Ms. Gail A. Dieter
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233

Remedial Investigation Workplan

Site #932163 – Niagara Highway Garage
7105 Lockport Road
Niagara Falls, New York 14305

May 9, 2019

Remedial Investigation Workplan

Site #932163 - Niagara Highway Garage
7105 Lockport Road
Niagara Falls, New York 14305

Prepared for:
Ms. Gail A. Dieter
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233-7017

Prepared by:
Groundwater & Environmental Services, Inc.
415 Lawrence Bell Drive, Suite 6
Williamsville, New York 14221
Tel: 800-278-7857
www.gesonline.com

GES Project:
0901749

Date:
May 9, 2019

Digitally signed by Jennifer Clay
Date: 2019.06.05 11:09:46 -04'00'

Jennifer Clay
Staff Geologist

Digitally signed by Eric D Popken

Eric D. Popken, P.G.
Senior Project Manager

Table of Contents

Figure

Table

Acronyms

Applus	Applus RTD
Bgs	Below ground surface
BHC	Benzenehexachloride
CAMP	Community Air Monitoring Plan
CERCLA	Comprehensive Environmental Remediation, Compensation and Liability Act
CoC	Chain of custody
CPL	Clark Patterson Lee
CTM	C. T. Male Associates
DER-10	Department of Environmental Remediation 10
DUSR	Data Usability Summary Report
EC	Emerging contaminants
EDDs	Electronic data deliverables
EIMS	Environmental Information Management System
eV	Electron volt
Ft	Feet
Ft^2	Feet squared
GES	Groundwater & Environmental Services, Inc.
GPS	Global Positioning System
HASP	Health & Safety Plan
ID	Ion dilution
IDW	Investigation derived waste
IRM	Interim Remedial Measure
MS/MSD	Matrix spike / matrix spike duplicate
NAPL	Non-Aqueous Phase Liquid
NHD	Niagara Highway Department
NWA	Niagara Water Authority
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PCBs	Polychlorinated biphenyls
PFAS	Per- and Polyfluoroalkyl Substances
PID	Photo-ionization detector
PPE	Personal protective equipment
Ppmv	Parts per million by volume
PVC	Polyvinyl chloride
RI	Remedial Investigation
RIR	Remedial Investigation Report
ROC	Run of crush
SDS	Safety Data Sheet
SIM	Select ion monitoring
Site	Niagara Highway Garage
SVOCs	Semi-volatile organic compounds
TAL	Target Analyte List
TCL	Target Compound List
TestAmerica	TestAmerica Laboratories, Inc.
USEPA	United State Environmental Protection Agency
USTs	Underground storage tanks
VOCs	Volatile organic compounds
$\mu g/m^3$	Micrograms per cubic meter

1 Introduction

Groundwater & Environmental Services, Inc. (GES) has prepared this workplan to describe the proposed remedial investigation activities to be conducted at Site No. 932163 – Niagara Highway Garage (the Site) located in Niagara County, New York. The purpose of this work is to further delineate the contamination on-site both horizontally and vertically.

2 Site Background

The Site is a part of the New York State Department of Environmental Conservation (NYSDEC) State Superfund Program and referred to as Site No. 932163. The Site is located at 7105 Lockport Road in Niagara Falls, New York as shown on **Figure 1**.

A letter report was submitted to NYSDEC on October 7, 2013 by the Town of Niagara. According to the letter report, in August of 2013, an odor was noticed in the southern portion of the materials storage area. The town used equipment to dig five test pits, while Clark Patterson Lee (CPL), the Town Engineer, oversaw the activities. Four (4) of the five (5) test pits that were completed were in eight (8) to twelve (12) inches of road subbase, followed by one (1) to two (2) feet of fill material. The fill material was intermixed with what was described as a "white cake-like material with a significant chemical odor observed."

CPL collected a sample in test pit location TP-1, which was analyzed for target analytes list (TAL) metals, target compounds list (TCL) volatiles and TCL semi-volatiles, including tentatively identified compounds. The results of the sampling indicated several dichlorobenzene and benzenehexachloride (BHC) compounds exceeded detection limits.

In July 2014, C.T. Male Associates (CTM) performed a site and topographic survey of part of the Site. GES also performed a gamma radiation survey of the fenced area of concern during this time.

In August 2014, a geophysical surface was performed by Applus RTD (Applus) to evaluate for subsurface structures such as buried drums or Underground Storage Tanks (USTs). Survey report indicated that the anomalies reported were not indicative of buried drums or USTs.

In September and November 2014, GES oversaw the advancement of thirty-five (35) soil borings to depths ranging from four (4) to ten (10) feet (ft) below ground surface (bgs) via direct-push with a Geoprobe® rig, of those locations fifteen (15) soil samples were collected for analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), herbicides, pesticides, and metals. A single soil boring, GMW-5 was advanced to ten (10) ft bgs with thirteen (13) soil samples collected from three and a half (3.5) to ten point two (10.2) ft bgs. Five (5) soil borings were converted to monitoring wells (GMW-1 through GMW-5) and were installed to bedrock with the exception of GMW-5 which was installed inside the fill material.

In December 2014, GES performed low-flow groundwater sampling at four (4) of the five (5) monitoring wells. GMW-1 was not sampled due to insufficient volume.

In March 2015, GES oversaw the advancement of one (1) soil boring, DT-1, using dual-tube sampling with a Geoprobe® rig. Twelve (12) soil samples were collected from four (4) to ten (10) ft bgs. Details of the procedures and analytical results from the 2014 to 2015 site investigation are provided in the *Site Characterization Report* dated May 18, 2015.

From August 14 – 16, 2015, GES oversaw the installation of an Interim Remedial Measure (IRM). The IRM consisted of the installation of filter fabric followed by a minimum 6-inch thick layer of No. 2 run of crush (ROC) stone cover. The IRM covers roughly 14,500 ft squared (ft^2) extending beyond the edge of observed white amorphous material.

In August 2015, the United States Environmental Protection Agency (USEPA) performed a site investigation where fifteen (15) surface soil samples were collected from the Site and from surrounding properties.

In May 2017, groundwater samples were collected from four (4) of the five (5) monitoring wells. GMW-1 was not sampled due to insufficient volume. Details of the investigation by USEPA are found in the *Removal Site Evaluation Report* dated October 2, 2017.

The main site features consists of two (2) storage yards, the western yard being used by Niagara Highway Department (NHD) for vehicle, trailers and scrap metal storage; the eastern yard is being used by Town of Niagara Water Authority (NWA) for vehicle, trailer, pipes, stone and materials storage. The NHD yard is where the primary contamination is located. The building on the north side of the yards is divided into three (3) sections and occupied by NHD (west), Niagara Police Department (middle) and NWA (east). Further to the east of the building and yards is the salt storage shed for the NHD and to the west of the building is a large parking lot. Adjacent to the west facing wall of the building are two (2) fuel pumps (gasoline and diesel) with the USTs just west of the pumps. A layout of the Site is provided as **Figure 2**.

3 Proposed Remedial Investigation Activities

Prior to mobilizing to the Site a reconnaissance visit was conducted to assess current site conditions as well as changes in major site features. Based on these observations as well as previous site investigations performed by NYSDEC and USEPA the following proposed site activities were developed. Work is estimated to start in late-June 2019.

3.1 Health and Safety

GES will prepare a site specific Health & Safety Plan (HASP). The HASP will include emergency contact information for the client and emergency services, hospital route and Safety Data Sheets (SDSs) for any chemicals that may be used or encountered during the work (specifically α-, β-, γ-, δ-BHC). If modifications or clarifications to the HASP are required to comply with 29 CFR 1910.120, these must be made before the start of field activities.

During the work, the GES site supervisor will be designated as the on-site Health & Safety officer for compliance with the HASP, as well as confirm that all field personnel are properly trained, medically fit, and have current certificates of training. It is currently assumed that Level D personal

protective equipment (PPE) including at a minimum hard hat, safety glasses, nitrile gloves, and steel-toed boots. In addition, during decontamination procedures additional levels of PPE, such as Tychem® chemical suits and face shields, may be required to prevent exposure to contaminant of concern.

As per NSYDEC DER-10 Appendix 1A New York State Department of Health (NYSDOH) Community Air Monitoring Plan (CAMP), all ground intrusive activities (soil/base excavation and handling, test pitting, trenching and install of soil borings/monitoring wells) shall have a real-time monitoring for VOCs and particulates along the perimeter of the area. Equipment will be calibrated at the beginning of each work day when ground intrusive activities are scheduled. Readings will be checked and recorded every 15 minutes for particulate concentrations and every 30 minutes for VOCs unless conditions warrant more frequent readings, such as high winds.

Response levels and actions for CAMP are as follows:

- If VOCs downwind of work area exceeds 5 parts per million by volume (ppmv) above background for the 15-minute average work activities must be temporarily halted, when the VOC reading decreases below 5 ppmv work activities can resume. If levels remain elevated, the source of the vapors must be identified and corrective actions taken to abate emissions. If levels exceed 25 ppmv at the perimeter of the work area, activities must shutdown.
- If particulate concentrations downwind of the work area exceeds 100 micrograms per cubic meter (µg/m^3) greater than background for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Dust suppression techniques would include, but are not limited to, spraying soil with water, reducing traffic, reducing speed and using a binder on excavation walls and base. While using dust suppression techniques work may continue if particulate levels do not exceed 150 µg/m^3. If levels exceed 150 µg/m^3 above background, work must stop and a re-evaluation of activities initiated.

3.2 Utility Mark Out

At least three business days prior to initiating subsurface work, Dig Safely New York will be contacted to provide a utility mark out and clearance for any nearby non-private utilities. In addition, GES will utilize the approximate utility mark locations provided in previous investigation reports for the Site. Ground penetration locations may need to be adjusted or hand cleared based on the location of underground utilities.

3.3 IRM

The existing IRM cover on-site will be protected as much as possible from damage or disturbance; however, openings in the cover will have to be made for the advancement of two (2) soil boring locations, see **Figure 3**. If monitoring wells are not installed at these locations, the filter fabric will be patched with at least one (1) foot of overlap with existing filter fabric and the ROC will be reinstalled to a thickness of at least six (6) inches. If a monitoring well is installed the fabric will be

patched up to the monitoring well road box and will be covered with concrete for the road box pad.

3.4 Soil Borings and Monitoring Well Installation

During previous site investigation activities results indicated that the horizontal extent of the contamination was not delineated, based on the results from the initial site investigation sixteen (16) locations are proposed for soil borings. Locations are shown on **Figure 3**.

GES site supervisor will oversee the advancement of the soil borings using dual-tube direct-push method with a Geoprobe® rig to an approximate depth of ten (10) ft bgs or bedrock. Samples will be collected in approximately 1-foot intervals via macro-core sampling. Soil samples will be logged by the GES site supervisor for color, moisture content, grain size, olfactory and visual evidence of impacts (white amorphous substance) following the modified Burmister method soil classification system. The samples will be placed in plastic bags and screened for organic vapors using a photo-ionization detector (PID) equipped with a 10.6 electron volt (eV) lamp and calibrated daily to one hundred (100) ppmv using isobutylene standard.

Based on field observations, one (1) fill soil sample (soil or amorphous material) and one (1) native soil sample (clay) will be collected from each boring in laboratory-supplied bottleware, packed on ice and submitted to TestAmerica Laboratories, Inc. (TestAmerica) in Amherst, New York under chain of custody (CoC) for analysis of metals including mercury via USEPA Method 6010C/7471A and pesticides via USEPA Method 8081B. Some select samples will also be analyzed for emerging contaminants (ECs) Per- and Polyfluoroalkyl Substances (PFAS) via USEPA Method 537 Modified and 1,4-dioxane via USEPA Method 8270D Select Ion Monitoring (SIM) Isotope Dilution (ID) and VOCs via USEPA Method 8260C, SVOCs via USEPA Method 8270D, PCBs via USEPA method 8082A and herbicides via USEPA Method 8151A. These select samples will be chosen in the field based on observations and NYSDEC input, but at least eight (8) samples will be collected. Additional samples may be collected for analysis based on field observations or requests by NYSDEC.

Upon completion of the soil borings, seven (7) locations will be selected and converted to monitoring wells. To prevent vertical migration of contamination a concrete form tube will be inserted in the borehole approximately six (6) inches into the native clay layer, this tube can either be removed upon bentonite and grout sealing of the native clay layer or left in place.

Total depth of the well may vary based on subsurface lithology, but in general each well will be installed to a depth of approximately ten (10) ft bgs or to bedrock ranging from six and a half (6.5) to eleven (11) ft bgs. Screen length will be based on field observations, but is designed to show groundwater conditions below the impermeable clay layer previously reported; therefore, screen will not extend into the clay layer and construction of the well will seal off vertical movement of water or sediment from the surface and fill zone. Monitoring wells will be installed with a 0.010-inch slotted polyvinyl chloride (PVC) screen. The well will be brought up to grade with a solid schedule 40 2-inch diameter PVC casing. The PVC screens will be backfilled to 2 feet above top-of-screen with filter sand followed by at least 2 feet of bentonite chips, the remaining backfill will be grout up to grade. Based on the location of the wells, either a flush mounted road box or an approximately

3-foot tall riser will be installed for protection and each casing will be capped with a well plug. The road box or riser will be secured in place with a concrete pad roughly two (2) ft in diameter. A diagram of well construction is included on **Figure 4**.

The cutting shoe at the end of the Macro-Core® sampling sleeve will either be clean or decontaminated using an Alconox® wash followed by tap water rinse between uses. Between each sampling locations, all appropriate tools and equipment will be decontaminated using steam cleaning with a heated pressure washer followed by an Alconox® wash and potable water rinse.

3.5 Surface Water and Surface Soil Sampling

Based on the reconnaissance site visit three (3) locations have been identified as having the potential for surface water run-off from on or near the area of concern. Surface water grab samples will be collected from these locations if and when surface water is present. Samples will be analyzed for metals including mercury via USEPA Method 6010C/7471A and pesticides via USEPA Method 8081B. Samples will be placed in laboratory-supplied bottleware, stored on ice, and delivered under CoC to TestAmerica for analysis.

A drainage ditch to the south of the Site may have received sediment run-off from the Site prior to the IRM. Surface soil samples from zero (0) to six (6) inches bgs will be collected from various locations along the drainage ditch to assess surface contamination. Samples will be analyzed for metals including mercury via USEPA Method 6010C/7471A and pesticides via USEPA Method 8081B. Samples will be placed in laboratory-supplied bottleware, stored on ice, and delivered under CoC to TestAmerica for analysis.

3.6 Groundwater Well Development

Following installation of the monitoring wells, the wells will be developed to facilitate hydraulic communication between the formation and the well screen. Any existing monitoring wells with sediment buildup will be developed as well.

The wells will be developed via mechanical surging method using a surge block device. The surge block can be used effectively to destroy the bridging of the fine formation particles and to create the agitation that is necessary to develop the well. The surge block technique will be used with pumping to remove material that has been agitated and loosened by the surging. Surging and pumping will be conducted until either water clarity has improved or until the wells cannot sustain further pumping. A period of time (at least two [2] days) will elapse between well development and sampling.

3.7 Groundwater Well Sampling

At least one round of groundwater sampling will be conducted at the Site following procedures outlined in the USEPA *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells* revised September 19, 2017. All new and existing monitoring wells will be sampled during the event. GES personnel will gauge the monitoring wells for water level. The wells will be low flow purged with a peristaltic pump and dedicated

polyethylene tubing. Each well will be purged until field parameters (Temperature, pH, Oxidation/Reduction Potential, specific conductivity, dissolved oxygen and turbidity) stabilize or the well goes dry. Upon stabilization or recovery from partial dewatering a sample can be collected for metals including mercury via USEPA Method 6010C/7471A and pesticides via USEPA Method 8081B. In addition, field filtered samples will also be collected from each monitoring well location and analyzed for metals including mercury. Select locations, based on soil analytical results, will also be analyzed for ECs PFAS via USEPA Method 537 Modified and 1,4-Dioxane via USEPA Method 8270D SIM ID. Samples will be placed in laboratory-supplied bottleware, stored on ice, and delivered under CoC to TestAmerica for analysis.

3.8 Surveying

Upon completion of all field activities a site survey will be conducted to expand the to-scale site base map from previous investigations and update site features, add topography and well/sample locations.

3.9 Quality Assurance/Quality Control

Care will be taken during all aspects of the sample collection to ensure that high quality data is obtained. Every twenty (20) samples, for each media, one (1) duplicate sample and one (1) matrix spike / matrix spike duplicate (MS/MSD) sample will be collected and submitted for analysis for quality assurance of both the sample collection procedure and the laboratory method. An additional duplicate sample will be considered if sampling the white amorphous material. All samples will be submitted via courier to the necessary laboratories for analysis under proper CoC. At the end of each sampling event, soil and groundwater, one (1) equipment blank sample will be collected to verify decontamination procedures between sampling locations.

GES will subcontract a third party data validator to prepare a Data Usability Summary Report (DUSR) in accordance with NYSDEC Division of Environmental Remediation (DER-10) Technical Guidance for Site Investigation and Remediation.

3.10 Waste Disposal

3.10.1 Soil/Solids Investigation Derived Waste (IDW)

Soil cuttings from soil boring and well installation activities will be drummed and stored on-site in 55-gallon drums with correct identification and contact information. Prior to disposal, the waste will be sampled for characterization and profiled for off-site disposal at an NYSDEC approved waste disposal facility. Representative samples may be collected from each waste stream for laboratory analysis in accordance with the disposal facility.

3.10.2 Decontamination/Purge Water IDW

Groundwater, purge water, and decontamination water will be staged on-site in a 275-gallon tote with correct identification and contact information. Prior to disposal, the waste water will be

sampled for characterization and profiling for off-site disposal at an NYSDEC approved waste disposal facility.

4 Reporting Activities

4.1 Data Validation

Category B deliverables will be obtained from TestAmerica and submitted to a third party data validator along with any supporting documents (bore logs, groundwater sampling logs, field notes, etc.) for validation and a DUSR. Any amended qualifying flags or rejected data will be updated prior to completing the summary report and electronic data submission.

4.2 Summary Report

GES will prepare a report, the remedial investigation report (RIR) shall include the following items and will be prepared in accordance with NYSDEC DER-10 guidelines.

The RIR incorporates the information collected by the investigations conducted pursuant to this approved Remedial Investigation (RI) workplan. Where the RI was conducted in several phases, the RIR is to be a comprehensive report of all data collected during the RI and the conclusions drawn from that data.

The following sections should be included in the RIR:

- Identify and characterize the source(s) of contamination.
- Describe the amount, concentration, environmental fate and transport, including as necessary, phase (e.g., gas, solid, liquid), location, and other significant characteristics of the contaminant(s) present.
- Define hydrogeological factors, as needed, to include: grain size analysis, soil permeability, nature of any bedrock, depth to saturated zone, hydraulic gradients, depth to bedrock, bedrock permeability, proximity to a drinking water aquifer, surface water, floodplains and wetlands.
- Provide a qualitative human exposure assessment.
- Identify actual or potential adverse impacts to fish and wildlife resources and to other environmental resources.
- If present, identify surface water classifications and existing use designations.
- Stratigraphic logs which include soil/rock physical descriptions, well installation details, well development data including volumes purged, and field instrument readings detected during drilling for each soil boring, test pit and monitoring well. This data, where available, for any public/private drinking water wells in the area of groundwater impact will also be included.

- Stratigraphic cross sections of the site will be developed using information from monitoring wells, test pits, borings, geophysical data, or other historical information.
- Site and area of concern base maps.
- Sample location maps, appropriate to the area of the site and consistently used, with the sample points located by a surveyor or by Global Positioning System (GPS) to include all groundwater, soil, sediments and other sample locations with sample depth and contaminant concentrations indicated on the map, if possible.
- Groundwater elevation contour maps with flow direction specified for each set of static water level measurements for each aquifer where monitoring wells/piezometers were installed for flow direction. Groundwater elevation, for each monitoring well/piezometer, must be to the nearest hundredth (0.01) foot relative to a permanent, on-site datum.
- Top of bedrock contour or low-permeability unit map if bedrock or the unit was encountered in a sufficient number of borings to prepare a map.
- At a minimum, site maps should show groundwater contaminant concentrations for each sampling round. Isopleth maps for groundwater contaminant concentrations for each round of sampling and isopleth maps for soil sample results should also be provided.
- Maps depicting the areal and vertical (thickness) extent of any Non-aqueous phase liquid (NAPL) zones in groundwater or soil.
- Any data collected to develop discharge limitations.
- A section of the RIR should present the results of the Fish and Wildlife Resources Impact Analysis documenting the results of the Resource Characterization and Ecological Impact Assessment or fish and wildlife exposure assessment, if required.
- Any other pertinent data obtained from implementing the workplan, including any IRMs done prior to or during the RI.
- A qualitative human health exposure assessment, which identifies areas of concern and chemicals of concern, evaluates actual or potential exposure pathways, characterizes the potentially exposed receptors (residents, workers, recreational users, etc.), and identifies how any unacceptable exposures might be eliminated/mitigated. An exposure assessment should identify:
    - exposure pathways, which is how an individual may come into contact with a contaminant. The five elements of an exposure pathway are the: (1) source of contamination; (2) environmental media and transport mechanisms; (3) point of exposure; (4) route of exposure; and (5) receptor population;
    - the elements of an exposure pathway identified will be based on past, present or future events; and
    - the potentially exposed receptors and how any unacceptable exposures may be eliminated will be determined from an assessment of the primary use of the area (e.g., residential, industrial, or recreational), actual and potential use of ground and

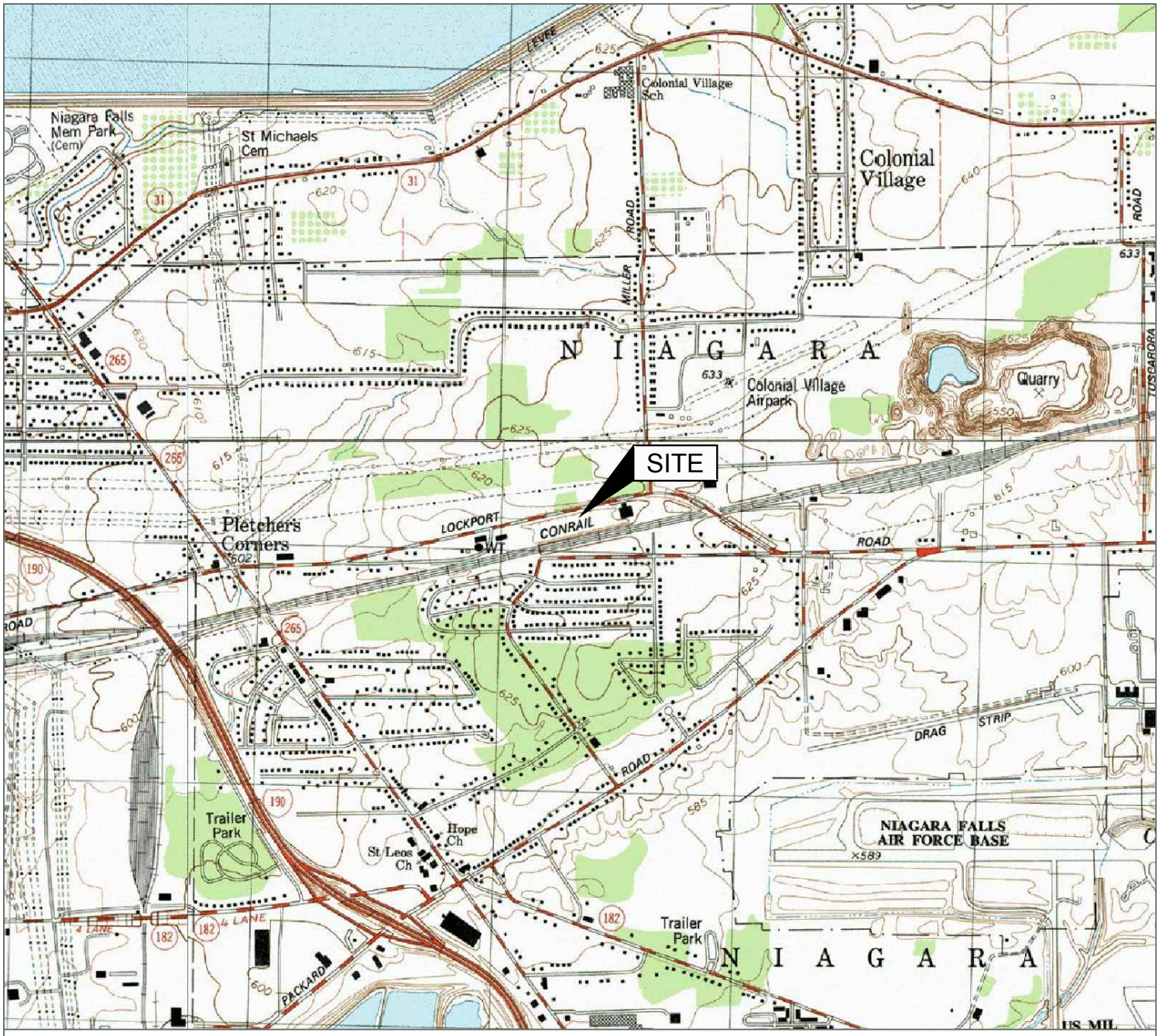
surface waters that are impacted or threatened, and how any potential routes of exposure may be eliminated.

- A quantitative risk assessment consistent with Comprehensive Environmental Remediation, Compensation and Liability Act (CERCLA), if requested by DER.
- Conclusions and recommendations which summarize the extent of the areas of concern, identifies any unacceptable exposure pathways, and recommends any future work (e.g., none, additional investigation, or an evaluation of remedial alternatives). This will include an updated conceptual model of the site and may also include remedial action objectives, if requested by NYSDEC.
- All required reports and/or documentation identified by this section must be provided in an electronic format.

4.3 Electronic Data Submission

GES will prepare the NYSDEC EQuIS electronic data deliverables (EDDs) after the DUSR is completed and submit all data files from the remedial investigation activities to NYSDEC Environmental Information Management System (EIMS) for upload to NYSDEC EQuIS Database.

Figures



Source:
USGS 7.5 Minute Series
Topographic Quadrangle, 1980
Tonawanda West, New York
Contour Interval = 5'

Site Location Map

NYSDEC
Niagara Highway Garage
7105 Lockport Road
Niagara Falls, New York

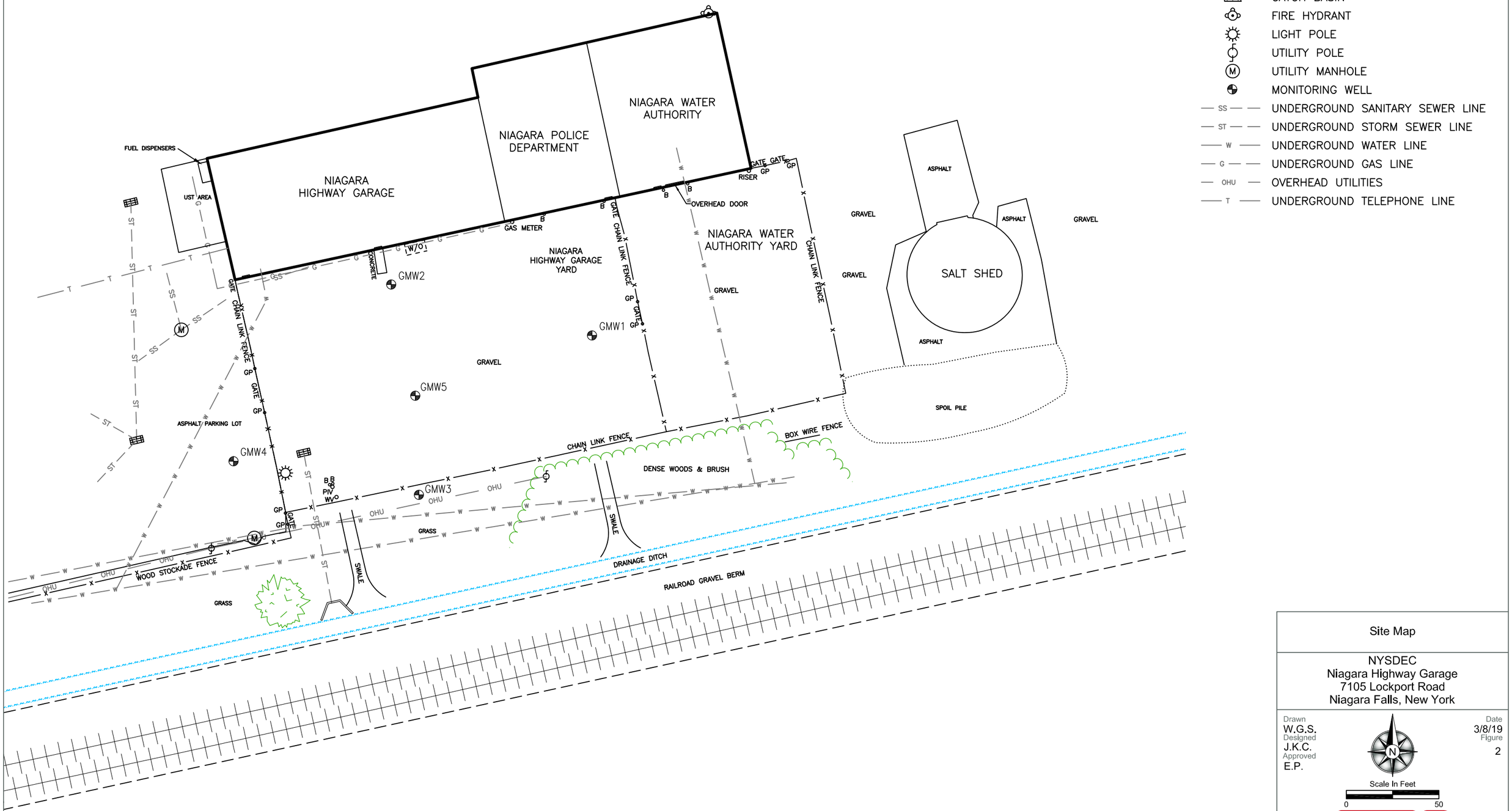
Drawn
W.G.S.
Designed
J.K.C.
Approved
E.P.

Date
12/14/18
Figure
1

Scale In Feet
0 2000

Groundwater & Environmental Services, Inc.

M:\Graphics\0900-Buffalo\NYSDEC\Niagara Falls (Highway Garage)\Niagara Falls (Highway Garage) SLM.dwg, Template SLM, wshea



LEGEND

- PROPERTY BOUNDARY
- WASTE OIL TANK
- CATCH BASIN
- FIRE HYDRANT
- LIGHT POLE
- UTILITY POLE
- UTILITY MANHOLE
- MONITORING WELL
- SS — UNDERGROUND SANITARY SEWER LINE
- ST — UNDERGROUND STORM SEWER LINE
- W — UNDERGROUND WATER LINE
- G — UNDERGROUND GAS LINE
- OHU — OVERHEAD UTILITIES
- T — UNDERGROUND TELEPHONE LINE

Site Map

NYSDEC
Niagara Highway Garage
7105 Lockport Road
Niagara Falls, New York

Drawn
W.G.S.
Designed
J.K.C.
Approved
E.P.

Date
3/8/19
Figure
2

Scale In Feet
0 50

Groundwater & Environmental Services, Inc.

LEGEND

- PROPERTY BOUNDARY
- WASTE OIL TANK
- CATCH BASIN
- FIRE HYDRANT
- LIGHT POLE
- UTILITY POLE
- UTILITY MANHOLE
- MONITORING WELL
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND WATER LINE
- UNDERGROUND GAS LINE
- OVERHEAD UTILITIES
- UNDERGROUND TELEPHONE LINE
- SOIL BORING (SEPTEMBER 2014) STANDARD GEOPROBE SAMPLING
- SOIL BORING (MARCH 2015) DUAL TUBE SAMPLING
- SOIL BORING (AUGUST 2015)
- PROPOSED SOIL BORING
- PROPOSED SURFACE WATER SAMPLE

Proposed Soil Sample Location Map

NYSDEC
Niagara Highway Garage
7105 Lockport Road
Niagara Falls, New York

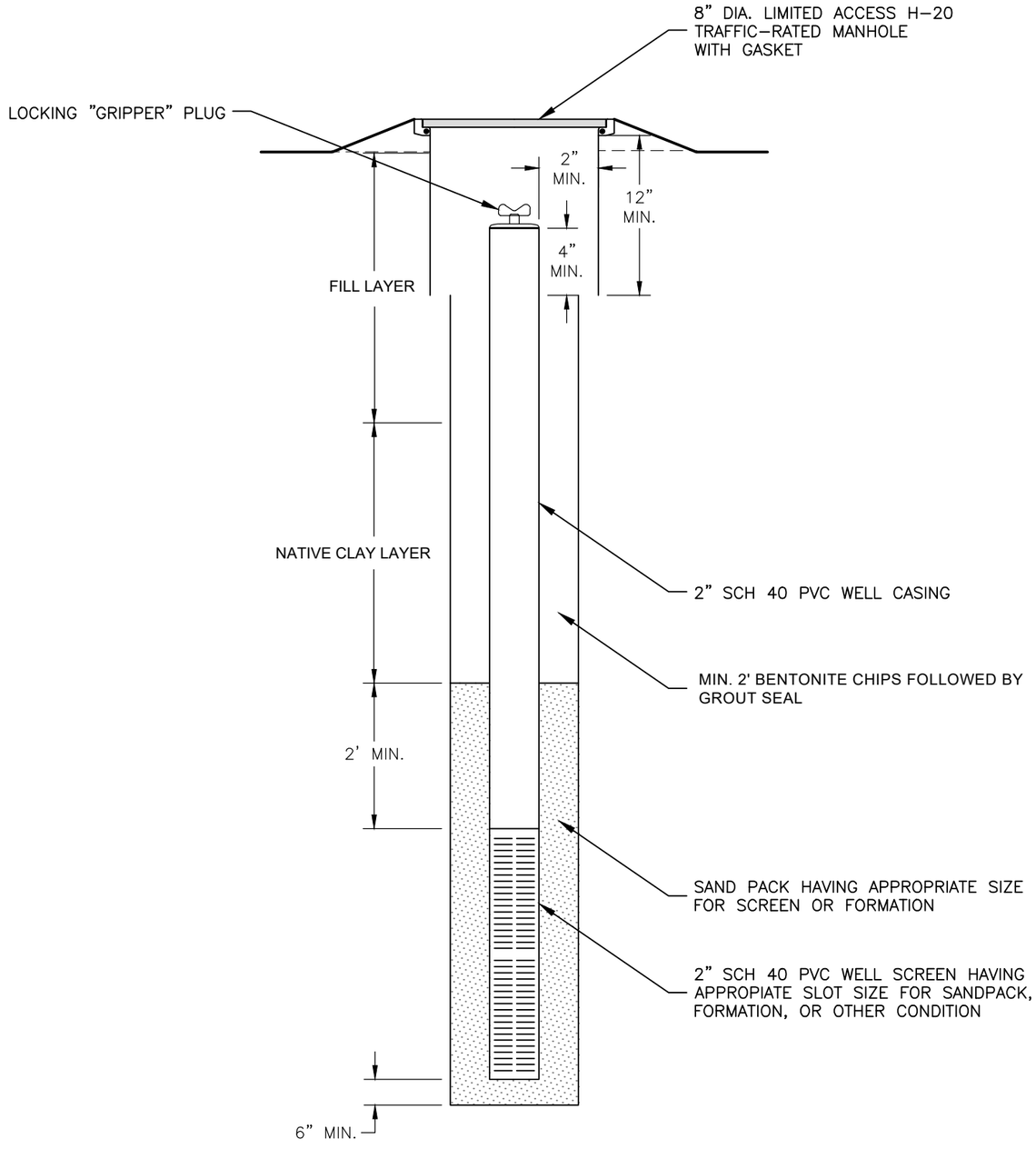
Drawn
W.G.S.
Designed
J.K.C.
Approved
E.P.

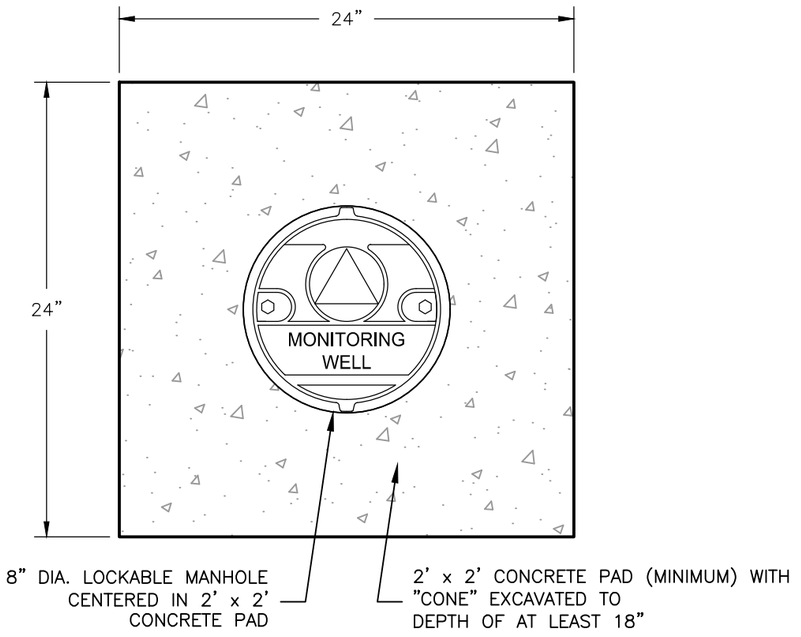
Date
5/8/19
Figure
3

Scale In Feet
0 50

GES
Groundwater & Environmental Services, Inc.

M:\Graphics\0900-Buffalo\NYSDEC\Niagara Falls (Highway Garage)\Niagara Falls (Highway Garage) SM.dwg, Template B, wshea





Typical Construction
2-Inch Monitoring Well Flush Mount

NYSDEC
NIAGARA HWY GARAGE
7105 LOCKPORT ROAD
NIAGARA FALLS, NEW YORK

Drawn
E.V.
Designed
R.K.E.
Approved
R.K.E.

Date
06/07/18
Figure
4

Not to Scale

Groundwater & Environmental Services, Inc.

M:\Graphics\0015-Engineering\TYP WELL COSTRUCTION\Well Construction Diagram.dwg, 2 MW-FM, EVega

Table

Table 1
Proposed Sample Matrix

Sample Media	Sample Type	Purpose	Approximate Quantity	Analysis	Method
Surface Soil - Fill Material/ Run-off Sediment	Grab	Characterization of any surface impacts. One sample from the surface material (0-6" below grade) from various points around the Site especially where sediment may migrate from the area of concern.	10	RCRA-8 Metals	6010C/ 7471B
				Pesticides	8081B
Soil Borings - Fill Material/ Amorphous Substance	Grab	Characterization of any subsurface impacts. One sample from the fill material from each soil boring, however some borings may warrant a second sample at different depths.	16	RCRA-8 Metals	6010C/ 7471B
				Pesticides	8081B
Soil Borings - Native Material	Grab	Characterization of any subsurface impacts. One sample from the native material from each soil boring, however some borings may warrant a second sample at different depths.	16	RCRA-8 Metals	6010C/ 7471B
				Pesticides	8081B
Surface Water	Grab Filtered & Non-filtered	Collect surface water samples from any standing water locations to evaluate potential impact of the fill/waste material to runoff areas.	2-4	RCRA-8 Metals	6010C/ 7471B
				Pesticides	8081B
Shallow Groundwater	Grab Filtered & Non-filtered	Collect groundwater samples from existing and newley installed shallow monitoring wells ≤5 ft bg to evaluate current impact of the fill/waste material to shallow groundwater on-site.	8	RCRA-8 Metals	6010C/ 7471B
				Pesticides	8081B
Deeper Groundwater	Grab Filtered & Non-filtered	Collect groundwater samples from existing and newley installed monitoring wells >5 ft bg to evaluate current impact of the fill/waste material to deeper groundwater on-site.	4	RCRA-8 Metals	6010C/ 7471B
				Pesticides	8081B
Soil cuttings and Soilds (PPE/tubing) for landfill disposal	Composite	Landfill Disposal profiling - final listing may depend on disposal facility	1	pH	TBD
				Igitability	
				Total Petroleum Hydrocarbons	
				Polychlorinated Biphenyls	
				TCLP RCRA-8 Metals	
				TCLP Volatiles	
				TCLP Semi-Volatiles	
				Reactive Cyanice & Sulfide	
				Total Pesticides	
				Total Herbicides	
Decontamination and Purge Water for disposal	Composite	Disposal profiling - final listing may depend on disposal facility	1	pH	TBD
				Igitability	
				Total Petroleum Hydrocarbons	
				Polychlorinated Biphenyls	
				TCLP RCRA-8 Metals	
				TCLP Volatiles	
				TCLP Semi-Volatiles	
				Reactive Cyanice & Sulfide	
				Total Pesticides	
				Total Herbicides	