3M Company
St. Paul, Minnesota

Construction Completion Report
Former Northeast Disposal Area

Woodbury Site
Woodbury, Minnesota

August 2011

c-pfc3-14

WESTON SOLUTIONS

07P-0446-22

CONSTRUCTION COMPLETION REPORT
FORMER NORTHEAST DISPOSAL AREA

WOODBURY SITE
WOODBURY, MINNESOTA

AUGUST 19, 2011

Prepared for

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WOODBURY FORMER NORTHEAST DISPOSAL AREA
CONSTRUCTION COMPLETION CERTIFICATIONS

- Construction mobilization commenced the week of September 20, 2010. Excavation activities commenced on October 4, 2010 and were completed on December 10, 2010 with hauling of the excavated material completed on December 29, 2010. Exclusion zone site decommissioning activities were completed in January 2011.
- Revegetation was deemed sufficient, the silt fencing removed, and the MPCA was notified of project completion on June 23, 2011.
- The limits of removal, as specified in the April 2009 Remedial Design/Response Action (RD/RA) Plan for the Woodbury Site, were met or exceeded.
- 1,192 truckloads, equaling 15,860 cubic yards (28,577 tons) of material, were hauled to SKB Landfill in Rosemount, Minnesota.
- The work was performed with no lost time, injuries, or near misses.

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TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES

LIST OF FIGURES

Title

LIST OF FIGURES (Continued)

LIST OF ACRONYMS

3M	3M Company
AOC	area of contamination
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylene
CCR	Construction Completion Report
cfm	cubic feet per minute
CRZ	Contamination Reduction Zone
CSP	Construction Sampling Plan
dBA	decibel A-weighted
DPT	direct push technology
EQ	Environmental Quality Company
GAC	granular activated carbon
HAP	Hazardous Air Pollutant
HASP	Health and Safety Plan
IRA	Interim Response Action
MDA	Main Disposal Area
µg/g	micrograms per gram
MDD	Minnesota Decision Document
mg/kg	milligrams per kilogram
mg/m^3	milligrams per cubic meter
MPCA	Minnesota Pollution Control Agency
NEDA	Northeast Disposal Area
NPDES	National Pollutant Discharge Elimination System
PCB	polychlorinated biphenyl
pDR	personal DataRam
PFBA	perfluorobutanoic acid
PFBS	perfluorobutane sulfonate
PFC	perfluorochemical
PFHS	perfluorohexane sulfonate
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million

LIST OF ACRONYMS (continued)

QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Response Action
RI/FS	Remedial Investigation/Feasibility Study
SKB	SKB Environmental Industrial Landfill
SRV	Soil Reference Value
SVE	Soil Vapor Extraction
SVOC	semivolatile organic compound
TCLP	toxicity characteristic leaching procedure
TWA	time weighted average
VC	vinyl chloride
Veit	Veit & Company, Inc.
VIC	Voluntary Investigation and Cleanup Program
VOC	volatile organic compound
WESTON®	Weston Solutions, Inc.

1. INTRODUCTION

On behalf of the 3M Company (3M), Weston Solutions, Inc. (WESTON®) has prepared this Construction Completion Report (CCR) for the former Northeast Disposal Area (NEDA) at the 3M Woodbury, Minnesota Site. 3M is submitting this document to the Minnesota Pollution Control Agency (MPCA) in compliance with the May 2007 Settlement Agreement and Consent Order (Agreement) between 3M and the MPCA and with the requirements of the approved Remedial Design/Response Action Plan for the Woodbury Site (RD/RA Plan). Construction activities were completed in accordance with the RD/RA Plan submitted to the MPCA in April 2009.

1.1 BACKGROUND

1.1.1 Site History

Since the late 1960s, 3M has worked cooperatively with state and local authorities in the investigation and remediation of the former Woodbury Disposal Site (the Site) located in Woodbury, Minnesota. The Site includes former waste disposal areas that had received industrial waste from the 3M St. Paul area facilities, including the 3M Cottage Grove, Minnesota facility, from 1960 to 1966. Municipal wastes from the cities of Woodbury and Cottage Grove were also disposed at the Site from 1960 to 1969.

Disposal of 3M materials occurred at two primary locations on the property, known as the Main Disposal Area (MDA) and the Northeast Disposal Area. The cities of Woodbury and Cottage Grove disposed of municipal waste at separate locations on the Site known as the Municipal Fill Areas, which are located in the MDA portion of the Site. The locations of the former disposal areas are depicted in Figure 1-1.

3M stopped all industrial disposal activities at the Site in 1966. Subsequently, in 1968, with the agreement of the MPCA and approval from the cities of Woodbury and Cottage Grove, 3M conducted a waste destruction program at the Site.

Four "barrier" or extraction pumping wells (B-1, B-2, B-3 and B-4) were installed on the property between 1967 and 1973 to prevent migration of volatile organic compounds (VOCs) and other substances from the Site, and these wells have been operated since installation. The locations of these barrier wells are shown on Figure 1-1. Monitoring data and hydraulic gradient evaluations have demonstrated effective capture of VOCs.

In 1992, 3M entered the Site into MPCA's Voluntary Investigation and Cleanup (VIC) program. Under this program, 3M conducted additional investigations in 1992 and 1993 to further characterize site soil and groundwater quality. The investigations primarily showed that although there were some residual VOCs in site soils at the former disposal areas, the groundwater quality data indicated that the barrier well system continued to effectively contain VOCs on-site. In 1996, as part of an Interim Response Action, 3M re-graded and covered the former MDA and Municipal Fill Areas and the former NEDA.

1.1.2 Perfluorochemical (PFC) Program

Since 2005, 3M has been working with the MPCA to assess the presence and extent of perfluorochemicals (PFCs) at the Site. Additional field activities were conducted by 3M to assess the presence of PFCs in groundwater and in former disposal area soils as part of a site remedial investigation.

3M and the MPCA also entered into a Settlement Agreement and Consent Order (Agreement) for the purpose of conducting remedial investigations and response actions to address PFCs at the Site. The Agreement became effective on May 22, 2007. It required that 3M conduct a Remedial Investigation/Feasibility Study (RI/FS) and prepare a Remedial Design/Response Action (RD/RA) Plan with respect to the release or threatened release of PFCs at and from the Site. On January 10, 2008, 3M held a public meeting to provide an overview of the site background and information from the RI/FS.

On February 18, 2008, 3M submitted to the MPCA the *Remedial Investigation/Feasibility Study for the Woodbury Site, Woodbury, Minnesota* (Woodbury RI/FS Report) (WESTON, 2008a). In accordance with the Agreement, the FS portion of the report provided an evaluation of various

response action alternatives which address PFCs in soil and groundwater at the Site, and a recommendation for implementation.

In a letter to 3M dated April 4, 2008, the MPCA approved the Woodbury RI/FS Report, with modifications. Specifically, the MPCA requested that additional information be provided concerning the final disposal location and handling of non-hazardous PFC-containing soil. Accordingly, in April 2008, 3M submitted an addendum to the RI/FS Report entitled *Addendum to the Feasibility Studies for the Oakdale, Woodbury and Cottage Grove Sites, Minnesota* (Addendum 1) (WESTON, 2008b), which provided a description of the off-site disposal locations reviewed and considered, along with the recommended facility. The recommended facility was the SKB Landfill in Rosemount, Minnesota, where a separate engineered cell would be constructed to contain the excavated PFC-containing materials from the 3M Minnesota Sites.

In its April 4, 2008 letter to 3M concerning the Woodbury RI/FS Report, the MPCA indicated that it concurred with the FS-recommended Sitewide Alternative SW-2 and Groundwater Alternative GW-1. With respect to site soils, the MPCA indicated its intent to recommend that Soil Alternative S-3 be implemented and that the extent of soil excavation would be determined pending analysis of soil samples collected in early March 2008. Soil Alternative S-3, as presented in the FS, called for the excavation of the former NEDA trenches and selected areas in the former MDA and disposal of excavated materials in an existing permitted landfill. Subsequently, on June 25, 2008, 3M and WESTON met with MPCA representatives to present a refinement of Alternative S-3, which identified the extent of soil excavation based on the results of the March 2008 soil sampling program. At the meeting, the MPCA indicated its understanding of the refined soil alternative and requested a formal submittal of the information presented. Accordingly, on July 11, 2008, 3M submitted *Addendum 2 to the Feasibility Study for the Woodbury Site* (Addendum 2) (WESTON, 2008c).

In July 2008, the MPCA issued the *Proposed Cleanup Plan for PFCs* (Proposed Plan) (MPCA, 2008a) for the Woodbury Site, issued a public notice in the Woodbury Bulletin, and held a public meeting on July 24, 2008 to present its recommended alternatives as follows:

- Sitewide Alternative SW-2: Institutional controls, access restriction, and continued groundwater monitoring.

- Groundwater Alternative GW-1: Continued groundwater recovery with carbon pretreatment prior to discharge.

- Refined Soil Alternative S-3: Excavation of the former Northeast Disposal Area trenches and selected areas in the former Main Disposal Area; disposal at an existing off-site landfill (in accordance with Addendum 2 to the RI/FS).

The MPCA also indicated in the Proposed Plan that the SKB Landfill facility meets the requirement of the Agreement for an isolated, engineered permitted facility to contain the excavated PFC-containing material. The public was given the opportunity to provide written and oral comments on the proposed remedy.

On December 22, 2008, the MPCA indicated its selection of final response actions in the *Minnesota Decision Document for the Woodbury Site* (MDD) (MPCA, 2008b). The selected final response actions were consistent with those presented in the Proposed Plan, including Sitewide Alternative SW-2, Groundwater Alternative GW-1, and Refined Soil Alternative S-3, as described above. On January 2, 2009, 3M received a letter from the MPCA dated December 23, 2008, which transmitted the signed MDD.

On April 2, 2009, 3M submitted to the MPCA the *Remedial Design/Response Action Plan for the Woodbury Site, Woodbury, Minnesota* (RD/RA Plan) (WESTON, 2009). The RD/RA Plan contains the design and plan for implementing the selected response actions in the MDD. In a letter to 3M dated June 2, 2009, the MPCA provided approval of the RD/RA Plan, with comments.

As presented in the RD/RA Plan, the major elements of the response actions at the Woodbury Site consist of the following:

- Excavation and off-site disposal of soils from the former Main Disposal Area in accordance with Refined Soil Alternative S-3.

- Excavation and off-site disposal of soils from the former Northeast Disposal Area in accordance with Refined Soil Alternative S-3.

- Implementation of response actions in accordance with Groundwater Alternative GW-1 as well as Sitewide Alternative SW-2.

Due to the length of time required for implementation and completion of the entire RD/RA Plan program, it was agreed between 3M and MPCA that Construction Completion Reports (CCRs) would be prepared for each major response action element when completed. Thus, three CCRs would be submitted to the MPCA, one each for the former MDA soils, the former NEDA soils, and site groundwater and institutional controls.

The excavation and off-site disposal of soils from the former MDA were performed in fall 2009. Final grading and revegetation of backfilled and disturbed areas were completed in spring 2010.

On June 22, 2010, 3M submitted to the MPCA the *Construction Completion Report-Former Main Disposal Area* (MDA CCR) (WESTON, 2010). The MDA CCR provided documentation of the completion of the former MDA response actions under Refined Soil Alternative S-3. In a letter to 3M dated September 2, 2010, the MPCA provided conditional approval of the MDA CCR. The MPCA indicated that the CCR is an interim report for the response actions completed at the Woodbury Site, which will be supplemented by a Final RA Implementation Report at the completion of all response actions.

The excavation and off-site disposal of soils from the former NEDA were performed in fall/winter 2010. Final grading and revegetation of backfilled and disturbed areas were completed in spring 2011. Thus, this CCR provides documentation of the completion of the former NEDA response action activities under Refined Soil Alternative S-3.

1.2 REFINED SOIL ALTERNATIVE S-3: FORMER NORTHEAST DISPOSAL AREA

With regard to the former NEDA, the following is a description of Refined Soil Alternative S-3 as presented in Addendum 2 to the FS and in the RD/RA Plan. The horizontal and vertical limits of excavation in the former NEDA were defined by a combination of previously obtained survey coordinates for the extents of the trenches, soil boring logs for lithology and laboratory analytical data (see Figure 1-2). In order to reduce the mass of PFCs in the former NEDA, accessible and potentially accessible soil within the disposal trenches (former Trench B and former Trench D) would be removed for off-site disposal, as shown in Figure 1-3. Other areas outside the former trenches at the former NEDA were sampled and did not exceed Soil Reference Values (SRVs)

for PFCs and did not require removal. The MPCA defines accessible soils as soils from 0 to 4 ft below ground surface (ft bgs) and potentially accessible soils as soils from 0 to 12 ft bgs (MPCA, 1998).

It is important to note that SRVs for PFOA and PFOS were revised on June 22, 2009 after the RD/RA Plan was submitted to MPCA. The Industrial SRV for perfluorooctanoic acid (PFOA) was revised from 23 to 13 milligrams per kilogram (mg/kg) (or parts per million [ppm]). The Industrial SRV for perfluorooctane sulfonate (PFOS) was revised from 12 to 14 ppm. As a result of the SRV revisions, the soil analytical data for the Woodbury Site were reviewed. This review indicated that there were no additional areas where PFC concentrations were greater than the SRVs beyond the limits of the former trenches, which were already presented in Addendum 2 to the FS and the RD/RA Plan.

A soil cover consisting of a minimum of 2 feet of clean fill and topsoil was placed over the former NEDA in 1996 as part of an Interim Response Action. Sampling of this cover material for PFCs was conducted on July 24, 2008 and again on September 23, 2009 at former Trench B and former Trench D in accordance with the RD/RA Plan. Sample locations are shown on Figure 1-2, and the PFC results are summarized in Table 1-1. A copy of the laboratory analytical data packages is provided in Appendix E.

The analytical results confirmed that the cover soil did not contain PFC concentrations greater than the Industrial SRVs. Therefore, in accordance with the RD/RA Plan, this material could be removed and stockpiled on-site for subsequent backfill. Soils between 2 and 12 ft bgs within former Trench B and Trench D would be removed for off-site disposal as shown on Figure 1-3. Additional localized excavation to a depth of 18 ft bgs would occur in the western side of former Trench B to increase the PFC mass removal. Clean backfill would be brought to the Site to replace the volume of excavated soils. The clean fill would also provide appropriate grading across the Site. Approximately 6 inches of topsoil would cover the area, and the area would be seeded and stabilized after completion of backfill cover activities.

Based on this information, the Refined Soil Alternative S-3 includes the following components at the former NEDA:

- Stockpiling soil removed from 0 to 2 ft bgs.
- Excavating soils in delineated areas from 2 to 12 ft bgs at former Trench B and former Trench D, with localized excavation from 12 to 18 ft bgs in the western side of former Trench B (as shown in Figure 1-3).
- Backfilling the excavations with the stockpiled cover soil, clean fill and topsoil, and grading the area to facilitate stormwater drainage.
- Transporting excavated soil and other debris to an existing permitted off-site landfill to provide engineered isolation and containment of PFCs for these materials.

Excavated soils would be transported to the SKB Environmental (SKB) Industrial Landfill in Rosemount, Minnesota, subject to the landfill's acceptance criteria. Soil not meeting SKB's permit criteria would be segregated and disposed at a separate and appropriate off-site facility.

1.3 PURPOSE OF THE CONSTRUCTION COMPLETION REPORT

The purpose of this CCR is to document the response actions that have been completed at the former NEDA at the Woodbury, Minnesota Site. This CCR is the second of three CCRs for the Woodbury, Minnesota Site. The MDA CCR was submitted to the MPCA in June 2010 for response actions completed at the former MDA. This CCR will be followed by a CCR for groundwater and sitewide response actions as they are completed in accordance with the RD/RA Plan. A final RA Implementation Report will be submitted to the MPCA at the conclusion of all response actions at the Woodbury Site.

1.4 RESPONSE ACTION OBJECTIVES

In accordance with the MDD, the objectives of the response actions at the Woodbury Site are:

- To reduce unacceptable exposures to PFCs in groundwater.
- To reduce PFC concentrations in the soil and groundwater.
- To reduce PFC concentrations in discharges to surface water.
- To maintain an open space as a natural asset to the community.

SECTION 1
TABLE

Table 1-1: Former Northeast Disposal Area Cover Soil (0 to 2 ft bgs) - PFC Analytical Results July 2008 and September 2009

Sample ID	Average PFBA (µg/g, ppm)	Average PFOA (µg/g, ppm)	Average PFBS (µg/g, ppm)	Average PFHS (µg/g, ppm)	Average PFOS (µg/g, ppm)
July 2008					
NEB-1	ND	ND	ND	ND	ND
NEB-2	ND	ND	ND	ND	ND
NEB-3	ND	ND	ND	ND	ND
NED-1	ND	ND	ND	ND	ND
NED-2	NR	0.557	0.184	3.04	5.11
NED-3	ND	ND	ND	ND	ND
September 2009					
NESP01	ND	ND	ND	ND	ND
NESP03	ND	ND	ND	ND	ND
NESP05	ND	ND	ND	ND	ND
NESP07	ND	ND	ND	ND	0.101
NESP09	ND	ND	ND	ND	ND
NESP11	ND	ND	ND	ND	0.173
NESP13	ND	ND	ND	ND	ND
NESP15	ND	ND	ND	ND	ND
NESP17	ND	ND	ND	ND	ND
NESP19	ND	ND	ND	ND	0.0903
NESP21	ND	ND	ND	ND	ND
NESP23	ND	ND	ND	ND	ND

ND - Not detected at or above Limit of Quantitation of 0.100 µg/g.

NR - Not reported due to quality control issues.

PFBA - perfluorobutanoic acid

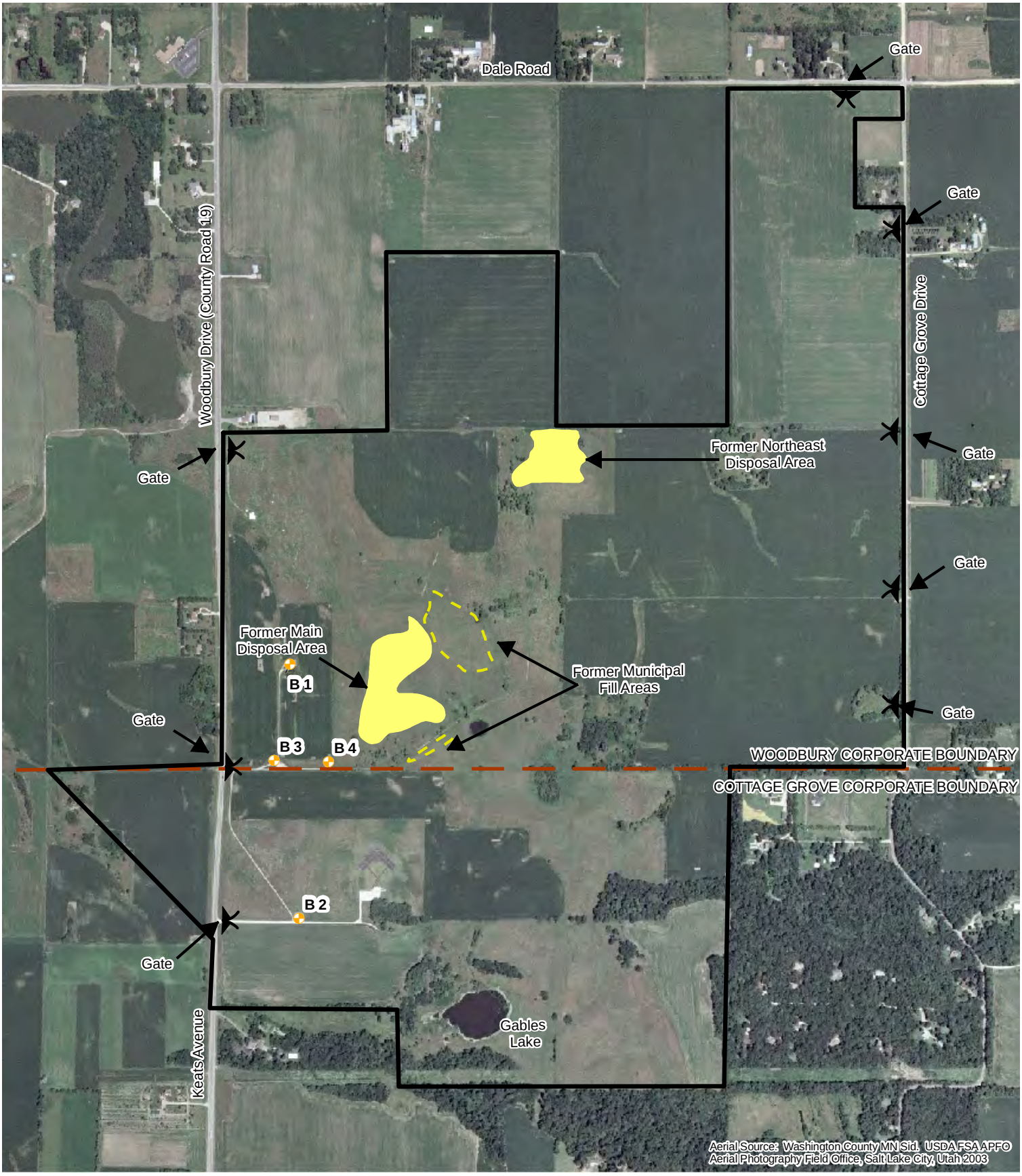
PFOA - perfluorooctanoic acid

PFBS - perfluorobutane sulfonate

PFHS - perfluorohexane sulfonate

PFOS - perfluorooctane sulfonate

SECTION 1
FIGURES



Legend:

- Approximate Disposal Area Boundaries
- Site Boundary
- Barrier Well Locations

N
W E
S

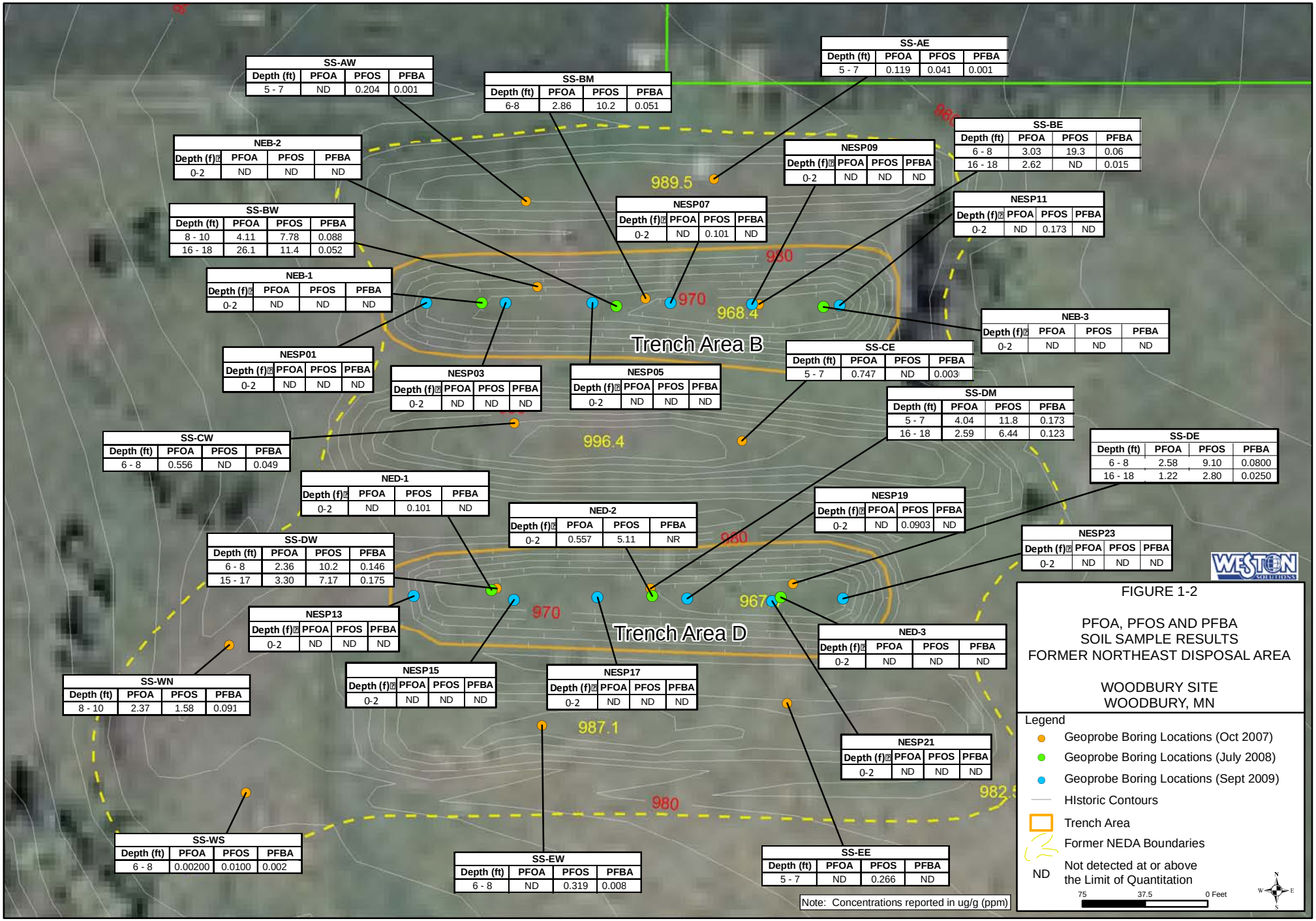
0 500 1,000 Feet

FIGURE 1-1

SITE FEATURES

WOODBURY SITE
WOODBURY, MN

File: \\fsfed01\tig\3MWoodbury\MXD\RDRA\site_features.mxd, 20-May-10 14:26, ricksc



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2. INTERIM RESPONSE ACTION – SOIL VAPOR EXTRACTION (SVE) AT THE FORMER NORTHEAST DISPOSAL AREA

2.1 BACKGROUND

Refined Soil Alternative S-3 includes excavation of PFC-containing soil from the former NEDA as depicted in Figure 1-3. Considering the history of the Site and the analysis of soils as part of the RI, it was expected that soils containing VOCs, as well as the targeted PFCs, would be encountered during excavation activities. In accordance with Alternative S-3, the excavated PFC-containing soils were to be disposed at the SKB Landfill in Rosemount, Minnesota. However, the presence of VOCs in the soils at concentrations greater than the Minnesota Industrial SRVs (for VOCs) could have potentially prevented their acceptance at SKB and also could have created odor concerns.

3M and the MPCA discussed the benefits of installing a temporary Soil Vapor Extraction (SVE) system to remove VOCs from the subsurface soils targeted for excavation. SVE is a proven technology for removing VOCs from vadose zone soils and reducing soil VOC concentrations. Figure 2-1 depicts the basic components of SVE. As shown, vents are installed into the unsaturated zone soils within the treatment area, and these vents are connected via manifolds to the suction (inlet) side of a blower. The subsurface portion of the vents is screened so that the induced vacuum draws in vapor from the surrounding soil. Soil vapor containing VOCs is drawn by the blower through a knockout pot to remove moisture prior to releasing the vapors to the atmosphere.

As indicated in the MPCA-approved RD/RA Plan, 3M had already obtained approval from MPCA and operated a temporary SVE system in the former MDA prior to excavation activities in that area. With respect to the former NEDA, 3M also sought and obtained MPCA approval to install and operate an SVE system prior to excavation activities in this area. Accordingly, the SVE system was installed and operated to reduce VOC concentrations in soil as discussed in Sections 2.1.1 and 2.1.2.

3M submitted the SVE design information and request for approval as an Interim Response Action in a letter to MPCA dated November 23, 2009. Due to the planned short duration of SVE

operations (i.e., 2 to 4 months), it was proposed that emissions be controlled by operational measures and not by utilizing a vapor phase granular activated carbon (GAC) emission control system, as it would not be necessary. As described in Section 2.1.2, the SVE unit was operated and emissions were monitored to ensure that the MPCA's Hazardous Air Pollutant (HAP) and VOC emission thresholds were not exceeded, i.e., that no individual HAP emission was greater than 10 tons/year, the total combined HAP emissions were not greater than 25 tons/year, and the total VOC emissions were less than 100 tons/year.

3M and the MPCA discussed the SVE design at a meeting on December 9, 2009 and the MPCA followed up with a request for more information by electronic correspondence dated December 15, 2009. 3M responded to the request in a letter to MPCA dated January 8, 2010 that provided additional information and calculations to ensure that HAP emission levels would not be exceeded and addressed other technical comments. Final approval for installation and operation of a temporary SVE system in the former NEDA was received from the MPCA in a letter to 3M dated January 19, 2010. The temporary SVE system was installed and operated in accordance with MPCA's approval as discussed in the following sections.

2.1.1 Temporary SVE System Installation

During the week of February 8, 2010, 24 SVE vents were installed in the eastern portion of former NEDA trenches in areas of elevated VOC concentrations in soils. Six vents (B-1 to B-6) were installed in the eastern end of former Trench B, and 18 vents (D-1 to D-18) were installed in the eastern end of former Trench D) at locations shown in Figure 2-2 where higher vinyl chloride (VC) concentrations were detected. VC is relatively volatile and readily removed by SVE. The vents were installed to a depth of approximately 12 ft bgs or shallower if weathered bedrock was encountered. Screens were set from approximately 4 to 12 ft bgs. SVE vent logs and construction details are provided in Appendix A.

Following completion of the vent construction, PVC piping was installed aboveground to connect individual vents to the trailer-mounted SVE treatment system. The SVE treatment system consisted of a moisture knockout pot inside the trailer to remove moisture from the extracted soil vapor, two blowers inside the trailer enclosure to draw the air through the piping and SVE equipment before discharge into the atmosphere. Installation of the SVE system was

completed on March 14, 2010. Figure 2-2 shows the layout of the SVE vent system and the location of the trailer enclosure containing the blowers and associated equipment. Operation of the SVE system is described in Section 2.1.2.

Following a conversation between 3M and MPCA on April 28, 2010, 3M proceeded with plans to install additional vents in areas of elevated soil VOC concentrations in the former NEDA to increase VOC mass removal. 3M presented the proposed vent locations and operational details in a letter to MPCA dated May 5, 2010. MPCA provided their concurrence with the expansion of the system in electronic correspondence dated May 5, 2010 and indicated that the SVE expansion could be completed under the MPCA's January 19, 2010 approval letter.

An additional 12 vents were installed on May 13 and 14, 2010. Six vents were installed at the western end of former Trench B (B-7 through B-12) to depths of approximately 14 to 17 ft bgs with approximately 10 feet of screen at the base of each vent. Six vents were installed west of the existing vents in former Trench D (D-19 through D-24) to a depth of 12 feet with 8 feet of screen at the base of each vent. The locations of these vents are shown in Figure 2-2. The additional vents were constructed in the same manner as the previously installed vents and were connected to existing system manifold piping on May 17, 2010.

2.1.2 Temporary SVE System Operation

Startup and shakedown of the SVE system were conducted from March 19 to 22, 2009. After startup and shakedown, except for periodic maintenance and downtime, the SVE system was in operation 24 hours/day, 7 days/week. On August 23, 2010, the SVE system was shut down. The following is a summary of the key SVE operational parameters for the period of operation:

- The SVE system operated approximately 3,600 hours.
- The average flow rate was approximately 540 cubic feet per minute (cfm).
- The approximate mass of VOCs removed was 840 lbs.
- The SVE emissions were well below the MPCA HAP or VOC emission thresholds.

During SVE operation, operational parameters were measured to track system performance. These included flow and VOC measurements. Photoionization detector (PID) measurements and Summa canister air samples were collected on a regular basis in accordance with the MPCA-approved SVE design.

Soil vapor total VOC concentrations were obtained at the individual vents using a PID. PID and flow rate measurements were collected at the system inlet and the system's discharge to the atmosphere.

Summa canister air samples were collected at the SVE system's discharge. The air sampling results were used to track the cumulative mass of VOCs removed and to quantify the specific organic compound concentrations, which included benzene, toluene, ethylbenzene, and xylene (BTEX), chlorinated VOCs, cyclohexane, and heptane. Summa canister air sample analytical results are summarized in Table 2-1. In accordance with the MPCA's January 19, 2010 approval letter, a tabular summary of the results was transmitted to MPCA within one business day of the receipt of the final laboratory analytical data package. The summarized results were submitted to MPCA along with the calculated total HAP and VOC emissions to ensure that the MPCA's thresholds were not exceeded. In the MPCA's January 19, 2010 approval letter, it was stated that if any HAP or VOC emission mass reaches 90% of the annual threshold, the MPCA shall be immediately notified and the SVE unit promptly shut down until the need for additional emission controls is evaluated. As indicated in Table 2-1, the cumulative individual HAP emissions were well below 10 tons/year, the total combined HAP emission of 0.33 ton was well below 25 tons/year, and the total VOC emission of 0.42 ton was well below 100 tons/year.

As shown in Figure 2-3, VOC concentrations decreased in the soil vapor extracted over time. On May 27, 2010, six vents (B-2, B-4, B-6, D-12, D-16, D-18) were closed. PID readings indicated that the soil vapor extracted at these six vents contained much lower VOC concentrations. Closing these six vents allowed the vacuum to be applied to the remaining 30 vents and to increase VOC removal (see Figure 2-3). On August 23, 2010, the SVE system was shut down, and decommissioning of the aboveground portion of the system commenced in preparation for soil removal activities in the former NEDA (former Trench B and former Trench D). The below ground portions of the system (i.e., vents) were removed with the excavated soils.

2.2 SOIL DISPOSAL PROFILE SAMPLING

In preparation for excavation activities, soil disposal profile sampling was conducted in September 2009 and July 2010 for non-PFC parameters. Additionally, non-PFC data from previous sampling efforts in April 2007, March 2008, and July 2008 to support the site

assessment and feasibility study activities were also included in the soil disposal profile application submitted to the MPCA.

It is important to note that from March to August 2010, the SVE system was operating in portions of former Trench B and former Trench D to reduce the VOC concentrations in the soil to be excavated. As such, for soil that was treated by SVE, only the most recent VOC results (July 2010) were considered representative for disposal profiling. All other parameter results (e.g., semivolatile organic compounds (SVOCs), PCBs, metals) were included from each sampling event and considered for disposal profiling. For soil in portions of the former trenches not treated by SVE, all previous VOC results were included and considered for disposal profiling. A tabular summary of the soil boring data (in situ data) used for disposal profiling is provided in Appendix E.

In September 2009, the initial soil profile sampling was conducted in general accordance with the Construction Sampling Plan (CSP) (provided as Attachment 2 to the MPCA-approved Remedial Design/Response Action Plan (RD/RA Plan) for the Woodbury Site), which contains a description of the in situ soil sampling to be performed prior to excavation. Due to bedrock side slopes of the former trenches, the Geoprobe rig could not reach the depths prescribed at the sampling grid locations depicted in the CSP. Therefore, the sampling configuration was modified (from the 50-foot grid) in the field such that the soil borings were constructed along the centerline of each trench at a spacing of 25 to 30 feet. The sampling locations are shown in Figure 2-4.

A total of 24 soil borings (NESP01 through NESP24) were located throughout the defined portions of former Trench B and former Trench D by direct push technology (DPT). In accordance with the CSP, at each soil boring, samples were collected in the 0 to 2 ft bgs, 2 to 7 ft bgs, 7 to 12 ft bgs, and 12 to 18 ft bgs (where applicable) intervals. The cover soil in the 0 to 2 ft interval was analyzed only for PFCs to confirm that it did not contain PFCs at concentrations greater than the MPCA's Industrial SRVs.

After 18 weeks of SVE operation, sampling was conducted on July 20 and 21, 2010 to confirm the reduced VOC concentrations and to update the soil profile VOC data for the treated blocks. Eighteen soil borings (NESP01C through NESP05C, NESP08C, NESP10C, NESP12C, and

NESP15C through NESP24C) were drilled and sampled at the same locations sampled in September 2009 and using the same procedures. In some instances, soil samples were also analyzed for TCLP metals where previous data for the soil block indicated a total metals concentration greater than 20 times its TCLP limit.

With respect to VOCs, data collected in July 2010 for soil blocks treated by SVE superseded previous VOC data as being representative of that soil block. If a soil block was not treated by SVE, then previous VOC data collected within that block were considered representative of that block. With respect to non-VOC data (i.e., PCB, SVOCs, TCLP, metals), all data collected within the soil block were considered representative of that soil block.

Based on the in situ sampling results, soil blocks were classified as requiring additional ex situ sampling or as a solid waste. In each soil block classified as requiring additional ex situ sampling (shown in purple in Figure 2-5), at least one soil sample collected within the block met one of the Resource Conservation and Recovery Act (RCRA) characteristic criteria, or contained a PCB concentration greater than 50 ppm, or contained certain waste constituents at concentrations greater than their Industrial Tier 2 SRVs. As discussed in the CSP, these soil blocks were placed in approximately 100 cubic yard stockpiles and sampled (ex situ) for further disposal profiling.

For each of the soil blocks classified as solid waste (shown in yellow in Figure 2-5), none of the soil samples collected within the blocks met or exceeded the RCRA characteristic criteria, none contained a PCB concentration greater than 50 ppm, and none contained waste constituent concentrations greater than the Tier 2 Industrial SRVs.

In a letter dated September 2, 2010, 3M requested from the MPCA a determination as to whether the SKB Landfill would be able to accept such soil classified as solid waste as well as stockpiled soil subjected to additional ex situ sampling and demonstrated to meet solid waste criteria. MPCA responded to 3M in a letter dated September 8, 2010 with the following comments:

- "The assumption here is that the analytical results presented for each grid is representative of the soil in that grid. If there are indications that it is not, additional samples should be collected."

- "Soils identified by the in situ sampling as being below Industrial SRVs, below 50 ppm PCB, and showing no characteristics of a hazardous waste can be managed as a non-hazardous waste if disposed at the SKB landfill as approved by SKB."

- "Soil to be stockpiled should be stockpiled in the area of contamination (AOC) prior to ex-situ sampling and managed in a way to prevent further release."

- "For the stockpiled soil, all stockpiles that exceed 50 ppm PCB based on ex-situ sampling should be managed as hazardous waste."

- "Stockpiled soil may be treated in the AOC to lower VOC concentrations below the Industrial SRV or to remove the hazardous waste characteristic. 3M should inform the MPCA how they intend to treat the soil if necessary prior to treatment. It is likely that excavation and stockpiling of soil will decrease VOC levels in most cases. If ex-situ sampling results indicate the stockpiled soil is below the Industrial SRV, the soil no longer exhibits a characteristic, and contains less than 50 ppm PCB, the soil may be managed as a non-hazardous waste if disposed at the SKB landfill as approved by SKB."

Based on MPCA comments, the soil block figure for former Trench B and former Trench D did not need to be revised. In accordance with MPCA's September 2, 2010 waste determination letter, all of the soils excavated from the former NEDA were demonstrated to meet solid waste criteria and were disposed at the SKB Landfill. This is discussed in detail in Section 3.5.

SECTION 2
TABLE

Table 2-1: Temporary SVE System Soil Vapor Concentrations and Calculated Emissions
Former Northeast Disposal Area Woodbury Site

HAP Y or N	Sample Name	WBMN-ARC-NEDA-0-100322			WBMN-ARC-NEDA-0-100329			WBMN-ARC-NEDA-0-100405			WBMN-ARC-NEDA-0-100412		
	Sample Collection Date	3/22/2010			3/29/2010			4/5/2010			4/12/2010		
	Sample Location	Post-Blower			Post-Blower			Post-Blower			Post-Blower		
	Week No.		1			2			3			4	
	Average Flow Rate		519.2 cfm			549.8 cfm			576.0 cfm			584.7 cfm	
	Parameters[1]	Analytical Results (ppbv)	lbs/day	Tons Emitted[4]	Analytical Results (ppbv)	lbs/day	Tons Emitted[4]	Analytical Results (ppbv)	lbs/day	Tons Emitted[4]	Analytical Results (ppbv)	lbs/day	Tons Emitted[4]
Y	Benzene	920	0.14	0.001	580	0.09	0.0003	430	0.072	0.0003	280	0.048	0.0002
Y	Ethylbenzene	2000	0.41	0.002	1500	0.33	0.001	1200	0.27	0.0010	660	0.15	0.0005
Y	Toluene	40000	7.15	0.032	29000	5.49	0.019	22000	4.36	0.0153	10000	2.01	0.0070
Y	Trichloroethene	ND	0	0	ND	0	0	230	0.065	0.0002	210	0.060	0.0002
Y	Tetrachloroethylene	ND	0	0	ND	0	0	210	0.075	0.0003	190	0.069	0.0002
Y	1,1-Dichloroethane	960	0.18	0.001	680	0.14	0.0005	410	0.087	0.0003	300	0.065	0.0002
Y	1,2-Dichloroethane	530	0.10	0.0005	500	0.10	0.0003	420	0.089	0.0003	400	0.086	0.0003
Y	Vinyl chloride	60000	7.28	0.033	39000	5.01	0.017	15000	2.02	0.0071	11000	1.50	0.0053
Y	1,1,2-Trichloroethane	ND	0	0	420	0.12	0.0004	510	0.146	0.0005	450	0.131	0.0005
Y	1,1,1-Trichloroethane	ND	0	0	ND	0	0	ND	0	0	88	0.026	0.0001
Y	1,1-Dichloroethylene	2200	0.41	0.002	1100	0.22	0.001	730	0.152	0.0005	570	0.121	0.0004
Y	Xylene (Total)	16000	3.30	0.015	12000	2.62	0.009	11000	2.51	0.0088	7400	1.72	0.0060
Y	*m&p-Xylene*	*13000*	*2.68*	*0.012*	*9800*	*2.14*	*0.007*	*8600*	*1.97*	*0.0069*	*5600*	*1.30*	*0.0045*
Y	*o-Xylene*	*2800*	*0.58*	*0.003*	*2100*	*0.46*	*0.002*	*2000*	*0.46*	*0.0016*	*1700*	*0.39*	*0.0014*
	Total HAPs[2]			**0.085**			**0.048**			**0.034**			**0.021**
N	Cyclohexane	770	0.13	0.001	470	0.08	0.0003	370	0.07	0.0002	290	0.05	0.0002
N	1,2,4-Trimethylbenzene	ND	0	0	ND	0	0	190	0.05	0.0002	150	0.04	0.0001
N	n-Heptane	6400	1.24	0.006	5300	1.09	0.004	3000	0.65	0.0023	2000	0.44	0.0015
N	1,2-Dichloroethene (total)	11000	2.07	0.009	7300	1.45	0.005	6300	1.32	0.0046	5100	1.08	0.0038
N	*cis-1,2-Dichloroethene*	*11000*	*2.07*	*0.009*	*7300*	*1.45*	*0.005*	*6300*	*1.31*	*0.0046*	*5100*	*1.08*	*0.0038*
N	*trans-1,2-Dichloroethene*	*ND*	*0*	*0*	*ND*	*0*	*0*	*ND*	*0*	*0*	*ND*	*0*	*0*
	Total VOCs [3]	140,780		**0.101**	97,850		**0.057**	62,000		**0.042**	39,088		**0.027**

1 - Only detected compounds are listed.
2 - Total Hazardous Air Pollutants (HAPs) includes Xylene (Total), but not m&p-Xylene and o-Xylene as these compounds are already accounted for in the Xylene (Total) result.
3 - Total Volatile Organic Compounds (VOCs) includes Xylene (Total), but not m&p-Xylene and o-Xylene as these compounds are already accounted for in the Xylene (Total) result. Additionally, Total VOCs includes 1,2-Dichloroethene (total), but not cis- or trans-1,2-Dichloroethene, as these compounds are already accounted for in the 1,2-Dichloroethene (total) result.
4 - Tons emitted during period specified.

ppbv - parts ber billion by volume

Thresholds
Less than 10 tons/year for each HAP.
Less than 25 tons/year for total HAPs.
Less than 100 tons/year total VOCs.

Table 2-1: Temporary SVE System Soil Vapor Concentrations and Calculated Emissions
Former Northeast Disposal Area Woodbury Site

HAP Y or N	Sample Name	WBMN-ARC-NEDA-0-100430			WBMN-ARC-NEDA-0-100511			WBMN-ARC-NEDA-0-100517			WBMN-ARC-NEDA-0-100527		
	Sample Collection Date	4/30/2010			5/11/2010			5/17/2010			5/27/2010		
	Sample Location	Post-Blower			Post-Blower			Post-Blower			Post-Blower		
	Week No.		5 & 6			7 & 8			9			10	
	Average Flow Rate		552.3 cfm			520.7 cfm			525.7 cfm			555.9 cfm	
	Parameters[1]	Analytical Results (ppbv)	lbs/day	Tons Emitted[4]	Analytical Results (ppbv)	lbs/day	Tons Emitted[4]	Analytical Results (ppbv)	lbs/day	Tons Emitted[4]	Analytical Results (ppbv)	lbs/day	Tons Emitted[4]
Y	Benzene	170	0.027	0.0002	120	0.018	0.0001	ND	0	0	110	0.018	0.0001
Y	Ethylbenzene	ND	0	0	ND	0	0	ND	0	0	180	0.040	0.0001
Y	Toluene	1000	0.190	0.0011	400	0.072	0.0005	3700	0.669	0.0023	2700	0.517	0.0018
Y	Trichloroethene	250	0.068	0.0004	230	0.059	0.0004	ND	0	0	280	0.076	0.0003
Y	Tetrachloroethylene	210	0.072	0.0004	200	0.065	0.0005	ND	0	0	230	0.079	0.0003
Y	1,1-Dichloroethane	310	0.063	0.0004	250	0.048	0.0003	430	0.084	0.0003	330	0.068	0.0002
Y	1,2-Dichloroethane	560	0.114	0.0006	510	0.098	0.0007	440	0.086	0.0003	550	0.113	0.0004
Y	Vinyl chloride	11000	1.419	0.0079	7300	0.888	0.0062	41000	5.034	0.0176	12000	1.558	0.0055
Y	1,1,2-Trichloroethane	670	0.184	0.0010	630	0.164	0.0011	470	0.123	0.0004	620	0.172	0.0006
Y	1,1,1-Trichloroethane	ND	0	0	ND	0	0	ND	0	0	ND	0	0
Y	1,1-Dichloroethylene	600	0.120	0.0007	480	0.091	0.0006	1000	0.190	0.0007	670	0.135	0.0005
Y	Xylene (Total)	3100	0.679	0.0038	2100	0.434	0.0030	2800	0.584	0.0020	2700	0.596	0.0021
Y	*m&p-Xylene*	*1900*	*0.416*	*0.0023*	*1200*	*0.248*	*0.0017*	*2000*	*0.417*	*0.0015*	*1900*	*0.419*	*0.0015*
Y	*o-Xylene*	*1200*	*0.263*	*0.0015*	*910*	*0.188*	*0.0013*	*830*	*0.173*	*0.0006*	*860*	*0.190*	*0.0007*
	Total HAPs[2]			**0.016**			**0.014**			**0.024**			**0.012**
N	Cyclohexane	230	0.04	0.0002	180	0.03	0.0002	ND	0	0	150	0.03	0.0001
N	1,2,4-Trimethylbenzene	120	0.03	0.0002	ND	0	0	ND	0	0	ND	0	0
N	n-Heptane	1100	0.23	0.0013	490	0.10	0.0007	1300	0.26	0.0009	520	0.11	0.0004
N	1,2-Dichloroethene (total)	5100	1.02	0.0057	4600	0.87	0.0061	5800	1.11	0.0039	5100	1.03	0.0036
N	*cis-1,2-Dichloroethene*	*5100*	*1.02*	*0.0057*	*4600*	*0.87*	*0.0061*	*5800*	*1.10*	*0.0039*	*5100*	*1.03*	*0.0036*
N	*trans-1,2-Dichloroethene*	*ND*	*0*	*0*	*ND*	*0*	*0*	*ND*	*0*	*0*	*ND*	*0*	*0*
	Total VOCs [3]	24,420		**0.024**	17,490		**0.021**	56,940		**0.028**	26,140		**0.016**

1 - Only detected compounds are listed.
2 - Total Hazardous Air Pollutants (HAPs) includes Xylene (Total), but not m&p-Xylene and o-Xylene as these compounds are already accounted for in the Xylene (Total) result.
3 - Total Volatile Organic Compounds (VOCs) includes Xylene (Total), but not m&p-Xylene and o-Xylene as these compounds are already accounted for in the Xylene (Total) result. Additionally, Total VOCs includes 1,2-Dichloroethene (total), but not cis- or trans-1,2-Dichloroethene, as these compounds are already accounted for in the 1,2-Dichloroethene (total) result.
4 - Tons emitted during period specified.

ppbv - parts ber billion by volume

Thresholds
Less than 10 tons/year for each HAP.
Less than 25 tons/year for total HAPs.
Less than 100 tons/year total VOCs.

Table 2-1: Temporary SVE System Soil Vapor Concentrations and Calculated Emissions
Former Northeast Disposal Area Woodbury Site

HAP Y or N	Sample Name	WBMN-ARC-NEDA-0-100601			WBMN-ARC-NEDA-0-100611			WBMN-SVE-NEDA-0-100624			WBMN-ARC-NEDA-0-100708		
	Sample Collection Date	**6/1/2010**			**6/11/2010**			**6/24/2010**			**7/8/2010**		
	Sample Location	**Post-Blower**			**Post-Blower**			**Post-Blower**			**Post-Blower**		
	Week No.		**11**			**12**			**13 & 14**			**15 & 16**	
	Average Flow Rate		**517.7 cfm**			**531.0 cfm**			**497.4 cfm**			**506.7 cfm**	
	Parameters[1]	**Analytical Results (ppbv)**	**lbs/day**	**Tons Emitted[4]**	**Analytical Results (ppbv)**	**lbs/day**	**Tons Emitted[4]**	**Analytical Results (ppbv)**	**lbs/day**	**Tons Emitted[4]**	**Analytical Results (ppbv)**	**lbs/day**	**Tons Emitted[4]**
Y	Benzene	120	0.018	0.0001	110	0.017	0.0001	ND	0	0	ND	0	0
Y	Ethylbenzene	130	0.027	0.0001	ND	0	0	ND	0	0	ND	0	0
Y	Toluene	2100	0.374	0.0013	1400	0.256	0.0009	500	0.086	0.0006	460	0.080	0.0006
Y	Trichloroethene	320	0.081	0.0003	390	0.102	0.0004	270	0.066	0.0005	290	0.072	0.0005
Y	Tetrachloroethylene	250	0.080	0.0003	300	0.099	0.0003	200	0.062	0.0004	200	0.063	0.0004
Y	1,1-Dichloroethane	390	0.075	0.0003	490	0.096	0.0003	280	0.052	0.0004	310	0.058	0.0004
Y	1,2-Dichloroethane	590	0.113	0.0004	760	0.149	0.0005	480	0.088	0.0006	440	0.082	0.0006
Y	Vinyl chloride	12000	1.451	0.0051	16000	1.984	0.0069	8500	0.988	0.0069	9500	1.124	0.0078
Y	1,1,2-Trichloroethane	560	0.145	0.0005	700	0.185	0.0006	350	0.087	0.0006	370	0.093	0.0006
Y	1,1,1-Trichloroethane	ND	0	0	110	0.029	0.0001	ND	0	0	85	0.021	0.0001
Y	1,1-Dichloroethylene	790	0.148	0.0005	950	0.183	0.0006	600	0.108	0.0008	680	0.125	0.0009
Y	Xylene (Total)	3000	0.616	0.0022	2500	0.527	0.0018	790	0.156	0.0011	540	0.109	0.0008
Y	*m&p-Xylene*	*2000*	*0.411*	*0.0014*	*1500*	*0.316*	*0.0011*	*430*	*0.085*	*0.0006*	*290*	*0.058*	*0.0004*
Y	*o-Xylene*	*1000*	*0.205*	*0.0007*	*1000*	*0.211*	*0.0007*	*360*	*0.071*	*0.0005*	*250*	*0.050*	*0.0003*
	Total HAPs[2]			**0.011**			**0.013**			**0.012**			**0.013**
N	Cyclohexane	160	0.03	0.0001	170	0.03	0.0001	ND	0	0	82	0.013	0.0001
N	1,2,4-Trimethylbenzene	110	0.03	0.0001	100	0.02	0.0001	ND	0	0	ND	0	0
N	n-Heptane	560	0.11	0.0004	540	0.11	0.0004	210	0.04	0.0003	150	0.028	0.0002
N	1,2-Dichloroethene (total)	6200	1.16	0.0041	7300	1.41	0.0049	4400	0.79	0.0056	4600	0.845	0.0059
N	*cis-1,2-Dichloroethene*	*6200*	*1.16*	*0.0041*	*7200*	*1.39*	*0.0048*	*4400*	*0.79*	*0.0056*	*4600*	*0.844*	*0.0059*
N	*trans-1,2-Dichloroethene*	*ND*	*0*	*0*	*90*	*0.017*	*0.0001*	*ND*	*0*	*0*	*69*	*0.013*	*0.0001*
	Total VOCs [3]	27,280		**0.016**	31,820		**0.018**	16,580		**0.018**	17,707		**0.019**

1 - Only detected compounds are listed.
2 - Total Hazardous Air Pollutants (HAPs) includes Xylene (Total), but not m&p-Xylene and o-Xylene as these compounds are already accounted for in the Xylene (Total) result.
3 - Total Volatile Organic Compounds (VOCs) includes Xylene (Total), but not m&p-Xylene and o-Xylene as these compounds are already accounted for in the Xylene (Total) result. Additionally, Total VOCs includes 1,2-Dichloroethene (total), but not cis- or trans-1,2-Dichloroethene, as these compounds are already accounted for in the 1,2-Dichloroethene (total) result.
4 - Tons emitted during period specified.

ppbv - parts ber billion by volume

Thresholds
Less than 10 tons/year for each HAP.
Less than 25 tons/year for total HAPs.
Less than 100 tons/year total VOCs.

Table 2-1: Temporary SVE System Soil Vapor Concentrations and Calculated Emissions
Former Northeast Disposal Area Woodbury Site

HAP Y or N	Sample Name	WBMN-ARC-NEDA-0-100722			WBMN-ARC-NEDA-0-100802			WBMN-ARC-NEDA-0-100820			Total Tons Emitted
	Sample Collection Date	**7/22/2010**			**8/2/2010**			**8/20/2010**			
	Sample Location	**Post-Blower**			**Post-Blower**			**Post-Blower**			
	Week No.		**17 & 18**			**19 & 20**			**21 & 22**		
	Average Flow Rate		**557.4 cfm**			**561.6 cfm**			**538.6 cfm**		
	Parameters[1]	**Analytical Results (ppbv)**	**lbs/day**	**Tons Emitted[4]**	**Analytical Results (ppbv)**	**lbs/day**	**Tons Emitted[4]**	**Analytical Results (ppbv)**	**lbs/day**	**Tons Emitted[4]**	
Y	Benzene	ND	0	0	ND	0	0	ND	0	0	**0.0018**
Y	Ethylbenzene	ND	0	0	ND	0	0	ND	0	0	**0.005**
Y	Toluene	520	0.100	0.0007	530	0.102	0.0007	330	0.061	0.0004	**0.0840**
Y	Trichloroethene	280	0.077	0.0005	280	0.077	0.0005	230	0.061	0.0004	**0.0046**
Y	Tetrachloroethylene	210	0.073	0.0005	210	0.073	0.0005	150	0.050	0.0004	**0.0045**
Y	1,1-Dichloroethane	240	0.049	0.0003	230	0.048	0.0003	170	0.034	0.0002	**0.0053**
Y	1,2-Dichloroethane	480	0.099	0.0007	440	0.091	0.0006	360	0.072	0.0005	**0.0074**
Y	Vinyl chloride	5000	0.651	0.0044	4300	0.564	0.0039	2300	0.289	0.0021	**0.136**
Y	1,1,2-Trichloroethane	430	0.119	0.0008	540	0.151	0.0011	390	0.105	0.0008	**0.010**
Y	1,1,1-Trichloroethane	67	0.019	0.0001	54	0.015	0.0001	52	0.014	0.0001	**0.0007**
Y	1,1-Dichloroethylene	510	0.103	0.0007	540	0.110	0.0008	360	0.070	0.0005	**0.0108**
Y	Xylene (Total)	530	0.117	0.0008	480	0.107	0.0007	220	0.047	0.0003	**0.0572**
Y	*m&p-Xylene*	*290*	*0.064*	*0.0004*	*260*	*0.058*	*0.0004*	*130*	*0.028*	*0.0002*	***0.0423***
Y	*o-Xylene*	*240*	*0.053*	*0.0004*	*220*	*0.049*	*0.0003*	*93*	*0.020*	*0.0001*	***0.0143***
	Total HAPs[2]			**0.009**			**0.009**			**0.006**	**0.33**
N	Cyclohexane	54	0.009	0.0001	40	0.007	0.00005	29	0.005	0.00004	**0.0022**
N	1,2,4-Trimethylbenzene	ND	0	0	ND	0	0	ND	0	0	**0.0006**
N	n-Heptane	120	0.025	0.0002	84	0.018	0.0001	60	0.012	0.0001	**0.0179**
N	1,2-Dichloroethene (total)	3400	0.687	0.0046	3600	0.733	0.0051	2200	0.430	0.0031	**0.0752**
N	*cis-1,2-Dichloroethene*	*3400*	*0.687*	*0.0046*	*3600*	*0.732*	*0.0051*	*2200*	*0.429*	*0.0031*	***0.0751***
N	*trans-1,2-Dichloroethene*	*53*	*0.011*	*0.0001*	*55*	*0.011*	*0.0001*	*41*	*0.008*	*0.0001*	***0.00036***
	Total VOCs [3]	11,841		**0.014**	11,328		**0.015**	6,851		**0.009**	**0.42**

1 - Only detected compounds are listed.
2 - Total Hazardous Air Pollutants (HAPs) includes Xylene (Total), but not m&p-Xylene and o-Xylene as these compounds are already accounted for in the Xylene (Total) result.
3 - Total Volatile Organic Compounds (VOCs) includes Xylene (Total), but not m&p-Xylene and o-Xylene as these compounds are already accounted for in the Xylene (Total) result. Additionally, Total VOCs includes 1,2-Dichloroethene (total), but not cis- or trans-1,2-Dichloroethene, as these compounds are already accounted for in the 1,2-Dichloroethene (total) result.
4 - Tons emitted during period specified.

ppbv - parts ber billion by volume

Thresholds
Less than 10 tons/year for each HAP.
Less than 25 tons/year for total HAPs.
Less than 100 tons/year total VOCs.

SECTION 2
FIGURES

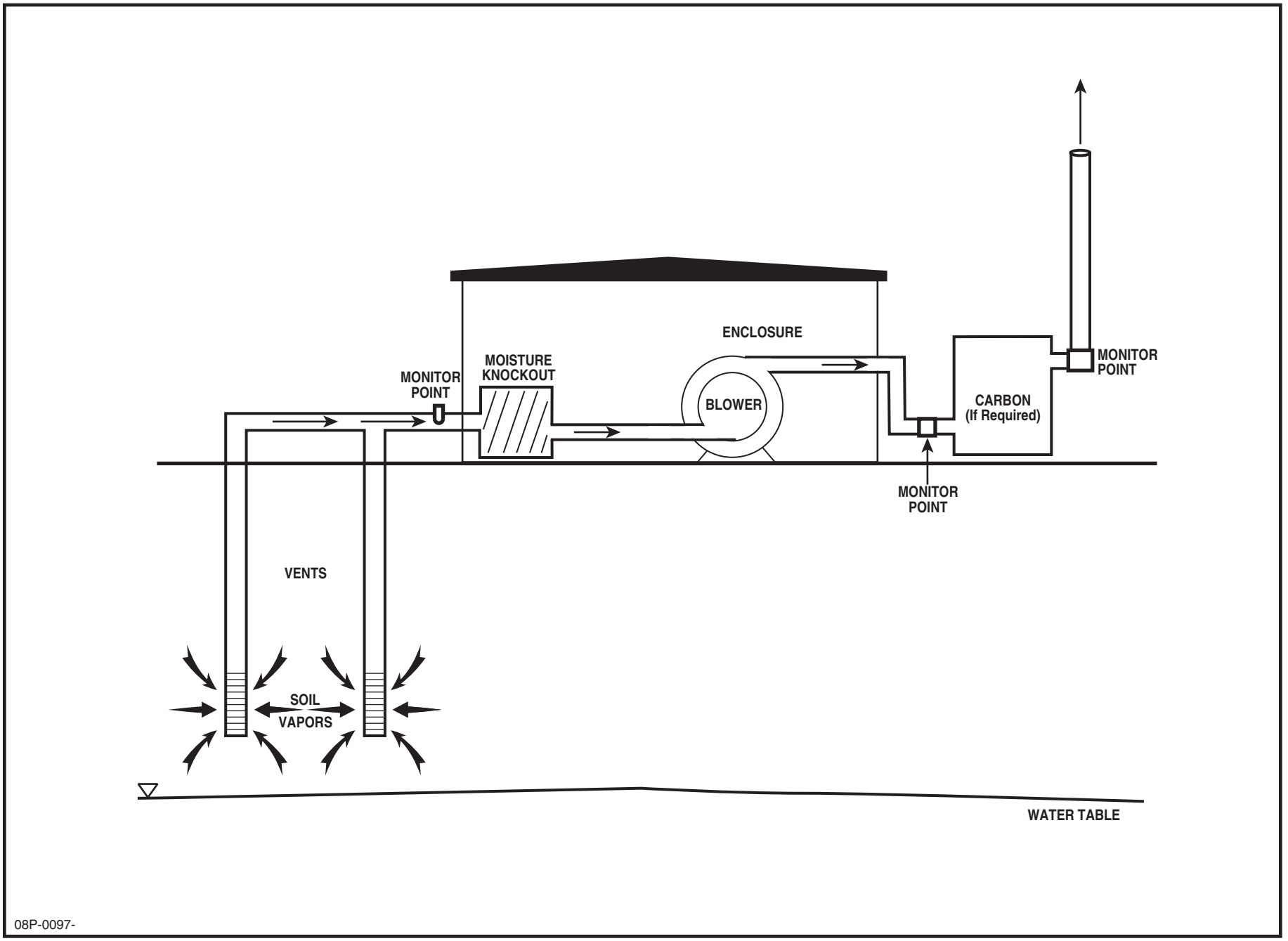


FIGURE 2-1 SOIL VAPOR EXTRACTION SCHEMATIC

Former Trench B

B-11
B-8
B-12
B-9
B-10
B-7
B-1
B-2
B-4
B-3
B-6
B-5

Discharge

SVE Trailer
with
Vacuum Blower

Former Trench D

D-23
D-19
D-1
D-7
D-13
D-14
D-2
D-8
D-24
D-21
D-20
D-3
D-9
D-15
D-16
D-4
D-10
D-17
D-22
D-5
D-11
D-18
D-6
D-12

WESTON SOLUTIONS

FIGURE 2-2

SVE TREATMENT AREA
FORMER NORTHEAST DISPOSAL AREA

WOODBURY SITE
WOODBURY, MN

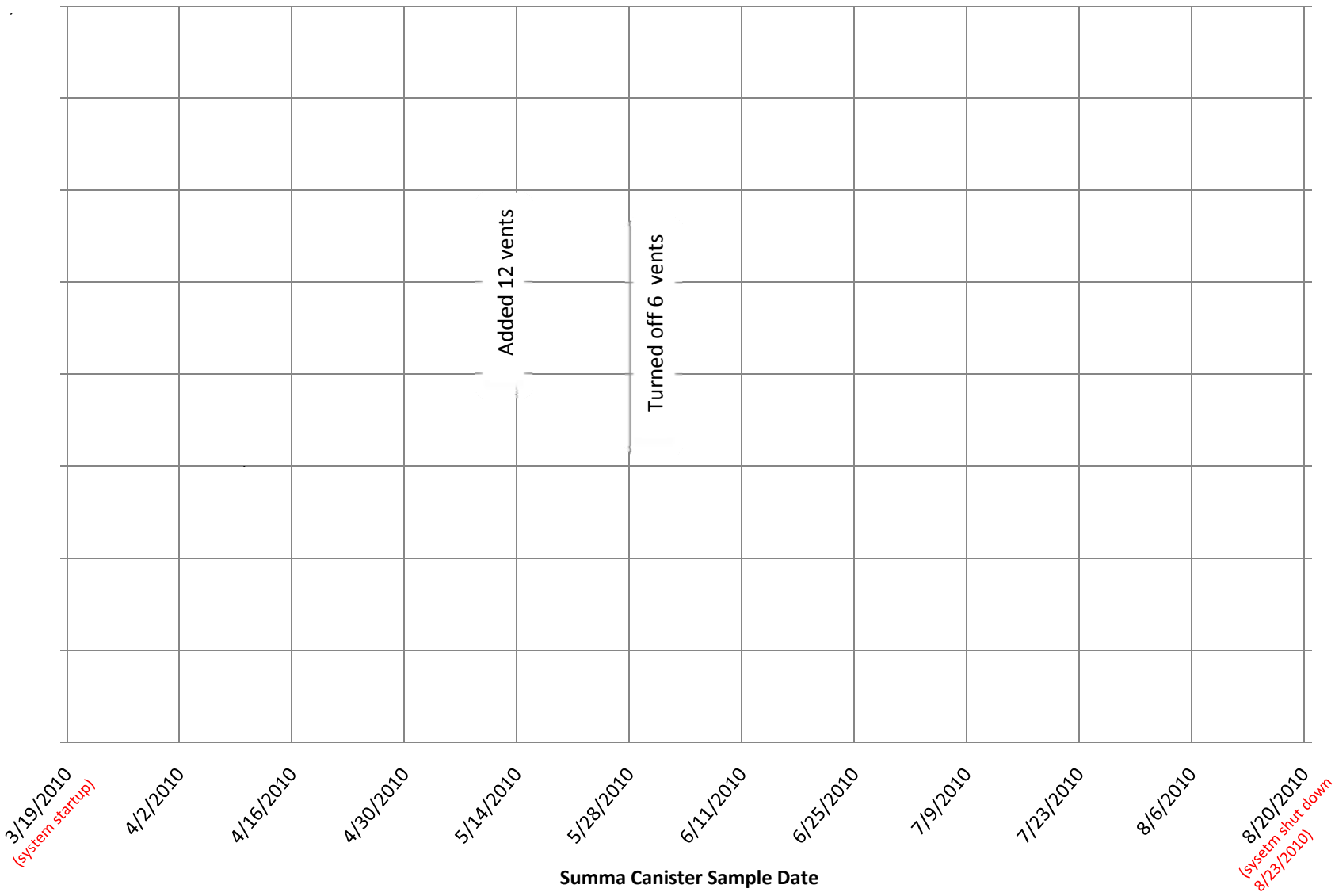
Legend

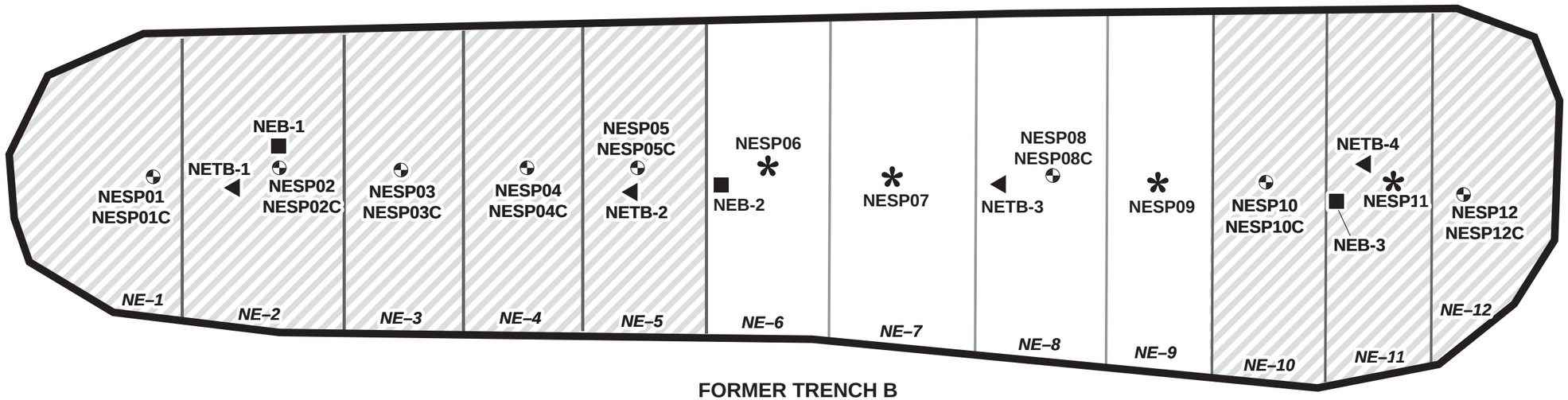
- SVE Vent Location (March 2010)
- SVE Vent Location (May 2010)
- SVE Header
- Approximate Excavation to 18 Feet bgs
- Approximate Limits of Excavation to 12 Feet bgs
- Former Northeast Area Boundary
- Air Flow

30 0 30
Feet

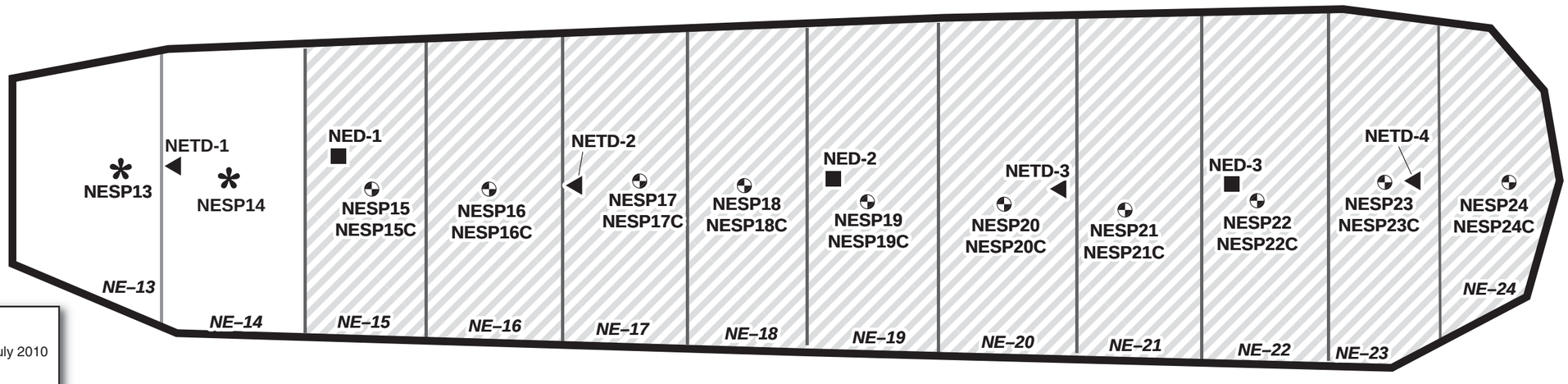
N
W E
S

File: Y:\3MWoodbury\MXD\Insitu_soil_profiling_NE_SVE_update.mxd, 8/17/2011 11:02:51 AM, ricksc


Added 12 vents
Turned off 6 vents
3/19/2010
(system startup)
4/2/2010
4/16/2010
4/30/2010
5/14/2010
5/28/2010
6/11/2010
6/25/2010
7/9/2010
7/23/2010
8/6/2010
8/20/2010
(sysetm shut down
8/23/2010)
Summa Canister Sample Date



FORMER TRENCH B



FORMER TRENCH D

N

LEGEND

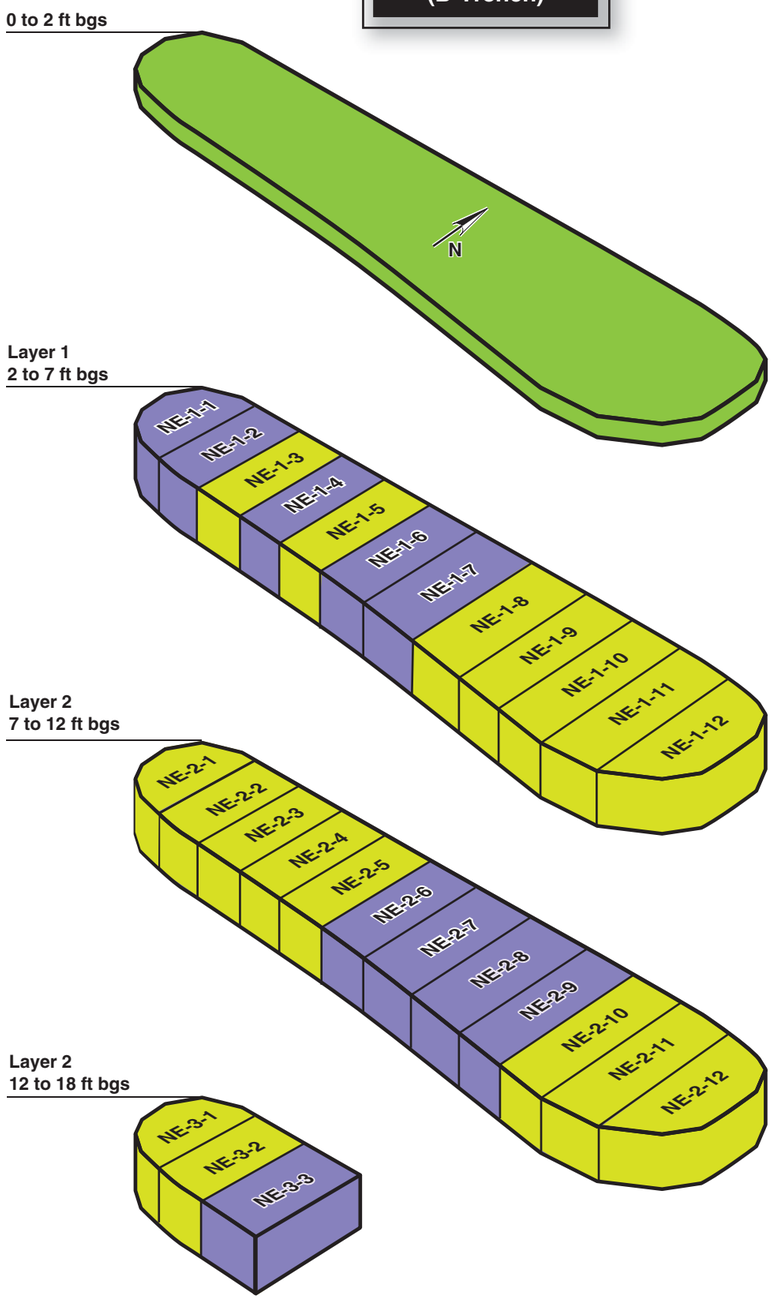
- September 2009 and July 2010
- September 2009 only
- March 2008
- July 2008
- Soil blocks treated by SVE

NOTES: 1. Sample locations for September 2009 and July 2010 were the same.

10P-0913

FIGURE 2-4 IN SITU SOIL PROFILE SAMPLING LOCATIONS
FORMER NORTHEAST DISPOSAL AREA
WOODBURY SITE
WOODBURY, MN

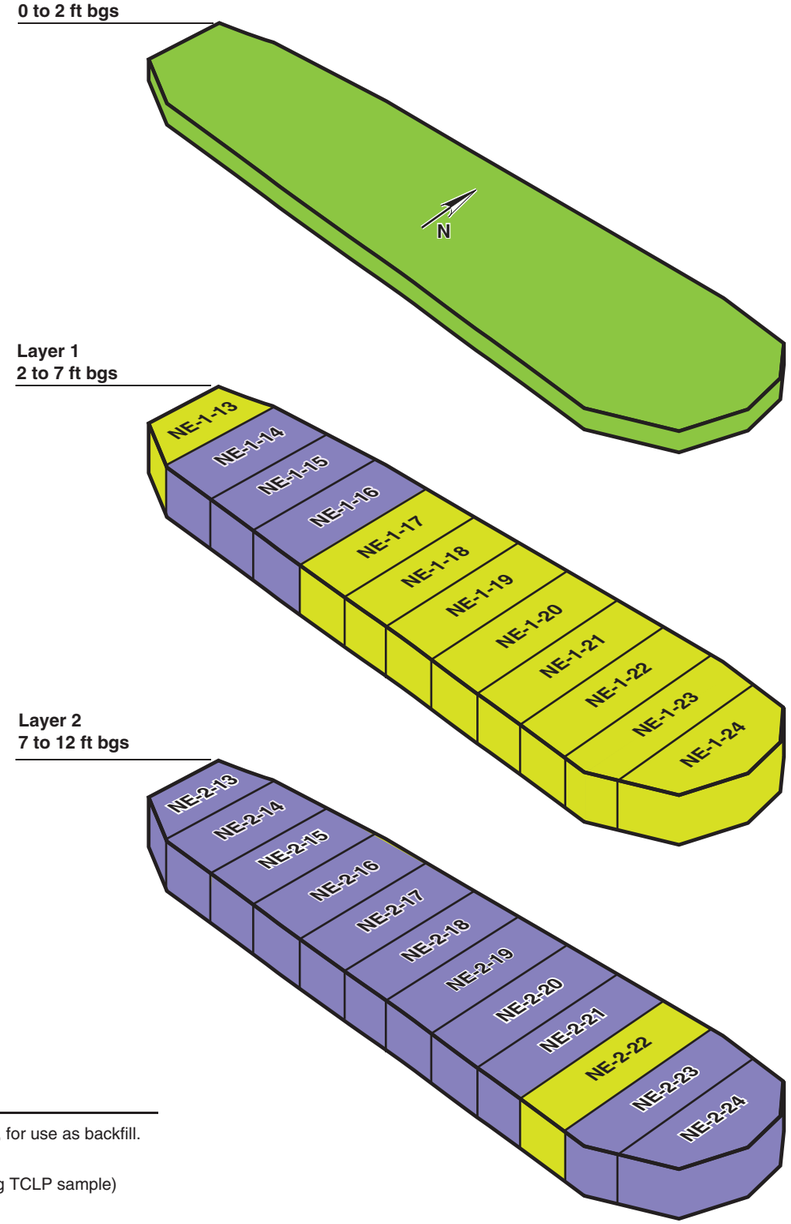
NORTH TRENCH (B-Trench)



LEGEND

D9-1-1	Soil Block ID
	Soils for Ex Situ Sampling *(Note 2)*
	Solid Waste for Direct Load
bgs	Below Ground Surface

SOUTH TRENCH (D-Trench)



Notes:

1. Material for 0 - 2' bgs to be removed and stockpiled onsite, for use as backfill.
2. Soil analyses indicate concentrations greater than:
   - 20 times the TCLP limit (where there is no corresponding TCLP sample)
   - 50 ppm total PCBs
   - Tier 2 Industrial SRVs for individual constituents

10P-0671-7

FIGURE 2-5 SOIL DISPOSAL PROFILE
FORMER NORTHEAST DISPOSAL AREA
WOODBURY SITE
WOODBURY, MN

3. CONSTRUCTION COMPLETION

The following sections contain a summary of the activities that were conducted to implement the components of Refined Soil Alternative S-3 pertaining to Woodbury Site former Northeast Disposal Area (NEDA) Trench B and Trench D as presented in the MDD and the MPCA-approved RD/RA Plan. The numbered photographs referenced throughout the text of this Construction Completion Report (CCR) are presented in the photograph log provided in Appendix B.

3.1 CONSTRUCTION CHRONOLOGY

Excavation of former Trench B and former Trench D at the Woodbury Site former NEDA commenced in October 2010. A timeline of preconstruction and construction activities is as follows:

- June 1, 2009 – Approval of the RD/RA Plan by MPCA.
- March 19, 2010 – Temporary SVE system startup.
- May 17, 2010 – Temporary SVE system expansion.
- August 23, 2010 – Shutdown of temporary SVE system.
- September 20, 2010 - Contractor mobilization.
- October 4, 2010 – Excavation activities begin in former Trench B.
- November 9, 2010 – Trench B excavation activities complete.
- November 22, 2010 – Excavation activities begin in former Trench D.
- December 10, 2010 – Former Trench D excavation activities complete.
- December 20, 2010 to January 4, 2011 – Exclusion zone decommissioning activities.
- May 17, 2011 to May 18, 2011 – Topsoil and seeding activities.
- May 20, 2011 – Final mobilization off-site.

- June 21, 2011 – Final site walkthrough.
- June 23, 2011 – Removal of silt fencing and project completion.

The MPCA provided approval of the RD/RA Plan with comments on June 1, 2009. On July 1, 2010, groundwater monitoring well MW-1 was abandoned in accordance with the State of Minnesota Well Code. The well was abandoned as described in the RD/RA Plan due to its proximity to the planned activities at the former NEDA. In August 2010, 3M conducted procurement activities and selected a contractor, Veit & Company, Inc. (Veit), to conduct soil excavation and hauling followed by backfill and restoration. As indicated in the RD/RA Plan, WESTON would perform construction and environmental oversight, sampling, survey control and verification, perimeter monitoring activities and documentation.

The temporary SVE system in the former NEDA was shut down on August 23, 2010. The SVE system was decommissioned by disconnecting the system from the power source, removing the SVE equipment and suction blower trailer from the site, and removing the aboveground piping connecting the vents. The SVE subsurface vents located within the area of excavation were removed as part of the soil excavation. All SVE piping was disposed at the SKB Landfill in Rosemount, Minnesota. Additional details on the operation and design of the SVE system were provided in Section 2.

Site preparation activities by Veit, consisting of clearing the excavation areas, placement of the construction trailers and sanitary facilities, set up of exclusion zones, installation of sediment and erosion controls, installation of stockpile staging and load-out areas, and improvement of the existing access road were conducted in October 2010 during preconstruction activities. The access road to the former NEDA from Woodbury Drive had been improved/expanded to handle truck traffic in the fall of 2009 at the conclusion of excavation activities in the former MDA.

WESTON and their contractor TKDA (a Minnesota licensed surveyor) set up survey control and delineated the excavation areas of former Trench B and former Trench D. Additionally, WESTON and TKDA performed all of the verification and certification surveying for delineation of areas and limits of excavation throughout construction activities. Veit performed operational surveying for its crews and operators. The meteorological monitoring station was installed in the former NEDA by WESTON personnel on October 12, 2010.

3.1.1 Former Northeast Disposal Area Trench B

Construction activities in former Trench B commenced the week of September 27, 2010. Veit constructed stockpile staging areas within the exclusion zone with the exception of the footprint of the active excavation as shown in Figure 3-1. Photograph 1, provided in Appendix B, depicts the site preparation and exclusion zone. Staging areas were built in accordance with the project specifications as described in Section 3.3.

On October 4, 2010, after TKDA surveyed and delineated the limits of excavation, excavation of the former NEDA commenced with the removal and stockpiling of the stripped cover material, i.e., the top 2 feet of cover material from ground surface, which was located above the defined removal limits in the RD/RA Plan. Previous sampling in July 2008 and September 2009 confirmed that this top 2 feet of cover material did not contain PFC concentrations greater than the Industrial SRVs. The maximum depth of cover removal was 2 feet even though the cover may have extended deeper. WESTON provided close oversight of the top cover stripping so that no trench waste material (located <2 ft) was inadvertently picked up. The stripped cover material was stockpiled in a designated staging area (as shown in Figure 3-1) for the duration of excavation activities and used as backfill material when the former NEDA excavation was complete.

Removal of PFC-containing material from former Trench B began on October 8, 2010 with the excavation of soil block NE 1-1. As-built survey verification shots were recorded by WESTON after each soil block was excavated.

During excavation activities, all potentially impacted material was stockpiled in a designated staging area. The potentially impacted material included the side slope material that was beyond the RD/RA Plan defined removal limits. The side slope material is the material on the perimeter of the excavation, outside the limits specified for removal, excavated for slope stability.

Preparation for hauling began in October 2010 with the installation by Veit of a load-out zone. Hauling soil off-site for disposal began on October 11, 2010. Removal of PFC-containing materials from former Trench B was completed with excavation of soil block NE 2-6 and verified on November 9, 2010 with the final as-built survey of the excavation limits. All

material excavated from former Trench B was disposed at the SKB Landfill in Rosemount, Minnesota. Backfilling of former Trench B began on November 9, 2010 by Veit and was completed on November 18, 2010. Photographs 2 to 11, provided in Appendix B, depict excavation activities in former Trench B.

3.1.2 Former Northeast Disposal Area Trench D

On November 19, 2010, Veit removed the cover material in former Trench D (0 to 2 ft bgs) and staged it on-site to the south of the excavation. As with former Trench B, all former Trench D stripped cover material and potentially impacted material (side slope material) were staged on-site for use as backfill as shown in Figure 3-2. Previous sampling in July 2008 and September 2009 confirmed that this top 2 feet of material did not contain PFC concentrations greater than the Industrial SRVs.

Removal of PFC-containing materials from former Trench D commenced on November 22, 2010 with the excavation of soil block NE 1-14 and was completed on December 10, 2010 with the excavation of soil block NE 2-22. Hauling of all excavated material was completed on December 29, 2010 with the final stockpiled material from stockpile NEDA 2-24 001-1. All material excavated from former Trench D was disposed at the SKB Landfill in Rosemount, Minnesota. Survey verification shots were recorded by WESTON after each individual soil block was excavated and after the completion of excavation activities to ensure the excavation limits presented in the RD/RA Plan were met.

Backfilling of former Trench D began on December 15, 2010. A detailed description of backfilling activities is presented in Section 3.9. Survey verification shots were recorded by WESTON after backfilling and final grading. The final survey of the site was conducted on May 20, 2011.

Most of the decommissioning activities, including backfilling, removal of stockpile staging areas, and decontamination/demobilization of equipment, occurred from December 2010 to January 2011. Veit hauled 225 loads of staging material to SKB between December 2, 2010 and January 4, 2011. However, due to frozen conditions, decommissioning activities were temporarily suspended and completed in the spring of 2011. The activities conducted in March

2011 included completion of backfilling, removal of the stockpile staging areas, reduction and removal of the exclusion zone, and placement of topsoil. Six loads of staging material were hauled to SKB on May 13, 2011. Small adjustments to backfilled areas were necessary in May 2011 to account for settlement because the snow that had been mixed in with the backfill material in the winter had melted in the spring.

In May 2011, all disturbed areas were graded to pre-construction contours and seeded according to project specifications. A site inspection was conducted on June 21, 2011 to identify any further activities, such as erosion repair or reseeding that needed to be performed to complete the site construction activities. Revegetation was deemed sufficient and the silt fence was removed on June 23, 2011. 3M notified MPCA that as of June 23, 2011, the required response actions at the former NEDA were complete. Photographs 12 to 15, provided in Appendix B, show excavation activities in former Trench D.

The following sections provide a detailed description of the activities that were completed in the former NEDA for removal and off-site disposal of PFC-containing materials in accordance with the MPCA-approved RD/RA Plan.

3.2 APPROVAL AND PERMITS

The RD/RA Plan was submitted to the MCPA in April 2009, and the MPCA provided approval of the plan with comments in a letter to 3M dated June 1, 2009. Although the existing Deed Restriction prohibits grading, excavating, boring, drilling, construction or demolition at the former NEDA, the MPCA approval of the RD/RA Plan constituted approval to conduct the activities described in the Plan. The following permits also were filed and obtained:

- Land Disturbance Permit - On July 23, 2010, TKDA, on behalf of 3M, submitted to the City of Woodbury a land disturbance permit application for the planned excavation activities. Land Disturbance Permit No. 2010-04 became effective on September 15, 2010. A copy of the submitted permit application and permit is provided in Appendix C.

- NPDES Construction Stormwater Permit - On September 7, 2010, 3M submitted to the MPCA a Permit Modification Form for the existing National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit (ID # C00027543). The existing permit had been issued on May 12, 2009 for construction excavation associated with replacement of the force main piping from the barrier wells to the

main conveyance line, which was completed in the spring/early summer 2009. The purpose of this modification was to add the site excavations and the contractor (Veit) onto the existing 3M NPDES permit. A copy of the completed Permit Modification Form is provided in Appendix C. Upon completion of site activities and establishment of sufficient vegetation, a Notice of Termination of NPDES Stormwater Permit No. C00027543 dated August 4, 2011 was submitted to MPCA.

- Obstruction Permit – Veit, on behalf of 3M, submitted to the Washington County Public Works Department an application for an obstruction permit to post "Truck Hauling" signs along Woodbury Drive (County Road 19). On September 23, 2010, the Washington County Public Works Department approved the obstruction permit. A copy of the permit is provided in Appendix C.

- Contractor Construction Documents – Prior to construction activities, Veit submitted to 3M a Site Operation and Excavation Plan, a Health and Safety Plan (HASP), Decontamination Plan, and Transportation Plan for review and comment. 3M and WESTON reviewed the plans and provided comments, which were then addressed by Veit.

3.3 SITE PREPARATION

Veit's site preparation consisted of installation of erosion and sediment controls (see Photographs 17 and 18) completing additional clearing, establishing the exclusion zone around the former NEDA excavation area, construction of load-out zones, and construction of the stockpile staging areas. These features, as well as the excavation limits and soil block grids, were surveyed as shown in Figure 3-1 and Figure 3-2.

The exclusion zone was delineated with black silt fencing and identifying signs. The orange construction fencing was placed in addition to the silt fence in between the exclusion zone and the support zone. Photographs 1 and 16, provided in Appendix B, show the established exclusion zone fencing. The exclusion zone encompassed the limits of the excavation and marked the boundary for movement of excavation equipment. Areas enclosed within the exclusion zone included the footprint of the excavation, soil stockpile areas for ex situ disposal profile sampling, stockpile areas for the potentially impacted material, as well as load-out zone locations. This ensured that excavation equipment coming into contact with the PFC-containing soil remained in the exclusion zone at all times unless it was decontaminated. Additionally, the exclusion zone marked the boundary to which non-excavation equipment could approach the excavation limits. This prevented the haul trucks and other equipment from coming into contact with PFC-containing soil.

Personnel entering the exclusion zone were required to wear the appropriate personal protective equipment (PPE) in accordance with the site HASP. The PPE requirements of the HASP for the work site area outside the exclusion zone included Level D PPE, consisting of long pants, safety shoes, safety glasses, a hard hat, hand protection (as necessary), hearing protection (as necessary) and a Class 2 safety vest. Level C PPE was required within the exclusion zone and the Contaminant Reduction Zone (CRZ). The additional PPE requirements for Level C included chemical-resistant coveralls, chemical-resistant outer boots or boot shoe covers, chemical-resistant gloves and an air purifying respirator. In some instances, during excavation activities, Veit employees downgraded from Level C to Modified Level D PPE in accordance with their HASP. Modified Level D required all the PPE requirements for Level C without the respirator. Veit performed its own air monitoring before and during the PPE level downgrades. WESTON employees remained in Level C at all times within the exclusion zone during excavation activities.

For personnel exiting the exclusion zone, the proper decontamination procedures were required. The CRZ consisted of the areas surrounding and inside the decontamination trailer (Figure 3-1). Detailed decontamination procedures were outlined in the Decontamination Plan submitted by Veit to 3M along with their Work Plan. Additional information is included in the WESTON Decontamination Plan, which was included as an attachment to the RD/RA Plan.

A load-out zone was constructed along the exclusion zone fencing next to the haul road. The load-out zone consisted of a ramp within the exclusion zone and a tarp curtain at the edge of the exclusion zone. This design allowed trucks, located outside of the exclusion zone, to be loaded using equipment inside the exclusion zone (Photograph 19, provided in Appendix B). The tarp curtain was stretched across the width of the load-out zone ramp to make a barrier approximately the height of a truck bed. The tarp was installed to prevent spillage during haul truck loading activities.

As shown in Figure 3-1, the truck weigh scale was located outside of the exclusion zone and load-out areas. The scale was installed to ensure that long-haul trucks were within their legal limit for hauling. This weigh scale was not utilized during this excavation project because none of the excavated soils required disposal at the EQ hazardous waste landfill in Michigan.

The stockpile staging areas, used for staging and ex situ sampling of soils for disposal profiling, were constructed by placing a 10-mil poly liner on the prepared ground surface and covering the

liner with a minimum of 6 inches of clean sand. In accordance with project specifications, the liner was placed under the complete footprint of the stockpiled material with liner edges overlapping by at least 12 inches. The purpose of the liner was to prevent contact between the excavated PFC-containing soils and the underlying ground surface.

Veit expanded the stockpile staging area to the entire exclusion zone and placed a 10-mil poly liner with 6 inches of sand across almost the entire surface area within the exclusion zone. Veit's lined area encompassed all areas surrounding the excavation footprints, all staging areas and all traffic lanes. This approach alleviated concerns about spillage and tracking of excavated material into clean areas. Throughout the project, Veit maintained the staging areas. If a staging area was compromised, i.e., showing rips in the 10-mil poly liner or washout of the berm, the staging area was repaired. Photographs 20 through 22, provided in Appendix B, show the soil stockpile staging areas as prepared by Veit. Veit segregated and bermed sections of the staging area to completely isolate the potentially impacted material from the stripped cover material (0 to 2 ft bgs) and to segregate both of these materials from the stockpiles that were staged for ex situ sampling.

Also as part of site preparation activities, a meteorological station (met station) was installed by WESTON southwest of the former NEDA. Photograph 23, provided in Appendix B, shows the met station. The location of the met station is included in Figures 3-1 and Figure 3-2, and a more detailed discussion of the met station is provided in Section 3.7.2.

3.4 SURVEY CONTROL

TKDA, a registered land surveyor in the State of Minnesota, performed survey verification for the excavation activities. TKDA acted as an independent surveyor contracted to WESTON. Prior to the start of excavation activities, TKDA staked the excavation boundaries as well as the boundaries of the sloped excavation sidewalls. Throughout the duration of the project, surveying was performed on an as-needed basis to guide the excavation and to confirm when delineated limits of each soil block were reached. Photographs 24 to 26, provided in Appendix B, show the survey activity.

Copies of the survey documentation produced by TKDA throughout construction activities are provided Appendix D. Additionally, the site operations maps (Figures 3-1 and 3-2) show the locations of the on-site benchmark and survey control points that were used.

3.5 EXCAVATION ACTIVITIES

As noted in Section 3.1.1, previous sampling of the former NEDA indicated that the top 2 feet of cover material did not contain PFC concentrations greater than the Industrial SRVs. As such, this stripped cover material was removed and stockpiled within the exclusion zone to access the limits of removal defined in the MPCA-approved RD/RA Plan. The locations of these stripped cover material stockpiles are shown in Figure 3-1 and Figure 3-2.

Veit continued excavation by removing individual soil blocks one at a time within each layer of the delineated excavation area. As shown in Figure 3-3, former Trench B had three layers: Layer 1 from 2 to 7 ft bgs (soil blocks NE 1-1 through NE 1-12), Layer 2 from 7 to 12 ft bgs (soil blocks NE 2-1 through NE 2-12), and Layer 3 from 12 to 18 ft bgs (soil blocks NE 3-1 through NE 3-3). Former Trench D had two layers: Layer 1 from 2 to 7 ft bgs (soil blocks NE 1-13 through NE 1-24) and Layer 2 from 7 to 12 ft bgs (soil blocks NE 2-13 through NE 2-24). The corners of each individual soil block were surveyed and identified with a lathe survey stake. Veit excavated each block relying upon the survey markers and a portable GPS unit.

Soil material was removed from the side slopes of the former NEDA excavation at a 1½:1 slope to maintain stable side slopes in accordance with the project specifications. Lathe survey stakes were used in the field to mark the top of slope, which was beyond the defined removal limits. This slope material was outside the RD/RA Plan specified limits of removal and did not have to go off-site for disposal. It was placed in the staging areas as "potentially impacted material" and used as backfill when excavation activities were complete. The "potentially impacted material" (i.e., side slope material) is identified by hatch marks on Figures 3-6 through 3-12, 3-16 through 3-21, and 3-25 through 3-28. Photograph 22, provided in Appendix B, shows the potentially impacted material staging area.

Minimal non-soil debris was encountered during the excavation activities and consisted of tape/plastic debris, drum fragments, metal scraps and miscellaneous debris. Further detail relating to the non-soil debris is provided in Section 3.5.4.

The former NEDA soil block figure (Figure 3-3) was referenced to determine the depth for each soil block excavation and whether, based on soil boring sampling results (i.e., in situ) and the requirements of MPCA's September 8, 2010 waste determination letter, the soil block could be direct-loaded for off-site disposal (direct load soils) at the SKB Landfill or was required to be stockpiled for ex situ sampling (stockpile soils) in smaller piles for disposal profiling. This methodology was described in detail in the Construction Sampling Plan (CSP), which was included as an attachment in the approved RD/RA Plan. Excavation depths for the former NEDA and off-site disposal locations were identified in the RD/RA Plan as well.

The former NEDA included two trenches (former Trench B and former Trench D) that had been reportedly dug into weathered limestone. The purpose of the excavation was to remove PFC-impacted soil and waste from the disposal trench within the delineated limits specified in the RD/RA Plan. The specifications for the contractor indicated that if bedrock was encountered before the projected limits of excavation were reached, the excavation would not advance into bedrock. The contents of the disposal trench would be granular (sand/clay) in consistency and dark-colored, whereas the weathered bedrock would be honey-colored with rock chunks. In the field, when the bottom of the disposal trench/bedrock was encountered before the projected limit of excavation, test pitting was conducted in the area of the soil block to confirm that the soil/weathered bedrock boundary, i.e., trench bottom, had been reached (see Photographs 8, 9 and 14). Upon confirmation, the limit of excavation was finalized at that elevation.

3.5.1 Direct Load Soils

"Direct load" refers to those soils that are classified as "solid waste" as approved by MPCA in its September 8, 2010 waste determination letter to 3M. These soils could be excavated and directly loaded out for transport to the SKB Landfill without the need for additional ex situ disposal profile sampling, i.e., stockpile sampling.

On the former NEDA soil block figure (Figure 3-3), yellow colored blocks indicate soil that could be directly loaded onto haul trucks for disposal at the SKB nonhazardous industrial waste landfill in Rosemount, Minnesota. The disposal profile soil boring sample results for soils represented by a yellow colored block indicated that none of the soil boring samples within the block met the RCRA hazardous characteristic criteria, none contained a PCB concentration greater than 50 ppm, and except for petroleum-related compounds such as BTEX, none contained a VOC concentration greater than its Industrial SRV. (MPCA indicated in its September 8, 2010 waste determination letter for the former NEDA that, except for petroleum-related compounds such as BTEX, concentrations of VOCs in solid waste must be below Industrial SRVs.)

To reduce the movement of equipment into and out of the excavation limits, Veit removed the "direct load" soils straight from the excavation with a single excavator on the edge of the excavation and placed the soil directly into haul trucks. Photograph 27, provided in Appendix B, depicts the loading procedure for direct load material. As needed, a second excavator inside the excavation would move material from the far side of the soil block towards the first excavator. A description of the soil loading/unloading activities is provided in Section 3.5.3.

As shown in Figure 3-3, the direct load soil blocks from the former NEDA included NE 1-3, NE 1-5, NE 1-8, NE 1-9, NE 1-10, NE 1-11, NE 1-12, NE 2-1, NE 2-2, NE 2-3, NE 2-4, NE 2-5, NE 2-10, NE 2-11, NE 2-12, NE 3-1, NE 3-2, NE 1-13, NE 1-17, NE 1-18, NE 1-19, NE 1-20, NE 1-21, NE 1-22, NE 1-23, NE 1-24 and NE 2-22. These soil blocks were approved by MPCA for disposal at SKB based on the soil boring sampling results. A tabular summary of these disposal profile results for the direct load soil blocks is provided in Appendix E.

Documentation was maintained for each truckload of soil leaving the site to track it to its final disposal location. A manifest and a haul truck inspection sheet were prepared by WESTON for every truck prior to the departure of the truck from the Site. For direct load soils, an SKB shipping manifest and a SKB haul truck inspection sheet were used. All shipping manifests were developed and printed by the landfill (assisted by WESTON), filled out on-site by WESTON personnel, signed by a 3M representative (as the waste generator), and signed by the transporter. Each manifest consisted of 4 carbon copies, each to be maintained in the respective files of the

waste generator (2 copies), transporter and landfill, creating a documentation trail for all excavated wastes from the point of generation through disposal at the landfill. The haul truck inspection form was developed and completed by WESTON personnel. The haul truck inspection sheet was a pre- and post-loading checklist that documented the adherence to hauling procedures as presented in the Soil Transportation Plan and included in the project specifications. For example, items that were checked included the tarp covering the load, the presence of the bed liner and the cleanliness of the truck undercarriage.

A typical SKB shipping manifest (generator copy) and a typical truck inspection sheet for direct load soils are provided in Figures 3-4 and 3-5, respectively. All SKB shipping manifests (generator's copy) are provided in Appendix F (on CD). The haul truck inspection sheets are maintained by 3M and WESTON in the project files.

Each SKB shipping manifest has a unique ID number, and the shipping manifest is the primary document used for tracking each truck load of soil. The soil block from which the material originated is recorded on the manifest. For example, as shown in Figure 3-4, "NE 2-2" was recorded on SKB shipping manifest #759100 to indicate that the manifest represented the direct load material from excavated soil block NE 2-2.

Additionally, a unique "container ID," soil block source, and load number were recorded on the truck inspection sheet for each load. The unique container ID is a combination of the trailer number and the manifest number. For example, as shown in Figure 3-5, the unique container ID was recorded as "119-759100" to indicate that trailer #119 contained the load associated with SKB shipping manifest #759100. Soils that were shipped to the SKB Landfill, such as the direct load soils, were not weighed on-site, but were weighed at the SKB facility. When the weigh ticket for each load was received by Veit from SKB, a copy of the landfill-provided load ticket was obtained by WESTON for the project files, and the weights for each load were recorded on the respective haul truck inspection sheets.

The SKB-accepted load summary list provided in Appendix F-1 contains the manifest number for each load accepted at the landfill, as well as the net weight in tons. This list was provided by the SKB Landfill at the conclusion of all daily trucking activities.

3.5.2 Stockpiled Soils

On the former NEDA soil block figure (Figure 3-3), purple colored blocks indicate that certain soil blocks, based on sampling results from soil borings and MPCA's waste determination letter, were required to be stockpiled for ex situ sampling for disposal profiling. These soils were excavated in accordance with the CSP and placed in approximately 100 cubic yard stockpiles in the lined stockpile staging areas. Each approximately 100 cubic yard stockpile was split into two sub-piles, approximately 50 cubic yards each. Photographs 28 and 29, provided in Appendix B, depict stockpiling procedures.

Stockpiles were named by the soil block from which the material originated and then each 100 cubic yard stockpile was numbered in ascending numerical order. Each half of the 100 cubic yard stockpile was denoted with either a "-1" or a "-2". For example stockpile "NE 1-1 001-2" refers to material that originated in soil block NE 1-1 and is the second half of the first 100 cubic yard stockpile removed from that soil block.

The stockpiles were sampled in accordance with the CSP to determine the disposal destination for the particular stockpile or sub-pile. The analyses selected for the ex situ sampling of the stockpile were dependent upon the parameters that exceeded the nonhazardous criteria during the soil boring sampling. For example, because all of the samples from soil borings tested for ignitability and reactivity were found to be negative for these RCRA characteristics, none of the ex situ samples required ignitability or reactivity analyses.

Sampling procedures were conducted in accordance with the CSP and Quality Assurance Project Plan (QAPP). A copy of the field sampling sheets for the soil stockpiles is provided in Appendix G. Laboratory data packages are quite voluminous and are maintained in WESTON project files. To be consistent with the other completed perfluorochemical (PFC) projects, i.e., the Woodbury Former Main Disposal Area CCR and the Cottage Grove D1/D2 and D9 Areas CCRs, the laboratory data packages are not provided in this CCR.

As shown in Figure 3-3, the following soil blocks were excavated from the former NEDA and stockpiled for ex situ sampling: NE 1-1, NE 1-2, NE 1-4, NE 1-6, NE 1-7, NE 2-6, NE 2-7, NE

2-8, NE 2-9, NE 3-3, NE 1-14, NE 1-15, NE 1-16, NE 2-13, NE 2-14, NE 2-15, NE 2-16, NE 2-17, NE 2-18, NE 2-19, NE 2-20, NE 2-21, NE 2-23 and NE 2-24.

Sampling parameters for stockpiles from each former NEDA soil block are indicated in Figure 3-3 and were based on the sampling results for soil borings from the soil block as discussed above. A tabular summary of the ex situ sampling results for each stockpile and sub-pile is provided in Appendix E. The analytical results for each stockpile and sub-pile were forwarded to the disposal facility for review and approval prior to shipment.

Stockpiles or sub-piles with ex situ analyses that met the nonhazardous solid waste criteria (i.e., soil leachate concentrations less than the TCLP limits, soil concentrations less than the Industrial SRVs [except for petroleum related compounds such as BTEX], and soil PCB concentrations less than 50 ppm) were managed as solid waste (nonhazardous) and sent to the SKB Landfill.

It is important to note that all of the ex situ samples that were analyzed for TCLP or PCBs exhibited leachate concentrations less than TCLP limits and/or PCB concentrations less than 50 ppm. Stockpiles or sub-piles with ex situ analyses that contained soil concentrations greater than the Industrial SRVs (except for petroleum-related compounds) were conditioned by aeration/stockpile reshaping to reduce the soil VOC concentrations. For the former NEDA project, six stockpiles required conditioning to reduce VOC concentrations to less than the Industrial SRVs. The six stockpiles were NE 1-4 002-1, NE 1-14 003-2, NE 2-14 002-2, NE 2-15 003-1, NE 2-15 003-2 and NE 2-24 001-1. The conditioned stockpiles were then resampled for the VOC parameter that was exceeded, and the disposal location was determined based on final sampling results for that stockpile. Because the final sampling results were less than the Industrial SRVs, the disposal location was determined to be SKB.

3.5.2.1 Stockpile Management

Stockpiles were identified and managed in the exclusion zone using wooden survey stakes and a colored flagging system. A lathe survey stake with the soil block and stockpile number written on it was placed into the west side of the stockpile for identification. After the stockpile was sampled, a red flag was tied to the stake. The red flag signified that the pile was sampled and analytical results were pending. Additionally, the red flagging served as a visual sign that the

stockpile was not approved for hauling. Photographs 30 and 31, provided in Appendix B, depict the stockpile flagging system.

After the analytical results were obtained for each stockpile, the flag was changed. If, based on the stockpile sampling results, the stockpile was approved for disposal at the SKB Landfill, the red flag was removed and replaced with a blue flag. The blue flag indicated that the disposal destination for the stockpile was the SKB Landfill. A green flag was tied to the stockpile stakes as the stockpiles were surveyed for volume determination.

As the stockpiles were marked for load out, WESTON personnel monitored the operation to assure that the stockpiles were being manifested and handled according to the flagging system. Once a stockpile had both green (survey) and blue (SKB approval) flagging, the stockpile was shipped to SKB Landfill for final disposal.

3.5.2.2 Disposal at SKB Nonhazardous Landfill

After receiving SKB approval for disposal acceptance, stockpiles or sub-piles were shipped to the SKB Landfill via the highway route described in the RD/RA Plan. The final ex situ analyses on all stockpiles met the nonhazardous criteria and were therefore disposed at the SKB Landfill.

As with the direct load soils, an SKB shipping manifest and a haul truck inspection sheet were completed by WESTON for each load before leaving the site. On both documents, the load's source soil block and stockpile number were indicated. For example, "NE 1-1 001-2" indicates that the load was from Soil Block NE 1-1, Stockpile 001-2. A typical SKB shipping manifest and a typical SKB haul truck inspection sheet for direct load soils are provided in Figures 3-4 and 3-5, respectively.

The soil boring cuttings from previous sampling events and the temporary SVE system vent installation were contained in 27 drums and stored on wooden pallets at the site. These drums were emptied into one stockpile (approximately 5 cubic yards), and the stockpile was sampled for disposal profiling. A summary of the analytical results is provided in Appendix E. The results indicated that the soils met the nonhazardous criteria as solid waste and could be shipped to SKB. After review of the results by SKB and receipt of approval to send, the soils, along with

the crushed and emptied drums and the wooden pallets, were hauled to SKB on November 17, 2010. Photographs 32 and 33, provided in Appendix B, show the handling of the drummed soil boring material.

All SKB shipping manifests (generator's copy) are provided in Appendix F (on CD). Manifests and haul truck inspection sheets are also maintained in the WESTON and 3M project files.

3.5.3 Truck Loading/Unloading Operations

The haul trucks consisted of an 18-wheel truck tractor and an aluminum dump trailer, with the occasional usage of a straight truck and a steel trailer. All haul trucks were inspected by WESTON upon arrival and departure from the Site to ensure that trucks were properly prepared to haul soils and that excavated materials were loaded properly and secured. The inspections were documented on the Haul Truck Inspection Forms (Figure 3-5).

Some trucks hauled clean sand/imported sand from SKB for use as backfill for the excavations (Photograph 34). Upon arrival at the Site, trucks hauling sand proceeded to a drop area to unload, while trucks arriving empty proceeded to the lining station. At the lining station, the trucks pulled up to a scaffold and were visibly inspected by WESTON to ensure that there was no waste material in the truck bed. The truck bed was then lined with disposable, 6-mil poly sheeting to prevent the truck bed from coming into contact with the excavated soil and to ensure that free liquids (if present) could not leak out of the tailgate. The poly sheeting was tied to the rails of the truck bed to keep it in place during loading and shipment. On several occasions, WESTON followed trucks hauling soils to the SKB Landfill to ensure liner integrity throughout the hauling process. Based on WESTON's observations during the loading and hauling operation, there was no evidence of ripping or tearing problems with the bed liner and the 6-mil thick poly sheeting was satisfactory.

A truck preparing to be loaded with materials to be hauled to the SKB Landfill would proceed from the lining station to the respective loading area. After loading, the truck returned to the lining station for inspection. The trucks were inspected by WESTON to ensure the bed liner was in good condition, the liner remained in place in the bed of the truck and that the height of the soil was lower than the sides of the truck. After inspection, a tarp was secured over the top of the trailer, and the driver signed the associated manifest before the truck departed from the Site.

Trucks transporting material to SKB were weighed upon arrival at the SKB Landfill using a certified weigh scale. Photographs 35 and 36, provided in Appendix B, demonstrate truck lining procedures.

Veit utilized a different loading procedure for the approved stockpile material than for the direct load material. As discussed in Section 3.5.1, direct load material was loaded using an excavator stationed between the excavation limits and haul road. For all stockpiled material, trucks were loaded via front end loader at a specified load-out zone constructed for truck loading purposes. This load-out zone consisted of a ramp within the exclusion zone and a tarp wall at the edge of the exclusion zone (Photograph 37, provided in Appendix B). This allowed trucks, located outside of the exclusion zone, to be loaded using equipment inside the exclusion zone. The tarp was stretched across the width of the load-out zone ramp to make a barrier approximately the height of a truck bed. It was installed to prevent any spillage of soil dumping during load-out from falling outside the exclusion zone.

3.5.4 Non-Soil Debris

During the former NEDA excavation, minimal non-soil debris was encountered. This debris consisted mainly of tape/plastic debris, crushed drum fragments and metal scraps. The debris encountered contained no visible tar residue and was disposed with the surrounding soils at the SKB Landfill. Photographs 38 and 39, provided in Appendix B, show the non-soil debris.

3.5.5 Water Management

Due to the elevation of the former NEDA above the groundwater table, no groundwater was encountered during the former NEDA excavation activities. Minimal construction water was encountered, and all construction water was collected in the excavation and managed on-site.

Near the conclusion of the project, after the potentially impacted material was backfilled into the bottom of the excavation and prior to the backfilling with stripped cover material, the excavation equipment (that was operated within the exclusion zone) was decontaminated using a 300 psi heated pressure washer. Three passes were completed with the pressure washer after visible debris was removed. The procedure was performed within the boundaries of the former NEDA excavation, and the decontamination water was allowed to percolate into the ground.

3.6 SURVEY VERIFICATION OF EXCAVATION LIMITS

Verification surveying was performed by TKDA, a Minnesota-licensed surveyor, as a contractor to WESTON. This arrangement provided the "third-party" verification that the removal requirements specified in the RD/RA Plan were being met. Surveying was conducted regularly during the excavation activities to confirm that the required horizontal and vertical excavation limits had been reached for each soil block. After the final excavation limits were verified to the lateral and vertical limits specified in the approved RD/RA Plan, backfilling was allowed.

It should be noted that soil block quantities for direct load and stockpiled soil blocks were surveyed differently in accordance with project specifications. The direct load soil block quantities were in-place volumes calculated from as-built survey shots of the excavation. In order to better quantify the volumes of these soil blocks, four corner survey shots (Photograph 26) were collected along with multiple interior ground check shots per soil block.

To quantify the amount of soil excavated from the ex situ sampling soil blocks, the excavated stockpiles were surveyed. Stockpile quantities were surveyed by collecting several survey shots around the base of the stockpile, as well as one or two shots at the top of the stockpile. As-built survey shots were taken at the four corners of each of the ex situ sampling soil blocks, but the corner shots were only used to confirm that the excavation met the required limits.

3.6.1 Former NEDA

Figures 3-6 through 3-23 provide the plan view and cross section results of final verification surveys for the base of each layer in the former NEDA (i.e., base of Stripped Material, 0 to 2 ft bgs; base of Layer 1, 2 to 7 ft bgs; base of Layer 2, 7 to 12 ft bgs; and base of Layer 3, 12 to 18 ft bgs (former Trench B only), respectively), which includes the corners of each soil block. The cross sections of the former NEDA indicate that the RD/RA Plan specified excavation limits as well as the actual final excavation limits were achieved and that the actual excavation limits met or extended slightly beyond the RD/RA Plan design limits. Portions of the excavation limits of former Trench B and former Trench D are shown in Photographs 7, 9 and 14, which are provided in Appendix B.

Table 3-1 provides a tabular summary of the former NEDA soil excavation volumes. Because all of the final data for the excavated soil stockpiles met the nonhazardous criteria, all of the soil excavated from the former NEDA, approximately 15,860 cubic yards (28,577 tons), was disposed at the SKB Landfill.

3.7 OPERATIONAL RECORDS

In addition to haul truck inspection sheets (Figure 3-5), additional operational records are maintained by WESTON documenting the excavation activities and ambient conditions during site activities. Such records include daily reports, meteorological station data, and perimeter monitoring as discussed in the following sections.

3.7.1 Daily Reports

The Daily Site Operations Log Form was completed for each day of site activity. The log form contains a summary of key site daily information, such as activities performed, personnel on-site, soil blocks that were excavated, stockpiles that were generated, hauling information, monitoring information and communications. All of the daily reports are maintained in WESTON's project files as part of the construction record.

Additionally, weekly construction meetings were held by 3M, typically on Mondays, throughout the duration of site activities to review construction progress and plans for upcoming construction, and to resolve construction questions or issues. These meetings were led by the 3M project representative and were attended by 3M, Veit, WESTON, and other parties such as AECOM (MPCA's contractor) and MPCA. Meeting minutes were e-mailed weekly, and copies are maintained in 3M and WESTON project files, as part of the construction record. Lastly, AECOM representatives periodically visited the site to observe and document excavation activities, on behalf of MPCA.

3.7.2 Meteorological Station Data

Daily weather conditions were recorded on the Daily Site Operations Log Form; however, continuous monitoring and documentation of on-site meteorological conditions were recorded by WESTON at an on-site met station. The met station was installed the week of October 11, 2010

and was mounted outside of the exclusion zone on an approximate 18-foot tripod. Data logging for the former NEDA excavation started on October 12, 2010. The met station was located southwest of the exclusion zone and west of the construction trailer (Figure 3-1 and Figure 3-2). The meteorological data were recorded by a data logger and downloaded daily. The meteorological variables monitored included:

- Wind speed.
- Wind direction.
- Standard deviation of horizontal wind direction (sigma theta).
- Ambient air temperature.
- Precipitation.

The meteorological data were also used during construction activities to help foresee construction water issues. Of the 34 recorded precipitation events, 30 were less than a quarter of an inch and four were between a quarter and a half of an inch. All precipitation was managed on-site, and no water removal was necessary throughout construction activities. All precipitation was managed within the excavation and was allowed to percolate into the ground.

During the excavation activities, the average daily wind direction originated from the south, including the southeast, due south and southwest, 67% of the time. The average wind speed was 5.8 miles per hour. The wind speed was monitored with a three-cup anemometer assembly mounted on a cross arm. Horizontal wind direction was monitored by a wind vane coupled to a precision low torque potentiometer. Precipitation was measured with a tipping bucket rain gauge. A table that provides a summary of the daily meteorological data is provided in Appendix H.

3.7.3 Perimeter Monitoring

During the excavation activities, perimeter monitoring for VOCs and particulates was performed approximately once per week and measurements were recorded on a Perimeter Monitoring Form, as outlined in the RD/RA Plan. A copy of the Perimeter Monitoring Forms is provided in Appendix I.

The following instruments were used for monitoring:

- Mini-RAE 2000 photoionization detector (PID) for VOC ambient air monitoring.
- MIE DataRam (pDR) for PM_{10} particulate ambient air monitoring.
- Simpson Model 884 Type S2A for noise monitoring.

As shown in Figure 3-24, there were seven monitoring locations surrounding the excavation area in all directions. The monitoring locations were relocated slightly from those proposed in the RD/RA Plan due to access issues. The air monitoring locations were as follows:

- Station 1 -West of the former MDA.
- Station 2 - South of the former MDA.
- Station 3 - Southeast of the former MDA and the former NEDA.
- Station 4 - East of the former NEDA.
- Station 5 – Directly north of the former NEDA (at property boundary).
- Station 6 – Northwest of the former NEDA.
- Station 7 – North of the former NEDA (along Dale Road).

A total of eight perimeter monitoring events were performed during excavation activities. The frequency of monitoring events was considered sufficient, and did not need to be increased, due to the very low readings that were recorded for the monitored parameters and the isolation of the excavation activities from surrounding properties.

Cumulatively, the readings obtained for all the monitored parameters (i.e., VOCs, particulates, and noise) across all perimeter monitoring locations were well below the associated HASP action levels. The VOC concentrations were 0.0 ppm throughout the duration of the project, and the VOC concentration recorded over a 5-minute time weighted average (TWA) never exceeded 0.0 ppm. The Action Level set in the HASP was a reading of 2.5 ppm above background as a 15-minute time weighted average.

The PM_{10} concentrations recorded across all stations ranged from 0.000 mg/m^3 to 0.053 mg/m^3 with a project average of 0.010 mg/m^3. These recorded concentrations were well below the Action Level defined in the HASP of 0.1 mg/m^3 above background levels.

Lastly, the Action Level for sound monitoring, as defined in the HASP, was 65 decibels A-weighted (dBA) near households and 80 dBA near highways and street right-of-ways. The values, measured for sound were consistently less than 65 dBA. During the perimeter monitoring events on December 9 and 10, 2010, the maximum noise readings were recorded. These showed maximum readings of 88 dBA, 68 dBA, 57 dBA, 75 dBA, 77 dBA, 87 dBA and 75 dBA at Locations 1, 2, 3, 4, 5, 6 and 7, respectively. All of these monitoring locations, except Location 3, are along or in close proximity to a public traffic road. Only at Station 1 and Station 6 (88 dBA and 87 dBA, respectively) did the maximum sound reading exceed 80 dBA, but this reading was recorded as a maximum and not as a time weighted average; therefore the Action Level as defined in the HASP was not exceeded.

3.8 DECOMMISSIONING ACTIVITIES

At the conclusion of the construction activities, all stockpile staging areas, including the poly liner, were removed and hauled to the SKB Landfill. Approximately 6,100 tons of this material was hauled to SKB between December 2, 2010 and May 13, 2011.

Spillage of excavated material in traffic areas inside of the exclusion zone was not an issue on this project due to Veit's decision to place poly liner in the entire exclusion zone as a stockpile staging area. As a result the contractor was not required to scrape and remove the traffic lane soils at the conclusion of the project.

Following excavation activities, Veit decontaminated all equipment used in the exclusion zone. Decontamination activities were performed under the guidance of the Decontamination Plan submitted by Veit to 3M prior to excavation activities at the Site.

3.9 BACKFILLING, FINAL GRADING, AND REVEGETATION

Backfill documentation, including the date of backfilling activities and the source of backfill material, was recorded in the daily reports. Backfill material was placed in 12-inch lifts and compacted except during winter snow conditions, which prevented compaction.

In the former NEDA, the source of backfill material was the potentially impacted material that was removed from the excavation side slopes, the stripped cover material (0 to 2 ft bgs) and the

backhauled SKB sands. In accordance with the RD/RA Plan, the potentially impacted material that had been staged in the exclusion zone was the first material backfilled into the excavation and this was followed by the stripped cover material (0 to 2 ft bgs). To the extent possible, these backfilled materials were placed at a depth greater than 4 feet bgs, and the SKB backhauled sands were used to fill the remainder of the excavations. Figures 3-25 through 3-28 depict the backfill materials in former Trench B and former Trench D. Photographs 10, 11, and 15, provided in Appendix B, show the backfilling.

During the final stages of excavation in the former Trench D area, a snowstorm occurred that deposited a 3- to 6-inch layer of snow on the site. Because some snow contacted the stockpiled material and the open face of the excavation, this snow was managed in the excavation. As a result, the snow within the exclusion zone was backfilled along with soils in former Trench D. In the spring, when the snow melted, the backfill in former Trench D was reworked and graded.

Existing and final grading surface contours are provided in Figure 3-29. Overall, the final grading contours are in close proximity to the existing contours and are of similar shape. Therefore, the overall direction of surface water flow pre- and post-construction activities is likely unaffected. The final site survey was conducted on March 20, 2011 after the completion of construction activities. Photographs 40 and 41 depict the placement of topsoil and the seeded areas in May 2011.

A final site walkthrough and inspection occurred on June 21, 2011. The final inspection consisted of a representative from 3M, Veit, TKDA and WESTON. During the site walkthrough, it was determined that the backfilled excavation areas had at least a 70% vegetative cover, as required by the stormwater permit (Photograph 42). As a result, the silt fence was removed from the site on June 23, 2011 and the MPCA was notified that the former NEDA soil removal project was complete. A Notice of Termination for the Stormwater General Permit was filed by TKDA in August 2011.

SECTION 3 TABLE

Table 3-1 Summary of Former Northeast Disposal Area Excavation
Woodbury, MN

Soil Block	Direct Load/Stockpile No. [1]	Destination SKB (cy)
FORMER TRENCH B		
NE 1-1	001	88.78
	002	91.18
	003	107.97
	004	79.03
NE 1-2	001	113.98
	002	116.53
	003	101.17
	004	71.23
NE 1-3	Direct Load	273.65
NE 1-4	001	81.04
	002	86.12
	003	79.62
	004	87.65
	005	34.05
NE 1-5	Direct Load	301.86
NE 1-6	001	82.06
	002	84.74
	003	83.46
	004	80.78
	005	79.37
	006	20.65
NE 1-7	001	84.80
	002	90.73
	003	83.49
	004	85.91
	005	31.31
NE 1-8	Direct Load	353.91
NE 1-9	Direct Load	270.80
NE 1-10	Direct Load	308.31
NE 1-11	Direct Load	315.08
NE 1-12	Direct Load	273.05
NE 2-1	Direct Load	292.81
NE 2-2	Direct Load	381.82
NE 2-3	Direct Load	275.96
NE 2-4	Direct Load	282.64
NE 2-5	Direct Load	297.32
NE 2-6	001	104.44
	002	107.24
	003	102.65
	004	90.46
	005	12.93
NE 2-7	001	99.65
	002	105.83
	003	105.17
	004	95.97

Table 3-1 Summary of Former Northeast Disposal Area Excavation
Woodbury, MN

Soil Block	Direct Load/Stockpile No. [1]	Destination SKB (cy)
NE 2-8	001	105.03
	002	106.27
	003	109.77
	004	107.54
NE 2-9	001	106.90
	002	97.73
	003	109.54
NE 2-10	Direct Load	306.42
NW 2-11	Direct Load	331.58
NW 2-12	Direct Load	279.03
NW 3-1	Direct Load	20.28
NW 3-2	Direct Load	122.11
NE 3-3	001	85.65
	002	81.87
	003	47.24
	Subtotal Former Trench B	**8414.16**
FORMER TRENCH D		
NE 1-13	Direct Load	228.75
NE 1-14	001	110.86
	002	113.61
	003	107.61
	004	99.35
NE 1-15	001	107.32
	002	102.57
	003	105.97
NE 1-16	001	114.26
	002	94.53
	003	101.66
	004	73.45
NE 1-17	Direct Load	302.16
NE 1-18	Direct Load	266.65
NE 1-19	Direct Load	315.36
NE 1-20	Direct Load	336.65
NE 1-21	Direct Load	300.71
NE 1-22	Direct Load	308.86
NE 1-23	Direct Load	283.46
NE 1-24	Direct Load	184.66
NE 2-13	001	110.89
	002	112.43
	003	51.75
NE 2-14	001	113.47
	002	122.17
	003	125.54
NE 2-15	001	109.86
	002	107.28
	003	82.58

Table 3-1 Summary of Former Northeast Disposal Area Excavation
Woodbury, MN

Soil Block	Direct Load/Stockpile No. [1]	Destination SKB (cy)
NE 2-16	001	103.87
	002	107.37
	003	77.28
	004	50.23
NE 2-17	001	91.70
	002	99.84
	003	82.04
	004	72.78
NE 2-18	001	98.56
	002	92.03
	003	102.15
NE 2-19	001	71.28
	002	97.41
	003	90.39
	004	51.22
NE 2-20	001	99.34
	002	105.86
	003	115.05
	004	58.16
NE 2-21	001	102.86
	002	92.84
	003	101.32
	004	24.38
NE 2-22	Direct Load	310.51
NE 2-23	001	101.82
	002	99.34
	003	117.71
NE 2-24	001	97.09
	002	86.13
	003	50.30
	Subtotal Former Trench D	**7445.28**
NEDA Total Volume		**15,859.44**

[1] Each ~100 cy stockpile was staged in two separate sub-piles; i.e., 001-1 and 001-2 represent the two halves of stockpile 001. If no halves are listed, either the stockpile was less than ~50 cubic yards or both halves went to the same destination.

SECTION 3 FIGURES

NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)

TRENCH "B"
BACKHAULED SKB
SAND STAGING AREA

100
979.230
TRV 100
N=144862.93
E=484239.63

TEMPORARY
SECURITY FENCE
W/ PERIMETER SILT
FENCE

104
983.214
TRV 104
N=144937.18
E=484319.56

105
984.684
TRV 105
N=144957.16
E=484453.21

TRENCH "B" DIRECT LOAD OUT ZONE PAD

EXCLUSION ZONE W/
INTERIOR SILT
FENCE.

TRENCH "B"

NE-1 NE-2 NE-3 NE-4 NE-5 NE-6 NE-7 NE-8 NE-9 NE-10 NE-11 NE-12

P1 P2 B1 B2 P3 B3 P32 B4 B5 B6 B7 B8 B9 B10 P3 B11 P4 P5 P6 P7 P8 B12 P9 B13 P10 B14 B15 B16 B17 P11 B18 B19 P33 B20 B21 P12 P13 B22 P14 P15 P16 P17 P18

107
981.270
TRV 107
N=144840.38
E=484664.39

102
987.358
TRV 102
N=144822.18
E=484465.16

CONSTRUCTION ROAD

STOCKPILE
LOADOUT ZONE

TRENCH "B"
STOCKPILE
STAGING AREA

DECONTAMINATION
TRAILER

SOIL BORING CUTTINGS/DRUM
STAGING AREA

106
982.415
TRV 106
N=144700.80
E=484313.32

TRENCH "B" STOCKPILE
STAGING AREA /W
CONTAINMENT BERMS

0'-2' BGS
STRIPPED MATERIAL
STOCKPILE

POTENTIALLY
IMPACTED MATERIAL
(SLOPE) STOCKPILE

108
982.360
TRV 108
N=144713.27
E=484665.12

OFFICE TRAILER

101
981.900
TRV 101
N=144665.66
E=484250.55

MET
WEATHER
STATION

103
979.042
TRV103
N=144632.31
E=484942.97

110
980.670
TRV 110
N=144604.58
E=484523.30

109
981.070
TRV 109
N=144601.53
E=484624.04

N

0 30 60 90
SCALE IN FEET

Plot Date: 09/03/2011
Drawing name: K:\3m\dwg\woodi\Surveys\C3D10-WODU-TRENCH_B_DSource Drawings\Trench B - Plan_Trench_B-Site-Operation.dwg
Xrefs:_Trench_B_n_D-ExCondition-v2

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WESTON SOLUTIONS

3M PROJECT I.D. 0040152
WOODBURY, MINNESOTA
MAY 20, 2011

FIGURE 3-1
TRENCH B
SITE OPERATION

NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)

100
979.230
TRV 100
N=144862.93
E=484239.63

104
983.214
TRV 104
N=144937.18
E=484319.56

105
984.684
TRV 105
N=144957.16
E=484453.21

0'-2' BGS
STRIPPED MATERIAL
STOCKPILE

TRENCH "D" STOCKPILE
STAGING AREA
W/CONTAINMENT BERMS

107
981.270
TRV 107
N=144840.38
E=484664.39

POTENTIALLY
IMPACTED MATERIAL
(SLOPE) STOCKPILE

STOCKPILE
LOADOUT ZONE

102
987.358
TRV 102
N=144822.18
E=484465.16

TEMPORARY
SECURITY FENCE
W/ PERIMETER SILT
FENCE

CONSTRUCTION ROAD

TRENCH "D"
STOCKPILE
STAGING AREA

DECONTAMINATION
TRAILER

TRENCH "D"

NE-13 NE-14 NE-15 NE-16 NE-17 NE-18 NE-19 NE-20 NE-21 NE-22 NE-23 NE-24

D1 D2 D3 P20 D4 D5 D6 D7 D8 D9 D10 P21 D11 P22 P23 P24 P25 D12 D13 P26 D14 D15 D16 D17 P27 D18 D19 D20 P28 D21 P29 D22 P30 P31 P19

TRENCH "D" DIRECT LOAD OUT ZONE PAD

106
982.415
TRV 106
N=144700.80
E=484313.32

108
982.360
TRV 108
N=144713.27
E=484665.12

EXCLUSION ZONE W/
INTERIOR SILT
FENCE.

103
979.042
TRV103
N=144632.31
E=484942.97

OFFICE TRAILER

101
981.900
TRV 101
N=144665.66
E=484250.55

110
980.670
TRV 110
N=144604.58
E=484523.30

109
981.070
TRV 109
N=144601.53
E=484624.04

MET
WEATHER
STATION

TRENCH "D"
BACKHAULED SKB
SAND STAGING AREA

N

T, D, K, A

0 30 60 90
SCALE IN FEET

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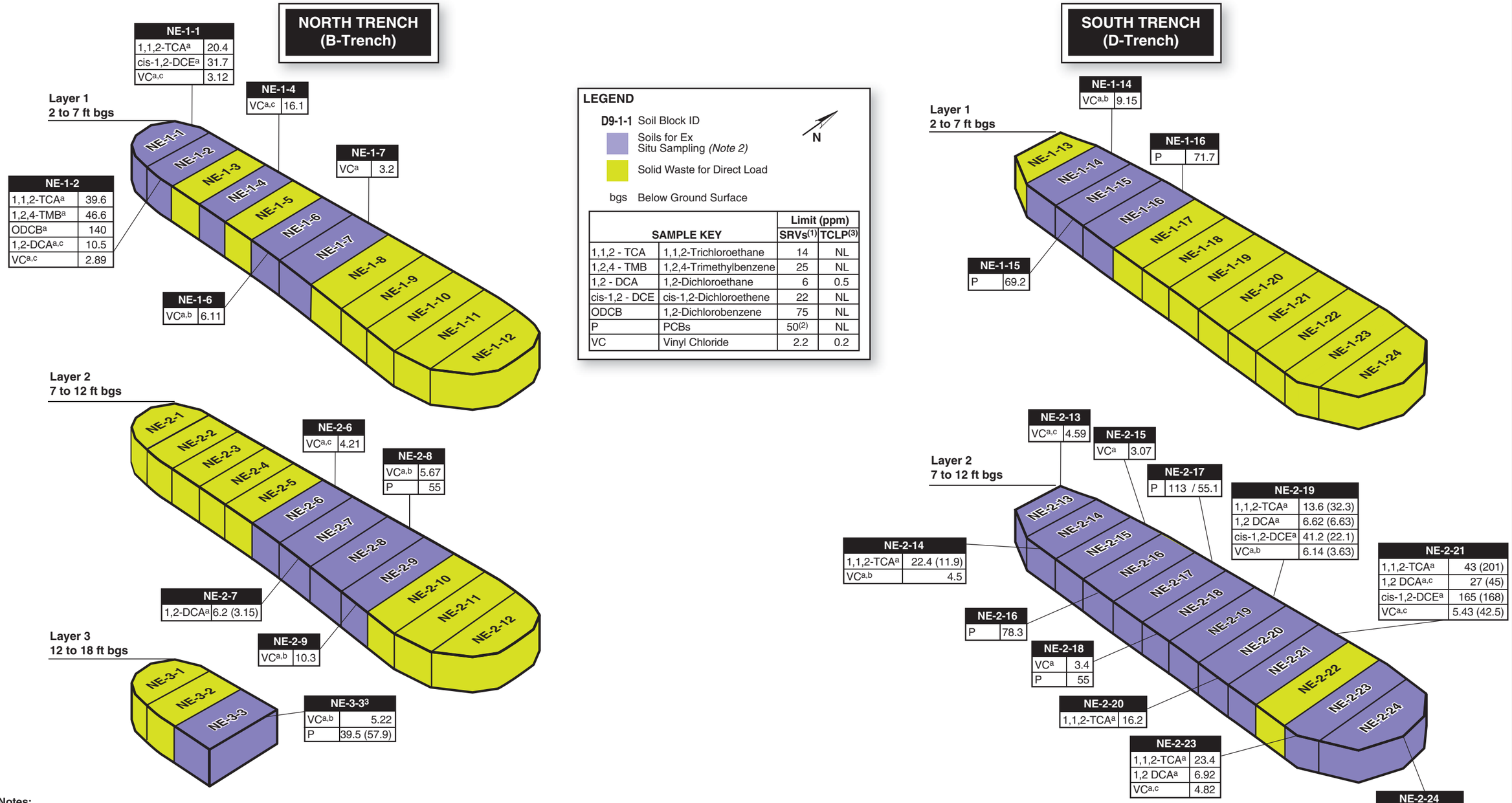
FIGURE 3-2
TRENCH D
SITE OPERATION

Plot Date: 06/03/2011
Drawing name: K:\3m\dwg\woods\Surveys\C3D10-WODU-TRENCH_B_D\Source Drawings\Trench D -Pilot_Trench_D-Site Operation.dwg
Xrefs: Trench_B_n_D-ExCondition-v2



Notes:

1. Material for 0 - 2' bgs to be removed and stockpiled onsite, for use as backfill.
2. Soil analyses indicate concentrations greater than:
   - 20 times the TCLP limit (where there is no corresponding TCLP sample)
   - 50 ppm total PCBs
   - Tier 2 Industrial SRVs for individual constituents (except petroleum-related compounds)
3. The limits of Soil Block NE-3-3 have been expanded to include sample results from NE-3-3 and NE-3-4.
4. Sampling notes:
   a. To be sampled for total VOCs
   b. To be sampled for TCLP (Toxicity Characteristic Leaching Procedure)
   c. Sample passed TCLP
5. Regulatory levels
   (1) = Tier 2 Industrial Soil Reference Values (SRV), MPCA, 6/09.
   (2) = Toxic Substance Control Act (TSCA) reference level.
   (3) = Toxicity Characteristic Leaching Procedure EPA Hazardous Level.
   NL = TCLP regulatory level is listed for this compound.

10P-0671-8

FIGURE 3-3 SOIL DISPOSAL PROFILE
FORMER NORTHEAST DISPOSAL AREA
WOODBURY SITE
WOODBURY, MN

(5)

SKB ENVIRONMENTAL

SKB Rosemount Industrial Waste Facility

Manifest # 759100

Shipping Manifest

1. Generator's US EPA ID No. *(if any)*: M N R 0 0 0 0 1 4 1 4 2

2. Page 1 of ____ page(s)

3. Generator's Name and Facility Address
3M Company
Woodbury Cleanup County 19; Sec. 35; T28N; R21W
Woodbury, MN 55125

Mailing Address

4. Generator's Phone (651) 737-3475

Fax (651) 736-3940

5. Transporter 1 Company Name
Metro Gravel 630/119

Phone:

6. Transporter 2 Company Name

Phone:

7. Designated Facility Name and Site Address
SKB Rosemount Industrial Waste Facility
13425 Courthouse Blvd.
Rosemount, MN 55068 651-438-1500

8. U.S. DOT Description *(including Proper Shipping Name)*	9. Containers No.	9. Containers Type	10. Total Quantity	11. Unit Wt/Vol	12. Waste Profile Sheet #
a. Non-Hazardous Industrial Waste (Woodbury Soil Waste-NEDA) NE 2-2	1	D T			
b.					
c.					
d.					

13. Additional Descriptions for Materials Listed Above *(indicate waste stream Approval # below)*
a. MI 10-0187 Woodbury Soil Waste - NEDA
b. MI
c. MI
d. MI

14. Special Handling Procedures for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Emergency Contact:

SKB Use Only
Load # ____
Scale Wt. ____
Tons/Yds. ____

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Printed/Typed Name: Katie Winogrodski | Signature | Month 1 0 Day 2 8 Year 1 0

17. Transporter 1 Acknowledged of Receipt of Materials

Printed/Typed Name | Signature | Month 1 0 Day 2 8 Year 1 0

18. Transported 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this Manifest except as noted in Item 19.

Printed/Typed Name | Signature | Month Day Year

GENERATOR | TRANSPORTER | FACILITY

White - Return to Generator
Canary - Facility Copy
Pink - Transporter
Goldenrod - Generator Copy

11P-0736-1

FIGURE 3-4 SKB SHIPPING MANIFEST

DAILY TRUCK NUMBER: 5

SKB Non-Hazardous Material Haul Truck Inspection (NEDA)

1. Date: 10/28/2010

2. Unique Container ID (Trailer # - Manifest #): 119-759100 2b. Truck #: 630

3. Transporter ID: METRO GRAVEL

ARRIVAL INSPECTION

		Yes	No
4. Time of Arrival: 8:55			
5. Is truck hauling soil to the Site? If no, proceed to No. 6.			X
	5.a. If yes, cite source of soil.		
	5.b. Is the truck covered?		
	5.c. Is soil free from debris, roots, large rocks, or free water?		
6. Are truck tires, undercarriage, and body clean?		X	
7. Issues and/or items of discussion:			

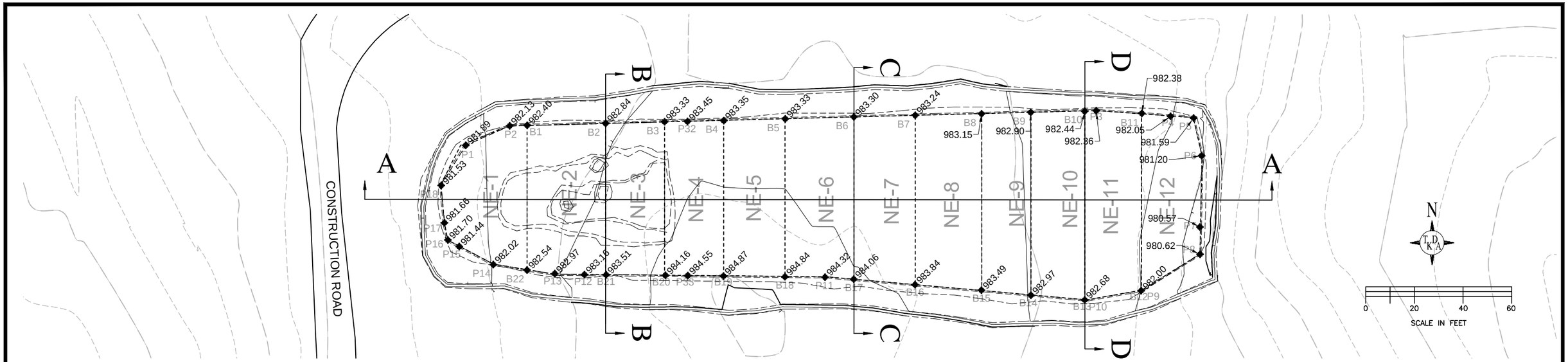
GROSS (LBS)	TARE (LBS)	NET WEIGHT (LBS)	NET WEIGHT (TONS)	SOIL BLOCK SOURCE / DIRECT LOAD #
73,800	30,580	43,220	21.61	NE 2-2

Departure Inspection

		Yes	No
8. Time of departure: 9:25			
9. Is truck hauling soil from the site?		X	
	9.a. If yes, cite destination. If no, proceed to No. 10. SKB		
	9.b. Is the container liner in place and secure?	X	
	9.c. Is soil lower than the sides of the truck?	X	
	9.d. Is the tarp in good condition and properly secured over the soils in the truck bed?	X	
	9.e Is the tailgate of the truck secure?	X	
	9.f. Has a copy of the manifest been signed and received by the driver?	X	
	9.g. Has the "Generators Initial Copy" been retained by Weston?	X	
	9.h. Was Non-Soil Material loaded in the Mainfested Container? If yes, explain.		X
10. Are truck tires, undercarriage, and body clean?		X	
11. Issues and/or items of discussion.			

C:\Users\William\Documents\Weston Solutions\NEDA File\NEDA Forms,SKB Truck Inspection

FIGURE 3-5 SKB HAUL TRUCK INSPECTION



Stripped Material Layer
(0' to 2' BGS)

NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)

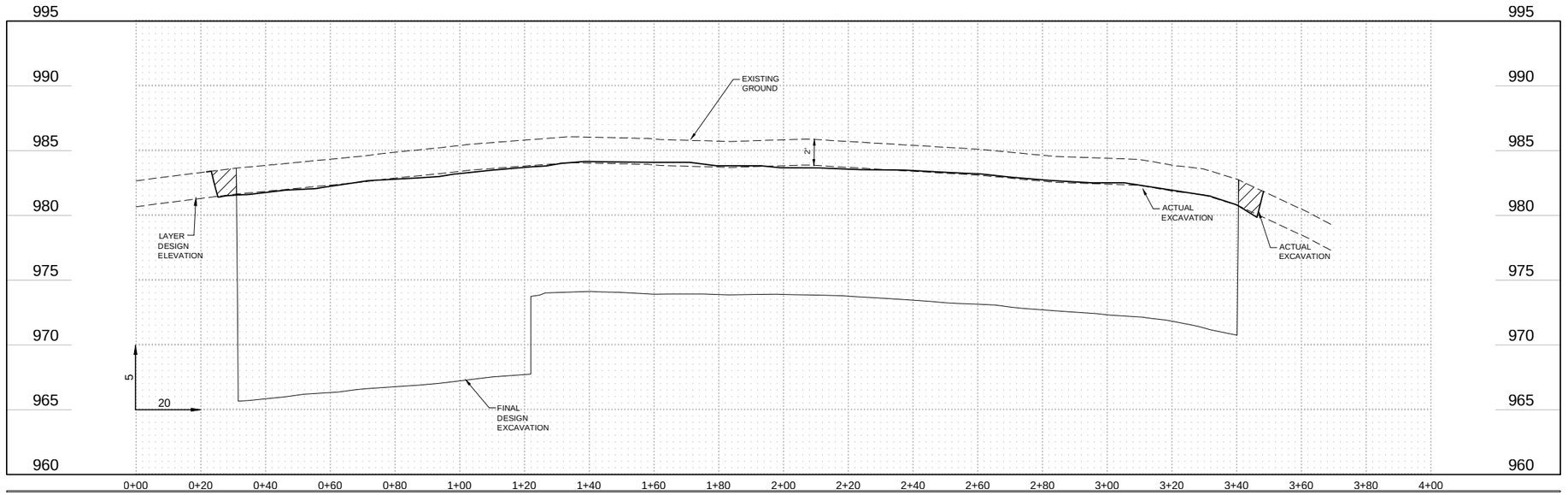


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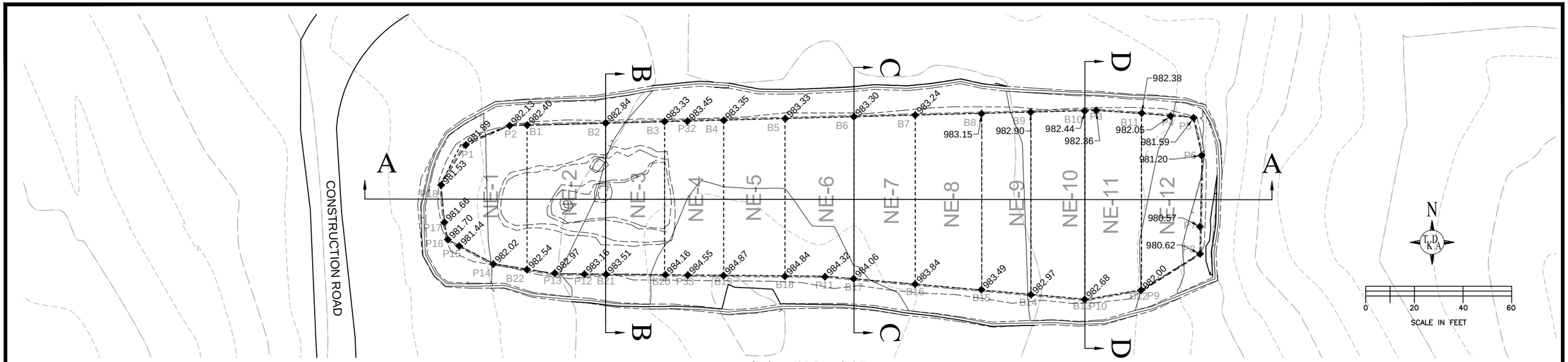
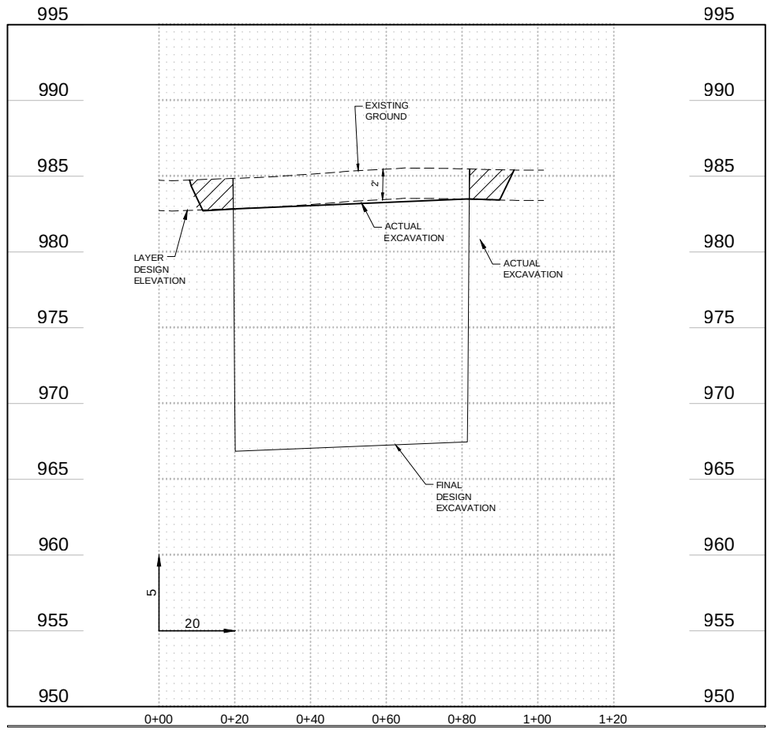
FIGURE 3-6
TRENCH B
FINAL LIMITS

Plot Date: 08/03/2011
Drawing name: K:\3m\dwgs\woodb\Surveys\C3D10-WODU-TRENCH_B_D\Source Drawings\Trench B -Piles_Trench_B-06-21-2011-FinalExcavationLayer-2ft.dwg
Xrefs: Trench_B_n_D-ExCondition-v2

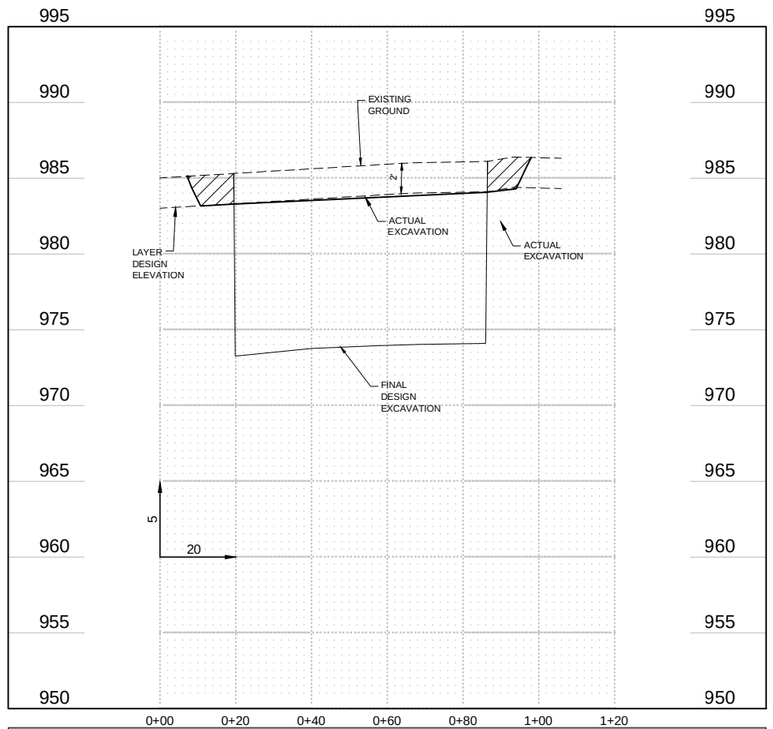


Stripped Material Layer
(0' to 2' BGS)

NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



SECTION B-B



SECTION C-C

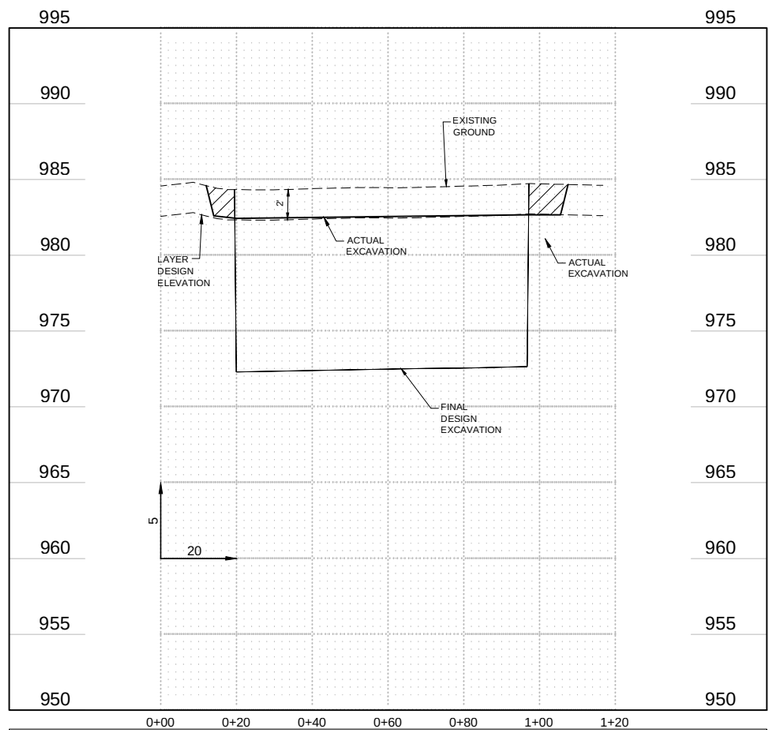


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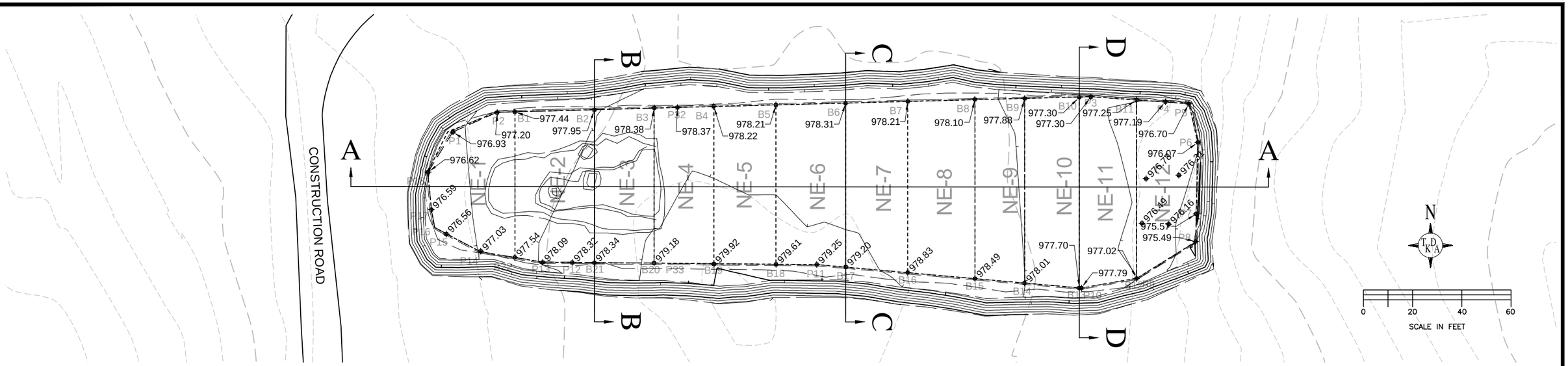
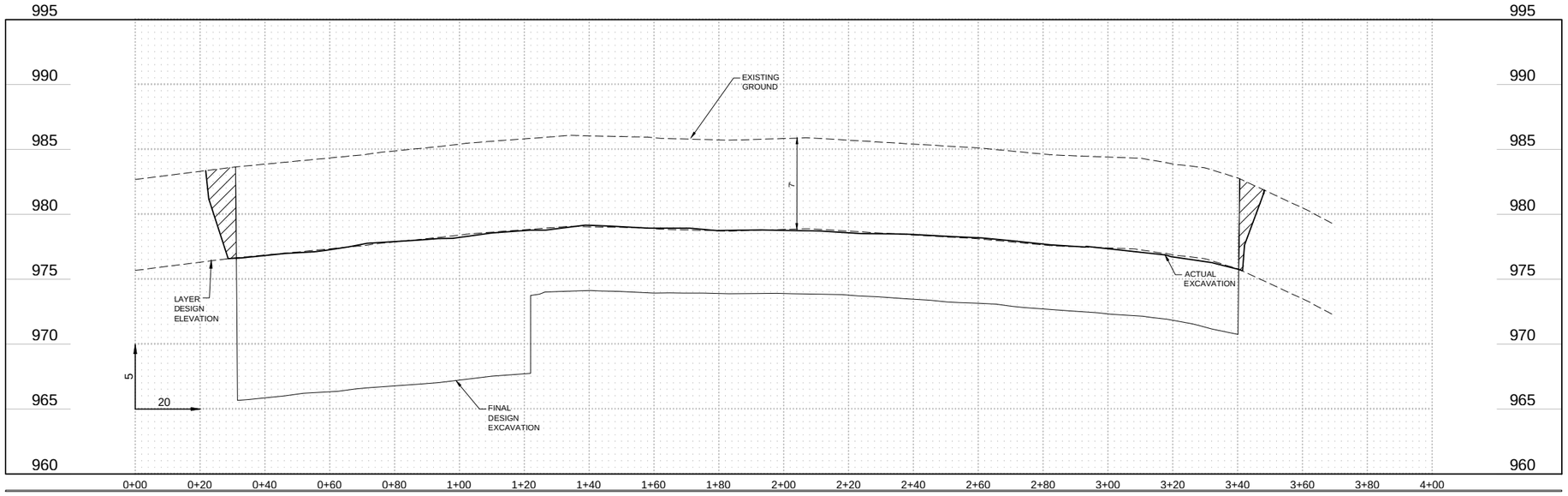
FIGURE 3-7
TRENCH B
FINAL LIMITS



BASE OF LAYER 1
(2' to 7' BGS)

NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



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Layer 1

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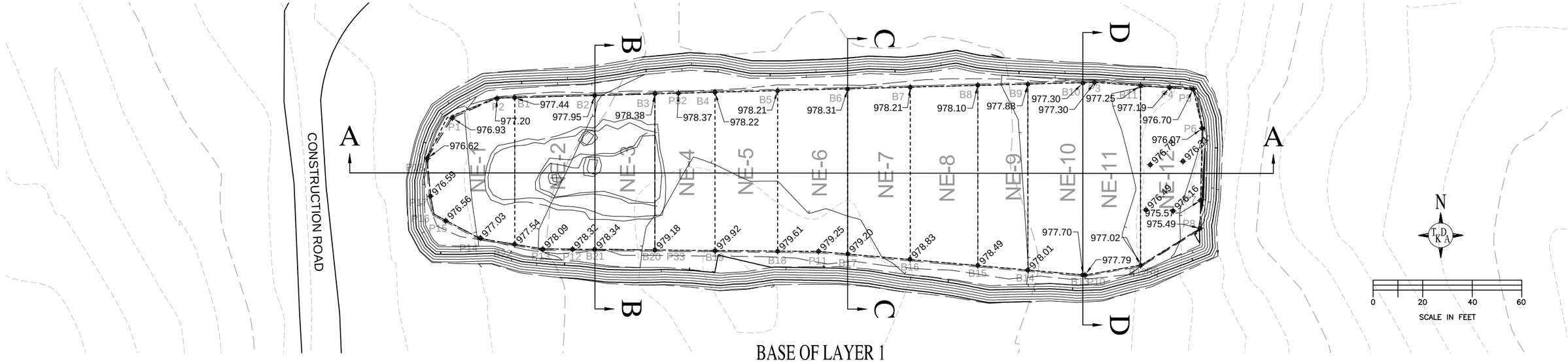
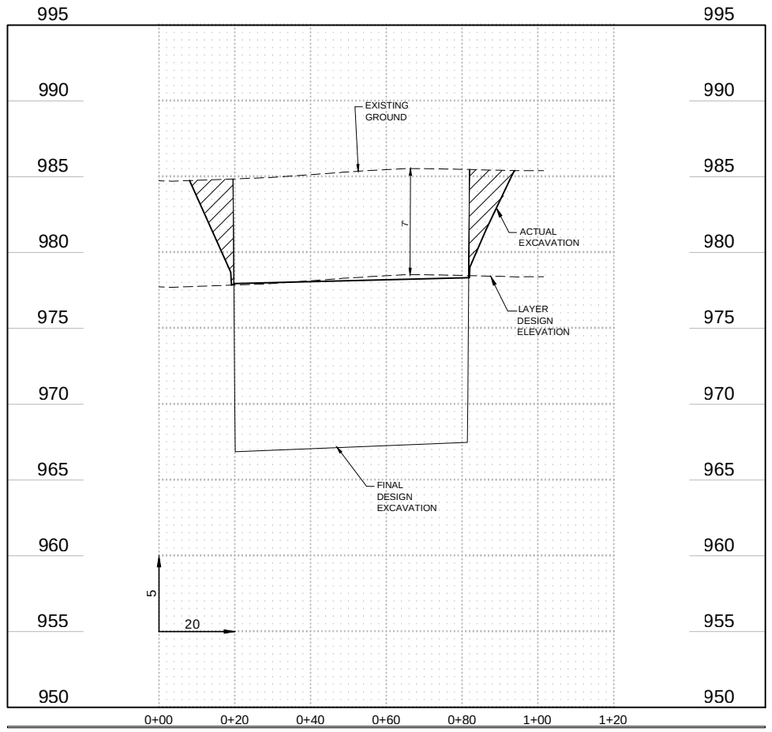
MAY 20, 2011

FIGURE 3-8
TRENCH B
FINAL LIMITS

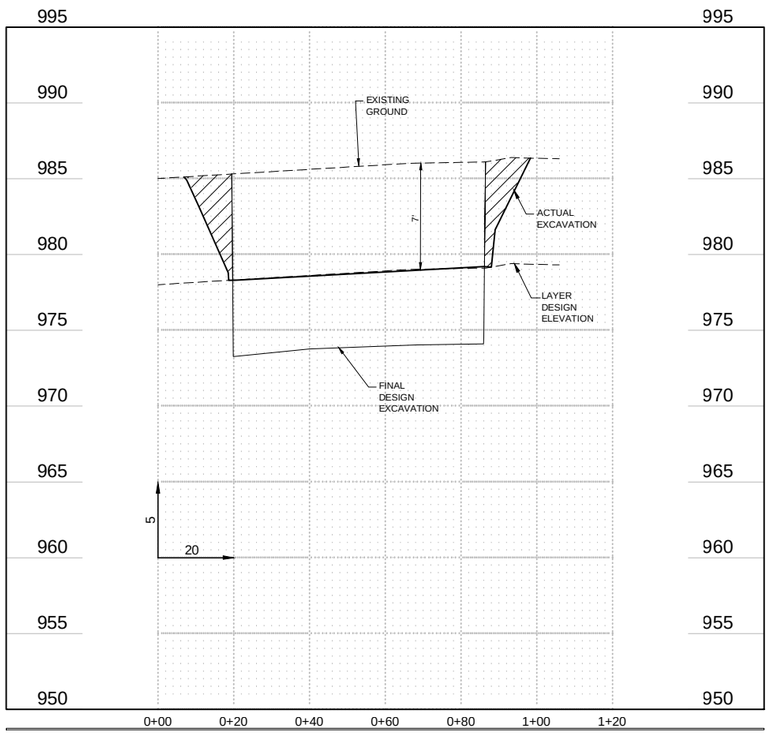


BASE OF LAYER 1
(2' to 7' BGS)

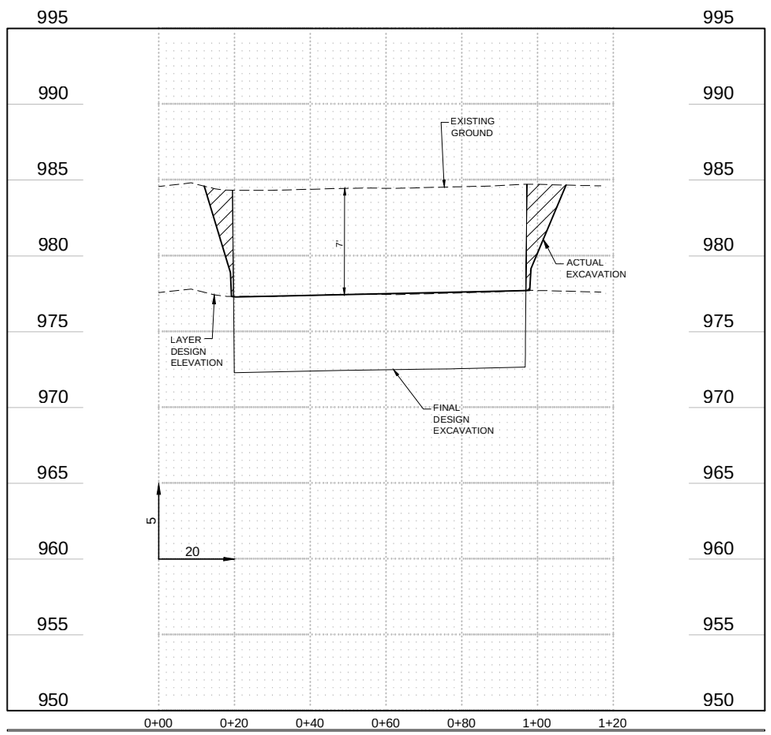
NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



SECTION B-B
Layer 1



SECTION C-C
Layer 1



SECTION D-D
Layer 1

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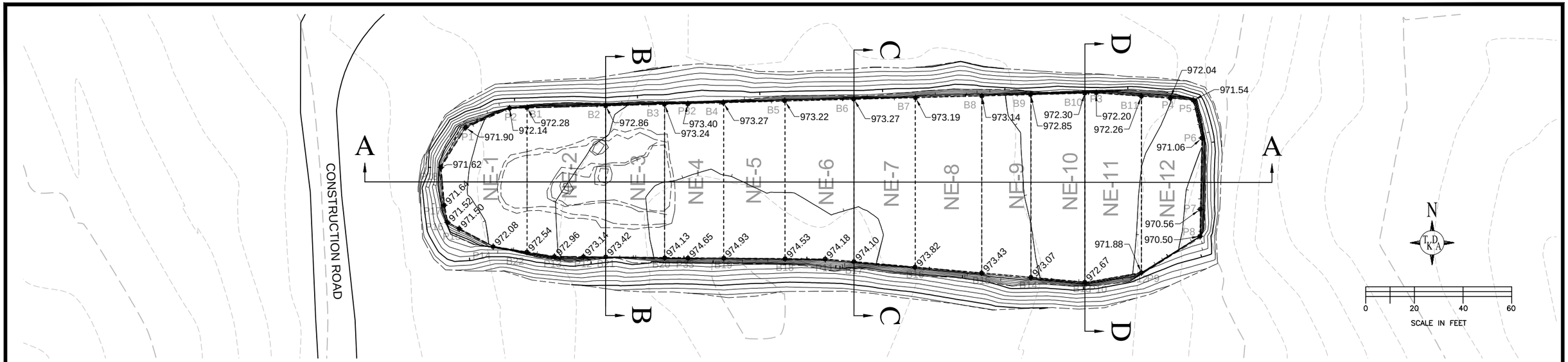
FIGURE 3-9
TRENCH B
FINAL LIMITS



BASE OF LAYER 2
(7' to 12' BGS)

NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)

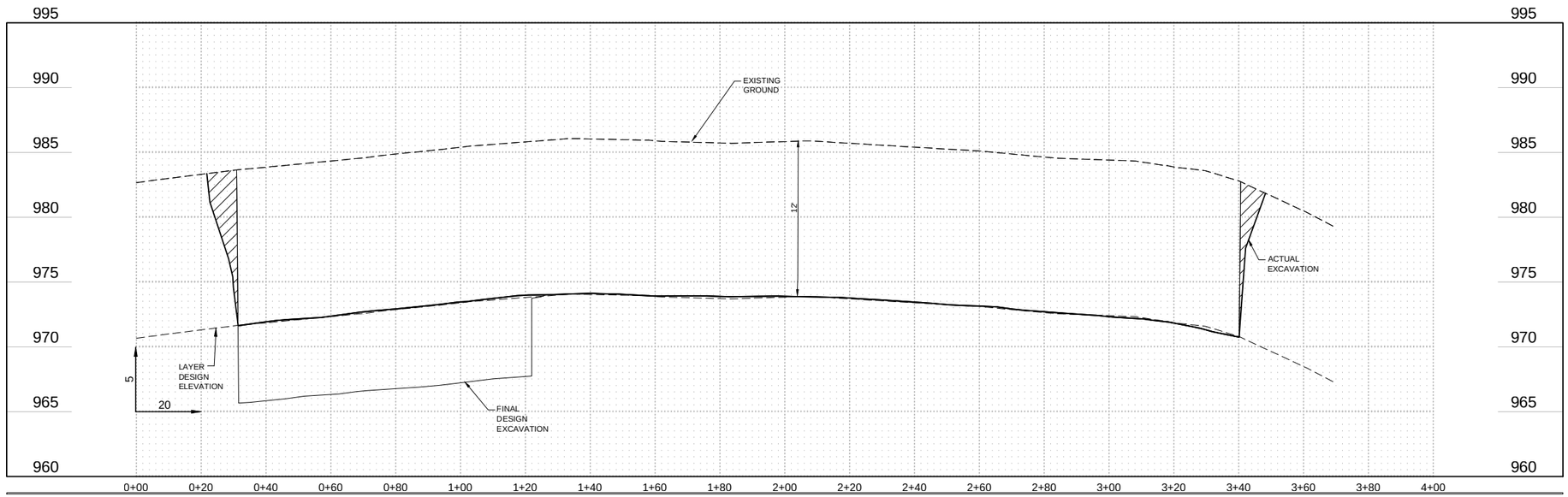


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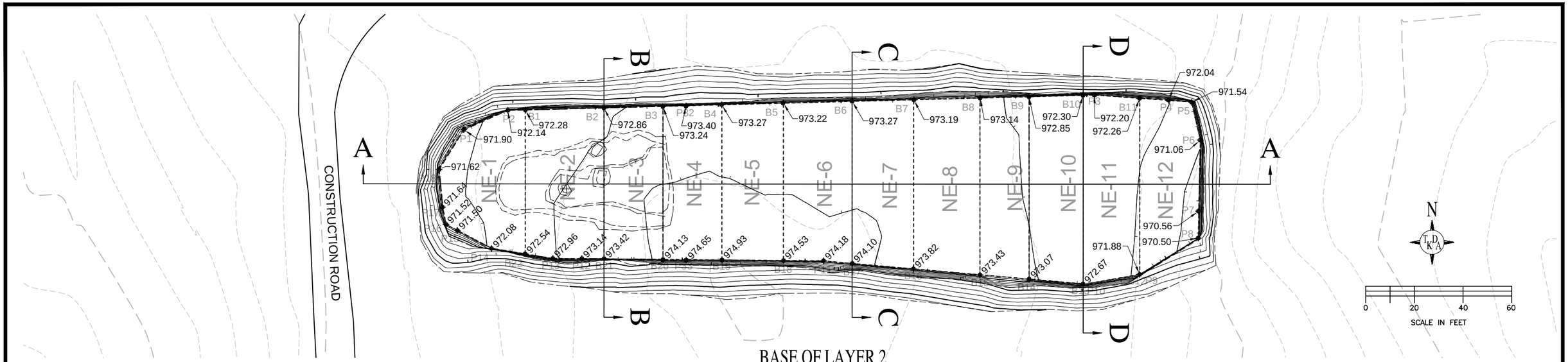
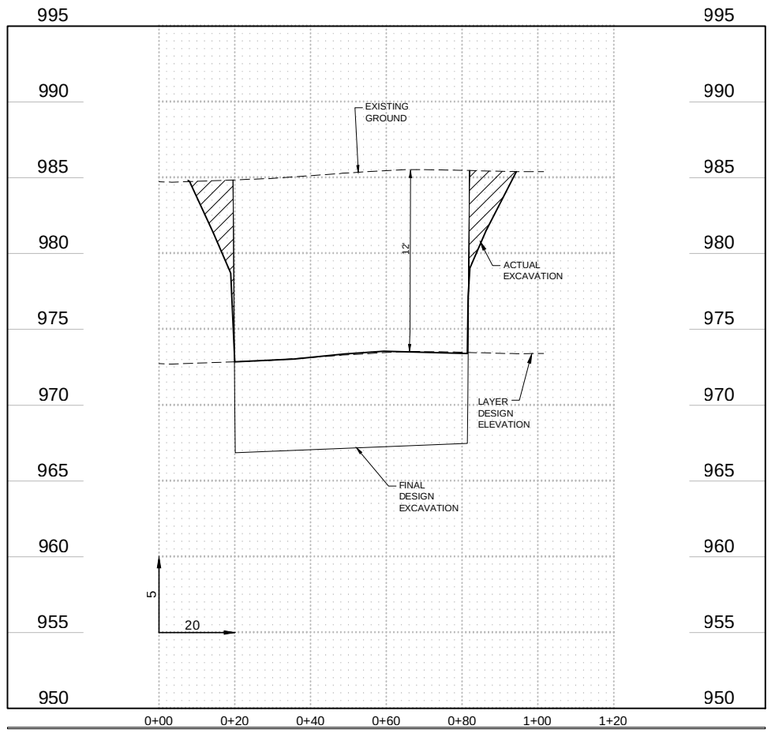
FIGURE 3-10
TRENCH B
FINAL LIMITS

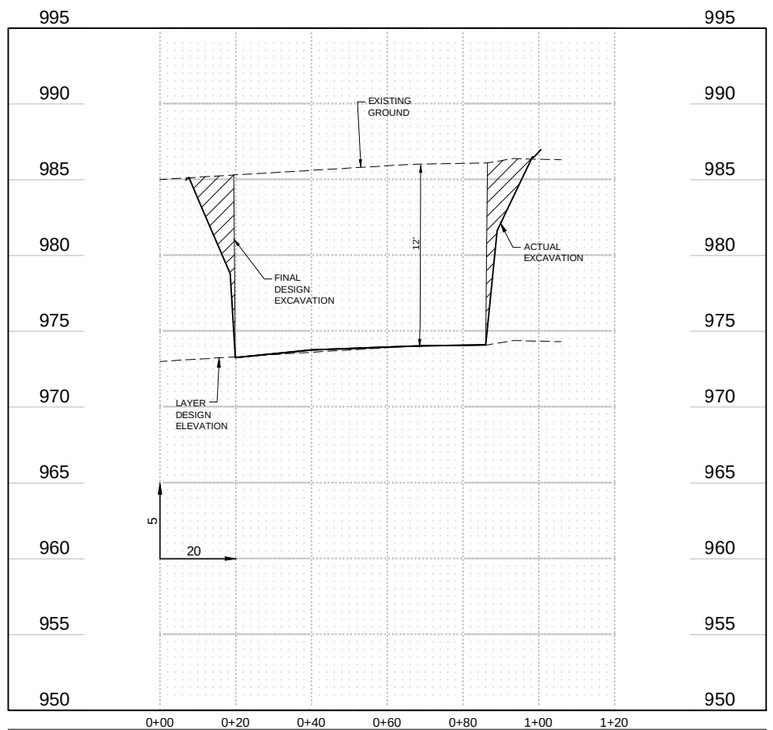


BASE OF LAYER 2
(7' to 12' BGS)

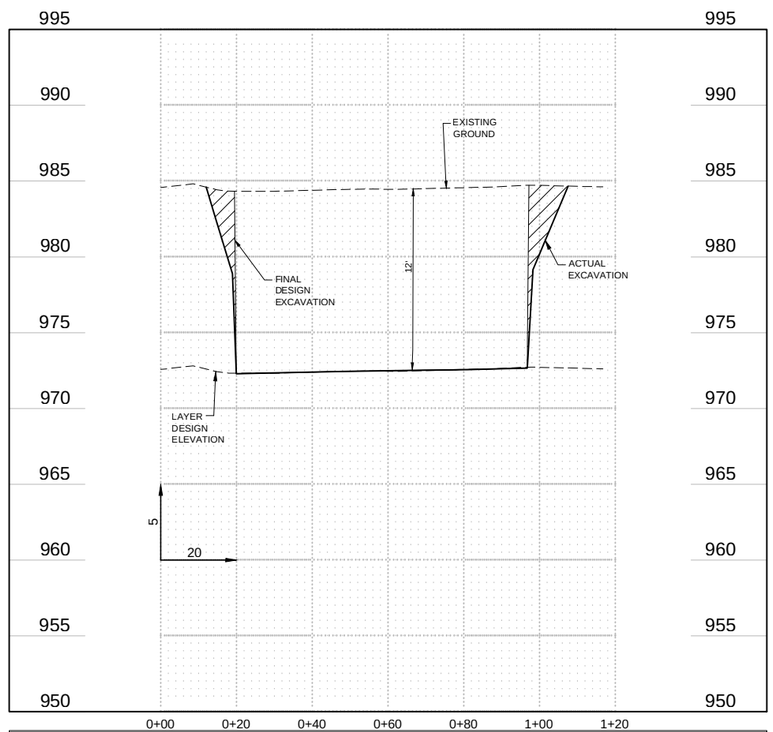
NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



SECTION B-B



SECTION C-C



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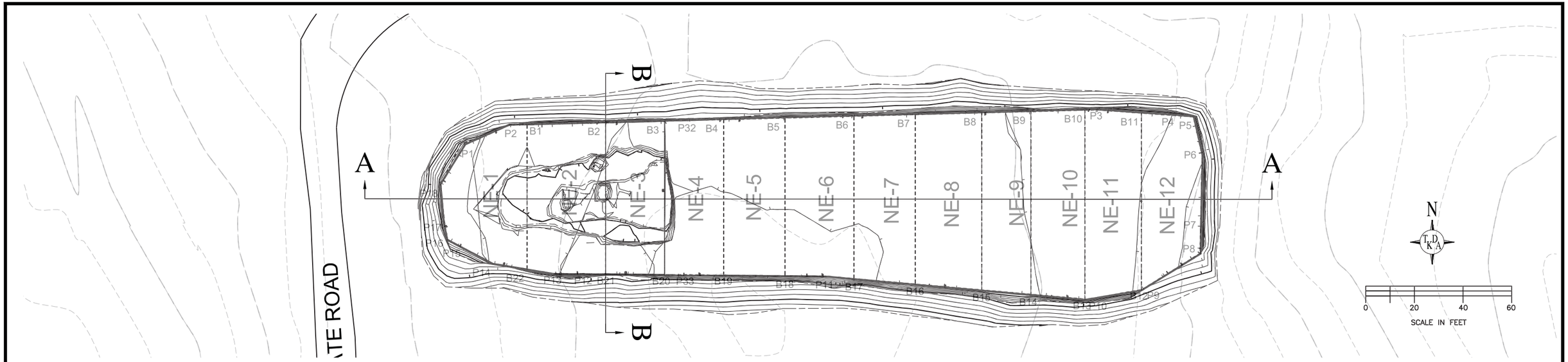
MAY 20, 2011

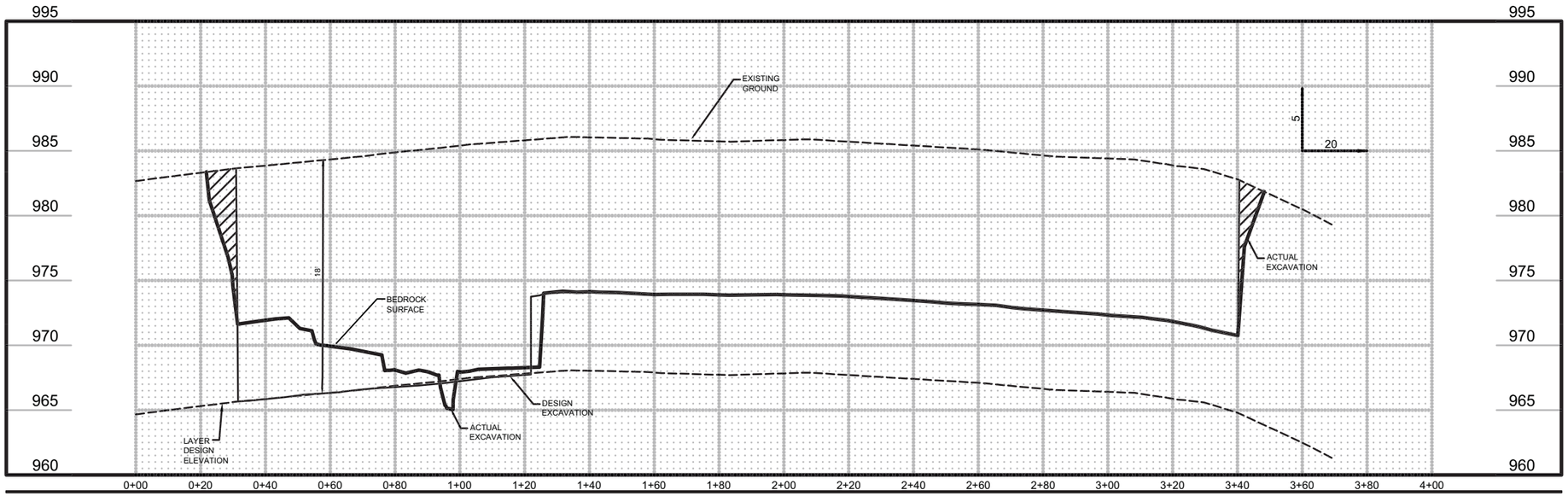
FIGURE 3-11
TRENCH B
FINAL LIMITS

Plot Date: 07/25/2011
Drawing name: K:\3m\dwgs\woodb\Surveys\C3D10-WODU-TRENCH_B_D\Source Drawings\Trench B -Piles_Trench_B-06-21-2011-FinalExcavationLayer-12ft.dwg
Xrefs: Trench_B_n_D-ExCondition-v2



BASE OF LAYER 3
(12' to 18' BGS)

NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



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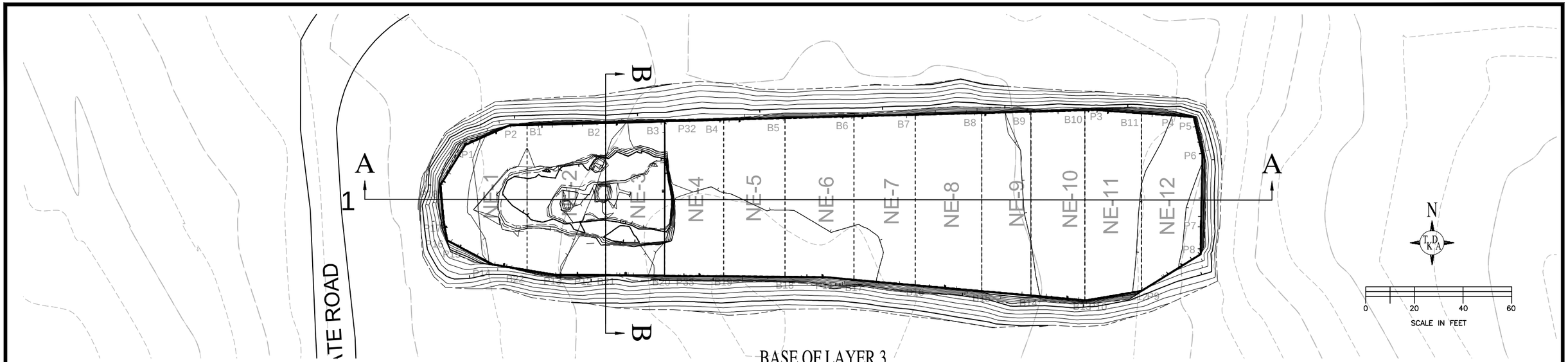
MAY 20, 2011

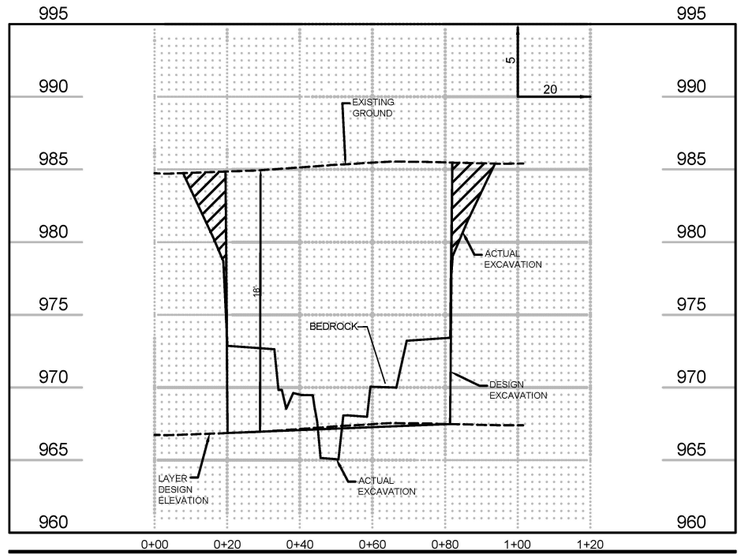
FIGURE 3-12
TRENCH B
FINAL LIMITS

Plot Date: 07/25/2011
Drawing name: K:\3m\dwgs\woodu\Surveys\C3D10-WODU-TRENCH_B_DSource Drawings\Trench B -Piles_Trench_B-06-21-2011-FinalExcavationLayer-18ft.dwg
Xrefs:_Trench_B_n_D-ExCondition-v2



BASE OF LAYER 3
(12' to 18' BGS)

NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



SECTION B-B

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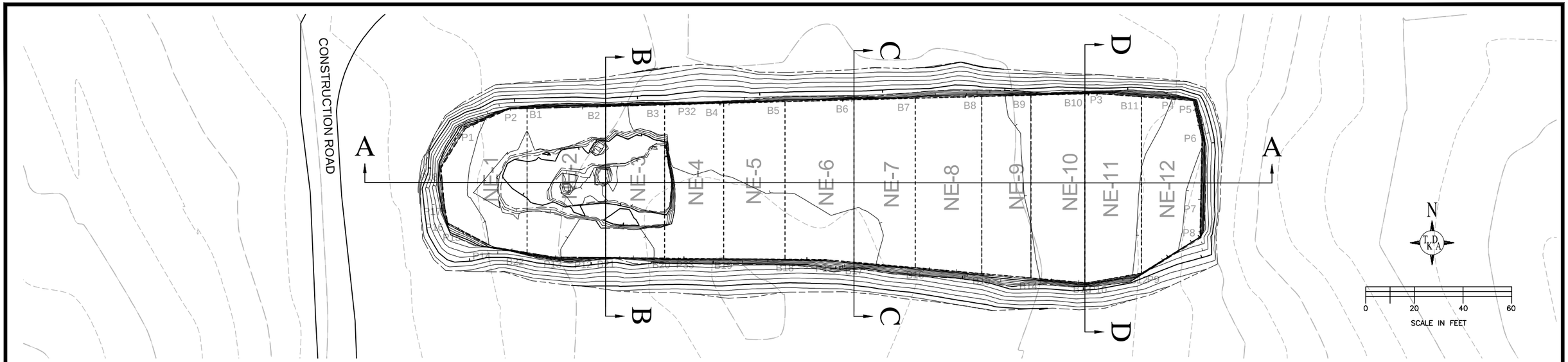
MAY 20, 2011

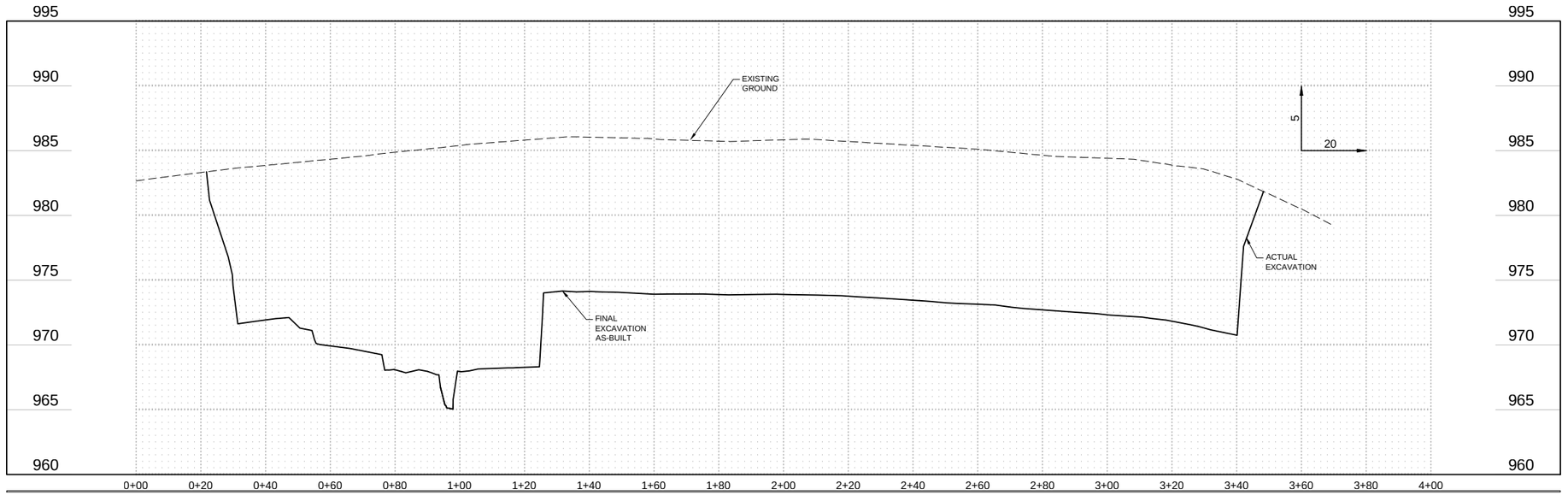
FIGURE 3-13
TRENCH B
FINAL LIMITS

Plot Date: 07/25/2011
Drawing name: K:\3m\dwgs\woodu\Surveys\C3D10-WOODU-TRENCH_B_DSource Drawings\Trench B -Piles_Trench_B-06-21-2011-FinalExcavationLayer-18ft.dwg
Xrefs:_Trench_B_n_D-ExCondition-v2



FINAL EXCAVATION AS-BUILT

NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



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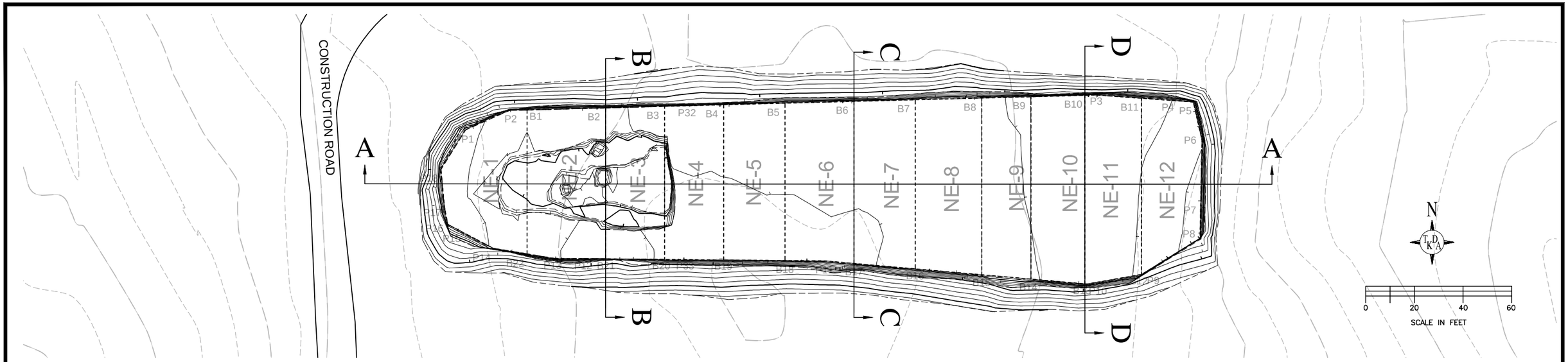
3M PROJECT I.D. 0040152
WOODBURY, MINNESOTA
MAY 20, 2011

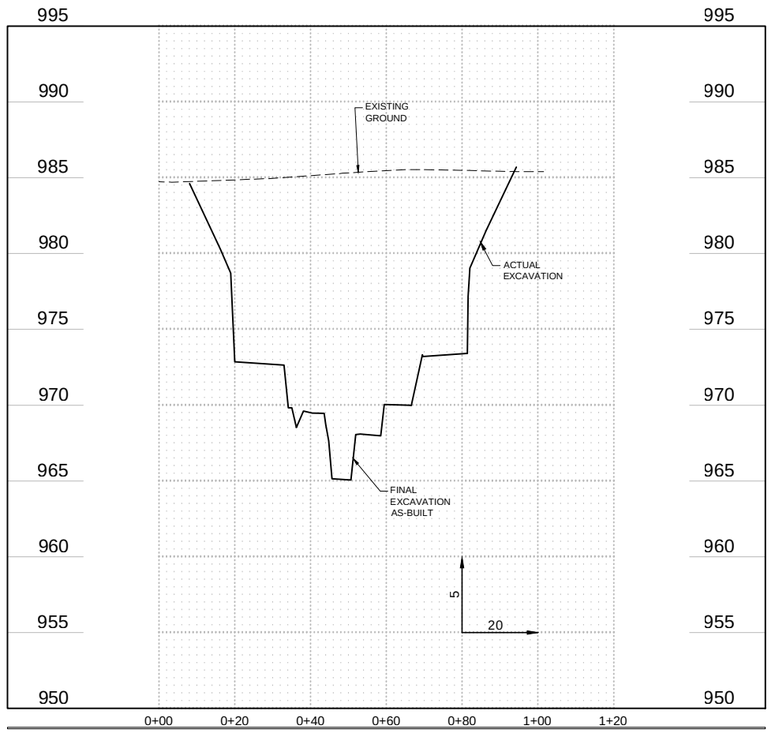
FIGURE 3-14
TRENCH B
FINAL LIMITS

Plot Date: 07/25/2011
Drawing name: K:\3m\dwgs\wodb\Surveys\C3D10-WODU-TRENCH_B_D\Source Drawings\Trench B -Piles_Trench_B-06-21-2011-FinalExcavationAs-Built.dwg
Xrefs: Trench_B_n_D-ExCondition-v2

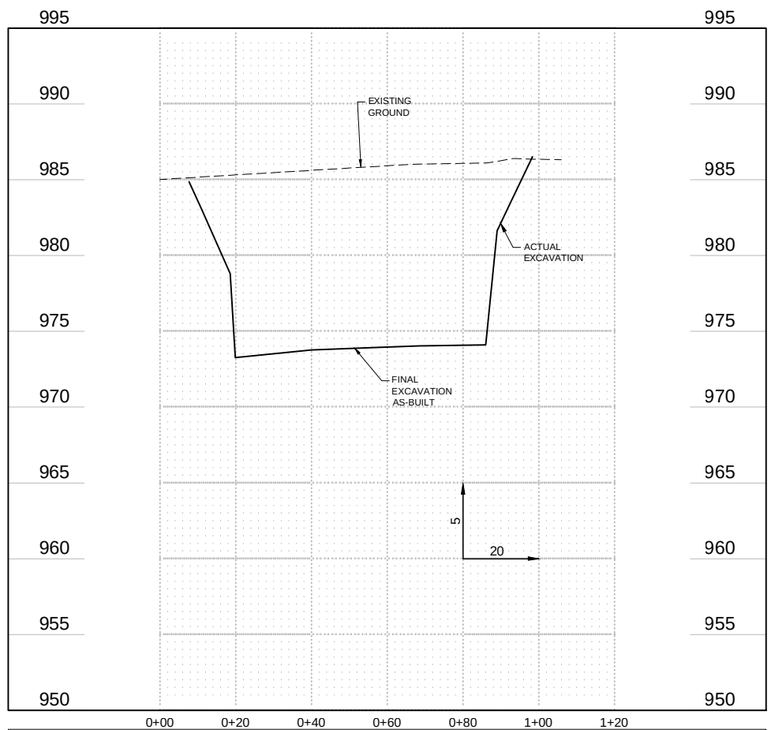


FINAL EXCAVATION AS-BUILT

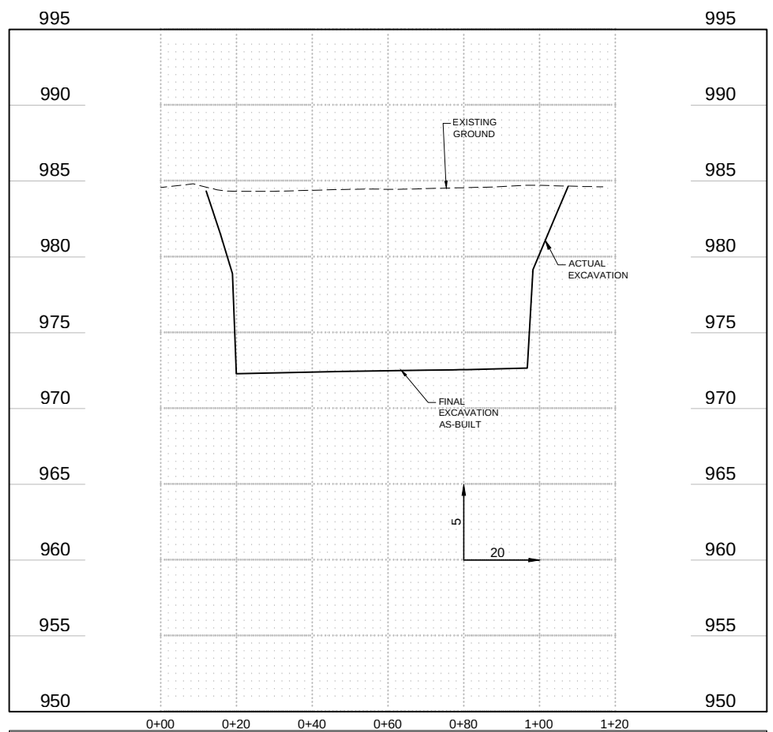
NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



SECTION B-B



SECTION C-C



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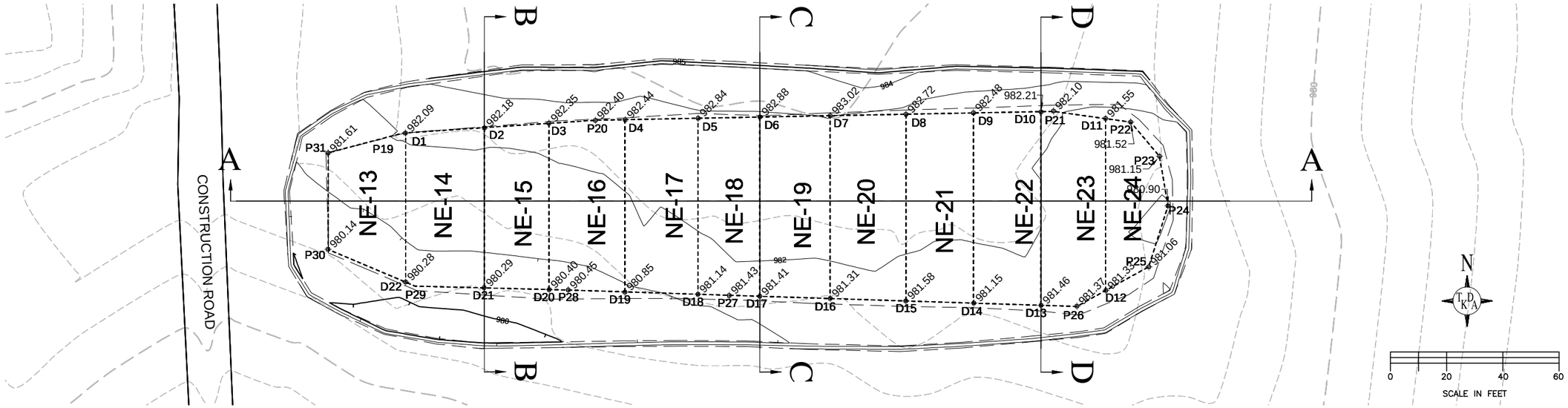
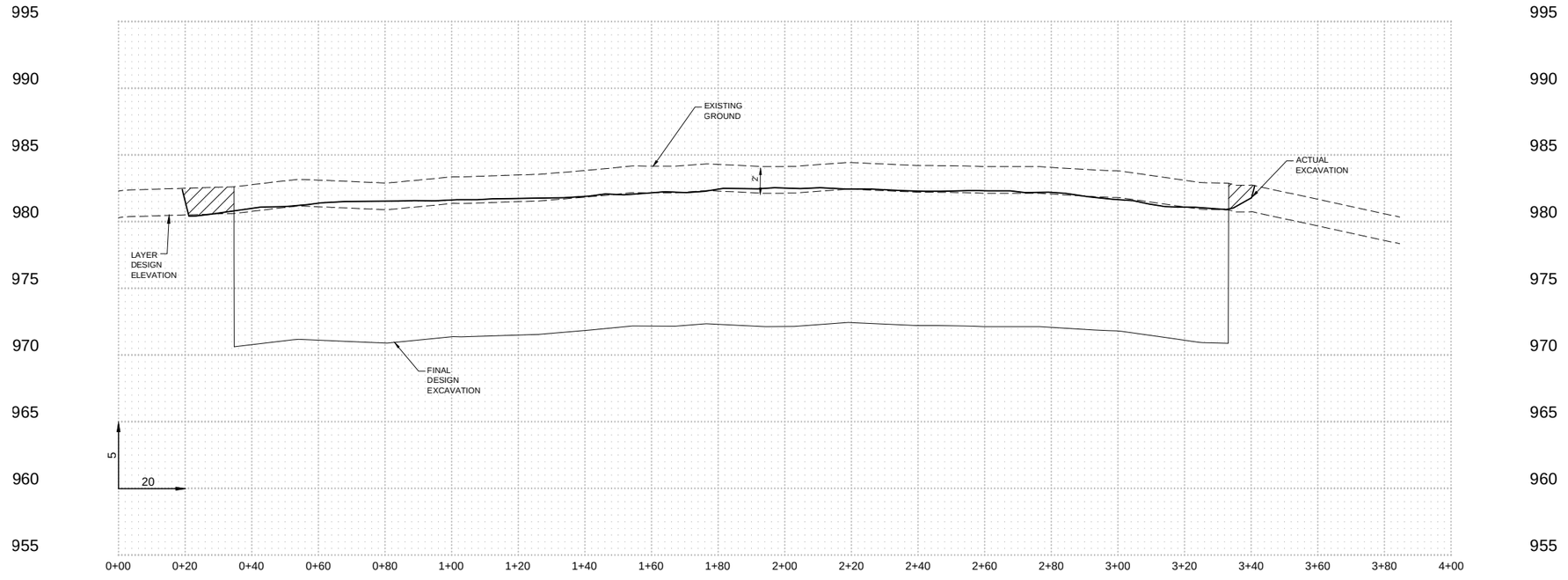
3M PROJECT I.D. 0040152
WOODBURY, MINNESOTA
MAY 20, 2011

FIGURE 3-15
TRENCH B
FINAL LIMITS



Stripped Material Layer
(0' to 2' BGS)

NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



SECTION A-A

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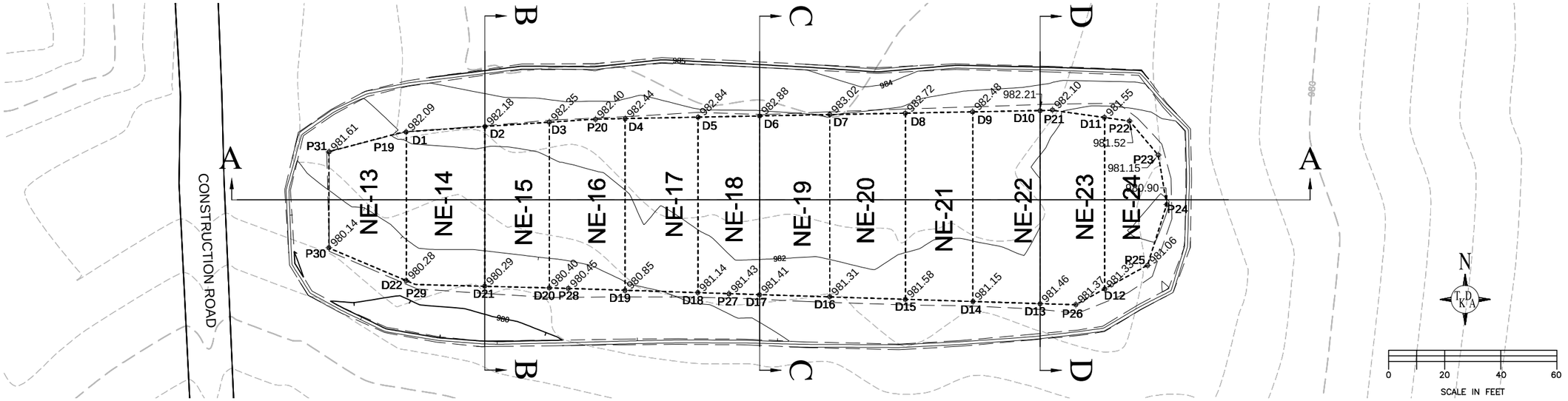
WOODBURY, MINNESOTA
MAY 20, 2011

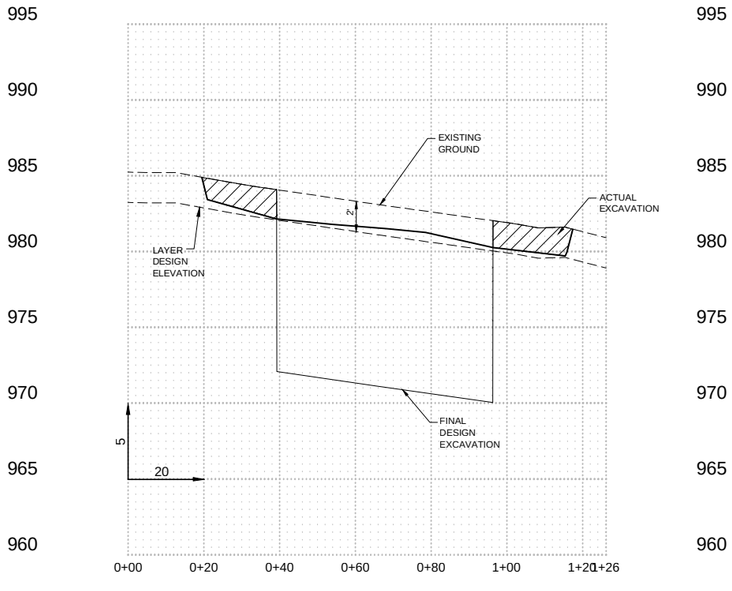
FIGURE 3-16
TRENCH D
FINAL LIMITS

Plot Date: 07/25/2011
Drawing name: K:\3m\dwg\wodu\Surveys\C3D10-WODU-TRENCH_B_D\Source Drawings\Trench D -Piles_Trench_D-07-08-2011-FinalExcavationLayer-2ft.dwg
Xrefs: Trench_B_n_D-ExCondition-v2

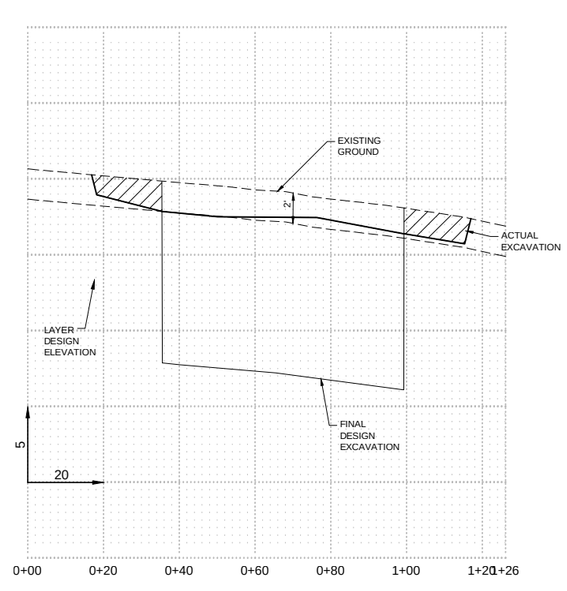


Stripped Material Layer
(0' to 2' BGS)

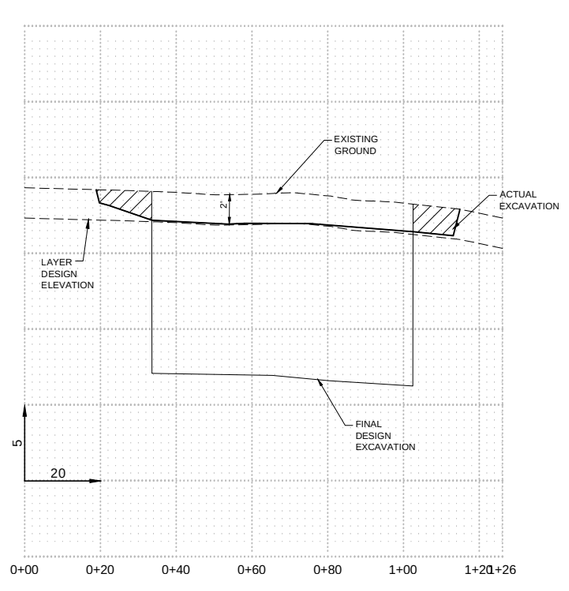
NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



SECTION B-B



SECTION C-C



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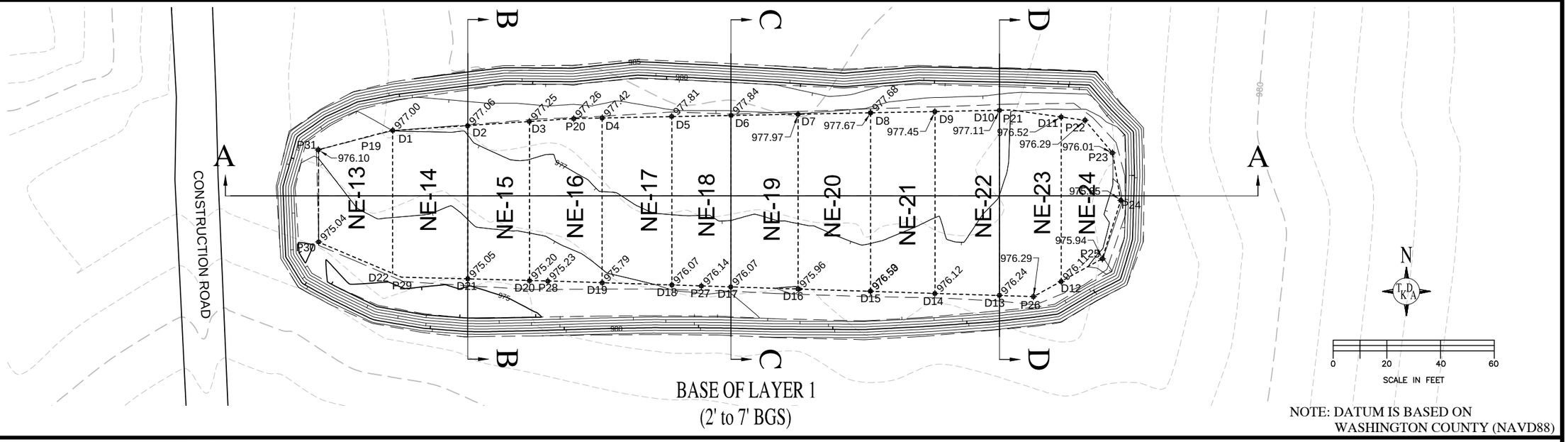
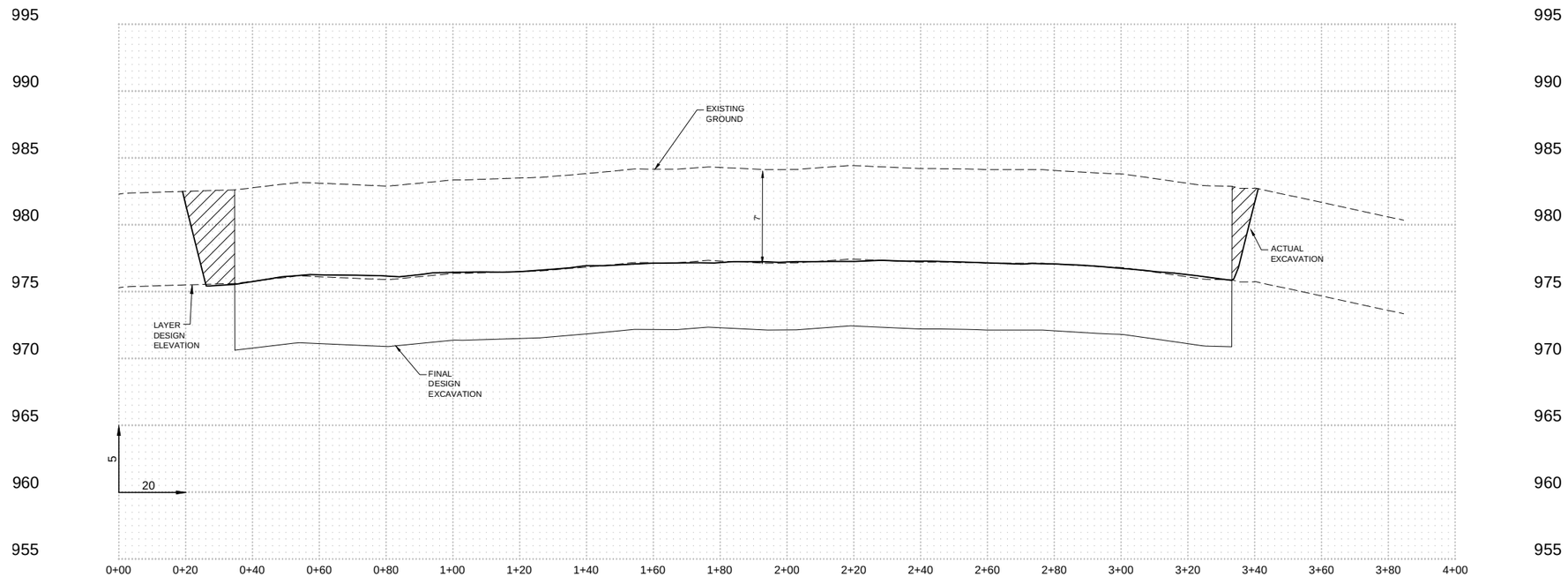
WOODBURY, MINNESOTA
MAY 20, 2011

FIGURE 3-17
TRENCH D
FINAL LIMITS



BASE OF LAYER 1
(2' to 7' BGS)

NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



SECTION A-A
Layer 1

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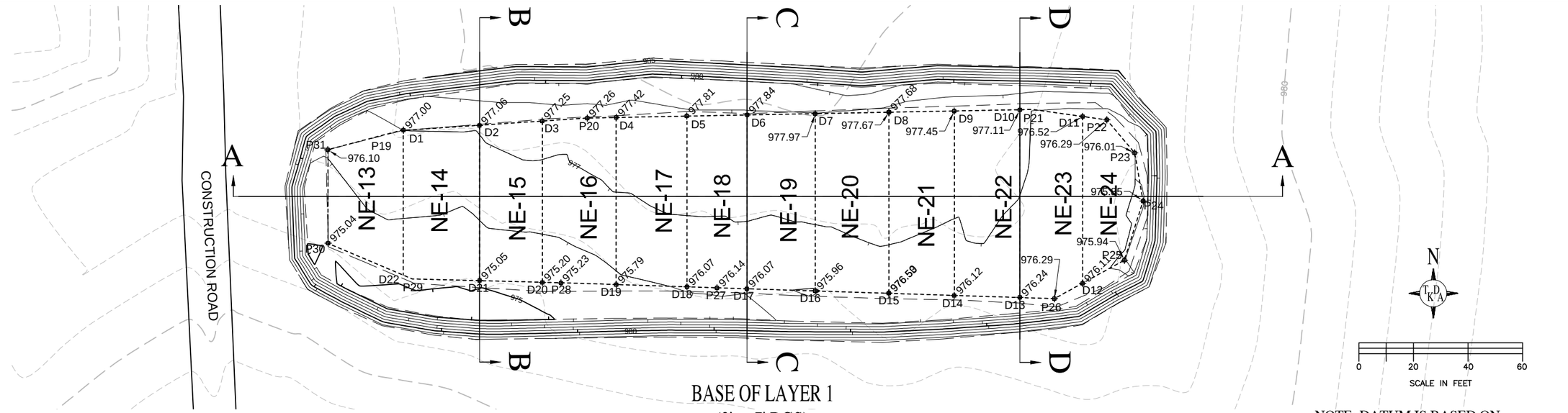
MAY 20, 2011

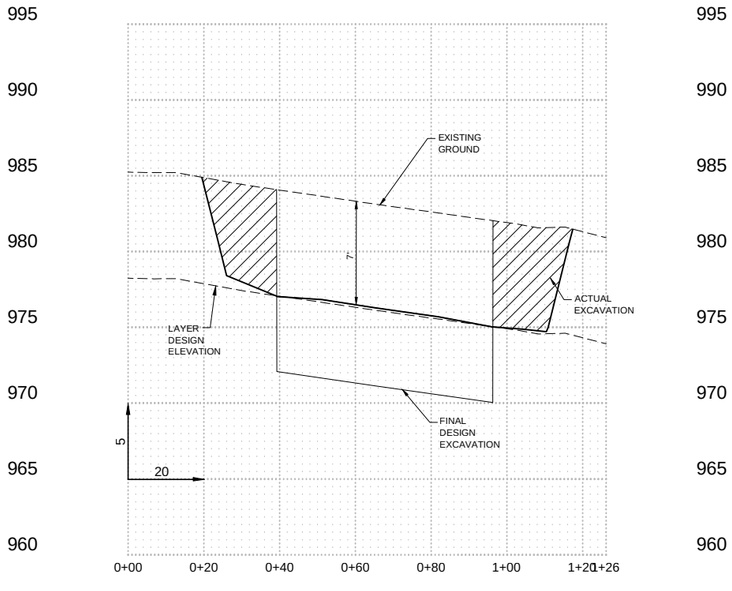
FIGURE 3-18
TRENCH D
FINAL LIMITS

Plot Date: 07/26/2011
Drawing name: K:\3m\dwg\wodu\Surveys\C3D10-WODU-TRENCH_B_D\Source Drawings\Trench D -Piles_Trench_D-07-08-2011-FinalExcavationLayer-7ft.dwg
Xrefs: _Trench_B_n_D-ExCondition-v2

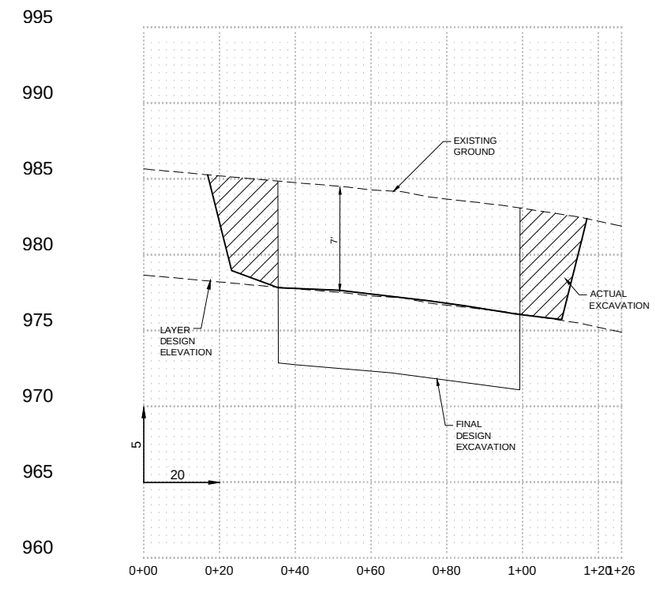


BASE OF LAYER 1
(2' to 7' BGS)

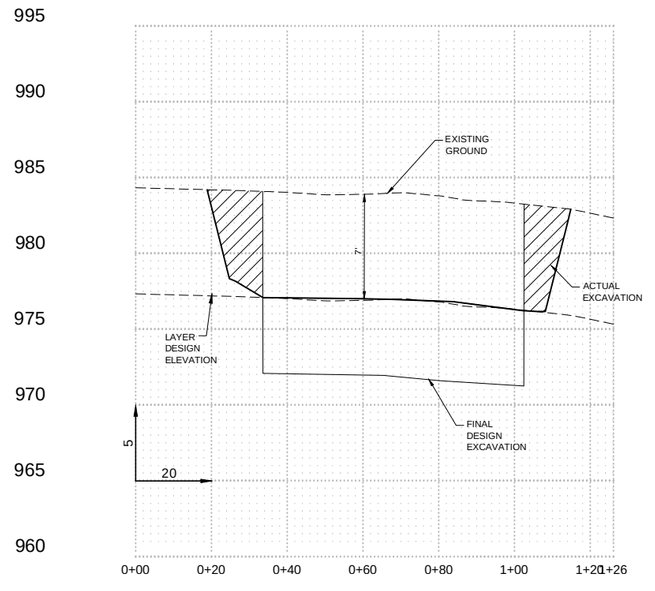
NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



SECTION B-B
Layer 1



SECTION C-C
Layer 1



SECTION D-D
Layer 1

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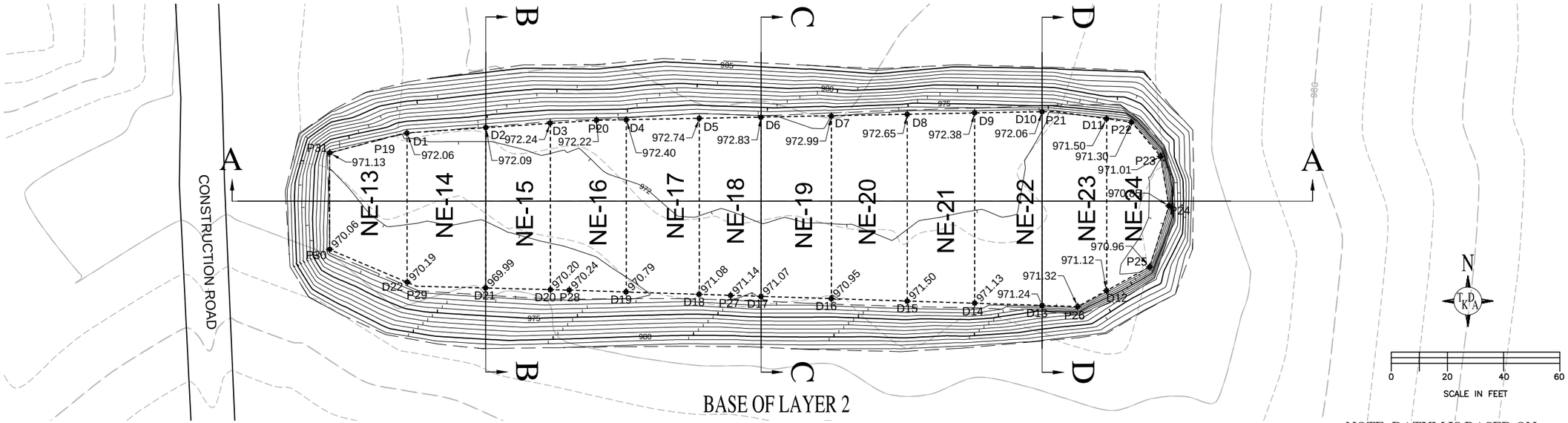
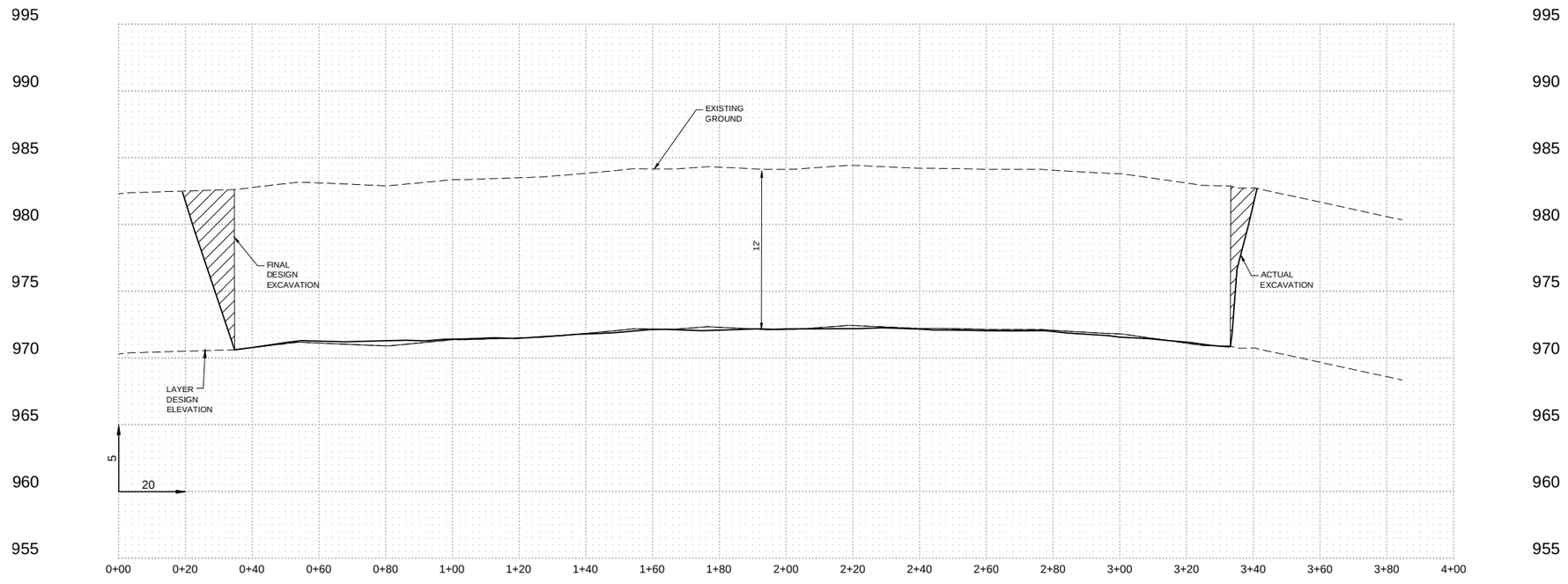
WOODBURY, MINNESOTA
MAY 20, 2011

FIGURE 3-19
TRENCH D
FINAL LIMITS



BASE OF LAYER 2
(7' to 12' BGS)

NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



SECTION A-A
Layer 2

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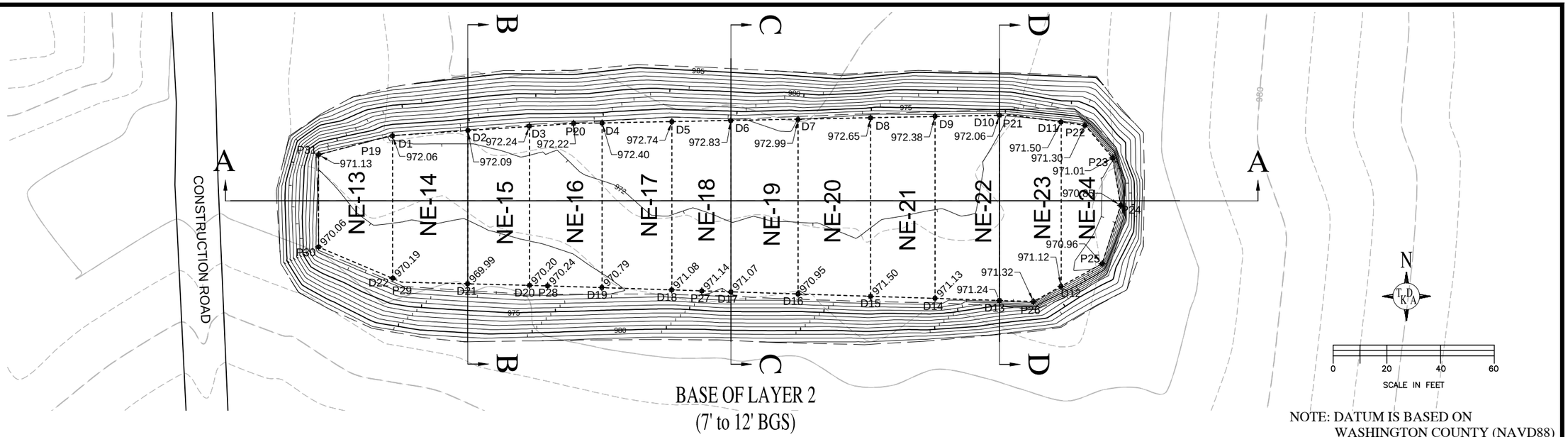
3M PROJECT I.D. 0040152
WOODBURY, MINNESOTA
MAY 20, 2011

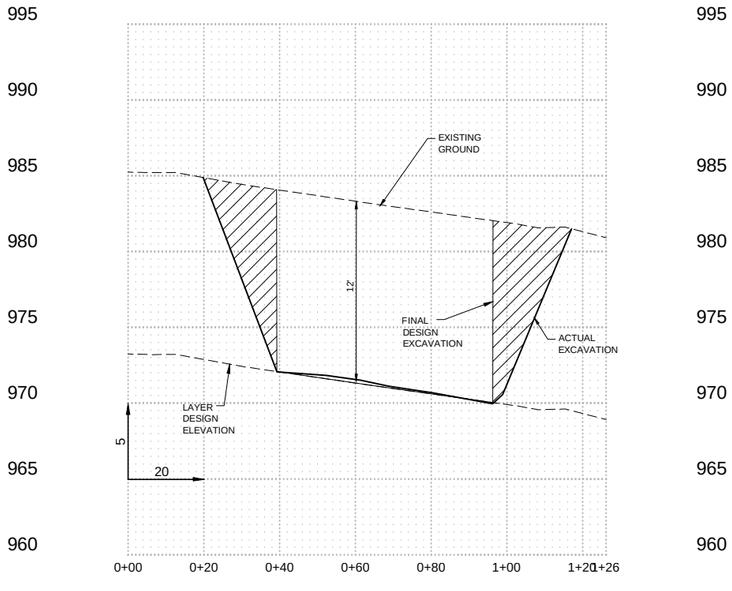
FIGURE 3-20
TRENCH D
FINAL LIMITS

Plot Date: 07/25/2011
Drawing name: K:\3m\dwg\wodu\Surveys\C3D10-WODU-TRENCH_B_D\Source Drawings\Trench D -Piles_Trench_D-07-08-2011-FinalExcavationLayer-12ft.dwg
Xrefs: Trench_B_n_D-ExCondition-v2

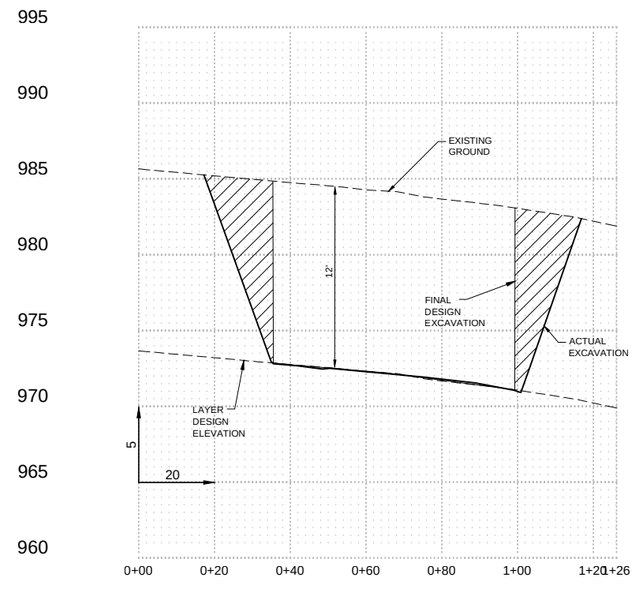


BASE OF LAYER 2
(7' to 12' BGS)

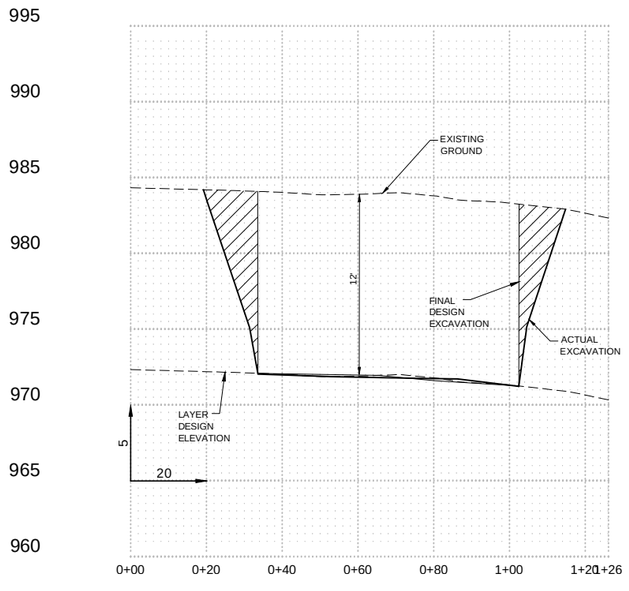
NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



SECTION B-B
Layer 2



SECTION C-C
Layer 2



SECTION D-D
Layer 2

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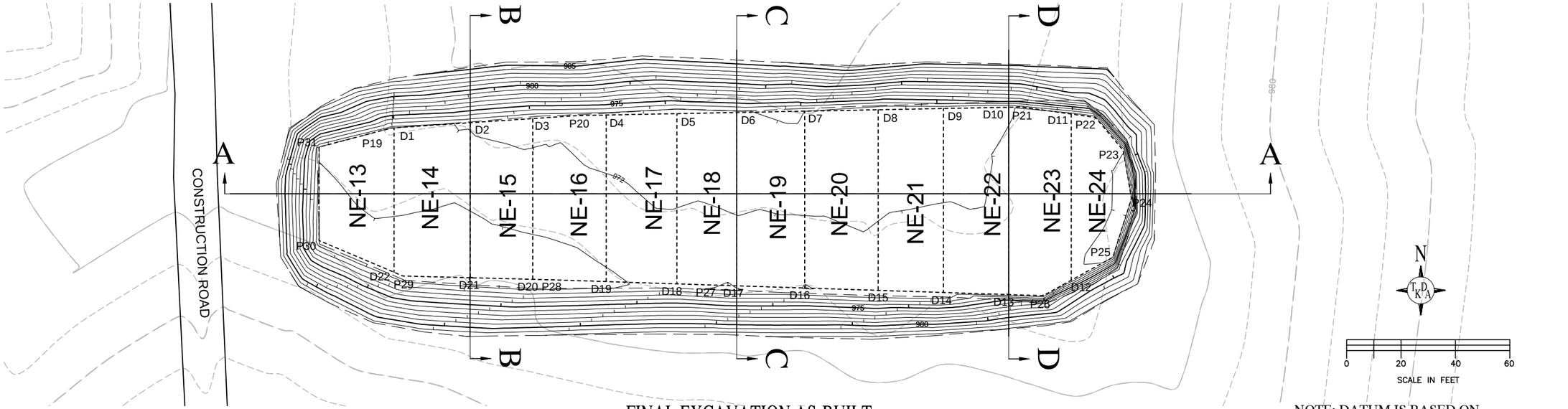
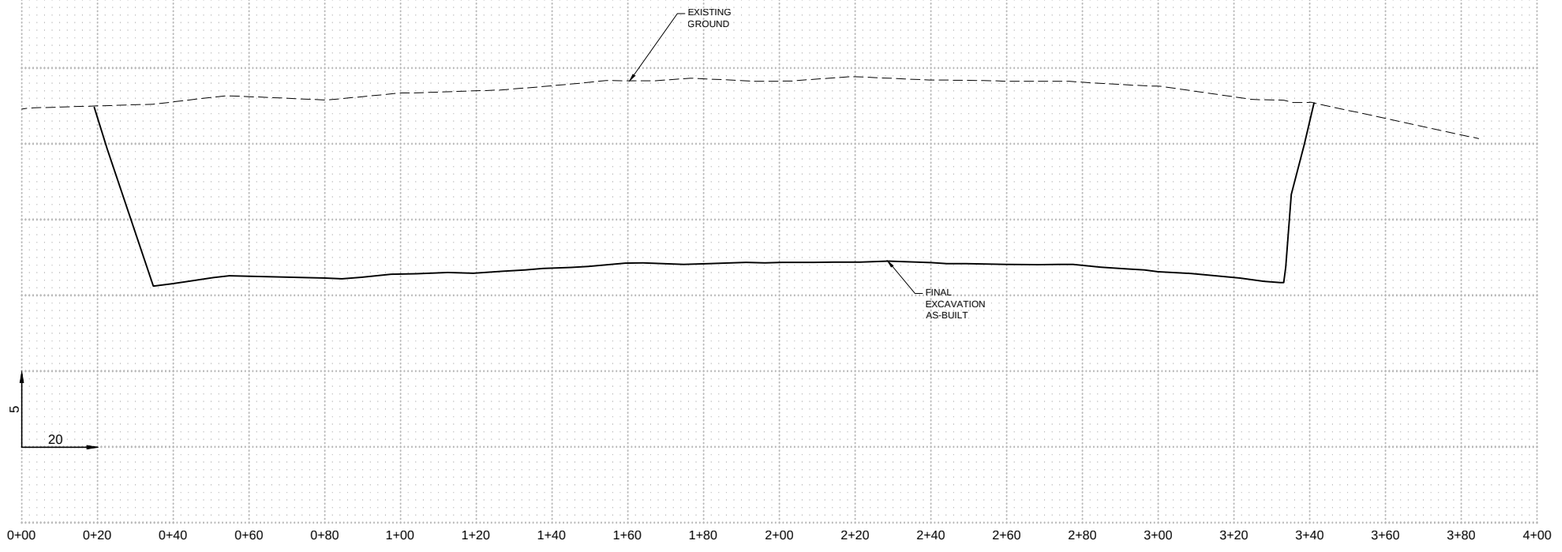
3M PROJECT I.D. 0040152
WOODBURY, MINNESOTA
MAY 20, 2011

FIGURE 3-21
TRENCH D
FINAL LIMITS



NOTE: DATUM IS BASED ON WASHINGTON COUNTY (NAVD88)

FINAL EXCAVATION AS-BUILT



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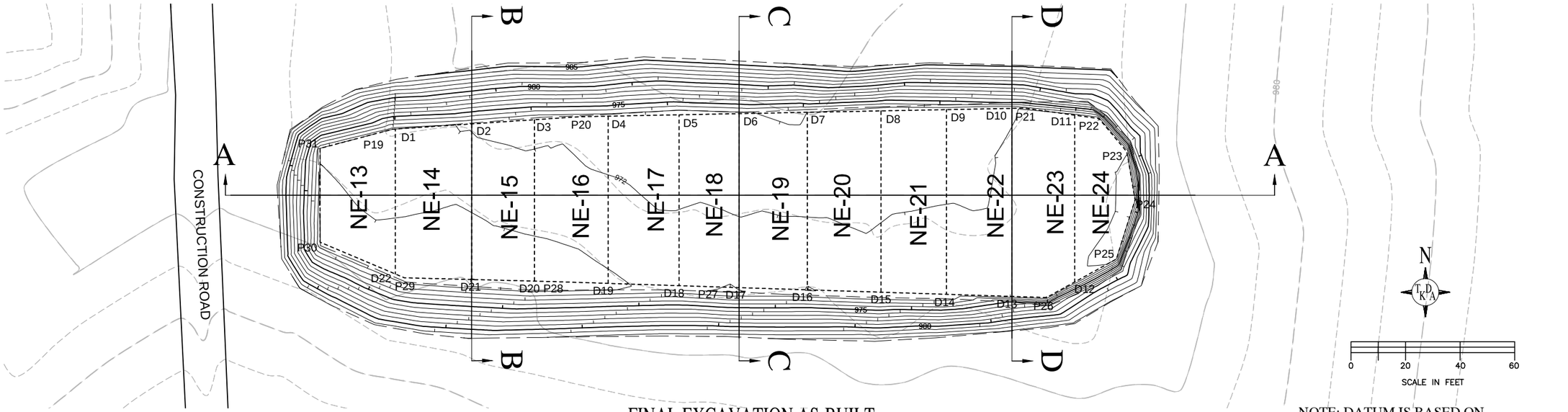
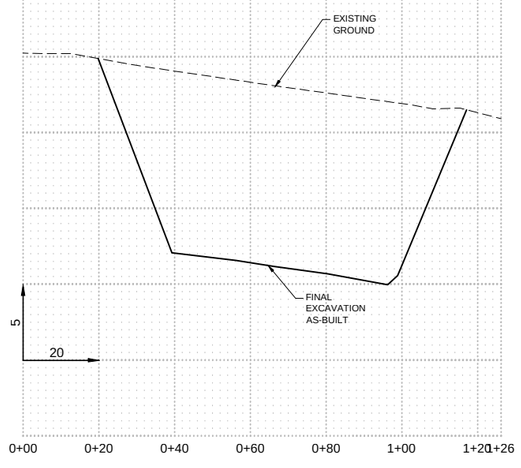
WOODBURY, MINNESOTA
MAY 20, 2011

FIGURE 3-22
TRENCH D
FINAL LIMITS

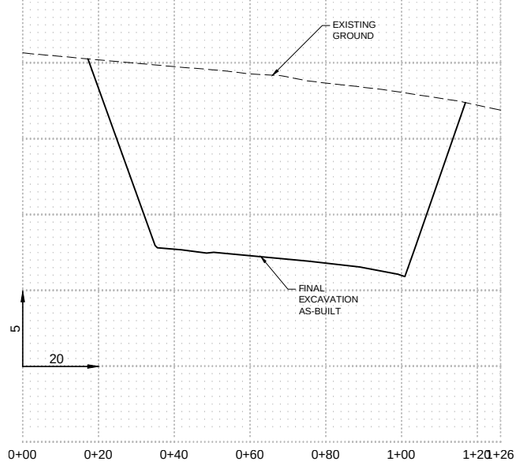


FINAL EXCAVATION AS-BUILT

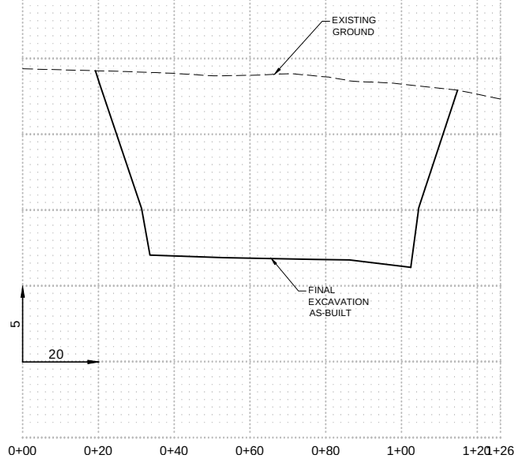
NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAV83)



SECTION B-B



SECTION C-C



SECTION D-D

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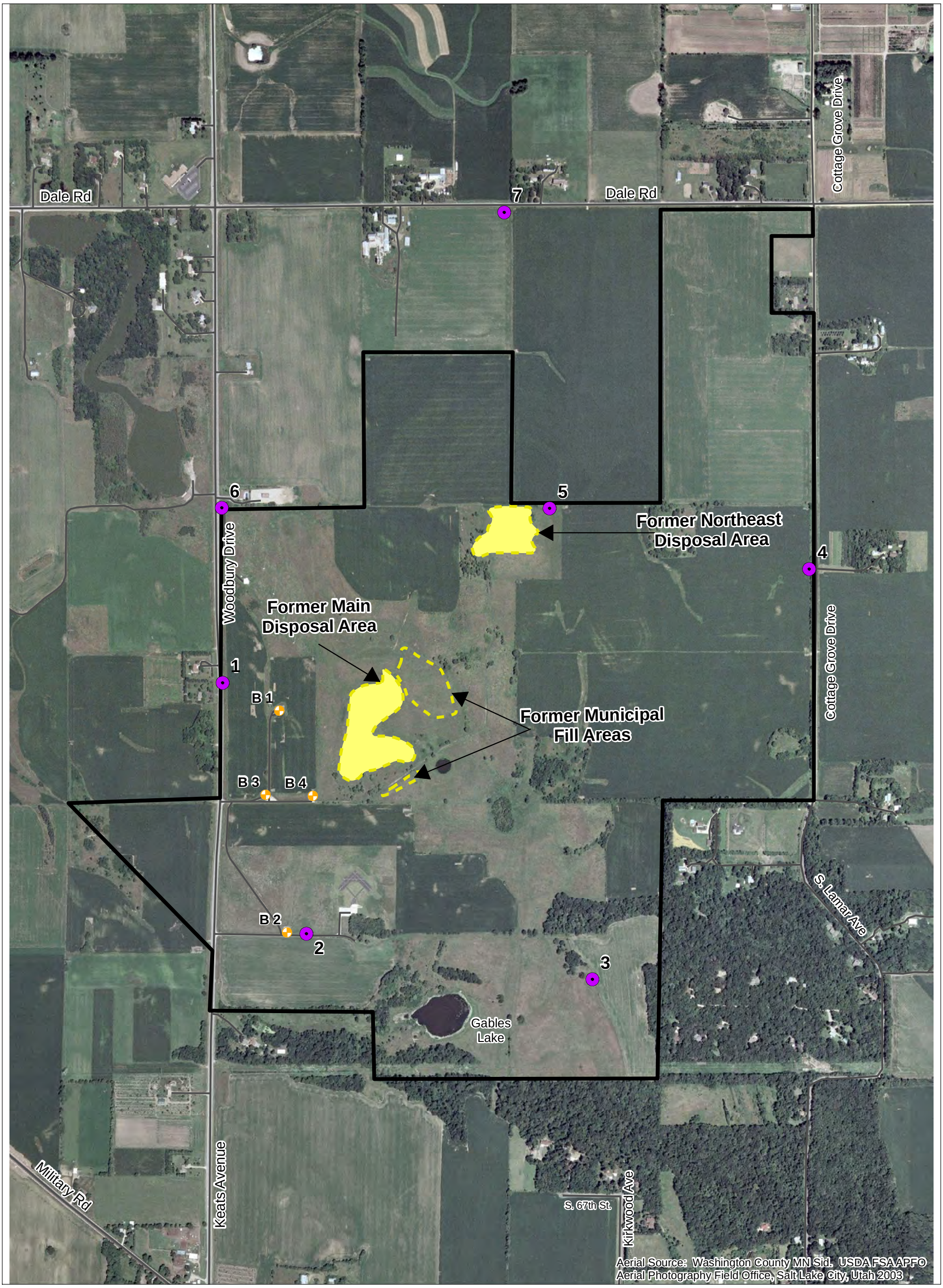
3M PROJECT I.D. 0040152
WOODBURY, MINNESOTA
MAY 20, 2011

FIGURE 3-23
TRENCH D
FINAL LIMITS



Legend:

- Barrier Well Locations
- 2 Perimeter Air Monitoring Location
- Site Boundary
- Approximate Disposal Area Boundaries

N W E S

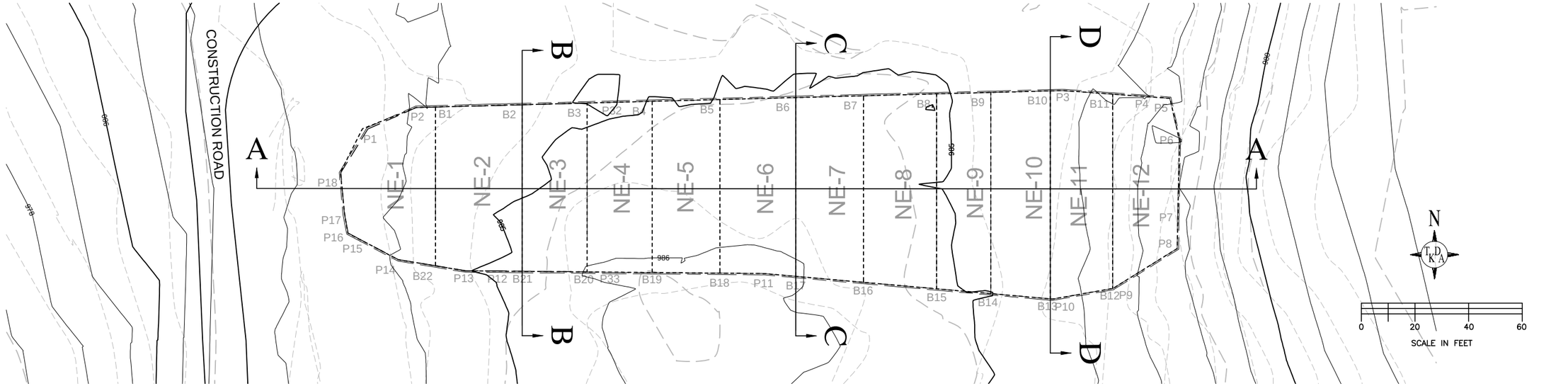
0 400 800 1,600 Feet

FIGURE 3-24

PERIMETER
MONITORING LOCATIONS
FORMER NORTHEAST DISPOSAL AREA

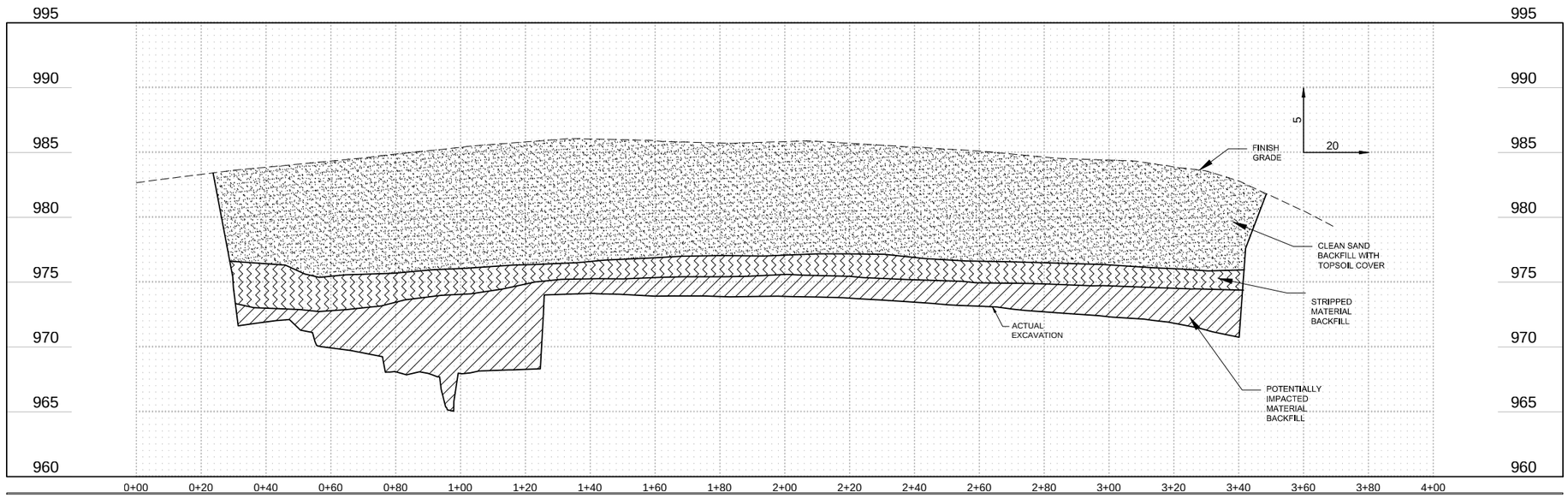
WOODBURY SITE
WOODBURY, MN

File: Y:\3MWoodbury\MXD\RDRA\Potential_air_monitoringloc.mxd, 8/11/2011 9:45:42 AM, ricksc



FINAL BACKFILL

NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



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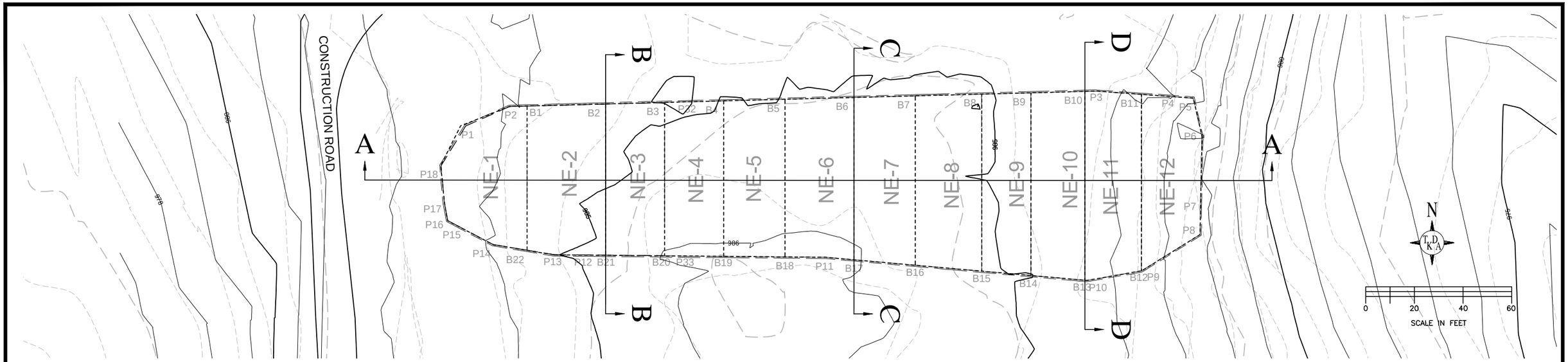
3M PROJECT I.D. 0040152
WOODBURY, MINNESOTA
MAY 20, 2011

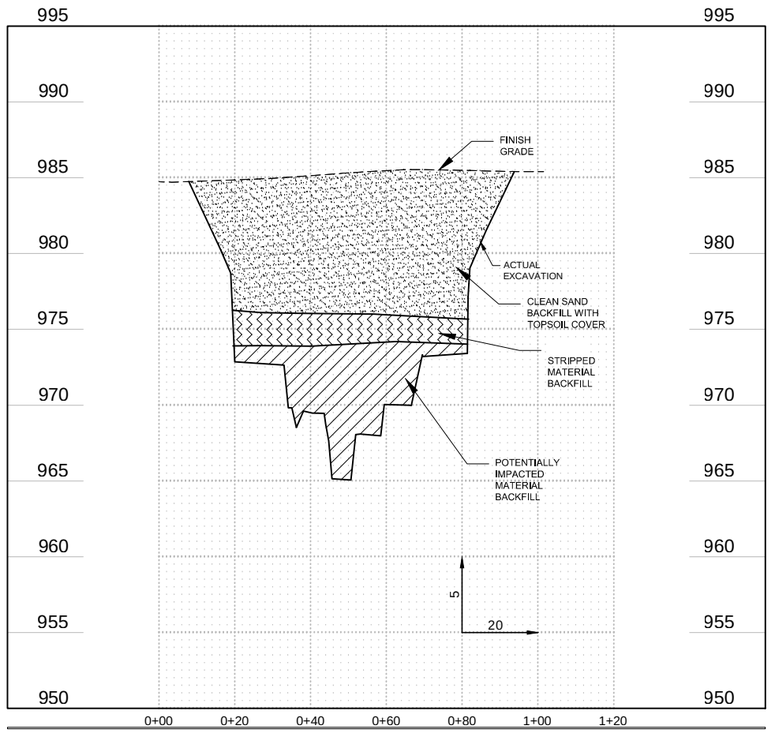
FIGURE 3-25
TRENCH B
FINAL LIMITS

Plot Date: 08/16/2011
Drawing name: K:\3m\dwgs\wodb\Surveys\C3D10-WODU-TRENCH_B_D\Source Drawings\Trench B -Piles_Trench_B-06-21-2011-FinalBackFill.dwg
Xrefs: Trench_B_n_D-ExCondition-v2

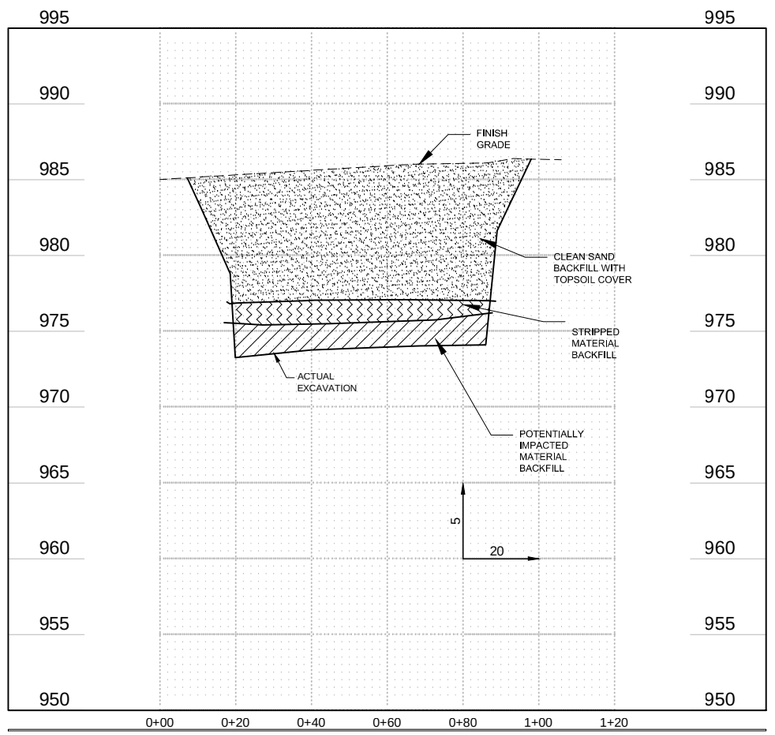


FINAL BACKFILL

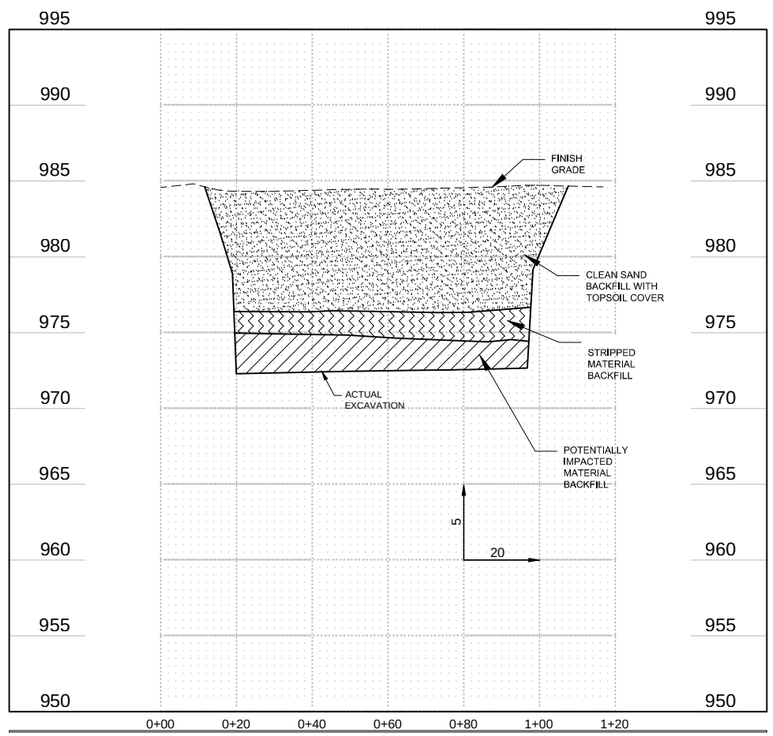
NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)



SECTION B-B



SECTION C-C



SECTION D-D

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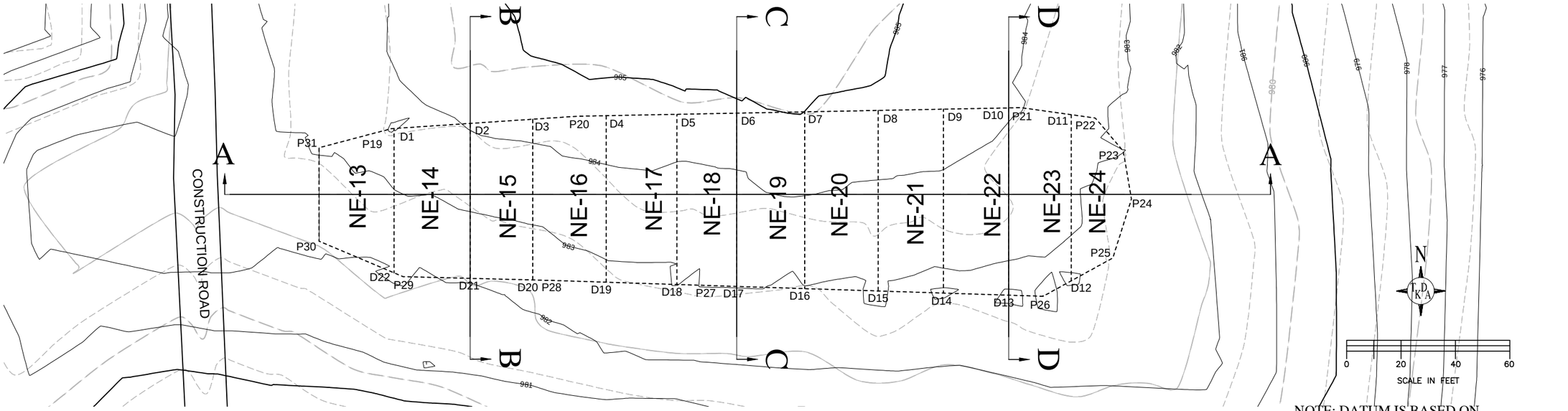
3M PROJECT I.D. 0040152
WOODBURY, MINNESOTA
MAY 20, 2011

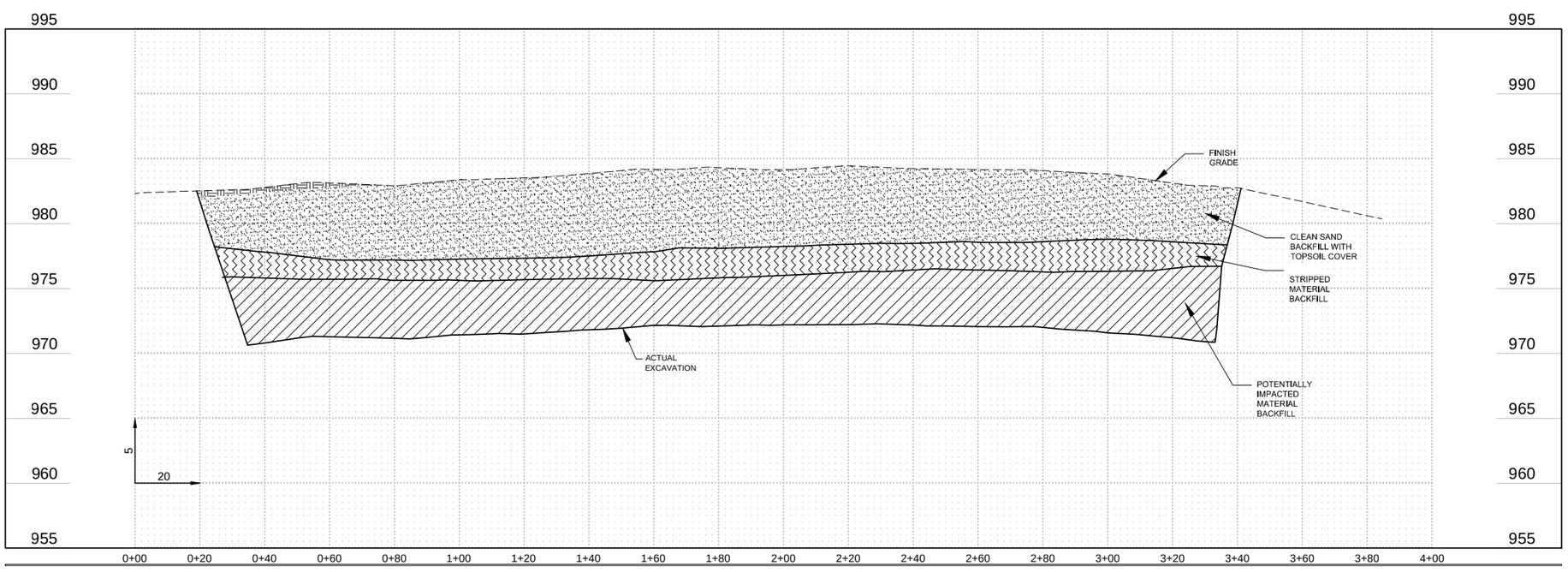
FIGURE 3-26
TRENCH B
FINAL LIMITS

Plot Date: 06/16/2011
Drawing name: K:\3m\dwgs\woldt\Surveys\C3D10-WODU-TRENCH_B_DSource Drawings\Trench B -Plan_Trench_B-06-21-2011-FinalBackFill.dwg
Xrefs: Trench_B_n_D-ExCondition-v2



FINAL BACKFILL

NOTE: DATUM IS BASED ON WASHINGTON COUNTY (NAVD88)



SECTION A-A

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WOODBURY, MINNESOTA
MAY 20, 2011

FIGURE 3-27
TRENCH D
FINAL LIMITS

Plot Date: 08/16/2011
Drawing name: K:\3m\dwg\woodu\Survey\C3D10\WODU-TRENCH_B_DSource Drawings\Trench D -Piles_Trench_D-06-21-2011-FinalBackFill.dwg
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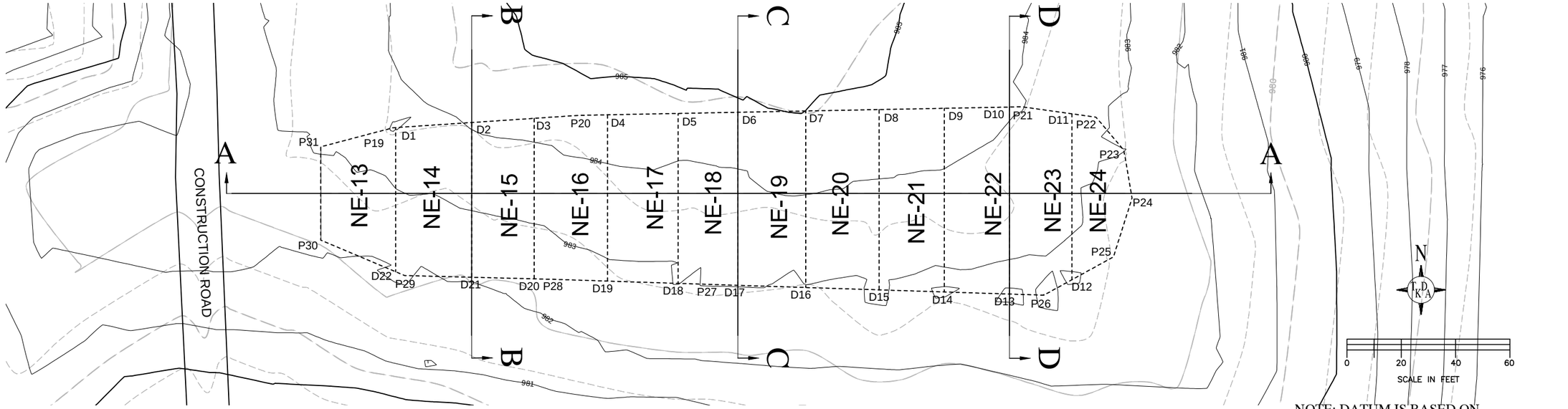
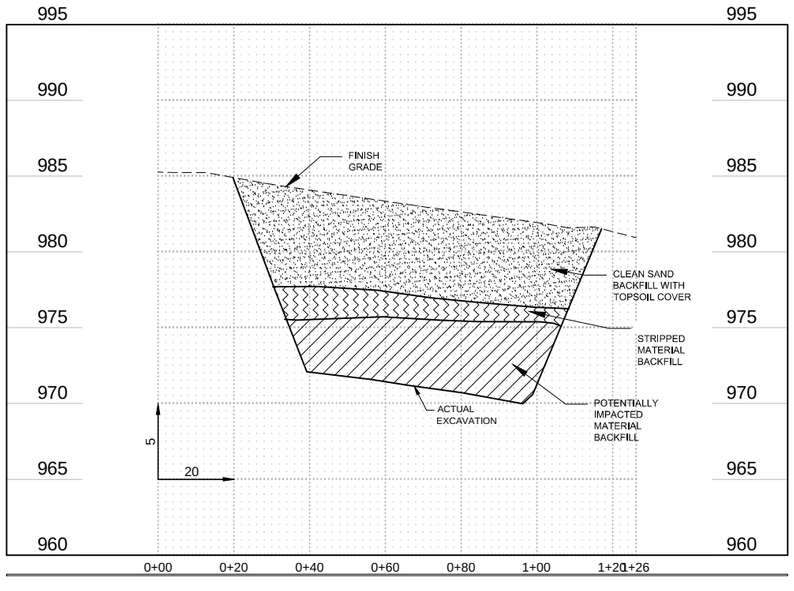
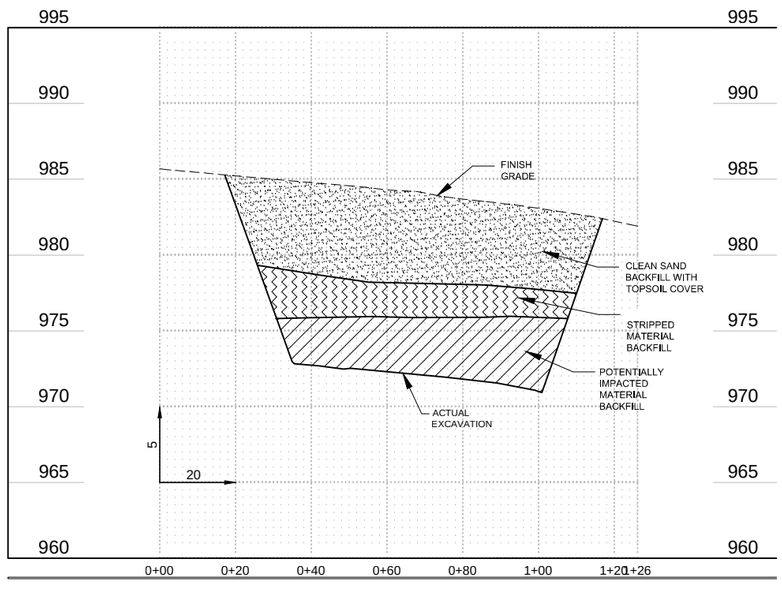


FINAL BACKFILL

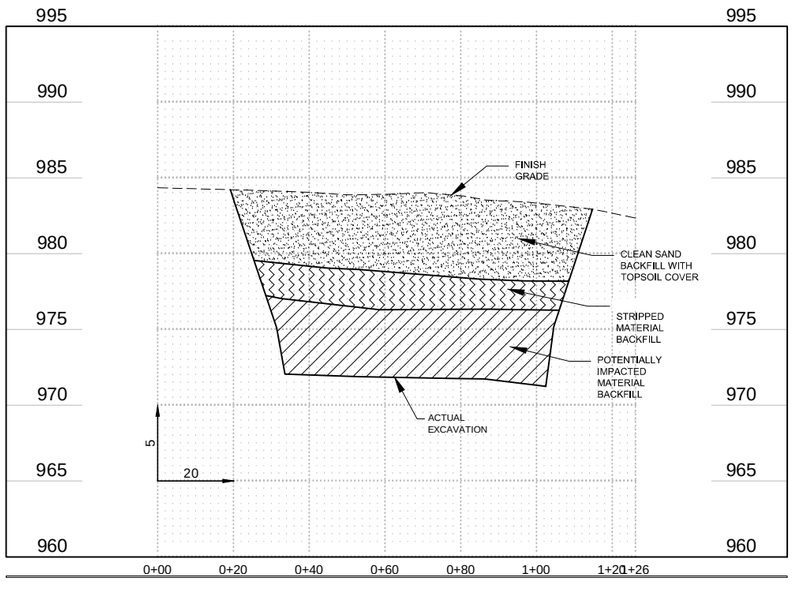
NOTE: DATUM IS BASED ON WASHINGTON COUNTY (NAVD88)



SECTION B-B



SECTION C-C



SECTION D-D

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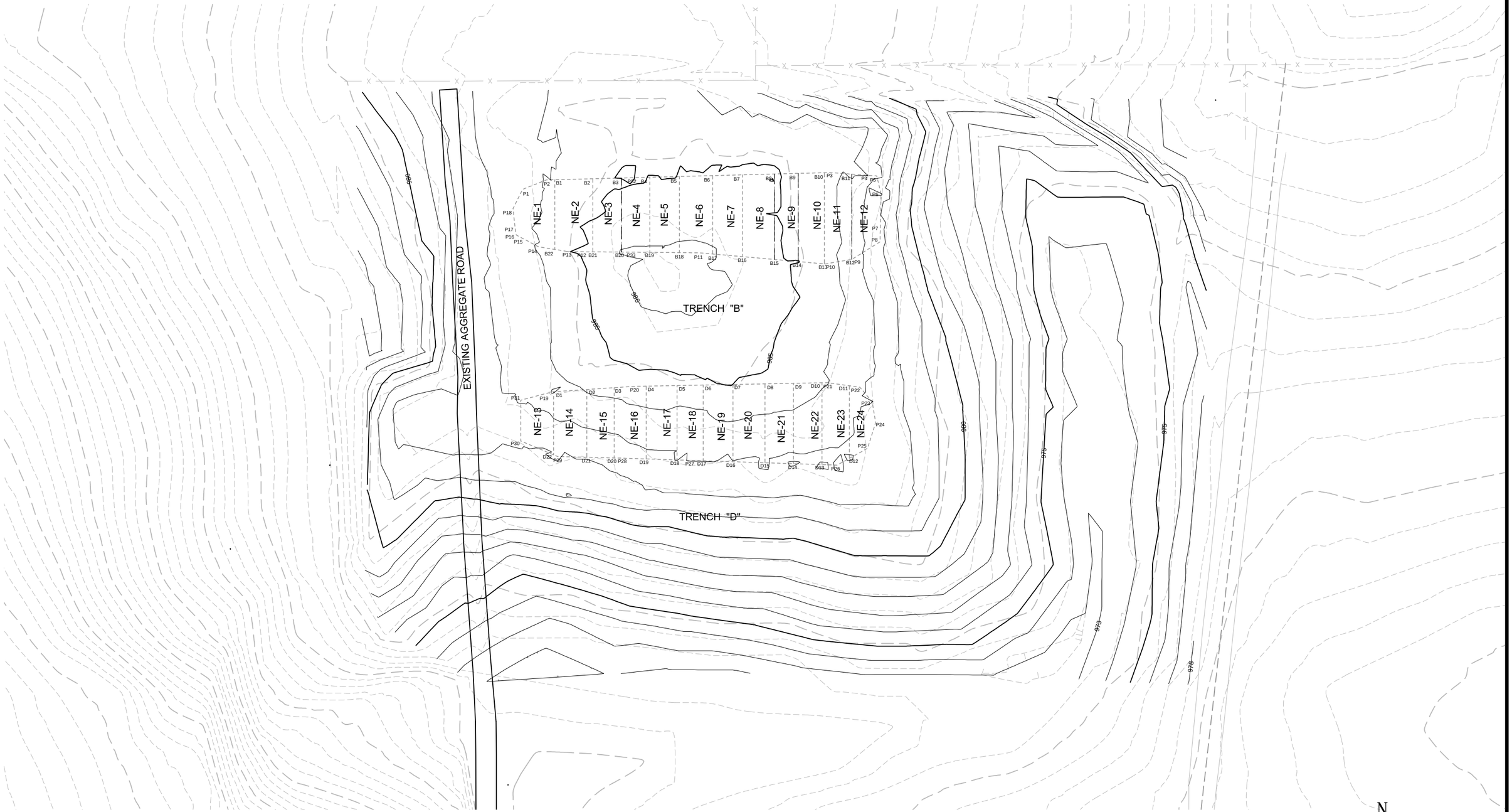
3M PROJECT I.D. 0040152
WOODBURY, MINNESOTA
MAY 20, 2011

FIGURE 3-28
TRENCH D
FINAL LIMITS

Plot Date: 06/16/2011
Drawing name: K:\3m\dwg\wodu\Surveys\C3D10-WODU-TRENCH_B_D\Source Drawings\Trench D -Piles_Trench_D-06-21-2011-FinalBackFill.dwg
Xrefs: Trench_B_n_D-ExCondition-v2



NOTE: DATUM IS BASED ON
WASHINGTON COUNTY (NAVD88)

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3M PROJECT I.D. 0040152
WOODBURY, MINNESOTA
MAY 20, 2011

FIGURE 3-29
TRENCH B & D
FINAL SITE RESTORATION

Plot Date: 07/25/2011
Drawing name: K:\3m\dwgs\wodu\Surveys\C3D10-WODU-TRENCH_B_D\Source Drawings\Trench B -Plan_Trench_B&D-Site-Final-Restoration.dwg
Xrefs: Trench_B_n_D-ExCondition-v2

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