



State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER

DEP15250

PAGE

1

ADDRESS CORRESPONDENCE TO ATTENTION OF:

CHUCK BOWMAN
304-558-2157

RFQ COPY

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ENVIRONMENTAL PROTECTION
DEPT. OF
OFFICE OF SPECIAL RECLAMATION
105 S. RAILROAD STREET
PHILIPPI, WV
26416-9998 304-457-3219

DATE PRINTED

12/02/2010

TERMS OF SALE

SHIP VIA

F.O.B.

FREIGHT TERMS

BID OPENING DATE:

01/12/2011

BID OPENING TIME

01:30PM

LINE

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ITEM NUMBER

UNIT PRICE

AMOUNT

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RECLAMATION: WATER TREATMENT PROJECT

SPECIAL RECLAMATION/BOND FORFEITURE PROJECT

THE WEST VIRGINIA PURCHASING DIVISION, ON BEHALF OF
THE AGENCY, THE WEST VIRGINIA DEPARTMENT OF
ENVIRONMENTAL PROTECTION, IS SOLICITING BIDS FROM
QUALIFIED CONTRACTORS FOR A CONTRACT TO PROVIDE ALL
LABOR AND MATERIALS TO PERFORM RECLAMATION ON THE
MINING OPERATION OF AMANDA NICOLE FUELS, INC., NOW
UNDER REVOKED PERMIT NUMBER(S) S-1018-88. THIS SITE
CONSISTS OF APPROXIMATELY 9 ACRES AND IS LOCATED
NEAR TUNNELTON, WV IN PRESTON COUNTY.

THE RECLAMATION SHALL BE PERFORMED UNDER THE GUIDANCE
AND GENERAL SUPERVISION OF THE AGENT ASSIGNED TO THE
PROJECT FOR THE STATE OF WEST VIRGINIA, DEPARTMENT
OF ENVIRONMENTAL PROTECTION.

A MANDATORY ON-SITE PREBID CONFERENCE SHALL BE HELD
ON 12/21/2010 @ 10:00 AM. ALL INTERESTED PARTIES ARE
REQUIRED TO ATTEND THIS MEETING. FAILURE TO ATTEND THE
MANDATORY PRE-BID SHALL RESULT IN DISQUALIFICATION OF
THE BID. NO ONE PERSON MAY REPRESENT MORE THAN ONE
BIDDER.

AN ATTENDANCE SHEET WILL BE MADE AVAILABLE FOR ALL
POTENTIAL BIDDERS TO COMPLETE. THIS WILL SERVE AS THE
OFFICIAL DOCUMENT VERIFYING ATTENDANCE AT THE MANDATORY
PRE-BID. FAILURE TO PROVIDE YOUR COMPANY AND REPRESENT

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE

TELEPHONE

DATE

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WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

GENERAL TERMS & CONDITIONS REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.
 2. The State may accept or reject in part, or in whole, any bid.
 3. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125 fee.
 4. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods this Purchase Order/Contract becomes void and of no effect after June 30.
 5. Payment may only be made after the delivery and acceptance of goods or services.
 6. Interest may be paid for late payment in accordance with the *West Virginia Code*.
 7. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
 8. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
 9. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
 10. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern the purchasing process.
 11. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
 12. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, the State may deem this contract null and void, and terminate such contract without further order.
 13. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at www.state.wv.us/admin/purchase/vrc/hipaa.htm and is hereby made part of the agreement. Provided that the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.
 14. **CONFIDENTIALITY:** The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf>.
 15. **LICENSING:** Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, and the West Virginia Insurance Commission. The vendor must provide all necessary releases to obtain information to enable the director or spending unit to verify that the vendor is licensed and in good standing with the above entities.
 16. **ANTITRUST:** In submitting a bid to any agency for the State of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the State of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.
- I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, or person or entity submitting a bid for the same material, supplies, equipment or services and is in all respects fair and without collusion or Fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division. Complete all sections of the quotation form.
2. Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Unit prices shall prevail in case of discrepancy. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
4. All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130
5. Communication during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited (W.Va. C.S.R. §148-1-6.6).



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ATTENTION NAME ON THE ATTENDANCE SHEET WILL RESULT IN DIS-
QUALIFICATION OF THE BID. THE STATE WILL NOT ACCEPT ANY
OTHER DOCUMENTATION TO VERIFY ATTENDANCE. THE BIDDER IS
RESPONSIBLE FOR ENSURING THEY HAVE COMPLETED THE INFOR-
MATION REQUIRED ON THE ATTENDANCE SHEET. THE PURCHASING
DIVISION AND THE STATE AGENCY WILL NOT ASSUME ANY
RESPONSIBILITY FOR A BIDDER'S FAILURE TO COMPLETE THE
PRE-BID ATTENDANCE SHEET. IN ADDITION, WE REQUEST THAT
ALL POTENTIAL BIDDERS INCLUDE THEIR E-MAIL ADDRESS AND
FAX NUMBER.

ALL POTENTIAL BIDDERS ARE REQUESTED TO ARRIVE PRIOR TO
THE STARTING TIME FOR THE PRE-BID. BIDDERS WHO ARRIVE
LATE, BUT PRIOR TO THE DISMISSAL OF THE TECHNICAL
PORTION OF THE PRE-BID WILL BE PERMITTED TO SIGN IN.
BIDDERS WHO ARRIVE AFTER CONCLUSION OF THE TECHNICAL
PORTION OF THE PRE-BID, BUT DURING ANY SUBSEQUENT PART
OF THE PRE-BID WILL NOT BE PERMITTED TO SIGN THE
ATTENDANCE SHEET.

DIRECTIONS TO PRE-BID:

IN PRESTON COUNTY, FROM TUNNELTON, TRAVEL SOUTH ON
STATE ROUTE 26 FOR APPROX. 2.6 MILES. TURN LEFT ONTO
MCGEE ROAD (COUNTY ROUTE 26/38). TRAVEL APPROX. 0.8
MILE TO RECLAMATION SITE.

CONTACT & PHONE #: DAVID B. MCCOY
304-457-4588, EXT. 3218

ALL WORK MUST BE COMPLETED IN ACCORDANCE WITH THE
PLANS AND SPECIFICATIONS PREPARED BY THE DEPARTMENT
OF ENVIRONMENTAL PROTECTION AND PURCHASE ORDER ISSUED
BY THE DEPARTMENT OF ADMINISTRATION, DIVISION OF
PURCHASING.

EXHIBIT 5

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

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WEST VIRGINIA CODE 21-1D-5 PROVIDES THAT: ANY SOLICITATION FOR A PUBLIC IMPROVEMENT CONSTRUCTION CONTRACT REQUIRES EACH VENDOR THAT SUBMITS A BID FOR THE WORK TO SUBMIT AT THE SAME TIME AN AFFIDAVIT OF COMPLIANCE WITH THE BID. THE ENCLOSED PURCHASING AFFIDAVIT MUST BE SIGNED AND SUBMITTED WITH THE BID AS EVIDENCE OF THE VENDOR'S COMPLIANCE WITH THE PROVISIONS OF ARTICLE 1D, CHAPTER 21 OF THE WEST VIRGINIA CODE. FAILURE TO SUBMIT THE SIGNED PURCHASING AFFIDAVIT WITH THE BID SHALL RESULT IN DISQUALIFICATION OF SUCH BID.

NOTICE TO PROCEED: THIS CONTRACT IS TO BE PERFORMED WITH 365 CALENDAR DAYS AFTER THE NOTICE TO PROCEED IS RECEIVED. UNLESS OTHERWISE SPECIFIED, THE FULLY EXECUTED PURCHASE ORDER WILL BE CONSIDERED NOTICE TO PROCEED.

CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE MATERIALS OR WORKMANSHIP SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM WITH THE SPECIFICATIONS OF THE THE BID AND CONTRACT HERE IN.

WAGE RATES: THE CONTRACTOR OR SUBCONTRACTOR SHALL PAY THE HIGHER OF THE U.S. DEPARTMENT OF LABOR MINIMUM WAGE RATES AS ESTABLISHED FOR PRESTON COUNTY, PURSUANT TO WEST VIRGINIA CODE 21-5A, ET, SEQ. (PREVAILING WAGE RATES APPLY TO THIS PROJECT)

ARBITRATION: ANY REFERENCES MADE TO ARBITRATION OR INTEREST FOR PAYMENTS DUE (EXCEPT FOR ANY INTEREST REQUIRED BY STATE LAW) CONTAINED IN THIS CONTRACT OR IN ANY AMERICAN INSTITUTE OF ARCHITECTS DOCUMENTS PERTAINING TO THIS CONTRACT ARE HEREBY DELETED.

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WORKERS' COMPENSATION: VENDOR IS REQUIRED TO PROVIDE
A CERTIFICATE FROM WORKERS' COMPENSATION IF SUCCESSFUL.

ALL OF THE ITEMS CHECKED BELOW WILL BE A REQUIREMENT
OF THIS CONTRACT:

(XX) INSURANCE: SUCCESSFUL VENDOR SHALL FURNISH PROOF
OF COMMERCIAL GENERAL LIABILITY INSURANCE PRIOR TO
ISSUANCE OF CONTRACT. UNLESS OTHERWISE SPECIFIED IN
THE BID DOCUMENTS, THE MINIMUM AMOUNT OF INSURANCE
COVERAGE REQUIRED IS \$250,000.

() BUILDERS RISK INSURANCE: SUCCESSFUL VENDOR SHALL
FURNISH PROOF OF BUILDERS RISK - ALL RISK INSURANCE IN
AN AMOUNT EQUAL TO 100% OF THE AMOUNT OF THE CONTRACT.

(XX) BONDS: FIVE PERCENT (5%) OF THE TOTAL AMOUNT OF
THE BID PAYABLE TO THE STATE OF WEST VIRGINIA, SHALL BE
SUBMITTED WITH EACH BID AS A BID BOND. THE SUCCESSFUL
BIDDER SHALL ALSO FURNISH A PERFORMANCE BOND AND LABOR/
MATERIAL BOND FOR 100% OF THE AMOUNT OF THE CONTRACT.
BONDS MAY BE PROVIDED IN THE FORM OF A CERTIFIED CHECK,
IRREVOCABLE LETTER OF CREDIT, OR BOND FURNISHED BY A
SOLVENT SURETY COMPANY AUTHORIZED TO DO BUSINESS IN THE
STATE OF WEST VIRGINIA. A LETTER OF CREDIT SUBMITTED
IN LIEU OF A BOND WILL ONLY BE ALLOWED FOR PROJECTS
UNDER \$100,000. PERSONAL OR BUSINESS CHECKS ARE NOT
ACCEPTABLE IN LIEU OF THE 5% BID BOND, PERFORMANCE
BOND, OR LABOR AND MATERIAL BOND.

() MAINTENANCE BOND: A TWO (2) YEAR MAINTENANCE BOND
COVERING THE ROOFING SYSTEM WILL BE A REQUIREMENT OF
THE SUCCESSFUL VENDOR.

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	REV. 11/00			CONTRACTORS LICENSE		
	WEST VIRGINIA STATE CODE 21-11-2 REQUIRES THAT ALL PERSONS DESIRING TO PERFORM CONTRACTING WORK IN THIS STATE MUST BE LICENSED. THE WEST VIRGINIA CONTRACTORS LICENSING BOARD IS EMPOWERED TO ISSUE THE CONTRACTORS LICENSE. APPLICATIONS FOR A CONTRACTORS LICENSE MAY BE MADE BY CONTACTING THE WEST VIRGINIA DIVISION OF LABOR CAPITOL COMPLEX, BUILDING 3, ROOM 319, CHARLESTON, WV 25305. TELEPHONE: (304) 558-7890.					
	WEST VIRGINIA STATE CODE 21-11-11 REQUIRES ANY PROSPECTIVE BIDDER TO INCLUDE THE CONTRACTORS LICENSE NUMBER ON THEIR BID.					
	BIDDER TO COMPLETE: CONTRACTORS NAME:					
	CONTRACTORS LICENSE NO.:					
	THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FURNISH A COPY OF THEIR CONTRACTORS LICENSE PRIOR TO ISSUANCE OF A PURCHASE ORDER/CONTRACT.					
	APPLICABLE LAW					
	THE WEST VIRGINIA STATE CODE, PURCHASING DIVISION RULES AND REGULATIONS, AND THE INFORMATION PROVIDED IN THE "REQUEST FOR QUOTATION" ISSUED BY THE PURCHASING DIVISION IS THE SOLE AUTHORITY GOVERNING THIS PROCUREMENT.					
	ANY INFORMATION PROVIDED IN SPECIFICATION MANUALS, OR ANY OTHER SOURCE, VERBAL OR WRITTEN, WHICH CONTRADICTS OR ALTERS THE INFORMATION PROVIDED FROM THE SOURCES AS					

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DESCRIBED IN THE ABOVE PARAGRAPH IS VOID AND OF NO EFFECT.						
BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THIS CONTRACT NULL AND VOID AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.						
PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS						
1. EXCEPT WHEN AUTHORIZED BY THE DIRECTOR OF THE PURCHASING DIVISION PURSUANT TO SUBSECTION 2 BELOW NO CONTRACTOR MAY USE OR SUPPLY STEEL PRODUCTS FOR A STATE CONTRACT PROJECT OTHER THAN THOSE STEEL PRODUCTS MADE IN THE UNITED STATES. AS USED USED IN THIS CONTRACT,						
A. "STATE CONTRACT PROJECT" MEANS ANY ERECTION OR CONSTRUCTION OF, OR ANY ADDITION TO, ALTERATION OF OR OTHER IMPROVEMENT TO ANY BUILDING OR STRUCTURE, INCLUDING, BUT NOT LIMITED TO, ROADS OR HIGHWAYS, OR THE INSTALLATION OF ANY HEATING OR COOLING OR VENTILATING PLANTS OR OTHER EQUIPMENT, OR THE SUPPLY OF AND MATERIALS FOR SUCH PROJECTS, PURSUANT TO A CONTRACT WITH THE STATE OF WEST VIRGINIA FOR WHICH BIDS WERE SOLICITED ON OR AFTER JUNE 6, 2001.						
B. "STEEL PRODUCTS" MEANS PRODUCTS ROLLED, FORMED, SHAPED, DRAWN, EXTRUDED, FORGED, CAST, FABRICATED OR OTHERWISE SIMILARLY PROCESSED, OR PROCESSED BY A COMBINATION OF TWO OR MORE OF SUCH OPERATIONS, FROM STEEL MADE BY THE OPEN HEARTH, BASIC OXYGEN, ELECTRIC FURNACE, BESSEMER OR OTHER STEEL MAKING PROCESS.						

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C. "UNITED STATES" MEANS THE UNITED STATES OF
AMERICA AND INCLUDES ALL TERRITORY, CONTINENTAL
OR INSULAR, SUBJECT TO THE JURISDICTION OF THE
UNITED STATES.

2. THE DIRECTOR OF THE PURCHASING DIVISION MAY, IN
WRITING, AUTHORIZE THE USE OF FOREIGN STEEL
PRODUCTS IF:

A. THE COST FOR EACH CONTRACT ITEM USED DOES NOT
EXCEED ONE TENTH OF ONE PERCENT (.1%) OF THE
TOTAL CONTRACT COST OR TWO THOUSAND FIVE
HUNDRED DOLLARS (2,500.00), WHICHEVER IS
GREATER. FOR THE PURPOSES OF THIS SECTION,
THE COST IS THE VALUE OF THE STEEL PRODUCT
AS DELIVERED TO THE PROJECT OR,

B. THE DIRECTOR OF THE PURCHASING DIVISION
DETERMINES THAT SPECIFIED STEEL MATERIALS ARE
NOT PRODUCED IN THE UNITED STATES IN SUFFICIENT
QUANTITY OR OTHERWISE ARE NOT REASONABLY
AVAILABLE TO MEET CONTRACT REQUIREMENTS.

3. A CONTRACTOR WHO USES STEEL PRODUCTS IN
VIOLATION OF THIS SECTION MAY BE SUBJECT
TO CIVIL PENALTIES PURSUANT TO WV CODE
SECTION 5A-3-56.

REV. 10/01/01

EXHIBIT 7

DOMESTIC ALUMINUM, GLASS & STEEL IN PUBLIC WORKS
PROJECTS

IN ACCORDANCE WITH WEST VIRGINIA CODE 5-19-1 ET.,

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<p>SEQ., EVERY CONTRACT FOR CONSTRUCTION, RECONSTRUCTION, ALTERATION, REPAIR, IMPROVEMENT OR MAINTENANCE OF PUBLIC WORKS, WHERE THE COST IS MORE THAN \$50,000 AND, IN THE CASE OF STEEL ONLY, WHERE THE COST OF STEEL IS MORE THAN \$50,000 OR WHERE MORE THAN 10,000 POUNDS OF STEEL ARE REQUIRED, THE STATE WILL ACCEPT ONLY ALUMINU GLASS, OR STEEL PRODUCTS PRODUCED IN THE UNITED STATES. IN ADDITION, ITEMS OF MACHINERY OR EQUIPMENT PURCHASED FOR USE AT THE SITE OF PUBLIC WORKS SHALL BE MADE OF DOMESTIC ALUMINUM, GLASS OR STEEL, UNLESS THE COST OF THE PRODUCT IS LESS THAN \$50,000 OR LESS THAN 10,000 POUNDS OF STEEL ARE USED IN PUBLIC WORKS PROJECTS.</p> <p>FOREIGN MADE ALUMINUM, GLASS OR STEEL PRODUCTS MAY BE ACCEPTED ONLY IF THE COST OF DOMESTIC PRODUCTS IS FOUND TO BE UNREASONABLE. SUCH COST IS UNREASONABLE IF IT IS 20% OR MORE HIGHER THAN THE BID PRICE FOR FOREIGN MADE PRODUCTS. IF THE DOMESTIC ALUMINUM, GLASS OR STEEL PRODUCTS TO BE SUPPLIED OR PRODUCED IN A "SUBSTANTIAL LABOR SURPLUS AREA", AS DEFINED BY THE UNITED STATES DEPARTMENT OF LABOR, FOREIGN PRODUCTS MAY BE SUPPLIED ONLY IF DOMESTIC PRODUCTS ARE 30% OR MORE HIGHER IN PRICE THAN THE FOREIGN MADE PRODUCTS.</p> <p>IF, PRIOR TO THE AWARD OF A CONTRACT UNDER THE ABOVE PROVISIONS, THE SPENDING OFFICER OF THE SPENDING UNIT DETERMINES THAT THERE EXISTS A BID FOR LIKE FOREIGN ALUMINUM, GLASS OR STEEL THAT IS REASONABLE AND LOWER THAN THE LOWEST BID DOMESTIC PRODUCTS, THE SPENDING OFFICE MAY REQUEST, IN WRITING, A REEVALUATION AND REDUCTION IN THE LOWEST BID FOR SUCH DOMESTIC PRODUCTS. ALL VENDORS MUST INDICATE IN THEIR BID IF THEY ARE SUPPLYING FOREIGN ALUMINUM, GLASS OR STEEL.</p> <p>REV. 3/88</p>						

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ENVIRONMENTAL PROTECTION
DEPT. OF
OFFICE OF SPECIAL RECLAMATION
105 S. RAILROAD STREET
PHILIPPI, WV
26416-9998 304-457-3219

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
12/02/2010				

BID OPENING DATE: 01/12/2011 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
	EXHIBIT 9					
	NOTICE FOR ISSUANCE & ACKNOWLEDGEMENT OF CONSTRUCTION PROJECT ADDENDA					
	THE ARCHITECT/ENGINEER AND/OR AGENCY SHALL BE REQUIRED TO ABIDE BY THE FOLLOWING SCHEDULE IN ISSUING CONSTRUCTION PROJECT ADDENDA FOR STATE AGENCIES:					
	(1) THE ARCHITECT/ENGINEER SHALL PREPARE THE ADDENDUM AND A LIST OF ALL PARTIES THAT HAVE PROCURED DRAWINGS AND SPECIFICATIONS FOR THE PROJECT. THE ADDENDUM AND LIST SHALL BE FORWARDED TO THE BUYER IN THE STATE PURCHASING DIVISION. THE ARCHITECT/ENGINEER SHALL ALSO SEND A COPY OF THE ADDENDUM TO THE STATE AGENCY FOR WHICH THE CONTRACT IS ISSUED.					
	(2) THE BUYER SHALL SEND THE ADDENDUM TO ALL INTERESTED PARTIES AND, IF NECESSARY, EXTEND THE BID OPENING DATE. ANY ADDENDUM SHOULD BE RECEIVED BY THE BUYER WITHIN FOURTEEN (14) DAYS PRIOR TO THE BID OPENING DATE.					
	(3) ALL ADDENDA SHOULD BE FORMALLY ACKNOWLEDGED BY ALL BIDDERS AND SUBMITTED TO THE STATE PURCHASING DIVISION. THE SAME RULES AND REGULATIONS THAT APPLY TO THE ORIGINAL BIDDING DOCUMENT SHALL ALSO APPLY TO AN ADDENDUM DOCUMENT. THE ONLY EXCEPTION MAY BE FOR AN ADDENDUM THAT IS ISSUED FOR THE SOLE PURPOSE OF CHANGING A BID OPENING TIME AND/OR DATE.					
	REV. 11/96					
	EXHIBIT 10					

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
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TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
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WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER
DEP15250

PAGE
10

ADDRESS CORRESPONDENCE TO ATTENTION OF
CHUCK BOWMAN 304-558-2157

RFQ COPY
TYPE NAME/ADDRESS HERE

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ENVIRONMENTAL PROTECTION
DEPT. OF
OFFICE OF SPECIAL RECLAMATION
105 S. RAILROAD STREET
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12/02/2010				

BID OPENING DATE: 01/12/2011 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
DEP.....						
ADDENDUM ACKNOWLEDGEMENT						
I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.						
ADDENDUM NOS.:						
NO. 1						
NO. 2						
NO. 3						
NO. 4						
NO. 5						
I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF THE BIDS.						
VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE INFORMATION ISSUED IN WRITING AND ADDED TO THE SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.						
.....SIGNATURE						
.....COMPANY						
.....DATE						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS		
SIGNATURE	TELEPHONE	DATE
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

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State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER

DEP15250

PAGE

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ADDRESS CORRESPONDENCE TO ATTENTION OF

CHUCK BOWMAN
304-558-2157

RFQ COPY

TYPE NAME/ADDRESS HERE

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ENVIRONMENTAL PROTECTION
DEPT. OF
OFFICE OF SPECIAL RECLAMATION
105 S. RAILROAD STREET
PHILIPPI, WV
26416-9998 304-457-3219

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
12/02/2010				

BID OPENING DATE: 01/12/2011 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
REV. 11/96						
NOTICE						
A SIGNED BID MUST BE SUBMITTED TO:						
DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130						
THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:						
SEALED BID						
BUYER: CB-23						
REQ. NO.: DEP15250						
BID OPENING DATE: 01/12/2011						
BID OPENING TIME: 1:30 P.M.						
PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:						

PLEASE PRINT OR TYPE NAME OF PERSON TO CONTACT CONCERNING THIS QUOTE:						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

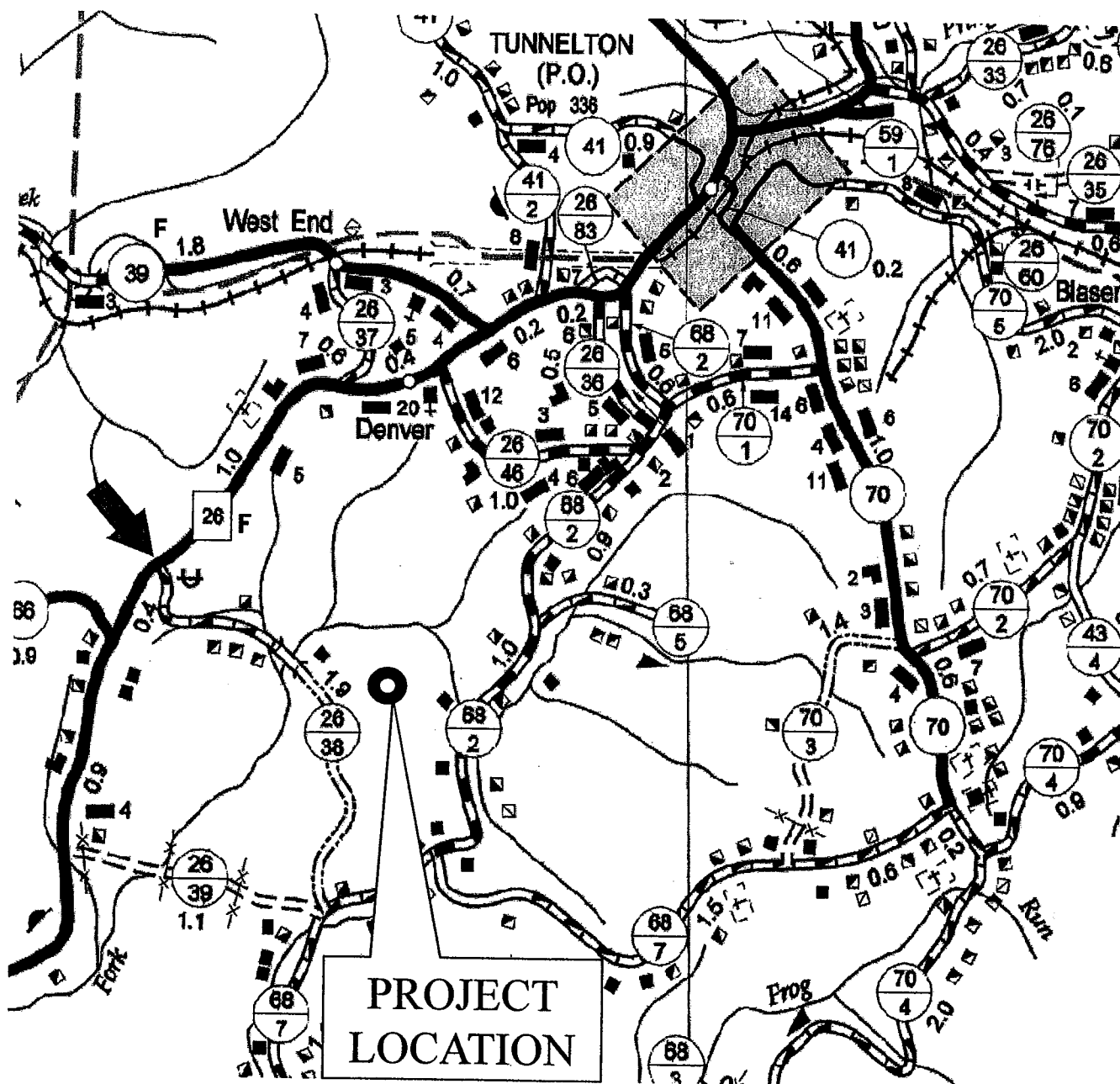
SIGNATURE	TELEPHONE	DATE
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**AMANDA NICOLE
FUELS, INC.
PERMIT #: S-1018-88**

CB-23

DEP 15250



In Preston County, from Tunnelton, travel south on State Route 26 for approx. 2.6 miles. Turn left onto McGee Road (County Route 26/38). Travel approx. 0.8 mile to reclamation site.

BUYER CB-23		REQ. OR PO NO. DEP 15250
SPENDING UNIT WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION/SPECIAL RECLAMATION		

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SCOPE OF WORK

The successful bidder shall provide appropriate equipment, materials, labor and any technical services needed for the successful reclamation of AMANDA NICOLE FUELS, INC., Permit S-1018-88, and any disturbance associated with such operation. The General Performance Standards (GPS) shall apply to all items in Scope of Work.

Work necessary on this site will include the following items, but is not limited to these:

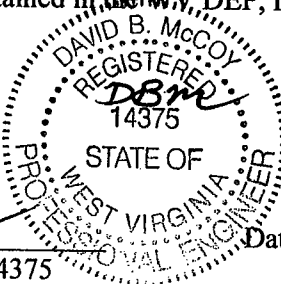
1. Upon mobilization to the site, which will be directed in a written Notice to Proceed, the access roads shall be developed in accordance with bid item #1.0. If, fuel and lubricants are to be stored on site, bid item #2.0 shall be in place before fuel is delivered. Project sign is to be obtained and installed, prior to start of work.
2. Storm water management, as necessary, in the form as described, in the National Pollutant Discharge Elimination System, Water Pollution Control Permit Number WV0115924, existing sediment control pond and in addition bid items #6-7 shall be installed (described locations). See Water Quality Control under the General Performance Standards.
3. Reclamation is to be according to the attached specifications, plans, and clarifying discussions at the Pre-Bid Conference.
4. Construction stakeout as necessary to carry out work. (Bid Item #5.4)
5. All bid items specified by ACRE on this project in the Bid Schedule shall require the submittal of a final survey to verify final acreages. This submittal shall include a copy of all field notes, a map to scale in paper and electronic form. The final survey must be conducted under the direct supervision of and certified by a Professional Surveyor or Professional Engineer licensed in the state of West Virginia. Partial payments may be made for estimated acreages that are field verified and agreed upon with the DEP onsite representative. Partial payments may not exceed 75% of bid item prior to final survey. This shall be paid from the Construction Stakeout bid item.
6. It shall be the contractor's responsibility to check for and locate all utilities within the work area to provide and maintain a safe working area in addition to preventing damage to the utility.
7. Construct riprap ditches and open limestone channels.
8. Construct underdrains and/or seep collectors.
9. Remove existing Anoxic Limestone Drain in a seep area at the end of the permit area, where a new riprap ditch is to be installed.
10. Install pre-cast manholes.
11. Install grouted limestone channels after the lime dispensing unit to the treatment ponds, and between each pond, and grout a section of culvert pipe as a flow measurement device in the exit channel after the final pond.
12. Install various size culverts as described at the Pre-Bid Conference. (Exact locations shall be determined by onsite DEP representative during construction.)
13. Upgrade existing haulroad with new road specifications, which also include a rocked ditch.

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14. Install a new hydrated lime dispensing unit with a 30 ton capacity, 12 feet diameter silo, and steel enclosure.
15. Construct new haulroad access to hydrated lime dispensing unit.
16. Construct three settling ponds with synthetic liners, and concrete spreader structures at pond inlets and outlets.
17. Install all elements of Acid Mine Drainage Duplex Pump Station. This shall include a pre-cast concrete collection vault with aluminum lid; duplex non clog submersible pumps on rails; a pre-cast concrete valve vault; valves; 3 inch HDPE pump line; and an electric pump station panel board.
18. Coordinate with the local power utility company to extend single phase power to the pump station.
19. Construct two sludge cells with drain systems for onsite sludge disposal.
20. Install sludge pumping lines from treatment ponds to the sludge disposal cells.
21. Install fencing and gates around settling ponds and sludge disposal cells.
22. Regrade select areas along the old permit boundary sediment channels.
23. Vegetative cover with seed, lime, fertilizer, and mulch.
24. Enhance existing vegetation with liming.
25. Any other site specific items required.

I, David B. McCoy, the undersigned, hereby certify¹ that this Reclamation Plan is correct and shows to the best of my knowledge and belief all the information required by the surface mining laws of the State of West Virginia. The source of information was the approved mining and reclamation plan contained in the forfeited surface mine permit, existing site conditions and information contained in the WV DEP, Inspection and Enforcement files.



David B. McCoy
Registered Professional Engineer WV No. 14375 Date: 10-26-2010

¹ The term "**certify**" as used herein is defined as follows: An engineer's certification of conditions is a declaration of professional judgment. It does not constitute a warranty or guarantee, either expressed or implied.

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ITEM NO.	QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
BID SCHEDULE PERMIT NAME: <u>AMANDA NICOLE FUELS, INC.</u> PERMIT NUMBER(S): <u>S-1018-88</u>				
The DEP reserves the right to request additional information and supporting documentation regarding unit prices when the unit price appears to be unreasonable.				
1.0	LUMP SUM	<u>MOBILIZATION/DEMOBILIZATION/PROJECT SIGN</u> (5% Total Bid Maximum for this permit)	LUMP SUM	\$ _____
2.0	LUMP SUM	<u>SPILL CONTAINMENT AREA (S.C.A.)</u> (\$1,000.00 Maximum Bid for this permit)	LUMP SUM	\$ _____
3.0	<u>3100</u> LF	<u>NEW HAULROAD/ACCESS ROAD WITH ROCK DITCH</u>	\$ _____ PER LF	\$ _____
3.1	<u>100</u> TON	<u>INCIDENTAL STONE</u>	\$ _____ PER TON	\$ _____
3.2	<u>1500</u> LF	<u>NEW HAULROAD/ACCESS ROAD</u>	\$ _____ PER LF	\$ _____
4.0	<u>180</u> LF	<u>15 INCH DUAL WALL CULVERT</u>	\$ _____ PER LF	\$ _____
4.1	<u>300</u> LF	<u>18 INCH DUAL WALL CULVERT</u>	\$ _____ PER LF	\$ _____
4.2	<u>100</u> LF	<u>24 INCH DUAL WALL CULVERT</u>	\$ _____ PER LF	\$ _____
4.3	<u>180</u> LF	<u>16 INCH HDPE PIPE</u>	\$ _____ PER LF	\$ _____
<u>REVEGETATION</u>				
5.0	<u>9</u> AC	<u>AGRICULTURAL LIME</u>	\$ _____ PER ACRE	\$ _____
5.1	<u>9</u> AC	<u>FERTILIZER</u>	\$ _____ PER ACRE	\$ _____
5.2	<u>9</u> AC	<u>MULCH</u>	\$ _____ PER ACRE	\$ _____
5.3	<u>9</u> AC	<u>VEGETATIVE SPECIES</u>	\$ _____ PER ACRE	\$ _____
5.4	LUMP SUM	<u>CONSTRUCTION STAKEOUT</u> (Limited to 5% Total Bid)	LUMP SUM	\$ _____

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5.5	2 AC	<u>REGRADING</u>	\$ _____ PER ACRE	\$ _____
5.6	50 TN	<u>LIMING</u>	\$ _____ PER TN	\$ _____
6.0	4 EA	<u>CONSTRUCTED SEDIMENT CONTROL STRUCTURES</u>	\$ _____ PER EA	\$ _____
7.0	500 LF	<u>STORMWATER MANAGEMENT WITH SILT FENCE AND HAYBALE DIKE</u> (Max. Bid \$5.00 Per LF)	\$ _____ PER LF	\$ _____
8.0	3500 LF	<u>RIPRAP V-DITCH</u>	\$ _____ PER LF	\$ _____
9.0	600 LF	<u>GROUTED TRAPEZOIDAL DITCH</u>	\$ _____ PER LF	\$ _____
10.0	500 LF	<u>SEEP COLLECTOR UNDERDRAIN</u>	\$ _____ PER LF	\$ _____
10.5	800 LF	<u>6 INCH SOLID SDR 35 PIPE</u>	\$ _____ PER LF	\$ _____
11.0	NO BID ITEM	<u>UTILITIES</u>	NO BID ITEM	
12.0	6 EA	<u>CONCRETE SPREADER</u>	\$ _____ PER EA	\$ _____
13.0	1 EA	<u>SETTLING POND #1 WITH LINER</u>	\$ _____ PER EA	\$ _____
14.0	1 EA	<u>SETTLING POND #2 WITH LINER</u>	\$ _____ PER EA	\$ _____
15.0	1 EA	<u>SETTLING POND #3 WITH LINER</u>	\$ _____ PER EA	\$ _____
16.0	360 LF	<u>BAFFLE CURTAIN</u>	\$ _____ PER LF	\$ _____
17.0	10 LF (Depth)	<u>SUB-FOUNDATION PREPARATION</u>	\$ _____ PER LF	\$ _____
18.0	LUMP SUM	<u>FOUNDATION</u>	LUMP SUM	\$ _____
19.0	1 EA	<u>30 TON LIME DISPENSING UNIT, ENCLOSURE, AND SILO</u>	\$ _____ PER EA	\$ _____
20.0	LUMP SUM	<u>CRANE</u>	LUMP SUM	\$ _____
21.0	2 EA	<u>SLUDGE DISPOSAL UNDERDRAIN</u>	\$ _____ PER EA	\$ _____

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22.0	<u>2</u> EA	<u>SLUDGE DISPOSAL CELL</u>	\$ _____	\$ _____
			PER EA	
23.0	<u>1200</u> LF	<u>6 INCH HDPE SLUDGE PIPE</u>	\$ _____	\$ _____
			PER LF	
24.0	<u>4</u> EA	<u>PUMP ADAPTOR CONNECTION</u>	\$ _____	\$ _____
			PER EA	
25.0	<u>1</u> EA	<u>PUMP ADAPTOR CONNECTION WITH 2 INCH DRAIN</u>	\$ _____	\$ _____
			PER EA	
26.0	<u>2</u> EA	<u>WYES (6" HDPE LATERALS 45⁰)</u>	\$ _____	\$ _____
			PER EA	
27.0	<u>1</u> EA	<u>TEES (6" HDPE TEE 90⁰)</u>	\$ _____	\$ _____
			PER EA	
28.0	<u>1</u> EA	<u>CONNECTION AT DISPENSING UNIT</u>	\$ _____	\$ _____
			PER EA	
29.0	<u>800</u> LF	<u>8 INCH HDPE OVERFLOW LINE</u>	\$ _____	\$ _____
			PER LF	
30.0	<u>2</u> EA	<u>8 INCH CLEANOUT</u>	\$ _____	\$ _____
			PER EA	
31.0	<u>800</u> LF	<u>4 INCH HDPE DRIVE LINE</u>	\$ _____	\$ _____
			PER LF	
32.0	<u>2</u> EA	<u>4 INCH CLEANOUT</u>	\$ _____	\$ _____
			PER EA	
33.0	<u>2</u> EA	<u>PRE-CAST MANHOLE</u>	\$ _____	\$ _____
			PER EA	
		<u>AMD DUPLEX PUMP SYSTEM</u>		
34.0	LUMP SUM	<u>AMD DUPLEX PUMP STATION</u>	LUMP SUM	\$ _____
35.0	<u>1</u> EA	<u>PUMP STATION PANEL BOARD</u>	\$ _____	\$ _____
			PER EA	
36.0	<u>1450</u> LF	<u>3 INCH HDPE PUMP LINE</u>	\$ _____	\$ _____
			PER LF	
37.0	<u>4</u> EA	<u>3 INCH CLEANOUT</u>	\$ _____	\$ _____
			PER EA	
38.0	<u>1</u> EA	<u>VACUUM/AIR RELIEF VALVE</u>	\$ _____	\$ _____
			PER EA	

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<u>SECURITY STRUCTURE</u>				
39.0	<u>3000</u> LF	<u>FENCE</u>	\$ _____ PER LF	\$ _____
40.0	<u>6</u> EA	<u>10 FOOT GATES</u>	\$ _____ PER EA	\$ _____
41.0	<u>4</u> EA	<u>4 FOOT GATES</u>	\$ _____ PER EA	\$ _____
42.0	<u>1200</u> LF	<u>TEMPORARY FENCE</u>	\$ _____ PER LF	\$ _____
TOTAL PERMIT S-1018-88				\$ _____

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VENDOR:

BID ITEM TECHNICAL SPECIFICATIONS

1.0 MOBILIZATION/DEMOBILIZATION/PROJECT SIGN

A project sign shall be obtained or manufactured and installed as indicated on the attached specifications and details. Payment for this sign shall be incidental to the mobilization item. No separate payment will be made.

This work shall consist of the performance of construction preparatory operations, including the movement of personnel, equipment and other facilities to the project site necessary to begin work on a substantial phase of the contract.

Prior to demobilization, an inspection shall be conducted by the Department of Environmental Protection and the contractor to insure compliance with contract performance. Once compliance is ascertained, demobilization activities can be initiated and completed. Demobilization shall be totally completed before the invoice for payment shall be processed.

The lump sum bid for this item shall not exceed 5% of the total bid for this permit. Payment shall be made in two 50% amounts, one upon completion of the mobilization and project sign items and the second payment at the completion of demobilization. No deduction shall be made nor shall any increase be made in the lump sum item amount, regardless of decreases or increases in the final total contract amount or any other reason.

2.0 SPILL CONTAINMENT AREA (S.C.A.)

Spill containment measures shall be used for fuel and lubricant storage areas. All containers, barrels, buckets, cans, etc., are to be legally disposed of off site. Used lubricants are to be disposed of according to state law to minimize pollution to the local surface and ground water supplies. Spills are the responsibility of the contractor and need immediate clean up and maintained at no expense to the State. This S.C.A. shall be constructed in accordance with the typical drawing specification. (See Attachment) Alternate containment measures will be considered for approval by the Program Manager if acceptable results can be shown. Fuel tanks manufactured with secondary containment are desirable. Minimum secondary containment is 110 percent. (Bid limited to \$1,000.00 maximum)

3.0 NEW HAULROAD/ACCESS ROAD WITH ROCK DITCH

This required road will be approximately 3100 LF. Accompanying plans show the details of the construction of the road. The contractor shall provide all services, materials, construction layout, equipment, or other materials necessary to execute the work.

SITE PREPARATION

Any areas with soft unsuitable foundation materials shall be undercut to remove this material. The material removed shall be disposed of within the construction area at a site agreed to between the contractor and the DEP on site representative. Construction stake out shall be completed as necessary to complete that phase of the work being undertaken. Payment for the road construction stakeout is to be included in the road price.

ROAD CONSTRUCTION

Suitable foundation material shall then be placed in compacted layers not to exceed six (6) inches in thickness to obtain the desired grade and alignment. Compaction equipment shall be utilized, and is to be approved by DEP on site representative. Filter Fabric (Tygar 3401, Mirafi 500X, or equivalent) shall be placed over the completed foundation and covered with a six (6) inch minimum layer of No. 1 limestone (3½ to 1½ inches). If a solid road base already exists, the clean base stone may be substituted with a 6 inch thick layer of 3 inch size crusher run stone for better compaction. The base stone shall then be covered with 1½ inch size crusher run limestone so that the surface is choked off and a three (3) inch minimum layer remains on top. All base stone and fabric shall be completely covered with crusher run stone. The completed road shall have a minimum running surface width of

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twelve (12) feet and the surface shall be crowned and sloped to both sides a minimum of 24-horizontal to 1 vertical. Any fill sections, if used, shall not impound water.

ROADSIDE DITCHING

The total length of roadside ditch shall be along the entire length of the road. A roadside drainage ditch shall be established along the hillside of the road, and shall be free draining to any culverts crossing under the road. The ditch shall be rocked with 6 inch gabion size limestone in a 12 inch thick layer, and constructed as indicated in the New Access Road With Rock Ditch drawing.

COMPACTION EQUIPMENT

A smooth drum vibratory roller shall be utilized on the construction of all road surfaces. The road sub-grade shall be smooth drum roll compacted prior to placement of filter fabric. The base stones shall be roll compacted after spreading and final placement. The final top layer of crusher run limestone shall be roll compacted, and a minimum 3 inch thick layer shall remain (AFTER COMPACTION).

Payment shall be for completed length of road, and shall include any truck turn-around areas, which shall be paid as length of road. Any turn-around area locations shall be designated by the DEP on-site representative.

3.1 INCIDENTAL STONE

During construction of culvert installations, roadway ditch improvements, reshaping of the roadway, rock check dams, and rock filter outlets, areas may need additional stone. After any necessary re-compaction and re-grading work on roadways has been performed by the contractor, a six (6) inch layer of #1 limestone (3.5" to 1.5" size) shall be placed as needed. This stone shall be graded and tracked in with a dozer or other equipment to achieve a compacted base for the final top layer of 1 ½ inch crusher run limestone (separate bid item). This bid item may include AASHTO #1, #3, or #57, ¾", 1 ½", or 3" crusher run, R-3, R-4, or R-5 rip rap limestone.

Payment shall be paid per ton of stone applied by weight ticket and will be made at completion of all work and acceptance by DEP.

3.2 CONSTRUCT NEW HAULROAD/ACCESS ROAD

This required road will be approximately 900 LF. Accompanying plans show the details of the construction of the road. The contractor shall provide all services, materials, construction layout, equipment, or other materials necessary to execute the work.

SITE PREPARATION

Any areas with soft unsuitable foundation materials shall be undercut to remove this material. The material removed shall be disposed of within the construction area at a site agreed to between the contractor and the DEP on site representative. Construction stake out shall be completed as necessary to complete that phase of the work being undertaken. Payment for the road construction stakeout is to be included in the road price.

ROAD CONSTRUCTION

Suitable foundation material shall then be placed in compacted layers not to exceed six (6) inches in thickness to obtain the desired grade and alignment. Compaction equipment shall be utilized, and is to be approved by DEP on site representative. Filter Fabric (Typar 3401, Mirafi 500X, or equivalent) shall be placed over the completed foundation and covered with a six (6) inch minimum layer of No. 1 limestone (3½ to 1½ inches). If a solid road base already exists, the clean base stone may be substituted with a 6 inch thick layer of 3 inch size crusher run stone for better compaction. The base stone shall then be covered with 1½ inch size crusher run limestone so that the surface is choked off and a three (3) inch minimum layer remains on top. All base stone and fabric shall be completely covered with crusher run stone. The completed road shall have a minimum running surface width of

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VENDOR:

twelve (12) feet and the surface shall be crowned and sloped to both sides a minimum of 24-horizontal to 1 vertical. Any fill sections, if used, shall not impound water.

ROADSIDE DITCHING

The total length of roadside ditch shall be along the entire length of the road. A roadside drainage ditch shall be established along the hillside of the road, and shall be free draining to any culverts crossing under the road. The ditch shall be vegetated and constructed as indicated in the New Access Road drawing.

COMPACTION EQUIPMENT

A smooth drum vibratory roller shall be utilized on the construction of all road surfaces. The road sub-grade shall be smooth drum roll compacted prior to placement of filter fabric. The base stones shall be roll compacted after spreading and final placement. The final top layer of crusher run limestone shall be roll compacted, and a minimum 3 inch thick layer shall remain (AFTER COMPACTION).

Payment shall be for completed length of road, and shall include any truck turn-around areas, which shall be paid as length of road. Any turn-around area locations shall be designated by the DEP on-site representative.

4.0 15 INCH DUAL WALL CULVERT

The culvert shall be HDPE, dual wall smooth interior corrugated twenty (20) foot joint type. The pipe joints shall be silt-tight and the pipe shall meet ASTM D3350 manufacturing standards. The culvert locations shall be determined by the onsite DEP representative.

STANDARD INSTALLATION

Culverts installed in access roads shall cross the road at a 30 degree angle downgrade with a minimum grade of three percent (3%) from inlet to outlet, except in streams or diversion ditches where the pipe shall be installed straight and coincide with the normal direction of flow.

The culvert inlet and outlet ends shall be protected by a headwall of stable non-erodible material and the slope at the outlet shall be protected with an apron of rock riprap, energy dissipater or other designated material. The culvert shall be installed in a trench excavated in solid undisturbed ground or formed by compacted earth.

The culvert shall be imbedded in a formed trench to a depth no less than 1/10 the outside diameter of the pipe. Selected backfill material shall be placed around the culvert in four (4) inch layers and thoroughly compacted by means of hand tamping or manually directed power tampers or plate vibrators.

The culvert shall be covered with a minimum of twelve (12) inches of material. Payment shall be for length of culvert installed, and any riprap for rock aprons, headwalls and endwalls shall be incidental to this bid item.

4.1 18 INCH DUAL WALL CULVERT

The culvert shall be HDPE, dual wall smooth interior corrugated twenty (20) foot joint type. The pipe joints shall be silt-tight and the pipe shall meet ASTM D3350 manufacturing standards. The culvert locations shall be determined by the onsite DEP representative.

STANDARD INSTALLATION

Culverts installed in access roads shall cross the road at a 30 degree angle downgrade with a minimum grade of three percent (3%) from inlet to outlet, except in streams or diversion ditches where the pipe shall be installed straight and coincide with the normal direction of flow.

The culvert inlet and outlet ends shall be protected by a headwall of stable non-erodible material and the slope at the outlet shall be protected with an apron of rock riprap, energy dissipater or other designated material. The culvert

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shall be installed in a trench excavated in solid undisturbed ground or formed by compacted earth.

The culvert shall be imbedded in a formed trench to a depth no less than 1/10 the outside diameter of the pipe. Selected backfill material shall be placed around the culvert in four (4) inch layers and thoroughly compacted by means of hand tamping or manually directed power tampers or plate vibrators.

The culvert shall be covered with a minimum of twelve (12) inches of material. Payment shall be for length of culvert installed, and any riprap for rock aprons, headwalls and endwalls shall be incidental to this bid item.

4.2 24 INCH DUAL WALL CULVERT

The culvert shall be HDPE, dual wall smooth interior corrugated twenty (20) foot joint type. The pipe joints shall be silt-tight and the pipe shall meet ASTM D3350 manufacturing standards. The culvert locations shall be determined by the onsite DEP representative.

STANDARD INSTALLATION

Culverts installed in access roads shall cross the road at a 30 degree angle downgrade with a minimum grade of three percent (3%) from inlet to outlet, except in streams or diversion ditches where the pipe shall be installed straight and coincide with the normal direction of flow.

The culvert inlet and outlet ends shall be protected by a headwall of stable non-erodible material and the slope at the outlet shall be protected with an apron of rock riprap, energy dissipater or other designated material. The culvert shall be installed in a trench excavated in solid undisturbed ground or formed by compacted earth.

The culvert shall be imbedded in a formed trench to a depth no less than 1/10 the outside diameter of the pipe. Selected backfill material shall be placed around the culvert in four (4) inch layers and thoroughly compacted by means of hand tamping or manually directed power tampers or plate vibrators.

The culvert shall be covered with a minimum of twelve (12) inches of material. Payment shall be for length of culvert installed, and any riprap for rock aprons, headwalls and endwalls shall be incidental to this bid item.

4.3 16 INCH HDPE PIPE

Pipe shall be 16 inch diameter, SDR 15.5 or 17 HDPE of standard manufacture. Install to manufacturers recommendations. Install the pipe as indicated in the specifications and/or as shown on the drawings.

Payment shall be for the actual length of pipe installed. This 16 inch HDPE pipe shall be used for culverts (40 feet sections at each location) to convey runoff water under the AMD riprap collection ditch. Provide all materials, equipment and personnel necessary for installation. Pipe shall be buried at least 2.5 feet deep. Use butt weld fusion process to join pipes, if necessary. A qualified fusion technician shall supervise the fusion of all joints. See site plan for location.

The culvert shall be covered with a minimum of twelve (12) inches of material. Payment shall be for length of pipe installed, and any riprap for rock aprons, headwalls and endwalls shall be incidental to this bid item.

REVEGETATION

The actual seeding date, within the work performance period, shall be at the discretion of the contractor, but a permanent vegetative cover must be established. Verification of materials used shall be required for payment. Seed bed preparation, unless otherwise approved, shall be conducted by industrial disks or tracking with heavy equipment

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with cleat marks across slope and parallel to the final contours. The surface shall be tracked, track to track. Seeding shall commence after seedbed preparation on a loose and uncompacted soil and with the approval of the Department of Environmental Protection. Contractor shall provide equipment as necessary to secure approval of the seedbed. Revegetation activities shall be carried out in a continuous, concurrent, timely and uniform manner. Failure to do this may result in nonpayment for portions of or the entire Revegetation item. Hydroseeding or broadcast seeding with the approved species is acceptable. The application rate may be increased but the ratio is to remain constant, but no additional monetary compensation will be awarded. Areas outside the limits of construction, disturbed by the contractor, shall be revegetated by the contractor at no expense to DEP. Water utilized for hydroseeding shall be free of injurious or other toxic substances harmful to plant life. The source of water is subject to the approval of the DEP Specialist. It shall be the vendor's responsibility to repeat the procedures under REVEGETATION until a permanent vegetation is established. The acreage quantities in this contract are for bidding purposes only.

A warranty period of one (1) year shall commence upon completion and payment of the revegetation item of the contract. No payment will be made for additional seeding necessary to comply with warranty requirements. The warranty period will be extended for one (1) year from the date of the last augmented seeding done by the contractor. The performance bond and labor and materials bond shall remain in effect throughout the warranty period. The Standards for Evaluating Vegetative Cover as presented in Title 38, CSR2, Section 9 of the West Virginia Surface Mining Reclamation Regulations will apply.

Equipment for the retracking/scarification to eliminate rills and gullies shall be mobilized and utilized to produce slopes consistent with the regrading and topsoiling bid item prior to warranty reseeding. No additional payment will be made by DEP for this warranty work.

5.0 AGRICULTURAL LIME

Unless otherwise specified, all lime used shall be registered with the West Virginia Department of Agriculture, have an 85% minimum calcium carbonate equivalent, and meet the fineness classification no larger than that for ground lime. The following fineness classifications or combinations of lime are acceptable:

- Pulverized - 100% passing a U.S. Standard 20 mesh sieve
- 70% passing a U.S. Standard 100 mesh sieve
- Ground - 90% passing a U.S. Standard 20 mesh sieve
- 50% passing a U.S. Standard 60 mesh sieve
- 35% passing a U.S. Standard 100 mesh sieve

Use of blends and low-grade agricultural liming materials shall require prior approval. Lime shall be spread as soon as possible after delivery to site. Lime shall be applied evenly and uniformly distributed over the treated area. Lime shall be thoroughly mixed into the soil material. Lime subjected to adverse conditions before spreading will be deemed unacceptable. Failure to complete this phase shall result in nonpayment of this bid item.

Lime shall be applied at 10 ton/acre.

5.1 FERTILIZER

Fertilizer rates given for REVEGETATION are for 1,000 lbs. of 10-20-20 per acre. These rates are minimum and for bidding purposes.

Fertilizer shall be applied evenly and uniformly distributed over the treated area. Common complete fertilizers which meet the minimum standards are acceptable.

5.2 MULCH

Acceptable mulch for this project is wood fiber, hay, or straw.

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Mulch: Wood Fiber @ 1.0 ton/Acre
Hay or straw mulch may be substituted at a rate of 2 tons/Acre

5.3 VEGETATIVE SPECIES

Seeding rate required is for pure live seed (pls) in pounds per acre. The use of annuals or cover crops will not be considered for vegetative success.

NORTH MIX	
VEGETATIVE SPECIES ¹	RATE/ACRE ¹
Orchard Grass	@ 15 lbs/acre
Birdsfoot Trefoil ²	@ 15 lbs/acre
Yellow Sweet Clover	@ 5 lbs/acre
Red Clover	@ 10 lbs/acre
Ky 31 Fescue	@ 15 lbs/acre
Foxtail Millet ³	@ 12 lbs/acre
Wheat or Rye ⁴	@ 50 lbs/acre
Black Locust ⁵	@ 3 lbs/acre

1. Seeding rate suggested is for pure live seed (pls) in pounds per acre.
2. Herbaceous legumes must be treated with the appropriate bacterium before seeding.
3. Spring mix.
4. Fall mix.
5. Black locust used only for woodland land use.

Post Mine Land Use: Hayland/Pasture

5.4 CONSTRUCTION STAKEOUT

This work shall consist of furnishing, placing, and maintaining construction layout stakes necessary for the proper execution of the work required under the Contract, production of as-built drawings, and of performing topographic surveys and obtaining surveyed cross-sections for accurate determination of pay item quantities. Construction stakeout shall be under the supervision of a Registered Professional Engineer or Licensed Land Surveyor and all drawings signed and/or sealed by such. The Department shall provide control points for initial layout of the work. (Shall not exceed 5% of the total bid for this permit.)

A. MATERIALS

Wooden stakes and other marking materials as described herein.

B. CONSTRUCTION METHODS

B(1). The Contractor shall locate and reference the construction baseline within the limits of work and shall establish bench marks for the proper layout of the work. The Contractor shall make all calculations involved and shall furnish and place all layout stakes or markers.

B(2). The Contractor shall provide field forces and shall set all additional stakes needed, such as offset stakes, reference point stakes, slope stakes, pavement and grade stakes, stakes for roadway drainage, sub-drains, trench drains, fence, culverts or other structures, supplementary bench marks and any other horizontal or vertical controls necessary to secure a correct layout of the work.

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B(3). The location of the slope stakes for grading work shall be determined by a calculation method. Elevation control hubs with guard stakes shall be set, at a convenient distance outside the construction limits, and at all stations where original cross-sections are taken. The centerline station, the distance from centerline, and the elevation of the hub shall be recorded on each guard stake.

B(4). The Contractor shall be responsible for having the layout staking work conform to the lines, grades, elevations, and dimensions called for on the Plans. The Contractor shall be responsible for reporting any discrepancies to the Supervisor for clarification. Minor adjustments to suit field conditions are anticipated and it shall be the responsibility of the Supervisor to make decisions regarding adjustments.

B(5). The Contractor shall survey cross-sections and/or profiles in areas of on-site excavation, off-site excavation, and ditch construction as necessary to permit accurate determination of pay item quantities. The locations and spacing of cross-sections and profiles shall be as approved or as directed by the Supervisor. Cross-sections and profiles shall be surveyed:

- a) prior to any excavation
- b) at the completion of excavation

B(6). The Contractor shall furnish a copy of his survey records for the Supervisor and for the DEP's permanent file. These records shall be furnished as they are completed during the progress of the work. Any inspection or checking of the Contractor's layout by the Supervisor and the acceptance of all or any part of it shall not relieve the Contractor of his responsibility to secure the proper dimensions, grades and elevations of the required work.

5.5 REGRADING

Regrading shall be conducted along specific areas where the old permit boundary sediment channels were in place. These areas have some trees and brush that must be cleared prior to the regrading. Slopes shall be regraded to achieve a 3 horizontal to 1 vertical. This item shall include the elimination of all rills and gullies, and the grading of spoil and/or fill materials. Surface shall be free of all rock exceeding six (6) inches in diameter and shall be tracked, track to track. In the absence of stockpiled topsoil, material which can be used as a topsoil substitute shall be identified, segregated, and stockpiled for spreading on the surface. If necessary to manufacture fines, mechanical treatment to pulverize the surface layer shall be required. Regrading shall be conducted prior to and in preparation for the revegetation item. The acreage quantities in this contract are for bidding purposes only. It shall be the contractor's responsibility to verify acreage for bidding purposes. The contractor shall not exceed the contract amount of 2 acres. If any additional amount is required, the contractor must have written approval from the DEP, prior to any additional work being completed.

5.6 LIMING

Unless otherwise specified, all lime used shall be registered with the West Virginia Department of Agriculture, have an 85% minimum calcium carbonate equivalent, and meet the fineness classification no larger than that for ground lime. The following fineness classifications or combinations of lime are acceptable:

- | | |
|------------|--|
| Pulverized | - 100% passing a U.S. Standard 20 mesh sieve |
| | - 70% passing a U.S. Standard 100 mesh sieve |
| Ground | - 90% passing a U.S. Standard 20 mesh sieve |
| | - 50% passing a U.S. Standard 60 mesh sieve |
| | - 35% passing a U.S. Standard 100 mesh sieve |

Use of blends and low-grade agricultural liming materials shall require prior approval. Lime shall be spread as soon as possible after delivery to site. Lime shall be applied evenly and uniformly distributed over the treated area. Lime

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shall be thoroughly mixed into the soil material. Lime subjected to adverse conditions before spreading will be deemed unacceptable. Failure to complete this phase shall result in nonpayment of this bid item.

Lime shall be applied at 10 ton/acre.

6.0 CONSTRUCTED SEDIMENT CONTROL STRUCTURES

A sediment control structure shall be constructed as per attached detailed plans. Such structures shall be cleaned out when the sediment capacity reaches 60%, repaired, and maintained until demobilization. This item will be a one-time payment. Clean-out and maintenance shall be conducted by the contractor at no expense to DEP. (SEE ATTACHMENT)

7.0 STORMWATER MANAGEMENT WITH SILT FENCE AND HAYBALE DIKE

Disturbed areas which have storm water runoff and do not pass through a sediment control structure or other areas where excess sedimentation is to be controlled shall utilize the following Best Management Practice (BMP) methods to manage storm water runoff. (For more information on BMP methods go to the WVDEP website <http://www2.wvdep.org/dwvm/stormwater/BMP.htm> and click on **BMP Manual**. The WV Erosion and Sediment Control Best Management Practice Manual may be accessed or printed.)

Construction activities on this site have been registered with the West Virginia Division of Water and Waste Management under an NPDES Stormwater Pollution Prevention Plan issued to the Office of Special Reclamation. The drawings and specifications are prepared with all sediment controls anticipated to keep the project within the requirements of the approved plan. However, any adjustments needed to be made to this plan during the execution of this project in order to maintain, at a minimum, compliance with said permit shall be the Contractor's responsibility and expense at no additional cost to WVDEP. Any adjustments to the sediment controls described herein will be at the discretion and prior approval of the WVDEP on-site representative.

This item has a Maximum Bid of \$5.00/LF of silt fence and hay bale material installed on site.

CONSTRUCTION - Approximately 3000 LF of silt fence and hay bale dike are proposed for this project, as shown on the attached site plan. Construction of all sediment controls shall comply with the following:

1. Silt fence shall be utilized on perimeter barriers and internally as shown on the plans. Silt fence shall be properly removed after permanent vegetation has been established, as directed by the WVDEP designated on-site representative. Silt fence shall be installed per the manufacturer's recommendations. See the attached drawing for further details.
2. Silt fence shall be placed on the contour. On slopes with grades greater than seven (7%) percent, the silt fence should be located at least five (5) to seven (7) feet beyond the base. Turn the ends of the silt fence upslope so that a certain depth of storm water may be retained in front of the silt fence. The impounded depth should be at least twelve (12) inches, but no more than the height of the silt fence. Hay bale dike shall be staked in place at the end of the row of silt fence as an emergency overflow. This will allow detained water, exceeding the capacity of the silt fence, to be filtered and released quickly. Silt fence shall not be installed in streams or swales or in any area where there is a reasonable chance of concentrated flow. In areas where concentrated flows can be expected, use haybale dike with the construction of sumps. **The bottom edge of silt fence shall be entrenched and backfilled.**

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3. The silt fence should be purchased in a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter cloth should be spliced together only at a supporting post, with a minimum six (6) inch overlap and securely sealed. See Silt Fence Details and installation requirements. Payment for silt fence will be per linear foot installed. Cost of the silt fence shall include the removal from the project upon stabilization and permanent vegetation being established.
4. Rock filtered outlets are to be placed in the silt fencing as needed to control areas exhibiting concentrated flows to prevent breaching of the fence. Outlets are to be placed at locations per direction of the DEP on-site representative. See attached detail 'Rock Filter Outlets'.
5. Hay bales shall be utilized on internal areas, as a supplement to silt fencing, to control areas where excess runoff may create excessive erosion and instability, per the direction of the DEP on-site representative. For slope stability, place bales on the contour; at the top of cuts; and at the toe of slopes. Bales shall be placed in a row with ends tightly abutting the adjacent bales.
6. Bales shall be securely anchored in place by stakes driven through the bales. Rebar shall not be permitted for use as stakes. Stakes shall be removed after permanent vegetation has been established, as directed by the WVDEP designated on-site representative. The first stake in each bale shall be driven toward previously laid bale to force the bales together. See attached drawing for further details.
7. Construction of sediment control sumps before culvert inlets and/or rock check dams in ditch lines (see attached drawing) may become necessary to supplement the silt fence and hay bale dikes. These items shall be installed as shown on the attached plans and at other determined locations upon request of the WVDEP designated onsite representative. Installation of small sumps and rock check dams shall be incidental to this bid item.

INSPECTION - Inspect all erosion and sediment controls before anticipated storm events (or series of storm events such as intermittent showers over one or more days) and within twenty-four (24) hours after the end of a storm event greater than 0.5 inches per 24-hour period, and at least once every seven (7) calendar days. Where sites have been finally or temporarily stabilized, such inspection may be conducted only once per month.

MAINTENANCE - Sediment should be removed once it has accumulated to one-half (1/2) the original height of the barrier or one-half (1/2) the sediment capacity of any particular control structure. Filter fabric should be replaced whenever it has deteriorated to such an extent that the effectiveness of the fabric is reduced (approximately six (6) months). Silt fence should remain in place until disturbed areas have been permanently stabilized. All sediment accumulated at the fence should be removed and properly disposed of before the fence is removed.

PAYMENT - Payment will be by the linear foot installed. **Price of the silt fence and hay bales shall include the removal of all such materials from the project upon stabilization and permanent vegetation being established, per direction of the DEP on-site representative.**

8.0 RIPRAP V-DITCH

Provide all materials, excavate and construct ditch or channel as indicated on the attached typical plans, cross-section, specifications, and as discussed at the Pre-Bid Showing. Channels and ditches shall be free draining upon completion of construction. Length of channel may be adjusted to meet on site conditions. (See riprap specifications) R-5 limestone riprap shall be used at a thickness of 1 ½ feet. The top width of the ditch shall be four

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(4) feet. **Note:** A 20 feet section of this ditch shall be lined with a piece of 40-mil HDPE liner material that shall cross over a newly installed natural gas line. This liner shall be incidental to this bid item.

9.0 GROUTED TRAPEZOIDAL DITCH

Unless otherwise noted shall be durable rock (R-5 limestone) placed in a 1.5 foot thick blanket. Twenty-five percent (25%) of the rock will be 18 inches or larger. Ten percent (10%) of the rock shall be no smaller than six (6) inches. The remaining sixty-five percent (65%) of the rock shall be well graded between six (6) and eighteen (18) inches. In-place rammed or hammered rock shall be acceptable.

The grout filler shall be composed of a mixture of one part Type II (sulfate resistant) portland cement and three parts sand, mixed with water to produce a workable consistency. The stone shall be thoroughly wet immediately before grout is applied. As soon as the grout is deposited on the surface, it shall be thoroughly worked into the joints. The stones shall then be brushed, so that their top surfaces are exposed. Grout shall penetrate 100% of the riprap thickness.

10.0 SEEP COLLECTOR UNDERDRAIN

Collection underdrains shall be constructed to collect all seep water for conveyance to the treatment sites. The collection underdrain shall be 4 ft. X 4 ft. in cross-section. Stone for the underdrain shall be non-calcareous with a size of 3" to 6" in diameter. The drain shall be wrapped with filter fabric (Tytar 3401 or equivalent). Filter fabric may be omitted from areas where the seepage enters the underdrain if approved by the DEP on site representative. A 6" perforated SDR-35 PVC pipe shall extend the length of the underdrain and connect to solid pipe (separate bid item). The solid pipe shall convey water to the manhole, or route to the concrete vault at the pump station. An animal guard shall be installed on the exit of the pipe, if needed. The perforated end of the 6" pipe seep collector shall extend to the surface as a clean-out with a cap. Underdrains may be required in five (5) separate locations.

Cover the underdrain with a minimum of 1 ft. of material and grade the surface so it is well drained. Material on the downslope side of the drain shall be impervious to prevent leakage from the underdrain to the surface. Provide all fittings necessary for installation. Refer to the attached drawing for further details. All materials specified above and on the attached drawing shall be incidental to this bid item. Payment for each underdrain is for complete installation and verified by DEP with photo.

10.5 6 INCH SOLID SDR 35 PIPE

Six (6) inch PVC SDR-35 line (gasket joint type) shall be provided. Installation is to be according to the manufacturer's recommendations. Provide all materials, equipment, excavation and personnel necessary for installation of the pipe to transfer water from the seep collector underdrains to the AMD pump station. The pipe shall be buried with a minimum of 2.5 feet of cover to avoid freezing. Molded elbows, coupler fittings, and animal guards shall be incidental to this bid item.

11.0 UTILITIES

Utilities shall be relocated or extended at the direction of the utility company and reimbursed actual cost to the contractor. This is a "No Bid" item due to the method of reimbursement. It is the contractor's responsibility to determine the exact location of each utility in the project area where these utilities would be interrupted, damaged, or extended by performing work.

12.0 CONCRETE SPREADER

Provide all materials, excavate and construct the concrete spreader as indicated on the attached typical plans, cross-section, specifications, and/or discussions at the Pre-Bid Conference. The concrete spreader shall also act as a

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seepage cutoff structure for the grouted riprap ditch leading in and out of each pond.

The channel is a wide and flat V-ditch, consisting of one and one half (1 ½) foot thick blanket of R-5 limestone with grout. The concrete spreader shall be impervious, thus containing all baffled settling pond discharge water. The concrete shall be Type II Sulfate Resistant Concrete (WVDOH Sec. 601). The concrete spreader shall have a width of 12 inches and a depth that continues into original ground two (2) feet each way. The length of the skimmer shall extend 1 foot past the width of the flat ditch on each end. The skimmer shall be level, and the top of the skimmer shall be equal to the bottom of the outer edge of the flat V-ditch riprap. The concrete spreader shall have a 3 inch lower weir section to direct all pond water. Reinforcing steel shall be utilized as indicated in the attached drawing. The water will flow through the grouted riprap of the channel. The pond liner shall extend over the concrete spreader and terminate below the grouted riprap channel. Payment for each concrete spreader shall also include any inlet or outlet grouting necessary to keep water flowing through the channels and over the spreader.

13.0 SETTLING POND #1 WITH LINER

One settling pond shall be constructed with a top width of 40 feet and top length of 80 feet. The pond water depth shall vary from 8 to 10 feet, and there shall be 2 feet of freeboard to the top pond berm. The dimensions of the constructed settling ponds shall be accordance with the attached drawings. The inside side slopes shall be one and one half horizontal to one vertical (1.5h:1v). The outside berm slopes shall be three horizontal to one vertical (3h:1v).

The settling pond and 60 mil liner is a lump sum bid item. The settling pond inlet and outlet spillways shall be paid for under the Concrete Spreader bid item. Remove all vegetation during clearing & grubbing operations for the pond site, which is a separate bid item.

EMBANKMENT CONSTRUCTION

Embankments shall be constructed in compacted lifts with no lift exceeding six (6) inches. The entire width of each 6" lift shall be compacted with an overlapping pattern. If necessary, compaction equipment (vibratory roller, sheep's foot roller, etc.) may be used to help secure a solid embankment, which will not slip or allow seepage of the ponded water. The base of any fill areas shall be undercut to solid material, and benched or keyed into the existing bank. All stones exceeding 6 inches shall be removed from the embankment material prior to being placed. Also, any organic material (tree limbs, roots, top soil, etc.) shall be removed from embankment material prior to compaction. Weak or compressible areas, which cannot be satisfactorily compacted, shall be removed and replaced with properly compacted fill material. During dry conditions, water may need to be added to the fill material during the placement process to achieve optimum compaction. If the fill material is over saturated with water, the material may need to be spread and aerated prior to placement at the fill site for compaction. The top pond berm width shall be a minimum of 12.0 feet. During construction if the above mentioned compaction equipment is not utilized, the top berm may need to be wider than 12.0 feet (20 feet wide) to accommodate multiple dozer passes and overlapping tracking to obtain compaction across the entire top width of pond berm. After appropriate compaction of material is achieved, the embankment slopes may be cut back to a 12.0 feet top width.

60 MIL LINER

The pond shall be lined with an HDPE 60 mil. smooth geomembrane liner made by Poly-Flex or approved equivalent. The liner shall be installed in accordance to the manufacturer specifications and general requirements, attached. After completion of liner installation, the pond liner shall not leak or seep any water away from the pond. The pond liner shall be paid as part of a lump sum bid item with construction of the settling pond at the completion of installation and approval by the DEP. 50% payment shall be made at completion of the settling pond and the other 50% payment after completion of the pond liner.

14.0 SETTLING POND #2 WITH LINER

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One settling pond shall be constructed with a top width of 40 feet and top length of 120 feet. The pond water depth shall vary from 8 to 10 feet, and there shall be 2 feet of freeboard to the top pond berm. The dimensions of the constructed settling ponds shall be accordance with the attached drawings. The inside side slopes shall be one and one half horizontal to one vertical (1.5h:1v). The outside berm slopes shall be three horizontal to one vertical (3h:1v).

The settling pond and 60 mil liner is a lump sum bid item. The settling pond inlet and outlet spillways shall be paid for under the Concrete Spreader bid item. Remove all vegetation during clearing & grubbing operations for the pond site, which is a separate bid item.

EMBANKMENT CONSTRUCTION

Embankments shall be constructed in compacted lifts with no lift exceeding six (6) inches. The entire width of each 6" lift shall be compacted with an overlapping pattern. If necessary, compaction equipment (vibratory roller, sheep's foot roller, etc.) may be used to help secure a solid embankment, which will not slip or allow seepage of the ponded water. The base of any fill areas shall be undercut to solid material, and benched or keyed into the existing bank. All stones exceeding 6 inches shall be removed from the embankment material prior to being placed. Also, any organic material (tree limbs, roots, top soil, etc.) shall be removed from embankment material prior to compaction. Weak or compressible areas, which cannot be satisfactorily compacted, shall be removed and replaced with properly compacted fill material. During dry conditions, water may need to be added to the fill material during the placement process to achieve optimum compaction. If the fill material is over saturated with water, the material may need to be spread and aerated prior to placement at the fill site for compaction. The top pond berm width shall be a minimum of 12.0 feet. During construction if the above mentioned compaction equipment is not utilized, the top berm may need to be wider than 12.0 feet (20 feet wide) to accommodate multiple dozer passes and overlapping tracking to obtain compaction across the entire top width of pond berm. After appropriate compaction of material is achieved, the embankment slopes may be cut back to a 12.0 feet top width.

60 MIL LINER

The pond shall be lined with an HDPE 60 mil. smooth geomembrane liner made by Poly-Flex or approved equivalent. The liner shall be installed in accordance to the manufacturer specifications and general requirements, attached. After completion of liner installation, the pond liner shall not leak or seep any water away from the pond. The pond liner shall be paid as part of a lump sum bid item with construction of the settling pond at the completion of installation and approval by the DEP. 50% payment shall be made at completion of the settling pond and the other 50% payment after completion of the pond liner.

15.0 SETTLING POND #3 WITH LINER

One settling pond shall be constructed with a top width of 40 feet and top length of 160 feet. The pond water depth shall vary from 8 to 10 feet, and there shall be 2 feet of freeboard to the top pond berm. The dimensions of the constructed settling ponds shall be accordance with the attached drawings. The inside side slopes shall be one and one half horizontal to one vertical (1.5h:1v). The outside berm slopes shall be three horizontal to one vertical (3h:1v).

The settling pond and 60 mil liner is a lump sum bid item. The settling pond inlet and outlet spillways shall be paid for under the Concrete Spreader bid item. Remove all vegetation during clearing & grubbing operations for the pond site, which is a separate bid item.

EMBANKMENT CONSTRUCTION

Embankments shall be constructed in compacted lifts with no lift exceeding six (6) inches. The entire width of each 6" lift shall be compacted with an overlapping pattern. If necessary, compaction equipment (vibratory roller, sheep's foot roller, etc.) may be used to help secure a solid embankment, which will not slip or allow seepage of the ponded water. The base of any fill areas shall be undercut to solid material, and benched or keyed into the existing

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bank. All stones exceeding 6 inches shall be removed from the embankment material prior to being placed. Also, any organic material (tree limbs, roots, top soil, etc.) shall be removed from embankment material prior to compaction. Weak or compressible areas, which cannot be satisfactorily compacted, shall be removed and replaced with properly compacted fill material. During dry conditions, water may need to be added to the fill material during the placement process to achieve optimum compaction. If the fill material is over saturated with water, the material may need to be spread and aerated prior to placement at the fill site for compaction. The top pond berm width shall be a minimum of 12.0 feet. During construction if the above mentioned compaction equipment is not utilized, the top berm may need to be wider than 12.0 feet (20 feet wide) to accommodate multiple dozer passes and overlapping tracking to obtain compaction across the entire top width of pond berm. After appropriate compaction of material is achieved, the embankment slopes may be cut back to a 12.0 feet top width.

60 MIL LINER

The pond shall be lined with an HDPE 60 mil. smooth geomembrane liner made by Poly-Flex or approved equivalent. The liner shall be installed in accordance to the manufacturer specifications and general requirements, attached. After completion of liner installation, the pond liner shall not leak or seep any water away from the pond. The pond liner shall be paid as part of a lump sum bid item with construction of the settling pond at the completion of installation and approval by the DEP. 50% payment shall be made at completion of the settling pond and the other 50% payment after completion of the pond liner.

16.0 BAFFLE CURTAIN

The baffle curtain shall be of an ultraviolet (UV) resistant type vinyl coated polyester material with a minimum total weight rating of 17 oz./sq. yd. Styrofoam floats of minimum size 3"x4"x24" shall be hot seam sealed into the top of baffle curtain, and shall be evenly spaced 4 inches apart end to end. A grommet shall be placed between each of the styrofoam floats. A 1/4 inch diameter stainless steel wire cable shall be seamed into the top of the baffle to anchor at the sides of the pond, and shall extend 10 feet past the cut length of the baffle curtain on each end. A 5/16 inch diameter link chain shall be hot seam sealed into the bottom of the baffle for weight. Curtain shall have aluminum plates attached at each end through the top hot seam to create another anchor point for the curtain. A shackle shall be attached through the plates. Secure anchor points (pipe, rods, or treated posts) shall be installed at the ponds edge to hold the baffle in place. Anchor points and the baffle location shall be approved by the DEP onsite representative before installation. The wire cable and shackles shall be attached in such a way to allow for easy disconnect while sludge is being pumped from the pond. All cable fasteners, eye bolts, and other accessories shall be stainless steel to prevent corrosion, and shall be incidental to this pay item. The baffle curtain opening slots shall be cut into the curtain below the hot seam seal at the top of the baffle, as directed by DEP onsite representative. The spacing and the size of the slots shall be determined by the DEP engineer or onsite representative, and shall be installed at the time of installation at pond site. Payment shall be per linear feet of baffle curtain specified. Baffle curtains shall be installed at eight different locations. The approximate total length of curtain is 360 linear feet.

17.0 SUB-FOUNDATION PREPARATION

The sub-foundation shall be undercut to remove all fill (unconsolidated material) down to a competent foundation as determined by the DEP on site representative. The sub-foundation shall be constructed in substantial conformity to the plans and/or specifications. The DEP on site representative shall be present during this work.

The sub-foundation material shall be suitable material free of particles larger than three inches in diameter and consist of granular material conforming to WVDOH specification 716.1.1.2. A bearing capacity of approximately 6 tons per square ft should be obtained.

Compaction shall be done with a suitable compactor to obtain approximately 98% Standard Proctor Density. Layers shall be six (6) inches or less in thickness before compaction is initiated. Moisture content of the fill material shall

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be controlled to obtain maximum compaction.

Payment shall be made for each one (1) foot depth of undercut required.

18.0 FOUNDATION

The foundation shall be Type II (Sulfate Resistant) Concrete and shall conform to the dimensions and shape shown in the detail drawings and specifications. Include all reinforcing bars with supports and anchor bolts as necessary. Provide all forms, personnel and equipment required for the placement, finishing, and curing of the concrete. The concrete shall be consolidated with use of an internal spud vibrator to liquefy the concrete so that entrapped air and water can come to the surface. Also, supplement the mechanical vibrator by hand-spading, rodding, or tamping. Adverse weather conditions shall be avoided during completion of this item. WVDOH specifications (Section 601-Construction Manual) for concrete shall apply to this item. Concrete shall cure for a minimum of 7 days before the silo may be erected in place. Excavation for the foundation is incidental to this item with no separate payment being made. Concrete shall meet a minimum 28-day compressive test strength of 4000 psi, and the slump shall be between 2 and 3 inches during placement of concrete.

A non-corrodible walk grate shall be supplied to cover the trough and trough cutout where people will be walking, not under the dosing unit (see drawings). A non-corrodible (i.e. rubber) flap shall be affixed at the trough exit (and entrance, if open) to inhibit air flow through the enclosure and animal entry.

The foundation trough or channel shall be lined with a stainless steel liner to prevent extra lime build up on the concrete. The top of the concrete trough shall have a 2 inch by 2 inch cutout to facilitate grating or covering.

The finished floor elevation of the foundation shall be set at an elevation which provides four feet (4') of head on the water supply line to operate the dosing unit. The location of the foundation shall be set to maximize the length and elevation drop of the grouted riprap receiving ditch of the treated water.

The channel in the foundation is to receive water from riprap ditch from the old ALD, and from the seeps collected at the manhole. After treatment with the reagent, the water will exit the foundation into a grouted open limestone channel. This item shall be paid for per each foundation after completion and acceptance by the DEP.

19.0 LIME DISPENSING UNIT, ENCLOSURE, AND SILO

This item includes all work necessary to purchase, install and initiate operation of a water powered lime dispensing unit. This unit must utilize hydrated lime.

DOSING UNIT

The dosing unit is to receive water from an intake pipe in a precast concrete manhole by means of a 4 inch HDPE drive line and an 8 inch HDPE overflow pipe (separate bid items). The 4 inch HDPE drive line shall pass through the foundation conduit to supply flow to power the dosing unit, and may reduce to a 2 inch stainless steel end with a stainless shut off valve. This drive line may require alteration to size and location based on which dosing unit brand is utilized. The overflow pipe shall be positioned to flow through the foundation trough. After treatment with the reagent, the water will exit the foundation into a grouted riprap ditch (separate bid item). The dosing unit shall be capable of feeding hydrated lime at a consistent average rate of 2.0 lbs./hr.

The dosing unit, silo, and filler pipe shall be designed to facilitate the use of hydrated lime during the service life of the unit. This portion of the work shall include the initial filling and the start up of the unit, at the direction of the Program Manager, to confirm that all units function as intended. Any repairs and/or

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adjustments required to the unloading system and dosing unit to allow them to function as designed shall be performed at no cost to the DEP. The system shall be operated successfully for a one-week period before acceptance by the DEP. All settling ponds and riprap ditches leading to them must be completed before testing is initiated. The hydrated lime shall be 25 tons in amount and delivered as scheduled by the on-site DEP representative.

PRE-QUALIFIED VENDORS

A pre-qualified lime dispensing unit or equal shall be used on this project. The current pre-qualified vendors include: Aquafix Systems, Inc., ph: 304-329-1056; and Lime Doser Consulting, LLC., ph: 304-782-2481.

WV DEP Office of Special Reclamation procedure for pre-qualifying a vendor's acid mine drainage lime dispensing unit.

A vendor wishing to bid on providing water driven lime dispensing units shall be pre-qualified by successfully demonstrating proposed unit on existing Office of Special Reclamation active acid mine drainage treatment sites. Vendor will be required, at their sole expense, to demonstrate that their proposed water driven lime dosing unit is sufficiently capable and mechanically dependable of treating the current range of flows and qualities while maintaining current required final discharge limits without increasing present man-hours devoted to each site. The vendor shall successfully demonstrate the unit for a minimum time period of 30 days, which shall include high rainfall events, and may include different seasonal periods at the discretion of the DEP.

The Office of Special Reclamation will provide the treatment chemical, at their cost, for each of the demonstrations. Vendor's lime dispensing unit shall bolt to the flange of the existing silos and be capable of dispensing calcium oxide chips (pebble quick lime), and other lime based chemical such as hydrated lime.

The vendor shall remove the current lime dosing unit, install the lime dosing unit being pre-qualified, temporarily modify the drive water plumbing and mine drainage channel as may be necessary.

Upon completion of the demonstration the vendor shall replace the existing dosing unit, re-plumb the drive water, remove any temporary mine drainage channel modifications, establish treatment with the existing unit, clean the site of all debris and excess lime to pre-existing conditions at the vendor's sole expense.

ENCLOSURE

An insulated steel security enclosure shall be attached to the silo structure support system to protect the dosing unit from vandalism and the weather. Walls and doors shall be fitted with minimum 1 inch thickness standard closed-cell foam wall insulation. The wall thickness of the silo enclosure shall be equivalent to the steel used in the construction of the silo, and shall be minimum 3/16 inch thick. The enclosure shall be equipped with two hinged, lockable steel doors, one of which is sufficient size to facilitate removal of the dosing unit for repair and/or future replacement. The second door shall only be accessible from the inside. The enclosed structure shall be fitted with a propane heating unit with a capacity to prevent freezing of the dosing unit during the winter. The heater shall be Model MH25LP made by Mr. Heater (Enerco) or approved equivalent, and include all needed piping, regulator and fittings to connect to the tank. The heater unit shall have a minimum capacity of 22,000 BTU/hr, and be infrared radiant type. A 100 gallon tank shall be included, and will need to be filled one time. Adequate ventilation shall be provided with louvered screened vents for the heater, and to reduce condensation.

Painting of the silo and steel security enclosure shall be painted green, in accordance with WVDOH

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Specification 711. All steel surfaces on the interior and exterior of the enclosure and exterior of the silo shall be thoroughly cleaned, primed, and painted, utilizing Carboline brand Rustbond FC primer and two to three coats of Carboline brand Carbothane 133HB paint, or approved equivalents.

SILO

Structural elements shall be warranted by the manufacturer to withstand normal static and dynamic loads as commonly accepted by industry. Changes to these specifications shall be made only with the written approval of the Program Manager.

A 30 ton capacity steel silo to store the reagent is required. The silo shall have a diameter of 12 feet. The silo shall be equipped with an interior ladder extending down to the cone, an exterior ladder extending down to within 8 feet of surface with a protective cage and a lockable steel safety door, a steel safety fence around the top of the silo, and a filler pipe to extend to the unloading port. All components shall adhere to Occupational Safety and Health Administration (OSHA) Standards 29 CFR, part 1910. A steel cone shall be placed at the base of the silo to direct the discharge of the reagent through a steel flange, which is sized and located to accommodate the reagent dispensing unit. Silo shall include a vent pipe to prevent pressure buildup during filling. The vent pipe shall extend down within 2 feet of surface, and be directed into the treatment ditch. An emergency pop off valve shall be included in case the vent pipe malfunctions. Pneumatic filling of the silo is to be utilized. For the sizing of the silo, use a unit weight of 35 lbs./cubic ft. for hydrated lime.

SUBMITTALS

1. A written contract shall be submitted by the contractor to the DEP with the contractor and the sub-contractor of choice for the lime dispensing unit. The contract shall clearly stipulate the obligations of each party, and shall be submitted within 30 calendar days after the DEP Notice To Proceed date.
2. Shop drawings of the silo, enclosure, and any alterations required for the foundation shall be provided to the engineer prior to design, fabrication, delivery, and installation of the system.

Payment for all of the work specified above shall be made per each lime dispensing system installed.

20.0 CRANE

This item shall include furnishing a crane of sufficient capacity to unload and erect the silo structure on its foundation. The silo is estimated to weigh less than 10 ton.

21.0 SLUDGE DISPOSAL UNDERDRAIN

An underdrain shall be excavated and installed according to the attached drawings and specifications. This component of the sludge cell shall consist of a three feet deep by four feet wide trough lined with filter fabric (3'd X 4'w). The trough shall be excavated down the side and along the entire bottom of the cell. Starting at ground level, the four-inch SCH-35 PVC perforated pipe shall run the entire length of the trough. A SCH-35 PVC cap shall be placed on the high end of the pipe to allow for future maintenance. The four-inch pipe shall be surrounded by 1/4" to 3/8" pea gravel which will then have a twelve-inch layer of sand placed on top. The sand layer shall be clean and graded filter media with an effective size of 0.6 mm to 0.8 mm and a uniformity coefficient of less than 2.0. Two types of pre-approved filter sand media are as follows: #3 Q-Rock, U.S. Silica Company, Berkeley Springs, WV ph:800-243-7500; Black Beauty product #1240, Reed Minerals, Moundsville, WV ph:304-845-0211. Other filter media such as Ohio Valley River sand must be certified by quarry or lab to meet the listed specifications prior to placement. A layer of filter fabric (non-woven) shall separate the pea-gravel and the sand. The section of pipe

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extending through the embankment shall be solid.

A 4-inch diameter mechanical joint (MJ) gate valve shall be placed on the SDR-35 pipe. The valve will be operated with a 2-inch valve key, so a solid piece of pipe shall be used to extend to the ground surface with a cap. The purchase of an appropriate length valve key shall be included with this bid item. The pipe shall be buried with a minimum of two and one-half (2.5') feet of cover to avoid freezing. The solid pipe shall drain into the riprap ditch overflow return for the sludge cell. Any fittings, lines, molded elbows, caps, coupler fittings, and valve shall be incidental to this lump sum bid item.

22.0 SLUDGE DISPOSAL CELL

Sludge disposal areas shall be constructed to receive sludge pumped from the settling ponds. Each area shall have a completed holding volume of at least 30,000 cubic feet. Each constructed sludge disposal cell shall have a two-foot freeboard. The approximate size of each pond shall have a forty (40) foot top width, a top length of one hundred fifty (150) feet, and a total depth of ten (10) feet. The sludge disposal cell shall have internal side slopes not exceeding one horizontal to one vertical. The outer slopes shall be a minimum of two horizontal to one vertical. The cell shall be constructed in an area approved by the DEP onsite representative. Material which is removed during the pond construction and which is suitable for reclamation shall be stockpiled on site and vegetated, and some material may be used for partial embankment construction. This pond shall be dugout in nature to facilitate its future reclamation. The exit channel spillway shall consist of a V-ditch and shall be paid under a separate bid item. Lump sum payment shall be for the completed item upon approval of the DEP on site representative.

23.0 6 INCH HDPE SLUDGE PIPE

Pipe shall be 6 inch diameter, SDR 15.5 or 17 HDPE of standard manufacture. Install to manufacturers recommendations. Install the pipe as indicated in the specifications and/or as shown on the drawings.

Payment shall be for the actual length of pipe installed. This 6 inch HDPE pipe shall be used for sludge line. Provide all materials, equipment and personnel necessary for installation. Pipe shall be buried at least 2.5 feet deep. Use butt weld fusion process to join pipes. A qualified fusion technician shall supervise the fusion of all joints. See site plan for location.

24.0 PUMP ADAPTOR CONNECTION

The pond ends of the HDPE 6 inch diameter pipe shall be fitted with a threaded stainless steel adaptor to receive a 6 inch cam-lock adaptor. Install posts or pipes to protect outlet from damage. Use riprap around pipe as necessary. Include a cam-lock cap for sealing each adaptor. The cap shall withstand pressures developed during pumping at other pumping points. The sludge disposal pond ends will be the same as the pond ends. Payment shall be for each location installed.

25.0 PUMP ADAPTOR CONNECTION WITH 2 INCH DRAIN

The pond end of the HDPE 6 inch diameter pipe shall be fitted with a threaded stainless steel adaptor to receive a 2 inch stainless steel ball valve. A 6 by 2 inch HDPE reducer shall be used to reduce down to the smaller pipe size. Install posts or pipes to protect outlet from damage. Use butt weld fusion process to join fittings to pipes. Use riprap around pipe as necessary. Payment shall be for each location installed, and the 2 inch valve shall be incidental to this pay item.

26.0 WYES (6 INCH HDPE LATERALS 45°)

Wyes shall be of standard manufacture for 6 inch diameter HDPE pipe to allow 45° junction. Use butt weld fusion process to join fittings to pipes. A qualified fusion technician shall supervise the fusion of all joints. Payment shall

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be for each location installed.

27.0 TEE (6 INCH HDPE TEE 90°)

Tees shall be of standard manufacture for 6 inch diameter HDPE pipe to allow 90° junction. Use butt weld fusion process to join fittings to pipes. A qualified fusion technician shall supervise the fusion of all joints. Payment shall be for each location installed.

28.0 CONNECTION AT DISPENSING UNIT

At the dispensing unit, the 4-inch diameter HDPE line (separate bid item) shall be connected with a four (4) inch True union PVC ball valve and a two (2) inch True union PVC ball valve, various HDPE fittings (see Drive Line Schematic drawing), cleanouts, molded elbows, caps, reducer fittings, and flanges to supply water to the unit.

Depending on which lime dosing unit is selected for this project, a modification may have to be made to the location, size of pipe at valve placement and conduit through concrete foundation where the driveline terminates and the shut off valve is located. Shop drawings are required to be submitted and approved by DEP engineer prior to design, fabrication, and installation.

This is a lump sum payment upon completion of work. All material costs are incidental to this bid item.

29.0 8 INCH HDPE OVERFLOW LINE

Pipe shall be 8 inch diameter, SDR 15.5 or 17 HDPE of standard manufacture. Install to manufacturers recommendations. Install the pipe as indicated in the specifications and/or as shown on the drawings.

Payment shall be for the actual length of pipe installed. This 8 inch HDPE pipe shall be used for an overflow line from the manhole to the lime treatment system. Provide all materials, equipment and personnel necessary for installation. Pipe shall be buried at least 2.5 feet deep. Use butt weld fusion process to join pipes. A qualified fusion technician shall supervise the fusion of all joints. See site plan for location.

30.0 8 INCH CLEANOUT

A wye shall be used with a flange welded on the end toward the surface, and a blind end shall be bolted to the stainless steel backer ring. Provide stainless steel bolts and nuts for this connection. The wye shall be of standard manufacture for 8 inch diameter HDPE pipe to allow 45° junction. Use butt weld fusion process to join fittings to pipes. A qualified fusion technician shall supervise the fusion of all joints. Payment shall be for each location installed.

31.0 4 INCH HDPE DRIVE LINE

Pipe shall be 4 inch diameter, SDR 15.5 or 17 HDPE of standard manufacture. Install to manufacturers recommendations. Install the pipe as indicated in the specifications and/or as shown on the drawings.

Payment shall be for the actual length of pipe installed. This 4 inch HDPE pipe shall be used for a driveline to the lime dispensing system from the manhole. Provide all materials, equipment and personnel necessary for installation. Pipe shall be buried at least 2.5 feet deep. Use butt weld fusion process to join pipes. A qualified fusion technician shall supervise the fusion of all joints. See site plan for location.

32.0 4 INCH CLEANOUT

A wye shall be used with a flange welded on the end toward the surface, and a blind end shall be bolted to the stainless steel backer ring. Provide stainless steel bolts and nuts for this connection. The wye shall be of standard manufacture for 4 inch diameter HDPE pipe to allow 45° junction. Use butt weld fusion process to join fittings to

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pipes. A qualified fusion technician shall supervise the fusion of all joints. Payment shall be for each location installed.

33.0 PRE-CAST MANHOLE

The manhole shall be "Type A" as specified by the West Virginia Department of Highways or shown on drawings. Undercutting shall be required if competent foundation conditions are not encountered. Compacted crushed stone shall be placed under manhole for bedding. The ring shall be of standard cast iron or ductile construction and shall be watertight with bolt anchors in the concrete. The lid shall be light weight ductile iron hinged type (Pamrex, Rexus brand or equal). Entrance and exit pipes shall extend four (4) inches past the manhole interior wall. On manhole #2, the exit pipes are the 4 inch HDPE driveline to the lime dispensing unit, and the 8 inch HDPE overflow line to the channel of the dispensing unit. This pipe shall be paid under a separate bid item. Ensure that the all pipes are sealed into the manhole wall (use of mastic sealant followed by hydraulic cement grout is recommended). See detail sheet for layout and desired location. Payment shall be made upon completion of installation of each manhole. Both manholes shall be equipped with a 2 inch PVC bottom drain line and stainless steel valve, and shall be incidental to this bid item.

The first manhole shall be set at a high point on the AMD pump line to house a vacuum/pressure relief valve.

The second manhole shall be set to establish a collection point to drive the dosing unit while maintaining minimal slope from the seep collector. Also, the manhole shall serve as an entry point to perform maintenance on the conveyance pipes. The elevation of the manhole shall be determined according to the invert of the 6 inch SDR-35 PVC pipe exiting seep collector.

AMD DUPLEX PUMP SYSTEM

34.0 AMD DUPLEX PUMP STATION

GENERAL

DESCRIPTION

The work in this section includes, but is not limited to:

1. Description
2. Quality Assurance
3. Submittals
4. General
5. Wet Well and Valve Pit
6. Pumps
7. Couplings
8. Controls
9. Valves and Piping
10. Operation

QUALITY ASSURANCE

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- A. National Fire Underwriters Code and National Electric Code.
- B. Warranties and guarantees of all pumps will be the sole responsibility of the Contractor.

SUBMITTALS

- A. Shop drawings for pump station
 - 1. Pumps and all component parts.
 - 2. Piping, valves and controls.
- B. Manufacturer's Data
- C. Maintenance Manual

PRODUCT

1.4 GENERAL

The Contractor will furnish, complete in place, a duplex non-clog pump station as shown on the drawings. The station shall consist of a precast concrete wet well and valve vault. The unit shall be complete with all required equipment factory installed or field assembled. The principal items of equipment shall include the concrete basin, constant speed grinder submersible pumps, slide away couplings, electrical control panel, liquid level controls, valve pit, piping, valves and control panels.

1.5 WET WELL PUMP CHAMBER AND VALVE PIT

The wet well pump chamber shall consist of a precast concrete basin in accordance with the STRUCTURAL PRECAST CONCRETE section, and of the required diameter and depth for the station as shown on the plans with reinforced concrete walls and reinforced concrete roof and reinforced concrete bottom. The roof shall have a watertight or floodtight (as designated) aluminum access hatch for easy removal of the pumps. The Contractor is to install portable hoist mounting brackets and provide a portable hoist capable of lifting and removing pumps, as designated. The bottom and sides shall be a monolithic casting conforming to ASTM- C478 or Class 3 Concrete pipe sections sealed with Kent #2 Mastic or rubber "O" ring gaskets conforming to ASTM- C443. Both the tongue and groove wall shall be thoroughly cleaned before placing "O" ring in the groove. Both wall sections shall then be adequately lubricated. After basin setting is complete, all joint surfaces, both interior and exterior, of the concrete shall be troweled smooth using a stiff cement mortar. After the mortar sets, the exterior surface of the joint shall be coated with a bituminous waterproofing material.

Roof section will contain a watertight or floodtight, as designated, entrance hatch and screened vent. Any item not set in place at time of pour will be anchored, with anchor bolts capable of 4000# stress. All anchor bolts are to be stainless steel.

Concrete shall have core holes fitted with rubber boot so inlet and discharge piping can be readily connected and field grouted. The location of these shall be as shown on the plans.

Valve vault shall be precast concrete with a watertight, or floodtight, aluminum access hatch, as designated. Valve vault shall be constructed to the dimensions shown on the construction drawings.

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1.6 STRUCTURAL PRECAST CONCRETE

A. Description of Work

This section shall cover the pre-cast pump chamber and the pre-cast valve vault. This includes product design not shown on drawings, manufacture, transportation, erection and other related items.

B. Quality Assurance

Acceptable manufacturers: A company specializing in providing precast concrete products and services normally associated with the industry for at least five years. When requested by the DEP engineer, written evidence shall be submitted to show experience qualifications and adequacy of plant capability and facilities for performance of contract requirements. The manufacturer shall follow and design structures to meet all applicable codes such as the Building Code for Reinforced Concrete (ACI-318) and the PCI Design Handbook, Pre-Cast and Pre-Stressed Concrete.

C. Submittals

Shop drawings shall include erection drawings showing plan view and section views with adequate dimensions and orientation details.

Production drawings shall show the section view of each member and include details of quantities and position of reinforcing steel, anchor and lifting inserts, etc. Also show all dimensions and method of transportation.

Product design criteria shall consider loading for design, initial handling and erection stresses, and include all loads on the members. Design of the structures shall be performed by a registered Professional Engineer in West Virginia experienced in pre-cast pre-stressed concrete design.

D. Delivery and Handling

Pre-cast concrete members shall be lifted and supported during manufacturing, stockpiling, transporting, and erection operations only at the lifting or supporting points, as shown on the contract and shop drawings, and with approved lifting devices. Transportation, site handling, and erection shall be performed with acceptable equipment and methods by qualified personnel.

E. Product Materials

The Portland Cement shall be Type II (Sulphate Resistant) meeting a compressive strength of 4000 psi at 28 days. Reinforcing steel shall be Grade 60. Wire fabric shall meet Welded Steel ASTM A185 code. Anchors and inserts shall meet Structural Steel ASTM A36 code.

F. Manufacturer Finishes

No major imperfections, honeycomb, or other defects will be permitted. Holes and openings indicated on the contract drawings shall be incorporated into the design and fabrication. All openings and inserts beyond the limitations of field modification shall be provided by the manufacturer. The manufacturer's submittals shall state the limitations for field cutting or modification. Fasteners shall be cast in structural inserts, bolts, and plates where required.

G. Erection

Provide for level bearing surface on all field placed members. Installation of the members shall be lifted by means of suitable lifting devices at points provided by manufacturer. Alignment of

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members shall comply with all approved shop drawings. Fill grout keys and slab end joints as required on approved shop drawings.

The pre-cast pump chamber and valve pit may be obtained from Cloud Concrete Products, Catlettsburg, KY, Ph: 800-706-7400 or equal company capable of supplying such products.

1.7 DUPLEX SUBMERSIBLE NON-CLOG PUMPS

Pump station shall be equipped with non-clog submersible pumps. There shall be two pumps in the pump station, as specified. All pumps are to be supplied by the same manufacturer. The pump performance shall be able to meet the requirements shown on the chart in the drawings.

The Contractor shall furnish and install as shown on the plans, non-clog submersible pumps, complete with motors, controls, and accessories to make a fully automatic system. Motors shall be of HP, phase, cycle, rpm, and volts AC shown on drawings. The discharge shall be horizontal. The pumps and motors are to be built by the pump manufacturer, and have the capability of running dry for extended periods without damage to motor and/or seal. Pump controls and accessories shall be manufactured by Flygt, or approved equal.

The pumps and controls may be obtained through a full service company such as Service Pump & Supply, Huntington, WV Ph: 304-429-6731 or Precision Pump & Valve, Inc., Charleston, WV Ph: 304-776-1710, or equal company capable of supplying such products to the main contractor.

A. Pump Requirements

1. Furnish and install two (2) submersible non-clog wastewater pumps. Each pump shall be equipped with submersible electric motor connected for operation on 230 volts, 3-phase, 60 hertz, 4 wire service, with sufficient submersible cable (SUBCAB) suitable for this submersible pump application. (The control panel shall be equipped with Variable Frequency Drives for single to three phase conversion on a single phase panel.) The power cable shall be sized according to NEC and ICEA standards and have P-MSHA Approval. The pump shall be supplied with a mating cast iron 2 inch discharge connection. Each pump shall be fitted with 2 feet of 5/0 lifting chain. The working load of the lifting system shall be 50% greater than the pump unit weight.

B. Pump Design

1. The pumps shall be automatically and firmly connected to the discharge connection, guided by no less than two guide bars extending from the top of the station to the discharge connection. There shall be no need for personnel to enter the wet-well. Sealing of the pumping unit to the discharge connection shall be accomplished by a machined metal to metal watertight contact. Sealing of the discharge interface with a diaphragm, O-ring or profile gasket will not be accepted. No portion of the pump shall bear directly on the sump floor.

C. Pump Construction

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1. Major pump components shall be grey cast iron, ASTM A-48, Class 35B, with smooth surfaces devoid of blow holes or other irregularities. All exposed nuts or bolts shall be AISI type 304 stainless steel construction. All metal surface coming into contact with the pumpage, other than stainless steel or brass, shall be protected by a factory applied spray coating of acrylic dispersion zinc phosphate primer with a polyester resin paint finish on the exterior of the pump.
 2. Sealing design shall incorporate metal -to- metal contact between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile or Viton rubber O-rings. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides without the requirement of a specific torque limit.
 3. Rectangular cross sectioned gaskets requiring specific torque limits to achieve compression shall not be considered as adequate or equal. No secondary sealing compounds, elliptical O-rings, grease or other devices shall be used.
- D. Cooling Systems
1. Motors shall be sufficiently cooled by the surrounding environment.
- E. Cable Entry Seal
1. The cable entry seal design shall preclude specific torque requirements to insure a watertight and submersible seal. The cable entry shall consist of a single cylindrical elastomer grommet, flanked by washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter and compressed by the body containing a strain relief function, separate from the function of sealing the cable. The assembly shall provide ease of changing the cable when necessary using the same entry seal. The cable entry junction chamber and motor shall be separated by a stator lead sealing gland or terminal board, which shall isolate the interior from foreign material gaining access through the pump top. Epoxies, silicones, or other secondary sealing systems shall not be considered acceptable.
- F. Motor
1. The pump motor shall be induction type with a squirrel cage rotor, shell type design, housed in an air filled, watertight chamber, NEMA B type. The stator windings and stator leads shall be insulated with moisture resistant Class F insulation rated for 155°C (311°F). The stator shall be dipped and baked three times in Class F varnish and shall be heat-shrink fitted into the stator housing. The use of bolts, pins or other fastening devices requiring penetration of the stator housing is not acceptable. The motor shall be designed for continuous duty handling pumped media of 40°C (104°F) and capable of up to 15 evenly spaced starts per hour. The rotor bars and short circuit rings shall be made of cast aluminum. Thermal switches set to open at 125°C (260°F) shall be made with threaded compression type binding posts permanently affixed to a terminal board. Wire nuts or crimping type connection devices are not acceptable. The motor and pump shall be

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designed and assembled by the same manufacturer.

2. The combined service factor (combined effect of voltage, frequency and specific gravity) shall be a minimum of 1.15. The motor shall have a voltage tolerance of plus or minus 10%. The motor shall be designed for operation up to 40°C (104°F) ambient and with a temperature rise not to exceed 80°C. A performance chart shall be provided showing curves for torque, current, power factor, input / output kW and efficiency. This chart shall also include data on starting and no-load characteristics.
3. The power cable shall be sized according to the NEC and ICEA standards and shall be of sufficient length to reach the junction box without the need of any splices. The outer jacket of the cable shall be oil resistant chloroprene rubber. The motor and cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 feet.
4. The motor horsepower shall be adequate so that the pump is non-overloading throughout the entire pump performance curve from shut-off through run -out.

G. Bearings

1. The pump shall rotate on two bearings. Motor bearings shall be permanently grease lubricated. The upper bearing shall be a single deep groove ball bearing. The lower bearing shall be a two row angular contact bearing to compensate for axial thrust and radial forces. Single row lower bearings are not acceptable.

H. Mechanical Seal

1. Each pump shall be provided with a tandem mechanical shaft seal system consisting of two totally independent seal assemblies. The seals shall operate in an lubricant reservoir that hydro-dynamically lubricates the lapped seal faces at a constant rate. The lower, primary seal unit, located between the pump and the lubricant chamber, shall contain one stationary and one positively driven rotating tungsten - carbide ring. The upper, secondary seal unit, located between the lubricant chamber and the motor housing, shall contain one stationary tungsten carbide seal ring and one positively driven rotating tungsten-carbide seal ring. Each seal interface shall be held in contact by its own spring system. The seals interface shall be held in contact by its own spring system. The seals shall require neither maintenance nor adjustment nor depend on direction of rotation for sealing. The position of both mechanical seals shall depend on the shaft. Mounting of the lower mechanical seal on the impeller hub will not be acceptable. For special applications, other seal face materials shall be available.
2. The following seal types shall not be considered acceptable nor equal to the dual independent seal specified: shaft seals without positively driven rotating members, or conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces. Cartridge type systems will not be acceptable. No system requiring a pressure differential to offset pressure and to effect sealing shall be used.

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3. Each pump shall be provided with a lubricant chamber for the shaft sealing system. The lubricant chamber shall be designed to prevent overfilling and to provide lubricant expansion capacity. The drain and inspection plug, with positive anti-leak seal shall be easily accessible from the outside. The seal system shall not rely upon the pumped media for lubrication. The motor shall be able to operate dry without damage while pumping under load.

4. Seal lubricant shall be FDA Approved, nontoxic.

I. Pump Shaft

1. Pump and motor shaft shall be the same unit. The pump shaft is an extension of the motor shaft. Couplings shall not be acceptable. The pump shall be AISI type 431 stainless steel.
2. If a shaft material of lower quality than 431 stainless steel is used, a shaft sleeve of 431 stainless steel is used to protect the shaft material. However, shaft sleeves only protect the shaft around the lower mechanical seal. No protection is provided for in the oil housing and above. Therefore, the use of stainless steel sleeves will not be considered equal to stainless steel shafts.

J. Impeller

1. The impellers shall be gray cast iron, Class 35B, dynamically balanced, double shrouded non-clogging design having a long throughlet without acute turns. The impellers shall be capable of handling solids, fibrous materials, heavy sludge and other matter found in wastewater. Whenever possible, a full vaned, not vortex, impeller shall be used for maximum hydraulic efficiency; thus, reducing operating costs. Mass moment of inertia calculations shall be provided by the pump manufacturer upon request. Impellers shall be retained with an Allen head bolt and shall be capable of passing a minimum 2 inch diameter solid. All impellers shall be coated with an acrylic dispersion zinc phosphate primer.

K. Wear Rings

1. A wear ring system shall be used to provide efficient sealing between the volute and suction inlet of the impeller. Each pump shall be equipped with a brass, or nitrile rubber coated steel ring insert that is drive fitted to the volute inlet.

L. Volute

1. Pump volute(s) shall be single-piece grey cast iron, Class 35B, non-concentric design with smooth passages large enough to pass any solids that may enter the impeller. Minimum inlet and discharge size shall be as specified.

M. Protection

1. All stators shall incorporate thermal switches in series to monitor the temperature of each phase winding. At 125°C (260°F) the thermal switches shall open, stop the motor and

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activate an alarm.

2. A leakage sensor shall be available as an option to detect water in the stator chamber. The Float Leakage Sensor (FLS) is a smaller float switch used to detect the presence of water in the stator chamber. When activated, the FLS will stop the motor and send an alarm both local and / or remote. USE OF VOLTAGE SENSITIVE SOLID STATE SENSORS AND TRIP TEMPERATURE ABOVE 125°C (260°F) SHALL NOT BE ALLOWED.
3. The thermal switches and FLS shall be connected to a Mini CAS (Control and Status) monitoring unit. The Mini CAS shall be designed to be mounted in the control panel.

1.8 SLIDE-AWAY COUPLINGS

To be installed with a horizontal discharge on pump to permit the user to install a submersible pump in a wet pit in such a manner that the pump may be removed from the pit, for service or inspection, and then returned to service without draining or entering the pit to unbolt or unlock the connection between the pump and plumbing.

Guide rails and all appurtenances for the system shall be constructed of 304 stainless steel.

1.9 ELECTRICAL CONTROLS

Control to perform both duplexing and alternation or simplex operation, as designated. Control to consist of two circuit breakers with through-door operating handle, two magnetic contactors for three phase, alternator, door-mounted resets, and door-mounted manual-off- automatic selector switches for each pump. Also, the panel shall be equipped with a generator receptacle an emergency circuit breaker (walking beam interlocked with main breaker). Panel shall have a GFI receptacle and light switch inside of main panel. Light switch is to operate overhead light on Pump Station Panel Board, separate bid item.

If a Flygt brand TOP Station Premium Control Panel is utilized, in addition to the standard features, the optional features shall be included:

1. Generator receptacle and emergency circuit breaker
2. Flygt Level Probe and MIO 201 interface module for probe level control system
3. Anti condensation heater and thermostat
4. Any additional alarms, thermal switches, and controls listed in this bid item

The electrical control enclosure shall be NEMA 4 and shall include continuous hinge, neoprene gasket in cover and continuous seam weld. All models to include transformers for 115 volt AC control circuit. Enclosure shall have a tamper proof cover which protects all door mounted controls from unauthorized operation. The cover is hinged to the regular enclosure door and padlocks to the same. Enclosure shall be mounted on the Pump Station Panel Board (separate bid item) as shown on plans.

A watertight NEMA 4 junction box for combining all pump and float cables into a single conduit to control panel shall be provided. This box may be mounted on top of concrete vault.

All accessories shall be mounted and wired within duplex panel, unless stated.

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1.10 AUTOMATIC LIQUID LEVEL CONTROLS AND HIGH LIQUID LEVEL ALARM

Furnish and install liquid level controls in combination with and in the duplex control panel. Level control type shall be a pressure transducer with stainless steel hardware and cable as shown on plans.

1.11 VALVE AND PIPING

Flanged ball valves shall be of the size shown on drawings. The valve shall be cast iron type housing with stainless steel ball with 125# flanges. The valves shall have a top lever for 90 degree operation.

Check valves (rubber flapper style) shall be the size shown on drawings. The valve shall be a rubber flapper or swing check type typically used in water and waste water applications, with 125# flanges.

All discharge piping shall be 2 inch diameter HDPE SDR 11 from the pumps to the valve pit. After the valve pit, the pipe shall enlarge to 3 inch diameter HPDE pump line (separate bid item).

The ball valves and check valves shall be located outside the wet well inside a valve vault as shown by the plans.

1.12 PUMP OPERATIONS

At the lowest level, the pumps stop. As the liquid level rises to the second level, either pump is activated through the alternator. If the liquid level rises to the third level, the second pump is activated. Both pumps will then continue to operate until the level drops to the lowest level where pumps stop. The pumps will alternate positions automatically.

If the liquid level rises above the third level to the alarm level, the alarm will be activated. The alarm will be local with a red light mounted on the exterior wall of the Pump Station Panel Board or the top of the panel enclosure.

1.13 FIELD START UP

After installation, a pump station start-up shall be performed by the installing contractor under the supervision of the manufacture's authorized representative. One (1) day of field service shall be provided by an authorized, factory trained representative of the pump manufacturer. Services shall include, but not be limited to, inspection of the completed pump station installation to ensure that it has been performed in accordance with the manufacturer's instructions and recommendations, supervision of all field-testing and activation of the Pump Manufacturer's Warranty. The test shall demonstrate to the satisfaction of the Owner (DEP) that the equipment meets all specified performance criteria, is properly installed and anchored, and operates smoothly without exceeding the full load amperage rating of the motor. The Contractor shall be responsible for coordinating the required field services with the Pump Manufacturer.

2.0 PAYMENT

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The method payment for the AMD Duplex Pump Station as described above is to be included in the lump sum bid price, including furnishing all materials and doing all the work prescribed in a workmanlike and acceptable manner, including all labor, tools, equipment, supplies, and incidentals & appurtenances necessary to complete the work as shown on the drawings and described above.

35.0 PUMP STATION PANEL BOARD

This panel board shall be constructed to house the pump control panel as well as bring in the single phase main power and meter from the power utility company. The wood material utilized shall be pressure treated, and all exposed surfaces shall have two coats of oil-based water repellent stain applied. Metal soffit (brown in color) shall be utilized on the bottom side of canopy to prevent bees, or other animals from nesting. An industrial housing type outdoor light fixture shall be used under the canopy with 100 watt equivalent fluorescent bulb. This light shall be switched inside of the pump control panel.

The minimum width of this panel board shall be 8 feet, but is not limited to a wider width to be determined upon the selection of the appropriate size pump control panel. A 4 inch thick concrete pad shall be installed with a minimum depth of 4 feet and to extend the full length of the panel board. See the detailed drawing for any additional information and dimensions.

POWER SUPPLY

The power service shall be extended from an existing power pole to this new pump station board, and may need additional poles to be set, per the direction of the power utility company. Any work performed by such power utility company shall be direct billed to the DEP at no cost to the contractor. The contractor is responsible to initiate contact with power utility company and coordinate with the DEP engineer on any information to be provided to power utility company. The contractor shall meet all power utility company requirements for service pole and meter installation at the panel board. Any electrical work to be completed by the contractor shall meet any applicable electric codes, including the National Electric Code (NEC), and shall be done by a licensed electrician, where applicable.

36.0 3 INCH HDPE PUMP LINE

Pipe shall be 3 inch diameter, SDR 11 HDPE of standard manufacture. Install to manufacturers recommendations. Install the pipe as indicated in the specifications and/or as shown on the drawings.

Payment shall be for the actual length of pipe installed. This 3 inch HDPE pipe shall be used for an AMD pump line from the pump station to the pre-cast manhole #2. Provide all materials, equipment and personnel necessary for installation. Pipe shall be buried at least 2.5 feet deep. Use butt weld fusion process to join pipes. A qualified fusion technician shall supervise the fusion of all joints. See site plan for location.

37.0 3 INCH CLEANOUT

A wye shall be used with a flange welded on the end toward the surface, and a blind end shall be bolted to the stainless steel backer ring. Provide stainless steel bolts and nuts for this connection. The wye shall be of standard manufacture for 3 inch diameter HDPE pipe to allow 45° junction. Use butt weld fusion process to join fittings to pipes. A qualified fusion technician shall supervise the fusion of all joints. Payment shall be for each location installed.

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38.0 VACUUM/AIR RELIEF VALVE

A combination air release and air/vacuum valve shall be installed at the high point along the 3 inch HDPE pump line. The valve may be of cast iron construction, but must have stainless steel internal parts. A throttle device is not required for this application. This valve shall be located inside of pre-cast manhole #1 (separate bid item). The (SDR 11) 3 inch HDPE line has an outside diameter of 3.5 inches. A stainless steel service saddle with an OD (Outside Diameter) range of 3.48 to 3.52 inches, PowerSeal brand or equal, shall be used to mount the valve in a vertical upright position. The valve and service saddle shall have an outlet size of 1 inch NPT (National Pipe Thread). Payment for this item shall be for each location installed, and shall include the valve, service saddle, and any required fittings for proper installation.

39.0 FENCE

Provide and install all materials for a fence system around all sludge cells and ponds on project as shown on the drawings, as specified and as needed for a complete and proper installation. Contractor shall provide adequate numbers of skilled workman who are trained and experienced in the necessary crafts and who are familiar with specified requirements to perform the work in this section. Final location of fence and gates shall be approved by the DEP onsite representative.

FENCE

This item shall consist of providing all necessary material, equipment, and personnel needed to provide and install fence at the locations shown on the plans and/or as directed by the DEP on site representative.

Unless otherwise indicated, the ASAE Specifications for Farm Fence Construction shall apply. (ASAE EP250.2 DEC01). Exceptions to the specifications are listed below:

1. Woven wire fence fabric shall be used (10-47-6-11).
2. One strand of barbed wire shall be placed 3 inches above the top strand of the woven wire.
3. Use gate specifications for placing gates in fence line.
4. Line posts shall be placed a 10 feet with a maximum distance of 15 feet in rocky soil conditions.
5. Some fence curvature is anticipated.
6. Line posts shall have a minimum length of 7 ½ feet.
7. Posts may be driven, tamped, or set in concrete as necessary.
8. Landscape timbers with flat sides do not meet minimum thickness requirements, and shall NOT be utilized as line or brace posts.

MATERIALS

Woven wire fabric shall conform to the current American Society for Testing and Materials ASTM A116, Specifications for Zinc-Coated (Galvanized) Iron or Steel Farm-Field and Railroad Right-of-Way Wire Fencing. The wire shall be coated with Class-1 zinc coating.

Barbed wire shall be composed of one main strands of number 15 ½ gage wire with 16 gage round barbs. If four-point barbed wire is specified, barbs shall be spaced on approximately 5 inch centers. Barbed wire shall conform to the requirements of the current ASTM A121.

Smooth wire for braces shall be galvanized 0.40 oz per sq ft or aluminum-coated 0.34 oz per sq ft No 9 gage steel wire, minimum tensile strength 45,000 psi.

Wire ties, clamps and staples shall be coated equivalent to fence or barbed wire specified. Staples shall be 9-gage, and 1 inch long for use in dense hardwoods and 1.5 inch long for use in preservative-treated softwoods.

Nails, bolts, and other fence hardware shall be hot-dipped galvanized as per ASTM A153, Specifications for Zinc Coating (Hot Dip) on Iron and Steel Hardware.

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Wood posts and braces shall be pressure-preservative treated according to Federal Specification TT-W-571, Wood Preservation: Treating Practices, latest revision and may be round or square. Decay-resistant species may be used untreated if specified. Minimum normal size and lengths shall be as follows, or as specified in the plans.

Wood vertical corner, intermediate, and end posts shall be a minimum 6 inch top diameter or square and 8 feet length.

Wood horizontal brace posts shall be a minimum 4 inch top diameter or square and 7.5 feet length.

Wood vertical line posts shall be a minimum 4 inch top diameter or square, a minimum 7.5 feet length, and shall be set a minimum 3 feet deep. Post spacing shall be as specified on the plans. Posts pointed for driving shall be shaped before preservative treatment. Landscaping timbers with flat sides do not meet the minimum thickness; therefore, are not allowed.

ASSEMBLIES

Corner assemblies are constructed as two end assemblies with a single end post.

Horizontal brace assemblies shall have the end or corner, and brace, posts set a minimum of 3.0 feet deep. Brace posts shall be spaced to accommodate 7.5 minimum feet long brace. Horizontal braces shall be mounted 12 inch below the top of the end post.

Wire braces shall be four strands of 9 gage steel wire positively fastened 4 inch below the top of the post and 4 inch above grade. They shall be tightened (twisted) with a 0.75 X 1 inch wood slat or 0.38 inch diameter steel rod until the entire assembly is rigid. Slat or rods shall be left in position.

Diagonal brace assemblies recommended in soft soils shall have the end or corner, and brace posts set a minimum of 3.0 feet deep. Brace posts shall be spaced to accommodate 7.5 feet long brace. Fencing is stretched from the first brace post. Ends are filled in after wire is attached.

Pull-post assemblies shall be placed a maximum of 500 feet apart in straight runs and at the top and bottom (ridge and valley) of appreciable slope changes. Construction will follow the specifications. Smooth wire braces shall be placed as in details. See attached drawings for more details.

CONSTRUCTION

Contractor string shall be first stretched at the bottom to determine alignment of line posts and shall be temporarily fastened to end posts.

The fence shall be attached to one end (or corner) post and the fence stretchers attached to the opposite end (corner post) post (or pull-post assembly). The fence at the stretcher end is then attached directly to the pull-post corner or end. The fence or stretchers shall be attached to the first brace post in the assembly. Its design provides for maximum strain taken at this point. A slack span of fence fabric is used between the end (or corner) post and the first brace post after stretching is completed.

With the pull-post assembly the fence fabric shall be extended past the first post and attached to the middle post. The wires shall be cut and wrapped around the post. The tension for stretching the woven-wire fence shall be applied at two points on the clamp bar for all fences over 32 inch high by using stretchers designed and manufactured for that purpose. Stretchers shall be so designed that tension can be applied to both ends of the bar at the same time. All splices in the fabric shall be securely made, with a Western Union splice or commercial splicing device approved by the engineer. The tension for stretching the barbed wire shall be applied by use of single-wire stretchers designed and manufactured for that purpose, and in accordance with the manufacture's recommendations.

Method of measurement for this item shall be per liner foot of fence in conformance with the drawings, specifications and accepted by the DEP onsite representative or Engineer.

40.0 10 FOOT GATES

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Gates shall be hot-dipped galvanized as per ASTM A153 specifications for zinc coating (hot dip) on iron and steel hardware. Gates shall be painted. Preferred colors are green or tan.

Wood posts and braces shall be pressure-preservative treated according to Federal Specification TT-W-571, Wood Preservation: Treating Practices, latest revision and may be round or square. Decay-resistant species may be used untreated with prior approval.

Gateposts shall be a minimum 6-inch top diameter or square and 8 ft. long.

Postholes shall be a minimum of three (3) ft. deep and twelve (12) inch in diameter or square. Sides shall be nearly vertical. Posts shall be embedded in concrete. The embedment shall extend 2 inches above grade at the post and shall slope to grade at the edge of the concrete. Concrete shall have a minimum 28-day test strength of 4000 psi.

Posts shall be braced to support the weight of the gate. Conventional bracing or use of a dead man will be considered for approval.

The gates shall be four (4) 10 ft. wide, **two (2) inch diameter heavy-duty pipe gates or equivalent**. Provide a lockable latch, which includes protection for the lock. All hardware and/or accessories necessary for installation of gates shall be part of this lump sum bid price. Gates shall be located in area delineated by the DEP onsite representative. Payment shall be made at the completion of installation and acceptance by the DEP.

41.0 4 FOOT GATES

Gates shall be hot-dipped galvanized as per ASTM A153 specifications for zinc coating (hot dip) on iron and steel hardware. Gates shall be painted. Preferred colors are green or tan.

Wood posts and braces shall be pressure-preservative treated according to Federal Specification TT-W-571, Wood Preservation: Treating Practices, latest revision and may be round or square. Decay-resistant species may be used untreated with prior approval.

Gateposts shall be a minimum 6-inch top diameter or square and 8 ft. long.

Postholes shall be a minimum of three (3) ft. deep and twelve (12) inch in diameter or square. Sides shall be nearly vertical. Posts shall be embedded in concrete. The embedment shall extend 2 inches above grade at the post and shall slope to grade at the edge of the concrete. Concrete shall have a minimum 28-day test strength of 4000 psi.

Posts shall be braced to support the weight of the gate. Conventional bracing or use of a dead man will be considered for approval.

The gates shall be three (3) 4 ft wide, **two (2) inch diameter heavy-duty pipe gates or equivalent**. Provide a lockable latch, which includes protection for the lock. All hardware and/or accessories necessary for installation of gates shall be part of this lump sum bid price. Gates shall be located in area delineated by the DEP onsite representative. Payment shall be made at the completion of installation and acceptance by the DEP.

42.0 TEMPORARY FENCE

Provide and install all materials for a temporary fence system around all sludge cells and ponds on project to prevent cattle from interfering with construction areas as shown on the drawings, as specified and as needed for a complete and proper installation. Contractor shall provide adequate numbers of skilled workman who are trained and experienced in the necessary crafts and who are familiar with specified requirements to perform the work in this section. Location of fence and gates shall be approved by the DEP onsite representative.

Steel T-posts may be utilized with high tensile wire or barbed wire as necessary to keep cattle from crossing, and may require wooden corner and bracing posts (refer to permanent fence specifications and drawings for these applications). This temporary fence shall be paid for one time only and fence shall be maintained throughout the project, and until such permanent fencing is installed.

Method of measurement for this item shall be per liner foot of fence construction and removal in conformance with the drawings, specifications and accepted by the DEP onsite representative or Engineer.

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BID PREPARATION INFORMATION

HISTORICAL INFORMATION

Prospective bidders may review files at the West Virginia Department of Environmental Protection, Charleston, WV office, or the Regional West Virginia Department of Environmental Protection Office at 105 South Railroad St., Philippi, WV 26416. These files may contain additional information not included in the contract. Documents including, but not limited to, permit applications, permits, inspection reports, environmental documents, permit violation history, geological and geotechnical information, probable hydrologic consequences, maps, modifications, NPDES information and other related data. Copies may be obtained upon request and payment of copying fees.

EXAMINATION OF BID PACKAGE AND SITE OF WORK

The bidder is required to examine, carefully, the bid package (plans, specifications, supplemental specifications, contract forms, etc.) and the site of the work contemplated. The submission of a bid shall be considered prima facie evidence that the bidder has made such examination and has judged for and satisfied themselves as to the character, quantity, and quality of work to be performed and the materials required to be furnished under the contract.

PREBID CONFERENCE

Only the prospective bidders on the sign-in sheet in attendance for the entire Pre-Bid Conference will be eligible to submit bids for consideration of this project. Considerable foot travel over rough terrain and/or inclement weather may be required.

VIDEO

The information given at the pre-bid showing by the project contact person or the assigned person shall be documented on video tape and shall be an integral part of this contract's requirements, but will not supersede the written contract. All information on video tape that is new or provides clarification to the specifications, will be issued in writing by a formal addendum and will become part of the written contract.

INTENT OF CONTRACT

The intent of the contract is for the reclamation/restoration of forfeited mine lands as required by West Virginia Department of Environmental Protection. The contractor is to provide for the construction and completion in every detail of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the Plans, Specifications, and terms of the Contract.

Should any misunderstanding arise as to the intent or meaning of the Contract, or any discrepancy appear, the decision of the Director of Division of Land Restoration shall be final.

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GENERAL PERFORMANCE STANDARDS

INTRODUCTION

The performance standards and non-compliance penalties which govern special reclamation-bond forfeiture projects are in Chapter 22A, Article 3, of the Code of West Virginia and subsequent rules and regulations. The following performance standards are of a general nature and do not represent all the performance standards applicable to a special reclamation-bond forfeiture project. However, some or all of these standards will pertain to each project.

BACKFILLING

1. Unless otherwise noted, the highwall shall be eliminated and the disturbed area graded to the approximate original contour.
2. The material used to backfill and eliminate the highwall shall be sufficiently compacted so as to insure stability of the backfill throughout the warranty period.
3. The land above the highwall shall not be disturbed unless otherwise directed.
4. The best available material to support vegetation, sufficient to establish a permanent vegetative cover and to achieve the approved post mining land use, shall be used.

BLASTING

The performance standards of the blasting regulations must be adhered to.

LIFE OF CONTRACT

The purchase order contract becomes effective on the starting date as specified in the notice to proceed as issued by the Department of Environmental Protection. This contract extends for a period of one (1) year and may be renewed until such "reasonable time" thereafter as is necessary to complete the payment therefore. A responsible Contractor's Agent shall be on the site at all working times who demonstrates a knowledge of mined land reclamation, contract requirements and responds to DEP (owner) inspections.

WORK PERFORMANCE PERIOD

The work performance period is a defined portion of the contract in which all items shall be completed. The work performance period is to be performed within 365 calendar days. Extensions may be granted based upon contractor's performance, weather conditions and site-specific site conditions.

NOTICE TO PROCEED

A notice to proceed shall be issued to the Contractor by the project contact person for the Department of Environmental Protection. Actual construction may only begin after a Notice to Proceed is given and as specified. Such notice shall specify the starting date of the Purchase Order, the work performance period, and the completion date of the work performance period.

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PRE-CONSTRUCTION CONFERENCE

The Contractor in possession of the awarded purchase order shall schedule a Pre-Construction Conference on the site within ten (10) days after receiving the Notice To Proceed. The Contractor's foreman or the on-the-ground supervisor must be in attendance.

GENERAL SUPERVISION

This contract is under the general supervision of the West Virginia Department of Environmental Protection's contact person for the purpose of contract compliance inspection only. Contractor shall supervise work being conducted at all times. All services rendered by the Engineer/Contact Person consist of professional opinions and recommendations made in accordance with generally accepted engineering practice. Under no circumstances is it the intent of the Engineer/Contact Person to directly control the physical activities of the Contractor or the Contractor's workmen's accomplishment of work on this project.

CONTRACTOR RESPONSIBILITY

The contractor is responsible for compliance with all aspects of this written contract. No changes will be honored without prior approval from the Program Supervisor.

LAWS TO BE OBSERVED

The Contractor shall keep fully informed of all Federal and State laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders and decrees; and shall protect and indemnify the State and its representatives against any claim or liability arising from or based on the violation of any such laws, ordinances, regulations, orders, or decrees, whether by themselves, their subcontractors or their employees.

PERMITS, LICENSES AND TAXES

The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the work.

CONCURRENT RECLAMATION

Reclamation of this project shall commence at a definite point as defined and shall progress from that point with total reclamation to include backfilling, grading/regrading, and revegetation. Changes may be granted based upon weather or differing site conditions with prior approval.

WATER QUALITY CONTROL

Shall commence with initial start-up of the project and remain in effect for the extent of the backfilling, regrading and revegetation activity. DEP obtains a storm water permit for each project from the Water Resources Division. (General Water Pollution Control Permit WVO115924) The Contractor is responsible for performing the best management practices. Adequate facilities shall be installed, operated and maintained using the best management practices of the U.S. Environmental Protection Agency's Non-Point Source (NPS) Program for sediment control during the active reclamation. The contractor shall take any and all steps necessary to prevent erosion or silting problems from occurring and to minimize pollution or sedimentation of the stream. If any such

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problems develop, the contractor shall be responsible to take immediate corrective action. No separate payment for this work will be honored. All impounded waters which require removal during reclamation, shall be pumped with appropriate measures taken to prevent erosion from the discharge. The contractor shall be responsible for treatment of said waters to meet pH standards. The water shall be discharged only when the quality meets a pH equivalent to the pH of the receiving stream but not less than 6.0.

DIFFERING SITE CONDITIONS

During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided by the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before they are disturbed and before the affected work is performed.

Upon written notification, the Engineer/Contact Person will investigate the conditions, and if determined that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding loss of anticipated profits, will be made and the contract modified in writing accordingly. The Engineer/Contact Person will notify the Contractor of DEP's determination whether or not an adjustment of the contract is warranted.

No contract adjustment which results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.

No contract adjustment will be allowed under this clause for any effects caused on unchanged work.

HANDLING AND STORAGE OF MATERIALS

Materials which are stored on site, before utilization, shall be stored so as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may be inspected again prior to their use in the work. Damaged or deteriorated materials shall be removed and replaced by materials meeting the original specifications.

Aggregate stockpiles shall be made on ground that is denuded of vegetation, hard, and well drained. Removal of aggregate from the stockpile shall be done in a manner which will not result in the inclusion of foreign material into the aggregate. The use of the aggregate will determine if exceptions are permitted.

All materials shall be handled in such a manner as to preserve their quality and fitness for the work.

MAINTENANCE DURING CONSTRUCTION

The contractor shall maintain the work during construction and until the project is accepted. All cost of maintenance work during construction and before the project is accepted shall be included in the unit or lump sum prices on the various pay items.

FINAL INSPECTION

A final inspection meeting by the Department of Environmental Protection's Specialist and the contractor is required for the construction phase and prior to demobilization.

ACREAGE QUANTITIES

The acreage quantities in this contract are for bidding purpose and are set (definite) number for the project area as specified at the pre-bid showing. Only surveyed acreage's through figures the Contractor and/or the State develops will be honored to alter these acreage numbers.

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PAYMENT

Invoices must be submitted on prescribed Department of Environmental Protection, Special Reclamation Program forms and include verification. Certified contractor payrolls for operators directly involved in this project and a current workers compensation certificate must accompany each invoice for payment. Verification of wage rates may include employee interviews. Invoices shall be signed in blue ink so that it is easy to verify that document is an original. Vendor should submit with their bid the current remit-to address to be used for payment processing.

MOBILIZATION/DEMOLIBILIZATION shall be invoiced at fifty percent (50%) with the first invoice and the last 50% invoiced after demobilization and acceptance of the road abandonment or final invoice. Demobilization must have written approval.

SPILL CONTAINMENT AREA shall not exceed \$1,000.00 and will be payable in two payments. The first fifty percent (50%) payable with the first invoice and the remainder payable when all fuel tanks, containers and etc., are removed from the site.

Lump sum items shall be percentage payments based on work completed at time of invoice and paid upon acceptance by the Department of Environmental Protection.

Unit items shall be invoiced by specified units completed and accepted by the DEP.

ROAD ABANDONMENT shall be included in the final construction invoice, when necessary.

FAILURE TO COMPLETE ON TIME AND LIQUIDATED DAMAGES

Time is an essential element of the Contract and it is important that the work be completed within the time specified. The cost to the Department of the administration of the Contract, including engineering, inspection and supervision, will increase as the time required to complete the work is increased.

The work performance period as specified in the contract's Notice to Proceed shall be complied with or result in liquidated damages. Such damages shall be assessed at an amount of two hundred and fifty dollars (\$250.00) per day for each and every day beyond the work performance period as specified in the Notice to Proceed. The total amount of daily charges will be deducted from any moneys due the Contractor, not as a penalty but as liquidated damages.

REVEGETATION AND WARRANTY

The seeding date shall be at the discretion of the contractor once an approved seedbed has been prepared. In all cases a permanent vegetative cover capable of supporting the post-mining land use must be established. A warranty period of one (1) year shall commence upon completion and payment of the revegetation item of the contract. No payment will be made for additional seeding necessary to comply with warranty requirements. The warranty period will be extended for one (1) year from the date of the last augmented seeding done by the contractor. The performance bond and labor and materials bond shall remain in effect throughout the warranty period. The Standards for Evaluating Vegetative Cover as presented in Title 38, CSR2, Section 9 of the West Virginia Surface Mining Reclamation Regulations will apply.

Equipment for the retracking/scarification to eliminate rills and gullies shall be mobilized and utilized to produce slopes consistent with the regrading and topsoiling bid item prior to warranty reseeding. No additional payment will be made by DEP for this warranty work.

Water utilized for hydroseeding shall be free of injurious or other toxic substances harmful to plant life. The source of water is subject to the approval of the DEP contact person.

CONTRACT NON-COMPLIANCE

If in the opinion of the Department of Environmental Protection the contract is not in compliance with any line item specification, that portion of the project shall cease until a compliance schedule and understanding is demonstrated in writing and accepted by the Director of Division of Land Restoration.

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CONTRACT DELETIONS

Any line item, or any portion thereof, may be deleted when determined by the project contact person that such line item, or portion thereof, is deemed unnecessary for the successful reclamation of this project. No claim for loss of anticipated profits will be considered.

CANCELLATION

The performance of work under contract may be terminated by the State in whole, or from time to time in part whenever the State shall determine that such termination is in the best interest of the State. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance of work under the Contract is terminated and the date upon which such termination becomes effective.

When contracts, or any portion thereof, are terminated before completion of all items of work in the Contract, payment will be made for the actual number of units or items of work completed and accepted at the contract unit price. No claim for loss of anticipated profits will be considered. Reimbursement for organization of the work, when not otherwise included in the Contract, and moving equipment to and from the job will be considered where the volume of work completed and accepted is too small to compensate the Contractor for these expenses under the contract unit prices, the intent being that an equitable settlement will be made with the Contractor.

Termination of the Contract or a portion thereof shall not relieve the Contractor of his responsibilities for the completed work, nor shall it relieve his surety of its obligation for and concerning any just claims arising out of the work performed.

This contract may be cancelled in whole or in part in writing by the Director of Purchasing, without prejudice to any other right or remedy it may have, provided that the contractor is given not less than thirty (30) calendar days written notice, (delivered by certified mail, return receipt requested) of intent to terminate. This contract objective is to comply with the reclamation laws of this state and must be expedient to meet the time requirements for reclamation of revoked surface mine permits.

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Attn:

S

A

Re: Notice to Proceed

Permit Name: _____

Permit No. _____

Purchase Order No.: DEP_____

Dear :

M

The purpose of this letter is to express our appreciation for your work in advance and to recognize a reclamation partnership project. The official starting date for the above mentioned purchase order is _____. The work performance period must be completed by _____. The contract life of one year is provided to accomplish all line items and to process all payments within that period.

You must schedule a pre-construction conference on site within ten (10) days after receiving this notice to proceed. It is then mandatory that construction begins within ten (10) days of the pre-construction conference and continues diligently until completion of the project. Please contact this office to schedule the pre-construction conference. The foreman, superintendent or on the ground supervisor must be in attendance at this conference.

Failure to comply with this notice to proceed will cause termination of the contract and forfeiture of your performance bond.

If you have any questions please feel free to contact this office.

L

Sincerely,

E

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General Requirements

Project Construction Sign

Work Required

The work to be performed under this Section consists of providing all labor, material and equipment necessary to install a project sign as indicated on the detail included herein and as specified herein.

Materials

Paint. Paint for the project sign shall be one (1) coat Exterior-Grade Wood Primer- Sealer, and two (2) coats Exterior-Grade Enamel by Glidden or equivalent.

Wood. Sign face shall be ¾" X 4' X 8' Marine Exterior plywood, and posts and cross braces shall be treated.

Hardware. All hardware shall be manufactured from good, commercial-quality material and be rust resistant such as galvanized coated.

Execution

Project Sign. The signboard shall be cut to the dimensions shown on the details herein. The sign shall be painted with one (1) coat of primer and two (2) coats of white enamel. All exterior cut edges shall be smooth sanded prior to painting. All edges shall be double primed. The letters, border and strips shall be painted as shown on the detail drawing.

The Contractor shall bolt the sign to posts and provide required cross bracing. The posts and sign shall be erected and posts set in gravel base, as shown on the drawings. One (1) sign is required and is to be located at the direction of WVDEP.

Payment. Payment for the work which shall include installation of the project sign shall be incidental to the lump sum bid item for "Mobilization/Demobilization"

Note: No construction work shall commence prior to the project sign being installed.

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POLY FLEX LINER SPECIFICATIONS

1. GENERAL REQUIREMENTS

1.1 Scope

The following describes parameters for the manufacture, supply, and installation of Poly-Flex polyethylene geomembranes. All procedures, operations, and methods shall be in strict accordance with the engineer's specifications, plans, and drawings.

1.2 Qualifications of Contractor Work Activities

1.2.1 Manufacturing

The manufacturer shall have at least five (5) years continuous experience in manufacturing polyethylene geomembrane and/or experience totaling 10,000,000 square feet of manufactured polyethylene geomembrane.

1.2.2 Installation

The installation contractor shall be the manufacturer or a dealer trained to install the manufacturer's geomembrane.

Installation shall be performed under the constant direction of a field installation supervisor who shall remain on site and be responsible, throughout the liner installation, for liner layout, seaming, testing, repairs, and all other activities by the Installer. The field installation supervisor shall have installed or supervised the installation of a minimum of 2,000,000 square feet of polyethylene geomembrane. Seaming shall be performed under the direction of a master seamer (who may also be the field installation supervisor) who has seamed a minimum of 2,000,000 square feet of polyethylene geomembrane, using the same type of seaming apparatus specified for this project. The field installation supervisor and/or master seamer shall be present whenever seaming is performed.

1.3 Submittals

1.3.1 Manufacturer

The manufacturer shall provide the following information:

A. Submittals After Contract Award, Prior to Liner Installation

1. List of material properties.
2. Manufacturing quality control program.
3. Copy of quality control certificates issued by the resin supplier.
4. Copy of quality control certificates for the geomembranes in conformance with Section 2.4.3.

1.3.2 Installation Contractor

The installer shall provide the following written information:

A. Submittals by Successful Bidder Prior to Commencement of Installation

A list of completed facilities, totaling a minimum of 2,000,000 square feet, for which the installer has installed polyethylene geomembrane. For each installation, the following information shall be provided:

- a. Name and purpose of facility, location, and date of installation.
- b. Name of owner, design engineer, manufacturer, and name and telephone number of contact at the facility who can discuss the project.
- c. Thickness and quantity of the installed geomembrane.

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POLY FLEX LINER SPECIFICATIONS

d. Proposed installation panel layout.

1.4 Meeting

A daily meeting shall be held at the work area just prior to commencement of the work to discuss work activities. The earthwork contractor, the liner installer and the inspector shall be present.

1.5 Warranty

A written Warranty shall be obtained from the manufacturer (for material) and the installation contractor (for workmanship). These documents shall warrant both the quality of the material and workmanship for a specified duration of time.

2. MATERIAL SPECIFICATIONS

2.1 Materials

1. The geomembrane shall be High-Density Polyethylene (HDPE) or Linear Low Density Polyethylene (LLDPE).
2. Gasket material shall be neoprene, closed cell medium, 1/4-inch thick, 2 inches wide with adhesive on one side, or other compatible gasket materials as required.
3. Metal battens or banding and hardware shall be stainless steel.
4. Water cut-off mastic shall be Neoprene Flashing Cement as supplied by Poly-Flex, Inc., or as required.
5. Sealant shall be General Electric Silicone, RTV 103, or equivalent.

2.2 Geomembrane Raw Materials

The geomembrane shall be manufactured of polyethylene resins produced in the United States and shall be compounded and manufactured specifically for the intended purpose. The resin manufacturer shall certify each lot for the following properties.

The natural polyethylene resin without the carbon black shall meet the following requirements:

Property	Test Method	HDPE	LLDPE
		Requirements	Requirements
Density, g/cc	ASTM D 1505 or ASTM D 792	0.935 - 0.940	0.915 - 0.926
Melt Index, g/10 min.	ASTM D 1238 Condition E	<0.4	<0.6

2.3 Rolls

The geomembrane shall be a minimum 23.0 ft seamless width, as manufactured by Poly-Flex, Inc. (2000 W. Marshall Dr., Grand Prairie, TX 75051, 888-765-9359). Carbon black shall be added to the resin if the resin is not compounded for ultra-violet resistance.

The surface of the smooth geomembrane shall not have striations, roughness, pinholes, or bubbles.

The geomembrane shall be supplied in rolls. Labels on each roll shall identify the thickness of the material, the length and width of the roll, lot and roll numbers, and name of manufacturer.

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POLY FLEX LINER SPECIFICATIONS

Applicable Test Methods

American Society for Testing and Materials (ASTM)

ASTM D 792	Specific gravity (relative density) and density of plastics by displacement
ASTM D 1004	Initial tear resistance of plastic sheeting
ASTM D 1238	Flow rates of thermoplastics by extrusion plastometers
ASTM D 1505	Density of plastics by the Density-Gradient technique
ASTM D 1603	Carbon black in olefin plastics
ASTM D 1898	Sampling of plastics
ASTM D 3895	Test method for oxidative induction time of polyolefins by thermal analysis
ASTM D 4833	Index Puncture Resistance of geotextiles, geomembranes and related products
ASTM D 5199	Test method for measuring nominal thickness of geotextiles and geomembrane
ASTM D 5323	Determination of 2% secant modulus for polyethylene geomembranes
ASTM D 5397	Procedure to perform a single point notched constant tensile load - Appendix (SP-NCTL) test
ASTM D 5596	Test method for microscopic evaluation of the dispersion of carbon black in polyolefin geosynthetics
ASTM D 5617	Multi-axial tension test for geosynthetics
ASTM D 5721	Practice for air-oven aging of polyolefin geomembranes
ASTM D 5885	Test method for oxidative induction time of polyolefin geosynthetics by high pressure differential scanning calorimetry
ASTM D 5994	Test method for measuring the core thickness of textured geomembranes
ASTM D 6392	Determining the integrity of nonreinforced geomembrane seams produced using thermo-fusing methods
ASTM D 6693	Determining tensile properties of nonreinforced polyethylene and nonreinforced flexible polypropylene geomembranes

Geosynthetic Research Institute (GRI)

GRI GM 10	Specification for the stress crack resistance of geomembrane sheet
GRI GM 11	Accelerated weathering of geomembranes using a florescent UVA-condensation exposure device
GRI GM 12	Measurement of the asperity height of textured geomembranes using a depth gauge

The geomembrane rolls shall meet the following specifications:

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POLY FLEX LINER SPECIFICATIONS

SMOOTH HDPE GEOMEMBRANE (ENGLISH UNITS)

Property	Test Method	<u>Minimum Average Values</u>				
		30 mil	40 mil	60 mil	80 mil	100 mil
Thickness, mils	ASTM D 5199					
minimum average		30	40	60	80	100
lowest individual reading		27	36	54	72	90
Sheet Density, g/cc	ASTM D 1505/D 792	0.940	0.940	0.940	0.940	0.940
Tensile Properties ¹	ASTM D 6693					
1. Yield Strength, lb/in		63	84	126	168	210
2. Break Strength, lb/in		114	152	228	304	380
3. Yield Elongation, %		12	12	12	12	12
4. Break Elongation, %		700	700	700	700	700
Tear Resistance, lb	ASTM D 1004	21	28	42	56	70
Puncture Resistance, lb	ASTM D 4833	54	72	108	144	180
Stress Crack Resistance ² , hrs	ASTM D 5397 (App.)	300	300	300	300	300
Carbon Black Content ³ , %	ASTM D 1603	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	--Note 4--				
Oxidative Induction Time (OIT)						
Standard OIT, minutes	ASTM D 3895	100	100	100	100	100
Oven Aging at 85°C	ASTM D 5721					
High Pressure OIT - % retained after 90 days	ASTM D 5885	80	80	80	80	80
UV Resistance ⁵	GRI GM11					
High Pressure OIT ⁶ - % retained after 1600 hrs	ASTM D 5885	50	50	50	50	50
Seam Properties	ASTM D 6392					
	(@ 2 in/min)					
1. Shear Strength, lb/in		57	80	120	160	200
2. Peel Strength, lb/in - Hot Wedge		45	60	91	121	151
- Extrusion Fillet		39	52	78	104	130
Roll Dimensions						
1. Width (feet):		23	23	23	23	23
2. Length (feet)		1000	750	500	375	300
3. Area (square feet):		23,000	17,250	11,500	8,625	6,900
4. Gross weight (pounds, approx.)		3,470	3,470	3,470	3,470	3,470

- Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of 5 test specimens each direction. Yield elongation is calculated using a gauge length of 1.3 inches; Break elongation is calculated using a gauge length of 2.0 inches.
- The yield stress used to calculate the applied load for the SP-NCTL test should be the mean value via MQC testing.
- Other methods such as ASTM D 4218 or microwave methods are acceptable if an appropriate correlation can be established.
- Carbon black dispersion for 10 different views: Nine in Categories 1 and 2 with one allowed in Category 3.
- The condition of the test should be 20 hr. UV cycle at 75°C followed by 4 hr. condensation at 60°C.
- UV resistance is based on percent retained value regardless of the original HP-OIT value.

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POLY FLEX LINER SPECIFICATIONS

2.4 Quality Control Specifications

2.4.1 Raw Materials

A. Resin

All resins for use in geomembrane must pass a candidate pre-approval process before being eligible for use. Each incoming railcar shall be sampled by compartment with the following testing performed and compared to the manufacturer's specifications:

1. Density: ASTM D 1505.
2. Melt Index: ASTM D 1238.
3. Oxidative Induction Time (OIT): ASTM D 3895.

B. Additives

All incoming materials are to be tested and approved prior to use with the following testing performed and compared to the manufacturer's specifications:

1. Carbon Black Content: ASTM D 1603.
2. Oxidative Induction Time (OIT): ASTM D 3895.

2.4.2 Finished Product: During Production

A. Inspection

Performed on each roll during manufacturing.

1. Appearance

Sheet surface appearance shall be monitored for flaws.

2. Thickness

A full width sample shall be cut from the end of each roll for thickness measurement.

B. Roll Identification

Four tags per roll shall be used.

1. Outside the core.
2. On the core plug.
3. On the roll surface.
4. On the production roll sample.

C. Out-of-Spec. Material

Any roll not meeting the specification for any of the above inspections shall be separated from other rolls and placed on hold.

2.4.3 Manufacturer's Quality Control & Quality Assurance Testing

A. Sampling

Full width samples shall be taken as retains from the end of each roll to the manufacturer's laboratory.

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POLY FLEX LINER SPECIFICATIONS

B. Testing

The geomembrane quality control testing shall meet the following frequency requirements:

Property	Test Method	Testing Frequency (min.)
Thickness (smooth sheet) (textured sheet)	ASTM D 5199 ASTM D 5994	per roll
Asperity Height (textured sheet only) Alternate the measurement side for double-sided textured sheet.	GRI GM12	every second roll
Sheet Density	ASTM D 1505/D 792	200,000 lb (90,000 kg)
Tensile Properties 1. Yield Strength (HDPE only) 2. Break Strength 3. Yield Elongation (HDPE only) 4. Break Elongation	ASTM D 6693	20,000 lb (9,000 kg)
2% Modulus (LLDPE only)	ASTM D 5323	per each formulation
Tear Resistance	ASTM D 1004	45,000 lb (20,000 kg)
Puncture Resistance	ASTM D 4833	45,000 lb (20,000 kg)
Axi-Symetric Break Strain (LLDPE only)	ASTM D 5617	per each formulation
Stress Crack Resistance (HDPE only)	ASTM D 5397 (App.)	per GRI GM10
Carbon Black Content	ASTM D 1603	20,000 lb (9,000 kg)
Carbon Black Dispersion	ASTM D 5596	45,000 lb (20,000 kg)
Oxidative Induction Time (OIT) Standard OIT	ASTM D 3895	200,000 lb (90,000 kg)
Oven Aging at 85°C High Pressure OIT	ASTM D 5721 ASTM D 5885	per each formulation
UV Resistance	GRI GM11	
High Pressure OIT	ASTM D 5885	per each formulation

C. Welding Rod

A sample of welding rod shall be tested at the frequency of once per 25 rolls of welding rod. The following tests shall be performed on the sample:

1. Diameter ASTM D 5199

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POLY FLEX LINER SPECIFICATIONS

- | | |
|-------------------------|-------------|
| 2. Density | ASTM D 1505 |
| 3. Melt Index | ASTM D 1238 |
| 4. Carbon Black Content | ASTM D 1603 |

D. Reporting

Results from the testing shall be reviewed by the quality control manager. Material that does not meet specifications shall be identified and placed on hold. The test data shall then be transferred to the product data file for roll certification.

3. GEOMEMBRANE INSTALLATION

3.1 Materials Logistics

3.1.1 Transportation and On-site Storage

The geomembrane rolls shall be shipped by flatbed trailer to the job site. The geomembrane shall be stored so as to be protected from puncture, dirt, grease, moisture and excessive heat. Damaged material shall be stored separately for repair or replacement. The rolls shall be stored on a prepared smooth surface (not wooden pallets) and should not be stacked more than two rolls high.

3.2 Earthwork

3.2.1 General

The owner or his representative (soil quality assurance inspector) shall inspect the subgrade preparation. Prior to liner installation the subgrade shall be compacted in accordance with the project specifications. Weak or compressible areas which cannot be satisfactorily compacted should be removed and replaced with properly compacted fill. All surfaces to be lined shall be smooth, free of all foreign and organic material, sharp objects, or debris of any kind. The subgrade shall provide a firm, unyielding foundation with no sharp changes or abrupt breaks in grade. Standing water or excessive moisture shall not be allowed.

The installer, on a daily basis, shall approve the surface on which the geomembrane will be installed. After the supporting soil surface has been approved, it shall be the installer's responsibility to indicate to the inspector any changes to its condition that may require repair work.

3.2.2 Anchor Trench

The anchor trench shall be excavated to the line, grade, and width shown on the project construction drawings, prior to liner system placement. Slightly rounded corners shall be provided in the trench to avoid sharp bends in the geomembrane.

3.3 Method of Placement

The rolls shall be deployed using a spreader bar assembly attached to a loader bucket or by other methods approved by the project engineer.

The installer shall be responsible for the following:

1. Equipment or tools shall not damage the geomembrane during handling, transportation and deployment.
2. Personnel working on the geomembrane shall not smoke or wear damaging shoes.
3. The method used to unroll the panels shall not cause scratches or crimps in the geomembrane and shall not damage

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POLY FLEX LINER SPECIFICATIONS

the supporting soil.

4. Adequate loading (e.g., sand bags or similar items that will not damage the geomembrane) shall be placed to prevent uplift by wind (in case of high winds, continuous loading is recommended along edges of panels to minimize risk of wind flow under the panels).

3.3.1 Weather Conditions

Geomembrane deployment shall proceed between ambient temperatures of 32° F and 104° F. Placement can precede below 32° F only after it has been verified by the inspector that the material can be seamed according to the specification. Geomembrane placement shall not be done during any precipitation, in the presence of excessive moisture (e.g., fog, rain, dew) or in the presence of excessive winds, as determined by the installation supervisor.

3.4 Field Seaming

Approved seaming processes are fusion and extrusion welding. On side slopes, seams shall be oriented in the general direction of maximum slope, i.e., oriented down, not across the slope. In corners and odd-shaped geometric locations, the number of field seams shall be minimized.

No base T-seam shall be closer than 5 feet from the toe of the slope. Seams shall be aligned with the least possible number of wrinkles and "fishmouths". If a fishmouth or wrinkle is found, it shall be relieved and cap-stripped.

3.4.1 Seam Overlap

Geomembrane panels must have a finished minimum overlap of 4 inches for fusion welding and 6 inches for extrusion welding.

Cleaning solvents may not be used unless the product is approved by the liner manufacturer.

3.4.2 Test Seams

Field test seams shall be conducted on the liner to verify that seaming conditions are satisfactory. Test seams shall be conducted at the beginning of each seaming period and at least once every 4 hours, for each seaming apparatus and personnel used that day.

All test seams shall be made in contact with the subgrade. Welding rod used for extrusion welding shall have the same properties as the resin used to manufacture the geomembrane. The test seam samples shall be 10 feet long for fusion welding and 3 feet long for extrusion welding with the seam centered lengthwise. Three specimens shall be cut from each end of the test seams by the inspector. The inspector shall use a tensiometer to test 3 specimens for shear and 3 specimens for peel. Each specimen shall be one inch wide with a grip separation of 4 inches plus the width of the seam. The seam shall be centered between the clamps. The rate of grip separation shall be 2 inches per minute.

3.4.3 Assessment of Seam Test Results

For both smooth and textured seams the strength of two out of three 1.0 inch (25 mm) wide strip specimens should meet or exceed values given in this specification. The third must meet or exceed 80% of the given values. The shear percent elongation should exceed 50%. The assumed gauge length is considered to be the unseamed sheet material on either side of the welded area. Elongation measurements should be omitted for field testing. In addition, the peel separation should not exceed 25% based on the proportion of area of separated bond to the area of the original bonding. Regarding the locus-of-break patterns of the different seaming methods in shear and peel, the following are unacceptable break codes per their description in the ASTM D 6392. In this regard, SIP is an acceptable break code.

Unacceptable Break Codes

Hot Wedge: AD and AD-BRK > 25%

Extrusion Fillet: AD1, AD2 and AD-Weld (unless strength is achieved)

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POLY FLEX LINER SPECIFICATIONS

3.4.4 Non-Destructive Seam Testing

The installer shall non-destructively test all field seams over their full length.

A. Vacuum Box Testing

Equipment for testing extrusion seams shall be comprised of the following:

1. A vacuum box assembly consisting of a rigid housing, a transparent viewing window, a soft rubber gasket attached to the bottom, port hole or valve assembly, and a vacuum gauge.
2. Soapy solution in a plastic bucket with a mop.

The following procedures shall be followed by the installer:

1. Excess sheet overlap shall be trimmed away.
2. Wet a strip of geomembrane approximately 12 inches wide by the length of box with the soapy solution.
3. Place the box over the wetted area and compress.
4. Create a vacuum of 3 - 5 psi.
5. Ensure that a leak tight seal is created.
6. For a period of approximately 10 seconds, examine the geomembrane through the viewing window for the presence of animated soap bubbles.
7. If no animated bubbles appear after 10 seconds, close the vacuum valve and open the bleed valve, move the box over the next adjoining area with a minimum 3 inches overlap and repeat the process.
8. All areas where animated soap bubbles appear shall be marked, repaired and then retested.

The following procedures shall apply to locations where seams cannot be non-destructively tested.

1. If the seam is accessible to testing equipment prior to final installation, the seam shall be non-destructively tested prior to final installation.
2. If the seam cannot be tested prior to final installation, the seams shall be spark tested according to the spark tester manufacturer's procedures.

B. Air Pressure Testing (For Double Fusion Seams Only)

Equipment for testing double fusion seams shall be comprised of the following:

1. An air pump equipped with pressure gauge capable of generating and sustaining a pressure between 25 and 30 psi.
2. A pressure gauge equipped with a sharp hollow needle.

The following procedures shall be followed by the installer:

1. Seal one end of the seam to be tested.
2. Insert needle or other approved pressure feed device through the sealed end of the channel created by the double wedge fusion weld.
3. Energize the air pump to verify the unobstructed passage of air through the channel.
4. Seal the other end of the channel.
5. Energize the air pump to a pressure between 25 and 30 psi, close valve, allow 2 minutes for the injected air to come to equilibrium in the channel, and sustain pressure for approximately 5 minutes.

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POLY FLEX LINER SPECIFICATIONS

6. If loss of pressure exceeds 4 psi, or pressure does not stabilize, locate faulty area, repair and retest.
7. If pressure does not drop below the acceptable value after five minutes, cut the air channel open at the opposite end from the pressure gauge. The air channel should deflate immediately indicating that the entire length of the seam has been tested.

3.4.5 Destructive Seam Testing

Destructive seam testing should be minimized to preserve the integrity of the liner. The installer shall provide the inspector with one destructive test sample per project specifications (usually once per 500 feet of seam length) from a location specified by the inspector.

A. Sampling Procedure

In order to obtain test results prior to completion of liner installation, samples shall be cut by the installer as the seaming progresses. The installer shall also record the date, location, and pass or fail description. All holes in the geomembrane resulting from obtaining the seam samples shall be immediately patched and vacuum tested.

B. Size and Disposition of Samples

The samples shall be 12 inches wide by 36 inches long with the seam centered lengthwise. The sample shall be cut into three equal-length pieces, one to be given to the inspector, one to be given to the owner and one to the installer.

C. Field Laboratory Testing

The inspector shall test ten 1-inch wide specimens from his sample, five specimens for shear strength and five for peel strength.

D. Independent Laboratory Testing

The owner, at his discretion and expense, may send seam samples to a laboratory for testing. The test method and procedures to be used by the independent laboratory shall be the same as used in field testing.

E. Procedures for Destructive Test Failure

The following procedures shall apply whenever a sample fails the field destructive test:

1. The installer shall cap strip the seam between the failed location and any passed test locations.
2. The installer can retrace the welding path to an intermediate location (usually 10 feet from the location of the failed test), and take a sample for an additional field test. If this test passes, then the seam shall be cap stripped between that location and the original failed location. If the test fails, then the process is repeated.
3. Over the length of seam failure, the installer shall either cut out the old seam, reposition the panel and reseam, or add a cap strip.

3.4.6 Defects and Repairs

All seams and non-seam areas of the geomembrane shall be inspected by the inspector for defects, holes, blisters, undispersed raw materials, and any sign of contamination by foreign matter. The surface of the geomembrane shall be clean at the time of inspection.

A. Evaluation

Each suspect location in seam and non-seam areas shall be non-destructively tested as appropriate in the presence of the inspector. Each location that fails the non-destructive testing shall be marked by the

BUYER CB-23		REQ. OR P.O. No. DEP 15250
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POLY FLEX LINER SPECIFICATIONS

inspector, and repaired accordingly.

B. Repair Procedures

1. Defective seams shall be cap stripped or replaced.
2. Small holes shall be repaired by extrusion welding a bead of extrudate over the hole. If the hole is larger than $\frac{1}{4}$ inch, it shall be patched.
3. Tears shall be repaired by patching. If the tear is on a slope or an area susceptible to stress and has a sharp end it must be rounded prior to patching.
4. Blisters, large cuts and undispersed raw materials shall be repaired by patches.
5. Patches shall be completed by extrusion welding. The weld area shall be ground no more than 10 minutes prior to welding. No more than 10% of the thickness shall be removed by grinding. Welding shall commence where the grinding started and must overlap the previous seam by at least 2 inches. Reseaming over an existing seam without regrinding shall not be permitted. The welding shall restart by grinding the existing seam and rewelding a new seam.

Patches shall be round or oval in shape, made of the same geomembrane, and extend a minimum of 6 inches beyond the edge of defects.

C. Verification of Repairs

Each repair shall be non-destructively tested. Repairs that pass the non-destructive test shall be taken as an indication of an adequate repair. Failed tests indicate that the repair shall be repeated and retested until passing test results are achieved.

The inspector shall keep daily documentation of all non-destructive and destructive testing. This documentation shall identify all seams that initially failed the test and include evidence that these seams were repaired and successfully retested.

3.5 Cover Material and Backfilling of Anchor Trench

The geomembrane shall be covered as soon as possible. The covering operation shall not damage the geomembrane. The cover soil material shall be free of foreign and organic material, sharp objects, or debris of any kind, which could potentially damage the geomembrane. No construction equipment or machinery shall operate directly on the geomembrane. The use of lightweight machinery (i.e., generator, etc.) with low ground pressure is allowed.

The anchor trench shall be backfilled by the earthwork contractor. Trench backfill material shall be placed and compacted in accordance with the project specifications.

Care shall be taken when backfilling the trenches to prevent any damage to the geomembrane. If damage occurs, it shall be repaired prior to backfilling.

3.6 Geomembrane Acceptance

The installer shall retain all ownership and responsibility for the geomembrane until accepted by the owner.

Final acceptance is when all of the following conditions are met:

1. Installation is finished.
2. Verification of the adequacy of all field seams and repairs, including associated testing, is complete.

END OF SECTION

CB-23

DEP 15250



Joe Manchin, III
Governor



Randy C. Huffman,
Cabinet Secretary

DLR

Ken Ellison,
Director

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Land Restoration Office of Special Reclamation



Project Cost: \$XXX,XXX.00

Funding provided by the Special Reclamation Coal Tax paid by WV Coal Mine Companies

Permit Name
Permit Number

Contractor: Joe Smith Contracting

Project Start Date: 01/01/01

	<p>STATE OF WEST VIRGINIA</p> <p>DEPARTMENT OF ENVIRONMENTAL PROTECTION</p> <p>Division of Land Restoration</p> <p>Office of Special Reclamation</p> <p>Project Cost: \$XXXX,XXX.00</p> <p>Funding provided by the Special Reclamation Coal Tax paid by WV Coal Mine Companies</p>	<p>Permit Name</p> <p>Permit Number</p> <p>Contractor: Joe Smith Contracting</p> <p>Project Start Date: 01/01/01</p>
<p>Joe Manchin, III Governor</p>	 <p>dep</p> <p>Randy C. Huffman, Cabinet Secretary</p>	<p>DLR</p> <p>Ken Ellison, Director</p>

CB-23

DEP 15250

96"



STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Land Restoration
Office of Special Reclamation

Joe Manchin, III
Governor

Project Cost: \$XXXX,XXX.00
Funding provided by the Special Reclamation Coal Tax paid by WV Coal Mine Companies

48"



Randy C. Huffman,
Cabinet Secretary



Ken Ellison,
Director

Permit Name
Permit Number

Contractor: Joe Smith Contracting
Project Start Date: 01/01/01

7 7/8"

5 1/4"

9 3/8"

81 3/8"



Joe Manchin, III
Governor



Randy C Huffman,
Cabinet Secretary

DL

Ken Ellison
Director

STATE OF WEST VIRGINIA

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Land Restoration

Office of Special Reclamation

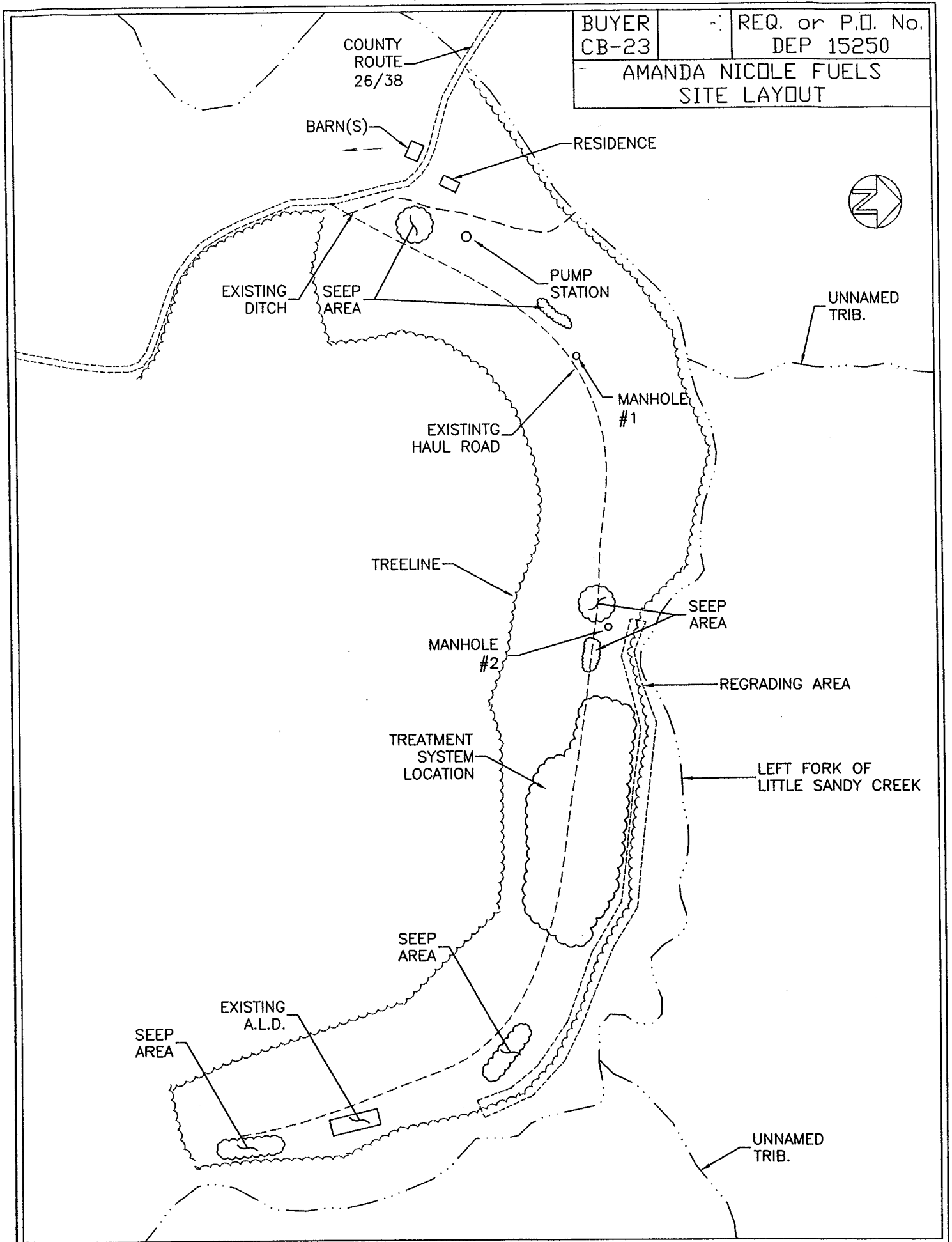
Project Cost: \$XXX,XXX.00

Funding provided by the Special Reclamation Coal Tax paid by WV Coal Mine Companies

Permit Name

Permit Number

Contractor: Joe Smith Contracting	Project Start Date: 01/01/01
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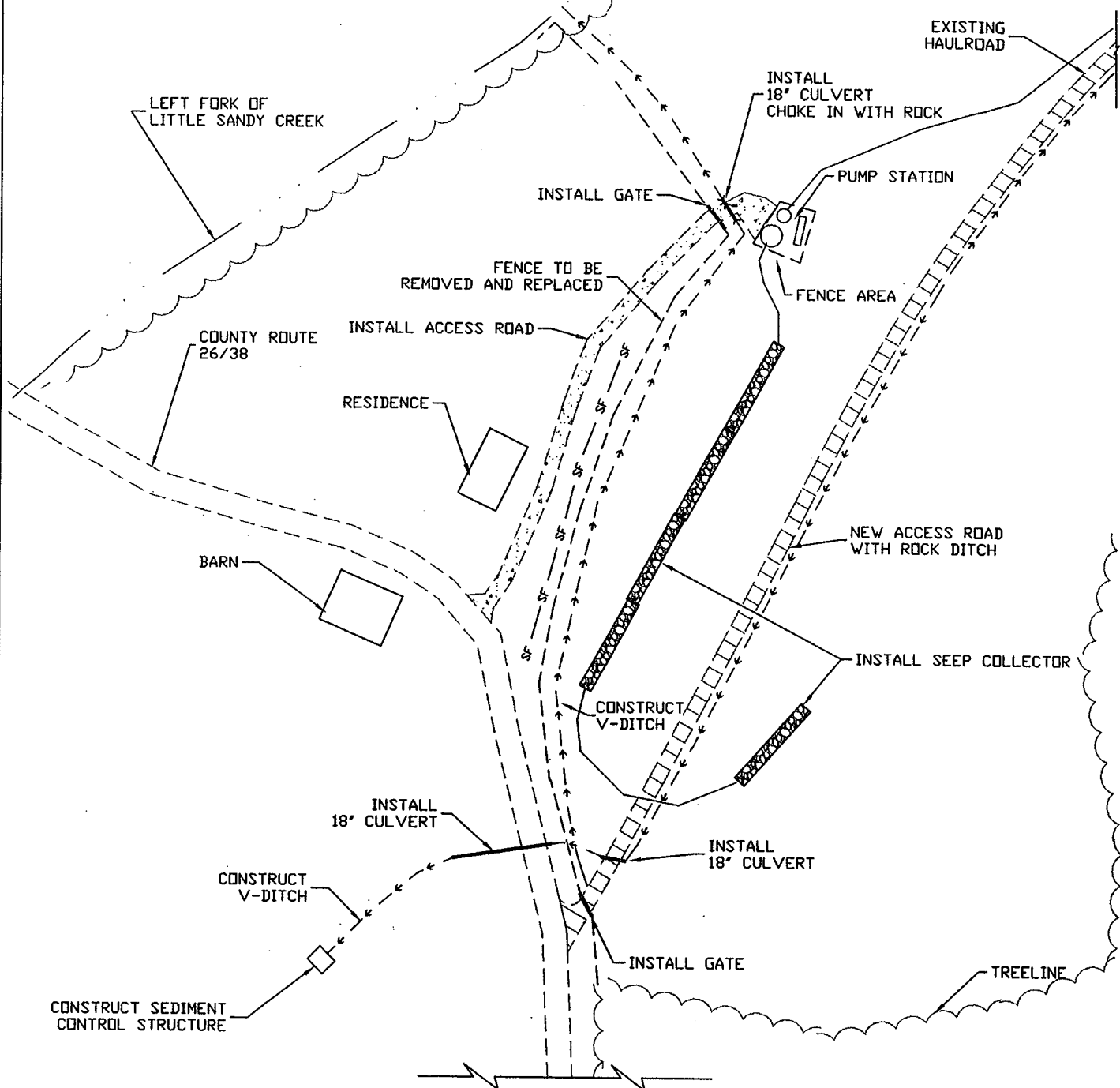




BUYER
CB-23

REQ. or P.O. No.
DEP 15250

AMANDA NICOLE FUELS
PUMP STATION SITE



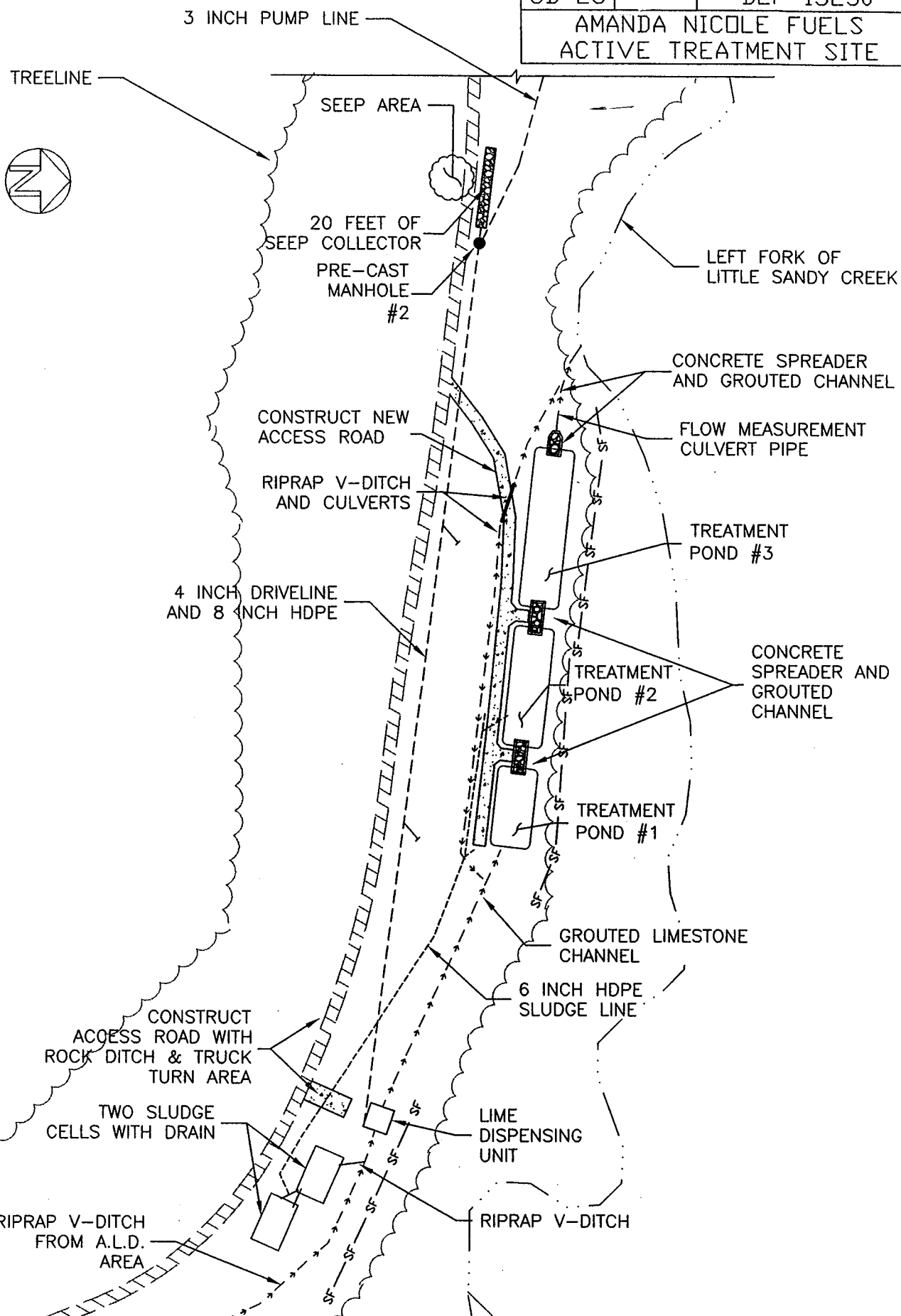
NOTES:

1. CONSTRUCT AND DUPLEX PUMP STATION WITH VALVE VAULT AND PUMP CONTROL PANEL.
2. INSTALL 3 INCH HDPE PUMP LINE WITH CLEANOUTS AS DIRECTED.
3. REMOVE SOME EXISTING FENCE AND REBUILD FENCING AND INSTALL GATES AROUND PUMP STATION, AS SHOWN.
4. DIVERT SURFACE RUNOFF ABOVE HAULROAD THROUGH CULVERTS AND UNDER COUNTY ROAD.
5. INSTALL SEEP COLLECTOR AND SOLID PIPE UNDER HAULROAD, EXIT INTO A 6 INCH SOLID PIPE TO THE PUMP STATION.
6. ESTABLISH ROAD BESIDE RESIDENCE FOR INFREQUENT USE TO ACCESS THE PUMP STATION.

BUYER
CB-23

REQ. or P.O. No.
DEP 15250

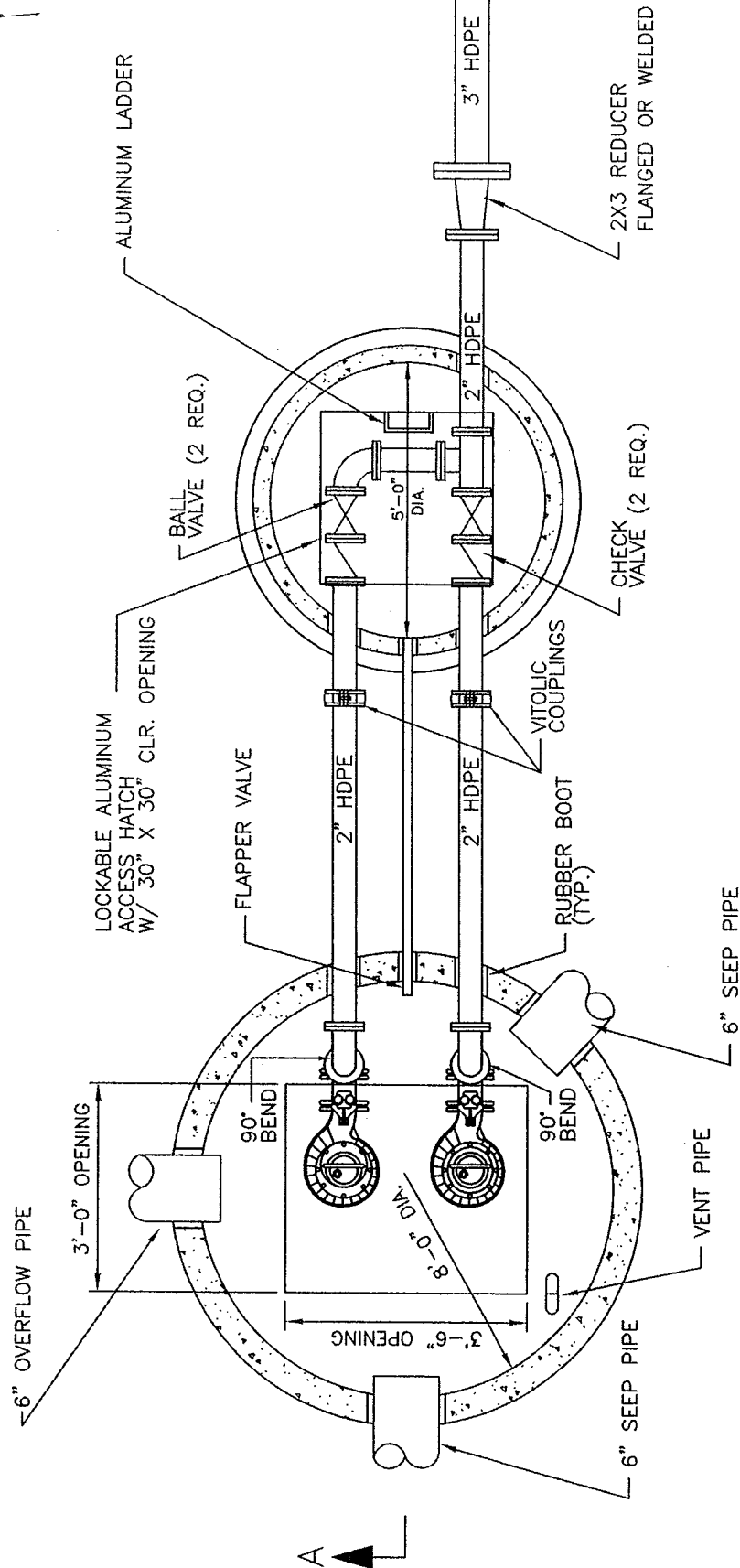
AMANDA NICOLE FUELS
ACTIVE TREATMENT SITE



BUYER
CB-23

REQ. or P.O. No.
DEP 15250

DUPLEX PUMP STATION



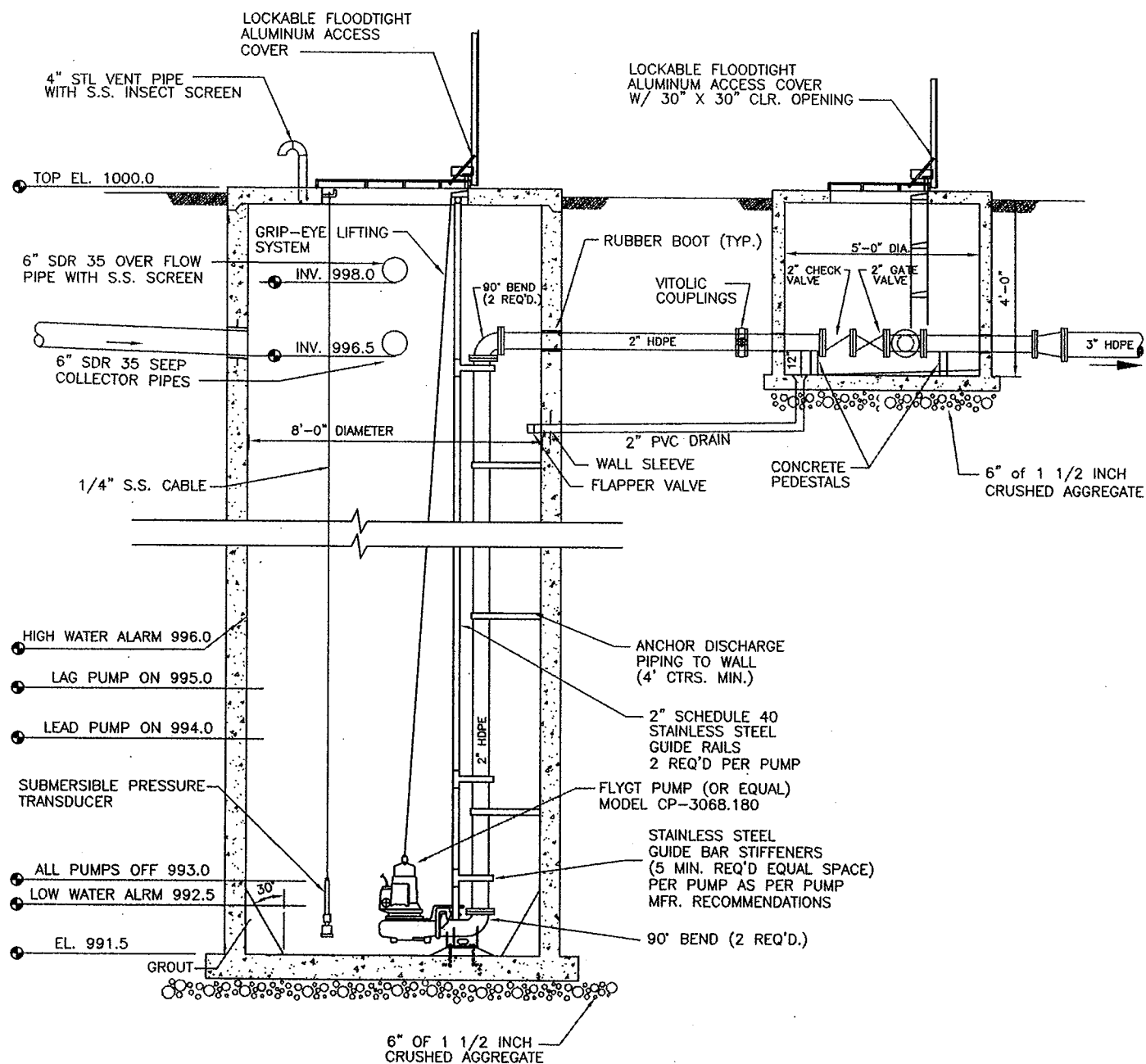
PUMP STATION PLAN

NO SCALE

BUYER
CB-23

REQ. or P.O. No. DEP 15250

DUPLEX PUMP STATION



SECTION A-A

NO SCALE

NOTE:
SUBMERSIBLE PRESSURE TRANSDUCER LEVEL CONTROLS
ARE USED ON AUTOMATIC MODE ONLY. PUMP STATION
CAN BE DEWATERED ON MANUAL MODE.

PUMP DATA - AMD DUPLEX PUMPS

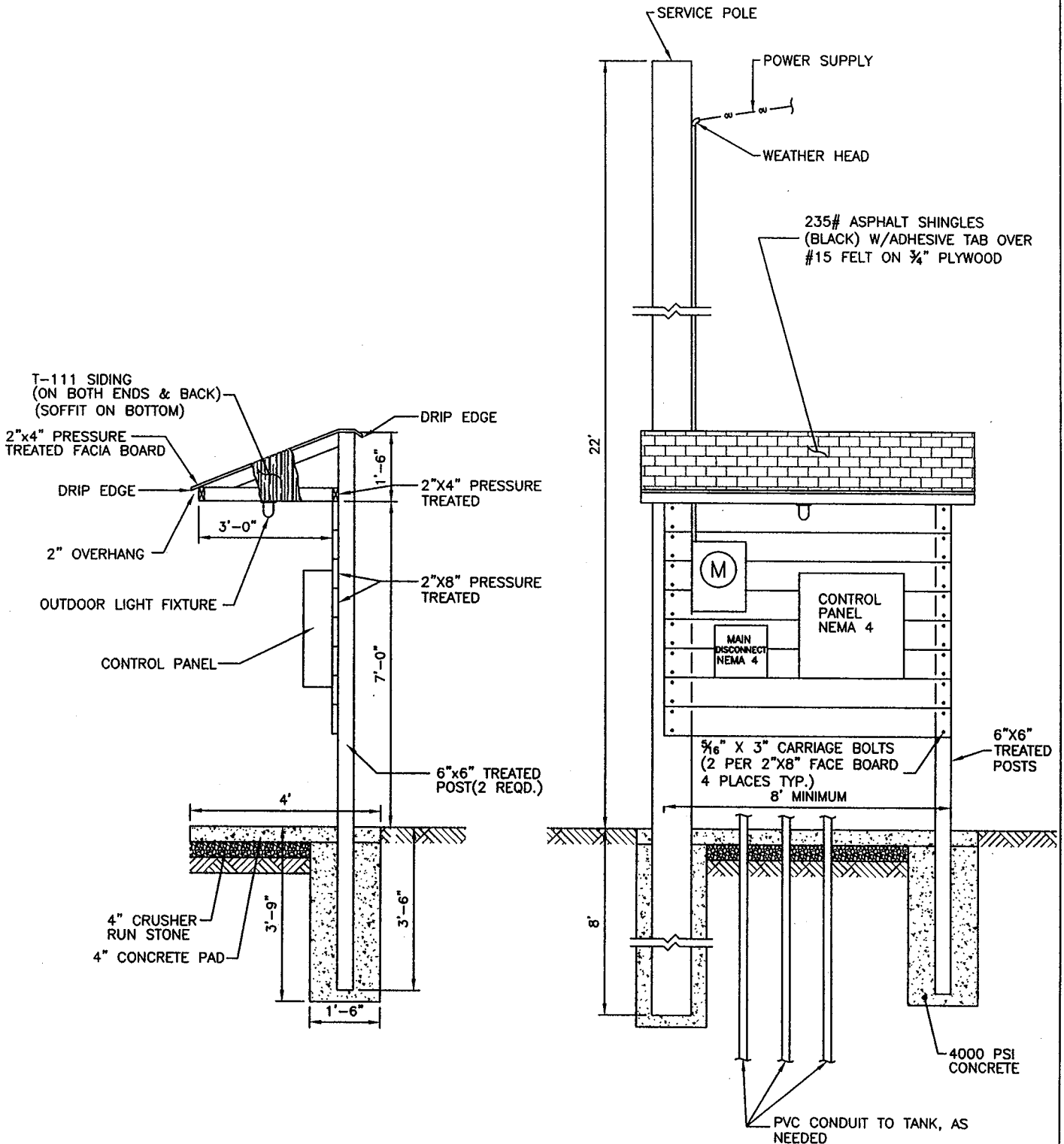
NUMBER OF PUMPS	2
CAPACITY OF EACH PUMP	45 GPM
TOTAL DYNAMIC HEAD	79 TDH
MAX. HORSEPOWER	5 HP
230V, 3ø, 60HZ	

BUYER
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REQ. or P.O. No.
DEP 15250

PUMP STATION PANEL BOARD

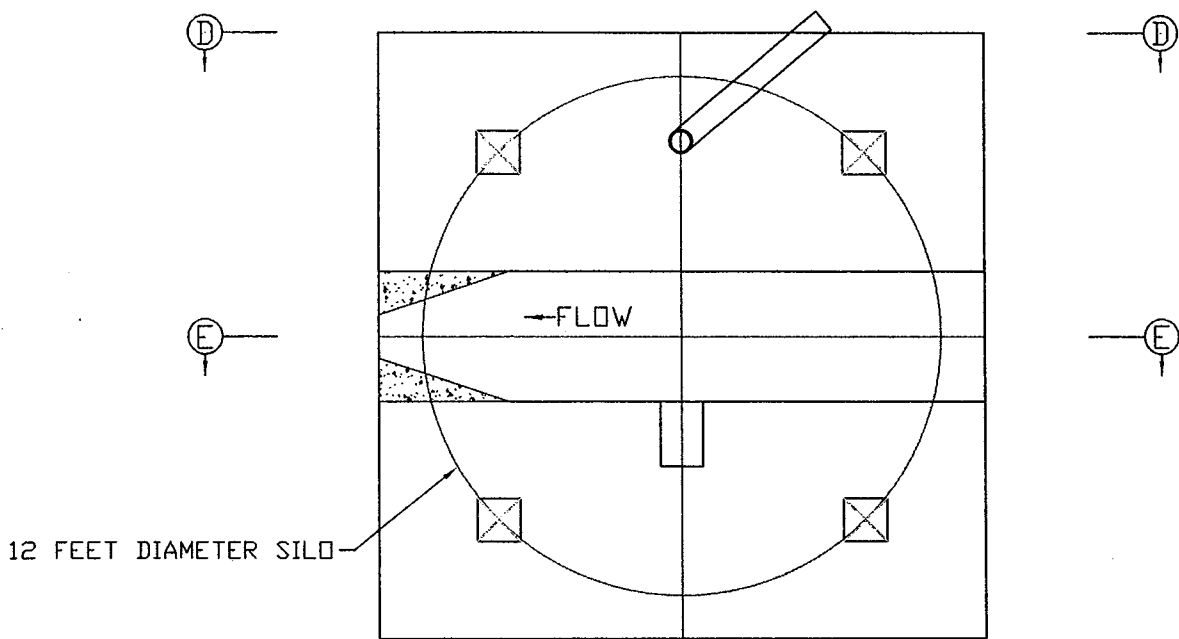
NOTE: SERVICE POLE AND METER TO BE INSTALLED TO MEET ALL SPECIFICATIONS OF THE POWER COMPANY. METER MAY BE MOUNTED ON BACK SIDE OF PANEL BOARD, IF REQUIRED BY POWER COMPANY.



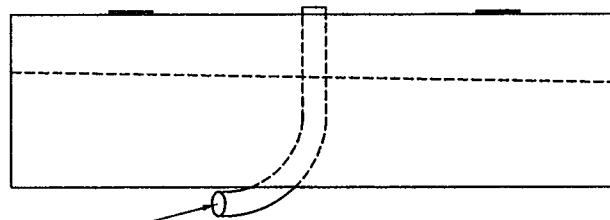
BUYER
CB-23

REQ. or P.O. No.
DEP 15250

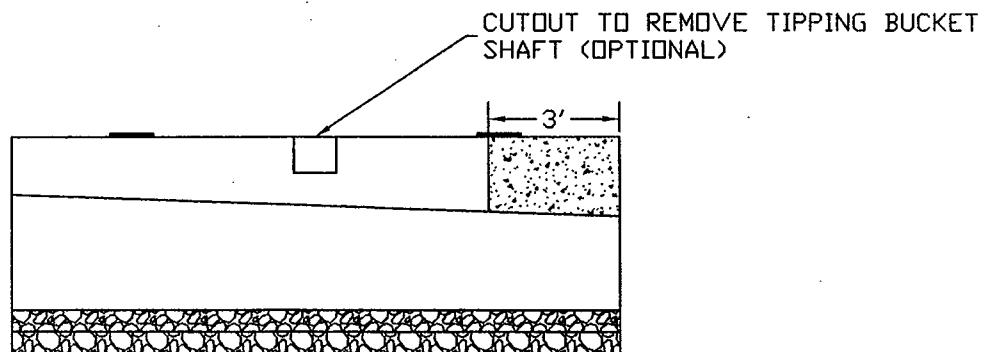
FOUNDATION DETAILS



PLAN VIEW



SECTION D-D

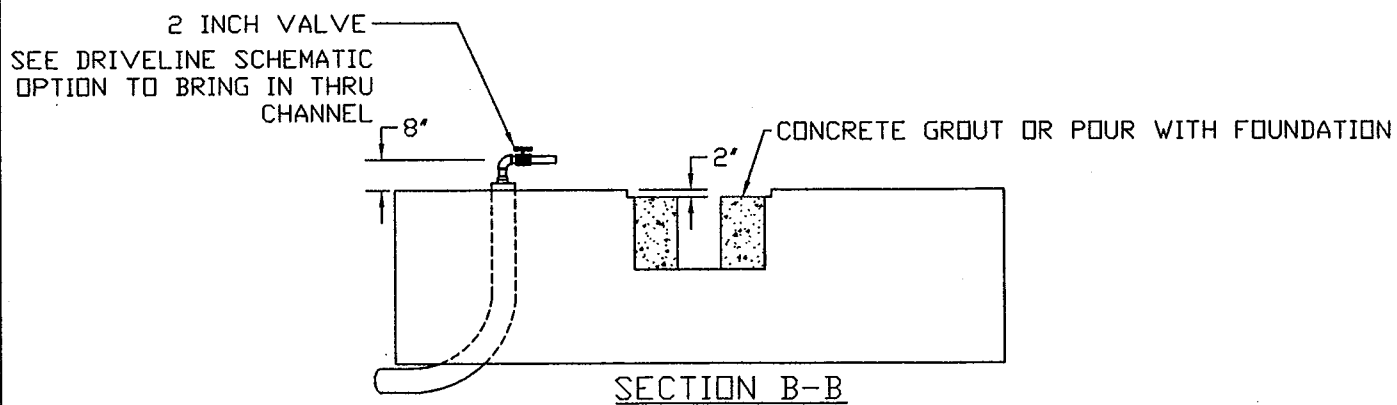
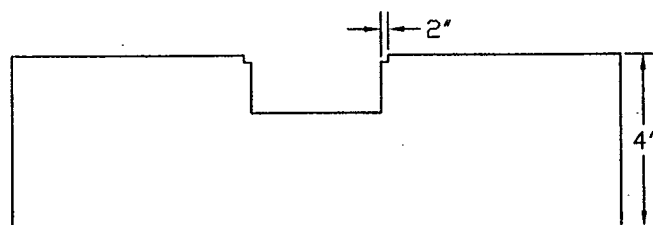
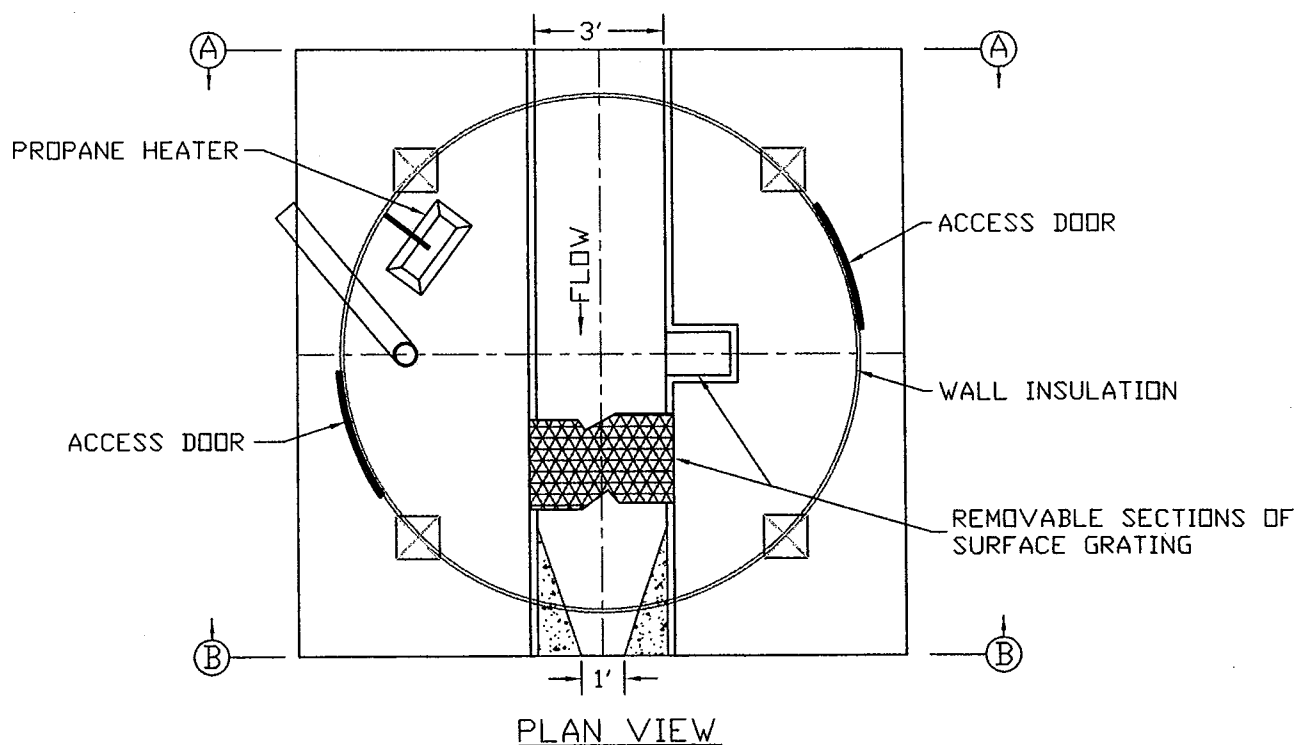


SECTION E-E

EXCAVATE TO CONSOLIDATED MATERIAL
ADD 6 INCH COMPACTED LAYERS
OF CRUSHER RUN LIMESTONE USING
VIBRATORY TAMPER UNTIL THE DESIGN
ELEVATION IS ACHIEVED.

BUYER
CB-23REQ. or P.D. No.
DEP 15250

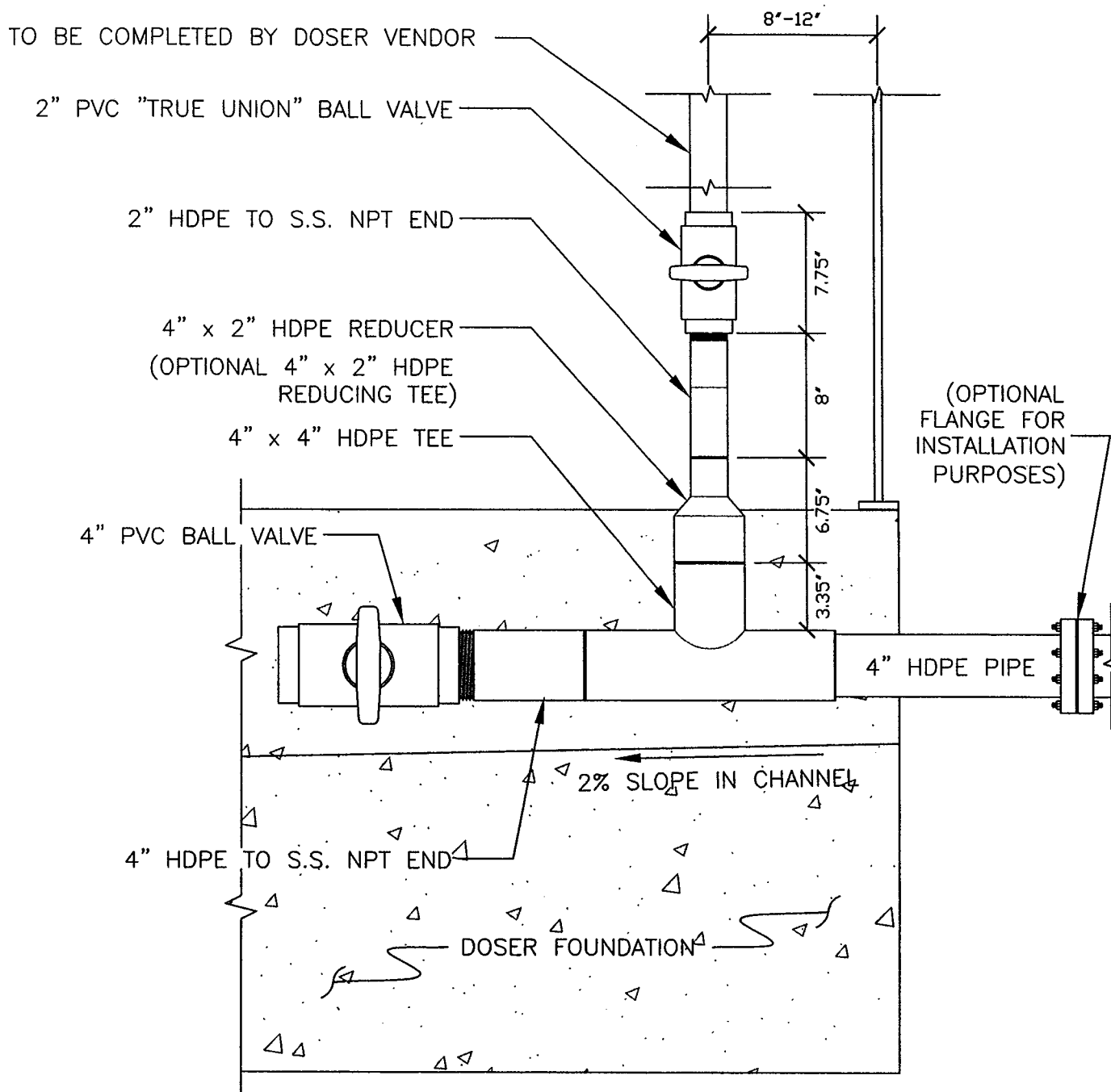
FOUNDATION DETAILS



BUYER
CB-23

REQ. or P.O. No.
DEP 15250

DRIVE LINE SCHEMATIC

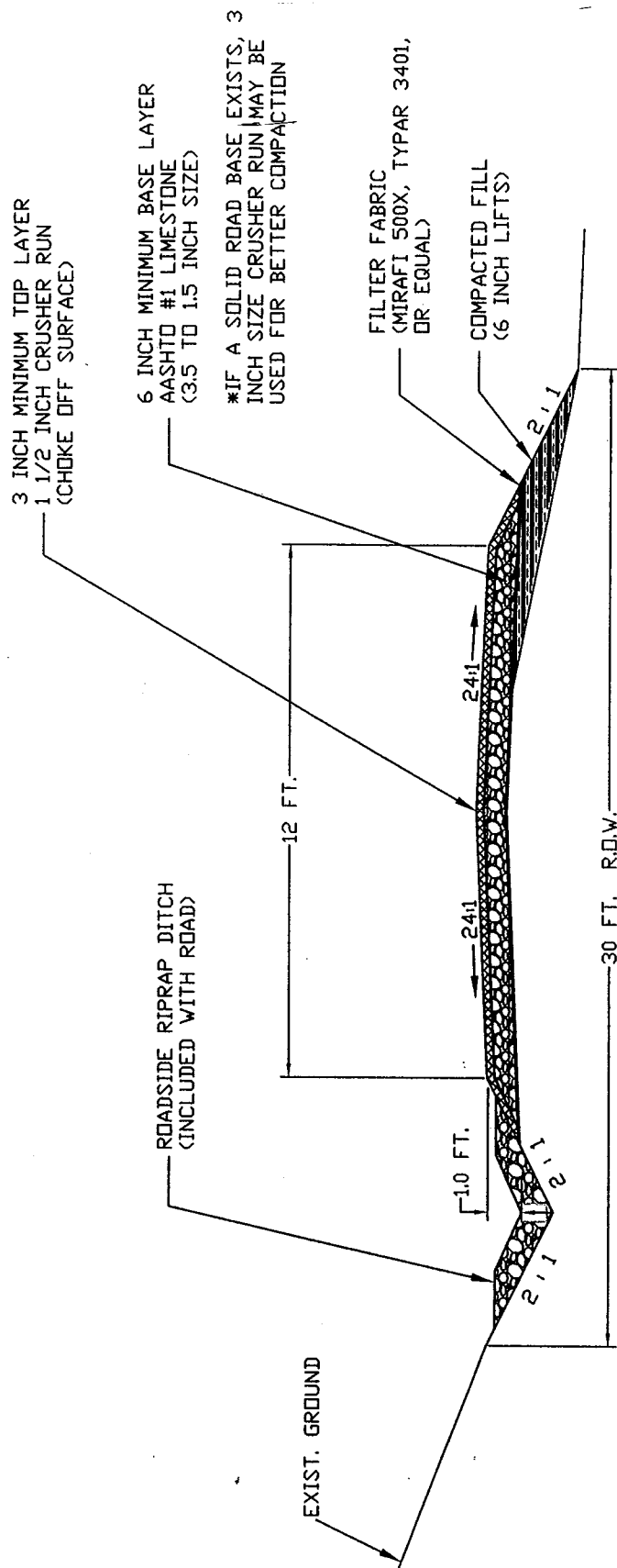


NOT TO SCALE

NOTE: DEPENDING ON WHICH TYPE OF DOSER IS SELECTED, THE DRIVELINE MAY ENTER THE FOUNDATION THRU THE CHANNEL OR THRU A CONDUIT IN THE FOUNDATION.

THIS SCHEMATIC IS FOR ENTERING FROM THE REAR OF THE CHANNEL.

NEW ACCESS ROAD WITH ROCK DITCH



TYPICAL SECTION

NOTES: ANY TREES OR BRUSH WITHIN THE 30 FEET R.O.W. OF THE ROAD SHALL BE REMOVED.

ANY OVERHANGING TREE LIMBS IN THE R.O.W. AT A HEIGHT OF 15 FEET OR LESS SHALL BE REMOVED.

THE SUB BASE SURFACE, BASE STONE LAYER, AND THE FINAL SURFACE SHALL BE ROLL COMPACTED WITH A SMOOTH DRUM VIBRATORY ROLLER.

*IF PORTIONS OF ROAD BASE ARE SOLID, THE CLEAN BASE STONE MAY BE SUBSTITUTED WITH A 6 INCH THICK LAYER OF 3 INCH SIZE CRUSHER RUN TO ACHIEVE BETTER COMPACTION. THIS MUST BE APPROVED BY DEP ON SITE INSPECTOR PRIOR TO INSTALLATION.

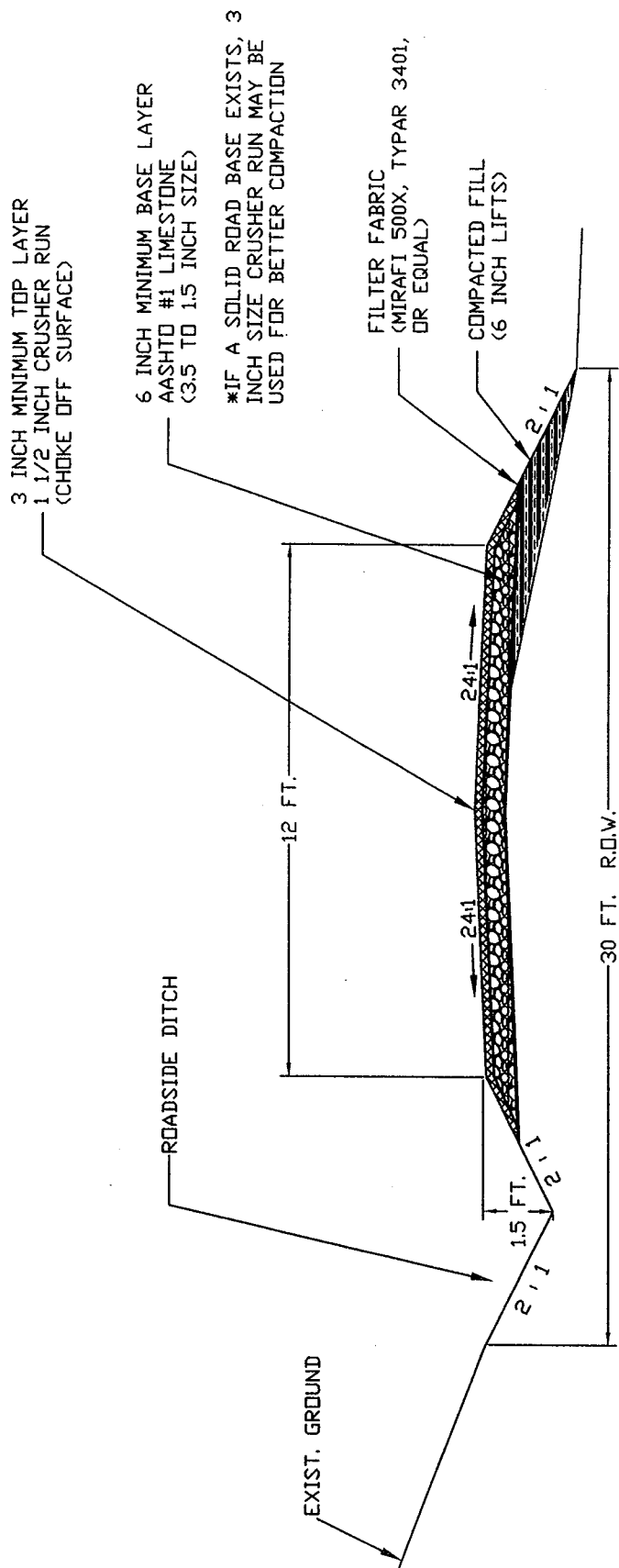
LIMESTONE RIPRAP FOR DITCH (STANDARD) UNLESS OTHERWISE NOTED, RIPRAP SHALL BE DURABLE ROCK PLACED IN A 10 FOOT BLANKET. SIZE OF STONE SHALL BE 6 INCH AVERAGE GABION. SHALE SHALL NOT BE USED FOR RIPRAP. IF RIPRAP STABILITY IS QUESTIONABLE, DURABILITY SHALL BE DETERMINED BY THE SODIUM SULPHATE TEST ASTM C 88/AASHTO T 104-77.

BUYER
CB-23

REQ. or P.O. No.
DEP 15250

NEW ACCESS ROAD WITH
ROCK DITCH

NEW ACCESS ROAD

BUYER
CB-23REQ. or P.O. No.
DEP 15250

NEW ACCESS ROAD

TYPICAL SECTION

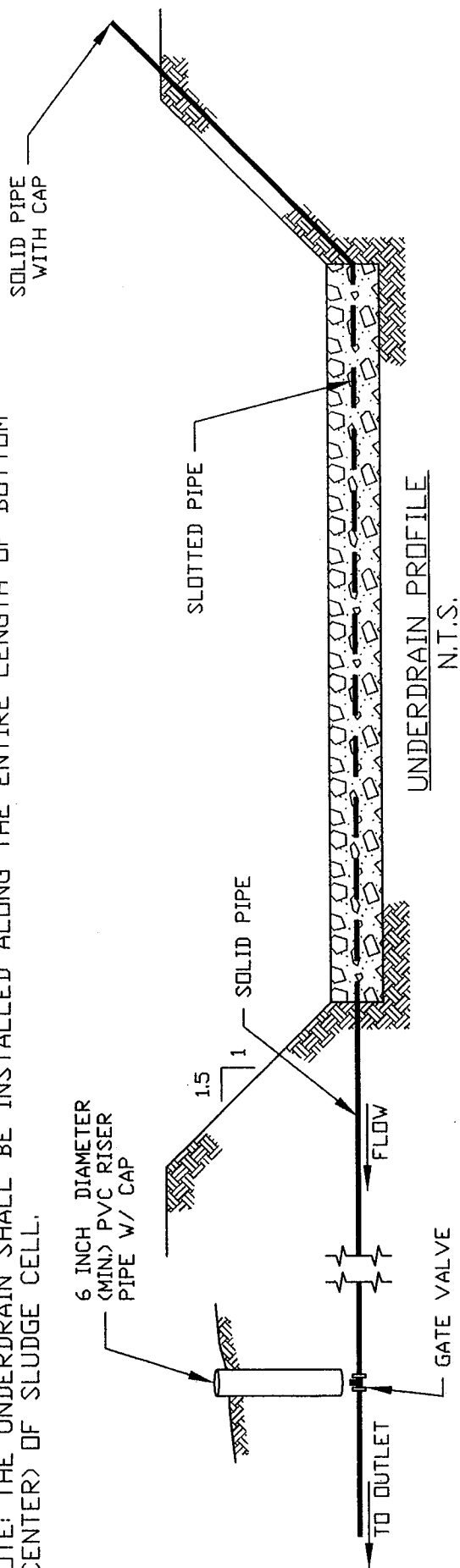
NOTES: ANY TREES OR BRUSH WITHIN THE 30 FEET R.O.W. OF THE ROAD SHALL BE REMOVED.

ANY OVERHANGING TREE LIMBS IN THE R.O.W. AT A HEIGHT OF 15 FEET OR LESS SHALL BE REMOVED.

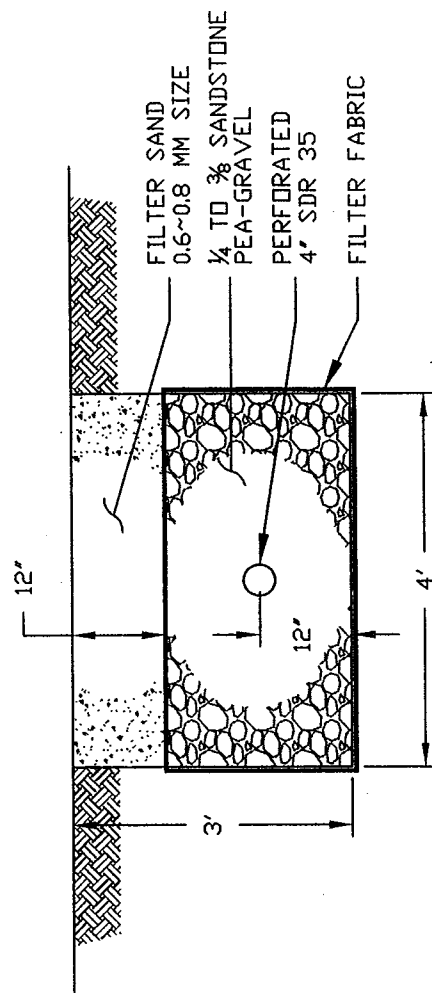
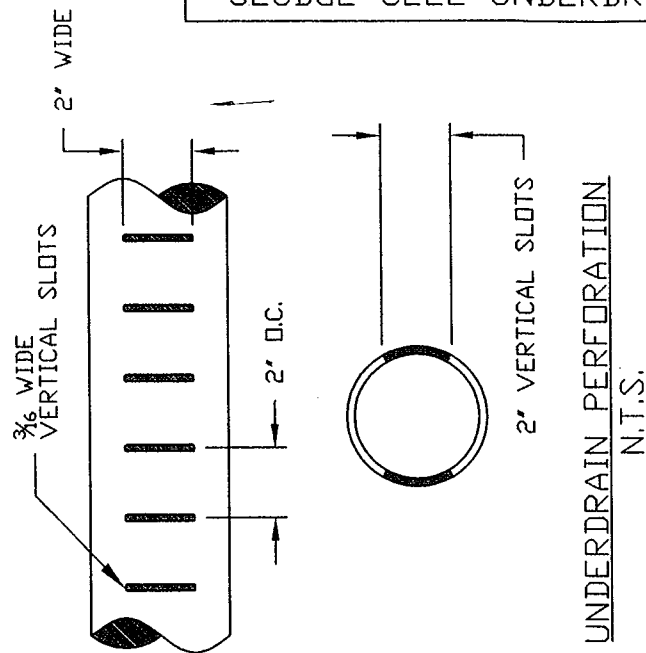
THE SUB BASE SURFACE, BASE STONE LAYER, AND THE FINAL SURFACE SHALL BE ROLL COMPACTED WITH A SMOOTH DRUM VIBRATORY ROLLER.

*IF PORTIONS OF ROAD BASE ARE SOLID, THE CLEAN BASE STONE MAY BE SUBSTITUTED WITH A 6 INCH THICK LAYER OF 3 INCH SIZE CRUSHER RUN TO ACHIEVE BETTER COMPACTION. THIS MUST BE APPROVED BY DEP ONSITE INSPECTOR PRIOR TO INSTALLATION.

NOTE: THE UNDERDRAIN SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF BOTTOM (CENTER) OF SLUDGE CELL.

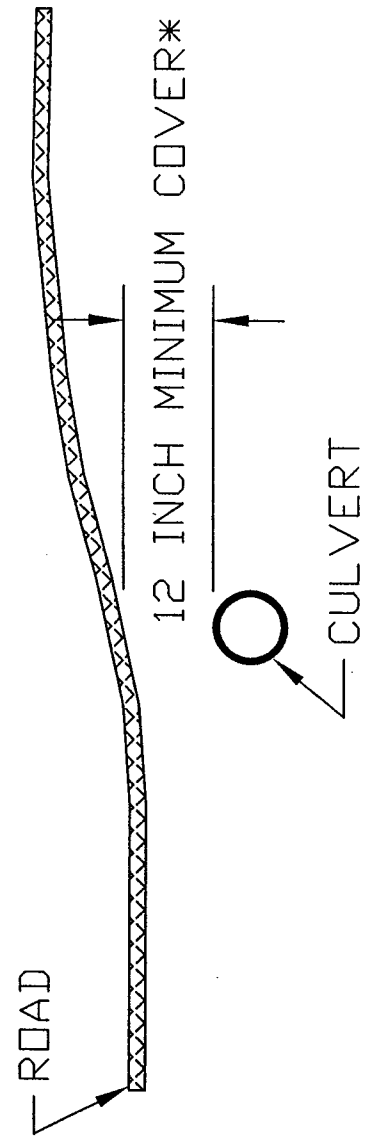
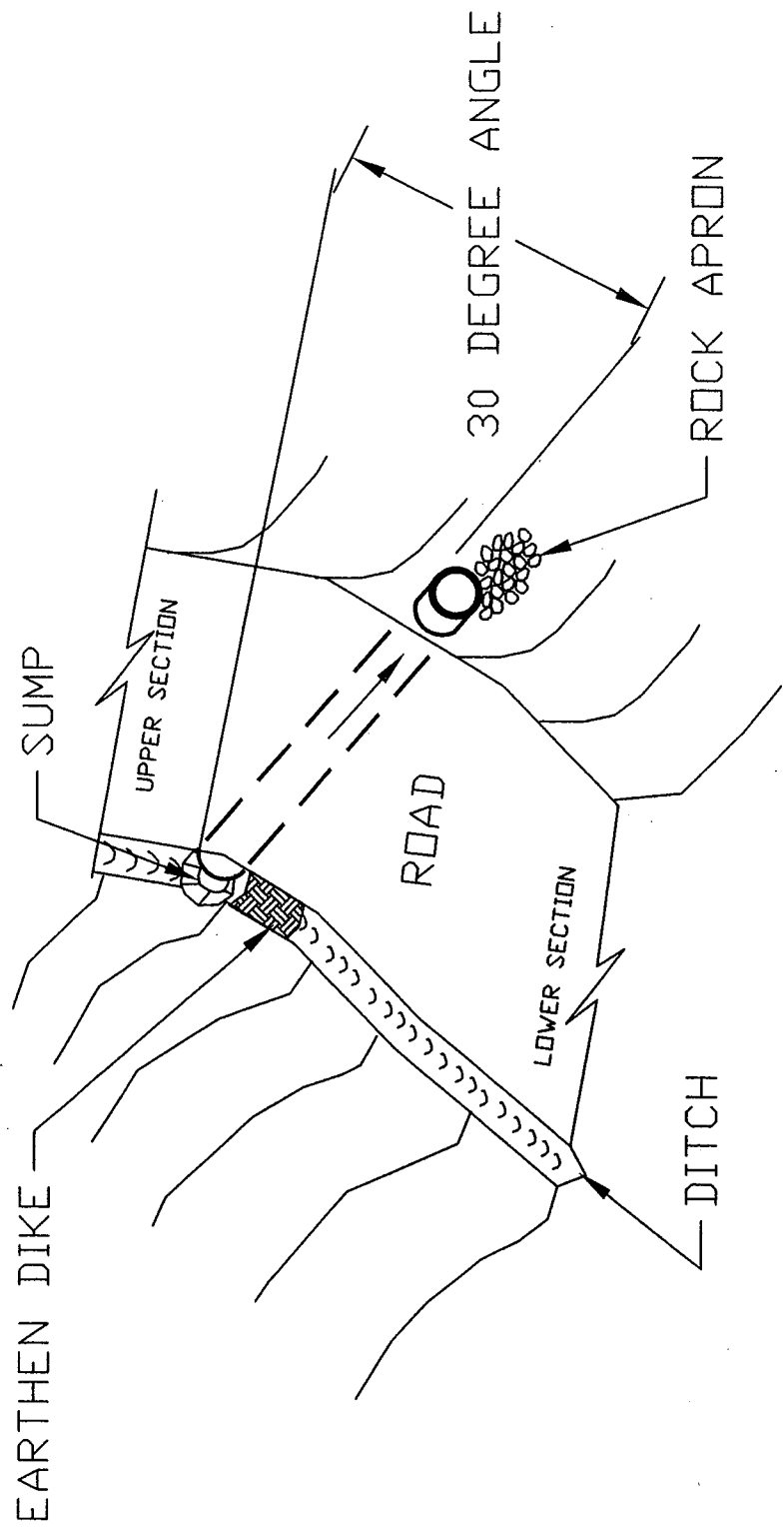


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SLUDGE CELL UNDERDRAIN	

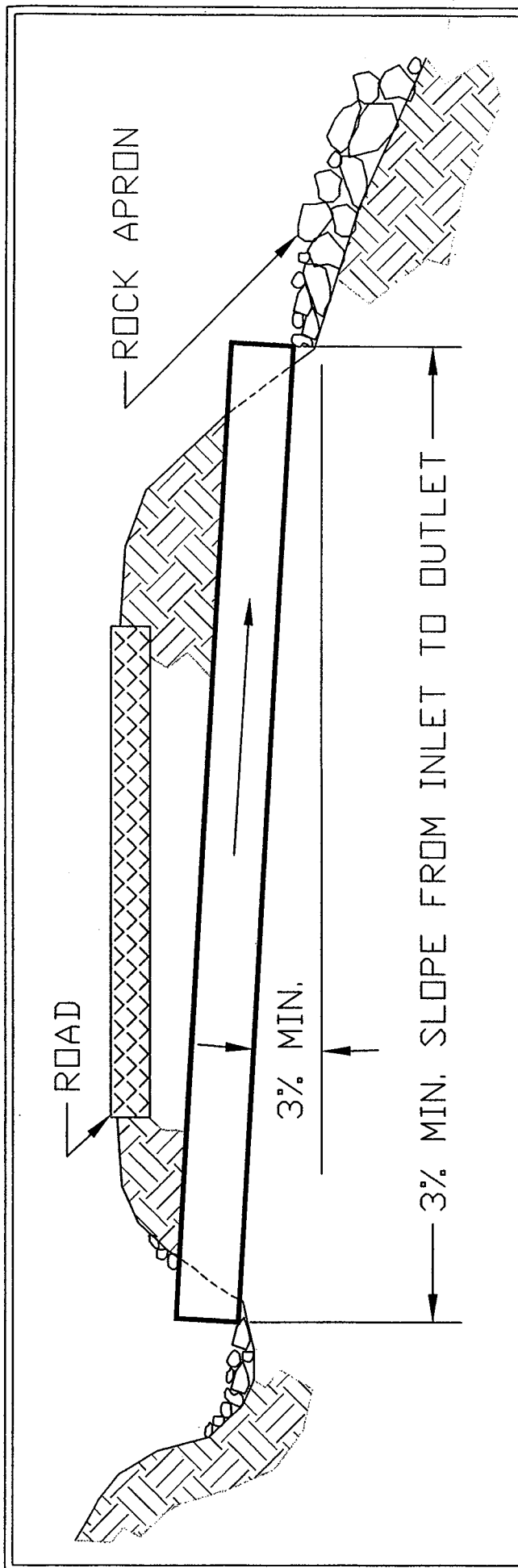


UNDERDRAIN
CROSS SECTION
N.T.S.

BUYER CB-23	REQ. or P.O. No. DEP 15250
CULVERT INSTALLATION	

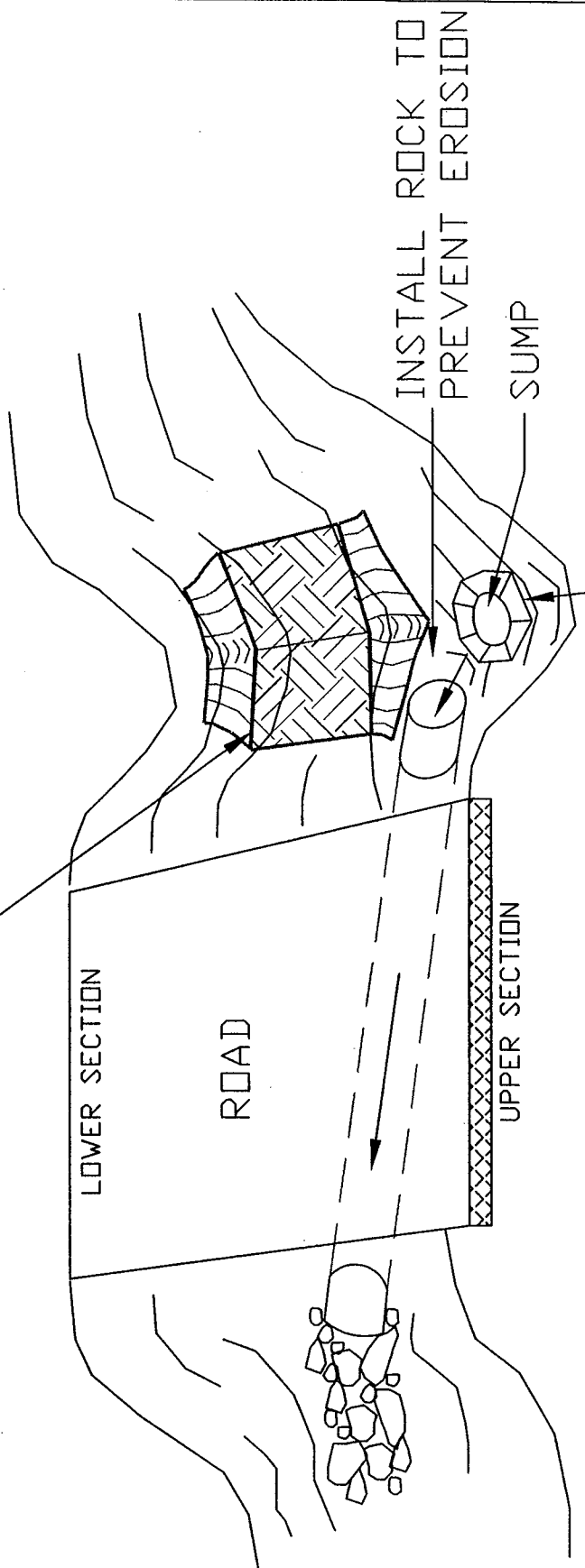


*OR 1/2 CULVERT DIAMETER, WHICHEVER IS GREATER.



EARTHEN DIKE TO BE INSTALLED IN PITCH
LINE BELOW CULVERT INLET

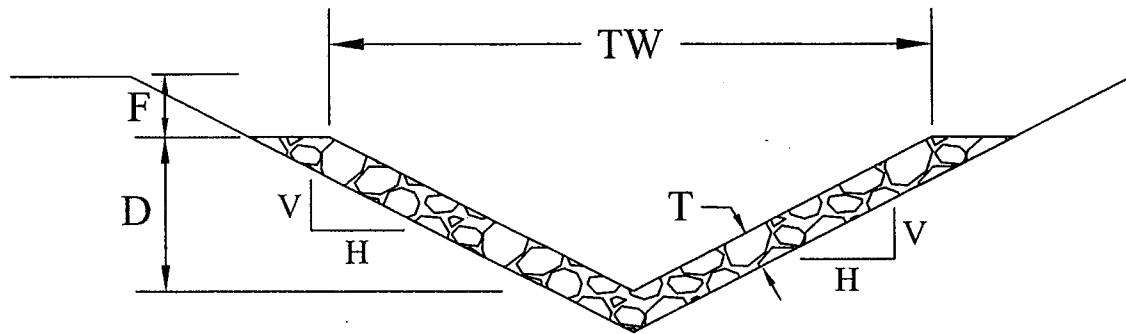
BUYER CB-23	REQ. or P.O. No. DEP 15250
CULVERT INSTALLATION	



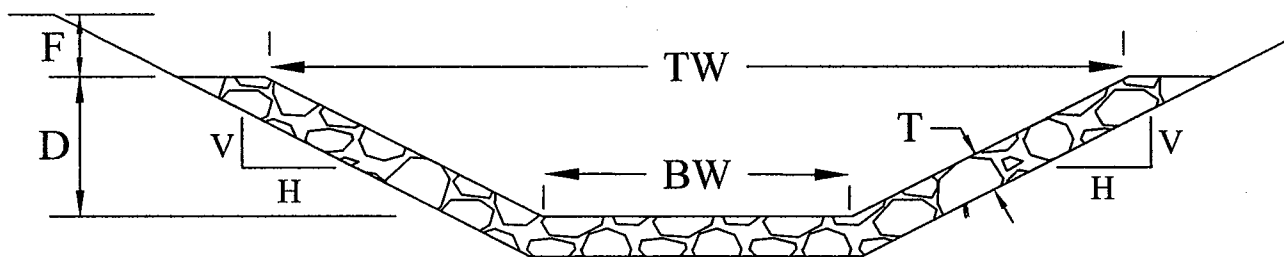
BUYER
CB-23

 REQ. or P.O. No.
DEP 15250

DIVERSION DITCHES - RIP-RAP



TYPICAL V-DITCH X-SECTION

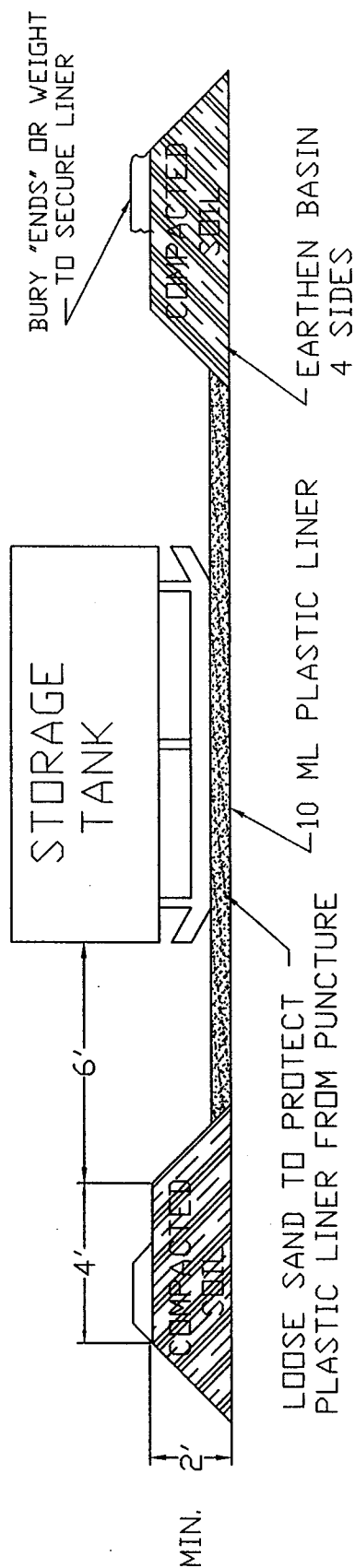


TYPICAL TRAPEZOIDAL CHANNEL X-SECTION

DITCH / CHANNEL TYPE	TOP WIDTH -TW- (FT)	BOT. WIDTH -BW- (FT)	TOTAL DEPTH -D- (FT)	SIDE SLOPE (H/V)	RIPRAP THICKNESS -T- (FT)
RIPRAP V-DITCH	4.0	0	1.0	2/1	1.5
GROUTED RIPRAP TRAP. DITCH	6.0	2.0	1.0	2/1	1.5

NOTES:

1. ALL CHANNELS SHALL HAVE ONE (1) FOOT MINIMUM OF FREEBOARD (F), UNLESS OTHERWISE NOTED.
2. ALL GROUTED RIP RAP CHANNELS SHALL HAVE 100% GROUT PENETRATION IN ALL VOIDS.



SELECTED HEIGHT OF EARTHEN BERM IS TO BE A TWO (2') FOOT MINIMUM OR ONE HUNDRED TEN PERCENT (110%) OF THE CAPACITY OF THE TANK(S) TOTAL VOLUME WITHIN THE BERM. A SIX (6") INCH FREEBOARD MUST BE INCLUDED.

NOTE: A TWO INCH (2") WATER REMOVAL DRAIN SHALL BE LOCATED AT THE LOWEST POINT IN THE BOTTOM OF THE CONTAINMENT VOLUME. IT SHALL CONNECT TO A NORMALLY CLOSED VALVE OUTSIDE THE DIKE. THE VALVE SHALL BE MANUALLY OPERATED AND PROTECTED FROM UNAUTHORIZED OPERATION. RAINWATER CONTAINED WITHIN THIS DIKE SHALL BE EXAMINED PRIOR TO RELEASE TO ENSURE THAT HARMFUL QUANTITIES OF FUELS AND LUBRICANTS ARE NOT DISCHARGED. ALTERNATE METHODS OF WATER REMOVAL WILL BE CONSIDERED FOR APPROVAL.

TANKS WITH SECONDARY CONTAINMENT MAY BE USED AS AN ALTERNATIVE.

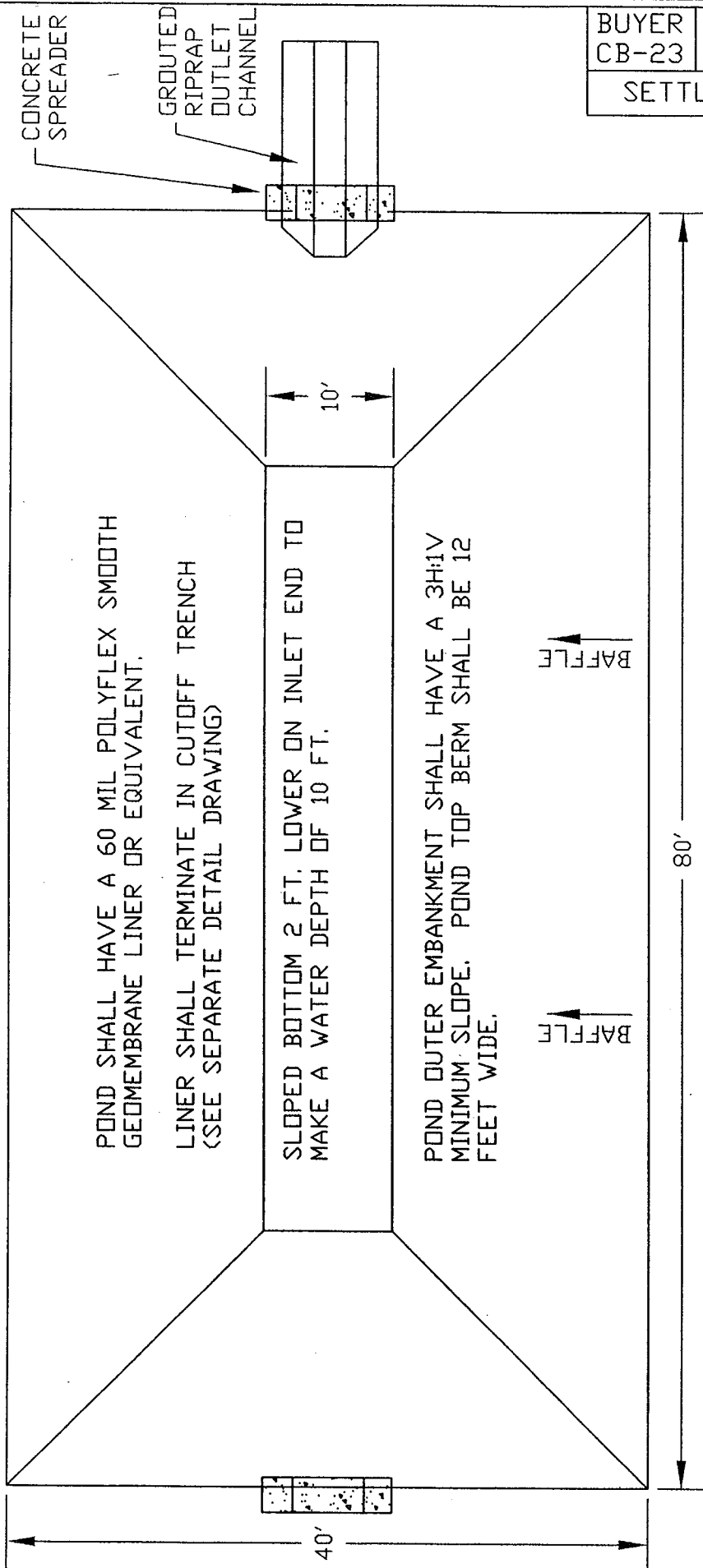
BUYER
CB-23

REQ. or P.O. No.
DEP 15250

SPILL CONTAINMENT

SETTLING POND #1

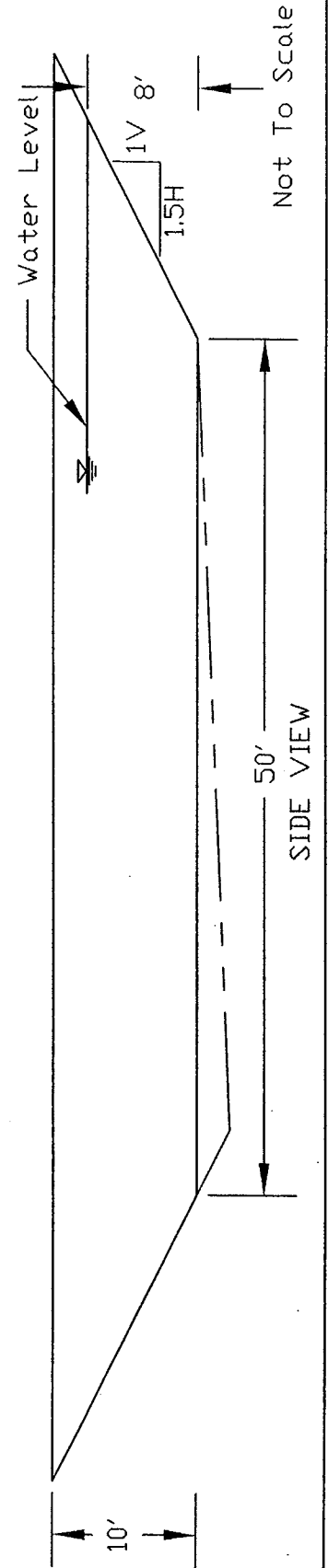
PLAN VIEW



BUYER
CB-23

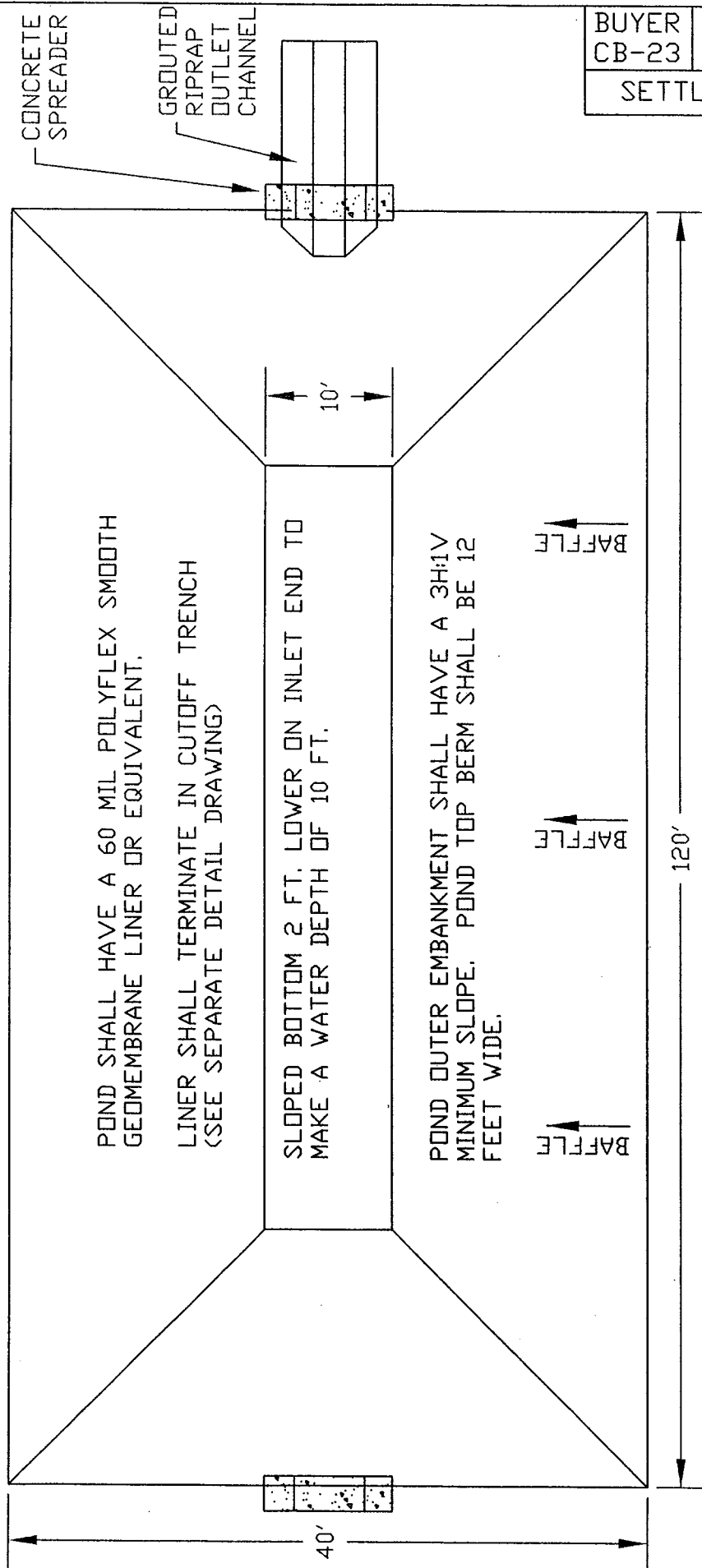
REQ. or P.O. No.
DEP 15250

SETTLING POND #1



SETTLING POND #2

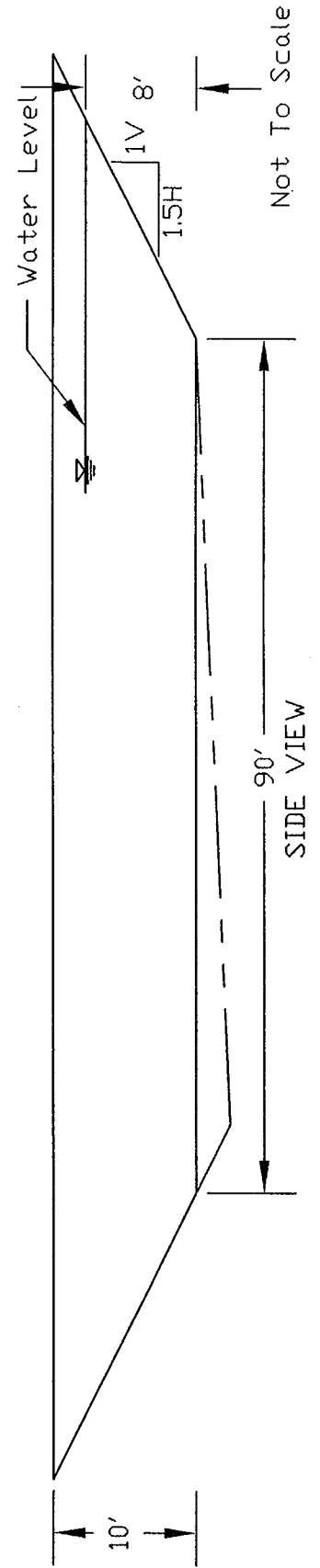
PLAN VIEW



BUYER
CB-23

REQ. or P.D. No.
DEP 15250

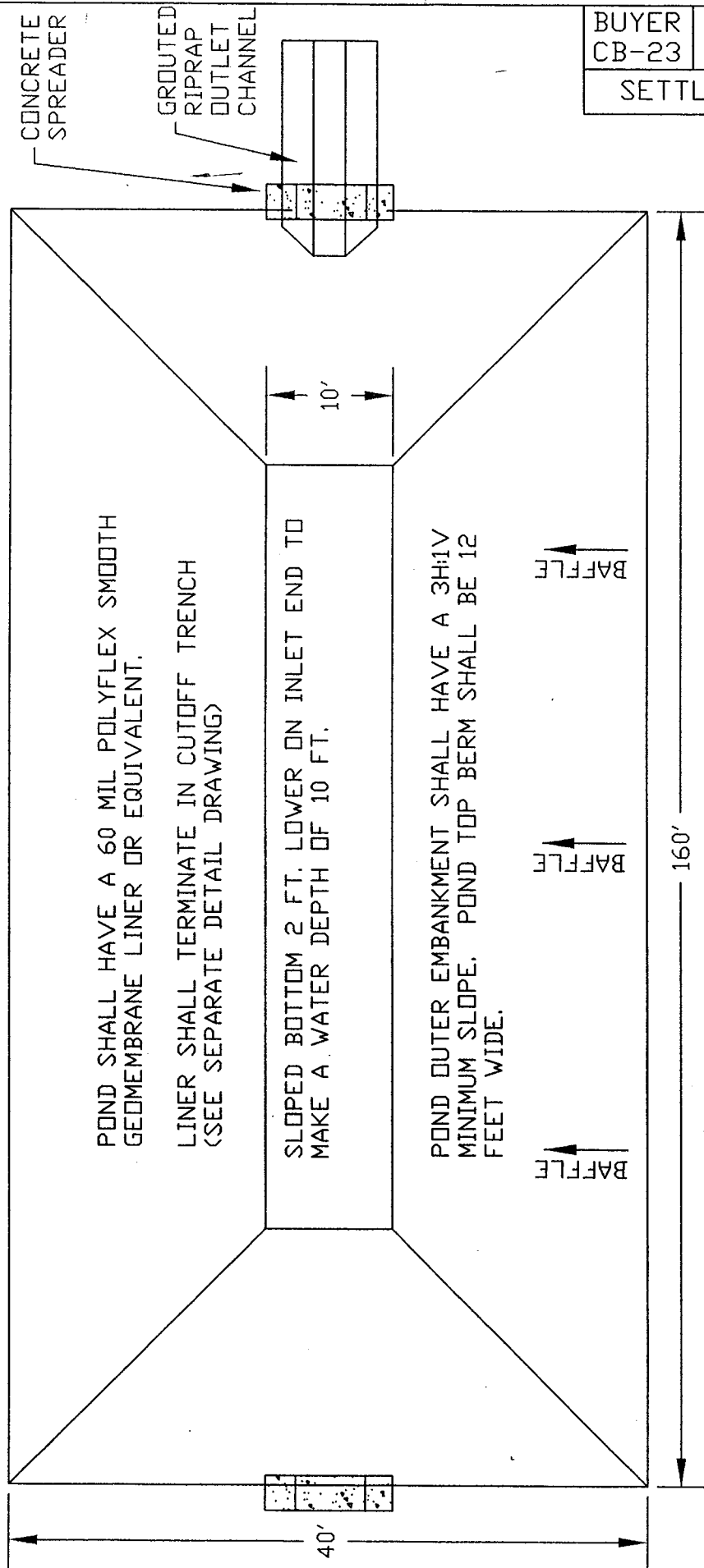
SETTLING POND #2



SIDE VIEW

SETTLING POND #3

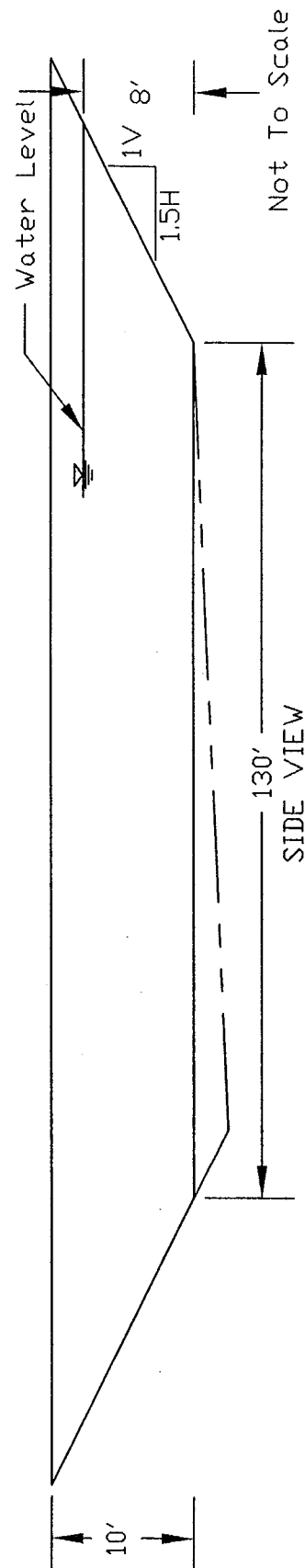
PLAN VIEW



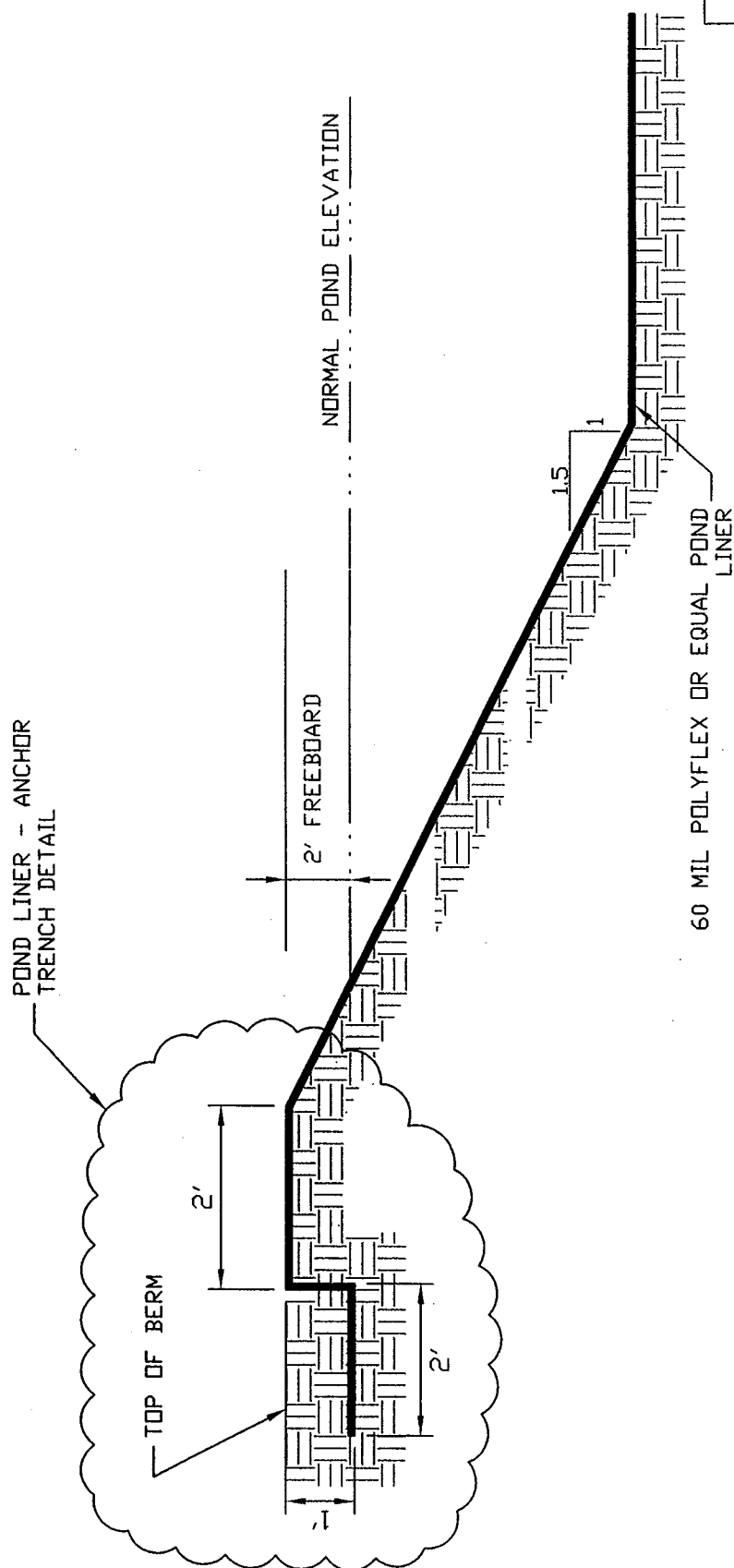
BUYER
CB-23

REQ. or P.O. No.
DEP 15250

SETTLING POND #3



BUYER CB-23	REQ. or P.O. No. DEP 15250
POND LINER ANCHOR TRENCH DETAIL	

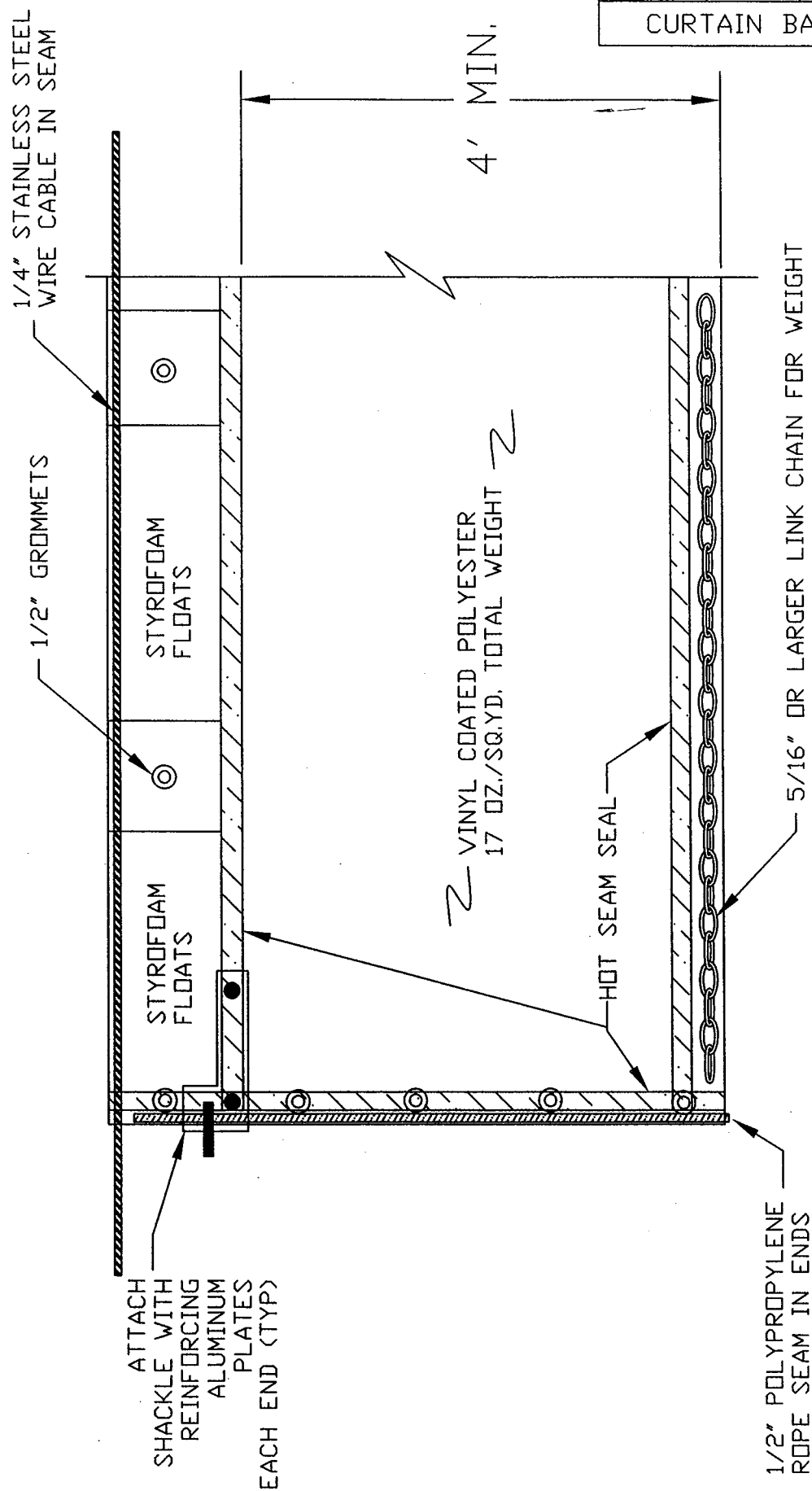


NOT TO SCALE

BUYER
CB-23

REQ. or P.D. No.
DEP 15250

CURTAIN BAFFLE DETAIL

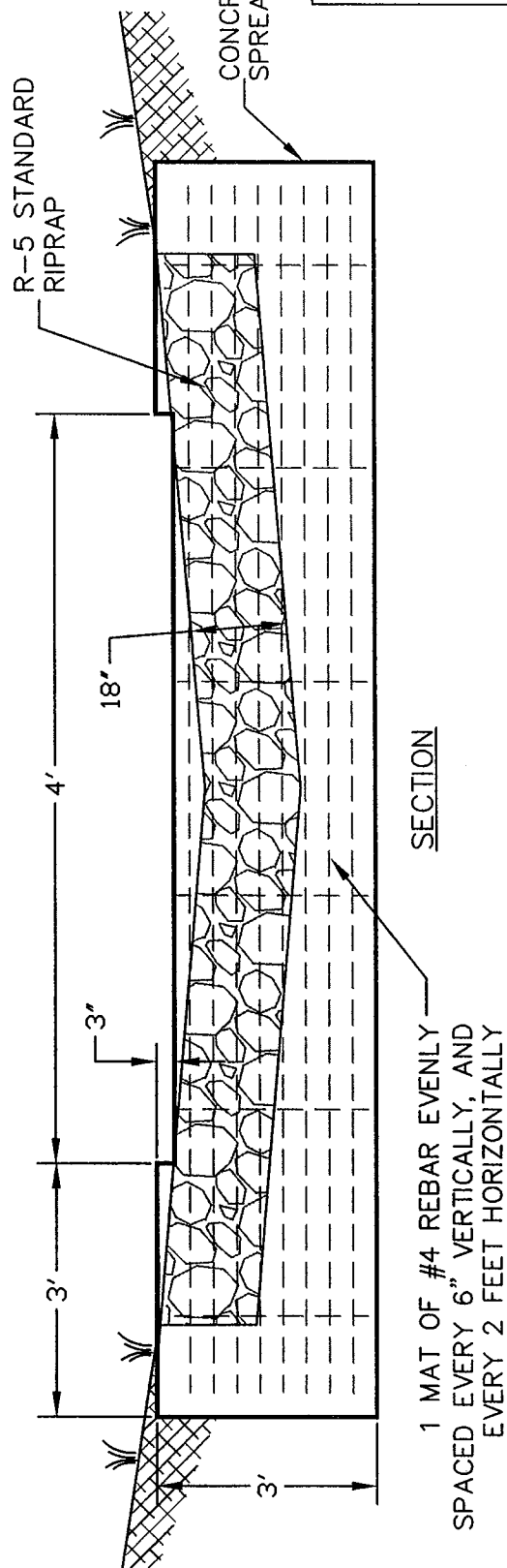
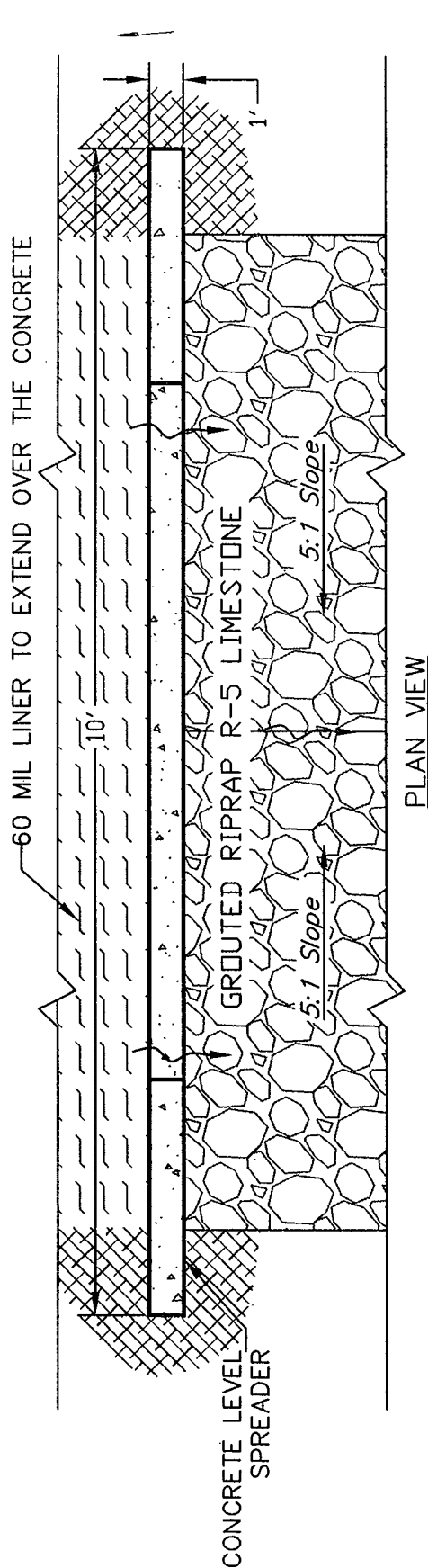


NOTE: THE CABLE MUST EXTEND 10 FEET PAST THE BAFFLE MATERIAL ON EACH END.

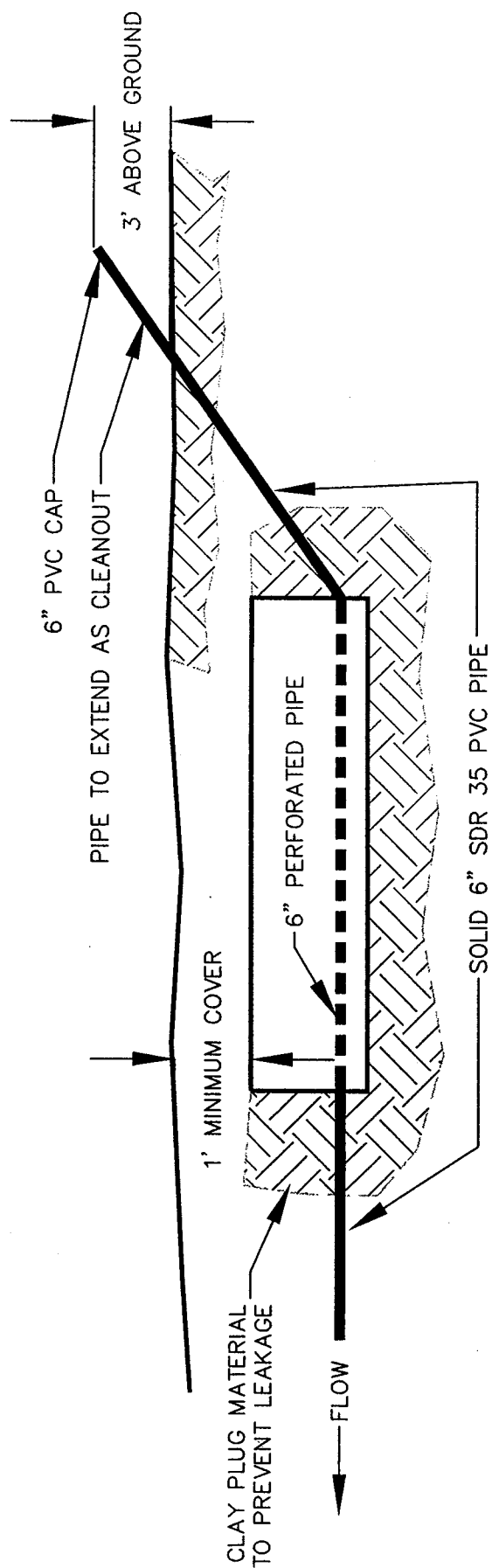
ANY OPENINGS SHALL BE CUT IN THE CURTAINS ON-SITE AT THE DIRECTION OF THE ON-SITE DEP REPRESENTATIVE.

BUYER
CB-23

 REQ. or P.D. No.
DEP 15250

 CONCRETE SPREADER AND
CUTOFF STRUCTURE


CONCRETE LEVEL SPREADER AND SEEPAGE CUTOFF STRUCTURE SHALL BE MADE OF TYPE II SULPHATE RESISTANT CONCRETE WITH A MINIMUM WIDTH OF 1 FEET, MINIMUM DEPTH 3 FEET BELOW ORIGINAL GROUND, AND EXTEND 2 FEET ON EACH SIDE INTO ORIGINAL GROUND. LEVEL SPREADER WILL RUN FULL LENGTH OF ROAD CROSSING, OR CHANNEL WIDTH. THE CONCRETE SPREADER SHALL BE PLACED ON THE UPSTREAM SIDE OF THE CROSSING, IF APPLICABLE. STRUCTURES SHALL BE INSTALLED AT INLET AND OUTLET OF EACH POND. POND LINERS SHALL EXTEND PAST THE CONCRETE AND KEYED UNDER ANY GROUTED RIPRAP IN AND OUT OF PONDS.



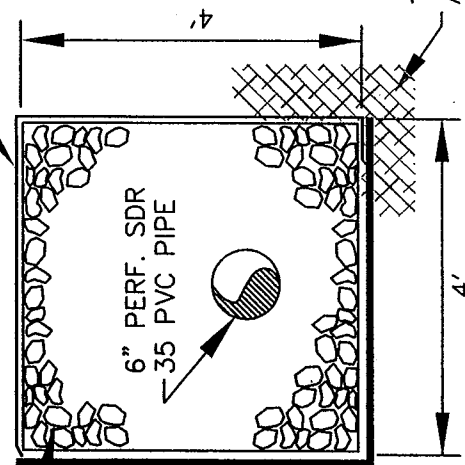
SIDE VIEW

NOT TO SCALE

WRAP WITH FILTER FABRIC (NONWOVEN)
TYPAR 3401 or EQUIVALENT

3" TO 6" STONE
NON-CALCAREOUS
(R-3 SIZE)

WRAP BOTTOM AND SIDE
WITH 40 MIL. HDPE LINER



END VIEW

BUYER
CB-23

REQ. or P.O. No.
DEP 15250

SEEP COLLECTOR

BUYER
CB-23

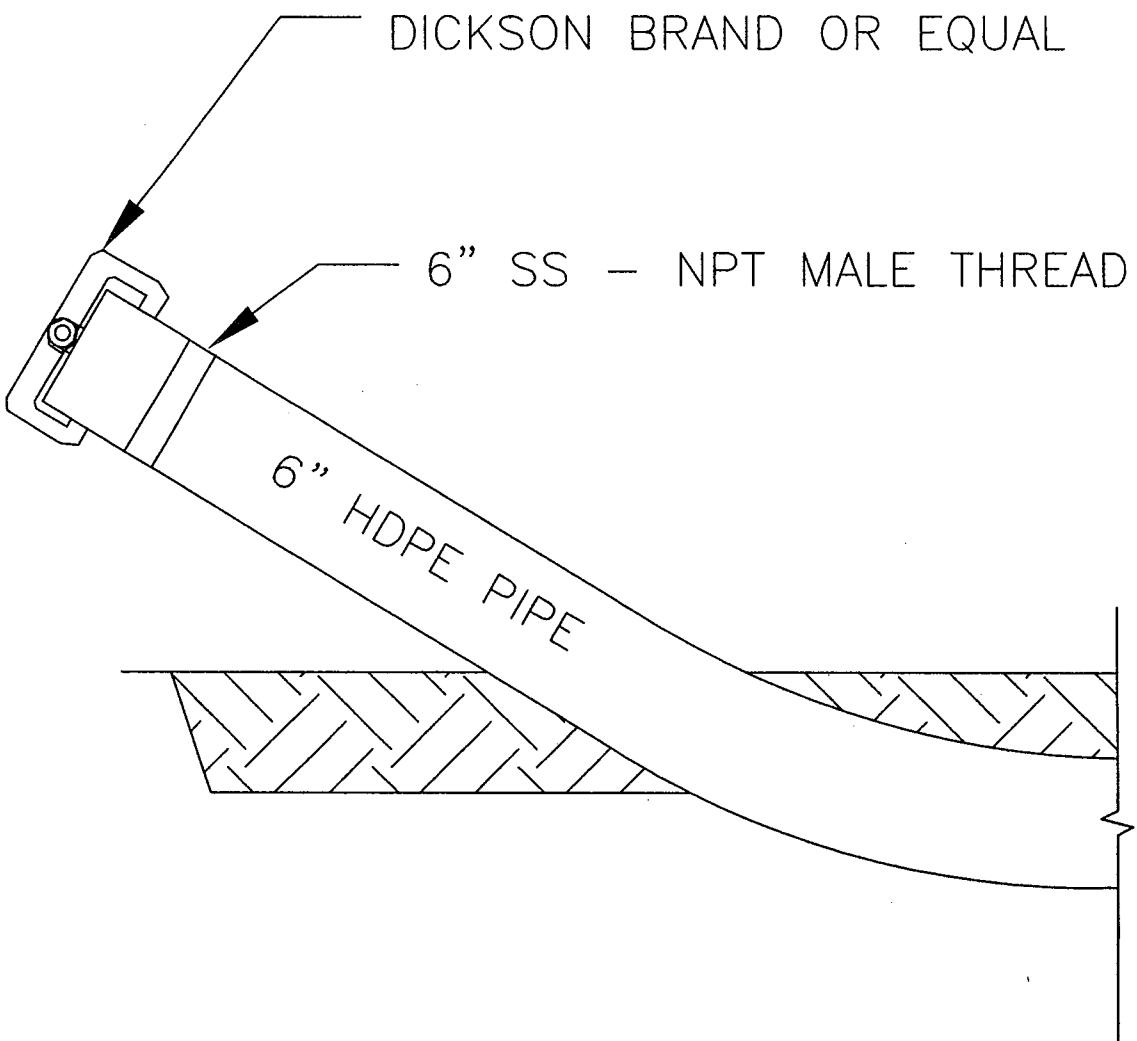
REQ. or P.O. No.
DEP 15250

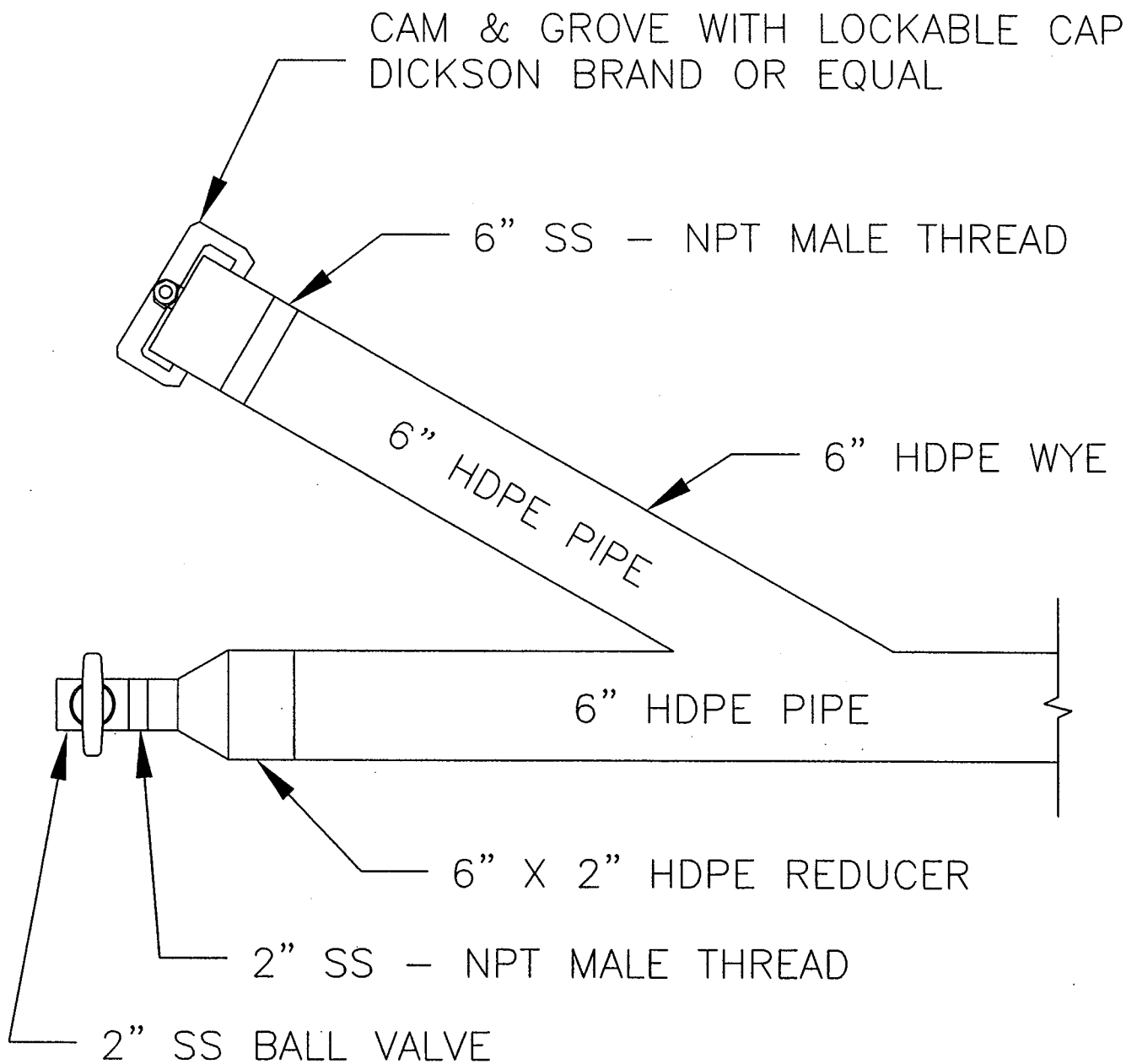
PUMP CONNECTION END

CAM & GROVE WITH LOCKABLE CAP
DICKSON BRAND OR EQUAL

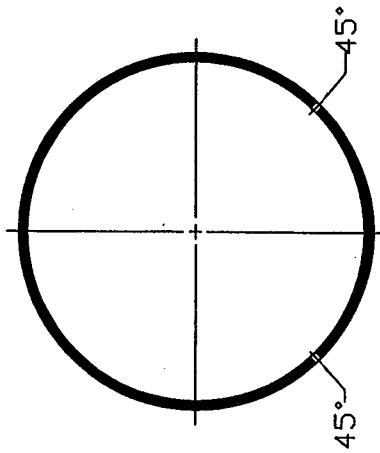
6" SS - NPT MALE THREAD

6" HDPE PIPE



BUYER
CB-23REQ. or P.O. No.
DEP 15250PUMP CONNECTION END
WITH 2 INCH DRAIN

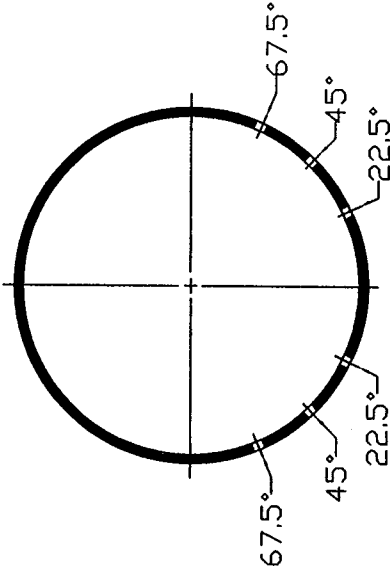
PIPE PERFORATION DETAILS



2, 4, & 6 INCH DIAMETER PIPE PERFORATIONS

HOLES SHALL BE 1/2 INCH DIAMETER FOR 2 & 4 INCH PIPE. USE 1 INCH DIAMETER HOLES FOR 6 INCH PIPE.

HOLE SPACING SHALL BE 4 INCHES ON CENTER ALONG THE LENGTH OF PIPE WITHIN SEEP COLLECTOR.

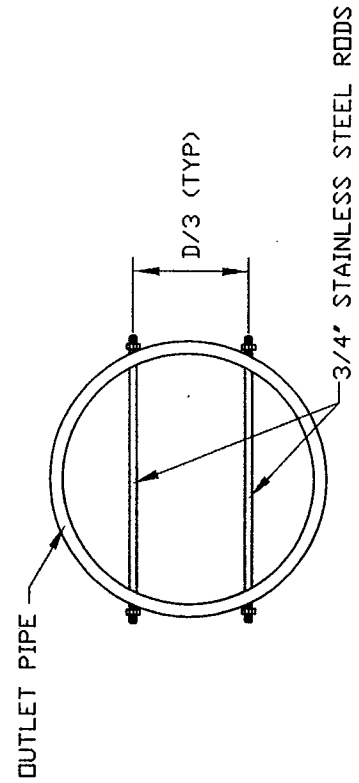


12 INCH DIAMETER PIPE PERFORATIONS

HOLES SHALL BE 1 INCH DIAMETER.

HOLE SPACING SHALL BE 6 INCHES ON CENTER ALONG THE LENGTH OF PIPE WITHIN SEEP COLLECTOR.

ANIMAL GUARD DETAILS



BUYER
CB-23

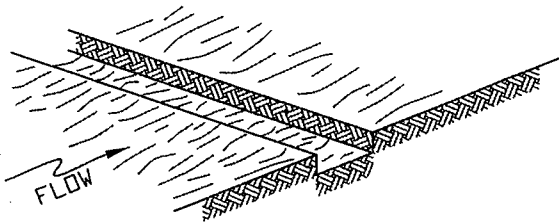
REQ. or P.O. No.
DEP 15250

PIPE PERFORATION &
ANIMAL GUARD DETAILS

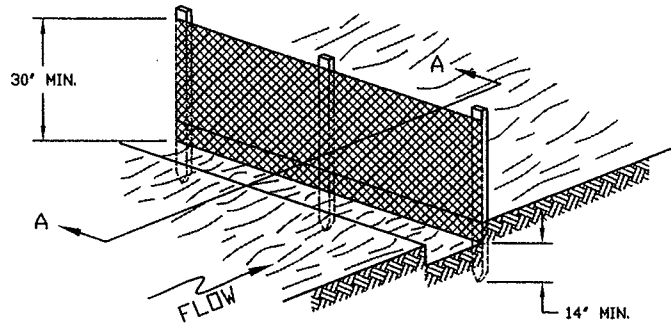
BUYER
CB-23

REQ. or P.O. No.
DEP 15250

SILT FENCE INSTALLATION

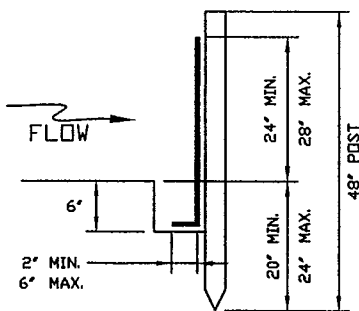


1. EXCAVATE 6' X 6' TRENCH

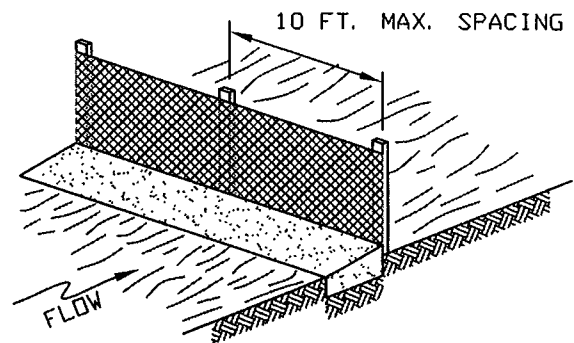


2. PLACE FENCE AT BACK EDGE OF
TRENCH (FABRIC FACING
DIRECTION OF FLOW)

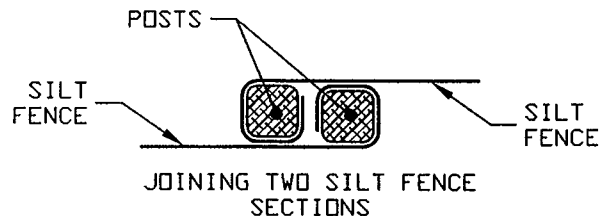
3. DRIVE POST UNTIL FABRIC REACHES BOTTOM OF TRENCH



SECTION A-A



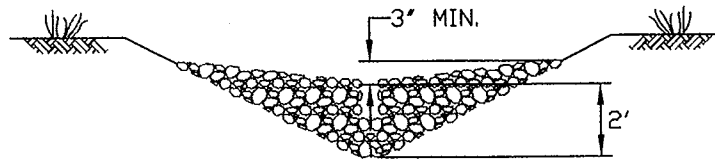
4. FILL TRENCH WITH EMBANKMENT & TAMP



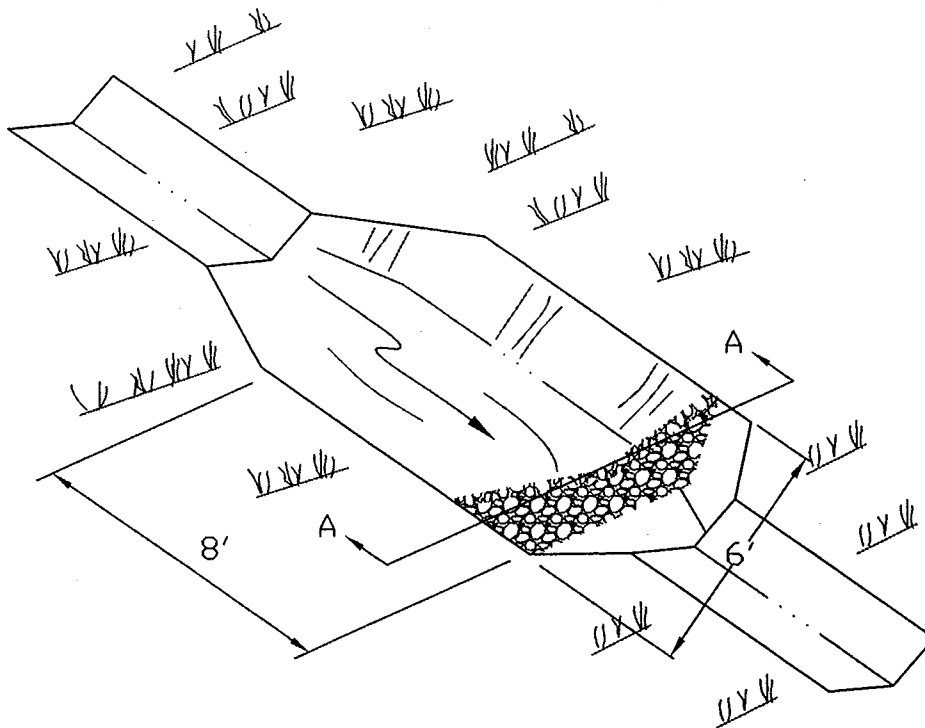
NOTE: WHEN MORE THAN ONE ROLL OF SILT FENCE IS USED, THE FENCE AT THE JUNCTION MUST BE PLACED SO THAT THE LAST POST OF THE FIRST RUN & THE FIRST POST OF THE SECOND RUN OVERLAP & ARE TIED TOGETHER.

BUYER		REQ. or P.D. No.
CB-23		DEP 15250

SEDIMENT CONTROL SUMP



SECTION A-A



NOTE:

THE SUMP MUST BE CLEANED WHEN 60% FULL.

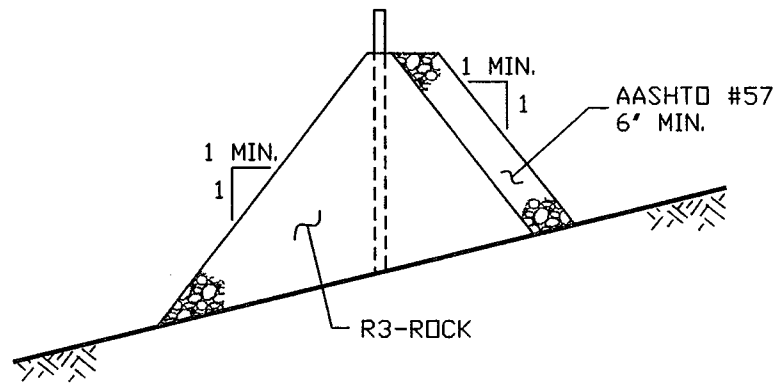
ROCK OR HAYBALES SHALL BE PLACED AT SUMP OUTLET.

THE MINIMUM DITCH DEPTH IS 1.0', AND THE MINIMUM SUMP DEPTH IS 4.0'.

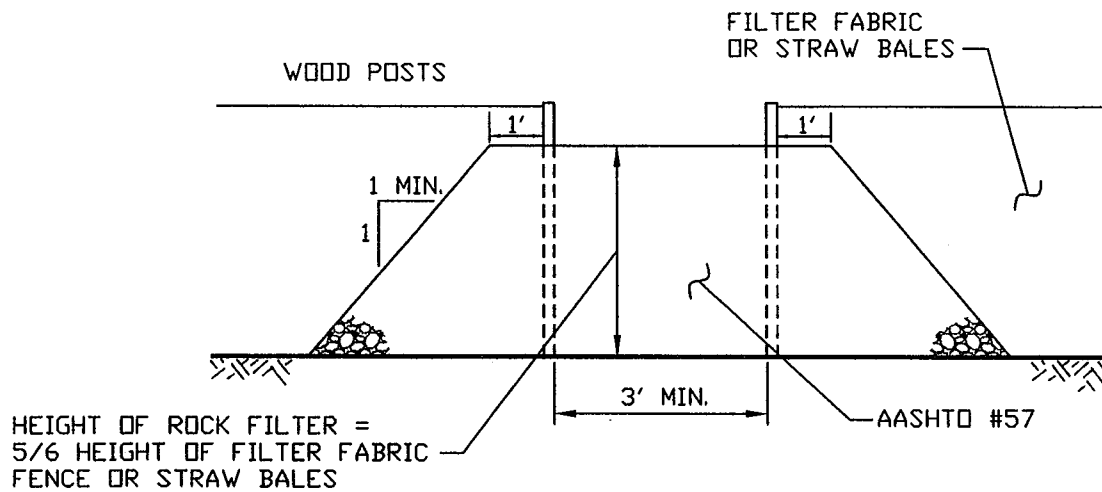
BUYER
CB-23

REQ. or P.O. No.
DEP 15250

ROCK FILTER OUTLETS



OUTLET CROSS-SECTION



UP-SLOPE FACE

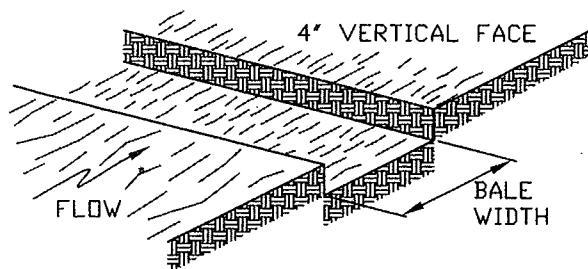
NOTE: Sediment must be removed when accumulations reach 1/3 the height of the outlet.

BUYER
CB-23

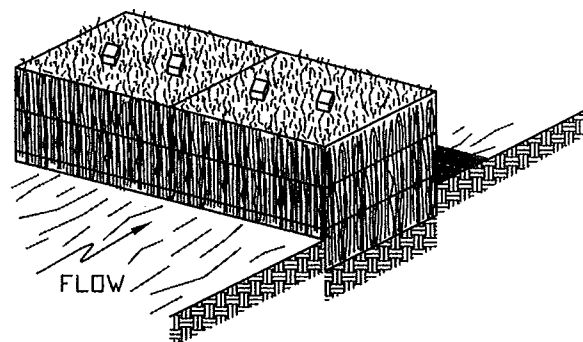
REQ. or P.O. No.
DEP 15250

STRAW/HAY BALE DIKE

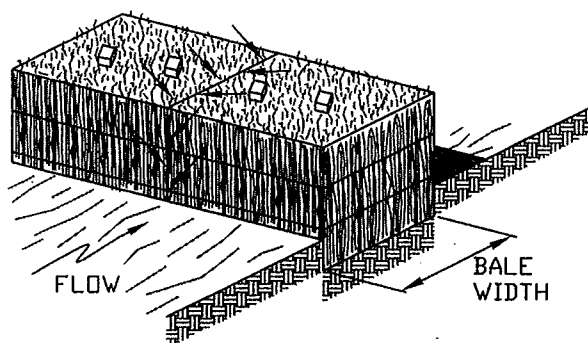
2 WOODEN 2"x2" STAKERS PER
BALE DRIVEN 1' MIN. INTO GROUND



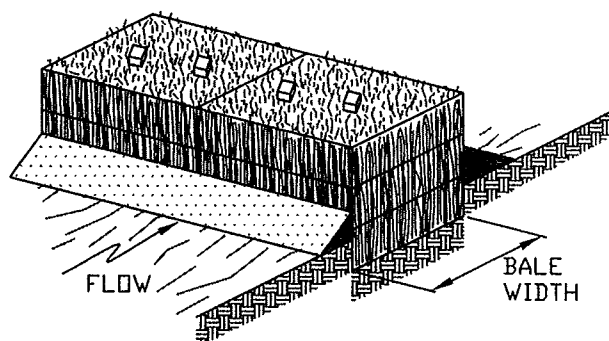
1. EXCAVATE THE TRENCH.



2. PLACE AND STAKE THE BALES.

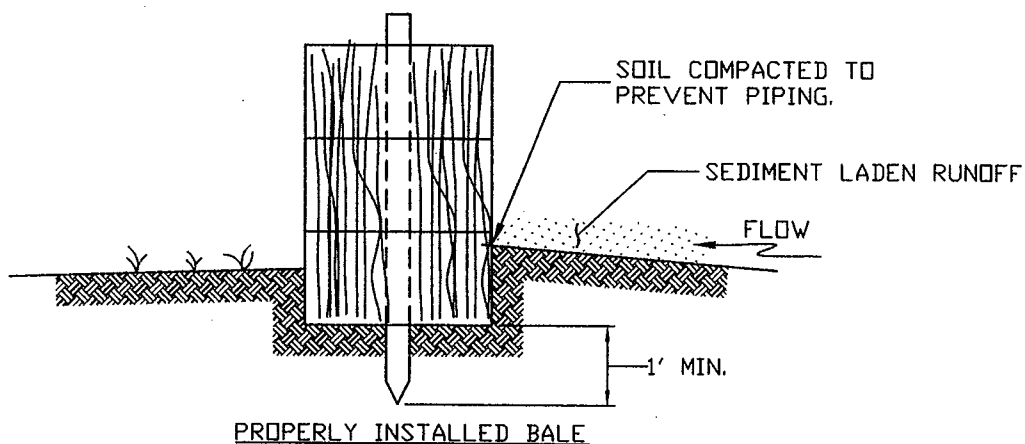


3. WEDGE LOOSE STRAW BETWEEN BALES.



4. BACKFILL AND COMPACT THE EXCAVATED SOIL.

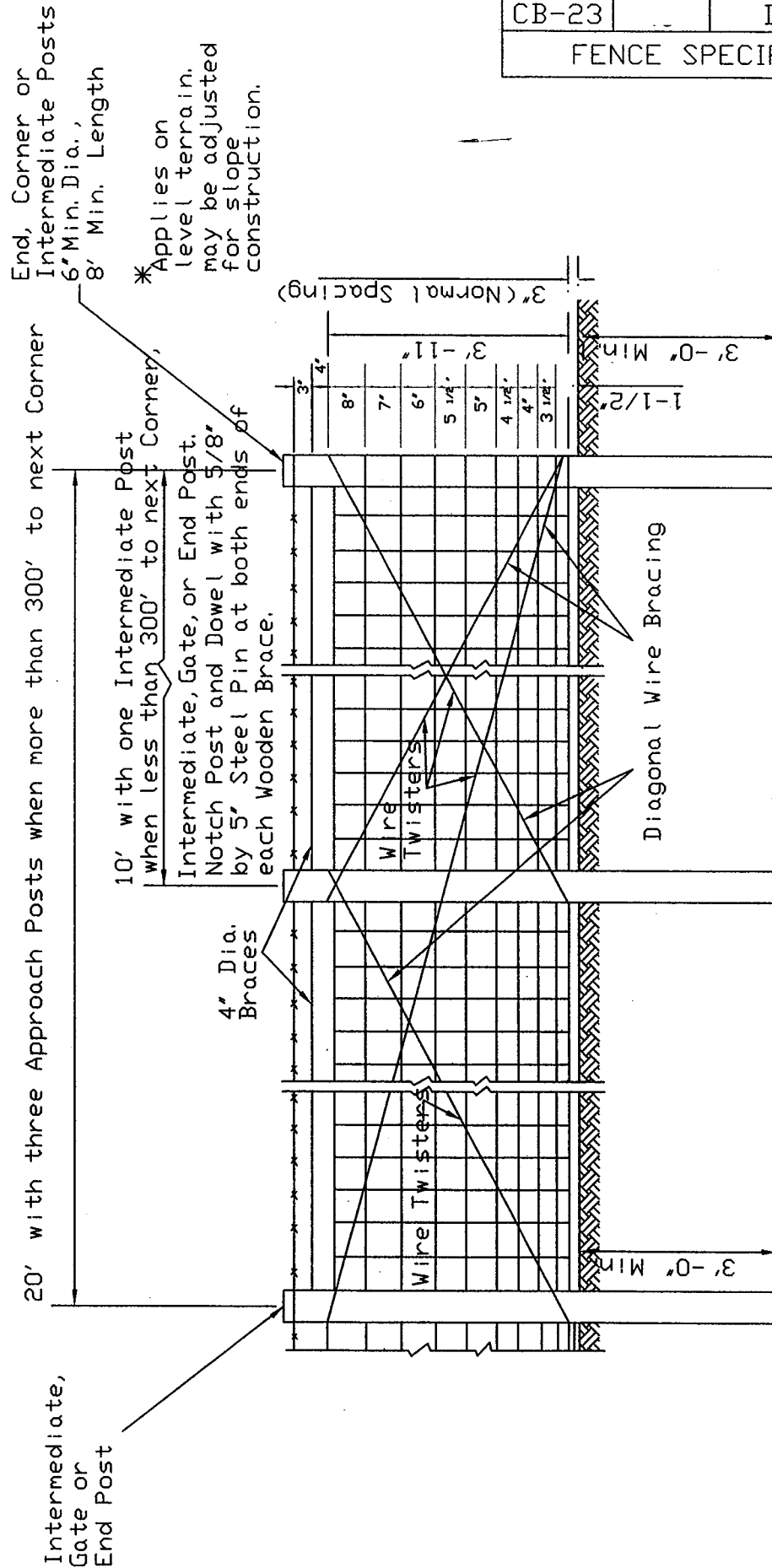
HAY OR STRAW BALE INSTALLATION SEQUENCE



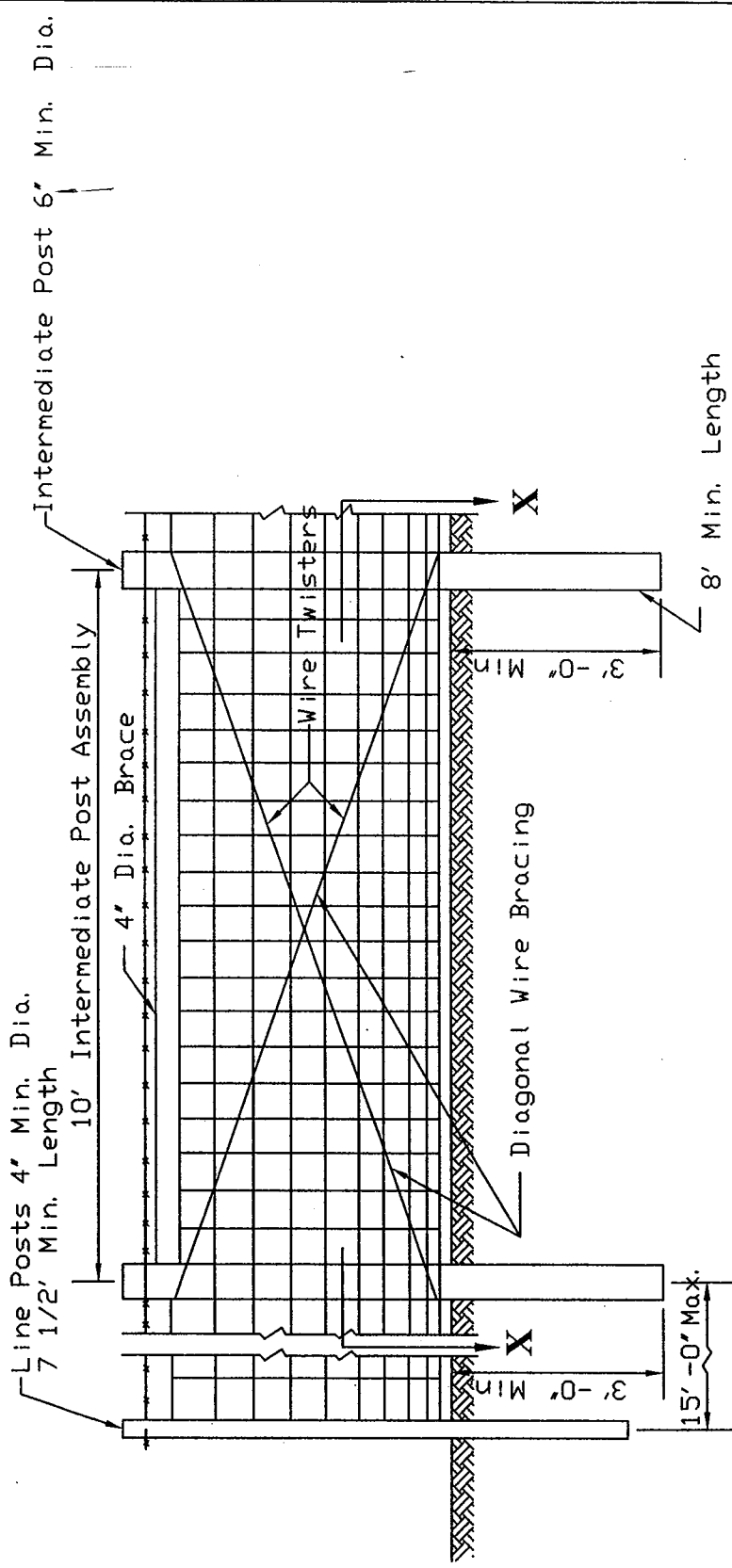
BUYER
CB-23

REQ. or P.O. No.
DEP 15250

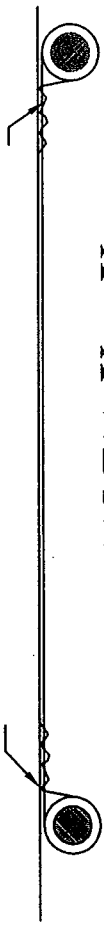
FENCE SPECIFICATION



BUYER CB-23	REQ. or P.D. No. DEP 15250
FENCE SPECIFICATION	



Not Less Than 3 Twists Tightly Wrapped



VIEW X-X

(Connection of Fencing Fabric to Intermediate Assembly Posts)

NOTES:

Posts and braces may be either round or square shaped. Dimensions shown on the Plans are for round posts and braces only. When square posts are used, line posts shall be 4" square (min.); braces 4" square (min.); corner, end, pull, gate, approach, and intermediate posts 6" square (min.).

The positioning of the fence fabric and barbed wire on the posts, as shown on the 'Typical Fence Section' detail, applies for level and gentle sloping terrain. For fence erected on slopes, the positioning may be adjusted to meet the slope conditions as long as the adjustment is continued from post to post in a uniform manner.

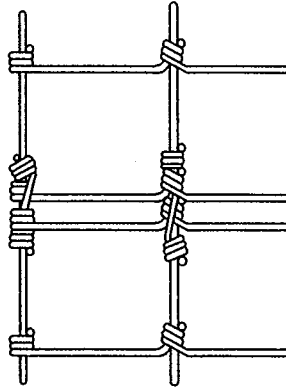
Trenching on slopes may be warranted. On slopes, posts will continue to be erected vertically, unless otherwise directed, and the ends of the fencing fabric shall be cut on a skew as may be necessary for proper connection to the posts.

Dumped rock channel protection will be used at channel crossings when called for on the plans.

Install drainage structure terminal installations as called for on the plans and/or as shown on typical fence details.

Unless otherwise specified, or directed by the Engineer, the farm field fence may be installed with the fence fabric and barbed wire positioned on either side of the fence

Hardware and miscellaneous fittings, not specifically designated herein as to type or dimensions, shall conform to the applicable requirements of WDDH Section. 608 of the Specifications and shall be of good quality commercial design acceptable to the Director or Representative.



Note: Type FW-4-5 Nicopress Oval Sleeve Wire Splices, or other equal sleeve splices approved by the Engineer, may be used in lieu of the above wrapped wire splices.

TYPICAL WIRE FENCE SPLICE

BUYER
CB-23

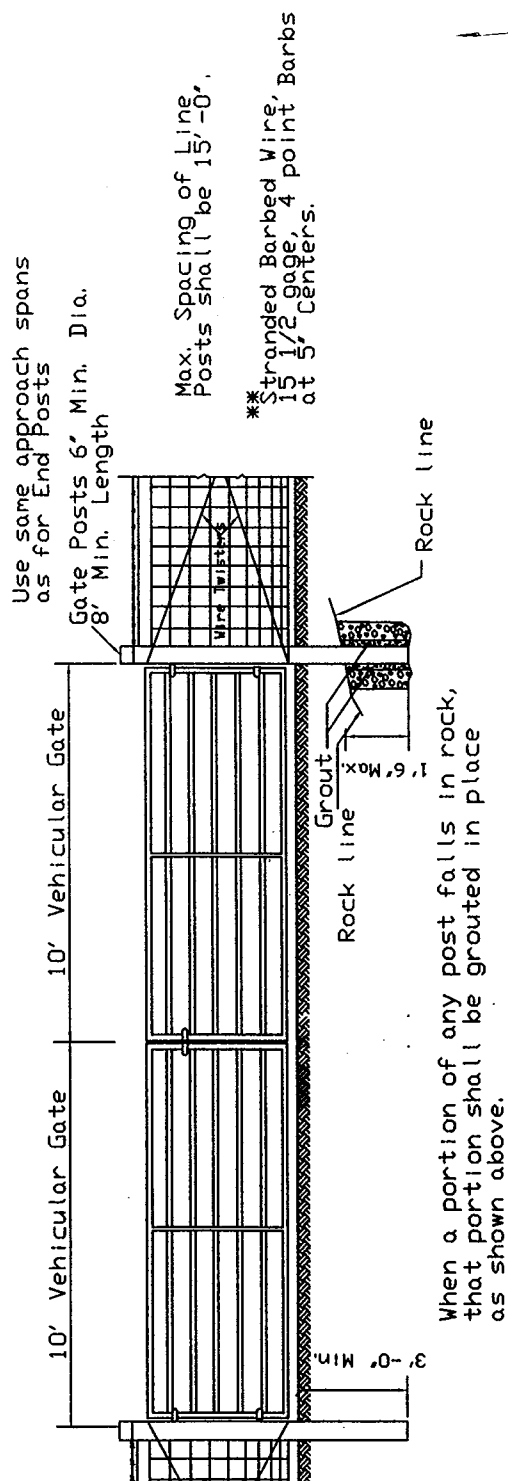
REQ. or P.O. No.
DEP 15250

FENCE SPECIFICATION

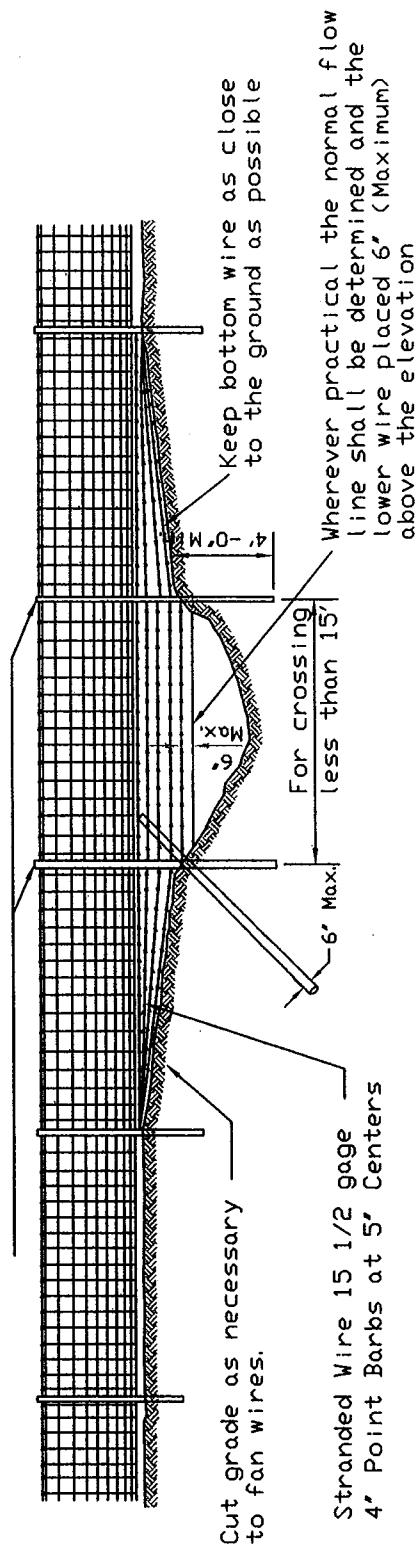
BUYER
CB-23

REQ. or P.O. No.
DEP 15250

FENCE SPECIFICATION



Line Posts: 4' Min. Dia. up to and including heights 6.5' above ground line.



DETAIL SHOWING TYPICAL SECTION AT MINOR
DEPRESSIONS AND WET WEATHER CROSSINGS

BID BOND PREPARATION INSTRUCTIONS

AGENCY _____ (A)
RFQ/RFP# _____ (B)

Bid Bond

- (A) WV State Agency
(Stated on Page 1 "Spending Unit")
Request for Quotation Number (upper
right corner of page #1)
- (C) Your Company Name
- (D) City, Location of your Company
- (E) State, Location of your Company
- (F) Surety Corporate Name
- (G) City, Location of Surety
- (H) State, Location of Surety
- (I) State of Surety Incorporation
- (J) City of Surety Incorporation
- (K) Minimum amount of acceptable bid
bond is 5% of total bid. You may state
"5% of bid" or a specific amount on
this line in words.
- (L) Amount of bond in figures
- (M) Brief Description of scope of work
- (N) Day of the month
- (O) Month
- (P) Year
- (Q) Name of Corporation
- (R) Raised Corporate Seal of Principal
- (S) Signature of President or Vice
President
- (T) Title of person signing
- (U) Raised Corporate Seal of Surety
- (V) Corporate Name of Surety
- (W) Signature of Attorney in Fact of the
Surety

NOTE: Dated, Power of Attorney with Raised
Surety Seal must accompany this bid
bond.

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned,
_____(C)_____ of _____(D)_____, _____(E)_____,
as Principal, and _____(F)_____ of _____(G)_____,
_____(H)_____, a corporation organized and existing under the laws
of the State of _____(I)_____ with its principal office in the City of
_____(J)_____, as Surety, are held and firmly bound unto The State
of West Virginia, as Oblige, in the penal sum of _____(K)_____
(\$ _____(L)_____) for the payment of which, well and truly to be made,
we jointly and severally bind ourselves, our heirs, administrators, executors,
successors and assigns.

The Condition of the above obligation is such that whereas the Principal
has submitted to the Purchasing Section of the Department of Administration
a certain bid or proposal, attached hereto and made a part hereof to enter into a
contract in writing for _____

_____(M)_____

NOW THEREFORE.

(a) If said bid shall be rejected, or

(b) If said bid shall be accepted and the Principal shall enter into a
contract in accordance with the bid or proposal attached hereto and shall furnish
any other bonds and insurance required by the bid or proposal, and shall in all
other respects perform the agreement created by the acceptance of said bid then
this obligation shall be null and void, otherwise this obligation shall remain in full
force and effect. It is expressly understood and agreed that the liability of the
Surety for any and all claims hereunder shall, in no event, exceed the penal
amount of this obligation as herein stated

The Surety for value received, hereby stipulates and agrees that the
obligations of said Surety and its bond shall be in no way impaired or affected by
any extension of time within which the Oblige may accept such bid: and said
Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, Principal and Surety have hereunto set their
hands and seals, and such of them as are corporations have caused their corporate
seals to be affixed hereto and these presents to be signed by their proper officers,
this _____(N)_____ day of _____(O)_____, 20 _____(P)_____.

Principal Corporate Seal

_____(R)_____

_____(Q)_____
(Name of Principal)
By _____(S)_____
(Must be President or
Vice President)
_____(T)_____
Title

_____(U)_____
Surety Corporate Seal

_____(V)_____
(Name of Surety)

_____(W)_____
Attorney-in-Fact

IMPORTANT – Surety executing bonds must be licensed in West Virginia to
transact surety insurance. Raised Corporate Seals must be affixed and a Power of
Attorney must be attached.

Agency _____
 REQ.P.O# _____

BID BOND

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned, _____
 _____ of _____, _____, as Principal, and _____
 _____ of _____, _____, a corporation organized and existing under the laws of the State of _____
 _____ with its principal office in the City of _____, as Surety, are held and firmly bound unto the State
 of West Virginia, as Obligee, in the penal sum of _____ (\$ _____) for the payment of which,
 well and truly to be made, we jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns.

The Condition of the above obligation is such that whereas the Principal has submitted to the Purchasing Section of the
 Department of Administration a certain bid or proposal, attached hereto and made a part hereof, to enter into a contract in writing for

NOW THEREFORE,

(a) If said bid shall be rejected, or
 (b) If said bid shall be accepted and the Principal shall enter into a contract in accordance with the bid or proposal attached
 hereto and shall furnish any other bonds and insurance required by the bid or proposal, and shall in all other respects perform the
 agreement created by the acceptance of said bid, then this obligation shall be null and void, otherwise this obligation shall remain in full
 force and effect. It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event,
 exceed the penal amount of this obligation as herein stated.

The Surety, for the value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no
 way impaired or affected by any extension of the time within which the Obligee may accept such bid, and said Surety does hereby
 waive notice of any such extension.

IN WITNESS WHEREOF, Principal and Surety have hereunto set their hands and seals, and such of them as are corporations
 have caused their corporate seals to be affixed hereunto and these presents to be signed by their proper officers, this

_____ day of _____, 20____.

Principal Corporate Seal

 (Name of Principal)

By _____
 (Must be President or
 Vice President)

 (Title)

Surety Corporate Seal

 (Name of Surety)

 Attorney-in-Fact

**IMPORTANT – Surety executing bonds must be licensed in West Virginia to transact surety insurance. Raised corporate seals
 must be affixed, a power of attorney must be attached.**

RFQ No. _____

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (**West Virginia Code §61-5-3**), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: _____

Authorized Signature: _____ Date: _____

State of _____

County of _____, to-wit:

Taken, subscribed, and sworn to before me this ____ day of _____, 20____.

My Commission expires _____, 20____.

AFFIX SEAL HERE

NOTARY PUBLIC _____