Report of Findings

Summit Project
128th and Meridian
Puyallup, WA

Prepared for:
The Summit Group
Seattle, Washington

by
The West Shore Corporation, NW
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RITE AID 12811 MERIDIAN ST E PUYALLUP, WA

SECTION 1. Introduction

The purpose of this report is to present the results of remediation activities conducted at the Summit site (Site) located at southeast corner of 128th Street East and Meridian Avenue in Puyallup, Washington.. These activities were made necessary by the discovery of dynamite during the construction of a Rite Aid Drug store at this location. Environmental work accomplished included excavation of the soils contaminated with explosives, the testing of the underlying soils and this report. All environmental work completed on the Site was done in cooperation with Washington State Department of Ecology (Ecology) and followed the requirements of the Model Toxics Control Act (MTCA).

SECTION 2. Project History

Buried dynamite sticks were discovered at the Site on December 3, 1998 during the excavation of a storm water retention vault located in the southeast corner of the property. Upon discovery the site construction contractor, Construction Associates, Inc., contacted the Pierce County Sheriff's Department. On December 4, 1998 the bomb squad from the Sheriff's Department detonated the dynamite (in place) using plastic explosives. Dynamite sticks that did not detonate were collected and burnt using diesel fuel. The resulting burning residue pile was approximately ten feet north of the discovery site and two feet west of the storm water retention vault.

As a result of the detonation explosive residue was deposited in the soils downwind (east) of where the dynamite was discovered. Ecology's Spill Response Department was contacted and visited the Site on December 4, 1998. Ecology requested that the Site be fenced and that any dynamite residues be secured. This was accomplished on December 5, 1998. Ecology also requested that the Summit Group define and characterize the Site and complete any necessary cleanup. The project was referred to the Toxic Cleanup Program at Ecology for follow-up. Mr. Kelly Susewind was assigned as the Ecology Site Manager on December 8, 1998.

A meeting was held at the site on December 9, 1998 to discuss the path forward. In attendance were representatives from Ecology, the Summit Group, Construction Associates and West Shore. As a result of this meeting a plan of action was developed and implemented. This plan of action represents the scope of work described below.

SECTION 3. Review of Information:

A thorough review of available information was conducted to aid in the determination of the impacts of the dynamite detonation and storage and to assess if there were any obvious locations where additional storage of dynamite may have occurred.

3.1. Interviews:

On December 4, 1998, the Sheriff's Department interviewed an individual that remembered helping the former owner of the site, a Mr. Green, load cases of dynamite from the a root cellar. Upon a visit to the Site this individual confirmed the location of the root cellar as the spot where the dynamite was discovered. He could not recall any other location on-site that was used for dynamite storage.

3.2. Aerial Photograph Review:

An attempt was made to discover any obvious areas that held the potential for dynamite storage. To do this six aerial photographs dated from 1969 to 1996 where reviewed at Walker and Associates in Tukwila, Washington. No aerial photographs older than 1969 were available. During this review no obvious potential storage sites were noted.

SECTION 4. Phase One Soil Excavation

On December 11, 1998 approximately five cubic yards of soil were excavated and placed into disposal bags. These soils were collected from two areas; the area identified as the root cellar and the residue burn pile.

The root cellar area was approximately ten feet long by ten feet wide and contained soils mixed with visible dynamite residue such as wrapping and filler. No dynamite sticks were observed. The majority (approximately 3.5 cubic yards) of the excavated soil came from this area. The initial excavation in this area was stopped when no further dynamite residue was observed. Secondary excavation ended when an additional one foot of soil was removed from each side wall and the base of the initial excavation.

The remainder of the soil was excavated in the burn pile area, an area approximately two feet by three feet in size. During excavation the burn pile was removed along with one foot of soil from all sides and the base of the pile.

SECTION 5. Phase One Characterization

Three soil samples were collected following the completion of the phase one soil excavation to characterize the laterial and vertical extent of the contamination (Figure 3). Sample SUM 1A was collected from the soil underlying the root cellar, and sample SUM 2A was collected from the soils underlying the burn pile. Sample SUM 3A was collected 12.5 feet east (the downwind direction) of sample SUM 1A to assess the impact of the detonation. Each sample was delivered under chain of custody to MultiChem Analytical Services in Renton, Washington on the day of collection and analyzed by Method 8330 for nitroaromatic explosives. The results of this testing showed concentrations of total Dinitrotoluene (DNT) greater than the cleanup level for the protection of groundwater as established by Ecology. Table 1 lists the DNT concentrations. The complete set of analytical results is contained in Appendix A. Appendix B describes the sampling techniques used to collect the samples and the soils characteristics of each sample.

Table 1
Initial Characterization Results

Sample ID	Total DNT Concentration	MTCA Cleanup Level
SUM 1A	12.3 mg/kg	0.013 mg/kg
SUM 2A	3.0 mg/kg	0.013 mg/kg
SUM 3A	2.8 mg/kg	0.013 mg/kg

SECTION 6. Remedy Selection

Ecology was contacted following initial characterization. During these discussions it was determined that the following remedies were appropriate for the Site:

6.1. Containment: Construction plans for the Site showed that the both the root cellar and burn pile areas were to be contained by an asphalt parking lot above the contamination and the footing wall of the storm water vault to the east of the contamination. These features effectively isolate the contamination from both humans and environmental receptors and the downward percolation of surface water. Under MTCA this type of containment is an acceptable remedy if institutional controls are placed upon the property. The appropriate institutional control for the Site is a deed restriction ensuring that containment structures will remain intact and that the land use will not change without Ecology notification. Summit has agreed to this deed restriction along with it's stipulations.

6.2. Phase Two Excavation: The analysis of sample SUM 3 showed, that as a result of the detonation, contamination had been deposited to the east of the root cellar. This area was outside of the containment area and, thus, required further excavation and sampling. By agreement, excavated soil could be placed within the containment area, isolating it from contact with humans, environmental receptors and surface water.

SECTION 7. Phase Two Soil Excavation

Phase Two soil excavation was completed between January 20 and 27, 1999. During this time approximately 40 yards of soil were excavated and placed within the containment area. Sampling followed on January 27, 1998.

Samples were taken in three locations. Sample SUM 5 was taken 12 feet east of the burn pile (sample SUM 2) and sample SUM 6 was taken directly under the location of sample SUM 3. Sample SUM 4 was taken on the eastern side wall of the surface water retention value roughly due east of the root cellar. This sample location was selected to further assess the impact of the detonation in the downwind direction.

Each sample was delivered under chain of custody to Sound Analytical in Tacoma, Washington on the day of collection and analyzed by Method 8330 for nitroaromatic explosives. Samples SUM 5 and SUM 6 contained concentrations of total DNT that were greater than the cleanup level for the protection of groundwater. Sample SUM 4 did not contain detectable concentrations of any explosive compound. Table 2 lists the DNT concentrations for each sample.

Table 2
Phase Two Sampling Results

Sample ID	Total DNT Concentration	MTCA Cleanup Level
SUM 4	Not Detected	0.013 mg/kg
SUM 5	0.1 mg/kg	0.013 mg/kg
SUM 6	0.15 mg/kg	0.013 mg/kg

SECTION 8. Phase Three Soil Excavation and Confirmation

Due to the detections of DNT in samples SUM 5 and SUM 6 further excavation of soil was completed on February 1, 1999. During this effort approximately one foot of soils were removed from the base of the phase two excavation. As a result an additional ten cubic yards of soil were placed in the containment area.

Two soil samples (SUM 7 and SUM 8) were taken at the resulting grade under the former location of samples SUM 5 and SUM 6. These samples were delivered to Sound Analytical in Tacoma, Washington on the day of collection and analyzed by Method 8330 for nitroaromatic explosives. Neither sample contained detectable concentrations of any explosive compound.

SECTION 9. Conclusions

As a result of the remedial efforts taken at the Site approximately 55 cubic yards were excavated. Fifty cubic yards of this soil was placed within the containment area; the remainder are scheduled to be sent to the Waste Management landfill in Arlington, Oregon.

Upon the completion of the asphalt parking lot the soils within the containment area will be isolated from humans and the environment. This work will be completed within the month of March. The footing wall of the surface water containment vault has been completed.

The deed restriction required by Ecology is under development and is based upon the standard deed restriction used by Ecology. This work will also be completes in March.

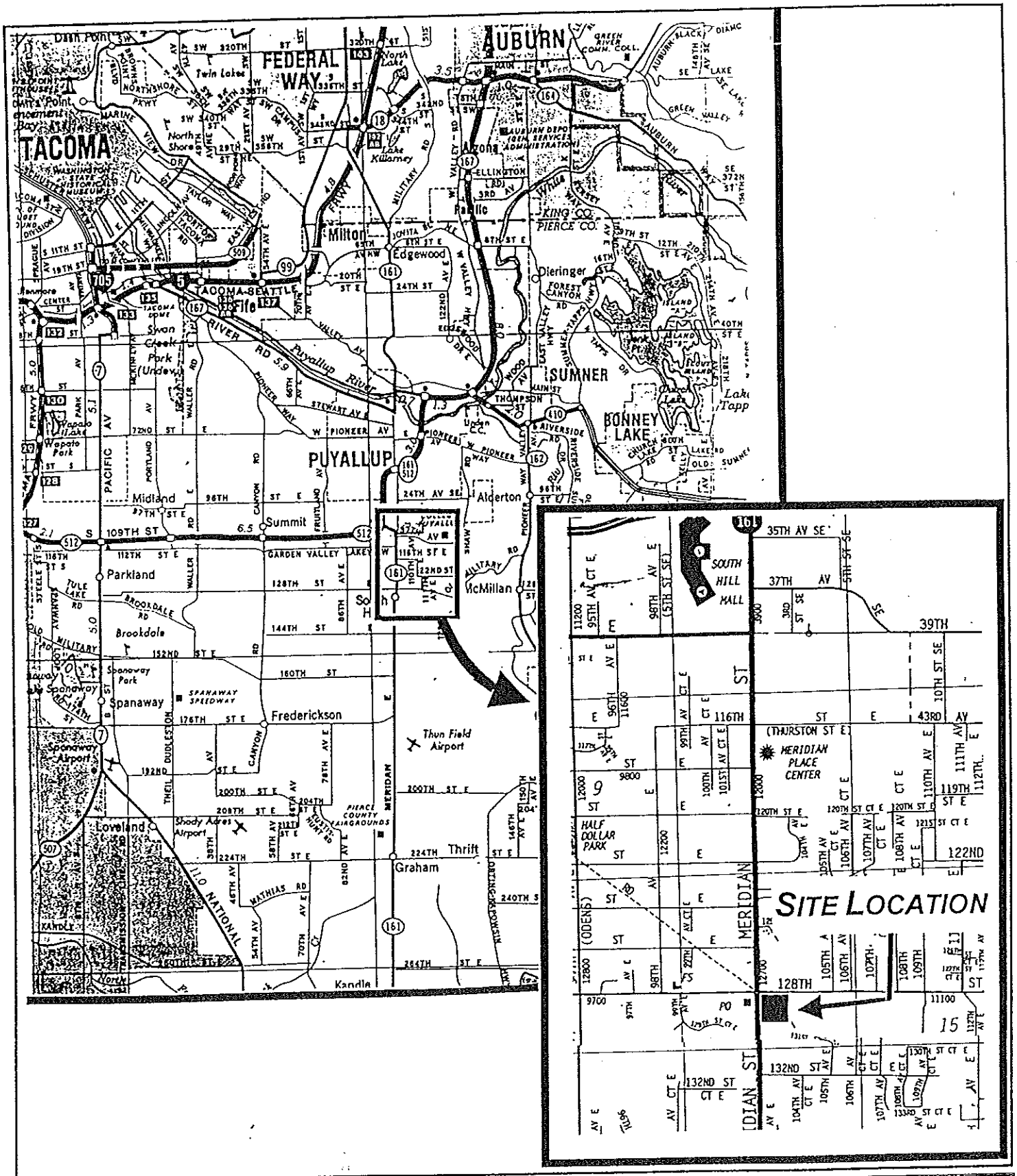

Figure 1: Site Location Map

Source: Thomas Guide Maps

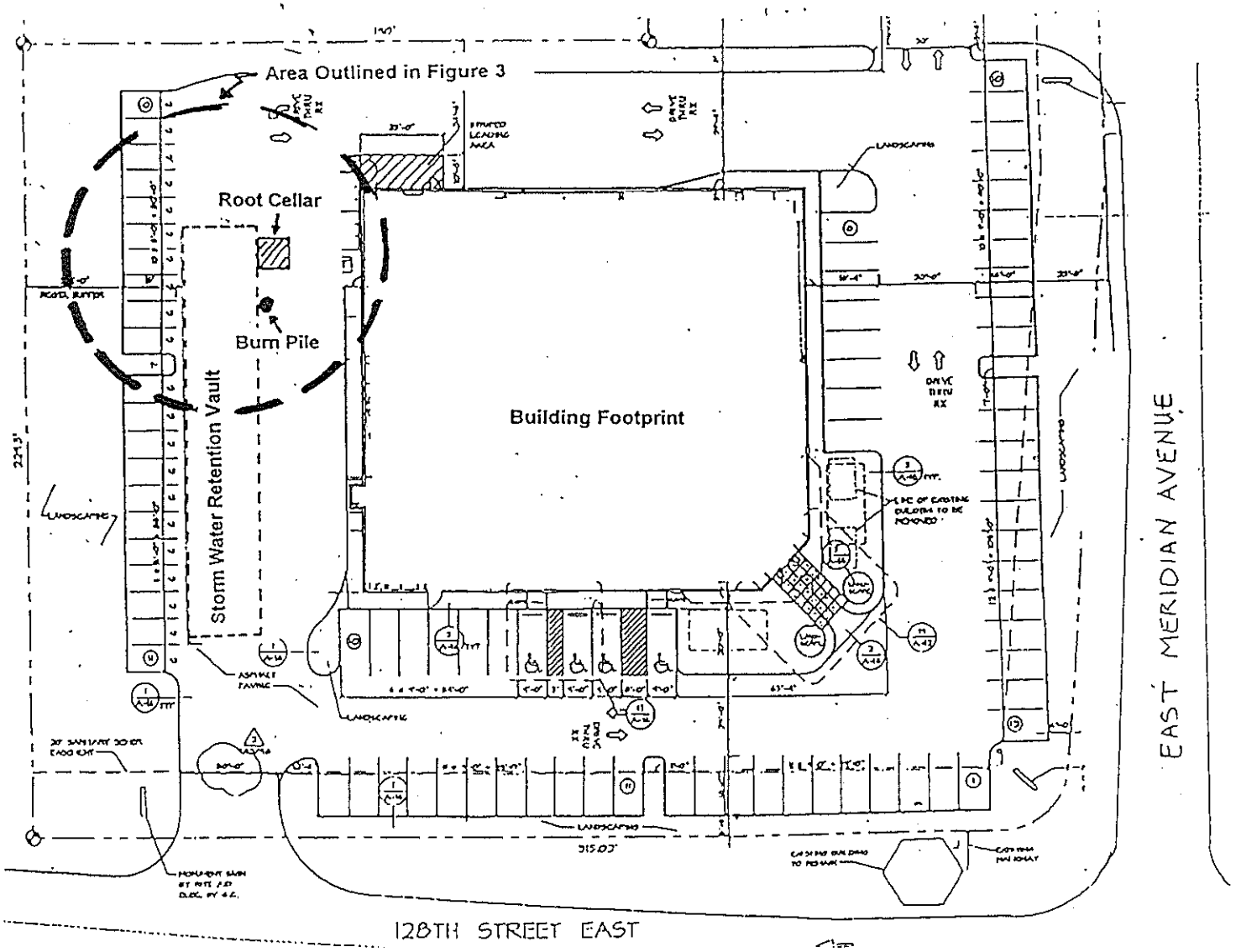

Figure 2: Site Map

Scale: Approximately 1 inch = 45 Feet

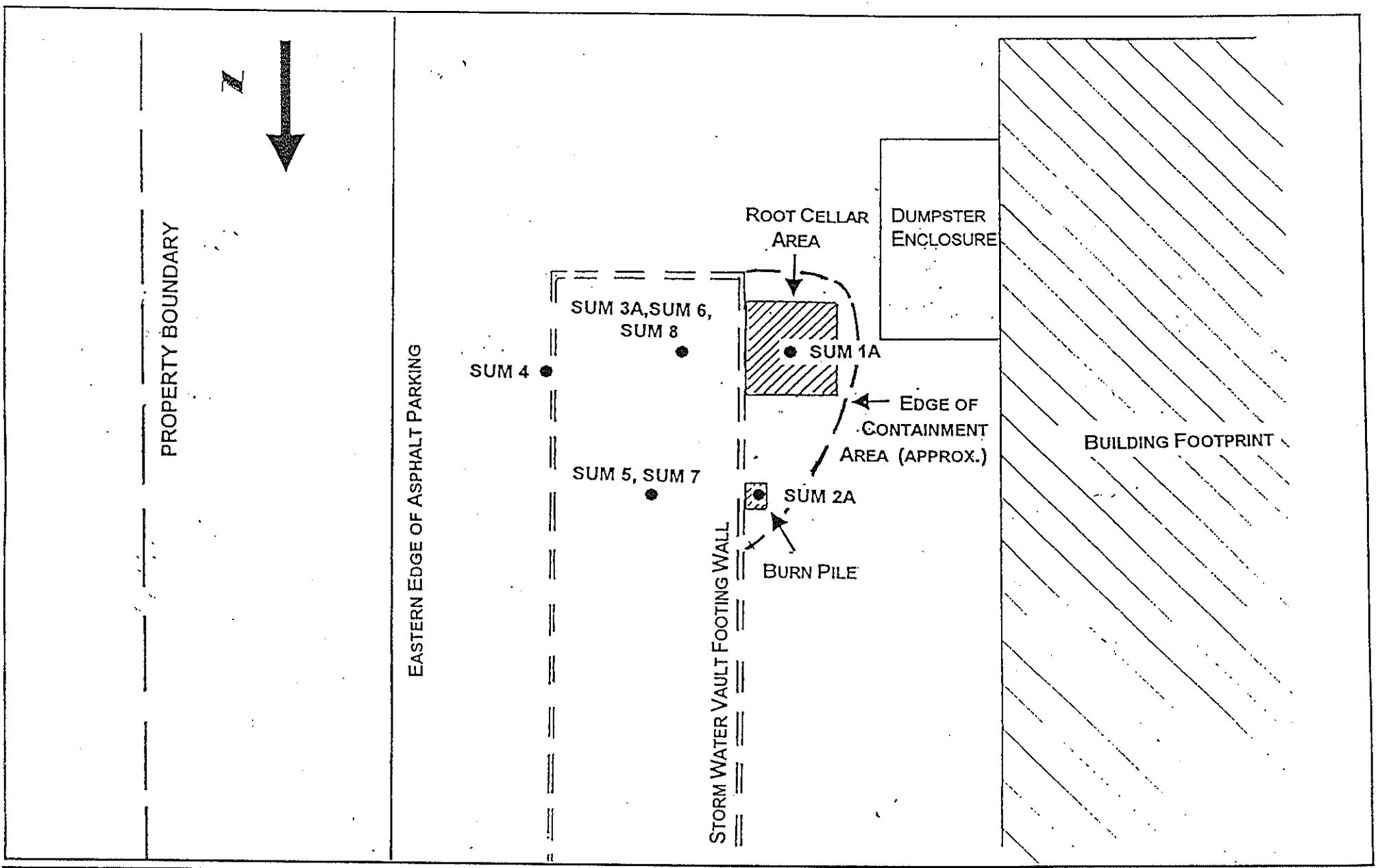

Figure 3: Sample Location Map

Scale: Approximately 1 inch = 15 Feet