

MATRIXNEWORLD

Enabling Progress

December 3, 2014

Mr. Leonard R. Lepore, P.E., Municipal Engineer
Township of West Orange, Director of Public Works
25 Lakeside Avenue
West Orange, New Jersey 07052

**Re: PROPOSAL FOR ENVIRONMENTAL SERVICES
TOWNSHIP OF WEST ORANGE
FOR THREE SITES
FIRE HOUSE NO. 1, 415 VALLEY ROAD
WEST ORANGE FIRST AID SQUAD BUILDING, 25 MT. PLEASANT PLACE
DOGWOOD PUMP STATION, 794 NORTHFIELD AVENUE
WEST ORANGE, NEW JERSEY
MATRIX NO. 13-618E**

Dear Mr. Lepore:

Matrix New World Engineering, Inc. (Matrix) is pleased to provide this proposal to perform various environmental investigation activities at the above-referenced Sites. The proposal has been broken down into several tasks in order to complete remedial investigation (RI) activities associated with each Site. The proposed work will be completed in accordance with the Site Remediation Reform Act (SRRA), N.J.S.A. 58:10C-1 et seq., the Administrative Requirements for the Remediation of Contaminated Sites (ARRCS), N.J.A.C. 7:26C, the Technical Requirements for Site Remediation (TRSR), N.J.A.C. 7:26E, the *Underground Storage Tank (UST) Regulations*, N.J.A.C. 7:14B-1-13 and 15 and applicable New Jersey Department of Environmental Protection (NJDEP) Guidance Documents. Oversight of investigation activities will be conducted by a New Jersey Licensed Site Remediation Professional (LSRP). Mr. Robert Meisner of Matrix will retain himself as the LSRP of Record for the three above-referenced Sites.

SITE BACKGROUND

This proposal includes a RI of former regulated underground storage tanks (USTs) associated with the following three Sites, owned by the Township of West Orange:

- **Fire House No. 1, 415 Valley Road (PI NO. 014427)**
- **First Aid Squad Building, 25 Mt. Pleasant Place (PI NO. 014426)**
- **Dogwood Pump Station, 794 Northfield Avenue (PI NO. 024987)**

FIRE HOUSE NO. 1, 415 VALLEY ROAD

Three USTs were removed on behalf of the Township in December 1993. The USTs consisted of one, 1,000-gallon unleaded gasoline UST (AOC-1), one, 1,000-gallon light diesel fuel UST (AOC-2) and one, 1,000-gallon No. 2 heating oil UST (AOC-3). During the removal of the 1,000-gallon light diesel fuel UST, a discharge was identified, the NJDEP spill hotline was notified and Case No. 93-12-16-0818-26 was assigned. Matrix completed a soil and groundwater site investigation (SI) and submitted a *Site Investigation Report (SIR)* to the NJDEP on March 20, 2014 along with a *Remedial Investigation Extension Request* for the May 7, 2014 RI deadline. Based on the SI, benzene and tetrachloroethene (PCE) were detected in soil above the NJDEP's November 2013 default Impact to Groundwater Soil Screening Levels (IGWSSLs) at AOC-1. Extractable Petroleum Hydrocarbons (EPH), Category 1, naphthalene and 2-methylnaphthalene concentrations in soil were detected above either the NJDEP's default IGWSSL or the residential direct contact soil remediation standard (RDCSRS) at the common excavation associated with AOCs 2 and 3. Based on the groundwater SI (one groundwater sample collected from

TW-1), volatile organic compounds (VOCs) including benzene and vinyl chloride were detected in groundwater above the Groundwater Quality Standards (GWQS). Vinyl chloride was also detected above the NJDEP's Groundwater Screening Levels (GWSLs) triggering a vapor intrusion investigation. Finally, several semivolatile organic compounds (SVOCs) including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene and SVOC tentatively identified compounds (TICs), and lead were detected at concentrations above the GWQS. Therefore, a soil and groundwater RI is required for this Site.

FIRST AID SQUAD BUILDING, 25 MT. PLEASANT PLACE

A 2,000-gallon unleaded gasoline UST was removed on behalf of the Township in December 1993 (AOC-1). During the UST closure activities, soil contamination was noted, the NJDEP spill hotline was notified and Case No. 93-12-10-0911-27 was assigned. Matrix completed a soil and groundwater SI and submitted a *SIR* on March 20, 2014 along with a *Remedial Investigation Extension Request* for the May 7, 2014 RI deadline. Based on the SI, VOCs and lead were not detected in soil above the NJDEP's default IGWSSL. However, lead was detected in groundwater above the GWQS. The elevated concentration of lead in groundwater may be attributable to silt that was present in the groundwater sample collected from the temporary well. In order to verify whether or not lead is present in groundwater above GWQS, a representative groundwater sample will be collected following the installation of a permanent monitoring well. If lead in groundwater is not detected at concentrations above the GWQS, then an area of concern, unrestricted use Response Action Outcome (RAO) can be issued for the Site.

DOGWOOD PUMP STATION, 794 NORTHFIELD AVENUE

A 550-gallon diesel fuel UST was removed on behalf of the Township in December 1993 (AOC-1). During the UST closure activities, a discharge was identified, the NJDEP spill hotline was notified and Case No. 94-05-16-1611-33 was assigned. Matrix completed a soil and groundwater SI and submitted a *SIR* on March 20, 2014 along with a *Remedial Investigation Extension Request* for the May 7, 2014 RI deadline. Based on the SI, petroleum contaminants, specifically EPHs in soil and VOCs or SVOCs in groundwater were not detected above the applicable remediation standards. However, one soil boring to the west could not be completed due to the high snow pile generated from recent storm event. Therefore, Matrix is proposing to complete one soil boring to the west of the former UST. If no soil exceedances are identified, then an unrestricted use, area of concern specific RAO can be issued for the Site.

SCOPE OF WORK

Based on the investigations completed to date, the following RI activities are recommended.

All drilling activities will be completed by a New Jersey-licensed well driller. Prior to completing each boring, each boring on-site will be utility cleared utilizing a private utility markout vendor. The laboratory samples will be submitted to a New Jersey-certified laboratory. The soil cuttings and purge water generated during the monitoring well installation activities will be temporarily staged in drums on-site for future off-site disposal. This proposal also includes the disposal of the 55-drums.

FIRE HOUSE NO. 1, VALLEY ROAD

TASK 1: SOIL DELINEATION AND TEMPORARY WELL INSTALLATION

As noted above benzene and PCE are identified in unsaturated soils above the NJDEP's default IGWSSLs at AOC-1. Therefore, one day of soil borings are proposed via direct push drill method using a New Jersey-licensed driller. Using an existing soil boring associated with AOC-2 and AOC-3, a total of three soil borings will be completed for AOC-1. Two of the borings are proposed for horizontal delineation and one soil boring is proposed for vertical delineation at AOC-1. The soil samples will be analyzed for benzene and PCE. A field blank will also accompany the samples and will be analyzed for benzene and PCE. As part of this task, Matrix will also collect three soil samples to be analyzed for benzene and PCE and benzene and PCE by the synthetic precipitation leaching procedure (SPLP) for the determination of a site-specific soil remediation standard. A site-specific soil remediation standard for benzene and/or PCE will be calculated and used for the delineation of benzene and PCE

in soil if the calculated site-specific Impact to Groundwater Soil Remediation Standard (IGWSRS) is less stringent than the NJDEP's default IGWSSL of 0.005 mg/kg for both compounds.

For AOC-2 and AOC-3, three soil borings are proposed; two for horizontal and one for vertical delineation. The soil samples will be analyzed for EPH, Category 1. Contingent analyses including naphthalene and 2-methylnaphthalene (2-MN) will be analyzed on 25% of the samples where EPHs exceed 1,000 milligrams per kilogram (mg/kg). If 2-MN exceeds NJDEP's default IGWSSL, then the sample will be analyzed using the SPLP to determine a site specific impact to groundwater soil screening level.

Finally, several soil borings will be completed for the installation of temporary well points. One temporary well will be installed within the former common excavation (AOC-2 and AOC-3) as a groundwater SI is required for these former USTs. Three additional temporary wells are proposed in the anticipated downgradient direction of former TW-1 that contained VOCs, SVOCs and lead in groundwater above the GWQS. For the temporary well installed at AOC-2 and AOC-3, a groundwater sample will be collected and analyzed for VOCs and SVOCs analyses. For the remaining temporary wells installed downgradient of TW-1, groundwater samples will be collected and analyzed for VOCs. The samples will be submitted to a New Jersey-certified laboratory on a standard (two-week) turnaround. Since the temporary well points will be used to determine the placement of future monitoring wells and turbidity associated with the collection of groundwater samples collected from temporary well points could bias results high for SVOC TICs and lead groundwater samples collected from the temporary well points will not be analyzed for SVOC TICs and lead at this time.

TASK 2: MONITORING WELL INSTALLATION

Matrix is recommending the installation of three overburden monitoring wells utilizing a hollow stem auger drill rig. One overburden well, MW-1 will be installed in the vicinity of former temporary well, TW-1, one well, MW-2, will be installed in the vicinity of TW-2, and the third well, MW-3, at the location of either TW-3, TW-4 or TW-5. The overburden wells will be constructed of 4-inch diameter PVC and screened from approximately 20 to 25 feet below ground surface (bgs). As noted above, additional monitoring wells may be required following the installation and sampling of temporary and monitoring wells points. Additional monitoring well installation is not included in this scope of work.

TASK 3: WELL GAUGING AND GROUNDWATER SAMPLING

Approximately two weeks following the monitoring well installation activities, one round of groundwater sampling will be completed from wells MW-1, MW-2, MW-3 via low-flow purging techniques. Wells, MW-1 and MW-3, will be analyzed for VOCs and lead. MW-2 will be analyzed for VOCs and SVOCs. Water quality indicator parameters (dissolved oxygen, pH, temperature, conductivity, turbidity and ORP) will be monitored during the groundwater purging and sampling activities (Matrix Lab Certification No. 14049). One field blank and one trip blank will also be collected and analyzed for the parameters identified above. The samples will be analyzed on a standard two-week turn around.

TASK 4A: SUB-SLAB SOIL GAS SAMPLING AND REPORTING, IF REQUIRED

As noted above, vinyl chloride concentrations in groundwater at former temporary well, TW-1, exceed NJDEP's GWSLs; therefore, following the installation and sampling of MW-1, a vapor intrusion investigation may be required should concentrations of vinyl chloride in groundwater remain at concentrations above the GWSLs. As part of this task, Matrix will perform a pre-sampling inspection of the fire house building approximately one week prior to the sub-slab soil gas sampling event. During the pre-sampling inspection, Matrix will select the sampling locations and coordinate with the occupants in the building. This task also includes the completion of NJDEP's *Indoor Air Sampling Form*. The work will be completed in accordance with NJDEP's March 2013 *Vapor Intrusion Technical Guidance* (Version 3.1). A total of seven sub-slab soil gas samples are budgeted for this project since the existing building appears to have two separate foundations and the approximate square footage of each area is 3,360 and 5,300 square feet, respectively.

The seven proposed sub-slab soil gas samples will be obtained below the building's concrete slab. Each sub-slab sample will be collected from tubing inserted into a ½-inch diameter sample point created with a drill bit through the concrete floor/slab. The annulus between the tubing and the temporary sample point was sealed with non-volatile emitting and non-shrinking modeling clay.

Matrix will perform a leak test (i.e., tracer test and shut-in test) on the soil gas probe and all fittings of the sample train prior to sample collection in a laboratory supplied and calibrated 1-liter stainless steel canister with a flow controller (1 liter Summa Canister) set to achieve a flow of less than 0.2 liters per minute and a sampling duration of approximately 5 minutes. Following the collection of the sub-slab soil gas, each drilled hole will be patched with hydraulic cement.

The sub-slab soil gas samples will be submitted to a New Jersey-certified laboratory for TO-15 analysis on a standard turnaround. The results will be compared to NJDEP's Non-Residential Soil Gas Screening Levels (NRSGSL). If any contaminants of concern are detected above the NRSGSLs, then indoor air sampling may be required to determine if the vapor intrusion pathway is complete as noted in Task 4B below.

Following the completion of the VI, Matrix will prepare the NJDEP required notification letters in accordance with the TRSR, 7:26E-1.15. Specifically, notification will be provided to the tenant (if applicable), the Township of West Orange and NJDEP Bureau of Case Assignment and Initial Notice. As part of the submission, Matrix will prepare the NJDEP's *Full Laboratory Data Deliverable* form. The *Full Data Deliverables Form*, prior to submittal to the NJDEP, will be reviewed by a data validator.

TASK 4B: INDOOR AIR SAMPLING AND REPORTING, IF REQUIRED

As noted above, if sub-slab soil gas samples exceed the NJDEP's NRSGSLs, then indoor air sampling is required. Five indoor air samples and one background sample is budgeted based on the approximate square footage of the building as noted above. Matrix will mobilize to the Site, set up the sampling canisters (Summa canisters) and retrieve the canisters the following day (24 hour test). The samples will be submitted to a NJ-certified laboratory for TO-15 analysis on a standard (two-week) turnaround.

The analytical data will be compared to NJDEP's Non-Residential Indoor Air Screening Levels and included in the NJDEP required notification noted above.

TASK 5: UPDATED ECOLOGICAL EVALUATION

In accordance with N.J.A.C. 7:26E-1.16, an updated ecological evaluation will be completed using the recently collected soil and groundwater data. The data will be compared to the applicable ecological screening criteria/values or surface water criteria. If constituents are detected on the subject property or in an AOC above screening criteria then pursuant to N.J.A.C. 7:26E-4.8 constituent migration pathways must be assessed to determine whether those constituents could reach an ESNR located on or adjacent to the subject property.

TASK 6: WELL SEARCH, IF REQUIRED

If contaminants in groundwater are confirmed to be above the NJDEP's GWQS, a well search will be completed in accordance with the TRSR, 7:26E-1.14 Receptor evaluation - ground water. A well search must be completed within 90 days after groundwater contamination is detected. The purpose is to identify nearby wells that may be impacted by contamination from the Site.

TASK 7: REPORTING AND LSRP MANAGEMENT

Matrix will prepare a draft *Remedial Investigation Report* that also includes the preparation of NJDEP's Site Remediation Program (SRP) forms in accordance with ARRCs and the TRSR. The report will incorporate the newly-collected analytical data with the existing data and include recommendations for additional investigation and/or remedial activities. Matrix will also prepare a Case Inventory Document (CID) that is a concise summary of all of the AOCs at the Site. Should a report or additional tasks be required based on the findings from the

investigation, Matrix will provide a separate cost estimate. This task also includes project management and discussions with the client regarding the proposed work.

FIRST AID SQUAD BUILDING, 25 MT. PLEASANT PLACE

TASK 1: MONITORING WELL INSTALLATION

Matrix is recommending the installation of one overburden monitoring well utilizing a hollow stem auger drill rig. One overburden well, MW-1 will be installed at the location of former temporary well, TW-1. The overburden well will be constructed of 4-inch diameter PVC and screened from approximately 4 to 12 feet below ground surface (bgs). The soil cuttings and well development water will be containerized in 55-gallon drums for future off-site disposal.

TASK 2: WELL GAUGING AND GROUNDWATER SAMPLING

Approximately two weeks following the monitoring well installation activities, one round of groundwater sampling will be completed from well MW-1 via low-flow purging techniques for lead analysis. Water quality indicator parameters (dissolved oxygen, pH, temperature, conductivity, turbidity and ORP) will be monitored during the groundwater purging and sampling activities. One field blank will also be collected and analyzed for the parameters identified above. The samples will be analyzed on a standard two-week turn around.

TASK 3 – CONFIRMATORY GROUNDWATER SAMPLING, IF REQUIRED

The groundwater samples will be compared to NJDEP's GWQS. If groundwater samples are below the GWQS, then no further groundwater sampling is required. However, if groundwater samples are detected slightly above the GWQS, then two additional groundwater samples will be collected within 30 days to determine compliance with the GWQS. If contaminants in groundwater are still above the GWQS, then an additional groundwater RI will be required, that is not included in this scope of work.

Following the completion of the well installation and groundwater sampling activities, drum disposal will be completed. Please note that up to four drums (assumed as non-hazardous) is budgeted for disposal. The abandonment of the monitoring well, is included if contaminant concentrations are below the GWQS.

TASK 4: REPORTING AND LSRP MANAGEMENT

If the groundwater sample collected from MW-1 is below the GWQS, Matrix will prepare a *RIR* that also includes the preparation of NJDEP's SRP forms in accordance with ARRCs and the TRSR. Matrix will also prepare a CID. Finally, Matrix will prepare and issue an unrestricted use *Area of Concern (AOC) Response Action Outcome (RAO)*. Should a report or additional tasks be required based on the findings from the investigation, Matrix will provide a separate cost estimate. This task also includes project management and discussions with the client regarding the proposed work.

DOGWOOD PUMP STATION, 794 NORTHFIELD AVENUE

TASK 1: COMPLETION OF ONE SOIL BORING

Matrix is proposing to complete one soil boring to the west of the former heating out UST. One soil boring will be advanced via direct push drill method and one sample will be collected for EPH, Category 1 with contingent analyses including naphthalene and 2-MN on 25% of the samples where EPHs exceed 1,000 mg/kg.

TASK 2: REPORTING AND LSRP MANAGEMENT

If the soil sample collected from the soil boring completed to the west of the former UST, Matrix will prepare a *RIR* that also includes the preparation of NJDEP's SRP forms in accordance with ARRCs and the TRSR. Matrix will also prepare a CID. Finally, Matrix will prepare and issue an unrestricted use, AOC RAO. Should a report or additional tasks be required based on the findings from the investigation, Matrix will provide a separate cost estimate. This task also includes project management and discussions with the client regarding the proposed work.

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COSTS

The following are our estimated costs for the tasks described herein.

FIRE HOUSE NO. 1, VALLEY ROAD

TASK 1: SOIL DELINEATION AND TEMPORARY WELL INSTALLATION

Labor	\$2,380.00
Direct Expenses	<u>\$13,250.00</u>
Subtotal Task 1	\$15,630.00

TASK 2: MONITORING WELL INSTALLATION

Labor	\$2,510.00
Direct Expenses	<u>\$9,850.00</u>
Subtotal Task 2	\$12,360.00

TASK 3: WELL GAUGING AND GROUNDWATER SAMPLING

Labor	\$3,280.00
Direct Expenses	<u>\$2,130.00</u>
Subtotal Task 3	\$3,410.00

TASK 4A: SUB-SLAB SOIL GAS SAMPLING AND REPORTING, IF REQUIRED

Labor	\$1,750.00
Direct Expenses	<u>\$3,550.00</u>
Subtotal Task 4A	\$5,300.00

TASK 4B: INDOOR AIR SAMPLING AND REPORTING, IF REQUIRED

Labor	\$1,860.00
Direct Expenses	<u>\$2,820.00</u>
Subtotal Task 4B	\$4,680.00

TASK 5: UPDATED ECOLOGICAL EVALUATION

Labor	\$1,550.00
Direct Expenses	<u>\$100.00</u>
Subtotal Task 5	\$1,650.00

TASK 6: WELL SEARCH, IF REQUIRED

Labor	\$2,340.00
Direct Expenses	<u>\$ 570.00</u>
Subtotal Task 6	\$2,910.00

TASK 7: REPORTING AND LSRP MANAGEMENT

Labor	\$10,540.00
Direct Expenses	<u>\$ 320.00</u>
Subtotal Task 7	\$10,860.00

Estimated Cost for Scope of Work at Fire House No. 1	\$58,800.00
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FIRST AID SQUAD BUILDING, 25 MT. PLEASANT PLACE

TASK 1: MONITORING WELL INSTALLATION

Labor	\$1,610.00
Direct Expenses	\$5,640.00
Subtotal Task 1	\$7,250.00

TASK 2: WELL GAUGING AND GROUNDWATER SAMPLING

Labor	\$910.00
Direct Expenses	\$390.00
Subtotal Task 2	\$1,300.00

TASK 3 – CONFIRMATORY GROUNDWATER SAMPLING, IF REQUIRED

Labor	\$910.00
Direct Expenses	\$2,160.00
Subtotal Task 3	\$3,070.00

TASK 4: REPORTING AND LSRP MANAGEMENT

Labor	\$4,910.00
Direct Expenses	\$ 650.00
Subtotal Task 4	\$5,560.00

Estimated Cost for Scope of Work at First Aid Squad Building..... \$17,180.00

DOGWOOD PUMP STATION, 794 NORTHFIELD AVENUE

TASK 1: COMPLETION OF ONE SOIL BORING

Labor	\$1,120.00
Direct Expenses	\$680.00
Subtotal Task 1	\$1,460.00

TASK 2: REPORTING AND LSRP MANAGEMENT

Labor	\$5,330.00
Direct Expenses	\$160.00
Subtotal Task 2	\$5,490.00

Estimated Cost for Scope of Work at Dogwood Pump Station \$7,290.00

TOTAL ESTIMATED SCOPE OF WORK (ALL SITES)..... \$83,270.00

ASSUMPTIONS

This proposal is based on the following assumptions:

- Costs assumes that all areas will be accessible;
- One day for soil borings, one day for temporary well installations and two days for the monitoring well installations is budgeted;
- Costs assume that the one soil boring at Pump Station would be completed the same day as the soil borings at Fire House No. 1;
- Costs assume that a well search at First Aid Squad Building will not be required;

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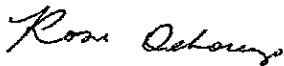
- Costs only include the initial groundwater sampling following the installation of permanent monitoring wells, if required;
- Costs do not include any soil, groundwater, ecological or vapor intrusions investigations, remediation or groundwater monitoring beyond the items described in this proposal;
- Costs assume all work to be completed on-site and in Level D-modified personal protection equipment;
- No additional assessment or investigation activities beyond the preparation of a *RIR*, NJDEP SRP forms and CID, or an unrestricted use AOC RAO identified in the scope of work are included;
- Costs do not include future soil or groundwater remediation, if required;
- Costs include the disposal of up to twelve 55-gallon drums from the Fire House No. 1 and up to 4 drums from the First Aid Squad Building (non-hazardous);
- Costs include well surveying and completion of NJDEP's Form B's;
- Costs assume that only one set of indoor air samples will be collected;
- Costs exclude an ecological risk assessment, if required; and

- The Client is responsible for payment of all NJDEP fees.

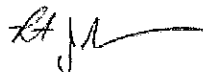
All work will be conducted in accordance with our existing agreement with the Township. Matrix is prepared to implement the described Scope of Work upon receiving your authorization to proceed.

If you have any questions, please feel free to contact us at (973) 240-1800.

Sincerely,



Rose V. DeLorenzo, CHMM
Project Manager



Robert Meisner, LSRP
Senior Project Manager



Edward Sullivan, P.G., LSRP
Director of LSRP Program

Authorization to Proceed: _____
Name/Title

Date: _____

Purchase Order No.: _____