

EXECUTIVE SUMMARY

This Focused Site Investigation (SI) Report (SIR) was prepared by Excel Environmental Resources, Inc. (Excel) on behalf of the Borough of Keyport (Borough) for the Former Aeromarine Property located at 55 Walnut Street and designated as Block 141, Lots 14, 15, and 15.01 in Keyport, New Jersey (subject property or Site). The subject property is an irregularly shaped property totaling approximately 62 acres, consisting of three lots including upland Lots 14 and 15 and 15.01. A former landfill is located in the northern portion of Lot 15 and Lot 15.01 is a narrow riparian grant in the Raritan Bay. Lot 14 is a vacant undeveloped parcel in the southwestern portion of the subject property. A Site location map is enclosed as Figure 1.

The objective of the Focused SI was to verify the occurrence, movement, and analytical quality of shallow groundwater in Lot 15 the Site as well as to confirm soil and groundwater quality in undeveloped Lot 14 that was apparently historically filled. Note that verification of groundwater quality at the former landfill located in the northern portion of Lot 15, soil quality in Lot 15 is being conducted by the environmental consultant for a prospective purchaser of the Site and reported separately. In addition, an evaluation of sediment and surface water quality in adjacent surface waters is being conducted by the New Jersey Department of Environmental Protection and the findings will also be reported separately. The work was implemented in accordance with New Jersey Administrative Code (N.J.A.C.) 7:26E Technical Requirements for Site Remediation (Technical Rules) and NJDEP guidance documents.

Historic Environmental Investigations Conducted By Excel

Excel conducted a Preliminary Assessment (PA) and Focused SI of the subject property in 2009 on behalf of the Borough using funding from the NJDEP's Hazardous Discharge Site Remediation Fund (HDSRF) in support of the Borough's interest in evaluating the Site for potential future redevelopment. The 2009 PA identified a total of 21 Areas of Concern at the subject property. Based on those findings, a SI and Remedial Investigation (RI) was conducted in 2010, focused specifically on AOC 19 - the Former Landfill located in the northern portion of Lot 15, due to potential third-party interest in redevelopment of the former landfill area.

The 2010 SI/RI found solid waste material extending from a depth of approximately 0.5 to 2.5 feet below ground surface (bgs) to 22 to 24 feet. Laboratory analytical results from testing of samples of soil collected below the solid waste indicated various heavy metals, including arsenic and vanadium, as well as PCBs at concentrations above the NJDEP Soil Remediation Standards (SRS). The laboratory results of shallow groundwater samples showed low to moderate concentrations of various constituents slightly above NJDEP Groundwater Quality Standards (GWQS) in effect at that time, however, based on the data and discussions with NJDEP, no immediate action was

warranted other than future capping and closure of the landfill which was intended to be integrated into a future redevelopment plan.

Applicable Remediation Standards

Soil remediation standards are the NJDEP SRS in effect and last amended June 15, 2026. The SRS address Dermal/Ingestion and Inhalation exposure pathways, separated by Residential and Non-Residential use scenarios as well as the Migration to Groundwater (MGW) exposure pathway. The Most Stringent SRS and the Migration to Groundwater SRS were used for evaluating soil quality. Groundwater cleanup criteria are the NJDEP Class II-A Groundwater Quality Standards last amended March 17, 2026 and were used for evaluating groundwater quality.

Environmental Setting and Site-Specific Geology/Hydrogeology

As shown in Figures 1 and 2, the Site is located adjacent to Raritan Bay and bordered by Chingarora Creek along the eastern and northern boundaries. The Creek flows from south to north then east and north into Raritan Bay. The property is bounded by Walnut Street and residential properties to the south-southwest and First Street along the southern boundary. The Site is in the Inner Coastal Plain Physiographic Province. The geology includes imported fill underlain by marsh or estuarine deposits up to 70 feet thick consisting of organic silts, clay, salt marsh peat, and occasional sand and gravel lenses. Imported fill is mapped by NJDEP databases in the northern portion of Lot 15 and within Lot 14, with disturbances visible on aerial photographs as early as the 1930s.

Groundwater occurs in a shallow, unconfined water table aquifer within the fill and native sandy overburden soil in the vicinity of the subject property at depths ranging from four feet to 18 feet bgs, depending on the location and topography. As documented in this Focused SIR, based on the location of the Chingarora Creek and Raritan Bay in relationship to the subject property, the flow direction of the shallow groundwater at the Site is variable and influenced by the ground surface topography, the topography of the top of the clay underlying the shallow water bearing zone, and the adjacent surface water bodies (i.e., Raritan Bay and Chingarora Creek) which receive flow from the shallow water table at both low and high tide.

More specifically, the shallow groundwater flow direction at the Site is generally radial in the northern landfill portion of the Site, to either the northwest toward the Raritan Bay or to the northeast or southeast towards the Chingarora Creek in the central and southwestern portions of the Site, and toward the Site from the areas to the south and west in the southwestern portion of the subject property as shown in the enclosed Figures 5A through 5D.

Field Investigation Methods

Between June 1 and June 8, 2026, Environmental Probing Investigations, Inc. (EPI), a New Jersey-certified well driller, installed 12 overburden monitoring wells (AMW-1 through AMW-12) under the supervision of an Excel geologist. A shallow water table was encountered at depths ranging from approximately two to six feet bgs. Wells were installed to completion depths between 13 and 15 feet with 10 feet of well screen set approximately two feet above the water table.

All 12 wells were surveyed on June 22, 2026 by Stires Associates, P.A., a New Jersey-licensed surveyor, with horizontal accuracy of plus or minus 0.1 foot and vertical accuracy of plus or minus 0.01 foot.

During the well installation activity, a soil quality investigation was also conducted at the undeveloped Lot 14 located at the southern end of the subject property to verify soil quality in this historically filled area. The Focused SI included the collection and analysis of representative soil samples at well locations AMW-10 through AMW-12 for laboratory analysis to characterize soil quality in accordance with NJDEP-recommended procedures. Soil samples were submitted to Eurofins Laboratories, Inc. (Eurofins), a NJ-certified analytical laboratory (Certification No. 12028) for laboratory analysis for the following parameters:

- Target Compound List (TCL) volatile organic compounds (VOCs) plus a forward library search (VOC+15) using EPA Method 8260C;
- TCL Semi-Volatile Organic Compounds (SVOCs) plus a forward library search (SVOC+20) using EPA Method 8270D;
- TCL Pesticides using EPA Method 8081B;
- PCBs using EPA Method 8082A; and
- Target Analyte List (TAL) Metals and Cyanide using EPA Methods 200.7, 6010C, 245.1, 7470A, and 7471B.

To verify shallow groundwater quality at the subject property, representative groundwater samples were also collected for laboratory analysis from all 12 of the newly installed monitoring wells and from the one pre-existing well installed by the environmental consultant for a prospective purchaser. Groundwater sampling of all 13 shallow wells was conducted by Excel on June 22 through 24, 2026 using NJDEP-recommended sampling procedures, including special precautions to prevent cross-contamination during sampling for Per- and Polyfluoroalkyl Substances (PFAS).

In accordance with the NJDEP-approved Focused SI work scope, groundwater samples were analyzed by Eurofins for the following parameters:

- TCL VOC+15 using EPA Method 624;
- 1,4-Dioxane using EPA Method 8260D SIM;

- TCL SVOC+20 using EPA Method 625;
- TCL Pesticides using EPA Method 8081B;
- PCBs using EPA Method 8082A;
- TAL Metals and Cyanide using EPA Methods 200.8, 6020A, 245.1, and 7470A; and
- PFAS using EPA Method LAB SOP - Modified 537.

On June 22, 2026 and then again on June 29, 2026, a round of depth to groundwater level measurements was collected at all 13 wells installed in Lots 15 and the undeveloped Lot 14. Water levels were also collected at the 13 wells previously installed at the former landfill so that elevation data was generated from a total of 26 well locations. The June 22nd round of water level measurements corresponded to low tide in the Raritan Bay and the June 29th round of water level measurements corresponded to high tide.

Following an initial evaluation of the groundwater flow direction at the subject property, it was determined that additional data on the shallow water table flow south and west of the subject property was necessary to verify the flow direction in relationship to the residential areas to the south and west of the Site. Three piezometers were therefore installed to the southwest of the Site by a NJ-licensed driller, EPI, on July 15, 2026 under the direct onsite supervision of an Excel geologist.

On July 16, 2026, each of the three piezometers was surveyed by a NJ-licensed surveyor. The survey established the horizontal location and vertical elevation to the top of the PVC casing and the ground surface at each piezometer location. The horizontal locations are accurate to +/- 0.1 foot and the vertical elevations are accurate to +/- 0.01 foot.

Two additional rounds of depth to groundwater measurements were then collected from the three piezometers and all Site monitoring wells, including the 12 newly installed wells, the 13 wells previously installed on the landfill, and the one pre-existing well previously installed on Lot 14 for a total of 26 well locations. The water level measurement events were both conducted on July 16, 2026 with one round corresponding to low tide in the adjacent Raritan Bay and one round corresponding to high tide.

Enclosed Figures 5A through 5D are groundwater contour maps representing the groundwater elevation data for all of the groundwater level measurement events which show the shallow groundwater flow direction at and surrounding the subject property.

Soil Investigation Results

During soil sampling at monitoring well locations AMW-10, AMW-11, and AMW-12 at undeveloped Lot 14 headspace screening indicated only trace to no photoionization detector (PID) readings with no reading higher than 0.2 parts per million (ppm), showing no evidence of discharge

or environmental concern. Laboratory analysis for VOCs, SVOCs, pesticides, PCBs, and metals showed all constituents were either not detected (ND) or reported at concentrations below NJDEP MSSRS and MGWSRS with no adverse soil impacts identified.

Groundwater Occurrence and Flow

A shallow unconfined water table was encountered at depths between approximately four and seven feet bgs (or approximately one and a half to eight feet above mean sea level) within Lots 14 and 15, and between approximately six and 16 feet below ground surface (two and eight feet above mean sea level) in the northern landfill section of Lot 15. Review of Figures 5A through 5D, which are the groundwater contour maps prepared for all four rounds of groundwater level measurement events, show the following:

- In the northern landfill portion, groundwater flows in a radial pattern away from the central landfill toward surrounding low-lying areas and surface waters.
- In the northwestern portion of the subject property, flow is to the northwest toward Raritan Bay;
- In the central, developed portion of Lot 15, the groundwater gradient is relatively level with flow governed by the proximity to the adjacent Raritan Bay to the west and the low-lying marsh areas and Chingarora Creek to the east-southeast.
 - The area in the northern section of Lot 15 between the former Aeromarine facility and the landfill also coincides with a pre-development area of marshland and a small open water feature that appears to be a small pond as shown in the historic topographic maps provided in Appendix G of the Focused SI Report.
 - As shown in the geologic cross sections A-A' and B-B' provided in Figure 6, the top of the gray clay layer that underlies the shallow sands and water table in this area is deeper in this low lying and coincides with the lower shallow groundwater elevation in this area.
 - In the central portions of the subject property, groundwater flow is either to the northeast toward the low-lying areas adjacent to the landfill or to the southeast toward Chingarora Creek.
- In the southwestern portion of the subject property, groundwater flow is to the northeast and southeast toward Chingarora Creek.

- Data from offsite piezometers confirm shallow groundwater flow is generally from offsite areas southwest of the Site to the northeast toward the Site where areas of lower ground surface topography, deeper depths to the top of the underlying gray clay, the low lying marshes, and the Chingarora Creek are located.
- Comparison of the groundwater contour maps that correspond to low and high tidal cycles in the adjacent Raritan Bay indicate that, although the shallow groundwater elevation at some well locations varied between high tide and low tide, there was essentially no change in the groundwater flow direction or pattern of groundwater flow at and across the Site.

Groundwater Quality Results

As shown in Figure 4, the groundwater analytical results from samples collected from all 12 newly installed wells and the one pre-existing well installed by the environmental consultant for the prospective purchaser that were analyzed for VOCs, SVOCs, pesticides, PCBs, metals, cyanide, PFAS, and 1,4-dioxane indicate the following:

- Benzene is the only VOC reported in groundwater in any of the 13 monitoring wells at well AMW-2 located in the upgradient and southwestern section of the subject property with a concentration of 0.79 micrograms per liter (ug/L) reported which is slightly above its NJDEP GWQS of 0.45 ug/L. This concentration is significantly below the NJDEP Groundwater Screening level of 23 ug/L for vapor intrusion (VI).
 - Benzene was not detected in groundwater at any other well location and the data indicate that all other VOCs are either ND or reported at trace concentrations below their respective NJDEP GWQS and significantly below their VI Screening Levels.
- All SVOCs, PCBs, and pesticides were either ND or reported below their NJDEP GWQS.
- As shown in Figure 4, with respect to metals, the data indicate the following:
 - Naturally occurring metals, including aluminum, iron, manganese, and sodium, were reported in groundwater above their GWQS, however, these results reflect the natural geochemistry influenced by native estuarine soil and brackish waters from the adjacent and tidally-influenced Raritan Bay.
 - Arsenic was also sporadically reported slightly above its GWQS of 3 ug/L in groundwater at six well locations with levels ranging from 3.3 to 12.1 ug/L. Note that arsenic is also naturally occurring in native overburden soil and, although it may also be related to fill material, the

sporadic distribution of the reported concentrations and their generally low levels suggests it likely occurs as a particulate in the shallow groundwater.

- Cobalt was also reported sporadically at concentrations slightly above its GWQS of 3 ug/L in groundwater at four well locations with concentrations ranging from 3.6 to 9.9 ug/L. Cobalt is also a naturally occurring metal in New Jersey soil and its sporadic distribution and generally low levels suggests it is not indicative of a discharge.
- As shown in Figure 4, the PFAS compounds PFOA, PFOS, and HFPO-DA (also known as Gen-X) were reported in groundwater above their respective GWQS of 0.014 ug/L, 0.013 ug/L, and 0.020 ug/L, respectively at some of the monitoring well locations with higher concentrations reported in the upgradient monitoring wells located along the south-southwestern property boundary.
 - PFOA concentrations above GWQS were reported at 10 of 13 wells at concentrations ranging from 0.0242 to 0.126 ug/L, with the higher concentration at upgradient wells AMW-5, AMW-11, and AMW-12.
 - PFOA concentrations in groundwater are lower at the monitoring wells located closer to the landfill, indicating that the concentrations in groundwater at the landfill decrease with distance from the landfill.
 - Specifically, the groundwater analytical results from well AMW-8 located immediately adjacent to the landfill as shown in Figure 4 show that there were no PFAS compounds detected above their respective GWQS.
 - Lower PFOA concentrations were also reported in groundwater at wells AMW-3, AMW-4, AMW-7 located in the central portion of the Site in comparison to the concentrations reported in groundwater in the upgradient, southwestern section of the Site where wells AMW-5, AMW-11, and AMW-12 are located.
 - Combined with the groundwater flow data that show flow from the south-southwest toward the former Aeromarine facility, the data indicate that the reported PFAS concentrations in groundwater at the upgradient well locations do not originate from the subject property.
 - Note also that, review of the published literature indicates that the three PFAS compounds reported in groundwater at concentrations above their respective GWQS, specifically PFOA, PFOS, and HFPO-DA (or Gen-X), are considered low volatility that are predominantly non-volatile and are not likely to present a vapor intrusion risk.

Conclusions and Recommendations

- The Focused SI found no evidence of soil contamination in Lot 14, with all constituents either not detected or below applicable NJDEP soil cleanup standards.
- The results of the groundwater investigation at the former Aeromarine facility indicates naturally occurring metals reflective of soil and shallow groundwater geochemistry and the influence of the tidally influenced and brackish conditions in the adjacent Raritan Bay at several monitoring well locations.
- A single detection of a trace of benzene was reported at upgradient well AMW-2 at a concentration slightly above the GWQS but significantly below its vapor intrusion groundwater screening level.
- The distribution of PFAS compounds in shallow groundwater coupled with the documented groundwater flow direction across the Site indicates that the reported concentrations at upgradient wells AMW-5, AMW-11, and AMW-12 likely originate from offsite and are unrelated to the former landfill.
- Since the shallow groundwater at and in the vicinity of the Site is not used for potable purposes and the results of the Focused SI indicate that there are no constituents of concern at the Site or emanating from the Site via the groundwater pathway that would result in a vapor intrusion concern, no further action is warranted with respect to the objectives of this Focused SI.
- As previously stated, a separate investigation is being conducted by the environmental consultant for a prospective purchaser that includes soil sampling within the former Aeromarine facility and groundwater sampling in the former landfill area, the results of which will be reported separately. As also previously stated, the NJDEP is also conducting a focused investigation of sediment and surface water quality in the adjacent Raritan Bay and Chingarora Creek, the findings of which will also be reported separately and should be considered along with the findings of this Focused SI.