LANDSCAPE IRRIGATION SPECIFICATIONS

PART 1 – GENERAL

1.1. DEFINITIONS:

1.1.1. CITY: BAKERSFIELD

1.1.2. OWNER: BCSD-WAYSIDE ELEMENTARY

1.1.3. LANDSCAPE ARCHITECT: PINNACLE CIVIL ENGINEERING INC.

1.2. SCOPE OF CONTRACT:

1.2.1. N/A

1.2.2. N/A

1.3. LANDSCAPE CONSTRUCTION DOCUMENTS

1.3.1. N/A

1.3.2. THESE PLANS ARE PREPARED FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS, WHICH MAY AFFECT THE INTENDED DESIGN OF THE LANDSCAPE WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.

1.3.3. THE IRRIGATION DESIGN AS INDICATED ON THE PLANS IS DIAGRAMMATIC. SCALED DIMENSIONS ARE APPROXIMATE. VERIFY ALL SITE DIMENSIONS PRIOR TO PROCEEDING WITH THE WORK.

1.4. RELATED DOCUMENTS:

1.4.1. LOCAL, MUNICIPAL AND STATE CODES, LAWS, RULES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY MADE A PART OF THESE PLANS AND SPECIFICATIONS.

1.4.2. N/A

1.4.3. N/A

1.4.4. N/A

1.5. DESCRIPTION OF WORK:

1.5.1. N/A

1.5.2. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO INDICATE AND SPECIFY A COMPLETE IRRIGATION SYSTEM, INSTALLED READY FOR USE WITHOUT FURTHER COST IN LABOR OR MATERIALS TO THE OWNER AND COMPLYING WITH ALL APPLICABLE CODES, SPECIFICATIONS AND DETAILS.

1.6. QUALITY ASSURANCE:

1.6.1. N/A

1.7. PRODUCT DATA SUBMITTALS:

1.7.1. N/A

1.8. RECORD DRAWINGS:

1.8.1. N/A

1.8.2. N/A

1.8.3. N/A

1.8.4. N/A

1.8.5. N/A

1.8.6. N/A

1.8.7. N/A

1.9. CONTROLLER CHARTS:

1.9.1. THE CONTRACTOR SHALL PREPARE A COLOR-CODED CHARTS SHOWING THE VALVES, MAINLINE, AND SPRINKLER HEADS SERVICED BY THAT PARTICULAR CONTROLLER.

1.9.2. WITHIN EACH CONTROLLER, EACH VALVE/SYSTEM SHALL BE IDENTIFIED BY A UNIQUE COLOR.

1.9.3. ALL VALVES SHALL BE NUMBERED TO MATCH THE OPERATION SCHEDULE AND THE DRAWINGS. ONLY THOSE AREAS CONTROLLED BY THAT CONTROLLER SHALL BE SHOWN.

1.9.4. CONTROLLER CHARTS SHALL BE A PLOT PLAN, ENTIRE OR PARTIAL, SHOWING BUILDINGS, WALKS, ROADS AND WALLS. A PHOTOSTATIC PRINT OF THIS PLAN, REDUCED AS NECESSARY AND LEGIBLE IN ALL DETAILS, SHALL BE MADE TO A SIZE THAT WILL FIT INTO THE CONTROLLER COVER.

1.9.5. THIS PRINT SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT OR THE OWNER'S AUTHORIZED REPRESENTATIVE AND SHALL BE HERMETICALLY SEALED BETWEEN TWO PIECES OF TEN MIL. THICK PLASTIC.

1.9.6. FOR EACH CONTROLLER, THE CONTRACTOR SHALL PROVIDE TWO SETS OF 11" X 17" CONTROLLER CHARTS AS FOLLOWS:

ONE COLOR CODED LAMINATED SET TO: OWNER

ONE COLOR CODED LAMINATED SET TO: SECURED ON THE INSIDE SURFACE OF THE COVER OF EACH AUTOMATIC CONTROLLER.

1.10. EQUIPMENT, KEYS, MANUALS & CERTIFICATIONS:

1.10.1. UPON COMPLETION OF THE CONTRACTOR'S MAINTENANCE PERIOD, THE CONTRACTOR SHALL PROVIDE THE FOLLOWING EQUIPMENT TO THE OWNER:
(2) CONTROLLER/C.C.U. ENCLOSURE KEYS FOR EACH ENCLOSURE.
(2) KEYS TO ACCESS SPECIAL ELECTRICAL SWITCH INSIDE EACH CONTROLLER ENCLOSURE.
(1) ACME THREAD QUICK COUPLING KEYS AND MATCHING SWIVELS FOR WATER IRRIGATION SYSTEMS.
(2) SETS OF TOOLS REQUIRED FOR SERVICING AND/OR ADJUSTING EACH SPRINKLER AND VALVE TYPE.
(1) COPY OF THE BACKFLOW PREVENTION DEVICE CERTIFICATION.

1.10.2. THE CONTRACTOR SHALL SUBMIT THE FOLLOWING TO THE OWNER'S REPRESENTATIVE:

(1) CONTROLLER/C.C.U. ENCLOSURE KEYS FOR EACH ENCLOSURE.

(1) CONTROLLER/C.C.U. KEYS FOR EACH CONTROLLER.

(1) KEYS TO ACCESS SPECIAL ELECTRICAL SWITCH INSIDE EACH CONTROLLER ENCLOSURE.

(1) STANDARD QUICK COUPLING LOCKING COVER KEYS

(1) ACME THREAD QUICK COUPLING KEYS AND MATCHING SWIVELS FOR IRRIGATION SYSTEMS.

(2) SETS OF TOOLS REQUIRED FOR SERVICING AND/OR ADJUSTING EACH SPRINKLER AND VALVE TYPE.

(1) COPY OF THE BACKFLOW PREVENTION DEVICE CERTIFICATION.

(2) SETS OF SERVICE MANUALS FOR ALL IRRIGATION EQUIPMENT INSTALLED.

1.11. GUARANTEES:

1.11.1. CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE IN ACCORDANCE WITH THE GENERAL CONDITIONS, FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE AND CONCLUSION OF THE MAINTENANCE PERIOD. GUARANTEE SHALL COVER THE COMPLETE IRRIGATION SYSTEM, INCLUDING SETTLING OF THE BACKFILL IN TRENCHES AND REPAIRS AND/OR REPLACEMENT OF ANY MATERIAL DAMAGED THEREBY OR THERE FROM.

1.11.2. MANUFACTURER'S WARRANTIES SHALL NOT RELIEVE THE CONTRACTOR OF HIS LIABILITY UNDER THE GUARANTEE. SUCH WARRANTY SHALL ONLY SUPPLEMENT THE GUARANTEE.

1.12 WATER SERVICE:

1.12.1. POINT OF CONNECTIONS SHOWN ON PLANS ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE WITH OWNER'S AUTHORIZED REPRESENTATIVE AND GOVERNING WATER DISTRICT TO HAVE WATER AVAILABLE WHEN REQUIRED.

1.22.2. N/A

1.12.3. N/A

1.13. ELECTRICAL SERVICE:

1.13.1. N/A

1.13.2. N/A

1.13.3. CONTROLLERS SHALL OPERATE ON SINGLE PHASE, 110 TO 120 VOLT, 60 CYCLE, ALTERNATING CURRENT AND "U.L." LISTED.

1.13.4. CONTROLLERS SHALL BE ENCLOSED IN A U.L. LISTED WEATHERPROOF CORROSION-RESISTANT ENCLOSURE WITH LOCKING COVER.

1.13.5. CONDUIT FOR 120 VOLT AND 24 VOLT WIRING SHALL BE APPROVED BY GOVERNING BUILDING CODES FOR ELECTRICAL SERVICE.

1.14. COMMUNICATION SERVICE:

1.14.1. N/A

1.14.2. POINT OF CONNECTION SHOWN ON PLANS IS APPROXIMATE. CONTRACTOR SHALL COORDINATE WITH OWNER'S AUTHORIZED REPRESENTATIVE TO HAVE COMMUNICATION LINE AVAILABLE WHEN REQUIRED.

1.14.3. N/A

PART 2 – PRODUCTS

2.1. GENERAL:

2.1.1. ALL MATERIALS AND EQUIPMENT SHALL BE PURCHASED NEW, SPECIFICALLY FOR THIS PROJECT, UNLESS OTHERWISE NOTED ON THE PLANS. OF T

2.1.2. THE CONTRACTOR SHALL FURNISH THE ARTICLES, EQUIPMENT, MATERIALS OR PROCESSES SPECIFIED BY NAME IN THE DRAWINGS AND SPECIFICATIONS. NO SUBSTITUTION WILL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY THE LANDSCAPE ARCHITECT, OR THE OWNER'S AUTHORIZED REPRESENTATIVE. EQUIPMENT OR MATERIALS INSTALLED OR FURNISHED WITHOUT THE PRIOR APPROVAL OF THE LANDSCAPE ARCHITECT MAY BE REJECTED AND THE CONTRACTOR REQUIRED TO REMOVE AND REPLACE SUCH MATERIALS FROM THE SITE AT HIS OWN EXPENSE.

2.2. BACKFLOW PREVENTION DEVICES:

2.2.1. N/A

2.2.2. N/A

2.2.3. N/A

2.3. PRESSURE REGULATION DEVICES: AS SPECIFIED IN DRAWINGS.

2.4. AUTOMATIC CONTROL SYSTEM: AS SPECIFIED IN DRAWINGS.

2.4.1. CONTRACTOR SHALL FURNISH LOW VOLTAGE SYSTEM MANUFACTURED EXPRESSLY FOR CONTROL OF AUTOMATIC CIRCUIT VALVES OF UNDERGROUND IRRIGATION SYSTEMS. PROVIDE UNIT OF CAPACITY TO SUIT NUMBER OF CIRCUITS AS INDICATED.

2.4.2. MECHANISM SHALL BE HOUSED IN A STURDY, VANDAL-PROOF ENCLOSURE, MANUFACTURED OF 14 GAUGE STEEL, OR CASE ALUMINUM; FURNISHED FOR MAXIMUM PROTECTION, AS CALLED FOR ON THE DRAWINGS (SIZE AS REQUIRED).

2.5. AUTOMATIC CONTROL WIRE: LOW VOLTAGE

2.5.1. DIRECT BURIAL COPPER WIRE AWG-U.F. 600 VOLT, SINGLE CONDUCTOR SOLID COPPER, PLASTIC INSULATED CABLE, U.L. APPROVED FOR DIRECT BURIAL APPLICATION.

2.5.2. AUTOMATIC CONTROL WIRE: LOW VOLTAGE

2.5.2.1. DIRECT BURIAL COPPER WIRE AWG-U.F. 600 VOLT, SINGLE CONDUCTOR SOLID COPPER, PLASTIC INSULATED CABLE, U.L. APPROVED FOR DIRECT BURIAL APPLICATION.

2.5.2.2. FOR TRADITIONAL CONTROL SYSTEMS WITH SINGLE PILOT WIRE TO EACH REMOTE CONTROL VALVE, WIRE SIZE AND COLOR SHALL BE AS FOLLOWS:

WIRE RUN	PILOT WIRE SIZE	COMMON WIRE SIZE
TO 1200'	14 GA	12 GA
EXCEEDING 1200'	12 GA	12 GA

PILOT WIRES SHALL NOT BE WHITE OR RED AND MUST BE UNIQUE IN COLOR FOR EACH CONTROLLER. COMMON WIRE SHALL BE WHITE WITH COLORED STRIPE EQUAL TO PILOT WIRE COLOR.
EXAMPLE:

CONTROLLER	PILOT	COMMON	SPARE
"A"	BLACK	WHITE W/BLACK STRIPE	RED W/BLACK STRIPE
"B"	BLUE	WHITE W/BLUE STRIPE	RED W/BLUE STRIPE
"C"	YELLOW	WHITE W/YELLOW STRIPE	RED W/YELLOW STRIPE

2.5.2.3. WIRE CONNECTORS FOR SPLICING CONTROL WIRE SHALL BE WATERPROOF, DIRECT BURY, GEL-FILLED OR EPOXY-FILLED SPLICE HOUSING WITH WIRE NUTS OR BRASS CRIMP. WIRE CONNECTOR SHALL BE MODEL DBY AS MANUFACTURED BY THE 3M COMPANY, DS-100 WITH DS-300 FILLER OR DS-400 AS MANUFACTURED BY SPEARS MANUFACTURING COMPANY OR EQUAL.

2.6. FLOW, RAIN, MOISTURE SENSING DEVICES:

2.6.1. ALL SENSING DEVICES SHALL BE AS SPECIFIED IN DRAWINGS.

2.7. MASTER CONTROL / REMOTE CONTROL VALVES: AS SPECIFIED IN DRAWINGS.

2.7.1. VALVES SHALL BE OPERABLE MANUALLY WITHOUT ELECTRICITY BY MEANS OF AN INTERNAL BLEED. THE VALVE SHALL HAVE A PRESSURE REGULATING MODULE CAPABLE OF REGULATING OUTLET PRESSURE BETWEEN 15 AND 100 P.S.I. (+ 5 P.S.I.). MODULE SHALL HAVE AN ADJUSTING SCREW FOR SETTING PRESSURE AND A SCHRADER VALVE CONNECTION FOR MONITORING PRESSURE. PRESSURE REGULATOR SHALL BE ADJUSTED AT EACH VALVE FOR PROPER DOWNSTREAM PRESSURE REQUIRED.

2.8. QUICK COUPLING VALVES:

2.8.1. QUICK COUPLING VALVES SHALL BE 1" SIZE, 2 PIECE BRASS BODY WITH STAINLESS SPRING. AS SPECIFIED ON THE DRAWINGS.

2.8.2. QUICK COUPLING VALVES SERVICING POTABLE WATER IRRIGATION SYSTEMS SHALL ACCEPT A STANDARD BAYONET STYLE KEY. VALVE BODY SHALL BE WITH LOCKING YELLOW RUBBER COVER.

2.8.3. N/A

2.8.3.1. N/A

2.8.4. QUICK COUPLING KEY SHALL BE OF BRASS/BRONZE WITH SWIVEL ASSEMBLY. SUPPLY TWO (2) KEY/SWIVEL ASSEMBLIES FOR EACH TYPE OF QUICK COUPLING VALVE USED.

2.9. BALL VALVES: AS SPECIFIED IN DRAWINGS.

2.10. NON-PRESSURE LATERAL LINE ANTI-DRAIN VALVES:

2.10.1. ANTI-DRAIN VALVES SHALL BE REQUIRED TO PREVENT LOW HEAD DRAINAGE OF IRRIGATION WATER FROM SPRINKLER SYSTEM DUE TO CHANGES IN ELEVATION IN EXCESS OF THE ABILITY OF THE MANUFACTURED IN-HEAD CHECK VALVE.

2.11. MANUAL AND ANTISIPHON VALVES:

2.11.1. MANUAL AND ANTI-SIPHON CONTROL VALVES SHALL BE BRASS OR PLASTIC WITH NON-CORROSIVE INTERNAL PARTS AND CONVERTIBLE TO AUTOMATIC CONTROL. VALVES SHALL BE THE TYPE AND SIZE AS DESIGNATED ON THE DRAWINGS.

2.12. VALVE AND PULL BOXES:

2.12.1. MASTER CONTROL VALVE/PRESSURE REGULATOR ASSEMBLY -SHALL BE AS FOLLOWS:
1" VALVE ASSEMBLY SHALL BE 14"X20"X12" NOMINAL RECTANGULAR JUMBO PLASTIC VALVE BOX AND 6" EXTENSION WITH LOCKABLE GREEN TOP. MANUFACTURED BY ARMOR, PART #190106 AND #190110, OR EQUAL.
1-1/2" AND 2" VALVE ASSEM. SHALL BE 17"X30"X18" NOM. RECT. JUMBO PLASTIC VALVE BOX WITH LOCKABLE GREEN TOP MANUFACTURED BY ARMOR, PART #195103, OR EQUAL.

2.12.2. REMOTE CONTROL VALVE, BALL VALVE -SHALL BE 10"X16"X12" NOMINAL RECTANGULAR PLASTIC VALVE BOX WITH LOCKABLE GREEN TOP, MANUFACTURED BY ARMOR, PART #170106, OR EQUAL.
12.3.
2.12.3. REMOTE CONTROL VALVE/PRESSURE REGULATOR ASSEMBLY -SHALL BE 10"X16"X12" NOMINAL RECTANGULAR PLASTIC VALVE BOX WITH LOCKABLE GREEN TOP, MANUFACTURED BY ARMOR, PART #170106, OR EQUAL.

2.12.4. DRIP FILTER/BALL VALVE ASSEMBLY -SHALL BE 14"X19"X12" NOMINAL RECTANGULAR PLASTIC VALVE BOX AND WITH LOCKABLE GREEN TOP, MANUFACTURED BY ARMOR, PART #190106, OR EQUAL.

2.12.5. QUICK COUPLER VALVES, MULTI-EXIT DRIP EMITTERS, LATERAL LINE BLOW-OUT VALVES -SHALL BE 10" ROUND, PLASTIC VALVE BOX WITH GREEN TOP, MANUFACTURED BY ARMOR, PART #181104, OR EQUAL.

2.12.6. PULL OR SPLICE BOXES -FOR IRRIGATION SYSTEMS SHALL BE PLASTIC VALVE BOX WITH LOCKABLE GREEN TOP, MANUFACTURED BY ARMOR OR EQUAL AS FOLLOWS:
FOR 16 CONTROL WIRES OR LESS -10" ROUND BOX, PART #181104.
FOR MORE THAN 16 CONTROL WIRES OR FOR CONDUITED PULL BOX -10"X16"X12" RECTANGULAR BOX, PART #170106.
PLASTIC VALVE BOX WITH GREEN TOP MANUFACTURED BY ARMOR, PART #181104, OR EQUAL.

2.13. PIPE AND FITTINGS:

2.13.1. POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS:

2.13.1.1. ALL IRRIGATION PIPING, INSTALLED UNDER THIS DESIGN SHALL BE IDENTIFIED IN ACCORDANCE WITH THE DISTRICT'S STANDARD SPECIFICATIONS.

2.13.1.2. ALL PVC PIPE SHALL BE MADE FROM NSF APPROVED, TYPE I, GRADE II PVC COMPOUND CONFORMING TO ASTM RESIN SPECIFICATION D1784. PIPE SHALL MEET REQUIREMENTS SET FORTH IN FEDERAL SPECIFICATION PS-22-70 WITH AN APPROPRIATE STANDARD DIMENSION RATIO.

2.13.1.3. FURNISH PLASTIC PIPE CONTINUOUSLY AND PERMANENTLY MARKED WITH FOLLOWING INFORMATION: MANUFACTURER'S NAME OR TRADE MARK, SIZE, CLASS AND TYPE OF PIPE, WORKING PRESSURE AT 73.4 DEGREES F., AND NATIONAL SANITATION FOUNDATION (NSF) RATING.

2.13.1.4. ALL PRESSURE SUPPLY LINES LOCATED UPSTREAM OF REMOTE CONTROL VALVES AND QUICK COUPLERS SHALL MEET THE FOLLOWING CRITERIA:

2.13.1.4.1. ALL TWO (2) INCH AND LARGER SIZED PIPE SHALL BE CLASS 315 POLYVINYL CHLORIDE (PVC) WITH A STANDARD DIMENSION RATIO (SDR) OF 13.5. CONFORMING TO ASTM RESIN SPECIFICATION D1784 AND PRODUCT DESIGN SPECIFICATION ASTM D2241.

2.13.1.4.2. ALL ONE AND ONE-HALF (1-1/2) INCH AND SMALLER SIZED PIPE SHALL BE SCHEDULE 40 POLYVINYL CHLORIDE (PVC) CONFORMING TO ASTM RESIN SPECIFICATION D1784 AND PRODUCT DESIGN SPECIFICATION ASTM 1785.

2.13.1.5.1. ALL NON-PRESSURE DISTRIBUTION (LATERAL) LINES LOCATED DOWNSTREAM OF REMOTE CONTROL VALVES SHALL BE SCHEDULE 40 POLYVINYL CHLORIDE (PVC) CONFORMING TO ASTM RESIN SPECIFICATION D1784 AND PRODUCT DESIGN SPECIFICATION ASTM D1785

2.13.1.5.2. MINIMUM LATERAL LINE PIPE SIZE IS 3/4". 1/2" DIAMETER PIPE IS NOT PERMITTED.

2.13.1.6. NO CLOSE NIPPLES SHALL BE USED.

2.13.1.7. ALL IRRIGATION PIPING SHALL BE WHITE PVC.

2.13.1.8. POLYVINYL CHLORIDE PIPE FITTINGS AND CONNECTIONS SHALL BE PRODUCED FROM TYPE I, GRADE 1, POLYVINYL CHLORIDE CONFORMING TO ASTM RESIN SPECIFICATION D1784. FITTINGS SHALL BE HIGH IMPACT MOLDED FITTINGS, MANUFACTURED FROM VIRGIN COMPOUNDS AS SPECIFIED FOR PIPING TAPERED SOCKET OR MOLDED THREAD TYPE, SUITABLE FOR EITHER SOLVENT WELD OR SCREWED CONNECTIONS. MACHINE THREADED FITTINGS AND PLASTIC SADDLE AND FLANGE FITTINGS ARE NOT ACCEPTABLE. FURNISH FITTINGS PERMANENTLY MARKED WITH THE FOLLOWING INFORMATION: NOMINAL PIPE SIZE, TYPE AND SCHEDULE OF MATERIAL, AND NATIONAL SANITATION FOUNDATION (NSF) SEAL OF APPROVAL.

2.13.1.9.1. FITTINGS FOR PRESSURE SUPPLY LINES LOCATED UPSTREAM OF REMOTE CONTROL VALVES AND QUICK COUPLERS SHALL MEET THE FOLLOWING CRITERIA: FITTINGS SHALL BE SCHEDULE 80 SOCKET AND/OR THREADED TYPE CONFORMING PRODUCT DESIGN SPECIFICATION ASTM D2467.

2.13.1.9.2. FITTINGS FOR NON-PRESSURE DISTRIBUTION LINES LOCATED DOWNSTREAM OF REMOTE CONTROL VALVES SHALL MEET THE FOLLOWING CRITERIA: FITTINGS SHALL BE SCHEDULE 40 SOCKET AND/OR THREADED TYPE CONFORMING PRODUCT DESIGN SPECIFICATION ASTM D2466.

2.13.1.10. SLEEVES SERVICING WATER LINES AND ELECTRICAL CONDUIT SHALL BE SCHEDULE 40 POLYVINYL CHLORIDE (PVC) CONFORMING TO ASTM RESIN SPECIFICATION D1784 AND PRODUCT DESIGN SPECIFICATION ASTM D1785

2.13.1.11. SOLVENT CEMENTS SHALL COMPLY WITH ASTM D2564. SOCKET JOINTS SHALL BE MADE PER RECOMMENDED PROCEDURES FOR JOINING PVC PLASTIC PIPE AND FITTINGS WITH PVC SOLVENT CEMENT BY THE PIPE AND FITTING MANUFACTURER AND PROCEDURES OUTLINED IN THE APPENDIX OF ASTM D2564.

2.13.1.12. THREAD LUBRICANT SHALL BE TEFLON RIBBON-TYPE, OR APPROVED EQUAL, SUITABLE FOR THREADED INSTALLATIONS AS PER MANUFACTURER'S RECOMMENDATIONS.

2.13.2. METALLIC PIPE AND FITTINGS

2.13.2.1. COPPER PIPE SHALL BE TYPE K HARD COPPER. FOR PLUMBING INSTALLATIONS BETWEEN THE WATER METER AND THE BACKFLOW PREVENTION DEVICE AS REQUIRED BY THE DISTRICT.

2.13.2.2. FITTINGS FOR COPPER TUBING SHALL MEET ANSI B 16.22 WROUGHT COPPER OR CAST BRASS, RECESSED SOLDER JOINT TYPE FITTINGS.

2.13.2.3 BRASS PIPE SHALL BE IPS STANDARD WEIGHT 125 POUNDS, 85% RED BRASS.

2.13.2.4. BRASS FITTINGS SHALL BE STANDARD 125 POUND CLASS 85% RED BRASS FITTINGS AND CONNECTIONS.

2.13.2.5. GALVANIZED STEEL PIPE SHALL BE SCHEDULE 40 ASTM, 120-GIP THREADED, COUPLED AND HOT-DIP GALVANIZED.

2.13.2.6. GALVANIZED STEEL FITTINGS SHALL BE HEAVY PATTERN, BANDED, GALVANIZED MALLEABLE IRON.

2.14. CONCRETE THRUST BLOCK AND SUPPORTS:

2.14.1. ALL CONCRETE WORK SHALL BE 2,000 PSI MINIMUM COMPRESSIVE STRENGTH AT TWENTY-EIGHT (28) DAYS, 5 SACK MIX, TOOL FINISHED ON EXPOSED SURFACES.

2.15. IDENTIFICATION TAPE:

2.15.1. MARKER TAPE SHALL BE 5 MIL POLYETHYLENE, 3" WIDE WITH A 20 GAUGE SOLID ALUMINUM FOIL CORE AS MANUFACTURED BY T. CHRISTY ENTERPRISES AT (800) 258-4583. FURTHER MARKING TAPE SHALL MEET THE FOLLOWING CRITERIA:

2.15.1.1. FOR CONSTANT PRESSURE LINES OF SYSTEMS CONNECTED TO A POTABLE WATER SOURCE, TAPE SHALL BE BLUE IN COLOR WITH THE WORDS, "CAUTION WATER LINE BURIED BELOW" IN 1" HIGH BLACK LETTERS. MODEL NUMBER TA-DT-03-BW OR EQUAL.

2.15.1.2. FOR CONTROL WIRE NOT INSTALLED WITH A CONSTANT PRESSURE LINE, TAPE SHALL BE RED IN COLOR WITH THE WORDS, "CAUTION ELECTRICAL LINE BURIED BELOW" IN 1" HIGH BLACK LETTERS. MODEL NUMBER TA-DT-03-RE OR EQUAL.

2.16. WARNING AND VALVE/STATION IDENTIFICATION TAGS:

2.16.1. VALVE/STATION IDENTIFICATION TAGS SHALL BE WEATHERPROOF PLASTIC 3" X 4", WITH CONTROLLER AND STATION NUMBER PRINTED IN 1-1/8" HIGH BLACK LETTERS. TAGS SHALL BE MODEL #ID-STD-P1 AS MANUFACTURED BY T. CHRISTY ENTERPRISES, OR EQUAL.

2.16.2. VALVE/STATION IDENTIFICATION TAGS FOR POTABLE WATER SYSTEMS SHALL BE WEATHERPROOF PLASTIC 3" X 4", YELLOW IN COLOR WITH WORDS IN BLACK LETTERS READING, "POTABLE WATER USED FOR IRRIGATION - DO NOT DRINK", IMPRINTED ON ONE SIDE. ON THE BLANK SIDE THE CONTRACTOR SHALL PROVIDE THE CONTROLLER AND STATION NUMBER IN 1" HIGH, BLACK LETTERS/NUMBERS USING PERMANENT WEATHERPROOF INK. TAGS SHALL BE MODEL #ID-MAX-Y2-PW016 AS MANUFACTURED BY T. CHRISTY ENTERPRISES, OR EQUAL.

2.16.3. WEATHERPROOF BLACK INK MARKER TO BE MODEL # ID-TAGPEN AS MANUFACTURED BY T. CHRISTY ENTERPRISES, OR EQUAL.

2.17. SPRINKLERS:

2.17.1. SPRINKLER HEADS SHALL BE OF THE TYPES AND SIZES WITH DIAMETER (OR RADIUS) OF THROW, PRESSURE, NOZZLE DISCHARGE AND/OR OTHER DESIGNATIONS INDICATED ON THE DRAWINGS.

2.17.2. ALL SPRINKLER HEADS OF THE SAME TYPE AND SIZE SHALL BE OF THE SAME MANUFACTURER. HEADS SHALL BE EQUIPPED WITH ALL OPTIONS AND EQUIPMENT PER THE IRRIGATION LEGEND.

2.17.3. ALL SPRINKLER HEADS SHALL BE EQUIPPED WITH A MANUFACTURER INSTALLED INTERNAL CHECK VALVE, WHEN AVAILABLE.

2.17.4. N/A

2.18. DRIP IRRIGATION EQUIPMENT: See Legend and Notes.

2.18.1. PRESSURE GAGES: ASME B40.1 PRESSURE GAGE. INCLUDE 4-1/2-INCH-(115-MM-) DIAMETER DIAL, DIAL RANGE OF TWO TIMES SYSTEM OPERATING PRESSURE, AND BOTTOM OUTLET.

2.18.2. APPLICATION PRESSURE REGULATORS: PRESSURE REGULATING VALVE FOR DRIP SYSTEMS SHALL BE A PRESET DEVICE FOR THE DESIGN FLOWS. PRESSURE REGULATING VALVE SHALL BE AS SPECIFIED IN THE IRRIGATION LEGEND AND SIZED ACCORDING TO NOTES IN THE DETAIL AND DRAWING.

2.18.3. STRAINER/FILTER UNITS: SCREEN FILTER FOR DRIP SYSTEMS SHALL BE A STAINLESS STEEL SCREEN ELEMENT WITH COLOR-CODED END SEALS INDICATING MESH SIZE (ALL FILTERS TO HAVE BLACK ELEMENTS INDICATING 150 MESH). SCREEN FILTER SHALL BE SIZED ACCORDING TO NOTES IN THE DETAIL DRAWINGS.

2.18.4. DRIP EMITTERS: EMITTERS SHALL BE PRESSURE COMPENSATING, MULTI-EXIT TYPE AS LISTED IN THE LEGEND AND AS MANUFACTURED BY THE RAINBIRD CORP.

2.18.4. DISTRIBUTION TUBING: TUBING FOR PLACEMENT OF EACH EMISSION POINT SHALL BE 1/4" FLEXIBLE POLYETHYLENE MANUFACTURED SPECIFICALLY FOR THE SPECIFIED DRIP EMITTERS. TUBING SHALL BE MODEL # PT-025 AS MANUFACTURED BY THE RAINBIRD CORP.

2.18.6. DRIP LATERAL BLOW-OUT: ALL DRIP SYSTEMS SHALL INCLUDE MANUAL FLUSH VALVES AT THE ENDS OF EACH INDEPENDENT ZONE OR SEPARATE LEG OF EACH ZONE. BLOW-OUT VALVES SHALL BE SUITED CONTRACTOR FABRICATED AS DETAILED.

2.19. N/A

2.19.1. N/A

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MICHAEL HOLMES	LA 5185 EXP. 4/30/09	DATE
REVISIONS		

SITE GRADING AND IMPROVEMENT PLANS
BCSD-WAYSIDE ELEMENTARY
IRRIGATION SPECIFICATIONS
BAKERSFIELD, CALIFORNIA

IDENTIFICATION STAMP
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