

**TMA**  
**Thermo Analytical Inc.**

**TMA/ERG**

7777 Exchange Street  
Cleveland, OH 44125-3337

(216) 447-0790

Ravenna Arsenal, Inc.  
8451 State Route 5  
Ravenna, Ohio 44266-9297

Attn: Joe Mound

Date: June 25, 1993

Sample Collected: 06/17/93  
Sample Received: 06/17/93

TMA ID: 0792:02

<u>PARAMETER</u>	<u>WW III MH</u> <u>RESULTS</u>	<u>UNITS</u>
Fecal Coliform	180,000	Organisms/100 ml

Approved by: William L. Ramus  
William L. Ramus *mt.*  
Operations Manager

# AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. **P00186**  
 3. EFFECTIVE DATE **26 MAY 1993**  
 4. REQUISITION/PURCHASE REQ. **See Schedule**  
 5. PROJECT NO. (if applicable) **ACN**

6. ISSUED BY  
**HQ AMCCOM**  
**AMSHC-PAI-CA /00**  
**SHIRLENE WISE /309-782-3764**  
**ROCK ISLAND, IL 61299-6000**

7. ADMINISTERED BY (if other than Item 6)  
**B.J. JENKINS**  
**JUN 2 1993**

SCD C PAS NONE  
 ADP PT W52B09

General Manager  
 CODE  
 Ravenna Arsenal, Inc.  
 FWD FOR  
 Information  
 Compliance as applicable  
 ADP PT W52B09

8. NAME AND ADDRESS OF CONTRACTOR (No., street, city, county, State and ZIP Code)  
**RAVENNA ARSENAL INC**  
**8451 STATE ROUTE 5**  
**RAVENNA OH 44266-9297**

9A. AMENDMENT OF SOLICITATION NO. (X)  
 9B. DATED (SEE ITEM 11)  
 10A. MODIFICATION OF CONTRACT/ORDER NO. X  
**DAAA0988Z0001**  
 10B. DATED (SEE ITEM 13)  
**87DEC03**

CODE 6B075 FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers  is extended,  is not extended.  
 Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:  
 (a) By completing items 8 and 15, and returning \_\_\_ copies of the amendments; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (if required)  
 See continuation sheet

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(X) A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: 10 USC 2304 (c)(3) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT/ORDER NO. IN ITEM 10A.  
 X B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).  
 C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:  
 D. OTHER (Specify type of modification and authority)

6-2-93

TO	OFFICE	ACTION
<input checked="" type="checkbox"/>	GM	
<input checked="" type="checkbox"/>	CO-OPR	
<input checked="" type="checkbox"/>	ENGR	(2)
<input checked="" type="checkbox"/>	...	
<input checked="" type="checkbox"/>	...	
<input checked="" type="checkbox"/>	...	
<input checked="" type="checkbox"/>	...	
<input checked="" type="checkbox"/>	...	
<input checked="" type="checkbox"/>	RETURN	

E. IMPORTANT: Contractor  is not,  is required to sign this document and return copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter, where feasible.)

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remain unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)  
 16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)  
**THOMAS A. BOLTON**  
**Supervising Engineer**

15B. CONTRACTOR/OFFEROR  
 15C. DATE SIGNED  
 16B. UNITED STATES OF AMERICA  
 16C. DATE SIGNED  
**26 MAY 1993**

CONTINUATION SHEET

Name of Offeror or Contractor

RAVENNA ARSENAL INC

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT																			
0002AR	SERVICES LINE ITEM			\$	\$ 534,749.00 ESTIMATED																			
	PRON: M13AU600M1      ACRN: DJ AMS CD: 4210054073																							
	<u>SECTION B - Supplies or Services and Prices/Costs</u> NOUN: MAINT OF INACTIVE BASE AMMO SECURITY CLASS: UNCLASSIFIED																							
	<u>SECTION F - Deliveries or Performance</u>																							
	<table border="0"> <tr> <td>DLVR SCH</td> <td>PERF COMPL</td> <td></td> </tr> <tr> <td><u>REL CD</u></td> <td><u>DT</u></td> <td><u>QUANTITY</u></td> </tr> <tr> <td>001</td> <td>93SEP30 (E)</td> <td>0</td> </tr> <tr> <td></td> <td></td> <td>\$ 534749.00 (E)</td> </tr> </table>	DLVR SCH	PERF COMPL		<u>REL CD</u>	<u>DT</u>	<u>QUANTITY</u>	001	93SEP30 (E)	0			\$ 534749.00 (E)											
DLVR SCH	PERF COMPL																							
<u>REL CD</u>	<u>DT</u>	<u>QUANTITY</u>																						
001	93SEP30 (E)	0																						
		\$ 534749.00 (E)																						
	(E) = Estimated																							
	AMD 03																							
	AMT INCR: \$281,612.00																							
	THESE FUNDS ARE PROVIDED FOR THE PERIOD 1 APR - 30 SEP 93 IAW FY93 NEGOTIATIONS. PROGRAM AUTHORITY IS PROVIDED FOR PEP 0122 FOR THE MAINTENANCE AND PROTECTION OF LAIDAWAY FACILITIES AND EQUIPMENT IAW THE CURRENT NEGOTIATED SOW FOR GOVERNMENT PROPERTY IN THE CONTRACTOR'S POSSESSION OR CONTROL, TO INCLUDE THE EFFORTS DEFINED IN THE STANDBY MAINTENANCE PLAN FOR U.S. FORCES LINES LISTED BELOW:																							
	NONE																							
	THESE FUNDS ARE ALSO PROVIDED FOR THE PRO RATA SHARE OF PLANT OVERHEAD COSTS IAW THE CONTRACTOR'S DISCLOSURE STATEMENT.																							
	<table border="0"> <tr> <td><u>LINE IDENT</u></td> <td><u>DESCRIPTION</u></td> </tr> <tr> <td>1513</td> <td>STORAGE BUILDINGS</td> </tr> <tr> <td>1514</td> <td>RAILROAD TRACK AND EQUIPMENT</td> </tr> <tr> <td>1522</td> <td>SPACE HTG/BLDGS AND EQUIPMENT</td> </tr> <tr> <td>1523</td> <td>WATER BUILDINGS AND EQUIPMENT</td> </tr> <tr> <td>1524</td> <td>SEWAGE BUILDINGS AND EQUIPMENT</td> </tr> <tr> <td>1525</td> <td>ELECTRICAL DISTRIBUTION</td> </tr> <tr> <td>1526</td> <td>SHOP MAINT BLDG/EQUIP</td> </tr> <tr> <td>1527</td> <td>GEN AND ADMIN AREAS BLDGS/EQUIP</td> </tr> <tr> <td>1528</td> <td>ROADS AND GROUNDS</td> </tr> </table>	<u>LINE IDENT</u>	<u>DESCRIPTION</u>	1513	STORAGE BUILDINGS	1514	RAILROAD TRACK AND EQUIPMENT	1522	SPACE HTG/BLDGS AND EQUIPMENT	1523	WATER BUILDINGS AND EQUIPMENT	1524	SEWAGE BUILDINGS AND EQUIPMENT	1525	ELECTRICAL DISTRIBUTION	1526	SHOP MAINT BLDG/EQUIP	1527	GEN AND ADMIN AREAS BLDGS/EQUIP	1528	ROADS AND GROUNDS			
<u>LINE IDENT</u>	<u>DESCRIPTION</u>																							
1513	STORAGE BUILDINGS																							
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1524	SEWAGE BUILDINGS AND EQUIPMENT																							
1525	ELECTRICAL DISTRIBUTION																							
1526	SHOP MAINT BLDG/EQUIP																							
1527	GEN AND ADMIN AREAS BLDGS/EQUIP																							
1528	ROADS AND GROUNDS																							
	THIS WAS PREVIOUSLY OBLIGATED BY ELECTRONIC MAIL DATED 01 APR 93, 12:45:24 CST.																							

CONTINUATION SHEET

Name of Offeror or Contractor RAVENNA AIRFIELD INC

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT												
	<p>THE CLIN NUMBER 0002AB CITED IN THE REFERENCED ELECTRONIC MAIL OBLIGATION IS CORRECTED TO READ 0002AR.</p> <p>(End of narrative F003)</p>																
0008AK	<p>SERVICES LINE ITEM</p> <p>PRON: M13DU600M1      ACRN: DJ AMS CD: 4210054073</p> <p><u>SECTION B</u> - Supplies or Services and Prices/Costs NOUN: MAINT OF INACTIVE BASE AMMO SECURITY CLASS: UNCLASSIFIED</p> <p><u>SECTION F</u> - Deliveries or Performance</p> <table border="0"> <tr> <td>DLVR SCH</td> <td>PERF COMPL</td> <td></td> </tr> <tr> <td><u>REL CD</u></td> <td><u>DT</u></td> <td><u>QUANTITY</u></td> </tr> <tr> <td>001</td> <td>93SEP30 (E)</td> <td>0</td> </tr> <tr> <td></td> <td></td> <td>\$ 493816.00 (E)</td> </tr> </table> <p>(E) = Estimated</p> <p>AMD 03</p> <p>AMT INCR: \$267,130.00</p> <p>THESE FUNDS ARE PROVIDED FOR THE PERIOD 1 APR - 30 SEP 93 IAW FY93 NEGOTIATIONS. PROGRAM AUTHORITY IS PROVIDED FOR THE MAINTENANCE AND PROTECTION OF FACILITIES AND NON-INTEGRAL EQUIPMENT IAW THE CURRENT NEGOTIATED SOW FOR GOVERNMENT PROPERTY IN THE CONTRACTOR'S POSSESSION OR CONTROL, TO INCLUDE THE EFFORTS DEFINED IN THE STANDBY MAINTENANCE PLAN.</p> <p>THIS WAS PREVIOUSLY OBLIGATED BY ELECTRONIC MAIL DATED 01 APR 93, 12:45:24 CST.</p> <p>(End of narrative F003)</p>	DLVR SCH	PERF COMPL		<u>REL CD</u>	<u>DT</u>	<u>QUANTITY</u>	001	93SEP30 (E)	0			\$ 493816.00 (E)			\$	\$ 493,816.00 ESTIMATED
DLVR SCH	PERF COMPL																
<u>REL CD</u>	<u>DT</u>	<u>QUANTITY</u>															
001	93SEP30 (E)	0															
		\$ 493816.00 (E)															
0011AG	<p>SERVICES LINE ITEM</p> <p>PRON: M138S280M1      ACRN: DG AMS CD: 72801226000 CUSTOMER ORDER NUMBER: M13728012A1M1</p> <p><u>SECTION B</u> - Supplies or Services and Prices/Costs NOUN: FORESTRY MAINTENANCE SECURITY CLASS: UNCLASSIFIED</p> <p><u>SECTION E</u> - Inspection and Acceptance INSPECTION: ORIGIN      ACCEPTANCE: ORIGIN</p>			\$	\$ 60,000.00 ESTIMATED												

Name of Offeror or Contractor RAVENNA ARSENAL INC

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<u>SECTION F - Deliveries or Performance</u>	<p>DLVR SCH      PERF COMPL</p> <p><u>REL CD</u>      <u>DT</u>      <u>QUANTITY</u></p> <p>001            93SEP30 (E)      0</p> <p style="text-align: right;">\$      60000.00 (E)</p>				
	(E) = Estimated				
	AMD 01				
	AMT INCR: \$60,000.00				
	FY 93 DOD RESERVE FUNDS PROVIDED TO SUPPORT ENHANCEMENT OF TWO LAKES AND WETLAND IMPROVEMENTS IAW THE AMCCOM NATURAL RESOURCES AWP MEMO.				
	THIS WAS PREVIOUSLY OBLIGATED BY ELECTRONIC MAIL DATED 01 APR 93, 12:45:24 CST.				
	(End of narrative F001)				
0043AJ	SERVICES LINE ITEM			\$ _____	\$ 15,668.00 ESTIMATED
	PRON: M13PA624M1      ACRN: DJ AMS CD: 4210058000001				
	<u>SECTION B - Supplies or Services and Prices/Costs</u> NOUN: LIF:GOCO MINOR EFFORTS-MULTI SECURITY CLASS: UNCLASSIFIED				
	<u>SECTION E - Inspection and Acceptance</u> INSPECTION: ORIGIN      ACCEPTANCE: ORIGIN				
	<p><u>SECTION F - Deliveries or Performance</u></p> <p>DLVR SCH      PERF COMPL</p> <p><u>REL CD</u>      <u>DT</u>      <u>QUANTITY</u></p> <p>001            99DEC31 (E)      0</p> <p style="text-align: right;">\$      15668.00 (E)</p>				
	(E) = Estimated				
	AMD 01				
	AMT INCR: \$15,668.00				
	PROJECT 5938000-01 FUNDS REQUIRED BY RVAAP FOR REMOVAL OF LAUNDRY EQUIPMENT FROM BLDG 1037, PEP 0122. CONTRACTOR SHALL PROVIDE ALL NECESSARY MATERIAL, SUPPLIES, UTIL, SUPERVISION AND OTHER SVCS NECESSARY TO DISCONNECT, WINTERIZE AND REMOVE LAUNDRY EQUIP FROM BLDG 1037 AND PLACE IN STORAGE IN BLDG 1067.				

CONTINUATION SHEET

Name of Offeror or Contractor RAVENNA ARSENAL INC

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT												
	<p>REFERENCE RAVENNA ARSENAL, INC LETTER, 23 MAR 93, SUBJ: REMOVAL OF LAUNDRY EQUIPMENT.</p> <p>THIS WAS PREVIOUSLY OBLIGATED BY ELECTRONIC MAIL DATED 01 APR 93, 12:45:24 CST.</p> <p>(End of narrative F001)</p>																
0043AK	<p>SERVICES LINE ITEM</p> <p>PRON: M13PA680M1           ACRN: DJ AMS CD: 4210058327001</p> <p><u>SECTION B - Supplies or Services and Prices/Costs</u> NOUN: LIF: RVAAP TRANS TO CARETAKER SECURITY CLASS: UNCLASSIFIED</p> <p><u>SECTION E - Inspection and Acceptance</u> INSPECTION: ORIGIN       ACCEPTANCE: ORIGIN</p> <p><u>SECTION F - Deliveries or Performance</u></p> <table border="0"> <tr> <td>DLVR SCH</td> <td>PERF COMPL</td> <td></td> </tr> <tr> <td><u>REL CD</u></td> <td><u>DT</u></td> <td><u>QUANTITY</u></td> </tr> <tr> <td>001</td> <td>99DEC31 (E)</td> <td>0</td> </tr> <tr> <td></td> <td></td> <td>\$ 541570.00 (E)</td> </tr> </table> <p>(E) = Estimated</p> <p>AMD 01 &amp; 02</p> <p>AMT INCR: \$541,570.00</p> <p>PROJECT 5938327-01 FUNDS ISSUED FOR RELOCATION OF THE CONTRACTING OFFICER'S REPRESENTATIVE STAFF AND WINTERIZATION OF BUILDINGS 1026, 1030, 1034, 1035, AND 1048.</p> <p>REFERENCE RAVENNA ARSENAL, INC LETTERS OF 16 APR 93, 3 MAY 93, AND 24 MAY 93.</p> <p>(End of narrative F001)</p>	DLVR SCH	PERF COMPL		<u>REL CD</u>	<u>DT</u>	<u>QUANTITY</u>	001	99DEC31 (E)	0			\$ 541570.00 (E)			\$	\$ 541,570.00 ESTIMATED
DLVR SCH	PERF COMPL																
<u>REL CD</u>	<u>DT</u>	<u>QUANTITY</u>															
001	99DEC31 (E)	0															
		\$ 541570.00 (E)															
0043AL	<p>SERVICES LINE ITEM</p> <p>PRON: M13PB680M1           ACRN: DJ AMS CD: 4210058327002</p> <p><u>SECTION B - Supplies or Services and Prices/Costs</u> NOUN: LIF: RVAAP TRANS TO CARETAKER SECURITY CLASS: UNCLASSIFIED</p> <p><u>SECTION E - Inspection and Acceptance</u> INSPECTION: ORIGIN       ACCEPTANCE: ORIGIN</p>			\$	\$ 578,467.00 ESTIMATED												

CONTINUATION SHEET

Name of Offeror or Contractor RAVENNA ARSENAL INC

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<u>SECTION F</u>	- Deliveries or Performance				
DLVR SCH	PERF COMPL				
<u>REL CD</u>	<u>DT</u>	<u>QUANTITY</u>			
001	99DEC31 (E)	0			
	\$ 578467.00 (E)				
	(E) = Estimated				
	AMD 01				
	AMT INCR: \$578,467.00				
	PROJECT 5938327-02 FUNDS ISSUED FOR CLOSURE OF SEWAGE TREATMENT FACILITIES AND SEPTIC SYSTEMS.				
	REFERENCE RAVENNA ARSENAL, INC LETTERS OF 19 APR 93, 3 MAY 93, AND 13 MAY 93.				
	(End of narrative F001)				
0043AM	SERVICES LINE ITEM			\$ _____	\$ 265,295.00 ESTIMATED
	PRON: M13PC680M1 ACRN: DJ AMS CD: 4210058327003				
	<u>SECTION B</u> - Supplies or Services and Prices/Costs NOUN: LIF: RVAAP TRANS TO CARETAKER SECURITY CLASS: UNCLASSIFIED				
	<u>SECTION E</u> - Inspection and Acceptance INSPECTION: ORIGIN ACCEPTANCE: ORIGIN				
	<u>SECTION F</u> - Deliveries or Performance				
	DLVR SCH PERF COMPL				
	<u>REL CD</u> <u>DT</u>	<u>QUANTITY</u>			
	001	99DEC31 (E)			
	\$ 265295.00 (E)				
	(E) = Estimated				
	AMD 01				
	AMT INCR: \$265,295.00				
	PROJECT 5938327-03 FUNDS ISSUED FOR CLOSURE OF INACTIVE DRINKING WATER WELLS, ABANDONED GROUNDWATER MONITORING WELLS, AND ASSOCIATED LINES AND TREATMENT FACILITIES.				
	REFERENCE RAVENNA ARSENAL, INC LETTER OF 3 MAY 93.				
	(End of narrative F001)				

CONTINUATION SHEET

Name of Offeror or Contractor RAVENNA ARSENAL, INC

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0043AN	<p>SERVICES LINE ITEM</p> <p>PRON: M13PD680M1      ACRN: DJ AMS CD: 4210058327004</p> <p><u>SECTION B - Supplies or Services and Prices/Costs</u> NOUN: LIF: RVAAP TRANS TO CARETAKER SECURITY CLASS: UNCLASSIFIED</p> <p><u>SECTION E - Inspection and Acceptance</u> INSPECTION: ORIGIN      ACCEPTANCE: ORIGIN</p> <p><u>SECTION F - Deliveries or Performance</u> DLVR SCH      PERF COMPL <u>REL CD</u>      <u>DT</u>      <u>QUANTITY</u> 001      99DEC31 (E)      0 \$      204108.00 (E)</p> <p>(E) = Estimated</p> <p>AMD 01</p> <p>AMT INCR: \$204,108.00</p> <p>PROJECT 5938327-04 FUNDS ISSUED FOR CLEANING AND REMOVAL OF ABOVEGROUND STORAGE TANKS.</p> <p>REFERENCE RAVENNA ARSENAL, INC LETTER OF 19 APR 93.</p> <p>(End of narrative F001)</p>			\$	\$ 204,108.00 ESTIMATED
0043AP	<p>SERVICES LINE ITEM</p> <p>PRON: M13PE680M1      ACRN: DJ AMS CD: 4210058327005</p> <p><u>SECTION B - Supplies or Services and Prices/Costs</u> NOUN: LIF: RVAAP TRANS TO CARETAKER SECURITY CLASS: UNCLASSIFIED</p> <p><u>SECTION E - Inspection and Acceptance</u> INSPECTION: ORIGIN      ACCEPTANCE: ORIGIN</p> <p><u>SECTION F - Deliveries or Performance</u> DLVR SCH      PERF COMPL <u>REL CD</u>      <u>DT</u>      <u>QUANTITY</u> 001      99DEC31 (E)      0 \$      347688.00 (E)</p> <p>(E) = Estimated</p> <p>AMD 01</p>			\$	\$ 347,688.00 ESTIMATED



CONTINUATION SHEET

Reference No. of Document Being Continued

Page

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MOD. No. : P00186

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Name of Offeror or Contractor RAVENNA ARSE INC

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT											
0043AQ	<p>AMT INCR: \$347,688.00</p> <p>PROJECT 5938327-05 FUNDS ISSUED FOR DOWNSIZING OF ELECTRICAL DISTRIBUTION SYSTEM AND TESTING, DECONTAMINATION, REMOVAL AND DISPOSAL OF VARIOUS TRANSFORMERS OIL CIRCUIT BREAKERS.</p> <p>REFERENCE RAVENNA ARSENAL, INC LETTER OF 15 APR 93.</p> <p>(End of narrative F001)</p> <p>SERVICES LINE ITEM</p> <p>PRON: M13PF680M1                      ACRN: DJ AMS CD: 4210058327006</p> <p><u>SECTION B - Supplies or Services and Prices/Costs</u> NOUN: LIF: RVAAP TRANS TO CARETAKER SECURITY CLASS: UNCLASSIFIED</p> <p><u>SECTION E - Inspection and Acceptance</u> INSPECTION: ORIGIN                      ACCEPTANCE: ORIGIN</p> <p><u>SECTION F - Deliveries or Performance</u></p> <table border="0"> <tr> <td>DLVR SCH</td> <td>PERF COMPL</td> <td></td> </tr> <tr> <td><u>REL CD</u></td> <td><u>DT</u></td> <td><u>QUANTITY</u></td> </tr> <tr> <td>001</td> <td>99DEC31 (E)</td> <td>0</td> </tr> <tr> <td></td> <td></td> <td>\$ 6504.00 (E)</td> </tr> </table> <p>(E) = Estimated</p> <p>AMD 01</p> <p>AMT INCR: \$6,504.00</p> <p>PROJECT 5938327-06 FUNDS ISSUED FOR RAILROAD TRACK CLOSURE.</p> <p>REFERENCE RAVENNA ARSENAL, INC LETTER OF 15 APR 93.</p> <p>(End of narrative F001)</p>	DLVR SCH	PERF COMPL		<u>REL CD</u>	<u>DT</u>	<u>QUANTITY</u>	001	99DEC31 (E)	0			\$ 6504.00 (E)			<p>\$ _____ \$ 6,504.00</p> <p>ESTIMATED</p>
DLVR SCH	PERF COMPL															
<u>REL CD</u>	<u>DT</u>	<u>QUANTITY</u>														
001	99DEC31 (E)	0														
		\$ 6504.00 (E)														

CONTINUATION SHEET

Name of Offeror or Contractor RAVENNA ARSE INC

SECTION G - CONTRACT ADMINISTRATION DATA  
Accounting & Appropriation Data

LINE ITEM	PRON/ AMS CD	ACRN	OBLG STAT/ JOB ORD NO	PRIOR AMOUNT	INCREASE/DECREASE AMOUNT	CUMULATIVE AMOUNT
0002AR	M13AU600M1	DJ	1	\$ 253,137.00	\$ 281,612.00	\$ 534,749.00
4210054073						
0008AK	M13DU600M1	DJ	1	\$ 226,686.00	\$ 267,130.00	\$ 493,816.00
4210054073						
0011AG	M138S280M1	DG	1	\$ 0.00	\$ 60,000.00	\$ 60,000.00
72801226000			3WAFR4			
0043AJ	M13PA624M1	DJ	1	\$ 0.00	\$ 15,668.00	\$ 15,668.00
4210058000001						
0043AK	M13PA680M1	DJ	1	\$ 0.00	\$ 541,570.00	\$ 541,570.00
4210058327001						
0043AL	M13PB680M1	DJ	1	\$ 0.00	\$ 578,467.00	\$ 578,467.00
4210058327002						
0043AM	M13PC680M1	DJ	1	\$ 0.00	\$ 265,295.00	\$ 265,295.00
4210058327003						
0043AN	M13PD680M1	DJ	1	\$ 0.00	\$ 204,108.00	\$ 204,108.00
4210058327004						
0043AP	M13PE680M1	DJ	1	\$ 0.00	\$ 347,688.00	\$ 347,688.00
4210058327005						
0043AQ	M13PF680M1	DJ	1	\$ 0.00	\$ 6,504.00	\$ 6,504.00
4210058327006						

NET CHANGE \$ 2,568,042.00

NET CHANGE BY

ACRN	ACCOUNTING CLASSIFICATION	ACCOUNTING STATION	INCREASE/DECREASE AMOUNT
DG	21 3202000003658251P7280122572 S11173	W52H09	\$ 60,000.00
DJ	21 32034 3658251P4210 2572 S11173	W52H09	\$ 2,508,042.00
NET CHANGE			\$ 2,568,042.00

NET CHANGE FOR AWARD:

PRIOR AMOUNT OF AWARD	INCREASE/DECREASE AMOUNT	CUMULATIVE OBLIGATED AMOUNT
\$ 59,075,202.35	\$ 2,568,042.00	\$ 61,643,244.35

**CONTINUATION SHEET**

Reference No. of Document Being Continued

Page

DAAA09-88-Z-0001

MOD. No. P00186

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Name of Offeror or Contractor

RAVENNA ARSENAL INC

PRIOR ESTIMATED COST OF CONTRACT:	\$57,020,339.35
PRIOR ESTIMATED FEES OF CONTRACT:	\$ 2,054,863.00
PRIOR ESTIMATED AMOUNT OF CONTRACT:	\$59,075,202.35

ESTIMATED COSTS OF THIS MODIFICATION:	\$ 2,568,042.00
ESTIMATED FEES OF THIS MODIFICATION:	\$ 00.00
ESTIMATED AMOUNT OF THIS MODIFICATION:	\$ 2,568,042.00

CURRENT ESTIMATED COST OF CONTRACT:	\$59,588,381.35
CURRENT ESTIMATED FEES OF CONTRACT:	\$ 2,054,863.00
CURRENT ESTIMATED AMOUNT OF CONTRACT:	\$61,643,244.35

(End of narrative G156)

LAYAWAY SCOPE OF WORK  
PROJECT 5938327-2  
CLOSURE OF SEWAGE TREATMENT FACILITIES AND SEPTIC SYSTEMS  
RAVENNA ARMY AMMUNITION PLANT (AAP)

1. SCOPE:

1.1. The purpose of this scope of work (SOW) is to provide specifications for the transition of Ravenna Army Ammunition Plant to a "modified caretaker" status. This project effort consists of proposed actions to minimize annual maintenance costs since the mobilization mission to load, assemble and pack munitions has been removed.

1.2. The project effort consists of building and utility closure/deactivation.

1.3. The contractor shall provide all necessary material, supplies, utilities, supervision and other services necessary to perform tasks required in this SOW. Security will be maintained according to the approved plant security plan.

1.4. The cost proposal shall break out costs relative to each discrete effort identified in paragraphs 8.1.1, 8.1.2, 8.1.3, 8.2, 8.3, and 8.4. In-house efforts shall identify labor hours and materials required for each discrete effort. If various labor disciplines are required for the effort, they shall be identified by labor category, or craft identification. Effort that is subcontracted using an Invitation For Bid (IFB) need not have direct-hours broken out but shall be supported by three actual subcontractor quotes, the smallest of which shall be funded level of this project effort.

2.0. APPLICABLE DOCUMENTS: Work shall be performed IAW the following document(s):

AMCCOMR 235-5	Layaway/Relocation Project Status Report (RCS SMCPB-1005)
TM 38-260	Preparation of Industrial Plant Equipment for Storage or Shipment

Tailoring, to identify specific requirements, is shown at encl 1. In case of any conflict between reference documents and provisions contained in this SOW, the SOW will take precedence.

3. REQUIREMENTS:

3.1. Tasks are to be accomplished in accordance with (IAW) provisions contained in paragraphs 5 through 12 of this SOW.

3.2. PERFORMANCE PERIOD: Contractor effort will begin within 15 days after receipt of contract actions obligating funds pertaining to this SOW. Except for the closure of George Road Sewage Treatment Facility, all tasks will be completed within 5 months after receipt of this contract modification or 31 Aug 93, whichever comes first. The closure of George Road Sewage Treatment Facility will be completed by 15 Sep 1993. Financial closeout will take place as soon as possible after final physical acceptance.

4. PROGRESS REPORTS: The contractor shall prepare status reports IAW AMCCOMR 235-5 and Data Item Description (DID) DI-L-1415B as set forth in the Contract Data Requirements List (CDRL) DD Form 1423 (encl 2).

5. SAFETY AND ENVIRONMENTAL - GENERAL REQUIREMENTS:

5.1. The contractor is responsible for meeting all federal, state and local safety and environmental regulations, including, but not limited to Occupational Safety and Health Act (OSHA), Environmental Protection Agency (EPA), State, local, and Armament, Munitions, and Chemical Command (AMCCOM) regulations.

5.2. All hazardous wastes, acid, and contaminated material generated by the execution of this project will be disposed of IAW all applicable federal, state, and local laws and regulations. All transport and decontamination will be performed IAW all applicable federal, state, interstate, and local laws and regulations.

5.3. In case of any conflict between provisions contained in this SOW and federal, state, or local laws/regulations, the most stringent of the laws or regulations will take precedence. The layaway office, AMSMC-PBS-L(R), shall be contacted in case of any conflict.

5.4. During the execution of this project, a need for additional safety and environmental work which was not anticipated may become apparent. Such safety and environmental work within or adjacent to the facilities in this project may be accomplished as part of this SOW. The AMCCOM Contracting Officer must be contacted for approval, specific instructions and additional funds, if required, prior to initiation of work.

6. DECONTAMINATION (as applicable):

6.1. EXPLOSIVE AND CHEMICAL DECONTAMINATION

6.1.1. Explosive and chemical decontamination Standard Operating Procedures (SOPs) and Bid Solicitations (for subcontracting) will be reviewed for applicability for the facilities in this project and additional SOPs or bid solicitation specifications written where required. The SOPs required to decontaminate the facilities in this project will be reviewed and approved by the Contracting Officer's Representative (COR) Staff prior to beginning any work. Prior to the solicitation of any bid specifications (for subcontracting), these bid specifications shall be reviewed by the COR staff. All explosive, acid, and chemical decontamination work required for this project shall be performed IAW these approved SOPs and specifications. The contractor will be responsible for any work not conforming to meet any applicable federal, state, or local laws, statutes or regulations.

6.1.2. The contractor is responsible for obtaining all necessary environmental permits and approvals prior to performing any decontamination work.

6.1.3. Explosive decontamination to Level XXX must be accomplished immediately upon funding and prior to cleaning or beginning any other work in the area.

## 6.2. POLYCHLORINATED BIPHENYL TESTING AND DECONTAMINATION:

6.2.1. Qualified personnel will verify on DD 1342 or other applicable property records that none of the equipment included in this project is contaminated with Polychlorinated Biphenyls (PCBs). When there is reasonable doubt as to whether PCB contaminants are present or not, the operating fluids will be tested by a subcontractor certified by the state of Ohio. In the event that contamination is determined present through the testing procedures, disposal shall be in accordance with all applicable Federal, state and local environmental regulations. If PCB contaminants are found, the Contracting Officer (CO) at Headquarters, U.S. Army Armament, Munitions and Chemical Command (HQ, AMCCOM) will be contacted for further instructions, and if necessary, the contractor will submit a request for additional funds.

6.2.2. Certification Tags stating PCB contaminates are present, and the parts per million (ppm) concentration, must be affixed to each equipment item found to have PCB contamination. Tags will be dated and signed by a responsible contractor and Government personnel, in the remarks column of the DD 1342 property record with the results of the tests.

6.2.3. PCB decontamination should not be included in the cost proposal unless contamination is definitely known at the time of preparation of the cost proposal.

6.3. ASBESTOS DECONTAMINATION: Friable asbestos is not believed to be present in the facilities included in this SOW. If any friable asbestos is found, decontamination will be performed as a part of this SOW. The AMCCOM CO should be contacted for specific instructions and additional funding if required, prior to performing the decontamination.

7. DISCONNECTION AND DISASSEMBLY: These paragraphs apply only to salvageable equipment to be reutilized.

7.1. Disconnection: Included in this project is the requirement for the contractor to perform utility and process line disconnection. Electrical disconnection will be at the junction box, panel, or buss duct. The disconnected electrical leads, wires or conduit will individually identify (tagged or matchmarked) the positive, (with service or voltage required and amps drawn) negative, neutral, etc., posts. In all cases, the cutting of lines in between equipment and junction boxes will not be allowed. The electrical work performed by this project shall conform to applicable National Electrical Code (NEC) standards, specifications, and procedures. Mechanical disconnection will be at appropriate junctions or distribution points (i.e., flanges) as to minimize protruding process system appendages with no purpose other than to serve as a possible safety hazard. In all cases, process line disconnection will be matchmarked at both disconnected points, and flanged at open ends. All mechanical and electrical disconnection, and equipment disassembly shall be performed after decontamination procedures have been accomplished.

7.2. Disassembly: The disassembly of individual equipment items shall be minimized to the extent necessary to provide for adequate and safe transportation to the reutilization or storage location. If disassembly of an equipment item is required, decontamination shall be performed prior to this action, and all points of disassembly matchmarked for ease of reassembly.

8. DETAILED SPECIFICATIONS:

8.1. Closure of the Sand Creek sewage treatment system:

8.1.1. Load Line 1 Lift Station: All salvageable equipment from the lower level (such as electric motors, and pumps) shall be removed, disconnected and excessed. The other salvageable equipment located in the lower level will be excessed. The contractor shall secure the influent and effluent lines by plugging them with concrete.

8.1.2. Load Line 12 Lift Station: All salvageable equipment from the lower level (such as electric motors, and pumps) shall be removed, disconnected and excessed. The other salvageable equipment located in the lower level will be ~~excessed~~. Influent and effluent valves will be plugged with concrete. Infiltration will be diverted by constructing an overflow through reconnecting the inactive drain line.

8.1.3. Sand Creek Sewage Treatment Plant: The headworks will be cleaned and flushed. Injector pumps, the chlorine monitor, and chlorine cylinders will be removed and excessed. Salvageable equipment (such as electric motors) will be removed, and excessed. The Imhoff tanks will be drained and pumped. The resultant sludge will be transferred to a truck and transported to an approved disposal or treatment facility for disposal. The dosing tank, trickling filters, final clarifier, and chlorine contact tanks will be flushed and cleaned. In-ground tanks and trickle filters will be secured by filling these with compacted sand and dirt.

8.2. Closure of the Depot Sewage Treatment System: The headworks receiving tanks will be cleaned and flushed. Chemical injector pumps, chlorine monitor, chlorine cylinders and salvageable equipment will be disconnected and excessed. The Imhoff tanks will be drained and pumped of water and sludge, with the sludge transferred to truck and transported to an approved disposal or treatment facility. The dosing tank, trickling filters, final clarifier and chlorine contact tanks will be flushed and cleaned. The in-ground tanks and filters will be secured by filling them with compacted dirt and sand. The influent valve to the headworks will be closed with cement. The final clarifier building and the drain from the final clarifier to Hinkley Creek will both be collapsed.

8.3. Closure of George Road Sewage Treatment Plant:

8.3.1. After the isolation of the building sewers connecting to George Road Sewage Treatment Plant, existing influent lines and manholes will be flushed via infiltration for 30 days.

8.3.2. Upon completion of flushing, George Road Sewage Treatment collection system, existing influent lines and manholes will be shut down by diverting flow at three (3) flushed manholes to local ditch lines. The chlorine and chemical equipment, sludge pump and control panel, doppler flow meters and recorders, blower and ventilation equipment and lab equipment shall be excessed. The lab files shall be moved to the cold document storage area.



8.3.3. Sludge shall be flushed from the sludge lines. After flushing is complete, the sludge from the Imhoff tanks (East and West) dosing tanks, final clarifier, and sludge pumping building will be removed, transferred to truck and transported to an offsite approved disposal or treatment facility.

8.3.4. The Imhoff tanks (East and West), dosing tank, final clarifier, chlorine contact tank, trickling filters (East and West) shall be filled with sand or earth fill. The communitor building (sinks and minor plumbing fixtures) will be winterized by draining and compressed air drying. The contractor shall weld the hatches closed on the underground pipe gallery ensuring the prevention of intrusion.

8.4. Closure of Thirteen Inactive Septic Tanks: The thirteen septic systems identified at enclosure 3 shall be inactivated. The closure of the tanks and associated fields shall consist of locating the tanks to these systems and filling them with dirt or sand fill. After closure has been accomplished, the area will be flagged aboveground for ease of identification. After all other work has been accomplished, the area shall be graded, seeded, fertilized and mulched to minimize erosion.

8.5. As part of this project, the contractor shall provide temporary sanitary facilities during the period after the sewage systems are closed for the remaining contract period. Finally, the contractor shall obtain a permit(s) and install septic systems at Buildings 1037 and Post #1.

## 9. CLEANING and PRESERVATION; GENERAL SPECIFICATIONS:

9.1. CLEANING: All surfaces which are to receive any cleaning shall be thoroughly cleaned as applicable IAW the various methods described in paragraph 2-2 of Army Technical Manual TM 38-260.

9.2. DRYING: Immediately following any cleaning process which may leave moisture on the item, drying must be accomplished using the most effective method described in paragraph 2-3 of Army Technical Manual TM 38-260.

9.3. EQUIPMENT AND FACILITY PAINTING is not required.

9.4. Minimum disassembly will be adopted for this SOW. Minimum disassembly is limited to that amount of disassembly required to adequately remove and prepare machines for limited transportation and storage.

## 10. MISCELLANEOUS:

10.1. Electrical services for those facilities being transferred from an active state to modified caretaker will not be maintained. The power source will be locked out from the equipment being inactivated as part of this project. Fuzes will be removed, bagged and attached to the switchbox.

10.2. Accessories and fixtures to the basic piece of equipment which is to be disassembled prior to property transfer shall be properly identified with the parent machine. Items of this type which are of an appropriate size and shape to permit shelf storage, will be stored on substantial shelves in lieu of being boxed or skidded, providing shelf storage area is protected from access and is adequate to provide dry, clean storage.

## 11. DOCUMENTATION REQUIREMENT:

11.1. Included in this scope of work is the requirement to retain, at a minimum, all of the applicable, existing (updated) documents essential to the timely disposition of the facilities covered by this SOW. The documents include, but are not limited to, Plant, Building and Utility Drawings; Equipment Drawings; Line Layouts; Equipment and Facility Maintenance Records; and Standing Operating Procedures (SOPs). The documents are considered essential to the modified caretaker mission of Ravenna AAP and must be on hand at the plant. Care must be taken to provide adequate protection for these documents, not only from the elements, but also from possible destruction by fire or flood.

11.2. During execution of this SOW, Ravenna AAP's Maintenance Plan, Appendix B, must be updated to include changes in the status of the facilities.

11.3. During execution of the SOW, Ravenna AAP's as built drawings are to be revised/deleted due to tasks accomplished in this SOW.

11.4. Each piece of equipment identified as proposed for reutilization or excessing as part of this project will have a equipment tag attached which will be visible and accessible until final disposition or reutilization has been performed.

## 12. INSPECTION/FINAL ACCEPTANCE:

12.1. Contractor performance on this SOW will be monitored by the Ravenna AAP COR Staff. Unless otherwise specified, the

contractor is responsible for the performance of all inspection and test requirements needed in order to accomplish the tasks outlined in this SOW.

12.2. Inspections and Tests: Each piece of equipment/facility or tasks will be examined to assure compliance with the requirements set forth in this SOW and to assure that the defects noted in the initial visual, operational, and analytical inspections and test have been corrected as specified. These quality conformance examinations will be completed on each item prior to being offered for acceptance; failure to pass any examination or test will be cause for rejection.

12.3. Upon project completion, the COR Staff will inspect facilities and, if acceptable, notify HQ, AMCCOM in writing that facilities are ready for final acceptance inspection.

12.4. Final acceptance inspection will be performed by a representative of HQ, AMCCOM unless this is delegated, in writing, to the COR Staff.

12.5. The final acceptance of this project will take place upon receipt by the contractor of written approval from HQ, AMCCOM/Contracting Officer.

3 Encls  
as stated

DOCUMENT SUMMARY LIST  
PROJECT 5938337-2  
RAVENNA AAP

## DOCUMENT CATEGORY:

Category 1 - The requirements contained in the directly cited document are contractually applicable to the extent specified. Unless otherwise specified in the solicitation, contract or contract modification, all requirements contained in reference and subsequently referenced documents are contractually for guidance and information only.

Category 2 - The requirements contained in the directly cited document and the reference documents identified in the directly cited document are contractually applicable to the extent specified. Unless otherwise specified in the solicitation, contract or contract modifications, all requirements contained in subsequently referenced documents within reference documents are contractually for guidance and information only.

Category 3 - Unless otherwise specified in the solicitation, contract or contract modifications, all requirements contained in the directly cited document and all reference and subsequently referenced documents are contractually applicable to the extent specified.

<u>Document Number</u> (Contract Reference) <u>Applicable Tailoring</u>	<u>Document Title</u>	<u>Document Date/</u> <u>Document Category</u>
1a. AMCCOMR 235-5 (SOW Para 4)	Layaway/Relocation Project Status Report (RCS SMCPB-1005)	07 Apr 86 Cat 3
1b. DI-L-1415B (DD Form 1423) (SOW Para 4)	GOCO Plant RCS Report	10 Dec 79 Cat 3
2. TM 38-260 (SOW Para 9.1.,9.2.) The applicable requirements are contained in the above paragraphs.	Preparation of Industrial Plant Equipment for Storage or Shipment	30 Jun 75 Cat 1



RAVENNA ARSENAL, INC.

8451 STATE ROUTE 5, RAVENNA, OHIO 44266-9297  
TELEPHONE: (216) 358-7111 • FAX: (216) 297-3216

May 3, 1993

THRU: Contracting Officer's Representative  
Ravenna Army Ammunition Plant  
8451 State Route 5  
Ravenna, Ohio 44266-9297

TO: Commander  
U.S. Army Armament, Munitions and Chemical Command  
ATTN: AMSMC-PAI-GB/S. Wise  
Rock Island, Illinois 61299-6000

Subject: Cost Estimate for Layaway Project 5938327-2  
Closure of Sewage Treatment Facilities and Septic  
Systems

- REF: 1) AMSMC-RAI-GA; E-Mail Message Dated 1 March 1993,  
Subject: FY93 Layaway Project SOWs; and  
2) RAI Letter Dated 19 April 1993, Subject: Cost Estimate  
for Layaway Project 5938327-2

Dear Sir:

The estimated cost of work to be performed in accordance with paragraph 8.5 of project 5938327-2 is \$224,303.00. The estimate for temporary service is based on the lowest qualified bids received from competitive bidding. Copies of the lowest qualified bids are attached to the estimate details. (NOTE: Only one bid was received for temporary facilities) The estimated cost for the installation of a septic system to service Post 1 and Building 1037 is based on an engineering estimate provided by BAT Associates, our design consultants for the septic system.

The cost by paragraph number of the detailed specifications are as follows:

<u>Paragraph Number</u>	<u>First Request</u>	<u>This Request</u>	<u>Total Request</u>
8.1.1	\$ 1,031.00	\$ 0.00	\$ 1,031.00
8.1.2	\$ 673.00	\$ 0.00	\$ 673.00
8.1.3	\$160,466.00	\$ 0.00	\$160,466.00
8.2	\$ 42,631.00	\$ 0.00	\$ 42,631.00
8.3.1	\$ 5,727.00	\$ 0.00	\$ 5,727.00
8.3.2	\$ 9,796.00	\$ 0.00	\$ 9,796.00
8.3.3	\$134,109.00	\$ 0.00	\$134,109.00
8.3.4	\$ 2,877.00	\$ 0.00	\$ 2,877.00
8.4	\$ 17,574.00	\$ 0.00	\$ 17,574.00
8.5	\$ 607.00	\$224,303.00	\$224,910.00
	\$375,491.00	\$224,303.00	\$599,794.00

ROBERT BOSSOW, INC.

8038 GOTHAM RD.  
GARRETTSVILLE, OHIO 44231

PHONE: (216) 527-4335

April 12, 1993

B.J. JENKINS

APR 14 1993

Ravenna Arsenal, Inc.  
8451 State Route 5  
Ravenna, OH 44266-9297

RE: Inquiry No. BJJ-919  
Bid for Closure of Utility Systems

Attention: Mr. B. J. Jenkins

- 1) This is our proposal to do the work as outlined in the above referenced inquiry, Closure of Utility Systems.
- 2) This proposal is in accordance with your specifications furnished to us for bidding purposes.
- 3) The prices quoted are firm for the duration of the project.
- 4) Project duration will be as noted in the specifications. Progress payments expected every 30 days per approved estimates.
- 5) Manpower to be used is One (1) Foreman, One (1) Operator, and Two (2) Laborers.
- 6) A performance bond is not included. The cost for this is 1% of Contract Price.
- 7) Our proposal is based on the disposal of Non-Hazardous Sewage and Sludge. In the event that, after testing has been completed by Tri-State Laboratories, the sewage/sludge has been found to be unacceptable to our receiving disposal facility (Warren Wastewater Treatment Plant), Ravenna Arsenal, Inc. will pay all costs incurred to date and renegotiate price to dispose of Hazardous Material.

8) The total price for this proposal is \$ 166,752.00.

If you need more information, please call me, and I will come to your office at your convenience.

Submitted by

ROBERT BOSSOW, INC.



Robert Bossow, Inc.

RB:le

Enclosures: Copy of Request for Quotation,  
Inquiry No. BJJ-919  
Buy American Act Certification  
Assurance of Nonsegregated Facilities  
Bidders Mailing List Application Form SF\_129  
Enclosure #1 - Close Utility Systems

LAYAWAY P-17 ESTIMATE DETAIL

Project No: 5938337-2 Page 1 of 10  
 Project Name: Closure of Sewage Treatment Facilities and Septic Systems  
 Detailed Specifications Paragraph No: 8.1.1  
 Narrative Description of each discrete effort in the detailed Specifications: Load Line 1 Lift Station: Remove, disconnect and excess all salvageable equipment from the lower level. Secure the influent and effluent lines by plugging with concrete.

MATERIALS/SERVICE:

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>
Cement	2 Bags	80# Bag	\$5.50/Bag	

SUBCONTRACTS:

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>
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HOURLY LABOR:

<u>W-Class</u>	<u>Classification Description</u>	<u>Estimated Hours</u>
W-34	Electrician	2
W-191	Utilities Mechanic	8
W-158	Machine Inspector	1

SALARY LABOR:

<u>Dept.</u>	<u>Department Description</u>	<u>Estimated Hours</u>
26	Utilities Supervisor	2

REMARKS:

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LAYAWAY P-17 ESTIMATE DETAIL

Project No: 5938337-2 Page 2 of 10  
 Project Name: Closure of Sewage Treatment Facilities and Septic Systems  
 Detailed Specifications Paragraph No: 8.1.2  
 Narrative Description of each discrete effort in the detailed Specifications: Load Line 12 Lift Station: Remove, disconnect and excess all salvageable equipment from lower level. Secure influent and effluent lines by plugging with concrete.

MATERIALS/SERVICE:

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>
Cement	2 Bags	80# Bag	\$5.50/bag	

SUBCONTRACTS:

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>
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HOURLY LABOR:

<u>W-Class</u>	<u>Classification Description</u>	<u>Estimated Hours</u>
W-34	Electrician	2
W-191	Utilities Mechanic	3
W-158	Machine Inspector	1

SALARY LABOR:

<u>Dept.</u>	<u>Department Description</u>	<u>Estimated Hours</u>
26	Utilities Supervisor	1

REMARKS:

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LAYAWAY P-17 ESTIMATE DETAIL

Project No: 5938337-2 Page 3 of 10

Project Name: Closure of Sewage Treatment Facilities and Septic Systems

Detailed Specifications Paragraph No: 8.1.3

Narrative Description of each discrete effort in the detailed Specifications: Sand Creek Sewage Treatment Plant: Clean and flush headworks. Remove and excess injector pumps, chlorine monitor, chlorine cylinders. Remove and excess salvageable equipment. Drain and clean imhoffs, dosing tank, trickling filters, final clarifier and chlorine contact tank. Remove sludge and transport off-site for disposal to an approved facility. Secure in-ground tanks by filling with compacted sand and dirt.

**MATERIALS/SERVICE:**

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>
Cement	12 bags	80# bag	\$5.50/bag	

**SUBCONTRACTS:**

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>
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**HOURLY LABOR:**

<u>W-Class</u>	<u>Classification Description</u>	<u>Estimated Hours</u>
W-34	Electrician	6
W-75	Heavy Equipment Operator	6
W-86	STP Operator	8
W-191	Utilities Mechanic	38
W-158	Machine Inspector	2

**SALARY LABOR:**

<u>Dept.</u>	<u>Department Description</u>	<u>Estimated Hours</u>
26	Utilities Supervisor	6
2540	Engineering	4

**REMARKS:**

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Project No: 5938337-2 Page      of     

Project Name: CLOSURE OF SEWAGE TREATMENT FACILITIES

Detailed Specifications Paragraph No: 8.3.3, 8.3.4

Narrative Description of each discrete effort in the detailed

Specifications: Closure of George Road Sewage Treatment Plant:

Sludge shall be flushed from the sludge lines.

After flushing is complete, the sludge from the Imhoff tanks

(East and West) dosing tanks, final clarifier, and sludge pumping

building will be removed, transferred to truck and transported to an

offsite approved disposal or treatment facility.

The Imhoff tanks (East and West), dosing tank,

final clarifier, chlorine contact tank, trickling filters (East

and West) shall be filled with sand or earth fill.

MATERIALS/SERVICE:

Description	Units	U/M	Cost Per U/M	Reference

SUBCONTRACTS:

Description	Units	U/M	Cost Per U/M	Reference
PS-843 WORK SEGMENT #8		LUMP SUM	\$54,527.00	ROBERT BOSSON INC.

HOURLY LABOR:

W-Class	Classification Description	Estimated Hours

SALARY LABOR:

Dept.	Department Description	Estimated Hours
3540	ENGINEERING	48

REMARKS:

Project No: 5939337-4 Page      of     

Project Name: CLOSURE OF SEWAGE TREATMENT FACILITIES

Detailed Specifications Paragraph No: 3.2

Narrative Description of each discrete effort in the detailed Specifications:

Closure of the Depot Sewage Treatment System: ~~The headworks receiving tanks will be cleaned and flushed. Chemical ejector pumps, chlorine monitor, chlorine cylinders and salvageable equipment will be disconnected and excessed. The~~ The  
~~hoff tanks will be drained and pumped of water and sludge, with the sludge transferred to truck and transported to an approved disposal or treatment facility. The dosing tank, trickling filters, final clarifier and chlorine contact tanks will be flushed and cleaned. The in-ground tanks and filters will be secured by filling them with compacted dirt and sand. The influent valve to the headworks will be closed with cement. The final clarifier building and the drain from the final clarifier to Hinkley Creek will both be collapsed.~~

MATERIAL

Description	Units	U/M	Cost Per U/M	Reference

SUBCONTRACTS:

Description	Units	U/M	Cost Per U/M	Reference
PS-843 WORK SEGMENT #3		LUMP SUM	15,032. <sup>00</sup>	ROBERT BOSSON INC.

HOURLY LABOR:

W-Class	Classification Description	Estimated Hours

SALARY LABOR:

Dept.	Department Description	Estimated Hours
3540	ENGINEERING	28

REMARKS:

Project No: 5938337-2 Page      of     

Project Name: CLOSURE OF SEWAGE TREATMENT FACILITIES

Detailed Specifications Paragraph No: 2.1.3

Narrative Description of each discrete effort in the detailed Specifications:

Sand Creek Sewage Treatment Plant: ~~The~~  
~~networks will be cleaned and flushed. Injector pumps, the~~  
~~chlorine monitor, and chlorine cylinders will be removed and~~  
~~secured. Salvageable equipment (such as electric motors) will~~  
~~be removed and excessed. The Imhoff tanks will be drained and~~  
~~pumped. The resultant sludge will be transferred to a truck and~~  
~~transported to an approved disposal or treatment facility for~~  
~~disposal. The dosing tank, trickling filters, final clarifier,~~  
~~and chlorine contact tanks will be flushed and cleaned. In-~~  
~~ground tanks and trickle filters will be secured by filling these~~  
~~with compacted sand and dirt.~~

MATERIALS/SERVICE:

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>

SUBCONTRACTS:

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>
<u>PS-843 WORK SEGMENT #2</u>		<u>LUMP SUM</u>	<u>65,496.<sup>00</sup></u>	<u>ROBERT BOSSAW INC.</u>

HOURLY LABOR:

<u>W-Class</u>	<u>Classification Description</u>	<u>Estimated Hours</u>

SALARY LABOR:

<u>Dept.</u>	<u>Department Description</u>	<u>Estimated Hours</u>
<u>3540</u>	<u>ENGINEERING</u>	<u>48</u>

REMARKS:

Project No: 5938337-2 Page      of     

Project Name: CLOSURE OF SEWAGE TREATMENT FACILITIES

Detailed Specifications Paragraph No: 8.4

Narrative Description of each discrete effort in the detailed Specifications:

Closure of Thirteen Inactive Septic Tanks: The thirteen septic systems identified at enclosure 3 shall be inactivated. The closure of the tanks and associated fields shall consist of locating the tanks to these systems and filling them with dirt or sand fill. After closure has been accomplished, the area will be flagged aboveground for ease of identification. After all other work has been accomplished, the area shall be graded, seeded, fertilized and mulched to minimize erosion.

MATERIALS/SERVICE:

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>

SUBCONTRACTS:

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>
<u>PS-843 #1</u>		<u>LUMP SUM</u>	<u>6,270.00</u>	<u>ROBERT BOSROW INC.</u>

HOURLY LABOR:

<u>W-Class</u>	<u>Classification Description</u>	<u>Estimated Hours</u>

SALARY LABOR:

<u>Dept.</u>	<u>Department Description</u>	<u>Estimated Hours</u>
<u>3540</u>	<u>ENGINEERING</u>	<u>32</u>

REMARKS:

LAYAWAY P-17 ESTIMATE DETAIL

Project No: 5938337-2 Page 4 of 10

Project Name: Closure of Sewage Treatment Facilities and Septic Systems

Detailed Specifications Paragraph No: 8.2

Narrative Description of each discrete effort in the detailed Specifications: Closure of Depot Sewage Treatment System: Flush collection system for 30 days. Clean and flush headworks. Remove and excess injector pumps, chlorine monitoring equipment. Remove and excess salvageable equipment. Restructure Manhole #20 to divert incoming flow. Drain and clean imhoffs, dosing tanks, trickling filters and final tank. Remove sludge and transport off-site for disposal to an approved facility. Secure in-ground tanks by filling with compacted sand and dirt. Cement influent valve to the headworks; collapse final building and final drain to Hinckley Creek.

**MATERIALS/SERVICE:**

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>
Ballast	7	Ton	\$10.00/ton	
10" Pipe	1	18' Length	\$240.00	
Cement	4 bags	80# bags	\$5.50/bag	

**SUBCONTRACTS:**

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>

**HOURLY LABOR:**

<u>W-Class</u>	<u>Classification Description</u>	<u>Estimated Hours</u>
W-191	Utilities Mechanic	38
W-34	Electrician	1.5
W-75	Heavy Equipment Operator	4
W-86	STP Operator	6
W-158	Machine Inspector	2

**SALARY LABOR:**

<u>Dept.</u>	<u>Department Description</u>	<u>Estimated Hours</u>
2540	Engineering	4

**REMARKS:**

LAYAWAY P-17 ESTIMATE DETAIL

Project No: 5938337-2 Page 5 of 10

Project Name: Closure of Sewage Treatment Facilities and Septic Systems

Detailed Specifications Paragraph No: 8.3.1

Narrative Description of each discrete effort in the detailed Specifications: Closure of George Road Sewage Treatment Plant: Isolate building sewers connecting to George Rd. Treatment Plant. Flush existing influent lines and system for 30 days.

MATERIALS/SERVICE:

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>
Cement	10 Bags	80# bag	\$5.50/bag	
Bricks	140	Each	\$1.00/brick	

SUBCONTRACTS:

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>
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HOURLY LABOR:

<u>W-Class</u>	<u>Classification Description</u>	<u>Estimated Hours</u>
W-191	Utilities Mechanic	72

SALARY LABOR:

<u>Dept.</u>	<u>Department Description</u>	<u>Estimated Hours</u>
26	Utilities Supervisor	16

REMARKS:



**LAYAWAY P-17 ESTIMATE DETAIL**

Project No: 5938337-2 Page 6 of 10

Project Name: Closure of Sewage Treatment Facilities and Septic Systems

Detailed Specifications Paragraph No: 8.3.2

Narrative Description of each discrete effort in the detailed

**Specifications:** George Road Sewage System: Divert flow at three manholes to local drainage pathways. Remove and excess chlorine and chemical equipment, sludge pump and control panel, doppler flow meters and recorders, blower and ventilation equipment and lab equipment. Move files to cold document storage area.

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**MATERIALS/SERVICE:**

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>
Cement	12 bags	80# bags	\$5.50/bag	
Brick	22	Each	\$1.00/each	
Ballast	18	Ton	\$9.00/ton	
Ductile Pipe	1	Length	\$319.00	

**SUBCONTRACTS:**

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>

**HOURLY LABOR:**

<u>W-Class</u>	<u>Classification Description</u>	<u>Estimated Hours</u>
W-191	Utilities Mechanic	48
W-75	Heavy Equipment Operator	10
W-25	Truck Driver	4
W-86	Sewage Plant Operator	40
W-158	Machine Inspector	2

**SALARY LABOR:**

<u>Dept.</u>	<u>Department Description</u>	<u>Estimated Hours</u>
26	Utilities Supervisor	16
2540	Engineering	2

**REMARKS:**

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**LAYAWAY P-17 ESTIMATE DETAIL**

Project No: 5938337-2 Page 7 of 10

Project Name: Closure of Sewage Treatment Facilities and Septic Systems

Detailed Specifications Paragraph No: 8.3.3

Narrative Description of each discrete effort in the detailed Specifications: George Road Sewage Treatment Plant: Flush sludge from interior plant lines and place in imhoffs. Remove sludge from imhoffs and transport off-site to an approved disposal facility. Drain and clean imhoffs, dosing tank, trickling filters, final clarifier and chlorine contact tank.

**MATERIALS/SERVICE:**

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>

**SUBCONTRACTS:**

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>

**HOURLY LABOR:**

<u>W-Class</u>	<u>Classification Description</u>	<u>Estimated Hours</u>
W-86	STP Operator	8
W-191	Utilities Mechanic	16

**SALARY LABOR:**

<u>Dept.</u>	<u>Department Description</u>	<u>Estimated Hours</u>
26	Utilities Supervisor	1
2540	Engineering	4

**REMARKS:**

**LAYAWAY P-17 ESTIMATE DETAIL**

Project No: 5938337-2 Page 8 of 10

Project Name: Closure of Sewage Treatment Facilities and Septic Systems

Detailed Specifications Paragraph No: 8.3.4

Narrative Description of each discrete effort in the detailed

Specifications: George Road Sewage Treatment Plant: Secure in-ground tanks by filling with compacted sand or dirt. Winterize communitor building. Weld hatches on underground pipe gallery. Remove armatures on trickling filters; scraper and motor on final clarifier.

**MATERIALS/SERVICE:**

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>

**SUBCONTRACTS:**

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>

**HOURLY LABOR:**

<u>W-Class</u>	<u>Classification Description</u>	<u>Estimated Hours</u>
W-191	Utilities Mechanic	24
W-31	Millwright	2
W-38	Plumber	6

**SALARY LABOR:**

<u>Dept.</u>	<u>Department Description</u>	<u>Estimated Hours</u>
26	Utilities Supervisor	4
2540	Engineering	2

**REMARKS:**

**LAYAWAY P-17 ESTIMATE DETAIL**

Project No: 5938337-2 Page 9 of 10

Project Name: Closure of Sewage Treatment Facilities and Septic Systems

Detailed Specifications Paragraph No: 8.4

Narrative Description of each discrete effort in the detailed Specifications: Closure of Thirteen Inactive Septic Tanks: Locate, flag and fill inactive septic tanks. Grade and seed disturbed area.

**MATERIALS/SERVICE:**

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>

**SUBCONTRACTS:**

<u>Description</u>	<u>Units</u>	<u>U/M</u>	<u>Cost Per U/M</u>	<u>Reference</u>

**HOURLY LABOR:**

<u>W-Class</u>	<u>Classification Description</u>	<u>Estimated Hours</u>
W-191	Utilities Mechanic	8

**SALARY LABOR:**

<u>Dept.</u>	<u>Department Description</u>	<u>Estimated Hours</u>
26	Utilities Supervisor	2
290		2

**REMARKS:**

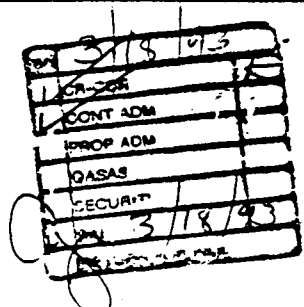


State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road  
Twinsburg, Ohio 44087-1969  
(216) 425-9171  
FAX (216) 487-0769

George V. Voinovich  
Governor  
Donald R. Schregardus  
Director



March 17, 1993

Mr. Harold Cooper  
Ravenna Arsenal, Inc.  
8451 State Route 5  
Ravenna, OH 44266-9297

Dear Mr. Cooper:

Review of your February 24, 1993 sewage treatment plant closure methods has generated several comments which will be addressed below.

Cleaning of the tanks, as proposed, will use water. It may be beneficial to use high-pressure steam cleaning to remove material in the tanks.

Part of the closure plan for the George Road plant includes installation of septic tanks for treatment of sewage. Should you achieve zero discharge, the ultimate goal of the Clean Water Act, we would want zero discharge to continue should the Arsenal again become operational.

As submitted, the proposed closure plans appear adequate and this office does not object to them.

Should you have any further questions, please call me at (216) 963-1134.

Sincerely,

*William J. Zawiski*

William J. Zawiski  
Environmental Scientist  
Industrial Permits Group  
Division of Water Pollution Control

WJZ:lt

cc: Brian Hall, DWPC/NEDO

*C. Wolff*  
*Chanda / [unclear]*

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3/23

Subj. "O" Discharge

- Total Elimination of Facility/Treatment accomplishes "O" Discharge status
- New STP construction under "O" Discharge Status allows new construction of NPDES units but under more stringent criteria i.e. tertiary or quaternary treatment w/ discharge to wetlands or lagoon specifically sized to accomplish displacement @ 10 ft<sup>2</sup>/gal. discharge sec. rd. STP type discharge @ 0.350 MGD will require 80 acres of wetland to allow compliance w/ "O" discharge.
- If treatment facilities are permitted to stand w/o eliminating or dismembering to the point of non functional the unit can be ~~as~~ retained as ~~an~~ surface water discharge w/o imposition of "O" discharge
- Once completion of total elimination action occurs (i.e. - Sec Rd STP) a "CERTIFICATION STATEMENT" must be filed w/ the regulator.

*[Signature]*

Message 19

Date Received: MON, 01 MAR 93 21:40:34 CST  
 Forward-Path: <orvk01@ria-emh1.army.mil>  
 Return-Path: <@ria-emh1.army.mil:swise@spips6.ria-emh2.army.mil>  
 Received: from ria-emh1.army.mil by ria-emh1.army.mil; 01 Mar 93 21:36:07 CDT  
 Received: from spips6.ria-emh2.army.mil by ria-emh1.army.mil; 01 Mar 93 21:36:04 CDT  
 Date: Mon, 1 Mar 93 21:33:04 CST  
 From: "Shirlene Wise, Contract Specialist" <swise@ria-emh2.army.mil>  
 To: orvaap@ria-emh1  
 cc: orvk01@ria-emh1, swise@ria-emh2  
 Subject: FY 93 Project 5938337-2

3/2/93

TO	OFFICE	ACTION
	GM	
	CO-COR	
	ACCTG	
	SEC	
	ENGR	
	IR	
	S & T & C	
	P & CA	
	SAF	
	DFM	
	RETURN	

LAYAWAY SCOPE OF WORK  
 PROJECT 5938337-2

CLOSURE OF SEWAGE TREATMENT FACILITIES AND SEPTIC SYSTEMS  
 RAVENNA ARMY AMMUNITION PLANT (AAP)

1. SCOPE:

1.1. The purpose of this scope of work (SOW) is to provide specifications for the transition of Ravenna Army Ammunition Plant to a "modified caretaker" status. This project effort consists of proposed actions to minimize annual maintenance costs since the mobilization mission to load, assemble and pack munitions has been removed.

1.2. The project effort consists of building and utility closure/deactivation.

1.3. The contractor shall provide all necessary material, supplies, utilities, supervision and other services necessary to perform tasks required in this SOW. Security will be maintained according to the approved plant security plan.

1.4. The cost proposal shall break out costs relative to each discrete effort identified in paragraphs 8.1.1, 8.1.2, 8.1.3, 8.2, 8.3, and 8.4. In-house efforts shall identify labor hours and materials required for each discrete effort. If various labor disciplines are required for the effort, they shall be identified by labor category, or craft identification. Effort that is subcontracted using an Invitation For Bid (IFB) need not have direct-hours broken out but shall be supported by three actual subcontractor quotes, the smallest of which shall be the unrounded level of this project effort.

2.0. APPLICABLE DOCUMENTS: Work shall be performed IAW the following document(s):

- MCCOMR 235-5 Layaway/Relocation Project Status Report (RCS SMCPB-1005)
- M 38-260 Preparation of Industrial Plant Equipment for Storage or Shipment

*McGee*  
*Jandrisch*  
*Travis*  
*Harold*  
*Tom D.*

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Tailoring, to identify specific requirements, is shown at encl 1. In case of any conflict between reference documents and provisions contained in this SOW, the SOW will take precedence.

### 3. REQUIREMENTS:

3.1. Tasks are to be accomplished in accordance with (IAW) provisions contained in paragraphs 5 through 12 of this SOW.

3.2. PERFORMANCE PERIOD: Contractor effort will begin within 15 days after receipt of contract actions obligating funds pertaining to this SOW. Except for the closure of George Road Sewage Treatment Facility, all tasks will be completed within 5 months after receipt of this contract modification or 31 Aug 93, whichever comes first. The closure of George Road Sewage Treatment Facility will be completed by 15 Sep 1993. Financial closeout will take place as soon as possible after final physical acceptance.

4. PROGRESS REPORTS: The contractor shall prepare status reports IAW AMCCOMR 235-5 and Data Item Description (DID) DI-L-1415B as set forth in the Contract Data Requirements List (CDRL) DD Form 1423 (encl 2).

### 5. SAFETY AND ENVIRONMENTAL - GENERAL REQUIREMENTS:

5.1. The contractor is responsible for meeting all federal, state and local safety and environmental regulations, including, but not limited to Occupational Safety and Health Act (OSHA), Environmental Protection Agency (EPA), State, local, and Armament, Munitions, and Chemical Command (AMCCOM) regulations.

5.2. All hazardous wastes, acid, and contaminated material generated by the execution of this project will be disposed of IAW all applicable federal, state, and local laws and regulations. All transport and decontamination will be performed IAW all applicable federal, state, interstate, and local laws and regulations.

5.3. In case of any conflict between provisions contained in this SOW and federal, state, or local laws/regulations, the most stringent of the laws or regulations will take precedence. The layaway office, AMSMC-PBS-L(R), shall be contacted in case of any conflict.

5.4. During the execution of this project, a need for additional safety and environmental work which was not anticipated may become apparent. Such safety and environmental work within or adjacent to the facilities in this project may be accomplished as part of this SOW. The AMCCOM Contracting Officer must be contacted for approval, specific instructions and additional funds, if required, prior to initiation of work.

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6. DECONTAMINATION (as applicable):

6.1. EXPLOSIVE AND CHEMICAL DECONTAMINATION

6.1.1. Explosive and chemical decontamination

Standard Operating Procedures (SOPs) and Bid Solicitations (for subcontracting) will be reviewed for applicability for the facilities in this project and additional SOPs or bid solicitation specifications written where required. The SOPs required to decontaminate the facilities in this project will be reviewed and approved by the Contracting Officer's Representative Staff (COR) Staff prior to beginning any work. Prior to the solicitation of any bid specifications (for subcontracting), these bid specifications shall be reviewed by the COR staff. All explosive, acid, and chemical decontamination work required for this project shall be performed IAW these approved SOPs and specifications. The contractor will be responsible for any work not conforming to meet any applicable federal, state, or local laws, statutes or regulations.

6.1.2. The contractor is responsible for obtaining all necessary environmental permits and approvals prior to performing any decontamination work.

6.1.3. Explosive decontamination to Level XXX must be accomplished immediately upon funding and prior to cleaning or beginning any other work in the area.

6.2. POLYCHLORINATED BIPHENYL TESTING AND DECONTAMINATION:

6.2.1. Qualified personnel will verify on DD 1342 or other applicable property records that none of the equipment included in this project is contaminated with Polychlorinated Biphenyls (PCBs). When there is reasonable doubt as to whether PCB contaminants are present or not, the operating fluids will be tested by a subcontractor certified by the state of Ohio. In the event that contamination is determined present through the testing procedures, disposal shall be in accordance with all applicable Federal, state and local environmental regulations. If PCB contaminants are found, the Contracting Officer (CO) at Headquarters, U.S. Army Armament, Munitions and Chemical Command (HQ, AMCCOM) will be contacted for further instructions, and if necessary, the contractor will submit a request for additional funds.

6.2.2. Certification Tags stating PCB contaminates are present, and the parts per million (ppm) concentration, must be affixed to each equipment item found to have PCB contamination. Tags will be dated and signed by a responsible contractor and government personnel, in the remarks column of the DD 1342 property record with the results of the tests.

6.2.3. PCB decontamination should not be included in the cost proposal unless contamination is definitely known at the

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time of preparation of the cost proposal.

6.3. ASBESTOS DECONTAMINATION: Friable asbestos is not believed to be present in the facilities included in this SOW. If any friable asbestos is found, decontamination will be performed as a part of this SOW. The AMCCOM CO should be contacted for specific instructions and additional funding if required, prior to performing the decontamination.

7. DISCONNECTION AND DISASSEMBLY: These paragraphs apply only to salvageable equipment to be reutilized.

7.1. Disconnection: Included in this project is the requirement for the contractor to perform utility and process line disconnection. Electrical disconnection will be at the junction box, panel, or buss duct. The disconnected electrical leads, wires or conduit will individually identify (tagged or matchmarked) the positive, (with service or voltage required and amps drawn) negative, neutral, etc., posts. In all cases, the cutting of lines in between equipment and junction boxes will not be allowed. The electrical work performed by this project shall conform to applicable National Electrical Code (NEC) standards, specifications, and procedures. Mechanical disconnection will be at appropriate junctions or distribution points (i.e., flanges) as to minimize protruding process system appendages with no purpose other than to serve as a possible safety hazard. In all cases, process line disconnection will be matchmarked at both disconnected points, and flanged at open ends. All mechanical and electrical disconnection, and equipment disassembly shall be performed after decontamination procedures have been accomplished.

7.2. Disassembly: The disassembly of individual equipment items shall be minimized to the extent necessary to provide for adequate and safe transportation to the reutilization or storage location. If disassembly of an equipment item is required, decontamination shall be performed prior to this action, and all points of disassembly matchmarked for ease of reassembly.

. DETAILED SPECIFICATIONS:

8.1. Closure of the Sand Creek sewage treatment system:

8.1.1. Load Line 1 Lift Station: All salvageable equipment from the lower level (such as electric motors, and pumps) shall be removed, disconnected and excessed. The other salvageable equipment located in the lower level will be excessed. The contractor shall secure the influent and effluent lines by lagging them with concrete.

8.1.2. Load Line 12 Lift Station: All salvageable equipment from the lower level (such as electric motors, and pumps) shall be removed, disconnected and excessed. The other salvageable equipment located in the lower level will be

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excessed. Influent and effluent valves will be plugged with concrete. Infiltration will be diverted by constructing an overflow through reconnecting the inactive drain line.

8.1.3. Sand Creek Sewage Treatment Plant: The headworks will be cleaned and flushed. Injector pumps, the chlorine monitor, and chlorine cylinders will be removed and excessed. Salvageable equipment (such as electric motors) will be removed, and excessed. The Imhoff tanks will be drained and pumped. The resultant sludge will be transferred to a truck and transported to an approved disposal or treatment facility for disposal. The dosing tank, trickling filters, final clarifier, and chlorine contact tanks will be flushed and cleaned. In-ground tanks and trickle filters will be secured by filling these with compacted sand and dirt.

8.2. Closure of the Depot Sewage Treatment System: The headworks receiving tanks will be cleaned and flushed. Chemical injector pumps, chlorine monitor, chlorine cylinders and salvageable equipment will be disconnected and excessed. The Imhoff tanks will be drained and pumped of water and sludge, with the sludge transferred to truck and transported to an approved disposal or treatment facility. The dosing tank, trickling filters, final clarifier and chlorine contact tanks will be flushed and cleaned. The in-ground tanks and filters will be secured by filling them with compacted dirt and sand. The influent valve to the headworks will be closed with cement. The final clarifier building and the drain from the final clarifier to Hinkley Creek will both be collapsed.

8.3. Closure of George Road Sewage Treatment Plant:

8.3.1. After the isolation of the building sewers connecting to George Road Sewage Treatment Plant, existing influent lines and manholes will flushed via infiltration for 30 days.

8.3.2. Upon completion of flushing, George Road Sewage Treatment collection system, existing influent lines and manholes will be shut down by diverting flow at three (3) flushed manholes to local ditch lines. The chlorine and chemical equipment, sludge pump and control panel, doppler flow meters and recorders, blower and ventilation equipment and lab equipment shall be excessed. The lab files shall be moved to the cold document storage area.

8.3.3. Sludge shall be flushed from the sludge lines. After flushing is complete, the sludge from the Imhoff tanks (East and West) dosing tanks, final clarifier, and sludge pumping building will removed, transferred to truck and transported to an offsite approved disposal or treatment facility.

8.3.4. The Imhoff tanks (East and West), dosing tank, final clarifier, chlorine contact tank, trickling filters (East

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and West) shall be filled with sand or earth fill. The communitor building (sinks and minor plumbing fixtures) will be winterized by draining and compressed air drying. The contractor shall weld the hatches closed on the underground pipe gallery ensuring the prevention of intrusion.

8.4. Closure of Thirteen Inactive Septic Tanks: The thirteen septic systems identified at enclosure 3 shall be inactivated. The closure of the tanks and associated fields shall consist of locating the tanks to these systems and filling them with dirt or sand fill. After closure has been accomplished, the area will be flagged aboveground for ease of identification. After all other work has been accomplished, the area shall be graded, seeded, fertilized and mulched to minimize erosion.

8.5. As part of this project, the contractor shall provide temporary sanitary facilities during the period after the sewage systems are closed for the remaining contract period. Finally, the contractor shall obtain a permit(s) and install septic systems at Buildings 1037 and Post #1.

9. CLEANING and PRESERVATION; GENERAL SPECIFICATIONS:

9.1. CLEANING: All surfaces which are to receive any cleaning shall be thoroughly cleaned as applicable IAW the various methods described in paragraph 2-2 of Army Technical Manual TM 38-260.

9.2. DRYING: Immediately following any cleaning process which may leave moisture on the item, drying must be accomplished using the most effective method described in paragraph 2-3 of Army Technical Manual TM 38-260.

9.3. EQUIPMENT AND FACILITY PAINTING is not required.

9.4. Minimum disassembly will be adopted for this SOW. Minimum disassembly is limited to that amount of disassembly required to adequately remove and prepare machines for limited transportation and storage.

10. MISCELLANEOUS:

10.1. Electrical services for those facilities being transferred from an active state to modified caretaker will not be maintained. The power source will be locked out from the equipment being inactivated as part of this project. Fuzes will be removed, bagged and attached to the switchbox.

10.2. Accessories and fixtures to the basic piece of equipment which is to be disassembled prior to property transfer shall be properly identified with the parent machine. Items of this type which are of an appropriate size and shape to permit shelf storage, will be stored on substantial shelves in lieu of

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being boxed or skidded, providing shelf storage area is protected from access and is adequate to provide dry, clean storage.

#### 11. DOCUMENTATION REQUIREMENT:

11.1. Included in this scope of work is the requirement to retain, at a minimum, all of the applicable, existing (updated) documents essential to the timely disposition of the facilities covered by this SOW. The documents include, but are not limited to, Plant, Building and Utility Drawings; Equipment Drawings; Line Layouts; Equipment and Facility Maintenance Records; and Standing Operating Procedures (SOPs). The documents are considered essential to the modified caretaker mission of Ravenna AAP and must be on hand at the plant. Care must be taken to provide adequate protection for these documents, not only from the elements, but also from possible destruction by fire or flood.

11.2. During execution of this SOW, Ravenna AAP's Maintenance Plan, Appendix B, must be updated to include changes in the status of the facilities.

11.3. During execution of the SOW, Ravenna AAP's as built drawings are to be revised/deleted due to tasks accomplished in this SOW.

11.4. Each piece of equipment identified as proposed for reutilization or excessing as part of this project will have a equipment tag attached which will be visible and accessible until final disposition or reutilization has been performed.

#### 12. INSPECTION/FINAL ACCEPTANCE:

12.1. Contractor performance on this SOW will be monitored by the Ravenna AAP COR Staff. Unless otherwise specified, the contractor is responsible for the performance of all inspection and test requirements needed in order to accomplish the tasks outlined in this SOW.

12.2. Inspections and Tests: Each piece of equipment/facility or tasks will be examined to assure compliance with the requirements set forth in this SOW and to assure that the defects noted in the initial visual, operational, and analytical inspections and test have been corrected as specified. These quality conformance examinations will be completed on each item prior to being offered for acceptance; failure to pass any examination or test will be cause for rejection.

12.3. Upon project completion, the COR Staff will inspect facilities and, if acceptable, notify HQ, AMCCOM in writing that facilities are ready for final acceptance inspection.

12.4. Final acceptance inspection will be performed by a representative of HQ, AMCCOM unless this is delegated, in

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writing, to the COR Staff.

12.5. The final acceptance of this project will take place upon receipt by the contractor of written approval from HQ, AMCCOM/Contracting Officer.

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3 Encls  
as stated

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DOCUMENT SUMMARY LIST  
PROJECT 5938337-2  
RAVENNA AAP

DOCUMENT CATEGORY:

Category 1 - The requirements contained in the directly cited document are contractually applicable to the extent specified. Unless otherwise specified in the solicitation, contract or contract modification, all requirements contained in reference and subsequently referenced documents are contractually for guidance and information only.

Category 2 - The requirements contained in the directly cited document and the reference documents identified in the directly cited document are contractually applicable to the extent specified. Unless otherwise specified in the solicitation, contract or contract modifications, all requirements contained in subsequently referenced documents within reference documents are contractually for guidance and information only.

Category 3 - Unless otherwise specified in the solicitation, contract or contract modifications, all requirements contained in the directly cited document and all reference and subsequently referenced documents are contractually applicable to the extent specified.

Document Number (Contract Reference) Applicable Tailoring	Document Title	Document Date/ Document Category
1a. AMCCOMR 235-5 (SOW Para 4)	Layaway/Relocation Project Status Report (RCS SMCPB-1005)	07 Apr 86 Cat 3
1b. DI-L-1415B (DD Form 1423) (SOW Para 4)	GOCO Plant RCS Report	10 Dec 79 Cat 3
2. TM 38-260 (SOW Para 9.1.,9.2. Equipment for Storage or Shipment The applicable requirements are contained in the above paragraphs.	Preparation of Industrial Plant	30 Jun 75 Cat 1

---

RECEIVED  
MAR 2 1993  
ENGINEERING

February 24, 1993

THRU: Contracting Officer's Representative  
Ravenna Army Ammunition Plant  
8451 State Route 5  
Ravenna, Ohio 44266-9297

TO: Ohio Environmental Protection Agency  
Northeast District Office  
ATTN: Mr. Brian Hall  
2110 East Aurora Road  
Twinsburg, Ohio 44087

Subject: Permanent Closure of Depot STP (Outfall 001) George  
Road Sewage Treatment Plant (Outfall 002) and Sand  
Creek Sewage Treatment Plant (Outfall 003)

Dear Mr. Hall:

Ravenna Arsenal, Inc. (RAI), the operating contractor of Ravenna Army Ammunition Plant (RVAAP) has been instructed by the U.S. Army to permanently close the Depot, George Road and Sand Creek Sewage Treatment Plants. It is the Army's desire to close these plants in such a way that no further maintenance, monitoring or testing will be required.

Attached you will find a detailed narrative plan of actions proposed to be taken for the closure of each plant. Work on the closure of these plants will commence upon receipt of EPA approval and government funding. It is the Army's intention to have all work completed on the plant closures by September 30, 1993.

Please indicate in writing if the attached plans for closure of the Depot, George Road and Sand Creek Sewage Treatment Plants meet with Ohio EPA approval.



**FINAL CLOSURE PLAN FOR  
SAND CREEK SEWAGE TREATMENT PLANT**

- ITEM 01: All contributing sewage sources to the Sand Creek system have been eliminated. The plant has been flushed for 30 days with potable water and infiltration inflow. Influent to the plant headworks has been redirected from the plant as described in our January 7, 1993 submittal to your agency.
- ITEM 02: All plant treatment tanks will be drained, and all sludge will be removed. The tank sidewalls will be cleaned by rinsing with water. All sludge and water generated during this process will be collected and hauled off-site for treatment/disposal. RAI will coordinate with Ohio EPA to assure that the facility contracted to handle the sludge and water is approved to receive that material.
- ITEM 03: After all process tanks are emptied and cleaned (rinsed with water) the in-ground open tanks (dosing tank, imhoff tanks, trickling filters, final clarifier, and chlorine contact tank) will be filled and covered with fill dirt.
- ITEM 04: After all other work has been completed, all disturbed areas will be graded, seeded and mulched as necessary to prevent erosion.

**FINAL CLOSURE PLAN FOR  
GEORGE ROAD SEWAGE TREATMENT PLANT**

ITEM 01: Prior to plant shut-down, all contributing sewage sources to the George Road system will be isolated and secured. Temporary sanitary facilities (portable toilets and sinks) will be provided until septic tanks and drinking water wells are installed for the remaining active buildings.

ITEM 02: All collection system lines for the George Road plant will be flushed with potable water, in addition to the infiltration and inflow that already enters the system. After four consecutive analytical samples of the influent to the treatment plant have been shown to be below allowable NPDES discharge limitations, the influent will be redirected from the plant (see Item 03) and the plant will cease operation and discharge. All salvageable equipment, including chemical feed apparatus, will be removed.

ITEM 03: Influent to the George Road plant will be redirected at Manhole Numbers O-24, in the line 4' East of Manhole O-13 and at Manhole O-1 (see attached blueprint drawing). The collection system at these three locations will be re-structured to direct the inflow/infiltration out of the collection system lines. The water at the two manhole locations will be removed through a 12" conduit into a natural drainage area containing #1 ballast size rock (see attached detail drawings). The ballast will eliminate the occurrence of erosion at the drainage sites. The sewer line near Manhole #13 will be broken open and allowed to drain into a natural drainage area containing #1 ballast.

ITEM 04: After influent to the plant is stopped, all plant treatment tanks will be drained, and all sludge will be removed. The tank sidewalls will be cleaned by rinsing with water. All sludge and water generated during this process will be collected and hauled off-site for treatment/disposal. RAI will coordinate with Ohio EPA to assure that the facility contracted to handle the sludge and water is approved to receive that material.

ITEM 05: After all process tanks are emptied and cleaned (rinsed with water) the in-ground open tanks (dosing tank, imhoff tanks, trickling filters, final clarifier, and chlorine contact tank) will be filled and covered with fill dirt. The hatches to the underground pipe gallery will be welded shut to secure from intrusion.

ITEM 06: After all other work has been completed, all disturbed areas will be graded, seeded and mulched as necessary to prevent erosion.

**FINAL CLOSURE PLAN FOR  
DEPOT SEWAGE TREATMENT PLANT**

- ITEM 01: Prior to plant shut-down, all contributing sewage sources to the Depot system will be secured from access, either by locking the buildings, if inactive, or by plugging the sewage outlet line from the buildings, if active. All electrical main feeds to the treatment plant will be disconnected or de-energized.
- ITEM 02: The plant closure will begin with the flushing of all the collection system lines with potable water, in addition to the inflow and infiltration that already enters the system. After four consecutive analytical samples of the influent to the treatment plant have been shown to be below allowable NPDES discharge limitations, the influent to the plant will be redirected from the plant (see Item 03), and the plant will cease operation and discharge. All salvageable equipment, including chemical feed pumps and apparatus, will be removed.
- ITEM 03: Influent flow to the Depot sewage plant will be redirected at Manhole Number 20 and at the influent line prior to the Depot plant headworks (see attached blueprint drawing). The water at the two locations will be removed through a 12" conduit into a natural drainage area containing #1 ballast size rock (see attached detail drawings). The ballast will eliminate the occurrence of erosion at the drainage sites. The re-directed influent flow will ultimately drain east into Hinckley Creek. The plant headworks building influent trough will be filled with cement.
- ITEM 04: After influent to the plant is stopped, all plant treatment tanks will be drained, and all sludge will be removed. The sidewalls of the tanks will be cleaned by rinsing with water. All sludge and water generated during this process will be collected and hauled off-site for treatment/disposal. RAI will coordinate with Ohio EPA to assure that the facility contracted to handle the sludge and water is approved to receive that material.
- ITEM 05: After all process tanks are emptied and cleaned (rinsed with water) the in-ground open tanks (dosing tank, imhoff tanks, trickling filters, and final clarifier) will be filled and covered with fill dirt. The final building will be collapsed into itself and covered with fill dirt. The final drain to Hinckley Creek will be collapsed along a 20 foot length. The drain in the final manhole will be cemented shut.
- ITEM 06: After all other work has been completed, all disturbed areas will be graded, seeded and mulched as necessary to prevent erosion.

The points of contact for further information on this subject are: for the Government, Mr. Robert J. Kasper, Commander's Representative at 297-3124; and for RAI, Mr. Harold Cooper at 297-3240 or Mr. Joseph Mound at 297-3111.

Sincerely,

RAVENNA ARSENAL, INC.



H.R. Cooper  
Engineering Manager

:SM/bp/CLOSESTP

Enclosure

cc: Final Closure Plans Only

N. Wulff  
J. McGee  
J. Mound  
**T. Chanda**  
File

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LAYAWAY SCOPE OF WORK  
PROJECT 5938337-2  
CLOSURE OF SEWAGE TREATMENT FACILITIES AND SEPTIC SYSTEMS  
RAVENNA ARMY AMMUNITION PLANT (AAP)

*use this*

*C. McGee/mon  
D.J.  
C. Tom/Sac  
HC*

1. SCOPE:

1.1. The purpose of this scope of work (SOW) is to provide specifications for the transition of Ravenna Army Ammunition Plant to a "modified caretaker" status. This project effort consists of proposed actions to minimize annual maintenance costs since the mission to load, and manufacture propellants and explosives in the event of mobilization has been cancelled.

1.2. The project effort consists of building and utility closure/deactivation.

1.3. The contractor shall provide all necessary material, supplies, utilities, supervision and other services necessary to perform tasks required in this SOW. Security will be maintained according to the approved plant security plan.

1.4. The cost proposal shall break out costs relative to each discrete effort identified in paragraphs 8.1.1, 8.1.2, 8.1.3, 8.2 and 8.3. and 8.4. In-house efforts shall identify labor hours and materials required for each discrete effort. If various labor disciplines are required for the effort, they shall be identified by labor category, or craft identification. Effort that is subcontracted using an Invitation For Bid (IFB) need not have direct-hours broken out but shall be supported by three actual subcontractor quotes, the smallest of which shall be funded level of this project effort.

2.0. APPLICABLE DOCUMENTS: Work shall be performed IAW the

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OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL

# of pages 13

To	RAVENNA ARSENAL	From	JOE Gumpert
Dept./Agency	HAROLD COOPER	Phone #	AMSIC-PBS-4
Fax #	346-3216		793-1389

**DRAFT**

following document(s):

- AMCCOMR 235-5 Layaway/Relocation Project Status Report  
(RCS SMC PB-1005)
- TM 38-260 Preparation of Industrial Plant Equipment for  
Storage or Shipment

Tailoring, to identify specific requirements, is shown at encl 1. In case of any conflict between reference documents and provisions contained in this SOW, the SOW will take precedence.

3. REQUIREMENTS:

3.1. Tasks are to be accomplished in accordance with (IAW) provisions contained in paragraphs 5 through 12 of this SOW.

3.2. PERFORMANCE PERIOD: Contractor effort will begin within 15 days after receipt of contract modification pertaining to this SOW. All tasks will be completed within 5 months after receipt of this contract modification or 31 Aug 93, whichever comes first. Financial closeout will take place as soon as possible after final physical acceptance.

4. PROGRESS REPORTS: The contractor shall prepare status reports IAW AMCCOMR 235-5 and Data Item Description (DID) DI-L-1415B as set forth in the Contract Data Requirements List (CDRL) DD Form 1423 (encl 2).

5. SAFETY AND ENVIRONMENTAL - GENERAL REQUIREMENTS:

5.1. The contractor is responsible for meeting all federal, state and local safety and environmental regulations, including, but not limited to Occupational Safety and Health Act (OSHA), Environmental Protection Agency (EPA), State, local, and Armament, Munitions, and Chemical Command (AMCCOM) regulations.

5.2. All hazardous wastes, acid, and contaminated material

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generated by the execution of this project will be disposed of IAW all applicable federal, state, and local laws and regulations. All transport and decontamination will be performed IAW all applicable federal, state, interstate and local laws and regulations.

5.3. In case of any conflict between provisions contained in this SOW and federal, state, or local laws/regulations, the most stringent of the laws or regulations will take precedence. The layaway office, AMSMC-PBS-L(R), shall be contacted in case of any conflict.

5.4. During the execution of this project, a need for additional safety and environmental work which was not anticipated may become apparent. Such safety and environmental work within or adjacent to the facilities in this project may be accomplished as part of this SOW. The AMCCOM Procuring Contracting Officer must be contacted for approval, specific instructions and additional funds, if required, prior to initiation of work.

6. DECONTAMINATION:

*not needed*

6.1. EXPLOSIVE AND CHEMICAL DECONTAMINATION

6.1.1. Explosive and chemical decontamination Standard Operating Procedures (SOPs) and Bid Solicitations (for subcontracting) will be reviewed for applicability for the facilities in this project and additional SOPs or bid solicitation specifications written where required. The SOPs required to decontaminate the facilities in this project will be reviewed and approved by the Administrative Contracting Officer.

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(ACO) Staff prior to beginning any work. Prior to the solicitation of any bid specifications (for subcontracting), these bid specifications shall be reviewed by the ACO staff. All explosive, acid, and chemical decontamination work required for this project shall be performed IAW these approved SOPs and specifications. The contractor will be responsible for ~~(and will correct at contractor's expense)~~ any work not conforming to meet any applicable federal, state, or local laws, statutes or regulations.

6.1.2. The contractor is responsible for obtaining all necessary environmental permits and approvals prior to performing any decontamination work.

6.1.3. Explosive decontamination to Level XXX must be accomplished immediately upon funding and prior to cleaning or beginning any other work in the area.

6.2. POLYCHLORINATED BIPHENYL TESTING AND DECONTAMINATION:

6.2.1. Qualified personnel will verify on DD 1342 or other applicable property records that none of the equipment included in this project is contaminated with Polychlorinated Biphenyls (PCBs). When there is reasonable doubt as to whether PCB contaminants are present or not, the operating fluids will be tested by a subcontractor certified by the state of Ohio.

In the event that contamination is determined present through the testing procedures, disposal shall be in accordance with all applicable Federal, state and local environmental regulations.

If PCB contaminants are found, the Procuring Contracting Officer (PCO) at Headquarters, U.S. Army Armament, Munitions and Chemical

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Command (HQ, AMCCOM) will be contacted for further instructions, and if necessary, the contractor will submit a request for additional funds.

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6.2.2. Certification Tags stating PCB contaminants are present, and the parts per million (ppm) concentration, must be affixed to each equipment item found to have PCB contamination. Tags will be dated and signed by a responsible contractor and Government personnel, in the remarks column of the DD 1342 property record with the results of the tests.

6.2.3. PCB decontamination should not be included in the cost proposal unless contamination is definitely known at the time of preparation of the cost proposal.

6.3. ASBESTOS DECONTAMINATION: Friable asbestos is not believed to be present in the facilities included in this SOW. If any friable asbestos is found, decontamination will be performed as a part of this SOW. The AMCCOM PCO should be contacted for specific instructions and additional funding if required, prior to performing the decontamination.

## 7. DISCONNECTION AND DISASSEMBLY:

7.1. Disconnection: Included in this project is the requirement for the contractor to perform utility and process line disconnection. Electrical disconnection will be at junction box, panel, or buss duct. The disconnected electrical leads, wires or conduit will individually identify (tagged matchmarked) the positive, (with service or voltage requirements) negative, neutral, etc., posts. In all cases cutting of lines in-between equipment and junction boxes

*Why tag  
mark etc.  
cutoff shown  
practical*

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be allowed. The electrical work performed by this project shall conform to applicable National Electrical Code (NEC) standards, specifications, and procedures. Mechanical disconnection will be at appropriate junctions or distribution points (i.e. flanges) as to minimize protruding process system appendages with no purpose other than to serve as a possible safety hazard. In all cases, process line disconnection will be matchmarked at both disconnected points, and flanged at open ends. All mechanical and electrical disconnection, and equipment disassembly shall be performed after decontamination procedures have been accomplished.

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7.2. Disassembly: The disassembly of individual equipment items shall be minimized to the extent necessary to provide for adequate and safe transportation to the reutilization or storage location. If disassembly of an equipment item is required, decontamination shall be performed prior to this action, and all points of disassembly matchmarked for ease of reassembly.

## 8. DETAILED SPECIFICATIONS:

8.1. Closure of the Sand Creek sewage treatment system:

8.1.1. Load Line 1 Lift Station: All salvageable equipment from the lower level (such as electric motors, and pumps) shall be removed, disconnected and excessed. The other salvageable equipment located in the lower level will be excessed. The contractor shall secure the influent and effluent lines by plugging them with concrete.

*Salvageable  
our call*

8.1.2. Load Line 12 Lift Station: All salvageable

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equipment from the lower level (such as electric motors, and pumps) shall be removed, disconnected and excessed. The other salvageable equipment located in the lower level will be excessed. Influent and effluent valves will be plugged with concrete. Infiltration will be diverted by constructing an overflow through reconnecting the inactive drain line.

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8.1.3. Sand Creek Sewage Treatment Plant: The headworks will be cleaned and flushed. Injector pumps, the chlorine monitor, and chlorine cylinders will be removed and excessed. Salvageable equipment (such as electric motors) will be removed, and excessed. The Imhoff tanks will be drained and pumped. The resultant sludge will be transferred to ~~the drying beds~~ <sup>Contractor's vehicle and transported to an approved disposal or treatment site.</sup> The dosing tank, trickling filters, final clarifier, and chlorine contact tanks will be flushed and cleaned. In-ground tanks and trickle filters will be secured by filling these with compacted sand and dirt. The plant headworks shall have a drain constructed to divert the incoming infiltration flow.

8.2. Closure of the Depot Sewage Treatment System: The headworks receiving tanks will be cleaned and flushed. Chemical injector pumps, chlorine monitor, chlorine cylinders and salvageable equipment will be disconnected and excessed. The Imhoff tanks will be drained and pumped of water and ~~settling~~ <sup>sludge</sup>, with the sludge taken to the drying beds. The dosing tank, trickling filters, final clarifier and chlorine contact tanks will be flushed and cleaned. The in-ground tanks and filters will be secured by filling them with compacted dirt and sand. The influent valve to the headworks will be closed with cement. The drain from the final clarifier to Hinkley Creek will be

*will be replaced*  
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collapsed.

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8.3. Closure of George Road Sewage Treatment Plant:

8.3.1. Sludge shall be flushed from the sludge lines through the pumping building to the Imhoff tanks (East and West). This will be flushed through final clarifier to the sludge drying beds and dried there. The dried sludge shall be land applied.

8.3.2. After flushing is complete, <sup>sludge from</sup> the Imhoff tanks (East and West) dosing tanks, final clarifier, and sludge pumping building will be ~~pressure~~ <sup>removed</sup> washed.

8.3.3. ~~After~~ <sup>isolation of building</sup> the completion of a pressure wash, the George Road Sewage Treatment Plant, existing influent lines and manholes will <sup>be</sup> flushed via infiltration <sup>and water</sup> for 30 days.

8.3.4. Upon completion of the pressure wash, George Road Sewage Treatment, Influent Lines and manholes will be shut down by diverting flow at <sup>three</sup> ~~four~~ flushed manholes to local ditch lines. The chlorine and chemical equipment, sludge pump and control panel, doppler flow meters and recorders, blower and ventilation equipment and lab equipment shall be ~~excessed~~. The lab files shall be moved to the cold document storage area. The Imhoff tanks (East and West), dosing tank, final clarifier, trickling filters (East and West) shall be filled with sand or earth fill. The communitor building (sinks and minor plumbing fixtures) will be winterized by draining and compressed air drying. The contractor shall ~~shall~~ <sup>the hatches closed on</sup> weld the underground pipe gallery ensuring the prevention of intrusion.

8.4. Closure of Thirteen Inactive Septic Tanks: The thirteen septic systems identified at enclosure 3 shall be inactivated.

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The closure of the tanks and associated field shall consist of locating the tanks to these systems and filling them with dirt or sand fill. After closure has been accomplished, the area will be flagged aboveground for ease of identification. After all other work has been accomplished, the area shall be graded, seeded, fertilized and mulched to minimize erosion.

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8.5. As part of this project, the contractor shall provide temporary sanitary facilities during the period after the sewage systems are closed for the remaining contract period. Finally, the contractor shall obtain a permit(s) and install septic systems at Buildings 1037 and Post #1.

9. CLEANING and PRESERVATION; GENERAL SPECIFICATIONS:

9.1. CLEANING: All surfaces which are to receive any cleaning shall be thoroughly cleaned as applicable in accordance with the various methods described in paragraph 2-2 of Army Technical Manual TM 38-260.

9.2. DRYING: Immediately following any cleaning process which may leave moisture on the item, drying must be accomplished using the most effective method described in paragraph 2-3 of Army Technical Manual TM 38-260.

9.3. EQUIPMENT AND FACILITY PAINTING is not required.

9.4. Minimum disassembly will be adopted for this SOW. Minimum disassembly is limited to that amount of disassembly required to adequately remove and prepare machines for limited transportation and storage.

10. MISCELLANEOUS:

10.1. Electrical services for those facilities being

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02/15/93 11:30 2 1 389 782 3844 WNSH-PCU  
transferred from an active state to modified caretaker will be required for security and standby maintenance purposes only. The power source will be locked out from the production equipment being inactivated as part of this project. Fuzes will be removed, bagged and attached to the switchbox.

10.2. Accessories and fixtures to the basic piece of equipment which is to be disassembled prior to property transfer shall be properly identified with the parent machine. Items of this type which are of an appropriate size and shape to permit shelf storage, will be stored on substantial shelves in lieu of being boxed or skidded, providing shelf storage area is protected from access and is adequate to provide dry, clean storage.

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#### 11. DOCUMENTATION REQUIREMENT:

11.1. Included in this scope of work is the requirement to retain, at a minimum, all of the applicable, existing (updated) documents essential to the timely disposition of the facilities covered by this SOW. The documents include, but are not limited to, Plant, Building and Utility Drawings; Equipment Drawings; Line Layouts; Equipment and Facility Maintenance Records; Standing Operating Procedures (SOPs). The documents considered essential to the modified caretaker mission at AAP and must be on hand at the plant. Care must be taken to provide adequate protection for these documents, not only from fire and the elements, but also from possible destruction by flood.

*Update Drawings?*  
*Some*

11.2. During execution of this SOW, Ravenna AAP Maintenance Plan, which covers standby maintenance p

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must be updated to include changes in the status of the facilities. It also must include a description of standby maintenance, provision for inspection at stated intervals, and provision for records of standby maintenance and inspection.

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11.3. During execution of the SOW, Ravenna AAP's as built drawings are to be revised/deleted due to tasks accomplished in this SOW.

11.4. Each piece of equipment identified at proposed for reutilization or excessing as part of this project will have a equipment tag attached which will be visible and accessible until final disposition or reutilization has been performed.

12. INSPECTION/FINAL ACCEPTANCE:

12.1. Contractor performance on this SOW will be monitored by the Ravenna AAP ACO Staff. Unless otherwise specified, the contractor is responsible for the performance of all inspection and test requirements needed in order to accomplish the tasks outlined in this SOW.

12.2. Inspections and Tests: Each piece of equipment/facility or <sup>ASP</sup> ~~tasks~~ will be examined to assure compliance with the requirements set forth in this SOW and to assure that the defects noted in the initial visual, operational, and analytical inspections and test have been corrected as specified. These quality conformance examinations will be completed on each item prior to being offered for acceptance; failure to pass any examination or test will be cause for rejection.

12.3. Upon project completion, the ACO Staff will inspect facilities and, if acceptable, notify HQ, AMCCOM in writing that

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facilities are ready for final acceptance inspection.

12.4. Final acceptance inspection will be performed by a representative of HQ, AMCCOM unless this is delegated, in writing, to the ACO Staff.

12.5. The final acceptance of this project will take place upon receipt by the contractor of written approval from HQ, AMCCOM/Procuring Contracting Officer.

3 Encls

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## RAVENNA ARMY AMMUNITION PLANT (AAP)

DEACTIVATION OF SEPTIC SYSTEMS  
TANKS TO BE FILLED IN

NO.	LOCATION	SIZE
01	BUILDING 849	UNKNOWN
02	TRAFFIC CONTROL BUILDING	431 CUBIC FT
02	BUILDING 812	63 CUBIC FT
04	BUNDLING BUILDING	4,641 CUBIC FT
05	BUILDING F-15 A	609 CUBIC FT
06	BUILDING F-15 B	1,211 CUBIC FT
07	FREEDOM GATE	UNKNOWN
08	BUILDING 950-C (POST 20)	UNKNOWN
09	WINDHAM GATE	UNKNOWN
10	CHARLESTON GATE	UNKNOWN
11	DEPOT BUILDING F1	UNKNOWN
12	DEPOT BUILDING F2	UNKNOWN
13	DEPOT BUILDING F3	UNKNOWN

**DRAFT**



State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road  
Twinsburg, Ohio 44087-1969  
(216) 425-9171  
FAX (216) 487-0769

General Manager Ravenna Arsenal, Inc.	
FWD FOR	
<input type="checkbox"/>	Information
<input type="checkbox"/>	Compliance as applicable
<input type="checkbox"/>	Reply NLT

*Sue Jones*  
*Appropriate P.D.*  
George V. Voinovich  
Governor  
Donald R. Schregardus  
Director

February 12, 1993

Re: Ravenna Army Ammunition Plant  
Compliance Evaluation Inspection  
NPDES Permit No. OH0010936  
OEPA Permit No. 31000000

Ravenna Arsenal Inc.  
8451 State Route 5  
Ravenna, OH 44266-9297

Attn: H.R. Cooper, Engineering Manager

Dear Mr. Cooper:

On February 3, 1993, a compliance evaluation inspection was conducted at the above referenced facility. The inspection was conducted to evaluate the facility's effluent discharge, treatment processes, and general compliance. Joe Mound and Susan McCauslin were present during the inspection.

In general, all three wastewater treatment plants (WWTP) were operational and appeared to be in fair maintenance condition. All discharges were free of solids and seemed to be of satisfactory visual quality. A review of you self-monitoring reports for 1992 showed the following effluent violations:

<u>Station</u>	<u>Parameter Violation</u>	<u>Months Violation Reported</u>
002	Chlorine Residual	June 92
	Fecal Coliform	June 92
003	Fecal Coliform	Aug. 92
	Plant Bypass	Feb, Mar, Aug, Nov 92

Observations of the Arsenal's six permitted outfalls and ferrochrome stations made during the inspection are as follows:

001 Depot WWTP      Half of the plant is utilized. The plant suffers from sever I/I flows and is organically underloaded. The plant has a design flow of .065 MGD and discharges to Hinkley Creek tributary to West Branch Reservoir.

002 George Rd WWTP      Imhoff / trickling treatment system receives a major portion of the RVAAP's sanitary and industrial waste streams. The plant has problems with I/I and during wet weather has excessive flows. The .350 MDG plant discharges to road side ditch that flows to the West Branch of the Mahoning River.

003 Sand Creek WWTP-RVAAP is planning to eliminate the treatment system. All contributing pollution sources have been eliminated and later this year the plant will be formally closed. Sand Creek WWTP also has a severe I/I problem. RVAAP closure plan calls for the installation of an overflow at manhole #29 to drain I/I. It was noted that pump station SD4 will also require an overflow to relieve I/I. Sand Creek WWTP was designed to discharge .350 MDG to Sand Creek which is tributary to South Fork of Eagle Creek.

004 Water Plant #3 The series of three sedimentation basin have never reported a discharge. A discharge would flow to Hinkley Creek.

005 Water Plant #2 This water system servers the same area as the Sand Creek WWTP and is also no longer in use. This sedimentation pond has a large dention time, and will require additional time before it can be closed. This discharge flows to Sand Creek.

006 Melt-Out Water Treatment-Steam from projectile melt-out process flows to a sedimentation tank and is then pumped through an activated carbon column. The water is discharged to a near by pond that is batch discharged to station 005's effluent as needed.

800/900 FeCr Storage Area-The renewal NPDES permit requires monitoring upstream and downstream of the ferrochrome storage area. Early results show little water quality impact to the nearby surface waters.

602/603 Pink Water Treatment - The two internal monitoring stations were not inspected.

Please be reminded that a schedule of compliance is included in the renewal NPDES permit and requires detail plans for plant improvements at stations 001, 002, 003 by June 1, 1993.

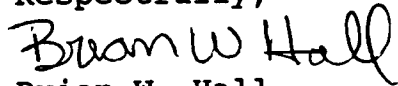
This office has no objection to the closure plan outline submitted for the Sand Creek WWTP. Detailed information is requested for the overflow planned for pump station SD4. Additional RVAAP should include information on if this closure is permanent. If the closure is permanent, RVAAP could request the monitoring station be eliminate from the permit.

Page Number 3  
February 12, 1993  
H.R. Cooper

Enclosed with this letter is a copy of a site inspection form for on-site systems.

Should you have any questions or comments, please feel free to contact this office.

Respectfully,



Brian W. Hall  
Environmental Engineer  
Compliance and Enforcement Section  
Division of Water Pollution Control

BWH/csp

Enclosure

MECHANICAL ORDER REQUEST  
RAVENNA ARSENAL INC

DATE: 12-NOV-92

WRITTEN BY: ENGINEERING - TWD/JM

M.O. NUMBER:

JOB #: 3RIP/\_\_\_\_\_

FOR: 3RIP ELECTRICAL DPT32 (P17)  
SAND CREEK/DEPOT SEW PLT CLOSING

PRG CHG OR COST POOL:  
ACRN / CLIN:

PROJECT NUMBER:

<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> ALTERATIONS
<input type="checkbox"/> NEW EQUIPMENT	<input type="checkbox"/> REPLACEMENT EQUIPMENT
<input type="checkbox"/> REPAIRS & MAINTENANCE	<input checked="" type="checkbox"/> OTHER

COST ACCOUNTING:

COST DATA:	598	LABOR
	737	FRINGES
	450	MATERIAL/PURCH SERV
	1,302	SUBCONTRACTS
	0	EQUIPMENT
	859	ALLOCATED OVERHEAD
	2,696	GENERAL OVERHEAD
	906	G&A OVERHEAD
	379	FEE
	-----	
	\$7,927	TOTAL

ASSIGNED TO:

J. McGEE

STAFF ENGINEER:

T. DAVIS

DESCRIPTION / LOCATION OF ITEM:

PROVIDE LABOR & MATERIALS TO REMOVE, TRANSPORT, TEST OIL & STORE 5 EA TRANSFORMERS FROM THE SAND CREEK AND DEPOT SEWAGE PLANTS OF RVAAP. (SEE DETAILED LIST ATTACHED)

REASON FOR M.O. REQUEST:

TO ELIMINATE REQUIRED 90 DAY INSPECTIONS AND MAINTENANCE, AND THE POSSIBILITY OF CONTAMINATION TO SOIL OR WATER IN BUILT DOWN/UNUSED AREAS OF THE PLANT.

FUL

FULLINEMAN WILL ISOLATE VOLTAGE TO THE PRIMARY SIDE OF THE TRANSFORMERS REMOVE THE LINE FUSE DISCONNECT THE PRIMARY FEED BETWEEN THE LINE FUSE AND HIGH VOLTAGE BUSHINGS, INSPECT THE TRANSFORMER BODY FOR DAMAGE TO BUSHINGS, SEAL, OR LEAKING SEAMS WHICH MAY REQUIRE SPECIAL ATTENTION BEFORE TRANSPORTING TO THE STORAGE FACILITY. TRANSFORMERS TAKEN TO BLDG 854 FOR STORAGE WILL BE PLACED IN PANS, AND OIL SAMPLES TAKEN TO DETERMINE PCB CONTENT AND DISPOSITION.

\*\*\*\*\*

\*\*\* (NOTE 1) - (56% NT TXFR WT EST TO BE >50PPM) X (1,125.5 # EST) = 630.0 # \*\*\*

\*\*\* - (THOSE ALREADY ON RECORD AS >50 PPM) = 0.0 # \*\*\*

\*\*\* - (TOTAL WT OF > 50PPM TXFRS @ \$0.86/# PER PDO = 630.0 # \*\*\*

\*\*\* (NOTE 2) - AN ESTIMATED 4 TESTS WILL BE REQ FOR PCB CONTENT @ \$35 / TEST \*\*\*

\*\*\* (NOTE 3) - AN ESTIMATE 70 # OF CONTAMINATED TRASH IN 1 BBL's WILL GO TO PDO \*\*\*

\*\*\*\*\*

APPROVALS:

ENGINEERING MANAGER: \_\_\_\_\_

ORIGINATING DEPT/DIV MGR: \_\_\_\_\_

GENERAL MANAGER: \_\_\_\_\_

PLANT PROTECTION MGR: \_\_\_\_\_

ACCOUNTING MANAGER: \_\_\_\_\_

SAFETY MANAGER: \_\_\_\_\_

CONTRACTING OFFICER'S REP: \_\_\_\_\_

CONTRACT ADMINISTRATOR: \_\_\_\_\_

COST ESTIMATE FOR: SEW PLTS TXFR TAKEDOWN FY93

REFERENCE: P-17 PROJECT

IS THIS A DEPT OHD CHARGE (Y OR N)? N

IS IT A GENERAL PLANT CHG (Y OR N)? N

BASED ON DISCLOSURE RATES AS OF: FY93 BUDGET - ADJUSTED 02-SEP-92

DIRECT MISC: MATERIALS AND SERVICES	\$450	
SUBCONTRACTS	\$1,302	
EQUIPMENT - Regular Funds	\$0	
	-----	\$1,752

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	40.0	\$14.02	\$561	
2580 RDS & GRDS MTCE	0.0	\$0.00	\$0	
1060 MUNITIONS HNDLNG	0.0	\$0.00	\$0	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
1570 SCRAP & SALVAGE	0.0	\$0.00	\$0	
1980 DEMIL PRODUCTION	0.0	\$0.00	\$0	
OTHER HOURLY CHARGES	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----		-----	\$561
2540 ENGINEERING	2.0	\$18.50	\$37	
5530 SURVEILLANCE	0.0	\$0.00	\$0	
OTHER SALARY CHARGES	0.0	\$0.00	\$0	
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0	
TOTAL SALARY COST	-----		-----	\$37
TOTAL HOURS	42.0			

DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$561	126.62%	\$710	
SALARIED	\$37	72.41%	\$27	
			-----	\$737

TOTAL DIRECT LABOR AND FRINGES AND OTHER: \$3,087

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
2200 STEAM LBS	0	\$0.03549	\$0	
2260 WATER/SEWAGE GAL	0	\$0.04488	\$0	
2270 ELECTRIC KWH	0	\$0.18248	\$0	
2120 RAILROAD HRS	0.0	\$752.997	\$0	
2130 LIFT USAGE HRS	0.0	\$183.593	\$0	
4510 SECURITY EFFORT	0.00%	\$1,596,503	\$0	
4520 FIRE SQ FOOTAGE	0	\$0.15263	\$0	
OTHER EQUIP CHARGES	0	\$0.00	\$0	
2320 GEN MTCE	40.0	\$21.482	\$859	
2580 RDS & GRDS MTCE	0.0	\$29.097	\$0	
1060 MUNITIONS HNDLNG	0.0	\$31.321	\$0	
2560 PACKAGE LINES	0.0	\$26.080	\$0	
1570 SCRAP & SALVAGE	\$0	\$15.441	\$0	
5530 SURVEILLANCE	0.0	\$40.526	\$0	
TOTAL ALLOCATED OVERHEAD			-----	\$859

TOTAL COST INPUT			\$3,946
GENERAL OVERHEAD	68.326%		\$2,696
G&A OVERHEAD	13.637%		\$906
FEE	5.017%		\$379
EQUIPMENT - SPECIAL FUNDS			\$0

TOTAL COST ESTIMATE - WITH OVERHEADS \$7,927

DETAIL OF MATERIAL AND LABOR CHARGES:

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
PURCHASE OF OIL BBL's	9	EA	\$45.00	\$405.00	xxxxxx
PURCHASE OF CONTAM TRASH BBL	1	EA	\$45.40	\$45.40	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
PCB OIL IN BBL's(50 GAL PER)	1	EA	\$550.00	\$550.00	xxxxxx
TRANSFER COSTS > 50 PPM	630	LB	\$0.86	\$541.80	xxxxxx
CONTAM TRASH TO PDO	75	LB	\$0.94	\$70.50	xxxxxx
TEST FOR PCB CONTENT	4	EA	\$35.00	\$140.00	
EQUIPMENT - Regular Funds					
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

LABOR - HOURLY:	HOURS	RATE	LABOR COST
DEPT:			
2320 W-87 LINEMAN	40.0	\$14.02	\$560.80
2320 W-34 ELECTRICIAN	0.0	\$13.44	\$0.00
2320 W-104 SHEETMETAL	0.0	\$13.95	\$0.00
2320 W-CLASS & DESC	0.0	\$0.00	\$0.00
2320 W-CLASS & DESC	0.0	\$0.00	\$0.00
2580 W-75 HVY EQUIP	0.0	\$13.44	\$0.00
2580 W-CLASS & DESC	0.0	\$0.00	\$0.00
2580 W-CLASS & DESC	0.0	\$0.00	\$0.00
2580 W-CLASS & DESC	0.0	\$0.00	\$0.00
1060 W-CLASS & DESC	0.0	\$0.00	\$0.00
1060 W-CLASS & DESC	0.0	\$0.00	\$0.00
1060 W-CLASS & DESC	0.0	\$0.00	\$0.00
1060 W-CLASS & DESC	0.0	\$0.00	\$0.00
2560 W-CLASS & DESC	0.0	\$0.00	\$0.00
2560 W-CLASS & DESC	0.0	\$0.00	\$0.00
1570 W-CLASS & DESC	0.0	\$0.00	\$0.00
1570 W-CLASS & DESC	0.0	\$0.00	\$0.00
1980 W-CLASS & DESC	0.0	\$0.00	\$0.00
1980 W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00

LABOR - SALARY:	HOURS	RATE	LABOR COST
DEPT:			
2540 ENGINEERING	2.0	\$18.50	\$37.00
5530 SURVEILLANCE	0.0	\$12.50	\$0.00
OTHER SALARY CHARGES	0.0	\$0.00	\$0.00
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0.00





RAVENNA ARSENAL, INC.  
8451 STATE ROUTE 5, RAVENNA, OHIO 44266-9297  
TELEPHONE: (216) 358-7111 • FAX: (216) 297-3216

January 7, 1993

THRU: Contracting Officer's Representative  
Ravenna Army Ammunition Plant  
8451 State Route 5  
Ravenna, Ohio 44266-9297

TO: Ohio Environmental Protection Agency  
Northeast District Office  
ATTN: Brian Hall  
2110 E. Aurora Road  
Twinsburg, OH 44087

Subject: Closure of Outfall 003, Sand Creek Sewage Treatment  
System, after Demilitarization Project Completion.  
NPDES Permit Number 31000000000ED

Dear Mr. Hall:

The RVAAP Sand Creek sewage treatment system will cease operation in January 1993. The demilitarization project that required operation of the Sand Creek system was completed on December 23, 1992. There are now no contributing sources to the sewage system; all sources have been secured and will no longer be in use. This outfall is now considered to be excess to present Army needs, and the system will be closed. Closure of the Sand Creek system will be accomplished in two steps, due to funding constraints.

The first step, the treatment plant shut down, will eliminate the influent to the treatment plant and any discharge from the treatment plant. The second step, final system closure, will include the permanent filling and/or covering of all tanks associated with the processes of the plant.

Ravenna Arsenal, Inc. (RAI) is proposing to begin immediately, with Ohio EPA approval, to shut down the Sand Creek treatment plant. (First Step Actions) A funding request for the final system closure (Second Step Actions) has been submitted to the Army, and RAI anticipates receiving funding approval for the final system closure prior to the summer of 1993. Once funding is received, a detailed plan for final system closure actions will be forwarded to OEPA for review and approval.

The following is a discussion of the proposed steps to be taken for the immediate plant shutdown:

The plant shutdown will begin with the flushing of all the collection system lines with potable water, in addition to the current inflow and infiltration this system experiences. After four consecutive weekly analytical samples of the influent to the treatment plant have been shown to be below allowable NPDES discharge limitations, the influent will be redirected from the plant, and the plant will cease operation and discharge.

The final section of the collection system, a distance of 4,049 linear feet, will terminate at manhole #29. The manhole will be restructured to redirect the inflow and infiltration water from reaching the treatment plant. The water will be removed through a 10 inch conduit into a natural drainage area containing #1 ballast size rock (see attached drawings for detail). The ballast will eliminate the occurrence of erosion in that area during a heavy rain event.

After the influent to the plant is eliminated, the water level in the Imhoff tanks will be lowered approximately 10 feet to allow for the accumulation of rain and snow melt prior to the final system closure.

Please indicate if the foregoing outline of actions meet with the Ohio EPA approval. The point of contact for further information on this subject are, for the government, Mr. Robert J. Kasper, 297-3124; and for RAI, Mr. Harold Cooper, 297-3240 or Mr. Joe Mound, 297-3111.

Sincerely,

RAVENNA ARSENAL, INC.



H.R. Cooper  
Engineering Manager

SM/bp/OUTFALL3

cc: N. Wulff  
J. McGee  
✓ J. Mound  
T. Chanda  
File

cf: T. Wisely



RAVENNA ARSENAL, INC.  
8451 STATE ROUTE 5, RAVENNA, OHIO 44266-9297  
TELEPHONE: (216) 358-7111 • FAX: (216) 297-3216

January 6, 1993

Contracting Officer's Representative  
Ravenna Army Ammunition Plant  
ATTN: SMCRV-CA/J. Cicero  
8451 State Route 5  
Ravenna, Ohio 44266-9297

Subject: Closure of Sand Creek Sewage Treatment Plant  
(Reference: Letter 5 Jan 93 SAB)

Dear Sir:

Per your request, the following information is provided. The sanitary facilities at the Load Line #1 demil facility were closed on December 23, 1992 so that no new waste water was being collected by the Sand Creek Sewage Treatment Plant. The lines are being flushed with ground water which infiltrates into the collection system.

The Ohio EPA now requires advance notice that the plant will be shut down including a description of how it will be shutdown. That notice will go to the Ohio EPA January 7, 1993. In the notice we are proposing to shut the plant down after four consecutive weeks in which the influent to the plant meets the discharge limitations of the plant. (This influent will be a direct discharge to the environment after the treatment plant is closed) Therefore, if the Ohio EPA agrees with our proposal and no weekly samples exceed discharge limitations the plant should be closed by the end of January.

As I explained to you we see the total layaway of the plant in two phases. The first is to stop the influent to the plant sufficiently to cease operating and testing. This returns the plant to the condition it was in before it was last reactivated and is what was estimated in the 105MM layaway estimate.

The second phase is the additional layaway effort which is required since there is no future use identified for the plant. We believe this additional effort should be funded under a P-17 and will explain our reasoning to Joe Gumpert next week.

Sincerely,

RAVENNA ARSENAL, INC.

H.R. Cooper  
Engineering Manager

cc: N. Wulff                    J. Mound  
R. Holford                    T. Chanda  
D. Kanavy                    ✓ S. McCauslin  
J. McGee                    D. Jendrisak



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
RAVENNA ARMY AMMUNITION PLANT  
8451 STATE ROUTE 5  
RAVENNA, OHIO 44266-9297



January 5, 1993

SMCRV-CA (715)

Subject: Sand Creek Sewage Treatment Plant

General Manager  
Ravenna Arsenal, Inc.  
8451 State Route 5  
Ravenna, Ohio 44266-9297

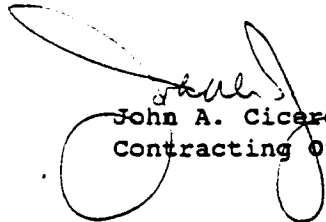
Dear Sir:

Upon the completion of demil of 105MM, you are directed to close the subject sewage treatment plant.

Request estimated date of completion of demil.

Point of contact is Mr. John Cicero, extension 3127.

Sincerely,

  
John A. Cicero, Jr.  
Contracting Officer's Representative

Copies Furnished:  
AMSMC-PAI-GB (Ms. Wise)  
Cdr, INAAP (LTC Hunter)  
DCAA, Akron, OH

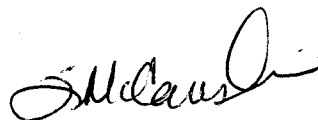
RECEIVED  
JAN 5 1993  
ENGINEERING

RECORD OF TELEPHONE CONVERSATION

December 30, 1992

TO: Reita Kuster, AMCCOM  
DSN: 793-1892

FROM: Susan McCauslin, RAI  
DSN: 346-3220



SUBJECT: Environmental Documentation for Sand Creek and Water  
Works 2 Shutdown

=====

I spoke with Reita regarding commencing work on the shutdown of Sand Creek Sewage Treatment Plant and Water Works 2 prior to the publication of the plant-wide buildown EA. She said we could not layaway those plants until the EA was finalized and published. However, she said AMCCOM views shutting off operations (flow) and layaway of the plants as two separate issues. Shutting off flow to the plants can be accomplished prior to the EA approval using a REC citing CX A-7. This precedent has been set at other AMCCOM installations facing buildown. Layaway of plant facilities and equipment cannot commence until the EA process is finalized.



RAVENNA ARSENAL, INC.

8451 STATE ROUTE 5, RAVENNA, OHIO 44266-9297

TELEPHONE: (216) 358-7111 • FAX: (216) 297-3216

20 November 1992

THRU: Contracting Officer's Representative  
Ravenna Army Ammunition Plant  
8451 State Route 5  
Ravenna, Ohio 44266-9297

TO: Commander  
U.S. Army Armament, Munitions and Chemical Command  
ATTN: AMSMC-PBS-L (R)  
Rock Island, IL 61299-6000

Subject: Closure of the RVAAP Sand Creek Sewage Treatment System

Dear Sir:

Attached for further action is the required P17 documentation for the above subject matter. Preparation and submission of this documentation has been completed in accordance with the following directive: GOCO LAP Section B dated 23 July 1992, Subject: Preparation of P17's for transitioning RVAAP into modified caretaker status.


Point of contact for the Ravenna Arsenal, Inc. is Ms. Susan McCauslin, DSN 346-3220.

Sincerely,

RAVENNA ARSENAL, INC.

  
H.R. Cooper  
Engineering Manager

Concurrence:

  
David E. Kanavy  
Accounting Manager

SM/bp/SM5.NOV

cf: AMSMC-IRE-I  
AMSMC-EHR  
AMSMC-EHF  
AMSMC-PAI-GB

cc: N. Wulff  
D. Kanavy  
D. Jendrisak  
J. McGee  
J. Mound  
T. Chanda  
File

LAYAWAY AND/OR REDISTRIBUTION PROJECT  
RCS DRC-836

1. Project No. \_\_\_\_\_ (AMCCOM)                      2. Appropriation \_\_\_\_\_
3. Project Execution Date FY 93 Proposed
4. Title: Closure of the RVAAP Sand Creek Sewage Treatment System
5. Total Cost: \$146,213                      6. Annual Maintenance Cost N/A
7. Facility/Contractor:                      Ravenna Army Ammunition Plant (GOCO)  
Ravenna Arsenal, Inc.
8. Item(s) Produced/Support:
  - a. On reactivation, is facility scheduled to produce new items No
  - b. If so, list item(s) N/A
9. Production lines being laid away: N/A
10. Estimated completion date: 30 Sept 93
11. Purpose: To deactivate sewage treatment facilities not required for use under modified caretaker status at RVAAP.
12. Layaway is: In place X On site \_\_\_\_\_ Central Storage \_\_\_\_\_
13. State of Readiness: N/A
14. Remarks: None
15. Production Capability: N/A
16. Mobilization Data: N/A
17. In order to avoid future operation, maintenance and repair costs associated with the RVAAP sewage treatment systems, portions of these systems not required for use under the modified caretaker status mission will be deactivated. Closure of the Sand Creek sewage system facilities will be conducted in accordance with Ohio EPA requirements.
18.
  - A. Lift Station - Load Line 1
    1. Remove salvageable equipment from lower level.
    2. Secure influent and effluent valves.

B. Lift Station - Load Line 12

1. Remove salvageable equipment from lower level.
2. Secure influent and effluent valves.
3. Construct overflow for infiltration.

C. Sand Creek Sewage Treatment Plant

1. Clean and flush receiving tanks in headworks.
2. Remove chemical injector pumps, chlorine monitor, chlorine cylinders.
3. Remove salvageable equipment.
4. Drain and pump Imhoff tanks, sludge to drying beds.
5. Flush and clean dosing tank, trickling filter, final clarifier and chlorine contact tanks.
6. Secure in-ground tanks, filters by filling with dirt/sand.
7. Construct drain prior to plant headworks to drain/divert incoming infiltration flow.
8. Remove service transformers.

19. Acquisition value of facility to be laid away with this project.

- |  |        |
|--|--------|
| a. Land improvements                         | \$ N/A |
| b. Building                                  | \$ N/A |
| c. DIPEC reportable production equipment     | \$ N/A |
| d. Non-DIPEC reportable production equipment | \$ N/A |
| e. Non-production equipment                  | \$ N/A |

20. Replacement value of facility to be laid away with this project.

- |  |        |
|--|--------|
| a. Land improvements                         | \$ N/A |
| b. Building                                  | \$ N/A |
| c. DIPEC reportable production equipment     | \$ N/A |
| d. Non-DIPEC reportable production equipment | \$ N/A |
| e. Non-production equipment                  | \$ N/A |

21. Layaway quantities.

	<u>QUANTITY</u>
a. Number of IPD items (DIPEC reportable)	-0-
b. Number of production equipment items (Non-DIPEC)	-0-
c. Number of non-production items	-0-

22. Detailed Cost Data: See attached M.O. Cost Estimate

23. Alternate Courses of Action:

As an alternate to filling the in-ground tanks and filters with dirt (see item 18.C.6) an impervious cover could be constructed



for these units. The covers would prevent the accumulation and discharge of water within the sewage plant system and would also prevent animals or people from falling or becoming trapped. However, the covers would require periodic inspection to assure that they are in place and in good condition.

Filling the tanks and filters with dirt will achieve the same objectives as the covers, but will make it more expensive and difficult to reactivate the plant in the future.



RAVENNA ARSENAL, INC.  
8451 STATE ROUTE 5, RAVENNA, OHIO 44266-9297  
TELEPHONE: (216) 358-7111 • FAX: (216) 297-3216

20 November 1992

THRU: Contracting Officer's Representative  
Ravenna Army Ammunition Plant  
8451 State Route 5  
Ravenna, Ohio 44266-9297

TO: Commander  
U.S. Army Armament, Munitions and Chemical Command  
ATTN: AMSMC-PBS-L (R)  
Rock Island, Illinois 61299-6000

Subject: Closure of the RVAAP Depot Sewage Treatment System

Dear Sir:

Attached for further action is the required P17 documentation for the above subject matter. Preparation and submission on this documentation has been completed in accordance with the following directive: GOCO LAP Section B dated 23 July 1992, Subject: Preparation of P17's for transitioning RVAAP into modified caretaker status.

Point of contact for the Ravenna Arsenal, Inc. is Ms. Susan McCauslin, DSN 346-3220.

Sincerely,

RAVENNA ARSENAL, INC.

  
H.R. Cooper  
Engineering Manager

Concurrence:

\_\_\_\_\_  
David E. Kanavy  
Accounting Manager

SM/bp/P176B

cf: AMSMC-IRE-I  
AMSMC-EHR  
AMSMC-EHF  
AMSMC-PAI-GB

cc: N. Wulff  
D. Kanavy  
D. Jendrisak  
J. McGee  
J. Mound  
T. Chanda  
File

**LAYAWAY AND/OR REDISTRIBUTION PROJECT**  
RCS DRC-836

1. Project No. \_\_\_\_\_ (AMCCOM)                      2. Appropriation \_\_\_\_\_
3. Project Execution Date FY 93 Proposed
4. Title: Closure of the RVAAP Depot Sewage Treatment System
5. Total Cost: \$41,386.00                      6. Annual Maintenance Cost N/A
7. Facility/Contractor:                      Ravenna Army Ammunition Plant (GOCO)  
Ravenna Arsenal, Inc.
8. Item(s) Produced/Support:
  - a. On reactivation, is facility scheduled to produce new items No
  - b. If so, list item(s) N/A
9. Production lines being laid away: N/A
10. Estimated completion date: 30 Sept 93
11. Purpose: To deactivate sewage treatment facilities not required for use under modified caretaker status at RVAAP.
12. Layaway is: In place X On site \_\_\_\_\_ Central Storage \_\_\_\_\_
13. State of Readiness: N/A
14. Remarks: None
15. Production Capability: N/A
16. Mobilization Date: N/A
17. In order to avoid future operation, maintenance and repair costs associated with the RVAAP sewage treatment systems, portions of these systems not required for use under the modified caretaker status mission will be deactivated. Closure of the Depot sewage system facilities will be conducted in accordance with Ohio EPA requirements.
18.
  - A. Depot Sewage Treatment System
    1. Clean and flush headworks.
    2. Remove chemical injector pumps.
    3. Drain and pump imhoff tanks, sludge to drying beds.
    4. Flush and clean filters, final tank.
    5. Secure in-ground tanks, filters by filling with dirt/sand.
    6. Cement influent to headworks.
    7. Collapse drain from final to Hinckley Creek.

## 19. Acquisition value of facility to be laid away with this project.

- |    |   |        |
|----|---|--------|
| a. | Land improvements                         | \$ N/A |
| b. | Building                                  | \$ N/A |
| c. | DIPEC reportable production equipment     | \$ N/A |
| d. | Non-DIPEC reportable production equipment | \$ N/A |
| e. | Non-production equipment                  | \$ N/A |

## 20. Replacement value of facility to be laid away with this project

- |    |   |        |
|----|---|--------|
| a. | Land improvements                         | \$ N/A |
| b. | Building                                  | \$ N/A |
| c. | DIPEC reportable production equipment     | \$ N/A |
| d. | Non-DIPEC reportable production equipment | \$ N/A |
| e. | Non-production equipment                  | \$ N/A |

## 21. Layaway quantities.

- |    |  | <u>QUANTITY</u> |
|----|--|-----------------|
| a. | Number of IPD items (DIPEC reportable)           | -0-             |
| b. | Number of production equipment items (Non-DIPEC) | -0-             |
| c. | Number of non-production items                   | -0-             |

## 22. Detailed Cost Data: See attached M.O. Cost Estimate

## 23. Alternate Courses of Action:

- A. As an alternate to filling the in-ground tanks and filters with dirt (see item 18.A.5) an impervious cover could be constructed for these units. The covers would prevent the accumulation and discharge of water within the sewage plant system and would also prevent animals or people from falling or becoming trapped. However, the covers would require periodic inspection to assure that they are in place and in good condition.

Filling the tanks and filters with dirt will achieve the same objectives as the covers, but will make it more expensive and difficult to reactivate the plant in the future.

- B. As an alternate to closure of the Depot sewage treatment system, the tenants requiring sanitary service in the Depot area may elect to either:
1. Assume responsibility for the maintenance and operation of the Depot sewage system or,
  2. Construct, maintain and operate a sewage treatment system suited to their needs.

4

**RAVENNA ARSENAL, INC.  
INTEROFFICE MEMORANDUM**

October 20, 1992

**TO:** Distribution

**FROM:** S. McCauslin - Environmental Engineering Department

**SUBJECT:** Site Visit from Bill Zawiski, OEPA District Office  
Wastewater Representative

---

Bill Zawiski, OEPA district office wastewater representative, will visit RVAAP October 28, 1992, at approximately 9:00 AM. The purpose of his visit will be to review our plan for the closure of the inactive on-site wastewater treatment plants.

**cc:** COR  
J. Mound  
J. McGee  
H. Cooper  
File



SJK

**RAVENNA ARSENAL, INC.**  
8451 STATE ROUTE 5, RAVENNA, OHIO 44266-9297  
TELEPHONE: (216) 358-7111 • FAX: (216) 297-3216

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October 12, 1992

THRU: Contracting Officer's Representative  
Ravenna Army Ammunition Plant  
8451 State Route 5  
Ravenna, Ohio 44266-9297

TO: Ohio Environmental Protection Agency (OHEPA)  
Northeast District Office; Attn: Mr. Brian Hall  
2110 East Aurora Road  
Twinsburg, Ohio 44087

Subject: Request for Ohio EPA Site Visit to Review Plans and  
Provide Guidance for Closure of Wastewater Treatment  
Plants at Ravenna Army Ammunition Plant (RVAAP)  
(NPDES Permit 31000000\*CD)

Dear Mr. Hall:

Ravenna Arsenal, Inc. (RAI) the operating contractor of RVAAP, has been instructed by the U. S. Army to lay away the Sand Creek Wastewater Treatment Plant (Outfall 003) after an ongoing demilitarization project is completed, which is expected to be sometime after January 1, 1993. The U. S. Army has further informed RAI that RVAAP's Depot Wastewater Treatment Plant (Outfall 001) may also be laid away in mid or late summer of 1993. Once laid away, these Wastewater Treatment Plants will not be reopened in the foreseeable future. It is the Army's desire to close the plants in a manner that will not require further maintenance/monitoring or testing.

RAI requests that your office set a date for an on-site visit during the week of Tuesday, October 20 through Friday October 23, 1992, to review attached plan and provide guidance and requirement insight for the closure of the two plants. Please call Mrs. Susan McCauslin, Environmental Engineer (297-3220) or Mr. J. D. McGee, Maintenance Manager (297-3114) to arrange specific date and time.

Point of contact for further information is either Mr. Robert Kasper (297-3124) for the Government, or Mr. Harold Cooper (297-3240) for RAI.

Sincerely,

RAVENNA ARSENAL, INC.

  
H. R. Cooper  
Engineering Manager

HRC:JWM:cm  
Attachment

cc: J. McGee, J. Mound, T. Chanda,  
N. Wulff, S. McCauslin, File

O L I N C O R P O R A T I O N

LAY AWAY OF SAND CREEK STP & COLLECTION SYSTEM (OUTFALL 003)

**LIFT STATION AT LL-1**

1. REMOVE PUMPS FROM BASEMENT; CLEAN AND FLUSH POTS.
2. REMOVE SIGNIFICANT ELECTRICAL APPURTENANCES FROM LOWER LEVEL AREA.
3. SECURE INFLUENT AND EFFLUENT VALVES TO SYSTEM.
4. SECURE POTABLE WATER.
5. AN OVERFLOW FROM THE MANHOLE AHEAD OF THE LIFT STATION WILL BE LEFT OPEN TO DRAIN EXCESS INFILTRATION COLLECTED IN THE COLLECTION SYSTEM TO THE ADJACENT DITCH.

**LIFT STATION AT LL-12**

1. CLEAN POTS & REMOVE PUMPS TO UPPER LEVEL.
2. REMOVE SIGNIFICANT ELECTRICAL APPURTENANCES FROM LOWER LEVEL AREA.
3. FLUSH & SECURE INFLUENT AND EFFLUENT VALVES TO SYSTEM
4. SECURE POTABLE WATER.
6. IF ELECTRIC IS OFF PULL CUTOUTS AT TRANSFORMER STATION. THIS WILL ALSO INSURE LIFT STATION IS NOT TRANSFERRING ANY POTENTIAL MATERIAL TO SAND CREEK STP.

THE MANHOLE PRIOR TO THE CREEK IN LOADLINE 12 EAST OF 900 BUILDING WILL HAVE THE EFFLUENT OUTLET CEMENTED OVER TO FORCE THE INFILTRATION AND INFLOW WATERS FLOWING IN THE COLLECTION SYSTEM TO OVERFLOW TO THE CREEK.

THE 8" DIAMETER OVERFLOW AT THE LIFT STATION COLLECTION MANHOLE WILL HAVE TO BE RESTORED TO ALLOW OVERFLOW OF INFILTRATION WATER COLLECTED IN THE COLLECTION SYSTEM.

SD-1 SAND CREEK STP

1. CLEAN AND FLUSH ALL RECEIVING TANKS INTERIOR OF LIFT STATION HEADWORKS.
2. REMOVE CHEMICAL INJECTOR PUMPS, FLUSH AND LAYAWAY (HEADWORKS AND FINAL CLARIFIER BLDG.)
3. DRAIN IMHOFF TANKS AND PUMP CLEAN
5. CLEAN THE DOSING AND TRICKLING FILTER FLUSH AND CLEAN TANKS.
6. REMOVE ARMATURES AND CAPSTAN AND STORE FOR FUTURE USE AT GEORGE ROAD STP.
7. SECURE THE FINAL CLARIFIER, DRAIN, PUMP AND CLEAN.
8. SECURE CHLORINE BUILDING AND CONTACT TANKS, CLEAN AND FLUSH. REMOVE CHLORINE MONITORS AND INJECTION UNITS.

WITH ALL LIFT STATIONS OUT OF THE SYSTEM AND NO GENERATING SOURCE, FLUSH THE PLANT WITH REGULAR INFILTRATION FLOW FOR 30 DAYS OR UNTIL THE INFILTRATION RECEIVED AT THE HEADWORKS OF THE SEWAGE TREATMENT PLANT IS EQUAL TO OR BETTER THAN THE QUALITY OF THE RECEIVING STREAM. AFTER THE IMHOFF AND FINAL CLARIFIER AND CHLORINE CONTACT TANKS ARE CLEANED AND DRAINED, ONE OF THE FOLLOWING TWO OPTIONS WILL BE USED TO KEEP THE TANKS FROM REFILLING.

OPTION 1.

LAYAWAY OF THE TANKS WILL BE COMPLETED AND THE TANKS WILL EITHER BE FILLED WITH MATERIAL SUCH AS RIVER RUN ROCK OR SAND.

OPTION 2.

EXCAVATE THE NORTH END OF THE IMHOFF TANKS AND CORE DRILL A HOLE IN THE IMHOFFS AT THE BOTTOM OF THE CONES TO DRAIN THE RAIN AND ANY OTHER ACCUMULATED WATERS.

THE ARMY MAY REQUIRE THAT THE AREA BE FENCED TO KEEP OUT ANY INTRUDERS TO PREVENT ACCIDENTS.

LAYAWAY OF DEPOT STP (OUTFALL 001)

IF DETERMINED THAT SERVICE IN THE DEPOT AREA IS NO LONGER REQUIRED, THE DEPOT SEWAGE TREATMENT PLANT WILL BE LAID AWAY WITH THE SAME OPTIONS. THE HEADWORKS WOULD HAVE THE INFLUENT FLOW DIVERTED AND ALLOWED TO GO TO THE STREAM. THIS AREA IS 1.5 FOOT BELOW GROUND LEVEL, AND COULD BE EASILY DIVERTED AFTER THE SYSTEM IS FLUSHED AND STABILIZED AT STREAM LEVELS OR AS NPDES PERMIT REQUIRES. THE PLANT IN GENERAL WILL BE LAID AWAY IN THE SAME MANNER AS SAND CREEK STP.

DOWN-sizing OF GEORGE ROAD STP COLLECTION SYSTEM (OUTFALL 002)

IN ADDITION TO THE SAND CREEK AND DEPOT SYSTEMS BEING COMPLETELY CLOSED, PARTS OF THE GEORGE ROAD STP COLLECTION SYSTEM WILL NO LONGER BE REQUIRED.

RAVENNA ARSENAL, INC. MAY ISOLATE THOSE PARTS OF THE SYSTEM BY PLUGGING THE LINES ABOVE THE FIRST CONTRIBUTING SOURCE. INFILTRATION COLLECTED BY THE SYSTEM ABOVE THE PLUG WOULD BE PROVIDED A ROUTE TO FLOW TO AN ADJACENT STREAM OR DITCH.

D4:\SEWER2



LAY AWAY OF SAND CREEK STP

**LIFT STATION AT LL-1**

1. REMOVE PUMPS FROM BASEMENT CLEAN AND FLUSH POTS.
2. REMOVE SIGNIFICANT ELECTRICAL APPURTENANCES FROM LOWER LEVEL AREA.
3. SECURE INFLUENT AND EFFLUENT VALVES TO SYSTEM.
4. SECURE POTABLE WATER.

**LIFT STATION AT LL-12**

1. CLEAN POTS & REMOVE PUMPS AND REMOVE TO UPPER LEVEL.
2. REMOVE SIGNIFICANT ELECTRICAL APPURTENANCES FROM LOWER LEVEL AREA.
3. FLUSH & SECURE INFLUENT AND EFFLUENT VALVES TO SYSTEM
4. SECURE POTABLE WATER.
6. IF ELECTRIC IS OFF PULL CUTOUPS AT TRANSFORMER STATION. THIS WILL ALSO INSURE LIFT STATION IS NOT TRANSFERRING ANY POTENTIAL MATERIAL TO SAND CREEK STP.

THE LIFT STATION COLLECTION MANHOLE IS AT 965.6 FEET ELEVATION INTERIOR. THE 8 INCH DIAMETER OVER FLOW HAS BEEN RESTRUCTURED INTO A FRENCH DRAIN FOR THE IMMEDIATE RECEIVING AREA [ ALL WATERS INFILTRATED FROM THE ROAD WHICH IS NEWLY BLACKED TOPPED AND THE PARKING LOT FOR 900 BLDG. ] PROVISIONS WILL HAVE TO BE MADE TO ALLOW OVERFLOW CAPABILITIES IF THE STRUCTURE OR LIFT STATION WOULD FLOOD.

THE MANHOLE PRIOR TO THE CREEK IN LOADLINE 12 EAST OF 900 BUILDING WILL HAVE THE EFFLUENT OUTLET CEMENTED OVER TO FORCE THE INFILTRATION AND INFLOW WATERS FLOWING IN THE COLLECTION SYSTEM TO OVERFLOW AND VACATE TO THE CREEK.

SD-1 SAND CREEK STP

1. CLEAN AND FLUSH ALL RECEIVING TANKS INTERIOR OF LIFT STATION HEADWORKS.
2. REMOVE CHEMICAL INJECTOR PUMPS, FLUSH AND LAYAWAY ( HEADWORKS AND FINAL CLARIFIER BLDG. )
3. IMHOFF TANKS DRAIN AND PUMP CLEAN.
4. CLEAN THE DOSING AND TRICKLING FILTER FLUSH AND CLEAN TANKS.
5. REMOVE ARAMATURES AND CAPSTAN AND STORE.

7. SECURE THE FINAL CLARIFIER, DRAIN, PUMP AND CLEAN. LAYAWAY.
8. SECURE CHLORINE BUILDING AND CONTACT TANKS, CLEAN AND FLUSH. REMOVE CHLORINE MONITORS AND INJECTION UNITS.

WITH ALL LIFT STATIONS OUT OF THE SYSTEM AND NO GENERATING SOURCE, FLUSH THE PLANT WITH REGULAR INFILTRATION FLOW FOR 30 DAYS OR UNTIL THE IN INFILTRATION AT THE HEADWORKS OF THE SEWAGE TREATMENT PLANT IS EQUAL TO OR BELOW NPDES PARAMETER LIMITS.

OPTION 1.

LAYAWAY OF THE TANKS WILL BE COMPLETED AND THE TANKS WILL EITHER BE FILLED WITH MATERIAL SUCH AS RIVER RUN ROCK OR SAND.

OPTION 2.

EXCAVATE THE NORTH END OF THE IMHOFF TANKS AND CORE DRILL A HOLE IN THE IMHOFFS AT THE BOTTOM OF THE CONES TO DRAIN THE RAIN AND ANY OTHER ACCUMULATED WATERS.

THE ARMY MAY REQUIRE THAT THE AREA BE FENCED OF TO KEEP OUT ANY VISITOR TO PREVENT ACCIDENTS.

LAYAWAY OF DEPOT SEWAGE TREATMENT PLANT

DEPOT SEWAGE TREATMENT PLANT WILL BE LAYED AWAY WITH THE SAME OPTIONS.

THE HEADWORKS WOULD HAVE THE INFLUENT FLOW DIVERTED AND ALLOWED TO GO TO THE STREAM. THIS AREA IS 1.5 FOOT BELOW GROUND LEVEL, AND COULD BE EASILY DIVERTED AFTER THE SYSTEM IS FLUSHED AND STABILIZED AT STREAM LEVELS OR AS NPDES PERMIT REQUIRES.

THE PLANT IN GENERAL WILL BE LAYED AWAY IN THE SAME MANNER AS SAND CREEK SEWAGE TREATMENT PLANT.

b:\sewer  
#4



RAVENNA ARSENAL, INC.

8451 STATE ROUTE 5, RAVENNA, OHIO 44266-9297  
TELEPHONE: (216) 358-7111 • FAX: (216) 297-3216

September 10, 1993

Commanding Officer's Representative  
Ravenna Army Ammunition Plant  
8451 State Route 5  
Ravenna, Ohio 44266-9297

Subject: Permit to Install Septic System

Dear Sir:

Attached per your request is a copy of the application for the Permit to Install and the actual permit received. The permit limits the average daily hydraulic flow to a maximum of 820 gallons. The limit is based on calculations by the engineer in the Basis of Design Report which is included as part of the application. A total of 24 transient people are identified in the calculations. Twenty-four was selected as the maximum number than can be served by a water system without falling into the Non-Community - Non Transient public water system classification. That classification would require permitting by the Ohio EPA whereas a private well permit can be obtained from the Portage County Board of Health.

The benefits of the private well permit are a much shorter lead time and less frequent sampling and reporting requirements. We have complied with Ohio EPA requirements for siting the well in case it should become necessary to permit it as a Non-Community - Non-Transient Water Supply.

If the government and Mason and Hanger plan to have more than a total of 24 people use the water and sewer at Building 1037 and Post 1, we suggest Mason and Hanger contact the Ohio EPA to see what options may be available. Construction on both the well and septic systems could start as early as September 13, 1993.

Sincerely,

RAVENNA ARSENAL, INC.

A handwritten signature in cursive script that reads "H.R. Cooper".

H.R. Cooper  
Engineering Manager

:bk/SEPTCPRM.RK

c: N. Wulff  
T. Chanda

*Chanda*

PURCHASE ORDER CHANGE

RAVENNA ARSENAL, INC.  
Ravenna, Ohio 44266  
(216) 358-7111  
Contract No. DAAA09-88-Z-0001

OB070X

Date 6-16-93

SDB

BAT ASSOCIATES, INC.  
27801 EUCLID AVENUE  
SUITE 450  
EUCLID, OH 44132

P. O. No. 23719 CH-1

ACCT. No. \_\_\_\_\_

Please amend our Purchase Order No. 23719, Dated 8-27-91, as follows:

SUBCONTRACTOR IS HEREBY DUALY NOTIFIED THAT CONTRACT DAAA09-88-Z-0001 BETWEEN RAVENNA ARSENAL, INC., AND THE GOVERNMENT WILL EXPIRE ON SEPTEMBER 30, 1993. IT IS VITAL THAT WORK MUST BE CONTINUED WITHOUT INTERRUPTION AND UPON CONTRACT EXPIRATION, THE SUBCONTRACT WILL BE ASSIGNED TO A SUCCESSOR CONTRACTOR.

*Closeout on Septic Tank Design Work.*

TOTAL REVISED COST: NO CHANGE

ENGR/BJ/bb

This order, except as herein amended, shall in all other respects remain as before, unless completely cancelled.

RAVENNA ARSENAL, INC.

By *[Signature]*  
Contract Procurement & Purchasing

Approved By \_\_\_\_\_  
For Contracting Officer

*Chanda*

PURCHASE ORDER CHANGE

R A V E N N A A R S E N A L, I N C.

Ravenna, Ohio 44266

(216) 358-7111

Contract No. DAAA09-88-Z-0001

OBO70X

SDB

BAT ASSOCIATES, INC.  
27801 EUCLID AVENUE  
SUITE 450  
EUCLID, OH 44132

Date 6-16-93

P. O. No. 23719 CH-1

ACCT. No. \_\_\_\_\_

Please amend our Purchase Order No. 23719, Dated 8-27-91, as follows:

SUBCONTRACTOR IS HEREBY DUALY NOTIFIED THAT CONTRACT DAAA09-88-Z-0001 BETWEEN RAVENNA ARSENAL, INC., AND THE GOVERNMENT WILL EXPIRE ON SEPTEMBER 30, 1993. IT IS VITAL THAT WORK MUST BE CONTINUED WITHOUT INTERRUPTION AND UPON CONTRACT EXPIRATION, THE SUBCONTRACT WILL BE ASSIGNED TO A SUCCESSOR CONTRACTOR.

TOTAL REVISED COST: NO CHANGE

ENGR/BJ/bb

This order, except as herein amended, shall in all other respects remain as before, unless completely cancelled.

RAVENNA ARSENAL, INC.

By *[Signature]*  
Contract Procurement & Purchasing

Approved By \_\_\_\_\_  
For Contracting Officer

**RAVENNA ARMY AMMUNITION PLANT  
RAVENNA ARSENAL, INC.**

**RECORD OF CONVERSATION**

DATE: 29 September 1993

FROM: Susan McCauslin  
Env. Engineer

PHONE: 216-297-3220

TO: Bill Zawiski  
Ohio EPA NEDO

PHONE: 216-425-9171

SUBJECT: RAI's Inability to Locate 5 of the 13 Septic Tanks Slated  
for Closure

I telephoned Mr. Zawiski to inform him that in our quest to close all known septic tanks, we were unable to locate 5 out of a total of 13 that were to be filled. I informed him that we made a good effort to locate all septic tanks, and could not find all the 13 that we believe existed. I asked him if the Agency would require any further action on our part to find these tanks. He responded that he did not believe that this would present a problem, or require any further action.

RAVENNA ARMY AMMUNITION PLANT  
RAVENNA ARSENAL. INC.

RECORD OF CONVERSATION

DATE: 16 June 1993

FROM: T.M. Chanda PHONE: 216-297-3221  
Env. Eng.

TO: Ohio EPA - NEDO PHONE: 216-425-9171  
Mr. Bill Zawiski, Env.  
Twinsburg, OH

SUBJECT: Wastewater Treatment Facility Construction Under "0"  
Discharge Standards With The Use of Wetland Areas.

Subject discussion was engaged in order to determine OEPA policy guidelines in construction of facilities and their compliance with "0" discharge. Mr. Zawiski indicated that there are two approaches to the issue of wastewater to wetlands discharge from facility treatment operations: both of which are within the confines of meeting "0" discharge standards.

Discharge can be to an established wetlands which would require the treatment facility to abide by OEPA standards applicable to surface waters of the State. These standards are expressly mandated in the Ohio Administrative Code (OAC) Rules 3745-1-01 through -1-07 and Rule 3745-1-25. The standards for monitoring would exceed in number the parameters experienced in the current RVAAP NPDES permit. Monitoring would still be at end of pipe.

The other alternative would be for the operating entity to construct a specifically designed wetland at the end of the treatment facility's discharge pipe. This alternative would result in State discharge standards that would typically parallel those of the existing RVAAP NPDES facility permit. Construction of a wetlands must be according to Ohio EPA and TVA stds. Actual monitoring (i.e. at end-of-pipe or at point of wetlands discharge) would be decided upon by the regulator.

Regardless of the wetlands setting, the proposed treatment facility would be required to install tertiary treatment of aeration, sand filtration, and disinfection (chlorination/dechlorination, U.V., bromination).

("0" Discharge/RVAAP Telecon)

2-

Zawiski said that such a system could have a Permit-to-Install (PTI) within 2 weeks following permit application and a subsequent Permit-To-Operate (PTO) within 3 mos. This turnkey process would be contingent upon reliable and effective operational design submissions within the PTI; both for the actual treatment facility and the wetlands (either constructed or in-situ).

In the discussion, it appeared that CEPA expects explosive wastewater to undergo tertiary treatment (aeration, sand filtration, and disinfection) the same as for domestic wastewater.

This combined/blended wastewater treatment would result in a one pipe discharge to the receiving wetlands: a situation CEPA seems to favor.

For obvious economic reasons pertinent to construction costs, discharge to an established wetlands would be more favorable.

  
T.M. Chanda

cc: N. Wulff  
H. Cooper

File



ROBERT BOSSOW, INC.

8038 GOTHAM RD.  
GARRETTSVILLE, OHIO 44231

PHONE: (216) 527-4335

RECEIVED

AUG 9 1993

ENGINEERING

August 4, 1993

Ravenna Arsenal, Inc.  
8451 State Route 5  
Ravenna, OH 44266-9297

Attention: Dan Jendrisak

RE: P O # 27799  
R.A.I. - Close Utility Systems  
Septic Tank Areas Not Found

Dear Mr. Jendrisak:

The following septic tank areas were not found:

- A. Extreme western load line. ( Depot )
- B. Charlestown guard house.
- C. Windham guard house.
- D. Service road fire station.
- E. North line wash house.

The above information is being sent to you on  
Robert Bossow, Inc. letterhead as requested in Specifications.

Submitted by,

ROBERT BOSSOW, INC.

*Robert Bossow/le*

Robert Bossow, President

RB:le

RAVENNA ARSENAL, INC.

TELEPHONE CONVERSATION RECORD

17 JUNE 1993

PERSON CALLING: Mary Jane Beck, AMSMC-EHR  
DSN: 793-1417

PERSON CALLED: Tim Morgan, RAI Land Manager  
DSN: 346-3244

SUBJECT: SHPO Coordination of Sewage Plant and Well House  
Closures

=====

Mrs. Beck called to tell me that AMCCOM has contacted the Ohio SHPO concerning subject projects. The SHPO unofficially agreed that there will probably be no impacts on any cultural resources, but will not have an official review of the projects until 15 July 1993. Pending a finding of "no impact" the projects should be cleared by the SHPO by 16 July 1993. HUD coordination/approval will also be required on the well houses. I do not know when this will be complete. The paperwork is at HUD.



Tim Morgan

:bp/SHPO.BCK

c: N. Wulff  
H. Cooper  
D. Jendrisak  
S. M<sup>c</sup>Causlin

# CONTRACT DATA REQUIREMENTS LIST

Form Approved  
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 220 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, D.C. 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting officer for the Contract/PR. No. listed in Block E.

A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP _____ TM _____ OTHER <u>AR 700-51</u>
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D. SYSTEM/PR NO. Project 5938337- 2	E. CONTRACT/PR NO. 5938337- 2	F. CONTRACTOR Ravenna AAP
--	----------------------------------	------------------------------

1. DATA ITEM NO. A001	2. TITLE OF DATA ITEM GOCO Plant RCS Report	3. SUBTITLE Layaway/Relocation Project Status Report
--------------------------	--	---

4. AUTHORITY (Data Acquisition Document No.) DI-L-1415B	5. CONTRACT REFERENCE SOW Para 4	6. REQUIRING OFFICE AMSMC-PBS-L (R)
--	-------------------------------------	--

7. DD 250 REQ NO NO	9. DIST STATEMENT REQUIRED N/A	10. FREQUENCY MTHLY	12. DATE OF FIRST SUBMISSION See Block 16	14. DISTRIBUTION		
8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION *	a. ADDRESSEE		b. COPIES	
					Draft	Final
					Reg	Repro

16. REMARKS  RCS: SMC PB-1005 AMCCOM Form 333-R IAW AMCCOMR 235-5. First report will be submitted 15th day following first of the month in which the contract is modified.  *15 calendar days after EOM.	AMSMC-PBS-L(R)	0	1	
	COR (GOCO)	1	0	
	15. TOTAL		1	1

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
------------------	-----------------------	-------------

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
--	-----------------------	---------------------

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION	14. DISTRIBUTION		
8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION	a. ADDRESSEE		b. COPIES	
					Draft	Final
					Reg	Repro

16. REMARKS			
15. TOTAL			

G. PREPARED BY R. RUDY TOOTH, Team Leader AMSMC-PBS-L (R)	H. DATE 19 Feb 93	I. APPROVED BY SANDRA J. KEAG, SDMO SMCAR-BAT-OR	J. DATE 19 Feb 93
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17. PRICE GROUP
18. ESTIMATED TOTAL PRICE

17. PRICE GROUP
18. ESTIMATED TOTAL PRICE

Encl 2

RAVENNA ARMY AMMUNITION PLANT (AAP)  
PROJECT 5938337-2  
DEACTIVATION OF SEPTIC SYSTEMS  
TANKS TO BE FILLED IN

NO.	LOCATION	SIZE
01	BUILDING 849	UNKNOWN
02	TRAFFIC CONTROL BUILDING	431 CUBIC FT
02	BUILDING 812	63 CUBIC FT
04	BUNDLING BUILDING	4,641 CUBIC FT
05	BUILDING F-15 A	609 CUBIC FT
06	BUILDING F-15 B	1,211 CUBIC FT
07	FREEDOM GATE	UNKNOWN
08	BUILDING 950-C (POST 20)	UNKNOWN
09	WINDHAM GATE	UNKNOWN
10	CHARLESTON GATE	UNKNOWN
11	DEPOT BUILDING F1	UNKNOWN
12	DEPOT BUILDING F2	UNKNOWN
13	DEPOT BUILDING F3	UNKNOWN

MECHANICAL ORDER REQUEST  
RAVENNA ARSENAL INC

DATE: 28-May-93

WRITTEN BY: ENGINEERING

M.O. NUMBER: 5938327-2 JOB #: 3PSW

FOR: 3PSW (P17)

PRG CHG OR COST POOL:  
ACRN / CLIN: DJ 0043AL

PROJECT NUMBER:

<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> ALTERATIONS
<input type="checkbox"/> NEW EQUIPMENT	<input type="checkbox"/> REPLACEMENT EQUIPMENT
<input type="checkbox"/> REPAIRS & MAINTENANCE	

COST-ACCOUNTING:  
*[Signature]*  
RAR 6/1/93

COST DATA:	9,315	LABOR
	\$5,902	FRINGES
	25,178	MATERIAL/PURCH SERV
	200,895	SUBCONTRACTS
	0	EQUIPMENT
	2,833	ALLOCATED OVERHEAD
	261,326	GENERAL OVERHEAD
	55,975	G&A OVERHEAD
	17,043	FEE
	0	ADJ: EQP-SPEC FUNDS/SCRAP INC
	-----	
	\$578,467	TOTAL

ASSIGNED TO:  
*[Signature]*  
STAFF ENGINEER:

DESCRIPTION / LOCATION OF ITEM:  
CLOSURE OF SEWAGE TREATMENT FACILITIES AND SEPTIC SYSTEMS

REASON FOR M.O. REQUEST:  
REQUIRED AS PART OF DOWNSIZING OF RVAAP TO MODIFIED CARETAKER STATUS

FULL EXPLANATION OF REQUEST:

APPROVALS:

ENGINEERING MANAGER: *[Signature]*

GENERAL MANAGER: *[Signature]*

ACCOUNTING MANAGER: *[Signature]*

CONTRACTING OFFICER'S REP: *[Signature]*

ORIGINATING DEPT/DIV MGR: \_\_\_\_\_

PLANT PROTECTION MGR: \_\_\_\_\_

SAFETY MANAGER: *[Signature]*

CONTRACT ADMINISTRATOR: *[Signature]*



**RAVENNA ARSENAL, INC.**  
 8451 STATE ROUTE 5, RAVENNA, OHIO 44266-9297  
 TELEPHONE: (216) 358-7111 • FAX: (216) 297-3216

13 May 1993

**THRU:** Contracting Officer's Representative  
 Ravenna Army Ammunition Plant  
 8451 State Route 5  
 Ravenna, OH 44266-9297

**TO:** Commander, U. S. Army  
 Armament, Munitions & Chemical Command  
 Attn: AMSMC-PAI-G(Team A)/Ms. Shirlene Wise  
 Rock Island, IL 61299-6000

**Subject:** Cost Estimate for Layaway Project 5938327-2  
 Closure of Sewage Treatment Facilities and  
 Septic System

- Ref:** 1) RAI Letter (H. Cooper/D. Kanavy) to AMCCOM (S. Wise), May 3, 1993  
 2) RAI Letter (H. Cooper/D. Kanavy) to AMCCOM (S. Wise);  
 Cost Estimate for Layaway Project 5938327-2; 19 April 1993  
 3) E-mail Message 1 March 1993; FY-93 Layaway Project SOW's

Dear Ms. Wise:

Attached per your request is a revised cost estimate of \$202,976 for Para. 8.5.0 of the subject project. This reflects the reduction of one toilet trailer and one wash trailer from the estimate submitted May 3, 1993. The revised request for Para. 8.5 and the total project is as follows:

Project 5938327-2	First Request	Revised Second Request	Revised Total Request
Paragraph 8.5	\$607	\$202,976	\$203,583
Total Project	\$375,491	\$202,976	\$578,467

If you have any questions on the estimate, call me at DSN 793-3240.

Sincerely,

H. R. Cooper,  
 Manager, Engineering

Concurred by:

D. E. Kanavy,  
 Manager, Accounting

:sh

- cc:** AMSMC-PBS-L/J. Gumpert  
 B. Jenkins  
 D. Kanavy  
 J. McGee  
 N. Wulff

*Suc*

RAVENNA ARSENAL INC. DATE: 13-May-93  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 REFERENCE: PARA. 8.5.0 S/C PORTABLE FACILITIES  
 PROJECT # : 5938327-2  
 N  
 N SEWR850  
 FY93 BUDGET - 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC:MATERIALS AND SERVICES	\$23,794	
SUBCONTRACTS	\$59,620	
	-----	\$83,414

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	20.0	\$13.94	\$279	
2580 RDS & GRDS MTCE	16.0	\$13.95	\$223	
22x0 UTILITY MTCE	8.0	\$14.03	\$112	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
2100 OTHER HOURLY LABOR	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----		-----	\$614
2540 ENGINEERING	0.0	\$0.00	\$0	
TOTAL SALARY COST	-----		-----	\$0
TOTAL HOURS	44.0			

DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$614	75.83%	\$466	
SALARIED	\$0	43.10%	\$0	
			-----	\$466

TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS:	-----	\$84,494
---	-------	----------

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
MAINTENANCE	36.0	\$32.374	\$1,165	
TOTAL ALLOCATED OVERHEAD			-----	\$1,165

TOTAL COST INPUT			
GENERAL OVERHEAD		107.047%	\$85,659
G&A OVERHEAD		11.075%	\$91,695
FEE		3.036%	\$19,642
			-----
			\$5,980

TOTAL FUNDS ESTIMATE - WITH OVERHEADS	-----	\$202,976
	=====	

RAVENNA ARSENAL INC.  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 PARA. 8.5.0 S/C PORTABLE FACILITIES

DATE: 13-May-93

\*\*\*DETAIL OF MATERIAL AND LABOR CHARGES:

\*\*\*\*\*

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST
TOILET RENTAL	2	EA	\$7,800.00	\$15,600.00
HANDWASH RENTAL	3	EA	\$1,200.00	\$3,600.00
SERVICE RENTAL EQUIP	1	EA	\$2,620.00	\$2,620.00
DRINKING WATER SERVICE	1	EA	\$1,620.00	\$1,620.00
PUMP PACKAGE	1	EA	\$354.49	\$354.49

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST
INSTALL SEPTIC SYSTEMS	1	EA	\$59,619.56	\$59,619.56
DESCRIPTION	0	EA	\$0.00	\$0.00

LABOR - DEPT:	HOURS	RATE	LABOR COST
2320 W-031 Millwright	0.0	\$13.95	\$0.00
2320 W-034 Electrician	2.0	\$13.95	\$27.90
2320 W-087 Lineman	0.0	\$14.02	\$0.00
2320 W-152 Instr Rpr	0.0	\$14.03	\$0.00
2320 W-038 Plumber	14.0	\$13.95	\$195.30
2320 W-091 Carpenter	4.0	\$13.89	\$55.56
2100 W-180 Auto Mech	0.0	\$13.78	\$0.00
2580 W-003 Mtce Laborer	0.0	\$12.67	\$0.00
2580 W-025 Trk Driver	0.0	\$13.02	\$0.00
2580 W-075 Hvy Eqp Oper	16.0	\$13.95	\$223.20
2200 W-033 Oper Eng-Stm	0.0	\$13.95	\$0.00
2260 W-088 Water Plt Op	0.0	\$13.86	\$0.00
2260 W-191 Util Eqp Mch	8.0	\$14.03	\$112.24
2280 W-086 Sewg Disp Op	0.0	\$13.86	\$0.00
2560 W-158 Mech Eqp Ins	0.0	\$14.00	\$0.00
2540 ENGINEERING	0.0	\$19.50	\$0.00



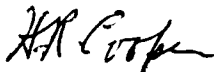
A separate estimate detail is attached for paragraph 8.5. The in-house labor to be used is identified on the estimate detail. The labor is broken out by labor classification.

This estimate represents the second phase of the total scope of work for this project and is submitted so that work can be started as soon as possible.

Request funds be provided as soon as possible. If you have questions on the estimates, contact the undersigned at DSN 793-3240.

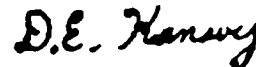
Sincerely,

RAVENNA ARSENAL, INC.



H.R. Cooper  
Engineering Manager

Concurrence:



David E. Kanavy  
Accounting Manager

:SM/bp/5938327.2II

Attachments (2) - Detailed Estimate Sheet with Three (3)  
Subcontractor Quotes

c:	N. Wulff	w/o attachments
	D. Kanavy	w/ attachments
	B. Jenkins	w/ attachments
	J. McGee	w/ attachments
	H. Cooper	w/ attachments

cf: AMSMC-PBS-L/J. Gumpert

RAVENNA ARSENAL INC.

DATE: 03-May-93

COST ESTIMATE FOR: CLOSURE OF SEWAGE TREATMENT FACILITIES AND SEPTIC SYSTEMS

REFERENCE: PARAGRAPH 8.5.0

PROJECT # : 5938327-2

N  
N UTIL850

FY93 BUDGET - 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC:MATERIALS AND SERVICES	\$32,794	
SUBCONTRACTS	\$59,620	
	-----	\$92,414

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	20.0	\$13.94	\$279	
2580 RDS & GRDS MTCE	16.0	\$13.95	\$223	
22x0 UTILITY MTCE	8.0	\$14.03	\$112	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
2100 OTHER HOURLY LABOR	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----		-----	\$614
2540 ENGINEERING	0.0	\$0.00	\$0	
TOTAL SALARY COST	-----		-----	\$0
TOTAL HOURS	44.0			

DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$614	75.83%	\$466	
SALARIED	\$0	43.10%	\$0	
			-----	\$466

TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS:	-----	\$93,494
---	-------	----------

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
MAINTENANCE	36.0	\$32.374	\$1,165	
TOTAL ALLOCATED OVERHEAD			-----	\$1,165

TOTAL COST INPUT			-----	\$94,659
GENERAL OVERHEAD		107.047%		\$101,330
G&A OVERHEAD		11.075%		\$21,706
FEE		3.036%		\$6,608
			-----	\$224,303

TOTAL FUNDS ESTIMATE - WITH OVERHEADS	=====	\$224,303
---------------------------------------	-------	-----------

RAVENNA ARSENAL INC.

DATE: 03-May-93

COST ESTIMATE FOR: CLOSURE OF SEWAGE TREATMENT FACILITIES AND SEPTIC SYSTEMS  
PARAGRAPH 8.5.0

\*\*\*DETAIL OF MATERIAL AND LABOR CHARGES:

\*\*\*\*\*

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST
TOILET RENTAL	1	EA	\$23,400.00	\$23,400.00
HANDWASH RENTAL	1	EA	\$4,800.00	\$4,800.00
SERVICE RENTAL EQUIP	1	EA	\$2,620.00	\$2,620.00
DRINKING WATER SERVICE	1	EA	\$1,620.00	\$1,620.00
PUMP PACKAGE	1	EA	\$354.49	\$354.49

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST
DESCRIPTION	1	EA	\$59,619.56	\$59,619.56
DESCRIPTION	0	EA	\$0.00	\$0.00

LABOR - DEPT:	HOURS	RATE	LABOR COST
2320 W-031 Millwright	0.0	\$13.95	\$0.00
2320 W-034 Electrician	2.0	\$13.95	\$27.90
2320 W-087 Lineman	0.0	\$14.02	\$0.00
2320 W-152 Instr Rpr	0.0	\$14.03	\$0.00
2320 W-038 Plumber	14.0	\$13.95	\$195.30
2320 W-091 Carpenter	4.0	\$13.89	\$55.56
2100 W-180 Auto Mech	0.0	\$13.78	\$0.00
2580 W-003 Mtce Laborer	0.0	\$12.67	\$0.00
2580 W-025 Trk Driver	0.0	\$13.02	\$0.00
2580 W-075 Hvy Eqp Oper	16.0	\$13.95	\$223.20
2200 W-033 Oper Eng-Stm	0.0	\$13.95	\$0.00
2260 W-088 Water Plt Op	0.0	\$13.86	\$0.00
2260 W-191 Util Eqp Mch	8.0	\$14.03	\$112.24
2280 W-086 Sewg Disp Op	0.0	\$13.86	\$0.00
2560 W-158 Mech Eqp Ins	0.0	\$14.00	\$0.00
2540 ENGINEERING	0.0	\$19.50	\$0.00



# WMI Services



RENT — LEASE — BUY.



CONSTRUCTION TRAILERS



PORTABLE TOILETS



STORAGE TRAILERS



TEMPORARY FENCING

TOLL FREE DIAL 1  
**800 633-7004** OR **216 923-5236**  
1330 MAIN CUYAHOGA FALLS

MR 720-95 NOV 13-94

WHISLE BIGHT OF OHIO-RARON

PHA NO. 9233300

PF02

SPECIFICATION PS-847  
PROVIDE PROTABLE TOILETS AND SINKS  
AS TEMPORARY SERVICE  
FOR THE  
RAVENNA ARMY AMMUNITION PLANT  
ATTACHMENT #1  
BID SHEET

B.J. JENKINS  
APR 26 1993  
cc: *Ta Dai*

	Rental & Service 1 Month	Rental & Service 2 Month	Rental & Service 3 Month
3 Ea Type A Emergency Shower/Eyewash located @ (1035,STP,1034) Zero service unless discharged.....			
<b>3X</b> Ea Type B Multi-Stall Bi-Sexual Toilet Located @ (1035,1048,1080) Serviced (2x) per unit per week.....	\$ 7,800.00	15,600.00	23,400.00
<b>3X</b> Ea Type C Portable Handwash Trailer <del>Enclosed w/ 3 to 4 sinks/water</del> Located @ (1035,1048,1030) Serviced (2x) per unit per week.....	\$ 1,200.00	2,400.00	3,600.00
1 Ea Type D Self Contained Shower Trailer Located @ (1048) Serviced (2x) per unit per week.....			
0 Ea Type E (Existing Standard Toilets) Located @ (1035, Post 1, STP) Service for 3 Units @ (2x) per unit per week.....	\$ 120.00	240.00	360.00
1 Ea End of Contract Remote Servicing Located @ (11 sites per A109 Map) Serviced @ (1x) per unit.....	\$ 100.00	XXXXXXXXXX	XXXXXXXXXX

*NOTE:*

TYPE E EXPANDED TO POSSIBLE 18 UNITS  
 S/C SVC 3 = 360/3mo  
 18 = 2160/3mo

TYPE C EXPANDED TO MANDATORY 4EA UNITS  
 3 = 3,600  
 4 = 4,800

Tot. Svc = 18 TYPE E = \$2,160  
 1 TYPE E = 360  
 (Gross Unit)  
 1 End of Contract = 100  
 \$2,620

	CLEAR WATER	DISTILLATA	CULLIGAN
01) RENTAL COOLERS	(11 @ \$) = 55.00	(11 @ 7) = 77/mo	(11 @ 7.50) / 4 wks = 82.50/mo
02) CUPS - 1000 Dispenser	(\$10/1000 EA) N/C	(\$12/1000 EA) @ 5K = 57.50 N/C	< >
03) BOTTLES WTR.	\$3.75/EA (3.60 @ 22)	\$3.50/EA	\$4.50/EA
04) DEPOSIT	(7.00/BOTTLE) RETURNED.	(7.00/BOTTLE)	(7.50/BOTTLE) (4 WK CYCLE)

< >      < 5d. response >      < >  
 1-800-356-7071      1-800-999-9052      1-800-444-4403  
 s/c = \$1,620

APPLIED ASSUMPTIONS  
12-APR-93

01 (11 COOLERS @ 3mo)	\$165.00	\$231.00	\$247.50
02 CUPS (5K)	50.00	57.50	<u>57.50</u>
03 [(9 sites @ 3/wk) (3 sites @ Stock II)] TOT 25 Bottles/wk * x 13 wks 325 Bottles * - 22 Stock <u>347 Bottles</u>	1,249.20	\$1,214.50	\$1,561.50
04 DEPOSIT (22X)	154.00	154.00	165.00
	<u>\$1,618.20</u>	<u>\$1,657.00</u>	<u>\$2,031.50</u>

TO Bill Jenkins  
Ravenna Arsenal

Quotation Date 3-31-93

Our Quote & Spec. No. \_\_\_\_\_

Your Inquiry No. \_\_\_\_\_

Your Inquiry Date 3-31-93

Job Ravenna Arsenal

Gentlemen: We take pleasure in quoting you as follows:

Rental of 11 Cook and Cold Water Coolers	\$5.00each
Cone Shaped Cups	\$10.00 per 1000
5 Gallon Bottles of Purified Water - Delivered	\$3.15each

There is a \$7.00 returnable deposit per bottle.  
Cup Dispensers for each cooler at no charge.

*3.60 used on vol of 22.  
4/1/93  
Bgg*

The equipment and/or material proposed will be as described above and in accordance with specifications attached to and made a part of this quotation.

No. of sheets attached n/a

Prices are F. O. B. our plant Shipping Point \_\_\_\_\_

Approx. Shipping Weight, lb. \_\_\_\_\_ Freight cost, estimated \$ \_\_\_\_\_ to n/a

Payment Terms n/a Delivery \_\_\_\_\_

We thank you for the opportunity of quoting on your requirements.

By Bill Boehm

authorized signature  
Bill Boehm  
1 900 254 7071

# THE *distillata* COMPANY

MANUFACTURERS OF DISTILLATA DISTILLED WATER • ARTESIAN SPRING WATER • BOTTLED WATER COOLERS  
1542 EAST 24TH STREET • CLEVELAND, OHIO 44114 • 216/771-2900 • (800) 999-2906

April 1, 1993

B.J. JENKINS

APR 1 1993

Dear Mr. Jenkins,

Thank you for requesting our price list from the Distillata Company. We would be very pleased to be your bottled water company.

You requested a price for the following:

11 straight cold coolers rental from July 1, 1993 to September 30, 1993 would be \$7.00 a month for each

Our 5-gallon carboys of Artesian Spring Water or Our Distilled Water is \$3.50 a bottle

Bottle Deposit for each is \$7.00

Cone cups are \$12.00 for a 1000 or \$57.50 for 5000

Cup dispensers will be given to you at NO CHARGE

We would need 5 business days to be able to get the coolers to you

If you have any questions, call me at 1-800-999-9052 or by fax 253-5566.

Thank you again for letting us quote you our prices. I hope we will be able the service you in the future.

Sincerely,

*Judi Fletcher*

Judi Fletcher  
Akron Office Manager

Over 150 Years of Distillata for Health - Since 1807



YOUNGSTOWN DIVISION

2423 HUBBARD ROAD  
YOUNGSTOWN, OHIO 44505  
(216) 744-4403

Cooksey's  
**Culligan**

SERVING EASTERN OHIO AND WESTERN PENNSYLVANIA  
1-800-444-4403

KENT DIVISION

1760 STATE ROUTE  
P.O. BOX 292  
KENT, OHIO 4424  
(216) 673-3933

Bill Jenkins  
Ravenna Arsenal  
Fax: 297-3216

B.J. JENKINS  
APR 8 1993

Dear Mr. Jenkins,

Rental rate - 11 coolers - \$7.50 each per 4-week cycle  
Water - \$4.50 per 5 gallon bottle (delivered)  
Deposit - \$7.50 per bottle

Water will be delivered every 4 weeks.

Sincerely,

Wade Currence

RESIDENTIAL, COMMERCIAL, INDUSTRIAL WATER CONDITIONING PRODUCTS AND SERVICES  
COMPLETE DRINKING WATER SYSTEMS AND PURIFICATION  
BOTTLED DRINKING WATER DELIVERIES

COOKSEY, INC.

CULLIGAN WATER CONDITIONING



RAVENNA ARMY AMMUNITION PLANT  
 SEPTIC SYSTEM DESIGN  
 TO SERVE POST 1 AND BLDG. 1037  
 DETAILED COST ESTIMATE  
 DATE PREPARED:  
 PREPARED BY:

APRIL 30, 1993  
 LYNN D. CLERMER, P.E.

DIVISION	QUANTITY	UNITS	UNIT COSTS**	UNIT COSTS**	UNIT COSTS**	UNIT COSTS**	TOTAL COST OF ITEM
			MATERIAL	LABOR	EQUIP.	OVERHD.	
<b>EXCAVATION, FILL AND BACKFILL</b>							
EXCAVATION FOR TANKS	40	CU. YD.	\$0.00	\$2.50	\$3.25	\$1.72	\$7.48
TRENCH EXCAVATION, 4FT. AVG	3000	LIN. FT.	\$0.00	\$1.08	\$1.35	\$0.73	\$3.16
CRUSHED STONE, 3/4 INCH	450	CU. YD.	\$14.35	\$3.21	\$1.34	\$5.67	\$24.57
GEOTEXTILR FIBER LINER	1400	SQ. YD.	\$1.00	\$0.22	\$0.00	\$0.37	\$1.58
SEEDING	300	MSF	\$11.75	\$3.77	\$3.33	\$5.66	\$24.51
TOPSOIL	35	CU. YD.	\$15.00	\$1.10	\$1.35	\$5.23	\$22.69
<b>NEW PIPING, VALVES AND FITTINGS, LOT</b>							
<b>NEW EQUIPMENT INSTALLATION</b>							
SUMP PUMPS AND CONTROLS	4	EACH	\$1,700.00	\$120.00	\$0.00	\$546.00	\$2,366.00
SEPTIC TANKS, 1000 GAL.	4	EACH	\$450.00	\$90.00	\$35.00	\$172.50	\$747.50
DOSING TANK, 500 GALLONS	2	EACH	\$275.00	\$45.00	\$20.00	\$102.00	\$442.00
DISTRIBUT. BOX, 11 OUTLET	1	EACH	\$400.00	\$50.00	\$0.00	\$135.00	\$585.00
<b>ELECTRICAL INSTALLATION, LOT</b>							
SUBTOTAL							\$59,619.56
SUBTOTAL							\$4,500.00


c  
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 H  
 N

UPDATE ON BLDG. 1037 & POST #1  
SEPTIC TANK SYSTEM DESIGN  
AND DRINKING WATER WELL SITING

28 April 1993

VIA: Telecon  
FROM: Mr. Lynn Clemmer, BAT Assoc.  
TO: T.M. Chanda, EE

1. Mechanical Drawings are done. They're still working on some electrical details.
2. Specifications aren't done, but shouldn't take long timewise to complete.
3. RAI/RVAAP can expect a completed draft NLT next week May 6th or 7th.
4. Both Post #1 and Bldg. 1037 will each have 2 - 1,000 gal. septic tanks. Due to the per capita rating of Bldg. 1037 the designated leach field cannot be installed nearby the building. Instead of having two separate leach fields, BAT is proposing to install one large leach field to service both sites; electrical pumping requirements will be necessary to reach the main leach field. BAT is also proposing that a french drain encircle the entire leach field since the large leach field impacts into areas of water entrained soils. BAT has designated the field Northeast of Post #1 as most suitable for the leach field.
5. BAT will provide two copies of the draft package that has the proposal date of 5/2 or 5/3/93.

  
TMC

cc: Jenkins  
Cooper  
Felt

April 19, 1993

THRU: Contracting Officer's Representative  
Ravenna Army Ammunition Plant  
8451 State Route 5  
Ravenna, Ohio 44266-9297

TO: Commander  
U.S. Army Armament, Munitions and Chemical Command  
ATTN: AMSMC-PCI-LB/S. Wise  
Rock Island, Illinois 61299-6000

Subject: Cost Estimate for Layaway Project 5938327-2  
Closure of Sewage Treatment Facilities and Septic  
Systems  
(REF: AMSMC-RAI-GA; E-Mail Message Dated 1 March 1993,  
Subject: FY93 Layaway Project SOWs)

Dear Sir:

The estimated cost of work to be performed in accordance with project 5938327-2 is \$375,491.00. The estimate is based on the lowest qualified bids received from competitive bidding. Copies of the three lowest qualified bids are attached to the estimate details.

The cost by paragraph number of the detailed specifications are as follows:

<u>Paragraph Number</u>	<u>Cost</u>
8.1.1	\$ 1,031.00
8.1.2	\$ 673.00
8.1.3	\$160,466.00
8.2	\$ 42,631.00
8.3.1	\$ 5,727.00
8.3.2	\$ 9,796.00
8.3.3	\$134,109.00
8.3.4	\$ 2,877.00
8.4	\$ 17,574.00
8.5	\$ 607.00
	<u>\$375,491.00</u>

A separate estimate detail is provided for each paragraph. The in-house labor to be used for the respective paragraphs is

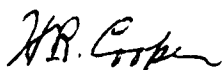
identified on the estimate details. The labor is broken out by labor classification.

This estimate represents the first phase of the total scope of work for this project and is submitted so that work can be started as soon as possible. The estimate for the installation of a septic system to service Post 1 and 1037 and for temporary sewage and water service (paragraph 8.5) will be submitted as soon as it becomes available. Please note that in accordance with the Programmatic Agreement between the Ohio SHPO, the ACHP, and USAMC dated 22 January 1993, demolition of the sewage plant structures will not take place until the photographic documentation described in the PA is completed.

Request funds be provided as soon as possible. If you have questions on the estimates, contact the undersigned at DSN 793-3240.

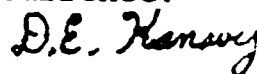
Sincerely,

RAVENNA ARSENAL, INC.



H.R. Cooper  
Engineering Manager

Concurrence:



David E. Kanavy  
Accounting Manager

:SM/bp/5938327.2SM

Attachments (2) - Detailed Estimate Sheets with Three (3)  
Subcontractor Quotes

c:	N. Wulff	w/o attachments
	D. Kanavy	w/ attachments
	B. Jenkins	w/ attachments
	J. McGee	w/ attachments
	H. Cooper	w/ attachments

cf: AMSMC-PBS-L/J. Gumpert

RAVENNA ARSENAL INC.

DATE: 15-Apr-93

COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM

REFERENCE: PARA. 8.1.1 LL #1 LIFT STATION

PROJECT # : 5938327-2

N

N SEWR811

FY93 BUDGET - 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC:MATERIALS AND SERVICES			\$11	
SUBCONTRACTS			\$0	
			-----	\$11
DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	2.0	\$13.95	\$28	
2580 RDS & GRDS MTCE	0.0	\$0.00	\$0	
22x0 UTILITY MTCE	8.0	\$14.03	\$112	
2560 PACKAGE LINES	1.0	\$14.00	\$14	
2100 OTHER HOURLY LABOR	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----		-----	\$154
2540 ENGINEERING	2.0	\$19.50	\$39	
TOTAL SALARY COST	-----		-----	\$39
TOTAL HOURS	13.0			
DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$154	75.83%	\$117	
SALARIED	\$39	43.10%	\$17	
			-----	\$134
TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS:				-----
				\$338
ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
MAINTENANCE	3.0	\$32.374	\$97	
TOTAL ALLOCATED OVERHEAD			-----	\$97
TOTAL COST INPUT				-----
GENERAL OVERHEAD		107.047%		\$435
G&A OVERHEAD		11.075%		\$466
FEE		3.036%		\$100
				-----
TOTAL FUNDS ESTIMATE - WITH OVERHEADS				=====
				\$1,031

RAVENNA ARSENAL INC.  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 PARA. 8.1.1 LL #1 LIFT STATION

DATE: 15-Apr-93

\*\*\*DETAIL OF MATERIAL AND LABOR CHARGES: \*\*\*\*\*

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST
MISC MTLs	1	SET	\$11.00	\$11.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

LABOR - DEPT:	HOURS	RATE	LABOR COST
2320 W-031 Millwright	0.0	\$13.95	\$0.00
2320 W-034 Electrician	2.0	\$13.95	\$27.90
2320 W-087 Lineman	0.0	\$14.02	\$0.00
2320 W-152 Instr Rpr	0.0	\$14.03	\$0.00
2320 W-038 Plumber	0.0	\$13.95	\$0.00
2320 W-091 Carpenter	0.0	\$13.89	\$0.00
2100 W-180 Auto Mech	0.0	\$13.78	\$0.00
2580 W-003 Mtce Laborer	0.0	\$12.67	\$0.00
2580 W-025 Trk Driver	0.0	\$13.02	\$0.00
2580 W-075 Hvy Eqp Oper	0.0	\$13.95	\$0.00
2200 W-033 Oper Eng-Stm	0.0	\$13.95	\$0.00
2260 W-088 Water Plt Op	0.0	\$13.86	\$0.00
2260 W-191 Util Eqp Mch	8.0	\$14.03	\$112.24
2280 W-086 Sewg Disp Op	0.0	\$13.86	\$0.00
2560 W-158 Mech Eqp Ins	1.0	\$14.00	\$14.00
2540 ENGINEERING	2.0	\$19.50	\$39.00

RAVENNA ARSENAL INC.

DATE: 15-Apr-93

COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM

REFERENCE: PARA. 8.1.2 LL #12 LIFT STATION

PROJECT # : 5938327-2

N

N SEWR812

FY93 BUDGET - 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC:MATERIALS AND SERVICES			\$11	
SUBCONTRACTS			\$0	
			-----	\$11
DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	2.0	\$13.95	\$28	
2580 RDS & GRDS MTCE	0.0	\$0.00	\$0	
22x0 UTILITY MTCE	3.0	\$14.03	\$42	
2560 PACKAGE LINES	1.0	\$14.00	\$14	
2100 OTHER HOURLY LABOR	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----		-----	\$84
2540 ENGINEERING	1.0	\$19.50	\$20	
TOTAL SALARY COST	-----		-----	\$20
TOTAL HOURS	7.0			
DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$84	75.83%	\$64	
SALARIED	\$20	43.10%	\$9	
			-----	\$72
TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS:				-----
				\$187
ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
MAINTENANCE	3.0	\$32.374	\$97	
TOTAL ALLOCATED OVERHEAD			-----	\$97
TOTAL COST INPUT				-----
GENERAL OVERHEAD		107.047%		\$284
G&A OVERHEAD		11.075%		\$304
FEE		3.036%		\$65
				-----
TOTAL FUNDS ESTIMATE - WITH OVERHEADS				-----
				\$673
				=====

RAVENNA ARSENAL INC. DATE: 15-Apr-93  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 PARA. 8.1.2 LL #12 LIFT STATION

\*\*\*DETAIL OF MATERIAL AND LABOR CHARGES: \*\*\*\*\*

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST
MISC MTLs	1	SET	\$11.00	\$11.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

LABOR - DEPT:	HOURS	RATE	LABOR COST
2320 W-031 Millwright	0.0	\$13.95	\$0.00
2320 W-034 Electrician	2.0	\$13.95	\$27.90
2320 W-087 Lineman	0.0	\$14.02	\$0.00
2320 W-152 Instr Rpr	0.0	\$14.03	\$0.00
2320 W-038 Plumber	0.0	\$13.95	\$0.00
2320 W-091 Carpenter	0.0	\$13.89	\$0.00
2100 W-180 Auto Mech	0.0	\$13.78	\$0.00
2580 W-003 Mtce Laborer	0.0	\$12.67	\$0.00
2580 W-025 Trk Driver	0.0	\$13.02	\$0.00
2580 W-075 Hvy Eqp Oper	0.0	\$13.95	\$0.00
2200 W-033 Oper Eng-Stm	0.0	\$13.95	\$0.00
2260 W-088 Water Plt Op	0.0	\$13.86	\$0.00
2260 W-191 Util Eqp Mch	3.0	\$14.03	\$42.09
2280 W-086 Sewg Disp Op	0.0	\$13.86	\$0.00
2560 W-158 Mech Eqp Ins	1.0	\$14.00	\$14.00
2540 ENGINEERING	1.0	\$19.50	\$19.50



RAVENNA ARSENAL INC.

DATE: 15-Apr-93

COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM

REFERENCE: PARA. 8.1.3 S/C SEWAGE TREATMENT PLANT

PROJECT # : 5938327-2

N

N SEWR813

FY93 BUDGET - 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC:MATERIALS AND SERVICES  
SUBCONTRACTS

\$66  
\$65,446

-----  
\$65,512

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	6.0	\$13.95	\$84	
2580 RDS & GRDS MTCE	6.0	\$13.95	\$84	
22x0 UTILITY MTCE	46.0	\$14.00	\$644	
2560 PACKAGE LINES	2.0	\$14.00	\$28	
2100 OTHER HOURLY LABOR	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----		-----	\$839
2540 ENGINEERING	10.0	\$19.50	\$195	
TOTAL SALARY COST	-----		-----	\$195
TOTAL HOURS	70.0			

DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$839	75.83%	\$636	
SALARIED	\$195	43.10%	\$84	
			-----	\$720

TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS: \$67,266

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
MAINTENANCE	14.0	\$32.374	\$453	
TOTAL ALLOCATED OVERHEAD			-----	\$453

TOTAL COST INPUT			-----	\$67,719
GENERAL OVERHEAD		107.047%		\$72,491
G&A OVERHEAD		11.075%		\$15,528
FEE		3.036%		\$4,728

TOTAL FUNDS ESTIMATE - WITH OVERHEADS \$160,466

RAVENNA ARSENAL INC. DATE: 15-Apr-93  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 PARA. 8.1.3 S/C SEWAGE TREATMENT PLANT

\*\*\*DETAIL OF MATERIAL AND LABOR CHARGES: \*\*\*\*\*

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST
MISC MTLs	1	SET	\$66.00	\$66.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST
DRAIN/PUMP IMMOFFS & FILL	1	EA	\$65,446.00	\$65,446.00
TANKS WITH DIRT	0	EA	\$0.00	\$0.00

LABOR - DEPT:	HOURS	RATE	LABOR COST
2320 W-031 Millwright	0.0	\$13.95	\$0.00
2320 W-034 Electrician	6.0	\$13.95	\$83.70
2320 W-087 Lineman	0.0	\$14.02	\$0.00
2320 W-152 Instr Rpr	0.0	\$14.03	\$0.00
2320 W-038 Plumber	0.0	\$13.95	\$0.00
2320 W-091 Carpenter	0.0	\$13.89	\$0.00
2100 W-180 Auto Mech	0.0	\$13.78	\$0.00
2580 W-003 Mtce Laborer	0.0	\$12.67	\$0.00
2580 W-025 Trk Driver	0.0	\$13.02	\$0.00
2580 W-075 Hvy Eqp Oper	6.0	\$13.95	\$83.70
2200 W-033 Oper Eng-Stm	0.0	\$13.95	\$0.00
2260 W-088 Water Plt Op	0.0	\$13.86	\$0.00
2260 W-191 Util Eqp Mch	38.0	\$14.03	\$533.14
2280 W-086 Sewg Disp Op	8.0	\$13.86	\$110.88
2560 W-158 Mech Eqp Ins	2.0	\$14.00	\$28.00
2540 ENGINEERING	10.0	\$19.50	\$195.00

RAVENNA ARSENAL INC.

DATE: 15-Apr-93

COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM

REFERENCE: PARA. 8.2.0 DEPOT SEWER TREATMENT PLANT

PROJECT # : 5938327-2

N

N SEWR820

FY93 BUDGET - 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC:MATERIALS AND SERVICES	\$332	
SUBCONTRACTS	\$15,032	
	-----	\$15,364

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	1.5	\$13.95	\$21	
2580 RDS & GRDS MTCE	4.0	\$13.95	\$56	
22x0 UTILITY MTCE	44.0	\$14.01	\$616	
2560 PACKAGE LINES	2.0	\$14.00	\$28	
2100 OTHER HOURLY LABOR	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----		-----	\$721
2540 ENGINEERING	40.0	\$19.50	\$780	
TOTAL SALARY COST	-----		-----	\$780
TOTAL HOURS	91.5			

DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$721	75.83%	\$547	
SALARIED	\$780	43.10%	\$336	
			-----	\$883

TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS:	-----	\$17,748
---	-------	----------

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
MAINTENANCE	7.5	\$32.374	\$243	
TOTAL ALLOCATED OVERHEAD			-----	\$243

TOTAL COST INPUT			
GENERAL OVERHEAD		107.047%	\$17,991
G&A OVERHEAD		11.075%	\$19,259
FEE		3.036%	\$4,125
			-----
			\$1,256

TOTAL FUNDS ESTIMATE - WITH OVERHEADS	-----	\$42,631
	=====	

RAVENNA ARSENAL INC.  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 PARA. 8.2.0 DEPOT SEWER TREATMENT PLANT

DATE: 15-Apr-93

\*\*\*DETAIL OF MATERIAL AND LABOR CHARGES: \*\*\*\*\*

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST
MISC MTLs	1	SET	\$332.00	\$332.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST
DRAIN & PUMP IMHOFFS & FILL TANKS WITH DIRT	1	EA	\$15,032.00	\$15,032.00
	0	EA	\$0.00	\$0.00

LABOR - DEPT:	HOURS	RATE	LABOR COST
2320 W-031 Millwright	0.0	\$13.95	\$0.00
2320 W-034 Electrician	1.5	\$13.95	\$20.93
2320 W-087 Lineman	0.0	\$14.02	\$0.00
2320 W-152 Instr Rpr	0.0	\$14.03	\$0.00
2320 W-038 Plumber	0.0	\$13.95	\$0.00
2320 W-091 Carpenter	0.0	\$13.89	\$0.00
2100 W-180 Auto Mech	0.0	\$13.78	\$0.00
2580 W-003 Mtce Laborer	0.0	\$12.67	\$0.00
2580 W-025 Trk Driver	0.0	\$13.02	\$0.00
2580 W-075 Hvy Eqp Oper	4.0	\$13.95	\$55.80
2200 W-033 Oper Eng-Stm	0.0	\$13.95	\$0.00
2260 W-088 Water Plt Op	0.0	\$13.86	\$0.00
2260 W-191 Util Eqp Mch	38.0	\$14.03	\$533.14
2280 W-086 Sewg Disp Op	6.0	\$13.86	\$83.16
2560 W-158 Mech Eqp Ins	2.0	\$14.00	\$28.00
2540 ENGINEERING	40.0	\$19.50	\$780.00

RAVENNA ARSENAL INC. DATE: 15-Apr-93  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 REFERENCE: PARA. 8.3.1 CLOSE GEO RD STP(1)  
 PROJECT # : 5938327-2 N  
 N SEWR831  
 FY93 BUDGET - 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC: MATERIALS AND SERVICES			\$195	
SUBCONTRACTS			\$0	
			-----	\$195
DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	0.0	\$0.00	\$0	
2580 RDS & GRDS MTCE	0.0	\$0.00	\$0	
22x0 UTILITY MTCE	72.0	\$14.03	\$1,010	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
2100 OTHER HOURLY LABOR	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----		-----	\$1,010
2540 ENGINEERING	16.0	\$19.50	\$312	
TOTAL SALARY COST	-----		-----	\$312
TOTAL HOURS	88.0			
DIRECT FRINGES:				
HOURLY	\$1,010	RATE	DOLLARS	
SALARIED	\$312	75.83%	\$766	
		43.10%	\$134	
			-----	\$900
TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS:				-----
				\$2,417
ALLOCATED OVERHEAD:		UNITS	RATE	DOLLARS
MAINTENANCE		0.0	\$32.374	\$0
TOTAL ALLOCATED OVERHEAD				-----
				\$0
TOTAL COST INPUT				-----
GENERAL OVERHEAD			107.047%	\$2,417
G&A OVERHEAD			11.075%	\$2,587
FEE			3.036%	\$554
				-----
				\$169
TOTAL FUNDS ESTIMATE - WITH OVERHEADS				-----
				\$5,727
				=====

RAVENNA ARSENAL INC. DATE: 15-Apr-93  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 PARA. 8.3.1 CLOSE GEO RD STP(1)

\*\*\*DETAIL OF MATERIAL AND LABOR CHARGES: \*\*\*\*\*

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST
MISC MTL	1	SET	\$195.00	\$195.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

LABOR - DEPT:	HOURS	RATE	LABOR COST
2320 W-031 Millwright	0.0	\$13.95	\$0.00
2320 W-034 Electrician	0.0	\$13.95	\$0.00
2320 W-087 Lineman	0.0	\$14.02	\$0.00
2320 W-152 Instr Rpr	0.0	\$14.03	\$0.00
2320 W-038 Plumber	0.0	\$13.95	\$0.00
2320 W-091 Carpenter	0.0	\$13.89	\$0.00
2100 W-180 Auto Mech	0.0	\$13.78	\$0.00
2580 W-003 Mtce Laborer	0.0	\$12.67	\$0.00
2580 W-025 Trk Driver	0.0	\$13.02	\$0.00
2580 W-075 Hvy Eqp Oper	0.0	\$13.95	\$0.00
2200 W-033 Oper Eng-Stm	0.0	\$13.95	\$0.00
2260 W-088 Water PIt Op	0.0	\$13.86	\$0.00
2260 W-191 Util Eqp Mch	72.0	\$14.03	\$1,010.16
2280 W-086 Sewg Disp Op	0.0	\$13.86	\$0.00
2560 W-158 Mech Eqp Ins	0.0	\$14.00	\$0.00
2540 ENGINEERING	16.0	\$19.50	\$312.00

RAVENNA ARSENAL INC. DATE: 15-Apr-93  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 REFERENCE: PARA. 8.3.2 CLOSE GEO RD STP(2)  
 PROJECT # : 5938327-2  
 N  
 N SEWR832  
 FY93 BUDGET - 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC:MATERIALS AND SERVICES	\$569		
SUBCONTRACTS	\$0		
	-----		\$569

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	0.0	\$0.00	\$0	
2580 RDS & GRDS MTCE	14.0	\$13.68	\$192	
22x0 UTILITY MTCE	88.0	\$13.95	\$1,228	
2560 PACKAGE LINES	2.0	\$14.00	\$28	
2100 OTHER HOURLY LABOR	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----		-----	\$1,447
2540 ENGINEERING	18.0	\$19.50	\$351	
TOTAL SALARY COST	-----		-----	\$351
TOTAL HOURS	122.0			

DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$1,447	75.83%	\$1,097	
SALARIED	\$351	43.10%	\$151	
			-----	\$1,249

TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS: \$3,616

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
MAINTENANCE	16.0	\$32.374	\$518	
TOTAL ALLOCATED OVERHEAD			-----	\$518

TOTAL COST INPUT			-----	\$4,134
GENERAL OVERHEAD		107.047%		\$4,425
G&A OVERHEAD		11.075%		\$948
FEE		3.036%		\$289

TOTAL FUNDS ESTIMATE - WITH OVERHEADS \$9,796

RAVENNA ARSENAL INC. DATE: 15-Apr-93  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 PARA. 8.3.2 CLOSE GEO RD STP(2)

\*\*\*DETAIL OF MATERIAL AND LABOR CHARGES: \*\*\*\*\*

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST
MISC MTLs	1	SET	\$569.00	\$569.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

LABOR - DEPT:	HOURS	RATE	LABOR COST
2320 W-031 Millwright	0.0	\$13.95	\$0.00
2320 W-034 Electrician	0.0	\$13.95	\$0.00
2320 W-087 Lineman	0.0	\$14.02	\$0.00
2320 W-152 Instr Rpr	0.0	\$14.03	\$0.00
2320 W-038 Plumber	0.0	\$13.95	\$0.00
2320 W-091 Carpenter	0.0	\$13.89	\$0.00
2100 W-180 Auto Mech	0.0	\$13.78	\$0.00
2580 W-003 Mtce Laborer	0.0	\$12.67	\$0.00
2580 W-025 Trk Driver	4.0	\$13.02	\$52.08
2580 W-075 Hvy Eqp Oper	10.0	\$13.95	\$139.50
2200 W-033 Oper Eng-Stm	0.0	\$13.95	\$0.00
2260 W-088 Water Plt Op	0.0	\$13.86	\$0.00
2260 W-191 Util Eqp Mch	48.0	\$14.03	\$673.44
2280 W-086 Sewg Disp Op	40.0	\$13.86	\$554.40
2560 W-158 Mech Eqp Ins	2.0	\$14.00	\$28.00
2540 ENGINEERING	18.0	\$19.50	\$351.00



RAVENNA ARSENAL INC.

DATE: 15-Apr-93

COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM

REFERENCE: PARA. 8.3.3 CLOSE GEO RD STP(3)

PROJECT # : 5938327-2

N

N SEWR833

FY93 BUDGET - 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC:MATERIALS AND SERVICES  
SUBCONTRACTS

\$0  
\$54,527

\$54,527

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	0.0	\$0.00	\$0	
2580 RDS & GRDS MTCE	0.0	\$0.00	\$0	
22x0 UTILITY MTCE	24.0	\$13.97	\$335	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
2100 OTHER HOURLY LABOR	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----	-----	-----	\$335
2540 ENGINEERING	53.0	\$19.50	\$1,034	
TOTAL SALARY COST	-----	-----	-----	\$1,034
TOTAL HOURS	77.0			

DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$335	75.83%	\$254	
SALARIED	\$1,034	43.10%	\$446	
			-----	\$700

TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS: \$56,596

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
MAINTENANCE	0.0	\$32.374	\$0	
TOTAL ALLOCATED OVERHEAD			-----	\$0

TOTAL COST INPUT			-----	\$56,596
GENERAL OVERHEAD		107.047%		\$60,584
G&A OVERHEAD		11.075%		\$12,978
FEE		3.036%		\$3,951

TOTAL FUNDS ESTIMATE - WITH OVERHEADS \$134,109

RAVENNA ARSENAL INC.

DATE: 15-Apr-93

COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM

PARA. 8.3.3 CLOSE GEO RD STP(3)

\*\*\*DETAIL OF MATERIAL AND LABOR CHARGES:

\*\*\*\*\*

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST
MISC MTLs	1	SET	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
SUBCONTRACTS:				
DRAIN & PUMP IMHOFFS & FILL	1	EA	\$54,527.00	\$54,527.00
TANKS WITH DIRT	0	EA	\$0.00	\$0.00
LABOR - DEPT:				
	HOURS		RATE	LABOR COST
2320 W-031 Millwright	0.0		\$13.95	\$0.00
2320 W-034 Electrician	0.0		\$13.95	\$0.00
2320 W-087 Lineman	0.0		\$14.02	\$0.00
2320 W-152 Instr Rpr	0.0		\$14.03	\$0.00
2320 W-038 Plumber	0.0		\$13.95	\$0.00
2320 W-091 Carpenter	0.0		\$13.89	\$0.00
2100 W-180 Auto Mech	0.0		\$13.78	\$0.00
2580 W-003 Mtce Laborer	0.0		\$12.67	\$0.00
2580 W-025 Trk Driver	0.0		\$13.02	\$0.00
2580 W-075 Hvy Eqp Oper	0.0		\$13.95	\$0.00
2200 W-033 Oper Eng-Stm	0.0		\$13.95	\$0.00
2260 W-088 Water Pit Op	0.0		\$13.86	\$0.00
2260 W-191 Util Eqp Mch	16.0		\$14.03	\$224.48
2280 W-086 Sewg Disp Op	8.0		\$13.86	\$110.88
2560 W-158 Mech Eqp Ins	0.0		\$14.00	\$0.00
2540 ENGINEERING	53.0		\$19.50	\$1,033.50

RAVENNA ARSENAL INC. DATE: 15-Apr-93  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 REFERENCE: PARA. 8.3.4 CLOSE GEO RD STP(4)  
 PROJECT # : 5938327-2  
 N  
 N SEWR834  
 FY93 BUDGET - 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC: MATERIALS AND SERVICES			\$0	
SUBCONTRACTS			\$0	
				-----
				\$0
DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	8.0	\$13.94	\$111	
2580 RDS & GRDS MTCE	0.0	\$0.00	\$0	
22x0 UTILITY MTCE	24.0	\$14.03	\$337	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
2100 OTHER HOURLY LABOR	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----		-----	
				\$448
2540 ENGINEERING	6.0	\$19.50	\$117	
TOTAL SALARY COST	-----		-----	
				\$117
TOTAL HOURS	38.0			
DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$448	75.83%	\$340	
SALARIED	\$117	43.10%	\$50	
				-----
				\$390
TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS:				-----
				\$955
ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
MAINTENANCE	8.0	\$32.374	\$259	
TOTAL ALLOCATED OVERHEAD			-----	
				\$259
TOTAL COST INPUT				-----
				\$1,214
GENERAL OVERHEAD		107.047%		\$1,300
G&A OVERHEAD		11.075%		\$278
FEE		3.036%		\$85
				-----
TOTAL FUNDS ESTIMATE - WITH OVERHEADS				-----
				\$2,877
				=====

RAVENNA ARSENAL INC.

DATE: 15-Apr-93

COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM

PARA. 8.3.4 CLOSE GEO RD STP(4)

\*\*\*DETAIL OF MATERIAL AND LABOR CHARGES:

\*\*\*\*\*

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST
MISC MTLs	1	SET	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

SUBCONTRACTS:				
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

LABOR - DEPT:		HOURS	RATE	LABOR COST
2320 W-031 Millwright		0.0	\$13.95	\$0.00
2320 W-034 Electrician		0.0	\$13.95	\$0.00
2320 W-087 Lineman		0.0	\$14.02	\$0.00
2320 W-152 Instr Rpr		0.0	\$14.03	\$0.00
2320 W-038 Plumber		6.0	\$13.95	\$83.70
2320 W-091 Carpenter		2.0	\$13.89	\$27.78
2100 W-180 Auto Mech		0.0	\$13.78	\$0.00
2580 W-003 Mtce Laborer		0.0	\$12.67	\$0.00
2580 W-025 Trk Driver		0.0	\$13.02	\$0.00
2580 W-075 Hvy Eqp Oper		0.0	\$13.95	\$0.00
2200 W-033 Oper Eng-Stm		0.0	\$13.95	\$0.00
2260 W-088 Water Plt Op		0.0	\$13.86	\$0.00
2260 W-191 Util Eqp Mch		24.0	\$14.03	\$336.72
2280 W-086 Sewg Disp Op		0.0	\$13.86	\$0.00
2560 W-158 Mech Eqp Ins		0.0	\$14.00	\$0.00
2540 ENGINEERING		6.0	\$19.50	\$117.00

RAVENNA ARSENAL INC. DATE: 15-Apr-93  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 REFERENCE: PARA. 8.4.0 CLOSE GEO RD STP(5)  
 PROJECT # : 5938327-2  
 N  
 N SEWR840  
 FY93 BUDGET - 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC: MATERIALS AND SERVICES			\$0	
SUBCONTRACTS			\$6,270	
			-----	\$6,270

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	0.0	\$0.00	\$0	
2580 RDS & GRDS MTCE	0.0	\$0.00	\$0	
22x0 UTILITY MTCE	8.0	\$14.03	\$112	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
2100 OTHER HOURLY LABOR	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----	-----	-----	\$112
2540 ENGINEERING	34.0	\$19.50	\$663	
TOTAL SALARY COST	-----	-----	-----	\$663
TOTAL HOURS	42.0			

DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$112	75.83%	\$85	
SALARIED	\$663	43.10%	\$286	
			-----	\$371
TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS:				-----
				\$7,416

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
MAINTENANCE	0.0	\$32.374	\$0	
TOTAL ALLOCATED OVERHEAD			-----	\$0

TOTAL COST INPUT			-----	\$7,416
GENERAL OVERHEAD		107.047%		\$7,939
G&A OVERHEAD		11.075%		\$1,701
FEE		3.036%		\$518
TOTAL FUNDS ESTIMATE - WITH OVERHEADS				-----
				\$17,574
				=====

RAVENNA ARSENAL INC. DATE: 15-Apr-93  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 PARA. 8.4.0 CLOSE GEO RD STP(5)

\*\*\*DETAIL OF MATERIAL AND LABOR CHARGES: \*\*\*\*\*

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST
MISC MTLs	1	SET	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST
LOCATE & FILL SEPTIC TANKS	1	EA	\$6,270.00	\$6,270.00
DESCRIPTION	0	EA	\$0.00	\$0.00

LABOR - DEPT:	HOURS	RATE	LABOR COST
2320 W-031 Millwright	0.0	\$13.95	\$0.00
2320 W-034 Electrician	0.0	\$13.95	\$0.00
2320 W-087 Lineman	0.0	\$14.02	\$0.00
2320 W-152 Instr Rpr	0.0	\$14.03	\$0.00
2320 W-038 Plumber	0.0	\$13.95	\$0.00
2320 W-091 Carpenter	0.0	\$13.89	\$0.00
2100 W-180 Auto Mech	0.0	\$13.78	\$0.00
2580 W-003 Mtce Laborer	0.0	\$12.67	\$0.00
2580 W-025 Trk Driver	0.0	\$13.02	\$0.00
2580 W-075 Hvy Eqp Oper	0.0	\$13.95	\$0.00
2200 W-033 Oper Eng-STM	0.0	\$13.95	\$0.00
2260 W-088 Water Plt Op	0.0	\$13.86	\$0.00
2260 W-191 Util Eqp Mch	8.0	\$14.03	\$112.24
2280 W-086 Sewg Disp Op	0.0	\$13.86	\$0.00
2560 W-158 Mech Eqp Ins	0.0	\$14.00	\$0.00
2540 ENGINEERING	34.0	\$19.50	\$663.00

RAVENNA ARSENAL INC. DATE: 15-Apr-93  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 REFERENCE: PARA. 8.5.0 S/C PORTABLE FACILITIES  
 PROJECT # : 5938327-2  
 N  
 N SEWR850  
 FY93 BUDGET - 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC: MATERIALS AND SERVICES			\$200	
SUBCONTRACTS			\$0	
			-----	\$200
DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	0.0	\$0.00	\$0	
2580 RDS & GRDS MTCE	0.0	\$0.00	\$0	
22x0 UTILITY MTCE	0.0	\$0.00	\$0	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
2100 OTHER HOURLY LABOR	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----		-----	\$0
2540 ENGINEERING	2.0	\$19.50	\$39	
TOTAL SALARY COST	-----		-----	\$39
TOTAL HOURS	2.0			
DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$0	75.83%	\$0	
SALARIED	\$39	43.10%	\$17	
			-----	\$17
TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS:				----- \$256
ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
MAINTENANCE	0.0	\$32.374	\$0	
TOTAL ALLOCATED OVERHEAD			-----	\$0
TOTAL COST INPUT				----- \$256
GENERAL OVERHEAD		107.047%		\$274
G&A OVERHEAD		11.075%		\$59
FEE		3.036%		\$18
TOTAL FUNDS ESTIMATE - WITH OVERHEADS				----- \$607 =====

RAVENNA ARSENAL INC.  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 PARA. 8.5.0 S/C PORTABLE FACILITIES

DATE: 15-Apr-93

\*\*\*DETAIL OF MATERIAL AND LABOR CHARGES: \*\*\*\*\*

MATERIAL AND SERVICES:		UNITS	UOM	COST/UOM	TOTAL COST
MISC MTLs		1	SET	\$200.00	\$200.00
DESCRIPTION		0	EA	\$0.00	\$0.00
DESCRIPTION		0	EA	\$0.00	\$0.00
DESCRIPTION		0	EA	\$0.00	\$0.00
SUBCONTRACTS:					
DESCRIPTION		0	EA	\$0.00	\$0.00
DESCRIPTION		0	EA	\$0.00	\$0.00
LABOR - DEPT:		HOURS		RATE	LABOR COST
2320	W-031 Millwright	0.0		\$13.95	\$0.00
2320	W-034 Electrician	0.0		\$13.95	\$0.00
2320	W-087 Lineman	0.0		\$14.02	\$0.00
2320	W-152 Instr Rpr	0.0		\$14.03	\$0.00
2320	W-038 Plumber	0.0		\$13.95	\$0.00
2320	W-091 Carpenter	0.0		\$13.89	\$0.00
2100	W-180 Auto Mech	0.0		\$13.78	\$0.00
2580	W-003 Mtce Laborer	0.0		\$12.67	\$0.00
2580	W-025 Trk Driver	0.0		\$13.02	\$0.00
2580	W-075 Hvy Eqp Oper	0.0		\$13.95	\$0.00
2200	W-033 Oper Eng-Stm	0.0		\$13.95	\$0.00
2260	W-088 Water Plt Op	0.0		\$13.86	\$0.00
2260	W-191 Util Eqp Mch	0.0		\$14.03	\$0.00
2280	W-086 Sewg Disp Op	0.0		\$13.86	\$0.00
2560	W-158 Mech Eqp Ins	0.0		\$14.00	\$0.00
2540	ENGINEERING	2.0		\$19.50	\$39.00



APR 14 1993

PS-843 5 MARCH 1993  
CLOSE UTILITY SYSTEMS

ENCLOSURE #1

WORK SEGMENT	DESCRIPTION	BID PRICE
#1.	COLLAPSE AND FILL MISCELLANEOUS SEPTIC TANKS	\$ 6,270 <sup>00</sup>
#2.	CLOSE SAND CREEK SEWAGE TREATMENT PLANT	65,446 <sup>00</sup>
#3.	CLOSE DEPOT SEWAGE TREATMENT PLANT	15,032 <sup>00</sup>
#4.	INSTALL FENCE AROUND WATER WORKS #4 SETTLING BASINS	6,072 <sup>00</sup>
#5.	CLOSE WEST BRANCH PUMP STATION	4,960 <sup>00</sup>
#6.	CLOSE RAW WATER METER PIT	1,899 <sup>00</sup>
#7.	CLOSE SALT BASINS AT WW#2 & #3	7,940 <sup>00</sup>
#8.	CLOSE GEORGE ROAD SEWAGE TREATMENT PLANT	54,527 <sup>00</sup>
#9.	INSTALL GRAVITY DRAIN FROM WASTE BASINS AT WW#4	4,600 <sup>00</sup>
	LUMP SUM PRICE FOR ALL WORK SEGMENTS	\$ 166,752 <sup>00</sup>

Proposal



# Bochert

EXCAVATING, INC.



563 Old Forge Rd. • Kent, Ohio 44240 • (216) 678-6663

PROPOSAL SUBMITTED TO Contract/Procurement Attn: B.J. Jenkins, Manager RAVENNA ARSENAL, INC. & Purchasing Div.		PHONE #216-297-3216 FAX #216-297-3107	DATE April 12, 1993
STREET 8451 State Route 5		JOB NAME	
CITY, STATE and ZIP CODE Ravenna, Ohio 44266-9279		JOB LOCATION	
ARCHITECT	DATE OF PLANS	JOB PHONE	

**We Propose** hereby to furnish material and labor — complete in accordance with specifications below, for the sum of:

ONE HUNDRED SEVENTY FIVE THOUSAND NINETY THREE & NO/100 ----- dollars (\$ 175,093.00 ).

Payment to be made as follows:

Payment - percentage of completed work at date of invoice.

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from specifications below involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.

Authorized Signature

*Mark C. Bochert*  
MARK C. BOCHERT, PRESIDENT

Note: This proposal may be withdrawn by us if not accepted within \_\_\_\_\_ days.

We hereby submit specifications and estimates for:

To quote for closing 9 various utility systems located throughout the plant:

Total Bid..... \$175,093.00

- NOTES:
- Prices are firm for the duration of the project in accordance with the specifications.
  - Starting Date } As noted on bid.  
Completion Date } Specification
  - Payment - percentage of completed work at date of invoice.
  - Worker Classification:
    - Operator \$25.83/hr.
    - Labor \$20.37/hr.

PS-843 5 MARCH 1993  
 CLOSE UTILITY SYSTEMS

B.J. JENKINS  
 APR 14 1993

ENCLOSURE #1

WORK SEGMENT	DESCRIPTION	BID PRICE
#1.	COLLAPSE AND FILL MISCELLANEOUS SEPTIC TANKS <i>2 Tanks at 300' dia (Cm-100)(120%)</i>	3000.00
#2.	CLOSE SAND CREEK SEWAGE TREATMENT PLANT	73506.00
#3.	CLOSE DEPOT SEWAGE TREATMENT PLANT	20505.00
#4.	INSTALL FENCE AROUND WATER WORKS #4 SETTLING BASINS	4500.00
#5.	CLOSE WEST BRANCH PUMP STATION	2300.00
#6.	CLOSE RAW WATER METER PIT	600.00
#7.	CLOSE SALT BASINS AT WW#2 & #3	5000.00
#8.	CLOSE GEORGE ROAD SEWAGE TREATMENT PLANT	63182.00
#9.	INSTALL GRAVITY DRAIN FROM WASTE BASINS AT WW#4	2200.00
	LUMP SUM PRICE FOR ALL WORK SEGMENTS	<i>175093.00</i>

PS-843 5 MARCH 1993  
CLOSE UTILITY SYSTEMS

KESTER CO.  
GENERAL CONTRACTORS

B.J. JENKINS  
APR 14 1993

ENCLOSURE #1

WORK SEGMENT	DESCRIPTION	BID PRICE
#1.	COLLAPSE AND FILL MISCELLANEOUS SEPTIC TANKS	16,000 <sup>00</sup>
#2.	CLOSE SAND CREEK SEWAGE TREATMENT PLANT	84,000 <sup>00</sup>
#3.	CLOSE DEPOT SEWAGE TREATMENT PLANT	18,800 <sup>00</sup>
#4.	INSTALL FENCE AROUND WATER WORKS #4 SETTLING BASINS	5,900 <sup>00</sup>
#5.	CLOSE WEST BRANCH PUMP STATION	7,300 <sup>00</sup>
#6. W-13	CLOSE RAW WATER METER PIT	4,600 <sup>00</sup>
#7.	CLOSE SALT BASINS AT WW#2 & #3	7,500 <sup>00</sup>
#8.	CLOSE GEORGE ROAD SEWAGE TREATMENT PLANT	72,000 <sup>00</sup>
#9.	INSTALL GRAVITY DRAIN FROM WASTE BASINS AT WW#4	5,600 <sup>00</sup>
	LUMP SUM PRICE FOR ALL WORK SEGMENTS	221,700 <sup>00</sup>
	PRICE FOR BOND - IF NEEDED	6,651 <sup>00</sup>

4-11-93

26372 GLENWOOD RD.

P.O. BOX 128

PERRYSBURG, OHIO 43552

B.J. JENKINS

April 12, 1993

APR 14 1993

Mr. B. J. Jenkins  
Manager  
Contract/Procurement & Purchasing Division  
Ravenna Arsenal, Inc.  
8451 State Route 5  
Ravenna, Ohio 44266-9297

*Lowest Bidder at CES to  
review and verify bid.  
Based on prices presented  
bid is mathematically  
unbalanced and reasonable  
doubt exists that vendor  
could perform at quoted  
prices.  
(FAR 15.814) BJJ 4/14/93*

RE: Contracts No. DAAA09-88-Z-0001  
Inquiry No. BJJ-919  
Close Various Utility Systems  
Throughout the Plant  
CES Proposal #93013193

Dear Mr. Jenkins:

Consolidated Environmental Services, Inc. (CES), is pleased to provide the enclosed quotation to perform nine (9) work segments to close various utility systems located throughout the plant.

All pricing has been based upon and all work will be performed in accordance with the Ravenna Arsenal, Inc., Specification PS-843 dated March 5, 1993. All work will also be performed in accordance with all pertinent local, state, and federal regulations. This bid will be valid for the stipulated duration of 90 days.

If you should have any questions or need further information regarding the specifics of this proposal, please do not hesitate to contact me at your earliest convenience.

Respectfully,

*Michelle A Mitchell*

Michelle A. Mitchell  
Account Executive

PS-843 5 MARCH 1993  
CLOSE UTILITY SYSTEMS

B.J. JENKINS  
APR 14 1993

ENCLOSURE #1

WORK SEGMENT	DESCRIPTION	BID PRICE
#1.	COLLAPSE AND FILL MISCELLANEOUS SEPTIC TANKS	
#2.	CLOSE SAND CREEK SEWAGE TREATMENT PLANT	<del>\$ 41,470.00</del>
#3.	CLOSE DEPOT SEWAGE TREATMENT PLANT	<del>10,200.00</del>
#4.	INSTALL FENCE AROUND WATER WORKS #4 SETTLING BASINS	<del>1,163.00</del>
#5.	CLOSE WEST BRANCH PUMP STATION	<del>4,325.00</del>
#6.	CLOSE RAW WATER METER PIT	<del>4,905.00</del>
#7.	CLOSE SALT BASINS AT WW#2 & #3	<del>1,226.00</del>
#8.	CLOSE GEORGE ROAD SEWAGE TREATMENT PLANT	<del>6,300.00</del>
#9.	INSTALL GRAVITY DRAIN FROM WASTE BASINS AT WW#4	<del>6,319.00</del>
		<del>13,794.00</del>
	LUMP SUM PRICE FOR ALL WORK SEGMENTS	\$ 78,700.00

LAYAWAY P-17 ESTIMATE DETAIL

Project No: 5938337-2 Page 10 of 10

Project Name: Closure of Sewage Treatment Facilities and Septic Systems

Detailed Specifications Paragraph No: 8.5

Narrative Description of each discrete effort in the detailed Specifications: Provide temporary sanitary facilities. Obtain a permit to install septic systems and Buildings 1037 and Post #1. Provide temporary water facilities.

MATERIALS/SERVICE:

Description	Units	U/M	Cost Per U/M	Reference
Misc. Pipes Temp. Facilities	1	20	\$200	

SUBCONTRACTS:

Description	Units	U/M	Cost Per U/M	Reference

HOURLY LABOR:

W-Class	Classification Description	Estimated Hours

SALARY LABOR:

Dept.	Department Description	Estimated Hours
2510	Engineering	2

REMARKS:

Blank lines for remarks.

RAVENNA ARSENAL INC.

DATE: 15-Apr-93

COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM

REFERENCE: TOTAL PROJECT

PROJECT # : 5938327-2

N  
N SEWRTOTL  
FY93 BUDGET - 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC:MATERIALS AND SERVICES	\$1,384	
SUBCONTRACTS	\$141,275	
	-----	\$142,659

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	19.5	\$13.94	\$272	
2580 RDS & GRDS MTCE	24.0	\$13.80	\$331	
22x0 UTILITY MTCE	317.0	\$14.00	\$4,437	
2560 PACKAGE LINES	8.0	\$14.00	\$112	
2100 OTHER HOURLY LABOR	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----		-----	\$5,152
2540 ENGINEERING	182.0	\$19.50	\$3,549	
TOTAL SALARY COST	-----		-----	\$3,549
TOTAL HOURS	550.5			

DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$5,152	75.83%	\$3,907	
SALARIED	\$3,549	43.10%	\$1,529	
			-----	\$5,436

TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS:			-----	\$156,796
---	--	--	-------	-----------

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
MAINTENANCE	51.5	\$32.374	\$1,667	
TOTAL ALLOCATED OVERHEAD			-----	\$1,667

TOTAL COST INPUT			-----	\$158,463
GENERAL OVERHEAD		107.047%		\$169,630
G&A OVERHEAD		11.075%		\$36,335
FEE		3.036%		\$11,063

TOTAL FUNDS ESTIMATE - WITH OVERHEADS			-----	\$375,491
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RAVENNA ARSENAL INC.  
 COST ESTIMATE FOR: CLOSURE OF SEWAGE TRMT FACILITIES & SEPTIC SYSTEM  
 TOTAL PROJECT

DATE: 15-Apr-93

\*\*\*DETAIL OF MATERIAL AND LABOR CHARGES: \*\*\*\*\*

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST
MISC MTLs	1	SET	\$1,384.00	\$1,384.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00
DESCRIPTION	0	EA	\$0.00	\$0.00

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST
ALL SUBCONTRACTS	1	EA	\$141,275.00	\$141,275.00
DESCRIPTION	0	EA	\$0.00	\$0.00

LABOR - DEPT:	HOURS	RATE	LABOR COST
2320 W-031 Millwright	0.0	\$13.95	\$0.00
2320 W-034 Electrician	11.5	\$13.95	\$160.43
2320 W-087 Lineman	0.0	\$14.02	\$0.00
2320 W-152 Instr Rpr	0.0	\$14.03	\$0.00
2320 W-038 Plumber	6.0	\$13.95	\$83.70
2320 W-091 Carpenter	2.0	\$13.89	\$27.78
2100 W-180 Auto Mech	0.0	\$13.78	\$0.00
2580 W-003 Mtce Laborer	0.0	\$12.67	\$0.00
2580 W-025 Trk Driver	4.0	\$13.02	\$52.08
2580 W-075 Hvy Eqp Oper	20.0	\$13.95	\$279.00
2200 W-033 Oper Eng-Stm	0.0	\$13.95	\$0.00
2260 W-088 Water Plt Op	0.0	\$13.86	\$0.00
2260 W-191 Util Eqp Mch	255.0	\$14.03	\$3,577.65
2280 W-086 Sewg Disp Op	62.0	\$13.86	\$859.32
2560 W-158 Mech Eqp Ins	8.0	\$14.00	\$112.00
2540 ENGINEERING	182.0	\$19.50	\$3,549.00

ENCLOSURE #1

WORK SEGMENT	DESCRIPTION	CONSOLIDATED ENV. SERVICES #15	REPAIR #18	REPAIR #13	REPAIR #14	REPAIR #17	DYNAMERON #16	MAINTENANCE UNLIMITED #12
#1.	COLLAPSE AND FILL MISCELLANEOUS SEPTIC TANKS	11,470	6,270	3,000	3,250	16,000	22,680	72,300.
#2.	CLOSE SAND CREEK SEWAGE TREATMENT PLANT	19,200	65,446	73,506	43,416	84,000	115,690	96,050
#3.	CLOSE DEPOT SEWAGE TREATMENT PLANT	11,161	15,032	20,505	12,100	18,800	22,750	27,840
#4.	INSTALL FENCE AROUND WATER WORKS #4 SETTLING BASINS	4,325	6,072	4,800	1,630	5,900	3,850	3,400
#5.	CLOSE WEST BRANCH PUMP STATION	4,905	4,966	2,300	3,200	7,300	13,550	2,600
#6.	CLOSE RAW WATER METER PIT	1,226	1,899	600	3,800	4,600	3,000	880.
#7.	CLOSE SALT BASINS AT WM#2 & #3	6,300	7,940	5,000	2,180	7,500	6,600	6,000
#8.	CLOSE GEORGE ROAD SEWAGE TREATMENT PLANT	6,319	54,527	63,162	37,368	72,000	112,140	123,250
#9.	INSTALL GRAVITY DRAIN FROM WASTE BASINS AT WM#4	13,794	4,600	2,200	5,600	5,600	5,000	4,800
	LUMP SUM PRICE FOR ALL WORK SEGMENTS	78,700	166,752	175,093	<del>189,568</del> 380,568	221,700	305,260.	337,120.

RAVENNA ARMY AMMUNITION PLANT (AAP)  
PROJECT 5938337-2  
DEACTIVATION OF SEPTIC SYSTEMS  
TANKS TO BE FILLED IN

NO.	LOCATION	SIZE
01	BUILDING 849	UNKNOWN
02	TRAFFIC CONTROL BUILDING	431 CUBIC FT
02	BUILDING 812	63 CUBIC FT
04	BUNDLING BUILDING	4,641 CUBIC FT
05	BUILDING F-15 A	609 CUBIC FT
06	BUILDING F-15 B	1,211 CUBIC FT
07	FREEDOM GATE	UNKNOWN
08	BUILDING 950-C (POST 20)	UNKNOWN
09	WINDHAM GATE	UNKNOWN
10	CHARLESTON GATE	UNKNOWN
11	DEPOT BUILDING F1	UNKNOWN
12	DEPOT BUILDING F2	UNKNOWN
13	DEPOT BUILDING F3	UNKNOWN

ENCL 3

\*\*\*\*\* END OF MESSAGE \*\*\*\*\*

RECEIVED  
MAR 2 1993  
ENGINEERING

## ABANDONED SEPTIC TANK CLOSURE

- ITEM 01: RAI personnel have identified, on RVAAP installation drawings, 13 septic tanks servicing buildings that are now inactive. These septic tanks have been abandoned for many years. After field verification of the tank's existence and location, the tanks will be permanently closed. Closure of the tanks will be accomplished by filling them with fill dirt.
- ITEM 02: After all other work has been completed, all disturbed areas will be graded, seeded and mulched as necessary to prevent erosion.

NOTICE

To those persons considering development in areas not served by public sewage systems.

General Manager  
Ravenna Arsenal, Inc.  
FWD FOR  
 Information  
 Compliance as applicable  
 Reply NLT

In accordance with Section 6111.44 and 6111.45 of the Ohio Revised Code, plan approval from the Ohio EPA must be obtained for sewage treatment systems serving all buildings and activities other than those serving a one, two or three family residence. This requirement applies to both sanitary and industrial wastes and includes all liquid, semiliquid and sludge wastes that would be produced and treated or discharged on the site.

Wastes that are controlled by State and Federal Hazardous Waste Regulations would not be included under Chapter 6111 unless the sewage or industrial waste systems were included in the treatment system for these wastes or their residuals. Normally, hazardous wastes are and should be totally segregated from the sanitary and liquid industrial waste stream.

Examples of new developments that fall under 6111 jurisdiction include:

Office	Motels	Food Service Carry Out	Subdivisions
Warehouses	Taverns	Camps	Mobile Home Parks
Factories	Restaurants	Retail Stores	Apartments (4 or more units)

Projects planning to utilize existing structures which would involve a change in the prior use or an expansion are required to have plan approval.

The following procedures are outlined to assist individuals planning new development. Sufficient time must be allowed for State on-site evaluation and sewage treatment system detail plan approval.

As not all sites are suitable for a proposed use, to avoid financial hardship, it is important to secure a preliminary site approval prior to completing the purchase of any parcel for development or expending money to erect new structures or expand any existing structures.

Procedures

The approval process includes the initial site review followed by a letter summarizing Ohio EPA recommendations with regard to that review, the submittal of approvable detail plans, and the final letter of approval from the Director of the Ohio EPA.

Site Inspection Request

To initiate the approval process, a written request for a site inspection must be submitted to the Ohio EPA outlining the specific details relating to the type of business proposed (retail store, bakery, machine shop, etc.), the anticipated water usage, the description of all types of liquid, semi-liquid, and sludge wastes that will be generated, and of any existing sewage treatment facilities. The attached "Site Evaluation Request Form" may be used. A site address should be obtained prior to requesting the inspection.

SITE INSPECTION REQUEST FORM

Please complete this form and return to the OEPA or the \_\_\_\_\_ Health Department. This form must be completed and returned prior to a site inspection being made.

PLEASE PRINT OR TYPE

- I. County \_\_\_\_\_  
Township/City/Village \_\_\_\_\_  
Project/Business Name \_\_\_\_\_  
Site Address \_\_\_\_\_

Type of operation or development proposed: \_\_\_\_\_

- II. Name and mailing address of new or proposed owner: Telephone \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- Print or  
type name: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_

III. LOCATION MAP: Please provide a location map clearly describing the location of the site (i.e. north side of Smith Road, 1000 feet east of the intersection of John Street).

PLEASE NOTE: The inspector may not be familiar with the area, so be specific in describing the location.

IV. SKETCH OF PROPERTY: Please provide a sketch of the site indicating the location of the following:

1. North directional arrow
2. Footage of all property lines
3. Existing and proposed buildings
4. Location of any existing sewage systems and water wells
5. Streams or ponds on the property
6. Size of Property: \_\_\_\_\_ acres or \_\_\_\_\_ x \_\_\_\_\_ frontage

V. Provide a detailed description of the components of any existing sewage treatment system on the property.

\_\_\_\_\_

\_\_\_\_\_

VI. Type of water supply proposed: (circle one)

Well - private

Municipal system

Provide a complete description of the proposed project and wastewater to be generated including floor drains if applicable:

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FILL OUT SECTION APPLICABLE

Subdivision/Mobile Home Park

Factories, Offices, Service Facilities, Warehouses, Retail Outlets

# of homes \_\_\_\_\_  
# of trailers \_\_\_\_\_

Will industrial wastes be produced? \_\_\_\_\_  
Square footage of complex or addition \_\_\_\_\_  
# of employees \_\_\_\_\_  
Are showers provided \_\_\_\_\_  
Will food be prepared in this bldg.? \_\_\_\_\_  
Will floor drains be installed? \_\_\_\_\_

Apartments

# of one-bedroom units \_\_\_\_\_  
# of two-bedroom units \_\_\_\_\_  
# of three-bedroom units \_\_\_\_\_

Grocery or Carry-Out Convenience Food Stores

# of employees \_\_\_\_\_  
Will food be prepared in the store? \_\_\_\_\_  
Will you sell prepackaged items only? \_\_\_\_\_

Restaurant

# of seats \_\_\_\_\_  
Is it carry-out only \_\_\_\_\_

Church

# of sanctuary seats \_\_\_\_\_  
How many services held per week? \_\_\_\_\_  
Will there be a kitchen in the church? \_\_\_\_\_  
Will food be prepared and served to the public? \_\_\_\_\_  
Will there be a day care center? \_\_\_\_\_

Camp

# of sites \_\_\_\_\_  
# of showers \_\_\_\_\_  
# of flush toilets \_\_\_\_\_  
Will there be a dump station? \_\_\_\_\_

VII. SOIL INFORMATION: (for on-site dissipation consideration)

Soil Type(s) \_\_\_\_\_

Permeability Rate \_\_\_\_\_

Depth to seasonal water table \_\_\_\_\_

Depth to bedrock \_\_\_\_\_

LOCATION MAP

---

SKETCH OF PROPERTY





REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
RAVENNA ARMY AMMUNITION PLANT  
8451 STATE ROUTE 5  
RAVENNA, OHIO 44266-9297



February 8, 1993

SMCRV-CA (715)

RECEIVED

FEB 08 1993

N. WULFF

General Manager  
Ravenna Arsenal, Inc.  
8451 State Route 5  
Ravenna, Ohio 44266-9297

Dear Sir:

Request RAI submit a permit to install a septic system and drill a well at building 1037.

Point of contact is Mr. John Cicero, extension 3127.

Sincerely,

John A. Cicero, Jr.  
Contracting Officer's Representative

Copies Furnished:  
AMSMC-PAI-GB (Ms. Wise)

*McGee*  
*Stue/Foman*  
*Harold*

TO	OFFICE	ACTION
<input checked="" type="checkbox"/>	GM	
<input type="checkbox"/>	CO-COR	
<input type="checkbox"/>	ACCTG	
<input type="checkbox"/>	SEC	
<input checked="" type="checkbox"/>	ENGR	
<input type="checkbox"/>		
<input checked="" type="checkbox"/>	CAF	
<input type="checkbox"/>	DPM	
<input type="checkbox"/>	RETURN	

RAVENNA ARSENAL INC.

DATE: 12-Jan-93

COST ESTIMATE FOR: GEORGE RD *STP* *\*60*

REFERENCE: XXXXX

IS THIS A DEPT OHD CHARGE (Y OR N)? N

IS IT A GENERAL PLANT CHG (Y OR N)? N

BASED ON DISCLOSURE RATES AS OF: FY93 BUDGET - ADJUSTED 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC: MATERIALS AND SERVICES	\$800
SUBCONTRACTS	\$15,000
EQUIPMENT - Regular Funds	\$0
	-----
	\$15,800

DIRECT LABOR:	HOURS	AVG RATE	LABOR
2320 GEN MTCE	0.0	\$0.00	\$0
2580 RDS & GRDS MTCE	20.0	\$13.76	\$275
22x0 UTILITY MTCE	44.0	\$14.03	\$617
1060 MUNITIONS HNDLNG	0.0	\$0.00	\$0
2560 PACKAGE LINES	0.0	\$0.00	\$0
1570 SCRAP & SALVAGE	0.0	\$0.00	\$0
1980 DEMIL PRODUCTION	0.0	\$0.00	\$0
OTHER HOURLY CHARGES	0.0	\$0.00	\$0
TOTAL HOURLY COST	-----	-----	\$893
2540 ENGINEERING	8.0	\$19.50	\$156
5530 SURVEILLANCE	0.0	\$0.00	\$0
OTHER SALARY CHARGES	0.0	\$0.00	\$0
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0
TOTAL SALARY COST	-----	-----	\$156
TOTAL HOURS	72.0		

DIRECT FRINGES:		RATE	DOLLARS
HOURLY	\$893	75.83%	\$677
SALARIED	\$156	43.10%	\$67
		-----	\$744

TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS: \$17,593

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS
STEAM LBS	0	\$0.03003	\$0
WATER/SEWAGE GAL	0	\$0.03402	\$0
ELECTRIC KWH	0	\$0.20044	\$0
RAILROAD HRS	0.0	\$293.235	\$0
LIFT USAGE HRS	0.0	\$48.884	\$0
SECURITY EFFORT	0.00%	\$1,125,887	\$0
FIRE SQ FOOTAGE	0	\$0.11191	\$0
MAINTENANCE	20.0	\$32.374	\$647
MUNITIONS HNDLNG	0.0	\$28.391	\$0
TOTAL ALLOCATED OVERHEAD		-----	\$647

TOTAL COST INPUT			\$18,240
GENERAL OVERHEAD	107.047%		\$19,525
G&A OVERHEAD	11.075%		\$4,182
FEE	3.036%		\$1,273

TOTAL PROJECT COST			\$43,220
ADJ: Equip-Special Funds or Scrap Income			\$0

TOTAL FUNDS ESTIMATE - WITH OVERHEADS \$43,220

6C

DETAIL OF MATERIAL AND LABOR CHARGES:

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	1	EA	\$800.00	\$800.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	1	EA	\$15,000.00	\$15,000.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx

EQUIPMENT - Regular Funds	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx

LABOR - HOURLY:	HOURS	RATE	LABOR COST
DEPT:			
2320 W-031 Millwright	0.0	\$13.95	\$0.00
2320 W-034 Electrician	0.0	\$13.95	\$0.00
2320 W-087 Lineman	0.0	\$14.02	\$0.00
2320 W-038 Plumber	0.0	\$13.95	\$0.00
2320 W-091 Carpenter	0.0	\$13.89	\$0.00
2580 W-003 Mtce Laborer	0.0	\$12.67	\$0.00
2580 W-025 Trk Driver	4.0	\$13.02	\$52.08
2580 W-071 Lt Eqp Oper	0.0	\$13.05	\$0.00
2580 W-075 Hvy Eqp Oper	16.0	\$13.95	\$223.20
2200 W-033 Oper Eng-Stm	0.0	\$13.95	\$0.00
2260 W-088 Water Plt Op	0.0	\$13.86	\$0.00
2260 W-191 Util Eqp Mch	44.0	\$14.03	\$617.32
2280 W-086 Sewg Disp Op	0.0	\$13.86	\$0.00
1060 W-005 Munit Handlr	0.0	\$12.71	\$0.00
1060 W-016 Lift Oper	0.0	\$12.83	\$0.00
1060 W-049 Explosv Oper	0.0	\$12.92	\$0.00
2560 W-158 Mech Eqp Ins	0.0	\$14.00	\$0.00
1570 W-119 Bin/Bulk Wrh	0.0	\$12.88	\$0.00
1980 W-CLASS & DESC	0.0	\$0.00	\$0.00
1980 W-CLASS & DESC	0.0	\$0.00	\$0.00
1090 W-025 Trk Driver	0.0	\$13.02	\$0.00
4510 W-017 Security	0.0	\$9.95	\$0.00

LABOR - SALARY:	HOURS	RATE	LABOR COST
DEPT:			
2540 ENGINEERING	8.0	\$19.50	\$156.00
5530 SURVEILLANCE	0.0	\$12.56	\$0.00
OTHER SALARY CHARGES	0.0	\$0.00	\$0.00
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0.00

COST ESTIMATE FOR: S. McCauslin - *Sand Creek STP # 6A*

REFERENCE: 8 Paragraphs

IS THIS A DEPT OHD CHARGE (Y OR N)? N

IS IT A GENERAL PLANT CHG (Y OR N)? N

BASED ON DISCLOSURE RATES AS OF: FY93 BUDGET - ADJUSTED 31-DEC-92 (NEW DISCLOSURE)

DIRECT MISC: MATERIALS AND SERVICES	\$5,913
SUBCONTRACTS	\$29,458
EQUIPMENT - Regular Funds	\$0
	-----
	\$35,371

DIRECT LABOR:	HOURS	AVG RATE	LABOR
2320 GEN MTCE	248.0	\$13.91	\$3,449
2580 RDS & GRDS MTCE	38.0	\$13.20	\$502
22x0 UTILITY MTCE	16.0	\$14.03	\$224
1060 MUNITIONS HNDLNG	0.0	\$0.00	\$0
2560 PACKAGE LINES-	0.0	\$0.00	\$0
1570 SCRAP & SALVAGE	0.0	\$0.00	\$0
1980 DEMIL PRODUCTION	0.0	\$0.00	\$0
OTHER HOURLY CHARGES	0.0	\$0.00	\$0
TOTAL HOURLY COST	-----	-----	\$4,175
2540 ENGINNEERING	16.0	\$19.50	\$312
5530 SURVEILLANCE	0.0	\$0.00	\$0
OTHER SALARY CHARGES	0.0	\$0.00	\$0
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0
TOTAL SALARY COST	-----	-----	\$312
TOTAL HOURS	318.0		

DIRECT FRINGES:		RATE	DOLLARS
HOURLY	\$4,175	75.83%	\$3,166
SALARIED	\$312	43.10%	\$134
		-----	\$3,300

TOTAL DIRECT LABOR AND FRINGES AND OTHER COSTS: \$43,158

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS
STEAM LBS	0	\$0.03003	\$0
WATER/SEWAGE GAL	0	\$0.03402	\$0
ELECTRIC KWH	0	\$0.20044	\$0
RAILROAD HRS	0.0	\$293.235	\$0
LIFT USAGE HRS	0.0	\$48.884	\$0
SECURITY EFFORT	0.00%	\$1,125,887	\$0
FIRE SQ FOOTAGE	0	\$0.11191	\$0
MAINTENANCE	286.0	\$32.374	\$9,259
MUNITIONS HNDLNG	0.0	\$28.391	\$0
TOTAL ALLOCATED OVERHEAD		-----	\$9,259

TOTAL COST INPUT		\$52,417
GENERAL OVERHEAD	107.047%	\$56,111
G&A OVERHEAD	11.075%	\$12,019
FEE	3.036%	\$3,659

TOTAL PROJECT COST \$124,206  
 ADJ: Equip-Special Funds or Scrap Income \$0

TOTAL FUNDS ESTIMATE - WITH OVERHEADS \$124,206

DETAIL OF MATERIAL AND LABOR CHARGES:

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	1	EA	\$5,913.00	\$5,913.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX

SUBCONTRACTS:

DESCRIPTION	1	EA	\$29,458.00	\$29,458.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX

EQUIPMENT - Regular Funds

DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX

LABOR - HOURLY:

DEPT:

	HOURS	RATE	LABOR COST
2320 W-031 Millwright	0.0	\$13.95	\$0.00
2320 W-034 Electrician	0.0	\$13.95	\$0.00
2320 W-087 Lineman	32.0	\$14.02	\$448.64
2320 W-038 Plumber	0.0	\$13.95	\$0.00
2320 W-091 Carpenter	216.0	\$13.89	\$3,000.24
2580 W-003 Mice Laborer	12.0	\$12.67	\$152.04
2580 W-025 Trk Driver	14.0	\$13.02	\$182.28
2580 W-071 Lt Eq Oper	0.0	\$13.05	\$0.00
2580 W-075 Hvy Eq Oper	12.0	\$13.95	\$167.40
2200 W-033 Oper Eng-Stm	0.0	\$13.95	\$0.00
2260 W-088 Water Plt Op	0.0	\$13.86	\$0.00
2260 W-191 Util Eq Mch	16.0	\$14.03	\$224.48
2280 W-086 Sewg Disp Op	0.0	\$13.86	\$0.00
1060 W-005 Munit Handlr	0.0	\$12.71	\$0.00
1060 W-016 Lift Oper	0.0	\$12.83	\$0.00
1060 W-049 Explosv Oper	0.0	\$12.92	\$0.00
2560 W-158 Mech Eq Ins	0.0	\$14.00	\$0.00
1570 W-119 Bin/Bulk Wrh	0.0	\$12.88	\$0.00
1980 W-CLASS & DESC	0.0	\$0.00	\$0.00
1980 W-CLASS & DESC	0.0	\$0.00	\$0.00
1090 W-025 Trk Driver	0.0	\$13.02	\$0.00
4510 W-017 Security	0.0	\$9.95	\$0.00

LABOR - SALARY:

DEPT:

	HOURS	RATE	LABOR COST
2540 ENGINEERING	16.0	\$19.50	\$312.00
5530 SURVEILLANCE	0.0	\$12.56	\$0.00
OTHER SALARY CHARGES	0.0	\$0.00	\$0.00
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0.00

TRANSFORMERS FROM POD & GROUP 8 (CLOSING OF SAND CREEK & DEPOT SEWAGE PLANTS)

CAT/ITEM	KVA	TAG	SN	MFR	LOC	GAL	PCB	MT WT
3/4	7.5	POD-2606	291450	LM	U19/D1	8		233.0
5/25	15	ROP-18446	947010	K	FLW331	15		297.5
5/26	15	ROP-18445	946603	K	FLW331	15		297.5
5/27	15	NONE	73TJ039001	MCG	FLW331	12	0	297.5
5/28	15	NONE	742027840	RIE	5D1L	15		297.5

TOTALS:						65		1423
Not tested:						50		1125.5
TO DRMO:								
56% > 50 ppm:						28		630
(None known to be > 50 ppm)								

Purchase 9 drums @ \$45.40 ea	\$ 45.
1 drums of oil to DRMO @ \$550 ea	\$ 550.
1 drum of contaminated trash, est <del>70#</del> <sup>75#</sup> @ \$.94/lb	\$ 71.
Empty transformers to DRMO, \$.86/lb	\$ 542.
Tests (four)	\$ 140.
	<hr/>
	\$ 8733.
Labor: 40 hours @ <sup>14.02</sup> <del>\$13.95</del> /hr <sub>W-87</sub>	\$ <del>558.56</del> ✓
plus fringes/overhead	<hr/>

A: TRANS. 5

ENGR. 2 HRS.

SAND CREEK

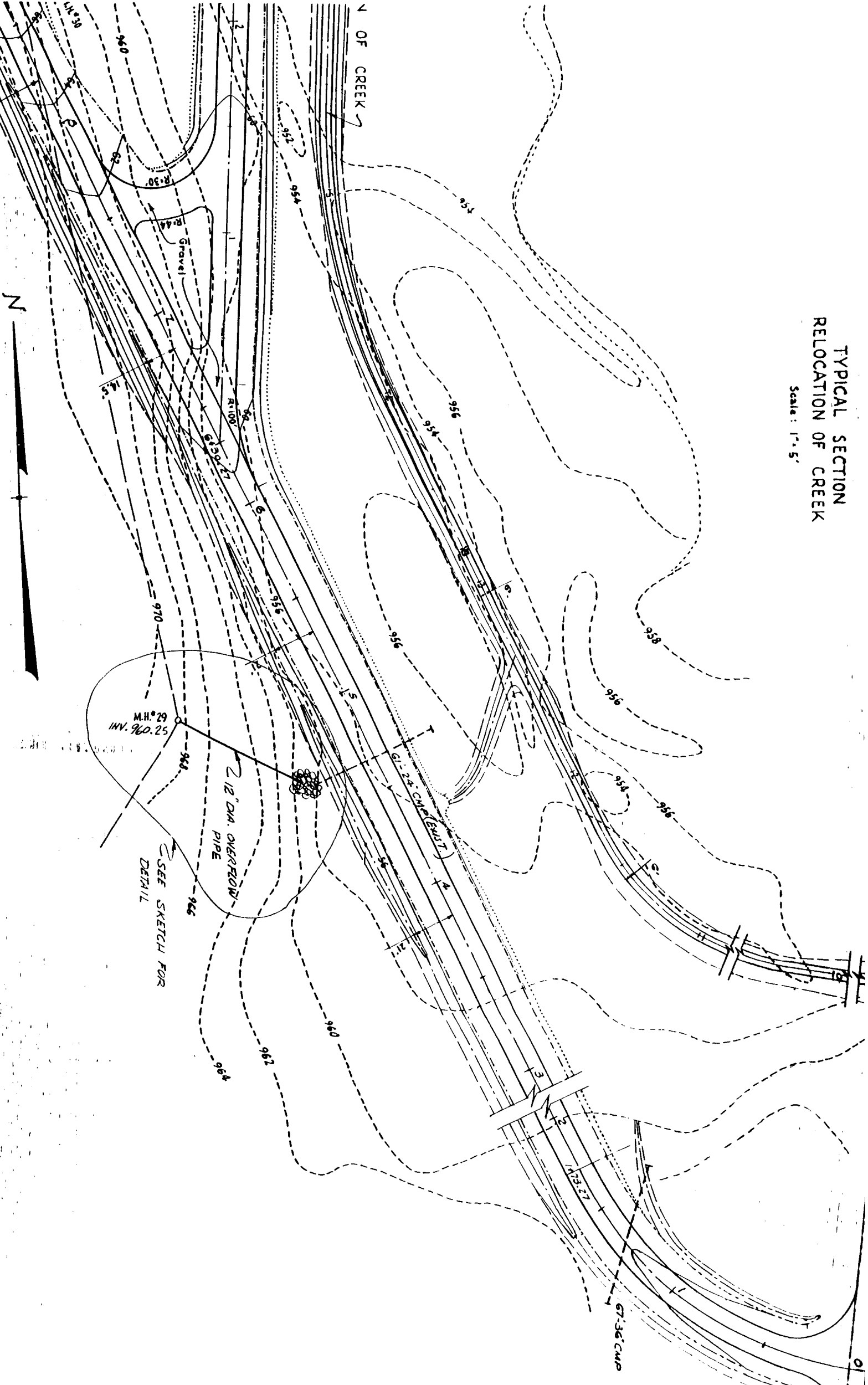
32 HRS  
 \$105  
 \$434 DRMO  
 \$171 Trash  
 \$440 Oil  
 \$363 Drum  
 1 HR ENG

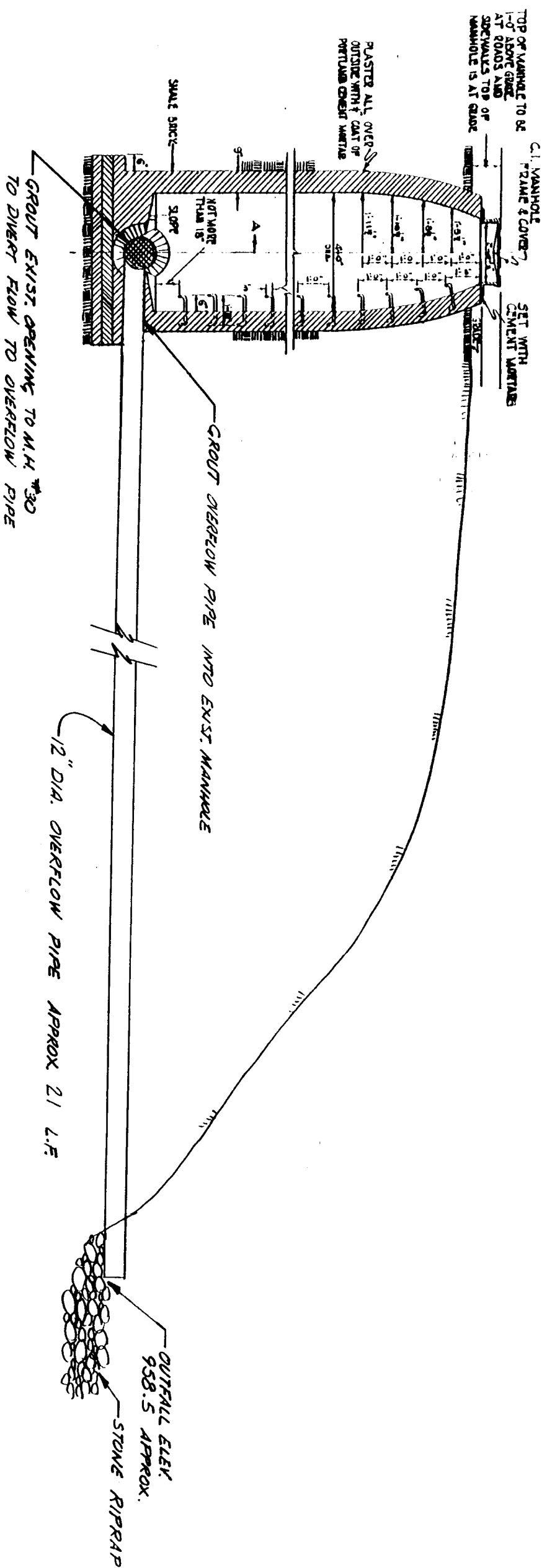
Depot

8 HRS  
 \$35 LAB  
~~\$100~~ DRMO  
 \$110 OIL  
 \$45 Drum  
 1 HR ENG

TYPICAL SECTION  
RELOCATION OF CREEK

Scale: 1" = 5'





SECTION - MANHOLE #29

TOP EL. 968.3

INV. EL. 960.25





RAVENNA ARSENAL, INC.

8451 STATE ROUTE 5, RAVENNA, OHIO 44266-9297  
TELEPHONE: (216) 358-7111 • FAX: (216) 297-3216

November 23, 1992

THRU: Contracting Officer's Representative  
Ravenna Army Ammunition Plant  
8451 State Route 5  
Ravenna, Ohio 44266-9297

TO: Commander  
U.S. Army Armament, Munitions and Chemical Command  
ATTN: AMSMC-PBS-L (R)  
Rock Island, IL 61299-6000

Subject: Closure of Inactive RVAAP Septic Tanks

Dear Sir:

Attached for further action is the required P17 documentation for the above subject matter. Preparation and submission of this documentation has been completed in accordance with the following directive: GOCO LAP Section B dated 23 July 1992, Subject: Preparation of P17's for transitioning RVAAP into modified caretaker status.

Point of contact for the Ravenna Arsenal, Inc. is Ms. Susan McCauslin, DSN 346-3220.

Sincerely,

RAVENNA ARSENAL, INC.

H.R. Cooper  
Engineering Manager

Concurrence:

David E. Kanavy  
Accounting Manager

SM/bp/P176D2.SM

cf: AMSMC-IRE-I  
AMSMC-EHR  
AMSMC-EHF  
AMSMC-PAI-GB

cc: N. Wulff  
D. Kanavy  
T. Chanda  
D. Jendrisak  
J. McGee  
File

**LAYAWAY AND/OR REDISTRIBUTION PROJECT**  
**RCS DRC-836**

1. Project No. \_\_\_\_\_ (AMCCOM) 2. Appropriation \_\_\_\_\_
3. Project Execution Date FY 93 Proposed
4. Title: Closure of Inactive RVAAP Septic Tanks
5. Total Cost: \$ 19,165.00 6. Annual Maintenance Cost N/A
7. Facility/Contractor: Ravenna Army Ammunition Plant (GOCO)  
Ravenna Arsenal, Inc.
8. Item(s) Produced/Support:
  - a. On reactivation, is facility scheduled to produce new items No
9. Production lines being laid away: N/A
10. Estimated completion date: 30 SEPT 93
11. Purpose: To properly close inactive septic tanks as mandated by the Ohio EPA.
12. Layaway is: In place X On Site \_\_\_\_\_ Central Storage \_\_\_\_\_
13. State of Readiness: N/A
14. Remarks: None
15. Production Capability: N/A
16. Mobilization Date: N/A
17. There are 13 each known inactive RVAAP septic tanks that require physical closure under Ohio EPA Standards. Closure is required due to their inactivity/abandonment.
18.
  - A. Locate all known or suspected RVAAP installed septic tanks in the field and flag.
  - B. Fill septic tanks with dirt/sand.
19. Acquisition value of facility to be laid away with this project.
 

a. Land improvements	<u>\$ N/A</u>
b. Building	<u>\$ N/A</u>
c. DIPEC reportable production equipment	<u>\$ N/A</u>
d. Non-DIPEC reportable production equipment	<u>\$ N/A</u>
e. Non-production equipment	<u>\$ N/A</u>

20. Replacement value of facility to be laid away with this project.

a.	Land improvements	<u>\$ N/A</u>
b.	Building	<u>\$ N/A</u>
c.	DIPEC reportable production equipment	<u>\$ N/A</u>
d.	Non-DIPEC reportable production equipment	<u>\$ N/A</u>
e.	Non-production equipment	<u>\$ N/A</u>

21. Layaway quantities. QUANTITY

a.	Number of IPE items (DIPEC reportable)	-0-
b.	Number of production equipments items (Non-DIPEC)	-0-
c.	Number of non-production items	-0-

22. Detailed cost data: See attached M.O. Cost Estimate

23. Alternate Courses of Action: None

RAVENNA ARMY AMMUNITION PLANT  
8451 STATE ROUTE 5  
RAVENNA, OHIO 44266-9297

ENVIRONMENTAL DOCUMENTATION

Ravenna Arsenal, Inc.

November 23, 1992

Environmental impacts of actions to be taken under the proposed closure of the inactive septic tanks will be considered within an Environmental Assessment to be prepared by the Corps of Engineers, under contract to AMCCOM, as part of the transitioning of RVAAP to modified caretaker status. Physical work under this project will not proceed until the required environmental documentation is completed.

RAVENNA ARMY AMMUNITION PLANT  
Ravenna Arsenal, Inc.  
Ravenna, Ohio 44266-9297

COST ESTIMATE: CLOSURE OF INACTIVE RVAAP SEPTIC TANKS

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EQUIPMENT :	ITEM NOMENCLATURE	:DECONTAM :	CLEAN :	PRESERV :	REHABILITATION/REPAIR :	OTHER :
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N/A

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STRUCTURE :	ITEM NOMENCLATURE	:DECONTAM :	CLEAN :	PRESERV :	REHABILITATION/REPAIR :	OTHER :
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13 EA	CLOSE SEPTIC TANKS	0	0	0	\$ 8,100 (SUBCONTRACT)	0
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UTILITIES :	ITEM NOMENCLATURE	:DECONTAM :	CLEAN :	PRESERV :	REHABILITATION/REPAIR :	OTHER :
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N/A

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ELECTRICAL INSTRUMENTATION AND LINE WORK :	:	:	:	REHABILITATION/REPAIR :	OTHER :
--	---	---	---	-------------------------	---------

---

N/A

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SUBCONTRACT	\$ 8,100
ENGINEERING	\$ 273
DIRECT LABOR	\$ 223
OVERHEAD FEE	\$10,569

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TOTAL COSTS:	\$19,165
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MECHANICAL ORDER REQUEST  
RAVENNA ARSENAL INC

DATE: 20-Nov-92

WRITTEN BY: ENGINEERING SM/TWD

M.O. NUMBER:

JOB #: 30WT/\_\_\_\_\_

FOR: 30WT RVAAP KNOWN SEPTIC TANKS  
P17 PROJECT FY93 BUILD DOWN

PRG CHG OR COST POOL:  
ACRN / CLIN:

PROJECT NUMBER:

<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> ALTERATIONS
<input type="checkbox"/> NEW EQUIPMENT	<input type="checkbox"/> REPLACEMENT EQUIPMENT
<input type="checkbox"/> REPAIRS & MAINTENANCE	<input checked="" type="checkbox"/> OTHER

COST ACCOUNTING:  
-----  
-----

COST DATA:	496	LABOR
	520	FRINGES
	0	MATERIAL/PURCH SERV
	8,100	SUBCONTRACTS
	0	EQUIPMENT
	474	ALLOCATED OVERHEAD
	6,433	GENERAL OVERHEAD
	2,226	G&A OVERHEAD
	916	FEE
	-----	
	\$19,165	TOTAL

ASSIGNED TO:

S. McCAUSLIN  
-----

STAFF ENGINEER:

T. DAVIS  
-----

DESCRIPTION / LOCATION OF ITEM:

CLOSE KNOWN SEPTIC TANKS RVAAP

REASON FOR M.O. REQUEST:

FY93 BUILD DOWN PROJECT AND P17 SUBMISSION

FULL EXPLANATION OF REQUEST:

SEE P17 DOCUMENTATION

APPROVALS:

ENGINEERING MANAGER: \_\_\_\_\_

ORIGINATING DEPT/DIV MGR: \_\_\_\_\_

GENERAL MANAGER: \_\_\_\_\_

PLANT PROTECTION MGR: \_\_\_\_\_

ACCOUNTING MANAGER: \_\_\_\_\_

SAFETY MANAGER: \_\_\_\_\_

CONTRACTING OFFICER'S REP: \_\_\_\_\_

CONTRACT ADMINISTRATOR: \_\_\_\_\_

RAVENNA ARSENAL INC.

DATE: 20-Nov-92

COST ESTIMATE FOR: RVAAP SEPTIC TANK CLOSURE

REFERENCE: P17 PROJECT FY93

IS THIS A DEPT OHD CHARGE (Y OR N)? N

IS IT A GENERAL PLANT CHG (Y OR N)? N

BASED ON DISCLOSURE RATES AS OF: FY93 BUDGET - ADJUSTED 28-OCT-92

DIRECT MISC: MATERIALS AND SERVICES	\$0
SUBCONTRACTS	\$8,100
EQUIPMENT - Regular Funds	\$0
	-----
	\$8,100

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	0.0	\$0.00	\$0	
2580 RDS & GRDS MTCE	16.0	\$13.95	\$223	
1060 MUNITIONS HNDLNG	0.0	\$0.00	\$0	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
1570 SCRAP & SALVAGE	0.0	\$0.00	\$0	
1980 DEMIL PRODUCTION	0.0	\$0.00	\$0	
OTHER HOURLY CHARGES	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----			\$223
2540 ENGINEERING	16.0	\$17.08	\$273	
5530 SURVEILLANCE	0.0	\$0.00	\$0	
OTHER SALARY CHARGES	0.0	\$0.00	\$0	
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0	
TOTAL SALARY COST	-----			\$273
TOTAL HOURS	32.0			

DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$223	136.17%	\$304	
SALARIED	\$273	79.08%	\$216	
			-----	\$520

TOTAL DIRECT LABOR AND FRINGES AND OTHER: \$9,116

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
2200 STEAM LBS	0	\$0.02801	\$0	
2260 WATER/SEWAGE GAL	0	\$0.04531	\$0	
2270 ELECTRIC KWH	0	\$0.17271	\$0	
2120 RAILROAD HRS	0.0	\$727.526	\$0	
2130 LIFT USAGE HRS	0.0	\$190.385	\$0	
4510 SECURITY EFFORT	0.00%	\$1,646,663	\$0	
4520 FIRE SQ FOOTAGE	0	\$0.15603	\$0	
OTHER EQUIP CHARGES	0	\$0.00	\$0	
2320 GEN MTCE	0.0	\$21.776	\$0	
2580 RDS & GRDS MTCE	16.0	\$29.623	\$474	
1060 MUNITIONS HNDLNG	0.0	\$32.206	\$0	
2560 PACKAGE LINES	0.0	\$26.933	\$0	
1570 SCRAP & SALVAGE	\$0	\$15.324	\$0	
5530 SURVEILLANCE	0.0	\$40.146	\$0	
TOTAL ALLOCATED OVERHEAD			-----	\$474

TOTAL COST INPUT			\$9,590
GENERAL OVERHEAD	67.080%		\$6,433
G&A OVERHEAD	13.895%		\$2,226
FEE	5.017%		\$916
EQUIPMENT - SPECIAL FUNDS			\$0
			-----

TOTAL COST ESTIMATE - WITH OVERHEADS \$19,165

DETAIL OF MATERIAL AND LABOR CHARGES:

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

SUBCONTRACTS:

S/C PER S. McCAUSLIN	1	EA	\$8,100.00	\$8,100.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

EQUIPMENT - Regular Funds

DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

LABOR - HOURLY:

DEPT:	HOURS	RATE	LABOR COST
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2580 W75 HVY EQ OP	16.0	\$13.95	\$223.20
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
2560 W-CLASS & DESC	0.0	\$13.49	\$0.00
2560 W-CLASS & DESC	0.0	\$12.98	\$0.00
1570 W-CLASS & DESC	0.0	\$12.41	\$0.00
1570 W-CLASS & DESC	0.0	\$12.41	\$0.00
1980 W-CLASS & DESC	0.0	\$12.41	\$0.00
1980 W-CLASS & DESC	0.0	\$12.41	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00

LABOR - SALARY:

DEPT:	HOURS	RATE	LABOR COST
2540 ENGINEERING	16.0	\$17.08	\$273.21
5530 SURVEILLANCE	0.0	\$12.56	\$0.00
OTHER SALARY CHARGES	0.0	\$0.00	\$0.00
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0.00



20 November 1992

THRU: Contracting Officer's Representative  
Ravenna Army Ammunition Plant  
8451 State Route 5  
Ravenna, Ohio 44266-9297

TO: Commander  
U.S. Army Armament, Munitions and Chemical Command  
ATTN: AMSMC-PBS-L (R)  
Rock Island, Illinois 61299-6000

Subject: Installation of New 15000 GPD Sewage Treatment Package  
Plant

Dear Sir:

Attached for further action is the required P17 documentation for the above subject matter. Preparation and submission of this documentation has been completed in accordance with the following directive: GOCO LAP Section B dated 23 July 1992, Subject: Preparation of P17's for transitioning RVAAP into modified caretaker status.

Please be advised that implementation of said project will affect the Army Reserve and Navy Reserve Tenants. As soon as a decision has been made to proceed with the package plant, the two (2) tenants need to be advised of their portions of the costs necessary to install the new package facility.


Point of contact for the Ravenna Arsenal, Inc. is Mr. Wayne A. Carkido, DSN: 346-3237.

Sincerely,

RAVENNA ARSENAL, INC.

  
H.R. Cooper  
Engineering Manager

Concurrence:

  
David E. Kanavy  
Accounting Manager

cf: AMSMC-IRE-I  
AMSMC-EHR  
AMSMC-EHF  
AMSMC-PAI-GB

cc: N. Wulff  
D. Kanavy  
D. Jendrisak  
J. McGee  
W. Carkido  
T. Chanda  
File

LAYAWAY AND/OR REDISTRIBUTION PROJECT  
RCS DRC-836

1. Project No. \_\_\_\_\_ (AMCCOM)
2. Appropriation
3. Project Execution Date FY 93 Proposed
4. Title: Installation of New 15000 GPD Sewage Treatment Package Plant
5. Total Cost: \$401,274.00
6. Annual Maintenance Cost N/A
7. Facility/Contractor: Ravenna Army Ammunition Plant (GOCO)  
Ravenna Arsenal, Inc.
8. Item(s) Produced/Support:
  - a. On reactivation, is facility scheduled to produce new items?  
NO
  - b. If so, list item(s) N/A
9. Production lines being laid away: N/A
10. Estimated completion date: 30 SEPT 93
11. Purpose: To abandon the oversized existing George Road Sewage Treatment Plant (STP) and install a new package STP system supportive to RVAAP's storage mission and RVAAP's transition from standby to modified caretaker status.
12. Layaway is: In Place X On Site \_\_\_\_\_ Central Storage \_\_\_\_\_
13. State of Readiness: N/A
14. Remarks: None
15. Production Capability: N/A
16. Mobilization Data: N/A
17. George Road Sewage Treatment Plant is currently a 350,000 GPD facility. Due to build down activities and transition of facility status to modified caretaker status, the continued operation of George Road Sewage Treatment Plant is not feasible and installation of a new sewage treatment package plant is required.
18. Scope of Project
  - I. Package Sewage Treatment Plant (STP)
    - A. Engineering Design of 15000 GPD Package STP

- B. Install 15000 GPD Package STP
- C. Install Emergency Generator (Currently located at Sandcreek STP)
- D. Install New PVC Sewage Lines From New Package STP to:
  - 1) Building 1048
  - 2) Building 1034
  - 3) Building 1035
  - 4) Post 1
- E. Install Ten (10) New Manholes

## II. Install Septic System at Water Works 3

- A. Septic system will allow for the removal of approximately 9,200 L.F. of 8-12 inch diameter V.S.P. and approximately 41 associated manholes.

## III. Close Existing George Road Sewage Treatment Plant

- A. Remove Sludge From:
  - 1) east Imhoff tank
  - 2) west Imhoff tank
  - 3) final clarifier
  - 4) sludge pumping building
  - 5) flush sludge draw lines:
    - a) from sludge pumping building to Imhoffs
    - b) from Imhoffs to sludge drying beds
  - 6) remove dried sludge (to be land applied under existing RAI permit) from sludge drying beds
- B. Pressure Wash:
  - 1) east Imhoff tank
  - 2) west Imhoff tank
  - 3) dosing tank
  - 4) final clarifier
  - 5) sludge pumping building
- C. Flush via Infiltration for Thirty (30) Days
  - 1) George Road Sewage Treatment Plant
  - 2) existing influent lines
  - 3) manholes
- D. Shut Down George Road Sewage Treatment Plant and Influent Lines and Manholes

- 1) divert flow at four (4) existing flushed manholes to ditch lines to prevent:
    - a) flow entering George Road Sewage Treatment Plant
    - b) flooding due to backup of infiltration
  - 2) pull and clean
    - a) chlorine and chemical equipment
    - b) sludge pump and control panel
    - c) doppler flow meters and recorders
    - d) blower and ventilation equipment
    - e) lab equipment and files
  - 3) sand fill
    - a) east Imhoff tank
    - b) west Imhoff tank
    - c) dosing tank
    - d) final clarifier
    - e) cap east trickling filter
    - f) cap west trickling filter
  - 4) winterize comminutor building
19. Acquisition value of facility to be laid away with this project.
- |  |    |     |
|--|----|-----|
| a. land improvements                         | \$ | N/A |
| b. building                                  | \$ | N/A |
| c. DIPEC reportable production equipment     | \$ | N/A |
| d. non-DIPEC reportable production equipment | \$ | N/A |
| e. non-production equipment                  | \$ | N/A |
20. Replacement value of facility to be laid away with this project.
- |  |    |     |
|--|----|-----|
| a. land improvements                         | \$ | N/A |
| b. building                                  | \$ | N/A |
| c. DIPEC reportable production equipment     | \$ | N/A |
| d. non-DIPEC reportable production equipment | \$ | N/A |
| e. non-production equipment                  |    |     |
21. Layaway quantities. QUANTITY
- |   |     |
|---|-----|
| a. number of IPE items (DIPEC reportable)           | -0- |
| b. number of production equipment items (Non-DIPEC) | -0- |
| c. number of non-production items                   | -0- |
22. Detailed Cost Data: See attached M.O. Cost Estimate

## 23. Alternate Courses of Action:

Alternate I

Downsize George Road Sewage Treatment Plant (STP) to a 15000 GPD Plant. This would include, in addition to the UV system and emergency generator currently planned, extensive design, construction and new influent piping (to minimize the large infiltration loading). George Road STP would be structurally downsized from a 350,000 GPD to a 15,000 GPD facility to enable the facility to properly treat the reduced flows without stagnation and other negative natural actions. The effectiveness of the structural modification cannot be guaranteed. A package plant facility would incorporate all standard and state of the art processes and equipment.

Alternate II

The second alternative would be to install the UV system and emergency generator as planned then continue to operate the existing facility without structural modifications and reduce the influent flow and infiltration by abandoning the sewer system from the Fuse and Booster area (excluding sewer necessary to handle Water Works 3). This flow, (from the abandoned system) would be diverted into a nearby ditch line, after flushing said sewers. Although this is the least expensive alternate, frequent permit excursions may be expected, due to the extreme low flows experienced. These flows may not be sufficient to promote the continued biological growth necessary to properly maintain the treatment process.

Note:

Submitted project is for RVAAP facility only. Any additional capacities required, due to tenants (i.e. Army Reserve and Navy Reserve), shall be made at their expense for the difference in cost from proposed plant size for RVAAP and required size for themselves and all piping required to reach the new facility. These costs shall be submitted to the respective tenants and their response will be required prior to design of new package facility.

The costs to be shared by the Army Reserve and Navy Reserve, should they elect to incorporate into the RVAAP facility, for additional capacities and piping are as follows:

- I. Army Reserve Only (Buildings 1038 and 1047)
  - A. Army Reserves Cost (Including Overhead) - \$47,189.00
- II. Navy Reserve Only (Buildings 1033 and 1046)
  - A. Navy Reserve Cost (Including Overhead) - \$55,507.00

III. Combined Costs: Army Reserve/Navy Reserve/RVAAP

- A. Army Reserve Costs (Including Overhead) - \$44,192.00
- B. Navy Reserve Costs (Including Overhead) - \$52,508.00

RAVENNA ARMY AMMUNITION PLANT  
8451 STATE ROUTE 5  
RAVENNA, OHIO 44266-9297

ENVIRONMENTAL DOCUMENTATION

Ravenna Arsenal, Inc.

November 20, 1992

An Environmental Assessment pertaining to the build down activities at the Ravenna Army Ammunition Plant, to which the closure of George Road Sewage Treatment Plant and installation of a new package sewage treatment facility is a portion of, is currently being prepared by the Army Corp of Engineers.

RAVENNA ARMY AMMUNITION PLANT  
 Ravenna Arsenal, Inc.  
 Ravenna, Ohio 44266-9297

COST ESTIMATE: INSTALLATION OF NEW SEWAGE TREATMENT PACKAGE PLANT

EQUIPMENT :	ITEM NOMENCLATURE	DECONTAM :	CLEAN :	PRESERV :	REHABILITATION/REPAIR :	OTHER :
A.	Winterization Material	0	0	0	\$ 1,350.00	Shown In Subcontract Costs 0
STRUCTURE :	ITEM NOMENCLATURE	DECONTAM :	CLEAN :	PRESERV :	REHABILITATION/REPAIR :	OTHER :
A.	Design 15000 GPD Package Sewage Treatment Plant	0	0	0	\$ 18,000.00 (Subcontract)	0
B.	Install 15000 GPD Package Sewage Treatment Plant	0	0	0	\$ 87,750.00 (Subcontract)	0
C.	Install New PVC Sewage Lines	0	0	0	\$ 28,900.00 (Subcontract)	0
D.	Install Emergency Generator (from Sand Creek STP)	0	0	0	\$ 5,700.00 (Subcontract)	0
E.	Install Septic System at WW3	0	0	0	\$ 4,500.00 (Subcontract)	0
F.	Close George Road Sewage Treatment Plant	0	0	0	\$ 46,270.00 (Subcontract)	0
G.	Transport Dried Sludge	0	0	0	\$ 208.00 (Plus Overhead)	0
UTILITIES :	ITEM NOMENCLATURE	:	:	:	REHABILITATION/REPAIR :	:
A.	Shutoff/Drain/Winterize (Building Utilities)				\$ 612.00 (Plus Overhead)	
ELECTRICAL INSTRUMENTATION AND LINE WORK :	:	:	:	:	REHABILITATION/REPAIR :	:
A.	Remove four (4) PCB Transformers				\$ 505.00 (Plus Overhead)	
					SUBCONTRACT	\$192,470.00
					ENGINEERING	\$ 2,220.00
					DIRECT LABOR	\$ 1,325.00
					OVERHEAD/FEE	\$205,259.00
					TOTAL COSTS	\$401,274.00



**COST ESTIMATE FOR: INSTALLATION OF NEW SEWAGE PACKAGE PLANT**

REFERENCE: XXXXX  
 IS THIS A DEPT OHD CHARGE (Y OR N)? N  
 IS IT A GENERAL PLANT CHG (Y OR N)? N

BASED ON DISCLOSURE RATES AS OF: FY93 BUDGET - ADJUSTED 30-OCT-92

DIRECT MISC: MATERIALS AND SERVICES		\$1.350	
SUBCONTRACTS		\$191.120	
EQUIPMENT - Regular Funds		\$0	
		-----	\$192.470

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	56.0	\$14.00	\$784	
2580 RDS & GRDS MTCE	0.0	\$0.00	\$0	
1060 MUNITIONS HNDLNG	0.0	\$0.00	\$0	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
1570 SCRAP & SALVAGE	0.0	\$0.00	\$0	
1980 DEMIL PRODUCTION	0.0	\$0.00	\$0	
OTHER HOURLY CHARGES	40.0	\$13.52	\$541	
TOTAL HOURLY COST	-----	-----	-----	\$1.325
2540 ENGINEERING	120.0	\$18.50	\$2.220	
5530 SURVEILLANCE	0.0	\$0.00	\$0	
OTHER SALARY CHARGES	0.0	\$0.00	\$0	
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0	
TOTAL SALARY COST	-----	-----	-----	\$2.220
TOTAL HOURS	216.0			

DIRECT FRINGES:		RATE	DOLLARS	
HOURLY	\$1.325	136.17%	\$1.804	
SALARIED	\$2.220	79.08%	\$1.755	
		-----	-----	\$3.560

TOTAL DIRECT LABOR AND FRINGES AND OTHER: \$199.575

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS	
2200 STEAM LBS	0	\$0.02801	\$0	
2260 WATER/SEWAGE GAL	0	\$0.04531	\$0	
2270 ELECTRIC KWH	0	\$0.17271	\$0	
2120 RAILROAD HRS	0.0	\$727.526	\$0	
2130 LIFT USAGE HRS	0.0	\$190.385	\$0	
4510 SECURITY EFFORT	0.00%	\$1,646,663	\$0	
4520 FIRE SQ FOOTAGE	0	\$0.15603	\$0	
OTHER EQUIP CHARGES	0	\$0.00	\$0	
2320 GEN MTCE	56.0	\$21.776	\$1.219	
2580 RDS & GRDS MTCE	0.0	\$29.623	\$0	
1060 MUNITIONS HNDLNG	0.0	\$32.206	\$0	
2560 PACKAGE LINES	0.0	\$26.933	\$0	
1570 SCRAP & SALVAGE	\$0	\$15.324	\$0	
5530 SURVEILLANCE	0.0	\$40.146	\$0	
TOTAL ALLOCATED OVERHEAD		-----	-----	\$1.219

TOTAL COST INPUT			
GENERAL OVERHEAD	67.080%	\$200.794	
G&A OVERHEAD	13.895%	\$134.692	
FEE	5.017%	\$46.617	
EQUIPMENT - SPECIAL FUNDS		\$19.171	
		-----	\$0

TOTAL COST ESTIMATE - WITH OVERHEADS \$401.274

## COST ESTIMATE FOR: INSTALLATION OF NEW SEWAGE PACKAGE PLANT

## DETAIL OF MATERIAL AND LABOR CHARGES:

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	1	EA	\$1,350.00	\$1,350.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

## SUBCONTRACTS:

DESCRIPTION	1	EA	\$191,120.00	\$191,120.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

## EQUIPMENT - Regular Funds

DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

## LABOR - HOURLY:

## DEPT:

	HOURS	RATE	LABOR COST
--	-------	------	------------

2320 W-038 PLUMBER	20.0	\$13.95	\$279.00
2320 W-087 LINEMAN	36.0	\$14.02	\$504.72
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00

2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00

1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00

2560 W-CLASS & DESC	0.0	\$13.49	\$0.00
2560 W-CLASS & DESC	0.0	\$12.98	\$0.00

1570 W-CLASS & DESC	0.0	\$12.41	\$0.00
1570 W-CLASS & DESC	0.0	\$12.41	\$0.00

1980 W-CLASS & DESC	0.0	\$12.41	\$0.00
1980 W-CLASS & DESC	0.0	\$12.41	\$0.00

1090 W-025 TRK DRIVER	16.0	\$13.02	\$208.32
OTHER W-087 SGE DISP OPE	24.0	\$13.86	\$332.64
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00

## LABOR - SALARY:

## DEPT:

	HOURS	RATE	LABOR COST
--	-------	------	------------

2540 ENGINEERING	120.0	\$18.50	\$2,220.00
5530 SURVEILLANCE	0.0	\$12.56	\$0.00
OTHER SALARY CHARGES	0.0	\$0.00	\$0.00
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0.00

RAVENNA ARSENAL INC.

DATE: 19-Nov-92

COST ESTIMATE FOR: INSTALLATION OF NEW STPP W/ ARMY

REFERENCE: \*\*\*\*\*

IS THIS A DEPT OHD CHARGE (Y OR N)? N

IS IT A GENERAL PLANT CHG (Y OR N)? N

BASED ON DISCLOSURE RATES AS OF: FY93 BUDGET - ADJUSTED 30-OCT-92

DIRECT MISC: MATERIALS AND SERVICES	\$1.350
SUBCONTRACTS	\$214.733
EQUIPMENT - Regular Funds	\$0
	-----
	\$216.083

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	56.0	\$14.00	\$784	
2580 RDS & GRDS MTCE	0.0	\$0.00	\$0	
1060 MUNITIONS HNDLNG	0.0	\$0.00	\$0	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
1570 SCRAP & SALVAGE	0.0	\$0.00	\$0	
1980 DEMIL PRODUCTION	0.0	\$0.00	\$0	
OTHER HOURLY CHARGES	40.0	\$13.52	\$541	
TOTAL HOURLY COST	-----	-----	-----	\$1.325
2540 ENGINEERING	120.0	\$18.50	\$2,220	
5530 SURVEILLANCE	0.0	\$0.00	\$0	
OTHER SALARY CHARGES	0.0	\$0.00	\$0	
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0	
TOTAL SALARY COST	-----	-----	-----	\$2,220
TOTAL HOURS	216.0			

DIRECT FRINGES:		RATE	DOLLARS
HOURLY	\$1.325	136.17%	\$1.804
SALARIED	\$2,220	79.08%	\$1,755
		-----	-----
			\$3,560

TOTAL DIRECT LABOR AND FRINGES AND OTHER: \$223,188

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS
2200 STEAM LBS	0	\$0.02801	\$0
2260 WATER/SEWAGE GAL	0	\$0.04531	\$0
2270 ELECTRIC KWH	0	\$0.17271	\$0
2120 RAILROAD HRS	0.0	\$727.526	\$0
2130 LIFT USAGE HRS	0.0	\$190.385	\$0
4510 SECURITY EFFORT	0.00%	\$1,646.663	\$0
4520 FIRE SQ FOOTAGE	0	\$0.15603	\$0
OTHER EQUIP CHARGES	0	\$0.00	\$0
2320 GEN MTCE	56.0	\$21.776	\$1,219
2580 RDS & GRDS MTCE	0.0	\$29.623	\$0
1060 MUNITIONS HNDLNG	0.0	\$32.206	\$0
2560 PACKAGE LINES	0.0	\$26.933	\$0
1570 SCRAP & SALVAGE	\$0	\$15.324	\$0
5530 SURVEILLANCE	0.0	\$40.146	\$0
TOTAL ALLOCATED OVERHEAD		-----	\$1,219

TOTAL COST INPUT			\$224,407
GENERAL OVERHEAD	67.080%		\$150,532
G&A OVERHEAD	13.895%		\$52,099
FEE	5.017%		\$21,425
EQUIPMENT - SPECIAL FUNDS			\$0
		-----	-----

TOTAL COST ESTIMATE - WITH OVERHEADS \$448,463

AVENNA ARSENAL INC.

DATE: 19-Nov-92

COST ESTIMATE FOR: INSTALLATION OF NEW STPP W/ ARMY & NAVY

REFERENCE: xxxxx

IS THIS A DEPT OHD CHARGE (Y OR N)? N

IS IT A GENERAL PLANT CHG (Y OR N)? N

BASED ON DISCLOSURE RATES AS OF: FY93 BUDGET - ADJUSTED 30-OCT-92

DIRECT MISC: MATERIALS AND SERVICES	\$1.350
SUBCONTRACTS	\$239.508
EQUIPMENT - Regular Funds	\$0
	-----
	\$240.858

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	56.0	\$14.00	\$784	
2580 RDS & GRDS MTCE	0.0	\$0.00	\$0	
1060 MUNITIONS HNDLNG	0.0	\$0.00	\$0	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
1570 SCRAP & SALVAGE	0.0	\$0.00	\$0	
1980 DEMIL PRODUCTION	0.0	\$0.00	\$0	
OTHER HOURLY CHARGES	40.0	\$13.52	\$541	
TOTAL HOURLY COST	-----		-----	\$1.325
2540 ENGINEERING	120.0	\$18.50	\$2.220	
5530 SURVEILLANCE	0.0	\$0.00	\$0	
OTHER SALARY CHARGES	0.0	\$0.00	\$0	
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0	
TOTAL SALARY COST	-----		-----	\$2.220
TOTAL HOURS	216.0			

DIRECT FRINGES:		RATE	DOLLARS
HOURLY	\$1.325	136.17%	\$1.804
SALARIED	\$2.220	79.08%	\$1.755
			-----
			\$3.560

TOTAL DIRECT LABOR AND FRINGES AND OTHER: \$247.963

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS
2200 STEAM LBS	0	\$0.02801	\$0
2260 WATER/SEWAGE GAL	0	\$0.04531	\$0
2270 ELECTRIC KWH	0	\$0.17271	\$0
2120 RAILROAD HRS	0.0	\$727.526	\$0
2130 LIFT USAGE HRS	0.0	\$190.385	\$0
4510 SECURITY EFFORT	0.00%	\$1.646.663	\$0
4520 FIRE SQ FOOTAGE	0	\$0.15603	\$0
OTHER EQUIP CHARGES	0	\$0.00	\$0
2320 GEN MTCE	56.0	\$21.776	\$1.219
2580 RDS & GRDS MTCE	0.0	\$29.623	\$0
1060 MUNITIONS HNDLNG	0.0	\$32.206	\$0
2560 PACKAGE LINES	0.0	\$26.933	\$0
1570 SCRAP & SALVAGE	\$0	\$15.324	\$0
5530 SURVEILLANCE	0.0	\$40.146	\$0
TOTAL ALLOCATED OVERHEAD			-----
			\$1.219

TOTAL COST INPUT		\$249.182
GENERAL OVERHEAD	67.080%	\$167.151
G&A OVERHEAD	13.895%	\$57.850
FEE	5.017%	\$23.791
EQUIPMENT - SPECIAL FUNDS		\$0
		-----

TOTAL COST ESTIMATE - WITH OVERHEADS \$497.974

RAVENNA ARSENAL INC.  
 COST ESTIMATE FOR: INSTALLATION OF NEW STPP W/ ARMY & NAVY

DATE: 19-Nov-92

DETAIL OF MATERIAL AND LABOR CHARGES:

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	1	EA	\$1,350.00	\$1,350.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	1	EA	\$239,508.00	\$239,508.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx

EQUIPMENT - Regular Funds	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx

LABOR - HOURLY:	HOURS	RATE	LABOR COST
DEPT:			
2320 W-038 PLUMBER	20.0	\$13.95	\$279.00
2320 W-087 LINEMAN	36.0	\$14.02	\$504.72
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
2560 W-CLASS & DESC	0.0	\$13.49	\$0.00
2560 W-CLASS & DESC	0.0	\$12.98	\$0.00
1570 W-CLASS & DESC	0.0	\$12.41	\$0.00
1570 W-CLASS & DESC	0.0	\$12.41	\$0.00
1980 W-CLASS & DESC	0.0	\$12.41	\$0.00
1980 W-CLASS & DESC	0.0	\$12.41	\$0.00
1090 W-025 TRK DRIVER	16.0	\$13.02	\$208.32
OTHER W-087 SGE DISP OPE	24.0	\$13.86	\$332.64
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00

LABOR - SALARY:	HOURS	RATE	LABOR COST
DEPT:			
2540 ENGINEERING	120.0	\$18.50	\$2,220.00
5530 SURVEILLANCE	0.0	\$12.56	\$0.00
OTHER SALARY CHARGES	0.0	\$0.00	\$0.00
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0.00

**RAVENNA ARMY AMMUNITION PLANT  
8451 STATE ROUTE 5  
RAVENNA, OHIO 44266-9297**

**ENVIRONMENTAL DOCUMENTATION**

Ravenna Arsenal, Inc.

November 20, 1992

Environmental impacts of action to be taken under the proposed Closure of the RVAAP Sand Creek Sewage Treatment System project will be considered within an Environmental Assessment to be prepared by the Corps of Engineers, under contract to AMCCOM, as part of the transitioning of RVAAP to modified caretaker status. Physical work under this project will not proceed until the required environmental documentation is completed.

RAVENNA ARMY AMMUNITION PLANT  
 Ravenna Arsenal, Inc.  
 Ravenna, Ohio 44266-9297

COST ESTIMATE: CLOSURE OF THE RVAAP SAND CREEK SEWAGE TREATMENT FACILITIES

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EQUIPMENT : ITEM NOMENCLATURE : DECONTAM : CLEAN : PRESERV : REHABILITATION/REPAIR

---

N/A

---

STRUCTURE : ITEM NOMENCLATURE : DECONTAM : CLEAN : PRESERV : REHABILITATION/REPAIR

---

	Deactivate LL#1 Lift Station	0	0	0	\$ 500.00 (Subcontract)
	Deactivate LL#12 Lift Station	0	0	0	\$ 1,500.00 (Subcontract)
	Deactivate Sand Creek Sewage Plant	0	0	0	\$62,695.00 (Subcontract)

---

UTILITIES : ITEM NOMENCLATURE : DECONTAM : CLEAN : PRESERV : REHABILITATION/REPAIR

---

N/A

---

ELECTRICAL INSTRUMENTATION AND LINE WORK : : : : REHABILITATION/REPAIR

---

4 EA	Remove Service Transformers				\$ 448.64 (Plus Overhead)
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SUBCONTRACT	\$67,320.00
MATERIALS	\$ 363.00
ENGINEERING	\$ 273.00
DIRECT LABOR	\$ 1,244.00
OVERHEAD/FEE	\$77,013.00

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TOTAL COSTS:	\$146,213.00
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MECHANICAL ORDER REQUEST  
RAVENNA ARSENAL INC

DATE: 19-Nov-92

WRITTEN BY: ENGINEERING - SM/TWD

M.O. NUMBER:

JOB #: 30WT/\_\_\_\_\_

FOR: 30WT S.CREEK SEW PLT BLDN  
P17 PROJECT ESTIMATE

PRG CHG OR COST POOL:  
ACRN / CLIN:

PROJECT NUMBER:

\_\_\_ NEW CONSTRUCTION                    \_\_\_ ALTERATIONS  
\_\_\_ NEW EQUIPMENT                    \_\_\_ REPLACEMENT EQUIPMENT  
\_\_\_ REPAIRS & MAINTENANCE     X  OTHER

COST ACCOUNTING:  
-----  
-----

COST DATA:                    1,517    LABOR  
                                  1,910    FRINGES  
                                  363     MATERIAL/PURCH SERV  
                                  67,320    SUBCONTRACTS  
                                  0        EQUIPMENT  
                                  2,054    ALLOCATED OVERHEAD  
                                  49,078    GENERAL OVERHEAD  
                                  16,986    G&A OVERHEAD  
                                  6,985    FEE  
-----  
                                  \$146,213    TOTAL

ASSIGNED TO:

S. McCAUSLIN  
-----

STAFF ENGINEER:

T. DAVIS  
-----

DESCRIPTION / LOCATION OF ITEM:

CLOSURE OF SAND CREEK SEWAGE TREATMENT PLANT

REASON FOR M.O. REQUEST:

P17 PROJECT FOR FY93 PLANT BUILD DOWN.

FULL EXPLANATION OF REQUEST:

POLICY OF "ALTERNATE SEWAGE SERVICES" TO PLANTSIDE AREA.

APPROVALS:

ENGINEERING MANAGER: \_\_\_\_\_

ORIGINATING DEPT/DIV MGR: \_\_\_\_\_

GENERAL MANAGER: \_\_\_\_\_

PLANT PROTECTION MGR: \_\_\_\_\_

ACCOUNTING MANAGER: \_\_\_\_\_

SAFETY MANAGER: \_\_\_\_\_

CONTRACTING OFFICER'S REP: \_\_\_\_\_

CONTRACT ADMINISTRATOR: \_\_\_\_\_



RAVENNA ARSENAL INC.

DATE: 19-Nov-92

COST ESTIMATE FOR: S.CREEK SEW TRMT CLOSURE

REFERENCE: P17 PROJECT FY93 BUILD DOWN

IS THIS A DEPT OHD CHARGE (Y OR N)? N

IS IT A GENERAL PLANT CHG (Y OR N)? N

BASED ON DISCLOSURE RATES AS OF: FY93 BUDGET - ADJUSTED 28-OCT-92

DIRECT MISC: MATERIALS AND SERVICES	\$363
SUBCONTRACTS	\$67,320
EQUIPMENT - Regular Funds	\$0
	-----
	\$67,683

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	78.0	\$13.94	\$1,088	
2580 RDS & GRDS MTCE	12.0	\$13.02	\$156	
1060 MUNITIONS HNDLNG	0.0	\$0.00	\$0	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
1570 SCRAP & SALVAGE	0.0	\$0.00	\$0	
1980 DEMIL PRODUCTION	0.0	\$0.00	\$0	
OTHER HOURLY CHARGES	0.0	\$0.00	\$0	
TOTAL HOURLY COST	-----		-----	\$1,244
2540 ENGINEERING	16.0	\$17.08	\$273	
5530 SURVEILLANCE	0.0	\$0.00	\$0	
OTHER SALARY CHARGES	0.0	\$0.00	\$0	
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0	
TOTAL SALARY COST	-----		-----	\$273
TOTAL HOURS	106.0			

DIRECT FRINGES:		RATE	DOLLARS
HOURLY	\$1,244	136.17%	\$1,694
SALARIED	\$273	79.08%	\$216
			-----
			\$1,910

TOTAL DIRECT LABOR AND FRINGES AND OTHER: \$71,110

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS
2200 STEAM LBS	0	\$0.02801	\$0
2260 WATER/SEWAGE GAL	0	\$0.04531	\$0
2270 ELECTRIC KWH	0	\$0.17271	\$0
2120 RAILROAD HRS	0.0	\$727.526	\$0
2130 LIFT USAGE HRS	0.0	\$190.385	\$0
4510 SECURITY EFFORT	0.00%	\$1,646,663	\$0
4520 FIRE SQ FOOTAGE	0	\$0.15603	\$0
OTHER EQUIP CHARGES	0	\$0.00	\$0
2320 GEN MTCE	78.0	\$21.776	\$1,699
2580 RDS & GRDS MTCE	12.0	\$29.623	\$355
1060 MUNITIONS HNDLNG	0.0	\$32.206	\$0
2560 PACKAGE LINES	0.0	\$26.933	\$0
1570 SCRAP & SALVAGE	\$0	\$15.324	\$0
5530 SURVEILLANCE	0.0	\$40.146	\$0
TOTAL ALLOCATED OVERHEAD			-----
			\$2,054

TOTAL COST INPUT		
GENERAL OVERHEAD	67.080%	\$73,164
G&A OVERHEAD	13.895%	\$49,078
FEE	5.017%	\$16,986
EQUIPMENT - SPECIAL FUNDS		\$6,985
		\$0
		-----

TOTAL COST ESTIMATE - WITH OVERHEADS \$146,213

DETAIL OF MATERIAL AND LABOR CHARGES:

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
MISC MTL.	1	EA	\$363.00	\$363.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
CLOSURE SUB(S.McCAUSLIN POC)	1	EA	\$67,320.00	\$67,320.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

EQUIPMENT - Regular Funds	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

LABOR - HOURLY:	HOURS	RATE	LABOR COST
DEPT:			
2320 W-86 SEW PLT OP	30.0	\$13.86	\$415.80
2320 W-87 LINEMAN	32.0	\$14.02	\$448.64
2320 W-38 PLBR	16.0	\$13.95	\$223.20
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2580 W-25 TRK DR	12.0	\$13.02	\$156.24
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
2560 W-CLASS & DESC	0.0	\$13.49	\$0.00
2560 W-CLASS & DESC	0.0	\$12.98	\$0.00
1570 W-CLASS & DESC	0.0	\$12.41	\$0.00
1570 W-CLASS & DESC	0.0	\$12.41	\$0.00
1980 W-CLASS & DESC	0.0	\$12.41	\$0.00
1980 W-CLASS & DESC	0.0	\$12.41	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00

LABOR - SALARY:	HOURS	RATE	LABOR COST
DEPT:			
2540 ENGINEERING	16.0	\$17.08	\$273.21
5530 SURVEILLANCE	0.0	\$12.56	\$0.00
OTHER SALARY CHARGES	0.0	\$0.00	\$0.00
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0.00

**RAVENNA ARMY AMMUNITION PLANT  
8451 STATE ROUTE 5  
RAVENNA, OHIO 44266-9297**

**ENVIRONMENTAL DOCUMENTATION**

Ravenna Arsenal, Inc.

November 20, 1992

Environmental impacts of action to be taken under the proposed closure of the RVAAP Depot Sewage Treatment System project will be considered within an Environmental Assessment to be prepared by the Corps of Engineers, under contract to AMCCOM, as part of the transitioning of RVAAP to modified caretaker status. Physical work under this project will not proceed until the required environmental documentation is completed.

RAVENNA ARMY AMMUNITION PLANT  
 RAVENNA ARSENAL, INC.  
 RAVENNA, OHIO 44266-9297

COST ESTIMATE: CLOSURE OF THE RVAAP DEPOT SEWAGE TREATMENT SYSTEM

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EQUIPMENT : ITEM NOMENCLATURE : DECONTAM : CLEAN : PRESERV : REHABILITATION/REPAIR

---

N/A

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STRUCTURE : ITEM NOMENCLATURE : DECONTAM : CLEAN : PRESERV : REHABILITATION/REPAIR

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DEACTIVATE DEPOT SEWAGE PLANT	0	0	0	\$17,378.00 (SUBCONTRACT)
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UTILITIES : ITEM NOMENCLATURE : DECONTAM : CLEAN : PRESERV : REHABILITATION/REPAIR

---

N/A

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ELECTRICAL INSTRUMENTATION AND LINE WORK : : : REHABILITATION/REPAIR

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4 EA	REMOVE SERVICE TRANSFORMERS	\$ 112.16 (PLUS OVERHEAD)
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SUBCONTRACT	\$17,378.00
MATERIALS	\$ 45.00
ENGINEERING	\$ 273.00
DIRECT LABOR	\$ 684.00
OVERHEAD/FEE	\$23,006.00

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TOTAL COSTS:	\$41,386.00
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MECHANICAL ORDER REQUEST  
RAVENNA ARSENAL INC

DATE: 19-Nov-92

WRITTEN BY: ENGINEERING - SM/TWD

M.O. NUMBER:

JOB #: 30WT/\_\_\_\_\_

FOR: 30WT DEPOT SEW PLT BLDN  
P17 PROJECT ESTIMATE

PRG CHG OR COST POOL:  
ACRN / CLIN:

PROJECT NUMBER:

<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> ALTERATIONS
<input type="checkbox"/> NEW EQUIPMENT	<input type="checkbox"/> REPLACEMENT EQUIPMENT
<input type="checkbox"/> REPAIRS & MAINTENANCE	

COST ACCOUNTING:  
-----  
-----

COST DATA:	957	LABOR
	1,147	FRINGES
	45	MATERIAL/PURCH SERV
	17,378	SUBCONTRACTS
	0	EQUIPMENT
	1,182	ALLOCATED OVERHEAD
	13,892	GENERAL OVERHEAD
	4,808	G&A OVERHEAD
	1,977	FEE
	-----	
	\$41,386	TOTAL

ASSIGNED TO:

S. McCAUSLIN  
-----

STAFF ENGINEER:

T. DAVIS  
-----

DESCRIPTION / LOCATION OF ITEM:

CLOSURE OF DEPOT SEWAGGE TREATMENT PLANT

REASON FOR M.O. REQUEST:

P17 PROJECT FOR FY93 PLANT BUILD DOWN.

FULL EXPLANATION OF REQUEST:

POLICY OF "ZERO SERVICES" TO DEPOT AREA.

APPROVALS:

ENGINEERING MANAGER: \_\_\_\_\_

ORIGINATING DEPT/DIV MGR: \_\_\_\_\_

GENERAL MANAGER: \_\_\_\_\_

PLANT PROTECTION MGR: \_\_\_\_\_

ACCOUNTING MANAGER: \_\_\_\_\_

SAFETY MANAGER: \_\_\_\_\_

CONTRACTING OFFICER'S REP: \_\_\_\_\_

CONTRACT ADMINISTRATOR: \_\_\_\_\_

COST ESTIMATE FOR: DEPOT SEW TRMT CLOSURE

REFERENCE: P17 PROJECT FY93 BUILD DOWN

IS THIS A DEPT OHD CHARGE (Y OR N)? N

IS IT A GENERAL PLANT CHG (Y OR N)? N

BASED ON DISCLOSURE RATES AS OF: FY93 BUDGET - ADJUSTED 28-OCT-92

DIRECT MISC: MATERIALS AND SERVICES	\$45
SUBCONTRACTS	\$17,378
EQUIPMENT - Regular Funds	\$0
	-----
	\$17,423

DIRECT LABOR:	HOURS	AVG RATE	LABOR
2320 GEN MTCE	38.0	\$13.89	\$528
2580 RDS & GRDS MTCE	12.0	\$13.02	\$156
1060 MUNITIONS HNDLNG	0.0	\$0.00	\$0
2560 PACKAGE LINES	0.0	\$0.00	\$0
1570 SCRAP & SALVAGE	0.0	\$0.00	\$0
1980 DEMIL PRODUCTION	0.0	\$0.00	\$0
OTHER HOURLY CHARGES	0.0	\$0.00	\$0
TOTAL HOURLY COST	-----	-----	\$684
2540 ENGINEERING	16.0	\$17.08	\$273
5530 SURVEILLANCE	0.0	\$0.00	\$0
OTHER SALARY CHARGES	0.0	\$0.00	\$0
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0
TOTAL SALARY COST	-----	-----	\$273
TOTAL HOURS	66.0		

DIRECT FRINGES:		RATE	DOLLARS
HOURLY	\$684	136.17%	\$931
SALARIED	\$273	79.08%	\$216
			-----
			\$1,147

TOTAL DIRECT LABOR AND FRINGES AND OTHER: \$19,527

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS
2200 STEAM LBS	0	\$0.02801	\$0
2260 WATER/SEWAGE GAL	0	\$0.04531	\$0
2270 ELECTRIC KWH	0	\$0.17271	\$0
2120 RAILROAD HRS	0.0	\$727.526	\$0
2130 LIFT USAGE HRS	0.0	\$190.385	\$0
4510 SECURITY EFFORT	0.00%	\$1,646,663	\$0
4520 FIRE SQ FOOTAGE	0	\$0.15603	\$0
OTHER EQUIP CHARGES	0	\$0.00	\$0
2320 GEN MTCE	38.0	\$21.776	\$827
2580 RDS & GRDS MTCE	12.0	\$29.623	\$355
1060 MUNITIONS HNDLNG	0.0	\$32.206	\$0
2560 PACKAGE LINES	0.0	\$26.933	\$0
1570 SCRAP & SALVAGE	\$0	\$15.324	\$0
5530 SURVEILLANCE	0.0	\$40.146	\$0
TOTAL ALLOCATED OVERHEAD			-----
			\$1,182

TOTAL COST INPUT		\$20,709
GENERAL OVERHEAD	67.080%	\$13,892
G&A OVERHEAD	13.895%	\$4,808
FEE	5.017%	\$1,977
EQUIPMENT - SPECIAL FUNDS		\$0
		-----

TOTAL COST ESTIMATE - WITH OVERHEADS \$41,386

DETAIL OF MATERIAL AND LABOR CHARGES:

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
MISC MTL.	1	EA	\$45.00	\$45.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
CLOSURE SUB(S.McCAUSLIN POC)	1	EA	\$17,378.00	\$17,378.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

EQUIPMENT - Regular Funds	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxxx

LABOR - HOURLY:	HOURS	RATE	LABOR COST
DEPT:			
2320 W-86 SEW PLT OP	30.0	\$13.86	\$415.80
2320 W-87 LINEMAN	8.0	\$14.02	\$112.16
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2580 W-25 TRK DR	12.0	\$13.02	\$156.24
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
2560 W-CLASS & DESC	0.0	\$13.49	\$0.00
2560 W-CLASS & DESC	0.0	\$12.98	\$0.00
1570 W-CLASS & DESC	0.0	\$12.41	\$0.00
1570 W-CLASS & DESC	0.0	\$12.41	\$0.00
1980 W-CLASS & DESC	0.0	\$12.41	\$0.00
1980 W-CLASS & DESC	0.0	\$12.41	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00

LABOR - SALARY:	HOURS	RATE	LABOR COST
DEPT:			
2540 ENGINEERING	16.0	\$17.08	\$273.21
5530 SURVEILLANCE	0.0	\$12.56	\$0.00
OTHER SALARY CHARGES	0.0	\$0.00	\$0.00
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0.00

83.2

29



TOTAL  
Carbon  
Amt? (DRUMS)  
15 drums

Sewage Trmt

8.1.1 + 8.1.2

Plug influent & effluent

LL1 + LL12

6 HRS W-191 at each MH  
4 sacks cement \$5.00/sack

8.1.3

8.2

3 HRS - W191

Construct Drains?

5/11

6 HRS / 2 sacks per drain  
2 HRS W-25  
1 Length pipe \$319.00  
Track load RIPPAP \$72  
1 HRS W-25

8.3.1.

4 HRS W-191 / building }

1035 - 6 HRS

1046 - 12 HRS

1037, 1067 ?

open  
pending  
rehab

6 HRS.  
RECALL 6 hrs.

1030  
NAVY  
NAVY GYM  
1026  
1048 A+B (2 \* 4 hrs)  
Body Shop  
1034 - 14 hrs

10 sacks cement \$50.00  
140 bricks

8.3.2.

Files	w-86	8hrs
Equipment	- w-191	16 hrs.
LAB Equip	w-86	8 hrs.

8.3.4.

winterize	comm bldg.	w-191	12 hrs
Weld hatches	- Millwright	w-8-hrs	

MO. Estimates

Depot ~~2007~~ Sewage Treatment System closure

W-86 30 hours  
 W-87 8 hours  
 W-25 12 hours  
 Eng. 16 hours  
 Subcontract \$17,378  
 \$45.00 Materials

\$ 41,386

B: \PI7SEWDP

Sand Creek Sewage Treatment System Closure

W-86 30 hours  
 W-87 32 hours  
 W-38 16 hours  
 W-25 12 hours  
 \$ 363 Materials  
 \$1 47,300 sub contract  
 ENG. 16? hours

\$ 146,213

B: \PI7SEWSC

RAVENNA ARSENAL INC.  
 COST ESTIMATE FOR: INSTALLATION OF NEW STPP W/ ARMY

DATE: 19-Nov-92

DETAIL OF MATERIAL AND LABOR CHARGES:

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	1	EA	\$1,350.00	\$1,350.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	1	EA	\$214,733.00	\$214,733.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx

EQUIPMENT - Regular Funds	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx
DESCRIPTION	0	EA	\$0.00	\$0.00	xxxxx

LABOR - HOURLY:	HOURS	RATE	LABOR COST
DEPT:			
2320 W-038 PLUMBER	20.0	\$13.95	\$279.00
2320 W-087 LINEMAN	36.0	\$14.02	\$504.72
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
2560 W-CLASS & DESC	0.0	\$13.49	\$0.00
2560 W-CLASS & DESC	0.0	\$12.98	\$0.00
1570 W-CLASS & DESC	0.0	\$12.41	\$0.00
1570 W-CLASS & DESC	0.0	\$12.41	\$0.00
1980 W-CLASS & DESC	0.0	\$12.41	\$0.00
1980 W-CLASS & DESC	0.0	\$12.41	\$0.00
1090 W-025 TRK DRIVER	16.0	\$13.02	\$208.32
OTHER W-087 SGE DISP OPE	24.0	\$13.86	\$332.64
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00

LABOR - SALARY:	HOURS	RATE	LABOR COST
DEPT:			
2540 ENGINEERING	120.0	\$18.50	\$2,220.00
5530 SURVEILLANCE	0.0	\$12.56	\$0.00
OTHER SALARY CHARGES	0.0	\$0.00	\$0.00
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0.00

RAVENNA ARSENAL INC.

DATE: 18-Nov-92

COST ESTIMATE FOR: INSTALLATION OF NEW STPP W/ NAVY

REFERENCE: xxxxx

IS THIS A DEPT OHD CHARGE (Y OR N)? N

IS IT A GENERAL PLANT CHG (Y OR N)? N

BASED ON DISCLOSURE RATES AS OF: FY93 BUDGET - ADJUSTED 30-OCT-92

DIRECT MISC: MATERIALS AND SERVICES	\$1,350
SUBCONTRACTS	\$218,895
EQUIPMENT - Regular Funds	\$0
	-----
	\$220,245

DIRECT LABOR:	HOURS	AVG RATE	LABOR	
2320 GEN MTCE	56.0	\$14.00	\$784	
2580 RDS & GRDS MTCE	0.0	\$0.00	\$0	
1060 MUNITIONS HNDLNG	0.0	\$0.00	\$0	
2560 PACKAGE LINES	0.0	\$0.00	\$0	
1570 SCRAP & SALVAGE	0.0	\$0.00	\$0	
1980 DEMIL PRODUCTION	0.0	\$0.00	\$0	
OTHER HOURLY CHARGES	40.0	\$13.52	\$541	
TOTAL HOURLY COST	-----		-----	\$1,325
2540 ENGINEERING	120.0	\$18.50	\$2,220	
5530 SURVEILLANCE	0.0	\$0.00	\$0	
OTHER SALARY CHARGES	0.0	\$0.00	\$0	
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0	
TOTAL SALARY COST	-----		-----	\$2,220
TOTAL HOURS	216.0			

DIRECT FRINGES:		RATE	DOLLARS
HOURLY	\$1,325	136.17%	\$1,804
SALARIED	\$2,220	79.08%	\$1,755
			-----
			\$3,560

TOTAL DIRECT LABOR AND FRINGES AND OTHER: \$227,350

ALLOCATED OVERHEAD:	UNITS	RATE	DOLLARS
2200 STEAM LBS	0	\$0.02801	\$0
2260 WATER/SEWAGE GAL	0	\$0.04531	\$0
2270 ELECTRIC KWH	0	\$0.17271	\$0
2120 RAILROAD HRS	0.0	\$727.526	\$0
2130 LIFT USAGE HRS	0.0	\$190.385	\$0
4510 SECURITY EFFORT	0.00%	\$1,646,663	\$0
4520 FIRE SQ FOOTAGE	0	\$0.15603	\$0
OTHER EQUIP CHARGES	0	\$0.00	\$0
2320 GEN MTCE	56.0	\$21.776	\$1,219
2580 RDS & GRDS MTCE	0.0	\$29.623	\$0
1060 MUNITIONS HNDLNG	0.0	\$32.206	\$0
2560 PACKAGE LINES	0.0	\$26.933	\$0
1570 SCRAP & SALVAGE	\$0	\$15.324	\$0
5530 SURVEILLANCE	0.0	\$40.146	\$0
TOTAL ALLOCATED OVERHEAD			-----
			\$1,219

TOTAL COST INPUT		\$228,569
GENERAL OVERHEAD	67.080%	\$153,324
G&A OVERHEAD	13.895%	\$53,065
FEE	5.017%	\$21,823
EQUIPMENT - SPECIAL FUNDS		\$0
		-----

TOTAL COST ESTIMATE - WITH OVERHEADS \$456,781

COST ESTIMATE FOR: INSTALLATION OF NEW STPP W/ NAVY

DETAIL OF MATERIAL AND LABOR CHARGES:

MATERIAL AND SERVICES:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	1	EA	\$1,350.00	\$1,350.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX

SUBCONTRACTS:	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	1	EA	\$218,895.00	\$218,895.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX

EQUIPMENT - Regular Funds	UNITS	UOM	COST/UOM	TOTAL COST	PO #
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX
DESCRIPTION	0	EA	\$0.00	\$0.00	XXXXX

LABOR - HOURLY:	HOURS	RATE	LABOR COST
DEPT:			
2320 W-038 PLUMBER	20.0	\$13.95	\$279.00
2320 W-087 LINEMAN	36.0	\$14.02	\$504.72
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2320 W-CLASS & DESC	0.0	\$13.47	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
2580 W-CLASS & DESC	0.0	\$12.95	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
1060 W-CLASS & DESC	0.0	\$12.30	\$0.00
2560 W-CLASS & DESC	0.0	\$13.49	\$0.00
2560 W-CLASS & DESC	0.0	\$12.98	\$0.00
1570 W-CLASS & DESC	0.0	\$12.41	\$0.00
1570 W-CLASS & DESC	0.0	\$12.41	\$0.00
1980 W-CLASS & DESC	0.0	\$12.41	\$0.00
1980 W-CLASS & DESC	0.0	\$12.41	\$0.00
1090 W-025 TRK DRIVER	16.0	\$13.02	\$208.32
OTHER W-087 SGE DISP OPE	24.0	\$13.86	\$332.64
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00
OTHER W-CLASS & DESC	0.0	\$0.00	\$0.00

LABOR - SALARY:	HOURS	RATE	LABOR COST
DEPT:			
2540 ENGINEERING	120.0	\$18.50	\$2,220.00
5530 SURVEILLANCE	0.0	\$12.56	\$0.00
OTHER SALARY CHARGES	0.0	\$0.00	\$0.00
1980 DEMIL SUPERVISOR	0.0	\$0.00	\$0.00

- ⑧ Land apply dried sewage sludge  
(subcontract - based on previous cost)  
\$ 75 analysis  
\$1500 subcontract to spread  
12 hours W-25 to transport

### Total Cost Break-out

W-86 30 hours  
W-87 8 hours  
W-25 12 hours  
\$ 45 materials  
Subcontract \$ 17,378



92 w yds  
 45 w yds  
 137 imhoff's  
 400

8 trucks

16 w-25  
 8 w-75  
 24 hrs

56 yds - both  
 193 COVER MATERIAL

TRICKLING  
 4 TRUCKS

Dept

186.00  
 46  
 4 hrs

Depot  
 Cement influent manhole.  
 Cement head works

w-191 2 hrs

SAY 250 yd<sup>3</sup>

Cement Pugs.

3 manholes  
 1 of three NEEDS DRAIN PIPE INSTALLED  
 1 length 12" pipe. gravel  
 w-75 - 4 hrs  
 w-191 - 4 hrs  
 8 hrs

w-191 6 hrs

Clean pumps.  
 imhoff's fill with Borrow dirt. } subcontract

w 86 12 hrs

Trickling filters cover - Clay/DIRT. w-15 8 hrs  
 w-26 6 hrs  
 14 hrs

w 86 2 hrs final Remove cl<sub>2</sub> & composte.

w 34 Elect DISCONNECT 4 hrs

DESTROY final Building & COVER.  
 6-w-75 Walterize building.  
 4-w-26 Had cover  
 10 hrs.

2 hrs  
 w-75  
 Collapse DRAIN from final to Hinkley approx 20'.  
 Cement over DRAIN in final man hole.

w-191 8 hrs  
 initially flush Building [w-2, U-4-U-5]  
 - flush -



## Close Depot STP

- ① Drain imhoff tanks, pump sludge, clean tanks.  
(Subcontract - base on previous costs)

Remove sludge:

Estimate 100 cu yds sludge total;  
prior cost 82.00/cu. yd.  $\longrightarrow$  8,200

- ② Pull and clean salvageable equipment;  
(chemical feed pumps)  
(Subcontract cost 25.00/hr)  
2 hrs. @ 25.00/hr.  $\longrightarrow$  50.00

- ③ Flush plant for 30 days w/infiltration flow  
W-86 - 30 hours

- ④ Block incoming flow/infiltration prior to headworks and construct drain to divert flow. Cement influent & headworks.  
(Subcontract, Labor & Mat'ls.)  $\longrightarrow$  1,000

- ⑤ Pressure wash imhoffs; dosing tank;  
final clarifier.  
(Subcontract - .48 /sq ft. prev. cost)  
estimate 2,500 sq ft.  $\longrightarrow$  \$1,200

- ⑥ Secure in-ground tanks, filters, final building by filling with dirt/sand.  
(Subcontract - based on prev. cost  
\$6/ton + 25% Subcontract fee)  
Estimate 675 ton  $\longrightarrow$  \$5,100

- ⑦ Pull service transformer - 1 ea  
W-87 - 8 HRS.  
\$45 - Materials  
\$253 - Subcontract (analysis & disposal)

Close George Rd. STP

X Remove Sludge from  
East Imhoff's  
West Imhoff's

X Pull & Clean

- 1) Chlorine & Chemical equipt.
- 2) Sludge pump & control equipt.
- 3) Dopplers & meters

CLARIFIER

- 4) Lab Equipt. & files
- 5) Blower & Ventilation System  
(cap man hole.)

X Flush Plant for 30 days / Shut off flow.

4 Winterize Communiton Bldg

X Pressure Wash

- 1) Imhoff's
- 2) Dosing
- 3) Final Clarifier
- 4) Sludge pump bldg.

X Sand fill

- 1) Imhoff's
- 2) Dosing
- 3) Final Clarifier
- 4) Cap Trucking filter

X DIVERT FLOW & DITCH

X Remove Sludge  
Estimate 100 cubic yds for both  
tanks

Use prior Cost  $82^{00}/cy \times 100 \longrightarrow 8200^{00}$

2 Pull/clean equipt. (Subcont. Cost 25/Hr)

40 hrs @  $25^{00}/hr \xrightarrow{\text{sub}} 1000^{00}$

3 Flush pnt 30 days & Shut down Flow  
15 Hrs - WWTP operator.

4 WINTERIZE COMMUNICATOR BLDG  
16 HRS PLUMBERS

5 Pressure Wash

1) IMHOFF'S

APPROX 10500 SF

∴ 10500 x .48 \$/SF =

5040<sup>00</sup>

2) DOSING

APPROX 320 LF

∴ 320 x .48 \$/SF ⇒

154<sup>00</sup>

3) Sludge Pump Bldg

APPROX 864 SF

∴ 864 x .48 \$/SF →

415<sup>00</sup>

4 FINAL CLARIFIER

APPROX 700 SF

∴ 700 x .48 →

336<sup>00</sup>

\$ 5945

6 Sandfill

IMHOFF'S

FINAL CLAR.

DOSING TANK

DIVERSION CHAM.

APPROX 3600 TON FILL NEEDED @ 6<sup>00</sup>/TON

∴ 3600 x 6 →

21600

25% subcont. 25(21600) →

5400

7 DIVERT FLOW & DITCH

LABOR & EQUIPT. → 1500<sup>00</sup>

8 Pull TRANSFORMERS  
Subcontractor

(DISPOSAL)

1050

W-87 32 HRS →

Mat'ls 363<sup>00</sup> →

9 TRANSPORT & SPREAD SLUDGE

TRANSPORTATION

W25 → 12 Hrs haul sludge

SPREAD

SUBCONTRACT (P&S COSTS) → 1500<sup>00</sup>

SAMPLE ANALYSIS → 75<sup>00</sup>

SEPTIC TANK WW3

SUBCONTRACT → 4500<sup>00</sup>

COST Break OUT

37070

Subcontract → [ 50770 ]

HOURLY

WWTP - 15 Hrs

Plumber - 16 Hrs

W87 → 30 Hrs

W25 → 12 Hrs

ENGINEER 20 Hrs

[ ]

MATERIALS

TRANSFORMER BOXES/MISC

[ 1350<sup>00</sup> ]

EMER GEN. INSTALL

~~5700~~  
5700

# Closure of George Rd STP

## George Rd. STP

1. Clean and flush headworks
2. Remove chemical injector pumps, flush and lay away
3. Drain imhoff tanks, pump sludge and clean tank (subcontract)  
Based on previous subcontract cost of \$82/cy sludge.  
Estimate 100 cys sludge → [REDACTED]
4. Clean and flush dosing tank and trickling filter.
5. Flush plant for 30 days with infiltration flow.
6. Clean and flush final clarifier
7. Remove chlorine monitors, injection units. Secure building
8. Secure in-ground tanks, filters by filling with dirt/sand.

Subcontract - based on previous cost \$6/ton mat'l's + 25% subcontract fee for transport + emplacement.  
Estimate 3,600 ton → [REDACTED]

9. Construct drain prior to headworks of plant to drain/divert incoming infiltration flow. (Engineering to design drawing for EPA) [REDACTED]

10. Pull service transformers - 4 ea. [REDACTED]

11. and Land apply dried sewage sludge  
Subcontract (based on previous sub. cost) → [REDACTED]

[REDACTED] analysis [REDACTED]  
[REDACTED] transport to field.

ENG	24 HRS
W-31	24 HRS.
\$1,272	Materials cost
W-191	108 HRS
W-86	4 HRS
W-34	32 HRS
W-25	6 HRS
W-75	18 HRS

as an alternate to filling the in-ground tanks and filters with dirt/sand, an impervious cover could be constructed for these units. The covers would prevent the accumulation and discharge of water within the George Rd STP, and would also prevent animals or people from falling or becoming trapped. However, the covers would require periodic inspection to assure that they are in place and in good condition.

Filling the tanks and filters with dirt/sand will achieve the same objectives as the covers, but will make it more expensive and difficult to reactivate the plant if needed in the future.

### Total Costs

Materials \$1,635  
 Subcontract \$37,825

#### Labor:

W-87	32 HRS.
W-25	14 HRS.
W-31	24 HRS.
W-191	108 HRS.
W-86	4 HRS.
W-34	32 HRS.
W-75	18 HRS.

# Builddown- George Rd. STP

- ① Install Septic tank at WW3 (including soil testing, design, construction + holding tank for analytical water)  
Estimate subcontract cost → \$15,000

Labor to transport analytical water -  
(2 times per week)

Re-plumb line to toilet -  
W-191 12 HRS

- ② Plug trunk line at Manhole #19,  
open line to stream to divert  
infiltration flow. Install pipe  
and rip rap to prevent erosion.

W-191 12 HRS  
W-75 16 HRS  
W-25 4 HRS  
\$400 Materials

- ③ Down-size George Rd. Sewage Treatment  
Plant:

a) Use one imhoff tank, re-plumb  
other for recirculation use

W-191 16 HRS  
W-34 8 HRS  
\$350 Materials

Separate  
Project

~~b) Install 500 gpm UV system -  
Subcontract cost → \$100,000~~

c) Down-size trickling filter 25%  
by using plugs.

W-191 4 HRS  
\$50 Materials

George RQ.

Total costs

W-191	44 HRS
W-75	16 HRS
W-25	4 HRS

\$ 800 Materials

~~\$~~ \$15,000 Subcontract cost

8 1/2 ENGR 700



close known Rvaap Septic Tanks

Subcontract

8,100

Eng. TIME

16 HRS

W-75

16 HRS

B:1 P17 SEPT

## Closure of Known RUAAP Installed Septic Tanks

Listing of known or suspected septic tanks installed for RUAAP operations:

<u>Building</u>	<u>SIZE</u>
Building 849	unknown
Traffic Control Bldg.	431 ft <sup>3</sup>
Building 812	63 ft <sup>3</sup>
Bundling Buildings	4641 ft <sup>3</sup>
Building F-15 A	609 ft <sup>3</sup>
" " B	1,211 ft <sup>3</sup>
Freedom Gate	unknown
950-C (Post 20)	unknown
Windham Gate	unknown
Charleston Gate	unknown
Depot Bldg. F2	unknown
Depot Bldg. F1	unknown
Depot Bldg. F3	unknown

① Locate all known or suspected septic tanks + flag.\*  
W-75 16 HRS

② Fill septic tanks with dirt/sand.  
Subcontract cost - based on Means Standard, page 48  
\$9.00 / ton  
estimate 600 yd<sup>3</sup> → 900 ton  
900 ton x \$9.00 / ton → \$8,100

\* Reasonable effort will be made to locate tank, based on drawing and field search.

TABLE - MATERIALS COST

SC

IMHOFF

1045 + 38 → 1084 CY / IMHOFF

1084 CY x 2 → 2168 CY

T FILTER → 1063 CY

DOSING → 31 CY

CLARIFIER → 135 CY

DIVER. CHAM. → 8.4

CHL. CONT. → 35

3440 USE 3500

3500 x 1.5 x 6 → \$ 31,500<sup>00</sup>

ZA

GEO

IMHOFF (2) → 2168

DOSING → 31

CLAR. → 135

DIV. CHAM → 8.4

CHL CONT → 35

2377 CY

USE 2400

2400 x 1.5 x 6 → \$ 21,600<sup>00</sup>

ZB

IMHOFF (2) → 2168

T FILTER (2) → 2126

DOSING → 31

CLAR. → 135

DIV CHAM → 8.4

CHL. CONT → 35

4503 CY

USE 4550

4550 x 1.5 x 6 → \$ 41,000<sup>00</sup>

+ 25% Contractor Cost

- In SANDCREEK

+ IMHOFFS Some problems do to Bac  
Must come in between Ahead works (communitor)  
& imhoff's West imhoff could be  
Problem

+ T Filters - No problems

+ F. Clarifier Back between Chlor. Cont.  
and Sludge Pump Bay  
could have some clearance  
problems

+ Chlorine Cont. no problems.  
Room to stock Stone 0

Fill George

+ IMHOFF Bridge ditch line for West  
East - cut road around back Side

+ T filters cut road around backside

+ Dosing cut road around backside

+ Clarifier fill from backside

+ Chlor Contact no problems

The imhoff are definite Problems

- There is Room to stock Stone 0

# Sand Creek Sewage System Closure

(Revised 12/92)

1. Re-route piping at Lift Station, Load Line 12 to provide for the overflow of infiltration water.

\$400 Materials

W-191 4 Hours

W-25 2 Hours

W-75 4 Hours

2. Drain imhoff tanks, pump sludge, dispose of sludge off-site.

Subcontract - Based on previous cost of \$82 per cubic yard.

Estimate 239 cubic yards sludge x \$82/cu. yd. → \$19,598 -

Analysis cost (based on previous cost) → \$240.00 -

3. Pressure wash imhoffs, dosing tanks, final clarifier.

Subcontract - Based on previous cost of .48/ft<sup>2</sup>

Estimate 12,387 ft<sup>2</sup> x .48 /ft<sup>2</sup> → \$5,945 -

- ~~4. Re open and re-route piping in manhole 29 to divert infiltration flow from plant. Place cement plugs in plant influent line.~~

~~6 Hours W-191~~

~~\$75 Materials cost~~

5. Place cement plugs in imhoffs, dosing tank, trickling filters, collector, final settling tank and chlorine contact tank drains. Cement Manhole # 36.

W-75 8 Hours

5. (cont'd)

W-191 12 HRS  
W-25 12 HRS  
W-3 12 HRS  
\$400 Materials

6. Purchase + install covers for imhoff tanks, trickling filters. Total sq. ft. = 12,848.  
Gundie liner mat'l cost .35/ft<sup>2</sup>

W-91 216 HOURS  
\$4500 Liner cost  
\$250 Mat'ls (Lumber, nuts, bolts)

7. Fill dosing tank, collector, final settling tank and chlorine contact tanks' with dirt. Subcontract  
Estimate 225 cubic yards dirt; 350 ton  
Based on previous cost - \$6 ton + 25% fee  
for placement  $\longrightarrow$  \$2,625

8. Pull service transformers - 4 each.

W-87 32 HOURS  
\$363 Materials  
\$1,050 Testing & Disposal

Total Costs

W-87 32 HOURS  
W-191 16 ~~22~~ HOURS  
W-75 12 HOURS  
W-25 14 HOURS  
W-3 12 HOURS  
W-91 216 HOURS  
Materials ~~\$5,988~~ 5,913  
Subcontract \$29,458

Engr 16 Rs.

# Sand Creek Sewage System Closure

1. Close Lift Station, LL1  
Demol Remove salvageable equipment, pumps;  
Clean & flush pots; secure influent  
and effluent valves.  
(Subcontract cost - based on prev. work)  
20 hrs x \$25 /hr. → 500.00

2. Close Lift Station, LL12  
Demol Remove salvageable equipment, pumps;  
Clean & flush pots; secure influent  
and effluent valves; restructure  
piping to provide for the overflow  
of infiltration.  
(Subcontract cost - based on prev. work)  
40 hrs + materials → \$1,500

## 3 Sand Creek STP

a) Drain Imhoff tanks, pump sludge  
(Subcontract - based on prev. cost)  
Estimate 250 cu yds sludge  
prev cost \$82/cu yd → \$20,500

b) pull and clean salvageable equipment  
(chemical feed pumps, meters)  
Demol subcontract cost \$25/hour  
40 hrs / 25.00 hr. → \$1,000

c) flush plant with 30 days infiltration  
flow.  
Demol W-86 30 hours

d) Winterize Comminator bldg. Cement  
influent to headworks; Construct  
drain prior to headworks to  
divert incoming flow  
~~16 hours plumber~~  
~~\$1500 subcontract cost.~~  
6 HRS W-191 \$75 Materials

e) Pressure wash imhoff's, dosing tank,  
 sludge pump bldg and final clarifier  
 (subcontract - based on previous costs)  
 estimate  $12,387 \text{ ft}^2 \times .48 / \text{ft}^2 \rightarrow \$5945$

f) Secure in-ground tanks, filters by  
 filling with dirt/sand.  
 (subcontract - based on previous cost,  
 $\$6 / \text{ton} + 25\%$  contractor fee)  
 estimate  $4,500 \text{ ton} \rightarrow \$33,750$

g) pull service transformers - 4 ea.  
 W-87 32 hours  
 $\$363$  Mat'l  
 $\$1,050$  Subcontract (testing & disposal)

~~h) land apply dried sludge  
 (subcontract, based on previous cost)  
 $\$75.00$  analysis  
 $\$1500$  subcontract to spread  
 W-25 12 hours to transport~~

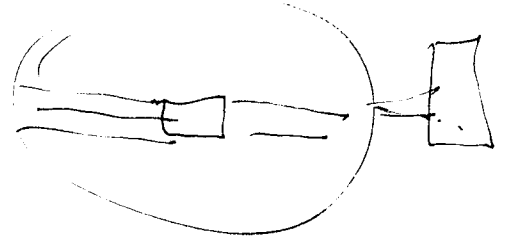
### Total cost breakout

~~W-86 30 hours  
 W-38 16 hours  
 W-87 32 hours  
 W-25 12 hours  
 $\$363$  Materials  
 $\$67,320$  Subcontract~~



20

$\frac{32000}{21} = 1524 \text{ yds material}$  Imhoff's  
 4 w/4ps Dosing  
 120 w/ps Final  
 28 w/4ps CL2  
 163 w/4ps TRICK



Lift Station at 1

14 W-191 UTIL mech  
 4 W-35 ELECT.



Lift. AT 12

18 hrs W-191 UTIL mech.  
 4 hrs W-75 HEAVY DIG  
 2 hrs W-25 TRUCK → material for cover  
 4 hrs W-35 ELECT REMOVE ELECT & pull C/O.

5 TON SAND \$36.25  
 100# CEMENT \$6.25  
 6' piece 8" DIAM. PIPE #30  
 1 clamp, 8" #280



SD-21

SAND creek ~~24 hrs~~

82 hours W-191 - Remove & Dismantle (42)  
 - flight - ②  
 - armatures - ⑩

4 hrs W-86 - Chlorine & monitors

8 hrs 31 W-35 Remove ELECT. CONTROLS

Subcontract { 48 hrs W-191 Imhoff's → AIR LIFT & REMOVE SLUDGE.

16 hrs W-191 DOSEING, FINAL CLARIFIER, CL2 TANK DEAD OIL

\$600 SAND fix bed

12 hrs - W-8

6 hrs - W-191

18 hrs green houses

HAUL DIRT. 1500 cubic yards - Soil.

\$372 8 yds cement 46 yds.

120 hrs move material for filling all tanks

← 100 hauls 80 hrs W-25  
 40 hrs W-75  
 → 120 hauls material

Removing. No INSTALLATION NO COST

MOVE Generator. W-35 ELECT Remove round panels 8 hrs (32)  
 Millwagh W-31 move gen. [GEOR] & F.O. TANK. 24 hrs

ENG \*

CEMENT INFLENT TO HEADWORKS.  
 OPEN manhole TO BYPASS.

6 hrs → W-25  
 18 hrs W-75  
 10 hrs W-191  
 pipe - 2 Length: 12' - 45'

# SOIL FOR FILLING TANKS - MATERIALS COST

SC

IMHOFF

1045 + 38 → 1084cy / IMHOFF

1084cy x 2 → 2168cy

T FILTER → 1063cy

DOSING → 31cy

CLARIFIER → 135cy

DIVER. CHAM. → 8.4

CHL. CONT. → 35

3440 USE 3500

3500 x 1.5 x 6 → \$ 31,500<sup>00</sup>

ZA

GEO

IMHOFF (2) → 2168

DOSING → 31

CLAR. → 135

DIV. CHAM → 8.4

CHL. CONT → 35

2377 cy

USE 2400

2400 x 1.5 x 6 → \$ 21,600<sup>00</sup>

ZB

IMHOFF (2) → 2168

T FILTER (2) → 2126

with  
stone  
removal

DOSING → 31

CLAR. → 135

DIV CHAM → 8.4

CHL. CONT → 35

4503 cy

USE 4550

4550 x 1.5 x 6 → \$ 41,000<sup>00</sup>

+ 25% Contractor Cost

- Fill SANDCREEK

+ IMHOFFS Some problems do to Bad  
Must come in between Head works (communiton)  
& umhoff's West umhoff could be  
Problem

---

+ T Filters - No problems

+ F. Clarifier Back between chlor. Cont.  
& and Sludge pump bay  
could have some clearance  
problems

+ Chlorine Cont. no problems.  
Room to stock Stone 0

---

Fill George

+ IMHOFF Sludge ditch line for West  
East - cut road around back Side

+ T Filters cut road around backside

+ Dosing cut road around backside

+ Clarifier fill from backside

+ Chlor Contact no problems

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The umhoff are definite Problems  
- There is Room to stock Stone 0

RAVENNA ARSENAL, INC.  
RAVENNA ARMY AMMUNITION PLANT  
INTEROFFICE MEMORANDUM

9 July 1993

TO: Harold Cooper, Engineering Manager  
FROM: T.M. Chanda, Environmental Engineer  
SUBJECT: Effluent Limitations For a Combined Domestic & Industrial  
Wastewater Treatment Discharging To An Existing Or A  
- Constructed Wetlands

I. Wastewater Treatment Facility Discharging To An Established Wetlands.

Under this scenario regulating requirements would stipulate that end-of-pipe treatment process effluent would be dictated by Ohio EPA's surface water quality standards.

The standards utilized for compliance monitoring would be cited referencing criteria promulgated for the Mahoning River Basin. The exact standards referenced would be determined by the use designation characterizing the local surface waters. RVAAP's surface water standards with the applicable use designations are as follows:

- A. Western RVAAP Sector - Influenced by the Hinckley Creek stream segment
  1. Use Designations:
    - warm water aquatic life habitat
    - agricultural water supply
    - industrial water supply
    - primary contact for recreation
  
- B. Central RVAAP Sector - Influenced by the Sand Creek stream segment
  1. Use Designations:
    - State resource water (a protected stream)
    - warm water aquatic life habitat
    - agricultural water supply
    - industrial water supply
    - primary contact for recreation

C. Eastern RVAAP Sector - Influenced by the Mahoning River stream segment

1. Use Designations

- same as for western RVAAP Sector as mentioned above

For the eastern and western RVAAP sectors with their respective established wetlands the probable standards/concentration limits to be enforced are as follows: (Note: The most stringent standards expected are for warm water aquatic life habitat. These limitations are presented unless otherwise noted.)

<u>Analytical Parameter</u>	<u>Maximum Allowable 30-Day Average Discharge</u>
Ammonia - Nitrogen	Temp./Ph dependent concentration (@ 7.0 Ph - range is 11.7 to 5.5 ppm; @ 8.0 Ph - range is 3.3 to 1.6 ppm)
Barium	1.000 ppm
Cadmium (Tot.)	0.003 "
Chlorides	250.000 "
Chlorine (Tot. residual)	0.011 "
Copper	0.030 "
Dissolved Oxygen	≥ 4.000 "
Dissolved Solids	1,500.000 " or equivalent 2,500 umhos/cm
E. Coli	126 colonies/100ml
Fecal Coliform	1,000 colonies/100ml
Iron (Tot.)	1.000 "
Lead (Tot.)	0.028 "
MBAS (Foaming Agents)	0.050 "
Nitrate (NO <sub>3</sub> )	10.000 "
Nitrates (+) Nitrite - N	100.000 "
Oil & Grease	10.000 " (and w/ no visible sheen or color film)
Ph	≥ 6.5 ≤ 9.0
Phosphorus	1.000 ppm
Temperature	F <sup>o</sup> /C <sup>o</sup> No greater than receiving stream
Toluene	1.700 ppm
2,4, Dinitrotoluene	0.090 "
2,6, Dinitrotoluene	0.040 "
TNT/RDX/HMX	0.140 "

These chemical parameters were chosen as most probable contaminants being present in a waste stream generated from a combined domestic/industrial discharge managing explosives.

With the central RVAAP sector having surface discharge into protected State resource waters, it would require an above stream monitoring point in addition to the end-of-pipe monitoring point. Primary line for maximum limitation would be predicated by above stream water quality in conjunction with already mentioned parameters. In the event the above stream water quality were to be less than the previous mentioned limitations for RVAAP's eastern and western sectors then permissible discharge would be set according to warm water aquatic life habitat.

## II. WASTEWATER TREATMENT FACILITY DISCHARGING TO A CONSTRUCTED WETLANDS.

Under this scenario regulatory requirements would stipulate that end-of-pipe treatment discharge would be dictated by typical limitations established under RVAAP's current NPDES permit. The following limitations being presented are based upon maximum allowable 30-day averages.

<u>Analytical Parameter</u>	<u>Maximum Allowable 30-Day Average Discharge</u>
Ammonia - (NH <sub>3</sub> )	2.000 ppm
Biochemical Oxygen Demand (carbonaceous)	10.000 "
Chlorine (Tot. Residual)	0.038 " (Daily Max. Allowed)
Chemical Oxygen Demand	20.000 "
Dissolved Oxygen	≥ 5.000 "
E. Coli	126 colonies/100ml (used stream water quality stds. - permit values unavailable)
Fecal Coliform	1,000 colonies/100ml
Suspended Solids	12.000 ppm
Total Dissolved Solids	500.000 "
TNT/RDX/HMX	0.140 "
2,4 Dinitrotoluene	0.090 " (based on stream water quality stds.)
2,6 Dinitrotoluene	0.040 " (based on stream water quality stds.)

Please note that loading rates (kg/day) would probably apply under permit conditions. Allowed loading rates would be determined by the facility's design flow rate at the end-of-pipe discharge prior to the constructed wetlands. Ohio EPA has in additions stated that any treatment facility discharging to either an established or constructed wetlands will require sand filtration and aeration prior to end-of-pipe discharge to wetlands.

TOP OF MANHOLE TO BE  
1'-0" ABOVE GRADE  
AT ROADS AND  
SIDEWALKS TOP OF  
MANHOLE IS AT GRADE

C.I. MANHOLE  
FRAME & COVER

SET WITH  
CEMENT MORTAR

PLASTER ALL OVER  
OUTSIDE WITH 1/2" COAT OF  
PORTLAND CEMENT MORTAR

SHALE BRICK

NOT MORE  
THAN 15'  
SLOPE

GROUT EXIST. OPENING TO M.H.  
TO DIVERT FLOW TO OVERFLOW PIPE

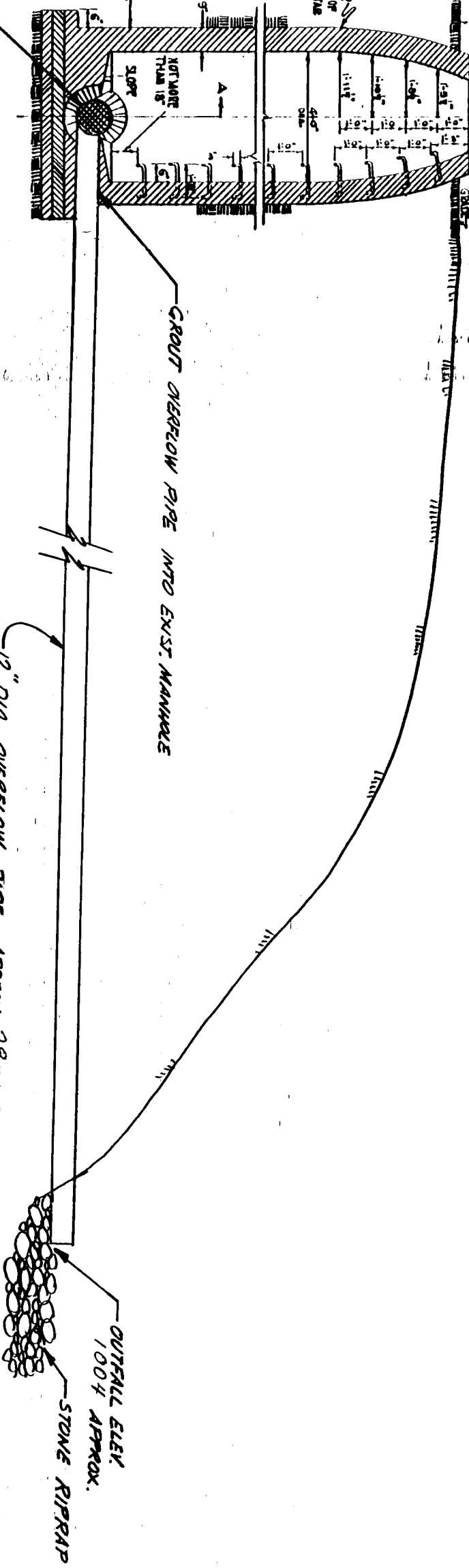
GROUT OVERFLOW PIPE INTO EXIST. MANHOLE

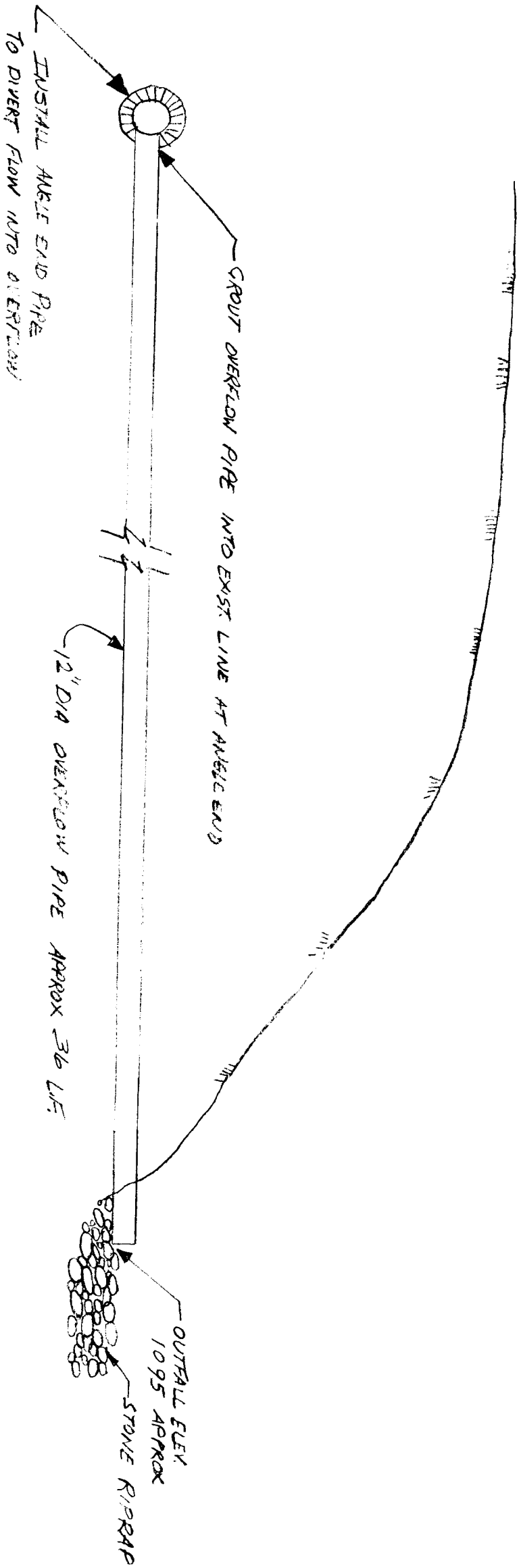
12" DIA. OVERFLOW PIPE APPROX 28' L.F.

OUTFALL ELEV.  
1004 APPROX.  
STONE RIPRAP

SECTION - MANHOLE # 10

TOP EL. 1009.62  
INV. EL. 1005.52





SECTION - LINE NEAR DEPOT HEADWORKS

GROUT OVERFLOW PIPE INTO EXIST LINE AT ANGLE END

INSTALL ANGLE END PIPE TO DIVERT FLOW INTO OVERFLOW

12" DIA OVERFLOW PIPE APPROX 36 LF

OUTFALL ELEV 1095 APPROX

STONE RIPRAP



TOP OF MANHOLE TO BE  
 1'-0" ABOVE GRADE  
 AT ROADS AND  
 SIDEWALKS TOP OF  
 MANHOLE IS AT GRADE

C.I. MANHOLE  
 FRAME & COVER

SET WITH  
 CEMENT MORTAR

PLASTER ALL OVER  
 OUTSIDE WITH 1/2" COAT OF  
 PORTLAND CEMENT MORTAR

SHALE BRICK

NOT MORE  
 THAN 18"  
 SLOPE

GROUT EXIST. OPENING TO M.H.  
 TO DIVERT FLOW TO OVERFLOW PIPE

GROUT OVERFLOW PIPE INTO EXIST. MANHOLE

12" DIA. OVERFLOW PIPE APPROX 54' L.F.

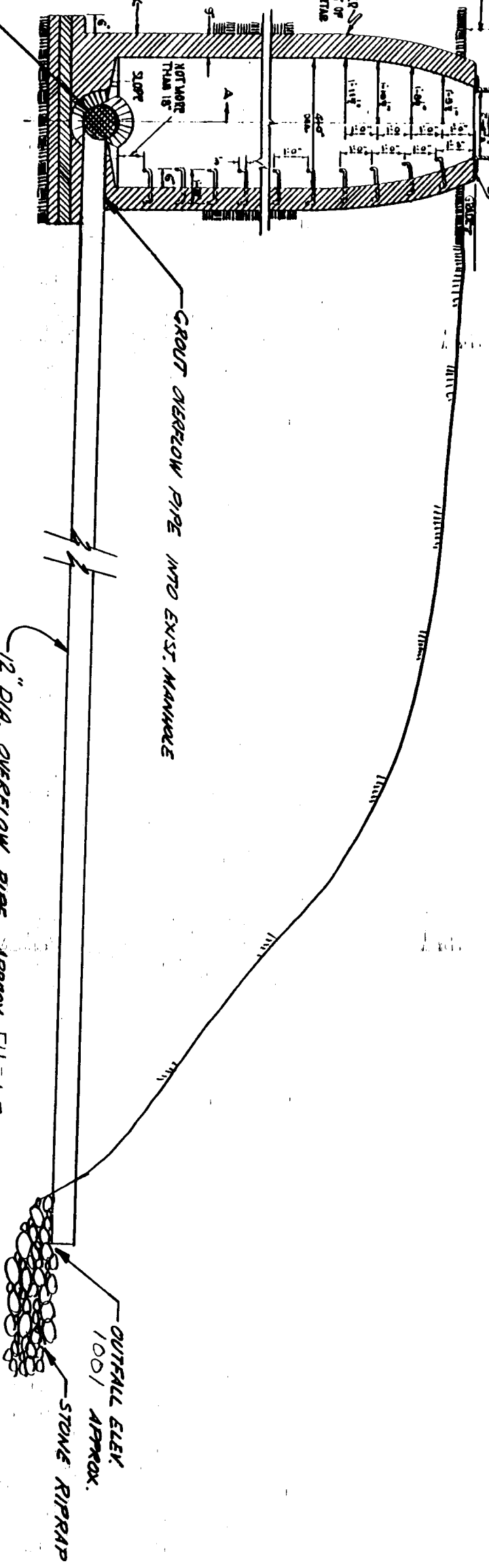
OUTFALL ELEV.  
 100' APPROX.

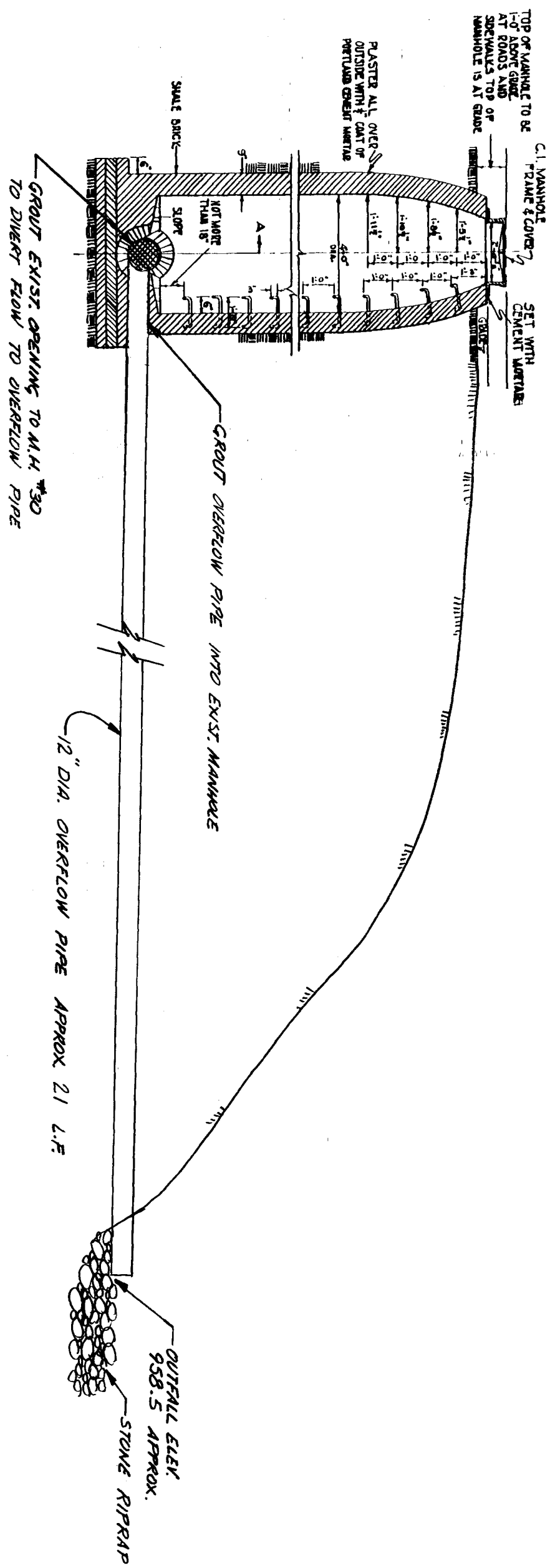
STONE RIPRAP

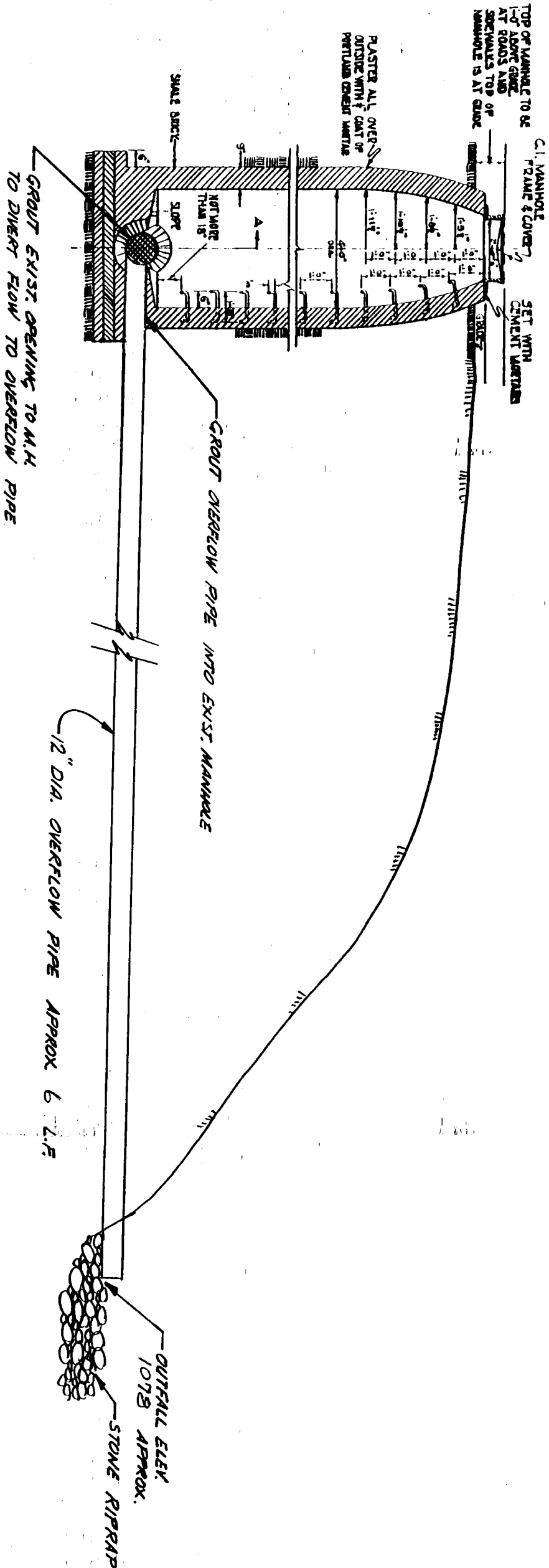
SECTION - MANHOLE # 1

TOP E.L. 1010.2

INV. E. 1004.1







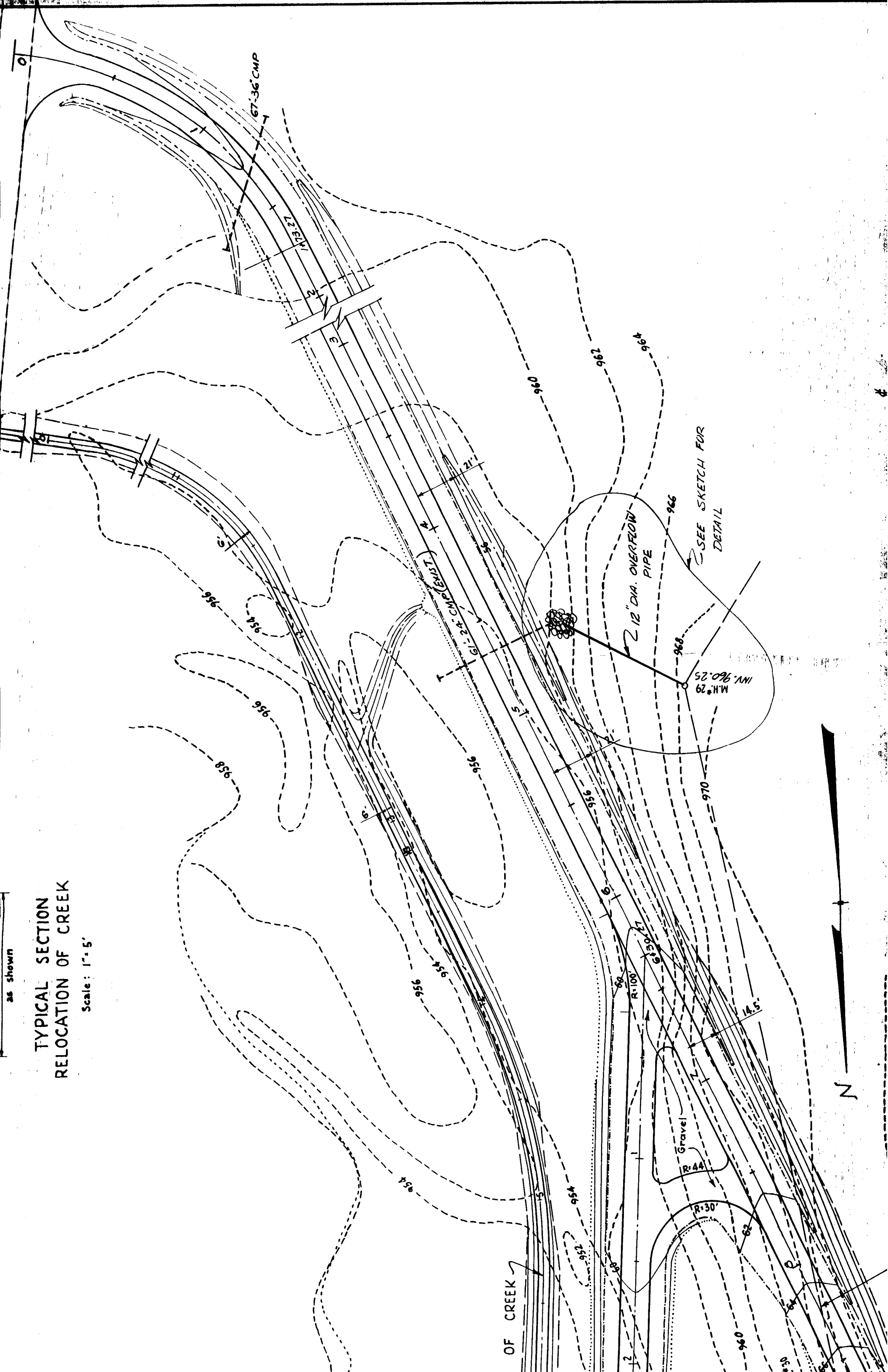
SECTION - MANHOLE # 24

TOP EL. 1086.5

INV. EL. 1081.5

TYPICAL SECTION  
RELOCATION OF CREEK

Scale: 1" = 5'



OF CREEK