

PRELIMINARY UTILITY REPORT

FINDLAY TOYOTA

The Meadows 19, Lot 1, Filing No. 1
1st Amendment
Castle Rock, Colorado
SDP25-0018

July 21, 2025
Revised: December 4, 2025

Owner:

Findlay Family Properties, LP
310 N. Gibson Road
Henderson, NV 89014
Contact: Cliff Findlay
(702) 558-8822

Developer:

Tally CM
8715 E. Via De Commercio
Scottsdale, AZ 85258
Contact: Brent Tally

Engineer:

Action Civil Engineering LLC
9777 Pyramid Ct Ste. 150
Englewood, CO 80112
Contact: Troy Denning PE
O (720) 826-3965 C (720) 260-0433
Project No. 2421

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Engineer Certification:

The enclosed Final Utility Report, and exhibits, were prepared by me or under my direct supervision and is correct to the best of my knowledge and belief. Said utility report has been prepared in accordance with applicable Town of Castle Rock criteria and is in conformance with the master utility plans for the affected area. I accept responsibility for any liability caused by negligent acts, errors, or omissions on my part in preparing this report.



SIGNATURE: _____

Registered Professional Engineer

State Of Colorado No. 34200

(Affix Seal)

Owner/Developer's Statement:

As Owner/Developer of land(s) identified within this report; I agree to proceed, implement and comply with all recommendations and requirements outlined herein.

SIGNATURE: _____

Findlay Family Properties, LP

PROJECT LOCATION AND DESCRIPTION

Site Location

The proposed development is in the northwest Quarter of Section 27, and the northeast Quarter of Section 28, Township 7 South, Range 67 West of the 6th Principal Meridian, Town of Castle Rock, County of Douglas, State of Colorado. The site is bordered to the north by Union Pacific Railroad (variable width Right-of-Way), to the west by North Meadows Drive, to the south by East Plum Creek and a tract of land owned by the Town of Castle Rock for a well house, and to the east by an existing commercial property used by a landscaping company. A Vicinity Map is shown in Appendix A.

Description of Property

The existing property is approximately 28.71 acres described as Lot 1 and Tract B of the Meadows 19, Lot 1, Filing. No. 1. A replat of Lot 1 will create 4 commercial properties (Lots 1-4) and Tract A1 consisting of a private road providing access to subdivided parcels. Lot 2 (Findlay Toyota) proposes initial development with a car dealership building, car wash building, parking lot, drive aisles, landscaped areas, and mainline utilities with service laterals. Development of Lot 1, Lot 3, and Lot 4 will occur in future phases with an unknown timeline. Tract B will be improved with a sub-regional detention and water quality pond serving the project. An existing 12" PVC water distribution located in an existing easement (Future Tract A1) will provide potable water and fire service for the initial (Lot 2) and future developed parcels. An existing 8" PVC sanitary main located in existing Tract B will be extended through the developed parcels generally following the alignment of East Plum Creek. All proposed watermains and sanitary mains will be in proposed Tracts or Utility Easements. This report combines wastewater and water distribution analysis. The table below summarizes the land-use and single-family equivalents (SFEs) for this study:

SFE SUMMARY TABLE			
PHASE	LAND-USE	AREA	SFE (@ 3 SFE/ACE)
Initial (Lot 2)	Commercial/Industrial	9.99 AC	30
Future (Lots 1, 3, and 4)	Commercial/Industrial	14.99 AC	45
Total	Commercial/Industrial	24.98 AC	75

WASTEWATER COLLECTION

The existing 8" PVC sanitary sewer was designed pursuant to the Approved Utility Compliance Letter for Meadows Filing 19, Lot 1 Sewer Outfall improvements CD23-014, prepared by Terracina Design, June 10, 2024 (Terracina Letter). This project substantially complies with the calculations provided in the Terracina Letter as summarized in the table below:

Design Element	Terracina Letter	Findlay Toyota
Land Use	Commercial / Industrial	Commercial / Industrial
Service Area	27.10 AC	*24.98 AC
Sewer Design	8" PVC @ 0.40%	8" PVC @ 0.40%
70% Full Capacity	0.77 cfs	0.77 cfs
Single Family Equivalents (SFEs)	81.3	75.0
Design Flow	0.13 cfs	0.12 cfs
% Full	16.9%	15.6%
Velocity	1.83 ft/s	1.69 ft/s

Service area is initial construction of Findlay Toyota (Lot 2) and future development (Lot 1, Lot 3, and Lot 4).

The velocity of the pipe will be 1.69 ft/s which does not meet the required minimum 2 ft/s. The minimal slope of 0.4% has been selected due to ensure sanitary main is deep enough for future project build-out. See Appendix B for detailed sanitary sewer calculations. All Commercial Business Building Permits for new business and construction of new buildings, are required to comply with Town Code 13.0, Grease Interceptors Required. Both the car dealership building and the car wash building proposed with SDP25-0018 will have a sand/oil interceptor complying with applicable codes. The sand/oil interceptors are pre-treatment devices appropriate for the anticipated effluent typical to the proposed uses of the buildings. An owner signed acknowledgement of the above described requirements are provided in Appendix D.

A copy of the Terracina Letter is provided in Appendix D.

No additional wastewater analysis is provided with this report.

WATER DISTRIBUTION

Calculated Demands

This report analyzes the water distribution system proposed for Findlay Toyota (Lot 2) only. Future developments of Lots 1, 3, and 4 will require additional analysis.

Water demands were calculated based on standards set by the "Town of Castle Rock Water System Design Criteria Manual". Section 4.4.1 states that "Industrial/Other Commercial" land use has a typical ADD/unit of 1,200 gpd/acre, and typical SFE's/Unit of 3.0/acre. Using these typical design demands from the Town of Castle Rock, average daily demand (ADD), maximum day demand (MDD) and peak hour demand (PHD) were calculated. The Maximum Daily Demand was calculated based on Town Standards Section 4.4.1.2 using a peaking factor of 2.5. The Peak Hour Demand was calculated based on Town Standards Section 4.4.1.2 using a peaking factor of 5.5 with the addition of irrigation ADD demands.

Below is a summary of the calculated domestic water demands:

Parcel	Avg Day Day (GPD)	Avg Day Day (GPM)	Max Day Demand (GPM)	Peak Hour Demand (GPM)
Findlay Toyota (Lot 2)	11,988	8.3	20.8	45.8
Lot 2 / Tract A1 - Irrigation	5,475	3.8	3.8	3.8
Total		24.6	49.6	

Fire demand criteria is based upon the Uniform Fire Code guidelines as adopted by the Town of Castle Rock. Based on gross building area, construction type, and implementing automatic fire sprinklers within the proposed buildings, the fire flow for the proposed project is 1,625 gpm for 4 hours at 20 PSI. A signed fire flow confirmation letter is provided in Appendix C.

Detailed domestic and fire flow demand calculations are provided in Appendix C

Existing Water System

This site is located within the Town of Castle Rock Orange Zone. Two connections will be made to an existing 12" pvc distribution watermain located in an existing easement (future Tract A1). The existing 12" main connects to an existing 24" transmission main through a pressure regulating valve (PRV). Based on information provided by the Town, the maximum HGL for Orange Zone is 6263.00 and the low HGL for Orange Zone is 6283.00. The maximum and low HGLs were used for applicable modeling scenarios.

Proposed Water System

The project proposes An 8" pvc looped main within Lot 2. Fire hydrants will be installed according to the Town of Castle Rock standards and as requested by the Fire Department to provide adequate fire coverage. Domestic and irrigation taps will be installed to service the two buildings, and sizing will be determined in the Final Utility Report. A proposed utility map is provided in Appendix E.

Proposed Water System Analysis and Modeling

The Town of Castle Rock criteria require the water distribution pipe to deliver Maximum Day plus fire flows demand with a minimum dynamic pressure of 20 psi, and a maximum velocity of 15 fps. The Town also requires the system to deliver Peak Hour demands with a minimum residual pressure of 35 psi, and a maximum velocity of 10 fps. Because the system pressures are regulated by the PRV and are not subject to tank level fluctuations, a static model is provided but not checked against Town's criteria.

The proposed water distribution system for the Site was modeled using EPANET 2.2. Water lines are sized to transport water during Average Day, Maximum Day, Maximum Day plus Fire Flow, and Peak Hour demand conditions in accordance with the town specifications. Using Water EPANET, simulations of different flow models were completed and compared to the corresponding Town criteria. The simulations consisted of: Static, Maximum Day, Maximum Day plus fire flow, and Peak Hour demands. Minimum pressure requirements of 20 psi and 35 psi, and maximum velocity criteria of 15 fps and 10 fps were checked against the Maximum Day, Maximum Day plus Fire and Peak Hour demands, respectively. The configuration of the water distribution pipe system meets all Town of Castle Rock criteria based on the new layout for the area addressed with this report. It delivers Maximum Day plus fire flows demand with a minimum dynamic pressure of 20 psi, and Peak Hour demands with a minimum residual pressure of 35 psi.

The table below provides a summary of the modeling results and compliance with Town criteria:

Scenario	Results						Criteria		
	Min. Pressure (psi)	@ Node	Max. Pressure (psi)	@ Node	Max. Velocity (fps)	@ Pipe	Min. Pressure (psi)	Max. Pressure (psi)	Max. Velocity (fps)
Static (Max HGL)			115.02	Junc 8				125	
Static (Low HGL)	103.94	Junc Dom					43		
Max. Day	103.94	Junc Dom			0.09	P9	35		5
Max. Day + Fire Flow	98.59	Junc Hyd2			6.26	P1/P2	20		15
Peak Hour	103.94	Junc Dom			0.17	P7	35		10

EPANET Calculations and tables are provided in Appendix C.

Potential permitting requirements

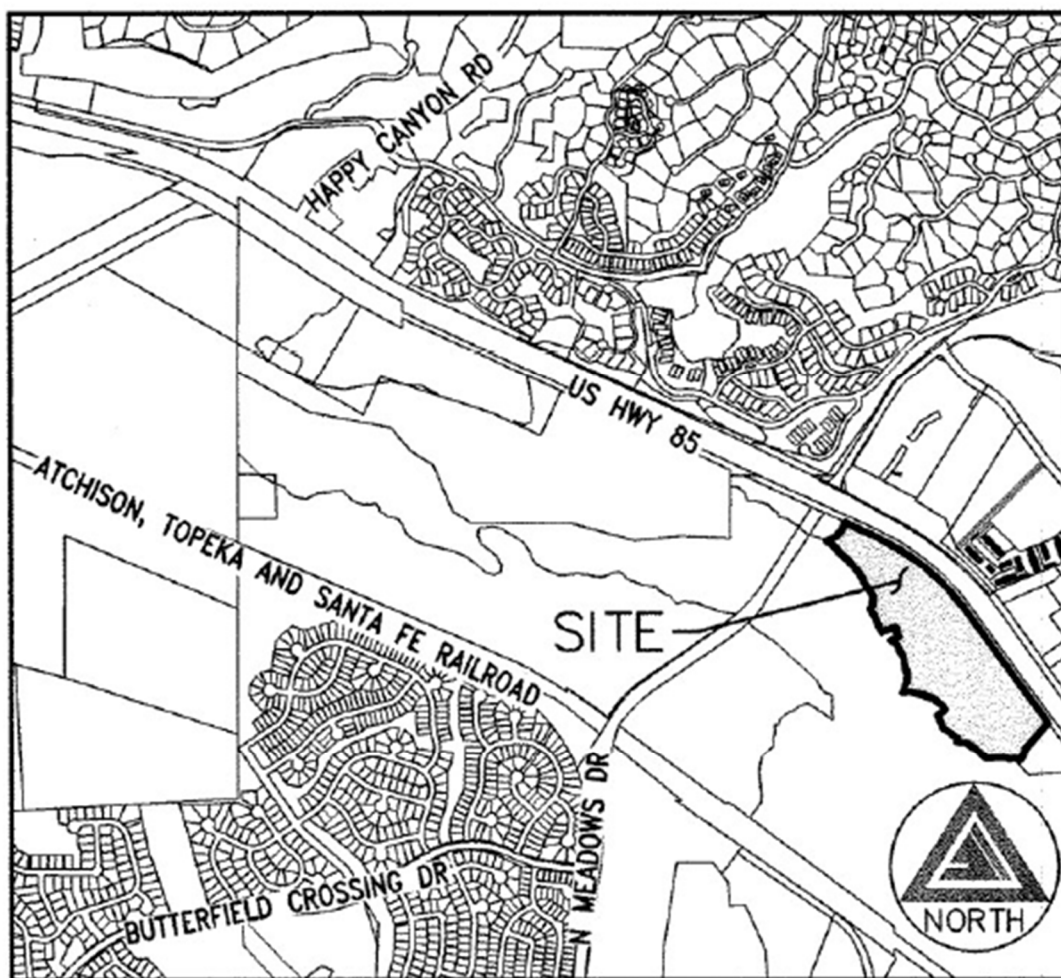
No additional permit requirements are anticipated with this project.

REFERENCES

1. Town of Castle Rock Wastewater Collection Design Criteria Manual, December, 2018
2. Town of Castle Rock Water System Design Criteria Manual, December, 2018

APPENDIX A

VICINITY MAP



VICINITY MAP

Scale: 1" = 2000'

APPENDIX B

SANITARY SEWER CALCULATIONS

4.4.1.1 Wastewater System Average Daily Flow (ADF)

Land Use	Typical ADF/Unit	Typical SFEs/Unit
Single Family Residential and Duplexes	200 gpd/dwelling unit	1.00/dwelling unit
Multi-Family Residential (Townhomes and Condos)	130 gpd/dwelling unit	0.65/dwelling unit
Retail/Offices	0.1 gpd/SF	0.0005/SF
Hotels/Motels	75 gpd/room	0.375/room
Restaurants	1.5 gpd/SF	0.0075/SF
Car Washes	5,000 gpd/acre	25.0/acre
Industrial/Other Commercial	600 gpd/acre	3.0/acre
Institutional	400 gpd/acre	2.0/acre
Churches	300 gpd/church	1.5/church
Gym/Fitness Center	0.5 gpd/SF	0.00125 SFE/SF
Irrigated Land	0 gpd/acre	0.0/acre
<u>Rates for Typical Douglas County School Sizes:</u>		
Elementary (10 ac, 675 Students)	3,375 gpd/school	16.88/school
Middle (25 ac, 850 students)	8,500 gpd/school	42.50/school
High (50 ac, 1700 students)	17,000 gpd/school	85.00/school
<u>Rates for Alternate School Sizes:</u>		
Elementary	5 gpd/student	0.025/student
Middle	10 gpd/student	0.050/student
High	10 gpd/student	0.050/student

The demands noted in the table above represent the “winter time” or “dry weather” Average Daily Flow (ADF) with no allowance for infiltration and inflow (I/I). I/I shall be accounted for in accordance with the Peak Design Flow computation discussed in the sections to follow.

Regarding design flows for schools, planned school sizes shall be confirmed with the Douglas County School District and documented in the Utility Report. The tabulated rates

Project Name: Findlay Toyota
Project Number: 2421
Description: Sanitary Sewer Flow Calculations
Calculated By: MCS
Checked By: TWD

Single Family Equivalent (SFE)					Demand					
Parcel	Use	Acres	Equivalent (SFE / AC)	SFE	Avg Day (GPD/AC)	Avg Day (GPD)	Avg Day (GPM)	Avg Day (CFS)	*Peak Design (GPM)	*Peak Design (CFS)
Findlay Toyota (Lot 2)	Commercial/Industrial	9.99	3	29.97	600	5994	4.2	0.0093	21	0.046
Future (Lot 1, 3, & 4)	Commercial/Industrial	14.99	3	44.97	600	8994	6.2	0.0139	31	0.070

Total SFEs 75.0

Total 0.023 Total 0.116

Infiltration (10% of ADF) = 0.002

Total with Infiltration = 0.118 cfs

* Peak Hour Factor = 5.0

Channel Report

Findlay Toyota and Future Commecrial Lots - 8-in. PVC @ 0.40% - 0.118 CFS

Circular

Diameter (ft) = 0.67

Invert Elev (ft) = 5000.00

Slope (%) = 0.40

N-Value = 0.011

Calculations

Compute by: Known Q

Known Q (cfs) = 0.12

Highlighted

Depth (ft) = 0.17

Q (cfs) = 0.120

Area (sqft) = 0.07

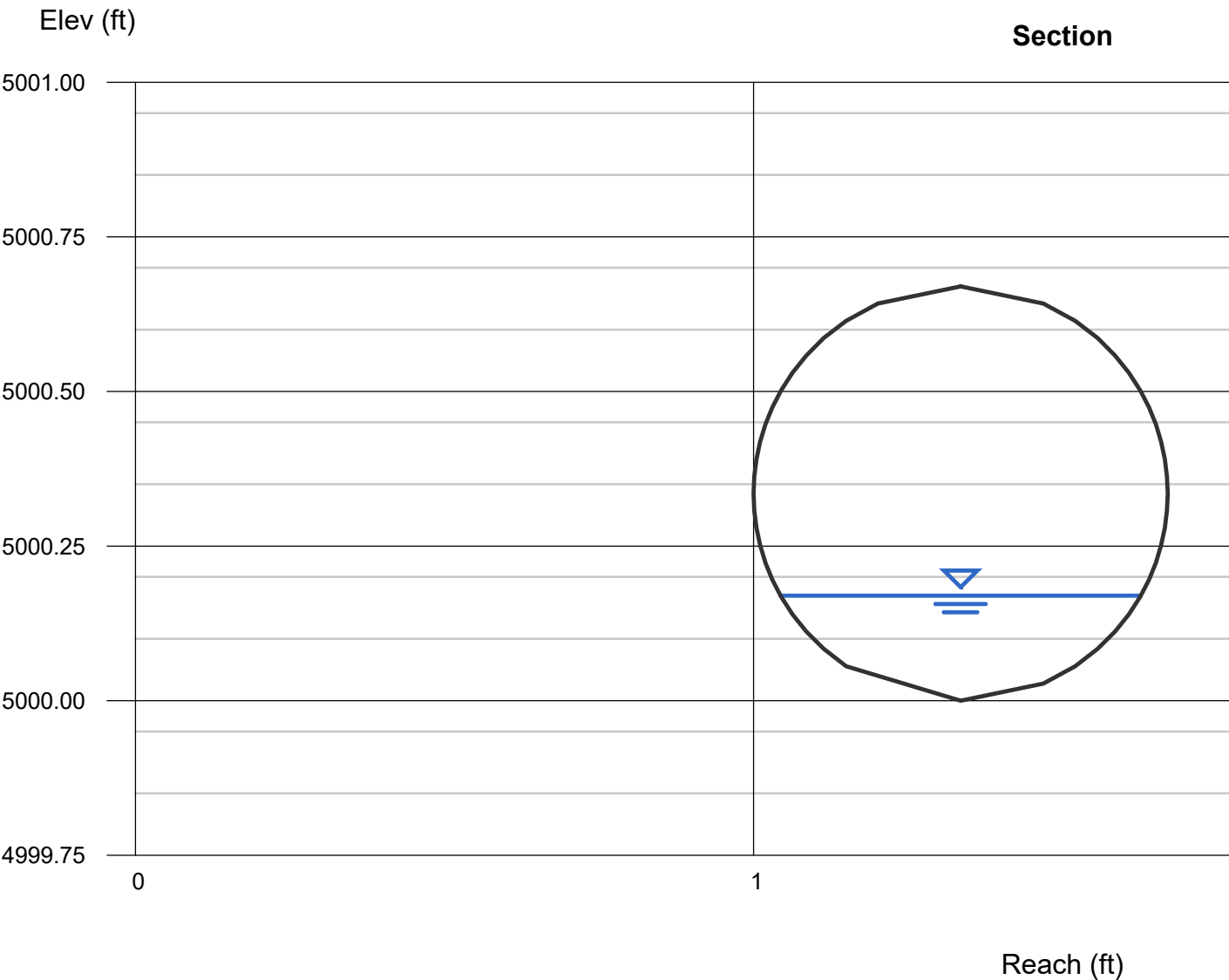
Velocity (ft/s) = 1.69

Wetted Perim (ft) = 0.71

Crit Depth, Yc (ft) = 0.16

Top Width (ft) = 0.58

EGL (ft) = 0.21



APPENDIX C

WATER DISTRIBUTION CALCULATIONS

Project Name: Findlay Toyota
Project Number: 2421
Description: Domestic Water Demand Calculations
Calculated By: MCS
Checked By: TWD

Single Family Equivalent (SFE)					Demand				
Parcel	Use	Acres	Equivalent (SFE / AC)	SFE	Avg Day (GPD/AC)	Avg Day (GPD)	Avg Day (GPM)	Max Day Demand (GPM)	Peak Hour Demand (GPM)
Findlay Toyota (Lot 2)	Commercial/Industrial	9.99	3	29.97	1,200	11,988	8.3	20.8	45.8
Lot 2 / Tract A1 - Irrigation	Irrigated Land	1.46	9.38	13.69	3,750	5,475	3.8	3.8	3.8
				Total SFEs	43.66				
							Total	24.6	49.6

Max Day Peak Factor = 2.5

Peak Hour Peak Factor = 5.5



September 30, 2025

CONFIRMATION OF FIRE FLOW – SDP25-0018

Findlay Toyota is a 9.99-acre automotive dealership and service development on Lot 2 of a proposed replat of Lot 1 of the Meadows 19, Lot 1, Filing No. 1 located at the terminus of existing Timber Mill Parkway in the Town of Castle Rock, Colorado. The site is in the northwest Quarter of Section 27, and the northeast Quarter of Section 28, Township 7 South, Range 67 West of the 6th Principal Meridian, Town of Castle Rock, County of Douglas, State of Colorado. The site is bordered to the north by Union Pacific Railroad (variable width Right-of-Way), to the west by North Meadows Drive, to the south by East Plum Creek and a tract of land owned by the Town of Castle Rock for a well house, and to the east by an existing commercial property used by a landscaping company. Vehicular access will be provided to the property by Timber Mill Parkway and a private road located within Tract A1 of the proposed replat.

The proposed development of the site consists of the construction of an automotive dealership and service building and a separate car wash building with parking lots with landscaped areas.

Building 1 – Automotive Dealership/Service

- Total building square footage: 94,325 SF
- Construction Type: IIB
- Occupancy groups: B, S1
- Fully sprinklered.

Building 2 – Car Wash

- Total building square footage: 5,170 SF
- Construction Type: IIB
- Occupancy groups: B, S1
- Fully sprinklered.

Required Fire Flow: 6500 GPM Flow is allowed to be decreased to 25% with automatic sprinkler system - 1625GPM

Required Duration: 4 Hours



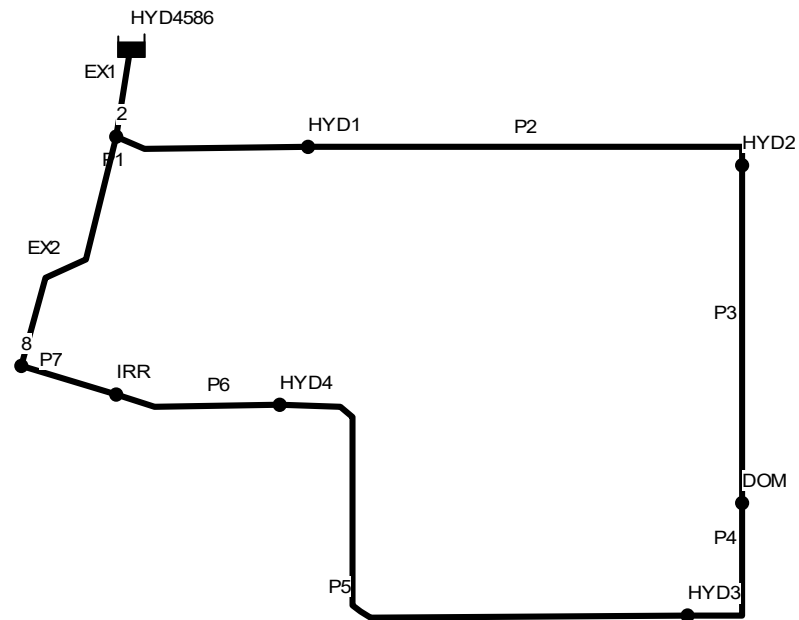
Town of Castle Rock
Fire Department

Date



EPANET MODEL LAYOUT

Day 1,



STATIC - MAX RESERVOIR HGL = 6283

Network Table - Nodes

Node ID	Elevation ft	Base Demand GPM	Head ft	Pressure psi
Junc 2	6020.22	0	6283.00	113.86
Junc HYD1	6022.79	0	6283.00	112.75
Junc HYD2	6023.04	0	6283.00	112.64
Junc DOM	6023.11	0	6283.00	112.61
Junc HYD3	6022.96	0	6283.00	112.68
Junc HYD4	6022.36	0	6283.00	112.94
Junc 8	6017.54	0	6283.00	115.02
Junc IRR	6020.00	0	6283.00	113.96
Resvr HYD4586	6283	#N/A	6283.00	0.00

STATIC - MAX RESERVOIR HGL = 6283

Network Table - Links

Link ID	Length ft	Diameter in	Roughness	Flow GPM	Velocity fps
Pipe EX1	73	12	120	0.00	0.00
Pipe P1	159	8	120	0.00	0.00
Pipe P2	370	8	120	0.00	0.00
Pipe P3	266	8	120	0.00	0.00
Pipe P4	141	8	120	0.00	0.00
Pipe P5	423	8	120	0.00	0.00
Pipe P6	140	8	120	0.00	0.00
Pipe EX2	200	12	120	0.00	0.00
Pipe P7	81	8	120	0.00	0.00

STATIC - LOW RESERVOIR HGL = 6263

Network Table - Nodes

Node ID	Elevation ft	Base Demand GPM	Head ft	Pressure psi
Junc 2	6020.22	0	6263.00	105.20
Junc HYD1	6022.79	0	6263.00	104.08
Junc HYD2	6023.04	0	6263.00	103.97
Junc DOM	6023.11	0	6263.00	103.94
Junc HYD3	6022.96	0	6263.00	104.01
Junc HYD4	6022.36	0	6263.00	104.27
Junc 8	6017.54	0	6263.00	106.36
Junc IRR	6020.00	0	6263.00	105.29
Resvr HYD4586	6263	#N/A	6263.00	0.00

HYD2 has lowest static pressure. This hydrant was analyzed in the fire flow scenario.

STATIC - LOW RESERVOIR HGL = 6263

Network Table - Links

Link ID	Length ft	Diameter in	Roughness	Flow GPM	Velocity fps
Pipe EX1	73	12	120	0.00	0.00
Pipe P1	159	8	120	0.00	0.00
Pipe P2	370	8	120	0.00	0.00
Pipe P3	266	8	120	0.00	0.00
Pipe P4	141	8	120	0.00	0.00
Pipe P5	423	8	120	0.00	0.00
Pipe P6	140	8	120	0.00	0.00
Pipe EX2	200	12	120	0.00	0.00
Pipe P7	81	8	120	0.00	0.00

PEAK HOUR LOW RESERVOIR HGL = 6263.00

Network Table - Nodes

Node ID	Elevation ft	Base Demand GPM	Head ft	Pressure psi
Junc 2	6020.22	0	6263.00	105.20
Junc HYD1	6022.79	0	6263.00	104.08
Junc HYD2	6023.04	0	6262.99	103.97
Junc DOM	6023.11	45.8	6262.98	103.94
Junc HYD3	6022.96	0	6262.98	104.00
Junc HYD4	6022.36	0	6262.99	104.27
Junc 8	6017.54	0	6263.00	106.36
Junc IRR	6020.00	3.8	6263.00	105.29
Resvr HYD4586	6263	#N/A	6263.00	0.00

PEAK HOUR LOW RESERVOIR HGL = 6263.00

Network Table - Links

Link ID	Length ft	Diameter in	Roughness	Flow GPM	Velocity fps
Pipe EX1	73	12	120	49.60	0.14
Pipe P1	159	8	120	23.54	0.15
Pipe P2	370	8	120	23.54	0.15
Pipe P3	266	8	120	23.54	0.15
Pipe P4	141	8	120	-22.26	0.14
Pipe P5	423	8	120	-22.26	0.14
Pipe P6	140	8	120	-22.26	0.14
Pipe EX2	200	12	120	26.06	0.07
Pipe P7	81	8	120	-26.06	0.17

MAX DAY LOW RESERVOIR HGL = 6263.00

Network Table - Nodes

Node ID	Elevation ft	Base Demand GPM	Head ft	Pressure psi
Junc 2	6020.22	0	6263.00	105.20
Junc HYD1	6022.79	0	6263.00	104.08
Junc HYD2	6023.04	0	6263.00	103.97
Junc DOM	6023.11	20.8	6263.00	103.94
Junc HYD3	6022.96	0	6263.00	104.01
Junc HYD4	6022.36	0	6263.00	104.27
Junc 8	6017.54	0	6263.00	106.36
Junc IRR	6020.00	3.8	6263.00	105.29
Resvr HYD4586	6263	#N/A	6263.00	0.00

MAX DAY LOW RESERVOIR HGL = 6263.00

Network Table - Links

Link ID	Length ft	Diameter in	Roughness	Flow GPM	Velocity fps
Pipe EX1	73	12	120	24.60	0.07
Pipe P1	159	8	120	10.85	0.07
Pipe P2	370	8	120	10.85	0.07
Pipe P3	266	8	120	10.85	0.07
Pipe P4	141	8	120	-9.95	0.06
Pipe P5	423	8	120	-9.95	0.06
Pipe P6	140	8	120	-9.95	0.06
Pipe EX2	200	12	120	13.75	0.04
Pipe P7	81	8	120	-13.75	0.09

MAX DAY + FF @ HYD 2 LOW RESERVOIR HGL = 6263.00

Network Table - Nodes

Node ID	Elevation ft	Base Demand GPM	Head ft	Pressure psi
Junc 2	6020.22	0	6262.34	104.91
Junc HYD1	6022.79	0	6258.82	102.27
Junc HYD2	6023.04	1625	6250.56	98.59
Junc DOM	6023.11	20.8	6253.15	99.68
Junc HYD3	6022.96	0	6254.88	100.49
Junc HYD4	6022.36	0	6259.50	102.75
Junc 8	6017.54	0	6262.00	105.92
Junc IRR	6020.00	3.8	6261.08	104.46
Resvr HYD4586	6263	#N/A	6263.00	0.00

MAX DAY + FF @ HYD 2 LOW RESERVOIR HGL = 6263.00

Network Table - Links

Link ID	Length ft	Diameter in	Roughness	Flow GPM	Velocity fps
Pipe EX1	73	12	120	1649.60	4.68
Pipe P1	159	8	120	980.34	6.26
Pipe P2	370	8	120	980.34	6.26
Pipe P3	266	8	120	-644.66	4.11
Pipe P4	141	8	120	-665.46	4.25
Pipe P5	423	8	120	-665.46	4.25
Pipe P6	140	8	120	-665.46	4.25
Pipe EX2	200	12	120	669.26	1.90
Pipe P7	81	8	120	-669.26	4.27

APPENDIX D

REFERENCE MATERIAL



Commercial Business Building Permit Grease Interceptor Requirement

All Commercial Business Building Permits for new business and construction of new buildings, remodels, or tenant improvement permits will be required to comply with Town Code 13.05, Grease Interceptors Required. Applicant will be required to submit an Industry Information Questionnaire through Plum Creek Water Reclamation Authority (PCWRA) to verify if the business will require an oil/grease interceptor. Please go to the PCWRA website at:

https://www.pcwracolorado.org/pretreatment/commercial_businesses/index.php

CONSTRUCTION DRAWINGS

Please note PCWRA requires all new commercial buildings to provide a stub-out for a separate waste line for future interceptor installation, if not proposed with the project. All drainage fixtures and grease waste lines that are tied to the oil/grease must be shown in the construction drawings as well as the location of the oil/grease.

ACKNOWLEDGEMENT

The applicant must sign and date this form to acknowledge that the applicant has read and understands the Town's Code requirement regarding Grease Interceptors, PCWRA's requirement to complete an Industry Information Questionnaire and Food Service Application, and the Town's requirement that a letter from PCWRA must be provided with the Town of Castle Rock Building Permit. This signed form is required to be included in the Utility Report with the Predevelopment Plan (PDP), Site Development Plan (SDP) and Construction Document (CD) submittals.

Findlay Toyota - SDP25-0018

Name of Project

Address of property, if known

Signature

Date

100 North Wilcox Street Castle Rock, CO 80104 P: 303.660.1015 F: 303.660.1024

EXCELLENCE • DEDICATION • SERVICE



June 10, 2024

Town of Castle Rock Development Services

Meadows Filing 19, Lot 1 Sewer Outfall Improvements CD23-0014 Utility Compliance Letter

This letter has been prepared in lieu of a formal utility report. Plans are being prepared for construction of a sewer outfall located in Meadows Filing 19, Lot 1 in the Town of Castle Rock. This proposed sewer alignment commences from the south side of the Union Pacific Railroad near North Meadows Drive and travels northwest to the East Plum Creek Wastewater Treatment Facility. Along this alignment the sewer will parallel East Plum Creek and the 100-year floodplain, Zones A and AE as shown on FIRM Map Number 08035C0167G dated March 16, 2016.

The construction of this sewer will generally be located across undeveloped natural agricultural land that is owned by Plum Creek Wastewater Authority, the Town of Castle Rock, and the Meadows and is currently being used for grazing.

This sewer line is being designed to comply with Town criteria and provide service for future COI development to be located within Meadows Filing 19, Lot 1. The sewer line will be encased in concrete within Tributary A crossing to protect the sewer line in this area.

A general calculation was performed to identify the capacity of the proposed sewer line and the estimated maximum flow based on COI zoning. The proposed sewer line is an 8-inch PVC pipe at 0.40%, and that pipe at a 70% full capacity allows for a flow of 0.77cfs. An estimated flow based on zoning is based on a developable area of 27.1 acres and that produces a flow of 0.13 cfs. Based on this information allowable uses based on zoning would create a demand of approximately 16.9% of the capacity of the designed sewer line. The velocity of the pipe will be 1.83 ft/s which does not meet the required minimum 2 ft/s. The minimal slope of 0.4% has to be utilized due to site constraints and the existing system leading to the minimum velocity not being achievable. See included documents that are provided in support of these estimated demands.

If you have any questions, please do not hesitate to call me at 303.632.8867

Sincerely,
Terracina Design

Martin Metsker, PE
Senior Project Manager



terraccina design

Landscape Architecture • Planning • Civil Engineering
10200 E. Girard Avenue, A-314. Denver, CO 80231 ph: 303.632.8867



The Meadows - Filing 19 Lot 1
Wastewater Demand Calculation

4/18/2024
MJG

PARCEL	USE	DWELLING UNITS	ACRES	EQUIVALENT (SFE/AC)	SFE
--------	-----	-------------------	-------	------------------------	-----

Lot 1	Industrial		27.10	3.00	81.3
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SUB-TOTAL	81.3
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TOTAL SFEs	81.3
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DEMAND			
AVG DAY (GPD/AC)	AVG DAY (GPD)	AVG DAY (GPM)	PEAK DESIGN (GPM)

600	16260	11.29	56.46
-----	-------	-------	-------

SUB-TOTAL	11.29	56.46
-----------	-------	-------

TOTAL	11.29	56.46
-------	-------	-------

INFILTRATION (10% OF THE AVERAGE DAILY FLOW) =	1.13
TOTALS WITH INFILTRATION (GPM) =	11.29 57.59
TOTALS WITH INFILTRATION (CFS) =	0.03 0.13

PEAKING FACTOR*	
PEAK HOUR (PHD)	5.0

Channel Report

The Meadows - Filing 19 Lot 1 8in PVC @ 0.4% - 0.13 CFS

Circular

Diameter (ft) = 0.67

Invert Elev (ft) = 5000.00

Slope (%) = 0.40

N-Value = 0.011

Calculations

Compute by: Known Q

Known Q (cfs) = 0.13

Highlighted

Depth (ft) = 0.17

Q (cfs) = 0.130

Area (sqft) = 0.07

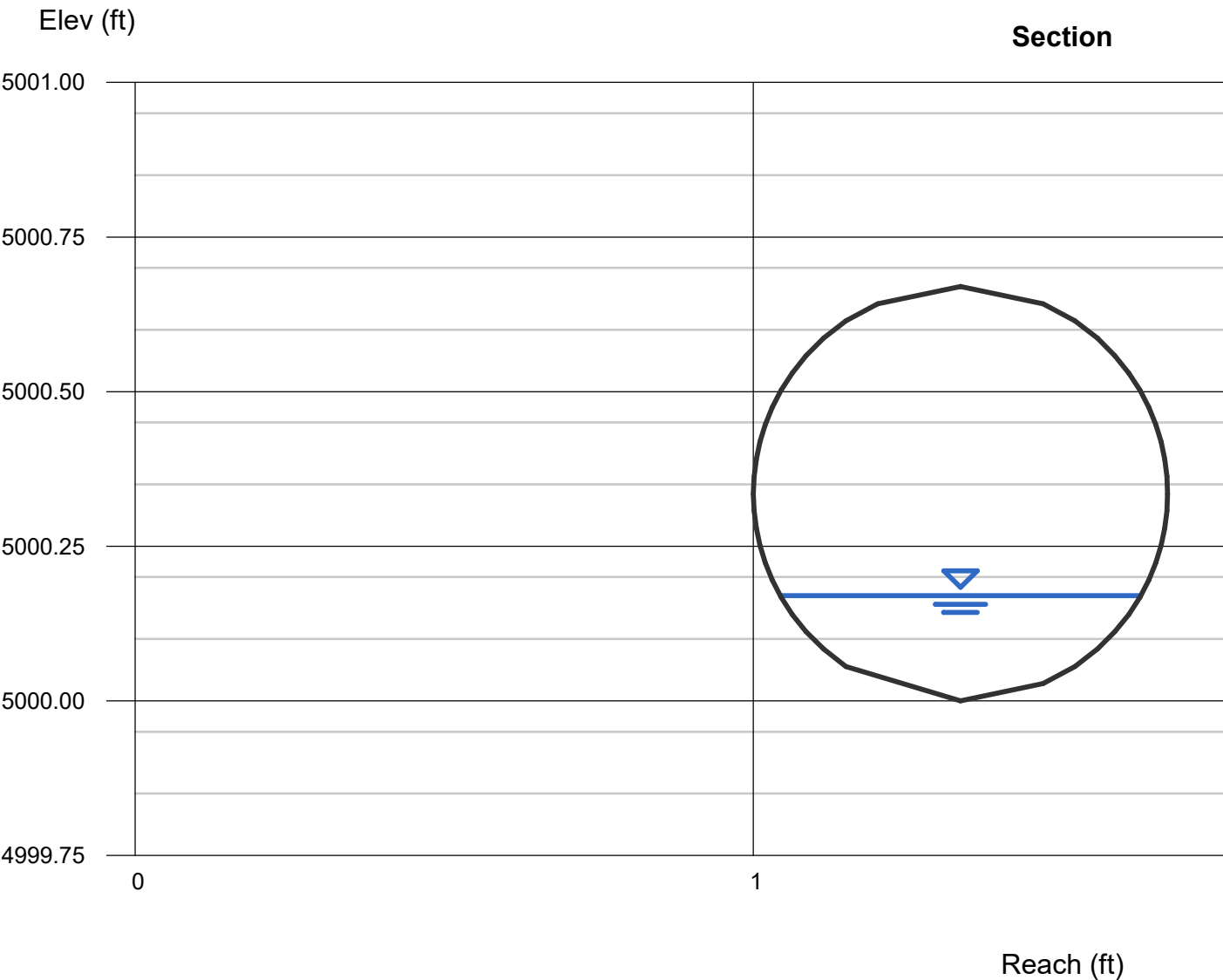
Velocity (ft/s) = 1.83

Wetted Perim (ft) = 0.71

Crit Depth, Yc (ft) = 0.17

Top Width (ft) = 0.58

EGL (ft) = 0.22



Channel Report

The Meadows - Filing 19 Lot 1 8in PVC @ 0.4% - 70% Full

Circular

Diameter (ft) = 0.67

Invert Elev (ft) = 5000.00

Slope (%) = 0.40

N-Value = 0.011

Calculations

Compute by: Q vs Depth

No. Increments = 10

Highlighted

Depth (ft) = 0.47

Q (cfs) = 0.768

Area (sqft) = 0.26

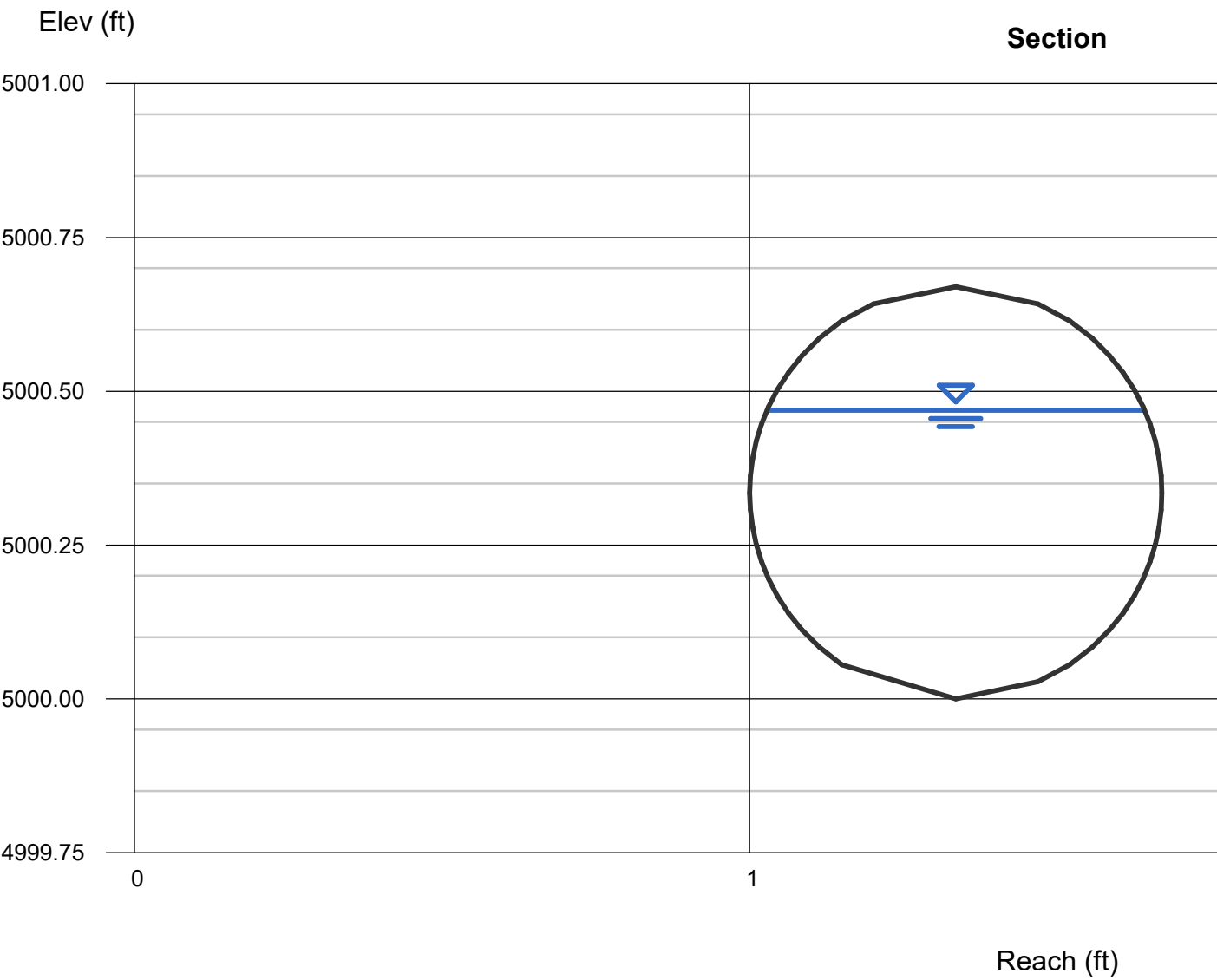
Velocity (ft/s) = 2.91

Wetted Perim (ft) = 1.33

Crit Depth, Yc (ft) = 0.42

Top Width (ft) = 0.61

EGL (ft) = 0.60



APPENDIX E

UTILITY MAPS



1 inch = 200 feet



Disclaimer: The data presented has been compiled from various sources, each of which introduces varying degrees of inaccuracies or inconsistencies. Such discrepancies in data are inherent in supplying this product to the Town of Castle Rock. Castle Rock assumes no liability for its use or accuracy. Questions or comments regarding the cartographic composition of this map including, but not limited to, errors, omissions, corrections, and/or updates, should be directed to the Utilities Department, Town of Castle Rock, (720) 733-6900. Copyright 2024, Town of Castle Rock Utilities Mapping.

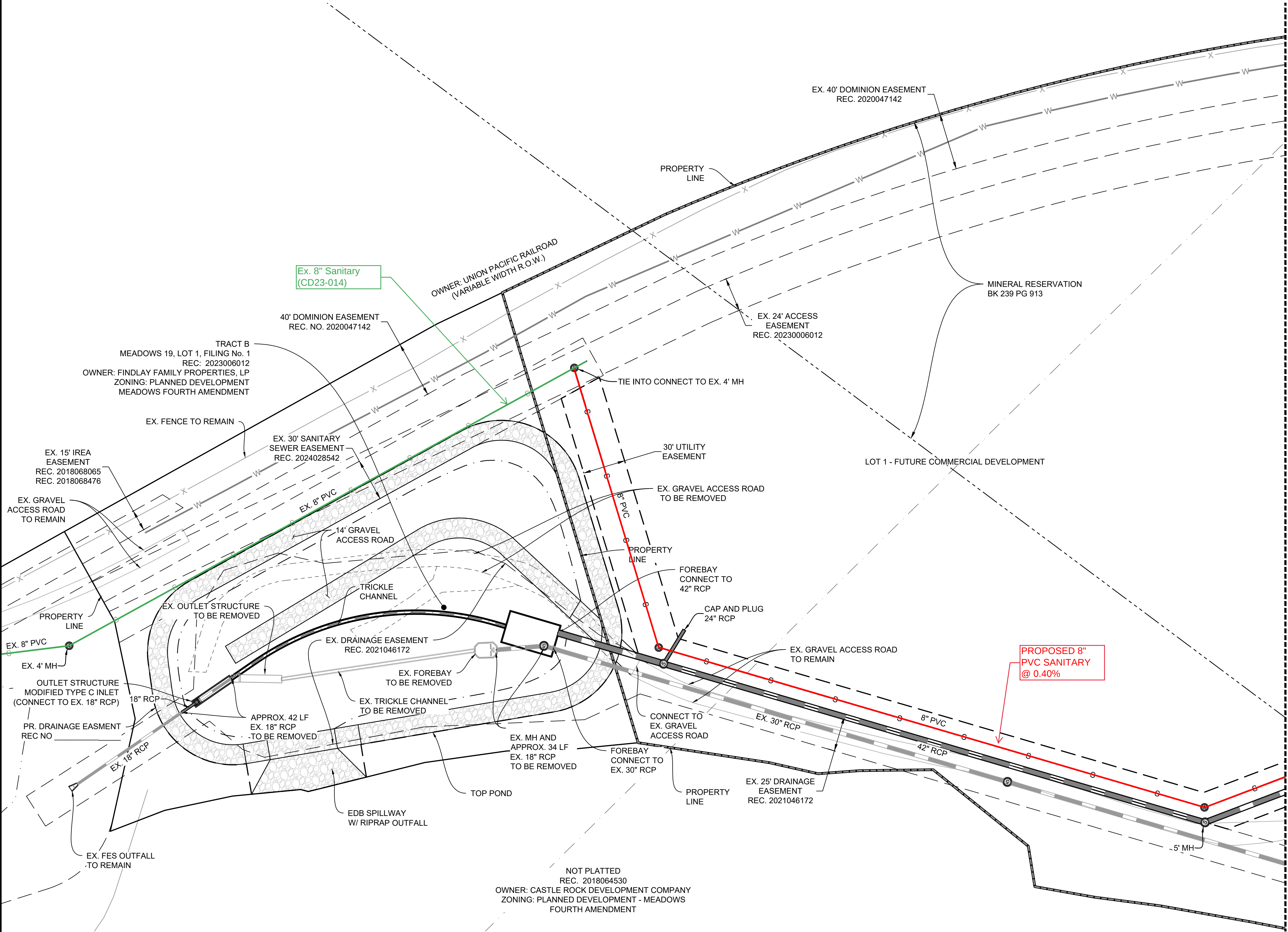
**CASTLE ROCK
UTILITIES MAP
(INTERNAL USE ONLY)**

Date: 3/12/2025

Document Path: J:\GIS\Standard Maps\10.6\11x17 LndScp.mxd

SITE DEVELOPMENT PLAN

LOT 2 AND TRACT A1 AND TRACT B OF THE MEADOWS 19, LOT 1, FILING No. 1, 1ST AMENDMENT
NORTHWEST 1/4 OF SECTION 27 AND THE NORTHEAST QUARTER OF SECTION 28 TOWNSHIP 7 SOUTH, RANGE 67 WEST OF THE 6TH P.M.,
TOWN OF CASTLE ROCK, COUNTY OF DOUGLAS, STATE OF COLORADO

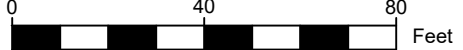


MATCHLINE SEE SHEET - 6

LEGEND:

---	PROPERTY LINE
---	EXISTING EASEMENT
---	EXISTING FLOODPLAIN LIMITS
---	EXISTING CONTOUR
X X	EXISTING FENCE LINE
E E	EXISTING ELECTRIC LINE
G G	EXISTING GAS LINE
S S	EXISTING SANITARY LINE W/ MH
---	EXISTING STORM LINE W/ MH
---	EXISTING WATER LINE
---	EXISTING STREET LIGHT
---	EXISTING STORM INLETS
---	EXISTING FIRE HYDRANT
---	EXISTING WATER VALVE
---	STORM WATER FLOW DIRECTION
---	EXISTING CONCRETE
---	EXISTING ASPHALT
---	PROPOSED ASPHALT
---	PROPOSED CONCRETE
---	PROPOSED LANDSCAPE
---	PROPOSED CONTOUR
S S	PROPOSED SANITARY SEWER W/ MH
W W	PROPOSED WATER LINE
---	PROPOSED STORM SEWER W/ MH
---	PROPOSED EASEMENT LINE
---	PROPOSED PRIVACY WALL
---	PROPOSED ACCESSIBLE ROUTE
---	ORDINANCE REQUIRED PARKING SPACE
---	DISPLAY OR INVENTORY SPACE
---	PROPOSED TYPE 'R' INLET
---	PROPOSED STREET LIGHT
---	PROPOSED SIGN
---	PROPOSED TRANSFORMER
MH	MANHOLE
EX	EXISTING
PR	PROPOSED
FG	FINISHED GRADE
RD	ROOF DRAIN
FL	FLOWLINE
T.O.W.	TOP OF WALL
B.O.W.	BOTTOM OF WALL
R.O.W./ROW	RIGHT-OF-WAY
---	PARKING SPACE COUNT
---	PROPOSED FIRE HYDRANT
---	REMOTE FIRE DEPARTMENT CONNECTION

REVISION DESCRIPTION		DATE	BY	CHK	DSG
SUBMITTED TO CASTLE ROCK		07/21/25	1		
SUBMITTED TO CASTLE ROCK		12/04/25	2		
DRN				TWD	
CHK					
DSG				TWD	
FINDLAY TOYOTA SITE DEVELOPMENT PLAN					
OVERALL UTILITY PLAN - OFFSITE					
ACTION CIVIL ENGINEERING 9777 PYRAMID CT, SUITE 150 ENGLEWOOD, CO 80112 720.826.3965 tdenning@actioncivileng.com					
JOB NO.		2421			
SCALE		---			
DATE		12/2/2025			
SHEETS		19	SHEET 7		



SITE DEVELOPMENT PLAN

LOT 2 AND TRACT A1 AND TRACT B OF THE MEADOWS 19, LOT 1, FILING No. 1, 1ST AMENDMENT
NORTHWEST 1/4 OF SECTION 27 AND THE NORTHEAST QUARTER OF SECTION 28 TOWNSHIP 7 SOUTH, RANGE 67 WEST OF THE 6TH P.M.,
TOWN OF CASTLE ROCK, COUNTY OF DOUGLAS, STATE OF COLORADO

LEGEND:

---	PROPERTY LINE
- - - -	EXISTING EASEMENT
- - - -	EXISTING FLOODPLAIN LIMITS
- - - -	EXISTING CONTOUR
- - - -	EXISTING FENCE LINE
- - - -	EXISTING ELECTRIC LINE
- - - -	EXISTING GAS LINE
- - - -	EXISTING SANITARY LINE W/ MH
- - - -	EXISTING STORM LINE W/ MH
- - - -	EXISTING WATER LINE
- - - -	EXISTING STREET LIGHT
- - - -	EXISTING STORM INLETS
- - - -	EXISTING FIRE HYDRANT
- - - -	EXISTING WATER VALVE
- - - -	STORM WATER FLOW DIRECTION
- - - -	EXISTING CONCRETE
- - - -	EXISTING ASPHALT
- - - -	PROPOSED ASPHALT
- - - -	PROPOSED CONCRETE
- - - -	PROPOSED LANDSCAPE
- - - -	PROPOSED CONTOUR
- - - -	PROPOSED SANITARY SEWER W/ MH
- - - -	PROPOSED WATER LINE
- - - -	PROPOSED STORM SEWER W/ MH
- - - -	PROPOSED EASEMENT LINE
- - - -	PROPOSED PRIVACY WALL
- - - -	PROPOSED ACCESSIBLE ROUTE
- - - -	ORDINANCE REQUIRED PARKING SPACE
- - - -	DISPLAY OR INVENTORY SPACE
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- - - -	PROPOSED STREET LIGHT
- - - -	PROPOSED SIGN
- - - -	PROPOSED TRANSFORMER
- - - -	MANHOLE
- - - -	EXISTING
- - - -	PROPOSED
- - - -	FINISHED GRADE
- - - -	ROOF DRAIN
- - - -	FLOWLINE
- - - -	TOP OF WALL
- - - -	BOTTOM OF WALL
- - - -	RIGHT-OF-WAY
- - - -	PARKING SPACE COUNT
- - - -	PROPOSED FIRE HYDRANT
- - - -	REMOTE FIRE DEPARTMENT CONNECTION

UTILITY NOTES:

- THIS SITE IS LOCATED WITHIN THE TOWN OF CASTLE ROCK ORANGE PLANNING WATER PRESSURE ZONE.
- ALL PROPOSED EASEMENTS MUST BE RECORDED PRIOR TO ISSUANCE OF CONSTRUCTION PERMITS.
- ALL UTILITY EASEMENTS FOR WATER AND WASTEWATER LINES SHALL BE FOR THE EXCLUSIVE USE OF THE TOWN SO THAT ACCESS AND MAINTENANCE MAY BE PERFORMED.
- THE MINIMUM SEPARATION BETWEEN WATERLINES, SANITARY SEWER AND STORM SEWER LINES IS 10 FEET.
- THE MINIMUM SEPARATION BETWEEN WATER SERVICE LINES IS 5 FEET.
- ANY TIE-IN, CROSSING OR LOWERING OF TOWN CRITICAL INFRASTRUCTURE WILL REQUIRE A TIME AND MATERIALS PERMIT (TMU) WITH FEES REQUIRED PRIOR TO CONSTRUCTION.

UTILITY NOTES:

- THIS SITE IS LOCATED WITHIN THE TOWN OF CASTLE ROCK ORANGE PLANNING WATER PRESSURE ZONE.
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- THE MINIMUM SEPARATION BETWEEN WATER SERVICE LINES IS 5 FEET.
- ANY TIE-IN, CROSSING OR LOWERING OF TOWN CRITICAL INFRASTRUCTURE WILL REQUIRE A TIME AND MATERIALS PERMIT (TMU) WITH FEES REQUIRED PRIOR TO CONSTRUCTION.

WATER SYSTEM NOTE:

- THE SITE IS LOCATED WITHIN THE MEADOWS ORANGE PLANNING PRESSURE ZONE. AS SHOWN ON THE ATTACHED UTILITY MAP, AN EXISTING 12-INCH ORANGE PRESSURE WATER LINE IS LOCATED ALONG THE TIMBER MILL ROAD ALIGNMENT. THIS LINE CONNECTS TO A 24-INCH MEADOWS YELLOW PRESSURE TRANSMISSION MAIN SITUATED ADJACENT TO THE UPR RIGHT-OF-WAY THROUGH A PRESSURE REDUCING VALVE (PRV). THE MEADOWS A-11 WELLHOUSE AND EXISTING WELLS ARE LOCATED ON OR NEAR THE SITE.



Know what's below.
Call before you dig.

0 40 80 Feet

REVISION DESCRIPTION		DATE		SUBMITTED TO CASTLE ROCK		SUBMITTED TO CASTLE ROCK	
#	1	07/21/25		DRN	TWD	CHK	
#	2	12/04/25		DSG	TWD		
PROFESSIONAL ENGINEER							
34200							
12/5/25							
FINDLAY TOYOTA							
SITE DEVELOPMENT PLAN							
OVERALL UTILITY PLAN - ONSITE							
ACTION CIVIL ENGINEERING							
9777 PYRAMID CT, SUITE 150							
ENGLEWOOD, CO 80112 720.826.3965							
tdenning@actioncivileng.com							
JOB NO. 2421							
SCALE ---							
DATE 12/2/2025							
SHEETS 19 SHEET 6							

SDP25-0018