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Coastal & Marine Engineering

Feasibility Report

Phillippi Creek Maintenance Dredging

Sarasota County, Florida

February 2025

Prepared for:
West Coast Inland Navigation District
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EXECUTIVE SUMMARY

Phillippi Creek Maintenance Dredging Feasibility Study, conducted by Cummins Cederberg, Inc. for the West Coast Inland Navigation District (WCIND), identifies data collection results and estimated dredge quantities associated with maintenance dredging of the lower portion of Phillippi Creek adjacent to the U.S. 41 bridge to the Gulf Intracoastal Waterway (GIWW). The study also summarizes the 2025 bathymetric conditions survey and estimated dredge quantities for the upper extension area of Phillippi Creek. The limits of the 2025 bathymetric survey span from the GIWW to South Beneva Road.

The study provides a detailed analysis of historical dredging records, site conditions, sediment quality, and natural resource surveys. Regulatory coordination with the Florida Department of Environmental Protection (FDEP) and the United States Army Corps of Engineers (USACE) was undertaken to verify the permitting approach and identify potential mitigation requirements.

Field investigations, including a bathymetric survey, geotechnical borings, sediment chemistry analysis, and a natural resource survey, provided detailed information that was used for the development of the project design and proposed dredged management efforts. Bathymetric data identified areas with shallow depths, particularly east of the US-41 bridge, indicating potential obstructions to navigation. Sediment samples revealed a mix of fine quartz sand and organic silts, with some contamination levels that will require additional environmental management strategies to be implemented. The natural resource survey indicated poor visibility, degraded oyster habitats, and sparse seagrass. The natural resources were mapped and incorporated into the project design drawings.

A stormwater analysis was incorporated into the project scope after the 2024 hurricane season. The stormwater analysis confirmed that flooding within the Phillippi Creek watershed is a recurring issue, exacerbated by extreme storm and rainfall events. The Celery Fields stormwater retention system, designed for a 100-year return period event, plays a crucial role in regulating runoff from approximately 10% of the watershed. Stormwater conveyance challenges and historical flood events may have contributed to sediment accumulation within the creek, however historical bathymetric data is not available to confirm historic presence of shoals and estimated shoaling rates.

Based on the field results and the updated 2025 bathymetric survey, Cummins Cederberg developed a preliminary dredge design and material management plan, identifying upland sites for the handling and disposal of the dredged material. The proposed dredging depth was established by historical dredging permits -4 feet relative to Mean Low Water (MLW), with an estimated volume of approximately 5,100 cubic yards (CY) to be removed within the primary project area. The estimated dredge volume for the upstream extension area between the U.S. 41 bridge up to Redbird Circle South (located just south of Bee Ridge Road) is approximately 19,600 cubic yards of material. This estimate is based off the 2025 bathymetric survey and utilizing the current design template of the primary project with a design dredge depth of -4 feet MLW and an approximate 30-foot channel width. The primary benefit of dredging Phillippi Creek

is to provide safe vessel navigation with the secondary benefit to improve stormwater conveyance capacity. Deepening of the creek will result in greater cross-sectional area, thereby reducing the flow velocities associated with stormwater conveyance. However, dredging shallow areas of the creek will not have an impact on tidally influenced water levels. For example, the water level elevation associated with the Mean High Water Line (MHWL) for the nearest active tide gauge located at Port Manatee is 0.31 feet NAVD88. This regulatory water line elevation is not impacted by varying water depths. Preliminary cost estimates include design, permitting, and construction for the southwestern channel project area considered to be maintenance exempt.

CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

1 INTRODUCTION

1.1 General

Phillippi Creek is a vital tributary providing navigational access to the Gulf Intracoastal Waterway (GIWW) and stormwater conveyance to the Phillippi Creek drainage basin. Cummins Cederberg was retained by the WCIND in collaboration with Sarasota County to conduct a feasibility study and evaluate the channel conditions for the southwestern portion of Phillippi Creek in Sarasota, Florida. The primary purpose of the feasibility study was to evaluate the need for maintenance dredging to improve safe vessel navigation and the secondary purpose was to restore stormwater conveyance capacity upstream of the navigable portion of the waterway located east of the US-41 bridge to the mouth of Phillippi Creek. The project scope included a geotechnical investigation to determine sediment characteristics, bathymetric survey of the channel, and marine resources survey to inform dredging feasibility. This report will identify dredge material management options, summarize the regulatory permitting requirements, evaluate order of magnitude cost estimates, and summarize the next steps should the project move forward into the design and permitting phases.

Phillippi Creek runs northeast to southwest through Sarasota County for approximately 7.24 miles and discharges into Sarasota Bay. The width of Phillippi Creek ranges between a few feet to approximately 450 feet from bank to bank. The average navigable channel width is 30 feet in the Project area. The Project area encompasses the southernmost 1.25 miles of Phillippi Creek, including the abandoned river meander around US-41, shown in **Figure 1**. Phillippi Creek serves as a significant watershed basin that drains approximately 57 square miles of Sarasota County as part of the third largest and most populated basin in the county, shown in **Figure 2** (US Army Corps of Engineers, 1965).

In addition to providing stormwater drainage within Sarasota County, Phillippi Creek also serves as a navigable waterway for commercial and residential properties. Notably, Sarasota County emergency vessels and marine first responders utilize the waterway with vessel storage located at a dock adjacent to the Phillippi Landings. At lower stages of the tidal cycle, the navigable channel depths are not adequate to provide safe vessel access to the GIWW. The proposed maintenance dredging project aims to restore navigation in Phillippi Creek and potentially reduce future flood risks.

FIGURE 1. LOWER PHILLIPPI CREEK PRIMARY PROJECT AREA.

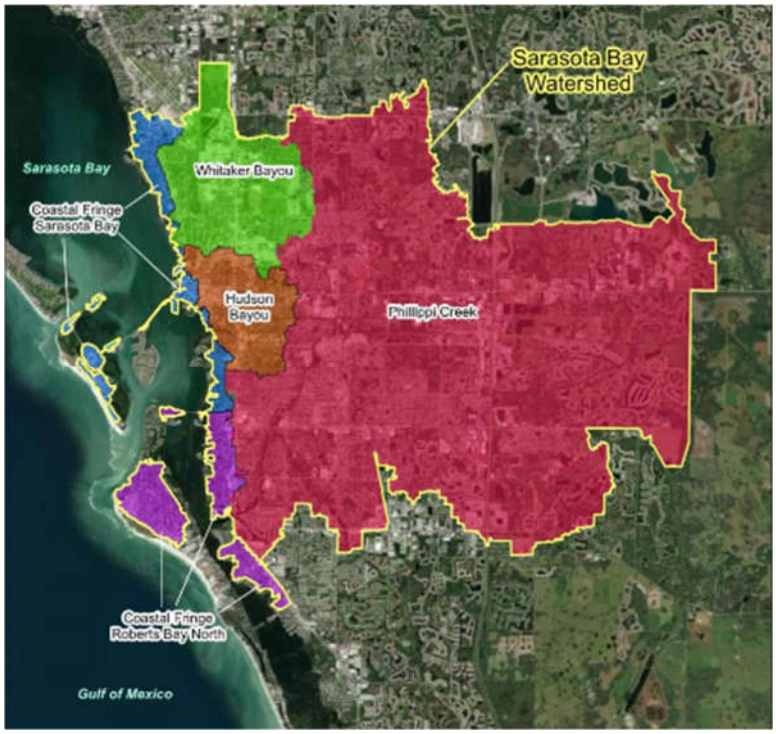

FIGURE 2. PHILLIPPI CREEK DRAINAGE BASIN IN THE SARASOTA BAY WATERSHED.

1.2 Objective

The primary objectives of the feasibility study are as follows:

- Perform field investigations to determine existing conditions within the project limits.
- Identify dredging needs and shoaling areas based on previously authorized dredge depths to estimate dredge volume.
- Evaluate dredge material management strategies.
- Summarize regulatory permit requirements.
- Provide estimated opinion of probable costs associated with subsequent maintenance dredging design, permitting and construction phases to inform County and WCIND decision-making.

Maintenance dredging has not been performed since the early 2000s and the feasibility study will lay out the framework for the design, permitting and construction phases to ensure safe navigation through Phillippi Creek for emergency, commercial, and recreational vessels.

2 BACKGROUND

2.1 Project History and Records Review

Cummins Cederberg conducted a desktop due diligence analysis of historical aerial imagery, dredge records, and relevant permit documents. Historical aerials provided by FDOT from 1969-2023 show that the channel was originally dredged between 1969 and 1977 with likely one subsequent maintenance dredging event conducted between 1998 and 2002. The maintainance dredging occurred east of the US-41 overpass, upstream of Stations 59+00A and 60+00A identified in **Figure 5**. The changes in aerial imagery coincide with the permitting history for this time period. No other significant dredging events were evident through historical aerial review.

Available state and federal environmental permit records associated with the project site were searched for on the Florida Department of Environmental Protection (FDEP) MapDirect, FDEP Oculus, the United States Army Corps of Engineers (USACE) Permit Finder, and the Southwest Florida Water Management District (SWFWMD) Permit Search tool. The earliest available permit associated with the dredge was issued on December 30, 1999, to the WCIND (FDEP Permit No. 58-01511523-001). This permit is associated with the second dredging event identified in the historical aerial review, following the original dredge event between 1969 and 1977. The dredging was conducted in the lower portion of Phillippi Creek from the approximate mouth of the creek to the dock structures of the Phillippi Harbor Club. **Figure 3** shows the approximate dredge area in 1999 before the material was removed with a post-dredge aerial from 2008. The dredging extended to a depth of -4.0 feet MLW and 2,800 cubic yards of sediment were removed downstream of the US-41 bridge. An additional 3,964 cubic yards of sediment were removed upstream of the US-41 bridge, north of the project limits shown in **Figure 3**.

FIGURE 3. APPROXIMATE DREDGE AREA FROM 1999 DREDGE PROJECT; PRE-DREDGE IN 1998 (LEFT) AND POST-DREDGE IN 2008 (RIGHT).

Table 1 below provides a summary of all reviewed state and federal permits associated with the maintenance dredging for Phillippi Creek, in chronological order. **Figure 4** below illustrates the approximate locations of permitted dredge areas that correspond to **Table 1**, with reference to the FDEP permit numbers.

TABLE 1. STATE AND FEDERAL PERMITTING HISTORY*

Agency	Permit No.	Date	Applicant	Authorized Work
FDEP	58-01511523-001	12/30/1999	WCIND	Excavation of 3,964 yd^3 of sediment upstream of US-41 and 2800yd3 downstream
FDEP	58-01491733-002**	7/26/2000	WCIND	Maintenance dredge 5,454 yd^3 of material from Phillipi Creek
USACE	199900648/199900532	1/6/2000	WCIND	Maintenance dredge 6,764 yd^3 of material to -4.0 MLW

***FDEP File No. 58-01491733-001 & 58-01479043-001 referenced in 2000 Engineer Estimate, but not within Project footprint (i.e., further upstream) and not publicly available for review.**
****Not within Project footprint**

FIGURE 4. APPROXIMATE LIMITS OF HISTORICAL PERMITTED SPOT DREDGE LOCATIONS.

3 SITE CONDITIONS

3.1 Water Levels

The water levels at the Project site are tidally driven and influenced by stormwater flow down Phillippi Creek. Tidal datums are recorded by the historical NOAA tide station (ID: 8726045) in Hayden Roberts Bay, Florida. The tidal datums are shown in **Table 2.**

TABLE 2: WATER LEVELS

Datum	Water Level (feet, NAVD88)
Mean Higher High Water (MHHW)	0.58
Mean High Water (MHW)	0.31
Mean Sea Level (MSL)	-0.41
Mean Low Water (MLW)	-1.16
Mean Lower Low Water (MLLW)	-1.46

3.2 Bathymetry

Bathymetric surveys were conducted in March 2024 and January 2025 to capture post-hurricane sedimentation changes. SurvTech Solutions, Inc. conducted both bathymetric surveys along the channel center line for an approximate length of 6,465 feet. Both surveys extended from bank to bank. The survey limits extend from the mouth of Phillippi Creek to approximately 400 feet east of the US-41 bridge. **Figure 5** illustrates the limits and bathymetric water depths surveyed relative to NAVD88.

The bathymetric survey revealed water depths ranging from 5 to 9 feet, NAVD88, in the western segment of the creek west of the US-41 bridge, with small sections between stations 6+00A and 7+00A and stations 16+00A and 17+00A showing depths of 12 to 15 feet, NAVD88. The shallowest depths were found east of the US-41 bridge between stations 48+00A and 59+00A, ranging from 2 to 4 feet, NAVD88.

Following the 2024 hurricane season, significant changes were observed in the bathymetry of Phillippi Creek. The following comparisons were drawn between bathymetric surveys conducted in March 2024 and January 2025 within the project limits.

- Sediment accumulation and shoaling of up to 4 feet was observed along the southern shoreline while sediment loss to depths up to 6 feet was observed along the northern shoreline and channel centerline between stations 0+00A and 35+00A.
- Water depths slightly increased by 2 to 4 feet in isolated spots across the channel width between stations 14+00A and 36+00A.
- Scour up to 6 feet occurred in the channel and north shoreline from station 5+00A to 13+00A.
- The water depth appears to have increased by approximately 4 to 8 feet between stations 16+00A and 16+50A.
- Conversely, the water depth has decreased on the order of 2 to 6 feet between stations 16+50A and 17+00A, indicative of sediment redistribution and shoal migration from the adjacent channel area.
- Significant shoaling and sediment accretion was observed along the northern "loop" around US-41, except the channel segment fronting the Phillippi Creek Oyster Bar where water depths deepened by up to 6 feet between stations 50+00A and 53+00A.
- The area between stations 58+00A and 59+00A exhibits significant shoaling across the entire channel width with sediment deposition ranging from 2 to 4 feet.

These changes are displayed in **Figure 6**, with green colors representing shoaling and red colors representing scour.

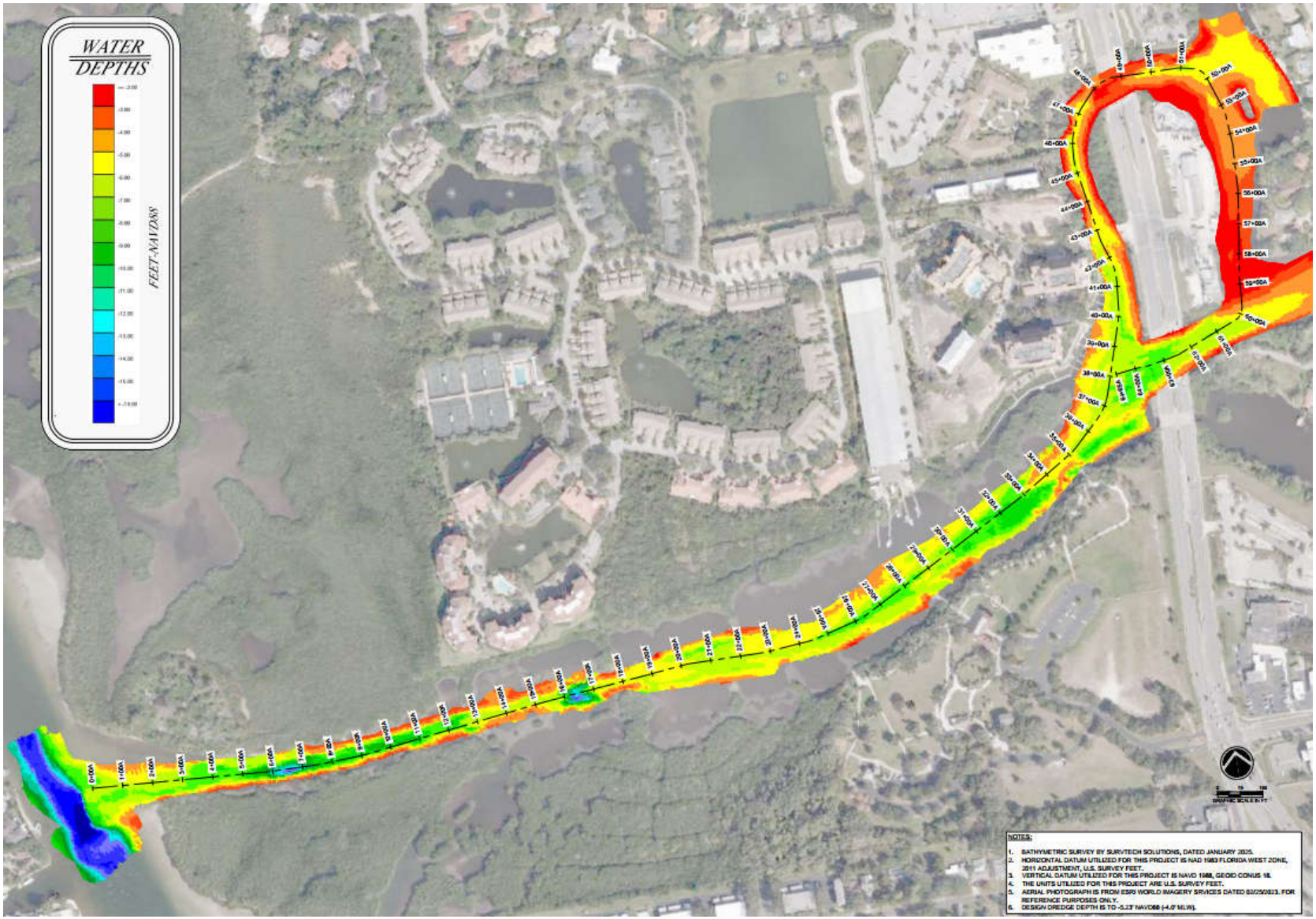

FIGURE 5. BATHYMETRIC SURVEY FROM JANUARY 2025.

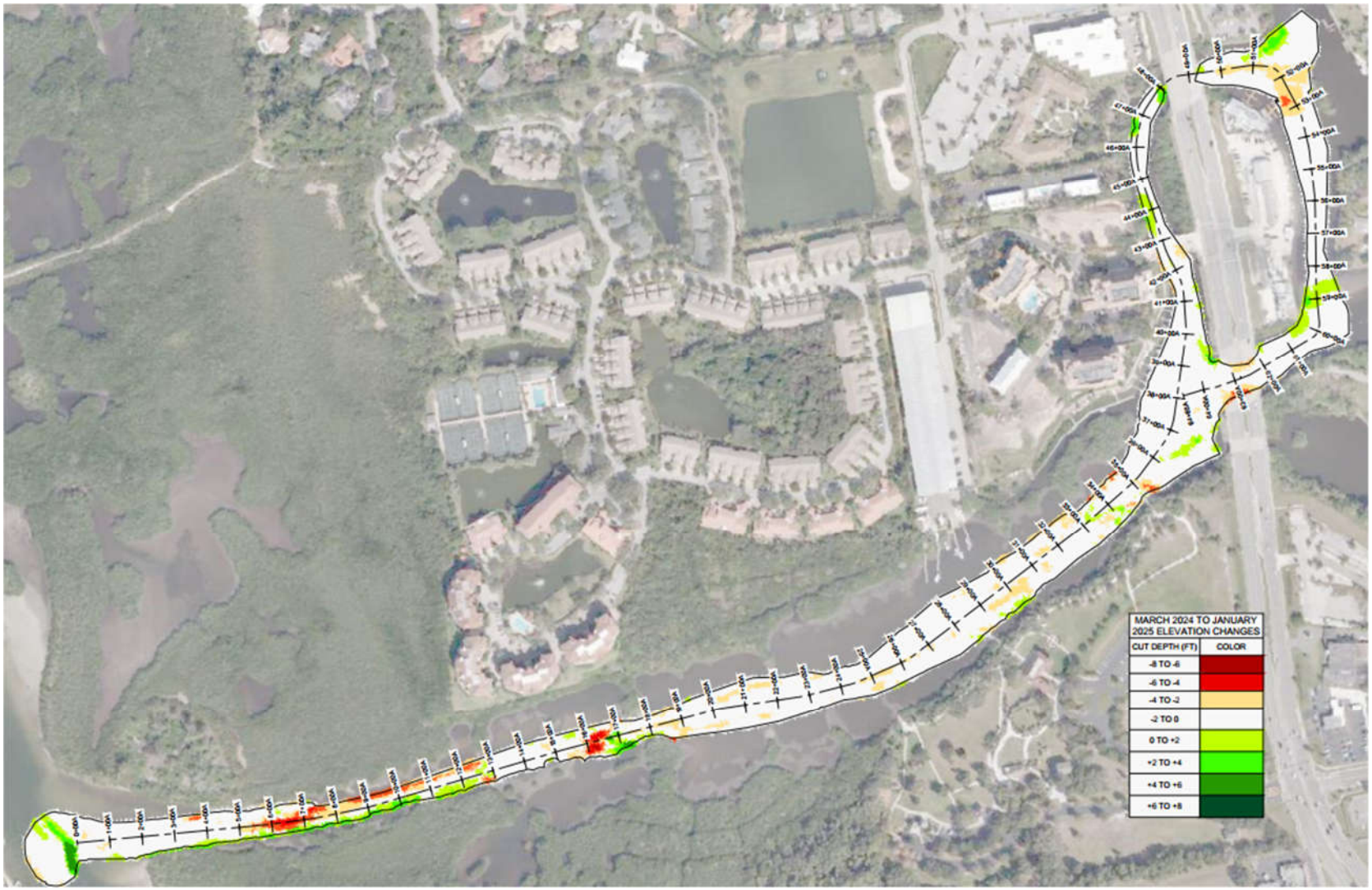

FIGURE 6. BATHYMETRY CHANGES BETWEEN MARCH 2024 AND JANUARY 2025

3.3 Geotechnical Investigation

Athena Technologies, Inc., (Athena) was contracted by Cummins Cederberg to conduct chemical and geotechnical vibracore sampling at 8 different locations along the project area. The coring locations were selected in areas with greatest degree of shoaling prior to the 2024 hurricane season in order to retain as much material as possible for subsequent analysis. **Figure 7** shows a map of each of the boring locations.

On May 21, 2024, Athena mobilized their 24-foot research vessel, *Good Vibrations* to the project site. Prior to collecting each sample, Athena collected the water depth, tide elevation and horizontal coordinates. Boring locations were field-located using a sub-meter GPS interfaced with HYPACK. At each sample location, one sediment boring was collected for geotechnical analysis and one sediment boring was collected for chemical analysis and is described in detail below.

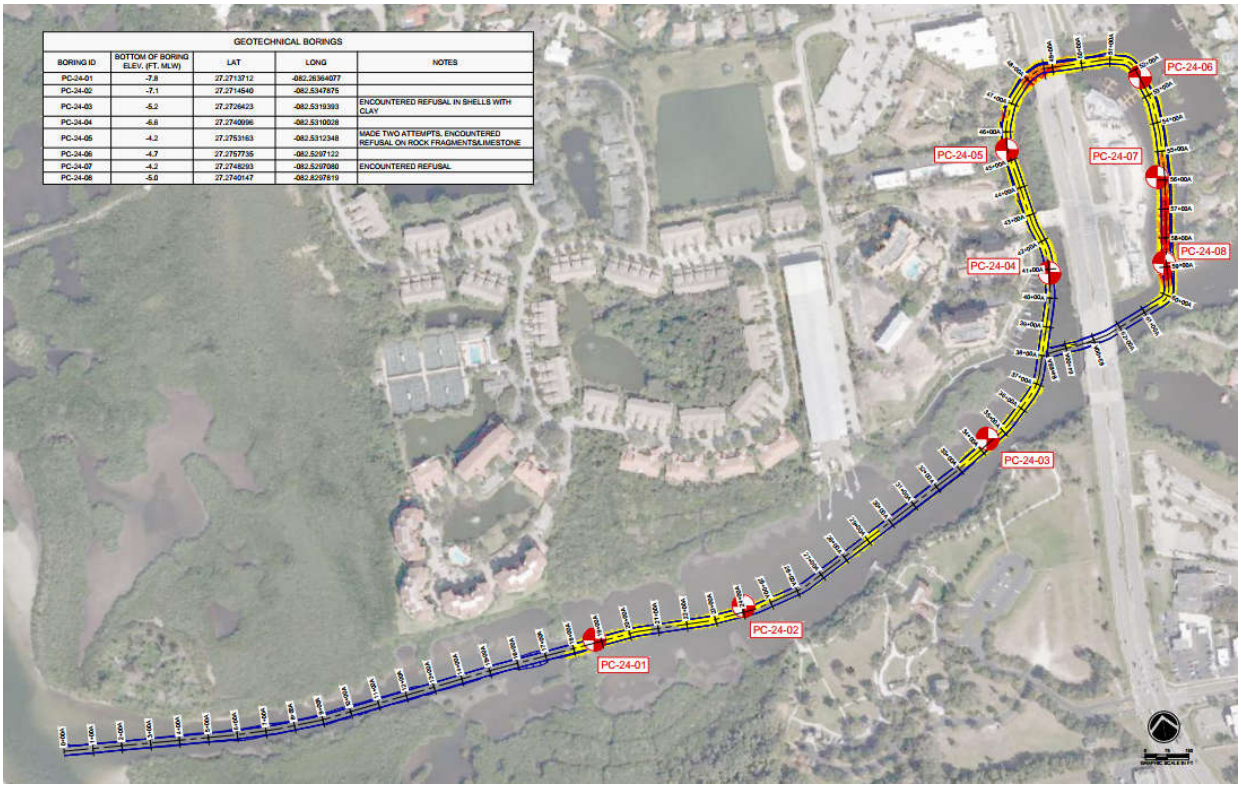

FIGURE 7. MAP OF SEDIMENT BORING SAMPLE LOCATIONS.

3.3.1 Vibracore Borings and Geotechnical Analysis

The geotechnical borings were completed to a minimum of -5 feet relative to MLW or until refusal was encountered. Sediment surface elevations at the sample locations ranged from -1.7 feet to -4.6 feet MLW. Refusal was encountered at sample locations 5, 6, and 7. In each case, refusal was comprised of limestone or gravel-sized limestone fragments. At sample location 3, refusal was encountered just below the proposed Project depth, at -5.2 feet MLW.

Samples 1 through 3 were positioned west of the US-41 bridge, with Sample 1 located closest to the entrance channel to Phillippi Creek and Sample 3 located closest to the US-41 bridge. It is expected this portion of the study area likely experiences the highest current velocities. Samples 1 and 3 were characterized by oyster shell fragments underlain by poorly graded fine-grained quartz sand. Sample 2 did not have a shell component but had the same poorly graded fine-grained quartz sand as Samples 1 and 3. Sample locations 4 through 8 were positioned within the "loop" on either side of the US-41 bridge north of the main navigation channel and most of these cores were comprised entirely of fat organic silt with medium plasticity.

The geotechnical sediment borings were brought back to Athena Technologies, Inc.'s laboratory to be evaluated. The cores were photographed after opening and were logged by Athena's geologist in accordance with protocol outlined in ASTM D 2488. The geotechnical Field Investigation Report, provided in **Appendix A**, includes the vibracore summary, grain size distribution curves, vibracore photographs, and logs**.**

3.3.2 Sediment Samples and Chemical Contaminants Analysis

Sediment samples collected for chemical analysis were extruded into a large, decontaminated stainless steel pan for homogenization of material above -4 feet MLW for representation of potential dredged material within the dredge design template. Homogenized samples from each boring location were taken to Advanced Environmental Laboratories, Inc., a NELAP accredited laboratory, for chemical analysis. Sediment from each of the eight boring locations was sampled for the following classes of analytes:

- Carcinogenic PAHs (EPA Method 8270/PAH Low Level)
- Non-Carcinogenic PAHs (EPA Method 8270/PAH Low Level)
- TRPH (FDEP FL-PRO Method)
- Metals (EPA Method 6010/EPA Method7471)
- Pesticides-Herbicides-PCBs (EPA Method 8081/EPA Method 8082)

The complete Laboratory Test Results are included as **Appendix B**. Soil Cleanup Target Levels (SCTLs) and Groundwater Leachability Criteria (GLC) are regulatory standards that serve as regulatory benchmarks for concentrations of chemicals within the sediment samples. The following summary compares the Laboratory Test Results to respective SCTLs and GLCs.

Industrial Direct Exposure SCTLs were not exceeded in any samples for any analytes evaluated.

Residential Direct Exposure SCTLs were not exceeded in any samples for any analytes, except for the PCB Total analyte. The Method Detection Limit (MDL) was higher than the Residential Direct Exposure SCTL of 0.5 mg/kg in Samples 4, 5, 6, 7, and 8. None of the pesticides-Herbicides-PCBs analyzed, from which the calculated PCB total is calculated, were detected in laboratory analysis; however, due to the MDL exceeding the Residential Direct Exposure SCTLs, the samples were flagged as exceeding Residential Direct Exposure SCTL.

Groundwater Leachability Criteria was exceeded for the analyte Chromium in Samples 4, 5, 6, 7, and 8. The highest concentration of chromium in the samples was 61 mg/kg (Sample 4), whereas the GLC for Chromium is 38 mg/kg. The pesticides Alpha-BHC, Beta-BHC, and Dieldrin were not detected in laboratory analysis, but for all samples the MDL for those analytes exceeded the respective GLCs. The pesticide Gamma-BHC (Lindane) was also not detected in any samples, but the MDL exceeded the GLC for Samples 4, 5, 6, and 7.

Based on notes in the Laboratory Test Results, provided in **Appendix B,** and follow-up dialogue with the laboratory technicians, it was noted that the soil samples required dilution prior to completing several laboratory analyses due to the soil samples being highly colored and viscous. This sample dilution requires that the MDL be raised. For several of the analytes determined through EPA Method 8081, this sample dilution caused the MDL to exceed the GLC benchmark despite the analytes not being detected and caused the calculated PCB Total to exceed the Residential Direct Exposure SCTL.

The only analyte that was *detected* in exceedance of a regulatory benchmark concentrations was Chromium in Samples 4, 5, 6, 7, and 8. Due to the GLC exceedance for Chromium, additional environmental safeguards will need to be implemented for handling of the dredged material for dredging activities occurring between station 39+00A and 60+00A.
The identified contamination levels limit disposal options and will necessitate additional safeguards to be implemented during dredging and material disposal. These additional safeguards will be determined during the permitting process with both the State and Federal agencies.

3.4 Natural Resources Survey

A marine resource survey was conducted by Cummins Cederberg marine biologists on June 11, 12, and 17, 2024 along approximately 6,465 linear feet of channel within the project area. The survey area spanned the 30 foot channel width plus an additional 10-foot buffer zone on either side of the channel. **Appendix C** provides the Environmental Survey Report with detailed results.

Typical observations along the Project area included poor visibility of less than 1-foot, suspended substrate in the water column, and strong current speeds, particularly during the outgoing tide. When the sediment was disturbed, a hydrogen sulfide odor was detected. The odor was more noticeable in the upstream portion of Phillippi Creek near the US-41 bridge where the benthic community was devoid of resources.

Oyster shells were observed in the Project area in small clusters, standalone shells, and large shell hash beds with primarily loose and scattered shell hash. The majority of the oysters noted within the channel and buffer zones were deceased, estimated at a 90% loss, with a thin layer of sediment over the shell.

Three seagrass species were observed near the mouth of Phillippi Creek and northwest of Phillippi Estate Park. On the north side of the Creek mouth, shoal grass (*Halodule wrightii*) was documented in beds with approximately 30% coverage. On the south side of the Creek mouth, shoal grass and star grass (*Halophila engelmannii*) were observed in intermixed beds with 10% to 30% coverage. Seagrasses in these beds extended beyond the survey area to the north and south. Macroalgae was observed throughout both seagrass beds in patches. Additional limited patches including paddle grass (*Halophila decipiens*) and shoal grass were observed. The seagrass patches were located in the approximate center of the survey area, just outside the existing extents of the navigation channel. Identified resource locations are depicted on the basemap in **Figure 8.** The natural resource survey maps were incorporated into the dredge template design and are included in **Appendix D.**

General field observations included strong outgoing currents, a coating of sediment observed on the oyster and seagrass beds, and thick layers of soft sediment deposits within the project site, which may be indicative of sediment and stormwater deposition upstream of the creek. The thick layers of muck and hydrogen sulfide odor suggest the substrate quality is poor with potential decaying material. It is not likely the environmental conditions support a thriving benthic community of oyster and seagrass habitat.

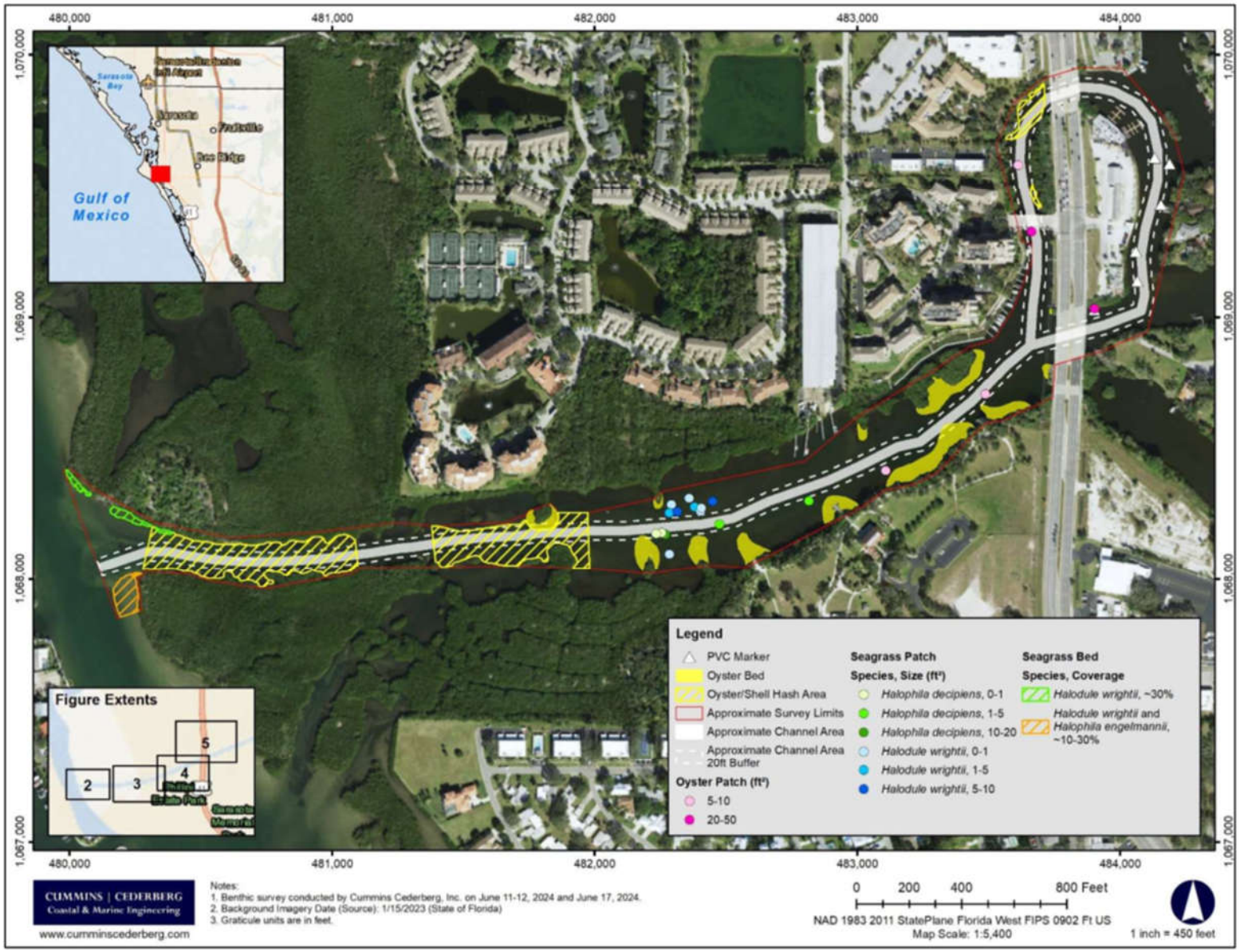

FIGURE 8. BASEMAP OF MARINE RESOURCES.

4 REGULATORY COORDINATION

Cummins Cederberg coordinated and participated in two agency pre-application meetings including the Florida Department of Environmental Protection (FDEP) and the U.S. Army Corps of Engineers (USACE) wherein Sarasota County and WCIND participated. In each meeting, Cummins Cederberg reviewed and confirmed data collection methods met agency requirements, discussed potential natural resource impacts, and identified/confirmed the permitting approach for the project. The following sections summarize the key takeaways from each agency meeting. **Appendix E** provides detailed pre-application meeting notes and associated PowerPoint slides.

4.1 Florida Department of Environmental Protection (FDEP) Pre-application Meeting

A pre-application meeting with the Florida Department of Environmental Protection was conducted on August 29, 2024 following a meeting request sent on August 6, 2024. Key takeaways from the meeting discussion and follow-up email exchange include the following:

- FDEP staff stated that marine resources such as seagrasses and oysters anticipated to be impacted by the maintenance dredging will require relocation or mitigation. This may apply to small patches of seagrass identified within the existing channel area and proposed dredge area. Cummins Cederberg staff noted that as the dredging will be for maintenance and has been previously authorized, the work will likely meet an exemption allowing impacted resources to be considered *de minimis*. Following the meeting, FDEP offered further guidance and clarification in an email dated August 29, 2024 stating that mitigation and/or relocation of marine resources within the dredging footprint will not be required at the state level. This may be required at the federal level, depending on coordination with the USACE. In addition, the proposed dredging will be considered maintenance as long as it is completed to the same depth previously authorized. Dredging deeper than the previous footprint will require a new permit.

- If mitigation for seagrass impacts is required, a Uniform Mitigation Assessment Method (UMAM) would be prepared. Cummins Cederberg staff recognized the UMAM may determine seagrass impacts are so minimal they do not constitute a functional loss and thus mitigation would not be required.

- The FDEP also noted that relocation of oyster shell hash may be necessary as it still constitutes oyster habitat; determination of whether individual shells/loose shells will need to be relocated is taken on a case-by-case basis. FDEP indicated that they would schedule a site visit to assess site conditions and conclude what degree of relocation is necessary, if any.

- FDEP staff reminded the team the dredging of sovereign submerged lands requires the payment of severance fees if the dredged material management and disposal site is not public. However, WCIND confirmed the District is exempt from severance fees.

4.2 USACE Pre-application Meeting

Cummins Cederberg submitted a request for a pre-application meeting with the U.S. Army Corps of Engineers (USACE) on August 6, 2024. The pre-application was conducted on November 6, 2024 with the United States Fish and Wildlife Service (USFWS), Sarasota County, and WCIND. The National Marine Fisheries Service (NMFS) commenting agency was also invited but was unable to attend.

Key takeaways from the meeting discussion and follow-up email exchanges include the following:

- USACE stated that impacts to submerged resources (i.e., seagrasses and oysters) that cannot be otherwise avoided or minimized will require mitigation. Impacts to seagrasses may qualify under a *de minimis* exemption due to the limited quantity of impacts.

- A Uniform Mitigation Assessment Method (UMAM) will need to be completed to determine if mitigation will be required to offset impacts. If mitigation is required, the applicant will be responsible for permittee-responsible mitigation (i.e., seagrass restoration) as there are no active seagrass mitigation banks servicing the Project area.

- For unavoidable impacts to live oysters, relocation is likely the most practical form of mitigation. Notably, in light of the recent storms (i.e., Hurricane Helene and Hurricane Milton), resource presence may have been impacted and a re-verification of resources may be warranted during permit processing and potential mitigation negotiations.

- USFWS expressed concern about the impacts to manatees during construction. Proposed construction methodologies should ensure that manatee egress/ingress is not precluded or discouraged by equipment (e.g., barge), turbidity curtains, or other barriers. If proposed methods will occupy more than half the width of the waterway during construction, designated manatee observers are strongly encouraged. Best Management Practices and the latest Standard Manatee Conditions for In-Water Work should be adhered to throughout the duration of construction.

Due to the passing of recent Hurricanes Debby, Helene, and Milton, Cummins Cederberg inquired about the use of a recently issued Emergency Final Order to expedite the project. The USACE indicated that as the Project area has been a concern prior to the recent storms (i.e., Hurricane Helene and Hurricane Milton), the accumulated sediment is not attributed solely to the recent storms' activity and therefore the Project will likely not qualify under emergency permitting. The USACE will process the proposed Project as a Letter of Permission (LOP) unless it is determined that there will be new dredging, in which case an Individual Permit will be required. Each process will have public noticing periods and commenting agencies will have the opportunity to provide feedback during application review.

5 PROJECT DESIGN

5.1 Design Dredge Template and Estimated Volumes

The development of the preferred dredge design template was informed by a comprehensive field investigation, regulatory coordination, and adherence to Sarasota County Ordinance No. 2001-099, Section 54-959 (Ordinance Amendment No. 2018-066). This ordinance permits maintenance dredging of existing canals within their historical configuration and prior permit conditions. Sarasota County's definition of "Maintenance Dredging" is presented below:

"Maintenance dredging means excavating within a Program Waterway to maintain an existing channel within its previous configuration. Generally, maintenance dredging will be limited to a depth established by the previous dredging, specific permit conditions, or a maximum depth of five feet, and shall be within a channel that is generally no greater than 30-feet in width and no closer than ten feet to any seawall, dock, structure, shoreline or embankment unless otherwise approved by Sarasota County Board of County Commissioners."

The previously authorized dredge template follows a cut depth to elevation -4.0 feet MLW with a 15-foot width from the centerline on each side, maintaining a total maximum width of 30 feet, consistent with the County ordinance. The template design incorporates a 1:2 (V:H) side slope to facilitate slope equilibration associated with the soft, organic characteristics of the sediment in the abandoned river meander. This conservative assumption accounts for potential sediment sloughing and redistribution, which may alter the final dredged profile. Shoaled areas within shallower portions of the channel will require greater excavation to achieve the target depth of -4.0 feet MLW, causing the top of the dredge cut to extend further from the centerline. **Figure 9** illustrates an example dredge template at Station 54+00A.

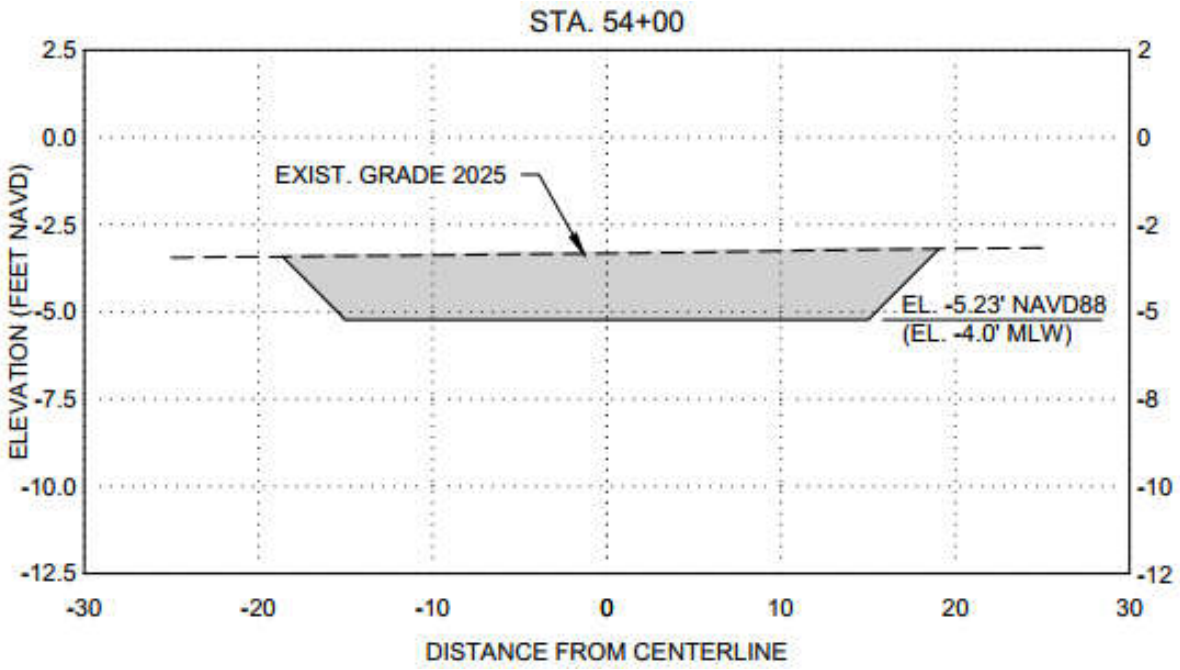

FIGURE 9. PROPOSED DREDGE TEMPLATE AT STATION 54+00A.

The bathymetric survey revealed that approximately 67% of the channel length (~4,325 linear feet of channel) has experienced shoaling, necessitating dredging to restore navigability. The Project area was subdivided into eight (8) approximately equal sections for volumetric analysis to identify the volume of shoaled sediment to be removed. **Figure 10** depicts the shoaled areas along the channel length that will likely require 'spot dredging.' **Table 3** summarizes the dredge reaches and estimated volume of material set to be removed from each section. The estimated dredge volume across all sections is approximately 5,100 cubic yards.

Table 3 also provides a comparative analysis of sediment volume from March 2024 and the January 2025 surveys. Significant sediment accumulation occurred on the west side of the US-41 "loop" and under the US-41 bridge. An additional 133 cubic yards of sediment accumulated into the system over the entire Project area between the survey dates.

TABLE 3: DREDGE SECTION STATIONING AND CUT VOLUMES

Dredge Section	Start Station	End Station	Cut Volume per 2024 Survey (CY)	Cut Volume per 2025 Survey (CY)	Change in Volume (CY)
1	0+00	8+00	35	17	-18
2	8+00	16+00	180	254	+74
3	16+00	24+00	456	274	-182
4	24+00	32+00	56	34	-22
5	32+00	40+00	260	221	-39
6	40+00	48+00	436	767	+331
7	48+00	56+00	1,859	1,652	-207
8	56+00	64+65	1,634	1,860	+226
	Total Dredge Volume		4,916	5,079	+133

The design incorporates the County's required 10-foot buffer ensuring compliance with regulatory setbacks. However, field verifications and aerial imagery identified 5 potential conflict areas where the 10-foot setback may not be achieved. These potential conflict areas are summarized below and illustrated in plan view in **Appendix F.**

- Station 18+00: Vegetation encroaches on the south side of the offset for approximately 35 feet due to shoreline narrowing.
- Station 41+00: The northern-most docks at Phillippi Landings extends into the setback, affecting approximately impact length is 70 feet on the west side of the navigation channel.
- Between Stations 43+35 and 44+30: The 10-foot buffer likely cannot be reached for approximately 95 feet due to the presence of mangroves and vegetation on the western shoreline.
- Between Stations 45+50 and 46+90: Vegetation impedes the northwest side of the setback for approximately 140 feet.
- Station 53+00: The southern dock of Phillippi Creek Oyster Bar intersects the setback.

These potential areas that encroach on the County's 10-foot setback should be field verified prior to construction. If avoidance is not feasible, dredge template adjustments may be required during the final design phase to maintain the County's 10-foot setback.

The dredge template to -4 feet MLW developed for the original project area is anticipated to be applied to the upstream extension. A preliminary estimate of dredge volumes for the lower 16,000 feet of the extension approximated 19,600 cubic yards of sediment to be dredged. The dredge volume estimate spans the centermost 30 feet of Phillippi Creek from the US-41 bridge to Redbird Circle South, south of Bee Ridge Road. It is likely the dredge volume will significantly increase upstream of Bee Ridge Road, considering the shallow water depths noted in the survey. The dredge design template and cut volumes will be updated during the permitting process for the upstream extension. The extension will also be analyzed for potential conflict areas with the County-required 10-foot buffer.

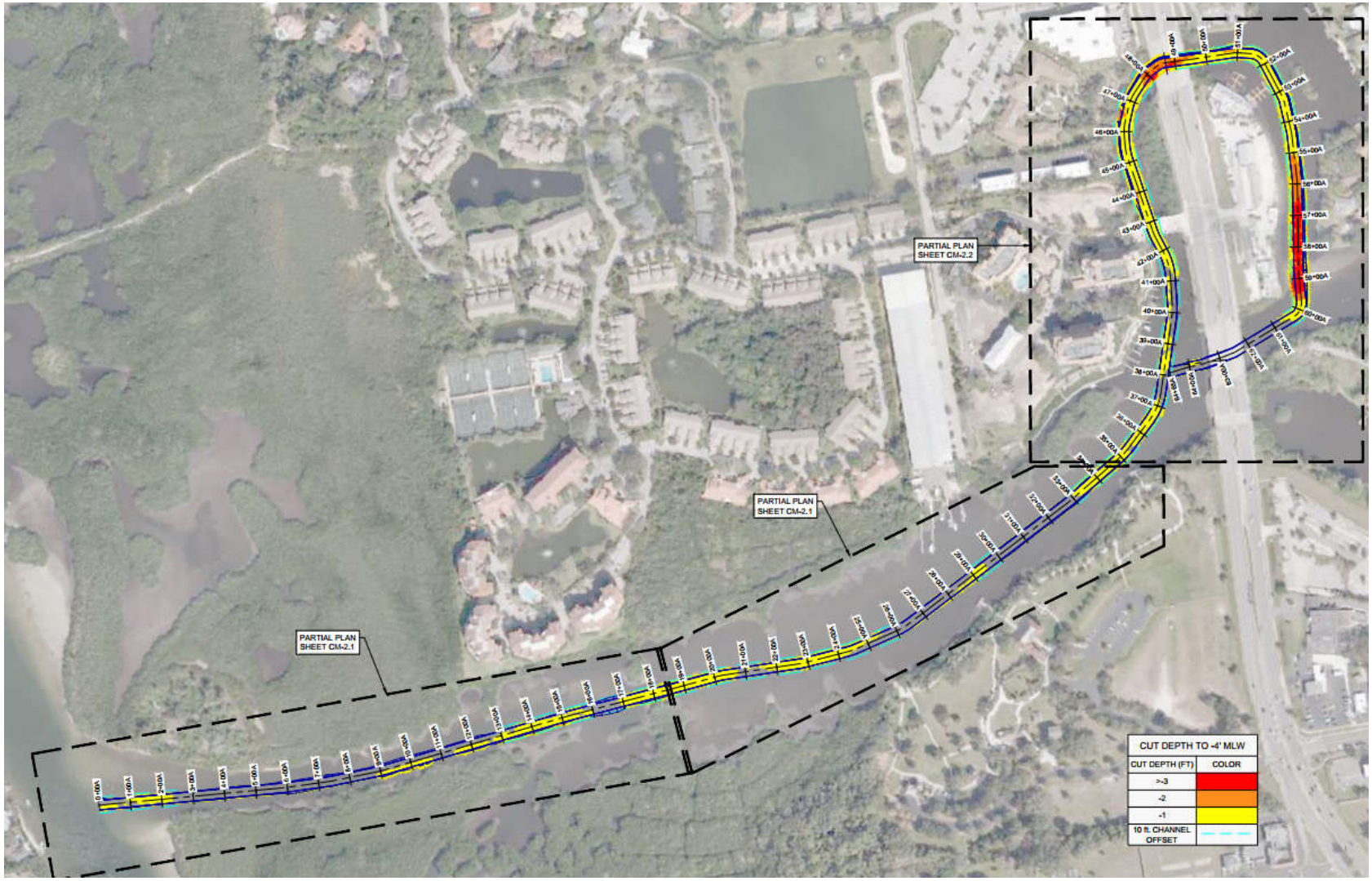

FIGURE 10. PROJECT AREA MAP WITH SHOALED AREAS REQUIRING DREDGING.

5.2 Dredged Material Management Areas and Disposal Considerations

The identification and utilization of an appropriately located Dredged Materials Management Area (DMMA) and staging area is a key factor to ensuring the feasibility and cost-effectiveness of the Phillippi Creek dredging project. Due to the presence of a low-clearance bridge along US-41, access to portions of the project site is restricted, necessitating the use of a strategically placed staging area and DMMA. Additionally, given the narrow and shallow nature of the creek, dredging operations may require the use of a small, shallow draft barge for maneuverability and sediment removal.

The feasibility study evaluated multiple potential upland DMMA locations using aerial imagery, Sarasota County Property Appraiser data, and field observations. The selection criteria included proximity to the project area, land ownership, available space, environmental constraints, and cost-effectiveness. Several potential sites were identified, with some located on privately owned land, necessitating contractor-led easement agreements or land-use permissions. A full list of potential DMMA sites is provided in **Appendix G**.

Based on discussions with WCIND and Sarasota County, the most viable locations for temporary staging and material offloading have been identified and summarized in **Table 4**. Each selected site is located adjacent to the waterway, ensuring the efficient return of dewatering effluent into receiving waters and minimizing handling complexity. Once sufficiently dewatered, the dredged material will be transported by truck for final disposal.

Results from sediment chemical testing have indicated the presence of chromium in portions of the dredge template. This contamination necessitates additional environmental safeguards for material handling, transportation, and disposal. To mitigate leachability concerns, the selected DMMA site must be lined to prevent contaminant migration into surrounding soils and groundwater. Alternatively, the dredged material may be directly transferred from the barge into lined and sealed containers or dump trucks, ensuring containment before final disposal. This approach would require landfill verification to confirm acceptance of saturated sediments and potential decant water.

Given the chemical composition of the sediment, opportunities for beneficial reuse are limited. Instead, the Sarasota County Landfill, located approximately 18 miles from the project site, is identified as the most cost-effective disposal solution for both contaminated and non-contaminated dredged material. According to a Sarasota County Landfill representative, dredged material must undergo a minimum 24-hour drying period prior to landfill acceptance if the material is not in sealed containers. If the material is in sealed containers the 24-hour drying period is not a factor.

If private upland properties are unavailable for use during construction, Phillippi Estate Park is recommended as a contingency DMMA site, subject to the required liner installation for

contaminated material containment. The park's proximity to the dredge area and direct access to disposal sites significantly reduces project costs by minimizing transport distances and dredge cycle times. Additionally, the park features pre-existing open space, reducing the need for vegetation clearance. For non-contaminated dredged material, less stringent handling requirements apply. If desired, this material could be temporarily placed on Phillippi Estate Park property for dewatering. Once dried, it would be hauled to the Sarasota County Landfill for disposal. The above options are summarized in **Table 4**.

Dredging operations in the upstream extension pose additional logistical challenges due to the lack of existing DMMAs in the area. Given the anticipated increase in sediment volumes and contamination risks, multiple upland staging sites will likely be required for dewatering, material containment, and transportation. The presence of chromium and other contaminants in previously analyzed sediment samples suggests that certain sections of the extension may require specialized handling.

To refine disposal strategies for the upstream extension, additional sediment testing may be required to determine the precise extent of contamination. If contamination is confirmed, impervious landfill disposal may be necessary to mitigate environmental risks. The findings of these future assessments will inform dredge planning, DMMA selection, and final cost estimation for the extended project scope.

TABLE 4. POTENTIAL TEMPORARY DMMAS AND STAGING AREAS

Option	Land Ownership	Acreage	Parcel ID	Address	Comment
1	Landing Marina LLC	1.0	0086040031	5353 S Tamiami Trl., Sarasota, FL, 34231	Private property Parking lot Adjacent to Project
2	River Forest LLC	0.4	0085130036	5245 S Tamiami Trl., Sarasota, FL, 34231	Private property Parking lot adjacent to ski rental Adjacent to Project
3	Sarasota County	17.0	0084090002	5500 S Tamiami Trl., Sarasota, FL, 34231	Public property Parking lot and open field Adjacent to Project

5.3 Estimated Project Cost

Based on the data collection, analysis, and available information at the time of this study, an order of magnitude conceptual level estimate of probable cost has been developed below. The cost

estimates presented are intended for planning purposes within this feasibility study and are subject to refinement as additional project details, regulatory requirements, and site conditions are refined. The estimated costs are based on a dredge volume of 5,100 CY as determined from the bathymetric survey conducted in January 2025. Additionally, site-specific constraints such as the size and location of the designated upland area for temporary use as a DMMA and staging area may have significant impacts on the overall construction costs. It is assumed that a mechanical dredge will be the preferred dredging method for this project.

TABLE 5. ESTIMATED ENGINEERING AND CONSTRUCTION COSTS

					Total Costs	
Task Description	**Quantity**	**Unit**	**Low End**	**High End**	**Low End**	**High End**
Mobilization/Demobilization	1	LS	$ 150,000.00	$ 350,000.00	$ 150,000.00	$ 350,000.00
Mechanical excavation	5,100	CY	$ 100.00	$ 120.00	$ 510,000.00	$ 612,000.00
Trucking material to the Landfill and disposal	6,100	CY	$ 115.00	$ 145.00	$ 701,500.00	$ 884,500.00
Site Work Restoration	1	LS	$ 15,000.00	$ 30,000.00	$ 15,000.00	$ 30,000.00
Turbidity and Manatee Monitoring	1	LS	$ 40,000.00	$ 55,000.00	$ 40,000.00	$ 55,000.00
Subtotal					**$ 1,416,500.00**	**$ 1,931,500.00**
Bonds and insurance (5%)					$ 70,825.00	$ 96,575.00
Contingency (15%)					$ 212,475.00	$ 289,725.00
Total Project Cost					**$ 1,699,800.00**	**$ 2,317,800.00**
CC project costs						
Engineering/permitting/final design and bid support	1	LS		$ 65,000.00		**$ 65,000.00**
Mitigation Negotiations and Planning	1	LS		$ 19,100.00		**$ 19,100.00**

Table 5 summarizes the estimated engineering fees and construction costs, which includes design, permitting, and bid assistance for the original project area. The cost estimate includes both low-end and high-end construction cost projections, reflecting the variability in factors such as DMMA location selection, permitting agency requirements for contaminated material handling, and potential resource impacts necessitating mitigation efforts. The degree of potential impacts and mitigation requirements are unknown at this stage in the project. For planning purposes, a conservative industry-used cost estimate for seagrass mitigation is on the order of $1 million/acre.

To account for material expansion upon excavation, a bulking factor has been applied to the in situ dredged material. This results in an estimated 6,100 CY of bulked material for dewatering and offloading. Based on correspondence with local dredging contractors, it was estimated that the contractor would be able to excavate approximately 100 CY of sediment per day, equating to 50 active dredging days required for project completion.

Potential Seagrass and Oyster Mitigation Negotiation and Costs

The USACE has indicated that impacts to resources (i.e., seagrass and oysters) will likely necessitate mitigation measures. Impacts to oyster habitat, as well as minimal impacts to seagrasses, are anticipated according to Cummins Cederberg's 2024 marine resource survey.

To determine mitigation requirements, Cummins Cederberg will quantify the anticipated unavoidable impacts to resources. Uniform Mitigation Assessment Method (UMAM) worksheets

will be prepared to determine if seagrass mitigation will be necessary and to support the USACE application package. Due to the small area of anticipated seagrass impact, the location of these resources within an active navigational channel, and the anticipated likelihood for seagrass regrowth, Cummins Cederberg will propose that compensatory mitigation for seagrass impacts should not be required.

Much of the oyster habitat to be impacted includes loose shell/shell hash with very little live oyster presence. Loose shell and/or deceased oyster shells/habitat will likely not need to be mitigated for. Means and methods for oyster relocation will vary dependent on project location, size of impact area, proposed relocation site, and equipment needed to perform the relocation work.

Regulatory agencies, including the USACE are expected to conduct a site visit during permit processing. This will confirm the previous absence or presence of resources documented by Cummins Cederberg's qualitative survey. The USACE site visit will also determine whether there have been significant changes from the recent storms (i.e., Hurricane Helene and Milton) which may have introduced an influx of sedimentation and/or freshwater that resulted in a decrease in resource presence since the summer 2024 survey. Cummins Cederberg will join the agencies on site during their site verification and collect any additional quantitative data needed to inform mitigation planning. This additional site verification and supplemental data, as well as additional review and input from the agencies, is needed to accurately determine costs for oyster mitigation (if necessary).

6 EXTENDED BATHYMETRIC SURVEY

Following the 2024 hurricane season, WCIND requested to resurvey the original project area (channel length of approximately 6,400 linear feet) and extend the survey limits approximately 33,200 linear feet upstream to South Beneva Road near the Pinecraft neighborhood. Based on the desktop regulatory review, the upstream segment has not undergone maintenance dredging since the early 2000's, and field surveys indicate that extensive shoaling has occurred, reducing vessel navigability and impacting stormwater flows.

The post-storm bathymetric conditions survey was conducted in January 2025. The survey revealed significant areas of sediment accumulation and shoaling along portions of the channel. Sediment deposition significantly increased moving upstream. Below is a brief summary of the findings from the conditions survey with reference to survey stationing and cross-roads:

- Stations 60+00B to 79+00B between the US-41 bridge and America Drive exhibited depths ranging from approximately 4 to 7 feet, NAVD88.
- Stations 85+00B to 115+00B between Admiral Drive and Proctor Road displayed fluctuating depths of 3.5 to 8 feet NAVD88, with isolated shoals reducing depth to 3 feet NAVD88.
- Depths varied between 2 and 7 feet NAVD88 from station 118+00B to 173+00B, with extensive shoaling beyond Bee Ridge Road at station 178+00B causing water levels to drop below 1-foot NAVD88 in certain sections.
- Water depths were extremely shallow, predominantly less than 2 feet NAVD88, beyond the weir between Tuttle Avenue and Tanglewood Drive at station 212+00B.

The estimated dredge volume for the upstream extension from the US-41 bridge to Redbird Circle South is approximately 19,600 cubic yards of material. This estimate is based off of the 2025 bathymetric survey and utilizing the current design template of the primary project with a design dredge depth of -4 feet MLW and an approximate 30-foot channel width. These volumes will be further refined during the design and permitting phase.

7 STORMWATER REVIEW

Cummins Cederberg conducted a desktop stormwater review in the Phillippi Creek basin to support identification of potential sedimentation sources within the waterway. A review of stormwater assets, hydrologic modifications, and historical rain events were performed. This review was prompted by significant flooding events associated with Hurricanes Debby, Helene, and Milton which have highlighted vulnerabilities within the stormwater management infrastructure. **Figure 11** depicts the 100-year floodplain limits, shown in blue, along the waterway. The Basin Master Plan mandates that no buildings should exist below the 100-year flood elevation (Sarasota County Stormwater Environmental Utility, 1994), however, approximately half of the Phillippi Creek basin meets this criterion.

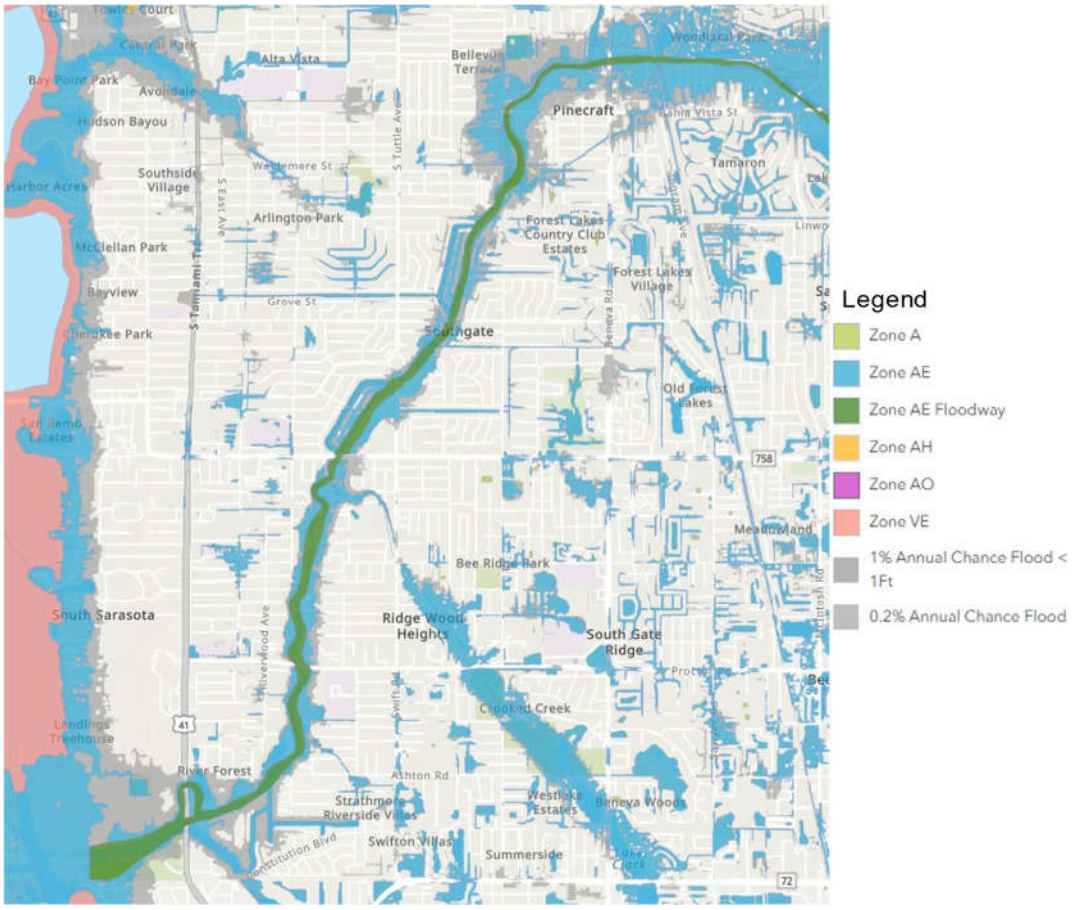

FIGURE 11. PHILLIPPI CREEK FLOOD ZONES AND FLOOD PLAINS.

The Phillippi Creek drainage basin consists of dense residential communities west of I-75, commercial land use parcels along major transportation routes, and sparse residential areas and agricultural land east of I-75 (US Army Corps of Engineers, 1965). While the area within the basin became more urbanized and developed, the rural ditches and canals remained as primary open channel conveyance systems (Stormwater Management Resource Technologies, Inc., 2000). The watershed topography is relatively flat, with channel slopes typically less than 5 feet per mile (Stormwater Management Resource Technologies, Inc., 2000). A dam composed of gates and

stoplogs was constructed across Phillippi Creek between Tuttle Avenue and Webber Street in the early 20th century (US Army Corps of Engineers, 1965). The dam became a significant restriction to flow down the creek as urbanization increased, especially during floods, and thus was converted to an uncontrolled low weir with no stoplogs in 1962 (US Army Corps of Engineers, 1965). Phillippi Creek has historically been at risk of damaging flood events, with notable flood events occurring in 1962 and 1992 (US Army Corps of Engineers, 1965).

Below is a summary inventory of stormwater infrastructure within Sarasota County, as identified by Sarasota County staff during the County Commission Stormwater Workshop on January 21, 2025. The geodatabase outlines the spatial distribution and functional attributes for the stormwater conveyance and retention systems. The infrastructure inventory includes:

- 772 miles of roadside ditches
- 252 miles of canals
- 428 miles of pipes
- 18,944 inlet structures
- 305 lakes and ponds
- 52 weir structures
- 10 pump stations
- 30 baffle boxes
- 21 backflow prevention devices

Historical Hydrologic Modifications and Weir Dynamics

The weir located between Tuttle Avenue and Tanglewood Drive was originally constructed as a dam to increase the water supply for local citrus groves. The dam consisted of a system of gates and stoplogs to also provide a measure of flood control. The structure effectively segmented Phillippi Creek into two hydrologically distinct zones; a lower segment influenced by tidal fluctuations and higher salinity, and an upper segment with low salinity and little tidal influence. In 1962, Sarasota County acquired the decommissioned dam and converted it to an uncontrolled low weir as part of a channel improvement effort to reduce flow restrictions under flood conditions (US Army Corps of Engineers, 1965). Given the age of the structure, no permit history was available for review. Additionally, real-time flow velocity and discharge rate data for Phillippi Creek were not accessible at the time of this analysis, limiting the ability to quantify hydraulic performance.

In June 1992, a significant rainfall event occurred in the Phillippi Creek basin that brought 20 inches of rain with 24-hour depths of up to 10 inches (Sarasota County Stormwater Environmental Utility, 1994). This event induced severe flooding, particularly in the southeast and east portions of the watershed. This flooding event prompted the County to conduct a study to develop flood reduction measures, which included the Celery Fields project.

Encompassing over 300 acres of former agricultural land, Celery Fields was converted into a stormwater and surface water collection area in the mid-1990's (Sarasota County Stormwater

Environmental Utility, 1994). The system was designed to provide a controlled floodwater retention zone, with two weirs constructed at the northern and southern extents of the basin. These weirs discharge into a primary drainage canal that confluences with Phillippi Creek just east of Interstate 75. Additional flood control infrastructure includes two flood gates: one positioned north of Palmer Boulevard and another approximately 1,200 feet north of Deering Circle in the Deerfield neighborhood. A spillway was also incorporated at the southeastern boundary of Celery Fields, adjacent to Raymond Road. The stormwater structures incorporated into Celery Fields are shown in **Figure 12,** obtained from the Sarasota County Stormwater Map (Sarasota County, 2025).

According to Sarasota County staff during the County Commission Stormwater Workshop on January 21, 2025, the Celery Fields infrastructure was designed for a 100-year return period event with an assumed design rainfall intensity of 10 inches over a 24-hour period. This system routes stormwater runoff from approximately 10% of the Phillippi Creek watershed. However, quantitative data on sedimentation rates downstream of the Celery Fields weirs were unavailable at the time of this analysis.

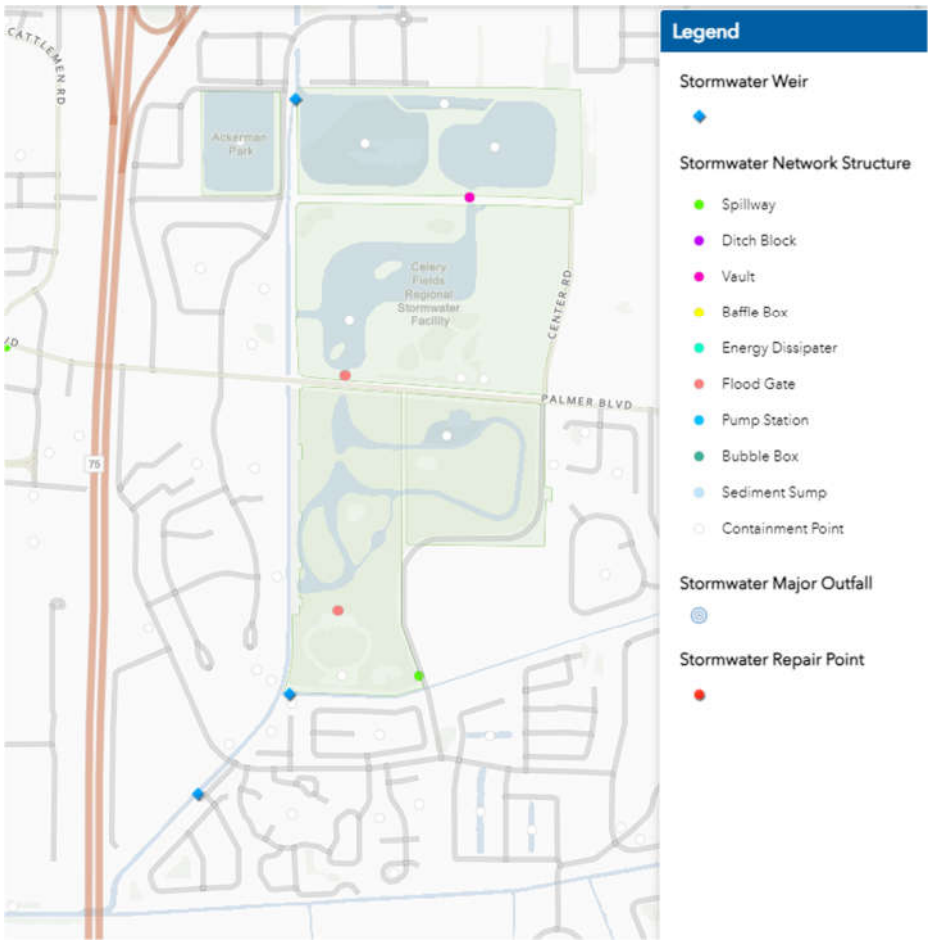

FIGURE 12. CELERY FIELDS STORMWATER STRUCTURES

The extreme rainfall event of 1992 also prompted the implementation of an earthen levee along Phillippi Creek between Bahia Vista Street and Locklear Avenue. This flood control measure included widening the creek to a bottom width of 20 feet aimed at increasing hydraulic conveyance capacity (Sarasota County Stormwater Environmental Utility, 1994). Additionally, a flood control weir was installed at the easternmost extent of the modified channel, as depicted on the Sarasota Stormwater Map managed by the County (Sarasota County, 2025). The location of the weir is shown in **Figure 13**. The earthen levee was constructed on the north side of the creek to an elevation of 6 feet above the stream bed (Sarasota County Stormwater Environmental Utility, 1994).

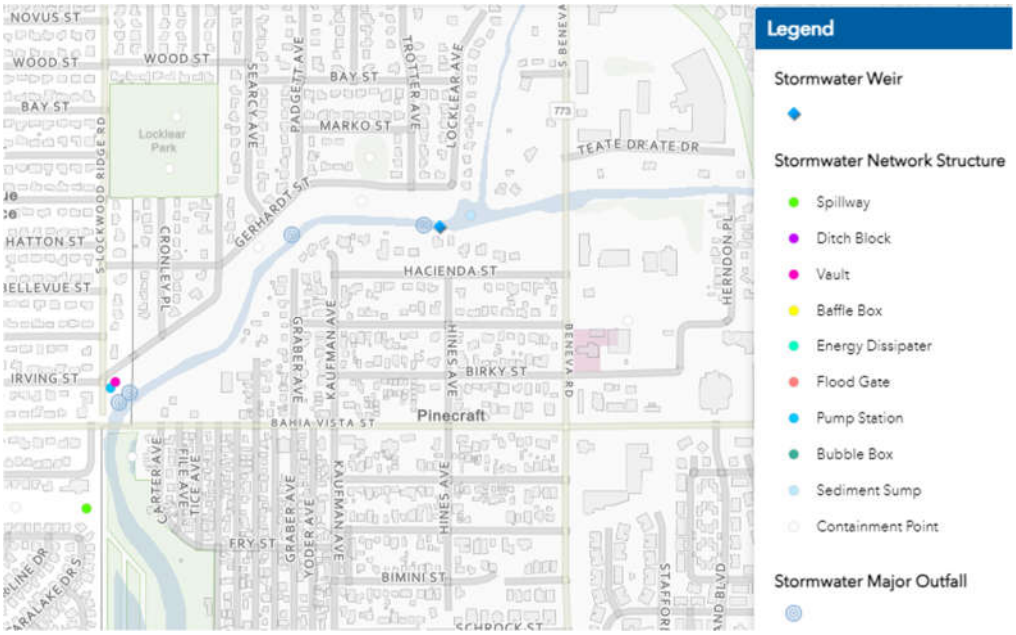

FIGURE 13. LOCATION OF FLOOD CONTROL WEIR NEAR BAHIA VISTA

8 CONCLUSIONS AND RECOMMENDATIONS

Completion of the feasibility study revealed that the lower portion of Phillippi Creek is in need of maintenance dredging to restore vessel navigability within Phillippi Creek at all stages of the tide. This assessment included field investigations to identify bathymetric surveys and available channel depths, geotechnical and environmental surveys, historical data analysis and regulatory coordination.

The January 2025 bathymetric survey identified areas of shoaling in the western portion of Phillippi Creek, with significant sediment accumulation along portions of the waterway. Available water depths range from 2 to 4 feet NAVD88, with a segment of the loop subaerial at lower tide levels, impeding vessel access. The previously authorized depth within the creek is -4 feet MLW (approximately -5.23 feet NAVD88) with a channel width of 30 feet, resulting in approximately 5,100 CY of material accumulated above the design template.

Field investigations identified potential environmental constraints within the creek. The sediment chemical analysis identified elevated levels of chromium exceeding Groundwater Leachability Criteria (GLC) in several samples collected between stations 39+00A and 60+00A. The presence of chromium and other potential contaminants may limit dredged material dewatering and disposal options resulting from specific environmental regulations and requirements associated with handling of contaminants. Additionally, a benthic marine resources survey was performed in June 2024 revealing the presence of patchy seagrasses and oyster shells.

Regulatory coordination with the FDEP and USACE confirmed that the project qualifies as maintenance dredging to previously authorized dredge depth of -4 feet MLW. The FDEP determined that mitigation and/or relocation of marine resources within the dredging footprint will not be required, however USACE indicated mitigation for seagrass and oyster impacts may be required. A re-evaluation of the marine resources survey is recommended to determine the potential next steps for mitigation negotiations. The U.S. Fish and Wildlife Service (USFWS) also highlighted the importance of ensuring manatee safety during construction, requiring Best Management Practices to minimize impacts on local wildlife.

The incorporation of a stormwater review identified infrastructure with significant impacts on the flow of water through the Phillippi Creek basin. Flow velocity and discharge data at the Tuttle Avenue weir were not available at the time of the analysis. The Celery Fields stormwater collection area includes two flood gates, two weirs, and one spillway that influence the flow of water into Phillippi Creek upstream of the Project site. Sedimentation data within Phillippi Creek in association with stormwater releases from Celery Fields was not readily available at this time.

The study identified three potentially viable DMMAs due to their proximity to the dredging site, availability of open space, and potential for reduced transportation costs. However, handling and disposal of contaminated material present challenges that require additional environmental safeguards. For non-contaminated material, Phillippi Estate Park offers sufficient space for dewatering, with direct hauling options available for final disposal.

The preliminary opinion of probable cost suggests an estimated project expense ranges between $1.7 million and $2.35 million for engineering design, permitting, and construction. This cost includes contingencies for unforeseen environmental and operational challenges. Preliminary costs associated with potential mitigation are included in the cost estimate and are dependent upon mitigation negotiations with the permitting agencies. Therefore, the mitigation costs may be subject to change.

A bathymetric survey of Phillippi Creek was performed to include the original project limits and an extended area spanning between the US-41 bridge to South Beneva Road. The multibeam survey collected elevations from top of bank to top of bank along the creek length. The survey revealed average water depths of 2 feet NAVD88 or less in accretional areas along the waterway. An estimated dredge volume of 20,000 cubic yards was calculated from a design dredge depth of -4 feet MLW with a 30-foot wide channel for the portion of the creek between the US-41 bridge and Redbird Circle South.

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Appendix A – Geotechnical Field Investigation Report

October 22, 2024

Jennifer Bistyga
Senior Project Manager
Cummins Cederberg, Inc.
888 S. Andrews Avenue, Suite 206
Ft. Lauderdale, FL 33316

RE: Field Investigation Report
Phillippi Creek Maintenance Dredging Feasibility Study Project
West Coast Inland Navigation District
Sarasota County, Florida

Dear Ms. Bistyga,

Athena Technologies, Inc., is pleased to submit this Field Investigation Report for the abovementioned project. Should you have any questions or concerns regarding the attached report, please do not hesitate to contact me via the information below.

Respectfully,

J. Adam Freeze
Vice President / Geologist

1293 Graham Farm Road, PO Box 68
McClellanville, South Carolina 29458
Mobile: (904) 252-6119, Office: (843) 887-3800
adam_freeze@athenatechnologies.com

FIELD INVESTIGATION REPORT

PHILLIPPI CREEK MAINTENANCE DREDGING FEASIBILITY PROJECT
WEST FLORIDA INLAND NAVIGATION DISTRICT
SARASOTA COUNTY, FLORIDA

October 2024

Prepared for:

Cummins Cederberg, Inc.
888 South Andrews Avenue, Suite 206
Ft. Lauderdale, FL 33316

Prepared by:

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458

FIELD INVESTIGATION REPORT

PHILLIPPI CREEK MAINTENANCE DREDGING FEASIBILITY PROJECT
WEST FLORIDA INLAND NAVIGATION DISTRICT
SARASOTA COUNTY, FLORIDA

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

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Section 1: Introduction

In March 2024, Athena Technologies, Inc. (Athena) was contracted by Cummins Cederberg, Inc. to conduct environmental and geotechnical vibracore sampling and prepare a corresponding report in support of the following project: *Phillippi Creek Maintenance Dredging Feasibility Study Project, Sarasota County, Florida*. The scope of work included the collection of vibracore samples from 8 locations within Phillippi Creek in Sarasota, Florida (**Figure 1**). The cores were required to facilitate proposed dredging activities in Phillippi Creek. Two vibracores were collected from each sample location. The first vibracore was collected to a depth of -4 feet relative to Mean Low Water (MLW) and sediment from the core was submitted to Advanced Environmental Laboratories, Inc. (AEL) for chemical analyses. The second vibracore was collected to a depth of -5 feet MLW and was retained by Athena to allow for geological logging, core photography, and geotechnical analysis. The vibracores were collected in May 2024, and a summary of the vibracore collection methodology and findings of the field investigation are presented below.

Section 2: Methodology

Athena utilized the 24-foot research vessel, *Good Vibrations*, as the sampling platform for this project. *Good Vibrations* was equipped with all required United States Coast Guard (USCG) safety gear and was operated by a USCG-certified 100 Ton Master Captain. A Trimble Differential Global Positioning System (capable of sub-meter accuracy) interfaced with HYPACK was utilized for primary navigation. Horizontal coordinates were recorded in North American Datum of 1983, State Plane Coordinate System, Florida West (Zone 0902), U.S. Survey Feet. Real-time tide elevation data were obtained using a Trimble R12i Global Navigation Satellite System receiver interfaced with the Trimble RTX Network, which served as the base station.

During field operations, *Good Vibration* was immobilized over the desired sample locations using spuds. Once on station, the coordinates at the vessel location were compared with the coordinates for the desired sample location to ensure accurate vessel positioning. Upon satisfactory positioning, a water depth was collected via lead line or fathometer and final horizontal coordinates were recorded at each station. Tide elevation data were also recorded in the field and were referenced to North American Vertical Datum of 1988 (NAVD 88). The tide elevation was then converted to MLW in the field using the National Oceanic and Atmospheric Administration's (NOAA) VDatum software (version 4.6.1), to determine the sediment surface elevation at each sample location.

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FIGURE 1: Study Area Location Map
Phillippi Creek Maintenance Dredging Feasibility Study Project
Sarasota County, Florida

ATHENA TECHNOLOGIES, INC.
www.athenatechnologies.com

May 2024

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IMAGE SOURCE:
Sentinel 2
ESA
December 2023

Athena Technologies, Inc.
PO Box 68
McClellanville, SC 29458
843-887-3800

Environmental Vibracore Collection and Sample Analysis

Once the vessel was immobilized over the sample location, Athena's custom-designed and specially fabricated vibracore system was deployed. The vibracore system consists of a generator with a mechanical vibrator attached via cable to a 3-inch diameter, decontaminated, stainless-steel sample barrel with a cellulose acetate butyrate (CAB) liner insert. The sample barrel was lowered to the sediment surface through a moon pool in the deck of the vessel by attaching lengths of drill stem. The vibracore machine was then turned on and the sample barrel was allowed to penetrate until it reached the project depth of -4 feet MLW, or until refusal was encountered. The sample barrel was then retrieved using an electric winch. Once the sample barrel was on deck, the CAB liner was removed from the stainless-steel sample barrel, capped on both ends and labeled. A summary table containing final vibracore location coordinates, elevation data, and penetration and recovery data has been included as **Table 1**. A vibracore location map has been included as **Figure 2**.

Athena's scientist subsequently opened the core on the deck of *Good Vibrations* and collected 1 composite sample from each core. The sediment from the core was homogenized and placed in containers supplied by AEL, and a chain of custody was maintained for each sample. The analytical samples were delivered by Athena's scientist to AEL's laboratory in Jacksonville, Florida, and were analyzed for the following: metals (Al, As, Ba Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn) (EPA 6010), mercury (EPA 7471A), pesticides (EPA 8081), polyaromatic hydrocarbons (PAHs) (EPA 8270C), polychlorinated biphenyls (PCBs) (EPA 8082A), and total petroleum hydrocarbons (TPH) (FL-PRO). A copy of the AEL analytical report and summary tables for the environmental samples has been included as **Appendix A**.

Geotechnical Vibracore Collection and Sample Analysis

Geotechnical vibracores were collected using the same vibracore system discussed above. The vibracore machine was turned on and the sample barrel was allowed to penetrate until the bottom of the sample barrel reached a project depth of -5 feet relative to MLW, or refusal. Once the sample barrel reached project depth or refusal, the machine was turned off and the sample barrel was retrieved using an electric winch. The cores were then measured, capped and labeled. The completed geotechnical vibracores were opened longitudinally at Athena's core processing facility in McClellanville, South Carolina. The cores were photographed after opening and were logged by Athena's geologist in accordance with protocol outlined in ASTM D 2488. Lithologic intervals in each core were also assigned a Unified Soil Classification System (USCS) designation, in accordance with protocol outlined in ASTM D 2487. Draft core logs and photo-mosaic images of the cores were provided to Cummins Cederberg, Inc. to allow for selection of sediment sub-sample intervals.

Geotechnical Analysis

Upon receipt of sub-sample intervals from Cummins Cederberg, Inc., Athena extracted and shipped the sub-samples to Terracon Consultants, Inc. (Terracon) in Jacksonville, Florida. Terracon is a USACE-certified geotechnical laboratory. Sub-sample intervals were determined based on lithologic breaks within each core and were collected at a frequency of 1 to 3 composite sub-samples per core. The laboratory described the sub-samples in accordance with ASTM D 2487 and each sub-sample was analyzed for grain size distribution in accordance with ASTM D 6913 using the following sieve sizes: 3/4-inch, 5/8-inch, No. 3.5, No. 4, No. 5, No 7, No. 10, No.14, No. 18, No. 25, No. 35, No. 45, No. 60, No. 80, No. 120, No. 170, No. 200, and No. 230. Munsell color designations (wet and dry) were also assigned for each sub-sample. A laboratory grain size data summary has been included as **Table 2**. Core photographs and logs have been included as **Appendix B**, and grain size distribution curves and granularmetric reports have been included as **Appendix C**.

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FIGURE 2: Vibracore Location Map
Phillippi Creek Maintenance Dredging Feasibility Study Project
Sarasota County, Florida

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- Vibracores collected in May 2024

- Sample prefix PC-24- removed to improve figure clarity

0 200 400
feet

Vibracore Location

N
W E
S

IMAGE SOURCE: Google Earth 2023

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Section 3: Discussion

The study area lies within a tidal channel situated to the east of Siesta Key and the Gulf Intracoastal Waterway (GIWW) in Sarasota, Florida. The general area along this portion of the Florida coastline experiences a mean tidal range of approximately 1 to 2 feet (NOAA). Sediment surface elevations at the sample locations ranged from -1.7 feet to -4.6 feet MLW. Additional discussion regarding vibracore characteristics and site conditions is presented below.

- Refusal was encountered at locations PC-24-05, PC-24-06, and PC-24-07. In each case, refusal was comprised of limestone or gravel-sized limestone fragments. The geotechnical vibracore at location PC-24-03 reached the proposed project depth of -5 feet MLW; however, refusal was encountered almost immediately below that elevation and was observed to be comprised of gravel-sized shells.

- Vibracores PC-24-01 through PC-24-03 were positioned in the entrance channel to Phillippi Creek and were the closest locations to the GIWW. As a result, the locations likely experienced the highest current velocities in the study area. Gravel-sized oyster shells dominated the surficial lithology in vibracores PC-24-01 and PC-24-03, and those surficial units were underlain by a bioturbated, poorly graded fine-grained quartz sand (USCS = SP). Although the shell component was missing from vibracore PC-24-02, the same bioturbated, poorly graded fine-grained quartz sand (USCS = SP) interval was observed in that core. Vibracores PC-24-01 and PC-24-02 terminated in a bioturbated, silty sand (USCS = SM) interval.

- Vibracores PC-24-04 through PC-24-08 were positioned within an abandoned oxbow located north of Phillippi Creek and running under the South Tamiami Trail bridge. Since the cores were located outside of the active currents in the main channel, most of the cores were comprised entirely of a fat organic silt (USCS = OH) with medium plasticity. Multiple peat intervals were observed in vibracore PC-24-08 and the core was also dominated by fine-grained organic silt; however, fine quartz sand was observed in the matrix and bedding within the core, most likely due to the fact that the core was located closer to the main Phillippi Creek channel.

- The fine-grained fraction in each of the cores was primarily comprised of organic silt/clay. Roots and organic fibers were routinely observed, and a strong organic odor was commonly documented, in the fine-grained intervals while logging the cores. The strong organic odor was most notable in the surficial intervals at PC-24-01 and PC-24-03, and in vibracores PC-24-04 through PC-24-07.

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- A total of 15 sub-samples were analyzed from the vibracores. The average percentage of fine-grained constituents for all sub-samples was approximately 32.6%, while the average gravel-sized component (which was primarily comprised of shells) was 7.6%. The average mean grain size for all sub-samples was 0.48 millimeters (mm); however, the average mean grain size for sub-samples reporting less than 15% gravel was 0.17mm.

Note Regarding Penetration and Recovery

It should be noted that it is common for sediment within a core to compact while the vibracore machine is operating. The degree of compaction depends on sediment characteristics and can vary significantly. For example, a poorly graded, fine-grained quartz sand may have a compaction ratio of 10-20%, while a well graded, fine to coarse-grained quartz/shell sand may have a compaction ratio of greater than 30%. Additionally, if denser sediments overly softer sediments, the sediments at depth do not have enough density to "push" the denser material up the sample barrel as the barrel advances. In this scenario, the sample barrel typically rods or bypasses the softer material at depth. As a result, it is common to have a discrepancy between the penetration depths and recovery lengths for vibracores. The cores collected from Phillippi Creek averaged approximately 85% recovery, which, based on our experience, is common for the types of sediments observed in the geotechnical vibracores from the study area.

Note Regarding Laboratory Analyses and USCS Designations

It should be noted that hydrometer analysis was not conducted on the fine-grained fraction of the sub-samples and, as a result, the relative percentages of silt- and clay-sized particles in each sub-sample was not established. In response, the laboratory assigned a default designation of "silt" and a liquid limit of greater than 50% to all material passing the No. 230 sieve. Additionally, organic content analysis was not conducted on the sub-samples. As a result, the laboratory assigned a default designation of "inorganic" to the fine-grained fraction. Lacking sufficient laboratory data to differentiate between silt- and clay-sized particles, or organic and inorganic content, the USCS classification assigned by Athena's geologist took precedence on the core logs, when a discrepancy was noted between the laboratory USCS designation and the USCS designation in the associated core log.

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Section 4: References

ASTM D 2487-11, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System), ASTM International, West Conshohocken, PA. 2011.

ASTM D 2488-00, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), ASTM International, West Conshohocken, PA. 2000.

ASTM D 6913-04, Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis, ASTM International, West Conshohocken, PA. 2004.

Environmental Protection Agency (EPA), Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846, Third Edition, Final Updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), and V (2015).

National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational Oceanographic Products and Services, Tides & Currents, Station ID: 8726083 (Sarasota, FL); accessed August 6, 2024. https://tidesandcurrents.noaa.gov/stationhome.html?id=8726083

TABLES

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TABLE 1 - Vibracore Summary Table
Phillippi Creek Maintenance Dredging Feasibility Study Project
Sarasota County, Florida
May 2024

Boring ID	Collection Date	Time	East [1] (x)	North [1] (y)	Water Depth (ft)	Tide Elevation (ft MLW)	Sediment Surface Elevation (ft MLW)	Bottom of Boring Elevation (ft MLW)	Sample Type	Penetration (ft)	Recovery (ft)	Notes
PC-24-01	5/21/2024	11:24	481921.54	1068192.29	5.3	1.5	-3.8	-5.8	Environmental	2.0	1.0	
								-7.8	**Geotechnical**	**4.0**	**3.3**	
PC-24-02	5/21/2024	11:01	482448.00	1068220.16	5.3	1.7	-3.6	-5.1	Environmental	1.5	1.0	
								-7.1	**Geotechnical**	**3.5**	**2.9**	
PC-24-03	5/21/2024	10:33	483375.05	1068648.19	4.5	1.3	-3.2	-4.2	Environmental	1.0	0.7	
								-5.2	**Geotechnical**	**2.0**	**1.5**	Encountered refusal in gravel-sized shells with clay.
PC-24-04	5/21/2024	10:19	483681.49	1069176.66	5.9	1.4	-4.6	-5.1	Environmental	0.5	0.5	
								-6.6	**Geotechnical**	**2.0**	**1.8**	
PC-24-05	5/21/2024	9:40	483608.03	1069619.28	5.3	2.1	-3.2	-3.9	Environmental	0.7	0.7	
								-4.2	**Geotechnical**	**1.0**	**0.8**	Made 2 attempts. Encountered refusal on rock fragments/limestone.
PC-24-06	5/21/2024	9:28	484103.35	1069790.65	3.2	0.9	-2.3	-3.3	Environmental	1.0	1.0	
								-4.7	**Geotechnical**	**2.4**	**2.4**	Made 2 attempts. Encountered refusal on rock fragments/limestone.
PC-24-07	5/21/2024	8:35	484103.23	1069440.13	2.7	1.0	-1.7	-2.9	Environmental	1.2	1.0	
								-4.2	**Geotechnical**	**2.5**	**2.3**	Made 2 attempts. Encountered refusal on rock fragments/limestone.
PC-24-08	5/21/2024	8:57	484078.06	1069144.13	2.8	0.8	-2.0	-4.5	Environmental	2.5	2.0	Sampled core from 0-1 foot below sediment surface.
								-5.0	**Geotechnical**	**3.0**	**2.2**	

Notes

ft = feet

MLW = Mean Low Water

[1] = State Plane Coordinates, Florida West, Zone 0902, U.S. Survey Feet

Elevation data obtained using a Trimble R12i Global Navigation Satellite System reciever interfaced with the Trimble RTX network.

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TABLE 2 - Grain Size Data Summary
Phillippi Creek Maintenance Dredging Feasibility Study Project
Sarasota County, Florida
May 2024

Boring ID	Sample ID	Sample Interval (ft BSS)	Sample Interval (ft MLW)	Laboratory USCS Classification	Total Percent Gravel-Sized Fraction [1]	Percent Sand-Sized Fraction [2]	Percent Fine-Grained Fraction [3]	Mean Grain Size [6] (mm)	Sorting [6] (phi)	D10 Grain Size (mm)	D30 Grain Size (mm)	D50 Grain Size (mm)	D60 Grain Size (mm)
PC-24-01	S-1	0 - 0.9	-3.8 to -4.7	GP-GM	50.72	40.73	8.55	2.91	2.45	0.10	0.33	5.25	9.10
	S-2	0.9 - 1.2	-4.7 to -5	SP	16.30	82.50	1.21	0.58	1.90	0.18	0.24	0.31	0.35
PC-24-02	S-1	0 - 0.6	-3.6 to -4.2	SP	0.69	95.57	3.74	0.27	0.90	0.12	0.20	0.26	0.29
	S-2	0.6 - 1.4	-4.2 to -5	SP	0.01	95.63	4.36	0.24	0.74	0.11	0.18	0.23	0.26
PC-24-03	S-1	0 - 1	-3.2 to -4.2	SP-SM	30.55	60.44	9.01	1.13	2.38	0.09	0.18	0.35	1.28
	S-2	1 - 1.5	-4.2 to -4.7	SP	14.57	83.33	2.11	0.75	1.68	0.17	0.30	0.46	0.64
PC-24-04	S-1	0 - 0.4	-4.6 to -5	MH	0.00	27.43	72.57	0.16	0.91	**N/A**	**N/A**	**N/A**	**N/A**
PC-24-05	S-1	0 - 0.8	-3.2 to -4	MH	0.00	25.52	74.48	0.15	0.85	**N/A**	**N/A**	**N/A**	**N/A**
PC-24-06	S-1	0 - 1.2	-2.3 to -3.5	MH	0.00	23.25	76.75	0.14	0.61	**N/A**	**N/A**	**N/A**	**N/A**
	S-2	1.2 - 2.4	-3.5 to -4.7	MH	0.00	47.61	52.39	0.16	0.61	**N/A**	**N/A**	**N/A**	0.11
PC-24-07	S-1	0 - 1.2	-1.7 to -2.9	MH	0.00	39.01	60.99	0.12	0.63	**N/A**	**N/A**	**N/A**	0.06
	S-2	1.2 - 2.3	-2.9 to -4	SM	0.38	56.42	43.21	0.16	0.85	**N/A**	**N/A**	0.09	0.12
PC-24-08	S-1	0 - 0.6	-2 to -2.6	SP-SM	0.00	89.19	10.81	0.16	0.54	**N/A**	0.12	0.15	0.16
	S-2	0.6 - 1.6	-2.6 to -3.6	MH	0.07	48.51	51.42	0.15	0.64	**N/A**	**N/A**	**N/A**	0.10
	S-3	1.6 - 2	-3.6 to -4	SM	0.00	83.07	16.93	0.16	0.45	**N/A**	0.13	0.15	0.16

Notes

ft BSS = feet below sediment surface

ft MLW = feet relative to Mean Low Water

USCS = Unified Soil Classification System

mm = millimeters

N/A = Value not available because sample volume at the specified diameter could not be determined using the chosen sieve set.

[1] = Defined as the sample fraction which is greater than or equal to 4.76 millimeters (i.e., retained on sieve sizes greater than or equal to the Number 4 sieve).

[2] = Defined as the sample fraction which is greater than or equal to 0.076 millimeters and less than 4.75 millimeters (i.e., retained on sieve sizes between the Number 4 and Number 200 sieves).

[3] = Defined as the sample fraction which is less than 0.075 millimeters (i.e., passes the Number 200 sieve).

[4] = The laboratory conducted carbonate content analysis using the acid digestion methodology developed by Twenhofel and Tyler (1941).

[5] = The laboratory conducted visual estimation of shell using methodology developed by Terry and Chilingar (1955).

[6] = Value was calculated in gINT using the Moment Method (Folk, 1974) and applies to the portion of sample which did not pass the #230 sieve.

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APPENDIX A

AEL Laboratory Report and Data Summary Tables

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Phone: (904) 363-9350
Fax: (904) 363-9354

FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

June 05, 2024

Neil Wicker
Athena Technologies, Inc.
3700 Rosewood Drive
Columbia, SC 29205

RE: Workorder: J2407489 Phillippi Creek Dredging Study

Dear Neil Wicker:

Enclosed are the analytical results for sample(s) received by the laboratory on Wednesday May 22, 2024. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report. The analytical results for the samples contained in this report were submitted for analysis as outlined by the Chain of Custody and results pertain only to these samples.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jerry Allen, Client Services Manager
JAllen@aellab.com

Certificate of Analysis

NELAP Accredited E82574

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Workorder: Phillippi Creek Dredging Study (J2407489)

Sample Summary

Lab ID	Sample ID	Matrix	Method	Date Collected	Date Received	Analytes Reported	Basis
J2407489001	PC-24-7	SO	EPA 8081	05/21/2024 08:44	05/22/2024 10:21	19	Dry
J2407489001	PC-24-7	SO	FL-PRO	05/21/2024 08:44	05/22/2024 10:21	1	Dry
J2407489001	PC-24-7	SO	SM 2540G	05/21/2024 08:44	05/22/2024 10:21	1	Dry
J2407489001	PC-24-7	SO	SW-846 6010	05/21/2024 08:44	05/22/2024 10:21	11	Dry
J2407489001	PC-24-7	SO	SW-846 7471A	05/21/2024 08:44	05/22/2024 10:21	1	Dry
J2407489001	PC-24-7	SO	SW-846 8082A	05/21/2024 08:44	05/22/2024 10:21	7	Dry
J2407489001	PC-24-7	SO	SW-846 8270C (SIM)	05/21/2024 08:44	05/22/2024 10:21	18	Dry
J2407489002	PC-24-8	SO	EPA 8081	05/21/2024 09:17	05/22/2024 10:21	19	Dry
J2407489002	PC-24-8	SO	FL-PRO	05/21/2024 09:17	05/22/2024 10:21	1	Dry
J2407489002	PC-24-8	SO	SM 2540G	05/21/2024 09:17	05/22/2024 10:21	1	Dry
J2407489002	PC-24-8	SO	SW-846 6010	05/21/2024 09:17	05/22/2024 10:21	11	Dry
J2407489002	PC-24-8	SO	SW-846 7471A	05/21/2024 09:17	05/22/2024 10:21	1	Dry
J2407489002	PC-24-8	SO	SW-846 8082A	05/21/2024 09:17	05/22/2024 10:21	7	Dry
J2407489002	PC-24-8	SO	SW-846 8270C (SIM)	05/21/2024 09:17	05/22/2024 10:21	18	Dry
J2407489003	PC-24-6	SO	EPA 8081	05/21/2024 09:34	05/22/2024 10:21	19	Dry
J2407489003	PC-24-6	SO	FL-PRO	05/21/2024 09:34	05/22/2024 10:21	1	Dry
J2407489003	PC-24-6	SO	SM 2540G	05/21/2024 09:34	05/22/2024 10:21	1	Dry
J2407489003	PC-24-6	SO	SW-846 6010	05/21/2024 09:34	05/22/2024 10:21	11	Dry
J2407489003	PC-24-6	SO	SW-846 7471A	05/21/2024 09:34	05/22/2024 10:21	1	Dry
J2407489003	PC-24-6	SO	SW-846 8082A	05/21/2024 09:34	05/22/2024 10:21	7	Dry
J2407489003	PC-24-6	SO	SW-846 8270C (SIM)	05/21/2024 09:34	05/22/2024 10:21	18	Dry
J2407489004	PC-24-5	SO	EPA 8081	05/21/2024 09:55	05/22/2024 10:21	19	Dry
J2407489004	PC-24-5	SO	FL-PRO	05/21/2024 09:55	05/22/2024 10:21	1	Dry
J2407489004	PC-24-5	SO	SM 2540G	05/21/2024 09:55	05/22/2024 10:21	1	Dry
J2407489004	PC-24-5	SO	SW-846 6010	05/21/2024 09:55	05/22/2024 10:21	11	Dry
J2407489004	PC-24-5	SO	SW-846 7471A	05/21/2024 09:55	05/22/2024 10:21	1	Dry
J2407489004	PC-24-5	SO	SW-846 8082A	05/21/2024 09:55	05/22/2024 10:21	7	Dry
J2407489004	PC-24-5	SO	SW-846 8270C (SIM)	05/21/2024 09:55	05/22/2024 10:21	18	Dry
J2407489005	PC-24-4	SO	EPA 8081	05/21/2024 10:29	05/22/2024 10:21	19	Dry
J2407489005	PC-24-4	SO	FL-PRO	05/21/2024 10:29	05/22/2024 10:21	1	Dry
J2407489005	PC-24-4	SO	SM 2540G	05/21/2024 10:29	05/22/2024 10:21	1	Dry
J2407489005	PC-24-4	SO	SW-846 6010	05/21/2024 10:29	05/22/2024 10:21	11	Dry
J2407489005	PC-24-4	SO	SW-846 7471A	05/21/2024 10:29	05/22/2024 10:21	1	Dry
J2407489005	PC-24-4	SO	SW-846 8082A	05/21/2024 10:29	05/22/2024 10:21	7	Dry
J2407489005	PC-24-4	SO	SW-846 8270C (SIM)	05/21/2024 10:29	05/22/2024 10:21	18	Dry

Certificate of Analysis

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Workorder: Phillippi Creek Dredging Study (J2407489)

Sample Summary

Lab ID	Sample ID	Matrix	Method	Date Collected	Date Received	Analytes Reported	Basis
J2407489006	PC-24-3	SO	EPA 8081	05/21/2024 10:48	05/22/2024 10:21	19	Dry
J2407489006	PC-24-3	SO	FL-PRO	05/21/2024 10:48	05/22/2024 10:21	1	Dry
J2407489006	PC-24-3	SO	SM 2540G	05/21/2024 10:48	05/22/2024 10:21	1	Dry
J2407489006	PC-24-3	SO	SW-846 6010	05/21/2024 10:48	05/22/2024 10:21	11	Dry
J2407489006	PC-24-3	SO	SW-846 7471A	05/21/2024 10:48	05/22/2024 10:21	1	Dry
J2407489006	PC-24-3	SO	SW-846 8082A	05/21/2024 10:48	05/22/2024 10:21	7	Dry
J2407489006	PC-24-3	SO	SW-846 8270C (SIM)	05/21/2024 10:48	05/22/2024 10:21	18	Dry
J2407489007	PC-24-2	SO	EPA 8081	05/21/2024 11:10	05/22/2024 10:21	19	Dry
J2407489007	PC-24-2	SO	FL-PRO	05/21/2024 11:10	05/22/2024 10:21	1	Dry
J2407489007	PC-24-2	SO	SM 2540G	05/21/2024 11:10	05/22/2024 10:21	1	Dry
J2407489007	PC-24-2	SO	SW-846 6010	05/21/2024 11:10	05/22/2024 10:21	11	Dry
J2407489007	PC-24-2	SO	SW-846 7471A	05/21/2024 11:10	05/22/2024 10:21	1	Dry
J2407489007	PC-24-2	SO	SW-846 8082A	05/21/2024 11:10	05/22/2024 10:21	7	Dry
J2407489007	PC-24-2	SO	SW-846 8270C (SIM)	05/21/2024 11:10	05/22/2024 10:21	18	Dry
J2407489008	PC-24-1	SO	EPA 8081	05/21/2024 11:35	05/22/2024 10:21	19	Dry
J2407489008	PC-24-1	SO	FL-PRO	05/21/2024 11:35	05/22/2024 10:21	1	Dry
J2407489008	PC-24-1	SO	SM 2540G	05/21/2024 11:35	05/22/2024 10:21	1	Dry
J2407489008	PC-24-1	SO	SW-846 6010	05/21/2024 11:35	05/22/2024 10:21	11	Dry
J2407489008	PC-24-1	SO	SW-846 7471A	05/21/2024 11:35	05/22/2024 10:21	1	Dry
J2407489008	PC-24-1	SO	SW-846 8082A	05/21/2024 11:35	05/22/2024 10:21	7	Dry
J2407489008	PC-24-1	SO	SW-846 8270C (SIM)	05/21/2024 11:35	05/22/2024 10:21	18	Dry

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Workorder: Phillippi Creek Dredging Study (J2407489)

Workorder Summary

Batch Comments

CVAj/2440 - HG Analysis,CVAA,Non-Aqueous

The Method Blank associated with batch 2440 contained a low level concentration of mercury above the Method Reporting Limit (MDL). The associated sample(s) contained this/these compound(s) at a concentration of at least ten times that found in the Method Blank. Blank contamination less than ten times that found in the associated samples is deemed insignificant and the data is reported with no further corrective action required.

GCSj/6434 - 8081/8082/608 Analysis,Soil

The upper control criterion was exceeded for several target analytes in Continuing Calibration Verification (CCV) standards for analytical batch GCSj: 6434, indicating increased sensitivity. The client samples reported in this batch did not contain the analytes in question. Since the apparent problem equates to a potential high bias, the data quality is not affected. Client samples with target analytes above the Method Detection Limit (MDL) were re-analyzed and reported with passing Continuing Calibration Verification (CCV) standards. No further corrective action was required.

Task Comments

J2407489001 (PC-24-7) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489001 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489001 (PC-24-7) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489001 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489002 (PC-24-8) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489002 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489002 (PC-24-8) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489002 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489003 (PC-24-6) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489003 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489003 (PC-24-6) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489003 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489004 (PC-24-5) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489004 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489004 (PC-24-5) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489004 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489005 (PC-24-4) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489005 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489005 (PC-24-4) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489005 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489006 (PC-24-3) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489006 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

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Workorder: Phillippi Creek Dredging Study (J2407489)

Workorder Summary

Task Comments

J2407489006 (PC-24-3) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489006 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489007 (PC-24-2) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489007 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489007 (PC-24-2) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489007 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489008 (PC-24-1) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489008 and associated matrix spike and matrix spike duplicate was diluted prior to instrumental analysis. The extracts were highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489008 (PC-24-1) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489008 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

Analysis Results Comments

J2407489001 (PC-24-7) - Aluminum

The control criteria for matrix spike recoveries of Aluminum for J2407489001 are not applicable. The analyte concentration in the sample was greater than 4 times the added spike concentrations, preventing accurate evaluation of the spike recovery. No further corrective action was required.

J2407489001 (PC-24-7) - Chromium

The matrix spike recoveries of Aluminum, Chromium, and Cadmium for J2407489001 were outside control criteria due to the presence of target analytes in the sample. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicates the analytical batch was in control. The affected sample is qualified to indicate matrix interference.

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results Qualifiers

Parameter Qualifiers

U	The compound was analyzed for but not detected.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
V	Method Blank Contamination

Lab Qualifiers

J	DOH Certification #E82574 (FL NELAC) AEL-Jacksonville DOD-ELAP Certification #L23-514 (ISO/IEC 17025:2017) AEL-Jacksonville

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489001 **Date Collected:** 05/21/2024 08:44 **Matrix:** Soil
Sample ID: PC-24-7 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**16000**	mg/Kg	1400	360	10	05/24/2024 11:23	06/03/2024 15:08	J
Arsenic	**2.0 I**	mg/Kg	7.2	1.8	1	05/24/2024 11:23	05/28/2024 16:43	J
Barium	**45**	mg/Kg	7.2	1.8	1	05/24/2024 11:23	05/28/2024 16:43	J
Cadmium	**0.72**	mg/Kg	0.72	0.18	1	05/24/2024 11:23	05/28/2024 16:43	J
Chromium	**41**	mg/Kg	2.9	0.72	1	05/24/2024 11:23	05/28/2024 16:43	J
Copper	**81**	mg/Kg	7.2	1.8	1	05/24/2024 11:23	05/28/2024 16:43	J
Lead	**33**	mg/Kg	7.2	1.8	1	05/24/2024 11:23	05/28/2024 16:43	J
Nickel	**10**	mg/Kg	7.2	1.8	1	05/24/2024 11:23	05/28/2024 16:43	J
Selenium	3.6 U	mg/Kg	14	3.6	1	05/24/2024 11:23	05/28/2024 16:43	J
Silver	0.72 U	mg/Kg	2.9	0.72	1	05/24/2024 11:23	05/28/2024 16:43	J
Zinc	**200**	mg/Kg	140	36	1	05/24/2024 11:23	05/28/2024 16:43	J
METALS (SW-846 7471A)								
Mercury	**0.19**	mg/Kg	0.019	0.0048	1	05/28/2024 11:51	05/28/2024 17:52	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
Aroclor 1221 (PCB-1221)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
Aroclor 1232 (PCB-1232)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
Aroclor 1242 (PCB-1242)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
Aroclor 1248 (PCB-1248)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
Aroclor 1254 (PCB-1254)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
Aroclor 1260 (PCB-1260)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
SEMIVOLATILES (FL-PRO)								
TPH	35 U	mg/Kg	61	35	1	05/24/2024 10:00	05/29/2024 17:07	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.018 U	mg/Kg	0.11	0.018	10	05/28/2024 09:00	05/31/2024 22:09	J
4,4`-DDE	0.014 U	mg/Kg	0.11	0.014	10	05/28/2024 09:00	05/31/2024 22:09	J
4,4`-DDT	0.031 U	mg/Kg	0.11	0.031	10	05/28/2024 09:00	05/31/2024 22:09	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489001 **Date Collected:** 05/21/2024 08:44 **Matrix:** Soil
Sample ID: PC-24-7 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.017 U	mg/Kg	0.11	0.017	10	05/28/2024 09:00	05/31/2024 22:09	J
Chlordane (technical)	0.45 U	mg/Kg	1.1	0.45	10	05/28/2024 09:00	05/31/2024 22:09	J
Dieldrin	0.014 U	mg/Kg	0.11	0.014	10	05/28/2024 09:00	05/31/2024 22:09	J
Endosulfan I	0.017 U	mg/Kg	0.11	0.017	10	05/28/2024 09:00	05/31/2024 22:09	J
Endosulfan II	0.012 U	mg/Kg	0.11	0.012	10	05/28/2024 09:00	05/31/2024 22:09	J
Endosulfan Sulfate	0.020 U	mg/Kg	0.11	0.020	10	05/28/2024 09:00	05/31/2024 22:09	J
Endrin	0.031 U	mg/Kg	0.11	0.031	10	05/28/2024 09:00	05/31/2024 22:09	J
Endrin Aldehyde	0.018 U	mg/Kg	0.11	0.018	10	05/28/2024 09:00	05/31/2024 22:09	J
Heptachlor	0.021 U	mg/Kg	0.11	0.021	10	05/28/2024 09:00	05/31/2024 22:09	J
Heptachlor Epoxide	0.015 U	mg/Kg	0.11	0.015	10	05/28/2024 09:00	05/31/2024 22:09	J
Methoxychlor	0.023 U	mg/Kg	0.11	0.023	10	05/28/2024 09:00	05/31/2024 22:09	J
Toxaphene	0.79 U	mg/Kg	1.1	0.79	10	05/28/2024 09:00	05/31/2024 22:09	J
alpha-BHC	0.019 U	mg/Kg	0.11	0.019	10	05/28/2024 09:00	05/31/2024 22:09	J
beta-BHC	0.013 U	mg/Kg	0.11	0.013	10	05/28/2024 09:00	05/31/2024 22:09	J
delta-BHC	0.013 U	mg/Kg	0.11	0.013	10	05/28/2024 09:00	05/31/2024 22:09	J
gamma-BHC (Lindane)	0.020 U	mg/Kg	0.11	0.020	10	05/28/2024 09:00	05/31/2024 22:09	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
2-Methylnaphthalene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Acenaphthene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Acenaphthylene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Anthracene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Benzo[a]anthracene	**0.031**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Benzo[a]pyrene	**0.053**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Benzo[b]fluoranthene	**0.090**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Benzo[g,h,i]perylene	**0.059**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Benzo[k]fluoranthene	**0.034**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489001 **Date Collected:** 05/21/2024 08:44 **Matrix:** Soil
Sample ID: PC-24-7 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	**0.053**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Dibenzo[a,h]anthracene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Fluoranthene	**0.074**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Fluorene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Indeno(1,2,3-cd)pyrene	**0.054**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Naphthalene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Phenanthrene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Pyrene	**0.060**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
(SM 2540G)								
Percent Moisture	**72**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Analysis Results Comments

Mercury

V|Method Blank Contamination

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.40	0.20	49	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.40	0.17	43	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.40	0.29	73	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6	3.30	55	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.30	66	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	78	66	85	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	160	120	80	42 - 129	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	78	82	106	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	160	120	76	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489002 **Date Collected:** 05/21/2024 09:17 **Matrix:** Soil
Sample ID: PC-24-8 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**4000**	mg/Kg	920	230	10	05/24/2024 11:23	06/03/2024 15:18	J
Arsenic	**1.6 I**	mg/Kg	4.6	1.1	1	05/24/2024 11:23	05/28/2024 16:53	J
Barium	**12**	mg/Kg	4.6	1.1	1	05/24/2024 11:23	05/28/2024 16:53	J
Cadmium	**0.15 I**	mg/Kg	0.46	0.11	1	05/24/2024 11:23	05/28/2024 16:53	J
Chromium	**12**	mg/Kg	1.8	0.46	1	05/24/2024 11:23	05/28/2024 16:53	J
Copper	**23**	mg/Kg	4.6	1.1	1	05/24/2024 11:23	05/28/2024 16:53	J
Lead	**9.7**	mg/Kg	4.6	1.1	1	05/24/2024 11:23	05/28/2024 16:53	J
Nickel	**3.3 I**	mg/Kg	4.6	1.1	1	05/24/2024 11:23	05/28/2024 16:53	J
Selenium	2.3 U	mg/Kg	9.2	2.3	1	05/24/2024 11:23	05/28/2024 16:53	J
Silver	0.46 U	mg/Kg	1.8	0.46	1	05/24/2024 11:23	05/28/2024 16:53	J
Zinc	**65 I**	mg/Kg	92	23	1	05/24/2024 11:23	05/28/2024 16:53	J
METALS (SW-846 7471A)								
Mercury	**0.054**	mg/Kg	0.011	0.0029	1	05/30/2024 11:41	05/30/2024 14:16	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
Aroclor 1221 (PCB-1221)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
Aroclor 1232 (PCB-1232)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
Aroclor 1242 (PCB-1242)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
Aroclor 1248 (PCB-1248)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
Aroclor 1254 (PCB-1254)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
Aroclor 1260 (PCB-1260)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
SEMIVOLATILES (FL-PRO)								
TPH	22 U	mg/Kg	38	22	1	05/24/2024 10:00	05/29/2024 17:25	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.011 U	mg/Kg	0.069	0.011	10	05/28/2024 09:00	05/31/2024 22:30	J
4,4`-DDE	0.0086 U	mg/Kg	0.069	0.0086	10	05/28/2024 09:00	05/31/2024 22:30	J
4,4`-DDT	0.019 U	mg/Kg	0.069	0.019	10	05/28/2024 09:00	05/31/2024 22:30	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489002 **Date Collected:** 05/21/2024 09:17 **Matrix:** Soil
Sample ID: PC-24-8 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.010 U	mg/Kg	0.069	0.010	10	05/28/2024 09:00	05/31/2024 22:30	J
Chlordane (technical)	0.28 U	mg/Kg	0.69	0.28	10	05/28/2024 09:00	05/31/2024 22:30	J
Dieldrin	0.0088 U	mg/Kg	0.069	0.0088	10	05/28/2024 09:00	05/31/2024 22:30	J
Endosulfan I	0.011 U	mg/Kg	0.069	0.011	10	05/28/2024 09:00	05/31/2024 22:30	J
Endosulfan II	0.0074 U	mg/Kg	0.069	0.0074	10	05/28/2024 09:00	05/31/2024 22:30	J
Endosulfan Sulfate	0.013 U	mg/Kg	0.069	0.013	10	05/28/2024 09:00	05/31/2024 22:30	J
Endrin	0.019 U	mg/Kg	0.069	0.019	10	05/28/2024 09:00	05/31/2024 22:30	J
Endrin Aldehyde	0.011 U	mg/Kg	0.069	0.011	10	05/28/2024 09:00	05/31/2024 22:30	J
Heptachlor	0.013 U	mg/Kg	0.069	0.013	10	05/28/2024 09:00	05/31/2024 22:30	J
Heptachlor Epoxide	0.0094 U	mg/Kg	0.069	0.0094	10	05/28/2024 09:00	05/31/2024 22:30	J
Methoxychlor	0.014 U	mg/Kg	0.069	0.014	10	05/28/2024 09:00	05/31/2024 22:30	J
Toxaphene	0.49 U	mg/Kg	0.69	0.49	10	05/28/2024 09:00	05/31/2024 22:30	J
alpha-BHC	0.012 U	mg/Kg	0.069	0.012	10	05/28/2024 09:00	05/31/2024 22:30	J
beta-BHC	0.0080 U	mg/Kg	0.069	0.0080	10	05/28/2024 09:00	05/31/2024 22:30	J
delta-BHC	0.0082 U	mg/Kg	0.069	0.0082	10	05/28/2024 09:00	05/31/2024 22:30	J
gamma-BHC (Lindane)	0.012 U	mg/Kg	0.069	0.012	10	05/28/2024 09:00	05/31/2024 22:30	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
2-Methylnaphthalene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Acenaphthene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Acenaphthylene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Anthracene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Benzo[a]anthracene	**0.012 I**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Benzo[a]pyrene	**0.019**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Benzo[b]fluoranthene	**0.034**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Benzo[g,h,i]perylene	**0.021**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Benzo[k]fluoranthene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489002 **Date Collected:** 05/21/2024 09:17 **Matrix:** Soil
Sample ID: PC-24-8 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	**0.020**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Dibenzo[a,h]anthracene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Fluoranthene	**0.028**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Fluorene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Indeno(1,2,3-cd)pyrene	**0.022**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Naphthalene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Phenanthrene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Pyrene	**0.023**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
(SM 2540G)								
Percent Moisture	**55**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.40	0.25	63	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.40	0.23	58	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.40	0.35	87	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6	4	67	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.70	85	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	78	71	91	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	160	110	71	42 - 129	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	78	87	112	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	160	130	86	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489003 **Date Collected:** 05/21/2024 09:34 **Matrix:** Soil
Sample ID: PC-24-6 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**19000**	mg/Kg	1300	330	10	05/24/2024 11:23	06/03/2024 15:21	J
Arsenic	1.6 U	mg/Kg	6.5	1.6	1	05/24/2024 11:23	05/28/2024 16:57	J
Barium	**51**	mg/Kg	6.5	1.6	1	05/24/2024 11:23	05/28/2024 16:57	J
Cadmium	**0.92**	mg/Kg	0.65	0.16	1	05/24/2024 11:23	05/28/2024 16:57	J
Chromium	**51**	mg/Kg	2.6	0.65	1	05/24/2024 11:23	05/28/2024 16:57	J
Copper	**110**	mg/Kg	6.5	1.6	1	05/24/2024 11:23	05/28/2024 16:57	J
Lead	**71**	mg/Kg	6.5	1.6	1	05/24/2024 11:23	05/28/2024 16:57	J
Nickel	**12**	mg/Kg	6.5	1.6	1	05/24/2024 11:23	05/28/2024 16:57	J
Selenium	3.3 U	mg/Kg	13	3.3	1	05/24/2024 11:23	05/28/2024 16:57	J
Silver	0.65 U	mg/Kg	2.6	0.65	1	05/24/2024 11:23	05/28/2024 16:57	J
Zinc	**200**	mg/Kg	130	33	1	05/24/2024 11:23	05/28/2024 16:57	J
METALS (SW-846 7471A)								
Mercury	**0.25**	mg/Kg	0.018	0.0044	1	05/28/2024 11:51	05/28/2024 17:58	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
Aroclor 1221 (PCB-1221)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
Aroclor 1232 (PCB-1232)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
Aroclor 1242 (PCB-1242)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
Aroclor 1248 (PCB-1248)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
Aroclor 1254 (PCB-1254)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
Aroclor 1260 (PCB-1260)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
SEMIVOLATILES (FL-PRO)								
TPH	31 U	mg/Kg	54	31	1	05/24/2024 10:00	05/29/2024 17:44	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.017 U	mg/Kg	0.10	0.017	10	05/28/2024 09:00	05/31/2024 22:50	J
4,4`-DDE	0.013 U	mg/Kg	0.10	0.013	10	05/28/2024 09:00	05/31/2024 22:50	J
4,4`-DDT	0.028 U	mg/Kg	0.10	0.028	10	05/28/2024 09:00	05/31/2024 22:50	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489003 **Date Collected:** 05/21/2024 09:34 **Matrix:** Soil
Sample ID: PC-24-6 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.015 U	mg/Kg	0.10	0.015	10	05/28/2024 09:00	05/31/2024 22:50	J
Chlordane (technical)	0.42 U	mg/Kg	1.0	0.42	10	05/28/2024 09:00	05/31/2024 22:50	J
Dieldrin	0.013 U	mg/Kg	0.10	0.013	10	05/28/2024 09:00	05/31/2024 22:50	J
Endosulfan I	0.016 U	mg/Kg	0.10	0.016	10	05/28/2024 09:00	05/31/2024 22:50	J
Endosulfan II	0.011 U	mg/Kg	0.10	0.011	10	05/28/2024 09:00	05/31/2024 22:50	J
Endosulfan Sulfate	0.019 U	mg/Kg	0.10	0.019	10	05/28/2024 09:00	05/31/2024 22:50	J
Endrin	0.028 U	mg/Kg	0.10	0.028	10	05/28/2024 09:00	05/31/2024 22:50	J
Endrin Aldehyde	0.017 U	mg/Kg	0.10	0.017	10	05/28/2024 09:00	05/31/2024 22:50	J
Heptachlor	0.019 U	mg/Kg	0.10	0.019	10	05/28/2024 09:00	05/31/2024 22:50	J
Heptachlor Epoxide	0.014 U	mg/Kg	0.10	0.014	10	05/28/2024 09:00	05/31/2024 22:50	J
Methoxychlor	0.021 U	mg/Kg	0.10	0.021	10	05/28/2024 09:00	05/31/2024 22:50	J
Toxaphene	0.73 U	mg/Kg	1.0	0.73	10	05/28/2024 09:00	05/31/2024 22:50	J
alpha-BHC	0.017 U	mg/Kg	0.10	0.017	10	05/28/2024 09:00	05/31/2024 22:50	J
beta-BHC	0.012 U	mg/Kg	0.10	0.012	10	05/28/2024 09:00	05/31/2024 22:50	J
delta-BHC	0.012 U	mg/Kg	0.10	0.012	10	05/28/2024 09:00	05/31/2024 22:50	J
gamma-BHC (Lindane)	0.018 U	mg/Kg	0.10	0.018	10	05/28/2024 09:00	05/31/2024 22:50	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
2-Methylnaphthalene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Acenaphthene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Acenaphthylene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Anthracene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Benzo[a]anthracene	**0.019 I**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Benzo[a]pyrene	**0.030**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Benzo[b]fluoranthene	**0.049**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Benzo[g,h,i]perylene	**0.030**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Benzo[k]fluoranthene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489003 **Date Collected:** 05/21/2024 09:34 **Matrix:** Soil
Sample ID: PC-24-6 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	**0.029**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Dibenzo[a,h]anthracene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Fluoranthene	**0.033**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Fluorene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Indeno(1,2,3-cd)pyrene	**0.030**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Naphthalene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Phenanthrene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Pyrene	**0.032**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
(SM 2540G)								
Percent Moisture	**69**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Analysis Results Comments

Mercury

V|Method Blank Contamination

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
p-Terphenyl-d14 (S)	mg/Kg	0.39	0.36	92	42 - 141	J
2-Fluorobiphenyl (S)	mg/Kg	0.39	0.26	65	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.39	0.23	58	33 - 134	J
Nonatricontane-C39 (S)	mg/Kg	5.90	3.80	64	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.50	76	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	80	69	86	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	160	88	55	42 - 129	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	80	92	115	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	160	130	80	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489004 **Date Collected:** 05/21/2024 09:55 **Matrix:** Soil
Sample ID: PC-24-5 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**19000**	mg/Kg	1300	330	10	05/24/2024 11:23	06/03/2024 15:25	J
Arsenic	**1.8 I**	mg/Kg	6.6	1.6	1	05/24/2024 11:23	05/28/2024 17:01	J
Barium	**45**	mg/Kg	6.6	1.6	1	05/24/2024 11:23	05/28/2024 17:01	J
Cadmium	**0.67**	mg/Kg	0.66	0.16	1	05/24/2024 11:23	05/28/2024 17:01	J
Chromium	**49**	mg/Kg	2.6	0.66	1	05/24/2024 11:23	05/28/2024 17:01	J
Copper	**92**	mg/Kg	6.6	1.6	1	05/24/2024 11:23	05/28/2024 17:01	J
Lead	**67**	mg/Kg	6.6	1.6	1	05/24/2024 11:23	05/28/2024 17:01	J
Nickel	**11**	mg/Kg	6.6	1.6	1	05/24/2024 11:23	05/28/2024 17:01	J
Selenium	3.3 U	mg/Kg	13	3.3	1	05/24/2024 11:23	05/28/2024 17:01	J
Silver	0.66 U	mg/Kg	2.6	0.66	1	05/24/2024 11:23	05/28/2024 17:01	J
Zinc	**180**	mg/Kg	130	33	1	05/24/2024 11:23	05/28/2024 17:01	J
METALS (SW-846 7471A)								
Mercury	**0.23**	mg/Kg	0.016	0.0040	1	05/28/2024 11:51	05/28/2024 18:01	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
Aroclor 1221 (PCB-1221)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
Aroclor 1232 (PCB-1232)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
Aroclor 1242 (PCB-1242)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
Aroclor 1248 (PCB-1248)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
Aroclor 1254 (PCB-1254)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
Aroclor 1260 (PCB-1260)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
SEMIVOLATILES (FL-PRO)								
TPH	32 U	mg/Kg	55	32	1	05/24/2024 10:00	05/29/2024 18:03	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.016 U	mg/Kg	0.098	0.016	10	05/28/2024 09:00	05/31/2024 23:11	J
4,4`-DDE	0.012 U	mg/Kg	0.098	0.012	10	05/28/2024 09:00	05/31/2024 23:11	J
4,4`-DDT	0.027 U	mg/Kg	0.098	0.027	10	05/28/2024 09:00	05/31/2024 23:11	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489004 **Date Collected:** 05/21/2024 09:55 **Matrix:** Soil
Sample ID: PC-24-5 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.015 U	mg/Kg	0.098	0.015	10	05/28/2024 09:00	05/31/2024 23:11	J
Chlordane (technical)	0.40 U	mg/Kg	0.98	0.40	10	05/28/2024 09:00	05/31/2024 23:11	J
Dieldrin	0.012 U	mg/Kg	0.098	0.012	10	05/28/2024 09:00	05/31/2024 23:11	J
Endosulfan I	0.015 U	mg/Kg	0.098	0.015	10	05/28/2024 09:00	05/31/2024 23:11	J
Endosulfan II	0.010 U	mg/Kg	0.098	0.010	10	05/28/2024 09:00	05/31/2024 23:11	J
Endosulfan Sulfate	0.018 U	mg/Kg	0.098	0.018	10	05/28/2024 09:00	05/31/2024 23:11	J
Endrin	0.027 U	mg/Kg	0.098	0.027	10	05/28/2024 09:00	05/31/2024 23:11	J
Endrin Aldehyde	0.016 U	mg/Kg	0.098	0.016	10	05/28/2024 09:00	05/31/2024 23:11	J
Heptachlor	0.018 U	mg/Kg	0.098	0.018	10	05/28/2024 09:00	05/31/2024 23:11	J
Heptachlor Epoxide	0.013 U	mg/Kg	0.098	0.013	10	05/28/2024 09:00	05/31/2024 23:11	J
Methoxychlor	0.020 U	mg/Kg	0.098	0.020	10	05/28/2024 09:00	05/31/2024 23:11	J
Toxaphene	0.69 U	mg/Kg	0.98	0.69	10	05/28/2024 09:00	05/31/2024 23:11	J
alpha-BHC	0.016 U	mg/Kg	0.098	0.016	10	05/28/2024 09:00	05/31/2024 23:11	J
beta-BHC	0.011 U	mg/Kg	0.098	0.011	10	05/28/2024 09:00	05/31/2024 23:11	J
delta-BHC	0.012 U	mg/Kg	0.098	0.012	10	05/28/2024 09:00	05/31/2024 23:11	J
gamma-BHC (Lindane)	0.017 U	mg/Kg	0.098	0.017	10	05/28/2024 09:00	05/31/2024 23:11	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
2-Methylnaphthalene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Acenaphthene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Acenaphthylene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Anthracene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Benzo[a]anthracene	**0.019 I**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Benzo[a]pyrene	**0.029**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Benzo[b]fluoranthene	**0.054**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Benzo[g,h,i]perylene	**0.034**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Benzo[k]fluoranthene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489004 **Date Collected:** 05/21/2024 09:55 **Matrix:** Soil
Sample ID: PC-24-5 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	**0.031**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Dibenzo[a,h]anthracene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Fluoranthene	**0.034**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Fluorene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Indeno(1,2,3-cd)pyrene	**0.032**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Naphthalene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Phenanthrene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Pyrene	**0.029**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
(SM 2540G)								
Percent Moisture	**69**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Analysis Results Comments

Mercury

V|Method Blank Contamination

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.40	0.26	64	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.40	0.25	63	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.40	0.32	79	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6.10	3.50	58	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.40	70	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	77	70	91	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	150	100	65	42 - 129	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	77	90	117	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	150	150	96	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489005 **Date Collected:** 05/21/2024 10:29 **Matrix:** Soil
Sample ID: PC-24-4 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**24000**	mg/Kg	1500	370	10	05/24/2024 11:23	06/03/2024 15:28	J
Arsenic	**2.0 I**	mg/Kg	7.5	1.9	1	05/24/2024 11:23	05/28/2024 17:04	J
Barium	**52**	mg/Kg	7.5	1.9	1	05/24/2024 11:23	05/28/2024 17:04	J
Cadmium	**0.73 I**	mg/Kg	0.75	0.19	1	05/24/2024 11:23	05/28/2024 17:04	J
Chromium	**61**	mg/Kg	3.0	0.75	1	05/24/2024 11:23	05/28/2024 17:04	J
Copper	**91**	mg/Kg	7.5	1.9	1	05/24/2024 11:23	05/28/2024 17:04	J
Lead	**59**	mg/Kg	7.5	1.9	1	05/24/2024 11:23	05/28/2024 17:04	J
Nickel	**14**	mg/Kg	7.5	1.9	1	05/24/2024 11:23	05/28/2024 17:04	J
Selenium	3.7 U	mg/Kg	15	3.7	1	05/24/2024 11:23	05/28/2024 17:04	J
Silver	0.75 U	mg/Kg	3.0	0.75	1	05/24/2024 11:23	05/28/2024 17:04	J
Zinc	**120 I**	mg/Kg	150	37	1	05/24/2024 11:23	05/28/2024 17:04	J
METALS (SW-846 7471A)								
Mercury	**0.35**	mg/Kg	0.019	0.0047	1	05/28/2024 11:51	05/28/2024 18:04	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
Aroclor 1221 (PCB-1221)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
Aroclor 1232 (PCB-1232)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
Aroclor 1242 (PCB-1242)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
Aroclor 1248 (PCB-1248)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
Aroclor 1254 (PCB-1254)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
Aroclor 1260 (PCB-1260)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
SEMIVOLATILES (FL-PRO)								
TPH	35 U	mg/Kg	61	35	1	05/24/2024 10:00	05/29/2024 18:21	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.019 U	mg/Kg	0.12	0.019	10	05/28/2024 09:00	05/31/2024 23:32	J
4,4`-DDE	0.014 U	mg/Kg	0.12	0.014	10	05/28/2024 09:00	05/31/2024 23:32	J
4,4`-DDT	0.032 U	mg/Kg	0.12	0.032	10	05/28/2024 09:00	05/31/2024 23:32	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489005 **Date Collected:** 05/21/2024 10:29 **Matrix:** Soil
Sample ID: PC-24-4 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.017 U	mg/Kg	0.12	0.017	10	05/28/2024 09:00	05/31/2024 23:32	J
Chlordane (technical)	0.47 U	mg/Kg	1.2	0.47	10	05/28/2024 09:00	05/31/2024 23:32	J
Dieldrin	0.015 U	mg/Kg	0.12	0.015	10	05/28/2024 09:00	05/31/2024 23:32	J
Endosulfan I	0.018 U	mg/Kg	0.12	0.018	10	05/28/2024 09:00	05/31/2024 23:32	J
Endosulfan II	0.012 U	mg/Kg	0.12	0.012	10	05/28/2024 09:00	05/31/2024 23:32	J
Endosulfan Sulfate	0.021 U	mg/Kg	0.12	0.021	10	05/28/2024 09:00	05/31/2024 23:32	J
Endrin	0.032 U	mg/Kg	0.12	0.032	10	05/28/2024 09:00	05/31/2024 23:32	J
Endrin Aldehyde	0.019 U	mg/Kg	0.12	0.019	10	05/28/2024 09:00	05/31/2024 23:32	J
Heptachlor	0.021 U	mg/Kg	0.12	0.021	10	05/28/2024 09:00	05/31/2024 23:32	J
Heptachlor Epoxide	0.016 U	mg/Kg	0.12	0.016	10	05/28/2024 09:00	05/31/2024 23:32	J
Methoxychlor	0.023 U	mg/Kg	0.12	0.023	10	05/28/2024 09:00	05/31/2024 23:32	J
Toxaphene	0.81 U	mg/Kg	1.2	0.81	10	05/28/2024 09:00	05/31/2024 23:32	J
alpha-BHC	0.019 U	mg/Kg	0.12	0.019	10	05/28/2024 09:00	05/31/2024 23:32	J
beta-BHC	0.013 U	mg/Kg	0.12	0.013	10	05/28/2024 09:00	05/31/2024 23:32	J
delta-BHC	0.014 U	mg/Kg	0.12	0.014	10	05/28/2024 09:00	05/31/2024 23:32	J
gamma-BHC (Lindane)	0.020 U	mg/Kg	0.12	0.020	10	05/28/2024 09:00	05/31/2024 23:32	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
2-Methylnaphthalene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Acenaphthene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Acenaphthylene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Anthracene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Benzo[a]anthracene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Benzo[a]pyrene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Benzo[b]fluoranthene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Benzo[g,h,i]perylene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Benzo[k]fluoranthene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489005 **Date Collected:** 05/21/2024 10:29 **Matrix:** Soil
Sample ID: PC-24-4 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Dibenzo[a,h]anthracene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Fluoranthene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Fluorene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Indeno(1,2,3-cd)pyrene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Naphthalene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Phenanthrene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Pyrene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
(SM 2540G)								
Percent Moisture	**72**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Analysis Results Comments

Mercury

V|Method Blank Contamination

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.40	0.32	80	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.40	0.30	75	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.40	0.36	91	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6	4.20	70	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.70	84	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	80	84	105	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	160	130	84	42 - 129	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	80	87	109	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	160	150	94	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489006 **Date Collected:** 05/21/2024 10:48 **Matrix:** Soil
Sample ID: PC-24-3 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**3700**	mg/Kg	550	140	10	05/24/2024 11:23	06/03/2024 15:32	J
Arsenic	**1.6 I**	mg/Kg	2.7	0.68	1	05/24/2024 11:23	05/28/2024 17:15	J
Barium	**7.7**	mg/Kg	2.7	0.68	1	05/24/2024 11:23	05/28/2024 17:15	J
Cadmium	**0.068 I**	mg/Kg	0.27	0.068	1	05/24/2024 11:23	05/28/2024 17:15	J
Chromium	**9.2**	mg/Kg	1.1	0.27	1	05/24/2024 11:23	05/28/2024 17:15	J
Copper	**23**	mg/Kg	2.7	0.68	1	05/24/2024 11:23	05/28/2024 17:15	J
Lead	**11**	mg/Kg	2.7	0.68	1	05/24/2024 11:23	05/28/2024 17:15	J
Nickel	**2.1 I**	mg/Kg	2.7	0.68	1	05/24/2024 11:23	05/28/2024 17:15	J
Selenium	1.4 U	mg/Kg	5.5	1.4	1	05/24/2024 11:23	05/28/2024 17:15	J
Silver	0.27 U	mg/Kg	1.1	0.27	1	05/24/2024 11:23	05/28/2024 17:15	J
Zinc	**16 I**	mg/Kg	55	14	1	05/24/2024 11:23	05/28/2024 17:15	J
METALS (SW-846 7471A)								
Mercury	**0.037**	mg/Kg	0.0064	0.0016	1	05/30/2024 11:41	05/30/2024 14:25	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
Aroclor 1221 (PCB-1221)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
Aroclor 1232 (PCB-1232)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
Aroclor 1242 (PCB-1242)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
Aroclor 1248 (PCB-1248)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
Aroclor 1254 (PCB-1254)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
Aroclor 1260 (PCB-1260)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
SEMIVOLATILES (FL-PRO)								
TPH	14 U	mg/Kg	24	14	1	05/24/2024 10:00	05/29/2024 19:54	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.0073 U	mg/Kg	0.045	0.0073	10	05/28/2024 09:00	05/31/2024 23:52	J
4,4`-DDE	0.0056 U	mg/Kg	0.045	0.0056	10	05/28/2024 09:00	05/31/2024 23:52	J
4,4`-DDT	0.012 U	mg/Kg	0.045	0.012	10	05/28/2024 09:00	05/31/2024 23:52	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489006 **Date Collected:** 05/21/2024 10:48 **Matrix:** Soil
Sample ID: PC-24-3 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.0067 U	mg/Kg	0.045	0.0067	10	05/28/2024 09:00	05/31/2024 23:52	J
Chlordane (technical)	0.18 U	mg/Kg	0.45	0.18	10	05/28/2024 09:00	05/31/2024 23:52	J
Dieldrin	0.0057 U	mg/Kg	0.045	0.0057	10	05/28/2024 09:00	05/31/2024 23:52	J
Endosulfan I	0.0070 U	mg/Kg	0.045	0.0070	10	05/28/2024 09:00	05/31/2024 23:52	J
Endosulfan II	0.0048 U	mg/Kg	0.045	0.0048	10	05/28/2024 09:00	05/31/2024 23:52	J
Endosulfan Sulfate	0.0082 U	mg/Kg	0.045	0.0082	10	05/28/2024 09:00	05/31/2024 23:52	J
Endrin	0.012 U	mg/Kg	0.045	0.012	10	05/28/2024 09:00	05/31/2024 23:52	J
Endrin Aldehyde	0.0074 U	mg/Kg	0.045	0.0074	10	05/28/2024 09:00	05/31/2024 23:52	J
Heptachlor	0.0084 U	mg/Kg	0.045	0.0084	10	05/28/2024 09:00	05/31/2024 23:52	J
Heptachlor Epoxide	0.0062 U	mg/Kg	0.045	0.0062	10	05/28/2024 09:00	05/31/2024 23:52	J
Methoxychlor	0.0091 U	mg/Kg	0.045	0.0091	10	05/28/2024 09:00	05/31/2024 23:52	J
Toxaphene	0.32 U	mg/Kg	0.45	0.32	10	05/28/2024 09:00	05/31/2024 23:52	J
alpha-BHC	0.0075 U	mg/Kg	0.045	0.0075	10	05/28/2024 09:00	05/31/2024 23:52	J
beta-BHC	0.0052 U	mg/Kg	0.045	0.0052	10	05/28/2024 09:00	05/31/2024 23:52	J
delta-BHC	0.0053 U	mg/Kg	0.045	0.0053	10	05/28/2024 09:00	05/31/2024 23:52	J
gamma-BHC (Lindane)	0.0079 U	mg/Kg	0.045	0.0079	10	05/28/2024 09:00	05/31/2024 23:52	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
2-Methylnaphthalene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Acenaphthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Acenaphthylene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Anthracene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Benzo[a]anthracene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Benzo[a]pyrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Benzo[b]fluoranthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Benzo[g,h,i]perylene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Benzo[k]fluoranthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489006 **Date Collected:** 05/21/2024 10:48 **Matrix:** Soil
Sample ID: PC-24-3 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Dibenzo[a,h]anthracene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Fluoranthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Fluorene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Indeno(1,2,3-cd)pyrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Naphthalene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Phenanthrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Pyrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
(SM 2540G)								
Percent Moisture	**28**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.40	0.34	84	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.40	0.32	80	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.40	0.38	94	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6	4.60	76	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.80	89	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	81	77	96	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	160	120	77	42 - 129	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	81	71	89	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	160	150	95	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489007 **Date Collected:** 05/21/2024 11:10 **Matrix:** Soil
Sample ID: PC-24-2 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**1400**	mg/Kg	570	140	10	05/24/2024 11:23	06/03/2024 15:35	J
Arsenic	**1.5 I**	mg/Kg	2.9	0.71	1	05/24/2024 11:23	05/28/2024 17:19	J
Barium	**3.5**	mg/Kg	2.9	0.71	1	05/24/2024 11:23	05/28/2024 17:19	J
Cadmium	0.071 U	mg/Kg	0.29	0.071	1	05/24/2024 11:23	05/28/2024 17:19	J
Chromium	**4.4**	mg/Kg	1.1	0.29	1	05/24/2024 11:23	05/28/2024 17:19	J
Copper	**5.8**	mg/Kg	2.9	0.71	1	05/24/2024 11:23	05/28/2024 17:19	J
Lead	**3.0**	mg/Kg	2.9	0.71	1	05/24/2024 11:23	05/28/2024 17:19	J
Nickel	**1.0 I**	mg/Kg	2.9	0.71	1	05/24/2024 11:23	05/28/2024 17:19	J
Selenium	1.4 U	mg/Kg	5.7	1.4	1	05/24/2024 11:23	05/28/2024 17:19	J
Silver	0.29 U	mg/Kg	1.1	0.29	1	05/24/2024 11:23	05/28/2024 17:19	J
Zinc	14 U	mg/Kg	57	14	1	05/24/2024 11:23	05/28/2024 17:19	J
METALS (SW-846 7471A)								
Mercury	**0.015**	mg/Kg	0.0073	0.0018	1	05/30/2024 11:41	05/30/2024 14:27	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
Aroclor 1221 (PCB-1221)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
Aroclor 1232 (PCB-1232)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
Aroclor 1242 (PCB-1242)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
Aroclor 1248 (PCB-1248)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
Aroclor 1254 (PCB-1254)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
Aroclor 1260 (PCB-1260)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
SEMIVOLATILES (FL-PRO)								
TPH	14 U	mg/Kg	24	14	1	05/24/2024 10:00	05/29/2024 20:12	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.0067 U	mg/Kg	0.042	0.0067	10	05/28/2024 09:00	06/01/2024 00:13	J
4,4`-DDE	0.0052 U	mg/Kg	0.042	0.0052	10	05/28/2024 09:00	06/01/2024 00:13	J
4,4`-DDT	0.011 U	mg/Kg	0.042	0.011	10	05/28/2024 09:00	06/01/2024 00:13	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489007 **Date Collected:** 05/21/2024 11:10 **Matrix:** Soil
Sample ID: PC-24-2 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.0061 U	mg/Kg	0.042	0.0061	10	05/28/2024 09:00	06/01/2024 00:13	J
Chlordane (technical)	0.17 U	mg/Kg	0.42	0.17	10	05/28/2024 09:00	06/01/2024 00:13	J
Dieldrin	0.0053 U	mg/Kg	0.042	0.0053	10	05/28/2024 09:00	06/01/2024 00:13	J
Endosulfan I	0.0065 U	mg/Kg	0.042	0.0065	10	05/28/2024 09:00	06/01/2024 00:13	J
Endosulfan II	0.0044 U	mg/Kg	0.042	0.0044	10	05/28/2024 09:00	06/01/2024 00:13	J
Endosulfan Sulfate	0.0076 U	mg/Kg	0.042	0.0076	10	05/28/2024 09:00	06/01/2024 00:13	J
Endrin	0.011 U	mg/Kg	0.042	0.011	10	05/28/2024 09:00	06/01/2024 00:13	J
Endrin Aldehyde	0.0068 U	mg/Kg	0.042	0.0068	10	05/28/2024 09:00	06/01/2024 00:13	J
Heptachlor	0.0077 U	mg/Kg	0.042	0.0077	10	05/28/2024 09:00	06/01/2024 00:13	J
Heptachlor Epoxide	0.0057 U	mg/Kg	0.042	0.0057	10	05/28/2024 09:00	06/01/2024 00:13	J
Methoxychlor	0.0084 U	mg/Kg	0.042	0.0084	10	05/28/2024 09:00	06/01/2024 00:13	J
Toxaphene	0.29 U	mg/Kg	0.42	0.29	10	05/28/2024 09:00	06/01/2024 00:13	J
alpha-BHC	0.0070 U	mg/Kg	0.042	0.0070	10	05/28/2024 09:00	06/01/2024 00:13	J
beta-BHC	0.0048 U	mg/Kg	0.042	0.0048	10	05/28/2024 09:00	06/01/2024 00:13	J
delta-BHC	0.0049 U	mg/Kg	0.042	0.0049	10	05/28/2024 09:00	06/01/2024 00:13	J
gamma-BHC (Lindane)	0.0073 U	mg/Kg	0.042	0.0073	10	05/28/2024 09:00	06/01/2024 00:13	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
2-Methylnaphthalene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Acenaphthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Acenaphthylene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Anthracene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Benzo[a]anthracene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Benzo[a]pyrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Benzo[b]fluoranthene	**0.0066 I**	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Benzo[g,h,i]perylene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Benzo[k]fluoranthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489007 **Date Collected:** 05/21/2024 11:10 **Matrix:** Soil
Sample ID: PC-24-2 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Dibenzo[a,h]anthracene	**0.0056 I**	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Fluoranthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Fluorene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Indeno(1,2,3-cd)pyrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Naphthalene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Phenanthrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Pyrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
(SM 2540G)								
Percent Moisture	**27**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.41	0.30	74	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.41	0.27	68	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.41	0.33	80	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6.10	3.70	60	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.70	83	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	76	87	115	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	150	120	79	42 - 129	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	76	91	120	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	150	170	112	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489008 **Date Collected:** 05/21/2024 11:35 **Matrix:** Soil
Sample ID: PC-24-1 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**2000**	mg/Kg	570	140	10	05/24/2024 11:23	06/03/2024 15:39	J
Arsenic	0.71 U	mg/Kg	2.8	0.71	1	05/24/2024 11:23	05/28/2024 17:22	J
Barium	**5.3**	mg/Kg	2.8	0.71	1	05/24/2024 11:23	05/28/2024 17:22	J
Cadmium	0.071 U	mg/Kg	0.28	0.071	1	05/24/2024 11:23	05/28/2024 17:22	J
Chromium	**6.2**	mg/Kg	1.1	0.28	1	05/24/2024 11:23	05/28/2024 17:22	J
Copper	**13**	mg/Kg	2.8	0.71	1	05/24/2024 11:23	05/28/2024 17:22	J
Lead	**4.9**	mg/Kg	2.8	0.71	1	05/24/2024 11:23	05/28/2024 17:22	J
Nickel	**1.5 I**	mg/Kg	2.8	0.71	1	05/24/2024 11:23	05/28/2024 17:22	J
Selenium	1.4 U	mg/Kg	5.7	1.4	1	05/24/2024 11:23	05/28/2024 17:22	J
Silver	0.28 U	mg/Kg	1.1	0.28	1	05/24/2024 11:23	05/28/2024 17:22	J
Zinc	**25 I**	mg/Kg	57	14	1	05/24/2024 11:23	05/28/2024 17:22	J
METALS (SW-846 7471A)								
Mercury	**0.021**	mg/Kg	0.0070	0.0017	1	05/30/2024 11:41	05/30/2024 14:30	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
Aroclor 1221 (PCB-1221)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
Aroclor 1232 (PCB-1232)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
Aroclor 1242 (PCB-1242)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
Aroclor 1248 (PCB-1248)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
Aroclor 1254 (PCB-1254)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
Aroclor 1260 (PCB-1260)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
SEMIVOLATILES (FL-PRO)								
TPH	15 U	mg/Kg	25	15	1	05/24/2024 10:00	05/29/2024 20:31	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.0080 U	mg/Kg	0.049	0.0080	10	05/28/2024 09:00	06/01/2024 00:34	J
4,4`-DDE	0.0062 U	mg/Kg	0.049	0.0062	10	05/28/2024 09:00	06/01/2024 00:34	J
4,4`-DDT	0.014 U	mg/Kg	0.049	0.014	10	05/28/2024 09:00	06/01/2024 00:34	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489008 **Date Collected:** 05/21/2024 11:35 **Matrix:** Soil
Sample ID: PC-24-1 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.0073 U	mg/Kg	0.049	0.0073	10	05/28/2024 09:00	06/01/2024 00:34	J
Chlordane (technical)	0.20 U	mg/Kg	0.49	0.20	10	05/28/2024 09:00	06/01/2024 00:34	J
Dieldrin	0.0063 U	mg/Kg	0.049	0.0063	10	05/28/2024 09:00	06/01/2024 00:34	J
Endosulfan I	0.0077 U	mg/Kg	0.049	0.0077	10	05/28/2024 09:00	06/01/2024 00:34	J
Endosulfan II	0.0053 U	mg/Kg	0.049	0.0053	10	05/28/2024 09:00	06/01/2024 00:34	J
Endosulfan Sulfate	0.0090 U	mg/Kg	0.049	0.0090	10	05/28/2024 09:00	06/01/2024 00:34	J
Endrin	0.014 U	mg/Kg	0.049	0.014	10	05/28/2024 09:00	06/01/2024 00:34	J
Endrin Aldehyde	0.0081 U	mg/Kg	0.049	0.0081	10	05/28/2024 09:00	06/01/2024 00:34	J
Heptachlor	0.0092 U	mg/Kg	0.049	0.0092	10	05/28/2024 09:00	06/01/2024 00:34	J
Heptachlor Epoxide	0.0068 U	mg/Kg	0.049	0.0068	10	05/28/2024 09:00	06/01/2024 00:34	J
Methoxychlor	0.010 U	mg/Kg	0.049	0.010	10	05/28/2024 09:00	06/01/2024 00:34	J
Toxaphene	0.35 U	mg/Kg	0.49	0.35	10	05/28/2024 09:00	06/01/2024 00:34	J
alpha-BHC	0.0083 U	mg/Kg	0.049	0.0083	10	05/28/2024 09:00	06/01/2024 00:34	J
beta-BHC	0.0057 U	mg/Kg	0.049	0.0057	10	05/28/2024 09:00	06/01/2024 00:34	J
delta-BHC	0.0058 U	mg/Kg	0.049	0.0058	10	05/28/2024 09:00	06/01/2024 00:34	J
gamma-BHC (Lindane)	0.0087 U	mg/Kg	0.049	0.0087	10	05/28/2024 09:00	06/01/2024 00:34	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
2-Methylnaphthalene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Acenaphthene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Acenaphthylene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Anthracene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Benzo[a]anthracene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Benzo[a]pyrene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Benzo[b]fluoranthene	**0.011 I**	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Benzo[g,h,i]perylene	**0.0072 I**	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Benzo[k]fluoranthene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489008 **Date Collected:** 05/21/2024 11:35 **Matrix:** Soil
Sample ID: PC-24-1 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Dibenzo[a,h]anthracene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Fluoranthene	**0.0060 I**	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Fluorene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Indeno(1,2,3-cd)pyrene	**0.0065 I**	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Naphthalene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Phenanthrene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Pyrene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
(SM 2540G)								
Percent Moisture	**33**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.40	0.21	53	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.40	0.19	48	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.40	0.28	71	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6	3	51	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.40	71	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	83	78	94	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	170	110	64	42 - 129	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	83	81	97	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	170	170	100	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: CVAj/2440 **Analysis Method:** SW-846 7471A
Preparation Method: SW-846 7471A
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Method Blank(5322873)

Parameter	Results	Units	PQL	MDL	Lab
Mercury	**0.0021 I**	mg/Kg	0.0050	0.0012	J

Lab Control Sample (5322874)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Mercury	mg/Kg	0.10	0.11	111	80 - 120	J

QC Result Comments

Method Blank - 5322873 - Mercury

V|Method Blank Contamination

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: CVAj/2443 **Analysis Method:** SW-846 7471A
Preparation Method: SW-846 7471A
Associated Lab IDs: J2407489002, J2407489006, J2407489007, J2407489008

Method Blank(5326298)

Parameter	Results	Units	PQL	MDL	Lab
Mercury	0.0012 U	mg/Kg	0.0050	0.0012	J

Lab Control Sample (5326299)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Mercury	mg/Kg	0.10	0.1	101	80 - 120	J

Matrix Spike (5326300); Matrix Spike Duplicate (5326301); Original (S2401324007); Parent Lab Sample (S2401324007)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Mercury	mg/Kg	0.0920	0.11	103	80 - 120	0.11	101	8	20	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: GCSj/6434 **Analysis Method:** EPA 8081
Preparation Method: SW-846 3550B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Method Blank(5324200)

Parameter	Results	Units	PQL	MDL	Lab
alpha-BHC	0.00054 U	mg/Kg	0.0032	0.00054	J
gamma-BHC (Lindane)	0.00057 U	mg/Kg	0.0032	0.00057	J
beta-BHC	0.00037 U	mg/Kg	0.0032	0.00037	J
delta-BHC	0.00038 U	mg/Kg	0.0032	0.00038	J
Heptachlor	0.00060 U	mg/Kg	0.0032	0.00060	J
Aldrin	0.00048 U	mg/Kg	0.0032	0.00048	J
Heptachlor Epoxide	0.00044 U	mg/Kg	0.0032	0.00044	J
Endosulfan I	0.00050 U	mg/Kg	0.0032	0.00050	J
4,4`-DDE	0.00040 U	mg/Kg	0.0032	0.00040	J
Dieldrin	0.00041 U	mg/Kg	0.0032	0.00041	J
Endrin	0.00089 U	mg/Kg	0.0032	0.00089	J
4,4`-DDD	0.00052 U	mg/Kg	0.0032	0.00052	J
Endosulfan II	0.00035 U	mg/Kg	0.0032	0.00035	J
Endrin Aldehyde	0.00053 U	mg/Kg	0.0032	0.00053	J
4,4`-DDT	0.00089 U	mg/Kg	0.0032	0.00089	J
Endosulfan Sulfate	0.00059 U	mg/Kg	0.0032	0.00059	J
Methoxychlor	0.00065 U	mg/Kg	0.0032	0.00065	J
Chlordane (technical)	0.013 U	mg/Kg	0.032	0.013	J
Toxaphene	0.023 U	mg/Kg	0.032	0.023	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	mg/L	0.0810	0.0590	73	63 - 130	J
Tetrachloro-m-xylene (S)	mg/L	0.16	0.0770	48	42 - 129	J

Lab Control Sample (5324201)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
alpha-BHC	mg/Kg	0.0160	0.017	110	45 - 137	J
gamma-BHC (Lindane)	mg/Kg	0.0160	0.016	105	49 - 135	J
beta-BHC	mg/Kg	0.0160	0.016	100	50 - 136	J
delta-BHC	mg/Kg	0.0160	0.016	103	47 - 139	J
Heptachlor	mg/Kg	0.0160	0.015	98	47 - 136	J
Aldrin	mg/Kg	0.0160	0.014	88	45 - 136	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Batch: GCSj/6434 **Analysis Method:** EPA 8081
Preparation Method: SW-846 3550B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Heptachlor Epoxide	mg/Kg	0.0160	0.014	91	52 - 136	J
Endosulfan I	mg/Kg	0.0160	0.015	98	53 - 132	J
4,4`-DDE	mg/Kg	0.0160	0.014	92	56 - 134	J
Dieldrin	mg/Kg	0.0160	0.015	95	56 - 136	J
Endrin	mg/Kg	0.0160	0.015	94	57 - 140	J
4,4`-DDD	mg/Kg	0.0160	0.015	99	56 - 139	J
Endosulfan II	mg/Kg	0.0160	0.013	84	53 - 134	J
Endrin Aldehyde	mg/Kg	0.0160	0.016	100	35 - 137	J
4,4`-DDT	mg/Kg	0.0160	0.016	101	50 - 141	J
Endosulfan Sulfate	mg/Kg	0.0160	0.014	90	55 - 136	J
Methoxychlor	mg/Kg	0.0160	0.019	119	52 - 143	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	mg/L	0.0780	0.0760	97	63 - 130	J
Tetrachloro-m-xylene (S)	mg/L	0.16	0.16	105	42 - 129	J

Matrix Spike (5324202); Matrix Spike Duplicate (5324203); Original (F2403180005); Parent Lab Sample (F2403180005)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
alpha-BHC	mg/Kg	0.0160	0.0077	48	45 - 137	0.0066	**41**	15	30	J
beta-BHC	mg/Kg	0.0160	0.012	74	50 - 136	0.011	72	3	30	J
delta-BHC	mg/Kg	0.0160	0.012	77	47 - 139	0.014	86	10	30	J
Heptachlor	mg/Kg	0.0160	0.011	67	47 - 136	0.0095	59	12	30	J
Aldrin	mg/Kg	0.0160	0.0084	53	45 - 136	0.0074	46	13	30	J
Heptachlor Epoxide	mg/Kg	0.0160	0.0094	59	52 - 136	0.0089	56	5	30	J
Endosulfan I	mg/Kg	0.0160	0.011	66	53 - 132	0.0096	60	9	30	J
4,4`-DDE	mg/Kg	0.0160	0.01	62	56 - 134	0.0096	60	4	30	J
Dieldrin	mg/Kg	0.0160	0.01	63	56 - 136	0.0093	58	7	30	J
Endrin	mg/Kg	0.0160	0.01	66	57 - 140	0.0095	59	10	30	J
4,4`-DDD	mg/Kg	0.0160	0.012	75	56 - 139	0.011	72	4	30	J
Endosulfan II	mg/Kg	0.0160	0.01	63	53 - 134	0.0092	58	8	30	J
Endrin Aldehyde	mg/Kg	0.0160	0.012	75	35 - 137	0.011	69	9	30	J
4,4`-DDT	mg/Kg	0.0160	0.011	71	50 - 141	0.011	67	6	30	J
Endosulfan Sulfate	mg/Kg	0.0160	0.011	71	55 - 136	0.01	65	9	30	J
Methoxychlor	mg/Kg	0.0160	0.018	115	52 - 143	0.017	104	11	30	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Batch: GCSj/6434 **Analysis Method:** EPA 8081
Preparation Method: SW-846 3550B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Decachlorobiphenyl (S)	mg/L	0.08	0.0530	67	63 - 130	0.0530	66	1		J
Tetrachloro-m-xylene (S)	mg/L	0.16	0.0670	42	42 - 129	0.0550	35	19		J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: GCSj/6436 **Analysis Method:** FL-PRO
Preparation Method: FL-PRO
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Method Blank(5321282)

Parameter	Results	Units	PQL	MDL	Lab
TPH	9.9 U	mg/Kg	17	9.9	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Nonatricontane-C39 (S)	mg/L	6	2.30	38	36 - 132	J
o-Terphenyl (S)	mg/L	2	1.40	68	66 - 136	J

Lab Control Sample (5321283)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
TPH	mg/Kg	34	23	68	49 - 128	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Nonatricontane-C39 (S)	mg/L	5.90	3.20	54	36 - 132	J
o-Terphenyl (S)	mg/L	2	1.60	80	66 - 136	J

Matrix Spike (5321833); Matrix Spike Duplicate (5321834); Original (J2407336003); Parent Lab Sample (J2407336003)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
TPH	mg/Kg	34	2100	**-294**	49 - 128	2500	**895**	17	25	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Nonatricontane-C39 (S)	mg/L	6	3.20	53	36 - 132	24	406	**153**	25	J
o-Terphenyl (S)	mg/L	2	1.50	74	66 - 136	1.30	67	12	25	J

QC Result Comments

Matrix Spike - 5321833 - TPH

J4|Estimated Result

Matrix Spike Duplicate - 5321834 - TPH

J4|Estimated Result

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: GCSj/6450 **Analysis Method:** SW-846 8082A
Preparation Method: EPA 3546
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Method Blank(5326179)

Parameter	Results	Units	PQL	MDL	Lab
Aroclor 1016 (PCB-1016)	0.023 U	mg/Kg	0.092	0.023	J
Aroclor 1221 (PCB-1221)	0.023 U	mg/Kg	0.092	0.023	J
Aroclor 1232 (PCB-1232)	0.023 U	mg/Kg	0.092	0.023	J
Aroclor 1242 (PCB-1242)	0.023 U	mg/Kg	0.092	0.023	J
Aroclor 1248 (PCB-1248)	0.023 U	mg/Kg	0.092	0.023	J
Aroclor 1254 (PCB-1254)	0.023 U	mg/Kg	0.092	0.023	J
Aroclor 1260 (PCB-1260)	0.023 U	mg/Kg	0.092	0.023	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	mg/L	0.0770	0.0710	92	61 - 147	J
Tetrachloro-m-xylene (S)	mg/L	0.15	0.12	80	44 - 130	J

Lab Control Sample (5326180)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Aroclor 1016 (PCB-1016)	mg/Kg	0.16	0.16	100	47 - 134	J
Aroclor 1260 (PCB-1260)	mg/Kg	0.16	0.16	97	53 - 140	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	mg/L	0.0810	0.0760	94	61 - 147	J
Tetrachloro-m-xylene (S)	mg/L	0.16	0.14	86	44 - 130	J

Matrix Spike (5324231); Matrix Spike Duplicate (5324232); Original (J2407489007); Parent Lab Sample (J2407489007)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Aroclor 1016 (PCB-1016)	mg/Kg	0.16	0.13	83	47 - 134	0.11	70	18		J
Aroclor 1260 (PCB-1260)	mg/Kg	0.16	0.16	98	53 - 140	0.15	95	5		J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Decachlorobiphenyl (S)	mg/L	0.0790	0.0980	123	61 - 147	0.0970	124	1		J
Tetrachloro-m-xylene (S)	mg/L	0.16	0.20	124	44 - 130	0.19	124	2		J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: ICPj/3605 **Analysis Method:** SW-846 6010
Preparation Method: SW-846 3050B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Method Blank(5321134)

Parameter	Results	Units	PQL	MDL	Lab
Silver	0.20 U	mg/Kg	0.80	0.20	J
Aluminum	10 U	mg/Kg	40	10	J
Arsenic	0.50 U	mg/Kg	2.0	0.50	J
Barium	0.50 U	mg/Kg	2.0	0.50	J
Cadmium	0.050 U	mg/Kg	0.20	0.050	J
Chromium	0.20 U	mg/Kg	0.80	0.20	J
Copper	0.50 U	mg/Kg	2.0	0.50	J
Nickel	0.50 U	mg/Kg	2.0	0.50	J
Lead	0.50 U	mg/Kg	2.0	0.50	J
Selenium	1.0 U	mg/Kg	4.0	1.0	J
Zinc	10 U	mg/Kg	40	10	J

Lab Control Sample (5321135)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Silver	mg/Kg	4	4.6	115	80 - 120	J
Aluminum	mg/Kg	200	180	92	80 - 120	J
Arsenic	mg/Kg	10	9.2	92	80 - 120	J
Barium	mg/Kg	10	9.2	92	80 - 120	J
Cadmium	mg/Kg	1	0.93	93	80 - 120	J
Chromium	mg/Kg	4	3.7	94	80 - 120	J
Copper	mg/Kg	10	9.2	92	80 - 120	J
Nickel	mg/Kg	10	9.3	93	80 - 120	J
Lead	mg/Kg	10	8.8	88	80 - 120	J
Selenium	mg/Kg	20	19	93	80 - 120	J
Zinc	mg/Kg	200	190	94	80 - 120	J

Matrix Spike (5321136); Matrix Spike Duplicate (5321137); Original (J2407489001); Parent Lab Sample (J2407489001)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Silver	mg/Kg	3.70	4	107	75 - 125	4.2	103	4	20	J
Aluminum	mg/Kg	190	5900	**820**	75 - 125	5400	**502**	9	20	J
Arsenic	mg/Kg	9.30	8.6	86	75 - 125	8.7	81	1	20	J
Barium	mg/Kg	9.30	21	96	75 - 125	21	85	2	20	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Batch: ICPj/3605 **Analysis Method:** SW-846 6010
Preparation Method: SW-846 3050B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Cadmium	mg/Kg	0.93	0.93	78	75 - 125	0.94	**73**	1	20	J
Chromium	mg/Kg	3.70	17	**145**	75 - 125	16	123	3	20	J
Copper	mg/Kg	9.30	33	114	75 - 125	32	97	3	20	J
Nickel	mg/Kg	9.30	11	84	75 - 125	11	80	2	20	J
Lead	mg/Kg	9.30	20	113	75 - 125	19	96	5	20	J
Selenium	mg/Kg	19	17	90	75 - 125	17	84	1	20	J
Zinc	mg/Kg	190	220	88	75 - 125	220	83	2	20	J

Matrix Spike (5321136); Matrix Spike Duplicate (5321137); Original (J2407489001); Parent Lab Sample (J2407489001)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Silver	mg/Kg	3.70	4	107	75 - 125	4.2	103	4	20	J
Aluminum	mg/Kg	190	5900	**820**	75 - 125	5400	**502**	9	20	J
Arsenic	mg/Kg	9.30	8.6	86	75 - 125	8.7	81	1	20	J
Barium	mg/Kg	9.30	21	96	75 - 125	21	85	2	20	J
Cadmium	mg/Kg	0.93	0.93	78	75 - 125	0.94	**73**	1	20	J
Chromium	mg/Kg	3.70	17	**145**	75 - 125	16	123	3	20	J
Copper	mg/Kg	9.30	33	114	75 - 125	32	97	3	20	J
Nickel	mg/Kg	9.30	11	84	75 - 125	11	80	2	20	J
Lead	mg/Kg	9.30	20	113	75 - 125	19	96	5	20	J
Selenium	mg/Kg	19	17	90	75 - 125	17	84	1	20	J
Zinc	mg/Kg	190	220	88	75 - 125	220	83	2	20	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: MSSj/3992 **Analysis Method:** SW-846 8270C (SIM)
Preparation Method: SW-846 3550B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Method Blank(5321289)

Parameter	Results	Units	PQL	MDL	Lab
Naphthalene	0.0040 U	mg/Kg	0.0081	0.0040	J
2-Methylnaphthalene	0.0040 U	mg/Kg	0.0081	0.0040	J
1-Methylnaphthalene	0.0040 U	mg/Kg	0.0081	0.0040	J
Acenaphthylene	0.0040 U	mg/Kg	0.0081	0.0040	J
Acenaphthene	0.0040 U	mg/Kg	0.0081	0.0040	J
Fluorene	0.0040 U	mg/Kg	0.0081	0.0040	J
Phenanthrene	0.0040 U	mg/Kg	0.0081	0.0040	J
Anthracene	0.0040 U	mg/Kg	0.0081	0.0040	J
Fluoranthene	0.0040 U	mg/Kg	0.0081	0.0040	J
Pyrene	0.0040 U	mg/Kg	0.0081	0.0040	J
Benzo[a]anthracene	0.0040 U	mg/Kg	0.0081	0.0040	J
Chrysene	0.0040 U	mg/Kg	0.0081	0.0040	J
Benzo[b]fluoranthene	0.0040 U	mg/Kg	0.0081	0.0040	J
Benzo[k]fluoranthene	0.0040 U	mg/Kg	0.0081	0.0040	J
Benzo[a]pyrene	0.0040 U	mg/Kg	0.0081	0.0040	J
Indeno(1,2,3-cd)pyrene	0.0040 U	mg/Kg	0.0081	0.0040	J
Dibenzo[a,h]anthracene	0.0040 U	mg/Kg	0.0081	0.0040	J
Benzo[g,h,i]perylene	0.0040 U	mg/Kg	0.0081	0.0040	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/L	0.40	0.27	67	37 - 127	J
Nitrobenzene-d5 (S)	mg/L	0.40	0.28	68	33 - 134	J
p-Terphenyl-d14 (S)	mg/L	0.40	0.35	86	42 - 141	J

Lab Control Sample (5321290)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Naphthalene	mg/Kg	0.20	0.13	64	38 - 120	J
2-Methylnaphthalene	mg/Kg	0.20	0.14	69	39 - 120	J
1-Methylnaphthalene	mg/Kg	0.20	0.15	73	43 - 120	J
Acenaphthylene	mg/Kg	0.20	0.14	68	39 - 118	J
Acenaphthene	mg/Kg	0.20	0.13	66	44 - 117	J
Fluorene	mg/Kg	0.20	0.14	71	47 - 121	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Batch: MSSj/3992 **Analysis Method:** SW-846 8270C (SIM)
Preparation Method: SW-846 3550B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Phenanthrene	mg/Kg	0.20	0.14	71	49 - 122	J
Anthracene	mg/Kg	0.20	0.15	76	50 - 123	J
Fluoranthene	mg/Kg	0.20	0.15	75	51 - 126	J
Pyrene	mg/Kg	0.20	0.15	74	51 - 127	J
Benzo[a]anthracene	mg/Kg	0.20	0.15	72	52 - 126	J
Chrysene	mg/Kg	0.20	0.15	74	52 - 128	J
Benzo[b]fluoranthene	mg/Kg	0.20	0.14	70	43 - 132	J
Benzo[k]fluoranthene	mg/Kg	0.20	0.15	73	46 - 133	J
Benzo[a]pyrene	mg/Kg	0.20	0.15	75	42 - 129	J
Indeno(1,2,3-cd)pyrene	mg/Kg	0.20	0.16	78	39 - 135	J
Dibenzo[a,h]anthracene	mg/Kg	0.20	0.15	77	40 - 139	J
Benzo[g,h,i]perylene	mg/Kg	0.20	0.14	71	41 - 133	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/L	0.40	0.30	75	37 - 127	J
Nitrobenzene-d5 (S)	mg/L	0.40	0.29	71	33 - 134	J
p-Terphenyl-d14 (S)	mg/L	0.40	0.36	90	42 - 141	J

Matrix Spike (5321601); Matrix Spike Duplicate (5321602); Original (J2407336003); Parent Lab Sample (J2407336003)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Naphthalene	mg/Kg	0.20	0.12	62	38 - 120	0.12	56	4	30	J
2-Methylnaphthalene	mg/Kg	0.20	0.13	66	39 - 120	0.13	65	3	30	J
1-Methylnaphthalene	mg/Kg	0.20	0.13	68	43 - 120	0.13	63	2	30	J
Acenaphthylene	mg/Kg	0.20	0.13	64	39 - 118	0.12	57	6	30	J
Acenaphthene	mg/Kg	0.20	0.13	67	44 - 117	0.12	60	5	30	J
Fluorene	mg/Kg	0.20	0.14	72	47 - 121	0.13	64	7	30	J
Phenanthrene	mg/Kg	0.20	0.14	71	49 - 122	0.13	64	5	30	J
Anthracene	mg/Kg	0.20	0.15	74	50 - 123	0.14	68	3	30	J
Fluoranthene	mg/Kg	0.20	0.14	70	51 - 126	0.13	63	5	30	J
Pyrene	mg/Kg	0.20	0.13	66	51 - 127	0.13	59	5	30	J
Benzo[a]anthracene	mg/Kg	0.20	0.13	68	52 - 126	0.13	62	5	30	J
Chrysene	mg/Kg	0.20	0.13	68	52 - 128	0.13	62	4	30	J
Benzo[b]fluoranthene	mg/Kg	0.20	0.14	70	43 - 132	0.12	60	10	30	J
Benzo[k]fluoranthene	mg/Kg	0.20	0.14	71	46 - 133	0.13	61	9	30	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Batch: MSSj/3992 **Analysis Method:** SW-846 8270C (SIM)
Preparation Method: SW-846 3550B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Benzo[a]pyrene	mg/Kg	0.20	0.14	72	42 - 129	0.13	61	11	30	J
Indeno(1,2,3-cd)pyrene	mg/Kg	0.20	0.16	84	39 - 135	0.15	71	11	30	J
Dibenzo[a,h]anthracene	mg/Kg	0.20	0.16	79	40 - 139	0.15	70	7	30	J
Benzo[g,h,i]perylene	mg/Kg	0.20	0.14	72	41 - 133	0.13	62	9	30	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
2-Fluorobiphenyl (S)	mg/L	0.39	0.30	76	37 - 127	0.28	67	7	30	J
Nitrobenzene-d5 (S)	mg/L	0.39	0.26	66	33 - 134	0.24	58	8	30	J
p-Terphenyl-d14 (S)	mg/L	0.39	0.32	81	42 - 141	0.30	72	6	30	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Cross Reference

Lab ID	Sample ID	Prep Batch	Prep Method
CVAj/2440 - SW-846 7471A			
J2407489001	PC-24-7	DGMj/8366	SW-846 7471A
J2407489003	PC-24-6	DGMj/8366	SW-846 7471A
J2407489004	PC-24-5	DGMj/8366	SW-846 7471A
J2407489005	PC-24-4	DGMj/8366	SW-846 7471A
CVAj/2443 - SW-846 7471A			
J2407489002	PC-24-8	DGMj/8382	SW-846 7471A
J2407489006	PC-24-3	DGMj/8382	SW-846 7471A
J2407489007	PC-24-2	DGMj/8382	SW-846 7471A
J2407489008	PC-24-1	DGMj/8382	SW-846 7471A
GCSj/6434 - EPA 8081			
J2407489001	PC-24-7	EXTj/9144	SW-846 3550B
J2407489002	PC-24-8	EXTj/9144	SW-846 3550B
J2407489003	PC-24-6	EXTj/9144	SW-846 3550B
J2407489004	PC-24-5	EXTj/9144	SW-846 3550B
J2407489005	PC-24-4	EXTj/9144	SW-846 3550B
J2407489006	PC-24-3	EXTj/9144	SW-846 3550B
J2407489007	PC-24-2	EXTj/9144	SW-846 3550B
J2407489008	PC-24-1	EXTj/9144	SW-846 3550B
GCSj/6436 - FL-PRO			
J2407489001	PC-24-7	EXTj/9125	FL-PRO
J2407489002	PC-24-8	EXTj/9125	FL-PRO
J2407489003	PC-24-6	EXTj/9125	FL-PRO
J2407489004	PC-24-5	EXTj/9125	FL-PRO
J2407489005	PC-24-4	EXTj/9125	FL-PRO
J2407489006	PC-24-3	EXTj/9125	FL-PRO
J2407489007	PC-24-2	EXTj/9125	FL-PRO
J2407489008	PC-24-1	EXTj/9125	FL-PRO

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Cross Reference

Lab ID	Sample ID	Prep Batch	Prep Method
GCSj/6450 - SW-846 8082A			
J2407489001	PC-24-7	EXTj/9158	EPA 3546
J2407489002	PC-24-8	EXTj/9158	EPA 3546
J2407489003	PC-24-6	EXTj/9158	EPA 3546
J2407489004	PC-24-5	EXTj/9158	EPA 3546
J2407489005	PC-24-4	EXTj/9158	EPA 3546
J2407489006	PC-24-3	EXTj/9158	EPA 3546
J2407489007	PC-24-2	EXTj/9158	EPA 3546
J2407489008	PC-24-1	EXTj/9158	EPA 3546
ICPj/3605 - SW-846 6010			
J2407489001	PC-24-7	DGMj/8344	SW-846 3050B
J2407489002	PC-24-8	DGMj/8344	SW-846 3050B
J2407489003	PC-24-6	DGMj/8344	SW-846 3050B
J2407489004	PC-24-5	DGMj/8344	SW-846 3050B
J2407489005	PC-24-4	DGMj/8344	SW-846 3050B
J2407489006	PC-24-3	DGMj/8344	SW-846 3050B
J2407489007	PC-24-2	DGMj/8344	SW-846 3050B
J2407489008	PC-24-1	DGMj/8344	SW-846 3050B
MSSj/3992 - SW-846 8270C (SIM)			
J2407489001	PC-24-7	EXTj/9126	SW-846 3550B
J2407489002	PC-24-8	EXTj/9126	SW-846 3550B
J2407489003	PC-24-6	EXTj/9126	SW-846 3550B
J2407489004	PC-24-5	EXTj/9126	SW-846 3550B
J2407489005	PC-24-4	EXTj/9126	SW-846 3550B
J2407489006	PC-24-3	EXTj/9126	SW-846 3550B
J2407489007	PC-24-2	EXTj/9126	SW-846 3550B
J2407489008	PC-24-1	EXTj/9126	SW-846 3550B

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Cross Reference

Lab ID	Sample ID	Prep Batch	Prep Method
WCAj/14607 - SM 2540G			
J2407489001	PC-24-7		
J2407489002	PC-24-8		
J2407489003	PC-24-6		
J2407489004	PC-24-5		
J2407489005	PC-24-4		
J2407489006	PC-24-3		
J2407489007	PC-24-2		
J2407489008	PC-24-1		

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☐ Fort Myers: 13100 Westlinks Terrace, Ste. 10, FL 33913 • 239.674.5130 • Lab ID: E84492
☑ Jacksonville: 6681 Southpoint Pkwy., FL 32216 • 904.363.9350 • Lab ID: E82574
☐ Tallahassee: 2639 North Monroe St., Suite D, FL 32303 • 850.219.6274 • Lab ID: E811095
☐ Gainesville
☐ Miramar:
☐ Tampa:

J2407489

Client Name:	Athena Technologies	Project Name:	Phillippi Creek Dredging Study
Address:	1293 Graham Farm Rd	Project Number:	
	McCellanville, SC 29458	PO Number:	
Phone:	561-702-0768	FDEP Facility No:	
FAX:		FDEP Facility Addr:	
Contact:	Lucy Thein		
Sampled By:		Special Instructions:	
Turn Around Time:	Standard Rush		
AEL Profile #:	77037	ADaPT EQuIS Other	

SAMPLE ID	SAMPLE DESCRIPTION	Grab Comp	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. COUNT	Preservation	Field-Filtered?	BOTTLE SIZE & TYPE: 8 oz Jar	ANALYSIS REQUIRED: PAH by 8270SIM	TRPH by FLPOR	8081/8082	Al,As,Ba,Cd,Cr,Cu,Pb,Hg, Ni,Se,Ag,Zn	LABORATORY I.D. NUMBER
							HCL/none				HNO3	Ice	H2SO4	
PC-24-7	SEDIMENT COMP	Comp	5/21	0844	SO	1				X	X	X	X	-001
PC-24-8	SEDIMENT	Comp	5/21	0917	SO	1				X	X	X	X	-002
PC-24-6	SEDIMENT	Comp	5/21	0934	SO	1				X	X	X	X	-003
PC-24-5	SEDIMENT	Comp	5/21	0955	SO	1				X	X	X	X	-004
PC24-4	SEDIMENT	Comp	5/21	1029	SO	1				X	X	X	X	-005
PC24-3	SEDIMENT	Comp	5/21	1048	SO	1				X	X	X	X	-006
PC-24-2	SEDIMENT	Comp	5/21	1110	SO	1				X	X	X	X	-007
PC-24-1	SEDIMENT	Comp	5/21	1135	SO	1				X	X	X	X	-008

Matrix Code: **WW** = wastewater **SW** = surface water **GW** = ground water **DW** = drinking water **O** = oil **A** = air **SO** = soil **SL** = sludge

Preservation Code: I = ice H=(HCl) S = (H_2SO_4) N = (HNO_3) T = (Sodium Thiosulfate)

Received on Ice ☑ Yes ☐ No ☑ Temp taken from sample ☐ Temp from blank ☐ Where required, pH checked Temp. when received (observed) 1.9 °C Temp. when received (corrected) 0.9 °C

DCN: AD-D051web Form last revised 08/07/2019 Device used for measuring Temp by unique identifier (circle IR temp gun used) J: 9A G: LT-1 LT-2 T: 10A A: 3A M: 3A S: 1V F: 1A

	Relinquished by:	Date	Time	Received by:	Date	Time
1	J NEIL WICKER	5/22	1021	Tiffini-Campbell	5.22.24	1021
2						
3						
4						

FOR DRINKING WATER USE:

(When PWS Information not otherwise supplied) PWS ID: _____

Contact Person: _____

Supplier of Water: _____

Site-Address: _____

Advanced Environmental Labs Inc

Client: Athena Technologies | Project name: Phillippi Creek Dredging

Date/Time Rcvd: 5.22.24 1021 | Log-In request number: J2407489

Received by: Tuppini Campbell | Completed by: SC

Cooler/Shipping Information:

Courier: ☐ AEL ☑ Client ☐ UPS ☐ Blue Streak ☐ FedEx ☐ AES ☐ ASAP ☐ Other (describe): _____

Type: ☑ Cooler ☐ Box ☐ Other (describe) _____

Cooler temperature: Identify the cooler and document the temperature blank or ice water measurement

Cooler ID	1				
Temp (°C)	0.9				
Temp taken from	☑ Sample Bottle ☐ Cooler	☐ Sample Bottle ☐ Cooler	☐ Sample Bottle ☐ Cooler	☐ Sample Bottle ☐ Cooler	☐ Sample Bottle ☐ Cooler
Temp measured with	☐ IR gun S/N 9333779 ☑ Thermometer (enter ID): 9A	☐ IR gun S/N 9333779 ☐ Thermometer (enter ID):	☐ IR gun S/N 9333779 ☐ Thermometer (enter ID):	☐ IR gun S/N 9333779 ☐ Thermometer (enter ID):	☐ IR gun S/N 9333779 ☐ Thermometer (enter ID):

Other Information:

Any discrepancies should be explained in the "Comments" section below.

CHECKLIST	YES	NO	NA
1. Were custody seals on shipping container(s) intact?	✓		
2. Were custody papers properly included with samples?	✓		
3. Were custody papers properly filled out (ink, signed, match labels)?	✓		
4. Did all bottles arrive in good condition (unbroken)?	✓		
5. Were all bottle labels complete (sample #, date, signed, analysis, preservatives)?	✓		
6. Did the sample labels agree with the chain of custody?	✓		
7. Were correct bottles used for the tests indicated?	✓		
8. Were proper sample preservation techniques indicated on the label?	✓		
9. Were samples received within holding times?	✓		
10. Were all VOA vials free of the presence of air bubbles?	✓		~~✓~~ TC
11. Have all Soil VOA Vials and Encores been placed in a freezer within 48 hours of collection?	✓		
12. Were samples in direct contact with wet ice? If "No," check one: ☐ NO ICE ☐ BLUE ICE	✓		
13. Was the cooler temperature less than 6°C?	✓		
14. Where pH preservation is required, are sample pHs checked and any anomalies recorded by Sample control? Are all <2 or >10? Note: VOA samples are checked by laboratory analysts.	✓		
15. Was sufficient sample volume provided to perform all tests?	✓		
16. If for Bacteriological testing, were containers supplied by AEL? (See QA officer if answer is no)			✓
17. Were all sample containers provided by AEL? (Other than Bacteriological)	✓		
18. Were samples accepted into the laboratory?	✓		
19. When necessary to split samples into other bottles, is it noted in the comments?	✓		
20. Where Encores received and if so, how many?			✓

Comments: (Note all sample(s) and container (s)" with a "No" checklist response in this comment section)

DCN: AD-D048
Eff date 2/3/10, Last rev 2/3/21

Benzo(a)pyrene Conversion Table

For Direct Exposure Soil Cleanup Target Levels

Facility/Site Name	Phillippi Creek Dredging Study
Location	
Facility/Site ID No.	
Soil Sample No.	PC-24-1
Sample Date	5/21/2024 11:35
Location	
Depth (ft)	

Instructions: Calculate Total Benzo(a)pyrene Equivalents if at least one of the carcinogenic PAHs is detected in the sample at a concentration equal to or higher than the Method Detection Limit (MDL), whether quantified with certainty (the concentration reported has no qualifier) or estimated (the concentration reported has a "J", "T" or "I" qualifier). Enter the contaminant concentrations (in mg/kg) for all seven carcinogenic PAHs in the yellow boxes using the following criteria (and see table below):

1. If quantified with certainty, or estimated and has the "J" qualifier, enter the reported value.
2. If not detected at the MDL (the concentration reported is the MDL followed by the "U" qualifier) enter 1/2 of the reported value.
3. If detected at a concentration lower than the MDL and the concentration is estimated (has the "T" qualifier) enter the estimated value.
4. If detected at a concentration equal to or higher than the MDL but lower than the Practical Quantitation Limit (PQL) and the concentration is estimated (has the "I" qualifier) enter the estimated value.
5. If detected at a concentration equal to or higher than the MDL but lower than the PQL and it is not estimated (the concentration reported is the PQL followed by the "M" qualifier) enter 1/2 of the reported value.

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	0.00295	1.0	0.0030
Benzo(a)anthracene	0.00295	0.1	0.0003
Benzo(b)fluoranthene	0.011	0.1	0.0011
Benzo(k)fluoranthene	0.00295	0.01	0.0000
Chrysene	0.00295	0.001	0.0000
Dibenz(a,h)anthracene	0.00295	1.0	0.0030
Indeno(1,2,3-cd)pyrene	0.0065	0.1	0.0007

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 0.0

The concentration shown does not exceed the Residential Direct Exposure SCTL of 0.1 mg/kg.
The concentration shown does not exceed the Industrial Direct Exposure SCTL of 0.7 mg/kg.

Summary Criteria for Table Entries			
Detection	**Concentration Reported**	**Data Qualifier**	**Enter**
Various	Quantified with certainty	None	reported value
Various	Estimated	J	reported (estimated) value
ND at MDL	MDL	U	1/2 reported value
< MDL	Estimated	T	reported (estimated) value
≥ MDL but < PQL	Estimated	I	reported (estimated) value
≥ MDL but < PQL	PQL	M	1/2 reported value

Benzo(a)pyrene Conversion Table

For Direct Exposure Soil Cleanup Target Levels

Facility/Site Name	Phillippi Creek Dredging Study
Location	
Facility/Site ID No.	
Soil Sample No.	PC-24-2
Sample Date	5/21/2024 11:10
Location	
Depth (ft)	

Instructions: Calculate Total Benzo(a)pyrene Equivalents if at least one of the carcinogenic PAHs is detected in the sample at a concentration equal to or higher than the Method Detection Limit (MDL), whether quantified with certainty (the concentration reported has no qualifier) or estimated (the concentration reported has a "J", "T" or "I" qualifier). Enter the contaminant concentrations (in mg/kg) for all seven carcinogenic PAHs in the yellow boxes using the following criteria (and see table below):

1. If quantified with certainty, or estimated and has the "J" qualifier, enter the reported value.
2. If not detected at the MDL (the concentration reported is the MDL followed by the "U" qualifier) enter 1/2 of the reported value.
3. If detected at a concentration lower than the MDL and the concentration is estimated (has the "T" qualifier) enter the estimated value.
4. If detected at a concentration equal to or higher than the MDL but lower than the Practical Quantitation Limit (PQL) and the concentration is estimated (has the "I" qualifier) enter the estimated value.
5. If detected at a concentration equal to or higher than the MDL but lower than the PQL and it is not estimated (the concentration reported is the PQL followed by the "M" qualifier) enter 1/2 of the reported value.

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	0.0028	1.0	0.0028
Benzo(a)anthracene	0.0028	0.1	0.0003
Benzo(b)fluoranthene	0.0066	0.1	0.0007
Benzo(k)fluoranthene	0.0028	0.01	0.0000
Chrysene	0.0028	0.001	0.0000
Dibenz(a,h)anthracene	0.0056	1.0	0.0056
Indeno(1,2,3-cd)pyrene	0.0028	0.1	0.0003

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 0.0

The concentration shown does not exceed the Residential Direct Exposure SCTL of 0.1 mg/kg.
The concentration shown does not exceed the Industrial Direct Exposure SCTL of 0.7 mg/kg.

Summary Criteria for Table Entries			
Detection	**Concentration Reported**	**Data Qualifier**	**Enter**
Various	Quantified with certainty	None	reported value
Various	Estimated	J	reported (estimated) value
ND at MDL	MDL	U	1/2 reported value
< MDL	Estimated	T	reported (estimated) value
≥ MDL but < PQL	Estimated	I	reported (estimated) value
≥ MDL but < PQL	PQL	M	1/2 reported value

Benzo(a)pyrene Conversion Table

For Direct Exposure Soil Cleanup Target Levels

Facility/Site Name	Phillippi Creek Dredging Study
Location	
Facility/Site ID No.	
Soil Sample No.	PC-24-3
Sample Date	5/21/2024 10:48
Location	
Depth (ft)	

Instructions: Calculate Total Benzo(a)pyrene Equivalents if at least one of the carcinogenic PAHs is detected in the sample at a concentration equal to or higher than the Method Detection Limit (MDL), whether quantified with certainty (the concentration reported has no qualifier) or estimated (the concentration reported has a "J", "T" or "I" qualifier). Enter the contaminant concentrations (in mg/kg) for all seven carcinogenic PAHs in the yellow boxes using the following criteria (and see table below):

1. If quantified with certainty, or estimated and has the "J" qualifier, enter the reported value.
2. If not detected at the MDL (the concentration reported is the MDL followed by the "U" qualifier) enter 1/2 of the reported value.
3. If detected at a concentration lower than the MDL and the concentration is estimated (has the "T" qualifier) enter the estimated value.
4. If detected at a concentration equal to or higher than the MDL but lower than the Practical Quantitation Limit (PQL) and the concentration is estimated (has the "I" qualifier) enter the estimated value.
5. If detected at a concentration equal to or higher than the MDL but lower than the PQL and it is not estimated (the concentration reported is the PQL followed by the "M" qualifier) enter 1/2 of the reported value.

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	0.0028	1.0	0.0028
Benzo(a)anthracene	0.0028	0.1	0.0003
Benzo(b)fluoranthene	0.0028	0.1	0.0003
Benzo(k)fluoranthene	0.0028	0.01	0.0000
Chrysene	0.0028	0.001	0.0000
Dibenz(a,h)anthracene	0.0028	1.0	0.0028
Indeno(1,2,3-cd)pyrene	0.0028	0.1	0.0003

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 0.0

The concentration shown does not exceed the Residential Direct Exposure SCTL of 0.1 mg/kg.
The concentration shown does not exceed the Industrial Direct Exposure SCTL of 0.7 mg/kg.

Summary Criteria for Table Entries			
Detection	**Concentration Reported**	**Data Qualifier**	**Enter**
Various	Quantified with certainty	None	reported value
Various	Estimated	J	reported (estimated) value
ND at MDL	MDL	U	1/2 reported value
< MDL	Estimated	T	reported (estimated) value
≥ MDL but < PQL	Estimated	I	reported (estimated) value
≥ MDL but < PQL	PQL	M	1/2 reported value

Benzo(a)pyrene Conversion Table

For Direct Exposure Soil Cleanup Target Levels

Facility/Site Name	Phillippi Creek Dredging Study
Location	
Facility/Site ID No.	
Soil Sample No.	PC-24-4
Sample Date	5/21/2024 10:29
Location	
Depth (ft)	

Instructions: Calculate Total Benzo(a)pyrene Equivalents if at least one of the carcinogenic PAHs is detected in the sample at a concentration equal to or higher than the Method Detection Limit (MDL), whether quantified with certainty (the concentration reported has no qualifier) or estimated (the concentration reported has a "J", "T" or "I" qualifier). Enter the contaminant concentrations (in mg/kg) for all seven carcinogenic PAHs in the yellow boxes using the following criteria (and see table below):

1. If quantified with certainty, or estimated and has the "J" qualifier, enter the reported value.
2. If not detected at the MDL (the concentration reported is the MDL followed by the "U" qualifier) enter 1/2 of the reported value.
3. If detected at a concentration lower than the MDL and the concentration is estimated (has the "T" qualifier) enter the estimated value.
4. If detected at a concentration equal to or higher than the MDL but lower than the Practical Quantitation Limit (PQL) and the concentration is estimated (has the "I" qualifier) enter the estimated value.
5. If detected at a concentration equal to or higher than the MDL but lower than the PQL and it is not estimated (the concentration reported is the PQL followed by the "M" qualifier) enter 1/2 of the reported value.

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	0.007	1.0	0.0070
Benzo(a)anthracene	0.007	0.1	0.0007
Benzo(b)fluoranthene	0.007	0.1	0.0007
Benzo(k)fluoranthene	0.007	0.01	0.0001
Chrysene	0.007	0.001	0.0000
Dibenz(a,h)anthracene	0.007	1.0	0.0070
Indeno(1,2,3-cd)pyrene	0.007	0.1	0.0007

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 0.0

The concentration shown does not exceed the Residential Direct Exposure SCTL of 0.1 mg/kg.
The concentration shown does not exceed the Industrial Direct Exposure SCTL of 0.7 mg/kg.

Summary Criteria for Table Entries			
Detection	**Concentration Reported**	**Data Qualifier**	**Enter**
Various	Quantified with certainty	None	reported value
Various	Estimated	J	reported (estimated) value
ND at MDL	MDL	U	1/2 reported value
< MDL	Estimated	T	reported (estimated) value
≥ MDL but < PQL	Estimated	I	reported (estimated) value
≥ MDL but < PQL	PQL	M	1/2 reported value

Benzo(a)pyrene Conversion Table

For Direct Exposure Soil Cleanup Target Levels

Facility/Site Name	Phillippi Creek Dredging Study
Location	
Facility/Site ID No.	
Soil Sample No.	PC-24-5
Sample Date	5/21/2024 9:55
Location	
Depth (ft)	

Instructions: Calculate Total Benzo(a)pyrene Equivalents if at least one of the carcinogenic PAHs is detected in the sample at a concentration equal to or higher than the Method Detection Limit (MDL), whether quantified with certainty (the concentration reported has no qualifier) or estimated (the concentration reported has a "J", "T" or "I" qualifier). Enter the contaminant concentrations (in mg/kg) for all seven carcinogenic PAHs in the yellow boxes using the following criteria (and see table below):

1. If quantified with certainty, or estimated and has the "J" qualifier, enter the reported value.
2. If not detected at the MDL (the concentration reported is the MDL followed by the "U" qualifier) enter 1/2 of the reported value.
3. If detected at a concentration lower than the MDL and the concentration is estimated (has the "T" qualifier) enter the estimated value.
4. If detected at a concentration equal to or higher than the MDL but lower than the Practical Quantitation Limit (PQL) and the concentration is estimated (has the "I" qualifier) enter the estimated value.
5. If detected at a concentration equal to or higher than the MDL but lower than the PQL and it is not estimated (the concentration reported is the PQL followed by the "M" qualifier) enter 1/2 of the reported value.

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	0.029	1.0	0.0290
Benzo(a)anthracene	0.019	0.1	0.0019
Benzo(b)fluoranthene	0.054	0.1	0.0054
Benzo(k)fluoranthene	0.0065	0.01	0.0001
Chrysene	0.031	0.001	0.0000
Dibenz(a,h)anthracene	0.0065	1.0	0.0065
Indeno(1,2,3-cd)pyrene	0.032	0.1	0.0032

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 0.0

The concentration shown does not exceed the Residential Direct Exposure SCTL of 0.1 mg/kg.
The concentration shown does not exceed the Industrial Direct Exposure SCTL of 0.7 mg/kg.

Summary Criteria for Table Entries			
Detection	**Concentration Reported**	**Data Qualifier**	**Enter**
Various	Quantified with certainty	None	reported value
Various	Estimated	J	reported (estimated) value
ND at MDL	MDL	U	1/2 reported value
< MDL	Estimated	T	reported (estimated) value
≥ MDL but < PQL	Estimated	I	reported (estimated) value
≥ MDL but < PQL	PQL	M	1/2 reported value

Benzo(a)pyrene Conversion Table

For Direct Exposure Soil Cleanup Target Levels

Facility/Site Name	Phillippi Creek Dredging Study
Location	
Facility/Site ID No.	
Soil Sample No.	PC-24-6
Sample Date	5/21/2024 9:34
Location	
Depth (ft)	

Instructions: Calculate Total Benzo(a)pyrene Equivalents if at least one of the carcinogenic PAHs is detected in the sample at a concentration equal to or higher than the Method Detection Limit (MDL), whether quantified with certainty (the concentration reported has no qualifier) or estimated (the concentration reported has a "J", "T" or "I" qualifier). Enter the contaminant concentrations (in mg/kg) for all seven carcinogenic PAHs in the yellow boxes using the following criteria (and see table below):

1. If quantified with certainty, or estimated and has the "J" qualifier, enter the reported value.
2. If not detected at the MDL (the concentration reported is the MDL followed by the "U" qualifier) enter 1/2 of the reported value.
3. If detected at a concentration lower than the MDL and the concentration is estimated (has the "T" qualifier) enter the estimated value.
4. If detected at a concentration equal to or higher than the MDL but lower than the Practical Quantitation Limit (PQL) and the concentration is estimated (has the "I" qualifier) enter the estimated value.
5. If detected at a concentration equal to or higher than the MDL but lower than the PQL and it is not estimated (the concentration reported is the PQL followed by the "M" qualifier) enter 1/2 of the reported value.

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	0.03	1.0	0.0300
Benzo(a)anthracene	0.019	0.1	0.0019
Benzo(b)fluoranthene	0.049	0.1	0.0049
Benzo(k)fluoranthene	0.0065	0.01	0.0001
Chrysene	0.029	0.001	0.0000
Dibenz(a,h)anthracene	0.0065	1.0	0.0065
Indeno(1,2,3-cd)pyrene	0.03	0.1	0.0030

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 0.0

The concentration shown does not exceed the Residential Direct Exposure SCTL of 0.1 mg/kg.
The concentration shown does not exceed the Industrial Direct Exposure SCTL of 0.7 mg/kg.

Summary Criteria for Table Entries			
Detection	**Concentration Reported**	**Data Qualifier**	**Enter**
Various	Quantified with certainty	None	reported value
Various	Estimated	J	reported (estimated) value
ND at MDL	MDL	U	1/2 reported value
< MDL	Estimated	T	reported (estimated) value
≥ MDL but < PQL	Estimated	I	reported (estimated) value
≥ MDL but < PQL	PQL	M	1/2 reported value

Benzo(a)pyrene Conversion Table

For Direct Exposure Soil Cleanup Target Levels

Facility/Site Name	Phillippi Creek Dredging Study
Location	
Facility/Site ID No.	
Soil Sample No.	PC-24-7
Sample Date	5/21/2024 8:44
Location	
Depth (ft)	

Instructions: Calculate Total Benzo(a)pyrene Equivalents if at least one of the carcinogenic PAHs is detected in the sample at a concentration equal to or higher than the Method Detection Limit (MDL), whether quantified with certainty (the concentration reported has no qualifier) or estimated (the concentration reported has a "J", "T" or "I" qualifier). Enter the contaminant concentrations (in mg/kg) for all seven carcinogenic PAHs in the yellow boxes using the following criteria (and see table below):

1. If quantified with certainty, or estimated and has the "J" qualifier, enter the reported value.
2. If not detected at the MDL (the concentration reported is the MDL followed by the "U" qualifier) enter 1/2 of the reported value.
3. If detected at a concentration lower than the MDL and the concentration is estimated (has the "T" qualifier) enter the estimated value.
4. If detected at a concentration equal to or higher than the MDL but lower than the Practical Quantitation Limit (PQL) and the concentration is estimated (has the "I" qualifier) enter the estimated value.
5. If detected at a concentration equal to or higher than the MDL but lower than the PQL and it is not estimated (the concentration reported is the PQL followed by the "M" qualifier) enter 1/2 of the reported value.

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	0.053	1.0	0.0530
Benzo(a)anthracene	0.031	0.1	0.0031
Benzo(b)fluoranthene	0.09	0.1	0.0090
Benzo(k)fluoranthene	0.034	0.01	0.0003
Chrysene	0.053	0.001	0.0001
Dibenz(a,h)anthracene	0.007	1.0	0.0070
Indeno(1,2,3-cd)pyrene	0.054	0.1	0.0054

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 0.1

The concentration shown does not exceed the Residential Direct Exposure SCTL of 0.1 mg/kg.
The concentration shown does not exceed the Industrial Direct Exposure SCTL of 0.7 mg/kg.

Summary Criteria for Table Entries			
Detection	**Concentration Reported**	**Data Qualifier**	**Enter**
Various	Quantified with certainty	None	reported value
Various	Estimated	J	reported (estimated) value
ND at MDL	MDL	U	1/2 reported value
< MDL	Estimated	T	reported (estimated) value
≥ MDL but < PQL	Estimated	I	reported (estimated) value
≥ MDL but < PQL	PQL	M	1/2 reported value

Benzo(a)pyrene Conversion Table

For Direct Exposure Soil Cleanup Target Levels

Facility/Site Name	Phillippi Creek Dredging Study
Location	
Facility/Site ID No.	
Soil Sample No.	PC-24-8
Sample Date	5/21/2024 9:17
Location	
Depth (ft)	

Instructions: Calculate Total Benzo(a)pyrene Equivalents if at least one of the carcinogenic PAHs is detected in the sample at a concentration equal to or higher than the Method Detection Limit (MDL), whether quantified with certainty (the concentration reported has no qualifier) or estimated (the concentration reported has a "J", "T" or "I" qualifier). Enter the contaminant concentrations (in mg/kg) for all seven carcinogenic PAHs in the yellow boxes using the following criteria (and see table below):

1. If quantified with certainty, or estimated and has the "J" qualifier, enter the reported value.
2. If not detected at the MDL (the concentration reported is the MDL followed by the "U" qualifier) enter 1/2 of the reported value.
3. If detected at a concentration lower than the MDL and the concentration is estimated (has the "T" qualifier) enter the estimated value.
4. If detected at a concentration equal to or higher than the MDL but lower than the Practical Quantitation Limit (PQL) and the concentration is estimated (has the "I" qualifier) enter the estimated value.
5. If detected at a concentration equal to or higher than the MDL but lower than the PQL and it is not estimated (the concentration reported is the PQL followed by the "M" qualifier) enter 1/2 of the reported value.

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	0.019	1.0	0.0190
Benzo(a)anthracene	0.012	0.1	0.0012
Benzo(b)fluoranthene	0.034	0.1	0.0034
Benzo(k)fluoranthene	0.00445	0.01	0.0000
Chrysene	0.02	0.001	0.0000
Dibenz(a,h)anthracene	0.00445	1.0	0.0045
Indeno(1,2,3-cd)pyrene	0.022	0.1	0.0022

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 0.0

The concentration shown does not exceed the Residential Direct Exposure SCTL of 0.1 mg/kg.
The concentration shown does not exceed the Industrial Direct Exposure SCTL of 0.7 mg/kg.

Summary Criteria for Table Entries			
Detection	**Concentration Reported**	**Data Qualifier**	**Enter**
Various	Quantified with certainty	None	reported value
Various	Estimated	J	reported (estimated) value
ND at MDL	MDL	U	1/2 reported value
< MDL	Estimated	T	reported (estimated) value
≥ MDL but < PQL	Estimated	I	reported (estimated) value
≥ MDL but < PQL	PQL	M	1/2 reported value

TABLE _: SOIL ANALYTICAL SUMMARY - VOAs, TRPHs and Metals

Facility ID#: Phillippi Creek Dredging Study

See notes at end of table.

Sample				OVA	Laboratory Analyses										
Boring/ Well No.	Date Collected	Depth to Water (ft)	Sample Interval (fbls)	Net OVA Reading (ppm)	Benzene (mg/kg)	Ethyl-benzene (mg/kg)	Toluene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	TRPHs (mg/kg)	Arsenic (mg/kg)	Cad-mium (mg/kg)	Chro-mium (mg/kg)	Lead (mg/kg)	Comments
PC-24-7	5/21/2024 8:44									35 U	2.0 I	0.72	**41**	33	
PC-24-8	5/21/2024 9:17									22 U	1.6 I	0.15 I	12	9.7	
PC-24-6	5/21/2024 9:34									31 U	1.6 U	0.92	**51**	71	
PC-24-5	5/21/2024 9:55									32 U	1.8 I	0.67	**49**	67	
PC-24-4	5/21/2024 10:29									35 U	2.0 I	0.73 I	**61**	59	
PC-24-3	5/21/2024 10:48									14 U	1.6 I	0.068 I	9.2	11	
PC-24-2	5/21/2024 11:10									14 U	1.5 I	0.071 U	4.4	3.0	
PC-24-1	5/21/2024 11:35									15 U	0.71 U	0.071 U	6.2	4.9	
Leachability Based on Groundwater Criteria (mg/kg)					0.007	0.6	0.5	0.2	0.09	340	*	7.5	38	*	
Direct Exposure Residential (mg/kg)					1.2	1,500	7,500	130	4,400	460	2.1	82	210	400	

Notes: NA = Not Available.
NS = Not Sampled.
* = Leachability value may be determined using TCLP.

If an analyte is not detected, report the method detection limit [i.e., 0.01 U or ND(0.01); BDL or <0.01 are not acceptable].

TABLE _: SOIL ANALYTICAL SUMMARY - Non-Carcinogenic PAHs

Facility ID#: **Phillippi Creek Dredging Study** **Facility Name:** See notes at end of table.

Sample				OVA	Laboratory Analyses											
Boring/ Well No.	Date Collected	Depth to Water (ft)	Sample Interval (fbls)	Net OVA Reading (ppm)	Naph-thalene (mg/kg)	1-Methyl-naph-thalene (mg/kg)	2-Methyl-naph-thalene (mg/kg)	Acen-aph-thene (mg/kg)	Acen-aph-thylene (mg/kg)	Anthra-cene (mg/kg)	Benzo (g,h,i) pery-lene (mg/kg)	Fluoran-thene (mg/kg)	Fluor-ene (mg/kg)	Phenan-threne (mg/kg)	Pyrene (mg/kg)	Comments
PC-24-7	5/21/2024 8:44				0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.059	0.074	0.014 U	0.014 U	0.060	
PC-24-8	5/21/2024 9:17				0.0089 U	0.0089 U	0.0089 U	0.0089 U	0.0089 U	0.0089 U	0.021	0.028	0.0089 U	0.0089 U	0.023	
PC-24-6	5/21/2024 9:34				0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.030	0.033	0.013 U	0.013 U	0.032	
PC-24-5	5/21/2024 9:55				0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.034	0.034	0.013 U	0.013 U	0.029	
PC-24-4	5/21/2024 10:29				0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	
PC-24-3	5/21/2024 10:48				0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	
PC-24-2	5/21/2024 11:10				0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	
PC-24-1	5/21/2024 11:35				0.0059 U	0.0059 U	0.0059 U	0.0059 U	0.0059 U	0.0059 U	0.0072 I	0.0060 I	0.0059 U	0.0059 U	0.0059 U	
Leachability Based on Groundwater Criteria (mg/kg)					1.2	3.1	8.5	2.1	27	2,500	32,000	1,200	160	250	880	
Direct Exposure Residential (mg/kg)					55	200	210	2,400	1,800	21,000	2,500	3,200	2,600	2,200	2,400	

Notes: NA = Not Available.
NS = Not Sampled.

If analyte is not detected, report the method detection limit [i.e., 0.01 U or ND(0.01); BDL or <0.01 are not acceptable].

TABLE _: SOIL ANALYTICAL SUMMARY - Carcinogenic PAHs

Facility ID#: **Phillippi Creek Dredging Study** **Facility Name:**

See notes at end of table.

Sample				OVA	Laboratory Analyses								
Boring/ Well No.	Date Collected	Depth to Water (ft)	Sample Interval (fbls)	Net OVA Reading (ppm)	Benzo (a) pyrene (mg/kg)	Benzo (a) anthra-cene (mg/kg)	Benzo (b) fluoran-thene (mg/kg)	Benzo (k) fluoran-thene (mg/kg)	Chry-sene (mg/kg)	Dibenz (a,h) anthra-cene (mg/kg)	Indeno (1,2,3-cd) pyrene (mg/kg)	Benzo (a) pyrene equivalen (mg/kg)	Comments
PC-24-7	5/21/2024 8:44				0.053	0.031	0.090	0.034	0.053	0.014 U	0.054		
PC-24-8	5/21/2024 9:17				0.019	0.012 I	0.034	0.0089 U	0.020	0.0089 U	0.022		
PC-24-6	5/21/2024 9:34				0.030	0.019 I	0.049	0.013 U	0.029	0.013 U	0.030		
PC-24-5	5/21/2024 9:55				0.029	0.019 I	0.054	0.013 U	0.031	0.013 U	0.032		
PC-24-4	5/21/2024 10:29				0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U		
PC-24-3	5/21/2024 10:48				0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U		
PC-24-2	5/21/2024 11:10				0.0056 U	0.0056 U	0.0066 I	0.0056 U	0.0056 U	0.0056 I	0.0056 U		
PC-24-1	5/21/2024 11:35				0.0059 U	0.0059 U	0.011 I	0.0059 U	0.0059 U	0.0059 U	0.0065 I		
Leachability Based on Groundwater Criteria (mg/kg)					8	0.8	2.4	24	77	0.7	6.6	**	
Direct Exposure Residential (mg/kg)					0.1	#	#	#	#	#	#	0.1	

Notes: NA = Not Available.

NS = Not Sampled.

** = Leachability value not applicable.

= Direct Exposure value not applicable except as part of the Benzo(a)pyrene equivalent.

If analyte is not detected, report the method detection limit [i.e., 0.01 U or ND(0.01); BDL or <0.01 are not acceptable].

Site Name	Phillippi Creek		Lab Sample ID				J2407489001			J2407489002			J2407489003			J2407489004			J2407489005			J2407489006			J2407489007			J2407489008		
Site Location			Sample Number				PC-24-7			PC-24-8			PC-24-6			PC-24-5			PC-24-4			PC-24-3			PC-24-2			PC-24-1		
Project Manager			Date/ Time Sampled				5/21/2024 8:44			5/21/2024 9:17			5/21/2024 9:34			5/21/2024 9:55			5/21/2024 10:29			5/21/2024 10:48			5/21/2024 11:10			5/21/2024 11:35		
Checked By			Sample Interval (ft,bls)																											
Analyte	CAS #	Method	Units	RES (1)	COM (2)	LGW (3)	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds
BENZO(a)ANTHRACENE	56-55-3	EPA 8270/PAH Low Level	mg/kg	N/A	N/A	0.8	0.031			0.012	I		0.019	I		0.019	I		0.014	U		0.006	U		0.006	U		0.006	U	
BENZO(a)PYRENE	50-32-8	EPA 8270/PAH Low Level	mg/kg	0.1	0.7	8	0.053			0.019			0.03			0.029			0.014	U		0.006	U		0.006	U		0.006	U	
BENZO(b)FLUORANTHENE	205-99-2	EPA 8270/PAH Low Level	mg/kg	N/A	N/A	2.4	0.09			0.034			0.049			0.054			0.014	U		0.006	U		0.007	I		0.011	I	
BENZO(k)FLUORANTHENE	207-08-9	EPA 8270/PAH Low Level	mg/kg	N/A	N/A	24	0.034			0.009	U		0.013	U		0.013	U		0.014	U		0.006	U		0.006	U		0.006	U	
CHRYSENE	218-01-9	EPA 8270/PAH Low Level	mg/kg	N/A	N/A	77	0.053			0.02			0.029			0.031			0.014	U		0.006	U		0.006	U		0.006	U	
DIBENZ(a,h)ANTHRACENE	53-70-3	EPA 8270/PAH Low Level	mg/kg	N/A	N/A	0.7	0.014	U		0.009	U		0.013	U		0.013	U		0.014	U		0.006	U		0.006	I		0.006	U	
INDENO(1,2,3-c,d)PYRENE	193-39-5	EPA 8270/PAH Low Level	mg/kg	N/A	N/A	6.6	0.054			0.022			0.03			0.032			0.014	U		0.006	U		0.006	U		0.007	I	
Total Benzo(a)pyrene Equivalents	Total B(a)P	Calculation	mg/kg	0.1	0.7		0.078			0.03			0.046			0.046			0.016			0.007			0.01			0.008		

Site Name	Phillippi Creek		Lab Sample ID				J2407489001			J2407489002			J2407489003			J2407489004			J2407489005			J2407489006			J2407489007			J2407489008		
Site Location			Sample Number				PC-24-7			PC-24-8			PC-24-6			PC-24-5			PC-24-4			PC-24-3			PC-24-2			PC-24-1		
Project Manager			Date/ Time Sampled				5/21/2024 8:44			5/21/2024 9:17			5/21/2024 9:34			5/21/2024 9:55			5/21/2024 10:29			5/21/2024 10:48			5/21/2024 11:10			5/21/2024 11:35		
Checked By			Sample Interval (ft,bls)																											
Analyte	CAS #	Method	Units	RES (1)	COM (2)	LGW (3)	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds
1-METHYLNAPHTHALENE	90-12-0	EPA 8270/PAH Low Level	mg/kg	200	1800	3.1	0.014	U		0.009	U		0.013	U		0.013	U		0.014	U		0.006	U		0.006	U		0.006	U	
2-METHYLNAPHTHALENE	91-57-6	EPA 8270/PAH Low Level	mg/kg	210	2100	8.5	0.014	U		0.009	U		0.013	U		0.013	U		0.014	U		0.006	U		0.006	U		0.006	U	
ACENAPHTHENE	83-32-9	EPA 8270/PAH Low Level	mg/kg	2400	20000	2.1	0.014	U		0.009	U		0.013	U		0.013	U		0.014	U		0.006	U		0.006	U		0.006	U	
ACENAPHTHYLENE	208-96-8	EPA 8270/PAH Low Level	mg/kg	1800	20000	27	0.014	U		0.009	U		0.013	U		0.013	U		0.014	U		0.006	U		0.006	U		0.006	U	
ANTHRACENE	120-12-7	EPA 8270/PAH Low Level	mg/kg	21000	300000	2500	0.014	U		0.009	U		0.013	U		0.013	U		0.014	U		0.006	U		0.006	U		0.006	U	
BENZO(g,h,i)PERYLENE	191-24-2	EPA 8270/PAH Low Level	mg/kg	2500	52000	32000	0.059			0.021			0.03			0.034			0.014	U		0.006	U		0.006	U		0.007	I	
FLUORANTHENE	206-44-0	EPA 8270/PAH Low Level	mg/kg	3200	59000	1200	0.074			0.028			0.033			0.034			0.014	U		0.006	U		0.006	U		0.006	I	
FLUORENE	86-73-7	EPA 8270/PAH Low Level	mg/kg	2600	33000	160	0.014	U		0.009	U		0.013	U		0.013	U		0.014	U		0.006	U		0.006	U		0.006	U	
NAPHTHALENE	91-20-3	EPA 8270/PAH Low Level	mg/kg	55	300	1.2	0.014	U		0.009	U		0.013	U		0.013	U		0.014	U		0.006	U		0.006	U		0.006	U	
PHENANTHRENE	85-01-8	EPA 8270/PAH Low Level	mg/kg	2200	36000	250	0.014	U		0.009	U		0.013	U		0.013	U		0.014	U		0.006	U		0.006	U		0.006	U	
PYRENE	129-00-0	EPA 8270/PAH Low Level	mg/kg	2400	45000	880	0.06			0.023			0.032			0.029			0.014	U		0.006	U		0.006	U		0.006	U	

Site Name	Phillippi Creek		Lab Sample ID				J2407489001			J2407489002			J2407489003			J2407489004			J2407489005			J2407489006			J2407489007			J2407489008		
Site Location			Sample Number				PC-24-7			PC-24-8			PC-24-6			PC-24-5			PC-24-4			PC-24-3			PC-24-2			PC-24-1		
Project Manager			Date/ Time Sampled				5/21/2024 8:44			5/21/2024 9:17			5/21/2024 9:34			5/21/2024 9:55			5/21/2024 10:29			5/21/2024 10:48			5/21/2024 11:10			5/21/2024 11:35		
Checked By			Sample Interval (ft,bls)																											
Analyte	CAS #	Method	Units	RES (1)	COM (2)	LGW (3)	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds
FL-PRO	TRPH	FDEP FL-PRO	mg/kg	460	2700	340	35	U		22	U		31	U		32	U		35	U		14	U		14	U		15	U	

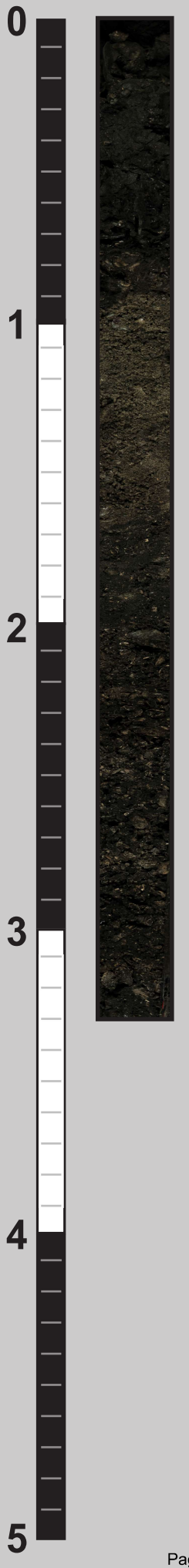
Site Name	Phillippi Creek		Lab Sample ID				J2407489001			J2407489002			J2407489003			J2407489004			J2407489005			J2407489006			J2407489007			J2407489008		
Site Location			Sample Number				PC-24-7			PC-24-8			PC-24-6			PC-24-5			PC-24-4			PC-24-3			PC-24-2			PC-24-1		
Project Manager			Date/ Time Sampled				5/21/2024 8:44			5/21/2024 9:17			5/21/2024 9:34			5/21/2024 9:55			5/21/2024 10:29			5/21/2024 10:48			5/21/2024 11:10			5/21/2024 11:35		
Checked By			Sample Interval (ft,bls)																											
Analyte	CAS #	Method	Units	RES (1)	COM (2)	LGW (3)	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds
ALUMINUM	7429-90-5	EPA 6010	mg/kg	80000	N/A	N/A	16000			4000			19000			19000			24000			3700			1400			2000		
ARSENIC	7440-38-2	EPA 6010	mg/kg	2.1	12	N/A	2	I		1.6	I		1.6	U		1.8	I		2	I		1.6	I		1.5	I		0.71	U	
BARIUM	7440-39-3	EPA 6010	mg/kg	120	130000	1600	45			12			51			45			52			7.7			3.5			5.3		
CADMIUM	7440-43-9	EPA 6010	mg/kg	82	1700	7.5	0.72			0.15	I		0.92			0.67			0.73	I		0.068	I		0.071	U		0.071	U	
CHROMIUM	7440-47-3	EPA 6010	mg/kg	210	470	38	41		3	12			51		3	49		3	61		3	9.2			4.4			6.2		
COPPER	7440-50-8	EPA 6010	mg/kg	150	89000	N/A	81			23			110			92			91			23			5.8			13		
LEAD	7439-92-1	EPA 6010	mg/kg	400	1400	N/A	33			9.7			71			67			59			11			3			4.9		
MERCURY	7439-97-6	EPA 7471	mg/kg	3	17	2.1	0.19			0.054			0.25			0.23			0.35			0.037			0.015			0.021		
NICKEL	7440-02-0	EPA 6010	mg/kg	340	35000	130	10			3.3	I		12			11			14			2.1	I		1	I		1.5	I	
SELENIUM	7782-49-2	EPA 6010	mg/kg	440	11000	5.2	3.6	U		2.3	U		3.3	U		3.3	U		3.7	U		1.4	U		1.4	U		1.4	U	
SILVER	7440-22-4	EPA 6010	mg/kg	410	8200	17	0.72	U		0.46	U		0.65	U		0.66	U		0.75	U		0.27	U		0.29	U		0.28	U	
ZINC	7440-66-6	EPA 6010	mg/kg	26000	630000	N/A	200			65	I		200			180			120	I		16	I		14	U		25	I	

Site Name	Phillippi Creek		Lab Sample ID				J2407489001			J2407489002			J2407489003			J2407489004			J2407489005			J2407489006			J2407489007			J2407489008		
Site Location			Sample Number				PC-24-7			PC-24-8			PC-24-6			PC-24-5			PC-24-4			PC-24-3			PC-24-2			PC-24-1		
Project Manager			Date/ Time Sampled				5/21/2024 8:44			5/21/2024 9:17			5/21/2024 9:34			5/21/2024 9:55			5/21/2024 10:29			5/21/2024 10:48			5/21/2024 11:10			5/21/2024 11:35		
Checked By			Sample Interval (ft,bls)																											
Analyte	CAS #	Method	Units	RES (1)	COM (2)	LGW (3)	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds	Result	Qual	Exceeds
ALDRIN	309-00-2	EPA 8081	mg/kg	0.06	0.3	0.2	0.017	U		0.01	U		0.015	U		0.015	U		0.017	U		0.007	U		0.006	U		0.007	U	
alpha-BHC	319-84-6	EPA 8081	mg/kg	0.1	0.6	0.0003	0.019	U	3	0.012	U	3	0.017	U	3	0.016	U	3	0.019	U	3	0.008	U	3	0.007	U	3	0.008	U	3
beta-BHC	319-85-7	EPA 8081	mg/kg	0.5	2.4	0.001	0.013	U	3	0.008	U	3	0.012	U	3	0.011	U	3	0.013	U	3	0.005	U	3	0.005	U	3	0.006	U	3
CHLORDANE	57-74-9	EPA 8081	mg/kg	2.8	14	9.6	0.45	U		0.28	U		0.42	U		0.4	U		0.47	U		0.18	U		0.17	U		0.2	U	
delta-BHC	319-86-8	EPA 8081	mg/kg	24	490	0.2	0.013	U		0.008	U		0.012	U		0.012	U		0.014	U		0.005	U		0.005	U		0.006	U	
DIELDRIN	60-57-1	EPA 8081	mg/kg	0.06	0.3	0.002	0.014	U	3	0.009	U	3	0.013	U	3	0.012	U	3	0.015	U	3	0.006	U	3	0.005	U	3	0.006	U	3
ENDOSULFAN I	959-98-8	EPA 8081	mg/kg	N/A	N/A	N/A	0.017	U		0.011	U		0.016	U		0.015	U		0.018	U		0.007	U		0.007	U		0.008	U	
ENDOSULFAN II	33213-65-9	EPA 8081	mg/kg	N/A	N/A	N/A	0.012	U		0.007	U		0.011	U		0.01	U		0.012	U		0.005	U		0.004	U		0.005	U	
ENDOSULFAN SULFATE	1031-07-8	EPA 8081	mg/kg	N/A	N/A	N/A	0.02	U		0.013	U		0.019	U		0.018	U		0.021	U		0.008	U		0.008	U		0.009	U	
ENDRIN	72-20-8	EPA 8081	mg/kg	25	510	1	0.031	U		0.019	U		0.028	U		0.027	U		0.032	U		0.012	U		0.011	U		0.014	U	
ENDRIN ALDEHYDE	7421-93-4	EPA 8081	mg/kg	N/A	N/A	N/A	0.018	U		0.011	U		0.017	U		0.016	U		0.019	U		0.007	U		0.007	U		0.008	U	
gamma-BHC (LINDANE)	58-89-9	EPA 8081	mg/kg	0.7	2.5	0.009	0.02	U	3	0.012	U	3	0.018	U	3	0.017	U	3	0.02	U	3	0.008	U		0.007	U		0.009	U	
HEPTACHLOR	76-44-8	EPA 8081	mg/kg	0.2	1	23	0.021	U		0.013	U		0.019	U		0.018	U		0.021	U		0.008	U		0.008	U		0.009	U	
HEPTACHLOR EPOXIDE	1024-57-3	EPA 8081	mg/kg	0.1	0.5	0.6	0.015	U		0.009	U		0.014	U		0.013	U		0.016	U		0.006	U		0.006	U		0.007	U	
METHOXYCHLOR	72-43-5	EPA 8081	mg/kg	420	8800	160	0.023	U		0.014	U		0.021	U		0.02	U		0.023	U		0.009	U		0.008	U		0.01	U	
p,p-DDD	72-54-8	EPA 8081	mg/kg	4.2	22	5.8	0.018	U		0.011	U		0.017	U		0.016	U		0.019	U		0.007	U		0.007	U		0.008	U	
p,p-DDE	72-55-9	EPA 8081	mg/kg	2.9	15	18	0.014	U		0.009	U		0.013	U		0.012	U		0.014	U		0.006	U		0.005	U		0.006	U	
p,p-DDT	50-29-3	EPA 8081	mg/kg	2.9	15	11	0.031	U		0.019	U		0.028	U		0.027	U		0.032	U		0.012	U		0.011	U		0.014	U	
PCB-1016	12674-11-2	EPA 8082	mg/kg	N/A	N/A	N/A	0.84	U		0.52	U		0.77	U		0.73	U		0.87	U		0.17	U		0.31	U		0.37	U	
PCB-1221	11104-28-2	EPA 8082	mg/kg	N/A	N/A	N/A	0.84	U		0.52	U		0.77	U		0.73	U		0.87	U		0.17	U		0.31	U		0.37	U	
PCB-1232	11141-16-5	EPA 8082	mg/kg	N/A	N/A	N/A	0.84	U		0.52	U		0.77	U		0.73	U		0.87	U		0.17	U		0.31	U		0.37	U	
PCB-1242	53469-21-9	EPA 8082	mg/kg	N/A	N/A	N/A	0.84	U		0.52	U		0.77	U		0.73	U		0.87	U		0.17	U		0.31	U		0.37	U	
PCB-1248	12672-29-6	EPA 8082	mg/kg	N/A	N/A	N/A	0.84	U		0.52	U		0.77	U		0.73	U		0.87	U		0.17	U		0.31	U		0.37	U	
PCB-1254	11097-69-1	EPA 8082	mg/kg	N/A	N/A	N/A	0.84	U		0.52	U		0.77	U		0.73	U		0.87	U		0.17	U		0.31	U		0.37	U	
PCB-1260	11096-82-5	EPA 8082	mg/kg	N/A	N/A	N/A	0.84	U		0.52	U		0.77	U		0.73	U		0.87	U		0.17	U		0.31	U		0.37	U	
TOXAPHENE	8001-35-2	EPA 8081	mg/kg	0.9	4.5	31	0.79	U		0.49	U		0.73	U		0.69	U		0.81	U		0.32	U		0.29	U		0.35	U	
Endosulfan (alpha+beta+sulfate)	115-29-7	Calculation	mg/kg	450	7600	3.8	0.012	U		0.007	U		0.011	U		0.01	U		0.012	U		0.005	U		0.004	U		0.005	U	
Heptachlor (and its epoxide)	D031	Calculation	mg/kg	0.1	0.5	0.6	0.015	U		0.009	U		0.014	U		0.013	U		0.016	U		0.006	U		0.006	U		0.007	U	
PCB, Total	1336-36-3	Calculation	mg/kg	0.5	2.6	17	0.84	U	1	0.52	U	1	0.77	U	1	0.73	U	1	0.87	U	1	0.17	U		0.31	U		0.37	U	

APPENDIX B
Core Photographs and Logs

ATHENA TECHNOLOGIES, INC.

1293 Graham Farm Road, PO Box 68
McClellanville, South Carolina 29458
(843) 887-3800
www.athenatechnologies.com



Cummins
Cederberg, Inc.

Phillippi Creek Maintenance
Dredging Fesibility Study Project
West Coast Inland Navigation District
Sarasota County, Florida

May 2024

PC-24-01

Top Elev. (ft MLW): -3.8
Bottom Elev. (ft MLW): -7.1

Notes:
- Photo Mosaic Image
- Photo Scale in Feet

ATHENA TECHNOLOGIES, INC.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
www.athenatechnologies.com
(843) 887-3800

Boring Designation PC-24-01

DRILLING LOG	CLIENT	PROJECT OWNER	SHEET
	Cummins Cederberg, Inc.	Fl West Coast Inland Navigation District	1 OF 1 SHEETS

1. PROJECT: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study, Sarasota County, FL		9. SIZE AND TYPE OF BIT: 3.0 In.	
		10. COORDINATE SYSTEM/DATUM: Florida State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: MLW
2. BORING DESIGNATION: PC-24-01	LOCATION COORDINATES: X = 481,922 Y = 1,068,192	11. MANUFACTURER'S DESIGNATION OF DRILL	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Athena Technologies, Inc.	CONTRACTOR FILE NO.	12. TOTAL SAMPLES: DISTURBED 2	UNDISTURBED (UD)
4. NAME OF DRILLER: N. Wicker		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	14. WATER DEPTH: 5.3 Ft.	
		15. DATE BORING: STARTED 05-21-24 11:24	COMPLETED 05-21-24
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -3.8 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 3.3 Ft.	
8. TOTAL DEPTH OF BORING: 4.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: A. Freeze	

ELEV. (ft)	SCALE (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-3.8	0.0					0
			Poorly graded GRAVEL with silt; mostly fine to coarse gravel-sized shells, little fine quartz sand in matrix, few organic silt in matrix, loose, strong organic odor present, black (2.5Y-2.5/1), (GP-GM).		S-1	Sample #S-1, Depth = 0.9' Mean (mm): 2.91, Phi Sorting: 2.45 Shell: 0%, Fines (#200) - 8.54 (GP-GM)
-4.7	0.9					
			Poorly graded SAND; fine quartz sand, few medium sand to coarse gravel-sized shells, trace organic silt in matrix and burrows, loose, subangular, dark grayish brown (2.5Y-4/2), (SP).		S-2	Sample #S-2, Depth = 1.2' Mean (mm): 0.58, Phi Sorting: 1.90 Shell: 0%, Fines (#200) - 1.21 (SP)
-5.4	1.6					
			Silty SAND; fine quartz sand, little organic silt in matrix, few fine sand to fine gravel-sized shells, loose, bioturbated, organic odor present, black (2.5Y-2.5/1) mottled with, dark grayish brown (2.5Y-4/2), (SM).			
-5.8	2.0					
			Silty SAND; fine quartz sand, little fine sand to coarse gravel-sized shells, little organic silt, loose, organic odor present, black (2.5Y-2.5/1) mottled with, dark grayish brown (2.5Y-4/2), (SM).			
-7.1	3.3					
			End of Boring			5

FLORIDA DEP ROSS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

SAJ FORM 1836 JUN 02 MODIFIED FOR THE FLORIDA DEP JUN 04

Cummins
Cederberg, Inc.

Phillippi Creek Maintenance
Dredging Fesibility Study Project
West Coast Inland Navigation District
Sarasota County, Florida

May 2024

PC-24-02

Top Elev. (ft MLW): -3.6
Bottom Elev. (ft MLW): -6.5

Notes:
- Photo Mosaic Image
- Photo Scale in Feet

ATHENA TECHNOLOGIES, INC.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
www.athenatechnologies.com
(843) 887-3800

Boring Designation PC-24-02

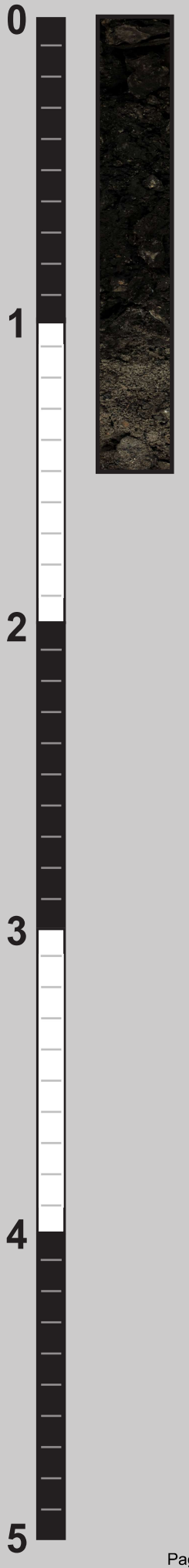
DRILLING LOG

CLIENT	Cummins Cederberg, Inc.
PROJECT OWNER	Fl West Coast Inland Navigation District
SHEET	1 OF 1 SHEETS
1. PROJECT	2024 Phillippi Creek Maintenance Dredging Feasibilty Study Sarasota County, FL
2. BORING DESIGNATION	PC-24-02
LOCATION COORDINATES	X = 482,448 Y = 1,068,220
3. DRILLING AGENCY	Athena Technologies, Inc.
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	N. Wicker
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	0.0 Ft.
7. DEPTH DRILLED INTO ROCK	0.0 Ft.
8. TOTAL DEPTH OF BORING	3.5 Ft.
9. SIZE AND TYPE OF BIT	3.0 In.
10. COORDINATE SYSTEM/DATUM	Florida State Plane West
HORIZONTAL	NAD 1983
VERTICAL	MLW
11. MANUFACTURER'S DESIGNATION OF DRILL	☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES	DISTURBED 2 / UNDISTURBED (UD)
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	5.3 Ft.
15. DATE BORING	STARTED 05-21-24 11:01 / COMPLETED 05-21-24
16. ELEVATION TOP OF BORING	-3.6 Ft.
17. TOTAL RECOVERY FOR BORING	2.9 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR	A. Freeze

ELEV. (ft)	SCALE (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-3.6	0.0					0
-4.2	0.6		Poorly graded SAND; fine quartz sand, trace organic silt in matrix and burrows, trace medium sand to fine gravel-sized shells, loose, subangular, bioturbated, very dark grayish brown (2.5Y-3/2) mottled with, grayish brown (2.5Y-5/2), (SP).		S-1	Sample #S-1, Depth = 0.6' Mean (mm): 0.27, Phi Sorting: 0.90 Shell: 0%, Fines (#200) - 3.73 (SP)
-5.9	2.3		Poorly graded SAND; fine quartz sand, trace organic silt in matrix and burrows, trace fine sand to fine gravel-sized shells, loose, subangular, bioturbated, borderline SP-SM, grayish brown (2.5Y-5/2) and, very dark grayish brown (2.5Y-3/2), (SP).		S-2	Sample #S-2, Depth = 1.4' Mean (mm): 0.24, Phi Sorting: 0.74 Shell: 0%, Fines (#200) - 4.37 (SP)
-6.5	2.9		Silty SAND; fine quartz sand, some fine sand to fine gravel-sized shells, little organic silt, loose to medium dense, slight organic odor present, black (2.5Y-2.5/1), (SM).			
			End of Boring			5

FLORIDA DEP ROSS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

SAJ FORM 1836 JUN 02 **MODIFIED FOR THE FLORIDA DEP** JUN 04



Cummins
Cederberg, Inc.

Phillippi Creek Maintenance
Dredging Fesibility Study Project
West Coast Inland Navigation District
Sarasota County, Florida

May 2024

PC-24-03

Top Elev. (ft MLW): -3.2
Bottom Elev. (ft MLW): -4.7

Notes:
- Photo Mosaic Image
- Photo Scale in Feet

ATHENA TECHNOLOGIES, INC.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
www.athenatechnologies.com
(843) 887-3800

DRILLING LOG

CLIENT	Cummins Cederberg, Inc.
PROJECT OWNER	Fl West Coast Inland Navigation District
SHEET	1 OF 1 SHEETS
1. PROJECT	2024 Phillippi Creek Maintenance Dredging Feasibilty Study Sarasota County, FL
2. BORING DESIGNATION	PC-24-03
LOCATION COORDINATES	X = 483,375 Y = 1,068,648
3. DRILLING AGENCY	Athena Technologies, Inc.
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	N. Wicker
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	0.0 Ft.
7. DEPTH DRILLED INTO ROCK	0.0 Ft.
8. TOTAL DEPTH OF BORING	2.0 Ft.
9. SIZE AND TYPE OF BIT	3.0 In.
10. COORDINATE SYSTEM/DATUM	Florida State Plane West
HORIZONTAL	NAD 1983
VERTICAL	MLW
11. MANUFACTURER'S DESIGNATION OF DRILL	☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES	DISTURBED 2 / UNDISTURBED (UD)
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	4.5 Ft.
15. DATE BORING	STARTED 05-21-24 10:33 / COMPLETED 05-21-24
16. ELEVATION TOP OF BORING	-3.2 Ft.
17. TOTAL RECOVERY FOR BORING	1.5 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR	A. Freeze

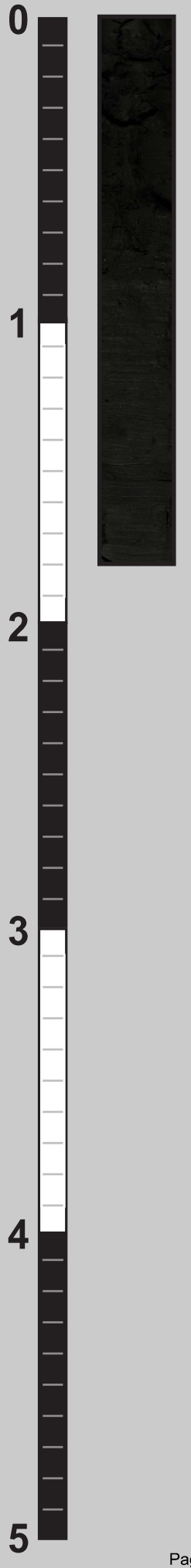
ELEV. (ft)	SCALE (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-3.2	0.0					
			Poorly graded SAND with silt; fine quartz sand, some fine sand to coarse gravel-sized shells, few organic silt, loose, strong organic odor present, black (2.5Y-2.5/1), (SP-SM).		S-1	Sample #S-1, Depth = 1.0' Mean (mm): 1.13, Phi Sorting: 2.38 Shell: 0%, Fines (#200) - 9.02 (SP-SM)
-4.2	1.0					
			Poorly graded SAND; fine to medium quartz sand, few fine sand to coarse gravel-sized shells, trace organic silt, loose, subangular, grayish brown (2.5Y-5/2), (SP).		S-2	Sample #S-2, Depth = 1.5' Mean (mm): 0.75, Phi Sorting: 1.68 Shell: 0%, Fines (#200) - 2.10 (SP)
-4.7	1.5					
			End of Boring			

0

5

FLORIDA DEP ROSS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

SAJ FORM 1836 JUN 02 MODIFIED FOR THE FLORIDA DEP JUN 04



Cummins
Cederberg, Inc.

Phillippi Creek Maintenance
Dredging Fesibility Study Project
West Coast Inland Navigation District
Sarasota County, Florida

May 2024

PC-24-04

Top Elev. (ft MLW): -4.6
Bottom Elev. (ft MLW): -6.4

Notes:
- Photo Mosaic Image
- Photo Scale in Feet

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
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(843) 887-3800

DRILLING LOG

CLIENT	Cummins Cederberg, Inc.
PROJECT OWNER	Fl West Coast Inland Navigation District
SHEET	1 OF 1 SHEETS
1. PROJECT	2024 Phillippi Creek Maintenance Dredging Feasibilty Study Sarasota County, FL
2. BORING DESIGNATION	PC-24-04
LOCATION COORDINATES	X = 483,681 Y = 1,069,177
3. DRILLING AGENCY	Athena Technologies, Inc.
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	N. Wicker
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	0.0 Ft.
7. DEPTH DRILLED INTO ROCK	0.0 Ft.
8. TOTAL DEPTH OF BORING	2.0 Ft.
9. SIZE AND TYPE OF BIT	3.0 In.
10. COORDINATE SYSTEM/DATUM	Florida State Plane West
HORIZONTAL	NAD 1983
VERTICAL	MLW
11. MANUFACTURER'S DESIGNATION OF DRILL	☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES	DISTURBED: 1 / UNDISTURBED (UD):
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	5.9 Ft.
15. DATE BORING	STARTED: 05-21-24 10:19 / COMPLETED: 05-21-24
16. ELEVATION TOP OF BORING	-4.6 Ft.
17. TOTAL RECOVERY FOR BORING	1.8 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR	A. Freeze

ELEV. (ft)	SCALE (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-4.6	0.0					
			Fat organic SILT; medium plasticity, very soft, possible clay, organic odor present, black (2.5Y-2.5/1), (OH).		S-1	Sample #S-1, Depth = 0.4' Mean (mm): 0.16, Phi Sorting: 0.91 Shell: 0%, Fines (#200) - 72.57 (MH)
-6.4	1.8					
			End of Boring			

0

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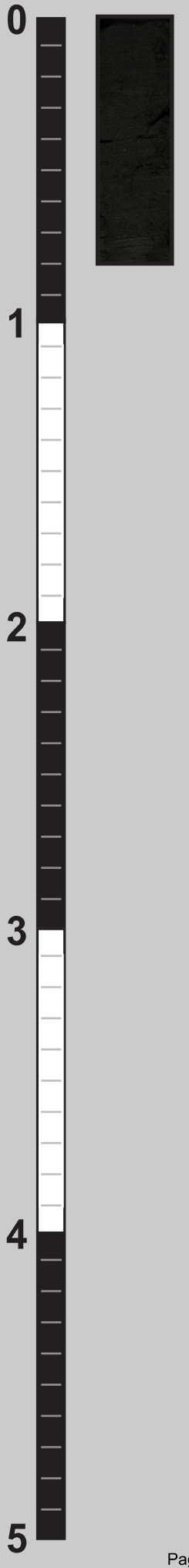
FLORIDA DEP ROSS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

SAJ FORM 1836 JUN 02 **MODIFIED FOR THE FLORIDA DEP** JUN 04



Cummins
Cederberg, Inc.

Phillippi Creek Maintenance
Dredging Fesibility Study Project
West Coast Inland Navigation District
Sarasota County, Florida

May 2024

PC-24-05

Top Elev. (ft MLW): -3.2
Bottom Elev. (ft MLW): -4.0

Notes:
- Photo Mosaic Image
- Photo Scale in Feet

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DRILLING LOG

CLIENT	Cummins Cederberg, Inc.
PROJECT OWNER	Fl West Coast Inland Navigation District
SHEET	1 OF 1 SHEETS
1. PROJECT	2024 Phillippi Creek Maintenance Dredging Feasibilty Study Sarasota County, FL
2. BORING DESIGNATION	PC-24-05
LOCATION COORDINATES	X = 483,608 Y = 1,069,619
3. DRILLING AGENCY	Athena Technologies, Inc.
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	N. Wicker
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	0.0 Ft.
7. DEPTH DRILLED INTO ROCK	0.0 Ft.
8. TOTAL DEPTH OF BORING	1.0 Ft.
9. SIZE AND TYPE OF BIT	3.0 In.
10. COORDINATE SYSTEM/DATUM	Florida State Plane West
HORIZONTAL	NAD 1983
VERTICAL	MLW
11. MANUFACTURER'S DESIGNATION OF DRILL	☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES	DISTURBED: 1 / UNDISTURBED (UD):
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	5.3 Ft.
15. DATE BORING	STARTED: 05-21-24 09:40 / COMPLETED: 05-21-24
16. ELEVATION TOP OF BORING	-3.2 Ft.
17. TOTAL RECOVERY FOR BORING	0.8 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR	A. Freeze

ELEV. (ft)	SCALE (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-3.2	0.0					
			Fat organic SILT; medium plasticity, very soft, possible clay, slight organic odor present, black (2.5Y-2.5/1), (OH).		S-1	Sample #S-1, Depth = 0.8' Mean (mm): 0.15, Phi Sorting: 0.85 Shell: 0%, Fines (#200) - 74.47 (MH)
-4.0	0.8					
			End of Boring			

0

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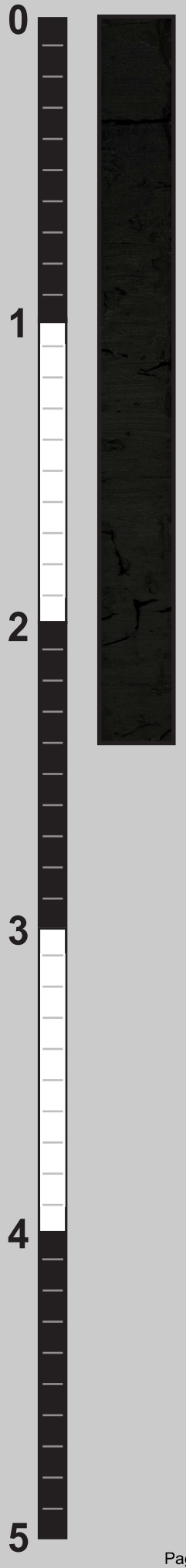
FLORIDA DEP ROSS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

SAJ FORM 1836 JUN 02 **MODIFIED FOR THE FLORIDA DEP** JUN 04



Cummins
Cederberg, Inc.

Phillippi Creek Maintenance
Dredging Fesibility Study Project
West Coast Inland Navigation District
Sarasota County, Florida

May 2024

PC-24-06

Top Elev. (ft MLW): -2.3
Bottom Elev. (ft MLW): -4.7

Notes:
- Photo Mosaic Image
- Photo Scale in Feet

ATHENA TECHNOLOGIES, INC.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
www.athenatechnologies.com
(843) 887-3800

DRILLING LOG

CLIENT	Cummins Cederberg, Inc.
PROJECT OWNER	Fl West Coast Inland Navigation District
SHEET	1 OF 1 SHEETS
1. PROJECT	2024 Phillippi Creek Maintenance Dredging Feasibilty Study Sarasota County, FL
2. BORING DESIGNATION	PC-24-06
LOCATION COORDINATES	X = 484,103 Y = 1,069,791
3. DRILLING AGENCY	Athena Technologies, Inc.
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	N. Wicker
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	0.0 Ft.
7. DEPTH DRILLED INTO ROCK	0.0 Ft.
8. TOTAL DEPTH OF BORING	2.4 Ft.
9. SIZE AND TYPE OF BIT	3.0 In.
10. COORDINATE SYSTEM/DATUM	Florida State Plane West
HORIZONTAL	NAD 1983
VERTICAL	MLW
11. MANUFACTURER'S DESIGNATION OF DRILL	☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES	DISTURBED: 2 / UNDISTURBED (UD):
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	3.2 Ft.
15. DATE BORING	STARTED: 05-21-24 09:28 / COMPLETED: 05-21-24
16. ELEVATION TOP OF BORING	-2.3 Ft.
17. TOTAL RECOVERY FOR BORING	2.4 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR	A. Freeze

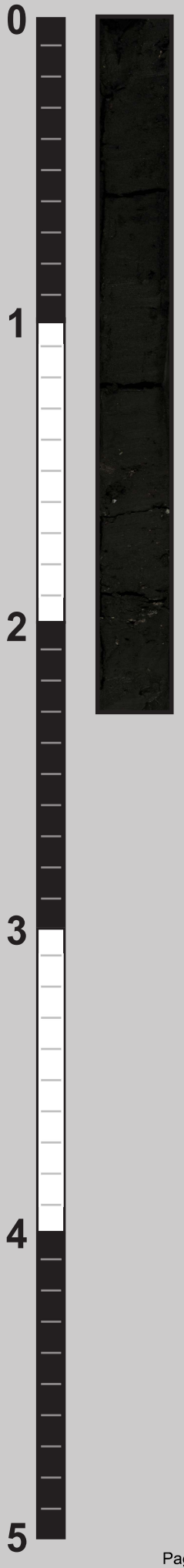
ELEV. (ft)	SCALE (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-2.3	0.0					
			Fat organic SILT; trace fine quartz sand in occasional burrows, medium plasticity, very soft, possible clay, strong organic odor present, black (2.5Y-2.5/1), (OH).		S-1	Sample #S-1, Depth = 1.2' Mean (mm): 0.14, Phi Sorting: 0.61 Shell: 0%, Fines (#200) - 76.77 (MH)
					S-2	Sample #S-2, Depth = 2.4' Mean (mm): 0.16, Phi Sorting: 0.61 Shell: 0%, Fines (#200) - 52.38 (MH)
-4.7	2.4		End of Boring			

0

5

FLORIDA DEP ROSS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

SAJ FORM 1836 MODIFIED FOR THE FLORIDA DEP
JUN 02 JUN 04



Cummins
Cederberg, Inc.

Phillippi Creek Maintenance
Dredging Fesibility Study Project
West Coast Inland Navigation District
Sarasota County, Florida

May 2024

PC-24-07

Top Elev. (ft MLW): -1.7
Bottom Elev. (ft MLW): -4.0

Notes:
- Photo Mosaic Image
- Photo Scale in Feet

ATHENA TECHNOLOGIES, INC.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
www.athenatechnologies.com
(843) 887-3800

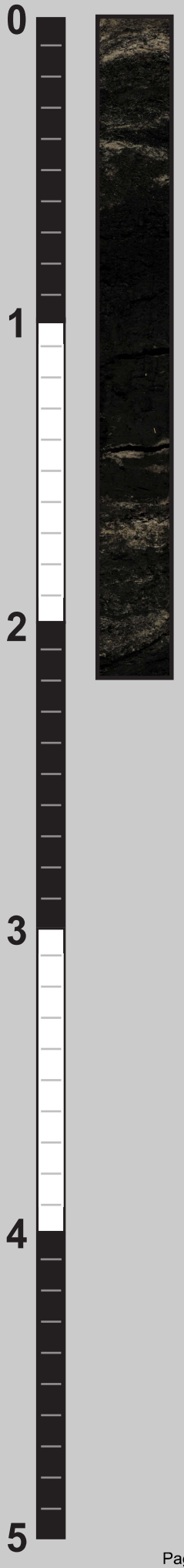
DRILLING LOG

CLIENT	Cummins Cederberg, Inc.
PROJECT OWNER	Fl West Coast Inland Navigation District
SHEET	1 OF 1 SHEETS
1. PROJECT	2024 Phillippi Creek Maintenance Dredging Feasibilty Study Sarasota County, FL
2. BORING DESIGNATION	PC-24-07
LOCATION COORDINATES	X = 484,103 Y = 1,069,440
3. DRILLING AGENCY	Athena Technologies, Inc.
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	N. Wicker
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	0.0 Ft.
7. DEPTH DRILLED INTO ROCK	0.0 Ft.
8. TOTAL DEPTH OF BORING	2.5 Ft.
9. SIZE AND TYPE OF BIT	3.0 In.
10. COORDINATE SYSTEM/DATUM	Florida State Plane West
HORIZONTAL	NAD 1983
VERTICAL	MLW
11. MANUFACTURER'S DESIGNATION OF DRILL	☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES	DISTURBED 2 / UNDISTURBED (UD)
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	2.7 Ft.
15. DATE BORING	STARTED 05-21-24 08:35 / COMPLETED 05-21-24
16. ELEVATION TOP OF BORING	-1.7 Ft.
17. TOTAL RECOVERY FOR BORING	2.3 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR	A. Freeze

ELEV. (ft)	SCALE (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-1.7	0.0					0
			Fat organic SILT; grades to organic clay, trace fine quartz sand in occasional burrows, low to medium plasticity, very soft, black (2.5Y-2.5/1), (OH).		S-1	Sample #S-1, Depth = 1.2' Mean (mm): 0.12, Phi Sorting: 0.63 Shell: 0%, Fines (#200) - 61.01 (MH)
					S-2	Sample #S-2, Depth = 2.3' Mean (mm): 0.16, Phi Sorting: 0.85 Shell: 0%, Fines (#200) - 43.20 (SM)
-4.0	2.3		End of Boring			5

FLORIDA DEP ROSS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

SAJ FORM 1836 MODIFIED FOR THE FLORIDA DEP
JUN 02 JUN 04



Cummins
Cederberg, Inc.

Phillippi Creek Maintenance
Dredging Fesibility Study Project
West Coast Inland Navigation District
Sarasota County, Florida

May 2024

PC-24-08

Top Elev. (ft MLW): -2.0
Bottom Elev. (ft MLW): -4.2

Notes:
- Photo Mosaic Image
- Photo Scale in Feet

ATHENA TECHNOLOGIES, INC.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
www.athenatechnologies.com
(843) 887-3800

Boring Designation PC-24-08

DRILLING LOG	CLIENT	PROJECT OWNER	SHEET
	Cummins Cederberg, Inc.	Fl West Coast Inland Navigation District	1 OF 1 SHEETS

1. PROJECT: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study, Sarasota County, FL		9. SIZE AND TYPE OF BIT: 3.0 In.	
		10. COORDINATE SYSTEM/DATUM: Florida State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: MLW
2. BORING DESIGNATION: PC-24-08	LOCATION COORDINATES: X = 484,078 Y = 1,069,144	11. MANUFACTURER'S DESIGNATION OF DRILL	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Athena Technologies, Inc.	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED: 3 / UNDISTURBED (UD):
4. NAME OF DRILLER: N. Wicker		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	14. WATER DEPTH: 2.8 Ft.	
		15. DATE BORING	STARTED: 05-21-24 08:57 / COMPLETED: 05-21-24
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -2.0 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 2.2 Ft.	
8. TOTAL DEPTH OF BORING: 3.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: A. Freeze	

ELEV. (ft)	SCALE (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-2.0	0.0					0
-2.6	0.6		Poorly graded SAND with silt; fine quartz sand, few organic silt/plant fibers in laminations and layers, loose, grayish brown (2.5Y-5/2) and, black (2.5Y-2.5/1), (SP-SM).		S-1	Sample #S-1, Depth = 0.6' Mean (mm): 0.16, Phi Sorting: 0.54 Shell: 0%, Fines (#200) - 10.82 (SP-SM)
-2.9	0.9		PEAT; trace fine quartz sand, loose/soft, black (2.5Y-2.5/1), (PT).			
-3.6	1.6		Fat organic SILT; trace fine quartz sand in burrows and laminations, medium plasticity, very soft, possible clay, slight organic odor present, black (2.5Y-2.5/1) and, grayish brown (2.5Y-5/2), (OH).		S-2	Sample #S-2, Depth = 1.6' Mean (mm): 0.15, Phi Sorting: 0.64 Shell: 0%, Fines (#200) - 51.41 (MH)
-4.0	2.0		Silty SAND; fine quartz sand, little organic silt/plant fibers in laminations and layers, loose, grayish brown (2.5Y-5/2) and, black (2.5Y-2.5/1), (SM).		S-3	Sample #S-3, Depth = 2.0' Mean (mm): 0.16, Phi Sorting: 0.45 Shell: 0%, Fines (#200) - 16.94 (SM)
-4.2	2.2		PEAT; trace fine quartz sand, loose/soft, black (2.5Y-2.5/1), (PT).			
			End of Boring			5

FLORIDA DEP ROSS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

SAJ FORM 1836 JUN 02 MODIFIED FOR THE FLORIDA DEP JUN 04

APPENDIX C
Grain Size Distribution Data

ATHENA TECHNOLOGIES, INC.

1293 Graham Farm Road, PO Box 68
McClellanville, South Carolina 29458
(843) 887-3800
www.athenatechnologies.com

Granularmetric Report

Depths and elevations based on measured values

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-01 #S-1

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
481,922	1,068,192	Florida State Plane West	-4.7 MLW

USCS:	Munsell:	Comments:
GP-GM	Wet - 2.5Y-4/2 Moist - 2.5Y-5/1	Sample Interval = -3.8' to -4.7' MLW

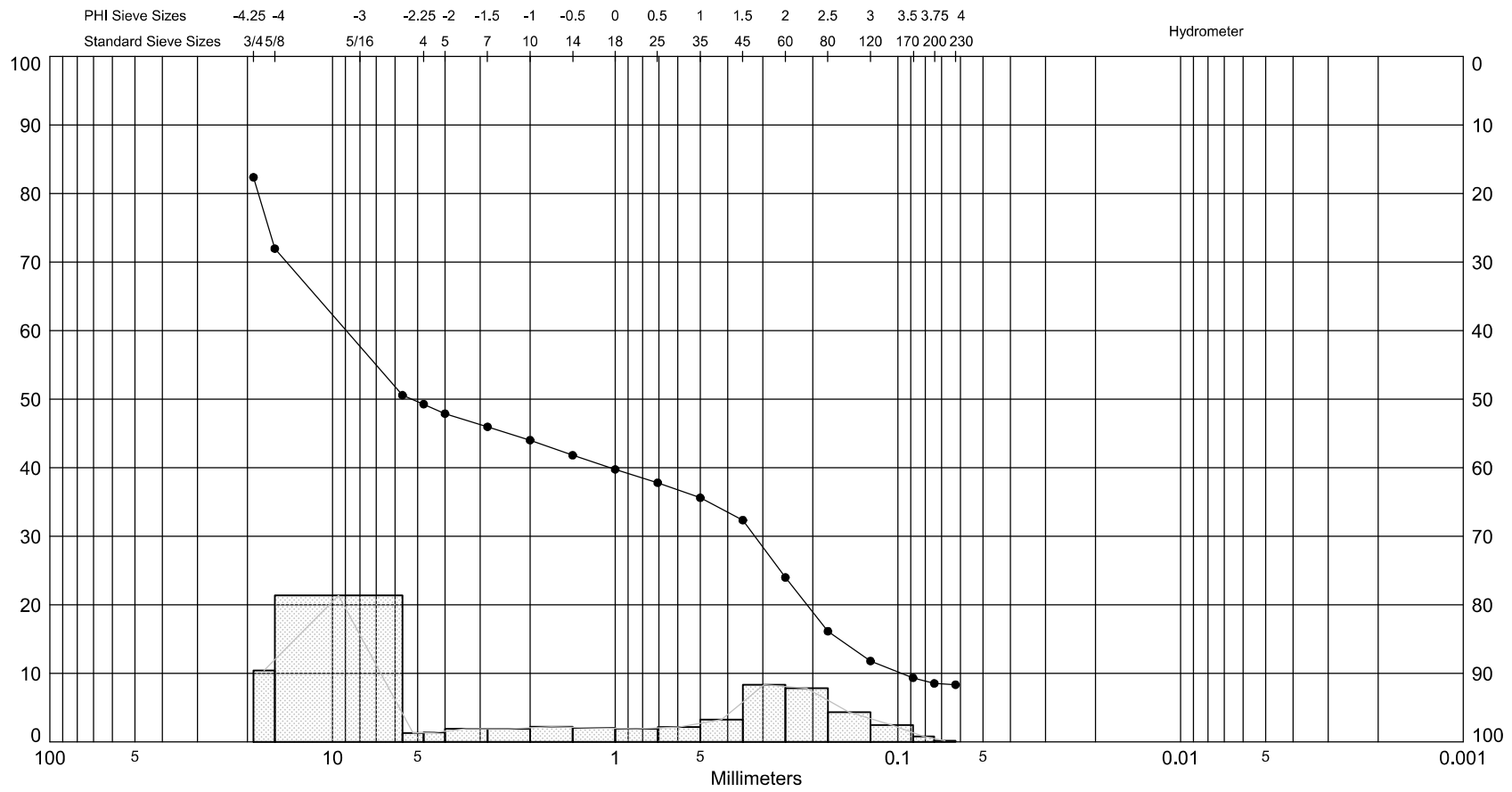
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
118.11	108.23			#200 - 8.54 #230 - 8.35			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	20.81	17.62	20.81	82.38
5/8	-4.00	16.00	12.29	10.41	33.10	71.97
#3.5	-2.50	5.66	25.25	21.38	58.35	50.59
#4	-2.25	4.76	1.55	1.31	59.90	49.28
#5	-2.00	4.00	1.64	1.39	61.54	47.89
#7	-1.50	2.83	2.27	1.92	63.81	45.97
#10	-1.00	2.00	2.29	1.94	66.10	44.03
#14	-0.50	1.41	2.60	2.20	68.70	41.83
#18	0.00	1.00	2.44	2.07	71.14	39.76
#25	0.50	0.71	2.29	1.94	73.43	37.82
#35	1.00	0.50	2.59	2.19	76.02	35.63
#45	1.50	0.35	3.86	3.27	79.88	32.36
#60	2.00	0.25	9.87	8.36	89.75	24.00
#80	2.50	0.18	9.27	7.85	99.02	16.15
#120	3.00	0.13	5.13	4.34	104.15	11.81
#170	3.50	0.09	2.89	2.45	107.04	9.36
#200	3.75	0.07	0.97	0.82	108.01	8.54
#230	4.00	0.06	0.22	0.19	108.23	8.35

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.52	1.94	-2.39	-4.07		

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	-1.54	2.91	2.45	0.98	2.15

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-01 #S-1	—●—	-4.7	GP-GM	#200 - 8.54 #230 - 8.35				-1.54	0.98	2.15	2.45

Comments: Sample Interval = -3.8' to -4.7' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	481,922
Northing (Y, ft):	1,068,192
Horizontal System:	NAD 1983
Vertical System:	MLW

ATHENA TECHNOLOGIES, INC.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-01 #S-2

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
481,922	1,068,192	Florida State Plane West	-5.0 MLW

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/2 Moist - 2.5Y-5/2	Sample Interval = -4.7' to -5' MLW

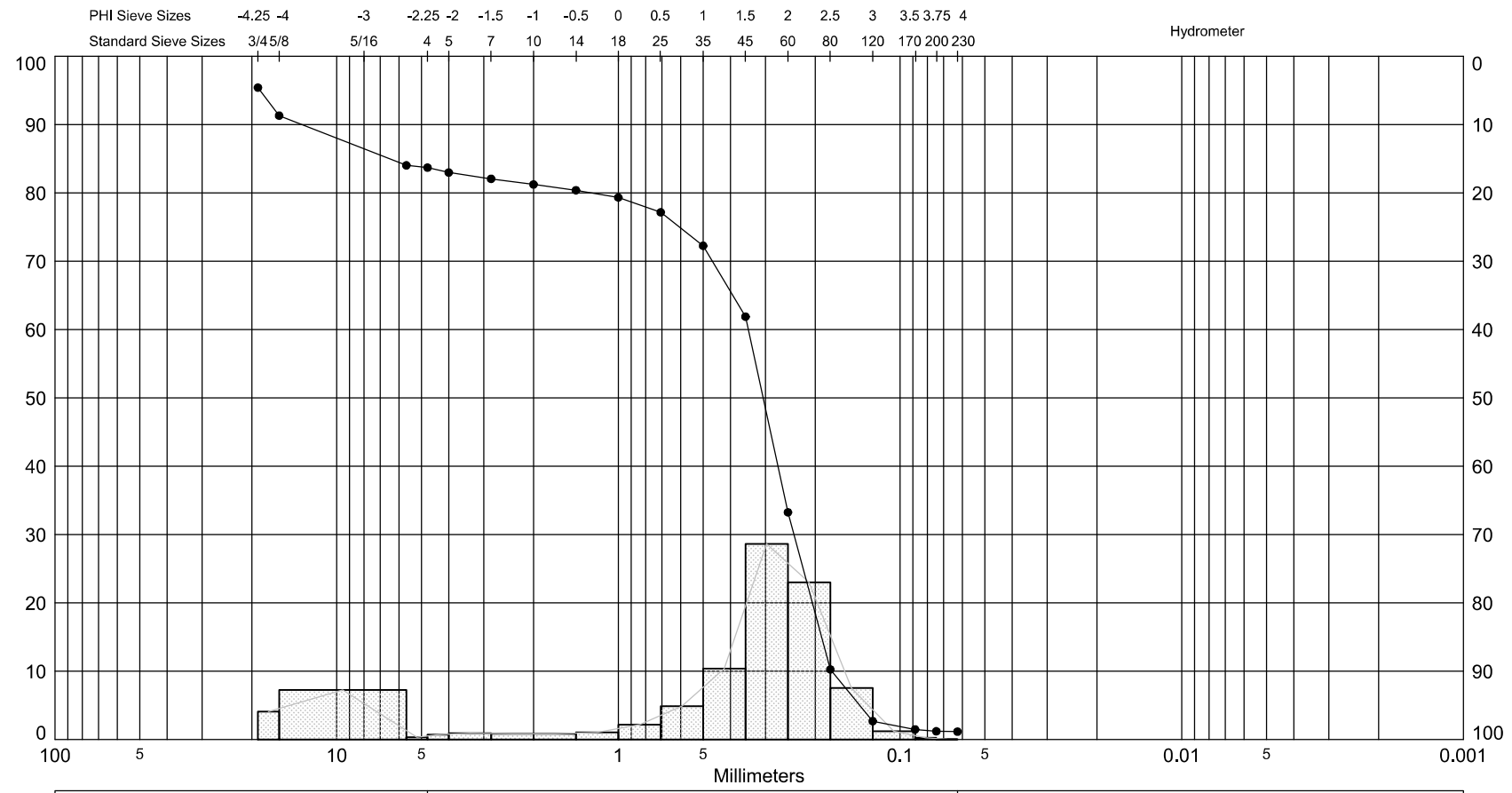
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
134.26	132.71			#200 - 1.21 #230 - 1.16			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	6.15	4.58	6.15	95.42
5/8	-4.00	16.00	5.51	4.10	11.66	91.32
#3.5	-2.50	5.66	9.78	7.28	21.44	84.04
#4	-2.25	4.76	0.44	0.33	21.88	83.71
#5	-2.00	4.00	0.96	0.72	22.84	82.99
#7	-1.50	2.83	1.23	0.92	24.07	82.07
#10	-1.00	2.00	1.12	0.83	25.19	81.24
#14	-0.50	1.41	1.14	0.85	26.33	80.39
#18	0.00	1.00	1.41	1.05	27.74	79.34
#25	0.50	0.71	2.92	2.17	30.66	77.17
#35	1.00	0.50	6.58	4.90	37.24	72.27
#45	1.50	0.35	13.93	10.38	51.17	61.89
#60	2.00	0.25	38.44	28.63	89.61	33.26
#80	2.50	0.18	30.88	23.00	120.49	10.26
#120	3.00	0.13	10.16	7.57	130.65	2.69
#170	3.50	0.09	1.63	1.21	132.28	1.48
#200	3.75	0.07	0.36	0.27	132.64	1.21
#230	4.00	0.06	0.07	0.05	132.71	1.16

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.85	2.38	2.18	1.71	0.72	-2.47	-4.22

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	0.79	0.58	1.9	-1.25	3.72

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-01 #S-2	—●—	-5.0	SP	#200 - 1.21 #230 - 1.16			1.71	0.79	-1.25	3.72	1.9

Comments: Sample Interval = -4.7' to -5' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	481,922
Northing (Y, ft):	1,068,192
Horizontal System:	NAD 1983
Vertical System:	MLW

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SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-02 #S-1

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
482,448	1,068,220	Florida State Plane West	-4.2 MLW

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/2 Moist - 2.5Y-5/2	Sample Interval = -3.6' to -4.2' MLW

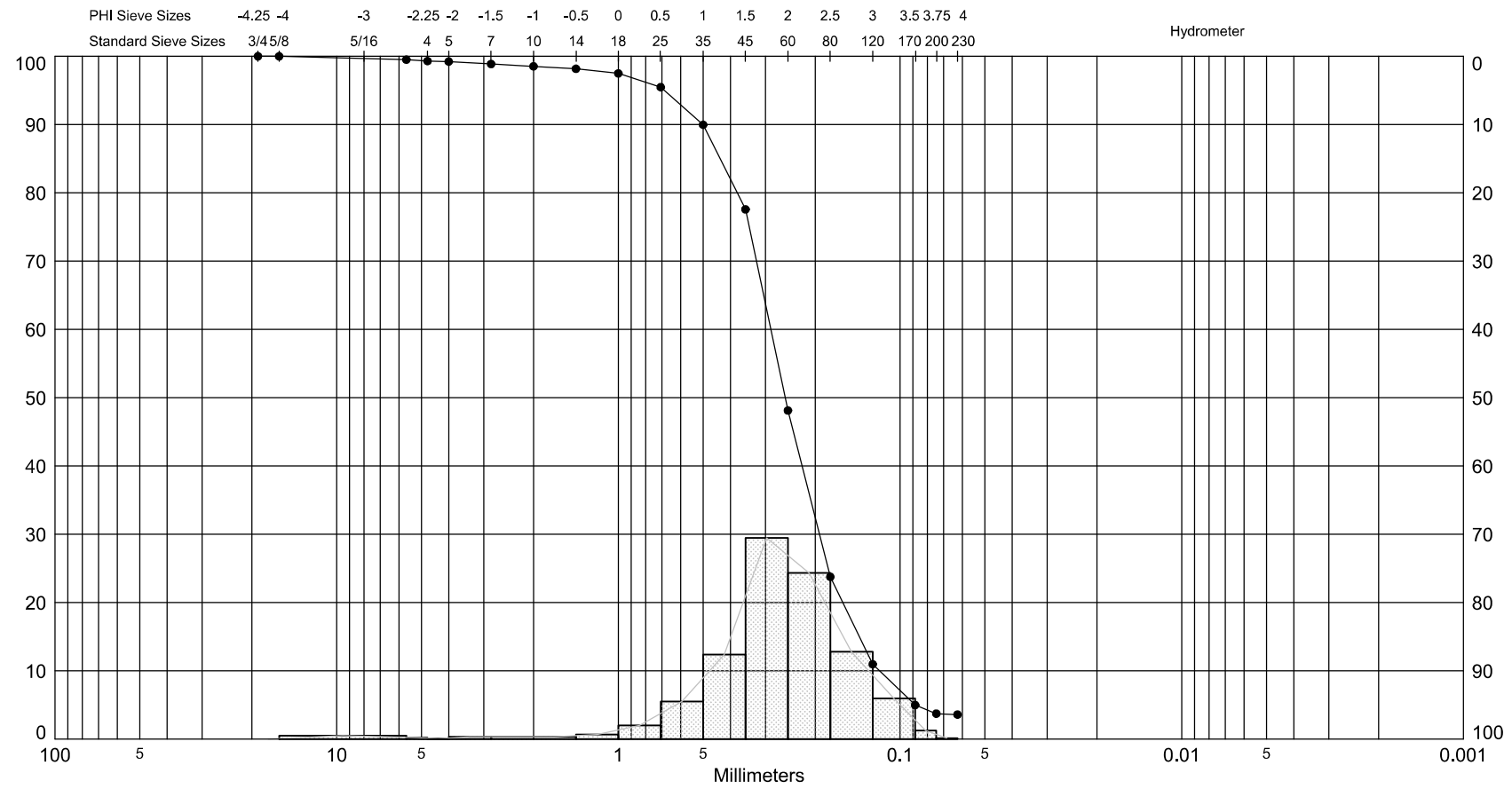
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
146.13	140.85			#200 - 3.73 #230 - 3.60			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	0.00	0.00	0.00	100.00
5/8	-4.00	16.00	0.00	0.00	0.00	100.00
#3.5	-2.50	5.66	0.71	0.49	0.71	99.51
#4	-2.25	4.76	0.30	0.21	1.01	99.30
#5	-2.00	4.00	0.10	0.07	1.11	99.23
#7	-1.50	2.83	0.53	0.36	1.64	98.87
#10	-1.00	2.00	0.50	0.34	2.14	98.53
#14	-0.50	1.41	0.52	0.36	2.66	98.17
#18	0.00	1.00	0.99	0.68	3.65	97.49
#25	0.50	0.71	2.94	2.01	6.59	95.48
#35	1.00	0.50	8.05	5.51	14.64	89.97
#45	1.50	0.35	18.11	12.39	32.75	77.58
#60	2.00	0.25	43.03	29.45	75.78	48.13
#80	2.50	0.18	35.60	24.36	111.38	23.77
#120	3.00	0.13	18.70	12.80	130.08	10.97
#170	3.50	0.09	8.74	5.98	138.82	4.99
#200	3.75	0.07	1.84	1.26	140.66	3.73
#230	4.00	0.06	0.19	0.13	140.85	3.60

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.50	2.80	2.47	1.97	1.54	1.24	0.54

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.89	0.27	0.9	-1.68	9.94

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-02 #S-1	—●—	-4.2	SP	#200 - 3.73 #230 - 3.60			1.97	1.89	-1.68	9.94	0.9

Comments: Sample Interval = -3.6' to -4.2' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	482,448
Northing (Y, ft):	1,068,220
Horizontal System:	NAD 1983
Vertical System:	MLW

ATHENA TECHNOLOGIES, INC.

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SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-02 #S-2

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
482,448	1,068,220	Florida State Plane West	-5.0 MLW

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/3 Moist - 2.5Y-5/2	Sample Interval = -4.2' to -5' MLW

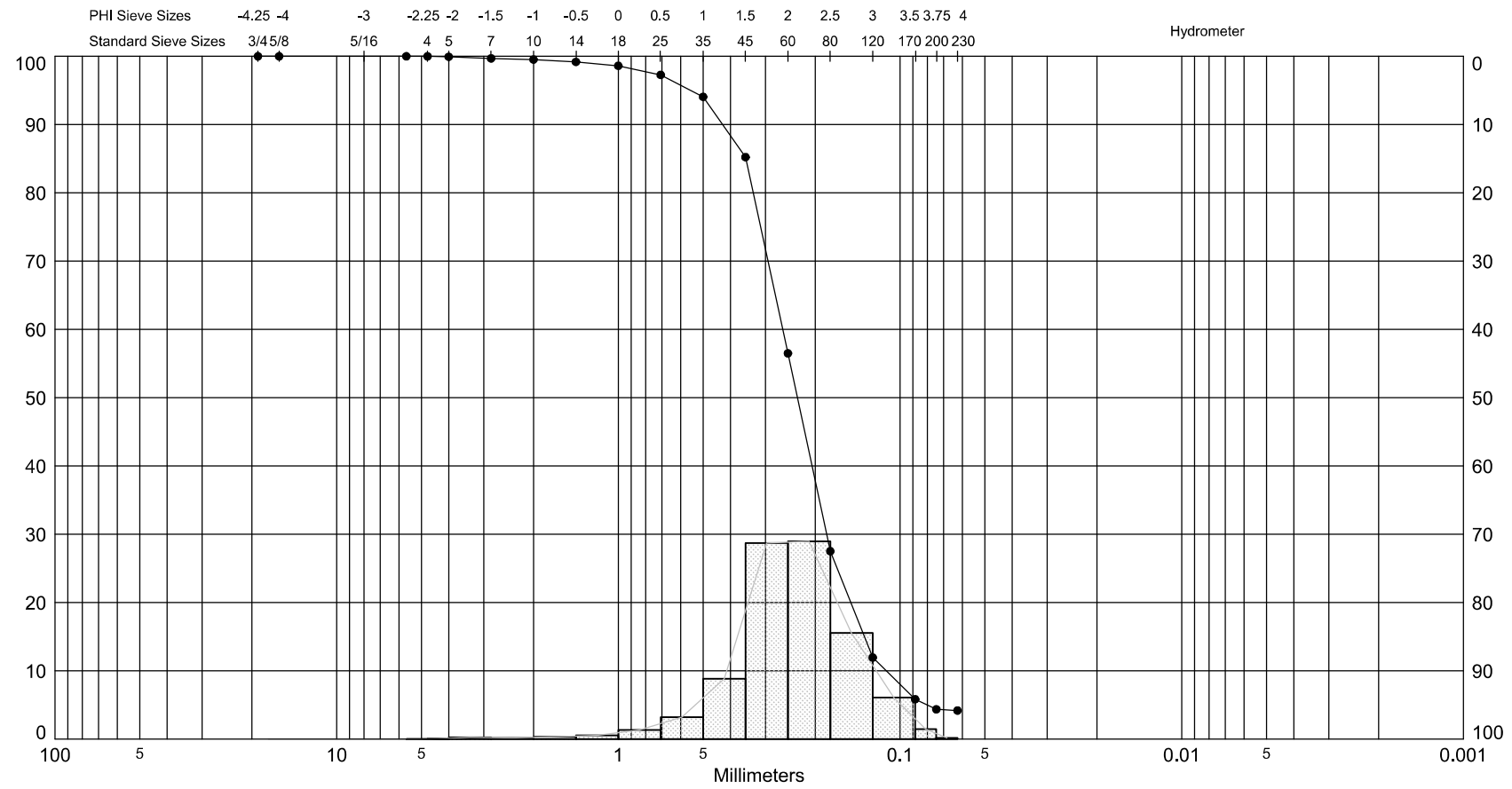
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
113.20	108.46			#200 - 4.37 #230 - 4.19			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	0.00	0.00	0.00	100.00
5/8	-4.00	16.00	0.00	0.00	0.00	100.00
#3.5	-2.50	5.66	0.00	0.00	0.00	100.00
#4	-2.25	4.76	0.01	0.01	0.01	99.99
#5	-2.00	4.00	0.07	0.06	0.08	99.93
#7	-1.50	2.83	0.27	0.24	0.35	99.69
#10	-1.00	2.00	0.19	0.17	0.54	99.52
#14	-0.50	1.41	0.38	0.34	0.92	99.18
#18	0.00	1.00	0.65	0.57	1.57	98.61
#25	0.50	0.71	1.51	1.33	3.08	97.28
#35	1.00	0.50	3.64	3.22	6.72	94.06
#45	1.50	0.35	9.99	8.83	16.71	85.23
#60	2.00	0.25	32.52	28.73	49.23	56.50
#80	2.50	0.18	32.81	28.98	82.04	27.52
#120	3.00	0.13	17.63	15.57	99.67	11.95
#170	3.50	0.09	6.91	6.10	106.58	5.85
#200	3.75	0.07	1.68	1.48	108.26	4.37
#230	4.00	0.06	0.20	0.18	108.46	4.19

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.64	2.87	2.58	2.11	1.68	1.52	0.85

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.05	0.24	0.74	-0.95	6.5

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-02 #S-2	—●—	-5.0	SP	#200 - 4.37 #230 - 4.19			2.11	2.05	-0.95	6.5	0.74

Comments: Sample Interval = -4.2' to -5' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	482,448
Northing (Y, ft):	1,068,220
Horizontal System:	NAD 1983
Vertical System:	MLW

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SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-03 #S-1

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
483,375	1,068,648	Florida State Plane West	-4.2 MLW

USCS:	Munsell:	Comments:
SP-SM	Wet - 2.5Y-3/2 Moist - 2.5Y-4/2	Sample Interval = -3.2' to -4.2' MLW

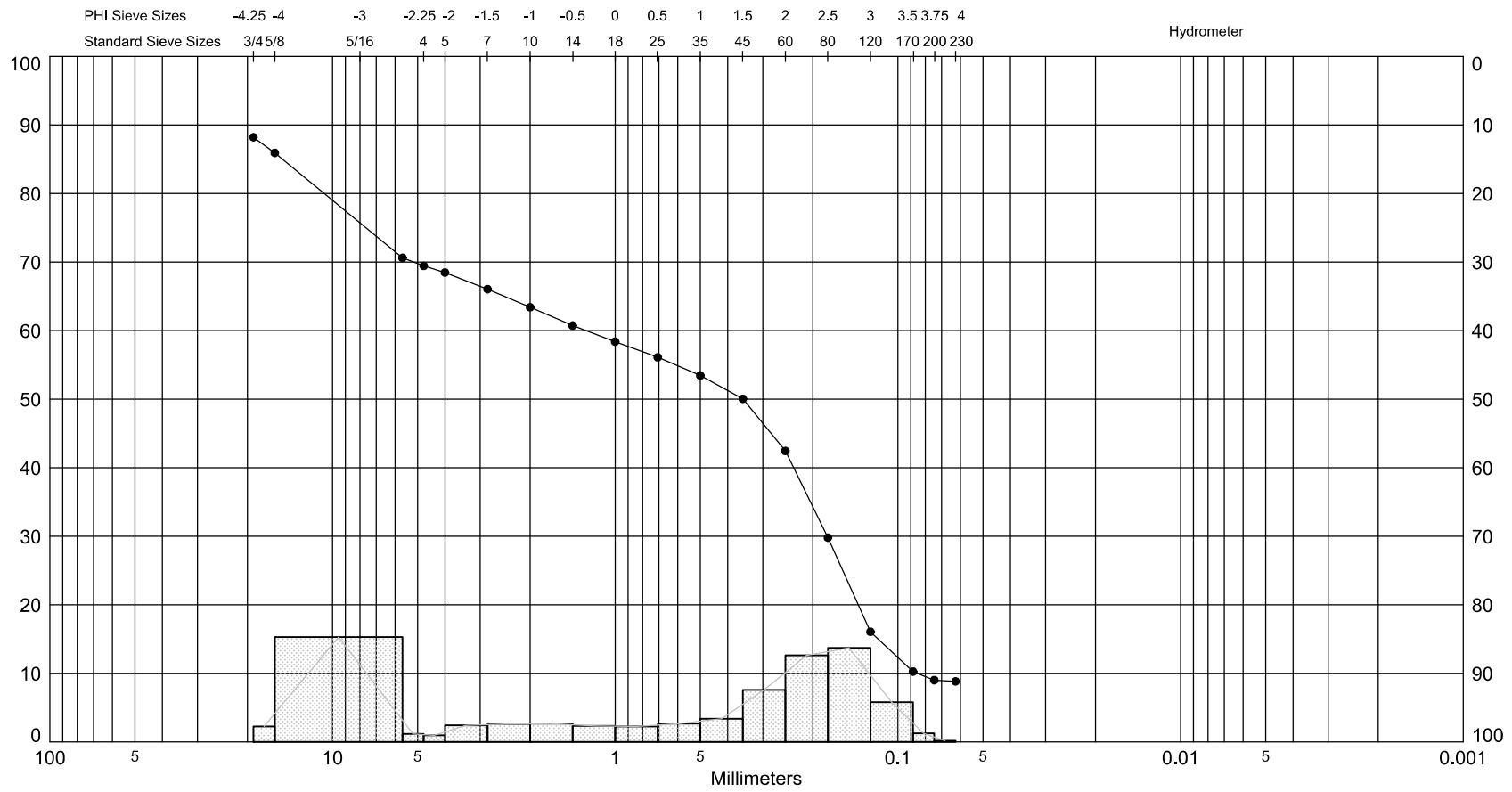
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
130.93	119.37			#200 - 9.02 #230 - 8.84			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	15.42	11.78	15.42	88.22
5/8	-4.00	16.00	2.99	2.28	18.41	85.94
#3.5	-2.50	5.66	20.05	15.31	38.46	70.63
#4	-2.25	4.76	1.54	1.18	40.00	69.45
#5	-2.00	4.00	1.27	0.97	41.27	68.48
#7	-1.50	2.83	3.17	2.42	44.44	66.06
#10	-1.00	2.00	3.46	2.64	47.90	63.42
#14	-0.50	1.41	3.49	2.67	51.39	60.75
#18	0.00	1.00	3.08	2.35	54.47	58.40
#25	0.50	0.71	2.99	2.28	57.46	56.12
#35	1.00	0.50	3.48	2.66	60.94	53.46
#45	1.50	0.35	4.45	3.40	65.39	50.06
#60	2.00	0.25	9.97	7.61	75.36	42.45
#80	2.50	0.18	16.56	12.65	91.92	29.80
#120	3.00	0.13	17.98	13.73	109.90	16.07
#170	3.50	0.09	7.59	5.80	117.49	10.27
#200	3.75	0.07	1.64	1.25	119.13	9.02
#230	4.00	0.06	0.24	0.18	119.37	8.84

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.01	2.67	1.50	-2.93	-3.81	

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	-0.17	1.13	2.38	0.22	1.58

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-03 #S-1	—●—	-4.2	SP-SM	#200 - 9.02 #230 - 8.84			1.5	-0.17	0.22	1.58	2.38

Comments: Sample Interval = -3.2' to -4.2' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	483,375
Northing (Y, ft):	1,068,648
Horizontal System:	NAD 1983
Vertical System:	MLW

ATHENA TECHNOLOGIES, INC.

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SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-03 #S-2

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
483,375	1,068,648	Florida State Plane West	-4.7 MLW

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-4/2 Moist - 2.5Y-5/2	Sample Interval = -4.2' to -4.7' MLW

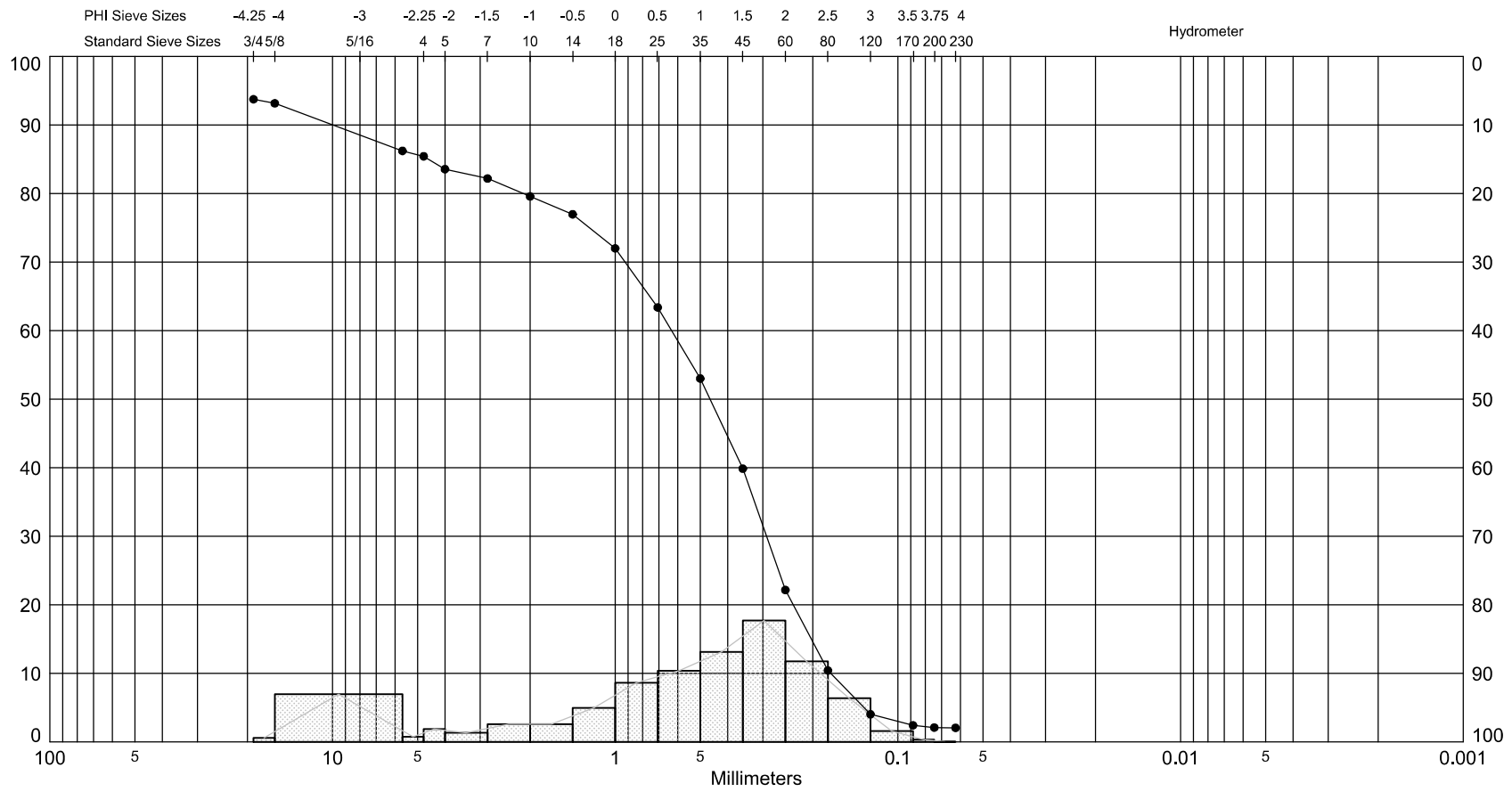
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
161.48	158.15			#200 - 2.10 #230 - 2.06			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	10.07	6.24	10.07	93.76
5/8	-4.00	16.00	0.96	0.59	11.03	93.17
#3.5	-2.50	5.66	11.24	6.96	22.27	86.21
#4	-2.25	4.76	1.25	0.77	23.52	85.44
#5	-2.00	4.00	3.04	1.88	26.56	83.56
#7	-1.50	2.83	2.19	1.36	28.75	82.20
#10	-1.00	2.00	4.21	2.61	32.96	79.59
#14	-0.50	1.41	4.21	2.61	37.17	76.98
#18	0.00	1.00	8.02	4.97	45.19	72.01
#25	0.50	0.71	13.92	8.62	59.11	63.39
#35	1.00	0.50	16.75	10.37	75.86	53.02
#45	1.50	0.35	21.24	13.15	97.10	39.87
#60	2.00	0.25	28.58	17.70	125.68	22.17
#80	2.50	0.18	18.95	11.74	144.63	10.43
#120	3.00	0.13	10.32	6.39	154.95	4.04
#170	3.50	0.09	2.60	1.61	157.55	2.43
#200	3.75	0.07	0.53	0.33	158.08	2.10
#230	4.00	0.06	0.07	0.04	158.15	2.06

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.92	2.26	1.92	1.11	-0.30	-2.06	

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	0.42	0.75	1.68	-0.49	2.85

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-03 #S-2	—●—	-4.7	SP	#200 - 2.10 #230 - 2.06			1.11	0.42	-0.49	2.85	1.68

Comments: Sample Interval = -4.2' to -4.7' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	483,375
Northing (Y, ft):	1,068,648
Horizontal System:	NAD 1983
Vertical System:	MLW

ATHENA TECHNOLOGIES, INC.

Athena Technologies, Inc.
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Office: 843-887-3800

SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-04 #S-1

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
483,681	1,069,177	Florida State Plane West	-5.0 MLW

USCS:	Munsell:	Comments:
MH	Wet - 2.5Y-3/2 Moist - 2.5Y-4/1	Sample Interval = -4.6' to -5' MLW

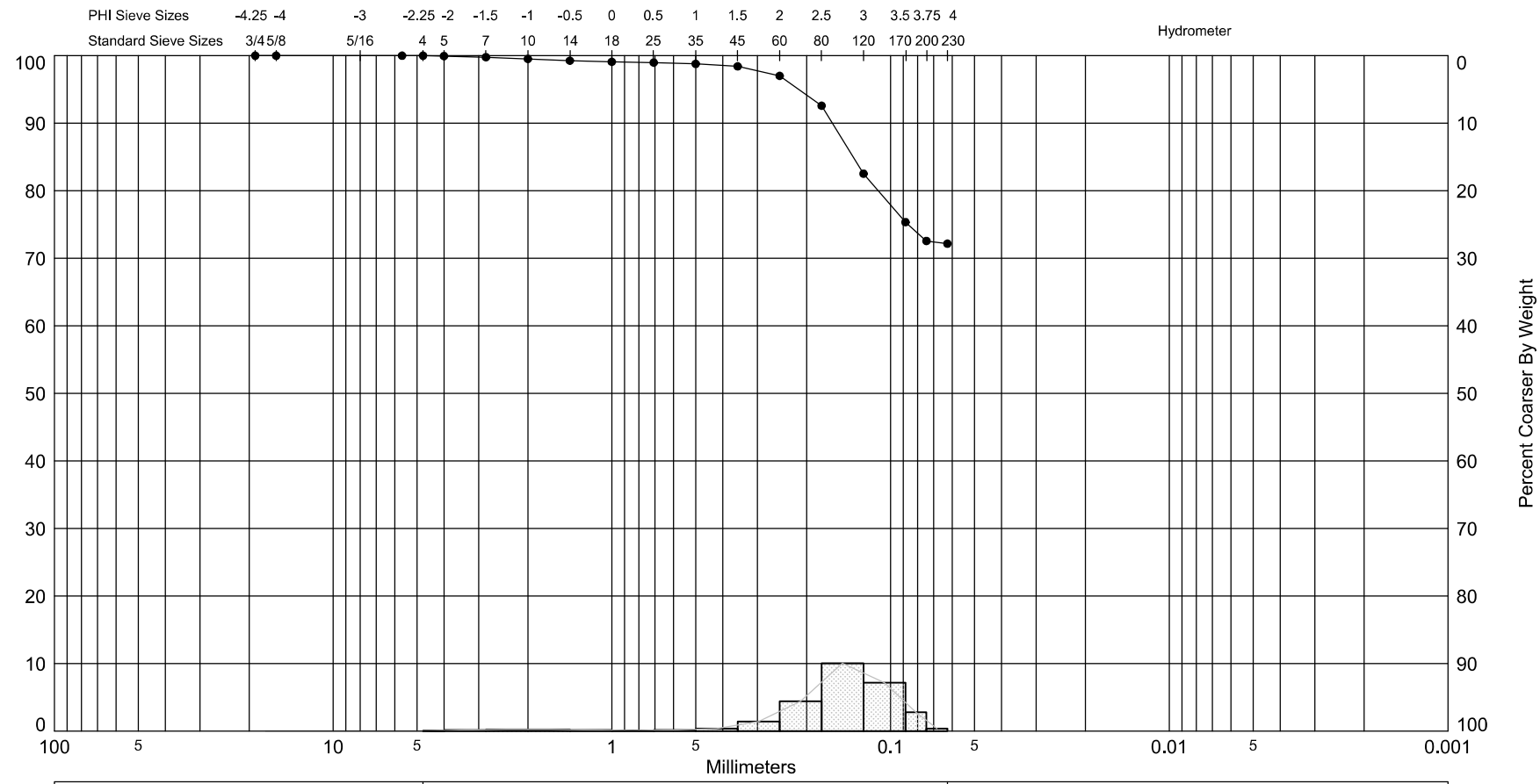
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
80.39	22.37			#200 - 72.57 #230 - 72.17			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	0.00	0.00	0.00	100.00
5/8	-4.00	16.00	0.00	0.00	0.00	100.00
#3.5	-2.50	5.66	0.00	0.00	0.00	100.00
#4	-2.25	4.76	0.00	0.00	0.00	100.00
#5	-2.00	4.00	0.05	0.06	0.05	99.94
#7	-1.50	2.83	0.13	0.16	0.18	99.78
#10	-1.00	2.00	0.21	0.26	0.39	99.52
#14	-0.50	1.41	0.21	0.26	0.60	99.26
#18	0.00	1.00	0.14	0.17	0.74	99.09
#25	0.50	0.71	0.09	0.11	0.83	98.98
#35	1.00	0.50	0.15	0.19	0.98	98.79
#45	1.50	0.35	0.30	0.37	1.28	98.42
#60	2.00	0.25	1.13	1.41	2.41	97.01
#80	2.50	0.18	3.55	4.42	5.96	92.59
#120	3.00	0.13	8.09	10.06	14.05	82.53
#170	3.50	0.09	5.76	7.17	19.81	75.36
#200	3.75	0.07	2.24	2.79	22.05	72.57
#230	4.00	0.06	0.32	0.40	22.37	72.17

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
				3.53	2.93	2.23

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.68	0.16	0.91	-2.57	11.8

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-04 #S-1	—●—	-5.0	MH	#200 - 72.57 #230 - 72.17				2.68	-2.57	11.8	0.91

Comments: Sample Interval = -4.6' to -5' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	483,681
Northing (Y, ft):	1,069,177
Horizontal System:	NAD 1983
Vertical System:	MLW

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SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-05 #S-1

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
483,608	1,069,619	Florida State Plane West	-4.0 MLW

USCS:	Munsell:	Comments:
MH	Wet - 2.5Y-3/2 Moist - 2.5Y-4/1	Sample Interval = -3.2' to -4' MLW

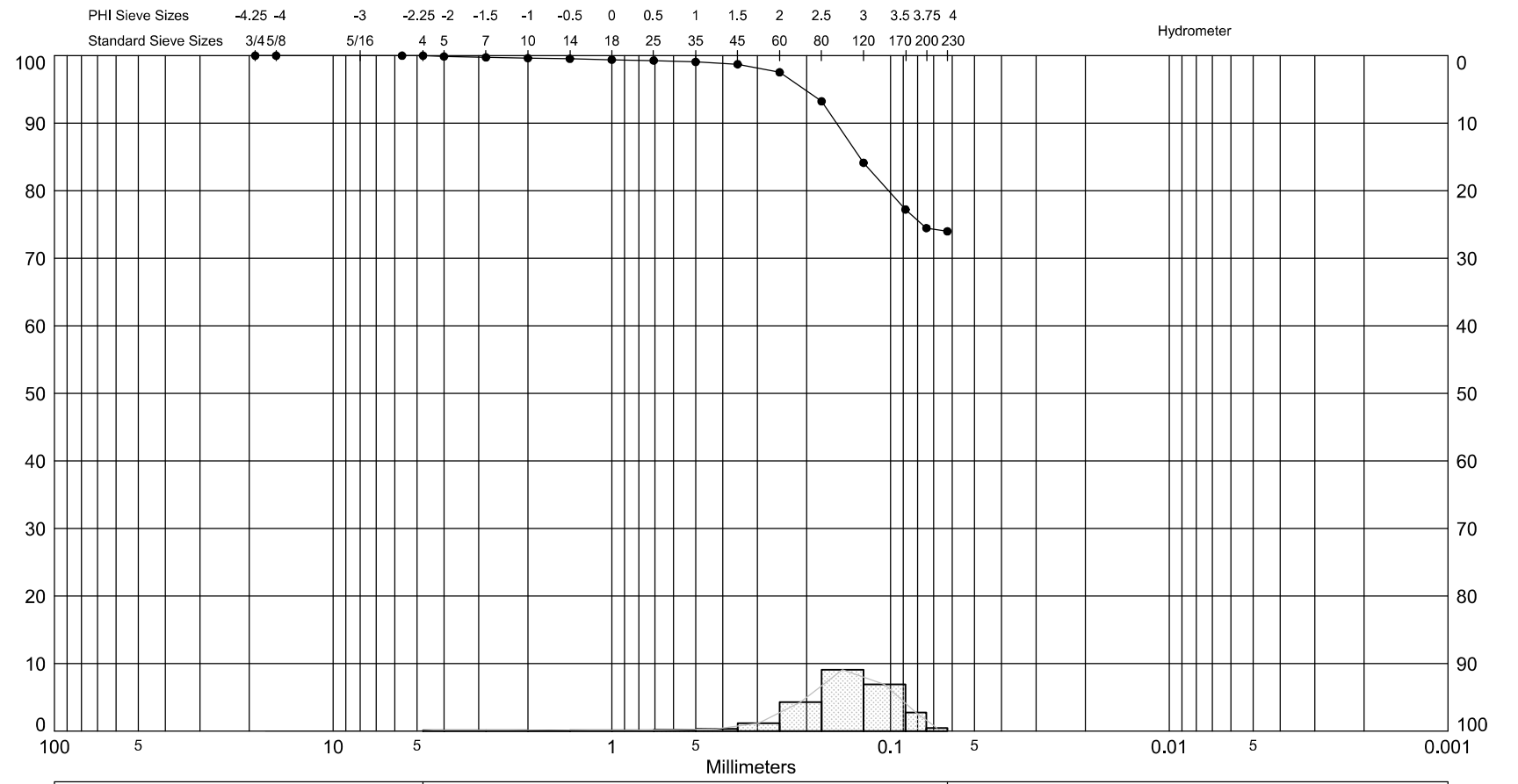
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
76.73	19.95			#200 - 74.47 #230 - 73.99			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	0.00	0.00	0.00	100.00
5/8	-4.00	16.00	0.00	0.00	0.00	100.00
#3.5	-2.50	5.66	0.00	0.00	0.00	100.00
#4	-2.25	4.76	0.00	0.00	0.00	100.00
#5	-2.00	4.00	0.09	0.12	0.09	99.88
#7	-1.50	2.83	0.10	0.13	0.19	99.75
#10	-1.00	2.00	0.09	0.12	0.28	99.63
#14	-0.50	1.41	0.07	0.09	0.35	99.54
#18	0.00	1.00	0.11	0.14	0.46	99.40
#25	0.50	0.71	0.09	0.12	0.55	99.28
#35	1.00	0.50	0.15	0.20	0.70	99.08
#45	1.50	0.35	0.27	0.35	0.97	98.73
#60	2.00	0.25	0.91	1.19	1.88	97.54
#80	2.50	0.18	3.30	4.30	5.18	93.24
#120	3.00	0.13	6.98	9.10	12.16	84.14
#170	3.50	0.09	5.30	6.91	17.46	77.23
#200	3.75	0.07	2.12	2.76	19.58	74.47
#230	4.00	0.06	0.37	0.48	19.95	73.99

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
				3.70	3.01	2.30

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.73	0.15	0.85	-2.68	13.75

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-05 #S-1	—●—	-4.0	MH	#200 - 74.47 #230 - 73.99				2.73	-2.68	13.75	0.85

Comments: Sample Interval = -3.2' to -4' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	483,608
Northing (Y, ft):	1,069,619
Horizontal System:	NAD 1983
Vertical System:	MLW

ATHENA TECHNOLOGIES, INC.

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SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-06 #S-1

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
484,103	1,069,791	Florida State Plane West	-3.5 MLW

USCS:	Munsell:	Comments:
MH	Wet - 2.5Y-3/1 Moist - 2.5Y-4/2	Sample Interval = -2.3' to -3.5' MLW

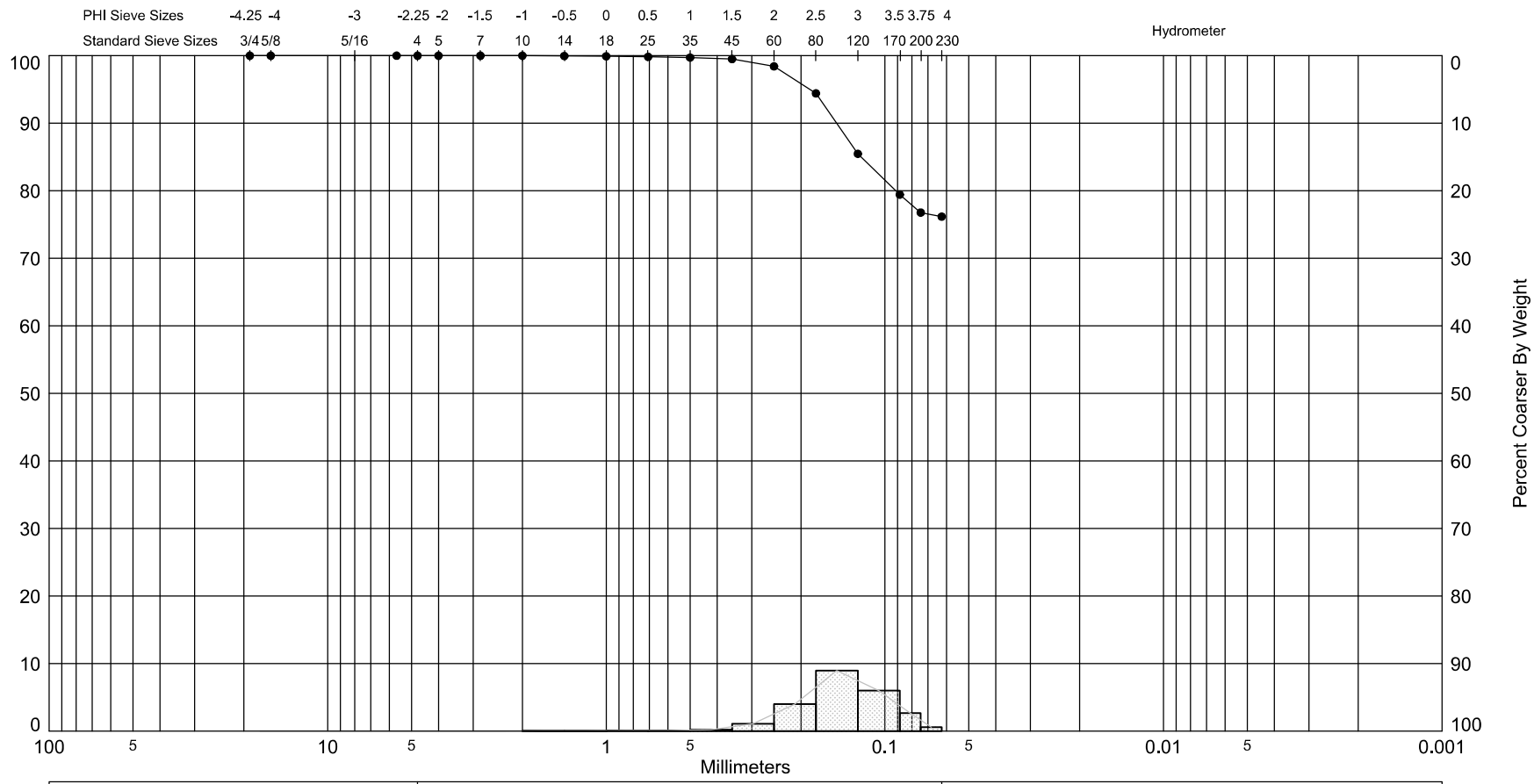
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
95.96	22.89			#200 - 76.77 #230 - 76.17			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	0.00	0.00	0.00	100.00
5/8	-4.00	16.00	0.00	0.00	0.00	100.00
#3.5	-2.50	5.66	0.00	0.00	0.00	100.00
#4	-2.25	4.76	0.00	0.00	0.00	100.00
#5	-2.00	4.00	0.00	0.00	0.00	100.00
#7	-1.50	2.83	0.00	0.00	0.00	100.00
#10	-1.00	2.00	0.00	0.00	0.00	100.00
#14	-0.50	1.41	0.05	0.05	0.05	99.95
#18	0.00	1.00	0.04	0.04	0.09	99.91
#25	0.50	0.71	0.08	0.08	0.17	99.83
#35	1.00	0.50	0.11	0.11	0.28	99.72
#45	1.50	0.35	0.21	0.22	0.49	99.50
#60	2.00	0.25	1.04	1.08	1.53	98.42
#80	2.50	0.18	3.84	4.00	5.37	94.42
#120	3.00	0.13	8.59	8.95	13.96	85.47
#170	3.50	0.09	5.79	6.03	19.75	79.44
#200	3.75	0.07	2.56	2.67	22.31	76.77
#230	4.00	0.06	0.58	0.60	22.89	76.17

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
					3.12	2.43

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.83	0.14	0.61	-1.24	7.3

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-06 #S-1	—●—	-3.5	MH	#200 - 76.77 #230 - 76.17				2.83	-1.24	7.3	0.61

Comments: Sample Interval = -2.3' to -3.5' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	484,103
Northing (Y, ft):	1,069,791
Horizontal System:	NAD 1983
Vertical System:	MLW

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SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-06 #S-2

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
484,103	1,069,791	Florida State Plane West	-4.7 MLW

USCS:	Munsell:	Comments:
MH	Wet - 2.5Y-2.5/1 Moist - 2.5Y-4/1	Sample Interval = -3.5' to -4.7' MLW

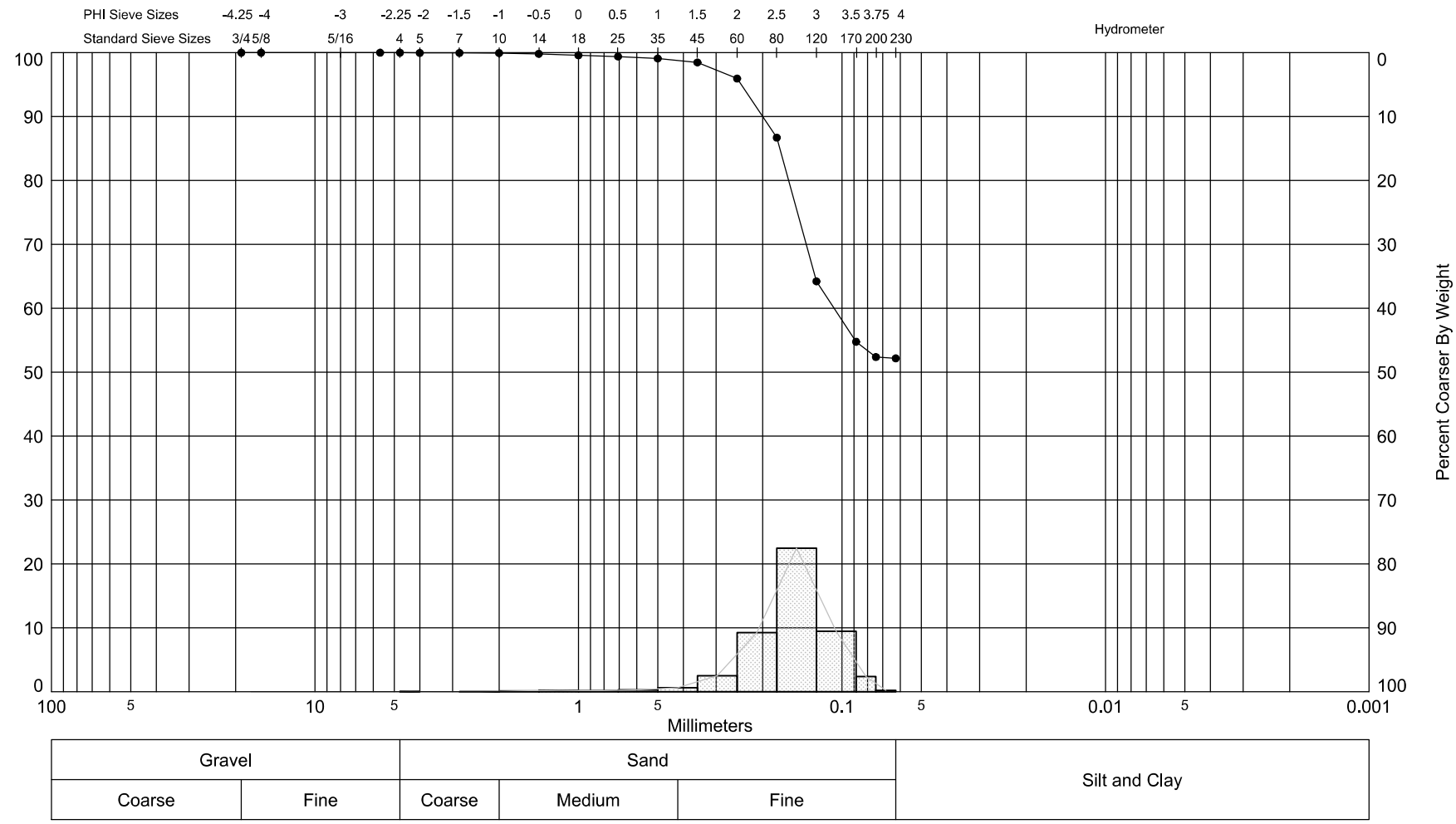
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
113.46	54.26			#200 - 52.38 #230 - 52.17			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	0.00	0.00	0.00	100.00
5/8	-4.00	16.00	0.00	0.00	0.00	100.00
#3.5	-2.50	5.66	0.00	0.00	0.00	100.00
#4	-2.25	4.76	0.00	0.00	0.00	100.00
#5	-2.00	4.00	0.04	0.04	0.04	99.96
#7	-1.50	2.83	0.00	0.00	0.04	99.96
#10	-1.00	2.00	0.02	0.02	0.06	99.94
#14	-0.50	1.41	0.14	0.12	0.20	99.82
#18	0.00	1.00	0.26	0.23	0.46	99.59
#25	0.50	0.71	0.22	0.19	0.68	99.40
#35	1.00	0.50	0.35	0.31	1.03	99.09
#45	1.50	0.35	0.70	0.62	1.73	98.47
#60	2.00	0.25	2.86	2.52	4.59	95.95
#80	2.50	0.18	10.49	9.25	15.08	86.70
#120	3.00	0.13	25.51	22.48	40.59	64.22
#170	3.50	0.09	10.72	9.45	51.31	54.77
#200	3.75	0.07	2.71	2.39	54.02	52.38
#230	4.00	0.06	0.24	0.21	54.26	52.17

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
				2.76	2.56	2.05

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.68	0.16	0.61	-1.97	11.76

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-06 #S-2	—●—	-4.7	MH	#200 - 52.38 #230 - 52.17				2.68	-1.97	11.76	0.61

Comments: Sample Interval = -3.5' to -4.7' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	484,103
Northing (Y, ft):	1,069,791
Horizontal System:	NAD 1983
Vertical System:	MLW

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SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-07 #S-1

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
484,103	1,069,440	Florida State Plane West	-2.9 MLW

USCS:	Munsell:	Comments:
MH	Wet - 2.5Y-2.5/1 Moist - 2.5Y-4/2	Sample Interval = -1.7' to -2.9' MLW

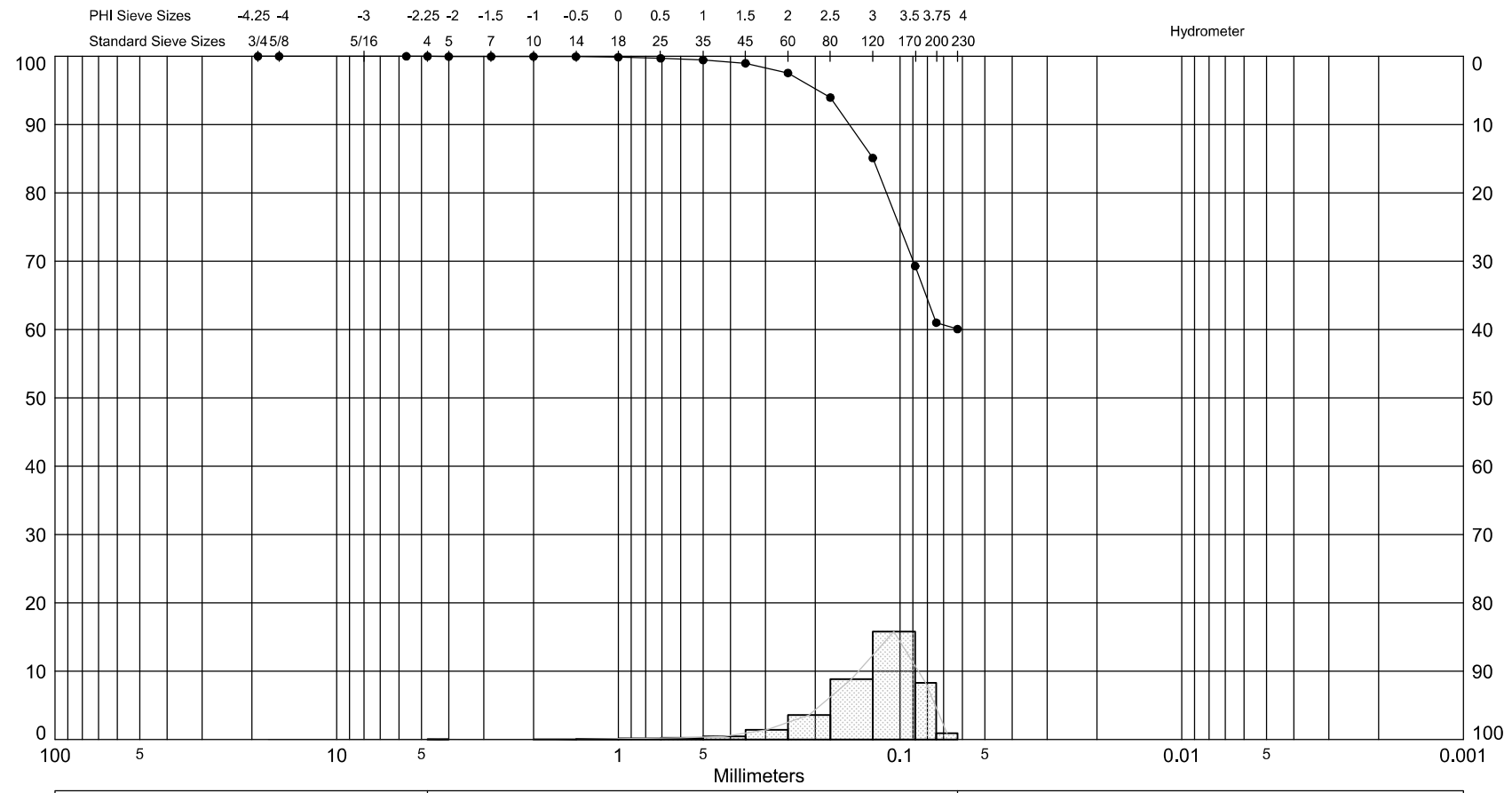
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
71.91	28.72			#200 - 61.01 #230 - 60.08			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	0.00	0.00	0.00	100.00
5/8	-4.00	16.00	0.00	0.00	0.00	100.00
#3.5	-2.50	5.66	0.00	0.00	0.00	100.00
#4	-2.25	4.76	0.00	0.00	0.00	100.00
#5	-2.00	4.00	0.03	0.04	0.03	99.96
#7	-1.50	2.83	0.00	0.00	0.03	99.96
#10	-1.00	2.00	0.00	0.00	0.03	99.96
#14	-0.50	1.41	0.01	0.01	0.04	99.95
#18	0.00	1.00	0.06	0.08	0.10	99.87
#25	0.50	0.71	0.12	0.17	0.22	99.70
#35	1.00	0.50	0.18	0.25	0.40	99.45
#45	1.50	0.35	0.34	0.47	0.74	98.98
#60	2.00	0.25	1.02	1.42	1.76	97.56
#80	2.50	0.18	2.59	3.60	4.35	93.96
#120	3.00	0.13	6.36	8.84	10.71	85.12
#170	3.50	0.09	11.37	15.81	22.08	69.31
#200	3.75	0.07	5.97	8.30	28.05	61.01
#230	4.00	0.06	0.67	0.93	28.72	60.08

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
				3.32	3.04	2.36

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	3.02	0.12	0.63	-2.06	11.03

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-07 #S-1	—●—	-2.9	MH	#200 - 61.01 #230 - 60.08				3.02	-2.06	11.03	0.63

Comments: Sample Interval = -1.7' to -2.9' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	484,103
Northing (Y, ft):	1,069,440
Horizontal System:	NAD 1983
Vertical System:	MLW

ATHENA TECHNOLOGIES, INC.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-07 #S-2

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
484,103	1,069,440	Florida State Plane West	-4.0 MLW

USCS:	Munsell:	Comments:
SM	Wet - 2.5Y-5/1 Moist - 5Y-4/1	Sample Interval = -2.9' to -4' MLW

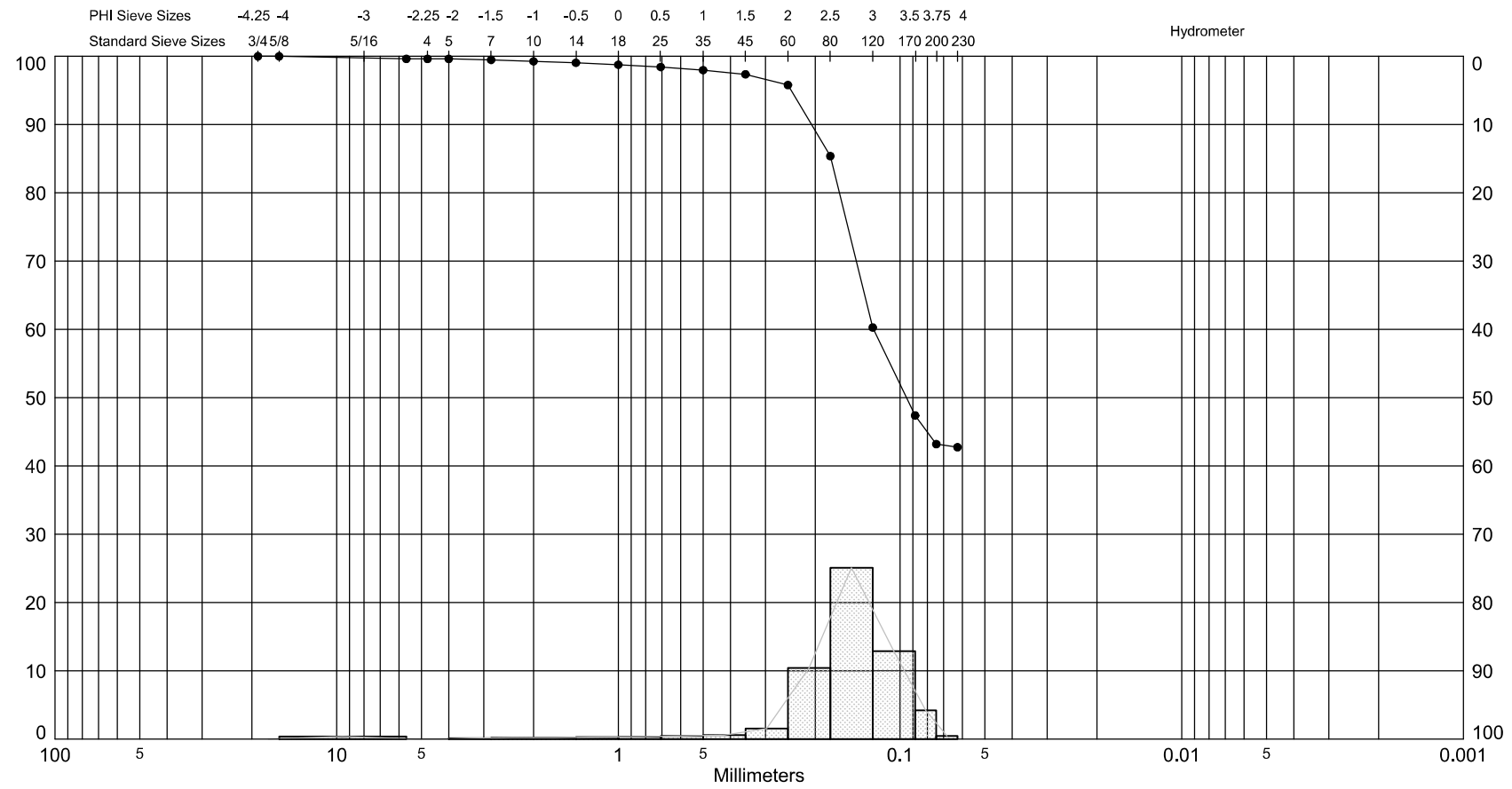
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
118.78	67.99			#200 - 43.20 #230 - 42.75			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	0.00	0.00	0.00	100.00
5/8	-4.00	16.00	0.00	0.00	0.00	100.00
#3.5	-2.50	5.66	0.45	0.38	0.45	99.62
#4	-2.25	4.76	0.00	0.00	0.45	99.62
#5	-2.00	4.00	0.00	0.00	0.45	99.62
#7	-1.50	2.83	0.17	0.14	0.62	99.48
#10	-1.00	2.00	0.26	0.22	0.88	99.26
#14	-0.50	1.41	0.25	0.21	1.13	99.05
#18	0.00	1.00	0.35	0.29	1.48	98.76
#25	0.50	0.71	0.39	0.33	1.87	98.43
#35	1.00	0.50	0.55	0.46	2.42	97.97
#45	1.50	0.35	0.72	0.61	3.14	97.36
#60	2.00	0.25	1.86	1.57	5.00	95.79
#80	2.50	0.18	12.36	10.41	17.36	85.38
#120	3.00	0.13	29.81	25.10	47.17	60.28
#170	3.50	0.09	15.30	12.88	62.47	47.40
#200	3.75	0.07	4.99	4.20	67.46	43.20
#230	4.00	0.06	0.53	0.45	67.99	42.75

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
			3.40	2.71	2.53	2.04

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.68	0.16	0.85	-3.56	21.79

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-07 #S-2	—●—	-4.0	SM	#200 - 43.20 #230 - 42.75			3.4	2.68	-3.56	21.79	0.85

Comments: Sample Interval = -2.9' to -4' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	484,103
Northing (Y, ft):	1,069,440
Horizontal System:	NAD 1983
Vertical System:	MLW

Athena Technologies, Inc.
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SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-08 #S-1

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
484,078	1,069,144	Florida State Plane West	-2.6 MLW

USCS:	Munsell:	Comments:
SP-SM	Wet - 2.5Y-4/2 Moist - 5Y-6/2	Sample Interval = -2' to -2.6' MLW

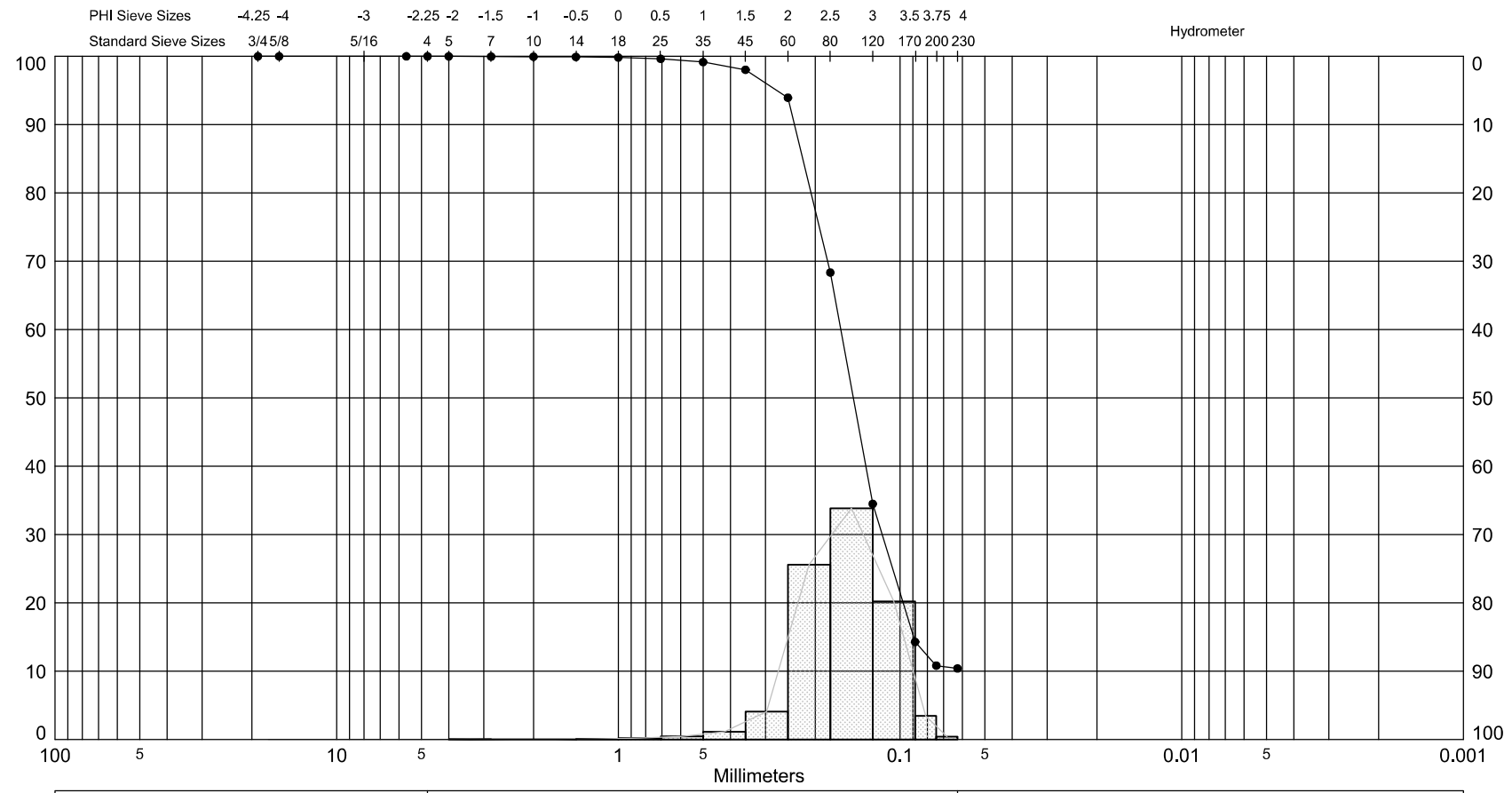
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
103.33	92.58			#200 - 10.82 #230 - 10.41			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	0.00	0.00	0.00	100.00
5/8	-4.00	16.00	0.00	0.00	0.00	100.00
#3.5	-2.50	5.66	0.00	0.00	0.00	100.00
#4	-2.25	4.76	0.00	0.00	0.00	100.00
#5	-2.00	4.00	0.00	0.00	0.00	100.00
#7	-1.50	2.83	0.04	0.04	0.04	99.96
#10	-1.00	2.00	0.02	0.02	0.06	99.94
#14	-0.50	1.41	0.03	0.03	0.09	99.91
#18	0.00	1.00	0.08	0.08	0.17	99.83
#25	0.50	0.71	0.21	0.20	0.38	99.63
#35	1.00	0.50	0.49	0.47	0.87	99.16
#45	1.50	0.35	1.17	1.13	2.04	98.03
#60	2.00	0.25	4.23	4.09	6.27	93.94
#80	2.50	0.18	26.44	25.59	32.71	68.35
#120	3.00	0.13	34.99	33.86	67.70	34.49
#170	3.50	0.09	20.87	20.20	88.57	14.29
#200	3.75	0.07	3.59	3.47	92.16	10.82
#230	4.00	0.06	0.42	0.41	92.58	10.41

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.46	3.23	2.77	2.37	2.19	1.87

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.67	0.16	0.54	-1.04	7.52

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-08 #S-1	—●—	-2.6	SP-SM	#200 - 10.82 #230 - 10.41			2.77	2.67	-1.04	7.52	0.54

Comments: Sample Interval = -2' to -2.6' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	484,078
Northing (Y, ft):	1,069,144
Horizontal System:	NAD 1983
Vertical System:	MLW

ATHENA TECHNOLOGIES, INC.

Athena Technologies, Inc.
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Office: 843-887-3800

SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-08 #S-2

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

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1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
484,078	1,069,144	Florida State Plane West	-3.6 MLW

USCS:	Munsell:	Comments:
MH	Wet - 2.5Y-3/1 Moist - 5Y-4/1	Sample Interval = -2.6' to -3.6' MLW

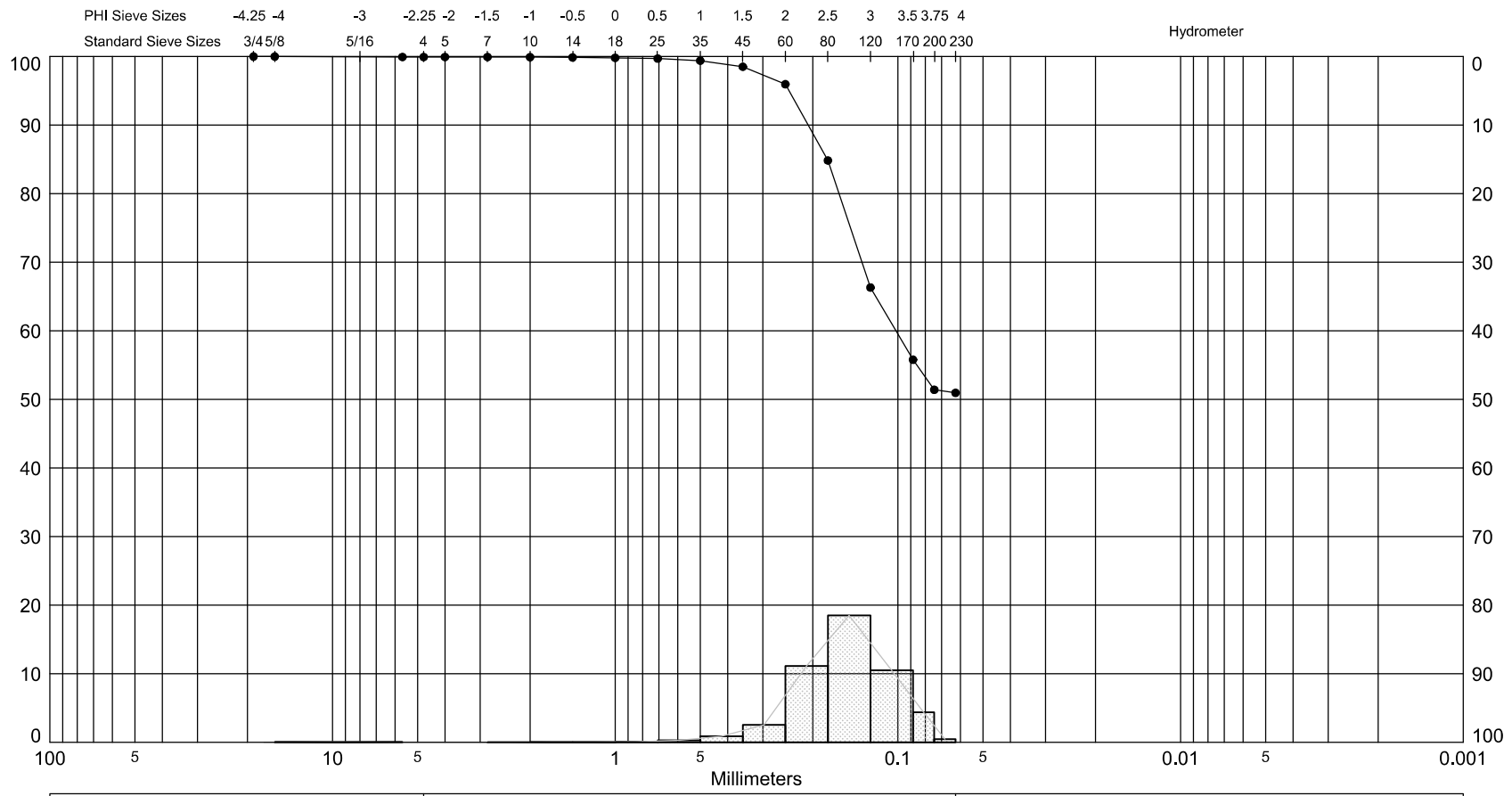
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
95.00	46.58			#200 - 51.41 #230 - 50.96			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	0.00	0.00	0.00	100.00
5/8	-4.00	16.00	0.00	0.00	0.00	100.00
#3.5	-2.50	5.66	0.07	0.07	0.07	99.93
#4	-2.25	4.76	0.00	0.00	0.07	99.93
#5	-2.00	4.00	0.00	0.00	0.07	99.93
#7	-1.50	2.83	0.00	0.00	0.07	99.93
#10	-1.00	2.00	0.02	0.02	0.09	99.91
#14	-0.50	1.41	0.04	0.04	0.13	99.87
#18	0.00	1.00	0.06	0.06	0.19	99.81
#25	0.50	0.71	0.10	0.11	0.29	99.70
#35	1.00	0.50	0.29	0.31	0.58	99.39
#45	1.50	0.35	0.84	0.88	1.42	98.51
#60	2.00	0.25	2.42	2.55	3.84	95.96
#80	2.50	0.18	10.56	11.12	14.40	84.84
#120	3.00	0.13	17.59	18.52	31.99	66.32
#170	3.50	0.09	10.00	10.53	41.99	55.79
#200	3.75	0.07	4.16	4.38	46.15	51.41
#230	4.00	0.06	0.43	0.45	46.58	50.96

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
				2.77	2.52	2.04

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.72	0.15	0.64	-1.99	16.26

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-08 #S-2	—●—	-3.6	MH	#200 - 51.41 #230 - 50.96				2.72	-1.99	16.26	0.64

Comments: Sample Interval = -2.6' to -3.6' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	484,078
Northing (Y, ft):	1,069,144
Horizontal System:	NAD 1983
Vertical System:	MLW

Athena Technologies, Inc.
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SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Granularmetric Report

Depths and elevations based on measured values

Project Name: 2024 Phillippi Creek Maintenance Dredging Feasibilty Study

Sample Name: PC-24-08 #S-3

Analysis Date: 07-21-24

Analyzed By: Terracon Consultants, Inc.

Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
Office: 843-887-3800

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
484,078	1,069,144	Florida State Plane West	-4.0 MLW

USCS:	Munsell:	Comments:
SM	Wet - 2.5Y-4/2 Moist - 2.5Y-6/1	Sample Interval = -3.6' to -4' MLW

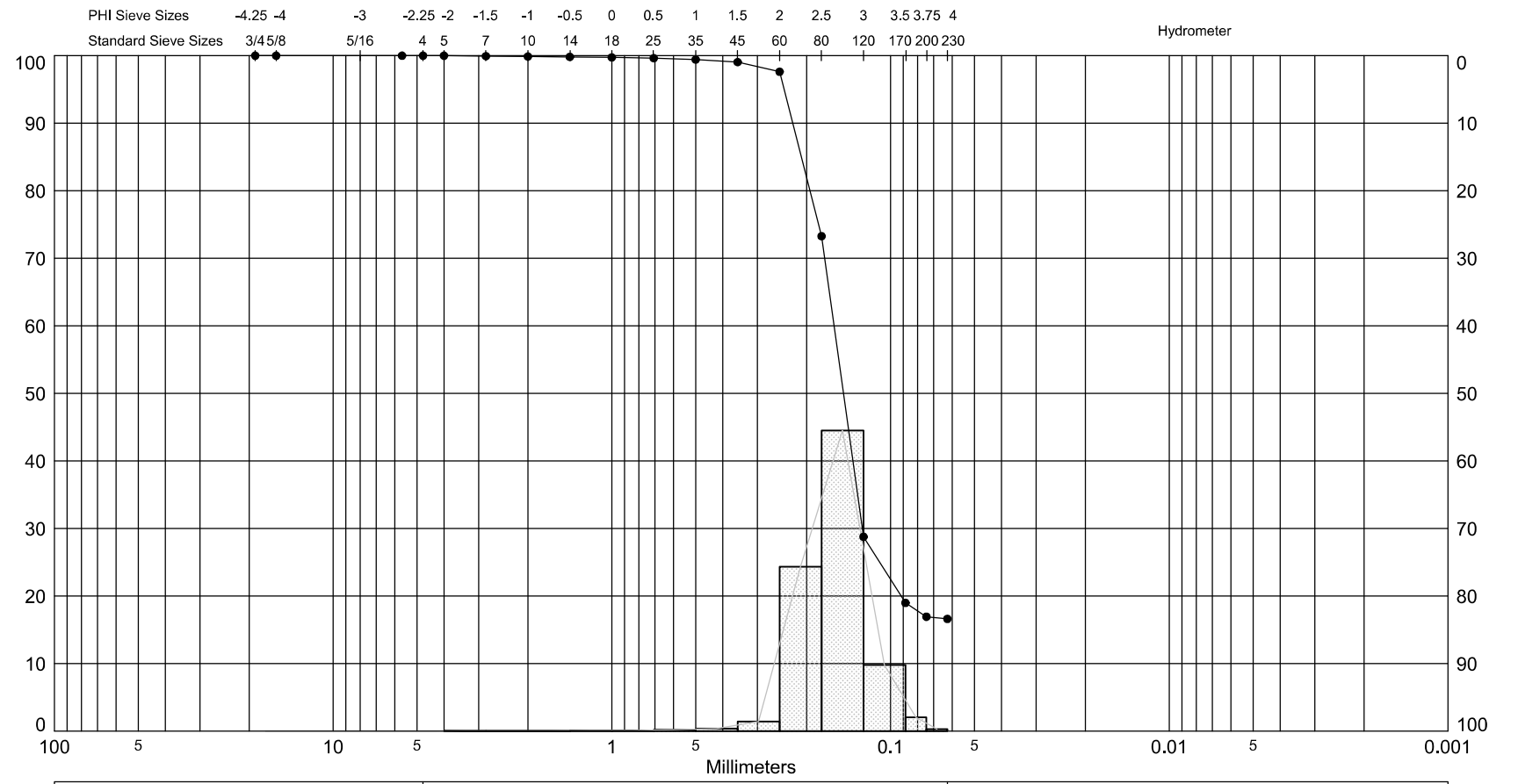
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
97.23	81.08			#200 - 16.94 #230 - 16.62			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	% Passing Sieve
3/4	-4.25	19.03	0.00	0.00	0.00	100.00
5/8	-4.00	16.00	0.00	0.00	0.00	100.00
#3.5	-2.50	5.66	0.00	0.00	0.00	100.00
#4	-2.25	4.76	0.00	0.00	0.00	100.00
#5	-2.00	4.00	0.00	0.00	0.00	100.00
#7	-1.50	2.83	0.07	0.07	0.07	99.93
#10	-1.00	2.00	0.05	0.05	0.12	99.88
#14	-0.50	1.41	0.06	0.06	0.18	99.82
#18	0.00	1.00	0.08	0.08	0.26	99.74
#25	0.50	0.71	0.11	0.11	0.37	99.63
#35	1.00	0.50	0.20	0.21	0.57	99.42
#45	1.50	0.35	0.36	0.37	0.93	99.05
#60	2.00	0.25	1.39	1.43	2.32	97.62
#80	2.50	0.18	23.67	24.34	25.99	73.28
#120	3.00	0.13	43.27	44.50	69.26	28.78
#170	3.50	0.09	9.52	9.79	78.78	18.99
#200	3.75	0.07	1.99	2.05	80.77	16.94
#230	4.00	0.06	0.31	0.32	81.08	16.62

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
		3.19	2.76	2.46	2.28	2.05

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.64	0.16	0.45	-1.97	18.68

GRANULARMETRIC REPORT CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
PC-24-08 #S-3	—●—	-4.0	SM	#200 - 16.94 #230 - 16.62			2.76	2.64	-1.97	18.68	0.45

Comments: Sample Interval = -3.6' to -4' MLW

Depths and elevations based on measured values

Sample Information	
Project Name:	2024 Phillippi Creek Maintenance Dredging Feasibility Study
Analysis Date:	07-21-24
Analyzed By:	Terracon Consultants, Inc.
Easting (X, ft):	484,078
Northing (Y, ft):	1,069,144
Horizontal System:	NAD 1983
Vertical System:	MLW

ATHENA TECHNOLOGIES, INC.

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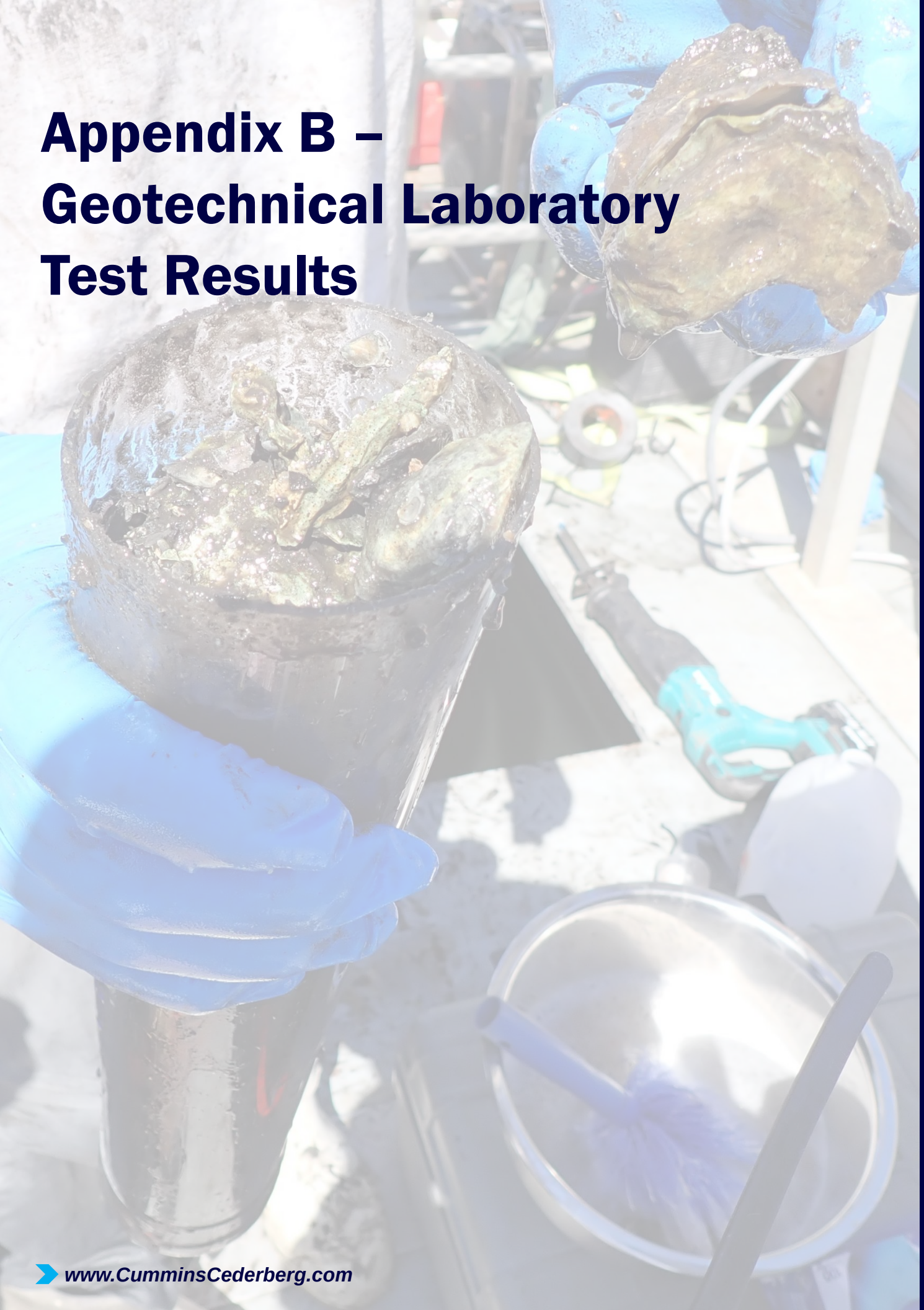
Office: 843-887-3800

SIEVE ANALYSIS CUMMINS CEDERBERG, PHILLIPPI CREEK, FL (2024).GPJ FL DEP ROSS.GDT 8/8/24

Appendix B – Geotechnical Laboratory Test Results



Advanced Environmental Laboratories, Inc
6681 Southpoint Pkwy Jacksonville, FL 32216
Payments: P.O. Box 551580 Jacksonville, FL 32255-1580
Phone: (904) 363-9350
Fax: (904) 363-9354

FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

June 05, 2024

Neil Wicker
Athena Technologies, Inc.
3700 Rosewood Drive
Columbia, SC 29205

RE: Workorder: J2407489 Phillippi Creek Dredging Study

Dear Neil Wicker:

Enclosed are the analytical results for sample(s) received by the laboratory on Wednesday May 22, 2024. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report. The analytical results for the samples contained in this report were submitted for analysis as outlined by the Chain of Custody and results pertain only to these samples.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jerry Allen, Client Services Manager
JAllen@aellab.com

NELAP Accredited E82574

Advanced Environmental Laboratories, Inc
6681 Southpoint Pkwy Jacksonville, FL 32216
Payments: P.O. Box 551580 Jacksonville, FL 32255-1580
Phone: (904) 363-9350
Fax: (904) 363-9354

FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Sample Summary

Lab ID	Sample ID	Matrix	Method	Date Collected	Date Received	Analytes Reported	Basis
J2407489001	PC-24-7	SO	EPA 8081	05/21/2024 08:44	05/22/2024 10:21	19	Dry
J2407489001	PC-24-7	SO	FL-PRO	05/21/2024 08:44	05/22/2024 10:21	1	Dry
J2407489001	PC-24-7	SO	SM 2540G	05/21/2024 08:44	05/22/2024 10:21	1	Dry
J2407489001	PC-24-7	SO	SW-846 6010	05/21/2024 08:44	05/22/2024 10:21	11	Dry
J2407489001	PC-24-7	SO	SW-846 7471A	05/21/2024 08:44	05/22/2024 10:21	1	Dry
J2407489001	PC-24-7	SO	SW-846 8082A	05/21/2024 08:44	05/22/2024 10:21	7	Dry
J2407489001	PC-24-7	SO	SW-846 8270C (SIM)	05/21/2024 08:44	05/22/2024 10:21	18	Dry
J2407489002	PC-24-8	SO	EPA 8081	05/21/2024 09:17	05/22/2024 10:21	19	Dry
J2407489002	PC-24-8	SO	FL-PRO	05/21/2024 09:17	05/22/2024 10:21	1	Dry
J2407489002	PC-24-8	SO	SM 2540G	05/21/2024 09:17	05/22/2024 10:21	1	Dry
J2407489002	PC-24-8	SO	SW-846 6010	05/21/2024 09:17	05/22/2024 10:21	11	Dry
J2407489002	PC-24-8	SO	SW-846 7471A	05/21/2024 09:17	05/22/2024 10:21	1	Dry
J2407489002	PC-24-8	SO	SW-846 8082A	05/21/2024 09:17	05/22/2024 10:21	7	Dry
J2407489002	PC-24-8	SO	SW-846 8270C (SIM)	05/21/2024 09:17	05/22/2024 10:21	18	Dry
J2407489003	PC-24-6	SO	EPA 8081	05/21/2024 09:34	05/22/2024 10:21	19	Dry
J2407489003	PC-24-6	SO	FL-PRO	05/21/2024 09:34	05/22/2024 10:21	1	Dry
J2407489003	PC-24-6	SO	SM 2540G	05/21/2024 09:34	05/22/2024 10:21	1	Dry
J2407489003	PC-24-6	SO	SW-846 6010	05/21/2024 09:34	05/22/2024 10:21	11	Dry
J2407489003	PC-24-6	SO	SW-846 7471A	05/21/2024 09:34	05/22/2024 10:21	1	Dry
J2407489003	PC-24-6	SO	SW-846 8082A	05/21/2024 09:34	05/22/2024 10:21	7	Dry
J2407489003	PC-24-6	SO	SW-846 8270C (SIM)	05/21/2024 09:34	05/22/2024 10:21	18	Dry
J2407489004	PC-24-5	SO	EPA 8081	05/21/2024 09:55	05/22/2024 10:21	19	Dry
J2407489004	PC-24-5	SO	FL-PRO	05/21/2024 09:55	05/22/2024 10:21	1	Dry
J2407489004	PC-24-5	SO	SM 2540G	05/21/2024 09:55	05/22/2024 10:21	1	Dry
J2407489004	PC-24-5	SO	SW-846 6010	05/21/2024 09:55	05/22/2024 10:21	11	Dry
J2407489004	PC-24-5	SO	SW-846 7471A	05/21/2024 09:55	05/22/2024 10:21	1	Dry
J2407489004	PC-24-5	SO	SW-846 8082A	05/21/2024 09:55	05/22/2024 10:21	7	Dry
J2407489004	PC-24-5	SO	SW-846 8270C (SIM)	05/21/2024 09:55	05/22/2024 10:21	18	Dry
J2407489005	PC-24-4	SO	EPA 8081	05/21/2024 10:29	05/22/2024 10:21	19	Dry
J2407489005	PC-24-4	SO	FL-PRO	05/21/2024 10:29	05/22/2024 10:21	1	Dry
J2407489005	PC-24-4	SO	SM 2540G	05/21/2024 10:29	05/22/2024 10:21	1	Dry
J2407489005	PC-24-4	SO	SW-846 6010	05/21/2024 10:29	05/22/2024 10:21	11	Dry
J2407489005	PC-24-4	SO	SW-846 7471A	05/21/2024 10:29	05/22/2024 10:21	1	Dry
J2407489005	PC-24-4	SO	SW-846 8082A	05/21/2024 10:29	05/22/2024 10:21	7	Dry
J2407489005	PC-24-4	SO	SW-846 8270C (SIM)	05/21/2024 10:29	05/22/2024 10:21	18	Dry

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Workorder: Phillippi Creek Dredging Study (J2407489)

Sample Summary

Lab ID	Sample ID	Matrix	Method	Date Collected	Date Received	Analytes Reported	Basis
J2407489006	PC-24-3	SO	EPA 8081	05/21/2024 10:48	05/22/2024 10:21	19	Dry
J2407489006	PC-24-3	SO	FL-PRO	05/21/2024 10:48	05/22/2024 10:21	1	Dry
J2407489006	PC-24-3	SO	SM 2540G	05/21/2024 10:48	05/22/2024 10:21	1	Dry
J2407489006	PC-24-3	SO	SW-846 6010	05/21/2024 10:48	05/22/2024 10:21	11	Dry
J2407489006	PC-24-3	SO	SW-846 7471A	05/21/2024 10:48	05/22/2024 10:21	1	Dry
J2407489006	PC-24-3	SO	SW-846 8082A	05/21/2024 10:48	05/22/2024 10:21	7	Dry
J2407489006	PC-24-3	SO	SW-846 8270C (SIM)	05/21/2024 10:48	05/22/2024 10:21	18	Dry
J2407489007	PC-24-2	SO	EPA 8081	05/21/2024 11:10	05/22/2024 10:21	19	Dry
J2407489007	PC-24-2	SO	FL-PRO	05/21/2024 11:10	05/22/2024 10:21	1	Dry
J2407489007	PC-24-2	SO	SM 2540G	05/21/2024 11:10	05/22/2024 10:21	1	Dry
J2407489007	PC-24-2	SO	SW-846 6010	05/21/2024 11:10	05/22/2024 10:21	11	Dry
J2407489007	PC-24-2	SO	SW-846 7471A	05/21/2024 11:10	05/22/2024 10:21	1	Dry
J2407489007	PC-24-2	SO	SW-846 8082A	05/21/2024 11:10	05/22/2024 10:21	7	Dry
J2407489007	PC-24-2	SO	SW-846 8270C (SIM)	05/21/2024 11:10	05/22/2024 10:21	18	Dry
J2407489008	PC-24-1	SO	EPA 8081	05/21/2024 11:35	05/22/2024 10:21	19	Dry
J2407489008	PC-24-1	SO	FL-PRO	05/21/2024 11:35	05/22/2024 10:21	1	Dry
J2407489008	PC-24-1	SO	SM 2540G	05/21/2024 11:35	05/22/2024 10:21	1	Dry
J2407489008	PC-24-1	SO	SW-846 6010	05/21/2024 11:35	05/22/2024 10:21	11	Dry
J2407489008	PC-24-1	SO	SW-846 7471A	05/21/2024 11:35	05/22/2024 10:21	1	Dry
J2407489008	PC-24-1	SO	SW-846 8082A	05/21/2024 11:35	05/22/2024 10:21	7	Dry
J2407489008	PC-24-1	SO	SW-846 8270C (SIM)	05/21/2024 11:35	05/22/2024 10:21	18	Dry

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Workorder: Phillippi Creek Dredging Study (J2407489)

Workorder Summary

Batch Comments

CVAj/2440 - HG Analysis,CVAA,Non-Aqueous

The Method Blank associated with batch 2440 contained a low level concentration of mercury above the Method Reporting Limit (MDL). The associated sample(s) contained this/these compound(s) at a concentration of at least ten times that found in the Method Blank. Blank contamination less than ten times that found in the associated samples is deemed insignificant and the data is reported with no further corrective action required.

GCSj/6434 - 8081/8082/608 Analysis,Soil

The upper control criterion was exceeded for several target analytes in Continuing Calibration Verification (CCV) standards for analytical batch GCSj: 6434, indicating increased sensitivity. The client samples reported in this batch did not contain the analytes in question. Since the apparent problem equates to a potential high bias, the data quality is not affected. Client samples with target analytes above the Method Detection Limit (MDL) were re-analyzed and reported with passing Continuing Calibration Verification (CCV) standards. No further corrective action was required.

Task Comments

J2407489001 (PC-24-7) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489001 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489001 (PC-24-7) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489001 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489002 (PC-24-8) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489002 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489002 (PC-24-8) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489002 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489003 (PC-24-6) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489003 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489003 (PC-24-6) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489003 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489004 (PC-24-5) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489004 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489004 (PC-24-5) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489004 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489005 (PC-24-4) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489005 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489005 (PC-24-4) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489005 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489006 (PC-24-3) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489006 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

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Workorder: Phillippi Creek Dredging Study (J2407489)

Workorder Summary

Task Comments

J2407489006 (PC-24-3) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489006 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489007 (PC-24-2) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489007 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489007 (PC-24-2) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489007 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489008 (PC-24-1) - GCSj/6450 - 8081/8082/608 Analysis,Soil

The sample J2407489008 and associated matrix spike and matrix spike duplicate was diluted prior to instrumental analysis. The extracts were highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

J2407489008 (PC-24-1) - GCSj/6434 - 8081/8082/608 Analysis,Soil

The sample J2407489008 was diluted prior to instrumental analysis. The extract was highly colored and viscous which indicated the need to perform a dilution prior to injection into the instrument.

Analysis Results Comments

J2407489001 (PC-24-7) - Aluminum

The control criteria for matrix spike recoveries of Aluminum for J2407489001 are not applicable. The analyte concentration in the sample was greater than 4 times the added spike concentrations, preventing accurate evaluation of the spike recovery. No further corrective action was required.

J2407489001 (PC-24-7) - Chromium

The matrix spike recoveries of Aluminum, Chromium, and Cadmium for J2407489001 were outside control criteria due to the presence of target analytes in the sample. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicates the analytical batch was in control. The affected sample is qualified to indicate matrix interference.

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results Qualifiers

Parameter Qualifiers

U	The compound was analyzed for but not detected.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
V	Method Blank Contamination

Lab Qualifiers

J	DOH Certification #E82574 (FL NELAC) AEL-Jacksonville DOD-ELAP Certification #L23-514 (ISO/IEC 17025:2017) AEL-Jacksonville

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489001 **Date Collected:** 05/21/2024 08:44 **Matrix:** Soil
Sample ID: PC-24-7 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**16000**	mg/Kg	1400	360	10	05/24/2024 11:23	06/03/2024 15:08	J
Arsenic	**2.0 I**	mg/Kg	7.2	1.8	1	05/24/2024 11:23	05/28/2024 16:43	J
Barium	**45**	mg/Kg	7.2	1.8	1	05/24/2024 11:23	05/28/2024 16:43	J
Cadmium	**0.72**	mg/Kg	0.72	0.18	1	05/24/2024 11:23	05/28/2024 16:43	J
Chromium	**41**	mg/Kg	2.9	0.72	1	05/24/2024 11:23	05/28/2024 16:43	J
Copper	**81**	mg/Kg	7.2	1.8	1	05/24/2024 11:23	05/28/2024 16:43	J
Lead	**33**	mg/Kg	7.2	1.8	1	05/24/2024 11:23	05/28/2024 16:43	J
Nickel	**10**	mg/Kg	7.2	1.8	1	05/24/2024 11:23	05/28/2024 16:43	J
Selenium	3.6 U	mg/Kg	14	3.6	1	05/24/2024 11:23	05/28/2024 16:43	J
Silver	0.72 U	mg/Kg	2.9	0.72	1	05/24/2024 11:23	05/28/2024 16:43	J
Zinc	**200**	mg/Kg	140	36	1	05/24/2024 11:23	05/28/2024 16:43	J
METALS (SW-846 7471A)								
Mercury	**0.19**	mg/Kg	0.019	0.0048	1	05/28/2024 11:51	05/28/2024 17:52	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
Aroclor 1221 (PCB-1221)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
Aroclor 1232 (PCB-1232)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
Aroclor 1242 (PCB-1242)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
Aroclor 1248 (PCB-1248)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
Aroclor 1254 (PCB-1254)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
Aroclor 1260 (PCB-1260)	0.84 U	mg/Kg	3.4	0.84	10	05/28/2024 09:00	05/31/2024 10:48	J
SEMIVOLATILES (FL-PRO)								
TPH	35 U	mg/Kg	61	35	1	05/24/2024 10:00	05/29/2024 17:07	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.018 U	mg/Kg	0.11	0.018	10	05/28/2024 09:00	05/31/2024 22:09	J
4,4`-DDE	0.014 U	mg/Kg	0.11	0.014	10	05/28/2024 09:00	05/31/2024 22:09	J
4,4`-DDT	0.031 U	mg/Kg	0.11	0.031	10	05/28/2024 09:00	05/31/2024 22:09	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489001 **Date Collected:** 05/21/2024 08:44 **Matrix:** Soil
Sample ID: PC-24-7 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.017 U	mg/Kg	0.11	0.017	10	05/28/2024 09:00	05/31/2024 22:09	J
Chlordane (technical)	0.45 U	mg/Kg	1.1	0.45	10	05/28/2024 09:00	05/31/2024 22:09	J
Dieldrin	0.014 U	mg/Kg	0.11	0.014	10	05/28/2024 09:00	05/31/2024 22:09	J
Endosulfan I	0.017 U	mg/Kg	0.11	0.017	10	05/28/2024 09:00	05/31/2024 22:09	J
Endosulfan II	0.012 U	mg/Kg	0.11	0.012	10	05/28/2024 09:00	05/31/2024 22:09	J
Endosulfan Sulfate	0.020 U	mg/Kg	0.11	0.020	10	05/28/2024 09:00	05/31/2024 22:09	J
Endrin	0.031 U	mg/Kg	0.11	0.031	10	05/28/2024 09:00	05/31/2024 22:09	J
Endrin Aldehyde	0.018 U	mg/Kg	0.11	0.018	10	05/28/2024 09:00	05/31/2024 22:09	J
Heptachlor	0.021 U	mg/Kg	0.11	0.021	10	05/28/2024 09:00	05/31/2024 22:09	J
Heptachlor Epoxide	0.015 U	mg/Kg	0.11	0.015	10	05/28/2024 09:00	05/31/2024 22:09	J
Methoxychlor	0.023 U	mg/Kg	0.11	0.023	10	05/28/2024 09:00	05/31/2024 22:09	J
Toxaphene	0.79 U	mg/Kg	1.1	0.79	10	05/28/2024 09:00	05/31/2024 22:09	J
alpha-BHC	0.019 U	mg/Kg	0.11	0.019	10	05/28/2024 09:00	05/31/2024 22:09	J
beta-BHC	0.013 U	mg/Kg	0.11	0.013	10	05/28/2024 09:00	05/31/2024 22:09	J
delta-BHC	0.013 U	mg/Kg	0.11	0.013	10	05/28/2024 09:00	05/31/2024 22:09	J
gamma-BHC (Lindane)	0.020 U	mg/Kg	0.11	0.020	10	05/28/2024 09:00	05/31/2024 22:09	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
2-Methylnaphthalene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Acenaphthene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Acenaphthylene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Anthracene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Benzo[a]anthracene	**0.031**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Benzo[a]pyrene	**0.053**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Benzo[b]fluoranthene	**0.090**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Benzo[g,h,i]perylene	**0.059**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Benzo[k]fluoranthene	**0.034**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489001 **Date Collected:** 05/21/2024 08:44 **Matrix:** Soil
Sample ID: PC-24-7 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	**0.053**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Dibenzo[a,h]anthracene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Fluoranthene	**0.074**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Fluorene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Indeno(1,2,3-cd)pyrene	**0.054**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Naphthalene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Phenanthrene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
Pyrene	**0.060**	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 00:58	J
(SM 2540G)								
Percent Moisture	**72**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Analysis Results Comments

Mercury

V|Method Blank Contamination

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.40	0.20	49	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.40	0.17	43	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.40	0.29	73	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6	3.30	55	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.30	66	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	78	66	85	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	160	120	80	42 - 129	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	78	82	106	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	160	120	76	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489002 **Date Collected:** 05/21/2024 09:17 **Matrix:** Soil
Sample ID: PC-24-8 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**4000**	mg/Kg	920	230	10	05/24/2024 11:23	06/03/2024 15:18	J
Arsenic	**1.6 I**	mg/Kg	4.6	1.1	1	05/24/2024 11:23	05/28/2024 16:53	J
Barium	**12**	mg/Kg	4.6	1.1	1	05/24/2024 11:23	05/28/2024 16:53	J
Cadmium	**0.15 I**	mg/Kg	0.46	0.11	1	05/24/2024 11:23	05/28/2024 16:53	J
Chromium	**12**	mg/Kg	1.8	0.46	1	05/24/2024 11:23	05/28/2024 16:53	J
Copper	**23**	mg/Kg	4.6	1.1	1	05/24/2024 11:23	05/28/2024 16:53	J
Lead	**9.7**	mg/Kg	4.6	1.1	1	05/24/2024 11:23	05/28/2024 16:53	J
Nickel	**3.3 I**	mg/Kg	4.6	1.1	1	05/24/2024 11:23	05/28/2024 16:53	J
Selenium	2.3 U	mg/Kg	9.2	2.3	1	05/24/2024 11:23	05/28/2024 16:53	J
Silver	0.46 U	mg/Kg	1.8	0.46	1	05/24/2024 11:23	05/28/2024 16:53	J
Zinc	**65 I**	mg/Kg	92	23	1	05/24/2024 11:23	05/28/2024 16:53	J
METALS (SW-846 7471A)								
Mercury	**0.054**	mg/Kg	0.011	0.0029	1	05/30/2024 11:41	05/30/2024 14:16	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
Aroclor 1221 (PCB-1221)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
Aroclor 1232 (PCB-1232)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
Aroclor 1242 (PCB-1242)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
Aroclor 1248 (PCB-1248)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
Aroclor 1254 (PCB-1254)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
Aroclor 1260 (PCB-1260)	0.52 U	mg/Kg	2.1	0.52	10	05/28/2024 09:00	05/31/2024 11:09	J
SEMIVOLATILES (FL-PRO)								
TPH	22 U	mg/Kg	38	22	1	05/24/2024 10:00	05/29/2024 17:25	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.011 U	mg/Kg	0.069	0.011	10	05/28/2024 09:00	05/31/2024 22:30	J
4,4`-DDE	0.0086 U	mg/Kg	0.069	0.0086	10	05/28/2024 09:00	05/31/2024 22:30	J
4,4`-DDT	0.019 U	mg/Kg	0.069	0.019	10	05/28/2024 09:00	05/31/2024 22:30	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489002 **Date Collected:** 05/21/2024 09:17 **Matrix:** Soil
Sample ID: PC-24-8 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.010 U	mg/Kg	0.069	0.010	10	05/28/2024 09:00	05/31/2024 22:30	J
Chlordane (technical)	0.28 U	mg/Kg	0.69	0.28	10	05/28/2024 09:00	05/31/2024 22:30	J
Dieldrin	0.0088 U	mg/Kg	0.069	0.0088	10	05/28/2024 09:00	05/31/2024 22:30	J
Endosulfan I	0.011 U	mg/Kg	0.069	0.011	10	05/28/2024 09:00	05/31/2024 22:30	J
Endosulfan II	0.0074 U	mg/Kg	0.069	0.0074	10	05/28/2024 09:00	05/31/2024 22:30	J
Endosulfan Sulfate	0.013 U	mg/Kg	0.069	0.013	10	05/28/2024 09:00	05/31/2024 22:30	J
Endrin	0.019 U	mg/Kg	0.069	0.019	10	05/28/2024 09:00	05/31/2024 22:30	J
Endrin Aldehyde	0.011 U	mg/Kg	0.069	0.011	10	05/28/2024 09:00	05/31/2024 22:30	J
Heptachlor	0.013 U	mg/Kg	0.069	0.013	10	05/28/2024 09:00	05/31/2024 22:30	J
Heptachlor Epoxide	0.0094 U	mg/Kg	0.069	0.0094	10	05/28/2024 09:00	05/31/2024 22:30	J
Methoxychlor	0.014 U	mg/Kg	0.069	0.014	10	05/28/2024 09:00	05/31/2024 22:30	J
Toxaphene	0.49 U	mg/Kg	0.69	0.49	10	05/28/2024 09:00	05/31/2024 22:30	J
alpha-BHC	0.012 U	mg/Kg	0.069	0.012	10	05/28/2024 09:00	05/31/2024 22:30	J
beta-BHC	0.0080 U	mg/Kg	0.069	0.0080	10	05/28/2024 09:00	05/31/2024 22:30	J
delta-BHC	0.0082 U	mg/Kg	0.069	0.0082	10	05/28/2024 09:00	05/31/2024 22:30	J
gamma-BHC (Lindane)	0.012 U	mg/Kg	0.069	0.012	10	05/28/2024 09:00	05/31/2024 22:30	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
2-Methylnaphthalene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Acenaphthene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Acenaphthylene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Anthracene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Benzo[a]anthracene	**0.012 I**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Benzo[a]pyrene	**0.019**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Benzo[b]fluoranthene	**0.034**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Benzo[g,h,i]perylene	**0.021**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Benzo[k]fluoranthene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489002 **Date Collected:** 05/21/2024 09:17 **Matrix:** Soil
Sample ID: PC-24-8 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	**0.020**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Dibenzo[a,h]anthracene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Fluoranthene	**0.028**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Fluorene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Indeno(1,2,3-cd)pyrene	**0.022**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Naphthalene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Phenanthrene	0.0089 U	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
Pyrene	**0.023**	mg/Kg	0.018	0.0089	1	05/24/2024 16:46	05/29/2024 01:24	J
(SM 2540G)								
Percent Moisture	**55**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.40	0.25	63	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.40	0.23	58	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.40	0.35	87	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6	4	67	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.70	85	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	78	71	91	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	160	110	71	42 - 129	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	78	87	112	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	160	130	86	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489003 **Date Collected:** 05/21/2024 09:34 **Matrix:** Soil
Sample ID: PC-24-6 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**19000**	mg/Kg	1300	330	10	05/24/2024 11:23	06/03/2024 15:21	J
Arsenic	1.6 U	mg/Kg	6.5	1.6	1	05/24/2024 11:23	05/28/2024 16:57	J
Barium	**51**	mg/Kg	6.5	1.6	1	05/24/2024 11:23	05/28/2024 16:57	J
Cadmium	**0.92**	mg/Kg	0.65	0.16	1	05/24/2024 11:23	05/28/2024 16:57	J
Chromium	**51**	mg/Kg	2.6	0.65	1	05/24/2024 11:23	05/28/2024 16:57	J
Copper	**110**	mg/Kg	6.5	1.6	1	05/24/2024 11:23	05/28/2024 16:57	J
Lead	**71**	mg/Kg	6.5	1.6	1	05/24/2024 11:23	05/28/2024 16:57	J
Nickel	**12**	mg/Kg	6.5	1.6	1	05/24/2024 11:23	05/28/2024 16:57	J
Selenium	3.3 U	mg/Kg	13	3.3	1	05/24/2024 11:23	05/28/2024 16:57	J
Silver	0.65 U	mg/Kg	2.6	0.65	1	05/24/2024 11:23	05/28/2024 16:57	J
Zinc	**200**	mg/Kg	130	33	1	05/24/2024 11:23	05/28/2024 16:57	J
METALS (SW-846 7471A)								
Mercury	**0.25**	mg/Kg	0.018	0.0044	1	05/28/2024 11:51	05/28/2024 17:58	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
Aroclor 1221 (PCB-1221)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
Aroclor 1232 (PCB-1232)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
Aroclor 1242 (PCB-1242)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
Aroclor 1248 (PCB-1248)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
Aroclor 1254 (PCB-1254)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
Aroclor 1260 (PCB-1260)	0.77 U	mg/Kg	3.1	0.77	10	05/28/2024 09:00	05/31/2024 11:30	J
SEMIVOLATILES (FL-PRO)								
TPH	31 U	mg/Kg	54	31	1	05/24/2024 10:00	05/29/2024 17:44	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.017 U	mg/Kg	0.10	0.017	10	05/28/2024 09:00	05/31/2024 22:50	J
4,4`-DDE	0.013 U	mg/Kg	0.10	0.013	10	05/28/2024 09:00	05/31/2024 22:50	J
4,4`-DDT	0.028 U	mg/Kg	0.10	0.028	10	05/28/2024 09:00	05/31/2024 22:50	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489003 **Date Collected:** 05/21/2024 09:34 **Matrix:** Soil
Sample ID: PC-24-6 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.015 U	mg/Kg	0.10	0.015	10	05/28/2024 09:00	05/31/2024 22:50	J
Chlordane (technical)	0.42 U	mg/Kg	1.0	0.42	10	05/28/2024 09:00	05/31/2024 22:50	J
Dieldrin	0.013 U	mg/Kg	0.10	0.013	10	05/28/2024 09:00	05/31/2024 22:50	J
Endosulfan I	0.016 U	mg/Kg	0.10	0.016	10	05/28/2024 09:00	05/31/2024 22:50	J
Endosulfan II	0.011 U	mg/Kg	0.10	0.011	10	05/28/2024 09:00	05/31/2024 22:50	J
Endosulfan Sulfate	0.019 U	mg/Kg	0.10	0.019	10	05/28/2024 09:00	05/31/2024 22:50	J
Endrin	0.028 U	mg/Kg	0.10	0.028	10	05/28/2024 09:00	05/31/2024 22:50	J
Endrin Aldehyde	0.017 U	mg/Kg	0.10	0.017	10	05/28/2024 09:00	05/31/2024 22:50	J
Heptachlor	0.019 U	mg/Kg	0.10	0.019	10	05/28/2024 09:00	05/31/2024 22:50	J
Heptachlor Epoxide	0.014 U	mg/Kg	0.10	0.014	10	05/28/2024 09:00	05/31/2024 22:50	J
Methoxychlor	0.021 U	mg/Kg	0.10	0.021	10	05/28/2024 09:00	05/31/2024 22:50	J
Toxaphene	0.73 U	mg/Kg	1.0	0.73	10	05/28/2024 09:00	05/31/2024 22:50	J
alpha-BHC	0.017 U	mg/Kg	0.10	0.017	10	05/28/2024 09:00	05/31/2024 22:50	J
beta-BHC	0.012 U	mg/Kg	0.10	0.012	10	05/28/2024 09:00	05/31/2024 22:50	J
delta-BHC	0.012 U	mg/Kg	0.10	0.012	10	05/28/2024 09:00	05/31/2024 22:50	J
gamma-BHC (Lindane)	0.018 U	mg/Kg	0.10	0.018	10	05/28/2024 09:00	05/31/2024 22:50	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
2-Methylnaphthalene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Acenaphthene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Acenaphthylene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Anthracene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Benzo[a]anthracene	**0.019 I**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Benzo[a]pyrene	**0.030**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Benzo[b]fluoranthene	**0.049**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Benzo[g,h,i]perylene	**0.030**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Benzo[k]fluoranthene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489003 **Date Collected:** 05/21/2024 09:34 **Matrix:** Soil
Sample ID: PC-24-6 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	**0.029**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Dibenzo[a,h]anthracene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Fluoranthene	**0.033**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Fluorene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Indeno(1,2,3-cd)pyrene	**0.030**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Naphthalene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Phenanthrene	0.013 U	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
Pyrene	**0.032**	mg/Kg	0.025	0.013	1	05/24/2024 16:46	05/29/2024 01:51	J
(SM 2540G)								
Percent Moisture	**69**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Analysis Results Comments

Mercury

V|Method Blank Contamination

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
p-Terphenyl-d14 (S)	mg/Kg	0.39	0.36	92	42 - 141	J
2-Fluorobiphenyl (S)	mg/Kg	0.39	0.26	65	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.39	0.23	58	33 - 134	J
Nonatricontane-C39 (S)	mg/Kg	5.90	3.80	64	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.50	76	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	80	69	86	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	160	88	55	42 - 129	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	80	92	115	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	160	130	80	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489004 **Date Collected:** 05/21/2024 09:55 **Matrix:** Soil
Sample ID: PC-24-5 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**19000**	mg/Kg	1300	330	10	05/24/2024 11:23	06/03/2024 15:25	J
Arsenic	**1.8 I**	mg/Kg	6.6	1.6	1	05/24/2024 11:23	05/28/2024 17:01	J
Barium	**45**	mg/Kg	6.6	1.6	1	05/24/2024 11:23	05/28/2024 17:01	J
Cadmium	**0.67**	mg/Kg	0.66	0.16	1	05/24/2024 11:23	05/28/2024 17:01	J
Chromium	**49**	mg/Kg	2.6	0.66	1	05/24/2024 11:23	05/28/2024 17:01	J
Copper	**92**	mg/Kg	6.6	1.6	1	05/24/2024 11:23	05/28/2024 17:01	J
Lead	**67**	mg/Kg	6.6	1.6	1	05/24/2024 11:23	05/28/2024 17:01	J
Nickel	**11**	mg/Kg	6.6	1.6	1	05/24/2024 11:23	05/28/2024 17:01	J
Selenium	3.3 U	mg/Kg	13	3.3	1	05/24/2024 11:23	05/28/2024 17:01	J
Silver	0.66 U	mg/Kg	2.6	0.66	1	05/24/2024 11:23	05/28/2024 17:01	J
Zinc	**180**	mg/Kg	130	33	1	05/24/2024 11:23	05/28/2024 17:01	J
METALS (SW-846 7471A)								
Mercury	**0.23**	mg/Kg	0.016	0.0040	1	05/28/2024 11:51	05/28/2024 18:01	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
Aroclor 1221 (PCB-1221)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
Aroclor 1232 (PCB-1232)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
Aroclor 1242 (PCB-1242)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
Aroclor 1248 (PCB-1248)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
Aroclor 1254 (PCB-1254)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
Aroclor 1260 (PCB-1260)	0.73 U	mg/Kg	2.9	0.73	10	05/28/2024 09:00	05/31/2024 11:50	J
SEMIVOLATILES (FL-PRO)								
TPH	32 U	mg/Kg	55	32	1	05/24/2024 10:00	05/29/2024 18:03	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.016 U	mg/Kg	0.098	0.016	10	05/28/2024 09:00	05/31/2024 23:11	J
4,4`-DDE	0.012 U	mg/Kg	0.098	0.012	10	05/28/2024 09:00	05/31/2024 23:11	J
4,4`-DDT	0.027 U	mg/Kg	0.098	0.027	10	05/28/2024 09:00	05/31/2024 23:11	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489004 **Date Collected:** 05/21/2024 09:55 **Matrix:** Soil
Sample ID: PC-24-5 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.015 U	mg/Kg	0.098	0.015	10	05/28/2024 09:00	05/31/2024 23:11	J
Chlordane (technical)	0.40 U	mg/Kg	0.98	0.40	10	05/28/2024 09:00	05/31/2024 23:11	J
Dieldrin	0.012 U	mg/Kg	0.098	0.012	10	05/28/2024 09:00	05/31/2024 23:11	J
Endosulfan I	0.015 U	mg/Kg	0.098	0.015	10	05/28/2024 09:00	05/31/2024 23:11	J
Endosulfan II	0.010 U	mg/Kg	0.098	0.010	10	05/28/2024 09:00	05/31/2024 23:11	J
Endosulfan Sulfate	0.018 U	mg/Kg	0.098	0.018	10	05/28/2024 09:00	05/31/2024 23:11	J
Endrin	0.027 U	mg/Kg	0.098	0.027	10	05/28/2024 09:00	05/31/2024 23:11	J
Endrin Aldehyde	0.016 U	mg/Kg	0.098	0.016	10	05/28/2024 09:00	05/31/2024 23:11	J
Heptachlor	0.018 U	mg/Kg	0.098	0.018	10	05/28/2024 09:00	05/31/2024 23:11	J
Heptachlor Epoxide	0.013 U	mg/Kg	0.098	0.013	10	05/28/2024 09:00	05/31/2024 23:11	J
Methoxychlor	0.020 U	mg/Kg	0.098	0.020	10	05/28/2024 09:00	05/31/2024 23:11	J
Toxaphene	0.69 U	mg/Kg	0.98	0.69	10	05/28/2024 09:00	05/31/2024 23:11	J
alpha-BHC	0.016 U	mg/Kg	0.098	0.016	10	05/28/2024 09:00	05/31/2024 23:11	J
beta-BHC	0.011 U	mg/Kg	0.098	0.011	10	05/28/2024 09:00	05/31/2024 23:11	J
delta-BHC	0.012 U	mg/Kg	0.098	0.012	10	05/28/2024 09:00	05/31/2024 23:11	J
gamma-BHC (Lindane)	0.017 U	mg/Kg	0.098	0.017	10	05/28/2024 09:00	05/31/2024 23:11	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
2-Methylnaphthalene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Acenaphthene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Acenaphthylene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Anthracene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Benzo[a]anthracene	**0.019 I**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Benzo[a]pyrene	**0.029**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Benzo[b]fluoranthene	**0.054**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Benzo[g,h,i]perylene	**0.034**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Benzo[k]fluoranthene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489004 **Date Collected:** 05/21/2024 09:55 **Matrix:** Soil
Sample ID: PC-24-5 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	**0.031**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Dibenzo[a,h]anthracene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Fluoranthene	**0.034**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Fluorene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Indeno(1,2,3-cd)pyrene	**0.032**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Naphthalene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Phenanthrene	0.013 U	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
Pyrene	**0.029**	mg/Kg	0.026	0.013	1	05/24/2024 16:46	05/29/2024 02:18	J
(SM 2540G)								
Percent Moisture	**69**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Analysis Results Comments

Mercury

V|Method Blank Contamination

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.40	0.26	64	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.40	0.25	63	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.40	0.32	79	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6.10	3.50	58	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.40	70	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	77	70	91	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	150	100	65	42 - 129	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	77	90	117	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	150	150	96	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489005 **Date Collected:** 05/21/2024 10:29 **Matrix:** Soil
Sample ID: PC-24-4 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**24000**	mg/Kg	1500	370	10	05/24/2024 11:23	06/03/2024 15:28	J
Arsenic	**2.0 I**	mg/Kg	7.5	1.9	1	05/24/2024 11:23	05/28/2024 17:04	J
Barium	**52**	mg/Kg	7.5	1.9	1	05/24/2024 11:23	05/28/2024 17:04	J
Cadmium	**0.73 I**	mg/Kg	0.75	0.19	1	05/24/2024 11:23	05/28/2024 17:04	J
Chromium	**61**	mg/Kg	3.0	0.75	1	05/24/2024 11:23	05/28/2024 17:04	J
Copper	**91**	mg/Kg	7.5	1.9	1	05/24/2024 11:23	05/28/2024 17:04	J
Lead	**59**	mg/Kg	7.5	1.9	1	05/24/2024 11:23	05/28/2024 17:04	J
Nickel	**14**	mg/Kg	7.5	1.9	1	05/24/2024 11:23	05/28/2024 17:04	J
Selenium	3.7 U	mg/Kg	15	3.7	1	05/24/2024 11:23	05/28/2024 17:04	J
Silver	0.75 U	mg/Kg	3.0	0.75	1	05/24/2024 11:23	05/28/2024 17:04	J
Zinc	**120 I**	mg/Kg	150	37	1	05/24/2024 11:23	05/28/2024 17:04	J
METALS (SW-846 7471A)								
Mercury	**0.35**	mg/Kg	0.019	0.0047	1	05/28/2024 11:51	05/28/2024 18:04	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
Aroclor 1221 (PCB-1221)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
Aroclor 1232 (PCB-1232)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
Aroclor 1242 (PCB-1242)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
Aroclor 1248 (PCB-1248)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
Aroclor 1254 (PCB-1254)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
Aroclor 1260 (PCB-1260)	0.87 U	mg/Kg	3.5	0.87	10	05/28/2024 09:00	05/31/2024 12:11	J
SEMIVOLATILES (FL-PRO)								
TPH	35 U	mg/Kg	61	35	1	05/24/2024 10:00	05/29/2024 18:21	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.019 U	mg/Kg	0.12	0.019	10	05/28/2024 09:00	05/31/2024 23:32	J
4,4`-DDE	0.014 U	mg/Kg	0.12	0.014	10	05/28/2024 09:00	05/31/2024 23:32	J
4,4`-DDT	0.032 U	mg/Kg	0.12	0.032	10	05/28/2024 09:00	05/31/2024 23:32	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489005 **Date Collected:** 05/21/2024 10:29 **Matrix:** Soil
Sample ID: PC-24-4 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.017 U	mg/Kg	0.12	0.017	10	05/28/2024 09:00	05/31/2024 23:32	J
Chlordane (technical)	0.47 U	mg/Kg	1.2	0.47	10	05/28/2024 09:00	05/31/2024 23:32	J
Dieldrin	0.015 U	mg/Kg	0.12	0.015	10	05/28/2024 09:00	05/31/2024 23:32	J
Endosulfan I	0.018 U	mg/Kg	0.12	0.018	10	05/28/2024 09:00	05/31/2024 23:32	J
Endosulfan II	0.012 U	mg/Kg	0.12	0.012	10	05/28/2024 09:00	05/31/2024 23:32	J
Endosulfan Sulfate	0.021 U	mg/Kg	0.12	0.021	10	05/28/2024 09:00	05/31/2024 23:32	J
Endrin	0.032 U	mg/Kg	0.12	0.032	10	05/28/2024 09:00	05/31/2024 23:32	J
Endrin Aldehyde	0.019 U	mg/Kg	0.12	0.019	10	05/28/2024 09:00	05/31/2024 23:32	J
Heptachlor	0.021 U	mg/Kg	0.12	0.021	10	05/28/2024 09:00	05/31/2024 23:32	J
Heptachlor Epoxide	0.016 U	mg/Kg	0.12	0.016	10	05/28/2024 09:00	05/31/2024 23:32	J
Methoxychlor	0.023 U	mg/Kg	0.12	0.023	10	05/28/2024 09:00	05/31/2024 23:32	J
Toxaphene	0.81 U	mg/Kg	1.2	0.81	10	05/28/2024 09:00	05/31/2024 23:32	J
alpha-BHC	0.019 U	mg/Kg	0.12	0.019	10	05/28/2024 09:00	05/31/2024 23:32	J
beta-BHC	0.013 U	mg/Kg	0.12	0.013	10	05/28/2024 09:00	05/31/2024 23:32	J
delta-BHC	0.014 U	mg/Kg	0.12	0.014	10	05/28/2024 09:00	05/31/2024 23:32	J
gamma-BHC (Lindane)	0.020 U	mg/Kg	0.12	0.020	10	05/28/2024 09:00	05/31/2024 23:32	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
2-Methylnaphthalene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Acenaphthene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Acenaphthylene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Anthracene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Benzo[a]anthracene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Benzo[a]pyrene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Benzo[b]fluoranthene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Benzo[g,h,i]perylene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Benzo[k]fluoranthene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489005 **Date Collected:** 05/21/2024 10:29 **Matrix:** Soil
Sample ID: PC-24-4 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Dibenzo[a,h]anthracene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Fluoranthene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Fluorene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Indeno(1,2,3-cd)pyrene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Naphthalene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Phenanthrene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
Pyrene	0.014 U	mg/Kg	0.029	0.014	1	05/24/2024 16:46	05/29/2024 02:45	J
(SM 2540G)								
Percent Moisture	**72**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Analysis Results Comments

Mercury

V|Method Blank Contamination

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.40	0.32	80	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.40	0.30	75	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.40	0.36	91	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6	4.20	70	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.70	84	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	80	84	105	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	160	130	84	42 - 129	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	80	87	109	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	160	150	94	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489006 **Date Collected:** 05/21/2024 10:48 **Matrix:** Soil
Sample ID: PC-24-3 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**3700**	mg/Kg	550	140	10	05/24/2024 11:23	06/03/2024 15:32	J
Arsenic	**1.6 I**	mg/Kg	2.7	0.68	1	05/24/2024 11:23	05/28/2024 17:15	J
Barium	**7.7**	mg/Kg	2.7	0.68	1	05/24/2024 11:23	05/28/2024 17:15	J
Cadmium	**0.068 I**	mg/Kg	0.27	0.068	1	05/24/2024 11:23	05/28/2024 17:15	J
Chromium	**9.2**	mg/Kg	1.1	0.27	1	05/24/2024 11:23	05/28/2024 17:15	J
Copper	**23**	mg/Kg	2.7	0.68	1	05/24/2024 11:23	05/28/2024 17:15	J
Lead	**11**	mg/Kg	2.7	0.68	1	05/24/2024 11:23	05/28/2024 17:15	J
Nickel	**2.1 I**	mg/Kg	2.7	0.68	1	05/24/2024 11:23	05/28/2024 17:15	J
Selenium	1.4 U	mg/Kg	5.5	1.4	1	05/24/2024 11:23	05/28/2024 17:15	J
Silver	0.27 U	mg/Kg	1.1	0.27	1	05/24/2024 11:23	05/28/2024 17:15	J
Zinc	**16 I**	mg/Kg	55	14	1	05/24/2024 11:23	05/28/2024 17:15	J
METALS (SW-846 7471A)								
Mercury	**0.037**	mg/Kg	0.0064	0.0016	1	05/30/2024 11:41	05/30/2024 14:25	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
Aroclor 1221 (PCB-1221)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
Aroclor 1232 (PCB-1232)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
Aroclor 1242 (PCB-1242)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
Aroclor 1248 (PCB-1248)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
Aroclor 1254 (PCB-1254)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
Aroclor 1260 (PCB-1260)	0.17 U	mg/Kg	0.67	0.17	5	05/28/2024 09:00	05/31/2024 12:32	J
SEMIVOLATILES (FL-PRO)								
TPH	14 U	mg/Kg	24	14	1	05/24/2024 10:00	05/29/2024 19:54	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.0073 U	mg/Kg	0.045	0.0073	10	05/28/2024 09:00	05/31/2024 23:52	J
4,4`-DDE	0.0056 U	mg/Kg	0.045	0.0056	10	05/28/2024 09:00	05/31/2024 23:52	J
4,4`-DDT	0.012 U	mg/Kg	0.045	0.012	10	05/28/2024 09:00	05/31/2024 23:52	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489006 **Date Collected:** 05/21/2024 10:48 **Matrix:** Soil
Sample ID: PC-24-3 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.0067 U	mg/Kg	0.045	0.0067	10	05/28/2024 09:00	05/31/2024 23:52	J
Chlordane (technical)	0.18 U	mg/Kg	0.45	0.18	10	05/28/2024 09:00	05/31/2024 23:52	J
Dieldrin	0.0057 U	mg/Kg	0.045	0.0057	10	05/28/2024 09:00	05/31/2024 23:52	J
Endosulfan I	0.0070 U	mg/Kg	0.045	0.0070	10	05/28/2024 09:00	05/31/2024 23:52	J
Endosulfan II	0.0048 U	mg/Kg	0.045	0.0048	10	05/28/2024 09:00	05/31/2024 23:52	J
Endosulfan Sulfate	0.0082 U	mg/Kg	0.045	0.0082	10	05/28/2024 09:00	05/31/2024 23:52	J
Endrin	0.012 U	mg/Kg	0.045	0.012	10	05/28/2024 09:00	05/31/2024 23:52	J
Endrin Aldehyde	0.0074 U	mg/Kg	0.045	0.0074	10	05/28/2024 09:00	05/31/2024 23:52	J
Heptachlor	0.0084 U	mg/Kg	0.045	0.0084	10	05/28/2024 09:00	05/31/2024 23:52	J
Heptachlor Epoxide	0.0062 U	mg/Kg	0.045	0.0062	10	05/28/2024 09:00	05/31/2024 23:52	J
Methoxychlor	0.0091 U	mg/Kg	0.045	0.0091	10	05/28/2024 09:00	05/31/2024 23:52	J
Toxaphene	0.32 U	mg/Kg	0.45	0.32	10	05/28/2024 09:00	05/31/2024 23:52	J
alpha-BHC	0.0075 U	mg/Kg	0.045	0.0075	10	05/28/2024 09:00	05/31/2024 23:52	J
beta-BHC	0.0052 U	mg/Kg	0.045	0.0052	10	05/28/2024 09:00	05/31/2024 23:52	J
delta-BHC	0.0053 U	mg/Kg	0.045	0.0053	10	05/28/2024 09:00	05/31/2024 23:52	J
gamma-BHC (Lindane)	0.0079 U	mg/Kg	0.045	0.0079	10	05/28/2024 09:00	05/31/2024 23:52	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
2-Methylnaphthalene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Acenaphthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Acenaphthylene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Anthracene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Benzo[a]anthracene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Benzo[a]pyrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Benzo[b]fluoranthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Benzo[g,h,i]perylene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Benzo[k]fluoranthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489006 **Date Collected:** 05/21/2024 10:48 **Matrix:** Soil
Sample ID: PC-24-3 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Dibenzo[a,h]anthracene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Fluoranthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Fluorene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Indeno(1,2,3-cd)pyrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Naphthalene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Phenanthrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
Pyrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:12	J
(SM 2540G)								
Percent Moisture	**28**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.40	0.34	84	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.40	0.32	80	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.40	0.38	94	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6	4.60	76	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.80	89	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	81	77	96	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	160	120	77	42 - 129	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	81	71	89	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	160	150	95	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489007 **Date Collected:** 05/21/2024 11:10 **Matrix:** Soil
Sample ID: PC-24-2 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**1400**	mg/Kg	570	140	10	05/24/2024 11:23	06/03/2024 15:35	J
Arsenic	**1.5 I**	mg/Kg	2.9	0.71	1	05/24/2024 11:23	05/28/2024 17:19	J
Barium	**3.5**	mg/Kg	2.9	0.71	1	05/24/2024 11:23	05/28/2024 17:19	J
Cadmium	0.071 U	mg/Kg	0.29	0.071	1	05/24/2024 11:23	05/28/2024 17:19	J
Chromium	**4.4**	mg/Kg	1.1	0.29	1	05/24/2024 11:23	05/28/2024 17:19	J
Copper	**5.8**	mg/Kg	2.9	0.71	1	05/24/2024 11:23	05/28/2024 17:19	J
Lead	**3.0**	mg/Kg	2.9	0.71	1	05/24/2024 11:23	05/28/2024 17:19	J
Nickel	**1.0 I**	mg/Kg	2.9	0.71	1	05/24/2024 11:23	05/28/2024 17:19	J
Selenium	1.4 U	mg/Kg	5.7	1.4	1	05/24/2024 11:23	05/28/2024 17:19	J
Silver	0.29 U	mg/Kg	1.1	0.29	1	05/24/2024 11:23	05/28/2024 17:19	J
Zinc	14 U	mg/Kg	57	14	1	05/24/2024 11:23	05/28/2024 17:19	J
METALS (SW-846 7471A)								
Mercury	**0.015**	mg/Kg	0.0073	0.0018	1	05/30/2024 11:41	05/30/2024 14:27	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
Aroclor 1221 (PCB-1221)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
Aroclor 1232 (PCB-1232)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
Aroclor 1242 (PCB-1242)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
Aroclor 1248 (PCB-1248)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
Aroclor 1254 (PCB-1254)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
Aroclor 1260 (PCB-1260)	0.31 U	mg/Kg	1.2	0.31	10	05/28/2024 09:00	05/31/2024 12:53	J
SEMIVOLATILES (FL-PRO)								
TPH	14 U	mg/Kg	24	14	1	05/24/2024 10:00	05/29/2024 20:12	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.0067 U	mg/Kg	0.042	0.0067	10	05/28/2024 09:00	06/01/2024 00:13	J
4,4`-DDE	0.0052 U	mg/Kg	0.042	0.0052	10	05/28/2024 09:00	06/01/2024 00:13	J
4,4`-DDT	0.011 U	mg/Kg	0.042	0.011	10	05/28/2024 09:00	06/01/2024 00:13	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489007 **Date Collected:** 05/21/2024 11:10 **Matrix:** Soil
Sample ID: PC-24-2 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.0061 U	mg/Kg	0.042	0.0061	10	05/28/2024 09:00	06/01/2024 00:13	J
Chlordane (technical)	0.17 U	mg/Kg	0.42	0.17	10	05/28/2024 09:00	06/01/2024 00:13	J
Dieldrin	0.0053 U	mg/Kg	0.042	0.0053	10	05/28/2024 09:00	06/01/2024 00:13	J
Endosulfan I	0.0065 U	mg/Kg	0.042	0.0065	10	05/28/2024 09:00	06/01/2024 00:13	J
Endosulfan II	0.0044 U	mg/Kg	0.042	0.0044	10	05/28/2024 09:00	06/01/2024 00:13	J
Endosulfan Sulfate	0.0076 U	mg/Kg	0.042	0.0076	10	05/28/2024 09:00	06/01/2024 00:13	J
Endrin	0.011 U	mg/Kg	0.042	0.011	10	05/28/2024 09:00	06/01/2024 00:13	J
Endrin Aldehyde	0.0068 U	mg/Kg	0.042	0.0068	10	05/28/2024 09:00	06/01/2024 00:13	J
Heptachlor	0.0077 U	mg/Kg	0.042	0.0077	10	05/28/2024 09:00	06/01/2024 00:13	J
Heptachlor Epoxide	0.0057 U	mg/Kg	0.042	0.0057	10	05/28/2024 09:00	06/01/2024 00:13	J
Methoxychlor	0.0084 U	mg/Kg	0.042	0.0084	10	05/28/2024 09:00	06/01/2024 00:13	J
Toxaphene	0.29 U	mg/Kg	0.42	0.29	10	05/28/2024 09:00	06/01/2024 00:13	J
alpha-BHC	0.0070 U	mg/Kg	0.042	0.0070	10	05/28/2024 09:00	06/01/2024 00:13	J
beta-BHC	0.0048 U	mg/Kg	0.042	0.0048	10	05/28/2024 09:00	06/01/2024 00:13	J
delta-BHC	0.0049 U	mg/Kg	0.042	0.0049	10	05/28/2024 09:00	06/01/2024 00:13	J
gamma-BHC (Lindane)	0.0073 U	mg/Kg	0.042	0.0073	10	05/28/2024 09:00	06/01/2024 00:13	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
2-Methylnaphthalene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Acenaphthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Acenaphthylene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Anthracene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Benzo[a]anthracene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Benzo[a]pyrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Benzo[b]fluoranthene	**0.0066 I**	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Benzo[g,h,i]perylene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Benzo[k]fluoranthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489007 **Date Collected:** 05/21/2024 11:10 **Matrix:** Soil
Sample ID: PC-24-2 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Dibenzo[a,h]anthracene	**0.0056 I**	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Fluoranthene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Fluorene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Indeno(1,2,3-cd)pyrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Naphthalene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Phenanthrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
Pyrene	0.0056 U	mg/Kg	0.011	0.0056	1	05/24/2024 16:46	05/29/2024 03:38	J
(SM 2540G)								
Percent Moisture	**27**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.41	0.30	74	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.41	0.27	68	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.41	0.33	80	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6.10	3.70	60	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.70	83	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	76	87	115	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	150	120	79	42 - 129	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	76	91	120	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	150	170	112	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489008 **Date Collected:** 05/21/2024 11:35 **Matrix:** Soil
Sample ID: PC-24-1 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
METALS (SW-846 3050B/SW-846 6010)								
Aluminum	**2000**	mg/Kg	570	140	10	05/24/2024 11:23	06/03/2024 15:39	J
Arsenic	0.71 U	mg/Kg	2.8	0.71	1	05/24/2024 11:23	05/28/2024 17:22	J
Barium	**5.3**	mg/Kg	2.8	0.71	1	05/24/2024 11:23	05/28/2024 17:22	J
Cadmium	0.071 U	mg/Kg	0.28	0.071	1	05/24/2024 11:23	05/28/2024 17:22	J
Chromium	**6.2**	mg/Kg	1.1	0.28	1	05/24/2024 11:23	05/28/2024 17:22	J
Copper	**13**	mg/Kg	2.8	0.71	1	05/24/2024 11:23	05/28/2024 17:22	J
Lead	**4.9**	mg/Kg	2.8	0.71	1	05/24/2024 11:23	05/28/2024 17:22	J
Nickel	**1.5 I**	mg/Kg	2.8	0.71	1	05/24/2024 11:23	05/28/2024 17:22	J
Selenium	1.4 U	mg/Kg	5.7	1.4	1	05/24/2024 11:23	05/28/2024 17:22	J
Silver	0.28 U	mg/Kg	1.1	0.28	1	05/24/2024 11:23	05/28/2024 17:22	J
Zinc	**25 I**	mg/Kg	57	14	1	05/24/2024 11:23	05/28/2024 17:22	J
METALS (SW-846 7471A)								
Mercury	**0.021**	mg/Kg	0.0070	0.0017	1	05/30/2024 11:41	05/30/2024 14:30	J
SEMIVOLATILES (EPA 3546/SW-846 8082A)								
Aroclor 1016 (PCB-1016)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
Aroclor 1221 (PCB-1221)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
Aroclor 1232 (PCB-1232)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
Aroclor 1242 (PCB-1242)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
Aroclor 1248 (PCB-1248)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
Aroclor 1254 (PCB-1254)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
Aroclor 1260 (PCB-1260)	0.37 U	mg/Kg	1.5	0.37	10	05/28/2024 09:00	05/31/2024 13:14	J
SEMIVOLATILES (FL-PRO)								
TPH	15 U	mg/Kg	25	15	1	05/24/2024 10:00	05/29/2024 20:31	J
SEMIVOLATILES (SW-846 3550B/EPA 8081)								
4,4`-DDD	0.0080 U	mg/Kg	0.049	0.0080	10	05/28/2024 09:00	06/01/2024 00:34	J
4,4`-DDE	0.0062 U	mg/Kg	0.049	0.0062	10	05/28/2024 09:00	06/01/2024 00:34	J
4,4`-DDT	0.014 U	mg/Kg	0.049	0.014	10	05/28/2024 09:00	06/01/2024 00:34	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489008 **Date Collected:** 05/21/2024 11:35 **Matrix:** Soil
Sample ID: PC-24-1 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Aldrin	0.0073 U	mg/Kg	0.049	0.0073	10	05/28/2024 09:00	06/01/2024 00:34	J
Chlordane (technical)	0.20 U	mg/Kg	0.49	0.20	10	05/28/2024 09:00	06/01/2024 00:34	J
Dieldrin	0.0063 U	mg/Kg	0.049	0.0063	10	05/28/2024 09:00	06/01/2024 00:34	J
Endosulfan I	0.0077 U	mg/Kg	0.049	0.0077	10	05/28/2024 09:00	06/01/2024 00:34	J
Endosulfan II	0.0053 U	mg/Kg	0.049	0.0053	10	05/28/2024 09:00	06/01/2024 00:34	J
Endosulfan Sulfate	0.0090 U	mg/Kg	0.049	0.0090	10	05/28/2024 09:00	06/01/2024 00:34	J
Endrin	0.014 U	mg/Kg	0.049	0.014	10	05/28/2024 09:00	06/01/2024 00:34	J
Endrin Aldehyde	0.0081 U	mg/Kg	0.049	0.0081	10	05/28/2024 09:00	06/01/2024 00:34	J
Heptachlor	0.0092 U	mg/Kg	0.049	0.0092	10	05/28/2024 09:00	06/01/2024 00:34	J
Heptachlor Epoxide	0.0068 U	mg/Kg	0.049	0.0068	10	05/28/2024 09:00	06/01/2024 00:34	J
Methoxychlor	0.010 U	mg/Kg	0.049	0.010	10	05/28/2024 09:00	06/01/2024 00:34	J
Toxaphene	0.35 U	mg/Kg	0.49	0.35	10	05/28/2024 09:00	06/01/2024 00:34	J
alpha-BHC	0.0083 U	mg/Kg	0.049	0.0083	10	05/28/2024 09:00	06/01/2024 00:34	J
beta-BHC	0.0057 U	mg/Kg	0.049	0.0057	10	05/28/2024 09:00	06/01/2024 00:34	J
delta-BHC	0.0058 U	mg/Kg	0.049	0.0058	10	05/28/2024 09:00	06/01/2024 00:34	J
gamma-BHC (Lindane)	0.0087 U	mg/Kg	0.049	0.0087	10	05/28/2024 09:00	06/01/2024 00:34	J
SEMIVOLATILES (SW-846 3550B/SW-846 8270C (SIM))								
1-Methylnaphthalene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
2-Methylnaphthalene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Acenaphthene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Acenaphthylene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Anthracene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Benzo[a]anthracene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Benzo[a]pyrene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Benzo[b]fluoranthene	**0.011 I**	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Benzo[g,h,i]perylene	**0.0072 I**	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Benzo[k]fluoranthene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Lab ID: J2407489008 **Date Collected:** 05/21/2024 11:35 **Matrix:** Soil
Sample ID: PC-24-1 **Date Received:** 05/22/2024 10:21

Parameter	Results	Units	PQL	MDL	DF	Prepared	Analyzed	Lab
Chrysene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Dibenzo[a,h]anthracene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Fluoranthene	**0.0060 I**	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Fluorene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Indeno(1,2,3-cd)pyrene	**0.0065 I**	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Naphthalene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Phenanthrene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
Pyrene	0.0059 U	mg/Kg	0.012	0.0059	1	05/24/2024 16:46	05/29/2024 04:05	J
(SM 2540G)								
Percent Moisture	**33**	%	0.0010	0.0010	1	05/28/2024 15:44	05/28/2024 15:44	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/Kg	0.40	0.21	53	37 - 127	J
Nitrobenzene-d5 (S)	mg/Kg	0.40	0.19	48	33 - 134	J
p-Terphenyl-d14 (S)	mg/Kg	0.40	0.28	71	42 - 141	J
Nonatricontane-C39 (S)	mg/Kg	6	3	51	36 - 132	J
o-Terphenyl (S)	mg/Kg	2	1.40	71	66 - 136	J
Decachlorobiphenyl (S)	ug/Kg	83	78	94	63 - 130	J
Tetrachloro-m-xylene (S)	ug/Kg	170	110	64	42 - 129	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

Analytical Results

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	ug/Kg	83	81	97	61 - 147	J
Tetrachloro-m-xylene (S)	ug/Kg	170	170	100	44 - 130	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: CVAj/2440 **Analysis Method:** SW-846 7471A
Preparation Method: SW-846 7471A
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Method Blank(5322873)

Parameter	Results	Units	PQL	MDL	Lab
Mercury	**0.0021 I**	mg/Kg	0.0050	0.0012	J

Lab Control Sample (5322874)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Mercury	mg/Kg	0.10	0.11	111	80 - 120	J

QC Result Comments

Method Blank - 5322873 - Mercury

V|Method Blank Contamination

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: CVAj/2443 **Analysis Method:** SW-846 7471A
Preparation Method: SW-846 7471A
Associated Lab IDs: J2407489002, J2407489006, J2407489007, J2407489008

Method Blank(5326298)

Parameter	Results	Units	PQL	MDL	Lab
Mercury	0.0012 U	mg/Kg	0.0050	0.0012	J

Lab Control Sample (5326299)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Mercury	mg/Kg	0.10	0.1	101	80 - 120	J

Matrix Spike (5326300); Matrix Spike Duplicate (5326301); Original (S2401324007); Parent Lab Sample (S2401324007)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Mercury	mg/Kg	0.0920	0.11	103	80 - 120	0.11	101	8	20	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: GCSj/6434 **Analysis Method:** EPA 8081
Preparation Method: SW-846 3550B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Method Blank(5324200)

Parameter	Results	Units	PQL	MDL	Lab
alpha-BHC	0.00054 U	mg/Kg	0.0032	0.00054	J
gamma-BHC (Lindane)	0.00057 U	mg/Kg	0.0032	0.00057	J
beta-BHC	0.00037 U	mg/Kg	0.0032	0.00037	J
delta-BHC	0.00038 U	mg/Kg	0.0032	0.00038	J
Heptachlor	0.00060 U	mg/Kg	0.0032	0.00060	J
Aldrin	0.00048 U	mg/Kg	0.0032	0.00048	J
Heptachlor Epoxide	0.00044 U	mg/Kg	0.0032	0.00044	J
Endosulfan I	0.00050 U	mg/Kg	0.0032	0.00050	J
4,4`-DDE	0.00040 U	mg/Kg	0.0032	0.00040	J
Dieldrin	0.00041 U	mg/Kg	0.0032	0.00041	J
Endrin	0.00089 U	mg/Kg	0.0032	0.00089	J
4,4`-DDD	0.00052 U	mg/Kg	0.0032	0.00052	J
Endosulfan II	0.00035 U	mg/Kg	0.0032	0.00035	J
Endrin Aldehyde	0.00053 U	mg/Kg	0.0032	0.00053	J
4,4`-DDT	0.00089 U	mg/Kg	0.0032	0.00089	J
Endosulfan Sulfate	0.00059 U	mg/Kg	0.0032	0.00059	J
Methoxychlor	0.00065 U	mg/Kg	0.0032	0.00065	J
Chlordane (technical)	0.013 U	mg/Kg	0.032	0.013	J
Toxaphene	0.023 U	mg/Kg	0.032	0.023	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	mg/L	0.0810	0.0590	73	63 - 130	J
Tetrachloro-m-xylene (S)	mg/L	0.16	0.0770	48	42 - 129	J

Lab Control Sample (5324201)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
alpha-BHC	mg/Kg	0.0160	0.017	110	45 - 137	J
gamma-BHC (Lindane)	mg/Kg	0.0160	0.016	105	49 - 135	J
beta-BHC	mg/Kg	0.0160	0.016	100	50 - 136	J
delta-BHC	mg/Kg	0.0160	0.016	103	47 - 139	J
Heptachlor	mg/Kg	0.0160	0.015	98	47 - 136	J
Aldrin	mg/Kg	0.0160	0.014	88	45 - 136	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Batch: GCSj/6434 **Analysis Method:** EPA 8081
Preparation Method: SW-846 3550B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Heptachlor Epoxide	mg/Kg	0.0160	0.014	91	52 - 136	J
Endosulfan I	mg/Kg	0.0160	0.015	98	53 - 132	J
4,4`-DDE	mg/Kg	0.0160	0.014	92	56 - 134	J
Dieldrin	mg/Kg	0.0160	0.015	95	56 - 136	J
Endrin	mg/Kg	0.0160	0.015	94	57 - 140	J
4,4`-DDD	mg/Kg	0.0160	0.015	99	56 - 139	J
Endosulfan II	mg/Kg	0.0160	0.013	84	53 - 134	J
Endrin Aldehyde	mg/Kg	0.0160	0.016	100	35 - 137	J
4,4`-DDT	mg/Kg	0.0160	0.016	101	50 - 141	J
Endosulfan Sulfate	mg/Kg	0.0160	0.014	90	55 - 136	J
Methoxychlor	mg/Kg	0.0160	0.019	119	52 - 143	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	mg/L	0.0780	0.0760	97	63 - 130	J
Tetrachloro-m-xylene (S)	mg/L	0.16	0.16	105	42 - 129	J

Matrix Spike (5324202); Matrix Spike Duplicate (5324203); Original (F2403180005); Parent Lab Sample (F2403180005)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
alpha-BHC	mg/Kg	0.0160	0.0077	48	45 - 137	0.0066	**41**	15	30	J
beta-BHC	mg/Kg	0.0160	0.012	74	50 - 136	0.011	72	3	30	J
delta-BHC	mg/Kg	0.0160	0.012	77	47 - 139	0.014	86	10	30	J
Heptachlor	mg/Kg	0.0160	0.011	67	47 - 136	0.0095	59	12	30	J
Aldrin	mg/Kg	0.0160	0.0084	53	45 - 136	0.0074	46	13	30	J
Heptachlor Epoxide	mg/Kg	0.0160	0.0094	59	52 - 136	0.0089	56	5	30	J
Endosulfan I	mg/Kg	0.0160	0.011	66	53 - 132	0.0096	60	9	30	J
4,4`-DDE	mg/Kg	0.0160	0.01	62	56 - 134	0.0096	60	4	30	J
Dieldrin	mg/Kg	0.0160	0.01	63	56 - 136	0.0093	58	7	30	J
Endrin	mg/Kg	0.0160	0.01	66	57 - 140	0.0095	59	10	30	J
4,4`-DDD	mg/Kg	0.0160	0.012	75	56 - 139	0.011	72	4	30	J
Endosulfan II	mg/Kg	0.0160	0.01	63	53 - 134	0.0092	58	8	30	J
Endrin Aldehyde	mg/Kg	0.0160	0.012	75	35 - 137	0.011	69	9	30	J
4,4`-DDT	mg/Kg	0.0160	0.011	71	50 - 141	0.011	67	6	30	J
Endosulfan Sulfate	mg/Kg	0.0160	0.011	71	55 - 136	0.01	65	9	30	J
Methoxychlor	mg/Kg	0.0160	0.018	115	52 - 143	0.017	104	11	30	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Batch: GCSj/6434 **Analysis Method:** EPA 8081
Preparation Method: SW-846 3550B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Decachlorobiphenyl (S)	mg/L	0.08	0.0530	67	63 - 130	0.0530	66	1		J
Tetrachloro-m-xylene (S)	mg/L	0.16	0.0670	42	42 - 129	0.0550	35	19		J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: GCSj/6436 **Analysis Method:** FL-PRO
Preparation Method: FL-PRO
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Method Blank(5321282)

Parameter	Results	Units	PQL	MDL	Lab
TPH	9.9 U	mg/Kg	17	9.9	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Nonatricontane-C39 (S)	mg/L	6	2.30	38	36 - 132	J
o-Terphenyl (S)	mg/L	2	1.40	68	66 - 136	J

Lab Control Sample (5321283)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
TPH	mg/Kg	34	23	68	49 - 128	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Nonatricontane-C39 (S)	mg/L	5.90	3.20	54	36 - 132	J
o-Terphenyl (S)	mg/L	2	1.60	80	66 - 136	J

Matrix Spike (5321833); Matrix Spike Duplicate (5321834); Original (J2407336003); Parent Lab Sample (J2407336003)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
TPH	mg/Kg	34	2100	**-294**	49 - 128	2500	**895**	17	25	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Nonatricontane-C39 (S)	mg/L	6	3.20	53	36 - 132	24	406	**153**	25	J
o-Terphenyl (S)	mg/L	2	1.50	74	66 - 136	1.30	67	12	25	J

QC Result Comments

Matrix Spike - 5321833 - TPH

J4|Estimated Result

Matrix Spike Duplicate - 5321834 - TPH

J4|Estimated Result

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: GCSj/6450 **Analysis Method:** SW-846 8082A
Preparation Method: EPA 3546
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Method Blank(5326179)

Parameter	Results	Units	PQL	MDL	Lab
Aroclor 1016 (PCB-1016)	0.023 U	mg/Kg	0.092	0.023	J
Aroclor 1221 (PCB-1221)	0.023 U	mg/Kg	0.092	0.023	J
Aroclor 1232 (PCB-1232)	0.023 U	mg/Kg	0.092	0.023	J
Aroclor 1242 (PCB-1242)	0.023 U	mg/Kg	0.092	0.023	J
Aroclor 1248 (PCB-1248)	0.023 U	mg/Kg	0.092	0.023	J
Aroclor 1254 (PCB-1254)	0.023 U	mg/Kg	0.092	0.023	J
Aroclor 1260 (PCB-1260)	0.023 U	mg/Kg	0.092	0.023	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	mg/L	0.0770	0.0710	92	61 - 147	J
Tetrachloro-m-xylene (S)	mg/L	0.15	0.12	80	44 - 130	J

Lab Control Sample (5326180)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Aroclor 1016 (PCB-1016)	mg/Kg	0.16	0.16	100	47 - 134	J
Aroclor 1260 (PCB-1260)	mg/Kg	0.16	0.16	97	53 - 140	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Decachlorobiphenyl (S)	mg/L	0.0810	0.0760	94	61 - 147	J
Tetrachloro-m-xylene (S)	mg/L	0.16	0.14	86	44 - 130	J

Matrix Spike (5324231); Matrix Spike Duplicate (5324232); Original (J2407489007); Parent Lab Sample (J2407489007)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Aroclor 1016 (PCB-1016)	mg/Kg	0.16	0.13	83	47 - 134	0.11	70	18		J
Aroclor 1260 (PCB-1260)	mg/Kg	0.16	0.16	98	53 - 140	0.15	95	5		J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Decachlorobiphenyl (S)	mg/L	0.0790	0.0980	123	61 - 147	0.0970	124	1		J
Tetrachloro-m-xylene (S)	mg/L	0.16	0.20	124	44 - 130	0.19	124	2		J

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: ICPj/3605 **Analysis Method:** SW-846 6010
Preparation Method: SW-846 3050B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Method Blank(5321134)

Parameter	Results	Units	PQL	MDL	Lab
Silver	0.20 U	mg/Kg	0.80	0.20	J
Aluminum	10 U	mg/Kg	40	10	J
Arsenic	0.50 U	mg/Kg	2.0	0.50	J
Barium	0.50 U	mg/Kg	2.0	0.50	J
Cadmium	0.050 U	mg/Kg	0.20	0.050	J
Chromium	0.20 U	mg/Kg	0.80	0.20	J
Copper	0.50 U	mg/Kg	2.0	0.50	J
Nickel	0.50 U	mg/Kg	2.0	0.50	J
Lead	0.50 U	mg/Kg	2.0	0.50	J
Selenium	1.0 U	mg/Kg	4.0	1.0	J
Zinc	10 U	mg/Kg	40	10	J

Lab Control Sample (5321135)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Silver	mg/Kg	4	4.6	115	80 - 120	J
Aluminum	mg/Kg	200	180	92	80 - 120	J
Arsenic	mg/Kg	10	9.2	92	80 - 120	J
Barium	mg/Kg	10	9.2	92	80 - 120	J
Cadmium	mg/Kg	1	0.93	93	80 - 120	J
Chromium	mg/Kg	4	3.7	94	80 - 120	J
Copper	mg/Kg	10	9.2	92	80 - 120	J
Nickel	mg/Kg	10	9.3	93	80 - 120	J
Lead	mg/Kg	10	8.8	88	80 - 120	J
Selenium	mg/Kg	20	19	93	80 - 120	J
Zinc	mg/Kg	200	190	94	80 - 120	J

Matrix Spike (5321136); Matrix Spike Duplicate (5321137); Original (J2407489001); Parent Lab Sample (J2407489001)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Silver	mg/Kg	3.70	4	107	75 - 125	4.2	103	4	20	J
Aluminum	mg/Kg	190	5900	**820**	75 - 125	5400	**502**	9	20	J
Arsenic	mg/Kg	9.30	8.6	86	75 - 125	8.7	81	1	20	J
Barium	mg/Kg	9.30	21	96	75 - 125	21	85	2	20	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Batch: ICPj/3605 **Analysis Method:** SW-846 6010
Preparation Method: SW-846 3050B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Cadmium	mg/Kg	0.93	0.93	78	75 - 125	0.94	**73**	1	20	J
Chromium	mg/Kg	3.70	17	**145**	75 - 125	16	123	3	20	J
Copper	mg/Kg	9.30	33	114	75 - 125	32	97	3	20	J
Nickel	mg/Kg	9.30	11	84	75 - 125	11	80	2	20	J
Lead	mg/Kg	9.30	20	113	75 - 125	19	96	5	20	J
Selenium	mg/Kg	19	17	90	75 - 125	17	84	1	20	J
Zinc	mg/Kg	190	220	88	75 - 125	220	83	2	20	J

Matrix Spike (5321136); Matrix Spike Duplicate (5321137); Original (J2407489001); Parent Lab Sample (J2407489001)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Silver	mg/Kg	3.70	4	107	75 - 125	4.2	103	4	20	J
Aluminum	mg/Kg	190	5900	**820**	75 - 125	5400	**502**	9	20	J
Arsenic	mg/Kg	9.30	8.6	86	75 - 125	8.7	81	1	20	J
Barium	mg/Kg	9.30	21	96	75 - 125	21	85	2	20	J
Cadmium	mg/Kg	0.93	0.93	78	75 - 125	0.94	**73**	1	20	J
Chromium	mg/Kg	3.70	17	**145**	75 - 125	16	123	3	20	J
Copper	mg/Kg	9.30	33	114	75 - 125	32	97	3	20	J
Nickel	mg/Kg	9.30	11	84	75 - 125	11	80	2	20	J
Lead	mg/Kg	9.30	20	113	75 - 125	19	96	5	20	J
Selenium	mg/Kg	19	17	90	75 - 125	17	84	1	20	J
Zinc	mg/Kg	190	220	88	75 - 125	220	83	2	20	J

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FINAL

Workorder: Phillippi Creek Dredging Study (J2407489)

QC Results

QC Batch: MSSj/3992 **Analysis Method:** SW-846 8270C (SIM)
Preparation Method: SW-846 3550B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Method Blank(5321289)

Parameter	Results	Units	PQL	MDL	Lab
Naphthalene	0.0040 U	mg/Kg	0.0081	0.0040	J
2-Methylnaphthalene	0.0040 U	mg/Kg	0.0081	0.0040	J
1-Methylnaphthalene	0.0040 U	mg/Kg	0.0081	0.0040	J
Acenaphthylene	0.0040 U	mg/Kg	0.0081	0.0040	J
Acenaphthene	0.0040 U	mg/Kg	0.0081	0.0040	J
Fluorene	0.0040 U	mg/Kg	0.0081	0.0040	J
Phenanthrene	0.0040 U	mg/Kg	0.0081	0.0040	J
Anthracene	0.0040 U	mg/Kg	0.0081	0.0040	J
Fluoranthene	0.0040 U	mg/Kg	0.0081	0.0040	J
Pyrene	0.0040 U	mg/Kg	0.0081	0.0040	J
Benzo[a]anthracene	0.0040 U	mg/Kg	0.0081	0.0040	J
Chrysene	0.0040 U	mg/Kg	0.0081	0.0040	J
Benzo[b]fluoranthene	0.0040 U	mg/Kg	0.0081	0.0040	J
Benzo[k]fluoranthene	0.0040 U	mg/Kg	0.0081	0.0040	J
Benzo[a]pyrene	0.0040 U	mg/Kg	0.0081	0.0040	J
Indeno(1,2,3-cd)pyrene	0.0040 U	mg/Kg	0.0081	0.0040	J
Dibenzo[a,h]anthracene	0.0040 U	mg/Kg	0.0081	0.0040	J
Benzo[g,h,i]perylene	0.0040 U	mg/Kg	0.0081	0.0040	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/L	0.40	0.27	67	37 - 127	J
Nitrobenzene-d5 (S)	mg/L	0.40	0.28	68	33 - 134	J
p-Terphenyl-d14 (S)	mg/L	0.40	0.35	86	42 - 141	J

Lab Control Sample (5321290)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Naphthalene	mg/Kg	0.20	0.13	64	38 - 120	J
2-Methylnaphthalene	mg/Kg	0.20	0.14	69	39 - 120	J
1-Methylnaphthalene	mg/Kg	0.20	0.15	73	43 - 120	J
Acenaphthylene	mg/Kg	0.20	0.14	68	39 - 118	J
Acenaphthene	mg/Kg	0.20	0.13	66	44 - 117	J
Fluorene	mg/Kg	0.20	0.14	71	47 - 121	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Batch: MSSj/3992 **Analysis Method:** SW-846 8270C (SIM)
Preparation Method: SW-846 3550B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
Phenanthrene	mg/Kg	0.20	0.14	71	49 - 122	J
Anthracene	mg/Kg	0.20	0.15	76	50 - 123	J
Fluoranthene	mg/Kg	0.20	0.15	75	51 - 126	J
Pyrene	mg/Kg	0.20	0.15	74	51 - 127	J
Benzo[a]anthracene	mg/Kg	0.20	0.15	72	52 - 126	J
Chrysene	mg/Kg	0.20	0.15	74	52 - 128	J
Benzo[b]fluoranthene	mg/Kg	0.20	0.14	70	43 - 132	J
Benzo[k]fluoranthene	mg/Kg	0.20	0.15	73	46 - 133	J
Benzo[a]pyrene	mg/Kg	0.20	0.15	75	42 - 129	J
Indeno(1,2,3-cd)pyrene	mg/Kg	0.20	0.16	78	39 - 135	J
Dibenzo[a,h]anthracene	mg/Kg	0.20	0.15	77	40 - 139	J
Benzo[g,h,i]perylene	mg/Kg	0.20	0.14	71	41 - 133	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Lab
2-Fluorobiphenyl (S)	mg/L	0.40	0.30	75	37 - 127	J
Nitrobenzene-d5 (S)	mg/L	0.40	0.29	71	33 - 134	J
p-Terphenyl-d14 (S)	mg/L	0.40	0.36	90	42 - 141	J

Matrix Spike (5321601); Matrix Spike Duplicate (5321602); Original (J2407336003); Parent Lab Sample (J2407336003)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Naphthalene	mg/Kg	0.20	0.12	62	38 - 120	0.12	56	4	30	J
2-Methylnaphthalene	mg/Kg	0.20	0.13	66	39 - 120	0.13	65	3	30	J
1-Methylnaphthalene	mg/Kg	0.20	0.13	68	43 - 120	0.13	63	2	30	J
Acenaphthylene	mg/Kg	0.20	0.13	64	39 - 118	0.12	57	6	30	J
Acenaphthene	mg/Kg	0.20	0.13	67	44 - 117	0.12	60	5	30	J
Fluorene	mg/Kg	0.20	0.14	72	47 - 121	0.13	64	7	30	J
Phenanthrene	mg/Kg	0.20	0.14	71	49 - 122	0.13	64	5	30	J
Anthracene	mg/Kg	0.20	0.15	74	50 - 123	0.14	68	3	30	J
Fluoranthene	mg/Kg	0.20	0.14	70	51 - 126	0.13	63	5	30	J
Pyrene	mg/Kg	0.20	0.13	66	51 - 127	0.13	59	5	30	J
Benzo[a]anthracene	mg/Kg	0.20	0.13	68	52 - 126	0.13	62	5	30	J
Chrysene	mg/Kg	0.20	0.13	68	52 - 128	0.13	62	4	30	J
Benzo[b]fluoranthene	mg/Kg	0.20	0.14	70	43 - 132	0.12	60	10	30	J
Benzo[k]fluoranthene	mg/Kg	0.20	0.14	71	46 - 133	0.13	61	9	30	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Batch: MSSj/3992 **Analysis Method:** SW-846 8270C (SIM)
Preparation Method: SW-846 3550B
Associated Lab IDs: J2407489001, J2407489002, J2407489003, J2407489004, J2407489005, J2407489006, J2407489007, J2407489008

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
Benzo[a]pyrene	mg/Kg	0.20	0.14	72	42 - 129	0.13	61	11	30	J
Indeno(1,2,3-cd)pyrene	mg/Kg	0.20	0.16	84	39 - 135	0.15	71	11	30	J
Dibenzo[a,h]anthracene	mg/Kg	0.20	0.16	79	40 - 139	0.15	70	7	30	J
Benzo[g,h,i]perylene	mg/Kg	0.20	0.14	72	41 - 133	0.13	62	9	30	J

Surrogates

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery	Control Limits	Dup Result	Dup Recovery	RPD	RPD Limit	Lab
2-Fluorobiphenyl (S)	mg/L	0.39	0.30	76	37 - 127	0.28	67	7	30	J
Nitrobenzene-d5 (S)	mg/L	0.39	0.26	66	33 - 134	0.24	58	8	30	J
p-Terphenyl-d14 (S)	mg/L	0.39	0.32	81	42 - 141	0.30	72	6	30	J

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Cross Reference

Lab ID	Sample ID	Prep Batch	Prep Method
CVAj/2440 - SW-846 7471A			
J2407489001	PC-24-7	DGMj/8366	SW-846 7471A
J2407489003	PC-24-6	DGMj/8366	SW-846 7471A
J2407489004	PC-24-5	DGMj/8366	SW-846 7471A
J2407489005	PC-24-4	DGMj/8366	SW-846 7471A
CVAj/2443 - SW-846 7471A			
J2407489002	PC-24-8	DGMj/8382	SW-846 7471A
J2407489006	PC-24-3	DGMj/8382	SW-846 7471A
J2407489007	PC-24-2	DGMj/8382	SW-846 7471A
J2407489008	PC-24-1	DGMj/8382	SW-846 7471A
GCSj/6434 - EPA 8081			
J2407489001	PC-24-7	EXTj/9144	SW-846 3550B
J2407489002	PC-24-8	EXTj/9144	SW-846 3550B
J2407489003	PC-24-6	EXTj/9144	SW-846 3550B
J2407489004	PC-24-5	EXTj/9144	SW-846 3550B
J2407489005	PC-24-4	EXTj/9144	SW-846 3550B
J2407489006	PC-24-3	EXTj/9144	SW-846 3550B
J2407489007	PC-24-2	EXTj/9144	SW-846 3550B
J2407489008	PC-24-1	EXTj/9144	SW-846 3550B
GCSj/6436 - FL-PRO			
J2407489001	PC-24-7	EXTj/9125	FL-PRO
J2407489002	PC-24-8	EXTj/9125	FL-PRO
J2407489003	PC-24-6	EXTj/9125	FL-PRO
J2407489004	PC-24-5	EXTj/9125	FL-PRO
J2407489005	PC-24-4	EXTj/9125	FL-PRO
J2407489006	PC-24-3	EXTj/9125	FL-PRO
J2407489007	PC-24-2	EXTj/9125	FL-PRO
J2407489008	PC-24-1	EXTj/9125	FL-PRO

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Cross Reference

Lab ID	Sample ID	Prep Batch	Prep Method
GCSj/6450 - SW-846 8082A			
J2407489001	PC-24-7	EXTj/9158	EPA 3546
J2407489002	PC-24-8	EXTj/9158	EPA 3546
J2407489003	PC-24-6	EXTj/9158	EPA 3546
J2407489004	PC-24-5	EXTj/9158	EPA 3546
J2407489005	PC-24-4	EXTj/9158	EPA 3546
J2407489006	PC-24-3	EXTj/9158	EPA 3546
J2407489007	PC-24-2	EXTj/9158	EPA 3546
J2407489008	PC-24-1	EXTj/9158	EPA 3546
ICPj/3605 - SW-846 6010			
J2407489001	PC-24-7	DGMj/8344	SW-846 3050B
J2407489002	PC-24-8	DGMj/8344	SW-846 3050B
J2407489003	PC-24-6	DGMj/8344	SW-846 3050B
J2407489004	PC-24-5	DGMj/8344	SW-846 3050B
J2407489005	PC-24-4	DGMj/8344	SW-846 3050B
J2407489006	PC-24-3	DGMj/8344	SW-846 3050B
J2407489007	PC-24-2	DGMj/8344	SW-846 3050B
J2407489008	PC-24-1	DGMj/8344	SW-846 3050B
MSSj/3992 - SW-846 8270C (SIM)			
J2407489001	PC-24-7	EXTj/9126	SW-846 3550B
J2407489002	PC-24-8	EXTj/9126	SW-846 3550B
J2407489003	PC-24-6	EXTj/9126	SW-846 3550B
J2407489004	PC-24-5	EXTj/9126	SW-846 3550B
J2407489005	PC-24-4	EXTj/9126	SW-846 3550B
J2407489006	PC-24-3	EXTj/9126	SW-846 3550B
J2407489007	PC-24-2	EXTj/9126	SW-846 3550B
J2407489008	PC-24-1	EXTj/9126	SW-846 3550B

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Workorder: Phillippi Creek Dredging Study (J2407489)

QC Cross Reference

Lab ID	Sample ID	Prep Batch	Prep Method
WCAj/14607 - SM 2540G			
J2407489001	PC-24-7		
J2407489002	PC-24-8		
J2407489003	PC-24-6		
J2407489004	PC-24-5		
J2407489005	PC-24-4		
J2407489006	PC-24-3		
J2407489007	PC-24-2		
J2407489008	PC-24-1		

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☐ Fort Myers: 13100 Westlinks Terrace, Ste. 10, FL 33913 • 239.674.8130 • Lab ID: E84492
☑ Jacksonville: 6681 Southpoint Pkwy., FL 32216 • 904.363.9350 • Lab ID: E82574
☐ Tallahassee: 2639 North Monroe St., Suite D, FL 32303 • 850.219.6274 • Lab ID: E811095
☐ Gainesville
☐ Miramar: 1
☐ Tampa: 96

* J2407489 *

Client Name:	Athena Technologies	Project Name:	Phillippi Creek Dredging Study
Address:	1293 Graham Farm Rd	Project Number:	
	McCellanville, SC 29458	PO Number:	
Phone:	561-702-0768	FDEP Facility No:	
FAX:		FDEP Facility Addr:	
Contact:	Lucy Thein		
Sampled By:		Special Instructions:	
Turn Around Time:	Standard Rush		
AEL Profile #:	77037	ADaPT EQuIS Other	

SAMPLE ID	SAMPLE DESCRIPTION	Grab Comp	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. COUNT	BOTTLE SIZE & TYPE	ANALYSIS REQUIRED	Preservation	Field-Filtered?	PAH by 8270SIM HCL/none	TRPH by FLPOR HNO3	8081/8082 Ice	Al,As,Ba,Cd,Cr,Cu,Pb,Hg,Ni,Se,Ag,Zn H2SO4	LABORATORY I.D. NUMBER
							8 oz Jar								
PC-24-7	SEDIMENT COMP	Comp	5/21	0844	SO	1					X	X	X	X	-001
PC-24-8	SEDIMENT	Comp	5/21	0917	SO	1					X	X	X	X	-002
PC-24-6	SEDIMENT	Comp	5/21	0934	SO	1					X	X	X	X	-003
PC-24-5	SEDIMENT	Comp	5/21	0955	SO	1					X	X	X	X	-004
PC24-4	SEDIMENT	Comp	5/21	1029	SO	1					X	X	X	X	-005
PC24-3	SEDIMENT	Comp	5/21	1048	SO	1					X	X	X	X	-006
PC-24-2	SEDIMENT	Comp	5/21	1110	SO	1					X	X	X	X	-007
PC-24-1	SEDIMENT	Comp	5/21	1135	SO	1					X	X	X	X	-008

Matrix Code: **WW** = wastewater **SW** = surface water **GW** = ground water **DW** = drinking water **O** = oil **A** = air **SO** = soil **SL** = sludge

Preservation Code: I = ice H=(HCl) S = (H_2SO_4) N = (HNO_3) T = (Sodium Thiosulfate)

Received on Ice ☑ Yes ☐ No ☑ Temp taken from sample ☐ Temp from blank ☐ Where required, pH checked Temp. when received (observed) 1.9 °C Temp. when received (corrected) 0.9 °C

DCN: AD-D051web Form last revised 08/07/2019 Device used for measuring Temp by unique identifier (circle IR temp gun used) J: 9A G: LT-1 LT-2 T: 10A A: 3A M: 3A S: 1V F: 1A

	Relinquished by:	Date	Time	Received by:	Date	Time
1	J NEIL WICKER	5/22	1021	Tiffini Campbell	5.22.24	1021
2						
3						
4						

FOR DRINKING WATER USE:

(When PWS Information not otherwise supplied) PWS ID: _____

Contact Person: _____

Supplier of Water: _____

Site-Address: _____

Advanced Environmental Labs Inc

Client: Athena Technologies | Project name: Phillippi Creek Dredging

Date/Time Rcvd: 5.22.24 1021 | Log-In request number: J2407489

Received by: Tuppini Campbell | Completed by: SC

Cooler/Shipping Information:

Courier: ☐ AEL ☑ Client ☐ UPS ☐ Blue Streak ☐ FedEx ☐ AES ☐ ASAP ☐ Other (describe): _____

Type: ☑ Cooler ☐ Box ☐ Other (describe) _____

Cooler temperature: Identify the cooler and document the temperature blank or ice water measurement

Cooler ID	1				
Temp (°C)	0.9				
Temp taken from	☑ Sample Bottle ☐ Cooler	☐ Sample Bottle ☐ Cooler	☐ Sample Bottle ☐ Cooler	☐ Sample Bottle ☐ Cooler	☐ Sample Bottle ☐ Cooler
Temp measured with	☐ IR gun S/N 9333779 ☑ Thermometer (enter ID): 9A	☐ IR gun S/N 9333779 ☐ Thermometer (enter ID):	☐ IR gun S/N 9333779 ☐ Thermometer (enter ID):	☐ IR gun S/N 9333779 ☐ Thermometer (enter ID):	☐ IR gun S/N 9333779 ☐ Thermometer (enter ID):

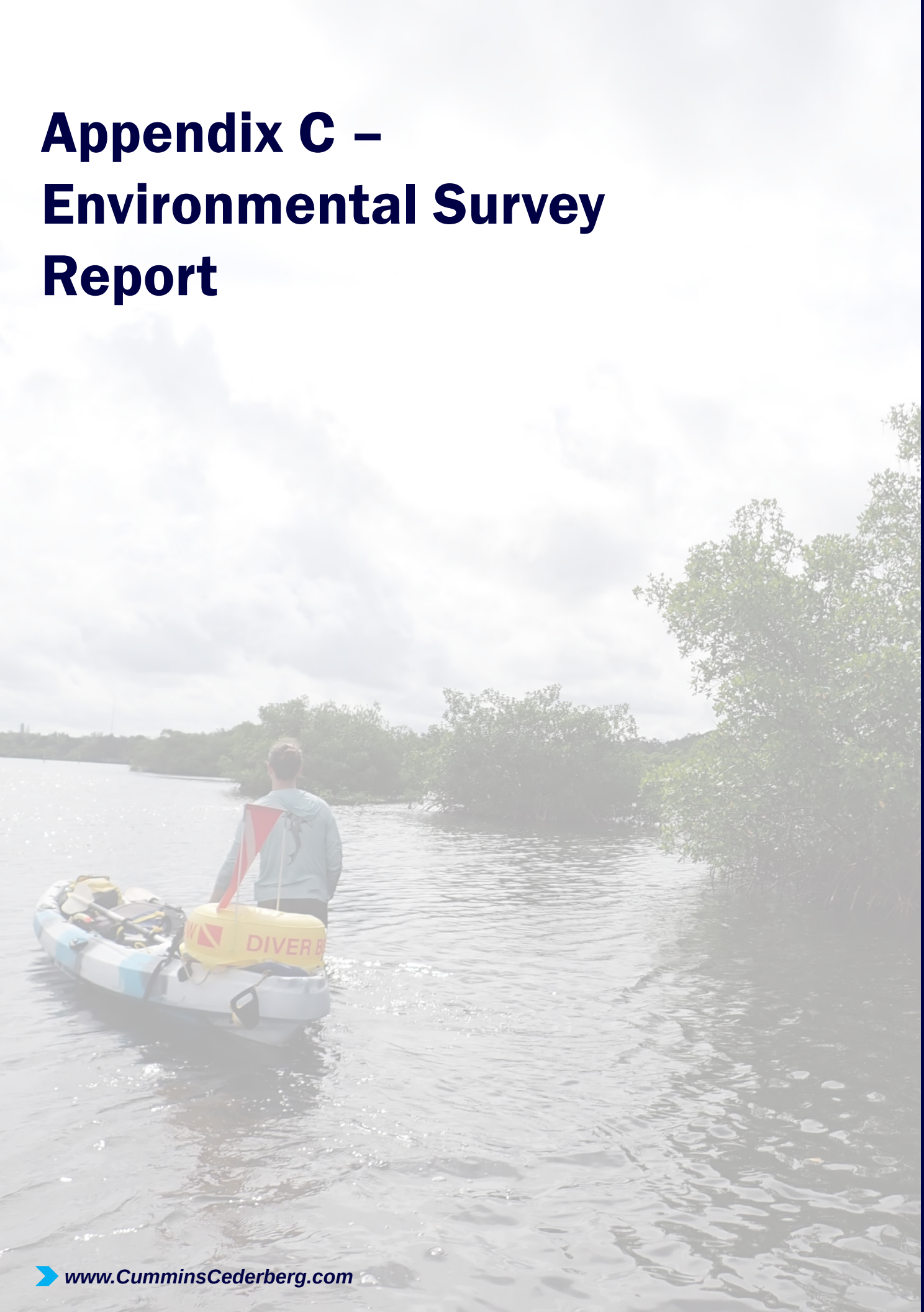
Other Information:

Any discrepancies should be explained in the "Comments" section below.

CHECKLIST	YES	NO	NA
1. Were custody seals on shipping container(s) intact?	✓		
2. Were custody papers properly included with samples?	✓		
3. Were custody papers properly filled out (ink, signed, match labels)?	✓		
4. Did all bottles arrive in good condition (unbroken)?	✓		
5. Were all bottle labels complete (sample #, date, signed, analysis, preservatives)?	✓		
6. Did the sample labels agree with the chain of custody?	✓		
7. Were correct bottles used for the tests indicated?	✓		
8. Were proper sample preservation techniques indicated on the label?	✓		
9. Were samples received within holding times?	✓		
10. Were all VOA vials free of the presence of air bubbles?	✓		~~✓~~ TC
11. Have all Soil VOA Vials and Encores been placed in a freezer within 48 hours of collection?	✓		
12. Were samples in direct contact with wet ice? If "No," check one: ☐ NO ICE ☐ BLUE ICE	✓		
13. Was the cooler temperature less than 6°C?	✓		
14. Where pH preservation is required, are sample pHs checked and any anomalies recorded by Sample control? Are all <2 or >10? Note: VOA samples are checked by laboratory analysts.	✓		
15. Was sufficient sample volume provided to perform all tests?	✓		
16. If for Bacteriological testing, were containers supplied by AEL? (See QA officer if answer is no)			✓
17. Were all sample containers provided by AEL? (Other than Bacteriological)	✓		
18. Were samples accepted into the laboratory?	✓		
19. When necessary to split samples into other bottles, is it noted in the comments?	✓		
20. Where Encores received and if so, how many?			✓

Comments: (Note all sample(s) and container (s)" with a "No" checklist response in this comment section)

Appendix C – Environmental Survey Report



Appendix C

Environmental Survey Report

Project Name:	**CC Project Number:**
WCIND Phillippi Creek Dredge Feasibility	137100
Date of Survey:	**Date of Report:**
June 11, 12, and 17, 2024	August 30, 2024
Prepared By:	**Prepared For:**
Rebecah Delp & Alex Pacelko Cummins Cederberg, Inc.	West Coast Inland Navigation District Attn: Justin D. McBride, Exectuive Director

Introduction

A marine resource survey was performed on June 11, 12, and 17, 2024, by Cummins Cederberg, Inc. (Cummins Cederberg) along a portion of Phillippi Creek (Creek), located in Sarasota County, Florida (**Figure 1**). The West Coast Inland Navigation District (WCIND) is conducting a feasibility study to identify potential maintenance dredge of approximately 6,700 linear feet of the existing channel along the western portion of Phillippi Creek to a depth of -4.0 ft mean low water (MLW) (Project). The goal of the Project is to sustain Phillippi Creek with navigable depths for local recreational use as well as safe ingress and egress for the Sarasota sheriff office's vessels that are moored within the Creek (**Photo A-1**).

The survey was conducted to support and inform potential subsequent design and permitting relative to avoidance and minimization of potential impacts to natural resources (e.g., seagrass, coral, oysters) that may result from the proposed Project activities. Additionally, the survey was conducted in the federally recognized seagrass growing season (between June 1st and September 30th) to support subsequent environmental permit applications.

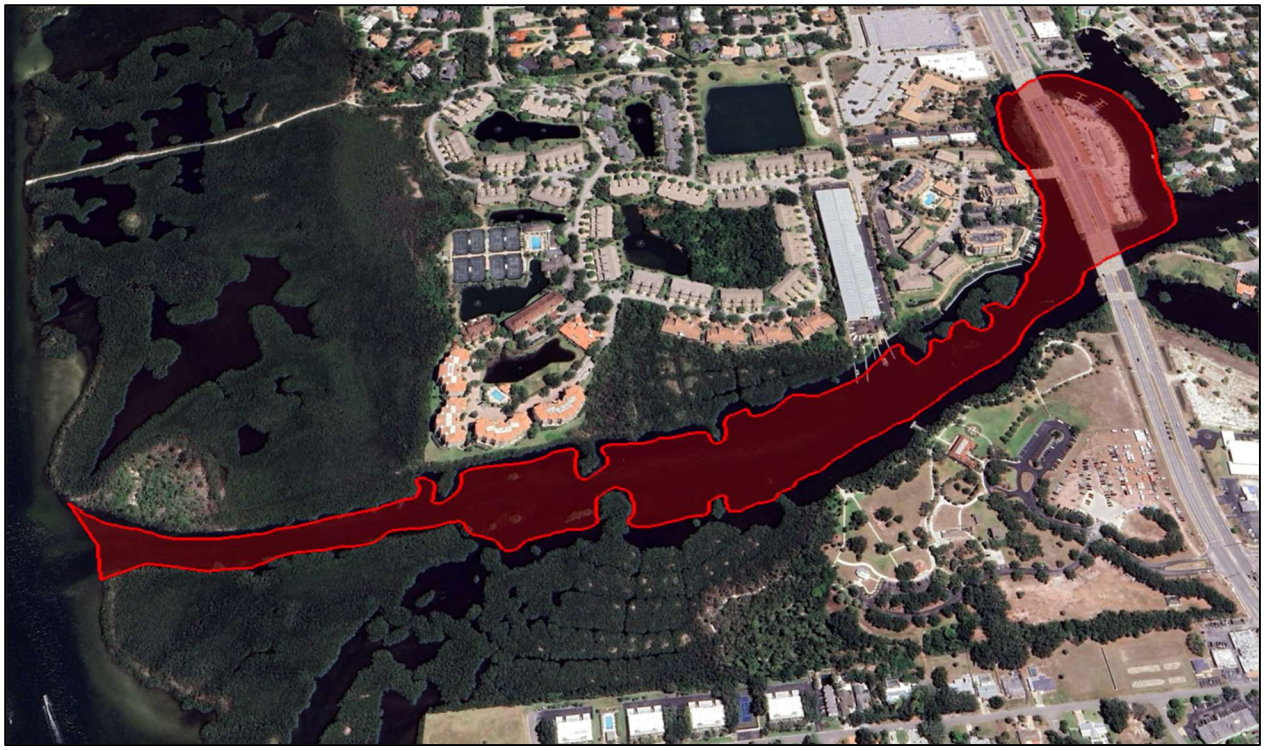


Figure 1. Location of Project Site.

Methods

A Cummins Cederberg marine biologist survey team, inclusive of two qualified marine biologists, conducted the marine resource survey using mask and snorkel from a kayak. The survey was conducted along approximately 6,700 LF along the western portion of Phillippi Creek (**Figure 1**). Survey area extents, as well as existing navigational channel extents, were preloaded into a handheld Trimble GPS device to assist the marine biologist. Additionally, desktop analysis of available resource maps were reviewed prior to fieldwork in order to inform the marine biologists where resources have been located previously.

Marine biologists began by surveying the existing channel extents (approximately 30 ft wide). One surveyor performed S-swims in the water, covering an approximately 15 ft corridor, while the topside surveyor guided the in-water snorkeler along one side of the channel using the Trimble on the kayak. If the bottom of the Creek was not visible from the top on snorkel, snorkelers would conduct breath holds and spot dives and perform the S-swims along the seafloor. Once one half of the channel was surveyed, surveyors transitioned to surveying the other half of the channel, so that the full extent of the channel was covered using this methodolgy. General changes in habitat were noted and documented using the Trimble. If seagrasses or other resources of significance were observed, locations were documented by taking points or polylines on the Trimble, as applicable.

Marine Biologist performed the same method within an approximately 20 ft buffer zone on either side of the channel. Benthic habitat beyond the buffer zone was also surveyed as time allowed. Data was collected on underwater paper and general notes, such as substate type, submerged

aquatic resource presence, if any, and marine species observed were documented. Representative photographs were taken and are provided in **Attachment A**.

Results

The marine resource survey was conducted on June 11, 12, and 17 of 2024. The maximum water depth observed at the time of the survey was approximately 6 ft. Visibility was notably poor throughout the entire survey area, ranging from 0.5 ft to 5 ft, but typically less than 1 ft, and suspended substrate was notable throughout the water column. Aside from slack tide, currents were relatively strong, especially during the outgoing tide.

The substrate observed within the survey area generally consisted of silt and muck with detritus material (**Photos A-2** and **A-3**) on the eastern extents of the survey area and a sandier silt towards the mouth of the Creek with occasional vegetative debris. A hydrogen sulfide odor was present during the survey when the sediment was disturbed, especially upstream where the benthic community was generally devoid of resources.

Oyster shells were located throughout the survey area, both in small clusters and standalone shells, as well as in large shell hash beds. The majority of oysters observed within the channel and buffer zone were deceased with less than 10% (estimated) of oysters living. Notably, the majority of oyster shell was covered in a thin layer of sediment. Oyster locations and extents are depicted on the basemap in **Figure 2**. Scattered, loose shell hash is indicated as “shell hash areas” (**Photo A-4**) whereas more stable and consolidated shell is indicated as “oyster beds” (**Photo A-5**). Sponge, tunicate, and turf algae overgrowth was common on the shell hash area closest to the Creek’s mouth (**Photos A-6** and **A-7**).

Seagrasses were observed to be growing near the mouth of the Creek as it feeds into the Intracoastal Waterway. Shoal grass (*Halodule wrightii*) was documented within the nearshore area along the north side with an overall coverage of approximately 30% (**Photo A-8**). On the south side of the mouth, an intermixed bed of *H. wrightii* and star grass (*Halophila engelmannii*) was documented with a varying coverage of approximately 10% to 30% (**Photo A-9**). Seagrasses within these beds extend beyond the survey area to the north and south. Small patches of macroalgae (*Caulerpa* spp.) were documented throughout both. Additional, discontinuous patches of seagrasses were observed and identified within the middle portion of the survey area, just northwest of Phillippi Estate Park, and included *H. wrightii* and paddle grass (*Halophila decipiens*) (**Photo A-10**). Locations of resources are depicted on the basemap in **Figure 2**. Zoomed in segments of this basemap are included as **Attachment B**. West Indian manatees (*Trichechus manatus*) were observed swimming upstream during the survey.

The shoreline along the survey area was primarily natural mangrove shoreline (**Photo A-11**) from the mouth of the Creek to the eastern extent of the survey area where the shoreline transitioned to seawall stabilization and occasional docking facilities to accommodate upland development. No other marine resources of significance were documented. Typical aids to navigation (ATONs) or channel markers demarcate the channel limits east of the US-41 bridge. West of the US-41 bridge, PVC pipes appear to have been installed to delineate the channel.

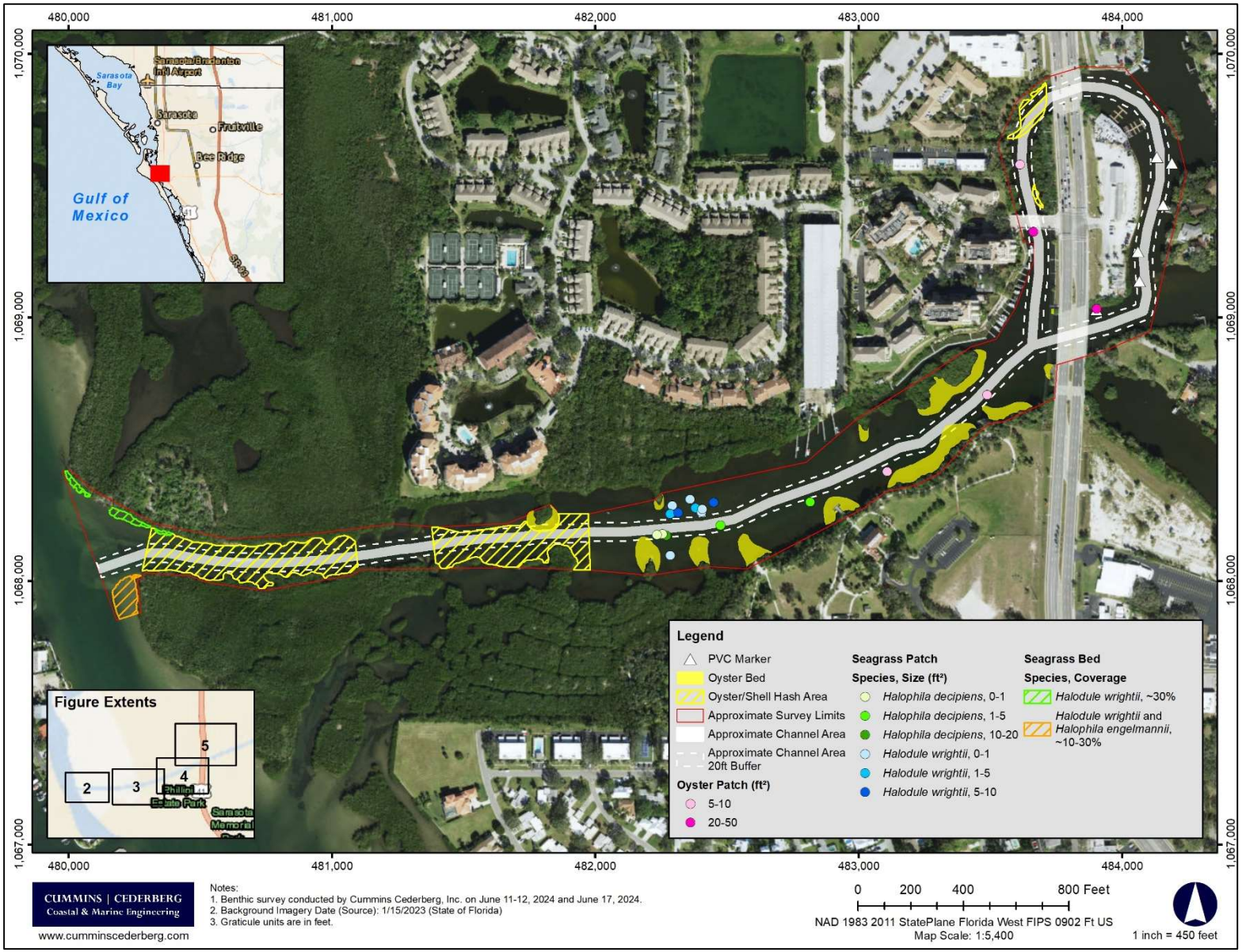


Figure 2. Basemap of documented resources. See **Attachment B** for zoomed in Figure Extents.

Discussion

The Creek within the survey extents supports minimal oyster and seagrass habitat. Three species of seagrass were observed: *H. wrightii*, *H. engelmannii*, and *H. decipiens.* Seagrass was present in intermittent, small patches within a section of the survey area, except for at the mouth of the Creek, where approximately 30% coverage beds were present. Oyster habitat was primarily loose and scattered shell hash, with very few living oysters.

Given the strong outgoing currents, sediment coating on the oyster shells and seagrass, and thick, soft sediment layers, it is likely that material is carried down the Creek from further upstream on a regular basis. The thick muck layer and hydrogen sulfide odor, specifically on the eastern extent of the survey area with the “loop”, is indicative of poor substrate quality and/or decaying material, which likely does not support thriving benthic communities. However, the Creek does appear to be a travel corridor for the West Indian manatee as multiple were observed to be utilizing the creek during the survey period.

Attachment A

REPRESENTATIVE PHOTOGRAPHS

Photo 0-1. Sarasota County sheriff vessel docked at Phillippi Landings.

Photo 0-2. Detritus material along the Creek bottom.

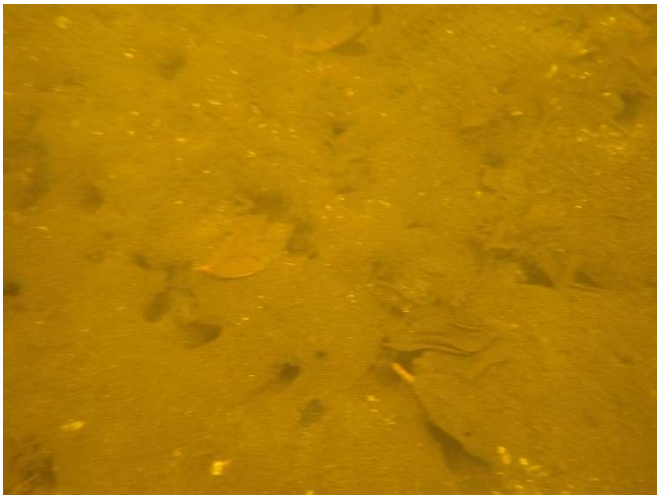


Photo 0-3. Silty muck substrate with occasional detritus material.

Photo 0-4. Example of loose, scattered oyster shell hash.

Photo 0-5. Example of an oyster bed where oyster shell was stabilized. Note sediment film on shells.

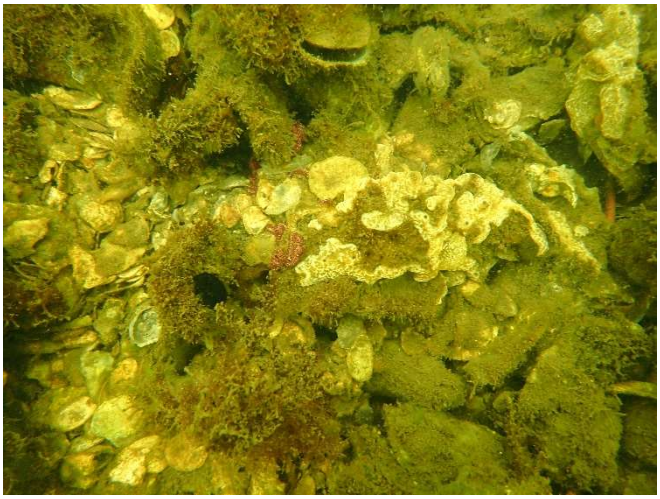


Photo 0-6. Oyster shell hash area closest to the Creek's mouth. Note sponge, tunicate, and turf algae overgrowth.

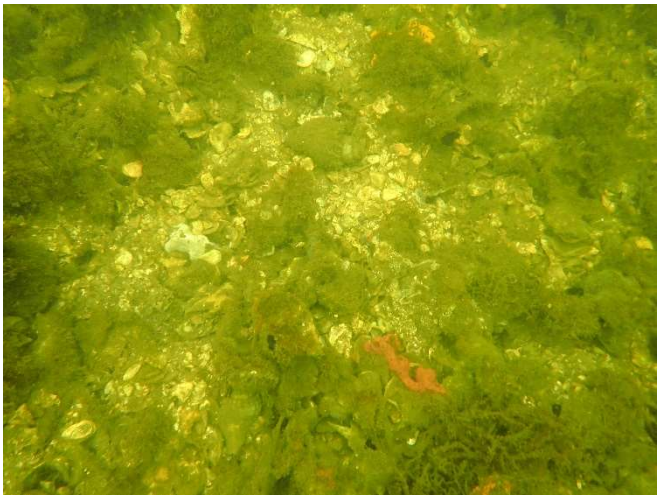


Photo 0-7. Scattered oyster shell hash area closest to the Creek's mouth. Note sponge, tunicate, and turf algae overgrowth.

Photo 0-8. *H. wrightii* bed (~30% coverage) along the north shoreline of the Creek's mouth with *C. Sertularioides*. Note short blade length.

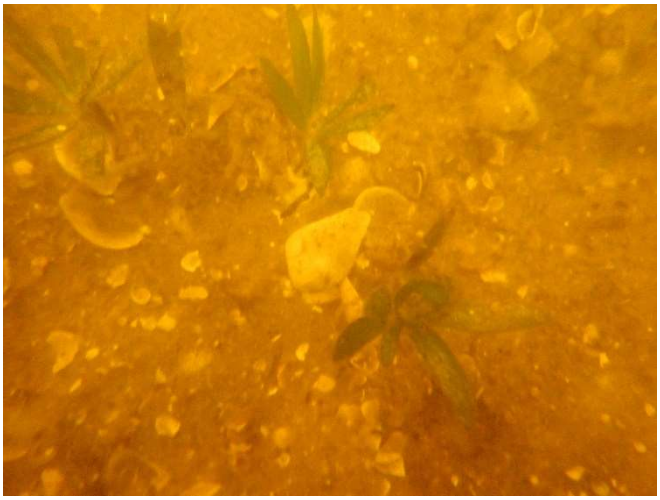


Photo 0-9. *H. engelmannii* observed at the south side of the Creek's mouth.

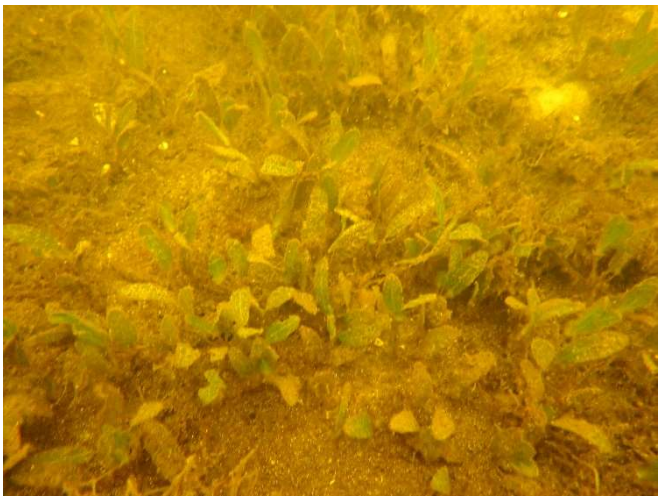
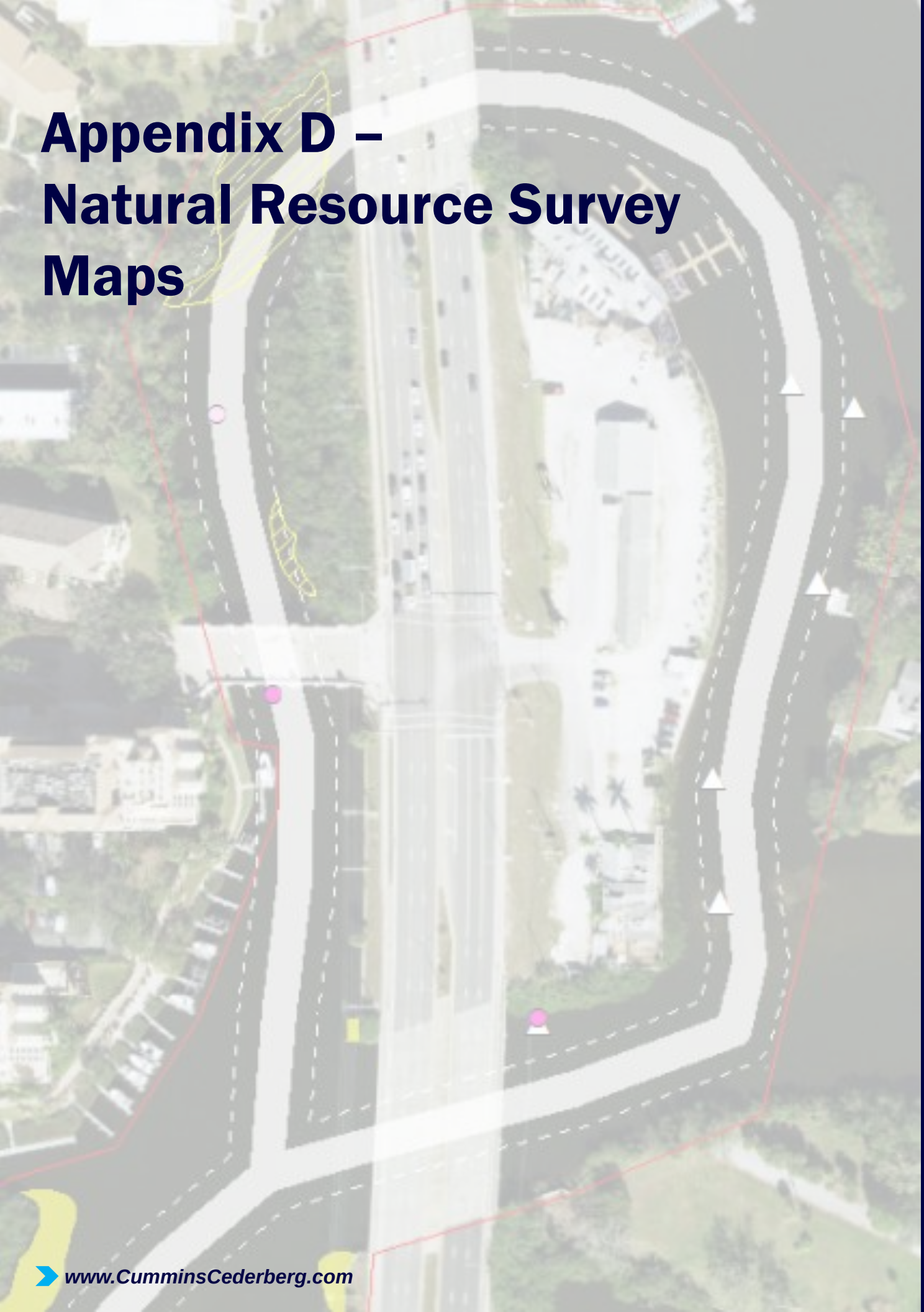


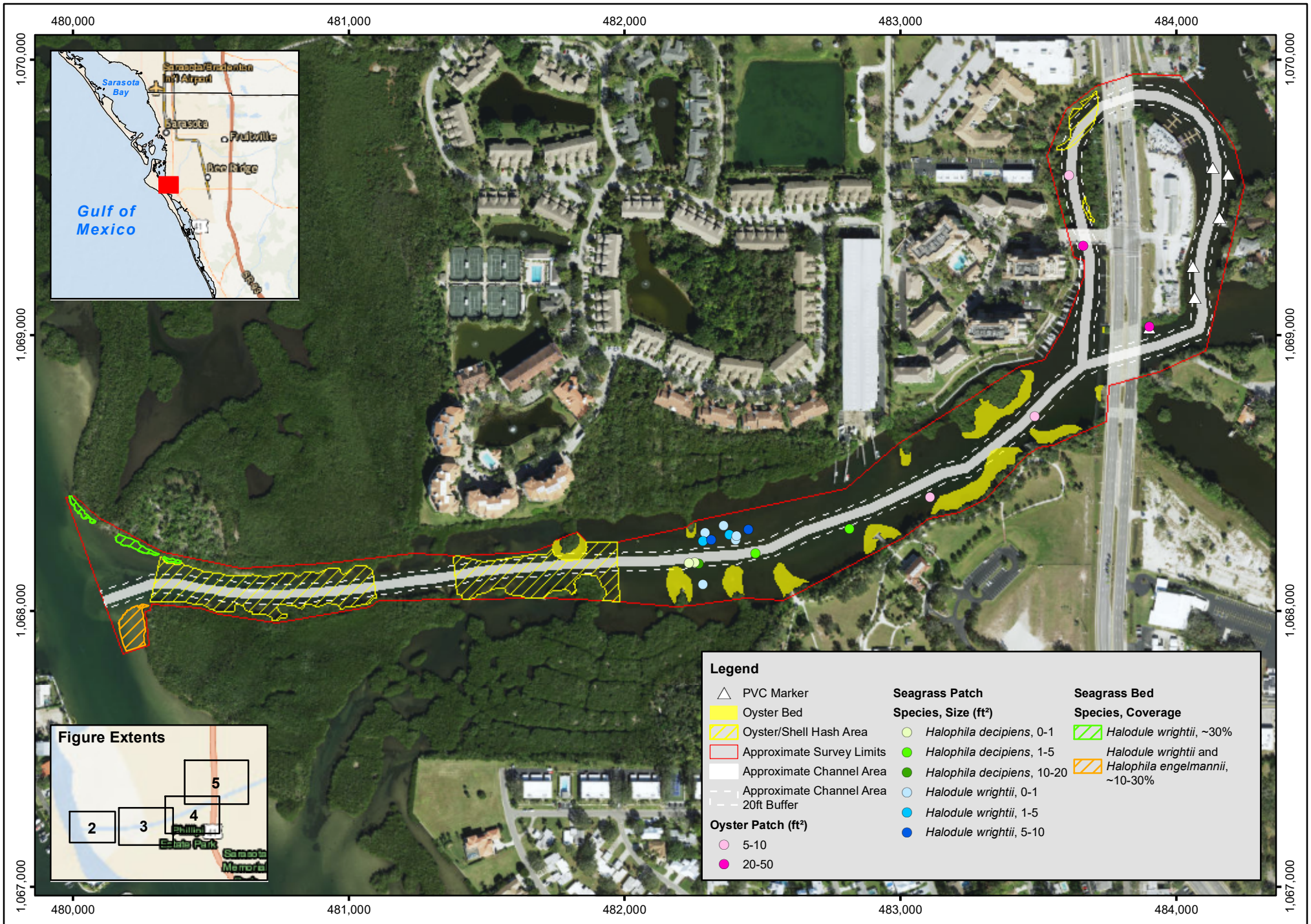
Photo 0-10. A patch of *H. decipiens* observed northwest of Phillippi Estate Park

Photo 0-11. Example natural shoreline vegetated with *R. mangle*.

Appendix D – Natural Resource Survey Maps



Appendix D



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Notes:
1. Benthic survey conducted by Cummins Cederberg, Inc. on June 11-12, 2024 and June 17, 2024.
2. Background Imagery Date (Source): 1/15/2023 (State of Florida)
3. Graticule units are in feet.

0 200 400 800 Feet

NAD 1983 2011 StatePlane Florida West FIPS 0902 Ft US
Map Scale: 1:5,400

1 inch = 450 feet

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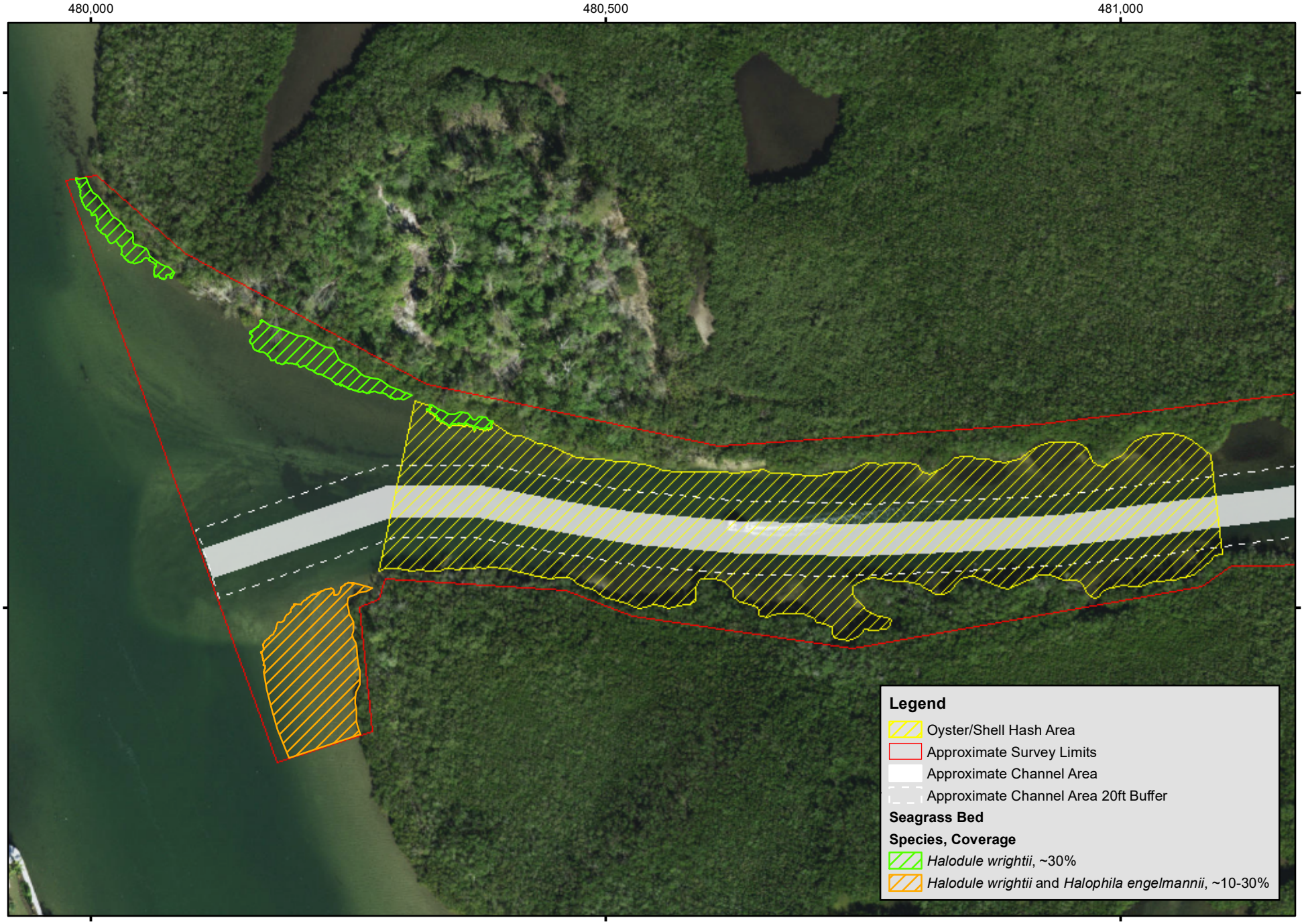

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Notes:
1. Benthic survey conducted by Cummins Cederberg, Inc. on June 11-12, 2024 and June 17, 2024.
2. Background Imagery Date (Source): 1/15/2023 (State of Florida)
3. Graticule units are in feet.

0 50 100 200 Feet

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Map Scale: 1:1,500

1 inch = 125 feet

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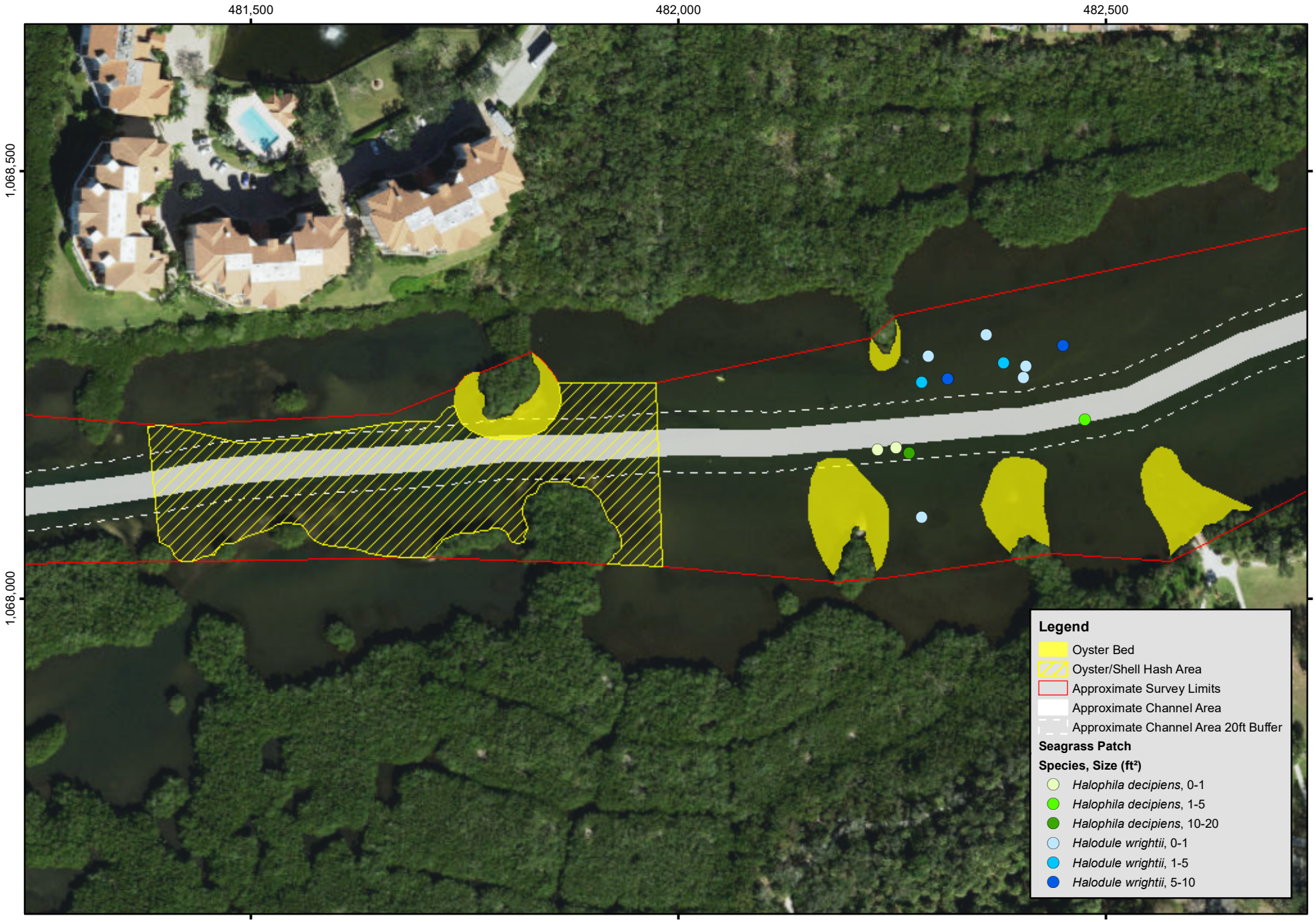

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Notes:
1. Benthic survey conducted by Cummins Cederberg, Inc. on June 11-12, 2024 and June 17, 2024.
2. Background Imagery Date (Source): 1/15/2023 (State of Florida)
3. Graticule units are in feet.

0 50 100 200 Feet

NAD 1983 2011 StatePlane Florida West FIPS 0902 Ft US
Map Scale: 1:1,800

1 inch = 150 feet

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Notes:
1. Benthic survey conducted by Cummins Cederberg, Inc. on June 11-12, 2024 and June 17, 2024.
2. Background Imagery Date (Source): 1/15/2023 (State of Florida)
3. Graticule units are in feet.

0 50 100 200 Feet

NAD 1983 2011 StatePlane Florida West FIPS 0902 Ft US
Map Scale: 1:1,800

1 inch = 150 feet

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Notes:
1. Benthic survey conducted by Cummins Cederberg, Inc. on June 11-12, 2024 and June 17, 2024.
2. Background Imagery Date (Source): 1/15/2023 (State of Florida)
3. Graticule units are in feet.

0 100 200 400 Feet

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Map Scale: 1:2,100

1 inch = 175 feet

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Appendix E – Pre-application Meeting Notes

Appendix E

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Meeting Minutes

Project Name:	WCIND Phillippi Creek Maintenance Dredging Project
CC Project Number:	137100
Meeting Date:	August 29, 2024
Time:	10:00 AM
Location:	Microsoft Teams Meeting
Participants:	Shanell Bosch, Florida Department of Environmental Protection Justin McBride, West Coast Inland Navigation District Joseph Kraus, Sarasota County Rachel Herman, Sarasota County Jennifer Bistyga, Cummins Cederberg, Inc. Jenna Phillips, Cummins Cederberg, Inc. Rebecah Delp, Cummins Cederberg, Inc.

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1. Purpose

The purpose of the meeting was to discuss, with the Florida Department of Environmental Protection (FDEP), the proposed Phillippi Creek Maintenance Dredging Project located within Sarasota County, Florida (Project). This meeting was meant to identify potential concerns and permitting restrictions that FDEP may have relative to the proposed Project scope.

2. Background

Ms. Rebecah Delp presented a slide deck (**Attachment A**) to provide Project background, existing conditions, permit history, and context for the proposed scope of work.

The West Coast Inland Navigation District (WCIND) and Sarasota County (County) are considering maintenance dredging of the first approximately 6,700 linear feet (LF) of Phillippi Creek, from the mouth of the creek to just east of where the US-41 bridge traverses the creek. The shoreline at the mouth of the creek is lined with natural mangrove habitat which transitions to bulkheaded shoreline at the eastern extents of the Project area where upland use shifts to multi- and single-family residences and commercial/retail properties. Occasional boat ramp and dock structures are present along the shoreline on the eastern extent as well.

A benthic survey was conducted by Cummins Cederberg, Inc (Cummins Cederberg) in June 2024. The surveying revealed that the Project site supports minimal seagrass habitat, with the greatest seagrass presence at the mouth of the creek, as well as oyster habitat. Oyster habitat consisted of loose shell hash in some areas, and more established oyster beds in other. However,

live oyster presence was relatively low and a thin layer of siltation was noted throughout the site. Substrate in the survey area was generally a fine, silty sand.

Water depths within the Project area average -5 ft NAVD to -7 ft NAVD. Water depths were as shallow as less than -2 ft NAVD along the shoreline and there is one deeper location of approximately -15 ft NAVD within the middle of the creek. The far east extent of the Project site has the shallowest water depths. Shoaling is present throughout the Project area and presents navigational hazards, especially at low tides. This presents a concern for local businesses located upstream that rely on boat patrons, as well as for safe egress and ingress for the County's emergency vessels that are moored within the Project area. As such, WCIND and the County are investigating the feasibility of maintenance dredging the creek.

A 30-ft-wide navigational channel has been previously dredged within the Project site. This channel has been maintained over the years, although at infrequent intervals. USACE Permit No. 199900648/199900532 and FDEP Permit No. 58-01511523-001 authorized dredging within the Project area. The proposed scope of work includes maintenance dredging the existing 30'-wide navigational channel to -4.0 ft MLW (-5.25 ft NAVD), where necessary, to restore safe navigation of the creek. Final extents of dredging and material management site(s) are still being finalized.

3. Discussions

Ms. Delp noted that there may be small patches of seagrass within the existing channel area that is proposed to be dredged. Ms. Shanell Bosch stated that resources anticipated to be impacted – seagrasses and/or oysters – will need to be relocated or mitigated for. Ms. Jenna Phillips pointed out that the proposed dredging would be maintenance and that it is likely that these resources were previously mitigated for. Ms. Delp added that because the dredging is maintenance and has been previously authorized, the work would likely meet an exemption and typically impacts to resources for work that meets an exemption are considered *de minimis*. Ms. Bosch stated that she would look into this further and get back to the Project team.

As it relates to oyster habitat relocation, Ms. Bosch stated that oyster shell hash still constitutes oyster habitat and would need be relocated if impacted. Mr. Justin McBride noted that with previous oyster habitat relocation projects, WCIND was only required to relocate clusters of a specific size (e.g., 6 inches or greater) and inquired if this potential oyster relocation would be authorized in a similar fashion. Ms. Bosch confirmed that FDEP reviews on a case-by-case basis, but agreed that individual shells/loose shell do not necessarily always need to be relocated. FDEP will perform a site visit to assess the site conditions themselves as part of their application review. Ms. Phillips asked FDEP to pass along any available guidance on the thresholds for oyster relocation work.

Ms. Bosch reminded the Project team that seagrass needs to be relocated or mitigated for if it is to be impacted. Ms. Delp added that a Uniform Mitigation Assessment Method (UMAM) would be compiled if it was determined that mitigation would be required for seagrass impacts; there is a chance that seagrass impacts would be so minimal that the UMAM would determine that impacts do not propose a functional loss and compensatory mitigation is not necessary.

Ms. Bosch pointed out that dredging of sovereign submerged lands requires severance fees to be paid if dredged material is not being placed on a public site. Mr. McBride noted that WCIND is exempt from severance fees.

4. Post-Meeting E-mail Follow-up

Ms. Bosch followed up via e-mail with the following response:

"Regarding the resources within the dredging footprint, mitigation or relocation will not be required at the state level. Under the exemption, we will withhold SPGP, and you will need to coordinate with the Army Corps of Engineers. The Corps may require you to mitigate or relocate any resources within the footprint.

Since you have previous authorization for past dredging, it will be considered maintenance as long as it is to the same depth previously authorized under those permits. Any deeper dredging would require a new permit. There is a General Permit available for county dredging, and again, mitigation and relocation of resources would not be required at the state level but may be required by the Army Corps."

5. Next Steps

- Cummins Cederberg to schedule and hold a pre-application meeting with the USACE

Attachments

Attachment A – FDEP Pre-App Slide Deck

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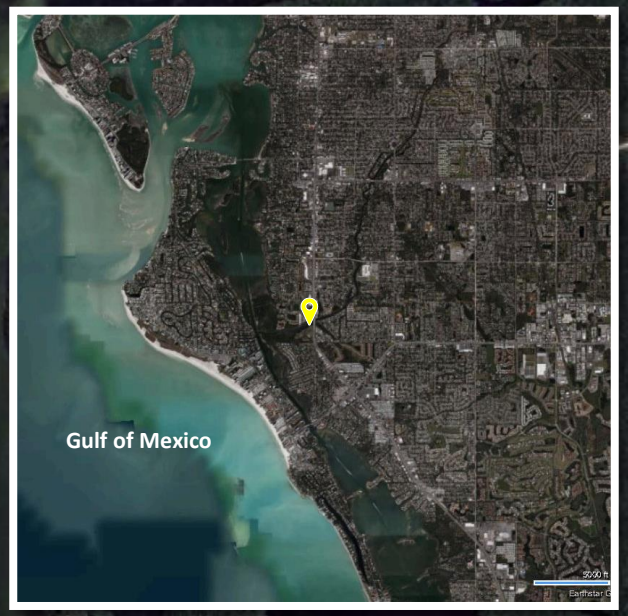
WCIND Phillippi Creek - Dredge Project

FDEP Pre-Application Meeting
August 29, 2024

Project Site Location

CUMMINS | CEDERBERG
Coastal & Marine Engineering

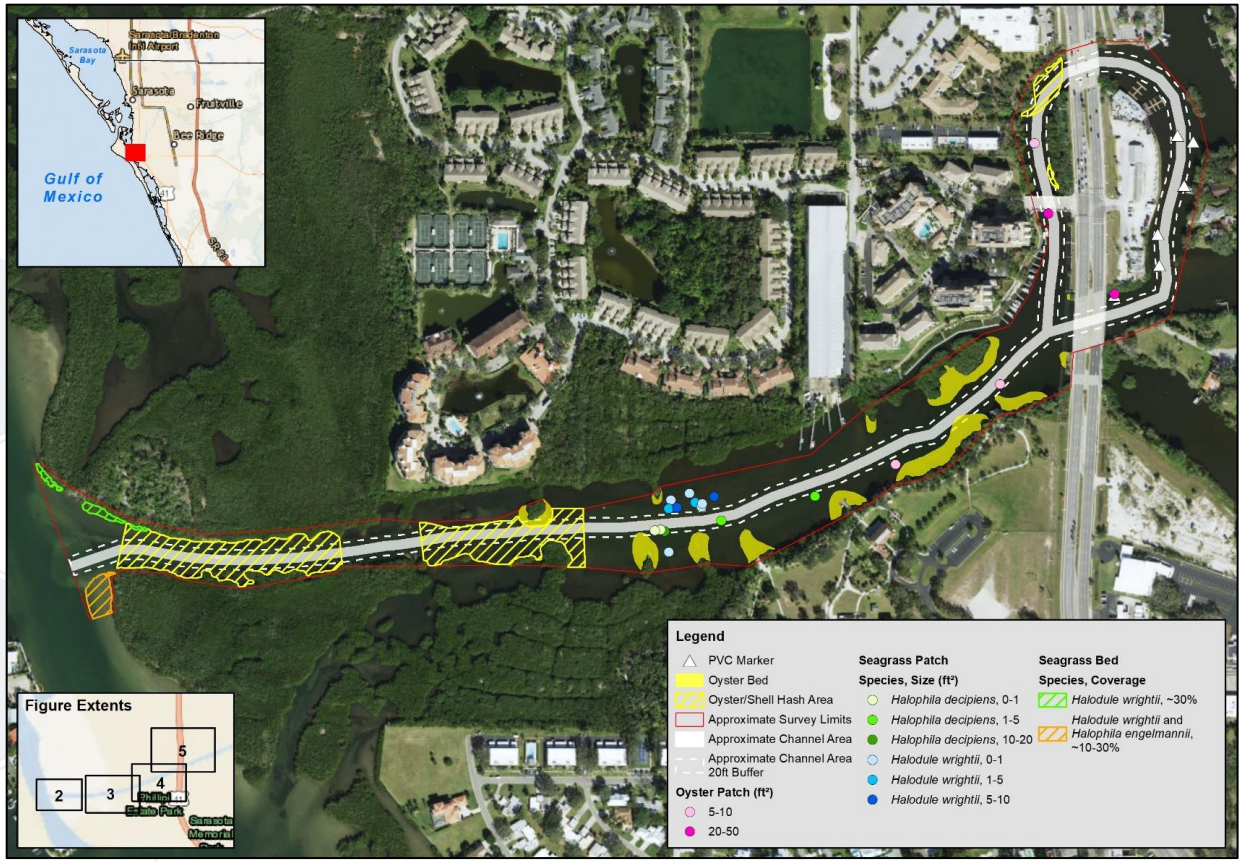


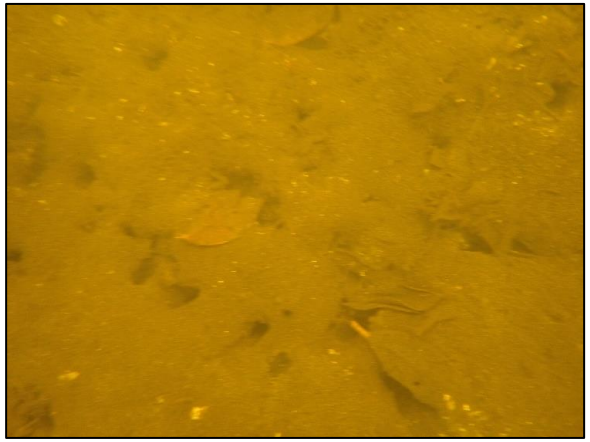
Phillippi Creek
Sarasota, Florida

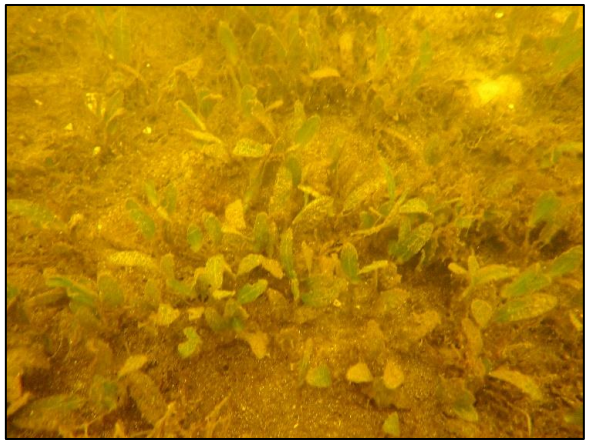
~6,700 LF of waterway

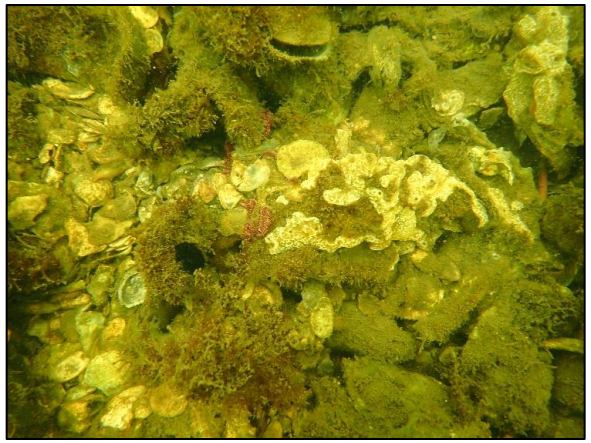
Existing conditions

- Shoreline stabilization = natural mangrove shoreline transitions to bulkheaded shoreline
- Various dock structures and boat ramps located along the Creek
- Benthic survey (June 2024):
  - Sandy to silty shell substrate with areas of SAV near the creek mouth
  - Strong current, especially with outgoing tide
- Manatees were observed utilizing the river during the survey

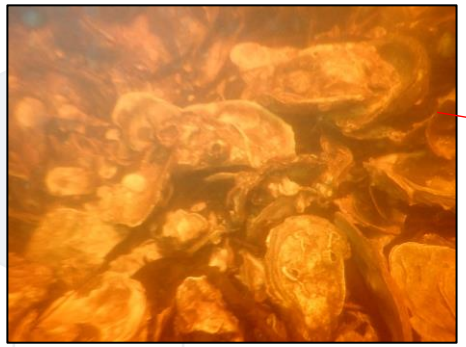


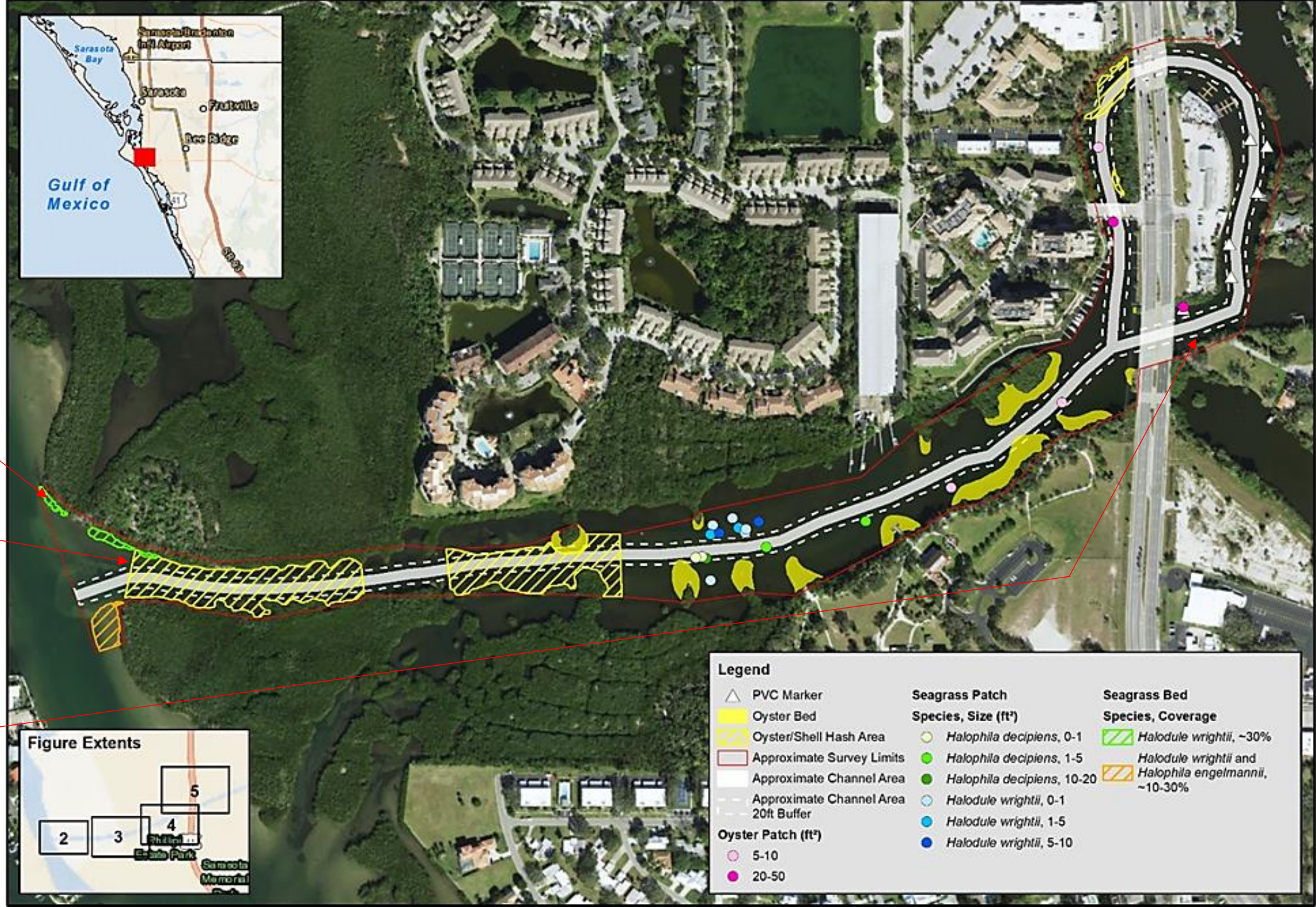


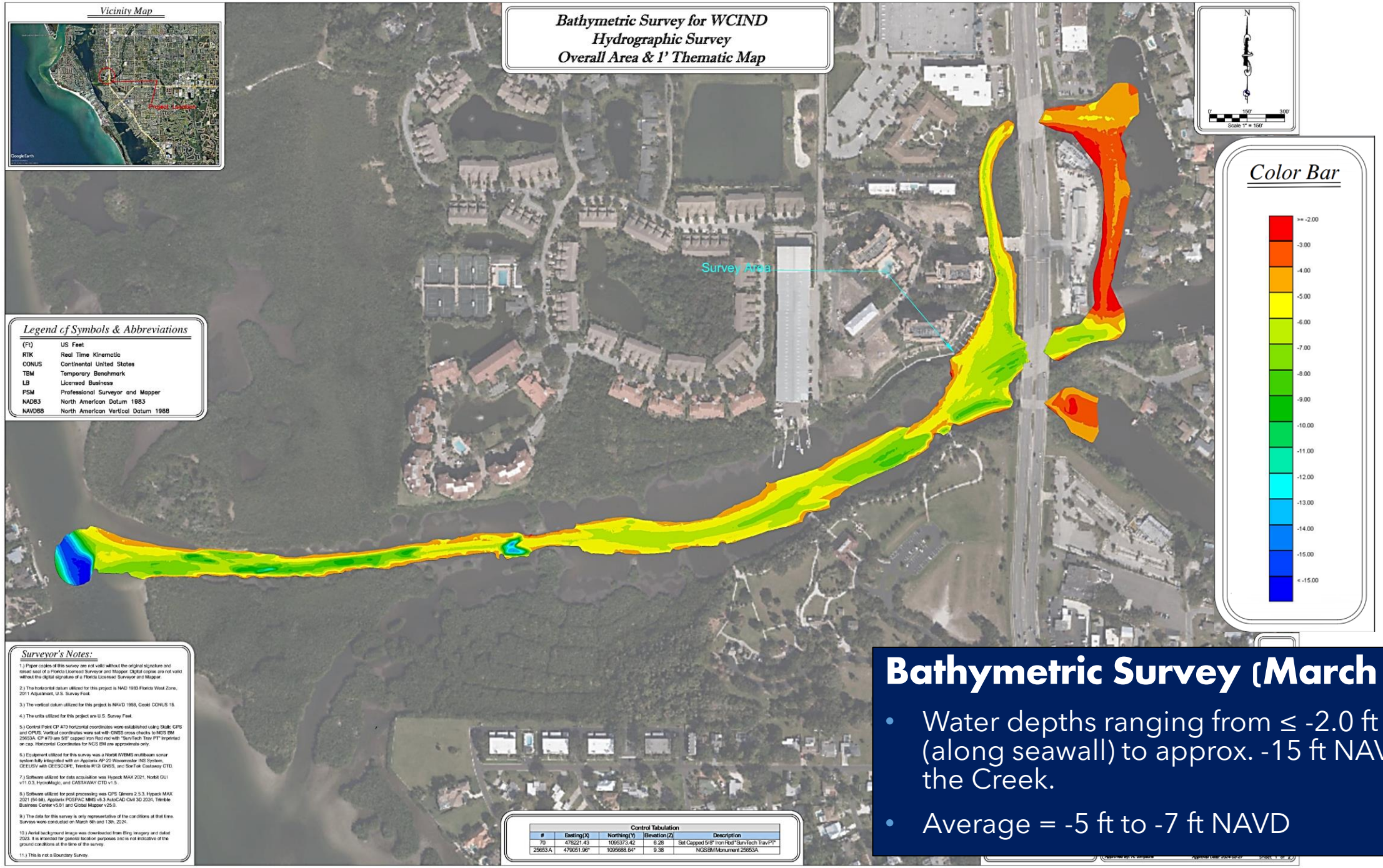




Benthic Survey (June 2024)





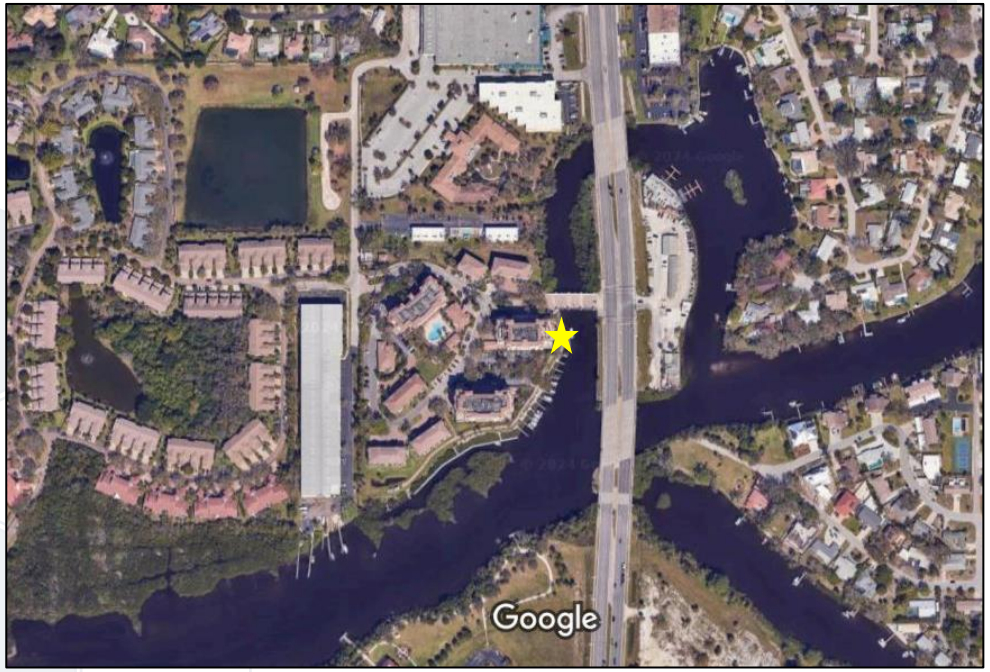


Bathymetric Survey (March 2024)

- Water depths ranging from ≤ -2.0 ft NAVD (along seawall) to approx. -15 ft NAVD within the Creek.
- Average = -5 ft to -7 ft NAVD

Project purpose

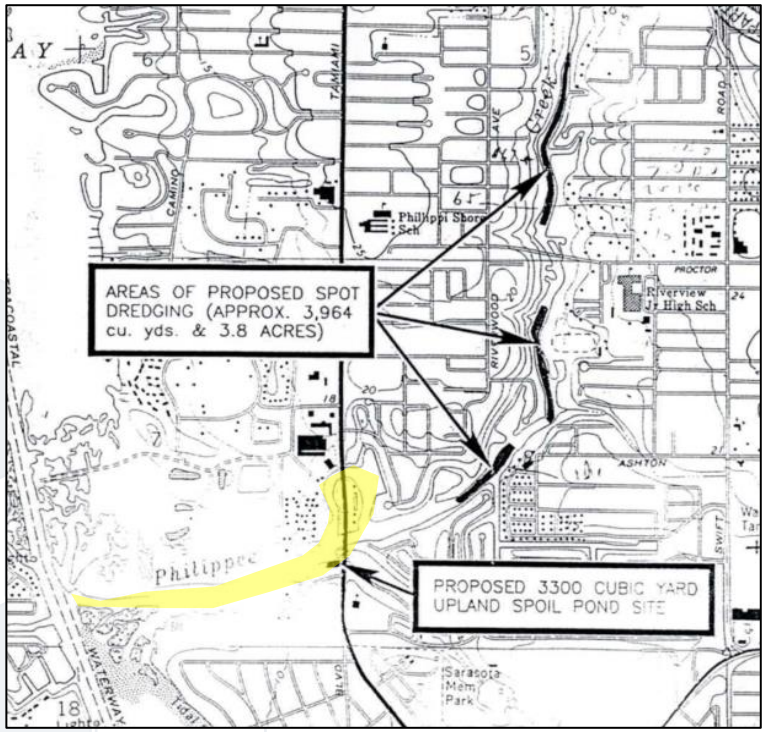
- Shoaling presents navigational hazard, especially at low tides
  - Impacting local businesses that rely on boat patrons
  - County's emergency response vessel access

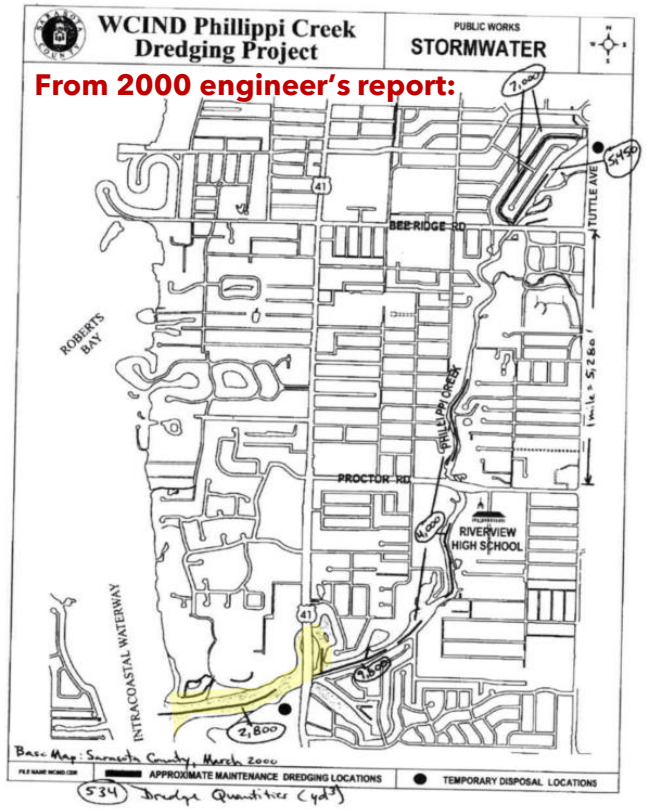


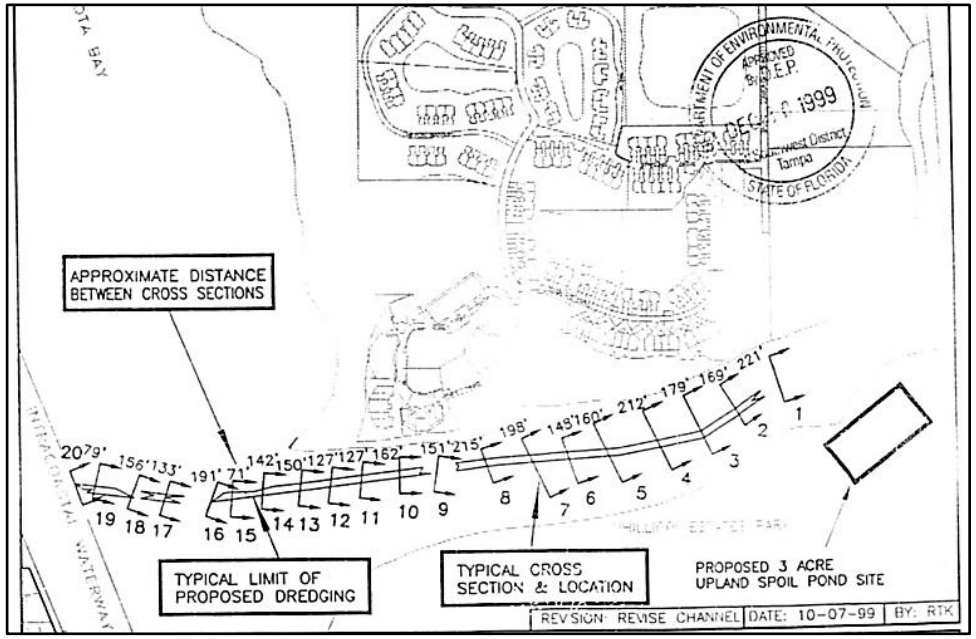
Permit History*

Agency	Permit No.	Date	Applicant	Authorized Work
FDEP	58-01511523-001	12/30/1999	WCIND	Excavation of 3,964 CY of sediment upstream of US-41 and 2,800yd^3 downstream; depth to -4' MLW
USACE	199900648/199900532	1/6/2000	WCIND	Maintenance dredge 6,764 CY of material to -4.0' MLW

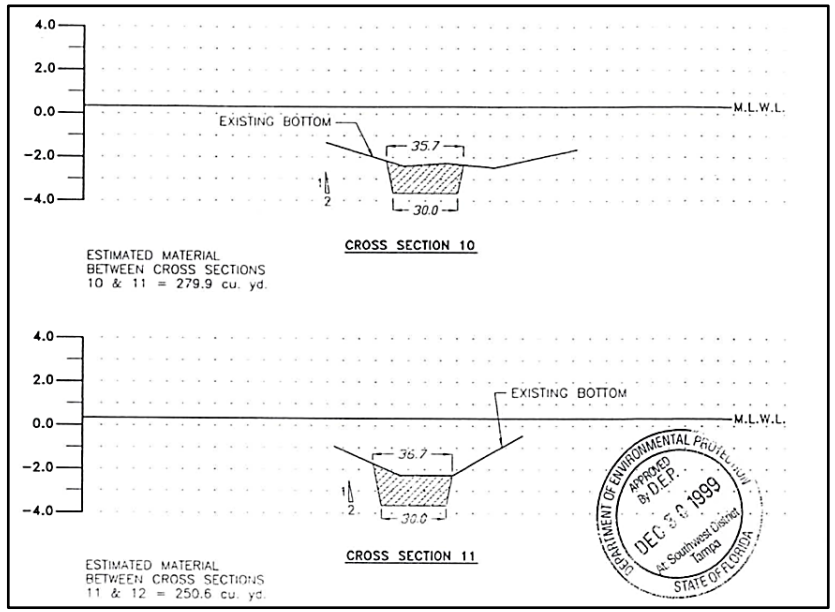
USACE Permit dredge areas:







Site plan & sections from 1999 FDEP Permit No. 58-01511523-001 depicting maintenance dredge near the mouth of Phillippi Creek. Dredge depth = -4' MLW= channel width = 30'.



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***Other permits issued for dredging completed upstream of Project site**

Scope of Work

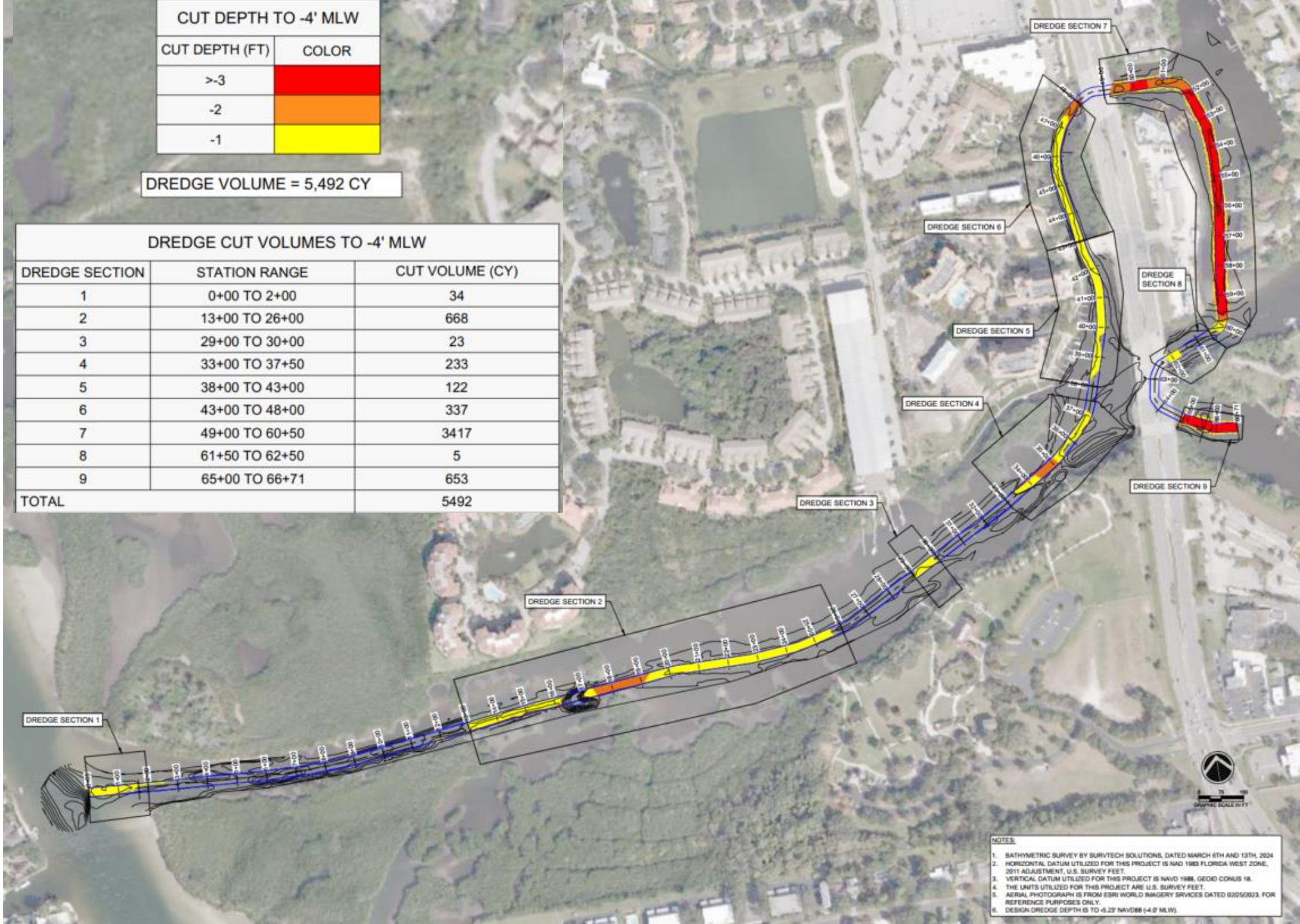
- Dredge 30’-wide navigational channel to -4.0 ft MLW (-5.25 ft NAVD), where necessary, to restore safe navigation of the Creek

- Feasibility and final design still underway
  - Final extents of dredging
  - Material management site(s)

CUT DEPTH TO -4' MLW	
CUT DEPTH (FT)	COLOR
>-3	
-2	
-1	

DREDGE VOLUME = 5,492 CY

DREDGE CUT VOLUMES TO -4' MLW		
DREDGE SECTION	STATION RANGE	CUT VOLUME (CY)
1	0+00 TO 2+00	34
2	13+00 TO 26+00	668
3	29+00 TO 30+00	23
4	33+00 TO 37+50	233
5	38+00 TO 43+00	122
6	43+00 TO 48+00	337
7	49+00 TO 60+50	3417
8	61+50 TO 62+50	5
9	65+00 TO 66+71	653
TOTAL		5492



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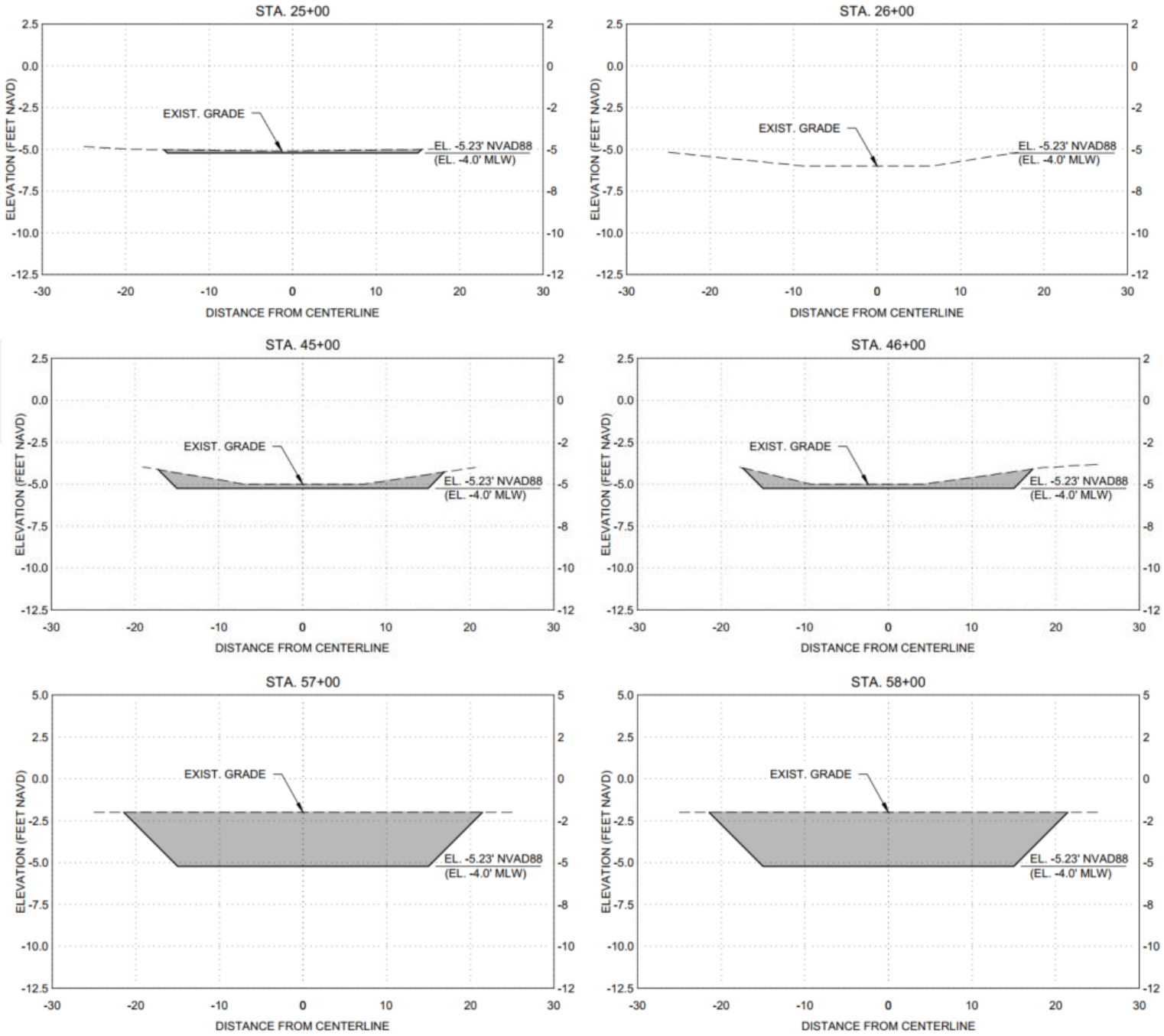
Scope of Work

- Station dredge cuts
  - Removal of 1 ft to 3+ ft
  - 5,492 CY total



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Geotechnical Sampling

- Performed May 2024
  - Under review

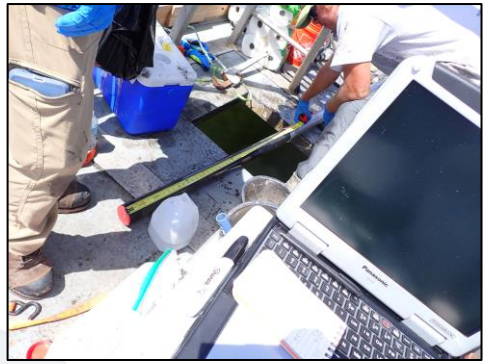

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FIGURE 2: Vibracore Location Map
Phillippi Creek Maintenance Dredging Feasibility Study Project
Sarasota County, Florida

ATHENA TECHNOLOGIES, INC
www.athenatechnologies.com

- Vibracores collected in May 2024

- Sample prefix PC-24- removed to improve figure clarity

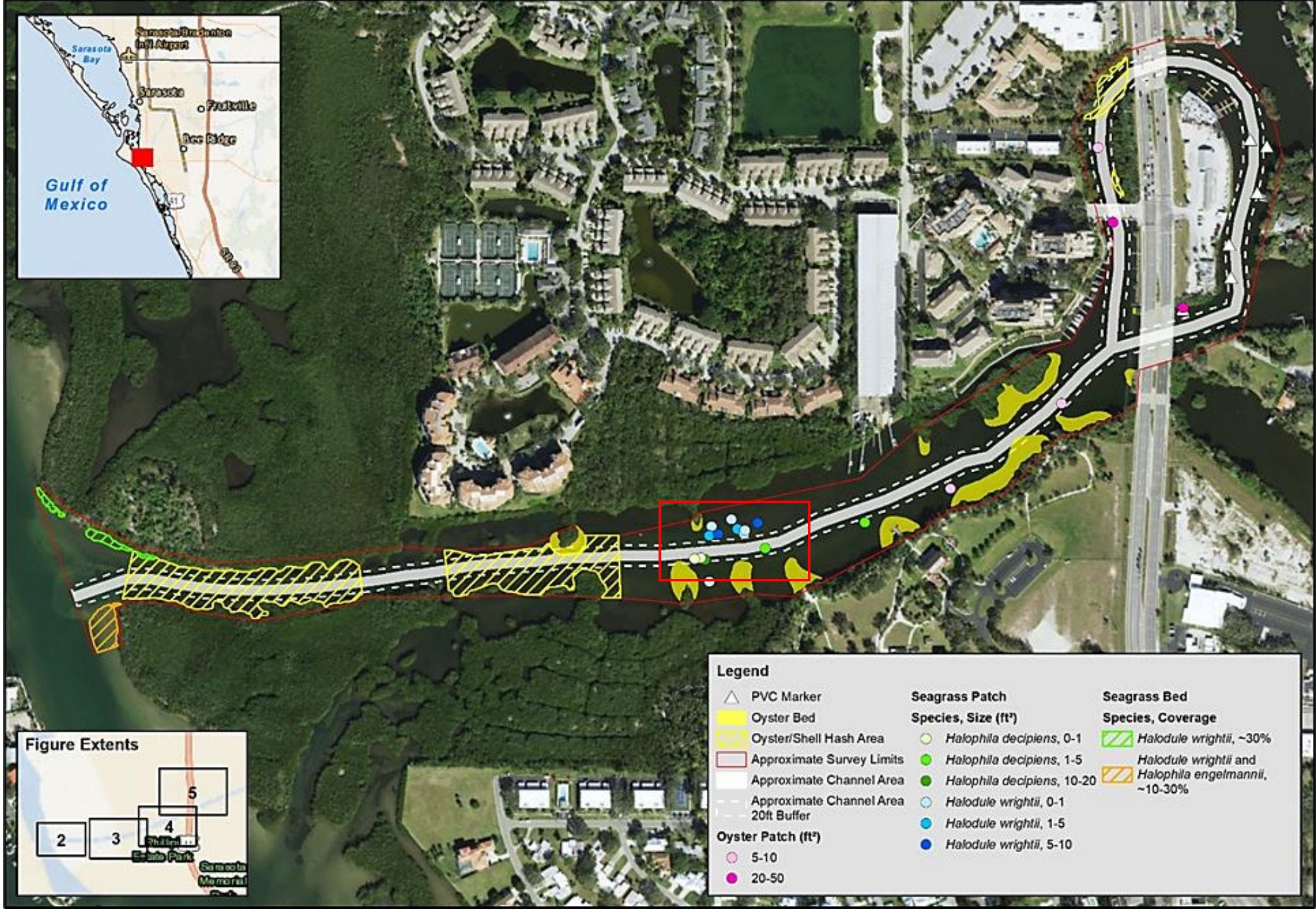
0 200 400
feet

Vibracore Location

N
W E
S

IMAGE SOURCE: Google Earth 2023

Athena Technologies, Inc
PO Box 68
McClellanville, SC 29458
843-887-3800



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Meeting Minutes

Project Name:	WCIND Phillippi Creek Maintenance Dredging Project
CC Project Number:	137100
Meeting Date:	November 6, 2024
Meeting Time:	11:00 AM
Location:	Microsoft Teams Meeting
Participants:	Carissa Curlee, U.S. Army Corps of Engineers Brendan Myers, U.S. Fish and Wildlife Service Justin McBride, West Coast Inland Navigation District Joseph Kraus, Sarasota County Rachel Herman, Sarasota County Jennifer Bistyga, Cummins Cederberg, Inc. Jenna Phillips, Cummins Cederberg, Inc. Rebecah Delp, Cummins Cederberg, Inc. Alex Pacelko, Cummins Cederberg, Inc.

1. Purpose

The purpose of the meeting was to discuss, with the U.S. Army Corps of Engineers (USACE), the proposed Phillippi Creek Maintenance Dredging Project located within Sarasota County, Florida (Project). This meeting was meant to identify potential concerns and permitting restrictions that USACE may have relative to the proposed Project scope.

2. Background

Ms. Rebecah Delp presented a slide deck (**Attachment A**) to provide Project background, existing conditions, permit history, and context for the proposed scope of work.

The West Coast Inland Navigation District (WCIND) and Sarasota County (County) are considering maintenance dredging of the first approximately 6,700 linear feet (LF) of Phillippi Creek, from the mouth of the creek to just east of where the US-41 bridge traverses the creek. The shoreline at the mouth of the creek is lined with natural mangrove habitat which transitions to bulkheaded shoreline at the eastern extents of the Project area where upland use shifts to multi- and single-family residences and commercial/retail properties. Occasional boat ramp and dock structures are present along the shoreline on the eastern extent as well.

A benthic survey was conducted by Cummins Cederberg, Inc (Cummins Cederberg) in June 2024. The surveying revealed that the Project site supports minimal seagrass habitat, with the greatest seagrass presence at the mouth of the creek, as well as oyster habitat. Oyster habitat

consisted of loose shell hash in some areas, and more established oyster beds in other. However, live oyster presence was relatively low and a thin layer of siltation was noted throughout the site. Substrate in the survey area was generally a fine, silty sand.

Water depths within the Project area average -5 ft NAVD to -7 ft NAVD. Water depths were as shallow as less than -2 ft NAVD along the shoreline and there is one deeper location of approximately -15 ft NAVD within the middle of the creek. The far east extent of the Project site has the shallowest water depths. Shoaling is present throughout the Project area and presents navigational hazards, especially at low tides. This presents a concern for local businesses located upstream that rely on boat patrons, as well as for safe egress and ingress for the County's emergency vessels that are moored within the Project area. As such, WCIND and the County are investigating the feasibility of maintenance dredging the creek.

A 30-ft-wide navigational channel has been previously dredged within the Project site. This channel has been maintained over the years, although at infrequent intervals. USACE Permit No. 199900648/199900532 and FDEP Permit No. 58-01511523-001 authorized dredging within the Project area. The proposed scope of work includes maintenance dredging the existing 30'-wide navigational channel to -4.0 ft MLW (-5.25 ft NAVD), where necessary, to restore safe navigation of the creek. Final extents of dredging and material management site(s) are still being finalized.

3. Discussions

Ms. Delp noted that there are small patches of seagrass within the existing channel area that is proposed to be dredged. Ms. Carissa Curlee stated that proposed impacts to seagrass would require mitigation and noted that there are no seagrass credits available for purchase from mitigation banks in this area. If there are no mitigation banks, permittee-responsible mitigation will likely be required. Similarly, oyster mitigation may be required for oyster impacts if there are live oysters within the Project footprint even if the footprint has been dredged previously. Ms. Curlee noted that Mark Sramek from National Oceanic and Atmospheric Association (NOAA) may have further feedback. The Cummins Cederberg team will quantify the anticipated impacts to these resources and provide Ms. Curlee with this information to initiate discussions with Mr. Sramek relative to potential mitigation requirements. A Uniform Mitigation Assessment Method (UMAM) may ultimately determine that seagrass mitigation is not necessary if impacts are minor enough.

Ms. Curlee inquired about the construction methodology and how the dredge material will be removed, dewatered, and stored. Ms. Delp stated that the means and methods have not been finalized and may be altered based on the selected contractor. As currently proposed, the dredge material will be dewatered and handled on barges and/or an upland site prior to being disposed of at an approved upland facility.

Mr. Brendan Myers from U.S. Fish and Wildlife Service (USFWS) expressed concern that the barge may occupy more than half of the waterway width and restrict manatee access. If this is the case, a designated manatee observer would be USFWS's preferred method of managing manatee access during construction activities. The Project area is not zoned as a warm water aggregation area or important manatee area. Ms. Delp stated that the barge may be assessed to

ensure that less than half of the waterway will be obstructed, or a manatee observer will be implemented.

Ms. Delp asked if emergency permitting would be applicable due to the recent storm events (i.e., Hurricanes Helene and Milton) in the area. Ms. Curlee responded that the accumulated sediment is not attributed solely to the recent storms' activity and therefore the Project will likely not qualify under emergency permitting.

Mr. Justin McBride asked if utilization of geobags and hydraulic dredging would alter any of the permit restrictions regarding manatee protection. Mr. Myers and Ms. Curlee agreed that it would not alter permit requirements and restated that manatee observers would likely be recommended.

The USACE will process the proposed Project as a Letter of Permission (LOP) unless it is determined that there will be new dredging, in which case an Individual Permit will be required. Each process will have public noticing periods and commenting agencies will have the opportunity to provide feedback during application review.

4. Next Steps

- Ms. Delp will provide Ms. Curlee with anticipated resource impact quantities to forward to Mr. Sramek for initial review and feedback ahead of application submittal. This will help the Project team consider and plan for potential mitigation requirements.
- Cummins Cederberg to prepare application packages for both the USACE and the FDEP.

Attachments

Attachment A – USACE Pre-App Slide Deck

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WCIND Phillippi Creek - Dredge Project

USACE Pre-Application Meeting
November 6, 2024

Project Site Location

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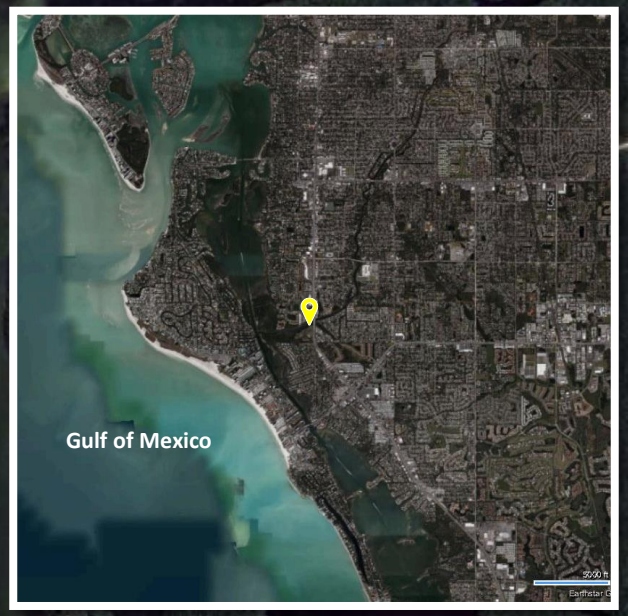
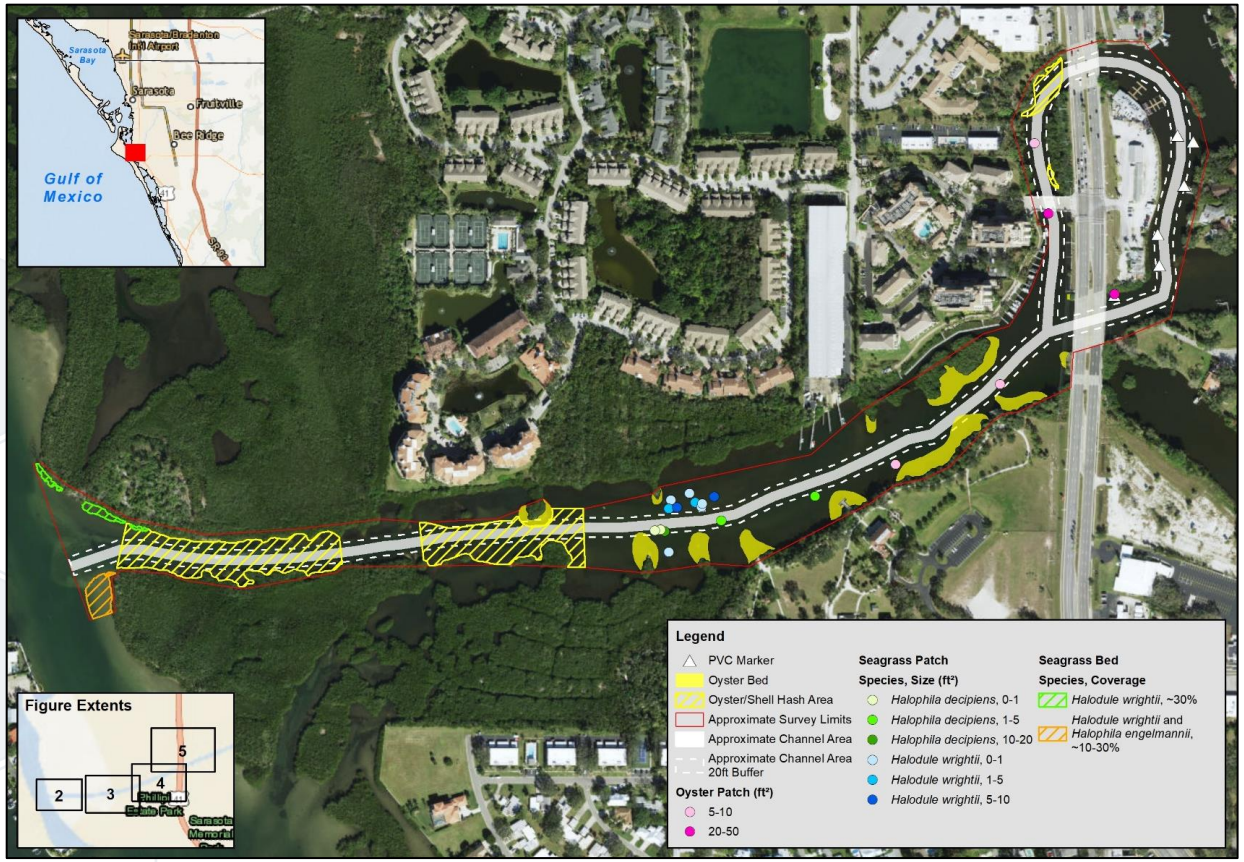


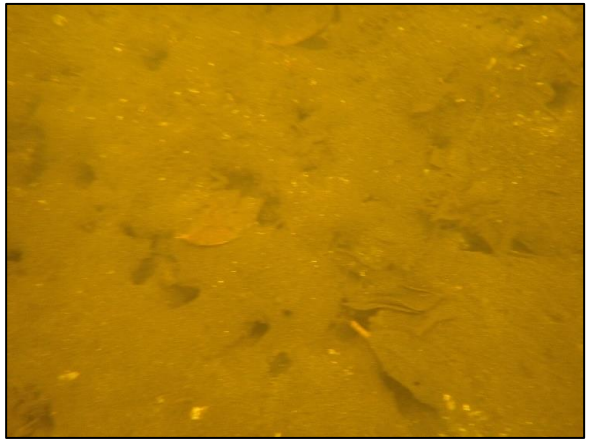
Phillippi Creek
Sarasota, Florida

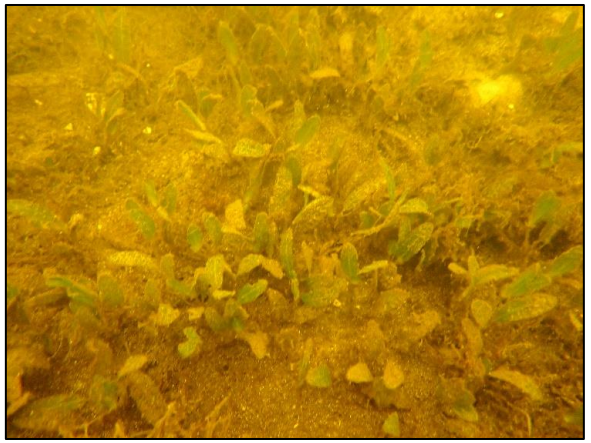
~6,700 LF of waterway

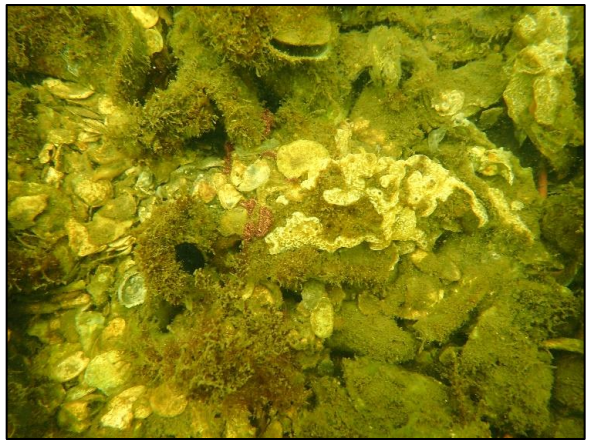
Existing conditions

- Shoreline stabilization = natural mangrove shoreline transitions to bulkheaded shoreline
- Various dock structures and boat ramps located along the Creek
- Benthic survey (June 2024):
  - Sandy to silty shell substrate with areas of SAV near the creek mouth
  - Strong current, especially with outgoing tide
- Manatees were observed utilizing the river during the survey









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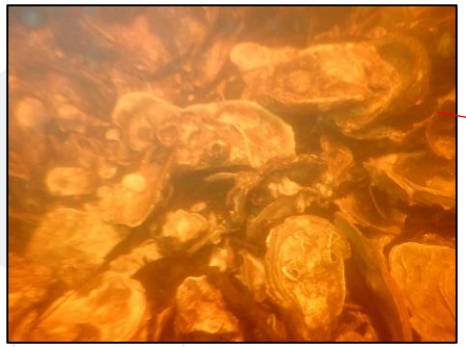

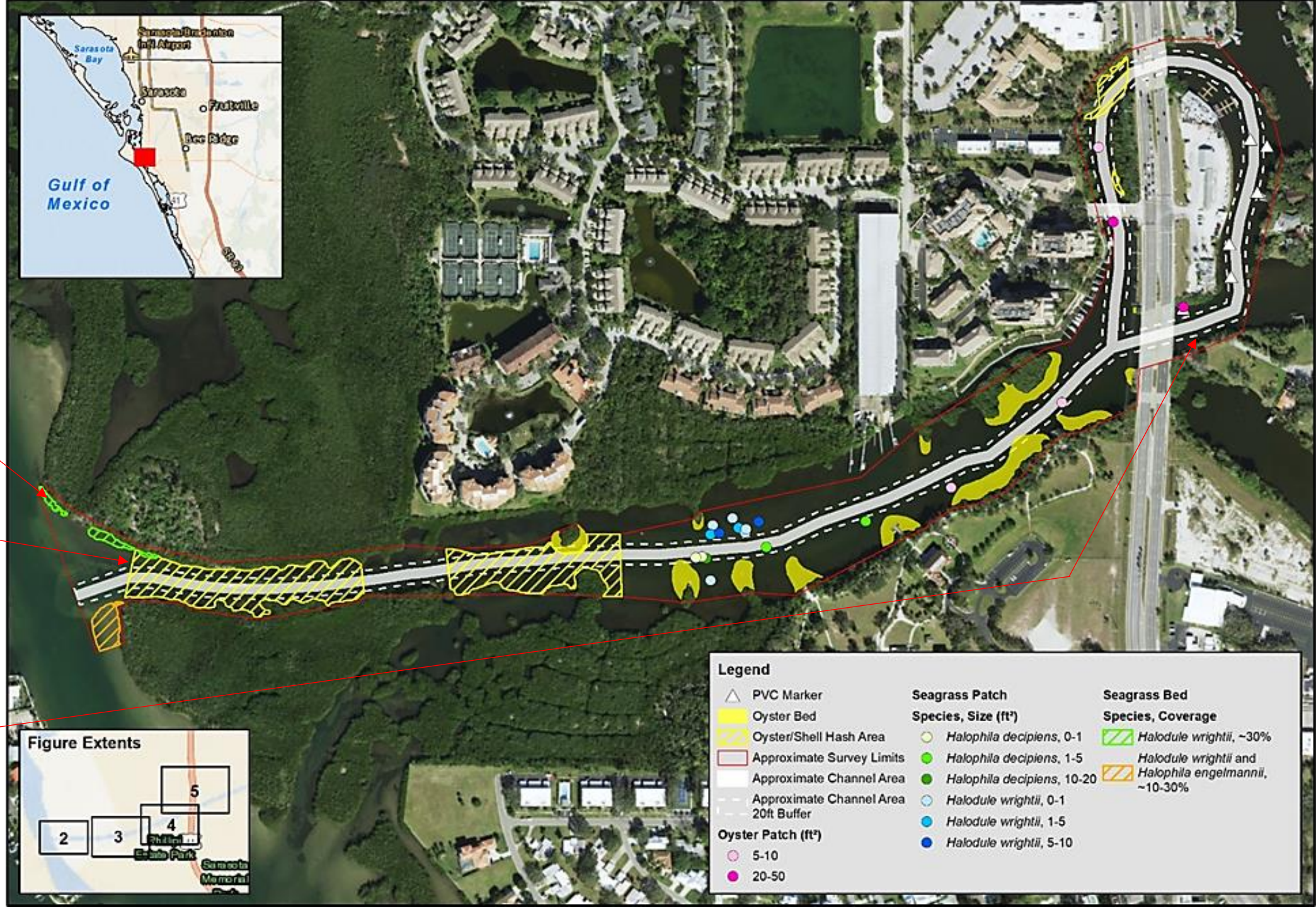

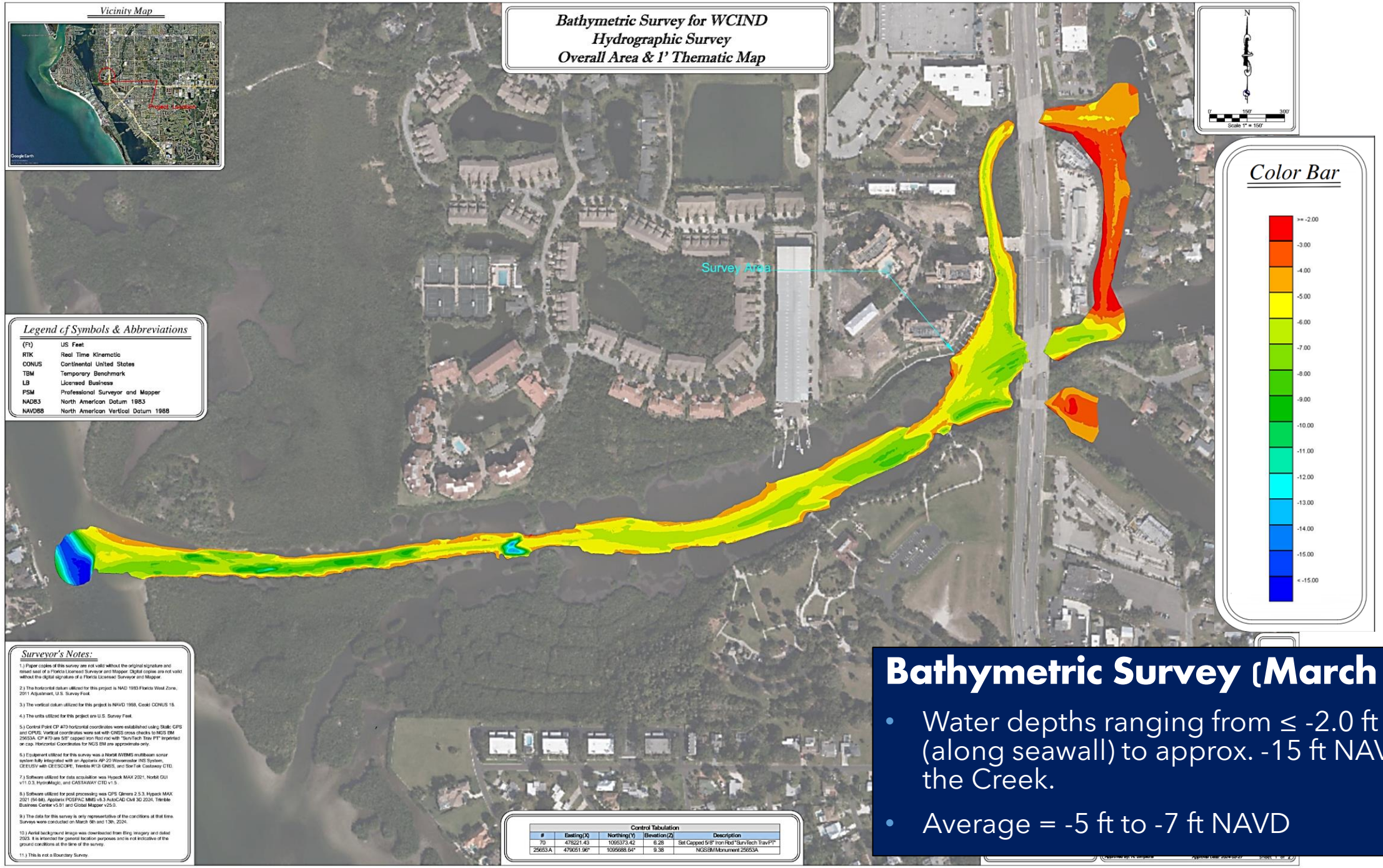

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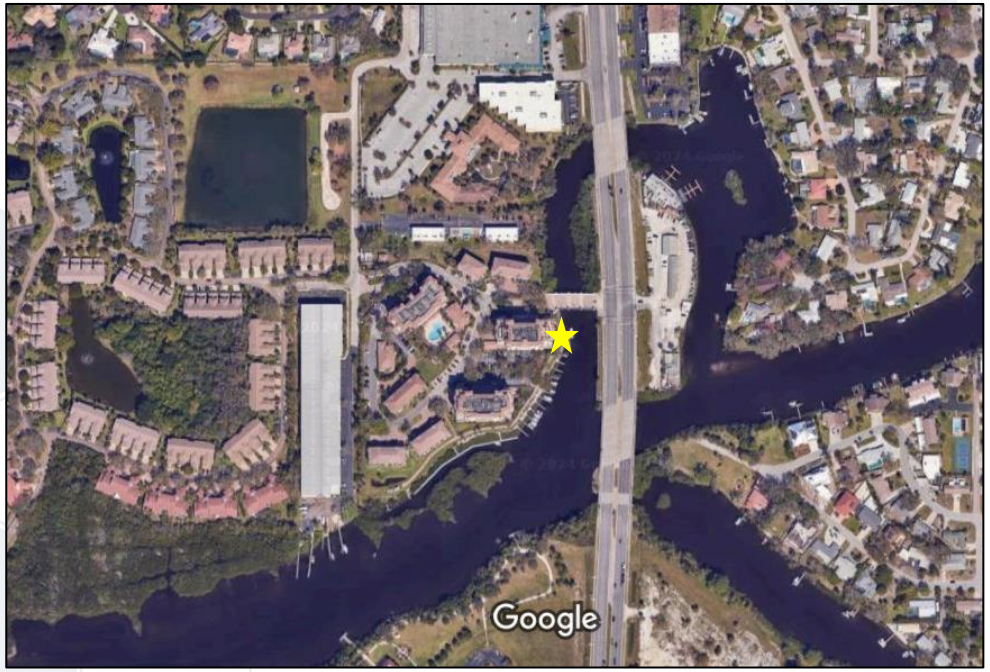

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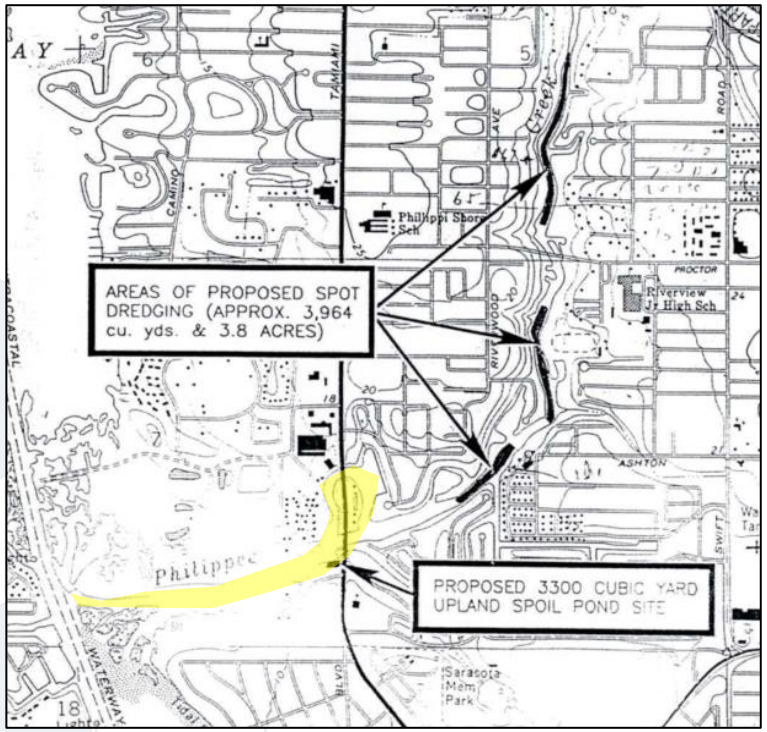
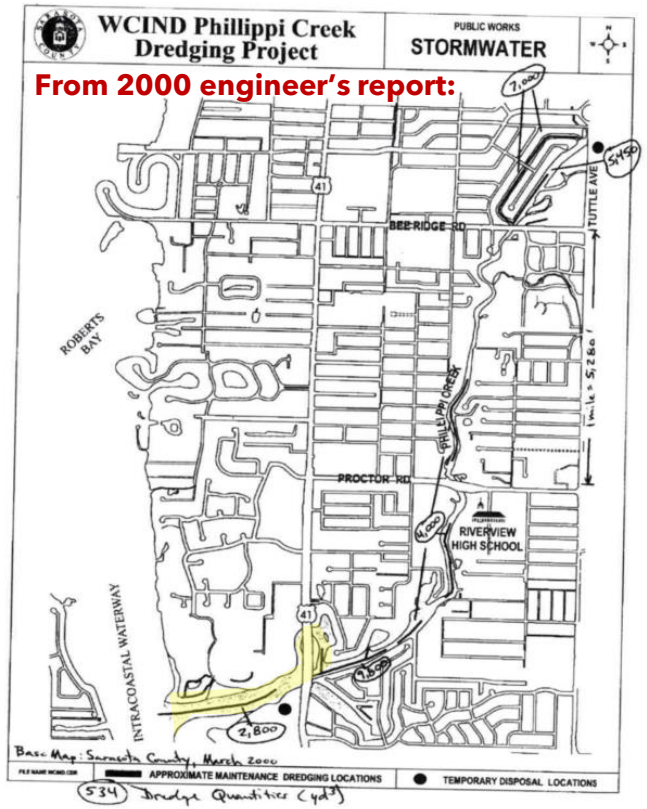
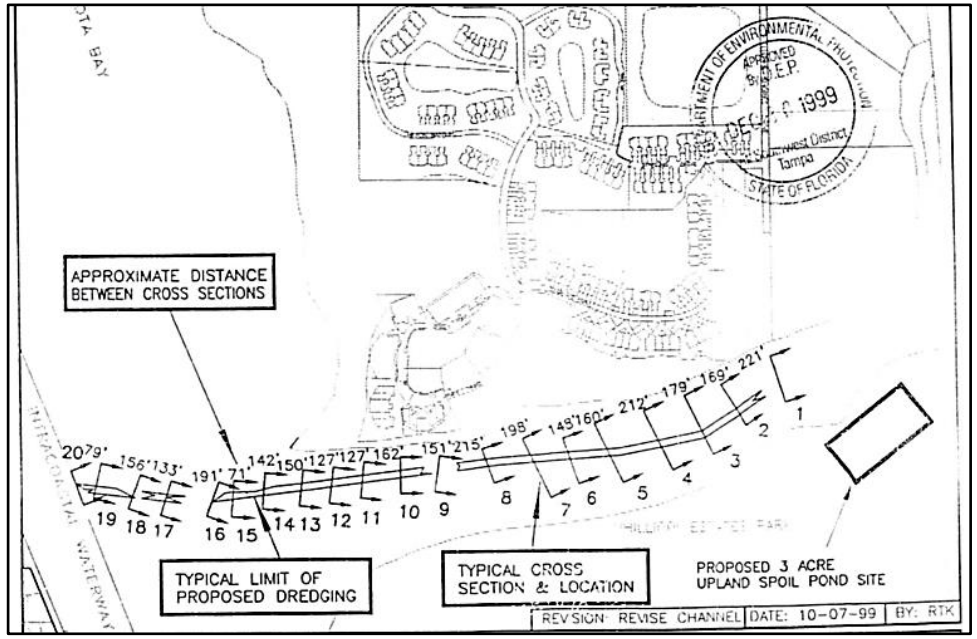
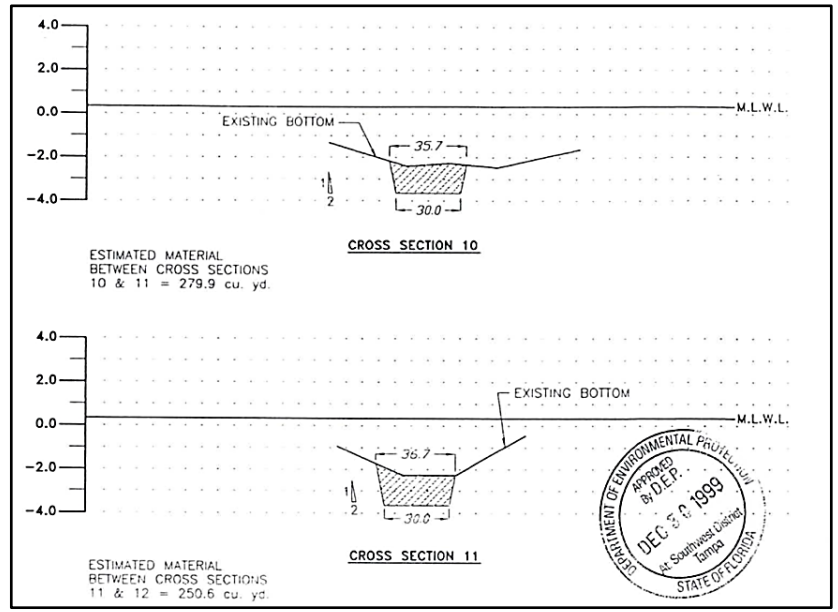






Site plan & sections from 1999 FDEP Permit No. 58-01511523-001 depicting maintenance dredge near the mouth of Phillippi Creek. Dredge depth = -4' MLW= channel width = 30'.



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***Other permits issued for dredging completed upstream of Project site**

Scope of Work

- Dredge 30’-wide navigational channel to -4.0 ft MLW (-5.25 ft NAVD), where necessary, to restore safe navigation of the Creek

- Feasibility and final design still underway
  - Final extents of dredging
  - Material management site(s)

DREDGE CUT VOLUMES TO -4' MLW		
DREDGE SECTION	STATION RANGE	CUT VOLUME (CY)
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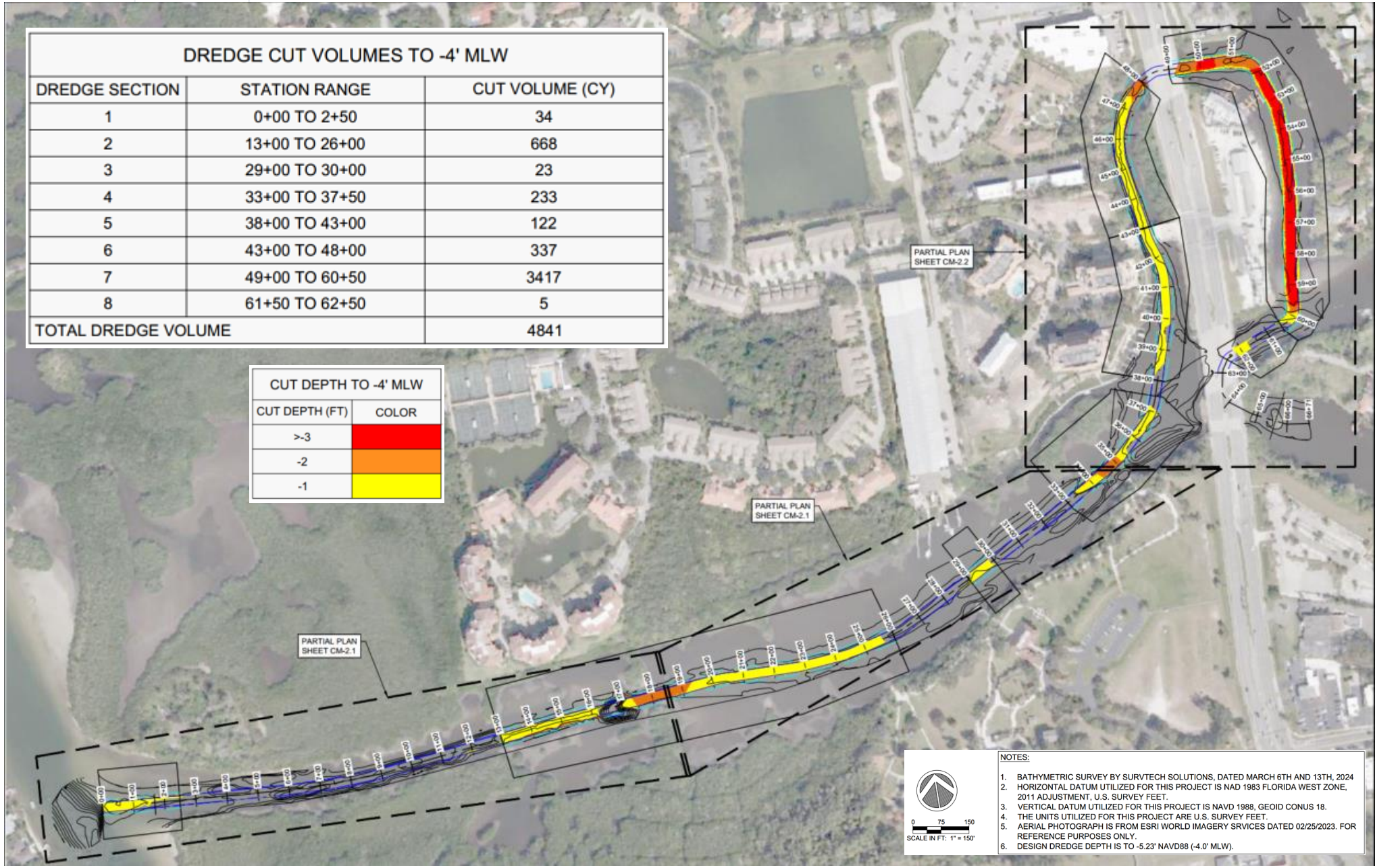
2	13+00 TO 26+00	668
3	29+00 TO 30+00	23
4	33+00 TO 37+50	233
5	38+00 TO 43+00	122
6	43+00 TO 48+00	337
7	49+00 TO 60+50	3417
8	61+50 TO 62+50	5
TOTAL DREDGE VOLUME		4841

CUT DEPTH TO -4' MLW	
CUT DEPTH (FT)	COLOR
>-3	
-2	
-1	



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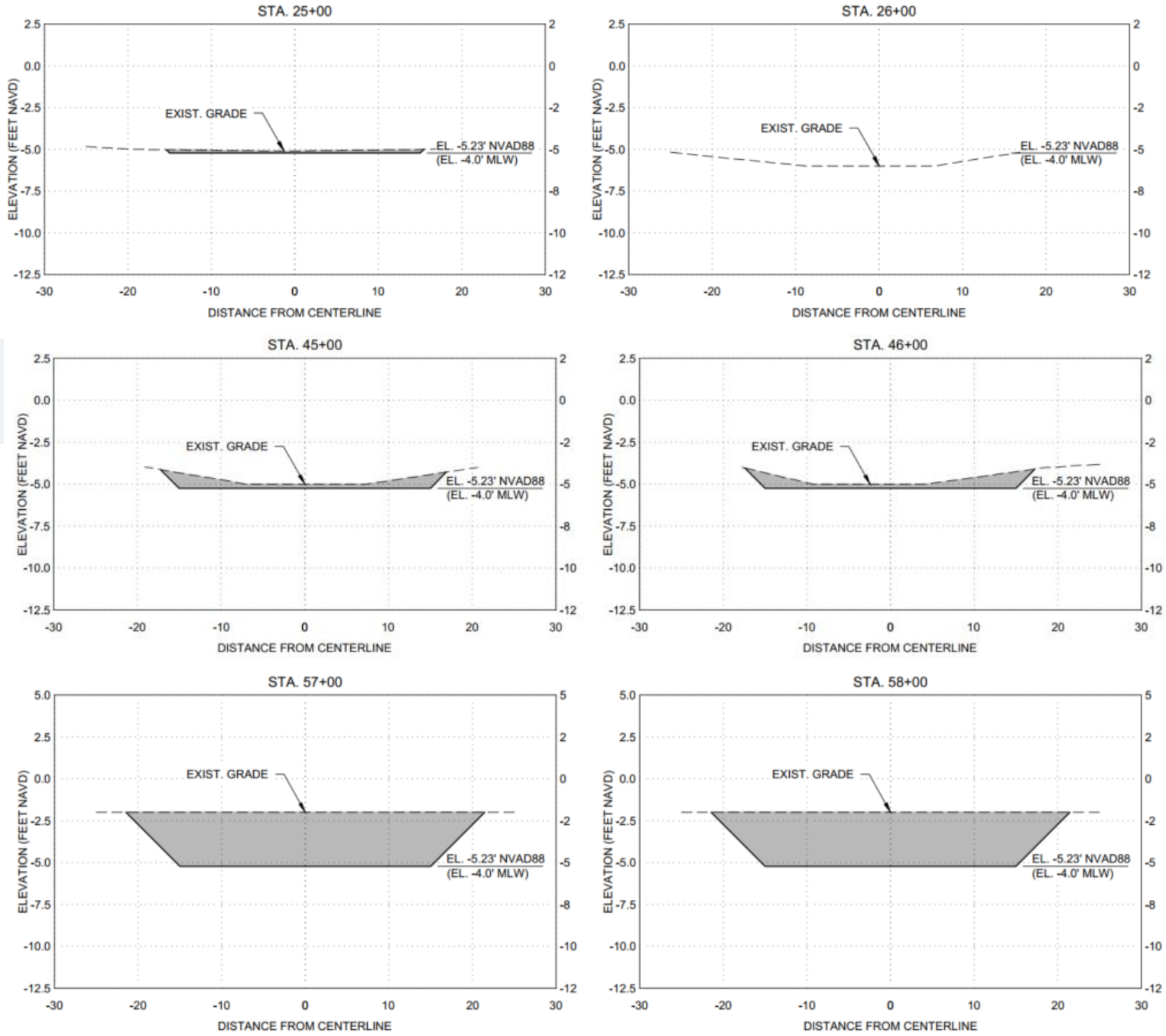
Scope of Work

- Station dredge cuts
  - Removal of 1 ft to 3+ ft
  - 4,841 CY total



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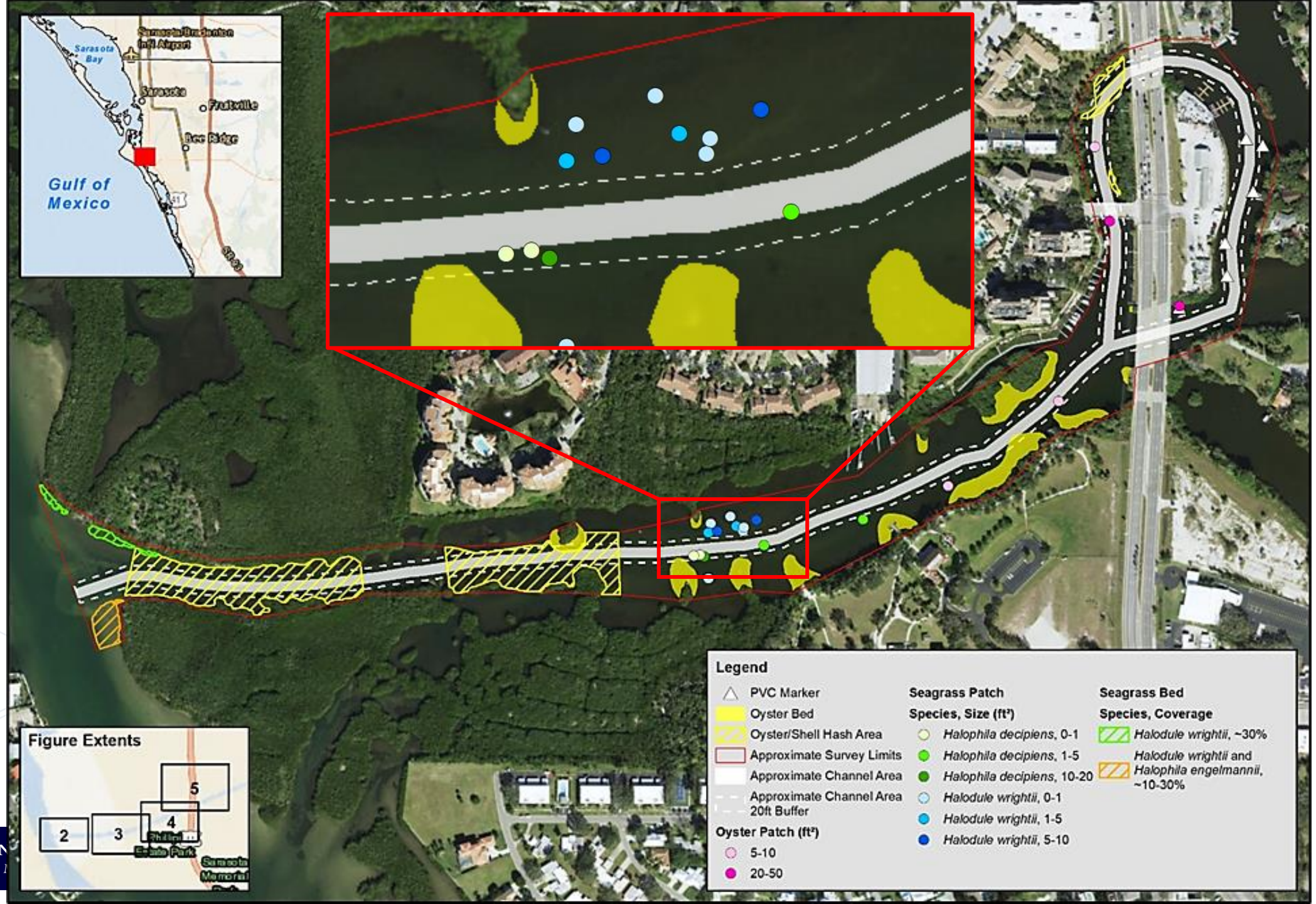
Sarasota Bay
Gulf of Mexico
Sarasota
Fruitville
Bee Ridge
Figure Extents
2
3
4
5
Legend
PVC Marker
Oyster Bed
Oyster/Shell Hash Area
Approximate Survey Limits
Approximate Channel Area
Approximate Channel Area 20ft Buffer
Oyster Patch (ft²)
5-10
20-50
Seagrass Patch
Species, Size (ft²)
Halophila decipiens, 0-1
Halophila decipiens, 1-5
Halophila decipiens, 10-20
Halodule wrightii, 0-1
Halodule wrightii, 1-5
Halodule wrightii, 5-10
Seagrass Bed
Species, Coverage
Halodule wrightii, ~30%
Halodule wrightii and Halophila engelmannii, ~10-30%

Geotechnical Sampling

- Performed May 2024

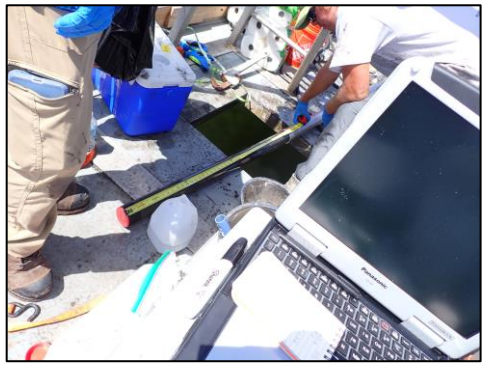

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FIGURE 2: Vibracore Location Map
Phillippi Creek Maintenance Dredging Feasibility Study Project
Sarasota County, Florida

ATHENA TECHNOLOGIES, INC
www.athenatechnologies.com

- Vibracores collected in May 2024

- Sample prefix PC-24- removed to improve figure clarity

0 200 400
feet

Vibracore Location

N
W E
S

IMAGE SOURCE: Google Earth 2023

Athena Technologies, Inc
PO Box 68
McClellanville, SC 29458
843-887-3800

Appendix F – Potential Dredging Conflict Areas

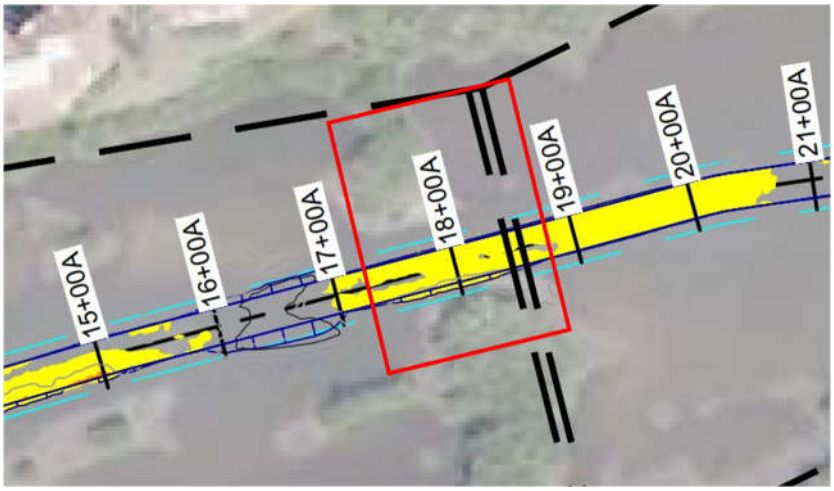

Figure 1. At Station 18+00A, the shoreline narrows where the vegetation may encroach on the south side of the offset for approximately 35 feet.

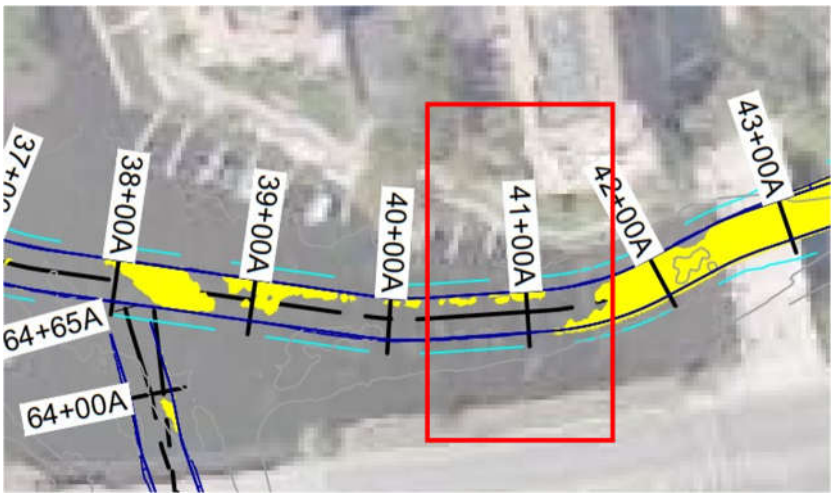

Figure 2. At Station 41+00A, the offset appears to impact the northern-most docks at Phillippi Landings and the approximate impact length is 70 feet on the west side of the navigation channel.

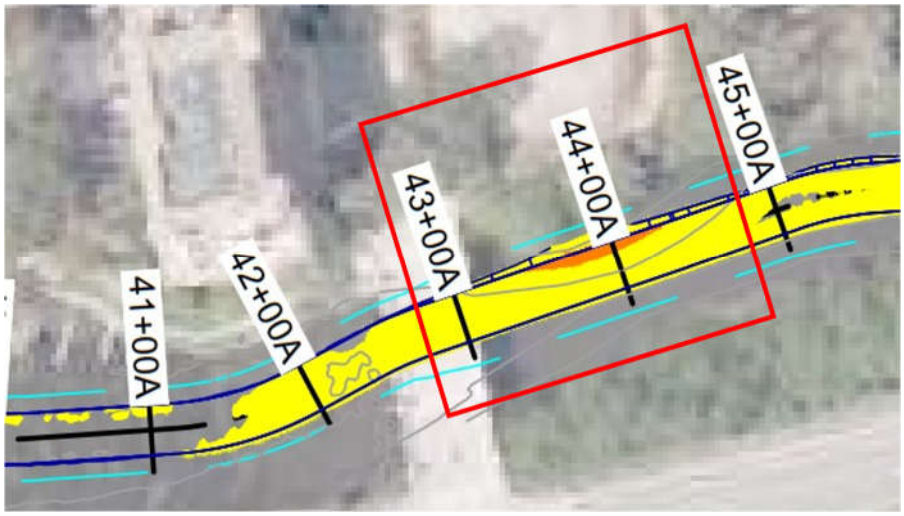

Figure 3. Between Stations 43+35A and 44+30A, the 10-foot buffer likely cannot be reached for approximately 95 feet due to the presence of mangroves and vegetation on the western shoreline.

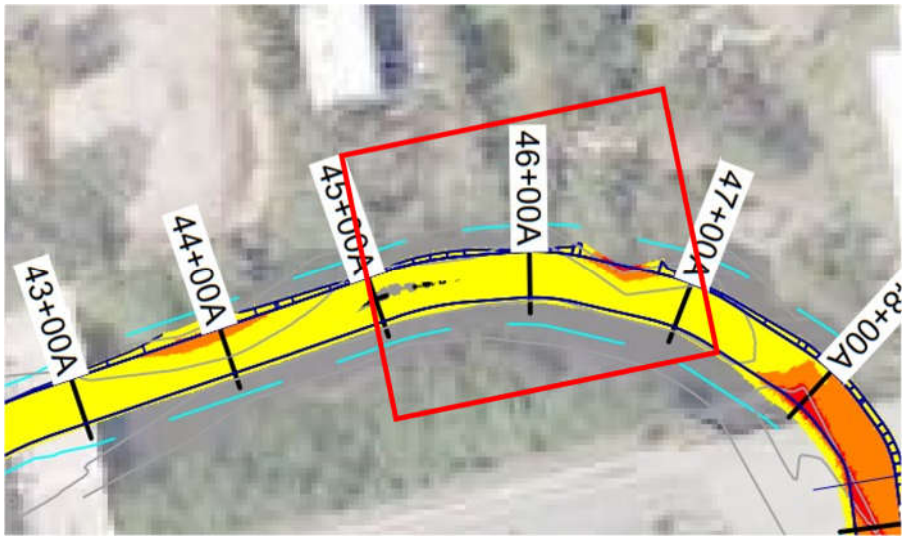

Figure 4. Between Stations 45+50A and 46+90A, vegetation impedes on the northwest side of the setback for roughly 140 feet.

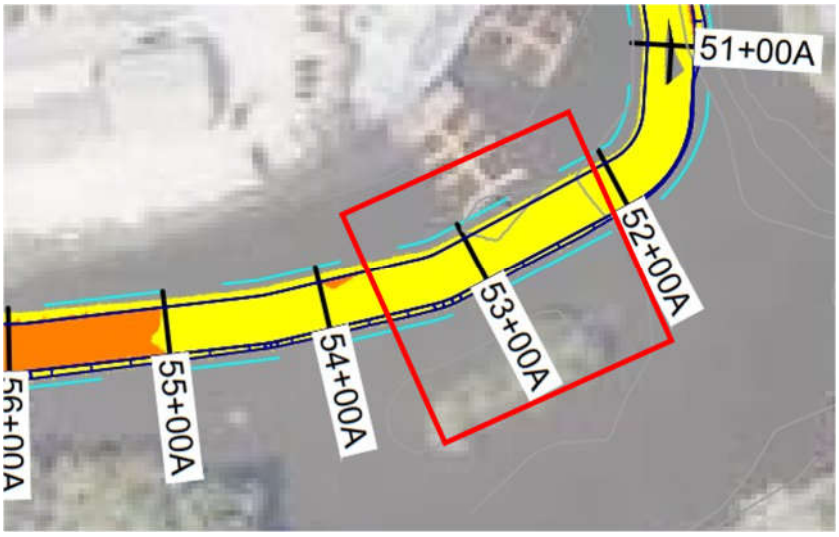

Figure 5. At Station 53+00A, it is anticipated the offset will not be achieved where the southern dock of Phillippi Creek Oyster Bar intersects the buffer.

Appendix G – Potential DMMA Sites

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Option	Name	Land Ownership	Acreage	Parcel ID	Address	Comment
1	Phillippi Creek Oyster Bar	Landing Marina LLC	1.0	0086040031	5353 S Tamiami Trl., Sarasota, FL, 34231	Private property Parking lot Adjacent to Project
2	Siesta Ski	River Forest LLC	0.4	0085130036	5245 S Tamiami Trl., Sarasota, FL, 34231	Private property Parking lot Adjacent to Project
3	Phillippi Estate Park	Sarasota County	17.0	0084090002	5500 S Tamiami Trl., Sarasota, FL, 34231	Public property Parking lot and open field Adjacent to Project
4	Vamo Drive Park	Sarasota County	0.7	0130150001	1700 Vamo Dr., Sarasota, FL, 34229	Public property Mostly vegetated park 5 miles from Project
5	Edward's Islands (West and East)	Sarasota County	28.0	0078080001, 0076040001	Roberts Bay, Sarasota, FL, 34242	Public property Fully vegetated islands 2.25 miles from Project
6	South Lido County Park	Sarasota County	150.0	2016100021	190 Taft Dr., Sarasota, FL, 34236	Public property Largely vegetated park 4.25 miles from Project
7	Vacant Commercial Lot	Parker Rose LLC	3.9	0086120036	5515 S Tamiami Trl., Sarasota, FL,	Private property Open field Adjacent to Project
8	Vacant Residential Lot	Baird Phillippi LLC	0.5	0086050014	2004 Montclair Drive, Sarasota, FL,	Private property Mostly open field Adjacent to Project