



DEPARTMENT OF THE NAVY

CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
300 HIGHWAY 361
CRANE, INDIANA 47522-5000

N00164.AR.000683
NSWC CRANE
5090.3a

IN REPLY REFER TO:

5090
Ser 095/1406

04 DEC 2001

11-1-2001

U.S. Environmental Protection Agency, Region V
Waste, Pesticides, & Toxics Division
Waste Management Branch
Corrective Action Section
Attn: Mr. Peter Ramanauskas (DW-8J)
77 West Jackson Blvd.
Chicago, IL 60604

Dear Mr. Ramanauskas:

Crane Division, Naval Surface Warfare Center (NSWC Crane) submits, for your review and approval, the draft Third Quarter 2001 Quarterly Interim Progress Report (IPR) for July 1 through September 30, 2001, dated November 2001. Two copies of the report are provided as enclosure (1). Enclosure (2) is the required certification statement.

NSWC Crane point of contact is Ms. Christine D. Freeman, Code 09511, telephone 812-854-4423.

Sincerely,

JAMES M. HUNSICKER
Director Environmental Protection
Department
By direction
of the Commander

Encls:

- (1) IPR 3rd QUARTER 2001 (JUL - SEP 2001)
- (2) Certification Statement

Copy to:

Administrative Record
IDEM (D. Griffin)
SOUTHNAVFACENGCOM (Code ES234)
SOUTHNAVFACENGCOM ROICC (w/o encls)
TOLTEST Crane (w/o encls)

**Naval Facilities Engineering Command
Naval Surface Warfare Center
Crane, Indiana**

**Full-Scale Operations
Soils Bioremediation Facility**

**Quarterly Interim Progress Report
3rd Quarter 2001
July 1 – September 30**

**Revision 0
November 2001**

TOLTEC, INC.

QUARTERLY INTERIM PROGRESS REPORT

3rd Quarter 2001

July 1 – September 30

Revision 0

**FULL-SCALE OPERATIONS
SOILS BIOREMEDIATION FACILITY
NAVAL SURFACE WARFARE CENTER
CRANE, INDIANA**

**ENVIRONMENTAL JOB ORDER CONTRACT
CONTRACT NO. N68950-96-D-0052
TOLTEST PROJECT NUMBER 37324.01**

Submitted to:

**OFFICER IN CHARGE OF NAVFAC CONTRACTS
NAVAL SURFACE WARFARE CENTER
CRANE, INDIANA**

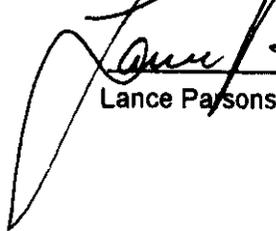
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Date 12/3/01

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Regional Manager


Lance Parsons
Date 12/03/01

EXECUTIVE SUMMARY

This interim progress report has been prepared by TolTest, Inc. (TolTest) for Southern Division, Naval Facilities Engineering Command. This report documents the progress at the Bioremediation Facility (Biofacility) for treatment of explosives-contaminated soil at the Naval Surface Warfare Center (NSWC) Crane, Indiana. On March 27, 1999, TolTest assumed responsibility for the excavation and treatment of contaminated soil at the Biofacility. This report summarizes the work actions performed from July 1 through September 30, 2001 pursuant to the requirements of the approved *Full-Scale Operational Plan* and the *Quality Assurance Project Plan*. Full-scale bioremediation operations started in April 1998. All interim measures work actions have been performed in accordance with approved plans.

The scope of work includes initial site characterization by sampling and analysis, excavation and screening of explosives-contaminated soil, transportation of screened soil for treatment to the Biofacility, process monitoring and confirmatory sampling of the compost windrows, and disposal of treated soil.

All initial characterization sampling at Mine Fill A (MFA), Mine Fill B (MFB), and Rockeye (RKI) has been completed. Post-excavation samples were obtained from 22 grids at MFB. All results were below cleanup goals except one sidewall sample from grid 74.

A total of 386.68 tons of screened soil from RKI and 1,798.03 tons from MFB and 18.01 tons from the MFA Battery Site were transported to the Biofacility during this reporting period. A total of 20.11 tons of reject rocks from RKI were screened and delivered to the Biofacility in this reporting period, all in July.

A total of 7 new windrows were constructed during this reporting period: 206 through 211 and the new Control windrow for RKI toxicity testing. The soil source for the original control windrow was found to contain PCBs, therefore its use as a control was discontinued. All windrows achieved Day Last status during this period.

A total of 696.3 tons of contaminated soil from RKI and 696.3 tons from MFB were treated during this time period, all to residential cleanup goals.

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FIGURES

- Figure 1: MFB Grid & Windrow Location Map
- Figure 2: MFA Battery Site Map
- Figure 3: RKI Grid & Windrow Location Map
- Figure 4: RKI Permanent Placement Area

Appendix

FCR-FS034

1.0 INTRODUCTION

This interim progress report has been prepared by TolTest for the Southern Division, Naval Facilities Engineering Command to document the progress of the full-scale bioremediation operation of explosives-contaminated soil at NSWC Crane, Crane, Indiana. It summarizes the work actions performed by TolTest during the period July 1 through September 30, 2001 pursuant to the requirements of the approved *Full-Scale Operational Plan (FSOP)* [MK, 1998a] and the *Quality Assurance Project Plan (QAPP)* [MK, 1998b]. Full-scale bioremediation operations started in April 1998. TolTest assumed responsibility on March 27, 1999 from Morrison Knudsen Corp. (now Washington Group International, WGI) after the completion of their contract.

NSWC Crane, located in southwestern Indiana, provides support for equipment shipboard weapons systems, and ordnance. This site also supports Crane Army Ammunition Activity, which includes production and renovation, storage, shipment, and demilitarization and disposal of conventional ammunition. Explosive-compounds contaminated soils resulting from the above operations have been identified at four solid waste management units (SWMUs): Ammunition Burning Ground (ABG, SWMU-03/10); Rockeye Munitions Facility (RKI, SWMU-10/15); Mine Fill A (MFA, SWMU-12/14); and Mine Fill B (MFB, SWMU-13/14). No work has been performed at ABG pending the outcome of a risk assessment study.

On-site bioremediation of the high-explosives contaminated soil utilizing a windrow composting process has been selected as the preferred treatment alternative for the Interim Measures at these four SWMUs.

The scope of work includes initial site characterization by sampling and analysis, excavation and screening of explosives-contaminated soil, transportation of screened soil for treatment at the Biofacility, process monitoring, confirmatory sampling, disposal of treated soil, and site restoration. All of this work at MFA has been completed and has been included in the Interim Measures Report for MFA prepared by WGI.

2.0 EXCAVATION SITE ACTIVITIES

Work activities at the excavation site may include in-process sampling and screening, pre and post-excavation sampling, soil excavation, soil screening, and vegetation establishment. Fieldwork activities are performed in accordance with procedures included in the *FSOP* [MK, 1998a] and the *QAPP* [MK, 1998b]. Final drawings showing grid locations, post-excavation sample locations, and extent of excavation will be included in the Interim Measures Report for Bioremediation.

2.1 Pre-Excavation Soil Sampling

Pre-excavation sampling is performed to provide initial site characterization and delineate the extent of contamination. The horizontal boundaries of contamination are influenced by the presence of buildings, roads, railroad tracks, and grids with either no detectable levels of contaminants or levels that are below the cleanup goals.

All pre-excavation sampling at MFA, MFB, and RKI was completed prior to this reporting period.

2.2 In-Process Excavation Soil Sampling

Field screening of in-process excavation soil samples was completed on samples from MFB grids 72 – 74, 85 – 87, 90 – 92, 148 – 152, and 155 – 162. Excavation was stopped and post-excavation samples were obtained when screening results indicated that the level of explosives in the soil was below cleanup goals. Figure 1 illustrates the location of these grids.

2.3 Post-Excavation Soil Sampling

Post-excavation samples were obtained from MFB grids 72 – 74, 85 – 87, 90 – 92, 148 – 152, and 155 – 162. Analytical results indicate that levels of explosives remaining in the soil are below industrial cleanup goals in all grids except the sidewall sample on grid 74. This sample was obtained beneath the asphalt of the driveway that defines the border of the grid. This soil was not excavated because the asphalt driveway is considered a permanent grid boundary. Figure 1 illustrates the location of these grids.

2.4 Soil Excavation and Screening

A total of 386.68 tons of contaminated soil and 20.11 tons of reject rocks from RKI were screened and delivered to the Biofacility in this reporting period, all in July. A total of 1,798.03 tons of contaminated soil from MFB were screened and delivered to the Biofacility in this reporting period: 57.92 tons in July; 1,064.19 tons in August; and 675.92 tons in September. A total of 18.01 tons of explosives contaminated soils from the MFA Battery Site was screened and delivered to the Biofacility in September of this reporting period. This site is located just outside the south gate of MFA. Soil contaminated with RDX was detected there as part of a separate cleanup activity. Figure 2 illustrates the location of this site.

Soil excavation operations at all three SWMUs are now complete. All contaminated soil to be processed at the Biofacility has been excavated, screened, and stored in the north building at the Biofacility. Full-scale operations soil excavation quantities can be found in Table 1.0.

2.5 Control Windrow Soil Excavation

As reported in the previous quarterly report, the soil used in the original RKI Control windrow was determined to contain PCBs and the windrow was therefore deemed unacceptable for use as a control windrow. The source of the soil for this windrow was at the south end of the straw storage field located just south of the Biofacility. Consequently, a source of soil from within RKI was sampled and analyzed for explosives, volatile and semi-volatile organic compounds, pesticides, herbicides and metals. All results were either non-detect or below industrial cleanup goals therefore this soil was determined to be acceptable for use in a control windrow. Figure 3 illustrates the excavation location for the soil used in the new Control windrow.

3.0 COMPOSTING OPERATIONS

Treatment of high-explosives contaminated soil by composting involves microbial degradation of the explosives by optimizing the availability of organic material, temperature, moisture content, pH, and oxygen. The composting operation process description is provided in Section 5.0 of the approved *FSOP* [MK, 1998a].

3.1 Amendments

The compost mix used in full-scale operations consists of 25% soil, 15% chicken manure, and 60% straw by volume. A sufficient volume of straw has been delivered to satisfy the straw requirements for processing the remaining soil from MFB and RKI. Chicken manure continues to be delivered to the Biofacility on an as-needed basis in quantities sufficient to support operations.

3.2 Windrow Construction and Treatment

Field screening is performed at least weekly to monitor RDX levels within each windrow. Field screening of treated compost for TNT is not completed since RDX is a better indicator of contaminant degradation than TNT. Final compost samples are collected once the field test kits indicated RDX levels are below industrial clean-up goals. The day that final compost samples are collected for off-site laboratory confirmation analysis is referred to as Day Last. The process schedule for windrows processed in this reporting period is included as Table 2.

Windrows 206 through 211 were formed in this reporting period, totaling 1,392.6 tons of contaminated soil. Windrows 206, 207, and 208 were each formed with an estimated 232.1 tons of contaminated soil from RKI.

The new RKI Control windrow was formed on 8/10/01 with 15 tons of soil and processed for 24 days, the same process duration as windrow S-204, the full-scale windrow for RKI toxicity testing.

Windrows 209, 210, and 211 were each formed with an estimated 232.1 tons of contaminated soil from MFB.

Average analytical results for Day 0 samples obtained from windrows 206 and 207, and Day 4 samples for 208 (discussed below), are shown in Table 3. Average analytical results for Day

Last samples from windrows 206 through 211 and the new Control windrow were below residential cleanup goals, as shown in Table 4. The average Day Last explosive levels for the windrows listed in Table 4 are listed in Table 5.

3.3 Analytical Data Interpretation and Validation

Windrow S-208 was formed on Thursday, July 26, 2001. Day zero samples were placed in the Biofacility laboratory refrigerator for overnight storage and shipped to the off-site laboratory the next day. Although the samples were intended to arrive at the lab on Saturday, they were not delivered to the lab until Monday, July 30, 2001. The temperature of the samples upon arrival at the lab was 16 degrees Celsius and thus were unacceptable. Consequently, Day 4 samples were obtained on Monday, July 30 and sent to the lab to replace the Day zero samples.

Day Last sample results for the Control windrow indicated that RDX was detected at an average of 1.2 ppm. Since characterization of the soil used in this windrow indicated that the soil was uncontaminated, the RDX contamination detected in the Day Last samples can be attributed to cross-contamination during processing. This contamination likely came from the SCARAB windrow turner.

All windrow results (except RKI Control) represent an average of 15 individual data points (five cross sections, three sample locations per cross section). The RKI Control windrow was sampled at only 1 cross section, as per Appendix G of the *FSOP*. Day Last results for the full-size windrows demonstrates the effectiveness of the bio-degradation process.

All data associated with windrow monitoring was verified, and at least 10% of the samples were validated and compared with field and laboratory quality control (QC) sample data to assess the data's usability for supporting full-scale operations. Data was verified by reviewing chain-of-custody forms, sample preservation records, analytical holding times, requested turnaround times, sample data in comparison to QC data, and reporting requirements. In addition, more than 10% of the data was validated using the validation procedures specified in Section 9.2.2 of the *QAPP*.

Analytical results for the trip blanks, field blanks, equipment rinsates, and field duplicates were evaluated to identify potential sources of error introduced during sampling, transportation and storage. Field QC performed with the monitoring of windrows has been performed according to the requirements defined in the *QAPP*.

Laboratory QC consists of method blank, sample matrix spike (MS), sample matrix spike duplicate (MSD), surrogate, laboratory control sample (LCS), and laboratory control sample duplicate (LCSD) analyses to evaluate laboratory accuracy and precision. Laboratory quality control was performed consistent with the requirements of the QAPP. Method blanks, LCS, LCSD, and surrogates were acceptable in every analytical batch. Day Last data did not show interference with spiking solutions because initial concentrations were low in comparison to the concentration of spiking solution added to the sample. Comparing the analytical reporting limits to the industrial and residential clean-up levels, the data is determined to be acceptable to show that clean-up goals have been successfully met.

Based on technical review of the field and laboratory QC data, analyses were performed within acceptable accuracy and precision requirements specified in the QAPP. The confirmation data meets the project's data quality objectives and are therefore considered usable to support full-scale operations.

4.0 DISPOSITION OF TREATED SOIL AND SITE RESTORATION

Treated soil (compost) is transported back to the SWMU of origination either to the temporary staging area, the permanent storage areas, or used as backfill in the open excavations. Disposal activity is shown in Table 2. Site restoration (seeding, mulching, and watering) has been or will be implemented at all areas where ToITest has backfilled treated soil.

The original Control windrow, which was determined to contain PCBs, was not moved from the Biofacility during this reporting period.

Windrows 181 and 185 (which had been stored at the MFB temporary storage area) and windrows 202 through 205 are included in Table 2 because they were moved to their permanent disposal location during this reporting period. The disposal locations for windrow 181 was the Permanent Placement Area at MFB, as illustrated on Figure 1.

Windrow M-185 had been staged at the MFB Staging Area since September of 2000. Results from the re-sampling event of July of 2001 indicated that the level of contamination had dropped to residential cleanup levels (see Table 6). The windrow was not moved from the staging area during this reporting period.

The disposal location for windrows 206, 207, and 208 was the Permanent Placement Area (PPA) at RKI as illustrated on Figure 4. The approval for designation of a PPA at RKI was granted by the EPA with Field Change Request FS-034 (provided in the Appendix). No samples of the Permanent Placement Area were obtained prior to the placement of compost because the entire area is covered with large gravel. The grid disposal locations for windrows 202, 203, 204, and 205 are shown on Figure 3. The new Control windrow was not moved from the Biofacility during this reporting period.

5.0 STATUS OF VARIOUS REPORTS

The Supplemental Toxicity Report for toxicity sampling carried out in November of 2000 is under review by EPA. The Pilot-Scale Treatability Report for Rockeye Soils and the Windrow M-203 Batch Report have been submitted by the Navy to EPA. The toxicity testing results of the Control Windrow have been received from the off-site laboratories and are under review by ToITest for inclusion into the Toxicity Report for Rockeye Soils. The Interim Measures Report for RKI Soils is due to the Navy by 2/4/02.

6.0 QUALITY CONTROL

Quality control inspections included excavation site operations, composting operations, sampling activities, field test kit analyses, and facility maintenance. Quality control checks were performed at required intervals using the field inspection checklists provided in Appendix F of the approved *Full-Scale OP* [MK, 1998a]. Copies of all inspection records are maintained at the Biofacility office.

During this period 174 individual items were verified and no deficiencies were identified. Immediate actions were taken to correct any minor findings observed.

7.0 SAFETY AND INDUSTRIAL HYGIENE

7.1 General Safety

During this period 4,665.0 man-hours were expended by ToITest. There were no OSHA recordable injuries. The project has a cumulative total of 65,720.5 man-hours by the end of this reporting period.

Thirteen formal safety inspections were performed during this quarter. No significant findings of an imminent or serious nature were found. Immediate actions were taken to correct any minor findings observed. Daily informal walk-around safety inspections reinforced and improved the workers safety performance.

7.2 Industrial Hygiene Sampling

Airborne monitoring for ammonia was performed during this reporting period, however no explosives monitoring was conducted due to the low volume of work at the Biofacility. Previous sampling events have indicated that elevated ammonia levels are encountered during the early stages of a windrows' life cycle. The chicken manure amendment is the primary contributor to ammonia concentrations. Full-face air purifying respirators with ammonia cartridges are worn during windrow formation and during composting activities when ammonia levels are 25 ppm (TLV) or above. Ammonia is typically localized near each pile and is significantly affected by natural ventilation of the building, moisture in the windrow, and turning of the windrow. Levels of ammonia detected at the time of monitoring peaked at approximately 60 ppm using colorimetric tubes on 8/27/01 during the formation of windrow M-209. Levels dropped to approximately 10 ppm after 24 hours.

Previous sampling events have indicated that airborne explosives compounds do not pose a significant health hazard.

No wipe sampling for explosive residues was performed at the Biofacility during this reporting period due to the low volume of work performed at the facility. Previous sampling events have indicated that explosives contamination is not detected outside the exclusion zone when the proper decontamination procedures are followed.

No noise monitoring was performed during this quarter. Prior monitoring has concluded that associates are required to wear hearing protection while working around heavy equipment, which is when noise levels are likely to exceed 85 dBa during a weighted network steady state, or 140 dBa impulse, regardless of the duration of exposure.

8.0 FACILITY MAINTENANCE AND REPAIRS

- Completed installation of gutters, downspouts, and sub-surface drainage pipes on the three compost buildings in accordance with FC03-FCR-FS030 Rev 0.
- Repaired the boundary fence around the Biofacility.
- Replaced missing teeth on the SCARAB.
- Replaced broken side boards on the Sterling dump truck.
- Repaired the air conditioner on the SCARAB.
- Repaired the alternator on the SCARAB.
- Sent two Demista oxygen/temperature monitors in for repair.
- Removed weeds from around retention ponds.
- NSWC Crane fire department conducted annual inspection of fire extinguishers.

9.0 REFERENCES

- MK, 1998a. *Full-Scale Operational Plan for Soils Bioremediation Facility, NSWC Crane, Crane, Indiana*. Delivery Order Number 0009, Contract Number N62467-93-D-1106. Prepared by Morrison Knudsen Corporation, Environmental Services Group. Revision 2, March 12, 1998.
- MK, 1998b. *Quality Assurance Project Plan for Full-Scale Operations, Soils Bioremediation Facility, NSWC Crane, Crane, Indiana*. Delivery Order Number 0009, Contract Number N62467-93-D-1106. Prepared by Morrison Knudsen Corporation, Environmental Services Group. Revision 2, March 12, 1998.

TABLES

TABLE 1.0
FULL-SCALE OPERATIONS SOIL EXCAVATION QUANTITIES
July through September 2001
Quantity (Tons)

Period	Mine Fill A	Mine Fill B	Rockeye	MFA Battery	Cumulative
Previously reported	21,045.39	20,317.17	886.00	0.00	42,248.56
July	0.00	57.92	386.68	0.00	42,693.16
August	0.00	1,064.19	0.00	0.00	43,757.35
September	0.00	675.92	0.00	18.01	44,451.28
Reporting Period Total	0.00	1,798.03	386.68	18.01	2,202.72
Site Total	21,045.39	22,115.20	1,272.68	18.01	

**TABLE 2
WINDROW PROCESS SCHEDULE**

Windrow #	Start Date	Day Zero	Day Last	Lab Results Received	Complete Unload	Ton Processed	Soil Qty Ton Processed	Processed to Residential or Industrial Levels	Compost Disposal Location	Grid Disposal Locations
M-181*	8/8/00	8/9/00	6/14/01	6/21/01	Na	232.1	PR	Residential	PPA	Na
M-185*	8/30/00	8/30/00	7/31/01	8/8/01	NM	232.1	PR	Residential	na	Na
M-202	4/10/01	4/10/01	4/20/01	4/26/01	7/12/01	15	33,042.4	Residential	B-2733	8,9,10,11, 12,14
M-203	5/29/01	5/30/01	6/18/01	6/24/01	7/18/01	232.1	33,274.5	Residential	B-2733	8,9,10,11, 12,14
S-204	5/29/01	5/31/01	6/25/01	7/2/01	7/18/01	232.1	33,506.6	Residential	B-2733	8,9,10,11, 12,14
M-205	6/6/01	6/7/01	6/28/01	7/9/01	7/12/01	232.1	33,738.7	Residential	B-2733	8,9,10,11, 12,14
M-206	7/16/01	7/18/01	8/15/01	8/23/01	8/24/01	232.1	33,970.8	Residential	PPA	Na
M-207	7-19/01	7/20/01	8/17/01	8/24/01	8/28/01	232.1	34,202.9	Residential	PPA	Na
S-208	7/25/01	7/26/01	8/22/01	9/4/01	9/5/01	232.1	34,435.0	Residential	PPA	Na
Original RKI Control	6/11/01	6/11/01	Na	Na	NM	Na	Na	Na	Na	Na
New RKI Control	8/10/01	8/10/01	9/4/01	9/25/01	NM	15	34,435.0	Residential	Na	Na
M-209	8/27/01	8/28/01	9/18/01	10/8/01	NM	232.1	34,667.1	Residential	Na	Na
M-210	8/28/01	8/30/01	9/19/01	10/12/01	NM	232.1	34,899.2	Residential	Na	Na
S-211	9/5/01	9/6/01	9/24/01	10/11/01	NM	232.1	35,131.3	Residential	Na	Na

* = Resampled windrow, previously reported

NM = not moved in this reporting period

PPA = Permanent Placement Area

Na = not applicable

PR = Previously Reported

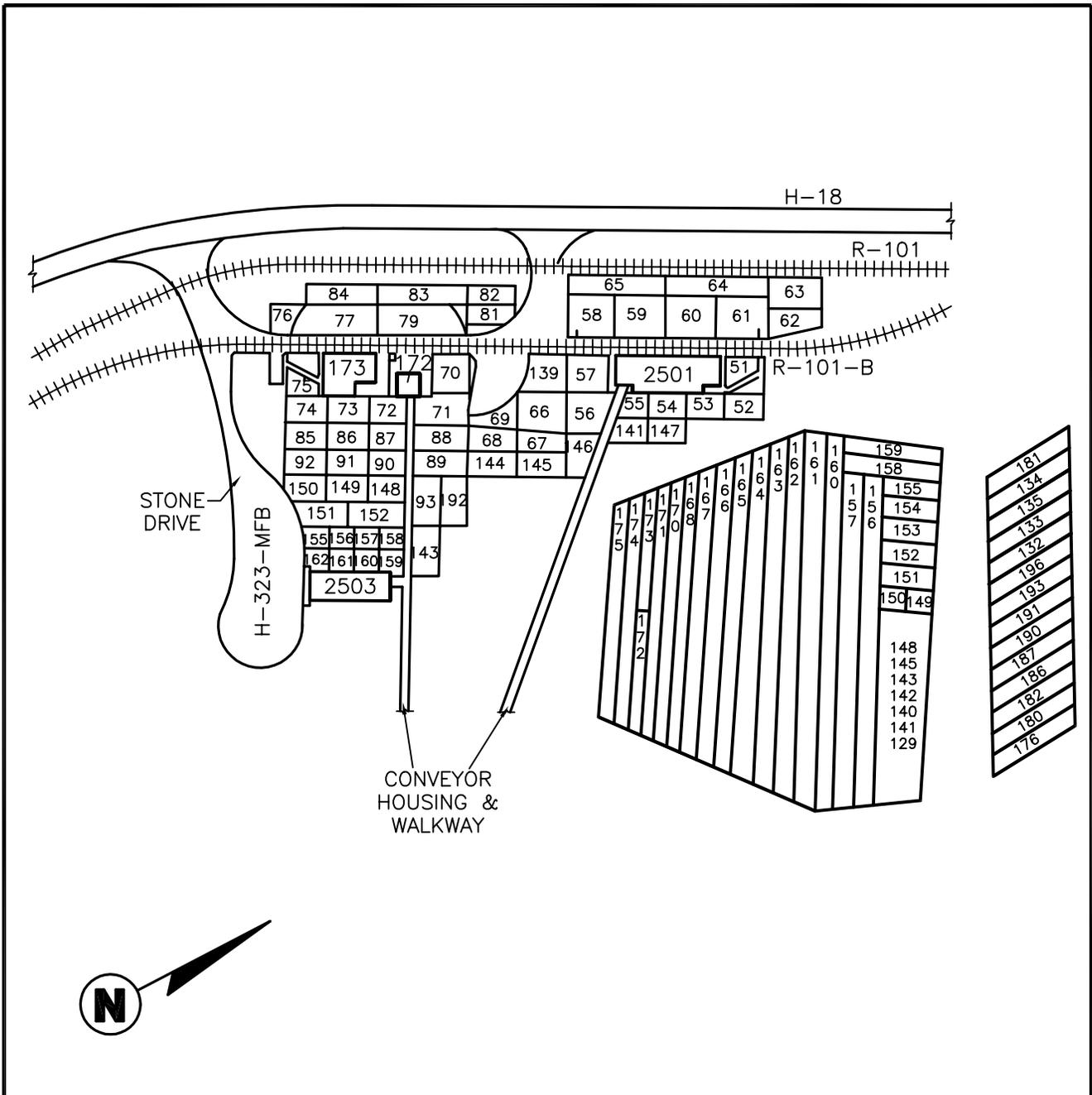
TABLE 3				
AVERAGE EXPLOSIVE COMPOUNDS DAY ZERO ANALYTICAL DATA (ppm)				
WINDROW #	DAY #	HMX	RDX	TNT
M-206	0	322.2	37.9	4
M-207	0	393.4	62.9	8
S-208	4	87.22	20.1	0.5

TABLE 4				
AVERAGE EXPLOSIVE COMPOUNDS DAY LAST ANALYTICAL DATA (ppm)				
WINDROW #	DAY #	HMX	RDX	TNT
M-206	28	5.7	0.3	0.3
M-207	28	3.8	0.4	0.5
S-208	27	3	0.5	0.5
RKI Control	25	Non-detect	1.2	Non-detect
M-209	21	1.2	3.5	0.8
M-210	20	1.6	1	0.4
S-211	18	1.5	2.1	0.4
CLEANUP GOALS	Residential	3,300	4	15
	Industrial	34,000	17	64

TABLE 5		
AVERAGE DAY LAST EXPLOSIVE COMPOUNDS LEVELS (ppm)		
HMX	RDX	TNT
2.8	1.3	0.5

TABLE 6				
AVERAGED STAGED WINDROW RE-SAMPLING ANALYTICAL DATA (ppm)				
WINDROW #	DAY #	HMX	RDX	TNT
M-185	336	0.9	2.5	0.6

FIGURES:



MEASUREMENTS ARE APPROXIMATE
NOT TO SCALE

LEGEND

- (R) - RESIDENTIAL
- (I) - INDUSTRIAL

FIGURE 1
MFB GRID AND WINDROW LOCATION MAP
BACKFILL OPERATIONS
WINDROW: #181
MINE FILL B - PERMANENT PLACEMENT AREA
NAVAL SURFACE WARFARE CENTER
CRANE, INDIANA

PREPARED FOR
NAVAL FACILITIES ENGINEERING COMMAND
NSWC CRANE, IN

DRAWN MRC/3-2-01

DRAWING NO.: 37324-01 Q3

REVISED MRC/11-28-01

CHKD:

APPR:

JOB NO.: 37324.01

SHEET NUMBER

1 of 5



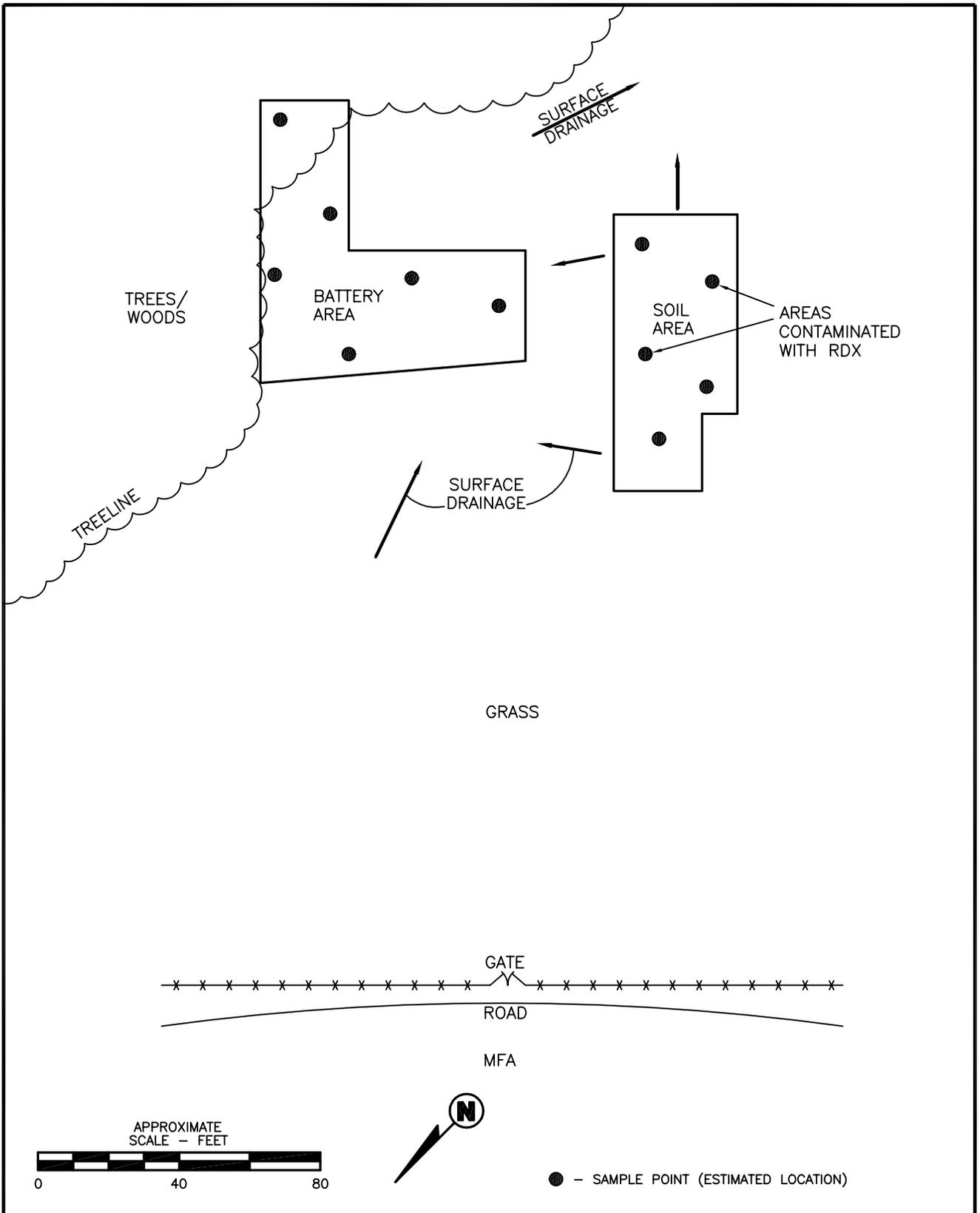


FIGURE 2
MFA BATTERY SITE MAP

NAVAL SURFACE WARFARE CENTER, MINE FILL A
CRANE, INDIANA
070101 - 093001 QUARTERLY REPORT

DRAWN MRC/11-28-01

DRAWING NO: 37324-02 Q3

REVISED

CHKD:

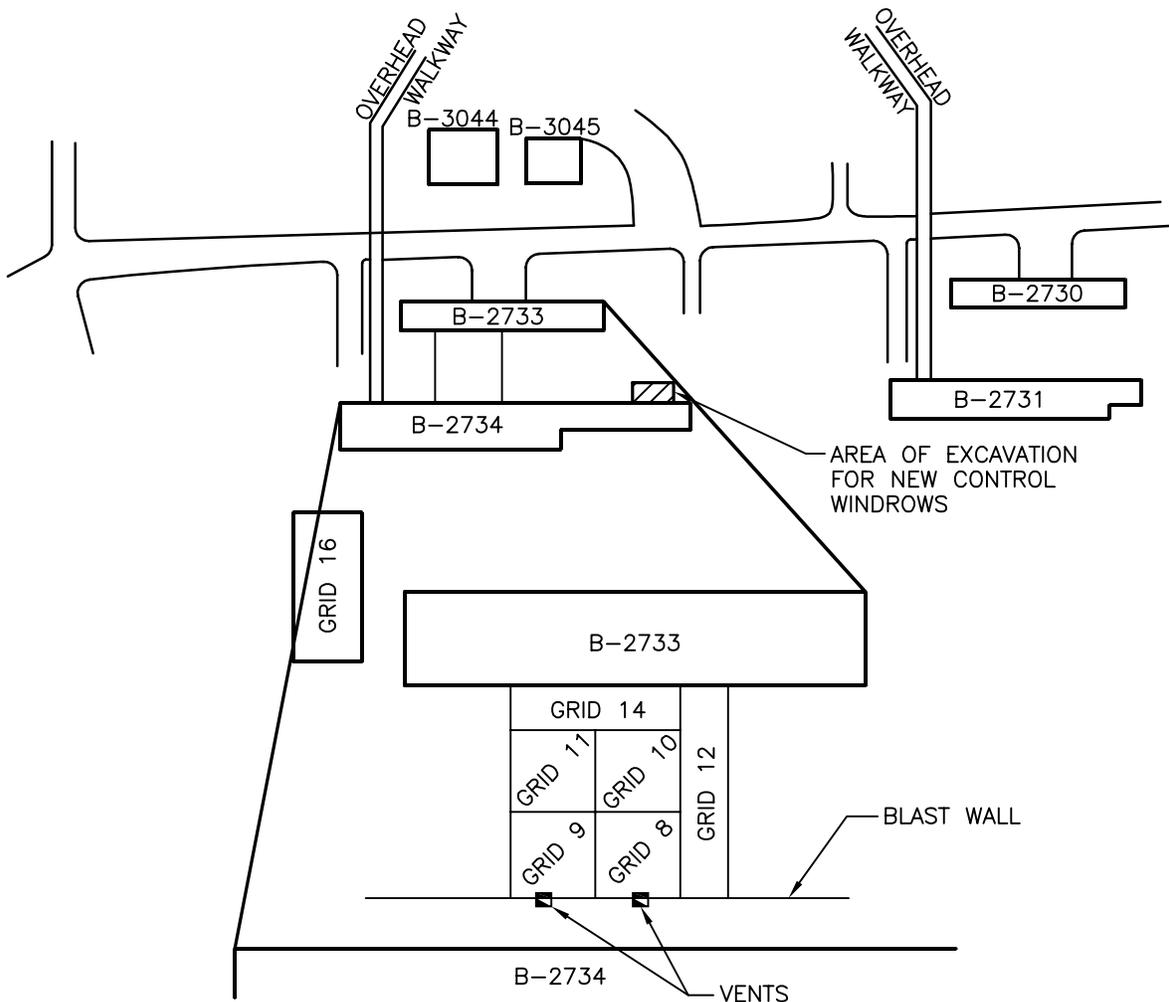
APPR:

JOB NO. 37324.01

SHEET NUMBER

2 of 5

TOWEST, INC.



NOT TO SCALE

070101-093001 QUARTERLY REPORT

**FIGURE 3
ROCKEYE GRID AND WINDROW
LOCATION MAP**

PAGE 1
NSWC CRANE, INDIANA

PREPARED FOR
**NAVAL FACILITIES ENGINEERING COMMAND
NSWC CRANE, INDIANA**

DRAWN MRC/10-22-01

DRAWING NO.: 37324-03 Q3

REVISED

CHKD:

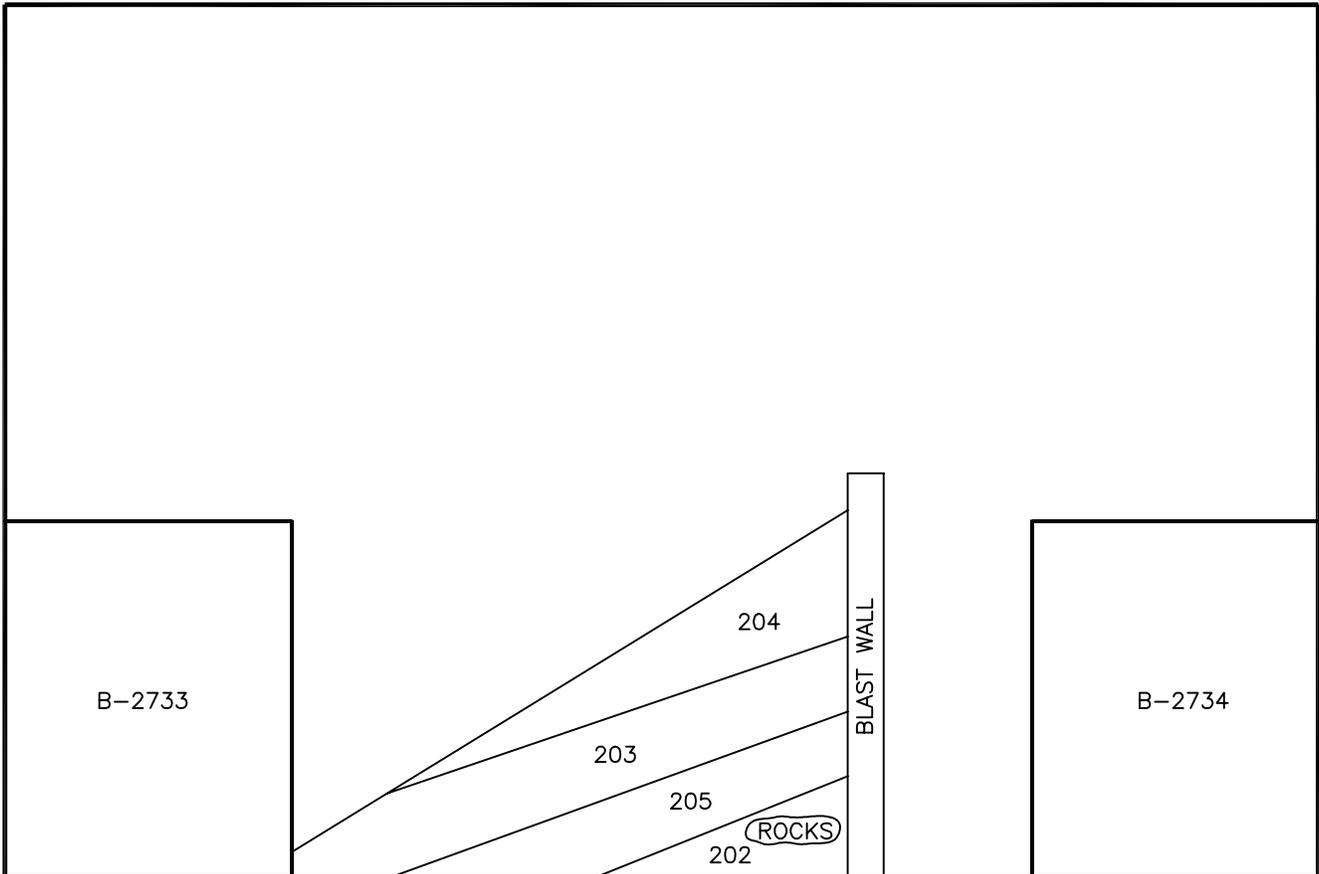
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JOB NO. 37324.01

SHEET NUMBER

3 of 5

TOLLEST, INC.



GRIDS 8-12 AND 14
ROCKS IN GRID 8 ONLY



NOT TO SCALE

070101-093001 QUARTERLY REPORT

**FIGURE 3
ROCKEYE GRID AND WINDROW
LOCATION MAP**

PAGE 2
NSWC CRANE, INDIANA

PREPARED FOR
**NAVAL FACILITIES ENGINEERING COMMAND
NSWC CRANE, INDIANA**

DRAWN MRC/10-22-01

DRAWING NO.: 37324-04 Q3

REVISED

CHKD:

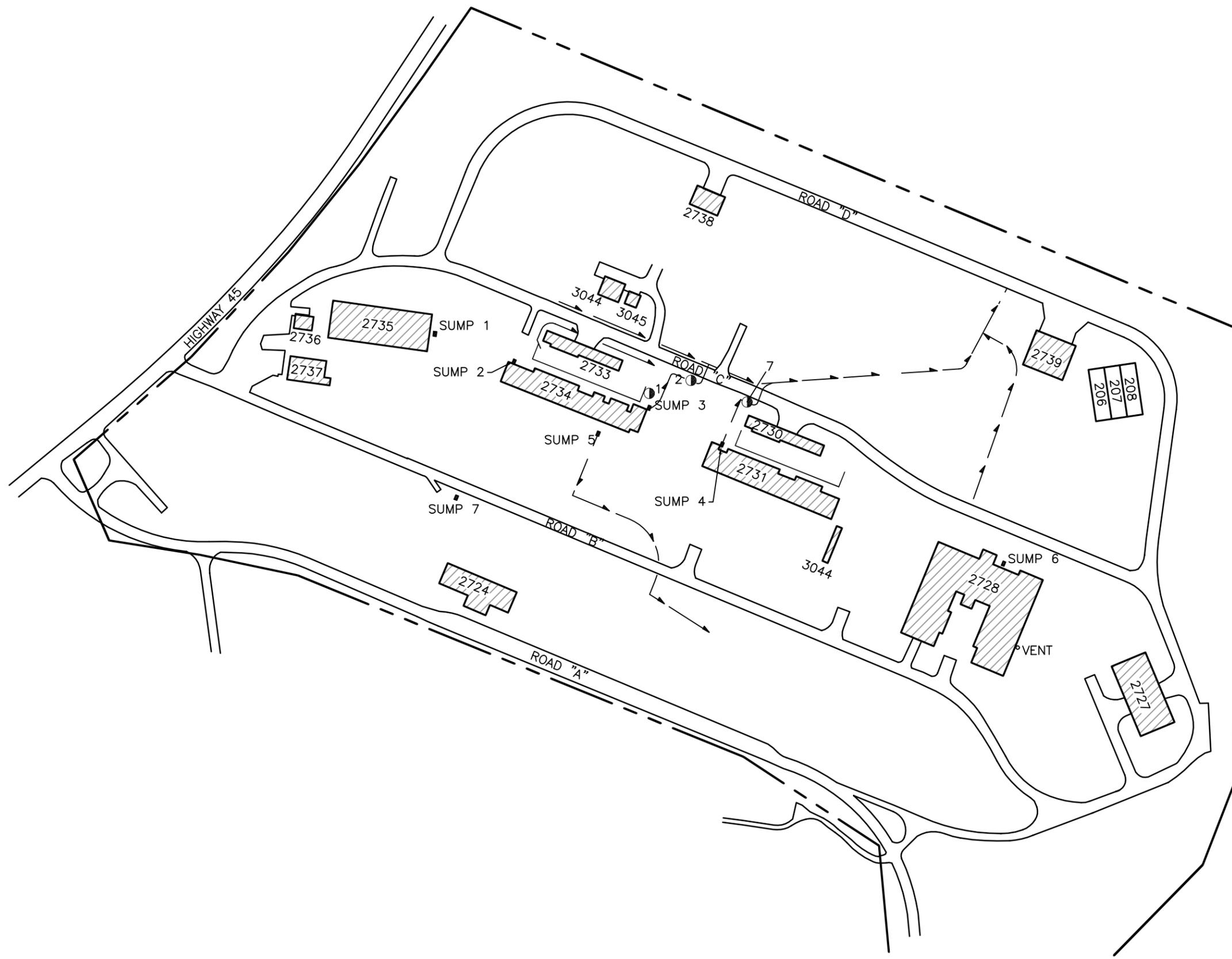
APPR:

JOB NO. 37324.01

SHEET NUMBER

4 of 5

TOLLEST, INC.



→ -- FLOW DIRECTION

FIGURE 4
ROCKEYE PERMANENT PLACEMENT AREA
WINDROW M-203 FULL-SCALE BATCH REPORT
FOR ROCKEYE SOILS
NSWC CRANE, INDIANA

DRAWN MRC/11-28-01	DRAWING NO.: 37324-05 Q3	
REVISED	CHKD:	APPR:
JOB NO.: 37324.01	TOLUESI, INC.	
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5 of 5		

APPENDIX

Crane Naval Surface Warfare Center
TolTest, Inc.

EJOC Contract N68950-96-D-0052

FIELD CLARIFICATION REQUEST (FCR)

Delivery Order No.: FC08	Subcontract No.: N/A	FCR No.: FC08-FCR-FS034 Rev. 0
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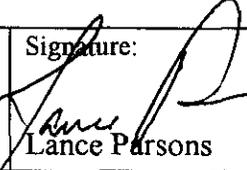
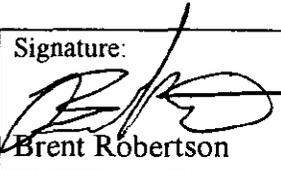
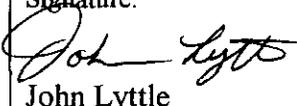
Temporary Storage/Permanent Placement Area for Compost at Rockeye	Page 1 of 1
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Reference Documents:
Full-Scale Operational Plan Soils Bioremediation Facility (FSOP), March 1998 Rev. 2

Problem / Change Description:
A greater amount of compost will be generated from soil excavated at Rockeye (RKI) than can be placed in the area of excavation behind B-2733. Therefore identification of an area at RKI for temporary storage/permanent placement of compost is required.

Initiated by TolTest Env. Spec.	Signature:  Peter J. Chevalier	Organization: TolTest, Inc.	Date: 7/10/2001
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Resolution:
TolTest, in conjunction with Crane Army Ammunition Activity personnel, have identified an area within RKI adjacent to Building 2739 for temporary storage/permanent placement of compost generated from soil excavated at RKI (see attached maps). Compost can not be hauled directly into the area of excavation behind B-2733 because the trucks that haul the compost to RKI are too large to fit into this area. Therefore it is necessary to off-load the compost in the storage area and then move it to the area of excavation using smaller trucks. Any compost that is not moved to the area of excavation will be considered in permanent placement. The permanent placement location of all compost, either behind B-2733 or in the permanent placement area, will be logged and mapped. All RKI soils will be treated to residential cleanup goals and only compost that has attained residential cleanup goals will be handled in this manner or be considered for permanent placement.

Approval by TolTest, PM	Signature:  Lance Parsons	Date: 7/10/01	Approval by ROICC/NTR or RPM	Signature:  Brent Robertson	Date: 8/9/01
Approval by TolTest QC/SHSO	Signature:  John Lyttle	Date: 7/10/01	Approval by EPD ECOTR:	Signature:  Christine Freeman	Date: 7/10/01

Regulator Approval/Notification Recommended:
Yes No

Crane Naval Surface Warfare Center	EJOC Contract N68950-96-D-0052
TolTest, Inc.	

FIELD CLARIFICATION REQUEST (FCR)

Delivery Order No.: FC08	Subcontract No.: N/A	FCR No.: FC08-FCR-FS034 Rev. 0
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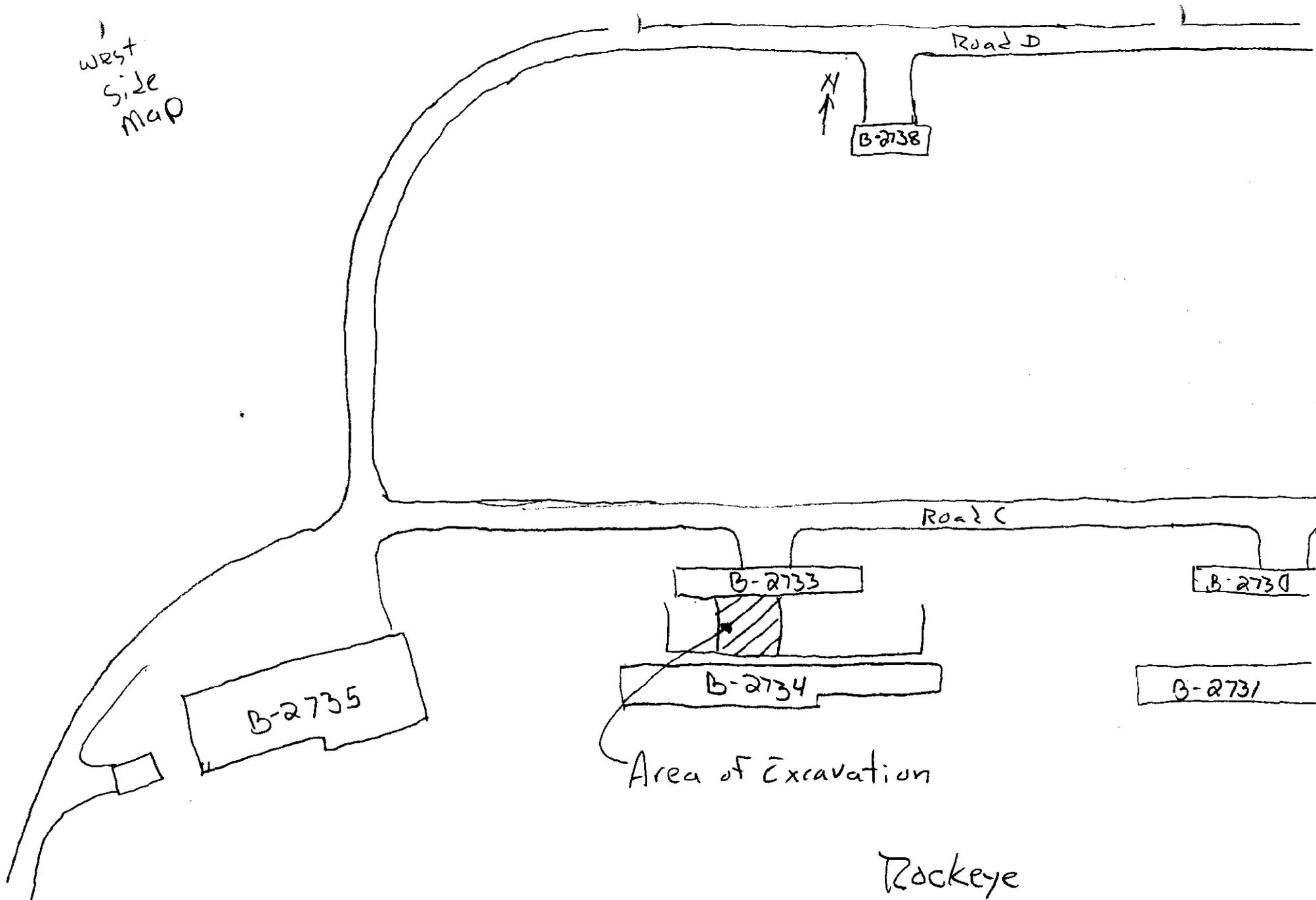
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Approval by TolTest, PM	Signature: Lance Parsons	Date:	Approval by ROICC/NTR or RPM	Signature: Brent Robertson	Date:
Approval by TolTest QC/SHSO	Signature: John Lyttle	Date:	Approval by EPD ECOTR:	Signature: Christine Freeman	Date:

Regulator Approval/Notification Recommended.
Yes No

[Signature] 7/10/01

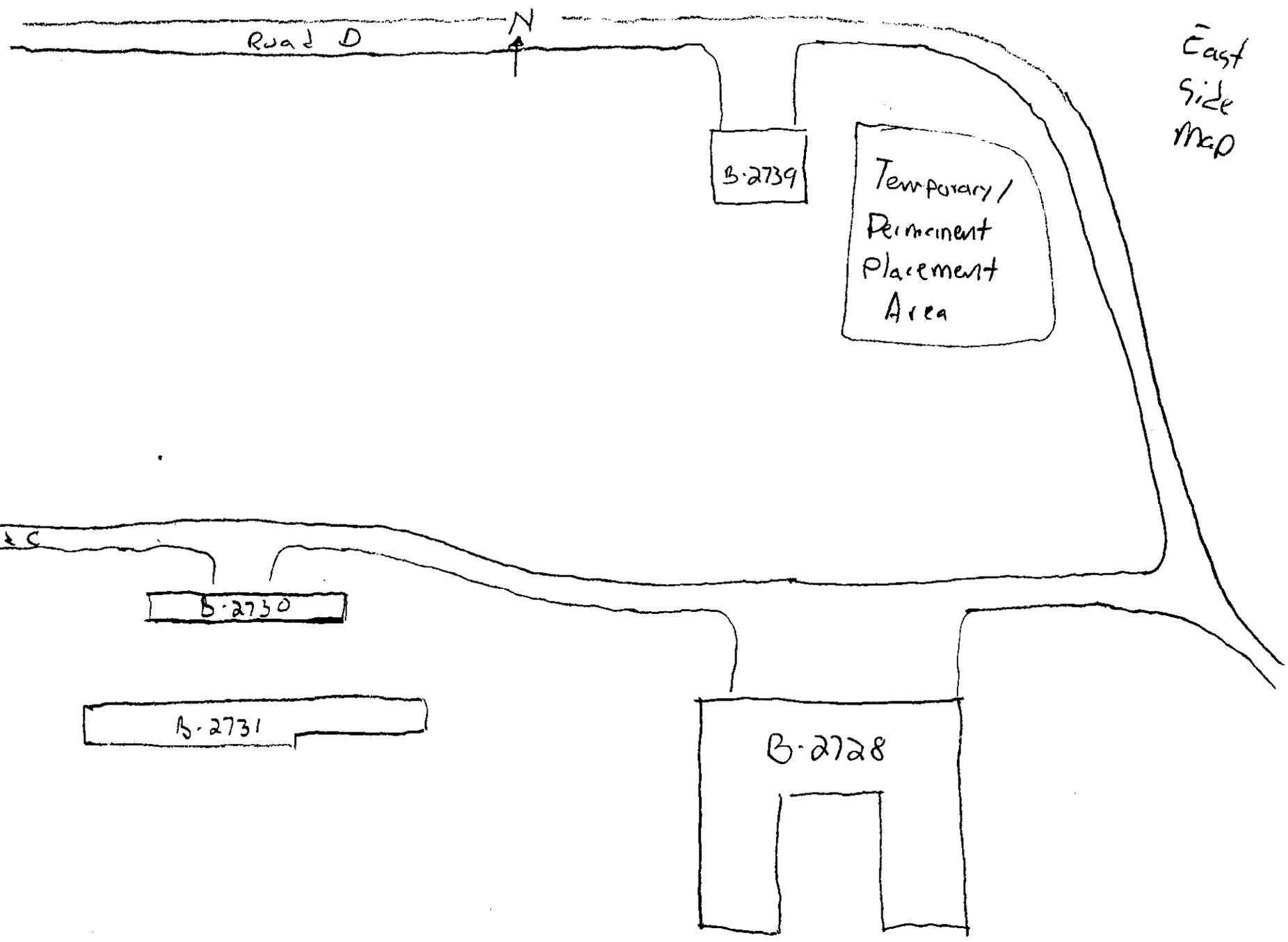
West
Side
Map



Area of Excavation

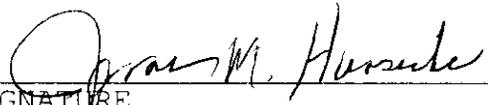
Rockeye

East
Side
Map



Rackeye

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


SIGNATURE

DIRECTOR, ENVIRONMENTAL PROTECTION DEPARTMENT
BY DIRECTION OF THE COMMANDER
TITLE

12/04/01
DATE