

CENTENNIAL POOL

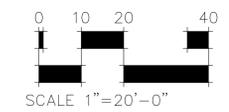
CENTENNIAL LIBRARY

PROPOSED FIRE STATION #2

23RD AVENUE

WEST RESERVOIR ROAD

PHASE 1



**CONTROLLER LOCATION "A"**

WALL MOUNT INSIDE WATER ENTRY ROOM ONE CONTROLLER (REFER TO SCHEDULE FOR MODEL & STATION COUNT), REMOTE READY, AT INDICATED LOCATION. 120 VOLT POWER IS AVAILABLE WITHIN 25 LF. OF CONTROLLER LOCATION FROM BUILDING, BY OTHERS REELECTRICAL PLANS. ELECTRICAL METER, WIRE/CONDUIT, STEP-DOWN TRANSFORMER (IF REQUIRED) AND POWER CONNECTION TO CONTROLLER IS BY CONTRACTOR WITH WORK CONFORMING TO LOCAL CODES. FEES AND PERMITS ASSOCIATED WITH WORK ARE TO BE OBTAINED AND PAID BY CONTRACTOR. LOCATE 2-WIRE CABLE FROM HYDROMETER (1.5") AND CONNECT TO THE DATA RETRIEVAL BOARD IN ASSOCIATED CONTROLLER. FINAL CONTROLLER LOCATION SHALL BE APPROVED BY OWNER OR OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. MOUNT ONE WEATHER SENSOR ON BUILDING WHERE THERE IS 20 FT. OF CLEARANCE FROM ANY OVERHANG OR OBSTRUCTING FEATURE. INSTALL WEATHER SENSOR RECEIVER IN CONTROLLER ENCLOSURE. FINAL WEATHER SENSOR LOCATION SHALL BE APPROVED BY OWNER OR OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. INSTALL SOIL MOISTURE SENSOR AT LOCATION INDICATED AND EXTEND CONTROL WIRES TO CONTROLLER AND CONNECT PER MANUFACTURERS DIRECTION. FINAL SENSOR LOCATION SHALL BE APPROVED BY OWNER OR OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

**POINT OF CONNECTION #1 - 1.5" (FIREHOUSE)**

PEAK FLOW REQUIREMENT: 40 GPM. REQUIRED STATIC PRESSURE: 75 PSI  
TIE ONTO 1.5" COPPER STUB-OUT DOWNSTREAM OF WATER METER AT 54" DEPTH IN THIS APPROXIMATE LOCATION, BY OTHERS RE-CIVIL PLANS. INSTALL ONE 1.5" METER PER CITY OF GREELEY SPECIFICATIONS AND STANDARDS. EXTEND 1.5" TYPE K SOFT COPPER AT 54" MINIMUM DEPTH TO BACKFLOW PREVENTER LOCATION. INSTALL ONE 1.5" STOP AND WASTE VALVE, ONE 1.5" REDUCED PRESSURE BACKFLOW PREVENTER WITH PROTECTIVE ENCLOSURE, ONE MANUAL DRAIN VALVE, ONE HYDROMETER WITH 2-WIRE DECODER, ONE QUICK COUPLING VALVE AND EXTEND PVC MAINLINE AS SHOWN. CONNECT FLOW SENSOR AND MASTER VALVE TO ASSOCIATED CONTROLLER VIA TWO-WIRE COMMUNICATION CABLE PER MANUFACTURERS REQUIREMENTS. SEE DETAIL SHEET FOR REQUIRED PIPE LENGTHS UPSTREAM AND DOWNSTREAM OF FLOW SENSING UNIT. WORK SHALL CONFORM TO LOCAL CODE. FEES AND PERMITS ASSOCIATED WITH WORK ARE TO BE OBTAINED AND PAID FOR BY CONTRACTOR. FINAL BACKFLOW PREVENTER LOCATION SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

ISOLATION PVC BALL VALVE, FOR THE TREE IN THE NATIVE AREA, TO REMAIN CLOSED DURING ESTABLISHMENT OF NATIVE SEED WITH SPRAY HEADS. ONCE THE THE SPRAY HEADS ARE TURNED OFF, THEN CONTRACTOR TO OPEN THE BALL VALVE TO TREE IN NATIVE, TO WATER WITH DRIP IN THE SHRUB BEDS.

INSTALL ALL CONTROL VALVES NOTED AS "FUTURE" IN PHASE 1 WORK. INSTALL IN VALVE BOX, AS DETAILED, EXCEPT PLUG OUTLET SIDE OF CONTROL VALVE.

INSTALL ONE 2" GATE VALVE AND CAP THE MAINLINE 5' DOWNSTREAM OF THE GATE VALVE. EXTEND 2-WIRE CABLE TO THIS POINT FOR FUTURE EXPANSION. COIL WIRE IN 10" ROUND VALVE BOX

EXTEND 1" PVC HEADER PIPE INTO FUTURE BED AREA FOR PHASE 2. CAP LINE AND INSTALL IN 6" VALVE BOX FOR FUTURE CONNECTION.

INSTALL ALL CONTROL VALVES NOTED AS "FUTURE" IN PHASE 1 WORK. INSTALL IN VALVE BOX, AS DETAILED, EXCEPT PLUG OUTLET SIDE OF CONTROL VALVE.

Owner  
City of Greeley  
1000 10th Street Greeley  
Colorado 80531  
970.359.9777

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DHM DESIGN

City of Greeley  
**GREELEY FIRE STATION #2**  
GREELEY, CO

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SEH Project 150268  
Checked By JSB  
Drawn By HJD

Project Status 100% CD SET  
Issue Date 10/18/2019

Revision Issue		
Rev. #	Description	Date

IRRIGATION PLAN  
PHASE 1

IR-2

CENTENNIAL POOL

CENTENNIAL LIBRARY

23RD AVENUE

WEST RESERVOIR ROAD

**PROPOSED FIRE STATION #2**

EXISTING IRRIGATION DAMAGE - CONTRACTOR SHALL REPAIR OR REPLACE ANY EXISTING IRRIGATION SYSTEMS DAMAGED DURING NEW INSTALLATION. REPAIR OR REPLACEMENT SHALL BE DETERMINED BY OWNER OR OWNER'S REPRESENTATIVE AND PAID FOR BY THE LANDSCAPE CONTRACTOR.

THESE CONTROL VALVES WERE INSTALLED AS PART OF PHASE 1 WORK. CONNECT AND EXTEND NEW HEADER PIPE AND DRIP AS PART OF PHASE 2.

LOCATE 2" GATE VALVE AND 2-WIRE CABLE TO THIS APPROX. LOCATION. CONNECT TO GATE VALVE AND EXTEND NEW 2" PVC MAINLINE AS PART OF PHASE 2. CONNECT TO 2-WIRE CABLE USING ONLY APPROVED WATER PROOF WIRE CONNECTORS AND EXTEND NEW 2-WIRE CABLE TO MAINLINE. INSTALL ALL WIRE CONNECTORS IN 10" ROUND VALVE BOX.

EXISTING CONTROLLER INSTALLED IN PHASE 1.

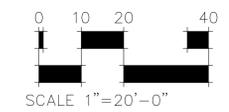
LOCATE 1" PVC HEADER PIPE AT THIS APPROX. LOCATION, INSTALLED IN PHASE 1. CONNECT TO AND EXTEND, AS SHOWN, ADDING DRIP FOR PHASE 2.

EXISTING TAP AND BACKFLOW ASSEMBLY INSTALLED IN PHASE 1. LOCATE AND PROTECT DURING PHASE 2 WORK. TAP AND MAINLINE TO REMAIN OPERATION DURING PHASE 2 CONSTRUCTION, SO THAT PHASE 1 LANDSCAPE IS MAINTAINED.

EXISTING IRRIGATION DAMAGE - CONTRACTOR SHALL REPAIR OR REPLACE ANY EXISTING IRRIGATION SYSTEMS DAMAGED DURING NEW INSTALLATION. REPAIR OR REPLACEMENT SHALL BE DETERMINED BY OWNER OR OWNER'S REPRESENTATIVE AND PAID FOR BY THE LANDSCAPE CONTRACTOR.

THESE CONTROL VALVES WERE INSTALLED AS PART OF PHASE 1 WORK. CONNECT AND EXTEND NEW LATERAL LINES AND SPRINKLER HEADS AS PART OF PHASE 2.

**PHASE 2**



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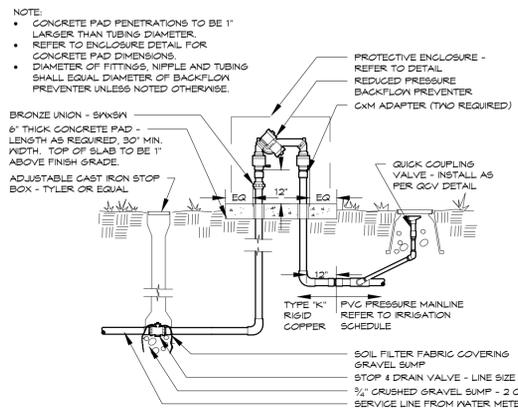
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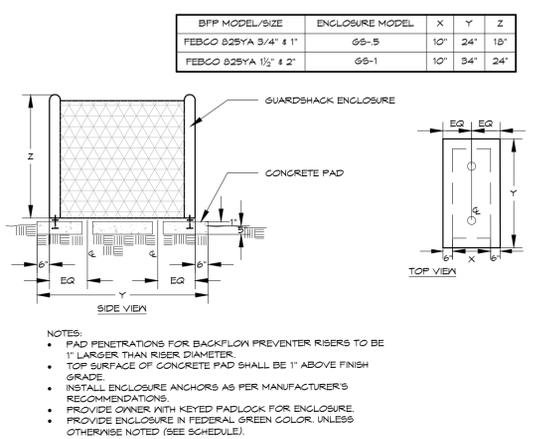
IRRIGATION PLAN  
PHASE 2

**IR-3**



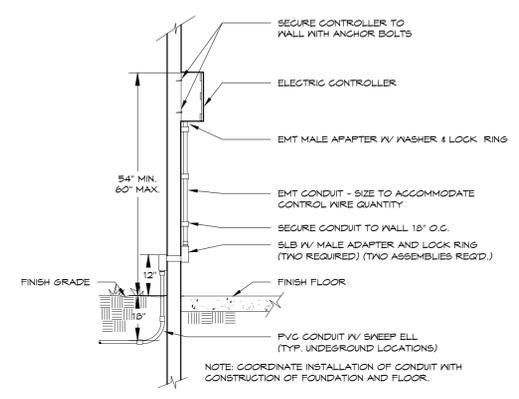
**BACKFLOW PREVENTER**  
3/4" - 2" SYSTEMS WITH PVC CONNECTION

1



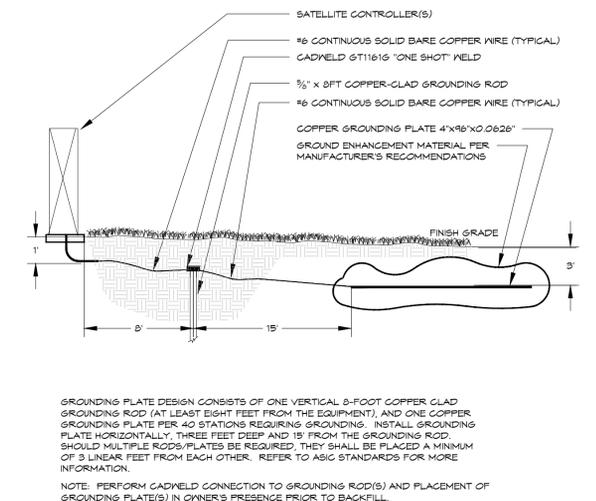
**BACKFLOW ENCLOSURE**  
GUARDSHACK - 3/4" - 2" SYSTEMS

2



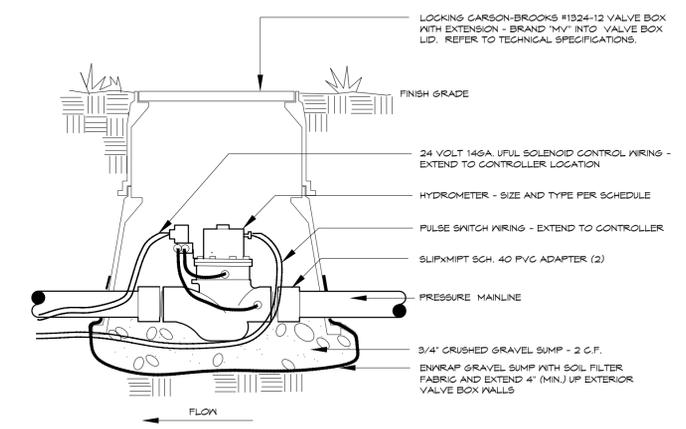
**ELECTRIC CONTROLLER**  
INTERIOR WALL MOUNT - WALL PENETRATING

3



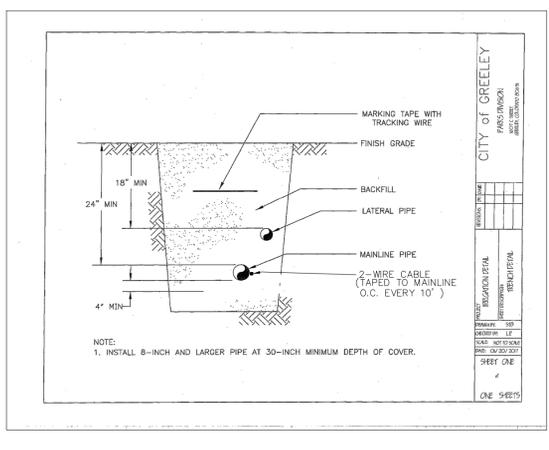
**CONTROLLER GROUNDING**  
TWO-WIRE SYSTEM

4



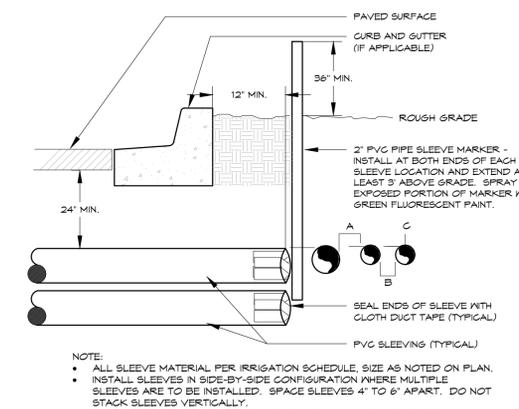
**HYDROMETER**

5



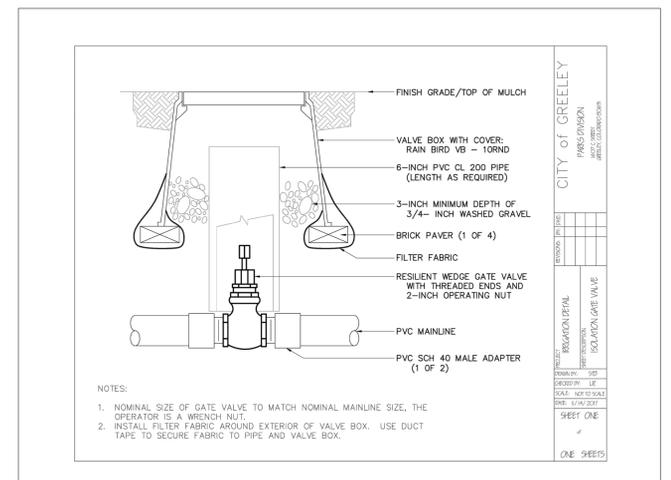
**TRENCH DETAIL**

6



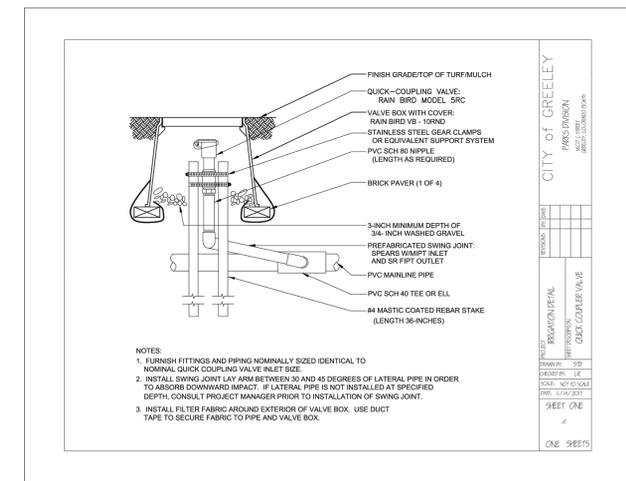
**IRRIGATION SLEEVING**

7



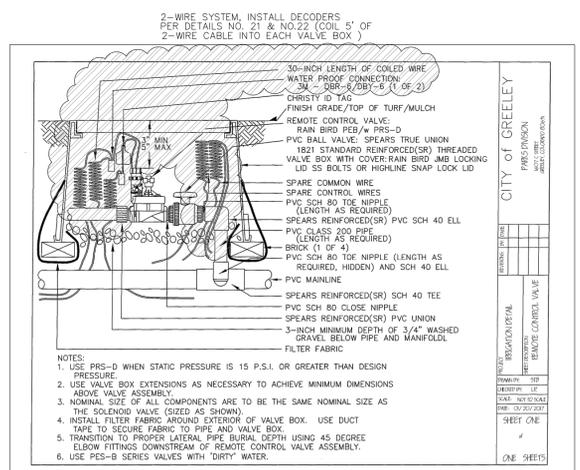
**GATE VALVE**

8



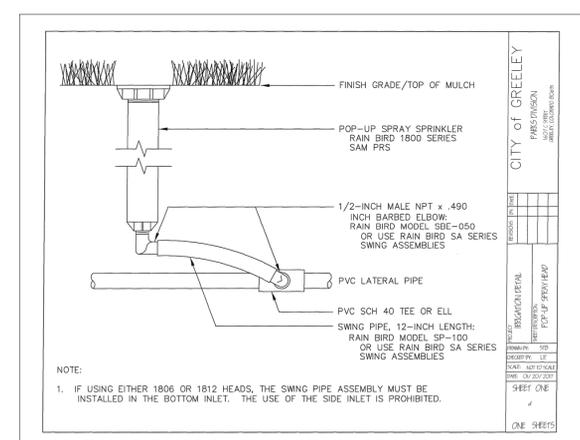
**QUICK COUPLER VALVE**

9



**CONTROL VALVE (1"-2")**  
(TURF, NATIVE AND TREES)

10



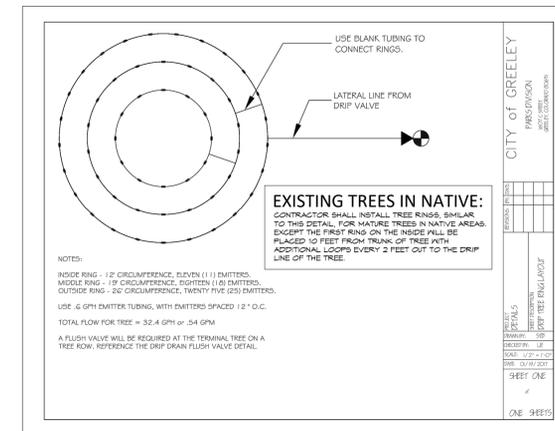
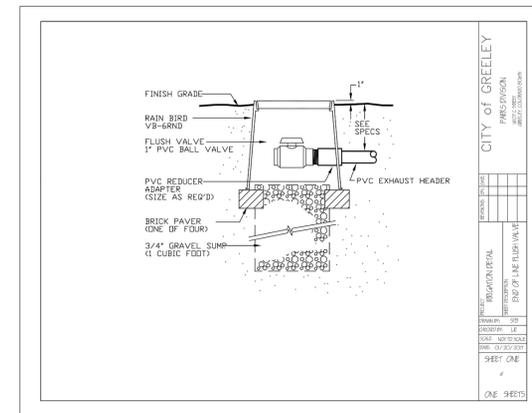
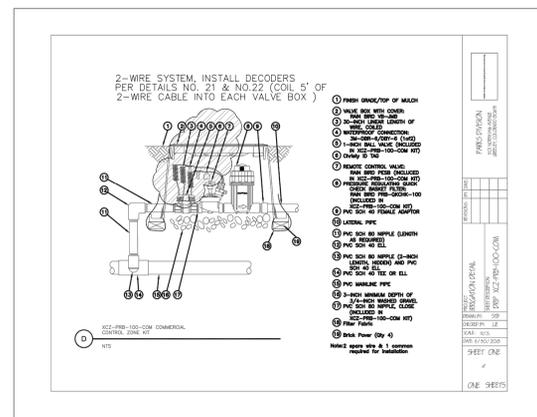
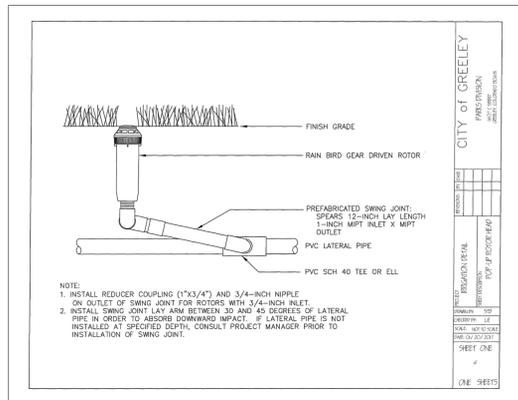
**POP-UP SPRAY**

11

REFER TO SHEET  
IR-1  
IR-2 TO IR-3  
IR-4 TO IR-6

**IRRIGATION NOTES & SCHEDULE**  
**IRRIGATION PLANS**  
**IRRIGATION DETAILS**





POP-UP ROTOR SPRAY

12

DRIP CONTROL VALVE

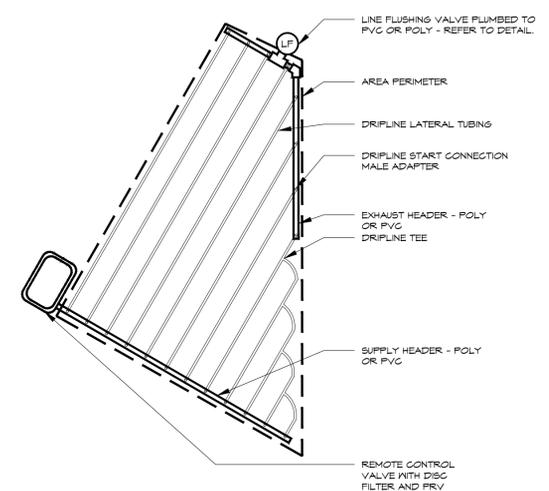
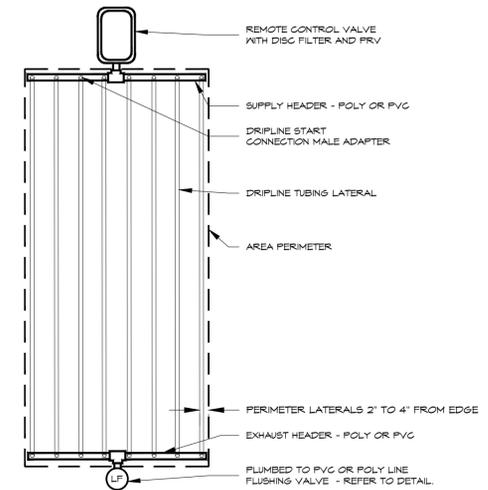
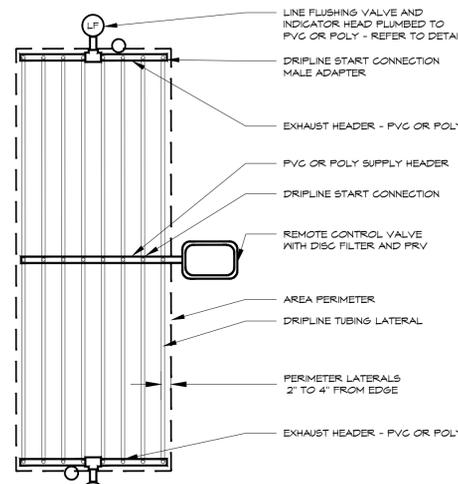
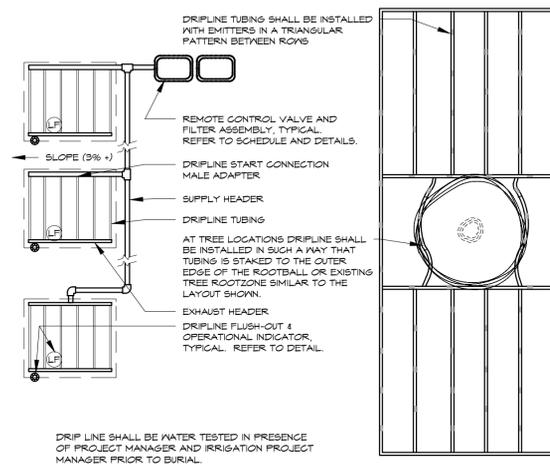
13

END OF LINE FLUSH VALVE

14

DRIP TREE RING

15



EMITTER TUBING LAYOUT  
AREAS AROUND TREES - TYPICAL

16

SUBSURFACE DRIP - TOP VIEW  
CENTER FEED LAYOUT - TYPICAL

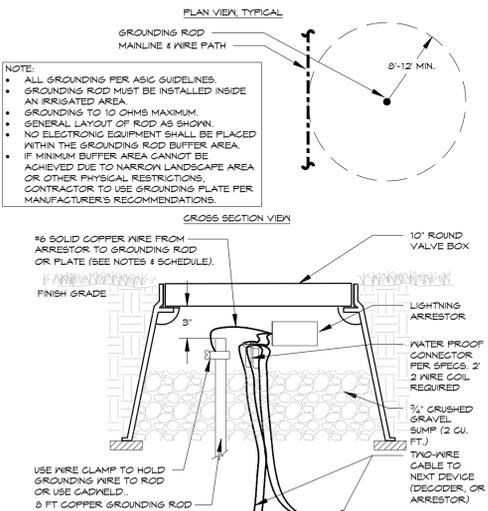
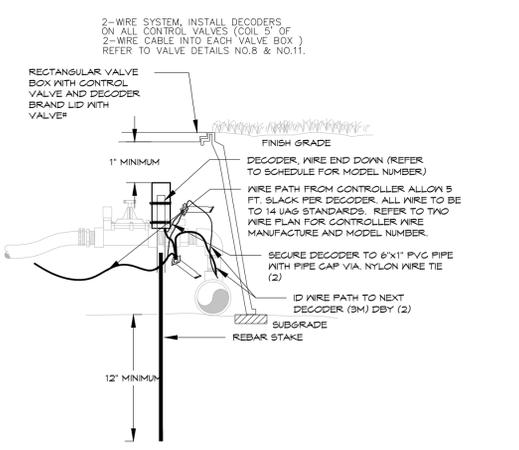
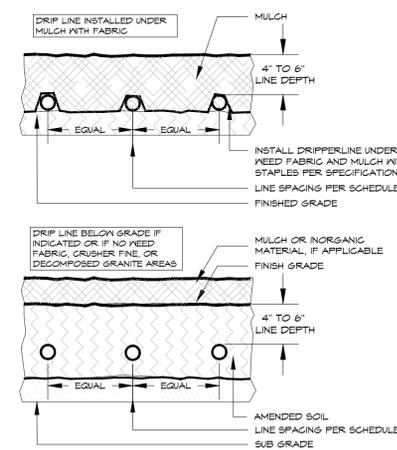
17

SUBSURFACE DRIP - TOP VIEW  
END FEED LAYOUT - TYPICAL

18

SUBSURFACE DRIP - TOP VIEW  
IRREGULAR AREAS - TYPICAL

19



SUBSURFACE DRIP  
HORIZONTAL VIEW - Bed

20

DECODER INSTALLATION  
TWO-WIRE SYSTEM

21  
COG

ARRESTOR GROUNDING  
TWO-WIRE SYSTEM - TYPICAL

22  
COG

REFER TO SHEET  
IR-1  
IR-2 TO IR-3  
IR-4 TO IR-6

IRRIGATION NOTES  
& SCHEDULE  
IRRIGATION PLANS  
IRRIGATION DETAILS

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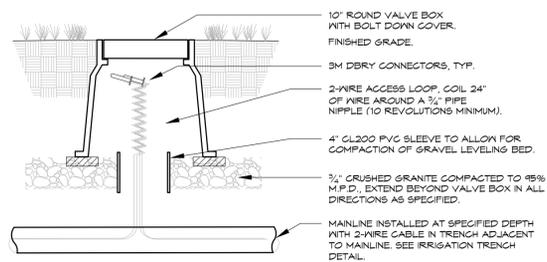
GREELEY FIRE STATION #2  
GREELEY, CO

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SEH Project	150268
Checked By	JSB
Drawn By	KLD
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100% CD SET	10/18/2019
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IRRIGATION  
DETAILS

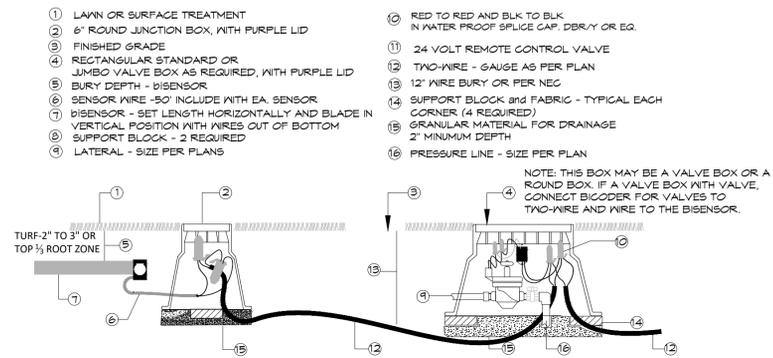
IR-5



- NOTE:
1. SET TOP OF BOX LEVEL WITH FINISHED GRADE IN TURF AREAS AND LEVEL WITH TOP OF MULCH IN SHRUB BEDS.
  2. USE STANDARD RECTANGULAR VALVE BOX WITH BOLT DOWN LID FOR SPLICES OF MORE THAN TWENTY (20) WIRES.

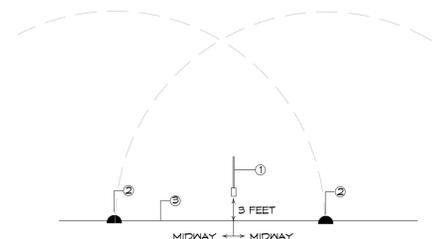
**WIRE SPLICE BOX**  
TWO-WIRE SYSTEM

23  
COG



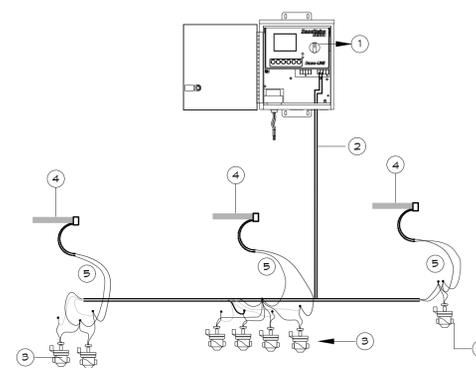
**SOIL MOISTURE SENSOR**

24  
COG



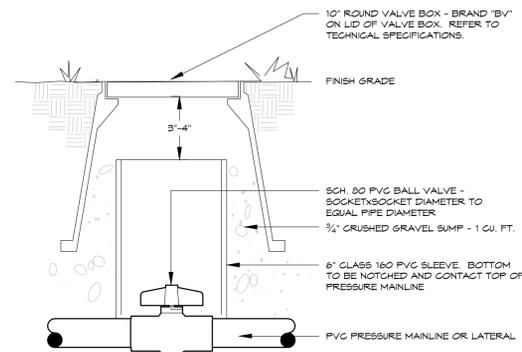
**SENSOR LOCATION IN PART CIRCLE ZONE**

25  
COG



**TYPICAL FIELD CONTROLLER DIAGRAM**

26  
COG



**PIPING SHUT-OFF VALVE**

27

Project Name: Greeley Fire Station No.2				
Project Location: Greeley, CO.				
Tap Description: Tap 1				
Date prepared: 18-Sep-19				
Seasonal Water Use and Peak Flow Projections Prepared By HydroSystems-KDI, Inc.				
Description	Irrigated Area (Acre)	Application Rate (in/mo/sqft)	Water Application (gallons)	Peak Season Projected Demand (GPM)
Kentucky Bluegrass Spray Irrigated	April	2.91	68,895	
	May	6.87	162,724	
	June	9.14	216,528	
	July	9.87	233,916	24.5
	August	8.58	203,405	
	September	6.65	157,475	
	October	2.44	57,741	
Irrigation Season Totals	46.45	1,100,684	3.38	acre-feet
Shrubs & Trees Drip Irrigated	April	1.17	8,010	
	May	2.76	18,920	
	June	3.67	25,175	
	July	3.96	27,197	2.8
	August	3.44	23,650	
	September	2.67	18,309	
	October	0.98	6,713	
Irrigation Season Totals	18.64	127,975	0.39	acre-feet
Irrigated Area:	49,027 Sq.Ft.		1.13 Acres	
Water Use per Year:	1,228,659 Gallons		3.77 Acre-feet	
Average Water per Year:	25.06 Gallons/SqFt		40.20 Inches/SqFt	
Peak Season Monthly Water Use:	261,113 Gallons		0.80 Acre-feet	
Average Peak Season Flow:	27 GPM			
Required Tap Size:	1 1/2 Inches			
Projections are based on a six day per week, six hour per day, peak season watering schedule.				
Peak season application for Kentucky Bluegrass is 2.23" per week.				
Peak season application for Shrubs & Trees is 0.89" per week.				

**WATER USE CHART**

C1

Project Name: Greeley Fire Station No.2							
Project Location: Greeley, CO.							
Tap Description: Tap 1							
Irrigation System Hydraulic Worksheet Prepared by HydroSystems-KDI, Inc.							
Date:	18-Sep-19						
Static Water Pressure:*	75 From: Jesse						
*This value has been decreased by safety factor of:	0% of: Greeley Utility						
Hydraulic Grade calculated at Zone:							
Equipment or Material	Quantity (one if not specified)	Nominal Size	Equipment or Pipe Material	Friction Loss Through Pipe per Chart (psi)	Velocity through pipes (ft/sec)	Flow Rate (gpm)	Loss/Gain (psi)
Corp Stop:		1 1/2"	Typical Corp. Stop				38
Svc line (tap to meter):	30 LF	1 1/2"	K Copper	6.03 /100 FT	7.07		38
Curb Stop:		1 1/2"	Typical Curb Stop				38
Water Meter:		1 1/2"	Typical Meter				38
Svc Line (meter to backflow):	10 LF	1 1/2"	K Copper	6.03 /100 FT	7.07		38
Stop & Waste:		1 1/2"	Typical Stop & Waste Valve				38
Backflow:			1 1/2" Febco 825YA				38
Point of Connection (POC) Subtotal:							19.21
Pressure downstream of POC:							55.79
Master Valve:		1 1/2"	Rain Bird PEB				38
Flow Sensor:		1 1/2"	CST FSI				38
Gate Valve:	1	2"	Typical Bronze Gate Valve				38
Pressure Required at Head:			Rain Bird 5006				35.00
Lateral Allowance:							3.00
Control Valve allowance:		1 1/2"	Rain Bird PEB				38
Mainline allowances:							
	30 LF	2"	CL 200 PVC	0.87 /100 FT	3.36		38
	1400 LF Looped	2"	CL 200 PVC	0.26 /100 FT	1.77		38
Mainline Fitting allowance:			10% of Mainline allowances				0.39
Elevation:	Tap Elev.	0	Control Valve Elev.	5			2.17
Factor of Safety:			5% System Losses				3.58
Total System Hydraulic Losses (PSI)							75.27
Provided Water Pressure (PSI)							75.00
Pump Pressure Boost (PSI)							0.00
Residual Pressure (PSI)							(0.27)

**HYDRUALIC CHART**

C2

**REFER TO SHEET IR-1**

IR-2 TO IR-3  
IR-4 TO IR-6

IRRIGATION NOTES & SCHEDULE  
IRRIGATION PLANS  
IRRIGATION DETAILS



**HydroSystems** KDI  
Irrigation Consulting & Water Management  
860 Tabor Street, Suite 200 Lakewood, Colorado 80401  
c. 303.980.5327 www.hydrossystemskdi.com

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IRRIGATION  
DETAILS

IR-6