WOODBRIDGE IRRIGATION DISTRICT

AGRICULTURAL WATER MANAGEMENT PLAN

Prepared Pursuant to Water Code Section 10826

Woodbridge Irrigation District
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Appendices

Woodbridge Irrigation District (WID), 18750 North Lower Sacramento Road, Woodbridge, California, 95258 Phone: 209-625-8438 email: widirrigation@gmail.com
Designated Water Conservation Coordinator: Anders Christensen, WID Manager.

Under the Emergency Services Act, in response to the declared Drought Emergency, California Governor Brown issued Executive Order (EO) B-29-15 on April 1, 2015 that required all agricultural water suppliers that supply 10,000 irrigated acres or more are required to develop an AWMP with a detailed Drought Management Plan, and water demands for 2013, 2014, and 2015 and submit it to DWR by July 1, 2016 (Directive 13).

Legislation passed in 2009 referred to as SBX7-7 made mandatory the requirements of adopting and implementing a water management plan due in 2012. The District's last water management plan was submitted in 2014 and has served the District until present.

California Water Code, Division 6, Part 2.55. Sustainable Water Sue and Demand Reduction

CHAPTER 4. AGRICULTURAL WATER SUPPLIERS

10608.48. (a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c).

(b) Agricultural water suppliers shall implement all of the following critical efficient management practices:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:

(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage.

(2) Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils.

(3) Facilitate the financing of capital improvements for on-farm irrigation systems.

(4) Implement an incentive pricing structure that promotes one or more of the following goals:

(A) More efficient water use at the farm level.

(B) Conjunctive use of groundwater.

(C) Appropriate increase of groundwater recharge.

(D) Reduction in problem drainage.

(E) Improved management of environmental resources.

(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions.

(5) Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage.

(6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits.

(7) Construct and operate supplier spill and tail-water recovery systems.

(8) Increase planned conjunctive use of surface water and groundwater within the supplier service area.

(9) Automate canal control structures.

(10) Facilitate or promote customer pump testing and evaluation.

(11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.

(12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:

(A) On-farm irrigation and drainage system evaluations.

(B) Normal year and real-time irrigation scheduling and crop evapo transpiration information.

(C) Surface water, groundwater, and drainage water quantity and quality data.

(D) Agricultural water management educational programs and materials for farmers, staff, and the public.

(13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage.

(14) Evaluate and improve the efficiencies of the supplier's pumps.

(d) Agricultural water suppliers shall include in the agricultural water management plans required pursuant to Part 2.8 (commencing with Section 10800) a report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.

(e) The data shall be reported using a standardized form developed pursuant to Section 10608.52.

(f) An agricultural water supplier may meet the requirements of subdivisions (d) and (e) by submitting to the department a water conservation plan submitted to the United States Bureau of Reclamation that meets the requirements described in Section 10828.

(g) On or before December 31, 2013, December 31, 2016, and December 31, 2021, the department, in consultation with the board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented and an assessment of the manner in which the implementation of those efficient water management practices has affected and will affect agricultural operations, including estimated water use efficiency improvements, if any.

(h) The department may update the efficient water management practices required pursuant to subdivision (c), in consultation with the Agricultural Water Management Council, the United States Bureau of Reclamation, and the board. All efficient water management practices for agricultural water use pursuant to this chapter shall be adopted or revised by the department only after the department conducts public hearings to allow participation of the diverse geographical areas and interests of the state.

(i) (1) The department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of

subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.
Added by: Stats. of 2009, 7th Ex. Sess., Chapter 4 - §1 Effective: February 3, 2010.

List of Acronyms:

AWMP	Agricultural Water Management Plans
AF	Acre Feet (1 AF = 325,850 gallons)
CFS	Cubic Feet per Second (1 CFS = 1.9834 Acre Feet/Day)
CWC	California Water Code
DWR	Department of Water Resources
EBMUD	East Bay Municipal Utility District
EWMP	Efficient Water Management Practice
Executive Order	Executive Order B-29-15, By Governor Brown, April 1, 2015
FERC	Federal Energy Regulatory Commission, Department of Energy
GBA	Ground Water Basin Authority
JSA	A 1996 Joint Settlement Agreement (An agreement between EBMUD, Federal Energy Regulatory Administration and Federal and State Resource Agencies as part of the license modification and renewal of FERC 2914.
SB X7-7	Senate Bill X7-7, the Water Conservation Act of 2009 promoting water management and conservation.
SEWD	Stockton East Water District
SCADA	Supervisory Control and Data Acquisition: a computer system providing for data acquisition, automatic remote motor control operation and data record storage, camera based security system at remote sites accessible by the District's computer interface by desktop and tablet.
SWRCB	State Water Resources Control Board
TAF	Thousand Acre Feet
WID	Woodbridge Irrigation District

Section I: Introduction

Description of Previous Water Management Activities

In compliance with the passage of AB 3030, the Woodbridge Irrigation District (WID) Board of Directors adopted a groundwater management plan on February 14, 1995. The plan called for assessing the quality and levels of groundwater within the boundaries of the District, and adopting appropriate improvement programs.

More recently however, WID adopted the 2014 AWMP in September of 2013. This plan was prepared by WID and meets the requirements of the Water Conservation Act of 2009 (SB X7-7). SB X7-7 modified Division 6 of the California Water Code, adding Part 2.55 (commencing with §10608) and replacing Part 2.8 (commencing with §10800). In particular, SB X7-7 required an AWMP to be produced by all agricultural water suppliers that met the following definition:

> "Agricultural water supplier" is defined as a water supplier, either publicly or privately owned, providing water to 2,000 or more irrigated acres, excluding recycled water".

"Agricultural water supplier" includes a supplier or contractor for water regardless of the basis of right that distributes or sells water for ultimate resale to customers to prepare and adopt an AWMP as set forth in the CWC and the California Code of Regulations (CCR) on or before December 31, 2012. The Plan must be updated by December 31, 2015 and then every 5 years thereafter (§10820 (a)). Additionally, the CWC requires suppliers to implement certain efficient water management practices (EWMPs). a) Specific critical EWMPs must be implemented by the agricultural water supplier. These include: (1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2). (2) Adopt a pricing structure for water customers based at least in part on quantity delivered. It is required by the CCR for all water suppliers as defined in the CCR §597 et seq.to measure water with devices that comply with the accuracy standards of the water measurement regulation.

Coordination Activities

Notification of AWMP Preparation

As indicated in (CWC §10821(a)), WID notified San Joaquin County, as well as the Cities of Lodi and Stockton on April 17, 2016 that the AWMP has been updated. Prior to adoption, the updated AWMP was made available for public inspection and a public hearing on the plan was held on June 9, 2016, pursuant to (CWC §10820(b), and CWC §10841). Prior to the public hearing, notice of the time and place of the hearing was published in the Lodi News Sentinel, once a week for two successive weeks, with at least 5 days intervening between respective publication dates (CWC §10820(b), CWC §10841, and Government Code §6066) (Please see Appendix B).

Public Participation

As indicated above, prior to adoption, the updated AWMP was available for public inspection and a public hearing was held on June 9, 2016 on the plan pursuant to (CWC §10820(b), and CWC §10841).

AWMP Adoption and Submittal

Woodbridge Irrigation District adopted, via a signed resolution, the updated AWMP as prepared or as modified during the hearing (CWC §10841) (Please see Appendix A).

Not later than 30 days after the date of adopting its updated AWMP, Woodbridge Irrigation District will submit an electronic copy to DWR (CWC §10844 (b)). Woodbridge Irrigation District will submit copies to DWR, California State Library, San Joaquin County, Cities of Lodi and Stockton, and the San Joaquin Local Agency Formation Commission (CWC §10843(b)).

AWMP Availability

As indicated in (CWC §10821(a)), WID notified San Joaquin County, as well as the Cities of Lodi and Stockton on April 17, 2016 that the AWMP has been updated. Prior to adoption, the updated AWMP was made available for public inspection and a public hearing on the plan was held on June 9, 2016, pursuant to (CWC §10820(b), and CWC §10841). WID provides that the AWMP will be made available upon request.

AWMP Implementation Schedule

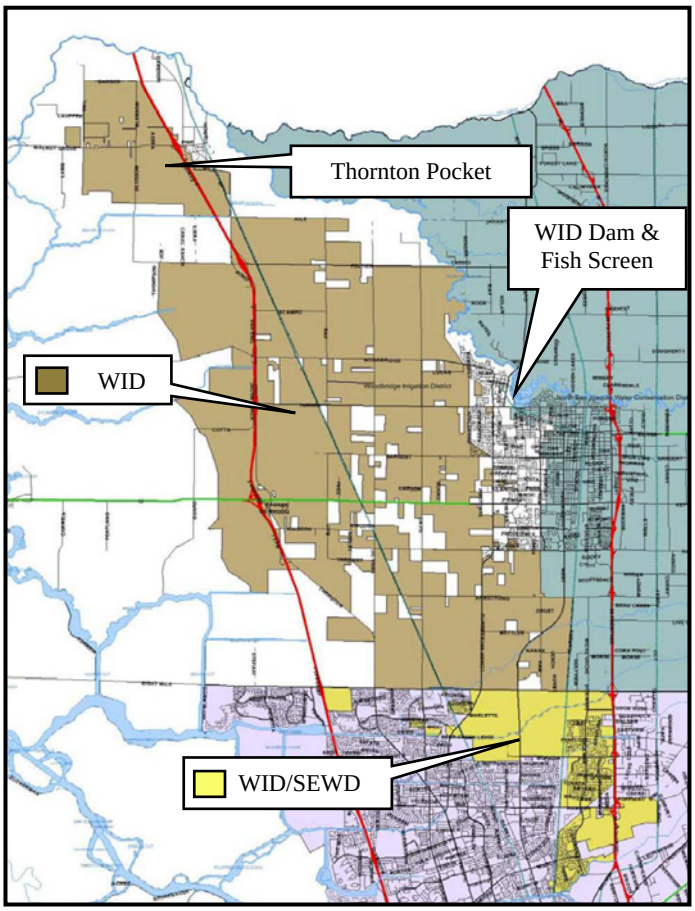
Woodbridge Irrigation District has always throughout its decades of operation, and is currently committed to continual improvements in water delivery infrastructure network and facilities. As work schedules and funding opportunities allow, the District consistently conducts maintenance and repairs on the District's water delivery system as well as efficiency upgrades; particularly the conversions of open canal to closed pipeline systems, thereby reducing water loss to evapotranspiration and groundwater seepage.

Section II: Description of the Agricultural Water Supplier and Service Area

Physical Characteristics

Size and Location of the service area and water management facilities

The Woodbridge Irrigation District, located in northern San Joaquin County, diverts water from the Mokelumne River at Woodbridge, California and from the Delta at the end of Beaver Slough near the community of Thornton, California. The southernmost sector of WID is overlain by a portion of Stockton East Water District (SEWD). The WID system of approximately 100 miles of canals and pipelines has a maximum delivery capability of 414.4 CFS of surface water diverted from the Mokelumne River. The average annual acreage irrigated is approximately 13,000 acres per year directly irrigated from the surface water system. The over 41,000 gross acres within the District boundaries receive percolation benefits from the canal system, including the 13,000 acres directly serviced by the canal system.



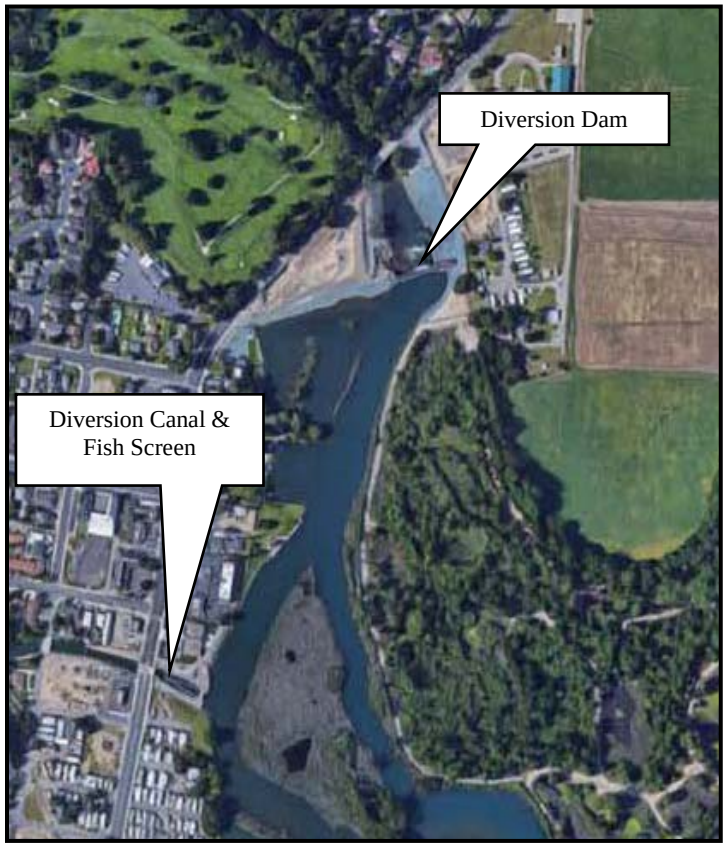
Woodbridge Irrigation District Boundaries

WID's rights to divert water from the Mokelumne River include a pre-1914 appropriative right initiated in 1886 and two licenses issued by the State Water Resources Control Board (SWRCB) in the aggregate amount of 414.4 CFS. The firm yield of WID's Mokelumne River rights to divert water from the Mokelumne is recognized in water rights settlement agreements with East Bay Municipal Utilities District (EBMUD) which owns and operates Camanche and Pardee Dams. The EBMUD-WID agreements provide WID with a minimum of 60 TAF per year when the inflow to Pardee Reservoir is 375 TAF or greater. Water released from Camanche dam in excess of EBMUD's minimum downstream water right obligations (riparian, prior appropriations, flood control, and Joint Settlement Agreement (JSA)) may be taken by WID under the priority of its water rights licenses, subject only to the reasonable beneficial use requirements of the land within WID and the diversion rates set forth in its licenses. During those years when the inflow to Pardee is less than 375 TAF,

the 60 TAF amount is subject to a 35% deficiency which reduces the firm supply to 39 TAF.

A list of the major components of the system facilities are as follows

- State of the Art Dam and Fish Ladders at Woodbridge on the Mokelumne River (2003).
- State of the Art Fish Screen and Automated Head-gate System at Woodbridge
- Canal (2007).
- Supervisory Control and Data Acquisition System (SCADA).
- Wilkerson Canal/Delta Water Treatment Plant Delivery Canal (SCADA Compliant).
- Approximately 88 miles of unlined canals and laterals.
- Approximately 16 miles of concrete lined canals, concrete, and poly vinyl chloride (PVC) pipelines.
- Beaver Slough Diversion Pumps (18.25 CFS)



Woodbridge Irrigation District Diversion Facilities

The Delta water diverted from the Beaver Slough near Thornton, California under an appropriative right amounts to 18.25 cubic feet per second (CFS). The District also has a minor appropriative right to divert water from Pixley Slough. WID's water rights and licenses are summarized in the following table:

Woodbridge Irrigation District Licenses & Permits

Source	Application	Permit	License	Diversion Description	Priority Date
Mokelumne	Pre-1914 Water Rights Allows WID to divert up to 414.4 CFS (S015557)				12/31/1886
Mokelumne	5807	3890	5945	≤ 300 CFS, 2/1 – 10/31	1/20/1928
Mokelumne	10240	6931	8214	≤ 114.4 CFS, 5/1 – 8/31 and 11/1 – 1/31	7/17/1941
Beaver Slough	12648	7277	8215	≤ 18.25 CFS, 1/1 – 12/31	8/12/1948
Pixley Slough	27007	19301	N/A	≤ 3 CFS, 2/1 – 10/31 (Not to exceed 500 AF/Year)	9/15/1981

The entire service area is served by gravity flows from the head works at the diversion canal in Woodbridge. A gravity diversion is achieved when the dam gates are raised thereby creating the Lodi Lake impoundment, which is approximately 1,400 acre feet in

capacity. Control of the system is accomplished by an automatic control system (SCADA) which operates the Dam, the new fish screens and cable overshot control gates providing water level control downstream to the three main branches of the canal system described as the South Main, the West Main, and the North West Main canals. The pumps at Beaver Slough are used to supplement the Mokelumne in all years and may provide the total supply to the Thornton Pocket area (in the northwest sector of WID) in dry years when the District only receives 39 TAF from the Mokelumne.

The meter in the WID Diversion Canal, immediately down from the fish screen, is a SonTek/YSI Argonaut Acoustic Doppler Velocity Meter used to measure WID's entitled diversions from water rights and agreements with East Bay Municipal Utility District (EBMUD). WID employs a certified contractor to operate and maintain this velocity meter as well as log the flow data on a daily basis. Known as Station # 11325000, this metering site was established in 1926 by the United States Geological Survey (USGS). The USGS actively oversees the accuracy of the site and publishes the official annual survey.

Terrain and Soils

Dominant soil types in the area consist primarily of clay, sand, and silty type loams, underlain in many places by a dense hardpan. Terrain is relatively flat and typically exhibits slopes of 0% to 2%, providing for rainwater runoff and drainage to the west/southwest. The majority of land within the WID boundaries are moderately well-drained, textured soils that are relatively deep to a cemented hardpan. In the north-western reaches of the District, soils are somewhat poorly drained, moderately coarse to medium textured, are quite deep and subject to flooding.

Climate

The San Joaquin, California region in general and the Mokelumne River Watershed in particular has experienced periods of both extreme drought and substantial precipitation. The drought periods result from little or no snow melt filling reservoirs thus providing inadequate water supplies for Mokelumne River water right holders, environmental uses, and the District. Average annual rainfall for the area is approximately 15 inches, with the wet season typically extending from October through March. On average, the July high is around 93 degrees and the January low is 37 degrees (Fahrenheit).

Operational Characteristics

Operating rules and regulations

WID's rules and regulations governing irrigations are designed around water efficiency. The following comes directly from *WID's Growers Handbook, Rules and Regulations*:

> 1. **Application for Water:** At the beginning of each irrigation season, each prospective irrigator shall file with the District at the office, a written application and contract for water on forms to be furnished by the District, specifying the kind of crop and number of acres of each crop to be irrigated and such other information as may be desirable. The Ditchtender shall verify the same acreage actually irrigated and report same to the Secretary. The acreage signed will

include the actual crop irrigated plus headlands. If the acreage applied for is not all irrigated, any overpayment may be refunded, provided that notice is given before the first day of August of the current irrigation season. All applications for water shall also be subject to the terms listed in the water application and contract forms.

2. **Payment for Water:** Landowners or tenants whose landowners co-sign this agreement and guaranty payment may be allowed to pay one-half of the amount of the water tolls due or to become due under this contract is payable herewith, for a fee of $25.00, and the remainder is payable on or before October 1, 2015. However, full payment of this contract and standby and groundwater charges will be required if undersigned is a tenant or if the landowner or tenant is delinquent on any amounts owed to the District. Unless full payment of said contract shall be made on or before October 1, 2015, any amount then due the District thereunder shall bear interest at the rate of 1-1/2% per month until paid. Flood or furrow irrigators shall pay for water actually used as determined by the District's metering system. Flood and Furrow Growers shall pay for water actually used and pay additional amounts or may be eligible for a refund of not more than 50% of the duty/allotment billing amount. Drip and Sprinkler metered users are not eligible for a refund due to the discounted rate given on their Water Contract.

3. **Ordering Water:** As long as the water supply is sufficient, water may be ordered for delivery upon a 72-hour notice placed in person or by phone with the District on any business day (Monday-Friday) and between the hours of 8:00 A.M. to 12:00 P.M. and 1:00 P.M. to 5:00 P.M. No water orders to turn water on or off will be left with an answering machine or faxed to the District. Growers placing orders for water shall notify the ditchtender of any changes, to the gate opening and the time of shutting the gate off, prior to making the change. Growers not notifying the ditchtender of such gate changes will be charged for the highest meter flow reading.

4. **Notice of Delivery:** The District shall provide notice of delivery prior to the time water is delivered. The District will strive to allow a 12-hour notice of delivery; however, a shorter notice may be given at the option of the ditchtender.

5. **Condition of "Private" Ditches, Pipelines and Equipment:** All private ditches shall be kept free from weeds and other obstructions and have sufficient capacity to care for a reasonable head of water. In cases where ditches are not in proper condition to receive water, the ditchtenders shall order the ditches cleaned, and failure to do so will be sufficient cause for the refusal of water into the ditch. Where private ditches are constructed closely to paralleling District canals or ditches; a full and complete bank must be constructed adjacent to and in addition to the bank of the District so paralleled. No water shall be provided for unleveled fields or furrow/flood fields that are too high to irrigate. Flood and furrow irrigators shall irrigate continuously until done. Growers may be shut off for excessive discharge of tail water.

6. **Delivery of Water:** When the water supply and the capacity of the ditch is such that a rotation basis of delivery is necessary, a system of rotation may be utilized at the discretion of the District and may be changed in any section at the discretion of the District. Irrigators' ditches shall have ample capacity to take a head of water sufficient to irrigate their land at a rate of one hour per acre irrigated unless the District is unable to deliver this amount of water, in which

event additional time will be allowed, provided, however, that the District may limit the amount to one-half acre foot per acre for each irrigation. Furrow and flood irrigators shall take their water continuously until done and shall be charged for the same. Any irrigators shutting off their water during irrigation shall be considered to have completed their irrigation. The point of delivery and the measurement of water shall be at the delivery gate at the District's canal.

7. **Control Gates:** The District shall have absolute control of all delivery gates, check gates and other structures in the canal system. Irrigators making any delivery gate changes or pulling or placing of any boards in the system will do so only with the full knowledge and direction of the Ditchtender or the Superintendent. The District employees have full authority to close the same as soon as the requisite amount of water has been delivered or on account of any violation of the rules and regulation. These gates may be equipped with locks and the keys thereto shall be in control of the Ditchtender.

8. **Gates and Private Ditches:** The District shall have control of all delivery gates and check gates on private ditches to the extent that they may be necessary to enforce the delivery of water according to rules and regulations, but the District shall not thereby assume any liability for the maintenance and repair of such gates; these gates may be equipped with locks and these keys must be in control of the Ditchtender.

9. **Drip, Sprinkler, Micro Emitters, or any Pressure Distribution System:** The Woodbridge Irrigation District requires that all drip, sprinkler, micro emitters, or any pressure distribution system users receiving service from Woodbridge Irrigation District install one of the following 4 inch or larger horizontal flow meters by McCrometer with options. WID will not accept any 3 inch or smaller meters. McCrometer MW 500 Propeller Flange Meters: A McCrometer MW 500 series meter is acceptable (4 inch and larger meters) with a 7 wheel register (must be ordered as "OT102") and must include the Marathon Bearing with Ultra Shield "OT110" when ordering the meter. The register must include an indicator in "Gallons per Minute" and a totalizer in Acre Feet (AF). On 6" and larger, a totalizer is required with 4 digits to the left of the decimal point and 2 digits to the right of the same decimal point (0000.00). These meters are required to be installed with a minimum 5x pipe diameters upstream of the center of the meter head and 1 pipe diameter downstream. McCrometer MO 300 Bolt on Saddle Flow Meters: A McCrometer MO300 series meter (4 inch and larger) are acceptable and may require flow straighteners (optional accessory). These meters are required to be installed with a minimum of 10x pipe diameters upstream of the center of the meter head and 1 pipe diameter downstream. If less space is available, flow straightening vanes are required to be installed in the pipe upstream of the meter. On (4" and larger meters) a 7 wheel register is required (listed as "OT102" when ordering the meter). The meter must include the Marathon Bearing with Ultra Shield ("OT110" when ordering the meter). The meters must include a register showing an indicator in "Gallons per Minute" and a totalizer in Acre Feet (AF). On 6" and larger, a totalizer is required with 4 digits to the left of the decimal point and 2 digits to the right of the same decimal point (0000.00). The irrigation system must be approved by the District prior to installation. The initial cost and installation of said meter shall be at the owner's expense. The meter shall become the property of the District who shall repair and

replace said meter. Tampering or resetting meters is not allowed by the District and may be prosecuted as a crime under law. The District shall have access to the meter at all times. In the event of a failure of the meter, the District will estimate the amount of water used. The District requires irrigators to schedule irrigations. Irrigators may not place equipment including valves, piping and filters on the District rights of way without written permission. Woodbridge will not guarantee canal water quality, water canal elevations or water availability which are subject to many variables. Irrigators shall pay for all water used and will be subject to the current irrigation water rates and the current policy of the Board of Directors.

10. **Access to Land:** The authorized agents of the District shall have free access at all times to lands irrigated from the canal system for the purpose of examining the canals and ditches and the flow of water therein, and for verifying crop acreage irrigated.

11. **Right of Ways:** No fences, ditches, trees, vines, equipment or pipelines or obstructions shall be placed upon or across or along any right of way belonging to the District without the written permission of the District. The District shall have the right to remove all obstructions, including plantings on rights of way that are contrary to this provision. Rights of way shall not be graded, leveled, disked or disturbed in any other manner.

12. **Gates in Canals:** No gates, take-outs, siphons or other structures shall be placed in any canal or no openings shall be made in any canal without the permission from and pursuant to plans adopted by the Board of Directors. Application for the same must be made in writing and filed with the Secretary of the Board. All such structures must be maintained in a condition satisfactory to the Superintendent of the District and must not be changed without his permission.

13. **Waste of Water:** The District will endeavor to furnish water for irrigation, but none for waste. Any irrigator wasting water for any reason on roads, vacant lands or land previously irrigated either willfully or carelessly or on account of defective or unclean ditches, poor equipment, or unleveled land to an unreasonable depth in order to properly irrigate other properties not signed or under contract, will be refused the use of water until such conditions are remedied to the satisfaction of the Superintendent. The Board of Directors reserves the right to refuse delivery of water to any land, when it appears to their satisfaction, that its proposed use or method of use will require such extensive quantities of water as will constitute waste.

14. **Placing Debris, Drainage, or any Contaminant in District Canals:** No tree or vine pruning, rubbish, refuse or other materials or substances that will affect the quality of water or obstruct the flow water, shall be placed in or allowed to be emptied into, or placed so as to roll, slide or flow into any canal or ditch of the District or on the right of way of any canal used for the distribution of water by the District. The District will not allow any drainage into District canal except whereas in case of emergency or has already been provided by the Board of Directors in writing.

15. **Liability of the District:** Every consumer shall be responsible to the District for all damage caused by this willful neglect or careless acts and upon his failure to repair such damage after notification by the ditchtender, such repairs shall be made at his expense by the District. In cases of breaks, the irrigator must

immediately notify the Ditchtender and shall be responsible for the proper care of the water until the Ditchtender has been notified, and the water has been shut off or brought under control by the District. Irrigators will be liable for damages to the canals and property of the District and the crops and property of others caused by the turning of water back into the canal without the permission of Ditchtenders.

16. **Water Records:** All Ditchtenders, while the water is running in their control, shall make a written report to the
District's office each day, showing the names of each consumer using water, the crop or crops irrigated, the length of time the water was used by each irrigator and other relevant factors pertaining the operation of the District. This record shall constitute the District's official record of irrigation.

17. **Water Quality or Quantity:** The District's irrigation season shall begin on a date and schedule as set by the District and shall end when the available supplies of water run out or dates to be established by the Board. Neither any agreements nor the irrigation policy as set forth by the Woodbridge Irrigation District is any guarantee of the availability of water either in the amount of water or the timing of the delivery of water nor will the Woodbridge Irrigation District guarantee the quality of any water.

18. **Enforcement of Rules:** Refusal to comply with the rules and regulations, and the requirements hereof or the interference with the discharge of the duties of any official of the District shall be sufficient cause for shutting off the water. Water will not again be furnished until full compliance with all the requirements of the rules and regulations or contract agreement.

Water delivery measurements or calculations

The Woodbridge Irrigation District policy is to meter all diversions of water in the District on a volumetric basis at the point of use. For flood irrigation, agricultural water use is measured at the turn out gate by a Marsh-McBirney electromagnetic flow-meter. For pressure systems such as micro sprinkler, drip irrigation, or where water is being lifted or pumped for flood and furrow irrigation, a Micrometer propeller flow meter at the point of use is utilized for measurements (Please see Appendix C detailing meters used).

The District employs a metering technician who keeps accurate records of each irrigation and monitors farm gate meters on a daily basis as well as McCrometer meters on a periodic or monthly basis. WID’s records contain information on the location, acres irrigated, gate numbers, meter numbers, water usage, crops irrigated, and miscellaneous information on growers’ equipment and water history.

The farm gate metering system is measured by utilizing a flow probe that measures the velocity of water flowing through a pipe (defined orifice with fixed cross section) over the period of time or duration of the irrigation on 90 farm (take-out) gate metering points (metering vents). The District uses McCrometer meters (for meter specifications, see Item 9 in *Operating Rules and Regulations*, above) on 88 metered locations to measure drip irrigation water and sprinkler irrigation.

Growers must pay a base-rate charge at the time of contract initiation to receive water from the District. If by the end of the season, the grower uses more than the water

included in the base rate, the grower will pay additional charges for excess water used. If the grower uses less water than included in the base rate, he will be eligible for a refund for up to 50% of the amount of the base rate. Growers periodically will receive a report providing them information on the amount of water used to help them make adjustments to conserve their water use, thereby maximizing efficiency.

Municipalities served by the WID system (Cities of Lodi and Stockton) receive water on a bulk basis and are required to meter the water and provide a meter signal back to the District on a continual basis. The District's SCADA screen shows the rate of flow and the total flow for each city. The municipalities also provide monthly totalized statements on water flow that the District uses to track water use and plan water deliveries.

Agricultural Water rate schedules and billing

2015 Rates			
Crop Type	**WID Base Rate**	**Outside Land Use Rate**	**Acre Feet/Acre Duty**
Alfalfa	$69.30	$86.63	3.6
Clover/Pasture	$77.00	$96.25	4.0
Beans	$40.43	$50.53	2.1
Orchard	$59.68	$74.59	3.1
Peppers/Beets/Carrots	$59.68	$74.59	3.1
Tomato/Corn/Annuals	$59.68	$74.59	3.1
Vineyard	$46.20	$57.75	2.4
Rice/Pond	$146.30	$182.88	7.6
Wheat/Oats/Cereal	$19.25	$24.06	1.0
Asparagus	$38.50	$48.13	2.0
Minimum Rate	$60.00	$75.00	1.0
Metered Rate*	$19.25	$24.06	1.0
Drip Irrigated Rate**	$17.25	$21.56	1.0

* Orchard/Non Drip Vines: This metered rate applies to vines and orchards only. Meter required by landowner. The minimum rate shall include usage of up to one acre foot of water per acre. Usage over minimum rate shall be charged at the unit rate/acre foot and billed to user at the end of the irrigation season.

** Drip Irrigation Metered: The drip irrigation rate applies to vines and orchard crops only. This rate does not apply to micro-sprinklers or spray discharge application systems. A working District approved McCrometer meter is required for this rate.

Beaver Slough off Season Rate (10% of Base Rate) Irrigators in the Beaver Slough area who irrigate with the District water after the end of the season shall pay an additional charge equal to ten percent of the Beaver Slough base rate.

Construction Water - $2.50 / 1,000 gallons and a $100 non-refundable application fee.

Purple Pipe (Municipal Landscape) Water – Rate shall be charged at $1.31 / 1,000 gallons.

Additional Water above allotment - Each additional acre foot above the duty/allotment amount shall be charged at $19.25/acre foot.

Outside WID Lands - Water above allotment – Each additional acre foot above the duty/allotment shall be charged at $24.06/acre foot.

Inter-cropping - Where two different crops to be harvested are planted on the same signed acreage. Grower will be charged at the higher of the two rates for the entire area of the crop.

WID meters all water users including furrow and flood irrigation users. The District uses a flow probe meter, in-line meters, or other appropriate devices to measure and compute the number of acre feet used. Flood and Furrow growers using less than the duty/allotment shall be entitled to a refund at the end of the season. Refunds shall not be more than 50% of the duty/ allotment billing amount. Drip and Sprinkler metered users are not eligible for a refund.

Drought Management Plans and Water shortage allocation policies

The District's planning for years of drought centers on conservation efforts and use of technology to maximize either normal or dry year entitlements of 60 TAF or 39 TAF respectively, from its EBMUD agreements. WID will provide as much water as appropriate to agricultural uses, and will continue to provide water to its municipal customers as available.

WID's diversions have decreased over time from historic amounts in excess of 100 TAF to an average of approximately 60 TAF for the past 15 years of record. The District's Permanent Regulated Base Supply of 60 TAF is to be released by East Bay Municipal Utility District as part of its 1938 and 1965 settlement agreements. The District is further reduced in dry years to 39 TAF of water in which the District entitlements were reduced by provisions in its agreements with EBMUD. This results in a conservation of 35% of the normal usage in dry years; far more than the typical conservation rates reported by other water agencies during droughts.

As an effort to advance conservation and as a service to our growers, WID provides assistance in administering such effort as the metering program (testing and reading), drip irrigation, construction services of concrete boxes and screening systems, and evaluate pump operations such as Beaver Slough,

Additionally, WID operates closely with other water governing entities in the community to advance both individual and collective efforts to be better stewards of this invaluable natural resource. WID is represented on the San Joaquin County Advisory Water Commission (which provides recommendations for local water management to the San Joaquin County Board of Supervisors), the Eastern San Joaquin County Ground Water Basin Authority (GBA), and the San Joaquin County Farm Bureau Water Committee. WID also coordinates its diversions daily with East Bay Municipal Utility District (EBMUD).

The District has invested millions of dollars in an automated control system to operate its diversion dam, fish screen and canal gate control system, and Wilkerson agricultural and municipal canal system. The system is called SCADA and the acronym stands for "Supervisory Control and Data Acquisition" which uses computers, motor control gates, via a radio telemetry control system to provide automatic operation and data. The system has saved water, reduced labor costs, and provided reliable and accurate control of water

elevations in the reservoir and canal systems, as well as downstream flows in the Mokelumne River.

The system is integrated with a wireless mobile tablet that allows operators to view and make changes to the SCADA system parameters saving time, money and improving efficiency. The tablet is connected to SCADA via a VPN (very private network) internet connection. SCADA also has "alarm condition" capabilities when canal elevations deviate from parameters set in the system's set points. SCADA even has the ability to alert operators via their cell phones if water levels become too high or too low in the river, reservoir, or canal system. Other alarms that have also been included in the system warn of power failure and unauthorized intrusions into control panels. The District has continually upgraded and refined its SCADA system, thereby making constant improvements to system communication, reliability, and efficiency.

As part of WID's supply of bulk water to the Cities of Lodi and Stockton water treatment plants, SCADA also has direct access to each municipality's water meters and uses real time data to make adjustments to gates controlling flow to these delivery points.

The District financially supports a program to help growers more efficiently use surface water in place of groundwater by financing and installing concrete screen boxes at the grower's point of diversion in the canal system. These concrete boxes are custom made by the District for each application and are equipped with stainless steel screens for debris screening of canal water that can then be pumped into the grower's pressurized and filtered drip irrigation systems. The screens are very effective in removing debris from canal water thereby preventing pre-mature blinding of the grower's drip irrigation filters that would otherwise shorten filter runs if left unscreened.

The District provides these boxes and screens at no cost if growers sign up to use canal water for a minimum period of five years. Growers can be responsible for the full cost of the system if they use the water for lesser periods.

The District will provide advice and consultation to growers on the design of their drip system as they work with irrigation suppliers and installers on their drip system. It may include advice and information on the sizing of irrigation hydraulic zones to maximize water efficiency and power consumption.

The District requires growers to schedule their water deliveries through the canal system to help minimize water waste. The scheduling of the deliveries by the ditch tender and the grower saves water by only delivering water that can be applied to fields and not spilled in excess.

WID assesses a $2/acre groundwater recharge fee on properties within the District. Two exceptions to this are those parcels located in the Thornton Pocket (due to the naturally high level of groundwater in the area) and the southernmost sector of WID overlain by SEWD. The funds are then utilized to assist growers with installing drip irrigation systems through its drip screen box program and technical assistance in the design of the system. This program has saved approximately 12 TAF of water by utilizing surface water instead of groundwater. The program has proven reliable in the pre-screening of

drip irrigation and sprinkler water and has been very popular and widely accepted by growers.

The District's "Rules and Regulations" for water deliveries provides for strict conservation of water in all years. The intentional spillage of irrigation water by growers can cause a grower to be shut off, lose a turn in line, or cause a denial of service. Once an irrigation has begun, growers must use the water continually until irrigations are complete. For example, growers may not shut off at night and then pick up the water again in the next day. Growers are charged for spilled water through the canal gate metering program.

Growers must maintain and clean their ditches to irrigate in the shortest amount of time. In cases where ditches are not maintained in proper condition, growers may be denied water service.

The control of weed growth above and below the water line on canal banks, waterways, and adjacent rights of way, is an essential part of the WID weed control program. In overgrown canals, weeds restrict water flow and their roots perforate the canal walls and can undermine the integrity of levees. With dense weed growth, higher water elevations are necessary to overcome the resistance to water flow; increasing the surface profile and wetted surface area of the canal thereby increasing evaporation and transpiration rates.

The District employs a trained vegetation control manager to direct its program and has a licensed rights of way applicator. The utilization of chemicals and machinery have significantly reduced weeds above the water line, thus saving water. An ongoing aquatic herbicide program has been effective in controlling submersed weeds below the water line, using acrolien aquatic herbicide and water weed mowing.

Leaks can occur on the canal system on both lined and unlined canals and around concrete structures. The efficiency of the canal system is improved by the District's canal inspection and maintenance program that serves to locate and repair both potential and current leaks. Once an area of canal is surveyed, a punch list of repair items is compiled and used to correct deterioration and other issues. Due to the destructive nature of rodents, a rodent abatement program is also a component of the District's inspection and maintenance program. This approach allows for many needed repairs to be made before leaks have a chance to occur.

The WID ditch tenders are trained to operate the canals with an amount of water equal to the current demand for water. Spill locations at the ends of the system are monitored and waste is not allowed as a part of normal operations. Ditch tenders are required to set spill boards at the desired elevation and at an emergency spill level. Ditch tenders are also required to minimize spillage and to coordinate canal irrigations of all irrigators at the same time where possible, so that a ditch can be used to serve multiple parcels in sequence, thus saving water.

The Board plans to meet future water supply demands in several ways. These include conservation of its existing supplies through adding additional automation of canal gates, pumps, motors, data collection, piping and lining of earthen canals and continued support

of drip irrigation and other water application systems. Use of stricter irrigation rules and regulations, and pricing measures to curb water waste for an increase in greater beneficial use.

The District will also consider investments in ground water banking opportunities and possible agreements for banking with neighboring water agencies that may include San Joaquin County, City of Lodi, City of Stockton, North San Joaquin Water Conservation District, and East Bay Municipal Utility District.

The District publishes frequent newsletters that are circulated to landowners and growers providing information on the District's conservation efforts. An informed public helps to promote conservation and efficient water use.

Section III: Description of Quantity of Water Uses

Agricultural Water Use

The approximately 13,000 irrigated acres within the WID boundaries receives a total of approximately 47,500 acre feet of surface water for irrigation in a normal water year. No firm data exists on all the vines and trees grown within the Woodbridge service area. However, crop reports showing acreage irrigated from the Woodbridge canal system indicate the following:

WID Crop Type by Acreage 2013-2015

YEAR	ALFALFA	PASTURE	BEANS	ORCHARD	COTTON	ANNUALS/ TOMATO	VINEYARD/ OLIVES	POND	CORN	MINIMUM RATE	MISC/ METERED	WHEAT	TOTAL
2013	**914**	**178**	**306**	**1,144**	**65**	**206**	**6,173**	**25**	**1,916**	**8**	**636**	**556**	**12,127**
2014	**801**	**115**	**40**	**1,223**	**72**	**149**	**5,715**	**21**	**2,077**	**8**	**286**	**318**	**10,825**
2015	**626**	**112**	**69**	**1,612**	**133**	**770**	**5,663**	**21**	**2,204**	**9**	**60**	**25**	**11,304**

WID Agricultural Deliveries in Acre Feet 2013-2015

2013	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
	0	0	1,853	2,726	5,465	5,811	7,951	7,524	10,077	3,743	0	0	45,150
2014	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
	0	0	280	1,232	4,509	4,810	6,504	5,957	5,500	2,580	0	0	31,372
2015	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
	0	0	578	2,919	5,063	5,431	7,301	5,680	1,800	0	0	0	28,772

Environmental Water Use

WID participates in facilitating the passage of minimum flows downstream of the Woodbridge Dam for the purposes of anadromous fish. The lower Mokelumne River supports a population of fall run Chinook salmon and steelhead trout. Both fish types are supplemented by an anadromous fish hatchery located downstream of Camanche Dam, the lowest non-passable dam on the Mokelumne River. Operations of Camanche Dam are guided by a Federal Energy Regulatory Commission (FERC) ordered settlement agreement. The FERC November 27, 1998 Order "Approving Settlement Agreement and Amending License for the East Bay Municipal Utility District's Lower Mokelumne River Project No. 2916" approved the Joint Settlement Agreement (JSA) entered into by East Bay Municipal Utility District (EBMUD), U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (now Fish and Wildlife or CDFW). The JSA included flow and non-flow measures, and required EBMUD, USFWS, and CDFW to develop a Water Quality and Resource Management Program (WQRMP) for FERC approval.

The goals of the JSA were to provide, to the extent feasible, habitat quality and availability in the lower Mokelumne River to maintain fishery, wildlife and riparian

resources in good condition, contribute towards the state and federal fishery restoration goals as defined in the California Salmon, Steelhead Trout and Anadromous Fisheries Program Act and the Central Valley Project Improvement Act, sustain the long-term viability of the salmon and steelhead fishery while protecting the genetic diversity of naturally producing populations in the lower Mokelumne River.

The JSA specifies minimum flow releases from Camanche Dam and expected flow below the WID Dam based on water year types. Water year types are determined based on combined storage in Camanche and Pardee reservoirs for the October through March period and based on the unimpaired runoff into Pardee Reservoir for the April through September time period. The JSA also contains an adaptive management provision related to minimum flows. The flow schedule may be changed to optimize fishery habitat and other ecosystem values so long as the total quantity of water released in any given year will not be less than the quantity of water provided by the flow requirements for that type of year.

Recreational Water Use

WID does not provide water for recreational use within WID facilities or the District boundaries.

Municipal and Industrial Use

The Woodbridge Irrigation District has contracts to supply raw, bulk water to the Cities of Lodi and Stockton. The Cities of Lodi and Stockton have contracts with WID for 6 TAF and 6.5 TAF Respectively, on an annual basis, as water is available. If the desired amount of water cannot be provided to a municipality such as in a dry year, that water may be banked for future delivery, as supply allows. The table below shows the municipal deliveries for the years 2013, 2014, and 2015. Not illustrated in the table is a 2 TAF water transfer to Contra Costa Water District in August, 2013.

WID Municipal Deliveries in Acre Feet 2013-2015

2013	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
	304	0	1,350	1,377	2,333	2,495	2,667	1,658	733	323	252	231	13,724
2014	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
	263	0	425	525	758	1,236	871	1,261	692	691	369	340	7,430
2015	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
	66	22	1,136	1,418	1,850	1,580	1,380	702	727	542	434	287	10,144

Groundwater Recharge Use

Seepage losses from WID's irrigation delivery systems allow for groundwater recharge to some extent. Also the District has increased in-lieu recharge by growers switching to surface water and the City of Lodi and Stockton utilizing surface water amounting to 12.5 TAF per year. The District has encouraged growers to use drip irrigation and micro sprinklers to apply water.

Landowners within the Woodbridge Irrigation District also utilize groundwater from private wells for approximately 26,000 acres not serviced by the canal system. The water ranges in depth from approximately 30 feet in the Lodi area to 130 feet deep near Stockton area. It is assumed that approximately 78 TAF of water is withdrawn by private wells from the ground water supplies to meet agricultural water needs not supplied by the WID canal system.

The water table is supported by percolation and in-lieu recharge from the District's importation of 60 TAF annually of Mokelumne River surface water from the Woodbridge Irrigation District canal system.

The District has passed a resolution adopting an AB 3030 groundwater management program for all District lands. The District has charged a $2/acre charge against all acres benefiting from the percolation that results from the operation of the unlined portion of the canal system and the in-lieu recharge benefits of serving 13,000 acres annually from surface water and not from the ground water.

Transfer and Exchange Use

The District has supported transfers of water saved in excess of its users' water needs. Water saved has been transferred to other entities when opportunities for the transfer exist. The transfer of water (pre-1914 water) is allowed for the District to maximize water availability where needed in the region and the State and for the District to earn additional revenue that it can use for system improvements to provide greater efficiency. For example, the District transferred 6 TAF of water to East Bay Municipal Utility District in 1998 that alleviated a shortage due to dry year conditions. More recently was the sale of 2 TAF of water to Contra Costa Water District in August of 2013.

Other Water Use

WID does not provide water for any uses other than irrigation and municipal usage.

Section IV: Description of Quantity and Quality of the Water Resources of the Agricultural Water Supplier

Water Supply Quantity

The following table provides a summary of WID's Pre-1914 rights, Permits, and License for surface water.

Woodbridge Irrigation District Licenses and Permits

Source	Application	Permit	License	Diversion Description	Priority Date
Mokelumne	Pre-1914 Water Rights Allows WID to divert up to 414.4 CFS (S015557)				12/31/1886
Mokelumne	5807	3890	5945	≤ 300 CFS, 2/1 – 10/31	1/20/1928
Mokelumne	10240	6931	8214	≤ 114.4 CFS, 5/1 – 8/31 and 11/1 – 1/31	7/17/1941
Beaver Slough	12648	7277	8215	≤ 18.25 CFS, 1/1 – 12/31	8/12/1948
Pixley Slough	27007	19301	N/A	≤ 3 CFS, 2/1 – 10/31 (Not to exceed 500 AF/Year)	9/15/1981

Surface Water Supply

WID's rights to divert water from the Mokelumne River include a pre-1914 appropriative right initiated in 1886 and two licenses issued by the State Water Resources Control Board (SWRCB) in the aggregate amount of 414.4 CFS. The firm yield of WID's Mokelumne River rights to divert water from the Mokelumne is recognized in water rights settlement agreements with East Bay Municipal Utilities District (EBMUD) which owns and operates Camanche and Pardee Dams. The EBMUD-WID agreements provide WID with a minimum of 60 TAF per year when the inflow to Pardee Reservoir is 375 TAF or greater. Water released from Camanche dam in excess of EBMUD's minimum downstream water right obligations (riparian, prior appropriations, flood control, and Joint Settlement Agreement (JSA)) may be taken by WID under the priority of its water rights licenses, subject only to the reasonable beneficial use requirements of the land within WID and the diversion rates set forth in its licenses. During those years when the inflow to Pardee is less than 375 TAF, the 60 TAF amount is subject to a 35% deficiency which reduces the firm supply to 39 TAF.

The Delta water diverted from the Beaver Slough near Thornton, California under an appropriative right amounts to 18.25 cubic feet per second (CFS). The District also has a minor appropriative right to divert water from Pixley Slough.

Groundwater Supply

WID only utilizes surface water for distribution and sale to its customers and does not provide water from any other supplies, including pumped groundwater.

Landowners within the Woodbridge Irrigation District boundaries also utilize groundwater from private wells for approximately 26,000 acres not serviced by the canal system. The water ranges in depth from approximately 30 feet in the Lodi area to 130 feet deep near Stockton. It is assumed that approximately 78 TAF of water is withdrawn by private wells from the ground water supplies to meet agricultural water needs not supplied by the WID canal system.

The Water table is supported by percolation and in-lieu recharge and the District's importation of 60 TAF annually of Mokelumne river surface water from the Woodbridge Irrigation District canal system.

The District has passed a resolution adopting an AB 3030 groundwater management program for all District lands. The District has charged a $2/acre charge against all acres benefiting from the percolation that results from the operation of the unlined portion of the canal system and the in-lieu recharge benefits of serving 13,000 acres annually from surface water and not from the ground water.

Other Water Supplies

WID only utilizes surface water for distribution and sale to its customers and does not provide water from any other supplies, including pumped groundwater.

Drainage from the Water Supplier's Service Area

The WID ditch tenders are trained to operate canals with an amount of water equaling the demand for water. Spills at the end of the system are monitored and waste is not allowed as a normal operation. Ditch tenders are required to set spill boards just about the desired elevation and at an emergency spill level. Ditch tenders are required to minimize spillage and to coordinate the canal irrigations with all irrigators at the same time where possible, so that a ditch can be used to serve multiple parcels in sequence, thus saving water.

Water Supply Quality

Surface Water Supply

The water quality of the Mokelumne River is monitored by various entities who have a vested interest in the river. In particular, the City of Lodi monitors water quality on a regular basis to ensure standards for safe drinking water are met. The water of the Mokelumne River is consistently considered to be of excellent quality. Periodically, surface water is pumped from Beaver Slough for the purposes of irrigation in the northwest section of the Woodbridge Irrigation District. The quality of this surface water meets standards for irrigation purposes.

Groundwater Supply

WID only utilizes surface water for distribution and sale to its customers and does not provide water from any other supplies, including pumped groundwater.

Other Water Supplies

WID only utilizes surface water for distribution and sale to its customers and does not provide water from any other supplies, including pumped groundwater.

Drainage from the Water Supplier's Service Area

WID canals are operated at equilibrium between supply and demand of water. This is ensured by proper spill board placement and coordination with irrigators. The water

quality at the terminal locations in the canal system has been consistently shown to be of the same high quality as that at the source diversion point on the Mokelumne River.

Water Quality Monitoring Practices

Source Water

WID water quality is tested twice a year at four locations in its system that are representative of the overall quality being diverted and conveyed to customers. The information has been useful to Lodi and Stockton but also to dairies and agricultural customers interested in managing water quality. The District uses the information to track the quality of water provided to its customers. Additionally, WID takes samples at various locations throughout the distribution system for the purpose of lab testing. The highlighted results of this most recent testing in 2015 indicated a pH of 7.1, Total Dissolved Solids (TDS) of 43 mg/L, Nitrates of <2 mg/L, and turbidity of 1.7 Nephelometric Turbidity Units (NTU). The water of the Mokelumne River is consistently considered to be of excellent quality.

Section V: Water Accounting and Water Supply Reliability

Quantifying the Water Supplier's Water Supplies

Agricultural Water Supplier Water Quantities:

During those years when the inflow to Pardee is less than 375 TAF, WID's regulated base supply of 60 TAF is subject to a 35% deficiency which reduces the firm supply to 39 TAF for the water year.

The Delta water diverted from the Beaver Slough near Thornton, California under an appropriative right amounts to 18.25 cubic feet per second (CFS). The District also has a minor appropriative right to divert water from Pixley Slough.

Other Water Sources Quantities:

WID only utilizes surface water for distribution and sale to its customers and does not provide water from any other supplies, including pumped groundwater.

Quantification of Water Uses

On the Mokelumne River, The EBMUD-WID agreements provide WID with a minimum of 60 TAF per year when the inflow to Pardee Reservoir is 375 TAF or greater. Water released from Camanche dam in excess of EBMUD's minimum downstream water right obligations (riparian, prior appropriations, flood control, and Joint Settlement Agreement (JSA)) may be taken by WID under the priority of its water rights licenses, subject only to the reasonable beneficial use requirements of the land within WID and the diversion rates set forth in its licenses. During those years when the inflow to Pardee is less than 375 TAF, the 60 TAF amount is subject to a 35% deficiency which reduces the firm supply to 39 TAF.

Since water-years 2014 and 2015 were dry years, WID was limited to a reduced diversion from the Mokelumne River, based on agreements with EBMUD. Actual diversion from the Mokelumne River in 2014 and 2015 equaled 38,802 AF and 38,916 AF, respectively. Municipal water supplies diverted from the Mokelumne River for 2015 totaled 10,188 AF, distributed to the Cities of Lodi (5,560 AF) and Stockton (4,628 AF).

Surface Water Supplies for 2013, 2014, 2015

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Pre-1914 Rights (Mokelumne)	**2013**	304	0	1,350	1,377	2,333	2,495	2,667	3,658	733	323	252	231	15,724
License 5945 (Mokelumne)	**2013**	0	0	1,853	2,726	5,465	5,811	7,951	7,524	10,077	3,743	0	0	45,150
License 8215 (Beaver Slough)	**2013**	0	0	1,297	1,100	1,297	850	1,201	1,187	680	0	0	0	7,612
		Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Pre-1914 Rights (Mokelumne)	**2014**	263	0	705	1,757	5,267	6,046	7,375	7,218	6,192	3,271	369	340	38,802
License 8215 (Beaver Slough)	**2014**	0	0	0	231	833	0	0	0	0	0	0	0	1,064
		Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Pre-1914 Rights (Mokelumne)	**2015**	66	22	1,714	4,337	6,913	7,011	8,681	6,382	2,527	542	434	287	38,916

Overall Water Budget

WID diverts its entire water supply from surface water; primarily from the Mokelumne River and a very limited amount from Beaver Slough in the Delta. The table below illustrates WID's Pre-1914 water rights and Licenses on the Mokelumne, and the License for Beaver Slough.

Woodbridge Irrigation District Licenses and Permits

Source	Application	Permit	License	Diversion Description	Priority Date
Mokelumne	Pre-1914 Water Rights Allows WID to divert up to 414.4 CFS (S015557)				12/31/1886
Mokelumne	5807	3890	5945	≤ 300 CFS, 2/1 – 10/31	1/20/1928
Mokelumne	10240	6931	8214	≤ 114.4 CFS, 5/1 – 8/31 and 11/1 – 1/31	7/17/1941
Beaver Slough	12648	7277	8215	≤ 18.25 CFS, 1/1 – 12/31	8/12/1948
Pixley Slough	27007	19301	N/A	≤ 3 CFS, 2/1 – 10/31 (Not to exceed 500 AF/Year)	9/15/1981

Water Supply Reliability

In dry years, WID operates on the reduced amount of 39,000 AF from the Mokelumne River as opposed to a wet year allocation of 60,000 AF or more from the Mokelumne. During the years of 2014-2015, WID has been forced to operate on reduced diversion amounts. Due to more efficient and effective irrigation practices, as well as combining surface and ground water applications, local growers have been able to survive. WID's municipal customers must also do with less water from Mokelumne River diversions, despite maximum entitlement amounts drafted into the WID sales contracts. As allowed by contract language, WID is not obligated to meet the full contract amounts if the water is not available for sale. In such cases, these undelivered amounts are banked by WID for the municipalities for delivery at a future date, when possible. In other words, in dry years, when WID's supply is reduced, WID is in a water deficit that it is obligated to supply for its municipal customers, when future supply permits.

Section VI: Climate Change

Climate change has been a constant global phenomenon of some degree or another, but any changes in climatic conditions and their potential impacts on the regional level would be varied. Changes in climate can affect water supplies through alterations in the timing, amount, and form of precipitation, as well as water demands and the quality of surface runoff. These changes can affect all elements of water supply systems, from watersheds to reservoirs, conveyance systems, and groundwater basins.

Climate change and the effects of carbon dioxide (CO2) as a science are not well documented and is a philosophy that WID cannot comprehensively address in the plan. Over the years, the San Joaquin California region and the Mokelumne River Watershed has experienced periods of extreme drought and wet periods. The drought periods present problems of little or no snow melt for filling reservoirs and providing adequate water supplies for Mokelumne River water right holders, environmental uses, and the District.

The Mokelumne River water shed drains approximately 2,143 square miles and lies mostly in parts of Alpine, Amador, Calaveras, San Joaquin, and Sacramento Counties. The average stream flow measured at the Mokelumne Hill Station is approximately 996 CFS. The highest discharge was 41,300 CFS, and the lowest measured was 9 CFS.

Anticipating possible changes in climate patterns will be beneficial to ensuring a reliable water supply for WID users against adverse precipitation events. Therefore, considering the tremendous uncertainty concerning climate change projections, a prudent approach to addressing climate change may incorporate a combination of short-term and long-term adaptation strategies. Climate adaptation includes strategies (policies, programs, or other actions) that prepare the WID to effectively respond to any negative impacts.

Reduction in water demand and improvement of the operational delivery systems are critical elements in combating dry year scenarios. WID's planning for drought years has been through conservation and use of technology to maximize either dry year or normal and below year entitlements (60 TAF/39 TAF) from its EBMUD agreements. WID is already implementing many agricultural water use efficiency efforts. It has identified and is currently implementing efficient water management practices (EWMPs) as part of this Plan. Several EWMPs that include infrastructure upgrades (promoting the use of drip and sprinkler irrigations systems among its growers) and operational improvements (conversion of open canal to pipelines) reduce water demand and maintain productivity.

Evaporation loss from irrigation ditches and canals is a function of temperature and other climate variables. As previously mentioned, one of the EWMPs is to convert irrigation canals and ditches to piping. This water conservation method prevents groundwater percolation losses as well as evaporative losses, which will only increase as temperatures rise. This approach could help WID adapt to climate change by expanding water supplies and making existing water supplies less vulnerable to climate change impacts. Canal lining is identified as a less capital-intensive method to reduce seepage into the ground,

although it does not reduce water evaporation and does reduce groundwater recharge that occurs as a result of this percolation.

Canal automation can and does increase water supply reliability and flexibility to deliver water at the time, quantity, and duration required by the grower, and can facilitate conversion to more efficient irrigation methods such as micro-irrigation. WID employs new technology and equipment to optimize management of water-related infrastructure for water conservation. Supervisory control and data acquisition (SCADA) systems enable WID operators to collect data to a centralized location and operate automated canals to achieve desired water levels, flow rates, and also to increase the efficiency in reservoir operation. In addition, automated control negates the need for manual operation and allows WID to quickly coordinate system operations, and reduce costs. SCADA allows WID the ability for flexible water delivery, distribution, measurement, and accounting.

Section VII: Water Use Efficiency Information

WID supports the availability of water management services to growers. As an effort to advance conservation and as a service to our growers, WID provides assistance in administering such effort as the metering program (testing and reading), drip irrigation, construction services of concrete boxes and screening systems, and evaluate pump operations such as Beaver Slough,

Additionally, WID operates closely with other water governing entities in the community to advance both individual and collective efforts to be better stewards of this invaluable natural resource. WID is represented on the San Joaquin County Advisory Water Commission (which provides recommendations for local water management to the San Joaquin County Board of Supervisors), the Eastern San Joaquin County Ground Water Basin Authority (GBA), and the San Joaquin County Farm Bureau Water Committee. WID also coordinates its diversions daily with East Bay Municipal Utility District.

The District has invested millions of dollars in an automated control system to operate its diversion dam, fish screen and canal gate control system, and Wilkerson agricultural and municipal canal system. The system is called SCADA and the acronym stands for "Supervisory Control and Data Acquisition" which uses computers, motor control gates, via a radio telemetry control system to provide automatic operation and data. The system has saved water, reduced labor costs, and provided reliable and accurate control of water elevations in the reservoir and canal systems, as well as downstream flows in the Mokelumne River.

The system is integrated with a wireless mobile tablet that allows operators to view and make changes to the SCADA system parameters saving time, money and improving efficiency. The tablet is connected to SCADA via a VPN (very private network) internet connection. SCADA also has "alarm condition" capabilities when canal elevations deviate from parameters set in the system's set points. SCADA even has the ability to alert operators via their cell phones if water levels become too high or too low in the river, reservoir, or canal system. Other alarms that have also been included in the system warn of power failure and unauthorized intrusions into control panels. The District has continually upgraded and refined its SCADA system, thereby making constant improvements to system communication, reliability, and efficiency.

As part of WID's supply of bulk water to the Cities of Lodi and Stockton water treatment plants, SCADA also has direct access to each municipality's water meters and uses real time data to make adjustments to gates controlling flow to these delivery points.

The District financially supports a program to help growers more efficiently use surface water in place of groundwater by financing and installing concrete screen boxes at the grower's point of diversion in the canal system. These concrete boxes are custom made by the District for each application and are equipped with stainless steel screens for debris screening of canal water that can then be pumped into the grower's pressurized and filtered drip irrigation systems. The screens have been very effective in removing

debris from canal water thereby preventing pre-mature blinding of the grower's drip irrigation filters that would otherwise shorten filter runs if left unscreened.

The District provides these boxes and screens at no cost if growers sign up to use canal water for a minimum period of five years. Growers can be responsible for the full cost of the system if they use the water for lesser periods.

The District will provide advice and consultation to growers on the design of their drip system as they work with irrigation suppliers and installers on their drip system. It may include advice and information on the sizing of irrigation hydraulic zones to maximize water efficiency and power consumption.

The District requires growers to schedule their water deliveries through the canal system to help minimize water waste. The scheduling of the deliveries by the ditch tender and the grower saves water by only delivering water that can be applied to fields and not spilled in excess.

WID assesses a $2/acre groundwater recharge fee on properties within the District. Two exceptions to this are those parcels located in the Thornton Pocket (due to the naturally high level of groundwater in the area) and the southernmost sector of WID overlain by SEWD. The funds are then utilized to assist growers with installing drip irrigation systems through its drip screen box program and technical assistance in the design of the system. This program has saved approximately 12 TAF of water by utilizing surface water instead of groundwater. The program has proven reliable in the pre-screening of drip irrigation and sprinkler water and has been very popular and widely accepted by growers.

The District's "Rules and Regulations" for water deliveries provides for strict conservation of water in all years. The intentional spillage of irrigation water by growers can cause a grower to be shut off, lose a turn in line, or cause a denial of service. Once an irrigation has begun, growers must use the water continually until irrigations are complete. For example, growers may not shut off at night and then pick up the water again in the next day. Growers are charged for spilled water through the canal gate metering program. Additionally, growers must maintain and clean their ditches to irrigate in the shortest amount time. In cases where ditches are not maintained in proper condition, growers may be denied water service.

The control of weed growth above and below the water line on canal banks, waterways, and adjacent rights of way is an essential part of the WID weed control program. In overgrown canals, weeds restrict water flow and their roots perforate the canal walls and loosen levees. With dense weed growth, higher water elevations are necessary to overcome the resistance to water flow; increasing the surface profile and wetted surface area of the canal thereby increasing evaporation and transpiration rates.

The District employs a trained vegetation control manager to direct its program and has a licensed rights of way applicator. The utilization of chemicals and machinery have significantly reduced weeds above the water line, thus saving water. An ongoing aquatic

herbicide program has been effective in controlling submersed weeds below the water line, using acrolien aquatic herbicide and water weed mowing.

Leaks can occur on the canal system on both lined and unlined canals and around concrete structures. The efficiency of the canal system is improved by the District's canal inspection and maintenance program that serves to locate and repair both potential and current leaks. Once an area of canal is surveyed, a punch list of repair items is compiled and used to correct deterioration and other issues. Due to the destructive nature of rodents, a rodent abatement program is also a component of the District's inspection and maintenance program. This approach allows for many needed repairs to be made before leaks have a chance to occur.

The WID ditch tenders are trained to operate the canals with an amount of water equal to the current demand for water. Spill locations at the ends of the system are monitored and waste is not allowed as a part of normal operations. Ditch tenders are required to set spill boards at the desired elevation and at an emergency spill level. Ditch tenders are also required to minimize spillage and to coordinate canal irrigations of all irrigators at the same time where possible, so that a ditch can be used to serve multiple parcels in sequence, thus saving water.

The Board plans to meet future water supply demands in several ways. These include conservation of its existing supplies through adding additional automation of canal gates, pumps, motors, data collection, piping and lining of earthen canals and continued support of drip irrigation and other water application systems. Use of stricter irrigation rules and regulations, and pricing measures to curb water waste for an increase in greater beneficial use.

The District will also consider investments in ground water banking opportunities and possible agreements for banking with neighboring water agencies that may include San Joaquin County, City of Lodi, City of Stockton, North San Joaquin Water Conservation District, and East Bay Municipal Utility District.

The District publishes frequent newsletters that are circulated to landowners and growers providing information on the District's conservation efforts. An informed public helps to promote conservation and efficient water use.

A determination of whether the District, through improved irrigation water management has a significant opportunity to comply with California Water Code, Division 6, part 2.55. Sustainable Water Use and Demand Reduction, Chapter 4. Agricultural Water Suppliers:

Paragraph	10608.48 Code Language	Ability to Comply	Compliance Status
(a)	On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c).	yes	Compliant March 2012
(b)	Agricultural water suppliers shall implement all of the following critical efficient management practices (below).	yes	Complaint March 2012
1.	Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).	Yes	Compliant March 2012.
2.	Adopt a pricing structure for water customers based on at least in part on the quantity of water delivered.	Yes	Compliant March 2012
(c)	Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to practices to accomplish all of the following, if the measures are locally cost effective and technically feasible.		
(1)	Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems including drainage.	no	The District has a "NO" tail-water policy and drainage back into District canals or discharges are not allowed.
(2)	Facility use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils.	no	Growers of wine grapes and foods for human consumption are not willing to accept treated waste water on crops. This measure is not publicly acceptable or cost effective.
(3)	Facilitate the financing of capital improvements for on-farm irrigation systems.	Yes	The District provides growers with drip irrigation screen boxes and screens as an incentive to use surface water.
(4)	Implement an incentive pricing structure that promotes on or more of the following goals:		
(A)	More efficient water use at the farm level.	Yes	WID irrigators have made a transition to water conservation systems for drip and micro-sprinkler irrigation and away from furrow and flood.
(B)	Conjunctive Use of Groundwater.	Yes	Growers are using surface water instead of ground water because of poor quality ground water and energy savings.
(C)	Appropriate increase in ground water recharge.	Yes	The District has increased in-lieu recharge by growers switching to surface water and the City of Lodi and Stockton utilizing surface water amounting to 12 .5 TAF per year. The District has encouraged growers to use drip irrigation and micro sprinklers to apply water.

(D)	Reductions in problem drainage.	Yes	The City of Lodi has made improvements, as part of a WID agreement reducing the discharges into WID canals during the irrigation season. The District does not allow for agricultural tail water discharges into the canal system.
(E)	Improved management of environmental resources.	Yes	The District's construction of a new Dam and Fish Screen set aside approximately 29 acres of new habitat for the giant garter snake, in river split tail habitat, in-river Steel Head rearing habitat.
(F)	Effective management of all water sources throughout the year by adjusting season pricing structures based on current conditions	No	The District does not see any advantage or opportunity to be more efficient by seasonally adjusting water rates at this time.
(5)	Expand line or pipe distribution systems and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance and reduce seepage.	Yes	The District has replaced open canals with PVC and concrete pipelines to save water from losses. The District's new dam and SCADA control also allowed approximately 200 Acre Feet of Water Storage used to stabilize lake elevations and meet JSA downstream flows.
(6)	Increase flexibility in water ordering by, and delivery to, water customers within operational limits.	Yes	WID has expanded its operational limits by investing in a SCADA system. It also times deliveries down canals by coordinating multiple deliveries on each of the three canal systems.
(7)	Construction and operate spill and tail water recovery systems.	Yes	A small amount of tail water recovery is accomplished from pumping tail water from the Stockton East Water District in Mosher slough. WID does not permit spillage and thus opportunities for re-claimed water are limited.
(8)	Increase planned conjunctive use of surface water and ground water within the supplier service area.	Yes	Growers and municipalities are taking full advantage of the available entitlements of surface from EBMUD water agreements amounting 60 TAF.
(9)	Automatic canal control structures.	Yes	The District has already invested millions of dollars in an SCADA controlled Dam, Head-works control gates,

			and Wilkerson delivery canal to the Delta Water Treatment Plant. Automation is also planned at Beaver Slough and selected sites. Said system can be viewed and controlled remotely with an I-PAD tablet.
(10)	Facilitate or promote customer pump testing and evaluation	No	The District has relied on PG&E for these services. The District cannot economically provide these services and are not cost effective.
(11)	Designate a water conservation coordinator who will develop and implement a water management plan and prepare progress reports.	Yes	The District Manager shall be the Water Conservation Coordinator.
(12)	Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:		
(A)	On farm irrigation and drainage evaluations.	Yes	The District advises drip irrigation users on use of surface water.
(B)	Normal year and real-time irrigation scheduling and crop evapo-transpiration information.	No	The District does not have the expertise and cannot economically provide these services to be effective.
(C)	Surface water, groundwater, and drainage water quantity and quality data.	Yes	The District conducts semiannual testing of its Mokelumne Surface Water Supply and provides this information to growers to aid them in their water management alternatives.
(D)	Agricultural water management education programs and materials for farmer, staff and public.	Yes	The District has provided the public with information from other agencies where possible that has led to greater agricultural efficiencies. The District has published an alfalfa efficiency study based on a test program to promote the use of surface water.
(14)	Evaluate and improve the efficiencies of supplier's pumps.	No	See #10
(d)	Agricultural water suppliers shall include in the agricultural water management plans required pursuant to Part 2.8 (commencing with Section 10800) a report on which efficient water management practices have been planned or are planned to be implemented, an estimate of water use efficiency and improvements that have occurred since the last report and an estimate of the water use efficiency improvements estimated to occur five or ten years in the future. If an agricultural supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.		(To be completed in future reporting)
(e)	The data shall be reported using a standardized form developed pursuant to Section 10608.52.		(To be completed in future reporting)

(f)	An agricultural water supplier may meet the requirements of subdivisions (d) and (e) by submitting to department a water conservation plan submitted to the United States Bureau of Reclamation that meets the requirements of described in Section 10828.		(Not Applicable)
(g)	On or before December 31, 2013, December 31, 2016 and December 31, 2021, the Department in consultation with the Board , shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented and an assessment of the manner which the implementation of those efficient water management practices has affected and will affect agricultural operations, including estimated water use efficiency improvements, if any.		(To be completed in future reporting)
(h) (1)	The Department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).		(To be completed in future reporting)
(2)	The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the government code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt of the Government Code Added by: Stats. Of 2009, 7th Ex. Sess., Chapter 4-§1 Effective: February 3, 2010.		(To be completed in future reporting)

California Water Code Sections Summarized:

Section 531.10: An agricultural water supplier shall submit an annual report to the Department (SWRCB) that summarizes aggregated farm-gate delivery data, on a monthly or bimonthly basis using best professional practices.

Section 10608.52: The bill revised SB X7-7 to require agricultural water management plans to adopt a plan with specified components on or before December 31, 2012 and update those plans on or before December 31, 2015, and on or before December 31, every 5 years thereafter. The legislation also requires to notify each City or County in which the supplier provides water and submit copies of the plan to the Department of Water Resources (DWR).

Section 10800 Part 2: On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions Agricultural water suppliers shall implement (1) Measure the volume of water delivered to customers and adopt a pricing structure for water customers based at least in part on quantity delivered.

Section 10820: An agricultural water supplier shall prepare and adopt an agricultural water management plan in the manner set forth in this chapter on or before December 31, 2012, and shall update that plan on December 31, 2015, and on or before December 31 every five years thereafter.

Section 10821: An agricultural water supplier required to prepare a plan pursuant to this part shall notify each city or county within which the supplier provides water supplies that the agricultural water supplier will be preparing the plan or reviewing the plan and considering amendments or changes to the plan. The agricultural water supplier may consult with, and obtain comments from, each city or county that receives notice pursuant to this subdivision.

Section 10826: Lists the elements that are required to be discussed and addressed in an agricultural water management plan. An agricultural water management plan shall be adopted in accordance with the following elements in this chapter: Agricultural water supplier service area, quantity and quality of water resources, an analysis of climate change, previous water management activities, and water use efficiency information required pursuant to Section 10608.48.

Plan Submittal

Within 30 days of adoption, the agricultural water supplier must submit copies of the AWMP, amendments, or changes to the AWMP to the following entities (Water Code §10843(b)):

"The DWR.

Any city, county, or city and county within which the agricultural water supplier provides water supplies.

Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.

Any urban water supplier within which jurisdiction the agricultural water supplier provides water supplies.

Any city or county library within which jurisdiction the agricultural water supplier provides water supplies.

The California State Library.

Any local agency formation commission serving a county within which the agricultural water supplier provides water supplies."

Submission to DWR: Send the AWMP and applicable documentation required by the Water Code and the Agricultural Water Measurement Regulation directly to DWR. DWR requests one (1) electronic copy and one (1) hardcopy of the AWMP and all applicable documentation.

The electronic copy can be sent by email to agwue@water.ca.gov (attachment size not to exceed 20 MB) or submitted to DWR on a CD.

CDs and hard copies should be mailed to:

Agricultural Water Use Efficiency
Department of Water Resources
Statewide Integrated Water Management
Water Use and Efficiency Branch
PO Box 942836
Sacramento, CA 94236-0001

Or, dropped off in person at:

Agricultural Water Use Efficiency
Department of Water Resources
Statewide Integrated Water Management
Water Use and Efficiency Branch
901 P Street, Room 131A
Sacramento, CA 95814

For CVPIA/RRA water suppliers whose plans accepted as adequate by the USBR, the water supplier is responsible for the timely submittal of the AWMP to DWR. These suppliers submit the plan and applicable documentation directly to DWR.

Submission to the California State Library: Complete AWMPs must also be submitted to the California State Library. Complete AWMPs include the plan and any applicable required supporting documentation, attachments, or additional documentation.

Hardcopies or CDs should be mailed to:

California State Library
Government Publications Section
ATTN: Water Management Plan Coordinator
P.O. Box 942837
Sacramento, CA 94237-0001

Electronic copies (preferably Adobe .pdf files) should be emailed to:
cslgps@library.ca.gov

Include, "Agricultural Water Management Plan submission" in the subject line.

Additional Submissions: One hardcopy of the 2015 WID AWMP will each also be submitted to the following organizations.

Margaret K. Troke Branch Library
Bill Walker, Branch Librarian
502 W. Benjamin Holt Dr.
Stockton, CA 95207

Thornton Branch Library
Mark Rodriguez, Branch Librarian
26341 N. Thornton Rd
Thornton, Ca. 95686

Lodi Public Library
Dean Gualco, Library Director
201 West Locust Street
Lodi, CA 95240

San Joaquin Local Agency Formation Commission
509 West Weber Ave. Suite 420
Stockton, CA 95203

Robert L. Granberg, P.E.
Acting Director of Municipal Utilities
City of Stockton
2500 Navy Drive
Stockton, CA. 95206-1191

Kris Balaji, PMP, P.E.
Director of Department of Public Works
San Joaquin County
1810 E. Hazelton Avenue
Stockton, CA 95205

Steve Schwabauer
City Manager
City of Lodi
P.O. Box 3006
Lodi, CA 95241-1910

Appendix A: Woodbridge Irrigation District Resolution of AWMP Adoption

WOODBRIDGE IRRIGATION DISTRICT
RESOLUTION NO 06-9-16-02

ADOPTION OF 2015 AGRICULTURAL WATER MANAGEMENT PLAN AND SUBMITTAL TO CALIFORNIA DEPARTMENT OF WATER RESOURCES

WHEREAS, Woodbridge Irrigation District is an agricultural water supplier providing water supplies to 10,000 to 25,000 acres of irrigated lands, and is required to adopt an Agricultural Water Management Plan and submit the plan to DWR for compliance with Governor Brown's Executive Order B-29-15, signed April 1, 2015.

WHEREAS, the Woodbridge Irrigation District submitted an application to the Department of Water Resources (DWR) for funding for the 2015 Agricultural Water Management Plan project, to prepare an Agricultural Water Management Plan and submit the plan to DWR for compliance with Governor Brown's Executive Order B-29-15, signed April 1, 2015.

WHEREAS, Woodbridge Irrigation District's 2015 Agricultural Water Management Plan has been made available for public inspection and a public hearing held on June 9, 2016 on the plan in compliance with (CWC §10820(b), CWC §10841).

NOW, THEREFORE BE IT RESOLVED, that the Woodbridge Irrigation District Board of Directors hereby adopts the 2015 Agricultural Water Management Plan for submittal to DWR for compliance with Governor Brown's Executive Order B-29-15, signed April 1, 2015.

THE FOREGOING RESOLUTION WAS PASSED AND ADOPTED by the Board of Directors of the Woodbridge Irrigation District on June 9, 2016, by a roll call vote as follows:

AYES: Stokes, Lucchesi, Van Exel, Bussman and Shinn

NOES: 0

ABSENT OR NOT VOTING: None

Signed: _____
Anders Christensen, Secretary

Signed: _____
William Stokes, President

Appendix B: Public Notification Documentation of AWMP Preparation

WOODBRIDGE IRRIGATION DISTRICT
18750 N. LOWER SACRAMENTO ROAD
P.O. BOX 580
WOODBRIDGE, CALIFORNIA 95258
PHONE: (209) 625-8438
FAX: (209) 625-8663

April 17, 2016

Robert L. Granberg, P.E.
Acting Director of Municipal Utilities
City of Stockton
2500 Navy Drive
Stockton, CA. 95206-1191

RE: Woodbridge Irrigation District Agricultural Water Management Plan

Dear Robert:

Woodbridge Irrigation District is updating its Agricultural Water Management Plan (AWMP), which will be submitted to the State of California Department of Water Resources (DWR) in July 2016.

The District is required by the California Water Code to update and adopt an AWMP and submit a completed AWMP to DWR every five years. The AWMP provides an overview of the District's water supply sources and water demand, in addition to water conservation programs. The AWMP is part of the District's long-range planning to ensure water supply reliability for its customers.

In compliance with the California Water Code, the District is providing this notice to encourage participation in the update of the AWMP. The District's Draft 2015 AWMP is expected to be available in May, 2016. A public review period and public hearing will be held to provide opportunity to comment on the Draft 2015 AWMP. A public hearing to be followed by the Board of Director's consideration for adoption of the AWMP is scheduled for June 9, 2016 at 9:30am at Woodbridge Irrigation District office, 18750 N. Lower Sacramento Road, Woodbridge, CA 95258.

Should you have any questions or would like any additional information, please contact Doug Heberle via email at heberlewid@gmail.com or by telephone at (209) 625-8438.

Anders Christensen,
General Manager, Woodbridge Irrigation District

WOODBRIDGE IRRIGATION DISTRICT
18750 N. LOWER SACRAMENTO ROAD
P.O. BOX 580
WOODBRIDGE, CALIFORNIA 95258
PHONE: (209) 625-8438
FAX: (209) 625-8663

April 17, 2016

Steve Schwabauer
City Manager
City of Lodi
P.O. Box 3006
Lodi, CA 95241-1910

RE: Woodbridge Irrigation District Agricultural Water Management Plan

Dear Steve:

Woodbridge Irrigation District is updating its Agricultural Water Management Plan (AWMP), which will be submitted to the State of California Department of Water Resources (DWR) in July 2016.

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Anders Christensen,
General Manager, Woodbridge Irrigation District

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18750 N. LOWER SACRAMENTO ROAD
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WOODBRIDGE, CALIFORNIA 95258
PHONE: (209) 625-8438
FAX: (209) 625-8663

April 17, 2016

Kris Balaji, PMP, P.E.
Director of Department of Public Works
San Joaquin County
1810 E. Hazelton Avenue
Stockton, CA 95205

RE: Woodbridge Irrigation District Agricultural Water Management Plan

Dear Kris:

Woodbridge Irrigation District is updating its Agricultural Water Management Plan (AWMP), which will be submitted to the State of California Department of Water Resources (DWR) in July 2016.

The District is required by the California Water Code to update and adopt an AWMP and submit a completed AWMP to DWR every five years. The AWMP provides an overview of the District's water supply sources and water demand, in addition to water conservation programs. The AWMP is part of the District's long-range planning to ensure water supply reliability for its customers.

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Should you have any questions or would like any additional information, please contact Doug Heberle via email at heberlewid@gmail.com or by telephone at (209) 625-8438.

Anders Christensen,
General Manager, Woodbridge Irrigation District

PROOF OF PUBLICATION

(2015.5 C.C.C.P.)

STATE OF CALIFORNIA

County of San Joaquin

I am a citizen of the United States and a resident of the County aforesaid: I am over the age of eighteen years and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of the Lodi News-Sentinel, a newspaper of general circulation, printed and published daily except Sundays, Mondays and holidays, in the City of Lodi, California, County of San Joaquin and which newspaper had been adjudicated a newspaper of general circulation by the Superior Court, Department 3, of the County of San Joaquin, State of California, under the date of May 26th, 1953. Case Number 65990; that the notice of which the annexed is a printed copy (set in type not smaller than non-pareil) has been published in each regular and entire issue of said newspaper and not in any supplement thereto on the following dates to-wit:

May 25th, June 1st

all in the year 2016

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Dated at Lodi, California, United Sates of America this 1st, day of June 2016.

Dana Rooles

Signature

This space is for the County Clerk's Filing Stamp

Proof of Publication

WID Public Hearing Notice

NOTICE OF PUBLIC HEARING

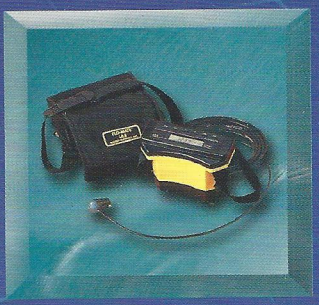
Pursuant to Government Code Section 6066, Woodbridge Irrigation District is issuing this public notice in consideration of adopting an Agricultural Water Management Plan and submit the plan to DWR for compliance with Governor Brown's Executive Order B-29-15, signed April 1, 2015. A Public Hearing will be held at the Woodbridge Irrigation District Office, 18750 N. Lower Sacramento Rd., Woodbridge, CA. 95258, on June 9, 2016, at 9:30 AM.

May 25, June 1, 2016 - 161336

161336

Appendix C: Flow Meters Used by Woodbridge Irrigation District to Meter Agricultural Deliveries

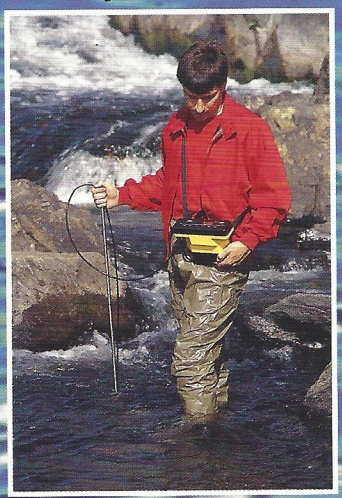
FLO-MATE™ Portable Flowmeter



A Flowmeter Ahead of its Time

Ideal Applications

- Streams
- Weir/Flume/Flowmeter Calibration
- Sewers
- Mining Channels
- Irrigation Channels
- Open Channels
- Full Pipes

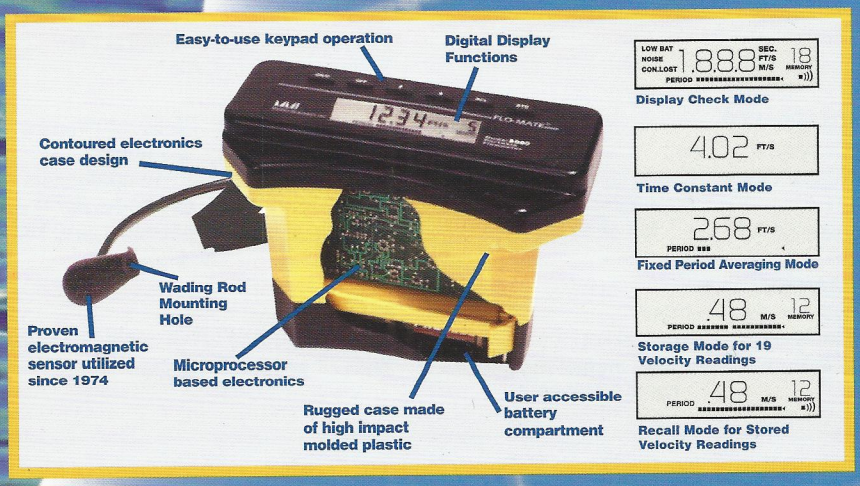


The Flo-Mate™ Model 2000 was designed to include the features that you have desired in a flowmeter, but have until now been unable to find in any other available flowmeter.

Determine volumetric flow in rivers, streams, irrigation ditches, sanitary pipes, or wherever water flows. Check the calibration of existing flowmeters, as well as weirs and flumes. Instantaneous readout, lightweight, rugged field construction with no moving parts, water resistant, battery operation, and storage/recall of 19 data points are just a few of the features that make Flo-Mate your clear choice in velocity flowmeters.

Our proven electromagnetic velocity sensor, introduced in 1974, assures you of unsurpassed accuracy and dependability. When the sensor is placed in flowing water, its magnetic field creates a voltage. This voltage is sensed by electrodes embedded in the sensor and is transmitted through the cable to the meter. The voltage amplitude, representing the rate of water flowing around the sensor, is electronically processed and displayed on the instrument panel.

Turbulent/noisy flows are easily metered with Flo-mate's two user-selectable data averaging features – Fixed Period Averaging or Time Constant Mode.

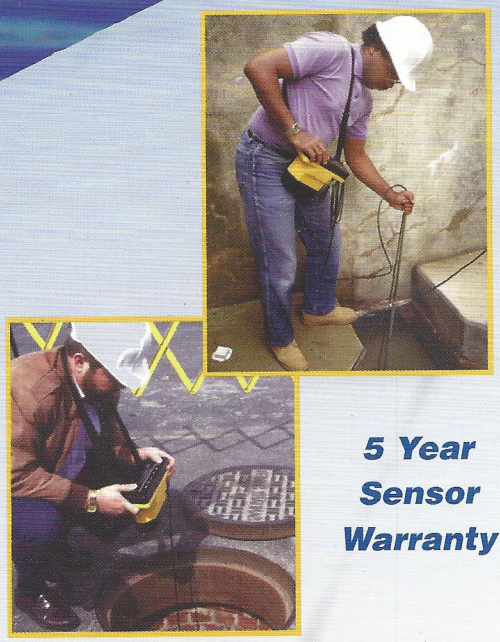


MARSH McBIRNEY

A Higher Level of Flow Measurement

www.marsh-mcbirney.com

Features that make a difference...



5 Year Sensor Warranty

- Instantaneous readout of flow velocity
- Ideal for calibration of flumes, weirs and other primary devices
- Proven electromagnetic sensor originally introduced in 1974
- Water resistant electronics
- Data storage/Recall capability-store and recall up to 19 data points while profiling in the field
- Lightweight — only 3 1/2 pounds
- External charging capability
- Rugged case made of high impact molded materials
- Measures low flows
- Accuracy verified by in-house towing carriage facility
- Direct replacement for USGS type mechanical meters
- Adjustable filter modes: Time constant or fixed period average
- System self-check function
- Battery saver mode/auto shut-off
- Battery powered – rechargeable or disposable
- Bar graph displays timing information
- Sensors available for full pipe applications
- Optional disconnectable sensor available

FLO-MATE™ Model 2000 Specifications and Ordering Information

VELOCITY MEASUREMENT
Method: Electromagnetic
Zero Stability: ±0.05 ft/s
Accuracy: ±2% of reading + zero stability
Range: -0.5 to +20 ft/s
(-0.15 to 6m/s)

OUTPUTS
DIsplay: 3 1/2 digit
Signal Output: (Optional-For External Recording Devices)
Analog: 0.1v per 1 ft/s or 1 m/s

MATERIALS
Sensor: Polyurethane
Cable: Polyurethane jacket
Electronic Case: High impact molded plastic–NEMA 4

ENVIRONMENTAL
Sensor: 32° to 160°F (0° to 72°C)
Electronics: 32° to 122°F (0° to 50°C)

POWER REQUIREMENTS
Batteries: Two D Cells
Battery Life:
Alkaline: 25-30 continuous ON hours
NiCad™: 10-15 continuous ON hours per charge
External Supply: (Optional) 120V, 1W or 220V, 1W

WEIGHT
With sensor and 20' of cable: 3 1/2 lbs.
Without sensor: 2 1/2 lbs.

ORDERING INFORMATION
FLO-MATE™ Model 2000 Flowmeter includes electromagnetic sensor with 20 feet of cable, Carrying Case, Universal Sensor Mount, and Instruction Manual. Standard velocity outputs include feet/second (ft/s) and meters/second (m/s).

Built-in options available include sensor disconnect, power in/signal out and additional sensor cable. Max. 100 feet.

Accessory options available include wading rods, suspension cable kit and flow tables.

NOTE: A 1" or 2" Full Pipe Insertable Electromagnetic Velocity Sensor and 1" Open Channel Bi-Directional Cylindrical Velocity Electromagnetic Sensor are available. Contact factory for additional information.

Specifications are for instruments at the time the literature was printed. Due to continuous product testing and improvement, all specifications are subject to change without notice and without MMI's obligation to retrofit existing instruments.

MARSH McBIRNEY
4539 Metropolitan Ct. • Frederick, MD 21704-9452 U.S.A.
(800) 368-2723 • (301) 874-5599 • FAX (301) 874-2172
www.marsh-mcbirney.com
ISO 9001:2000 Certified Mfg. Facility

'SIRA CERTIFICATION SERVICE SUPPLIER QUALITY MANAGEMENT CERTIFICATE NO.940070'

Made in U.S.A. under one or more of the following patent numbers:
4015471, 4083246, 4459848, 4549434, 4688432, 4455870, 4569308, 4821560, 5313842, 5385056 and 5811688.

P/N 103001201, 5M 3/04

MODEL 2000

INSTALLATION AND OPERATIONS MANUAL

DECEMBER 1990

Marsh-McBirney Inc.
4539 Metropolitan Court
Frederick, Maryland 21704-9452

(301) 874-5599 • (800) 368-2723 • FAX (301) 874-2172 • www.marsh-mcbirney.com

PN 105 0003 01, Rev. D, 11/00

SPECIFICATIONS

Velocity Measurement

Method
Electromagnetic

Zero Stability
± 0.05 ft/sec

Accuracy
± 2% of reading + zero stability

Range
-0.5 to +19.99 ft/sec
-0.15 m/sec to +6 m/sec

Power Requirements

Batteries
Two D Cells

Battery Life Continuous ON hours
Alkaline 25-30
NiCad 10-15 per charge

External Power Supply (Optional)
120 V, 1 W or 220 V, 1 W

Water Resistant Electronic Case

Submersible
One Foot for 30 Seconds

Outputs

Display
$3^{1}/_{2}$ Digit

Signal Output Connector (Optional)
Analog 0.1 V = 1 ft/sec or 1 m/sec
2 V = Full Scale

Materials

Sensor
Polyurethane

Cable
Polyurethane jacket

Electronic Case
High Impact Molded Plastic

Weight

3 lb 9 oz with case and 20 ft of cable

2 lb 10 oz without sensor and cable

Temperature

Open-Channel-Velocity Sensor
32° F to 160° F (0° C to 72° C)

Full-Pipe Sensor (S/S Insertion Tube)
32° F to 160° F (0° C to 72° C) @ 250 psi

Electronics
32° F to 122° F (0° C to 50° C)

GENERAL DESCRIPTION

The Marsh-McBirney Model 2000 Flo-Mate is a portable flowmeter designed for use in both the field and the laboratory. The unit uses an electromagnetic sensor to measure the velocity in a conductive liquid such as water. The velocity is in one direction and displayed on a digital display as feet per second (ft/s) or meters per second (m/s).

A watertight case protects the electronics from wet weather and accidential submersions. The unit is powered by two D-size batteries in the bottom of the case. A shoulder strap and 20 feet of sensor cable are standard. Excess sensor cable is coiled and secured to the shoulder strap by the sensor cable retainer.

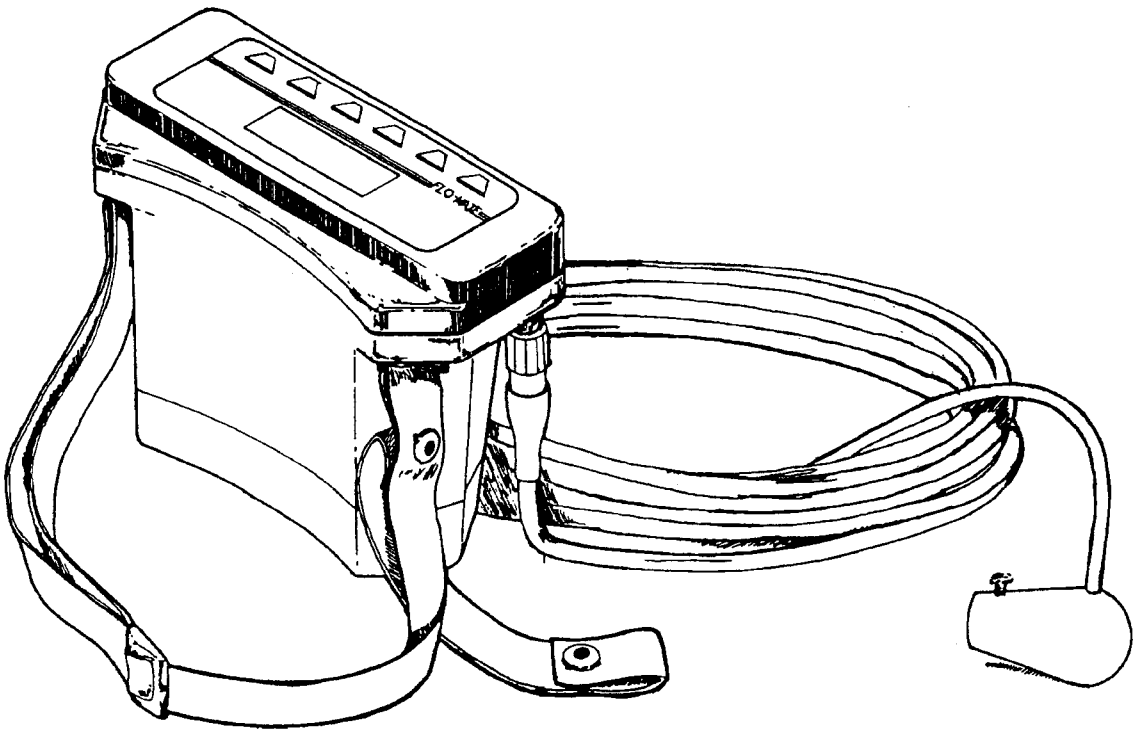


Figure 1. Model 2000 Flo-Mate

THEORY OF OPERATION

The Flo-Mate measures flow using the Faraday law of electromagnetic induction. This law states that as a conductor moves through a magnetic field, a voltage is produced. The magnitude of this voltage is directly proportional to the velocity at which the conductor moves through the magnetic field.

When the flow approaches the sensor from directly in front, then the direction of the flow, the magnetic field, and the sensed voltage are mutually perpendicular to each other. Hence, the voltage output will represent the velocity of the flow at the electrodes.

The sensor is equipped with an electromagnetic coil that produces the magnetic field. A pair of carbon electrodes measure the voltage produced by the velocity of the conductor, which in this case is the flowing liquid. The measured voltage is processed by the electronics and output as a linear measurement of velocity.

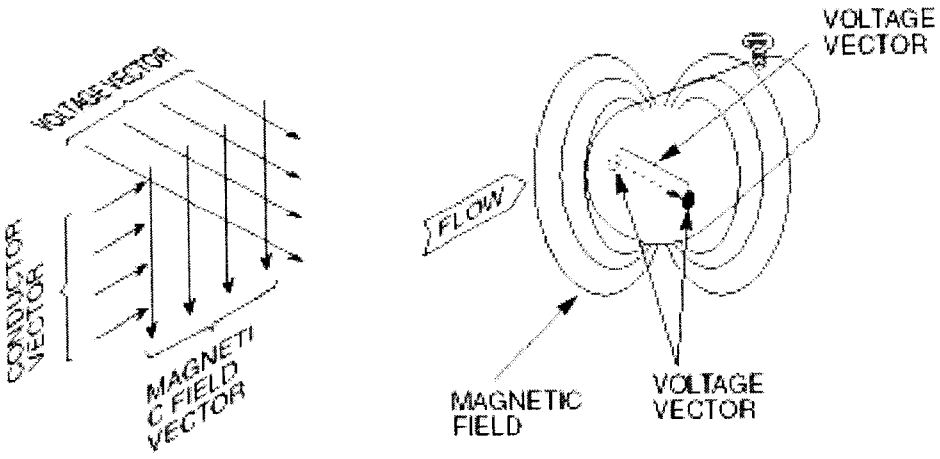


Figure 2. Theory of Operation

DESIGN FEATURES

The Model 2000 design features are as follows:

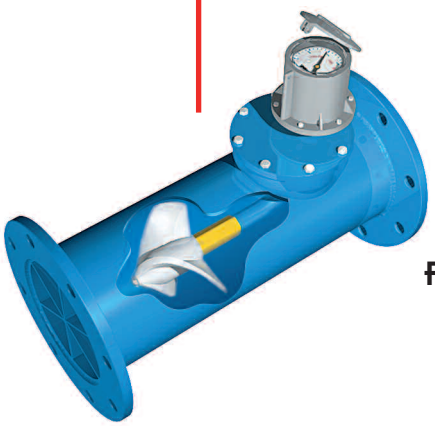
- Lightweight (3 lb 9 oz with sensor and 20 ft of cable), water resistant, and rugged. The case is made of a high impact molded material which protects the electronics from wet environments and accidental submersions.
- Digital filtering. The sensor electronics uses digital filtering. This does a better job than analog filtering in rejecting electrical noise that may be present in the flow.
- Noise flag. If there is enough electrical noise present in the flow to interfere with normal operation, the display will blank out and the noise flag is displayed.
- Conductivity lost detection. A conductivity lost flag is displayed and the velocity readings are blanked out when conductivity lost is detected. Conductivity lost is usually caused by the sensor being out of the water.
- Dry sensor power down. The unit stops driving the sensor five seconds after conductivity lost is detected. This results in a 66% reduction in power consumption, which conserves battery life. If the sensor is dry for more than 5 minutes, the unit will turn itself OFF.
- Automatic shut off. After five minutes of conductivity lost, the unit will shut itself off thus conserving battery life.
- Low battery flag. A low battery flag is displayed when the battery voltage drops below a certain value. The amount of time the batteries will last after the flag is displayed can vary from an hour (alkaline) to 15 minutes (nicads). The unit will shut itself off if the voltage drops too low.
- Clear display function. The clear display function clears the display and restarts the filtering.
- Data storage and recall ability. There are 19 memory locations in which to store and recall velocity measurements.
- Unit of measurement selection. The meter can be switched between English (ft/s) and metric (m/s) units of measurement.
- Selectable filtering modes for display output. Fluid dynamics near the sensor electrodes may cause slightly noisy readings. The output can be stabilized by averaging the velocities over a fixed time period or by a software algorithm that mimics an RC time constant.

Propeller

Flowmeter

Technology

McCROMETER Propeller



For the Real World.

McCROMETER

The Flow Measurement Specialists

Propeller Flowmeters

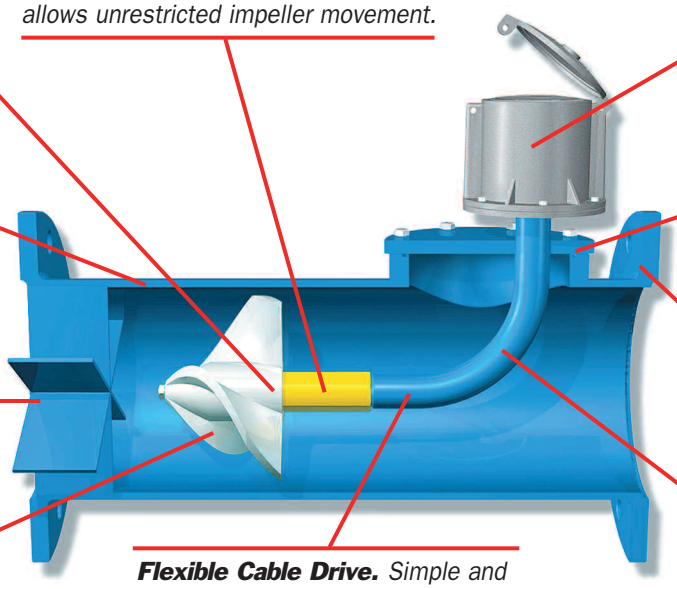
Long-lasting Stainless Steel Ball Bearings. *Factory lubricated and protected from flow stream.*

Epoxy-Coated Carbon Steel Body. *All stainless steel construction available.*

Straightening Vanes. *For optimum flow profiles.*

Corrosion-Resistant Impeller. *Made of durable polymer material, factory calibrated to retain accuracy.*

Magnetic Coupling System. *Isolates register and drive system from flow and allows unrestricted impeller movement.*



Flexible Cable Drive. *Simple and durable, protected by self-lubricating cable guide.*

Instantaneous Flowrate Indicator and Totalizer. *Housed in a Die-Cast Aluminum Register Canopy.*

Removable Top-Plate Assembly. *Available on many models for easy access during field service or replacement.*

Wide Variety of End Fittings. *Including threaded, grooved-end, flanged, and weld-on.*

Heavy Gauge Stainless Steel Support. *Resists corrosion.*

The Most Proven, Dependable Choice

McCrometer offers a complete line of dependable and economical propeller flowmeters for the widest range of applications—from fire hydrant testing to effluent management to farm irrigation. Designed to operate in real-world environments, these flowmeters can measure turbulent flows and fluids containing debris, suspended solids, and other contaminants with an accuracy superior to other technologies.

McCrometer's Mc Propeller flowmeters offer a simple and efficient design. They are easy to install, use, and maintain. After over 50 years of installations, it's no wonder these economical workhorses remain the number one choice for so many water management applications.

Self-Cleaning, Durable Design

Key to the success of McCrometer's Mc Propeller flowmeters is a self-cleaning design that prevents the build-up of solids. A unique, magnetic coupling system keeps the register

FIRE HYDRANT FLOWMETER M1104

- Lightweight, portable design
- Instantaneous readings

BOLT-ON SADDLE FLOWMETER MO300

- 4″ to 16″ line sizes

LARGE-LINE, BOLT-ON SADDLE FLOWMETER M1400

- 18″ to 48″ line sizes

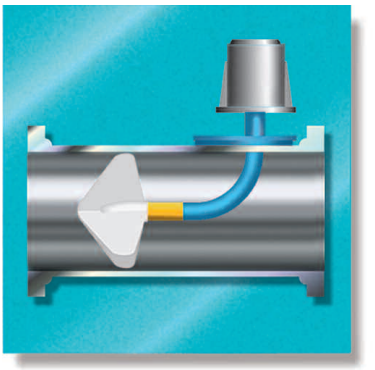
BOLT-ON SADDLE SURFACE WATER FLOWMETER M0300SW

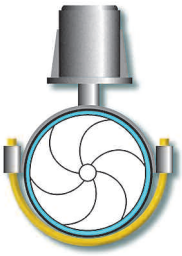
- 4″ to 12″ line sizes

OPEN FLOWMETER M1700

- 10″ to 72″ and larger line sizes

The McCrometer Mc Propeller flowmeter's self-cleaning design uses a flexible drive shaft running within a curved, stainless steel "ell" that makes it easier to shed debris.





The positioning of the impeller directly in the flow stream assures full-flow measurement and greater accuracy.

The McCrometer Propeller flowmeter comes with a standard instantaneous flowrate indicator and straight-reading totalizer. An optional electronic FlowCom register is also available.

six-digit, straight-reading totalizer. They are available in gallons, cubic feet, acre feet, cubic meters and other standard measurements. Both mechanical and electronic registers are available.

Accuracy for Challenging Environments

McCrometer's Mc Propeller flowmeters operate in a wide variety of environments without damage or loss of accuracy. They deliver ±2% of true accuracy and ±.25% repeatability over a flowrange of up to 25 to 1. Whether measuring clean or dirty fluids, McCrometer's Mc Propeller flowmeters excel in measuring turbulent flows, and their built-in versatility makes them ideal for retrofits.

Options to Meet a Wide Range of Needs

McCrometer's Mc Propeller flowmeters come in a variety of standard style configurations—including bolt-on saddle meter, open flow meter, and precision tube—and with a host of options for custom requirements. They offer exceptional sizing flexibility, and can be sized for line diameters of 2″ to 96″ and larger.

MAIN LINE FLOWMETER MW500/MZ500

- 2″ to 24″ or larger line sizes

IRRIGATION-FLANGED FLOWMETER ML100

- 6″ to 12″ line sizes

GROOVED AND SMOOTH-END FLOWMETER MG100/MS100

- 2″ to 24″ line sizes

ALL STAINLESS STEEL MAIN LINE FLOWMETER QW500/QZ500

- 2″ to 24″ line sizes

Proven performance.

and drive isolated from the flow while permitting unrestricted movement of the impeller. Free rotation of the impeller also is assured by factory-lubricated, stainless steel bearings.

The high-impact plastic impeller will not flex or otherwise change in dimension. In fact, it maintains its shape and accuracy over the lifetime of the meter. The impeller also is corrosion and erosion resistant, enabling McCrometer's Mc Propeller flowmeters to operate safely in rugged environments.

Easy to Use and Maintain

McCrometer's Mc Propeller flowmeters install easily and require little maintenance. All their components are easily serviced in the field. The register is driven by a flexible steel cable. The register can also be extended topward for easy reading in confined spaces.

Instantaneous Flow Rate Indicator & Straight-Reading Totalizer: Standard

Registers have an instantaneous rate of flow indicator and

THREADED-END FLOWMETER MT100

- 2″ to 6″ line sizes

WELD-ON SADDLE FLOWMETER MW600

- 4″ to 48″ or larger line sizes

RIGHT ANGLE FLOWMETERS MW800/MM800

- 3″ to 24″ line sizes

MAIN LINE FLOWMETER MW900/MG900/MT900

- 2″ to 24″ or larger line sizes
- Smooth, grooved, or threaded ends

FLANGED-END FLOWMETER MF100

- 2″ to 12″ line sizes

Proven performance.

Engineered for Accuracy, Durability, and Economy for...

Municipal Water/Wastewater

and

Agriculture/Turf Irrigation

- **Potable water**
- **Drip and sprinkler irrigation**
- **Wastewater management**
- **Water well production**
- **Marine system testing**
- **Fire sprinkler testing**
- **Pumping stations**
- **Golf courses and park water management**
- **Truck loading and discharge**
- **Canal laterals**
- **Center pivot systems**

McCrometer's Mc Propeller flowmeters measure both flow rate and volume, using turbine technology and a helical shaped impeller. The flowmeter consists of a rotating device, an impeller, positioned in the flow stream. When fluid passes through the meter, it contacts the impeller, causing it to spin. The impeller's rotational velocity is directly proportional to the velocity of the flow. The rotation is translated through a magnetic coupling and flexible drive system to the register. The register automatically calculates the flow rate by multiplying the flow velocity with the cross-sectional area of the meter tube.

The register incorporates an instantaneous flowrate indicator and straight-reading totalizer. The flowrate and total flow may be indicated in virtually any unit of measurement such as U.S. gallons or liters.

McCrometer

Application

Support

At McCrometer, all we make are flowmeters. We have over 50 years of flow measurement experience in municipal, industrial, and agricultural markets.
Our knowledgeable staff can accurately evaluate your flow applications and specify the best metering technology for your specific flow condition. For a free evaluation of your flow application or to find out about our other flowmeter products, contact your McCrometer representative today, or visit our website at **www.mccrometer.com**

Instrumentation Options For Remote Display & Control

McCrometer's Electronic instrumentation is specifically designed for use on all McCrometer Mc Propeller flowmeters, allowing the flow data generated by the flowmeter to be transmitted and incorporated into flow monitoring and control systems. This instrumentation can be ordered along with the flowmeters or retrofitted to any existing McCrometer Mc Propeller flowmeter.

Transmitters

Transmitters can be easily installed on all new or existing McCrometer Mc Propeller flowmeters to provide a variety of signal outputs to flow computers, irrigation controllers, electronic and electromechanical totalizers, chart recorders, Programmable Logic Controllers (PLCs), and computerized data acquisition systems.

Standard signal outputs available:

- Linear 4-20 mA
- Dual forward and reverse 4-20 mA (separate signal for forward and reverse flows)
- Digital 0-12 volt pulse
- Dry Contact Relay
- Open-Collector

Electronic Registers

These battery-powered FlowCom registers come with LCD Rate of Flow and Total Flow displays. They replace the mechanical register and can be mounted directly on the propeller flowmeter or in a remote enclosure. These registers are field programmable and have optional 4-20 mA and pulse outputs.

Flow Computers

Remote mounted microprocessors display both rate of flow and total flow. These flow computers are easily field programmable and can include control features such as high and low alarm set points, control and alarm outputs, relay outputs, RS-485 serial communications ports and 4-20 mA outputs.

Chart Recorders

McCrometer Chart Recorders are remote, microprocessor-based, circular chart recorders for monitoring and permanent recording of flowrate information. They use a thermal printing stylus to draw charts on blank paper. Chart Recorders are available with both 24-hour and 7-day charts. Recorders are also available with 4-20 mA control outputs.

McCROMETER
The Flow Measurement Specialists

3255 West Stetson Avenue, Hemet, CA 92545 USA
Tel: 951-652-6811 • FAX: 951-652-3078
www.mccrometer.com

Lit #24519-13 Rev 1.6/07-08

MC Propeller

CONFIGURATION SHEET
MAIN LINE FLOWMETER

MODEL MW500 / MZ500

DESCRIPTION

Model MW500 and MZ500 Main Line Propeller Flowmeters are manufactured to comply with the applicable provisions of the American Water Works Association Standard No. C704-02 for propeller type flowmeters. The model MW500 is designed for a maximum continuous working pressure of up to 150 psi and is fitted with AWWA Class D flanges. The model MZ500 is designed for a continuous working pressure of up to 300 psi and is fitted with ANSI B16.5 Class 300 flanges. The impeller and drive assembly are easily removed through the top flange connection. The meter flow tubes are coated with fusion-bonded epoxy for maximum corrosion protection, and integral flow straightening vanes reduce upstream flow turbulence. As with all McCrometer propeller flowmeters, standard features include a magnetically coupled drive, instantaneous flowrate indicator and straight reading, six-digit totalizer.

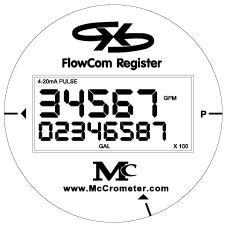
Impellers are manufactured of high-impact plastic, capable of retaining their shape and accuracy over the life of the meter. Each impeller is individually calibrated at the factory to accommodate the use of any standard McCrometer register. The MW500 and MZ500 can be field-serviced without the need for factory recalibration. Factory lubricated stainless steel bearings are used to support the impeller shaft. The shielded bearing design limits the entry of materials and fluids into the bearing chamber providing maximum bearing protection.

The instantaneous flowrate indicator is standard and available in gallons per minute, cubic feet per second, liters per second and other units. The register is driven by a flexible steel cable encased within a protective vinyl liner. The register housing protects both the register and cable drive system from moisture while allowing clear reading of the flowrate indicator and totalizer.

INSTALLATION

Standard installation is horizontal mount. If the meter is to be mounted in the vertical position, please advise the factory. A straight run of full pipe the length of five diameters ahead and one diameter behind the meter is the minimum normally recommended.

The McCrometer Propeller flowmeter comes with a standard instantaneous flowrate indicator and straight-reading totalizer. An optional FlowCom register is also available. *Typical face plates.*



APPLICATIONS

The McCrometer propeller meter is the most widely used flowmeter for municipal and wastewater treatment applications as well as agricultural and turf irrigation measurement. Typical applications include:

- Water and wastewater management
- Center pivot systems
- Sprinkler irrigation systems
- Drip irrigation systems
- Golf course and park water management
- Gravity turnouts from underground pipelines
- Commercial nurseries

SHOWN: MODEL MW500

Lit#24517-20 Rev 2.1/10-12

McCROMETER
3255 West Stetson Avenue
Hemet CA 92545 USA
951-652-6811 / FAX 951-652-3078
www.mccrometer.com

MAIN LINE FLOWMETER MODEL MW500 / MZ500

SPECIFICATIONS

PERFORMANCE

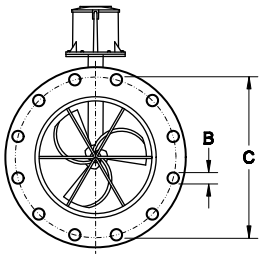
ACCURACY: ±2% of reading guaranteed throughout range.
RANGE: See dimensions chart below
HEAD LOSS: See dimensions chart below
MAXIMUM TEMPERATURE: (Standard Construction) 160°F constant
PRESSURE RATING: Model MW500: 150 psi
Model MZ500: 300 psi

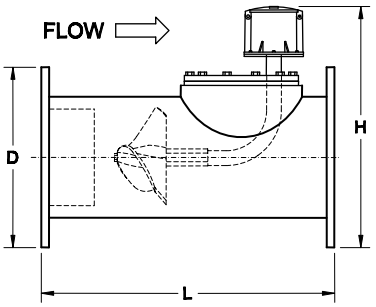
MATERIALS

BEARING ASSEMBLY: Impeller shaft is 316 stainless steel. Ball bearings are 440C stainless steel.
MAGNETS: (Permanent type) Alnico
BEARING HOUSING: Brass; Stainless Steel optional
REGISTER: An instantaneous flowrate indicator and six-digit straight-reading totalizer are standard. The register is hermetically sealed within a die cast aluminum case. This protective housing includes a domed acrylic lens and hinged cover with locking hasp.
IMPELLER: Impellers are manufactured of high-impact plastic, retaining their shape and accuracy over the life of the meter. High temperature impeller is optional.

OPTIONS

- International flange standards available
- Other than standard laying lengths available
- Register extensions available
- Forward/reverse flow measurement
- All stainless steel construction
- High temperature construction
- "Over Run" bearing assembly for higher-than-normal flowrates
- Electronic propeller meter available in all sizes of this model
- A complete line of flow recording/control instrumentation
- Certified calibration test results
- Canopy boot





McCROMETER reserves the right to change design or specifications without notice.

MW500/MZ500	DIMENSIONS														
Meter and Nominal Pipe Size	**2**	**2 1/2**	**3**	**4**	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**24**	**30**	**36**
Maximum Flow U.S. GPM	250	250	250	600	1200	1500	1800	2500	3000	4000	5000	6000	8500	12,500	17,000
Minimum Flow. U.S. GPM	40	40	40	50	90	100	125	150	250	275	400	475	700	1200	1500
Approx. Head Loss in Inches at Max. Flow	29.50	29.50	29.50	23.00	17.00	6.75	3.75	2.75	2.00	1.75	1.50	1.25	1.00	1.00	1.00
MW500															
Approx. Shipping Weight-lbs.	36	36	43	54	115	135	197	325	465	530	744	890	1,293	1450	1650
B (inches)	3/4	3/4	3/4	3/4	7/8	7/8	1	1	1 1/8	1 1/8	1 1/4	1 1/4	1 3/8	1 3/8	1 5/8
C (inches)	4 3/4	5 1/2	6	7 1/2	9 1/2	11 3/4	14 1/4	17	18 3/4	21 1/4	22 3/4	25	29 1/2	36	42 3/4
D (inches)	6	7	7 1/2	9	11	13 1/2	16	19	21	23 1/2	25	27 1/2	32	38 3/4	46
H (inches)	11 3/4	12 1/4	12 1/2	15 1/4	16 1/4	18 1/2	21 3/4	24 1/4	25 1/4	28 1/2	29 1/4	32 1/2	36 3/4	42 3/4	49 1/4
L (inches)	14	16	16	20	22	24	26	28	42	48	54	60	60	60	60
No. of Bolts per Flange	4	4	4	8	8	8	12	12	12	16	16	20	20	28	32
No. of Topplate Bolts	6	6	6	6	8	8	12	12	12	12	16	16	16	16	16
MZ500															
Approx. Shipping Weight-lbs.	50	55	62	90	145	220	340	430	650	820	1,315	1,508	2,165		
B (inches)	3/4	7/8	7/8	7/8	7/8	1	1 1/8	1 1/4	1 1/4	1 3/8	1 3/8	1 3/8	1 5/8		
C (inches)	5	5 7/8	6 5/8	7 7/8	10 5/8	13	15 1/4	17 3/4	20 1/4	22 1/2	24 3/4	27	32		
D (inches)	6 1/2	7 1/2	8 1/4	10	12 1/2	15	17 1/2	20 1/2	23	25 1/2	28	30 1/2	36		
H (inches)	12	12 1/2	12 7/8	15 3/4	17	19 1/4	22 1/2	25	26 1/4	29 1/2	32 3/4	34	38 3/4		
L (inches)	20	20	20	24	26	28	30	32	42	48	54	60	60		
No. of Bolts per Flange	8	8	8	8	12	12	16	16	20	20	24	24	24		

Note: *Flanges meet ASTM-A-181 specs. Larger flowmeters on special order.*

Lit#24517-20 Rev 2.1/10-12

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