



C. MARK BLANKENSHIP

ATTORNEY-AT-LAW

309 North 4th Street
Murray, Kentucky 42071
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November 9, 2005

Via Federal Express

Ms. Beth O'Donnell
Executive Director
Public Service Commission
211 Sower Blvd.
P.O. Box 615
Frankfort, KY 40602-0615

CASE 2005-00456

RE: Cole Campground Road Extension/Flint & West Fork Road
Projects No. WX21035012 and WX21035014

Dear Ms. O'Donnell:

Enclosed is my clients' application for a Certificate of Public Convenience and Necessity for two proposed water improvement projects in Calloway County, Kentucky. We have followed the checklist contained on your website. Inasmuch as the contractor is ready to proceed, and the district has operated in good faith and did not realize it needed this particular certificate before proceeding, we respectfully request that this application be expedited. The contractor is ready to begin, and in fact, had planned to begin the project on Monday, November 7, 2005. The contractor's bid for the job was based on prices at the time of the bid, and any delay in this process may cause financial problems for both the contractor and the water district. We realize, of course, that your office is extremely busy but we hope that the certificate can be issued forthwith. Thank you very much. If you need anything further, please do not hesitate to contact this office.

Sincerely,

C. Mark Blankenship

CMB/jkf

Enclosures

C: Kathy Wyatt
Director, Dexter-Almo Heights Water District

RECEIVED
NOV 10 2005
PUBLIC SERVICE
COMMISSION



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Ms. Beth O'Donnell
Executive Director
Public Service Commission
211 Sower Blvd.
P.O. Box 615
Frankfort, KY 40602-0615

RE: Coles Campground Road Extension/Flint & West Fork Road
Projects No. WX21035012 and WX21035014

Dear Ms. O'Donnell:

I represent the Dexter-Almo Heights Water District. I have your letter of October 28, 2005 indicating that the district must have a certificate of public convenience and necessity in order to begin its' extension projects.

The following information is given pursuant to the filing requirements checklist of your website.

1. The full name and post office address of the applicant and the reference to the particular provision of law requiring Commission approval is as follows:

Dexter-Almo Heights Water District, P.O. Box 55, Almo, KY 42020, 270-753-9101, a water district organized pursuant to KRS Chapter 74...applicable statutes KRS 278.020(1); administrative regulation 807 KAR 5: 001, Section 9(3).

2. The original and ten copies of the application with an additional copy for each party named therein as an interested party:

Ten copies of this application are attached.

3. If applicant is a corporation, a certified copy of the Articles of Incorporation and all amendments thereto or if the Articles were filed with the PSC in a prior proceeding, a reference to the style and case number of the prior proceeding:

The Dexter-Almo Heights Water District is a de jure water district, situated wholly in Calloway County, Kentucky, and exists by virtue of a judgment and order of the Calloway County Fiscal Court. The project numbers for these extensions are WX21035012 and WX21035014. The sales and use tax permit for Dexter-Almo Heights Water District is account number 121369. A copy of the original

preliminary report for the Dexter-Almo Heights Water District of Calloway County, Kentucky dated August 6, 1963 is attached hereto as Exhibit A.

4. The facts relied upon to show that the proposed new construction is or will be required by public convenience or necessity:

Both the Coles Campground road extension and Flint and West Fork projects are areas where currently there is no water service or water lines available. In addition, there are no other water districts that can provide water lines at these locations. A copy of the Flint Road water main extension preliminary engineering report dated August 2005 is attached hereto as Exhibit B and incorporated herein by reference.

5. Copies of franchises or permits, if any, from the property public authority for the proposed new construction or extension, if not previously filed with the Commission:

Attached hereto and marked Exhibit C is the Kentucky Water Project Profile. Also attached and marked Exhibit C is a letter dated September 22, 2005 from Ronald W. Cook, Kentucky State Clearinghouse review indicating that there are no identifiable conflicts with any state or local plan, goal or objective. The state clearinghouse recommends this project be approved. Attached and marked Exhibit D is a document indicating that the Heritage Council, the Labor Cabinet, the Division of Planning with the Cabinet for Transportation, and the Cabinet for Natural Resources have no objection to the project. This document also references the fact that the project proposes to add fifty new customers from Flint Road and State Highway 464 to the existing water service. These customers are currently having problems with their water quality and have petitioned for service. Attached and marked Exhibit E is a letter from David L. Morgan, Director of the Kentucky Heritage Council to Mr. Kim Oatman, engineer on the project, indicating that the proposed project will take place along the right of way in areas that have been previously disturbed, and that the project will not impact any national registry properties or sites. Attached and marked Exhibit F is a letter dated October 13, 2005 from Donna S. Marlin, manager, Drinking Water Branch, Division of Water of the Department for Environmental Protection stating that the plans and specifications have been reviewed and approved.

6. A full description of the proposed location, route, or routes of the new construction or extension, including a description of the manner in which same will be constructed, and also the names of all public utilities, corporations, or persons with whom the proposed new construction or extension is likely to compete.

Attached and marked Exhibit G is a copy of the Dexter-Almo Heights Water District Flint Road-West Ford Road water main extension prepared by Susan Oatman, professional engineer, 133 Pine Creek Drive, Paducah, KY 42001. This document shows the location of the proposed extensions. In addition, there are no other water districts in these areas with whom the water district will be competing.

7. Three (3) maps to suitable scale (preferably not more than two (2) miles per inch) showing the location or route of the proposed new construction or extension, as well as the location to scale of any like facilities owned by others located anywhere within the map area with adequate identification as to the ownership of such other facilities.

See attached Exhibit H a map of Calloway County with the proposed project indicated.

8. The manner, in detail, in which it is proposed to finance the new construction or extension.

Dexter-Almo Heights Water District will finance the proposed project with a \$185,000 appropriation from the General Assembly and a loan of \$176,075 from a local bank, The Murray Bank of Calloway County, Kentucky. The district plans to pursue additional financing through grants and other avenues with a goal of paying it in full within two (2) years. The note will be a line of credit with a maturity date of fifteen years. The water district does not intend to increase its' rates for water service and believes the debt can be properly serviced through existing rates with new customers.

9. An estimated cost of operation after the proposed facilities are completed.

The district does not anticipate any additional cost of operation after the proposed facilities are completed. The cost of operation as reflected in the financial statement of the water district dated December 31, 2004 is attached hereto as Exhibit I. The district plans to payoff the current debt reflected on this financial statement within two (2) years.

10. Engineering plans, specifications, plats and report for the proposed construction.

See previously referenced Exhibit G also see Exhibit J which is a copy of the agreement dated October 25, 2005 between Dexter-Almo Heights Water District and the contractor employed to perform the work and Exhibit K a copy of the project specifications dated September 9, 2005.

Sincerely,



C. Mark Blankenship

CMB/jkf

HOLLIS & GRIGGS

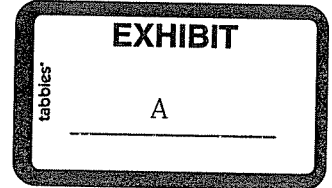
INCORPORATED

Consulting Engineers and Surveyors

1800 KENTUCKY AVE.

PADUCAH, KENTUCKY

PHONE 442-1649



SEWERAGE AND WATER SYSTEMS • HIGHWAYS • REPORTS • DESIGN • SUBDIVISIONS • LAND SURVEYING

August 6, 1963

Mr. James Lassiter
Attorney at Law
Murray, Kentucky

Re: Dexter-Almo Heights Water District
Preliminary Report

Dear Mr. Lassiter:

We are enclosing herewith one (1) copy of the preliminary report on the above captioned project for your use in preparing the necessary information that will be requested at a later date by our Bonding Attorneys, Grafton, Ferguson and Fleischer, of Louisville, Kentucky.

We wish to thank you for your assistance in the preparation of this report and study for the proposed water system. Should you have any questions after review of the enclosed report, please do not hesitate to call upon us.

We will forward to you as quickly as possible the additional data concerning the one and one-half miles addition to the water district and wish to advise that this has been included within the contents of the report. However, as the map as enclosed as Plate 1 in the back of the report had already been drawn and printed, we were unable to add the additional information to the plat at this time. We will, if necessary, prepare a supplemental drawing to attach to the plat if the Public Service Commission requires this for the Certificate of Public Convenience.

Very truly yours,
HOLLIS & GRIGGS, INC.

Elmer Y. Hollis
Elmer Y. Hollis

EYH/ee
cc: Mr. A. V. Reeves

Encl.

MEMBERS

American Society of Civil Engineers
American Congress of Surveying and Mapping

Kentucky Society of Professional Engineers
Ky.-Tenn. Industrial Waste and Sewage Association
American Water Works Association

PRELIMINARY REPORT

FOR THE
DEXTER - ALMO HEIGHTS
WATER DISTRICT

OF
CALLOWAY COUNTY, KENTUCKY

AUG. - 1963

— (decorative flourish) —
COMMISSIONERS

A. V. REEVES, CHAIRMAN

BUELL HARGIS, SEC'Y.

W. B. McCUISTON, TREAS.

ATTORNEY

JAMES M. LASSITER

ENGINEERS

HOLLIS & GRIGGS, INC.
CONSULTING ENGINEERS
1800 KENTUCKY AVENUE
PADUCAH KENTUCKY

COMMONWEALTH OF KENTUCKY
REVENUE CABINET
SALES AND USE TAX PERMIT

DEXTER ALMO HEIGHTS WATER DISTRICT PO BOX 55 ALMO KY 42020 GOVERNMENT NAME & ADDRESS	ACCOUNT NUMBER			PROCESSING DATA			ISSUE DATE		
	BRANCH	COUNTY	BUSINESS	MONTH	DAY	YEAR			
	121369 ↑ REFER TO THIS NUMBER IN ALL CORRESPONDENCE			018	087	06	15	1998	

THIS GENERAL BUSINESS LICENSE IS ISSUED PURSUANT TO KRS 152.957.

POST IN A CONSPICUOUS PLACE

THIS PERMIT IS NOT TRANSFERABLE

THIS PERMIT IS ISSUED PURSUANT
 TO AUTHORITY OF CHAPTER 139 OF
 THE KENTUCKY REVISED STATUTES
 AND IS VALID UNTIL CANCELLED OR
 REVOKED.



HOLLIS & GRIGGS

INCORPORATED

Consulting Engineers and Surveyors

1800 KENTUCKY AVE. PADUCAH, KENTUCKY PHONE 442-1649

SEWERAGE AND WATER SYSTEMS • HIGHWAYS • REPORTS • DESIGN • SUBDIVISIONS • LAND SURVEYING

AUGUST 6, 1963

MR. A. V. REEVES
CHAIRMAN
DEXTER, KENTUCKY

RE: PRELIMINARY REPORT
DEXTER-ALMO HEIGHTS
WATER DISTRICT

DEAR SIR:

IN ACCORDANCE WITH OUR CONTRACT WITH THE DEXTER-ALMO HEIGHTS WATER DISTRICT, WE ARE SUBMITTING HERewith A MASTER REPORT SUMMARIZING OUR FINDINGS AND RECOMMENDATIONS RELATIVE TO THE PROPOSED WATER SYSTEM, STORAGE AND TREATMENT FACILITIES FOR THE TOWNS OF DEXTER, ALMO HEIGHTS, AND ALMO.

WE TRUST THAT THIS REPORT SHALL SERVE AS A GUIDE IN ESTABLISHING A WATER SYSTEM, FIRE PROTECTION AND STORAGE FOR THE BENEFIT OF THE ENTIRE COMMUNITIES' ENJOYMENT AND PROTECTION FOR YEARS TO COME.

WE WISH TO ACKNOWLEDGE THE HELP OF THE COMMISSIONERS AND THEIR COMMITTEES THROUGHOUT THE COURSE OF OUR SURVEY AND REPORT.

RESPECTFULLY SUBMITTED,
HOLLIS & GRIGGS, INC.

Elmer Y. Hollis
ELMER Y. HOLLIS

EYH:SH

MEMBERS

American Society of Civil Engineers
American Congress of Surveying and Mapping

American Water Works Association

Kentucky Society of Professional Engineers
Ky.-Tenn. Industrial Waste and Sewage Association

PRELIMINARY REPORT
FOR
A PROPOSED WATER SYSTEM
FOR
DEXTER-ALMO HEIGHTS, CALLOWAY COUNTY, KENTUCKY

COMMISSIONERS

A. V. REEVES, CHAIRMAN

BUELL HARGIS, SECRETARY

W. B. MCCUISTON, TREASURER

ATTORNEY

JAMES M. LASSITER

ENGINEERS

H O L L I S A N D G R I G G S , I N C .

1800 KENTUCKY AVENUE

PADUCAH, KENTUCKY

DATE: AUGUST 6, 1963

PRELIMINARY REPORT

FOR THE

DEXTER-ALMO HEIGHTS WATER DISTRICT

CALLOWAY COUNTY, KENTUCKY

SECTION ONE

OBJECTIVE

INTRODUCTION

THIS REPORT HAS BEEN PREPARED IN ACCORDANCE WITH A CONTRACT BETWEEN THE DEXTER-ALMO HEIGHTS WATER DISTRICT AND HOLLIS & GRIGGS, INC., CONSULTING ENGINEERS, 1800 KENTUCKY AVENUE, PADUCAH, KENTUCKY, DATED MARCH 12, 1963. THE PURPOSE OF THIS REPORT IS TO MAKE A COMPREHENSIVE SURVEY OF THE AREA AND PREPARE A WRITTEN REPORT AS FOLLOWS:

- A. COMPREHENSIVE SURVEY OF AREA
- B. WATER DISTRIBUTION LAYOUT
- C. FUTURE FIRE DEMANDS OF THE SYSTEM
- D. STORAGE REQUIREMENTS; FIRE AND DOMESTIC
- E. PUMPING REQUIREMENTS FOR ENTIRE SYSTEM
- F. WATER TREATMENT RECOMMENDATIONS
- G. DETAIL COST ESTIMATES FOR ALL PHASES
- H. RECOMMENDATIONS FOR RATES AND GENERAL REQUIREMENTS

THE APPARENT SCOPE OF THIS REPORT SHALL INCLUDE IMMEDIATE, FUTURE AND LONG RANGE IMPROVEMENTS FOR PROVIDING ADEQUATE TREATED WATER, AS WELL AS A FIRE PROTECTION SYSTEM TO THE IMMEDIATE BUILTUP AREA AS PROPOSED IN THE WATER DISTRICT BOUNDARIES. THE REPORT SHALL ALSO SHOW A SURVEY OF ADJACENT COMMUNITIES AS TO RATES, COSTS, SALARIES, ETC. THAT ARE NOW IN USE FOR COMPARISONS ALONG WITH A SECTION ON THE RATES REQUIRED FOR RETIRING THE BONDS IN ORDER TO MAKE THIS PROJECT ECONOMICALLY FEASIBLE FROM A PRIVATE FINANCIAL STANDPOINT.

GENERAL:

THE DEXTER-ALMO HEIGHTS WATER DISTRICT WAS FORMED IN JANUARY AND FEBRUARY 1963 BY A GROUP OF INTERESTED CITIZENS WHO FELT THE AREA'S NEED FOR A GOOD, ADEQUATE SUPPLY OF WELL-TREATED AND SAFE WATER SUPPLY FOR THE DISTRICT. THESE PEOPLE BEGAN CIRCULATING A PETITION FOR THE REQUIRED 75 FREEHOLDERS FOR SIGNATURES; AND UPON RECEIVING THE REQUIRED SIGNATURES, THE AREA PROPOSED AS THE WATER DISTRICT WAS THEN ADVERTISED FOR THREE WEEKS IN THE LOCAL NEWSPAPER PUBLISHED IN MURRAY, KENTUCKY, AND UPON NO GENERAL COMPLAINT THE AREA WAS THEN LEGALLY FORMED AND REFERRED TO AS THE DEXTER-ALMO HEIGHTS WATER DISTRICT. THE COUNTY JUDGE THEN APPOINTED THREE FREEHOLDERS TO SERVE AS THE COMMISSIONERS OF THE DISTRICT. THE COUNTY ATTORNEY OF CALLOWAY COUNTY, REPRESENTED THE LOCAL PEOPLE IN FORMING THE DISTRICT AND THROUGH THE FIRST STEPS OF CREATING THE LEGAL OBJECTIVES OF THE PEOPLE WHO LIVE IN THE DISTRICT.

BOUNDARIES:

THE DEXTER-ALMO HEIGHTS WATER DISTRICT AS FORMED UNDER THE KENTUCKY REVISED STATUTES, CHAPTER 74, CONSISTS OF THE FOLLOWING:

LEGAL DESCRIPTION

DEXTER-ALMO HEIGHTS WATER DISTRICT

NOW THEREFORE, IT IS ORDERED AND ADJUDGED THAT THE ESTABLISHMENT OF THE PROPOSED WATER DISTRICT IS NECESSARY FOR THE PUBLIC HEALTH, CONVENIENCE, FIRE PROTECTION AND COMFORT OF THE RESIDENTS OF THE PROPOSED DISTRICT, AND IT IS FURTHER ORDERED THAT A WATER DISTRICT, KNOWN AS THE DEXTER-ALMO HEIGHTS WATER DISTRICT BE, AND IS HEREBY CREATED AND ESTABLISHED, CONSISTING OF THE FOLLOWING PROPERTY, LOCATED IN CALLOWAY COUNTY, KENTUCKY.

"ALL LAND LYING WITHIN 3/4 OF A MILE WEST OF U. S. HIGHWAY 641 BETWEEN THE MARSHALL COUNTY BORDER AND COLES CROSSROAD; AND ALL LAND LYING EAST OF U. S. HIGHWAY 641 AND WEST OF CLARKS RIVER BETWEEN THE MARSHALL COUNTY BORDER AND COLES CROSSROAD, ALL IN CALLOWAY COUNTY, KENTUCKY.

AREA DESCRIPTION:

THE DEXTER-ALMO HEIGHTS WATER DISTRICT LIES IN A SEMI-URBAN FARM AREA THAT IS FAST BECOMING A CONTINUOUS RESIDENTIAL AREA BETWEEN THE UNINCORPORATED COMMUNITIES OF DEXTER ON U. S. HIGHWAY 641 TO THE L & N RAILROAD AND ALMO ON THE RAILROAD TO THE COMMUNITY OF ALMO HEIGHTS ON U. S. HIGHWAY 641. THE DISTRICT LIES ON THE EASTERLY EDGE OF CALLOWAY COUNTY ADJACENT TO MARSHALL COUNTY AND IS FIVE MILES EAST OF MURRAY, THE COUNTY SEAT OF CALLOWAY COUNTY WHICH OFFERS A LARGE AMOUNT OF THE EMPLOYMENT OF THE AREA AS WELL AS HAVING THE CAMPUS OF MURRAY STATE COLLEGE ONE OF KENTUCKY'S FINER LIBERAL ARTS COLLEGES.

THE CENTER OF THE AREA IS APPROXIMATELY 17 MILES SOUTH OF KENTUCKY LAKE AND BARKLEY LAKE, WHICH IS NOW UNDER CONSTRUCTION. THE CALVERT CITY GIGANTIC CHEMICAL COMPLEX IS ONLY APPROXIMATELY TWENTY-FIVE MILES FROM THE DISTRICT OFFERING EMPLOYMENT TO ALL PHASES OF THE CHEMICAL INDUSTRY. THE NEW PROPOSED NATIONAL WILDLIFE REFUGE WITH THE PLANNED TENNESSEE VALLEY AUTHORITY'S RECREATIONAL AREA WILL BE CONSTRUCTED IMMEDIATELY; APPROXIMATELY THIRTY MILES FROM THE DISTRICT. BARKLEY DAM, NOW UNDER CONSTRUCTION, AFFORDS THE ENTIRE AREA OF DOUBLE AVAILABLE POTENTIAL FOR ADDITIONAL ELECTRICAL SERVICES, FUTURE PLANT SITES AND INDUSTRIAL COMPLEXES, AS WELL AS OPENING VAST NEW RESOURCES THROUGHOUT THE ENTIRE WESTERN KENTUCKY AREA.

THE DISTRICT, AT THIS DATE, DOES NOT HAVE ANY BONDED INDEBTEDNESS. THE COMMUNITY LIES IN AN AGRICULTURAL AND INDUSTRIAL AREA CONSISTING OF 293 RESIDENCES, ONE SCHOOL, EIGHT CHURCHES, 21 SMALL COMMERCIAL BUILDINGS AND ONE MOTEL.

IN CONCLUSION, THE COMMUNITIES OF DEXTER-ALMO AND ALMO HEIGHTS ARE WELL ESTABLISHED COMMUNITIES WITH A GROUP OF YOUNG CIVIC-MINDED LEADERS WITH THE DESIRE AND EAGERNESS TO SEE THEIR OWN AREA GROW. THE DESIRE AND INITIATIVE OF THE PEOPLE TO COMBINE THEIR INDIVIDUAL WELLS AND CISTERNS INTO A CENTRAL WATER SYSTEM IS ONE MORE STEP IN MAKING THE AREA A BETTER PLACE TO LIVE. THESE PEOPLE KNOW THAT PURE WATER IS AN INDUCEMENT TO BUSINESS AND FACTORIES TO LOCATE IN OR NEAR THEIR COMMUNITY. THEY KNOW THAT EVERY HOME BUILDER WANTS THE DEPENDABILITY OF COMMUNITY WATER FOR BOTH DRINKING AND PERMANENT BATHROOMS. THEY DO NOT WANT THEIR SCHOOLS TO BE BURDENED WITH THE POSSIBILITY OF CONTAMINATED WATER; IN GENERAL THEY ARE LOOKING TO THE COMMUNITY WATER SYSTEM FOR CONVENIENCE, HEALTH AND WELFARE OF ALL THE CITIZENS IN THEIR COMMUNITY.

POPULATION:

TO DETERMINE THE RATE OF GROWTH OF A PARTICULAR COMMUNITY, THE ENGINEERS WOULD NORMALLY CONTACT THE U. S. CENSUS BUREAU FOR POPULATION FIGURES OVER THE PAST THIRTY TO FIFTY YEARS, AND PLOT THIS GRAPHICALLY AND PROJECT THE TREND FOR THE NORMAL AND RECOMMENDED DESIGN PERIOD OF TWENTY YEARS; HOWEVER, IN THE CASE OF A WATER DISTRICT, THIS METHOD OF FORECASTING AND TREND WOULD NOT PRESENT A TRUE PICTURE TO THE DISTRICT'S COMMISSIONERS. SEVERAL METHODS OF DETERMINING THE EXISTING AND FUTURE POPULATION WERE TAKEN UNDER CONSIDERATION AND DEVELOPED FOR RECOMMENDING A DESIGN BASIS FOR NOT ONLY 1964 CUSTOMERS BUT 1985 DEMAND ON THE WATER TREATMENT PLANT. THE METHODS USED FOR THE POPULATION FORECAST ARE BRIEFLY DESCRIBED AS FOLLOWS:

1. COUNTY FIGURES WERE OBTAINED FROM THE U. S. CENSUS BUREAU AND PLOTTED GRAPHICALLY FOR THE DISTRICT (EXHIBIT 1, PAGE 1-5).
2. EXISTING HOUSE COUNT WAS MADE AND COMPARED WITH A 1952 FLIGHT MAP OF THE AREA PREPARED BY THE KENTUCKY DEPARTMENT OF AGRICULTURAL AND INDUSTRIAL DEVELOPMENT. (U.S.G.S. QUADRANGLE SHEET)

THE POPULATION DETERMINATION AND PROJECTIONS FOR RURAL AREAS CAN DECIDEDLY BE A HIT AND MISS OPERATION AS THERE IS NO SAFE WAY TO PROJECT A RURAL AREA SUCH AS THIS, ESPECIALLY ON THE OUTSKIRTS OF A LARGER COMMUNITY SUCH AS MURRAY.

SEVERAL FACTORS, BY NECESSITY, WERE CONSIDERED BY THE ENGINEERS; SUCH AS SETTLEMENT IN THE AREA BY RETIRED PERSONS, LAKE AND RECREATIONAL INFLUENCE, TOURIST SERVICE ACTIVITIES, AND ADDITIONAL PLANTS AND COMMERCIAL ESTABLISHMENTS BROUGHT ON BY THESE ADDITIONAL ACTIVITIES.

THE CENSUS RECORDS OF CALLOWAY COUNTY, AS OBTAINED FROM THE U. S. DEPARTMENT OF COMMERCE, INDICATE THAT THE COUNTY HAS HAD A STEADY GROWTH SINCE 1900 WITH A LEVELING OFF DURING 1930 TO 1940 PERIOD. THE CENSUS RECORDS FOR THE PAST SIXTY YEARS FOR CALLOWAY COUNTY ARE AS FOLLOWS:

CALLOWAY COUNTY POPULATION TRENDS

<u>YEAR</u>	<u>POPULATION</u>	<u>NUMERICAL CHANGE</u>	<u>PERCENTAGE CHANGE</u>
1900	17,633	-----	-----
1910	19,867	+ 2234	+ 7.89
1920	20,802	+ 935	+ 0.05
1930	17,662	- 3140	- 1.51
1940	19,041	+ 1379	+ 7.81
1950	20,147	+ 1106	+ 5.81
1960	20,972	+ 825	+ 0.41

FROM THE ABOVE, IT CAN BE SEEN THAT CALLOWAY COUNTY, WHICH ENCOMPASSES THE DEXTER-ALMO HEIGHTS WATER DISTRICT, HAS HAD STEADY GROWTH OVER THE YEARS. IT IS THE OPINION OF THE ENGINEERS THAT PERHAPS THE RATE OF GROWTH CAN BE ANTICIPATED IN THE FUTURE. THIS PATTERN IS PREDICTABLE, BASED ON PAST EXPERIENCES WITH WATER DISTRICTS OF THIS TYPE, AND COMPARING A 1952 FLIGHT MAP THAT SHOWS 244 BUILDINGS AT THAT DATE AND WITH AN EXISTING BUILDING COUNT OF 323 GIVES A NET GAIN OF 79 BUILDINGS OVER A TEN-YEAR PERIOD WITHIN THE DISTRICT. THE ENGINEERS FEEL THAT IT WOULD BE CONSERVATIVE TO ASSUME AN INCREASE OF 20% OVER THE NEXT TWENTY YEARS, THE PERIOD OF DESIGN. THIS ASSUMPTION IS BASED ON THE FOLLOWING PERTINENT REASONS:

1. THE RATE OF INCREASE IS LIKELY TO CONTINUE DUE TO THE LOCATION OF THE DISTRICT IN A NATIONAL RECREATION AREA AND THE PROXIMITY OF INDUSTRY IN THE CALVERT CITY-MURRAY AREA.
2. THE PROVISION OF AN ADEQUATE WATER SUPPLY AND SYSTEM USUALLY SPURS THE GROWTH OF THE DISTRICT AND THE COMMUNITIES WITHIN THE AREA BEING SERVED BY THE WATER SYSTEM.
3. THE GENERAL ATTITUDE AND FORESIGHTEDNESS OF THE PEOPLE IN PROVIDING PUBLIC UTILITIES, ANTICIPATING GROWTH IN THE ENTIRE AREA AND ALL THE COMMUNITIES MAKING UP THE DISTRICT.

EXHIBIT 1, PAGE 1-5, SHOWS THE COUNTY POPULATION AS PREVIOUSLY STATED ABOVE WHICH HAS BEEN PLOTTED GRAPHICALLY. IN COMPUTING AND FORECASTING THE FUTURE POPULATION FOR THE DEXTER-ALMO HEIGHTS WATER DISTRICT, THREE METHODS WERE USED AS FOLLOWS:

1. STRAIGHT ARITHMETIC
2. PERCENT INCREASE
3. CURVE EXTENSION METHOD

A GOOD OVER-ALL AVERAGE OF THE ABOVE METHODS SUBSTANTIATES OUR PREDICTION OF A 20% GAIN IN POPULATION OVER THE NEXT TWENTY YEARS AND SHOULD BE ADEQUATE FOR DESIGN PURPOSES.

EXISTING POPULATION CALLOWAY COUNTY, KENTUCKY

2025 RELEASE UNDER E.O. 14176

2025 RELEASE UNDER E.O. 14176

21,000

21,000

19,000

19,000

17,000

17,000

15,000

15,000

← YEAR →

1900

1910

1920

1930

1940

1950

1960

WATER CONSUMPTION:

IN NORTH AMERICAN COMMUNITIES, THE AVERAGE WATER CONSUMPTION VARIES CONSIDERABLY DEPENDING ON MANY FACTORS, BUT THE OVER-ALL AVERAGE FALLS SOMEWHERE NEAR 100 GALLONS PER CAPITA PER DAY. THIS FIGURE IS THE USUAL AMOUNT USED FOR DESIGN PURPOSES WHERE NO LARGE INDUSTRIAL USERS ARE ANTICIPATED. HOWEVER, IN THE CASE OF WATER DISTRICTS, WHERE RESIDENTIAL USERS PREDOMINATE, MANY TIMES THE DESIGN IS BASED ON LESS THAN 100 GALLONS PER CAPITA PER DAY. THE ENGINEERS FEEL THAT A DESIGN FIGURE OF 75 GALLONS PER CAPITA PER DAY WOULD BE ADEQUATE, AND THEREFORE THIS IS THE FIGURE WE WILL USE.

THUS OUR DESIGN WILL BE BASED ON THE FOLLOWING INSOFAR AS POPULATION AND WATER CONSUMPTION ARE CONCERNED:

1. EXPECTED POPULATION INCREASE 20% OR 800 PERSONS
2. PER CAPITA CONSUMPTION - 75 GPD (MAXIMUM)
3. AVERAGE DAILY FLOW - $75 \times 800 = 60,000$ GPD

SECTION TWO

PROPOSED IMPROVEMENTS

GENERAL CONSIDERATIONS:

THE PROPOSED WATER SYSTEM MAY BE PLACED INTO THE FOLLOWING MAJOR CATEGORIES:

1. PROVISION OF AN ADEQUATE SUPPLY THROUGH WELLS.
2. TREATMENT OF THE RAW WATER TO PROVIDE WATER ACCEPTABLE FOR DRINKING AND CULINARY PURPOSES, YET CHEMICALLY NONCORROSIVE AND FREE OF STAINING MINERALS.
3. PROVISION OF ADEQUATE DISTRIBUTION FACILITIES, TO INCLUDE FIREFIGHTING WHERE POSSIBLE.
4. PROVISION OF STORAGE FACILITIES THAT WOULD PROVIDE ADEQUATE PRESSURE AND SUPPLY FOR BOTH DOMESTIC AND FIREFIGHTING CONSUMPTION.

ALTHOUGH THE SOURCE OF SUPPLY IS THE FIRST REQUIREMENT IN PROVIDING AN ADEQUATE WATER WORKS SYSTEM, THE DEGREE OF TREATMENT AND ADEQUACY OF THE DISTRIBUTION SYSTEM IS ALSO AN ESSENTIAL FACTOR. THE STORAGE FACILITIES ARE EXTREMELY IMPORTANT FOR MAINTAINING BALANCED PRESSURE OF THE SYSTEM AND FOR PROVIDING A SOURCE OF SUPPLY DURING EMERGENCIES. THESE FOUR FACTORS ARE ALSO INTERRELATED INSOFAR AS THE OVER-ALL DESIGN OF THE SYSTEM IS CONCERNED.

BASIC DESIGN DATA:

DESIGN POPULATION ----- 800 PERSONS

DESIGN AVERAGE FLOW ----- 75 G.P.D.

AVERAGE DAILY FLOW ----- $800 \times 75 = 60,000$ G.P.D.

PEAK HOURLY FLOW @ 150% OF AVERAGE ----- $60,000 \times 1.5 = 90,000$ G.P.D.

PEAK HOURLY RATE OF FLOW @ 250% OF AVERAGE ----- $60,000 \times 2.5 = 150$ G.P.M.

RECOMMENDED FIRE FLOW (4-HOUR FIRE) @ 1000 G.P.M.

TOTAL FIRE FLOW ----- $1000 \times 4 \times 60 = 240,000$ GAL.

MINIMUM RECOMMENDED FLOW IN RESIDENTIAL AREAS ----- 500 G.P.M.

SUPPLY AND STORAGE FACILITIES:

SUPPLY: NOT LESS THAN TWO WELLS ARE RECOMMENDED. THE FLOW FROM THESE WELLS SHOULD BE SUCH THAT ONE ALONE COULD SUPPLY THE AVERAGE DAILY FLOW, THUS LEAVING THE STORAGE FOR EMERGENCY PURPOSES AND THE ADDITIONAL WELL FOR ALTERNATING THE SOURCE OF RAW WATER.

WELL YIELD: IN ORDER TO PROVIDE ADEQUATE AND SUFFICIENT WATER FOR THE COMMUNITY, IT WILL BE NECESSARY FOR THE YEILD OF THE WELL TO PRODUCE THE FOLLOWING:

AVERAGE DAILY FLOW = 60,000 G.P.D.

$$\frac{60,000}{60 \times 24} = 41.7 \text{ G.P.M. (BASED ON 24-HOUR PUMPING)}$$

THE WELL YIELD FOR 12-HOUR PUMPING WOULD BE 2 X 41.7 OR 83.4 G.P.M.

WE THEREFORE RECOMMEND TWO WELLS, EACH WELL SUPPLYING A MINIMUM OF 100 GALLONS PER MINUTE.

THE SITE AND DIAMETER OF A DRILLED WELL IS GOVERNED BY MANY FACTORS, BUT CAN BEST BE SELECTED BY THE AMOUNT OF WATER DESIRED TO BE PUMPED FROM THE WELL. THIS PUMPAGE RATE IS IMPORTANT IN RELATION TO WELL DIAMETER BECAUSE OF THE CREATION OF CHANNEL VELOCITIES WITHIN THE DIFFERENT GROUND WATER AQUIFIERS. THE CIRCUMFERENCE OR "WETTED AREA" OF THE WELL WHICH IS IN CONTACT WITH THE GROUND WATER AQUIFIERS IS A FUNCTION OF THE DIAMETER OF THE WELL. THUS, THE LARGER THE DIAMETER OF THE WELL, THE LESS WILL BE THE FLOW PER UNIT LENGTH OF WELL CASING DIAMETER.

WELL AUTHORITIES, THROUGH YEARS OF RESEARCH AS FOUND IN AVAILABLE PUBLICATIONS, HAVE RECOMMENDED THAT FOR A DESIRED DAILY YIELD UP TO 100,000 G.P.D. AN 8-INCH DIAMETER WELL WOULD BE ADEQUATE. WE THEREFORE RECOMMEND TWO 8-INCH DIAMETER WELLS FOR THE RAW WATER SUPPLY FOR THE DISTRICT.

WELL SITE: SELECTING SITES FOR THE WELLS IS ONE OF THE MOST IMPORTANT CONSIDERATIONS TO THE ENTIRE WATER SYSTEM. THE SITE MUST PROVIDE PROTECTION OF THE WELLS AGAINST POLLUTION TO THE EXISTING SANITARY CONDITIONS AND POSSIBLE POLLUTION IN THE FUTURE AS THE COMMUNITY GROWS.

IN RECOMMENDING THE WELL SITES, AS SHOWN ON PLATE 1 BOUND AT THE BACK OF THE REPORT, THE ENGINEERS CONSIDERED THE GEOLOGICAL FORMATION OF THE DISTRICT, SOURCE OF POLLUTION, EXISTING PRODUCING WELLS, FUTURE POLLUTION, AND CAME TO THE CONCLUSION THAT THE PROPERTY SELECTED OFFERED MORE OF THE ABOVE REQUIREMENTS THAN ANY OTHER AREA THAT WAS AVAILABLE. THE PROPERTY IS OWNED BY WILLARD THWEATT.

THE ENGINEERS RECOMMEND THAT NEGOTIATIONS BETWEEN THE OWNER AND THE WATER DISTRICT PROCEED TO UTILIZE THE PROPERTY FOR A WELL SITE, WATER TREATMENT BUILDING, AND STORAGE TANK BY THE DISTRICT.

STORAGE: IN ORDER TO PROVIDE ADEQUATE WATER STORAGE FOR A COMMUNITY TO TAKE CARE OF INSTANTANEOUS AND DAILY DEMANDS FOR WATER SO THAT IT MAY BE FURNISHED TO CONSUMERS AT ALL TIMES, SUCH STORAGE MAY THEREFORE BE CONSIDERED "EQUALIZING" STORAGE BECAUSE IT PROVIDES FOR EQUALIZING FLOW IN ACCORDANCE WITH DAILY DEMANDS TO MEET MAXIMUM AND MINIMUM REQUIREMENTS FOR THE 24-HOUR PERIOD.

ELEVATED STORAGE IS NORMALLY DESIGNED TO PROVIDE A REASONABLE AMOUNT OF OPERATION TO SUPPLY PEAK DEMANDS, WHICH WILL RANGE FROM 150 TO OVER 300 PERCENT OF THE DAILY AVERAGE DEMAND THAT IS IN EXCESS OF PUMPING CAPACITIES AND TO FULFILL EMERGENCY NEEDS SUCH AS FIRE PROTECTION, POWER AND PUMP FAILURES, ETC.

THERE ARE SEVERAL METHODS OF STORAGE AVAILABLE; SUCH AS OVERHEAD STORAGE, STANDPIPE, GROUND STORAGE, AND PRESSURE TANKS. IN ORDER TO COMPLETELY COVER THE REQUIREMENTS OF THE DISTRICT AND TO PROVIDE ADEQUATE FIRE PROTECTION FOR THE CITIZENS THE ENGINEERS RECOMMEND AN OVERHEAD STORAGE TANK, OFFERING READILY AVAILABLE WATER TO THE COMMUNITY AS WELL AS AMPLE FIRE PROTECTION FOR SOME YEARS TO COME.

STORAGE REQUIREMENTS: THE STORAGE REQUIREMENTS OF A DISTRICT WOULD BE 18-HOUR DOMESTIC FLOW, PLUS FIREFIGHTING. WE THEREFORE RECOMMEND THE FOLLOWING:

$$18\text{-HOUR DOMESTIC CONSUMPTION} = 60,000 \times \frac{18}{24} = 45,000 \text{ G.P.D.}$$

ALLOWING FOR FIREFIGHTING, AND WELL PUMPING DURING THE FIRE, WE RECOMMEND A 50,000-GALLON OVERHEAD STORAGE TANK. AN ECONOMICAL TYPE ELEVATED TANK, AND

ONE HAVING A PLEASING APPEARANCE, IS A DOUBLE, ELLIPSOIDAL OVERHEAD TANK WITH A CONICAL ROOF. A TANK OF 22 FEET DIAMETER AND WITH A WORKING DEPTH OF APPROXIMATELY 20 FEET WILL PROVIDE THE REQUIRED STORAGE OF 50,000 GALLONS AS PREVIOUSLY CALCULATED.

SITE:

IN CONSIDERING A SITE LOCATION FOR A PROPOSED ELEVATED STORAGE TANK, SEVERAL FACTORS WERE TAKEN INTO CONSIDERATION; SUCH AS, HEIGHT OF AVAILABLE TERRAIN, NEARNESS TO THE CENTER OF THE DISTRIBUTION OR NEAR THE CONGESTED OR LARGER CONSUMPTION AREAS, SO THAT THERE WILL BE A TENDENCY TO EQUALIZE VARYING FLOW REQUIREMENTS AND PRESSURE DIFFERENTIALS DURING THE PEAK PERIOD, ALSO THE TANK SITE NEEDS TO BE ON THE CENTER AXIS OF THE WELL AND DISTRIBUTION SYSTEM AND AT THE SITE OF THE PLANT TO BE UTILIZED IN THE TREATMENT PROCESS AS A CONTACT TANK IN LIEU OF A CLEARWELL.

AN ELEVATED STORAGE TANK WHICH IS PROPERLY LOCATED WILL ACT AS AN ADDITIONAL WELL DURING PEAK PERIOD WHEN THE DRAFT OF THE SYSTEM IS EXCEPTIONALLY HEAVY, AS WELL AS PROVIDING OVERHEAD STORAGE.

A SITE THAT MORE READILY MEETS ALL OF THE ABOVE REQUIREMENTS IS LOCATED ON THE THWEATT PROPERTY AS RECOMMENDED FOR THE PROPOSED WELL SITE. THE PROPERTY CAN BE PURCHASED AT A REASONABLE PRICE AND IS SHOWN ON PLATE 1, BOUND AT THE BACK OF THIS REPORT.

DESIGN ANALYSIS:

PRESSURE REQUIREMENTS ARE 20 PSI RESIDUAL PRESSURE AT FIRE FLOW.

20 PSI RESIDUAL = 46.2 FEET HEAD.

AVERAGE FLOW REQUIRED FROM STORAGE = 500 G.P.M.

GROUND ELEVATION OF TANK SITE = 460.0

ASSUME NO FLOW FROM PUMPS.

USE C = 140 FOR ASBESTOS CEMENT PIPE AND C = 100 FOR CAST IRON PIPE IN HAZEN-WILLIAMS FORMULA.

HEAD LOSSES IN THE 8-INCH ASBESTOS CEMENT PIPE AT 500 G.P.M. FOR THE DIFFERENT LENGTHS ARE AS FOLLOWS:

<u>LENGTH (FT.)</u>	<u>HEAD LOSS (FT.)</u>	<u>PRESSURE REQUIRED (LBS.)</u>	<u>ELEVATION AT END</u>
6,000 TO THE SOUTH	26.4	11.43	520.0
14,000 TO THE NORTH	61.6	26.67	450.0

TOTAL HEAD REQUIRED TO COVER THE MAXIMUM DISTANCE (14,000) WHICH WILL BE THE TENTATIVE MINIMUM HEIGHT OF THE STORAGE TANK, AS BOTH DEXTER AND ALMO HEIGHTS SLOPE DOWN TO A LOWER ELEVATION THAN SHOWN ABOVE.

61.6 + 46.2 (RESIDUAL) = 107.8 FEET

USE 110 FEET TOTAL TO COMPENSATE FOR OTHER LOSSES

TO DETERMINE THE HEIGHT OF THE WATER TANK, WE WILL CALCULATE THE HEIGHT BASED UPON THE 14,000-FT. LENGTH AND CHECK THE 6,000-FT. END DUE TO THE DIFFERENCE OF THE ELEVATION OF EACH POINT.

ELEVATION NORTH END	=	450.0
TOTAL HEAD (CALCULATED ABOVE)	=	<u>110.0</u>
MINIMUM HEIGHT OF TANK	=	560.0

IT IS QUITE APPARENT THAT THE NORTH END OF THE DISTRICT WILL NOT BE THE CONTROLLING POINT FOR SETTING THE TOWER HEIGHT AS THE END OF THE SOUTH END IS AT ELEVATION 520, WHICH WOULD ONLY REQUIRE A 40-FT. HIGH TANK. A CHECK ON THE SOUTH END OF THE 8-INCH MAIN RESULTS IN THE FOLLOWING CALCULATIONS:

ELEVATION SOUTH END	=	520.0
TOTAL HEAD (CALCULATED ABOVE) PLUS RESIDUAL PRESSURE	=	<u>72.6</u>
MINIMUM HEIGHT OF TANK	=	592.6

UTILIZING A TANK WITH AN EFFECTIVE DEPTH OF 20 FEET AND WITH A GROUND ELEVATION OF 510, THE REQUIRED MINIMUM HEIGHT OF THE OVERHEAD TANK AS PREVIOUSLY CALCULATED IS ELEVATION 592.6. THE TOWER BASE HEIGHT IS DETERMINED AS FOLLOWS: ELEVATION 592.6 (MINIMUM WATER LINE) MINUS 510 GROUND ELEVATION EQUALS 82.6-FOOT TOWER HEIGHT. WE THEREFORE RECOMMEND A 100-FT. TOWER HEIGHT TO COMPENSATE FOR ALL LOSSES AND TO PROVIDE ADDITIONAL PRESSURE REQUIREMENT IN BOTH DEXTER AND ALMO HEIGHTS. THIS WILL PLACE THE OVERFLOW AT 510 GROUND ELEVATION PLUS 100-FT. TOWER HEIGHT PLUS 20-FT. EFFECTIVE TANK HEIGHT EQUALS ELEVATION 630.0.

DISTRIBUTION SYSTEM:

A PRELIMINARY DISTRIBUTION SYSTEM FOR THE COMMUNITY IS SHOWN IN DETAIL ON PLATE 1, BOUND AT THE BACK OF THE REPORT. THE SYSTEM AS RECOMMENDED CONSISTS PRIMARILY OF 8-INCH MAINS THROUGHOUT THE DENSELY POPULATED PORTION AND IN ACCORDANCE WITH FIRE FLOW REQUIREMENTS, AS WELL AS TO SUPPLY THE VOLUME OF WATER TO THE WIDELY SEPARATED DEMANDS ON THE SYSTEM, AND IS SHOWN BY A BROKEN LINE WITH AN 8-INCH SPACE IN THE BROKEN LINE. THE SIX-INCH MAINS ARE SHOWN ON PLATE 1 BY A SOLID HEAVY LINE; THE FOUR-INCH MAINS ARE SHOWN BY A LONG BROKEN LINE; AND THE THREE-INCH MAINS ARE SHOWN BY DASHED LINES.

IT SHOULD BE POINTED OUT THAT SOME OF THE LINES AS RECOMMENDED AND SHOWN ON THE ACCOMPANYING PLATE 1 PASS THROUGH AREAS IN WHICH THEY DO NOT SERVE ANY CUSTOMERS AT PRESENT; HOWEVER, THESE LINES ARE JUST AS EQUALLY IMPORTANT AS LINES SERVING CUSTOMERS. PRESSURE IN ALL PARTS OF A WATER DISTRIBUTION SYSTEM DEPENDS UPON THE NUMBER AND SIZE OF PIPES THROUGH WHICH WATER CAN REACH AN AREA. A STRONG AND ADEQUATE WATER SYSTEM HAS MAIN LINES OF SUFFICIENT CAPACITY AND PRESSURE EXTENDING INTO EVERY SECTION OF THE TOWN AND INTERCONNECTED AT REMOTE POINTS. THE SIZES OF THE LINES SHOWN IN SOME AREAS ARE MAINLY FOR ADEQUATE FIRE PROTECTION AND TO SERVE TO INCREASE THE PRESSURE OF THE LINES IN AREAS OTHER THAN JUST THOSE THROUGH WHICH THEY PASS.

IN DEVELOPING A COMPLETE DISTRIBUTION SYSTEM FOR THE RESIDENTS OF THE DEXTER-ALMO HEIGHTS WATER DISTRICT, IT SHOULD BE POINTED OUT THAT THE LINES, AS DESIGNED IN THIS SECTION, WILL NO DOUBT APPEAR TO BE LARGER THAN NECESSARY; HOWEVER, THE SYSTEM SHOULD BE DESIGNED AND CONSTRUCTED AT THE ORIGINAL TIME OF CONSTRUCTION TO TAKE CARE OF NOT ONLY THE EXISTING DEVELOPMENT BUT THE POTENTIAL DEVELOPMENT AS SHOWN IN SECTION ONE OF THE REPORT. THE LINES WILL NO DOUBT PASS THROUGH AREAS THAT ARE AT PRESENT UNDEVELOPED AND IN ORDER TO FURNISH THEIR REQUIRED FUTURE CAPACITY ARE AS EQUALLY IMPORTANT AS THE MAIN TO THE TANKS AT THIS TIME.

DISTRIBUTION DESIGN:

THE FORMULA USED IN THE DESIGN OF THE DISTRIBUTION SYSTEM THROUGHOUT THE REMAINDER OF THIS SECTION IS AS FOLLOWS:

$$HF = F \frac{L V^2}{D 2G}$$

WHEREIN:

HF = FRICTIONAL RESISTANCE IN FEET OF FLUID

L = LENGTH OF PIPE IN FEET

D = AVERAGE INTERNAL DIAMETER OF PIPE

V = AVERAGE VELOCITY IN FEET PER SECOND

G = ACCELERATION DUE TO GRAVITY AS 32.17

F = FRICTIONAL FACTOR

MODIFICATION OF THE ABOVE FORMULA KNOWN AS THE DARCY'S FORMULA WITH FRICTION TABLES SHALL BE USED IN LIEU OF THE ABOVE DIRECT FORMULA. A FLOW IN A PIPE IS ALWAYS ACCOMPANIED BY FRICTION OF FLUID PARTICLES RUBBING AGAINST ONE ANOTHER, AND CONSEQUENTLY, BY LOSS OF ENERGY AVAILABLE FOR WORK; IN OTHER WORDS, THERE MUST BE A PRESSURE DROP IN THE DIRECTION OF FLOW.

PRESSURE AND CAPACITY AVAILABLE:

CALCULATIONS FOR SOUTH END

ALMO HEIGHTS AVERAGE ELEVATION = 520

FLOWAGE CALCULATION AT ALMO HEIGHTS IS AS FOLLOWS:

TANK OVERFLOW ELEVATION = 630.0

GROUND ELEVATION AT ALMO HEIGHTS = 520.0

DIFFERENCE IN ELEVATION = 110.0

$$\frac{\text{DIFFERENCE IN ELEVATION } 110}{\text{DISTANCE IN THOUSANDS } 6} = 18.2 \text{ (FRICTIONAL FACTOR)}$$

ENTERING A TABLE OF FRICTIONAL LOSS PER 1000 FEET, WE FIND THE FOLLOWING RESULTS:

8-INCH MAINS = 1100 G.P.M. (WITH A FULL TANK)

CALCULATIONS FOR ALMO

TANK OVERFLOW ELEVATION = 630.0

GROUND ELEVATION (AVERAGE AT ALMO) = 430.0

DIFFERENCE IN ELEVATION = 200.0

$$\frac{200.0}{12} = 16.66 \text{ (FRICTIONAL FACTOR)}$$

6-INCH MAIN = 560 G.P.M.

CALCULATIONS FOR NORTH END

TANK OVERFLOW ELEVATION = 630.0

GROUND ELEVATION (END OF 8-INCH MAIN) = 450.0

DIFFERENCE IN ELEVATION = 180.0

$$\frac{180}{14} = 12.8 \text{ (FRICTIONAL FACTOR)}$$

8-INCH MAIN = 880 G.P.M. (WITH A FULL TANK)

IT IS FELT BY THE ENGINEERS THAT THE SYSTEM AS DESIGNED AND SHOWN IN DETAIL ON PLATE 1, BOUND AT THE END OF THE REPORT, HAS SUFFICIENT CAPACITY TO COVER THE ENTIRE AREA'S POTENTIAL AS WELL AS OFFERING ADEQUATE FIRE PROTECTION FOR THE ENTIRE COMMUNITY. THE LINES ARE RECOMMENDED TO BE EXTENDED IN THE FUTURE TO SERVE THE ADDITIONAL FARM AND URBAN AREAS UPON DEVELOPMENT, AS WELL AS SERVING THE SYSTEM TO LOOP THE LINES WHERE POSSIBLE; THUS ELIMINATING THE DEAD ENDS, WHICH SHOULD BE HELD TO A MINIMUM WHEREVER POSSIBLE. AN ADEQUATE AND STRONG, WELL-ROUNDED WATER DISTRIBUTION SYSTEM HAS MAIN TRUNK LINES OF SUFFICIENT SIZES, CAPACITIES, AND PRESSURES EXTENDING INTO EVERY SECTION OF THE AREA PROPOSED FOR SERVICE AND INTERCONNECTED AT REMOTE POINTS WHERE POSSIBLE. THE SIZES OF SOME OF THE LINES ARE MAINLY FOR ADEQUATE SERVICE AND TO INCREASE THE PRESSURE OF THE LINES IN AREAS OTHER THAN JUST THOSE WHICH THEY PASS.

A MORE THOROUGH EXAMINATION OF PLATE 1, SHOWING THE PROPOSED DISTRIBUTION, RELATES THAT DEAD ENDS HAVE BEEN HELD TO A MINIMUM, OTHER THAN AT ENDS OF ROADS, WHERE NO LOOPS COULD BE POSSIBLE. THE DEAD ENDS, WHERE REQUIRED, HAVE BEEN PROVIDED WITH MEANS OF FLUSHING, EITHER BY FIRE HYDRANTS OR VALVES OF THE RELEASE TYPE SO THAT THE LINE MAY BE PERIODICALLY CLEANED OUT AND SETTLEMENT ELIMINATED THAT BUILDS UP AT ENDS OF MAINS.

THE DISTRIBUTION SYSTEM SHALL INCLUDE ADEQUATE VALVES SO THAT A PORTION OF THE LINE MAY BE CUT OUT OF SERVICE FOR NECESSARY MAINTENANCE, REPAIRS, AND/OR EXTENSIONS. THE VALVE LOCATIONS ARE SHOWN ON PLATE 1, AND ARE HELD TO A MINIMUM; YET PROVIDING AN ADEQUATE VALVED SYSTEM.

IN CONSIDERING FIRE HYDRANT LOCATIONS, IT SHOULD BE BORNE IN MIND THAT THE ULTIMATE OBJECTIVE WILL BE TO LIMIT SPACING TO A MAXIMUM OF 500 FEET; HOWEVER, AT THIS TIME, WE ARE RECOMMENDING THE MINIMUM LOCATION OF HYDRANTS TO ACT EITHER FOR FIRE PROTECTION OR BE UTILIZED FOR CLEANOUT AND FLUSHINGS.

IN ANALYZING THE COMPLETE PROPOSED DISTRIBUTION SYSTEM, SUFFICIENT BLOW-OFF VALVES AND AIR RELEASE VALVES HAVE BEEN SHOWN, AS WELL AS THE REQUIRED TYPE OF FITTINGS SUCH AS TEES, CROSSES, REDUCERS, PLUGS, ETC. TO GIVE A WELL-ROUNDED AND ADEQUATE SYSTEM TO SERVE THE COMMUNITY FOR THE NEXT THIRTY TO FIFTY YEARS.

IT IS HOPED THAT THE ENTIRE SYSTEM AS SHOWN ON THE PLATE, ALONG WITH THE ITEMS RECOMMENDED AND DISCUSSED WITHIN THIS REPORT, CAN BE CONSTRUCTED AT THIS TIME WITHOUT PLACING A FINANCIAL BURDEN ON THE USERS AND THE COMMUNITY AS A WHOLE.

THE ENGINEERS RECOMMEND THAT THE ENTIRE SYSTEM BE METERED FOR EACH CUSTOMER SO THAT ADEQUATE CHARGES MAY BE PLACED ON THE USER IN ACCORDANCE WITH THE RATES SHOWN IN SECTION THREE OF THE REPORT, AND IN ACCORDANCE WITH THE DEMANDS OF EACH INDIVIDUAL CUSTOMER AS TO THE AMOUNT OF WATER USED PER MONTH.

WATER TREATMENT PLANT:

IN ORDER TO RECOMMEND THE TYPE OF TREATMENT ON WHICH TO BASE A PRELIMINARY DESIGN, SAMPLES OF SEVERAL WELLS IN THE AREA WERE TAKEN AND CHEMICAL ANALYSES MADE ON THE SAMPLES. RESULTS OF THE REPRESENTATIVE WELL THAT HAS BEEN USED TO COMPILE THE TREATMENT SECTION OF THE REPORT ARE SHOWN ON EXHIBIT 2, PAGE 2-8, ENTITLED "CHEMICAL ANALYSIS."

CHEMICALLY THE ANALYSIS, AS SHOWN ON EXHIBIT 2, PAGE 2-8, INDICATES THE WATER TO BE GENERALLY ACCEPTABLE FOR DRINKING AND CULINARY PURPOSES; HOWEVER, A PERUSAL OF THE RESULTS OF THE ANALYSIS INDICATES THAT THE WATER IS LOW IN SOLIDS, LOW PH, CORROSIVE IN NATURE, AND A HIGH CO₂ (FREE CARBON DIOXIDE). THE COMBINED IRON AND MANGANESE ARE SLIGHTLY AT OR OVER THE ACCEPTABLE LIMITS.

DEGREE OF TREATMENT:

THE ENGINEERS RECOMMEND A TYPE OF PLANT THAT WILL BE COMPLETELY AUTOMATIC IN NATURE, ECONOMICAL TO OPERATE AND BUILD, YET WILL PRODUCE A TYPE OF WATER, IN QUALITY AND MINERAL CONTENT AND LOW IN CORROSIVENESS, THAT WILL BE GENERALLY ACCEPTABLE TO THE ENTIRE DISTRICT AND THAT WILL BE UTILIZED IN SUFFICIENT AND ADEQUATE QUANTITIES FOR ALL GENERAL DOMESTIC PURPOSES BY THE CONSUMERS OF THE DISTRICT. WITH THIS IN MIND, THE ENGINEERS RECOMMEND TWO DUAL HEAD CHEMICAL FEEDERS IN THE PLANT ALONG WITH A QUICK OPENING VALVE IN THE BOTTOM OF THE OVERHEAD STORAGE TANK FOR BLOWING OUT ANY SETTLEMENT OR SEQUESTRATION OF FREE IRON. THE PLANT SHALL INCLUDE THE FOLLOWING:

1. INSTALL AN AIR SNIFFER IN THE MAIN LINE FOR INTRODUCING AIR TO AID IN REDUCING THE CO₂ (TO REDUCE THE CO₂ BY AIR IS THROUGH DISPLACEMENT AND THEREFORE RAISES THE PH).
2. THE ADDITION OF SODA ASH (Na₂CO₃) TO CONTINUE TO RAISE THE PH AND ALKALINITY.
3. THE FEEDING OF PHOSPHATE (CALGONE) TO PREVENT CORROSION WITH THE FREE CO₂ AND TO SEQUESTER THE IRON. (HOLD IN SOLUTION TO PREVENT ITS PRECIPITATION, THUS CAUSING RED WATER, STAINS, ETC.)
4. ADDITION OF CHLORINE FOR BACTERIOLOGICAL PURPOSES, BUT ALSO TO ACT AS A POLISHING OFF AGENT FOR IRON AND MANGANESE REMOVAL, AS WELL AS TO PREVENT SLIME GROWTH WITHIN THE SYSTEM.
5. BLOW-OFF VALVE, OF THE QUICK OPENING TYPE, SOLENOID CONTROL IN THE BOTTOM OF THE OVERHEAD STORAGE TANK TO FLUSH OUT ALL SETTABLE SOLIDS WITHIN THE TANK.
6. REQUIRED CONTACT TIME OF 30 MINUTES TO BE RECEIVED IN THE OVERHEAD STORAGE TANK.

TREATMENT REQUIRED:

1. AIR SNIFFLER: PROVIDE STANDARD AIR SNIFFLER FOR 6-INCH MAIN TO INJECT SUFFICIENT AIR INTO THE WATER.
2. SODA ASH:

DESIGN FLOW	=	60,000 G.P.D.
EXISTING PH	=	6.2
REQUIRED ALKALINITY	=	200 P.P.M.
EXISTING ALKALINITY	=	- 19 P.P.M.
NEEDED BY SODA ASH	=	181 P.P.M.

$\frac{181}{0.94} = 192$ P.P.M. OF SODA ASH

EXHIBIT 2

CHEMICAL ANALYSIS OF WELL WATER

(MILTON WALSTON WELL -- SOUTH OF ALMO-HEIGHTS)

(WELL CASED WITH PLASTIC)

PH: <u>6.2</u>	DATE: <u>FEBRUARY 9, 1963</u>
CALCIUM (Ca)	12 PPM
MAGNESIUM (Mg)	10 PPM
SODIUM (Na)	2 PPM
BICARBONATE (HCO ₃)	19 PPM
CARBONATE (CO ₃)	0 PPM
HYDROXIDE (OH)	0 PPM
CHLORIDE (Cl)	2 PPM
SULFATE (SO ₄)	5 PPM
TOTAL HARDNESS	22 PPM
ALKALINITY (METHYL ORANGE)	19 PPM
ALKALINITY (PHENOLPHTHALEIN)	0 PPM
ALKALINITY (HYDROXYL)	0 PPM
FREE CARBON DIOXIDE (CO ₂)	23 PPM (CALC.)
IRON (Fe)	0.3 PPM
SILICA (SiO ₂)	7.7 PPM
ORGANIC MATTER (KMNO ₄)	<0.1 PPM
TURBIDITY AFTER SHAKING	5
ACTUAL HARDNESS	1.3 PPM

COLOR - 3

ODOR - NIL

TURBIDITY - NIL

$$\text{POUND OF SODA ASH PER HOUR} = \frac{(8) (60) (192) (8.33)}{10^6} = 0.768 \text{ LB.}$$

ALLOW FOR MARGIN OF 3 TO 1

USE DUAL HEAD CHEMICAL FEEDER CAPABLE OF DELIVERING 0-10 POUNDS PER HOUR.

3. PHOSPHATE:

DESIGN FLOW = 60,000 G.P.D.
 EXISTING IRON (FE) = 0.3 P.P.M.
 PHOSPHATE REQUIRED = 2 P.P.M. PER 1 P.P.M. IRON

USE THE FEEDER WITH SODA ASH UNIT TO FEED A MAXIMUM OF 2 P.P.M. OF PHOSPHATE ALONG WITH THE SODA ASH.

4. CHLORINATOR:

PROVIDE A CHLORINATOR FOR A DOSAGE RANGE OF 10 P.P.M. OPERATING WHEN THE WELL PUMPS ARE OPERATING.

$$\text{LBS. OF CHLORINE PER DAY} = (10 \text{ P.P.M.}) (0.60) (8.33) = 49.98 \text{ LBS.}$$

5. BLOW-OFF VALVE:

PROVIDE A 2 1/2-INCH SOLENOID VALVE IN THE BOTTOM OF THE OVERHEAD STORAGE TANK, NORMALLY CLOSED, CURRENT TO OPEN OPERATING BY PUSH BUTTON FROM THE PLANT BUILDING.

6. CLEARWELL:

DESIGN FLOW = 60,000 G.P.D.

PER MINUTE FLOW = $\frac{60,000}{1440} = 41.7 \text{ G.P.M.}$

REQUIRED CONTACT TIME = 30 x 41.7 = 1251 GLS.

UTILIZE STORAGE TANK WITH A 6-INCH INLET TO TOP OF TANK AND AN 8-INCH OUTLET ONE FOOT FROM BOTTOM OF TANK PROVIDES MORE THAN THE REQUIRED CLEARWELL CAPACITY AND CONTACT TIME.

7. PLANT BUILDING:

PROVIDE A CONCRETE BLOCK BUILDING TO HOUSE ALL PLANT EQUIPMENT, TELEMETER CONTROLS, AND SMALL LABORATORY FOR PH, CARBON DIOXIDE, IRON AND CHLORINE TESTING.

EXHIBIT 3, PAGE 2-11, SHOWS A PRELIMINARY FLOOR PLAN, PLOT PLAN COMBINATION OF THE PROPOSED WATER WORKS BUILDING AS RECOMMENDED FOR CONSTRUCTION WITHIN THIS REPORT.

SUMMARY:

IN THE RECOMMENDATION OF THIS TYPE OF PLANT, WHICH IS COMPLETELY AUTOMATIC OTHER THAN MIXING THE CHEMICALS IN THE VATS OR DRUMS ADJACENT TO THE TWO DUAL HEAD CHEMICAL FEEDERS, WHICH SHALL BE SYNCHRONIZED TO OPERATE OFF OF THE WELL PUMPS, IT IS FELT THAT AN EXCELLENT QUALITY OF WATER WILL BE PRODUCED BY THE PLANT AT A VERY NOMINAL COST FOR PRODUCING THE WATER, AS WELL AS REQUIRING A MINIMUM OF OPERATIONAL ATTENTION FROM EITHER GENERAL OPERATION OR MAINTENANCE.

THE ACTUAL AMOUNT OF CHEMICALS TO BE USED ONCE THE SYSTEM IS PUT INTO OPERATION WILL BE DETERMINED BY INDIVIDUAL TESTS RUN ON THE SAMPLES, AS WELL AS CHLORINE RESIDUAL TESTS AT THE ENDS OF THE DISTRIBUTION LINES. IT IS FELT THAT THE CHEMICAL CALCULATIONS AS STATED HEREIN WILL BE MORE THAN AMPLE TO BASE THE CHEMICAL COSTS ON FOR THE FINANCIAL PORTION OF SECTION THREE OF THE REPORT. FOR CORROSION TREATMENT OF THE RAW WATER PIPING AND THE WELL CASEMENT, WE RECOMMEND THAT THE WELL CASING BE LINED WITH PLASTIC.

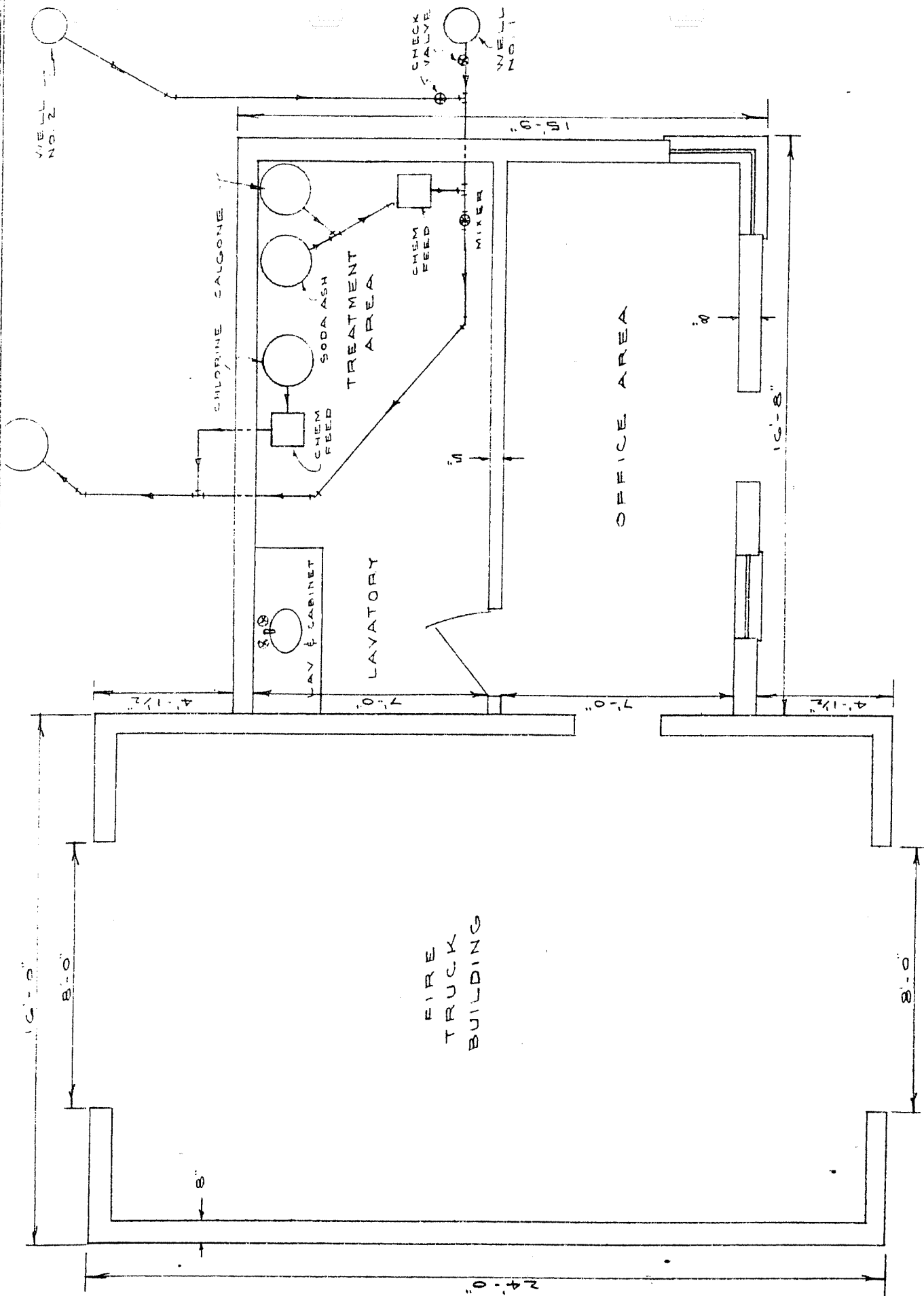


EXHIBIT - 3
 SCHEMATIC LAYOUT, TREATMENT PLANT

SECTION THREE

COST ESTIMATES, RATES PROPOSED, FINANCING

GENERAL:

THE FOLLOWING COST ESTIMATES HAVE BEEN PREPARED ON THE BASIS OF RECENT BID TABULATIONS FOR SIMILAR PROJECTS AND UP-TO-DATE COSTS OBTAINED FROM EQUIPMENT MANUFACTURERS AND SUPPLIERS; WHICHEVER THE CASE MAY BE.

NO ITEMIZED SEPARATE ALLOWANCE HAS BEEN MADE FOR ANY PROPERTY FOR THE PROPOSED TANK SITE LOCATION, SUPPLY AND THE TREATMENT PLANT AREA. IT IS THE POLICY OF THE ENGINEERS TO AVOID MAKING, IF POSSIBLE, ANY DIRECT ESTIMATE OF REAL ESTATE PROPERTY VALUES SINCE THIS IS PRIMARILY DETERMINED BY LOCAL CONDITIONS, AS WELL AS THE OWNERS WILLINGNESS TO EITHER SELL VERY CHEAPLY OR, IN MOST CASES, DONATE THE PROPERTY TO THE COMMUNITY FOR A SPECIFIC USE.

IN COMPILING THE COST ESTIMATES, THAT FOLLOW, THE ENTIRE DISTRIBUTION SYSTEM AS SHOWN ON PLATE 1, HAS BEEN ITEMIZED AND COST FIGURED FOR, AS WELL AS ALL OF THE RECOMMENDATIONS BROUGHT OUT WITHIN THE TEXT OF THIS REPORT, INCLUDING FIRE HYDRANTS, MISCELLANEOUS FITTINGS, VALVES, ETC. IT IS SINCERELY RECOMMENDED THAT THE ELIMINATIONS THAT MAY BE MADE, WILL BE HELD TO A MINIMUM, AS IN MOST CASES, COMPETITIVE BIDDING ON PROJECTS, SUCH AS THIS, HAVE FALLEN BELOW THE ENGINEERS ESTIMATE.

TO RECEIVE A SAVING IN THE INSURANCE RATES FOR THE ENTIRE COMMUNITY AND ADJACENT AREAS BEING SERVICED BY THIS PROPOSED WATER SYSTEM, IT WILL BE NECESSARY TO PURCHASE A NEW FIRE TRUCK BY THE CITY TO MEET CLASS 8 RATINGS. THIS PIECE OF EQUIPMENT SHOULD BE OF THE FRONT END PUMPER TYPE COMPLETELY EQUIPPED IN ACCORDANCE TO THE STATE FIRE MARSHALL'S REQUIREMENTS. SEVERAL MEETINGS HAVE BEEN HELD WITH BONDS PEOPLE AND FIRMS, AND THIS OFFICE HAS BEEN TENTATIVELY SUBMITTED A GUARANTEE BY ONE FIRM THAT THE BONDS WILL BE PLACED WITHIN 45 DAYS AFTER CONTRACTURAL BIDS HAVE BEEN RECEIVED.

THE CALCULATIONS THAT FOLLOW ARE BASED UPON A MINIMUM OF 70% OF THE POTENTIAL CUSTOMERS AS STATED ABOVE. THE COMMISSIONERS HAVE CIRCULATED A PETITION AND OBTAINED NEAR THE MINIMUM REQUIREMENT. IT HAS BEEN THE EXPERIENCE OF THIS FIRM THAT ONCE THE SYSTEM IS UNDERWAY, MOST OF THE LOCAL RESIDENTS WHO WERE ON A BORDER LINE AS TO OBTAINING THE SERVICES OF A COMMUNITY WATER SYSTEM, SUCH AS THE ONE RECOMMENDED HERewith, GRASPS FOR THE FINAL OPPORTUNITY OF TYING ON AT THE ORIGINAL TAP-IN CHARGE. SEVERAL OF THE CUSTOMERS BEING SERVED ARE OUTSIDE OF THE CITY LIMITS AND IN ORDER TO ENCOURAGE THE USE OF THIS SERVICE, THE MINIMUM SERVICE SHOULD BE THE SAME FOR ALL DOMESTIC CONSUMERS, AS NO TAX OF ANY KIND IS INVOLVED. IT IS APPARENT THAT THIS WOULD BE THE MOST EQUITABLE AND FAIREST RATES TO ALL CONCERNED, SO THAT THE ENTIRE COMMUNITY WITH ITS ENVIRONS MAY ENJOY SAFE, TREATED, AND ADEQUATE WATER AT ALL TIMES.

THE TABLES THAT FOLLOW HAVE BEEN PREPARED TO SHOW NOT ONLY THE PROPOSED PRELIMINARY COSTS, BUT ESTIMATED OPERATING COSTS, EXISTING COMMUNITY CHARGES, SERVICES AND RATES, AND A MINIMUM COVERAGE FACTOR. ALL ITEMS ARE AS RECOMMENDED AND SHOWN ON PLATE 1, BOUND AT END OF THE REPORT. THE PRELIMINARY COST ESTIMATE, AS SHOWN ON TABLE 1, AND AS FOLLOWS, ARE BROKEN DOWN BY SUB-TOTALS FOR EACH RESPECTIVE GROUP OF IMPROVEMENTS AS RECOMMENDED HEREIN.

TABLE 1

PRELIMINARY COST ESTIMATE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>AMOUNT</u>
1	DEEP WELLS	2	\$ 4,000.00	\$ 8,000.00
2	WELLS, PUMPS AND SERVICE	2	1,200.00	2,400.00
3	CHEMICAL FEEDER	1	580.00	580.00
4	CHLORINATION EQUIPMENT	1	920.00	920.00
5	MASTER METER	1	350.00	350.00
6	CONTROLS	LUMP SUM	470.00	470.00
7	PLANT BUILDING	LUMP SUM	4,000.00	4,000.00
8	PLANT ELECTRICAL	LUMP SUM	350.00	350.00
9	PLANT PIPING	LUMP SUM	200.00	200.00
10	ROAD AND GRADING	LUMP SUM	600.00	600.00
11	LABORATORY EQUIPMENT	LUMP SUM	250.00	<u>250.00</u>
			SUB-TOTAL (WELLS AND PLANT)	\$ 18,120.00
12	60,000 GALLON OVERHEAD STORAGE TANK, COMPLETE	LUMP SUM	\$22,000.00	\$ 22,000.00
13	WATER LEVEL CONTROLS	LUMP SUM	200.00	200.00
14	MISCELLANEOUS TANK	LUMP SUM	150.00	<u>150.00</u>
			SUB-TOTAL (TANK)	\$ 22,350.00
15	FURNISH, LAY AND JOINT 8" WATER MAIN	15,000 LN.FT.	2.70	\$ 40,500.00
16	FURNISH, LAY AND JOINT 6" WATER MAIN	22,500 LN.FT.	2.10	47,250.00
17	FURNISH, LAY AND JOINT 4" WATER MAIN	10,900 LN.FT.	1.75	19,075.00
18	FURNISH, LAY AND JOINT 3" WATER MAIN	1,380 LN.FT.	1.55	2,139.00
19	6" FIRE HYDRANTS, COMPLETE	40 EA.	200.00	8,000.00
20	4" FIRE HYDRANTS, COMPLETE	7 EA.	190.00	1,330.00

TABLE 1 (CONTINUED)

PRELIMINARY COST ESTIMATE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>AMOUNT</u>
21	8" GATE VALVES AND BOXES, COMPLETE	7 EA.	\$ 140.00	\$ 980.00
22	6" GATE VALVES AND BOXES, COMPLETE	10 EA.	95.00	950.00
23	4" GATE VALVES AND BOXES, COMPLETE	9 EA.	85.00	765.00
24	3" GATE VALVES AND BOXES, COMPLETE	2 EA.	75.00	150.00
25	5/8" METERS AND BOXES, COMPLETE	195 EA.	70.00	13,650.00
26	1" METERS AND BOXES, COMPLETE	4 EA.	135.00	540.00
27	2" METER AND BOXES, COMPLETE	1 EA.	290.00	290.00
28	3/4" TYPE "K" COPPER SERVICE PIPE, COMPLETE IN PLACE	10,200 LN.FT.	1.00	10,200.00
29	2" G.I. SERVICE PIPE, COMPLETE IN PLACE	240 LN.FT.	1.60	384.00
30	SPECIAL CAST IRON FITTINGS, COM- PLETE IN PLACE	9,250 LBS.	0.30	2,775.00
31	AIR RELEASE VALVES, COMPLETE IN PLACE	8 EA.	130.00	1,040.00
32	DRILLING UNDER HIGHWAYS, 5 LOCATIONS	150 LN.FT.	10.00	1,500.00
33	GRAVEL REPLACEMENT ON STREETS AND SHOULDERS	90 TONS	3.50	315.00
34	BITUMINOUS SURFACE REPLACEMENT ON STREETS	200 SQ. YD.	2.50	<u>500.00</u>
		SUB-TOTAL (DISTRIBUTION)		\$152,303.00

TABLE 1 (CONTINUED)

PRELIMINARY COST ESTIMATE

COST ESTIMATE SUMMARY:

SUB-TOTAL: WELLS, TREATMENT PLANT AND PUMPS	\$ 18,120.00
SUB-TOTAL: OVERHEAD STORAGE TANK AND CONTROLS	22,350.00
SUB-TOTAL: DISTRIBUTION SYSTEM, COMPLETE	<u>152,303.00</u>
TOTAL CONSTRUCTION	\$192,773.00
ENGINEERING PLANS AND SPECIFICATIONS @ 6%	\$ 11,566.00
FISCAL AGENT'S FEE @ 5%	10,500.00
ESCROWED INTEREST -- ONE YEAR @ 5.5%	11,550.00
LAND, RIGHT OF WAY, LEGAL, MISCELLANEOUS, AND FINANCIAL CONTINGENCY	<u>3,611.00</u>
TOTAL PROJECT	\$230,000.00
LESS SUBSCRIPTION DEPOSITED	<u>20,000.00</u>
TOTAL AMOUNT REQUIRED	\$210,000.00

FOR THE PROPOSED BOND ISSUE THE ABOVE FIGURE OF
\$210,000.00 WILL BE USED THROUGHOUT THE REMAINDER
OF THE REPORT.

FINANCING:

THE FINANCING OF ANY MUNICIPAL IMPROVEMENT IS A PROBLEM WHICH MERITS A GREAT DEAL OF CONSIDERATION. THE FINAL DECISION OF THE METHOD OR METHODS, AS WELL AS THE AMOUNT OF FINANCING TO UNDERTAKE AT THIS TIME, RESTS WITH THE COMMISSIONERS. IT IS SUGGESTED THAT THE DISTRICT RETAIN A FISCAL AGENT, AND BE ALSO REPRESENTED BY COMPETENT BOND ATTORNEYS WHO CAN HELP WORK OUT THE METHODS FOR FINANCING AS WELL AS TO CHECK THE VALIDITY OF THE BOND ISSUE, AND PREPARE ALL NECESSARY AND LEGAL ORDINANCES FOR THE CREATION OF THE WATER SYSTEM AND RATES AS PROPOSED AND RECOMMENDED HEREIN.

THE FINANCIAL ADVISORS WILL NO DOUBT GIVE A MORE DETAILED AND VALUED REPORT ON THE FINANCING OF THIS PROJECT, BUT WE ARE INCLUDING HEREIN GENERAL INFORMATION WHICH, FROM AN ENGINEERING STANDPOINT, SHOULD BE OF CONSIDERABLE HELP IN THE DISTRICT MAKING A DECISION AS TO THE AMOUNT TO UNDERTAKE AT THIS TIME, AS WELL AS WORKING OUT THE PROBLEMS OF RATES, ETC. AND NEGOTIATING WITH A FISCAL AGENT.

THERE ARE SEVERAL METHODS OF FINANCING THIS TYPE OF PROJECT AS DISCUSSED WITHIN THIS REPORT: AVAILABLE TO THE COMMUNITY, SUCH AS REVENUE BONDS, GENERAL OBLIGATION BONDS, THE U. S. GOVERNMENT THROUGH THE FARM HOME ADMINISTRATION PURCHASES BONDS OF THIS NATURE, AS WELL AS THE HOUSING AND HOME FINANCE AGENCY OF THE U. S. GOVERNMENT. A GRANT MAY BE AVAILABLE IN THE AMOUNT OF 50% OF THE COSTS AT THIS TIME FOR PROPOSED WATER SYSTEMS. FEDERAL PARTICIPATION IN THE BONDS CAN ONLY BE OBTAINED AFTER PRIVATE INVESTORS HAVE TURNED THE BONDS DOWN, OR BONDING FIRMS HAVE REFUSED THE ISSUES.

IT WOULD APPEAR, FROM OUR EXPERIENCE IN THE FIELD OF UTILITY FINANCING, THAT THE MOST FEASIBLE METHOD OF OVER-ALL FINANCING WOULD BE THROUGH REVENUE BONDS, WHICH ARE SECURED BY THE PLEDGING OF YOUR CONSTRUCTED WATER SYSTEM COMPLETE AS SECURITY FOR THE BONDED INDEBTEDNESS AND UTILIZING FUNDS DERIVED FROM THE SALE OF WATER TO AMORTIZE OR PAY FOR THE USE OF SOMEONE ELSE'S MONEY FOR CONSTRUCTION. THIS METHOD OF FINANCING IS ALMOST UNIVERSALLY USED IN THE CONSTRUCTION OF NEEDED PUBLIC UTILITY SERVICES, SUCH AS WATER, SEWER AND GAS SYSTEMS.

THE ENTIRE SYSTEM, AS RECOMMENDED ON PLATE 1, IS PROVIDED WITH METERS TO ALL SERVICES, A RECOGNIZED PRACTICE FOR ECONOMICAL REASONS, AS WELL AS FOR CONTROL OF TREATED, SANITARY WATER USAGE ON A "PAY FOR WHAT YOU USE" BASIS. METERS WILL BE REQUIRED IN ALL ASPECTS OF FINANCING AS THE SALE OF WATER IS ESSENTIAL TO THE RETIREMENT OF THE DEBT ON THE SYSTEM AND PROVIDE FOR OPERATION AND MAINTENANCE. THE AMOUNT OF WATER USED BY EACH CUSTOMER CAN ONLY BE DETERMINED THROUGH THE USE OF METERS, OTHERWISE TREATED WATER WILL BE WASTED, THUS REQUIRING A HIGHER RATE STRUCTURE THAN AS PROPOSED WITHIN THIS SECTION OF THE REPORT. THE METERED SYSTEM REDUCES THE COST OF OPERATION AND SUPERVISION. IN SHORT, METERS ARE THE CASH REGISTER AND CONTROLS OF THE ENTIRE SYSTEM.

RATE STRUCTURE:

IN DEVELOPING A RATE STRUCTURE FOR A NEW UTILITY SUCH AS A WATER SYSTEM, SEVERAL UNDETERMINED FACTORS HAVE TO BE ASCERTAINED FROM EITHER RECOGNIZED ENGINEERING STANDARDS OR FROM SIMILAR COMMUNITIES WITHIN THE SAME GENERAL AREA AND SIZE. THE RATE STRUCTURE AS RECOMMENDED, IS NATURALLY PREDICATED UPON THE THEORY THAT YOU PAY FOR THE SERVICES RENDERED WHICH IS THE ECONOMY OF ANY PROJECT, IN OTHER WORDS, IF A FAMILY ONLY USES 2000 GALLONS OF WATER, THEY SHOULD BE BILLED ACCORDINGLY, OR IF THEY USE 5000 GALLONS OF WATER, IT IS ONLY RIGHT AND EQUITABLE THAT THE LARGER CUSTOMER USER PAYS MORE THAN THE 2000 GALLON USER.

TO FORMULATE, AND RECOMMEND, A PROPOSED RATE STRUCTURE, A SURVEY WAS MADE OF OTHER COMMUNITIES TO DETERMINE THEIR RATES. WE HAVE FOUND THAT IF THE COMMUNITY STAYS IN LINE WITH OTHER COMPARABLE COMMUNITIES, AS TO CHARGES, TAP-INS AND SERVICES, SUCH AS FIRE HYDRANTS, ETC. AND KEEPS THE CHARGES WITHIN THE LIMITS OF THE ECONOMICAL USAGE OF NORMAL CUSTOMERS, THERE IS NOT TOO MUCH DISSENTION FROM THE USERS.

IF THE DISTRICT PURCHASES A NEW FIRE TRUCK, GUARANTEED TO MEET CLASS 8 RATINGS AS ESTABLISHED BY THE STATE FIRE MARSHALL'S OFFICE, A YEARLY SAVING OF EXISTING INSURANCE RATES OF APPROXIMATELY 40% COULD BE REALIZED BY THE ENTIRE COMMUNITY. IF THE RECOMMENDATIONS THROUGHOUT THE REPORT ARE ADOPTED IN ITS ENTIRETY, THIS SAVING APPLIES AGAINST THE RECOMMENDED RATES THAT FOLLOW SHOULD WARRANT CONSIDERABLE CONSIDERATION BY THE ENTIRE COMMUNITY. IT IS RECOMMENDED THAT BOTH RATES INSIDE AND OUTSIDE THE DISTRICT BE AT THE SAME SCALE SO THAT ALL PARTICIPANTS MAY REALIZE THE FULL USE OF A WELL ROUNDED AND ADEQUATE WATER SYSTEM.

THE ENGINEERS RECOMMEND THAT THE WATER ORDINANCE INCLUDE A FIRE CALL USAGE CHARGE OF \$100.00 FOR ANY SERVICE CALL THAT IS NOT ON THE EXISTING WATER SYSTEM WHO SHOULD HAVE A FIRE OR REQUIRE THE SERVICES OF THE FIRE TRUCK AND ARE NOT PAYING THEIR SHARE OF THIS PROTECTION. THIS SERVICE CAN ONLY BE MADE AVAILABLE THROUGH THE UNSELFISH ACT OF THE REQUIRED ORIGINAL SIGNERS OF THE PETITION. THUS MAKING THE DREAM OF AN ADEQUATE CITY WATER SYSTEM AND FIRE PROTECTION OWNED BY THE ENTIRE COMMUNITY A REALITY. IT IS THE CONTENTION OF THE ENGINEERS THAT A CHARGE SUCH AS THIS WOULD BE REASONABLE, AS THE SAME PEOPLE WILL RECEIVE THE PROTECTION AS OFFERED BY A NEW FIRE TRUCK AS WELL AS THE REDUCED INSURANCE RATES (IF THEY ARE SERVED BY THE SYSTEM'S FIRE HYDRANTS). THIS RECOMMENDATION IS NOT SUGGESTED BY THE ENGINEERS AS A PENALTY, BUT AS A METHOD TO TRY AND ENCOURAGE EACH AVAILABLE RESIDENCE TO MAKE USE OF THIS WATER SYSTEM SO AS TO LIGHTEN THE FINANCIAL BURDEN OF ALL CONCERNED. IN OTHER WORDS, TO HAVE SUFFICIENT AND ADEQUATE TREATED WATER ALL SHOULD BE EXPECTED TO PARTICIPATE IN THE COSTS OF SUCH A SYSTEM.

THE FOLLOWING TABLE 2 HAS BEEN COMPILED AND OFFERED FOR YOUR USE AND COMPARISON OF THE EXISTING RATES OF OTHER COMMUNITIES AND THE ENGINEERS RECOMMEND THAT AFTER REVIEW OF THESE COMPILED FACTS THAT ADEQUATE ORDINANCES BE DRAWN UP, EMBRACED AROUND THE RECOMMENDATIONS AS SHOWN ON TABLE 3 THAT WILL PAY FOR ALL THE REQUIRED IMPROVEMENTS, AS RECOMMENDED HEREIN. IT HAS BEEN SUGGESTED THAT IN VIEW OF THE EXISTING RATES OF OTHER COMMUNITIES THAT THE MINIMUM TAP-IN CHARGE OF \$100.00 BE ADEQUATE FOR A PERIOD OF 30 DAYS AFTER THE CONTRACT HAS BEEN LET, THEN THE TAP-IN FEE OF \$200.00 FOR ANYONE DESIRING THE WATER.

THE ABOVE TAP-IN CHARGE WILL NOT BE USED IN COMPILING THE FINANCIAL COST AND AVAILABLE USAGE OF AMORTIZING THE BOND ISSUE BUT WILL BE USED AS A SINKING FUND FOR ALL FUTURE IMPROVEMENTS AS REQUIRED BY THE THEN COMPLETED WATER SYSTEM.

UPON EXAMINATION OF THE EXISTING RATE STRUCTURES AS SHOWN ON TABLE 2, IT IS APPARENT THAT THE RATES SHOULD BE CLOSE TO THE FLEMINGSBURG AND GALVERT CITY RATES, A RECENTLY CONSTRUCTED SYSTEM, AND LESS THAN THE RATES PRESENTLY USED AT KEVIL. MANY COMMUNITIES CHARGE A FIRE HYDRANT RENTAL ALSO VARYING FROM \$40.00 TO \$100.00 PER HYDRANT. THIS IS PAID INTO THE WATER SYSTEM'S FUND BY THE CITY FROM TAX MONEY; HOWEVER, THIS IS NOT RECOMMENDED HEREIN.

TABLE 3 SHOWS THE RECOMMENDED RATES FOR THE PROPOSED WATER SYSTEM, THAT IN OUR OPINION, SHOULD BE BOTH FAIR AND ADEQUATE TO THE USERS OF THE SYSTEM AND WILL PAY FOR ALL THE IMPROVEMENTS AS RECOMMENDED FOR CONSTRUCTION WITHIN THE TEXT OF THIS REPORT, AND AS DEVELOPED IN THE COST ESTIMATE, AS SHOWN ON TABLE 1.

TABLE 2
EXISTING COMPARABLE RATES

<u>COMMUNITY</u>	<u>TAP-IN</u>	<u>MINIMUM CHARGE</u>	<u>ADDITIONAL CHARGES</u>
REIDLAND	\$ 400.00	\$3.00 FIRST 3000 GALLONS	\$0.90/100 UP TO 10,000 GALLONS NEXT 10,000 @ \$0.70/1000 20-70,000 @ \$0.60/1000 ALL OVER 70,000 @ \$0.50/1000
KEVIL	AT Cost	\$5.00 FLAT-RESIDENCE \$200.00 FLAT-SCHOOL \$7.50 FLAT-BUSINESS	
LONE OAK	\$ 95.00	\$3.00 FIRST 2000 GALLONS	2000-10,000 @ \$0.95/1000 10,000-20,000 @ \$0.70/1000 20,000-50,000 @ \$0.60/1000 50,000-100,000 @ \$0.40/1000 ALL OVER @ \$0.35/1000
CALVERT CITY	\$ 75.00-INSIDE CITY	\$3.50 FIRST 2000 GALLONS	NEXT 3000 @ \$1.00/1000 NEXT 5000 @ \$0.80/1000 NEXT 5000 @ \$0.70/1000 NEXT 5000 @ \$0.60/1000 NEXT 5000 @ \$0.50/1000 NEXT 25,000 @ \$0.40/1000
LEITCHFIELD	AT Cost	\$3.50 FIRST 2000 GALLONS	NEXT 3000 @ \$1.25/1000 NEXT 5000 @ \$1.00/1000 NEXT 10,000 @ \$0.90/1000 NEXT 10,000 @ \$0.75/1000 NEXT 20,000 @ \$0.60/1000 NEXT 50-100,000 @ \$0.50/1000
FLEMINGSBURG (INSIDE CITY)	AT Cost	\$3.60 FIRST 2000 GALLONS	NEXT 3000 @ \$1.35/1000 NEXT 5000 @ \$1.10/1000 NEXT 15,000 @ \$0.90/1000 NEXT 25,000 @ \$0.70/1000 NEXT 50,000 @ \$0.55/1000 ALL OVER 100,000 @ \$0.45/1000
GREENVILLE	\$ 65.00	\$2.20 FIRST 1000 GALLONS	NEXT 1000 @ \$1.15/1000 NEXT 3000 @ \$1.00/1000 NEXT 50,000 @ \$0.85/1000 NEXT 45,000 @ \$0.70/1000 NEXT 50,000 @ \$0.65/1000 ALL OVER 100,000 @ \$0.60/1000

TABLE 3

PROPOSED RATE STRUCTURE

MONTHLY CHARGE

FIRST 2,000 GALLONS	\$3.75 PER MONTH
NEXT 3,000 GALLONS	\$1.00 PER 1000 GALS.
NEXT 5,000 GALLONS	\$0.90 PER 1000 GALS.
NEXT 10,000 GALLONS	\$0.80 PER 1000 GALS.
ALL OVER 20,000 GALLONS	\$0.60 PER 1000 GALS.

MONTHLY MINIMUM CHARGE

(PER 2000 GALLONS)

5/8" SERVICE	\$3.75 Mo.
3/4" SERVICE	\$7.00 Mo.
1" SERVICE	\$12.00 Mo.
1 1/2" SERVICE	\$15.00 Mo.
2" SERVICE	\$20.00 Mo.

SERVICE CHARGE

5/8" SERVICE CONNECTION	\$100.00
3/4" SERVICE CONNECTION	\$200.00
1" SERVICE CONNECTION	\$250.00
1 1/2" SERVICE CONNECTION	\$300.00
2" SERVICE CONNECTION	\$350.00

1. ALL SERVICE CONNECTIONS TO BE MADE BY THE DISTRICT'S UTILITY PERSONNEL OR AT THE DIRECTION OF THE DISTRICT'S COMMISSIONERS.
2. THE ABOVE SERVICE CHARGES SHALL BE IN EFFECT ONLY PRIOR TO CONSTRUCTION; AFTER CONSTRUCTION THE SERVICE CHARGE FOR A METER CONNECTION SHALL BE \$100.00 ADDITIONAL.
3. USAGE OF OVER 20,000 GALLONS SHALL BE NEGOTIATED DIRECTLY WITH THE COMMISSIONERS IN CONJUNCTION WITH THE DISTRICT'S ENGINEERS.

CUSTOMERS:

THE AREA SHOWN ON PLATE 1, BOUND AT THE BACK OF THE REPORT, FOR SERVICE COVERS THE DISTRICT PROPER AND IN ADDITION EXTENDS ALONG U. S. HIGHWAY 641 EAST AND WEST TO THE OUTLYING AREAS. THERE IS AT PRESENT A TOTAL OF 293 RESIDENCES, 8 CHURCHES, 1 MOTEL, 1 SCHOOL AND 21 SMALL COMMERCIAL ESTABLISHMENTS ALONG THE PRESENT PROPOSED DISTRIBUTION SYSTEM.

A PETITION HAS BEEN CIRCULATED BY THE CITIZENS COMMITTEE FOR WATER AND A REASONABLE PERCENTAGE OF THE POTENTIAL CUSTOMERS HAS SIGNED TO UTILIZE THE WATER SYSTEM, AND EACH SIGNER HAS PLEDGED TO DEPOSIT THE INITIAL RATE CHARGE AS BROUGHT FORTH IN TABLE 3. THE POTENTIAL OF THE AREA THAT WAS DESCRIBED EARLIER AND IN THE FIRST SECTION OF THE REPORT INDICATES A SATISFACTORY GROWTH OVER THE PROPOSED AND PROJECTED THIRTY YEARS AS WILL BE RECOMMENDED FOR THE BOND ISSUE TO CONSTRUCT THE MUCH NEEDED IMPROVEMENTS AS RECOMMENDED HEREIN.

TABLE 4, THAT FOLLOWS, SHOWS A PROJECTED CUSTOMER BREAKDOWN PER YEAR THROUGH 1975 BASED ON COMPARABLE AVERAGES OF SYSTEMS SIMILAR TO THIS ONE AS PROPOSED FOR THE DEXTER-ALMO HEIGHTS WATER DISTRICT. WE BELIEVE THE TABLE, THAT FOLLOWS, TO BE ON THE CONSERVATIVE SIDE FOR SEVERAL REASONS THAT HAVE BEEN PREVIOUSLY POINTED OUT AND ESTABLISHED.

IT SHOULD BE POINTED OUT THAT TABLE 4 SHOWS A TOTAL OF 335 CUSTOMERS FOR 1975; WHEREAS THERE ARE PRESENTLY 364 CUSTOMERS WITHIN THE AREA EMBRACED ON PLATE 1; HOWEVER, DUE TO THE OUTLYING FARM AREAS THE PEOPLE USUALLY ARE RATHER SLOW TO ACCEPT A UTILITY SUCH AS THIS UNLESS THEY HAVE A MAJOR BREAK-DOWN OR TROUBLE WITH THEIR OWN WELL SYSTEM. THE PROPOSED FIRE PROTECTION, AS SHOWN ON PLATE 1, SHOULD MERIT A GREAT DEAL OF CONSIDERATION FROM THESE PEOPLE, AND SHOULD ONLY BE PROVIDED IF DESIRED CUSTOMER WARRANTS. A GOOD RULE OF THE THUMB METHOD OF ASCERTAINING THE ECONOMICS OF SERVING A POTENTIAL CUSTOMER IS IF IT COSTS MORE THAN \$750.00 TO SERVE THE PROPERTY WITH THE TOTAL COST OF THE UTILITY IT IS UNECONOMICAL TO FURNISH THE SERVICE TO THAT CUSTOMER.

IN PROJECTING THE CUSTOMER SERVICE THROUGH 1975, NO INDUSTRY OF ANY TYPE WAS CONSIDERED, AND HOUSING DEVELOPMENT WITHIN THE DISTRICT WAS HELD TO THE MINIMUM. IT WAS POINTED OUT IN THE FIRST SECTION OF THE REPORT AS TO ANTICIPATED POPULATION GROWTH AND ALSO PLOTTED GRAPHICALLY ON EXHIBIT 1, PAGE 1-6. TO SUBSTANTIATE THE PROJECTED CUSTOMER TABLE, THE WRITER CONTACTED THE COMMUNITY OF KEVIL, KENTUCKY, WHO INSTALLED A WATER SYSTEM LATE IN 1960, CONSISTING OF 8100 FEET OF 6-INCH MAINS AND 11,500 FEET OF 4-INCH MAINS TO SERVE 120-125 PERSPECTIVE CUSTOMERS AT THAT TIME, THEY NOW HAVE A TOTAL OF 155 CUSTOMERS OR A GROWTH OF 30 TO 35 CUSTOMERS THE FIRST YEAR AFTER THE UTILITIES WERE COMPLETED. THIS SAME PATTERN HAS BEEN FOUND TO EXIST IN OTHER SMALL COMMUNITIES DURING THE FIRST THREE TO FIVE YEARS, OR UPON THE COMPLETION OF THE UTILITY AND IT BEING MADE AVAILABLE. A MAJORITY OF THE PEOPLE WILL NOT SIGN A PETITION REQUESTING IMMEDIATE SERVICE AT THIS TIME; HOWEVER, IT IS BELIEVED THAT IF THE ADDITIONAL TAP-IN RATE OF \$200.00 THREE MONTHS AFTER BEING NOTIFIED THAT THE UTILITY IS AVAILABLE, AS RECOMMENDED IN ITEM 3, PAGE 3-14, SHOULD BE A VERY GOOD INDUCEMENT TO A LARGE NUMBER OF THE RESIDENTS TO SIGN UP AT THE LOWER TAP-IN FEE OF \$100.00 AS INITIALLY PROPOSED WITHIN THIS REPORT.

TABLE 4

CUSTOMER PROJECTION

YEAR	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
DOMESTIC	205	215	225	230	240	250	265	275	285	300	310
COMMERCIAL	15	15	15	20	20	25	25	25	25	25	25
TOTAL PROJECTION	220	230	240	250	260	275	290	300	310	325	335

OPERATIONAL COSTS:

IN ORDER TO DETERMINE THE APPROXIMATE COST OF OPERATION OF THE WATER SYSTEM AND MISCELLANEOUS APPARATUS THAT ACCOMPANY THE SYSTEM FOR THE FIRST TWO YEARS, A STUDY WAS MADE OF BOTH THE CALVERT CITY AND KEVIL SYSTEMS FOR THEIR ACTUAL OPERATING COSTS PER YEAR. AS THIS PROPOSED SYSTEM CLOSELY PARALLELS THE KEVIL SYSTEM IT SHALL BE USED AS A GUIDE IN DETERMINING AND ESTABLISHING THE COSTS FOR OPERATION OF THE SYSTEM.

THE COMMUNITY OF KEVIL PAYS THEIR WATER SUPERINTENDENT \$75.00 A MONTH ON A PART-TIME JOB BASIS TO TAKE CARE OF READING THE METERS, ADDING THE CHEMICALS, AND PERIODIC MAINTENANCE OF THE PUMPS. IT IS BELIEVED THAT THE COMMUNITY COULD ALSO OBTAIN POSSIBLY A RETIRED PERSON, OR ONE WHO HAS THE AVAILABLE TIME FOR THIS ADDITIONAL PART-TIME WORK ON THE SAME BASIS SO WE WILL THEREFORE USE A FIGURE OF \$100.00 PER MONTH IN OUR PROPOSED OPERATIONAL COST ON TABLE 6.

THE BILLING AND COLLECTING OF THE WATER CHARGES COULD BE HANDLED BY ONE OF THE EMPLOYED LADIES OF THE COMMUNITY ALSO ON A PART-TIME OR WEEK END BASIS AND THE BILLS COULD BE PAID AT ONE OF THE LOCAL RETAIL STORES, BEAUTY SHOPS, OR POSSIBLY SOMEONE'S HOME. IN SMALL SYSTEMS SUCH AS THIS ONE, IT IS IMPERATIVE THAT OPERATIONAL, OFFICE, AND MISCELLANEOUS OVERHEAD ITEMS BE HELD TO A MINIMUM UNTIL THE SYSTEM BUILDS UP OR ACCUMULATES A SURPLUS FUND. TABLE 6 SHOWS OUR RECOMMENDATIONS FOR ESTABLISHING THE OPERATING COSTS OF THE SYSTEM FOR THE FIRST, AND LEAN, YEARS OF OPERATION BASED UPON A STUDY OF SEVERAL WESTERN KENTUCKY COMMUNITIES SIMILAR IN SIZE TO THE SYSTEM AS PROPOSED HEREIN, AS WELL AS THE ULTIMATE DESIGN THAT THE SYSTEM IS PROJECTED TO ENCOMPASS. THE RESULTS OF THE STUDY ARE SHOWN IN COLUMN FORM ON TABLE 5, PAGE 3-12. IT SHOULD BE ALSO POINTED OUT THAT SOME OF THE COSTS SHOWN ARE BASED ON W.P.A. CONSTRUCTION DAYS WHICH DO NOT PARALLEL TODAY'S CONSTRUCTION COSTS.

ESTIMATED INCOME:

IN ORDER TO DEVELOP A FIGURE, OR AMOUNT, THAT CAN BE SAFELY RECOMMENDED TO FINANCE AT THIS TIME ON A PROPOSED NEW WATER SYSTEM THE INCOME COMING INTO THE SYSTEM IS THE MOST IMPORTANT PART OF THIS REPORT; NEEDLESS TO SAY, THE MONEY HAS TO COME IN EVERY MONTH TO MEET THE OBLIGATIONS OF THE UTILITY SYSTEM TO PREVENT A DEFAULT ON THE BOND ISSUE.

WATER RECORDS THROUGHOUT WESTERN KENTUCKY, THAT HAVE BEEN INVESTIGATED AND STUDIED BY THE ENGINEERS, HAVE INDICATED THAT A CONSERVATIVE ESTIMATE OF THE GALLONS OF WATER THAT A RESIDENTIAL SERVICE WILL USE ON AN AVERAGE MONTHLY BASIS OVER A PERIOD OF YEARS IS AS FOLLOWS:

FEBRUARY ----- 3,600 G.P.D.

JULY ----- 7,350 G.P.D.

WE HAVE FOUND THAT IT IS CONSERVATIVE TO USE THE AVERAGE MINIMUM WATER BILL AND ADD APPROXIMATELY 60% TO THE MINIMUM RATES FOR CALCULATING THE TOTAL AMOUNT THAT CAN BE EXPECTED FROM A SMALL COMMUNITY WATER SYSTEM, SUCH AS THE ONE AS RECOMMENDED HEREIN, WHICH IS THE FIGURE THAT WE SHALL USE IN COMPUTING THE ESTIMATED INCOME SET FORTH IN TABLE 6.

FOLLOWING IS A LIST OF RECOMMENDATIONS THAT WILL, BY NECESSITY, HAVE TO BE ADOPTED BY THE DISTRICT SO THAT THE INCOME WILL BE IN LINE WITH THE PROJECTION OF TABLE 7, WHICH IN OUR OPINION WILL FULFILL THE GENERAL OVER-ALL FINANCIAL REQUIREMENTS OF THE PROPOSED ENTIRE BOND ISSUE THAT WILL BE RECOMMENDED WITHIN THE TEXT OF THIS REPORT.

TABLE 5
COMMUNITY WATER SURVEY

TOWN	NO. OF CUST.	MIN. CHG.¢	PER 1000	TYPE TREATMENT	CAP. OF PLANT G.P.M.	SOURCE OF SUPPLY	NO. OF WELLS	SIZE OF WELLS	CAP. OF WELLS	SAL. TO SUPT.	OPER. COST 1961
BARDWELL	460	\$3.50	5000	FILTRATION	360	WELLS	2	6"		\$125.	\$1916.
BARLOW	283	3.00	FLAT	NONE		WELLS	2	6"-8"	100 300	145.	1500.
BENTON	1111	4.15	3000	AERATION, CHLORINE, LIME	900	WELLS	2	8"		100.	
CADIZ	700	3.50	2000	LIME, ALUM, CHLORINE, FILTER, SETTLING	450	SPRING				250.	7500.
CALVERT CITY	410	3.50	2000	AERATION, SETTLING, FILTRATION	250	WELLS	2	6"-8"	250 350	425.	
CLAY	550	2.50	2000	AERATION, FILTRATION, CHLORINE		WELLS	4	6"-8" 10"		225.	13173.
CORDON	157	4.00	3000	CHLORINATION		WELLS	4	8"	100	85.	
DAWSON SPRINGS	927	2.00	1000	SETTLING, CHLORINE, FILTER	530	WELLS	4	12"	250	295.	23640
EARLINGTON	840	3.00	2000	FILTER, CHLORINE, LIME, ALUM	450	LAKES				400.	13700
ELKTON	524	4.30	3000	SEDIMENTATION, FILTER, CHLORINE	250	WELLS	2	8"	150 300	300.	33000.
GUTHRIE	435	2.50	3000	FILTRATION, CHLORINATION	150	SPRING				250.	
HAZEL	186	2.25	2500	LIME, CHLORINATION	75	WELLS	2	6"		100.	1100.
HICKMAN	1053	2.00	1000	LIME, CHLORINE, CALGONE	500	WELLS	2	6"-8"	500		23000.
LONE OAK	889	3.00	2000			PADUCAH				325.	20875.
MARION	1300	2.00	2000	CHLORINE, CARBON, ALUM, LIME, CALGONE	600	LAKES				340	
PRINCETON	2070	2.25	3000	AERATION, FILTRATION, CHLORINE		SPRINGS				300.	
PROVIDENCE	1387	1.50	3000	AERATION, CHLORINE, ALUM		LAKES				320.	
REIDLAND	280	3.00	3000	SETTLING, CHLORINATION	380	WELLS	2	8"	150 230	370.	4525.
SALEM	180	3.00	2500	CHLORINATION		WELLS	2	8"		150.	4286.
SMITHLAND	218	4.00	2000	LIME ONLY	200	WELLS	2	8"		200.	4212.
STURGIS	850	2.26	3000	SETTLING, FILTER, CHLORINE	300	RIVER				360.	6000.

TABLE 6
ESTIMATED COSTS OF OPERATION
OF THE
COMPLETE DISTRIBUTION SYSTEM

PERSONNEL ⁽¹⁾	\$1,200.00
POWER AND LIGHTS ⁽²⁾ (ESTIMATED YEAR'S OPERATION)	200.00
CHEMICALS ⁽³⁾ (ESTIMATED YEAR'S OPERATION)	200.00
BILLING AND COLLECTING (CLERICAL PART-TIME)	200.00
PRINTING AND MAILING (ESTIMATED YEAR'S OPERATION)	150.00
MISCELLANEOUS (GENERAL)	100.00
MAINTENANCE AND DEPRECIATION	<u>150.00</u>
ESTIMATED OPERATING COSTS FOR ONE-YEAR OPERATION	\$2,200.00

(1) BASED UPON A CONTRACT SIMILAR TO KEVIL, KENTUCKY OPERATIONAL COST.

(2) BASED UPON DIRECT NEGOTIATION WITH THE UTILITY COMPANY ON A RATE NOT TO EXCEED \$0.02 KW HR.

(3) BASED UPON CALVERT CITY, KENTUCKY CHEMICALS USED PER MONTH.

NOTE:

OPERATIONAL COSTS FOR 1965 THROUGH 1975 ARE SHOWN ON TABLE 8.

RECOMMENDATIONS:

1. THE RATE SCHEDULE AS BROUGHT FORTH ON TABLE 3, PAGE 3-8, OF THE REPORT MUST BE ADOPTED AND COMPLIED WITH.

2. THE ENGINEERS RECOMMEND A \$.50 PENALTY FOR NOT PAYING THE WATER BILL WITHIN 10 DAYS AFTER BEING BILLED FOR THE MONTHLY USAGE, AND IF NOT PAID WITHIN 30 DAYS THE WATER SHOULD BE TURNED OFF.

3. THE INITIAL TIE-IN CHARGE REMAINS IN FORCE UNTIL THE CONSTRUCTION CONTRACT IS LET, THEN THE HIGHER RATES FOR CONNECTION SHOULD BE RAISED IN ACCORDANCE WITH ITEM 4.

4. THE TAP-IN FEE THEN SHOULD BE RAISED TO A RECOMMENDED RATE OF \$200.00 PER SERVICE CONNECTION. THIS SHOULD NOT BE CONSIDERED AS A PENALTY, BUT TO ACT AS A LEVER TO ENCOURAGE THE PEOPLE, WHEN THE WATER IS AVAILABLE, TO MAKE USE OF GOOD, TREATED DRINKING WATER AT THE EARLIEST POSSIBLE OPPORTUNITY.

TABLE 7, THAT FOLLOWS, SHOWS THE ESTIMATED INCOME THAT WILL BE DERIVED FROM THE WATER SYSTEM, ON A BASIS AS RECOMMENDED WITHIN THIS REPORT.

SUMMARY:

ON THE BASIS OF THE ESTIMATED INCOME FROM TABLE 7, THE YEARLY INCOME FOR THE YEAR OF 1965 WOULD BE A CONSERVATIVE AMOUNT OF \$16,001.00. FROM THAT YEAR ON YOU WILL REALIZE MORE CUSTOMERS AS PROJECTED IN TABLE 4, PAGE 3-10, AS WELL AS THE ADDITIONAL AMOUNT OF AN ESTIMATED AVERAGE OF \$1,000.00 FOR TAP-INS AT \$200.00 EACH PER EACH YEAR OF OPERATION.

IT STANDS TO REASON, ON A NEW SYSTEM WITHIN A COMMUNITY, THAT THE FIRST FIVE YEARS ARE REFERRED TO AS THE "LEAN YEARS" ON THE PROPOSED BOND ISSUE.

THE NET INCOME FOR THE THIRD YEAR IS CALCULATED AS FOLLOWS:

TOTAL INCOME (TABLE 7)	\$16,001.00
LESS OPERATING EXPENSE (TABLE 6)	<u>2,200.00</u>
NET AMOUNT ANTICIPATED FOR FINANCING THE PROJECT	\$13,801.00

BONDING CAPACITIES:

IT CAN BE SAFELY ASSUMED THAT THE NUMBER OF CUSTOMERS WILL INCREASE TO A MINIMUM OF 480 OVER THE NEXT THIRTY FIVE YEARS (THE AVERAGE RECOMMENDED BOND ISSUE) GIVING AN AVERAGE INCREASE OF 7.5 CONNECTIONS PER YEAR. THIS SHOULD PROVIDE AN AVERAGE INCREASE IN ANNUAL PROFITS OF 2.8%, THUS THE AVERAGE PROFIT OVER THE MINIMUM PERIOD OF THE BOND ISSUE WOULD BE \$14,000.00 X (1.028)¹⁵ = \$20,523.62, PER YEAR AVERAGE REVENUE.

ON THE BASIS OF ISSUING WATER REVENUE BONDS WITH A 5½% COUPON RATE, MATURING OVER A 35-YEAR PERIOD, AND PROVIDING THE REQUIRED MINIMUM OF 1.5 COVERAGE, THE ABOVE NET REVENUE OF \$20,523.62 WILL FINANCE:

$$35 \text{ YEARS: } \frac{\$20,523.62}{(1.5) (0.0649749)} = \$210,580.00$$

ANNUAL DEBT SERVICE:

ASSUMING AN AVERAGE ANNUAL INTEREST RATE OF 5.5% ON THE PROPOSED ISSUE OVER A 35-YEAR LIFE THE AVERAGE ANNUAL DEBT SERVICE REQUIREMENT PER \$1000.00 IS \$64.98 FOR THE \$210,000.00 BOND ISSUE THIS WOULD BE AS FOLLOWS:

$$\$68.81 \times 210 = \$13,645.80$$

BOND COVERAGE:

BASED ON 3RD YEAR OF OPERATION (1968)

<u>NET REVENUE 3RD YEAR</u>	<u>\$15,900.00</u>	=	1.17
AVERAGE ANNUAL DEBT SERVICE	\$13,645.80		
<u>NET AVERAGE REVENUE</u>	<u>\$20,528.62</u>	=	1.504
AVERAGE ANNUAL DEBT SERVICE	\$13,645.80		

ESTIMATED MAXIMUM AVERAGE COVERAGE WILL BE SUPPLIED BY THE FISCAL AGENT WHEN THE SCHEDULE OF BOND RETIREMENT HAS BEEN SET UP IN THEIR FEASIBILITY REPORT AND STUDY.

PRIOR TO ISSUING AND PLACING THE BONDS ON THE MARKET, IT WILL BE NECESSARY TO PREPARE AN AMORTIZATION TABLE IN ASSOCIATION WITH YOUR FISCAL AGENT. THE TABLE WILL BE REQUIRED TO SHOW THE YEARLY BREAKDOWN OF INCOME AND EXPENSES OVER THE PERIOD OF THE BOND ISSUE; HOWEVER, THE TABLE SHOULD BE PREPARED IN CONJUNCTION WITH THE FINAL DESIGN OF THE SYSTEM, AFTER THE AMOUNT OF CONSTRUCTION HAS BEEN DEFINITELY DECIDED UPON AND METHODS OF FINANCING HAVE BEEN SELECTED OR AS RECOMMENDED BY THE FISCAL AGENTS. WE ARE ATTACHING HEREWITH A PARTIAL AMORTIZATION TABLE COVERING THE MAJOR AND REQUIRED ITEMS FOR THE FIRST TEN YEARS (SEE TABLE 8, PAGE 3-17).

TABLE 8

PROJECTED EARNINGS

1965 THROUGH 1975

YEAR	1965	1966	1967	1968	1969
NUMBER OF WATER CUSTOMERS, BASED ON TABLE 4	220	230	240	250	260
YIELD PER YEAR	\$16,001.00	\$16,600.00	\$17,300.00	\$18,200.00	\$19,000.00
OPERATING EXPENSE	2,200.00	2,200.00	2,300.00	2,300.00	2,400.00
NET REVENUE	13,801.00	14,400.00	15,000.00	15,900.00	16,600.00
DEBT SERVICE	13,645.80	13,645.80	13,645.80	13,645.80	13,645.80
COVERAGE	1.01	1.06	1.10	1.17	1.22
1970	1971	1972	1973	1974	1975
275	290	300	310	325	335
\$20,150.00	\$21,300.00	\$22,000.00	\$23,150.00	\$24,400.00	\$25,100.00
2,400.00	2,500.00	2,500.00	2,500.00	2,600.00	2,600.00
17,750.00	18,800.00	19,500.00	20,650.00	21,800.00	22,500.00
13,645.80	13,645.80	13,645.80	13,645.80	13,645.80	13,645.00
1.30	1.38	1.43	1.51	1.60	1.65

- NOTE: 1. THE ABOVE CAPITALIZED INTEREST IS BORROWED IN THE BOND ISSUE FOR USE OVER THE FIRST YEAR. THE MATURITY DATE OF THE FIRST BOND SHOULD BE APPROXIMATELY JANUARY 1, 1965.
2. THE ABOVE YIELD PER YEAR DOES NOT INCLUDE THE TAP-IN CHARGE OF \$300.00 FOR PROJECTED CUSTOMERS. THIS SURPLUS AMOUNT BUILDUP MAY BE UTILIZED PARTIALLY IN THE OPERATIONAL AND FUTURE EXTENSION PROGRAM OF THE DISTRICT, AND TO PURCHASE ADDITIONAL EQUIPMENT AS THE NEED ARISES.
3. THE NET REVENUE DERIVED FROM 1964 MAY BE SUBJECTED TO A CONSTRUCTION SCHEDULE; HOWEVER, THE ACCUMULATED SURPLUS SHOULD BE CARRIED OVER FOR THE 1965 PAYMENT.

RECOMMENDATIONS:

IN SUMMARY, THE ENGINEERS RECOMMEND THE FOLLOWING:

1. NEGOTIATIONS BE STARTED FOR THE RECOMMENDED STORAGE TANK, WELLS AND PLANT BUILDING SITE.
2. A DISCUSSION UPON THE ITEMS THAT COULD POSSIBLY BE OMITTED AT THIS TIME, FROM THE ESTIMATED CONSTRUCTION SUMMARY.
3. A FISCAL AGENT BE RETAINED FOR FINANCING OF THE PROJECT.
4. COMPETENT AND WELL ESTABLISHED BONDING LEGAL COUNCIL BE RETAINED FOR THE LEGAL OPINION AND VALIDATION OF THE BONDS.
5. NECESSARY ORDINANCES BE DRAWN UP, BY THE LOCAL ATTORNEY IN CONJUNCTION WITH THE BONDING ATTORNEYS, CREATING THE NEW UTILITY AND ESTABLISHING THE RECOMMENDED RATES AS SET FORTH IN TABLE 3.
6. THAT COPIES OF THE REPORT BE SUBMITTED TO BOTH THE STATE DEPARTMENT OF HEALTH AND THE STATE FIRE MARSHALL FOR THEIR CONCURRENCE WITH, AND COMMENTS IF NECESSARY.
7. THAT A MAINTENANCE MAN BE LOCATED, A PART-TIME CLERK TYPIST BE SELECTED, AS WELL AS A PLACE TO PAY THE UTILITY BILLS BE SELECTED AT A VERY EARLY DATE.
8. NEGOTIATIONS SHOULD ALSO BE STARTED WITH THE ELECTRIC COMPANY ON ELECTRICAL RATES FOR THE PLANT AND PUMPS.
9. A DEFINITE DECISION SHOULD BE GIVEN TO THE ENGINEERS AS SOON AS POSSIBLE, WHETHER TO PROCEED WITH CONSTRUCTIONAL PLANS, SPECIFICATIONS, AND CONTRACTURAL DOCUMENTS OR NOT AT THE PRESENT TIME.

CONCLUSION:

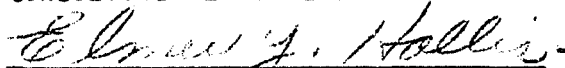
IT IS OF PARAMOUNT IMPORTANCE THAT THE COMMUNITY HAVE AN ADEQUATE AND SAFE WATER SYSTEM PROVIDING THE PEOPLE WITH THIS MUCH DESERVED UTILITY NOT ONLY FOR CULINARY PURPOSES, BUT ALSO PROVIDING FOR AMPLE SUPPLY FOR FIREFIGHTING.

THE CONSTRUCTION OF A WATER SYSTEM, SUCH AS THE ONE AS RECOMMENDED WITHIN THIS REPORT, IS A PERMANENT INVESTMENT BY THE PEOPLE IN THE FUTURE GROWTH AND HEALTH OF THE LOCAL RESIDENTS; SO ITS BENEFITS THEREFORE SHOULD BE ENJOYED AS SOON AS POSSIBLE. IT IS ANTICIPATED THAT A REDUCTION IN FIRE RATES CAN BE REQUESTED UPON THE COMPLETION OF THE SYSTEM ALONG WITH UPDATING OF THE FIRE DEPARTMENT; AT ANY RATE, KNOWING IN YOUR OWN MIND THERE IS AN AMPLE SUPPLY OF WATER AVAILABLE FOR FIREFIGHTING SHOULD MERIT A GREAT DEAL OF CONSIDERATION BY THE COMMUNITY AS A WHOLE.

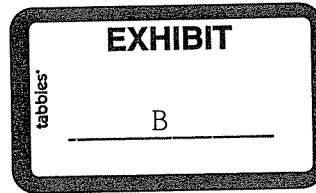
DELAY OF THE PROJECT IN ALL PROBABILITY WILL SEE INCREASED COSTS, NOT ONLY IN MATERIALS AND EQUIPMENT, BUT INTEREST ON THE MONEY AS WELL. ONCE THE CITIZENS OF THE COMMUNITY ARE CONVINCED OF THE NEED OF A WATER SYSTEM TO PROSPER IN ALL AREAS THEY SHOULD BE MORE THAN WILLING TO PAY FOR THE SERVICES.

THE ENGINEERS WILL BE MORE THAN HAPPY TO FURNISH ANY OTHER INFORMATION REQUIRED BY EITHER THE COMMISSIONERS, THE ATTORNEYS, BOND COUNSELLORS, AND FISCAL AGENTS THAT THEY MAY DESIRE, OR ATTEND ANY MEETINGS WHERE NECESSARY AND ASSIST IN PROMOTING THE SYSTEM WITHIN THE COMMUNITY.

SIGNED: HOLLIS & GRIGGS, INC.
CONSULTING ENGINEERS



BY: ELMER Y. HOLLIS
REGISTERED PROFESSIONAL ENGINEER
KENTUCKY NUMBER 2082



**FLINT ROAD WATER MAIN EXTENSION
DEXTER-ALMO WATER DISTRICT
ALMO, KENTUCKY**

PRELIMINARY ENGINEERING REPORT

AUGUST 2005

TABLE OF CONTENTS

- I. Introduction
- II. Existing System
- III. Current Needs
- IV. Recommended Improvements
- V. Cost Estimate
- VI. Project Schedule

I. Introduction

The Dexter-Almo Water District currently serves approximately 644 customers in the Dexter-Almo area of Calloway County. Citizens outside the frame of the current service area have reported a low quality of well water and have petitioned the Dexter-Almo Water District to extend their services. One of the lowest quality of well water that has been reported is along Flint Road. Therefore, the focus of this report is on the Flint Road area.

II. The Existing System

The Dexter-Almo Water District purchases water from the City of Murray and is served from the city's US Highway 641 N elevated storage tank.

The existing system terminates in the area of Flint Road and US Highway 641. There is a 6 inch AC pipe and valve on the west side of Flint Road just north of the intersection of Walston Road.

III. Current Needs

There have been many requests for the Dexter-Almo Water District to extend their existing system and provide additional services. The area of Flint Road seems to be in more need of a good domestic water system as there have been numerous reports of poor water quality and quantity in that area. The Dexter-Almo Water District has therefore deemed it necessary to extend a 6 inch water main along Flint Road.

This extension will immediately add approximately 37 customers to the system. Furthermore, there is a new 13 lot subdivision that will benefit from this Flint Road extension.

The Dexter-Almo Water District has reported that all the property owners are willing to give easement for the construction of a water main so there would be no requirement for property acquisition.

IV. Recommended Improvements

Based on the current needs for clean drinking water along the Flint Road corridor, and since the Dexter-Almo Water District has facilities in the area, it is recommended that the Water District extend a 6 inch PVC water main approximately 10,000 linear feet to the north along Flint Road from the Walston Road water main up to the Deer Run Subdivision.

V. Cost Estimate

Estimated project costs are as follows:

a. Administration*	\$0
b. Legal fees*	\$0
c. Land, appraisals, easements, row*	\$0
d. Relocation expenses*	\$0
e. Planning*	\$0
f. Environmental review*	\$0
g. Engineering fees	
Preliminary*	\$500
Design*	\$9500
Construction*	\$500
Inspection*	\$0
Total Engineering fees*	\$10,500
h. Construction costs	
For Water Projects	
Source*	\$0
Treatment*	\$0
Distribution*	\$152,550
Storage*	\$0
Water Total*	\$152,550
i. Equipment*	\$0
j. Contingency*	\$16,950
k. Interim Financing*	\$0
l. Other*	
Total Estimated Project Costs	\$180,000
Total Estimated Funding from 424 form	\$92,000

Estimated Project Revenue:

LOCAL FUNDING COMMITMENTS:**Fund Source Amount(\$) 88,000

The projected annual revenue from the project totals \$ 12,600 (50 new customers x \$21/mo x 12). Therefore, if a low interest loan is necessary to obtain the additional \$88,000, the additional revenue will adequately service the debt.

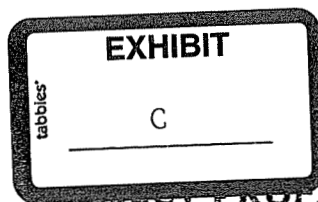
VI. Project Schedule

Task	Date
Environmental Review	September 01, 2005
DOW approval of Plans and Specifications	September 30, 2005
Bid Advertising	September 01, 2005
Bid Opening	September 15, 2005
PSC Approval	
Construction Contract Award	September 30, 2005
Construction State	
Initiation of Operation	October 03, 2005
Construction Completion	December 03, 2005
Project Closeout	January 03, 2006

SUBMITTED Form: Kentucky Water Project Profile

Page 1 of 5

Updated profile - 8-2-05
759-0199



Areas indicated with (*) are required fields.

1.* Project Title (use title which will be identifiable by local community):

DEXTER-ALMO W.D. - FLINT AND WEST FORK RD.

2.* Project Description:

Provide a brief narrative denoting if project relates to source, distribution, treatment, storage

THIS PROJECT IS PROPOSED TO PICK UP CUSTOMERS ALONG FLINT ROAD AND KY 464 (WEST FORK ROAD). THESE CUSTOMERS ARE CURRENTLY HAVING PROBLEMS WITH THEIR WATER QUALITY AND HAVE PETITIONED FOR SERVICE. PROBLEMS WITH WELLS HAVE ALSO BEEN REPORTED, SOME OF WHICH HAVE WENT DRY.

* Project Descriptor: WATERLINE EXTENSION

* WRIS Project Number (PNUM): WX21035014

This number is assigned by an ADD through the respective Area Water Management Planning Council once the project profile is approved by the Council. This number ties each project to mapped/spatial information in the Water Resource Information System (WRIS) profiles without this number AND the required corresponding mapped/spatial information will NOT be accepted

* Project County: Calloway

* Is it a multi-county project: Yes No

* Project Submitted By: Purchase

* Select the PWSID# from the list below:

Available:

- 0010082
- 0010702
- 0020386
- 0020956
- 0030007
- 0030239
- 0030660
- 0040015
- 0040020

Selected:

- 0180102

Include
Remove

3. Legal Applicant

* Legal Applicant: DEXTER-ALMO HEIGHTS WATER DISTRICT

Water Utility which will own proposed improvements: _____
(If different from Legal Applicant)

* Organizational Structure: Water District

Authorized Official Information

* First Name: CHARLES * Last Name: HOKE M.I.:

* Title: CHAIRMAN

* Street Address Line 1: 351 ALMO ROAD

Street Address Line 2: _____

* P.O. Box: _____

* City: ALMO * State: KY * Zip: 42020

* County: CALLOWAY

* Telephone: (270) 753-9101 Ext: _____

Fax: 270-759-0199

Email: _____

Contact Person Information

* First Name: KATHY * Last Name: WYATT M.I.:

* Title: _____

* Street Address Line 1: 351 ALMO ROAD

Street Address Line 2: _____

* P.O. Box: _____

* City: ALMO * State: KY * Zip: 42020

* County: CALLOWAY

* Telephone: 270-753-9101 Ext: _____

Fax: 270-759-0199

Email: _____

Project Administrator Information

* First Name: KATHY * Last Name: WYATT M.I.:

Title: _____

Street Address Line 1: 351 ALMO ROAD

Street Address Line 2: _____

P.O. Box: _____

City: ALMO State: KY Zip: 42020

County:

* Telephone: Ext:

Fax:

Email:

Consulting Engineer Information

* First Name: * Last Name: M.I.:

Firm:

Street Address Line 1:

Street Address Line 2:

P.O. Box:

City: State: Zip:

County:

* Telephone: Ext:

Fax:

Email:

4. Project Type (at least one required / check all that apply):

- Planning
- Design
- Construction
- Management

5. Project Alternatives: Please list a minimum of three:

- a.*
- b.*
- c.*

6. Special Impact(s) of Proposed Water Project:

- a.* New service/improve service to unserved underserved households
- b. Number of new jobs: Number of retained jobs:
- c. Other beneficial technical, managerial, fiscal impacts: (20 words or less)



d.* Does proposed activity relate to public health protection emergency: Yes No

e.* Does project involve regionalization: Yes No

f. Number of systems affected/involved:

7.* Median Household Income of Service Area:

\$

8.* Project Start Schedule:

Years 0-2 Years 3-10 Years 11-20

9. Estimated Funding Sources:

* Estimated Local Funding Amount \$

* Estimated Other Funding Amount (all sources) \$

Total Estimated Project Cost \$

10. Project Data - Water (complete all items which apply to your project)

a.* Is project related to source protection? Yes No

Drinking Water Facilities

b.* Is project related to source? Yes No

c.* Is project related to water treatment? Yes No

d.* Is project related to distribution (Extension/Rehab)? Yes No

Check all that apply to your project

Extension Water Tank

Rehab/Improvement Pump Station

Proposed project involves construction of line

Total linear feet of new line

Line Size (In Inches) 2 3 4 6 8 10 greater than 1

Material Ductile Iron PVC PE Other

Project activity improves pressure, as a result of

Replacement of total linear feet of inadequately sized lines

total gallons of increased storage due to additional demand

Leaks, Breaks, or restrictive flows due to age

Project activity Improves water quality by providing:

Adequate turnover of water

Proper maintenance of disinfection residual

Replacement of total linear feet of lead, copper, asbestos-cement lines

Briefly describe why the above items apply to your project:

e.	Management (describe)
f.	Other (describe)

g.* Date Project was approved by the Area Water Management Planning Council: 05/23/2005

Signature



ERNIE FLETCHER
GOVERNOR

GOVERNOR'S OFFICE FOR LOCAL DEVELOPMENT
OFFICE OF THE GOVERNOR
1024 CAPITAL CENTER DRIVE, SUITE 340
FRANKFORT, KENTUCKY 40601-8204
PHONE (502) 573-2382 FAX (502) 573-2939
TOLL FREE (800) 346-5606
www.kentucky.gov

ELLEN WILLIAMS
COMMISSIONER

September 22, 2005

MS. KATHY WYATT
351 ALMO ROAD
ALMO, KY 42020

RE: DEXTER-ALMO W.D.-FLINT AND WEST FORK RD.

SAI# KY20050822-0931

Dear MS. WYATT:

The Kentucky State Clearinghouse, which has been officially designated as the Commonwealth's Single Point of Contact (SPOC) pursuant to Presidential Executive Order 12372, has completed its evaluation of your proposal. The clearinghouse review of this proposal indicates there are no identifiable conflicts with any state or local plan, goal, or objective. Therefore, the State Clearinghouse recommends this project be approved for assistance by the cognizant federal agency.

Although the primary function of the State Single Point of Contact is to coordinate the state and local evaluation of your proposal, the Kentucky State Clearinghouse also utilizes this process to apprise the applicant of statutory and regulatory requirements or other types of information which could prove to be useful in the event the project is approved for assistance. Information of this nature, if any, concerning this particular proposal will be attached to this correspondence.

You should now continue with the application process prescribed by the appropriate funding agency. This process may include a detailed review by state agencies that have authority over specific types of projects.

This letter signifies only that the project has been processed through the State Single Point of Contact. It is neither a commitment of funds from this agency or any other state or federal agency.



The results of this review are valid for one year from the date of this letter.
Continuation or renewal applications must be submitted to the State Clearinghouse annually. An application not submitted to the funding agency, or not approved within one year after completion of this review, must be re-submitted to receive a valid intergovernmental review.

If you have any questions regarding this letter, please feel free to contact my office at 502-573-2382.

Sincerely,

Ronald W. Cook
Kentucky State Clearinghouse

Attachments

Cc: Purchase ADD
KIA

The Heritage Council has made the following advisory comment pertaining to State Application Identifier Number KY200508220931

The applicant must ensure compliance with the Advisory Council on Historic Preservation's Rules and Regulations for the Protection of Historic and Cultural Properties (36CRF, Part 800) pursuant to the National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969, and Executive Order 11593.

The project area must be surveyed by a professional archaeologist to determine if sites eligible for listing in the National Register of Historic Places will be affected by the undertaking. The State Historic Preservation Officer must review and approve the survey report. Where a given project area or portions thereof have been disturbed by prior construction, the applicant may file documentation of that disturbance with the State Historic Preservation Officer and request an opinion concerning the need of an archaeological survey.

The Labor Cabinet has made the following advisory comment pertaining to State Application Identifier Number KY200508220931

PW RATES DO NOT APPLY

The Transportation has made the following advisory comment pertaining to State Application Identifier Number KY200508220931

Thomas (D1), Allen: Any work performed on the right of way must have a permit from our District Office in Reidland. Please contact Denny Alvey at 270-898-1431

Greer, Daryl: The Division of Planning has no comments.

The Natural Resources has made the following advisory comment pertaining to State Application Identifier Number KY200508220931

This review was based upon the information that was provided by the applicant through the Clearinghouse for this project. An endorsement of this project does not satisfy, or imply, the acceptance or issuance of any permits, certifications or approvals that may be required from this agency under Kentucky Revised Statutes or Kentucky Administrative Regulations. Such endorsement means this agency has found no major concerns from the review of the proposed project as presented other than those stated as conditions or comments.

The proposed project is subject to Division of Water (DOW) jurisdiction because the following are or appear to be involved: water lines and appurtenances and storm water discharge. Prior approval must be obtained from the DOW before construction can begin. The applicant must cite the State Application Identifier (SAI #KY200508220931) when submitting plans and specifications.

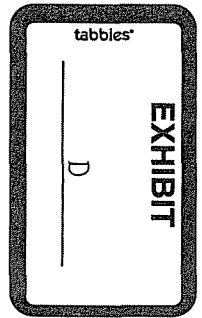
This project is consistent with the Calloway County Water Management Plan and is approved by the Water Quantity Management Section of DOW. From the application data, DOW ascertains that the proposed project is not located in a floodplain area. Therefore, a floodplain construction permit is not required for this project.

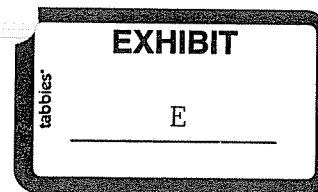
This project proposes to add 50 new customers from Flint Road and State Hwy 464 to the existing water service. These customers are currently having problems with their water quality and have petitioned for service. The Dexter-Almo Heights Water District purchases all of their water from the Murray Water System. There is adequate capacity to supply the proposed project. Plans and specifications are subject to review by the Division of Water, based on sanitary features of design. However, the applicant needs to update the KIA water project maps to correctly reflect this project location and extent.

If the construction area disturbed is equal to or greater than 1 acre, the applicant will need to apply for a Kentucky Pollutant Discharge Elimination System (KPDES) storm water discharge permit.

Utility line projects that cross a stream will require a Section 404 permit from the US Army Corps of Engineers and a 401 Water Quality Certification from DOW.

All solid waste generated by this project must be disposed at a permitted facility. If underground storage tanks are encountered they must be properly addressed. If asbestos, lead paint, or other contaminants are encountered during this project, they must be properly addressed.





COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Ernie Fletcher
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

W. James Host
Secretary

David L. Morgan
Executive Director and
State Historic Preservation Officer

June 29, 2005

Mr. Kim Oatman
133 Pine Creek Drive
Paducah, KY 42001

Re: Flint Rd. Waterline Extension (Calloway County)

Dear Mr. Oatman:

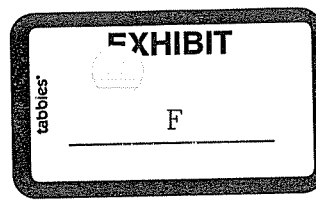
Thank you for your telephone inquiry concerning the above referenced project previously submitted as an E-Clearinghouse application (SAI# KY200508220931). Our review indicates that the proposed project will take place along the right of way in areas that have been previously disturbed. As such the proposed project will not impact any National Register properties or sites. In accordance with 36CFR Part 800.4 (d) of the Advisory Council's revised regulations our finding is that there are No Historic Properties Present within the undertaking's area of potential impact. Therefore, we have no further comments and the Agency Official's responsibility to consult with the Kentucky State Historic Preservation Officer under the Section 106 review process is fulfilled.

If you have any questions concerning this project, or the need to do an archaeological survey, please feel free to contact Sarah Miller of my staff at 502-564-7005, extension 118.

Sincerely,

A handwritten signature in black ink, appearing to read "David L. Morgan".

David L. Morgan, Director
Kentucky Heritage Council and
State Historic Preservation Officer



ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

Ernie Fletcher
Governor

Division of Water
14 Reilly Road
Frankfort, Kentucky 40601-1190
www.kentucky.gov

Lajuana S. Wilcher
Secretary

October 13, 2005

Joe Dan Taylor, Commissioner
Dexter-Almo Heights Water District
351 Almo Road
Almo, KY 42020

Re: Dexter-Almo Heights Water District
AI No. 33820
DW No. 0180102-05-002
Flint Road & West Fork Road WLE
Activity ID: APE20050002
Calloway County

Dear Mr. Taylor:

We have reviewed the plans and specifications for the above referenced project. The plans include the construction of approximately 10,705-feet of 6-inch PVC and 1,255-Feet of 4-inch PVC waterlines. 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 Shanaka Ewing, at (502) 564-2225, extension 529.

Sincerely,

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

DSM/SCE
Enclosure

CC: Kim H. Oatman, PE
Calloway County Health Department
Public Service Commission

Distribution-Major Construction

Dexter Almo Heights Water District
Facility Requirements

Activity ID No.: APE20050002

Page 1 of 8

GACT2 (Flint Road WLE) 10,705-Feet of 6" PVC & 1,255-Feet of 4" PVC:

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

Dexter Almo Heights Water District
Facility Requirements

Activity ID No.: APE20050002

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

Dexter Almo Heights Water District
Facility Requirements

Activity ID No.: APE20050002

Page 3 of 8

PORT2 (WATERLINE) 10,705-Feet of 6" PVC & 1,255-Feet of 4" PVC:

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 \geq 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 \geq 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 water lines shall have Diameter \geq 3 in. [Recommended Standards for Water Works 8.1.4] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-4	Diameter	Water lines with Diameter $<$ 6 in shall not have fire hydrants. [Recommended Standards for Water Works 8.1.5] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-5	Diameter	All new and existing water lines serving fire hydrants or where fire protection is provided shall have Diameter \geq 6 in. [Recommended Standards for Water Works 8.1.2] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-6	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 \leq 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-7	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.

Distribution-Major Construction

Dexter Almo Heights Water District
Facility Requirements

Activity ID No.: APE20050002

Page 4 of 8

Limitation Requirements:

Condition No.	Parameter	Condition
L-8	Distance	<p>Except when not practical, water lines shall be laid a horizontal Distance \geq 10 ft from any existing or proposed sewer. The distance shall be measured edge to edge.</p> <p>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.</p>
L-9	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 \geq 18 in below the bottom of the sewer line orb) the bottom of the water line is a vertical Distance \geq 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-10	Distance	<p>The open end of an air relief pipe from automatic valves shall be extended a Distance \geq 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-11	Pressure	<p>Pipes shall not be installed unless all points of the distribution system remain designed for ground level Pressure \geq 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-12	Pressure	<p>Pressure \geq 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>

Distribution-Major Construction

Dexter Almo Heights Water District
Facility Requirements

Activity ID No.: APE20050002

Page 5 of 8

Limitation Requirements:

Condition No.	Parameter	Condition
L-13	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-14	Velocity	<p>Each blow-off, fire hydrant, or flush 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>

Monitoring Requirements:

Condition No.	Parameter	Condition
M-1	leaks	<p>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.</p>

Distribution-Major Construction

Dexter Almo Heights Water District
Facility Requirements

Activity ID No.: APE20050002

Page 6 of 8

Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-1	<p>Additional Limitations: Water line installation shall be in accordance with AWWA standards or manufacturer recommendations. [Recommended Standards for Water Works 8.5.1]</p>
T-2	<p>Additional Limitations: Pipes, fittings, valves and fire hydrants shall conform to the latest standards issued by the AWWA or NSF (if such standards exist). PVC and PE piping used must be certified to ANSI/NSF Standard 61. [Recommended Standards for Water Works 8.0.1]</p>
T-3	<p>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]</p>
T-4	<p>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]</p>
T-5	<p>Additional Limitations: For lines that dead end, a fire hydrant or blow-off shall be required at the end of each 6 inch or larger diameter line and a flush hydrant or blow-off shall be required at the end of each line that is less than 6 inches in diameter. [Recommended Standards for Water Works 8.1.6]</p>
T-6	<p>Additional Limitations: For each fire or flush hydrant, auxiliary valves shall be installed in the hydrant lead pipe. [Recommended Standards for Water Works 8.3.3]</p>
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>

Distribution-Major Construction

Dexter Almo Heights Water District
Facility Requirements

Activity ID No.: APE20050002

Page 7 of 8

Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-9	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]
T-10	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)]
T-11	Additional Limitations: If water lines cross a stream or wetland, the provisions in the attached Water Quality Certification shall apply. If you have any questions please contact the Water Quality Certification Supervisor of the Water Quality Branch at (502) 564-2225. [401 KAR 8:100 Section 1(7)]

Subfluvial Pipe Crossings:

Condition No.	Condition
T-12	Subfluvial Pipe Crossings: For subfluvial pipe crossings, a floodplain construction permit will not be required pursuant to KRS 151.250 if the following requirements of 401 KAR 4:050 Section 2 are met. <ol style="list-style-type: none">1) No material may be placed in the stream or in the flood plain of the stream to form construction pads, coffer dams, access roads, etc. during construction of pipe crossings.2) Crossing trenches shall be backfilled as closely as possible to the original contour.3) All excess material resulting from construction displacement in a crossing trench shall be disposed of outside the flood plain.4) For erodible channels, there shall be at least 30 inches of backfill on top of all pipe or conduit points in the crossing.5) For nonerodible channels, pipes or conduits in the crossing shall be encased on all sides by at least 6 inches of concrete with all pipe or conduit points in the crossing at least 6 inches below the original contour of the channel. [401 KAR 8:100 Section 1(7)]

Distribution-Major Construction

Dexter Almo Heights Water District
Facility Requirements

Activity ID No.: APE20050002

Page 8 of 8

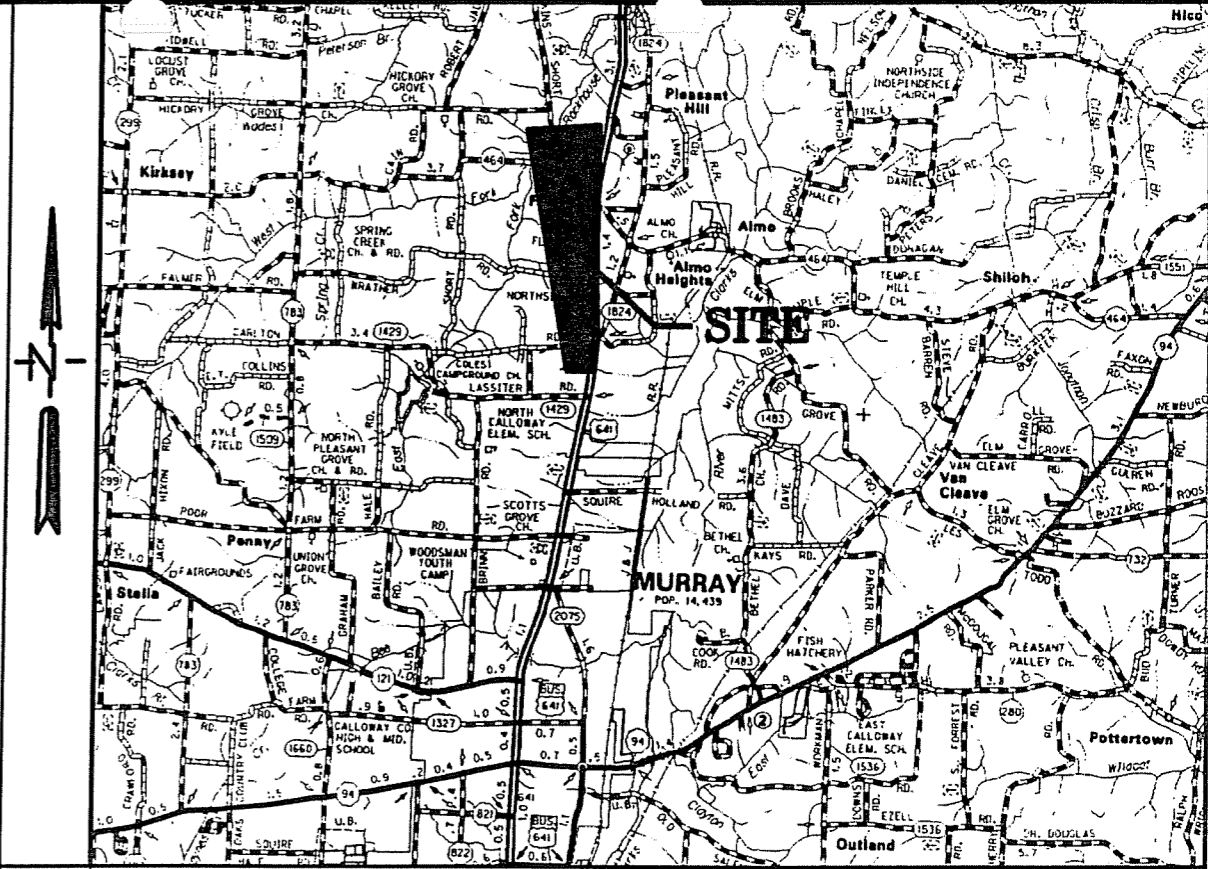
Narrative Requirements:

Subfluvial Pipe Crossings:

Condition No.	Condition
T-13	<p>Subfluvial Pipe Crossings: For subfluvial pipe crossings greater than 15 feet in width,</p> <ol style="list-style-type: none">1) the pipe shall be of special construction, having flexible, restrained, or welded watertight joints, and2) valves shall be provided at both ends of water crossings so that the section can be isolated for testing or repair. <p>Valves shall</p> <ol style="list-style-type: none">a) be easily accessible,b) not be subject to flooding, andc) if closest to the supply source, be in a manhole with permanent taps made on each side of the valve to allow insertion of a small meter to determine leakage and for sampling purposes. [Recommended Standards for Water Works 8.7.2]

EXHIBIT
G

**DEXTER-ALMO HEIGHTS WATER DISTRICT
FLINT ROAD/WEST FORK ROAD
WATER MAIN EXTENSION
CALLOWAY COUNTY, KENTUCKY**



VICINITY MAP

LEGEND

- MJ - MECHANICAL JOINT
- DI - DUCTILE IRON
- WL — WATER LINE
- G — GAS LINE
- BST — BELL SOUTH TELEPHONE LINE

INDEX OF DRAWINGS

COVER SHEET	
SHEET 1	STATION 0+00 - STATION 6+85
SHEET 2	STATION 6+85 - STATION 20+15
SHEET 3	STATION 20+15 - STATION 32+50
SHEET 4	STATION 32+50 - STATION 45+80
SHEET 5	STATION 45+80 - STATION 58+85
SHEET 6	STATION 58+85 - STATION 72+45
SHEET 7	STATION 72+45 - STATION 85+35
SHEET 8	STATION 85+35 - STATION 98+45
SHEET 9	STATION 98+35 - STATION 112+05
SHEET 10	STATION 112+05 - STATION 119+60
SHEET 11	WATER LINE DETAILS

APPROVED
IN ACCORDANCE WITH LETTER OF APPROVAL

DIVISION OF WATER
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

SCE
REVIEWED

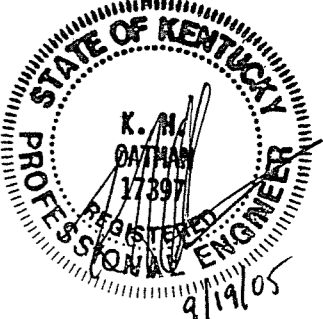
10/13/05
APPROVAL DATE

10/13/06
EXPIRATION DATE

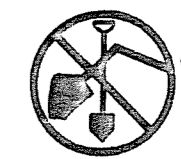
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SANITARY FEATURES OF DESIGN - WATER SUPPLY FACILITIES ONLY

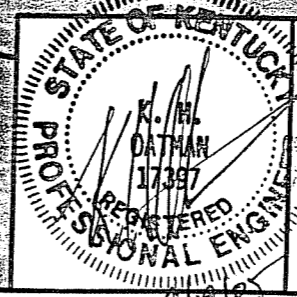
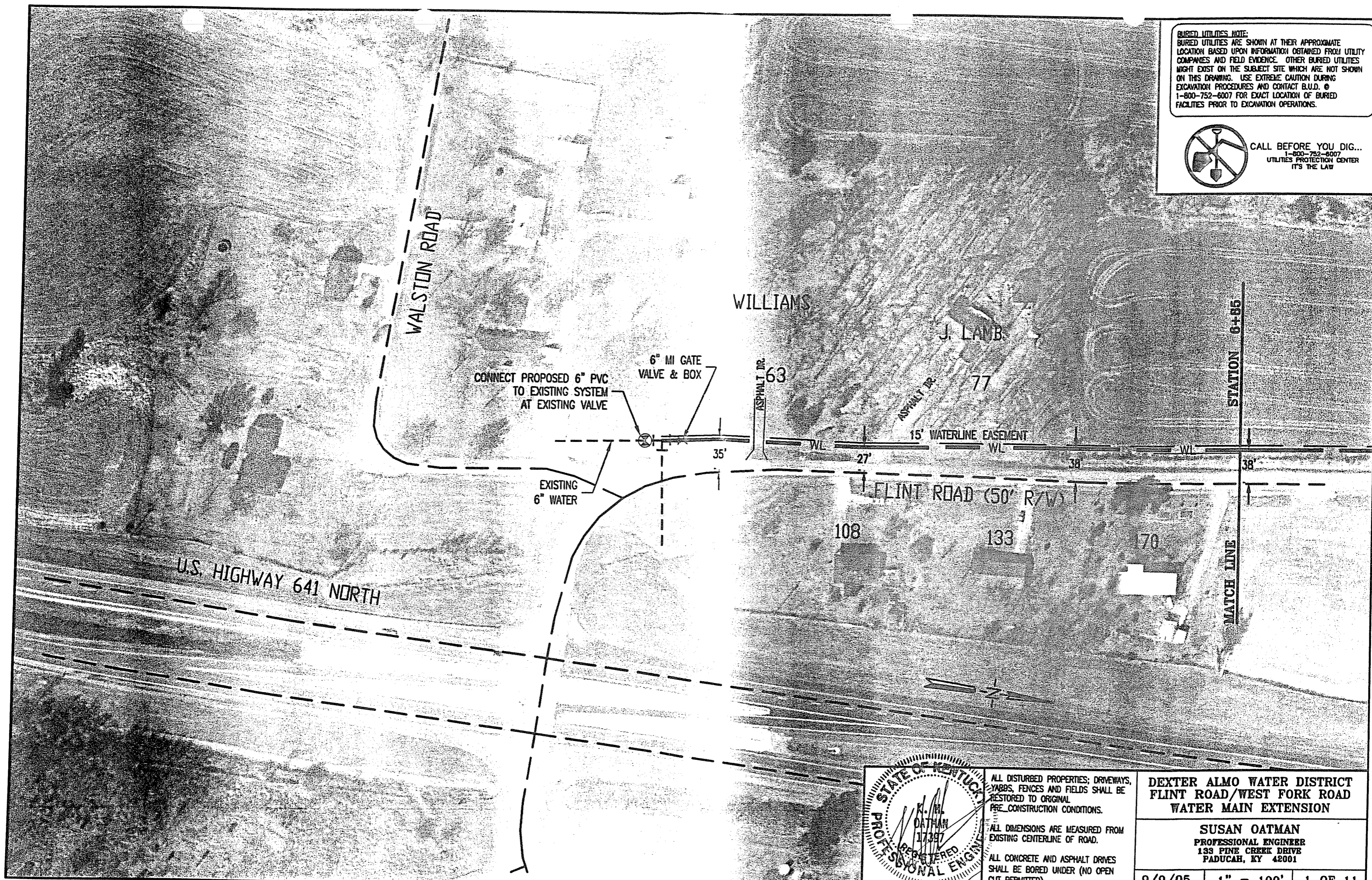
SUSAN OATMAN
PROFESSIONAL ENGINEER
133 PINE CREEK DRIVE
PADUCAH, KY 42001



BURIED UTILITIES NOTE:
 BURIED UTILITIES ARE SHOWN AT THEIR APPROXIMATE LOCATION BASED UPON INFORMATION OBTAINED FROM UTILITY COMPANIES AND FIELD EVIDENCE. OTHER BURIED UTILITIES MIGHT EXIST ON THE SUBJECT SITE WHICH ARE NOT SHOWN ON THIS DRAWING. USE EXTREME CAUTION DURING EXCAVATION PROCEDURES AND CONTACT B.U.D. @ 1-800-752-6007 FOR EXACT LOCATION OF BURIED FACILITIES PRIOR TO EXCAVATION OPERATIONS.



CALL BEFORE YOU DIG...
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 UTILITIES PROTECTION CENTER
 IT'S THE LAW

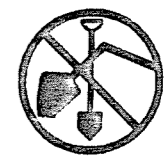


ALL DISTURBED PROPERTIES; DRIVEWAYS, YARDS, FENCES AND FIELDS SHALL BE RESTORED TO ORIGINAL PRE-CONSTRUCTION CONDITIONS.
 ALL DIMENSIONS ARE MEASURED FROM EXISTING CENTERLINE OF ROAD.
 ALL CONCRETE AND ASPHALT DRIVES SHALL BE BORED UNDER (NO OPEN CUT PERMITTED).

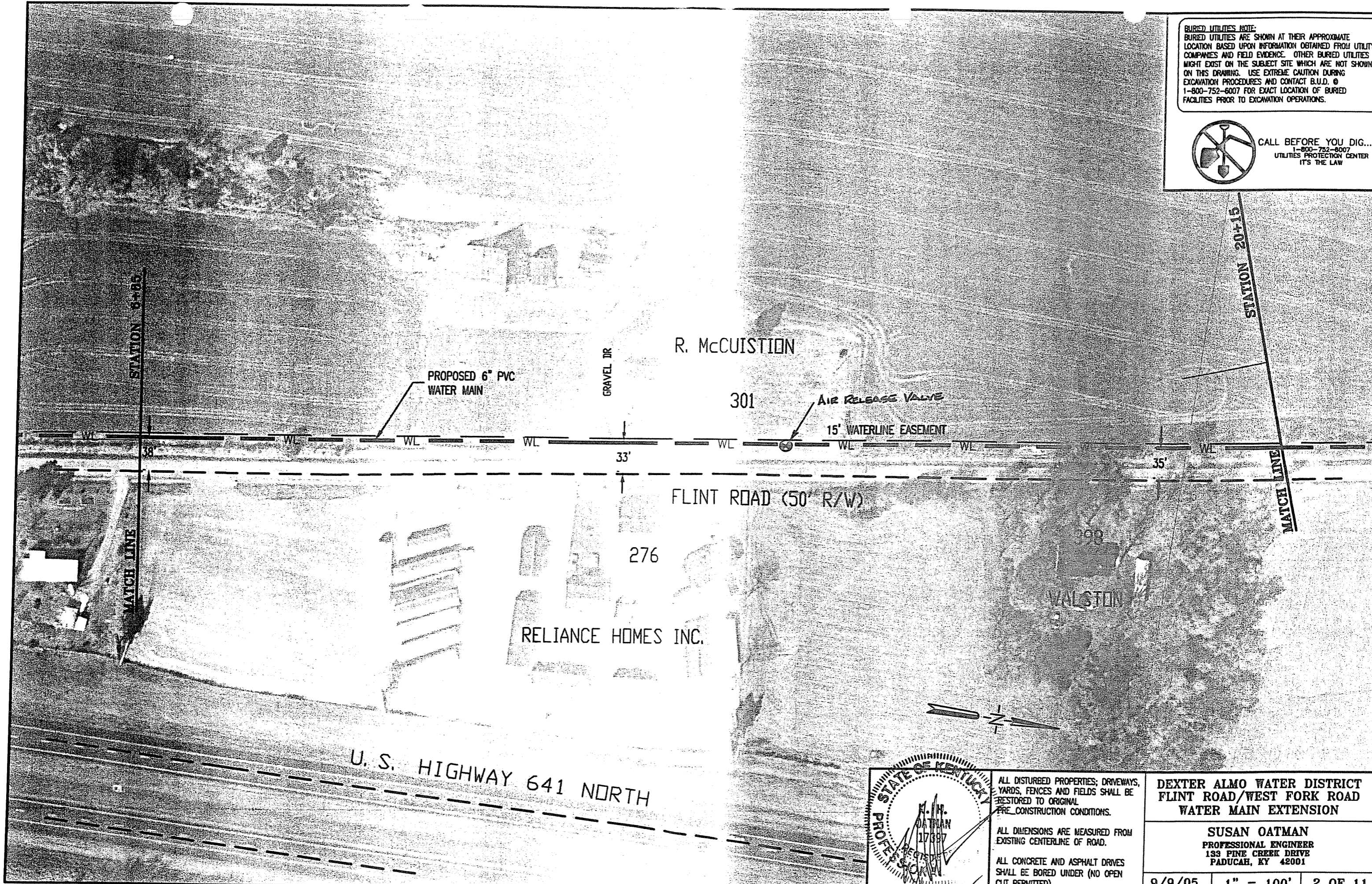
**DEXTER ALMO WATER DISTRICT
 FLINT ROAD/WEST FORK ROAD
 WATER MAIN EXTENSION**

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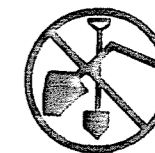


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**DEXTER ALMO WATER DISTRICT
 FLINT ROAD/WEST FORK ROAD
 WATER MAIN EXTENSION**

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 133 PINE CREEK DRIVE
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STATION 20+16

STATION 32+50

J.D. HOPKINS

517

606

DODSON

MATCH LINE

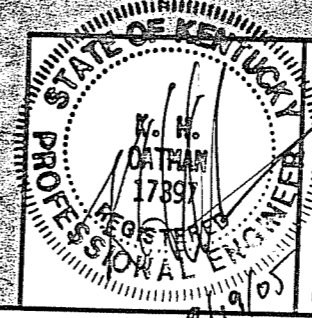
MATCH LINE

6"X6"X6" MJ DI TEE
 6"X3" REDUCER
 3" FLUSHING HYDRANT & VALVE
 (TO BE RELOCATED DURING
 CONSTRUCTION IF REQUIRED
 BY OWNER)

6" MJ GATE VALVE & BOX
 15' WATERLINE EASEMENT
 FLINT ROAD (50' R/W)

PROPOSED 6" PVC
 WATER MAIN

ASPHALT DRIVE

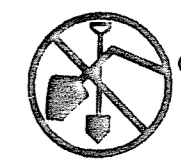


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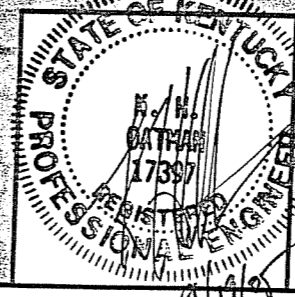
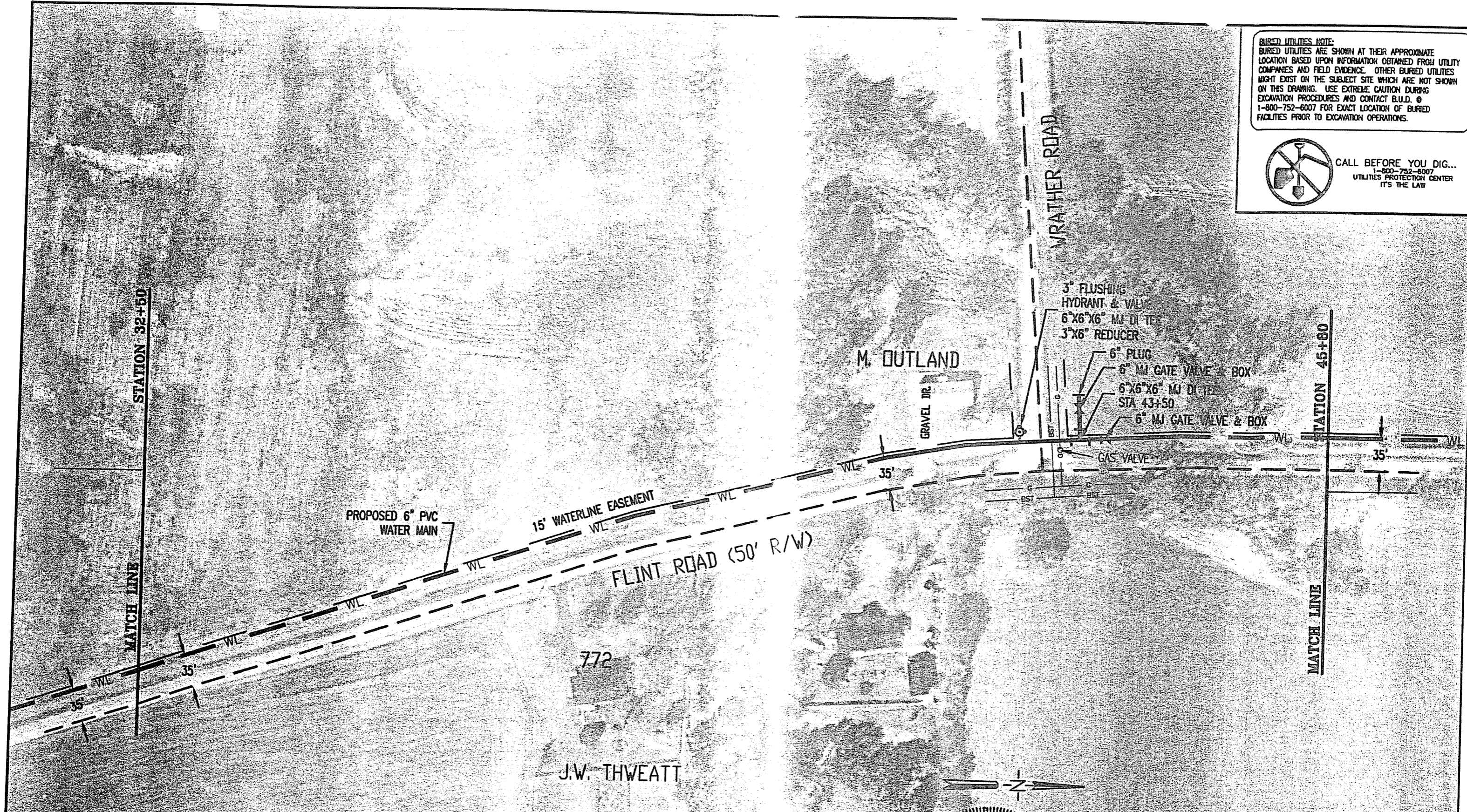
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**DEXTER ALMO WATER DISTRICT
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 PADUCAH, KY 42001

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CALL BEFORE YOU DIG...
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 UTILITIES PROTECTION CENTER
 IT'S THE LAW

TIMBERWOLF SUBDIVISION

FRANKHOUSER

1033

1101

STATION 46+80

STATION 58+85

4" PLUG

4" MJ GATE VALVE & BOX

20' - 4" PVC

6"x6"x4" TEE

PROPOSED 6" PVC WATER MAIN

15' WATERLINE EASEMENT

FLINT ROAD (50' R/W)

1040

1112

1140

MATCH LINE

MATCH LINE

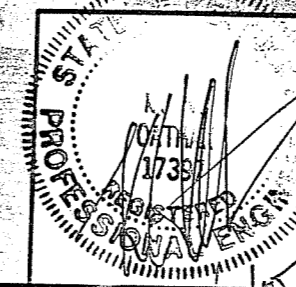
FLINT COURT

GRAVEL DRIVE

GRAVEL

GRAVEL

GRAVEL



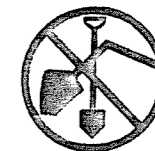
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DEXTER ALMO WATER DISTRICT
FLINT ROAD/WEST FORK ROAD
WATER MAIN EXTENSION

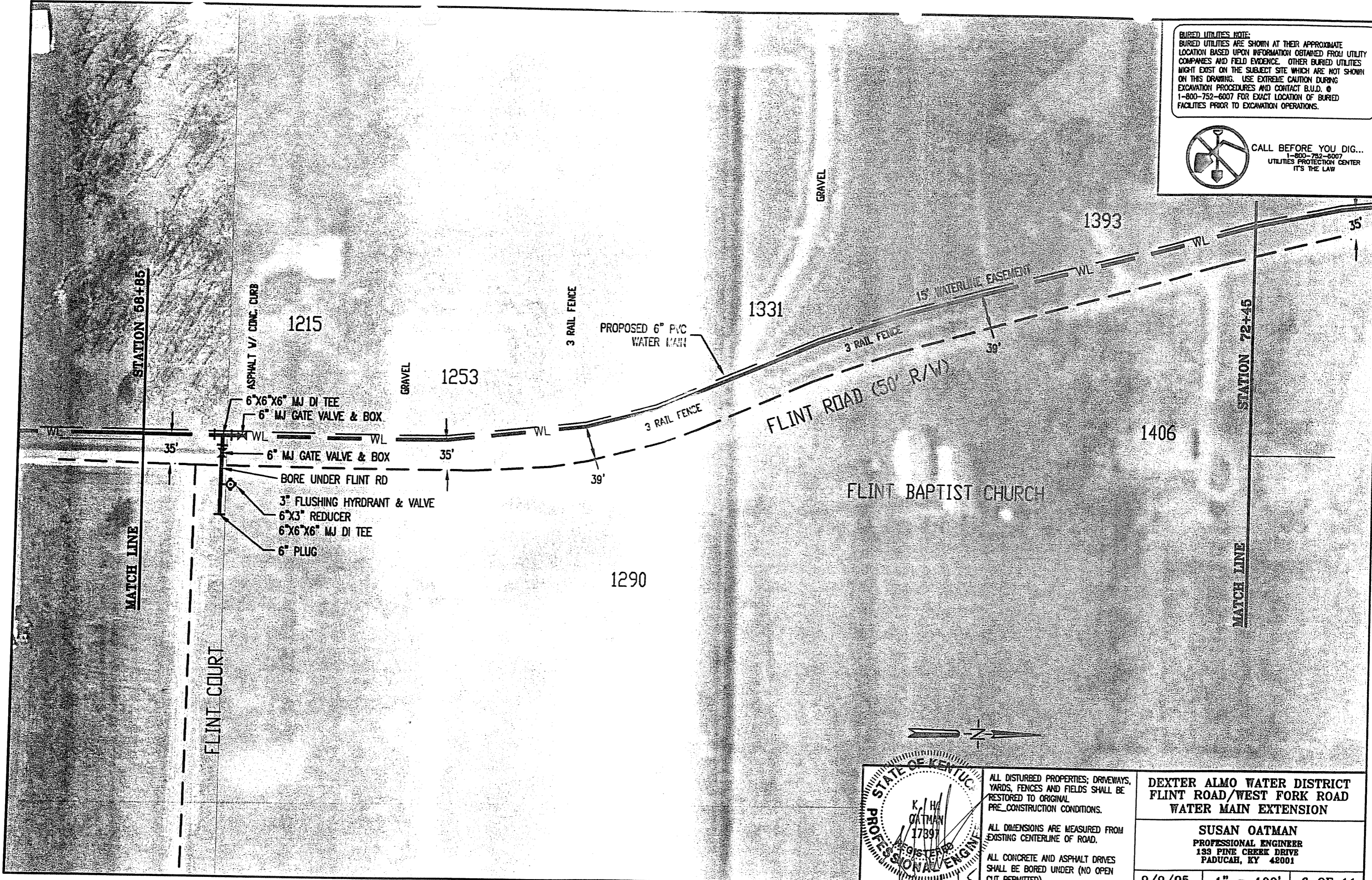
SUSAN OATMAN
 PROFESSIONAL ENGINEER
 133 FINE CREEK DRIVE
 PADUCAH, KY 42001

9/9/05 1" = 100' 5 OF 11

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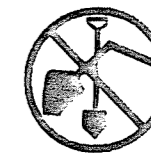


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 FLINT ROAD/WEST FORK ROAD
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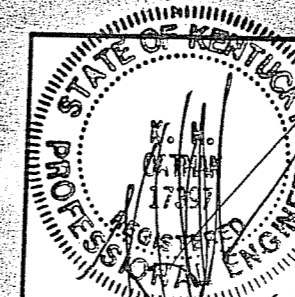
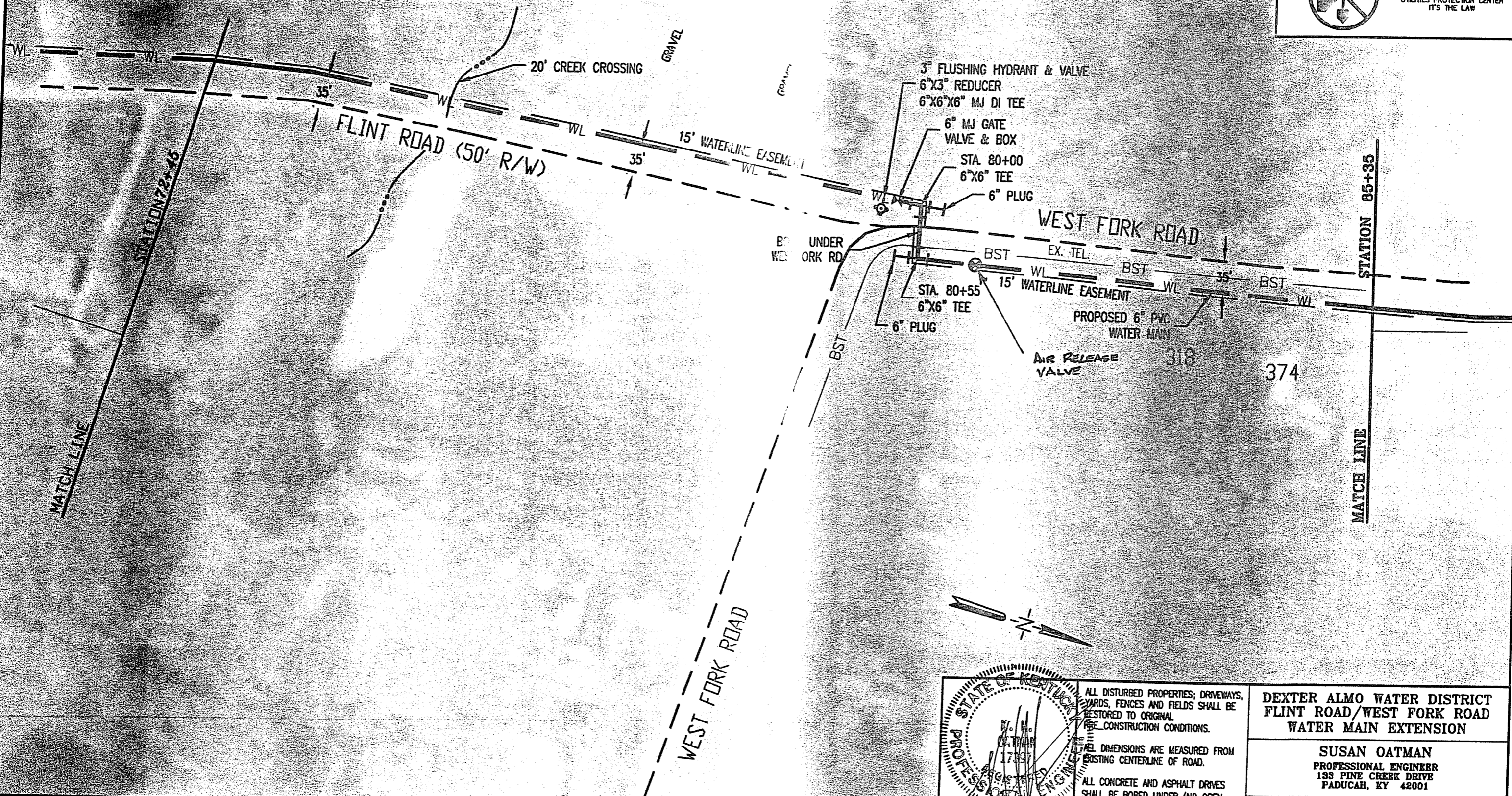
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1555



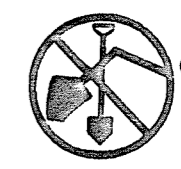
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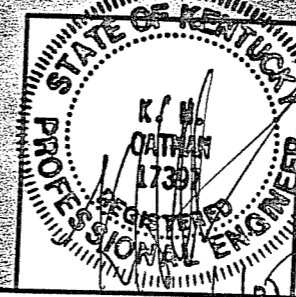
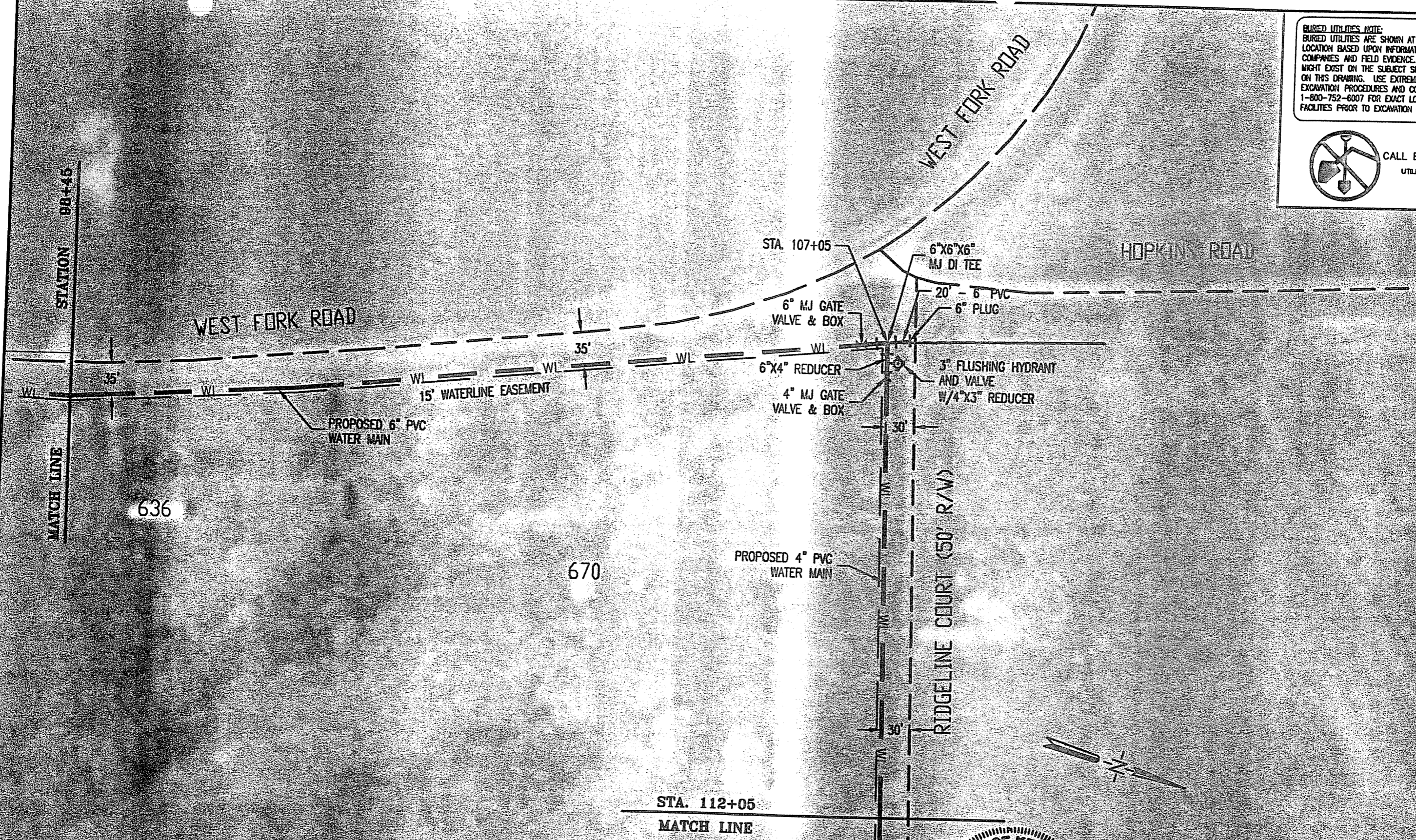
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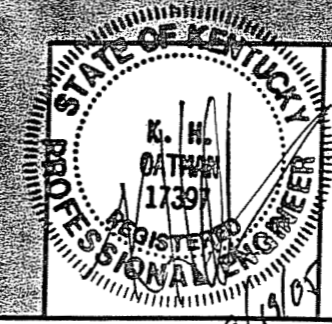
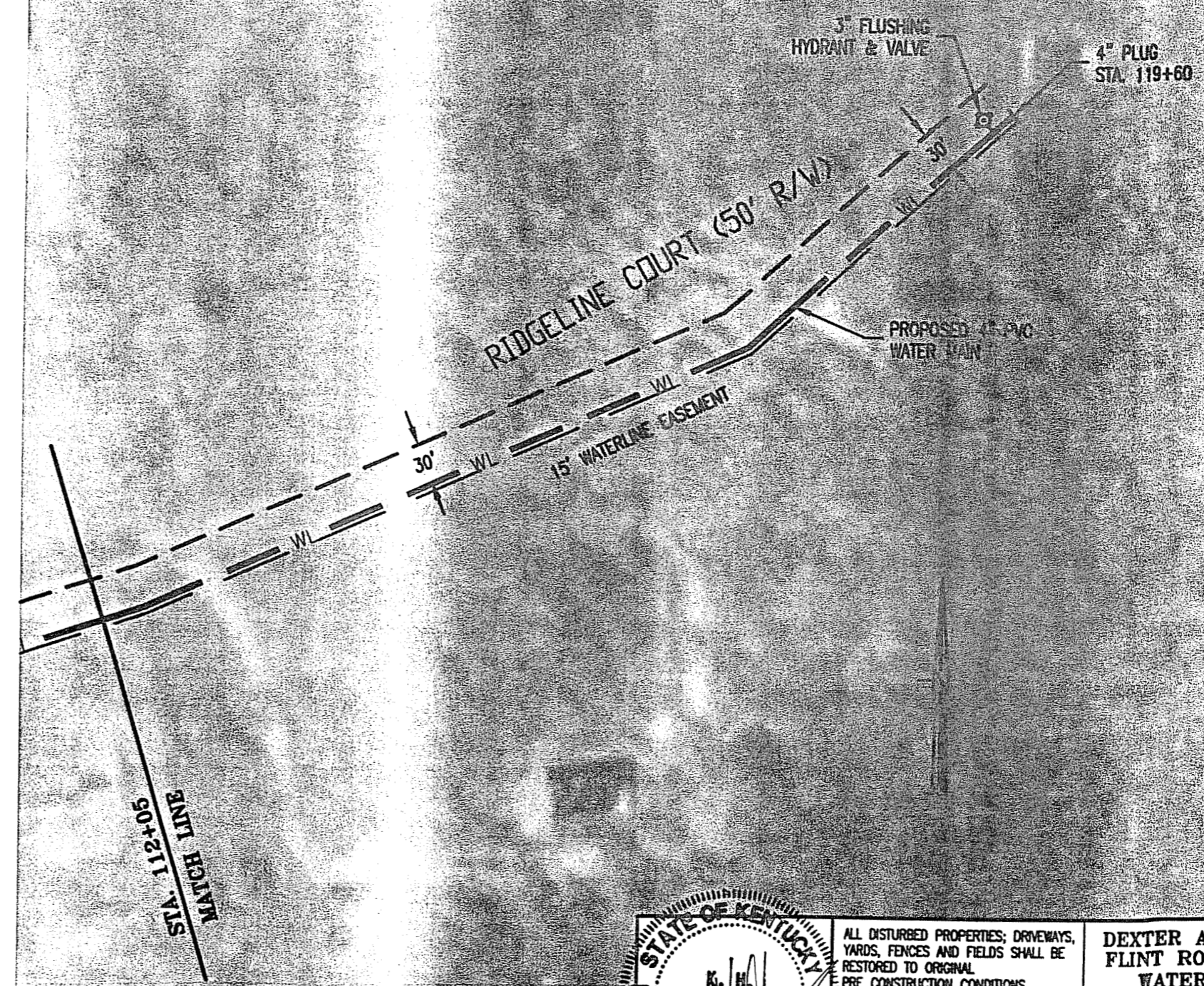
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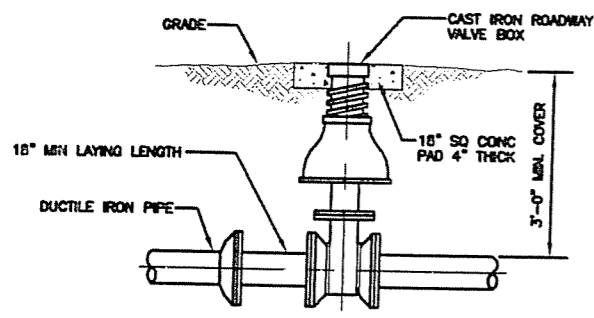
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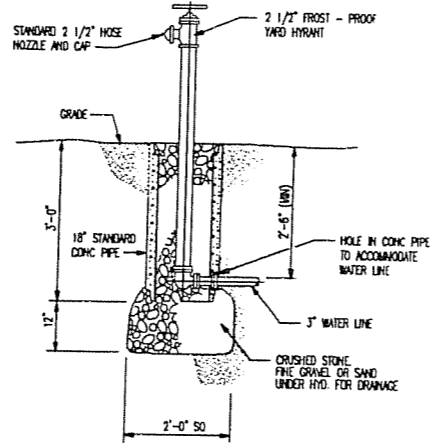
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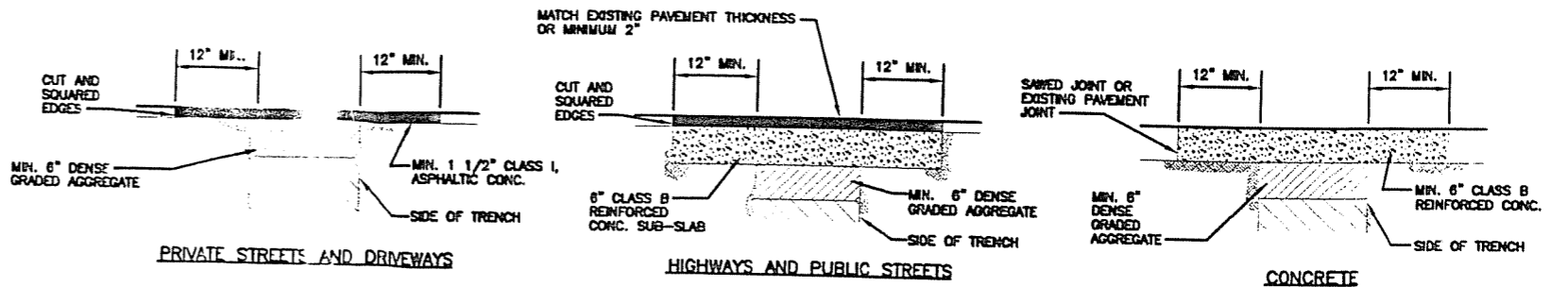
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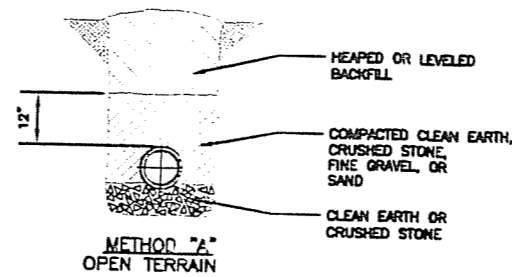
TYPICAL VALVE SETTING
NTS



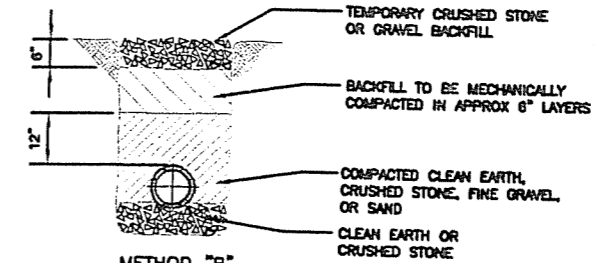
FLUSH HYDRANT SETTING
STANDARD DETAIL NO. 4



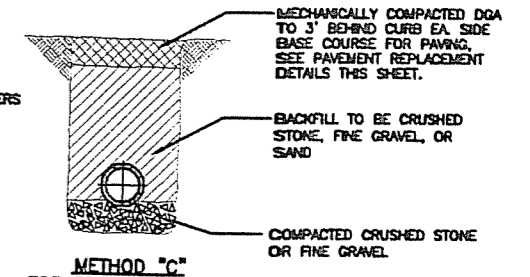
PAVEMENT REPLACEMENT



METHOD "A"
OPEN TERRAIN

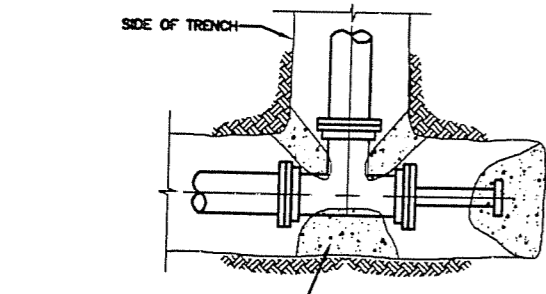


METHOD "B"
SIDEWALKS & UNPAVED DRIVEWAYS



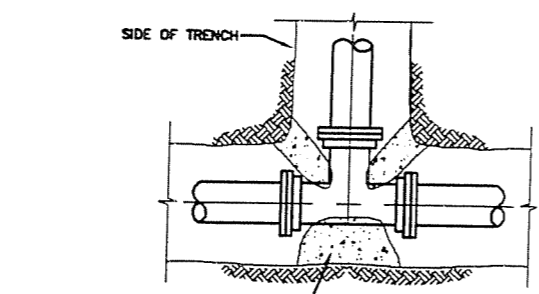
METHOD "C"
FOR STREET CROSSING

BACKFILLING



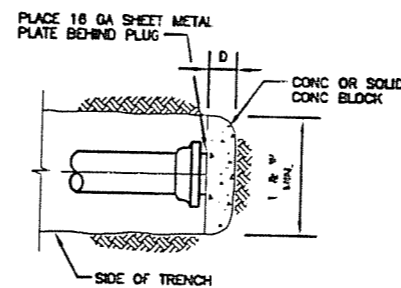
CLASS "C" CONC PLACED AGAINST UNDISTURBED SOIL, EARTH OR SOLID CONC. BLOCK WEDGED AGAINST UNDISTURBED SOIL, TYP.

PLUG TEE

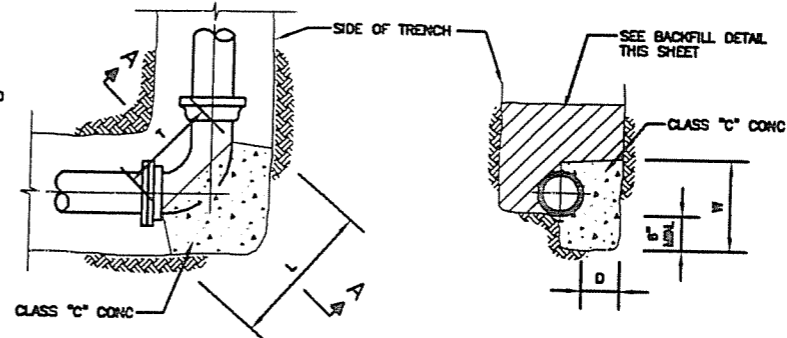


CLASS "C" CONC PLACED AGAINST UNDISTURBED SOIL, EARTH OR SOLID CONC. BLOCK WEDGED AGAINST UNDISTURBED SOIL, TYP.

TEE



PLUGS



45° & 90° BEND

SECTION A-A

CONCRETE THRUST BLOCKS
NTS

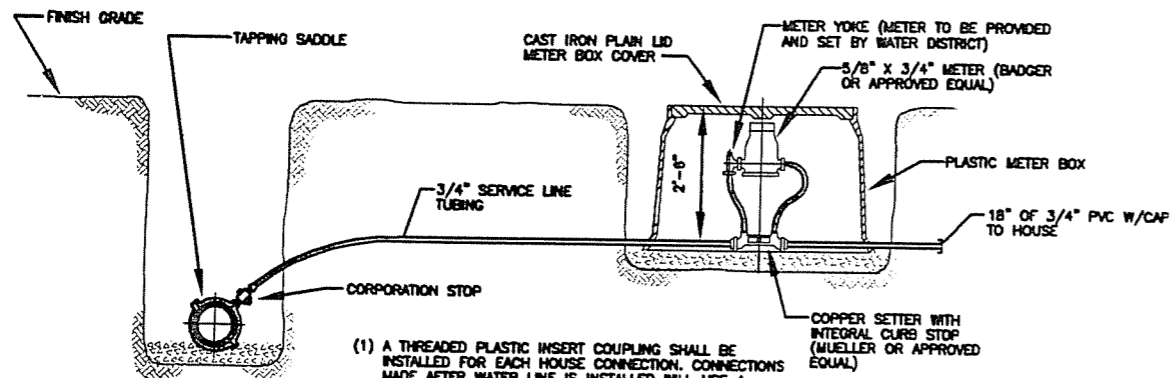
PLUGS									
SIZE	6"	8"	10"	12"	16"	18"	20"	24"	
D	6"	6"	6"	6"	6"	6"	6"	6"	6"
L & W	20"	22"	24"	24"	24"	32"	36"	40"	48"

45° EIGHTH BENDS									
SIZE	6"	8"	10"	12"	16"	18"	20"	24"	
D	6"	6"	6"	6"	6"	6"	6"	6"	6"
L	18"	20"	22"	24"	34"	40"	45"	52"	
T	16"	16"	18"	18"	28"	33"	37"	46"	
W	12"	14"	16"	18"	22"	25"	28"	32"	

90° QUARTER BENDS									
SIZE	6"	8"	10"	12"	16"	18"	20"	24"	
D	8"	10"	12"	12"	16"	20"	20"		
L	24"	27"	30"	34"	48"	51"	54"	70"	
T	16"	18"	20"	22"	36"	40"	44"	50"	
W	12"	16"	20"	24"	28"	34"	40"	44"	

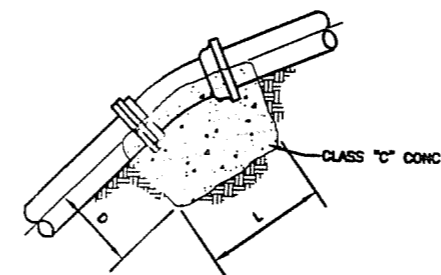
VERTICAL BEND & STRAIGHT PIPE									
SIZE	6"	8"	10"	12"	16"	18"	20"	24"	
D	15"	15"	18"	18"	21"	21"	24"	24"	
L	24"	24"	30"	30"	36"	36"	36"	42"	

- NOTES:**
- ANCHORS TO BE FULL WIDTH OF TRENCH
 - DEPTH "D" MAY BE GREATER THAN SPECIFIED TO ALLOW WORKING SPACE. PIERS MUST BE PLACED AGAINST UNDISTURBED EARTH.

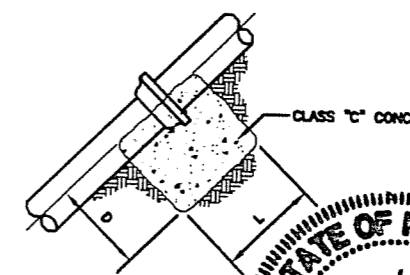


- A threaded plastic insert coupling shall be installed for each house connection. CONNECTIONS MADE AFTER WATER LINE IS INSTALLED WILL USE A TAPPING SADDLE OF PROPER SIZE, AS REQUIRED.
- METERS ON "NEAR" SIDE TO BE NOT GREATER THAN 8 FEET FROM WATER MAIN WHERE WATER MAIN IS ON PRIVATE PROPERTY.

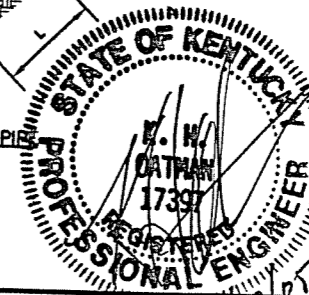
TYPICAL SERVICE CONNECTION
NTS



VERTICAL BENDS



CONCRETE ANCHOR BLOCKS
NTS



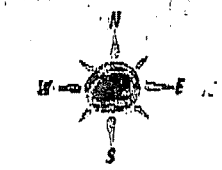
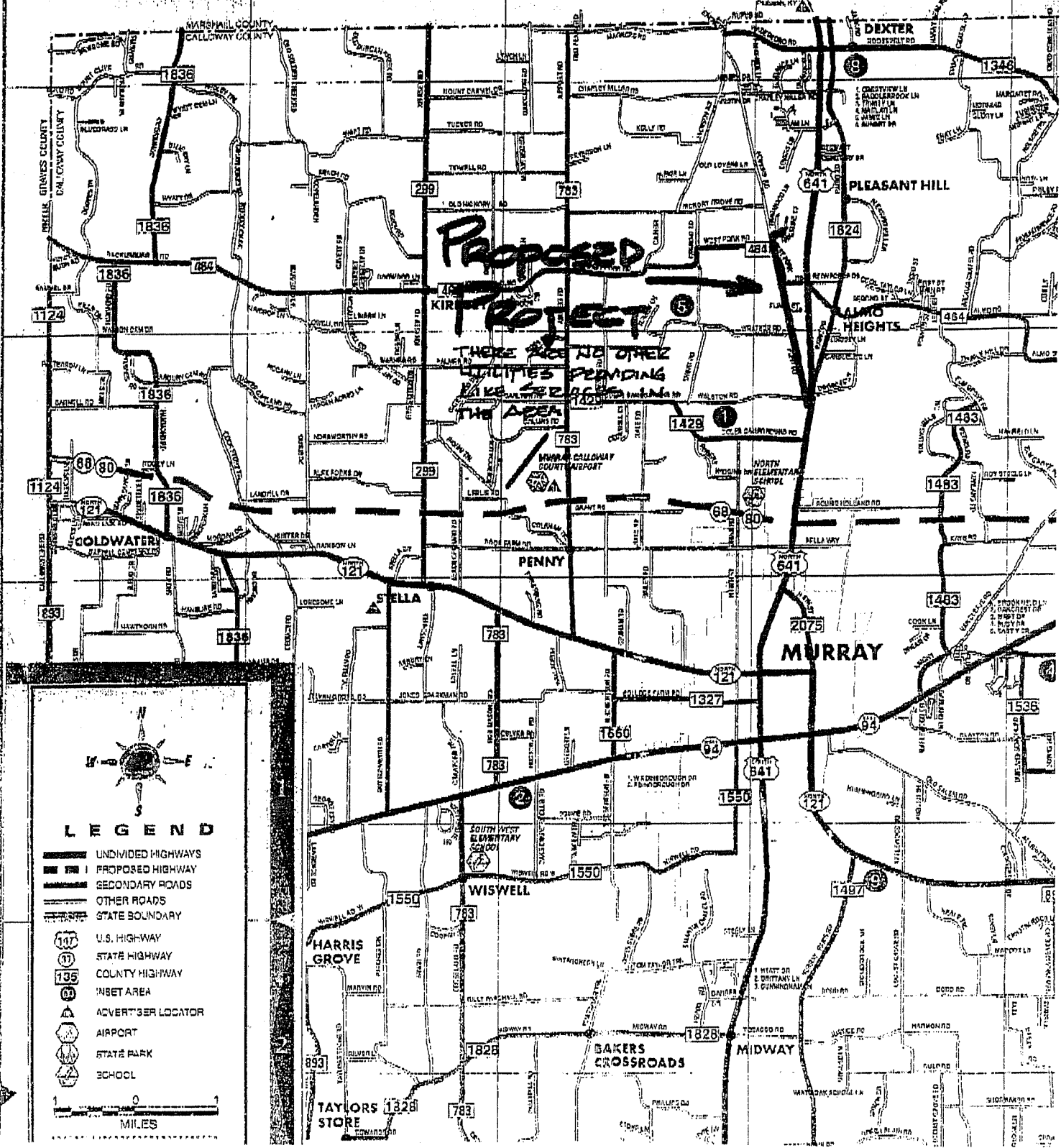
**DEXTER ALMO WATER DISTRICT
FLINT ROAD/WEST FORK ROAD
WATER MAIN EXTENSION**

**SUSAN OATMAN
PROFESSIONAL ENGINEER
133 PINE CREEK DRIVE
PADUCAH, KY 42001**

Calloway County

EXHIBIT
H

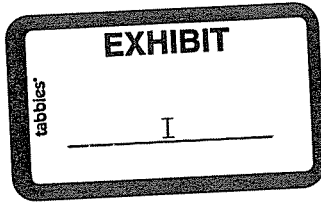
Proposed Project
THERE ARE NO OTHER UTILITIES PROVIDING LIKE SERVICES IN THE AREA



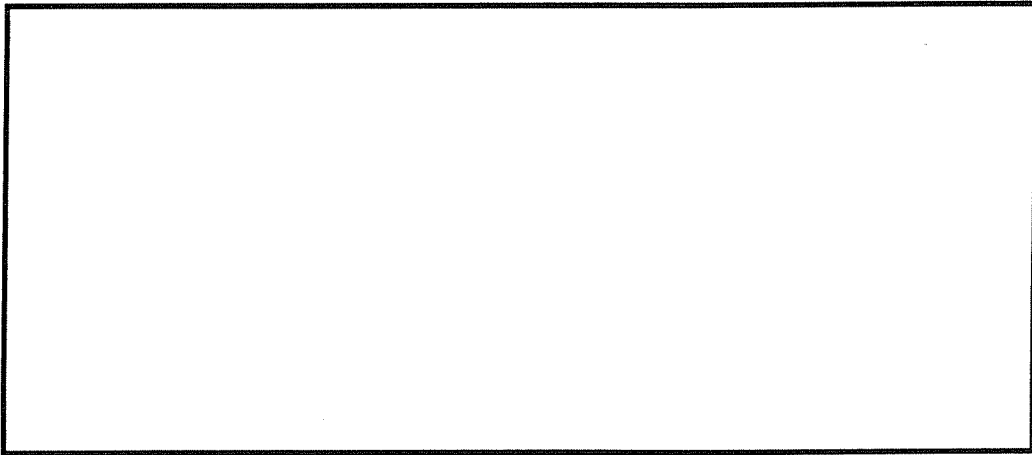
LEGEND

- UNDIVIDED HIGHWAYS
- PROPOSED HIGHWAY
- SECONDARY ROADS
- OTHER ROADS
- STATE BOUNDARY
- U.S. HIGHWAY
- STATE HIGHWAY
- COUNTY HIGHWAY
- INSET AREA
- ADVERTISER LOCATOR
- AIRPORT
- STATE PARK
- SCHOOL

0 1 2
MILES



Pierce & Associates, PLLC
Certified Public Accountants



DEXTER-ALMO HEIGHTS WATER DISTRICT
Calloway County, Kentucky

FINANCIAL STATEMENTS
DECEMBER 31, 2004

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Report on Compliance and on Internal Control over Financial Reporting based on an Audit of Financial Statements Performed in Accordance with <i>Government Auditing Standards</i>	13

INTRODUCTION

The Dexter-Almo Heights Water District is a de jure Water District, situated wholly in Calloway County, Kentucky, and exists by virtue of a Judgement and Order of the Calloway County Fiscal Court.

On April 24, 1964, the Commissioners of Dexter-Almo Heights Water District adopted a resolution providing for the construction and installation of a water-works system in and for said District, and authorizing the issuance of Waterworks System Revenue Bonds to provide for the costs thereof. On May 22, 1964, bonds in the amount of \$225,000 were sold and construction of the system was completed in December 1964. During the calendar year 1976, the District received funds from the Kentucky Highway Department for relocation of water lines. Existing lines were included in property acquired by the Kentucky Highway Department to be used in construction of a four-lane highway from Murray to Benton, Kentucky. Said funds were used to offset the cost of laying new lines to replace those lost to the Highway Department. Additional funds were received during 1979 from the Kentucky Highway Department for relocation of other water lines due to the relocation mentioned above. These additional funds were also used to offset the cost of laying new lines, and replacing those lost to the Highway Department.

PIERCE & ASSOCIATES, PLLC
CERTIFIED PUBLIC ACCOUNTANTS

MICHAEL D. PIERCE, CPA
KATHRYN FOX, CPA
KARAMANEH WINCHESTER, CPA

310 Main Street, P.O. Box 527, Murray, KY 42071

Telephone (270) 753-0274

FAX (270) 753-0275

info@piercecpa.com

To the Commissioners
Dexter-Almo Heights Water District
Almo, Kentucky 42020

We have audited the accompanying balance sheet of Dexter-Almo Heights Water District as of December 31, 2004, and the related statements of income, retained earnings and cash flows for the year then ended. These financial statements are the responsibility of the management of Dexter-Almo Heights Water District. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with United States generally accepted auditing standards, and *Governmental Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Dexter-Almo Heights Water District as of December 31, 2004, and the results of its operations and changes in retained earnings and its cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America.

In accordance with *Government Auditing Standards*, we have also issued our report dated January 25, 2005, on our consideration of the Dexter-Almo Heights Water District's internal control over financial reporting and our tests of its compliance with certain provisions of laws and regulations.

Pierce & Associates, PLLC

Pierce & Associates, PLLC
Certified Public Accountants

January 25, 2005

DEXTER-ALMO HEIGHTS WATER DISTRICT
BALANCE SHEET
December 31, 2004

ASSETS

Utility Plant

Waterworks System in Service	\$ 603,315	
Less: Accumulated Depreciation	<u>(274,845)</u>	
Total Utility Plant		\$ 328,470

Current Assets

Cash	41,343	
Accounts Receivable	<u>14,640</u>	
Total Current Assets		<u>55,983</u>

Total Assets		<u><u>\$ 384,453</u></u>
--------------	--	--------------------------

CAPITAL AND LIABILITIES

Capital

Donated Capital	\$ 178,025	
Retained Earnings	<u>109,332</u>	
Total Capital		\$ 287,357

Long-Term Debt

Capital Lease	<u>57,100</u>	
Total Long-term Debt		57,100

Current Liabilities

Accounts Payable	21,522	
Accrued Taxes	880	
Customer Deposits	1,194	
Current Portion of Long-Term Debt	<u>16,400</u>	
Total Current Liabilities		<u>39,996</u>

Total Capital and Liabilities		<u><u>\$ 384,453</u></u>
-------------------------------	--	--------------------------

DEXTER-ALMO HEIGHTS WATER DISTRICT
STATEMENT OF INCOME
FOR THE YEAR ENDED DECEMBER 31, 2004

<u>Operating Revenue</u>		
Water Revenues	\$ 161,294	
Fees	602	
Total Revenues	\$ 161,896	
 <u>Operating Expenses</u>		
Water Purchases	57,291	
Operating Supplies	5,895	
Water Testing	568	
Bad Debt	588	
Salaries	35,135	
Commissioner Fees	5,400	
Contract Labor	266	
Truck and Mileage Expense	2,497	
Legal and Accounting	3,985	
Repairs and Maintenance	78	
Telephone and Utilities	2,803	
Payroll Tax Expense	3,099	
Office Expense	1,133	
Postage	1,966	
Printing and Reproduction	163	
Insurance	4,493	
Advertising and Dues	460	
Depreciation	13,352	
Conference and Training	85	
Travel and Lodging	89	
Tax and Permits	749	
Total Operating Expenses	140,095	
		21,801
 <u>Other Income (Expense)</u>		
Interest Income	12	
Extraordinary Expense <i>Tower Renewal</i>	(14,500)	
Interest Expense	(4,348)	
		(18,836)
Net Income		\$ 2,965

See Accountants' Audit Report and Notes to the Financial Statements

DEXTER-ALMO HEIGHTS WATER DISTRICT
STATEMENT OF RETAINED EARNINGS
FOR THE YEAR ENDED DECEMBER 31, 2004

RETAINED EARNINGS, January 1, 2003	\$ 86,037
Net Income for the year ended December 31, 2003	<u>20,330</u>
RETAINED EARNINGS, January 1, 2004	106,367
Net Income for the year ended December 31, 2004	2,965
RETAINED EARNINGS, December 31, 2004	<u><u>\$ 109,332</u></u>

See Accountants' Audit Report and Notes to the Financial Statements

DEXTER-ALMO HEIGHTS WATER DISTRICT
STATEMENT OF CASH FLOWS
FOR THE YEAR ENDED DECEMBER 31, 2004

CASH FLOWS FROM OPERATING ACTIVITIES		
Net Income	\$ 2,965	
Adjustments to reconcile net income to net cash provided (used) by operating activities:		
Depreciation	13,352	
(Increase) Decrease in Accounts Receivable	(369)	
Increase (Decrease) in Accounts Payable	15,886	
Increase (Decrease) in Accrued Taxes	(653)	
Increase (Decrease) in Customer Deposits	(793)	
Net Cash Provided By Operating Activities	\$ 30,388	
 CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES		
Principal Paid on Capital Lease	(15,600)	
Additions to Waterworks System	(22,475)	
Increase in Donated Capital	11,550	
Net Cash Used By Financing Activities	(26,525)	
 CASH FLOWS FROM INVESTING ACTIVITIES		
Proceeds of Investment	-	
Net Cash Provided By Investing Activities	-	
NET INCREASE IN CASH		3,863
CASH - January 1, 2004		37,480
CASH - December 31, 2004		\$ 41,343

Cash Flow Disclosures:

Interest Paid:	\$4,348
----------------	---------

DEXTER-ALMO HEIGHTS WATER DISTRICT

NOTES TO FINANCIAL STATEMENTS

DEXTER-ALMO HEIGHTS WATER DISTRICT
NOTES TO FINANCIAL STATEMENTS

NOTE 1 - SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting

The financial statements of Dexter-Almo Heights Water District are prepared on the accrual basis of accounting. Therefore, income is recognized as it is earned rather than when cash is received, and expenditures are recognized as incurred rather than when paid in accordance with generally accepted accounting principles.

Cash

For the purposes of the statement of cash flows, all cash investments with an original maturity of three months or less are considered to be cash equivalents.

Accounts Receivable

The District does not have an allowance for doubtful accounts. Instead, the direct write-off method is used and accounts are written-off as they become uncollectible. This method is not expected to differ materially from the allowance method.

Asset Capitalization and Depreciation Expense

The assets purchased by the District are capitalized at cost. Depreciation for these assets is provided using the straight-line method over their estimated useful lives. The estimated useful lives of the assets are as follows:

Waterworks System & Improvements	50 Years
Building	33 Years
Equipment	10 Years
Office Furniture & Equipment	10 Years
Vehicles	10 Years

Income Taxes

As a special taxing district of local government the District is exempt from Federal income tax. Therefore, no provision is made for income tax expense.

Accruals

The District does not compensate for days not worked, therefore no accrual has been made for compensated absences.

Advertising costs are expensed as incurred.

**DEXTER-ALMO HEIGHTS WATER DISTRICT
NOTES TO FINANCIAL STATEMENTS (Continued)**

Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

Reporting Entity

The Dexter-Almo Heights Water District operates as a proprietary fund, and is considered to be a separate reporting entity, and not a component unit subject to inclusion in the financial statements of any other entity. Criteria considered in determining the reporting entity included; evaluating oversight responsibility, financial interdependency, selection of board members and management personnel, influence over operations, and accountability for fiscal matters.

Fund Accounting

The accounts of the Dexter-Almo Heights Water District are organized using governmental fund accounting, which uses the basis of funds or account groups, each of which is considered a separate reporting entity. The operations of each fund or account group are summarized by providing a separate set of self-balancing accounts which include its assets, liabilities, fund equity, revenues, and expenditures.

The District is considered to be a proprietary fund type, or enterprise fund. An enterprise fund is used to account for operations that are financed and operated in a manner similar to private business enterprises where the costs (expenses, including depreciation) of providing water services to the general public on a continuing basis are financed through user charges.

NOTE 2 - PROPERTY, PLANT AND EQUIPMENT

Fixed assets at December 31, 2004, are stated at cost less depreciation as follows:

	<u>Cost</u>	<u>Accumulated Depreciation</u>	<u>Book Value</u>
Waterworks System in Service	\$550,150	\$249,038	\$301,112
Wells (2)	12,424	12,424	0
Building and Improvements	19,952	4,439	15,513
Equipment and Vehicle	17,474	7,863	9,611
Office Furniture & Equipment	3,315	1,081	2,234
TOTALS:	<u>\$603,315</u>	<u>\$274,845</u>	<u>\$328,470</u>

**DEXTER-ALMO HEIGHTS WATER DISTRICT
NOTES TO FINANCIAL STATEMENTS (Continued)**

NOTE 3 – CASH

Cash at December 31, 2004, was fully insured by the FDIC and consisted of the following:

Cash on Hand	\$ 100
The Murray Bank, Revenue Fund – unrestricted	38,898
The Murray Bank, Meter Fund – restricted	<u>2,345</u>
Total:	<u>\$41,343</u>

NOTE 4 – ACCOUNTS RECEIVABLE

Customer accounts receivable at December 31, 2004, amounted to \$14,640. This represents the amount of current December bills and any amount in arrears due from customers.

NOTE 5 – CAPITAL

Donated Capital (formerly Contributions in Aid of Construction) amounting to \$178,025 have been received over the total period of time that the District has been in operation. These advances from customers represent non-refundable contributions for the purpose of offsetting part of the cost of tapping onto the system. Current year contributions amounted to \$11,550.

NOTE 6 - CAPITAL LEASE AGREEMENT

The District entered into a capital lease agreement with the Kentucky Area Development District's Financing Trust for the amount of \$150,000 on June 1, 1999, for the extension of water lines and for the purchase of office equipment and furniture. The economic substance of the lease is that the District is financing the acquisition of the assets through the lease, and accordingly, the lease was capitalized in the District's records.

Payments are due bi-annually on May 20th and November 20th until May 20, 2009.

**DEXTER-ALMO HEIGHTS WATER DISTRICT
NOTES TO FINANCIAL STATEMENTS (Continued)**

NOTE 6 – CAPITAL LEASE AGREEMENT (Continued)

The following is a schedule by years of future principal payments required under the lease:

FYE December 31, 2005	\$ 16,400
FYE December 31, 2006	17,200
FYE December 31, 2007	18,000
FYE December 31, 2008	19,000
Thereafter	<u>2,900</u>
Total Debt:	\$ 73,500
Less Current Portion:	<u>(16,400)</u>
Total Long-Term Debt:	<u>\$ 57,100</u>

NOTE 7 – ACCRUED TAXES PAYABLE

Accrued Taxes Payable as of December 31, 2004, consisted of the following:

Payroll Taxes	\$ 404
Sales Tax	92
Calloway County Board of Education	<u>384</u>
Total Current Liabilities:	<u>\$ 880</u>

NOTE 8 – EXTRAORDINARY EXPENSE

During this fiscal year the water district elected to demolish an old water tower that has not been in use since the inception of the district in 1964 that has continued to be a liability to the District. The \$14,500 expense is the total cost of demolition (contractual services) and was accrued in 2004 at the date the services were completed.

**ADDITIONAL REPORTS REQUIRED
BY *GOVERNMENT AUDITING STANDARDS***

PIERCE & ASSOCIATES, PLLC

CERTIFIED PUBLIC ACCOUNTANTS

MICHAEL D. PIERCE, CPA
KATHRYN FOX, CPA
KARAMANEH WINCHESTER, CPA

310 Main Street, P.O. Box 527, Murray, KY 42071

Telephone (270) 753-0274

FAX (270) 753-0275

info@piercecpa.com

REPORT ON COMPLIANCE AND ON INTERNAL CONTROL OVER FINANCIAL REPORTING BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH *GOVERNMENT AUDITING STANDARDS*

To the Commissioners
Dexter-Almo Heights Water District
Almo, Kentucky 42020

We have audited the financial statements of Dexter-Almo Heights Water District as of and for the year ended December 31, 2004, and have issued our report thereon dated January 25, 2005. We conducted our audit in accordance with United States generally accepted auditing standards and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States.

Compliance

As part of obtaining reasonable assurance about whether Dexter-Almo Heights Water District's financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grants, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit and, accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance that are required to be reported under *Government Auditing Standards*.

Internal Control Over Financial Reporting

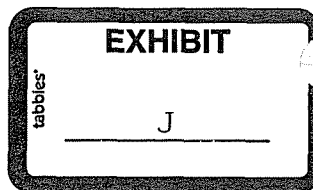
In planning and performing our audit, we considered Dexter-Almo Heights Water District's internal control over financial reporting in order to determine our auditing procedures for the purpose of expressing an opinion on the financial statements and not to provide assurance on the internal control over financial reporting. Our consideration of the internal control over financial reporting would not necessarily disclose all matters in the internal control over financial reporting that might be material weaknesses. A material weakness is a condition in which the design or operation of one or more of the internal control components does not reduce to a relatively low level the risk that misstatements in amounts that would be material in relation to the financial statements being audited may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions. We noted no instances involving the internal control over financial reporting and its operation that we consider to be material weaknesses.

This report is intended for the information of the board of directors and management. However, this report is a matter of public record and its distribution is not limited.



Pierce & Associates, PLLC
Certified Public Accountants

January 25, 2005



AGREEMENT BETWEEN
DEXTER-ALMO HEIGHTS WATER DISTRICT
AND CONTRACTOR

THIS AGREEMENT, made the 25th day of October, 2005 by and between BURGESS AND ASSOCIATES, INC. ("Contractor"), and the DEXTER-ALMO HEIGHTS WATER DISTRICT, ("Owner"), is to bind the parties hereto to the principles and terms set forth herein, and shall be binding upon the parties hereto.

WITNESSETH, that the Contractor and Owner for the consideration hereinafter named, agree as follows:

ARTICLE No. 1 SCOPE OF WORK:

The Contractor shall furnish all of the materials and perform all the Work described in the Specifications and/or shown on the Drawings entitled: **Flint Road/West Fork Road Water Main Extension** which Specifications and/or Drawings are incorporated in and made a part thereof.

ARTICLE No. 2 TIME OF COMPLETION:

The Contractor must begin Work specified by the written Notice to Proceed from the Owner. Substantial Completion of the Work shall be seventy-five (75) calendar days after the issuance of the Notice to Proceed with Final Completion one-hundred and five (105) calendar days after the issuance of the Notice to Proceed.

ARTICLE No. 3 LIQUIDATED DAMAGES:

It is mutually understood and agreed by and between the parties hereto that time is of the essence in the performance of this contract and that the Owner, the Dexter-Almo Heights Water District, will sustain substantial monetary and other damages in the event of a failure or delay by the Contractor in the completion of the Work. It is further understood and agreed upon and made part of this Contract that the Work must be begun, performed, and completed without delay by the Contractor and if the Contractor fails to begin, perform without interruption, and complete said Work in due and proper time, the Contractor may be declared in default of this Agreement. If the Work is not substantially complete within the time required in Article No. 2 of this Agreement, the Contractor shall pay to the Owner, as liquidated damages for delay and not as a penalty, the sum of one hundred dollars (\$100) for every day after the date for Substantial Completion until construction is in fact substantially complete. If the Work is not finally complete within the time required in Article No. 2 of this Agreement, the Contractor shall pay to the Owner, as liquidated damages for delay and not as a penalty, the sum of fifty dollars (\$50) for every day after the date for final completion until construction is in fact finally complete. This provision for liquidated damages is intended to compensate the Owner for delay only and shall not preclude the Owner from making claims for other damages.

If the Work is not commenced by the Contractor at the time specified in Article No. 2 of this Agreement, then the Contractor and its surety or sureties shall be liable for and pay to the Owner all damages sustained by reason of such failure or breach of contract and the Owner may immediately relet the Work.

ARTICLE No. 4 THE CONTRACT AMOUNT:

Subject to additions and deductions for Change Orders made in accordance with the Contract Documents, the Owner shall pay the Contractor as full consideration for the Contractor's satisfactory performance of the Contract obligations for the unit price of Eleven Dollars and Sixty-two Cents per linear foot of 6-inch water main system laid (\$11.62 /lf of water main laid) totaling an estimated sum of; One hundred and Twenty-four thousand and Four hundred and Fifty Dollars and Twenty Cents (\$124,450.20) for the base bid; and for the unit price of Six Dollars and Twenty-three Cents per linear foot of 4-inch water main system laid (\$6.23 /lf of water main laid) totaling an estimated sum of; Seven thousand and Seven hundred and Eighty Seven Dollars and Fifty Cents (\$7,787.50) for the alternate bid; all totaling an estimated sum of One hundred and Thirty-two thousand and Two-hundred and Thirty-seven Dollars and Seventy Cents (\$132,237.70).

ARTICLE No. 5 PROPOSED PAYMENTS:

The Owner shall make periodic partial payments in accordance with the Kentucky Infrastructure Requirements for Work satisfactorily completed and for materials suitably stored at the site of the Work as estimated by the Consultant, less retainage and the aggregate of previous payments.

ARTICLE No. 6 ACCEPTANCE AND FINAL PAYMENT:

Final payment shall be due thirty (30) days after Final Completion of the Work, provided, that all Work has been fully completed in accordance with the Contract Documents as evidenced by a certificate by the Consultant for the project, and acceptance by the Owner.

The Contractor shall submit with the final estimate evidence satisfactory to the Consultant that all payrolls, material bills and other indebtedness connected with the Work have been paid or that provisions for the satisfaction thereof have been made. If, after the Work has been substantially completed, final completion of the Work is delayed through no fault of the Contractor, the Owner may pay to the Contractor from the remaining balance of funds for this Agreement a sum equal to the value of that portion of the Work fully completed and accepted by the Owner as provided in this Agreement.

ARTICLE No. 7 THE CONTRACT DOCUMENTS:

The Contract Documents consist of this Agreement, all Addenda, the Contractor's Form of Proposal, the Special Conditions, the Contractor's Bonds, the Specifications, the Drawings and Change Orders issued after execution of the Contract for the Work described in Article No. 1 of this Agreement, all of which are incorporated in and made a part hereof by reference, and which shall be binding upon the Contractor and Owner.

The Specifications and Drawings for this Work include the following:

Specifications: Advertisement for Bids through
Drawings: Cover Sheet through Sheet 11

ARTICLE No. 8 CONTRACT ADJUSTMENTS:

The Owner, without invalidating this Agreement may make adjustments to the Work as provided by KRS 45A.200 (1), and may order extra Work or make changes by altering, adding to or deducting from the Work. All such Work shall be executed and paid for in accordance with the Kentucky Infrastructure Requirements.

ARTICLE No. 9 SPECIAL NOTICE:

The Contractor hereby certifies that it is fully informed of the conditions relating to construction and labor under which the Work under this Agreement is to be performed, and agrees that it shall employ methods and means in carrying out the Work so as not to interfere with or interrupt the Work of any other Contractor working on/or adjacent to the site for this Work. Contractor further agrees that it shall employ methods and means to minimize interference or interruption of any business or resident along the route of this project and that all disrupted properties, driveways, yards, fences, fields, etc... will be restored to pre-construction conditions.

ARTICLE No. 10 OWNER'S RIGHT TO TERMINATE CONTRACT:

This contract may be terminated for the convenience of the Water District or for default by the Contractor.

IN WITNESS WHEREOF this Agreement is executed in three (3) counterparts, each one of which shall be deemed an original and adequate proof of this Agreement, on the date and year first herein before written.

WITNESS:

Kathryn J. Upatt

CONTRACTOR: Burgess and Associates, Inc.

BY: Steve Burgess

STEVE BURGESS
printed name

TITLE: PRE.

OWNER : Dexter-Almo Heights Water District

By: Joe Ann Taylor

JOE ANN TAYLOR
printed name

**KENTUCKY INFRASTRUCTURE AUTHORITY
DEXTER-ALMO WATER DISTRICT**

Project Budget WX21035014

Estimated

As Bid

Revised

Cost Classification	IEDF Grant	KIA Grant	Funding Source 1	Funding Source 2	Funding Source 3	Funding Source 4	Local Funds	Unfunded Costs	Total
1 Administrative Expenses (1)			460.00						-
2 Legal Expenses		1,000	1,000						-
3 Land, Appraisals, Easements		2,500	2,500						-
4 Relocation Expense & Payments									-
5 Planning (2)		250	250						-
6 Engineering Fees - Design		5,250	5,250						-
7 Engineering Fees - Construction		250	250						-
8 Engineering Fees - Inspection		1,000	1,000						-
9 Construction		755.5	5671.2						-
10 Equipment									-
11 Contingency		2,475	2,475						-
12 Other									-
Total	-	42,000	72,641	-	-	-	-	-	-

(1) Include Interim Financing

(2) Include in this category, all negotiated fees not included in the RD fee scale calculation

Signature

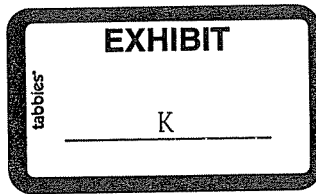
Title

Date

Funding Sources	Amount	Date Committed
1 KIA	42,000	
2 Murray Park	13,000	
3		
4		
Total	-	

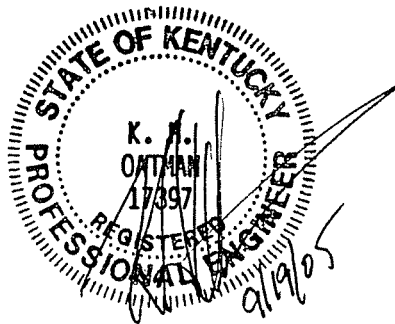
Local Funding Sources	Amount	Date Committed
1		
2		
3		
Total	-	

Total Funding



PROJECT SPECIFICATIONS

FLINT ROAD/WEST FORK ROAD WATER MAIN EXTENSION



Dexter-Almo Heights Water District
Almo, Kentucky

September 9, 2005

INDEX TO PROJECT MANUAL

FRONT END DOCUMENTS

Advertisement for Bids	Pages 1 thru 2
Form of Proposal	Pages 1 thru 10
Contract Agreement	Pages 1 thru 3
Special Conditions	Pages 1 thru 7

DIVISION 1 – GENERAL REQUIREMENTS

Section 01028	Change Order Procedures	Pages 1 thru 1
Section 01039	Coordination and Meetings	Pages 1 thru 3
Section 01100	Summary	Page 1
Section 01300	Submittals	Pages 1 thru 4
Section 01370	Schedule of Values	Pages 1 thru 1
Section 01400	Quality Control	Pages 1 thru 2
Section 01500	Temporary Facilities and Controls	Pages 1 thru 4
Section 01600	Materials And Equipment	Pages 1 thru 3
Section 01700	Contract Closeout	Pages 1 thru 4
Section 01740	Warranties And Bonds	Pages 1 thru 2

DIVISION 2 – SITE WORK

Section 02225	Trenching	Pages 1 thru 5
Section 02790	Water Distribution Systems	Pages 1 thru 7

ADVERTISEMENT FOR BIDS

1. INVITATION

Sealed proposals for the following work will be received by the Dexter-Almo Heights Water District, 351 Almo Road, Almo, Kentucky 42020, in the manner and on the date hereinafter specified for the Flint Road/West Fork Road Water Main Extension Project as set forth in the specifications and as shown on the drawings prepared by and approved by Susan Oatman, P.E. under the terms and conditions of this Invitation.

2. PROJECT DESCRIPTION

Project consists of the construction of 10,710 lf of 6-inch PVC water main and all related work along Flint Road and West Fork Road from Walston Road to Ridgeline Court.

3. METHOD OF RECEIVING BIDS

Bids will be received from Prime Contractors on a Lump Sum Amount for the total project. All phases of the work shall be submitted in the manner herein described and on the official proposal form included with the conditions and specifications and shall be subject to all the conditions as set forth and described in the Bid Documents.

Bids shall be submitted only on the Form of Proposal supplied by the Owner. Failure to comply with the foregoing requirements will be cause for invalidation of bid.

4. METHOD OF AWARD

Final award of Contract will be made on the basis of the lowest, responsive and responsible bid which offers the best value.

5. SCHEDULE OF PROJECT

Substantial completion, 75 calendar days from issuance of a written work order.

Final completion, 30 calendar days after the date of substantial completion.

6. BONDING

All bids shall be accompanied by a bid guarantee of not less than five (5%) percent of the amount of the base bid. A 100% Performance Bond and 100% Payment Bond shall be furnished by the successful bidder. All bonding and insurance requirements are contained in the Instruction to Bidders and/or General Conditions.

7. PLANS AND SPECIFICATIONS REVIEW

Specifications, Plans, and Contract Documents may be examined at the following places:

1. Dexter-Almo Heights Water District, 351 Almo Road, Almo, Kentucky 42020

8. OBTAINING PLANS AND SPECIFICATIONS

Plans and Specifications may be obtained from the Dexter-Almo Heights Water District, 351 Almo Road, Almo Kentucky, 42020, upon receipt of a check in accordance with the charge schedule below. All checks shall be payable to Dexter-Almo Heights Water District. **(HOURS TO OBTAIN PLANS AND SPECIFICATIONS ARE 8:00 A.M. TO 11:30 A.M. - MONDAY THROUGH FRIDAY.)**

Questions about obtaining plans and specifications may be directed to Kathy Wyatt, Project Administrator, Dexter-Almo Heights Water District at (270) 753-9101.

CONTRACT DOCUMENT FEE

The nonrefundable fee of \$25.00 will provide the contractor with one (1) set of Specifications, all addenda, and bidding documents.

9. BID SUBMITTAL

Contractors must submit their bid in a sealed envelope and the envelope must contain the following information on the outside lower left-hand corner, viz.:

SEALED BID: FLINT ROAD/WEST FORK ROAD WATER MAIN EXTENSION

BID OPENING DATE: **OCTOBER 6, 2005, AT 4:00 PM CENTRAL PREVAILING TIME.**

Bids received after the scheduled closing time for reception of bids will not be considered provided legal and accepted bids have been received on said referenced Invitation.

10. BID WITHDRAWAL

No bidder may withdraw his bid for a period of sixty (60) days after the date set for the opening of bids. Clerical errors and omissions in the computation of the lump sum shall not be cause for withdrawal of the bid without forfeiture of bid bond. Bids may be withdrawn in person only, prior to the closing date for receipt of bids.

11. MINORITY BUSINESS ENTERPRISE PARTICIPATION

Dexter-Almo Heights Water District is committed to increasing the participation of minority business enterprises on construction projects, and encourages the use of minority subcontractors and material suppliers. For assistance in identifying minority vendors and subcontractors, the contractors may contact the Kentucky Office of Minority Business Enterprises, 2329 Capital Plaza Tower, Frankfort, Kentucky 40601, Telephone no. (502) 564-2064 and Louisville Minority Business Development Center, 611 W. Main Street, Louisville Kentucky 40202.

12. RIGHT TO REJECT

Dexter-Almo Heights Water District reserves the right to reject any and all bids and to waive all formalities and/or technicalities where the best interest of the Owner may be served.

13. GENERAL INFORMATION

- A. The Listing of major subcontractors, unit prices, and material lists are to be submitted with the bid.
- B. Only those Prime Contractors who have obtained Plans and Bid Documents directly from Dexter-Almo Heights Water District will be eligible to submit a bid for this project.
- C. A prime bidder is to have a responsible authorized representative at the bid opening for post bid review of the apparent low bid that follows immediately after the opening and reading of the bids. Failure to comply with this requirement may be cause for rejection of bid.

14. PRE-BID CONFERENCE

A pre-bid conference will be held on September 29, 2005 @ 4:00 p.m. prevailing central time, at the Dexter-Almo Heights Water District, 351 Almo Road, Almo, KY 42020. Decisions and clarification's discussed at this meeting will be incorporated into the bid documents by an addendum issued no later than five (5) calendar days prior to bidding.

**FORM OF PROPOSAL
FOR
FLINT ROAD/WEST FORK ROAD WATER MAIN EXTENSION
DEXTER-ALMO HEIGHTS WATER DISTRICT
CALLOWAY COUNTY, KENTUCKY**

This Form of Proposal consisting of Page FP - 1 through FP - 10, shall be used in submitting a proposal for work. Copies will be furnished upon request by the authority issuing the Invitation to Bid.

THIS PROPOSAL SUBMITTED BY _____

(Name and Address of Bidder)
DATE: _____ TELEPHONE _____

BIDDER'S FEDERAL IDENTIFICATION NUMBER _____

**TO: DEXTER-ALMO HEIGHTS WATER DISTRICT
351 ALMO ROAD
ALMO, KY 42020**

GENTLEMEN:

This bidder, in compliance with your requirements and having carefully examined the complete contract documents including the Drawings and the Specification for the work as prepared by Susan Oatman, 133 Pine Creek Drive, Paducah, KY 42001; hereby proposes to furnish all labor, materials, supplies and services required to perform the specifics of the Contract Documents, within the time set forth therein and for the stated Lump Sum Bid Amount and Unit Prices.

The Bidder, hereby acknowledges receipt of the following Addenda:

ADDENDUM NO. _____ DATED _____ ADDENDUM NO. _____ DATED _____

(IF NONE HAVE BEEN ISSUED AND RECEIVED, INSERT THE WORD, NONE.)

**FORM OF PROPOSAL
FOR
FLINT ROAD/WEST FORK ROAD WATER MAIN EXTENSION
DEXTER-ALMO HEIGHTS WATER DISTRICT
CALLOWAY COUNTY, KENTUCKY**

UNIT PRICE BASE BID:

The bidder agrees to furnish all labor, materials, supplies and services required to construct 10,710 lf of 6-inch Water Main System known as the Flint Road/West Fork Road Water Main Extension and all related work and accessories for the Dexter-Almo Heights Water District in accordance with the Specifications and Contract Documents (sheets 1 through 8 and a portion of sheet 9) and duly issued Addenda for the UNIT PRICE BASE BID set forth below:

$$10,710 \text{ lf} \times \frac{\text{DOLLARS PER LF}}{\text{Bidder's Unit Price}} = \frac{\text{DOLLARS}}{\text{Bid Amount (use figures)}}$$

Note: Bids will be evaluated on the lowest unit price. Contractor's payment will be based on the actual linear footage of water main system installed times the above established unit price.

ALTERNATE BIDS

The bidder agrees to furnish all labor, materials, supplies and services required to complete 1,250 lf of 4-inch Water Main System known as the Ridgeline Court Water Main Extension and all related work and accessories for the Dexter-Almo Heights Water District in accordance with the Specifications and Contract Documents (portion of sheet 9 and sheet 10) and duly issued Addenda for the UNIT PRICE BASE BID set forth below:

$$1,250 \text{ lf} \times \frac{\text{DOLLARS PER LF}}{\text{Bidder's Unit Price}} = \frac{\text{DOLLARS}}{\text{Bid Amount (use figures)}}$$

Note: Bids will be evaluated on the lowest unit price. If alternate is accepted, Contractor's payment will be based on the actual linear footage of water main system installed times the above established unit price.

ADDITIONAL UNIT PRICES ON PAGE FP-3 REQUIRED

UNIT PRICES - IF OWNER CHOOSES TO ADD WORK ABOVE THE CONTRACT

The unit prices below shall include all labor, materials, supplies and services required to install and make fully operational the following items:

1.	4-inch PVC Water Main	\$ _____	/lf
2.	6-inch PVC Water Main	\$ _____	/lf
3.	6x6x4-inch MJ DI Tee	\$ _____	/ea
4.	6x6x6-inch MJ DI Tee	\$ _____	/ea
5.	4-inch MJ DI Fitting (90, 45, 22.5, 11.25)	\$ _____	/ea
6.	6-inch MJ DI Fitting (90, 45, 22.5, 11.25)	\$ _____	/ea
7.	4-inch MJ Gate Valve & Box	\$ _____	/ea
8.	6-inch MJ Gate Valve & Box	\$ _____	/ea
9.	6x4-inch DI Reducer	\$ _____	/ea
10.	3-inch Flushing Hydrant and Valve	\$ _____	/ea
11.	4-inch DI Plug	\$ _____	/ea
12.	6-inch DI Plug	\$ _____	/ea
13.	Boring under road with 10-inch steel casing	\$ _____	/lf
14.	Boring under road with no casing	\$ _____	/lf
15.	Setting of meter assembly - short (no bore)	\$ _____	/ea
16.	Setting of meter assembly - long (bore under road)	\$ _____	/ea

SIGNED BY: _____

FIRM NAME: (Typed) _____

ADDRESS: _____

NOTE: The Authentication of Bid and Statement of Non-Collusion and Non-Conflict of Interest Page FP-4 must be properly executed for the LUMP SUM BID to be valid.

UNIT PRICES - IF OWNER CHOOSES TO ADD WORK ABOVE THE CONTRACT

The unit prices below shall include all labor, materials, supplies and services required to install and make fully operational the following items:

1.	4-inch PVC Water Main	\$	_____	/lf
2.	6-inch PVC Water Main	\$	_____	/lf
3.	6x6x4-inch MJ DI Tee	\$	_____	/ea
4.	6x6x6-inch MJ DI Tee	\$	_____	/ea
5.	4-inch MJ DI Fitting (90, 45, 22.5, 11.25)	\$	_____	/ea
6.	6-inch MJ DI Fitting (90, 45, 22.5, 11.25)	\$	_____	/ea
7.	4-inch MJ Gate Valve & Box	\$	_____	/ea
8.	6-inch MJ Gate Valve & Box	\$	_____	/ea
9.	6x4-inch DI Reducer	\$	_____	/ea
10.	3-inch Flushing Hydrant and Valve	\$	_____	/ea
11.	4-inch DI Plug	\$	_____	/ea
12.	6-inch DI Plug	\$	_____	/ea
13.	Boring under road with 10-inch steel casing	\$	_____	/lf
14.	Boring under road with no casing	\$	_____	/lf

SIGNED BY: _____

FIRM NAME: (Typed) _____

ADDRESS: _____

NOTE: The Authentication of Bid and Statement of Non-Collusion and Non-Conflict of Interest Page FP-4 must be properly executed for the LUMP SUM BID to be valid.

**FORM OF PROPOSAL
AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND
NON-CONFLICT OF INTEREST**

I, HEREBY CERTIFY:

1. That I am the Bidder (if the Bidder is an individual), a Partner in the Bidder (if the Bidder is a Partnership), or an officer or employee of the Bidding Corporation having authority to sign on its behalf (if the Bidder is a corporation);
2. That the submitted bid or bids covering this Bid have been arrived at by the Bidder independently and have been submitted without collusion with, and without agreement, understanding or planned common course of action with any other Contractor, Vendor of materials, supplies, equipment or services described in the Invitation to Bid, designed to limit independent bidding or competition, as prohibited by provision KRS 45 A.325;
3. That the contents of the bid or bids have not been communicated by the Bidder or its employees or Agents to any person not an employee or Agent of the bidder or its surety on any bond furnished with the bid or bids and will not be communicated to any such person prior to the official opening of the bid or bids;
4. That the Bidder is legally entitled to enter into the Contract with Dexter-Almo Heights Water District, and is not in violation of any prohibited conflict of interest, including those prohibited by the provisions of KRS 164.390 and 45A.340 and 45A.455;
5. This offer is for _____ () calendar days from the date this bid is opened. In submitting the above, it is expressly agreed that upon proper acceptance by the Dexter-Almo Heights Water District of any or all items bid above, a Contract shall thereby be created with respect to the items accepted;
6. That I have fully informed myself regarding and affirm the accuracy of all statements made in this Form of Proposal, including Bid Amount.
7. Unless otherwise exempted by KRS 45.590, the Bidder intends to comply in full with all requirements of the Kentucky Civil Rights Act and to submit data required by the Kentucky Equal Employment Act upon being designated the successful Bidder.
8. That the Bidder, if awarded a Contract, will not be in violation of the Executive Branch Code of Ethics established by KRS 11A.001 through KRS 11A.990.

READ CAREFULLY – SIGN IN SPACE BELOW – FAILURE TO SIGN INVALIDATES BID

SIGNED BY: _____

TITLE: _____

FIRM: _____

TELEPHONE NO.: _____

ADDRESS: _____

DATE: _____

BIDDER'S QUALIFICATIONS

The Bidder's Qualifications are required by the owner to be submitted as set forth herewith:

1. This firm is a Corp. _____, Partnership _____, or Proprietorship _____.

2. A permanent place of business is maintained at:

STREET CITY STATE ZIP CODE

TELEPHONE NUMBER

3. The following construction plant and equipment will be made available for the use on this contract:

4. In the event the contract is awarded the undersigned, surety bonds will be furnished by:

5. Experience of Contractor on other similar work (Minimum of 5 years required):

_____	_____
_____	_____
_____	_____
_____	_____

6. We now have the following jobs under contract and bonded:

JOB	TOTAL CONTRACT	PERCENT COMPLETED
_____	\$ _____	_____ %
_____	\$ _____	_____ %
_____	\$ _____	_____ %
_____	\$ _____	_____ %

7. FINANCIAL STATEMENT:

Statement of Assets and Liabilities as of _____, _____.

This statement should be prepared by applicant, bookkeeper or accountant may be requested.

ASSETS

LIABILITIES

Cash in Bank,
Cash on Hand:

Notes Payable:

- (a) Banks _____
- (b) Materialmen _____
- (c) Other _____

Accounts Receivable
Including Retention:

Accounts Payable
Including Retention:

- (a) Completed Contracts _____
 - (b) Uncompleted Contracts _____
- Other Accounts Receivable: _____

- (a) Subcontractors _____
 - (b) Materialmen _____
- Billing in Excess of Job Costs: _____

Marketable Securities: _____

Current Debt: (Due in 1 Year)

- Material in stock not included
in items above:
- (a) For Jobs Underway _____
 - (b) Other _____

- (a) Equipment _____
 - (b) Real Estate _____
- Income Tax Current _____
Automobiles _____

Subtotal Current Assets

Subtotal Current Liabilities

\$ _____

\$ _____

Notes Receivable: _____

Equipment Debt-Over 1 year: _____

Cash Value Life Insurance: _____

Real Estate Debt-Over 1 year: _____

Equipment at Book Value: _____

Real Estate at Book Value:

Capital Stock: _____

- (a) Business: _____
 - (b) Homestead: _____
 - (c) Investment: _____
- Automobiles: _____
Furniture and Fixtures: _____

Surplus and Undivided Profits: _____

Total Assets: _____

Total Liabilities: _____

AFFIDAVIT

Comes the affiant and after having been duly sworn states as follows:

1. That affiant is the contractor awarded a contract by Dexter-Almo Heights Water District.
2. That all contractors and subcontractors employed, or that will be employed, under the provisions of this contract are in compliance with Kentucky requirements for Workers' Compensation Insurance according to KRS Chapter 342 and Unemployment Insurance according to KRS Chapter 341.

Further, the affiant sayeth naught.

By: _____

Title: _____

Contractor: _____

State of Kentucky

County of _____

Subscribed and sworn to before me by _____ on this _____

day of _____, _____.

My commission expires _____

Notary Public, State at Large

FORM OF PROPOSAL – SUBMITTAL DATA

In addition to the requirements of this Form of Proposal, the following items must be received:

1. List of Proposed Subcontractors, if applicable.
2. List of Materials and Equipment, if applicable.
3. Bid Guaranty in amount of no less than five percent (5%) of the TOTAL BID AMOUNT.

LIST OF PROPOSED SUBCONTRACTORS
(Must Be Submitted With Bid)

The following list of proposed subcontractors is required by the OWNER to be completely executed and submitted with each bidder's proposal. All subcontractors are subject to the approval of Dexter-Almo Heights Water District, Almo, Kentucky. If certain branches of the work are to be done by the Prime Contractor, so state. Failure to submit this list completely filled out may cause a rejection of the bidder's proposal.

BRANCH OF WORK

NAME OF SUBCONTRACTORS

- 1.
- 2.
- 3.

LIST OF MATERIAL AND EQUIPMENT

Bidders are hereby advised that this list shall be filled out completely by the apparent low bidder within one (1) hour from the close of the official reading of the bids.

The above requirement does not preclude any bidder from submitting this list, fully executed, at the time the bids are submitted.

Each item listed under the different phases of construction must be clearly identified so that the Owner will definitely know what the bidder proposes to furnish. No material or equipment will be considered which is not equal to that specified.

The use of manufacturer's dealer's name only or stating "as per plans and specifications" will not be considered as sufficient identification.

Failure to submit a proper list may result in rejection of the bidder's proposal.

<u>ITEM</u>	<u>MANUFACTURER MODEL OR TYPE</u>
1. PVC Pipe	_____
2. Gate Valves	_____
3. Flushing Hydrants	_____
4. DI Pipe Fittings	_____

AGREEMENT BETWEEN
DEXTER-ALMO HEIGHTS WATER DISTRICT
AND CONTRACTOR

THIS AGREEMENT, made the _____ day of _____, 2005 by and between _____ (“Contractor”), and the DEXTER-ALMO HEIGHTS WATER DISTRICT, (“Owner”), is to bind the parties hereto to the principles and terms set forth herein, and shall be binding upon the parties hereto.

WITNESSETH, that the Contractor and Owner for the consideration hereinafter named, agree as follows:

ARTICLE No. 1 SCOPE OF WORK:

The Contractor shall furnish all of the materials and perform all the Work described in the Specifications and/or shown on the Drawings entitled: **Flint Road/West Fork Road Water Main Extension** which Specifications and/or Drawings are incorporated in and made a part thereof.

ARTICLE No. 2 TIME OF COMPLETION:

The Contractor must begin Work specified by the written Notice to Proceed from the Owner. Substantial Completion of the Work shall be seventy-five (75) calendar days after the issuance of the Notice to Proceed with Final Completion one-hundred and five (105) calendar days after the issuance of the Notice to Proceed.

ARTICLE No. 3 LIQUIDATED DAMAGES:

It is mutually understood and agreed by and between the parties hereto that time is of the essence in the performance of this contract and that the Owner, the Dexter-Almo Heights Water District, will sustain substantial monetary and other damages in the event of a failure or delay by the Contractor in the completion of the Work. It is further understood and agreed upon and made part of this Contract that the Work must be begun, performed, and completed without delay by the Contractor and if the Contractor fails to begin, perform without interruption, and complete said Work in due and proper time, the Contractor may be declared in default of this Agreement. If the Work is not substantially complete within the time required in Article No. 2 of this Agreement, the Contractor shall pay to the Owner, as liquidated damages for delay and not as a penalty, the sum of one hundred dollars (\$100) for every day after the date for Substantial Completion until construction is in fact substantially complete. If the Work is not finally complete within the time required in Article No. 2 of this Agreement, the Contractor shall pay to the Owner, as liquidated damages for delay and not as a penalty, the sum of fifty dollars (\$50) for every day after the date for final completion until construction is in fact finally complete. This provision for liquidated damages is intended to compensate the Owner for delay only and shall not preclude the Owner from making claims for other damages.

If the Work is not commenced by the Contractor at the time specified in Article No. 2 of this Agreement, then the Contractor and its surety or sureties shall be liable for and pay to the Owner all damages sustained by reason of such failure or breach of contract and the Owner may immediately relet the Work.

ARTICLE No. 4 THE CONTRACT AMOUNT:

Subject to additions and deductions for Change Orders made in accordance with the Contract Documents, the Owner shall pay the Contractor as full consideration for the Contractor's satisfactory performance of the Contract obligations the sum of: _____ Dollars and _____ Cents (\$ _____).

ARTICLE No. 5 PROPOSED PAYMENTS:

The Owner shall make periodic partial payments in accordance with the Kentucky Infrastructure Requirements for Work satisfactorily completed and for materials suitably stored at the site of the Work as estimated by the Consultant, less retainage and the aggregate of previous payments.

ARTICLE No. 6 ACCEPTANCE AND FINAL PAYMENT:

Final payment shall be due thirty (30) days after Final Completion of the Work, provided, that all Work has been fully completed in accordance with the Contract Documents as evidenced by a certificate by the Consultant for the project, and acceptance by the Owner.

The Contractor shall submit with the final estimate evidence satisfactory to the Consultant that all payrolls, material bills and other indebtedness connected with the Work have been paid or that provisions for the satisfaction thereof have been made. If, after the Work has been substantially completed, final completion of the Work is delayed through no fault of the Contractor, the Owner may pay to the Contractor from the remaining balance of funds for this Agreement a sum equal to the value of that portion of the Work fully completed and accepted by the Owner as provided in this Agreement.

ARTICLE No. 7 THE CONTRACT DOCUMENTS:

The Contract Documents consist of this Agreement, all Addenda, the Contractor's Form of Proposal, the Special Conditions, the Contractor's Bonds, the Specifications, the Drawings and Change Orders issued after execution of the Contract for the Work described in Article No. 1 of this Agreement, all of which are incorporated in and made a part hereof by reference, and which shall be binding upon the Contractor and Owner.

The Specifications and Drawings for this Work include the following:

Specifications: Advertisement for Bids through

Drawings: Cover Sheet through Sheet 11

ARTICLE No. 8 CONTRACT ADJUSTMENTS:

The Owner, without invalidating this Agreement may make adjustments to the Work as provided by KRS 45A.200 (1), and may order extra Work or make changes by altering, adding to or deducting from the Work. All such Work shall be executed and paid for in accordance with the Kentucky Infrastructure Requirements.

ARTICLE No. 9 SPECIAL NOTICE:

The Contractor hereby certifies that it is fully informed of the conditions relating to construction and labor under which the Work under this Agreement is to be performed, and agrees that it shall employ methods and means in carrying out the Work so as not to interfere with or interrupt the Work of any other Contractor working on/or adjacent to the site for this Work. Contractor further agrees that it shall employ methods and means to minimize interference or interruption of any business or resident along the route of this project and that all disrupted properties, driveways, yards, fences, fields, etc... will be restored to pre-construction conditions.

ARTICLE No. 10 OWNER'S RIGHT TO TERMINATE CONTRACT:

This contract may be terminated for the convenience of the Water District or for default by the Contractor.

IN WITNESS WHEREOF this Agreement is executed in three (3) counterparts, each one of which shall be deemed an original and adequate proof of this Agreement, on the date and year first herein before written.

WITNESS:

CONTRACTOR: _____

BY: _____

TITLE: _____

Dexter-Almo Heights Water District

By: _____

**FLINT ROAD/WEST FORK ROAD WATER MAIN EXTENSION
DEXTER-ALMO HEIGHTS WATER DISTRICT
DEXTER/ALMO, KY**

INDEX TO SPECIAL CONDITIONS

1. Scope
2. General
3. Division of Specifications
4. Time for Completion
5. Liquidated Damages
6. Conduct of Personnel
7. Storage of Materials
8. Temporary Field Office
9. Temporary Signs
11. Interpretations
10. Conflict
12. Change Orders
13. Barricades
14. Access to Site
15. Workman's Parking
16. Existing Utilities
17. Utilities
18. Plan of Operation
19. Codes and Ordinances
20. Definitions
21. Certificates
22. Restroom Facilities
23. Builder's Risk Insurance
24. Layout of Work
25. Shop Drawings
26. Hazardous Materials
27. Payment & Performance Bonds/Insurance Certificates
28. Contractors Qualifications

SPECIAL CONDITIONS

1. SCOPE

These Conditions shall apply to all Contract Documents.

2. GENERAL

- A. These Specifications and Drawings accompanying the Bid describe the work to be done and the materials to be furnished for the Flint Road/West Fork Road Water Extension, in the Dexter/Almo Heights Water District, Kentucky.
- B. Site Visit: Bidders, before submitting proposals, shall visit and examine the site to satisfy themselves as to the nature and scope of the construction and any difficulties attending the execution. The submission of a proposal will be construed as evidence that a visit and examination has been made. Later claims for labor, equipment, or materials required or difficulties encountered which could have been foreseen had such an examination been made, will not be recognized. Contact person: Kim H. Oatman (contact through Water District).
- C. It is contemplated that Contracts will be awarded as soon as possible after submission of bids. After award, submit materials lists for approval. Upon approval, place orders for primary materials so that no delay will be caused by failure to have these materials at job site on schedule.
- D. All work shall be performed in such a manner so as not to interfere with normal routines of the property owners within construction limits any more than necessary. Consult with the Engineer or Owner if problems should arise with property owners during construction.

3. DIVISION OF SPECIFICATIONS

Division of Specifications into sections is done for convenience of reference and is not intended to control Contractor in dividing work among Subcontractors or to limit scope of work performed by any trade under any given section. The General Contractor shall have full responsibility for the complete construction of this project and hereinafter throughout the specifications shall be called the Contractor.

4. TIME FOR COMPLETION

Work under the Contract shall commence on the date the Owner directs the Contractor, by issuance of a work order, to start work under the Contract. The Contractor must begin Work specified by the written Notice to Proceed from the Owner. Substantial Completion of the work shall be within seventy five (75) calendar days of issuance of a Notice to Proceed to the contractor. Final completion shall be within one hundred and five (105) calendar days.

Extensions of Time of the Final Completion Date will be considered for final seeding of the project if Contractor makes written request based on weather conditions.

5. LIQUIDATED DAMAGES

If the Work is not substantially complete within the time required in Article No. 4 of these Special Conditions, the Contractor shall pay to the Owner, as liquidated damages for delay and not as a penalty, the sum of one hundred dollars (\$100.00) for every day after the date for Substantial Completion until construction is in fact substantially complete. If the Work is not finally complete within the time required in Article No. 4 of these Special Conditions, the Contractor shall pay to the Owner, as liquidated damages for delay and not as a penalty, the sum of fifty dollars (\$50.00) for every day after the date for final completion until construction is in fact finally complete. In no event shall liquidated damages for delay in Final Completion be due before the date required for Final Completion in Article No. 4 of these Special Conditions. This provision for liquidated damages is intended to compensate the Owner for delay only and shall not preclude the Owner from making claims for other damages.

6. CONDUCT OF PERSONNEL EMPLOYED ON THIS PROJECT

Construction workers employed on this project are under no circumstances permitted to use or occupy any of the property other than designated easements without definite and written permission by Property Owner and subsequent approval by the Owner. Consumption of alcohol on the job by any worker is strictly prohibited. Any personnel under the influence of alcohol or drugs on the job site at any time will be subject to dismissal by Contractor. Contractor shall post necessary signs and enforce "No Drinking or Drugs" law as outlined in the Kentucky Revised Statutes

7. STORAGE OF MATERIALS

The Contractor shall be responsible for proper, secure and adequate storage of materials within construction limits. Materials stored on-site are considered the Contractor's responsibility and liability until all such materials are properly constructed in place and accepted by the Owner.

8. TEMPORARY FIELD OFFICE

The Contractor will not be required to provide and maintain a temporary field office at the site during the construction of the project.

9. TEMPORARY SIGNS

Signs of advertisement: Not to be displayed without approval.

10. CONFLICTS

If there is any conflict between the Specifications, the Drawings, the Specifications shall govern.

11. INTERPRETATIONS

Contractor is hereby put on notice that it is in his contractual obligation to adjust differences between his subcontractors. Attempts to have Dexter-Almo Heights Water District settle disputes between Contractor and Subcontractors will not be given consideration.

12. CHANGE ORDERS

Change orders which may be issued subsequent to Contract Documents are subject to written approval by the Dexter-Almo Heights Water District.

13. BARRICADES

The Contractor and all Subcontractors shall be required to comply strictly with all codes, provisions and regulations with respect to the erection and maintenance of all necessary barricades, lights, etc.

14. ACCESS TO SITE

The entrance to the construction site for all contractors shall be by means approved by the Dexter-Almo Heights Water District. The Contractor shall be responsible for any and all damage to the entire satisfaction of the Engineer.

15. WORKER'S PARKING

Parking shall be provided for all workers on this project by the Owner. Parking facilities will be designated by the Owner. Workers shall not park on properties that have not been designated and approved by the Owner.

16. EXISTING UTILITIES

- A. Existing utilities where shown on drawings, are located as accurately as possible from available information, however, it shall be the contractor's responsibility to verify exact locations and elevations where required to complete the work without damaging existing utilities or underground piping.
- B. Digging near existing utilities shall be done by hand in order to avoid damage to utilities.

17. TEMPORARY UTILITIES

Electric power for all purposes of the Contractor and Subcontractors shall be provided by the Contractor. It will further be his responsibility to pay all cost involved including cost of power, equipment, meters, and any other item required.

Contractor responsible for extension cords, hoses, etc.

18. PLAN OF OPERATION

Prior to the beginning of construction, the Contractor shall upon request by the Owner, submit a plan of operations he proposes to follow in constructing this project.

19. CODES AND ORDINANCES

- A. All branches of the work shown on the plans or specified, whether specifically mentioned or not, shall be executed in strict compliance with all national codes when same have application.
- B. All Bidders must be qualified, and meet all requirements provided and/or required under any local and/or state statute, code ordinances, or rule governing the performance of the type work for which he submits bid, and be able to submit bid, and be able to submit proof thereof upon request.

20. DEFINITIONS

The following definitions shall apply,

- A. The term "Architect" or "Architect/Engineer" or "Engineer" or "Consultant" or "Chief Engineer" as used throughout the specifications and contract documents means Kim or Susan Oatman or their duly authorized agent.
- B. The term "Owner" means Dexter-Almo Heights Water District, Almo KY.

21. CERTIFICATES

- A. Plumbing: When applicable, the Contractor shall furnish the Owner with a Certificate of inspection and approval from the Commonwealth of Kentucky. The Contractor SHALL be responsible for arranging for necessary permit from State.
- B. Electrical: When applicable, the Contractor shall arrange for electrical inspection upon final completion of the Work of this Contract.

22. RESTROOM FACILITIES

Contractor shall provide adequate restroom facilities as required.

23. BUILDER'S RISK INSURANCE

Builders Risk Insurance will be required on this project.

24. LAYOUT OF WORK

The Contractor shall use existing, established and permanent benchmarks to which easy access may be had during the progress of the work, and to layout the facilities. The Contractor shall be responsible for all lines, levels and measurement of all work executed under this contract. The Contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from the failure to do so. The Contractor shall be prepared to guarantee to each of the Subcontractors the dimensions which they may require for the layout of their work.

25. SHOP DRAWING

Each and every shop drawing or setting drawing submitted to the owner for review shall bear a stamp of certification over the Contractor's signature indicated that the drawings being submitted have been thoroughly pre-checked and approved by the Contractor. Drawings which do not bear such certification will be returned for pre-checking in accordance with this requirement. Any delay in securing final review of such drawings shall be judged as the fault of the Contractor.

26. HAZARDOUS MATERIALS

- A. In the event the Contractor encounters material reasonably believed to be asbestos, which has not been rendered harmless, the Contractor shall immediately stop work in the area affected and report the condition to the Engineer and the Owner. The work in the affected area shall not thereafter be resumed, if in fact, the material is asbestos, until it has been rendered harmless. Removal and disposal of any hazardous waste shall be done at the Contractor's expense.

27. PAYMENT & PERFORMANCE BONDS/INSURANCE CERTIFICATES

Payment and Performance Bonds for the full amount of the contract are required on this project. Payment and Performance Bonds and Insurance Certificates are required within one week after bid opening. Failure to meet this deadline may result in the rejection of bid.

28. CONTRACTOR'S QUALIFICATIONS

The Contractor shall have a minimum of 5-years experience on water main and or pipe line Work for Utility Companies in order to be considered a qualified Bidder.

SECTION 01028
CHANGE ORDER PROCEDURE

PART 1 GENERAL

1.01 SUMMARY

- A. Make such changes in the Work, in the Contract Sum, in the Contract Time of Completion, or any combination thereof, as described in the Change Orders signed by the Owner and the Contractor.

1.02 PROCESSING CHANGE ORDERS

- A. Change orders will be numbered in sequence and dated. The change order will describe the changes, changes in the Contract Sum, changes in the Contract Time of Completion and will be signed by the Owner and the Contractor. Request for estimates for possible changes are not to be considered Change Orders or direction to proceed with the proposed changes.
- B. Change orders will be written using AIA Document G.701.

END OF SECTION

SECTION 01039
COORDINATION AND MEETINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Coordination.
- B. Field engineering.
- C. Pre-construction conference.
- D. Progress meetings.

1.02 RELATED SECTIONS

- A. Section 01300 - Submittals.

1.03 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify that there are no conflicts with the proposed water main system with other utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.
- C. Coordinate completion and clean up of all Work in preparation for Substantial Completion.

1.04 FIELD ENGINEERING

- A. Provide field engineering services as required. Establish locations and depths of water main utilizing recognized engineering survey practices.
- B. Contractor shall locate all utilities prior to excavation.

1.05 PRECONSTRUCTION CONFERENCE

- A. Owner will schedule a conference after Notice of Award.
- B. Attendance Required: General Contractor and primary subcontractors.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Confirm submission of executed bonds and insurance certificates.
 - 3. Submission of list of Subcontractors, list of products, schedule of values, and progress schedule.
 - 4. Designation of personnel representing the parties in Contract.
 - 5. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract close-out procedures.
 - 6. Scheduling.
 - 7. Security and housekeeping
 - 8. Use of easements and properties
 - 9. Temporary utilities
 - 10. Procedures for testing.
 - 11. Procedures for maintaining record documents.
 - 12. Requirements for activating system.
 - 13. Inspection and acceptance of work and properties during and after construction period.

1.06 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies within days to Owner, participants, and those affected by decisions made.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, as appropriate to agenda topics for each meeting.

D. Agenda

1. Review minutes of previous meetings.
2. Review of Work progress.
3. Field observations, problems, and decisions.
4. Identification of problems which impede planned progress.
5. Review of submittals schedule and status of submittals.
6. Review of off-site fabrication and delivery schedules.
7. Maintenance of progress schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Coordination of projected progress.
11. Maintenance of quality and work standards.
12. Effect of proposed changes on progress schedule and coordination.
13. Other business relating to Work.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01100 SUMMARY

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Project consists of waterline extension along Flint Road/West Fork Road.

1. Project Location: Dexter-Almo, Kentucky.
2. Owner: Dexter-Almo Heights Water District

B. Engineer Identification: All references to the term "Architect" shall be understood to mean design professional in which this project is "Engineer". The Contract Documents, dated September 9, 2005, were prepared for Project by the Engineer, Susan Oatman, 1333 Pine Creek Drive, Paducah, Kentucky.

C. The Work of the Base Bid consists of:

1. All necessary labor, tools, equipment and materials required to complete construction of 10,710 linear feet of 6 inch PVC water main extension and all related Work as shown on the drawings along Flint Road and West Fork Road from the Walston Road water main to the intersection of Ridgeline Court.

D. The Work of Additive Alternate No. 1 consists of:

1. All necessary labor, tools, equipment and materials required to complete construction of 1,250 linear feet of 4- inch PVC water main extension and all related Work as shown on the drawings along Ridgeline Court from West Fork Road to the end of Ridgeline Court.

END OF SECTION

SECTION 01300 SUBMITTALS

PART I - GENERAL

1.01 SECTION INCLUDES

- A. Submittal procedures
- B. Construction progress schedules
- C. Proposed products list
- D. Shop drawings
- E. Product data
- F. Samples
- G. Manufacturers' instructions
- H. Manufacturers' certificates
- I. Construction photographs

1.02 RELATED SECTIONS

- A. Section 01400 - Quality Control: Manufacturers; field services and reports.
- B. Section 01700 - Contract Closeout: Contract warranty and manufacturers' certificates closeout submittals.

1.03 SUBMITTAL PROCEDURES

- A. Transmit each submittal with AIA Form G810 Architect/Engineer accepted form.

- F. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those finished by Owner and under Allowances.

1.05 PROPOSED PRODUCTS LIST

- A. Within one (1) hour from the close of the official reading of the bids, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.06 SHOP DRAWINGS

- A. Submit the number of copies, which the Contractor requires, plus 3 copies, which will be retained by the Engineer and Owner respectively.
- B. After review, reproduce and distribute in accordance with Article on Procedures above and for Record Documents described in Section -01700 Contract Closeout.

1.07 PRODUCT DATA

- A. Submit the number of copies, which the Contractor requires, plus 3 copies, which will be retained by the Engineer and Owner respectively.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturer's standard data to provide information unique to this project.
- C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Section 01700 - Contract Closeout.

1.08 MANUFACTURERS INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturer's printed instruction for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. Identify conflicts between manufacturer's instructions and Contract Documents.



1.09 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturer's certificate to Owner for review, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent of previous test results on material or Product, but must be acceptable to Owner.

END OF SECTION

SECTION 01370
SCHEDULE OF VALUES

PART 1 GENERAL

1.01 SUMMARY

- A. Unless stipulated in the Construction Agreement, provide a detailed breakdown of the agreed Contract Sum showing values allocated to each of the various parts of the Work, as defined on AIA form G702.

1.02 SUBMITTALS

- A. Pay applications shall be on AIA form G702. Prior to submitting the first application for payment, submit a proposed schedule of values to the Owner for approval.

1.03 QUALITY ASSURANCE

- A. When so required by the Owner, provide copies of the subcontracts or other data acceptable to the Owner substantiating the sums described.

END OF SECTION

SECTION 01400 QUALITY CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Quality assurance and control of installation.
- B. References
- C. Field samples
- D. Inspection and testing laboratory services
- E. Manufacturer's field services and reports

1.02 RELATED SECTIONS

- A. Section 01300 - Submittals: Submission of Manufacturer's Instructions and Certificates.
- B. Section 01600 - Material and Equipment: Requirements for material and product quality.

1.03 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions and workmanship to produce Work of specified quality.
- B. Comply fully with manufacturers instructions, including each step in sequence.
- C. Should manufacturer's instructions conflict with Contract Documents, request clarification from Owner before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.

1.04 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.
- B. Obtain copies of standards when required by Contract Documents.
- C. Should specified reference standards conflict with Contract Documents, request clarification for Owner before proceeding.
- D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any referenced document.

1.05 FIELD SAMPLES — NOT APPLICABLE

1.06 INSPECTION AND TESTING LABORATORY SERVICES

- A. The contractor shall obtain and pay for all necessary municipal or state inspections and permits and make such tests as called for by the regulations of such authorized representative of such authorities.

END OF SECTION

SECTION 01500 TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

1.2 DEFINITIONS – NOT REQUIRED

1.3 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Engineer and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, occupants of Project, Engineering, testing, and inspecting agencies and personnel of authorities having jurisdiction.
- B. Water Service: Water shall be provided at the sole expense of the Contractor. Owner shall not incur use charges for Contractor's water usage.
- C. Electric Power Service: Electric power shall be provided by the Contractor. Owner shall not incur any use charges for the Contractor's electric usage.

1.4 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
 - 1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

- A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
1. Keep temporary services and facilities clean and neat.
 2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Engineer. Provide materials suitable for use intended.
- B. Portable Chain-Link Fencing: Minimum 2-inch 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide galvanized steel bases for supporting posts.
- C. Wood Enclosure Fence: Plywood, 6 feet high, framed with four 2-by-4-inch rails, with preservative-treated wood posts spaced not more than 8 feet apart.
- D. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- E. Water: Potable.

2.2 EQUIPMENT

- A. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
- B. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

- C. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. Water Service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
 - 1. Provide rubber hoses as necessary to serve Project site.
 - 2. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.
- B. Electric Power Service: Use of Owner's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner.
- C. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.
 - 1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with

appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.

3.4 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
 - 1. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

END OF SECTION

SECTION 01600 MATERIALS AND EQUIPMENT

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Products
- B. Transportation and handling.
- C. Storage and protection.
- D. Product Options
- E. Substitutions

1.2 RELATED SECTION

- A. Section 01400 – Quality Control: Product quality monitoring.

1.3 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures and systems forming the work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for use.
- B. Do not use materials and equipment removed from existing premises except as specifically permitted by the Contract Documents.
- C. Provide interchangeable components of the same manufacturer for similar components.

1.4 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement or damage.

1.5 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage and protection.
- D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Provide mixing with foreign matter.
- F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

1.6 PRODUCT OF OPTIONS

- A. Products specified by reference standards or by description only: Any product meeting those Standards or description may be used, provided they are preapproved by the water district.
- B. Products specified by naming one or more manufacturers: No options or substitutions will be allowed.
- C. Products specified by naming one or more manufacturers with a Provision for Substitutions:
Substitutions: Submit a request for substitution for any manufacturer not named.

1.7 SUBSTITUTIONS

- A. Request for substitutions must be submitted in writing no less than 5 working days prior to date bids are due.
- B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that the Bidder:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Will provide same warranty for the Substitution as for specified product.
 - 3. Will coordinate installation and make changes to other Work, which may be required for the work to be complete with no additional cost to the Owner.
 - 4. Waives claims for additional costs or time extension, which may subsequently become apparent.
 - 5. Will reimburse Owner for review or redesign services associated with approval by Authorities.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or Product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Substitution Submittal Procedure:
 - 1. Submit three copies of request for Substitution for Consideration. Limit each request to one proposed Substitution.
 - 2. Submit shop drawings, product data, and certified test results at testing to the proposed product equivalence.
 - 3. The Owner will notify Contractor, in writing, of decision to accept or reject request.

END OF SECTION

SECTION 01700 CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Closeout procedures
- B. Final cleaning
- C. Adjusting
- D. Project record documents
- E. Operation and Maintenance data
- F. Warranties
- G. Spare parts and maintenance materials

1.02 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Owner's inspection.
- B. Provide submittals and As-Built Drawings to Owner that are required by Government or other authorities.
- C. Submit final Application for Payment identifying total adjusting Contract Sum, previous payments and sum remaining due.
- D. Owner will occupy and operate equipment upon final certification by the State of Kentucky.
- E. Provide Affidavit that all project debts have been paid in full and no liens exist. Exact format for Affidavit to be provided at a later date.

1.03 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.

- B. Clean surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces.
- C. Clean equipment and fixtures to a sanitary condition.
- D. Clean operating equipment.
- E. Remove waste, surplus materials, rubbish and construction materials from site. Contractor will remove all waste from site within 48 hours of being declared waste or requested by Owner.

1.04 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.05 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the Work:
 - 1. Contract Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and other Modifications to the Contract.
 - 5. Reviewed shop drawings, product data and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Specifications: Legibly mark and record at each Product section, description of actual Products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and Modifications.

- E. Record Documents and Shop Drawings: Legibly mark each item to record actual construction.
- F. Submit documents to Owner with claim for final Application for Payment

1.06 OPERATION AND MAINTENANCE DATA

- A. Submit three sets prior to final inspection bound in 8-1/2 x 11 inch (216 x 279 mm) text pages, three D side ring capacity expansion binders with durable plastic covers.
- B. Prepare binder covers with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS". title of project, and subject matter of binder when multiple binders are required.
- C. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, typed on 24-pound white paper.
- E. Part I: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers.
- F. Part 2: Operation and maintenance instructions, arranged by system and subdivided. For each category, identify names, addresses, and telephone numbers of subcontractors and suppliers. Identify the following:
 - 1. Significant design criteria.
 - 2. List of equipment.
 - 3. Parts list for each component.
 - 4. Operating instructions.
 - 5. Maintenance instructions for equipment and systems.
 - 6. Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.
- G. Part 3: Project documents and certificates, including the following:

1. Shop drawings and product data.
 2. Power quality test results (including any required grounding tests).
 3. Certificates.
 4. Photocopies of warranties and bonds.
- H. Submit one copy of completed volumes in final form 15 days prior to final inspection. This copy will be returned after final inspection with Owner's comments. Revise content of documents as required prior to final submittal.
- I. Submit final volumes revised within ten days after final inspection.

1.07 WARRANTIES

- A. Provide notarized copies.
- B. Execute and assemble documents for subcontractors, suppliers, and manufacturers.
- C. Submit prior to final Application for Payment.
- D. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

1.08 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.
- B. Deliver to and place in location as directed. Obtain receipt prior to final payment.

PART 2- PRODUCTS - NOT USED

END OF SECTION

SECTION 01740 WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Preparation and submittal.
- B. Time and schedule of submittals.

1.02 RELATED SECTIONS

- A. Document - Invitation to Bid - Bid Bonds
- B. Document - General Conditions: Performance Bond and Labor and Material Payment Bonds, Warranty, and Correction of Work.
- C. Section 01700 - Contract Closeout: Contract Closeout procedures.
- D. Section 01730 - Operation and Maintenance Data.
- E. Individual Specifications Sections: Warranties required for specific products or Work.

1.03 FORM OF SUBMITTALS

- A. Bind in commercial quality 8-1/2 x 11 inch, 216 x 279 mm three-ring side binders with hardback, cleanable, plastic covers.
- B. Label cover of each binder with typed or printed title WARRANTIES AND BONDS, with title of Project, name, address and telephone number of Contractor and equipment of supplier and name of responsible principal.
- C. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification Section in which specified and the name of the product or work item.
- D. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name.

address, and telephone number of responsible principal.

1.04 PREPARATION OF SUBMITTALS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item or work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute SUBMITTALS when required.
- D. Retain warranties and bonds until time specified for submittal.

1.05 TIME OF SUBMITTALS

- A. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
- B. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
- C. For items of Work when acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

1.06 SCHEDULE OF SUBMITTALS NOT USED

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

END OF SECTION

SECTION 02225 TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavate trenches for utilities from outside building to municipal utilities.
- B. Compacted bedding under fill over utilities to subgrade elevations
- C. Backfilling and compaction.

1.02 RELATED SECTIONS

- A. Section 01400 – Quality Control.
- B. Section 01500 -- Construction Facilities and Temporary Controls:
Water control in excavations.

1.03 REFERENCES

- A. ANSI/ASTM C1136 – Method for Sieve Analysis of fine and Coarse Aggregates.
- B. ANSI/ASTM D698 – Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate mixtures, Using 5.5 lb. (2.49 kg) Rammer and 12 inch (304.8 mm) Drop.
- C. ANSI/ASTM D1556 – Test Method for Density of Soil in Place by the Sand-Cone Method.
- D. ANSI/ASTM D1557 – Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb. (4.54 kg) Rammer and 18 inch (457 mm) Drop.

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.

1.05 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the Work are as shown on Drawings.

PART 2 PRODUCTS

- A. Kentucky Department of Transportation – No. 9 Stone.
- B. ANSI/ASTM D698 – Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb. (2.49 kg) Rammer and 12 inch (304.8 mm) Drop.
- C. ANSI/ASTM D1556 – Test Method and Density of Soil in Place by the Sand-Cone Method.
- D. ANSI/ASTM D1557 – Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb. (4.54 kg) Rammer and 18 inch (457 mm) Drop.

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.

1.05 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the Work are as shown on Drawings.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. As specified in Section 02667.

2.02 BED MATERIALS

- A. As specified in Section 02667.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify fill materials to be reused, is acceptable.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Maintain and protect existing utilities remaining which pass through Work area.
- C. Protect plant life, lawns, and other features remaining as a portion of final landscaping.
- D. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic.
- E. Protect above and below grade utilities that are to remain.
- F. Cut out soft areas of subgrade not capable of insitu compaction. Backfill with Type B fill and compact to density equal to or greater than requirements for subsequent backfill material.

3.03 EXCAVATION

- A. Excavate subsoil required for storm sewer, sanitary sewer, water, gas, electric piping to municipal utilities.
- B. Cut trenches sufficiently wide to enable installation of utilities and allow inspection.
- C. Excavation shall not interfere with normal degree bearing splay of foundations.
- D. Hand trim excavation. Remove loose matter.
- E. Remove lumped subsoil, boulders, and rock up to 1/3 cu. Yd. (0.25 cu. M.), measured by column. Larger material will be removed under Section 02202.
- F. Correct unauthorized excavation at no cost to Owner.
- G. Correct areas over-excavated by error in accordance with Section 02300.
- H. Stockpile excavated material in area designated on site.

3.04 BEDDING

- A. Support pipe and conduit during placement and compaction of bedding fill.

3.05 BACKFILLING

- A. Backfill trenches to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Granular Fill: Place and compact materials in continuous layers not exceeding 8 inches, 200 mm compacted depth.
- D. Soil Fill: Place and compact material in continuous layers not exceeding 8 inches, 200 mm compacted depth.
- E. Employ a placement method that does not disturb or damage foundation perimeter drainage, conduit, and duct in trench.
- F. Maintain optimum moisture content of backfill materials to attain required compaction density.
- G. Store surplus material at designated location on site.
- H. Leave fill material stockpile areas completely free of excess fill materials.

3.06 TOLERANCES

- A. Top Surface of Backfilling: Under paved areas, plus or minus one inch, 25 mm from required elevations.
- B. Top Surface of General Backfilling: Plus or minus one inch, 25 mm, from required elevations.

3.07 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01400.
- B. Tests and analysis of fill material will be performed in accordance with ANSI/ASTM D698 under provisions of Section 01400.
- C. Compaction testing will be performed in accordance with ANSI/ASTM D698 and with Section 01400.
- D. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.
- E. Frequency of Tests: At each stage of material.

SECTION 02667
DOMESTIC WATER MAINS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe and fittings for water line including domestic water mains.
- B. Valves and domestic water.
- C. Pipe sleeves.

1.02 RELATED SECTIONS

- A. Section 02225 - Trenching.

1.03 REFERENCES

- A. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb (4.54 kg) Rammer and an 18-in. (457 mm) Drop.
- B. ANSI/ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings.
- C. ANSI/ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
- D. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 kg) Rammer and 12 inch (304.8 mm) Drop.
- E. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 kg) Rammer and 18 inch (457 mm) Drop.
- F. ANSI/ASTM D2466 - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
- G. ANSI/AWS A5.8 - Brazing Filler Metal.
- H. ANSI/AWWA C104 - Cement - Mortar Lining for Ductile-Iron Pipe and Fittings for Water.

- I. ANSI/AWWA C105 - Polyethylene Encasement for Ductile Iron Piping for Water and Other Liquids.
- J. ANSI/AWWA C111 - Rubber-Gasket Joints for Ductile Iron and Grey-Iron Pressure Pipe and Fittings.
- K. ANSI/AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids.
- L. ANSI/AWWA C500 - Gate Valves, 3 through 48 in NPS, for Water and Sewage Systems.
- M. ANSI/AWWA C502 - Dry Barrel Fire Hydrants.
- N. ANSI/AWWA C504 - Rubber Seated Butterfly Valves.
- O. ANSI/AWWA C508 - Swing-Check Valves for Waterworks Service, 2 in through 24 in NPS.
- P. ANSI/AWWA C509 - Resilient Seated Gate Valves 3 in through 12 in NPS, for Water and Sewage Systems.
- Q. ANSI/AWWA C600 - Installation of Ductile-Iron Water Mains and Appurtenances.
- R. ANSI/AWWA C606 - Grooved and Shouldered Type Joints.
- S. ANSI/AWWA C900 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 inch through 12 inch, for Water.
- T. ASTM B88 - Seamless Copper Water Tube.
- U. ASTM D1785 - Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
- V. ASTM D2241 - Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR).
- W. ASTM D2855 - Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.
- X. ASTM D2922 - Test Methods for Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth).
- Y. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

- Z. ASTM D3139 - Joints for Plastic Pressure Pipes using Flexible Elastomeric Seals.
- AA. ASTM D3035 - Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter.
- BB. AWWA C901 - Polyethylene (PE) Pressure Pipe, Tubing, and Fittings, 1/2 inch through 3 inch, for Water.
- CC. UL 246 - Hydrants for Fire - Protection Service.

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data on pipe materials, pipe fittings, valves and accessories.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.05 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01700.
- B. Accurately record actual locations of piping mains, valves, connections, and invert elevations.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.08 QUALITY ASSURANCE

- A. Perform Work in accordance with utility company.
- B. Valves: Manufacturer's name and pressure rating marked on valve body.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Deliver and store valves in shipping containers with labeling in place.

PART 2 PRODUCTS

2.01 PIPE

- A. PVC Pipe: ASTM D3035, SDR 26 for 160 psig rating:
 - 1. Fittings: Ductile Iron
 - 2. Trace Wire: Magnetic detectable conductor, brightly colored plastic covering, imprinted with "Water Service" in large letters.

2.02 GATE VALVES - Up to 3 Inches (75 mm):

- A. Brass or Bronze body, non-rising stem, inside screw, single wedge or disc, IPS ends, with control rod, extension box and valve key.

2.03 GATE VALVES - 3 Inches (75 mm) and Over

- A. ANSI/AWWA C500, Iron body, bronze trim, non-rising stem with square nut, single wedge, flanged ends, control rod, extension box and valve key.

2.04 BALL VALVES - Up to 2 Inches (50 mm)

- A. Brass body, Teflon coated brass ball, rubber seats and stem seals, Tee stem pre-drilled for control rod, inlet end, IPS outlet with control rod, extension box and valve key.

2.05 SWING CHECK VALVES - From 2 inches to 12 inches (50 mm to 300 mm)

- A. ANSI/AWWA C508, iron body, bronze trim 15 degree swing disc, renewable disc and seat, flanged ends.

2.06 HYDRANT

- A. Hydrant: 3" flushing type.
- B. Finish: Primer and two coats of enamel to color required by utility company.

2.08 BEDDING MATERIALS

- A. Bedding: Fill Type Pea Gravel.

2.09 ACCESSORIES

- A. Concrete for Thrust Blocks: Concrete type 3,000 psi.

2.10 AIR RELEASE VALVES

- A. AWWA C512, hydromechanical device to automatically release accumulated air.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions under provisions of Section 01039.
- B. Verify that building service connection and municipal utility water main size, location and invert are as indicated.

3.02 PREPARATION

- A. Ream pipe and tube ends and remove burrs.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare pipe connections to equipment with flanges or unions.

3.03 BEDDING

- A. Excavate pipe trench in accordance with Section 02225 for work of this Section. Hand trim excavation for accurate placement of pipe to elevations indicated.
- B. Place bedding material at trench bottom, level fill materials in one continuous layer not exceeding 6 inches (150 mm) compacted depth, compact to 95 percent.
- C. Backfill around sides and to top of pipe with fill, tamped in place and compacted to 95 percent.
- D. Maintain optimum moisture content of bedding material to attain required compaction density.

3.04 INSTALLATION - PIPE

- A. Maintain separation of water main from sewer piping in accordance with state requirements (10 feet horizontally and 1.5 feet vertically).
- B. Install grooved and shouldered pipe joints to ANSI/AWWA C606.
- C. Route pipe in straight line.
- D. Install pipe to allow for expansion and contraction without stressing pipe or joints.

- E. Install access fittings to permit disinfection of water system performed under Section 02675.
- F. Slope water pipe and position drain at low points.
- G. Form and place concrete for thrust blocks at each elbow or change of direction of pipe main.
- H. Establish elevations of buried piping to ensure not less than 2 ft (0.6 m) of cover.
- I. Install trace wire continuous over top of pipe buried 6 inches (150 mm) below finish grade, above pipe line; coordinate with Section 02225.
- J. Backfill trench in accordance with Section 02225.

3.05 INSTALLATION - VALVES AND HYDRANTS

- A. Set valves on solid bearing.
- B. Center and plumb valve box over valve. Set box cover flush with finished grade.
- C. Set hydrants plumb and locate pumper nozzle perpendicular to roadway.
- D. Set hydrants to grade, with nozzles at least 20 inches (500 mm) above ground.
- E. Locate control valve 4 inches (100 mm) away from hydrant.
- F. Provide a drainage pit 36 inches (900 mm) square by 24 inches (600 mm) deep filled with 2 inches (50 mm) washed gravel. Encase elbow of hydrant in gravel to 150 mm above drain opening.

3.06 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A. Flush and disinfect system in accordance with state and local standards. Disinfect all water piping before placing in service with the use of chlorine or chlorine compounds in such amounts as to produce a concentration of at least 50 ppm and a residual of at least 25 ppm at the end of 24 hours and followed by thorough flushing.

3.07 SERVICE CONNECTIONS

- A. Provide water service to utility company requirements with reduced pressure backflow preventer and water meter with by-pass valves and sand strainer.

3.08 FIELD QUALITY CONTROL

- A. Hydrostatic tests: Test at not less than 1-1/2 times the working pressure for 2 hours in accordance with the latest edition of AWWA Standard C600.
 - 1. Increase pressure in 50-psig increments. Hold test for one hour, decrease to 0 psig. Slowly increase again to test pressure and hold for one more hour. Maximum allowable leakage is 2 quarts (1.89 L) per hour per joint. Re-make leaking joints with new materials and repeat test until leakage is within above limits.
- B. If tests indicate Work does not meet specified requirements, remove work, replace and retest at no cost to Owner.
- C. All construction shall be thoroughly inspected by the local utility prior to placing any backfill. The contractor shall notify the local utility office 24 hours in advance of backfilling. Any defects, broken or cracked pipe, etc... shall be replaced and repaired at the Contractor's expense.

END OF SECTION

**Flint Road/West Fork Road
Water Main Extension
Dexter – Almo Heights Water District**

ADDENDUM NO. 1

Please make the following revisions to the contract documents as listed in this Addendum. Said revisions shall become a part of the contract documents and Bidder shall acknowledge receipt of them in the Form of Proposal.

1. Contractor shall bore under the gravel drive located at 1101 Flint Road. All other gravel driveways shall be open cut and properly restored to original conditions unless otherwise noted.
2. Add Unit Price #17 to the Form of Proposal as shown below:
 17. Boring under gravel, concrete or paved driveway \$ _____/ea
(note: this price is only for work added above the contract)
3. The Water District intends to award this project within 5 days of the Bid Opening, and will issue a "Letter of Intent to Award" if requested by the Contractor.
4. Add the following paragraph to specification section 02667-3.08:
 - D. The Water District will pay for the initial filling and incidental flushing of the line for testing purposes. The Contractor shall be responsible for adding all disinfecting materials. If the test fails after the initial testing and flushing, the Contractor shall be required to pay for all additional water that is required to be used for filling until the tests meet the specified requirements.
5. Add the following paragraph to specification section 02667, Part 2:

2.11 FLUSHING HYDRANTS

 - A. Flushing hydrants shall be manufactured by M&H. Other manufacturers will be considered if those manufactured by M&H are not readily available.
6. Revise specification section 2.01 PIPE-A to read as follows:
 - A. PVC Pipe: ASTM D3035, SDR 21 for 200 psig rating.

END OF ADDENDUM NO. 1