TETRA TECH

NOR-03076

July 18, 2023

Ms. Kristi Granzen
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau D, Section B
625 Broadway
Albany, New York 12233-7015

Reference: CLEAN Contract No. N6247016D9008
Contract Task Order WE16 and ML4227

Subject: Operable Unit 4
Monitoring Well Installation Summary Report
Monitoring Wells FW-MW01I1, FW-MW01I2, FW-MW01D, TT-MW500S, TT-MW500I, TT-MW501S, TT-MW501I1, and TT-MW501I2
Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage, New York

Dear Ms. Granzen:

On behalf of the Department of the Navy, Tetra Tech is providing the *Operable Unit 4 Monitoring Well Installation Summary Report, Monitoring Wells FW-MW01I1,* FW-MW01I2, *FW-MW01D, TT-MW500S, TT-MW500I, TT-MW501S, TT-MW501I1, and TT-MW501I2, NWIRP Bethpage, New York* to the New York State Department of Environmental Conservation (NYSDEC) for information. This report provides documentation on installation of the groundwater monitoring wells listed in the title of the report. The Navy is issuing this document as a final. If no comments are received by August 17, 2023, the Navy will include this report in the NWIRP Bethpage Administrative Record.

If you have any questions, please contact Mr. Scott Sokolowski, NAVFAC MIDLANT, at scott.c.sokolowski.civ@us.navy.mil or (757) 341-2011.

Sincerely,

Ernie Wu for

Rick Moore
Project Manager

Enclosures: Final Operable Unit 4
Monitoring Well Installation Summary Report
Monitoring Well FW-MW01I1, FW-MW01I2, FW-MW01D, TT-MW500S, TT-MW500I, TT-MW501S, TT-MW501I1, AND TT-MW501I2
NWIRP Bethpage, New York

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NAVFAC MIDLANT, Scott Sokolowski
Tetra Tech, David Brayack
Tetra Tech, Ernie Wu
Tetra Tech, Vin Varricchio
Project File

Naval Facilities Engineering Systems Command
Norfolk, Virginia

Operable Unit 4 Monitoring Well Installation Summary Report

Monitoring Wells FW-MW01I1, FW-MW01I2, FW-MW01D, TT-MW500S, TT-MW500I, TT-MW501S, TT-MW501I1 and TT-MW501I2

Naval Weapons Industrial Reserve Plant
Bethpage, New York

January 2023

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OPERABLE UNIT 4 MONITORING WELL INSTALLATION SUMMARY REPORT

MONITORING WELLS FW-MW01I1, FW-MW01I2, FW-MW01D, TT-MW500S, TT-MW500I, TT-MW501S, TT-MW501I1 AND TT-MW501I2

NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Department of the Navy
Naval Facilities Engineering Systems Command
9324 Virginia Avenue
Norfolk, Virginia 23511-3095

Submitted by:
Tetra Tech
4433 Corporation Lane, Suite 300
Virginia Beach, Virginia 23462

CONTRACT NUMBER N6247016D9008
CONTRACT TASK ORDERS WE16 AND ML4227

JANUARY 2023

PREPARED UNDER THE DIRECTION OF:

David Brayack

DAVID BRAYACK
PROJECT MANAGER
TETRA TECH
VIRGINIA BEACH, VIRGINIA

APPROVED FOR SUBMISSION BY:

STEVEN H. RUFFING, P.E.
PROGRAM MANAGER
TETRA TECH
VIRGINIA BEACH, VIRGINIA

NEW YORK PROFESSIONAL GEOLOGIST SEAL

As a New York-licensed Professional Geologist, I have reviewed and approved the geological information and drawings in the Operable Unit 4 Monitoring Well Installation Summary Report, Monitoring Wells FW-MW01I1, FW-MW01I2, FW-MW01D, TT-MW500S, TT-MW500I, TT-MW501S, TT-MW501I1, and TT-MW501I2, Naval Weapons Industrial Reserve Plant, Bethpage and seal it in accordance with Article 145 Section 7209 of the New York State Education Laws. In sealing this document, I certify that the geological information contained in it is true to the best of my knowledge and the geological methods and procedures included herein are consistent with currently accepted geological practices.

It is a violation of this law for any person to alter the contained drawings in anyway, unless he or she is acting under the direction of a NY-licensed Professional Geologist.

Name: Vincent J. Varricchio
NY PG License Number: 000095
State: New York

Signature: Vincent Varricchio

Date: 1/23/2023

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Acronyms and Abbreviations

AOC	Area of Concern
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
COR	Continuously Operating Reference
EPA	Environmental Protection Agency, United States
ft	Feet
GOCO	Government-Owned Contractor-Operated
gpm	gallons per minute
GPS	Global Positioning System
HSA	hollow stem auger
IDW	Investigation Derived Waste
IR	Installation Restoration
MSL	Mean Sea Level
MW	Monitoring Well
NAD	North American Datum
NAVD	North American Vertical Datum
NAVFAC	Naval Facilities Engineering Systems Command
NG	Northrop Grumman
NGS	National Geodetic Survey
NTU	Nephelometric Turbidity Units
NWIRP	Naval Weapons Industrial Reserve Plant
NYSDEC	New York State Department of Environmental Conservation
OU	Operable Unit
PCB	Polychlorinated Biphenyls
POTW	Publicly Owned Treatment Works

PPE	Personal Protective Equipment
PVC	polyvinyl chloride
RCA	Recycled Concrete Aggregate
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SC	Specific Conductivity
SVOC	Semivolatile Organic Compounds
UFP	Uniform Federal Policy
VOC	Volatile Organic Compounds

1.0 Introduction

Tetra Tech has prepared this Data Summary Report for the Naval Facilities Engineering Systems Command (NAVFAC) Atlantic Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract Number N6247016D9008 Task Orders WE16, which is part of the Navy's ongoing Environmental Restoration Program for the Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage Operable Unit (OU) 4 Site 1 plume identified in the 2018 Record of Decision (ROD) (NAVFAC, 2018). This report describes monitoring well (MW) installation activities completed in 2021 and includes Monitoring Wells FW-MW01I1, FW-MW01I2, FW-MW01D, TT-MW500S, TT-MW500I, TT-MW501S, TT-MW501I1 and TT-MW501I2. As shown on Figure 1-1, NWIRP Bethpage is located in east-central Nassau County, Long Island, New York, approximately 30 miles east of New York City.

1.1 Scope and Objectives

This data summary report provides information on the installation of eight monitoring wells. The purpose of the monitoring well installation program was to support the long-term monitoring of the OU4 plume by better defining the horizontal and vertical extent of groundwater contamination, evaluating migration, and to assess groundwater conditions at the property boundary of the former NWIRP.

Field tasks were conducted in October 2021 in accordance with the Uniform Federal Policy (UFP) Sampling and Analysis Plan (SAP) (Field Sampling Plan and Quality Assurance Project Plan) Groundwater Long-Term Monitoring (Tetra Tech, 2021a) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Letter Work Plan Site 1 Operable Unit 4 Long Term Monitoring, Monitoring Well Installation Program (Work Plan) (Tetra Tech, 2021b) . The field investigation included installing eight monitoring wells, geophysical (gamma) logging, monitoring well development, and surveying. Groundwater sampling following the described activities will be documented in a subsequent report.

Documentation of these activities is included in the appendices of this report. Appendix A contains boring logs, Appendix B contains gamma logs, Appendix C contains well construction logs and Appendix D contains well development logs. Appendix E contains the survey data.

1.2 Site History

NWIRP Bethpage is in the Hamlet of Bethpage, Town of Oyster Bay, New York. Since its inception in 1941, the plant's primary mission was the research, prototyping, testing, design, engineering, fabrication, and primary assembly of military aircraft. The facilities at NWIRP included four plants used for assembly and prototype testing, a group of quality control laboratories, two warehouse complexes (north and south), a salvage storage area, water recharge basins, the Industrial Wastewater Treatment Plant, and several smaller support buildings.

The Navy's property originally totaled 109.5 acres and was formerly a Government-Owned Contractor-Operated (GOCO) facility that was operated by Northrop Grumman (NG) until September 1998. Prior to 2002, the NWIRP property was bordered on the north, west, and south by current or former NG facilities, and on the east by a residential neighborhood. By March 2008, approximately 100 acres of NWIRP property were transferred to Nassau County in three separate actions. The remaining 9 acres and access easements were retained by the Navy to continue remedial efforts at Installation Restoration (IR) Site 1 – Former Drum Marshalling Area and Site 4 – Former Underground Storage Tanks (Area of Concern [AOC] 22), as seen in Figure 1-2. A parcel of land connecting the two sites was also retained. Currently, the 9-acre parcel of NWIRP is bordered on the east by a residential neighborhood and on the north, south, and west by Steel Equities; however, a small portion near Sites 2 and 3 is still owned by Nassau County. Access to the NWIRP is from South Oyster Bay Road.

1.3 Geology and Hydrogeology

1.3.1 Stratigraphy

Overburden at the site consists of approximately 1,100 feet of unconsolidated deposits overlying crystalline bedrock of the Hartland Formation. Overburden is divided into four geologic units in descending order: the Upper Glacial Formation, the Magothy Formation, the clay member of the Raritan Formation ("Raritan Clay") and the Lloyd Sand member of the Raritan Formation ("Lloyd Sand") (Geraghty and Miller, 1994). The crystalline bedrock consists primarily of metamorphic and igneous rocks.

The Upper Glacial Formation consists of till and outwash deposits of medium to coarse sand and gravel with lenses of fine sand, silt, and clay (Smolensky and Feldman, 1988); these deposits form the Upper Glacial Aquifer. Directly underlying this unit is the Magothy Formation with a thickness of 650 to 900 feet that extends to a depth of 700 to 1,000 feet below ground surface (bgs), as observed at the former NWIRP and extending

southeast to areas south of Southern State Parkway. The Magothy is characterized by fine to medium sands and silts interbedded with zones of clays, silty sands, and sandy clays. Sand and gravel lenses are found in some areas between depths of 550 and 820 feet bgs; these deposits form the main groundwater producing zones of the Magothy Aquifer.

Investigations performed by the Navy since 2012 indicate that the bottom of the Magothy (top of the Raritan Clay) can extend to depths of 700 to greater than 1,000 feet bgs. The top of the Raritan Clay deepens to the south-southeast, as evidenced by clay depths of 1,000 feet bgs (or more) in borings installed offsite. The Raritan Clay Unit is of continental origin and consists of clay, silty clay, clayey silt, and fine silty sand. This member acts as a confining layer over the Lloyd Sand Unit. The Lloyd Sand Unit is also of continental origin, having been deposited in a large fresh water lacustrine environment. The material consists of fine to coarse-grained sands, gravel, inter-bedded clay, and silty sand. These deposits form the Lloyd Aquifer.

1.3.2 Hydrogeology

The Upper Glacial Aquifer and the Magothy Aquifer comprise the aquifers of interest at the NWIRP. Regionally, these formations are generally considered to form a common, interconnected aquifer as the coarse nature of each unit near their contact and the lack of any regionally confining clay unit allows for the unrestricted flow of groundwater between the formations.

The Magothy Aquifer is the major source of public water in Nassau County. The most productive water bearing zones are the discontinuous lenses of sand and gravel that occur within the siltier matrix. The major water-bearing zones are coarse sand and gravel lenses located in the lower portion of the Magothy. Because of the presence of intermittent clay layers and the depths, the Magothy Aquifer is commonly regarded to function overall as an unconfined aquifer at shallow depths and a confined aquifer at greater depths. The drilling program at the NWIRP has revealed that clay zones beneath the facility are common but laterally discontinuous. No confining clay units of facility-wide extent have been encountered.

Groundwater is encountered at an average depth of approximately 50 feet bgs at the facility. Historically, because of pumping and recharge at the facility, groundwater depths have been measured to range from 15 to 60 feet bgs. The groundwater flow in the area is to the south- southeast.

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2.0 Field Program

Field investigation activities consisted of drilling, geophysical (gamma) logging, monitoring well installation, monitoring well development, and surveying. Information obtained from the geophysical logging at select boreholes and the lithology observations during completion of soil borings were used to select the MW screen intervals at the respective location. Drilling during this investigation was performed by Delta Well & Pump Company of Ronkonkoma, New York under the oversight of Tetra Tech. A description of these tasks is provided below.

2.1 Borehole Drilling

Boreholes to facilitate the installation of the eight new monitoring wells were completed from October 4 through October 25, 2021. Specific details regarding borehole drilling are summarized in Table 1.

2.1.1 Drilling

Boreholes for the installation of the monitoring wells were completed utilizing a hollow stem auger (HSA) drill rig capable of driving split spoons for the collection of soil sample for lithologic logging and description. Prior to any intrusive work being completed 811 was notified in accordance with New York state law and a third-party private utility locator was contracted to perform utility location marking around each of the proposed monitoring well locations. Additionally, each location was hand dug to a depth of approximately 5 feet below ground surface (bgs).

2.1.2 Sampling

Two-foot length split spoon samples were collected every 5 feet from the deepest borehole at each well cluster location; this included boreholes FW-MW01D, TT-MW500I and TT-MW501I2. This data was used to confirm the lithology to aid in the selection of screen intervals at each monitoring well location. Samples were logged by the field geologist and screened for volatile organic compounds (VOCs) utilizing a photoionization detector (PID). Additionally, a particulate matter (dust) meter was also used for ensuring that any dust generated during the drilling process did not present a risk to off-site receptors. There were no VOCs or particulate matter readings during the drilling that presented a concern or would have cause drilling to cease. Detailed boring logs are included in Appendix A.

2.1.3 Geophysics

Borehole geophysical logs (gamma) were recorded from boreholes FW-MW01D, TT-MW500I and TT-MW501I2 after drilling but prior to the removal of the augers. A copy of the log was printed in the field for review once logging was completed (both logging going down and logging going up). The logs were then reviewed by the field geologist and Project Manager for determining the screen intervals for monitoring well installation. The gamma logs are included in Appendix B.

2.2 Monitoring Well Installation

Eight monitoring wells were installed at the site from October 4 through October 25, 2021: two shallow, five intermediate and one deep. The locations of the newly installed wells are seen in Figure 1-3. The shallow monitoring wells were installed to allow the screen interval to intersect the water table approximately 2 feet above the water table and 8 feet below the water table. The screen intervals for the intermediate and deep wells were selected by reviewing lithologic data from the deep soil boring completed from each well cluster in combination with the gamma log data collected from their corresponding deep borehole. Well construction/boring log data from surrounding intermediate and deep wells were also utilized to aid in screen interval selection for the new intermedial and deep monitoring well locations. Depths of monitoring wells ranged from 61 feet bgs to 205 feet bgs.

2.2.1 Drilling and Well Construction

Prior to installing each monitoring well, screen intervals were determined by reviewing lithologic description of the boreholes and geophysical log data (gamma logs) from the associated boreholes and monitoring well construction data from nearby wells. Screens were selected in order to monitor depths of interest relevant to groundwater sampling, analysis, and measurement. The wells were installed using HSA drilling techniques. HSAs outfitted with an auger plug were advanced to the selected bottom screen interval depths and monitoring wells were constructed inside of the augers.

Wells were constructed of 2-inch diameter, threaded and flush-jointed National Sanitation Foundation-approved Schedule 40 polyvinyl chloride (PVC) riser pipes. The monitoring wells were installed with 10-foot-long Schedule 40 PVC 0.010-inch machine slotted well screens. The sand pack for the monitoring wells consisted of #1 quartz sand gravel pack appropriately 10 feet above the top of screen and a 5-foot thick #0 fine quartz sand pack on top of the #1 quartz sand gravel pack. A bentonite annular seal was placed from the top of the #0 sand pack at a thickness of approximately 5 feet. The bentonite seal was allowed to hydrate prior a bentonite/cement grout being placed via

tremie pipe from the top of the bentonite seal to near ground surface. Wells were completed at the surface with a 12-inch diameter steel curb box. Well risers were set below grade and fit with clean compression well caps. Well construction details are summarized in Table 1. Details involving monitoring well construction diagrams are included in Appendix C.

2.2.2 Well Development

Following installation, all monitoring wells were developed to evacuate silts and other fine-grained materials and to establish the filter pack to promote a hydraulic connection between the well and the surrounding aquifer. Well development was not initiated until at least 24 hours after well installation.

Monitoring well screens were developed using a submersible pump. The following groundwater quality parameters were collected during development to determine stabilization: temperature, pH, specific conductivity (SC), and turbidity. In compliance with the New York State Department of Environmental Conservation (NYSDEC) policy, wells were developed until turbidity was less than 50 nephelometric turbidity units (NTUs) if possible. The well development logs for the new wells are included in Appendix D. The original well development logs were lost and recreated via the following documentation and information for the specified purposes:

- Monitoring well installation and development field logbook, to identify development dates and times;
- Typical well submersible pump output rate of 8 to 9 gallons per minute (gpm), to estimate the cumulative water volume at each time interval;
- November 2021 groundwater sampling log sheets (documented in a subsequent groundwater sampling report), to provide water quality parameter data that confirms the completion of monitoring well development

Table 2 summarizes pump development activities, including development method, approximated total development volume and final turbidities. These monitoring wells are sampled as part of the ongoing routine groundwater sampling program and data from these events are reported/documented under a separate report.

2.3 Decontamination and Investigation Derived Waste (IDW)

Tetra Tech utilized a centrally-located decontamination pad at NWIRP Bethpage to decontaminate drilling equipment and tooling. All decontamination fluids were collected from the pad and managed as investigation derived waste (IDW). Decontamination

activities conducted during the monitoring well installation program followed procedures outlined in the SAP but generally included using Liquinox and water wash, a potable water rinse, followed by a distilled water rinse for split spoons, HSAs, and other drilling equipment and tooling. Water was collected in 5-gallon pails or 55-gallon on-site drums.

As part of the IDW management practices and in accordance with the SAP, the IDW (consisting of soil cuttings, IDW fluids, and personal protective equipment [PPE]) generated during the monitoring well installation and development was containerized and staged at NWIRP Bethpage. IDW solids were characterized and disposed of properly under requirements outlined in NYSDEC subpart 375-6.8(b) and CP-51. Representative samples of soil IDW were collected from roll off containers and submitted to Chemtech for analysis, which includes volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Metals and polychlorinated biphenyls (PCBs)/Pesticides. PPE-related waste was double-bagged and disposed as municipal solid waste.

IDW water was containerized in frac tanks and stored at NWIRP Bethpage for characterization and ultimate disposal to the Publicly Owned Treatment Works (POTW), in accordance with the facilities existing discharge permit. A representative water sample was collected from each frac tank and submitted to Chemtech for analysis of VOCs via Method 8260D, 1,4-Dioxane via Method 8260, PCBs via Method 8082A, total and dissolved metals via Method 6020B, and hexavalent chromium via EPA Method 218.6. To the extent feasible, soil and water were not mixed.

All IDW generated during this investigation was characterized as non-hazardous.

2.4 Surveying

A survey of each boring location was conducted at the end of the fieldwork by Borbas Surveying & Mapping, LLC, of Boonton, NJ, under the direct supervision of Tetra Tech. The locations were tied into the existing base map developed for this investigation. The survey elevation is referenced to the North American Vertical Datum (NAVD) 1988 and has a vertical accuracy of 0.01 feet. Vertical control is based on observations of the National Geodetic Survey (NGS) Continuously Operating Reference (COR) Stations NYBR, NYCI, NYVH and SHK6. The horizontal location is referenced to the North American Datum (NAD) 1983 New York, Long Island State Plane Coordinate System and has an accuracy of 0.1 feet. Horizontal control is based on Global Positioning System (GPS) observations using the NGS COR Stations NYBR, NYCI, NYVH and SHK6.

A table of survey data (grade elevation, outer/inner casing elevation, northing/easting, and latitude/longitude) is included in Appendix E.

2.5 Variations from the SAP and Work Plan

Except as indicated below, the October 2021 Tetra Tech monitoring well installation was conducted in accordance with the SAP and Work Plan:

- Six monitoring wells were proposed for installation in the Work Plan. However, eight monitoring wells were installed with the following two wells being additional wells installed beyond what was proposed in the Work Plan: FW-MW01I2 and TT-MW501I2. There two additional wells were installed due to the presence of confining units being observed in the lithologic log for soil borings completed and confirmed via gamma logs, that indicated there were additional water bearing zones that warranted monitoring.

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3.0 References

Geraghty and Miller, Inc., 1994. *Remedial Investigation Report, Grumman Aerospace Corporation, Bethpage, New York.* Revised September 1994.

Naval Facilities Engineering Command (NAVFAC), 2018. *Record of Decision Naval Weapons Industrial Reserve Plant Bethpage, New York, Operable Unit 4 Site 1 – Former Drum Marshalling Area. Contaminated Soil, Soil Vapor and Groundwater,* NYS Registry: 1-30- 003B. August.

Tetra Tech, 2021a. *Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plant) Groundwater Long-Term Monitoring, Site 1 – Former Drum Marshalling Area Operable Unit 4, NWIRP.* Bethpage, New York. June.

Tetra Tech, 2021b. *CERCLA Letter Work Plan Site 1 Operable Unit 4 Long Term Monitoring, Monitoring Well Installation Program, NWIRP*. Bethpage, New York. June.

Smolensky, D., and Feldman, S., 1988. *Geohydrology of the Bethpage-Hicksville-Levittown Area, Long Island, New York,* U.S. Geological Survey Water-Resourced Investigations Report 88-4135, 25 pp.

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Tables

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TABLE 1
MONITORING WELL CONSTRUCTION SUMMARY
2022 OU4 MONITORING WELL INSTALLATION
NWIRP BETHPAGE, NEW YORK

BORING/MONITORING WELL ID	MONITORING WELL COMPLETION DATE	GROUND ELEVATION (MSL)	TOP OF WELL CASING ELEVATION (MSL)	TOTAL BORING DEPTH (ft bgs)	WELL SCREEN INTERVAL (ft bgs)	TOTAL WELL DEPTH (ft bgs)
BPS1-FW-MW01I1	10/22/2021	125.2	124.64	104	94 - 104	104
BPS1-FW-MW01I2	10/21/2021	124.6	124.24	125	115 - 125	125
BPS1-FW-MW01D	10/20/2021	124.2	123.84	220	195 - 205	205
BPS1-TT-MW500S	10/13/2021	125.9	125.35	61	51 - 61	61
BPS1-TT-MW500I	10/21/2021	126.0	125.5	150	130 - 140	140
BPS1-TT-MW501S	10/7/2021	125.6	125.17	61	51 - 61	61
BPS1-TT-MW501I1	10/25/2021	125.6	125.12	98	88 - 98	98
BPS1-TT-MW501I2	10/7/2021	125.7	125.14	150	120 - 130	130

MSL - Mean sea level.

ft bgs - Feet below ground surface.

N/A - Not applicable.

TABLE 2
MONITORING WELL DEVELOPMENT SUMMARY
2022 OU4 MONITORING WELL INSTALLATION
NWIRP BETHPAGE, NEW YORK

MONITORING WELL	DATE	DEVELOPMENT METHOD	APPROXIMATE TOTAL DEVELOPMENT VOLUME (GALLONS)	FINAL TURBIDITY (NTUs) [1]
BPS1-FW-MW01I1	10/27/2021	Submersible Pump	595	18.6
BPS1-FW-MW01I2	10/28/2021	Submersible Pump	680	4.31
BPS1-FW-MW01D	10/28/2021	Submersible Pump	765	5.40
BPS1-TT-MW500S	10/26/2021	Submersible Pump	510	5.75
BPS1-TT-MW500I	10/26/2021	Submersible Pump	765	7.70
BPS1-TT-MW501S	10/27/2021	Submersible Pump	1,020	115
BPS1-TT-MW501I1	10/27/2021	Submersible Pump	510	10.5
BPS1-TT-MW501I2	10/26/2021	Submersible Pump	595	18.4

Notes:

1. The final turbidity measurements are referenced from the final readings of the November, 2021 post-remediation Site 1 groundwater sampling event due to the original well development logs being lost.

NTUs - Nephelometric Turbidity Units.

Figures

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GENERAL LOCATION MAP
NWIRP BETHPAGE, NEW YORK

Naval Facilities Engineering Systems Command

DRAWN BY	DATE	CTO
MS	02/12/21	112G08005-WE16
CHECKED BY	DATE	FIGURE NUMBER
EW	05/24/21	1-1

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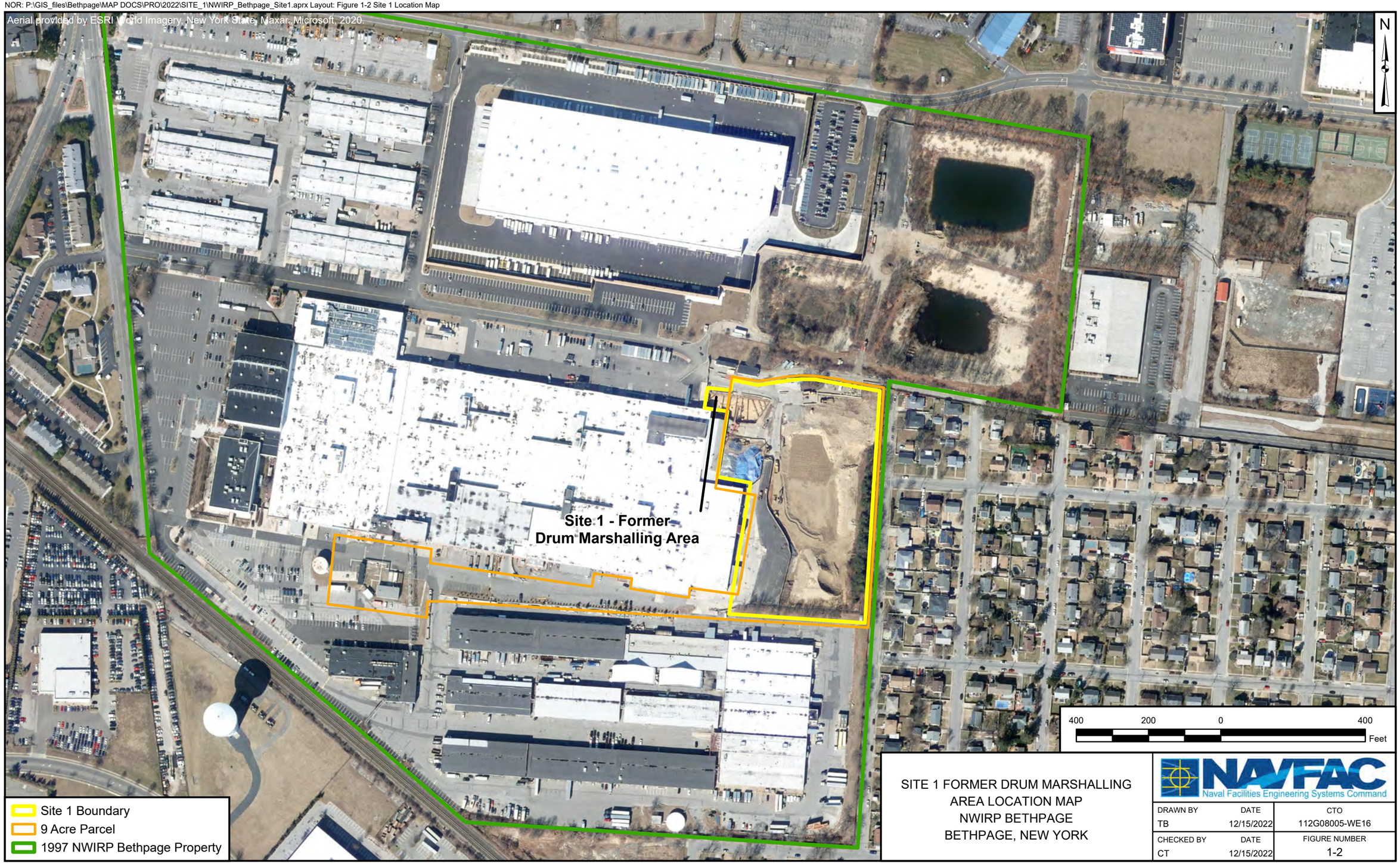
NOR: P:\GIS_files\Bethpage\MAP DOCS\PRO\2022\SITE_1\NWIRP_Bethpage_Site1.aprx Layout: Figure 1-2 Site 1 Location Map



SITE 1 FORMER DRUM MARSHALLING AREA LOCATION MAP
NWIRP BETHPAGE
BETHPAGE, NEW YORK

NAVFAC
Naval Facilities Engineering Systems Command

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TB	12/15/2022	112G08005-WE16
CHECKED BY	DATE	FIGURE NUMBER
CT	12/15/2022	1-2

NOR: P:\GIS_files\Bethpage\MAP DOCS\PRO\2022\SITE_1\NWIRP_Bethpage_Site1.aprx Layout: Figure 1-3 Site 1 Installed Wells 2021

Aerial provided by ESRI World Imagery, New York State, Maxar, Microsoft, 2020.

N

BPS1-TT-MW500S
BPS1-TT-MW500I

BPS1-TT-MW501I1
BPS1-TT-MW501S
BPS1-TT-MW501I2

BPS1-FW-MW01I1
BPS1-FW-MW01I2
BPS1-FW-MW01D

100 50 0 100
Feet

- Site 1 Monitoring Wells Installed in 2021
- Existing Monitoring Wells
- Site 1 Boundary
- 9 Acre Parcel
- 1997 NWIRP Bethpage Property

2021 INSTALLED MONITORING WELLS
NWIRP BETHPAGE
BETHPAGE, NEW YORK

NAVFAC Naval Facilities Engineering Systems Command

DRAWN BY	DATE	CTO
TB	12/15/2022	112G08005-WE16
CHECKED BY	DATE	FIGURE NUMBER
CT	12/15/2022	1-3

Appendices

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Appendix A
Boring Logs

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Tetra Tech, Inc.
661 Andersen Drive, Suite 2
Pittsburgh, PA 15220
Telephone: 412-921-7096

BORING NUMBER BPS1-FW-MW01D

CLIENT NAVFAC
PROJECT NAME Bethpage Site 1
PROJECT NUMBER 112G08005-WE16
PROJECT LOCATION Bethpage, New York
DATE STARTED 10/15/21 **COMPLETED** 10/20/21
GROUND ELEVATION 124.2 ft **HOLE SIZE** 6.25"
DRILLING CONTRACTOR DELTA WELL & PUMP
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING ---
LOGGED BY D. Moore **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					(GP) Dark brown FILL as GRAVELLY SAND; red sandstone cobbles; moist; medium dense.	
5	SS SS-1	4-4-6-6 (10)				
10	SS SS-2	5-4-4-5 (8)				
14.0						110.2
15	SS SS-3	6-7-8-12 (15)			(SWGP) Medium brown to orangish brown WELL GRADED SAND AND GRAVEL; fine to coarse sand; rounded sandstone cobbles and pebbles; occasional hand-sized gravel; moist; medium dense.	
20	SS SS-4	10-9-14-15 (23)				
25	SS SS-5	8-6-10-7 (16)				
29.5						94.7
30	SS SS-6	7-10-12-12 (22)			(SP) Tan POORLY GRADED SAND; fine to medium grained; subrounded to subangular; quartzitic; few gravel; moist; medium dense.	
35	SS SS-7	10-6-11-13 (17)				
39.5						84.7
40	SS	10-16-27-				

(Continued Next Page)

Tetra Tech, Inc.
661 Andersen Drive, Suite 2
Pittsburgh, PA 15220
Telephone: 412-921-7096

BORING NUMBER BPS1-FW-MW01D

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
40	SS-8	33 (43)			(SP) Light tan to grayish tan POORLY GRADED SAND; fine grained; subrounded to subangular; damp; very dense. *(continued)*	
45	SS SS-9	8-16-30-25 (46)				
					49.0 — 75.2	
50	SS SS-10	21-29-46-45 (75)			(SW) Tan to orangish brown to tan brown WELL GRADED SAND; fine to medium grained; subrounded to subangular; damp; very dense; wet at 54 feet bgs.	
					54.5 — 69.7	
55	SS SS-11	10-8-19-24 (27)			(SP) Tan to orangish brown POORLY GRADED SAND; fine to medium grained; subrounded to subangular; wet; very dense.	
60	SS SS-12	19-31-50 (81)				
65	SS SS-13	8-19-31-46 (50)				
70	SS SS-14	8-31-50 (81)				
					74.5 — 49.7	
75	SS SS-15	6-11-32-31 (43)			(SP) Orangish brown POORLY GRADED SAND; fine grained; subrounded; some silt; moist; very dense.	
					79.5 — 44.7	
80	SS SS-16	13-50			(SW) Orangish brown WELL GRADED SAND; fine to medium grained; subrounded; moist; very dense.	
85	SS SS-17	20-27-50/4"			85.0 — 39.2	
					85.3 — 38.9 (SM) Orangish brown to gray SILTY SAND; very fine to	

(Continued Next Page)

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BORING NUMBER BPS1-FW-MW01D

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
					fine grained; trace clay; poorly graded; moist; very dense.	
					(SP) Tan POORLY GRADED SAND; fine to medium grained; subangular; quartzitic; very dense. *(continued)*	
90	SS SS-18	26-50/4"				
95	SS SS-19	6-26-40-50/3"				
100	SS SS-20	8-9-21-40 (30)			99.5 — 24.7	
					100.5 (MLCL) Medium brown SILTY CLAY; high plasticity; damp; very stiff. — 23.7	
					(CLML) Dark gray to black CLAYEY SILT; laminated; damp; very stiff.	
105	SS SS-21	12-18-16-33 (34)			105.0 — 19.2	
					(MLCL) Medium brown SILTY CLAY; some sand; high plasticity; damp; very stiff.	
					109.0 — 15.2	
110	SS SS-22	5-7-19-31 (26)			110.0 (CLML) Dark gray to black CLAYEY SILT; laminated; damp; very stiff. — 14.2	
					(SP) Variably colored (pink, brown, tan) POORLY GRADED SAND; very fine to fine grained; very dense.	
					114.0 — 10.2	
115	SS SS-23	9-7-25-50/2"			114.7 (SP) Dark gray POORLY GRADED SAND; fine grained; subrounded; large cobble at base; very dense. — 9.5	
					(SP) Variably colored (pink, brown, tan) POORLY GRADED SAND; very fine to fine grained; subangular to subrounded; very dense.	
					119.0 — 5.2	
120	SS SS-24	10-10-10-18 (20)			120.5 (SP) Dark gray POORLY GRADED SAND; fine grained; subrounded; very dense. — 3.7	
					(SM) Orangish brown to tan SILTY SAND; fine grained; subrounded; very dense.	
					124.5 — -0.3	
125	SS SS-25	5-7-10-20/0"			124.7 (MLSP) Dark gray to black SANDY SILT; micaceous; high organic content. — -0.5	
					126.0 — -1.8	
					(MLCL) Tan SILTY CLAY; high plasticity; damp; very stiff; becoming more clay with depth	
					(CLML) Tan CLAYEY SILT; laminated; micaceous; moist; stiff.	
130	SS SS-26	4-7-9-11 (16)				

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BORING NUMBER BPS1-FW-MW01D

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
					(CLML) Tan CLAYEY SILT; laminated; micaceous; moist; stiff. *(continued)*	
135	SS SS-27	9-16-20-26 (36)			135.0 -10.8 (SM) Orangish brown SILTY SAND; fine to medium grained; subrounded; very dense.	
140	SS SS-28	3-4-11-24 (15)			139.5 -15.3 140.5 -16.3 (MLSP) Variably colored (pink, brown, black) SANDY SILT; some clay; soft. (SM) Variably colored (pink, orangish brown) SILTY SAND; fine grained; very dense.	
145	SS SS-29	5-4-11-18 (15)			144.5 -20.3 146.0 -21.8 (SM) Gray to orangish brown and olive gray SILTY SAND; very fine to fine grained; few gravel; very dense. (SP) Gray POORLY GRADED SAND; very fine grained; subrounded to rounded; micaceous; soft.	
150	SS SS-30	4-5-14-29 (19)			149.5 -25.3 150.5 -26.3 151.0 -26.8 (MLSP) Variably colored (pink, brown, black) SANDY SILT; some clay; soft. (SP) Tan to gray POORLY GRADED SAND; very fine to fine grained; subrounded; very dense.	
155	SS SS-31	5-21-50 (71)			(SP) Gray to orangish brown POORLY GRADED SAND; fine grained; subrounded to subangular; medium dense to very dense. 156.0 -31.8 (CLML) Tan CLAYEY SILT; some sand; stiff.	
160	SS SS-32	8-10-13-21 (23)			159.5 -35.3 161.0 -36.8 (SM) Gray and orange mottle tan SILTY SAND; very fine grained; subrounded; trace clay. (MLSP) Tan SANDY SILT; some clay; soft.	
165	SS SS-33	6-4-7-17 (11)			165.0 -40.8 166.0 -41.8 (SM) Tan SILTY SAND; very fine grained; subrounded; trace clay; dense. (CLSP) Tan SANDY CLAY; soft.	
170	SS SS-34	6-4-7-21 (11)			169.5 -45.3 (SP) Tan becoming variably colored (pink, gray, tan) POORLY GRADED SAND; very fine to fine grained; subrounded; some silt; trace clay; micaceous; dense.	
175	SS SS-35	10-11-14-20 (25)				

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BORING NUMBER BPS1-FW-MW01D

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
180	SS SS-36	4-11-18-20 (29)			(SP) Tan becoming variably colored (pink, gray, tan) POORLY GRADED SAND; very fine to fine grained; subrounded; some silt; trace clay; micaceous; dense. *(continued)*	
					181.0 -56.8	
					(SP) Gray to pink POORLY GRADED SAND; very fine to fine grained; subrounded; quartzitic; medium dense.	#0 Sand
185	SS SS-37	10-8-15-26 (23)				
					186.0 -61.8	
					(SP) Tan POORLY GRADED SAND; very fine to fine grained; subangular to subrounded; trace to few silt; micaceous; clay stringer at 189.5 feet bgs; very dense.	
190	SS SS-38	27-50				
195	SS SS-39	21-21-30-27 (51)				#1 Sand
200	SS SS-40	6-6-15-30 (21)				
205	SS SS-41	9-13-28-30 (41)				
210	SS SS-42	12-42-50 (92)				
215	SS SS-43	12-15-40-25 (55)				
220					220.0 -95.8	

Bottom of borehole at 220.0 feet.

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BORING NUMBER BPS1-FW-MW01I1

CLIENT NAVFAC
PROJECT NAME Bethpage Site 1
PROJECT NUMBER 112G08005-WE16
PROJECT LOCATION Bethpage, New York
DATE STARTED 10/22/21 **COMPLETED** 10/22/21
GROUND ELEVATION 125.2 ft **HOLE SIZE** 6.25"
DRILLING CONTRACTOR DELTA WELL & PUMP
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING ---
LOGGED BY D. Moore **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					(GP) Dark brown FILL as GRAVELLY SAND; red sandstone cobbles; moist; medium dense.	
14.0						111.2
15					(SWGP) Medium brown to orangish brown WELL GRADED SAND AND GRAVEL; fine to coarse sand; rounded sandstone cobbles and pebbles; occasional hand-sized gravel; moist; medium dense.	
29.5						95.7
30					(SP) Tan POORLY GRADED SAND; fine to medium grained; subrounded to subangular; quartzitic; few gravel; moist; medium dense.	
39.5						85.7
40						

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BORING NUMBER BPS1-FW-MW01I1

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
40					(SP) Light tan to grayish tan POORLY GRADED SAND; fine grained; subrounded to subangular; damp; very dense. *(continued)*	
45						
49.0						76.2
50					(SW) Tan to orangish brown to tan brown WELL GRADED SAND; fine to medium grained; subrounded to subangular; damp; very dense; wet at 54 feet bgs.	
54.5						70.7
55					(SP) Tan to orangish brown POORLY GRADED SAND; fine to medium grained; subrounded to subangular; wet; very dense.	
60						
65						
70						
74.5						50.7
75					(SP) Orangish brown POORLY GRADED SAND; fine grained; subrounded; some silt; moist; very dense.	
79.5						45.7
80					(SW) Orangish brown WELL GRADED SAND; fine to medium grained; subrounded; moist; very dense.	#0 Sand
85						
85.0						40.2
85.3					(SM) Orangish brown to gray SILTY SAND; very fine to	39.9

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BORING NUMBER BPS1-FW-MW01I1

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
90					fine grained; trace clay; poorly graded; moist; very dense. (SP) Tan POORLY GRADED SAND; fine to medium grained; subangular; quartzitic; very dense. *(continued)*	
95						#1 Sand
100					99.5 25.7 (MLCL) Medium brown SILTY CLAY; high plasticity; damp; very stiff. 100.5 24.7 (CLML) Dark gray to black CLAYEY SILT; laminated; damp; very stiff. 104.0 21.2	

Bottom of borehole at 104.0 feet.

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BORING NUMBER BPS1-FW-MW01I2

CLIENT NAVFAC
PROJECT NAME Bethpage Site 1
PROJECT NUMBER 112G08005-WE16
PROJECT LOCATION Bethpage, New York
DATE STARTED 10/21/21 **COMPLETED** 10/21/21
GROUND ELEVATION 124.6 ft **HOLE SIZE** 6.25"
DRILLING CONTRACTOR DELTA WELL & PUMP
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING ---
LOGGED BY D. Moore **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					(GP) Dark brown FILL as GRAVELLY SAND; red sandstone cobbles; moist; medium dense.	
14.0						110.6
					(SWGP) Medium brown to orangish brown WELL GRADED SAND AND GRAVEL; fine to coarse sand; rounded sandstone cobbles and pebbles; occasional hand-sized gravel; moist; medium dense.	
29.5						95.1
					(SP) Tan POORLY GRADED SAND; fine to medium grained; subrounded to subangular; quartzitic; few gravel; moist; medium dense.	
39.5						85.1

ENVIRONMENTAL BH - TT_NAVFAC_2018_V1.GDT - 1/19/23 17:28 - N:\DUSTIN.MOORE\BETHPAGE\LTM WELL INSTALL\SITE 1 LOGS.GPJ

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BORING NUMBER BPS1-FW-MW01I2

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
40					(SP) Light tan to grayish tan POORLY GRADED SAND; fine grained; subrounded to subangular; damp; very dense. *(continued)*	
45						
					49.0 — 75.6	
50					(SW) Tan to orangish brown to tan brown WELL GRADED SAND; fine to medium grained; subrounded to subangular; damp; very dense; wet at 54 feet bgs.	
					54.5 — 70.1	
55					(SP) Tan to orangish brown POORLY GRADED SAND; fine to medium grained; subrounded to subangular; wet; very dense.	
60						
65						
70						
					74.5 — 50.1	
75					(SP) Orangish brown POORLY GRADED SAND; fine grained; subrounded; some silt; moist; very dense.	
					79.5 — 45.1	
80					(SW) Orangish brown WELL GRADED SAND; fine to medium grained; subrounded; moist; very dense.	
					85.0 — 39.6	
85					85.3 — 39.3 (SM) Orangish brown to gray SILTY SAND; very fine to	

(Continued Next Page)

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BORING NUMBER BPS1-FW-MW01I2

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
90					fine grained; trace clay; poorly graded; moist; very dense. (SP) Tan POORLY GRADED SAND; fine to medium grained; subangular; quartzitic; very dense. *(continued)*	
95						
100					99.5 (MLCL) Medium brown SILTY CLAY; high plasticity; damp; very stiff. 100.5	25.1 24.1
105					(CLML) Dark gray to black CLAYEY SILT; laminated; damp; very stiff. 105.0 (MLCL) Medium brown SILTY CLAY; some sand; high plasticity; damp; very stiff.	19.6
110					109.0 (CLML) Dark gray to black CLAYEY SILT; laminated; damp; very stiff. 110.0 (SP) Variably colored (pink, brown, tan) POORLY GRADED SAND; very fine to fine grained; very dense.	15.6 14.6 #0 Sand
115					114.0 114.7 (SP) Dark gray POORLY GRADED SAND; fine grained; subrounded; large cobble at base; very dense. (SP) Variably colored (pink, brown, tan) POORLY GRADED SAND; very fine to fine grained; subangular to subrounded; very dense.	10.6 9.9 #1 Sand
120					119.0 (SP) Dark gray POORLY GRADED SAND; fine grained; subrounded; very dense. 120.5 (SM) Orangish brown to tan SILTY SAND; fine grained; subrounded; very dense.	5.6 4.1
125					124.5 124.7 (MLSP) Dark gray to black SANDY SILT; micaceous; high organic content. 125.0 (MLCL) Tan SILTY CLAY; high plasticity; damp; very stiff; becoming more clay with depth	0.1 -0.1 -0.4

Bottom of borehole at 125.0 feet.

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BORING NUMBER BPS1-TT-MW500I

CLIENT NAVFAC
PROJECT NAME Bethpage Site 1
PROJECT NUMBER 112G08005-WE16
PROJECT LOCATION Bethpage, New York
DATE STARTED 10/8/21 **COMPLETED** 10/12/21
GROUND ELEVATION 126.0 ft **HOLE SIZE** 6.25"
DRILLING CONTRACTOR DELTA WELL & PUMP
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING ---
LOGGED BY D. Moore **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					(GP) Dark brown to black FILL as Recycled Concrete Aggregate (RCA); moist; very dense.	
5	SS SS-1	7-40				
10	SS SS-2	16-32-34-44 (66)				
11.0						115.0
12.0					(SP) Tan POORLY GRADED SAND; fine to medium grained; subrounded; damp; very dense.	114.0
15					(SPGP) Dark brown POORLY GRADED SAND AND GRAVEL; fine grained; subrounded; moist.	
15.5						110.5
20	SS SS-3	7-13-11-12 (24)			(SWGP) Medium brown to orangish brown WELL GRADED SAND AND GRAVEL; medium to coarse grained; subangular to subrounded sand; rounded cobbles; moist; medium dense.	
24.0						102.0
25	SS SS-4	10-15-8-16 (23)			(SWGP) Medium brown to orangish brown WELL GRADED SAND AND GRAVEL; fine to coarse grained; subangular to subrounded sand; rounded cobbles; moist; medium dense.	
27.0						99.0
30	SS SS-5	11-11-10-12 (21)			(SWGP) Tan WELL GRADED SAND AND GRAVEL; fine to medium grained; subangular to subrounded; damp; loose; quartzitic.	
35	SS SS-6	5-6-8-7 (14)				
39.0						87.0
40	SS SS-7	5-5-5-6 (10)				

ENVIRONMENTAL BH - TT_NAVFAC_2018_V1.GDT - 1/19/23 17:28 - N:\DUSTIN.MOORE\BETHPAGE\LTM WELL INSTALL\SITE 1 LOGS.GPJ

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BORING NUMBER BPS1-TT-MW500I

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
40	SS SS-8	5-10-11-23 (21)			41.0 (SPGP) Orangish brown POORLY GRADED SAND AND GRAVEL; medium grained; subrounded to rounded; moist; medium dense. *(continued)* 85.0	
45	SS SS-9	11-18-22-23 (40)			(SP) Tan to gray POORLY GRADED SAND; fine grained; few gravel; moist; medium dense. 48.0 78.0	
50	SS SS-10	9-13-17-33 (30)			(SP) Brown to tan POORLY GRADED SAND; fine to medium grained; rounded to subrounded; trace clay; very dense. 54.0 72.0	
55	SS SS-11	6-8-11-11 (19)			(SP) Orangish brown POORLY GRADED SAND; medium grained; rounded to subrounded; wet; medium dense. 57.0 69.0	
60	SS SS-12	8-21-32-40 (53)			(SP) Tan POORLY GRADED SAND; fine to medium grained; subrounded to subangular; quartzitic; wet; dense; heaving sands.	
65	SS SS-13	9-13-18-28 (31)				
70	SS SS-14	5-6-6-12 (12)			74.0 52.0	
75	SS SS-15	6-13-19-26 (32)			75.5 (CL) Tan CLAY; some sand; high plasticity; wet; medium stiff. 50.5	
80	SS SS-16	3-12-26-27 (38)			(SP) Tan to orangish brown POORLY GRADED SAND; trace silt; fine grained; subrounded to rounded; wet; dense. 79.0 47.0	
85					(CL) Tan CLAY; some sand; high plasticity; wet; medium stiff. 81.0 45.0	
					(SP) Tan POORLY GRADED SAND; fine grained; trace silt/clay; wet; very dense. 83.5 42.5	
					(CLSM) Tan SANDY CLAY; wet; soft. 85.5 40.5	

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BORING NUMBER BPS1-TT-MW500I

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
	SS SS-17	4-13-29-42 (42)			87.0 (SM) Orangish brown to tan SILTY SAND; very fine to fine grained; subrounded; poorly graded; some clay; wet. 39.0 *(continued)*	
90	SS SS-18	4-12-35-44 (47)			(SP) Tan to gray POORLY GRADED SAND; fine grained; rounded to subrounded; trace silt; wet; very dense; occasional dark organic banding.	
95	SS SS-19	9-23-42-50 (65)				
100	SS SS-20	9-10-27-33 (37)			101.5 24.5	
105	SS SS-21	9-9-22-20 (31)			(SM) Orangish brown SILTY SAND; fine grained; subrounded; poorly graded; very dense.	
110	SS SS-22	6-9-16-20 (25)			109.0 17.0 (SP) Tan POORLY GRADED SAND; fine grained; rounded; dense.	
115	SS SS-23	3-15-31-40 (46)			112.0 14.0 (SP) Variably colored (red, tan, brown, yellow) POORLY GRADED SAND; fine grained; subrounded to rounded; medium dense; micaceous.	#0 Sand
120	SS SS-24	10-19-31-35 (50)				
125	SS SS-25	6-17-50 (67)				
130	SS SS-26	13-30-50 (80)				#1 Sand

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BORING NUMBER BPS1-TT-MW500I

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
135					(SP) Variably colored (red, tan, brown, yellow) POORLY GRADED SAND; fine grained; subrounded to rounded; medium dense; micaceous. *(continued)*	
	SS SS-27	9-24-40-50 (64)			136.0 -10.0 (SM) Variably colored (gray, red, pink) SILTY SAND; very fine grained; rounded; very dense.	
140					139.0 -13.0 (SP) Tan to pink POORLY GRADED SAND; very fine to fine grained; rounded to subrounded; dense; micaceous; quartzitic.	
	SS SS-28	10-21-44-50 (65)				
145						
	SS SS-29	6-6-18-30 (24)				
150					150.0 -24.0	

Bottom of borehole at 150.0 feet.

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BORING NUMBER BPS1-TT-MW500S

CLIENT NAVFAC
PROJECT NAME Bethpage Site 1
PROJECT NUMBER 112G08005-WE16
PROJECT LOCATION Bethpage, New York
DATE STARTED 10/13/21 **COMPLETED** 10/13/21
GROUND ELEVATION 125.9 ft **HOLE SIZE** 6.25"
DRILLING CONTRACTOR DELTA WELL & PUMP
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING ---
LOGGED BY D. Moore **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					(GP) Dark brown to black FILL as Recycled Concrete Aggregate (RCA); moist; very dense.	
11.0						114.9
12.0					(SP) Tan POORLY GRADED SAND; fine to medium grained; subrounded; damp; very dense.	113.9
					(SPGP) Dark brown POORLY GRADED SAND AND GRAVEL; fine grained; subrounded; moist.	
15.5						110.4
					(SWGP) Medium brown to orangish brown WELL GRADED SAND AND GRAVEL; medium to coarse grained; subangular to subrounded sand; rounded cobbles; moist; medium dense.	
24.0						101.9
					(SWGP) Medium brown to orangish brown WELL GRADED SAND AND GRAVEL; fine to coarse grained; subangular to subrounded sand; rounded cobbles; moist; medium dense.	
27.0						98.9
					(SWGP) Tan WELL GRADED SAND AND GRAVEL; fine to medium grained; subangular to subrounded; damp; loose; quartzitic.	
39.0						86.9
40						#0 Sand

(Continued Next Page)

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BORING NUMBER BPS1-TT-MW500S

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
40					41.0 (SPGP) Orangish brown POORLY GRADED SAND AND GRAVEL; medium grained; subrounded to rounded; moist; medium dense. *(continued)* 84.9	
45					(SP) Tan to gray POORLY GRADED SAND; fine grained; few gravel; moist; medium dense. 48.0 77.9	
50					(SP) Brown to tan POORLY GRADED SAND; fine to medium grained; rounded to subrounded; trace clay; very dense. 54.0 71.9	#1 Sand
55					(SP) Orangish brown POORLY GRADED SAND; medium grained; rounded to subrounded; wet; medium dense. 57.0 68.9	
60					(SP) Tan POORLY GRADED SAND; fine to medium grained; subrounded to subangular; quartzitic; wet; dense; heaving sands. 61.0 64.9	

Bottom of borehole at 61.0 feet.

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BORING NUMBER BPS1-TT-MW501I1

CLIENT NAVFAC
PROJECT NAME Bethpage Site 1
PROJECT NUMBER 112G08005-WE16
PROJECT LOCATION Bethpage, New York
DATE STARTED 10/25/21 **COMPLETED** 10/25/21
GROUND ELEVATION 125.6 ft **HOLE SIZE** 6.25"
DRILLING CONTRACTOR DELTA WELL & PUMP
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING ---
LOGGED BY D. Moore **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					(GP) Dark brown FILL as Recycled Concrete Aggregate (RCA); moist; very dense.	
10.5						115.1
					(GP) Dark brown FILL as RCA with crushed sandstone and quartz pebbles; moist; very hard.	
21.0						104.6
					(SPGP) Orangish brown POORLY GRADED SAND AND GRAVEL; moist; medium dense.	
27.0						98.6
					(SP) Tan POORLY GRADED SAND; medium grained; subrounded to subangular; quartzitic; moist; soft.	
37.0						88.6
					(SPGP) Orangish brown POORLY GRADED SAND AND GRAVEL; medium grained; rounded to subrounded; moist; very dense; decreasing gravel content with depth.	
40						

(Continued Next Page)

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BORING NUMBER BPS1-TT-MW501I1

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
40					(SPGP) Orangish brown POORLY GRADED SAND AND GRAVEL; medium grained; rounded to subrounded; moist; very dense; decreasing gravel content with depth. *(continued)*	
45						
47.0						78.6
					(SP) Orangish brown to tan brown POORLY GRADED SAND; medium grained; rounded; trace clay; wet; medium dense.	
50						
55						
55.5						70.1
56.2					(CL) Tan CLAY; high plasticity; wet; stiff.	69.4
57.0					(SP) Orangish brown POORLY GRADED SAND; medium grained; wet; medium dense.	68.6
					(SP) Orangish brown POORLY GRADED SAND; fine grained; rounded; wet; medium dense; micaceous.	
60						
65						
65.5						60.1
					(SW) Tan WELL GRADED SAND; fine to coarse grained; rounded; wet; medium dense; heaving sands.	
70						
75						
75.5						50.1
77.0					(SM) Orangish brown to tan SILTY SAND; very fine to fine grained; subrounded; poorly graded; moist; soft.	48.6
					(SP) Orangish brown to tan POORLY GRADED SAND; fine to medium grained; subrounded to subangular; wet; dense; micaceous.	
80						
85						

#0 Sand

(Continued Next Page)

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BORING NUMBER BPS1-TT-MW501I1

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
90					(SP) Orangish brown to tan POORLY GRADED SAND; fine to medium grained; subrounded to subangular; wet; dense; micaceous. *(continued)*	#1 Sand
					93.5 — 32.1	
95					(CL) Tan CLAY; high plasticity; moist; stiff.	
					96.0 — 29.6	
					(MLSP) Dark brown to black SANDY SILT; laminated; trace clay; moist; very stiff.	
					98.0 — 27.6	

Bottom of borehole at 98.0 feet.

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BORING NUMBER BPS1-TT-MW501I2

CLIENT NAVFAC
PROJECT NAME Bethpage Site 1
PROJECT NUMBER 112G08005-WE16
PROJECT LOCATION Bethpage, New York
DATE STARTED 10/4/21 **COMPLETED** 10/7/21
GROUND ELEVATION 125.7 ft **HOLE SIZE** 6.25"
DRILLING CONTRACTOR DELTA WELL & PUMP
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
▽ **AT TIME OF DRILLING** 52.00 ft / Elev 73.70 ft
LOGGED BY D. Moore **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					(GP) Dark brown FILL as Recycled Concrete Aggregate (RCA); moist; very dense.	
5	SS SS-1	3-11-14-15 (25)				
10	SS SS-2	5-15-25-29 (40)			10.5 / 115.2 (GP) Dark brown FILL as RCA with crushed sandstone and quartz pebbles; moist; very hard.	
15	SS SS-3	3-8-10-14 (18)				
20	SS SS-4	6-100			21.0 / 104.7 (SPGP) Orangish brown POORLY GRADED SAND AND GRAVEL; moist; medium dense.	
25	SS SS-5	2-9-10-13 (19)			27.0 / 98.7 (SP) Tan POORLY GRADED SAND; medium grained; subrounded to subangular; quartzitic; moist; soft.	
30	SS SS-6	3-4-7-11 (11)				
35	SS SS-7	4-15-18-20 (33)			37.0 / 88.7 (SPGP) Orangish brown POORLY GRADED SAND AND GRAVEL; medium grained; rounded to subrounded; moist; very dense; decreasing gravel content with depth.	
40						

(Continued Next Page)

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BORING NUMBER BPS1-TT-MW501I2

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
40	SS SS-8	8-25-37-42 (62)			(SPGP) Orangish brown POORLY GRADED SAND AND GRAVEL; medium grained; rounded to subrounded; moist; very dense; decreasing gravel content with depth. *(continued)*	
45	SS SS-9	5-25-37-50 (62)			47.0 78.7	
50	SS SS-10	3-13-12-10 (25)			(SP) Orangish brown to tan brown POORLY GRADED SAND; medium grained; rounded; trace clay; wet; medium dense. ▽	
55	SS SS-11	3-2-11-21 (13)			55.5 70.2	
60	SS SS-12	4-4-8-21 (12)			56.2 (CL) Tan CLAY; high plasticity; wet; stiff. 69.5	
65	SS SS-13	3-8-8-19 (16)			57.0 (SP) Orangish brown POORLY GRADED SAND; medium grained; wet; medium dense. 68.7	
70	SS SS-14	7-8-31-35 (39)			(SP) Orangish brown POORLY GRADED SAND; fine grained; rounded; wet; medium dense; micaceous.	
75	SS SS-15	4-5-7-8 (12)			65.5 60.2	
80	SS SS-16	6-26-37-30 (63)			(SW) Tan WELL GRADED SAND; fine to coarse grained; rounded; wet; medium dense; heaving sands.	
85					75.5 50.2	
					77.0 (SM) Orangish brown to tan SILTY SAND; very fine to fine grained; subrounded; poorly graded; moist; soft. 48.7	
					(SP) Orangish brown to tan POORLY GRADED SAND; fine to medium grained; subrounded to subangular; wet; dense; micaceous.	

ENVIRONMENTAL BH - TT_NAVFAC_2018_V1.GDT - 1/19/23 17:29 - N:\DUSTIN.MOORE\BETHPAGE\LTM WELL INSTALL\SITE 1 LOGS.GPJ

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BORING NUMBER BPS1-TT-MW501I2

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
	SS SS-17	8-20-25-37 (45)			(SP) Orangish brown to tan POORLY GRADED SAND; fine to medium grained; subrounded to subangular; wet; dense; micaceous. *(continued)*		
90	SS SS-18	9-15-17-20 (32)					
					93.5	32.2	
95					(CL) Tan CLAY; high plasticity; moist; stiff.		
	SS SS-19	2-2-8-14 (10)			96.0	29.7	
					(MLSP) Dark brown to black SANDY SILT; laminated; trace clay; moist; very stiff.		
100	SS SS-20	8-11-18-20 (29)			99.0	26.7	
					(ML) Dark gray SILT; some sand; trace clay; moist; stiff laminated; micaceous; surface glossy.		
105	SS SS-21	7-9-20-20 (29)					#0 Sand
					109.0	16.7	
110					(CLML) Dark gray CLAYEY SILT; moist; soft; micaceous.		
	SS SS-22	6-4-2-3 (6)			113.0	12.7	
					(SP) Orangish brown POORLY GRADED SAND; fine grained; subrounded; wet; dense; pink at base.		
115	SS SS-23	4-4-10-29 (14)			117.0	8.7	
					(SP) Variably colored (red, tan, brown, yellow) POORLY GRADED SAND; fine grained; subrounded; medium dense.		
120	SS SS-24	6-19-27-40 (46)					#1 Sand
					122.0	3.7	
125					(SP) Gray to tan POORLY GRADED SAND; fine grained; rounded to subrounded; dense.		
	SS SS-25	12-22-22-28 (44)					
					129.0	-3.3	
130					(CLML) Tan CLAYEY SILT; moist; stiff; micaceous.		
	SS	6-11-16-26			131.0	-5.3	

(Continued Next Page)

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BORING NUMBER BPS1-TT-MW501I2

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
	SS-26	(27)			132.0 (MLSP) Tan SANDY SILT; moist; very stiff; micaceous. -6.3 *(continued)* (SM) Variably colored (gray, red, pink) SILTY SAND; fine grained; trace clay.	
135						
	SS SS-27	8-10-10-12 (20)				
140						
	SS SS-28	4-4-13-19 (17)			140.5 -14.8 (SP) Variably colored (gray, red, brown, pink) POORLY GRADED SAND; fine grained; subrounded to rounded; trace silt; wet; medium dense.	
145						
	SS SS-29	3-10-21-50 (31)				
150					150.0 -24.3	

Bottom of borehole at 150.0 feet.

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BORING NUMBER BPS1-TT-MW501S

CLIENT NAVFAC
PROJECT NAME Bethpage Site 1
PROJECT NUMBER 112G08005-WE16
PROJECT LOCATION Bethpage, New York
DATE STARTED 10/7/21 **COMPLETED** 10/7/21
GROUND ELEVATION 125.6 ft **HOLE SIZE** 6.25"
DRILLING CONTRACTOR DELTA WELL & PUMP
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING ---
LOGGED BY D. Moore **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					(GP) Dark brown FILL as Recycled Concrete Aggregate (RCA); moist; very dense.	
10.5						115.1
					(GP) Dark brown FILL as RCA with crushed sandstone and quartz pebbles; moist; very hard.	
21.0						104.6
					(SPGP) Orangish brown POORLY GRADED SAND AND GRAVEL; moist; medium dense.	
27.0						98.6
					(SP) Tan POORLY GRADED SAND; medium grained; subrounded to subangular; quartzitic; moist; soft.	
37.0						88.6
					(SPGP) Orangish brown POORLY GRADED SAND AND GRAVEL; medium grained; rounded to subrounded; moist; very dense; decreasing gravel content with depth.	#0 Sand
40						

(Continued Next Page)

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BORING NUMBER BPS1-TT-MW501S

CLIENT NAVFAC **PROJECT NAME** Bethpage Site 1

PROJECT NUMBER 112G08005-WE16 **PROJECT LOCATION** Bethpage, New York

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
40					(SPGP) Orangish brown POORLY GRADED SAND AND GRAVEL; medium grained; rounded to subrounded; moist; very dense; decreasing gravel content with depth. *(continued)*	
45					47.0 — 78.6 (SP) Orangish brown to tan brown POORLY GRADED SAND; medium grained; rounded; trace clay; wet; medium dense.	
50						#1 Sand
55					55.5 — 70.1	
					56.2 — 69.4 (CL) Tan CLAY; high plasticity; wet; stiff.	
					57.0 — 68.6 (SP) Orangish brown POORLY GRADED SAND; medium grained; wet; medium dense.	
60					(SP) Orangish brown POORLY GRADED SAND; fine grained; rounded; wet; medium dense; micaceous.	
					61.0 — 64.6	

Bottom of borehole at 61.0 feet.

Appendix B
Gamma Logs

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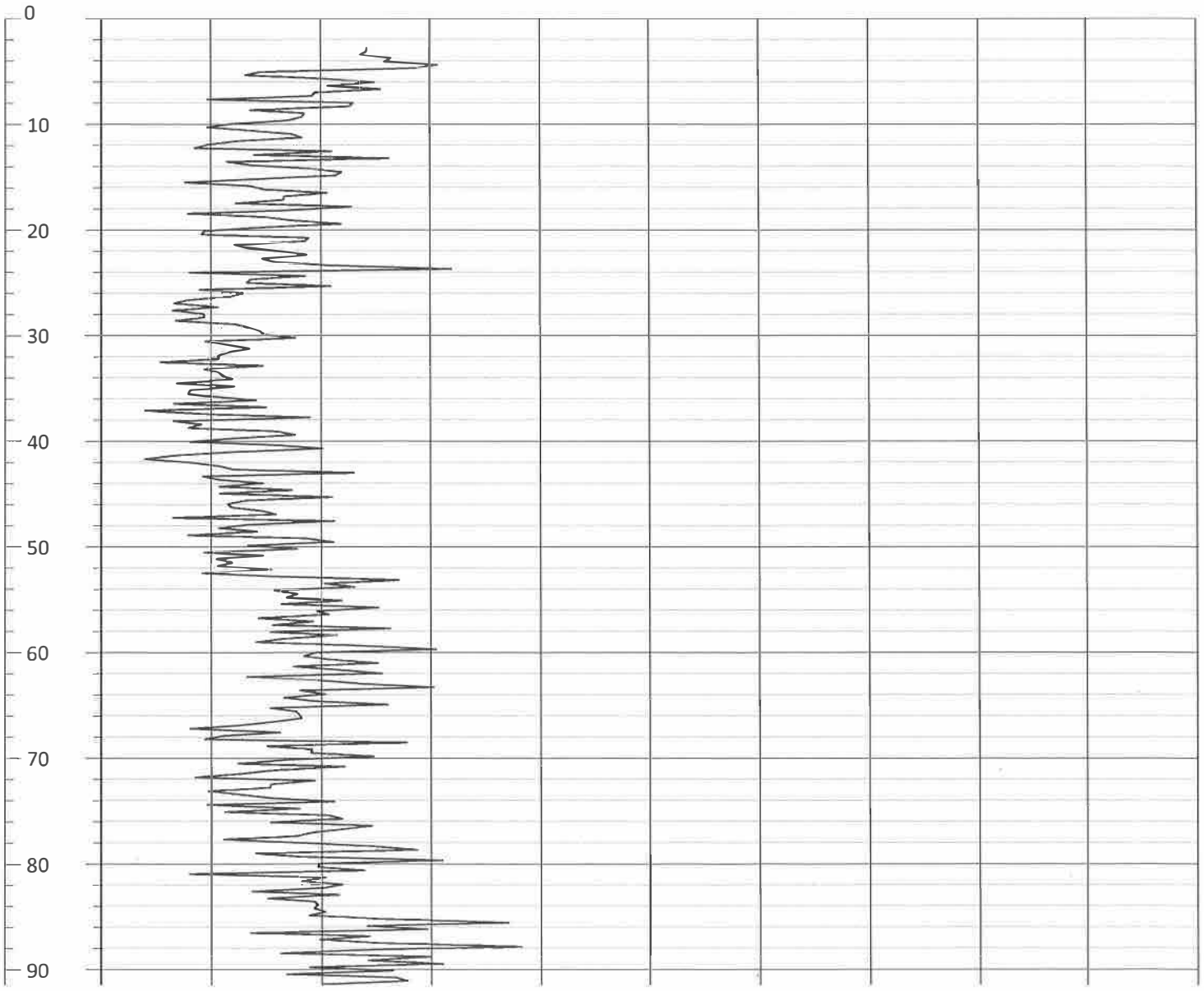
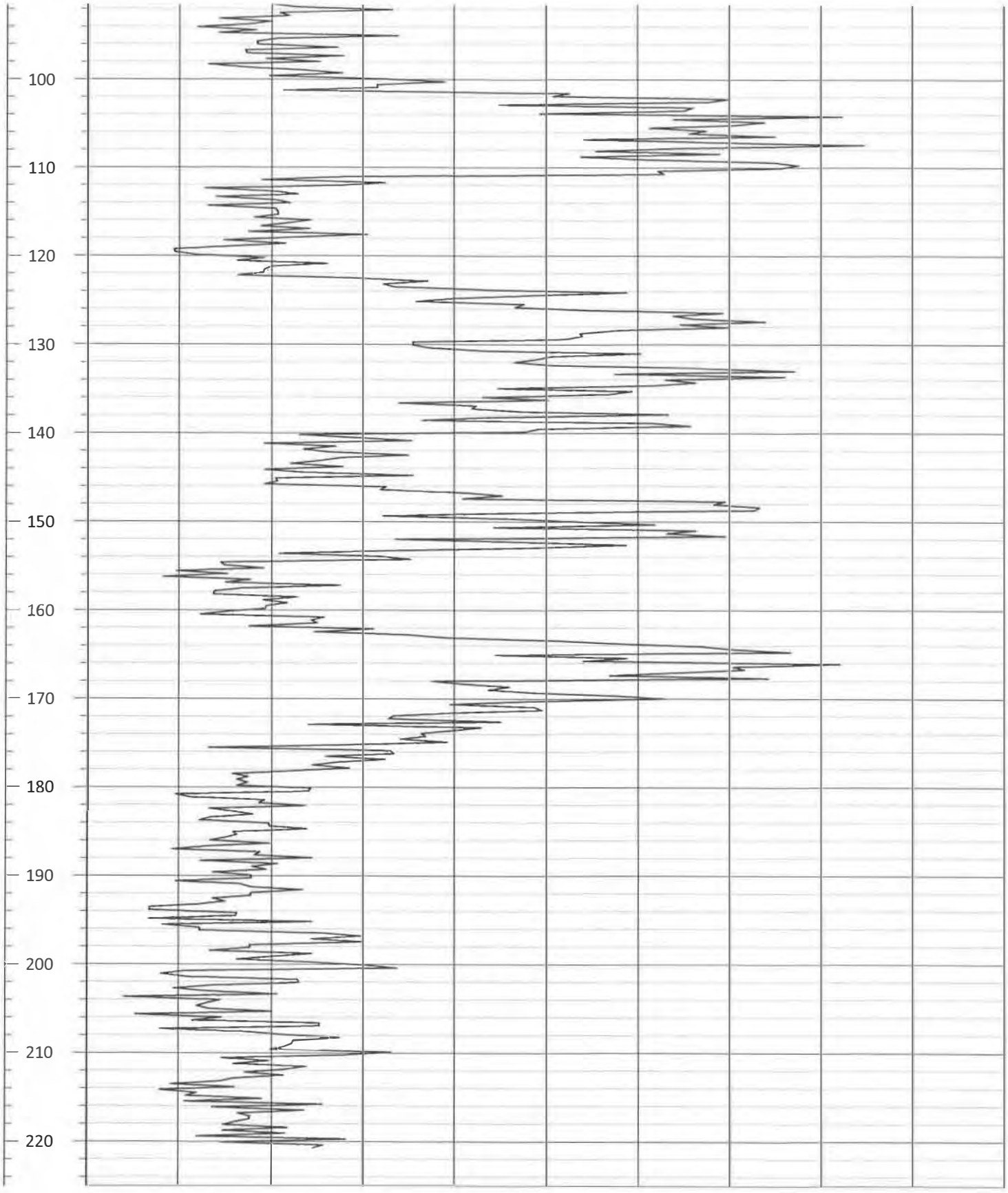
DOWN

COMPANY: DELTA WELL & PUMP CO., INC.	
LOCATION: NWIRP SITE 1	
Well: BPS1-FW-MW01D	Depth Driller: Jason Gueci Depth Logger:
Date: 10-19-2021 Time: 12:00	Logged by: Chris Okon
File Name: 787	Witness: Dustin Moore

Depth (ft.)	GAMMA (cps)	
0.0		100.0



Depth (ft.)	GAMMA (cps)	
0.0		100.0

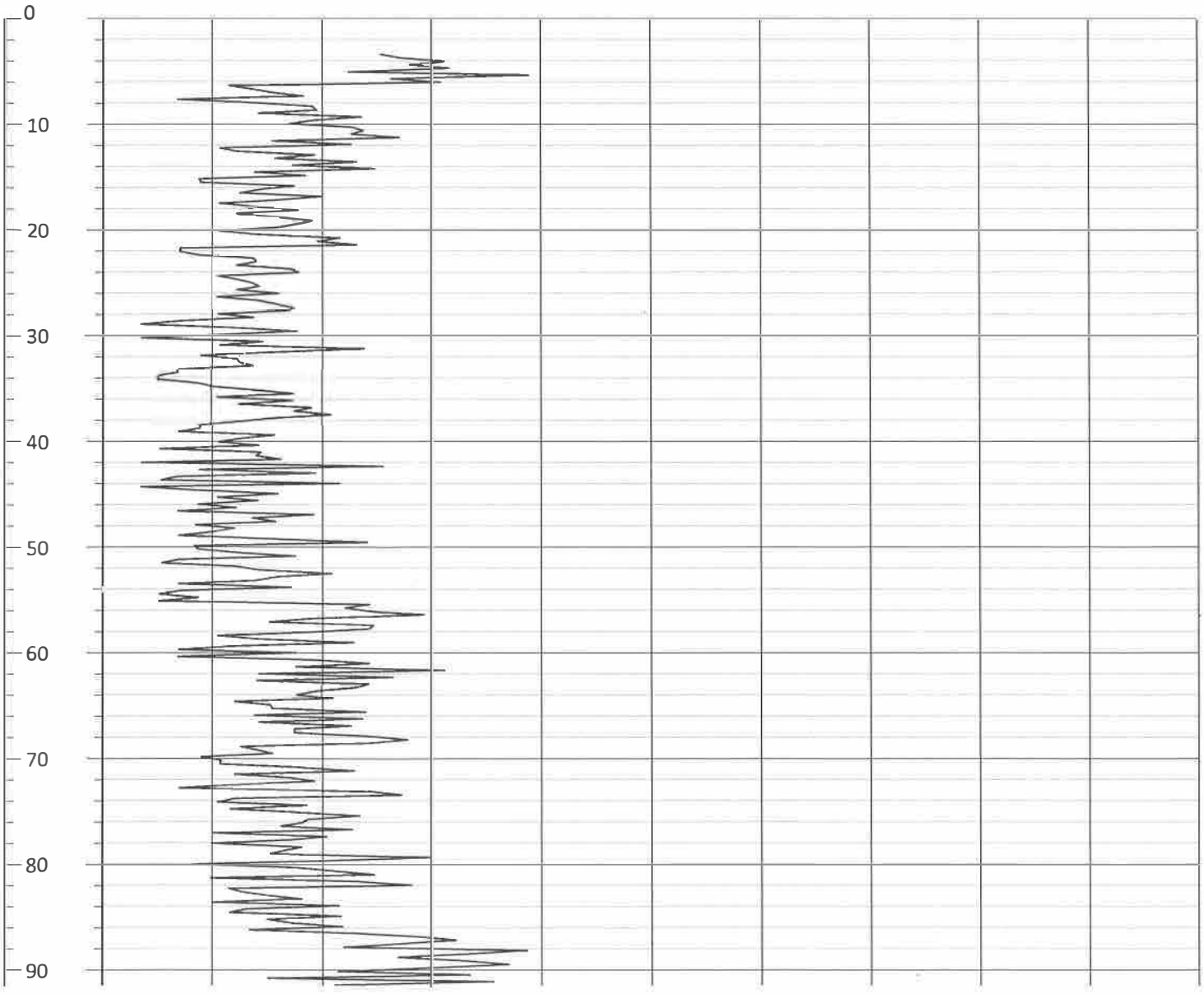


Depth (ft.)	0.0	GAMMA (cps)	100.0

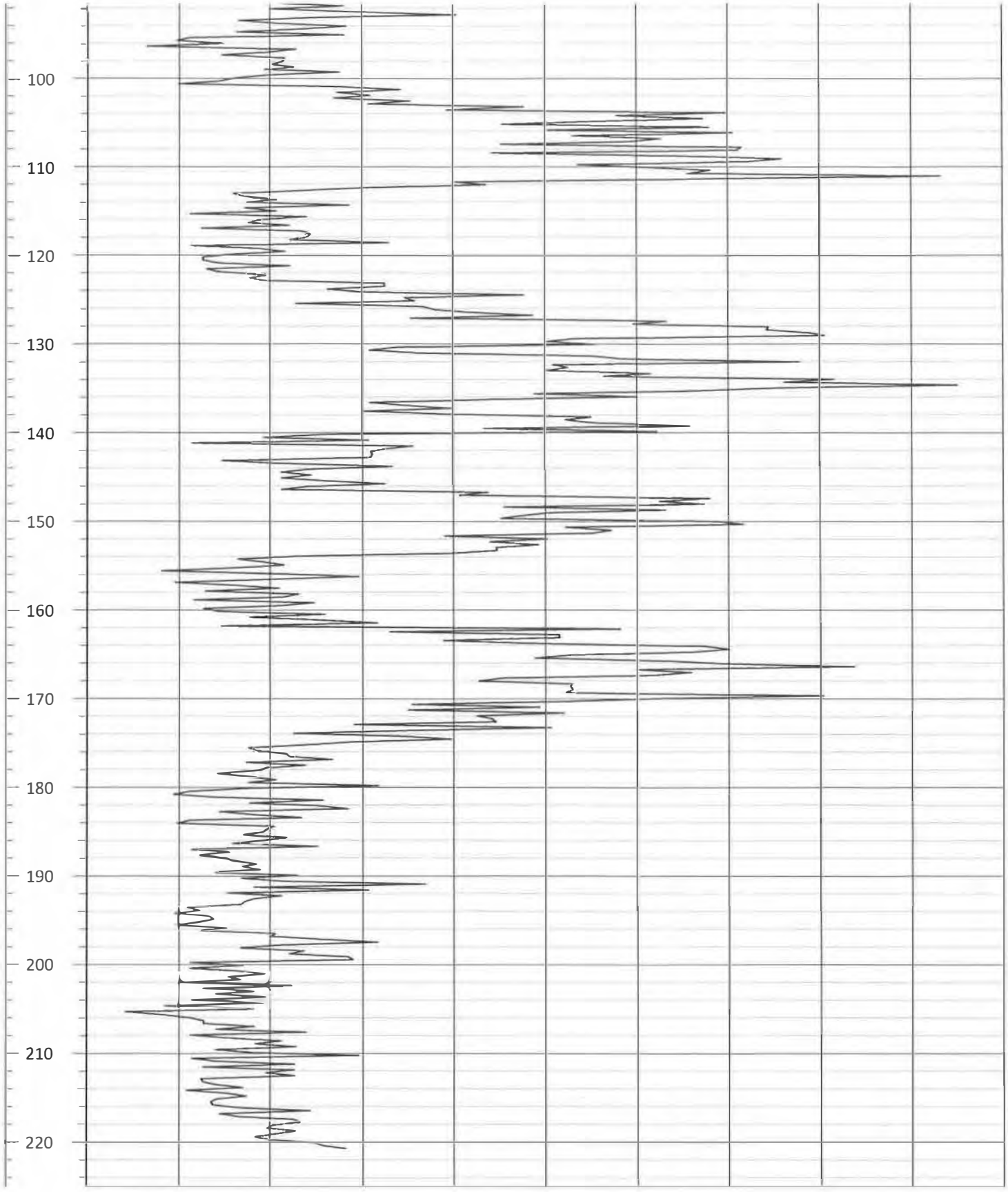
UP

COMPANY: DELTA WELL & PUMP CO., INC.	
LOCATION: NWIRP SITE 1	
Well: BPS1-FW-MW01D	Depth Driller: Jason Gueci
	Depth Logger:
Date: 10-19-2021 Time: 12:00	Logged by: Chris Okon
File Name: 787	Witness: Dustin Moore

Depth (ft.)	GAMMA (cps)	
0.0		100.0



Depth (ft.)	GAMMA (cps)	
0.0		100.0

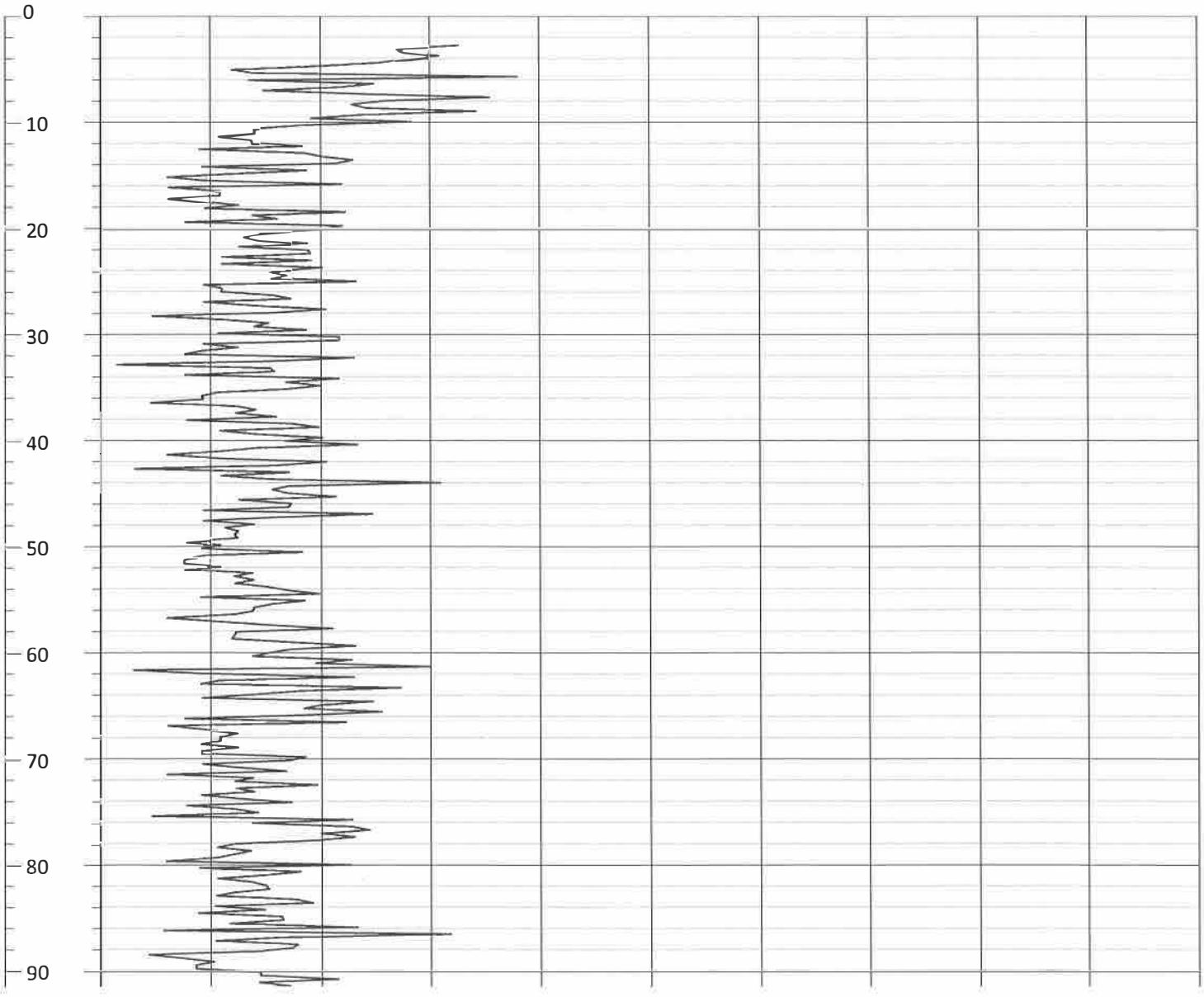


Depth (ft.)	0.0	GAMMA (cps)	100. 0

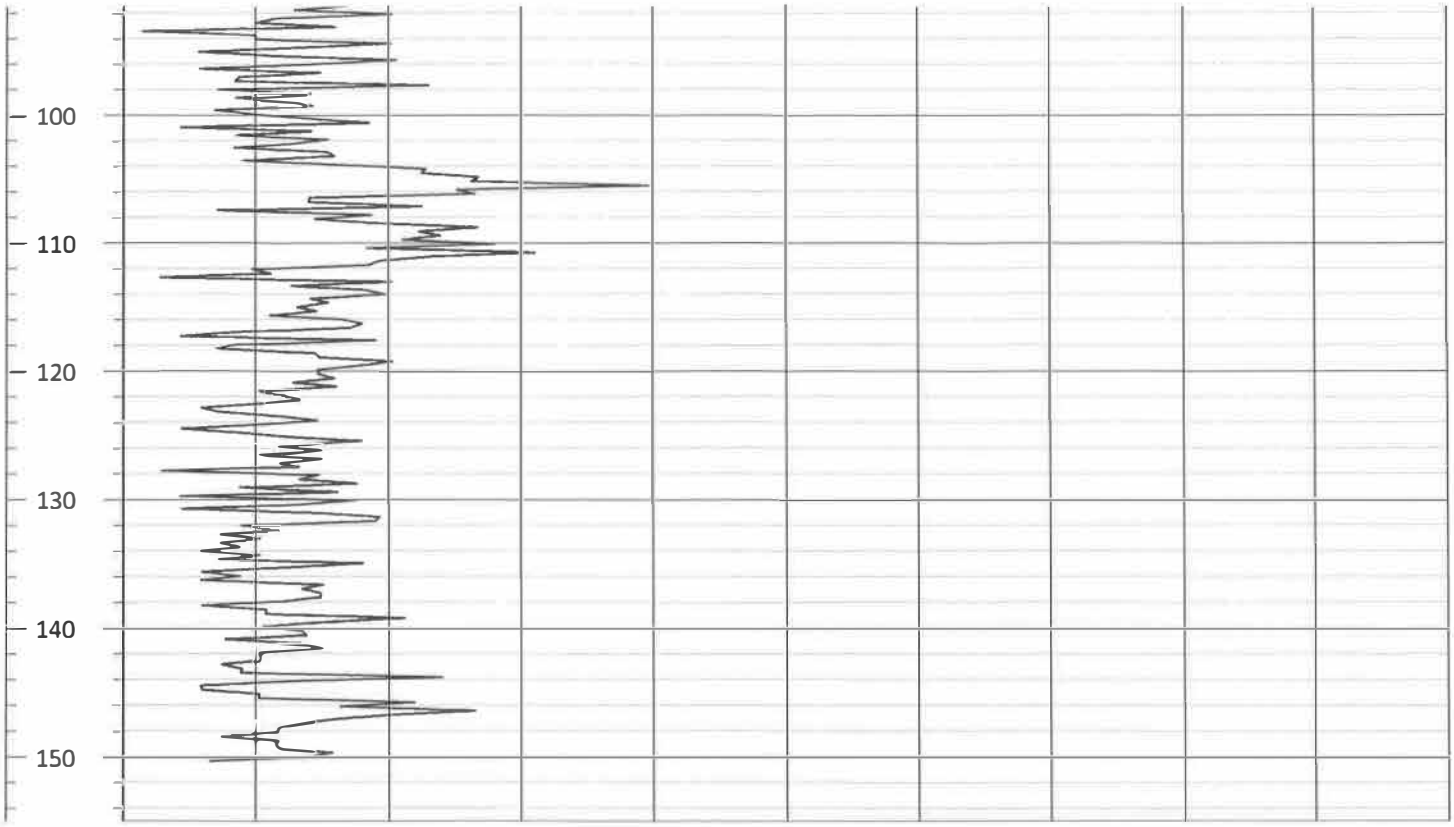
DOWN

COMPANY:	DELTA WELL & PUMP CO., INC.
LOCATION:	NWIRP Site 1
Well:	BPS1-TT-MW500I2
Depth Driller:	Jason Gueci
Depth Logger:	
Date:	10-11-2021
Time:	14:17
Logged by:	Chris Okon
File Name:	787
Witness:	Dustin Moore

Depth (ft.)	GAMMA (cps)	
0.0		100.0



Depth (ft.)	GAMMA (cps)	
0.0		100.0

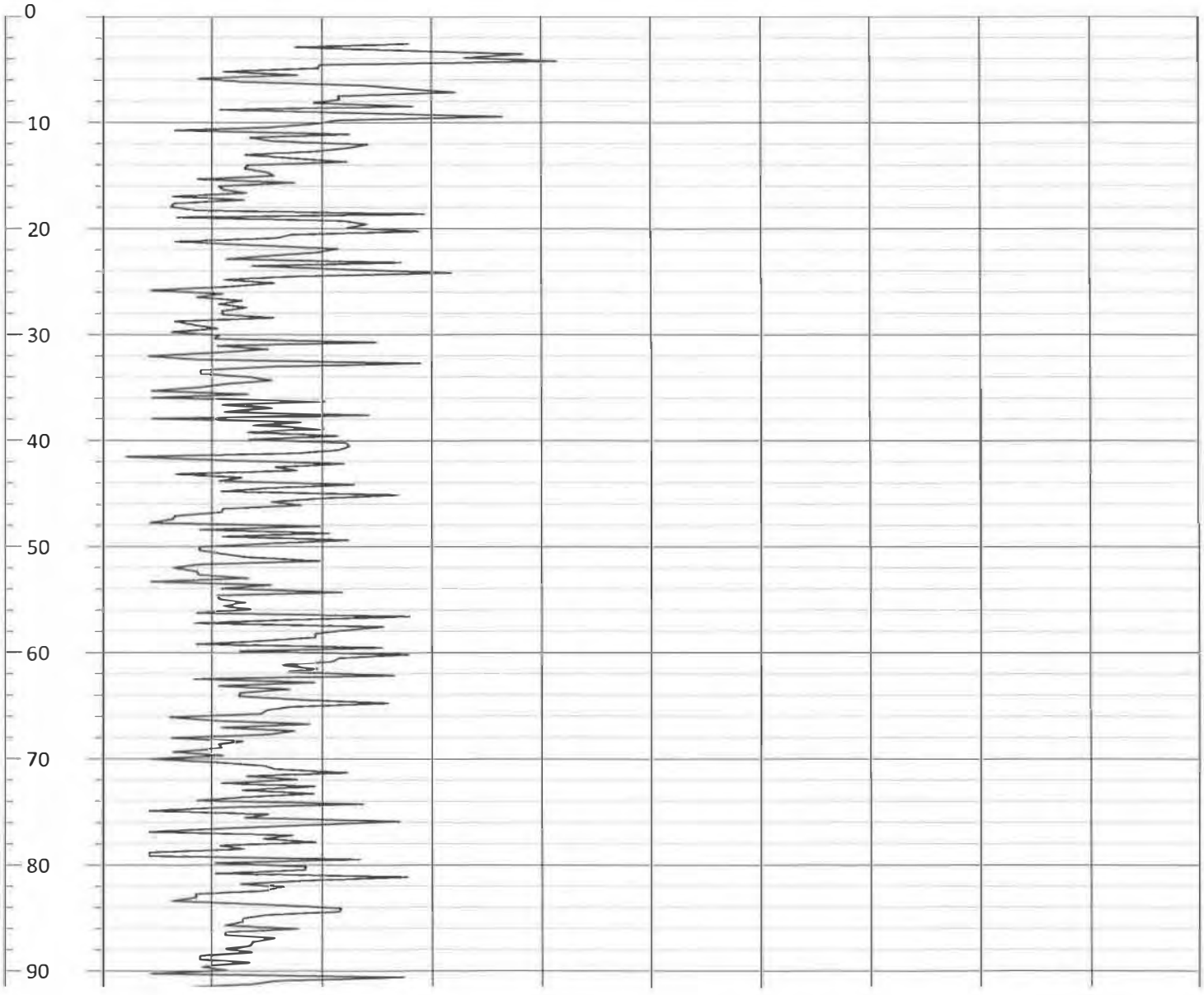


Depth (ft.)	0.0	GAMMA (cps)	100.0

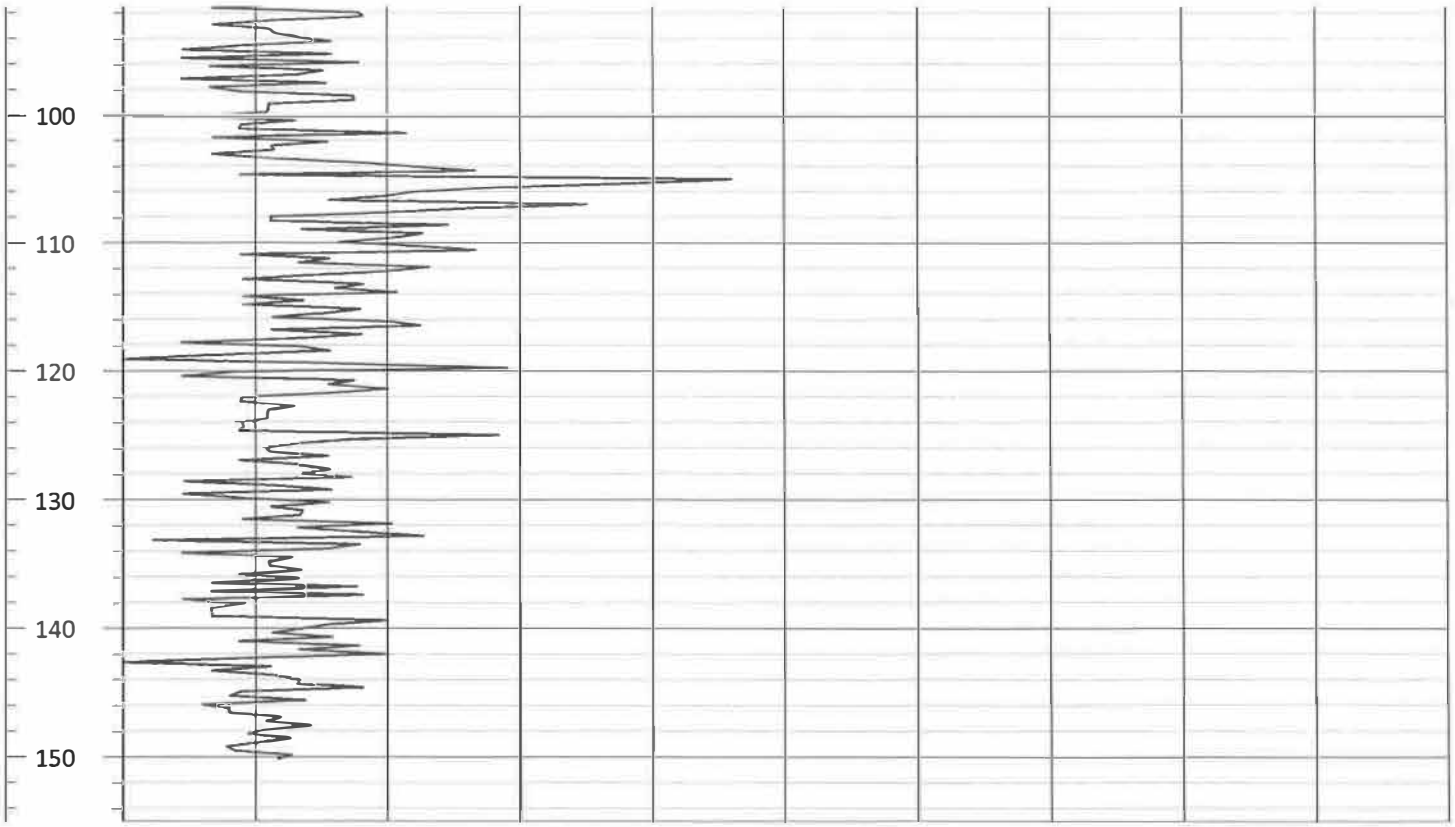
UP

COMPANY: DELTA WELL & PUMP CO., INC.	
LOCATION: NWIRP Site 1	
Well: BPS1-TT-MW500I2	Depth Driller: Jason Gueci Depth Logger:
Date: 10-11-2021 Time: 14:17	Logged by: Chris Okon
File Name: 787	Witness: Dustin Moore

Depth (ft.)	GAMMA (cps)	
0.0		100.0



Depth (ft.)	GAMMA (cps)	
0.0		100.0

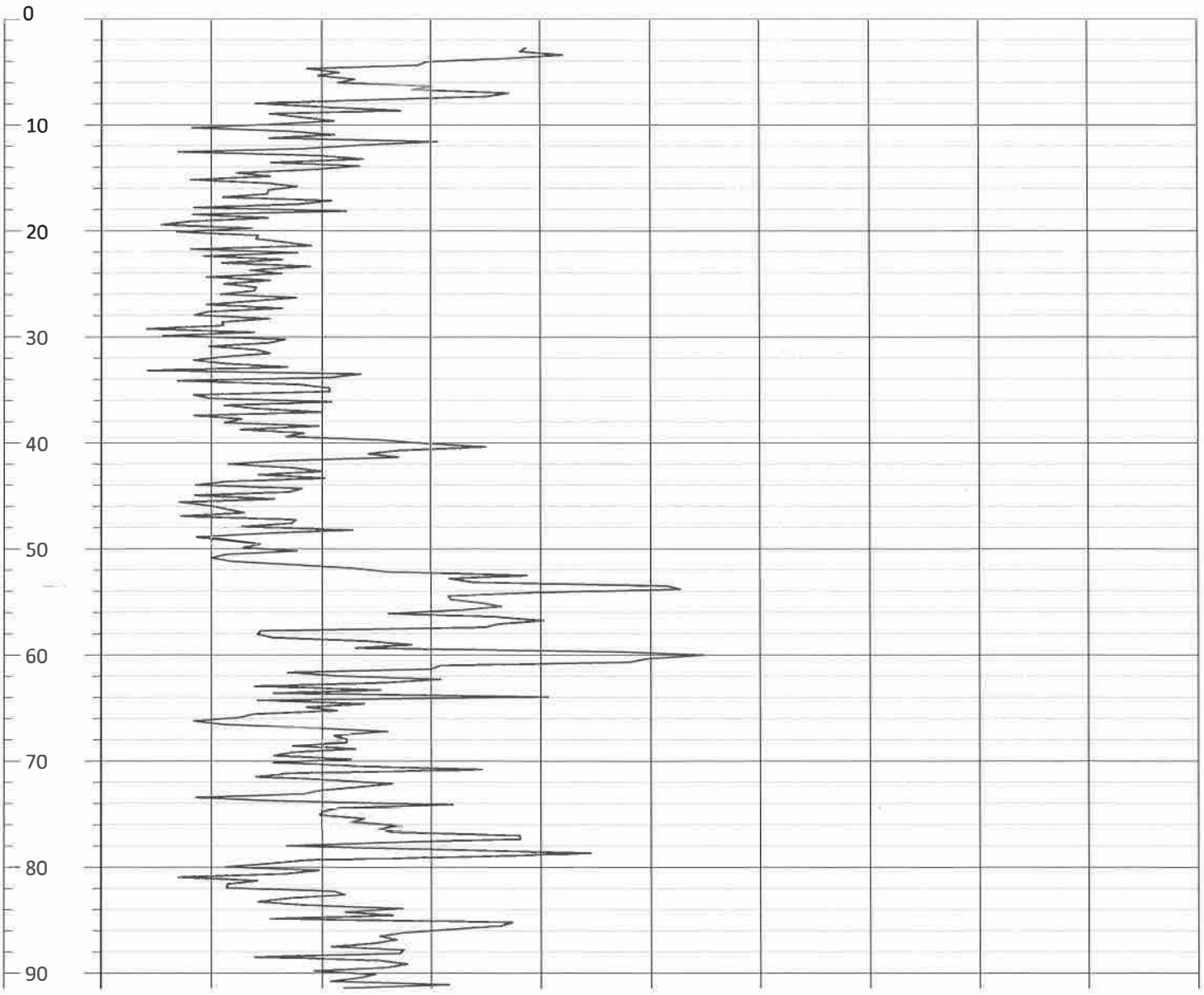


Depth (ft.)	0.0	GAMMA (cps)	100. 0

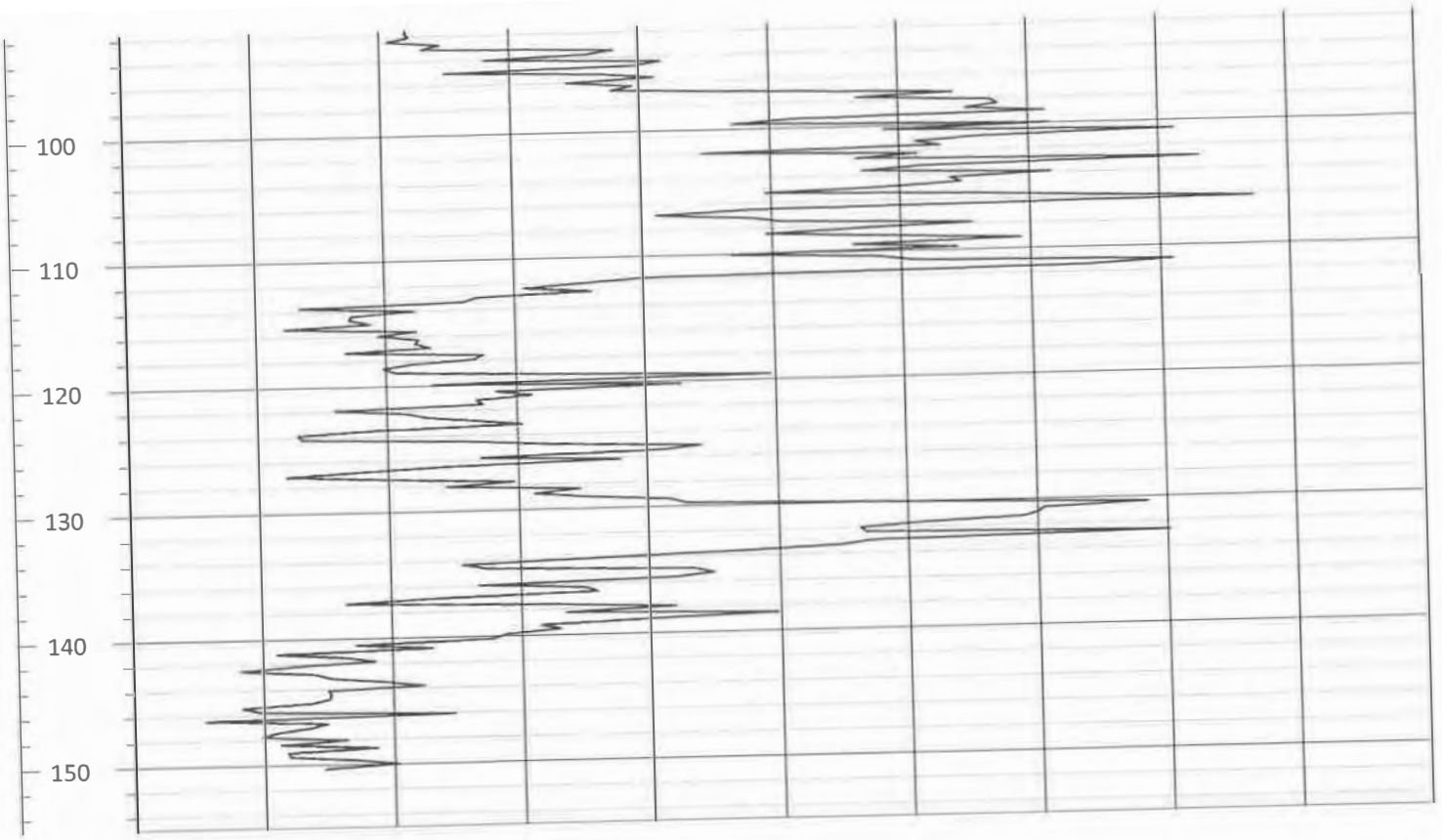
DOWN

COMPANY:	DELTA WELL & PUMP CO., INC.
LOCATION:	NWIRP Site 1
Well: BPS1-TT-MW501I	Depth Driller: Jason Gueci Depth Logger:
Date: 10-06-2021 Time: 7:50	Logged by: Chris Okon
File Name: 787	Witness: Dustin Moore

Depth (ft.)	GAMMA (cps)	
0.0		100.0



Depth (ft.)	GAMMA (cps)	
0.0		100.0

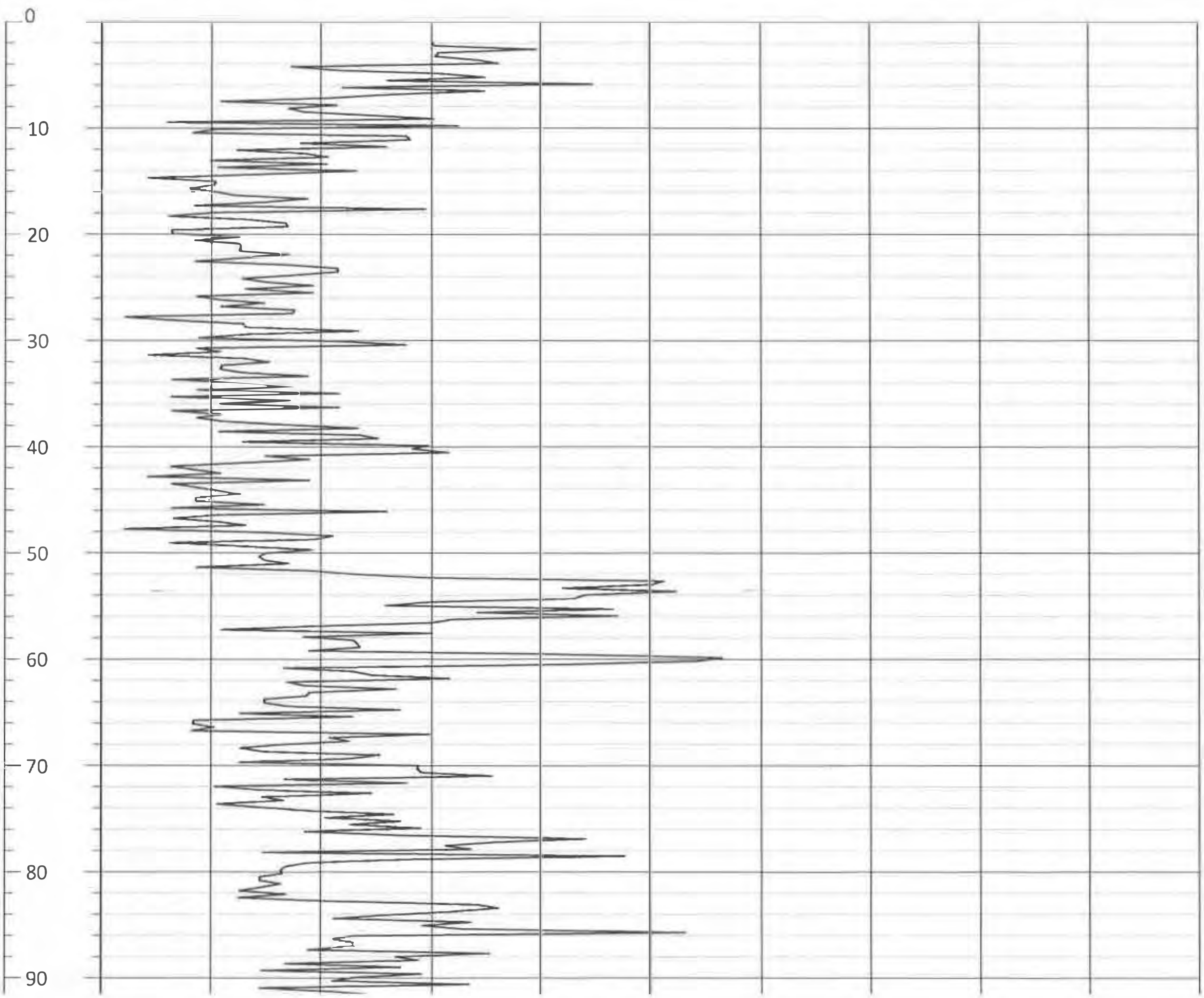


Depth (ft.)	0.0	GAMMA (cps)	100.0

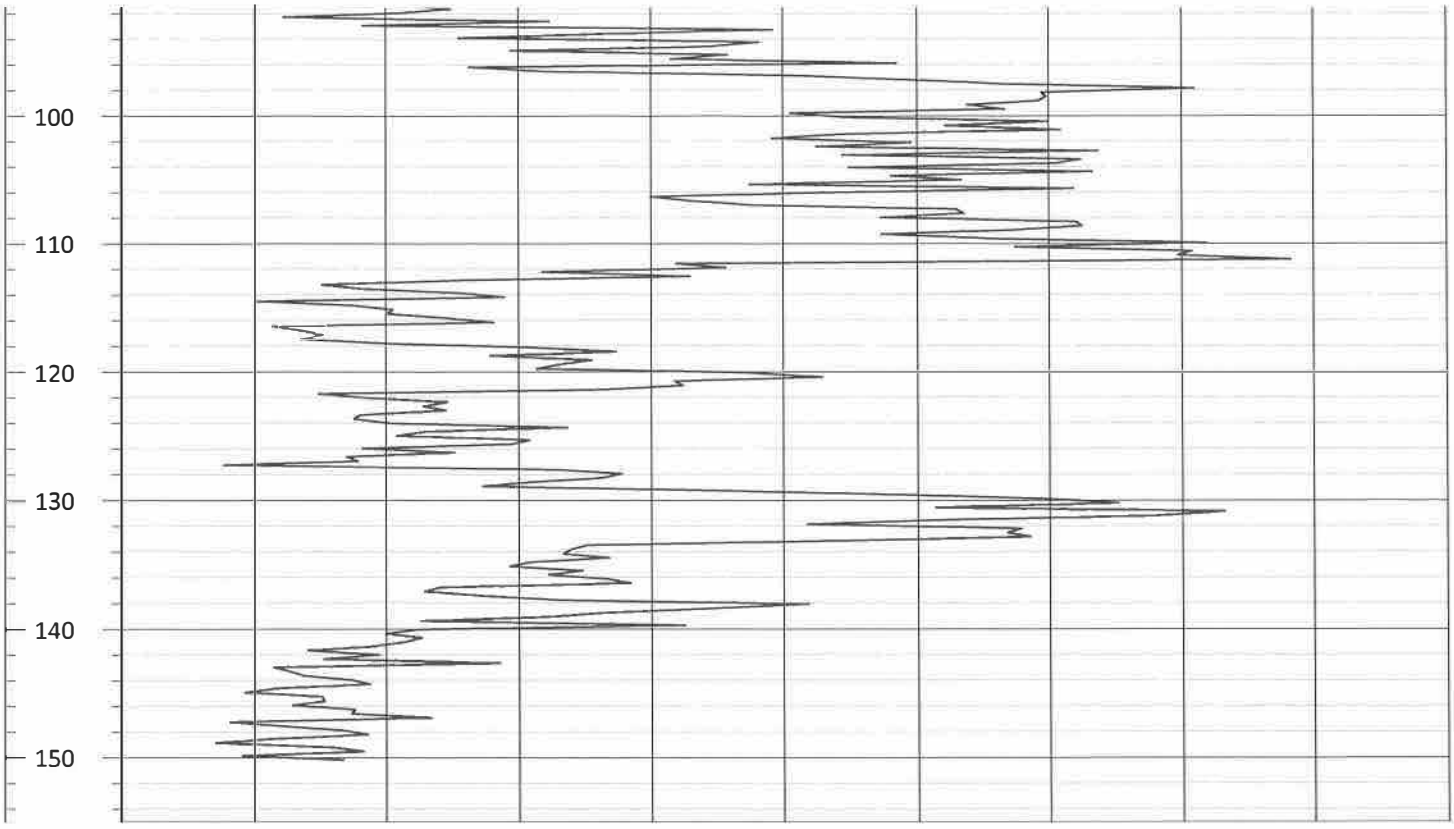
UP

	COMPANY: DELTA WELL & PUMP CO., INC.		
	LOCATION: NWIRP Site 1		
Well: BPS1-TT-MW501I		Depth Driller: Jason Gueci	
		Depth Logger:	
Date: 10-06-2021	Time: 7:50	Logged by: Chris Okon	
File Name: 787		Witness: Dustin Moore	

Depth (ft.) 0.0 GAMMA (cps) 100.0



Depth (ft) 0.0 GAMMA (cps) 100.0



Depth (ft.)	0.0	GAMMA (cps)	100.0

Appendix C
Well Construction Logs

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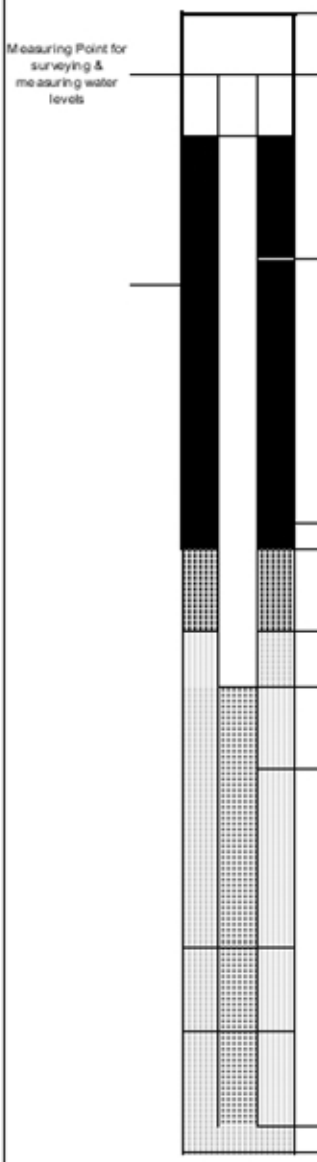
TETRA TECH	Client: NAVFAC Project Number: 112G08005-WE16	**WELL ID: BPS1-FW-MW01I**
	Site Location: NWIRP BETHPAGE, NY	
	Well Location: Site 1	Date Installed: 10/22/2021
	Method: Hollow Stem Auger	Inspector: Dustin Moore
	Coordinates: Northing: 213996.4 Easting: 1124984.5	Contractor: Delta Well & Pump

MONITORING WELL CONSTRUCTION DETAIL



		Depth from G.S. (feet)	Elevation(feet)
Top of Flush Mount Well Cap		0	125.18
Top of Riser Pipe		0.54	124.64
Riser Pipe:			
Length	94'		
Inside Diameter (ID)	2"		
Type of Material	PVC Sch. 40		
Top of Bentonite Seal		74.0	51.2
Top of Secondary Sand Pack	#0 Sand	79.0	46.2
Top of Primary Sand Pack	#1 Sand	84.0	41.2
Top of Screen		94.0	31.2
Screen:			
Length	10'		
Inside Diameter (ID)	2"		
Slot Size	0.01		
Bottom of Screen		104.0	21.2
Bottom of Borehole		104.0	21.2

Borehole Diameter: 6.25"

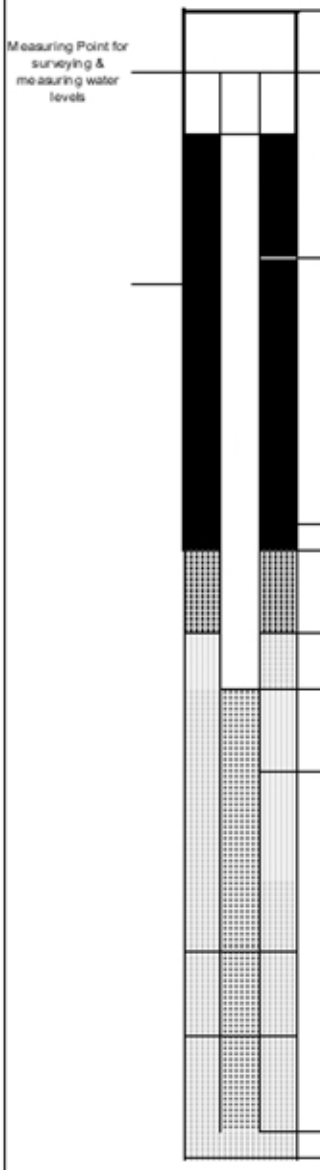
Dust L Moore
Signature

10/22/2021
Date

TETRA TECH

Client: NAVFAC	Project Number: 112G08005-WE16	**WELL ID: BPS1-FW-MW0112**
Site Location: NWIRP BETHPAGE, NY		
Well Location: Site 1		Date Installed: 10/21/2021
Method: Hollow Stem Auger		Inspector: Dustin Moore
Coordinates: Northing: 213986.0	Easting: 1124981.7	Contractor: Delta Well & Pump

MONITORING WELL CONSTRUCTION DETAIL



		Depth from G.S. (feet)	Elevation(feet)
Top of Flush Mount Well Cap		0	124.57
Top of Riser Pipe		0.33	124.24
Riser Pipe:			
Length	115'		
Inside Diameter (ID)	2"		
Type of Material	PVC Sch. 40		
Top of Bentonite Seal		105.0	19.6
Top of Secondary Sand Pack	#0 Sand	110.0	14.6
Top of Primary Sand Pack	#1 Sand	111.0	13.6
Top of Screen		115.0	9.6
Screen:			
Length	10'		
Inside Diameter (ID)	2"		
Slot Size	0.01		
Bottom of Screen		125.0	-0.4
Bottom of Borehole		125.0	-0.4

Borehole Diameter: 6.25"

Dust A Moore
Signature

10/21/2021
Date

TETRA TECH

Client: NAVFAC	Project Number: 112G08005-WE16	**WELL ID: BPS1-FW-MW01D**
Site Location: NWIRP BETHPAGE, NY		
Well Location: Site 1		Date Installed: 10/20/2021
Method: Hollow Stem Auger		Inspector: Dustin Moore
Coordinates: Northing: 213975.6	Easting: 1124982.7	Contractor: Delta Well & Pump

MONITORING WELL CONSTRUCTION DETAIL

		Depth from G.S. (feet)	Elevation(feet)
Top of Flush Mount Well Cap		0	124.23
Top of Riser Pipe		0.39	123.84
Riser Pipe:			
Length	195'		
Inside Diameter (ID)	2"		
Type of Material	PVC Sch. 40		
Top of Bentonite Seal		175.0	-50.8
Top of Secondary Sand Pack	#0 Sand	180.0	-55.8
Top of Primary Sand Pack	#1 Sand	185.0	-60.8
Top of Screen		195.0	-70.8
Screen:			
Length	10'		
Inside Diameter (ID)	2"		
Slot Size	0.01		
Bottom of Screen		205.0	-80.8
Bottom of Borehole		220.0	-95.8

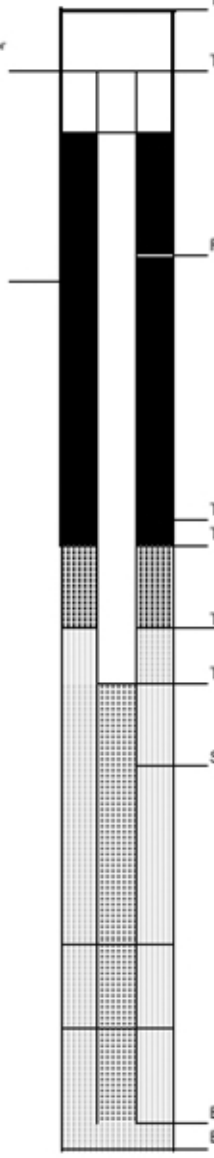
Borehole Diameter: 6.25"

Dust L Moore
Signature

10/20/2021
Date

TETRA TECH	Client: NAVFAC Project Number: 112G08005-WE16	**WELL ID: BPS1-TT-MW500S**
	Site Location: NWIRP BETHPAGE, NY	
	Well Location: Site 1	Date Installed: 10/13/2021
	Method: Hollow Stem Auger	Inspector: Dustin Moore
	Coordinates: Northing: 214309.4 Easting: 1124999.9	Contractor: Delta Well & Pump

MONITORING WELL CONSTRUCTION DETAIL



		Depth from G.S. (feet)	Elevation(feet)
Top of Flush Mount Well Cap		0	125.91
Top of Riser Pipe		0.56	125.35
Riser Pipe:			
Length	51'		
Inside Diameter (ID)	2"		
Type of Material	PVC Sch. 40		
Top of Bentonite Seal		31.0	94.9
Top of Secondary Sand Pack	#0 Sand	36.0	89.9
Top of Primary Sand Pack	#1 Sand	41.0	84.9
Top of Screen		51.0	74.9
Screen:			
Length	10'		
Inside Diameter (ID)	2"		
Slot Size	0.01		
Bottom of Screen		61.0	64.9
Bottom of Borehole		61.0	64.9

Borehole Diameter: 6.25"

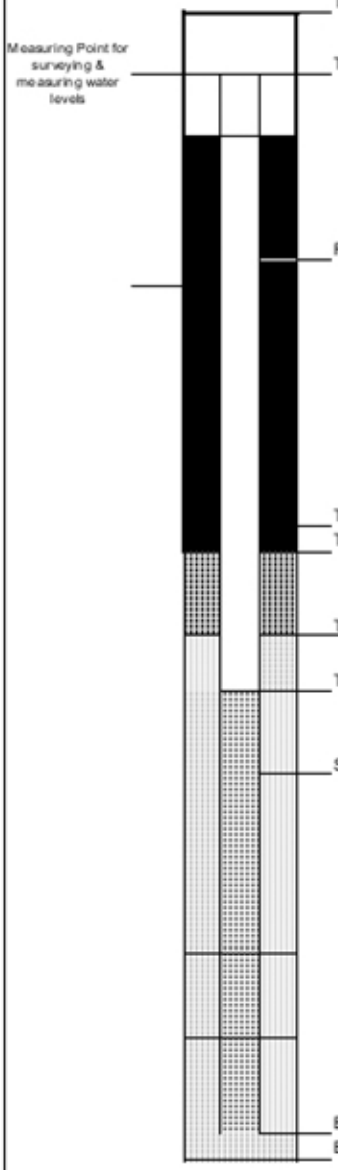
Dust L Moore
Signature

10/13/2021
Date

TETRA TECH

Client: NAVFAC	Project Number: 112G08005-WE16	**WELL ID: BPS1-TT-MW500I**
Site Location: NWIRP BETHPAGE, NY		
Well Location: Site 1		Date Installed: 10/21/2021
Method: Hollow Stem Auger		Inspector: Dustin Moore
Coordinates: Northing: 214300.5	Easting: 1124998.7	Contractor: Delta Well & Pump

MONITORING WELL CONSTRUCTION DETAIL



		Depth from G.S. (feet)	Elevation(feet)
Top of Flush Mount Well Cap		0	125.98
Top of Riser Pipe		0.52	125.46
Riser Pipe:			
Length	130'		
Inside Diameter (ID)	2"		
Type of Material	PVC Sch. 40		
Top of Bentonite Seal		110.0	16.0
Top of Secondary Sand Pack	#0 Sand	115.0	11.0
Top of Primary Sand Pack	#1 Sand	120.0	6.0
Top of Screen		130.0	-4.0
Screen:			
Length	10'		
Inside Diameter (ID)	2"		
Slot Size	0.01		
Bottom of Screen		140.0	-14.0
Bottom of Borehole		150.0	-24.0

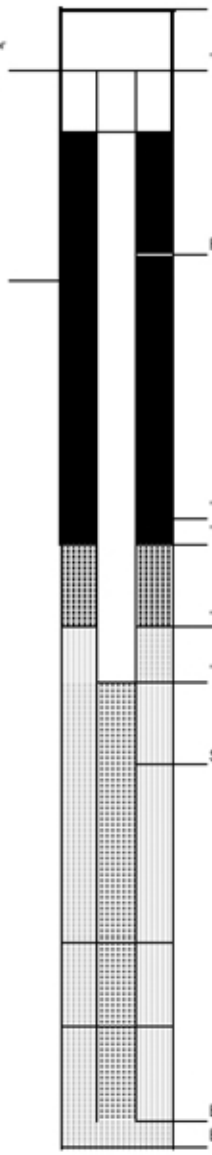
Borehole Diameter: 6.25"

Dust L Moore
Signature

10/21/2021
Date

TETRA TECH	Client: NAVFAC Project Number: 112G08005-WE16	**WELL ID: BPS1-TT-MW501S**
	Site Location: NWIRP BETHPAGE, NY	
	Well Location: Site 1	Date Installed: 10/7/2021
	Method: Hollow Stem Auger	Inspector: Dustin Moore
	Coordinates: Northing: 214103.3 Easting: 1124982.0	Contractor: Delta Well & Pump

MONITORING WELL CONSTRUCTION DETAIL



		Depth from G.S. (feet)	Elevation(feet)
Top of Flush Mount Well Cap		0	125.62
Top of Riser Pipe		0.45	125.17
Riser Pipe:			
Length	51'		
Inside Diameter (ID)	2"		
Type of Material	PVC Sch. 40		
Top of Bentonite Seal		28.0	97.6
Top of Secondary Sand Pack	#0 Sand	36.0	89.6
Top of Primary Sand Pack	#1 Sand	41.0	84.6
Top of Screen		51.0	74.6
Screen:			
Length	10'		
Inside Diameter (ID)	2"		
Slot Size	0.01		
Bottom of Screen		61.0	64.6
Bottom of Borehole		61.0	64.6

Borehole Diameter: 6.25"

Dust L Moore
Signature

10/7/2021
Date

TETRA TECH

Client: NAVFAC	Project Number: 112G08005-WE16	**WELL ID: BPS1-TT-MW501I1**
Site Location: NWIRP BETHPAGE, NY		
Well Location: Site 1		Date Installed: 10/25/2021
Method: Hollow Stem Auger		Inspector: Dustin Moore
Coordinates: Northing: 214112.0	Easting: 1124983.0	Contractor: Delta Well & Pump

MONITORING WELL CONSTRUCTION DETAIL

		Depth from G.S. (feet)	Elevation(feet)
Top of Flush Mount Well Cap		0	125.6
Top of Riser Pipe		0.48	125.12
Riser Pipe:			
Length	88'		
Inside Diameter (ID)	2"		
Type of Material	PVC Sch. 40		
Top of Bentonite Seal		68.0	57.6
Top of Secondary Sand Pack	#0 Sand	73.0	52.6
Top of Primary Sand Pack	#1 Sand	77.5	48.1
Top of Screen		88.0	37.6
Screen:			
Length	10'		
Inside Diameter (ID)	2"		
Slot Size	0.01		
Bottom of Screen		98.0	27.6
Bottom of Borehole		98.0	27.6

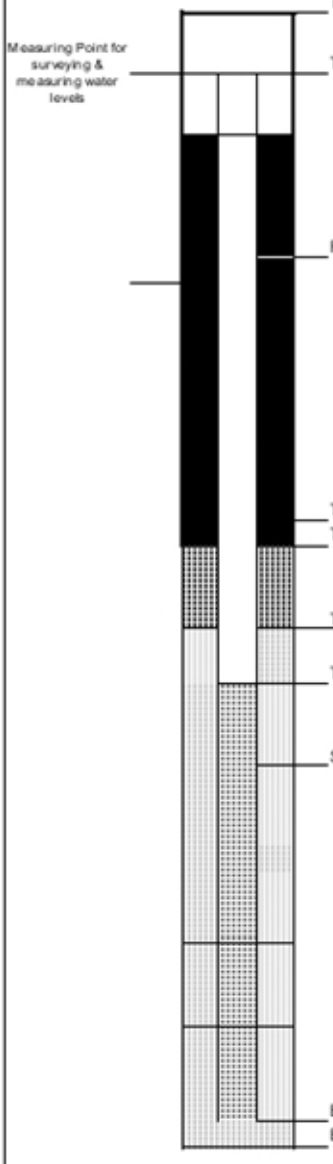
Borehole Diameter: 6.25"

Dust L Moore
Signature

10/25/2021
Date

TETRA TECH	Client: NAVFAC Project Number: 112G08005-WE16	**WELL ID: BPS1-TT-MW501I2**
	Site Location: NWIRP BETHPAGE, NY	
	Well Location: Site 1	Date Installed: 10/7/2021
	Method: Hollow Stem Auger	Inspector: Dustin Moore
	Coordinates: Northing: 214094.7 Easting: 1124982.3	Contractor: Delta Well & Pump

MONITORING WELL CONSTRUCTION DETAIL



		Depth from G.S. (feet)	Elevation(feet)
Top of Flush Mount Well Cap		0	125.69
Top of Riser Pipe		0.55	125.14
Riser Pipe:			
Length	120'		
Inside Diameter (ID)	2"		
Type of Material	PVC Sch. 40		
Top of Bentonite Seal		100.0	25.7
Top of Secondary Sand Pack	#0 Sand	105.0	20.7
Top of Primary Sand Pack	#1 Sand	110.0	15.7
Top of Screen		120.0	5.7
Screen:			
Length	10'		
Inside Diameter (ID)	2"		
Slot Size	0.01		
Bottom of Screen		130.0	-4.3
Bottom of Borehole		150.0	-24.3

Borehole Diameter: 6.25"

Dust L Moore
Signature

10/7/2021
Date

Appendix D
Well Development Logs

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MONITORING WELL DEVELOPMENT RECORD [1]

Event:	Site 1 Well Install
Project Site Name:	Bethpage NWIRP
Project Number:	112G08005-WE16

WELL INFORMATION:

Well No.:	BPS1-FW-MW01I1	**Casing ID (in.):**	2" PVC
Drilling Co.:	Delta Well & Pump	**Depth to Bottom (ft.):**	105.16
Date Installed:	10/22/2021	**Static Water Level Before (ft.):**	
Date Developed:	10/27/2021	**Static Water Level After (ft.):**	53.00
Dev. Method:	Surge and purge	**Screen Length (ft.):**	10
Pump Type:	Grundfos Submersible	**Specific Capacity:**	N/A
Developed By:	Jake McCloskey		

DEVELOPMENT DATA:

Time	Estimated Sediment Thickness (ft.)	Estimated Cumulative Water Volume (Gallons) [2]	Water Level (ft. below TOC)	Temp. (C°)	pH (S.U.)	S.C. (mS/cm)	Turbidity (NTU)	Remarks: (odor, color, etc.)
13:20		0		-	-	-	-	Start Development
13:30		85						First Reading
13:40		170						
13:50		255						
14:00		340						
14:10		425						
14:20		510						
14:30		595						End Development
				12.74	6.11	0.191	18.6	Taken on 11/30/2021 at 15:00. [3]

Notes:

CT - 12/16/2022

1. This is a recreated well development log for BPS1-FW-MW01I1, as the original well development log was lost. This well is documented via field logbook to have been developed on 10/27/2021.

2. The cumulative water volumes were calculated using the typical pump outpute rate of 8 to 9 gallons per minute (gpm).

3. The final temperature, pH, specific conductivity (S.C.) and turbidity were referenced from the final readings of a ground water sampling event that occured on 11/30/2021 at 15:00.

MONITORING WELL DEVELOPMENT RECORD [1]

Event: Site 1 Well Install
Project Site Name: Bethpage NWIRP
Project Number: 112G08005-WE16

WELL INFORMATION:

Well No.:	BPS1-FW-MW01I2	**Casing ID (in.):**	2" PVC
Drilling Co.:	Delta Well & Pump	**Depth to Bottom (ft.):**	125.86
Date Installed:	10/21/2021	**Static Water Level Before (ft.):**	
Date Developed:	10/28/2021	**Static Water Level After (ft.):**	52.68
Dev. Method:	Surge and purge	**Screen Length (ft.):**	10
Pump Type:	Grundfos Submersible	**Specific Capacity:**	N/A
Developed By:	Jake McCloskey		

DEVELOPMENT DATA:

Time	Estimated Sediment Thickness (ft.)	Estimated Cumulative Water Volume (Gallons) [2]	Water Level (ft. below TOC)	Temp. (C°)	pH (S.U.)	S.C. (mS/cm)	Turbidity (NTU)	Remarks: (odor, color, etc.)
7:50		0		-	-	-	-	Start Development
8:00		85						First Reading
8:10		170						
8:20		255						
8:30		340						
8:40		425						
8:50		510						
9:00		595						
9:10		680						End Development
				13.41	6.04	0.127	4.31	Taken on 11/30/2021 at 17:10. [3]

Notes:

CT - 12/16/2022

1. This is a recreated well development log for BPS1-FW-MW01I2, as the original well development log was lost. This well is documented via field logbook to have been developed on 10/28/2021.

2. The cumulative water volumes were calculated using the typical pump outpute rate of 8 to 9 gallons per minute (gpm).

3. The final temperature, pH, specific conductivity (S.C.) and turbidity were referenced from the final readings of a ground water sampling event that occured on 11/30/2021 at 17:10.

MONITORING WELL DEVELOPMENT RECORD [1]

Event: Site 1 Well Install
Project Site Name: Bethpage NWIRP
Project Number: 112G08005-WE16

WELL INFORMATION:

Well No.:	BPS1-FW-MW01D	**Casing ID (in.):**	2" PVC
Drilling Co.:	Delta Well & Pump	**Depth to Bottom (ft.):**	200
Date Installed:	10/20/2021	**Static Water Level Before (ft.):**	
Date Developed:	10/28/2021	**Static Water Level After (ft.):**	52.93
Dev. Method:	Surge and purge	**Screen Length (ft.):**	10
Pump Type:	Grundfos Submersible	**Specific Capacity:**	N/A
Developed By:	Jake McCloskey		

DEVELOPMENT DATA:

Time	Estimated Sediment Thickness (ft.)	Estimated Cumulative Water Volume (Gallons) [2]	Water Level (ft. below TOC)	Temp. (C°)	pH (S.U.)	S.C. (mS/cm)	Turbidity (NTU)	Remarks: (odor, color, etc.)
10:10		0		-	-	-	-	Start Development
10:20		85						First Reading
10:30		170						
10:40		255						
10:50		340						
11:00		425						
11:10		510						
11:20		595						
11:30		680						
11:40		765						End Development
				12.55	6.51	0.130	5.40	Taken on 11/30/2021 at 18:30. [3]

Notes:

CT - 12/16/2022

1. This is a recreated well development log for BPS1-FW-MW01D, as the original well development log was lost. This well is documented via field logbook to have been developed on 10/28/2021.

2. The cumulative water volumes were calculated using the typical pump outpute rate of 8 to 9 gallons per minute (gpm).

3. The final temperature, pH, specific conductivity (S.C.) and turbidity were referenced from the final readings of a ground water sampling event that occured on 11/30/2021 at 18:30.

MONITORING WELL DEVELOPMENT RECORD [1]

Event: Site 1 Well Install
Project Site Name: Bethpage NWIRP
Project Number: 112G08005-WE16

WELL INFORMATION:

Well No.:	BPS1-TT-MW500S	**Casing ID (in.):**	2" PVC
Drilling Co.:	Delta Well & Pump	**Depth to Bottom (ft.):**	61.24
Date Installed:	10/13/2021	**Static Water Level Before (ft.):**	
Date Developed:	10/26/2021	**Static Water Level After (ft.):**	52.23
Dev. Method:	Surge and purge	**Screen Length (ft.):**	10
Pump Type:	Grundfos Submersible	**Specific Capacity:**	N/A
Developed By:	Jake McCloskey		

DEVELOPMENT DATA:

Time	Estimated Sediment Thickness (ft.)	Estimated Cumulative Water Volume (Gallons) [2]	Water Level (ft. below TOC)	Temp. (C°)	pH (S.U.)	S.C. (mS/cm)	Turbidity (NTU)	Remarks: (odor, color, etc.)
10:46		0		-	-	-	-	Start Development
10:56		85						First Reading
11:06		170						
11:16		255						
11:26		340						
11:36		425						
11:46		510						End Development
				15.64	6.64	0.373	5.75	Taken on 12/1/2021 at 20:39. [3]

Notes:

CT - 12/16/2022

1. This is a recreated well development log for BPS1-TT-MW500S, as the original well development log was lost. This well is documented via field logbook to have been developed on 10/26/2021.

2. The cumulative water volumes were calculated using the typical pump outpute rate of 8 to 9 gallons per minute (gpm).

3. The final temperature, pH, specific conductivity (S.C.) and turbidity were referenced from the final readings of a ground water sampling event that occured on 12/1/2021 at 20:39.

MONITORING WELL DEVELOPMENT RECORD [1]

Event: Site 1 Well Install
Project Site Name: Bethpage NWIRP
Project Number: 112G08005-WE16

WELL INFORMATION:

Well No.:	BPS1-TT-MW500I	**Casing ID (in.):**	2" PVC
Drilling Co.:	Delta Well & Pump	**Depth to Bottom (ft.):**	139.93
Date Installed:	10/21/2021	**Static Water Level Before (ft.):**	
Date Developed:	10/26/2021	**Static Water Level After (ft.):**	52.65
Dev. Method:	Surge and purge	**Screen Length (ft.):**	10
Pump Type:	Grundfos Submersible	**Specific Capacity:**	N/A
Developed By:	Jake McCloskey		

DEVELOPMENT DATA:

Time	Estimated Sediment Thickness (ft.)	Estimated Cumulative Water Volume (Gallons) [2]	Water Level (ft. below TOC)	Temp. (C°)	pH (S.U.)	S.C. (mS/cm)	Turbidity (NTU)	Remarks: (odor, color, etc.)
8:15		0		-	-	-	-	Start Development
8:34		85						First Reading
8:44		170						
8:54		255						
9:04		340						
9:14		425						
9:24		510						
9:34		595						
9:44		680						
9:54		765						End Development
				14.67	5.98	0.265	7.70	Taken on 12/1/2021 at 18:40. [3]

Notes:

CT - 12/16/2022

1. This is a recreated well development log for BPS1-TT-MW500I, as the original well development log was lost. This well is documented via field logbook to have been developed on 10/26/2021.

2. The cumulative water volumes were calculated using the typical pump outpute rate of 8 to 9 gallons per minute (gpm).

3. The final temperature, pH, specific conductivity (S.C.) and turbidity were referenced from the final readings of a ground water sampling event that occured on 12/1/2021 at 18:40.

MONITORING WELL DEVELOPMENT RECORD [1]

Event: Site 1 Well Install
Project Site Name: Bethpage NWIRP
Project Number: 112G08005-WE16

WELL INFORMATION:

Well No.:	BPS1-TT-MW501S	**Casing ID (in.):**	2" PVC
Drilling Co.:	Delta Well & Pump	**Depth to Bottom (ft.):**	60.96
Date Installed:	10/7/2021	**Static Water Level Before (ft.):**	
Date Developed:	10/27/2021	**Static Water Level After (ft.):**	53.04
Dev. Method:	Surge and purge	**Screen Length (ft.):**	10
Pump Type:	Grundfos Submersible	**Specific Capacity:**	N/A
Developed By:	Jake McCloskey		

DEVELOPMENT DATA:

Time	Estimated Sediment Thickness (ft.)	Estimated Cumulative Water Volume (Gallons) [2]	Water Level (ft. below TOC)	Temp. (C°)	pH (S.U.)	S.C. (mS/cm)	Turbidity (NTU)	Remarks: (odor, color, etc.)
10:00		0		-	-	-	-	Start Development
10:10		85						First Reading
10:20		170						
10:30		255						
10:40		340						
10:50		425						
11:00		510						
11:10		595						
11:20		680						
11:30		765						
11:40		850						
11:50		935						
12:00		1020						End Development
				16:45	7.35	0.510	115	Taken on 12/1/2021 at 12:57. [3]

Notes:

CT - 12/16/2022

1. This is a recreated well development log for BPS1-TT-MW501S, as the original well development log was lost. This well is documented via field logbook to have been developed on 10/27/2021.

2. The cumulative water volumes were calculated using the typical pump outpute rate of 8 to 9 gallons per minute (gpm).

3. The final temperature, pH, specific conductivity (S.C.) and turbidity were referenced from the final readings of a ground water sampling event that occured on 12/1/2021 at 12:57.

MONITORING WELL DEVELOPMENT RECORD [1]

Event: Site 1 Well Install
Project Site Name: Bethpage NWIRP
Project Number: 112G08005-WE16

WELL INFORMATION:

Well No.:	BPS1-TT-MW5001I1	**Casing ID (in.):**	2" PVC
Drilling Co.:	Delta Well & Pump	**Depth to Bottom (ft.):**	99.65
Date Installed:	10/25/2021	**Static Water Level Before (ft.):**	
Date Developed:	10/27/2021	**Static Water Level After (ft.):**	52.45
Dev. Method:	Surge and purge	**Screen Length (ft.):**	10
Pump Type:	Grundfos Submersible	**Specific Capacity:**	N/A
Developed By:	Jake McCloskey		

DEVELOPMENT DATA:

Time	Estimated Sediment Thickness (ft.)	Estimated Cumulative Water Volume (Gallons) [2]	Water Level (ft. below TOC)	Temp. (C°)	pH (S.U.)	S.C. (mS/cm)	Turbidity (NTU)	Remarks: (odor, color, etc.)
8:00		0		-	-	-	-	Start Development
8:10		85						First Reading
8:20		170						
8:30		255						
8:40		340						
8:50		425						
9:00		510						End Development
				14.55	5.99	0.181	10.5	Taken on 12/1/2021 at 10:00. [3]

Notes:

CT - 12/16/2022

1. This is a recreated well development log for BPS1-TT-MW501I1, as the original well development log was lost. This well is documented via field logbook to have been developed on 10/27/2021.

2. The cumulative water volumes were calculated using the typical pump outpute rate of 8 to 9 gallons per minute (gpm).

3. The final temperature, pH, specific conductivity (S.C.) and turbidity were referenced from the final readings of a ground water sampling event that occured on 12/1/2021 at 10:00.

MONITORING WELL DEVELOPMENT RECORD [1]

Event:	Site 1 Well Install
Project Site Name:	Bethpage NWIRP
Project Number:	112G08005-WE16

WELL INFORMATION:

Well No.:	BPS1-TT-MW501I2	**Casing ID (in.):**	2" PVC
Drilling Co.:	Delta Well & Pump	**Depth to Bottom (ft.):**	131.06
Date Installed:	10/7/2021	**Static Water Level Before (ft.):**	
Date Developed:	10/26/2021	**Static Water Level After (ft.):**	53.04
Dev. Method:	Surge and purge	**Screen Length (ft.):**	10
Pump Type:	Grundfos Submersible	**Specific Capacity:**	N/A
Developed By:	Jake McCloskey		

DEVELOPMENT DATA:

Time	Estimated Sediment Thickness (ft.)	Estimated Cumulative Water Volume (Gallons) [2]	Water Level (ft. below TOC)	Temp. (C°)	pH (S.U.)	S.C. (mS/cm)	Turbidity (NTU)	Remarks: (odor, color, etc.)
13:20		0		-	-	-	-	Start Development
13:30		85						First Reading
13:40		170						
13:50		255						
14:00		340						
14:10		425						
14:20		510						
14:30		595						End Development
				13.83	5.78	0.145	18.4	Taken on 12/1/2021 at 15:35. [3]

Notes:

CT - 12/16/2022

1. This is a recreated well development log for BPS1-TT-MW501I2, as the original well development log was lost. This well is documented via field logbook to have been developed on 10/26/2021.

2. The cumulative water volumes were calculated using the typical pump outpute rate of 8 to 9 gallons per minute (gpm).

3. The final temperature, pH, specific conductivity (S.C.) and turbidity were referenced from the final readings of a ground water sampling event that occured on 12/1/2021 at 15:35.

Appendix E
Survey Data

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Borbas Surveying & Mapping, LLC

402 Main Street, Boonton, New Jersey 07005 Phone (973) 316-8743 www.borbas.com

MONITORING WELL CHART

Former Naval Weapons Industrial Reserve Plant (NWIRP)
999 S. Oyster Bay Road (Industrial Park)
Bethpage, New York, 11714
February 3, 2022

Monitor Well ID	Grade Elev	Outer Casing	Inner Casing	Northing	Easting	Latitude North	Longitude West	Survey Date
BPS1-FW-MW01D	124.2	124.23	123.84	213975.6	1124982.7	40°45'10.33"	73°29'31.38"	1/24/2022
BPS1-FW-MW01I1	125.2	125.18	124.64	213996.4	1124984.5	40°45'10.54"	73°29'31.35"	1/24/2022
BPS1-FW-MW01I2	124.6	124.57	124.24	213986.0	1124981.7	40°45'10.44"	73°29'31.39"	1/24/2022
BPS1-TT-MW500I	126.0	125.98	125.46	214300.5	1124998.7	40°45'13.54"	73°29'31.14"	1/24/2022
BPS1-TT-MW500S	125.9	125.91	125.35	214309.3	1124999.9	40°45'13.63"	73°29'31.13"	1/24/2022
BPS1-TT-MW501I1	125.6	125.60	125.12	214112.0	1124983.0	40°45'11.68"	73°29'31.36"	1/24/2022
BPS1-TT-MW501I2	125.7	125.69	125.14	214094.7	1124982.3	40°45'11.51"	73°29'31.37"	1/24/2022
BPS1-TT-MW501S	125.6	125.62	125.17	214103.3	1124982.0	40°45'11.59"	73°29'31.37"	1/24/2022
RW8-MW01D1	44.3	48.05	48.10	194915.9	1124588.2	40°42'02.03"	73°29'37.93"	1/24/2022
RW8-MW01D2	44.6	48.21	48.02	194916.2	1124630.0	40°42'02.03"	73°29'37.39"	1/24/2022
RW8-MW01D3	44.6	48.22	48.15	194916.7	1124608.5	40°42'02.03"	73°29'37.67"	1/24/2022
RW8-MW01S	44.5	48.05	47.96	194914.2	1124570.2	40°42'02.01"	73°29'38.17"	1/24/2022
RW8-VPB	44.3			194952.9	1124583.2	40°42'02.39"	73°29'37.99"	1/24/2022

Notes:

1. The horizontal datum is the New York, Long Island State Plane Coordinate System (NAD83) verified by differential GPS observations utilizing the NGS CORS Network on January 24, 2022. Reference Station: NYEL

2. The vertical datum is the North American Vertical Datum of 1988 (NAVD88) GEOID12A, verified by differential GPS observations from the NGS CORS System on December 17, 2019. Benchmark Reference Stations: NYBR (orthometric height= 42.156'), NYCI (orthometric height= 56.453'), NYVH (orthometric height= 309.251') and SHK6 (orthometric height= 30.141').

3. All coordinates and elevations shown hereon are in U.S. Survey Feet.

John D Beattie, P.L.S.
NY Professional Land Surveyor # 050958-01
February 3, 2022

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