

APPENDIX F
WORK PLANS
Upper Mill Race Area

AREA U-1
DETAILED WORK PLAN
April 18, 2002

1. Description

Area U-1 consists of the northern flat portion of the Mill Race Area Upper Area. Area U-1 starts at the fence and dam below (west of) the Ezra Cornell tunnel and proceeds to the northern fence line and westward to the Barn. It contains 4,300 square feet. The results from the RSA indicate there is approximately 3 feet of contaminated soil at the deepest in Area U-1. Figure 1 shows the plan view and Figures 19, 20, 21, and 22 show cross-sections through the area. The existing slope from east to west is approximately 4 horizontal to 1 vertical. Area U-1 stops at Area U-2 along the southern border. Once the contaminated soil is removed, the final slope shall remain approximately 4 to 1. It goes from - 0+31 to 0+70 feet.

2. Vegetation

The City of Ithaca Forester along with assistance from the Natural Area Commission (NAC) will inspect Area U-1, and identify the trees and other vegetation. Area U-1 contains the following three trees and vegetation species:

- a. A 24-inch diameter _____ tree.
- b. A 14-inch diameter _____ tree.
- c. A 12-inch diameter _____ tree.
- d. _____
- e. _____
- f. _____
- g. _____
- h. _____

There is a lot of scrub brush (less than 1-inch in diameter) within this Area.

3. Removal of Vegetation and Organic Material

All the organic matter (leaves, brush, dead vegetation) will be removed, separated, and placed in a separate stockpile. The small scrub bushes will be pruned at ground level. The vegetation and pruned bushes will be chipped and mixed with the topsoil.

4. Saving Trees and Plants

The City of Ithaca Forester along with assistance from NAC will mark the trees and plants with various colored flags. The green flags indicate trees and plants that will not be disturbed during the removal activities. These trees will not interfere with the removal of the lead-contaminated soil. The blue flags indicate trees and plants that will be removed during the removal activities. The trees and plants with both green and blue flags may be

dug up and removed from the site. The trees with white paint marks will be removed. The Forester and NAC will ensure that Earth Tech removes these trees and plants properly. Once the trees and plants have been dug up, they will be handed over to NAC for storage. Upon completion of removal activities, NAC will replant the trees and bushes. For the trees that will be left undisturbed, the limbs, bark, and roots will be protected during the excavation of lead-contaminated soil. These trees or plants will not be removed:

5. Sedimentation Controls

Silt fence shall be installed along the southern border of Area U-1 (where Area U-1 meets Area U-2). A 6-inch deep trench shall be excavated, the bottom of the silt fence placed into the trench, and the trench will be backfilled with soil. The silt fence is attached to 3-foot long wooden stakes that will be driven into the ground. Coir™ coconut logs shall be placed in the Mill Race just to the west of the bridge and at other locations in the Mill Race to assist in containing sediment during rain events. The logs shall be anchored to the ground with 3-foot long rebar. The logs will allow water to pass through while containing sediment. If Area U-1 can't be covered with Coir™ erosion control mats by the end of the workday, then it will be covered with a tarp until the area can be covered with the Coir™ erosion control mats.

6. Special Equipment Requirements

No special equipment will be required for this area. A track-mounted excavator (Kobelco SK300 or equivalent) will be used to excavate the contaminated soil. A front-end loader (Caterpillar 938F or equivalent) will be used to carry contaminated soil to the staging area and topsoil back to the excavator.

7. Excavation and/or Removal of Contaminated Soil

According to the RSA, the area to the east of the Barn (Area U-1) contains approximately 3-feet at the deepest of lead-contaminated soil. (See the cross-sections in Figures 19, 20, 21, and 22).

On the flat area, the excavator will reach southward into the Mill Race Creek as far as it can reach. Any material it reaches will be pulled back with the bucket. The contaminated soil that can't be removed by the excavator will be removed by hand in Area U-2.

The excavator will not enter the Mill Race bottom area.

The contaminated soil shall be removed with the excavator. The front-end loader shall transfer the material to the staging area at the former Metal Building site. The contaminated soil shall then be transferred into either rollofs of dump trucks.

8. Post-Excavation Soil Sampling

The disturbed area in U-1 will be approximately 4,300 square feet. Therefore, Earth Tech personnel shall collect nine aliquot soil samples for one composite confirmation sample to verify the lead contaminated soil has been removed to below the site cleanup level of 400 ppm with no single samples with a concentration above 1,200 ppm.

Calculation Sheet

Computed by D. CROUSE Subject ITHACA GUN Sheet 2 of 18
 Checked by _____ Client USEPA Job No. 51187 Date 2-11

- S34
- S50
- S46
- S42
- S36
- S34
- S32
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- S24
- S20
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- S4

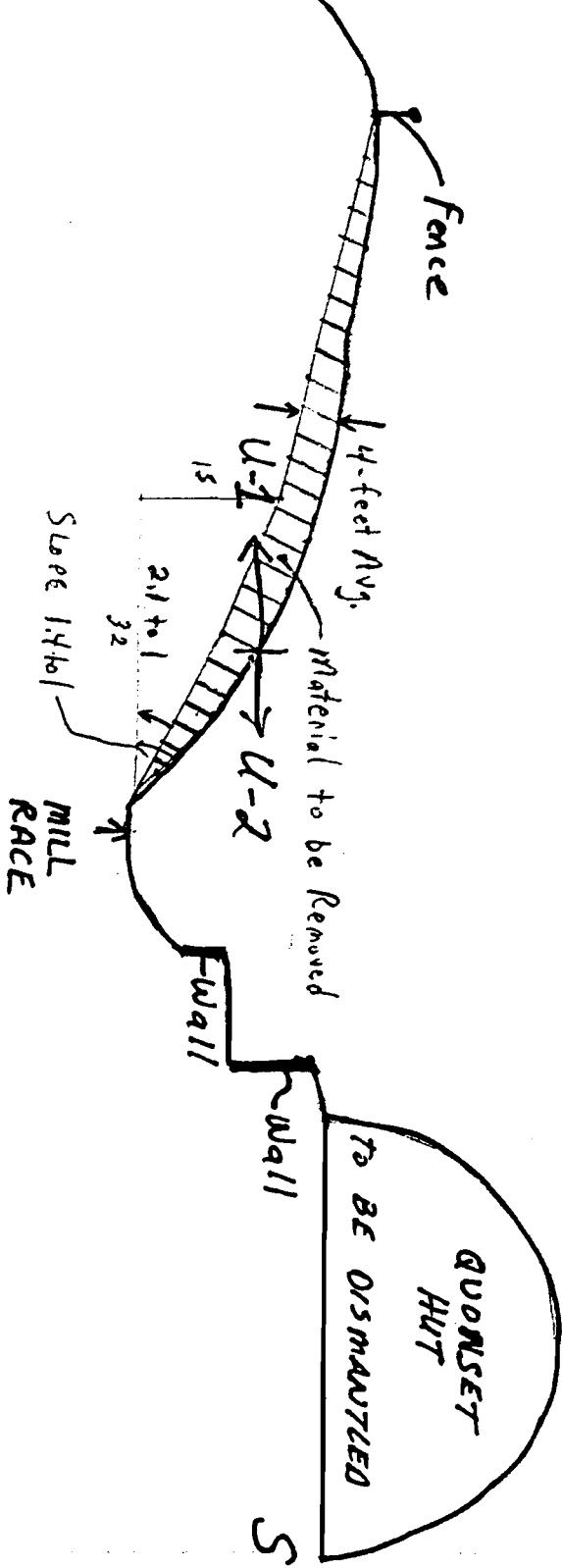


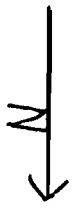
FIGURE 20
 MILL RACE AREA
 UPPER AREA
 CROSS-SECTION U-1 + U-2 - B

SCALE: 1/4 inch = 20 feet

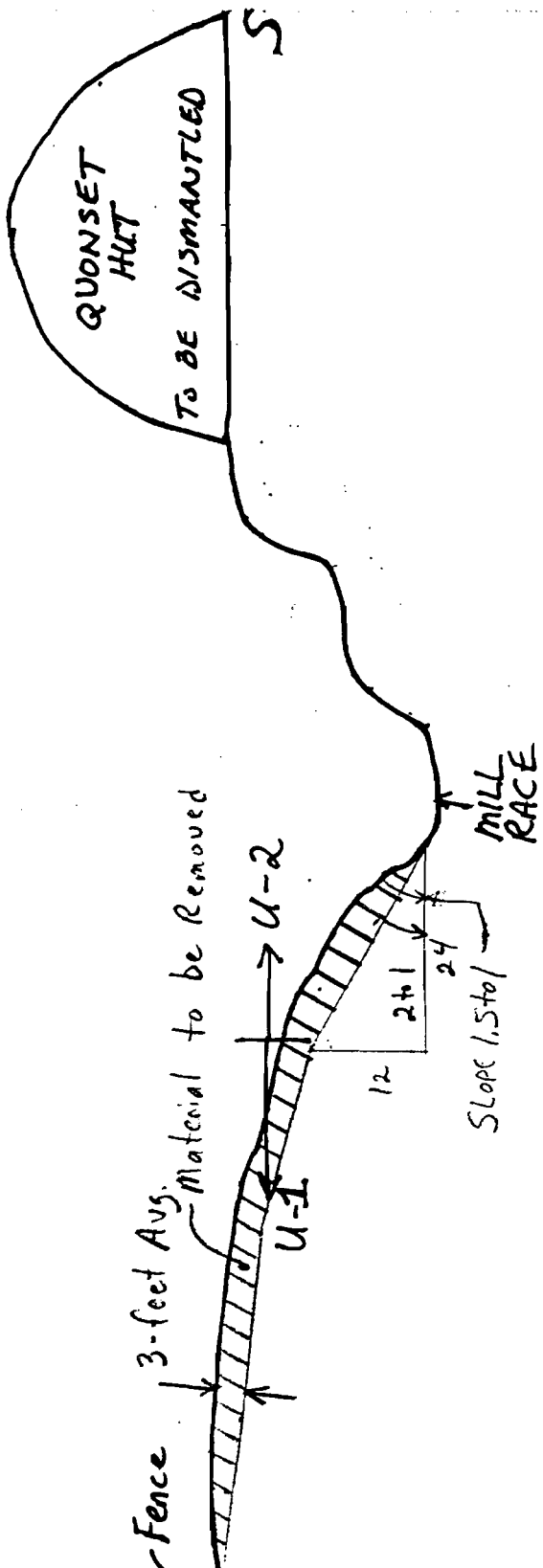
Computed by D. Cross Subject ETHRA 60N Sheet 3 of 18
 Checked by _____ Client US EPA Job No. 51187 Date 2-73

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FIGURE 21
 MILL RACE AREA
 UPPER AREA



CROSS-SECTION U-1 + U-2 - C



SCALE: 1 inch = 20 feet

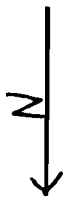
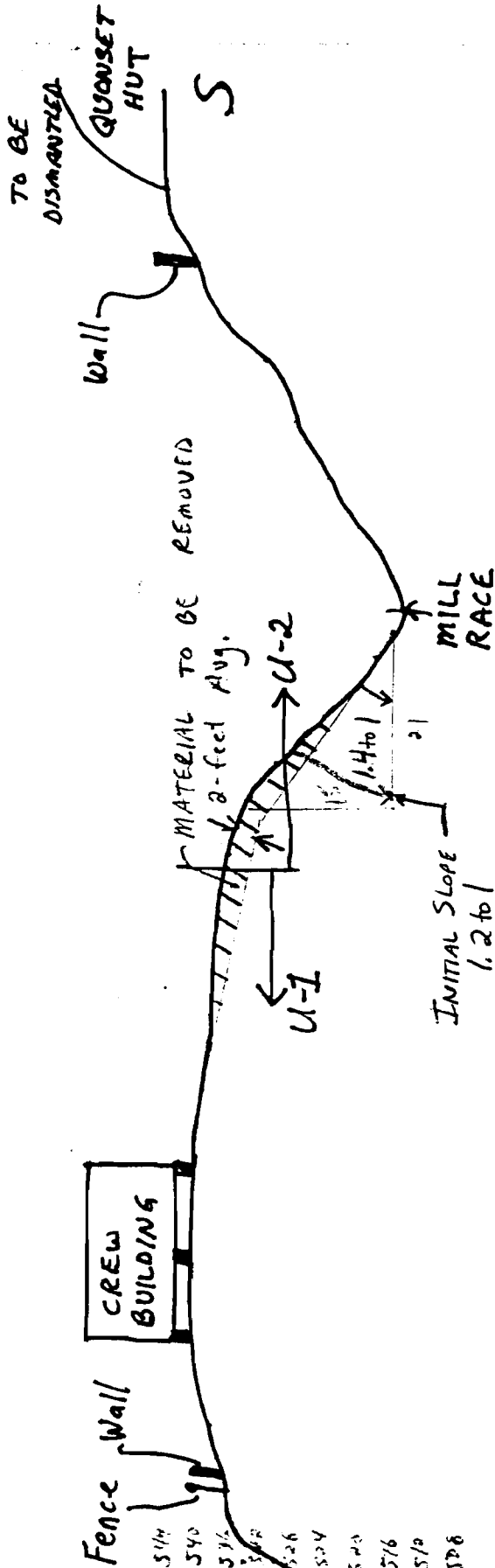


FIGURE 22
 MILL RACE AREA
 UPPER AREA

CROSS-SECTION U-1 + U-2 - D



SCALE: 1 inch = 20 feet

AREA U-2
DETAILED WORK PLAN
April 18, 2002

1. Description

Area U-2 is at the upper portion of the Ithaca Gun Property. Area U-2 is the next area south of Area U-1. Area U-2 consists of the southern steep portion of the Mill Race Area Upper Area. Area U-2 starts at the fence and dam below (west of) the Ezra Cornell tunnel, proceeds to the Quonset Hut pad on the south, to the bridge on the west, and to the access road on the southwest. It contains 7,020 square feet. The results from the RSA indicate there is minimal contamination in this area, and the thickness of contaminated soil varies in depth from approximately 12 inches to nothing at bedrock. Figure 1 shows the plan view and Figures 19, 20, 21, 22, 23, and 24 show cross-sections through the area. The southern portion consists of two steep walls, one is a poured concrete wall and the other is a rock wall. The existing slope within the Mill Race is 7 horizontal to 1 vertical from east to west, and the average slope from north to south is approximately 1.4 to 1. Once the contaminated soil is removed, the final slope will remain approximately 7 to 1 and 1.4 to 1. It goes from 0+00 to 0+125 feet.

2. Vegetation

The City of Ithaca Forester along with assistance from the Natural Area Commission (NAC) will inspect Area U-2, and identify the trees and other vegetation. Area U-2 contains the following trees and vegetation species:

- a. A 8-inch diameter _____ tree.
- b. A 8-inch diameter _____ tree.
- c. A 6-inch diameter _____ tree.
- d. A 4-inch diameter _____ tree.
- e. _____
- f. _____
- g. _____
- h. _____
- i. _____

There is a lot of scrub brush (less than 1-inch in diameter) within this Area.

3. Removal of Vegetation and Organic Material

All the organic matter (leaves, brush, dead vegetation) will be removed, separated, and placed in a separate stockpile. The small scrub bushes will be pruned at ground level. The vegetation and pruned bushes will be chipped and mixed with the topsoil.

4. Saving Trees and Plants

The City of Ithaca Forester along with assistance from NAC will mark the trees and plants with various colored flags. The green flags indicate trees and plants that will not be disturbed during the removal activities. These trees will not interfere with the removal of the lead-contaminated soil. The blue flags indicate trees and plants that will be removed during the removal activities. The trees and plants with both green and blue flags may be dug up and removed from the site. The trees with white paint marks will be removed. The Forester and NAC will ensure that Earth Tech removes these trees and plants properly. Once the trees and plants have been dug up, they will be handed over to NAC for storage. Upon completion of removal activities, NAC will replant the trees and bushes. For the trees that will be left undisturbed, the limbs, bark, and roots will be protected during the excavation of lead-contaminated soil. These trees or plants will not be removed:

5. Sedimentation Controls

The silt fence that was installed during the removal of contaminated soil from Area U-1 will remain during the removal of contaminated soil in Area U-2. The Coir™ coconut logs that were installed during prior to the work in Area U-1 will remain while working in Area U-2. The logs will allow water to pass through while containing sediment. After the contaminated soil has been removed from above the poured concrete wall and then the rock wall, Coir™ coconut logs will be placed along the top of the walls to capture sediment.

6. Special equipment requirements

The following special equipment will be required for this area. A vacuum truck with hose will be used to remove smaller contaminated soil. A crane with bucket will be used to remove contaminated soil from the Mill Race.

A track-mounted excavator (Kobelco SK300 or equivalent) will be used to excavate some of the contaminated soil from behind the two walls. A front-end loader (Caterpillar 938F or equivalent) will be used to carry contaminated soil to the staging area and topsoil back to the excavator. The excavator will have a reach of approximately 25 feet to reach the bottom of the concrete and rock walls along the southern slope towards the Quonset Hut area.

7. Excavation and/or removal of contaminated soil

According to the RSA, the area in the Mill Race contains a minimum amount of contamination. The Mill Race consists of approximately 12 inches of soil to nothing at bedrock. The surfaces above the poured concrete and rock walls may contain more contaminated soil. (See the cross-sections in Figures 19, 20, 21, 22, 23, and 24).

Laborers will work in the Mill Race and shovel, rake, or sweep the contaminated soil downhill and shovel it into small one cubic yard piles. The crane will setup at the former location of the Barn. The crane will lower the bucket to the Mill Race. The laborers will shovel the contaminated material into the bucket. The crane will dump the contaminated soil into the staging area. After the material is removed by hand, a vacuum truck with hose and other attachments will be used to remove residual contaminated soil in the cracks and crevices.

The excavator will set up either on the pad near the command post or the access road near the bridge and reach down to the concrete and rock walls. The excavator will remove what material it can reach. Laborers will shovel additional material by hand into the excavator bucket. The excavator will place the material into the front-end loader bucket for transport to the staging area. The contaminated soil will then be transferred into either rolloffs or dump trucks.

The excavator will not enter the Mill Race.

8. Post-Excavation Soil Sampling

The disturbed area in U-2 will be approximately 7,020 square feet. Therefore, Earth Tech personnel will collect fifteen aliquot soil samples for one composite confirmation sample to verify the lead contaminated soil has been removed to below the site cleanup level of 400 ppm with no single samples with a concentration above 1,200 ppm.

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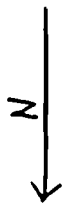
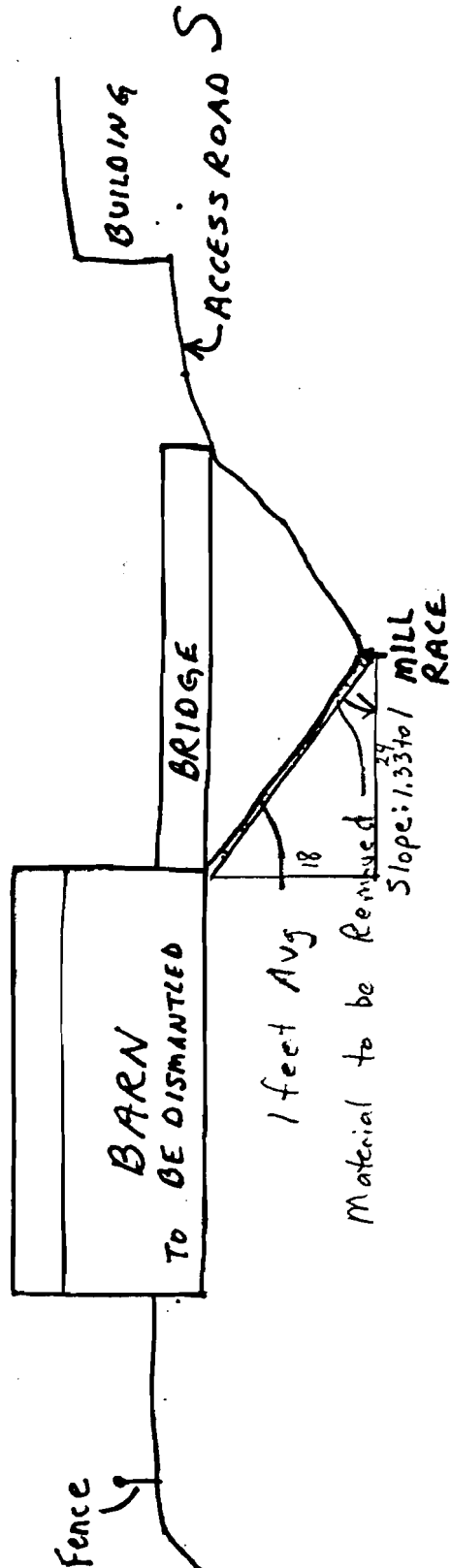


FIGURE 23
 MILL RACE AREA
 UPPER AREA
 CROSS-SECTION U-2 A



SCALE: 1/4 inch = 20 feet

Computed by D. Crose Subject THRA 602 Sheet 6 of 18
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