

Bear Creek Park Irrigation Nonpotable Conversion

El Paso County Parks 2002 Creek Crossing Colorado Springs, CO 80905

This plan set documents current conditions and provides specifications for a service line extension connected to an existing 8" nonpotable stub. The project involves only the Nonpotable Water system, no other utility services will be modified or extended.

These drawings reflect specifications put forth in the current edition of Colorado Springs Utilities' *Water Line and Service Standards (WaterLESS)*. Details and specifications may be superceded by any subsequent publication of the standards. **Installation Contractor is responsible for meeting or exceeding all specifications in the most recent edition of the *WaterLESS*.**

These drawings and plans are based on locations and information found in the following plans and drawings:

- As-built drawings dated July 2004 provided by Colorado Springs Utilities
- Utility location information obtained from CSU's Public Mapping Portal in November 2021
- Google Earth imagery dated October 2018

Existing Irrigation System based on:

- Design drawing provided by El Paso County Parks dated October 2003
- El Paso County *Irrigation Assessment and Renovation Plan* dated January 2019.
- Field observations made October 2018 and December 2021.

The new nonpotable water meter installation has been assigned the address:

2020 Creek Crossing
Colorado Springs, CO 80905

Owner's representative:

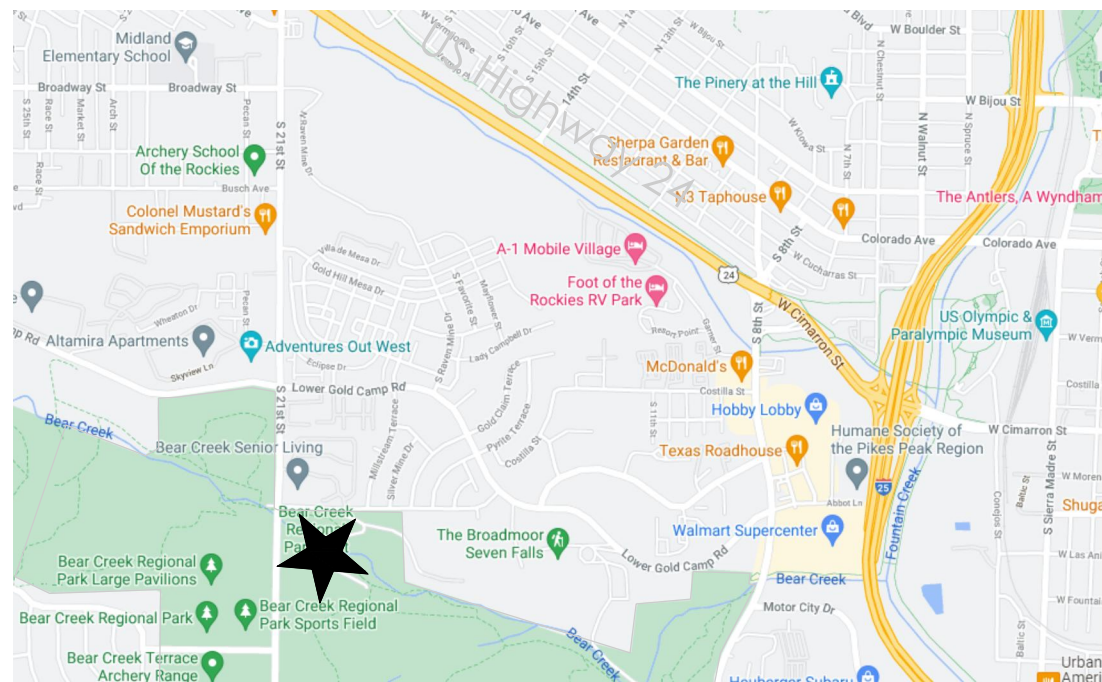
Kyle Melvin, Assistant Park Operations Division Manager
El Paso County, CO
719.520.6976

Certified Irrigation Designer:

William Marbaker, CID
Tapis Associates, Inc.
719.593.1540

Vicinity Map

NTS



Index to Drawings

- Sheet 1 Coversheet - Summary of Work, Approvals, Sheet Index
- Sheet 2 Nonpotable Service Line Extension - Adjacent Utilities, Water Plan Notes
- Sheet 3 Nonpotable Service Line Extension - Site Detail and Elevation
- Sheet 4 Details - Colorado Springs Standards
- Sheet 5 Nonpotable Irrigation System Improvements

Nonpotable Irrigation Conversion Summary of Work

This drawing set documents current conditions and changes needed for nonpotable conversion of the irrigation system at the El Paso County Parks Administration Building in Bear Creek Park. Drawings are based on available maps and plans. Field location of all appurtenances will be required.

The nonpotable irrigation system will be connected to an existing 8" DIP stub on the 24" DIP nonpotable main. As-built drawings indicate the presence and location of the stub nominally 280' from the Parks Administration Building.

The Nonpotable Conversion Project includes procurement of equipment, construction, and installation, Contractor is responsible for all labor and equipment to complete a fully compliant and operational nonpotable irrigation system.

Nonpotable Service Line Extension and Meter Pit

- Create a nonpotable extension from existing 8" stub--CSU Project #2002-N005. Extend 8" DIP a length of 6' from existing valve and reduce to connect to flush hydrant.
- Terminate service line with an approved flush hydrant. Flush hydrant and service line will be located 10' from the centerline of the 24" DIP main and well within the existing pipeline easement.
- Install a prefabricated meter pit outside of the utility easement. Location to be approved by owner's representative prior to installation. (2021 WaterLESS standard detail on sheet 4.)
- Install Type K copper service line piping, corporate stop and box, wye strainer, and associated equipment between tap and meter pit.
- Coordinate with Colorado Springs Utilities for service line tap and meter installation.

Irrigation System Provisioning and Connection

- Modify existing irrigation system mainline. Disconnect from potable source per details on sheet 4. Leave no stub.
- Repair potable piping (at disconnection point) to retain operable potable connections to other parts of the property.
- Install backflow , security cage, master valve, flow sensor. Connect these to meter with Type K Copper pipe. Location to be approved by Owner's Representative prior to installation.
- Trench and install new mainline piping to connect nonpotable water source to existing mainline. Approximately 275' of new PVC mainline.
- Modify existing mainline loop by removing tee and valves plus removing 3' of decommissioned potable PVC mainline. Cap decommissioned pipe segment remaining buried at both ends with purple caps.
- Connect new nonpotable mainline to existing mainline loop with new tee and isolation valves with purple handles.
- Trench and install in conduit approximately 1,600' new wiring as shown on plans. Wiring will extend from controller location in building to each valve, master valve and sensor. This includes all wiring necessary for complete and operational irrigation system including connections between controller to all existing valves, new master valve, and sensors.
- Demonstrate fully functional system to owner's representative.

Alternate Bid Items

- Procure and install new irrigation controller inside the building. This includes electrical supply and wiring from item #12 above.
- Replace all valve box covers with purple covers. Paint/mark valves and heads. Raise boxes as needed.
- Adjust and raise all heads as necessary. Replace any broken equipment with new parts as shown in the New Equipment and Pipe Schedule.

Approvals

OWNER/DEVELOPER PLAN APPROVAL	
THE UNDERSIGNED OWNER/DEVELOPER AGREES THAT THEY SHALL, AT THEIR EXPENSE, BE SOLELY RESPONSIBLE FOR 1) THE INSTALLATION OF THE PROPOSED UTILITY INFRASTRUCTURE IN ACCORDANCE WITH THESE PLANS, AND 2) ALL DAMAGES AND DEFECTS ARISING FROM, OR RELATED TO, THE INSTALLATION, MAINTENANCE OR OPERATION OF THE PUBLIC UTILITY INFRASTRUCTURE FROM THE DATE OF PRELIMINARY ACCEPTANCE FOR A PERIOD OF TWO YEARS, OR UNTIL FINAL ACCEPTANCE, WHICHEVER IS LATER.	
THE UNDERSIGNED UNDERSTANDS THAT ALL PRIVATE UTILITY INFRASTRUCTURE, AS INDICATED ON THESE PLANS, SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE MAINTAINED BY THE OWNER, AS REQUIRED BY COLORADO SPRINGS UTILITIES' LINE EXTENSION AND SERVICE STANDARDS.	
<input checked="" type="checkbox"/> PUBLIC FACILITIES PROPOSED	<input checked="" type="checkbox"/> PRIVATE FACILITIES PROPOSED
SIGNED: Kyle Melvin OWNER/DEVELOPER El Paso County Parks, Kyle Melvin, Assistant Park Operations Division Manager OWNER/DEVELOPER (PRINT NAME)	Digitally signed by Kyle Melvin Date: 2022.03.02 10:25:03 -0600 DATE: <u>2 June 2022</u>
DBA: <u>El Paso County Parks</u>	
ADDRESS: <u>2002 Creek Crossing</u> <u>Colorado Springs, CO 80905</u>	
PHONE: <u>719.520.6976</u>	
EMAIL: <u>KyleMelvin@ElPasoCo.com</u>	

FIMS MAP NUMBER:	E 35 & E 36
TAX SCHEDULE NO.:	7400000153
PRESSURE ZONE:	Highline (potable)
STATIC PRESSURE AT MDD:	90 PSI (nominal)
UTILITY DESIGN CAD FILE NO.:	
UAP FILE NO:	
DEVELOPMENT PLAN NO.:	n/a
APPROVAL DATE:	n/a
PLAT REC. NO.:	n/a
PUBLIC UTILITY EASEMENT REC. NO:	7400000302
NOTICE OF PRIVATE WASTEWATER SYSTEM REC. NO.:	n/a
NOTICE OF PRIVATE WATER SYSTEM REC. NO.:	n/a

COLORADO SPRINGS UTILITIES NONPOTABLE WATER MAIN DESIGN APPROVAL	
APPROVED 08/01/2022 10:26:59 AM dmakings Nonpotable Water Colorado Springs Utilities It's how we're all connected	PROJECT NUMBER: <u>_2022-N001</u> WORK ORDER NUMBER: <u>_3829251</u> CSU SHEET <u>_1</u> OF <u>_3</u>
APPROVAL EXPIRES ONE (1) YEAR FROM THE DATE ABOVE AND RESUBMITTAL OF THESE PLANS FOR REVIEW AND APPROVAL IS REQUIRED IF CONSTRUCTION DOES NOT BEGIN DURING THIS PERIOD.	



Landscape Architecture | Planning | Xeriscape | LEED Services
Xeriscape | Project Management | Irrigation Design

Tapis Associates, Inc.

540 Buckeye
Terrace Level
Colorado Springs, CO 80919
719.359.2813 CELL
719.593.1540 OFFICE

Bear Creek Park Irrigation Nonpotable Conversion

Bear Creek Park
2002 Creek Crossing
Colorado Springs, CO 80905

Sheet Title:

Cover Sheet

Summary of Work
Approvals
Sheet Index

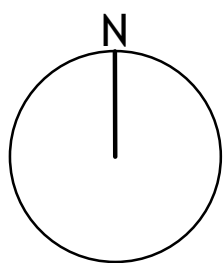
Revisions

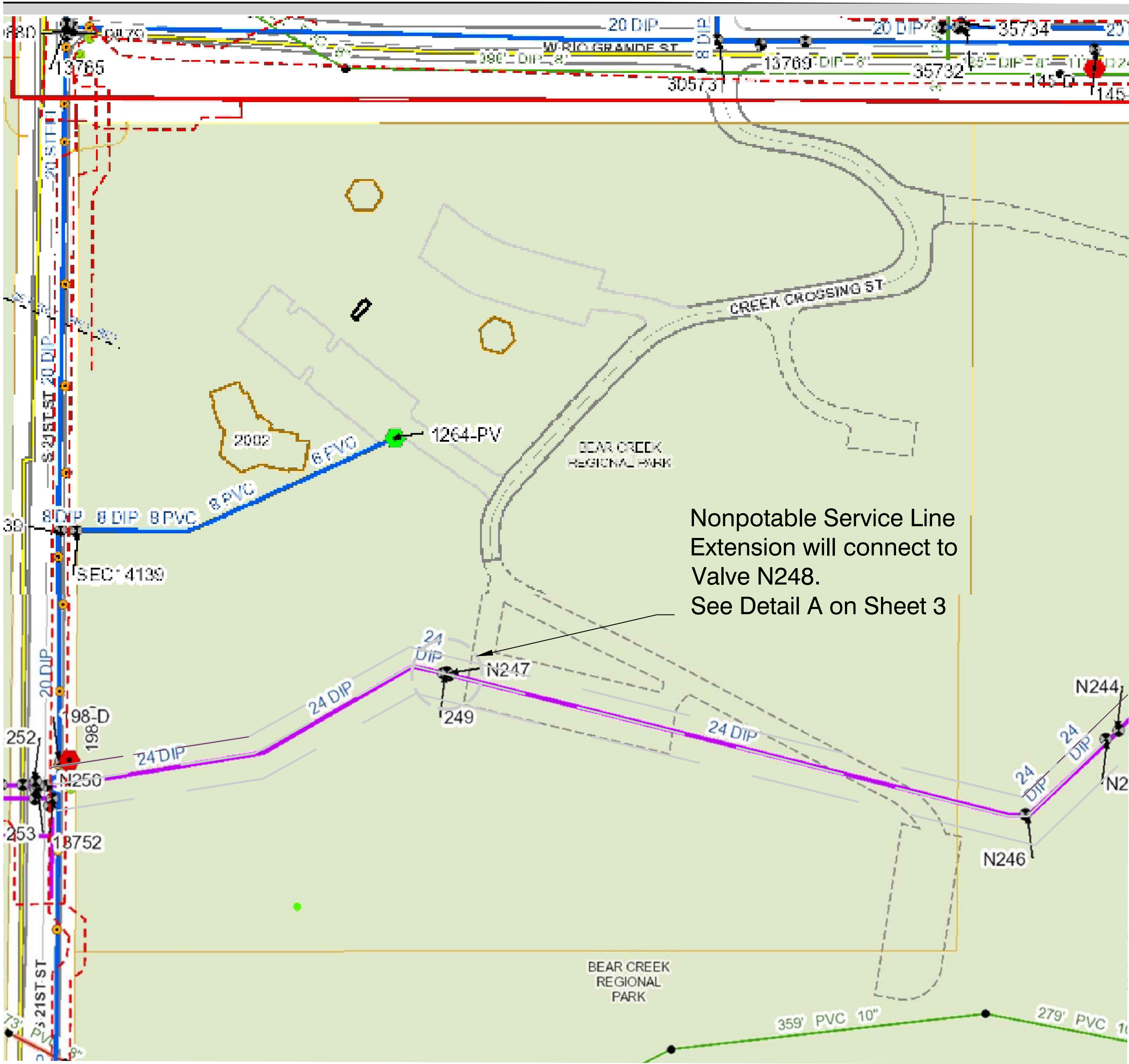
Number	Description	Date
1)	K Melvin Signature	3 Jun 2022

Project Number: 2022-N001

Scale: as noted
Sheet
Date: 3 June 2022

1
of 5





Adjacent Utility Mains

1" = 100'

Colorado Springs Utilities Water Plan Notes

THE CONTRACTOR SHALL NOTIFY COLORADO SPRINGS UTILITIES' INSPECTION OFFICE 719-668-4658 A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION

GENERAL:

- ALL CONSTRUCTION METHODS AND MATERIALS SHALL MEET COLORADO SPRINGS UTILITIES' WATER LINE EXTENSION AND SERVICE STANDARDS (WaterLESS).
- THE CONTRACTOR SHALL OBTAIN UNDERGROUND UTILITY LOCATES PRIOR TO ANY EXCAVATION.
- COLORADO SPRINGS UTILITIES DOES NOT GUARANTEE THE ACCURACY OF LOCATIONS OF EXISTING PIPELINES, HYDRANTS, VALVES, AND SERVICE LINES.
- NO TREES OR STRUCTURES ARE PERMITTED WITHIN FIFTEEN FEET (15') OF A WATER MAIN.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITY FACILITIES AS A RESULT OF HIS ACTIONS. THE CONTRACTOR SHALL MAKE ALL THE REQUIRED REPAIRS IMMEDIATELY TO THE SATISFACTION OF COLORADO SPRINGS UTILITIES.
- ALL FIELD STAKING SHALL COMPLY WITH THE WaterLESS.
- THE CONTRACTOR SHALL MAKE THEIR BEST EFFORT TO ENSURE THAT WATER SERVICE TO ADJACENT PROPERTIES IS MAINTAINED DURING CONSTRUCTION.
- CORROSION PROTECTION MEASURES SHALL COMPLY WITH THE WaterLESS.
- NO SERVICE TAPS WILL BE ALLOWED UNTIL THE MAIN IS EXTENDED TO THE NEXT MAIN-LINE VALVE.
- NO SERVICE TAPS SHALL BE MADE UNTIL AUTHORIZATION HAS BEEN GRANTED BY THE COLORADO SPRINGS UTILITIES' INSPECTOR.
- ALL BENDS SHALL BE FIELD STAKED PRIOR TO CONSTRUCTION AND THE STATIONING ON THE FIELD STAKES SHALL MATCH THE STATIONING OF THE PLANS.
- FIELD MODIFICATIONS TO A FIRE SERVICE LINE OR FIRE HYDRANT DESIGN OR LOCATION MAY NEED TO BE APPROVED BY THE DESIGN ENGINEER, COLORADO SPRINGS FIRE DEPARTMENT AND COLORADO SPRINGS UTILITIES, AS REQUIRED BY THE INSPECTOR.
- REUSE OR SALVAGE OF ANY MATERIAL IS LEFT TO THE DISCRETION OF THE COLORADO SPRINGS UTILITIES INSPECTOR.
- ALL TRENCH BACKFILL AND COMPACTION SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE CITY OF COLORADO SPRINGS STANDARD SPECIFICATIONS MANUAL.
- ALL WATER SERVICE LINES SHOULD ENTER THE BUILDING WITHIN 3 FEET OF AN EXTERIOR WALL. EXPOSED WATER PLUMBING SHALL BE MINIMIZED INSIDE THE BUILDING PRIOR TO THE WATER METER AND/OR APPROVED BACKFLOW PREVENTION ASSEMBLY OR METHOD.

Nonpotable Water Construction Plan Notes

- NONPOTABLE WATER SHALL ONLY BE UTILIZED FOR NONPOTABLE WATER PURPOSES. IT IS NEITHER SUITABLE NOR INTENDED FOR HUMAN CONSUMPTION.
- ALL NONPOTABLE WATER PIPING, VALVES, OUTLETS AND FIXTURES, AND OTHER APPURTENANCES SHALL BE COLOR-CODED IN CONFORMANCE WITH THE NATIONAL INDUSTRIAL COLOR CODE (NICC) AND SECTION 4.7 OF THE WaterLESS.
- ALL NEW BURIED DISTRIBUTION PIPING IN THE NONPOTABLE WATER DISTRIBUTION SYSTEM SHALL BE COLORED PURPLE PIPE AND EMBOSSED OR BE STAMPED/MARKED "CAUTION-NONPOTABLE WATER DO NOT DRINK"; OR BE INSTALLED WITH PURPLE IDENTIFICATION TAPE, OR A PURPLE POLYETHYLENE VINYL WRAP, AS APPROVED BY COLORADO SPRINGS UTILITIES.
- ALL NONPOTABLE WATER VALVES, OUTLETS, PUBLIC ENTRANCES AND BOUNDARIES OF AREAS IRRIGATED WITH NONPOTABLE WATER, AND ANY PORTABLE EQUIPMENT USED TO DISTRIBUTE NONPOTABLE WATER SHALL BE TAGGED OR SIGNED WITH THE FOLLOWING WORDS "NONPOTABLE WATER DO NOT DRINK".
- VALVES SHALL BE THE SAME SIZE AS THE NONPOTABLE MAIN/FITTING. VALVES INSTALLED ON NONPOTABLE WATER MAINS SHALL BE OPEN TO THE LEFT (COUNTER-CLOCKWISE) WITH A BLACK OPERATING NUT AND A PURPLE VALVE LID.



Utilities and Irrigation

- Potable Water Water Main and service line
- Nonpotable Water Main
- Nonpotable Water Main Easement
- Irrigation Mainline Existing
- New Nonpotable Irrigation Mainline Connection
- Limits of Irrigation

Site Improvements - Aerial Photograph

1" = 100'

Colorado Springs Utilities Water Plan Notes

Applicable	Not Applicable	WATER PROJECT-SPECIFIC NOTES
<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANY EXISTING STUBS AND APPURTENANCES THAT WILL NOT BE USED SHALL BE REMOVED AND REPLACED WITH AN ACCEPTABLE SECTION OF MAIN AT THE EXPENSE OF THE CONTRACTOR.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	A CONNECTION TO AN EXISTING STUB IS PROPOSED. COLORADO SPRINGS UTILITIES DOES NOT GUARANTEE THE ACCURACY OF THE DEPTHS OR LOCATIONS OF EXISTING STUBS SHOWN ON ANY "AS-BUILT" DRAWINGS.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	A WATER STUB-OUT(S) IS/ARE PROPOSED. COLORADO SPRINGS UTILITIES DOES NOT GUARANTEE THAT THE DESIGN OR INSTALLATION OF THE PROPOSED WATER STUB-OUT WILL MEET FUTURE DEVELOPMENT NEEDS.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	A WATER QUALITY PLAN HAS BEEN APPROVED FOR THIS PROJECT.

COLORADO SPRINGS UTILITIES NONPOTABLE WATER MAIN DESIGN APPROVAL	
APPROVED 08/01/2022 10:26:46 AM dmakings Nonpotable Water	PROJECT NUMBER: 2022-N001
Colorado Springs Utilities It's how we're all connected	WORK ORDER NUMBER: 3829251
	CSU SHEET 2 OF 3
APPROVAL EXPIRES ONE (1) YEAR FROM THE DATE ABOVE AND RESUBMITTAL OF THESE PLANS FOR REVIEW AND APPROVAL IS REQUIRED IF CONSTRUCTION DOES NOT BEGIN DURING THIS PERIOD.	



Bear Creek Park
Irrigation
Nonpotable
Conversion

Bear Creek Park
2002 Creek Crossing
Colorado Springs, CO 80905

Sheet Title:

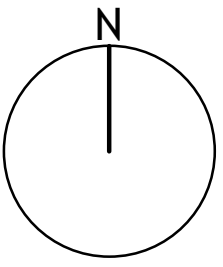
Nonpotable Service
Line Extension
Adjacent Utilities
Water Plan Notes

Revisions
Number
Description
Date

Project Number: 2022-N001

Scale: as noted Date: 20 Jan 2022

Sheet



540 Buckeye
Terrace Level
Colorado Springs, CO 80919


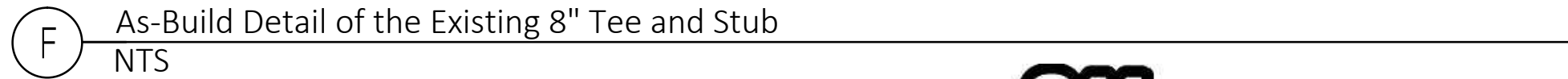
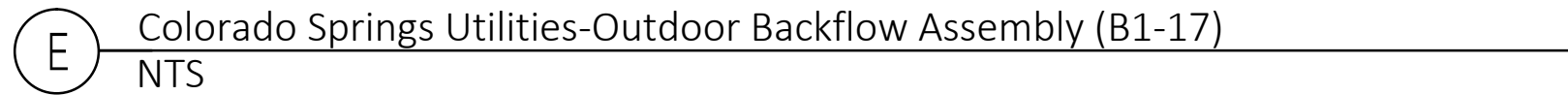
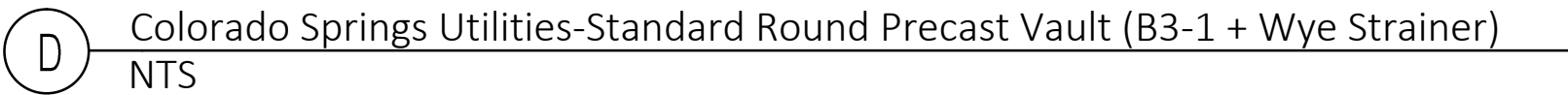
719.359.2813 CELL
719.593.1540 OFFICE

Bear Creek Park
2002 Creek Crossing
Colorado Springs, CO 80905

Details - Colorado Springs Standard

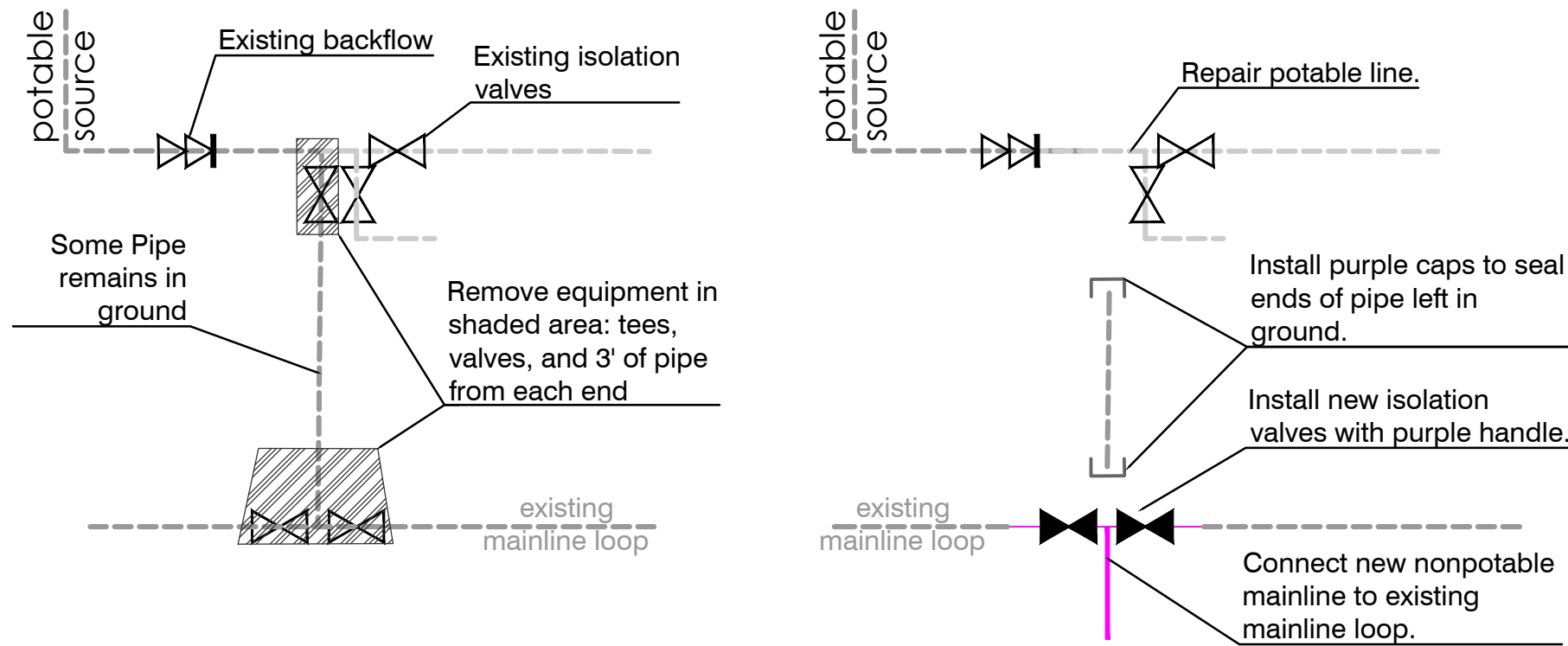
Project Number: 2022-N001

4 of 5

A circle with a vertical line segment from the center to the top edge, labeled 'N'.

Modify Existing Irrigation System Mainline

nts



Demolition

Nonpotable Connection to Existing Mainline

Replace Valve Control Wiring with New Wire

Trench and install in conduit an estimated new wiring as indicated with dashed line --- on plan. Wiring will extend from controller location in building to each valve, master valve and sensor.

Run wire in schedule 80 PVC conduit at 12" depth. Size conduit for the number of conductors.

Locate conduit 3' off mainline to facilitate maintenance. Coordinate with owner's representative to locate mainline. Estimated 1600' of conduit needed.

Use 12 AWG common wire. Use 14 AWG zone wire to all zones. Include 3 extra wires to all valve boxes.

Wiring will cross footbridge in galvanized conduit. Coordinate bridge attachments and installation with Owner's Representative.

Existing Irrigation System Diagram

1" = 40'

Add/Alternate Bid Items

- Procure new irrigation controller and install inside the building. Provide electrical supply and connections to valves and sensors.
- Replace all valve box covers with purple covers. Change handles to purple. Coordinate with Owners Representative to paint or mark valves and heads. Raise boxes as needed.
- Adjust all heads as necessary. Replace heads that need to be raised and any broken equipment with new parts as shown in the Equipment and Pipe Schedule.

Connect new control wires to existing conrol wires at this point to control valves on playground and east side of entry. If existing wires are not operational, replace with new wires in conduit.

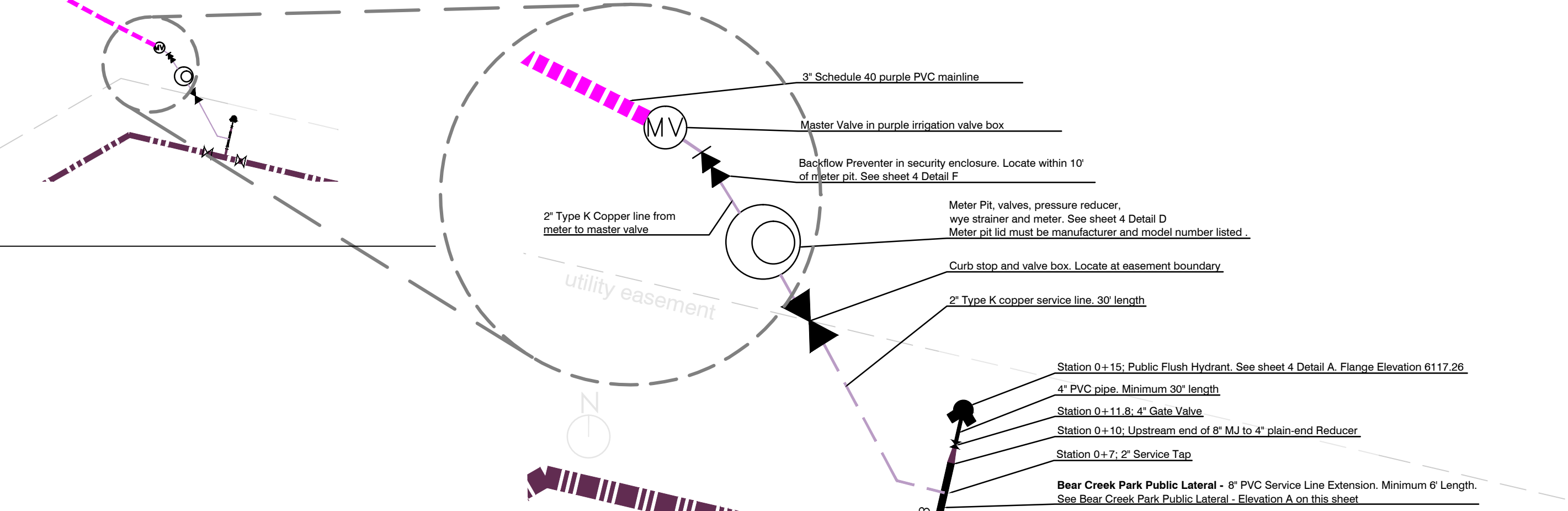
Equipment and Pipe Schedule

Irrigation Equipment	Size	Manufacturer & Model	Notes
Backflow Prevention Device	2"	Febco 825VA	Sized for flow requirements; may not match mainline size.
Irrigation Controller		RME-30EG-W-T Irritrol Rainmaster Eagle	Equip with Internet Control Module. Will be used with iCentral web-based software.
Master Valve	1.5"	Rainbird 150PESB-R	Equip with PEB-NP-HAN2 Purple Handle
Flow Sensor		Irritrol FS-200 2" PVC Flow Sensor	Sized for flow requirements; may not match mainline size.
Zone Valves - New + Replacement	as needed	Rainbird PESB-R Use 1" or 1.5" Valve	Equip with PEB-NP-HANx Purple Handle Size for flow of zone.
Spray Zone Valves - Existing	1.5"	Weathermatic Brass	Paint flow control handle purple. Install purple cover on valve box
Drip Zone Control Kit - New	1"	Rainbird XCZ-100-PRB-LC Wide Flow Commercial Control Zone Kit with 40 psi pressure-regulating filter (or approved equivalent.)	Paint flow control handle purple
Rotors - New + Replacement	6" pop	Hunter I-20-06-R 6" pop-up with Purple Identifier	At 45 psi: 180" operation - Blue 4.0 Nozzle: 4 GPM, 40' radius, 0.48"/hr 360" operation - Blue 6.0 Nozzle 6 GPM, 43' radius, 0.24"/hr At 40 psi: 360" operation (nominal) 6.0 GPM, 47' radius, 0.26"/hr
Rotors - Existing		Maintenance Mix of Toro 640 and Hunter 4" PGP-Ultra with Blue 4.0 Nozzle	Purple Cap Pressure regulated to 45 psi.
Spray Bodies - New		Rainbird 1806-SAM-P45	Existing documentation specifies purple covers. Paint purple as necessary.
Spray Bodies - Existing		Maintenance Mix of Toro 570Z and Rainbird 1804 with spray nozzles	Rain sensor. Wireless may not work with controller inside building.
Rain Sensor		Irritrol RS-1000 Wired Rainsensor	
Quick-Connect Valves		None	
Zone Control Wiring		12 AWG UF Ground Wire 14 AWG UF Wire Valves and extra wires	Underground rated
Control Wire Grounding		None necessary	
Drip Emitters		Rainbird XB-xx-PC Xeri-bug Emitters	Maintain as needed
Locking Backflow Enclosure		Guardshack GS-2 or approved equivalent.	Equip with Guardshack FG-2 R-30 Frostguard Insulated Blanket. Locate outside utility easement; coordinate precise location with Owner's Representative.

Pipe Application	Size	Type	Notes
New Mainline	3"	Purple schedule 40 PVC	Purple ASTM D1785 PVC 1120 compound. Bury 24" below ground level
Existing Mainline	2"	Class 200 PVC	Looped. 24" below ground level
Existing Spray Lateral	1.25"	Polyethylene Pressure-rated pipe	
Existing Drip Lateral	1"	Polyethylene pipe	
Drip Distribution Pipe	1/2"	Polyethylene	Route underneath mulch; 12" below turf; stake every 24"
Sleeving	4"	Class 200 PVC	6" below paving

Install Nonpotable Point-of-Connection Equipment

1"=10'



Coordinate precise equipment location with Owner's Representative prior to installation.



Landscape Architecture | Planning | Xeriscape | LEED Services
Xeriscape | Project Management | Irrigation Design

Tapis Associates, Inc.

540 Buckeye
Terrace Level
Colorado Springs, CO 80919
719.359.2813 CELL
719.593.1540 OFFICE

Bear Creek Park Irrigation Nonpotable Conversion

Bear Creek Park
2002 Creek Crossing
Colorado Springs, CO 80905

Sheet Title:

Nonpotable Irrigation System Improvements

Revisions		
Number	Description	Date

Project Number: 2022-N001

Scale: as noted
Sheet
Date: 3 June 2022

5 of 5

