

LIST OF ATTACHMENTS TO THE STATEMENT OF WORK

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ATTACHMENT 1
TECHNICAL SPECIFICATIONS

ATTACHMENT 2

**NATIONAL GUARD BUREAU DG 415-2
“Design Guide for Logistics Facilities – Volume 3”**

ATTACHMENT 3

VIRGINIA-POLLUTION-DISCHARGE-ELIMINATION-SYSTEMS PERMIT-VAR540015



COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

James S. Gilmore, III
Governor

John Paul Woodley, Jr.
Secretary of Natural Resources

PIEDMONT REGIONAL OFFICE

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Dennis H. Treacy
Director

Gerard Seeley, Jr.
Piedmont Regional Director

August 9, 1999

David L. Foley
Department of Army
VAFP-FE, Building T-232
Blackstone, VA 23824

RE: Virginia Pollution Discharge Elimination System (VPDES) Permit No. VAR540015

Dear Permittee:

The staff has reviewed your complete registration for Storm Water General Permit coverage and determined this facility is eligible for coverage under the VPDES General Permit for Storm Water Discharges associated with Industrial Activity. A copy of this permit is enclosed. The permit's effective date is June 30, 1999. This facility's date of coverage is July 27, 1999. The permit's expiration date is June 30, 2004. Please read the permit carefully, because you are responsible for meeting all permit conditions.

Should you have any questions, please do not hesitate to contact my staff.

Sincerely,

A handwritten signature in black ink, appearing to read 'J.R. Bell, Jr.'.

J.R. Bell, Jr.
Water Permits Manager

Enclosure: Permit No. VAR540015



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

General Permit No.: VAR540015

Effective Date: June 30, 1999

Expiration Date: June 30, 2004

GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITY
AUTHORIZATION TO DISCHARGE UNDER THE
VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM
AND
THE VIRGINIA STATE WATER CONTROL LAW

In compliance with the provisions of the Clean Water Act, as amended and pursuant to the State Water Control Law and regulations adopted pursuant thereto, owners of facilities with storm water discharges associated with industrial activity are authorized to discharge to surface waters within the boundaries of the Commonwealth of Virginia, except those waters specifically named in Board regulation or policies which prohibit such discharges.

The authorized discharge shall be in accordance with this cover page, Part I - Effluent Limitations and Monitoring Requirements, Part II - Conditions Applicable to All VPDES Permits, Part III - Storm Water Pollution Prevention Plan and Part IV - Sector Specific Permit Requirements, as set forth herein.

A. AUTHORIZATION TO DISCHARGE

1. The permittee is hereby authorized to discharge storm water associated with industrial activity to surface waters of the Commonwealth during the period beginning with the permittee's coverage under this general permit and lasting until the permit's expiration date.

2. Those permittees with facilities conducting activities specifically identified in Part B, Effluent Limitations and Compliance Monitoring Requirements, or Part C, Analytical Monitoring Requirements, are required to conduct sampling of their storm water discharges associated with industrial activity. Monitoring requirements under the permit are additive. Permittees with discharges or activities described in more than one monitoring section are subject to all applicable monitoring requirements from each section on an outfall-by-outfall basis.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts.

B. EFFLUENT LIMITATIONS AND COMPLIANCE MONITORING REQUIREMENTS

NOT APPLICABLE

C. ANALYTICAL MONITORING REQUIREMENTS

Permittees with discharges of storm water from the industrial activities listed in Table(s) below are required to monitor their discharges for the pollutants of concern listed in all applicable tables. Permittees must monitor their storm water discharges associated with industrial activity at least semi-annually (2 times per year) during the second and fourth years of coverage under the general permit, except as provided in the waiver provisions of Part D, paragraphs 2 - 5. The second year is the period beginning one year after the date of coverage under the general permit lasting through two years after the date of coverage under the general permit and the fourth year is the period beginning three years after the date of coverage under the general permit lasting through four years after the date of coverage under the general permit. Permittees required to perform monitoring shall monitor samples collected during the sampling periods of: January through June, and July through December. See Part I D 3 for an explanation of monitoring cut-off concentration.

In addition to the parameters listed in the table(s), the permittee shall provide the date and duration (in hours) of the storm event(s) sampled; rainfall measurements or estimates (in inches) of the storm event that generated the sampled runoff; the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and an estimate of the total volume (in gallons) of the discharge sampled.

**Table
Monitoring Requirements for Automobile Salvage Yards**

Pollutants of Concern	Monitoring Cut-Off Concentration
Total Suspended Solids	100 mg/L
Total Recoverable Aluminum	750 ug/L
Total Recoverable Iron	1 mg/L
Total Recoverable Lead	120 ug/L

**Table
Monitoring Requirements for Scrap Recycling and Waste Recycling Facilities (except facilities that only receive source separated recycling materials)**

Pollutants of Concern	Monitoring Cut-Off Concentration
Total Suspended Solids	100 mg/L
Total Recoverable Aluminum	750 ug/L
Total Recoverable Cadmium	3.9 ug/L
Total Recoverable Chromium	16 ug/L
Total Recoverable Copper	18 ug/L
Total Recoverable Iron	1 mg/L
Total Recoverable Lead	120 ug/L
Total Recoverable Zinc	120 ug/L

D. SPECIAL CONDITIONS

1. Sample type

For all monitoring required in Part I B and Part I C of this permit, a minimum of one grab sample shall be taken. Unless otherwise specified, all such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. The required 72-hour storm event interval is waived where the preceding measurable storm event did not result in a measurable discharge from the facility. The required 72-hour storm event interval may also be waived where the permittee documents that less than a 72-hour interval is representative for local storm events during the season when sampling is being conducted. The grab sample shall be taken during the first 30 minutes of the discharge. If the collection of a grab sample during the first 30 minutes is impracticable, a grab sample can be taken during the first hour of the discharge, and the permittee shall submit with the monitoring report a description of why a grab sample during the first 30 minutes was impracticable. If storm water discharges associated with industrial activity commingle with process or nonprocess water, then where practicable permittees must attempt to sample the storm water discharge before it mixes with the nonstorm water discharge.

2. Sampling Waiver

a. Adverse Conditions

When a permittee is unable to collect samples required in Part I B or Part I C within a specified sampling period due to adverse climatic conditions, the permittee shall collect a substitute sample from a separate qualifying event in the next period and submit these data along with the data for the routine sample in that period. Adverse weather conditions that may prohibit the collection of samples include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).

b. Inactive and Unstaffed Facilities

When a permittee is unable to conduct the chemical storm water sampling required in Part I B or Part I C at an inactive and unstaffed facility, the permittee may exercise a waiver of the monitoring requirements as long as the facility remains inactive and unstaffed. The permittee must submit to the Department, in lieu of monitoring data, a certification statement on the discharge monitoring report stating that the facility is inactive and unstaffed so that collecting a sample during a qualifying event is not possible.

3. Low Concentration Waiver

When the average concentration for a pollutant calculated from all monitoring data collected from an outfall during the monitoring period for the second year after coverage under this general permit is less than or equal to the corresponding value for that pollutant listed in the applicable tables in Part I C under the column Monitoring Cut-Off Concentration, a permittee may waive the Part I C monitoring and reporting requirements in the monitoring period beginning in the fourth year after coverage under this general permit. Values for pH monitoring must be within the range of 6.0 to 9.0 standard units. The exclusion from monitoring in the fourth year of the permit is conditional on the facility maintaining industrial operations and best management practices that will ensure a quality of storm water discharges consistent with the average concentrations recorded during the second year of coverage under the permit. Permittees who monitored their storm water discharges under another VPDES permit may submit data from that monitoring with their registration statement for coverage under this general permit, provided the data are from samples collected no more than 3 years prior to the date the registration statement is submitted. If the average concentration for a pollutant calculated from this earlier monitoring data is at or below the applicable monitoring cut-off concentration, the permittee may waive monitoring for that pollutant in both the second and fourth years after coverage under the general permit. For any low concentration waiver, the permittee must submit to the Department, in lieu of the monitoring data, a certification that there has not been a significant change in industrial activity or the pollution prevention measures in the area of the facility that drains to the outfall for which sampling was waived. **The low concentration waiver is not applicable to the compliance monitoring requirements of Part I B.**

4. Representative Discharge

When a facility has two or more outfalls that, based on a consideration of the industrial activity, significant materials, and management practices and activities within the area drained by the outfall, the permittee reasonably believes substantially identical effluents are discharged, the permittee may test the effluent of one of such outfalls and report that the quantitative data also applies to the substantially identical outfall(s) provided that the permittee includes in the storm water pollution prevention plan a description of the location of the outfalls and explains in detail why the outfalls are expected to discharge substantially identical effluents. In addition, for each outfall that the permittee believes is representative, an estimate of the size of the drainage area (in square feet) and an estimate of the runoff coefficient of the drainage area (i.e., low (under 40 percent), medium (40 to 65 percent) or high (above 65 percent)) shall be provided in the plan. Permittees required to submit monitoring information under this permit shall include the description of the location of the outfalls, an explanation of why outfalls are expected to discharge substantially identical effluents, and an estimate of the size of the drainage area and runoff coefficient with the discharge monitoring report. **The representative discharge provision is not applicable to compliance monitoring requirements under Part I B.**

5. Alternative Certification

A permittee is not subject to the analytical monitoring requirements of Part I C of this permit provided the permittee makes a certification for a given outfall, on a pollutant-by-pollutant basis, in lieu of the monitoring required under Part I C, under penalty of law, signed in accordance with Part II K, that material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, industrial machinery or operations, or significant materials from past industrial activity that are located in areas of the facility within the drainage area of the outfall are not presently exposed to storm water and are not expected to be exposed to storm water for the certification period. Such certification must be retained with the storm water pollution prevention plan, and submitted to the Department in accordance with Part II C. In the case of certifying that a pollutant is not present, the permittee must submit the certification along with the monitoring reports required under Part II C. If the permittee cannot certify for an entire period, they must submit the date exposure was eliminated and any monitoring required up until that date. **This certification option is not applicable to compliance monitoring requirements associated with effluent limitations in Part I B or analytical monitoring requirements for "Airports" table of Part I C.**

6. Reporting Monitoring Results

a. Reporting to the Department

Permittees shall submit monitoring results for each outfall associated with industrial activity, or a certification in accordance with Part I D, paragraphs 2 through 5, according to the requirements of Part II C. For each outfall, one signed discharge monitoring report form must be submitted to the Department per storm event sampled.

b. Additional Reporting

In addition to filing copies of discharge monitoring reports in accordance with Part II C, permittees with at least one storm water discharge associated with industrial activity through a large or medium municipal separate storm sewer system (systems serving a population of 100,000 or more) or a municipal system designated by the Director must submit signed copies of discharge monitoring reports to the operator of the municipal separate storm sewer system at the same time. Permittees not required to report monitoring data and permittees that are not otherwise required to monitor their discharges, need not comply with this provision.

7. Quarterly Visual Examination of Storm Water Quality

All permittees shall perform and document a visual examination of a storm water discharge associated with industrial activity from each outfall, except discharges exempted below. Unless another schedule is established in applicable sections of Part IV, the examination(s) must be made at least once in each of the following three-month periods: January through March, April through June, July through September, and October through December.

a. Examinations shall be made of samples collected within the first 30 minutes (or as soon thereafter as practical, but not to exceed 1 hour) of when the runoff or snowmelt begins discharging. The examination shall document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. The examination must be conducted in a well lit area. No analytical tests are required to be performed on the samples. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previous measurable (greater than 0.1 inch rainfall) storm event. The required 72-hour storm event interval is waived where the preceding measurable storm event did not result in a measurable discharge from the facility. The required 72-hour storm event interval may also be waived where the permittee documents that less than a 72-hour interval is representative for local storm events during the season when sampling is being conducted. Where practicable, the same individual should carry out the collection and examination of discharges for the entire permit term.

b. Visual examination reports must be maintained onsite with the pollution prevention plan. The report shall include the outfall location, the examination date and time, examination personnel, the nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), and probable sources of any observed storm water contamination.

c. When a facility has two or more outfalls that, based on a consideration of industrial activity, significant materials, and management practices and activities within the area drained by the outfall, the permittee reasonably believes discharge substantially identical effluents, the permittee may collect a sample of effluent of one of such outfalls and report that the examination data also applies to the substantially identical outfall(s) provided that the permittee includes in the storm water pollution prevention plan a description of the location of the outfalls and explains in detail why the outfalls are expected to discharge substantially identical effluents. In addition, for each outfall that the permittee believes is representative, an estimate of the size of the drainage area (in square feet) and an estimate of the runoff coefficient of the drainage area (i.e., low (under 40 percent), medium (40 to 65 percent), or high (above 65 percent)) shall be provided in the plan.

d. When a permittee is unable to conduct the visual examination due to adverse climatic conditions, the permittee must document the reason for not performing the visual examination and retain this documentation onsite with the records of the visual examinations. Adverse weather conditions that may prohibit the collection of samples include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).

e. When a permittee is unable to conduct visual storm water examinations at an inactive and unstaffed site, the owner of the facility may exercise a waiver of the monitoring requirement as long as the facility remains inactive and unstaffed. The facility must maintain a certification with the pollution prevention plan stating that the site is inactive and unstaffed so that performing visual examinations during a qualifying event is not feasible.

8. Prohibition of Nonstorm Water Discharges

Except as provided in this paragraph or in Part IV, all discharges covered by this permit shall be composed entirely of storm water. The following nonstorm water discharges may be authorized by this permit provided the nonstorm water component of the discharge is in compliance with this general permit:

- a. discharges from fire fighting activities;
- b. fire hydrant flushings;
- c. potable water sources including waterline flushings;
- d. uncontaminated compressor condensate;
- e. irrigation drainage;
- f. lawn watering;
- g. routine external building washdown that does not use detergents or other compounds;
- h. pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used;
- i. air conditioning condensate;
- j. uncontaminated springs;
- k. uncontaminated ground water; and
- l. foundation or footing drains where flows are not contaminated with process materials such as solvents.

All other nonstorm water discharges must be in compliance with a VPDES permit (other than this permit) issued for the discharge.

9. Releases of Hazardous Substances or Oil in Excess of Reportable Quantities

The discharge of hazardous substances or oil in the storm water discharge(s) from a facility shall be prevented or minimized in accordance with the applicable storm water pollution prevention plan for the facility. This permit does not authorize the discharge of hazardous substances or oil resulting from an onsite spill. Where a release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR 110 (1998), 40 CFR 117 (1998) or 40 CFR 302 (1998) occurs during a 24 hour period, the permittee is required to notify the Department in accordance with the requirements of Part II G as soon as he or she has knowledge of the discharge. In addition, the storm water pollution prevention plan required under Part III must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate. This permit does not relieve the permittee of the reporting requirements of 40 CFR 110 (1998), 40 CFR 117 (1998) and 40 CFR 302 (1998) or § 62.1-44.34:19 of the Code of Virginia.

10. Co-located Industrial Activity

In the case where a facility has industrial activities occurring onsite which are described by any of the activities in Part IV, those industrial activities are considered to be co-located industrial activities. Storm water discharges from co-located industrial activities are authorized by this permit, provided that the permittee complies with any and all additional pollution prevention plan and monitoring requirements from Part I and Part IV applicable to the co-located industrial activity. The permittee shall determine which additional pollution prevention plan and monitoring requirements are applicable to that particular co-located industrial activity by examining the narrative descriptions of each coverage section (Discharges Covered Under This Section).

11. The storm water discharges authorized by this permit may be combined with other sources of storm water which are not required to be covered under a VPDES permit, so long as the combined discharge is in compliance with this permit.

PART II
CONDITIONS APPLICABLE TO ALL VPDES PERMITS

A. Monitoring

1. Samples and measurements taken as required by this permit shall be representative of the monitored activity.
2. Monitoring shall be conducted according to procedures approved under 40 CFR Part 136 (1998) or alternative methods approved by the U.S. Environmental Protection Agency, unless other procedures have been specified in this permit.
3. The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals that will insure accuracy of measurements.

B. Records

1. Records of monitoring information shall include:
 - a. The date, exact place, and time of sampling or measurements;
 - b. The individual(s) who performed the sampling or measurements;
 - c. The date(s) and time(s) analyses were performed;
 - d. The individual(s) who performed the analyses;
 - e. The analytical techniques or methods used; and

f. The results of such analyses.

2. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years, the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the registration statement for this permit, for a period of at least 3 years from the date of the sample measurement, report or request for coverage. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the permittee, or as requested by the Board.

C. Reporting Monitoring Results

1. The permittee shall submit the results of the monitoring required by this permit not later than the 10th day of the month after monitoring takes place, unless another reporting schedule is specified elsewhere in this permit. Monitoring results shall be submitted to the Department's regional office.

2. Monitoring results shall be reported on a Discharge Monitoring Report (DMR) or on forms provided, approved or specified by the Department.

3. If the permittee monitors any pollutant specifically addressed by this permit more frequently than required by this permit using test procedures approved under 40 CFR Part 136 (1998) or using other test procedures approved by the U.S. Environmental Protection Agency or using procedures specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted on the DMR or reporting form specified by the Department.

4. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

D. Duty to Provide Information

The permittee shall furnish to the Department, within a reasonable time, any information which the Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Board may require the permittee to furnish, upon request, such plans, specifications, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

E. Compliance Schedule Reports

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

F. Unauthorized Discharges

Except in compliance with this permit, or another permit issued by the Board, it shall be unlawful for any person to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances; or

2. Otherwise alter the physical, chemical or biological properties of such state waters and make them detrimental to the public health, or to animal or aquatic life, or to the use of such waters for domestic or industrial consumption, or for recreation, or for other uses.

G Reports of Unauthorized Discharges

Any permittee who discharges or causes or allows a discharge of sewage, industrial waste, other wastes or any noxious or deleterious substance into or upon state waters in violation of Part II F; or who discharges or causes or allows a discharge that may reasonably be expected to enter state waters in violation of Part II F, shall notify the Department of the discharge immediately upon discovery of the discharge, but in no case later than 24 hours after said discovery. A written report of the unauthorized discharge shall be submitted to the Department, within five days of discovery of the discharge. The written report shall contain:

1. A description of the nature and location of the discharge;
2. The cause of the discharge;
3. The date on which the discharge occurred;
4. The length of time that the discharge continued;
5. The volume of the discharge;
6. If the discharge is continuing, how long it is expected to continue;
7. If the discharge is continuing, what the expected total volume of the discharge will be; and
8. Any steps planned or taken to reduce, eliminate and prevent a recurrence of the present discharge or any future discharges not authorized by this permit.

Discharges reportable to the Department under the immediate reporting requirements of other regulations are exempted from this requirement.

H. Reports of Unusual or Extraordinary Discharges

If any unusual or extraordinary discharge including a bypass or upset should occur from a treatment works and the discharge enters or could be expected to enter state waters, the permittee shall promptly notify, in no case later than 24 hours, the Department by telephone after the discovery of the discharge. This notification shall provide all available details of the incident, including any adverse affects on aquatic life and the known number of fish killed. The permittee shall reduce the report to writing and shall submit it to the Department within five days of discovery of the discharge in accordance with Part II I 2. Unusual and extraordinary discharges include but are not limited to any discharge resulting from:

1. Unusual spillage of materials resulting directly or indirectly from processing operations;
2. Breakdown of processing or accessory equipment;
3. Failure or taking out of service some or all of the treatment works; and
4. Flooding or other acts of nature.

I. Reports of Noncompliance

The permittee shall report any noncompliance which may adversely affect state waters or may endanger public health.

1. An oral report shall be provided within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which shall be reported within 24 hours under this paragraph:

- a. Any unanticipated bypass; and
 - b. Any upset which causes a discharge to surface waters.
2. A written report shall be submitted within 5 days and shall contain:
- a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and
 - c. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The Board may waive the written report on a case-by-case basis for reports of noncompliance under Part II I if the oral report has been received within 24 hours and no adverse impact on state waters has been reported.

3. The permittee shall report all instances of noncompliance not reported under Part II I 1 or 2, in writing, at the time the next monitoring reports are submitted. The reports shall contain the information listed in Part II I 2.

NOTE: The immediate (within 24 hours) reports required in Parts II G, H and I may be made to the Department's Regional Office. Reports may be made by telephone or by fax. For reports outside normal working hours, leave a message and this shall fulfill the immediate reporting requirement. For emergencies, the Virginia Department of Emergency Services maintains a 24 hour telephone service at 1-800-468-8892.

J. Notice of Planned Changes

1. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

a. The permittee plans alteration or addition to any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

(1) After promulgation of standards of performance under Section 306 of Clean Water Act which are applicable to such source; or

(2) After proposal of standards of performance in accordance with Section 306 of Clean Water Act which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal;

b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations nor to notification requirements specified elsewhere in this permit; or

c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

2. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

K. Signatory Requirements

1. Registration Statement

All registration statements shall be signed as follows:

- a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
- b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
- c. For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a public agency includes: (i) The chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

2. Reports, etc

All reports required by permits, and other information requested by the Board shall be signed by a person described in Part II K 1 or by a duly authorized representative of that person. A person is a duly authorized representative only if:

- a. The authorization is made in writing by a person described in Part II K 1;
- b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
- c. The written authorization is submitted to the Department.

3. Changes to authorization

If an authorization under Part II K 2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part II K 2 shall be submitted to the Department prior to or together with any reports, or information to be signed by an authorized representative.

4. Certification

Any person signing a document under Part II K 1 or 2 shall make the following certification:

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

L. Duty to Comply

The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation

of the State Water Control Law and the Clean Water Act, except that noncompliance with certain provisions of this permit may constitute a violation of the State Water Control Law but not the Clean Water Act. Permit noncompliance is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if this permit has not yet been modified to incorporate the requirement.

M. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall submit a new registration statement at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Board. The Board shall not grant permission for registration statements to be submitted later than the expiration date of the existing permit.

N. Effect of a Permit

This permit does not convey any property rights in either real or personal property or any exclusive privileges, nor does it authorize any injury to private property or invasion of personal rights, or any infringement of federal, state or local law or regulations.

O. State Law

Nothing in this permit shall be construed to preclude the institution of any legal action under, or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any other state law or regulation or under authority preserved by Section 510 of the Clean Water Act. Except as provided in permit conditions on "bypassing" (Part II U), and "upset" (Part II V) nothing in this permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

P. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Sections 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

Q. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes effective plant performance, adequate funding, adequate staffing, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

R. Disposal of solids or sludges

Solids, sludges or other pollutants removed in the course of treatment or management of pollutants shall be disposed of in a manner so as to prevent any pollutant from such materials from entering state waters.

S. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

T. Need to Halt or Reduce Activity not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

U. Bypass

1. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts II U b and c.

2. Notice

a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, prior notice shall be submitted, if possible at least ten days before the date of the bypass.

b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Part II I.

3. Prohibition of bypass

a. Bypass is prohibited, and the Board may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The permittee submitted notices as required under Part II U 2.

b. The Board may approve an anticipated bypass, after considering its adverse effects, if the Board determines that it will meet the three conditions listed above in Part II U 3 a.

V. Upset

1. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of Part II V 2 are met. A determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is not a final administrative action subject to judicial review.

2. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through

properly signed, contemporaneous operating logs, or other relevant evidence that:

- a. An upset occurred and that the permittee can identify the cause(s) of the upset;
- b. The permitted facility was at the time being properly operated;
- c. The permittee submitted notice of the upset as required in Part II I; and
- d. The permittee complied with any remedial measures required under Part II S.

3. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

W. Inspection and Entry

The permittee shall allow the Director, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act and the State Water Control Law, any substances or parameters at any location.
For purposes of this section, the time for inspection shall be deemed reasonable during regular business hours, and whenever the facility is discharging. Nothing contained herein shall make an inspection unreasonable during an emergency.

X. Permit Actions

Permits may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

Y. Transfer of permits

1. Permits are not transferable to any person except after notice to the Department. Except as provided in Part II Y 2, a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued, or a minor modification made, to identify the new permittee and incorporate such other requirements as may be necessary under the State Water Control Law and the Clean Water Act.
2. As an alternative to transfers under Part II Y 1, this permit may be automatically transferred to a new permittee if:
 - a. The current permittee notifies the Department at least 30 days in advance of the proposed transfer of the title to the facility or property;
 - b. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

c. The Board does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part II Y 2 b.

Z. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

PART III
STORM WATER POLLUTION PREVENTION PLANS

A storm water pollution prevention plan shall be developed for each facility covered by this permit. Storm water pollution prevention plans shall be prepared in accordance with good engineering practices. The plan shall identify potential sources of pollution that may reasonably be expected to affect the quality of storm water discharges associated with industrial activity from the facility. In addition, the plan shall describe and ensure the implementation of practices that are to be used to reduce the pollutants in storm water discharges associated with industrial activity at the facility and to assure compliance with the terms and conditions of this permit. Permittees must implement the provisions of the storm water pollution prevention plan as a condition of this permit.

The storm water pollution prevention plan requirements of this general permit may be fulfilled by incorporating by reference other plans or documents such as an erosion and sediment control plan, a spill prevention control and countermeasure (SPCC) plan developed for the facility under Section 311 of the Clean Water Act or best management practices (BMP) programs otherwise required for the facility provided that the incorporated plan meets or exceeds the plan requirements of Part III D. If an erosion and sediment control plan is being incorporated by reference, it shall have been approved by the locality in which the activity is to occur or by another appropriate plan approving authority authorized under the Virginia Erosion and Sediment Control Regulation 4 VAC 50-30-10 et seq. All plans incorporated by reference into the storm water pollution prevention plan become enforceable under this permit.

A. Deadlines for Plan Preparation and Compliance

1. Existing Facilities

Except as provided in Part III A 3, 4, and 5, all existing facilities and new facilities that begin operation on or before June 30, 1999 shall prepare and implement the plan as expeditiously as practicable, but not later than March 26, 2000.

2. New Facilities

Facilities that begin operation after June 30, 1999 shall prepare and implement the plan prior to submitting the registration statement

3. Oil and Gas Facilities

Oil and gas exploration, production, processing or treatment facilities that are not required to submit a registration statement but which have a discharge of a reportable quantity of oil or a hazardous substance for which notification is required pursuant to either 40 CFR 110.6 (1998) or 40 CFR 302.6 (1998), shall prepare and implement the plan on or before the date 60 calendar days after first knowledge of such discharge.

4. Measures That Require Construction

In cases where construction is necessary to implement measures required by the plan, the plan shall contain a schedule that provides compliance with the plan as expeditiously as practicable, but no later than 3 years after the date of coverage under the general permit. Where a construction compliance schedule is included in the plan, the schedule shall include appropriate nonstructural and/or temporary controls to be implemented in the affected portion(s) of the facility prior to completion of the permanent control measure.

5. Extensions

Upon a showing of good cause, the Director may establish a later date in writing for preparing and compliance with a plan for a storm water discharge associated with industrial activity.

B. Signature and Plan Review

1. Signature/Location

The plan shall be signed in accordance with Part II K, and be retained onsite at the facility that generates the storm water discharge in accordance with Part II B 2. For inactive facilities, the plan may be kept at the nearest office of the permittee.

2. Availability

The permittee shall make the storm water pollution prevention plan, annual site compliance inspection report, or other information available to the Department upon request.

3. Required Modifications

The Director, or authorized representative, may notify the permittee at any time that the plan does not meet one or more of the minimum requirements of this permit. Such notification shall identify those provisions of the permit that are not being met by the plan, and identify which provisions of the plan requires modifications in order to meet the minimum requirements of this permit. Within 60 days of such notification from the Director, (or as otherwise provided by the Director), or authorized representative, the permittee shall make the required changes to the plan and shall submit to the Director a written certification that the requested changes have been made.

C. Keeping Plans Current

The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, that has a significant effect on the potential for the discharge of pollutants to surface waters or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified under Part III D of this permit, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity. New owners shall review the existing plan and make appropriate changes. Amendments to the plan may be reviewed by the Department in the same manner as Part III B.

D. Contents of the Plan

The contents of the pollution prevention plan shall comply with the requirements listed below and those in the appropriate section of Part IV. These requirements are cumulative. If a facility has co-located activities that are covered in more than one section of Part IV, that facility's pollution prevention plan must comply with the requirements listed in all applicable sections. The following requirements are applicable to all storm water pollution prevention plans developed under this general permit. The plan shall include, at a minimum, the following items.

1. Pollution Prevention Team

Each plan shall identify a specific individual or individuals within the facility organization as members of a storm water Pollution Prevention Team that are responsible for developing the storm water pollution prevention plan and assisting the facility or plant manager in its implementation, maintenance, and revision. The plan shall clearly identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the facility's storm water pollution prevention plan.

2. Description of Potential Pollutant Sources

Each plan shall provide a description of potential sources that may reasonably be expected to add significant amounts of pollutants to storm water discharges or that may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. Each plan shall identify all activities and significant materials that may potentially be significant pollutant sources. Each plan shall include, at a minimum:

a. Drainage

(1) A site map indicating an outline of the portions of the drainage area of each storm water outfall that are within the facility boundaries, each existing structural control measure to reduce pollutants in storm water runoff, surface water bodies, locations where significant materials are exposed to precipitation, locations where major spills or leaks identified under Part III D 2 c have occurred, and the locations of the following activities where such activities are exposed to precipitation: fueling stations, vehicle and equipment maintenance and/or cleaning areas, loading/unloading areas, locations used for the treatment, storage or disposal of wastes and wastewaters, locations used for the treatment, filtration, or storage of water supplies, liquid storage tanks, processing areas, and storage areas. The map must indicate the outfall locations and the types of discharges contained in the drainage areas of the outfalls;

(2) For each area of the facility that generates storm water discharges associated with industrial activity with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow, and an identification of the types of pollutants that are likely to be present in storm water discharges associated with industrial activity. Factors to consider include the toxicity of chemical; quantity of chemicals used, produced or discharged; the likelihood of contact with storm water; and history of significant leaks or spills of toxic or hazardous pollutants. Flows with a significant potential for causing erosion shall be identified;

b. Inventory of Exposed Materials

An inventory of the types of materials handled at the site that potentially may be exposed to precipitation. Such inventory shall include a narrative description of significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to storm water between the time of 3 years prior to the date of submission of a registration statement to be covered under this permit and the present; method and location of onsite storage or disposal; materials management practices employed to minimize contact of materials with storm water runoff between the time of 3 years prior to the date of the submission of a registration statement to be covered under this permit and the present; the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of any treatment the storm water receives;

c. Spills and Leaks

A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at the facility within the 3 year period immediately prior to the date of submission of a registration statement to be covered under this permit. Such list shall be updated as appropriate during the term of the permit;

d. Sampling Data

A summary of existing discharge sampling data describing pollutants in storm water discharges from the facility, including a summary of sampling data collected during the term of this permit; and

e. Risk Identification and Summary of Potential Pollutant Sources

A narrative description of the potential pollutant sources from the following activities: loading and unloading operations; outdoor storage activities; outdoor manufacturing or processing activities; significant dust or particulate generating processes; and onsite waste disposal practices, and wastewater treatment activities to include sludge drying, storage, application or disposal activities. The description shall specifically list any significant potential source of pollutants at the site and for each potential source, any pollutant or pollutant parameter (e.g., biochemical oxygen demand, total suspended solids, etc.) of concern shall be identified.

3. Measures and Controls

Each facility covered by this permit shall develop a description of storm water management controls appropriate for the facility and implement such controls. The appropriateness and priorities of controls in a plan shall reflect identified potential sources of pollutants at the facility. The description of storm water management controls shall address the following minimum components, including a schedule for implementing such controls.

a. Good Housekeeping

Good housekeeping requires the clean and orderly maintenance of areas that may contribute pollutants to storm water discharges. The plan shall describe procedures performed to minimize contact of materials with storm water runoff. Particular attention should be paid to areas where raw materials are stockpiled, material handling areas, storage areas, liquid storage tanks, material handling areas, and loading/unloading areas.

b. Preventive Maintenance

A preventive maintenance program shall involve: timely inspection and maintenance of storm water management devices (e.g., cleaning oil/water separators, catch basins); inspection and testing of facility equipment and systems to uncover conditions that could cause breakdowns or failures which could result in discharges of pollutants to surface waters; and appropriate maintenance of such equipment and systems.

c. Spill Prevention and Response Procedures

Areas where potential spills that can contribute pollutants to storm water discharges can occur, and their accompanying drainage points, shall be identified clearly in the storm water pollution prevention plan. Where appropriate, specifying material handling procedures, storage requirements, and use of equipment such as diversion valves in the plan should be considered. Procedures for cleaning up spills shall be identified in the plan and made available to the appropriate personnel. The necessary equipment to implement a clean up should be available to personnel.

d. Inspections

Facility personnel who are familiar with the industrial activity, the BMPs and the storm water pollution prevention plan shall be identified to inspect designated equipment and areas of the facility. The inspection frequency shall be specified in the plan based upon a consideration of the level of industrial activity at the facility, but shall be a minimum of quarterly unless more frequent intervals are specified elsewhere in the permit. A set of tracking or follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections

Records of inspections shall be maintained.

e. Employee Training

Employee training programs shall inform personnel responsible for implementing activities identified in the storm water pollution prevention plan or otherwise responsible for storm water management at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training should address topics such as spill response, good housekeeping and material management practices. The pollution prevention plan shall identify periodic dates for such training.

f. Recordkeeping and Internal Reporting Procedures

A description of incidents (such as spills, or other discharges), along with other information describing the quality and quantity of storm water discharges shall be included in the plan. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan.

g. Nonstorm Water Discharges

(1) The plan shall include a certification that the discharge has been tested or evaluated for the presence of nonstorm water discharges. The certification shall include the identification of potential significant sources of nonstorm water at the site, a description of the results of any test and/or evaluation for the presence of nonstorm water discharges, the evaluation criteria or testing method used, the date of any testing and/or evaluation, and the onsite drainage points that were directly observed during the test. Certifications shall be signed in accordance with Part II K. Such certification may not be feasible if the facility operating the storm water discharge associated with industrial activity does not have access to an outfall, manhole, or other point of access to the ultimate conduit that receives the discharge. In such cases, the source identification section of the storm water pollution prevention plan shall indicate why the certification required was not feasible, along with the identification of potential significant sources of nonstorm water at the site. A permittee that is unable to provide the certification required by this paragraph must notify the Department in accordance with Part III D 3 g (3).

(2) Except for flows from fire fighting activities, sources of nonstorm water listed in Part I D 8 that are combined with storm water discharges associated with industrial activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the nonstorm water component(s) of the discharge.

(3) Failure to Certify. Any permittee that is unable to provide the certification required (testing for nonstorm water discharges), must notify the Department within 270 days after the date of coverage under this general permit. If the failure to certify is caused by the inability to perform adequate tests or evaluations, such notification shall describe: the procedure of any test conducted for the presence of nonstorm water discharges; the results of such test or other relevant observations; potential sources of nonstorm water discharges to the storm sewer; and why adequate tests for such storm sewers were not feasible.

(4) If the facility discharges wastewater, other than storm water, via an existing VPDES permit, the VPDES permit authorizing the discharge must be referenced in the plan. Nonstorm water discharges to surface waters that are not authorized by a VPDES permit are unlawful, and must be terminated.

h. Sediment and Erosion Control

The plan shall identify areas that, due to topography, activities, or other factors, have a high potential for significant soil erosion, and identify structural, vegetative, and/or stabilization measures to be used to limit erosion.

i. Management of Runoff

The plan shall contain a narrative consideration of the appropriateness of traditional storm water management practices (practices other than those that control the generation or source(s) of pollutants) used to divert, infiltrate, reuse, or otherwise manage storm water runoff in a manner that reduces pollutants in storm water discharges from the site. The plan shall provide that measures that the permittee determines to be reasonable and appropriate shall be implemented and maintained. The potential of various sources at the facility to contribute pollutants to storm water discharges associated with industrial activity shall be considered when determining reasonable and appropriate measures. Appropriate measures may include: vegetative swales and practices; reuse of collected storm water (such as for a process or as an irrigation source); inlet controls (such as oil/water separators); snow management activities; infiltration devices and wet detention/retention devices; or other equivalent measures.

4. Comprehensive Site Compliance Evaluation

Personnel who are familiar with the industrial activity, the BMPs and the storm water pollution prevention plan shall conduct site compliance evaluations at appropriate intervals specified in the plan, but in no case less than once a year. Such evaluations shall include the following:

a. Areas contributing to a storm water discharge associated with industrial activity such as material storage, handling, and disposal activities shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed. Structural storm water management measures, sediment and erosion control measures, and other structural pollution prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual inspection of equipment needed to implement the plan, such as spill response equipment, shall be made;

b. Based on the results of the evaluation, the description of potential pollutant sources identified in the plan in accordance with Part III D 2 and pollution prevention measures and controls identified in the plan in accordance with Part III D 3 shall be revised as appropriate within 2 weeks of such evaluation and shall provide for implementation of any changes to the plan in a timely manner, but in no case more than 12 weeks after the evaluation;

c. A report summarizing the scope of the evaluation, personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with Part III D 4 b shall be made and retained as part of the storm water pollution prevention plan for at least 3 years from the date of the evaluation. The report shall identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report shall contain a certification that the facility is in compliance with the storm water pollution prevention plan and this permit. The report shall be signed in accordance with Part II K; and

d. Where compliance evaluation schedules overlap with inspections required under Part III D 3 d, the compliance evaluation may be conducted in place of one such inspection.

E. Special Pollution Prevention Plan Requirements

In addition to the minimum standards listed in Part III D and Part IV, the storm water pollution prevention plan shall include a complete discussion of measures taken to conform with the following applicable guidelines.

1. Additional Requirements for Storm Water Discharges Associated With Industrial Activity that Discharge Into or Through Municipal Separate Storm Sewer Systems Serving a Population of 100,000 or More.

a. In addition to the applicable requirements of this permit, facilities covered by this permit must comply with applicable requirements in municipal storm water management programs developed under VPDES permits issued for the discharge of the municipal separate storm sewer system that receives the facility's discharge, provided the permittee has been notified of such conditions.

b. Permittees that discharge storm water associated with industrial activity through a municipal separate storm sewer system serving a population of 100,000 or more, or a municipal system designated by the Director shall make plans available to the municipal operator of the system upon request.

2. Additional Requirements for Storm Water Discharges Associated With Industrial Activity From Facilities Subject to EPCRA Section 313 Requirements. In addition to the requirements of Part IV and other applicable conditions of this permit, storm water pollution prevention plans for facilities subject to reporting requirements under EPCRA Section 313, prior to May 1, 1997, for chemicals that are classified as Section 313 water priority chemicals, except as provided in Part III E 2 b (2), and where there is the potential for these chemicals to mix with storm water discharges, shall describe and ensure the implementation of practices that are necessary to provide for conformance with the following guidelines.

a. In areas where Section 313 water priority chemicals are stored, processed or otherwise handled, appropriate containment, drainage control and/or diversionary structures shall be provided unless otherwise exempted under Part III E 2 c. At a minimum, one of the following preventive systems or its equivalent shall be used:

(1) Curbing, culverting, gutters, sewers, or other forms of drainage control to prevent or minimize the potential for storm water runoff to come into contact with significant sources of pollutants; or

(2) Roofs, covers or other forms of appropriate protection to prevent storage piles from exposure to storm water and wind.

b. In addition to the minimum standards listed under Part III E 2 a, and except as otherwise exempted under Part III E 2 c, the storm water pollution prevention plan shall include a complete discussion of measures taken to conform with other effective storm water pollution prevention procedures, and applicable state rules, regulations, and guidelines.

(1) Liquid Storage Areas Where Storm Water Comes Into Contact With Any Equipment, Tank, Container, or Other Vessel Used for Section 313 Water Priority Chemicals.

(a) No tank or container shall be used for the storage of a Section 313 water priority chemical unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature, etc.

(b) Liquid storage areas for Section 313 water priority chemicals shall be operated to minimize discharges of Section 313 chemicals. Appropriate measures to minimize discharges of Section 313 chemicals may include secondary containment provided for at least the entire contents of the largest single tank plus sufficient freeboard to allow for precipitation, a strong spill contingency and integrity testing plan, and/or other equivalent measures.

(2) Material Storage Areas for Section 313 Water Priority Chemicals Other Than Liquids. Material storage areas for Section 313 water priority chemicals other than liquids that are subject to runoff, leaching, or wind shall incorporate drainage or other control features that will minimize the discharge of Section 313 water priority chemicals by reducing storm water contact with those chemicals.

(3) Truck and Rail Car Loading and Unloading Areas for Liquid Section 313 Water Priority Chemicals. Truck and rail car loading and unloading areas for liquid Section 313 water priority chemicals shall be

operated to minimize discharges of those chemicals. Protection such as overhangs or door skirts to enclose trailer ends at truck loading/unloading docks shall be provided as appropriate. Appropriate measures to minimize discharges of Section 313 chemicals may include: the placement and maintenance of drip pans (including the proper disposal of materials collected in the drip pans) where spillage may occur (such as hose connections, hose reels and filler nozzles) for use when making and breaking hose connections, a strong spill contingency and integrity testing plan; and/or other equivalent measures.

(4) **Areas Where Section 313 Water Priority Chemicals Are Transferred, Processed, or Otherwise Handled.** Processing equipment and materials handling equipment shall be operated so as to minimize discharges of Section 313 water priority chemicals. Materials used in piping and equipment shall be compatible with the substances handled. Drainage from process and materials handling areas shall minimize storm water contact with Section 313 water priority chemicals. Additional protection such as covers or guards to prevent exposure to wind, spraying or releases from pressure relief vents from causing a discharge of Section 313 water priority chemicals to the drainage system shall be provided as appropriate. Visual inspections or leak tests shall be provided for overhead piping conveying Section 313 water priority chemicals without secondary containment.

(5) **Discharges From Areas Covered by Paragraphs (1), (2), (3), or (4) of Part III E 2 b.**

(a) Drainage from areas covered by paragraphs (1), (2), (3), or (4) of Part III E 2 b should be restrained by valves or other positive means to prevent the discharge of a spill or other excessive leakage of Section 313 water priority chemicals. Where containment units are employed, such units may be emptied by pumps or ejectors; however, these shall be manually activated.

(b) Flapper-type drain valves shall not be used to drain containment areas. Valves used for the drainage of containment areas should, as far as is practical, be of manual, open-and-closed design.

(c) If facility drainage is not engineered as above, the final discharge of all in-facility storm sewers shall be equipped to be equivalent with a diversion system that could, in the event of an uncontrolled spill of Section 313 water priority chemicals, return the spilled material to the facility.

(d) Records shall be kept of the frequency and estimated volume (in gallons) of discharges from containment areas.

(6) **Facility Site Runoff Other Than From Areas Covered By paragraphs (1), (2), (3), or (4) of Part III E 2 b.** Other areas of the facility (those not addressed in paragraphs (1), (2), (3), or (4) of Part III E 2 b), from which runoff that may contain Section 313 water priority chemicals or spills of Section 313 water priority chemicals could cause a discharge shall incorporate the necessary drainage or other control features to prevent discharge of spilled or improperly disposed material and ensure the mitigation of pollutants in runoff or leachate.

(7) **Preventive Maintenance and Housekeeping**

All areas of the facility shall be inspected at specific intervals identified in the plan for leaks or conditions that could lead to discharges of Section 313 water priority chemicals or direct contact of storm water with raw materials, intermediate materials, waste materials or products. In particular, facility piping, pumps, storage tanks and bins, pressure vessels, process and material handling equipment, and material bulk storage areas shall be examined for any conditions or failures that could cause a discharge. Inspection shall include examination for leaks, wind blowing, corrosion, support or foundation failure, or other forms of deterioration or noncontainment. Inspection intervals shall be specified in the plan and shall be based on design and operational experience. Different areas may require different inspection intervals. Where a leak or other condition is discovered that may result in significant releases of Section 313 water priority chemicals to waters of the United States, action to stop the leak or otherwise prevent the significant release of Section 313 water priority chemicals to waters of the United States shall be immediately taken or the unit or process shut down until such action can be taken. When a leak or noncontainment of a Section 313

water priority chemical has occurred, contaminated soil, debris, or other material must be promptly removed and disposed in accordance with Federal, State, and local requirements and as described in the plan.

(8) Facility Security

Facilities shall have the necessary security systems to prevent accidental or intentional entry that could cause a discharge. Security systems described in the plan shall address fencing, lighting, vehicular traffic control, and securing of equipment and buildings.

(9) Training

Facility employees and contractor personnel that work in areas where Section 313 water priority chemicals are used or stored shall be trained in and informed of preventive measures at the facility. Employee training shall be conducted at intervals specified in the plan, but not less than once per year. Training shall address pollution control laws and regulations, the storm water pollution prevention plan and the particular features of the facility and its operation that are designed to minimize discharges of Section 313 water priority chemicals. The plan shall designate a person who is accountable for spill prevention at the facility and who will set up the necessary spill emergency procedures and reporting requirements so that spills and emergency releases of Section 313 water priority chemicals can be isolated and contained before a discharge of those chemicals can occur. Contractor or temporary personnel shall be informed of facility operation and design features in order to prevent discharges or spills from occurring.

c. Facilities subject to reporting requirements under EPCRA Section 313 for chemicals that are classified as Section 313 water priority chemicals that are handled and stored onsite only in gaseous or nonsoluble liquid or solid (at atmospheric pressure and temperature) forms may provide a certification as such in the pollution prevention plan in lieu of the additional requirements in Part III E 2. Such certification shall include a narrative description of all water priority chemicals and the form in which they are handled and stored, and shall be signed in accordance with Part III K.

d. The storm water pollution prevention plan shall be certified in accordance with Part III K.

3. Additional Requirements for Salt Storage

Storage piles of salt used for deicing or other commercial or industrial purposes and that generate a storm water discharge associated with industrial activity that is discharged to surface waters shall be enclosed or covered to prevent exposure to precipitation, except for exposure resulting from adding or removing materials from the pile. Permittees shall demonstrate compliance with this provision as expeditiously as practicable, but in no event later than 3 years after the date of coverage under this general permit. Permittees with previous coverage under a VPDES general permit for storm water shall be compliant with this provision upon submittal of the registration statement. Piles do not need to be enclosed or covered where storm water from the pile is not discharged to surface waters.

PART IV
SECTOR-SPECIFIC PERMIT REQUIREMENTS

A. Motor Freight Transportation Facilities, Passenger Transportation Facilities, Petroleum Bulk Oil Stations and Terminals, Rail Transportation Facilities, and United States Postal Service Transportation Facilities

1. Discharges Covered Under This Section

Storm water discharges from ground transportation facilities and rail transportation facilities (generally identified by Standard Industrial Classification (SIC) codes 40, 41, 42, 43, and 5171), that have vehicle and equipment maintenance shops (vehicle and equipment rehabilitation, mechanical repairs, painting, fueling and lubrication) and/or equipment cleaning operations are eligible for coverage under this section. Also covered under this section are facilities found under SIC code 4221–4225 (public warehousing and storage) that do not have vehicle and equipment maintenance shops and/or equipment cleaning operations but have areas (exclusive of access roads and rail lines) where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products or industrial machinery are exposed to storm water.

2. Special Conditions

Prohibition of Nonstorm Water Discharges. Except as provided under Part I D 8, nonstorm water discharges are not authorized by this general permit.

3. Storm Water Pollution Prevention Plan Requirements

In addition to the requirements of Part III, the plan shall include, at a minimum, the following items.

a. Measures and Controls

(1) Good Housekeeping

All areas that may contribute pollutants to storm water discharges shall be maintained in a clean, orderly manner. The following areas must be specifically addressed.

(a) Vehicle and Equipment Storage Areas

The storage of vehicles and equipment awaiting maintenance with actual or potential fluid leaks must be confined to designated areas (delineated on the site map). The plan must describe measures that prevent or minimize contamination of the storm water runoff from these areas. The permittee shall consider the use of drip pans under vehicles and equipment, indoor storage of the vehicles and equipment, installation of berming and diking of this area, use of absorbents, roofing or covering storage areas, cleaning pavement surface to remove oil and grease, or other equivalent methods.

(b) Fueling Areas

The plan must describe measures that prevent or minimize contamination of the storm water runoff from fueling areas. The permittee shall consider covering the fueling area, using spill and overflow protection and cleanup equipment, minimizing runoff of storm water to the fueling area, using dry cleanup methods, collecting the storm water runoff and providing treatment or recycling, or other equivalent measures.

(c) Material Storage Areas

Storage units of all materials (e.g., used oil, used oil filters, spent solvents, paint wastes, radiator fluids, transmission fluids, hydraulic fluids) must be maintained in good condition, so as to prevent contamination of storm water, and plainly labeled (e.g., "used oil," "spent solvents," etc.). The plan must describe measures that prevent or minimize contamination of the storm water runoff from such storage areas. The permittee shall consider indoor storage of the materials, installation of berming and diking of the area, minimizing runoff/runoff of storm water to the areas, using dry cleanup methods, collecting the storm water runoff and providing treatment, or other equivalent methods.

(d) Vehicle and Equipment Cleaning Areas

The plan must describe measures that prevent or minimize contamination of the storm water runoff from all areas used for vehicle and equipment cleaning. The permittee shall consider performing all cleaning operations indoors, covering the cleaning operation, ensuring that all washwaters drain to the intended collection system (i.e., not the storm water drainage system unless VPDES permitted), collecting the storm water runoff from the cleaning area and providing treatment or recycling, or other equivalent measures. The discharge of vehicle and equipment wash waters, including tank cleaning operations, are not authorized by this permit and must be covered under a separate VPDES permit or discharged to a sanitary sewer in accordance with applicable industrial pretreatment requirements.

(e) Vehicle and Equipment Maintenance Areas

The plan must describe measures that prevent or minimize contamination of the storm water runoff from all areas used for vehicle and equipment maintenance. The permittee shall consider performing all maintenance activities indoors, using drip pans, maintaining an organized inventory of materials used in the shop, draining all parts of fluids prior to disposal, prohibiting wet clean up practices where the practices would result in the discharge of pollutants to storm water drainage systems, using dry cleanup methods, collecting the storm water runoff from the maintenance area and providing treatment or recycling, minimizing runoff/runoff of storm water areas or other equivalent measures.

(f) Locomotive Sanding (loading sand for traction) Areas

The plan must describe measures that prevent or minimize contamination of the storm water runoff from areas used for locomotive sanding. The permittee shall consider covering sanding areas, minimizing storm water runoff/runoff, appropriate sediment removal practices to minimize the offsite transport of sanding material by storm water, or other equivalent measures.

(2) Inspections

The following areas shall be included in all inspections: storage area for vehicles and equipment awaiting maintenance, fueling areas, vehicle and equipment maintenance areas (both indoors and outdoors), material storage areas, vehicle and equipment cleaning areas, and loading and unloading areas. Follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained. The use of a checklist should be considered by the permittee.

(3) Employee Training

The pollution prevention plan shall identify how often training will take place; at a minimum, training must be held annually (once per calendar year). Employee training must, at a minimum, address the following areas when applicable to a facility: summary of the facility's pollution prevention plan requirements; used oil management; spent

solvent management; spill prevention, response and control; fueling procedures; general good housekeeping practices; proper painting procedures; and used battery management.

(4) Nonstorm Water Discharges

For facilities that discharge vehicle and equipment washwaters to the sanitary sewer system, the operator of the sanitary system and associated treatment plant must be notified. In such cases, a copy of the notification letter must be attached to the plan. If an industrial user permit is issued under a pretreatment program, a reference to that permit must be in the plan. In all cases, any permit conditions or pretreatment requirements must be considered in the plan. If the washwaters are handled in another manner (e.g., hauled offsite), the disposal method must be described and all pertinent documentation (e.g., frequency, volume, destination, etc.) must be attached to the plan.

B. Automobile Salvage Yards

1. Discharges Covered Under This Section

The requirements of this section apply to point source discharges of storm water associated with industrial activity from facilities engaged in dismantling or wrecking used motor vehicles for parts recycling or resale and for scrap (Standard Industrial Classification (SIC) Code 5015).

2. Special Conditions

Prohibition of Nonstorm Water Discharges. There are no additional requirements under this section other than those stated in Part I D 8.

3. Storm Water Pollution Prevention Plan Requirements

In addition to the requirements of Part III, the plan shall include, at a minimum, the following items:

a. Description of Potential Pollutant Sources

(1) Drainage

The map must include an estimation (in acres) of the total area used for industrial activity including, but not limited to, dismantling, storage, and maintenance of used motor vehicles and motor vehicle parts. The map must also indicate the location of the following activities where such activities are exposed to precipitation: vehicle storage areas; dismantling areas; parts storage areas, including engine blocks, tires, hub caps, batteries, hoods, and mufflers; fueling stations; vehicle and equipment maintenance areas; cleaning areas (parts, vehicles, and/or equipment); loading and unloading areas; locations used for the treatment, storage, and disposal of wastes; and liquid storage tanks and drums for fuel and other fluids.

(2) Summary of Potential Pollutant Sources

In conducting the assessment, the permittee must consider the potential for the following activities to contribute pollutants: vehicle storage areas; dismantling areas; parts storage areas, including engine blocks, tires, hub caps, batteries, and hoods; fueling stations; vehicle and equipment maintenance areas; cleaning areas (parts and vehicles and/or equipment); loading/unloading areas; locations used for the treatment, storage, and disposal of wastes; and liquid storage tanks and drums for fuel and other fluids.

b. Measures and Controls

The pollution prevention plan must discuss the reasons each selected control or practice is appropriate for the facility and how each will address the potential sources of storm water pollution. The plan also must include a schedule specifying the time or times during which each control or practice will be implemented. In addition, the plan should discuss ways in which the controls and practices relate to one another and, when taken as a whole, produce an integrated and consistent approach for preventing or controlling potential storm water contamination problems.

(1) Preventive Maintenance

The maintenance program shall include periodic removal of debris from discharge diversions, conveyance systems, and impoundments/ponds. These activities should be conducted in the spring, after snow melt, and during the fall season. Maintenance schedules for sedimentation/impoundments must be provided in the pollution prevention plan.

(2) Spill and Leak Prevention and Response Procedures

After clean up from a spill, absorbants must be promptly placed in containers for proper disposal. All vehicles that are intended to be dismantled must be properly drained of all fluids prior to being dismantled or crushed, or other equivalent means must be taken to prevent leaks or spills of fluids including motor oil, transmission fluid, fuel and antifreeze.

(3) Inspections

Upon arrival at the site, or as soon as feasible thereafter, vehicles must be inspected for leaks. Any equipment containing oily parts, hydraulic fluids, or any other types of fluids shall be inspected at least quarterly (four times per year) for signs of leaks. Any outdoor storage of fluids including, but not limited to, brake fluid, transmission fluid, radiator water, and antifreeze, must be inspected at least quarterly for leaks. All outdoor liquid storage containers (e.g., tanks, drums) must be inspected at least quarterly for leaks.

Qualified facility personnel are required to conduct quarterly visual inspections of BMPs. The inspections shall include: 1) an assessment of the integrity of storm water flow diversion and source minimization systems; 2) visual inspections of dismantling areas, vehicle and equipment maintenance areas, vehicle, equipment, and parts cleaning and storage areas, and other potential sources of pollution for evidence of actual or potential pollutant discharges of contaminated storm water.

(4) Employee Training

Employee training must, at a minimum, address the following areas when applicable to a facility: proper handling (collection, storage, and disposal) of oil, used mineral spirits, anti-freeze, and solvents; spill prevention and response; fueling procedures; good housekeeping practices; and used battery management.

(5) Management of Runoff

The plan must consider management practices, such as berms or drainage ditches on the property line, that may be used to prevent runoff from neighboring properties. Berms must be considered for uncovered outdoor storage of oily parts, engine blocks, and above ground liquid storage. The installation of detention ponds must also be considered. The permittee shall consider the installation of a filtering device to receive runoff from industrial areas. The installation of oil/water separators must also be considered.

D. Scrap Recycling and Waste Recycling Facilities

1. Discharges Covered Under This Section

The requirements listed under this section are applicable to storm water discharges from the following

activities: facilities that are engaged in the processing, reclaiming and wholesale distribution of scrap and waste materials such as ferrous and nonferrous metals, paper, plastic, cardboard, glass, animal hides (these types of activities are typically identified as SIC code 5093). Facilities that are engaged in reclaiming and recycling liquid wastes such as used oil, antifreeze, mineral spirits, and industrial solvents (also identified as SIC code 5093) are also covered under this section. Separate permit requirements have been established for recycling facilities that only receive source-separated recyclable materials primarily from nonindustrial and residential sources (also identified as SIC 5093) (e.g., common consumer products including paper, newspaper, glass, cardboard, plastic containers, aluminum and tin cans). This includes recycling facilities commonly referred to as material recovery facilities (MRF).

2. Special Conditions

Prohibition of Nonstorm Water Discharges. There are no special conditions under this section other than those in Part I D.

3. Storm Water Pollution Prevention Plan Requirements

In addition to the requirements of Part III D, the following general requirements for the storm water pollution prevention plan are applicable to activities which reclaim and recycle either recyclable nonliquid and liquid waste materials. In addition to the general requirements, Part IV A 3 b (1) identifies special requirements for scrap recycling and waste recycling facilities (nonsource-separated facilities) that handle nonliquid wastes. Part IV M 3 b (2) identifies special requirements for waste recycling facilities that handle only liquid wastes. Part IV A 3 b (3) identifies special requirements for recycling facilities, including MRFs, that receive only source-separated recyclable materials primarily from nonindustrial and residential sources. The plan shall include, at a minimum, the following items.

a. Description of Potential Pollutant Sources

(1) Drainage

A site map indicating locations where significant materials are exposed to precipitation including scrap and waste material storage and outdoor scrap and waste processing equipment. Scrap recycling facilities that handle turnings that have been previously exposed to cutting fluids will delineate these containment areas as required in Part IV A 3 b (1) (c).

b. Measures and Controls

(1) Scrap and Waste Recycling Facilities (nonsource-separated, nonliquid recyclable wastes). The following special conditions have been established for the pollution prevention plan for those scrap and waste recycling facilities that receive, process and provide wholesale distribution of nonliquid recyclable wastes, (e.g., ferrous and nonferrous metals, plastics, glass, cardboard, and paper). This section of the permit is intended to distinguish waste recycling facilities that receive both nonrecyclable and recyclable materials from those recycling facilities that only accept recyclable materials primarily from nonindustrial and residential sources. Under the description of measures and controls in the storm water pollution prevention plan, the plan will address all areas that have a reasonable potential to contribute pollutants to storm water discharges and will be maintained in a clean and orderly manner. At a minimum, the plan will address the following activities and areas within the plan.

(a) Inbound Recyclable and Waste Material Control Program

The plan shall include a recyclable and waste material inspection program to minimize the likelihood of receiving materials that may be significant pollutant sources to storm water discharges. At a minimum, the plan shall address the following: i) Provision of information/education flyers, brochures and pamphlets to encourage suppliers of scrap and recyclable waste materials to drain residual fluids, whenever applicable, prior to its arrival at the facility.

This includes vehicles and equipment engines, radiators, and transmissions, oil-filled transformers, and individual containers or drums; ii) Activities which accept scrap and materials that may contain residual fluids (e.g., automotive engines containing used oil, transmission fluids, etc.), shall describe procedures to minimize the potential for these fluids from coming in contact with either precipitation or runoff. The description shall also identify measures or procedures to properly store, handle and dispose of these residual fluids; iii) Procedures pertaining to the acceptance of scrap lead-acid batteries. Additional requirements for the handling, storage and disposal or recycling of batteries shall be in conformance with conditions for a scrap lead-acid battery program; iv) A description of training requirements for those personnel engaged in the inspection and acceptance of inbound recyclable materials; and v) Liquid wastes, including used oil, shall be stored in materially compatible and nonleaking containers and disposed or recycled in accordance with all requirements under the Resource Recovery and Conservation Act (RCRA), and other state or local requirements.

(b) Scrap and Waste Material Stockpiles/Storage (outdoors)

The plan shall address areas where significant materials are exposed to either storm water runoff or precipitation. The plan must describe those measures and controls used to minimize contact of storm water runoff with stockpiled materials, processed materials and nonrecyclable wastes. The plan should include measures to minimize the extent of storm water contamination from these areas. The permittee may consider the use of permanent or semipermanent covers, or other similar forms of protection over stockpiled materials where the permittee determines that such measures are reasonable and appropriate. The permittee may consider the use of sediment traps, vegetated swales and strips, to facilitate settling or filtering out of pollutants.

The permittee shall consider within the plan the use of the following BMPs (either individually or in combination) or their equivalent to minimize contact with storm water runoff: i) Promoting the diversion of runoff away from these areas through such practices as dikes, berms, containment trenches, culverts and/or surface grading; ii) Media filtration such as catch basin filters and sand filters; iii) Silt fencing; and iv) Oil/water separators, sumps and dry adsorbents in stockpile areas that are potential sources of residual fluids (e.g., automotive engine storage areas).

(c) Stockpiling of Turnings Previously Exposed to Cutting Fluids (outdoors)

The plan shall address all areas where stockpiling of industrial turnings previously exposed to cutting fluids occurs. The plan shall implement those measures necessary to minimize contact of surface runoff with residual cutting fluids. The permittee shall consider implementation of either of the following two alternatives or a combination of both or equivalent measures: i) Alternative 1: Storage of all turnings previously exposed to cutting fluids under some form of permanent or semi-permanent cover. Discharges of residual fluids from these areas to the storm sewer system in the absence of a storm event is prohibited. Discharges to the storm sewer system as a consequence of a storm event is permitted provided the discharge is first directed through an oil/water separator or its equivalent. Procedures to collect, handle, and dispose or recycle residual fluids that may be present shall be identified in the plan; or ii) Alternative 2: Establish dedicated containment areas for all turnings that have been exposed to cutting fluids where runoff from these areas is directed to a storm sewer system, providing the following: i) containment areas constructed of either concrete, asphalt or other equivalent type of impermeable material; ii) a perimeter around containment areas to prevent runoff from moving across these areas. This would include the use of shallow berms, curbing, or constructing an elevated pad or other equivalent measure; iii) a suitable drainage collection system to collect all runoff generated from within containment areas. At a minimum, the drainage system shall include a plate-type oil/water separator or its equivalent. The oil/water separator or its equivalent shall be installed according to the manufacturer's recommended specifications, whenever available, specifications will be kept with the plan; iv) a schedule to maintain the oil/water separator (or its equivalent) to prevent the accumulation of appreciable amounts of fluids. In the absence of a storm event, no discharge from containment areas to the storm sewer system are prohibited unless covered by a separate VPDES permit; and v) identify procedures for the proper disposal or recycling of collected residual fluids.

(d) Scrap and Waste Material Stockpiles/Storage (covered or indoor)

storage)

The plan shall address measures and controls to minimize residual liquids and accumulated particulate matter originating from scrap and recyclable waste materials stored indoors or under cover, from coming in contact with surface runoff. The permittee shall consider including in the plan the following or equivalent measures: i) Good housekeeping measures, including the use of dry absorbent or wet vacuum clean up methods, to collect, handle, store and dispose or recycle residual liquids originating from recyclable containers (e.g., beverage containers, paint cans, household cleaning products containers, etc.); ii) Prohibiting the practice of allowing washwater from tipping floors or other processing areas from discharging to any portion of a storm sewer system; and iii) Disconnecting or sealing off all existing floor drains connected to any portion of the storm sewer system.

(e) Scrap and Recyclable Waste Processing Areas

The plan shall address areas where scrap and waste processing equipment are sited. This includes measures and controls to minimize surface runoff from coming in contact with scrap processing equipment. In the case of processing equipment that generate visible amounts of particulate residue (e.g., shredding facilities), the plan shall describe good housekeeping and preventive maintenance measures to minimize contact of runoff with residual fluids and accumulated particulate matter. At a minimum, the permittee shall consider including in the plan the following or other equivalent measures: i) A schedule of periodic inspections of equipment for leaks, spills, malfunctioning, worn or corroded parts or equipment; ii) Preventive maintenance program to repair and/or maintain processing equipment; iii) Measures to minimize shredder fluff from coming in contact with surface runoff; iv) Use of dry-absorbents or other cleanup practices to collect and to dispose or recycle spilled or leaking fluids; v) Installation of low-level alarms or other equivalent protection devices on unattended hydraulic reservoirs over 150 gallons in capacity. Alternatively, provide secondary containment with sufficient volume to contain the entire volume of the reservoir.

The permittee shall consider employing the following additional BMPs or equivalent measures: diversion structures such as dikes, berms, culverts, containment trenches, elevated concrete pads, grading to minimize contact of storm water runoff with outdoor processing equipment; oil/water separators, sumps or equivalent, in processing areas that are potential sources of residual fluids and grease; permanent or semipermanent covers, or other similar measures; retention and detention basins or ponds, sediment traps or vegetated swales and strips, to facilitate settling or filtering out of pollutants in runoff from processing areas; or media filtration such as catch basin filters and sand filters.

(f) Scrap Lead-Acid Battery Program

The plan shall address measures and controls for the proper handling, storage and disposition of scrap lead-acid batteries (note: this permit does apply to the reclaiming of scrap lead-acid batteries, i.e., breaking up battery casings to recover lead). The permittee shall consider including in the plan the following or equivalent measures: i) Segregating all scrap lead-acid batteries from other scrap materials; ii) A description of procedures and/or measures for the handling, storage and proper disposal of cracked or broken batteries; iii) A description of measures to collect and dispose of leaking battery fluid (lead-acid); iv) A description of measures to minimize and, whenever possible, eliminate exposure of scrap lead-acid batteries to precipitation or runoff; and v) A description of employee training for the management of scrap batteries.

(g) Erosion and Sediment Control

The plan shall identify all areas associated with industrial activity that have a high potential for soil erosion and suspended solids loadings (i.e., areas that tend to accumulate significant particulate matter). Appropriate source control, stabilization measures, nonstructural, structural controls or an equivalent shall be provided in these areas. The plan shall also contain a narrative discussion of the reason(s) for selected erosion and sediment controls. At a minimum, the permittee shall consider in the plan, either individually or in combination, the following erosion and sediment control measures: i) Filtering or diversion practices, such as filter fabric fence, sediment litter boom.

earthen or gravel berms, curbing or other equivalent measure; ii) Catch basin filters, filter fabric fence, or equivalent measure, placed in or around inlets or catch basins that receive runoff from scrap and waste storage areas, and processing equipment; or iii) Sediment traps, vegetative buffer strips, or equivalent, to remove sediment prior to discharge through an inlet or catch basin.

(ii) Structural Controls for Sediment and Erosion Control

In instances where significant erosion and suspended solids loadings continue after installation of one or more BMPs, the permittee shall consider providing in the plan for a detention or retention basin or other equivalent structural control. All structural controls shall be designed using good engineering practice. All structural controls and outlets that are likely to receive discharges containing oil and grease must include appropriate measures to minimize the discharge of oil and grease through the outlet. This may include the use of an absorbent boom or other equivalent measures.

Where space limitations (e.g., obstructions caused by permanent structures such as buildings and permanently sited processing equipment and limitations caused by a restrictive property boundary) prevent the siting of a structural control (e.g., retention basin), such a determination will be noted in the plan. The permittee will identify in the plan what existing practices shall be modified or additional measures shall be undertaken to minimize erosion and suspended sediment loadings in lieu of a structural BMP.

(i) Spill Prevention and Response Procedures

To prevent or minimize storm water contamination at loading and unloading areas, and from equipment or container failures, the permittee shall consider including in the plan the following practices: i) Description of spill prevention and response measures to address areas that are potential sources of leaks or spills of fluids; ii) Leaks and spills should be contained and cleaned up as soon as possible. If malfunctioning equipment is responsible for the spill or leak, repairs should also be conducted as soon as possible; iii) Cleanup procedures should be identified in the plan, including the use of dry absorbent materials or other cleanup methods. Where dry absorbent cleanup methods are used, an adequate supply of dry absorbent material should be maintained onsite. Used absorbent material should be disposed of properly; iv) Drums containing liquids, including oil and lubricants, should be stored indoors; or in a bermed area; or in overpack containers or spill pallets; or in similar containment devices; v) Overfill prevention devices should be installed on all fuel pumps or tanks; vi) Drip pans or equivalent measures should be placed under any leaking piece of stationary equipment until the leak is repaired. The drip pans should be inspected for leaks and checked for potential overflow and emptied regularly to prevent overflow and all liquids will be disposed of in accordance with all requirements under RCRA; and vii) An alarm and/or pump shut off system should be installed and maintained on all outside equipment with hydraulic reservoirs exceeding 150 gallons (only those reservoirs not directly visible by the operator of the equipment) in order to prevent draining the tank contents in the event of a line break. Alternatively, the equipment may have a secondary containment system capable of containing the contents of the hydraulic reservoir plus adequate freeboard for precipitation. Leaking hydraulic fluids should be disposed of in accordance with all requirements under RCRA.

(ii) Quarterly Inspection Program

A quarterly inspection shall include all designated areas of the facility and equipment identified in the plan. The inspection shall include a means of tracking and conducting follow up actions based on the results of the inspection. The inspections shall be conducted by members of the Storm Water Pollution Prevention team. At a minimum, quarterly inspections shall include the following areas: all outdoor scrap processing areas; all material unloading and loading areas (including rail sidings) that are exposed to either precipitation or storm water runoff; areas where structural BMPs have been installed; all erosion and sediment BMPs; outdoor vehicle and equipment maintenance areas; vehicle and equipment fueling areas; and all areas where waste is generated, received, stored, treated, or disposed and which are exposed to either precipitation or storm water runoff.

The objective of the inspection shall be to identify any corroded or leaking containers, corroded or leaking pipes, leaking or improperly closed valves and valve fittings, leaking pumps and/or hose connections, and

deterioration in diversionary or containment structures that are exposed to precipitation or storm water runoff. Spills or leaks identified during the visual inspection shall be immediately addressed. Structural BMPs shall be visually inspected for signs of washout, breakage, deterioration, damage, or overflowing and breaks shall be repaired or replaced as expeditiously as possible.

(k) Employee Training

At a minimum, storm water control training appropriate to their job function shall be provided for truck drivers, scale operators, supervisors, buyers and other operating personnel. The plan shall include a proposed schedule for the training. The employee training program shall address at a minimum: BMPs and other requirements of the plan; proper scrap inspection, handling and storage procedures; procedures to follow in the event of a spill, leak, or break in any structural BMP. A training and education program shall be developed for employees and for suppliers for implementing appropriate activities identified in the storm water pollution prevention plan.

(l) Supplier Notification

The plan shall include a supplier notification program that will be applicable to major suppliers and shall include: description of scrap materials that will not be accepted at the facility or that are accepted only under certain conditions.

(4) Waste Recycling Facilities (liquid recyclable wastes)

The following special conditions have been established for the pollution prevention plan for those facilities that reclaim and recycle liquid wastes (e.g., used oil, antifreeze, mineral spirits, and industrial solvents). For these facilities, the storm water pollution prevention plan shall address all areas that have a reasonable potential to contribute pollutants to storm water discharges and will be maintained in a clean and orderly manner. At a minimum, the plan shall address the following activities and areas within the plan.

(a) Waste Material Storage (indoors)

The plan shall address measures and controls to minimize/eliminate residual liquids from waste materials stored indoors from coming in contact with surface runoff. The plan may refer to applicable portions of other existing plans such as SPCC plans required under 40 CFR Part 112 (1998). At a minimum, the permittee shall consider including in the plan the following: i) Procedures for material handling (including labeling and marking); ii) A sufficient supply of dry absorbent materials or a wet vacuum system to collect spilled or leaked materials; iii) An appropriate containment structure, such as trenches, curbing, gutters or other equivalent measures; and (iv) A drainage system to handle discharges from diked or bermed areas. The drainage system should include appurtenances, (e.g., pumps or ejectors, manually operated valves). Drainage should be discharged to an appropriate treatment facility, sanitary sewer system, or otherwise disposed of properly. Discharges from these areas shall be covered by a separate VPDES permit or industrial user permit under the pretreatment program.

(b) Waste Material Storage (outdoors)

The plan shall address areas where waste materials are exposed to either storm water runoff or precipitation. The plan shall include measures to provide appropriate containment, drainage control and other appropriate diversionary structures. The plan may refer to applicable portions of other existing plans such as SPCC plans required under 40 CFR Part 112 (1998). At a minimum, the plan shall describe those measures and controls used to minimize contact of storm water runoff with stored materials. The permittee shall consider including in the plan the following preventative measures, or an equivalent: i) An appropriate containment structure such as dikes, berms, curbing or pits, or other equivalent measures. The containment should be sufficient to store the volume of the largest single tank and should include sufficient freeboard for precipitation; ii) A sufficient supply of dry-absorbent materials or a wet vacuum system, or other equivalent measure, to collect liquids from minor spills and leaks in contained

areas, and iii) Discharges of precipitation from containment areas containing used oil shall be in accordance with applicable sections of 40 CFR Part 112 (1990).

(c) TRUCK AND RAIL CAR WASTE TRANSFER AREAS

The plan shall describe measures and controls for truck and rail car loading and unloading areas. This includes appropriate containment and diversionary structures to minimize contact with precipitation or storm water runoff. The plan shall also address measures to clean up minor spills and/or leaks originating from the transfer of liquid wastes. This may include the use of dry clean up methods, roof coverings, runoff controls, or other equivalent measures.

(d) EROSION AND SEDIMENT CONTROL

The plan shall identify all areas associated with industrial activity that have a high potential for soil erosion. Appropriate stabilization measures, nonstructural and structural controls shall be provided in these areas. The plan shall contain a narrative consideration of the appropriateness for selected erosion and sediment controls. Where applicable, the plan shall consider the use of the following types of preventive measures: sediment traps; vegetative buffer strips; filter fabric fence; sediment filtering boom; gravel outlet protection; or other equivalent measures that effectively trap or remove sediment prior to discharge through an inlet or catch basin.

(e) Spill Prevention and Response Procedures

The plan shall address measures and procedures to address potential spill scenarios that could occur at the facility. This includes all applicable handling and storage procedures, containment and/or diversion equipment, and clean-up procedures. The plan shall specifically address all outdoor and indoor storage areas, waste transfer areas, material receiving areas (loading and unloading), and waste disposal areas.

(f) Quarterly Inspections

Quarterly visual inspections shall be conducted by a member, or members, of the storm water pollution prevention team. The quarterly inspection shall include all designated areas of the facility and equipment identified in the plan. The inspection shall include a means of tracking and conducting follow up actions based on the results of the inspection. At a minimum, the inspections shall include the following areas: material storage areas; material unloading and loading areas (including rail sidings) that are exposed to either precipitation or storm water runoff; areas where structural BMPs have been installed; all erosion and sediment BMPs; outdoor vehicle and equipment maintenance areas (if applicable); vehicle and equipment fueling areas (if applicable); and all areas where waste is generated, received, stored, treated, or disposed and which are exposed to either precipitation or storm water runoff.

The inspection shall identify the presence of any corroded or leaking containers, corroded or leaking pipes, leaking or improperly closed valves and valve fittings, leaking pumps and/or hose connections, and deterioration in diversionary or containment structures that are exposed to precipitation or storm water runoff. Spills or leaks shall be immediately addressed according to the facility's spill prevention and response procedures.

(g) Recycling Facilities (source separated materials)

The following special conditions have been established for the pollution prevention plan for recycling facilities, including MRFs, that receive only source separated recyclable materials primarily from nonindustrial and residential sources:

(a) Inbound Recyclable Material Control Program

The plan shall include a recyclable material inspection program to minimize the likelihood of receiving nonrecyclable materials (e.g., hazardous materials) that may be a significant source of pollutants in surface runoff.

At a minimum, the permittee shall consider addressing in the plan the following: i) A description of information and education measures to educate the appropriate suppliers of recyclable materials on the types of recyclable materials that are acceptable and those that are not acceptable (e.g., household hazardous wastes); ii) A description of training requirements for drivers responsible for pickup of recyclable materials; iii) Clearly mark public drop-off containers as to what materials can be accepted; iv) Rejecting nonrecyclable wastes or household hazardous wastes at the source; and v) A description of procedures for the handling and disposal of nonrecyclable materials.

(b) Outdoor Storage

The plan shall include BMPs to minimize or reduce the exposure of recyclable materials to surface runoff and precipitation. The plan, at a minimum, shall include good housekeeping measures to prevent the accumulation of visible quantities of residual particulate matter and fluids, particularly in high traffic areas. The plan shall consider tarpaulins or their equivalent to be used to cover exposed bales of recyclable waste paper. The permittee shall consider within the plan the use of the following types of BMPs (individually or in combination) or their equivalent, where practicable: i) Provide totally-enclosed drop-off containers for public; ii) Provide a sump and sump pump with each containment pit. Discharge collected fluids to sanitary sewer system. Prevent discharging to the storm sewer system; iii) Provide dikes and curbs for secondary containment (i.e., around bales of recyclable waste paper); iv) Divert surface runoff away from outside material storage areas; v) Provide covers over containment bins, dumpsters roll-off boxes; and vi) Store the equivalent one day's volume of recyclable materials indoors.

(c) Indoor Storage and Material Processing

The plan shall address BMPs to minimize the release of pollutants from indoor storage and processing areas to the storm sewer system. The plan shall establish specific measures to ensure that all floor drains do not discharge to the storm sewer system. The following BMPs shall be considered for inclusion in the plan: i) Schedule routine good housekeeping measures for all storage and processing areas; ii) Prohibit a practice of allowing tipping floor washwaters from draining to any portion of the storm sewer system; and iii) Provide employee training on pollution prevention practices.

(d) Vehicle and Equipment Maintenance

The plan shall also provide for BMPs in those areas where vehicle and equipment maintenance is occurring outdoors. At a minimum, the following BMPs or equivalent measures shall be considered for inclusion in the plan: i) Prohibit vehicle and equipment washwater from discharging to the storm sewer system; ii) Minimize or eliminate outdoor maintenance areas, wherever possible; iii) Establish spill prevention and clean-up procedures in fueling areas; iv) Provide employee training on avoiding topping off fuel tanks; v) Divert runoff from fueling areas; vi) Store lubricants and hydraulic fluids indoors; and vii) Provide employee training on proper handling, storage of hydraulic fluids and lubricants.

(4) Recycling and Internal Reporting Procedures

The plan must address spills, monitoring, and BMP inspection and maintenance activities. BMPs which are ineffective must be reported and the date of their corrective action noted. Employees must report incidents of leaking fluids to facility management and those reports must be incorporated into the plan.

ATTACHMENT 4
BLAST&PAINT FACILITY EQUIPMENT

Blast & Paint Facility Equipment

The publications listed below form a part of this specification as applicable. The publications are referred to in the text by the basic designation only.

- Air Movement & Control Association, Inc (AMCA)
AMCA 210 (1985) Testing Fans for Rating
- American National Standards Institute (ANSI)
ANSI Z9.4 (1985) Standard for Exhaust Systems - Abrasive Blasting
Operations -Ventilation and Safe Practices
- Code of Federal Regulations (CFR)
CFR291910 (1974) Occupational Safety and Health Standards
- International Building Code (IBC) 2000
- National Electrical Manufacturers Association (NEMA)
NEMA 12 (1991) Enclosures for Electrical Equipment (1000 volts maximum)
- National Fire Protection Association (NFPA)
NFPA 33 (1989) Standards for Spray Application Using Flammable and Combustible
Materials
NFPA 70 (1993) National Electrical Code
NFPA 91 (1990) Standard for the Installation of Blower and Exhaust System for
Dust, Stock, and Vapor Removal or Conveying
NFPA 101 (1991) Code for Safety to Life from Fire in Buildings and Structures

All work shall meet the applicable requirements of the above codes and standard industry practice. The Offeror shall be responsible for providing and coordinating a complete blasting and paint facility including proper space (possibly larger than shown on programming plans) and utilities.

Installation

Equipment shall be installed by manufacturer's approved installation contractor. A customer reference list with at least ten (10) installations of similar design must be submitted. A factory trained installation supervisor must be present at all times during the equipment installation.

Equipment shall be installed as indicated and in accordance with equipment manufacturers recommendations and approved submittal drawings. A complete charge of abrasive to start up the system must be provided with the system.

Posted Operating Instructions

Provide posted operating instructions and schematic as required for operation of blast room and all associated equipment. Instructions shall be mounted behind a plastic laminate in aluminum frame and shall be permanently mounted near the equipment. Two (2) complete sets of owner's manuals with parts drawings, operating instructions, and maintenance schedule must be provided with equipment.

On-Site Training

A factory-trained will train operators and maintenance personnel after completion of the installation. Contractor shall provide all training and teaching materials, including course workbooks and supplies. Minimum training time for the equipment installed shall be 24 hours total classroom time and 16 hours of hands-on field instruction with the installed equipment. Training shall be video taped and two copies of the video tape shall be provided to the Contracting Officer's Representative at the completion of the training.

Functional Test

A factory-trained supervisor will start up the system in a timely manner after completion of the installation. Each piece of equipment must be field tested to ensure satisfactory operation in accordance with drawings, specifications, and submittal documents. Provide ventilation airflow test to ensure proper airflow through blast room. Functional tests shall be completed prior to the beginning of the on-site training activities.

Blast Facility (Paint Stripping) Scope of Project

Provide an abrasive blast facility for through to sets of work doors 22' wide 16' high made of ¼ heavy-duty rubber. Abrasive recovery is via a H-shaped, partial reclaim floor recovery system utilizing screw conveyors for abrasive transport. The equipment shall include:

- Blast enclosure constructed of 10-gauge steel panels complete with lights, personnel and product door(s),
- Abrasive recovery system consisting of screw conveyors, floor grating, bucket elevator, air wash separator with rotary scalping drum, and abrasive storage hopper.
- Dust collection system including reverse pulsejet, cartridge style dust collector, inlet and exhaust plenums, and all necessary exhaust ducts.
- Pressure blast machines, 2 each precision media blasting systems complete with all necessary operator safety equipment to comply with all current OSHA requirements.
- Central control panel with safety interlock system.
- Breathing Air Supply System providing class D breathable air.
- Air Drying System

Submittals

Manufacturer of blast room and related equipment shall supply a complete owner's manual including descriptive data and technical literature including parts drawings, performance charts on all exhaust fans or blowers, installation instructions. Parts drawings shall include model numbers, part numbers, and names of original equipment manufacturers (OEM) of all non-proprietary component parts such as drive motors, chain, sprockets, bearings, and dust collector filter cartridges that can be sourced from local supply sources.

Drawings containing complete wiring and schematic diagrams and any other details required.

Blast Room Enclosure

Blast room enclosure shall be of modular design with minimum 10 gauge, mild steel panels for roof and wall panel construction. Enclosure shall be sized for blasting vehicles as wide as 12', long as 60', and as tall as 14'.

Entry/Exit Doors

Two sets of 1/4" heavy-duty rubber roll up doors shall be provided. Doors shall have a minimum clear opening of 15'W x 15'H and be constructed of 1/4" rubber and steel tube reinforcements for heavy-duty service and to provide structural rigidity. Product doors shall be equipped with safety interlock switches to prevent operation of the pressure blast unit if the doors are opened. Door design must provide dust tight seal and prevent abrasive carry out from blast enclosure.

Personnel Access Doors

A minimum of two (2) personnel access doors with dimensions of 2'6"W x 7'H (or as required by code). Personnel doors shall be provided with safety observation windows with swinging steel plate protection, and be gasketed to provide dust tight seal. Doors shall be equipped with panic type hardware and swing to outside of blast room. Two (2) OSHA approved, emergency exit light assemblies are to be mounted above the personnel doors, and provide a minimum of 1-foot candle for means of egress in accordance with NFPA 101.

Abrasive Recovery System

Abrasive recovery system must be capable of using any dry type of abrasive blast media. Recovery system shall consist of a H-shaped, partial floor reclaim system consisting of minimum 9" diameter screw conveyors constructed of minimum schedule 120 pipe. The screw conveyors shall have minimum of 3/8" flighting that is continuously seam welded to the pipe, and situated at a 2/3:1 pitch to minimize wear. Flighting shall be doubled at each hanger bearing assembly to prevent intrusion of abrasive.

The screw conveyors shall be housed in minimum 10 gauge, mild steel hopper assemblies. Hoppers for longitudinal screws shall have removable hopper ends to facilitate maintenance access. Hoppers shall have a minimum 37° angle of repose for proper abrasive feed to screw conveyors.

Drive motors for all screw conveyors shall be chain driven with minimum #80 and #60 chain. Drive motors shall be placed outside the blast room enclosure in a pit with access covers with dust tight

seals to prevent intrusion of blast media and foreign materials. Screw conveyor speed shall not exceed 30 RPM.

Each longitudinal screw conveyor shall have its own drive mechanism with a minimum three (3) HP, TEFC, C-face flange mount motor with necessary reducers. The cross screw conveyor shall have its own drive mechanism with a minimum three (3) HP, TEFC, C-face flange mount motor with necessary reducers. All necessary belt guards to comply with OSHA regulations.

Longitudinal and cross screw assemblies shall utilize adjustable abrasive metering shed plates with minimum of two (2) position settings to regulate abrasive flow to screw conveyors. All screw conveyors shall be equipped with rotary limit switches to assure sequential shutdown of screw rotation is stopped.

System design shall not require more than two (2) sets of hanger bearing assemblies. Bearings and their supports shall be designed to prevent the intrusion of blast media and foreign materials. Design of bearing and motor drive assembly shall not preclude ease of maintenance.

Floor Grating

Bar grating shall be minimum 1-1/4" welded steel with a rating of 250-lbs./sq. ft. and allow abrasive material to flow freely into the recovery system. Bar grating shall cover all longitudinal screw assemblies. The cross auger shall be covered with a minimum of 1" plate steel. Minimum of 1/4" thick mild steel plate shall be used to cover all exposed concrete and should be continuously seam welded in place. Bar grates shall be located to avoid wheel and track traffic.

Bucket Elevator

One (1) bucket elevator shall be provided that is capable of processing 3 cubic feet per minute of any dry abrasive media. Bucket elevator assembly shall be constructed of minimum 10 gauge mild steel.

Elevator belt shall be minimum 1/2" thick x 5" wide neoprene with 1650 lb. rating with < 1% elongation factor. Buckets shall be single piece, cast iron construction.

Elevator shall have top take and drive assembly for easy belt adjustment. Pulleys shall be single piece, cast iron construction and be crowned, and lagged with crosshatched rubber for belt traction and tracking. A minimum of two (2) maintenance access doors shall be provided at the top and bottom of bucket elevator for maintenance access. Bucket elevator shall have port for ventilation of dust particulate located approximately halfway up the elevator housing. A "Y" transition fitting must be provided for connection to exhaust duct and to the air wash separator.

Lighting

Room shall have a minimum of forty six (46) 4 tube, 48" fluorescent, 277 volt, 40 watt, UL approved, light fixtures with mounting brackets. Light design shall consist of an angle frame with dust tight, 1/4 inch thick, Lexan protective cover with fastening devices built into roof and wall panels for acceptance of lighting assemblies. Light fixtures should be capable of swinging to outside for access during change out of bulbs. All required conduit, wiring, and switches shall be provided. Lighting level shall be a minimum of 125-foot candles when calculated at 4' from floor level.

Abrasive Classification System

The system shall use a gravity type, air wash, and abrasive separator with integral rotary scalping drum. Abrasive separator shall have an internal conveyor assembly for removal of large trash particulate. A removable cover for maintenance access must be provided.

Ventilation duct with an adjustable slide gate must be connected to the system dust collector. Discharge hoses for large trash and for fines shall be via metal flex hoses and be of sufficient length to reach a 55-gallon drum or other receptacle located at floor level.

The rotary scalping drum shall be an integral part of the conveyor assembly and be constructed of minimum 16 gauge, perforated steel plate, with 3/16" holes. An adjustable, sliding baffle assembly must be located below the drum to spread abrasive across the full separator width. An adjustable, counter weighted, swinging baffle assembly shall be provided to regulate thickness of abrasive flow over the separator lip. The swinging baffle shall be removable for maintenance access. A secondary adjustable baffle assembly shall be located below the aspirator opening to allow fine-tuning of abrasive separator for use with different abrasive media densities. Clean abrasive media shall be directed into the abrasive storage hopper for replenishing the blast pot(s).

Abrasive Storage Hopper

Construction of abrasive storage hopper shall be of 10-gauge mild steel with all necessary support steel. Capacity shall be minimum of 100 cubic feet. Physical size shall fit within the physical dimensions of the space in the building. Provide OSHA approved personnel ladder with cage and hand railing to provide access to air wash separator located on top of hopper. A minimum of two (2) abrasive discharge outlets with slide gates shall be provided to allow abrasive feed to blast pot(s).

Dust Collector

A 24,500 CFM, Hoffman/Torit Downflo, reverse pulse jet, cartridge type dust collector (Model HDFT4-48) with automatic pulse jet cleaning shall be the standard of quality. The dust collector pulsejet cleaning should be capable of cleaning filters without interrupting operation of the ventilation system. All motors, fans, belts, guards, controls, ducting and housing intended for outdoor installation should be provided. Filters shall be equal to Torit "Ultra-Web" cartridge type with a minimum filter surface area of 235 sq. ft./cartridge. Filter efficiency shall be a minimum of 99.995 % at .5 microns. The dust collector shall have a baffled inlet plenum design to prevent impingement of particles that could cause damage to the filter cartridges.

Blower motor shall be 460 Volt, 3 Phase. Belt driven utility fan type with a single width, single inlet housing. The housing shall be constructed of heavy gauge steel with lock formed seams permitting no air leakage. The housing shall be field relatable to any of the eight standard discharge positions. Housing and bearing supports shall be constructed of welded steel members to prevent vibration and rigidly support the shaft and bearings.

The fan wheel shall be of the non-overloading backwardly inclined, centrifugal fan type and constructed of heavy gauge steel. Wheels shall be statically and dynamically balanced. The wheel cone and fan inlet cone shall be carefully matched for maximum performance and operating efficiency.

Motors shall be permanently lubricated, heavy duty, ball bearing type carefully matched to the fan load. The fan shaft shall be ground and polished solid steel mounted in heavy duty, permanently sealed, pillow block ball bearings. Bearings shall be selected for a minimum L50 life in excess of 200,000 hours at maximum cataloged operating speed. Drives shall be sized for a minimum of 150 percent of driven horsepower. Pulleys shall be of the fully machined cast iron type, keyed and securely attached to the wheel and motor shafts. The motor pulley shall be adjustable for final system balancing.

Fan performance shall be based on tests conducted in accordance with AMCA 210 test code for air moving devices. Fans shall be licensed to bear the AMCA Certified Ratings Seal for air performance.

Dust collector shall have slide gates for dust discharge to 55-gallon drums or other receptacles located at floor level. Discharge outlets shall be provided with flexible hose and drum cover assemblies to assure tight, leak-free seal.

Dust collector shall be provided with air regulator and gauge for compressed air supply line to pulse clean the filter cartridges.

Ventilation

Blast room shall be designed for end-to-end ventilation. The ends of the room shall be designed and equipped with baffled air inlet and exhaust plenums. The exhaust plenum shall not allow blast media to enter into the exhaust duct. The inlet plenum shall not allow blast media or dust to escape from the room.

Ventilation design shall be for 60 feet per minute end-to-end flow to allow for use with ferrous or non-ferrous abrasive. Calculations for airflow should be for an empty room. System shall include all required exhaust duct, duct supports, and mounting accessories.

Control Panel

One (1) central control panel shall be factory pre-wired and tested. Individual controls shall be sequentially interlocked to insure proper start-up of each piece of equipment.

Control panel shall be NEMA 12 enclosure and include all required starters, fuses, push buttons and main line disconnect. Provide single point connection for 460 Volt, 60 Hertz, 3 Phase power.

All electrical wiring should be supplied from control panel to each motor location. All wiring to meet current NEC guidelines including individual motor disconnects at remote locations.

Blast Pots

Blast pots shall be equal to two (2) Schmidt Mfg. 6.5 cubic foot PMB (Precision Media Blasting System) blast pots with single outlets shall be provided. Blast pots shall be ASME code rated pressure vessels and carry a U stamp on identification plate. Each blast pot shall come equipped with minimum 1-1/4" piping, 24V electric, OSHA approved remote control system, air pressure regulators, abrasive metering valve, blast hose assembly with couplings, 3/8" orifice, tungsten carbide lined blast nozzle. A pot riser assembly shall be provided for each blast pot and shall

include a screen to prevent large debris from entering blast pot, and an “umbrella” assembly to allow for proper pressurization/de-pressurization of blast vessel.

Blast hose shall be equal to Goodyear XF with minimum 2 ply, static dissipating construction and be of sufficient length to reach all work areas of the blast room. Controls to meet OSHA regulations. Blast nozzles shall be lined with tungsten carbide and have a molded polyurethane exterior jacket.

Operator Safety Equipment

A complete set of operator safety equipment to supply two (2) operators should be provided. This includes air supplied blast hoods, airline filters, OSHA approved breathing air hose, blast suits, and gloves.

Blast hoods shall be equal to Bullard 88 Series, and when combined with other components shall form a complete MSHA/NIOSH approved respirator (Approval # TC-19C-293, Type C or Type CE, continuous flow class Respirator). Blast hoods should comply with ANSI Z89.1-1969 Class A (except weight) requirements. A climate control tube that is capable of cooling and heating air supplied to blast helmets shall be included. Airline filter shall be equal to Bullard 41-P2 and be supplied with air regulator and gauge. Breathing air hose shall be minimum 3/8” ID, NIOSH approved breathing air type, and be of sufficient length to allow operator to reach any work area in the blast enclosure.

Blast suits shall be coverall style with construction of leather front for abrasion resistance, and cotton back for lightweight and operator comfort.

Breathing Air Purification System

A breathing air and alarm system to provide breathing quality air to the operators in the blasting and painting operations meet OSHA regulation 29CFR1910.134(d). The MST RP100BA-S1 and options shall provide 100 cubic feet per minute of Class D breathable air at 100 pounds per square inch. This is sufficient to supply 2 air supplied blasting hoods with climate controls and two full-face paint respirators. Remote alarm offers a 119-dBA alarm to alert operators when carbon monoxide reaches unsafe levels. Low pressure warning system to alert operators when inlet air pressure falls below safe levels. Electronic filter life timer records actual filter use for easy maintenance scheduling. System must include calibration kit.

Painting

Surface preparation and painting of equipment shall be manufacturer’s standard procedures and color, except as required for equipment and materials located exterior to the facility; i.e., dust collector and exterior ductwork.

Compressed Air Supply

It is understood that clean, DRY, compressed air is absolutely essential for the proper operation of this proposed abrasive blast system.

A minimum of 750 CFM of clean, dry air is needed to supply the system.

Air Drying System

The air-drying system shall consist of an air cooled aftercooler equipped with twin cooling fans, an intermediate coalescing moisture separator, and a deliquescent air dryer. The system shall produce clean, dry air suitable for use with steel abrasive blasting systems.

The system must comply with the following:

- Dew point suppression is a minimum of 20 degrees approach from ambient temperature.
- System achieves 55% relative humidity for proper airline conditioning and ensures moisture free abrasive.
- Low airflow velocity of 13 FPM prevents air channeling and fusion of the desiccant as found in high velocity units.
- Pressure drop is limited to < 1 PSI @ 125 PSI entering the unit.
- All painted surfaces shall be abrasive blast cleaned to a minimum SSPC-SP-6 finish.
- Internal dryer tank surfaces have two coats, corrosion resistant, epoxy primer/epoxy topcoat and carry a 10-year warranty.
- All exterior surfaces have a two-coat epoxy primer/polyurethane enamel topcoat.
- Filler port hatch cover on the desiccant tank is coated with a corrosion resistant, moisture cured urethane coating.

Air Cooled Aftercooler

- Vertical airflow design
- All weather construction
- Aluminum core and cooling fins
- Two (2) aluminum blade, vanexial turbo cool fans
- Venturi rings concentrate airflow to tubes to enhance cooling.
- < 3-PSI pressure drop through aftercooler
- 20 degree approach from ambient temperature based on standard air 68° F, 36% RH
- OSHA fan guards meet or exceed safety regulations
- Maximum operating pressure is 250 PSI
- Maximum operating temperature is 400° F

Centrifugal Moisture Separator

- Computer designed cast aluminum centrifuge welded in place ensuring no by air pass
- Removable anti-reentrainment baffle.
- Horizontal 3" NPT piping configuration
- Removes 99% of condensed moisture at rated capacity

Deliquescent Dryer Tank

- Single tower capable of drying 1600 CFM @ 115 PSI with 110° F saturated inlet air to 40° outlet pressure dew point
- Vessel is fabricated in accordance with ASME Code Section VIII, Div. 1
- Vessel has "U" code stamped with National Board No.
- Interior finish is highly corrosion resistant, chemically inert, and impervious to oil and solvents.
- Integral vessel grid design equalizes flow across desiccant bed and includes a centerline diffusion cap.
- Desiccant chamber is capable of maintaining 10" of probed material of permanent non-soluble design with extended surface area.

- The vessel has two (2) 1-1/4" sight windows of fused quartz glass located 180° apart at the minimum bed level.
- A 3" pressure relief valve connection is located in the top head of the vessel.
- A 4" x 6" self-sealing, desiccant filler port hatch cover is an integral part of the vessel design.
- Drain port connection is minimum of 1" NPT.

Deliquescent Dryer Desiccant

Desiccant is tabulated design with precise shape. The desiccant shall not include bricket shape with irregular edges or any flash material, which creates fines, caking, and desiccant bed problems.

Physical properties for top bed desiccant

Color & form	white tablet
Size	1" diameter x 3/4"height
Bulk density	65-lbs./cu. ft.
Minimum break pressure	100 PSI
Solubility	100%
PH of 5% solution	6.5 - 7.5
Critical RH	13%
Flammability	not flammable
Stability	excellent even at 2000° F

Warranty

Total system shall be warranted for a period of one year from date of manufacture. The deliquescent dryer tank shall have a 10-year warranty.

Cross Flow Spray Booth System Specifications

Paint booth shall be equal to one JBI System Model T-50 WSBS-S, Special, pressurized, cross flow, truck and equipment style, dry filter spray booth system. Air make up unit may be mounted on the roof of the spray booth. Booth includes the following:

Dimensions

Enclosure shall be sized for painting vehicles as wide as 12', long as 60', and as tall as 14'.

Construction

All panels shall be minimum 18 gauge galvanized steel with 2" flanges and rolled edges. Bolt holes shall be prepunched on 6" centers. Caulking, caulking guns, foam rubber tape for light fixtures and door seals, fasteners, and all necessary assembly hardware shall be supplied. Stiffeners shall be minimum 6" I-beams for frame strength capable of carrying a booth mounted air make up unit without additional support.

Entrance Doors

All product doors shall be built with 2" x 2" square tubing for heavy duty service, and have a 1-1/2" lip air seal. Minimum clear door opening is 15'W x 15'H.

Air Intake Plenum

One (1) bridge type, air intake plenum constructed of 18-gauge galvanized steel. One (1) complete set of air intake filters and mounting hardware.

Personnel Access Doors

Four (4) personnel access doors (2'6" wide x 7' high) with observation windows shall be provided as standard. Doors shall be equipped with panic type hardware and swing to outside of paint booth. Two (2) OSHA approved, emergency exit light assemblies are to be mounted above the personnel doors, and provide a minimum of 1-foot candle for means of egress in accordance with NFPA 101.

Lighting

A minimum of forty three (43) 4 tube, 48" fluorescent, 110 volt, 40 watt, UL approved, light fixtures with mounting brackets and wire safety glass shall be provided. Lighting level shall be a minimum of 125-foot candles when fixtures are covered with paint overspray. Calculations for lighting level must be provided with submittals.

Exhaust System

Exhaust system shall be a bridge type exhaust chamber constructed of minimum 18 gauge galvanized steel. The spray booth exhaust velocity is designed to conform to OSHA and NFPA regulations. Two (2) 48" diameter, tube-axial fans with 5 HP, 208/230/460 volt, 3 phase, 60 Hz TEFC motors. Exhaust fans shall provide a minimum of 40,000 CFM @ 3/8" static pressure. Two (2) fan-connecting rings shall be provided for attachment of fan to booth and exhaust duct.

Draft Gauge

A draft gauge shall be provided to indicate when the booth filters become loaded with overspray and need to be changed.

Control Panel

One central control panel shall be supplied. Panel to be NEMA 12 enclosure, and shall include fusible disconnect, push button on/off motor starters, and explosion proof switches for lights.

Filters

One complete set of air intake and paint arrestor exhaust filters shall be provided. Filters have a Class II listing by Underwriters Laboratory and are Factory Mutual approved. Filters should be equivalent of Research Products 3200 Series and have minimum efficiency rating of 98.5% at .055 inches water column.

Exhaust Duct

Exhaust duct shall be constructed of 18-gauge galvanized steel. Roof flange, and gravity style stackhead assembly shall also be included.

Air Make Up System

The air make up unit is designed to mount on the roof of the spray booth. Heated make up air is to be supplied via ducting to an air intake plenum on the top of the spray booth. Diffusers shall distribute make up air evenly throughout the air intake plenum. Unit is a 40,000 CFM, natural gas fired, air make up unit with horizontal fresh air intake and horizontal discharge. Unit has a minimum of 30 HP drive motor with variable speed drive and is capable of 90° temperature rise. Burner shall have a V-bank filter section. Filter frames, intake hoods, and roof curb shall be included. Unit shall be supplied with main control panel pre-wired with starters, switches, and indicator lights to control spray booth and air make up unit. Controls shall include:

- UV Flame Safeguards
- Interlock with Exhaust Fan
- Remote Control Panel with Thermostat
- On/Off Switch
- Indicator Lights
- Motor Controls
- Valve Actuators
- Gas Pressure Safety Switches
- Fan Limit Controls
- Flame Safeguards
- Air Pressure Switches
- Certified Start Up

End

ATTACHMENT 5
PROPOSAL DRAWING FORMAT

ATTACHMENT 5
PROPOSAL DRAWING FORMAT

1. POLICY.

Drawings shall be prepared in accordance with Section 00110, PROPOSAL TECHNICAL SUBMISSION REQUIREMENTS AND INSTRUCTIONS, and the following instructions on graphic format.

2. DRAFTING.

a. The drawings shall show sufficient detail so that they clearly delineate the proposed construction. Original drawings shall be made on size standard size A1 [approximately 23 1/2" x 33"] sheets, and CADD format as defined by the design agent. The final proposal submittal of drawings shall also be in CADD format on A1 standard full size sheets. The revision block and title block shall be as provided by the design agent. Design agent may request offerors to provide proposal drawings in half-size format. A sample Revision Block and Title Block Example is included at the end of this attachment.

b. The first or cover sheet shall contain the title and location of the project and the Drawing Index.

c. The drawing layout will be evaluated with care before the beginning of the drafting. Ample space, without crowding, will be provided, not only for the required plans and details with all necessary titles, dimensions and notes, but also for incidental information required, such as graphic scales, general and reference notes, schedules, North Arrow, etc.

d. Sheets shall be well ordered and drawn at the scales indicated in Section 00110. Any drawings not specifically listed shall be drawn at a reasonable scale and suitable for reduction. Cluttered and overcrowded layouts shall be avoided.

e. A graphic scale for each of the different scales used on a drawing shall be placed on the particular drawing to the left of the title block. Scale shall be indicated at each plan, elevation, section, and detail, unless all drawings on the same are at the same scale. No scale larger than 1:2 shall be used without prior approval.

f. Sheets devoted to details should have such details reasonably spaced and arranged left to right or top to bottom. Groups of details relating to one particular aspect should be adequately separated from other groups and identified with a title. Sections and details of the final design should be numerous enough to show all design features.

g. Unnecessary details or details of small standard products or items which are adequately covered by specifications and/or catalogs shall not be included on the drawings.

h. A symbol for major disciplines should be selected to properly arrange the sheets in the package. Adequate cross-referencing must be shown to avoid confusion and misunderstanding between disciplines.

3. DRAWING PREPARATION.

a. Preparation for Size Reduction. Since drawings will be reduced, all drafting (line widths, spacing, lettering sizes, etc.) shall be adequate size and density to be easily legible after reduction.

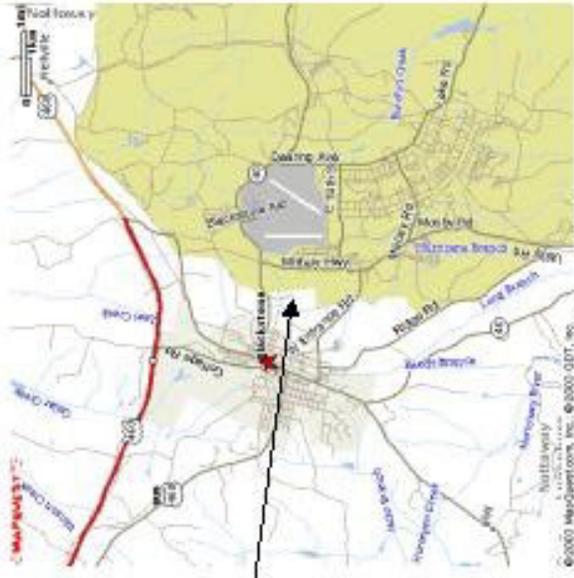
b. Scales. Carefully plan drawing layout together with suitable scales in advance to properly delineate the project. Similar work for all design disciplines shall, whenever possible, be shown at the same scale on the various drawings involved.

- c. Lettering. Use single stroke lettering, all capitals. Minimum height shall be 5/32".
- d. Sheet Reference. The proposer will reference all drawings within a discipline of work. The divisions designated below will be utilized.

Discipline Designation	Design Discipline
T	Title, Location Map, & General Notes
L	Site Planning, Landscaping Planting and Children's Outdoor Play Areas
C	Civil Engineering
A	Architecture
S	Structural Engineering
M	Mechanical Engineering
E	Electrical Engineering
G	Geotechnical Engineering

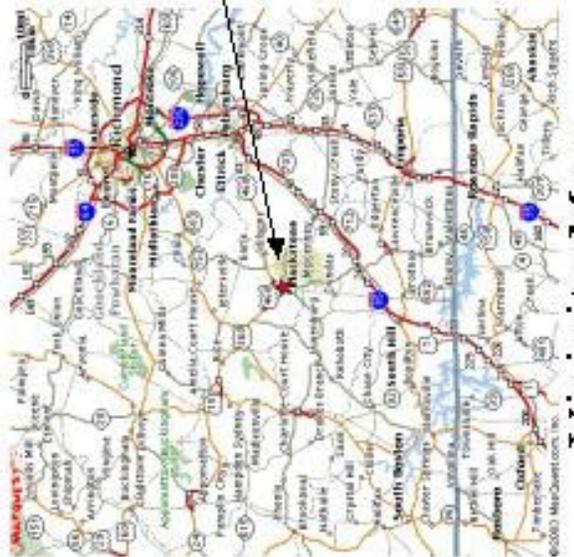
- e. Drawing Designation. Each drawing in the particular division shall be designated by the discipline designation and sheet number (i.e., E-6 is the sixth electrical drawing.) This system as listed will be used in establishing sequence of drawings. The notation system shall be placed in the last increment of the drawing number block entitled "sheet."
- f. Cross Reference. Cross-referencing for sections and details shall be based on the sheet reference number.
- g. Symbols and Conventions. Symbols and conventions serve two main purposes. One is to simplify the drawing and improve comprehension; the other is to follow or establish a standard which is easily recognized. Symbols shall be the standards used by the various disciplines.
- ii. Legends. Place legends of symbols and material indications on the drawings. Since many symbols are limited to certain design disciplines, use separate symbol legends on the initial sheet of each design discipline. Symbols in the legend shall be at the same scale or slightly larger than used on the drawings.

ATTACHMENT 6
SITE AND LOCALITY MAPS

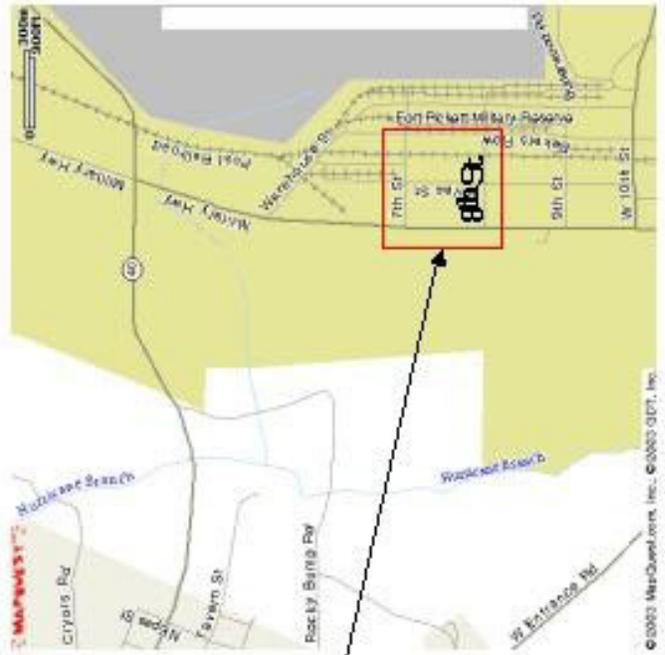


Vicinity Map

Ft Pickett



Vicinity Map

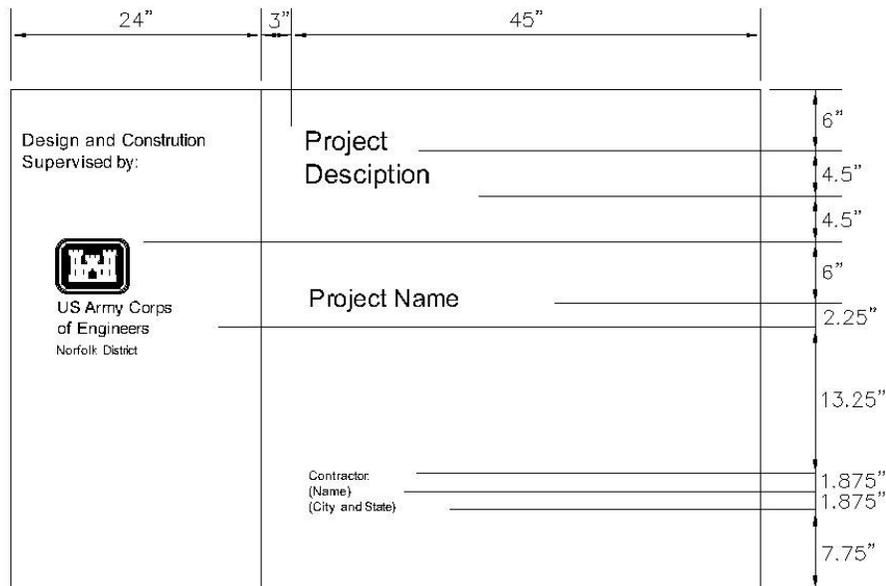


Project Site

ATTACHMENT 7
PROJECT AND SAFETY SIGNS

PROJECT SIGN

The graphic format for this 4'x6' sign panel follows the legend guidelines and layout as specified below. The large 4'x4' section of the panel on the right is to white with black legend. A 2'x4' decal provided by the Corps shall be placed on the left side of the sign panel.



Project Description:

One to three line project title legend describes the work being done under this contract.
 Color: Black; Typeface: 3" Helvetica Bold; Maximum line length: 42"

Project Name:

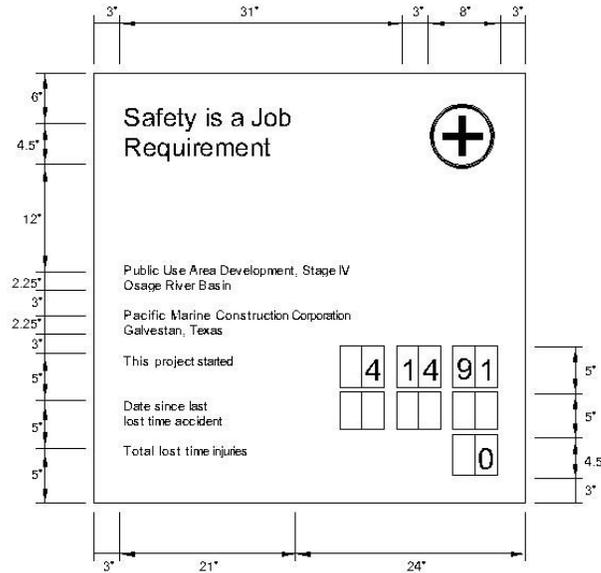
One to three line identification of project or facility.
 Color: Black; Typeface 1.5" Helvetica Bold; Maximum line length: 42"
 Cross-align the first line of PROJECT NAME with the first line of the Corps Signature as shown.

Contractor:

One to five line identification of prime contractors including: type(architect, general contractor, etc.), corporate or firm name, city, state.
 Color: Black; Typeface: 1.25" Helvetica Bold; Maximum line length: 21"

All typography is flush left and ragged right, upper and lower case with initial capitals only as shown.
 Letter and word spacing to follow Corps Standards (EP 310-1-6a and 6b).

SAFETY SIGN



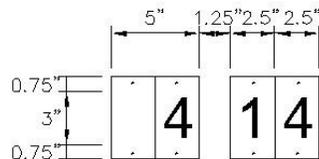
All typography is flush left and rag right, upper and lower case with initial capitals only as shown. Letter and word spacing to follow Corps Standards (EP 310-1-6a and 6b).

Legend Group 1: Standard two-line title "Safety is a Job Requirement" with (8" od.) Safety Green First Aid logo. Typeface: 3" Helvetica Bold; Color: Black.

Legend Group 2: One to two-line project title legend describes the work being done under this contract and name of host project. Typeface: 1.5" Helvetica Regular; Color: Black; Maximum line length: 42".

Legend Group 3: One to two-line identification: name of prime contractor and city, state address. Typeface: 1.5" Helvetica Regular; Color: Black; Maximum line length: 42".

Legend Group 4: Standard safety record captions as shown. Typeface 1.25" Helvetica Regular; Color: Black.



Replaceable numbers are to be mounted on white 0.060 aluminum plates and screw-mounted to backdrop. Typeface: 3" Helvetica Regular; Color: Black; Plate size: 2.5"x 4.5".

ATTACHMENT 8
GEOTECHNICAL REPORT

PRELIMINARY (CONCEPTUAL) GEOTECHNICAL ANALYSIS
for
Mobilization & Training Equipment Site (MATES)
Fort Pickett, Virginia

1. Site/Project Description: The site of the proposed MATES facility is located on the compound occupied by the Virginia National Guard, fronting Military Road and bounded by Seventh Street, Bakery Row, and Eighth Street. The topography generally falls westerly, from approximately elevation 419 feet along the railroad tracks east of Rives Road, to approximately elevation 400 feet adjacent to Military Road. The majority of site drainage collects near the northwest corner of the site and crosses Military Road through a 42-inch pipe to an open swale/creek which flows westerly. The majority of the upper portion of the site between Rives Road and the railroad tracks consists of wood and metal buildings surrounded by reinforced concrete paving averaging approximately 9 to 10 inches in thickness. Most of the lower portion of the site, between Rives Road and Military Road, consists of a gravel/stone hardstand for numerous tracked organizational (military) vehicles. Building 134, a relatively modern brick administration/maintenance building with adjacent reinforced concrete paving (also about 9 to 10 inches thick), occupies the southwest corner of the site. The majority of buildings on the site are actively occupied by the Virginia National Guard. Active overhead electric and underground water, sewage, storm drain, and communication lines are present across the entire site. The proposed addition to the northerly side of Building 134 includes administration and maintenance facilities. Two maintenance facilities and an open storage structure are proposed to the east of Rives Road, and another maintenance facility is proposed at the northwest corner of Rives Road and Eight Street. Proposed new pavements include both concrete and gravel/stone surfacing for tracked equipment/vehicles, and asphalt concrete for privately owned vehicle parking.

2. Geologic Profile: The project site lies within a geological area known as the Piedmont Physiographic Province of Southeastern Virginia. The mature topography of the area is characterized by low, gently rolling terrain. Underlying Fort Pickett is the Petersburg granite of Cambrian Age. The granite is massive, very hard, medium to coarse grained, and white to light gray in color. Overlying the Petersburg formation is a relatively deep zone of soft, highly weathered, friable rock. This friable rock consists of silt and sand-sized particles of quartz, micas, and feldspar, yet still retains the relict structure. Fine-grained residual soils cap the site

3. Subsurface Investigation: On 21-22 May 2003, the GeoEnvironmental Engineering Section of the Norfolk District Corps of Engineers conducted a geotechnical investigation at the project site. Fishburne Drilling Inc. of Ashland, Virginia, drilled seventeen (17) borings labeled 41DH-1 through 41DH-17. All borings were performed westerly of the railroad tracks, i.e. no borings were performed between the railroad tracks and Bakery Row. Borings 41DH-5, 6, 16, and 17 each consisted of split-spoon sampling to a depth of 4 feet without auger drilling. The remaining borings were each drilled with a 2-1/4" inside diameter hollow-stem auger to advance the split-spoon sampler. Boring 41DH-2 was drilled to auger refusal, likely encountering a cobble or boulder rather than intact bedrock, at a depth of 6 feet. The remaining borings were each drilled to planned depths ranging from 10 to 25 feet below grade. Split-spoon sampling was performed continuously to a depth of ten feet, and then at 5-foot intervals to the full depth of each boring, utilizing a 24-inch long, 2-inch outside diameter split-barrel sampler. A CME 550X truck-mounted drill rig, utilizing a safety hammer, was used to perform the borings. Standard Penetration Test (SPT) data were obtained in general accordance with ASTM D1586. The undersigned geotechnical engineer observed the work, collected soil samples, recorded the subsurface conditions encountered, and visually described the soil samples in general accordance

with ASTM D 2488. Limited laboratory testing of selected samples was performed by the Norfolk District, in general accordance with applicable ASTM methods. Appendix A to this Report includes copies of the soil boring logs with abbreviations, and summarized laboratory test results. Boring locations are shown on the Civil drawings provided as an attachment to the RFP.

4. Subsurface Conditions: The dominant subsurface materials encountered at the borings were described as silt (ML), clayey silt (ML-CL), and elastic sandy silt (MH). All native materials encountered were micaceous, severely weathered granite commonly encountered at Fort Pickett. Refusal of the auger and sampler were encountered at boring 41DH-2 as described in the previous paragraph. The soil boring logs indicate the conditions encountered at that particular boring location; conditions vary between boring locations. The soil borings indicate that the following generalized soil strata underlie the site of the proposed work:

Stratum A:	From ground surface to depth of about 1 foot	Concrete pavement or crusher run surfacing as occurs.
Stratum B:	Below Stratum A to depth of about 2 to 3 feet	Various mixtures of gravel, clay, and silt (fill), dry to moist, dense/firm.
Stratum C:	Below Stratum B to depths of about 6 feet	Clay and Silt (CL-ML), dry to moist, low plasticity fines, loose to firm ($4 < N < 19$), roots, micaceous.
Stratum D:	Below Stratum C to depths of about 9 to 14 feet	Silt with Clay and Sand (ML-SC), dry to wet, low to non-plastic fines, very loose to medium ($2 < N < 20$), micaceous.
Stratum E:	Below Stratum C to bottom of hole at 20 to 25 feet	Silt with Quartz-Clay-Sand (weathered bedrock), wet to moist, low to non-plasticity fines, very loose to medium ($3 < N < 15$), micaceous.

5. Groundwater: Water was encountered during the drilling at elevations ranging from approximately +390 to +395 feet. The groundwater table is not consistently determined from boring data, partially due to steady rainfall while drilling borings 41DH-1 through 7 on 21 May and occasional rainfall while drilling the remaining borings on 22 May. Groundwater levels fluctuate due to seasonal effects and rainfall, and construction experience at Fort Pickett indicates that spring conditions are often encountered at variable depths. Proper drainage will be required for all excavations and earthwork, and dewatering will be necessary if springs are encountered during foundation and utility excavations.

6. Design Recommendations:

6.1 Foundation Design: The allowable soil bearing capacity (gross) of 2500 psf, as used for the 1996 design (not constructed) of an addition to Building 134, is recommended for bidding purposes for the proposed buildings. Recommended minimum footing widths are 24" wide for continuous wall footings and 36" for column spread footings. Settlement calculations were not performed for this analysis, and the following discussion is offered for information and bidding purposes only. Consolidation of the clayey soils in the existing root zone, generally encountered during drilling from approximately 4 to 6 feet below grade, could be expected to range from ¼-inch to ½-inch, depending upon footing loads and thickness of fill. Post-construction

compression of the existing native micaceous soils consisting of granite weathered in place, which occur below the original root zone (i.e. generally below approximately 4 to 6 feet in depth), is expected to be minimal (less than 1/4 inch). Post-construction differential settlement should therefore be 1/2 inch or less. Calculations and any necessary additional soil sampling/testing to determine project-specific settlements and associated necessary foundation design features to minimize differential and total settlements, are the responsibility of the successful Offeror. Necessary design features, particularly in areas of heavy footing and/or fill loads, may include reduced soil bearing capacity and/or subgrade improvement and/or subgrade soils replacement. Footings shall bear at a minimum of 2 feet below finished exterior grade.

6.2 Pavement Design: The proposed project includes new concrete and flexible pavements and gravel/stone hardstands. Minimum requirements are included in paragraph 4-12 Pavement Design Criteria of the RFP Statement of Work. Reduced subgrade strength design (for F3 and F4 soils) normally governs design of pavements for POV and other lightweight traffic at Fort Pickett. A Freezing Index of 360 and a Soil Frost Group of F3 for insitu or cohesive satisfactory material subgrades are recommended. For heavy traffic (primarily organizational vehicle) conditions, check normal strength design with a maximum recommended CBR of 8 (flexible pavement) and subgrade modulus $k = 150$ (rigid pavement) for compacted subgrade. Offeror please note, when selecting layer thicknesses for pavement sections, Chapter 4 of the RFP Statement of Work allows a maximum compacted lift thickness of 6 inches. Where 2 lifts of base course are selected (i.e. total greater than 6 inches), a minimum lift thickness of 3 inches should be specified for constructability.

6.3 Site Preparation & Earthwork: The existing subgrade soils, when wet, are expected to become unstable for construction equipment. Therefore, the Civil drawings should make reference to the specifications for subgrade preparation and drainage and dewatering requirements, as described in paragraph Groundwater above and in the Statement of Work. The Civil drawings should also include a note **directing the Contractor to contact MISS UTILITIES of Virginia to coordinate field location of all existing utilities**, prior to beginning any excavation at the project site. Materials shall be placed, compacted, and tested in accordance with Paragraph 4-1 SOILS of the RFP Statement of Work. All field density testing shall be performed in accordance with ASTM D1556; **nuclear guage testing shall not be allowed**, due to inconsistent results with soil containing mica. The following ASTM D2487 Classifications are recommended to be listed in the specifications: Materials classified as GW, GP, GC, GM, SW, SP, SC, and SM are satisfactory insitu, and for all fill except beneath building slabs and footings. Materials classified as CL, ML, CH and MH are satisfactory insitu and as overlot fill, but are unsatisfactory for utility backfill or for fill as subgrade in paved areas. Materials classified as OH, OL and PT are unsatisfactory insitu and as fill of any kind.

6.4 Cathodic Protection: Federal regulations require cathodic protection for all ferrous metal natural gas piping. TM 5-811-7 Electrical Design, Cathodic Protection, provides general criteria. Soil resistivity testing was not performed during the 21-22 May 2003 investigation. Testing performed at the time of a December 1995 subsurface exploration for a Reserve Center project at Fort Pickett, indicated an apparent soil resistivity of 20,000 ohm-cm, and a pH of 8.1. Typical moistures for soil at that project ranged from 20 to 40 percent; sulfides were not present.

Prepared by:

Randall C. Born, P.E.
GeoEnvironmental Engineering Section
Norfolk District, Corps of Engineers
June 2003

APPENDIX A - SOIL BORING DATA

BORING LOG ABBREVIATIONS

WOR = Water on Rod - the water level when it is first encountered during drilling (indicated by inverted pyramid).

WOC = Water on Completion - the water level in an uncased hole, unless otherwise noted, at completion.

W @ 24 hrs. = Water at 24 hours - the water level in an uncased hole, unless otherwise noted, 24 hours after completion.

NFWOC = No Free Water on Completion.

ang - angular (angle)	PI - Plasticity Index
bld - boulders	Piez - Piezometer
blk - black	PL - Plastic Limit
blu - blue	plast - plastic, plasticity
BOH - Bottom of Hole	rd - red
bot - bottom	rnd - rounded
brk - broken	sam - sample
brn - brown	sat - saturated
CI - cave in	sbr - subrounded
cly - clayey	sdv - sandy
cob - cobble	sft - soft
const - consistency	sh - shaley
crs, c - coarse	SSS - Split Spoon Sampler
dia - diameter	st - stain (ed)
dk - dark	sta - station
dns - dense	SPT - Standard Penetration Test
fn, f - fine	SYM - symbol
frag - fragments (fragmented)	t - thin
grn - green	th - thick
gry - gray	tr - trace
gvy - gravelly	TV - Torvane
hi - high (ly)	UND - undisturbed sample
HP - high plasticity	v - very
hrd - hard	v.f. - very fine
hrs - hours	vert - vertical
incl - included, included	VS - vane shear
len - lense	w - moisture content
lit - little	w.l. - water level
LL - liquid limit	w/ - with
LOI - loss on ignition	wd - weathered
LP - low plasticity	wht - white
lse - loose	WOH - weight of hammer
lt - light	yel - yellow
med,m - medium	%200 - Minus No. 200 Sieve
mica - micaceous	& - and
mod - moderate (ly)	
moist - moisture	
mot - mottled	
MP - medium plasticity	
mst - moist	
NP - nonplastic	
num - numerous	
occ - occasional	
OD - outside diameter	
odr - odor	
org - organic	
petro - petroleum	

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1	1 SHEETS
1. PROJECT FT. Picket MATES			10. SIZE AND TYPE OF BIT 2 1/4" ID HS auger		
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Fishburne Drilling			12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer		
4. HOLE NO. (As shown on drawing title and file number) 41DH-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED	UNDISTURBED
5. NAME OF DRILLER Sonny Sequist			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE	STARTED 21 May 03	COMPLETED 21 May 03
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE		
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING		
9. TOTAL DEPTH OF HOLE 15.0			19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	2.5		Crusher Run (sand and gravel), 3" stone at 2-2.5' (SP-GP)	50	S-1	5-7-20-37, N=27
	3.5		Fn - med clayey sand, tr mica, lo-med PL, dry, brown-red (SC)	0	S-2	11-7-10-24, N=17
	5.6		Fn - med sand, dry, grey; brown-tan @ 5' to 5'-5" (SP-SM)	92	S-3	14-10-8-8, N=18
	6.4		Fn - med, dry sandy clay, tr. mica, brown-red, med.pl. fines (CL)	100	S-4	4-7-8-11, N=15
	7.4		Clayey sandy silt, tan-brn., low pl, dry; (fn.-med. sand) (ML-CL)			
			Sandy silt (ML-SM), brn.-red, dry, fn - med sand, tr. mica; med.sandy silt, gray-tan @ 9'; gray-black mottling @ 9.5' to 10'	92	S-5	4-6-6-7, N=12
	12.0		Sandy gravel, (GP-SP), white-tan, wet, med.-crs sand, gravel to 1/2" size. Smaller lens gravel at 14' to 15'.			
	15.0			75	S-6	3-3-5-5, N=8
Boh @ 15' WOC @ 11.7' Cavein @ 11.7' Water @ 6' at 24hr. Note: Rain after drilling and over night.						

DRILLING LOG	DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1	1 SHEETS
1. PROJECT FT. Picket MATES		10. SIZE AND TYPE OF BIT 21/4" ID HS auger		
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Fishburne Drilling		12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer		
4. HOLE NO. (As shown on drawing title and file number) 41DH-10		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED	UNDISTURBED
5. NAME OF DRILLER Sonny Sequist		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE	STARTED 22 May 03	COMPLETED 22 May 03
7. THICKNESS OF OVERBURDEN		17. ELEVATION TOP OF HOLE		
8. DEPTH DRILLED INTO ROCK		18. TOTAL CORE RECOVERY FOR BORING		
9. TOTAL DEPTH OF HOLE 20.0		19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	1.0		Gravel-stone-sand	8	S-1	4-6-4-4, N=10
			Sandy clay(CL-SC), tr. mica, red-brown-tan, moist to dry, fn. to med. sand	83	S-2	3-4-4-7, N=8
	3.5		Sandy clay w/silt(CL), tr. mica, grey, dry to moist, roots present @ 4.6' to 7'	83	S-3	2-3-5-6, N=8
	6.0		Silt w/clay(ML), tr. mica, orange-tan-white-purple, dry, occasional crs. sand quartz @ 9' to 10'.	100	S-4	7-10-10-12, N=20
				83	S-5	3-2-5-5, N=7
	11.0		Gravel w/ sand(GP-SP), grey-white-tan, wet, crs. sand to fn. gravel			
	13.5		Sand w/silt(SM), tr. mica, dark brown-white-tan, wet to moist (highly weathered rock)	83	S-6	1-2-2-2, N=4
	16.4		Gravel-sand-silt (decomposed quartz), white-tan w/dk. bn. lenses, wet			
					S-7	2-2-3-3, N=5
	20.0					
			BOH 2.20' WOC @ 11' Cave-in @ 13.5' Water @ 9.2' @ 4hrs.			

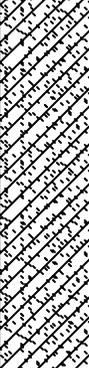
DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1	1 SHEETS
1. PROJECT FT. Picket MATES			10. SIZE AND TYPE OF BIT 21/4" ID HS auger		
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Fishburne Drilling			12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer		
4. HOLE NO. (As shown on drawing title and file number) 41DH-11			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED	UNDISTURBED
5. NAME OF DRILLER Sonny Sequist			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE	STARTED 22 May 03	COMPLETED 22 May 03
7. THICKNESS OF OVERBURDEN			17. ELEVATION GROUND WATER		
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING		
9. TOTAL DEPTH OF HOLE 20.0			19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	1.0		Top soil, roots to 12"	75	S-1	2-2-3-3, N=5
	4.2		Clay w/silty fn.- med. sand(CL), tr. mica, red-brown-tan, dry Lab Results: @ 3' Sand = 32.5% W% = 31 LL= 62.4 PL= 30.1	92	S-2	3-5-5-9, N=10
	6.2		Clayey silty fn. sand(SM-SC), tr. mica, red-brown, dry, low pl. Lab Results: @ 5' Sand = 57% W% = 22 LL= 63 PL= 35	83	S-3	3-5-8-9, N=13
			Silty sand (SM)(decomposed quartz), tr. mica; white-tan-yellow, dry Lab Results: @ 9' Sand = 57% W% = 23 LL= 46.6 PL= 27.8	92	S-4	8-8-9-10, N=17
				100	S-5	2-4-4-6, N=8
	12.0		Same as above but less sand, dark brown @ 12' to 14', white orange @ 14' to 15', heavy mica/pyrite content	63	S-6	3-4-6-8, N=10
	19.0			75	S-7	5-8-7-8, N=15
	20.0		Same as above, quartz fragments lense @ 19' to 19.3', more frequent fragments 18' to 20' than @ 13' to 15'.			
			BOH @ 20' WOC @ 3' Cave-in @ 16'			

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1	1 SHEETS
1. PROJECT FT. Picket MATES		10. SIZE AND TYPE OF BIT 21/4" ID HS auger			
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY Fishburne Drilling		12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer			
4. HOLE NO. (As shown on drawing title and file number) 41DH-12		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
5. NAME OF DRILLER Sonny Sequist		14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		STARTED 22 May 03	COMPLETED 22 May 03
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE 20.0		18. TOTAL CORE RECOVERY FOR BORING		%	
		19. SIGNATURE OF INSPECTOR		Randall C. Bom, P. E.	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	1.0		Topsoil, grass, roots to 12"	75	S-1	WOH-1-2-3, N=3
	2.0		Clayey fn. sand(SC-CL), tr. mica, red-brown, dry to moist			
	4.0		Clayey silt(ML-CL), tr. mica, red-orange-brown, dry, low pl.	75	S-2	2-5-6-9, N=11
	5.0		Sandy clay(CL), grey, moist, fn. sand	75	S-3	3-3-5-8, N=8
	7.8		Clayey sand(SC-CL), tr. mica, brown-orange-tan, dry to moist	100	S-4	6-8-10-10, N=18
	14.0		Silt w/ clay(ML), tr. mica, tan-white-orange, moist to dry, some quartz fragments to 1/4" size from 7.6' to 8.5' Dark brown @ 13.5' to 14'	100	S-5	4-6-6-7, N=12
	19.5		Silt w/gravel and shell fragments(ML), tr. mica, tan-white-orange, transitioning to weathered rock.	83	S-6	3-4-4-6, N=8
	20.0		Quartz and shell fragments w/silt (weathered rock); white-tan-brown, wet	50	S-7	3-4-5-5, N=9
			BOH @ 20 WOC @ 13 Cave-in @ 17' Water @ 12' @ 3hrs.			

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1 SHEETS
1. PROJECT FT. Picket MATES		10. SIZE AND TYPE OF BIT 21/4" ID HS auger		
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Fishburne Drilling		12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer		
4. HOLE NO. (As shown on drawing title and file number) 41DH-13		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED UNDISTURBED		
5. NAME OF DRILLER Sonny Sequist		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED 22 May 03 COMPLETED 22 May 03		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE 10.0		18. TOTAL CORE RECOVERY FOR BORING %		
		19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	0.8		Stone - sand to 8"	50	S-1	5-4-14-16, N=15
	2.0		Silty clay w/sand(CL-ML), tr. mica, brown-red-tan, dry			
	2.5		Sand-stone fill @ 2' to 2.5'	63	S-2	14-7-8-8, N=15
			Clayey sand(SC), tr. mica, tan-brown, dry, low pl., fn. - med. sand Gray w/roots @ 5' to 6.5' More clayey(SC-CL), gray @ 9' to 10'	75	S-3	1-3-5-8, N=8
				83	S-4	9-8-7-8, N=15
				83	S-5	2-4-4-5, N=8
	10.0		BOH @ 10' Cave-in @ 6.4' NFWOC			

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1	1 SHEETS
1. PROJECT FT. Picket MATES			10. SIZE AND TYPE OF BIT 21/4" ID HS auger		
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Fishburne Drilling			12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer		
4. HOLE NO. (As shown on drawing title and file number) 41DH-14			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED
5. NAME OF DRILLER Sonny Sequist			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE		STARTED 22 May 03 COMPLETED 22 May 03
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE		
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING		
9. TOTAL DEPTH OF HOLE 10.0			19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	1.0		Stone - sand (RR ballast)	50	S-1	3-3-2-2, N=5
			Clayey silt(ML-CL), tr. mica, red-yellow-brown, low pl., dry	75	S-2	2-2-4-4, N=6
	4.0		Silty fn. sand(SM), grey, moist	83	S-3	WOH-2-2-5, N=4
	5.0		Sandy clay(CL), grey, moist More sandy(SC) @ 6' to 7'	100	S-4	4-7-8-10, N=15
	7.0		Silt w/sand(ML), tan-brown-orange, dry, tr. mica	100	S-5	2-3-3-5, N=6
	10.0		BOH @ 10' Cave-in @ 8' NFWOC			

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1 SHEETS
1. PROJECT FT. Picket MATES		10. SIZE AND TYPE OF BIT 21/4" ID HS auger		
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Fishburne Drilling		12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer		
4. HOLE NO. (As shown on drawing title and file number) 41DH-15		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED	UNDISTURBED
5. NAME OF DRILLER Sonny Sequist		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE	STARTED 22 May 03	COMPLETED 22 May 03
7. THICKNESS OF OVERBURDEN		17. ELEVATION TOP OF HOLE		
8. DEPTH DRILLED INTO ROCK		18. TOTAL CORE RECOVERY FOR BORING		
9. TOTAL DEPTH OF HOLE 15.0		19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	1.0		Stone - sand to 12"	63	S-1	7-10-6-7, N=16
	2.6		Fn. - med. sand(SP), grey - tan, moist	8	S-2	4-6-13-10, N=19
	5.8		Clayey sand(SC), grey, moist Tan-brown @ 4.5' to 5.8' w/roots/organic lenses	75	S-3	2-2-2-2, N=4
	8.4		Fn.- med. sand(SP), grey, moist, roots to 6.5', wet @ 7.7'	75	S-4	5-5-3-2, N=8
	12.0		Silty fn. - med. sand(SM), some crs. sand, gray, wet	75	S-5	1-2-2-3, N=4
	15.0		Silt w/ quartz and shell fragments to 1/4"(ML-SP), tan-white, moist Dark brown lens @ 14' to 14.5'.	63	S-6	2-3-3-3, N=6
BOH @ 15' WOR @ 7.7' Cave-in @ 12.5' NFWOC						

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1	1 SHEETS
1. PROJECT FT. Picket MATES		10. SIZE AND TYPE OF BIT 21/4" ID HS auger		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd		12. MANUFACTURER'S DESIGNATION OF DRILL CME 550X w/safety hammer			
3. DRILLING AGENCY Fishburne Drilling		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
4. HOLE NO. (As shown on drawing title and file number) 41DH-16		14. TOTAL NUMBER CORE BOXES			
5. NAME OF DRILLER Sonny Sequist		15. ELEVATION GROUND WATER			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE		STARTED 22 May 03	COMPLETED 22 May 03
7. THICKNESS OF OVERBURDEN		17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK		18. TOTAL CORE RECOVERY FOR BORING %			
9. TOTAL DEPTH OF HOLE 4.0		19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.			

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	0.5		1.5" AC on 4" concrete Clayey silt w/ sand(ML-CL), red-brown, moist	67	S-1	n/a, N=0 2-3-5, N=5
	3.0		Same as above(ML-CL), but tan-yellow with less clay	75	S-2	3-7-8-10, N=15
	4.0					
BOH @ 4' Note: cored through concrete at both DH-16 and 17 using a roller bit and water. Collected sample with split spoon (no augering).						

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1 SHEETS
1. PROJECT FT. Picket MATES		10. SIZE AND TYPE OF BIT 21/4" ID HS auger		
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Fishburne Drilling		12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer		
4. HOLE NO. (As shown on drawing title and file number) 41DH-17		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED	UNDISTURBED
5. NAME OF DRILLER Sonny Sequist		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE	STARTED 22 May 03	COMPLETED 22 May 03
7. THICKNESS OF OVERBURDEN		17. ELEVATION TOP OF HOLE		
8. DEPTH DRILLED INTO ROCK		18. TOTAL CORE RECOVERY FOR BORING		
9. TOTAL DEPTH OF HOLE 4.0		19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	0.5		1.5" AC on 4.5" concrete Fn. - med. sand(SP), grey, dry to moist Limited recovery due to stone in top of sample.	89	S-1	n/a, N=0 2-3-12, N=5
	2.3		Silty clay w/ sand(CL), red-brn-tan, dry, med. to low pl.	63	S-2	6-7-7-10, N=14
	4.0					
			BOH @ 4'			

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1	1 SHEETS
1. PROJECT FT. Picket MATES		10. SIZE AND TYPE OF BIT 21/4" ID HS auger		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd		12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer			
3. DRILLING AGENCY Fishburne Drilling		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
4. HOLE NO. (As shown on drawing title and file number) 41DH-2		14. TOTAL NUMBER CORE BOXES			
5. NAME OF DRILLER Sonny Sequist		15. ELEVATION GROUND WATER			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE 21 May 03		STARTED	COMPLETED 21 May 03
7. THICKNESS OF OVERBURDEN		17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK		18. TOTAL CORE RECOVERY FOR BORING %			
9. TOTAL DEPTH OF HOLE 6.2		19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.			

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	2.5		Crusher run (gravel/sand to 2.5')	50	S-1	11-19-27-19, N=46
	4.5		Sandy clay w/roots, grey black, organics, moist (CL)	83	S-2	5-6-5-8, N=11
	6.2		Clayey sand about w/ fine gravel, gray-tan, dry, med.-crs. sand, about 15% gravel to 3/8' size, about 15% low pl. fines (SC-GP)	63	S-3	4-6-8-10, N=14
			BOH @ 6'-2" Auger refusal on weathered bedrock at 6'-2". Note: Auger refusal was likely on a boulder or cobble, rather than intact bedrock. See boring data 41HD - 15. Backfilled hole after completion.	100	S-4	50/2", N=0

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1 SHEETS
1. PROJECT FT. Picket MATES		10. SIZE AND TYPE OF BIT 21/4" ID HS auger		
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Fishburne Drilling		12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer		
4. HOLE NO. (As shown on drawing title and file number) 41DH-3		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED
5. NAME OF DRILLER Sonny Sequist		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		STARTED 21 May 03 COMPLETED 21 May 03
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE 20.0		18. TOTAL CORE RECOVERY FOR BORING		%
		19. SIGNATURE OF INSPECTOR		Randall C. Bom, P. E.

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	1.0		Crusher run stone to 12".	58	S-1	5-8-9-8, N=17
	2.2		Sand - clay- gravel fill (w/organics at 2' to 2.2')			
	3.6		Sand with little silt, brown	75	S-2	4-8-5-5, N=13
	4.4		Dry clay with roots. green (CL)			
	5.7		Med. dry sand with silt (SM)	63	S-3	3-3-2-3, N=5
	6.8		Dry silt, brown (ML)	75	S-4	5-4-3-3, N=7
	8.7		Med. sand w/silt, grey-brown (SM)			
			Med.-crs. sand (saprolite), grey-white w/black mottling (SP)	75	S-5	WOH-2-3-3, N=5
	12.0		Saprolite weathered to sand-clay, crs. to med. sand , low pl. clay, green-grey (CL)			
				63	S-6	3-2-8-8, N=10
	17.0		Clay-gravel-sand (saprolite), brown-white (GC)			
				50	S-7	6-7-8-8, N=15
	20.0		BOH @ 20' WOC @ 11' Cavein @ 16'-17' Note: Raining so could not distinguish WOR or in spoon. Water @ 7.3' at 24hrs.			

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1	1 SHEETS
1. PROJECT FT. Picket MATES			10. SIZE AND TYPE OF BIT 21/4" ID HS auger		
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Fishburne Drilling			12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer		
4. HOLE NO. (As shown on drawing title and file number) 41DH4			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED UNDISTURBED		
5. NAME OF DRILLER Sonny Sequist			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN			16. DATE HOLE STARTED 21 May 03 COMPLETED 21 May 03		
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE 20.0			18. TOTAL CORE RECOVERY FOR BORING %		
			19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	1.0		Crusher run stone	33	S-1	9-10-12-10, N=22
	2.4		Dry sand - gravel fill; brown - grey.			
	3.1		Med. dry sand w/silt; brown ting.	63	S-2	7-7-4-7, N=11
	7.8		Sandy clay (CL), dry, tan-brn.; roots @ 3.2' to 3.6', red-brn. @ 4.5' to 5.2'; med. sand; grey - brown @ 5.2' to 6', med.-crs. sand: roots @ 7' to 7.8'.	83	S-3	3-2-3-3, N=5
	7.8		Sandy silt, dry, grey (MLS) Lab results: W% = 22 LL=0	75	S-4	2-2-2-2, N=4
	11.0		Sandy silt, dry, grey (MLS) Lab results: W% = 22 LL=0	83	S-5	WOH-1-1-3, N=2
	17.2		Fn. med. moist sand/silt; mica; brown-tan.	83	S-6	1-1-2-3, N=3
	17.2		Weathered silt w/fn. sand; mica.	83	S-7	1-1-2-3, N=3
	20.0		Note: BOH @ 20' WOC @ 13.5' Cave-in @ 13.9' Raining, so all samples above 12' called dry (assumed). Backfilled hole after completion.			

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1	1 SHEETS
1. PROJECT FT. Picket MATES			10. SIZE AND TYPE OF BIT 21/4" ID HS auger		
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Fishburne Drilling			12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer		
4. HOLE NO. (As shown on drawing title and file number) 41DH-5			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED
5. NAME OF DRILLER Sonny Sequist			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE		STARTED 21 May 03
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE		
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING		
9. TOTAL DEPTH OF HOLE 4.0			19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	1.0		Crusher run stone	75	S-1	7-12-13-7, N=25
	2.0		Sandy fn gravel w/silt, brown, dry (GP-SP)			
	4.0		Clayey silt w/sand, tr. mica, brown-red-white, dry (ML-CL)	83	S-2	3-3-8-10, N=11
			BOH @ 4' Note: Raining, so all samples getting wet (assumed dry). Split- spoon sampled only (no augering).			

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1	1 SHEETS
1. PROJECT FT. Picket MATES			10. SIZE AND TYPE OF BIT 21/4" ID HS auger		
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Fishburne Drilling			12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer		
4. HOLE NO. (As shown on drawing title and file number) 41DH-6			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED
5. NAME OF DRILLER Sonny Sequist			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE		STARTED 21 May 03 COMPLETED 21 May 03
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE		
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING %		
9. TOTAL DEPTH OF HOLE 4.0			19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	0.5		Crusher run stone.	75	S-1	6-8-4-6, N=12
			Sand w/gravel.			
	1.7		Clayey silt, tr. mica, tan-brown-orange, dry (ML-CL)	75	S-2	6-12-12-13, N=24
	4.0					
			BOH @ 4' Note: Raining, so all samples getting wet (assumed dry). Split- spoon sampled only (no augering).			

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1	1 SHEETS
1. PROJECT FT. Picket MATES		10. SIZE AND TYPE OF BIT 21/4" ID HS auger			
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY Fishburne Drilling		12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer			
4. HOLE NO. (As shown on drawing title and file number) 41DH-7		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
5. NAME OF DRILLER Sonny Sequist		14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		STARTED 21 May 03	COMPLETED 21 May 03
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE 20.0		18. TOTAL CORE RECOVERY FOR BORING		%	
		19. SIGNATURE OF INSPECTOR		Randall C. Bom, P. E.	

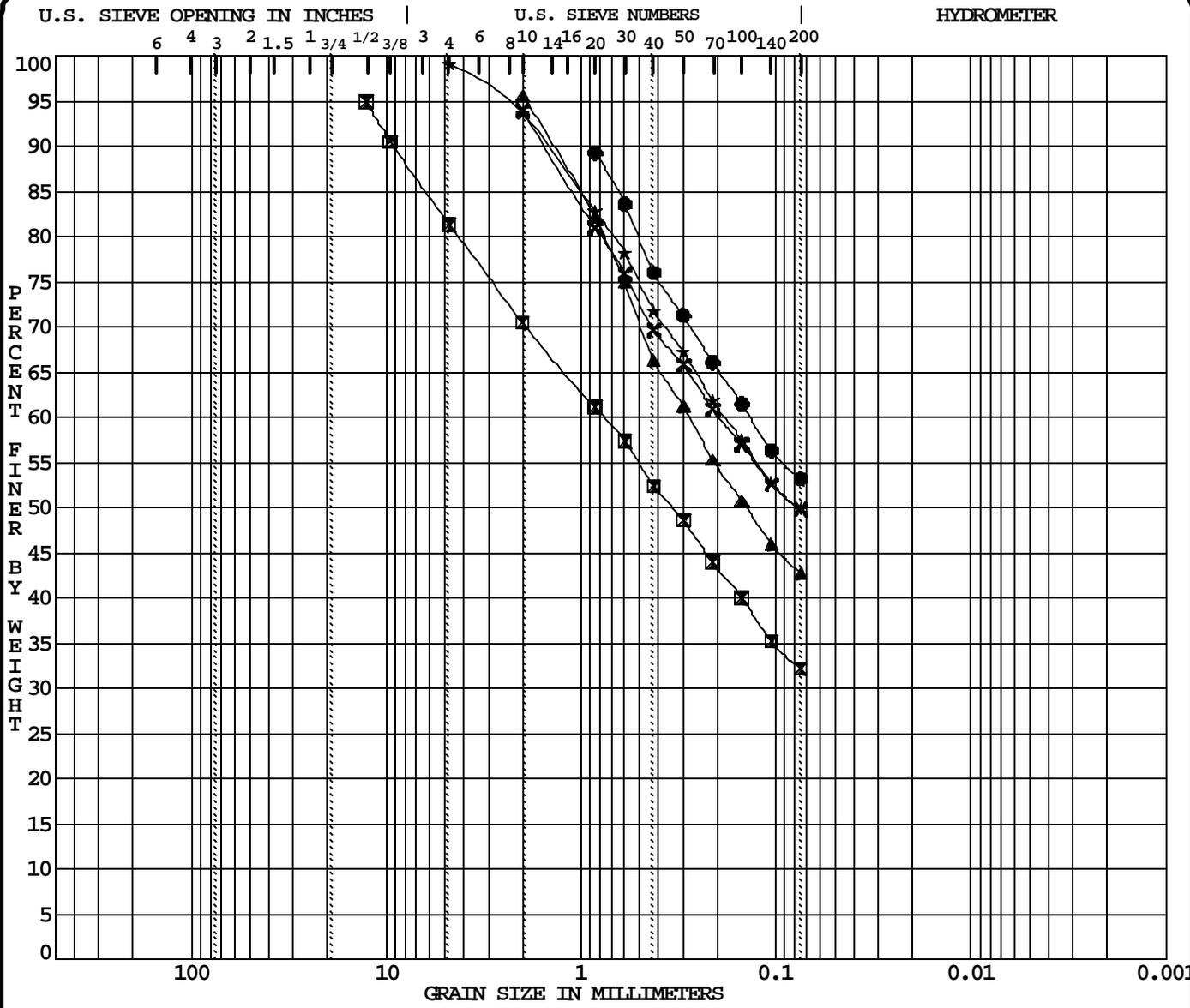
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	0.5		Crusher run stone	75	S-1	5-5-7-9, N=12
	3.4		Clayey sand(SC), tr. mica, tan-white-brown, dry to moist, med. - fn. sand Lab Results: @ 1' W% = 16, SP=49.2%, GP=13.5% @ 3' W% = 27, SP= 52.9% LL=40.5 PL=20.4 LL=48.5 PL=24.5	83	S-2	5-8-8-9, N=16
	5.0		Fn. sandy silt, tr. mica, tan-brown, dry to moist (ML)	92	S-3	3-4-7-8, N=11
	8.2		Clayey sandy silt(ML-CL), tr. mica, red-white-tan, dry, low pl., med.- crs. sand; quartz @ 5.5' to 5.7'; black stains/petroleum odor(solvent) @ 7' to 7.5'; color change to tan-brown w/ purple mottling @ 10'-12'	75	S-4	8-10-11-12, N=21
			Silty med. sand(SM), tr. mica, tan-brown, moist, (highly weathered saprolite)	75	S-5	2-4-5-6, N=9
				63	S-6	3-5-7-7, N=12
				83	S-7	11-24-28-32, N=52
	20.0					
			BOH @ 20' WOC @ 9' Cave-in @ 16' Water @ 9' in 24 hrs.			

DRILLING LOG	DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1 SHEETS
1. PROJECT FT. Picket MATES		10. SIZE AND TYPE OF BIT 21/4" ID HS auger	
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY Fishburne Drilling		12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer	
4. HOLE NO. (As shown on drawing title and file number) 41DH-8		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED UNDISTURBED	
5. NAME OF DRILLER Sonny Sequist		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED 22 May 03 COMPLETED 22 May 03	
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE 20.0		18. TOTAL CORE RECOVERY FOR BORING %	
		19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	1.5		9' reinforced (w/wf) concrete; Sand-stone-clay fill to 1.5'	58	S-1	1-4-5, N=4
	3.2		Sandy silt(ML), tr. mica, red-brown-white, moist, med. sand	83	S-2	3-5-5-6, N=10
	4.2		Clayey silt w/fn. sand(ML-CL), moist to dry, yellow-tan-brown, mica			
	5.5		Clay (CL)w/silt, gray, med. pl., moist Lab Results: W%= 22 LL=40.5 PL=17	75	S-3	2-3-2-3, N=5
	7.8		Clayey silt(ML-CL), yellow-tan, moist, mica	100	S-4	3-2-3-7, N=5
	9.3		Silty clayey sand(SC), grey, dry, fn. sand	83	S-5	4-2-2-3, N=4
	11.5		Clayey silt(ML-CL); grey, low-med. pl., moist			
	13.8		Sandy clay(CL-SC), grey, low pl., moist, fn. sand	75	S-6	2-2-5-4, N=7
	17.0		Silty sand(SM), tr. mica, yellow-tan, moist, crs. to fn. sand, quartz pieces to 1/4" size			
	19.2		Sandy silt(ML), grey, wet, fn. sand (saprolite)	63	S-7	2-2-4-5, N=6
	20.0		Same as above(ML), but yellow-tan.			
BOH @ 20' WOC @ 12' Cave-in @ 16' Water @ 7.4' in 5 hrs.						

DRILLING LOG		DIVISION NAD	INSTALLATION Ft. Pickett, VA	SHEET OF 1 SHEETS
1. PROJECT FT. Picket MATES		10. SIZE AND TYPE OF BIT 21/4" ID HS auger		
2. LOCATION (Coordinates or Station) 7th - 8th - Military - Baker Rd		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Fishburne Drilling		12. MANUFACTURE'S DESIGNATION OF DRILL CME 550X w/safety hammer		
4. HOLE NO. (As shown on drawing title and file number) 41DH-9		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED	UNDISTURBED
5. NAME OF DRILLER Sonny Sequist		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE	STARTED 22 May 03	COMPLETED 22 May 03
7. THICKNESS OF OVERBURDEN		17. ELEVATION TOP OF HOLE		
8. DEPTH DRILLED INTO ROCK		18. TOTAL CORE RECOVERY FOR BORING		
9. TOTAL DEPTH OF HOLE 25.0		19. SIGNATURE OF INSPECTOR Randall C. Bom, P. E.		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
	1.0		Gravel-sand; surface to 12"	58	S-1	5-12-7-5, N=19
	3.5		Silty clayey sand(SC), grey, dry, mica	75	S-2	4-5-6-6, N=11
	5.0		Clayey silt w/fn. sand(ML-CL), tr. mica, brown-tan-yellow, low pl. dry, fn. sand	83	S-3	1-2-2-3, N=4
	8.0		Sandy clay(CL), tr.mica, grey, moist, med. - fn. sand, roots @ 5.2' to 8'; less clayey (from med. to low pl.) @ 7.5' Lab Results: @ 5'-7' W% = 23 Sand = 42.2% LL=43.5 PL=25.6	63	S-4	2-2-3-4, N=5
	12.0		Silty sand w/lit. clay(SM), tr. mica; grey, moist to dry Lab Results: @ 9' W% = 33 Sand = 61.6% LL= 50.1 PL= 39.2	92	S-5	1-1-3-2, N=4
	16.0		Silty sand(SM), tan-gold, dry to moist, v. soft, mica and pyrite Lab Results: @ 14' W% = 41 Sand = 66.4% LL= 51.5 PL= 40.3	83	S-6	1-1-1-3, N=2
	25.0		Fn. sand-silt(SM-ML), tan-gold w/bm. mottling, transiting to weathered rock (saprolite) Gravel sized quartz stone @ 24' to 24.3' white-brown, lenses of brown-purple-white saprolite @ 24.3' to 25', sandy sil(ML-SM)t, brown-tan, moist, mica.	83	S-7	1-2-3-4, N=5
			BOH @ 25', WOC @ 11', Cave-in @ 19' Note: Hole offset 20' east of planned location	63	S-8	6-2-3-4, N=5



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Sample ID (depth)	Classification	MC%	LL	PL	PI	Cc	Cu
● 41DH-4 (9.0)	Sandy silt		NP				
⊠ 41DH-7 (1.0)	CLAYEY SAND with GRAVEL SC		41	20	20		
▲ 41DH-7 (3.0)	CLAYEY SAND SC		49	25	24		
★ 41DH-8 (5.0)	CLAYEY SAND SC		41	17	24		
⊠ 41DH-9 (5.0)	CLAYEY SAND SC		44	26	18		

Sample ID (depth)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 41DH-4 (9.0)	0.85	0.14			0.0	36.1	53.2	
⊠ 41DH-7 (1.0)	12.70	0.77			13.5	49.2	32.2	
▲ 41DH-7 (3.0)	2.00	0.28			0.0	52.9	42.8	
★ 41DH-8 (5.0)	4.76	0.18			0.0	49.2	49.9	
⊠ 41DH-9 (5.0)	2.00	0.20			0.0	44.2	49.8	

PROJECT FT. Picket MATES - 7th - 8th - Military - Baker Rd JOB NO. _____
 DATE _____

ATTACHMENT 9

RESERVED

ATTACHMENT 10
WATER-FLOW-TEST

Hydrant Flow Test Report

Location MTC Fort Pickett 8th St + Reams Date 5/16/03

Test made by Chief Berry Time 10:30 A.M.

Representative of Fort Pickett Fire Rescue

Witness B Shift

State purpose of test _____

Consumption rate during test _____

If pumps affect test, indicate pumps operating N/A

Flow hydrants: A₁ A₂ A₃ A₄

Size nozzle 2.5

Pitot reading 18

Discharge coefficient _____ Total GPM

GPM _____ 1060

Static B 30 psi Residual B 40 psi

Projected results @20 psi Residual _____ gpm; or @ _____ psi Residual _____ gpm

Remarks: _____

Location map: Show line sizes and distance to next cross connected line. Show valves and hydrant branch size. Indicate north. Show flowing hydrants - Label A₁, A₂, A₃, A₄. Show location of static and residual - Label B.

Indicate B Hydrant Sprinkler _____ Other (identify) _____

ATTACHMENT 11
LIST OF DRAWINGS

LIST OF DRAWINGS

Sheet No.	Title
T-001	Title Sheet
G-001	Survey Notes, Data, Legends, and Misc. Notes
C-101	Existing Conditions
C-102	Existing Conditions
C-103	Existing Conditions
C-104	Existing Conditions
C-105	Demolition Plans
C-106	Demolition Plans
C-107	Demolition Plans
C-108	Demolition Plans
C-109	Site Layout Plans
C-110	Site Layout Plans
C-111	Site Layout Plans
C-112	Site Layout Plans
C-501	Details
C-502	Oil/Water Separator
C-503	Sanitary Pump Station Details
A-101	Programming Plans
A-102	Programming Plans
A-103	Programming Plans
E-101	Electrical Site Plan – Demolition
E-102	Electrical Site Plan – New Work

ATTACHMENT 12
ASBESTOS SURVEY RESULTS