CONSULTING ENGINEERS

Utility Report

FOR

Salisbury Regional Park

AT

1700 MOTSENBOCKER RD
PARKER CO 80134FOR

Town of Parker

PARKER
COLORADO

June 6, 2025

June 6, 2025

Mr. Michael Walton, PE, CFM, Senior Development Review Engineer
Town of Parker – Engineering and Development
20120 E. Main Street
Parker, CO 80138

RE: Utility Report for Salisbury Regional Park
JVA, Inc. Project No. 3752c

Dear Michael,

As requested by the Town of Parker, JVA has prepared an analysis of the proposed utility design and conditions for the proposed development at Salisbury Regional Park. The following Utility Report is primarily intended to provide the water and wastewater demands based on the proposed site improvements. This report has been produced in accordance with the Town of Parker Design & Construction Standards.

It is our understanding that the information provided herein meets all requirements of the Town of Parker for the utility submission required for the Site Review submittal.

Please contact us if you have any questions regarding this submission.

Sincerely,

JVA, Inc.

Michael Santos
Design Engineer II

Utility Report

FOR

Salisbury Regional Park

AT

1700 MOTSENBOCKER RD
PARKER CO 80134

FOR

Town of Parker

20120 E. MAIN STREET PARKER, CO 80138

JVA, Inc.

Consulting Engineers

1675 Larimer Street, STE 550

Denver, CO 80202

(303) 444-1951

JVA, Inc. Project No. 3752c
June 6, 2025

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Utility Report - Salisbury Regional Park

SALISBURY REGIONAL PARK - UTILITY REPORT

I. INTRODUCTION

A. GENERAL LOCATION

The Town of Parker is proposing to develop the existing Salisbury Equestrian Park in Parker, Colorado. The site is bound to the west by Motsenbocker Road, to the northwest by Dransfeldt Road, and to the south by Salisbury Park South. Cherry Creek lies to the north, and there is Parker Water and Sanitary District pumping facility to the east. The subject property is 76.1 acres and lies within the Northwest ¼ of Section 27, Township 6 South, Range 6 West of the 6th Principal Meridian, Town of Parker, Conty of Douglas, State of Colorado. A vicinity map is included in Appendix A.

B. PROJECT DESCRIPTION

The proposed development includes the construction of four turf baseball/softball fields, two multipurpose synthetic fields, several pickleball and tennis courts, a Community Hub building, a Headquarters (HQ) building, two extra restroom buildings, an Overlook pavilion, two parking lots, and a new roadway through the site. The proposed development will be sequenced out into four phases as described below.

- Phase 1: This phase will include building four turf baseball and softball fields and the nearby Headquarters buildings. It also includes two parking lots, sections of the new roadway, and essential utilities throughout the site. Multipurpose synthetic fields, baseball bleachers and batting cages, and a playground are included in this phase as alternates depending on budget.

- Phase 2: Improvements in this phase will include the Hub building, several pickleball and tennis courts and a nearby restroom building, extending the northeast parking lot, and adding a new section of roadway with head-in parking. Utilities will also be extended throughout this area.

- Phase 3: In this phase, the construction will focus on two basketball courts, a playground, and a restroom building. Another section of the new roadway with head-in parking and utilities will be added to the site.

- Phase 4**:** This final phase will include building an overlook pavilion, a dog park, and additional utilities throughout the site.

Phase 1 planned utility upgrades feature a public water loop with four fire hydrants for added fire protection and a public sanitary main with a private service line for the Headquarters building. A single 4-inch irrigation meter is proposed, and water and sanitary service stubs will be constructed to one of the future buildings. The irrigation stub will also include a meter. Water service meters will be included internal to the building.

II. Water Demands and Surrounding Water System

A. Existing Water System

Based on the Topographic survey conducted by Aztec Consulting Inc. and dated 06/26/23, there is a an existing 16" DIP potable water main and a 24" DI raw water main located west of the park and within Motsenbocker Road, a 12" PVC potable main stubout to the site from the intersection of Motsenbocker and Dransfeldt, a 12" PVC potable water main southeast of our main site within the existing Salisbury South Park, and an existing 16" PVC raw water main running west to east through the site between the north and south parks.

Regarding water pressures in the area, Parker Water and Sanitation District (PWSD) reports 112 psi static pressure at an existing hydrant located in Salisbury Park South, and 118 psi pressure at the new stub into Salisbury North near the main park entrance.

B. Proposed Water System

Phase 1 will focus on constructing the Headquarters building, totaling 1,733 square feet. The proposed building is anticipated to be non-sprinklered with Type V-B construction as defined by the International Building Code. Per the 2021-International Fire Code, the required fire flow is expected to be 1,500 gpm and will require one hydrant for fire suppression. International Fire Code (IFC) tables and calculations are included in Appendix B. At this time, it is assumed that the hydrant service lines will be 6" DIP, and four new hydrants will be located on the site to provide adequate coverage.

For Phase 1, an 8" PVC water main loop through the site, connecting the new hydrants and the building service mentioned above, is proposed. This 8" loop will connect to the 12" stub located northwest of the site in Dransfeldt Road and to the existing 12" main near the existing Salisbury Equestrian Park, southeast of the site. The HQ building will have a 1" Type K Copper service line and a 1" meter internal to the building. Beyond the meter, the distribution piping will be 1.5" Type K Copper. Tees will also be installed on the 8" loop main where future connections are anticipated. See sheet C1-200, Phase 1 Overall Utility Plan, in Appendix A for layout details.

All portions of the 8" loop main will become public infrastructure at time of acceptance. The building service stubs are to be owned and maintained by the Town. Refer to Appendix A for layouts of the existing and proposed systems.

For the proposed HQ building, the plumbing engineer anticipates a maximum water demand of 63.8 gpm. The plumbing demand calculations are included in Appendix B.

To ensure the existing main can supply the needed pressure to meet the demands with the proposed layout, a WaterGEMS model was created and run for two scenarios: peak hour demand and peak-day demand with fire-flow. The first model represents peak-hour demand without fire flow in which flow velocity must remain below 4 fps and pressure must remain above 40 psi. The second model represents peak-day demand with fire flow in which flow velocity remains below 8 fps and

pressure remains above 20 psi. The two models, both of which meet the above criteria, are shown in Appendix B.

A 4" irrigation stub was sized by the Irrigation Designer to provide 360 GPM of demand. The landscape worksheet for tap sizing for dedicated irrigation taps is shown in Appendix B. All work is proposed to be in conformance with the Town of Parker Standards.

III. Sanitary Sewer Demands and Conveyance System

A. Existing Sanitary Sewer System

Based on the Topographic survey conducted by Aztec Consulting Inc. and dated 06/26/23, there is an existing 24" PVC sanitary main running west-east on the north side of the site. There are also two existing sanitary sewer lines in Motsenbocker Road with pipe size and material not identified.

B. Proposed Sanitary Sewer System

For the proposed Headquarters building, the plumbing engineer anticipates a maximum sewer service demand of 54.6 gpm. The plumbing demand calculations are included in Appendix B. It was determined that a 4" diameter service line can adequately convey these demands. The sanitary model is shown in Appendix B.

The proposed HQ building will be serviced by a 4" PVC sanitary service line which will be tapped into a proposed 8" PVC sanitary main. The proposed 8" sanitary main will tie-in to the existing 24" sanitary main to the north with a manhole. All work is proposed to be in conformance with the Town of Parker Standards. Refer to the proposed layout in the drawings provided in Appendix A.

IV. Storm Sewer System

For the proposed stormwater improvements, please refer to the Preliminary Stormwater Report prepared by JVA, Inc.

V. Groundwater System

According to the Geotechnical Engineering Report prepared by Ninyo & Moore Geotechnical and Environmental Sciences Consultants, Inc. and dated November 10, 2023, groundwater was present on the site at depths ranging from 4 to 16 feet below existing grade.

Groundwater levels can change due to seasonal rainfall, nearby water sources, and groundwater extraction. Heavy rainfall can create perched water at the soil-bedrock interface. These fluctuations should be considered in construction planning. While groundwater isn't expected to hinder park facility construction, dewatering may be necessary to install underground utilities and foundations close to the groundwater table.

VI. Dry Utility System

Dry utilities and the construction of new building services will be coordinated between the dry utility consultant, the Owner, and the respective utility providers. Transformer and generator equipment will be sized by the project MEP and utility owners.

VII. Conclusions

Phase 1 will include the installation of an 8" water main loop across the site, connecting the existing 12" stubout in Dransfeldt Lane to the existing 12" main between the north and south Salisbury Park sites. Additionally, an 8" sanitary main extension will be connected to the existing 24” main. The HQ building sanitary service from this proposed 8” main will be 4” PVC.

A new 1” Type K Copper service line and internal water meter are proposed for the HQ building. An additional water meter is proposed for the irrigation connection (4” DIP). Sizing and demands are listed below.

- Headquarters: 1” Type K Copper service with 1.5” distribution lines sized for a 63.8 gpm peak hour demand
- Irrigation Stub: 4” DIP sized for a 360 GPM demand

Per IFC, the HQ building will be Type V-B construction, non-sprinklered. An external fire suppression demand of 1,500 gpm will be provided by a nearby hydrant. Four total hydrants are provided in Phase 1 within reach of the building and parking areas.

REFERENCES

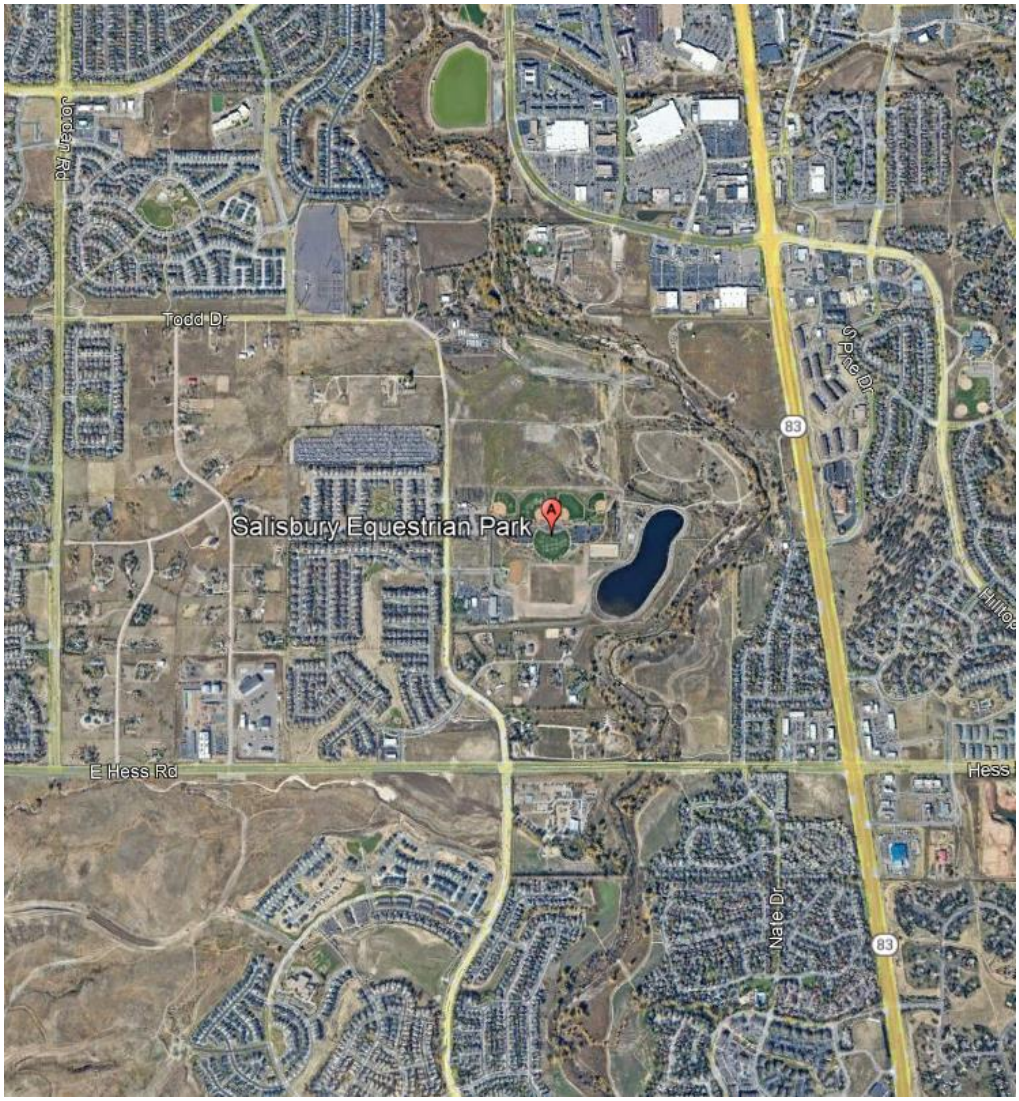
1. "Wastewater Collection System Master Plan," July 2016.
2. "International Fire Code," 2021 Edition.

APPENDIX A – SITE MAPS

Salisbury Park North

Development

AT
11700 Motsenbocker Road
Parker, CO



VICINITY MAP NOT TO SCALE

THE LINE SHOWN ABOVE IS 1" WHEN PLOTTED AT 11"X17" SHEETS ORIGINAL PAGE SIZE

THE SQUARES ABOVE ARE (FROM LEFT TO RIGHT) BLACK, YELLOW, MAGENTA & CYAN RESPECTIVELY

K Y M C

D

C

B

A

1 2 3 4 5

DRANSFELDT RD
ROW VARIES

MOTSENBOCKER RD
ROW VARIES

LONGLAND PKWY

NON-EXCLUSIVE ACCESS AND UTILITY EASEMENT BOOK 958, PAGE 811

30' PARKER WATER AND SANITATION DISTRICT EASEMENT BOOK 1950, PAGE 687

4" MH (TIE-IN TO EXIST MAIN)

8" PVC SANITARY MAIN

4' SAN MH (TYP)

FIRE HYDRANT

6" HYDRANT LINE

PHASE 3 8" PVC WATER MAIN EXTENSION

8" PVC POTABLE WATER MAIN EXTENSION

8"X12" REDUCING TEE

EXCLUSIVE 30.00' PWSD EASEMENT BY SEPARATE DOCUMENT

12" PVC POTABLE WATER CONNECTION TO DRANSFELDT ROAD STUB

SAN SERVICE

WATER SERVICE

COMMUNITY HUB BUILDING (PHASE 2)

PHASE 1 8" PVC WATER MAIN (SEE SHEET C1-200)

ELECTRICAL SERVICE #1 PEDESTAL (RE: ELECT)

10' UTILITY EASEMENT REC NO. 2009096862

NEMA 3R ENCLOSURE TO HOUSE PANELS & FIELD LIGHTING CONTROL EQUIPMENT (RE: ELECT, ALT 1)

WATER FOUNTAIN

CORE ABOVE-GROUND TRANSFORMER (RE: ELECT)

SAN SERVICE PLAYGROUND RESTROOM BUILDING (PHASE 3)

WATER SERVICE

4" SAN SERVICE

1" WATER SERVICE

CORE ABOVE-GROUND TRANSFORMER (RE: ELECT)

8" PVC POTABLE WATER MAIN EXTENSION

6" HYDRANT LINE

FIRE HYDRANT

EXCLUSIVE 30.00' PWSD EASEMENT BY SEPARATE DOCUMENT

HEADQUARTERS BUILDING

4" SAN SERVICE

EASEMENT AGREEMENT BOOK 1238, PAGE 2110

25' PERMANENT PARKER WATER AND SANITATION DISTRICT EASEMENT REC NO. 2017046082

EXIST SANITARY SEWER (CONFIRM PIPE SIZE & MATERIAL)

EXIST 16" DIP POTABLE WATER

EXIST 24" DI RAW WATER

25' PERMANENT PARKER WATER AND SANITATION DISTRICT EASEMENT REC NO. 2017046082

ELECTRICAL SERVICE #2 PEDESTAL (RE: ELECT)

EXIST 16" PVC RAW WATER

10' UTILITY EASEMENT REC NO. 2009096862

EXIST 12" PVC WATER

25' PERMANENT PARKER WATER AND SANITATION DISTRICT EASEMENT

30' WIDE NON-EXCLUSIVE STORM DRAIN EASEMENT BOOK 2270 PAGE 688

ELECTRICAL SERVICE #3 PEDESTAL (RE: ELECT)

6" HYDRANT LINE

FIRE HYDRANT

10' UTILITY EASEMENT REC. NO. 2009096862

WATER SERVICE

30' WIDE NON-EXCLUSIVE WATER MAIN EASEMENT BOOK 1238, PAGE 2115

DRAINAGE EASEMENT REC. NO. 2005029933

SPORTS COURT BUILDING (PHASE 2)

8" PVC POTABLE WATER CONNECTION TO 12" PVC MAIN

E 1/2, NW 1/4, SEC. 27, T.6S., R.66W., SIXTH P.M.

EAST LINE OF THE W 1/2 NW 1/4 OF SEC. 27

UNPLATTED REC. NO. 2022004485

UNPLATTED REC. NO. 2007021306

REC. NO. 2007021306

SALISBURY EQUESTRIAN

UTILITY NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
2. CONTRACTOR TO POTHOLE EXISTING UTILITIES AT PROPOSED UTILITY CROSSINGS IN ROW PRIOR TO CONSTRUCTION.
3. ALL DRY UTILITY AND ELECTRIC DESIGNS ARE PROVIDED BY OTHERS AND SHOWN FOR REFERENCE ONLY. SEE MEP PLANS AND SPECIFICATIONS AND COORDINATE WITH ALL UTILITY OWNERS AS NEEDED.
4. CONTRACTOR TO MARK ALL UTILITY STUBS WITH MARKERS.
5. ANY PROPOSED UTILITY CONNECTION WITHIN AN EXISTING ROADWAY WITHIN PUBLIC RIGHT OF WAY WILL REQUIRE A TOWN RIGHT-OF-WAY PERMIT PRIOR TO COMMENCING WORK. THE TOWN REQUIRES CONNECTIONS TO BE BORED TO THE EXTENT POSSIBLE, AND ANY STREET CUT ALLOWED BY THE TOWN WILL BE REQUIRED TO BE PATCHED ACCORDING TO THE TOWN'S CONSTRUCTION STANDARDS AND DETAILS. THE LIMITS OF PATCHING WILL BE DETERMINED BY THE TOWN AT THE TIME OF CONSTRUCTION. THE TOWN OF PARKER DOES NOT ALLOW ROADWAY CLOSURES FOR UTILITY WORK.

All fire hydrants shall be installed according to water utility standards. The number and locations of the fire hydrants as shown on the Overall Utility Plan are correct as specified by the Town of Parker, Community Development Department.

Fire Code Official or Designated Representative — Date

(NOTE – Underground Fire Line (UFL) submittal documents must meet the requirements of NFPA 24 when submitting for review.)

N

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SCALE IN FEET

hord | coplan | macht

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IRRIGATION
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Littleton, CO 80127
p. 303.986.2175

MECHANICAL ENGINEER
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9777 Pyramid Court, #260
Englewood, CO 80112
p. 303.688.0223

Town of Parker
SALISBURY REGIONAL PARK - PHASE 1
11700 MOTSENBOCKER RD
PARKER, CO 80134

ARCHITECTURE

LANDSCAPE ARCHITECTURE

PLANNING

INTERIOR DESIGN

	DATE	DESCRIPTION

Project Number:	223072.00
Sheet Issue Date:	2025-06-06
Drawn By:	AMF/KAM/MJS
Checked By:	WTP/CWK/CFG

Key Map

Drawing

OVERALL UTILITY PLAN (FUTURE)

C-200

SITE PLAN SUBMITTAL

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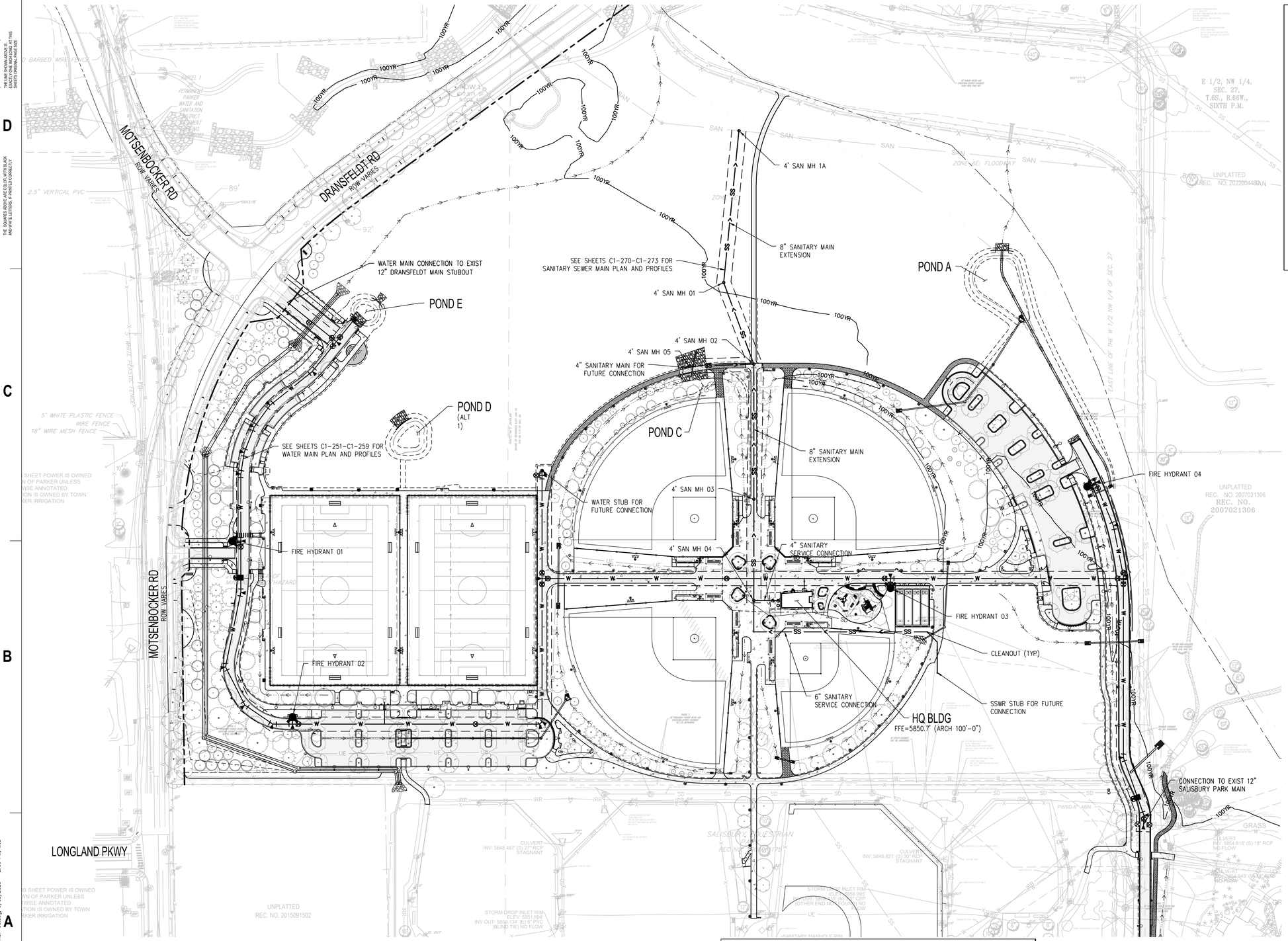

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3. ALL DRY UTILITY AND ELECTRIC DESIGNS ARE PROVIDED BY OTHERS AND SHOWN FOR REFERENCE ONLY. SEE MEP PLANS AND SPECIFICATIONS AND COORDINATE WITH ALL UTILITY OWNERS AS NEEDED.
4. CONTRACTOR TO MARK ALL UTILITY STUBS WITH MARKERS.
5. DESIGN AND CONSTRUCTION MUST COMPLY WITH PWSD UTILITY NOTES.
6. ANY PROPOSED UTILITY CONNECTION WITHIN AN EXISTING ROADWAY WITHIN PUBLIC RIGHT-OF-WAY WILL REQUIRE A TOWN RIGHT-OF-WAY PERMIT PRIOR TO COMMENCING WORK. THE TOWN REQUIRES CONNECTIONS TO BE BORED TO THE EXTENT POSSIBLE, AND ANY STREET CUT ALLOWED BY THE TOWN WILL BE REQUIRED TO BE PATCHED ACCORDING TO THE TOWN'S CONSTRUCTION STANDARDS AND DETAILS. THE LIMITS OF PATCHING WILL BE DETERMINED BY THE TOWN AT THE TIME OF CONSTRUCTION. THE TOWN OF PARKER DOES NOT ALLOW ROADWAY CLOSURES FOR UTILITY WORK.

The Town of Parker review constitutes general compliance with the Town's Standards and approved variances, subject to these plans being stamped, signed, and dated by the professional engineer of record. Review by the Town does not constitute approval of the plan design or accuracy and correctness of engineering calculations. Errors in the design or calculations remain the responsibility of the registered professional engineer whose stamp and signature are affixed to this document.

This review does not constitute approval of any private on-site improvements which may be shown. Construction cannot commence until all required drainage/traffic report(s), final development plan(s), special review(s), grading permit, and/or other permits are complete, approved and on file with the Town of Parker.

Town of Parker, Director of Engineering Date

All fire hydrants shall be installed according to water utility standards. The number and locations of the fire hydrants as shown on the Overall Utility Plan are correct as specified by the Town of Parker, Community Development Department.

Fire Code Official or Designated Representative Date

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SALISBURY REGIONAL PARK - PHASE 1
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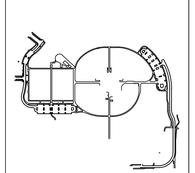


Drawing

PHASE 1 OVERALL UTILITY PLAN

C1-200

SITE PLAN SUBMITTAL

APPENDIX B – CALCULATIONS, TABLES AND REFERENCES

Fire Hydrant Calculations:

VB Construction Type, s-1 Occupancy, non-Sprinklered, bldg heights 35-45'

Bldg	Bldg floor area (sf)
HQ	1,733

HQ BUILDING

TABLE B105.1(2) REFERENCE TABLE FOR TABLES B105.1(1) AND B105.2

FIRE-FLOW CALCULATION AREA (square feet)					FIRE FLOW (gallons per minute)[b]	FLOW DURATION (hours)
Type IA and IB[a]	Type IIA and IIIA[a]	Type IV and V-A[a]	Type IIB and IIIB[a]	Type V-B[a]		
0–22,700	0–12,700	0–8,200	0–5,900	0–3,600	1,500	2
22,701–30,200	12,701–17,000	8,201–10,900	5,901–7,900	3,601–4,800	1,750	
30,201–38,700	17,001–21,800	10,901–12,900	7,901–9,800	4,801–6,200	2,000	
38,701–48,300	21,801–24,200	12,901–17,400	9,801–12,600	6,201–7,700	2,250	
48,301–59,000	24,201–33,200	17,401–21,300	12,601–15,400	7,701–9,400	2,500	
59,001–70,900	33,201–39,700	21,301–25,500	15,401–18,400	9,401–11,300	2,750	
70,901–83,700	39,701–47,100	25,501–30,100	18,401–21,800	11,301–13,400	3,000	3
83,701–97,700	47,101–54,900	30,101–35,200	21,801–25,900	13,401–15,600	3,250	
97,701–112,700	54,901–63,400	35,201–40,600	25,901–29,300	15,601–18,000	3,500	
112,701–128,700	63,401–72,400	40,601–46,400	29,301–33,500	18,001–20,600	3,750	
128,701–145,900	72,401–82,100	46,401–52,500	33,501–37,900	20,601–23,300	4,000	4
145,901–164,200	82,101–92,400	52,501–59,100	37,901–42,700	23,301–26,300	4,250	
164,201–183,400	92,401–103,100	59,101–66,000	42,701–47,700	26,301–29,300	4,500	
183,401–203,700	103,101–114,600	66,001–73,300	47,701–53,000	29,301–32,600	4,750	
203,701–225,200	114,601–126,700	73,301–81,100	53,001–58,600	32,601–36,000	5,000	
225,201–247,700	126,701–139,400	81,101–89,200	58,601–65,400	36,001–39,600	5,250	
247,701–271,200	139,401–152,600	89,201–97,700	65,401–70,600	39,601–43,400	5,500	
271,201–295,900	152,601–166,500	97,701–106,500	70,601–77,000	43,401–47,400	5,750	
295,901–Greater	166,501–Greater	106,501–115,800	77,001–83,700	47,401–51,500	6,000	
—	—	115,801–125,500	83,701–90,600	51,501–55,700	6,250	
—	—	125,501–135,500	90,601–97,900	55,701–60,200	6,500	
—	—	135,501–145,800	97,901–106,800	60,201–64,800	6,750	
—	—	145,801–156,700	106,801–113,200	64,801–69,600	7,000	
—	—	156,701–167,900	113,201–121,300	69,601–74,600	7,250	
—	—	167,901–179,400	121,301–129,600	74,601–79,800	7,500	
—	—	179,401–191,400	129,601–138,300	79,801–85,100	7,750	
—	—	191,401–Greater	138,301–Greater	85,101–Greater	8,000	

For SI: 1 square foot = 0.0929 m^2, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. Types of construction are based on the *International Building Code*.
b. Measured at 20 psi residual pressure.

TABLE B105.2 REQUIRED FIRE FLOW FOR BUILDINGS OTHER THAN ONE- AND TWO-FAMILY DWELLINGS, GROUP R-3 AND R-4 BUILDINGS AND TOWNHOUSES

AUTOMATIC SPRINKLER SYSTEM (Design Standard)	MINIMUM FIRE FLOW (gallons per minute)	FLOW DURATION (hours)
No automatic sprinkler system	Value in Table B105.1(2)	Duration in Table B105.1(2)
Section 903.3.1.1 of the *International Fire Code*	25% of the value in Table B105.1(2)[a]	Duration in Table B105.1(2) at the reduced flow rate
Section 903.3.1.2 of the *International Fire Code*	25% of the value in Table B105.1(2)[b]	Duration in Table B105.1(2) at the reduced flow rate

For SI: 1 gallon per minute = 3.785 L/m.

a. The reduced fire flow shall be not less than 1,000 gallons per minute.
b. The reduced fire flow shall be not less than 1,500 gallons per minute.

HQ BUILDING

TABLE C102.1 REQUIRED NUMBER AND SPACING OF FIRE HYDRANTS[h]

FIRE-FLOW REQUIREMENT (gpm)	MINIMUM NUMBER OF HYDRANTS	AVERAGE SPACING BETWEEN HYDRANTS[a, b, c, f, g] (feet)	MAXIMUM DISTANCE FROM ANY POINT ON STREET OR ROAD FRONTAGE TO A HYDRANT[d, f, g]
1,750 or less	1	500	250
1,751–2,250	2	450	225
2,251–2,750	3	450	225
2,751–3,250	3	400	225
3,251–4,000	4	350	210
4,001–5,000	5	300	180
5,001–5,500	6	300	180
5,501–6,000	6	250	150
6,001–7,000	7	250	150
7,001 or more	8 or more[e]	200	120

For SI: 1 foot = 304.8 mm, 1 gallon per minute = 3.785 L/m.

a. Reduce by 100 feet for dead-end streets or roads.
b. Where streets are provided with median dividers that cannot be crossed by fire fighters pulling hose lines, or where arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500 feet on each side of the street and be arranged on an alternating basis.
c. Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at spacing not to exceed 1,000 feet to provide for transportation hazards.
d. Reduce by 50 feet for dead-end streets or roads.
e. One hydrant for each 1,000 gallons per minute or fraction thereof.
f. A 50-percent spacing increase shall be permitted where the building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 of the *International Fire Code*.
g. A 25-percent spacing increase shall be permitted where the building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.2 or 903.3.1.3 of the *International Fire Code* or Section P2904 of the *International Residential Code*.
h. The fire code official is authorized to modify the location, number and distribution of fire hydrants based on site-specific constraints and hazards.

Water and Sanitation Size/Demand Calculations (Re: Plumb):

Job Title: Salisbury Park North - Headquarters and Restrooms
Job #: 023-039
Date 6/4/2025

2021 IPC DOMESTIC WATER SIZING IN ACCORDANCE WITH AWWA STANDARDS

PER APPENDIX E

WATER SUPPLY FIXTURE UNIT LOAD VALUES (1)										WASTE	
FIXTURE TYPE	OCCUPANCY	TYPE OF SUPPLY CONTROL	QTY	CW		HW		COMBINED HW & CW		FIX. DFU	TOTAL DFU
				PER FIX.	TOTAL	PER FIX.	TOTAL	PER FIX.	TOTAL		
Drinking Fountain	Public	Faucet	2	0.25	0.5	0	0	0.25	0.5	0.5	1
Kitchen Sink	Hotel/Restaurant	Faucet	0	3	0	3	0	4	0	2	0
Lavatory	Public	Faucet	5	1.5	7.5	1.5	7.5	2	10	1	5
Service Sink/Basin	Offices	Faucet	1	2.25	2.25	2.25	2.25	3	3	2	2
Urinal	Public	3/4" Flush Valve	1	5	5	0	0	5	5	2	2
Water Closet	Public	Flush Valve	7	10	70	0	0	10	70	4	28
Floor Drains- 2"			5	0	0	0	0	0	0	3	15
Indirect Waste-2"			1	0	0	0	0	0	0	3	3
Indirect Waste-4"			1	0	0	0	0	0	0	6	6
Handsink	Public	Faucet	0	1.5	0	1.5	0	2	0	1	0
TOTAL FU					85		10		88.50		62.00
TOTAL GPM (From Hunter's Curve or Demand Estimate Table)					62.8		27		63.8		54.6

WATER SERVICE SIZE	1"	Per 2021 IPC Table E104.1: Pressure over 60 psig, 87 WSFU allowed up to 400' of length, 200 feet calculated.
WATER METER SIZE	1"	Per 2021 IPC Table E104.1: Pressure over 60 psig, 87 WSFU allowed up to 400' of length, 200 feet calculated.
DISTRIBUTION SIZE	1-1/2"	Per 2021 IPC Table E104.1: Pressure over 60 psig, 87 WSFU allowed up to 400' of length, 200 feet calculated.
SANITARY SEWER SIZE	4"	Per 2021 IPC Table 710.1(1) at 1/8" per foot slope

Irrigation Tap Sizing Worksheet:

Salisbury Park - North - August , 2024

LANDSCAPE/IRRIGATION WORKSHEET

Tap sizing for dedicated irrigation taps

Yellow fields require user input

Irrigation Water Requirement = (ETo x PF x LA)/IE

Define Landscape & Irrigation System:

High Water Use Plant Material

*Cool season turfgrass (Kentucky bluegrass)

Plant Factor (PF, %)	High	0.9
Landscape Area (LA, sq ft)	365100	
Irrigation Efficiency (IE, %)	Overhead	0.65

High-Moderate Water Use Plant Material

*Hybrid grass types (Texas hybrids, fescue, etc.)

Plant Factor (PF, %)	High-Med	0.8
Landscape Area (LA, sq ft)		
Irrigation Efficiency (IE, %)	Overhead	0.65

Moderate Water Use Plant Material

*Traditional trees/shrubs/perennials, alternative grass types (buffalograss, blue grama, etc.)

Plant Factor (PF, %)	Med	0.5
Landscape Area (LA, sq ft)	0	
Irrigation Efficiency (IE, %)	Drip	0.9

Low Water Use Plant Material

*Xeric trees/shrubs/perennials, native grass mixes

Plant Factor (PF, %)	Low	0.25
Landscape Area (LA, sq ft)	592310	
Irrigation Efficiency (IE, %)	Overhead	0.65

*PWSD holds final discretion for determining appropriate plant factor designations based on landscape plan submission

Visit Appendix B of the SMWSA Model Ordinance for Plant Factor Guidelines

Site Summary:

Total Irrigated Area (sq ft)	957410
Avg Plant Factor (%)	0.50
Avg Irrigation Efficiency (%)	0.65

Peak monthly ET, Parker, CO:

Peak monthly ET (July):	7.56	in

Irrigation Water Requirement (IWR):

Peak monthly IWR:	3437286	gal
Maximum flow requirement	359.3	GPM

* Max. flow requirements are based on peak monthly irrigation demands and follow PWSD's watering guidelines

Hydraulic Requirements:

Tap Size (in)	Max GPM v = 7.5 fps
3/4"	10
1"	18
1 1/2"	40
2"	71
3"	189
4"	380

* 2" and smaller assumes Seamless K Copper Tube
3" and larger assumes Ductile Iron Pipe Class 350

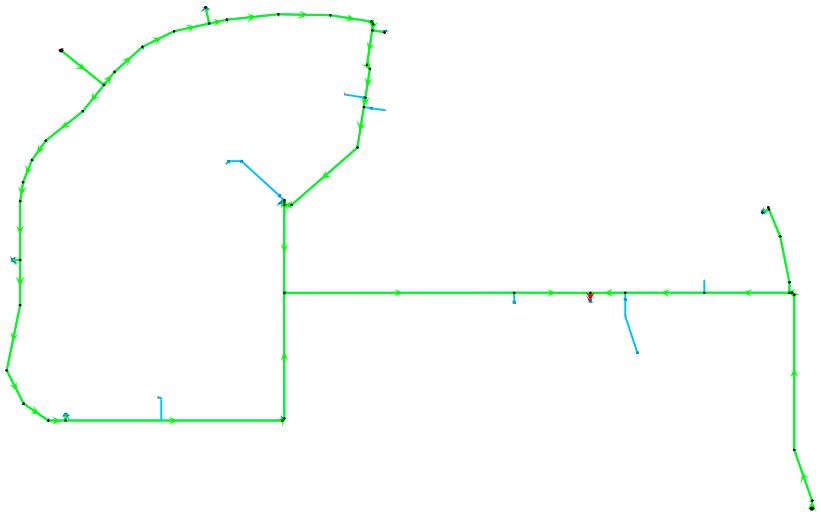
Tap Size Requirement	**4"**

System Design Pressure: _____ PSI

☐ Design pressure has been field tested & verified

☐ This form has been completed in compliance with PWSD's Engineering Standards & Specifications Manual regarding irrigation design specifications

Water Model/Tables:



FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)
41	P-1	133	R-1	J-2	8.0	PVC	904	5.77
43	P-2	81	J-2	J-3	8.0	PVC	413	2.63
45	P-3	114	J-3	J-4	8.0	PVC	413	2.63
47	P-4	57	J-4	J-5	8.0	PVC	413	2.63
49	P-5	57	J-5	J-6	8.0	PVC	413	2.63
51	P-6	46	J-6	J-7	8.0	PVC	413	2.63
55	P-8	161	J-8	J-9	8.0	PVC	413	2.63
57	P-9	90	J-9	J-10	8.0	PVC	413	2.63
59	P-10	71	J-10	J-11	8.0	PVC	413	2.63
61	P-11	42	J-11	J-12	8.0	PVC	413	2.63
63	P-12	522	J-12	J-13	8.0	PVC	413	2.63
65	P-13	7	J-13	J-14	8.0	PVC	413	2.63
67	P-14	303	J-14	J-15	8.0	PVC	413	2.63
69	P-15	554	J-15	J-16	8.0	PVC	791	5.05
71	P-16	183	J-16	J-17	8.0	PVC	726	4.64
73	P-17	84	J-17	J-18	8.0	PVC	-774	4.94
75	P-18	190	J-18	IRRIG Tap	8.0	PVC	-835	5.33
77	P-19	205	IRRIG Tap	J-20	8.0	PVC	-1,194	7.62
79	P-20	7	J-20	J-21	8.0	PVC	-1,194	7.62
81	P-21	7	J-21	J-22	8.0	PVC	-1,194	7.62
83	P-22	374	J-22	J-23	8.0	PVC	-1,194	7.62
85	P-23	130	J-23	J-24	8.0	PVC	-1,194	7.62
87	P-24	19	J-24	R-2	8.0	PVC	-1,194	7.62
89	P-25	41	J-2	J-26	8.0	PVC	492	3.14
91	P-26	90	J-26	J-27	8.0	PVC	492	3.14
93	P-27	85	J-27	J-28	8.0	PVC	492	3.14
95	P-28	87	J-28	J-29	8.0	PVC	492	3.14
97	P-29	43	J-29	J-30	8.0	PVC	492	3.14
99	P-30	125	J-30	J-31	8.0	PVC	492	3.14
101	P-31	125	J-31	J-32	8.0	PVC	492	3.14
103	P-32	100	J-32	J-33	8.0	PVC	492	3.14
105	P-33	7	J-33	J-34	8.0	PVC	492	3.14
107	P-34	15	J-34	J-35	8.0	PVC	492	3.14
109	P-35	84	J-35	J-36	8.0	PVC	492	3.14
111	P-36	12	J-36	J-37	8.0	PVC	492	3.14
113	P-37	71	J-37	J-38	8.0	PVC	492	3.14
115	P-38	23	J-38	J-39	8.0	PVC	492	3.14
117	P-39	99	J-39	J-40	8.0	PVC	439	2.80
119	P-40	211	J-40	J-41	8.0	PVC	439	2.80
121	P-41	17	J-41	J-42	8.0	PVC	439	2.80
122	P-42	212	J-42	J-15	8.0	PVC	378	2.41
124	P-43	6	J-42	J-43	8.0	PVC	61	0.39
125	P-44	5	J-43	H-3	6.0	Ductile Iron	0	0.00
127	P-7(1)	142	J-7	J-44	8.0	PVC	413	2.63
128	P-7(2)	109	J-44	J-8	8.0	PVC	413	2.63
129	P-45	18	J-44	H-1	6.0	Ductile Iron	0	0.00

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)
130	P-46	15	J-12	H-2	6.0	Ductile Iron	0	0.00
131	P-47	20	J-17	H-4	6.0	Ductile Iron	1,500	17.02
133	P-48	25	J-20	J-45	8.0	PVC	0	0.00
135	P-49	113	J-45	J-46	8.0	PVC	0	0.00
137	P-50	70	J-46	J-47	8.0	PVC	0	0.00
139	P-51	5	J-47	J-48	8.0	PVC	0	0.00
140	P-52	17	J-47	H-5	6.0	Ductile Iron	0	0.00
141	P-53	38	J-29	H-6	6.0	Ductile Iron	0	0.00
142	P-54	29	J-35	H-7	6.0	Ductile Iron	0	0.00
173	P-55	5	J-43	J-51	8.0	PVC	61	0.39

FlexTable: Junction Table

ID	Label	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)	Elevation (ft)
74	IRRIG Tap	359	6,112.31	114	5,849.68
40	J-2	0	6,121.45	118	5,849.64
42	J-3	0	6,121.23	117	5,850.48
44	J-4	0	6,120.92	117	5,851.60
46	J-5	0	6,120.76	116	5,852.16
48	J-6	0	6,120.60	116	5,852.72
50	J-7	0	6,120.48	116	5,853.17
52	J-8	0	6,119.80	114	5,856.48
54	J-9	0	6,119.36	114	5,855.15
56	J-10	0	6,119.11	115	5,854.15
58	J-11	0	6,118.92	115	5,853.62
60	J-12	0	6,118.81	115	5,853.28
62	J-13	0	6,117.39	115	5,851.45
64	J-14	0	6,117.37	115	5,851.54
66	J-15	0	6,116.54	115	5,849.70
68	J-16	64	6,111.52	112	5,852.09
70	J-17	0	6,109.67	113	5,849.05
72	J-18	61	6,110.41	113	5,849.25
76	J-20	0	6,116.30	117	5,846.71
78	J-21	0	6,116.43	117	5,846.85
80	J-22	0	6,116.57	117	5,846.90
82	J-23	0	6,123.84	117	5,853.38
84	J-24	0	6,126.36	117	5,856.21
88	J-26	0	6,121.29	118	5,849.24
90	J-27	0	6,120.96	118	5,848.35
92	J-28	0	6,120.64	118	5,847.49
94	J-29	0	6,120.31	118	5,846.69
96	J-30	0	6,120.15	119	5,846.23
98	J-31	0	6,119.67	119	5,844.98
100	J-32	0	6,119.20	119	5,843.74
102	J-33	0	6,118.83	119	5,842.79
104	J-34	0	6,118.80	119	5,842.78
106	J-35	0	6,118.74	120	5,842.51
108	J-36	0	6,118.43	119	5,844.27
110	J-37	0	6,118.38	119	5,844.30
112	J-38	0	6,118.12	117	5,846.54
114	J-39	53	6,118.03	117	5,847.06
116	J-40	0	6,117.73	118	5,845.13
118	J-41	0	6,117.09	116	5,849.13
120	J-42	0	6,117.04	116	5,849.54
123	J-43	0	6,117.03	116	5,849.56
126	J-44	0	6,120.09	115	5,855.27
132	J-45	0	6,116.30	117	5,846.53
134	J-46	0	6,116.30	117	5,845.47
136	J-47	0	6,116.30	118	5,844.71
138	J-48	0	6,116.30	118	5,844.66
172	J-51	61	6,117.03	116	5,849.52

FlexTable: Hydrant Table

Label	Length (Hydrant Lateral) (ft)	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
H-1	20	5,856.21	0	6,120.09	114
H-2	20	5,853.48	0	6,118.81	115
H-3	20	5,849.57	0	6,117.03	116
H-5	20	5,843.27	0	6,116.30	118
H-4	20	5,849.37	1,500	6,106.53	111
H-6	20	5,846.90	0	6,120.31	118
H-7	20	5,842.29	0	6,118.74	120