

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all necessary labor, machinery, tools, apparatus, equipment, materials, services, and other necessary supplies and perform all work at the unit bid price for the work described in Part 2 of this Section.

1.02 PROGRESS AND PAYMENTS SCHEDULES (See Article 14 of General Conditions of the Construction Contract)

A. Within fourteen (14) days of the Award of Contract, the General Contractor shall prepare and submit to the Engineer, for approval, a construction schedule which incorporates all contracts and depicts the Contractors' plan for completing the contract requirements and show work placement in dollars versus contract time. The Engineer must approve this construction schedule before any payments will be made on this contract. Refer to Section 01310 for schedule format and additional requirements.

B. Within thirty (30) days after the date of formal execution of the Agreement, Contractor shall prepare and submit to the Engineer, for approval, a breakdown of the unit price items on a periodic pay estimate form which depicts the Contractor's cost for completing the contract requirements by major unit of the project work. The Contractor's periodic estimate must be approved by the Engineer before any payments will be made on this contract.

C. The Engineer's decision as to sufficiency and completeness of the Contractor's construction schedule and periodic estimate will be final.

D. The Contractor must make current, to the satisfaction of the Engineer, the construction schedule and periodic estimate each time he requests a payment on this contract.

E. The Contractor's construction schedule and periodic estimate must be maintained at the construction site available for inspection and shall be revised to incorporate approved change orders as they occur.

F. When the Contractor requests a payment on this contract, it must be on the approved periodic estimate and be current. Further, the current periodic estimate and construction schedule (both updated and revised) shall be submitted for review and approval by the Engineer before monthly payments will be made by the Owner. The Contractor shall submit five (5) current copies of each (periodic estimate and construction schedule) when requesting payment.

1.03 CONDITIONS FOR PAYMENT

A. The Owner will make payments for acceptable work in place and materials properly stored on-site. The value of payment shall be as established on the approved construction schedule and periodic estimate; EXCEPT the Owner will retain eight percent (8%) of the work in place and a percentage as hereinafter listed for items properly stored or untested.

B. No payment will be made for stored materials unless a proper invoice from the supplier is

attached to the pay request. Further, no item whose value is less than \$1,000.00 will be considered as stored materials for pay purposes.

C. Payment for pipeline items shall be limited to eighty percent (80%) of the bid price until the pipeline items have been tested and accepted by the Engineer, then shall be limited to eighty-five percent (85%) of the bid price until clean-up and restoration.

D. Payment for equipment items shall be limited to eighty-five percent (85%) of their scheduled value (materials portion only) until they are set in place. Eighty-five percent (85%) payment for stored materials and equipment shall be contingent on proper on-site storage as recommended by the manufacturer or required by the Engineer.

E. Payment for equipment items set in-place shall be limited to ninety percent (90%) of their scheduled value until they are ready for operation and have been certified by the manufacturer. Ninety percent (90%) payment for installed equipment shall be contingent on proper routine maintenance of the equipment in accordance with manufacturer's recommendations.

F. Payment for equipment items set in place and ready for operation shall be limited to ninety-five percent (95%) of their scheduled value until all acceptance tests have been completed and the required manufacturer's pre-startup operator's training have been completed.

G. Payment for the labor portion of equipment items will be subject only to the degree of completeness and the appropriate retainage.

H. The Owner may reduce the percent of retainage once the project has achieved satisfactory progress and is at the fifty percent (50%) mark. If the percent retainage is reduced, the dollar amount of retainage for work-in-place will not be reduced but will remain constant following the fifty percent (50%) constructed status. The retainage on the equipment items shall be determined as defined hereinbefore.

I. Additionally, the Owner may reinstate the retainage to a full eight percent (8%) of the scheduled value of work-in-place and material items should the Owner, at its discretion, determine that the Contractor is not making satisfactory progress or there is other specific cause for such withholding.

1.04 CLAIMS FOR EXTRA WORK

(See Article 10.6 of General Conditions of the Construction Contract)

A. If the Contractor claims that any instructions by Drawings or otherwise involve extra cost, he shall give the Engineer written notice of said claim within seven (7) days after the receipt of such instructions, and in any event before proceeding to execute the work, stating clearly and in detail the basis of his claim or claims. No such claim shall be valid unless so made.

B. Claims for additional compensation for extra work, due to alleged errors in spot elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work than would reasonably be estimated from the Drawings and topographical maps issued.

C. Any discrepancies which may be discovered between actual conditions and those represented by the topographical maps and Drawings shall at once be reported to the Engineer, and work shall not proceed, except at the Contractor's risk, until written instructions have been received by him from the Engineer.

D. If, on the basis of the available evidence, the Engineer determines that an adjustment of the

Contract Price or time is justifiable, the procedure shall then be as provided herein for "Changes in the Work".

E. By execution of this Contract, the Contractor warrants that he has visited the site of the proposed work and fully acquainted himself with the conditions there existing relating to construction and labor, and that he fully understands the facilities, difficulties, and restrictions attending the execution of the work under this Contract. The Contractor further warrants that he has thoroughly examined and is familiar with the Drawings, Specifications and all other documents comprising the Contract. The Contractor further warrants that by execution of this Contract his failure when he was bidding on this Contract to receive or examine any form, instrument or document, or to visit the site and acquaint himself with conditions there existing, in no way relieves him from any obligation under the Contract, and the Contractor agrees that the Owner shall be justified in rejecting any claim based on facts regarding which he should have been on notice as a result thereof.

1.05 DETERMINATION OF THE VALUE OF EXTRA (ADDITIONAL) OR OMITTED WORK (See Article 10.7 of General Conditions of the Construction Contract)

A. The value of extra (additional) or omitted work shall be determined in one or more of the following ways:

1. On the basis of the actual cost of all the items of labor (including on-the-job supervision), materials, and use of equipment, plus a maximum 15 percent for added work or a minimum 15 percent for deleted work which shall cover the Contractor's general supervision, overhead and profit. In case of subcontracts, the 15 percent (maximum for added work and minimum for deleted work) is interpreted to mean the subcontractor's supervision, overhead and profit, and an additional 5 percent (maximum for added work and minimum for deleted work) may then be added to such costs to cover the General Contractor's supervision, overhead and profit. The cost of labor shall include required insurance, taxes and fringe benefits. Equipment costs shall be based on current rental rates in the areas where the work is being performed but, in no case shall such costs be greater than the current rates published by the Associated Equipment Distributors, Chicago, Illinois.
2. By estimate and acceptance in a lump sum.
3. By unit prices named in the Contract or subsequently agreed upon.

B. Provided, however, that the cost or estimated cost of all extra (additional) work shall be determined in advance of authorization by the Engineer and approved by the Owner.

C. All extra (additional) work shall be executed under the conditions of the original Contract. Any claim for extension of time shall be adjusted according to the proportionate increase or decrease in the final total cost of the work unless negotiated on another basis.

D. Except for over-runs in contract unit price items, no extra (additional) work shall be done except upon a written Change Order from the Engineer, and no claim on the part of the Contractor for pay for extra (additional) work shall be recognized unless so ordered in writing by the Engineer.

PART 2 - PRODUCTS

2.01 BASIS OF PAYMENT

A. The Unit Costs as provided in the Bid Price set forth in the Bidder's Proposal shall constitute full compensation for the Work, as specified and as shown on the Drawings. This payment shall constitute full

remuneration for all work performed and all material and equipment supplied (except for extra work, as described in Paragraphs 1.04 and 1.05 hereinbefore) in connection therewith. This shall include all associated site work, structural, architectural, equipment, mechanical and electrical work, together with all other appurtenant work shown on the Drawings and/or specified.

B. Any and all other items of work listed in the Specifications or shown on the Contract Drawings for this contract shall be considered incidental to and included in the bid price.

- END OF SECTION -

SECTION 01040

COORDINATION

PART 1 - GENERAL

1.01 COORDINATION OF THE WORK

The General Contractor shall coordinate the work of all the crafts, trades and Subcontractors engaged on the Work, and he shall have final responsibility as regards the schedule, workmanship and completeness of each and all parts of the Work.

All crafts, trades and Subcontractors shall be made to cooperate with each other and with others as they may be involved in the installation of work which adjoins, incorporates, precedes or follows the work of another. It shall be each Contractor's responsibility to point out areas of cooperation prior to the execution of subcontract agreements and the assignment of the parts of the Work. Each craft, trade and Subcontractor shall be made responsible to the Owner, for furnishing embedded items and giving directions, for doing all cutting and fitting, for making all provisions for accommodating the Work, and for protecting, patching, repairing and cleaning as required to satisfactorily perform the Work.

Each Contractor shall be responsible for all cutting, digging and other action of his Subcontractors and workmen. Where such action impairs the safety or function of any structure or component of the Project, the Contractor shall make such repairs, alterations and additions as will, in the opinion of the Engineer, bring said structure or component back to its original design condition at no additional cost to the Owner.

Each Contractor and Subcontractor is expected to be familiar with the General Conditions and all sections of the Specifications for all other trades and to study all Drawings to the end that complete coordination between trades will be affected. The Contractor shall consult with the Engineer if conflicts exist on the Drawings and in the Specifications.

Special attention shall be given to points where ducts or piping must cross other ducts or piping, where lighting fixtures must be recessed in ceilings and where ducts, piping and conduits must fur into walls and columns. It shall be the responsibility of such Contractor to leave the necessary room for other trades.

No extra compensation will be allowed to cover the cost of removing piping, conduit, ducts, etc., or equipment found encroaching on space required by others.

- END OF SECTION -

SECTION 01045
CUTTING AND PATCHING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Cutting (including excavation), fitting or patching of work required to:
 - 1. Install specified work in existing construction.
 - 2. Remove and replace work not conforming to requirements of Contract Documents.
 - 3. Remove and replace defective work.
 - 4. Uncover work to provide for installation of mis-scheduled work.
- B. Upon written instructions of the Engineer, in addition to contract requirements, to:
 - 1. Remove work to provide for alteration of existing work.
 - 2. Uncover work to provide for Engineer's observation of covered work.

1.02 RELATED WORK

- A. Section 01010 - Summary of Work.

1.03 SUBMITTALS

- A. Prior to cutting which affects structural safety of Project, submit written notice to the Engineer, requesting consent to proceed with cutting, including:
 - 1. Identification of Project.
 - 2. Description of affected work.
 - 3. Necessity for cutting.
 - 4. Effect on structural integrity of Project.
 - 5. Description of proposed work. Designate:
 - a. Scope of cutting and patching.
 - b. Trades to execute work.
 - c. Products proposed to be used.
 - d. Extent of refinishing.

6. Alternatives to cutting and patching.

B. Should conditions of work, or schedule, indicate change of materials or methods, submit written recommendation to the Engineer, including:

1. Conditions indicating change.
2. Recommendations for alternative materials or methods.
3. Submittals as required for substitutions.

C. Submit written notice to the Engineer, designating time work will be uncovered, to provide for observation.

PART 2 - PRODUCTS

2.01 MATERIALS

For replacement of work removed: Comply with Specifications for type of work to be done.

PART 3 - EXECUTION

3.01 INSPECTION

Inspect existing conditions of work, including elements subject to movement or damage during:

- A. Cutting and patching.
- B. Excavation and backfilling.

3.02 PREPARATION

Prior to cutting:

- A. Provide shoring, bracing and support as required to maintain structural integrity of Project.
- B. Provide protection for other portions of the Project.
- C. Provide protection from elements.

3.03 PERFORMANCE

A. Do not endanger any existing work by cutting or altering that work or any part of it without approval of the Engineer.

B. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances and finishes.

C. Execute cutting and demolition by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs and new work.

D. Execute excavating and backfilling by methods which will prevent damage to other work, and will prevent settlement.

E. Restore work which has been cut or removed; install new products to provide completed work in accordance with requirements of Contract Documents.

F. Refinish entire surfaces as necessary to provide an even finish.

1. Continuous Surfaces: To nearest intersections.

2. Assembly: Entire refinishing.

- END OF SECTION -

SECTION 01070

PERMITS

PART 1 - GENERAL

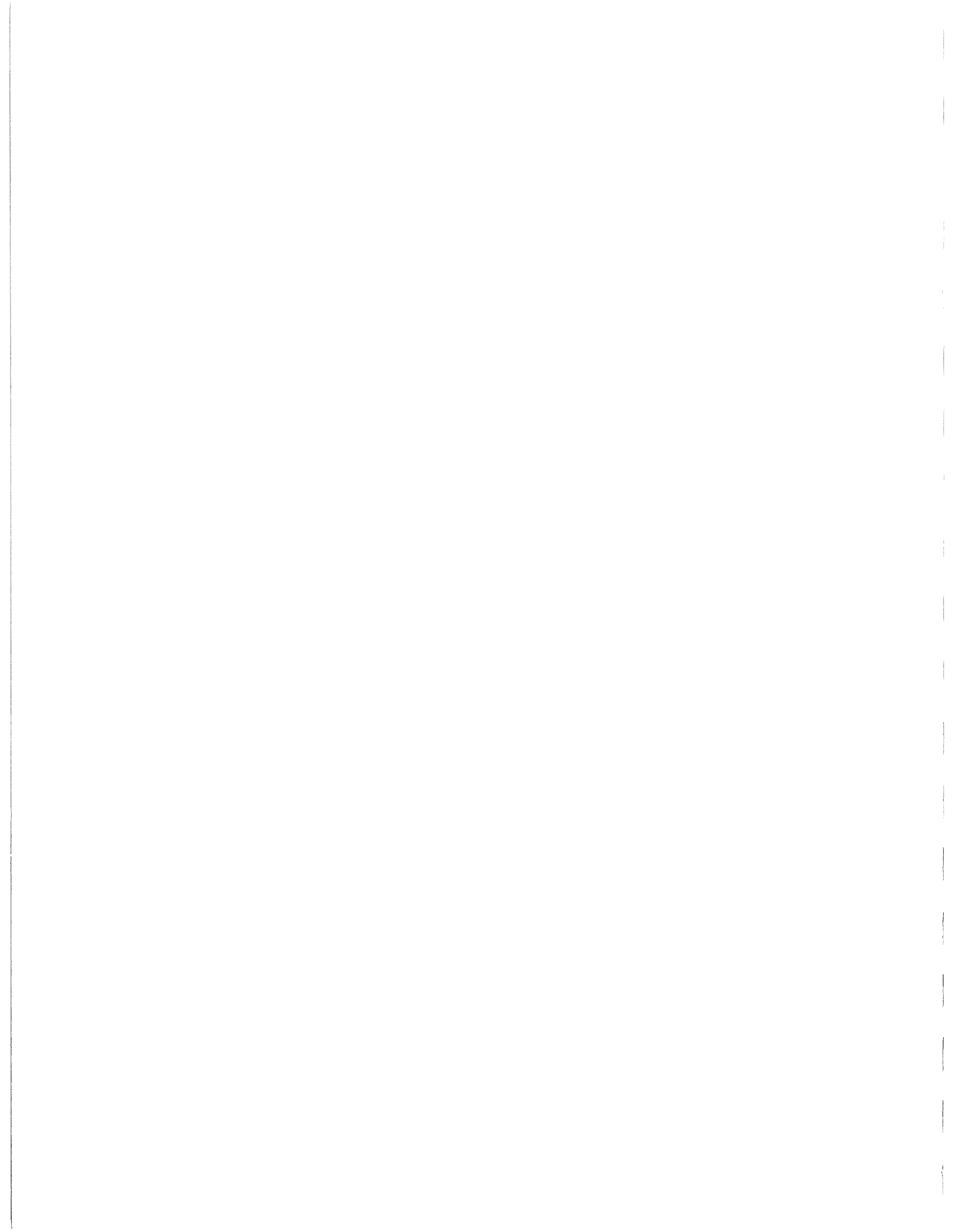
1.01 CONTRACT SCOPE

The attached permits were obtained by the Owner for the Work under this Contract. The Contractor shall be responsible for obtaining any other permits specified under The General Conditions of the Contract. The attached permits include:

Kentucky Division of Water permit No. – APE20050012

Kentucky Department of Highways - KY 20 - 06-0333-05

- KY 338 – 06-0335-05





ERNIE FLETCHER
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

DEPARTMENT FOR ENVIRONMENTAL PROTECTION

DIVISION OF WATER

14 REILLY ROAD

FRANKFORT, KENTUCKY 40601-1190

www.kentucky.gov

June 20, 2005

LAJUANA S. WILCHER
SECRETARY

*PAJ
06/22/05*

Mr. Keith Feldhaus, Project Coordinator
Boone Co Water District
2475 Burlington Pike
Burlington, KY 41005-0018


RE: Boone Co Water District, PWS--33787
DW #0080034-05-012
Fiscal Court Phase II 2A-D WLE
Activity ID # APE20050012
Boone County, KY

Dear Mr. Feldhaus:

We have reviewed the plans and specifications for the above referenced project. The plans include the construction of approximately 48,933 feet of 8-inch and 21,500 feet of 12-inch DI water line. This is to advise that plans and specifications for the above referenced project are APPROVED with respect to sanitary features of design, as of this date with the requirements contained in the enclosed waterline extension construction permit.

If you have any questions regarding this decision, please contact Sarah Tucker at 502/564-2225, extension 482.

Sincerely,

for 
Donna Marlin, Branch Manager
Drinking Water Branch
Division of Water

DSM: SAT

C: Tetra Tech, Inc. ✓
Boone County H.D.
Public Service Commission
Division of Plumbing



Distribution-Major Construction

Boone Co Water District
Subject Item Inventory

Activity ID No.: APE20050012

Subject Item Inventory:

ID	Designation	Description
AIOO33787		
PORT46	Water Line	21,500 feet of 12-inch & 48,933 feet of 8-inch DI

Subject Item Groups:

ID	Description	Components
GACT44	21,500 feet of 12-inch & 48,933 feet of 8-inch DI	PORT46 21,500 feet of 12-inch & 48,933 feet of 8-inch DI

KEY

ACTV = Activity

AREA = Area

EQPT = Equipment

PERS = Personnel

STOR = Storage

TRMT = Treatment

AIOO = Agency Interest

COMB = Combustion

MNPT = Monitoring Point

PORT = Transport

STRC = Structure

Distribution-Major Construction

Boone Co Water District

Facility Requirements

Activity ID No.: APE20050012

GACT44 (Fiscal Court-PhII 2A-D) 21,500 feet of 12-inch & 48,933 feet of 8-inch DI:

Monitoring Requirements:

Condition No.	Parameter	Condition
M-1	Coliform	The presence or absence of total Coliform monitored by sampling and analysis as needed shall be determined for the new or relocated water line(s). Take samples at connection points to existing lines, at 1 mile intervals, and at dead ends without omitting any branch of the new or relocated water line. Sample bottles shall be clearly identified as "special" construction tests. [401 KAR 8:100 Section 1(7), 401 KAR 8:150 Section 4, Recommended Standards for Water Works 8.5.6] This requirement is applicable during the following months: All Year. Statistical basis: Instantaneous determination.

Submittal/Action Requirements:

Coliform:

Condition No.	Condition
S-1	Coliform For new construction projects, the distribution system, using the most expedient method, shall submit Coliform test results to the Cabinet: Due immediately following disinfection and flushing. [401 KAR 8:150 Section 4(2)]

Condition No.	Condition
S-2	For proposed changes to the approved plan, submit information: Due prior to any modification to the Cabinet for approval. Changes to the approved plan shall not be implemented without the prior written approval of the Cabinet. [401 KAR 8:100 Section 1(8)]
S-3	The person who presented the plans shall submit the professional engineer's certification: Due when construction is complete to the Division of Water. The certification shall be signed by a registered professional engineer and state that the water project has been constructed and tested in accordance with the approved plans, specifications, and requirements. [401 KAR 8:100 Section 1(8)]

Distribution-Major Construction

Boone Co Water District

Facility Requirements

Activity ID No.: APE20050012

Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-1	Additional Limitations: Chlorinated water resulting from disinfection of project components shall be disposed in a manner which will not violate 401 KAR 5:031. [401 KAR 8:020 Section 2(20)]
T-2	This project has been permitted under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the applicant from the responsibility of obtaining any other approvals, permits or licenses required by this Cabinet and other state, federal and local agencies. Further, this permit does not address the authority of the permittee to provide service to the area to be served. [401 KAR 8:100 Section 1(7)]
T-3	Unless construction of this project is begun within 1 year from the issuance date of this permit, the permit shall expire. If requested prior to the permit expiration, an official extension from the Division of Water may be granted. If this permit expires, the original plans and specifications may be resubmitted for a new comprehensive review. If you have any questions concerning this project, please contact the Drinking Water Branch at 502/564-3410. [401 KAR 8:100 Section 1(9)]
T-4	During construction, a set of approved plans and specification shall be available at the job site at all times. All work shall be performed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 1(7)(a)]

Distribution-Major Construction

Boone Co Water District
Facility Requirements

Activity ID No.: APE20050012

Page 3 of 6

PORT46 (Water Line) 21,500 feet of 12-inch & 48,933 feet of 8-inch DI:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Depth	A continuous and uniform bedding shall be provided in the trench for all buried pipe. Backfill material shall be tamped in layers around the pipe and to a sufficient height above the pipe to adequately support and protect the pipe. Stones found in the trench shall be removed for a Depth ≥ 6 in below the bottom of the pipe. [Recommended Standards for Water Works 8.5.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.
L-2	Depth	All water lines shall be covered to a Depth ≥ 30 in to prevent freezing. [Recommended Standards for Water Works 8.5.3, 401 KAR 8:100 Section 1(7)] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-3	Diameter	All new and existing water lines serving fire hydrants or where fire protection is provided shall have Diameter ≥ 6 in. [Recommended Standards for Water Works 8.1.2] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-4	Distance	Water lines shall have a sufficient quantity of valves so that inconvenience and sanitary hazards will be minimized during repairs. A valve spacing Distance ≤ 1.0 mi should be utilized. [Recommended Standards for Water Works 8.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.
L-5	Distance	Hydrant drains shall not be connected to sanitary sewers or storm drains and shall be located a Distance > 10 ft from sanitary sewers and storm drains. [Recommended Standards for Water Works 8.3.4] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.
L-6	Distance	Except when not practical, water lines shall be laid a horizontal Distance ≥ 10 ft from any existing or proposed sewer. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot separation, water lines may be installed closer to a sewer provided that the water lines shall be laid in a separate trench or on an undisturbed shelf located on one side of the sewer at such an elevation that the bottom of the water line is at least 18 inches above the top of the sewer. [Recommended Standards for Water Works 8.6.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.

Distribution-Major Construction

Boone Co Water District
Facility Requirements

Activity ID No.: APE20050012

Page 4 of 6

Limitation Requirements:

Condition No.	Parameter	Condition
L-7	Distance	<p>When water lines and sewers cross,</p> <ol style="list-style-type: none">1) water lines shall be laid such that either<ol style="list-style-type: none">a) the the top of the water line is a vertical Distance ≥ 18 in below the bottom of the sewer line orb) the bottom of the water line is a vertical Distance ≥ 18 in above the top of the sewer line,2) 1 full length of the water pipe shall be located so that both joints of the water pipe will be as far from the sewer as possible, and3) special structural support for the water and sewer pipes may be required. [Recommended Standards for Water Works 8.6.3] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.
L-8	Distance	<p>The open end of an air relief pipe from automatic valves shall be extended a Distance ≥ 1.0 ft above grade and provided with a screened, downward-facing elbow. The pipe from a manually operated valve shall be extended to the top of the pit. Use of manual air relief valves is recommended wherever possible. [Recommended Standards for Water Works 8.4.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.</p>
L-9	Pressure	<p>Pipes shall not be installed unless all points of the distribution system remain designed for ground level Pressure ≥ 20 psi under all conditions of flow. [Recommended Standards for Water Works 8.1.1] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.</p>
L-10	Pressure	<p>Pressure ≥ 30 psi must be available on the discharge side of all meters. [401 KAR 8:100 Section 4(2)] This requirement is applicable during the following months: All Year. Statistical basis: Instantaneous determination.</p>
L-11	Residual Disinfection	<p>New or relocated water lines shall be thoroughly disinfected (in accordance with AWWA Standard C651) upon completion of construction and before being placed into service. To disinfect the new or relocated lines use chlorine or chlorine compounds in such amounts as to produce an initial disinfectant concentration of at least 50 ppm and a Residual Disinfection ≥ 25 ppm at the end of 24 hours. Follow the line disinfection with thorough flushing and place the lines into service if, and only if, Coliform monitoring applicable to the line does not show the presence of Coliform.</p> <p>If Coliform is detected, repeat flushing of the line and Coliform monitoring. If Coliform is still detected, repeat disinfection and flushing as if the line has never been disinfected. Continue the described process until monitoring does not show the presence of Coliform. [401 KAR 8:150 Section 4(1), Recommended Standards for Water Works 8.5.6] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.</p>
L-12	Velocity	<p>Each blow-off or fire hydrant shall be sized so that Velocity ≥ 2.5 ft/sec can be achieved in the water main served by the blow-off or hydrant during flushing. [Recommended Standards for Water Works 8.1.6.b, 401 KAR 8:100 Section 1(7)] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.</p>

Distribution-Major Construction

Boone Co Water District
Facility Requirements

Activity ID No.: APE20050012

Page 5 of 6

Monitoring Requirements:

Condition No.	Parameter	Condition
M-1	leaks	The presence or absence of leaks monitored by physical testing as needed shall be determined in all types of installed pipe. Pressure testing and leakage testing shall be in accordance with the latest edition of AWWA Standard C600. [Recommended Standards for Water Works 8.5.5] This requirement is applicable during the following months: All Year. Statistical basis: Instantaneous determination.

Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-1	Additional Limitations: Water line installation shall be in accordance with AWWA standards or manufacturer recommendations. [Recommended Standards for Water Works 8.5.1]
T-2	Additional Limitations: Pipes, fittings, valves and fire hydrants shall conform to the latest standards issued by the AWWA or NSF (if such standards exist). [Recommended Standards for Water Works 8.0.1]
T-3	Additional Limitations: At high points in water lines, where air can accumulate, provisions shall be made to remove the air by means of hydrants or air relief valves. Automatic air relief valves shall not be used in situations where manhole or chamber flooding may occur. [Recommended Standards for Water Works 8.4.1]
T-4	Additional Limitations: All tees, bends, plugs and hydrants shall be provided with reaction blocking, tie rods or joints designed to prevent movement. [Recommended Standards for Water Works 8.5.4]
T-5	Additional Limitations: A fire hydrant or blow-off shall be required at the end of each dead end line. [Recommended Standards for Water Works 8.1.6]
T-6	Additional Limitations: For each fire hydrant, auxiliary valves shall be installed in the hydrant lead pipe. [Recommended Standards for Water Works 8.3.3]

Distribution-Major Construction

Boone Co Water District
Facility Requirements

Activity ID No.: APE20050012

Page 6 of 6

Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-7	<p>Additional Limitations: No flushing device, blow-off, or air relief valve shall be directly connected to any sewer. Chambers, pits or manholes containing valves, blow-offs, meters, or other such appurtenances shall not be directly connected to any storm drain or sanitary sewer. Such chambers, pits or manholes shall be drained to absorptions pits underground or to the surface of the ground where they are not subject to flooding by surface water. [Recommended Standards for Water Works 8.1.6, Recommended Standards for Water Works 8.4.3]</p>
T-8	<p>Additional Limitations: If water lines are installed or replaced in areas of organic contamination or in areas within 200 ft of underground or petroleum storage tanks, ductile iron or other nonpermeable materials shall be used in all portions of the water line installation or replacement. [401 KAR 8:100 Section 1(5)(d)6, Recommended Standards for Water Works 8.0.2]</p>
T-9	<p>Additional Limitations: No water pipe shall pass through or come in contact with any part of a sewer manhole. [Recommended Standards for Water Works 8.6.6]</p>
T-10	<p>Additional Limitations: If a fire sprinkler system is to be installed, a double check detector assembly approved for backflow prevention shall be utilized. The double check detector assembly of the system shall be accessible for testing. [401 KAR 8:100 Section 1(7)]</p>



Tt File
Copy

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.kentucky.gov

Ernie Fletcher
Governor

Bill Nighbert
Acting Secretary

Jim Adams
Deputy Secretary

Marc Williams
Commissioner of Highways

May 12, 2005 **Dan Druen**
Commissioner of
Administrative Services

Paul Steely
Commissioner of Aviation

SUBJECT: Boone County, -8-20-8.842
KY 20 (PETERSBURG ROAD)
Permit Number 06-0333-05

Roy Mundy
Commissioner of
Vehicle Regulation

Dear BOONE COUNTY WATER DISTRICT:

Your application for an encroachment permit has been approved by the Department of Highways. We are returning two copies of the approved permit so one may be kept in your record files. The other copy must be given to the party responsible for completing the project and must be kept at the jobsite at all times.

Please see that the work is done in strict conformity with the permit and any other applicable conditions (See Form TC99-21 and any other attached documents, conditions or specifications). The work should be completed no later than July 1, 2006. When the permitted work and any necessary restoration have been completed please notify this office by using the attached form which will serve as notification for final inspection.

If there are any questions regarding this permit, please do not hesitate to contact Edmond C. Thompson at 859-341-2700 or fax number 859-341-6729.

Sincerely,

Tom Schomaker, P.E. for
Chief District Engineer
Department of Highways
District 6 -Covington
P.O. Box 17130
Covington, KY 41017

NOTICE OF COMPLETION OF ENCROACHMENT PERMIT WORK

Please return this form to the District Office when work is completed and ready for final inspection.

Applicant Identification

Name: BOONE COUNTY WATER DISTRICT

Contact Person:

Address: 2475 BURLINGTON PIKE

City: BURLINGTON

State: KY Zip: 41005

Telephone: 606-586-6155

Project Identification

Permit Number: 06-0333-05

County: Boone

Route Number: 20

Road Name: PETERSBURG ROAD

Milepoint: 8.842

I wish to notify the Department of Highways that the above mentioned permit work and any necessary right of way restoration have been completed and are ready for final inspection.

Applicant

Please Return To:

Department of Highways
District 6 Covington
P.O. Box 17130
Covington, Ky. 41017

Attention:

Edmond C. Thompson

KENTUCKY TRANSPORTATION CABINET
Department of Highways
Permits Branch

TC 99-1E
Rev. 10/01

Released Date _____

ENCROACHMENT PERMIT

PERMIT NO. 06-0333-05

APPLICANT IDENTIFICATION: NAME: <u>Boone Co. Water District</u> CONTACT PERSON: <u>Phil Trzop</u> ADDRESS: <u>2475 Burlington Pk</u> CITY: <u>Burlington</u> STATE: <u>Ky.</u> ZIP CODE: <u>41005</u> PHONE: area code <u>(659)</u> <u>586-6155</u>		PROJECT IDENTIFICATION: ACCESS CONTROL: <input checked="" type="checkbox"/> By Permit <input type="checkbox"/> Partial <input type="checkbox"/> Full COUNTY: <u>Boone</u> PRIORITY ROUTE NO: <u>Ky 20</u> MILEPOINT: <u>*</u> <input type="checkbox"/> Left <input type="checkbox"/> Right <input checked="" type="checkbox"/> X-ing PROJECT STATUS: <input checked="" type="checkbox"/> Maint. <input type="checkbox"/> Const. <input type="checkbox"/> Design PROJECT # STATE: <u>MP-008-0020</u> PROJECT # FEDERAL: _____ ROAD/STREET NAME: <u>Ky 20 - PETERSBURG Rd.</u>	
--	--	--	--

TYPE OF ENCROACHMENT:

COMMERCIAL ENTRANCE - BUSINESS _____

PRIVATE ENTRANCE: Single Family Farm

UTILITY: Overhead Underground

GRADE: Fill Landscape on R/W

AIRSPACE: Agreement Lease

OTHER: (Specify) _____

ATTACHMENTS: CONTRACT 26

Standard Drawings (List on TC 99-21 under Misc.)

Applicant's Plans

Highway Plan and Profile Sheets

TC 99-3 (Ponding Encroachment Specs. and Conditions)

TC 99-4 (Rest Area Usage Specs. and Conditions)

TC 99-5 (Tree Cutting/Trimming Specs. and Conditions)

TC 99-6 (Chemical Use of Specs. and Conditions)

TC 99-10 (Typical Highway Boring Crossing Detail)

TC 99-12 (Overhead Utility Encroachment Diagram)

TC 99-13 (Surface Restoration Methods)

TC 99-21 (Encroachment Permit General Notes and Specs.)

TC 99-22 (Agreement for Services to be Performed)

TC 99-23 (Mass Transit Shelter Specs. and Conditions)

Other Attachments (Specify): _____

TYPE OF INDEMNITY: Bond Cash

SELF-INSURED AMOUNT ENCUMBERED \$ 25,000

OTHER _____

NAME AND ADDRESS OF LOCAL INSURANCE AGENCY OR SELF-INSURED REPRESENTATIVE: _____

APPROVED
MAY 12 2005

IDEMNITY: The applicant, in order to secure this obligation, has deposited with the Transportation Cabinet as a guarantee of conformance with the Department's Encroachment Permit requirements, an indemnity in the amount of \$ _____ as determined by the as determined by the Department. It shall be the responsibility of the applicant or permittee, his heirs and assignees to keep all indemnities in full force until construction or reconstruction has been completed and duly accepted by an authorized agent of the Transportation Cabinet, Department of Highways.

BRIEF DESCRIPTION OF WORK TO BE DONE.

INSTALLATION of 8" water main edge of road + RIGHT of way. Along Ky 20 approximately 2 miles in length (from Iowling Rd W. on Ky 20) * M.P. 8.842-10.272

IMPORTANT (PLEASE READ): Applicant does does not intend to apply for excess R/W.

When the work is completed in accordance with the terms of this encroachment permit, your indemnity will be released. However, the permit is effective until revoked by the Transportation Cabinet and the terms on the permit accompanying permit documents and drawings remain in effect as long as the encroachment exists. **FUTURE MAINTENANCE OF THE ENCROACHMENT IS THE RESPONSIBILITY OF THE PERMITEE.** It is important that you understand the requirements of this encroachment permit application and accompanying documents. If you have not done so, it is suggested that you review these documents and place the permit package in a safe place for future reference.

A copy of this permit and all documents shall be given to your contractor and shall be readily available at the work site for the encroachment permit inspector to review at all times. Failure to meet this requirement may result in cancellation of this permit.

IN THE EVENT THIS APPLICATION IS APPROVED, THIS DOCUMENT SHALL CONSTITUTE A PERMIT FOR THE APPLICANT TO USE THE RIGHT-OF-WAY, BUT ONLY IN THE MANNER AUTHORIZED BY THIS DOCUMENT AND REGULATIONS OF THE DEPARTMENT AND THE DRAWINGS, PLANS, ATTACHMENTS, AND OTHER PERTINENT DATA ATTACHED HERETO AND MADE A PART HEREOF.

Permit No. 06-0333-08

The permittee agrees to the following terms and conditions:

1. The permittee shall comply with and is bound by the requirements of the Department's Permits Manual as revised to and in effect on the date of the issuance of this permit which is made a part hereof by reference.
2. Permittee agrees that if the Department determines that vehicular capacity deficiencies or over capacity conditions develop as a result of the installation and use of this facility, the permittee shall adjust, relocate, or reconstruct the facilities and/or provide and bear the expenses for signs, auxiliary lanes, or other corrective measures reasonably deemed necessary by the Department and as set forth in the Department's Permit Manual within a reasonable length of time after receipt of written notice regarding such adjustments, relocation, additions, modifications, and/or corrective measures, such time to be specified in the notice. In cases where traffic signals are permitted or required, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee and/or the Department in accordance with Department policy then in force as set forth in the Traffic Manual. Any modifications to the permittee's entrance necessary to accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee, at no expense to the Department. (This applies only to Entrance Permits.)
3. The said encroachment will not infringe on the frontage rights of an abutting owner without written consent of the said owner as hereto: "(we) consent to the granting of attached permit." _____
Date _____ (This does not apply to utilities which serve the general public.)
4. Any permit granted hereunder shall be with the full understanding that it shall not interfere with any similar rights or permits heretofore granted to any other party except as otherwise provided by law.
5. A plan prepared by TETRA TECH, INC and dated MAY 2005 is attached hereto and made a part hereof, which describes the facilities to be constructed by the permittee for which facilities this permit is granted. The permittee agrees as a condition to the issuance of the permit to construct and maintain such facilities in accordance with said plan, and the permittee shall not use the facilities authorized herein in any manner contrary to that prescribed by this permit and plan. Normal usage and routine maintenance only are authorized under this permit.
6. Permittee shall comply with the Manual on Uniform Traffic Control Devices as revised to and in effect on the date of the issuance of this permit which is made a part hereof by reference.
7. Permittee shall at all times from date when work is first commenced and until such time as all facilities are removed from the right-of-way premise, defend, protect, and save harmless the Department from all liability, claims, and demands arising out of work undertaken by the permittee pursuant to this permit, due to any negligent act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party or operate to enlarge any liability of the Department beyond that existing at common law if this right to indemnity did not exist.
8. Upon a violation of any of the provisions of this permit, the Department may revoke the permit by giving notice to the permittee in writing to remove from the right-of-way any facilities placed thereon within a reasonable time as set forth in the notice, and in the event said facilities are not so removed, and the right-of-way restored the Department may cause same to be removed, and the costs thereof shall be charged to the permittee.
9. The permittee, his successors and assigns shall use the encroachment premises in compliance with all Federal requirements imposed pursuant to the provisions of the Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000-1) and regulations of the U.S. Department of Transportation as set forth in Title 49 C.F.R., Part 21, and as said regulations may be amended.
10. Permittee agrees that in the event it should become necessary, as may be reasonably determined by the Department, for the facilities covered by this permit to be removed or relocated in connection with the reconstruction, relocation, or improvement of the abutting highway, the Department may revoke this permit and require removal or relocation by the permittee at his own expense according and pursuant to the procedures provided in Paragraph 8 above except in those cases where the Department is required by law to pay any or all the same.
11. The permittee understands and agrees that this permit is personal to the permittee and shall not inure to his successors and assigns without the written approval of the Department that he is bound by the provisions of this permit as long as the encroachment exists unless a written release has been obtained from the Department. (Does not apply to utilities serving the general public.)
12. If the work authorized by this permit is on a project in the construction phase, it shall be the responsibility of the permittee to make personal contact with _____ Resident Engineer on the project to coordinate the permitted work with the State's prime contractor on the project.
13. This permit does not alleviate any requirements of any other government agency.
14. Permittee agrees to keep the priority route in which this permit was issued clear of dirt, mud, and debris during construction and for the life of this permit.

ANY ATTEMPT TO ALTER THIS FORM CONSTITUTES A VOID PERMIT.

THE UNDERSIGNED APPLICANT (being duly authorized representative/owner) DOES AGREE TO ALL TERMS AND CONDITIONS SET FORTH HEREIN.

January 1st, 20 July 1st, 2006 5/06/2005 _____
 Completion Date Date Signature

RECOMMENDED FOR APPROVAL MKB
 _____ E. O. C. W. F. Madden 5/12/05
 Title Signature Chief District Engineer Date

PRIVATE ENTRANCE: TO BE COMPLETED BY PERSONNEL INSTALLING FACILITY.
 Installed By: _____
 Title Signature Date

ANY ATTEMPT TO ALTER THIS FORM CONSTITUTES A VOID PERMIT.

PERMIT NO. 06-0333-05

ENCROACHMENT PERMIT GENERAL NOTES & SPECIFICATIONS

I. SAFETY

A. General Requirements

- All signs and control of traffic shall be in accordance with the Manual on Uniform Traffic Control Devices for Streets and Highways, latest edition, Part VI, and safety requirements shall comply with the Permits Manual.
- All work necessary in shoulder or ditchline areas of a state highway is to be scheduled to be promptly completed so that hazards adjacent to the traveled-way are kept to an absolute minimum.
- No more than one (1) traveled-lane is to be blocked or obstructed during normal working hours. All signs and flagmen during lane closure shall conform to the Manual on Uniform Traffic Control Devices.
- When it is necessary to block one (1) traveled-lane of a state highway, the normal working hours shall be as directed by the Department. No lanes are to be blocked or obstructed during adverse weather conditions (i.e., rain, snow, fog, etc.) without specific permission from the Department. Working hours shall be between 8:00 am and 4:30 pm.
- The traveled-way and shoulders shall be kept clear of mud and other construction debris at all times during construction of the permitted facility.
- No nonconstruction equipment or vehicles or office trailers will be allowed on the right-of-way during working hours.
- The right-of-way shall be left free and clear of equipment, material, and vehicles during non-working hours.

B. Explosives

- No explosive devices or explosive material shall be used within state right-of-way without proper license and approval of Kentucky Department of Mines and Minerals, Explosive Division.

C. Other Safety Requirements

-

II. UTILITIES

- *All work necessary within the right-of-way shall be behind a temporary fence erected prior to a boring operation.
- *The temporary woven wire fence shall be removed immediately upon completion of work on the right-of-way and control of access immediately restored to original condition, in accordance with applicable Kentucky Department of Highways Standard Drawings.
- *All vents, valves, manholes, etc. are to be located outside the right-of-way.
- *Encasement pipe shall extend from right-of-way line to right-of-way line and shall be one continuous run of pipe. The encasement pipe shall be welded at all joints.
- The boring pit and tail ditch shall extend past the existing toe of slope or bottom of ditch line and shall be a minimum of ⁴²30" deep.
- Encasement pipe shall conform to current standards for highway crossings in accordance with the Permits Manual.
- Parallel lines shall be constructed between back slope of ditch line and right-of-way line and shall have a minimum of 36 " cover above top of pipe or conduit. (³⁶30" preferred)
- All pavement cuts shall be restored per Kentucky Transportation Cabinet Form No. TC 99-13.
- Aerial crossing of this utility line shall have a minimum clearance of _____ feet from the high point of the roadway to the low point of the line (calculated at the coefficient for expansion of 120 degrees Fahrenheit).
- The 30' clear zone requirement will be met to the extent possible in accordance with Chapter 99-02.0313 of the Permits Manual.
- Special Requirements:
Any location where the proposed waterline is placed within 3 feet from the edge of the pavement the Dept. will require flowable fill as backfill material.

*Applies to Fully Controlled Access Highways ONLY

III. GENERAL

A. OSHA

Kentucky Occupational Safety and Health Standards for the construction industry which has the effect of law states in part: (Page 52 1926.651 Specific Excavation Requirements) "Prior to opening an excavation, effort shall be made to determine whether underground installations: i.e., sewer, telephone, water, fuel, electric lines, etc., will be encountered, and if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation."

B. Archaeological

Whenever materials of an archaeological nature are discovered during the course of construction work or maintenance operations, contact shall be made immediately with the Division of Environmental Analysis which maintains an archaeologist on its staff, or with the Office of the State Archaeologist located at the University of Kentucky. Following this consultation, further action shall be decided on a case-by-case basis by the State Highway Engineer or the Transportation Planning Engineer or their designated representative.

C. Utilities in the Work Areas

The permittee is to be responsible for any damage to existing utilities and any utility modifications or relocations within State right-of-way necessary, as determined by the Department or by the owner of the utility, are to be at the expense of the permittee and subject to the approval of the Department.

All existing manholes and valve boxes are to be adjusted to be flush with finished grade.

IV. RIGHT-OF-WAY RESTORATION

All disturbed portions of the right-of-way are to be restored to grass as per Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition). A satisfactory turf, as determined by the Department, is to be established by the permittee prior to release of indemnity. Sodding or seeding as follows:

Lawn or High Maintenance Situation

-70% Lawn Fescue (e.g., variety - Falcon)

-30% Bluegrass or

70% Lawn Rye (e.g., variety - Derby)

30% Bluegrass

Right-off-Way Lawn Maintenance Situation

-70% KY 31 Fescue

-30% Perennial Rye Grass or

100% KY Fescue

Two tons clean straw mulch per acre of seeding.

Prior to seeding, the ground must be prepared in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

Substitutes for sod such as artificial turf or rocked mulch or paved areas may be acceptable if they are aesthetically pleasing.

All ditch flow lines and all ditch side slopes are to be sodded.

Existing concrete right-of-way markers are not to be disturbed, but if damaged in any way, they are to be entirely replaced by the permittee with new concrete markers to match the original markers, in accordance with Kentucky Department of Highways Standard Drawings. Markers which are entirely removed are to be re-established in the proper locations by the permittee and to the satisfaction of the Department.

Other right-of-way restoration requirements are as follows:

V. DRAINAGE

All pipe is to be laid in a straight alignment, to proper grades, and with all materials and methods of installation including bedding and joint seating in accordance with Department Standard Specifications for Road and Bridge Construction, latest edition. Pipe is not to be covered until inspected by the Department and express permission obtained to make backfill.

All gutter lines at the base of new curbs are to be on continuous grades, and pockets of water along curbs, or in entrance areas or other paved areas within the right-of-way, are not acceptable.

All drainage structures and appurtenances (manholes, catch basins, curbing, inlet basins, etc.) shall conform to Department specifications and shall be constructed in accordance with the Department Standard Drawings. Type required:

VI. PAVING

- No bituminous pavement is to be installed within the right-of-way between November 15 and April 1, nor when the temperature is below 40°F, without the express consent of the Department. No bituminous pavement is to be installed when the underlying course is wet.
- Paving within the right-of-way shall be as follows:
 - Base (Type) Flowable Fill (Thickness) VARIOUS
 - Surface Base (Type) Bit. Base (Thickness) MATCH EXISTING
 - Finished Surface (Type) Bit. Surface (Thickness) 1 1/2
- Existing pavement and shoulder material shall be removed to accommodate the above paving specifications.
- The finished surface of all new pavement within the right-of-way shall be true to the required slope and grade, uniform in density and texture, free of irregularities, and equivalent in riding qualities to the adjacent highway pavement or as determined by the Department of Highways.
- All materials and methods of construction, including base and subgrade preparation, shall be in accordance with Kentucky Department of Highways Specifications for Road and Bridge Construction, latest edition.
- 24 hours notice to the Department is required prior to beginning paving operations:
 - Phone: 341-2700 Name MARK BRUNNEN
- To insure proper surface drainage the new pavement is to be flush with the edge of existing highway pavement and is to slope away from the existing edge of the pavement as specified on drawings.
- Existing edge of pavement shall be saw cut to provide a straight and uniform joint for new pavement. An approved joint sealer, in accordance with Kentucky Department of Highways Standard Specifications (latest edition) shall be applied between new and existing pavement.

VII. SIDEWALKS SPECIFICATIONS

A. New Sidewalks

- Sidewalks are to be constructed of Class A concrete (3,500 p.s.i. test), are to be * _____ feet in width, are to be 6" in thickness across the bituminous entrance and 4" in thickness across the remaining sections.
 - Sidewalks are to have tooled joints, not less than 1" in depth at *four (4) foot intervals, and 1/2 preformed expansion joints extending entirely through the sidewalk at intervals not to exceed fifty (50) feet.
- * This dimension should be equal to the width of the sidewalk
- All materials and methods of construction, including curing, is to be in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, latest edition.

B. Existing Sidewalks

- (Applicable if existing sidewalks are being relocated) Use of the sidewalk is not to be blocked or obstructed, and a usable walkway is to be maintained across the construction area at all times.
- All damaged sections of the sidewalks are to be entirely replaced to match existing sections.

VIII. DENSE GRADED SHOULDERS

- Any existing dense graded aggregate shoulders in the entire frontage within the construction area, which have been disturbed, damaged, or on which dirt has been placed or mud is deposited or tracked, are to be restored to original condition by removal of all contaminated material and replaced to proper grade with new dense graded aggregate.
- All new aggregate shoulders as specified on the plan are to consist of 5" compacted dense graded aggregate 2 1/2 pounds per square yard calcium chloride.
- All dense graded aggregate shoulders are to slope away from the new edge of pavement at the rate of 3/4" per foot.

IX. CURBING

1. Bituminous Curbs

- Bituminous concrete curbs shall be given a paint coat of asphalt emulsion.
- The surface under the bituminous concrete curb shall be tacked with asphalt emulsion.
- All bituminous concrete curbs shall be constructed of a Class I bituminous concrete mixture as specified by official Department of Highways specifications.
- All bituminous curbs shall be of the rolled curb type with a minimum base width of 8" and a minimum height of _____ inches. The top of the curb shall be constructed in such a manner as to guarantee a uniform rolled effect throughout the entire run.

B. Concrete Curbs

- All curbs or curb and gutter are to be constructed of Class A concrete (3,500 p.s.i. test) and are to be uniform in height, width, and alignment, true to grade, and satisfactory in finish and appearance as determined by the Department. All materials and methods of construction, including curing, is to be in accordance with Department of Highways Standard Specifications for Road and Bridge Construction, latest edition.
- All concrete curbs are to be 6" in width, extend _____ " above finished grade and 12" below finished grade, with all visible edge rounded to 1/2" radii.
- All concrete curbs shall have expansion joints constructed at intervals of not more than 30 feet and 1/2" premolded expansion joint material (cut to conform to the curb or to the curb and gutter section) shall be used in each expansion joint.
- The last _____ feet of all concrete curbs are to be tapered down to finish grade.

X. RIGHT-OF-WAY FENCE REPLACEMENT

- The replacement fence shall be a height of at least 48" and shall be of sufficient density to contain all animals. (If applicable)
- The replacement fence shall be a minimum of one foot (1') and a maximum of two feet (2') outside the right-of-way line.
- The fence materials and design shall meet accepted industry standards and be treated as paintable.
- The permittee shall be required to maintain the fence in a high state of repair.
- The existing fence shall be removed by permittee and stored at Department's maintenance storage yard for future reuse by the Department.
- The control of access shall not be diminished as a result of replacement of the fence.
- Miscellaneous:

NOTICE TO PERMITTEE

THE PERMITTEE AGREES THAT ALL WORK WITHIN THE EXISTING RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH THE PLANS AS APPROVED AND PERMITTED BY AN ENCROACHMENT PERMIT, ANY CHANGES OR VARIANCES MADE AT THE TIME OF CONSTRUCTION WITHOUT WRITTEN APPROVAL FROM THE DEPARTMENT OF HIGHWAYS SHALL BE REMOVED BY THE PERMITTEE AT NO EXPENSE TO THE DEPARTMENT OF HIGHWAYS AND SHALL BE REDONE TO CONFORM WITH THE APPROVED PLANS.

Permit # 06-0333-05

KENTUCKY TRANSPORTATION CABINET

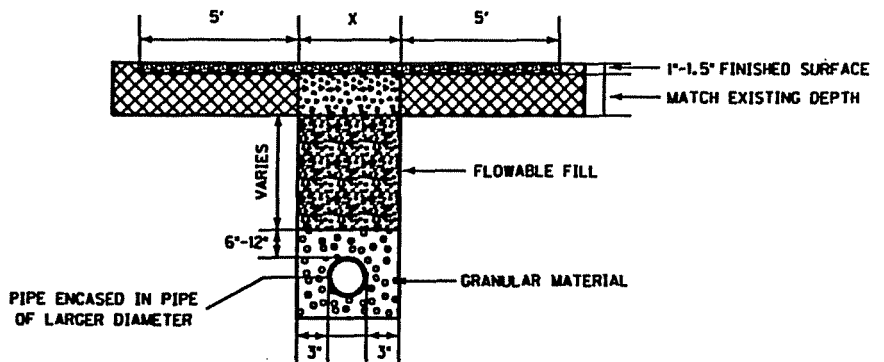
Department of Highways

Permits Branch

SURFACE RESTORATION METHODS

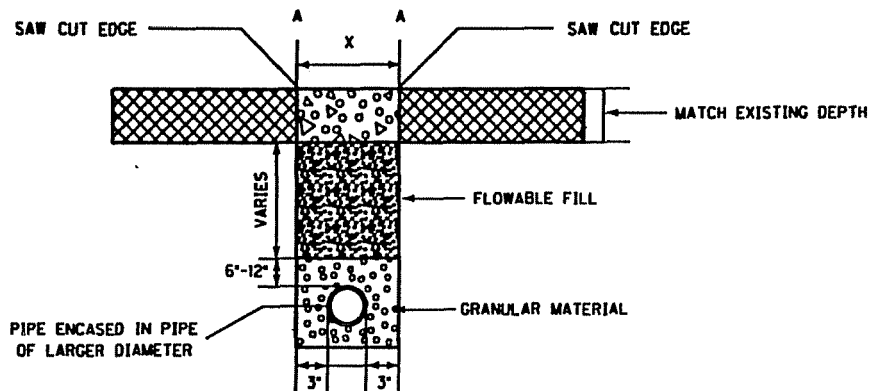
Bituminous Surfacing

- NOTES:
- SURFACE SHALL BE MILLED AND REPLACED 5 FEET PAST EDGE OF TRENCH.
 - SURFACE EDGE SHALL BE SAW CUT ON ALL REPAIRS.
 - AN APPROVED JOINT SEALER IS TO BE APPLIED BETWEEN NEW AND EXISTING PAVEMENT.



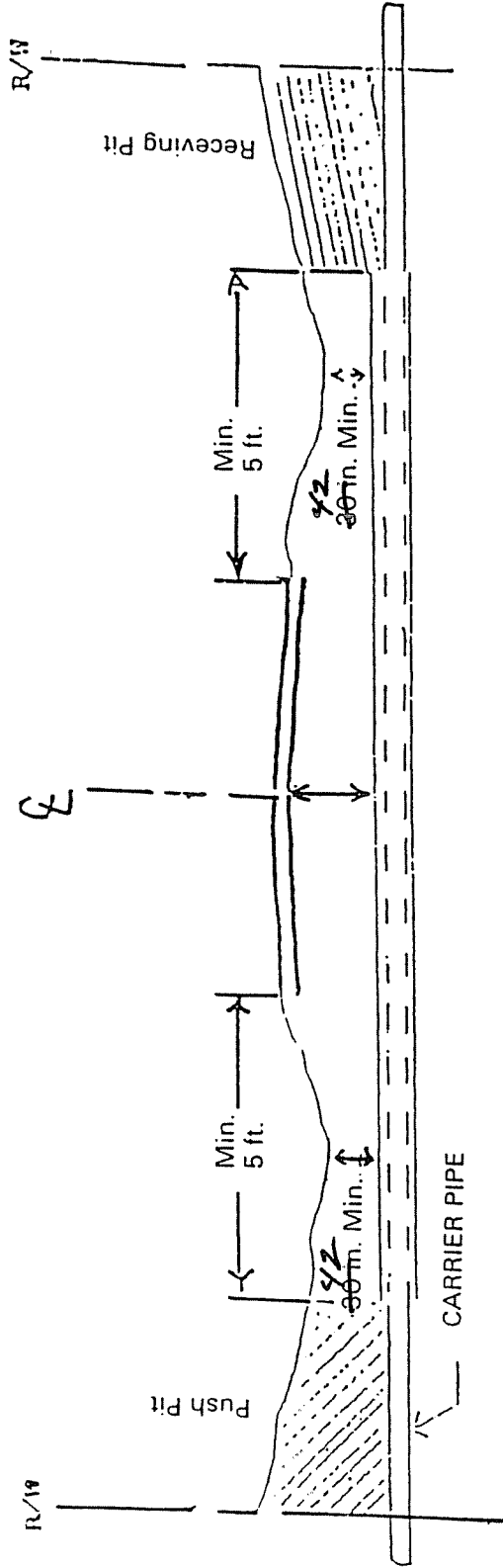
Concrete Pavement

- NOTES:
- ALL EDGES SHALL BE SAW CUT AND SEALED WITH APPROVED JOINT SEALER.
 - DISTANCE FROM POINTS "A" (CONCRETE PAVEMENT) TO NEAREST JOINT OR BREAK IN PAVEMENT MUST BE SIX (6) FEET OR MORE. IF LESS THAN SIX (6) FEET, REMOVE PAVEMENT TO JOINT OR BREAK AND REPLACE ENTIRE SLAB.



Permit No. 06-0333-05
Route No. Ky 20
Pavement Width 22'

TYPICAL HIGHWAY BORING CROSSING DETAIL

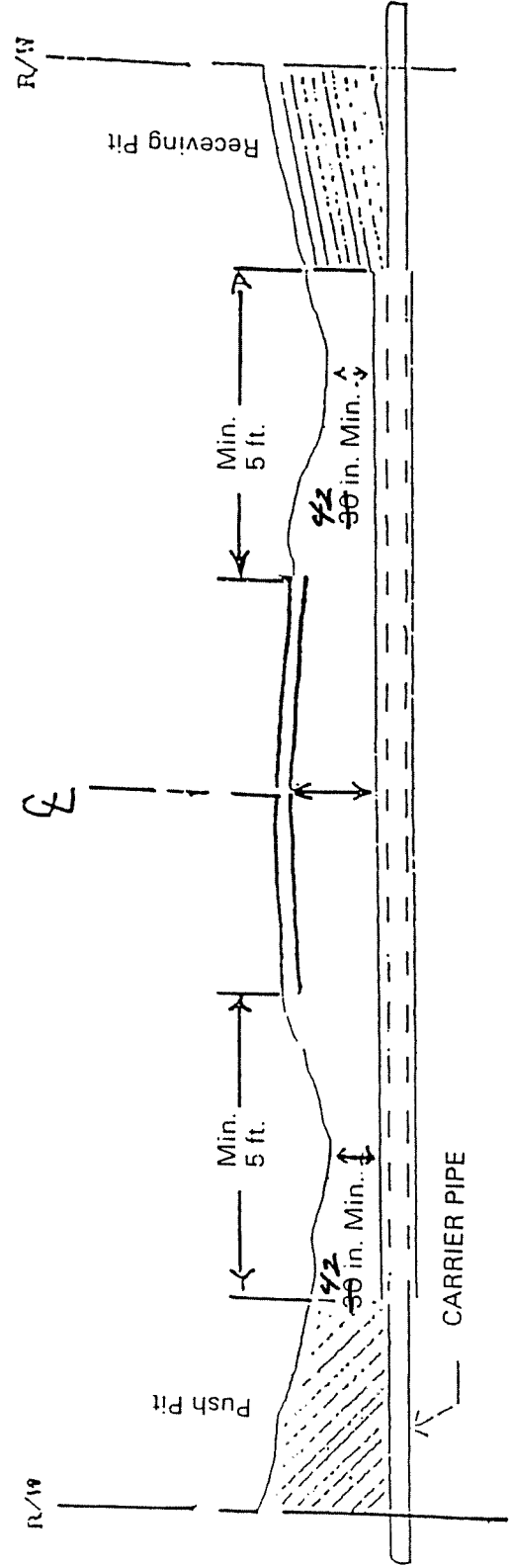


1. Push Pit and Receiving Pit to be backfilled and thoroughly compacted.
2. All Ditch Lines to be left open.
3. Seed and straw all areas disturbed by this work.

Services over 2" to be encased or exempt under Chapter 2 of the Permits Guidance Manual

TYPICAL HIGHWAY BORING CROSSING DETAIL

Permit No. 06-0335-05
 Route No. KY 338
 Pavement Width 22'



1. Push Pit and Receiving Pit to be backfilled and thoroughly compacted.
2. All Ditch Lines to be left open.
3. Seed and straw all areas disturbed by this work.

Services over 2" to be encased or exempt under Chapter 2 of the Permits Guidance Manual



TT FILE COPY

TRANSPORTATION CABINET

Frankfort, Kentucky 40622
www.kentucky.gov

Ernie Fletcher
Governor

Bill Nighbert
Acting Secretary

Jim Adams
Deputy Secretary

Marc Williams
Commissioner of Highways

May 13, 2005 **Dan Druen**
Commissioner of
Administrative Services

Paul Steely
Commissioner of Aviation

SUBJECT: Boone County, -8-338-20.775
KY 338 (ERNST BEND ROAD)
Permit Number 06-0335-05

Roy Mundy
Commissioner of
Vehicle Regulation

Dear BOONE COUNTY WATER DISTRICT:

Your application for an encroachment permit has been approved by the Department of Highways. We are returning two copies of the approved permit so one may be kept in your record files. The other copy must be given to the party responsible for completing the project and must be kept at the jobsite at all times.

Please see that the work is done in strict conformity with the permit and any other applicable conditions (See Form TC99-21 and any other attached documents, conditions or specifications). The work should be completed no later than July 1, 2006. When the permitted work and any necessary restoration have been completed please notify this office by using the attached form which will serve as notification for final inspection.

If there are any questions regarding this permit, please do not hesitate to contact Edmond C. Thompson at 859-341-2700 or fax number 859-341-6729.

Sincerely,

Tom Schomaker, P.E.
Chief District Engineer
Department of Highways
District 6 -Covington
P.O. Box 17130
Covington, KY 41017

NOTICE OF COMPLETION OF ENCROACHMENT PERMIT WORK

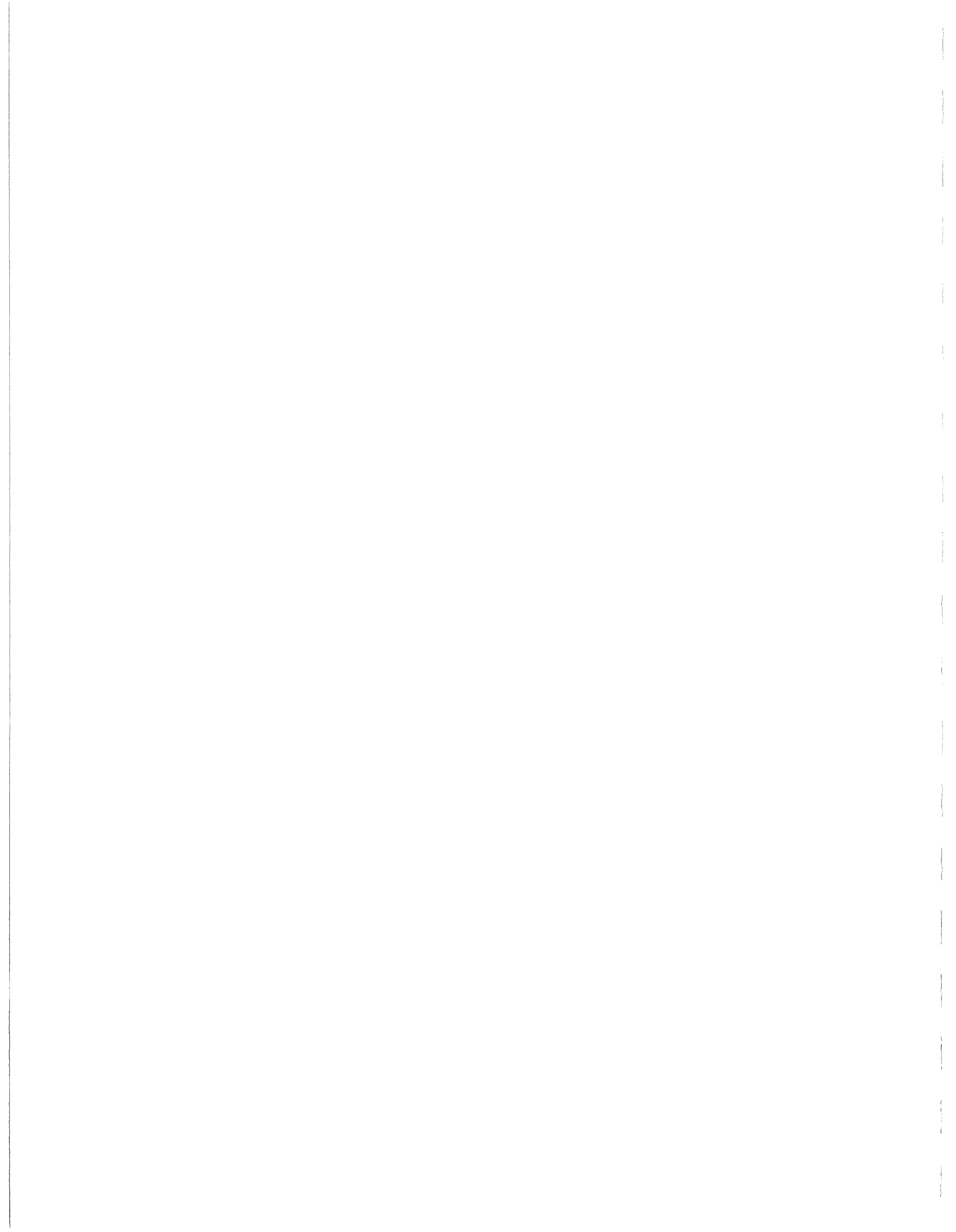
Please return this form to the District Office when work is completed and ready for final inspection.

Applicant Identification	Project Identification
Name: BOONE COUNTY WATER DISTRICT	Permit Number: 06-0335-05
Contact Person:	County: Boone
Address: 2475 BURLINGTON PIKE	Route Number: 338
City: BURLINGTON	Road Name: ERNST BEND ROAD
State: KY Zip: 41005	Milepoint: 20.775
Telephone: 606-586-6155	

I wish to notify the Department of Highways that the above mentioned permit work and any necessary right of way restoration have been completed and are ready for final inspection.

Applicant

Please Return To:	Department of Highways District 6 Covington P.O. Box 17130 Covington, Ky. 41017
Attention:	Edmond C. Thompson



KENTUCKY TRANSPORTATION CABINET
Department of Highways
Permits Branch

TC 99-1E
Rev. 10/01

Released Date _____

ENCROACHMENT PERMIT

PERMIT NO. 06-0335-05

APPLICANT IDENTIFICATION: NAME: <u>BOONE CO. WATER DISTRICT</u> CONTACT PERSON: <u>PHIL TRZOP</u> ADDRESS: <u>2475 BURLINGTON PK</u> CITY: <u>BURLINGTON</u> STATE: <u>Ky.</u> ZIP CODE: <u>41005</u> PHONE: area code (<u>859</u>) <u>586-6155</u>		PROJECT IDENTIFICATION: ACCESS CONTROL: <input checked="" type="checkbox"/> By Permit <input type="checkbox"/> Partial <input type="checkbox"/> Full COUNTY: <u>BOONE</u> PRIORITY ROUTE NO: <u>KY 338</u> MILEPOINT: <u>*</u> <input type="checkbox"/> Left <input type="checkbox"/> Right <input checked="" type="checkbox"/> X-ing PROJECT STATUS: <input checked="" type="checkbox"/> Maint. <input type="checkbox"/> Const. <input type="checkbox"/> Design PROJECT # STATE: <u>MP-008-0335-20.775</u> PROJECT # FEDERAL: _____ ROAD/STREET NAME: <u>KY 338 - EAST BEND RD</u>	
---	--	--	--

TYPE OF ENCROACHMENT:

COMMERCIAL ENTRANCE - BUSINESS

PRIVATE ENTRANCE: Single Family Farm

UTILITY: Overhead Underground

GRADE: Fill Landscape on R/W

AIRSPACE: Agreement Lease

OTHER: (Specify) _____

ATTACHMENTS: CONTRACT 2 B

Standard Drawings (List on TC 99-21 under Misc.)

Applicant's Plans

Highway Plan and Profile Sheets

TC 99-3 (Ponding Encroachment Specs. and Conditions)

TC 99-4 (Rest Area Usage Specs. and Conditions)

TC 99-5 (Tree Cutting/Trimming Specs. and Conditions)

TC 99-6 (Chemical Use of Specs. and Conditions)

TC 99-10 (Typical Highway Boring Crossing Detail)

TC 99-12 (Overhead Utility Encroachment Diagram)

TC 99-13 (Surface Restoration Methods)

TC 99-21 (Encroachment Permit General Notes and Specs.)

TC 99-22 (Agreement for Services to be Performed)

TC 99-23 (Mass Transit Shelter Specs. and Conditions)

Other Attachments (Specify): _____

TYPE OF INDEMNITY: Bond Cash

SELF-INSURED AMOUNT ENCUMBERED \$ 25,000

OTHER _____

NAME AND ADDRESS OF LOCAL INSURANCE AGENCY OR SELF-INSURED REPRESENTATIVE:

APPROVED

MAY 13 2005

IDEMNITY: The applicant, in order to secure this obligation, has deposited with the Transportation Cabinet as a guarantee of conformance with the Department's Encroachment Permit requirements, an indemnity in the amount of \$ _____ as determined by the as determined by the Department. It shall be the responsibility of the applicant or permittee, his heirs and assignees to keep all indemnities in full force until construction or reconstruction has been completed and duly accepted by an authorized agent of the Transportation Cabinet, Department of Highways.

BRIEF DESCRIPTION OF WORK TO BE DONE.

Installation of 12" WATER MAIN ALONG
EDGE of ROAD + right of way
EDGEWOOD RD to LOCUST GROVE ON KY 338
* M.P. - 20.775 - 24.700

IMPORTANT (PLEASE READ): Applicant does does not intend to apply for excess R/W.

When the work is completed in accordance with the terms of this encroachment permit, your indemnity will be released. However, the permit is effective until revoked by the Transportation Cabinet and the terms on the permit accompanying permit documents and drawings remain in effect as long as the encroachment exists. **FUTURE MAINTENANCE OF THE ENCROACHMENT IS THE RESPONSIBILITY OF THE PERMITEE.** It is important that you understand the requirements of this encroachment permit application and accompanying documents. If you have not done so, it is suggested that you review these documents and place the permit package in a safe place for future reference.

A copy of this permit and all documents shall be given to your contractor and shall be readily available at the work site for the encroachment permit inspector to review at all times. Failure to meet this requirement may result in cancellation of this permit.

IN THE EVENT THIS APPLICATION IS APPROVED, THIS DOCUMENT SHALL CONSTITUTE A PERMIT FOR THE APPLICANT TO USE THE RIGHT-OF-WAY, BUT ONLY IN THE MANNER AUTHORIZED BY THIS DOCUMENT AND REGULATIONS OF THE DEPARTMENT AND THE DRAWINGS, PLANS, ATTACHMENTS, AND OTHER PERTINENT DATA ATTACHED HERETO AND MADE A PART HEREOF.

ENCROACHMENT PERMIT GENERAL NOTES & SPECIFICATIONS

SAFETY

A. General Requirements

- All signs and control of traffic shall be in accordance with the Manual on Uniform Traffic Control Devices for Streets and Highways, latest edition, Part VI, and safety requirements shall comply with the Permits Manual.
- All work necessary in shoulder or ditchline areas of a state highway is to be scheduled to be promptly completed so that hazards adjacent to the traveled-way are kept to an absolute minimum.
- No more than one (1) traveled-lane is to be blocked or obstructed during normal working hours. All signs and flagmen during lane closure shall conform to the Manual on Uniform Traffic Control Devices.
- When it is necessary to block one (1) traveled-lane of a state highway, the normal working hours shall be as directed by the Department. No lanes are to be blocked or obstructed during adverse weather conditions (i.e., rain, snow, fog, etc.) without specific permission from the Department. Working hours shall be between 8:00 am and 4:30 pm.
- The traveled-way and shoulders shall be kept clear of mud and other construction debris at all times during construction of the permitted facility.
- No nonconstruction equipment or vehicles or office trailers will be allowed on the right-of-way during working hours.
- The right-of-way shall be left free and clear of equipment, material, and vehicles during non-working hours.

B. Explosives

- No explosive devices or explosive material shall be used within state right-of-way without proper license and approval of Kentucky Department of Mines and Minerals, Explosive Division.

C. Other Safety Requirements

UTILITIES

- *All work necessary within the right-of-way shall be behind a temporary fence erected prior to a boring operation.
- *The temporary woven wire fence shall be removed immediately upon completion of work on the right-of-way and control of access immediately restored to original condition, in accordance with applicable Kentucky Department of Highways Standard Drawings.
- *All vents, valves, manholes, etc. are to be located outside the right-of-way.
- *Encasement pipe shall extend from right-of-way line to right-of-way line and shall be one continuous run of pipe. The encasement pipe shall be welded at all joints.
- The boring pit and tail ditch shall extend past the existing toe of slope or bottom of ditch line and shall be a minimum of ⁴²~~30~~" deep.
- Encasement pipe shall conform to current standards for highway crossings in accordance with the Permits Manual.
- Parallel lines shall be constructed between back slope of ditch line and right-of-way line and shall have a minimum of 36" cover above top of pipe or conduit. (30" preferred)
- All pavement cuts shall be restored per Kentucky Transportation Cabinet Form No. TC 99-13.
- Aerial crossing of this utility line shall have a minimum clearance of _____ feet from the high point of the roadway to the low point of the line (calculated at the coefficient for expansion of 120 degrees Fahrenheit).
- The 30' clear zone requirement will be met to the extent possible in accordance with Chapter 99-02.0313 of the Permits Manual.
- Special Requirements:

where the waterline is placed within 3 feet from the edge of the pavement will require flowable fill as backfill material.
24 hour notice to the Dept is required prior to beginning the project.

*Applies to Fully Controlled Access Highways ONLY

III. GENERAL

A. OSHA

- Kentucky Occupational Safety and Health Standards for the construction industry which has the effect of law states in part (Page 52 1926.651 Specific Excavation Requirements) "Prior to opening an excavation, effort shall be made to determine whether underground installations: i.e., sewer, telephone, water, fuel, electric lines, etc., will be encountered, and if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation."

B. Archaeological

- Whenever materials of an archaeological nature are discovered during the course of construction work or maintenance operations, contact shall be made immediately with the Division of Environmental Analysis which maintains an archaeologist on its staff, or with the Office of the State Archaeologist located at the University of Kentucky. Following this consultation, further action shall be decided on a case-by-case basis by the State Highway Engineer or the Transportation Planning Engineer or their designated representative.

C. Utilities in the Work Areas

- The permittee is to be responsible for any damage to existing utilities and any utility modifications or relocations within State right-of-way necessary, as determined by the Department or by the owner of the utility, are to be at the expense of the permittee and subject to the approval of the Department.
- All existing manholes and valve boxes are to be adjusted to be flush with finished grade.

IV. RIGHT-OF-WAY RESTORATION

- All disturbed portions of the right-of-way are to be restored to grass as per Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition). A satisfactory turf, as determined by the Department, is to be established by the permittee prior to release of indemnity. Sodding or seeding as follows:

Lawn or High Maintenance Situation

- 70% Lawn Fescue (e.g., variety - Falcon)
- 30% Bluegrass or
- 70% Lawn Rye (e.g., variety - Derby)
- 30% Bluegrass

Right-off-Way Lawn Maintenance Situation

- 70% KY 31 Fescue
- 30% Perennial Rye Grass or
- 100% KY Fescue

- Two tons clean straw mulch per acre of seeding.
- Prior to seeding, the ground must be prepared in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).
- Substitutes for sod such as artificial turf or rocked mulch or paved areas may be acceptable if they are aesthetically pleasing.
- All ditch flow lines and all ditch side slopes are to be sodded.
- Existing concrete right-of-way markers are not to be disturbed, but if damaged in any way, they are to be entirely replaced by the permittee with new concrete markers to match the original markers, in accordance with Kentucky Department of Highways Standard Drawings. Markers which are entirely removed are to be re-established in the proper locations by the permittee and to the satisfaction of the Department.
- Other right-of-way restoration requirements are as follows:

V. DRAINAGE

- All pipe is to be laid in a straight alignment, to proper grades, and with all materials and methods of installation including bedding and joint seating in accordance with Department Standard Specifications for Road and Bridge Construction, latest edition. Pipe is not to be covered until inspected by the Department and express permission obtained to make backfill.
- All gutter lines at the base of new curbs are to be on continuous grades, and pockets of water along curbs, or in entrance areas or other paved areas within the right-of-way, are not acceptable.
- All drainage structures and appurtenances (manholes, catch basins, curbing, inlet basins, etc.) shall conform to Department specifications and shall be constructed in accordance with the Department Standard Drawings. Type required:

- END OF SECTION -

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 WORK INCLUDED

Shop drawings, descriptive literature, project data and samples (when samples are specifically requested) for all manufactured or fabricated items shall be submitted by the Contractor to the Engineer for examination and review in the form and in the manner required by the Engineer. All submittals shall be furnished in at least six (6) copies and shall be checked and reviewed by the Contractor before submission to the Engineer. The review of the Drawings by the Engineer shall not be construed as a complete check but only for conformance with the design concept of the Project and for compliance with information given in the Contract Documents. Review of such drawings will not relieve the Contractor of the responsibility for any errors which may exist as the Contractor shall be responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work. Construction photographs shall also be included as provided herein.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. General Conditions.
- B. Section 01310 - Construction Schedule
- C. Section 01720 - Project Record Documents (As-Builts).

1.03 DEFINITIONS

The term "submittals" shall mean shop drawings, manufacturer's drawings, catalog sheets, brochures, descriptive literature, diagrams, schedules, calculations, material lists, performance charts, test reports, office and field samples, and items of similar nature which are normally submitted for the Engineer's review for conformance with the design concept and compliance with the Contract Documents.

1.04 GENERAL CONDITIONS

A. Review by the Engineer of shop drawings or submittals of material and equipment shall not relieve the Contractor from the responsibilities of furnishing same of proper dimension, size, quality, quantity, materials and all performance characteristics to efficiently perform the requirements and intent of the Contract Documents. Review shall not relieve the Contractor from responsibility for errors of any kind on the shop drawings. Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents.

B. Review of shop drawings shall not be construed as releasing the Contractor from the responsibility of complying with the Specifications.

1.05 GENERAL REQUIREMENTS FOR SUBMITTALS

- A. Shop Drawings:

1. Shop drawings shall be prepared by a qualified detailer. Details shall be identified by reference to sheet and detail numbers shown on Contract Drawings. Where applicable, show fabrication, layout, setting and erection details.
2. Shop drawings are defined as original drawings prepared by the Contractor, subcontractors, suppliers, or distributors performing work under this Contract. Shop drawings illustrate some portion of the work and show fabrication, layout, setting or erection details of equipment, materials and components. The Contractor shall, except as otherwise noted, have prepared the number of reviewed copies required for his distribution plus four (4) which will be retained by the Engineer. Shop drawings shall be folded to an approximate size of 8-1/2" x 11" and in such manner that the title block will be located in the lower right hand corner of the exposed surface.

B. Project data shall include manufacturer's standard schematic drawings modified to delete information which is not applicable to the Project, and shall be supplemented to provide additional information applicable to the Project. Each copy of descriptive literature shall be clearly marked to identify pertinent information as it applies to the Project.

C. Where samples are required, they shall be adequate to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged. Provide sufficient size and quantity to clearly illustrate functional characteristics of product and material, with integrally related parts and attachment devices, along with a full range of color samples.

D. All submittals must be referenced to the applicable item and section number of the Specifications, and to the applicable Drawing(s) or Drawing schedule(s).

E. The Contractor shall review and check submittals, and shall indicate review by initials and date.

F. If the submittals deviate from the Contract Drawings and/or Specifications, the Contractor shall advise the Engineer, in letter of transmittal of the deviation and the reasons therefore. All changes shall be clearly marked on the submittal with a bold red mark. Any additional costs for modifications shall be borne by the Contractor.

G. In the event the Engineer does not specifically reject the use of material or equipment at variance to that which is shown on the Drawings or specified, the Contractor shall, at no additional expense to the Owner, and using methods reviewed by the Engineer, make any changes to structures, piping, controls, electrical work, mechanical work, etc., that may be necessary to accommodate this equipment or material. Should the Engineer accept equipment other than that on which design drawings are based, shop drawings shall be submitted detailing all modification work and equipment changes made necessary by the substituted item.

H. Additional information on particular items, such as special drawings, schedules, calculations, performance curves, and material details, shall be provided when specifically requested in the technical Specifications.

I. Submittals for all electrically operated items (including instrumentation and controls) shall include complete wiring diagrams showing leads, runs, number of wires, wire size, color coding, all terminations and connections, and coordination with related equipment.

J. Equipment shop drawings shall indicate all factory or shop paint coatings applied by suppliers, manufacturers and fabricators; the Contractor shall be responsible for insuring the compatibility of such coatings with the field-applied paint products and systems.

K. Fastener specifications of manufacturer shall be indicated on equipment shop drawings.

L. Where manufacturers' brand names are given in the Specifications for building and construction materials and products, such as grout, bonding compounds, curing compounds, masonry cleaners, waterproofing solutions and similar products, the Contractor shall submit names and descriptive literature of such materials and products proposed for use in this Contract.

M. No material shall be fabricated or shipped unless the applicable drawings or submittals have been reviewed by the Engineer and returned to the Contractor.

N. All bulletins, brochures, instructions, parts lists, and warranties packaged with and accompanying materials and products delivered to and installed in the Project shall be saved and transmitted to the Owner through the Engineer.

1.06 CONTRACTOR RESPONSIBILITIES

A. Verify field measurements, field construction criteria, catalog numbers and similar data.

B. Coordinate each submittal with requirements of Work and of Contract Documents.

C. Notify Engineer, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.

D. Begin no work, and have no material or products fabricated or shipped which required submittals until return of submittals with Engineer's stamp and initials or signature indicating review.

1.07 CONSTRUCTION PHOTOGRAPHS

Each Contractor shall provide monthly photographs of site and construction during the progress of work. The Contractor shall have at least eight (8) photographs taken per month. The photographs shall be taken monthly on the cutoff date for each Application for Payment. Provide two (2) color prints of each photograph, with matte finish, size 4x6 inch. Mount with binder tabs. Identify each print on front, along with name of project and date.

- END OF SECTION -

SECTION 01310
CONSTRUCTION SCHEDULE

PART 1 - GENERAL

1.01 THE REQUIREMENT

The project management scheduling tool, "Critical Path Method" commonly called CPM, shall be used by the Contractor for the planning and scheduling of all work required under the Contract Documents.

1.02 QUALIFICATIONS

The Contractor shall submit evidence of CPM capability for Engineer's review.

1.03 SUBMITTAL PROCEDURES

A. Submittal Requirements

1. Logic network and/or time phased bar chart, computer generated, utilizing the precedent diagram method.
2. Computerized network analysis.
 - a. Activity sort by early start, organized by related elements.
 - b. Activity sort by float, organized by related elements.
 - c. Activity sort by predecessor/successor.
3. Schedule of shop drawing submittals.
4. Schedule of values (lump sum price breakdown).

B. Time of Submittals. Within fourteen (14) working days after Award of Contract, General Contractor shall submit a network diagram describing the activities to be accomplished in the project and their dependency relationships, (predecessor/successor) as well as a tabulated schedule as herein defined. The schedule produced and submitted shall indicate a project completion date the same as the contract completion date. The General Contractor shall meet with the Engineer and the other Contractors to review the proposed plan and schedule.

C. Upon completion of the Engineer's review of the submittal, the Engineer will return the schedule with comments. The General Contractor shall revise the network diagram as required and resubmit the network diagram and a tabulated schedule produced there from. The revised network diagram and tabulated schedule shall be reviewed by the Engineer. The network diagram and tabulated schedule shall constitute the project work schedule unless a revised schedule is required due to substantial changes in the work scope, a change in contract time, or delinquency by Contractor requiring a recovery schedule. When the network diagram and tabulated schedule have been accepted, Contractor shall submit to five (5) copies of all schedule information.

D. Revised Work Schedules. The Contractor, if requested by the Engineer, shall provide a revised work schedule. The revised work schedule shall include a new diagram and tabulated schedule designed to show how the Contractor intends to accomplish the work to meet the completion date. The form and method employed by Contractor shall be the same as for the original schedule.

1.04 SCHEDULING RESPONSIBILITIES

A. It is understood that the construction schedule and all revised information must be produced by the General Contractor and that this information is a representation of the best efforts of all the Contractors and Subcontractors as to how they envision the work to be accomplished. Similarly, all progress information to be provided by and through the General Contractor must be an accurate representation of the Contractors', the Subcontractors' or the suppliers' actual performance. The schedule shall at all times remain an accurate reflection of the Contractors' actual or projected sequencing of the Work. Once accepted by the Engineer, adherence to the established CPM schedule shall be obligatory upon the Contractors and the Subcontractors for the Work under the Contracts.

B. Construction Hours

1. No work shall be done between 6:00 p.m. and 7:00 a.m. nor on Saturdays, Sundays or legal holidays without the prior written permission of the Owner, except as herein specified. However, equipment maintenance and/or emergency work may be done without prior written permission.
2. Except as herein specified, if any Contractor, for his convenience and at his own expense, should desire to carry on his work at night or outside the regular hours, he shall submit a written request to the Engineer and shall allow at least seven (7) days for arrangements to be made for inspecting the work in progress. If permission is granted, the Contractor shall light the different parts of the project as required to comply with all applicable Federal, State, and local regulations. The Contractor shall also revise his schedule as appropriate at the next monthly schedule update meeting to reflect the changes in working hours.
3. Except as herein specified, should any Contractor work overtime, or on Saturdays, Sundays or Holidays for his own convenience or to regain schedule, all costs to the Owner for inspection and/or engineering shall be charged to the Contractor and his Contract Price reduced by a like amount via Change Order.

C. Progress of the Work

1. The Work shall be started within ten (10) days following the Notice to Proceed and shall be executed with such progress as may be required to prevent delay to the general completion of the Project. The Work shall be executed at such times and in or on such parts of the Project, and with such forces, material and equipment, to assure completion of the Work in the time established by the Contract.
2. The Contractor agrees that whenever it becomes apparent from the current monthly CPM Schedule update that delays to the critical path have resulted and, hence, that the Contract completion date will not be met or when so directed by the Owner, the Contractor will take some or all of the following actions at no additional cost to the Owner:

- a. Increase construction manpower in such quantities and crafts as will substantially eliminate the backlog of work.
- b. Increase the number of working hours per shift, shifts per working day or days per week, the amount of construction equipment, or any combination of the foregoing to substantially eliminate the backlog of work.
- c. Reschedule activities to achieve maximum practical concurrence of accomplishment of activities, and comply with the revised schedule.
- d. The Contractor shall submit to the Owner and the Engineer for review a written statement of the steps intended to be taken to remove or arrest the delay to the critical path in the accepted schedule. If the Contractor should fail to submit a written statement of the steps as required by the Contract, the Owner may direct the level of effort in manpower (trades), equipment, and work schedule (overtime, weekend and holiday work, etc.), to be employed by the Contractor in order to remove or arrest the delay to the critical path in the accepted schedule, and Contractor shall promptly provide such level of effort at no additional cost to the Owner.

1.05 CHANGE ORDERS

Upon approval of a change order, the approved change shall be reflected in the next scheduled submittal by Contractor.

1.06 CPM STANDARDS

A. Definition. CPM, as required by this Section, shall be interpreted to be generally as outlined in the Associated General Contractors' publication, "The Use of CPM in Construction."

B. Work Schedules. Work schedules shall include a graphic network and computerized, tabulated schedules as described below. The schedule must demonstrate the following:

1. A logical succession of work from start to finish. This logical succession is the Contractor's work plan and is only designated as early start to accommodate standard computerized systems.
2. Definition of each activity.
3. Show all work activities and interfaces including all submittals and major material and equipment deliveries.

C. Duration. The duration indicated for each activity shall be in calendar days and shall represent the single best time considering the scope of the Work and resources planned for the activity including time for inclement weather.

D. Tabulated Schedules. The initial schedule shall include the following minimum data for each activity.

1. Activity numbers
2. Estimated duration
3. Activity description
4. Early start date (Calendar Dated)
5. Early finish date (Calendar Dated)
6. Status (Whether Critical)
7. Float

E. Project Information. Each tabulation shall be prefaced with the following summary data.

1. Project Name
2. Contractor
3. Type of Tabulation (Initial or Update)
4. Project Duration
5. Project Scheduled Completion Date
6. Project Completion Date
7. Variance Analysis per activity

1.07 SCHEDULE MONITORING

A. At not less than monthly intervals or when specifically requested by the Engineer, the Contractor shall submit to the Engineer a computer printout of an updated schedule for those activities that remain to be completed.

B. The revised schedule shall be submitted in the form, sequence, and number of copies requested for the initial schedule.

1.08 SHOP DRAWING SUBMITTAL SCHEDULE

A. Each Contractor will be required to submit a complete and detailed listing of anticipated shop drawing submittals during the course of the Contract. Each Contractor will coordinate his submittals with those of the Subcontractors and Suppliers and will identify each submittal by Contract drawing number and specification number. Durations shown for review shall be shown to share available float for that path. Submissions, the review of which is on the critical path, shall be clearly marked in red with the words "Critical Path" by the Contractor at the time of submission.

B. The Submittal Schedule must be submitted within fourteen (14) working days of the Award of Contract and will be the subject of a meeting with the Engineer. At that meeting, the Submittal Schedule will be reviewed for comprehensiveness and feasibility. The Submittal Schedule will then be revised as required and the General Contractor will incorporate the dates and review durations into the CPM Schedule.

- END OF SECTION -