GROUNDWATER MONITORING WELL DECOMMISSIONING WORK PLAN

FOR THE FORMER "SAKMANN RESTAURANT CORP." PROPERTY

Located at U.S. Route 9W
Town of Highlands
Orange County, New York

NYSDEC Voluntary Cleanup Site Number: V-00083-3

January 2009

ESI File: SF01123.40

Prepared By:

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Administration Building
Bear Mountain State Park
Bear Mountain, NY 10911

The undersigned has reviewed this Groundwater Monitoring Well Decommissioning Work Plan and certifies to Highlands Battlesite Properties, LLC and Palisades Interstate Park Commission that the information provided in this document is accurate as of the date of issuance by this office.

Any and all questions or comments, including requests for additional information, should be submitted to the undersigned.

Paul H. Ciminello
President

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Purpose

This Groundwater Monitoring Well Decommissioning Work Plan (Work Plan) provides a detailed description of the monitoring well decommissioning activities that are proposed by Ecosystems Strategies, Inc. (ESI) to abandon one monitoring well located on the "Former Sakmann Restaurant Corp." property (see Section 1.2, below).

This Work Plan will not be considered to be a "Final" document until written approval has been secured from the NYSDEC.

1.2 Site Location and Description

The Site consists of the 1.5-acre former Sakmann Restaurant Corporation property located at U.S. Route 9W, Hamlet of Fort Montgomery, Town of Highlands, Orange County, New York. The property has frontage on the eastern side of U.S. Route 9W and on the northern side of Mine Dock Road.

The southern third of the property is vacant unimproved land. The northern two-thirds of the property includes the locations of a former gasoline station/automotive repair facility (Garage, now removed) and the former Trading Post Restaurant (Restaurant). A paved parking lot is present to the west of the restaurant; remaining areas are unimproved. Site Location and Monitoring Well Location Maps are provided in Appendix A of this Work Plan.

1.3 Previous Environmental Reports/Remediation

A Combined Phase I and II Environmental Site Assessment, conducted by ESI in September 2001, documented the presence of waste-oil contamination in the Garage basement, originating from discharges to a floor drain in a repair bay. Based on these findings, a spill event (number 0107005) was reported to the NYSDEC in October 2001. The assessment also identified five underground storage tanks (USTs), associated with the former gasoline station, that were abandoned and closed-in-place in June 1988 and a fuel-oil UST of unknown capacity was located near the northwest corner of the Restaurant. In addition, the presence of low-grade contamination by polycyclic aromatic hydrocarbons (PAHs) and metals in fill-type soils was documented to the north of the Garage.

Fieldwork conducted by HydroScience, Inc. in October 2001 indicated that the northern repair bay floor drain was not connected to any subsurface conduit and that the drain discharged directly to soils located beneath the concrete floor slab. The floor drain was reportedly sealed by HydroScience personnel following their subsurface investigation.

A Summary Report of Subsurface Investigation documented additional on-site investigative work conducted by ESI in November and December 2001. Soil borings were extended in the Garage repair bays, basement, and near the exterior eastern wall of the basement, in order to further delineate the horizontal and vertical extent of known contamination. Contamination by volatile organic compounds (VOCs, including chlorinated solvents) was confirmed in soils located under the repair bay slab. Significant contamination was limited to subsurface soils in close proximity to the floor drain and contamination was shown to diminish with increasing depth. TCLP laboratory data documented an elevated potential for contaminant migration into groundwater.

A Preliminary Investigation Report documented the installation of six on-site groundwater monitoring wells, and the results of soil and groundwater sampling, conducted by EnviroTrac Ltd. in April and May, 2002. Cis-1,2-dichloroethylene (DCE) and MTBE were detected above NYSDEC guidance levels in wells located to the east of the Garage. Low levels of DCE were detected in MW-2D and MW-3D, and low levels of MTBE were detected in MW-1D, MW-2D and MW-4S. Low levels of DCE and tetrachloroethylene were detected in the potable supply well servicing the adjoining Provan property to the east.

The Preliminary Investigation Report also documented the presence of low levels of VOCs (primarily BTEX compounds) in soils located in the immediate vicinity of the Garage. Peak concentrations occurred to the north of the Garage at a depth of 7-9' below surface grade (bsg). Total xylenes were detected at concentrations marginally exceeding NYSDEC TAGM 4046 recommended soil cleanup objectives (RSCOs); all other VOCs were detected at low concentrations. No chlorinated hydrocarbons were detected.

Groundwater has been monitored at the Site between May 2002 and August 2008 and at an off-site, downgradient private well in May and July 2007 and October 2008. Elevated to low levels of DCE, MTBE, and PCE were detected between 2002 through 2004. Concentrations of VOCs in groundwater generally decreased between 2004 and 2007; however, low-levels of MTBE and PCE continued to be detected on-site in 2008. A low-level of PCE has been detected in the downgradient off-site private well. No significant contamination has been documented in the Provan and on-site supply wells, or in any on-site monitoring wells following remediation.

On-site remedial activities were completed in 2007 and included the removal of the Garage and associated petroleum-contaminated soils, the removal of a fuel-oil UST, and the placement of a soil barrier layer over areas of low-grade soil contamination. Monitoring well MW-3D was damaged during the placement of the barrier layer and is not able to accommodate equipment for sampling. The well can not be repaired and therefore will be abandoned per applicable NYSDEC guidelines.

2.0 GROUNDWATER MONIORING WELL CLOSURE

This Work Plan details monitoring well decommissioning activities that are proposed in order to abandon MW-3D which was damaged during placement of the on-site barrier layer, see above. A Monitoring Well Location Map depicting relevant Site features is provided in Appendix A. All proposed work will be conducted according to the previously approved Health and Safety Plan (HASP).

For the purpose of the work detailed in this Work Plan, the "Client" is defined as Highlands Battlesite Properties, LLC and Palisades Interstate Park Commission, which will contract with the environmental consultant (hereafter referred to as the On-site Coordinator [OSC]) to provide the services detailed below.

2.1 Overview of Proposed Services

The proposed services described in detail in subsequent sections of this Work Plan consist of the following:

1. Monitoring well MW-3D (currently covered with soil to prevent further damage) will be located;

2. The well will be abandoned following applicable NYSDEC guidelines (Section 2.3.2, below); and,

3. A Well Decommissioning Report will be prepared for the Client and the NYSDEC (Section 2.4 below).

Prior to, or in conjunction with, the initiation of these actions (see Section 2.3), the tasks detailed in Section 2.2, below, will also be conducted.

2.2 Proposed Site Preparation Services

This section of the Work Plan provides details on activities and services necessary to be initiated and/or completed prior to the implementation of well decommissioning services.

2.2.1 Agency Notification

The NYSDEC will be notified in writing at least five (5) business days prior to the start of fieldwork. Notification of subsequent field activities will be in accordance with reasonable business practice, with verbal notification for immediate (within 48 hours) activities and written notification otherwise. Written notifications will be transmitted to the NYSDEC via facsimile or electronic mail.

2.2.2 Well Decommissioning Coordination Activities

Prior to the initiation of fieldwork, all subcontractors will be notified of the components of the Health and Safety Plan (see 2.2.3, below). All necessary insurance certificates will be secured from subcontractors by the Client and/or by the OSC.

2.2.3 Health and Safety Plan

The site-specific HASP will be reviewed with on-site personnel (including subcontractors) prior to the initiation of fieldwork. All proposed work will be performed in "Level D" personal protective equipment; however, all on-site field personnel will be prepared to continue services wearing more protective levels of equipment should field conditions warrant.

2.3 Proposed Well Decommissioning Services

This section of the Work Plan provides a detailed description of the groundwater monitoring well decommissioning procedures.

2.3.1 Monitoring Well MW-3D

Monitoring well MW-3D is a deep well, as denoted by the "D". Although the well log has not been provided for review, the Preliminary Investigation Report briefly documents deep well construction in the text. For these wells, steel casings were advanced through the overburden (6 to 30 feet) and grouted into the bedrock. The borehole was then advanced to depth and a PVC well screen and riser was installed. A sand filter pack was placed around the screen with a bentonite seal and the remaining space with grouted (within the permanent casing) to grade. However, the report states that intensely fractured bedrock was encountered at approximately 30 to 35 feet below surface grade (bsg) while drilling MW-3D. An additional steel casing was installed to 56 feet bsg within the initial casing and the remainder of the well (56 to 85 feet bsg) was completed as an open borehole.

2.3.2 Well Decommissioning Procedure

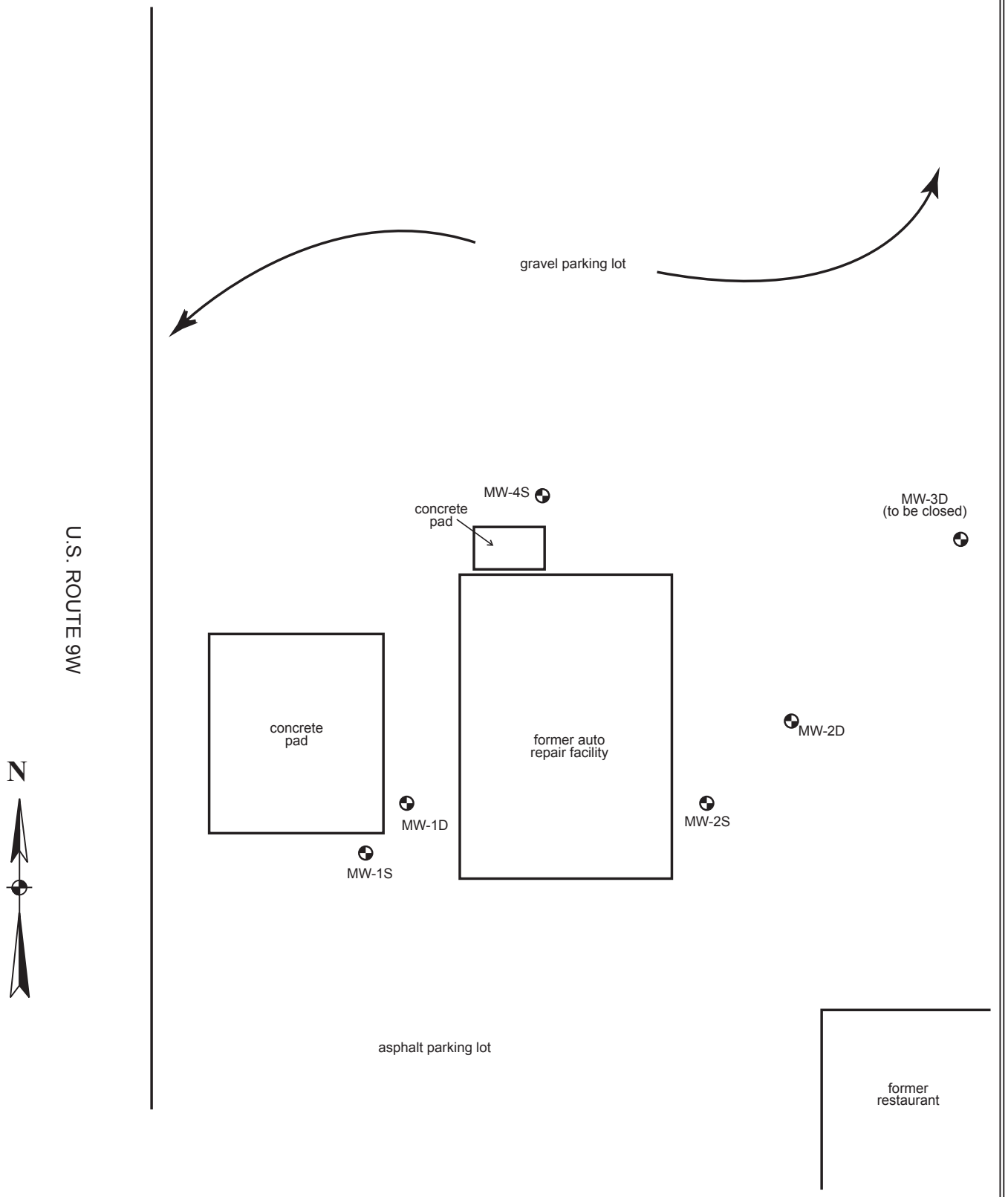
Due to the fractured nature of the bedrock encountered while installing the well, the well casing will be left in place. In order to decommission monitoring well MW-3D the following procedure will be followed:

- The well will be located using available information for the Site. The well cover will be exposed (the potential exists that mechanical excavation equipment may be needed to expose the stickup well covering).
- The depth of the well will be measured to determine if any silt or debris infilling has plugged the well. If plugging has occurred, the well will be flushed to remove or suspend the obstruction in the water column.
- The well will be grouted in place using the standard grout mixture (one 94-pound bag of Type 1 Portland cement, 3.9 pounds powdered bentonite, and 7.8 gallons potable water).
- The grout will be placed from the bottom to the top of the well.
- A ferrous metal marker will be embedded in the top of the gout to indicate the location of the former monitoring well.
- The stick-up well casing will be removed and the area will be restored to grade using certified clean fill (previously placed in this area on-site).

2.4 Documentation of Well Closure

A final Well Decommissioning Report will be prepared at the completion of all fieldwork services in order to document closure of the well.

Ecosystems Strategies, Inc.



All feature locations are approximate.
Map based on field measurements. All elevations are relative to an arbitrary benchmark of 100 feet.

Monitoring Well Location Map

Former Sakmann Property
U.S. Route 9W
Town of Highlands
Orange County, New York

Legend:
monitoring well location
MW-1S

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Not to Scale
Appendix A