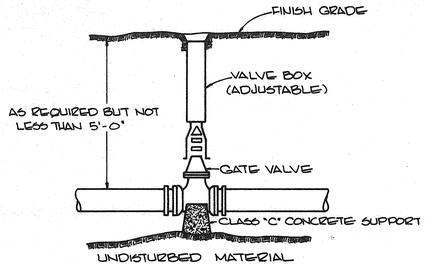
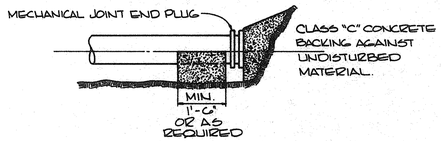
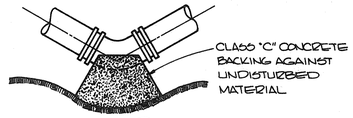


TYPICAL GATE VALVE
NOT TO SCALE

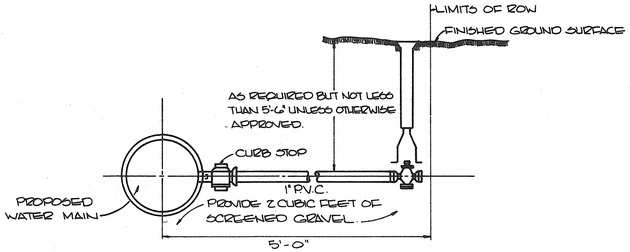


TYPICAL PLUG
NOT TO SCALE

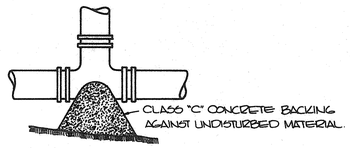
CONCRETE BACKING FOR WATER PIPE			
TABLE OF BEARING AREAS IN SQ. FT. FOR WATER MAIN FITTINGS VS. UNDISTURBED MATERIAL			
SIZE OF MAIN IN	45° BEND	TEES & PLUGS	22½° BEND
8" & LESS	8	10	8
10" & 12"	22	16	13



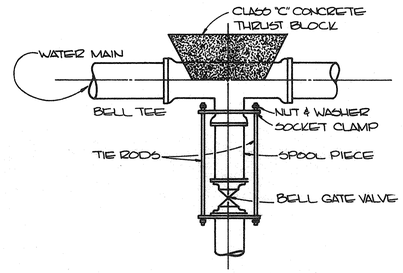
TYPICAL BEND
NOT TO SCALE



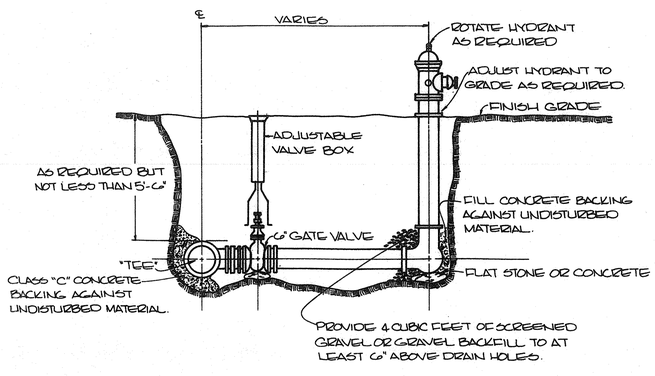
TYPICAL PERMANENT SERVICE CONNECTION
NOT TO SCALE



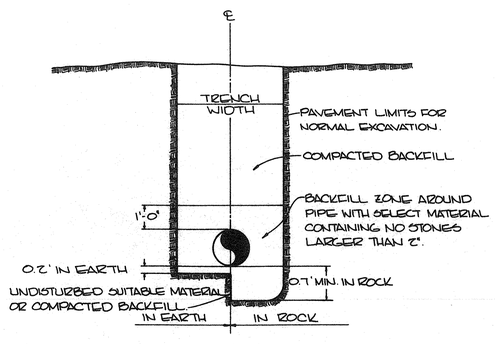
TYPICAL TEE
NOT TO SCALE



TYPICAL VALVE CONNECTION
NOT TO SCALE



TYPICAL HYDRANT AND VALVE DETAIL
NOT TO SCALE



TRENCH WIDTH W		
DIAMETER OF PIPE	WIDTH UNSHEETED	WIDTH SHEETED
12" & SMALLER	3'-0"	4'-2"

WATER TRENCH DETAIL
NOT TO SCALE

NOTES:

INSPECTION AND ACCEPTANCE:
ALL WORK DONE AND MATERIALS USED ARE TO BE INSPECTED BY THE DISTRICT REPRESENTATIVE WHOSE DECISION TO ACCEPT OR REJECT EITHER WORK OR MATERIALS SHALL BE IN ACCORDANCE WITH THESE REGULATIONS.

TESTING AND CHLORINATING:
THE CONTRACTOR SHALL IN THE PRESENCE OF THE DISTRICT REPRESENTATIVE TEST ALL WATER FACILITIES FOR TWO CONTINUOUS PERIODS OF TIME OF NOT LESS THAN 15 MINUTES EACH OR THE LENGTH OF TIME REQUIRED BY THE DISTRICT REPRESENTATIVE. THE PRESSURE TEST SHALL BE 125 LBS. P.S.I. OR 1.5 TIMES THE NORMAL STATIC PRESSURE, WHICHEVER IS HIGHER. THE DISTRICT REPRESENTATIVE WILL DETERMINE BY ESTABLISHED FORMULA THE ALLOWABLE LEAKAGE ON THE PRESSURE TEST. THE CONTRACTOR SHALL CHLORINATE THE NEWLY INSTALLED MATERIALS AT 50 PARTS PER MILLION. THE CONTRACTOR MAY BE REQUIRED TO RECHLORINATE IF THE WATER IN THE PROJECT CANNOT BE CERTIFIED BACTERIA FREE. ALL CHLORINE IS TO BE PUMPED INTO THE WATER MAINS UNDER PRESSURE.

PIPE:
A) 8" P.V.C., CLASS: SDR 35 OR APPROVED EQUAL

FITTINGS:
A) GATE VALVE TO CONFORM TO AWWA STANDARDS, 200 P.S.I. WORKING PRESSURE, OPEN LEFT STEM SHALL BE NON-RISING, MAG. BRONZE WITH TENSILE STRENGTH OF 60,000 LBS. "O" RING STEM SEAL WITH 2 INCH SQUARE OPERATING NUT. MUELLER A-2360-20 6" MECHANICAL JOINT.

CORPORATION STOP:
A) MUELLER #15008

SADDLE:
A) SMITH-BLAIR #313 OR EQUAL

CURB STOP:
A) MUELLER MARK II
H-10213 COMPRESSION-OR SEAL
H-10284 IPS

VALVES, HYDRANTS, AND APPURTENANCES:
A) HYDRANTS SHALL BE COMPRESSION TYPE FIRE HYDRANTS CONFORMING TO THE "STANDARD SPECIFICATIONS FOR FIRE HYDRANTS FOR ORDINARY WATER WORKS SERVICE AWWA C-502-64.
B) GATE VALVES (4 INCHES AND LARGER) SHALL BE IRON BODY, BRONZE MOUNTED, DOUBLE-DISK GATE VALVES WITH MECHANICAL-JOINT OR HUB ENDS. GATE VALVES SHALL BE OF A PRESSURE CLASSIFICATION AT LEAST TO THE PIPE WHICH THEY ARE USED THEY SHALL TO TURN RIGHT TO OPEN (CLOCKWISE).
C.) CORPORATION STOPS SHALL BE BRASS AND HAVE A THREAD INLET AND UNION COUPLING CONNECTION COPPER WATER TUBE.
D) CURB STOPS SHALL BE ROUND WAY, GROUND KEY AND STOP DRAIN WITH COPPER FLANGE ON BOTH ENDS. BUFFALO SLIDING TYPE SERVICE BOXES WITH 2½ INCH SHAFTS AND COVERS SHALL BE SUPPLIED FOR ALL CURB STOPS.
E) VALVE BOXES SHALL BE PROVIDED WITH EACH BURIED VALVE UNLESS OTHERWISE SPECIFIED OR REQUIRED. VALVE BOXES SHALL BE OF TOUGH EVENGRAINED CAST IRON AND OF THE ADJUSTABLE SLIP, HEAVY PATTERN TYPE. THEY SHALL BE SO DESIGNED AND CONSTRUCTED AS TO PREVENT THE DIRECT TRANSMISSION OF TRAFFIC LOADS TO THE PIPE VALVE.
F) THE SPECIFIC CONFIGURATION AND MANUFACTURE OF VALVES, GATES AND APPURTENANCES SHALL BE SUBJECT TO THE APPROVAL OF LOCAL WATER DISTRICT REGULATIONS AUTHORITY.

CEMENT CONCRETE:
A) CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF SECTION M4 OF THE "STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES IN THE COMMONWEALTH OF MASSACHUSETTS", 1973 EDITION FOR THE CLASS OF CONCRETE SPECIFIED ON THE DRAWINGS TYPE II SHALL BE USED.

GRAVEL:
A) SCREENED GRAVEL SHALL BE WELL GRADED IN SIZE FROM ⅜ INCH TO ¾ INCH AND FREE FROM DIRT OR OTHER OBJECTIONABLE MATERIAL.
B) GRAVEL BACKFILL SHALL CONFORM TO THE REQUIREMENTS OF SECTION M1.03.0 TYPE B, OF THE "STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES IN THE COMMONWEALTH OF MASSACHUSETTS", 1973 EDITION.

CONSTRUCTION SPECIFICATIONS:
A) EXCAVATION FOR WATER LINE, STRUCTURES AND APPURTENANCES SHALL BE AS INDICATED ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER. MINIMUM COVER SHALL BE 5 FEET EXCEPT AS OTHERWISE NOTED ON THE DRAWINGS.
B) SHEETING IF USED SHALL BE LEFT IN PLACE BELOW A LINE 1'-0" ABOVE THE TOP OF THE WATER PIPE UNLESS OTHERWISE INDICATED OR DIRECTED.
C) BLASTING IF REQUIRED SHALL BE PERFORMED IN ACCORDANCE WITH ALL MUNICIPAL ORDINANCES AND STATE AND FEDERAL LAWS RELATING TO THE TRANSPORTATION, STORAGE, HANDLING AND USE OF EXPLOSIVES.
D) VALVES, HYDRANTS AND VALVE BOXES SHALL BE SET PLUMB AND CENTERED WITH THE VALVE BOX DIRECTLY OVER THE OPERATING NUT. THE HYDRANT OPERATING PIPE SHALL HAVE AT LEAST THE SAME DEPTH OF COVER AS THE DISTRIBUTION MAIN. THE HYDRANTS SHALL BE SET UPON A SLAB OF STONE OR CONCRETE NOT LESS THAN 4 INCHES THICK AND 15 INCHES SQUARE. THE SIDE OF THE HYDRANTS OPPOSITE THE PIPE CONNECTION SHALL BE WEDGED FIRMLY AGAINST THE VERTICAL OF THE TRENCH WITH A CONCRETE THRUST BLOCK AS INDICATED ON THE DRAWING. NOT LESS THAN 7 CUBIC FEET OF SCREENED GRAVEL SHALL BE PLACED AROUND THE BASE OF EACH HYDRANT AT THE DRAIN HOLES.
E) PRIOR TO BACKFILLING ANY PORTION OF THE WORK, THE CONTRACTOR SHALL HAVE THE WORK INSPECTED BY A LOCAL MUNICIPAL WATER OFFICAL OR DESIGNATED ENGINEER/AGENT. THIS INSPECTION SHALL IN NO WAY RELIEVE THE CONTRACTOR OF THE ULTIMATE RESPONSIBILITY FOR THE TIGHTNESS OF THE LINE.

COMMONWEALTH OF MASSACHUSETTS
EARLE O. PHILLIPS JR.
NO. 30755
REGISTERED PROFESSIONAL ENGINEER

Earle O. Phillips Jr.

COMMONWEALTH OF MASSACHUSETTS
BENJAMIN A. GILMORE II
No. 21074
REGISTERED PROFESSIONAL ENGINEER

Benjamin A. Gilmore II

WATER MAIN DETAIL SHEET
FOR
ZORA ENTERPRISES INC.
IN
MARION, MA.

SCALE: AS NOTED — OCT. 28, 1988

G.A.F. ENGINEERING, INC.
P.O. BOX 253 MARION, MA. 02738
P.O. BOX 417 SOUTH CARVER, MA. 02366

M-20