RECEIVED
FEB 03 2009
By

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES & ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRNOMENTAL PROTECTION
DIVISION OF WATER

APPLICATION FOR PERMIT TO CONSTRUCT ACROSS OR ALONG A STREAM AND / OR WATER QUALITY CERTIFICATION

Chapter 151 of the Kentucky Revised Statutes requires approval from the Division of Water prior to any construction or other activity in or along a stream that could in any way obstruct flood flows or adversely impact water quality. *If the project involves work in a stream, such as bank stabilization, dredging or relocation, you will also need to obtain a 401 Water Quality Certification (WQC) from the Division of Water.* This completed form will be forwarded to the Water Quality Branch for WQC processing. The project may not start until all necessary approvals are received from the KDOW. For questions concerning the WQC process, contact the WQC section at 502/564-3410.

If the project will disturb more than 1 acre of soil, you will also need to complete the attached Notice of Intent for Storm Water Discharges, and return both forms to the Floodplain management Section of the KDOW. This general permit will require you to create an implement an erosion control plan for the project.

1. **OWNER:** CITY OF BARDSTOWN, KENTUCKY 19170
   Give name of person(s), company, governmental unit, or other owner of proposed project.
   MAILING ADDRESS: 220 NORTH FIFTH STREET
   BARDSTOWN, KENTUCKY 40004
   TELEPHONE #: 502·348·3064 **EMAIL:** lahamilton@bardstowncable.net
2. **AGENT:** _____
   Give name of person(s) submitting application, if other than owner.
   ADDRESS: _____
   TELEPHONE #: _____ **EMAIL:** _____
3. **ENGINEER:** RAYMOND W. IHLENBURG **P.E. NUMBER:** 10483
   Contact Division of Water if waiver can be granted.
   TELEPHONE #: 502·587·7884 x26 **EMAIL:** ihlenbrw@obg.com
4. **DESCRIPTION OF CONSTRUCTION:** INSTALLATION OF APPROXIMATELY
   Describe the type and purpose of construction and describe stream impact
   600 L.F. OF 60-INCH DIAMETER PIPE TO CONVEY AN EXISTING INTERMITTENT STREAM TO MAKE PROVISIONS FOR A NEW WATER STORAGE TANK (CLEARWELL) AT THE WATER TREATMENT PLANT.
5. **COUNTY:** NELSON **NEAREST COMMUNITY:** BARDSTOWN
6. **USGS QUAD NAME** BARDSTOWN **LATITUDE/LONGITUDE:** 37.80654/-85.50621
7. **STREAM NAME:** UN-NAMED **WATERSHED SIZE (in acres):** 70
8. **LINEAR FEET OF STREAM IMPACTED:** 600 LF
9. **DIRECTIONS TO SITE:** APPROXIMATELY 1.5 MILES WEST OF BARDSTOWN ON US62.

10. **IS ANY PORTION OF THE REQUESTED PROJECT NOW COMPLETE?** Yes | (No) If yes, identify the completed portion on the drawings you submit and indicate the date activity was completed. DATE: _____

11. **ESTIMATED BEGIN CONSTRUCTION DATE:** MARCH 2009

12. **ESTIMATED END CONSTRUCTION DATE:** JULY 2010

13. **HAS A PERMIT BEEN RECEIVED FROM THE US ARMY, CORPS of ENGINEERS?** Yes | (No) If yes, attach a copy of that permit. REQUEST MADE 2.05.09

14. **THE APPLICANT *MUST* ADDRESS PUBLIC NOTICE:**

(a) PUBLIC NOTICE HAS BEEN GIVEN FOR THIS PROPOSAL BY THE FOLLOWING MEANS:

_X_ **Public notice in newspaper having greatest circulation in area** (provide newspaper clipping or affidavit) SCHEDULED

____ **Adjacent property owner(s) affidavits** (Contact Division of Water for requirements.) FOR FEB 8, 11, and 13

(b) ____ **I REQUEST WAIVER OF PUBLIC NOTICE BECAUSE:**

_____

Contact Division of Water for requirements.

15. **I HAVE CONTACTED THE FOLLOWING CITY OR COUNTY OFFICIALS CONCERNING THIS PROJECT:**

_____

Give name and title of person(s) contacted and provide copy of any approval city or county may have issued.

16. **LIST OF ATTACHMENTS:** _____

List plans, profiles, or other drawings and data submitted. Attach a copy of a 7.5 minute USGS topographic map clearly showing the project location.

KPDES FORM NOI-SW, USGS QUAD, VICINITY MAP, DRAWINGS 1-7, SITE PHOTOGRAPHS

17. **I,** FH **(owner) CERTIFY THAT THE OWNER OWNS OR HAS EASEMENT RIGHTS ON ALL PROPERTY ON WHICH THIS PROJECT WILL BE LOCATED OR ON WHICH RELATED CONSTRUCTION WILL OCCUR** (for dams, this includes the area that would be impounded during the design flood).

18. **REMARKS:** _____

I hereby request approval for construction across or along a stream as described in this application and any accompanying documents. To the best of my knowledge, all the information provided is true and correct.

SIGNATURE: _____

Owner or Agent sign here. (If signed by Agent, a Power of Attorney should be attached.)

DATE: 2/5/2009

SIGNATURE OF LOCAL FLOODPLAIN COORDINATOR: _____

Permit application will be returned to applicant if not properly endorsed by the local floodplain coordinator.

DATE: 02/05/09

SUBMIT APPLICATION AND ATTACHMENTS TO:

Floodplain Management Section
Division of Water
~~14 Reilly Road~~ 200 Fair Oaks Lane
Frankfort, KY 40601

O'BRIEN & GERE

RECEIVED
FEB 09 2009
By

February 5, 2009

Mr. Ron Dutta
Division of Water
200 Fair Oaks Lane
4th Floor
Frankfort, KY 40601

Re: Bardstown, KY. Application for Permit to Construct Across/Along Stream Water Treatment Plant Filter Renovation and Clearwell Expansion
File: 41265.002.001

Dear Mr. Dutta;

We are sending the enclosed Application For Permit To Construct Across Or Along A Stream on behalf of the City of Bardstown, Nelson County, KY. The project includes the construction of approximately 600 LF of 60-inch diameter pipe with headwalls to convey a small un-named perennial stream (stream) under an engineered fill site where two (2) 1.0-million gallon ground storage tanks (water treatment plant clearwells) will be constructed. The stream is tributary to Buffalo Creek, then to Beech Fork. We have identified the stream as 'perennial' because it is formed by small springs from the east of the project site located in the area of the Bardstown Airport. It will dry during drought conditions, but usually has a small year around discharge from the springs. Rainfall run-off from approximately 70-acres is tributary to this stream.

This Application includes:

- Application for Permit to Construct Across or Along a Stream / Water Quality Certification.
- KPDES FORM NOI-SW
- USGS Topographic Map of the Water Treatment Plant Location. (Bardstown Quad).
- Drawing Cover Sheet with a Vicinity Map.
- Design Drawings for the Work. (8.5"x 11" for filing purposes and 11" x 17" for review)
- Site Photographs with captions provided on page 2 of this letter.
- Draft of Public Notice. Publication pending.
- CD and hard copy of the preliminary JD.

The City owns the land that adjoins the *stream* (both sides). There are two properties that adjoin the project site. They are:

- Carolyn Caudill, 2185 Boston Road, Bardstown, KY. 40004

730 West Main Street, Suite 200, Louisville, KY 40202
(502) 587-7884 / FAX (502) 587-7895 ▪ http://www.obg.com

- Parker Beam, 2117 Boston Road, Bardstown, KY. 40004

The anticipated project and advertising schedule included an award date in March 2009. We have attached the Public Notice that will be published in the Bardstown Paper (KY Standard). The paper is published on Sunday, Wednesday, and Friday. The public notice will be advertised on three consecutive publication dates beginning on Sunday February 8, 2009. We will provide the tear-sheet and affidavit of publication when this has been accomplished.

The enclosed photographs are provided to aid the review of this application. The area is wooded and we hope the light dusting of snow helps to define the features. The vantage point where each photograph was taken is indicated on Sheet C07. The captions for each follow:

- Photo 1 – Shows the box culvert that conveys the flow from the springs and rainfall runoff under the access road to the WTP.
- Photo 2 – Shows the site conditions looking from the access road 'down stream'.
- Photo 3 – Shows the site conditions looking east up stream towards the box culvert.
- Photo 4 - Shows the site conditions looking west towards the WTP.
- Photo 5 – Shows the stream where it flattens and separates within the site.
- Photo 6 – Shows the typical stream through the site.
- Photo 7 – Access Road looking east towards entrance from US 62 showing ditch line.
- Photo 8 - Access Road looking east, cross culvert headwall on left of photo.
- Photo 9 – Access Road at entrance
- Photo 10- Access Road heading towards plant from entrance, roadside drainage ditch on right of photo.
- Photo 11 – Access Road side drainage ditches and inlet headwall.

We have prepared the Erosion Prevention and Sedimentation Control Plan (EPSC) for the project using best management practices (BMP) as depicted on Sheet C07 and C08. It is not proposed that any fill or unsuitable material that must be excavated to prepare the site for the intended construction be discharged to the stream or Buffalo Creek.

We are available for a site visit or ready to respond to your request for any additional documentation necessary to expedite this review. Please call me at 502-587-7884 ext 26 or email at ihlenbrw@obg.com

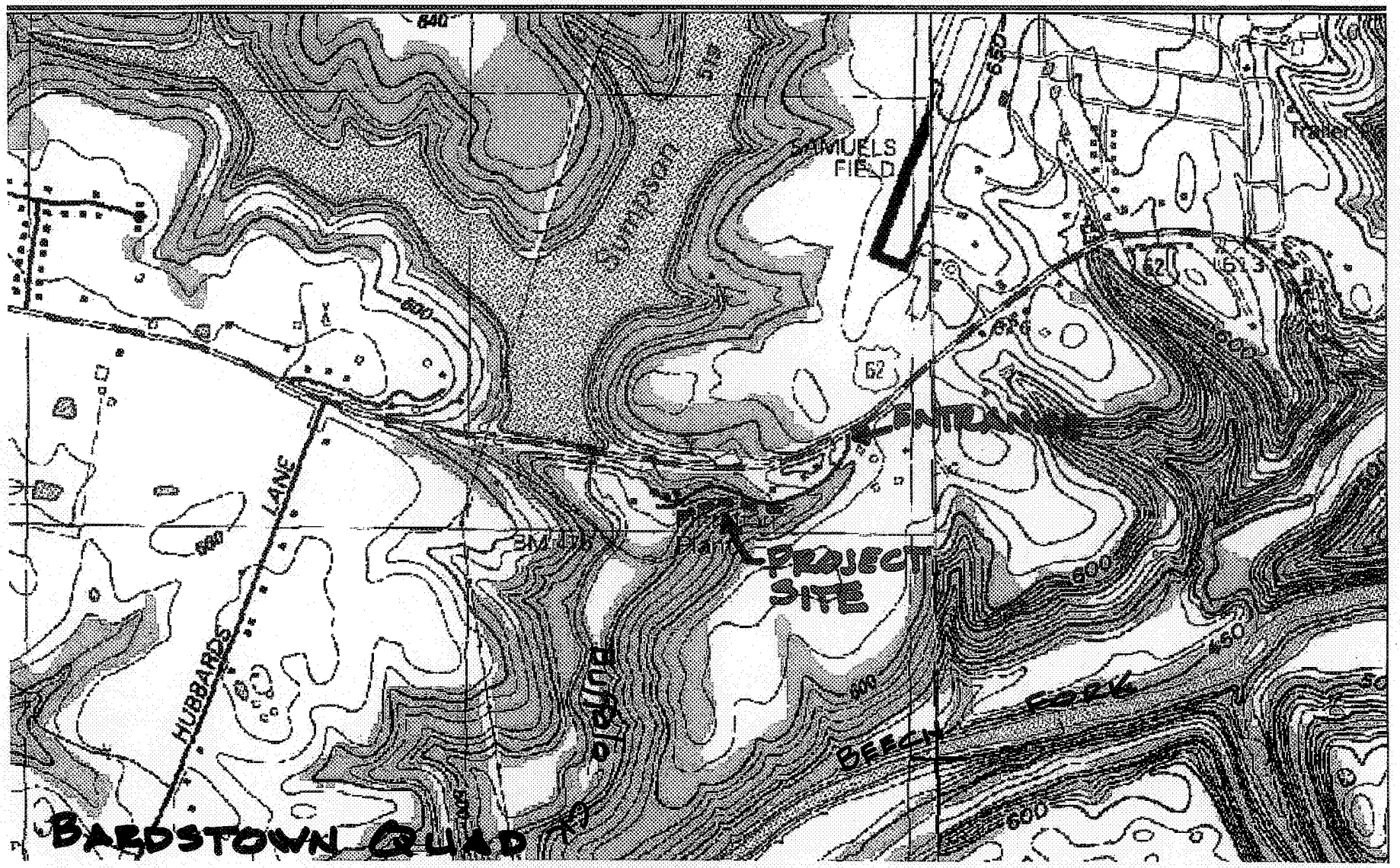
Very truly yours,
O'BRIEN & GERE ENGINEERS, INC.

Raymond W. Ihlenburg

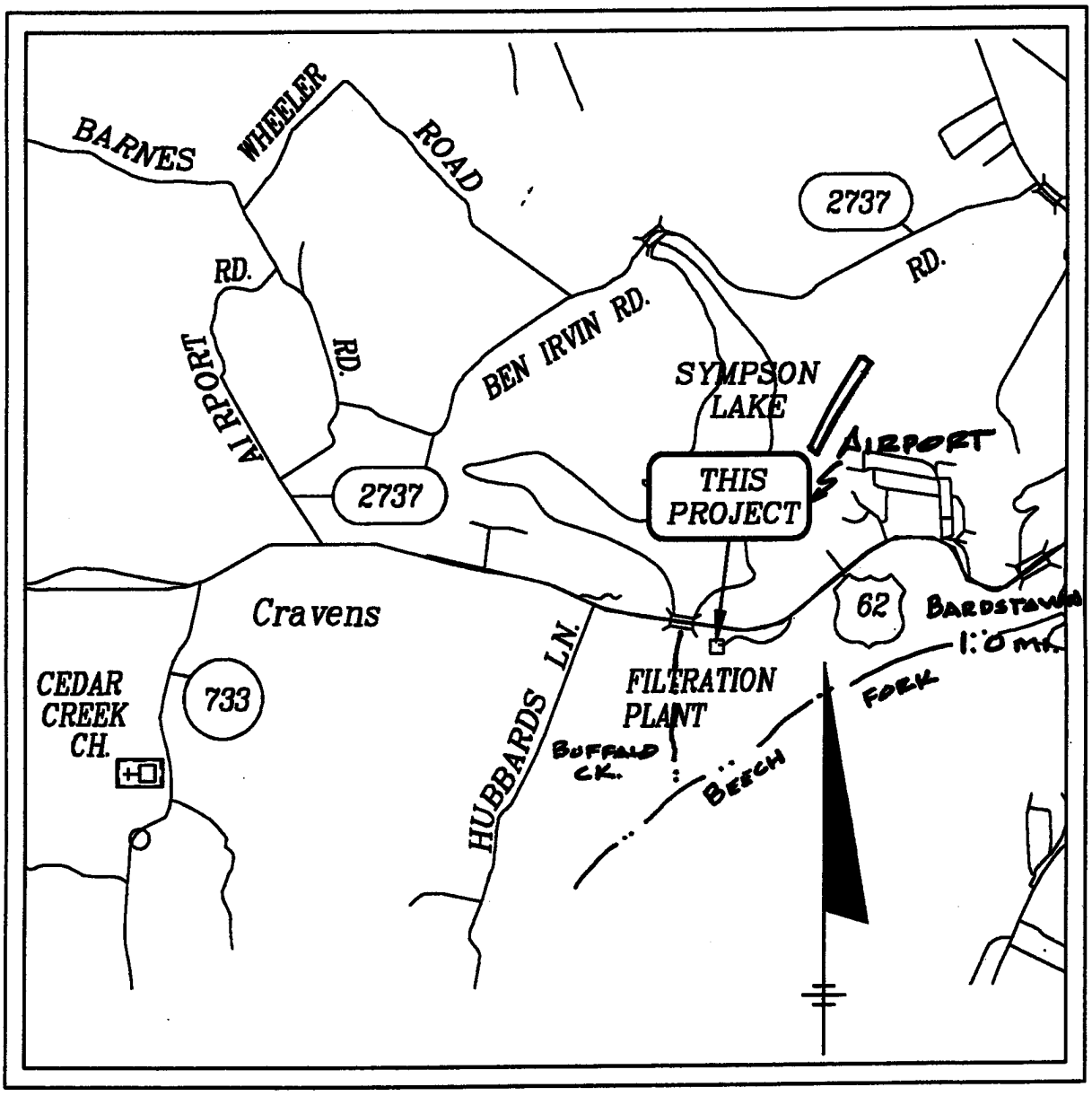
Raymond W. Ihlenburg, PE
Technical Director/Project Manager

cc: Larry Hamilton, PE, Director of Public Works and Engineering

Lat: 37.80654 Long: -85.50621 City of Bardstown Project



Un-named Tributary to Buffalo Creek at Sympson Lake, Nelson County, Kentucky



VICINITY MAP

O'BRIEN & GERE
730 West Main Street
Suite 200
Louisville, Kentucky 40202
Phone: 502-587-7684
Fax: 502-587-7895

BARDSTOWN WATER TREATMENT
PLANT FILTER IMPROVEMENTS
AND CLEARWELL EXPANSION

PUBLIC NOTICE

Notice is hereby given that the City of Bardstown, Kentucky, 220 North Fifth Street, Bardstown, KY 40004 has filed an application with the Natural Resources and Environmental Protection Cabinet to rehabilitate tow of the four existing water treatment filters and to construct a new 1.0-MG finished water clearwell water storage tank. The work includes site work and construction of 600 LF of 60-inch diameter storm sewer to convey drainage across the property to Buffalo Creek. The work will be confined to property at the Bardstown Water Treatment Plant. The property is located at 2535 Boston Road (US 62) approximately 1.5 miles west of Bardstown. Any comments or objections concerning this application shall be directed to: Kentucky Division of Water, Water Resources Branch, 200 Fair Oaks Lane, Fourth Floor, Frankfort, Kentucky 40601. Phone: (502) 564-3410.

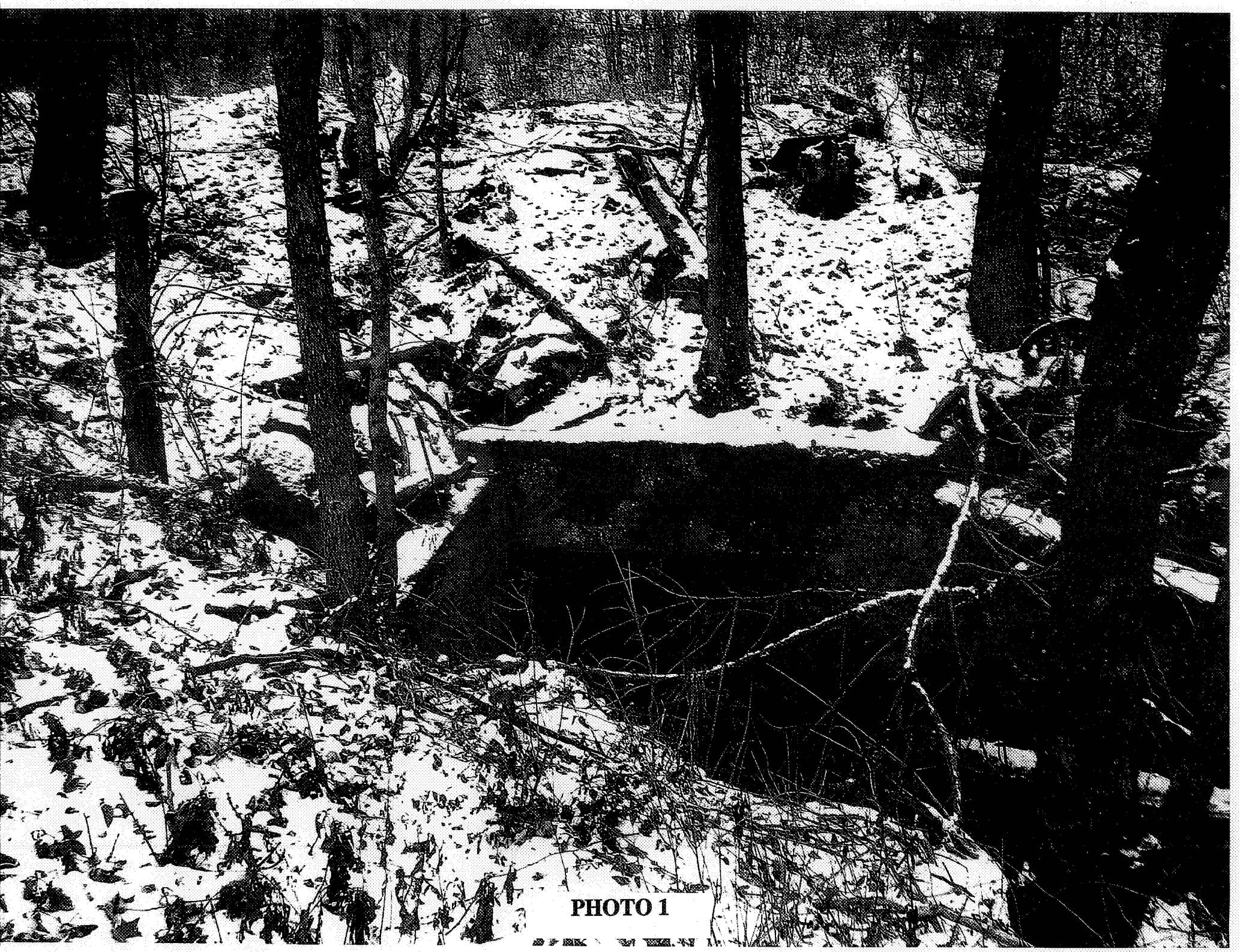


PHOTO 1

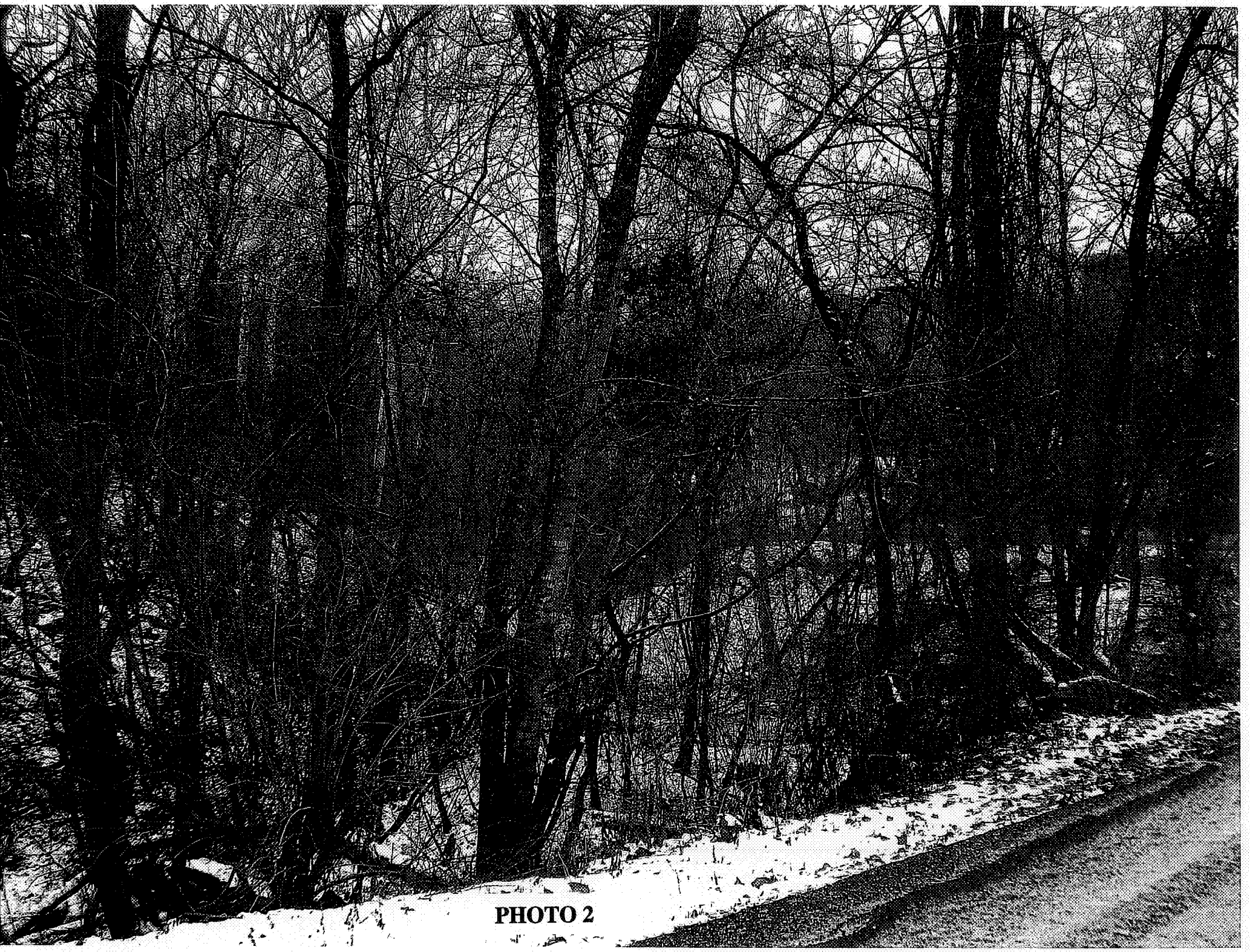


PHOTO 2

PHOTO 3

PHOTO 4

PHOTO 5

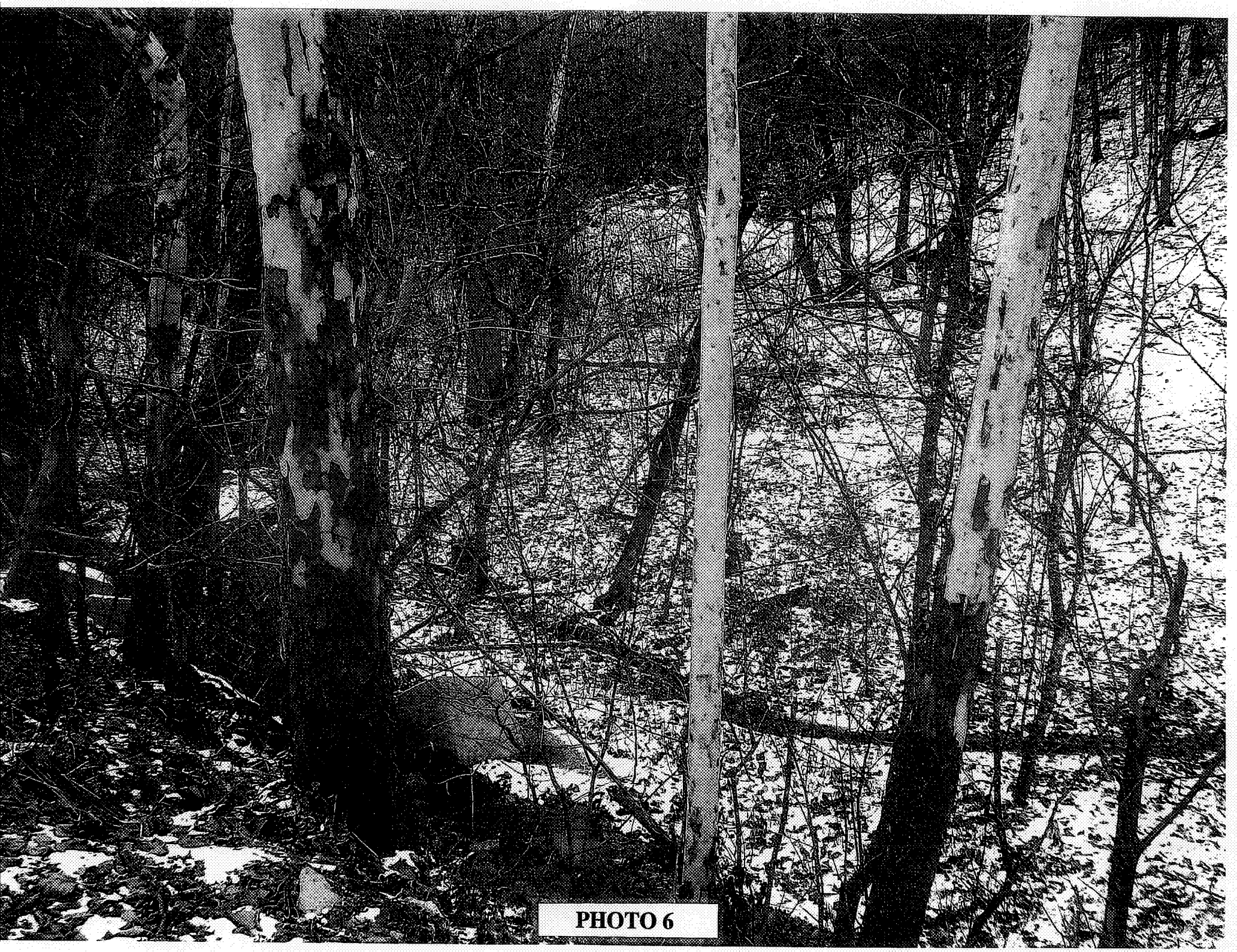


PHOTO 6

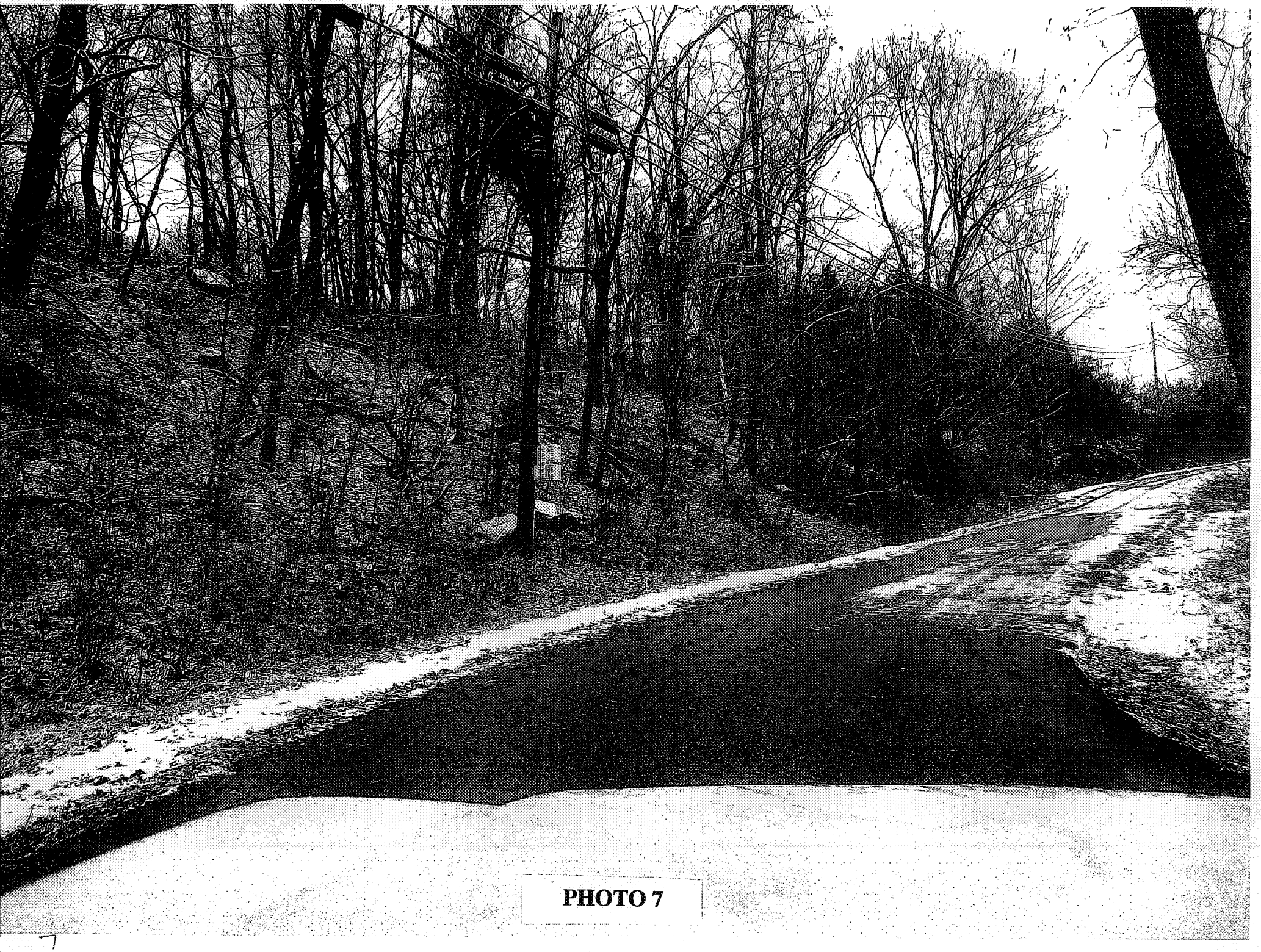


PHOTO 7

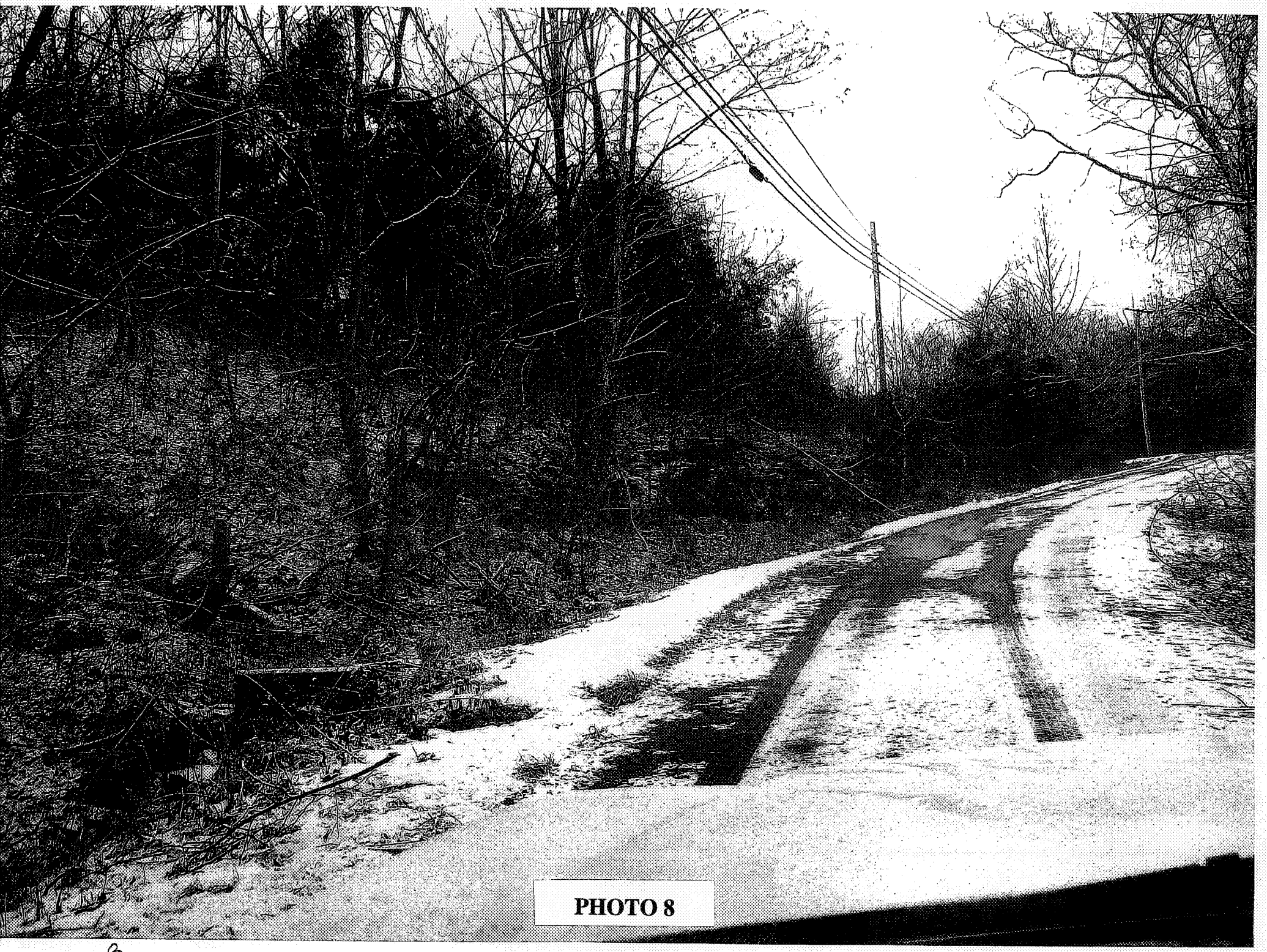


PHOTO 8

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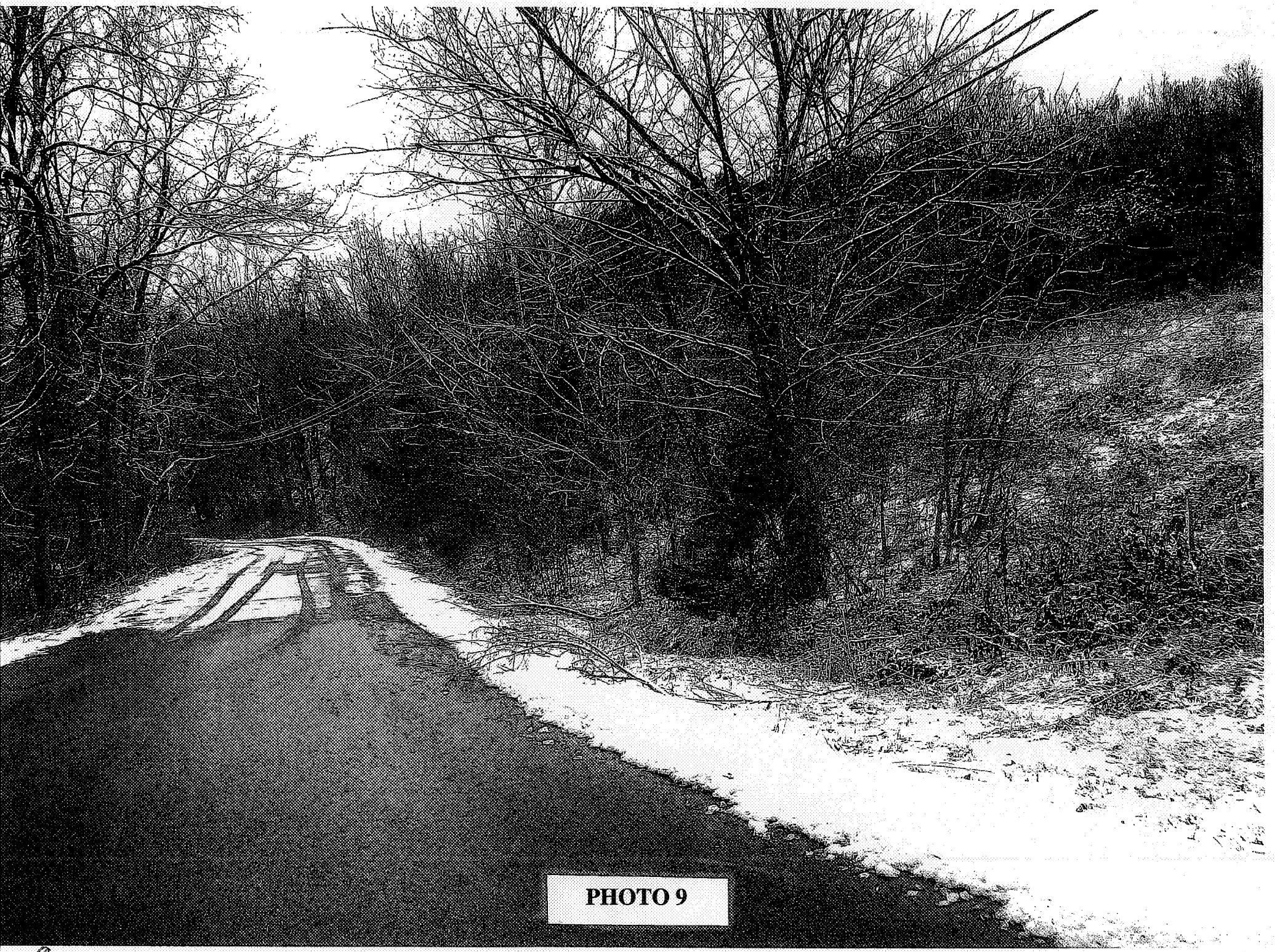

PHOTO 9

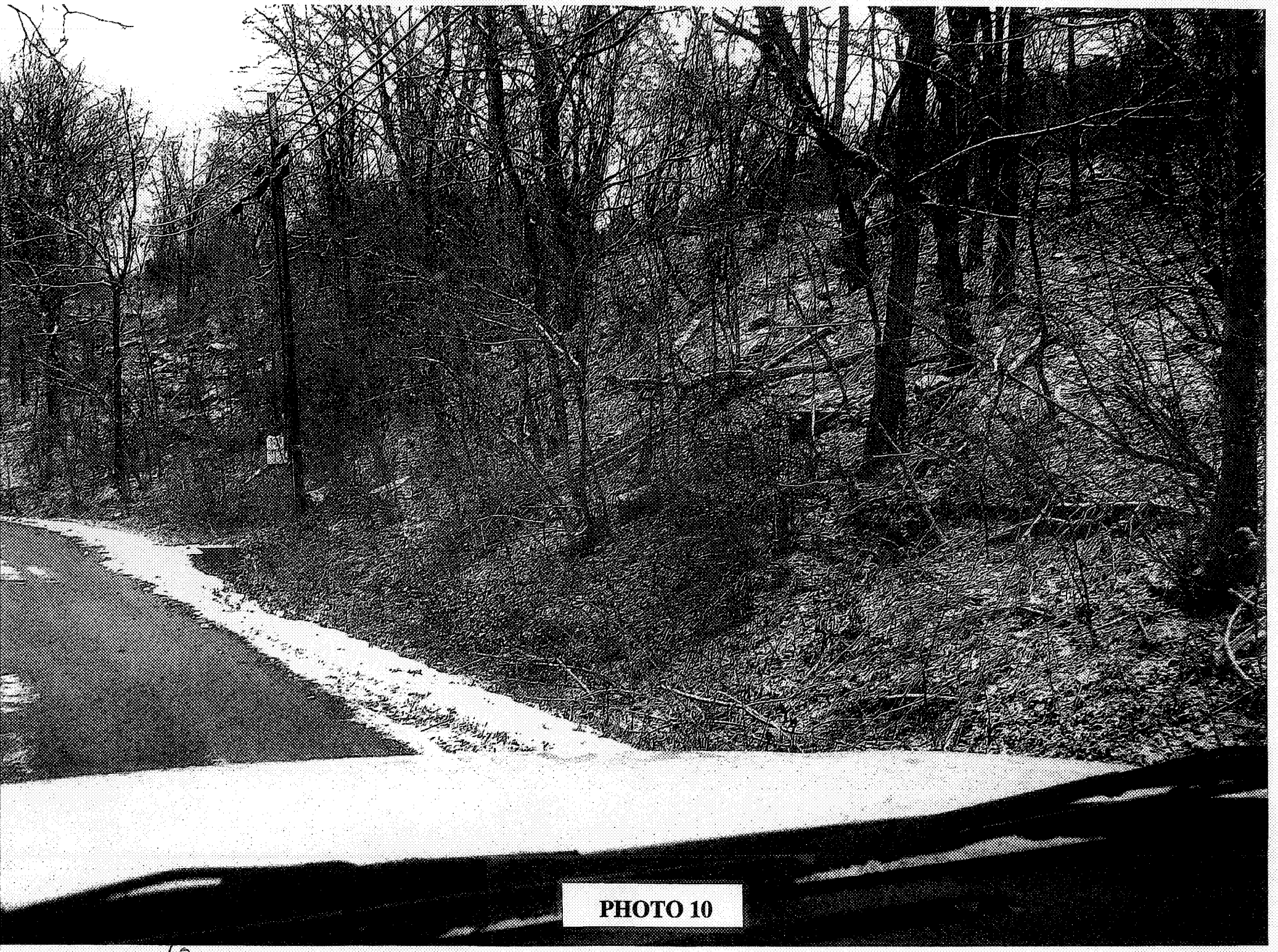

PHOTO 10

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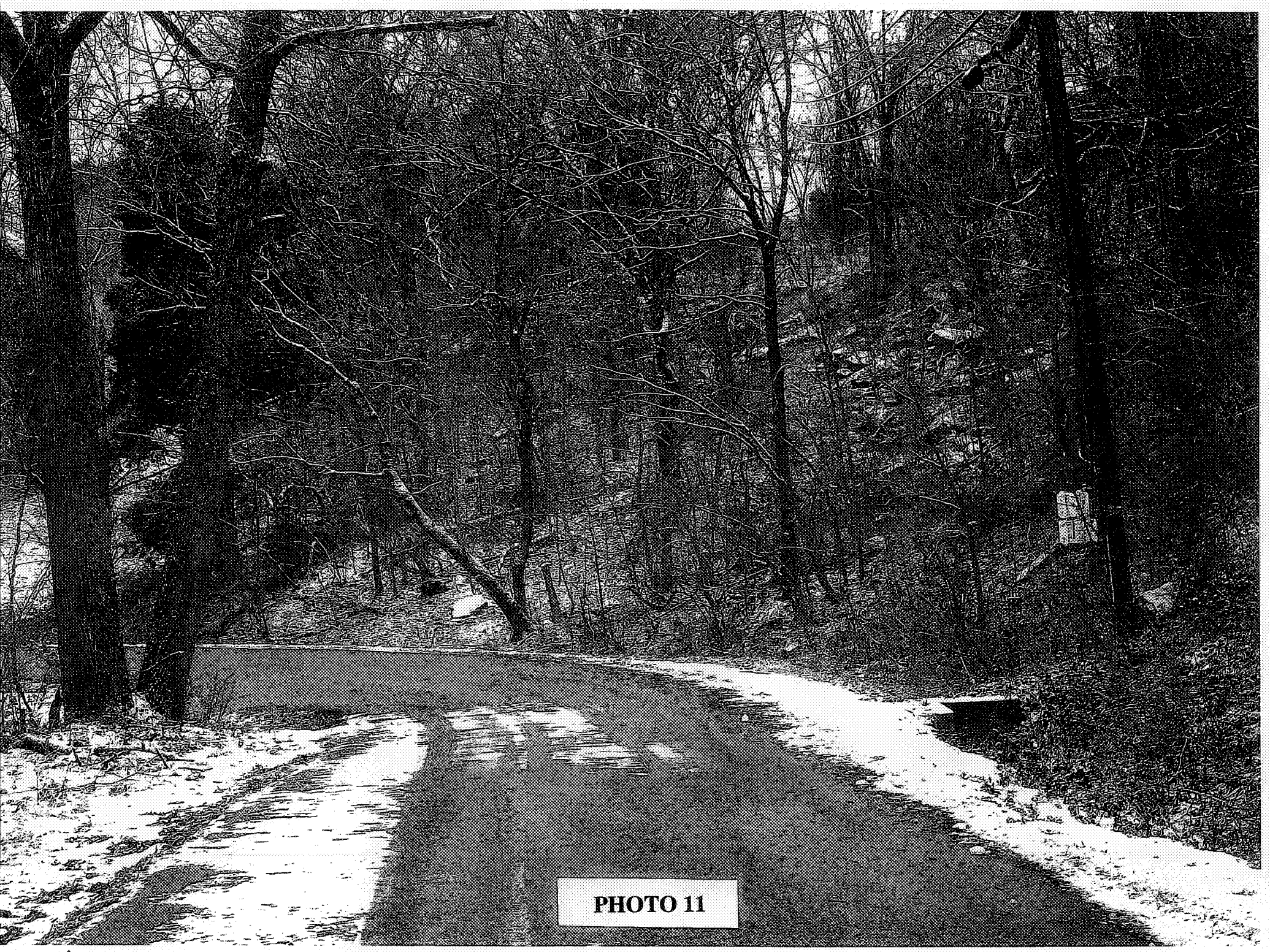


PHOTO 11

11

PROJECT DRAWINGS FOR

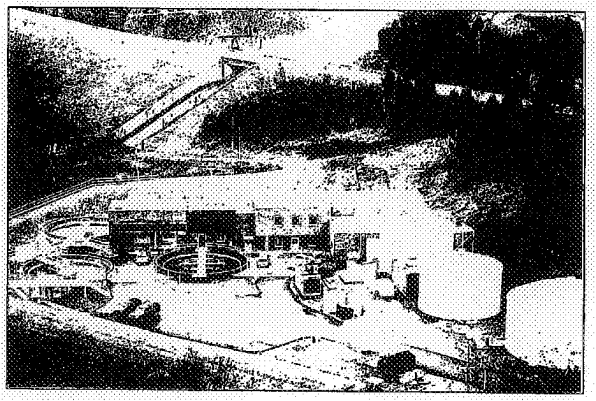
CITY OF BARDSTOWN WATER TREATMENT PLANT FILTER IMPROVEMENTS AND CLEARWELL EXPANSION

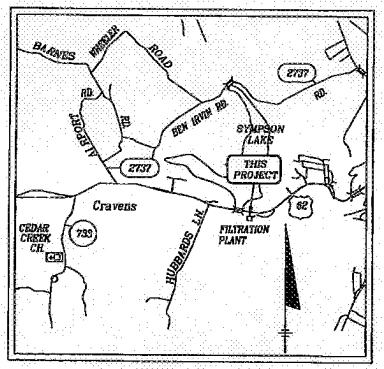
PROJECT No. 41265

NOVEMBER 2008

RICHARD HEATON
MAYOR

LARRY HAMILTON, P.E.
DIRECTOR PUBLIC WORKS





VICINITY MAP
NTS

O'BRIEN & GERE
730 W. Main St., Louisville, KY 40202
(502) 587-7884
Design Consultant

Un-named Tributary to Buffalo Creek at Sympson Lake, Nelson County, Kentucky

INDEX TO DRAWINGS

PLAN SET NO.	SHEET NO.	TITLE
1 ~~01~~	G01	GENERAL – COVER – DRAWING INDEX AND LOCATION MAP
~~02~~	~~G02~~	~~GENERAL – GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS~~
~~03~~	~~C01~~	~~CIVIL – PROJECT WORK AREAS~~
~~04~~	~~C02~~	~~CIVIL – WATER PIPING RENOVATION~~
~~05~~	~~C03~~	~~CIVIL – AS-BUILT PHOTOGRAPHS – EXISTING YARD PIPING~~
2 ~~06~~	C04	CIVIL – GRADING & DRAINAGE PLAN FOR CLEARWELL
3 ~~07~~	C05	CIVIL – CLEARWELL CROSS SECTIONS
4 ~~08~~	C06	CIVIL – CLEARWELL CROSS SECTIONS & BENCHING DETAILS
5 ~~09~~	C07	CIVIL – EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) PLAN
6 ~~10~~	C08	CIVIL – EPSC PLAN DETAILS
~~11~~	~~C09~~	~~CIVIL – PROFILE WATER LINE "A"~~
7 ~~12~~	C10	CIVIL – STORM LINES "1", "2" AND "3" PROFILES
~~13~~	~~C11~~	~~CIVIL – PROCESS SCHEMATIC AND HYDRAULIC PROFILE~~
14	P01	PROCESS – YARD PIPING AND CHEMICAL DOSING CONNECTION DETAIL
15	P02	PROCESS – TYPICAL TREATMENT UNIT AS-BUILT
16	P03	PROCESS – FILTER TREATMENT UNIT NO. 3 DEMOLITION PLAN
17	P04	PROCESS – FILTER TREATMENT UNIT NO. 3 DEMOLITION SECTION
18	P05	PROCESS – FILTER TREATMENT UNIT NO. 3 RENOVATION PHOTOS
19	P06	PROCESS – FILTER TREATMENT UNIT NO. 3 RENOVATION PLAN
20	P07	PROCESS – FILTER TREATMENT UNIT NO. 3 RENOVATION SECTION
21	P08	PROCESS – FILTER TREATMENT UNIT NO. 4 DEMOLITION PLAN
22	P09	PROCESS – FILTER TREATMENT UNIT NO. 4 DEMOLITION SECTION
23	P10	PROCESS – FILTER TREATMENT UNIT NO. 4 RENOVATION PHOTOS
24	P11	PROCESS – FILTER TREATMENT UNIT NO. 4 RENOVATION PLAN
25	P12	PROCESS – FILTER TREATMENT UNIT NO. 4 RENOVATION SECTION
26	P13	PROCESS – STEEL TREATMENT UNIT WALL LAYOUT
27	P14	PROCESS – FILTER UNDERDRAIN AND FILTER DETAILS
28	P15	PROCESS – TYPICAL TREATMENT UNIT MODIFICATION DETAILS
29	P16	PROCESS – AIR BACKWASH PIPE AND BLOWER DETAILS
30	P17	PROCESS – TREATMENT UNIT NO. 3 & 4 LOW SERVICE PUMP DEMOLITION DETAILS
31	P18	PROCESS – TREATMENT UNIT NO. 3 & 4 LOW SERVICE PUMP RENOVATION PLAN & SECTION
32	P19	PROCESS – TREATMENT UNIT NO. 3 & 4 LOW SERVICE PUMP REPLACEMENT TYPICAL PIPING MODIFICATIONS
33	P20	PROCESS – CLEARWELL TANK PLAN AND ELEVATION
34	P21	PROCESS – CLEARWELL BAFFLE PLAN AND DETAILS
35	P22	PROCESS – PAC PUMP AREA DEMOLITION AND RENOVATION PHOTOS
36	P23	PROCESS – DEMOLITION INFORMATION FOR PAC AREA PLATFORM REMOVAL
37	P24	PROCESS – PAC PUMP AREA RENOVATION PLAN AND SECTIONS
38	P25	PROCESS – GUARDRAIL LAYOUT AND DETAILS
39	P26	PROCESS – CONTROL VALVE VAULT DETAILS
40	P27	PROCESS – CONTROL VALVE VAULT EQUIPMENT ENCLOSURES
41	P28	PROCESS – STANDARD DETAILS
42	E1	ELECTRICAL – SITE PLAN
43	E2	ELECTRICAL – MCC LAYOUT AND SINGLE LINE DIAGRAM
44	E3	ELECTRICAL – PUMP VAULT INSTRUMENTATION AND POWER
45	E4	ELECTRICAL – PAC PUMP AREA RENOVATION PLAN – ELECTRICAL
46	E5	ELECTRICAL – MISCELLANEOUS DETAILS
47	I1	INSTRUMENTATION – SCADA NETWORK SCHEMATIC
48	S01	STRUCTURAL – GENERAL PROVISIONS
49	S02	STRUCTURAL – GENERAL PROVISIONS AND TYPICAL DETAILS
50	S03	STRUCTURAL – TYPICAL DETAILS
51	S04	STRUCTURAL – FILTER TREATMENT EXISTING TUBE SETTLER PLAN
52	S05	STRUCTURAL – FILTER TREATMENT UNIT GRATING PLANS
53	S06	STRUCTURAL – FILTER TREATMENT UNIT SECTIONS
54	S07	STRUCTURAL – FILTER TREATMENT UNIT NUMBER 3 RENOVATION SECTION
55	S08	STRUCTURAL – FILTER TREATMENT UNIT NUMBER 4 RENOVATION SECTION

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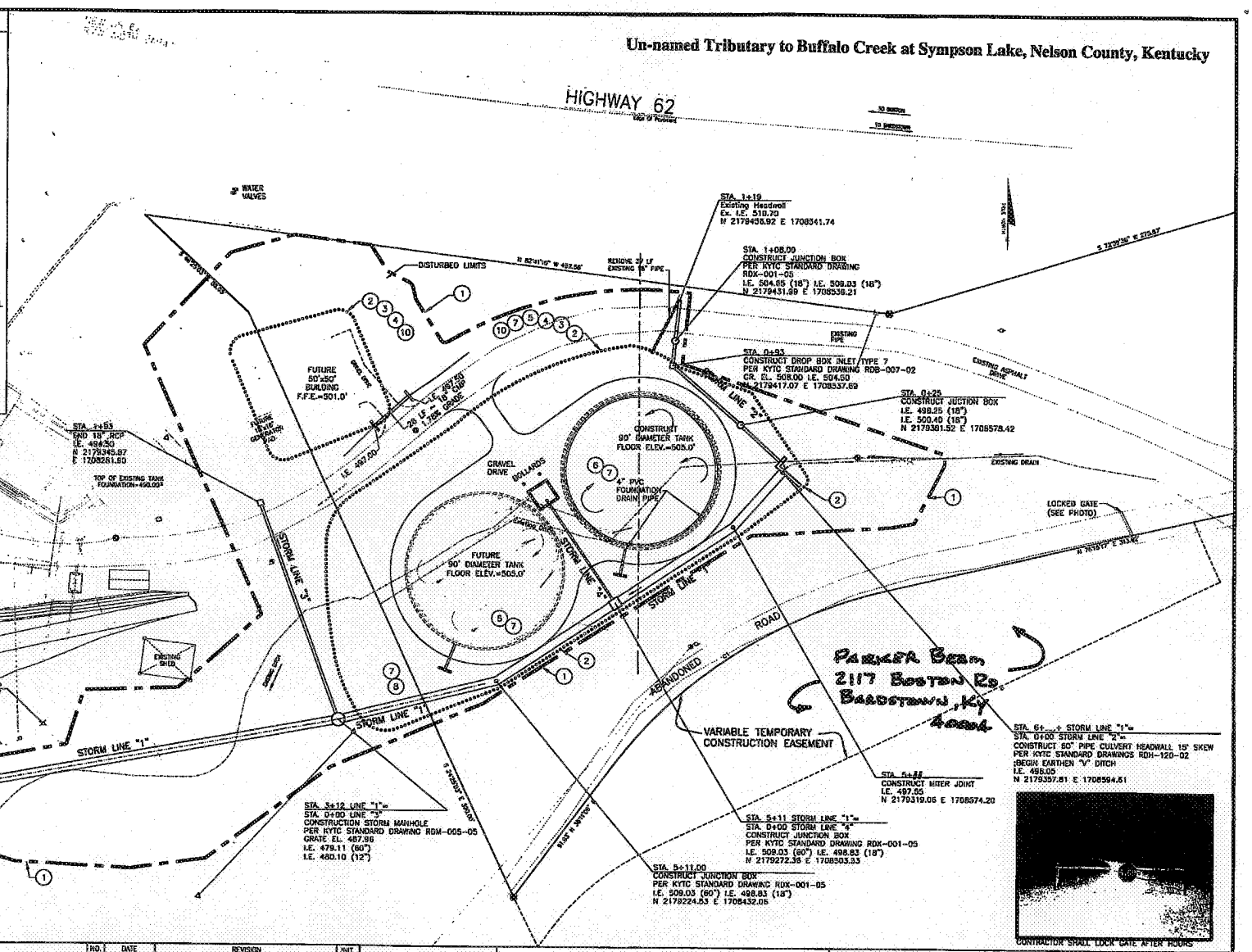
© 2009 O'BRIEN & GERE ENGINEERS, INC. PROJECT No. 41265 IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS HE OR SHE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

GENERAL NOTES SHEETS C-04, C-05 & C-06

1. ALL DISTURBED AREAS THAT ARE NOT PAVED OR 'ROCKED' SHALL BE FINISHED GRADED WITH TOP SOIL AND SEEDED. THIS NOTE SHALL APPLY TO ALL WORK AND TEMPORARY TRAILER SITES THAT ARE IN THE CONTRACT.
2. TOPSOIL, CLAY AND SHOT ROCK SHALL BE STRIPPED AND STOCKPILED SEPARATELY.
3. PRIOR TO ANY BLASTING ALL TOPSOIL AND SOIL OVERBURDEN SHALL BE STRIPPED OR OTHERWISE REMOVED TO EXPOSE THE BEDROCK SURFACE UNDER THE TANK SITE AND 50'x40' BUILDING.
4. BLAST MATS SHALL BE PLACED TO CONTROL FLY ROCK
5. THE SUBGRADE (PRIOR TO FULL PLACEMENT) AND FOUNDATION BEARINGS SURFACE SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEERS HIRED BY THE OWNER (SPECIAL INSPECTION) AND THE CONTRACTOR ( ).
6. FOUNDATION FOR CLEARWELL TANKS (FUTURE AND THIS PROJECT) SHALL BEAR ON ROCK. THEREFORE ANY SOIL UNDER THE TANK AND FOUNDATION BEARING SURFACE SHALL BE UNDERCUT OR OVEREXCAVATED TO REFUSAL MATERIAL. THE OVER EXCAVATION SHALL BE BACKFILLED WITH LEAN CONCRETE (psi.) OR WITH 12-INCH THICK LIFTS OF KTC NO. 57 COMPACTED CRUSHED STONE.
7. BENCHING SHALL BE PROVIDED UNDER EMBANKMENT PLACED ON HILLSIDE STEEPER THAN 6H:1V EMPLOYING A MINIMUM HORIZONTAL RUN OF 20-FEET.
8. CONTRACTOR SHALL PROVIDE SLOPE STABILITY ANALYSIS OF THE EMBANKMENT CONSTRUCTED AT THE END OF THE TANK SITE.
9. CONTRACTOR SHALL PROVIDE DIRECT SHEAR TEST (ASTM D3080) ON THE PROPOSED FILL TO BE USED FOR THE TANK EMBANKMENT MATERIAL.
10. CONTRACTOR SHALL HAVE SHOT ROCK FILL TESTED TO CONFIRM THE SLAKE DURABILITY INDEX (SDI) EXCEEDS 95.
11. SITE PREPARATION, UNDERCUTTING, BENCHING AND FILL PLACEMENT SHALL BE PROVIDED IN ACCORDANCE WITH THE GEOTECHNICAL EXPLORATION REPORT AS PER THE SPECIAL CONDITIONS. THE GEOTECHNICAL ENGINEER OF RECORD SHALL BE RETAINED BY THE OWNER TO MONITOR AND TEST THE SITE PREPARATION AND FOUNDATION CONSTRUCTION.
12. CONTRACTOR SHALL PROVIDE STABILITY ANALYSIS AND DESIGN ACCORDING TO SPECIAL CONDITIONS. THE CONTRACTOR SHALL HIRE AN INDEPENDANT GEOTECHNICAL ENGINEER AS PER SPECIAL CONDITIONS. THE COST OF STABILITY ANALYSIS (BASED ON FOUND SITE CONDITIONS), DESIGN AND SITE VISITS SHALL BE INCLUDED IN THE TOTAL BID AMOUNT.
13. EXISTING GROUND CONTOUR SURVEYED AND MAPPED BY HIBBS ENGINEERING, BARDSTOWN, KENTUCKY



DESIGNED BY	RWI
CHECKED BY	RWI
DRAWN BY	RWH

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS HE OR SHE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SCALE 1"=30' (30 0 30 60)

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.

NO.	DATE	REVISION	INIT.

O'BRIEN & GERE
720 West Main Street
Suite 200
Louisville, Kentucky 40202
Phone: 502-587-7284
Fax: 502-587-7595

BARDSTOWN WATER TREATMENT PLANT FILTER IMPROVEMENTS AND CLEARWELL EXPANSION

STORM DRAINAGE PLAN FOR CLEARWELL

2.

FILE NO. 41265
DATE NOV. 2008
SHEET NO. C-04

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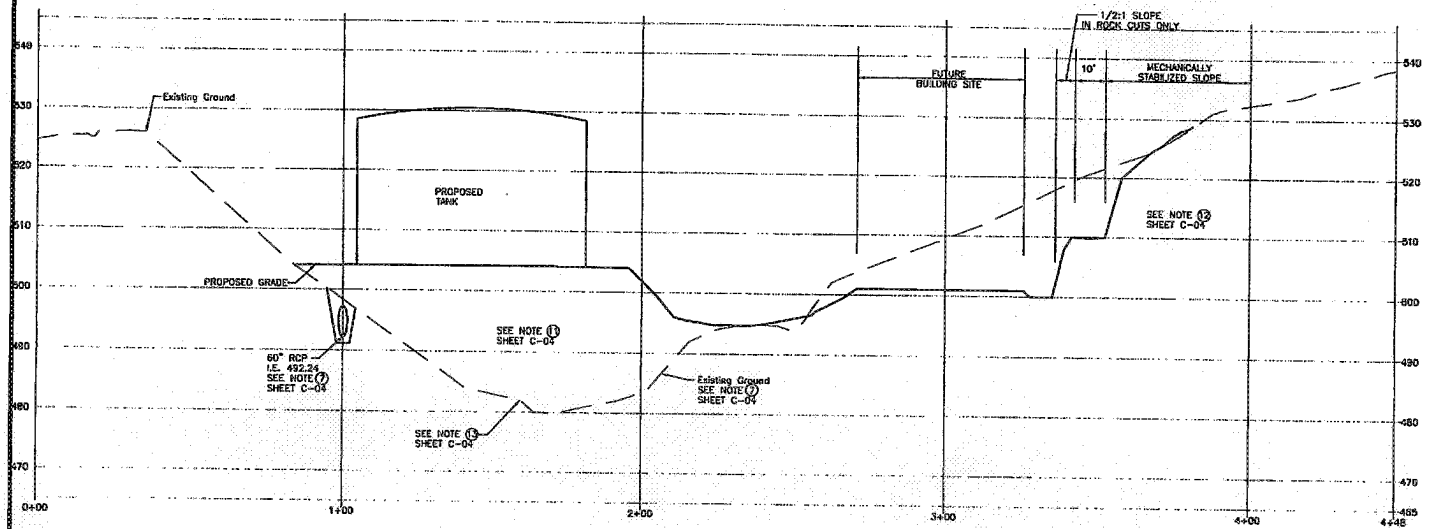
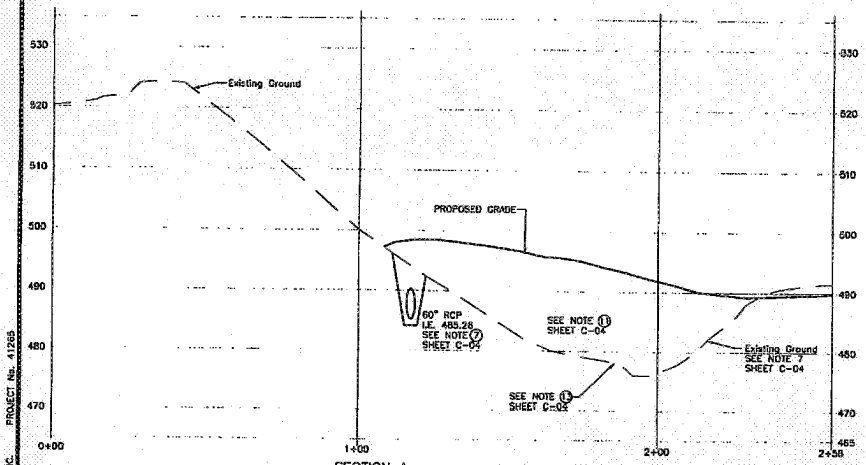
© 2008 O'BRIEN & GERE, INC. PROJECT No. 41265

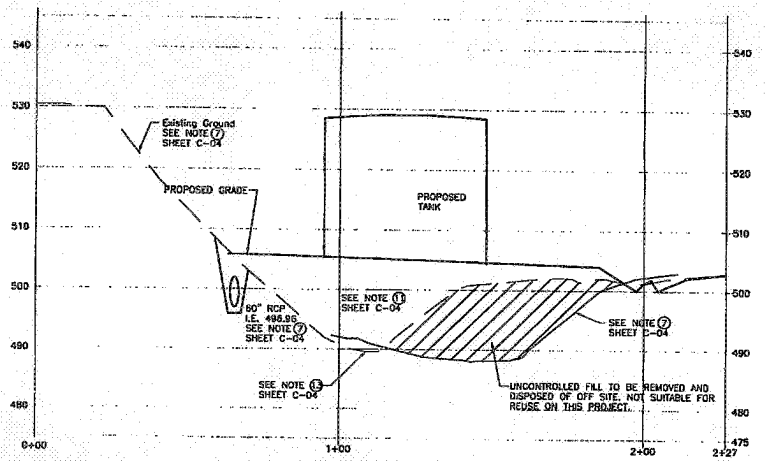
Un-named Tributary to Buffalo Creek at Sympson Lake, Nelson County, Kentucky



SECTION B



SECTION A



SECTION D

DESIGNED BY RWI CHECKED BY RWI DRAWN BY RWH IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS HE OR SHE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.	SCALE 1"=20' Horiz. 20 0 20 40 1"=10' Horiz. 10 0 10 20 THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.	NO. / DATE / REVISION / INIT.	O'BRIEN & GERE 736 West Main Street Suite 200 Louisville, Kentucky 40202 Phone: 502-587-9204 Fax: 502-587-2805	BARDSTOWN WATER TREATMENT PLANT FILTER IMPROVEMENT AND CLEARWELL EXPANSION	CLEARWELL CROSS SECTIONS AND BENCHING DETAILS	FILE NO. 41265 DATE NOV. 2008 SHEET NO. C-05

3.

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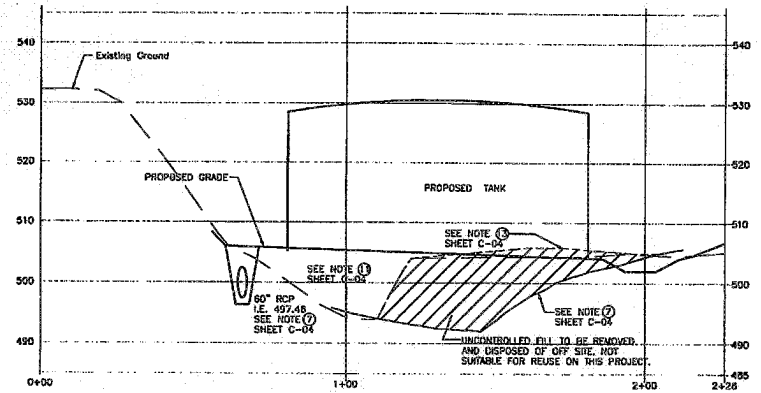
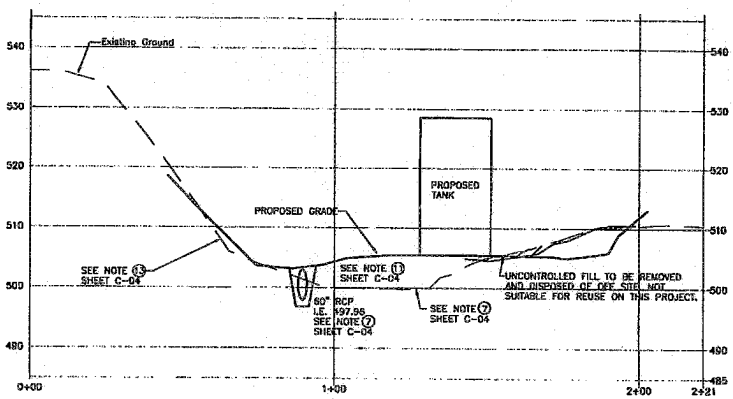
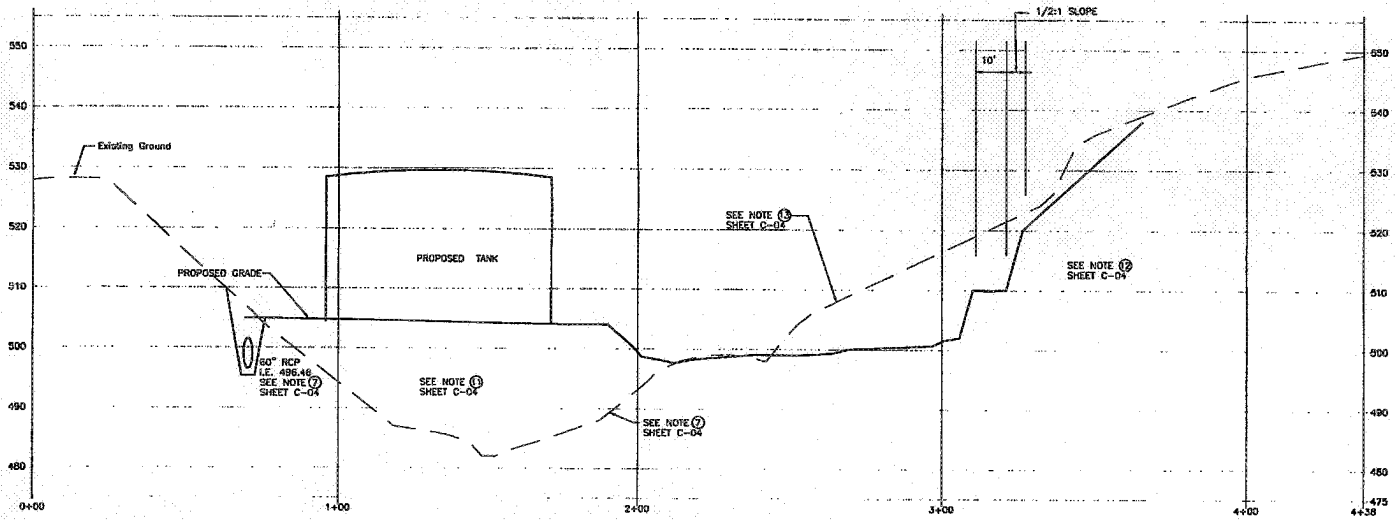
Un-named Tributary to Buffalo Creek at Sympson Lake, Nelson County, Kentucky



SECTION E



SECTION F



SECTION C

UNCONTROLLED FILL AREA

LOOKING EAST FROM UNCONTROLLED FILL AREA

CREEK TO BE ROUTED IN PIPE

LOOKING WEST FROM UNCONTROLLED FILL AREA

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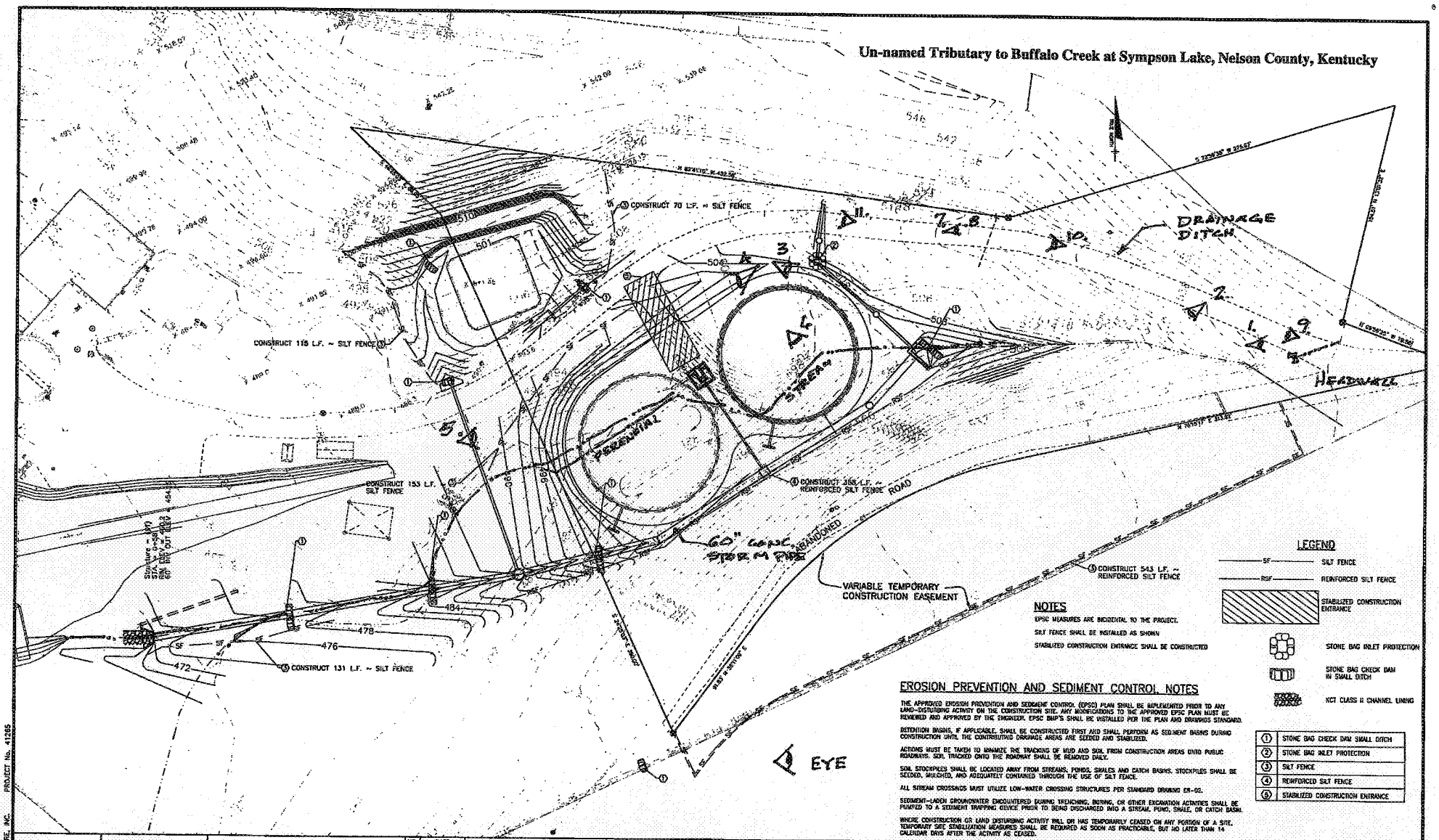
PROJECT No. 41265



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SCALE 1"=30' (30 0 30 60)

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O'BRIEN & GERE
738 West Main Street
Suite 230
Louisville, Kentucky 40202
Phone: 502-587-7894
Fax: 502-587-7095

BARDSTOWN WATER TREATMENT PLANT FACILITIES IMPROVEMENT

EROSION PREVENTION AND SOIL CONTROL PLAN

PHOTO VANTAGE POINT 5

FILE NO. 41265
DATE NOV. 2008
SHEET NO. C-07

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PROJECT No. 41265
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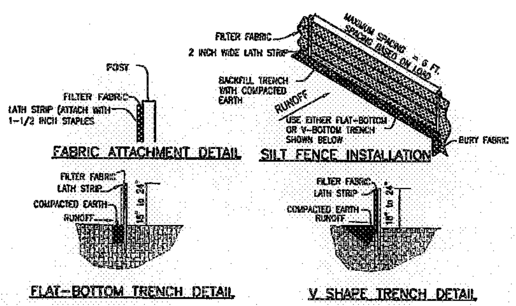
Un-named Tributary to Buffalo Creek at Sympson Lake, Nelson County, Kentucky



INSTALLATION

The fence should be placed across the slope along a line uniform elevation (perpendicular to the direction of the flow). The fence should be located at least 10 feet from the toe of steep slopes to provide sediment storage and access for maintenance and cleanouts.

A flat-bottom trench approximately 4 inches wide and 8 inches deep, or a V-shaped trench 8 inches deep should be excavated on the downslope side of the trench, drive 2 inch by 2 inch wood posts at least 18 inches into the ground, spacing them no further than 5 feet apart.

Posts should be installed, with 1 to 2 inches of the post protruding above the top of the fabric and no more than 3 feet of the post should protrude above the ground. The minimum fence height (height of the filter fabric above grade) shall be 18 inches. The maximum fence height (height of the filter fabric above grade) shall be 24 inches.

The filter fabric should be purchased in a continuous roll and cut to the length of the barrier to avoid the use of joints. When joints are necessary, filter cloth should be wrapped together only at a support post with both ends securely fastened to the posts, with a minimum 6 inch overlap.

Extra strength filter cloth (50 pounds / Linear tensile strength) should be used. A 2 inch wide lathe shall be stapled over the filter fabric to securely fasten it to the upslope side of the posts. The staples used should be 1.5 inch heavy duty wire staples spaced a maximum of 8 inches apart.

Place the bottom 12 inches of the filter fabric into the 8 inch trench, extending the remaining 4 inches towards the up slope side of the trench and backfill the trench with soil or gravel and compact.

INSPECTION AND MAINTENANCE.

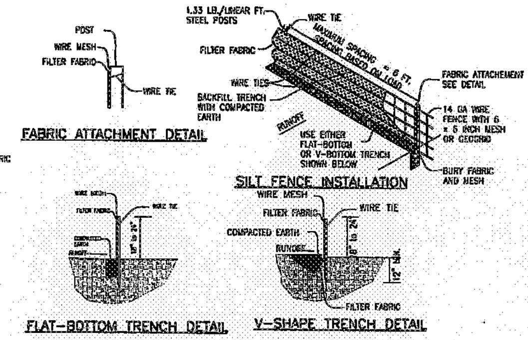
Inspect silt fence every seven (7) calendar days and within 24 hours after each rainfall event that produces 1/2 inch or more precipitation. Check for areas where runoff has eroded a channel beneath the fence or where the fence was caused to sag or collapse by runoff overtopping the fence.

If the fence fabric tears, begins to decompose or in any way becomes ineffective, replace the affected section of fence immediately.

Sediment must be removed when it reaches approximately 1/3 the height of the fence, especially if heavy rains are expected.

Silt fence should be removed within 30 days after final stabilization is achieved or after temporary BMP's are no longer needed. Trapped sediment should be removed or stabilized on site. Disturbed areas resulting from fence removal shall be permanently stabilized.

SILT FENCE
N.T.S.



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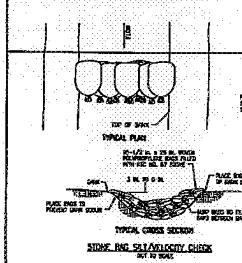
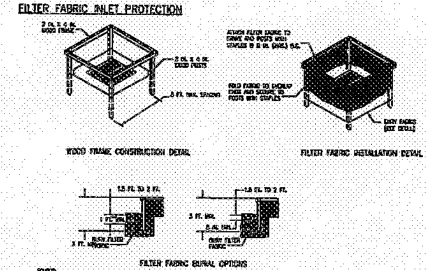
REINFORCED SILT FENCE
N.T.S.

STONE BAG CHECK DAM IN SMALL DITCH



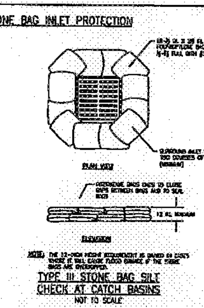
STONE BAG CHECK DAM IN SMALL DITCH

FILTER FABRIC INLET PROTECTION



FILTER FABRIC INLET PROTECTION

STONE BAG INLET PROTECTION



STONE BAG INLET PROTECTION

INSTALLATION:

STONE FILL BAGS SHALL BE WOVEN POLYPROPYLENE BAGS WITH APPROXIMATE DIMENSIONS OF 18-1/2 INCHES BY 28 INCHES.

THE BAGS SHALL BE FILLED 1/2 TO 3/4 FULL WITH KTC NO. 57 STONE. TIE ENDS OF FILLED BAGS USING EITHER DRAW STRINGS OR WIRE TIES.

INTERLOCK THE LOOSE ENDS OF THE BAGS SO THAT THE GAPS BETWEEN BAGS ARE FILLED AND THE ENDS OF THE BAGS ARE SEALED.

COMPLETELY SURROUND THE INLET WITH A MINIMUM OF TWO (2) ROWS OF BAGS TO A MINIMUM OF 12 INCHES IN HEIGHT.

INSPECTION AND MAINTENANCE:

INSPECTIONS SHOULD BE MADE EVERY (7) CALENDER DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES 1/2-INCHES OR MORE OF PRECIPITATION. ANY NEEDED REPAIRS SHOULD BE HANDLED IMMEDIATELY.

IF SEDIMENT ACCUMULATES, REMOVE IT FROM THE FACE OF THE BAGS BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO 1/3 THE STRUCTURE HEIGHT. ANY NEEDED REPAIRS SHOULD BE HANDLED IMMEDIATELY. TAKE CAREFUL TO DAMAGE OR UNDERCUT THE BAGS WHEN REMOVING SEDIMENT.

REMOVE AND REPLACE ANY DAMAGED BAGS AND DISPOSE OF THEM PROPERLY.

STORM DRAIN INLET PROTECTION STRUCTURES SHOULD BE REMOVED ONLY AFTER THE DISTURBED AREAS ARE PERMANENTLY STABILIZED. REMOVE ALL CONSTRUCTION MATERIAL AND SEDIMENT, AND DISPOSE OF THEM PROPERLY. GRADE THE DISTURBED AREA TO THE ELEVATION OF THE DROP INLET STRUCTURE CREST. USE APPROPRIATE PERMANENT STABILIZATION METHODS TO STABILIZE BARE AREAS AROUND THE INLET.

DESIGNED BY	RWI
CHECKED BY	RWI
DRAWN BY	RWH

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SCALE

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730 West Main Street
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Phone: 502-587-7884
Fax: 502-587-7895

BARDSTOWN WATER TREATMENT PLANT FACILITIES IMPROVEMENT

EROSION PREVENTION AND SEDIMENTATION CONTROL DETAILS

6

FILE NO. 41265

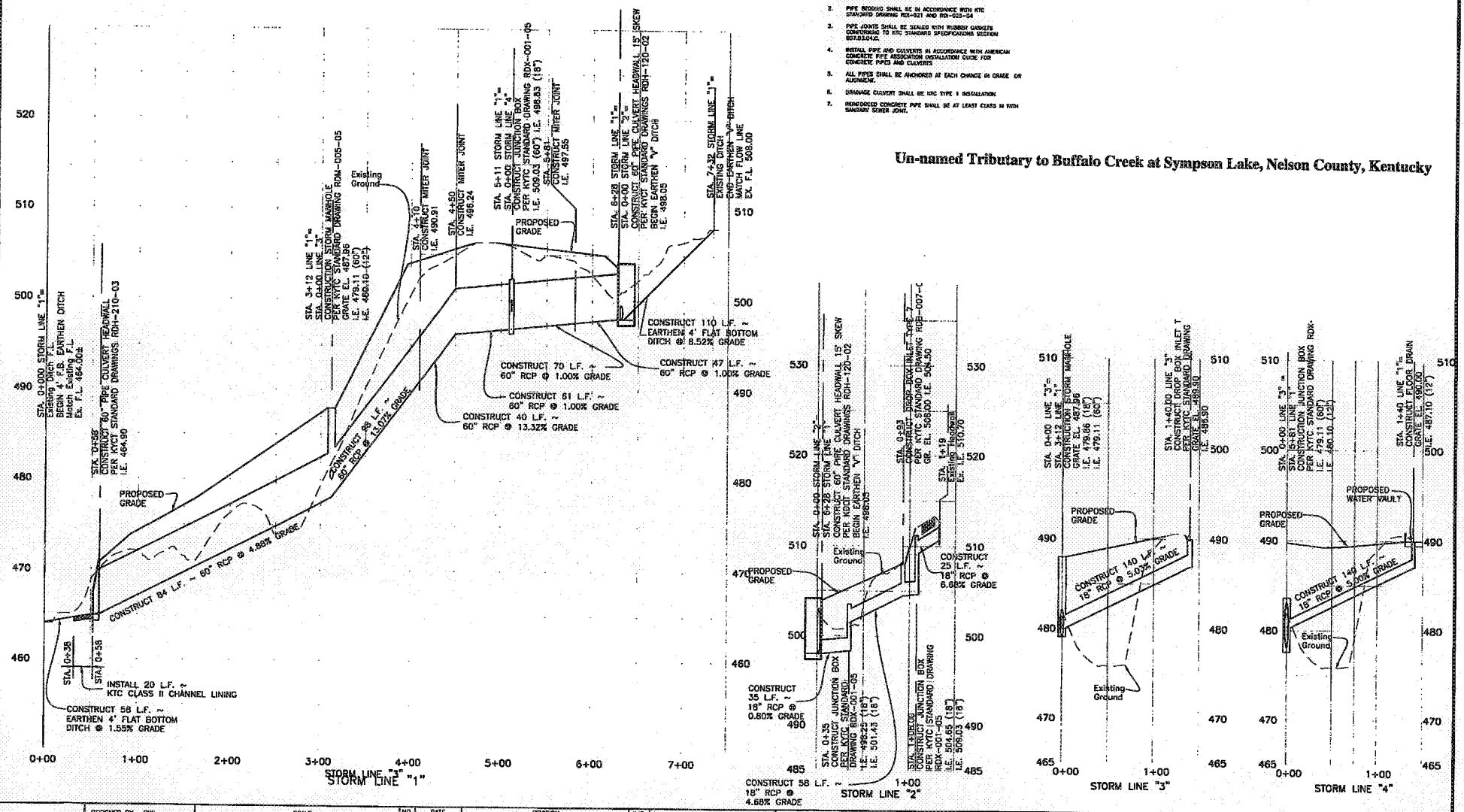
DATE NOV. 2008

SHEET NO. C-08

NOTES:

1. PIPE AND CULVERT MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH KYTC STANDARD SPECIFICATIONS SECTION 700.
2. PIPE BEDDING SHALL BE IN ACCORDANCE WITH KTC STANDARD DRAWING RDX-021 AND RDX-025-04
3. PIPE JOINTS SHALL BE SEALED WITH RUBBER GASKETS CONFORMING TO KTC STANDARD SPECIFICATIONS SECTION 807.03.01.C.
4. INSTALL PIPE AND CULVERTS IN ACCORDANCE WITH AMERICAN CONCRETE PIPE ASSOCIATION INSTALLATION GUIDE FOR CONCRETE PIPES AND CULVERTS
5. ALL PIPES SHALL BE ANCHORED AT EACH CHANGE IN GRADE OR ALIGNMENT.
6. DRAINAGE CULVERT SHALL BE KTC TYPE 1 INSTALLATION
7. REINFORCED CONCRETE PIPE SHALL BE AT LEAST CLASS III WITH SANITARY SEWER JOINT.

Un-named Tributary to Buffalo Creek at Sympson Lake, Nelson County, Kentucky



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FILE NO. 41265
DATE NOV. 2008
SHEET NO. C-10

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PROJECT No. 41265

PROJECT DRAWINGS FOR

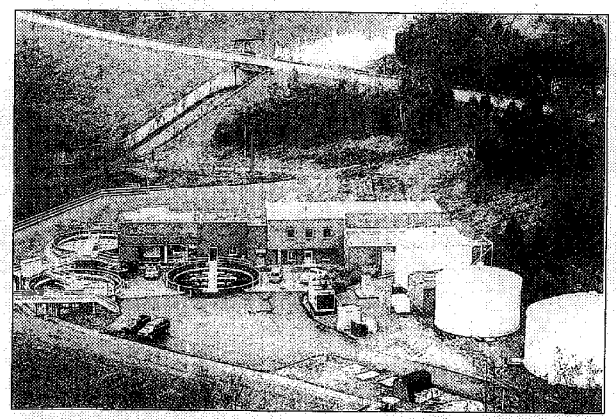
CITY OF BARDSTOWN WATER TREATMENT PLANT FILTER IMPROVEMENTS AND CLEARWELL EXPANSION

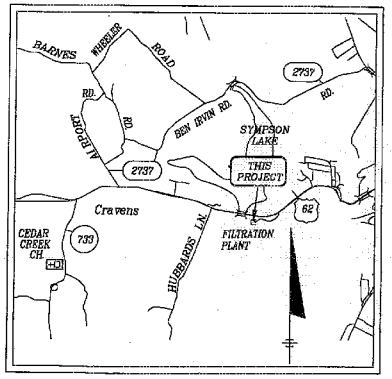
PROJECT No. 41265

NOVEMBER 2008

RICHARD HEATON
MAYOR

LARRY HAMILTON, P.E.
DIRECTOR PUBLIC WORKS





VICINITY MAP
NTS

O'BRIEN & GERE
730 W. Main St., Louisville, KY 40202
(502) 587-7884
Design Consultant

Un-named Tributary to Buffalo Creek at Sympson Lake, Nelson County, Kentucky

INDEX TO DRAWINGS

PLAN SET NO.	SHEET NO.	TITLE
1 ~~01~~	G01	GENERAL – COVER – DRAWING INDEX AND LOCATION MAP
~~02~~	~~G02~~	~~GENERAL – GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS~~
~~03~~	~~C01~~	~~CIVIL – PROJECT WORK AREAS~~
~~04~~	~~C02~~	~~CIVIL – YARD PIPING RENOVATION~~
~~05~~	~~C03~~	~~CIVIL – AS-BUILT PHOTOGRAPHS – EXISTING YARD PIPING~~
2 ~~06~~	C04	CIVIL – GRADING & DRAINAGE PLAN FOR CLEARWELL
3 ~~07~~	C05	CIVIL – CLEARWELL CROSS SECTIONS
4 ~~08~~	C06	CIVIL – CLEARWELL CROSS SECTIONS & BENCHING DETAILS
5 ~~09~~	C07	CIVIL – EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) PLAN
6 ~~10~~	C08	CIVIL – EPSC PLAN DETAILS
~~11~~	~~C09~~	~~CIVIL – PROFILE WATER LINE "A"~~
7 ~~12~~	C10	CIVIL – STORM LINES "1", "2" AND "3" PROFILES
~~13~~	~~C11~~	~~CIVIL – PROCESS SCHEMATIC AND HYDRAULIC PROFILE~~
~~14~~	P01	PROCESS – YARD PIPING AND CHEMICAL DOSING CONNECTION DETAIL
15	P02	PROCESS – TYPICAL TREATMENT UNIT AS-BUILT
16	P03	PROCESS – FILTER TREATMENT UNIT NO. 3 DEMOLITION PLAN
17	P04	PROCESS – FILTER TREATMENT UNIT NO. 3 DEMOLITION SECTION
18	P05	PROCESS – FILTER TREATMENT UNIT NO. 3 RENOVATION PHOTOS
19	P06	PROCESS – FILTER TREATMENT UNIT NO. 3 RENOVATION PLAN
20	P07	PROCESS – FILTER TREATMENT UNIT NO. 3 RENOVATION SECTION
21	P08	PROCESS – FILTER TREATMENT UNIT NO. 4 DEMOLITION PLAN
22	P09	PROCESS – FILTER TREATMENT UNIT NO. 4 DEMOLITION SECTION
23	P10	PROCESS – FILTER TREATMENT UNIT NO. 4 RENOVATION PHOTOS
24	P11	PROCESS – FILTER TREATMENT UNIT NO. 4 RENOVATION PLAN
25	P12	PROCESS – FILTER TREATMENT UNIT NO. 4 RENOVATION SECTION
26	P13	PROCESS – STEEL TREATMENT UNIT WALL LAYOUT
27	P14	PROCESS – FILTER UNDERDRAIN AND FILTER DETAILS
28	P15	PROCESS – TYPICAL TREATMENT UNIT MODIFICATION DETAILS
29	P16	PROCESS – AIR BACKWASH PIPE AND BLOWER DETAILS
30	P17	PROCESS – TREATMENT UNIT NO. 3 & 4 LOW SERVICE PUMP DEMOLITION DETAILS
31	P18	PROCESS – TREATMENT UNIT NO. 3 & 4 LOW SERVICE PUMP RENOVATION PLAN & SECTION
32	P19	PROCESS – TREATMENT UNIT NO. 3 & 4 LOW SERVICE PUMP REPLACEMENT TYPICAL PIPING MODIFICATIONS
33	P20	PROCESS – CLEARWELL TANK PLAN AND ELEVATION
34	P21	PROCESS – CLEARWELL BAFFLE PLAN AND DETAILS
35	P22	PROCESS – PAC PUMP AREA DEMOLITION AND RENOVATION PHOTOS
36	P23	PROCESS – DEMOLITION INFORMATION FOR PAC AREA PLATFORM REMOVAL
37	P24	PROCESS – PAC PUMP AREA RENOVATION PLAN AND SECTIONS
38	P25	PROCESS – GUARDRAIL LAYOUT AND DETAILS
39	P26	PROCESS – CONTROL VALVE VAULT DETAILS
40	P27	PROCESS – CONTROL VALVE VAULT EQUIPMENT ENCLOSURES
41	P28	PROCESS – STANDARD DETAILS
42	E1	ELECTRICAL – SITE PLAN
43	E2	ELECTRICAL – MCC LAYOUT AND SINGLE LINE DIAGRAM
44	E3	ELECTRICAL – PUMP VAULT INSTRUMENTATION AND POWER
45	E4	ELECTRICAL – PAC PUMP AREA RENOVATION PLAN – ELECTRICAL
46	E5	ELECTRICAL – MISCELLANEOUS DETAILS
47	I1	INSTRUMENTATION – SCADA NETWORK SCHEMATIC
48	S01	STRUCTURAL – GENERAL PROVISIONS
49	S02	STRUCTURAL – GENERAL PROVISIONS AND TYPICAL DETAILS
50	S03	STRUCTURAL – TYPICAL DETAILS
51	S04	STRUCTURAL – FILTER TREATMENT EXISTING TUBE SETTLER PLAN
52	S05	STRUCTURAL – FILTER TREATMENT UNIT GRATING PLANS
53	S06	STRUCTURAL – FILTER TREATMENT UNIT SECTIONS
54	S07	STRUCTURAL – FILTER TREATMENT UNIT NUMBER 3 RENOVATION SECTION
55	S08	STRUCTURAL – FILTER TREATMENT UNIT NUMBER 4 RENOVATION SECTION

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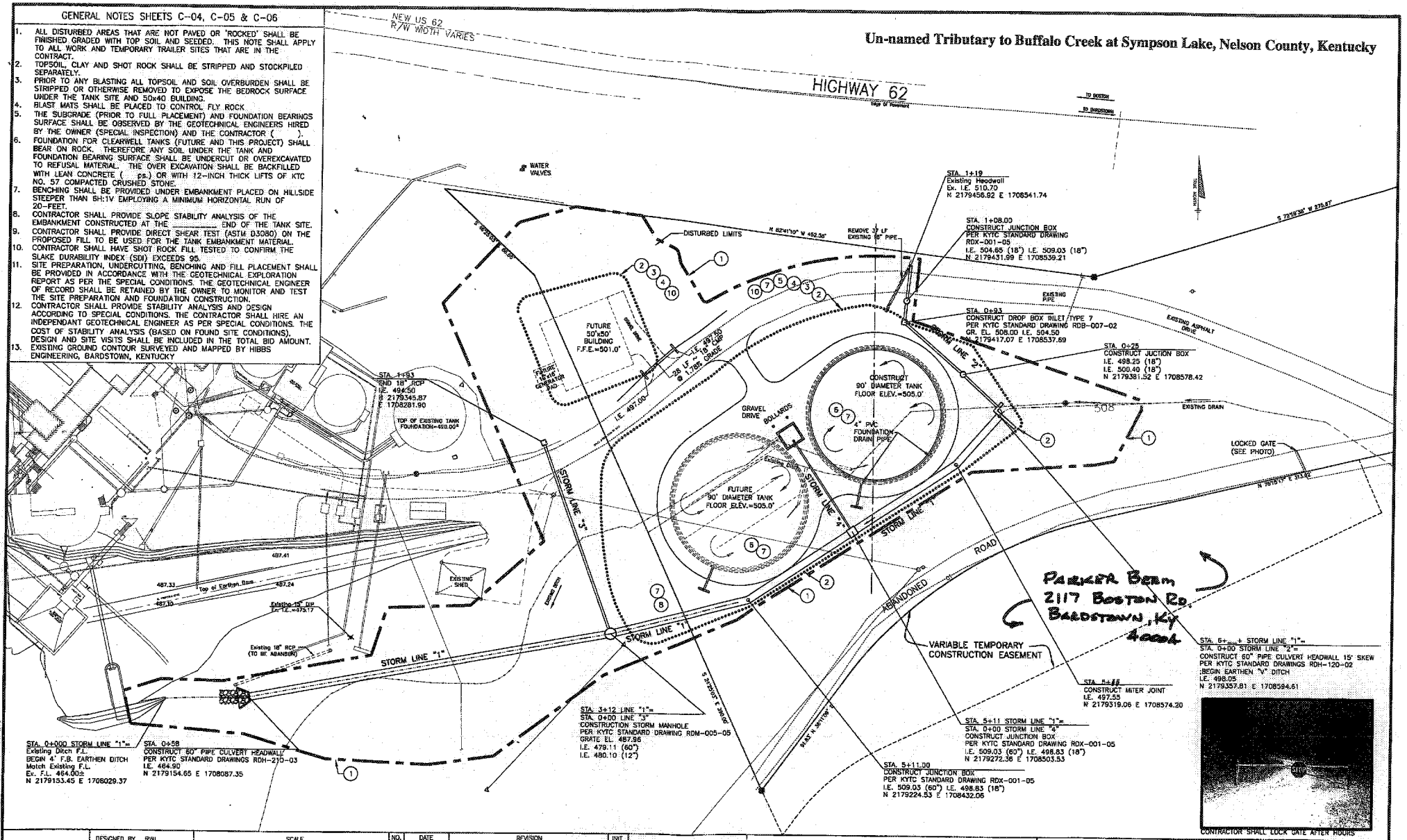
GENERAL NOTES SHEETS C-04, C-05 & C-06

1. ALL DISTURBED AREAS THAT ARE NOT PAVED OR 'ROCKED' SHALL BE FINISHED GRADED WITH TOP SOIL AND SEEDED. THIS NOTE SHALL APPLY TO ALL WORK AND TEMPORARY TRAILER SITES THAT ARE IN THE CONTRACT.
2. TOPSOIL, CLAY AND SHOT ROCK SHALL BE STRIPPED AND STOCKPILED SEPARATELY.
3. PRIOR TO ANY BLASTING ALL TOPSOIL AND SOIL OVERBURDEN SHALL BE STRIPPED OR OTHERWISE REMOVED TO EXPOSE THE BEDROCK SURFACE UNDER THE TANK SITE AND 50x40 BUILDING.
4. BLAST MATS SHALL BE PLACED TO CONTROL FLY ROCK
5. THE SUBGRADE (PRIOR TO FULL PLACEMENT) AND FOUNDATION BEARINGS SURFACE SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEERS HIRED BY THE OWNER (SPECIAL INSPECTION) AND THE CONTRACTOR ( ).
6. FOUNDATION FOR CLEARWELL TANKS (FUTURE AND THIS PROJECT) SHALL BEAR ON ROCK. THEREFORE ANY SOIL UNDER THE TANK AND FOUNDATION BEARING SURFACE SHALL BE UNDERCUT OR OVEREXCAVATED TO REFUSAL MATERIAL. THE OVER EXCAVATION SHALL BE BACKFILLED WITH LEAN CONCRETE (ps.) OR WITH 12-INCH THICK LIFTS OF KTC NO. 57 COMPACTED CRUSHED STONE.
7. BENCHING SHALL BE PROVIDED UNDER EMBANKMENT PLACED ON HILLSIDE STEEPER THAN 6H:1V EMPLOYING A MINIMUM HORIZONTAL RUN OF 20-FEET.
8. CONTRACTOR SHALL PROVIDE SLOPE STABILITY ANALYSIS OF THE EMBANKMENT CONSTRUCTED AT THE _____ END OF THE TANK SITE.
9. CONTRACTOR SHALL PROVIDE DIRECT SHEAR TEST (ASTM D3080) ON THE PROPOSED FILL TO BE USED FOR THE TANK EMBANKMENT MATERIAL.
10. CONTRACTOR SHALL HAVE SHOT ROCK FILL TESTED TO CONFIRM THE SLAKE DURABILITY INDEX (SDI) EXCEEDS 95.
11. SITE PREPARATION, UNDERCUTTING, BENCHING AND FILL PLACEMENT SHALL BE PROVIDED IN ACCORDANCE WITH THE GEOTECHNICAL EXPLORATION REPORT AS PER THE SPECIAL CONDITIONS. THE GEOTECHNICAL ENGINEER OF RECORD SHALL BE RETAINED BY THE OWNER TO MONITOR AND TEST THE SITE PREPARATION AND FOUNDATION CONSTRUCTION.
12. CONTRACTOR SHALL PROVIDE STABILITY ANALYSIS AND DESIGN ACCORDING TO SPECIAL CONDITIONS. THE CONTRACTOR SHALL HIRE AN INDEPENDANT GEOTECHNICAL ENGINEER AS PER SPECIAL CONDITIONS. THE COST OF STABILITY ANALYSIS (BASED ON FOUND SITE CONDITIONS), DESIGN AND SITE VISITS SHALL BE INCLUDED IN THE TOTAL BID AMOUNT.
13. EXISTING GROUND CONTOUR SURVEYED AND MAPPED BY HIBBS ENGINEERING, BARDSTOWN, KENTUCKY



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CHECKED BY	RWI
DRAWN BY	RWH

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730 West Main Street
Suite 200
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Phone: 502-587-7084
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BARDSTOWN WATER TREATMENT PLANT FILTER IMPROVEMENTS AND CLEARWELL EXPANSION

STORM DRAINAGE PLAN FOR CLEARWELL

FILE NO. 41265
DATE NOV. 2008
SHEET NO. C-04

2.

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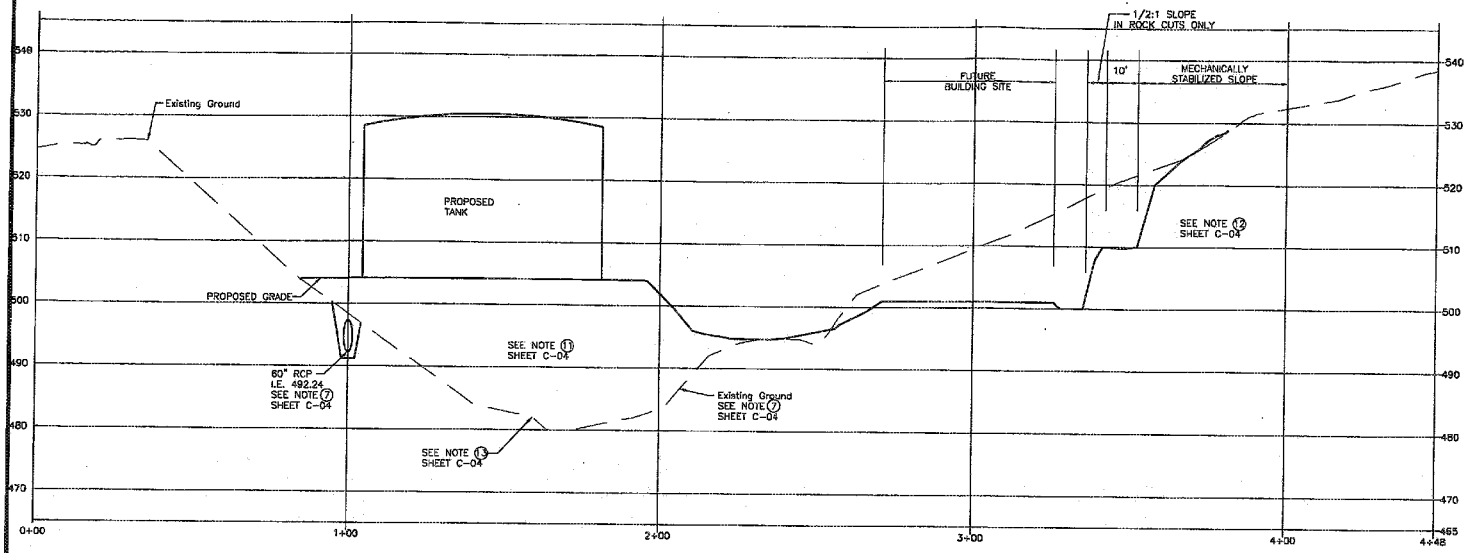
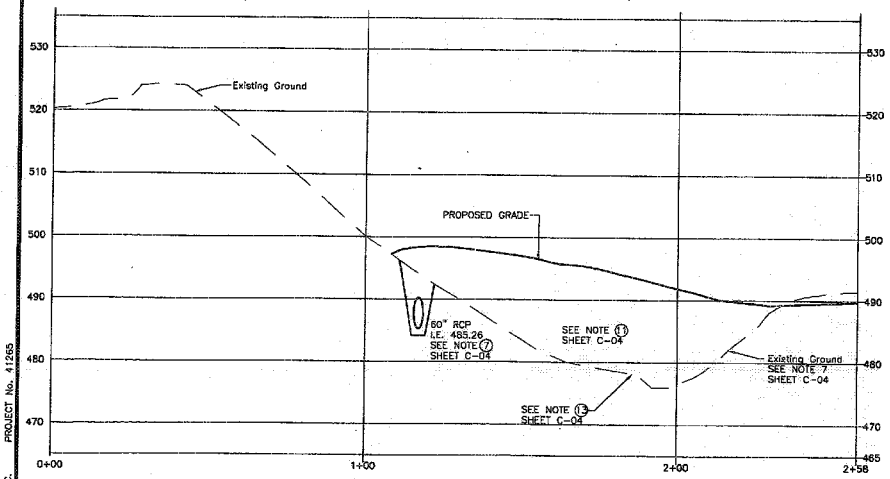
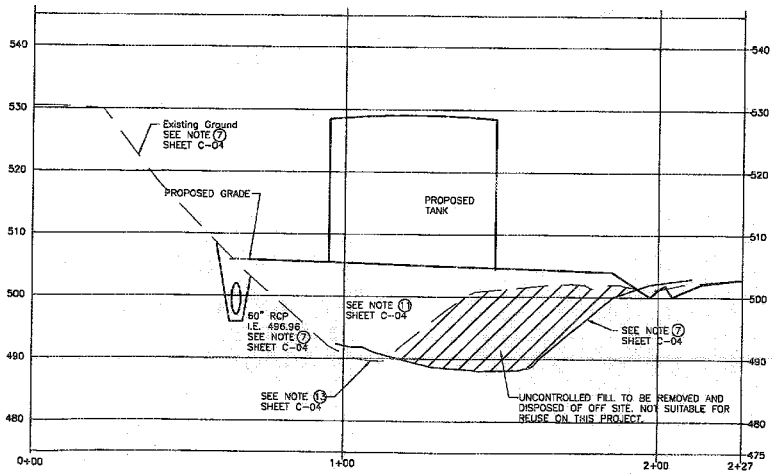
Un-named Tributary to Buffalo Creek at Sympson Lake, Nelson County, Kentucky



SECTION B



SECTION A



SECTION D

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CHECKED BY RWI
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SCALE
1"=20' Horiz. 20 0 20 40
1"=10' Horiz. 10 0 10 20

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BARDSTOWN WATER TREATMENT
PLANT FILTER IMPROVEMENT
AND CLEARWELL EXPANSION

CLEARWELL CROSS SECTIONS
AND
BENCHING DETAILS

3.

FILE NO. 41265
DATE NOV. 2008
SHEET NO. C-05

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PROJECT No. 41265

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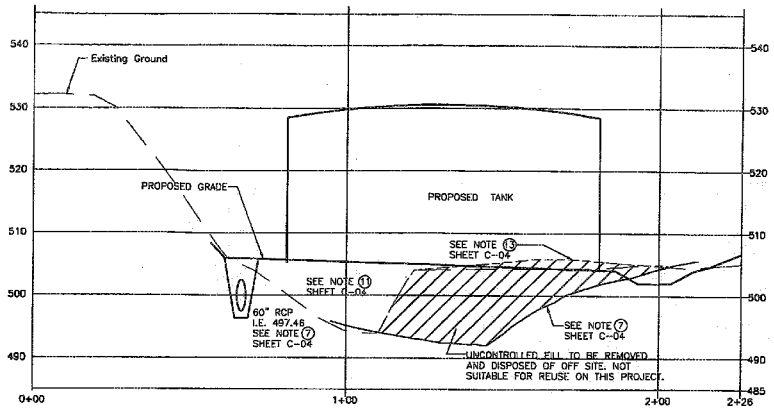
Un-named Tributary to Buffalo Creek at Sympson Lake, Nelson County, Kentucky



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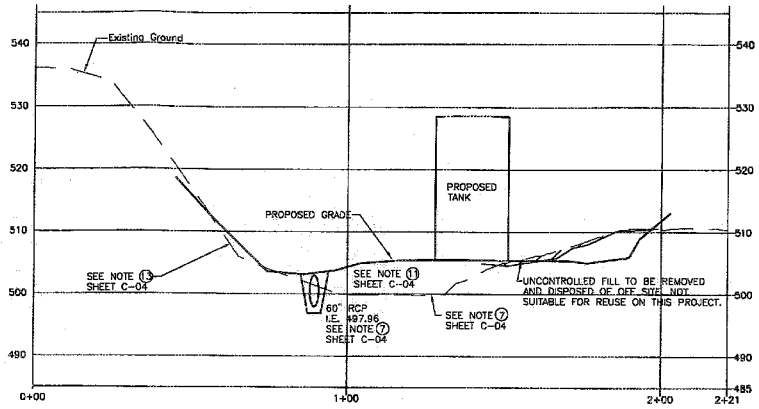

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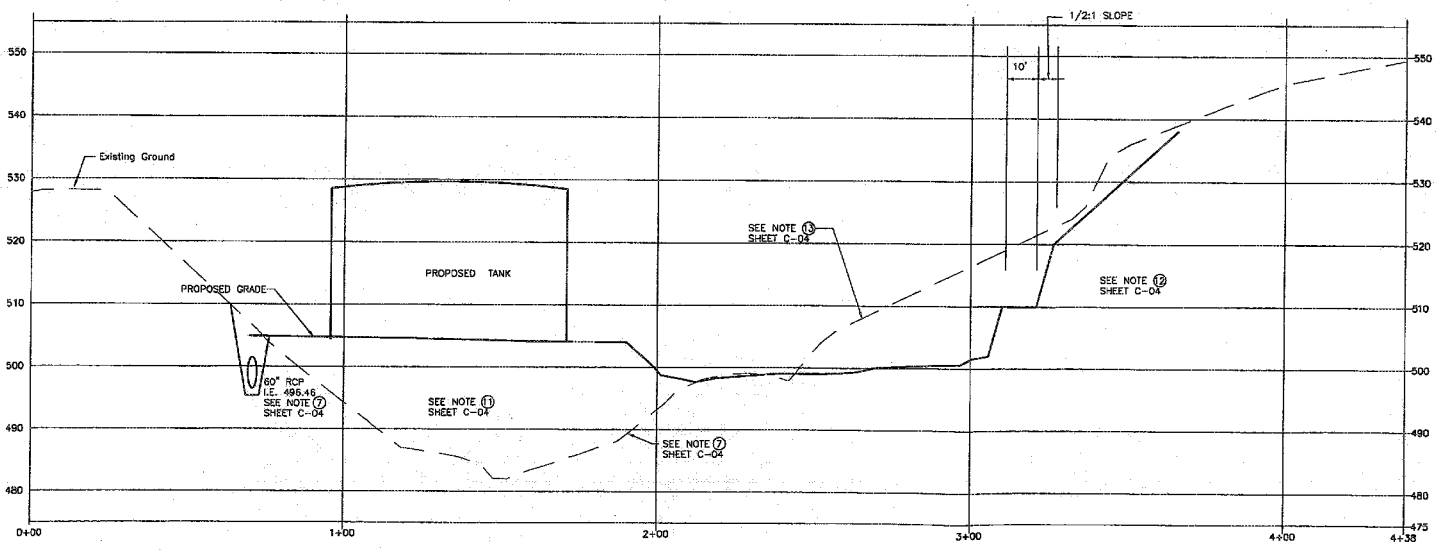
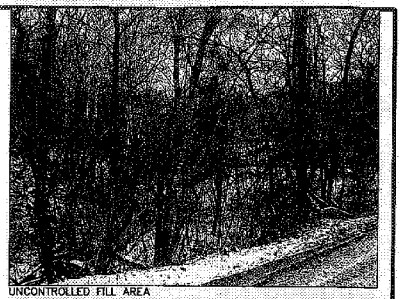
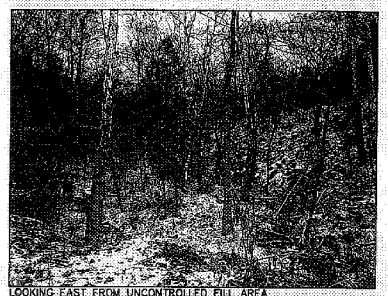


SECTION C

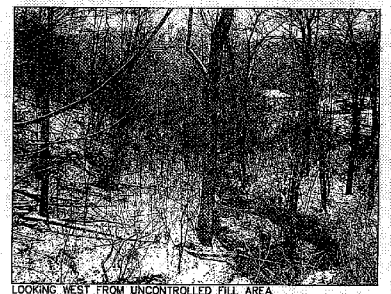


UNCONTROLLED FILL AREA



LOOKING EAST FROM UNCONTROLLED FILL AREA

CREEK TO BE ROUTED IN PIPE



LOOKING WEST FROM UNCONTROLLED FILL AREA

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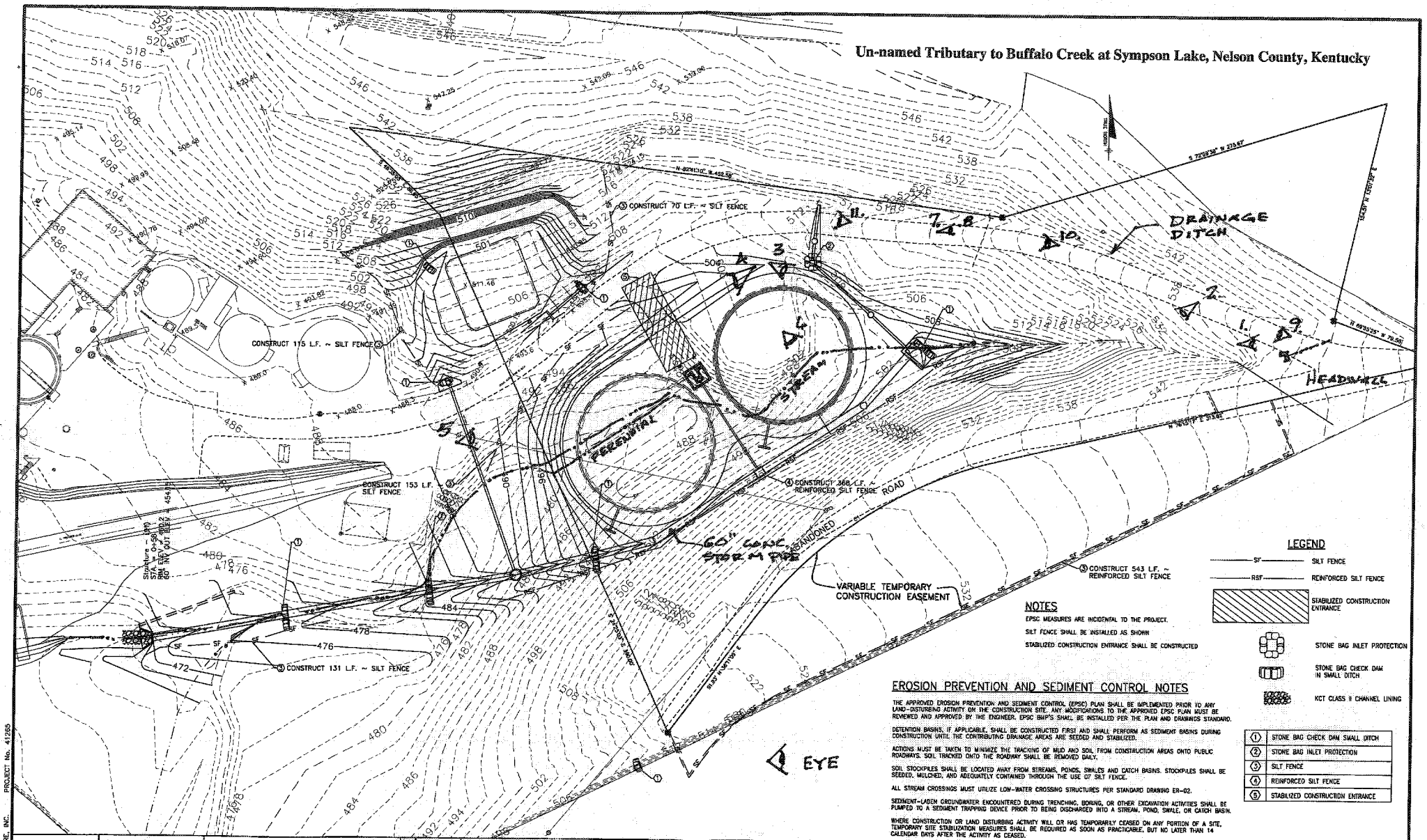
Un-named Tributary to Buffalo Creek at Sympson Lake, Nelson County, Kentucky



LEGEND

SF	SILT FENCE
RSF	REINFORCED SILT FENCE
	STABILIZED CONSTRUCTION ENTRANCE
	STONE BAG INLET PROTECTION
	STONE BAG CHECK DAM IN SMALL DITCH
	KCT CLASS II CHANNEL LINING

NOTES

EPSC MEASURES ARE INCIDENTAL TO THE PROJECT.

SILT FENCE SHALL BE INSTALLED AS SHOWN

STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED

EROSION PREVENTION AND SEDIMENT CONTROL NOTES

THE APPROVED EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) PLAN SHALL BE IMPLEMENTED PRIOR TO ANY LAND-DISTURBING ACTIVITY ON THE CONSTRUCTION SITE. ANY MODIFICATIONS TO THE APPROVED EPSC PLAN MUST BE REVIEWED AND APPROVED BY THE ENGINEER. EPSC BMP'S SHALL BE INSTALLED PER THE PLAN AND DRAWINGS STANDARD.

DETENTION BASINS, IF APPLICABLE, SHALL BE CONSTRUCTED FIRST AND SHALL PERFORM AS SEDIMENT BASINS DURING CONSTRUCTION UNTIL THE CONTRIBUTING DRAINAGE AREAS ARE SEEDED AND STABILIZED.

ACTIONS MUST BE TAKEN TO MINIMIZE THE TRACKING OF MUD AND SOIL FROM CONSTRUCTION AREAS ONTO PUBLIC ROADWAYS. SOIL TRACKED ONTO THE ROADWAY SHALL BE REMOVED DAILY.

SOIL STOCKPILES SHALL BE LOCATED AWAY FROM STREAMS, PONDS, SWALES AND CATCH BASINS. STOCKPILES SHALL BE SEEDED, MULCHED, AND ADEQUATELY CONTAINED THROUGH THE USE OF SILT FENCE.

ALL STREAM CROSSINGS MUST UTILIZE LOW-WATER CROSSING STRUCTURES PER STANDARD DRAWING ER-02.

SEDIMENT-LADEN GROUNDWATER ENCOUNTERED DURING TRENCHING, BORING, OR OTHER EXCAVATION ACTIVITIES SHALL BE PUMPED TO A SEDIMENT TRAPPING DEVICE PRIOR TO BEING DISCHARGED INTO A STREAM, POND, SWALE, OR CATCH BASIN.

WHERE CONSTRUCTION OR LAND DISTURBING ACTIVITY WILL OR HAS TEMPORARILY CEASED ON ANY PORTION OF A SITE, TEMPORARY SITE STABILIZATION MEASURES SHALL BE REQUIRED AS SOON AS PRACTICABLE, BUT NO LATER THAN 14 CALENDAR DAYS AFTER THE ACTIVITY AS CEASED.

①	STONE BAG CHECK DAM SMALL DITCH
②	STONE BAG INLET PROTECTION
③	SILT FENCE
④	REINFORCED SILT FENCE
⑤	STABILIZED CONSTRUCTION ENTRANCE

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BARDSTOWN WATER TREATMENT PLANT FACILITIES IMPROVEMENT

EROSION PREVENTION AND SOIL CONTROL PLAN

PHOTO VANTAGE POINT 5

FILE NO. 41265
DATE NOV. 2008
SHEET NO. C-07

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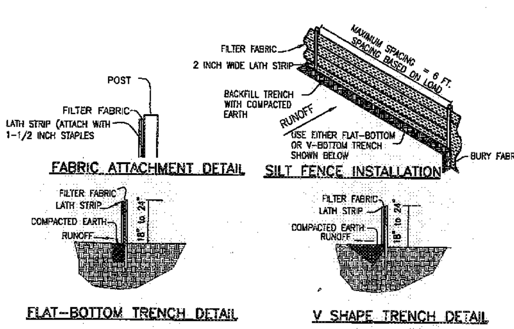
Un-named Tributary to Buffalo Creek at Sympson Lake, Nelson County, Kentucky



INSTALLATION

The fence should be placed across the slope along a line uniform elevation (perpendicular to the direction of the flow). The fence should be located at least 10 feet from the toe of steep slopes to provide sediment storage and access for maintenance and cleanouts.

A flat-bottom trench approximately 4 inches wide and 8 inches deep, or a V-shaped trench 8 inches deep should be excavated on the downslope side of the trench, drive 2 inch by 2 inch wood posts at least 18 inches into the ground, spacing them no further than 6 feet apart.

Posts should be installed, with 1 to 2 inches of the post protruding above the top of the fabric and no more than 3 feet of the post should protrude above the ground. The minimum fence height (height of the filter fabric above grade) shall be 18 inches. The maximum fence height (height of the filter fabric above grade) shall be 24 inches.

The filter fabric should be purchased in a continuous roll and cut to the length of the barrier to avoid the use of joints. When joints are necessay, filter cloth should be wrapped together only at a support post with both ends securely fastened to the posts, with a minimum 6 inch overlap.

Extra strength filter cloth (50 pounds / Linear tensile strength) should be used. A 2 inch wide lathe shall be stapled over the filter fabric to securely fasten it to the upslope side of the posts. The staples used should be 1.5 inch heavy duty wire staples spaced a maximum of 8 inches apart.

Place the bottom 12 inches of the filter fabric into the 8 inch trench, extending the remaining 4 inches towards the up slope side of the trench and backfill the trench with soil or gravel and compact.

INSPECTION AND MAINTENANCE.

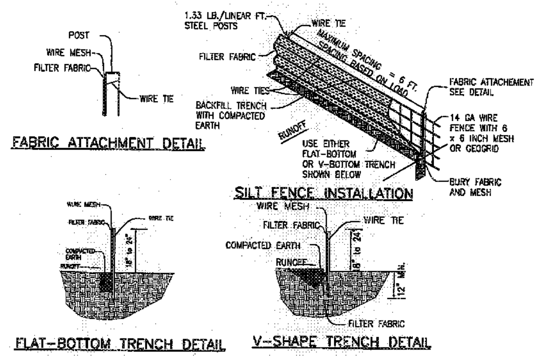
Inspect silt fence every seven (7) calendar days and within 24 hours after each rainfall event that produces 1/2 inch or more precipitation
Check for areas where runoff has eroded a channel beneath the fence or where the fence was caused to sag or collapse by runoff overtopping the fence.

If the fence fabric tears, begins to decompose or in any way becomes ineffective, replace the affected section of fence immediately.

Sediment must be removed when it reaches approximately 1/3 the height of the fence, especially if heavy rains are expected.

Silt fence should be removed within 30 days after final stabilization is achieved or after temporary BMP's are no longer needed. Trapped sediment should be removed or stablized on site. Disturbed areas resulting from fence removal shall be permanently stabilized.

SILT FENCE
N.T.S.



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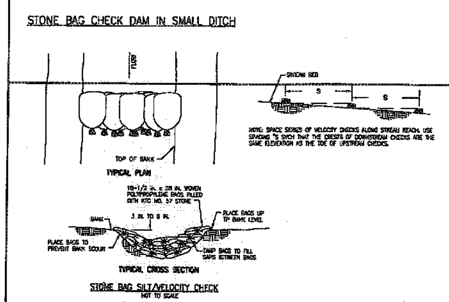
REINFORCED SILT FENCE
N.T.S.



STONE BAG CHECK DAM IN SMALL DITCH

WHEN AND WHERE TO USE IT:

STONE BAG CHECKS ARE TO BE PLACED IN MAN-MADE DITCHES ONLY. STONE BAG CHECK DAMS SHOULD NOT BE BUILT IN WETLANDS, ANY ACTIVE OR LIVE STREAMS, AND IN WATERS OF COMMONWEALT.

STONE BAG CHECK DAMS ARE APPLICABLE IN SITUATIONS WHERE FLOW VELOCITIES ARE TOO HIGH CAUSING CHANNEL SCOUR. THEY SHOULD NOT BE USED AS A PRIMARY SEDIMENT-TRAPPING DEVICE. THEY SHOULD BE USED AS VELOCITY CHECKS ONLY AS A SHORT-TERM TEMPORARY SOLUTION.

SPECIFIC CONDITIONS FOR USE INCLUDE NEW DIVERSION DITCHES THAT WILL NOT OR CANNOT BE STABILIZED FOR SEVERAL DAYS, AND TEMPORARY DIVERSION CHANNELS THAT ARE ERODING DUE TO HIGH FLOW RATES OR STEEP SLOPES.

INSTALLATION:

STONE FILL BAGS SHALL BE WOVEN POLYPROPYLENE BAGS WITH APPROXIMATE DIMENSIONS OF 18-1/2 INCHES BY 28 INCHES. THE BAGS SHALL BE FILLED WITH KTC NO. 57 STONE. TIE ENDS OF FILLED BAGS USING EITHER DRAW STRINGS OR WIRE TIES.

STONE BAG CHECK DAMS SHALL SPAN THE BANKS OF THE DITCH OR SWALE.

THE HEIGHT OF THE DAM AT THE STREAM CENTERLINE SHALL EQUAL THE HEIGHT NOTED ON THE PLANS, OR EQUAL THE APPROXIMATE STAGE FOR NORMAL STORM FLOWS.

PLACE BAGS AT THE BANKS TO A HEIGHT AT LEAST 6 INCHES ABOVE THE CENTER OF THE CHECK.

SPACE STONE BAG DITCH CHECKS AS SHOWN ON THE PLANS, OR SUCH THAT THE CREST OF THE DOWNSTREAM CHECK IS AT THE SAME ELEVATION AS THE TOE OF THE CHECK LOCATED IMMEDIATELY UPSTREAM.

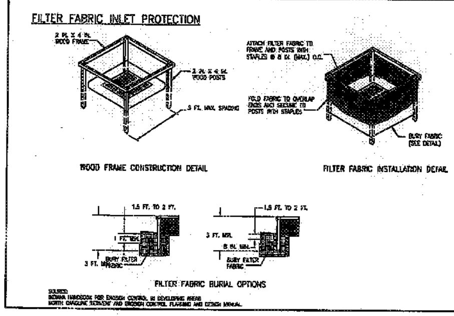
INSPECTION AND MAINTENANCE:

INSPECT CHECKS EVERY SEVEN (7) CALENDER DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES ½-INCHES OR MORE OF PRECIPITATION. CHECK FOR STRUCTURAL DAMAGE, CHANNEL EROSION AND SEDIMENT DEPOSITION. IF SEDIMENT ACCUMULATES, REMOVE IT FROM THE UPSTREAM FACE OF THE CHECK BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO ½ THE STRUCTURE HEIGHT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY.

SPLIT THE SPACING BETWEEN EXISTING CHECKS WITH AN ADDITIONAL CHECK IF STREAM EROSION PROBLEMS PERSIST WITHIN A REACH.

REINFORCE CHECKS WITH ADDITIONAL STONE BAGS AS REQUIRED TO MAINTAIN INTEGRITY. REMOVE AND REPLACE ANY DAMAGED BAGS AND DISPOSE OF THEM PROPERLY. DO NOT LEAVE DAMAGED OR EMPTY BAGS IN THE DITCH AT ANY TIME.

REMOVE CHECKS AS SOON AS THEY ARE NO LONGER REQUIRED TO CONTROL FLOW VELOCITIES AND THE DITCH CAN BE STABILIZED ACCORDING TO THE APPROPRIATE STABILIZATION SCHEDULE OR IS TAKEN OUT OF SERVICE.



FILTER FABRIC INLET PROTECTION

INSTALLATION:

FILTER FABRIC IS USED FOR INLET PROTECTION WHEN STORM WATER FLOWS ARE RELATIVELY SMALL (0.5 CFS OR LESS) WITH LOW VELOCITIES AND WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THAN 5%). THIS PRACTICE CANNOT BE USED WHERE INLETS ARE PAVED OR WHERE INLETS RECEIVE CONCENTRATED FLOWS SUCH AS IN STREETS O HIGHWAY MEDIANS.

EXTRA-STRENGTH FILTER CLOTH (50 POUNDS / LINEAR INCH MINIMUM TENSILE STRENGTH) SHOULD BE USED. FILTER FABRIC SHALL BE CUT FROM A CONTINUOUS ROLL TO AVOID JOINTS.

STAKES SHALL BE 2-IN. X 3-IN. WOOD WITH A MINIMUM LENGTH OF 3-FEET. THE HEIGHT OF THE FILTER BARRIER ABOVE GRADE SHALL BE A MINIMUM OF 1.5-FEET AND SHALL NOT EXCEED 2-FEET.

STAKES SHALL BE SPACED AROUND THE PERIMETER OF THE INLET A MAXIMUM OF 3-FEET APART AND DRIVEN INTO THE GROUND A MINIMUM OF 1.5-FEET.

A TRENCH SHALL BE EXCAVATED 4-INCHES WIDE AND 8-INCHES DEEP AROUND THE OUTSIDE PERIMETER OF THE STAKES.

THE FILTER FABRIC SHALL BE STAPLED TO THE WOODEN STAKES WITH STAPLES MADE OF HEAVY-DUTY WIRE AT LEAST ½-INCHES LONG.

THE FABRIC SHALL BE EXTENDED INTO THE TRENCH 8-INCHES.

THE TRENCH SHOULD BACKFILLED WITH SOIL OR CRUSHED STONE AND COMPACTED OVER THE FILTER FABRIC.

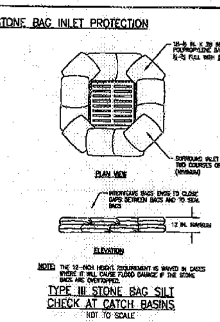
INSPECTION AND MAINTENANCE:

INSPECTIONS SHOULD BE MADE EVERY SEVEN (7) CALENDER DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES ½-INCHES OR MORE OF PRECIPITATION. ANY NEEDED REPAIRS SHOULD BE HANDLED IMMEDIATELY.

IF THE FABRIC BECOMES CLOGGED, IT SHOULD BE REPLACED.

SEDIMENT SHOULD BE REMOVED WHEN IT REACHES APPROXIMATELY ⅓ THE HEIGHT OF THE FENCE. IF A SUMP IS USED, SEDIMENT SHOULD BE REMOVED WHEN IT FILLS APPROXIMATELY ½ THE DEPTH OF THE HOLE. MAINTAIN THE POOL AREA, ALWAYS PROVIDING ADEQUATE SEDIMENT STORAGE VOLUME FOR THE NEXT STORM. TAKE CARE NOT TO DAMAGE OR UNDERCUT FABRIC WHEN REMOVING SEDIMENT.

STORM DRAIN INLET PROTECTION STRUCTURES SHOULD BE REMOVED ONLY AFTER THE DISTURBED AREAS ARE PERMANENTLY STABILIZED. REMOVE ALL CONSTRUCTION MATERIAL AND SEDIMENT, AND DISPOSE OF THEM PROPERLY. GRADE THE DISTURBED AREA TO THE ELEVATION OF THE DROP INLET STRUCTURE CREST. USE APPROPRIATE PERMANENT STABILIZATION METHODS TO STABILIZE BARE AREAS AROUND THE INLET.



STONE BAG INLET PROTECTION

INSTALLATION:

STONE FILL BAGS SHALL BE WOVEN POPLYPROPYLENE BAGS WITH APPROXIMATE DIMENSIONS OF 18-½ INCHES BY 28 INCHES.

THE BAGS SHALL BE FILLED ½ TO ¾ FULL WITH KTC NO. 57 STONE. TIE ENDS OF FILLED BAGS USING EITHER DRAW STRINGS OR WIRE TIES.

INTERWEAVE THE LOOSE ENDS OF THE BAGS SO THAT THE GAPS BETWEEN BAGS ARE FILLED AND THE ENDS OF THE BAGS ARE SEALED.

COMPLETELY SURROUND THE INLET WITH A MINIMUM OF TWO (2) ROWS OF BAGS TO A MINIMUM OF 12 INCHES IN HEIGHT.

INSPECTION AND MAINTENANCE:

INSPECTIONS SHOULD BE MADE EVERY (7) CALENDER DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES ½-INCHES OR MORE OF PRECIPITATION. ANY NEEDED REPAIRS SHOULD BE HANDLED IMMEDIATELY.

IF SEDIMENT ACCUMULATES, REMOVE IT FROM THE FACE OF THE BAGS BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO ½ THE STRUCTURE HEIGHT. ANY NEEDED REPAIRS SHOULD BE HANDLED IMMEDIATELY. TAKE CARENOT TO DAMAGE OR UNDERCUT THE BAGS WHEN REMOVING SEDIMENT.

REMOVE AND REPLACE ANY DAMAGED BAGS AND DISPOSE OF THEM PROPERLY.

STORM DRAIN INLET PROTECTION STRUCTURES SHOULD BE REMOVED ONLY AFTER THE DISTURBED AREAS ARE PERMANENTLY STABILIZED. REMOVE ALL CONSTRUCTION MATERIAL AND SEDIMENT, AND DISPOSE OF THEM PROPERLY. GRADE THE DISTURBED AREA TO THE ELEVATION OF THE DROP INLET STRUCTURE CREST. USE APPROPRIATE PERMANENT STABILIZATION METHODS TO STABILIZE BARE AREAS AROUND THE INLET.

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BARDSTOWN WATER TREATMENT PLANT FACILITIES IMPROVEMENT

EROSION PREVENTION AND SEDIMENTATION CONTROL DETAILS

FILE NO. 41265
DATE NOV. 2008
SHEET NO. C-08

6.

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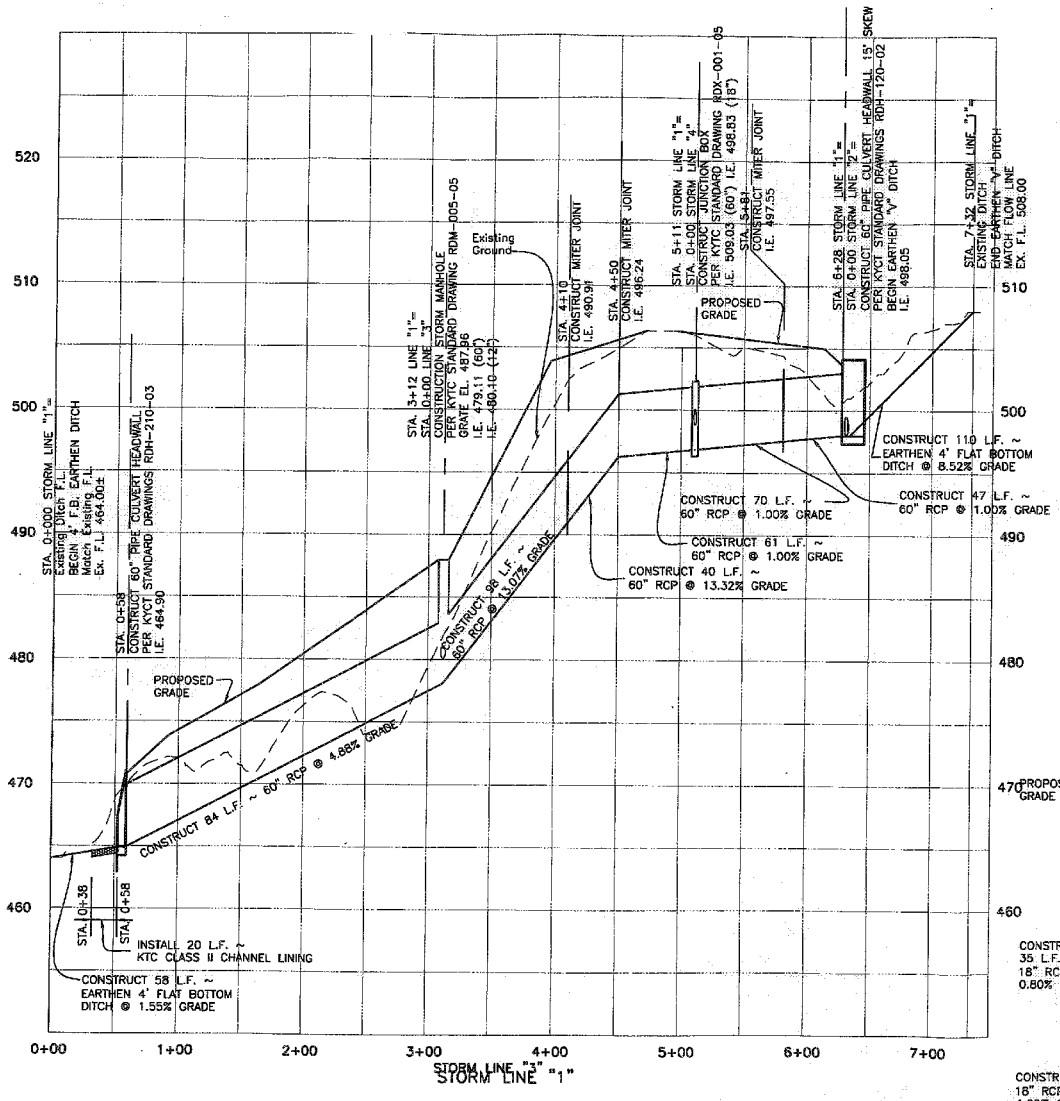
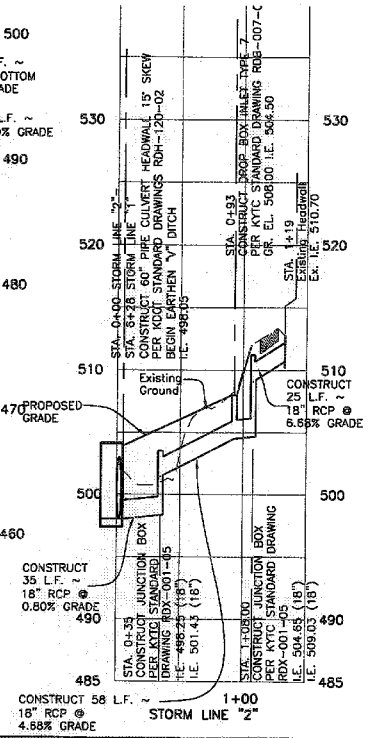
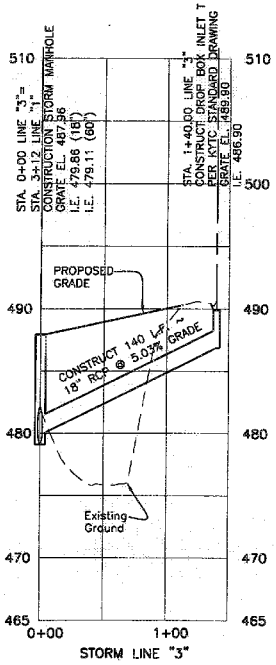
NOTES:

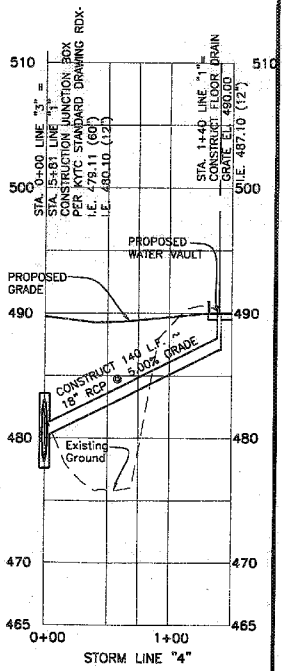
1. PIPE AND CULVERT MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH KTC STANDARD SPECIFICATIONS SECTION 706.
2. PIPE BEDDING SHALL BE IN ACCORDANCE WITH KTC STANDARD DRAWING RDX-021 AND RDX-023-04
3. PIPE JOINTS SHALL BE SEALED WITH RUBBER GASKETS CONFORMING TO KTC STANDARD SPECIFICATIONS SECTION 807.03.04.C.
4. INSTALL PIPE AND CULVERTS IN ACCORDANCE WITH AMERICAN CONCRETE PIPE ASSOCIATION INSTALLATION GUIDE FOR CONCRETE PIPES AND CULVERTS
5. ALL PIPES SHALL BE ANCHORED AT EACH CHANGE IN GRADE OR ALIGNMENT.
6. DRAINAGE CULVERT SHALL BE KTC TYPE 1 INSTALLATION
7. REINFORCED CONCRETE PIPE SHALL BE AT LEAST CLASS III WITH SANITARY SEWER JOINT.

Un-named Tributary to Buffalo Creek at Sympson Lake, Nelson County, Kentucky









DESIGNED BY RWI CHECKED BY RWI DRAWN BY RWH IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS HE OR SHE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.	SCALE 1"=20' HORIZ. 20 0 20 40 1"=2' VERT. 2 0 2 4 THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.	NO. / DATE / REVISION / INT.	O'BRIEN & GERE 730 West Main Street Suite 200 Louisville, Kentucky 40202 Phone: 502-587-7894 Fax: 502-587-7895	BARDSTOWN WATER TREATMENT PLANT FILTER IMPROVEMENT AND CLEARWELL EXPANSION

STORM LINES "1", "2", "3" AND "4" PROFILES

FILE NO. 41285
DATE NOV. 2008
SHEET NO. C-10

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