ROTARY SPRINKLER LEGEND:

SYMBOL	MANUFACTURER	MODEL NO.	DESCRIPTION	NOZZLE	RADIUS	G.P.M.	P.S.I.	PATTERN	PRECIP RATE
F 18	HUNTER*	MP2000360	4" POP-UP ROTARY SPRINKLER **	MP2000	18'	1.6	35	360°	0.4
18 3Q		MP2000210		MP2000	18'	0.8	35	210-270°	
18		MP2000090		MP2000	18'	0.4	35	90-210°	
13		MPSS530		MP2000	12'	0.4	35	SIDE STRIP	
L 13		MPLC515		MP2000	12'	0.2	35	LEFT STRIP	
13 R		MPRC515		MP2000	12'	0.2	35	RIGHT STRIP	
F 12		MP1000360		MP1000	12'	0.8	35	360°	
12		MP1000090		MP1000	12'	0.4	35	90-210°	
F 30		MP3000360	12" POP-UP ROTARY SPRINKLER**	MP3000	30'	3.6	35	360°	0.4
30 3Q		MP3000210		MP3000	30'	1.8	35	210-270°	
30		MP3000090		MP3000	30'	0.9	35	90-210°	
25 F		MP3000360		MP3000	25'	3.6	35	360°	
3Q 25		MP3000210		MP3000	25'	1.8	35	210-270°	
25		MP3000090		MP3000	25'	0.9	35	90-210°	
F 18		MP2000360		MP2000	18'	1.6	35	360°	
18 3Q		MP2000210		MP2000	18'	0.8	35	210-270°	
18		MP2000090		MP2000	18'	0.4	35	90-210°	
18 V		MPCORNER		MP2000	18'	0.4	35	45-105°	
13		MPSS530		MP2000	13'	0.4	35	SIDE STRIP	
13 L		MPLC515		MP2000	13'	0.2	35	LEFT STRIP	
R 13		MPRC515		MP2000	13'	0.2	35	RIGHT STRIP	
12 F		MP1000360		MP1000	12'	0.8	35	360°	
12		MP1000090		MP1000	12'	0.4	35	90-210°	

NOTES:

* ADJUST SPRINKLERS FOR HEAD TO HEAD COVERAGE AND FOR ADJUST RADIUS CONTROL ADJACENT TO NON-IRRIGATED AREAS.

** INSTALL ROTARY NOZZLE ON RAIN BIRD 4-INCH POP-UP BODY, MODEL NUMBER 1804-SAM FOR TURF AREAS AND INSTALL ROTARY NOZZLE ON RAIN BIRD 12-INCH POP-UP BODY, MODEL NUMBER 1812-SAM FOR GROUND COVER AREAS. INSTALL ROTARY SPRINKLERS PER POP-UP DETAIL 2, SHEET L553.

1. PART CIRCLE NOZZLES ARE CIRCLE PATTERN ADJUSTABLE WITHIN THE RANGE OF DEGREES INDICATED.
   NOTE: SIDE STRIP AND END STRIP NOZZLES OFFER MINIMAL PATTERN ADJUSTMENTS.
2. ROTARY NOZZLES ARE HIGH EFFICIENCY NON-GEAR DRIVE NOZZLES INSTALLED ON 1/2" INLET POP-UP SPRINKLER BODIES.

SPRAY SPRINKLER LEGEND:

SYMBOL	MANUFACTURER	MODEL NO.	DESCRIPTION	NOZZLE	RADIUS	G.P.M.	P.S.I.	PATTERN	PRECIP RATE
•F	RAIN BIRD*	1812-SAM	12" POP-UP SPRAY HEAD	8F	8'	1.0	30	FULL CIRCLE	2.00
•		1812-SAM		8H	8'	0.5	30	HALF	
•Q		1812-SAM		8Q	8'	0.3	30	QUARTER	
		1804-SAM	4" POP-UP BUBBLER HEAD	PCN-025**	--	0.25	30	FLOOD BUBBLER	
NONE		1804-SAM	TREE SPRINKLER	5QB***	--	0.3	30	STREAM BUBBLER	1.00

NOTES:

* PROVIDE RAIN BIRD ADJUSTABLE NOZZLES IN LIEU OF STANDARD NOZZLES - NOTED ON PLAN WITH THE LETTER "V".

** PROVIDE HUNTER FLOOD PCN SERIES BUBBLER NOZZLE INSTALLED ON RAIN BIRD POP-UP SPRINKLER BODY. INSTALL NOZZLES ALIGNED 180 DEGREES APART AND LOCATED AT EDGE OF TREE ROOT BALL BELOW METAL TREE GRATE.

*** REFER TO TREE SYSTEM LISTING IN EQUIPMENT LEGEND THIS SHEET. PROVIDE RAIN BIRD PRESSURE COMPENSATING SCREEN, MODEL PCS-030 (SILVER) IN LIEU OF CONVENTIONAL SCREEN. REFER TO POP-UP SPRINKLER DETAIL 2, SHEET L553.

1. INSTALL SPRAY SPRINKLERS PER DETAIL 2, SHEET L553.
2. SPRINKLER RADIUS ABBREVIATIONS:
   F = FULL CIRCLE Q = QUARTER CIRCLE
   T = THIRD CIRCLE V = ADJUSTABLE RADIUS

DELTA A REVISION DESCRIPTIONS:

1. ADD STORAGE TANK LISTING IN EQUIPMENT LEGEND.
2. CHANGE BACKFLOW PREVENTER TO BASKET STRAINER ASSEMBLY.
3. REVISE IRRIGATION DESCRIPTION TO REMOVE REVERENCE TO DOMESTIC WATER AS TEMPORARY WATER SUPPLY.

IRRIGATION SYSTEM GENERAL DESCRIPTION:

A

LANDSCAPE AREAS CONSISTING OF TURF, SHRUBS AND GROUND COVER PLANTING ARE TO BE IRRIGATED WITH PROPOSED POP-UP SPRINKLER IRRIGATION. SHRUBBERY AREAS ADJACENT TO BUILDINGS ARE IRRIGATED WITH LOW FLOW DRIPLINE TUBING. SPECIFIC TREES PLANTED WITHIN A PAVEMENT AREA SHALL BE IRRIGATED WITH LOW-FLOW SPRINKLERS.

THE IRRIGATION SYSTEM IS SUPPLIED WITH NON-POTABLE WATER FROM AN ALTERNATIVE WATER SUPPLY LINE DELIVERED TO THE SITE. THE IRRIGATION SYSTEM OPERATES A PUMP LOCATED WITHIN A STORAGE TANK WITH THE CAPACITY TO MEET 1 DAY OF PEAK SUMMER WATERING. THE NON-POTABLE WATER SUPPLY WILL FILL THE STORAGE TANK BASED ON SET LEVEL SETTINGS. THESE SET TANK FILL LEVEL SET POINTS ARE REMOTELY ADJUSTABLE VIA TELEPHONE COMMUNICATION TO A COMPUTER WITH CONTROL SOFTWARE FOR USE BY LANDSCAPE MAINTENANCE PERSONNEL. PUMP CONTROLS OPERATES DEDICATED FLOW SENSOR ASSEMBLY.

THE AUTOMATIC SPRINKLER CONTROLLER UTILIZES AN ON-SITE RAIN GAUGE AND OPERATES ON THE RAIN MASTER iCENTRAL INTERNET-BASED IRRIGATION CONTROL CENTER. AUTOMATIC IRRIGATION SCHEDULING ADJUSTMENTS ARE MADE DAILY THROUGH iCENTRAL VIA ZIP-ET. THE WEATHER DATA TRANSMITTED IS CALIBRATED TO MEET THE DEMANDS OF THE PROJECT'S SPECIFIC CLIMATE. REFER TO SHEET L555 FOR MORE SPECIFIC RAIN MASTER iCENTRAL INFORMATION.

FLOW SENSOR AND MASTER VALVE ARE INCORPORATED INTO THE IRRIGATION DESIGN. IN ADDITION TO PROVIDING HIGH FLOW SHUT-OFF CAPABILITY, THE CONTROL SYSTEM SHALL BE CAPABLE OF WATER FLOW CALIBRATION, INCLUDING THE RECORDING OF HISTORIC WATER USE.

SHUT-OFF VALVES HAVE BEEN PROVIDED TO ALLOW PARTIAL SHUT DOWN OF THE IRRIGATION SYSTEM DURING SERVICE AND REPAIRS.

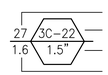
EQUIPMENT LEGEND:

SYMBOL	MANUFACTURER	MODEL NO.	DESCRIPTION
A	RAIN MASTER	RME-EGi	AUTOMATIC IRRIGATION (EAGLE iCENTRAL) CONTROLLER MOUNTED WITHIN STAINLESS STEEL ENCLOSURE (FACTORY PRE-WIRED ASSEMBLY) - (SIZE NOTED) - CONTROLLER INCLUDES A ONE-YEAR INTERNET DATA SERVICE PLAN - REFER TO CONTROLLER NOTES SHEET L555 AND DETAIL 3, SHEET L551.
●	RAIN BIRD*	PESB-R	ELECTRIC CONTROL VALVE - EQUIPPED FOR NON-POTABLE WATER USE - SIZE NOTED, REFER TO DETAIL 4, SHEET L551.
◐	RAIN BIRD*	44-NP 44-K	QUICK COUPLING VALVE IDENTIFIED WITH PURPLE (COLOR) FOR NON-POTABLE WATER USE - WITH CORRESPONDING KEY AND LOCKING RUBBER COVER MOUNTED IN BOX - 1" SIZE - REFER TO DETAIL 3, SHEET L553.
A ◩	WATTS	97FB-CSSIB	BASKET STRAINER ASSEMBLY - FLANGED STAINLESS STEEL BODY - 2-INCH SIZE - 304SS FILTRATION BASKET LINER WITH STANDARD 3/64" PERFORATED SCREEN - OTHER SIZES LISTED ON DRAWINGS - ASSEMBLY INCLUDES TWO (2) MATCO-NORCA MODEL #300RWV GATE VALVES (SAME SIZE AS BASKET STRAINER) - REFER TO DETAIL 1, SHEET L-551.
M	BERMAD*	120-55-020 -NC	MASTER CONTROL VALVE W/ PRESSURE REGULATION FEATURE - 2-INCH SIZE - NORMALLY CLOSED - REFER TO DETAIL 5, SHEET L551.
F RM	RAIN MASTER*	FS-125B	SERIES FLOW SENSOR - BRASS HOUSING - 1.25-INCH SIZE - SPECIFIED WITH CONTROLLER ENCLOSURE ASSEMBLY - REFER TO DETAIL 6, SHEET L551.
A STORAGE TANK	SKY HARVESTER	-	IRRIGATION SYSTEM SUPPLY STORAGE TANK/PUMPING ASSEMBLY - REFER TO SHEET L554 BASIS OF DESIGN DESCRIPTION - STORAGE TANK SHOWN TO SCALE AND WITH PROPOSED INSTALLATION ORIENTATION ON PLAN SHEET L502.
F SH	SKY HARVESTER*	-	PUMPING SYSTEM FLOW SENSOR - 1.25-INCH SIZE - SPECIFIED WITH STORAGE TANK/PUMPING ASSEMBLY - REFER TO STORAGE TANK DETAIL, SHEET L554.
S	DIG	P75-155	DRIP SYSTEM (PLASTIC) WYE FILTER - 155 MESH STAINLESS STEEL FILTER ELEMENT (COLOR CODED GREEN) AND FLUSH CAP - 1.5-INCH MIPT INLET AND OUTLET - REFER TO DETAIL 4, SHEET L553.
⋈	LASCO	V__101N-SC	BALL VALVE - SCHEDULE 80 PVC PLASTIC - TRUE UNION THREADED - SLOW CLOSING SERIES - CROSS HANDLE - LINE SIZE - INSTALL VALVE WITHIN ROUND VALVE BOX - REFER TO BALL VALVE DETAIL 2, SHEET L551
⊛	FLUSH OUT ASSEMBLY (DRIP EMITTER SYSTEM) - 1/2" SCHEDULE 40 PVC BALL VALVE AND 1/2" PVC FLEX HOSE WITHIN ROUND BOX - OTHER DRIP PIPE ENDS REQUIRE HOSE CAP END FITTING - REFER TO DETAIL 3, SHEET L552		
▬	SENNINGER	PMR-35MF	DRIP SYSTEM INLINE PRESSURE REGULATOR - FACTORY SET AT 35 PSI - MEDIUM FLOW (2-20 GPM) RANGE - 1" FIPT INLET & OUTLET - INSTALL AS SHOWN ON DRAWINGS - SEE DETAIL 1, SHEET L552
▬ ▪ ▬	PRESSURE MAIN LINE PIPING - NON-POTABLE WATER USE - USE PURPLE COLOR CODED SCHEDULE 40 PVC - SIZE PIPING (NOTED IN INCHES) AS SHOWN ON DRAWINGS - REFER TO DETAIL 2, SHEET L552.		
———	NON-PRESSURE LATERAL LINE PIPING - PURPLE COLOR CODED SCHEDULE 40 PVC - PIPE SHALL BE IDENTIFIED FOR NON-POTABLE WATER-USE - SIZE PIPING (NOTED IN INCHES) AS SHOWN ON DRAWINGS. REFER TO DETAIL 2, SHEET L552.		
- - - - - -	DIG RAIN BIRD ECO-SPEC	A5-518P-CV (TUBING) MDCF SERIES FITTINGS GDTS-140900	DRIPLINE SYSTEM - PRESSURE COMPENSATING W/ BUILT-IN CHECK VALVE - 0.5 GPH @ 18-INCHES O.C. EMITTER SPACING - 17 MM DIA. - (BROWN COLOR) 0.670" O.D. POLYETHYLENE TUBING WITH COMPRESSION-TYPE FITTINGS FOR ELLS, TEES, COUPLERS & PVC ADAPTERS - PROVIDE METAL HOLD DOWN STAKES EVERY 10-0.C. - INSTALL DRIPLINE TUBING WITH 1-INCH OF SOIL COVER - REFER TO DRIP NOTES SHEET L555. RAIN BIRD FITTING MODEL NMUBERS: MDCFTEE = TEE, MDCFEL = ELBOW, MDCFCOUP = COUPLER, MDCF75MPT = 3/4" MIPT ADAPTER, MDCF75FHT = 3/4" FIPT ADAPTER. REFER TO DRIP NOTES ON SHEET L555 AND PER DETAILS 4 AND 5, SHEET L552.
none	ECO-SPEC (GPH)	GDPJ04	DRIP IRRIGATION EMISSION OUTLET EMITTER - PRESSURE COMPENSATING - BARB INLET - 1 GPH (BLACK) - ZERO FLUSH OPERATION - PROVIDED FOR TREES AND VINES LOCATED WITHIN DRIPLINE AREAS PER DRIPLINE NOTE NO. 8, SHEET L555. REFER TO DETAIL 5, SHEET L552.
- - - - - -	TREE SPRINKLER SYSTEM - SHOWN DIAGRAMMATICALLY - USE PURPLE COLORED PVC SCHEDULE 40 PIPING FOR BURIED INSTALLATIONS - 3/4" MINIMUM SIZE & OTHER SIZES AS NOTED - PROVIDE TWO (2) RAIN BIRD MODEL 4-INCH POP-UP SPRINKLER HEADS TO EVERY TREE - INSTALL AS INDICATED WITH SPRINKLER LEGEND - REFER TO DETAIL 2, SHEET L553.		
——o——o——	FLOW SENSOR SIGNAL CABLE AND CONDUIT - MULTIPLE WIRE PAIR SHIELDED CABLE INSTALLED WITH 1-INCH MINIMUM SIZE SCHEDULE 40 PVC CONDUIT - RAIN MASTER EC-CAB-SEN NO SPLICES PERMITTED - SPECIFIED WITH AUTOMATIC CONTROLLER NOTE ON SHEET L-553 - INSTALL PULL BOXES AT CHANGES OF CONDUIT DIRECTION - REFER TO PULL BOX DETAIL 1, SHEET L553.		
— — — —	CONTROL WIRE SLEEVE UNDER PAVED AREA - PVC (WHITE) SCHEDULE 40 - 2" MINIMUM SIZE (2" ABBREVIATED ON DRAWING AS "2SL") - REFER TO DETAIL 2, SHEET L552.		
▬ ▪ ▬	PIPING SLEEVE UNDER PAVED AREA - PVC SCHEDULE 40 - TYPICAL ABBREVIATION SHOWN ON DRAWING: "4SL" = 4-INCH SIZE - REFER TO DETAIL 2, SHEET L552.		

NOTE:

* PROVIDE LANDSCAPE FABRIC MODEL NUMBER 140N, AS MANUFACTURED BY MIRAFI, OR APPROVED EQUAL. TYPICAL FOR ALL ROUND AND RECTANGULAR VALVE BOX INSTALLATIONS.

VALVE CALLOUT LEGEND:



INDICATES FLOW IN GPM FOR ELECTRIC CONTROL VALVE.
INDICATES AUTOMATIC SPRINKLER CONTROLLER STATION NUMBER.
INDICATES ELECTRIC VALVE SIZE.
INDICATES PRECIPITATION RATE WHERE APPLICABLE OR TREES.

PROJECT STATUS

BID SET 05/26/09

ISSUE			

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	REPLACE BACKFLOW PREVENTER UNIT WITH BASKET STRAINER	TG

DRAWN	E. MONTELONGO	DATE
DESIGNED	E. MONTELONGO	DATE
CHECKED	M. DURHAM / T. GOTO	DATE
PROJMGR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
RLGA		DATE
SAFETY		DATE
SUPERVISOR	S. FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

IRRIGATION NOTES AND LEGENDS

SIZE	CAGE CODE		REV
D	25307	A232-0800- L500	A
SCALE NONE		INDEX	SHEET OF

SPARE WIRE NOTE:

PROVIDE TWO SPARE WIRES AND ONE SPARE COMMON WIRE CONTINUOUSLY FROM AUTOMATIC CONTROLLER TO LAST ELECTRIC CONTROL VALVE BOX, FOLLOWING MAIN LINE ROUTE. ALLOW 30-INCH EXPANSION LOOP AT EACH CONTROL VALVE ALONG MAIN LINE ROUTING. THE LOCATIONS FOR SPARE WIRES ARE IDENTIFIED ON DRAWING WITH THE WORDS "PROVIDE SPARE WIRES AT ECV".

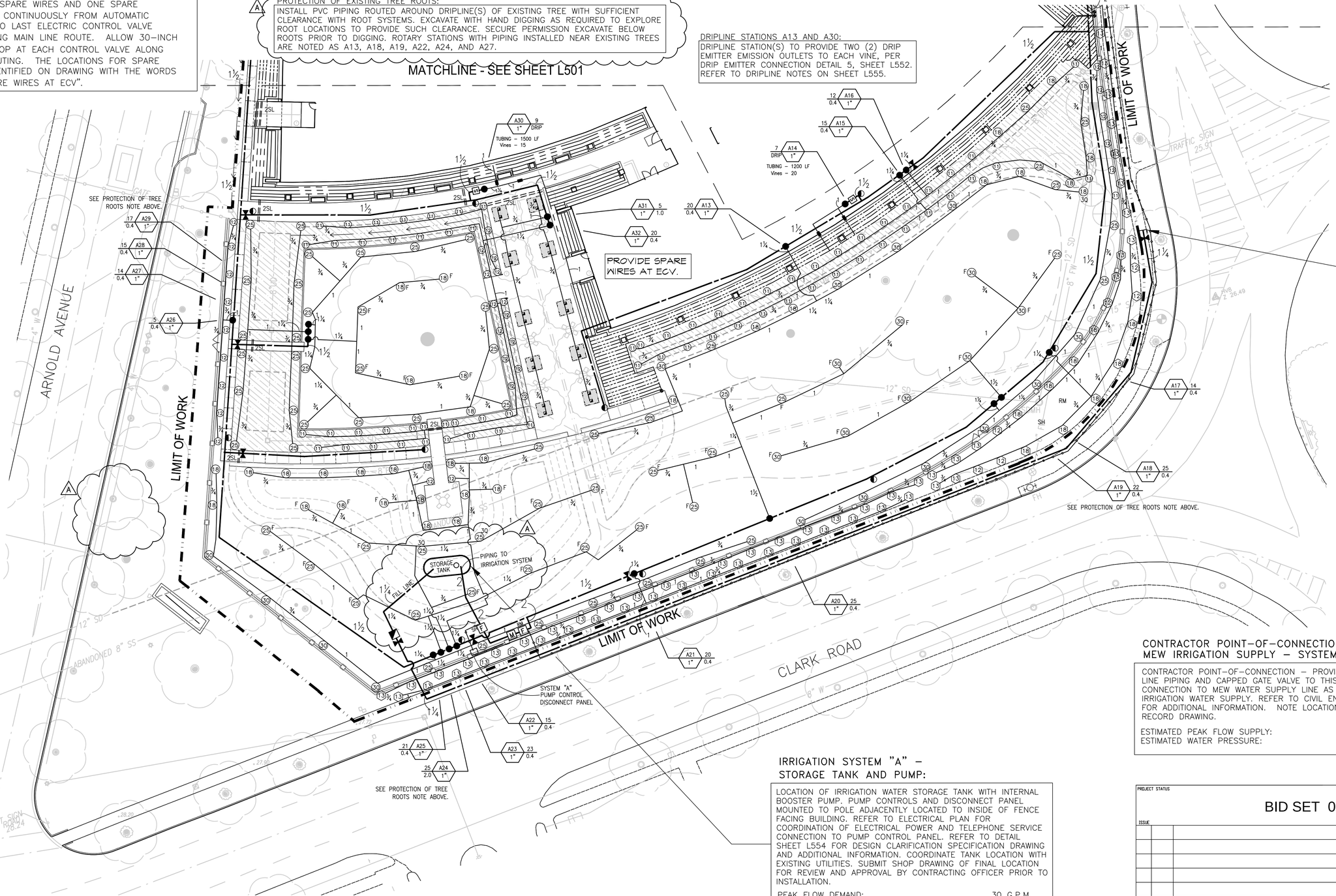
A PROTECTION OF EXISTING TREE ROOTS:

INSTALL PVC PIPING ROUTED AROUND DRIPLINE(S) OF EXISTING TREE WITH SUFFICIENT CLEARANCE WITH ROOT SYSTEMS. EXCAVATE WITH HAND DIGGING AS REQUIRED TO EXPLORE ROOT LOCATIONS TO PROVIDE SUCH CLEARANCE. SECURE PERMISSION EXCAVATE BELOW ROOTS PRIOR TO DIGGING. ROTARY STATIONS WITH PIPING INSTALLED NEAR EXISTING TREES ARE NOTED AS A13, A18, A19, A22, A24, AND A27.

DRIPLINE STATIONS A13 AND A30:

DRIPLINE STATION(S) TO PROVIDE TWO (2) DRIP EMITTER EMISSION OUTLETS TO EACH VINE, PER DRIP EMITTER CONNECTION DETAIL 5, SHEET L552. REFER TO DRIPLINE NOTES ON SHEET L555.

MATCHLINE - SEE SHEET L501



CONTRACTOR POINT-OF-CONNECTION NOTE – MEW IRRIGATION SUPPLY – SYSTEM "A":

CONTRACTOR POINT-OF-CONNECTION – PROVIDE NEW MAIN LINE PIPING AND CAPPED GATE VALVE TO THIS LOCATION FOR CONNECTION TO MEW WATER SUPPLY LINE AS PRIMARY IRRIGATION WATER SUPPLY. REFER TO CIVIL ENGINEERING PLANS FOR ADDITIONAL INFORMATION. NOTE LOCATION ON AS-BUILT RECORD DRAWING.

ESTIMATED PEAK FLOW SUPPLY: 10 G.P.M.
ESTIMATED WATER PRESSURE: 40 P.S.I.

IRRIGATION SYSTEM "A" – STORAGE TANK AND PUMP:

LOCATION OF IRRIGATION WATER STORAGE TANK WITH INTERNAL BOOSTER PUMP. PUMP CONTROLS AND DISCONNECT PANEL MOUNTED TO POLE ADJACENTLY LOCATED TO INSIDE OF FENCE FACING BUILDING. REFER TO ELECTRICAL PLAN FOR COORDINATION OF ELECTRICAL POWER AND TELEPHONE SERVICE CONNECTION TO PUMP CONTROL PANEL. REFER TO DETAIL SHEET L554 FOR DESIGN CLARIFICATION SPECIFICATION DRAWING AND ADDITIONAL INFORMATION. COORDINATE TANK LOCATION WITH EXISTING UTILITIES. SUBMIT SHOP DRAWING OF FINAL LOCATION FOR REVIEW AND APPROVAL BY CONTRACTING OFFICER PRIOR TO INSTALLATION.

PEAK FLOW DEMAND: 30 G.P.M.
SYSTEM DESIGN PRESSURE: 60 P.S.I.

A DELTA A REVISION DESCRIPTIONS:

1. REVISE NOTE REGARDING TREE ROOT PROTECTION.
2. RE NOTE REFERENCING DOMESTIC WATER AS TEMPORARY WATER SUPPLY.
3. MOVE PIPING FOR CLEARANCE TO STORAGE TANK & ADD FILL LINE LABEL.

GRAPHIC INTENT OF DRIPLINE IRRIGATION:

DRIPLINE EMITTER TUBING AS SHOWN ON PLAN GRAPHICALLY SHOWS THE FULL EXTENT OF DRIPLINE IRRIGATION FOR THE PLANTING AREA ASSIGNED TO EACH DRIP VALVE STATION. CONTRACTOR IS TO PROVIDE DRIPLINE TUBING TO PROVIDE IRRIGATION FOR ALL PLANT MATERIAL WITHIN THE DEFINED DRIPLINE AREA. REFER TO DRIP IRRIGATION NOTES ON SHEET L555 AND DETAILS ON SHEET L552 FOR SPECIFIC DRIP SYSTEM COMPONENTS AND COMPONENT CONECTIONS.

BLDG NORTH / TRUE NORTH

SCALE: 1"=20' 0' 10' 20' 40' 60'

PROJECT STATUS

BID SET 05/26/09

ISSUE			

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	REMOVE DW METER AND BACKFLOW PREVENTER UNIT. ADD BASKET STRAINER ASSEMBLY	TG

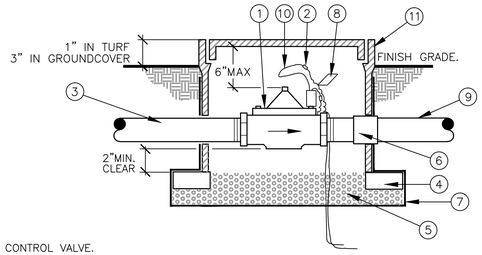
DRAWN	E. MONTELONGO	DATE
DESIGNED	E. MONTELONGO	DATE
CHECKED	M. DURHAM / T. GOTO	DATE
PROJMGR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
RLGA		DATE
SAFETY		DATE
SUPERVISOR	S. FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

IRRIGATION PLAN

SIZE	CAGE CODE		REV
D	25307	A232-0800- L502	A
SCALE 1" = 20'	INDEX	SHEET	OF



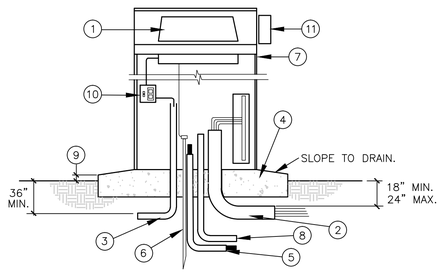
LEGEND:

1. ELECTRIC CONTROL VALVE.
2. WIRE CONNECTOR – 2 REQUIRED.
3. MAIN LINE PIPING FROM BASKET STRAINER.
4. COMMON BRICK (4 REQUIRED).
5. 3/4" CRUSHED ROCK – 8" DEEP.
6. SCHEDULE 80 PVC T.O.E. NIPPLE (THREADED ONE END) AND SLIP–FIT COUPLING (TYPICAL).
7. LANDSCAPE FABRIC – WRAP SIDES AND BOX BOTTOM, COVER ALL OPENINGS.
8. CHRISTY'S I.D TAG (YELLOW) – IDENTIFY CONTROLLER ASSIGNMENT.
9. PVC PIPE TO FLOW SENSOR OR SPRINKLERS: ANGLE PIPE TO SPECIFIED DEPTH WITH 45 DEGREE ELBOWS AS REQUIRED.
10. CONTROL/COMMON WIRES FROM CONTROLLER – COIL 36–INCH MIN. LENGTH OF WIRE IN BOX.
11. RECTANGULAR VALVE BOX, WITH BOLT–DOWN COVER; GREEN IN COLOR – HEAT BRAND CONTROLLER ASSIGNMENT AND THE LETTERS "MV" ON COVER IN 2" HIGH CHARACTERS.

NOTES:

1. PROVIDE 2 FOOT MINIMUM CLEAR DISTANCE BETWEEN VALVE BOXES.
2. ARRANGE VALVE BOXES AT RIGHT ANGLE TO HARDSCAPE EDGES.
3. USE TEFLON TAPE ON THREADED FITTINGS. DO NOT USE PIPE DOPE.

5 | MASTER VALVE | N.T.S. | iMVIR01

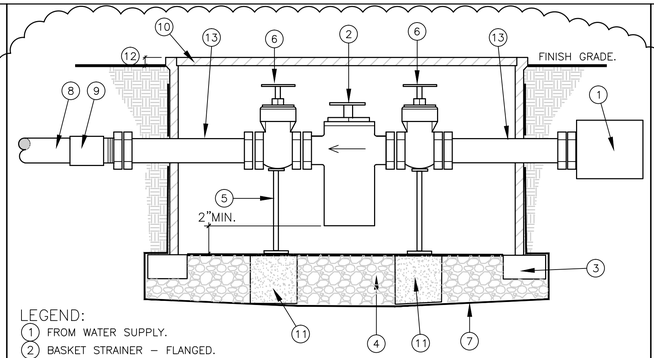


LEGEND:

1. AUTOMATIC CONTROLLER.
2. CONTROL WIRES WITHIN TWO 3" PVC SCHEDULE 40 LONG SWEEP ELL – W/ 3–FOOT EXPANSION LOOP AND ZIP LOCK TIES BELOW CONTROLLER. PROVIDE WIRE NUT CONNECTORS.
3. 120–VOLT, 60 CYCLE POWER SUPPLY WIRES IN SCHEDULE 40 PVC, 1" MIN. SIZE CONDUIT.
4. POURED–IN–PLACE ENCLOSURE BASE – MINIMUM OF 20"x20"x18" DEEP – TYPE V 2500 PSI CONCRETE OVER SUB–COMPACTED SUBGRADE. SLOPE EDGES TO DRAIN.
5. SIGNAL CABLE TO FLOW SENSOR (WHEN REQUIRED) – PROVIDE 1–1/4" PVC SCHEDULE 40 CONDUIT.
6. COPPER CLAD GROUND ROD – 5/8"x 8–FOOT. PROVIDE #6 BARE COPPER WIRE AND BRASS CLAMP.
7. CONTROLLER ENCLOSURE – STAINLESS STEEL TOP ENTRY UNIT.
8. PVC SCHEDULE 40 SWEEP ELLS – PROVIDE TWO (4) 1–INCH CONDUITS FOR DEDICATED USE WITH FLOW SENSOR CABLE AND BARE GROUND WIRE.
9. SET PAD ELEVATION AT 1" ABOVE FINISH GRADE IN TURF AND SET AT 2" IN GROUND COVER AREAS.
10. 120 VAC POWER SWITCH AND 20A/120V GFI OUTLET WITH BREAKER BOX.
11. RAIN SENSOR WITH SECURITY MOUNT. PROVIDE WITH CONTROLLER ENCLOSURE ASSEMBLY.

NOTES:
1. ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH CALIFORNIA ELECTRICAL CODE.
2. NO SPLICES PERMITTED WITH FLOW SENSOR SIGNAL CABLE.

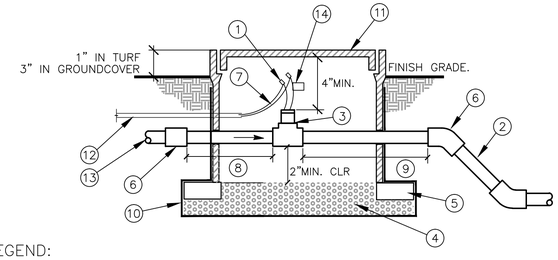
3 | AUTOMATIC CONTROLLER | N.T.S. | iACEI02.dwg



LEGEND:

1. FROM WATER SUPPLY.
2. BASKET STRAINER – FLANGED.
3. COMMON RED BRICK (4 REQUIRED).
4. 3/4" CRUSHED GRAVEL BASE – 6" DEEP.
5. METAL PIPE SUPPORTS – 2 REQUIRED.
6. GATE VALVE – FLANGED – LINE SIZE. TWO (2) REQUIRED.
7. LANDSCAPE FABRIC BELOW GRAVEL – WRAP SIDES, BOX BOTTOM AND COVER ALL OPENINGS.
8. PVC PRESSURE MAIN LINE TO IRRIGATION SYSTEM. ANGLE TO SPECIFIED DEPTH WITH 45 DEGREE ELLS.
9. PVC SCHEDULE 40 FITTING WITH SCHEDULE 80 PVC T.O.E. (THREADED ONE END) 4–INCH NIPPLE, AND SCHEDULE 80 PVC THREADED FLANGED ADAPTER – LINE SIZE.
10. BOLT–DOWN RECTANGULAR UTILITY BOX, SIZE AS REQUIRED – GREEN OR TAN IN COLOR WITH PURPLE TAG – HEAT BRAND THE CHARACTERS "POC" ON COVER WITH 2" TALL CHARACTERS.
11. CONCRETE FOOTING – 12–INCHES SQUARE FOOTING @ 6–INCHES DEEP, TYPE V, 2500 PSI CEMENT.
12. INSTALLATION HEIGHT OF 3" IN SHRUB AND GROUND COVER AREAS.
13. THREADED BRASS PIPING, FITTINGS AND FLANGED ADAPTERS – 2–INCH SIZE. INSTALL PIPING AS REQUIRED PER EACH POC. PROVIDE TEE FITTING FOR QUICK COUPLING VALVE WITHIN BOX.

1 | BASKET STRAINER | N.T.S. | iBSRW06.dwg | A

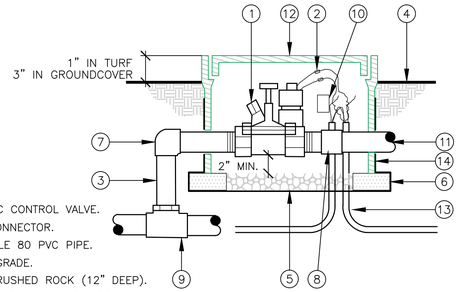


LEGEND:

1. WIRE CONNECTORS.
2. PVC MAIN LINE PIPING.
3. FLOW METER AND HOUSING.
4. 3/4" CRUSHED ROCK – 8" DEEP.
5. COMMON RED BRICK (4 REQUIRED).
6. VALVE, FITTING, METER, OR REDUCING COUPLER NEAREST TO FLOW SENSOR.
7. SIGNAL CABLE CONDUCTOR WIRES WITH 30" EXPANSION LOOP (SEE SPECIFICATIONS).
8. ALLOW MINIMUM DISTANCE OF 10 PIPE DIAMETERS AND A MAXIMUM OF 12 (APPROX. 18") FROM NEAREST UPSTREAM VALVE, FITTING, METER, OR REDUCING COUPLER.
9. ALLOW MINIMUM DISTANCE OF 5 PIPE DIAMETERS AND A MAXIMUM OF 8 (APPROX. 12") FROM NEAREST DOWNSTREAM VALVE, FITTING, METER, OR REDUCING COUPLER.
10. LANDSCAPE FABRIC – WRAP AROUND SIDES AND BOX BOTTOM AND COVER ALL OPENINGS.
11. BOLT–DOWN RECTANGULAR VALVE BOX – GREEN IN COLOR – IDENTIFY THE LETTERS 'FS' AND CONTROLLER DESIGNATION ON COVER WITH 2" TALL CHARACTERS.
12. SIGNAL CABLE CONDUIT – SCHEDULE 40 PVC. ROUTE TO CONTROLLER. PROVIDE PULL BOX EVERY 200 FEET AND AT CHANGES OF DIRECTION WHERE REQUIRED.
13. PVC MAIN LINE PIPING FROM MASTER VALVE.
14. CHRISTY'S I.D. TAG (YELLOW) – IDENTIFY CONTROLLER ASSIGNMENT.

NOTES:
1. ANGLE MAIN LINE TO SPECIFIED DEPTH WITH 45 DEGREE FITTINGS.
2. LOCATE VALVE BOX AT RIGHT ANGLES TO HARDSCAPE EDGES.

6 | FLOW SENSOR | N.T.S. | iFSI01

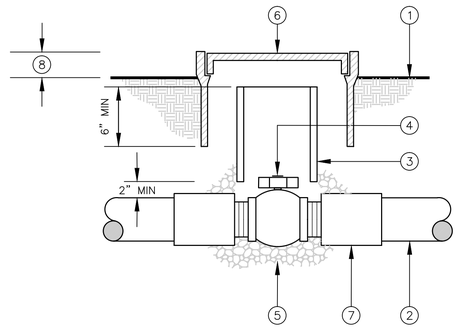


LEGEND:

1. ELECTRIC CONTROL VALVE.
2. WIRE CONNECTOR.
3. SCHEDULE 80 PVC PIPE.
4. FINISH GRADE.
5. 3/4" CRUSHED ROCK (12" DEEP).
6. COMMON BRICK (4 REQUIRED).
7. SCHEDULE 40 PVC S X S 90 DEGREE ELBOW.
8. SCHEDULE 80 PVC T.O.E. (THREADED ONE END) NIPPLE AND SLIP–FIT COUPLING (TYPICAL).
9. SCHEDULE 40 PVC MAIN LINE FITTING WITH SOLVENT–WELD OUTLET.
10. CHRISTY'S I.D TAG (NUMBERED TO MATCH DRAWINGS). ATTACH TO WIRES WITH NYLON FASTENER.
11. PVC PIPE TO SPRINKLERS: ANGLE PIPE TO SPECIFIED DEPTH WITH 45 DEGREE ELBOWS.
12. RECTANGULAR VALVE BOX WITH BOLT–DOWN COVER; GREEN IN COLOR – HEAT BRAND VALVE STATION NUMBER ON LID IN 2" HIGH CHARACTERS.
13. CONTROL/COMMON WIRES FROM CONTROLLER. PROVIDE 36" MINIMUM EXTRA COIL OF WIRES AT WIRE CONNECTORS.
14. LANDSCAPE FABRIC – WRAP SIDES AND BOX BOTTOM, COVER ALL OPENINGS.

NOTES:
1. PROVIDE 2 FOOT CLEAR DISTANCE BETWEEN VALVES; EACH VALVE SHALL HAVE ITS OWN CONNECTION TO MAIN LINE; INSTALL NO MULTIPLE ASSEMBLIES.
2. ARRANGE VALVE BOXES AT RIGHT ANGLE TO HARDSCAPE EDGES.
3. USE TEFLON TAPE ON THREADED FITTINGS. DO NOT USE PIPE DOPE.

4 | ELECTRIC CONTROL VALVE | N.T.S. | iECV02.dwg



LEGEND:

1. FINISH GRADE.
2. PVC MAIN LINE PIPE.
3. 6" PVC CLASS 200 PIPE.
4. BALL VALVE.
5. 3/4" CRUSHED ROCK – 12" MINIMUM DEPTH.
6. ROUND VALVE BOX. HEAT BRAND THE LETTERS "GV" WITH 2" HIGH CHARACTERS.
7. PVC SCHEDULE 80 NIPPLE (THREADED ONE END) AND PVC SLIP COUPLING (TYPICAL).
8. SET VALVE BOX FLUSH WITH CONCRETE, 1" ABOVE TURF & 3" ABOVE GROUND COVER AND SHRUB AREAS.

2 | BALL VALVE | N.T.S. | iBV1.dwg

A

DELTA A REVISION DESCRIPTIONS:

1. REMOVE BACKFLOW PREVENTER DETAIL AND REPLACE WITH BASKET STRAINER ASSEMBLY DETAIL.

PROJECT STATUS

BID SET 05/26/09

ISSUE			
MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	REPLACE BACKFLOW PREVENTER DETAIL WITH BASKET STRAINER DETAIL	TG

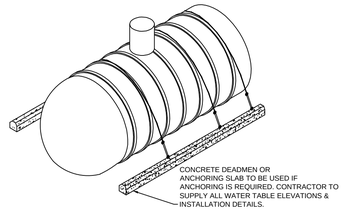
DRAWN	E. MONTELONGO	DATE
DESIGNED	E. MONTELONGO	DATE
CHECKED	M. DURHAM / T. GOTO	DATE
PRELIMGR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
RNGA		DATE
SAFETY		DATE
SUPERVISOR	S. FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

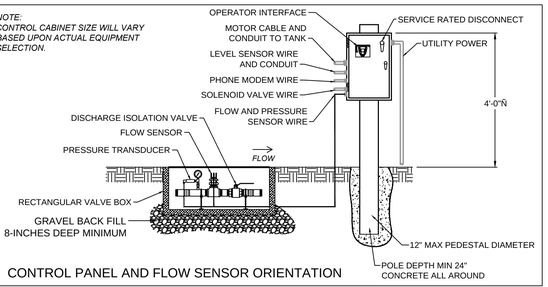
IRRIGATION DETAILS

SIZE	CAGE CODE		REV
D	25307	A232-0800- L551	A
SCALE AS SHOWN	INDEX	SHEET	OF



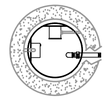
OVER VIEW OF TANK MOUNTING INSTALLATION REQUIREMENTS

NOTE:
CONTROL CABINET SIZE WILL VARY BASED UPON ACTUAL EQUIPMENT SELECTION.



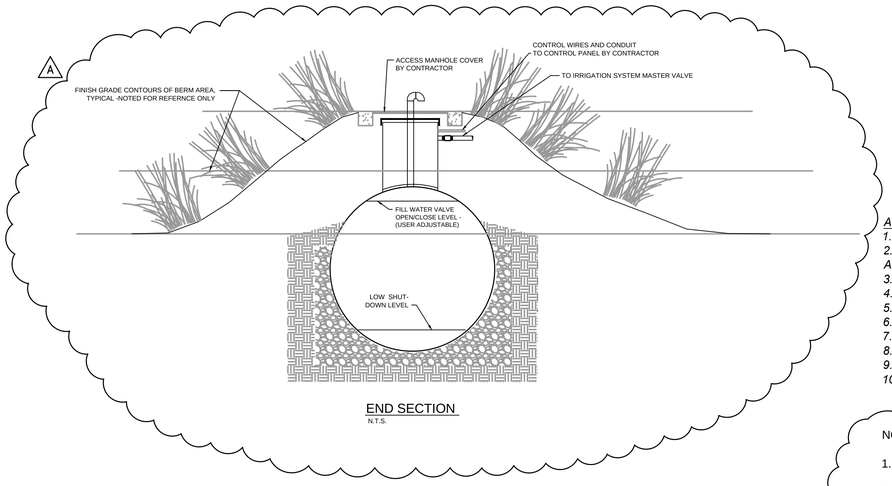
CONTROL PANEL AND FLOW SENSOR ORIENTATION

ENLARGEMENT "A"
N.T.S.

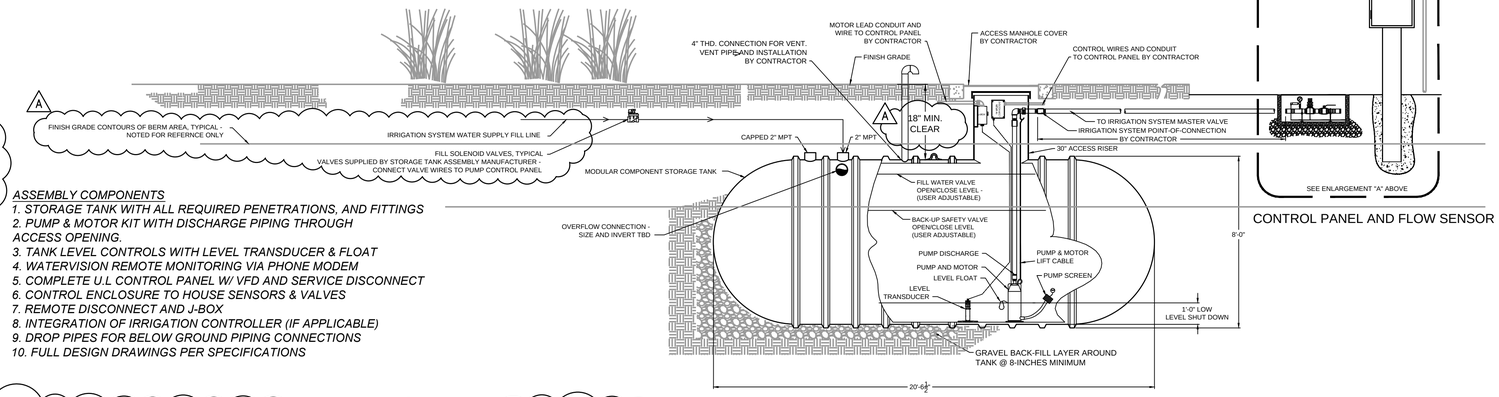


NOTE: CONCRETE OR TRAFFIC
NOT TO TRANSMIT ANY LOAD
TO TANK RISER

PLAN
N.T.S.



END SECTION
N.T.S.



SECTION / ELEVATION
N.T.S.

CONTROL PANEL AND FLOW SENSOR

ASSEMBLY COMPONENTS

1. STORAGE TANK WITH ALL REQUIRED PENETRATIONS, AND FITTINGS
2. PUMP & MOTOR KIT WITH DISCHARGE PIPING THROUGH ACCESS OPENING.
3. TANK LEVEL CONTROLS WITH LEVEL TRANSDUCER & FLOAT
4. WATERVISION REMOTE MONITORING VIA PHONE MODEM
5. COMPLETE U.L CONTROL PANEL W/ VFD AND SERVICE DISCONNECT
6. CONTROL ENCLOSURE TO HOUSE SENSORS & VALVES
7. REMOTE DISCONNECT AND J-BOX
8. INTEGRATION OF IRRIGATION CONTROLLER (IF APPLICABLE)
9. DROP PIPES FOR BELOW GROUND PIPING CONNECTIONS
10. FULL DESIGN DRAWINGS PER SPECIFICATIONS

NOTES:

1. DRAWING EXHIBIT NOT TO SCALE, PROVIDED FOR BASIS OF DESIGN ILLUSTRATION PURPOSES ONLY.
2. INSTALL LENGTH OF STORAGE TANK PARALLEL TO LANDSCAPE GRADE CONTOURS.
3. SECTION/ELEVATION EXHIBIT IS SHOWN FOR STORAGE TANK COMPONENT CLARIFICATION ONLY. LANDSCAPE FINISH GRADES ARE DIAGRAMMATIC AND DO NOT REFLECT SPECIFIC SITE INSTALLATION FINAL GRADING CONTOURS. REFER TO SITE CONSTRUCTION PLAN SHEET L101.
4. ALIGN TANK IN PLUMB AND LEVEL POSITION AND PER MANUFACTURER'S RECOMMENDATIONS.
5. IRRIGATION PUMP AND TANK ASSEMBLY COMPONENTS AND RELATED COMPONENT ALIGNMENT/COORDINATION SHALL BE ASSEMBLED BY THE SAME MANUFACTURER PROVIDING A WARRANTY FOR THE ENTIRE ASSEMBLY.
6. FLEXIBLE COUPLINGS REQUIRED ON ALL TANK CONNECTIONS.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF THE FINAL ASSEMBLY AND FOR SUPPLY/ SERVICE CONNECTIONS. IN NO CIRCUMSTANCES SHALL THE CONTRACTOR REPLACE THE MANUFACTURER'S RESPONSIBILITY FOR THE SELECTION AND SUB-INSTALLATION OF IRRIGATION PUMP AND STORAGE TANK COMPONENTS.
8. CONTRACTOR TO SUBMIT SHOP DRAWING(S) AND EQUIPMENT LIST FOR REVIEW AND APPROVAL PRIOR TO ORDERING AND INSTALLING STORAGE TANK.
9. REFER TO IRRIGATION PLAN SHEET L502 FOR IRRIGATION SYSTEM CONNECTION AND ADDITIONAL INFORMATION.
10. INSTALL STORAGE TANK WITH LENGTH PARALLEL TO BERM GRADE CONTOURS AND PROVIDE MINIMUM SOIL COVER AS NOTED.

A

DELTA A REVISION DESCRIPTIONS:

1. REVISE THE MINIMUM SOIL COVER OVER TANK.
2. REVISE AND REMOVE REVERENCE TO DOMESTIC WATER AS TEMPORARY WATER SUPPLY.
3. ADD STORAGE TANK END VIEW SECTION.
4. ADD NOTES NUMBER 9 AND 10.

IRRIGATION PUMP AND STORAGE TANK DESIGN INTENT AND PERFORMANCE CRITERIA:

CONTRACTOR TO PROVIDE ONE IRRIGATION PUMP AND STORAGE TANK ASSEMBLY, DESCRIBED WITH THE DRAWING AND AND SPECIFICATION AS THE BASIS OF DESIGN. DESIGN CLARIFICATION DRAWING REPRESENTS AN OVERVIEW OF THE INSTALLATION AND COORDINATION REQUIRED FOR A COMPLETE AND OPERATIONAL ASSEMBLY SPECIFICALLY DESIGNED TO MEET THE IRRIGATION SYSTEM CRITERIA SHOWN ON PLAN SHEETS L501 AND L502. REFER TO IRRIGATION SPECIFICATION SECTION 328400 INDICATING THE SPECIFIC ASSEMBLY COMPONENTS AND PERFORMANCE ENGINEERING.

OVERVIEW OF IRRIGATION PUMP AND STORAGE TANK ASSEMBLY:

MODULAR TANK SIZE RATED AT 6,000 GALLONS
SUBMERGIBLE PUMP ACCESSIBLE THROUGH TANK TOP HATCH.
ADJUSTABLE WATER LEVEL SENSOR SWITCH FOR DOMESTIC WATER SUPPLY AND MEW SUPPLY.
REMOTE MONITORING AND OPERATING INTERFACE VIA TELEPHONE MODEM TO PC COMPUTER SOFTWARE AS PART OF ASSEMBLY SPECIFICATION.

PROJECT STATUS

BID SET 05/26/09

ISSUE		

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	REVISE F.G. CLEARANCE ABOVE TANK. ADD TANK END SECTION. ADD NOTES 9 AND 10.	TG

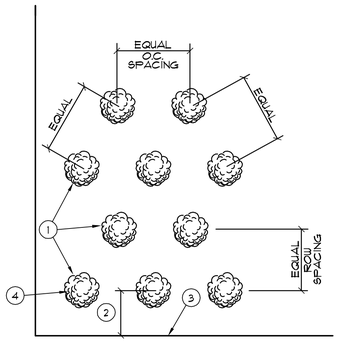
DRAWN	E. MONTELONGO	DATE
DESIGNED	E. MONTELONGO	DATE
CHECKED	M. DURHAM / T. GOTO	DATE
PRELIMGR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
AIGA		DATE
SAFETY		DATE
SUPERVISOR	S. FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

IRRIGATION PUMP AND STORAGE TANK DETAILS

SIZE	CAGE CODE		REV
D	25307	A232-0800- L554	A
SCALE AS SHOWN		INDEX	SHEET OF



LEGEND:

1. LOCATE PLANT MATERIAL SPACED EQUAL DISTANT FROM EACH OTHER AS SHOWN ON PLANTING PLAN / PLANTING LEGEND.
2. OFFSET DISTANCE OF 1/2 THE PLANT ON-CENTER SPACING.
3. EDGE OF PAVING, CURB, BUILDING, HEADER, ETC.
4. WHERE TRIANGULAR SPACING MEETS WALKWAY AT END ADD A PLANT TO SQUARE OFF THE END.

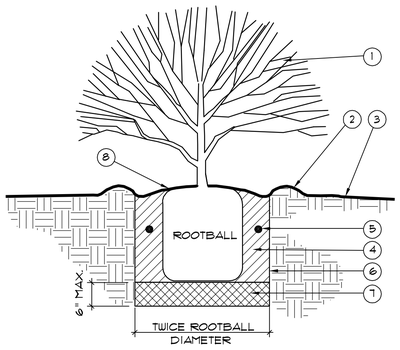
NOTE:

1. SET FINISH GRADE OF PLANTING AREA 2-INCHES BELOW FINISH SURFACE OF PAVING, WALK OR MOWSTRIP.

3 SHRUB AND GROUND COVER PLANTING

SCALE: N.T.S

D-TRI-SPACING



LEGEND:

1. SHRUB - CENTER IN PIT.
2. 2" DEEP WATERING BASIN.
3. FINISH GRADE.
4. AMENDED BACKFILL PER HORTICULTURAL SOILS REPORT.
5. PLANTING TABLETS PER SPECIFICATIONS.
6. SCARIFY SIDES AND BOTTOM OF PLANTING PIT.
7. TRANSITION ZONE OF COMPACTED AND UNAMENDED NATIVE SOIL.
8. SET TOP OF ROOTBALL 1/2" ABOVE SURROUNDING GRADE AND SLOPE FOR DRAINAGE.

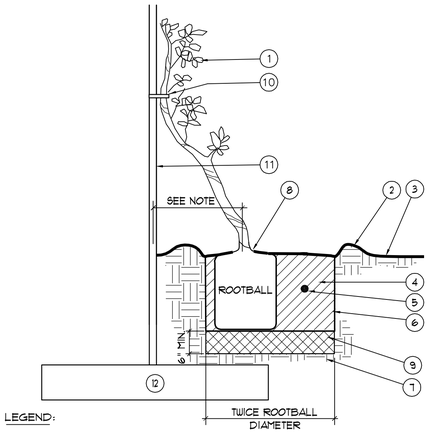
NOTES:

1. PROVIDE 2-INCH LAYER OF APPROVED MULCH AT PLANT BASINS. MULCH TO BE 6-INCHES AWAY FROM THE SHRUB STEM.

4 SHRUB AND GROUND COVER PLANTING

SCALE: N.T.S.

D-SHRUB



LEGEND:

1. VINE.
2. 2" DEEP WATERING BASIN. SEE SPECIFICATIONS.
3. FINISH GRADE.
4. AMENDED BACKFILL - PER SPECIFICATIONS
5. PLANTING TABLETS, PLACE IN PIT 2/3 UP FROM PIT BOTTOM. SEE SPECS.
6. SCARIFY SIDES AND BOTTOM OF PLANTING PIT.
7. UNDISTURBED NATIVE SOIL.
8. SET TOP OF ROOTBALL 1/2" ABOVE SURROUNDING GRADE AND SLOPE FOR DRAINAGE. CENTER BETWEEN DRAINAGE STRIP AND COLUMN - SEE PLANS.
9. TRANSITION ZONE OF COMPACTED AND UNAMENDED NATIVE SOIL.
10. FLEXIBLE VINE TIES
11. VINE TRELLIS - SEE ARCHITECT'S DRAWINGS
12. BUILDING FOOTING - SEE ARCHITECT'S DRAWINGS

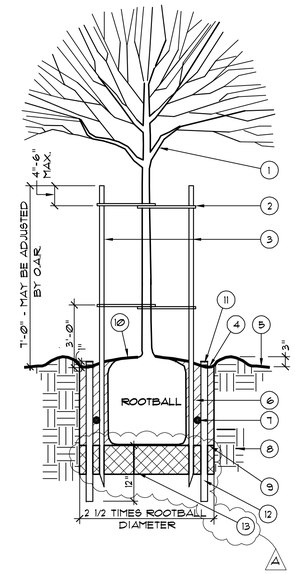
NOTES:

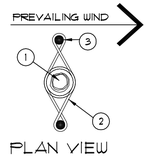
1. SET VINE AS CLOSE TO BACK SURFACE OF PIT OR TIGHT TO FOOTING AS POSSIBLE.
2. PROVIDE 2-INCH LAYER OF APPROVED MULCH AT PLANT BASIN. MULCH TO BE 6-INCHES AWAY FROM PLANT STEM.

2 VINE PLANTING

SCALE: N.T.S.

D-VINE





PLAN VIEW

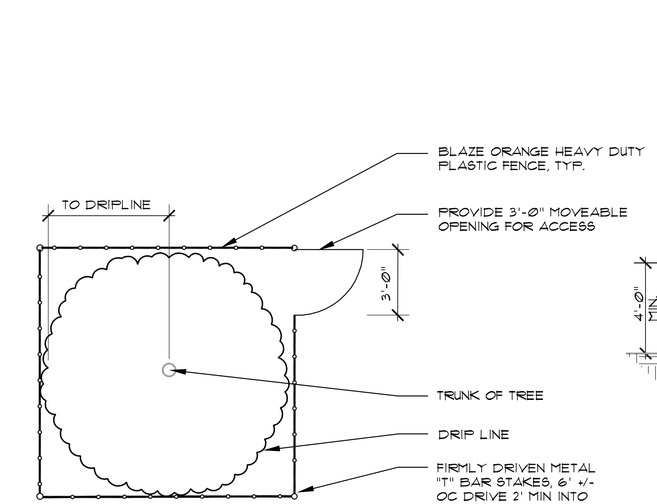
LEGEND:

1. TREE - CENTER IN PIT.
2. THE WONDER TREE TIE - MODEL W2484. INSTALL PER MANUFACTURER'S SPECIFICATIONS. PH: (800) 910-2810
3. 3" DIAMETER LODGE POLE PINE TREE STAKE. DRIVE STAKES A MINIMUM OF 2 FEET INTO NATIVE SOIL BENEATH PLANTING PIT. THE STAKES SHALL BE INSTALLED OUTSIDE THE ROOTBALL OF THE TREE.
4. WATER BASIN.
5. FINISH GRADE.
6. AMENDED BACKFILL PER HORTICULTURAL SOILS REPORT.
7. PLANT TABLET PER SPECIFICATIONS
8. UNDISTURBED NATIVE SOIL.
9. SCARIFY SIDES AND BOTTOM OF PLANTING PIT.
10. SET TOP OF ROOTBALL 3" ABOVE FINISH GRADE AND SLOPE FOR DRAINAGE.
11. 3" BLACK DRAIN SLIP CAP
12. 3" PERFORATED PVC PIPE WITH "SOCK" FILTER FABRIC.
13. TRANSITION ZONE OF COMPACTED AND UNAMENDED NATIVE SOIL.

1 TREE PLANTING - DOUBLE STAKE

SCALE: N.T.S.

D-TREE-DBL_STAKE



NOTES:

1. PROVIDE SIMILAR INSTALLATION CONTINUOUSLY AS NOTED.
2. SEE TREE PRESERVATION NOTES ON SHEET L600 AND CIVIL ENGINEER'S DRAWINGS FOR ADDITIONAL INFORMATION.

5 TREE PRESERVATION FENCING

SCALE: NTS

DTL-Proto-Fence.dwg

PROJECT STATUS

BID SET 05/26/09

ISSUE			
MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	SOIL TRANSITION ZONE HAS BEEN ADDED ONTO THE TREE DETAIL, TO MATCH SHRUB DETAIL.	TG

DRAWN	D. COLBECK	DATE
DESIGNED	M. DURHAM	DATE
CHECKED	M. DURHAM / T. GOTO	DATE
PROJMGR	J. GRANT	DATE
REQUESTER	R. SCHULER	DATE
RLGA		DATE
SAFETY		DATE
SUPERVISOR	S. FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

PLANTING DETAILS

SIZE	CAGE CODE		REV
D	25307	A232-0800- L651	A
SCALE	INDEX	SHEET OF	

DWG: P:\2009\09020119.01\DSCAD\3.1Sheets\L651.dwg User: GotoT
DATE: May 20, 2009 - 11:55:18 Images:
Xrefs: "XBAR" "D-Tree-12" "D-TRI-SPACING" "D-SHRUB" "D-Tree-Protection" "D-vine-05