THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, OR THE MOST CURRENT VERSION THEREOF, DURING THE CONDUCT AND PERFORMANCE ON AND IN CONNECTION WITH THIS PROJECT.

THE LATEST EDITION OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS (ODOT-CMS) TOGETHER WITH THE CODES AND REQUIREMENTS OF THE US ARMY CORPS OF ENGINEERS INCLUDING ALL SUPPLEMENTS THERETO, IN FORCE ON THE DATE OF THE CONTRACT SHALL GOVERN ALL MATERIALS AND WORKMANSHIP INVOLVED IN THE IMPROVEMENTS SHOWN ON THESE PLANS AND ARE HEREBY CONSIDERED A PART OF THE PLANS.

WHEN THERE IS. OR APPEARS TO BE, A CONFLICT BETWEEN THE REFERENCED SPECIFICATIONS AND/OR THESE CONSTRUCTION DRAWINGS, THE MORE STRINGENT REQUIREMENT SHALL

PERMITS
THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND COMPLYING WITH ALL APPLICABLE FEDERAL, STATE, COUNTY, AND LOCAL PERMITS, UNLESS OTHERWISE NOTED IN THE

CONTRACT DOCUMENTS.

LINER
50 MIL GEOMEMBRANE LINER SHALL BE USED FOR THE SECONDARY CONTAINMENT AREA AND DIRTY POND. SEE DETAILS ON THIS SHEET

EMBANKMENT (FILL) AND COMPACTION REQUIREMENTS

1. A GEOTECHNICAL SOILS INVESTIGATION HAS NOT BEEN DONE, BUT THE SITE IS DESCRIBED GENERALLY AS A BLEND OF COSHOCTON AND ZANESVILLE SILT LOAM.

2. ALL TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR LATER RE-DISTRIBUTION. THIS MATERIAL SHALL NOT BE PLACED AS STRUCTURAL FILL.

3. STRUCTURAL FILL IS DESIGNED IN ACCORDANCE WITH PRACTICES TYPICALLY ACCEPTED OHIO DEPARTMENT OF NATURAL RESOURCES, DIVISION OF MINERAL RESOURCES MANAGEMENT. 4. STRUCTURAL FILLS SHALL HAVE A COMBINED INSIDE AND OUTSIDE SLOPE MEASUREMENT OF AT LEAST 5. FOR EXAMPLE, A 3:1 SLOPE PLUS A 2:1 SLOPE EQUALS 5.

5. STRUCTURAL FILL SHALL BE BENCHED INTO EXISTING GROUND. THE INITIAL BENCH WIDTH SHALL BE AT LEAST 10 FEET. SUBSEQUENT WIDTHS SHALL BE DETERMINED IN THE FIELD AT THE TIME OF CONSTRUCTION, BUT IN NO CASE, SHALL IT BE LESS THAN 6 FEET. 6. FILL MATERIAL SHALL BE PLACED IN 8" LOOSE LIFTS AND COMPACTED BY REPETITIOUS PASSES OF A SHEEPSFOOT ROLLER HAVING A MINIMUM WEIGHT OF 10 TONS. THE NUMBER OF

PASSES SHALL BE DETERMINED IN THE FIELD AT THE TIME OF CONSTRUCTION, BUT IN NO CASE, SHALL IT BE LESS THAN 4 PASSES. UP AND BACK COUNTS AS TWO PASSES. 7. THE CONTRACTOR SHALL OBSERVE THE MOISTURE CONTENT OF FILL MATERIAL AND ADD WATER AS NECESSARY TO ENHANCE COMPACTION. CONVERSELY, PLACEMENT OF EXCESSIVELY WET

MATERIAL SHALL BE PROHIBITED.

8. ONCE EARTHWORK IS COMPLETED, STOCKPILED TOPSOIL SHALL BE RE-DISTRIBUTED. 9. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE SEEDED WITH ODOT ITEM 659 CLASS 2 ROADSIDE MIXTURE AND MULCHED AT A RATE OF 2 TONS PER ACRE.

THE CONTRACTOR SHALL CONTACT THE OHIO UTILITIES PROTECTION SERVICE A MINIMUM OF FORTY-EIGHT (48) HOURS PRIOR TO BEGINNING ANY CONSTRUCTION. NON-MEMBER UTILITIES MUST BE CALLED DIRECTLY. ALL UTILITIES DAMAGED OR DISTURBED DURING CONSTRUCTION SHALL BE RESTORED IN ACCORDANCE WITH AND APPROVAL OF THE AFFECTED UTILITY AT NO ADDITIONAL COST TO THE OWNER OR PROJECT.

GENERAL FACILITY INFORMATION

MULTIPLE MOBILE STORAGE TANKS ON-SITE CAN EACH HOLD 21,000 GALLONS. ADEQUATE SECONDARY STORAGE IS PROVIDED BY THE BIN BLOCK SECONDARY CONTAINMENT AREA. SEE THE SECONDARY CONTAINMENT DATA TABLE ON THIS SHEET FOR MORE DETAILS.

DESCRIPTION OF FACILITY AND OPERATIONS THE NORWICH WATER PROCESSING FACILITY ACCEPTS DRILLING WATER THAT HAS BEEN REJECTED FOR INJECTION DUE TO EXCESSIVE SOLIDS CONTENT. THIS WATER IS TREATED BY SETTLING AND IS TEMPORARILY STORED UNTIL READY FOR OFF-SITE DISPOSAL. THE FACILITY ALSO CLEANS AND REMOVES EXCESSIVE SEDIMENT FROM THE TANKS OF DELIVERY TRUCKS. ALL ACCUMULATED WATER AND SEDIMENTS ARE HELD IN FRAC AND/OR FLOWBACK TANKS THAT ARE WITHIN A SECONDARY CONTAINMENT AREA. DECANTED WATER IS CONVEYED BY PUMPING OR GRAVITY TO A HOLDING IMPOUNDMENT (DIRTY POND), WHICH IS HAS A SINGLE 50 MIL GEOMEMBRANE LINER AND IS NOT DESIGNED TO DISCHARGE. TRUCKS DRAW WATER FROM THIS IMPOUNDMENT AND TRANSPORT IT FOR OFF-SITE DISPOSAL. UNCONTAMINATED SURFACE WATER IS COLLECTED IN A SEPARATE IMPOUNDMENT (CLEAN POND), WHICH IS UNLINED AND DESIGNED TO DISCHARGE. TRUCKS MAY DRAW WATER FROM THIS IMPOUNDMENT TO RETURN TO THE WELL SITE. SEDIMENTS ACCUMULATED IN THE FRAC AND FLOWBACK TANKS ARE REMOVED BY A HYDROVAC TRUCK, WHICH DISCHARGES THEM INTO A ROLL-OFF CONTAINER FOR SOLIDIFICATION. SOLIDIFIED MATERIAL IS THEN TRANSPORTED TO AN APPROVED OFF-SITE LANDFILL FOR DISPOSAL.

SITE MONITORING

THE PROPOSED FACILITY WILL FALL UNDER E & R ENERGY SERVICES CURRENT SPILL PREVENTION, CONTROL, AND COUNTERMEASURE (SPCC) PLAN. INSPECTIONS WILL FOLLOW OSHA 40CFR PART 112. TRAINING CRITERIA, INSPECTION PROCEDURES AND FREQUENCY WILL FOLLOW 40 CFR 112.6(A)(3)(III), 112.8(C)(6), 112.8(D)(4), 112.9(B)(2), 112.9(C)(3), 112.9(D)(4), 112.12(C)(6) AND 112.12(D)(4) RESPECTFULLY.

CLOSURE PLAN

IF AND WHEN BUSINESS CONDITIONS WOULD JUSTIFY CLOSING THE FACILITY THE FOLLOWING STEPS WOULD BE TAKEN:

EMPTY THE MOBILE STORAGE TANKS OF THEIR FLUID CONTENTS UTILIZING THE TYPICAL OPERATING PROCEDURE OUTLINED ABOVE.

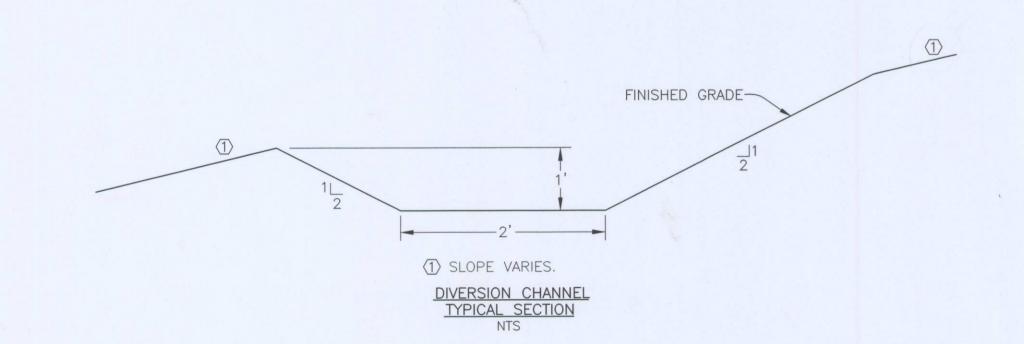
CAPTURE ALL RESIDUAL SOLIDS, THEN DISPOSE OF UTILIZING THE TYPICAL OPERATING PROCEDURE OUTLINED ABOVE.

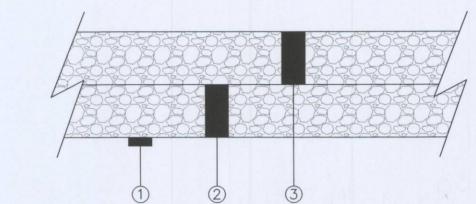
 THE DIRTY POND WILL BE EMPTIED OF ALL LIQUIDS AND SOLIDS AND DISPOSED OF UTILIZING THE TYPICAL OPERATING PROCEDURE OUTLINED ABOVE. THE POND WILL BE REMOVED. THE CLEAN POND WILL BE EMPTIED UTILIZING THE TYPICAL OPERATING PROCEDURE OUTLINED ABOVE. THE POND WILL BE REMOVED.

SECONDARY CON	ITAINIMENT D	۸ΤΛ		Xa
SECONDART COL			FREEBOARD (FT)	Box
MOBILE STORAGE TANK IN WATER AND SEDIMENT TREATMENT AREA	23,100	23,385	0.5	XNO,

NOTES: MOBILE STORAGE TANK:

REQUIRED VOLUME = 21,000 GALLONS + 10% = 23,100 GALLONS





AGGREGATE PAVEMENT PROFILE NTS

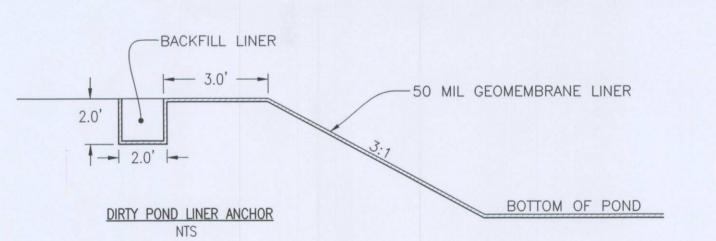
COMPACTED SUBGRADE

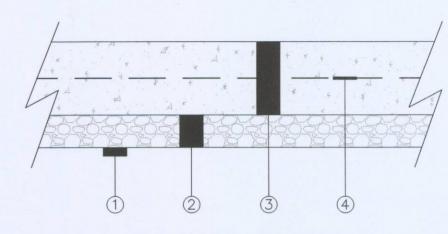
12" #2 AGGREGATE BASE CHOKED WITH 411 SCREENINGS

(PLACE IN TWO 6" LIFTS)

- (1) 2'X2'X4' PRE-CAST CONCRETE BIN BLOCK
- (2) COMPACTED SUBGRADE
- (3) 50 MIL GEOMEMBRANE LINER, EXTEND 1' BEYOND BIN BLOCK
- (4) 2" NATURAL OR MANUFACTURED SAND PER ODOT 703.06
- (5) 4" #57 LIMESTONE OR 304 AGGREGATE BASE
- (6) RHINO LINER, 1/8" THICK, BLACK, ON ALL EXPOSED GEOMEMBRANE LINER

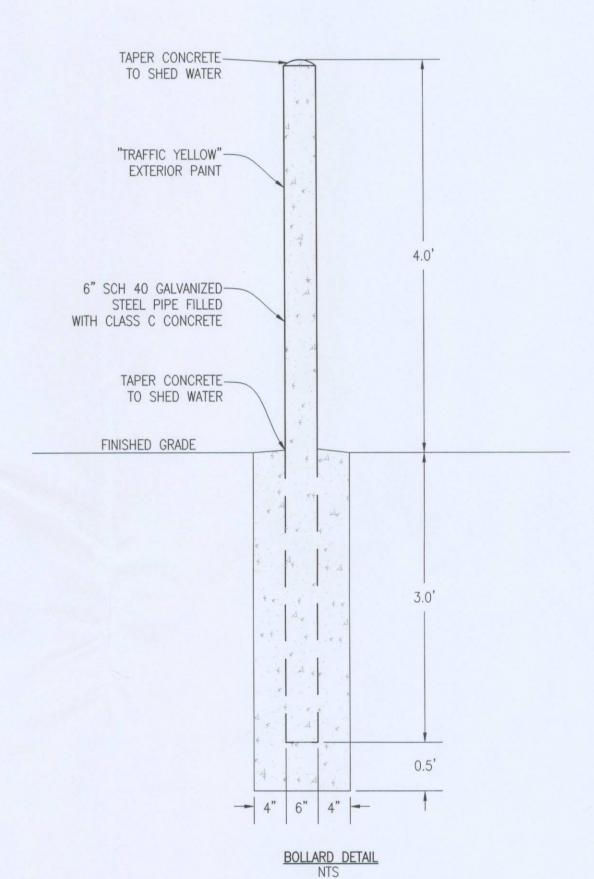
SECONDARY CONTAINMENT

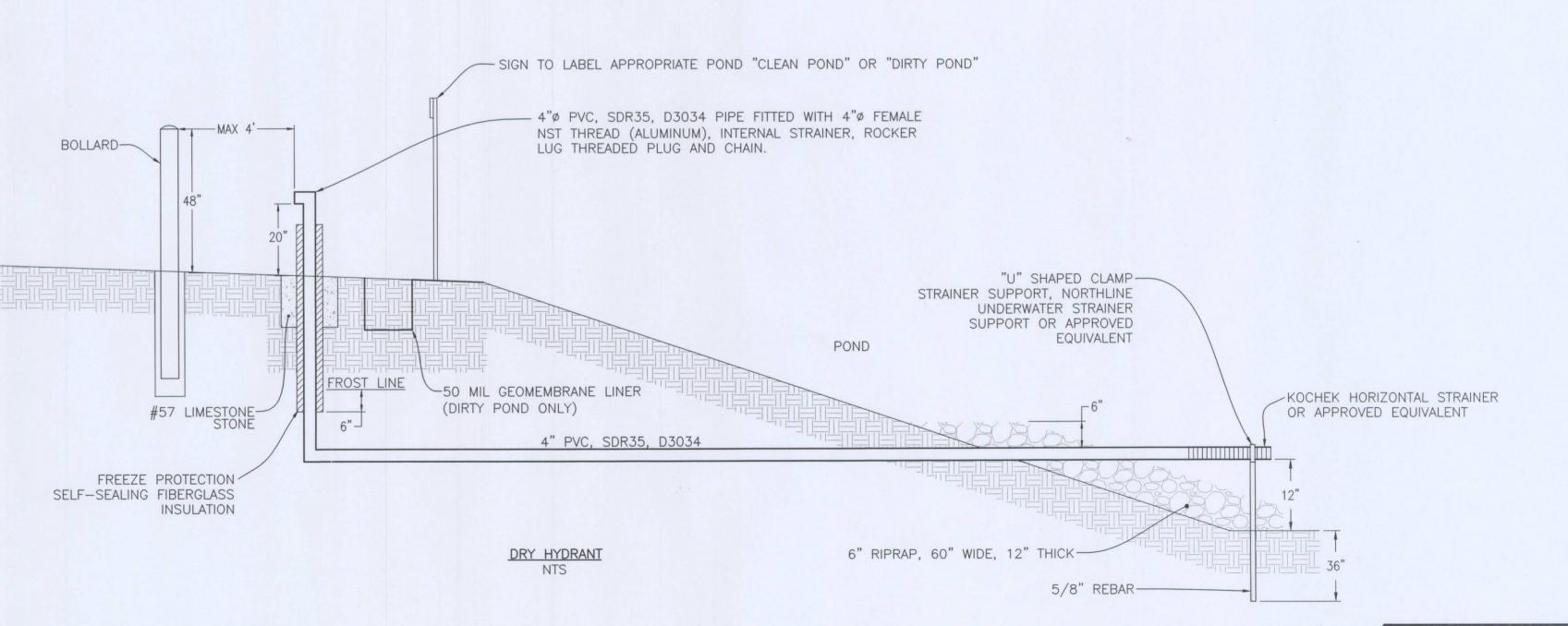




9" REINFORCED CONCRETE PROFILE

- COMPACTED SUBGRADE
- 4" 304 AGGREGATE BASE
- (3) 9" CLASS QC-1 CONCRETE
- (4) 6"x6" WELDED STEEL FABRIC, ASTM A185





NOTES AND DETAILS

JUN 03 2014 Division of Oil and Gas Resources Management

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E & R ENERGY SERVICES, LLC 8645 EAST PIKE NORWICH, OHIO 43767 ATER AND MATERIAL HANDLIN

Project No. ZEMB-1411 Sheet No. Of