IV. ARCHAEOLOGICAL SURVEY METHODOLOGY

4.1 Project Walkover

The Phase 1 methodology included a walkover assessment of the project impact area looking for signs of disturbance, and cultural material and foundations. The walkover was conducted on November 1, 2012. The initial walkover of the proposed flood mitigation area documented the existence of a flood protection levee separating the project area from Owego Creek immediately to the west (Photos 2-4). Field observations also suggested that the flood mitigation area had likely been artificially leveled to construct athletic fields (Photos 1-4). This had likely been accomplished by a combination of cutting and filling. The walkover also located evidence of storm drainage system that diverted water from the athletic fields and from parking areas to the east of project area (Photos 3-4). The walkover around the location of the proposed elementary school documented numerous buried utilities. The median separating the parking lot at the north of the existing school from the middle/high school access road had at least three separate buried utilities, including electric service for stadium lights, street lights, and parking lights, as well as a recently placed fiber optic line (Photo 5). The trench for the fiber optic line is readily visible on the surface and runs from the north to the south to the east of the existing school, ultimately running temporary trailers to the south of the existing school (Photos 5-7, 10). Additionally a buried high voltage line begins at the north end of the school, skirts the eastern edge of the existing school, before entering the southern end of the building. As noted above, a number of temporary trailers have been set up to the south of the existing elementary school (Photo 11). Most of the project area north of the existing school is covered with a paved parking lot (Photo 18). To the east of the existing school much of the ground surface is covered by an access road and additional pave parking (Photo 17). Several playground facilities ring the existing structure (Photos 13, 15). An asphalt basketball court is located off the southwest corner of the existing structure (Photo 14).

4.2 Subsurface Testing Procedures

When subsurface testing began on November 1, 2012, design options for the new elementary school and the flood mitigation areas had not been finalized. Therefore, the initial APE was significantly larger than the final one. Originally the APE was approximately 8.1 ha (20 ac). A 15 m (49 ft) grid was superimposed on the initial APE. This grid included 24 transects, laid out from west to east and labeled A through X. Within transects, STPs were numbered from 1 to 35 in a north-south fashion. Due to the irregular shape of the APE, individual transects had varying numbers of STPs. There was a total of 216 STPs excavated within the APE as initially defined. Of these, 126 are in or around the revised flood mitigation boundary, while 90 are in or around the elementary school area.

The flood mitigation STPs were excavated with hand tools and were 40 cm (16 in) in diameter. In general, STPs were excavated to a depth of 15 cm (6 in) into sterile subsoil unless stopped by rock or other obstruction. When possible fill deposits were encountered crews attempted to reach sub-fill soils. Once below the fill, STPs nearly uniformly encountered either silt loam Ap and or silt loam Bw horizons. Every attempt was made to continue excavation to the depths of the C horizon. The geomorphological assessment predicted marked variability in depths of fill, as well as the depth at which the C horizon would be reached. The more extensive STP sampling indicated that this variability was even greater than the more limited geomorphologic probing suggested. Proposed impacts in the flood mitigation area extend on average 91 cm (36 in) below the current surface. Therefore, in the relatively rare instance when the C horizon was not reached crews attempted to reach at least 100 cm (3.3 ft). All soil was sifted through 7 mm (0.25 in) hardware cloth, and artifacts from each recognizable soil horizon were bagged separately. Notation was made of coal ash, brick fragments, and any post-1950 materials such as plastic and roadside debris, and these items were discarded in the field. Written descriptions of soil color and texture, artifact content, and digging conditions were made at the time of excavation. The STP soil records are presented in Appendix 2.1 (p. 41).

The elementary school STPs were excavated with hand tools and were 40 cm (16 in) in diameter. In general, STPs were excavated to a depth of 15 cm (6 in) into sterile subsoil unless stopped by rock or other obstruction. When possible fill deposits were encountered crews attempted to reach sub-fill soils. The results of our initial STPs and geomorphologic study indicated that there were relatively significant deposits of fill along the eastern edge of the flood mitigation area (Transects J-O) and surrounding the current elementary school. Additionally, STPs revealed soil profiles to the east of the elementary school that had apparently been stripped down to the gravelly sand C horizon. Therefore, to supplement the STP testing, a series of eight small backhoe trenches were dug around the perimeter of the existing school to test for the presence of fill and to determine the integrity of soil horizons in the area of the proposed new elementary school. Given that most of the proposed impacts associated with the elementary school involve the removal of the existing soils to a depth of 60 cm (2 ft), crews attempted to dig STPs to at least this depth. Soil data from the 8 backhoe trenches suggested that nearly all of the elementary school area had fill to greater than 60 cm (2 ft) depths. Deeper impacts are possible along the perimeter of the proposed new elementary school, however, much of this area falls within the footprint of the existing structure or is covered by asphalt.

4.3 General Laboratory Methods

Following fieldwork, all artifacts were processed and analyzed in the laboratories of PAF. Processing included washing (or dry-brushing fragile materials), along with checking and retagging the artifact bags.

All artifacts recovered were analyzed according to standard PAF systems. All chipped stone debitage was categorized by specific characteristics. These include: cortical flake, non-cortical flake, bifacial edge flake, core flake, blade flake, non-cortical chunk, cortical chunk, shatter, flake core, core fragment, bifacial thinning flake, non-cortical flake fragment (distal, medial, proximal), bipolar core, bifacial core, blade core, and discoidal core. Artifact raw material was also recorded.

The historic artifacts were catalogued according to a PAF system based on South's classification (South 1976). Each piece was classified as to general functional groups (e.g., food-related, faunal remains, clothing related, architectural remains, etc.) and then according to specific types, forms and patterns (e.g., blue transfer print cup, sun-purpled bottle glass, cut nail, animal bone, etc.). Where possible, time ranges for these artifacts were assigned.

The resulting artifact catalog was entered into a relational database management program (Paradox) to facilitate subsequent analysis, and is included in Appendix 2.2 (p. 54). All of the artifacts, notes, and other documentation of the reconnaissance testing are curated according to federal (36 CFR Part 79) and state (NYAC 2005) guidelines in the facilities of the Department of Anthropology at Binghamton University.

V. RESULTS OF ARCHAEOLOGICAL SURVEY

5.1 Overview

Archaeologists excavated 216 shovel test pits: 126 in the flood mitigation area and 90 in the elementary school area (Figures 10-12, pp. 37-39). Of these, 126 are in or around the revised flood mitigation boundary, while 90 are in or around the elementary school area.

In the flood mitigation area, the final depths for the STPs ranged from 30 to 110 cm (12 to 43 in) with an average of 76 cm (30 in). STP excavation and the geomorphologic assessment confirmed that the flood mitigation project area had clearly been artificially leveled with fill. The varying depths of fill and varying depths at which the C horizon was intersected indicate that prior to filling, this area had a more undulating surface that gradually sloped toward Owego Creek. STPs and auger probes in the flood mitigation area displayed a remarkable diversity of depth to the C horizon, ranging from as shallow as 35 cm (14 in) to greater than 192 cm (76 in). The shallow C horizon STPs form one and possibly two north-south trending linear clusters that likely mark ancient gravel bars associated with the post-Pleistocene stream. There appears to be two distinct fill layers associated with the flood mitigation area. The uppermost fill consists of a brown silt loam; the lower fill zone is a brown gravelly silt loam. While the upper fill zone is consistently encountered across the flood mitigation area, the gravelly fill horizon is concentrated to the east. Total fill depths along the eastern edge of the mitigation area (Transect L-O) averaged greater than 60 cm (24 in) and were rarely penetrated by STPs. Auger probes that did penetrate this fill indicated the presence of an Ap horizon that extended to as deep as 85 cm (33 in) and B horizons to 140 cm (44 in) at which point the C horizon was encountered. Although the flood mitigation transects L-O did not reach sub-fill deposits, these transects fall outside the revised APE. Excluding those STPs that have been eliminated from the flood mitigation APE, the final depths for STPs in the flood mitigation area had an average final depth of 85 cm (33. 5 in). Of these same STPs, nearly 80% reached the C horizon at depths less than 100 cm. These final depths and the high rate of reaching the C horizon, provided excellent vertical sampling of the flood mitigation area.

In the elementary school area, the final depths for STPs ranged from 20 to 125 cm (8-49 in) with an average of 54 cm (21 in). STP excavation and backhoe tests documented extensive cutting east of the existing elementary school and deep fill deposits surrounding much of the rest of the current structure. Testing indicated that east of the school, soils had been stripped down to the gravelly sand C horizon and then capped with a relatively thin layer of topsoil. Trenches to the south and west of the existing school documented the presence of fill to an average depth of 85 cm (33 in). Given that most of the impacts associated with the proposed elementary school involve the removal of the existing soils to a depth of 60 cm (2 ft), the documentation of the prior destruction of A and B horizons east of the existing school and average fill depths in other areas of 85 cm (33 in), our testing provided excellent vertical sampling of potential impacts to the elementary school area.

5.2 Archaeology Survey Results

PAF archaeologists recovered seven prehistoric artifacts from six STPs (D8, D8/1mS, D8/1mW, D10, D11, and D16). The seven prehistoric artifacts were Onondaga chert non-cortical flakes. The flake from STP D16 was recovered from fill deposits, therefore, no site was designated. The flake from STP D11 was recovered from a disturbed utility (storm water drainage) trench; no site was designated. Four 1 m (3.3 ft) radial STPs around STP D10 were all negative, consequently the flake from STP D10 has been classified as an isolated find and no site was designated. Two of the 1 m (3.3 ft) radials around STP D8 produced flakes from what appears to be a sub-fill plow zone Ap horizon. Additional 3 m (10 ft) radials were negative. The three positive STPs centered on STP D8 have been designated as the Owego Elementary School Prehistoric Site (SUBi-3024), which is discussed in Section 5.3.

Historic material was recovered in 22 of the 216 STPs producing a total of 41 artifacts. About 56% (n=23) of the artifacts were classified as unaffiliated items. These consisted of unidentified bottle glass (n=1), undiagnostic metal (n=2), undifferentiated glass (n=4), and undifferentiated ceramic fragments (n=16). The undifferentiated ceramics included ironstone (n=13), pearlware (n=1), whiteware (n=1), and yellowware (n=1). About 22% (n=9) of the artifacts were architectural items consisting of undiagnostic nails (n=1) and window glass (n=8). Food-related items accounted for 10% (n=4) and consisted of molded ironstone tableware/teaware (n=2) and whiteware tableware/teaware (n=2). A single piece of modern plastic was also recovered as well as four faunal remains including three indeterminate fragments and one mammal bone.

There is no evident clustering of the historic artifacts. Rather, items appear to be spread across the project area. No historic sites were designated.

5.3 Owego Elementary School Prehistoric Site (SUBi-3024)

Site Location. The site is located 58 m (190 ft) east of Owego Creek and 440 m (1444 ft) south of Huntington Creek in the Village of Owego, Tioga County, New York. The site is within the Susquehanna River drainage.

Context. The site is located on the floodplain of Owego Creek, approximately 2.3 km (1.4 mi) north of where Owego Creek joins the Susquehanna River. Huntington Creek is located approximately 440 m (1444 ft) north of the site. The materials recovered from the site were not diagnostic, and a cultural affiliation could not be determined. The Owego Elementary School Prehistoric Site matches a site type previously identified along Owego Creek—that of small resource processing station associated with an individual or small group of hunter-gatherers (Miroff 2001).

Site Size. The site measures approximately 4 x 4 m (13 x 13 ft), for a total area of 16 m^2 (172 ft^2).

Site Stratigraphy. The artifacts were recovered from a buried Ap horizon, which consisted of a brown silt loam. Capping the Ap is a sterile medium brown gravelly silt loam fill layer. Immediately below the Ap horizon is a sterile yellowish brown silt loam B horizon. The Ap horizon begins at approximately 15 cm (6 in) and ends around 37 cm (15 in) below the surface.

Summary of Artifacts. The four prehistoric artifacts were all Onondaga chert non-cortical flakes.

Artifact Distribution. The prehistoric artifacts were fairly evenly distributed among three STPS. STP D8/1mS had two flakes, while STPs D8 and D8/1mW each had one flake. All of the artifacts were recovered from the Ap horizon.

Features. No features were clearly identified during the reconnaissance survey

Integrity. The site retains good integrity with no evidence of disturbance or alluvial scouring and redeposition.

Research Potential. The Owego Elementary School Prehistoric Site has the potential to reveal information about the prehistoric settlement patterns and lithic reduction strategies along a major tributary of the Upper Susquehanna River.

Potential Impacts. The site lies within the area of impact for the proposed flood mitigation area.

Recommendations. We recommend that the site is potentially eligible for the National Register of Historic Places.

5.4 Recommendations

Within the elementary school parcel no archaeological sites were identified. No further work is recommended for the elementary school parcel.

Within the flood mitigation area, we recommend that the Owego Elementary School Site is potentially eligible for the National Register of Historic Places. We recommend that impacts to the site be avoided. If the site can be avoided, no further archaeological testing is recommended within the rest of the current flood mitigation project limits. If site avoidance is not possible, we recommend a Phase 2 site examination consisting of close-interval STPs and 2-4 excavation units.

NEW YORK STATE PREHISTORIC ARCHAEOLOGICAL SITE INVENTORY FORM

Project Identifier: Owego Apalachin Elementary School Project
Date: December 2012
Name: Timothy Knapp
Phone: (607) 777-4786
Address: Rm. 146, Science I, Binghamton University, Binghamton NY
Organization (if any): Public Archaeology Facility

1. **Site Identifier(s):** Owego Elementary School Prehistoric Site (SUBi-3024)

2. **County:** Tioga
   City:
   Township: Stamford
   Incorporated Village: Owego
   Unincorporated Village or Hamlet:

3. **Present Owner:** Owego Apalachin Central School District
   Address:

4. **Site Description (check all appropriate categories):**

Site:
- ☐ Stray find
- ☐ Cave/Rock shelter
- ☐ Workshop
- ☐ Pictograph
- ☐ Quarry
- ☐ Mound
- ☐ Burial
- ☐ Shell midden
- ☐ Village
- ☒ Material in plow zone
- ☐ Surface evidence
- ☐ Camp
- ☒ Resource procurement/ processing area
- ☐ Material below plow zone
- ☒ Buried Evidence
- ☐ Intact occupation floor
- ☐ Single Component
- ☐ Multi-component
- ☐ Stratified
- ☐ Evidence of features (FCR)

Location:
- ☐ Under cultivation
- ☐ Never cultivated
- ☒ Previously cultivated
- ☐ Pastureland
- ☐ Woodland
- ☐ Floodplain
- ☐ Upland
- ☐ Sustaining erosion

Soil Drainage: ☐ Excellent ☒ Good ☐ Fair ☐ Poor

Slope: ☒ Flat ☐ Gentle ☐ Moderate ☐ Steep

Distance to nearest water from site (approx.): 58 m (190 ft) east of Owego Creek
Elevation: approximately 248.7 m (816 ft) ASL

5. **Site Investigation (append additional sheets if necessary):**
   Surface Testing Date(s):

*** Submission should be 8 ½" by 11" if feasible**
- ☒ **Site Map (Submit with form*)**
- ☐ **Collection**

Subsurface Testing Date(s): November 2 - December 4, 2012

Testing: ☒☒ **Shovel** ☐ **Coring** ☒ **Other:** backhoe trenches

Unit size: STPS 40 cm diameter; Trenches variable
Number of Units: 7 STPs **(Submit plan of unit with form*)**
Investigator: Timothy Knapp

Manuscript or published report(s) (reference fully):
Timothy Knapp and John M. Stiteler
2012 *Phase 1 Cultural Resource Survey, Owego Apalachin Elementary School and Flood Mitigation Project, Village of Owego (MCD 10740) Tioga County, New York.* Public Archaeology Facility, Binghamton, NY.

Present repository of materials: The Public Archaeology Facility

7. **Components(s) (Cultural affiliation and dates):** Ap horizon-Unknown prehistoric

8. **List of material remains (be as specific as possible in identifying object and material):**

STP	Description	Count
D8	Onondaga Chert Non-Cortical Flake	1
D8/1mW	Onondaga Chert Non-Cortical Flake	1
D8/1mS13	Onondaga Chert Non-Cortical Flake	2
D14	Onondaga Chert Non-Cortical Flake	1

If historic materials are evident, check here and fill out historic site form. □

9. **Map References:** Map or maps showing exact location and extent of site must accompany this form and must be identified by source and date. Keep this information to 8½" by 11" if possible.

USGS 7 ½ Minute Series Quad. Name: 1969 Owego, NY Quadrangle
For Office Use Only – UTM Coordinates: ___________________________

10. **Photography (optional for environmental impact survey):** Please submit 5" by 7" black and white print(s) showing the current state of the site. Provide a label for the print(s) on a separate sheet.

Figure 8. Location of Owego Elementary School Site (SUBi-3024) on 1969 Owego, NY Quadrangle.

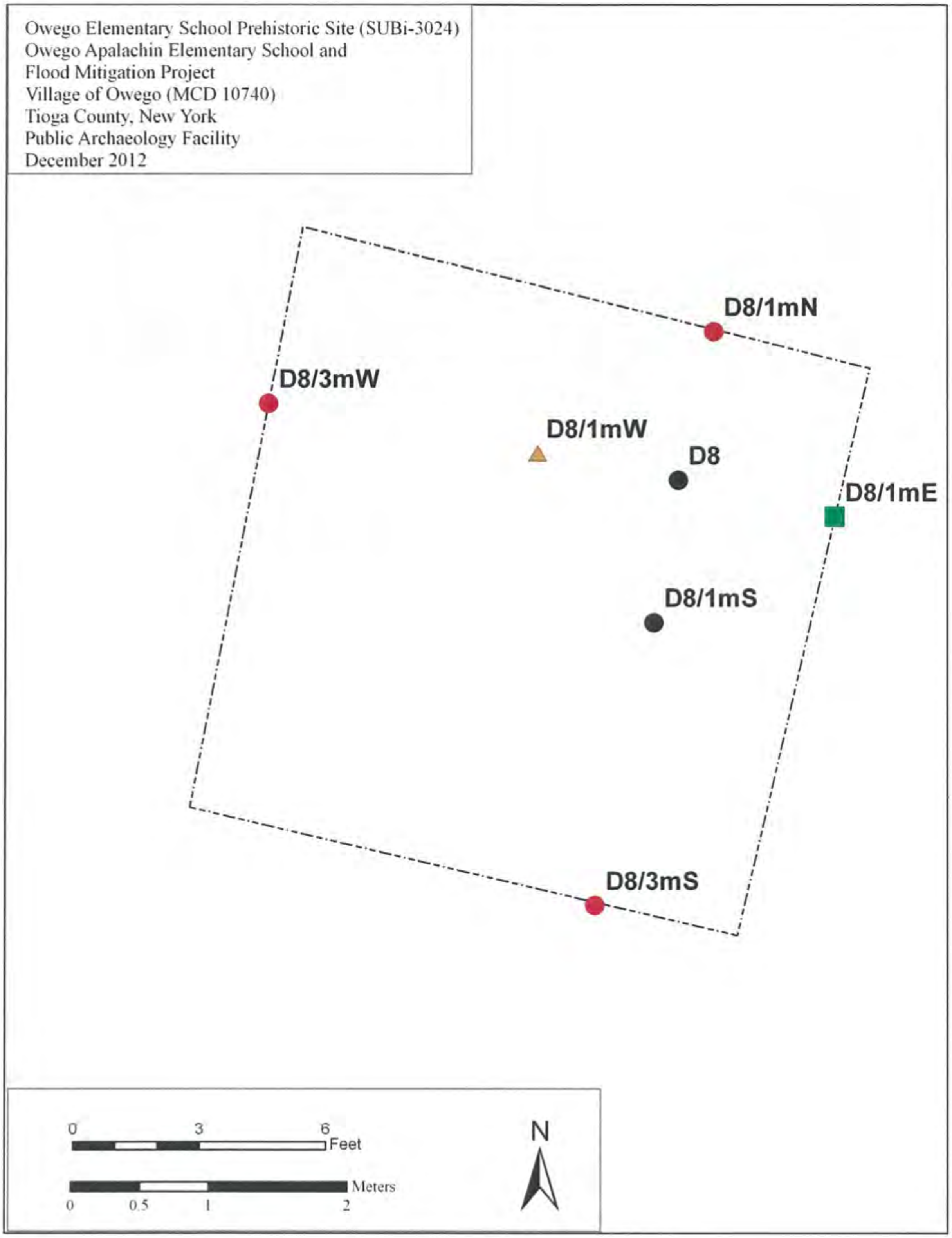
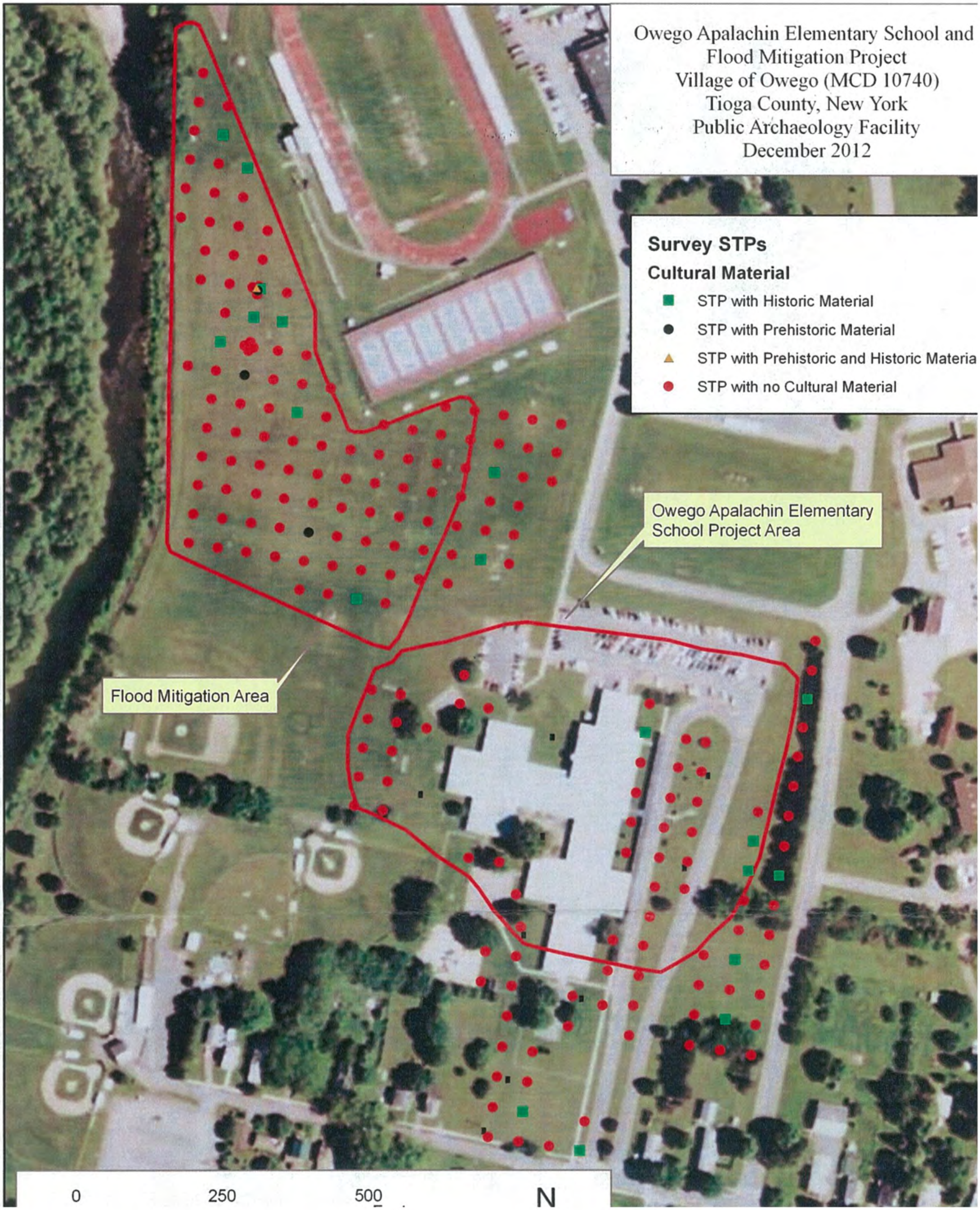
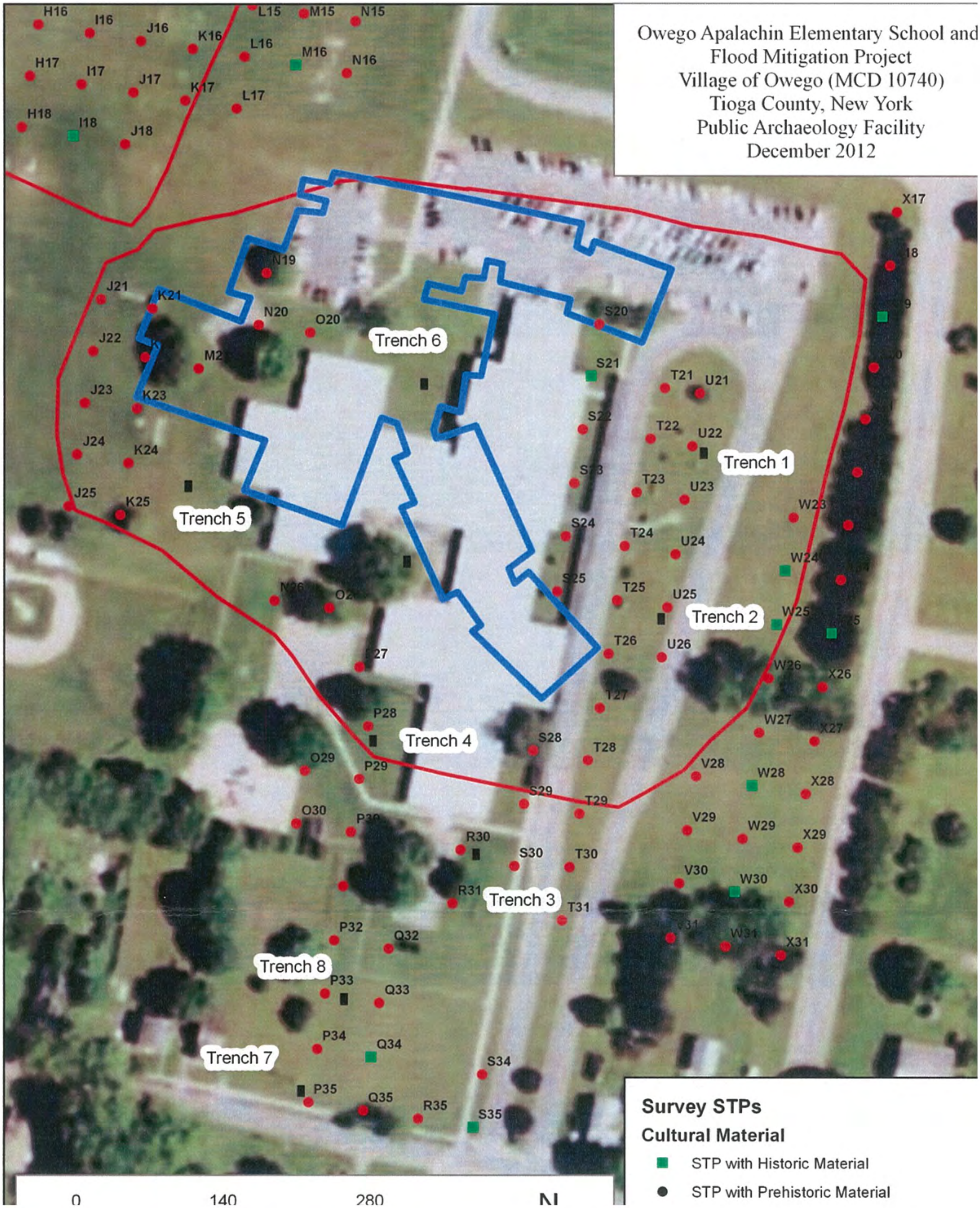


Figure 9. Owego Elementary School Prehistoric Site Map.

Photo 19. The Owego Elementary School Prehistoric Site, facing north.


Owego Apalachin Elementary School and
Flood Mitigation Project
Village of Owego (MCD 10740)
Tioga County, New York
Public Archaeology Facility
December 2012
Survey STPs
Cultural Material
STP with Historic Material
STP with Prehistoric Material
STP with Prehistoric and Historic Materia
STP with no Cultural Material
Owego Apalachin Elementary
School Project Area
Flood Mitigation Area
0
250
500
N


Owego Apalachin Elementary School and
Flood Mitigation Project
Village of Owego (MCD 10740)
Tioga County, New York
Public Archaeology Facility
December 2012
Trench 1
Trench 2
Trench 3
Trench 4
Trench 5
Trench 6
Trench 7
Trench 8
Survey STPs
Cultural Material
STP with Historic Material
STP with Prehistoric Material
0
140
280
N

APPENDIX I: BIBLIOGRAPHY

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APPENDIX II: SOIL NOTES AND CATALOGS

APPENDIX 2.1 Soil Notes

PA=PALE LT=LIGHT MD=MEDIUM DK=DARK
BR=BROWN GR=GRAY YL=YELLOW OL=OLIVE TN=TAN RD=RED BK=BLACK WH=WHITE
SI=SILT SA=SAND CL=CLAY LO=LOAM GVL=GRAVEL
P=PREHISTORIC H=HISTORIC N=NO CULTURAL MATERIAL

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
A1	1	0-12	MOTTLED BR/YL BR SI LO W/ROCK	N	AB/ML	11/2/2012
A1	2	12-30	DK GR BR SI	N	AB/ML	11/2/2012
A1	3	30-55	DK YL BR COMPACT SI	N	AB/ML	11/2/2012
A1	4	55-80	DK YL BR COMPACT SI	N	AB/ML	11/2/2012
A1	5	80-83	DK YL BR COMPACT SI; STOPPED BY ROCK	N	AB/ML	11/2/2012
A2	1	0-25	DK BR SI LO	N	AB/ML	11/2/2012
A2	2	25-27	DK BR SI LO	N	AB/ML	11/2/2012
A2	3	27-50	YL BR SI W/DENSE ROCKS & GVL	N	AB/ML	11/2/2012
A2	4	50-60	YL BR MOTTLED W/DK BR SI W/ROCKS	N	AB/ML	11/2/2012
A3	1	0-22	BR SI LO W/GVL	N	AB/ML	11/2/2012
A3	2	22-48	DK GR BR SI LO	N	AB/ML	11/2/2012
A3	3	48-73	DK YL BR COMPACT SI	N	AB/ML	11/2/2012
A3	4	73-92	DK YL BR COMPACT SI	N	AB/ML	11/2/2012
A3	5	92-100	YL BR COMPACT SI	N	AB/ML	11/2/2012
A4	1	0-15	DK BR SI LO	N	TB/EA	11/2/2012
A4	2	15-25	DK BR SI LO MIXED W/YL BR SI	N	TB/EA	11/2/2012
A4	3	25-90	VERY DK GR BR COMPACT SI	N	TB/EA	11/2/2012
A4	4	90-100	DK YL BR SI	N	TB/EA	11/2/2012
A5	1	0-25	DK BR SI LO W/SOME ROCK	N	AB/ML	11/2/2012
A5	2	25-31	DK BR SI LO W/SOME ROCK	N	AB/ML	11/2/2012
A5	3	31-44	DK BR SI LO W/YL BR SI	N	AB/ML	11/2/2012
A5	4	44-57	YL BR COMPACT SI	N	AB/ML	11/2/2012
A5	5	57-77	STRONG BR/RD YL BR COMPACT SI	N	AB/ML	11/2/2012
A5	6	77-100	DK YL BR SA CL	N	AB/ML	11/2/2012
A5	7	100-105	YL BR COMPACT SI W/ROCKS & GVL	N	AB/ML	11/2/2012
A6	1	0-33	LT BR SI LO	N	TK/DP	11/2/2012
A6	2	33-66	MD BR SI LO	N	TK/DP	11/2/2012
A6	3	66-93	LT BR SI LO	N	TK/DP	11/2/2012
A6	4	93-103	DK BR SI LO (BURIED A)	N	TK/DP	11/2/2012
A6	5	103-120	DK BR SI LO (AB; AUGER PROBE)	N	TK/DP	11/2/2012
A6	6	120-140	YL BR SI LO (BW1; AUGER PROBE)	N	TK/DP	11/2/2012
A6	7	140-192	LT YL BR MOTTLED W/YL RD COMPACT CL SI (BW2; AUGER PROBE)	N	TK/DP	11/2/2012
B2	1	0-30	BR SI LO	N	GD/JF	11/2/2012
B2	2	30-90	DK BR SI LO	N	GD/JF	11/2/2012
B2	3	90-107	YL BR SI LO	N	GD/JF	11/2/2012
B3	1	0-13	BR SI LO	H	GD/JF	11/2/2012
B3	2	13-16	BR SI LO W/GVL LENS	N	GD/JF	11/2/2012
B3	3	16-41	DK BR SI LO	N	GD/JF	11/2/2012
B3	4	41-83	STRONG YL BR SI LO; STOPPED BY ROCKS	N	GD/JF	11/2/2012
B4	1	0-30	BR SI LO	N	GD/JF	11/2/2012
B4	2	30-54	DK BR SI LO	N	GD/JF	11/2/2012
B4	3	54-69	YL BR SI LO	N	GD/JF	11/2/2012
B4	4	69-85	DK BR SI LO	N	GD/JF	11/2/2012
B4	5	85-100	YL BR SI LO	N	GD/JF	11/2/2012
B5	1	0-25	BR SI LO	N	TB/EA	11/2/2012
B5	2	25-35	BR SI LO	N	TB/EA	11/2/2012
B5	3	35-60	VERY DK BR SI LO	N	TB/EA	11/2/2012
B5	4	60-85	YL BR SI W/FINE SA	N	TB/EA	11/2/2012
B5	5	85-105	YL BR SI W/FINE SA	N	TB/EA	11/2/2012
B5	6	105-140	YL BR SI W/FINE SA; GVL AT BOTTOM; DUG W/AN AUGER	N	TB/EA	11/2/2012
B6	1	0-60	BR SI LO	N	GD/JF	11/2/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
B6	2	60-100	STRONG YL BR SI LO	N	GD/JF	11/2/2012
B7	1	0-30	MD BR MOTTLED W/YL BR SI LO; FILL; GLASS - DISC.	N	TK/DP	11/2/2012
B7	2	30-42	DK BR SI LO (PLOW ZONE)	N	TK/DP	11/2/2012
B7	3	42-57	MD BR SI (BW)	N	TK/DP	11/2/2012
B7	4	57-77	DK BR SI (A)	N	TK/DP	11/2/2012
B7	5	77-102	YL BR SI (BW)	N	TK/DP	11/2/2012
B8	1	0-25	DK BR SI LO	N	PB/LP	11/2/2012
B8	2	25-35	DK BR SI LO	N	PB/LP	11/2/2012
B8	3	35-60	YL BR SI	N	PB/LP	11/2/2012
B8	4	60-68	YL BR SI	N	PB/LP	11/2/2012
B8	5	68-85	DK YL BR SA SI	N	PB/LP	11/2/2012
B11	1	0-33	BR SI LO W/GVL	N	JF/DP	12/4/2012
B11	2	33-79	YL BR SI LO	N	JF/DP	12/4/2012
B11	3	79-103	BR SA SI	N	JF/DP	12/4/2012
C4	1	0-24	DK BR SI LO W/GVL; PLASTIC & CHARCOAL - DISC.	H	TB/EA	11/2/2012
C4	2	24-40	YL BR SI	N	TB/EA	11/2/2012
C4	3	40-60	LT YL BR SA SI LO W/COBBLES/GVL	N	TB/EA	11/2/2012
C5	1	0-23	DK BR SI LO	N	TB/EA	11/2/2012
C5	2	23-70	VERY DK GR BR COMPACT SI	N	TB/EA	11/2/2012
C5	3	70-100	YL BR COMPACT SI	N	TB/EA	11/2/2012
C5	4	100-160	LT YL BR SA SI; GVL BELOW 160cm	N	TB/EA	11/2/2012
C6	1	0-25	BR SI LO W/GVL; PLASTIC - DISC.	N	AB/ML	11/2/2012
C6	2	25-44	BR SI LO W/GVL	N	AB/ML	11/2/2012
C6	3	44-69	YL BR SI	N	AB/ML	11/2/2012
C6	4	69-94	YL BR SI	N	AB/ML	11/2/2012
C6	5	94-100	YL BR SI W/GVL AT VERY BOTTOM	N	AB/ML	11/2/2012
C7	1	0-23	BR SI LO	N	GD/JF	11/2/2012
C7	2	23-45	YL BR SA SI W/PEA GVL	N	GD/JF	11/2/2012
C7	3	45-80	STRONG BR SA SI W/GVL; STOPPED BY ROCK	N	GD/JF	11/2/2012
C8	1	0-20	BR SI LO	N	AB/ML	11/2/2012
C8	2	20-40	DK BR/OL BR SI LO	N	AB/ML	11/2/2012
C8	3	40-65	YL BR SI LO	N	AB/ML	11/2/2012
C8	4	65-83	YL BR SI LO	N	AB/ML	11/2/2012
C9	1	0-38	BR SI LO	N	TK/DP	11/2/2012
C9	2	38-60	YL BR SI LO	N	TK/DP	11/2/2012
C10	1	0-25	BR SI LO MOTTLED W/YL BR SI W/GVL	H	AB/ML	11/2/2012
C10	2	25-40	BR SI LO MOTTLED W/YL BR SI W/GVL	N	AB/ML	11/2/2012
C10	3	40-60	YL BR SI	N	AB/ML	11/2/2012
C10	4	60-85	YL BR SA SI W/GVL & LG.COBBLES	N	AB/ML	11/2/2012
C10	5	85-90	YL BR SA SI W/GVL & LG.COBBLES	N	AB/ML	11/2/2012
C11	1	0-15	BR SI LO; FILL	N	AB/ML	11/2/2012
C11	2	15-29	BR/YL BR SI LO; PLOW ZONE	N	AB/ML	11/2/2012
C11	3	29-54	YL BR SI W/GVL	N	AB/ML	11/2/2012
C11	4	54-65	YL BR SI W/GVL	N	AB/ML	11/2/2012
C11	5	65-80	DK YL BR SA W/HEAVY GVL	N	AB/ML	11/2/2012
C12	1	0-38	BR SI LO W/ROCK	N	JF/DP	12/4/2012
C12	2	38-57	YL BR SI LO	N	JF/DP	12/4/2012
C12	3	57-72	DK YL BR SI LO W/ROCKS	N	JF/DP	12/4/2012
C13	1	0-22	BR SI LO W/ROCK	N	JF/DP	12/4/2012
C13	2	22-44	YL BR SI LO	N	JF/DP	12/4/2012
C13	3	44-60	DK YL BR SI LO W/ROCK	N	JF/DP	12/4/2012
C14	1	0-40	BR SI LO W/ROCKS; FILL	N	JF/DP	12/4/2012
C14	2	40-68	DK YL BR SI	N	JF/DP	12/4/2012
C14	3	68-81	YL BR SI	N	JF/DP	12/4/2012
C14	4	81-96	YL BR SA SI W/COBBLES	N	JF/DP	12/4/2012
C15	1	0-27	BR SA LO	N	AB/GD	12/4/2012
C15	2	27-49	DK YL BR SA W/PEA GVL	N	AB/GD	12/4/2012
C16	1	0-36	BR SI LO	N	AB/GD	12/4/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
C16	2	36-56	STRONG BR SA SI	N	AB/GD	12/4/2012
C16	3	56-73	DK BR SA W/GVL	N	AB/GD	12/4/2012
C17	1	0-27	DK BR SI LO	N	AB/GD	12/4/2012
C17	2	27-53	VERY DK GR BR SA SI W/GVL	N	AB/GD	12/4/2012
C17	3	53-83	STRONG BR SA	N	AB/GD	12/4/2012
C17	4	83-100	DK BR SA SI W/GVL	N	AB/GD	12/4/2012
D6	1	0-25	DK BR SI LO	N	TB/EA	11/1/2012
D6	2	25-50	DK BR SI LO	N	TB/EA	11/1/2012
D6	3	50-75	YL BR SI LO	N	TB/EA	11/1/2012
D6	4	75-85	YL BR SI LO	N	TB/EA	11/1/2012
D6	5	85-100	LT YL BR COMPACT SA SI LO W/GVL & ROCKS	N	TB/EA	11/1/2012
D6	6	100-108	LT YL BR COMPACT SA SI LO W/GVL & ROCKS	N	TB/EA	11/1/2012
D7	1	0-35	BR SI LO	N	GD/JF	11/2/2012
D7	2	35-75	YL BR SI LO W/GVL FROM 70-75cm; STOPPED BY ROCKS & GVL	N	GD/JF	11/2/2012
D8	1	0-25	BR SI LO	N	PB/LP	11/2/2012
D8	2	25-38	BR SI LO	P	PB/LP	11/2/2012
D8	3	38-50	YL BR SI LO	N	PB/LP	11/2/2012
D8	4	50-70	YL BR SA SI W/GVL & ROCKS	N	PB/LP	11/2/2012
D8/1mE	1	0-36	BR SI LO W/SOME ROCKS	H	JF/DP	12/4/2012
D8/1mE	2	36-51	YL BR SI LO	N	JF/DP	12/4/2012
D8/1mE	3	51-56	YL BR SI LO W/ROCKS	N	JF/DP	12/4/2012
D8/1mN	1	0-30	BR SI LO	N	JF/DP	12/4/2012
D8/1mN	2	30-45	YL BR SI LO	N	JF/DP	12/4/2012
D8/1mS	1	0-15	MD BR SI LO W/MINOR GVL (FILL)	N	TK	12/4/2012
D8/1mS	2	15-37	DK BR SI LO (AP)	P	TK	12/4/2012
D8/1mS	3	37-57	YL BR SI LO (B)	N	TK	12/4/2012
D8/1mW	1	0-27	BR SI LO W/GVL	P/H	JF/DP	12/4/2012
D8/1mW	2	27-44	YL BR SI LO	N	JF/DP	12/4/2012
D8/1mW	3	44-60	DK YL BR SA LO W/GVL	N	JF/DP	12/4/2012
D8/3mS	1	0-25	BR SI LO	N	AB/GD	12/4/2012
D8/3mS	2	25-33	BR SI LO	N	AB/GD	12/4/2012
D8/3mS	3	33-48	YL BR SI LO W/GVL	N	AB/GD	12/4/2012
D8/3mW	1	0-26	BR SI LO W/GVL	N	JF/DP	12/4/2012
D8/3mW	2	26-41	DK YL BR SI LO	N	JF/DP	12/4/2012
D9	1	0-25	BR SI LO	H	LP/DP	11/5/2012
D9	2	25-33	BR SI LO	N	LP/DP	11/5/2012
D9	3	33-48	YL BR/BR SI LO	N	LP/DP	11/5/2012
D9	4	48-67	YL BR SI LO	N	LP/DP	11/5/2012
D9	5	67-80	GR BR LO W/GVL & ROCK; STOPPED BY ROCK	N	LP/DP	11/5/2012
D10	1	0-40	BR SI LO	P/H	LP/DP	11/5/2012
D10	2	40-68	BR SI LO	N	LP/DP	11/5/2012
D10	3	68-95	YL BR SI LO	N	LP/DP	11/5/2012
D10	1	0-30	DK BR MOTTLED W/YL BR GVL SI LO (FILL)	N	TK	12/4/2012
D10	2	30-55	DK BR SI LO (AP)	N	TK	12/4/2012
D10	3	55-78	YL BR SI LO (B)	N	TK	12/4/2012
D10	1	0-14	DK BR SI LO (FILL)	N	TK	12/4/2012
D10	2	14-37	DK BR MOTTLED W/YL BR GVL SI LO (FILL)	N	TK	12/4/2012
D10	3	37-57	DK BR SI LO (AP)	N	TK	12/4/2012
D10	4	57-77	YL BR SI LO (B)	N	TK	12/4/2012
D10	1	0-25	DK BR SI LO; POSS.FILL; COAL & BRICK - DISC.	N	AB/BV	11/8/2012
D10	2	25-50	DK BR SI LO; POSS.FILL; COAL & BRICK - DISC.	N	AB/BV	11/8/2012
D10	3	50-58	DK BR SI LO; POSS.FILL	N	AB/BV	11/8/2012
D10	4	58-70	DK BR SI LO MOTTLED W/YL BR SI LO	N	AB/BV	11/8/2012
D10	5	70-90	DK BR SI LO MOTTLED W/YL BR SI LO	N	AB/BV	11/8/2012
D10	6	90-100	DK BR SI LO MOTTLED W/YL BR SI LO	N	AB/BV	11/8/2012
D10	1	0-12	DK BR SI LO (FILL 1)	N	TK	12/4/2012
D10	2	12-35	DK BR MOTTLED W/YL BR GVL SI LO (FILL 2)	N	TK	12/4/2012
D10	3	35-57	DK BR SI LO (AP)	N	TK	12/4/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
D10	4	57-73	YL BR SI LO (B)	N	TK	12/4/2012
D11	1	0-37	BR SI LO	N	TK/DP	11/2/2012
D11	2	37-100	BR SI LO MOTTLED W/YL BR SI LO W/ROCKS	P	TK/DP	11/2/2012
D11	3	100-110	YL BR COMPACT SI LO; STOPPED BY ROCK	N	TK/DP	11/2/2012
D12	1	0-27	DK BR SI LO W/ROCK	N	LP/DP	11/5/2012
D12	2	27-55	DK BR SI LO	N	LP/DP	11/5/2012
D12	3	55-95	YL BR SI LO	N	LP/DP	11/5/2012
D13	1	0-25	BR SI LO W/ROCK	N	LP/DP	11/5/2012
D13	2	25-30	BR SI LO W/ROCK	N	LP/DP	11/5/2012
D13	3	30-50	DK GR BR SI LO	N	LP/DP	11/5/2012
D13	4	50-75	YL BR COMPACT SI	N	LP/DP	11/5/2012
D13	5	75-100	YL BR COMPACT SI	N	LP/DP	11/5/2012
D14	1	0-18	BR SI LO W/ROCK	N	JF/DP	12/4/2012
D14	2	18-50	BR SI LO MIXED W/YL BR SI LO W/ROCK; STOPPED BY ROCK (DRAINAGE BASIN TO WEST)	N	JF/DP	12/4/2012
D15	1	0-26	BR SI LO; FILL; CANDY WRAPPER, PLASTIC - DISC.	N	JF/DP	12/4/2012
D15	2	26-50	BR SI LO W/GVL; FILL	N	JF/DP	12/4/2012
D15	3	50-70	YL BR SI	N	JF/DP	12/4/2012
D15	4	70-85	YL BR SA SI W/COBBLES (C HORIZON)	N	JF/DP	12/4/2012
D16	1	0-25	BR SA LO W/GVL; FILL	N	AB/GD	12/4/2012
D16	2	25-30	BR SA LO W/GVL; FILL	N	AB/GD	12/4/2012
D16	3	30-55	DK OL BR SA SI W/GVL	N	AB/GD	12/4/2012
D16	4	55-65	DK OL BR SA SI W/GVL	N	AB/GD	12/4/2012
D16	5	65-83	DK YL BR SI SA W/HEAVY GVL & ROCK	N	AB/GD	12/4/2012
D17	1	0-25	DK BR SI LO	N	AB/GD	12/4/2012
D17	2	25-30	DK BR SI LO	N	AB/GD	12/4/2012
D17	3	30-55	DK BR SA SI W/GVL	N	AB/GD	12/4/2012
D17	4	55-60	DK BR SA SI W/GVL	N	AB/GD	12/4/2012
D17	5	60-83	YL BR SA SI	N	AB/GD	12/4/2012
D17	6	83-100	DK YL BR SA W/GVL	N	AB/GD	12/4/2012
E8	1	0-32	DK BR SI LO W/GVL (FILL)	N	KS/VL	11/4/2012
E8	2	32-70	DK YL BR SI LO; STOPPED BY ROCK	N	KS/VL	11/4/2012
E9	1	0-25	DK BR SI LO W/GVL (FILL); COAL & BRICK - DISC.	H	TK/EA	11/5/2012
E9	2	25-46	MD BR MOTTLED W/YL BR SI LO (AP)	N	TK/EA	11/5/2012
E9	3	46-75	YL BR SI (BW)	N	TK/EA	11/5/2012
E9	4	75-80	YL BR SA W/GVL (C); STOPPED BY ROCK	N	TK/EA	11/5/2012
E10	1	0-25	DK BR SI LO W/GVL	N	KS/VL	11/4/2012
E10	2	25-45	DK BR SI LO W/GVL	N	KS/VL	11/4/2012
E10	3	45-70	YL BR SI LO	N	KS/VL	11/4/2012
E10	4	70-82	YL BR SI LO W/ROCKS AT BOTTOM	N	KS/VL	11/4/2012
E11	1	0-30	DK BR SI LO W/GVL	N	KS/VL	11/4/2012
E11	2	30-60	VERY DK GR BR SI LO	N	KS/VL	11/4/2012
E11	3	60-101	YL BR SI LO	N	KS/VL	11/4/2012
E12	1	0-25	DK BR SI LO W/GVL	N	KS/VL	11/4/2012
E12	2	25-35	DK BR SI LO W/GVL	N	KS/VL	11/4/2012
E12	3	35-60	YL BR SI LO	N	KS/VL	11/4/2012
E12	4	60-78	YL BR SI LO W/ROCKS AT BOTTOM	N	KS/VL	11/4/2012
E13	1	0-25	DK GR BR SI LO W/GVL; MODERN BOTTLE GLASS - DISC.	N	KS/VL	11/4/2012
E13	2	25-46	YL BR SI LO W/GVL; STOPPED BY COMPACT COBBLES	N	KS/VL	11/4/2012
E14	1	0-25	GR BR SI LO W/GVL	N	KS/VL	11/4/2012
E14	2	25-40	GR BR SI LO W/GVL	N	KS/VL	11/4/2012
E14	3	40-65	YL BR SI LO	N	KS/VL	11/4/2012
E14	4	65-78	YL BR SI LO W/ROCKS AT BOTTOM	N	KS/VL	11/4/2012
E15	1	0-25	DK GR BR SI LO W/ROCKS & GVL	N	KS/VL	11/4/2012
E15	2	25-50	DK GR BR SI LO W/ROCKS & GVL	N	KS/VL	11/4/2012
E15	3	50-72	DK GR BR SI LO W/ROCKS & GVL	N	KS/VL	11/4/2012
E15	4	72-95	DK GR BR SI LO MOTTLED W/OL YL BR SI LO; STOPPED BY ROCKS	N	KS/VL	11/4/2012
E16	1	0-40	GR BR SA SI LO	N	AB/GD	12/4/2012
E16	2	40-67	DK BR SA SI W/GVL	N	AB/GD	12/4/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
E16	3	67-82	LT BR SA SI W/GVL	N	AB/GD	12/4/2012
E17	1	0-27	DK GR BR SI LO	N	AB/GD	12/4/2012
E17	2	27-57	STRONG BR SA SI	N	AB/GD	12/4/2012
E17	3	57-87	VERY DK BR SA SI W/GVL	N	AB/GD	12/4/2012
F10	1	0-30	DK BR SI LO W/LOW DENSITY COAL	N	TK/EA	11/5/2012
F10	2	30-60	YL BR SI	N	TK/EA	11/5/2012
F10	3	60-75	YL BR SI	N	TK/EA	11/5/2012
F10	4	75-100	BR SA	N	TK/EA	11/5/2012
F11	1	0-15	DK BR SI LO W/GVL (FILL)	N	TK/EA	11/5/2012
F11	2	15-28	MD BR MOTTLED W/YL BR SI LO W/GVL (AP?)	N	TK/EA	11/5/2012
F11	3	28-35	YL BR SI LO (BW)	N	TK/EA	11/5/2012
F11	4	35-43	DK BR SI LO (A)	N	TK/EA	11/5/2012
F11	5	43-94	YL BR SI (BW)	N	TK/EA	11/5/2012
F11	6	94-104	DK YL BR SA SI (BW)	N	TK/EA	11/5/2012
F12	1	0-24	DK BR SI LO; FILL; COAL - DISC.	H	TK/EA	11/5/2012
F12	2	24-35	DK BR SA LO W/GVL/COBBLES; FILL	N	TK/EA	11/5/2012
F12	3	35-48	YL BR SI	N	TK/EA	11/5/2012
F12	4	48-57	BR SA SI W/GVL/ROCKS	N	TK/EA	11/5/2012
F13	1	0-20	DK BR SI LO W/GVL; FILL	N	VL/EA	11/5/2012
F13	2	20-45	YL BR SI	N	VL/EA	11/5/2012
F13	3	45-60	BR SA SI LO W/GVL/ROCKS	N	VL/EA	11/5/2012
F14	1	0-25	DK BR SI LO	N	KS/VL	11/4/2012
F14	2	25-50	DK BR SI LO	N	KS/VL	11/4/2012
F14	3	50-60	DK BR SI LO	N	KS/VL	11/4/2012
F14	4	60-100	YL BR SI LO	N	KS/VL	11/4/2012
F15	1	0-25	BR SI LO	N	LP/DP	11/5/2012
F15	2	25-29	BR SI LO	N	LP/DP	11/5/2012
F15	3	29-49	YL BR/BR SI LO	N	LP/DP	11/5/2012
F15	4	49-74	YL BR SI	N	LP/DP	11/5/2012
F15	5	74-100	YL BR SI	N	LP/DP	11/5/2012
F16	1	0-25	DK BR SI LO	N	KS	11/4/2012
F16	2	25-45	DK BR SI LO	N	KS	11/4/2012
F16	3	45-80	DK BR SI LO W/COBBLES; STOPPED BY ROCKS	N	KS	11/4/2012
F17	1	0-30	DK BR SI LO W/ROCK	N	LP/DP	11/5/2012
F17	2	30-70	BR SI LO	N	LP/DP	11/5/2012
F17	3	70-100	YL BR SI LO	N	LP/DP	11/5/2012
G12	1	0-25	ROCKS W/MOTTLED DK BR/YL BR SI LO; FILL	N	VL/EA	11/5/2012
G12	2	25-40	ROCKS W/MOTTLED DK BR/YL BR SI LO; FILL; STOPPED BY ROCKS	N	VL/EA	11/5/2012
G13	1	0-25	DK BR SI LO W/ROCKS; FILL	N	VL/EA	11/5/2012
G13	2	25-45	DK BR SI LO W/ROCKS; FILL	N	VL/EA	11/5/2012
G13	3	45-70	MOTTLED DK BR/YL BR SI LO W/ROCKS; FILL	N	VL/EA	11/5/2012
G14	1	0-30	DK BR SI LO W/GVL (FILL)	N	VL/EA	11/5/2012
G14	2	30-60	YL BR SI	N	VL/EA	11/5/2012
G14	3	60-85	BR SA SI W/GVL	N	VL/EA	11/5/2012
G15	1	0-15	DK BR SI LO	N	KS	11/4/2012
G15	2	15-31	YL BR SI LO	N	KS	11/4/2012
G15	3	31-34	YL BR SI LO W/DENSE COBBLES; STOPPED BY ROCKS	N	KS	11/4/2012
G16	1	0-25	DK BR SI LO W/GVL	P	KS	11/4/2012
G16	2	25-50	YL BR SI LO	N	KS	11/4/2012
G16	3	50-69	BR COARSE SA	N	KS	11/4/2012
G16	4	69-101	OL YL BR SA SI	N	KS	11/4/2012
G17	1	0-9	DK BR SI LO	N	LP/DP	11/5/2012
G17	2	9-57	DK BR SI LO W/GVL & ROCKS; STOPPED BY ROCKS	N	LP/DP	11/5/2012
G18	1	0-30	BR SA LO W/ROCKS	N	MK/VL	11/29/2012
G18	2	30-50	GR BR SA SI W/ROCKS	N	MK/VL	11/29/2012
G18	3	50-65	YL BR SI LO W/ROCKS	N	MK/VL	11/29/2012
H13	1	0-18	DK BR SI LO	N	VL/EA	11/5/2012
H13	2	18-35	DK BR SA SI LO W/GVL/ROCKS	N	VL/EA	11/5/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
H13	3	35-60	YL BR SI	N	VL/EA	11/5/2012
H13	4	60-95	YL BR SI	N	VL/EA	11/5/2012
H13	5	95-100	LT YL BR SA SI W/GVL	N	VL/EA	11/5/2012
H14	1	0-19	DK BR SI LO W/GVL	N	KS	11/4/2012
H14	2	19-52	YL BR SI LO; STOPPED BY ROCKS	N	KS	11/4/2012
H15	1	0-25	DK BR SI LO	N	KS	11/4/2012
H15	2	25-37	DK BR SI LO	N	KS	11/4/2012
H15	3	37-61	YL BR SI LO; STOPPED BY COBBLES	N	KS	11/4/2012
H16	1	0-9	BR SI LO	N	DP/LK	11/5/2012
H16	2	9-32	BR SI LO W/GVL & ROCK	N	DP/LK	11/5/2012
H16	3	32-52	DK GR BR SI LO	N	DP/LK	11/5/2012
H16	4	52-100	YL BR SI	N	DP/LK	11/5/2012
H17	1	0-60	BR SI LO W/ROCK (FILL)	N	DP/LK	11/5/2012
H17	2	60-80	BR SI LO	N	DP/LK	11/5/2012
H17	3	80-100	YL BR SI LO	N	DP/LK	11/5/2012
H18	1	0-33	MD BR SA LO W/GVL	N	MK/VL	11/29/2012
H18	2	33-60	GR BR SI LO	N	MK/VL	11/29/2012
H18	3	60-71	DK YL BR SI LO W/GVL	N	MK/VL	11/29/2012
I12	1	0-15	DK BR SI LO	N	JF/DP	12/4/2012
I12	2	15-35	DK BR VERY COMPACT SI LO W/ROCKS	N	JF/DP	12/4/2012
I12	3	35-50	DK BR VERY COMPACT SI LO	N	JF/DP	12/4/2012
I12	4	50-65	YL BR VERY COMPACT SI LO	N	JF/DP	12/4/2012
I12	5	65-70	YL BR VERY COMPACT SI LO W/COBBLES	N	JF/DP	12/4/2012
I13	1	0-25	DK BR SI LO W/ROCKS; FILL	N	VL/EA	11/5/2012
I13	2	25-35	DK BR SI LO W/ROCKS; FILL	N	VL/EA	11/5/2012
I13	3	35-55	MOTTLED YL BR/DK BR SI LO W/ROCKS; FILL; STOPPED BY ROCKS	N	VL/EA	11/5/2012
I14	1	0-25	BR SI LO W/GVL	N	VL/EA	11/5/2012
I14	2	25-55	DK GR BR SI LO	N	VL/EA	11/5/2012
I14	3	55-85	YL BR SI	N	VL/EA	11/5/2012
I14	4	85-100	LT YL BR SA SI	N	VL/EA	11/5/2012
I15	1	0-25	DK BR SI LO W/GVL	N	KS	11/4/2012
I15	2	25-50	DK BR SI LO W/GVL	N	KS	11/4/2012
I15	3	50-86	YL BR SA SI; STOPPED BY COBBLES	N	KS	11/4/2012
I16	1	0-45	BR SI LO W/ROCK (FILL)	N	DP/LK	11/5/2012
I16	2	45-72	DK BR SI LO	N	DP/LK	11/5/2012
I16	3	72-95	YL BR SI LO	N	DP/LK	11/5/2012
I17	1	0-10	BR SI LO (FILL)	N	DP/TK	11/29/2012
I17	2	10-35	BR SA LO MOTTLED W/YL BR GVL SA LO (FILL)	N	DP/TK	11/29/2012
I17	3	35-55	DK BR COBBLES/ROCK W/SA (C HORIZON)	N	DP/TK	11/29/2012
I18	1	0-12	BR SI LO	H	DP/TK	11/29/2012
I18	2	12-40	BR SA LO MOTTLED W/YL BR SA LO W/ROCK	N	DP/TK	11/29/2012
I18	3	40-65	DK BR SA W/ROCK (C HORIZON)	N	DP/TK	11/29/2012
J12	1	0-23	MD GR BR SI LO	N	GD/AB	12/4/2012
J12	2	23-53	STRONG BR SA SI W/GVL	N	GD/AB	12/4/2012
J12	3	53-60	DK BR SA SI W/GVL; STOPPED BY GVL	N	GD/AB	12/4/2012
J13	1	0-24	BR SI LO	N	TK/DP	11/2/2012
J13	2	24-44	BR SI LO W/ROCK; MODERN GLASS - DISC.	N	TK/DP	11/2/2012
J13	3	44-59	LT BR SI LO W/ROCK	N	TK/DP	11/2/2012
J14	1	0-25	BR SI LO W/ROCKS	N	VL/EA	11/5/2012
J14	2	25-50	BR SI LO W/ROCKS	N	VL/EA	11/5/2012
J14	3	50-72	DK GR BR SI LO W/ROCKS	N	VL/EA	11/5/2012
J14	4	72-100	YL BR SI LO W/ROCKS	N	VL/EA	11/5/2012
J15	1	0-65	DK BR SI LO	N	TB/EA	11/2/2012
J15	2	65-85	YL BR SI	N	TB/EA	11/2/2012
J15	3	85-135	VERY DK BR SI (BURIED A)	N	TB/EA	11/2/2012
J15	4	135-145	YL BR SI W/ROCKS; FINAL 60cm WERE DUG W/AN AUGER	N	TB/EA	11/2/2012
J16	1	0-25	BR SI LO W/GVL	N	AB/ML	11/2/2012
J16	2	25-42	YL BR SI LO W/ROCKS & GVL; STOPPED BY ROCK	N	AB/ML	11/2/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
J17	1	0-25	MD BR SA LO W/GVL	N	MK/VL	11/29/2012
J17	2	25-50	YL BR SI LO W/ROCKS & GVL	N	MK/VL	11/29/2012
J18	1	0-26	MD BR SA LO W/GVL	N	MK/VL	11/29/2012
J18	2	26-56	YL BR SI LO	N	MK/VL	11/29/2012
J18	3	56-73	PALE YL BR SI LO; STOPPED BY LG.ROCK	N	MK/VL	11/29/2012
J21	1	0-25	GR BR SI LO W/COBBLES	N	MK/VL	11/29/2012
J21	2	25-45	GR BR SI LO W/COBBLES	N	MK/VL	11/29/2012
J21	3	45-70	DK BR SI LO W/COBBLES	N	MK/VL	11/29/2012
J21	4	70-95	YL BR SI LO	N	MK/VL	11/29/2012
J22	1	0-34	MD BR SA LO W/GVL	N	MK/VL	11/29/2012
J22	2	34-68	GR BR SI LO	N	MK/VL	11/29/2012
J22	3	68-100	YL BR SI LO	N	MK/VL	11/29/2012
J23	1	0-30	BR SI LO	N	DP/TK	11/29/2012
J23	2	30-40	BR SI LO MOTTLED W/YL BR SI LO	N	DP/TK	11/29/2012
J23	3	40-90	GR BR SI LO	N	DP/TK	11/29/2012
J23	4	90-100	GR BR SI LO MOTTLED W/YL BR SI LO	N	DP/TK	11/29/2012
J24	1	0-12	BR SI LO (FILL 1)	N	DP/TK	11/29/2012
J24	2	12-41	DK BR GVL SI (FILL 2); 1 WIRE - DISC.	N	DP/TK	11/29/2012
J24	3	41-60	DK BR SI LO (AP)	N	DP/TK	11/29/2012
J24	4	60-125	YL BR SI (B)	N	DP/TK	11/29/2012
J25	1	0-17	BR SI LO	N	DP/TK	11/29/2012
J25	2	17-34	BR COMPACT SA SI W/GVL	N	DP/TK	11/29/2012
J25	3	34-77	GR BR COMPACT SA SI W/GVL	N	DP/TK	11/29/2012
J25	4	77-98	YL BR SI LO	N	DP/TK	11/29/2012
J25	5	98-104	DK BR SA LO W/GVL	N	DP/TK	11/29/2012
K11	1	0-28	DK BR SI LO W/GVL	N	JF/DP	12/4/2012
K11	2	28-47	DK YL BR SA LO W/COBBLES	N	JF/DP	12/4/2012
K12	1	0-25	DK BR SI LO W/GVL & ROCK	N	GD/AB	12/4/2012
K12	2	25-53	DK BR SI LO W/GVL & ROCK; STOPPED BY ROCK	N	GD/AB	12/4/2012
K13	1	0-22	MD BR SI LO; COAL - DISC.	N	TK/DP	11/2/2012
K13	2	22-40	MD BR SI W/GVL	N	TK/DP	11/2/2012
K13	3	40-48	YL BR SA SI W/GVL	N	TK/DP	11/2/2012
K14	1	0-14	BR SI LO W/GVL	N	AB/ML	11/2/2012
K14	2	14-48	BR SI LO	N	AB/ML	11/2/2012
K14	3	48-63	YL BR/BR SI LO	N	AB/ML	11/2/2012
K14	4	63-100	DK GR BR SI	N	AB/ML	11/2/2012
K15	1	0-45	BR SI LO	N	GD/JF	11/2/2012
K15	2	45-65	DK BR SI LO	N	GD/JF	11/2/2012
K15	3	65-80	YL BR SI LO W/ROCKS & GVL	N	GD/JF	11/2/2012
K16	1	0-20	BR SI LO W/GVL	N	AB/ML	11/2/2012
K16	2	20-37	YL BR SI LO W/GVL; STOPPED BY ROCK	N	AB/ML	11/2/2012
K17	1	0-13	BR SI LO W/GVL & ROCK	N	DP/LK	11/5/2012
K17	2	13-50	YL BR SI LO	N	DP/LK	11/5/2012
K17	3	50-80	YL BR SA SI W/ROCK AT BOTTOM; STOPPED BY ROCK	N	DP/LK	11/5/2012
K21	1	0-14	BR SI LO	N	DP/TK	11/29/2012
K21	2	14-31	BR SA LO W/GVL	N	DP/TK	11/29/2012
K21	3	31-50	YL BR SI LO	N	DP/TK	11/29/2012
K21	4	50-64	BR SA LO	N	DP/TK	11/29/2012
K21	5	64-81	LT YL BR COMPACT SA LO	N	DP/TK	11/29/2012
K22	1	0-10	BR SI LO (FILL 1)	N	DP/TK	11/29/2012
K22	2	10-52	DK BR GVL SI (FILL 2)	N	DP/TK	11/29/2012
K22	3	52-70	DK BR SI LO (AP)	N	DP/TK	11/29/2012
K22	4	70-101	YL BR SI (B)	N	DP/TK	11/29/2012
K23	1	0-25	GR BR SI LO W/LG.COBBLES	N	MK/VL	11/29/2012
K23	2	25-50	GR BR SI LO W/LG.COBBLES	N	MK/VL	11/29/2012
K23	3	50-70	YL BR SI LO W/LG.COBBLES; STOPPED BY ROCKS	N	MK/VL	11/29/2012
K24	1	0-40	MD BR SA LO W/GVL	N	MK/VL	11/29/2012
K24	2	40-60	DK BR SI LO	N	MK/VL	11/29/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
K24	3	60-82	YL BR SI LO; STOPPED BY LG.COBBLE	N	MK/VL	11/29/2012
K25	1	0-30	BR SA LO	N	MK/VL	11/29/2012
K25	2	30-55	YL BR SI SA W/COBBLES	N	MK/VL	11/29/2012
K25	3	55-80	DK BR SI LO W/COBBLES	N	MK/VL	11/29/2012
K25	4	80-95	YL BR SI LO	N	MK/VL	11/29/2012
L11	1	0-25	BR SI LO	N	GP/MK	11/1/2012
L11	2	25-37	BR SA LO W/ROCK; WINDOW GLASS - DISC.	N	GP/MK	11/1/2012
L11	3	37-42	YL BR SA LO W/ROCK; STOPPED BY ROCK	N	GP/MK	11/1/2012
L12	1	0-15	BR SI LO	N	GP/MK	11/1/2012
L12	2	15-34	BR SA LO W/GVL	N	GP/MK	11/1/2012
L12	3	34-45	YL BR SA LO W/GVL	N	GP/MK	11/1/2012
L13	1	0-25	GR BR SI LO W/GVL	N	AB/ML	11/2/2012
L13	2	25-27	GR BR SI LO W/GVL	N	AB/ML	11/2/2012
L13	3	27-45	YL BR SA SI W/GVL & ROCKS	N	AB/ML	11/2/2012
L13	4	45-55	DK GR COMPACT SI	N	AB/ML	11/2/2012
L14	1	0-25	BR SI LO	N	GD/JF	11/2/2012
L14	2	25-70	MD YL BR SI LO	N	GD/JF	11/2/2012
L14	3	70-100	DK YL BR SI LO	N	GD/JF	11/2/2012
L15	1	0-25	DK BR SI LO	N	TB/EA	11/2/2012
L15	2	25-40	DK BR SI LO	N	TB/EA	11/2/2012
L15	3	40-60	DK YL BR SI LO	N	TB/EA	11/2/2012
L15	4	60-85	LT YL BR COMPACT SI W/GVL	N	TB/EA	11/2/2012
L16	1	0-18	BR SI LO W/GVL	N	AB/ML	11/2/2012
L16	2	18-36	YL BR SI LO W/HEAVY GVL & ROCK; STOPPED BY ROCK	N	AB/ML	11/2/2012
M11	1	0-15	BR SI LO	N	GP/MK	11/1/2012
M11	2	15-39	YL BR SA LO W/GVL	N	GP/MK	11/1/2012
M11	3	39-45	RD BR SA LO W/GVL	N	GP/MK	11/1/2012
M12	1	0-26	BR SI LO	N	GP/MK	11/1/2012
M12	2	26-38	BR SA LO W/GVL	N	GP/MK	11/1/2012
M12	3	38-52	YL BR SA LO W/GVL	N	GP/MK	11/1/2012
M13	1	0-15	BR SI LO; SLAG & BRICK - DISC.	N	GP/MK	11/1/2012
M13	2	15-35	BR SA LO W/GVL	H	GP/MK	11/1/2012
M14	1	0-10	BR SI LO; ASPHALT - DISC.	N	GP/MK	11/1/2012
M14	2	10-30	BR SA LO W/GVL	N	GP/MK	11/1/2012
M14	3	30-46	YL BR SI	N	GP/MK	11/1/2012
M15	1	0-15	BR SI LO	N	GP/MK	11/1/2012
M15	2	15-36	BR SA LO W/GVL	N	GP/MK	11/1/2012
M16	1	0-15	BR SI LO; WINDOW GLASS - DISC.	H	GP/MK	11/1/2012
M16	2	15-30	BR SA LO W/GVL	N	GP/MK	11/1/2012
M21	1	0-30	BR SI LO W/GVL & ROCK; STOPPED BY SOLID CONCRETE	N	GD/AB	12/4/2012
M27	1	0-20	DK BR SI LO; FILL; ALUM.FOIL, MODERN NAIL, CONCRETE - DISC.	N	JF/TB	11/12/2012
M27	2	20-37	YL BR SI SA W/GVL	N	JF/TB	11/12/2012
M28	1	0-20	BR SI LO W/PEA GVL	N	AB/MK	11/9/2012
M28	2	20-33	YL BR CL LO	N	AB/MK	11/9/2012
M28	3	33-40	DK BR SI LO	N	AB/MK	11/9/2012
N11	1	0-25	BR SI LO	N	PB/LP	11/1/2012
N11	2	25-29	BR SI LO	N	PB/LP	11/1/2012
N11	3	29-50	BR LOOSE SI LO W/ROCK & GVL	N	PB/LP	11/1/2012
N12	1	0-23	BR SI LO	N	PB/LP	11/1/2012
N12	2	23-41	YL BR SA SI W/GVL & ROCK	N	PB/LP	11/1/2012
N13	1	0-24	GR BR SI LO W/ROCK & GVL	N	PB/LP	11/1/2012
N13	2	24-42	YL BR SA SI W/ROCK & GVL	N	PB/LP	11/1/2012
N14	1	0-25	GR BR SI LO	N	PB/LP	11/1/2012
N14	2	25-31	GR BR SI LO	N	PB/LP	11/1/2012
N14	3	31-47	YL BR SA SI W/ROCKS & GVL	N	PB/LP	11/1/2012
N15	1	0-20	BR SI LO W/ROCKS & GVL	N	PB/LP	11/1/2012
N15	2	20-35	YL BR SA SI W/ROCKS & GVL	N	PB/LP	11/1/2012
N16	1	0-16	BR SI LO	N	PB/LP	11/1/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
N16	2	16-32	YL BR SA SI W/ROCKS & GVL	N	PB/LP	11/1/2012
N19	1	0-20	DK BR SI LO W/MANY ROOTS	N	JF/DP	12/4/2012
N19	2	20-30	DK BR SI LO W/ROOTS & ROCKS; STOPPED BY ROOTS & ROCKS	N	JF/DP	12/4/2012
N20	1	0-12	BR SI LO	N	JF/DP	12/4/2012
N20	2	12-47	BR SA LO W/DENSE GVL; STOPPED BY ROCK	N	JF/DP	12/4/2012
N26	1	0-37	BR SA LO W/ROCK; MODERN GLASS & UNID.METAL - DISC.; STOPPED BY ROCK	N	DP/LM	11/12/2012
O11	1	0-23	BR SI LO	N	PB/LP	11/1/2012
O11	2	23-30	YL BR SI LO	N	PB/LP	11/1/2012
O11	3	30-50	BR LOOSE SI LO W/DENSE ROCK & GVL	N	PB/LP	11/1/2012
O12	1	0-25	BR SI LO	N	PB/LP	11/1/2012
O12	2	25-30	BR SI LO	N	PB/LP	11/1/2012
O12	3	30-45	YL BR/GR BR SI LO W/GVL & ROCK	N	PB/LP	11/1/2012
O13	1	0-25	BR SI LO	N	PB/LP	11/1/2012
O13	2	25-42	YL BR SA SI W/ROCKS & GVL	N	PB/LP	11/1/2012
O17	1	0-25	DK BR SI LO	N	AB/BV	11/8/2012
O17	2	25-50	BR SI SA W/HEAVY GVL & ROCK; FILL	N	AB/BV	11/8/2012
O17	3	50-67	BR SI SA W/HEAVY GVL & ROCK; FILL; STOPPED BY ROCK	N	AB/BV	11/8/2012
O20	1	0-15	BR SI LO	N	GD/AB	12/4/2012
O20	2	15-35	STRONG GR BR SA SI W/GVL; STOPPED BY ROCKS	N	GD/AB	12/4/2012
O26	1	0-38	BR SA LO W/ROCK; MODERN GLASS & TIN FOIL - DISC.; STOPPED BY ROCK	N	DP/LM	11/12/2012
O29	1	0-14	BR SI LO W/ROCK	N	DP/GP	11/9/2012
O29	2	14-28	BR SA LO W/ROCK	N	DP/GP	11/9/2012
O29	3	28-40	YL BR SI LO W/ROCK; STOPPED BY ROCK	N	DP/GP	11/9/2012
O30	1	0-24	BR SI LO	N	DP/GP	11/9/2012
O30	2	24-38	YL BR MOTTLED W/BR SI LO W/ROCK	N	DP/GP	11/9/2012
P27	1	0-25	BR SI LO W/ROCKS & ROOTS	N	LP/AN	11/12/2012
P27	2	25-50	BR SI LO W/ROCKS & ROOTS	N	LP/AN	11/12/2012
P27	3	50-52	BR SI LO W/ROCKS & ROOTS; STOPPED BY CONCRETE	N	LP/AN	11/12/2012
P28	1	0-35	BR SI LO	N	DP/LM	11/12/2012
P28	2	35-45	YL BR SI LO	N	DP/LM	11/12/2012
P29	1	0-22	DK BR SI LO; BRICK, WIRE NAIL - DISC.	N	JF/TB	11/12/2012
P29	2	22-33	DK BR SI W/GVL; BRICK, WIRE NAIL - DISC.	N	JF/TB	11/12/2012
P29	3	33-49	VERY DK BR SI	N	JF/TB	11/12/2012
P29	4	49-51	YL BR SI W/ROCKS; STOPPED BY ROCK	N	JF/TB	11/12/2012
P30	1	0-25	BR SI LO	N	LP/AN	11/12/2012
P30	2	25-35	YL BR SI LO W/GVL & ROCKS	N	LP/AN	11/12/2012
P31	1	0-28	DK YL BR SI W/GVL	N	LM/DP	11/12/2012
P31	2	28-42	YL BR SI W/GVL	N	LM/DP	11/12/2012
P31	3	42-53	DK YL BR SI	N	LM/DP	11/12/2012
P31	4	53-72	YL BR SI	N	LM/DP	11/12/2012
P32	1	0-20	BR SI LO	N	GP/DP	11/9/2012
P32	2	20-36	YL BR MOTTLED W/BR SI LO W/ROCK	N	GP/DP	11/9/2012
P33	1	0-21	BR SA LO; BRICK - DISC.	N	GP/DP	11/9/2012
P33	2	21-44	BR SA W/DENSE GVL; STOPPED BY ROCK	N	GP/DP	11/9/2012
P34	1	0-25	BR SI LO	N	GP/DP	11/9/2012
P34	2	25-34	YL BR MOTTLED W/BR SI LO W/ROCK; STOPPED BY ROCK	N	GP/DP	11/9/2012
P35	1	0-20	DK BR SA LO W/GVL; COAL - DISC.	N	GP/DP	11/9/2012
P35	2	20-33	DK BR SA W/DENSE GVL; STOPPED BY ROCK	N	GP/DP	11/9/2012
Q32	1	0-20	BR SI LO	N	DP/GP	11/9/2012
Q32	2	20-40	BR SA LO W/GVL	N	DP/GP	11/9/2012
Q32	3	40-58	YL BR SI LO	N	DP/GP	11/9/2012
Q33	1	0-23	BR SI LO W/GVL	N	AB/MK	11/9/2012
Q33	2	23-39	YL BR SI LO W/GVL; STOPPED BY ROCK	N	AB/MK	11/9/2012
Q34	1	0-25	BR SI LO W/GVL	H	AB/MK	11/9/2012
Q34	2	25-30	BR SI LO W/GVL	N	AB/MK	11/9/2012
Q34	3	30-55	YL BR SI LO W/GVL	H	AB/MK	11/9/2012
Q34	4	55-80	DK BR SI LO W/GVL & ROCK	N	AB/MK	11/9/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
Q34	5	80-90	DK BR SI LO W/GVL & ROCK	N	AB/MK	11/9/2012
Q35	1	0-22	BR SI LO W/GVL	N	AB/MK	11/9/2012
Q35	2	22-37	YL BR SA LO W/GVL	N	AB/MK	11/9/2012
R30	1	0-20	BR SI LO W/GVL; FILL; ASPHALT & CONCRETE - DISC.	N	AN/LP	11/12/2012
R30	2	20-45	BR SI LO W/ROCK	N	AN/LP	11/12/2012
R30	3	45-68	YL BR SI LO W/GVL	N	AN/LP	11/12/2012
R30	4	68-75	DK YL BR SA SI W/PEA GVL	N	AN/LP	11/12/2012
R30	5	75-100	DK YL BR SA SI W/PEA GVL	N	AN/LP	11/12/2012
R31	1	0-19	DK BR SI LO W/ROCKS (FILL); BRICK & COAL - DISC.	N	JF/TB	11/12/2012
R31	2	19-45	DK BR SI LO	N	JF/TB	11/12/2012
R31	3	45-60	YL BR COMPACT SA SI W/GVL	N	JF/TB	11/12/2012
R34		-	NOT DUG - VERY CLOSE TO UTILITY		AB/MK	11/9/2012
R35	1	0-18	BR SI LO; STYROFOAM - DISC.	N	GP/DP	11/9/2012
R35	2	18-26	YL BR SI LO	N	GP/DP	11/9/2012
R35	3	26-45	GR BR SI LO	N	GP/DP	11/9/2012
R35	4	45-60	YL BR SI LO W/GVL	N	GP/DP	11/9/2012
S20	1	0-16	DK BR SI LO; CONCRETE - DISC.	N	JF/TB	11/12/2012
S20	2	16-31	DK BR SI W/ROCKS	N	JF/TB	11/12/2012
S20	3	31-51	DK YL BR SI W/COARSE SA & GVL	N	JF/TB	11/12/2012
S21	1	0-18	BR SI LO	N	LM/DP	11/12/2012
S21	2	18-40	BR SA LO W/ROCK; MORTAR & BRICK - DISC.; STOPPED BY ROCK	H	LM/DP	11/12/2012
S22	1	0-24	BR SI LO W/ROCKS	N	DP/LM	11/12/2012
S22	2	24-50	YL BR SI LO W/ROCKS; STOPPED BY ROCKS	N	DP/LM	11/12/2012
S23	1	0-16	BR SI LO	N	LP/AN	11/12/2012
S23	2	16-32	BR SI LO W/COBBLES & GVL	N	LP/AN	11/12/2012
S23	3	32-50	DK YL BR SA SI W/COBBLES & GVL	N	LP/AN	11/12/2012
S24	1	0-27	DK BR SI LO; COAL, COAL ASH, BRICK, PLASTIC - DISC.	N	JF/TB	11/12/2012
S24	2	27-50	YL BR SI SA W/GVL	N	JF/TB	11/12/2012
S25	1	0-28	DK BR SI LO	N	DP/LM	11/12/2012
S25	2	28-45	BR SA LO W/ROCK	N	DP/LM	11/12/2012
S25	3	45-61	YL BR SA LO	N	DP/LM	11/12/2012
S28	1	0-37	BR SA LO W/ROCK	N	LM/DP	11/12/2012
S28	2	37-50	BR SI LO	N	LM/DP	11/12/2012
S28	3	50-67	YL BR SI LO	N	LM/DP	11/12/2012
S29	1	0-14	BR SI LO	N	AN/LP	11/12/2012
S29	2	14-30	BR SI LO W/GVL	N	AN/LP	11/12/2012
S29	3	30-35	ASPHALT; STOPPED BY ASPHALT	N	AN/LP	11/12/2012
S30	1	0-13	DK BR SI LO; BRICK & COAL - DISC.	N	JF/TB	11/12/2012
S30	2	13-53	DK BR SI W/ROCKS	N	JF/TB	11/12/2012
S30	3	53-68	YL BR SI W/GVL	N	JF/TB	11/12/2012
S34	1	0-25	BR SI LO	N	GP/DP	11/9/2012
S34	2	25-45	BR/YL BR MOTTLED SI LO W/GVL	N	GP/DP	11/9/2012
S35	1	0-25	DK BR SI LO W/GVL	N	AB/MK	11/9/2012
S35	2	25-35	DK BR SI LO W/GVL	H	AB/MK	11/9/2012
S35	3	35-42	YL BR SI CL	N	AB/MK	11/9/2012
S35	4	42-65	DK GR BR CL LO	H	AB/MK	11/9/2012
S35	5	65-80	YL BR SI LO W/GVL	N	AB/MK	11/9/2012
T21	1	0-14	BR SI LO	N	LP/AN	11/12/2012
T21	2	14-40	YL BR/BR SI LO W/GVL & ROCK	N	LP/AN	11/12/2012
T22	1	0-20	DK BR SI LO; FILL; MODERN GLASS - DISC.	N	JF/TB	11/12/2012
T22	2	20-40	YL BR SA W/GVL	N	JF/TB	11/12/2012
T23	1	0-14	DK BR SI LO; AMORPHOUS IRON - DISC.	N	JF/TB	11/12/2012
T23	2	14-27	DK BR SI W/ROCKS	N	JF/TB	11/12/2012
T23	3	27-43	DK YL BR SI & COARSE SA W/GVL	N	JF/TB	11/12/2012
T24	1	0-23	DK BR SI LO; FILL; BRICK, COAL, AMORPHOUS METAL - DISC.	N	JF/TB	11/12/2012
T24	2	23-54	DK YL BR SA W/GVL; STOPPED BY ROCK	N	JF/TB	11/12/2012
T25	1	0-13	DK BR SI LO	N	JF/TB	11/12/2012
T25	2	13-23	DK BR SI W/ROCKS	N	JF/TB	11/12/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
T25	3	23-52	YL BR SI W/GRIT & GVL	N	JF/TB	11/12/2012
T26	1	0-15	BR SI LO; PLASTIC - DISC.	N	LM/DP	11/12/2012
T26	2	15-31	BR SA LO W/ROCK; PLASTIC - DISC.	N	LM/DP	11/12/2012
T26	3	31-50	DK BR SI LO	N	LM/DP	11/12/2012
T26	4	50-70	YL BR SI LO	N	LM/DP	11/12/2012
T27	1	0-25	DK BR SI LO; FILL; BRICK, COAL, PLASTIC, AMORPHOUS IRON - DISC.	N	JF/TB	11/12/2012
T27	2	25-40	DK BR SI LO W/COBBLES; FILL; BRICK, COAL, PLASTIC, AMORPHOUS IRON - DISC.	N	JF/TB	11/12/2012
T27	3	40-57	YL BR SI	N	JF/TB	11/12/2012
T28	1	0-24	BR SI LO W/ROCK & GVL	N	LM/DP	11/12/2012
T28	2	24-45	YL BR SI LO	N	LM/DP	11/12/2012
T29	1	0-21	BR SI LO W/ROCK; PLASTIC - DISC.	N	AN/LP	11/12/2012
T29	2	21-52	DK YL BR COMPACT SA SI W/GVL & COBBLES	N	AN/LP	11/12/2012
T30	1	0-8	BR SI LO	N	AN/LP	11/12/2012
T30	2	8-22	BR SI LO W/GVL & ROCK	N	AN/LP	11/12/2012
T30	3	22-30	YL BR SI LO W/GVL & ROCK	N	AN/LP	11/12/2012
T31	1	0-18	BR SI LO W/ROCK	N	AN/LP	11/12/2012
T31	2	18-42	YL BR SI LO W/ROCK	N	AN/LP	11/12/2012
T31	3	42-65	DK YL BR SA SI W/GVL	N	AN/LP	11/12/2012
U21	1	0-14	BR SI LO W/ROCK	N	AN/LP	11/12/2012
U21	2	14-24	BR SI LO W/ROCK & ASPHALT; ASPHALT - DISC.	N	AN/LP	11/12/2012
U21	3	24-42	DK YL BR SA SI W/COBBLES & GVL	N	AN/LP	11/12/2012
U22	1	0-16	BR SI LO W/ROCKS	N	LM/DP	11/12/2012
U22	2	16-24	YL BR SI LO W/ROCKS	N	LM/DP	11/12/2012
U22	3	24-30	DK BR SI LO W/ROCKS	N	LM/DP	11/12/2012
U22	4	30-45	YL BR SI LO W/ROCKS; STOPPED BY ROCK	N	LM/DP	11/12/2012
U23	1	0-7	BR SI LO	N	AN/LP	11/12/2012
U23	2	7-39	BR/YL BR SI LO W/GVL & ROCK; STOPPED BY ROCK	N	AN/LP	11/12/2012
U24	1	0-18	BR SI LO	N	LM/DP	11/12/2012
U24	2	18-40	BR SA LO W/ROCK; STOPPED BY ROCK	N	LM/DP	11/12/2012
U25	1	0-20	BR SA LO	N	LM/DP	11/12/2012
U25	2	20-30	YL BR SI LO	N	LM/DP	11/12/2012
U25	3	30-45	DK YL BR SA LO W/GVL	N	LM/DP	11/12/2012
U26	1	0-54	BR SI LO W/ROCKS	N	LM/DP	11/12/2012
V28	1	0-3	BR SA LO W/GVL	N	GP/DP	11/9/2012
V28	2	3-20	YL BR SI LO W/GVL	N	GP/DP	11/9/2012
V28	3	20-29	DK YL BR SA W/GVL; STOPPED BY ROCK	N	GP/DP	11/9/2012
V29	1	0-25	BR SI SA W/HEAVY GVL & ROCK; STOPPED BY ROCK - POSS.C HORIZON	N	AB/MK	11/9/2012
V30	1	0-25	BR SI LO W/ROCK; 1 PC.WINDOW GLASS - DISC.	N	GP/DP	11/9/2012
V30	2	25-40	YL BR SI W/ROCK	N	GP/DP	11/9/2012
W23	1	0-25	DK BR SI SA W/HEAVY GVL & ROCK	N	AB/BV	11/8/2012
W23	2	25-40	DK BR SI SA W/HEAVY GVL & ROCK; POSS.FILL OR C HORIZON (TOPSOIL POSS.SCOOPED AWAY); STOPPED BY ROCK	N	AB/BV	11/8/2012
W24	1	0-25	BR SI SA W/HEAVY GVL & ROCK	H	AB/MK	11/9/2012
W24	2	25-48	BR SI SA W/HEAVY GVL & ROCK; PROBABLY C HORIZON (SURF.SCOOPED AWAY); STOPPED BY ROCK	N	AB/MK	11/9/2012
W25	1	0-13	BR SI LO W/GVL	N	GP/DP	11/9/2012
W25	2	13-33	YL BR SI LO W/GVL	H	GP/DP	11/9/2012
W25	3	33-49	BR SA W/GVL	N	GP/DP	11/9/2012
W26	1	0-15	BR SI LO W/GVL	N	AB/MK	11/9/2012
W26	2	15-35	BR SI LO MOTTLED W/YL BR SI LO W/GVL	N	AB/MK	11/9/2012
W26	3	35-53	YL BR SI LO	N	AB/MK	11/9/2012
W27	1	0-25	BR SI LO	N	GP/DP	11/9/2012
W27	2	25-35	BR SI LO	N	GP/DP	11/9/2012
W27	3	35-50	YL BR SI LO	N	GP/DP	11/9/2012
W27	4	50-60	YL BR SI LO	N	GP/DP	11/9/2012
W28	1	0-25	BR SI LO W/GVL; COAL - DISC.	H	AB/MK	11/9/2012
W28	2	25-53	BR SI LO W/GVL	N	AB/MK	11/9/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
W28	3	53-69	YL BR SI LO W/GVL	N	AB/MK	11/9/2012
W29	1	0-33	BR SI LO	N	GP/DP	11/9/2012
W29	2	33-55	YL BR SI LO	N	GP/DP	11/9/2012
W30	1	0-30	BR SI LO	N	GP/DP	11/9/2012
W30	2	30-32	YL BR SI LO	N	GP/DP	11/9/2012
W31	1	0-36	BR SI LO W/GVL	N	GP/DP	11/9/2012
W31	2	36-53	YL BR SA LO W/GVL	N	GP/DP	11/9/2012
W32	1	0-25	BR SI LO W/GVL	N	AB/MK	11/9/2012
W32	2	25-45	BR SI LO W/GVL	H	AB/MK	11/9/2012
W32	3	45-60	YL BR SI LO W/GVL	N	AB/MK	11/9/2012
X17	1	0-5	BR SI LO; STOPPED BY ASPHALT	N	AB/BV	11/8/2012
X18	1	0-25	DK BR SI LO	N	AB/BV	11/8/2012
X18	2	25-50	BR SI SA W/GVL & ROCK; FILL	N	AB/BV	11/8/2012
X18	3	50-53	BR SI SA W/GVL & ROCK; FILL; STOPPED BY ROCK	N	AB/BV	11/8/2012
X19	1	0-20	BR SI LO	N	AB/BV	11/8/2012
X19	2	20-45	DK BR SI SA MOTTLED W/YL BR SI SA W/HEAVY GVL, ROCK & COBBLES	H	AB/BV	11/8/2012
X19	3	45-70	DK BR SI SA MOTTLED W/YL BR SI SA W/HEAVY GVL, ROCK & COBBLES	N	AB/BV	11/8/2012
X19	4	70-80	DK BR SI SA MOTTLED W/YL BR SI SA W/HEAVY GVL, ROCK & COBBLES; FILL; STOPPED BY ROCK	N	AB/BV	11/8/2012
X20	1	0-20	BR SA LO W/ROCK	N	GP/DP	11/9/2012
X20	2	20-45	YL BR MOTTLED W/BR SA LO W/ROCK; MODERN GLASS - DISC.	N	GP/DP	11/9/2012
X21	1	0-40	BR SA LO W/GVL	N	GP/DP	11/9/2012
X21	2	40-60	DK YL BR COMPACT SA LO W/GVL	N	GP/DP	11/9/2012
X22	1	0-25	BR COMPACT SA LO W/LG.GVL	N	AB/MK	11/9/2012
X22	2	25-37	BR COMPACT SA LO W/LG.GVL	N	AB/MK	11/9/2012
X22	3	37-54	YL BR SA LO W/GVL & ROCK	N	AB/MK	11/9/2012
X23	1	0-20	BR SA LO W/ROCK; STOPPED BY ROCK	N	GP/DP	11/9/2012
X24	1	0-35	BR SA LO W/GVL	N	GP/DP	11/9/2012
X24	2	35-56	DK YL BR COMPACT SA LO W/GVL	N	GP/DP	11/9/2012
X25	1	0-25	BR SA LO W/GVL	H	AB/MK	11/9/2012
X25	2	25-33	BR SA LO W/GVL	N	AB/MK	11/9/2012
X25	3	33-54	YL BR SA LO W/DENSE GVL & ROCK	N	AB/MK	11/9/2012
X26	1	0-25	BR SA SI LO	N	GP/DP	11/9/2012
X26	2	25-41	YL BR SA SI LO	N	GP/DP	11/9/2012
X27	1	0-25	BR SI LO	N	AB/BV	11/8/2012
X27	2	25-28	BR SI LO	N	AB/BV	11/8/2012
X27	3	28-45	YL BR SI LO W/GVL	N	AB/BV	11/8/2012
X28	1	0-25	BR SI LO	N	AB/BV	11/8/2012
X28	2	25-30	BR SI LO	N	AB/BV	11/8/2012
X28	3	30-45	YL BR SI LO W/GVL & ROCK	N	AB/BV	11/8/2012
X29	1	0-25	BR SI LO	N	AB/BV	11/8/2012
X29	2	25-30	BR SI LO	N	AB/BV	11/8/2012
X29	3	30-47	YL BR SI LO W/DENSE GVL & ROCK	N	AB/BV	11/8/2012
X30	1	0-25	BR SI LO	H	AB/BV	11/8/2012
X30	2	25-40	YL BR SI LO W/GVL & ROCK	N	AB/BV	11/8/2012
X31	1	0-23	BR SI LO W/GVL	N	AB/BV	11/8/2012
X31	2	23-40	YL BR SI LO W/HEAVY GVL & ROCK	N	AB/BV	11/8/2012
Trench 1	1	0-25	BR SI LO (FILL)	N	TK/DP	11/8/2012
Trench 1	2	25-70	BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 1	3	70-110	GR BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 2	1	0-28	BR SI LO (FILL)	N	TK/DP	11/8/2012
Trench 2	2	28-80	BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 2	3	80-110	GR BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 3	1	0-30	BR SI LO	N	TK/DP	11/8/2012
Trench 3	2	30-80	YL BR SI	N	TK/DP	11/8/2012
Trench 3	3	80-110	GR BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 4	1	0-20	BR SI LO (FILL)	N	TK/DP	11/8/2012
Trench 4	2	20-80	BR GVL SA LO (FILL)	N	TK/DP	11/8/2012

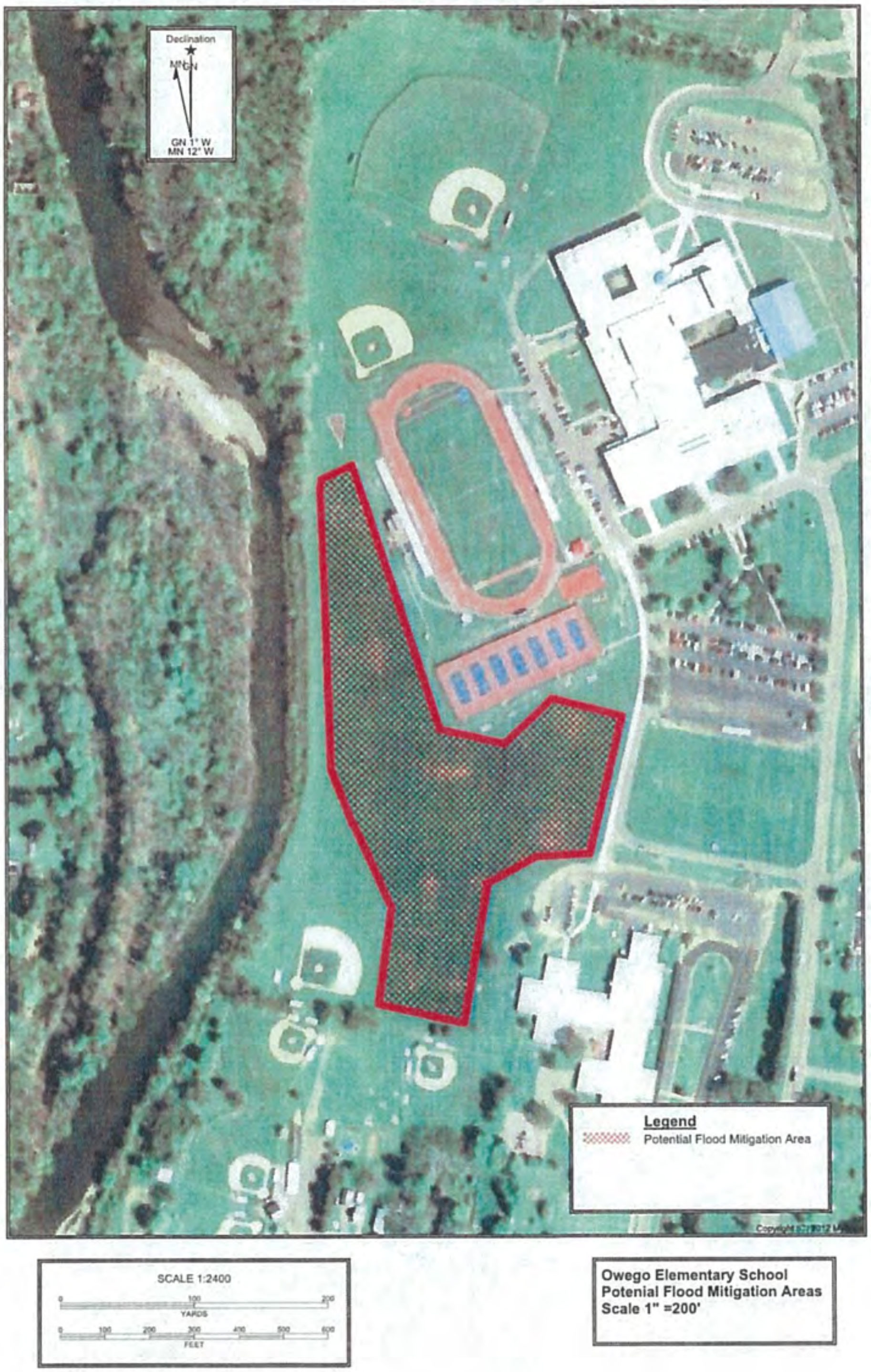
STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
Trench 4	3	80-90	DK YL BR SI LO (Ap?)	N	TK/DP	11/8/2012
Trench 4	4	90-120	YL BR SI (Bw?)	N	TK/DP	11/8/2012
Trench 5	1	0-20	DK BR GVL SA LO (FILL)	N	TK/DP	11/8/2012
Trench 5	2	20-90	BR GVL SA LO (FILL)	N	TK/DP	11/8/2012
Trench 5	3	90-120	YL BR SI LO W/ LT GVL (Bw?)	N	TK/DP	11/8/2012
Trench 5	4	120-145	GR BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 6	1	0-20	DK BR GVL SI (FILL)	N	TK/DP	11/8/2012
Trench 6	2	20-110	YL BR MOTTLED W/ MD BR GVL SA (FILL)	N	TK/DP	11/8/2012
Trench 6	3	110-130	DK BR SI LO (Ap HORIZON)	N	TK/DP	11/8/2012
Trench 6	4	130-140	YL BR SI (Bw HORIZON)	N	TK/DP	11/8/2012
Trench 7	1	0-20	DK BR GVL SI (FILL)	N	TK/DP	11/8/2012
Trench 7	2	20-60	MD BR GVL SI (FILL)	N	TK/DP	11/8/2012
Trench 7	3	60-80	BR SI LO (Ap HORIZON)	N	TK/DP	11/8/2012
Trench 7	4	80-100	YL BR SI LO (Bw HORIZON)	N	TK/DP	11/8/2012
Trench 7	5	100-125	GR BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 8	1	0-20	DK BR GVL SI (FILL)	N	TK/DP	11/8/2012
Trench 8	2	20-40	MD BR GVL SI (FILL)	N	TK/DP	11/8/2012
Trench 8	3	40-140	VERY MIXED YL BR AND MD BR GVL SI (DISTURBANCE)	N	TK/DP	11/8/2012

APPENDIX 2.2 Artifact Catalog

STP	LEVEL	DEPTH (CM)	DESCRIPTION	COMMENTS	DATE	CT	WT (G)
B3	1	0-13	BONE MAMMAL	VERY WEATHERED		1	2.3
C4	1	0-24	IRONSTONE MOLDED TABLEWARE/TEAWARE		1850-2012	2	1.5
C4	1	0-24	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	0.2
C10	1	0-25	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	2.1
D8	2	25-38	ONONDAGA CHERT NON-CORTICAL FLAKE	WT.<0.1g		1	0.1
D8/1mE	1	0-36	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	2.5
D8/1mS	2	15-37	ONONDAGA CHERT NON-CORTICAL FLAKE			1	0.5
D8/1mS	2	15-37	ONONDAGA CHERT NON-CORTICAL FLAKE			1	0.1
D8/1mW	1	0-27	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	1.6
D8/1mW	1	0-27	ONONDAGA CHERT NON-CORTICAL FLAKE			1	0.2
D9	1	0-25	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	0.1
D10	1	0-40	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	0.3
D10	1	0-40	WHITEWARE TABLEWARE/TEAWARE		1830-2012	1	0.3
D10	1	0-40	PLASTIC SMOKY UNDIFF. GLASS			1	0.2
D10	1	0-40	ONONDAGA CHERT NON-CORTICAL FLAKE			1	0.6
D11	2	37-100	ONONDAGA CHERT NON-CORTICAL FLAKE			1	0.2
E9	1	0-25	IRONSTONE UNDIFF. CERAMIC		1850-2012	2	1.3
F12	1	0-24	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	0.2
G16	1	0-25	ONONDAGA CHERT NON-CORTICAL FLAKE			1	0.3
I18	1	0-12	IRONSTONE MOLDED TABLEWARE/TEAWARE		1850-2012	3	8.5
M13	2	15-35	PLATE GLASS			1	1.9
M16	1	0-15	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	0.5
Q34	1	0-25	YELLOWWARE GLAZED UNDIFF. CERAMIC		1830-1900	1	1.5
Q34	1	0-25	FERROUS METAL UNDIAG. NAIL FRAG.			1	1.6
Q34	3	30-55	CUPROUS METAL UNDIAG.	U-SHAPED PC.W/2 ATTACHED WIRES		1	23.5
S21	2	18-40	IRONSTONE UNDIFF. CERAMIC		1850-2012	3	2.7
S35	2	25-35	FERROUS METAL UNDIAG.			1	2.9
S35	2	25-35	WHITEWARE TABLEWARE/TEAWARE		1830-2012	1	0.5
S35	4	42-65	GLASS WINDOW			3	3.4
W24	1	0-25	GLASS CLEAR UNDIFF. GLASS			1	0.2
W25	2	13-33	PEARLWARE UNDIFF. CERAMIC		1780-1830	1	0.5
W28	1	0-25	BONE INDETERMINATE			3	0.7
W28	1	0-25	GLASS WINDOW			1	1
W28	1	0-25	GLASS CLEAR UNDIFF. GLASS			1	0.3
W32	2	25-45	GLASS WINDOW			3	1.3
W32	2	25-45	WHITEWARE UNDIFF. CERAMIC		1830-2012	1	0.3
X19	2	20-45	GLASS WINDOW			1	0.5
X25	1	0-25	GLASS CLEAR UNDIFF. GLASS			1	1.6
X30	1	0-25	GLASS SUN PURPLED BOTTLE-UNID.		1880-1918	1	1.8

APPENDIX III: CORRESPONDENCE


C-1
OWEGO APALACHIN CENTRAL SCHOOL DISTRICT
OWEGO ELEMENTARY SCHOOL
DRAFT
MITIGATION PLAN
FILL OPTION
GRIFFITHS ENGINEERING


Declination
MN GN
GN 1° W
MN 12° W
Legend
Potential Flood Mitigation Area
SCALE 1:2400
0
100
200
YARDS
0
100
200
300
400
500
600
FEET
Owego Elementary School
Potenial Flood Mitigation Areas
Scale 1" =200'


#1 FILL
#2 FILL / STILTS
NEW
Gidon Gulle Blvd
Brown Ln
9

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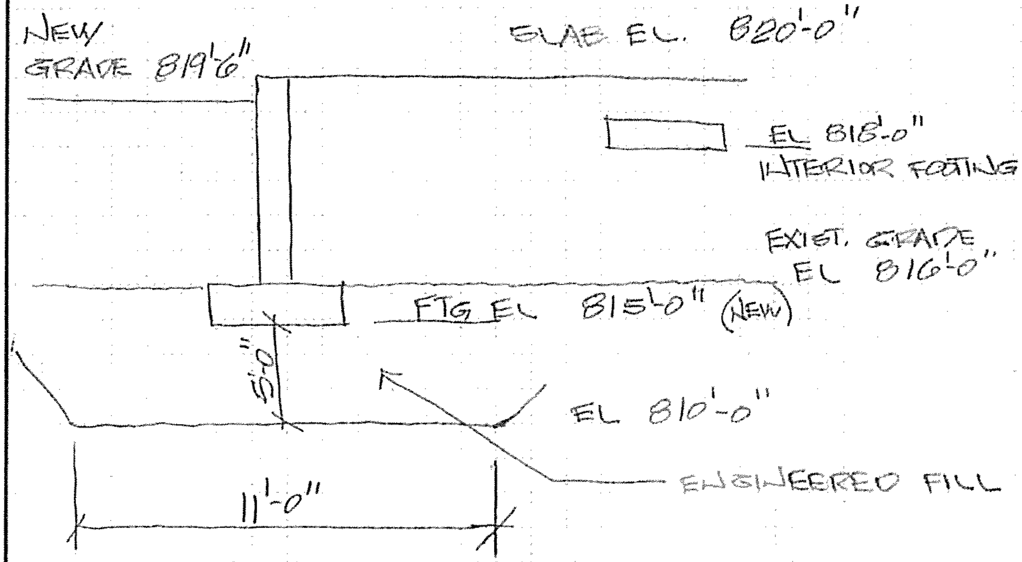
JOB OWEGO SCHOOL DISTRICT
OWEGO, NY
NEW ELEMENTARY SCHOOL
PROJECT NO: 2012-321.03P
SHEET NO. 1 OF
CALCULATED BY E.D.M. DATE
CHECKED BY DATE

FOUNDATION OPTION 1: ENTIRE BUILDING ON ENGINEERED FILL.



FILL SECTION

NOTES:

1. REMOVE 2' OF EXISTING TOP SOIL.
2. EXCAVATE ENTIRE PERIMETER OF NEW SCHOOL TO A DEPTH 6'-0" BELOW EXISTING GRADE. RESULTING TRENCH SHALL BE A MINIMUM OF 11'-0" WIDE
3. PROOF ROLL TRENCH BASE TO ACHIEVE A COMPACTION LEVEL OF 95% ASTM D1557.
4. PLACE ENGINEERED FILL IN 6" LIFTS AND COMPACT TO AT LEAST 95% OF THE MAXIMUM MODIFIED DENSITY OF ASTM D1557.
5. WHEN ENGINEERED FILL IN TRENCHES IS AT EL 814'-0", PROOF ROLL ENTIRE SITE AS NOTED IN # 3 ABOVE.

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OWEGO, NY
NEW ELEMENTARY SCHOOL
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CHECKED BY DATE

FOUNDATION OPTION 1: ENTIRE BUILDING ON ENGINEERED FILL (CONT'D)

NOTES:

6. PLACE ENGINEERED FILL FROM EL 814'-0" TO SUB-GRADE ELEVATION IN 6" LIFTS AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM MODIFIED DENSITY OF ASTM D 1557.
7. EXCAVATE FOR FOOTINGS AS REQUIRED.
8. THE MOISTURE CONTENT OF ALL LOAD BEARING/ENGINEERED FILL SHOULD BE MAINTAINED WITHIN ± 2% OF THE OPTIMUM VALUES AS DETERMINED IN ASTM D1557.

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OWEGO, NY
NEW ELEMENTARY SCHOOL

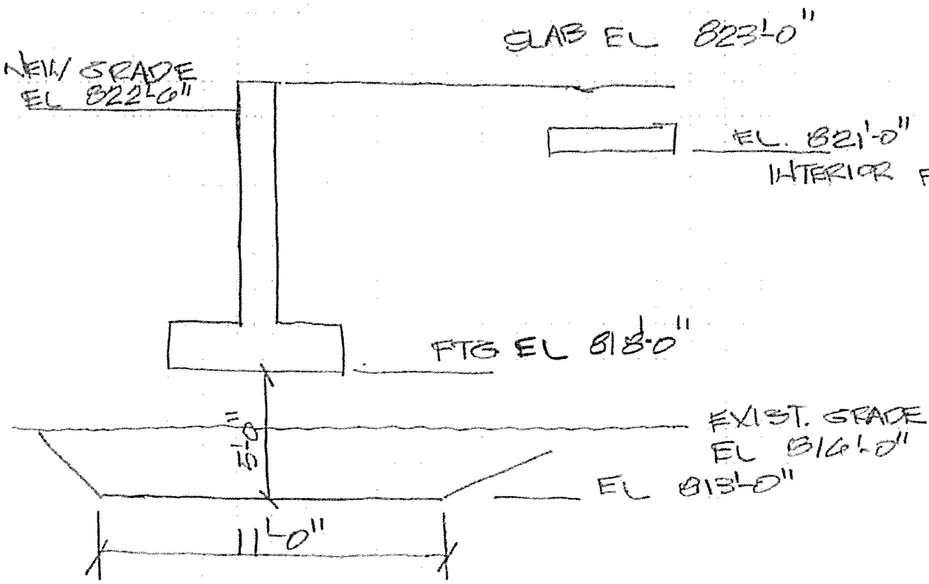
PROJECT NO: 2012-321.03P

SHEET NO. 3 OF

CALCULATED BY E.D.M. DATE

CHECKED BY DATE

FOUNDATION OPTION 2: APPROXIMATELY ONE HALF OF BUILDING ON ENGINEERED FILL AND REMAINING HALF ON "STILTS" SUPPORTED ON AGGREGATE PIERS, STONE COLUMNS



FILL SECTION

NOTES:

1. REMOVE 2' OF EXISTING TOP SOIL
2. EXCAVATE ENTIRE PERIMETER OF BUILDING TO A DEPTH 3'-0" BELOW EXISTING GRADE, RESULTING TRENCH SHALL BE A MINIMUM OF 11'-0" WIDE.
3. PROOF ROLL TRENCH BASE TO ACHIEVE A COMPACTION LEVEL OF 95% ASTM D1557.
4. PLACE ENGINEERED FILL IN 6" LIFTS AND COMPACT TO AT LEAST 95% OF THE MAXIMUM MODIFIED DENSITY OF ASTM D1557.

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NEW ELEMENTARY SCHOOL
PROJECT NO: 2012-321.03P
SHEET NO. 4 OF
CALCULATED BY E.D.M. DATE
CHECKED BY DATE

FOUNDATION OPTION 2: APPROXIMATELY ONE HALF OF BUILDING ON ENGINEERED FILL AND REMAINING HALF ON "STILTS" SUPPORTED ON AGGREGATE PIERS, STONE COLUMNS (CONT'D)

5. WHEN ENGINEERED FILL IN TRENCHES IS AT EL 814'-0", PROOF ROLL ENTIRE SITE AS NOTED IN #3 ABOVE.
6. PLACE ENGINEERED FILL FROM EL. 814'-0" TO SUBGRADE ELEVATION IN 6" LIFTS AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM MODIFIED DENSITY OF ASTM D1557.
7. EXCAVATE FOR FOOTINGS AS REQUIRED.
8. THE MOISTURE CONTENT OF ALL LOAD BEARING/ENGINEERED FILL SHOULD BE MAINTAINED WITHIN ± 2% OF THE OPTIMUM VALUES AS DETERMINED IN ASTM D 1557.

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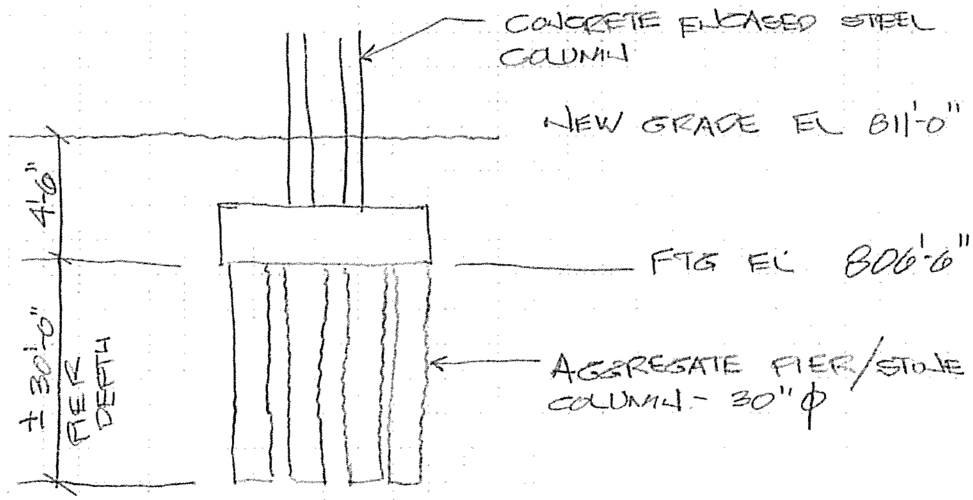
NEW ELEMENTARY SCHOOL
PROJECT NO: 2012-321.03P
SHEET NO. 5 OF
CALCULATED BY E.D.M. DATE
CHECKED BY DATE

FOUNDATION OPTION 2: APPROXIMATELY ONE HALF OF BUILDING ON ENGINEERED FILL AND REMAINING HALF ON "STILTS" SUPPORTED ON AGGREGATE PIERS, STONE COLUMNS



AGGREGATE PIER / STONE COLUMN

NOTES:

1. REPLACEMENT RATIO OF 0.35 HAS BEEN INITIALLY DETERMINED TO BE NECESSARY. THE NUMBER OF COLUMNS REQUIRED IS BASED UPON THE AREA OF FOOTING TIMES THE REPLACEMENT RATIO.
2.

Public Archaeology Facility Report

PHASE 2 SITE EXAMINATION
OWEGO ELEMENTARY SCHOOL PREHISTORIC SITE (SUBi-3024)
FLOOD MITIGATION AREA
OWEGO APALACHIN ELEMENTARY SCHOOL PROJECT
VILLAGE OF OWEGO (MCD 10740)
TIOGA COUNTY, NEW YORK
12PR05046

BY:
TIMOTHY D. KNAPP

SUBMITTED TO:
OWEGO APALACHIN CENTRAL SCHOOL DISTRICT
36 TALCOT STREET
OWEGO, NY 13827

JANUARY 17, 2013

Binghamton University, State University of New York
Binghamton, New York 13902-6000

MANAGEMENT SUMMARY

PROJECT NAME: Flood Mitigation Area and Owego Apalachin Elementary School Project

SHPO Project Review Number (if available): 12PR05046

Involved State and Federal Agencies: Federal Emergency Management Agency, New York State Department of Environmental Conservation, and New York State Education Department

Phase of Survey: Phase 2 Site Examination of the Owego Elementary School Prehistoric Site (SUBi-3024)

Location Information
Location: Village of Owego
Minor Civil Division: 10740
County: Tioga

USGS 7.5 Minute Quadrangle Map: 1969 *Owego, NY*

Results of Site Examination: Owego Elementary School Prehistoric Site (SUBi-3024)

SITE LIMITS: The site size measures 8 by 11 m (26 by 36 ft) with a total site area of 88 m^2 (947 ft^2).

CONTEXT: The Owego Elementary School Prehistoric site lies on the east bank of Owego Creek 2.3 km (1.4 mi) north of its confluence with the Susquehanna River. One broken diagnostic suggests the site dates to the Late Archaic period. The lower reaches of Owego Creek and the main trunk of the Susquehanna River have numerous prehistoric sites. These sites range from isolated finds to large village sites. For the Late Archaic, long-term residential base-camps tend to be near confluences, while single-task field camps, multiple-task field camps, and resource-processing locations are often dispersed within the Owego Creek Valley, its tributaries, and surrounding uplands.

SITE TESTING: Testing included three 1 x 1 m (3 x 3 ft) units clustered around the three positive reconnaissance STPs. To refine site boundaries, five supplemental STPs were excavated on a 5 m (16.4 ft) grid to the east and south of these units.

STRATIGRAPHY: The typical stratigraphic profile includes Fill, Ap, B1, and C horizons. The uppermost stratum is a Fill horizon that varies in thickness from 11 to 18 cm (4.3 to 7.1 in). This dark brown or very dark brown silt loam (10YR3/3 or 10YR3/2) was apparently deposited to level the athletic field. This fill caps a 10 to 17 cm (3.9 to 6.7 in) thick buried plow zone (Ap). The Ap horizon is primarily a dark brown (10YR3/3) silt loam, although there is some dark yellowish brown (10YR4/6) mottling representing churned up B1 horizon. The B1 horizon exhibits considerable thickness variation—it is completely absent in the northwestern corner of Unit 2 and reaches its maximum thickness of 38 cm (15.0 in) along the eastern wall of Unit 3. The B1 horizon is a yellowish brown (10YR5/4) to dark yellowish brown (10YR4/6) compact silt. Below the B1 horizon is the C Horizon, a yellowish brown to dark yellowish brown (10YR5/4 to 10YR4/6) gravelly sandy silt. The prehistoric artifacts are nearly exclusively (98%) associated with the B1 horizon, 41 to 71 cm (16 to 28 in) below the ground surface.

RESULTS: Archaeologists identified a total of 198 prehistoric artifacts and 7 historic artifacts within the site boundaries. Nearly all (191) of the prehistoric artifacts came from one unit. A single possible postmold was identified in this high density unit. One Brewerton-like projectile point was recovered (also from the same unit).

SITE AGE AND FUNCTION: Based on the recovery of a projectile point tentatively identified as Brewerton-like, the Owego Elementary School Prehistoric site has been assigned to the Late Archaic period (ca. 3000-2500 BC). The site is interpreted as a single-task field camp.

INTEGRITY: The Owego Elementary School Prehistoric site exhibits high integrity. Nearly all of the prehistoric material was recovered from B1 horizon deposits sealed below the Ap horizon. No evidence of natural or historic disturbances was apparent.

RESEARCH POTENTIAL: The site examination identified several categories of data that have high research potential. Research topics that can be addressed with these data include: chronology, subsistence, seasonality, site function, and lithic reduction technology. Together, these data sets address the development of riverine adaptations for poorly understood Brewerton sites within the Upper Susquehanna drainage. The location of the Owego Elementary School Prehistoric site on Owego Creek's floodplain, only 2.3 km (1.4 mi) above its confluence with the Susquehanna River provides an excellent opportunity to study the role of ancillary sites in the Late Archaic subsistence-settlement system.

POTENTIAL IMPACTS: The Owego Elementary School Prehistoric site is located within an area that will be impacted by the proposed floodplain mitigation drainage associated with the construction of a new Owego Elementary School structure. Potential vertical impacts will extend at least 60 cm (2 ft) below the surface, which intersects the prehistoric site.

RECOMMENDATIONS: The site examination indicates that this site has sufficient data potential to be eligible for the National Register of Historic Places. Impacts to the site cannot be avoided; we recommend that these impacts be mitigated through Phase 3 data recovery. The client has requested that a Data Recovery Plan be prepared for review.

Report Author(s): Timothy D. Knapp, Public Archaeology Facility

Date of Report: January 17, 2013

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I. INTRODUCTION

This report presents the results of a Phase 2 site examination conducted by the Public Archaeology Facility (PAF) for the Owego Apalachin Elementary School Prehistoric site (SUBi-3024), discovered within the flood mitigation parcel of the project, in the Village of Owego, Tioga County, New York. The site examination was conducted in December of 2012 and January of 2013.

The research summarized in this report was performed under the supervision of Dr. Nina M. Versaggi, Director of the Public Archaeology Facility (PAF). Timothy Knapp served as project director and author of this report. Dylan Pelton served as crew chief. Edgar Alarcon, Greg Diute, Vanessa LoPiccolo, and Gary Pelton served as field assistants. Artifacts were analyzed and catalogued by Claire Horn and Drue Bormann. Databases were created by Laura Knapp. Project maps were drafted by T. Knapp. Maria Pezzuti and Annie Pisani performed all administrative duties.

In compliance with Section 106 of the National Historic Preservation Act, and the New York State's Office of Parks, Recreation, and Historic Preservation Standards (1994 and 2005), the area within the project limits is considered the area of impact for the purpose of conducting the survey. *The results of the research performed for this report do not apply to any territory outside the project area.*

1.1 Project Description

In 2012, crews from PAF performed a reconnaissance survey for the Owego Elementary School and Flood Mitigation project (Knapp and Stiteler 2012). The Owego Elementary School was severely impacted by the 2011 flood of the Village of Owego. The Owego Apalachin Central School District has proposed demolition of the existing elementary school and its replacement with new construction on approximately the same location. Reconstruction of the school requires a flood mitigation area.

The flood mitigation area to the northwest of the existing school includes a large area of the current floodplain that will be lowered to 812 ft asl, which will require removal of between 60-122 cm (2-4 ft) of soil. The flood mitigation area encompasses approximately 2.5 ha (6.2 ac). The Owego Elementary School Prehistoric site (SUBi-3024) is located entirely within the proposed flood mitigation area.

Figure 1 (p. 2) places the Owego Elementary School Prehistoric site within Tioga County and New York State. Figure 2 (p. 3) shows the site location on the Owego, NY USGS quadrangle. The Owego Elementary School Prehistoric site is currently used as athletic practice fields by the Owego Apalachin Central School District (Photo 1, p. 2).

Figure 1. Location of project area in Tioga County.

Photo 1. The Owego Elementary School Prehistoric Site, facing north.

Figure 2. Location of the Owego Elementary School Prehistoric site on 1969 Owego, NY USGS 7.5' quadrangle.

1.2 History of Investigations and Site Description

During the reconnaissance survey for the proposed Owego Elementary School and Flood Mitigation Project, archaeologists identified the Owego Elementary School Prehistoric site (SUBi-3024). The site was initially discovered by a single shovel test pit (STP D8) that included a single non-cortical Onondaga flake (Figure 3). All four surrounding STPs on the original reconnaissance 15 m (49 ft) grid were negative, indicating the site was relatively small. Subsequent close interval 1 m (3.3 ft) radial testing suggested that the site did not extend to the north or east. Positive STPs were located 1 m (3.3) to the south and west. Additional radial STPs 3 m (9.8 ft) to the west and south of STP D8 were negative. Based on the reconnaissance data, the site was believed to measure 4 x 4 m (13 x 13 ft), with a total area of 16 m^2 (172 ft^2). The prehistoric artifact assemblage included four Onondaga chert non-cortical flakes from three positive STPs. All of the reconnaissance artifacts were recovered from the Ap horizon which had been apparently buried by a silt loam fill during the leveling of the athletic field. The buried Ap horizon begins at approximately 15 cm (6 in) and ends around 37 cm (15 in). No features were clearly identified during the reconnaissance survey.

The results of the reconnaissance indicated that the Owego Elementary School Prehistoric site likely represents a small resource processing station associated with an individual or small group of hunter-gatherers. Based on the reconnaissance research, the Owego Elementary School Prehistoric site was recommended as potentially eligible for the National Register of Historic Places. PAF recommended that impacts to the site be avoided. If avoidance was not possible, then a Phase 2 site examination consisting of close-interval STPs and 2-4 excavation units was recommended. This report presents the results of the Phase 2 site examination.

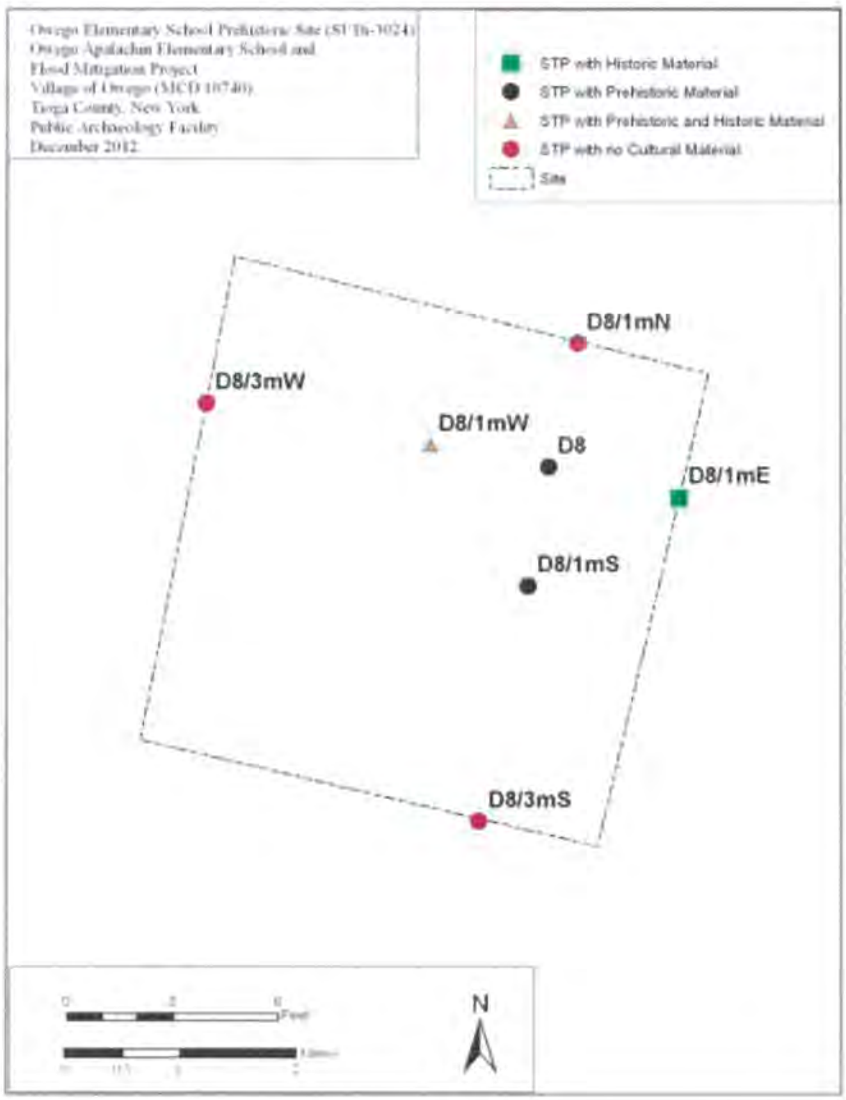

Figure 3. Owego Elementary School Prehistoric Site Map, based on 2012 Reconnaissance Survey.

II. BACKGROUND CONTEXT

Background research focused on reconstructing the environmental setting and establishing a prehistoric context for interpreting the Owego Elementary School Prehistoric site.

2.1 Environmental Setting

As part of the reconnaissance survey a detailed study of the soils and geomorphology for the proposed Owego Elementary School and Flood Mitigation Project was conducted and is briefly summarized here (Knapp and Stiteler 2012). The project area lies within the Glaciated Low Plateau section of the Appalachian Plateau physiographic province, an area that was repeatedly covered by continental ice sheets during the Pleistocene. The last of these continental ice sheets, the Wisconsinan, retreated from the project area sometime between 14,000 and 16,000 BP, releasing vast amounts of meltwater and outwash that flowed south through the Owego Creek valley.

The Owego Elementary School Prehistoric site is located 58 m (190 ft) east of Owego Creek, a fifth-order tributary of the Upper Susquehanna River (Figure 4). The site lies 2.3 km (1.4 mi) north of where Owego Creek joins the Susquehanna River. Above the Owego Elementary School site, the Owego Creek drainage basin covers approximately 800 km^2 (170 mi^2). Huntington Creek (Monkey Run), a minor tributary of Owego Creek, is located 440 m (1444 ft) north of the site. Approximately 1 km (0.6 mi) to the north, Catatonk Creek joins Owego Creek. Catatonk Creek provides a natural transportation corridor leading to Cayuga Lake.

Figure 4. Regional digital elevation showing the location of the Owego Elementary School Prehistoric site.

Bedrock underlying the APE is Upper Devonian-age sedimentary rock, mostly shales and siltstones (Gardeau Formation, Beers Hill shale, Grimes siltstone, and others) (Rickard and Fisher 1970). These formations are not generally cited as sources of chert and other cryptocrystalline rock suitable for stone tool production. However, the surficial geography of the area is dominated by glacial drift (outwash and till) which is likely to contain nodules of exotic cryptocrystalline rock.

As the Wisconsinan glacial epoch came to a close around 16,000 years ago, the valleys of the North Branch Susquehanna River and tributaries such as Owego Creek were deeply aggraded with glacial outwash. In the lowest reach of the Owego Creek valley large amounts of outwash accumulated because of the elevated base level of the main stem valley. As the ice front receded from their drainage basins, the supply of outwash was cut off and the river and its tributaries began reworking and removing the accumulated glacial material. Removal of the outwash was seldom complete; resulting in the creation of remnant outwash terraces along valley edges as the streams downcut the central part of their valleys and began construction of floodplains made up of coarse- to fine-textured alluvium. The soil profiles of these floodplains, constructed as the river and stream channels migrated laterally across the valley floor, generally exhibit a fining-upward character. The base of the profile is made up of channel-bottom gravel, cobbles, and channers capped by sand deposited as in-channel bars or lateral deposition. The sand is covered by very fine sand, silt, and clay deposited by overbank floods that spread across the aggrading floodplain surface.

Much of the soils adjacent to Owego Creek, including the Owego Elementary School site, are mapped as Unadilla silt loam, 0-3% slope (Unn) (USDA 2012; Figure 5, p. 7; Table 1). The Unadilla series consists of deep and very deep, well drained soils formed on valley terraces and lacustrine plains in silty, lacustrine sediments or old alluvial deposits. A typical Unadilla profile consists of an Ap/Bw1/Bw2/Bw3/BC/C2 sequence. Thickness of the solum (A and combined Bw horizons) ranges from 50 to 125 cm. Rock fragment content ranges from 0 to 5 percent in the solum and 0 to 60 percent in the C or 2C horizon.

Table 1. Owego Elementary School Prehistoric Site Soils.

Name	Slope %	Drainage	Soil Horizon Depth cm (in)	Color	Texture/ Inclusions	Land forms
Unadilla silt loam(Unn)	0-3	Well Drained	Ap: 0-20 cm (0-8 in) Bw1: 20-31 cm (8-12 in) Bw2: 31-46 cm (12-18 in) Bw3: 46-79 cm (18-31 in) BC: 79-107 cm (31-42 in) 2C: 107-165 cm (42-65 in)	Brown (10YR4/3) Light yellowish brown (10YR6/4) Yellowish brown (10YR5/6) Light yellowish brown (10YR6/4) Yellowish brown (10YR5/4) Dark grayish brown (10YR4/2)	Silt loam Silt loam Silt loam Silt loam Very fine sandy loam Stratified very gravelly sand	Valley terraces and lacustrine plains

Although geomorphological investigations indicated that soil profiles in the general vicinity of the Owego Elementary School Prehistoric site consist of 75 to 100 cm of Holocene overbank alluvium capped by up to 65 cm of gravelly fill, reconnaissance STP data documented considerably more variability in alluvium thickness and fill content. The extent of pedologic development seen in the profiles, the majority of which consisted of Ap/Bw1/Bw2/C sequences, strongly suggests that the sediments date to the Middle Holocene and later. No argillic (Bt) horizon development was noted, the presence of which would have connoted greater age and stability. The varying thickness of the fill cap – even over relatively short lateral distances – suggests that the floodplain exhibited a gently undulating surface before being leveled by addition of the fill. The highest degree of profile variability and the least expression of soil development were noted in the soil profiles closest to the Owego Creek channel. This suggests that the proximal part of the floodplain was a geomorphologically dynamic area, as is usually the case.

Anomalously greater depth to bedload gravel in some STPs is attributable to the presence of an abandoned channel segment that filled in with silty and clay-rich slackwater deposition.

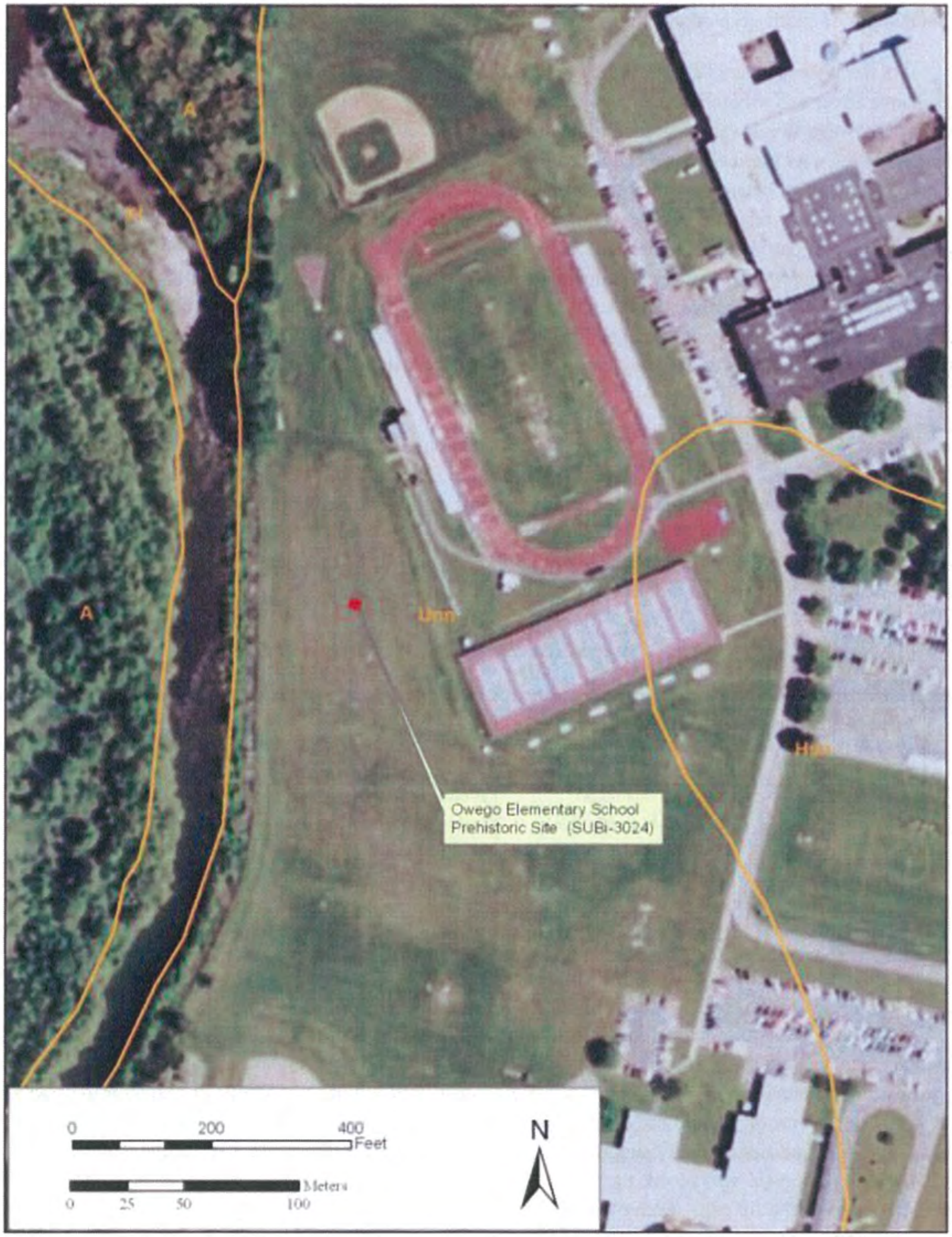

Figure 5. Location of Owego Elementary School Prehistoric site on USDA soil survey map.
(Key: Unn = Unadilla silt loam, slope 0-3%; Hsn = Howard gravelly silt loam, slope 0-3%)

2.2 Prehistoric Context

New York State prehistory is traditionally divided into four main phases: Paleoindian (c. 10,000-8000 BC), Archaic (8000-1500 BC), Transitional (1500-1000 BC), and Woodland (c. 1000 BC to European contact) (Ritchie 1980: xxx-xxxi). While this cultural-historical framework obscures temporal and regional variability, it does highlight major developmental trends in the northern woodlands.

The Paleoindian period begins with the migration of hunting and gathering populations into New York with the retreat of the glacial ice, c. 12,000 BP, and the development of a tundra environment. These groups brought with them a fluted point technology typified by the Clovis projectile point and surface finds of this distinctive artifact remain our most substantial evidence of their presence. Interestingly, few of these finds are directly associated with the remains of mammoth or mastodon, the supposed focus of these big game hunters (Armstrong et al. 2000:50). This and other evidence suggesting that New York was not characterized by a tundra environment during this period have begun to undermine our traditional notions that these early populations followed a big game hunting adaptation. It appears likely that small game and plants played a more significant role in the diet of these populations than was previously thought (Armstrong et al. 2000: 50-1). This reappraisal of diversity within Paleoindian adaptations is part of a larger, recent trend in North American archaeology. Ritchie (1980:4-5) notes two loci where fluted points were identified in Tioga County, but they are at the western end of the county. Excavations just east of this project by the Binghamton University field school identified one paleo point within the plow zone. This is evidence of hunting on this landform during the Paleoindian period.

The Archaic period marks the transition to post-Pleistocene adaptations and climatic regimes. A spruce-pine forest, and later a mixed deciduous forest, developed in the northeast and these were populated by modern animal and plant species. The Early Archaic (8000-6000 BC) period defines initial human adaptation to these conditions. Site and population densities during this period are low, a fact that has generally been related to the availability of resources. Explanations have focused on the lack of mast and mast-browsing species in pine dominated forests, the low availability of fish until modern conditions of temperature, flow and gradient were reached, and the generally dispersed nature of resource patches in major valleys during the Early and Middle Archaic (Armstrong et al. 2000: 52). The generally poor environmental conditions may also have confined settlement to the more stable environments of Pennsylvania, New Jersey, and coastal New York while scattered Early Archaic sites in central New York represent only occasional northward excursions (Ritchie and Funk 1973: 337). However, dispersed resource patches existed within major river valleys and around upland water resources (Custer 1996; Versaggi 2000).

The Middle Archaic period (6000-4000 BC) differs little from the preceding Early Archaic. The climate did reach its modern condition by approximately 7,500 BP (Funk 1993) which would have led to an increase in oak and, presumably, mast browsing animal species. There is a slight increase in site frequency but population in the Allegheny Plateau remained low. An increase in the number of sites is the major departure from an Early Archaic settlement pattern where small, temporary camps seem to represent an orientation to dispersed resource patches.

The Late Archaic period (4000-1500 BC) is one of increasing population density and cultural diversity related to local processes. Settlement patterns suggest an increased focus on aquatic resources with most sites located near small lakes, rivers, and wetlands, although they were often situated on terraces and upland slopes (Trubowitz 1977: 98-120; Versaggi 1996). Late Archaic subsistence/settlement patterns exhibit a range of variability tied to seasonal scheduling and resource availability. Large base camps located near major water sources provided a focal point for groups during the tougher months of the year from which small groups of foragers could range to procure and process needed resources. During other seasons, base camps would divide into smaller groups who engaged in more mobile foraging activities. This pattern of seasonal aggregation and dispersal results in several site types, including: large residential camps, small special purpose camps and resource processing locations (Versaggi 1996).

Two major studies of the Upper Susquehanna have provided good contextual information for the Late Archaic in the region (Funk 1993; Versaggi 1996). From established residential base camps, daily foraging groups roamed the valley and uplands around the residence and returned each day with the resources they collected or hunted. These foragers would have left light scatters of debris from their resource procurement and processing activities within patches surrounding their work areas. When there was a need for securing resources far distant from the base, other work parties would travel to these areas and spend days or weeks away from the main camp. These groups would create task-specific, or special purpose camps in the far regions where they worked and then return to the base with the products of their trip. In this manner a large diversity of sites and site types would result from this logistical system of organization (Versaggi 1996). One predictive model for this part of the upper Susquehanna Valley suggests that the environmental setting along the Susquehanna River provided excellent locations for fishing during the spawning season, especially near tributary confluences. These fish and deer resources available along the creeks could have provided for a seasonally nomadic population that migrated toward the confluence with main waterways during the fall and winter (Versaggi 1987).

The Transitional period (1500-1000 B.C.) designates a continuum from Late Archaic adaptations to the Early Woodland period. The central characteristic of the period is the introduction of steatite vessels, with the production of the first pottery during this period. Other defining traits include elaboration of burials, the increased use of exotic lithic materials and broad spear points of the Susquehanna Tradition. Small, temporary camps, often oriented toward river or coastal areas, typify settlement patterns during this period (Ritchie and Funk 1973). The Transitional period is poorly understood in central New York. Manifestations of the Susquehanna Tradition in the region include the Frost Island and Orient cultures with Frost Island sites being more numerous (Ritchie 1980). A variant of the Orient culture, Dry Brook, dating to 900-200 BC may also be present in the Upper Susquehanna and Upper Delaware River valleys (Kinsey 1972; Versaggi and Knapp 2000). Extensive evidence of the Transitional period was found in the Owego Southside Plant site (SUBi-672) located on the south side of the Susquehanna River, across from the confluence of Owego Creek (Versaggi et al.1982).

The Woodland period (1000 BC-AD 1600) is traditionally defined by the intensive use of clay pottery, permanent village settlements, and increased reliance on agriculture. The stage is divided into Early, Middle and Late periods. Of the three, the Early Woodland is the least distinct and some archaeologists suggest that in terms of adaptation it is similar to the Late Archaic and Transitional periods with a heavy reliance on small-game hunting, fishing, and gathering (Ritchie 1980: 183). However, the use of pottery vessels and tobacco smoking pipes, changes in settlement pattern and, perhaps, intensive use of plants (Ritchie and Funk 1973) do signal departures from previous cultural patterns. There is currently no evidence of native domestication of these plants such as occurred in the southeast. Ritchie and Funk (1973:348) also argue that seasonal rounds did not structure settlement pattern during the Early Woodland but that groups remained in camps near major waterways year round. A more recent assessment of the Susquehanna Valley indicated that the only site type absent from the Early Woodland was multi-task foraging camps possibly stemming from a decreased need for fissioning of base camps (Versaggi 1999). The Meadowood phase (1000-500 BC) is the most common Early Woodland culture but is mostly absent from the Susquehanna Valley near Owego. The Transitional period with steatite and fishtail points dominates during time periods usually assigned to the Early Woodland.

Current evidence suggests that agriculture developed during the Middle Woodland period (c. AD 0-800) but horticulture did not become widespread until the Late Woodland period (AD 800 to 1600). Middle Woodland cultures of the Point Peninsula tradition were still somewhat mobile and settlements consist of large semi-permanent camps and small temporary and seasonal camps. This settlement pattern reflects the continued reliance on fishing, hunting and gathering by Middle Woodland groups.

Late Woodland cultures are characterized by the adoption of horticulture based on maize, beans, and squash and the development of relatively large villages occupied year round. The period is generally divided into the Owasco (AD 800-1300) and Iroquois (AD 1300 to 1600) cultures. The two cultures shared very similar adaptations but are distinguished by pottery styles and increasing sedentism, village size, and reliance on maize and bean horticulture during the Iroquois period. Iroquois village plans reflect the development of the matrilineal kin groups characteristic of ethnohistoric groups and differentiation in size between descent groups. Villages are generally located on high terraces and knolls, rather than near drainage basins and waterways. The typical later Iroquois village settings indicate an increased need for defense.

Research by Versaggi (1987, 1996) created base-line models of prehistoric hunter-gatherer land use patterns, and derived from these a set of site types that can be used in prehistoric sensitivity assessments.

- **Long-term residential sites (base-camps and villages)** are large sites with high frequencies of artifacts, tools, features (e.g., hearths and pits), and spatial clusters. Base-camps were typically located at confluences of creeks with major rivers near winter deer aggregation areas and dense spring fish runs, and in valleys with stable and fertile alluvial soils.

- **Single-task field camps** are typically smaller size occupations that contain large numbers of artifacts and specialized tools. Bifacial reduction debitage is prominent as bifacial tool-kits are replaced and maintained. Single-task temporary camps appear to have been occupied by few people for a short duration, and there may have been little need to organize and divide space. Fewer spatial clusters would result and these would tend to be similar in composition, reflecting a focus on a single or limited range of tasks. The high-density tool production sites and intensive game butchering sites are prime examples of single-task field camps.

- **Multi-task field camps** are typically smaller size occupations that contain lower numbers of artifacts and tools. These sites resemble forager-like camps in which small groups of people moved frequently in pursuit of low density and dispersed resources. Multi-task camps occur in a wide variety of contexts. Some were widely scattered within the valleys of major and secondary drainages, and others were mapped onto specific resource patches in the uplands.

- **Resource-processing locations** and single-encounter hunting/butchering stations result from short duration tasks that produce low numbers of artifacts, tools, and spatial clusters. Expedient debitage tools predominate; many times these are reduced from chert cobbles or any available raw material. Generally, these sites are expected within the daily foraging radius around a camp or village, as well as around dispersed single- and multi-task camps.

At this point, the site appears to be a single task field camp based on the small site size, low diversity of tool types, and post feature, which could indicate a temporary structure.

III. SITE EXAMINATION METHODOLOGY

3.1 General Field Methods

The site examination included a combination of 1 by 1 m (3.3 by 3.3 ft) units and shovel test pits (STPs). A systematic grid was established at the site, with a datum point of N100 E100. Based on the reconnaissance data, the site area was estimated to be only 16 m^2 (172 ft^2), limiting the area available for site examination testing. Three excavation units were placed immediately adjacent to the cluster of three positive reconnaissance STPs (Figure 6). Archaeologists excavated in 5 cm (2 in) levels within discrete soil horizons. The reconnaissance indicated site stratigraphy likely included a medium brown slightly gravelly silt loam fill episode atop a medium brown silt loam plow zone (Ap horizon), and that the prehistoric materials were contained within the Ap horizon. Given the similarity in the fill and Ap horizon colors and textures, units were excavated in 5 cm (2 in) levels even within fill and Ap horizon soils. Unit excavation proceeded until the heavily gravelly sandy silt C horizon was encountered. Archaeologists excavated each unit with shovels and trowels. Soil was screened through 7 mm (0.25 in) mesh onto plastic sheeting. All artifacts were noted and bagged by level. Artifacts recovered from the units are listed in Appendices 2.2 and 2.3. Soil profiles were recorded for each unit and are presented in Appendix 2.1.

As unit excavation proceeded it became apparent that the most productive unit (Unit 3) was located at the eastern site boundary, as defined by reconnaissance STPs. As is detailed in Section 4.5 (p. 32), Unit 3 had nearly 200 prehistoric artifacts, while Units 1 and 2 had zero and 1, respectively. Given this unexpected spike at the eastern site boundary, archaeologist excavated five supplemental STPs on a 5 m (16.4 ft) grid to the east and south (Figure 6). STPs were dug with hand tools and were generally 35 cm (14 in) in diameter. All STPs were excavated to the depth of the C horizon. All soil was sifted through 7 mm (.25 in) hardware cloth and artifacts from each recognizable soil horizon were bagged separately. Written descriptions of soil color and texture, artifact content, and digging conditions were made at the time of excavation. The STP soil records are presented in Appendix 2.1.

When features were encountered, their boundaries were defined by troweling, their plan views were drawn and the feature photographed. When possible, each feature was cross-sectioned to obtain a vertical profile. In this manner, the size and shape of each feature could be estimated to assist in the interpretation of feature types and function. Standard-sized soil samples (at least 1 liter) were collected when appropriate for processing though flotation.

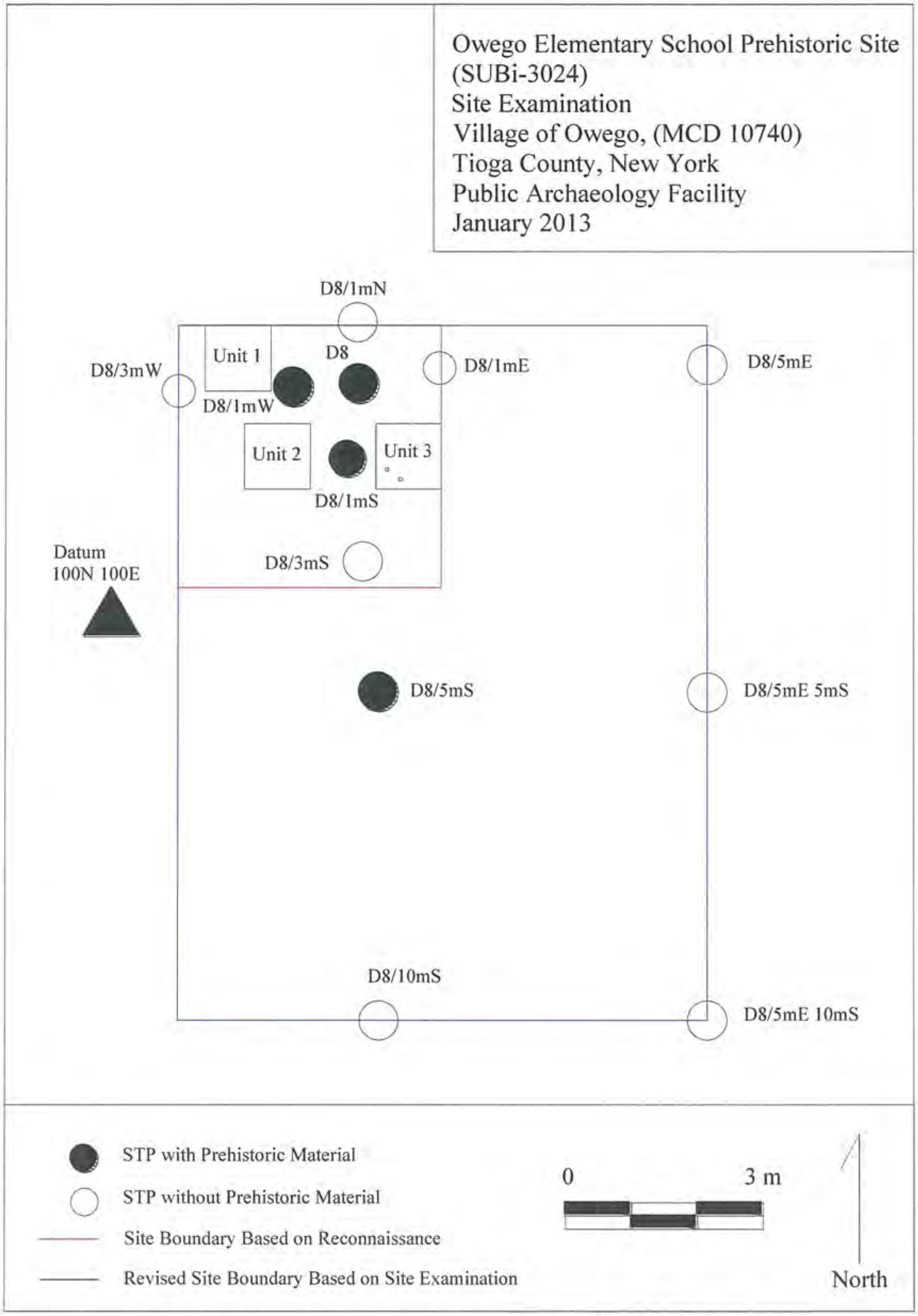

Figure 6. Owego Elementary School Prehistoric site examination map.

3.2 Laboratory Methods

Following fieldwork, all artifacts were processed and analyzed in the labs of the Public Archaeology Facility at Binghamton University. Processing included washing and dry-brushing fragile materials and checking and re-tagging of the artifact bags for proper conservation. All artifacts recovered were analyzed according to standard PAF systems.

Historic Artifacts

Historic artifacts were classified according to a non-hierarchical catalogue system developed at PAF. The system, in part, uses a modification of South's artifact classification (South 1976), which identifies broad artifact patterning through the use of functional groups. Following South, each artifact was classified as to functional group (food-related, architectural, personal, smoking, etc.) as well as to a specific type attribute (e.g., tableware/teaware, food preparation, and storage). Information on ceramic decoration and form were also recorded when present along with time ranges for the manufacture of these artifacts and other diagnostic pieces.

Analysis focused on the comparison of ceramics, glassware, and other goods. Specifically, the analysis first classified artifacts into functional groups (Group 0=Unidentified; Group 1=Food-related; Group 2=Food Remains; 3=Architectural; 4=Hygienic/Medicinal; 5=Household/Decorative; 6=Clothing; 7=Personal/Amusement/ Cosmetic; 8=Lighting; 9=Tools/Arms; 10=Smoking; 11=Miscellaneous Modern; 12=Transportation/Mechanical; 15=Faunal Remains). Within these groups, specific type attributes are used. The functional types include food preparation and storage, food service, teaware, tableware, household or decorative vessels, toilet wares, or unidentifiable. Information on ceramic decoration and form (cup, saucer, serving plate, etc.) provided the final stage in the recording of variables for analysis.

Chronology for deposits was determined by computing mean dates for ceramic and glass artifacts and other diagnostic artifacts, as appropriate, recovered from each level and horizon of each test unit. The mean dates are based on diagnostic cultural material with specific (closed) ranges (e.g., 1830-1870, 1853), as well as artifacts with wide (open) date ranges of manufacture (e.g., 1830 or 1850 to present). The dates for the ceramics and glassware were calculated based on diagnostic cultural material recovered within each level.

Prehistoric Artifacts

Analysts collected data on lithics in two general categories, technological and functional. Technological data focused on the procurement and manufacture of chipped stone tools, while the functional data focused on the activities these tools performed. In both cases, the purpose of the analysis was to make visible productive tasks (labor) that were occurring within the site context. However, the type of labor that each category of data addresses is very different. Technological data provides information on the techniques and stages of lithic reduction that were being performed on site. Information regarding procurement of lithic raw material is also recorded during this phase of analysis, but the widespread use and availability of Onondaga Chert throughout the prehistory of New York State makes it difficult to address specific raw material sources and identify trade alliances that may have been involved. Functional analysis addresses the types of activities for which lithic tools were used. These data provide a more holistic view of the chipped stone tradition and provide an interesting perspective on the day-to-day activities that were occurring on the site.

All chipped stone debitage was assigned to one of five artifact classes: bifacial tools; unifacial tools; cores; flakes; and chunk/shatter. Each artifact was then size-graded, by placing the artifact on its ventral surface on a series of graded circles of known diameter: from 0-1" the size grades are every 1/16"; from 1-2" the size grades are every

1/8"; and above 2" three size grades are recognized (2-2.5", 2.5-3", and >3"). Raw material type was also recorded for each chipped stone artifact. Every artifact was also weighed to the nearest 0.01 gram.

After the initial size grading, recording of raw material, and weighing, artifacts were separated into two different analytic streams: debitage (cores and flakes) and tool. Cores are defined as culturally modified stone from which one or more flakes have been removed for further modification or use, but in which the piece itself is generally not intended for further use. Cores are assigned to one of the following subtypes: bipolar; amorphous; bifacial; and blade. Flakes are pieces of stone removed from a core by a single blow. Flakes can also be created by natural causes such as heat fracture, trampling, weathering, and extreme changes in temperature. While it is not always possible to distinguish between natural and cultural flakes, there are a number of attributes related to fracture mechanics of cryptocrystalline stone that, when occurring together on a single flake, can be used to distinguish between intentionally and naturally-produced flakes. These attributes include presence of a striking platform, bulb of percussion, and ripple marks on the ventral face of the flake. All flakes were assigned to one of the following subtypes: cortical (having at least some cortex on the dorsal surface); non-cortical (no dorsal cortex); bipolar (exhibiting characteristic damage at opposing edges); and blade (define as flakes that have a length:width ratio of greater than 2 and typically have parallel dorsal flake scars that run the length of the flake). Chunk and shatter are catch-all categories for pieces of stone that lack flake attributes (i.e., debris). In general, chunk sand shatter have an ambiguous ventral surface and striking platform. A chunk is a blocky fragment of material; a cortical chunk is a chunk with exterior surface (cortex) present. Shatter, generally small in size, is defined by the lack of diagnostic flake attributes (platforms or easily differentiated dorsal and ventral surfaces; Henry 1989:254; Parry 1987:34; Sullivan and Rozen 1985). There is some experimental evidence that shatter is generated in greater quantities during the reduction of cores (Shott 1994:78-79; Sullivan and Rozen 1985:758-760). Large chunks, particularly cortical ones, may be indicative of early stages in the production process (initial core preparation) or cobble testing. Smaller chunks and shatter tend to occur throughout all stages of stone working (cf., Pope 1998:20-28).

A detailed attribute analysis was also conducted on the flake assemblage. As part of PAF's standard attribute analysis the following data are recorded: flake condition; dorsal cortex type; platform type; platform grinding; platform lipping; exposure to heat (evaluated based on color change or presence of pot lid spalls); and macroscopic evidence of usewear.

The system of recording flake condition is based on Sullivan and Rozen's (1985) debitage typology which was intended as an "interpretation free" system of debitage classification. There are four types of flake condition: whole, broken, fragments, and debris. Whole flakes retain the platform and all margins are intact. Broken flakes have intact platforms, but are broken along a lateral or distal margin. Flake fragments lack platforms. Debris includes chunks and shatter, and are therefore not technically flakes. According to Sullivan and Rozen's system, a high frequency of whole flakes is indicative of an expedient tool technology, while high numbers of flake fragments are the result of bifacial tool production. However, Andrefsky (1998:124) notes that experimental knapping experiments suggest that the opposite is true–that higher frequencies of whole flakes result from biface production.

Two attributes of dorsal surface cortex were recorded: the relative amount of dorsal surface covered with cortex; and indications of whether the cortex derived from a primary (tabular) or secondary (cobular) raw material source. The relative amount of cortex was estimated as: 100%, 76-99%; 51-75%; 26-50%; 1-25%, or 0%.

Flake platforms were placed into one of seven platform type categories, based largely on the number of flake scars (facets) present on the platform: cortical; flat; concave; pointed; dihedral; faceted; and collapsed. Platforms retaining the original exterior surface of the raw material were coded as cortical. Flakes with a single facet were described as flat, concave, and pointed. Platforms with two facets are dihedral, and those with more than two facets are assigned to the faceted category. Collapsed platforms are those where a platform remnant is present, however, much of the platform has been crushed during flaking and therefore cannot be confidently placed in one of the other types. Platform grinding and platform lipping were recorded as present or absent.

The resulting artifact catalogs were entered into a relational data base management program (Paradox) to facilitate subsequent analysis. The purpose of this lithic catalog system is to describe lithic assemblages using uniform criteria that can be replicated. The system lends itself to both individual flake analysis and flake aggregate analysis. The focus in individual flake analysis is on the characteristics of the individual flake. Flakes can be classified by some typology or by key attributes. As an alternative to individual flake analysis, some archaeologists propose flake aggregate analysis techniques in which attention shifts from the individual object to a batch of artifacts from a single context (Ahler 1989:87). Stone tool technology is a reductive technology in which flakes removed can never be larger than the parent core. This then places predictable and repetitive size constraints on the by-products produced. Variations in the method of removing a flake produce variations in flake size and flake shape. Mass analysis of flakes, including count and weight, can be used to help interpret the stages of stone tool manufacture conducted at a site.

Curation

All of the artifacts, notes and other documentation of the reconnaissance testing and site examination are curated according to federal (36 CFR Part 79) and state guidelines (NYAC 1994) in the facilities of the Department of Anthropology at Binghamton University.

IV. SITE EXAMINATION RESULTS

The Owego Elementary School Prehistoric site is a small Late Archaic site in the Village of Owego, Tioga County, New York. The site was initially identified during a reconnaissance survey for proposed flood mitigation associated with the construction of a new Owego Elementary School (Knapp and Stiteler 2012). Site examination excavations, including five shovel test pits and three 1 x 1 m (3.3 x 3.3 ft) units, recovered a small, but dense, assemblage of lithic material. The Owego Elementary School Prehistoric site presents an opportunity to investigate the Late Archaic period along Owego Creek, a major tributary to the Upper Susquehanna River.

4.1 Site Boundaries

The results of the reconnaissance survey indicated that the site measured 4 by 4 m (13.1 by 13.1 ft) for a total area of 16 m^2 (172 ft^2). These boundaries were centered on the three positive reconnaissance STPs (D8, D8/1mW, D8/1mS). Negative reconnaissance STPs excavated 1m to the east, 1 m to the north, 3m to the south, and 3m to the west appeared to delineate the site. However, site examination Unit 3, located at the extreme eastern edge of the site as defined by the reconnaissance, had nearly 200 prehistoric artifacts, suggesting that the site likely continued to the east and south. One STP 5m south of the original findspot (D8) recovered one flake, while an STP 10 m to the south was negative, documenting that the site extended farther to the south than originally believed. A line of three STPs placed 5 m east of the D transect all were negative, indicating that although the site likely extended east of the reconnaissance site boundary, the site is still relatively small. Archaeologists determined that while excavating another transect of STPs between the original D line and the 5m east line, might further refine site boundaries, the potential for damaging intact deposits within this very small site was too great. Based on the supplemental STPs, the site size has been revised to 8 by 11 m (26 by 36 ft) for a total site area of 88 m^2 (947 ft^2) (Figure 6, p. 12). The cultural material associated with this site was recovered from the first 71 cm (28 in) below ground surface. Unit excavation represents a 3.4% sample of the Owego Elementary School Prehistoric site as redefined during the site examination.

4.2 Stratigraphy and Chronology

Despite generally stratigraphic similarities across this small site, there is some notable geomorphologic variation tied to the underlying glacial geology and post-Pleistocene soil development. The typical stratigraphic sequence apparent in these three excavation units is Fill, Ap, B1, and C horizons (Figure 7; Photo 2, p. 17). The uppermost stratum is a Fill horizon that extends from the surface to between 11 and 18 cm (4.3 and 7.1 in). This dark brown or very dark brown silt loam (10YR3/3 or 10YR3/2) was apparently deposited to level the athletic field. This fill caps a buried plow zone (Ap) that extends to 27-35 cm (10.6-13.8 in) below the surface. The Ap horizon is primarily a dark brown (10YR3/3) silt loam, although there is some dark yellowish brown (10YR4/6) mottling representing churned up B1 horizon. The B1 horizon exhibits considerable variation in thickness—being completely absent (presumably subsumed by the Ap horizon) in the northwestern corner of Unit 2 and extending to as deep as 75 cm (29.5 in) along the eastern wall of Unit 3. The B1 horizon is a yellowish brown (10YR5/4) to dark yellowish brown (10YR4/6) compact silt. Below the B1 horizon is the C Horizon, a yellowish brown to dark yellowish brown (10YR5/4 to 10YR4/6) gravelly sandy silt.

The depth to the C horizon varies considerably over a short distance. In Unit 2, the top of the C horizon is only 21 cm (8.3 in) below the surface in the northwest corner, and dips to 75 cm (29.5 in) in Unit 3, only 1 m (3.3 ft) to the east. The high variability in C horizon depth confirms a pattern noted during the reconnaissance (Knapp and Stiteler 2012). The shallow C horizon in Unit 2 likely marks the center of an ancient gravel bar associated with the post-Pleistocene stream, while the deeper C horizon in Units 1 and 3 represent abandoned channel segments that were filled by Middle Holocene through Historic overbank alluvium.

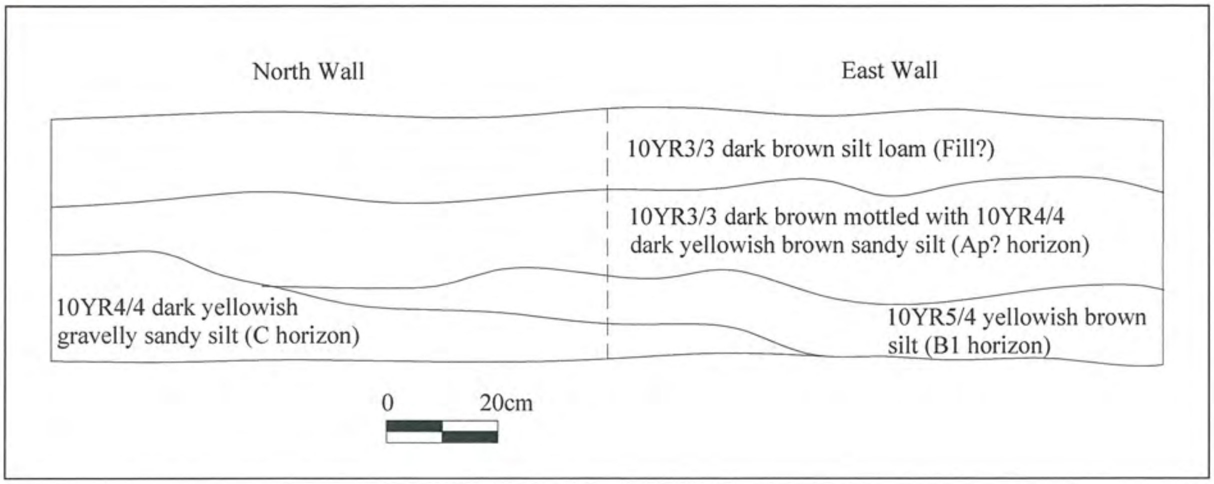

Figure 7. Unit 2, north and east wall profiles, Owego Elementary School Prehistoric Site.

Photo 2. Unit 2, north wall profile, Owego Elementary School Prehistoric Site.

The profile of Unit 3, the most productive site examination unit, differs very slightly from the typical profile described above (Figure 8; Photo 3). In this case, what constituted the Ap horizon for the other units appears as two strata: a dark brown (10YR3/3) silt loam over a dark brown (10YR3/3) mottled with dark yellowish brown (10YR4/4) silt loam. While the upper stratum is clearly an Ap horizon, the lower layer may represent an older plow zone, an unplowed remnant A horizon, or a poorly defined transition zone (Ap/B1).

Table 2 presents the distribution of prehistoric and historic artifacts, recovered from units, across the above described horizons. All of the historic artifacts were recovered from the Ap horizon and appears to be random refuse and is not associated with a historic standing structure or foundation. Prehistoric artifacts are almost exclusively (98%) associated with the B1 horizon. One or two isolated flakes were recovered from the Fill, Ap, and Ap/B1 horizons and may or may not be directly associated with the B1 component.

Table 2. Distribution of Unit Artifacts by Horizon, Owego Elementary School Prehistoric Site

Horizon	Prehistoric Artifacts		Historic Artifacts	
	Count	**Percent**	**Count**	**Percent**
Fill	2	1.0	0	0.0
Ap	1	0.5	6	100.0
Ap/B1?	1	0.5	0	0.0
B1	188	97.9	0	0
Total	**192**	**100**	**6**	**100**

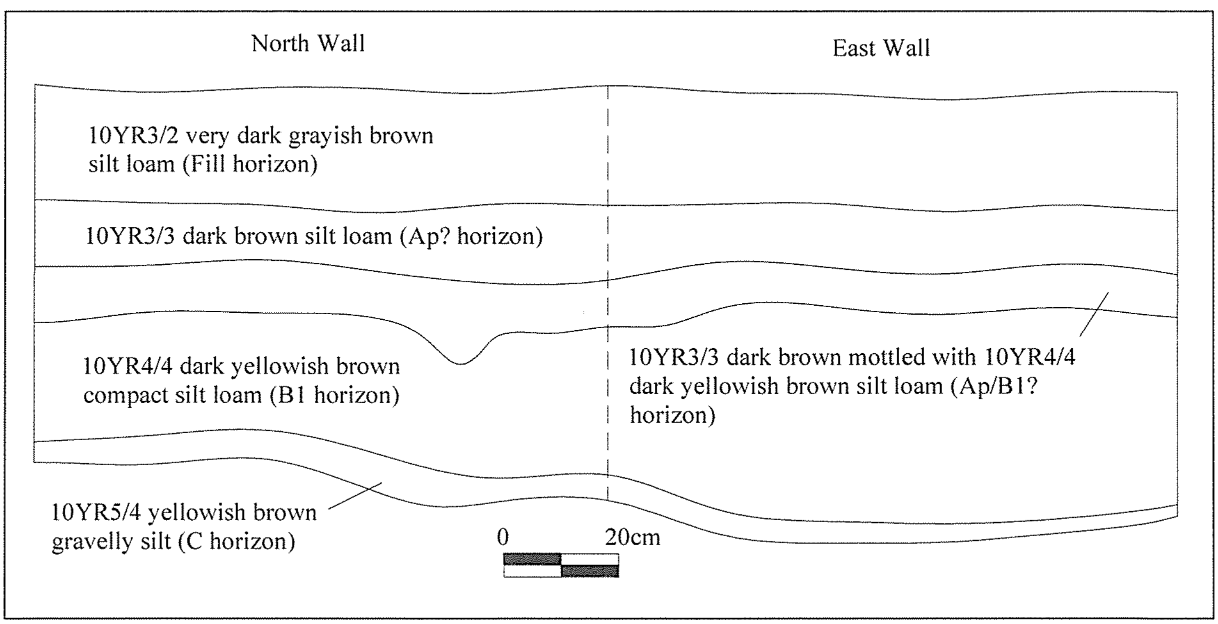

Figure 8. Unit 3, north and east wall profiles, Owego Elementary School Prehistoric Site.