A.I.S., Inc.

Protected Species Monitoring

PROTECTED SPECIES MONITORING SERVICES DURING PILE DRIVING FOR THE EAST LATERAL XPRESS PROJECT IN BARATARIA BAY, LOUISIANA

FINAL REPORT









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Date

September 16, 2024

Confidentiality

The information summarized in this Final Report was collected by A.I.S., Inc. for Perennial and Columbia Gulf Transmission, LLC to be distributed to the National Marine Fisheries Service as required by the Incidental Harassment Authorization granted to Columbia Gulf Transmission, LLC on December 12, 2023.

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LIST OF ABBREVIATIONS

AIS A.I.S. Inc.,

Columbia Gulf Transmission LLC

ESA Endangered Species Act
CPA Closest Point of Approach

Final Report Final Protected Species Monitoring Report

FWS Fish and Wildlife Service

IHA Incidental Harassment AuthorizationMMPA Marine Mammal Protection ActNARW North Atlantic right whale

NMFS National Marine Fisheries Service

NMFS VSA Vessel Strike Avoidance Measures and Reporting for Mariners from 2008 developed by NOAA

Measures Fisheries Service, Southeast Region

NOAA National Oceanographic and Atmospheric Administration

Perennial Perennial Environmental Services, LLC

OPR Office of Protected Resources

Project East Lateral XPress Project in Barataria Bay, Louisiana

PSO Protected Species Observer

TCE VSA Plan Wildlife and Vessel Strike Avoidance Plan, developed by TC Energy a subsidiary of Columbia Gulf

DOCUMENT CONTROL

Company	A.I.S., INC.
Business Lines	Environmental Monitoring Division (EMD)
Process	REP
Туре	Document
Specification	Protected Species Observer Project Final Report
Reference	AIS PSO REP PRE PSO Final Report V1R2 20240916

REVISION

Date	Version	Revision Made by
09/11/24	V1R2	Sarah Fortuna

APPROVAL

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1. EXECUTIVE SUMMARY

This Final Protected Species Monitoring Report (Final Report) is submitted on behalf of Columbia Gulf Transmission, LLC (Columbia Gulf). This report has been prepared in accordance with the final reporting requirements outlined within the Incidental Harassment Authorization (IHA) (IHA; 88 fr 61530) issued by the National Marine Fisheries Service (NMFS) with effective dates of December 1, 2023 – December 1, 2024. Final data collected during April, May and June pile driving and removal operations associated with the East Lateral XPress Project in Barataria Bay, Louisiana (Project) are contained herein. Additionally, this report includes summaries of vessel operations, associated detections of protected species made by Protected Species Observers (PSOs) and any mitigation actions necessary during pile driving and removal activities. All PSO data collected during this campaign are attached to this report in a Microsoft Excel .xlsx file. These data contain supplementary information regarding the Project, its operational activities, and the detection of protected species, in addition to the summary provided in the body of the report. This work was conducted under the IHA (IHA; 88 fr 61530) and in accordance with Wildlife and Vessel Strike Avoidance Plan, developed by Columbia Gulf, a subsidiary of TC Energy (TCE VSA Plan), and the Vessel Strike Avoidance Measures and Reporting for Mariners from 2008 developed by National Oceanic and Atmospheric Administration (NOAA) Fisheries Service, Southeast Region (NMFS VSA Measures). To comply with IHA requirements, Perennial Environmental Services, LLC (Perennial) contracted A.I.S., Inc. (AIS) to provide PSOs to monitor for marine mammals and other marine protected species during in-water pile driving and removal operations. This survey effort was the only one undertaken during the 2024 calendar year under this IHA and thus this report will fulfill the comprehensive final report submission requirements from NMFS under the IHA.

Pile driving and removal operations were conducted over a period of 21 calendar days, between April 9th and June 14th, 2024. There was a pause in operations between May 20th and June 13th when there was no pile driving or removal activity and thus the PSO team was demobilized. Due to the potential for harassment of listed or otherwise protected marine species as a result of the sound generated by pile driving operations, two (2) AIS PSOs were deployed to Grand Isle, LA to monitor sound producing operations onboard the various project vessels and barges. The PSOs monitored in accordance with regulations set forth within the IHA, the TCE VSA Plan and the NMFS VSA Measures.

There were 62 marine mammal sightings during this deployment, consisting of an estimated 169 individual animals, the majority of which was completed during generally favorable environmental conditions. There was one (1) solitary bottlenose dolphin that triggered shutdown mitigation measures to be enacted, and 9 detections of a total 19 of bottlenose dolphins that encroached within the 430-meter (m) Level B Harassment Zone and meet the criteria of takes. In total, due to the bottlenose dolphin-triggered shutdown and five (5) post detection pile driving start up delays, there were 27 minutes of downtime due to protected species.

Table 1 Pile Driving Survey Campaign Overview

IHA Holder	Columbia Gulf Transmission, LLC
Client	Perennial Environmental Services, LLC
Project Area	Barataria Bay, Louisiana
Dates	April 9, 2024 – June 14, 2024
Pile Driving Contractor	Sealevel Construction Inc.
Protected Species Observer Contractor	A.I.S., Inc.
Protected Species Observers	Hannah Kieler, Anthony Simons and Jacob Gentle

2. INTRODUCTION

The Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA) were enacted to protect endangered species and marine mammals respectively, and both prohibit the "taking" of these animals. Taking is defined as harassing, harming, perusing, shooting, wounding, trapping, hunting, capturing, collecting, killing or attempting to harass, harm, pursue, shoot, wound, trap, hunt, capture, collect, or kill marine mammals or endangered species. There are two types of harassment induced incidental "takes", Level A and Level B. Level A takes have the potential to cause physical injury to an animal; alternatively Level B takes have the potential to disturbance an animal via harassment which may cause changes to known behavioral patterns (breathing, feeding, nursing, etc.) are the result of activities transpiring within protected animal habitats.

Both the ESA and the MMPA are administered by the NOAA, NMFS and United States Fish & Wildlife Service (FWS). These agencies issue authorizations for activities that have the potential to incidentally "take" by harassment members of protected species. The federal government issues authorizations for takes for important activities, in this case nearshore pile driving and removal, in support of energy development, to occur without the express purpose of affecting protected species but which could have impacts on those species. These impacts must be tracked and reported to the federal government for species management purposes.

Under section 7 of the ESA, federal agencies are required to consult with NOAA and U.S. FWS if the authorized activities that are being undertaken may adversely affect or result in an incidental take of protected or endangered species (NOAA Fisheries, 2023). The NMFS issues IHA's with required mitigation measures to prevent harassment of protected species and authorizes only a certain amount of incidental take to ensure no population level impacts. IHAs are issued under the MMPA and therefore include only marine mammals, while Section 7 takes place under the ESA which covers both endangered marine mammals and sea turtles.

Columbia Gulf was issued an IHA for activities related to pile driving for the East Lateral XPress Project in Barataria Bay, Louisiana (US Dept. of Commerce, NOAA, NMFS, 2023). Pile driving and removal activities described herein were focused on the construction of a new platform containing meter station, tie-in facility, launcher and receiver, and other appurtenant facilities in Jefferson Parish, Louisiana. This IHA outlined the monitoring, mitigation, and reporting requirements for local marine protected species, with a focus on the local stock of bottlenose dolphins. Additional reporting requirements were laid out for sightings of injured or dead marine mammals. Bottlenose dolphins are the species specific to the area with the highest potential to be affected by acoustic energy from planned in-water operations. IHAs issued by NMFS do not include sea turtle or other marine protected species requirements, thus the TCE VSA Plan and the NMFS VSA Measures were utilized as a guide for mitigation actions for whales, sea turtles, small cetaceans, and North Atlantic Right Whale (NARW). While no Level A takes were anticipated or authorized for this survey, some Level B behavioral disturbance takes were allocated. More information on Level B takes can be found in Section 5.

3. PROTECTED SPECIES OBSERVATION METHODS

PSO monitoring and mitigation measures were designed to minimize potential impacts of sound produced by pile driving operations on protected species and were implemented in accordance with the IHA. The training, observation methods and mitigation measures associated with these operations are outlined below.



3.1. Protected Species Observer Training and Compliance

A team of two (2) NMFS-approved PSOs were provided by AIS for monitoring at the project site during pile driving operations in support of the new tie in facility associated with the lateral pipeline in Barataria Bay. All PSOs attended a dedicated Project-specific Protected Species Observer training course prior to their deployment on the project. These courses were held on February 14, 2024 and May 12, 2024 to accommodate rotations and subsequent periods of work. Individual PSO team members were Hannah Kieler (NMFS approved PSO for nearshore activities), Anthony Simons (NMFS approved PSO for nearshore activities) and Jacob Gentle (NMFS approved PSO for nearshore activities). PSO training involved a detailed review of the following:

- Permits relevant to the project
- Environmental compliance requirements
- Health and safety requirements
- PSO requirements and scheduling
- ESA Listed and Protected species mitigation methods
- Communication
- Data forms
- Use and maintenance of PSO equipment
- Protected species identification

3.2. Monitoring Methods and Equipment

To fulfill protected species monitoring and mitigation requirements the two PSOs deployed to Barataria Bay project site and monitored concurrently. In accordance with the regulatory requirements during all pile driving, PSO monitoring locations provided optimal visibility of the pre-clearance and shutdown zone for each location where pile driving occurred during daylight hours. There were no nighttime operations during this campaign. PSO duties included:

- Working to ensure that each individual does not exceed 12 hours per 24-hour period.
- Maintaining vigilant watch for marine protected species and communicating any sightings to operators during all vessel transits, ensuring strike avoidance measures were met.
- Visually monitoring the pre-clearance and shutdown zones 360° around pile driving during active operations for the presence of marine protected species.
- Documenting all marine protected species sightings, observer effort, and environmental conditions on standard data forms and reporting all incidents to proper personnel.
- Recording operational activities during monitoring effort.
- Informing vessel and pile driving operators if a protected species is heading towards the shutdown zone.
- Calling for a delay or shutdown if a marine protected species is observed entering or surfaces within the shutdown zone.
- Advising operators on mitigation requirements in the event of marine protected species detections.
- Ensuring all mitigations actions (pre-start pre-clearance, delay soft-start, soft-start and shutdown) are enacted.
- Summarizing daily monitoring effort and submitting data forms to the appropriate staff.

PSOs were equipped with a range of visual monitoring equipment, including the following:

Hooway/Bushnell 7X50 Marine Reticle Binoculars;



Canon Rebel T6 with 300mm Image Stabilized lens.

3.3. Protected Species Mitigation Measures

For pile driving operations the following protected species mitigation measures were enforced:

- Monitoring and Pre-Start Pre-clearance Zones: PSO will establish and monitor pre-clearance zones prior to the start of pile driving operations, as follows:
 - o 430 m all marine mammals.
- Pre-Start Activity Observation (Pre-Start Pre-clearance): PSO will implement a 30-minute pre-clearance of the zone, monitoring around the area prior to the startup of pile driving for the day, after pauses of 30-minutes or more (without continuous PSO monitoring) and after periods of inclement weather or other factors that cause the relevant zone and adjacent waters to be non-observable. During this period, the zone will be monitored by a team of two (2) PSO equipped with the appropriate visual monitoring technology. Pile driving will not be initiated if any protected species are observed within the pre-clearance zone. If protected species are observed entering or within the established zone within the 30 minutes prior to soft-start of equipment, pile driving activities will be delayed and may not commence until either the animal(s) has voluntarily left and been visually confirmed beyond the zone or a pre-clearance period (15 minutes for all marine mammals) has elapsed without subsequent detection of the animal(s).
- Ramp-up/Soft Start Procedure: Once the PSO team has confirmed completion of the pre-clearance, operators may begin pile driving via the soft start procedure. Soft-Start consists of 3 strike sets at partial power with a 30 second wait period between each strike set completed before pile driving may commence at full power.
 - If for any reason pile driving is paused for 30 minutes or longer, soft start procedures will be completed again before full power piling commences
- **Shutdown zones:** PSO will establish and monitor shutdown zones prior to the start of pile driving operations, and throughout said operations as follows:
 - 15.24 meters (50 feet) manatees;
 - 50 meters bottlenose dolphins;
 - o 231 meters (761 feet) sea turtles;
 - 430 meters all (other) marine mammals.
- **Shutdowns**: In the event that a protected species is sighted entering or observed within the applicable shutdown zone during active pile driving operations, an immediate shutdown of pile driving will be required. Pile driving activities will not resume until the animal(s) has been confirmed to have left the relevant shutdown zone or a pre-clearance period (15 minutes for all other species) has elapsed without subsequent detection of the animal(s). Shutdown of pile driving for species for which incidental take is not authorized is required regardless of circumstance.
- Level B Harassment¹ Zone: PSO will establish and monitor a Level B harassment zone for bottlenose dolphins prior to the start of pile driving operations, as follows:

¹ Level B harassment is defined by NOAA Fisheries as an act that has the "potential to disturb (but not injure) a marine mammal or marine mammal stock in the wild by disrupting behavioral patterns, including, but not limited to, migration, breathing, nursing, feeding or sheltering.



- 430 meters bottlenose dolphins
- Level B Harassment Tracking: While shutdown is not always required, tracking of bottlenose dolphin
 exposure to elevated sound sources is, thus protected species observations within the Level B harassment
 zone while pile driving equipment is active will be noted and reported to the regulators.
- Vessel Strike Avoidance Separation Distances: PSO will ensure separations distances are maintained during all vessel movements, as follows:
 - 15.24 meters (50 feet) for manatees;
 - o 45.72 meters (50 yards) for sea turtles and small cetaceans;
 - o 91.44 meters (100 yards) for whales;
 - o 457.2 meters (500 yards) for North Atlantic Right Whales.
- Vessel Strike Avoidance: Vigilant watch will be maintained during vessel transits to ensure operators may reach the destination safely and without causing harm to any protected species. Vessels will maintain a 10-knot speed restriction in areas designated by NMFS for the protection of NARW from vessel strike and when mother/calf pairs, groups, or large assemblages of cetaceans are observed in close proximity. PSOs are trained to distinguish and identify marine mammals, especially in the detection of NARW. If any protected species are observed within the forward path of the vessel best efforts will be made to adjust course to reestablish the required separation distance or the vessel will shift into neutral and wait for the animal(s) or drift or the vessel to reestablish the relevant separation distance.
 - Vessels will operate at "idle/no wake" speeds within or near the project area and in areas where the bottom of the vessel is within 4 feet of the sea floor.
 - Vessels will follow routes of deep water whenever possible.
- Injury or Dead Marine Mammal Reporting: PSO will immediately report instances of observed injury to or death of protected species the Office of Protected Resources (OPR), NMFS (ITP.Laws@noaa.gov and PR.ITP.MonitoringReports@noaa.gov) and to the Southeast Region marine mammal stranding network (1-877-433-8299) as soon as is feasible. If death or injury was clearly caused by project activities all activities will be halted until further review by NMFS OPR.

4. OPERATIONAL & PSO EFFORT SUMMARY

The project team conducted pile driving operations in support of the new pipeline facility platform in Barataria Bay during April, May and June 2024. A brief overview of operational activities including vessel activities, operations utilizing regulated pile driving equipment and PSO effort is included in the below sub-section. A detailed timeline of all PSO effort and sound producing pile driving activities can be found in the Microsoft Excel file accompanying this report.

4.1. Operational Activity Summary

Multiple skiff style vessels transported the PSO team and various construction team members to and from the project operational barges on a day-to-day basis. The PSO team was carried aboard the M7001, M7002 and the Big Thunder. These vessels operated out of an existing contractor/storage yard located at a port in Grand Isle, Louisiana. No other ports were utilized for the duration of this effort. A team of two (2) PSOs was stationed aboard the transiting vessels to conduct vessel strike avoidance monitoring and mitigation during all vessel



transits. Subsequently, the PSO team was stationed on two different construction barges to perform protected species monitoring and mitigation for all pile driving operations.

Two monitoring locations were utilized to ensure that the entire pre-start activity and all shutdown zones were visible prior to and throughout sound producing operations. The Lead PSO was stationed on the construction barge immediately adjacent to pile driving and focused their monitoring efforts primarily on the shutdown zones. The supporting PSO was stationed further away on an additional barge and focused their monitoring efforts on the larger area to ensure pile driving teams were notified with the appropriate time to shutdown as required by the regulations. At the various points the PSOs were stationed for monitoring they were between 0.5m and 1.5m above water surface. The pile driving team conducted daylight only pile driving operations in Barataria Bay, LA on 21 days: April 8, 9, 12, 15, 20, 24, 26 and 30, May1-3, 6, 7, 9-11, 15-17 and pile removal operations on June 14.

Table 2 Hammers Utilized during Pile Driving for the Tie in Facility Construction

Make	Model	Model Type of Hammer		Units
HPSI	Model 300	Vibratory Hammer	1600	VPM (Vibrations per minute)
BSP/TEX	CXL	Impact Hammer	115-140	kN/m (kilonewton per meter)

Figure 1 breaks down the amount of time spent per operational activity. As illustrated below and in the **Table 2** above, there were two hammers utilized for regulated pile driving operations HPSI Model 30, Vibratory Hammer and the BSP/TEX CXL Impact Hammer. Required Soft-Starts (*3 strike sets with a 30 second wait period between each strike set*) of the impact hammer were conducted daily prior to usage and at any time that pile driving was paused for any reason for more than 30 minutes. Soft-starts occurred for a total of 1 hour and 8 minutes. The total duration of pile driving activity for this campaign was 21 hours and 39 minutes. There were 10 PSO-initiated protected species detection delays to soft-start initiation implemented and a single shut down of impact pile driving called for by the PSO team and enacted by the operator immediately. This is expanded upon in Section 5 below. No other pile driving activities requiring PSOs occurred during this time period.



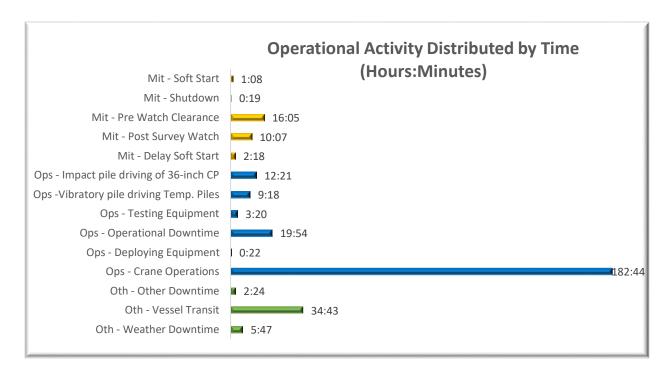


Figure 1 Operational Activity Distribution by Time (hh:mm)

4.2. Pile Driving Summary

Pile driving operations took place over the course of twenty-one (21) calendar days. **Appendix B** provides the exact start and stop time of all pile driving activity that occurred. **Figure 1** above illustrates that there were 12 hours and 21 minutes of impact pile driving and 9 hours and 18 minutes of vibratory pile driving. In order to complete piling operations, Columbia Gulf utilized Sealevel Construction Inc. for their experience and expertise in this field.

Impact pile driving methods were utilized to drive all of the permanent piles that would support the new structure while vibratory methods were used to drive all temporary piles for mooring vessels and barges and to place the templates. In total 34 36-inch concrete piles were driven and 38 24-inch temporary mooring piles made of steel were driven and subsequently removed either by vibratory methods which were monitoring by PSO or by direct pulling of the piles without in-water sound producing methods. The number of strikes required to install each concrete pile can be found in **Appendix C**.

4.3. Protected Species Observer Effort Summary

Figure 2 breaks down the amount of time PSOs spent monitoring per month while **Figure 3** provides a summary of PSO effort by observation method utilized. Pre watch clearance (Pre-start activity observation) occurred 28 times for a total of 16 hours and 5 minutes. As indicated above, there was one shutdown of pile driving due to protected species encroaching within the Level A Harassment Zone/Shutdown Zone which is expanded upon in Section 5 below.

² These are not cumulative times. A 2 PSO team was monitoring for the majority of this survey (Note: June 14 2024 was monitoring by a single PSO due to the limited scope of work completed on that day, this is further described below) and those watches overlapped entirely.

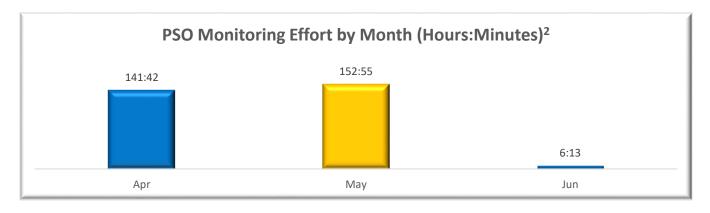


Figure 2 Monitoring Activity Distribution by Time (hh:mm)

During the campaign PSOs visually monitored the area around operations for a grand total of 300 hours and 50 minutes. There were no instances of alternative monitoring technology usage.

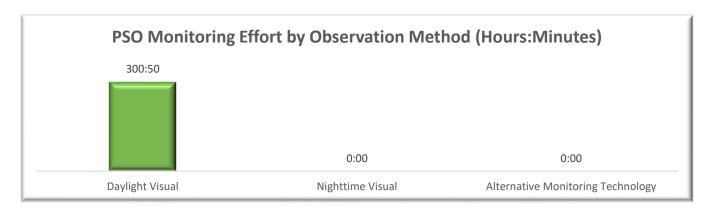


Figure 3 PSO Monitoring Effort (hh:mm)

After pile driving operations were completed on May 20, 2024, the PSOs were released from duty and demobilized. There was a one-day remobilization of a single PSO to monitor temporary pile removal by vibratory methods on June 14, 2024. Refer to the timeline of survey activities presented in the EXCEL file accompanying this report for further detail regarding PSO watches and operational activities conducted during this campaign.

5. PROTECTED SPECIES DETECTIONS AND MITIGATION

Illustrated in **Table 3**, PSOs documented a combined total of 62 marine mammal sightings during this deployment, consisting of an estimated 169 individual animals that were visually observed. There were no detections using alternative monitoring technology.

Table 3 Number of Detections and Individual Animals Detected

Species Group/Species	Total Number of Detections	Total Number of Individual Animals Detected
Dolphins	62	169
Bottlenose Dolphin	62	169
Grand Total	62	169

The only observed species detected by PSOs were bottlenose dolphins, *Tursiops truncatus*, with a total 62 detections of 169 individual animals. There were no large whale, manatee, sea turtle, other dolphin species or porpoise detections during this deployment. Most observed dolphins during this project were adults, 141 of the total 169 individuals. There were nine (9) individual animals observed to be smaller in stature and classified by the PSOs as juveniles. Finally, there were 19 dolphins observed that were even smaller than the juveniles and remained very close in distance from their presumed mothers that were deemed to be calves (**Figure 4**).

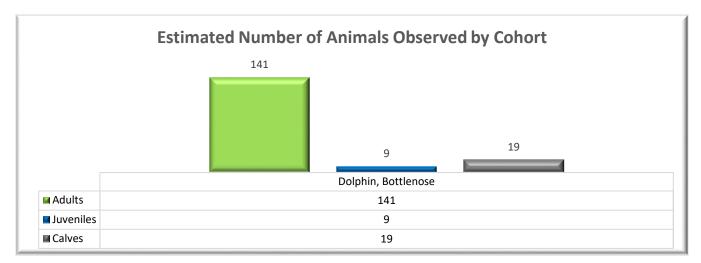


Figure 4 Estimated Number of Animals by Cohort

The majority of sightings were documented by PSOs onboard the construction barges during crane operations and only 15% of detections coinciding with periods of active pile driving by both impact and vibratory methods (**Figure 5**).

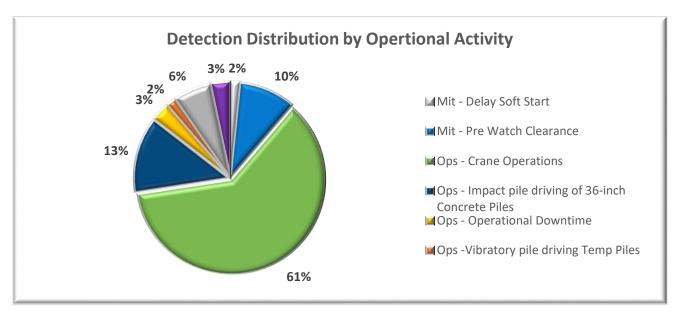


Figure 5 Detection Distribution by Vessel Activity

Nine (9) protected species detections were concurrent with active periods of pile driving activity. These all consisted of bottlenose dolphins, the majority of these which remained well outside the 50-meter marine mammal shutdown zone. Closest Points of Approach (CPA) ranged from 15 - 700 meters (**Figure 6**).

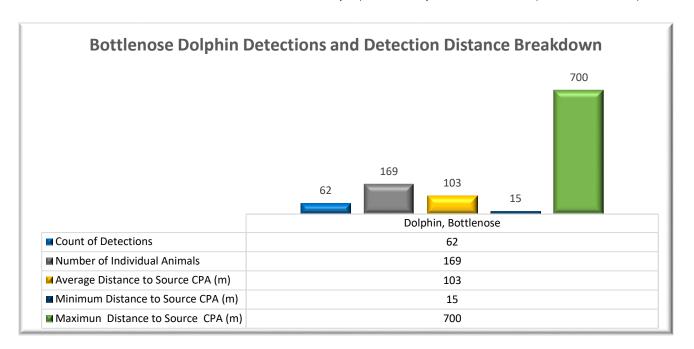


Figure 6 Bottlenose Dolphin Detection Breakdown

There was one (1) bottlenose dolphin detection that triggered shutdown mitigation measures to be enacted (Detection ID 29). **Figures 7** and **8** below illustrate the nine (9) detections of bottlenose dolphins encroached within the 430-meter Level B Harassment Zone and could potentially be deemed as takes (Detection IDs 23, 28, 29, 33, 44, 45, 46, 54 and 55). No vessel strike mitigation was required or enacted for the duration of this campaign. In total, due to the shutdown and five (5) post detection pile driving start up delays, there were 27 minutes of downtime due to protected species.

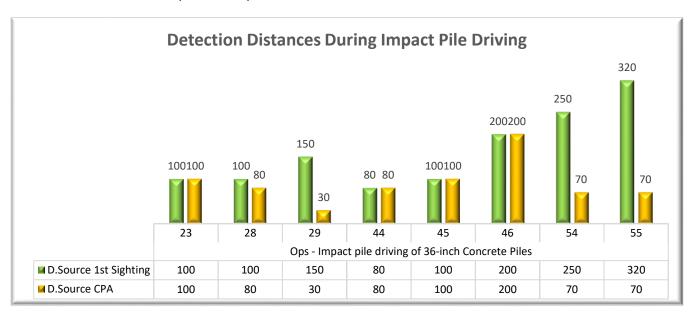


Figure 7 Detection Distance Breakdown During Impact Pile Driving

(the numbers immediately below the bars are the detections numbers)

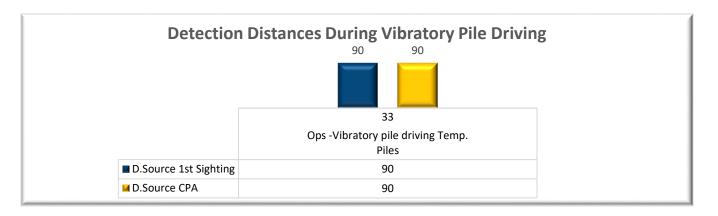


Figure 8 Detection Distance Breakdown During Vibratory Pile Driving

(the number immediately below the bar is the detection number)

April 30th brought with it the only shutdown for the project. At 09:59 a solitary (1) bottlenose dolphin (Detection ID 29) was initially observed at a visually estimated 150 meters from the impact hammering area. All vessels were stationary at the time and the animal actively traveled at a moderate pace in the direction of the impact hammering area/bow of barge. As the PSOs maintained watch the dolphin entered the shutdown zone of 50 meters at 10:00 and a shutdown was called for by the PSO team and enacted immediately by the pile driving crew. The animal was within the 50-meter shutdown zone of the active sound source for less than 5 seconds before pile driving was shutdown. After pile driving was shutdown the dolphin continued moving toward the inactive pile driving equipment. The closest point of approach of the animal was 30 meters. After a jaunt around the pile driving area, the dolphin was last seen at 10:04 approximately 100 meters from inactive operations and was observed swimming away. The dolphin was not seen again after 10:04 and displayed no changes in behaviour during the sighting. The dolphin was detected within the Level B Harassment Zone during full power pile driving with the impact hammer for a duration of 1 minute before it entered the shutdown zone and triggered a shutdown. This individual is considered a potential Level B take after spending 5 minutes in the Level B Zone, 1 minute during active sound production and 4 minutes during inactive operations. After 15 minutes passed from the last observation, the pile driving team was given clearance to begin a soft start which occurred at 10:19. No other shutdowns were required or enacted during this campaign.

Table 4 Number of Allotted Marine Mammal Takes vs Animals Observed within the Level B Harassment Zone

Taxonomic group	Common name	ESA- listed?	IHA Allotted Level B Harassment Takes	Number of Marine Mammals Observed within Level B Harassment Zone	Number of Marine Mammals Observed within Level B Harassment Zone while Pile Driving was Active
Cetacean (Odontocete)	Common bottlenose dolphin	No	42	159	19*

While there were 169 animals observed within the Level B Harassment Zone during this campaign only nine (9) bottlenose dolphin detections of an estimated nineteen (19) individual animals potentially meet the criteria to be considered **takes** (**Table 4**). Animals meet this criterion if they were observed within the Level B Harassment Zone of 430-meters during *active* pile driving. Only one of the below described detections triggered a shutdown. While the rest of the detections were actively observed within the Level B Harassment Zone they never encroached within the 50-meter Shutdown Zone.

On April 26th the offshore PSO team observed one (1) bottlenose dolphin (Detection ID 23) at 100 m with a CPA of the same at 10:49. This animal was observed for a total of 2 minutes traveling away from the actively piling construction barge. This entire detection occurred within the 430-meter Level B Harassment Zone for bottlenose dolphins during impact pile driving.



April 30th brought with it two (2) observations within the 430-meter Level B Harassment Zone for bottlenose dolphins during active impact piling, detection 28 and detection 29. The first occurred at 09:57 when three (3) bottlenose dolphin (Detection ID 28) were observed at 100 m with a CPA of 80 meters. This detection lasted for a total of 15 minutes and the dolphins were observed traveling around the actively piling construction barge displaying feeding behaviors from the actively piling construction barge. This entire detection occurred within the 430-meter Level B Harassment Zone for bottlenose dolphins during impact pile driving. However, because the next detection (Detection ID 29) triggered a shutdown the total amount of time the animals from detection 28 were exposed to elevated sound levels from piling within the Level B Harassment Zone was 3 minutes. The second potential Level B take detection of April 30th was previously described above in the shutdown section.

At 11:49 on May 2nd two (2) bottlenose dolphins were observed 90 meters from active vibratory pile driving, this was also the CPA (Detection ID 33). These animals were observed traveling at a vigorous pace away from the hammering area and were last sighted at 11:55, approximately 350-meters away. This entire detection occurred for 6 minutes within the 430-meter Level B Harassment Zone for bottlenose dolphins during vibratory pile driving of temporary steel piles.

May 9th was the busiest day on the project with 3 detections that potentially meet the criteria for Level B Takes. The first (Detection ID 44) was very brief, beginning and ending at 11:49. A solitary (1) bottlenose dolphin was observed 80 meters from active impact pile driving operations. This animal was traveling at a moderate pace towards the pile driving area. After the initial observation this dolphin was not detected again. There were no behavioral changes noted, and this detection did not cause a shutdown. The subsequent detection (Detection ID 45) was equally brief beginning and ending at 15:00. This was another solitary (1) bottlenose dolphin this time observed 100 meters from active impact pile driving operations however this animal was traveling away from active piling operations. The final detection (Detection ID 46) at 15:02 was another solitary (1) bottlenose dolphin observed 200 meters from active impact pile driving operations also traveling away from sound production. After a brief pause in piling operations a delay to the next pile driving soft start was requested and enacted due to detections 44, 45 and 46³.

The final potential takes for the project both occurred on May 15th. At 14:19 five (5) bottlenose dolphins were observed approximately 250 meters from active impact pile driving (Detection ID 54). The dolphins were moving at a moderate pace and traveling parallel to the barge towards pile driving operations. The pod was displaying feeding behaviors by changing directions quickly and swimming in circle patterns. The closest approach to the pile driving occurred at 14:29 at 70 meters away, but no behavioral changes were observed. The group was last seen at 14:30 300 meters from operations, continuing to travel away from the area. The total amount of time the animals from detection 54 were exposed to elevated sound levels from piling within the Level B Harassment Zone was 11 minutes. At 14:19 the same day, four (4) bottlenose dolphins were observed approximately 320 meters from pile driving during full volume impact hammering (Detection ID 55). The pod was moving at a fast pace heading towards the operational area. Three (3) dolphins from this pod continued to swim across the stern of the barge at a distance of 200 meters and continued toward the other pod in the area (Detection ID 54), while one dolphin split from the group and continued to swim alone towards the barge. At 14:22, the solitary dolphin's closest approach occurred at 70 meters and the three (3) other dolphins joined the pod of Detection ID 54. The solitary dolphin was not seen again. The total amount of time the animals from detection 55 were exposed to elevated sound levels from piling within the Level B Harassment Zone was 3 minutes. After a brief pause on piling, reinitiation was delayed for 15 minutes due to these

³ Although it is possible that detections 44, 45 and 46 could be the same individual the PSO team could not be certain of this and thus included these as 3 separate observations.



detections. Hammering was reinitiated via soft start at 14:46. Finally the animals from detections 54 and 55 were observed within the Level B Harassment Zone and are accounted for as potential takes.

No Vessel Strike Avoidance mitigation actions were required or enacted during this campaign.

Table 5 Mitigation Summary

Detection ID	Vessel Activity	Species	BEST # of Individual Animals	Initial Detection Distance (m)	CPA (m)	Mitigation Action/Status	Duration of Downtime (hh:mm)	Potential Take	Vessel Strike Avoidance Action
23	Impact pile driving 36-inch Concrete Piles	Bottlenose Dolphin	1	100	100	No Action required	0:00	Yes	Not Required
28	Impact pile driving 36-inch Concrete Piles	Bottlenose Dolphin	3	100	80	No Action required	0:00	Yes	Not Required
29	Impact pile driving 36-inch Concrete Piles	Bottlenose Dolphin	1	150	30	Shutdown	0:19	Yes	Not Required
33	Vibratory pile driving Temporary Piles	Bottlenose Dolphin	2	90	90	No Action required	0:00	Yes	Not Required
44	Impact pile driving 36-inch Concrete Piles	Bottlenose Dolphin	1	80	80	Delay Soft Start	0:10	Yes	Not Required
45	Impact pile driving 36-inch Concrete Piles	Bottlenose Dolphin	1	100	100	Delay Soft Start	0:11	Yes	Not Required
46	Impact pile driving 36-inch Concrete Piles	Bottlenose Dolphin	1	200	200	Delay Soft Start	0:13	No	Not Required
54	Impact pile driving 36-inch Concrete Piles	Bottlenose Dolphin	5	250	70	Delay Soft Start	0:144	Yes	Not Required
55	Impact pile driving 36-inch Concrete Piles	Bottlenose Dolphin	4	320	100	Delay Soft Start	0:064	Yes	Not Required

No injured or dead protected species were observed for the duration of this effort. Please refer to the attached PSO data collected during this deployment. This data provides additional project, operational, and detection information beyond what is summarized in the body of the report.

6. SUMMARY OF WEATHER & ENVIRONMENTAL CONDITIONS

Part of the data collection associated with PSO operations includes various weather and environmental conditions including cloud cover, wind speed, wind direction, precipitation, sun glare and visibility during observations. These factors can affect the PSOs ability to observe the required zones effectively, ultimately delaying operations. **Figures 8-12** illustrate the distribution of weather variables during PSO monitoring from all project related vessels.

⁴ These times overlapped because the detections were concurrent.

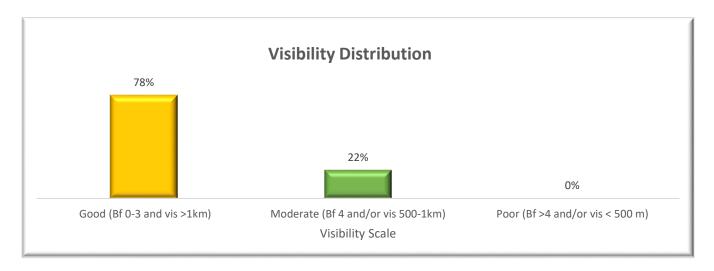


Figure 9 Visibility Distribution (Good = >1,000m, Moderate= 1,000 - 500m, Poor= <500m)

(Bf = Beaufort, vis=visibility)

Throughout this campaign PSOs were able to view the entire shutdown and monitoring zones under generally good conditions with a few instances of moderate visibility conditions as illustrated above in **Figure 9**. Moderate visibility was attributed to elevated sea states and wind across the bay that occasionally hindered visibility. For the majority of operations there was no precipitation and skies were clear (98%), apart from a very brief period of light rain (2%) there was no precipitation as represented by **Figure 10** below.

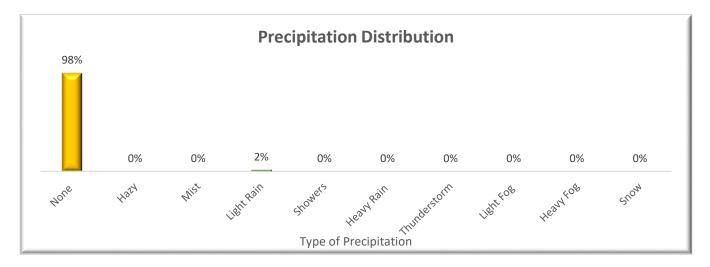


Figure 10 Precipitation Distribution

Figure 11 illustrates glare severity encountered throughout PSO monitoring. Glare was relatively evenly distributed throughout this monitoring effort. No glare and slight glare were experienced for 18% and 20% of monitoring respectively. Moderate glare was present for 35% of the survey and extreme glare was present for 27% resulting in varied conditions for protected species monitoring.

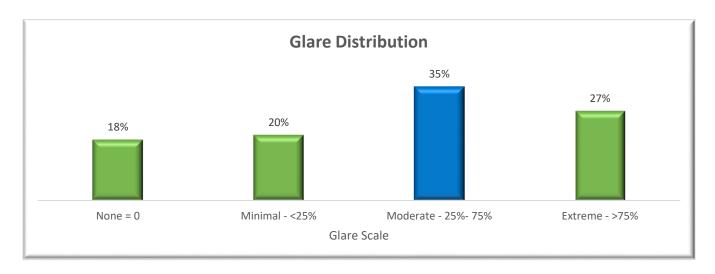


Figure 11 Glare Severity Distribution

None= no glare, Slight = faint, but easily monitored, Moderate = substantial, somewhat difficult to monitor Extreme = any amount of glare too difficult to monitor

Beaufort sea state recorded during visual monitoring ranged from level one to level five over the course of the monitoring period (**Figure 12**). Only 22% of visual observations were undertaken during elevated weather conditions, instances when the Beaufort state was level four or above.

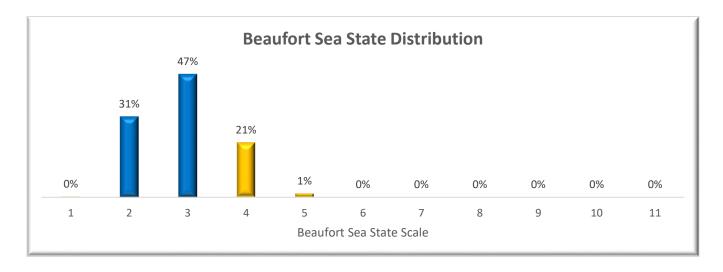


Figure 12 Beaufort Sea State Distribution

As illustrated in **Figure 13**, cloud cover varied from clear to partly cloudy over the course of this deployment. This resulted in some instances of elevated glare conditions that created moderately less than ideal monitoring conditions for approximately half of the monitoring effort.

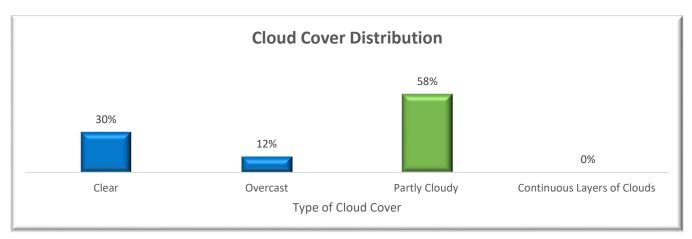


Figure 13 Cloud Cover Distribution

The overall good visibility and lack of precipitation combined with lower sea state in the Barataria Bay environment amounted to generally favorable conditions for PSO monitoring. As a result, the PSO Team is confident that they were able to monitor the shutdown zone effectively for protected species throughout the duration of the campaign.

7. ASSESSMENT OF MONITORING METHODS

The daylight only operations were monitored by two (2) PSOs who could effectively observe the pre-clearance and shutdown zones from the fly bridge level of the survey vessel. As indicated above in Section 3, to remain consistent with the permit stipulations the PSOs began monitoring periods each morning when the vessel left the harbor to begin transiting to the day's survey area and continued rotational watches until arriving back at the harbor each evening. During this time visual monitoring was completed to comply with vessel strike avoidance measures, pre-start pre-clearances and survey watch requirements. There was never an instance in which one PSO monitored for longer than the allotted four (4) hours without at least a two (2) hour break in between.

PSOs conducted observations encompassing 360° around the vessel. Based on needs of the operations team to access equipment on board, the PSOs adjusted their monitoring locations on the vessel to visualize most effectively and safely the relative shutdown zone immediately surrounding the survey equipment. This allowed for the PSOs to appropriately visualize and clear the shutdown zone and allow for continuous operations meeting the standards outlined in the regulatory documents. The monitoring and mitigation measures required proved to be an effective means to monitor for marine protected species, many of which were encountered during operations.

8. ACKNOWLEDGEMENTS

We would like to extend our sincere gratitude to the operations crew and team members at Perennial, TC Energy and Sealevel Construction Inc. for their assistance and hospitality for the duration of these works as well as the AIS PSOs for their continuous effort and dedication to accurate and consistent data collection.



REFERENCES

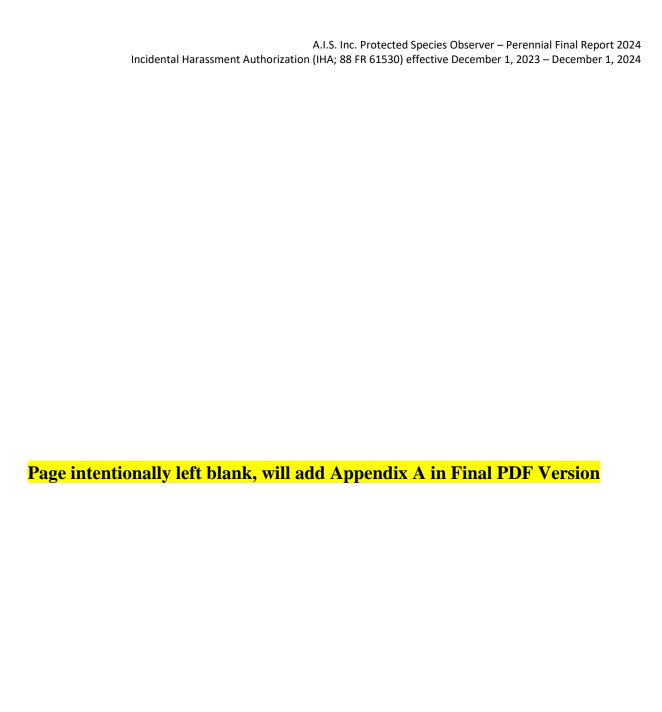
NOAA Fisheries. (2023). Section 7: Types of Endangered Species Act Consultations in the Greater Atlantic Region. Retrieved from NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION | U.S. DEPARTMENT OF COMMERCE: https://www.fisheries.noaa.gov/insight/section-7-types-endangered-species-act-consultations-greater-atlantic-region

US Dept. of Commerce, NOAA, NMFS. (2023, December 01). Incidential Harassment Authorization, Columbia Gulf Transmission LLC, East Lateral XPress project in Barataria Bay, Louisiana. US Federal Register.



Appendix A.

A.I.S. Inc., Final Activity Report Summary





REPORT SUMMARY



Client Perennial
Project M.001145



 Report
 FINAL

 Date
 April 9 2024
 to
 June 14 2024

Vessel Name	M7001	Survey Type		Pile Driving	
(hh:mm)	300:50	Total Number of Detections	(#)	62	
(hh:mm)	208:05	Total Number of Individual(s) Detected	(#)	169	
(hh:mm)	2:37	Total Number of Potential Non-Compliance	(#)	0	
	(hh:mm) (hh:mm)	(hh:mm) 300:50 (hh:mm) 208:05	(hh:mm) 300:50 Total Number of Detections (hh:mm) 208:05 Total Number of Individual(s) Detected	(hh:mm) 300:50 Total Number of Detections (#) (hh:mm) 208:05 Total Number of Individual(s) Detected (#)	(hh:mm) 300:50 Total Number of Detections (#) 62 (hh:mm) 208:05 Total Number of Individual(s) Detected (#) 169

(Mitigation Downtime = Delay Soft Start + Shutdown + Power Down)

Survey Activity - Monitoring - Detections

Survey Activity - Monitoring - Detections											
	Occurrence (%)	Duration (hh:mm)	Detection (#)	Individual (#)		Occurrence (%)	Duration (hh:mm)	Detection (#)	Individual (#)		
Mit - Change Course					Ops - Impact pile driving 18-inch CP						
Mit - Pre Watch Clearance	5.35%	16:05	6	19	Ops - Impact pile driving 36-inch CP	4.11%	12:21	8	17		
Mit - Delay Soft Start	0.76%	2:18	1	2	Ops -Vibratory pile driving TP	3.09%	9:18	1	2		
Mit - Soft Start	0.38%	1:08			Ops - Operational Downtime	6.61%	19:54	2	4		
Mit - Shutdown	0.11%	0:19			Ops - Crane Operations	60.74%	182:44	38	111		
Mit - Power Down					Ops - Jacking Up/Down						
Mit - Post Survey Watch	3.36%	10:07			Oth - Weather Downtime	1.92%	5:47	2	4		
Ops - Deploying Equipment	0.12%	0:22			Oth - Other Downtime	0.80%	2:24				
Ops - Testing Equipment	1.11%	3:20			Oth - Vessel Transit	11.54%	34:43	4	10		
Ops - Retrieving Equipment											

Species Detections [Number of Individual(s) Detected]

Name	Visual Day (#)	Visual Night (#)	Potential Take A (#)	Potential Take B (#)	Name	Visual Day (#)	Visual Night (#)	Potential Take A (#)	Potential Take B (#)
Detection, Unidentified					Seal, Gray				
Dolphin, Bottlenose	169			19	Seal, Harbor				
Dolphin, Clymene					Seal, Harp				
Dolphin, Common					Seal, Unidentified				
Dolphin, Risso					Whale, Beaked species				
Dolphin, Spotted					Whale, Cuvier's Beaked				
Dolphin, Striped					Whale, False Killer				
Dolphin, Unidentified					Whale, Fin				
Dolphin, White-beaked					Whale, Humpback				
Dolphin, White-sided					Whale, Killer				
Kogia Species					Whale, Long-finned Pilot				
Porpoise, Harbour					Whale, Minke				
Sea Turtle, Green					Whale, North Atlantic Right				
Sea Turtle, Kemp's Ridley					Whale, Pilot species				
Sea Turtle, Leatherback					Whale, Rice				
Sea Turtle, Loggerhead					Whale, Sei				
Sea Turtle, Unidentified					Whale, Sperm				
					Whale, Unidentified				

Note

This report contains the final data collected during operations. These data have undergone additional rounds of quality assurance/quality control (QA/QC) and analysis, and should be considered final.

Please note that only regulatory agencies can make take determinations and the information included within indicating potential take is for IHA tracking purposes only and should not be considered an official accounting of takes.

Appendix B.

Pile Driving Activity Summary



Data	Activity	Time Activity	Time Activity	Duration
Date	Activity	Started	Ended	Activity
4/8/2024	Ops -Vibratory	13:38	13:45	0:07
4/8/2024	Ops -Vibratory	15:10	15:23	0:13
4/9/2024	Ops -Vibratory	10:23	10:30	0:07
4/9/2024	Ops -Vibratory	11:18	11:23	0:05
4/9/2024	Ops -Vibratory	13:07	13:12	0:05
4/9/2024	Ops -Vibratory	14:13	14:17	0:04
4/12/2024	Ops -Vibratory	13:12	13:25	0:13
4/12/2024	Ops -Vibratory	14:20	14:25	0:05
4/15/2024	Ops -Vibratory	9:45	9:50	0:05
4/15/2024	Ops -Vibratory	13:58	14:02	0:04
4/20/2024	Ops -Vibratory	11:29	12:13	0:44
4/24/2024	Ops -Vibratory	13:29	14:14	0:45
4/26/2024	Ops - Impact	10:38	11:01	0:23
4/26/2024	Ops - Impact	15:49	16:08	0:19
4/30/2024	Ops - Impact	8:55	9:31	0:36
4/30/2024	Ops - Impact	9:40	10:00	0:20
4/30/2024	Ops - Impact	10:23	10:25	0:02
4/30/2024	Ops - Impact	10:31	10:59	0:28
4/30/2024	Ops - Impact	11:50	11:54	0:04
4/30/2024	Ops - Impact	11:54	12:03	0:09
5/1/2024	Ops - Impact	12:07	12:24	0:17
5/1/2024	Ops - Impact	12:34	12:52	0:18
5/1/2024	Ops - Impact	13:44	13:58	0:14
5/1/2024	Ops - Impact	14:10	14:27	0:17
5/1/2024	Ops - Impact	15:16	15:40	0:24
5/2/2024	Ops -Vibratory	10:56	10:59	0:03
5/2/2024	Ops -Vibratory	11:10	11:14	0:04
5/2/2024	Ops -Vibratory Ops -Vibratory	11:37	11:41 12:09	0:04
5/2/2024 5/2/2024	Ops -Vibratory	11:46 12:14	12:18	0:23 0:04
5/2/2024		12:14	12:16	0:04
5/3/2024	Ops -Vibratory Ops -Vibratory	11:16	11:20	0:04
5/3/2024	Ops -Vibratory	11:24	11:30	0:06
5/3/2024	Ops -Vibratory	11:45	11:48	0:03
5/3/2024	Ops -Vibratory	11:58	12:07	0:09
5/3/2024	Ops -Vibratory	12:10	12:12	0:02
5/3/2024	Ops -Vibratory	12:17	12:22	0:05
5/3/2024	Ops -Vibratory	12:26	12:30	0:04
5/3/2024	Ops -Vibratory	12:36	12:42	0:06
5/6/2024	Ops - Impact	8:34	8:53	0:19
5/6/2024	Ops - Impact	9:02	9:23	0:21
5/6/2024	Ops - Impact	9:33	9:51	0:18
5/6/2024	Ops - Impact	9:59	10:17	0:18
5/6/2024	Ops - Impact	10:27	10:45	0:18
5/6/2024	Ops - Impact	12:02	12:12	0:10
5/6/2024	Ops - Impact	13:12	13:38	0:26
5/6/2024	Ops - Impact	13:48	14:12	0:24
5/7/2024	Ops -Vibratory	8:48	8:49	0:01
5/7/2024	Ops -Vibratory	9:04	9:09	0:05
5/7/2024	Ops -Vibratory	9:14	9:19	0:05
5/7/2024	Ops -Vibratory	9:30	9:34	0:04
5/7/2024	Ops -Vibratory	9:43	9:47	0:04
5/7/2024	Ops -Vibratory	9:55	9:59	0:04
5/7/2024	Ops -Vibratory	13:06	13:10	0:04
5/7/2024	Ops -Vibratory	13:17	13:30	0:13
5/7/2024	Ops -Vibratory	13:30	13:35	0:05
5/7/2024	Ops -Vibratory	13:39	13:44	0:05
5/9/2024	Ops - Impact	14:52	15:04	0:12
5/9/2024	Ops - Impact	15:20	15:33	0:13
5/9/2024	Ops - Impact	15:41	15:56	0:15
5/9/2024	Ops - Impact	16:09	16:26	0:17

		Time Activity	Time Activity	Duration
Date	Activity	Started	Ended	Activity
5/9/2024	Ops - Impact	16:34	16:51	0:17
5/10/2024	Ops - Impact	9:42	9:52	0:17
5/10/2024	Ops - Impact	10:01	10:05	0:04
5/10/2024	Ops - Impact	10:11	10:17	0:06
5/10/2024	Ops - Impact	10:28	10:31	0:03
5/10/2024	Ops -Vibratory	13:37	13:39	0:02
5/10/2024	Ops -Vibratory	13:45	13:50	0:05
5/10/2024	Ops -Vibratory	13:54	13:57	0:03
5/10/2024	Ops -Vibratory	14:00	14:06	0:06
5/10/2024	Ops -Vibratory	14:10	14:12	0:02
5/10/2024	Ops -Vibratory	14:14	14:16	0:02
5/10/2024	Ops -Vibratory	14:24	14:25	0:01
5/10/2024	Ops -Vibratory	14:29	14:33	0:04
5/11/2024	Ops -Vibratory	13:01	13:05	0:04
5/11/2024	Ops -Vibratory	13:09	13:15	0:06
5/11/2024	Ops -Vibratory	13:23	13:25	0:02
5/11/2024	Ops -Vibratory	13:30	13:35	0:05
5/11/2024	Ops -Vibratory	13:38	13:40	0:02
5/11/2024 5/11/2024	Ops -Vibratory	13:43	13:48	0:05
5/11/2024	Ops -Vibratory Ops -Vibratory	13:55 14:06	13:58 14:10	0:03 0:04
5/11/2024	Ops -Vibratory	14:15	14:17	0:04
5/11/2024	Ops -Vibratory	14:20	14:24	0:04
5/15/2024	Ops - Impact	8:26	9:00	0:34
5/15/2024	Ops - Impact	9:06	9:29	0:23
5/15/2024	Ops - Impact	13:38	14:03	0:25
5/15/2024	Ops - Impact	14:10	14:31	0:21
5/15/2024	Ops - Impact	14:50	15:13	0:23
5/15/2024	Ops - Impact	15:51	16:13	0:22
5/15/2024	Ops - Impact	16:18	16:34	0:16
5/16/2024	Ops - Impact	7:56	8:15	0:19
5/16/2024	Ops - Impact	8:21	8:37	0:16
5/16/2024	Ops - Impact	8:47	9:06	0:19
5/17/2024	Ops -Vibratory	9:45	9:48	0:03
5/17/2024	Ops -Vibratory	10:01	10:06	0:05
5/17/2024	Ops -Vibratory	10:10	10:15	0:05
5/17/2024	Ops -Vibratory	10:30	10:36	0:06
5/17/2024	Ops -Vibratory	12:59	13:03	0:04
5/17/2024 5/20/2024	Ops -Vibratory	13:08 9:59	13:14 10:16	0:06 0:17
5/20/2024	Ops - Impact Ops - Impact		10:16	
5/20/2024	Ops - Impact	10:50 11:48	11:55	0:08 0:07
5/20/2024	Ops - Impact	11:58	12:05	0:07
5/20/2024	Ops - Impact	13:04	13:05	0:01
5/20/2024	Ops - Impact	13:09	13:10	0:01
5/20/2024	Ops -Vibratory	14:22	14:25	0:03
5/20/2024	Ops -Vibratory	14:29	14:32	0:03
5/20/2024	Ops -Vibratory	14:37	14:40	0:03
5/20/2024	Ops -Vibratory	14:45	14:46	0:01
5/20/2024	Ops -Vibratory	14:52	14:54	0:02
5/20/2024	Ops -Vibratory	14:58	15:00	0:02
5/20/2024	Ops -Vibratory	15:03	15:05	0:02
5/20/2024	Ops -Vibratory	15:08	15:09	0:01
5/20/2024	Ops -Vibratory	15:15	15:17	0:02
5/20/2024	Ops -Vibratory	15:19	15:20	0:01
5/20/2024	Ops -Vibratory	15:24	15:25	0:01
5/20/2024	Ops -Vibratory	15:27	15:31	0:04
5/20/2024 5/20/2024	Ops -Vibratory	16:12 16:17	16:14 16:18	0:02 0:01
5/20/2024	Ops -Vibratory Ops -Vibratory	16:17 16:21	16:18	0:01 0:02
5/20/2024	Ops -Vibratory	16:25	16:23	0:02
31 201 2024	- CD3 - VIDIALUI V	10.23	10.2/	0.02

Date	Activity	Time Activity Started	Time Activity Ended	Duration Activity
5/20/2024	Ops -Vibratory	16:29	16:33	0:04
5/20/2024	Ops -Vibratory	16:35	16:38	0:03
5/20/2024	Ops -Vibratory	16:41	16:45	0:04
5/20/2024	Ops -Vibratory	16:46	16:47	0:01
6/14/2024	Ops -Vibratory	7:30	8:00	0:30
6/14/2024	Ops -Vibratory	9:00	9:30	0:30
6/14/2024	Ops -Vibratory	9:55	10:00	0:05
6/14/2024	Ops -Vibratory	10:20	11:20	1:00
6/14/2024	Ops -Vibratory	11:50	12:00	0:10

Appendix C.

TC Energy Concrete Pile Driving Report



TC Energy Engineering Form	TC Energy	Fnels	perin	g Form						_		-						1
														(r)	<u> </u>			-
				riving H									_	(1)		ergy		1
Project/Site: YE Energy Grand Isla, MJOSIMS EXP Pipeline Date (Idd/mm/yy): Auger Diameter: AV/A Make of Hammer: B3P CML - 1440		<u> </u>							Status	:	IFU			Publish Da	ate:	1/17/2024		1
Project No. 24015 Auger Dimenter: AV/A	SECTION	1 A:	GENE								-		-					4
Project No. 24016 Auger Diameter: BSP ML - 1440	ProJect/	Site:	;	TC Energy	Grand Isle,	M.001145	ELXP Pipe	ine	Date	(dd	/mm/yy): 0	4/20	124				
Pilling Contractor: Sanfeve Make of Hammer:	Project (No.:		24016)				Auge	er Di	ameter:	•						1
OC Inspector: Taylor Stree	Piling Co	ontra	actor	Sea	level				Mak	e of	Hammer	. B1			140	•. •		1
TC Energy Rep.: Two nwy man Hammer Weight: 24, 25D Prawing II(s): SECION B: PILE INFORMATION Type: Oylinder Pile Size (in): 36 Bent: 6 Cushion Thickness: 1/2 Cus		/			1 :01	les []	210/08	ts Pa								, ,		-
Drawing #i(s): SICOLO R				T	· an -	700	Ama	\mathcal{M}				<i>'</i> —	,	<u>`</u>				4
SECTION 8: PILE INFORMATION Type: Cylinder Pile Size (in): 36	}			\overline{S}	KSM	1 1	<u> </u>	<u> </u>	.,.,,,	****	Weight			700				1
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SECTION C: ELEVATION INFORMATION Part	l enoth /				- Spli											~/ <u>/</u> 4		1
Reference Elevation: N AO % Design Tip Elevation: - 13 (a)								Spi	ice inp	sec	tea ana i	nstalled	per requ	irements	ST Y/N	<u> </u>	<u>_</u>	-
Pre-Drill Elevation: NI/A Design Tip Elevation: - 13							-	G.S	./Mud	lline	Elevation	n: 🕶	~ -	<u></u>		· · ·		┨ .
Final Elevation: 32	1								•									1
SECTION D: PILE DESIGN AND DRIVING INFORMATION CO C3 C1 C2 C3 C4 C4 C4 C4 C4 C4 C4					3	2 '									4 0 -	المامية	4.0	4.7.50
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TC Energy E	Engine	ering	Form						·						13.7	
Concret	e Pile	e Di	riving Re	ecord									_ (V)	TC En	ergy	
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Project/S	Site:	•	TC Energy (Grand Isle, I	VI.00114	5 ELXP Pipeli	ne	Date	(dd/	mm/yy)	:	24/2	6/14			
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Drawing						RI										
SECTION	B: PI	LE II	NFORMA	TION			4.1		•							
Туре:	Cylind	ler P	ile	Size	(in):	36		t: _	-	<u> </u>	Cu	shion Thi	ckness:	12"		
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139 140 ECTION	/3 /3 E: POST Allgnme	nt (%):	159 160 LATION	< 2 %		179 180 Hor		Deviation	199 200 (in):		.25	219 220		
139 140 ECTION Vertical PDA Re-	/ 3 / 3 NE: POST Alignmentstrike Pe	nt (%): erformed	159 160 LATION	(27 No		179 180 Hor			199 200	0	. 25	219 220		
139 140 ECTION ertical DA Re-	/3 N E: POST Alignme strike Pe	nt (%): erformed しつる	159 160 LATION	(27 No		179 180 Hor			199 200 (in):		.25	219 220		
139 140 ECTION Vertical PDA Re- PDA Blo	/ 3 / 3 N E: POST Alignme strike Pe ws:	nt (%): erformed LOQ IMENTS	159 160 ATION ?: PDA Set	く270 パロ:(In):	PDA Da	179 180 Hor		PD.	199 200 (In): A Strike:		-	219 220		
139 140 ECTION Vertical PDA Re- PDA Blo ECTION temark	/ 3 N E: POST Alignme strike Pe ws: N F: COM	nt (%): erformed LOQ IMENTS	159 160 LATION ?: PDA Set	く 2 70 パロ: (In):	PDA Da	179 180 Horte:	le splich	PD.	199 200 (In): A Strike:		-	219 220	re-drilling	repor
139 140 ECTION ertical DA Re- DA Blo ECTION	/ 3 N E: POST Alignme strike Pe ws: N F: COM	nt (%): erformed LOQ IMENTS	159 160 ATION ?: PDA Set	く 2 70 パロ: (In):	PDA Da	179 180 Horte:	le splich	PD.	199 200 (In): A Strike:		-	219 220	e-drilling	report
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Project/S	Site	:	TC Energy	Grand Isle,	M.00	1145	ELXP Pipeli	ne	Dat	e (do	I/mm/yy):	4//3	0/3	24		
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Piling Co	ntr	actor	: <u>Sea</u>	level					Ma	ke of	Hamme	r:	35P	CXL	- 140	ງ	
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Final Ele	vati	on:		3	<u>á</u> '	'											
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126	13		146			166			186			206		
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129	130	<u> </u>	149			169		†	189	<u></u>		209		
130	16		150			170		 	190			210		
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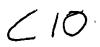
Page 2 of 2

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Concrete	e Pil															
tem ID;		e Dri	ving R	ecord				,					()	TC Er	ergy	
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125	15		145	15		165			185			205		
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		i sheet lf	required	l) Provide	comme	nts an all	e spiicini	a procodi	IFAC DITA	damagai	durina d	riving, nr	e-drilling	reports
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TC Energy	Englr	eering	Form																
Concret	e P	le D	riving R	ecord												()	TC En	ergy	
item ID:	N/A			Rev:	0					Status	;	IFU				Publish Da		1/17/2024	
SECTION	A: (SENE	RAL INFO	ORMATIO	N														
Project/S	Site:		TC Energy	Grand Isle,	M.00	1145	ELXP Pipeli	ne		Date	(dd	/mm/yy): 6	5-/	O	1/21	1		
Project N	No.:		24016				_			Auge	er Dl	ameter:		N	A		•		
Piling Co	ntra	ctor	Sea	level						Mak	e of	Hamme	er:	250		CXL	-140		
QC Inspe	ecto	r:		Vick	Ac	Ma	uns'			Ham	mer	Drop (fl	t):	75	1	-4'			
TC Energ	gy Ro	ep.:		Van	11	Du	+ma	<u>n</u>		Ham	mer	Welght	:	4	2	50			
Drawing	#(s)	:		<u> SKS 1</u>	201		RI												
SECTION	B: 1	ILE I	NFORMA	ATION							_						<u> </u>		
Туре:	Cylli	nder I	ile	Slze	(ln):		36		Ben	t:			Cu	shion	Thl	ckness:		12"	
Drawing			_		plle	r Pile	. 4		•				-		4				
			02	•		No.:	CP-J	9	Driv	e Tin	ne Si	tart / En	d: <u>2</u>	0 8	PL	<u>'</u>		1252	M
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	-			FORMAT			<u> </u>						9					49	
Reference					41	8	3					Elevation		N	- 0	<u>', '</u>			
Pre-Drill			n:		<u> </u>	<u> </u>			Des	ign Ti	ip El	evation:		-!	<u> </u>				
Final Ele					<u>~</u>														
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						TC Energ	y Enginee	ring Form						
concret	e Pile D	riving R	ecord						!	Marketon At		(X) TO	C Ene	rgy
em ID:	N/A		Rev:	A			Status:	Review			Pub	lish Date:	10/4/2023	
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123	12		143	18		163			183			203		
124	12		144	18		164		 	184			205		-
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126	13		146			166		 	187			207		-
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128	13		148			168		-	188			209		-
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WA		Hommeu			FUA U			_ ''	A Strike.					
		. d.Q												
PDA Blo	ws:		PDA Set	. (111).										
PDA Blo	ws: <u>L</u>	MENTS												
PDA Blo SECTION Remark	N F: COM	MENTS sheet If	required	l) Provide			-	g proced	ures, pile	damage	during o	driving, pre	e-drilling	report
PDA Blo SECTION	N F: COM	MENTS sheet If	required	l) Provide		nts on pli ons for cla	-	g proced	ures, pile	damage	during o	driving, pro	e-drilling	report
PDA Blo SECTION Remark	N F: COM	MENTS sheet If	required	l) Provide			-	g proced	ures, pile	damage	during o	driving, pro	e-drilling	report
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PDA Blo SECTION	N F: COM	MENTS sheet If	required	l) Provide			-	g proced	ures, pile	damage	during o	driving, pro	e-drilling	report
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PDA Blo SECTION	N F: COM	MENTS sheet If	required	l) Provide			-	g proced	ures, pile	damage	during c	driving, pro	e-drilling	repor
DA Blo ECTION	N F: COM	MENTS sheet If	required	l) Provide			-	g proced	ures, pile	damage	during (driving, pro	e-drilling	report
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PDA Blo SECTION	N F: COM	MENTS sheet If	required	l) Provide			-	g proced	ures, pile	damage	during c	driving, pro	e-drilling	report
PDA Blo SECTION Remark depths	N F: COM	MENTS sheet If	required	i) Provide thes of pi	le locatio		-			damage				report
PDA Blo SECTION Remark depths	N F: COM s (Attach and dian	MENTS sheet If neters),	required	f) Provide thes of pi	le locatio		-		ures, pile	damage		ate (MM/DD	9 / YY)	report
PDA BloseCTION Remark depths depths Name	N F: COM s (Attach and dian	MENTS sheet If neters),	required	Compa	ny		-	SIE	gnature No.	damage	D:	ate (MM/DD	nm) 124	report
PDA Blo SECTION Remark depths	N F: COM s (Attach and dian	MENTS sheet If neters),	required	f) Provide thes of pi	ny		-	SIE		damage	D:	ate (MM/DD	nm) 124	report

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TC Energy	Engin	eerin	g Form			P										
Concret	e Pi	le D	riving R	ecord									()	TC Er	ergy	
item ID:	N/A			Rev:	0			State	us:	IFU			Publish Da	te:	1/17/2024	1
SECTION	A; G	ENE	RAL INF	ORMATIO	N											
Project/	Site:		TC Energy	Grand Isle,	M.001145	ELXP Pipeli	ine	Dat	e (do	d/mm/yy): <u> </u>	5/0	ما/ لاد			
Project N	No.:		24016					Aug	ger D	lameter:	•	NA	!			
Piling Co	ntra	ctor	<u>Sea</u>	level				Ma	ke of	Hamme	r:	35P	CXL	-14	0	
QC Inspe	ector	:	\mathcal{A}	delam	M	ick		Har	nme	r Drop (fi	t):	1.75	-1-4			
TC Energ	gy Re	р.:		Van	Trou	itm	n	Har	nme	r Welght	:	24,	250	165	7	
Drawing	#(s):	:	<u></u>	5KS0	UL	RI										
SECTION	B; P	ILE I	NFORM	ATION							1 .					1
Type:	Cylin	der I	Pile	Size	(in):	36	<u>∍</u> Be	nt:			_ Cu	shion Thi	ickness:		2"	
Drawing		_	1 7		plier Pile							^-		•	- ,) <i>a</i> .
1			<u>:03</u>	="		<u>Z P " l</u>					d: <u>10</u>				2000	4(
Length (Splic FORMAT	e (ft):		Sp	lice Ir	psec	ted and	Installed	per requ	irements	? Y/N		
Reference		_			90		G.	s /Mi	ıdline	e Elevatio	nn'		1-4'			
Pre-Drill						-				levation:			13/2			
Final Ele	vatio	n:		7	۱//								30	_		
SECTION	D: F	PILE	DESIGN A	AND DRIV	ING INFO	DRMATIC	DN:				6					
Depth			Stk	Depth		Stk	Depth	T		Stk	Depth		Stk	Depth		Stk
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4				28			52	┼	1		76	-		100	_5	-
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11				35	_		59				83	4		107	G	
12				36			60				84	5-		108	2	
13				37			61				85	4		109	7	
14		Ш		38			62				86	4		110	7	
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16			_	40			64	-	 		88	4		112	6	L
17				41	-		65	+			89	5		113	7	
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22	\dashv	\dashv		46			70				94	4		118	8	
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												78				ge 1 of 2

TC Energy Engineering Form () TC Energy **Concrete Pile Driving Record** 10/4/2023 Publish Date: item ID: N/A Rev: A Status: Review Depth Stk Depth Stk Depth Stk Depth Stk Depth Stk b/ft b/ft (ft) (ft) b/ft b/ft (ft) (ft) b/ft (ft) (ft) (ft) (ft) (ft) (ft) R(v ノロ 14. <u>&5</u> SECTION E: POST INSTALLATION < 2% Horizontal Deviation (in): 0.050 Vertical Alignment (%): PDA Strike: No PDA Re-strike Performed?: PDA Date: PDA Blows: 532 PDA Set (in): SECTION F: COMMENTS Remarks (Attach sheet If required) Provide comments on pile splicing procedures, plle damage during driving, pre-drilling reports (depths and diameters), and sketches of plle locations for clarity. Şignature Date (MM/DD/YY) Company Name / Title Nick Adams/Super Sealones
Name/Title Company
Tush Troutman / Fushing TC Seglevel Date (MM/DD/YY)

Page 2 of 2

	te Pi	le Dr	iving R	ecord	-								()	TC En	ergy	
tem ID:	N/A			Rev:	0			Statu	ıs;	IFU		-	Publish Da		1/17/2024	-
SECTION	I.A: (ENE	RAL INFO	ORMATIO	N											
Project/:	Site:	1	C Energy	Grand Isle,	M.001145	ELXP Pipeli	ne	Date	e (dd	/mm/yy);	s-/c	1/	24		,
Project i	No.:	:	24016					Aug	er Di	lameter:		1/1	4			
Piling Co		-	Seal	evel						Hamme	r:	aco	/ N	L-1	40	
QC Inspe				ick	111	, ,				Drop (ft		1 25	1 - 11	1	70	
-			-ZY	<u> </u>									<u> </u>	165		
FC Energ Drawing	•	-		sks (<u>- / </u>	utme 21		нал	nmer	· Welght:		41, a	<u> </u>	<u> </u>		
SECTION			IFODA4A	TION	/////////////////////////////////////											
		der P			(in):	36	/ [/] Ben			· · · · ·	Cu	shlon Thi	ckness:		2"	
Drawing		uci i		•	oplier Pile	Q (C).						3111011 1111	CKIIC33.		<u>"</u>	
Diewing	No.:	Ċ	04		No.:	CP-1	3 Drlv	e Tir	me Si	tart / End	d: /2	33		,	252	
Length (ft): ,	10	8	Splic	ce (ft):		ŀ	ce In	psec	ted and	Installed	per requ	irements	? Y/N		
				FORMAT					•			<u> </u>				
Referen					AD					e Elevatio	on:	/	V-6'			
Pre-Drill			:	<u>_N</u>	A	•	Des	ign T	lp El	evation:			34			
inal Ele					<u> </u>					······································						
		PILE D		ND DRIV	ING INFO		····	-						Т	<u> </u>	V-
Depth (ft)		ft !	Stk (ft)	Depth	L //L	Stk	Depth		164	Stk	Depth	L //L	Stk	Depth	1	Stk
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122	12		142	15		162		<u> </u>	182	_		202		
123	12.		143	/3		163			183			203		
124	11		144	12		164			184			204		
125	11		145			165			185			205		
126	11		146			166			186			206		<u> </u>
127	11		147			167			187_			207		
128	12		148			168			188			208		
129	10		149			169		<u> </u>	189			209		
130	11		150			170		<u> </u>	190			210		
131	12		151			171			191			211		
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134	13		154			174		<u> </u>	194			214	·	
135	13		155			175			195			215		
136	14		156			176			196			216		
137	14		157			177			197		<u> </u>	217		
138	13		158			178			198			218		
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ECTIO	N F: COM	MENTS		······································										
			regulred) Provide	commen	ts on pil	e splicin	g proced	ures, pile	damage	during o	friving, pre	e-drilling	repor
	and dian							,						
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TC Energy	Engl	neering	Form														
Concret	te P	ile D	riving R	ecord										()	TC En	ergy	
Item ID:	N/A			Rev:	ō				Stat	us:	IFU			Publish Da	ite:	1/17/2024	
SECTION	l/A:	GENE	RAL INFO	ORMATIC	N												
Project/s	Site	:	TC Energy	Grand Isle,	M.0	01145	ELXP Pipeli	ne	Dat	e (do	d/mm/yy): <u> </u>	05/6	01/2	4		
Project N	Vo.:		24016				_		Aug	ger D	lameter:		NI	4			
Piling Co	ntra	actor	Sea	level					Ma	ke of	Hamme	r: <u>B</u>	SP'	′ XL -	140		
QC Inspe	ecto	r:	Δ	ick	Aa	lda	ms		Hai	nme	r Drop (ft): <u>/</u> .	75	-41			
TC Energ	gy R	ep.:	I	Van	1	rou	4m	in	Hai	nme	r Weight:		4. 5	150			
Drawing	#(s) :		SKSO			P				-						
SECTION	B:	PILE I	NFORM/	ATION													ļ
Туре:	Cyll	nder I	Pile	Słze	(in)	:	36	Ben	t:			Cu	shlon Th	lckness:	1.	٧١/ ١	
Drawing	-			Suį	plle	r Pile		,,					- 41				
i			05	-			_CP-	- 1			tart / End					225	
Length (Splic			NA	Spli	ce Ir	psec	ted and	Installed	per requ	irements	? Y/N		
Reference				FORMAT					/64:	ıdlin	o Elouatio	· .	1/-				· ·
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Final Ele				747	74 1				1811	iip Li	CVUCIOIII		- 12	<u> </u>			
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6				30				54				78	4		102	5	
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	· · · · · · ·					TC Energ	y Enginee	ring Form						
Concre	te Pile D	riving R	ecord						į			(A) T	C Ene	гду
em ID:	N/A		Rev:	A			Status:	Review					10/4/2023	
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121	9		141	12		161			181			201		
122	٦		142	16		162			182			202		
123	8		143,	14		163			183			203		
124	5		144	17		164			184			204		
125	10		145			165			185			205		
126	10		146			166			186			206		
127	9		147			167			187			207		
128	11		148			168			188			208		
129	.//		149			169			189			209		
130	11	İ	150			170			190			210		
131	12		151		1	171			191			211	•	
132	13		152			172			192			212		
133	13		153			173			193			213		
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135	12		155			175			195			215		
136	12,		156			176			196			216		
137	13		157			177			197			217		
138	13		158			178			198			218		
139	12		159			179			199			219		
140	15	1	160			180			200			220		
ECTIO	N E: POST	INSTAL	LATION											
ertical	l Alignme	nt (%):		<u> </u>	70	Hor	izontal	Devlation	(in):	0.	103			
DA Re	-strike Pe	rformed	?:	No	PDA Da	te:		PD	A Strike:	•	-			
DA Blo	ows: 5	43	PDA Set	t (ln):				_						
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	Adams	/54	per	Ye	ale	vel			10-10	_	_	<u> 5/()</u>	124	
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TC Energy E	ngine	ering i	Forns														
Concrete	e Pil	e Dr	lving Re	cord										()	TC En	ergy	
item ID:	N/A			Rev: ()				Status	: 11	FU			Publish Dat	e: :	1/17/2024	
SECTION	A: G	ENEF	RAL INFO	RMATIO	N												
Project/S				Grand Isle, I		1145 E	LXP Pipelin	ie	Date	(dd/	mm/yy):	0	5/0	6/2	L/		
Project N	lo.:	3	24016						Auge	er Ola	meter:		·	1//1			
Piling Cor	ntrac	tor:	Seal	evel					Mak	e of I	-lammer:	\mathcal{B}	5P	CXL	-140	<u>ა</u>	
QC Inspe	ctor	:	N	cll	A	dd	ams		Ham	mer	Drop (ft)	:	25'-	91	_		
TC Energ	y Re _l	p.:	IV	an -	11	M	tmeir	1_	Ham	mer	Weight:	_ 6	14,2	501	b5		
Drawing	#(s):			SKS E	20		RI						•				
SECTION	B: P	ILE II	NFORMA	TION:							· .		•				
Туре:	Cylin	der P	lle	Size	(in):		36'	Ben	t:		4	Cus	hion Thi	ckness:		<u> 2'' </u>	
Drawing	Plle	~		Sug	plle	r Pile)			
	No.:	<u>13</u>	-4			No.: 9	cp 9	Driv	e Tin	ne St	art / End	: <u>/</u> 3/	18 P	u_		412,	11
Length (ft):	16	28_	Splic	ce (f	t):		Spli	ce In	psect	ed and I	nstalled _I	er requi	rements	? Y/N	.•	
SECTION	C: E	LEV/	TION IN	FORMAT	ION											•	
Reference	e Ele	evati	on:			2 2	33_		•		Elevatio	n:	~	<u>- 6</u>			
Pre-Drlll):		<u> </u>	<u></u>				-	evation:		<u> </u>	<u> 36 </u>			
Final Ele					<u>''</u>			\mathcal{B}_{I}	<u>lc</u>	fak	un f	rom !	pHon	1 of	templ	et @	8,654,
SECTION	D: F	ILE L	DESIGN A	ND DRIV	ING	INFO	PRMATIC	N					· .		<u> </u>		
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2				26				50	<u> </u>	+		74	7_		98	6	
3				27	_	<u> </u>		51		14		75			99	8'	
4				28 ·		_		52	ļ	44		76	4		100	7	
5				29	_	<u> </u>		53	<u> </u>	+		77	50-	ļ	101	/	+-+
6				30	_			54	<u> </u>	4-1		78	6		102	10	
7				31	Ш		ļ	55		4-1		79	2		103	8	+
8				32				56		+		80	4_	ļ	104	87	
9				33	 _	_		57			_	81	4 7	ļ	105	8	
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	te Pile D	riving R	lecord							**************************************		(X) T	C Ene	rgy
em ID:	N/A		Rev:	Α			Status:	Review			Pub		10/4/2023	
Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk	Daneh		St
(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	Depth (ft)	b/ft	Str (ft
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122	11		142	15-	_	162		<u> </u>	182			202		
123	13		143	12		163		1	183			203		
124	14		144	12		164		 	184			204		
125	11		145	12		165		t	185			205		
126	17		146			166	_	 	186			206		
127	14		147			167		1	187			207		
128	13		148			168		 	188			208		
129	14		149	_		169		1	189			208		
130	13		150			170		 	190			1		
131	16		151			171			191			210		
132	15		152			172		 				211		
133	10-		153			$\overline{}$			192			212		
134	150		154			173		 	193			213		
135	15					174		 	194			214		
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137	17					176			196			216		
138	13		157			177			197			217		
	13		158			178			198			218		
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140		101	160			180			200			220		
	VE: POST		ATION	24	_			•	4. 1					
	Alignmer strike Per			2%			zontai D	eviation	· · ·	0.	071			
OA Blo					PDA Dat	e;		. PD#	A Strike:		-			
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CTION	F: COM	MENTS											-	
	s (Attach	sheet If	required	Provide	commen	its on pile	splicing	procedu	res, plle (damage d	uring di	lving, pre	-drilling r	eport
mark		neters), a	nd sketch	es of pile	e location	ns for clar	ity.	•	•					•
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TC Energy	Engine	eering	Form													
Concret	e Pi	le D	riving R	ecord									()	TC En	ergy	1
item ID;	N/A			Rev:	0			Statu	15:	IFU			Publish Da	ite:	1/17/2024	
SECTION	A: 0	ENE	RAL INFO	ORMATIC	N											
Project/S	Site:		TC Energy	Grand Isle,	M.001145	ELXP Pipel	Ine	Dat	e (dd	/mm/yy]): <u>05</u>	-/04	124	<i>p</i>		
Project N	lo.:		24016					Aug	er Di	ameter:		1	1/14			
Piling Co	ntra	ctor	Seal	level				Mal	ke of	Hammer	r:	35P	CXI	14	J .	
QC Inspe	ector	:	\mathcal{N}	ill	Ada	ins		Han	nmer	Drop (ft): <u>/</u>	75'-	4'			
TC Energ	gy Re	р.:		Ivan	In	autm	an	Han	nmer	Weight:		14, 2	50 /	55		
Drawing	#(s)	:		<u>SKS0</u>	01	RI										<u></u>
SECTION	B: P	ILE 1	NFORM/	ATION										•		
Туре:	Cylin	der 1	ile	Size	(in):	36	Ber Ber	t:		5	Cu	shlon Thi	lckness:		2"	
Drawing	Plle	0	<i>[</i> **	Su	oplier Pile					•						_
	No.:	1);	<u>-5</u>		No.	CRU	Driv	/e Ti	me S	tart / End	d: <u>13</u>	1081	1		337 F	24
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Pre-Drill Final Ele			n:		7/4			_		evation:		-/\) 6		1 - 0	2156
ļ				<u> </u>	d			<u>/C</u>	<u>tak</u>	en t	com b	offom	0f 1	Chyopol	<u>e68.</u>	65 FJ
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4	П			28			52				76	3		100	10	
5	П			29			53				77	4		101	9	
6				30			54				78	4		102	5	
7				31			55				79	4		103	8	
8				32			56				80	4		104	8	
9				33			57				81	4		105	51	
10				34			58	<u> </u>	ļ		82	_5		106	8	
11				35		ļ	59	<u> </u>	<u> </u>		83	4		107	8	
12	_			36			60	_			84	<u> </u>		108	10	
13		_		37		<u> </u>	61	ļ_	<u> </u>		85	6		109	5	ļ
14				38	$\vdash \vdash$		62	_		· ·	86	۲,		110	10	
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16 17				40	 	-	64 65	\vdash			88 89	6		112	10	
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19		1		43	- -	 	67	Н			91	7		115	10	
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21	H			45		 -	69	М	-		93	8		117	12,	
22	 			46			70	5	_		94	9		118	12	
23		1		47			71		>		95	8		119	13	T
24		1		48			72		5		96	8		120	11	
								٦′	$\overline{}$			134			TILL Pa	ge 1 of 2

						TC Energ	y Enginee	ring Form	,					
oncret	e Plle D	riving R	ecord									() T	C Ene	rgy
em IO:	N/A		Rev:	Α			Status:	Review			Publ	Ish Date:	10/4/2023	
Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk
(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)
121	14		141	17		161			181			201		
122	16		142	14		162			182			202		
123	15-		143	17		163			183			203		
124	14		144	15-		164			184			204		
125	16		145	14		165			185			205		
126	16		146			166			186			206		
127	17		147			167			187			207		
128	17		148			168			188			208		
129	19		149			169			189			209		
130	16		150			170			190			210		
131	17		151			171		Į.	191			211		
132	15		152			172		1	192			212		
133	15		153			173			193			213		
134	13		154			174			194			214		
135	14		155			175			195			215		
136	14		156			176			196			216		
137	15		157			177			197			217		
4	14		4 11 1			-		T						
138	1/ 1/	ł	158	1	ŀ	178			198			218		
138 139	15		158 159			178 179			198 199			218 219		
139 140	15	INSTALL	159 160	79								+		
139 140 ECTION ertical DA Re- DA Blo	V E: POST Alignmentstrike Per	nt (%): rformed	159 160 ATION	79 <27 <u>Vo</u> :(in):	PDA Dat	179 180 Hor	izontal (Deviation PD	199 200	_0	. 178	219 220		
139 140 ECTION ertical DA Re- DA Blo ECTION emark	Alignmentstrike Perows: The COM	nt (%): rformed 50 MENTS sheet If	159 160 ATION PDA Set	(2 ⁵ 7 <u>Vo</u> (In):	PDA Dat	179 180 Horte:	e splicin	_ PD/	199 200 (In): A Strlke:	damage		219 220	e-drilling	repor
139 140 ECTION ertical DA Re- DA Blo ECTION emark	V E: POST Alignments of the Period of the Pe	nt (%): erformed 52 MENTS sheet If meters), a	159 160 ATION PDA Set	(2.57 (in):	e comme le locatio	179 180 Horte:	e splicin	g proced	199 200 (In): A Strlke:	damage	during o	219 220)/Y) 24	repor

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TC Energy E	ngineerir	g Form														
		riving R	ecord										()	TC En	ergy	
Item ID:	N/A		Rev:	0				Status:	IFL	U			Publish Da		1/17/2024	
SECTION	A: GEN	ERAL INFO	DRMATIO)N												
Project/S			Grand Isle,		145 E	LXP Pipeli	ne	Date (id/n	nm/yy)	: <u>C</u>	5/0	6/z	4		
Project N	lo.:	24016						Auger	Diar	neter:		N	/A			
Piling Co	ntracto	: Sea	level					Make	of H	ammer	: _13	5P	CXL	- 140	9	
QC Inspe	ctor:	$\overline{\mathcal{N}}$	ick	Ac	id	amj		Hamm	er D	rop (ft):].	75'-	4'			
TC Energ	y Rep.:		/ Van) [Tra	och	an	Hamm	er V	Velght:	_0	14,2	50 1	p 2		
Drawing	#(s):		SKSO	01		Pl						7				
SECTION	B: PILE	INFORM	ATION									, .				
	Cylinder			(ln):		36	Ben	t:	6		Cu	shion Thi	ckness:	_16)"	
Drawing	Pile 🕜	6	Su	ppller	Plle	10 7			_		. ~2	7			•	
	No.: []	- 10	-			<u>CP-7</u>	_			rt / End		30Ax	-		53 AN	1
Length (8		ce (ft) :		Spli	ce Inps	ecte	d and I	nstalled	per requ	rements	3 A\N		
		ATION IN	IFORMAT	ION	7	83	6.6	/NAU-411	no f	levatlo	ını	<u>~</u>	6		· · · · · ·	
Reference Pre-Drill				// <u>/</u>	<u>/</u>	د		/iviuaii ign Tip			'''i —	130				
Final Ele)11;	<u>/U</u>	7 / FI				לוו נוצו 1 - ר	ciev	la	<u>ν</u>	100	<u>, </u>	01	1.1.	00
		, EDIONI	<u></u>	1110	14150		<u></u>	<u> </u>	af	len	From	hof,	form	of ten	ys late	Q 8.
	D: PILE	DESIGN		T	INFC)N	<u>.</u>	-1		· · · · · · · · · · · · · · · · · · ·			1		
Depth (ft)	b/ft	Stk (ft)	Depth (ft)	b/	/Fa	Stk (ft)	Depth (ft)	b/ft		Stk (ft)	Depth (ft)	b/ft	Stk (ft)	Depth (ft)	b/ft	Stk (ft)
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3	-		27			· · · · · · · · · · · · · · · · · · ·	51		+		75	5		99	6	
4			28				52			_	76	5		100	5-	
5			29	İΠ			53				77	5-		101	6	
6			30				54				78	4		102_	6	
7			31				55				7 9	4		103	6	
8			32	\square			56				80	ح		104	7	
9		1	33				57	$\sqcup \bot$	\bot		81	5-		105	7	<u> </u>
10	Ш	_	34	\coprod			58				82	4	ļ <u></u>	106	7	<u> </u>
11	- -		35	\sqcup			59	<u> </u>			83	4/		107	7	igsquare
12	-	 	36	\sqcup			60		4		84	4		108	8	
13	├ ├		37	\sqcup			61	$\vdash \vdash$	\bot		85	4	<u> </u>	109	5"	
14	-		38	$\vdash \dashv$			62	┟╌┼	4		86	معرى		110	8	
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16	 		40	╂╼╂			64		+		88	5		112	5	
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18 19	 	+	42				66 67		+		90 91	3		115	10	
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21 22 23			46	 	-	ļ	71		十		95	6		119	1. 5	

Concre			•			TC Energ	y Engineer	ing Form				<i>(</i>) -		
	te Plle D	riving R	ecord									(()		гg
Item ID:	N/A		Rev:	A			Status:	Review			Publ	Ish Date:	10/4/2023	
Depth (ft)	b/ft	Stk (ft)	Depth (ft)	b/ft	Stk (ft)	Depth (ft)	b/ft	Stk (ft)	Depth (ft)	b/ft	Stk (ft)	Depth (ft)	b/ft	
121	1 2	(11)	141	16	(11)	161	D/IL	(11)	181	D/IL	(11)	201	טוונ	
122	11		142	180	<u> </u>	162			182			202	-	-
123	14	•	143	17		163			183			203		-
124	13		144	181		164			184			204		
125	13		145	1/	·····	165			185			205	_	-
126	14		146	''	 	166			186		-	206		
127	1		147			167			187			207		
128	12		148			168			188			208		
129	12		149			169			189			209		_
130	11		150			170			190			210		
131	12		151			171			191			211		
132	13		152			172			192			212		
133	13		153			173			193			213		
134	13		154			174			194			214		
135	13		155			175			195			215		
136	15		156			176			196			216		
137	14		157			177			197			217		
138	14		158			178			198			218		
139	15		159			179			199			219		
140	1500		160			180			200			220		
	N E: POST	INSTALL		80								-		
	Alignmer			270	1	Hori	izontal D	evlation	(in):	D.,	365			
	-strike Pe	4		<u> </u>	PDA Da	te:		PD/	A Strlke:					
PDA Blo	ws: 6	47	PDA Set	(ln):		_								
SECTION	N F: COM	MENTS	_											
						nts on pll ons for cla		procedi	ıres, pile	damage (during d	rlving, pre	e-drilling i	ер
Remark	and dlan													
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Remark (depths					n y			İsie	nature		Dat	te (MM/DD	/ YY)	
Remark	Title	1 -		Compar	ny S	- dec		Sigi	nature	-/2		te (MM/00	M) 124	-
Remark (depths	Title Adams	1 -	-es[<u> </u>	cadeur			nature anture		_ <		124	

TC Energy I	Engln	eering	Form														
Concret	e Pl	le D	riving Re	ecord										()	TC En	ergy	
Item ID:	N/A			Rev:	0				Status	:	IFU			Publish Da		1/17/2024	
SECTION	A: 0	SENE	RAL INFO	ORMATIO	N												
Project/S	Site:		TC Energy	Grand Isle,	M.001	145	ELXP Pipeli	ne	Date	(dd	/mm/yy): 04	5/06	124	,		
Project N	lo.:		24016				,		Auge	er Di	ameter:		1)	·/A			
Piling Co	ntra	ctor:	Seal	evel					Mak	e of	Hamme	r: <u>[</u> 3	35P	CXL	- 140		
QC Inspe	ctor	r:	N	ick	Ha	de	ams		Ham	mer	· Drop (ft	:):	75'-	4'			
TC Energ	y Re	ер.:	II	an:			tma	<u></u>	Ham	mei	r Weight:		14.23	50 16	<u>, </u>		
Drawing	#(s)	:	<	SUSOU			RI								- i - i		
SECTION	B: F	PILE	NFORMA	TION.		_											
Туре:	Cylir	nder f	Pile	Size	(ln):		36"	Ben	t: _		7	Cu	shlon Th	ickness:) "	
Drawing	Pile	a.	. ר	Sup	oplier i	Plie	(P-5			_							
l							<u> </u>					d: <u>5</u> 2			923	1417	
Length (I			X ATION IN	FORMAT	ce (ft) ION	<u>: </u>		Spin	ce inp	osec	ted and	Installed	per requ	rements	37 Y/N		
Reference				NA	D 8	73	<u> </u>	G.S.	/Mud	illne	Elevation	n:	~~	6	•		
Pre-Drill	Elev	/atio	n:	N	//1			Des	ign Ti	p El	evation:		-/	36			
Final Ele	vatio	on:			32'				k ti	a.l.	em f	rom k	oftom	a.L	famo	hte O	8.65 CA
SECTION	D; l	PILE	DESIGN A	ND DRIV	ING I	NEC	DRMATIC	N									
Depth			Stk	Depth			Stk	Depth,			Stk	Depth		Stk	Depth		Stk
(ft)	b,	/ft	(ft)	(ft)	b/1	t_	(ft)	(ft)	.b/	ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)
2	-1			25 26	\dashv			49 50	\vdash			73 74	6		97 98	5	
3				27				51				75	6		99	6	
4			-	28				52				76	6.		100	7	
5				29				53				77	4		101	7	
6				30				54				78	5-		102	8	
7				31				55				79	4		103	8	
8				32				56				80	4		104	7	
9				33		L		57		1		81	مع		105	2	
10		_		34		L		58		\perp		82	4		106	9	
11				35		_		59		1		83	4		107	9	
12	-1			36		_		60		- -		84	5		108	8	-
13				37				61		╀		85	5"		109	10	
14	\dashv			38			·	62		╁	<u> </u>	86	5		110	9	
15 16				39 40				63 64		╁		87	4	ļ <u> </u>	111		\vdash
17	\dashv			41	\dashv			65		\vdash		88 89	5-		112	10	
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19	\dashv			43	$\vdash \vdash$			67	$\vdash \vdash$			91	6.	 	115	8	1
20				44	\sqcap	_		68	\Box			92	6		116	10	
21				45	\Box			69	\Box			93	5-	 -	117	8	
22				46				70				94	b		118	8	
23				47				71				95	6		119	9	
24		1		48				72			L	96	2		120	2	
													119			205 Pa	ge 1 of 2

oncrei	te Pile D	riving R	ecord			TC Energ	gy Enginee	ering Form				() T	C Ena	
														y
em ID:	N/A	 	Rev:	Α			Status:	Review			Publ	Ish Date:	10/4/2023	
Depth	T	Stk	Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stl
(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)
121	11	\'\',	141	17	1,1,7	161		 \.,	181	2710	17	201	~,,,,	
122	10	٠,	142	19		162		 	182			202		
123	11		143	17		163		 	183			203		
124	11		144	18		164		1	184			204	i	
125	11		145	9		165		-	185			205		
126	13		146			166			186			206		
127	12		147			167			187			207		
128	12		148			168			188			208		
129	13		149			169			189			209		
130	13		150			170		1	190			210		
131	14		151			171			191			211		
132	14		152			172			192			212		
133	14		153			173			193			213		
134	14		154	,		174			194			214		
135	14		155			175			195			215		
136	15		156			176			196			216		
137	14		157			177			197		•	217		
138	17		158			178			198			218		
139	14		159			179			199			219		
140	طا		160			180			200			220		<u> </u>
ECTION	N E: POST	INSTALL	ATION	81										
	Alignme			27		-	Izontai (Deviation	• •	<u> </u>	133			
	strike Pe			10	PDA Da	te:		_ PD/	4 Strike:		-			
DA Blo	ws:	<u>53</u>	PDA Set	(in):		-								
ECTION	V F: COM	MENTS						-						
			regulred) Provide	comme	nts on pl	e splicin	g proced	ures, plle	damage	during d	rlving, pre	e-drilling	repor
			and sketc					0						•
lame /	Title		****	Compar	וץ _	•		Sig	nature		Dat	tę (MM/DD,	/YY)	
		. /~		Ι ΄		. /	/	1 .	4	1	· <	5-11		
<u>15k</u>	Adan	<u>15</u> / 24			200	eleve e =					」、	3/10	124	

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TC Energy	Englnee	ering i	Form														
Concret	e Plie	e Dri	iving R	ecord										()	TC Er	ergy	
item ID:	N/A			Rev:	0		•		Statu	s:	IFU			Publish Da	te:	1/17/2024	
SECTION	A::GE	NER	ALINFO	DRMATIC	Ņ	-									,		
Project/S	Site:	Ţ	C Energy	Grand Isle,	M.00	1145	ELXP Pipeli	ne .	Date	(dd	l/mm/yy	r): <u> </u>	5/04	124			
Project N	Vo.:	2	4016						Auge	er D	lameter:		N	14			
Piling Co	ntrac	tor:	Seal	evel					Mak	e of	Hamme	r: _ <i>[</i> {	35P	CXL	-140)	
QC Inspe	ector:		N	ick	A	dd	ams		Ham	mei	r Drop (f	t):/	.75	- 4°	_		
TC Energ	gy Rep).:	IV	an	71	a	ma	n	Ham	mei	r Welght	: _6	14,2	so 16	. 5	,	
Drawing	#(s):			KSODI		K	21										
SECTION	B: P11	LE IN	FORMA	TION											,	,	
Туре:	Cylind	er Pi	le	Size	(in):		36"	Ве	nt:		8	Cu	shion Th	lckness:		7"	
Drawing	Pile No.: (7	ø	Suj	plie	r Plle	CP-11	, .				. a	<i>2</i>		0		
	-	-		•			<u>CM-11</u>					d: <u>9.</u>				5/44	
Length (Splic		t):		Spl	ice in	osec	ted and	Installed	per requ	lrements	3 A\N		- :
Reference				PORIVIA!		8	য	G	1000	Hine	Elevation	nn:	11-	7			<u> </u>
Pre-Drill					17	7- ^U -	<u> </u>				evation:	-	/ 	<u> </u>			
Final Ele					र्जु									ما الم	1. 01.	ce8.	15 11
SECTION	D: PI	LE D	ESIGN A	ND DRIV	ING	INFO	ORMATIC	/ <i>/_/</i> DN	" 	<u> </u>	017 +1	un ()	exicin	0+ 40	<u>m/xw</u>	COLL	UNTT
Depth			Stk	Depth	;		Stk	Depth			Stk	Depth		Stk	Depth		Stk
(ft)	b/f	t	(ft)	(ft)	b,	/ft	(ft)	(ft)	b/	ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)
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3	-	+		27	-1			51	-			75	1		99	<u> </u>	
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7	1	+		31				55	+			79	6		103	フ	
8		十		32	\neg			56				80	5-		104	7	
9		7	,	33				57				81	5-		105	80	
10		$oldsymbol{\mathbb{L}}$		34				58				82	5		106	8	
11	1			35				59				83	5-		107	8	
12		\perp		36				60		_		84	.5		108	8	
13	-	+		37				61	↓ —	Н		85	5		109	8	
14 15	+	+		38				62				86	<u>5</u> _		110	8	
16	+	╁		39 40				63 64	+ -			87 88	5-		111	5	
17	+	+		41		\vdash		65	\vdash	_		89	4		112	- \$,	
18	1	-		42			•	66	+			90	3-		114	10	
19	_	\top		43		П		67				91	6		115	18	
20				44				68				92	5		116	10	
21	\bot			45				69				93	6		117	11	
22				46		Ш		70				94	5-		118	10	
23		_		47		\sqcup		71	1-1	_		95	6		119	11	
24	1	L		48		1		72	<u></u>			96	(1)3		120	202 Pa	TO 1 of 2

	Engineerin											-		
Concret	te Pile D	riving R	ecord									TC En	ergy	
Item ID:	N/A		Rev:	0			Status:	IFU			Publish D	ate:	1/17/2024	
SECTION	A: GENI	ERAL INFO	ORMATIC	N										
Project/S	Site:	TC Energy	Grand Isle,	M.001145	ELXP Pipelin	e	Date (do	l/mm/yy): <u>o</u>	5/05	4/2	4		
Project N	Vo.:	24016					Auger D	lameter:			11/1			
Piling Co	ntractor	: Sea	level				Make of	Hamme	r:	180	CXL	-140		
QC Inspe	ector:	N	ich	Add	ams		Hamme	r Drop (fl	:): /	.75	-4'			
TC Energ	gy Rep.:	1	van	Tou	tma	m	Hamme	r Weight:		24	250	165		
Drawing			SKSO		Pl				-					
		INFORMA												
	Cylinder			(ln):	36"	Ben	t:	9	Cu	shlon Th	lckness:	12	1)	
Drawing	g Pile 👝	_	- Su	pplier Pile					-					
	No.: 3	<u> </u>	-	No.:	<u> CP-8</u>	Driv	re Time S	tart / En	d: <i>LO</i>	OUAL	1	10.	17 11	
Length (<u>C</u>		ce (ft):		Spli	ce Inpsed	ted and	Installed	per requ	<u>lrement</u> :	s? Y/N		
		ATION IN					/h /	- Fl **	·	<u></u>			· · ·	
	ce Elevat Elevatio		KJ/4	06:)		•	e Elevatio levation:		- 1	<u>४</u> २८			
Final Ele		11.	-73	2'					, — <u> </u>	alla.		temple	0.0.5	7/
SECTION	D; PILE	DESIGN A	AND DRIV	ING INFO	ORMATIO		C 7121	CRA P	y Gyry L	KINGIN	<u> </u>	HAMKU		. (0
Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk	Depth		S
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7	$\sqcup \!\!\! \perp$	1	31			55	igspace		79	थ	ļ	103	7	<u> </u>
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Concret						TC Ener	y Enginee	ing Form						
1	te Plle D	riving R	ecord									(X) T	C Ene	rg
item ID:	N/A		Rev:	A			Status:	Review			Pub	lish Date:		
Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk	Depth		
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121	5'		141	18		161		.,,,	181			201		
122	11		142	18	· · · · ·	162			182			202		Γ
123	11		143	/ % ′		163			183			203		
124	10		144	16		164			184			204		Τ
125	10		145	11		165			185			205		
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127	13		147			167			187			207		
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129	12,		149			169			189			209		
130	14		150		<u> </u>	170			190			210		
131	14		151		<u> </u>	171		<u></u>	191			211		
132	14	•	152	<u></u>		172			192			212		
133	13		153			173			193			213		_
134	13		154	<u> </u>	<u> </u>	174			194			214		L
135	13		155	ļ	<u> </u>	175			195			215		<u> </u>
136	15		156	ļ		176			196			216		<u> </u>
137	15		157			177			197			217		L
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	VE: POST		ATION	81					4. 3					
	Alignmer strike Per		· —		PDA Dal	-	izontai D). 17	<u> </u>		
	ws: (e			<u>100</u>		te:		. PD/	A Strike:		<u>→</u>			
				(111).		-		-,						
	F: COM													
								g procedi	ures, pile	damage (during d	riving, pr	e-drilling	rep
(depths	and dlam	neters), a	ind sketc	hes of pli	e locatio	ns for cla	rity.		<u>. </u>	•				
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Name /				Compar	nv.			Sign	nature		Da	te (MM/DD		
Name/		- /<		Compar		on l	el.		nature •	- De		te (MM/DD	0/m) 2 4	
1	. Adam	3 / Su	Per	Compar		eales C E	, el			- <u>De</u>	_ \$		24	

TC Energy	Engin	eerln	g Form											*\				
Concret	te Pl	le D	riving R	ecord											()	TC Er	ergy	
Item ID:	N/A			Rev:	0				St	atus:	ı	FU_			Publish Da		1/17/2024) — ——————————————————————————————————
SECTION	A: C	ENE	RAL INFO	ORMATIO	N													
Project/:	Site:		TC Energy	Grand Isle,	M.00	1145	ELXP Pipeli	ne	D	ate (dd/	/mm/yy)): <u>0</u>	5/0	6/2	4		
Project N	Vo.:		24016	-					A	uger	Dla	ameter:		N	/A			
Piling Co	ntra	ctor	: <u>S</u> ea	level					M	lake	of I	Hammer	r: 15	SP	CXL-	-140		
QC Inspe	ector	:	1	ICK	F	74	dan	2[_	н	amm	er	Drop (ft): <u>/</u>	75' -	-40			
TC Energ	gy Re	р.:	1	tran	_	TR.	outn	Man	н у	amm	er	Welght:	6	75' - 14, 25	10/16	5"		
Drawing	#(s)	:		SKSOC	<u>)</u>		Pl											
SECTION	l.B: P	ILE.	NFORMA	ATION								-				-	•	
Туре:	Cylin	der	Pile	Size	(in):		.36"	В	ent:		1	0	Cu	shlon Th	ckness:		2"	
Drawing	Plle	12	1 /3	Sup	plie	r Pile	rn	,										
			<u>-10</u>				CP-6										145-2	LM
Length (_			Splic IFORMAT	_	t):		IS	plice	Inps	ect	ed and I	Installed	per requ	irements	? Y/N		
Reference					12	> 5	53	G	5.S./N	/ludli	ne	Elevatio	n:	11	-60			
Pre-Drlll	Elev	atio	n:	MI	Ã							vation:		~ /	36			
Final Ele	vatic	n:		3	2'								cen E	reflor	al to	no ola	600	65 ft
SECTION	l D: F	ILE	DESIGN /	AND DRIV	ING	INFO	RMATIO	N	<u> </u>		201	<u> </u>	<u> </u>	<u> </u>	<i>V)</i> / <u>V</u>	1.72/11	<u> </u>	6017
Depth	: •		Stk	Depth			Stk	Dept	th-	-	1	Stk	Depth		Stk	Depth		Stk
(ft)	b/	f t	(ft)	(ft)	b,	/ft	(ft)	(ft)		b/ft		(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)
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6				30	\dashv			54	_	+	+		78	4		102	7	
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8				32	\exists			56		\top	7		80	V		104	8	
9				33	\perp			57					81	5-		105	7	
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23 24		\vdash		47 48		}		71 72		╁╌	+		95	6		119	11	
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						TC Ener	gy Engineer	ring Form						
oncre	te Pile Di	riving R	ecord									T (V)	C Ene	rgy
em ID:	N/A		Rev:	A			Status:	Review			Publ	ish Date:	10/4/2023	
Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk
(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)
121	12		141	18		161			181			201		
122	13		142	16	_	162			182			202		
123	12		143	17		163			183			203		
124	11		144	18		164			184			204		
125	5		145	10		165			185			205		
126	12		146			166			186			206		
127	(1		147			167			187			207		
128			148			168			188			208		
129	12		149			169			189			209		
130	11		150			170			190			210		
131	13		151			171			191			211		
132	13		152			172		1	192		,	212		
133	17		153			173			193			213		
134	14		154			174			194			214		
135	13		155			175			195			215		
136	12		156	-		176		<u> </u>	196			216		
137	11		157		-	177			197			217		
138	14		158		_	178			198			218		
139	175		159			179		1	199			219		
140	14		160			180			200			220		
	N E: POST	INSTALI	ATION	79	•	<u> </u>		-		2				
	Alignme		-	(2%	>	Ho	izontal C	eviation	(ln):	٥	.221			
	-strike Pe		?:	No.	PDA Da	te:		PD.	A Strike:					
PDA Blo	ows:(_	53	PDA Set					_						
	N F: COM													
	s (Attach and dian							g proced	ures, pile	damage	during o	iriving, pr	e-drilling	report
				•										
	/ Title			Compa		aleu	./	Slg	nature	-1	Da	ete (MM/DI	DM) 124	
Name ,	// / -													
Name, Name,	Holam Title).	1	Compa			<u> </u>	SIE	gnature	11 8	2 Di	ate (MM/DI	D/W)	

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TC Energy E	Enginearing	Form												
Concret	e Pile D	riving R	ecord						Note the second		()	TC En	егду	
item ID:	N/A		Rev:	0			Status:	IFU			Publish Da	te:	1/17/2024	
SECTION	A: GENE	RAL INFO	ORMATIC	N										ı
Project/S	Site:	TC Energy	Grand Isle,	M.001145	ELXP Pipeli	ne -	Date (do	l/mm/yy	: _5	-9- 6	24			
Project N	lo.:	24016					Auger D	lameter:		11	'A			
Piling Co	ntractor	Seal	evel				Make of	Hamme	r: <i>B</i>	50	CXC	-140)	
QC Inspe	ector:	N	:ck	Adla	lan	<u></u>	Hamme	r Drop (ft	,	75'				1
TC Energ	y Rep.:	I	van		action	lan	Hamme	r Welght:	-6	14,6	150	165_		_,_
Drawing	#(s):	.<	KSO	<u> </u>	<u>PI</u>									
SECTION	B: PILE I	NFORMA	ATION"					·.					ų v	
Туре:	Cylinder (Plle	Size	(in):	. 36	# Ben	t:	2	Cu	shion Thi	ckness:	. 10	7".	
Drawing			Su _l	pplier Pile	-0-								·-··,	
	<u>. ری</u> No.:	1-2	. ,	No.:	CP-3	Drlv	e Time S	tart / End	# 25	5180	1	30	5PM	·
Length (1	ft):	<u> 36'</u>	Spil	ce (ft):	NIA	Spli	ce Inpsec	ted and	Installed	per requi	lrements	7 Y/N	•	
SECTION	C: ELEV	ATION:IN	FORMAT	ION	•									. 1
Reference	ce Elevati	ion:		NAN	288	G.S.	./Mudline	e Elevatio	on:		1 - G			
Pre-Drill	Elevation	n:		<u> 1//A</u>		Des	lgn Tip El	evation:		1	36'			
Final Ele	vation:					<u></u> 3	K ta	ka fi	ron to	Op OF	fen	met	, C-	
SECTION	D: PILE	DESIGN A	ND DRIV	ING INFO	ORMATIC	N				7		0		
Depth		Stk	Depth		Stk	Depth	8 (**	Stk	Depth		Stk	Depth	4	Stk
(ft)	b/ft	(ft)	(ft)	b/ft	· (ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)
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_ 2			26			50			74	Ÿ		98	9	
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4			28	•		52			76	4		100	7	
5			29	,		53			`77	7		101	7	
6			30			54			78	4		102	9	
7			31			55		·	79	4		103	8	
8			32			56			80	4		104	8	
9			33		ļ	57			81	5		105	10	
10			34			58			82	5		106	_7	
11			35			59			83	4	•	107	9	
12			36			60	<u>. </u>		84	5		108	9	
13			37	<u> </u>	<u> </u>	61		ļ	85	5		109	10	
14	•		38			62			86	5_		110	11	
15			39			63			87	5		111	15	<u> </u>
16 17			40 41	<u> </u>		64			88	6		112	10	
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18 19			42 43	 		66 67			90 91	6		114	11	
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21			45	<u> </u>		69	3		93	5		117	12	· ·
22		<u> </u>	46			70	4		94	9		118	12	
23			47			71	3		95	2		119	12	
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						TC Ener	gy Enginee	ing Form						
Concre	te Plie D	riving R	ecord					•				() I	'C Ene	rç
Item ID:	N/A		Rev:	A .			Status:	Review			Publ	lish Date:	10/4/2023	
Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk	Depth		Ī
(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	·b/ft	
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136	122		156			176			196			216		
137	000	29	157	•	•	177			197			217		
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139	13		159			179			199			219		
2 140	2.4		160		·	180			200			220		
	N E: POST							_						
	l Alignmer			ره٢		-	Izontal D	eviation	(in):	0.	220	<u> </u>		
	-strike Pe	_		<u> </u>	PDA Da	te:		PD	A Strlke:					
PDA Blo	ows: , 70	<u>15</u>	PDA Set	(in):		_								
SECTIO	N F: COMI	MENTS												
Remark	ks (Attach	sheet If	required) Provide	comme	nts on pil	e splicing	proced	ures, pile	damage	during d	riving, pr	e-drilling	rej
	and dlan							•				J		
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· Name /	['] Title			Compa	_			Sig	nature .		Da	te (MM/DI	D/M)	
Niel	4 Adam	s /5,4		•	Seu	lave	1	<u>. </u>	Dr.	·	_ <	5/9	124	
	4 Adam	s/5\m	Ped	Compa	Seu	leve		<u>. </u>	nature Dature		_ <	te (MM/DD	124	

TC Energy	Englneerin	g Form			-								
Concre	Supplier Pile No.: C. 1 Splice (ft): 1/1 Splice Splice (ft): 1/2 Splice S												
Item ID:	N/A		Rev:	0			Status:	IFU			Publish Date:	1/17/202	4
SECTION	A: GENE	RAL INF	ORMATIC	NC									
Project/	Site:	TC Energy	Grand Isle,	M.001145	ELXP Pipel	ine	Date (de	d/mm/yy):	5-4	9-24		
Project I	No.:	24016					Auger D	lameter:		11	14		
Piling Co	ontractor	: Sea	level				Make o	f Hamme	r:	BSP	'LXL-	140	
QC Inspe	ector:	<u> </u>	ick	Ada	dam		Hamme	r Drop (f	t):	1.75	1-4'	· .	
TC Ener	gy Rep.:	I	van	TR	outn	nan	Hamme	r Weight	: 7	24.	250 16	<u></u>	
Drawing	; #(s):		5K5	001	P	H				7		. ,	
SECTION	B: PILE:	NFORM	ATION	•									
Type:	Cylinder I	Pile	Size	(in):	36	, " Ber	nt:	.2	Cı	shlon Th	lckness:	12"	
			Su	ppiler Pile	~~		·		,	10.00			
i		1-1.0	-			Dri	ve Time S	itart / End	d: <u>ک</u>	1817	350	2 pm	
		6'			N/B	Spl	ice Inpsec	ted and	Installed	per requ	Irements? Y/I	<u> </u>	
			IFORMAT	TON.	- 20		/AAdll	- FlW		· · ·			
1				1) 14	00				on:	$\stackrel{\sim}{\longrightarrow}$	7 - G		
i		11.		V / Pt		Des	agn up c	ievation:		<u> </u>	<u> </u>		
		Droiou "		****				<u> </u>		•	-	. .	
	I.D: PILE	I		ING INFO		T		<u>. 13-4</u>	i .	<u> </u>	r - 1	- i	
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	,			D) IC	(10)	 	b) ic	(it)					1 (11)
2				Rev: 0 Status: FU Publish Date: 1/17/2024		1							
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Concre	te Pile D	riving R	ecord						-			T (())	C Ene	rgy
em ID;	N/A		Rev:	A			Status:	Review			Publ	lsh Date:	10/4/2023	
Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk
(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)
121	11		141		-	161			181			201		ļ
122	11.		142			162			182			202		
123	10		143			163			183			203		├
124	(1		144			164			184			204		-
125	11	<u>_</u>	145			165			185			205		
126	12		146			166		ļ	186			206		
127	12		147			167		-	187			207		
128 129	12		148			168	<u> </u>		188			208		
130	41		149 150			169		 	189 190			209		
131	30	-				170		 				211	٠,	-
132	38		151			171	ļ		191 192			-	•	-
133	40		152 153	<u> </u>	 -	172			+			212 213		
134	41)		.154		 	173 174		-	193 194			214		1
135					 	1			1					
136	* HAS		155 156	-	 	175 176		 	1 <u>9</u> 5_ 196	-		215 216		
	50	141-10		 		 	 \ 		+					-
137 138	500	EN 10	157			177	┝╌┼╌		197		•	217 218		
	35		158	}	ļ	178			198			1		<u> </u>
139 140	30		159 160	 		179			199			219		
	N E: POST	INICTALL		L		180		L	200			220		<u> </u>
	Alignme		ATION	(2%		Hor	izontal D	eviation	(In):	7	106			
	-strike Pe		r: \(\frac{1}{\lambda}\)		PDA Da	-	izontai D		A Strike:		104			
	ws: 9		PDA Set											
			-	····		-						<u>-</u>		
	N F: COM													
								g proced	ures, pile	damage (during d	riving, pre	e-drilling	reports
(aeptns	and dian	neters), a	ing sketci	nes of pi	e locatio	ns for cla	rity.							
				`,										•
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				:										
	7-1-1			Ta				l _a			-1-	B = 21		
No	litie	1.	_	Compar	_	,		Sig	nature		Da م	te (MM/DD	M) 124	,
Name /	(H)	. , , , , , , ,												
Nie	K Ada	ms/5	uper_	Carana	Sea	level		- c ₁ -	n abdus		— <u> </u>			
Name /	K Ada	ms /S	upes 11-00	Compar	ny	TC 1		Sig	nature	1.	— <u> </u>	te (MM/DD		

TC Energy (ngin	eering	Form															
Concret	e Pi	le D	riving Re	ecord										()	TC En	ergy		
item ID:	N/A			Rev:	0				Stat	us:	IFU			Publish Da	ite:	1/17/2024		
SECTION	A: 6	ENE	RAL INFO	DRMATIC	N											1		
Project/S	Site:		TC Energy	Grand Isle,	M.001	145	ELXP Pipeli	ne	Dat	e (dd	/mm/yy):	5-9	-24				
Project N	lo.:		24016						Au	ger Di	ameter:		N	14				
Piling Co	ntra	ctor	<u>Seal</u>	evel					Ma	ke of	Hamme	r: <i>B</i>	SP (XL	-140	7		
QC inspe	ctor	:	N.	CK	Ad	da	lams		Hai	mmei	Drop (ft	:): <u>/.</u>	75'	-4	/			
TC Energ	y Re	:p.:	IV	an -	Tr	DU	Ma	11	Hai	mmer	· Welght:	_a	24, 2	5011	25			
Drawing	H(s)	:		51150			Ri						77 -			1		
SECTION	B: P	PILE I	NFORMA	TION				, .										
Туре:	Cylin	ider I	Plle	Size	(in):		36	" Ben	t:		/	Cu	shlon Thi	ckness:		2"		
Drawing		a	,	Su	pplier	Pile	(L)	_	-			. (1	33 Pm			5-1 P4		
1	No.:	<u>13</u>	1				<u>CP-3i</u>				tart / End					517-		
Length (I		_//	ATION IN		ce (ft	<u>):</u>	11/4	Splic	ce li	npsec	ted and	Installed	per requi	rements	57 Y/N	· · · · ·		
Reference				A. D	P	8	7	G.S.	/M	udline	Elevation	n:			6-	•		
Pre-Drill	Elev	atlo	n:	N	/A	- V -					evation:		-/	36	7			
Final Ele	vatio	on:			3	<u>)'</u>		$-\mathcal{B}$	10	to	Jus.	for	n ba	Storm	al x	ongol	10	7.65 Fe
SECTION	D: I	PILE		ND DRIV	ING	INFO									·		<u>'</u>	
Depth	h	/ft.∃	Stk (ft)	Depth (ft)	₁ ,	ft.	Stk (ft)	Depth		/ft	Stk (ft)	Depth (ft)	h/4	Stk (ft)	Depth (ft)	b/ft	Stk (ft)	
(ft) 1	1	ķIL, ₹	(10)	25	1	IL.	(IC):	(ft) 49	, K	yıtı. L	(IU)	73	b/ft	(10)	97	6	:(16)	
2				26	\Box			50				74	1		98	6		1
3				27				51				7 5			99	5		
4				28	\sqcup			52	_			76			100	6		
5	\dashv		ļ	29	oxdot			53	<u> </u>	 		77			101	7		l
6	\dashv			30	$\vdash \vdash$			54	<u> </u>	-		78			102	9		
7	\dashv			31	$\vdash \vdash$		•	55	-			79	-		103	7 6		1
8	\dashv	-		32 33	$\left - \right $			56 57		╁		80 81	4		104 105	7		
10		┝	<u> </u>	34	\vdash			58	<u> </u>	 		82	د او		105	8		
11		十		35	H			59	 	 		83	5		107	7		
12		\vdash		36	-+			60	┝	-		84	5		108	7		
13		+		37				61	\vdash			85	5		109	رع ا	_	
14		+		38	\sqcap			62	\vdash	 		86	<u>ي</u> د		110	8	·	1
15		1		39	$ \uparrow $			63				87	L		111	8	-	ĺ
16		1		40	\sqcap			64	Г			88	5		112	4		1
17		1		41				65				89	ور		113	8		1
18		_		42				66				90	<u>5</u>		114	10]
19		$oldsymbol{\mathbb{I}}$		43				67				91	Ų		115	9]
20		\mathcal{I}		44				68				92	5		116	7]
21		\perp		45		igspace		69	Ц			93	5-		117	9		
22		+		46	_	-		70	\square	-		94	5		118	9		4
23 24		+		47				71	Н	-		95 96	57	-	119 120	8		1
24	l	1		48	<u> </u>			72	_ <u>'</u>	-	I	30	10B		1 120		ge 1 of 2	1

						TC Energ	y Engineer	ing Form						
Concret	e Pile D	riving R	ecord				•					(X) T	СЕпе	rg
Item ID:	N/A		Rev:	A			Status:	Review			Publ	ish Date:	10/4/2023	
Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk	Depth		9
(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	
121	10		141	15		161			181			201		L
122	11		142	17		162			182			202		_
123	9		143	18		163			183			203		L
124	10		144	17		164			184			204		_
125	9		\145	17		165			185	_	-	205		<u> </u>
126	10		146			166			186			206		<u> </u>
127	15		147			167			187			207		<u> </u>
128	12		148			168			188			208		<u> </u>
129	11	,	149			169			189			209		<u> </u>
130	10	ļ 	150			170			190			210		<u> </u>
131	13	· 	151			171		ļ	191		 -	211 '		\vdash
132	14		152			172			192			212		
133	13		153			173		<u> </u>	193			213		
134	13		154			174			194			214		_
135	12	<u> </u>	155			175		<u> </u>	195			215		
136	/3		156	-		176			196			216		⊢
137	14		157			177			197			217	<u>-</u>	⊬
138	14		158			178	ļ	 -	198			218	-	┝
139 140	14		159 160			179	-		199 200		}	219		⊢
SECTION	I E: POST	INICTALI		80	L	180	<u></u>	1	200		<u> </u>	220		<u> </u>
	Alignme			(29		Hor	Izontal D	eviation	(In):	7	122			
1	strike Pe			Joe 1	PDA Da	_			A Strike:		1000	<u> </u>		
1	ws: 51		PDA Set					• ''	A SUINCI					
			TDAGG	. (111).	<u> </u>	-								
SECTION														
						nts on pl		g proced	ures, plle	damage	during d	riving, pr	e-drilling	rep
(deptns	and dian	neters), a	and sketc	nes of pil	e locatio	ons for cla	rity.							
	•													
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1							•							
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1	Title	-		Compar				Sin	nature		Da	te (MM/DD		
Name /				Leamhai	• 1	_		عبدا			, Iva	MAINAND	11.4	
Name /		ير.> <i>ا</i> ج	n/		5.	. /	.1	_	n	1	- •	5/9	124	
Name / الكنة Name /	c Adam	5/5W	per	Compar		alæes	1	Slo	poture	0	/ Da	5 <u>/</u> 2 te (MM/DD		

TC Energy E	ngineering	Form												
Concrete	e Pile Dı	riving Re	ecord						First second from 8		(Y)	TC En	ergy	
Item ID:	N/A		Rev:	0			Status:	IFU			Publish Dal	le:	1/17/2024	
SECTION	A: GENE	RAL INFO	RMATIO	N_										
Project/S	ilte:	TC Energy	Grand Isle, I	M.001145 I	ELXP Pipelir	ne	Date (dd	/mm/yy):	5-	9-2	4		
Project N	lo.:	24016					Auger Di	ameter:		N	14			
Piling Co	•	Seal	evel				Make of	Hamme	r: $\overline{\mathcal{B}}_{c}^{c}$	SP.C	xl-	143		
QC Inspe	ctor:	$\overline{\mathcal{N}}_{i}$	ck	Adda	ams		Hammer	Drop (ft): 1.	75 -	4'	,,		
TC Energ		1	VAN		itme	<u> </u>	Hammer	Weight		4 2	5016	5		
Drawing		-	SKSOU	_,	PI	V —(440				
SECTION		NFORMA												
	Cylinder P		Size	(in):	36	" Ben	t: ;	2	Cu	shion Thi	ckness:	/	2"	
Drawing	Pile 🗸	_		plier Plle					•	_	,		·	
	No.: <u>B</u>	2		No.:	CP-3	2 Driv	e Time Si	art / End	d: 40	7PM	1	4	126 P.	4
Length (f	it): 16	8	Splic	e (ft):	NA	Splic	e Inpsec	ted and	Installed	per requi	irements	? Y/N		
SECTION	C; ELEVA	ATION IN	FORMAT	ION				· · · · · ·						
Reference				2.88			/Mudline		on:		<u>ر رب</u>	<u>, </u>		
Pre-Drill		1:		A 20	,	— Desi	ign Tip El	evation:	4	~ /	<u> 36'</u>			271
Final Elev				<u>J/</u>		(3/	c tal	ikan	off	rotfor	n of	ten	chelle	8.65 h
SECTION	D; PILE (ING INFO					<u> </u>	f l	-4.			
Depth (ft)	b/ft	Stk (ft)	Depth (ft)	b/ft	Stk (ft)	Depth (ft)	b/ft	Stk (ft)	Depth (ft)	b/ft	Stk (ft)	Depth (ft)	b/ft	Stk (ft)
1	D/IC	(14)	25	D/IL	(ity.	49	D/IC ;	(10)	73	ス	110	97	6	4101
2			26			50			74	Z		98	7	
3			. 27			51	-		75	7		99	6	
4			28			52			76	4		100	8	
5			29			53			77	4		101	7	
6			30			54			78	b		102	9	
7			31			55			79	5-		103	8	
8			32			56			80	5		104	フ	
9			33			57			81	5		105	8	
10			34			58			82	7		106	8	
11			35			59			83	6		107	8	
12			36			60			84	7	<u> </u>	108	8	
13			37.		 	61			85	7		109	8	
14			38			62			86 87			110 111	7	
15			39 40	<u> </u>		63 64			88	8	 	111		
16 17			41	 	 	65			89	5		113	10	
18			42			66			90	4		114	5	
19		-	43	 -	-	67			91	5-	<u> </u>	115	10	
20			44			68			92	50-	 	116	9	
21			45			69			93	6		117	10	
22			46			70			94	5		118	10	
23			47			71			95	7		119	11	
24			48			72			96	2		120	11	
						_				136			Jog-Pa	ge 1 of 2

						TC Ener	gy Englneer	ring Form	•					
oncret	te Pile D	riving R	ecord						1			(X) T	C Ene	rgy
em ID;	N/A		Rev:	Α			Status:	Review		-	Publ		10/4/2023	
Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk
(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)
121	11		141	13		161			181			201		
122	11		142	1.3		162			182			202		
123	12	·	143	13		163			183			203		
124	٩		144	13-		164			184			204		
125	8		145	15		165			185			205		
126	8		146			166			186			206		
127	10		147			167			187			207		
128	10		148			168			188			208		
129	8		149			169			189			209		
130	1/		150			170			190			210	,	
131	10		151		•	171			191			211		
132	10		152	Ī		172			192			212	•	
133	10		153			173			193			213		
134	12		154			174			194			214		
135	12		155		_	175			195			215		
136	12	<u> </u>	156			176			196			216		
137	10		157			177			197			217		
138	12		158		_	178			198			218		
139	14		159			179			199	-		219		
140	12		160			180			200			220		
DA Re- DA Blo ECTION	ws:(N F: COM	rformed <u>OL</u> MENTS	PDA Set	· · · · · ·	PDA Da	te:			A Strike:		259			
						ns for cla			ui es, prie	uailiage		riving, pro		
				.\.										
	· .													
lame /	Title ·	- le	۰	Compar		aleur		Sig	nature		Da S	te (MM/DD	/YY) 24	
lame /		J JUD	Z.)	Compar		a i zuv			nature		/- -	te (MM/00		

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TC Energy E	ngineering	Form												
Concret	e Pile Dı	riving Re	ecord								()	TC En	ergy	
item ID:	N/A		Rev: (0			Status: I	FU			Publish Dat	e:	1/17/2024	
SECTION	A: GENE	RAL INFO	RMATIO	N		, .							,	
Project/S	Site:	TC Energy	Grand Isle, I	M.001145 I	ELXP Pipelli	1e	Date (dd,	/mm/yy)	: _ <	-9-	24			
Project N	lo.:	24016					Auger Dia	ameter:			NIA			
Piling Co	ntractor:	Seal	evel				Make of	Hammei	: <u>133</u>	SPIC	xl -	<u> 140</u>		
QC Inspe	ctor:	N.	UL.	Adda	am(Hammer	Drop (ft): <u>L</u>	75"	-4'	- <u>-</u>		
TC Energ	y Rep.:		Ivar	17k	uith	KN	Hammer	Weight:	. 4	4,2.	50/	25		
Drawing	#(s):		SKSE	<u>901_</u>	_RI	,								
SECTION	B: PILE I	NFORMA	TION		:									
Туре:	Cylinder F	Pile	Slze	(in):	36'	Ben	t:	3	Cus	shion Thi	ckness:		2"	
Drawing	Pile		Sup	pller Plle										
•	No.:	3		No.:	<u>CP-3</u>	Driv	e Time St	art / End	<u>ر</u> :ا	41 /2		35	5-12 m	1
Length (1	ft): / <i>(</i>	8	Splic	e (ft):	NIA	Spli	ce Inpsect	ted and	Installed	per requi	rements	? Y/N		
		ATION IN	FORMAT	ION	,		•						·	
Reference	ce Elevati	on:	NA	1P88	·	G.S.	/Mudline	Elevation	on:		<u> </u>	6'	.• :	
Pre-Drill	Elevation	n:	W	14		Des	ign Tip Ele	evation:			<i>36</i> `			
Final Ele	vation:		3	2'		<i>13,</i>	le tak	en of	of bas	Hom 1	of to	mont	0	8.654
SECTION	D: PILE	DESIGN.A	ND DRIV	ING INFO	DRMATIC		- Land			: 144 : 144		7		
Depth		Stk	Depth		Stk	Depth	1.8	Stk	Depth		Stk	Depth		Stk
(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft .	(ft)
1			25	_		49			73			97	5	
2			26			50			74			98	٠	
3			27			51			75			99	4	
4			28			52	·		76			100	4	
5			29			53			77			101	ع:	
6			30		<u> </u>	54			78			102	9	
7			31			55			79	 		103	<u>_</u>	
8			32			56			80	-,		104	8	
9	ļ		33			57	ļ		81	3		105	7	+
10	ļ		34			58			82	3		106	7	+
11	 	-	35	<u> </u>	-	59	<u> </u>		83	5		107	4	
12			36	<u> </u>	 -	60	-		84 85	3		108	4	+
13	 	-	37			61 62	 		86	4		110	6	+
14 15			38		-	63	 	 	87	4		111	4	+
16	 		40	 -	<u> </u>	64		 .	88	4		112	6	+
17	 	<u> </u>	41			65	1	-	89	4		113	6	1
18	-		42		·	66	 		90	5		114	1	
19			43	†	<u> </u>	67	 	 	91	7	 -	115	5-	1
20			44			68	1		92	4	ļ	116	6	
21			45			69			93	4		117	_ (h	
22		-	46			70	1		94	5		118	6	
23			47			71			95	5		119	6	
24			48			72			96	5		120	6	
		-								1:0			197 1	age 1 of 2

129.

						TC Ener	gy Enginee	ring Form						
Concre	te Pile D	riving R	ecord								•	(h) T	C Ene	rav
Item ID:	N/A		Rev:	Α			Status:	Review			Dub	lish Date:	10/4/2023	
	1		,,,,,,								ruo	iisii Date.	10/4/2023	
Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk	Depth		Stk
(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)	(ft)	b/ft	(ft)
121	7		141	()		161			181			201		
122	7		142	11		162			182			202		
123	7		. 143	12		163			183			203		
124	7		144	11		164			184			204		
125	7		145	13		165			185			205		<u> </u>
126	8		146			166			186			206		
127	8		147			167			187			207		
128	8		148			168			188			208		
129	8		149			169			189			209		<u> </u>
130	8		150			170			190			210		
131	10	· ·	151			171			191			211		
132	8		152			172			192			212		ļ
133	8		153			173			193			213		
134	9		154			174			194		٠,	214		
135	10		155 :			175			195			215		
136	<u>।।</u> 9		156		·	176			196		·	216		
137			157			177			197			217		
138 139	11		158			178			198			218		ļ
140	10		159 160			179			199		 : ·	219		
	l E: POST	INICTALL		58		180		<u> </u>	200			220		<u> </u>
	Allgnmer			(2%		Hori	izantal D	eviation	(In)		90			
	strike Pe				PDA Dat	•	ZUIILAI D		(111); \Strike:	0.0	000			
	ws: 44		PDA Set		ا المام المام المام المام المام المام المام المام المام المام المام المام المام المام المام المام المام المام	·			· Ju ike.		· ·			
				···/·		•						 	-	
	F: COM													
Remark: (dootbo	s (Attach	sheet if	required)	Provide	commer	nts on pile	e spiicing	procedu	ires, plle	damage	during d	riving, pre	e-drilling i	reports
luebins	ano qian	ieters), a	na sketci	ies of phe	oratio	ns for cla	rity.		 •					
				·										
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		-		Company	<u>.</u>			clan	ature		In-1	e (MM/DD,	Ann	
Vame /	Title				v			ISIRI	ıdlufe		1132	CONMAN -	.vv.	
Name /		L		Company		1.	,	٠	7	1			i 9 11	
NZ	de Ado	uns/s	uper		Seu	level		٠	n-	1	5	79	124	
` `	de Ado	ms/s	uper	Company	Seu	level C E	<u>, </u>	٠	ature	11	5		124	