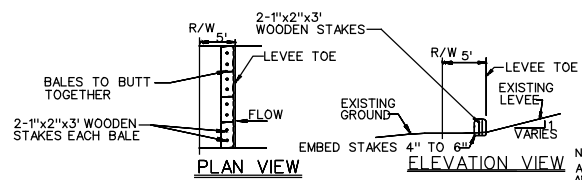
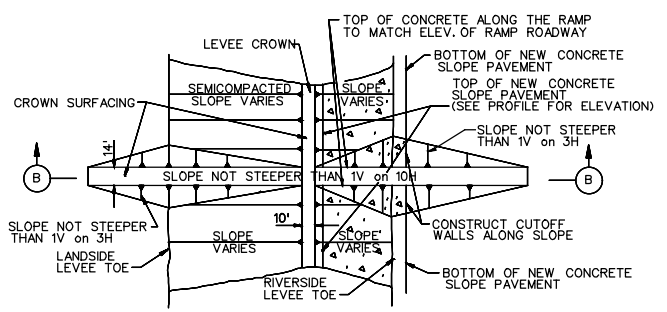
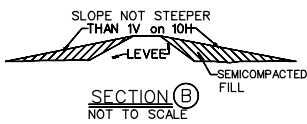
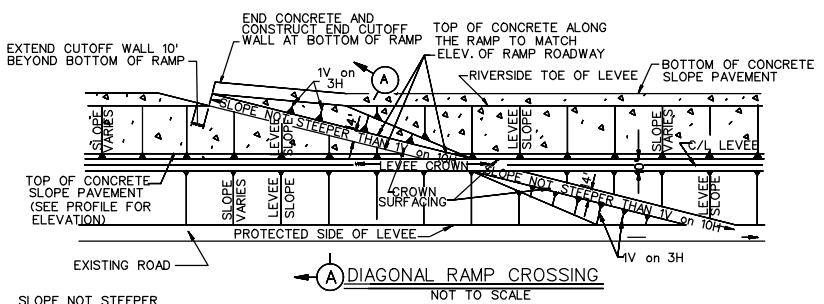
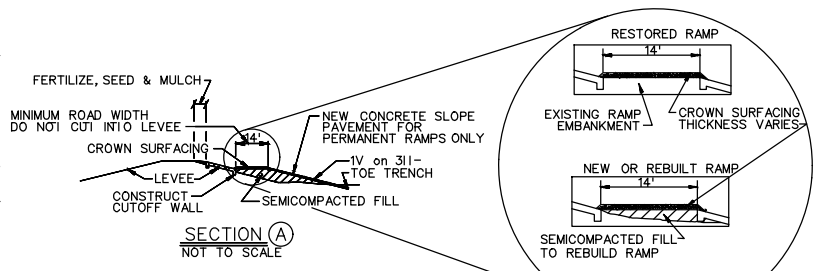
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NOTE:  
DEPTH OF PIPELINE COVER AND PIPELINE LOCATION SHOULD BE VERIFIED BY PROBING BEFORE WORKING IN AREA OF PIPELINE.



NOTE:  
AFTER REMOVAL OF HAYBALES, FERTILIZE, SEED AND MULCH THE AREA OCCUPIED BY THE HAYBALES AND AREAS DISTURBED AS A RESULT OF REMOVING THE HAYBALES.

**EMBANKMENT REQUIREMENTS**

**COMPACTED FILL: (LEVEE ACCESS ROADS AND FOOTINGS)**  
THE MATERIALS FOR COMPACTED FILL SHALL BE PLACED OR SPREAD IN LAYERS, THE FIRST OR BOTTOM LAYER AND THE LAST TWO LAYERS NOT MORE THAN 6 INCHES IN THICKNESS AND ALL LAYERS BETWEEN THE FIRST AND THE LAST TWO LAYERS NOT MORE THAN 12 INCHES IN THICKNESS PRIOR TO COMPACTION. THE FIRST AND EACH SUCCESSIVE LAYER OF COMPACTED FILL MATERIAL SHALL BE COMPACTED TO AT LEAST 90 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698 (STANDARD PROCTOR DENSITY) AT A MOISTURE CONTENT WITHIN THE LIMITS OF PLUS 5 TO MINUS 3 PERCENT OF OPTIMUM MOISTURE CONTENT DETERMINED FROM THE STANDARD PROCTOR DENSITY TEST ASTM D 698.

**UNCOMPACTED FILL: (BERMS AND BACKFILL)**  
THE MATERIAL FOR UNCOMPACTED FILL SHALL BE PLACED IN APPROXIMATELY HORIZONTAL LAYERS NOT EXCEEDING 3 FEET IN THICKNESS. THE LAYERS SHALL BE UNIFORMLY SPREAD, DISTRIBUTED, AND OTHERWISE MANIPULATED DURING PLACEMENT TO SUCH AN EXTENT THAT INDIVIDUAL LOADS OF MATERIAL DEPOSITED ON THE FILL WILL NOT REMAIN INTACT, AND LARGE, OPEN VOIDS IN THE FILL WILL BE ELIMINATED.

**NOTES:**

1. A 10' MIN. DISTANCE (OR AS OTHERWISE REQUIRED) BETWEEN THE LEVEE TOE AND THE PIPELINE SUPPORT IS REQUIRED TO AVOID PENETRATION OF CONCRETE SLOPE PAVEMENT.
2. CONCRETE SLOPE PAVEMENT IS REQUIRED WHEN SPREAD FOOTINGS REST ON LEVEE SLOPE. PAVEMENT MUST EXTEND 5' EACH SIDE OF FOOTINGS.
3. IN ABSENCE OF FOOTING ON LEVEE, LANDSIDE SLOPE PAVING WILL NOT BE REQUIRED. RIVERSIDE SLOPE PAVING WILL BE REQUIRED WHEN NECESSARY FOR EROSION CONTROL.
4. SMOOTH TRANSITIONS SHALL BE CONSTRUCTED BETWEEN THE LEVEE ENLARGEMENT AND THE EXISTING LEVEE.
5. ALL FRESH FILLS SHALL BE SODDED OR FERTILIZED AND SEEDDED AND SHALL BE MAINTAINED UNTIL A HEALTHY GROWTH IS OBTAINED.
6. THE CROWN OF THE ENLARGED LEVEE AND THE LEVEE ACCESS RAMPS SHALL BE SURFACED WITH CRUSHED STONE (7" IN THICKNESS (LOOSE MEASUREMENT) FOR EXISTING CROWN AND RAMPS AND 9" FOR NEW CONSTRUCTION) FOR THE FULL WIDTH (10' MIN.) AND LENGTH OF THE ENLARGED LEVEE OR RAMP. THE CRUSHED STONE SURFACING SHALL MEET THE REQUIREMENTS OF LSS89 SECTION 1003.04 (a), 2000 EDITION.
7. FILL MATERIAL USED IN CONSTRUCTION OF THE LEVEE ENLARGEMENT, RAMPS, PIPE COVER AND BACKFILL OF EXCAVATION SHALL BE IMPERVIOUS EARTH FILL.
8. A PIPELINE MARKER SHALL BE PLACED AND MAINTAINED AT EACH LEVEE TOE IN LINE WITH THE PIPELINE CROSSING AND INDICATE OWNER, SIZE, NUMBER OF LINES, PRODUCT AND ADDRESSES FOR CONTACTING OWNER.

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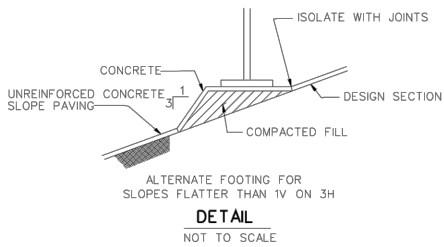
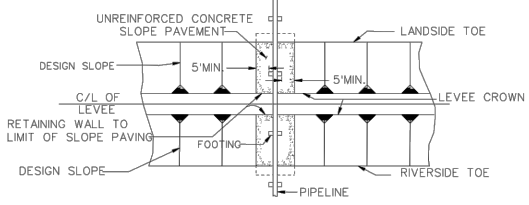
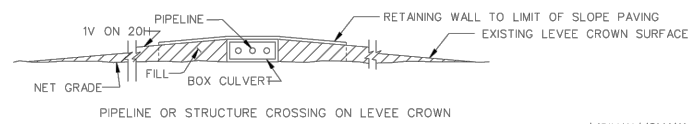
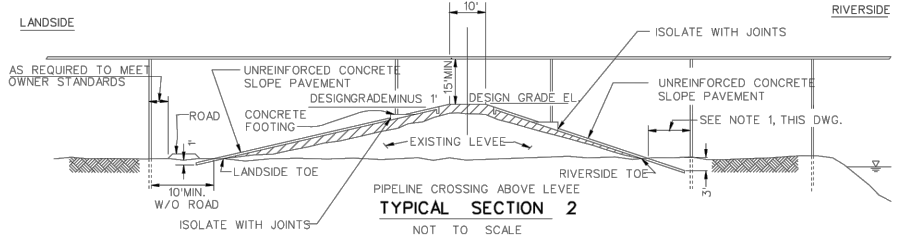
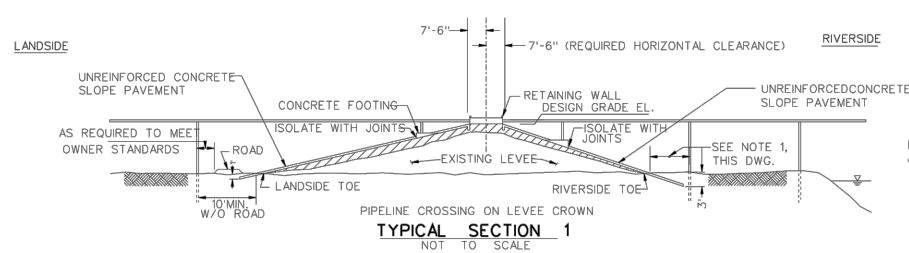
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**PROPOSED NEW  
RAW WATER INTAKE STRUCTURE  
LEVEE SLOPE PAVING DETAILS**

DATE: JUNE 2022  
DESIGN: AJE  
DRAWN: LPR  
CHECK: JEU  
JOB NO: 11848  
SHEET NO: 14 OF 14

REV 0

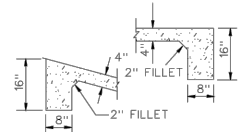
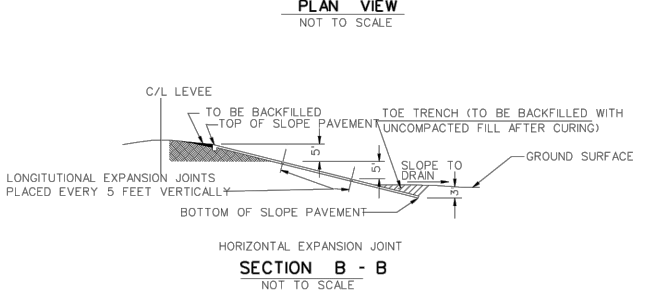
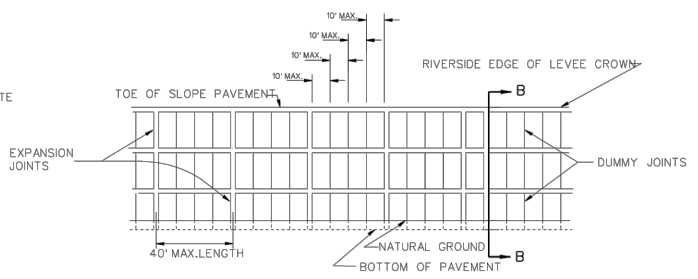


**EMBANKMENT REQUIREMENTS**

**COMPACTED FILL: (LEVEE ACCESS ROADS AND FOOTINGS)**  
THE MATERIAL FOR COMPACTED FILL SHALL BE PLACED IN LAYERS, THE FIRST LAYER NOT MORE THAN 4 INCHES IN THICKNESS AND THE SUCCEEDING LAYERS NOT MORE THAN 8 INCHES IN THICKNESS PRIOR TO COMPACTATION. EACH LAYER SHALL BE COMPACTED BY 10 COMPLETE PASSES OF A CRAWLER-TYPE TRACTOR WEIGHING NOT LESS THAN 20,000 POUNDS AND EXERTING A UNIT TREAD PRESSURE OF NOT LESS THAN 6 POUNDS PER SQUARE INCH. THE TRACTOR SHALL BE OPERATED AT SPEEDS NOT TO EXCEED 3.5 MILES PER HOUR. IF AN ALTERNATE TYPE COMPACTING MACHINE IS USED, TYPE SHOULD BE STATED ON APPLICANT'S DRAWING FOR REVIEW AND APPROVAL.

**SEMICOMPACTED FILL: (LEVEE)**  
THE MATERIAL FOR SEMICOMPACTED FILL SHALL BE PLACED OR SPREAD IN LAYERS, THE FIRST LAYER NOT MORE THAN 6 INCHES IN THICKNESS AND THE SUCCEEDING LAYERS NOT MORE THAN 12 INCHES IN THICKNESS PRIOR TO COMPACTATION. EACH LAYER SHALL BE COMPACTED BY THREE COMPLETE PASSES OF A CRAWLER-TYPE TRACTOR WEIGHING NOT LESS THAN 20,000 POUNDS AND EXERTING A UNIT TREAD PRESSURE OF NOT LESS THAN 6 POUNDS PER SQUARE INCH. THE TRACTOR SHALL BE OPERATED AT SPEEDS NOT TO EXCEED 3.5 MILES PER HOUR. IF AN ALTERNATE TYPE COMPACTING MACHINE IS USED, TYPE SHOULD BE STATED ON APPLICANT'S DRAWING FOR REVIEW AND APPROVAL.

**UNCOMPACTED FILL: (BERMS AND BACKFILL)**  
THE MATERIAL FOR UNCOMPACTED FILL SHALL BE PLACED IN APPROXIMATELY HORIZONTAL LAYERS NOT EXCEEDING 3 FEET IN THICKNESS. THE LAYERS SHALL BE UNIFORMLY SPREAD, DISTRIBUTED, AND OTHERWISE MANIPULATED DURING PLACEMENT TO SUCH AN EXTENT THAT INDIVIDUAL LOADS OF MATERIAL DEPOSITED ON THE FILL WILL NOT REMAIN INTACT, AND LARGE, OPEN VOIDS IN THE FILL WILL BE ELIMINATED.



**SLOPE PAVEMENT DETAILS**

- NOTES:
- 10' MIN. OR AS REQUIRED TO AVOID PENETRATION OF CONCRETE SLOPE PAVEMENT.
  - CONCRETE SLOPE PAVEMENT IS REQUIRED WHEN FOOTING REST ON LEVEE. SLOPE PAVEMENT MUST EXTEND 5' EACH SIDE OF FOOTINGS.
  - IN THE ABSENCE OF FOOTING ON LEVEE, LANDSIDE SLOPE PAVING WILL NOT BE REQUIRED. RIVERSIDE SLOPING WILL BE REQUIRED WHEN NECESSARY FOR EROSION CONTROL.
  - SMOOTH TRANSITIONS SHALL BE CONSTRUCTED BETWEEN THE LEVEE ENLARGEMENT AND EXISTING LEVEE.
  - ALL FRESH FILL SHALL BE SODDED OR FERTILIZED AND SEEDING AND SHALL BE MAINTAINED UNTIL A HEALTHY GROWTH IS OBTAINED.
  - THE CROWN OF THE ENLARGED LEVEE SHALL BE SURFACED WITH ROADWAY WASHED GRAVEL SIX INCHES IN THICKNESS OR NINE INCHES IN THICKNESS FOR FULL WIDTH (10' MIN.) AND LENGTH OF RAMP.
  - FILL MATERIAL USED IN CONSTRUCTION OF THE LEVEE ENLARGEMENT, RAMPS, PIPE COVER, AND BACKFILL OF EXCAVATION SHALL BE IMPERVIOUS EARTH FILL.
  - PIPELINE MARKERS SHALL BE PLACED AND MAINTAINED AT EACH TOE OF LEVEE IN LINE WITH PIPE CROSSING AND INDICATING OWNER, SIZE AND NUMBER OF LINES, PRODUCT AND ADDRESS FOR CONTACTING OWNER

SLOPE PAVEMENT PROCEDURES SHOWN PER U.S. ARMY CORPS OF ENGINEERS DRAWING, FILE NUMBER H-8-29027, DWG. 4 OF 9