



PROJECT NO. 17102

**CONTRACT SPECIFICATIONS
FOR WATER MAIN AND APPURTENANCES
FOR**

2017 WATER PROJECTS - VALVE CUT-INS

FOR

OAK CREEK WATER AND SEWER UTILITY

MAY 25, 2017

**170 W. Drexel Avenue
Oak Creek, WI 53154**

**Telephone: (414) 570 - 8200
www.water.oak-creek.wi.us**

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FOR

2017 WATER PROJECTS-VALVE CUT-INS

OAK CREEK WATER & SEWER UTILITY

MAY 25, 2017



[Handwritten Signature]
05.24.2017

Project Design & Construction Coordination (OWNER)

Ron J. Pritzlaff, P.E.

Utility Engineer

Phone: (414) 570-8210

Design Engineer (ENGINEER)

Strand Associates, Inc.

126 N. Jefferson Street, Suite 350

Milwaukee, WI 53202

Phone: (414) 271-0771

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NOTICE TO BIDDERS

OWNER The Oak Creek Water & Sewer Utility hereby gives notice that sealed proposals will be received in the Utility's office at 170 W. Drexel Avenue, Oak Creek, Wisconsin, 53154.

PROJECT The work, officially known as Project No. 17102, 2017 WATER PROJECTS - VALVE CUT-INS, consists of constructing the following approximate quantities:

ITEM DESCRIPTION	QUANTITY
S. Shepard Avenue and E. Stonegate Drive 8" PVC Connection	1 LS
S. Chicago Road and E. Garden Place 20" Cut-In Valves	1 LS
E. Obrien Road and S. 11th Avenue 8" Cut-In Valve	1 LS
E. Oakwood Road and E. Redwood Lane 20" Cut-In Valve	1 LS
E. Oakwood Road and John Aaron Drive 20" Cut-In Valve	1 LS

TIME Proposals must be received by the office of the Utility, 170 W. Drexel Avenue, no later than 9:00 a.m., Thursday June 8, 2017, at which time and place the proposals will be publicly opened and read aloud.

CONTRACT DOCUMENTS Bid documents may be obtained at the Utility's website: www.water.oak-creek.wi.us under the public contracts section after May 25, 2017.

STATUTORY PROVISIONS The Contract letting shall be subject to the provisions of Section 62.15, 66.0901, 66.0903, and 779.16 Wisconsin Statutes. The minimum wage scale to be paid on this project shall be in accordance with the prevailing minimum wage as determined by federal or state law, whichever applies, and such wage is incorporated by reference, as it may be amended from time to time. If the United States Department of Housing and Urban Development or State of Wisconsin, Department of Workforce Development has issued a wage rate determination, then it shall apply.

BID GUARANTEE A certified check or bank draft payable to the Oak Creek Water & Sewer Utility, or a satisfactory bid bond, in an amount not less than 5% of the bid shall accompany each bid as a guarantee that if the bid is accepted, the bidder will execute and file the proposed contract and bond within 10 days after the award of the contract. In case the bidder

fails to file such contract and bond within the time set by the Utility, the check or bid bond shall be forfeited to the Utility as liquidated damages pursuant to SS.62.15(3).

**EQUAL
OPPORTUNITY**

The Oak Creek Water & Sewer Utility hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the ground of race, color, sex, or national origin in consideration for an award.

BID REJECTION

The Oak Creek Water & Sewer Utility Commission reserves the right to reject any and all bids, waive any informalities in bidding, or to accept the bid or bids, which best serves the interest of the Utility.

**BID
WITHDRAWAL**

No bid shall be withdrawn for a period of 30 days after the scheduled opening of the bids without the consent of the Oak Creek Water & Sewer Utility Commission.

INSTRUCTIONS TO BIDDERS

1. Proposal Forms

No bid will be considered which is not submitted on forms furnished by the Utility Engineer.

2. Quantities

The estimated quantities of the work are the result of careful calculations but are considered approximate. The quantity shown will be used as a basis for determining the lowest bidder. After the contract is awarded, the quantity of work listed under any item, or all items, may be increased or decreased according to the specifications at the discretion of the Utility Engineer, without invalidating the bid price.

The general description of bid items is provided to give bidders a brief description of the work covered under this contract, but is not meant to be all inclusive of the work and materials required to complete each item. All miscellaneous items required by the plans and specifications, although not expressly listed on the bid form, are assumed to be included on the unit prices of each general bid item. Bids will be compared on the basis of the quantities listed in the Bidding Schedule. Payment on the contract will be based on the actual, field-measured units installed.

3. Prior Examination of Contract Documents and Worksite

Bidders shall inform themselves of the conditions under which work is to be performed by examining the contract documents, site, ground conditions and obstacles to be encountered in the field, and by such other means necessary. After proposal submittal, the Utility will not accept a claim that there was any misunderstanding as to the quantities, conditions, nature of the work, or extra compensation for items the Contractor failed to inform himself of prior to bidding.

4. Inadequacies and Omissions

Any verbal information obtained from or statement made by representatives of the Utility at the time of the examination of the contract documents or the site for the purpose of bidding, which apparently corrects or in any way amends the contract documents shall be invalid. The Oak Creek Water and Sewer Utility will not be responsible for such verbal information or statements.

Bidders shall bring any inadequacies, omissions, or conflicts to the Utility Engineer's attention at least seven days before the due date of bids. Prompt clarification will be immediately supplied to all bidders by addenda, and each addendum shall be acknowledged on the proposal form. Failure to so request clarification of any inadequacy, omission or conflict will not relieve the contractor

of responsibility. The signing of the contract will be considered as implicitly denoting that the contractor has a thorough comprehension of the full intent and scope of the specifications and drawings.

5. Subcontractors

Bidders shall be required to submit a list of subcontractors with their proposal in accordance with Section 66.0901(7), Wisconsin Statutes.

This list of subcontractors shall not be added to nor altered without the written consent of the Utility Engineer. The Utility Engineer may reject proposals if the list of subcontractors and the class of work to be performed is omitted. The omission shall be considered inadvertent or a representation that the bidder will perform the work himself. If such an omission is inadvertent, the bidder shall provide the list of subcontractors within two working days from the date and time of the bid opening.

6. Time of Performance

When not otherwise specified, the bidder must state in the proposal the least number of calendar days (including Saturdays, Sundays and holidays) after the date to commence work given in the Notice to Proceed, in which he will start construction and the number of calendar days (including Saturdays, Sundays and holidays) after date to commence work given in the Notice to Proceed in which he will fully complete the work as specified.

In stating time, the bidder should make due allowance for all probable difficulties which may be encountered.

In the event of failure to complete the work within the time stated or otherwise specified, liquidated damages will be assessed as provided in the specifications.

7. Proposal Guaranty

The Oak Creek Water and Sewer Utility requires either a bid bond or a certified check of at least 5% of the bid.

8. Requirements for Signing Proposals

- A. The full name and business address of each bidder must be entered on the proposal submitted. The proposal shall be signed in the space provided by written signature of the person or persons properly authorized to sign it.
- B. A proposal submitted by an individual shall be signed by the bidder or by an authorized agent.
- C. A proposal submitted by a firm or partnership shall be signed by a member

or by an authorized agent; if by joint adventurers, the proposal shall be signed by each of their authorized agent(s).

- D. Proposals which are signed by an attorney-in-fact for individuals, firms, partnerships or joint adventurers shall have attached a power-of-attorney evidencing authority to sign the bid.
- E. A proposal submitted by a corporation shall be signed by an authorized officer or agent of such corporation. Such corporation must be licensed to do business in the State of Wisconsin before a proposal to do the work can be received. If a foreign corporation, the state under which it is incorporated must be named.

9. Submission of Proposal

The proposal and the proposal guaranty shall be placed in an envelope or in separate envelopes and shall be sealed. On the envelope or envelopes shall be plainly written the PROJECT NUMBER, DATE OF OPENING BIDS, NAME OF BIDDER, AND THE TYPE AND LOCATION OF THE WORK. Such envelope(s) shall be addressed and delivered to the office of the Utility before the time specified in the Notice to Bidders for opening bids.

10. Withdrawal of Proposal

A bidder may withdraw a proposal, provided the Utility Engineer receives a written request prior to the deadline for accepting proposals. The proposal will be returned to the bidder unopened.

11. Bid Prices

Bidders must submit a bid price, in accordance with the specifications, for each item of the job or branch, in compliance with the bidding units specified for the quantities listed in the proposal. Bid prices must be written out in words and also entered in figures. In case of variation, the written prices will prevail.

12. Double Bidding

Two proposals under different names will not be accepted from one firm or association.

13. Disqualifying of Bid Proposal

A bid proposal will be disqualified because of gross errors in computation which cannot be resolved by mathematical correction without resorting to information not contained in the bid.

Errors in extension may be corrected providing that the unit cost is legible and can be definitely identified as complying with item specifications. The total bid shall be adjusted in accordance with approved extension corrections. An extension may not be divided by number of units specified to determine a unit cost if such is omitted by the bidder. It is the responsibility of the bidder to submit a neat, accurate and complete proposal if his bid is to be accepted.

14. Right to Accept or Reject Bids

The Utility reserves the unqualified right to reject any or all bids at its sole and absolute discretion, or to reject any or all bids where the Utility Engineer has determined that the contractor or bidder has unbalanced his bid and unit prices. The Utility further reserves the unqualified right to waive any irregularities in any bid, or to accept any bid which will best serve the interests of the Utility. The Utility also reserves the unrestricted privilege to reject any unit prices for additions to or deductions from the scheduled amount of work as given in the bid, if the same are considered excessive or unreasonable, or to accept any or all such unit prices which may be considered fair and reasonable.

The bid openings are open to the public, and no awards will be made immediately upon opening bids nor until the bids opened can be compared, scheduled, and reviewed by the Utility Commission. The contract shall be awarded by Utility Commission action and the bidder to whom the award is made will be notified at the earliest possible date.

15. Performance Guaranty

The performance of the contract must be assured by a surety bond executed by the successful bidder in the full amount of the contract. Such bond must also be executed by a surety company.

16. Contract Execution

Within ten days from the date of receipt of the contract forms from the Utility Attorney, the successful bidder shall sign four copies of the contract form, attach the performance guarantee of the approved licensed surety, and deliver to the office of the Utility. The contract, when signed by the Utility, and approved as to form and execution by the City Attorney, shall be a part of the contract documents. When all parties have signed the contract, the Utility will refund the proposal deposit to the successful bidder.

In case of failure to have delivered such properly executed copies of the contract within ten days, or such extension as the Utility Commission only may deem reasonable, bidder will be considered as having abandoned his proposal. Bidder will be considered in default to the Utility to the full amount of the bid deposit. It will be understood and agreed by the party submitting the proposal that such bid

deposit represents the damages to which the Utility will be subjected by reason of the bidder's default in acceptance of contract, or failure to either properly execute the contract forms or deliver within the specified time of such extension.

17. Starting Work Before Notification

No work shall be performed under the contract and no materials or equipment shall be delivered to the site of the work prior to the date in the Utility Engineer's written Notice to Proceed.

18. Refund of Bid Deposit to Unsuccessful Bidders

The bid deposit of all except the two lowest bidders will be refunded after the Utility Commission has determined the lowest responsible bidder. The remaining bid deposit will be refunded upon execution of the contract.

June 8, 2017

To: The Oak Creek Water & Sewer Utility Commission

Re: Bid Proposal

In conformity with the notice to bidders, the undersigned bidder, having examined the site of the work and the contract, submits the following proposal for furnishing the material, equipment, labor and everything necessary for the completion of the work listed hereunder, and agrees to execute the proposed contract and furnish the required bond for the completion of said work, at the locations and for the prices set forth in the attached Schedule One.

The undersigned bidder deposits herewith a certified check payable to the order of the Oak Creek Water and Sewer Utility, or an approved bid bond, in the sum designated in said notice, and hereby agrees that in the event the undersigned bidder shall fail to execute the contract with surety bond thereto and return the same to the Utility within ten calendar days after transmittal by the Utility, then said certified check shall be retained by and become the property of the Oak Creek Water & Sewer Utility as fixed and liquidated damages or the penalty as provided by said bond shall be recovered as liquidated damages.

It is further understood that construction on this contract shall commence and be completed as specified in the Detail Specifications.

This proposal submitted by:

Bidder

Address

Phone

City, State, Zip Code

Operating as: Sole Trader _____ Partnership _____ Corporation _____

Under the laws of the State of _____

By: _____ (Signature)

_____ (Title)

ADDENDUM RECEIPT: We acknowledge the receipt of Addenda _____ inclusive.

SWORN STATEMENT OF BIDDER

PURSUANT TO SECTION 66.0901 (7) WISCONSIN STATUTES

I, being duly sworn at _____(City),
_____ (State), on oath, do hereby state on behalf of said bidder that
I have examined and carefully prepared this proposal from the plans, specifications, the work site
including surface and underground conditions, and other contract documents and have checked the
same in detail before submitting this proposal; and that this sworn statement is hereby made an
integral part of this proposal.

By: _____
(Signature)

(Title)

Subscribed and sworn to before me this _____ day of _____, 2017.

Notary Public, _____ County

State of _____

My commission expires: _____

Affix corporate seal below.

INFORMATION ON SURETY *(please fill out completely)*

Firm _____

Address, City, State, Zip Code _____

Attorney-in-fact _____

Address, City, State, Zip Code _____

INFORMATION ON SUBCONTRACTORS

The undersigned bidder will employ, subject to the approval of the said owner, the following subcontractors. This list shall not be added to nor altered without the written consent of the owner. A bid shall not be invalid if the list of subcontractors and the class of work to be performed has been omitted. The omission shall be considered inadvertent or a representation that the bidder will perform the work himself. If such an omission is inadvertent, the bidder shall provide the list of subcontractors within two working days from the date and time of the bid opening.

<u>NAME</u>	<u>ADDRESS</u>	<u>CLASS OF WORK</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

LIST OF DRAWINGS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
17102-1C-2334	Title Sheet and Location Map
17102-2C-2335	Standard Symbols, General Notes, and Details
17102-3C-2336	Erosion Control Notes and Details
17102-4C-2337	S. Shepard Avenue and E. Stonegate Plan and Profile
17102-5C-2338	S. Chicago Road and E. Garden Place Plan
17102-6C-2339	E. Obrien Road and S. 11th Avenue Plan
17102-7C-2340	E. Oakwood Road and E. Redwood Lane Plan
17102-8C-2341	E. Oakwood Road and John Aaron Drive Plan

Schedule Two

Item No.	Item Description	Bid Quantity	Units	Unit Price	Total Price
1	S. Shepard Avenue and E. Stonegate Drive 8" PVC Connection _____dollars & _____cents.	1	LS		
2	S. Chicago Road and E. Garden Place 20" Cut-In Valves _____dollars & _____cents.	1	LS		
3	E. Obrien Road and S. 11th Avenue 8" Cut-In Valve _____dollars & _____cents.	1	LS		
4	E. Oakwood Road and E. Redwood Lane 20" Cut-In Valve _____dollars & _____cents.	1	LS		
5	E. Oakwood Road and John Aaron Drive 20" Cut-In Valve _____dollars & _____cents.	1	LS		

BASE BID TOTAL ITEMS 1 - 5 INCLUSIVE \$_____

DETAILED SPECIFICATIONS

I. GENERAL

A. INTRODUCTION

These specifications govern the construction of water main, in the City of Oak Creek in the locations as shown on the plans.

All work performed and all materials supplied under this contract shall conform to the Contract Documents and to all specifications, codes, and ordinances either referred to or established by law.

B. APPLICABLE SPECIFICATIONS

The following specifications shall be applicable to all construction under this project:

1. General Specifications of the Department of Engineering, City of Oak Creek, hereinafter referred to as the General Specifications in these Detailed Specifications.
2. Standard Specifications for Sewer and Water Construction in Wisconsin, current Edition, with addendums hereinafter referred to as the Standard Specifications in these Detailed Specifications.
3. Highway and Structure Construction - Std. Specs. Dept. of Trans., Division of Highways, State of Wis., current edition and supplemental specifications hereinafter referred to as the State Specifications in these Detailed Specifications.
4. These Detailed Specifications.
5. The Construction Plans.
6. Manual on Uniform Traffic Control Devices, current edition.
7. City of Oak Creek Engineering Design Manual, current edition.

Copies of the aforementioned General, Standard and State Specifications are on file at the Engineering Department of the City of Oak Creek for use and reference on the premises by prospective bidders and by the Contractor.

The Detail Specifications and the construction plans cover items, corrections, deletions or additions to the applicable contract specifications and take precedence over those other parts of these specifications that may be in conflict herewith.

Any conflict between the various specifications and the construction plans shall be brought to the attention of the Utility Engineer by the bidders and/or the Contractor. Where such conflict may exist, the Utility Engineer shall have the sole authority to exercise a decision as to the meaning of the bidding and contract documents.

Reference shall also be made to the Instructions to Bidders of the bid and contract documents.

C. CONTROL OF CONSTRUCTION OPERATIONS

1. Scheduling Work

The Contractor will not be permitted to start new locations of the project until previously started locations are fully completed or continuous work, in the opinion of the Utility Engineer, is being done to fully complete the previously started phases. However, the Contractor may with the approval of the Utility Engineer, start a second crew with a second foreman on other portions of the project. (Refer also to Sections 1.2.2 and 1.3.21 (Pages 1-10 and 1-21, respectively) of the Standard Specifications).

At any time during the execution of the contract that the Contractor either suspends or returns to work, he must notify the Utility Engineer of his intentions at least three working days in advance of said suspension or return to work.

2. Maintenance of Public Safety and Convenience

The Contractor shall provide for the placing of necessary detour signs, barricades, warning lights, and warning and informational signs to provide for the safety and convenience of the public prior to starting of any of the work per the State Manual on Uniform Traffic Control Devices. Adjustment to the traffic control devices shall be included and performed by the contractor as called for by the progression of work. Necessary traffic control adjustments shall be in place prior to proceeding with work that could impact the safety of the general public as determined by the Utility Engineer. The Utility will obtain a WisDOT Utility Permit, for this project applicable to the work planned at the intersection of STH 32 (S. Chicago Road) and E. Garden Place. The Contractor will be responsible for meeting all permit conditions.

All such devices shall comply with the Federal Manual on Uniform Traffic Control Devices.

3. Access to Properties

The Contractor shall provide for access to the properties abutting the work site area in accordance with Section 1.7.7 (Page 1-33) of the Standard Specifications. In addition, the operations shall be conducted in such a manner that 1) all streets at all times shall be maintained with at least one lane of roadway open for vehicular access with a flagger, 2) two lanes of traffic shall be restored at the end of each working day, and 3) all abutting properties shall be provided with vehicular access overnight, on weekends and on holidays.

4. Haul Roads and Storage Areas

The Contractor shall be required to submit a plan indicating his intended location of haul roads and storage areas for equipment and materials. Such plan shall be presented at the pre-construction meeting and shall be subject to the approval of the Utility Engineer. Any subsequent proposed changes to the approved plan shall be submitted to the Utility Engineer for approval prior to implementation of the change. Construction traffic shall be permitted on pre-approved areas. All areas used for haul roads and storage shall be subject to restoration by the Contractor to the condition prior to the start of work under this contract.

5. Supervision and Superintendence

Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6. Safety and Protection

Contractor shall be solely responsible for initiation, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

- a. all persons on the Site or who may be affected by the Work;
- b. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
- c. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course or construction.

Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and the Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them

in the protection, removal, relocation, and replacement of their property.

Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply which at the Site.

All damage, injury, or loss to any property caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed.

Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7. Hazard Communication Programs

Contractor shall be responsible for coordinating and exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws and Regulations.

8. Water Shut-off Times and Durations

Water may not be shutoff at any project site prior to 8:00 AM. Contractor must be complete with valve cut-in and ready for Owner to begin filling and flushing the main by 3:00 PM. Leak observation, backfilling, and restoration may take place after 3:00 PM. Each shutoff must not exceed 7 hours from the time the water main is first isolated until the water main is ready for the Owner to begin filling and flushing. Contractor is responsible for all preparations necessary to prepare water main for filling and flushing within these timeframes. Note the liquidated damages associated with exceeding the shutoff times specified in XV. Any time after 3:00 PM of the same day onward required to correct deficiencies observed during pipe filling, flushing, and leak testing will be assessed liquidated damages.

II. NOTICES AND PERMITS

A. GENERAL UTILITY NOTIFICATION

Please note: Section 66.0831 of Wisconsin Statutes makes it mandatory that:

"66.0831 Interference with public service structure. A contractor with a contract for work upon, over, along or under a public street or highway may not interfere with, destroy or disturb the structures of a public utility, including a telecommunications carrier as defined in s. 196.01 (8m), encountered in the performance of the work in a manner that interrupts, impairs or affects the public service for which the structures may be used, without first obtaining written authority from the commissioner of public works or other appropriate authority. A public utility, if given reasonable notice by the contractor of the need for temporary protection of, or a temporary change in, the utility's structures, determined by the commissioner of public works or other appropriate authority to be reasonably necessary to enable the work, shall temporarily protect or change its structures located upon, over, along or under the surface of a public street or highway. The contractor shall pay or assure to the public utility the reasonable cost of the temporary structure or change, unless the public utility is otherwise liable. If work is done by or for the state or by or for any county, city, village, town sanitary district, metropolitan sewerage district created under ss. 200.01 to 200.15 or 200.21 to 200.65 or town, the cost of the temporary protection or temporary change shall be borne by the public utility."

The Contractor shall refer to Chapter 1.2.0 (Pages 1-9) of the Standard Specifications, in regard to necessary notices and permits required. These provisions shall be strictly adhered to at the start of any part of the project. In particular, the following requirements shall apply.

B. NOTIFICATION TO WE ENERGIES (Electric and Gas Utility)

In accordance with the provisions of the Wisconsin State Statutes, with regard to the maintenance of a certain clearance from energized conductors and with regard to notification where work might affect public utility facilities, it is the requirement herein that the Contractor shall be responsible for and duty-bound to notify the We Energies in writing in advance of work to be done near electric or gas facilities. Such notice shall be directed to:

We Energies – Electric Operations
4800 W. Rawson Avenue
Franklin, Wisconsin 53132
Phone: (414) 423-6112

We Energies – Gas Operations
4800 West Rawson Avenue
Franklin, WI 53132
Phone: (414) 423-5062

Emergency or additional notification, if any is required during construction, shall be done by contacting their office at 221-3700.

C. NOTIFICATION TO AT&T

The Contractor shall notify the communication utilities that have facilities located within the project limits of his construction schedule as it affects said each company as prescribed by the Wisconsin State Statutes.

Such notice shall be directed to the following Utilities:

AT&T
Cable Location Plant
435 S. 95th Street
Milwaukee, WI 53214
Phone: (262) 896-7434

D. NOTIFICATION TO TIME WARNER CABLE

The Contractor shall notify Time Warner Cable of his construction schedule as it affects said cable communications company as prescribed by the Wisconsin State Statutes. Notice shall be directed to:

Time Warner Cable
5475 West Abbott Avenue
Greenfield, WI 53220

Additional notification, if any is required during construction, shall be done by contacting their office by phone at 414/277-4280.

E. NOTIFICATION TO CITY'S STREET, FIRE, & POLICE DEPARTMENTS, & OAK CREEK WATER & SEWER UTILITY

Prior to starting construction within any street, three days' written notice shall be given to the following departments:

1. Street Division, 800 W. Puetz Road, (414) 570-5682
2. Fire Department, 7000 S. 6th Street, (414) 570-5630
3. Police Department, 301 W Ryan Road, (414) 762-8200
4. Oak Creek Public Schools, 7630 South Tenth Street (414) 768-5880
5. Oak Creek Water & Sewer Utility, 170 W. Drexel Avenue, (414) 570-8210

F. OAK CREEK WATER & SEWER UTILITY

WATER USE PERMIT

The Contractor will be permitted to use the Utility water supply where available for incidental uses providing a permit is first obtained from the Oak Creek Water and Sewer Utility, 170 West Drexel Avenue, Oak Creek, Wisconsin. There will be no charge for this water use unless the amount is determined to be excessive as defined by the Utility Engineer. The included water will include water needed for filling, testing, and flushing of new water mains. If an invoice is issued and said bill is not paid by completion of the project, the amount of said bill will be deducted from the final contract payment. Record of water used by the contractor shall be turned into the Utility Engineer prior to final payment.

WATER SHUT OFF

The Contractor shall notify the Owner at least two working days before planned water main shut off. The Owner will be responsible for providing and distributing notices to property owners affected by the water shut off. The Contractor will be responsible for notifying the Owner if the water shut off may exceed the specified shut off time on the notice or if emergency water shut off is required. Note the liquidated damages associated with exceeding the shutoff times specified in XV.

G. WISCONSIN DEPARTMENT OF TRANSPORTATION – DOT PERMIT CONTACT

Todd Deloria
SE Region Utility Permit Coordinator
Office: 262-521-4461
E-Mail: dotdtsdseutilitypermits@dot.wi.gov

WisDOT Southeast Region
141 NW Barstow Street
Waukesha, WI 53187

H. WORK IN EASEMENTS

The work will be performed in an easement or by right-of-entry upon private lands. The requirements of Sections 1.7.13 and 1.7.14 (Pages 1-35 and 1-36) of the Standard Specifications and these detailed specifications, if any, shall be adhered to.

The requirements of Section 1.7.14 of such Standard Specifications shall also apply to the public right-of-way between the pavement and the property line where the installation is in the public right-of-way or in an easement abutting public right-of-way.

I. PIPE HARVESTING FOR STUDY

Contractor shall contact Anthony Kappel at least three working days before existing pipe from each site is removed from the ground. Anthony shall also be notified 2 hours prior to harvesting the pipe section. See Appendix for Pipe Harvesting Protocol. Pipe will be harvested from each site including 20-inch diameter mains, other than Shepard.

Anthony Kappel, Researcher
Civil, Construction & Environmental Engineering
Marquette University | P.O. Box 1881
Milwaukee, Wisconsin 53201-1881
Phone: 817-938-6823
anthony.kappel@mu.edu

J. WISCONSIN DEPARTMENT OF NATURAL RESOURCES DEWATERING PERMIT

If any pit/trench dewatering system [high capacity pump(s)] with the capacity to withdraw greater than 70 gpm is constructed the Contractor must register with the Department's Water Use Program and comply with annual reporting requirements. If the dewatering requires a high capacity well, and the total proposed design pump capacity is greater than 70 gpm, the Contractor must fill out a high capacity well application: <http://dnr.wi.gov/topic/wells/highcapacity.html>.

III. CONTRACTOR'S INSURANCE

A. GENERAL

The Contractor shall not commence work under this contract until he has obtained all insurance required under this paragraph and such insurance has been approved by the Utility and insurance certificates have been filed with the Utility, nor shall the Contractor allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been so obtained and approved in accordance with Section 1.8.4 of the Standard Specifications and these Detailed Specification provisions.

B. COMPENSATION INSURANCE

The Contractor shall take out and maintain during the life of this contract, Worker's Compensation Insurance for all of his employees at the site of the project and in case any work is sublet, the Contractor shall require the Subcontractor similarly to provide Worker's Compensation Insurance for all of the latter's employees, unless such employees are covered by the protection afforded by the Contractor. In case any class of employees engaged in hazardous work under this contract at the site of the project is not protected under the Worker's Compensation Statute, the Contractor shall provide and shall cause each Subcontractor to provide adequate insurance coverage for the protection of his employees not otherwise protected.

C. PUBLIC LIABILITY, PROPERTY DAMAGE, AND CONTRACTUAL LIABILITY INSURANCE

The Contractor shall take out and maintain during the life of this contract, public liability, property damage, and contractual liability insurance in the following minimum amounts:

Bodily Injury	\$1,000,000 per occurrence
	\$1,000,000 aggregate
Property Damage	\$500,000 per occurrence
	\$500,000 aggregate

These policies shall protect the Contractor and any Subcontractor performing work covered by this contract from the claims and damages for personal injury, including accidental death, as well as claims for property damage, which may arise from the performance of the work or under the hold-harmless and indemnifying clauses which are a part of this contract. The said policies are to cover not only the Contractor or Subcontractor but also any other directly or indirectly employed by either of them.

D. ADDITIONAL INSURED ENDORSEMENTS

Contractor shall purchase and maintain liability insurance, as described above, specifically naming as additional insureds OWNER, DESIGN ENGINEER, and RESIDENT PROJECT REPRESENTATIVE as well as other individuals or entities so identified, using Additional Insurance Endorsement Form CG 20 26 07 04, CG 81 11 05 06, CG 20 10 07 04, or equivalent form. General liability policies shall also be endorsed with Form CG 20 37 07 04 to include the “products completed operations coverage.”

Endorsements or General Liability policy shall not exclude supervisory or inspection services.

Contractor shall also provide Additional Insured Endorsement for each additional insured listed above for the automobile policy. Endorsement form shall be CA 20 48, or equal.

E. INSURANCE AGAINST THE FOLLOWING SPECIAL HAZARDS

The following respective amounts shall be procured by the Contractor or Subcontractor before the commencement of any operation by the Contractor, or the happening of any circumstance creating or tending to create the particular special hazard:

<u>Kind</u>	<u>Amount</u>
Operating of elevators or hoists.....	\$25,000.00
Use and operation of automobiles and truck.....	\$25,000.00
Structural alterations or demolitions	\$25,000.00
Undermining adjacent structures.....	\$10,000.00
Blasting operations	\$10,000.00
Operation of excavating machinery in streets and highways.....	\$10,000.00
Operation within other public or private right-of-way (including railroad right-of-way)	As Required

IV. PERFORMANCE BOND AND GUARANTEE

Where the contract is over \$10,000.00, the contractor will be required to furnish a satisfactory performance bond in the amount of 100% of the contract. The Contractor shall pay the total cost of this bond. Such bond shall be executed by an authorized surety company and shall remain in full force and effect for a period of one year after the final payment for the work to guarantee workmanship and materials. A performance bond shall not be required for public works contracts below \$10,000.00 regardless of bond requirement.

The Contractor shall agree and guarantee that the material and workmanship supplied by him shall be free from all defects, and strictly in accordance with the plans and specifications, at the time of its completion and acceptance by the municipality, and for a time of one year thereafter, the Contractor agrees to forthwith repair the same upon notification by the municipality using the same material required by these specifications. In case the Contractor shall fail to make such repairs or cause the same to be made, the Contractor agrees and guarantees to pay on demand the cost thereof, to said municipality upon the completion of such repairs, and the Contractor further agrees and guarantees to pay for all labor and material used in or about the construction of said work in his contract, which may become a lien or a claim against the municipality.

V. METHOD OF PAYMENTS

Payments will normally be made monthly throughout the progress of the work, provided the work completed is substantial enough in the opinion of the Utility Engineer.

Substantial completion of water main construction shall be considered to include all flushing and testing of the mains including pressure tests and safe water samples. Partial and final payments will not be made until such time that all work is substantially completed including testing and accepted by the approving agencies.

Such payments shall be in accord with Section 66.0901 (9) b, of the State Statutes which states that the City,

“(b) Retained percentages. As the work progresses under a contract involving \$1,000 or more for the construction, execution, repair, remodeling or improvement of a public work or building or for the furnishing of supplies or materials, regardless of whether proposals for the contract are required to be advertised by law, the municipality, from time to time, shall grant to the contractor an estimate of the amount and proportionate value of the work done, which entitles the contractor to receive the amount of the estimate, less the retainage, from the proper fund. The retainage shall be an amount equal to not more than 5% of the estimate until 50% of the work has been completed. At 50% completion, further partial payments shall be made in full to the contractor and no additional amounts may be retained unless the architect or engineer certifies that the job is not proceeding satisfactorily, but amounts previously retained shall not be paid to the contractor. At 50% completion or any time after 50% completion when the progress of the work is not satisfactory, additional amounts may be retained but the total retainage may

not be more than 10% of the value of the work completed. Upon substantial completion of the work, an amount retained may be paid to the contractor. When the work has been substantially completed except for work which cannot be completed because of weather conditions, lack of materials or other reasons which in the judgment of the municipality are valid reasons for noncompletion, the municipality may make additional payments, retaining at all times an amount sufficient to cover the estimated cost of the work still to be completed or may pay out the entire amount retained and receive from the contractor guarantees in the form of a bond or other collateral sufficient to ensure completion of the job. For the purposes of this section, estimates may include any fabricated or manufactured materials and components specified, previously paid for by the contractor, and delivered to the work or properly stored and suitable for incorporation in the work embraced in the contract. "

VI. MATERIALS - GENERAL

In accordance with Utility purchasing policy, the Contractor is requested to use American products in the performance of the contract whenever the quality and the price are comparable with other goods.

VII. MATERIALS FOR WATER MAINS

A. SPECIFICATIONS FOR DUCTILE IRON WATER MAIN AND FITTINGS

All Ductile Iron Pipe (DIP) water main to be used shall be CL 52 as specified herein and in Chapter 8.18.0 of the Standard Specifications. DIP shall be used at all project locations where the existing pipe material is DIP and the new water main is installed in-line with the existing water main.

Valves and cement-lined cast gray iron or cast ductile iron fittings as specified in Chapter 8.22.0 of the Standard Specifications, shall be furnished unless otherwise specified on the construction plans or herein the Detail Specifications. All fittings and valves shall have push-on joints unless other-wise specified on the construction plans or herein the Detail Specifications. All fittings shall be cement lined, identical to the lining of ductile iron pipe. The fittings shall conform to A.W.W.A., C110 or A.N.S.I., A21.10. The cement lining shall conform to A.W.W.A. C104 or A.N.S.I., A.21.4. An outside bituminous coating conforming to A.W.W.A. C151, but to a thickness of 2 to 4 mils average and 2 mils minimum, shall be provided, identical to the outside coating of ductile iron pipe.

All couplings shown on the Drawings shall be the ductile iron Hymax[®] Coupling as manufactured by Krausz USA[®], 331 SW 57th Ave, Ocala, FL 34474.

Rubber gaskets shall be bundled in water repellent covering and packaged in a cardboard box or wooden crate. Bell lubricant shall be supplied by the manufacturer in vacuum-sealed cans properly identified by label. Sufficient lubricant shall be supplied to effectively lubricate each joint.

Materials Tests on Pipe, Fittings and Valves - The manufacturer shall inspect all pipe and fittings and shall provide certified copies of complete test and inspection reports to the Utility Engineer, in accordance with the Standard Specifications, covering: description, hydrostatic tests, physical properties, chemical analysis and coating analysis.

An anchoring tee, Clow F-1221 (push-on joints on the run) or equal, with a roto-ring retainer gland shall be provided on the water main at all hydrant lead connections where it is proposed to have the auxiliary hydrant valve connected directly to the main tee.

All ductile iron water main and curb boxes shall be triple wrapped with polyethylene. All valves and fittings shall be triple wrapped with polyethylene. The polyethylene shall comply with the requirements of Chapter 8.21.0 of the Standard Specifications.

All ductile iron water main pipe shall be 150 psi rated water working pressure. All fittings shall be 250 psi rated water working pressure. All gate valves shall be 200 psi rated water working pressure and all butterfly valves shall be 150 psi rated water working pressure.

B. SPECIFICATIONS FOR PVC WATER MAIN

All polyvinyl chloride (PVC) water pipe shall conform to the requirements of Chapter 8.10.0 of the Standard Specifications. PVC pipe shall be used only on water mains of 12" or smaller in size at project locations where water main is to be laid in a new alignment (Shepard Avenue and Stonegate Drive) unless otherwise specified on the construction plans or herein the Detailed Specifications.

All pipe 8" and larger (if specifically allowed), shall be Class 150 with a standard dimension ratio of 18; all pipe 6" and smaller shall be Class 200 with a standard dimension ratio of 14.

PVC fittings shall be used on all PVC pipe. PVC fittings 4"-12" in diameter shall be injection molded and comply with the requirements of AWWA C907 and be certified to CSA B137.2. Molded fittings will be made of PVC compound with a minimum hydrostatic design basis of 4000 psi. Molded fittings must be Factory Mutual approved and listed by the Underwriter's Laboratories International (ULI).

If a particular type of PVC fitting is not manufactured, or unavailable, the contractor may use fabricated plastic fittings or ductile iron fittings on a case-by-case basis with the approval of the Utility Engineer.

All polyvinyl chloride (PVC) water pipe supplied shall be manufactured by one of the following companies:

- a. Cantex Industries (Division of Harsco Corp.)
- b. H & W Industries, Inc.
- c. J.M. Corporation

- d. CAPCO
- e. North American
- f. Vinyl Plex

B. GATE VALVES

All gate valves (3" through 12" diameter valves are to be gate valves) are to be the resilient wedge-type valve.

All resilient wedge-gate valves furnished shall be one of the following:

- 1. Clow - R.W.
- 2. Kennedy - R.W.
- 3. Mueller - R.W.
- 4. American Flow Control (3" to 12" only)

All valves shall open counterclockwise.

All valves shall be epoxy coated interior and exterior with Type 316 stainless steel bolts, washers, and nuts and receive triple layer 6-mil poly-wrap.

C. BUTTERFLY VALVES

All butterfly valves (16" diameter and larger valves to be butterfly valves) furnished shall be one of the following:

- 1. M & H
- 2. Dezurik
- 3. Mueller

D. CAST IRON VALVE BOXES

All valve boxes shall be 5-1/4 inch diameter (minimum) shaft, round base, three (3) piece box; 5-1/4 inch drop lid marked "WATER"; length of assembly sized to span top of main to finished grade with a minimum remaining adjustment of three (3) inches. Valve boxes shall have a maximum length of 7 feet when extended without extension sections. Extensions shall be provided for deeper mains.

Contractor shall furnish Cast Iron Valve Boxes Series 8560 for the valve box and Series 6800 Lid as manufactured by East Jordan Iron Works or approved equal and conforming to ASTM A48, Class 20. The castings shall be free from blowholes, porosity, hard spots, shrinkage defects or cracks, or other injurious defects and shall have a normal smooth casting finish. The castings shall be thoroughly coated with a 1 mil minimum thickness bituminous coating,

The valve box shall be centered and plumb over the wrench nut of the valve with the box cover flush with finished grade. The valve box shall no transmit shock or stress to the valve.

Cast iron valve boxes shall receive triple layer 6-mil poly-wrapping.

E. VALVE BOX ADAPTORS

A valve box adaptor shall be provided for each valve. All valve boxes shall be set upon the valve with the use of an adaptor, as manufactured by Adaptor, Incorporated, or an approved equal. The adaptor shall be installed in lieu of hardwood blocking and shall be incidental to the valve and box installation.

F. MECHANICAL JOINTS

Wherever mechanical joints are to be installed, as specified, the bolts and nuts shall be T316 stainless steel or an approved equal conforming to AWWA C111; a certificate to that effect shall be provided. All fittings shall be triple polyethylene wrapped in accordance with the Standard Specifications.

G. TRACER WIRE

All water main shall include a 10 gauge solid, blue coated copper tracer wire to be taped to each pipe. Tape shall be securely fastened to main, hydrant leads and hydrants. Splices shall be soldered and water proofed using shrink wrap or underground splice kit. Test station shall be an adjustable height tracer wire access box manufactured by VALVCO, Inc. Test stations shall be plain-capped valve box top section with hardwood blocking installed as noted on the plans. Tracer wire ends at existing main shall be bonded to 5/8" diameter, 3' copper ground rod driven next to the pipe utilizing a ground rod clamp with UL listed cast copper alloy hex-head bolt.

H. GALVANIC ANODE PROTECTION

Where connecting to an existing ductile iron water main, the contractor shall install galvanic anode protection in accordance with the galvanic anode installation detail. For ductile iron water mains 12" in diameter and less, the contractor shall provide and install one 32 lb. magnesium anode. For ductile iron water mains greater than 12" in diameter, the contractor shall provide and install two-32lb. magnesium anodes. The weld shall be coated using REBOUND Aerosol Rubberized Coating or approved equal.

I. RESTRAINT RODS

Bolts and restraint rods shall be high-strength low-alloy steel conforming to AWWA C111.

J. MEGALUGS

For ductile iron with ductile iron mechanical joints MEGALUG® Series 1100 or 1100SD by EBAA Iron Sales, Inc.; Series D-SLDE or SSLD by Sigma; Series 3000

or 3000S by Star Pipe Products; or equal

For ductile iron with ductile iron push-on joints MEGALUG® Series 1100HD or 1700 by EBAA Iron Sales, Inc.; Series SLDEH or SSLDH by Sigma; Series 3100 P or 3100S by Star Pipe Products; Flex Ring or Lok-Ring by American Cast Iron Pipe Company; TR Flex by U.S. Pipe Company; or equal.

K. POLYETHYLENE WRAP

Contractor shall provide triple layer polyethylene encasement conforming to AWWA C105. Film shall be Class C-Carbon Black, with a minimum thickness or 6-mil. Tape for securing the film shall be a thermoplastic material with a pressure sensitive adhesive face capable of bonding to metal, asphaltic coating, and polyethylene. Tape shall have a minimum thickness of 8 mils and a minimum width of 1 inch.

The polyethylene film envelope shall be free as is commercially possible of gels, streaks, pinholes, particles of foreign matter, and undispersed raw materials. There shall be no visible defect such as holes, tears, blisters, or thinning out at folds.

L. PREFORMED FLEXIBLE JOINT LUBRICANT

Preformed flexible joint sealant shall be EZ Stik, Kent Seal, Ram Nek, or equal, meeting the requirements of ASTM C990. Bell lubricant shall be supplied by the manufacturer in vacuum sealed cans properly identified by the label. Sufficient lubricant shall be supplied to effectively lubricate each joint.

M. O-RINGS

O-rings shall meet the requirements of ASTM C443

N. DISINFECTANT

Disinfectant shall conform to the requirements of AWWA standard C651-14 and be NSF-61 certified.

O. TAPPING SLEEVE

Tapping sleeves shall be stainless steel and shall conform to AWWA standard C223-13.

VIII. MATERIALS - GENERAL

A. BEDDING AND COVER, ALL WATER MAIN

All water main shall consist of 4 inches torpedo sand bedding and cover to 6" above the pipe. Sand backfill shall also be used to a minimum of 6" on either side of the pipe.

B. CRUSHED AGGREGATE BACKFILL

Crushed aggregate backfill shall be base aggregate dense 1 1/4-inch and consist of crushed stone and be furnished in accordance with Section 301 and Section 305 of the WisDOT Specifications. Crushed aggregate base course shall be placed as backfill where specified. Contractor shall supply a current sieve analysis of material prior to use. The material furnished shall be uniformly graded and shall conform to ASTM C33.

C. CRUSHED AGGREGATE BASE COURSE, LOCAL STREETS

Crushed aggregate base course shall consist of crushed stone and be furnished in accordance with Section 301 and Section 305 of the WisDOT Specifications. Crushed aggregate base course shall be placed directly on subgrade areas or as backfill where specified. Contractor shall supply a current sieve analysis of material prior to use. The material furnished shall be uniformly graded and shall conform to ASTM C33.

For City utility trenches the top 4 inches of base course shall be 1 1/4-inch dense grade base. The remaining base course shall be 1 1/4-inch dense grade base or 3-inch dense grade base.

For City gravel shoulders, match adjacent pavement thickness with base aggregate dense 3/4-inch.

The finished new base course shall be wetted, fine-graded, and compacted with a self-propelled hydrostatic-drive vibratory roller in preparation for placement of new pavement. Contractor shall maintain the finished surface until pavement is placed.

D. AGGREGATE SLURRY (FLOWABLE) BACKFILL

Aggregate slurry (flowable) backfill shall be placed within Wisconsin Department of Transportation right-of-way and shall conform to and be placed in accordance with the Wisconsin Department of Transportation Permit for this project..

E. BASE COURSE, WISDOT R.O.W.

Base course placed with Wisconsin Department of Transportation right-of-way shall be in accordance with the Wisconsin Department of Transportation Permit for this project.

F. COMPOUNDS FOR ASPHALT PAVEMENT

Compounds for asphalt pavement shall conform to the following unless required otherwise as indicated in the Wisconsin Department of Transportation Permit.

1. Asphaltic concrete pavement shall be 3LT 58-28 S in the lower course and 5LT 58-28 S in the upper course for asphalt roadways. Asphalt thickness for roadways shall be 2 1/4 inches for the lower course and 1 3/4 inches for the

upper course.

2. Asphalt delivered to the site shall arrive at a temperature of 275 degrees plus or minus 25 degrees. Any trucks not meeting this requirement shall be rejected.
3. Compounds for asphaltic pavement shall be provided in conformance with the following section of the State Specifications.

Materials for Asphaltic Mixtures and Surface Treatments.....	Section 455
Tack Coat	Section 455
Plant Mixed Asphaltic Surfaces and Pavements	
General Requirements.....	Section 460
Asphaltic Concrete Pavements	Section 460

G. EROSION CONTROL PRODUCTS

Erosion control products shall be listed in the Erosion Control Product Acceptability List for Multi-Modal Applications (PAL) of the Wisconsin Department of Transportation. Contractors may obtain copies of the PAL and PAL qualification procedures from the WisDOT Bureau of Highway Construction.

H. EROSION CONTROL MATS

Erosion control mat products shall be selected from the PAL in conformance with criteria specified in Conservation Practice Standard 1052 (Non-channel Erosion Mat) and 1053 (Channel Erosion Mat)

Unless designated on the Drawings, Contractor may furnish any prequalified erosion mat product of the class and type listed in the PAL.

A 300 mm by 300 mm sample of a product proposed for erosion may be required to verify that it is prequalified. When a sample is required, it shall be accompanied by the manufacturer's literature for the proposed product.

I. SILT FENCE

Silt fence shall conform to Conservation Practice Standard 1056 - Silt Fence. Silt fence shall conform to Table 2 of Conservation Practice Standard 1056.

Furnish wrapping on each roll of fabric to protect the fabric from ultraviolet radiation and from abrasion during shipping and handling. Keep geotextile dry until installed.

J. DITCH CHECKS

Ditch checks shall conform to Conservation Practice Standard 1062 - Ditch Check (Channel)

K. MULCHING

Mulching for construction sites shall conform to Conservation Practice Standard 1058-Mulching for Construction Sites

L. SEEDING

Refer to Section X paragraph E of this Detailed Specification.

M. CULVERT PIPE CHECKS

Culvert pipe checks shall be installed as needed.

IX. CONSTRUCTION DETAILS

A. COMPLYING WITH SPECIFICATIONS

The Contractor shall comply with the specifications and ably perform all operations to the extent that the first-class work will be obtained. A representative of the Oak Creek Water & Sewer Utility will inspect the work as it progresses to determine full compliance with the specifications. The Resident Project Representative shall notify the Utility Engineer of any noncompliance and have authority to stop any work not being performed in accordance with the specifications, in order that the Utility Engineer may investigate such noncompliance.

Any work performed after the work has been ordered stopped by the Resident Project Representative shall not be considered as work performed under the contract, and consequently will not be accepted by the Utility nor allowed in any monthly or final payment until corrected to the satisfaction of the Utility Engineer.

The “Standard Specifications for Sewer and Water Construction in Wisconsin,” (herein referred to as The Standard Specifications), shall apply for all sewer and water main construction unless otherwise noted in these Detail Specifications or on the construction plans. The Highway and Structure Construction–Standard Specifications Department of Transportation, Division of Highways, State of Wisconsin and Supplemental Specifications (herein referred to as the State Specifications), shall apply for pavement restoration. The MUTCD and State Specifications shall apply to all traffic control.

B. LOCATION - STAKING

Location of cut-in valves will not be staked. Measurements given on the Drawings will serve as the location for the cut in valves. If any deviation from the plan is necessary, valve location shall be discussed and approved by the Resident Project Representative.

C. MATERIAL ENCOUNTERED

No variation from the price named in the proposal will be made or allowed whether the material through which excavations must be made are hard or soft, and wet or dry. It is the Contractor's responsibility to determine for himself the character, nature, type, and condition of materials likely to be encountered in the proposed work. The submission of a proposal for the work herein shall in itself be accepted as evidence that the Contractor has examined the site of all work, made borings, investigations and studies of all conditions, and provided for all such conditions in his proposal.

Any and all necessary dewatering shall be in accordance with Chapter 2.2.13 of the Standard Specifications.

Contractor is responsible to reconnect existing field tiles that may be encountered during excavation. Existing tiles must be repaired and connected to a storm sewer or have positive outfall provided.

D. EROSION CONTROL AND GROUND COVER

Pursuant to City of Oak Creek Code, construction activities are required to comply with erosion control and ground cover requirements. For public works construction, specifically, the following construction activity requirements are applicable.

1. Those involving grading, removal of protective ground cover or vegetation, excavation, landfilling or other land disturbing activity affecting a surface area of 4,000 square feet or more;
2. Those involving excavation or filling or a combination of excavation and filling affecting 400 cubic yards or more of dirt, sand or other excavation or fill material;
3. Those involving street, highway, road, or bridge construction, enlargement, relocation, or reconstruction;
4. Those involving the laying, repairing, replacing, or enlarging of an underground pipe facility for a distance of 300' or more.

To address the requirements, the Contractor shall provide for the implementation of the control measures as may be specified on the construction plans and in these Detail Specifications.

E. DISTRIBUTION OF EXCESS EXCAVATED MATERIAL

The disposal of all surplus excavated materials shall be the responsibility of the Contractor, shall be at the Contractor's expense, and if disposed of within the limits of the City of Oak Creek, shall comply with the following regulations. The Contractor prior to the start of construction shall indicate the location at which the surplus

excavated material will be disposed of.

The placement of fill on private lands located in the City of Oak Creek is under City regulation, in accordance with the Municipal Code. The disposal of surplus excavated materials, including that derived from public works construction, is subject to compliance with this code. The Code provides for only the following forms of landfilling:

1. When the fill comprises of less than 1,000 cubic yards and is to be placed on a parcel of land of one acre or less in size. An application shall be made to the City Engineer for a permit, on a one-time-only basis. A \$300.00 fee, plus an applicable erosion control permit and fee, is required.
2. Shoreline erosion control, whereby a license must be applied for and granted prior to landfilling activity being undertaken.
3. On a site, where fill may be needed in conjunction with building construction and where a building permit is in effect.
4. On City-owned property, subject to plans approved by the Common Council.
5. On a site where a landfill license is in effect.

F. WATER MAIN DETAIL DRAWINGS

The Detail Drawings included at the rear of the Detailed Specifications, cover corrections, deletions, or additions to the Standard Specifications and take precedence over such Standard Specifications and supplement these Detail Specifications.

G. DUCTILE IRON WATER PIPE

The laying of ductile iron pipe shall comply with Part IV of the Standard Specifications and the following requirements:

1. The pipe, with three layers of polyethylene wrap shall be laid with a torpedo sand bedding and cover in accordance with Section 4.3.3 and File No. 36 of the Standard Specifications.
2. Backfill for all pipe sizes shall be specified above the 6" cover line.
3. Harvesting of ductile iron pipe samples shall follow the protocol provided in the Appendix with proper notice given to the Marquette University researcher as specified. The researcher will be responsible for providing all bags, cooler, and sampling bottles necessary for each site. Contractor shall saw cut a 12-IN to 18-IN length of pipe, deliver the pipe to the top of the trench, assist researcher with bagging and loading into researcher's vehicle for transport. Contractor shall also assist researcher in collection of water samples using supplies provided by researcher.

H. POLYVINYL CHLORIDE WATER PIPE

The laying of PVC pipe shall be laid with a torpedo sand bedding and cover and comply with Part IV of the Standard Specifications and the following requirements:

Acceptable Procedure on Anchoring of Vertical Water Main Offsets where Polyvinyl Chloride Pipe is used shall comply with Chapter 4.9.0 and 4.10.0 and File No. 47A of the Standard Specifications, except that joint restraint shall be used instead of concrete buttresses.

Elimination of Vertical Offsets by the Use of Deflected Pipe - In lieu of the procedures outlined under subsection 1 above, the Contractor may elect to deflect the polyvinyl chloride pipe to provide the vertical location or alignment concept indicated on the construction plans. The use of this alternate must be approved by the Utility Engineer prior to installation, in particular as to clearance with other utilities, both existing and anticipated and as to compliance with maximum pipe deflection.

<u>Pipe Diameter</u>	<u>Maximum Deflection per 20' Length</u>
6"	8"
8"	6"
12"	4"

I. THRUST RESTRAINT

Thrust restraint shall be as shown on the Drawings using mega lugs, bell joint restraint clamps or approved equal, and tie rods. Contractor shall restrain all new assemblies required for the valve cut-in. Tie rods shall be installed from the outside of the new valve, past the new coupling, and to the bell on the existing pipe on the other side of the cut-in such that the new valve and coupling are restrained to existing pipe.

J. DEWATERING

Contractor shall be responsible for keeping the inside of any water main from coming into contact with foreign materials, groundwater, or trench water.

Contractor shall be responsible to isolate and dewater the existing main prior to exposing the inside of the main. Contractor shall submit a plan for dewatering the existing main prior to mobilizing to each site. The approximate volume to be dewatered from the water main at each site is shown in the following table. Contractor shall provide all equipment necessary to dewater the pipe within the allotted water shut-off time and duration as indicated in Section I.C.8. of these Detailed Specifications.

In addition, the existing pipe may not be cut until the trench has been dewatered. Refer to Section II.J. of these Detailed Specifications.

PROJECT SITE	APPROX. VOLUME TO DEWATER FROM WATER MAIN PRIOR TO CUTTING (GAL.)
S. Shepard Avenue and E. Stonegate Drive 8" PVC Connection	Live taps are anticipated.
S. Chicago Road and E. Garden Place 20" Cut-In Valves	40,000
E. Obrien Road and S. 11th Avenue 8" Cut-In Valve	1,100
E. Oakwood Road and E. Redwood Lane 20" Cut-In Valve	44,000
E. Oakwood Road and John Aaron Drive 20" Cut-In Valve	16,100

K. WATER MAIN - HYDROSTATIC TESTING

The Contractor shall provide for the testing of all new mains under the supervision of the Utility in accordance with Chapter 4.15.0 of the Standard Specifications and the following requirements:

1. The Utility's requirements on all new mains are a 150 psi pressure test for a duration of one hour and a 100 psi leakage test for a duration of two hours.
2. Where a new main will be connected to an existing main, hydrostatic testing may not be feasible. Verify with Resident Project Representative. After the specified pressure and leakage tests have been completed on the new main, actual connection to the existing main shall be made. The section of new connecting main shall be subject to line pressure prior to backfilling. Any visible defects observed in the connecting main shall immediately be repaired by the Contractor, at Contractor expense, prior to backfilling.
3. Costs of all testing including the installation and removal of temporary test plugs, shall be at the Contractor's expense.

L. WATER MAIN – PIPE DISINFECTING AND FLUSHING

Contractor shall preform Option A as stated below for each bid item location. If the existing pipe becomes partially submerged in trench water, Contractor shall preform Option B as requested by the Resident Project Representative.

- A. Contractor shall protect existing pipe. Existing pipe shall be kept free from debris or contact with trench water. Contractor shall swab all fittings, pipe, and valves, inside and out, with a minimum 1 percent chlorine solution before installation. Follow AWWA Standard C651-14 Section 4.11.3.2 for controlled pipe repair with depressurization after shutdown.
- B. Contractor shall be responsible for all disinfection and testing for the entire length of pipe that was isolated in order to cut in the proposed valve. Disinfection and testing shall be in accordance with standard AWWA C651-14 Section 4.11.3.3 for uncontrolled pipe break with a likelihood of water contamination or loss of sanitary conditions during repair.

After disinfection, the water main shall be dechlorinated while it is being flushed. After the Contractor sets up the tests, the Utility will collect samples for testing. Coordinate with Utility Engineer. Contractor shall provide temporary water at the Contractor's expense. Contractor will be liable for liquidated damages as specified in Section XV.

M. NOTICE TO UTILITY

Contractor shall give a 48 hour written notice to the Utility before requesting a shutdown of any existing water mains in order to make the connections.

N. SALVAGING OF MATERIALS

OWNER maintains the first right to the salvaged material as determined by the Utility Engineer. Salvaged materials shall be delivered to the Utility headquarters located at 170 West Drexel Avenue, Oak Creek, WI 53154. If the OWNER does not wish to

salvage these materials, they shall be properly disposed of by the Contractor at the Contractor's expense.

Pipe samples for harvesting shall be coordinated and collected as described in Section II.I. of these Detailed Specifications.

X. RESTORATION IN THE WORK AREA

A. GENERAL

Restoration within Wisconsin Department of Transportation right-of-way shall conform to the Wisconsin Department of Transportation Permit.

Upon completion of the utility installation, the Contractor shall remove all debris, surplus materials, and return the surface of the street or right-of-way and all other places disturbed or affected by the work to a condition at least comparable to that existing before starting the work and shall maintain it in such condition until its final completion and acceptance. The restoration shall include seeding or sodding grass areas and graveling or pavement repair of streets and driveways. Final payment for any installation will not be made until this restoration has been completed and accepted.

Acceptance or approval of any excavation work by the Utility Engineer shall not prevent the City from asserting a claim against the Contractor and his surety under the surety bond required hereunder for incomplete or defective work if discovered within 12 months from the acceptance of the completed work. The Utility Engineer's presence during the performance of any excavation work shall not relieve the Contractor of his responsibilities hereunder.

It shall be the duty of the Contractor to guarantee and maintain the site of the excavation for one year after restoring it to its original condition.

Included in the restoration shall be any damage to drainage ways due to discharge of trench waters. The Contractor is required to implement erosion control techniques.

B. ARTERIAL AND COLLECTOR STREETS

The Contractor shall provide at least a temporary bituminous resurfacing of all arterial or collector street pavement within two weeks of completion and backfill of sewer and/or water main that required the removal of all or part of such arterial or collector street pavement. The replacement of the pavement referred to above shall not be delayed due to any service lateral construction on the segment of sewer and/or water main in the arterial or collector street pavement area that the Contractor may have remaining after the two-week period elapses.

C. RESTORATION OF PAVED ROADWAY SURFACES

1. The Contractor shall restore the surface of all streets, broken into or damaged

as a result of the excavation work, to its original condition in accordance with the specifications. The asphalt which is used shall be in accordance with the specifications. If in the judgment of the Utility Engineer, it is not expedient to replace the pavement over any cut or excavation made in the street upon completion of the work under contract by reason of the looseness of the earth or weather conditions he may direct the Contractor to lay a temporary pavement of suitable material designated by him over such cut or excavation and maintain it until such time as the repair of the original pavement may be properly made.

2. Permanent restoration of the street shall be made by the Contractor in strict accordance with the specifications to restore the street to its proper condition, or as near as may be. All bituminous pavement shall be cut on neat, straight lines and shall not be damaged beyond the limits of the excavation. Should the cut edge be damaged, a new cut shall be made in neat, straight lines parallel to the original cut encompassing all damaged areas. Pavement removal on South Chicago Road shall be extended to a seam or joint in accordance with WisDOT permit. Pavement removal on local city streets shall be full lane width unless directed otherwise.
3. The trench consolidation and the pavement subgrade preparation shall be completed prior to the replacement of the permanent pavement in accordance with Chapter 2.7.3(a) and 2.7.3(b) (Page 61) of the Standard Specifications.
4. All asphalt pavement restoration shall be in accordance with Section VIII paragraph F.
5. Contractor shall provide and maintain a temporary surface over all utility trenches to accommodate local traffic and emergency vehicles. All necessary labor, materials, equipment, and miscellaneous items shall be considered incidental.

D. RESTORATION OF GRAVELED SURFACES

The Contractor shall be required to restore all graveled surfaces to a drivable condition, which were removed for the underground installation with traffic bound granular materials. Materials and installation shall conform to Section 301 and Section 305 of the WisDOT Specifications. The Contractor shall be required to restore all gravel shoulders with minimum 4" of base aggregate dense 3/4-inch over 8" of base aggregate dense 1 1/4-inch. Contractor shall construct width and slope of gravel shoulder to match existing gravel shoulder.

E. RESTORATION OF TURF OR LAWNS

The contractor shall repair, reseed, and/or replant all established turf and lawns damaged during the course of construction to a condition equal to or better than the condition at the commencement of his work in accordance with salt tolerant Type "C",

Lawn Replacement of Chapter 2.7.4 of the Standard Specifications, as indicated on the construction plans or as directed by the Utility Engineer. Mulching under Type "C" Replacement shall be in accordance with Section 627 of the State Specifications.

Replace cover by means of seeding with salt-tolerant grass seed mix at the rate of not less than six pounds per thousand square feet on leveled topsoil. Provide a minimum of 3 inches of topsoil and mulch all areas. Areas that exceed the minimum slope (as determined by the Slope Erosion Control Matrix FDM 10-5 Attachment 35.2) and swales shall be provided with erosion control mat.

F. UTILITY'S RIGHT TO RESTORE SURFACE

If the Contractor shall have failed to restore the surface to its specified condition upon the expiration of the time fixed by such contract or shall otherwise have failed to complete the excavation work covered by the contract, the Utility Engineer, if he deems it advisable, shall have the right to use Utility forces to do all the work necessary to restore the work area. The Contractor shall be liable for the actual cost thereof plus 25% for general overhead and administrative expenses. Compensation for the amount of such costs shall become due to the Utility and credit for such amount shall be applied against any funds that may be due to the Contractor. If final payment under the contract has already been made, the Contractor shall be directly billed for the amount due. As a last resort, the Utility will enforce compensation for costs it has incurred through collection from the Contractor's surety.

XI. CLEAN-UP AND FINAL INSPECTION

The Contractor shall have thorough and systematic clean-up operations follow closely behind the construction work. He shall at his own expense, remove and properly dispose of all water, dirt, rubbish, or any other foreign substances. Any defects of any nature whatsoever shall be promptly corrected at his own expense. Notice to begin final cleaning and repairs if such is needed will be given by the Utility Engineer and shall be complied with by the Contractor. The Utility Engineer will make an inspection of the work during the progress of final cleaning and repairing and any work so inspected shall be kept clean by the Contractor until the final inspection by the Utility Engineer and the acceptance of the entire work. When the Contractor has finally cleaned and repaired the work, he shall notify the Utility Engineer that he is ready for a final inspection and the Utility Engineer will thereupon inspect the work. If the work is not found satisfactory, the Utility Engineer may require further cleaning and repairing and when these are completed will again inspect the work. In no case will the final payment be made until the Contractor has complied with all the requirements set forth and the Utility Engineer has made his final inspection of the entire work and is satisfied that the entire work is properly and satisfactorily constructed in accordance with the plans and specifications and contract, and that such work is ready for his final inspection and acceptance by the Utility (see Section 1.5.2 - of the Standard Specifications).

Note: The routing of all punch lists on items that remain needing attention shall be between the Utility Engineer and the Contractor or his authorized project coordinator.

XII. PROTECTION AND RESTORATION OF PROPERTY

A. UNDERGROUND

The Contractor shall protect, repair and restore any underground drain lines, conduit, culverts, etc., encountered in the progress of the work and shall be responsible for the protection and replacing of any utilities encountered or damaged during construction, at no cost to the Utility. The Contractor shall also restore any septic system drain lines or field tiles encountered in the progress of the work and shall use watertight joints on the replaced drain lines when directed to do so by the Utility Engineer. The cost of this work shall be included in the unit bid and contract price for water main, and no extra payment will be made therefore.

B. SURVEY CORNERS AND ABOVE SURFACE OBSTRUCTIONS

The Contractor while on this job, will be solely responsible for the protection and/or replacement of all survey corners which exist throughout the area. These corners will be located and marked by the Engineering Department of the City of Oak Creek upon request by the Contractor prior to commencing his work. Any such damaged corners shall be replaced by the City and the amount deducted from the contract payment.

The Contractor shall protect, repair, and replace any mailboxes, fences, signs or other structures damaged or displaced in the progress of the work.

XIII. TIME OF COMPLETION

The starting date for work under this contract shall be at the discretion of the Contractor, subject to the following:

- A. Preconstruction meeting as arranged by the Utility Engineer.
- B. Issuance of the Notice to Proceed by the Utility Engineer.
- C. Completion of the water main and ready to use by August 31, 2017.
- D. The entire project, including surface restoration shall be completed no later than August 31, 2017.
- E. When Contractor commences work, the entire project must be completed within 45 calendar days.

It shall be understood by the Contractor that the date of starting construction and the date of completion of the work to be done hereunder are **ESSENTIAL CONDITIONS** of this contract, and it is further understood and agreed that the work shall be commenced as aforementioned.

The Contractor agrees that the work shall be pursued regularly, diligently, and uninterruptedly at such rate of progress as will assure completion of the work on the dates as stated in the

proposal.

XIV. EXTENSIONS OF TIME

Extensions of time may be allowed by the Utility for reasonable delays due exclusively to causes beyond the control and without the fault of the Contractor including but not restricted to owner purchased material delivery delays, extra work or supplemental contract work added to the original contract, fires, strikes, unusual floods, accidents and unreasonable delays in receiving ordered materials and equipment. It should be understood by the Contractor that rain events occur and fluctuate from year to year and shall not be considered cause for a time extensions.

All requests for extensions of time shall be presented in writing to the Utility Engineer within ten calendar days after the occurrence of the claimed delay, accompanied by all necessary supporting data, and, if based on valid grounds will be considered by the Utility and such extensions of time shall be granted as may seem to be fair and reasonable. However, no claims will be considered when based on delays caused by conditions existing at the time bids were received and of which the Contractor might be reasonably expected to have knowledge at the time of bidding, or upon delays caused by failure on the part of the Contractor to anticipate properly the requirements of the work contracted for as to the securing of needed materials, labor and equipment.

XV. LIQUIDATED DAMAGES

The Contractor shall pay to the Oak Creek Water & Sewer Utility \$1,000.00 for each and every hour that the water main shut down at each site specified in Section I paragraph C.8 of these Detailed Specifications is exceeded, plus the engineering and inspection costs incurred during the time used beyond the allowed time. Each partial hour shall be rounded up to the nearest hour.

In addition, when the work embraced in the contract is not completed within the time stated in the Detailed Specifications for the water main construction, and/or for the entire work, including testing, flushing, and surface restoration, as stated, and within such extra time as may be allowed by extensions, the Contractor shall pay to the Oak Creek Water & Sewer Utility the following sum for each and every calendar day that the time consumed in final completion exceeds the time allowed therefore, plus the engineering and inspection costs incurred during the time used beyond the allowed time:

Original Contract Amount		Daily Charge
From More Than	To and Including	Calendar Day
\$0	\$50,000	\$200.00
\$50,000	\$100,000	\$250.00
\$100,000	\$300,000	\$350.00
\$300,000	\$500,000	\$500.00

Original Contract Amount		Daily Charge
\$500,000	\$1,000,000	\$700.00
\$1,000,000	\$1,500,000	\$1,000.00
\$1,500,000	\$2,000,000	\$1,350.00
\$2,000,000	\$2,500,000	\$1,400.00
\$2,500,000	---	\$1,550.00

Completion of the work under this contract on the specified time schedules is necessary and vital to the Utility. Failure to complete the project on or before specified working days or calendar dates will result in loss of revenues, loss of timely use of the proposed facilities, delays, and possibly inflated costs for related or subsequent improvement installations, detrimental to the economic development of the City and Utility, as well as the additional cost of engineering expenses which will be required to be paid by the Utility.

Said sum in view of the difficulty of accurately ascertaining the loss which the Utility will suffer by reason of delay in completion is hereby fixed and agreed by the parties hereto as the liquidated damages that will be suffered by reason of such delay, and not as a penalty. The Utility will deduct and retain out of the monies which may become due hereunder, the amount of any such liquidated damages and in case the amount which may become due hereunder shall be less than the amount of liquidated damages suffered, the Contractor shall be liable to pay the difference upon demand by the Utility.

XVI. PROPOSAL ITEMS

Special note to the bidder and successful contractor:

Contractor will be allowed to work only while there is an Resident Project Representative at the site at any or all times and the Contractor must notify the Utility Engineer prior to commencing with any of the work specified for this project (i.e., excavation, shoring, sheathing, bedding, laying pipe, backfilling, clean-up, etc.) Resident Project Representative will be provided to the Contractor by the Utility at no cost to the Contractor, except that Resident Project Representative's time shall be charged to the Contractor in addition to the specified liquidated damages after he has exceeded his time of completion (see Instructions to Bidders). If the Contractor requests to work on Sundays or declared Utility holidays, a Resident Project Representative will be provided but the Contractor must pay for the Resident Project Representative's wages for such work. A list of official holidays can be obtained from the City of Oak Creek Engineering Department.

The item numbers referred to below correspond to the item number in the proposal. Contractor shall refer to the items below for details of the work included. This list and description of work is intended to serve as a guide to the Contractor and is not intended to dictate Contractor's means and methods. Contractor shall be responsible to provide all equipment, materials, labor, and procedures necessary to complete each item.

The bid price for each bid item shall include the furnishings of all materials, tools, labor, etc. It shall include saw cutting pavement full depth, execution disposition of surplus material, pipe laying, backfilling, sheeting, shoring, dewatering, furnishing and installing of fittings, connecting to existing water mains disturbed or damaged by the Contractor's operation and clean-up, all as specified. Sales taxes for materials purchased for this project will not be paid by the Utility due to recent changes in Wisconsin State Law.

Item 1 - S. Shepard Avenue and E. Stonegate Drive 8" PVC Connection

The unit bid and contract price for this item shall include all equipment, materials, and labor necessary to complete the 8" water main installation at S. Shepard Avenue and E. Stonegate Drive. This item shall include but not be limited to:

- Erosion Control
 - Furnishing, hauling, and placement of silt fence, erosion bales, and other Applicable materials.
 - All incidental work related to erosion control required by local, state, and federal ordinances, statutes, permits, and regulations
 - maintaining and removal of all temporary erosion control devices
- Traffic Control
 - setting, maintaining, and removal of traffic control devices in accordance with the plans and specifications including flagging operations
 - daily checks and maintenance
 - adherence to the Manual on Uniform Traffic Control Devices, latest edition
- Sawcut existing pavement full depth including layout
- Remove existing pavement
 - for pavement removal outside of the trench width, the contractor shall remove all pavement taking care to preserve the existing pavement base
- Trench excavation
- Expose existing water main to verify location and depth prior to scheduling connections
- Expose 5' of existing main on either side of proposed tapping sleeve to ensure no bell, service, or existing valve is within 5' of the proposed tap before tapping the pipe. If a bell, service, or existing valve is found within 5', move the proposed tap location to provide 5' after approved by Resident Project Representative.
- Dewater the trench
- Excavate and placement of torpedo sand bedding aggregate
- Connect to the existing 8" water main with a two live taps at locations indicated on Drawings
- Provide and install two 8" gate valves complete, in place, and ready to use in accordance with the Standard Specifications. Valves shall be installed on 4" solid concrete masonry block.
- Provide and install 8" PVC pipe and fittings at locations indicated on Drawings
- Conduct hydrostatic testing as required by Resident Project Representative
- Provide and install mechanical restraints at required locations
- Disinfect installed water main, fittings, and valves
- Observe a leak detection test after water main is subject to line pressure
- Provide and install a triple layer of 6-mil plastic wrapping for all ductile iron

- appurtenances
- Provide and install tracer wire in the center of installed appurtenances with tape
- Placement and compaction of torpedo sand cover aggregate
- Placement and compaction of base aggregate dense 1 1/4-inch to bottom of pavement grade
- Assist Utility staff with GPS point collection
- 4" HMA Pavement restoration
 - Preparation of base to bottom of pavement grade.
 - Placement and removal of aggregate ramps for access at driveways and intersections
 - Water dispersion
 - Finish grading for pavement
 - Compaction
 - Valve box adjustment
 - Furnishing, hauling, placement and compaction of asphalt pavement
- Restoration of disturbed turf areas
- Restoration of gravel shoulder

The water main shall be placed in the manner indicated in these Detail Specifications and shall conform to the Detail Drawings included with these specifications. Type of backfill shall be as specified. Contractor is responsible for the actual extent of pavement removal and restoration. Restoration of pavement shall be against clean sawcut edges and Contractor shall be responsible for all edges damaged during work.

This item shall be paid based on the contract unit price per completed lump sum of work described for this item as documented by the Resident Project Representative.

Item 2 - S. Chicago Road and E. Garden Place 20" Cut-In Valves

The unit bid and contract price for this item shall include all equipment, materials, and labor necessary to complete the two 20" cut in valve installations at S. Chicago Road and E. Garden Place. This item shall include but not be limited to:

- Erosion Control
 - Furnishing, hauling, and placement of silt fence, erosion bales, and other Applicable materials.
 - All incidental work related to erosion control required by local, state, and federal ordinances, statutes, permits, and regulations
 - maintaining and removal of all temporary erosion control devices
- Traffic Control per WisDOT permit
- Sawcut existing pavement full depth per WisDOT permit
- Remove existing pavement
 - For pavement removal outside of the trench width, the contractor shall remove all pavement taking care to preserve the existing pavement base
- Trench excavation
- Expose existing water main to verify location and depth prior to scheduling connections
- Expose 5' of existing main on either side of proposed valve and coupling to ensure no

bell, water service, or existing valve is within 5' of the proposed valve and coupling before sawcutting the pipe. If a bell, water service, or existing valve is found within 5', move the proposed valve cut-in location to provide 5' after approved by Resident Project Representative.

- Dewater the isolated portion of pipe before cutting the existing water main.
- Dewater the trench
- Remove existing pipe and appurtenances as necessary
- Collect sample section of pipe as part of the Pipe Harvesting research
- Placement of torpedo sand bedding aggregate
- Provide and install 20" ductile iron pipe and fittings at locations indicated on Drawings
- Provide and install two 20" butterfly valves complete, in place, and ready to use in accordance with the Standard Specifications. Valves shall be installed on 4" solid concrete masonry block.
- Provide and install mechanical restraints at required locations
- Disinfect installed water main, fittings, and valves
- Observe a leak detection test after water main is subject to line pressure
- Provide and install a triple layer of 6-mil plastic wrapping for all ductile iron appurtenances
- Provide and install tracer wire in the center of installed appurtenances with tape
- Provide and install two 32 lb. magnesium galvanic anode protection on existing ductile iron pipe in accordance with the detail at the end of these Detailed Specifications
- Placement and compaction of torpedo sand cover aggregate
- Placement and compaction of aggregate slurry backfill to bottom of subgrade in conformance with WisDOT permit.
- Placement and compaction of base aggregate in conformance with WisDOT permit.
- Assist Utility staff with GPS point collection
- 6 1/4" HMA Pavement restoration in conformance with WisDOT permit.
 - preparation of base to bottom of pavement grade.
 - placement and removal of aggregate ramps for access at driveways and intersections
 - water dispersion
 - finish grading for pavement
 - compaction
 - proof-rolling
 - existing valve box adjustment
 - furnishing, hauling, placement and compaction of pavement in conformance with WisDOT permit.
- Restoration of disturbed areas

The water main shall be placed in the manner indicated in these Detail Specifications and shall conform to the Detail Drawings included with these specifications. Type of backfill shall be in conformance with WisDOT permit. Contractor is responsible for the actual extent of pavement removal and restoration. Restoration of pavement shall be against clean sawcut edges and Contractor shall be responsible for all edges damaged during work.

This item shall be paid based on the contract unit price per completed lump sum of work described for this item as documented by the Resident Project Representative.

Item 3 - E. Obrien Road and S. 11th Avenue 8" Cut-In Valve

The unit bid and contract price for this item shall include all equipment, materials, and labor necessary to complete the one 8" cut in valve installation at E. Obrien Road and S. 11th Avenue. This item shall include but not be limited to:

- Erosion Control
 - Furnishing, hauling, and placement of silt fence, erosion bales, and other Applicable materials.
 - All incidental work related to erosion control required by local, state, and federal ordinances, statutes, permits, and regulations
 - maintaining and removal of all temporary erosion control devices
- Traffic Control
 - setting, maintaining, and removal of traffic control devices in accordance with the plans and specifications including flagging operations
 - daily checks and maintenance
 - adherence to the Manual on Uniform Traffic Control Devices, latest edition
- Sawcut existing pavement full depth including layout
- Remove existing pavement
 - for pavement removal outside of the trench width, the contractor shall remove all pavement taking care to preserve the existing pavement base
- Trench excavation
- Expose existing water main to verify location and depth prior to scheduling connections
- Expose 5' of existing main on either side of proposed valve and coupling to ensure no bell, water service, or existing valve is within 5' of the proposed valve and coupling before sawcutting the pipe. If a bell, water service, or existing valve is found within 5', move the proposed valve cut-in location to provide 5' after approved by Resident Project Representative.
- Dewater the isolated portion of pipe before cutting in to the existing water main.
- Dewater the trench
- Remove existing pipe and appurtenances as necessary
- Collect sample section of pipe as part of the Pipe Harvesting research
- Placement of torpedo sand bedding aggregate
- Provide and install 8" ductile iron pipe and fittings at locations indicated on Drawings
- Provide and install one 8" gate valve complete, in place, and ready to use in accordance with the Standard Specifications. Valves shall be installed on 4" solid concrete masonry block.
- Provide and install mechanical restraints at required locations
- Disinfect installed water main, fittings, and valves
- Observe a leak detection test after water main is subject to line pressure
- Provide and install a triple layer of plastic wrapping for all ductile iron appurtenances
- Provide and install tracer wire in the center of installed appurtenances with tape
- Provide and install 32 lb. magnesium galvanic anode protection on existing ductile iron pipe in accordance with the detail at the end of these Detailed Specifications
- Placement and compaction of torpedo sand cover aggregate
- Placement and compaction of base aggregate to bottom of pavement grade
- Assist Utility staff with GPS point collection

- 4" HMA Pavement restoration
 - Preparation of base to bottom of pavement grade.
 - Placement and removal of aggregate ramps for access at driveways and intersections
 - Water dispersion
 - Finish grading for pavement
 - Compaction
 - Valve box adjustment
 - Furnishing, hauling, placement and compaction of asphalt pavement
- Restoration of disturbed turf areas
- Restoration of gravel shoulder

The water main shall be placed in the manner indicated in these Detail Specifications and shall conform to the Detail Drawings included with these specifications. Type of backfill shall be as specified. Contractor is responsible for the actual extent of pavement removal and restoration. Restoration of pavement shall be against clean sawcut edges and Contractor shall be responsible for all edges damaged during work.

This item shall be paid based on the contract unit price per completed lump sum of work described for this item as documented by the Resident Project Representative.

Item 4 - E. Oakwood Road and E. Redwood Lane 20" Cut-In Valve

The unit bid and contract price for this item shall include all equipment, materials, and labor necessary to complete the one 20" cut in valve installation at E. Oakwood Road and E. Redwood Lane. This item shall include but not be limited to:

- Erosion Control
 - Furnishing, hauling, and placement of silt fence, erosion bales, and other Applicable materials.
 - All incidental work related to erosion control required by local, state, and federal ordinances, statutes, permits, and regulations
 - maintaining and removal of all temporary erosion control devices
- Traffic Control
 - setting, maintaining, and removal of traffic control devices in accordance with the plans and specifications including flagging operations
 - daily checks and maintenance
 - adherence to the Manual on Uniform Traffic Control Devices, latest edition
- Sawcut existing pavement full depth including layout
- Remove existing pavement
 - for pavement removal outside of the trench width, the contractor shall remove all pavement taking care to preserve the existing pavement base
- Trench excavation
- Expose existing water main to verify location and depth prior to scheduling connections
- Expose 5' of existing main on either side of proposed valve and coupling to ensure no bell, water service, or existing valve is within 5' of the proposed valve and coupling before sawcutting the pipe. If a bell, water service, or existing valve is found within 5', move the proposed valve cut-in location to provide 5' after approved by Resident Project

Representative.

- Dewater the isolated portion of pipe before cutting in to the existing water main.
- Dewater the trench
- Remove existing pipe and appurtenances as necessary
- Collect sample section of pipe as part of the Pipe Harvesting research
- Placement of torpedo sand bedding aggregate
- Provide and install 20" ductile iron pipe and fittings at locations indicated on Drawings
- Provide and install one 20" butterfly valves complete, in place, and ready to use in accordance with the Standard Specifications. Valves shall be installed on 4" solid concrete masonry block.
- Provide and install mechanical restraints at required locations
- Disinfect installed water main, fittings, and valves
- Observe a leak detection test after water main is subject to line pressure
- Provide and install a triple layer of plastic wrapping for all ductile iron appurtenances
- Provide and install tracer wire in the center of installed appurtenances with tape
- Provide and install two 32 lb. magnesium galvanic anode protection on existing ductile iron pipe in accordance with the detail at the end of these Detailed Specifications
- Placement and compaction of torpedo sand cover aggregate
- Placement and compaction of base aggregate to bottom of pavement grade
- Assist Utility staff with GPS point collection
- 4" HMA Pavement restoration
 - Preparation of base to bottom of pavement grade.
 - Placement and removal of aggregate ramps for access at driveways and intersections
 - Water dispersion
 - Finish grading for pavement
 - Compaction
 - Valve box adjustment
 - Furnishing, hauling, placement and compaction of asphalt pavement
- Restoration of disturbed turf areas
- Restoration of gravel shoulder

The water main shall be placed in the manner indicated in these Detail Specifications and shall conform to the Detail Drawings included with these specifications. Type of backfill shall be as specified. Contractor is responsible for the actual extent of pavement removal and restoration. Restoration of pavement shall be against clean sawcut edges and Contractor shall be responsible for all edges damaged during work.

This item shall be paid based on the contract unit price per completed lump sum of work described for this item as documented by the Resident Project Representative.

Item 5- E. Oakwood Road and John Aaron Drive 20" Cut-In Valve

The unit bid and contract price for this item shall include all equipment, materials, and labor necessary to complete the one 20" cut in valve installations at E. Oakwood Road and John Aaron Drive. This item shall include but not be limited to:

- Erosion Control
 - Furnishing, hauling, and placement of silt fence, erosion bales, and other Applicable materials.
 - All incidental work related to erosion control required by local, state, and federal ordinances, statutes, permits, and regulations
 - maintaining and removal of all temporary erosion control devices
- Traffic Control
 - setting, maintaining, and removal of traffic control devices in accordance with the plans and specifications including flagging operations
 - daily checks and maintenance
 - adherence to the Manual on Uniform Traffic Control Devices, latest edition
- Sawcut existing pavement full depth including layout
- Remove existing pavement
 - for pavement removal outside of the trench width, the contractor shall remove all pavement taking care to preserve the existing pavement base
- Trench excavation
- Expose existing water main to verify location and depth prior to scheduling connections
- Expose 5' of existing main on either side of proposed valve and coupling to ensure no bell, water service, or existing valve is within 5' of the proposed valve and coupling before sawcutting the pipe. If a bell, water service, or existing valve is found within 5', move the proposed valve cut-in location to provide 5' after approved by Resident Project Representative.
- Dewater the isolated portion of pipe before cutting in to the existing water main.
- Dewater the trench
- Remove existing pipe and appurtenances as necessary
- Collect sample section of pipe as part of the Pipe Harvesting research
- Placement of torpedo sand bedding aggregate
- Provide and install 20" ductile iron pipe and fittings at locations indicated on Drawings
- Provide and install one 20" butterfly valves complete, in place, and ready to use in accordance with the Standard Specifications. Valves shall be installed on 4" solid concrete masonry block.
- Provide and install mechanical restraints at required locations
- Disinfect installed water main, fittings, and valves
- Observe a leak detection test after water main is subject to line pressure
- Provide and install a triple layer of plastic wrapping for all ductile iron appurtenances
- Provide and install tracer wire in the center of installed appurtenances with tape
- Provide and install two 32 lb. magnesium galvanic anode protection on existing ductile iron pipe in accordance with the detail at the end of these Detailed Specifications
- Placement and compaction of torpedo sand cover aggregate
- Placement and compaction of base aggregate to bottom of pavement grade
- Assist Utility staff with GPS point collection
- 4" HMA Pavement restoration
 - Preparation of base to bottom of pavement grade.
 - Placement and removal of aggregate ramps for access at driveways and intersections
 - Water dispersion

- Finish grading for pavement
 - Compaction
- Valve box adjustment
- Furnishing, hauling, placement and compaction of asphalt pavement
- Restoration of disturbed turf areas
- Restoration of gravel shoulder

The water main shall be placed in the manner indicated in these Detail Specifications and shall conform to the Detail Drawings included with these specifications. Type of backfill shall be as specified. Contractor is responsible for the actual extent of pavement removal and restoration. Restoration of pavement shall be against clean sawcut edges and Contractor shall be responsible for all edges damaged during work.

This item shall be paid based on the contract unit price per completed lump sum of work described for this item as documented by the Resident Project Representative.

PIPE HARVESTING PROTOCOL

PROTOCOL

1

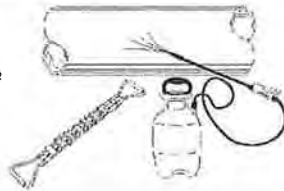
Before Removal

**Turn the water off
within 12 hours**



The pipe should not be taken offline more than 12 hours before pipe sampling. Bacteria may change in stagnant water.

Rinse off the pipe



Remove excess soil from the pipe with a descaler. We will provide a chlorine solution in a sprayer for the workers to use. Use this to disinfect the pipe.

**Have the water
pump ready to use**



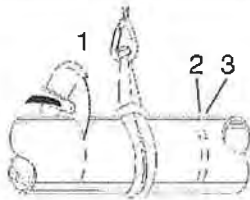
The pipe should still contain water. When this drains during removal, a pump should be ready. The sample is invalid if it touches dirty water.

2

Water Main Removal

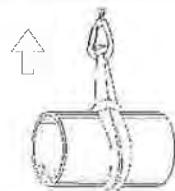
Researchers must be present!

Secure and saw



Secure the pipe so it does not fall into dirt or water. Make two cuts with a chopsaw. A third cut may be necessary for easier removal.

Take it up and out



Once the pipe is free, take it out of the pit to the road to be unfastened.

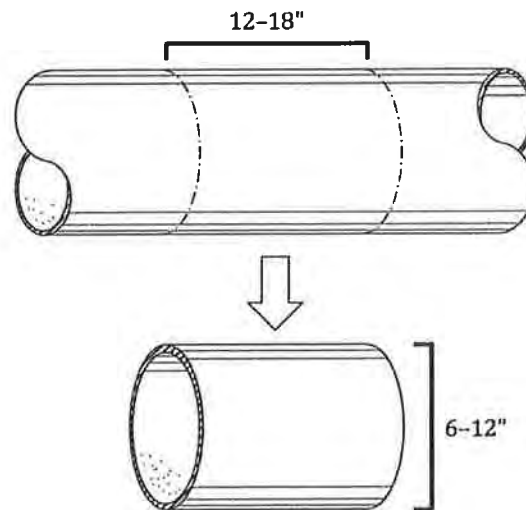
Protocol: Extraction of a Pipe Sample for Biofilm Analysis

Site Preparation (Overseen by the water utility)

1. A water main (diameter 6–12") is selected by the utility and approved by the researcher to ensure compliance with research goals and protocol.
2. The utility crew excavates the water main and secures a trench. The pipe exterior is cleaned with a chain cleaner to remove soil deposits and loose debris.
3. Water should be shut off/rerouted no more than 12 hours prior to sample extraction to prevent significant changes in internal microbial communities.

Pipe Extraction (researcher **MUST** be present)

4. The pipe exterior and cutting device (e.g., hinged reed cutter, chain or hydraulic "snapping" cutter, or chop saw) are rinsed with a chlorine solution (provided by the researcher) to minimize contamination during pipe extraction.
5. As the pipe is cut, water will evacuate the water main and pool in the trench. The utility should have a pump prepared onsite to remove this water. Pooled water should NOT contact the sample once extraction has begun. If trench water contacts the pipe, the sample is assumed contaminated and rendered invalid.
6. The maintenance crew makes two vertical incisions approximately 12–25" apart (longitudinal distance; longer for a chop saw to avoid overheating and agitation).
7. If the pipe does not readily separate from the water main, a third cut may be necessary to relieve pressure.
8. Once removed, the sample is carefully placed in a clean bag (provided by the researcher), with the plastic taped secure around the ends of the pipe sample. Care should be taken to minimize contact (hands, arms) with the inside of the bag. The bag is secured with tape to prevent the sample from moving within the bag. The pipe sample may cause a mess during transit and should be placed in a cooler (smaller sections) or on additional plastic sheeting (longer sections). It should be transported immediately to the laboratory for sampling.



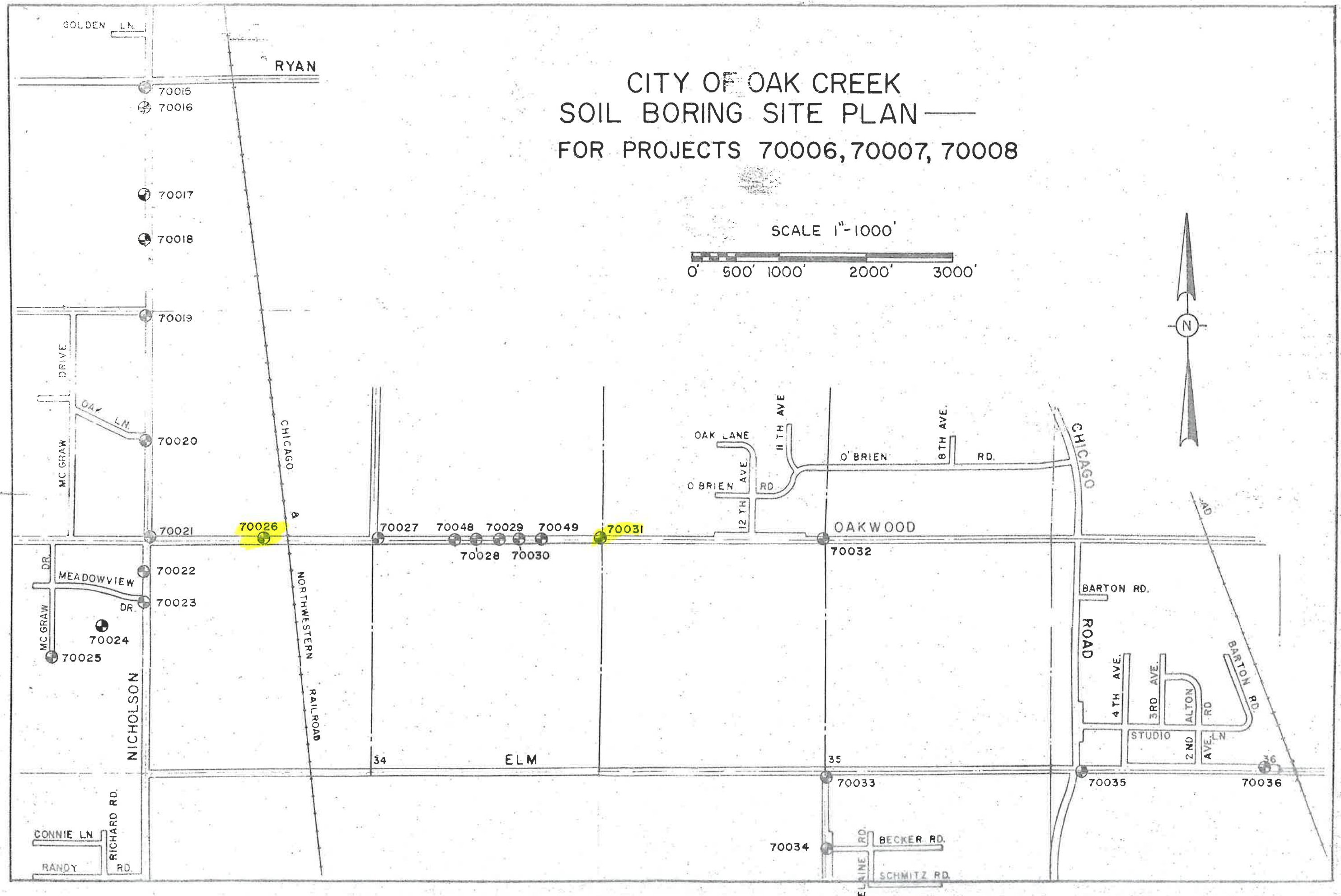
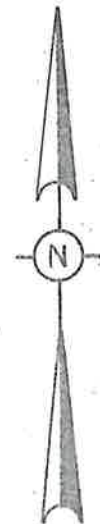
-
9. **Collection of Water Samples (OPTIONAL):** During pipe extraction, at least three 1-L samples of water (preferably four or more) may be collected from near the pipe sample for genomic analysis of bulk drinking water. Use sterile glass bottles (autoclaved at 121°C for 15 min.) or commercially available, sterile disposable bags for water sampling (such as Nasco Whirl-paks®). The researcher should follow standard microbiological sampling protocol (i.e. rinse relevant surfaces with a chlorine solution and/or flame the collection point). Residual chlorine of the bulk water should be measured immediately, such as with a Hach Pocket Colorimeter.

ARCHIVED SOIL BORINGS

CITY OF OAK CREEK
SOIL BORING SITE PLAN —
FOR PROJECTS 70006, 70007, 70008

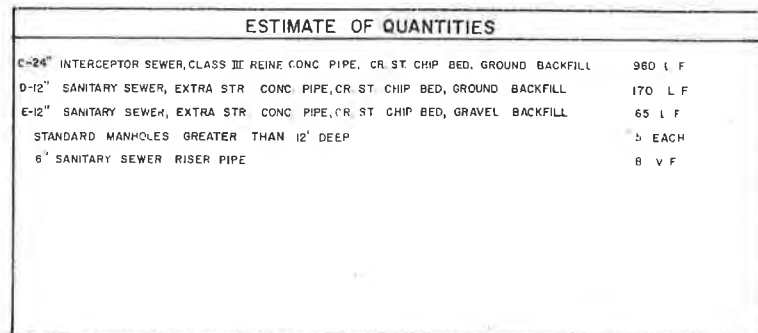
SCALE 1"=1000'

0' 500' 1000' 2000' 3000'




Sanitary sewer profile view showing proposed 24-inch interceptor sewer and 12-inch sanitary sewer. The diagram includes elevations, slopes, manhole locations, and existing ground lines. Key features include:

- Proposed 24-inch Interceptor Sewer:** Slope = 0.0013%.
- Proposed 12-inch Sanitary Sewer:** Slope = 0.0032% and Slope = 0.0040%.
- Manholes:** Located at stations 82+35.11, 85+46.11, 88+56.12, 91+96.11, 92+21.17, and 96+96.11.
- Elevations:** Rim elevations are provided for several manholes (e.g., 86.50, 88.50, 86.50).
- Existing Ground:** Shown as a dashed line.
- Proposed Established Centerline Street Grade:** Indicated by a solid line.
- Other Labels:** "FILL AS SPECIFIED", "BEGIN CORBEL ELEV. 86.50", and "SLOPE = 0.00427 %".



VAM) *Frank A. Wellman*
 THIS IS TO CERTIFY THAT THE
 THE WA
 AN CREK A
Robert B. Bowers

HARTMAN-STRASS, INC. SHEBOYGAN & MILWAUKEE, WISCONSIN									
SAL J.G. STL J.G. W L J.G. G L J.G. E L J.G. T L J.G. I L J.G. TS L J.G. PRL J.G.				CITY OF OAK CREEK, WISCONSIN-ENGINEERING DEPARTMENT					
		DESIGNED BY DATE		DRAWN BY DATE		CHECKED BY DATE		APPROVED BY	
		L.J.G. 3-16-70		E.K.B.W.D.G. 3-16-70		L.J.G. & J.F.S. 3-25-70		J. J	



MILWAUKEE TESTING LABORATORY, INC.

2135 SOUTH 116TH STREET
MILWAUKEE, WISCONSIN 53227

TELEPHONE: 321-0100

MAR 2 1970

ENGINEERING DEPARTMENT

Sheet 17 of 22

Log of Boring No. 70031

Project PROPOSED SEWER PROJECTS

Reported to: City of Oak Creek, 8640 South Howell Avenue, Oak Creek, Wis. 53154

Attention: Mr. R. Kluwin

Drive Pipe: O.D. " Wt. # fall " Location: As staked 87.7

Sampler Split O.D. 2 " Wt. 140 # fall 30 " Existing Surface on Date of Boring or Ground El: 89

Ground Water Observations

Date Time Depth Remarks

2/26/70 After Boring - 3.5' below surface

Moisture: Dry; D = Damp; M = Moist; W = Wet

Party

Date: Start 2/26/70

R. Willms

Finish 2/26/70

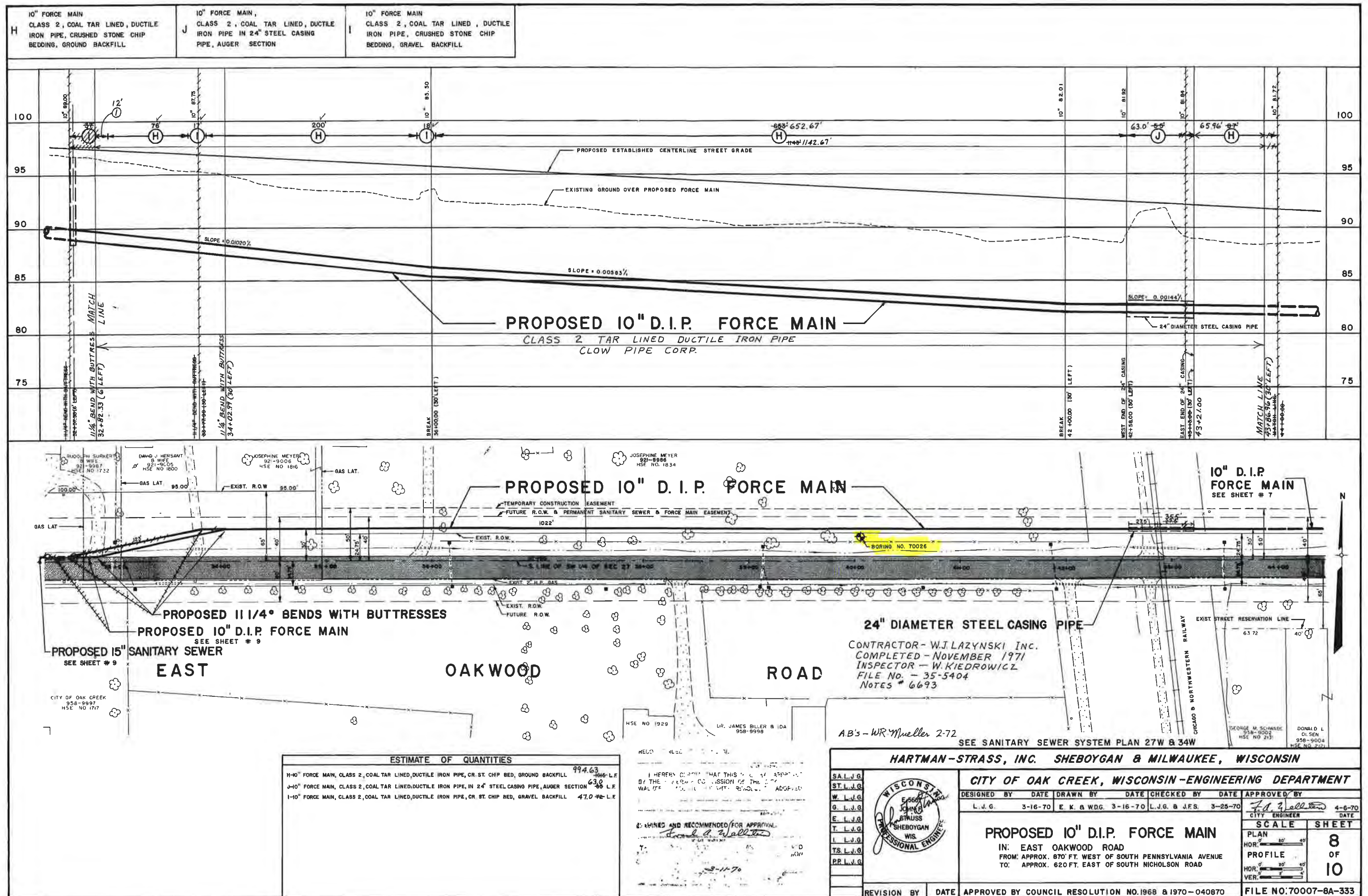
D. Kortes

Truck No.

Rig Mobile B-61

Sample No.	Moisture	% Moisture	PL-% LL-%	Blows on Sampler per Foot	Sample	CLASSIFICATION AND REMARKS	Recommended Maximum Allowable Bearing Value in Lb. pr. Sq. Ft.	Depth in Feet	Elevation	Unconf. Str.-Ton Field Penet.	Unconf. Str.-Ton Lab. Test	Dr. Pipe Blows
						Topsoil		0	89			
1	M			8	X	Stiff mixed grey and brown CLAY, silty, scattered thin seams of fine to medium sand (Moist) (Seams Wet)	3,000	5	84	1.75		
2	M			8	X	Stiff grey CLAY, silty, scattered thin seams of silt and fine to medium sand (Moist) (Seams Wet)	3,000	10	79	2.25		
3	M			8	X		3,000	15	74	1.75		
4	M			8	X		3,000	20	69	1.75		
5	M			8	X		3,000	25	64	1.5		
						END BORING AT 24.0'		30				
								35				
								40				

SB-9





MILWAUKEE TESTING LABORATORY, INC.

2135 SOUTH 116TH STREET
MILWAUKEE, WISCONSIN 53227
TELEPHONE: 321-0100

Log of Boring No. 70026

Sheet 12 of 22

Project PROPOSED SEWER PROJECTS

Reported to: City of Oak Creek, 8640 South Howell Avenue, Oak Creek, Wisconsin 53154

Attention: Mr. R. Kluwin

Drive Pipe Split O.D. 2 Wt. 140 # fall 30 " Location: As staked

Sample Spoon O.D. 2 Wt. 140 # fall 30 " Existing Surface on Date of Boring or Ground El: 90.3

Ground Water Observations

Date 2/27/70 Time After Boring Depth 3.5' below surface Remarks

2/27/70 After Boring 3.5' below surface

Moisture: Dry; D = Damp; M = Moist; W = Wet

Party

Date: Start 2/27/70

R. Willms

Finish 2/27/70

D. Kortess

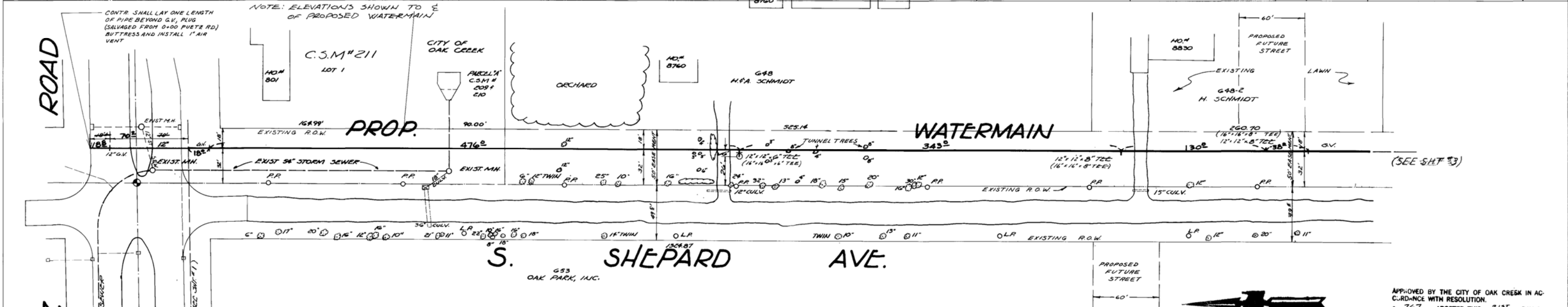
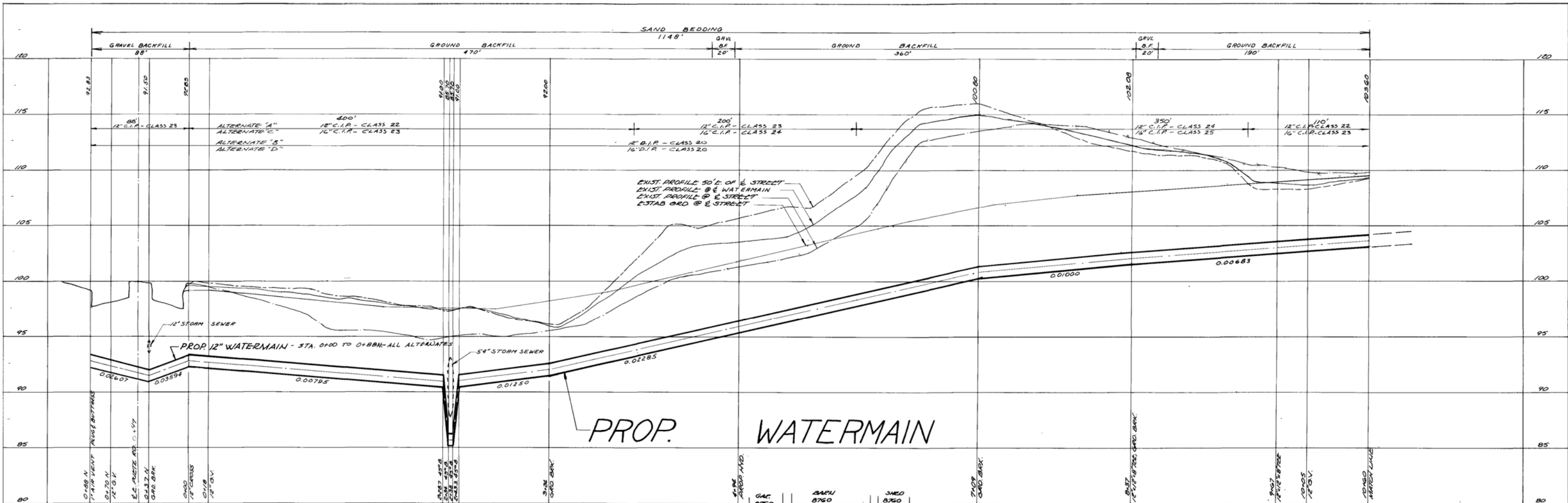
Truck No. 1

Rig B-61

Sample No.	Moisture	% Moisture	PL-% LL-%	Blows on Sampler per Foot	Sample	CLASSIFICATION AND REMARKS	Recommended Maximum Allowable Bearing Value in Lb. pr. Sq. Ft.	Depth in Feet	Elevation	Unconf. Str.-Ton Field Penet.	Unconf. Str.-Ton Lab. Test	Dr. Pipe Blows
						Topsoil		0				
1	M			12	X	Stiff brown CLAY-silty and sandy, scattered small gravel. Moist	4000	5	85.3	2.5		
2	M			42	X	Hard grey CLAY-silty and sandy, scattered small gravel. Moist	8000	10	80.3	4.5+		
3	M			38	X		8000	15	75.3	4.5+		
						END OF BORING: 15.0'		20				
								25				
								30				
								35				
								40				

SB-2

EXISTING WATER MAIN AS-BUILT DRAWINGS



ESTIMATE: ALTERNATES "A" & "B"

12" WATERMAIN, GRAVEL B.F.	125	LIN. FT.
12" WATERMAIN, GROUND B.F.	1020	LIN. FT.
6" HYD. LEAD, GROUND B.F.	5	LIN. FT.
SET HYD. & AUX. VALVE	1	EA.

FITTINGS REQ'D

HYD. & AUX. VALVE (FURNISHED BY CITY)	1	EA.
12" GATE VALVE	3	EA.
12" x 12" TEE	2	EA.
12" x 12" x 6" TEE	1	EA.
12" x 45" BEND	1	EA.
1" AIR VENT	2	EA.
8" PLUG	2	EA.
VALVE BOX	4	EA.

ESTIMATE: ALTERNATES "C" & "D"

16" WATERMAIN GRVL. B.F.	40	LIN. FT.
16" WATERMAIN GROUND B.F.	1020	LIN. FT.
12" WATERMAIN GRVL. B.F.	85	LIN. FT.
6" HYD. LEAD GRVL. B.F.	5	LIN. FT.
SET HYD. & AUX. VALVE	1	EA.

FITTINGS REQ'D

HYD. & AUX. VALVE (FURNISHED BY CITY)	1	EA.
16" GATE VALVE	2	EA.
12" GATE VALVE	1	EA.
16" x 16" TEE	2	EA.
16" x 16" TEE	1	EA.
16" x 45" BEND	1	EA.
1" AIR VENT	2	EA.
8" PLUG	4	EA.
VALVE BOX	4	EA.
16" x 12" REDUCER	1	EA.

NOTE:
THE LOCATION AND SIZE OF ALL UNDERGROUND STRUCTURES SHOWN HEREON HAVE BEEN LOCATED TO A REASONABLE DEGREE OF ACCURACY, BUT THE CITY OF OAK CREEK DOES NOT GUARANTEE THEIR EXACT LOCATION OR THE LOCATION OF OTHERS NOT SHOWN.

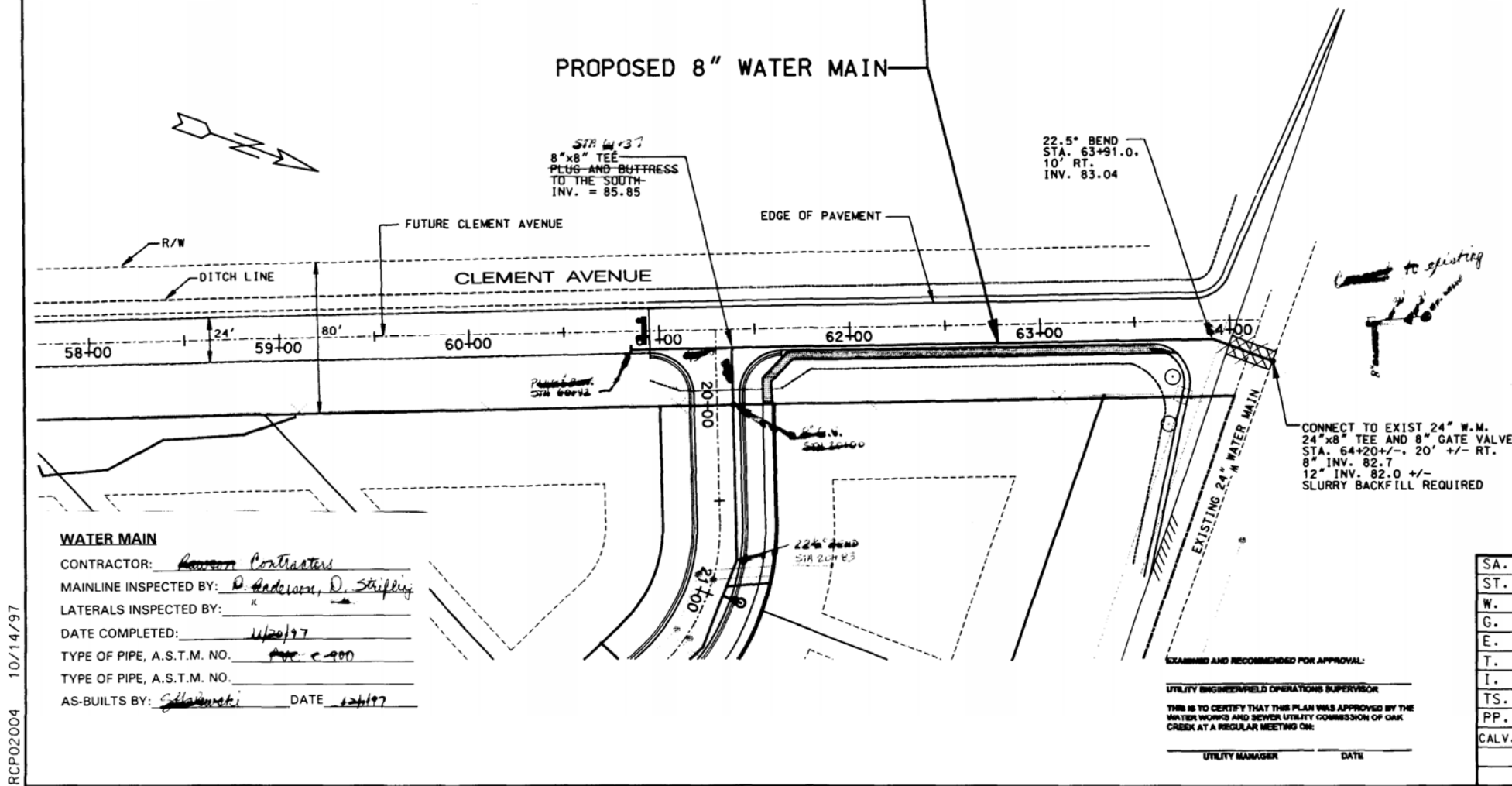
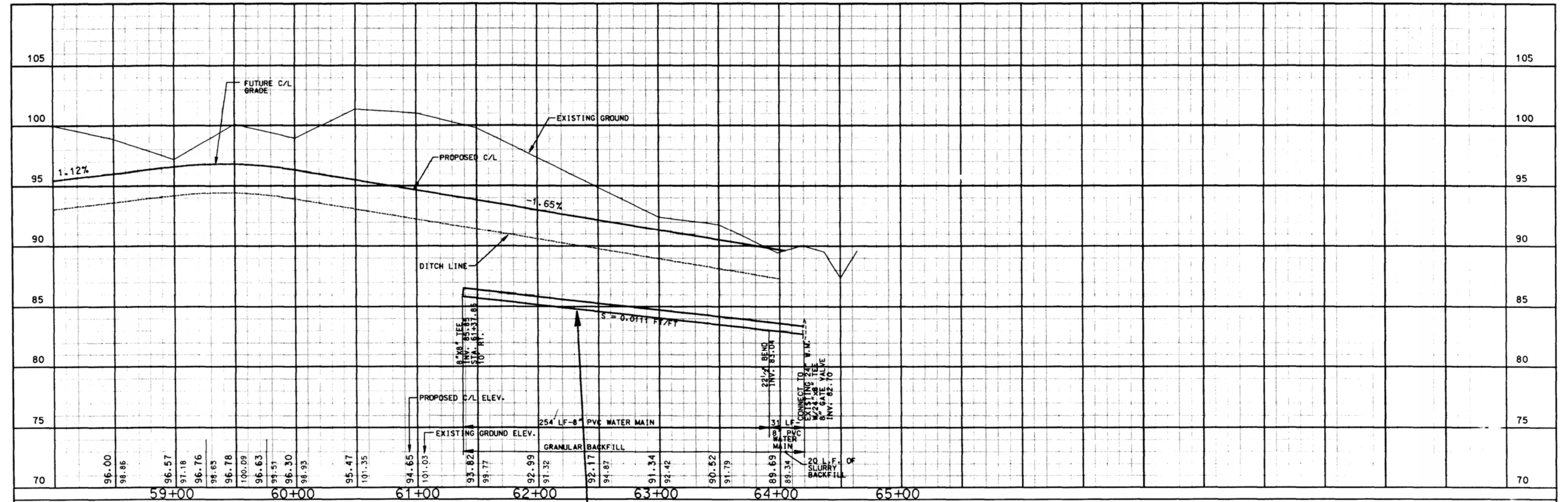
EXAMINED AND RECOMMENDED FOR APPROVAL:

THIS IS TO CERTIFY THAT THIS PLAN WAS APPROVED BY THE WATER WORKS AND SEWER UTILITY COMMISSION OF OAK CREEK AT A REGULAR MEETING ON

JULY 22, 1964
Richard C. Suthart
PRESIDENT

16" CLOW DUCTILE
CABLE BOND BELLITE USED

REVISIONS: BY DATE 1. 7-14-64 2. 7-21-64 3. 7-21-64		CITY OF OAK CREEK, WISCONSIN DEPARTMENT OF ENGINEERING PROPOSED WATERMAIN IN: S. SHEPARD AVE. FROM: E. PUETZ ROAD TO: 1107' SOUTH	
ENGINEER RICHARD C. SUTHART PROFESSIONAL ENGINEER WISCONSIN		CHECKED BY: F.A.W. DATE: 7-21-64 APP'D BY: R. Suthart CITY ENGINEER	
SCALE: 1" = 40' SHEET 2 OF 11 SHEETS FILE NO. 6408-2-C-77		DATE: 7-14-64 DATE: 7-21-64 DATE: 7-21-64	



GENERAL NOTES:

- CONSTRUCTION SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN", FIFTH EDITION, AND THE CITY OF OAK CREEK GENERAL SPECIFICATIONS.
- WATER MAINS SHALL BE PVC PIPE MEETING THE REQUIREMENTS OF AWWA C-900, PRESSURE CLASS 150.
- ALL WATER MAIN VALVES SHALL BE SET WITH THE USE OF AN ADAPTER. AS MANUFACTURED BY ADAPTOR, INC. OR AN APPROVED EQUAL (IN LIEU OF HARDWOOD BLOCKING).
- ALL WATER SERVICES UNLESS NOTED SHALL BE 1" AND INSTALLED WITH CURB STOP AND SERVICE BOX IN ACCORDANCE WITH THE STANDARD SPECIFICATION.
- CONTRACTOR SHALL MAINTAIN MINIMUM HORIZONTAL SEPARATION OF 8' BETWEEN SANITARY SEWER AND WATER MAIN.
- ALL FIRE HYDRANTS SHALL INCLUDE A GATE VALVE AND TEE AND LATERAL PIPE SUFFICIENT TO LOCATE HYDRANT 4' FROM THE SHOULDER. HYDRANTS SHALL BE UTILITY APPROVED. ANCHOR TEES ARE REQUIRED FOR HYDRANT TEES.
- ALL VALVES SHALL BE RESILIENT WEDGE TYPE.
- REDUCER SHALL BE STRAPPED TO WATER MAIN.
- ALL FITTINGS, TEES, ELBOWS AND REDUCERS SHALL BE INCIDENTAL TO THE COST OF THE WATER MAIN.
- ALL HYDRANTS SHALL BE 6.5' BURY WITH EXTENSIONS AS REQUIRED.

QUANTITY ESTIMATE

ITEM	UNIT	QTY.
8" PVC WATER MAIN	L.F.	254.00
8" GATE VALVE	EACH	1.00

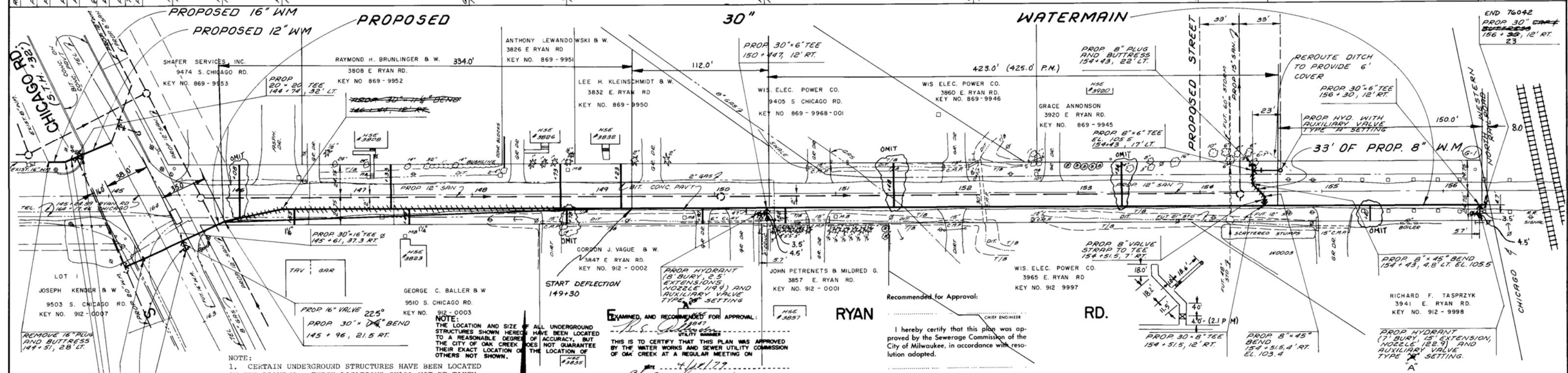
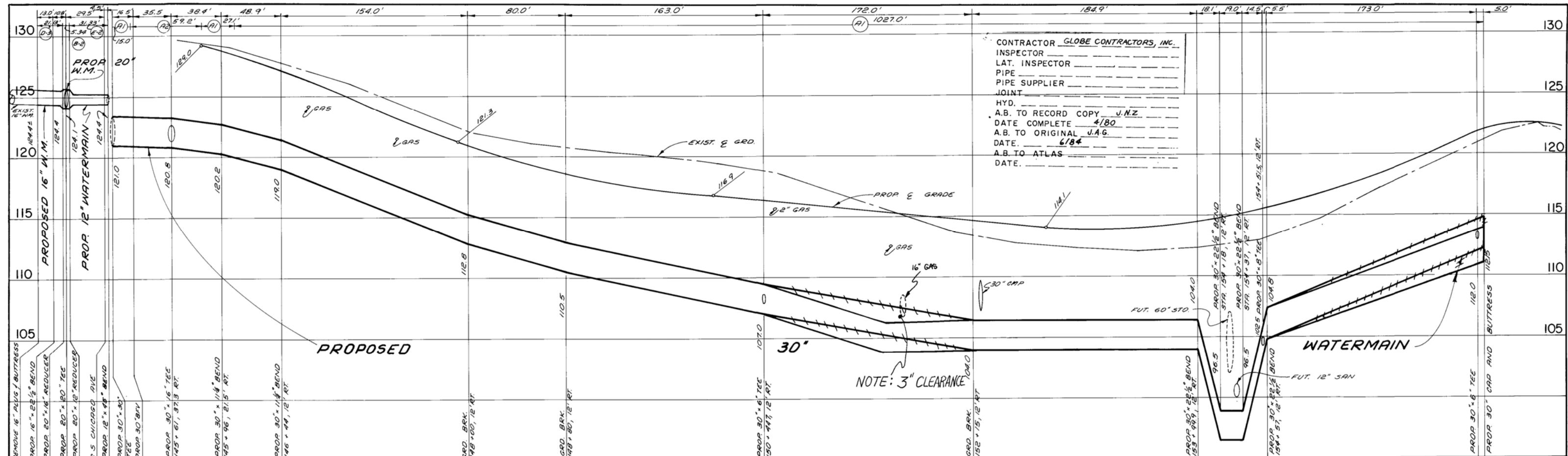
NOTE:
THE LOCATION AND SIZES OF ALL UNDERGROUND STRUCTURES SHOWN HEREON HAVE BEEN LOCATED TO A REASONABLE DEGREE OF ACCURACY BUT THE CITY OF OAK CREEK DOES NOT GUARANTEE THEIR EXACT LOCATION OR THE LOCATION OF OTHERS SHOWN.

CALL DIGGERS HOTLINE
1-800-242-8511
TOLL FREE
(414-259-1181 MILWAUKEE METROL)
WIS. STATUTE 182.0175 (1974)
REQUIRES MIN. OF 3 WORK DAYS
NOTICE BEFORE YOU EXCAVATE.

WATER MAIN
CONTRACTOR: Baron Contractors
MAINLINE INSPECTED BY: D. Anderson, D. Striffler
LATERALS INSPECTED BY: K
DATE COMPLETED: 11/20/97
TYPE OF PIPE, A.S.T.M. NO.: PVC C-900
TYPE OF PIPE, A.S.T.M. NO.:
AS-BUILTS BY: Silva DATE: 12/1/97

EXAMINED AND RECOMMENDED FOR APPROVAL:
UTILITY ENGINEER/FIELD OPERATIONS SUPERVISOR
THIS IS TO CERTIFY THAT THIS PLAN WAS APPROVED BY THE
WATER WORKS AND SEWER UTILITY COMMISSION OF OAK
CREEK AT A REGULAR MEETING ON:
DATE

SA. ST. W. G. E. T. I. TS. PP. CALV.	DKV DKV 8/11/97 10/14/97 DAVID K VIVIAN E-32210 PROFESSIONAL ENGINEER 10/17/97 David K. Vivian	CITY OF OAK CREEK, WISCONSIN - ENGINEERING DEPARTMENT					
DESIGNED BY DKV		DATE 6/13/97	DRAWN BY DKV	DATE 6/13/97	CHECKED BY JRM	DATE 6/13/97	APPROVED BY <u>Tom H. H.</u> CITY ENGINEER 10/17/97
OAKSHIRE EAST PROPOSED WATER MAIN PLAN							SCALE PLAN: 1" = 40' PROFILE: 1" = 40' VER. 1" = 4'
IN: S. CLEMENT AVENUE FROM: 325 ± SOUTH OF E. PUETZ ROAD TO: E. PUETZ ROAD							FILE NO: 97057-5C-1508
REVISION BY DATE							APPROVED BY COUNCIL RESOLUTION NO.



NOTE:

- CERTAIN UNDERGROUND STRUCTURES HAVE BEEN LOCATED ON THE DRAWING. THESE LOCATIONS SHALL NOT BE TAKEN AS CONCLUSIVE. VERIFICATION TO THE SATISFACTION OF THE CONTRACTOR OF ALL UNDERGROUND STRUCTURES, WHETHER SHOWN ON THE DRAWING OR NOT, SHALL BE ASSUMED AS A CONDITION OF THE CONTRACT.
- CONTRACTOR SHALL USE HAND METHODS FOR EXCAVATING WHEN CLEARANCE TO ADJACENT UTILITIES SHOWN ON PLANS IS LESS THAN 12 INCHES AND CLEARANCE TO STAKED UTILITIES WHICH ARE NOT SHOWN IS LESS THAN 18 INCHES.
- CONTRACTOR SHALL MAKE ANY ADJUSTMENTS NECESSARY TO SET THE TOP OF VALVE BOXES FLUSH WITH FINISHED GRADE AFTER FINAL SITE GRADING IS COMPLETED.
- ELEVATIONS ARE TO FLOW LINE OF PIPE.
- POLYETHYLENE FILM TUBE ENVELOPE REQUIRED ON ALL WATERMAIN FITTINGS AND HYDRANT LEADS.

ESTIMATE OF QUANTITIES

A-1	30" DIP CL 52	GRAVEL BACKFILL	1059	1059	UN. FT.
A-2	30" DIP CL 52	GRAVEL BACKFILL	59	59	UN. FT.
B-2	20" DIP CL 52	GRAVEL BACKFILL	2.4	2.4	UN. FT.
D-2	16" DIP CL 52	GRAVEL BACKFILL	5.1	5.1	UN. FT.
D-3	16" DIP CL 52	GRAVEL BACKFILL	19.0	19.0	UN. FT.
E-2	12" DIP CL 52	GRAVEL BACKFILL	31.2	31.2	UN. FT.
G-1	8" DIP CL 52	GRAVEL BACKFILL	33.8	33.8	UN. FT.
30" BUTTERFLY VALVE			1	1	EACH
16" BUTTERFLY VALVE			1	1	EACH
8" GATE VALVE			3	3	EACH
HYDRANT AND AUXVALVE SETTING			6	6	EACH
1" WATER LATERAL (20' AVERAGE LENGTH)			6	6	EACH
1" WATER LATERAL (13' AVERAGE LENGTH)			6	6	EACH

CITY OF OAK CREEK, WISCONSIN - ENGINEERING DEPARTMENT

DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	DATE	ACTING	APPROVED BY
DLP	4/79	LKK	4/79	J.P.	4/79		

PROPOSED 12", 16", & 30" WATERMAIN

IN: E. RYAN RD.

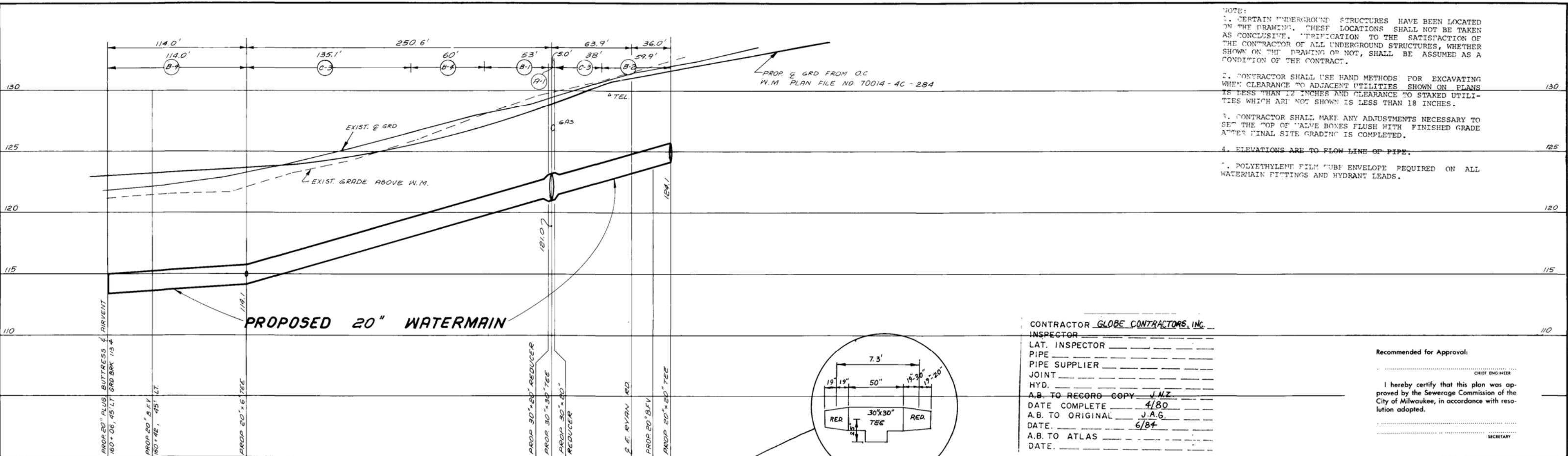
FROM: S. CHICAGO RD. (S.T.H. "32")

TO: 1100' E. OF S. CHICAGO RD. (S.T.H. "32")

REVISION BY	DATE	APPROVED BY COUNCIL RESOLUTION NO. 4717-040279
-------------	------	--

PLAN	SCALE	SHEET
HOR. 0 20 40		10
PROFILE		OF
HOR. 0 20 40		12
VER. 0 2 4		

FILE NO: 76042-10C-554



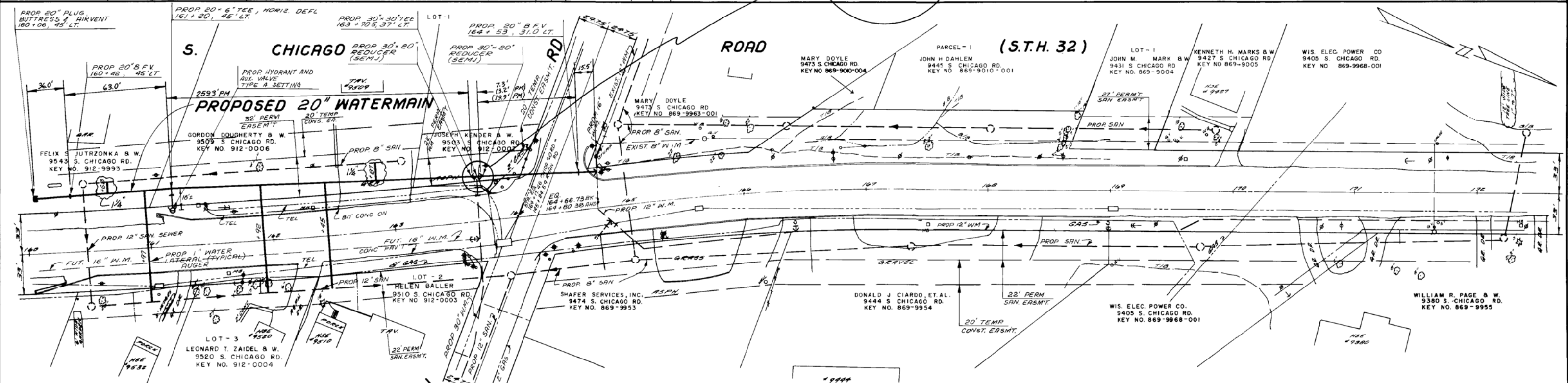
NOTE:
1. CERTAIN UNDERGROUND STRUCTURES HAVE BEEN LOCATED ON THE DRAWING. THESE LOCATIONS SHALL NOT BE TAKEN AS CONCLUSIVE. VERIFICATION TO THE SATISFACTION OF THE CONTRACTOR OF ALL UNDERGROUND STRUCTURES, WHETHER SHOWN ON THE DRAWING OR NOT, SHALL BE ASSUMED AS A CONDITION OF THE CONTRACT.
2. CONTRACTOR SHALL USE HAND METHODS FOR EXCAVATING WHEN CLEARANCE TO ADJACENT UTILITIES SHOWN ON PLANS IS LESS THAN 12 INCHES AND CLEARANCE TO STAKED UTILITIES WHICH ARE NOT SHOWN IS LESS THAN 18 INCHES.
3. CONTRACTOR SHALL MAKE ANY ADJUSTMENTS NECESSARY TO SET THE TOP OF VALVE BOXES FLUSH WITH FINISHED GRADE AFTER FINAL SITE GRADING IS COMPLETED.
4. ELEVATIONS ARE TO FLOW LINE OF PIPE.
5. POLYETHYLENE FIBER TUBE ENVELOPE REQUIRED ON ALL WATERMAIN FITTINGS AND HYDRANT LEADS.

CONTRACTOR GLOBE CONTRACTORS, INC.
INSPECTOR _____
LAT. INSPECTOR _____
PIPE _____
PIPE SUPPLIER _____
JOINT _____
HYD. _____
A.B. TO RECORD COPY J.N.Z.
DATE COMPLETE 4/80
A.B. TO ORIGINAL J.A.G.
DATE 6/84
A.B. TO ATLAS _____
DATE _____

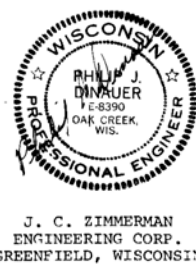
Recommended for Approval:

I hereby certify that this plan was approved by the Sewerage Commission of the City of Milwaukee, in accordance with resolution adopted.

SECRETARY



ESTIMATE OF QUANTITIES	
B-1	30" DIP, CL 52, GRAVEL BACKFILL, 32' LIN. FT.
B-1	20" DIP, CL 52, GRAVEL BACKFILL, 53' LIN. FT.
B-2	20" DIP, CL 52, GRAVEL BACKFILL, 60' LIN. FT.
B-3	20" DIP, CL 52, GRAVEL BACKFILL, 174' LIN. FT.
C-3	20" DIP, CL 52, GRAVEL BACKFILL, 18.5' LIN. FT.
	20" BUTTERFLY VALVE 2 EACH
	HYDRANT AND AUXILIARY VALVE SETTING 1 EACH
	1 1/2" WATER LATERAL (9' AVG LENGTH) 2 EACH
	1" WATER LATERAL (RUGER, 89' AVG LENGTH) 3 EACH



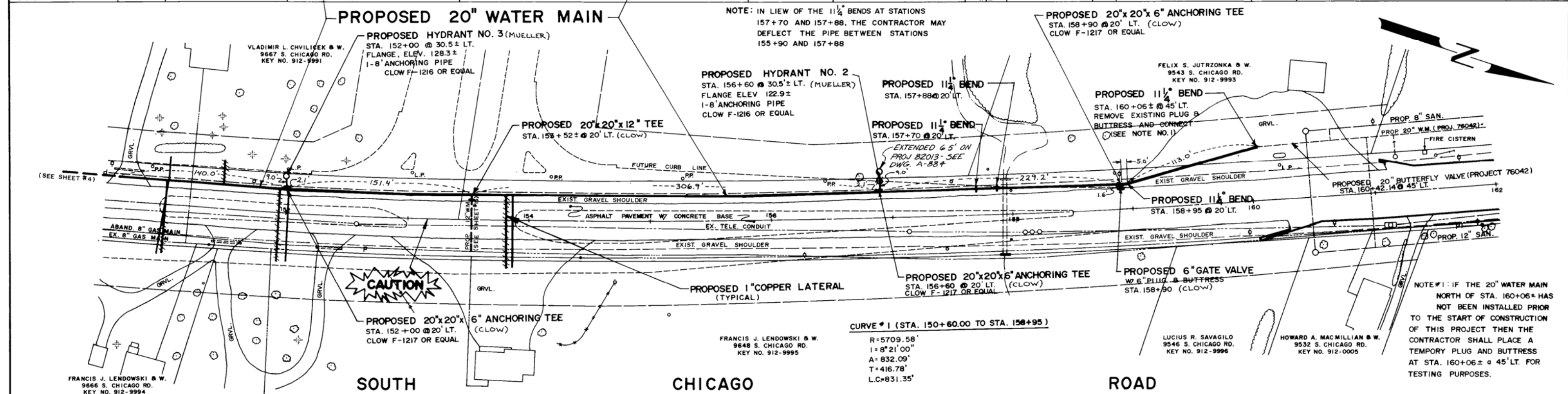
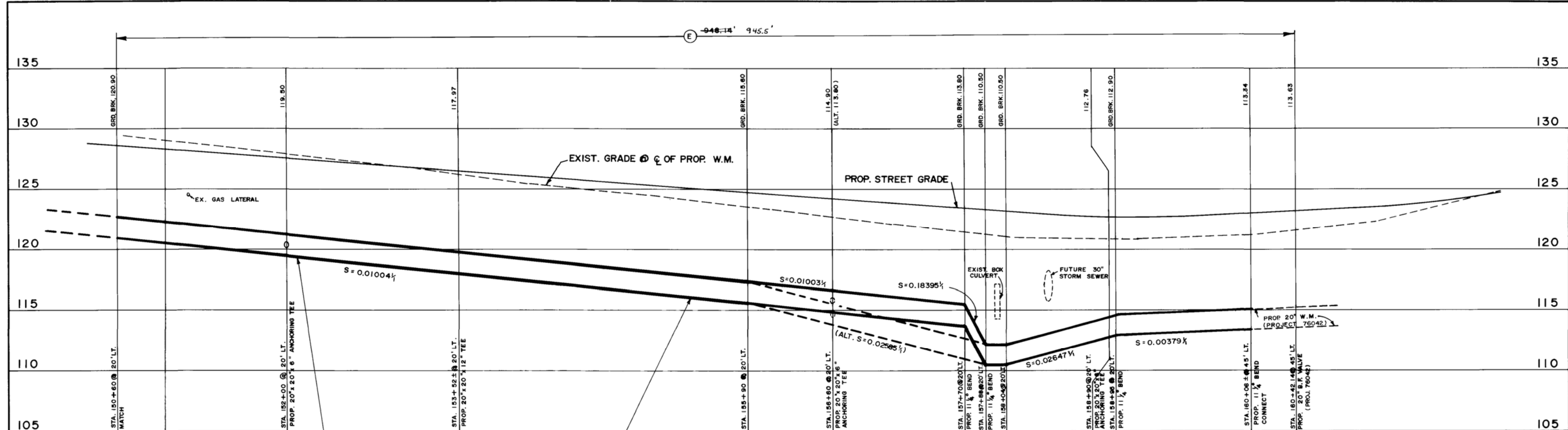
CITY OF OAK CREEK, WISCONSIN - ENGINEERING DEPARTMENT									
DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	DATE	ACTING	APPROVED BY		
J.P.		LKK	2/9/78	J. Zimmermann	4/80	W. R. Page	4-20-79		
PROPOSED 20" WATERMAIN									
IN: S. CHICAGO RD. (WEST SIDE) (STH 32)									
FROM: E. RYAN RD.									
TO: 420' SOUTH OF E. RYAN RD.									
REVISION BY	DATE	APPROVED BY COUNCIL RESOLUTION NO. 4717-040279							
FILE NO: 76042-12C-556									

EXAMINED AND RECOMMENDED FOR APPROVAL:

DATE 4/18/77

PRESIDENT

NOTE:
THE LOCATION AND SIZE OF ALL UNDERGROUND STRUCTURES SHOWN HEREON HAVE BEEN LOCATED TO A REASONABLE DEGREE OF ACCURACY, BUT THE CITY OF OAK CREEK DOES NOT GUARANTEE THEIR EXACT LOCATION OR THE LOCATION OF OTHERS NOT SHOWN.



CONTR.: TOMARO
INSP.: R. KUEHN
PIPE: 20" D.I.P. CL. 52
SUPP.: CLOW
JOINTS: SBT
COMP. DATE: 10-79
A.B. TO REC.: J.Z. 3-80
A.B. TO TRAC.: S.G.O. 4-80

NOTE:
THE LOCATION AND SIZE OF ALL UNDERGROUND
STRUCTURES SHOWN HEREON HAVE BEEN LOCATED
TO A REASONABLE DEGREE OF ACCURACY, BUT
THE CITY OF OAK CREEK DOES NOT GUARANTEE
THEIR EXACT LOCATION OR THE LOCATION OF
OTHERS NOT SHOWN.

ESTIMATE OF QUANTITIES	
20" D.I.P. WATER MAIN, CLASS 52, POLY WRAPPED, GRAVEL BACKFILL, SURFACE RESTORATION	945.5
6" GATE VALVE	1 EA.
SET HYDRANT AND AUX. VALVE	2 EA.
6" HYDRANT LEAD, CLOW F-1216 ANCHORING PIPE OR EQUAL, POLY, WRAPPED, GRAVEL BACKFILL, SURFACE RESTORATION	22.2
1" COPPER WATER LATERAL, AVE. LENGTH 20', GRAVEL BACKFILL, SURFACE RESTORATION	1 EA.
1" COPPER WATER LATERAL, AVE. LENGTH 60', GRAVEL BACKFILL, AUGER SECTION UNDER S. CHICAGO ROAD PAVEMENT, SURFACE RESTORATION	3 EA.

EXAMINED AND RECOMMENDED FOR APPROVAL:

THIS IS TO CERTIFY THAT THIS PLAN WAS APPROVED BY THE WATER WORKS AND SEWER UTILITY COMMISSION OF OAK CREEK AT A REGULAR MEETING ON

SA, ECF
ST, ECF
W, ECF
G, RA
E, RA
T, RA
I, RA
TS, RA
PP, RA

REVISION BY DATE

CITY OF OAK CREEK, WISCONSIN—ENGINEERING DEPARTMENT

DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
E.C. FAUCETT		R.A. RB.		<i>[Signature]</i>	3/30/79	<i>[Signature]</i>	3-30-79

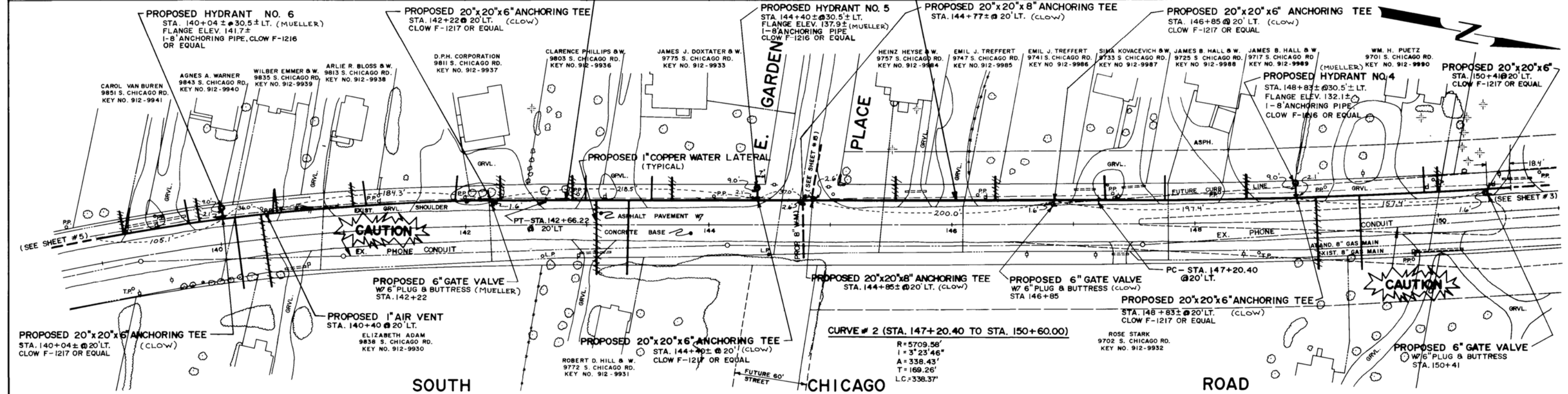
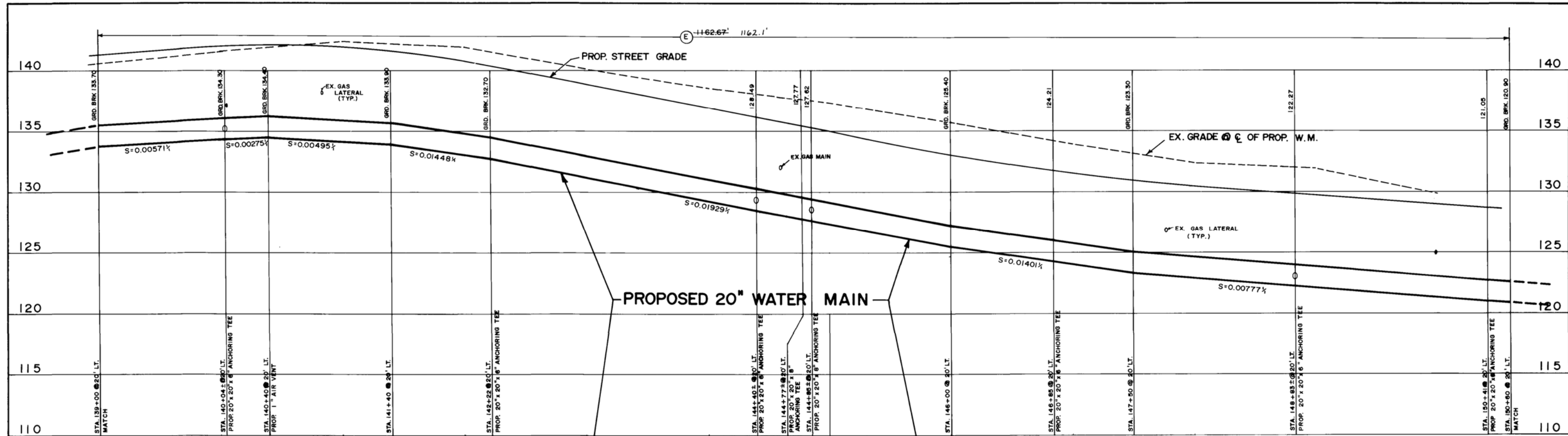
PROPOSED 20" WATER MAIN

IN: SOUTH CHICAGO ROAD (S.T.H. 32)
FROM: APPROX. 411 FT. SOUTH OF E. RYAN RD. (STA. 160+06)
TO: APPROX. 588 FT. NORTH OF E. GARDEN PL. (STA. 150+60)

APPROVED BY COUNCIL RESOLUTION NO. 4699-032079

SCALE	SHEET
PLAN HOR. 1" = 40'	3 OF 16
PROFILE HOR. 1" = 40' VER. 1" = 4'	

FILE NO: 78006-3C-572



NOTE:
THE LOCATION AND SIZE OF ALL UNDERGROUND STRUCTURES SHOWN HEREON HAVE BEEN LOCATED TO A REASONABLE DEGREE OF ACCURACY, BUT THE CITY OF OAK CREEK DOES NOT GUARANTEE THEIR EXACT LOCATION OR THE LOCATION OF OTHERS NOT SHOWN.

CONTR.: TOMARO
INSP.: R. KUHN
PIPE: 20" D.I.P. CL. 52
SUPP.: CLOW
JOINTS: 5 BT
COMP. DATE: 10-79
A.B. TO REC.: J.Z. 3-80
A.B. TO TRAC.: S&D. 4-80

ESTIMATE OF QUANTITIES	
(E) - 20" D.I.P. WATER MAIN, CLASS 52, POLY WRAPPED, GRAVEL	1162.1
BACKFILL, SURFACE RESTORATION	1162.1
6" GATE VALVES	3 EA.
SET HYDRANT AND AUX. VALVE	3 EA.
6" HYDRANT LEAD CLOW F-1216 ANCHORING PIPE OR EQUAL	33.3
POLY WRAPPED, GRAVEL BACKFILL, SURFACE RESTORATION	32 L.F.
1" COPPER WATER LATERAL, AVE LENGTH 20', GRAVEL BACKFILL, SURFACE RESTORATION	10
1" COPPER WATER LATERAL, AVE LENGTH 60', GRAVEL BACKFILL, AUGER SECTION UNDER S. CHICAGO ROAD PAVEMENT, SURFACE RESTORATION	3 EA.
1" AIR VENT	1 EA.

EXAMINED AND RECOMMENDED FOR APPROVAL:
[Signature]
DATE: 3/20/79

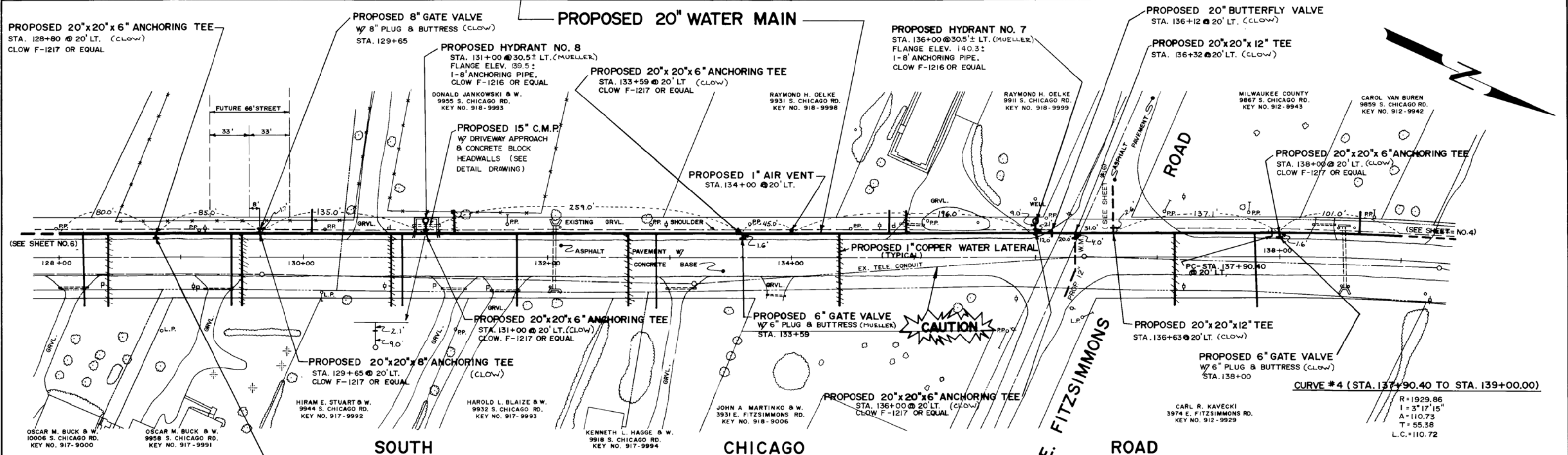
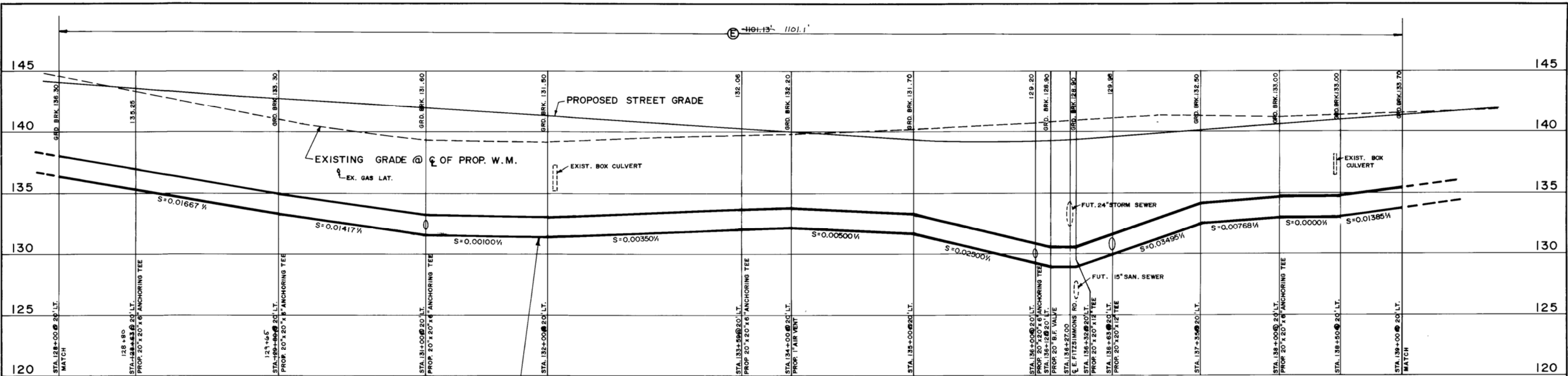
SA. ECF
ST. ECF
W. ECF
G. RA
E. RA
T. RA
I. RA
TS. RA
PP. RA

REVISION BY: DATE:

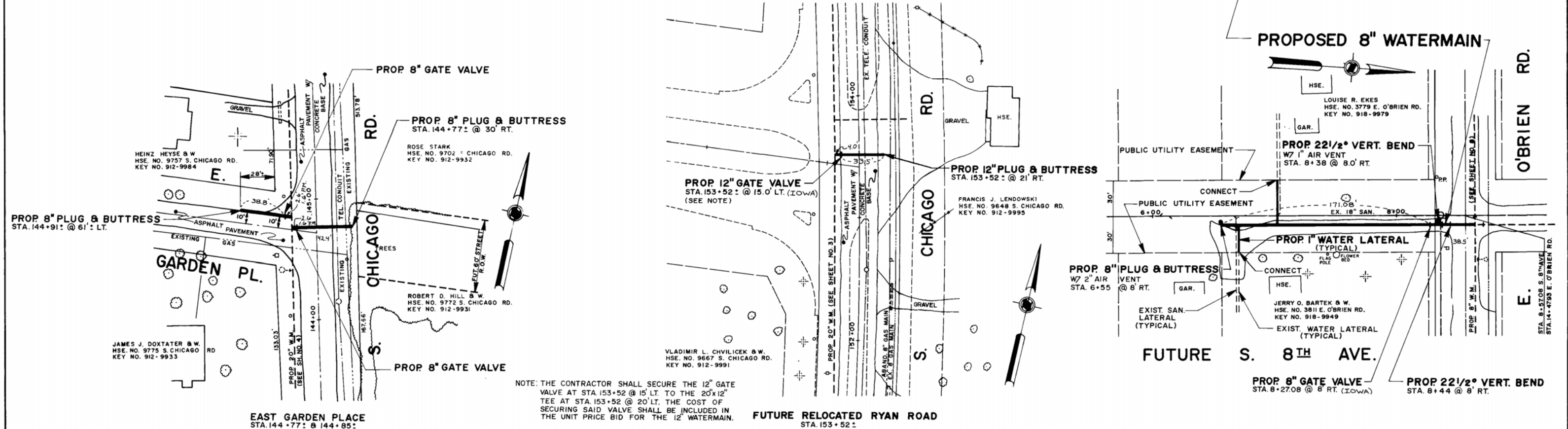
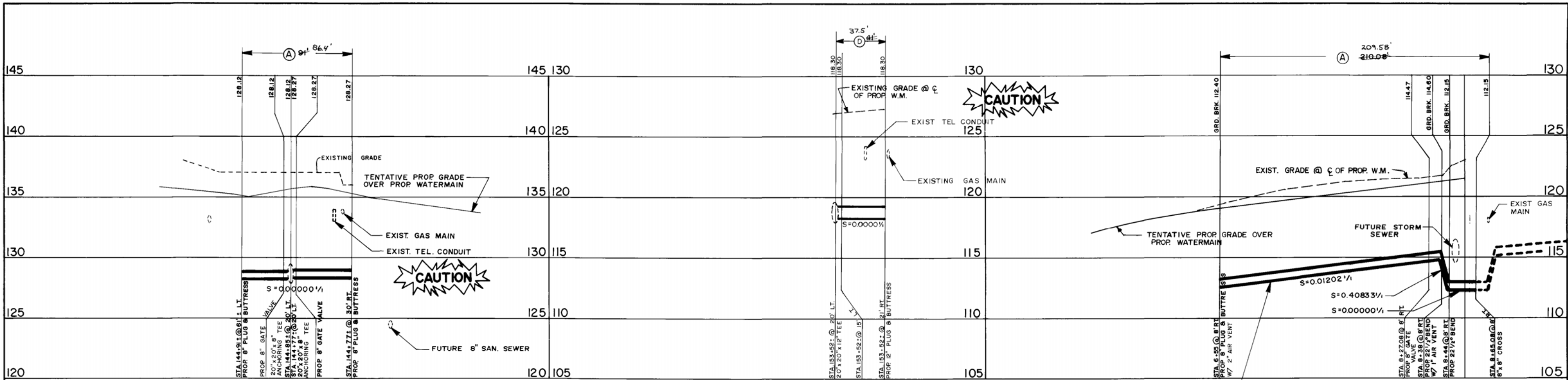
CITY OF OAK CREEK, WISCONSIN - ENGINEERING DEPARTMENT					
DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	DATE
E.C. FAUCETT		RA RB		<i>[Signature]</i>	3/19
APPROVED BY				<i>[Signature]</i>	3-30-79
CITY ENGINEER				DATE	
SCALE				SHEET	
PLAN				4	
HOR.				OF	
PROFILE				16	
HOR.				1" = 40'	
VER.				1" = 4'	
FILE NO: 78006-4C-573					

PROPOSED 20" WATER MAIN
IN: SOUTH CHICAGO ROAD (S.T.H.32)
FROM: APPROX. 588 FT. NORTH OF E. GARDEN PL. (STA. 150+60)
TO: APPROX. 273 FT. NORTH OF E. FITZSIMMONS RD (STA. 139+00)

APPROVED BY COUNCIL RESOLUTION NO. 4699-032079



ESTIMATE OF QUANTITIES		CITY OF OAK CREEK, WISCONSIN - ENGINEERING DEPARTMENT	
20" D.I.P. WATER MAIN, CLASS 52, POLY WRAPPED, GRAVEL BACKFILL, SURFACE RESTORATION		DESIGNED BY	DATE
20" BUTTERFLY VALVE		E.C. FAUCETT	RA RB
8" GATE VALVE		DRAWN BY	DATE
6" GATE VALVE		CHECKED BY	DATE
SET HYDRANT AND AUX. VALVE		APPROVED BY	DATE
6" HYDRANT LEAD, CLOW F-1216 ANCHORING PIPE OR EQUAL, POLY WRAPPED, GRAVEL BACKFILL, SURFACE RESTORATION		SCALE	SHEET
1" COPPER WATER LATERAL, AVE. LENGTH 20', GRAVEL BACKFILL, SURFACE RESTORATION		PLAN	5
1" COPPER WATER LATERAL, AVE. LENGTH 60', GRAVEL BACKFILL, AUGER SECTION UNDER S. CHICAGO ROAD PAVEMENT, SURFACE RESTORATION		PROFILE	OF
1" AIR VENT		HOR.	1" = 40'
15" C.M.P. W/ DRIVEWAY APPROACH		VER.	1" = 4'
		FILE NO:	78006-5C-574



SECTION (A) & (D) ALTERNATE "A" D.I.P., CLASS 52, RE. WRAPPED
ALTERNATE "B" P.V.C., CLASS 150, SAND BEDDING & COVER

ESTIMATE OF QUANTITIES	
(A) 8" WATERMAIN, GRAVEL BACKFILL, SUR. REST.	307 LIN. FT.
(D) 12" WATERMAIN, GRAVEL BACKFILL, SUR. REST.	37.5 LIN. FT.
8" GATE VALVE	3 EACH
12" GATE VALVE	1 EACH
1" COPPER WATER LATERAL, AVE. LENGTH 32', GRAVEL BACKFILL, SURFACE REST.	2 EACH
CONNECT NEW WATER LATERAL TO EXISTING HOUSE LATERAL	2 EACH
2" AIR VENT	1 EACH

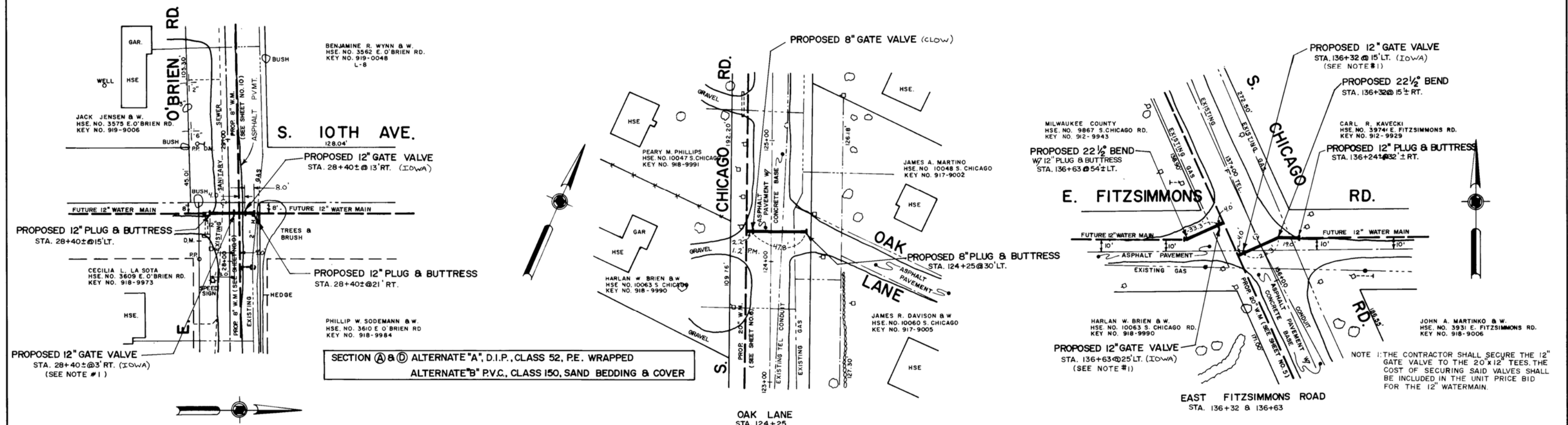
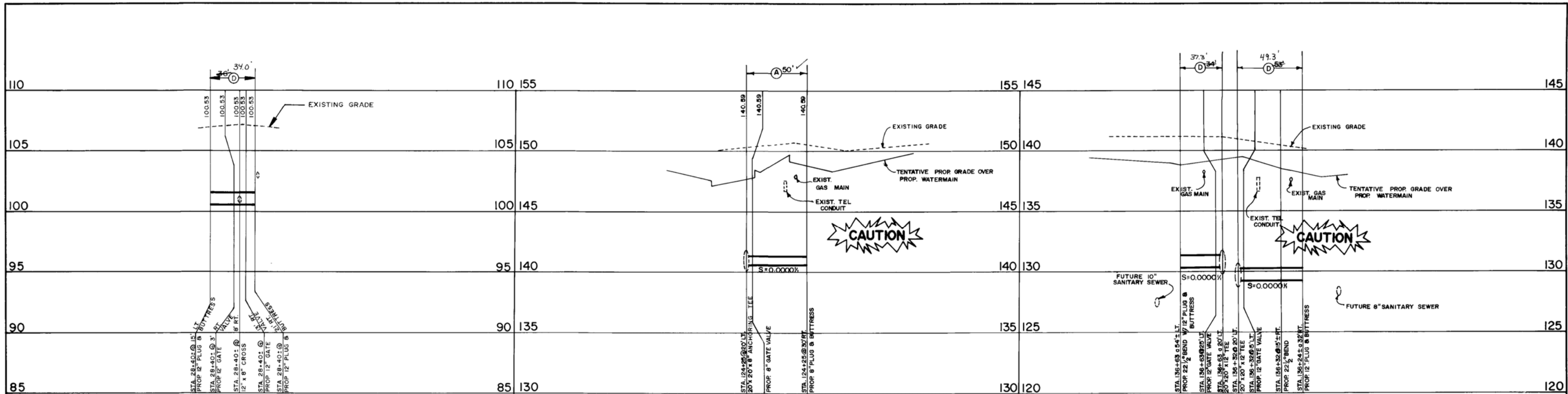
CONTR.: TOMARO
INSP.: M. GLODOSKI
PIPE: 8" 12" D.I.P. CL. 52
SUPP.: CLOW
JOINTS: SBT
COMP. DATE: 10-79
A.B. TO REC.: 3-2, 3-80
A.B. TO TRAC.: 5-60, 4-80

NOTE:
THE LOCATION AND SIZE OF ALL UNDERGROUND STRUCTURES SHOWN HEREON HAVE BEEN LOCATED TO A REASONABLE DEGREE OF ACCURACY, BUT THE CITY OF OAK CREEK DOES NOT GUARANTEE THEIR EXACT LOCATION OR THE LOCATION OF OTHERS NOT SHOWN.

EXAMINED AND RECOMMENDED FOR APPROVAL:
FRANK A. WELLSTON
PROFESSIONAL ENGINEER
THIS IS TO CERTIFY THAT THIS PLAN WAS APPROVED BY THE WATER WORKS AND SEWER UTILITY COMMISSION OF OAK CREEK AT A REGULAR MEETING ON
DATE: 3/20/79
BY: [Signature]

SA.E.C.F.
ST.E.C.F.
W.E.C.F.
G.R.A.
E.R.A.
T.R.A.
I.R.A.
TS.R.A.
PP.R.A.

CITY OF OAK CREEK, WISCONSIN—ENGINEERING DEPARTMENT															
DESIGNED BY		DATE		DRAWN BY		DATE		CHECKED BY		DATE		APPROVED BY			
E. C. FAUCETT		1/79		R. A. B. C.		1/79		Rt. Hon. C. J. [Signature]		3/79		[Signature] 3-30-79			
PROPOSED 8" AND 12" WATERMAIN												CITY ENGINEER		DATE	
												SCALE		SHEET	
IN: EAST GARDEN PLACE AT: S. CHICAGO ROAD (STA. 144+77 ± & 144+85 ±)				IN: FUTURE RELOCATED RYAN ROAD AT: S. CHICAGO ROAD (STA. 153+52 ±)				IN: FUTURE S. 8 TH AVE. FROM: E. O'BRIEN ROAD (STA. 8+65) TO: APPROX. 210 FT. S. OF E. O'BRIEN RD. (STA. 6+55)				PLAN HOR. 1"=40'		15 OF	
												PROFILE HOR. 1"=40'		16	
												VER. 1"=4'			
APPROVED BY COUNCIL RESOLUTION NO. 4699-032079												FILE NO: 78006-15C-584			



NOTE: THE CONTRACTOR SHALL SECURE THE TWO 12 INCH GATE VALVES TO THE 12" x 8" CROSS. THE COST OF SECURING SAID VALVES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE 12" WATER MAIN.

CONTR: TOMAR
INSP: M. GLODOKI
PIPE: 8" x 12" D.I.P. CL. 52
SUPP: CLOW
JOINTS: SBT
COMP. DATE: 10-79
A.B. TO REC.: J.Z. 3-80
A.B. TO TRAC.: S.G.O. 4-80

NOTE:
THE LOCATION AND SIZE OF ALL UNDERGROUND
STRUCTURES SHOWN HEREON HAVE BEEN LOCATED
TO A REASONABLE DEGREE OF ACCURACY, BUT
THE CITY OF OAK CREEK DOES NOT GUARANTEE
THEIR EXACT LOCATION OR THE LOCATION OF
OTHERS NOT SHOWN.

ESTIMATE OF QUANTITIES	
(A) 8" WATER MAIN, GRAVEL BACKFILL, SURFACE RESTORATION	49.0
(D) 12" WATER MAIN, GRAVEL BACKFILL, SURFACE RESTORATION	120.6
8" GATE VALVE	1 EA.
12" GATE VALVE	4 EA.

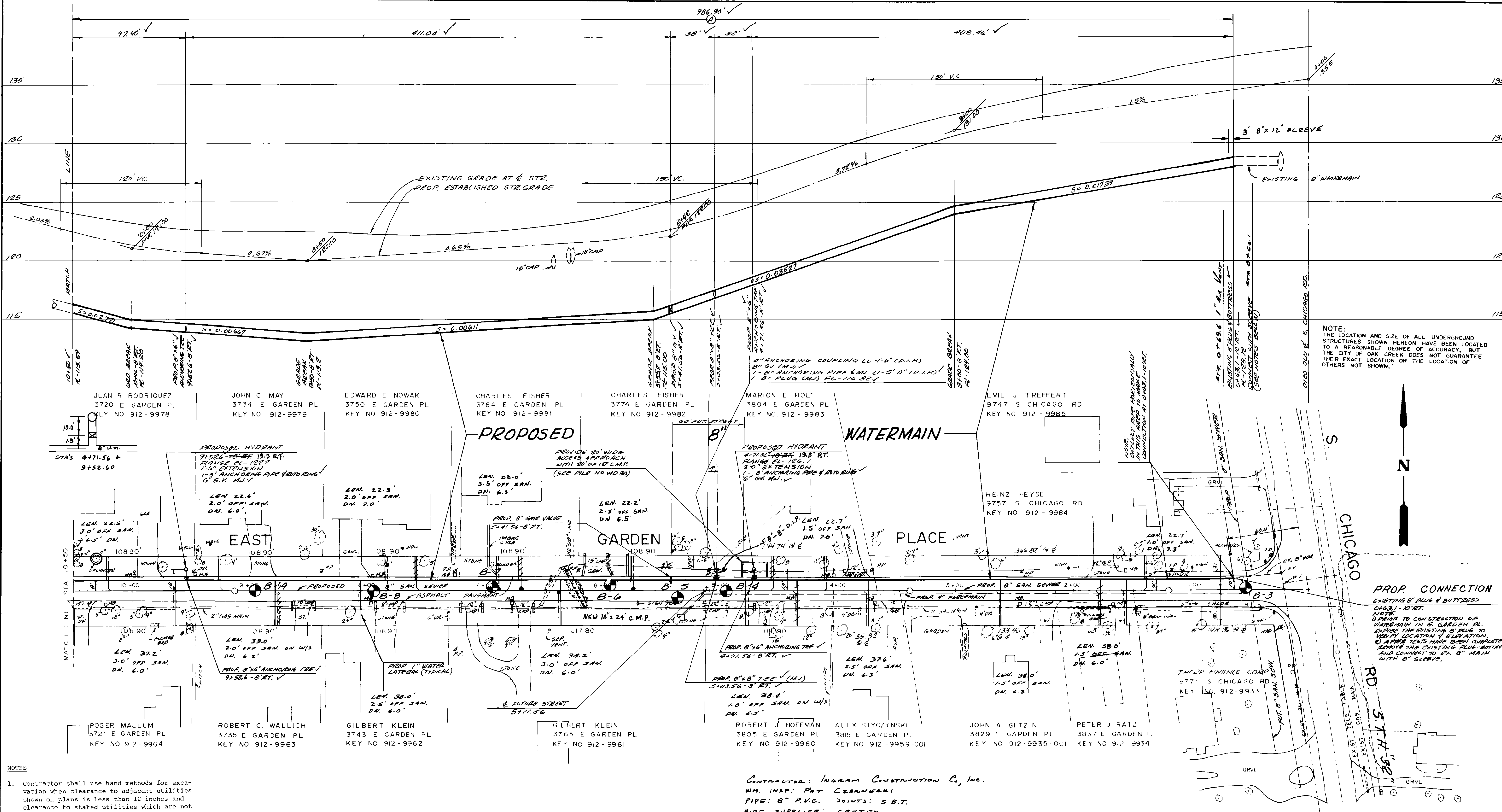
EXAMINED AND RECOMMENDED FOR APPROVAL:

THIS IS TO CERTIFY THAT THIS PLAN WAS APPROVED
BY THE WATER WORKS AND SEWER UTILITY COMMISSION
OF OAK CREEK AT A REGULAR MEETING ON

DATE 3/20/12

ST. E. Spradell

SA.ECF ST.ECF W.E.C.F G. RA E. RA T. RA I. RA TS. RA PP. RA		CITY OF OAK CREEK, WISCONSIN - ENGINEERING DEPARTMENT <table><tr><td>DESIGNED BY</td><td>DATE</td><td>DRAWN BY</td><td>DATE</td><td>CHECKED BY</td><td>DATE</td><td>APPROVED BY</td><td>DATE</td></tr><tr><td>E.C. FAUCETT</td><td>2/79</td><td>RA RB B.C.</td><td></td><td><i>of the City</i></td><td></td><td><i>J.A. Wellstein</i></td><td>3-30-79</td></tr></table> PROPOSED 8" AND 12" WATER MAIN <table><tr><td>IN: FUTURE SOUTH 10TH AVENUE AT: EAST O'BRIEN ROAD (STA. 28+40±)</td><td>IN: OAK LANE AT: SOUTH CHICAGO ROAD (STA. 124+25)</td><td>IN: E. FITZSIMMONS ROAD AT: SOUTH CHICAGO ROAD (STA. 136+32)</td></tr></table> <p>APPROVED BY COUNCIL RESOLUTION NO. 4699-032079</p>	DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE	E.C. FAUCETT	2/79	RA RB B.C.		<i>of the City</i>		<i>J.A. Wellstein</i>	3-30-79	IN: FUTURE SOUTH 10TH AVENUE AT: EAST O'BRIEN ROAD (STA. 28+40±)	IN: OAK LANE AT: SOUTH CHICAGO ROAD (STA. 124+25)	IN: E. FITZSIMMONS ROAD AT: SOUTH CHICAGO ROAD (STA. 136+32)
DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE														
E.C. FAUCETT	2/79	RA RB B.C.		<i>of the City</i>		<i>J.A. Wellstein</i>	3-30-79														
IN: FUTURE SOUTH 10TH AVENUE AT: EAST O'BRIEN ROAD (STA. 28+40±)	IN: OAK LANE AT: SOUTH CHICAGO ROAD (STA. 124+25)	IN: E. FITZSIMMONS ROAD AT: SOUTH CHICAGO ROAD (STA. 136+32)																			
REVISION BY		DATE	APPROVED BY COUNCIL RESOLUTION NO. 4699-032079		FILE NO: 78006-16C-585																



NOTES

- Contractor shall use hand methods for excavation when clearance to adjacent utilities shown on plans is less than 12 inches and clearance to staked utilities which are not shown is less than 18 inches.
- Certain underground structures have been located on the drawing. These locations shall not be taken as conclusive. Verification to the satisfaction of the contractor of all underground structures, whether shown on the drawing or not, shall be assumed as a condition of the contract.
- 8" watermain shall be Class 150 (SDR 18) PVC or Class 52 Ductile Iron. 6" watermain shall be Class 200 (SDR 14) PVC or Class 52 Ductile Iron.
- All Ductile Iron Pipe watermain shall be wrapped with polyethylene as well as all fittings, hydrant leads and valves on PVC.
- All valves shall be gate valves. Only valves and hydrants approved by the City of Oak Creek Water and Sewer Utility may be used.
- All watermain construction shall be in accordance with Standard Specifications for Sewer and Water Construction in Wisconsin, Fourth Edition, dated March 1, 1980 with current revisions and Detail Specifications.
- All watermain elevations are Flow Line elevations.
- Contractor shall make any adjustments necessary to set top of valve boxes flush with finished grade after final site grading is completed.

ESTIMATE OF QUANTITIES

④	8" WATERMAIN, GRAVEL BACKFILL, SURFACE RESTORATION	222.2' F.
	6" ANCHORING PIPE, 6' LONG	2 EACH
	8" GATE VALVE	2 EACH
	HYDRANT, HYDRANT EXTENSIONS AND AUXILIARY VALVE SETTING	2 EACH
	1" WATER LATERAL, AVE. LENGTH 36', GRAVEL & GROUND BACKFILL, SURFACE RESTORATION	6 EACH
	1" WATER LATERAL, AVE. LENGTH 82', GRAVEL & GROUND BACKFILL, SURFACE RESTORATION	2 EACH
	8" WATERMAIN CONNECTION	1 EACH

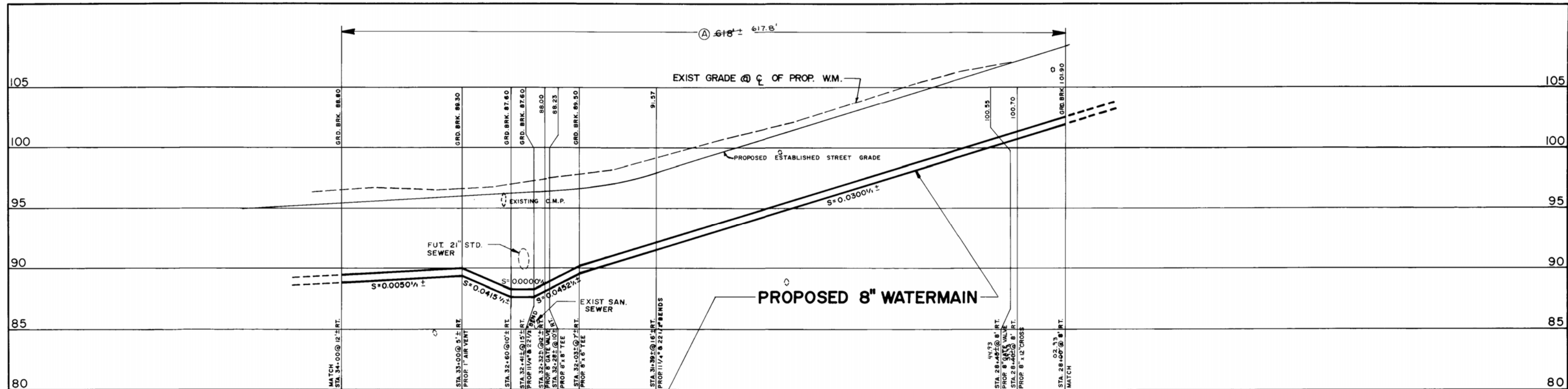
EXAMINED AND RECOMMENDED FOR APPROVAL:

R. S. Hoffman
CITY ENGINEER
THIS IS TO CERTIFY THAT THIS PLAN WAS APPROVED BY THE WATER WORKS AND SEWER UTILITY COMMISSION OF OAK CREEK AT A REGULAR MEETING ON
DATE 9/22/83
R. S. Hoffman
PRESIDENT

SA. ✓	
ST. ✓	
W. ✓	
G. ✓	
E. ✓	
T. ✓	
I. ✓	
TS. ✓	
PP. ✓	
REVISION BY	DATE

CITY OF OAK CREEK, WISCONSIN - ENGINEERING DEPARTMENT

DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
R.A.Z.	6/83	R.A.Z.	7/83	P.J.D.	7/83	<i>Philip J. Dinauer</i>	9/83
PROPOSED 8" WATERMAIN							
IN: EAST GARDEN PLACE							
FROM: S CHICAGO ROAD							
TO: 1050' WEST OF S. CHICAGO ROAD							
APPROVED BY COUNCIL RESOLUTION NO. 6136 - 071983							
FILE NO: 80016-IC-744							



PROP HYDRANT NO. 19
STA. 32+02±@ 18.5± RT. (MUELLER)
FLANGE ELEV. 97.4± (SEE NOTE #1)
1-8" ANCHORING PIPE, CLOW F-1216 OR EQUAL
AUX. VALVE (MUELLER)
1-18" ANCHORING COUPLING, CLOW F-1211 OR EQUAL

PROP 11 1/4° & 22 1/2° BENDS
STA. 31+39±@ 16± RT.

CECIL F. HARTUNG & W.
HSE. NO. 10151 S. 11TH AVE.
KEY NO. 919-0036
L-11

PROP 8" GATE VALVE
STA. 32+32±@ 12± RT. (IOWA)

ROBERT S. PAMPUCH &
DEBRA R. CHRISTENSEN
HSE. NO. 3522 E. O'BRIEN RD.
KEY NO. 919-0035
L-10

PROP 11 1/4° & 22 1/2° BENDS
STA. 32+41±@ 15± RT.

PROP 1" AIR VENT
STA. 33+00±@ 5± RT.

EXIST. WATER LAT. (TYPICAL)

EXIST. SAN. LAT. (TYPICAL)

PROP 8" GATE VALVE
STA. 28+45±@ 8 RT.

PROP 8"x12" CROSS
STA. 28+40±@ 8 RT. (CLOW)

PROP 8" W.M.
(SEE SH. NO. 9)

CECILIA L. LA SOTA
HSE. NO. 3609 E. O'BRIEN RD.
KEY NO. 918-9973

NOTE #1 THE EXISTING DITCH AT HYDRANT NO. 19 SHALL BE REROUTED TO THE NORTH OF THE PROPOSED HYDRANT. THE AREA BETWEEN THE HYDRANT AND EDGE OF SHOULDER SHALL BE FILLED WITH CRUSHED STONE. THE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR HYDRANT SETTING.

SECTION (A) ALTERNATE "A" D.I.P., CLASS 52, PE. WRAPPED
ALTERNATE "B" P.V.C., CLASS 150, SAND
BEDDING AND COVER

CONTR.: TOMARO
INSP.: J. KUEHN, M. GLODOSKI
PIPE: 8" D.I.P. CL. 52
SUPP.: CLOW
JOINTS: SBT
COMP. DATE: 10-79
A.B. TO REC.: J.Z. 3-80
A.B. TO TRAC.: S.G. 4-80

ESTIMATE OF QUANTITIES

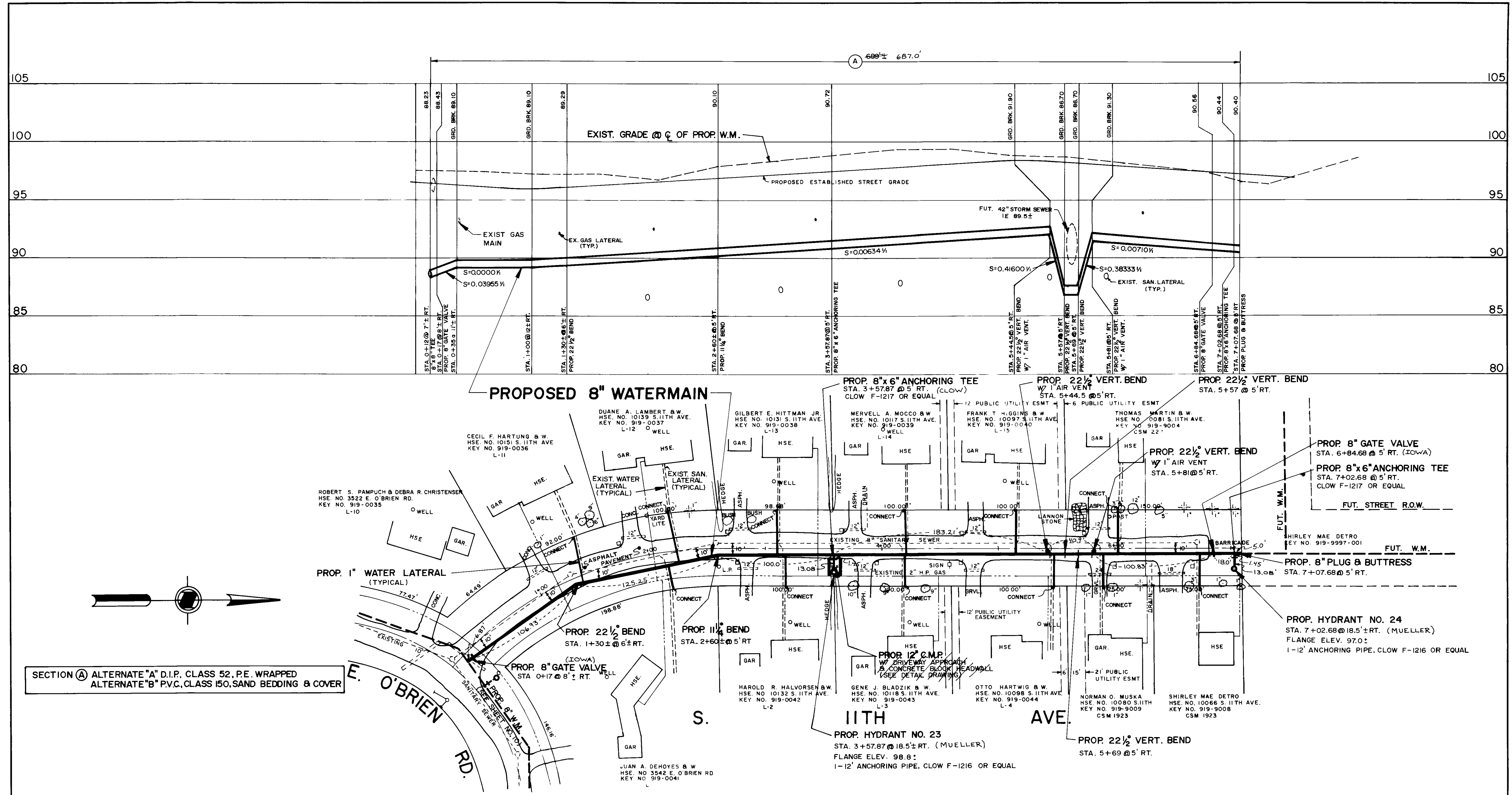
(A) 8" WATER MAIN, GRAVEL BACKFILL, SURFACE REST.	617.8
8" GATE VALVE	2 EACH
SET HYDRANT AND AUX. VALVE	1 EACH
6" D.I.P. HYDRANT LEAD, CLOW F-1216 ANCHORING PIPE OR EQUAL, P.E. WRAP, GRAVEL BACKFILL, SURFACE REST.	12.1 LIN. FT.
1" COPPER WATER LATERAL, AVE. LENGTH 32', GRAVEL BACKFILL, SURFACE REST.	10.45
CONNECT NEW WATER LAT. TO EXIST HOUSE LAT.	3 EACH
1" AIR VENT	1 EACH

EXAMINED AND RECOMMENDED FOR APPROVAL:
THIS IS TO CERTIFY THAT THIS PLAN WAS APPROVED BY THE WATER WORKS AND SEWER UTILITY COMMISSION OF OAK CREEK AT A REGULAR MEETING ON
DATE: 3/25/79
BY: [Signature]

SA. E.C.F.	
ST. E.C.F.	
W. E.C.F.	
G. R.A.	
E. R.A.	
T. R.A.	
I. R.A.	
TS. R.A.	
PP. R.A.	

CITY OF OAK CREEK, WISCONSIN - ENGINEERING DEPARTMENT					
DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	DATE
E.C. FAUCETT	1/79	R.A. B.C.	1/79	[Signature]	3/79
APPROVED BY: [Signature] 3-30-79					
CITY ENGINEER					
PROPOSED 8" WATERMAIN					
IN: EAST O'BRIEN ROAD					
FROM: APPROX. 45 FT. EAST OF FUTURE SOUTH 10TH AVE. (STA. 28+00)					
TO: APPROX. 163 FT. SOUTHWEST OF SOUTH 11TH AVE. (STA. 34+00)					
APPROVED BY COUNCIL RESOLUTION NO. 4699-032079					
FILE NO.: 78006-10C-579					

NOTE: THE LOCATION AND SIZE OF ALL UNDERGROUND STRUCTURES SHOWN HEREON HAVE BEEN LOCATED TO A REASONABLE DEGREE OF ACCURACY, BUT THE CITY OF OAK CREEK DOES NOT GUARANTEE THEIR EXACT LOCATION OR THE LOCATION OF OTHERS NOT SHOWN.



SECTION (A) ALTERNATE "A" D.I.P. CLASS 52, P.E. WRAPPED
ALTERNATE "B" P.V.C. CLASS 150, SAND BEDDING & COVER

CONTR.: TOMARO
INSP.: M. GLODOSKI
PIPE: 8" D.I.P. CL. 52
SUPP: CLOW
JOINTS: SBT
COMP. DATE: 10-79
A.B. TO REC.: J.Z. 3-8
A.B. TO TRAC.: S.G.D. 4-80

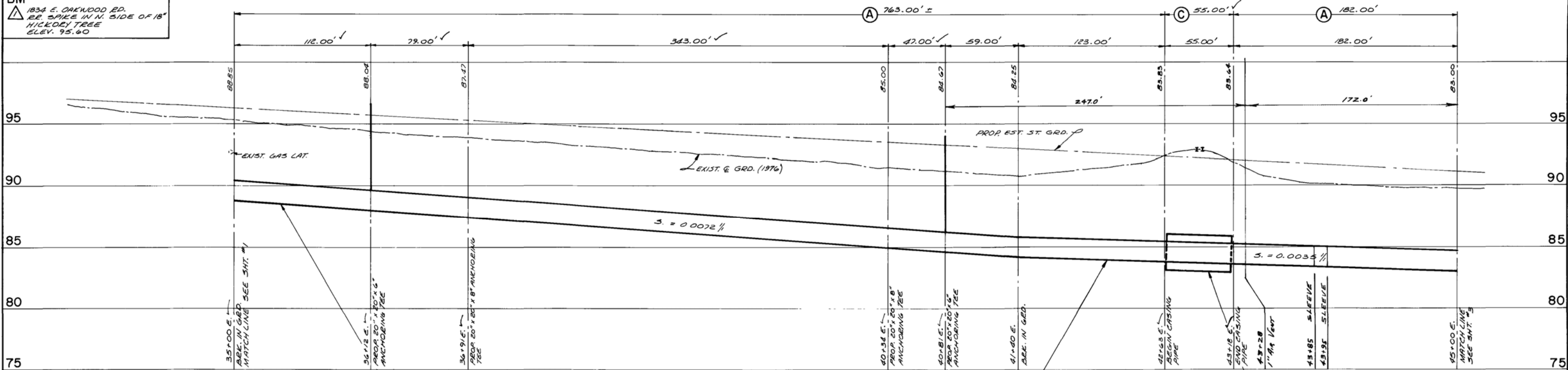
NOTE:
THE LOCATION AND SIZE OF ALL UNDERGROUND
STRUCTURES SHOWN HEREON HAVE BEEN LOCATED
TO A REASONABLE DEGREE OF ACCURACY, BUT
THE CITY OF OAK CREEK DOES NOT GUARANTEE
THEIR EXACT LOCATION OR THE LOCATION OF
OTHERS NOT SHOWN.

ESTIMATE OF QUANTITIES		687.0
(A) 8" WATER MAIN, GRAVEL BACKFILL, SURFACE RESTORATION	687.0	L.F.
8" GATE VALVE	2EA	
SET HYDRANT AND AUX. VALVE	2EA	
6" D.I.P. HYDRANT LEAD, CLOW F-1216 ANCHORING PIPE OR EQUAL, PE WRAP, GRAVEL BACKFILL, SURFACE RESTORATION	29.0	L.F.
1" COPPER WATER LATERAL, AVE. LENGTH 32' GRAVEL BACKFILL, SURFACE RESTORATION	12EA	
CONNECT NEW WATER LATERAL TO EXISTING HOUSE LATERAL	12EA	
1" AIR VENT	2EA	
12" C.M.P. W/ DRIVEWAY APPROACH	12L.F.	

EXAMINED AND RECOMMENDED FOR APPROVAL:
[Signature]
CITY ENGINEER
THIS IS TO CERTIFY THAT THIS PLAN WAS APPROVED
BY THE WATER WORKS AND SEWER UTILITY COMMISSION
OF OAK CREEK AT A REGULAR MEETING ON
DATE 3/30/79
[Signature]
PRESIDENT

SA. ST. W. G. E. T. L. TS. PP.		CITY OF OAK CREEK, WISCONSIN - ENGINEERING DEPARTMENT <table><tr><td>DESIGNED BY</td><td>DATE</td><td>DRAWN BY</td><td>DATE</td><td>CHECKED BY</td><td>DATE</td><td>APPROVED BY</td><td>DATE</td></tr><tr><td>E.C. FAUCETT</td><td>1/79</td><td>R.B.</td><td>1/79</td><td><i>[Signature]</i></td><td>1/79</td><td><i>[Signature]</i></td><td>3-30-79</td></tr></table> PROPOSED 8" WATER MAIN IN: SOUTH 11TH AVENUE FROM: EAST O'BRIEN ROAD (STA. 0+00) TO: APPROXIMATELY 710' NORTH OF EAST O'BRIEN ROAD (STA. 7+10) APPROVED BY COUNCIL RESOLUTION NO. 4699-032079	DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE	E.C. FAUCETT	1/79	R.B.	1/79	<i>[Signature]</i>	1/79	<i>[Signature]</i>	3-30-79	<table><tr><th>SCALE</th><th>SHEET</th></tr><tr><td>PLAN HOR. 1"=40'</td><td>12 OF</td></tr><tr><td>PROFILE HOR. 1"=40'</td><td></td></tr><tr><td>VER. 1"=4'</td><td>16</td></tr></table> FILE NO: 78006-12C-581	SCALE	SHEET	PLAN HOR. 1"=40'	12 OF	PROFILE HOR. 1"=40'		VER. 1"=4'	16
DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE																				
E.C. FAUCETT	1/79	R.B.	1/79	<i>[Signature]</i>	1/79	<i>[Signature]</i>	3-30-79																				
SCALE	SHEET																										
PLAN HOR. 1"=40'	12 OF																										
PROFILE HOR. 1"=40'																											
VER. 1"=4'	16																										

BM
1834 E. OAKWOOD RD.
EE. SPIKE IN N. SIDE OF 18"
HICKORY TREE
ELEV. 95.60



PROPOSED 1" LAT. (TYP.)

PROPOSED 20" WATERMAIN

PROPOSED 20" x 20" x 8" ANCHORING TEE (F-1221)
8" M.J. G.V., 1 LENGTH OF 8" PIPE (B)
8" PLUG, & CONC. BUTT.

PROPOSED HYDRANT NO. 3
STA. 40+81, AT 21' LT.
FLANGE EL. 91.9
1-15' ANCHORING PIPE (F-1216)
AUXIL. VALVE, W/M.J.
20" x 20" x 6" ANCHORING TEE
(F-1221) 3' LT.

PROPOSED 36" x 55' LG. CASING PIPE (C) (SEE NOTE 1)

PROPOSED HYDRANT NO. 2
STA. 36+12, AT 21' LT.
FLANGE EL. 95.3
1-15' ANCHORING PIPE (F-1216)
AUXIL. VALVE, W/M.J.
20" x 20" x 6" ANCHORING TEE
(F-1221) 3' LT.

PROPOSED 20" x 20" x 8" ANCHORING TEE (F-1221)
8" M.J. G.V., 1 LENGTH OF 8" PIPE (B)
8" PLUG, & CONC. BUTT. (P.M. 20.0 C.F.)

INSULATE ENTIRE LEAD W/3" THICK x 3' WIDE RIGID BOARD INSULATION WHEN COVER IS LESS THAN 6' (TYP.)

PROPOSED GRAVEL ACCESS DRIVE W/12" CULVERT

NOTE 1: CASING TO BE STEEL ASTM A-53 GRADE B W.M. SHALL BE M.J.

CONTRACTOR: TOWARD CONTRACTORS
PIPE: 20" D.I.P. CL 52
PIPE SUPPLIER: U.S. PIPE CO.
JOINTS: BELTITE
INSPECTORS: J. KUHN, B. JAHNS, M. GLEDASKI
DATE COMPLETED: MAY 82
LATERAL INSPECTOR: LEO HAGOPIAN
AS/3 TO RECORD: LEO HAGOPIAN 3/83
RECORD TO TRACING: J. KUHN 4/85

E. OAKWOOD ROAD

ESTIMATE of QUANTITIES

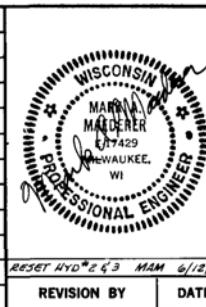
(A)	20" D.I. WATERMAIN, CLASS 52, POLY WRAPPED, SAND ENVELOPE, GEVL. B.F., SURFACE RESTORATION	945.0 L.F.
(B)	8" D.I. WATERMAIN, CLASS 52, M.V., POLY WRAPPED, SAND ENVELOPE, GEVL. B.F., SURFACE RESTORATION	36.0 L.F.
(C)	20" D.I. WATERMAIN, CLASS 52, M.V., POLY WRAPPED, WITHIN 36" CASING PIPE, BORED AND JACKED, SUR. REST.	55.0 L.F.
	8" GATE VALVE	2 EA.
	HYD. & AUX. VALVE SETTING	2 EA.
	6" HYD. LEAD, POLY WRAPPED, SAND ENVELOPED, GEVL. B.F., SURFACE RESTORATION	350.360 L.F.
	1" WATER LAT. GEVL. AND GROUND B.F. (AVE. LENGTH 36 FT.) SURFACE RESTORATION	2 EA.
	HYD. GEVL. ACCESS DRIVE	2 EA.
	1" AIR VENT	1 EA.

NOTE: THE LOCATION AND SIZE OF ALL UNDERGROUND STRUCTURES SHOWN HEREON HAVE BEEN LOCATED TO A REASONABLE DEGREE OF ACCURACY, BUT THE CITY OF OAK CREEK DOES NOT GUARANTEE THEIR EXACT LOCATION OR THE LOCATION OF OTHERS NOT SHOWN.

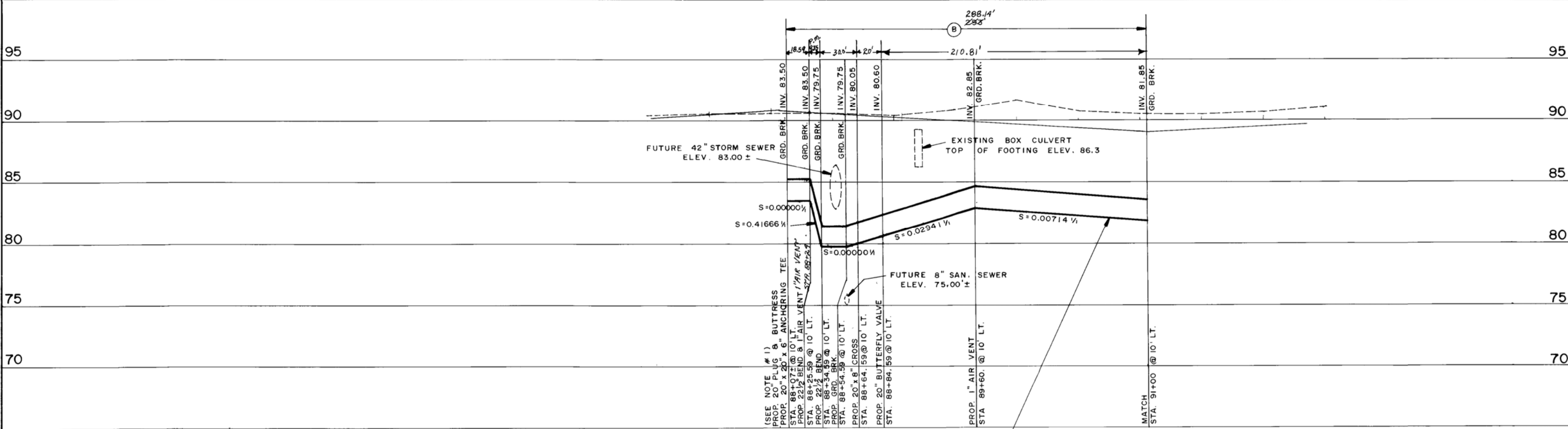
EXAMINED AND RECOMMENDED FOR APPROVAL:

THIS IS TO CERTIFY THAT THIS PLAN WAS APPROVED BY THE WATER WORKS AND SEWER UTILITY COMMISSION OF OAK CREEK AT A REGULAR MEETING ON DATE 6-1-82
J. C. Spacil
PRESIDENT

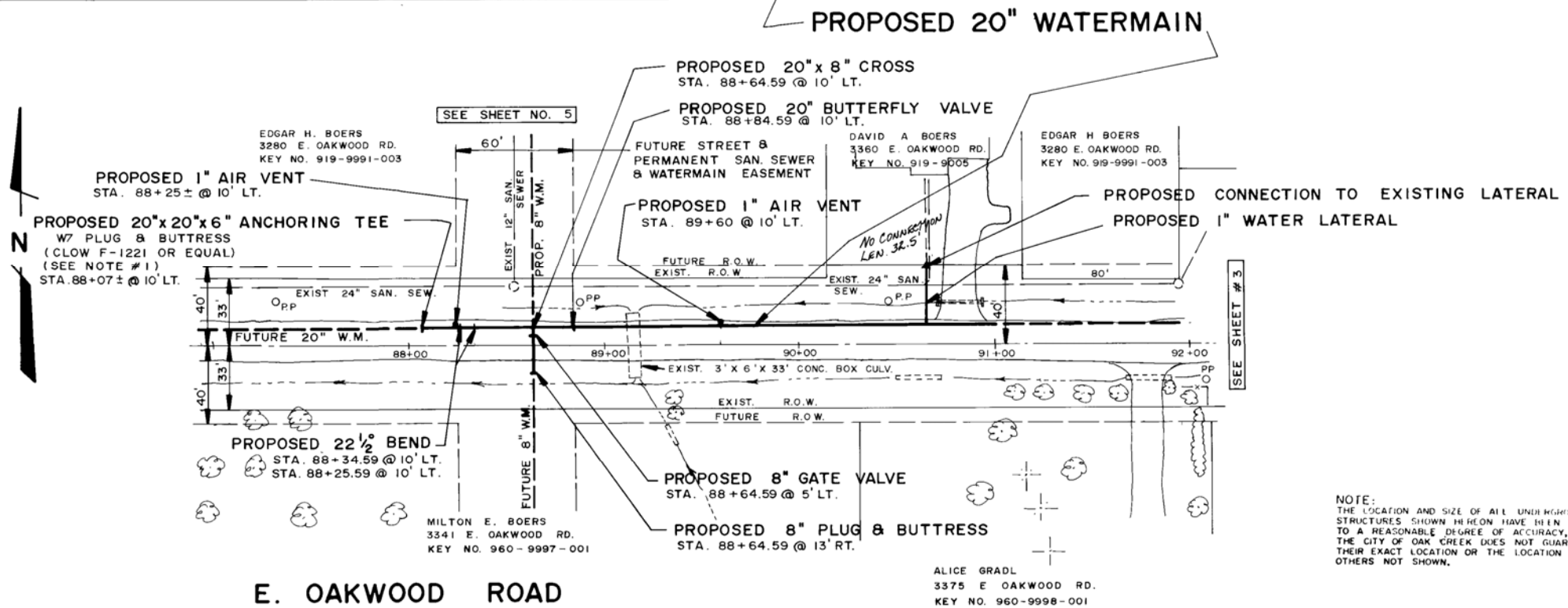
SA. TEB
ST. TEB
W. TEB
G. TEB
E. TEB
T. TEB
I. TEB
TS. TEB
PP. TEB



CITY OF OAK CREEK, WISCONSIN - ENGINEERING DEPARTMENT			
DESIGNED BY	DATE	DRAWN BY	DATE
GCB	5/12/82	JRB, FKO	5/12/82
CHECKED BY	DATE	APPROVED BY	DATE
MAM	5/12/82	W. L. Wilkerson	6/1/82
PROPOSED 20" WATERMAIN			
E. OAKWOOD ROAD			
FROM: APPROX. 850' E. OF S. NICHOLSON ROAD			
TO: APPROX. 1850' E. OF S. NICHOLSON ROAD			
APPROVED BY COUNCIL RESOLUTION NO. 5695-042082			
FILE NO: 93342-2C-697			




NOTE # 1 THE CONTRACTOR SHALL CONNECT A TEMPORARY FLUSHING HYDRANT TO THE PROPOSED 20"x20"x6" ANCHORING TEE AT STATION 88+07. SAID HYDRANT WILL BE USED FOR THE FLUSHING AND TESTING OF THE PROPOSED WATERMAIN. AFTER THE MAINS HAVE BEEN TESTED AND ACCEPTED BY THE CITY THE CONTRACTOR SHALL REMOVE THE TEMPORARY FLUSHING HYDRANT AND, PLUG AND BUTTRESS THE ANCHORING TEE. THE COST OF SETTING AND REMOVING THE TEMPORARY FLUSHING HYDRANT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE 20" WATERMAIN. THE TEMPORARY HYDRANT WILL BE FURNISHED BY THE CITY.

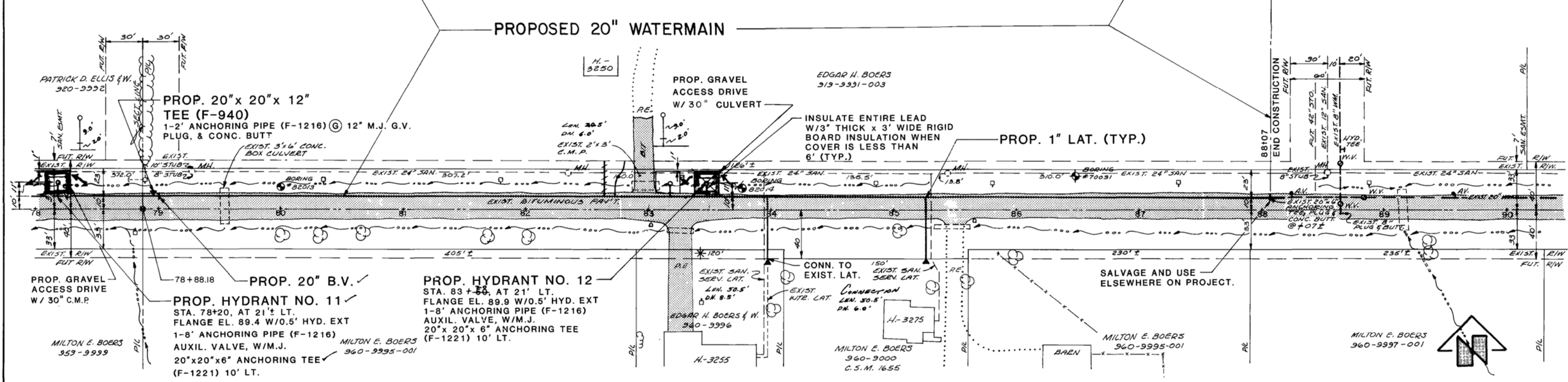
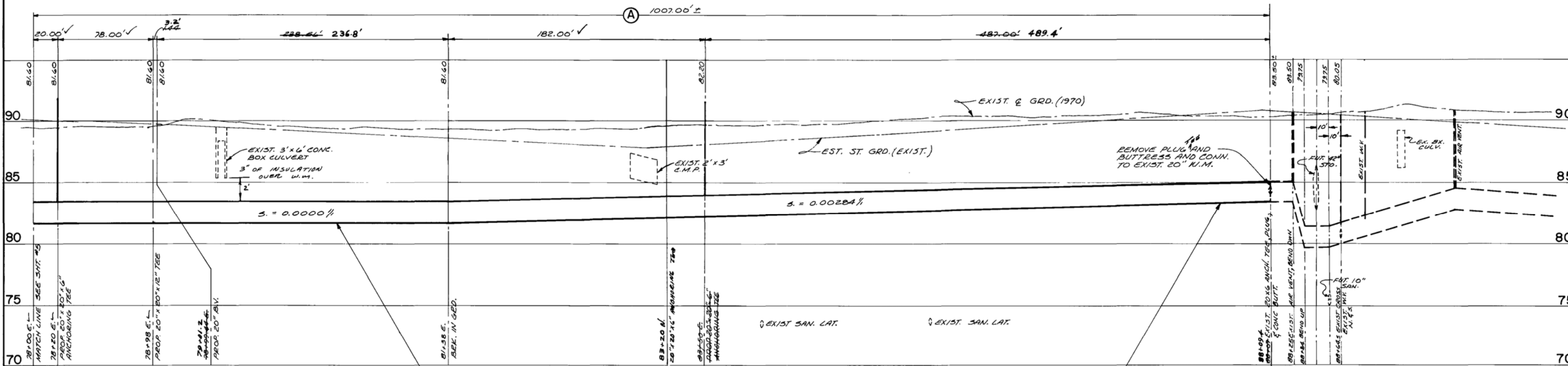


NOTE: THE LOCATION AND SIZE OF ALL UNDERGROUND STRUCTURES SHOWN HEREON HAVE BEEN LOCATED TO A REASONABLE DEGREE OF ACCURACY, BUT THE CITY OF OAK CREEK DOES NOT GUARANTEE THEIR EXACT LOCATION OR THE LOCATION OF OTHERS NOT SHOWN.

ESTIMATE OF QUANTITIES	
(B) 20" D.I.P. WATERMAIN, CLASS 52, POLY. WRAPPED, GRAVEL BACKFILL, ASPHALT PAVEMENT RESTORATION	289.5 P.M. 288 LIN.FT.
(E) 8" WATERMAIN, (D.I.P. CLASS 52, POLY WRAPPED OR P.V.C.) GRAVEL BACKFILL, ASPHALT PAVEMENT RESTORATION	23 LIN.FT.
20" BUTTERFLY VALVE	1 EACH
8" GATE VALVE	1 EACH
1" AIR VENT	2 EACH
1" COPPER WATER LATERAL, AVE. LENGTH 50', GROUND AND GRAVEL BACKFILL, SURFACE RESTORATION	1 EACH
CONNECT NEW LATERAL TO EXISTING HOUSE LATERAL	XXXXX

EXAMINED AND RECOMMENDED FOR APPROVAL:
R. E. O'Connell
UTILITY MANAGER
THIS IS TO CERTIFY THAT THIS PLAN WAS APPROVED BY THE WATER WORKS AND SEWER UTILITY COMMISSION OF OAK CREEK AT A REGULAR MEETING ON
DATE: 8-19-81
W. E. Spaul
PRESIDENT

SA. RB		CITY OF OAK CREEK, WISCONSIN - ENGINEERING DEPARTMENT							
ST. RB		DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	
W. RB		E. C. FAUCETT	8/81	R. BULGER	8/81	ecf/rtf	8/81	<i>Chris P. Sullivan</i>	
G. RB		PROPOSED 20" D.I.P. WATERMAIN						SCALE	SHEET
E. RB		IN: EAST OAKWOOD ROAD						PLAN	4
T. RB		FROM: 533'± WEST OF S. 12TH AVENUE (STA. 91+00)						PROFILE	OF
I. RB		TO: 826'± WEST OF S. 12TH AVENUE (STA. 88+07)						HOR. 1" = 40'	7
TS. RB		APPROVED BY COUNCIL RESOLUTION NO. 5415 - 080481						VER. 1" = 4'	
PP. RB							FILE NO: 80005-4C-664		



CONTRACTOR: TOMARO CONTRACTORS
 PIPE: 20" D.I.R. CL. 52
 PIPE SUPPLIER: U.S. PIPE CO.
 JOINTS: BELTITE
 INSPECTORS: J. KUBAN, B. JAHNS, M. GLODOSKI
 COMPLETION DATE: Nov 82
 LATERAL INSPECTOR: Leo Haganian 2/83
 RECORD TO TRACING: Jim Kuhnarske 1/85



ESTIMATE of QUANTITIES	
(A) 20" D.I. WATERMAIN, CLASS 52, POLY WRAPPED, SAND ENVELOPE, GEVL. D.F., SURFACE RESTORATION	1009.4 L.F.
(G) 12" D.I. WATERMAIN, CLASS 52, POLY WRAPPED, SAND ENVELOPE, GEVL. B.F., SURFACE RESTORATION	2.4 L.F.
12" GATE VALVE	1 EA.
20" BUTTERFLY VALVE	1 EA.
HYD. & AUX. VALVE SETTING	2 EA.
6" HYD. LEAD, POLY WRAPPED, SAND ENVELOPE, GEVL. B.F. - 22.0 L.F.	22.0 L.F.
1" WATER LAT., GEVL. AND GROUND B.F. (AVE. LENGTH 36' FT) - 3 EA.	3 EA.
CONNECT LATERAL TO EXIST. BLDG. LATERAL	2 X EA.
HYD. GEVL. ACCESS DRIVE	2 X EA.

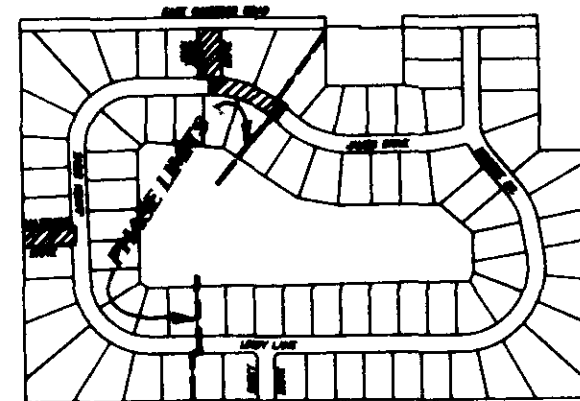
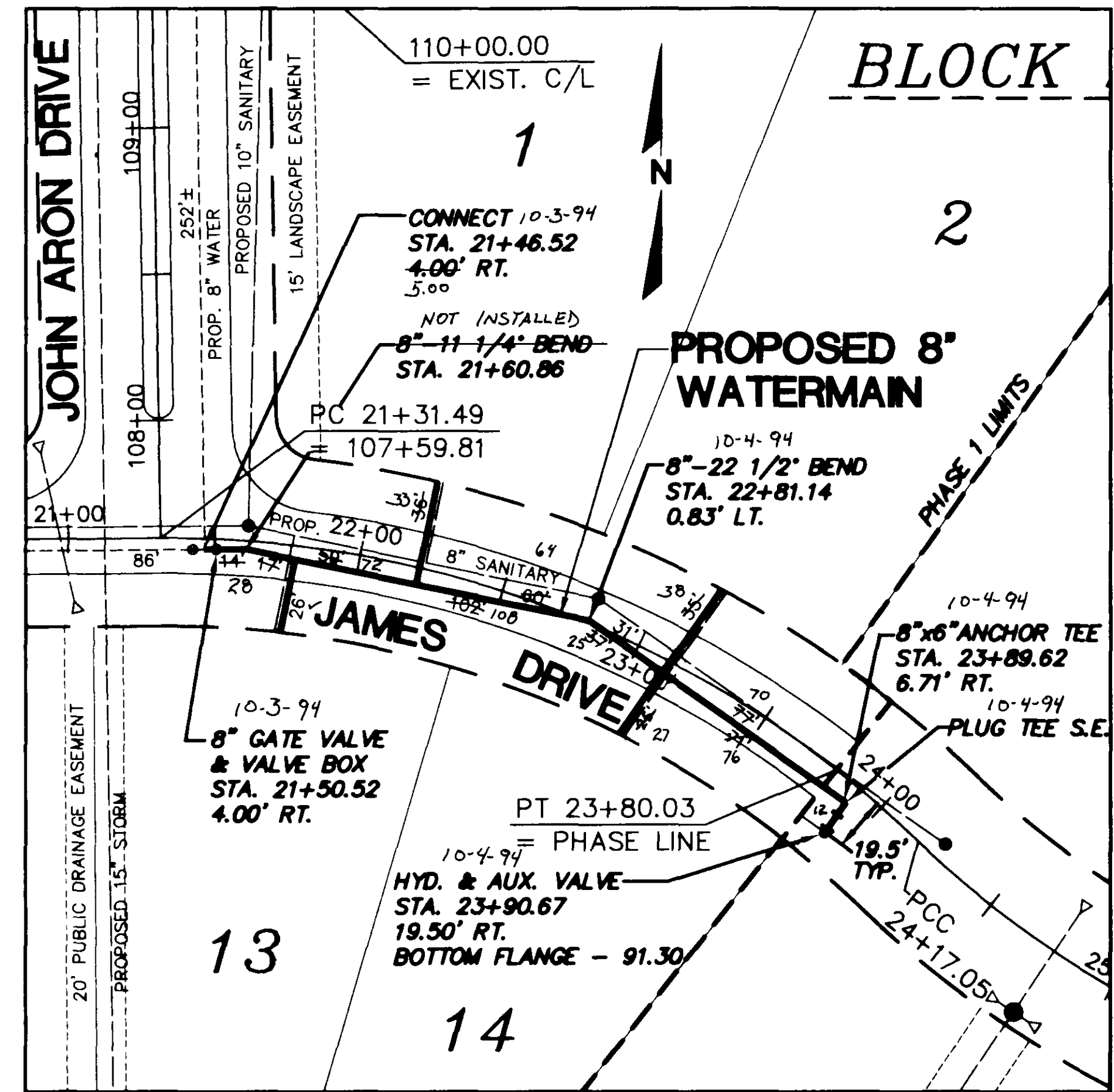
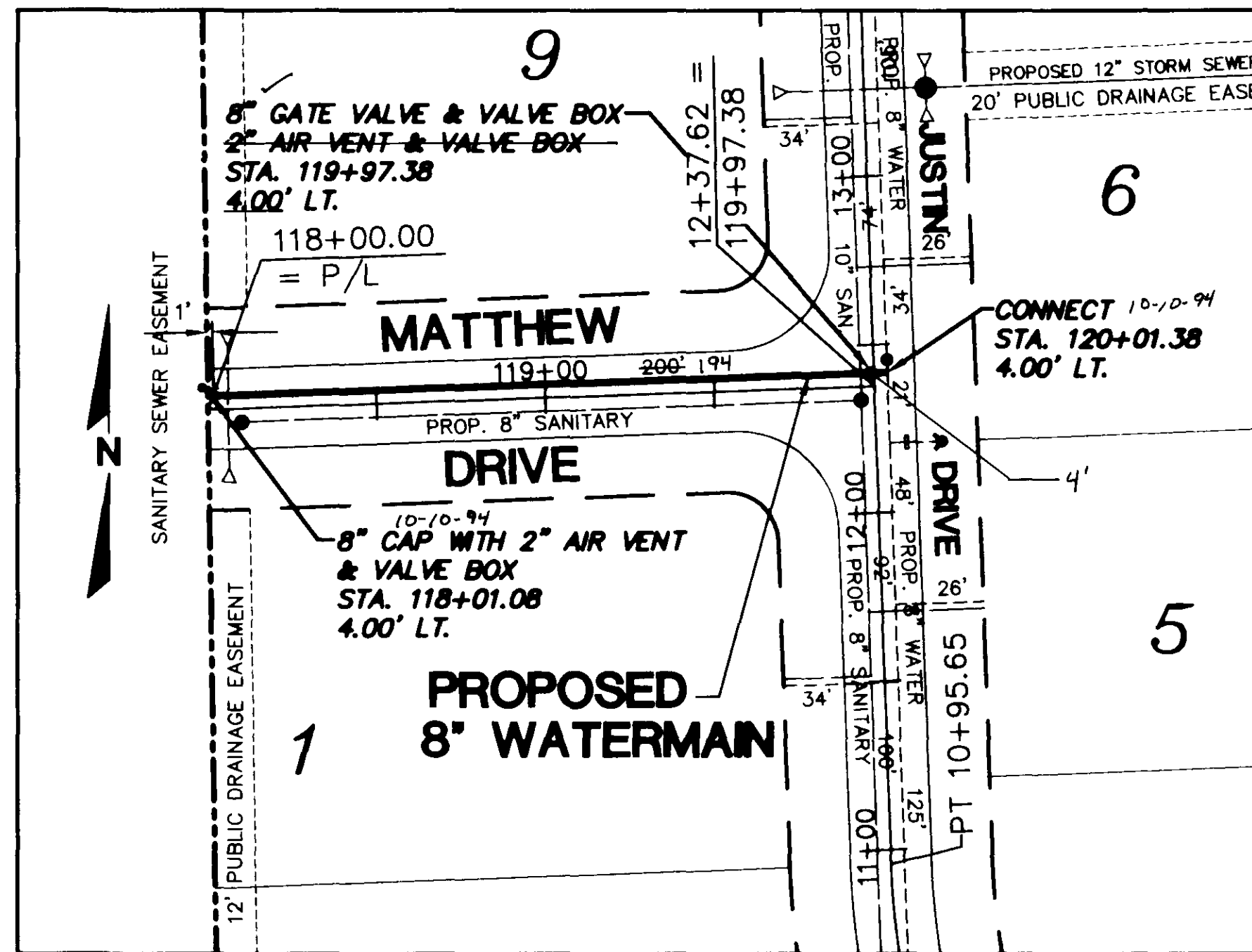
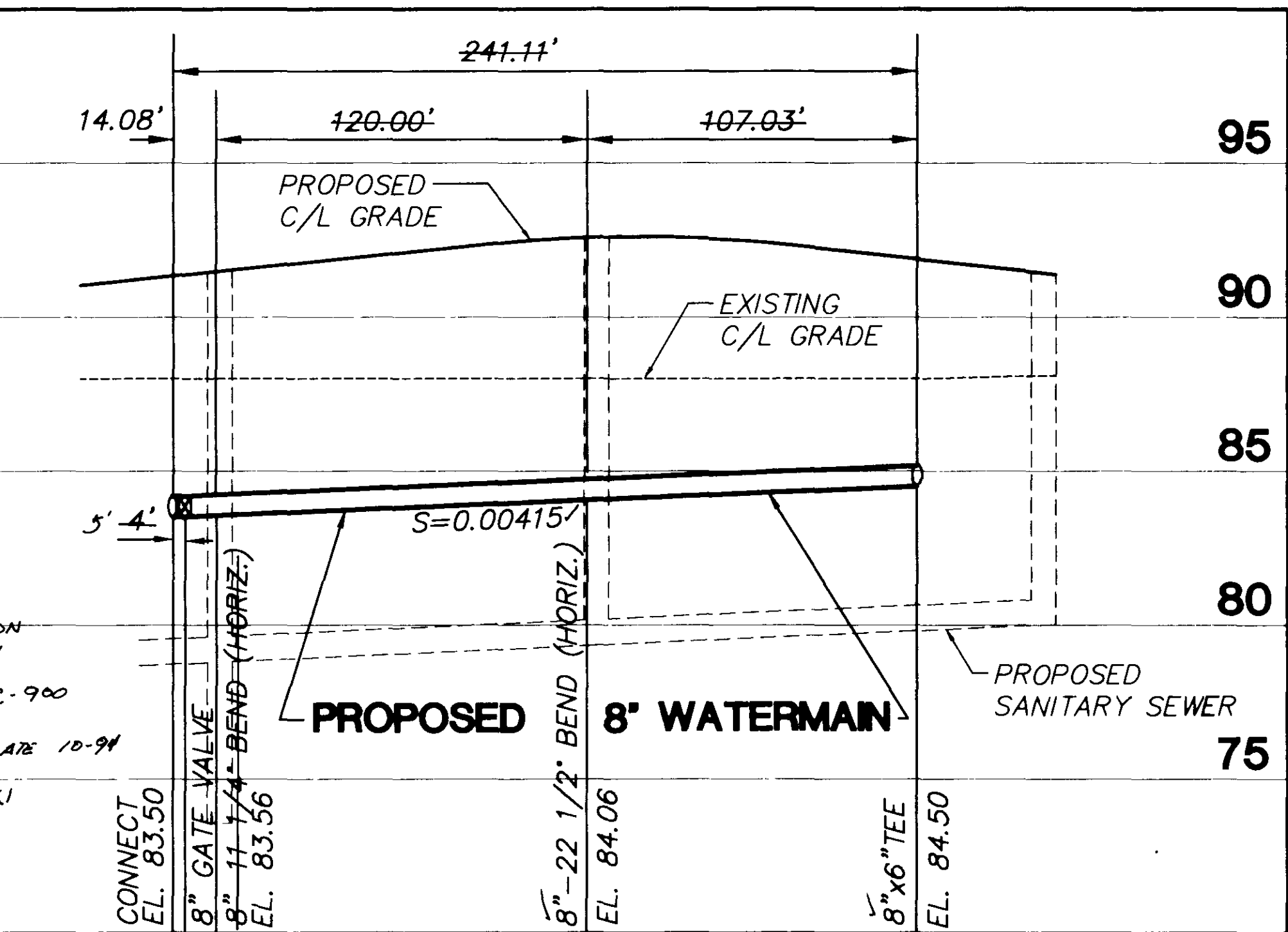
NOTE: THE LOCATION AND SIZE OF ALL UNDERGROUND STRUCTURES SHOWN HEREON HAVE BEEN LOCATED TO A REASONABLE DEGREE OF ACCURACY, BUT THE CITY OF OAK CREEK DOES NOT GUARANTEE THEIR EXACT LOCATION OR THE LOCATION OF OTHERS NOT SHOWN.

EXAMINED AND RECOMMENDED FOR APPROVAL:
 H. E. Allen
 UTILITY MANAGER

THIS IS TO CERTIFY THAT THIS PLAN WAS APPROVED BY THE WATER WORKS AND SEWER UTILITY COMMISSION OF OAK CREEK AT A REGULAR MEETING ON
 DATE: 6-1-82
 H. E. Allen
 PRESIDENT

SA. TEB	ST. TEB	W. TEB	G. TEB	E. TEB	T. TEB	I. TEB	TS. TEB	PP. TEB
REVISION BY	DATE	REVISION BY	DATE	REVISION BY	DATE	REVISION BY	DATE	REVISION BY

CITY OF OAK CREEK, WISCONSIN - ENGINEERING DEPARTMENT							
DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
GCB	5/12/82	JOB, FKO	5/12/82	MAM	5/12/82	John P. Williams	6/1/82
PROPOSED 20" WATERMAIN						SCALE	
IN: E. OAKWOOD ROAD						SHEET 6	
FROM: APPROX. 2585' E. OF S. PENNSYLVANIA AVE.						OF 6	
TO: APPROX. 3785' E. OF S. PENNSYLVANIA AVE.						VER. 6	
APPROVED BY COUNCIL RESOLUTION NO. 5695-042082						FILE NO: 93342-6C-701	



VICINITY MAP

THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE. THERE MAY BE OTHER UNDERGROUND UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

ALL EROSION CONTROL MATERIALS AND PROCEDURES SHALL CONFORM TO THE SPECIFICATIONS, LOCAL ORDINANCES AND CODES, AND THE WISCONSIN EROSION CONTROL BEST MANAGEMENT PRACTICE HANDBOOK.


ESTIMATE OF QUANTITIES	
8" WATERMAIN D.I.P. CL 52, POLYWRAP OR P.V.C. CL 150, SAND BEDDING & COVER	✓ 692 LF
(GRAN. BACKFILL)	
SCREENING	12
6" HYDRANT LEAD	✓ 13 LF
HYDRANT & AUX. VALVE	✓ 1 EA.
8" GATE VALVE	✓ 2 EA.
1" ^{PVC} COPPER-WATER LATERAL	124
(GRAN. BACKFILL)	✓ 122 LF
(15 UNITS) 4	
20"x8" TAPPING SLEEVE & VALVE	✓ 1 EA.

SA	N.S.&E
ST	N.S.&E
W	N.S.&E
G	N.S.&E
E	N.S.&E
T	N.S.&E
I	N.S.&E
TS	N.S.&E
PP	N.S.&E

A circular professional engineer seal for the State of Wisconsin. The outer ring contains the text "WISCONSIN" at the top and "PROFESSIONAL ENGINEER" at the bottom, separated by two stars. The inner circle contains the name "LEROY G. SCHLITZ", the license number "807323", and the specialty "MECHANICAL" followed by "WIS.".

BULL #1	9-13-5
REVISION BY	DATE

CITY OF OAK CREEK, WISCONSIN - ENGINEERING DEPARTMENT

DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY			
RTW	3/94	JDR	3/94	L.G. SCHLITZ	3/94	<div><div> CITY ENGINEER</div><div>DATE 9-15-94</div></div>			
<div><div>PROPOSED WATERMAIN PHASE I</div><div><div><div>IN: JOHN ARON DR. FROM: JAMES DRIVE TO: E. OAKWOOD RD.</div><div>IN: MATTHEW DRIVE FROM: 200' WEST OF JUSTIN DRIVE TO: JUSTIN DRIVE</div><div>IN: JAMES DRIVE FROM: JOHN ARON DR. TO: 250' EAST OF JOHN ARON DR.</div></div></div></div>						SCALE		SHEET	
						PLAN HOR. 1"=40'		9	
						PROFILE HOR. 1"=40'		OF	
						VER. 1"=4'		9	
						APPROVED BY COUNCIL RESOLUTION NO.			