

Master Utility Report

***The Southwest Corner of Stephen D. Hogan Parkway and
Picadilly Road***

Eagle Ridge

*A Portion of the Northeast Quarter of Section 11, Township 4 South,
Range 66 West of the Sixth Principal Meridian, City of Aurora, County of
Arapahoe, State of Colorado*

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Reviewed by: Michael Beach, P.E.
Ridgetop Engineering and
Surveying
541 E. Garden Drive, Unit N
Windsor, CO 80550*

Date: May 27, 2024

| | |
|---|-------------|
| Approved For One Year From This Date | |
| <hr/> | |
| <hr/> | <hr/> |
| Fire Department | Date |
| <hr/> | <hr/> |
| Water Department | Date |



541 E Garden Drive, Unit N Windsor, CO 80550
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CERTIFICATION

I hereby certify that this Master Utility Report for Eagle Ridge was prepared by me (or under my direct supervision) in accordance with the provisions of the City of Aurora Standard Specifications regarding Water and Sanitary Infrastructure.

Mike Beach
State of Colorado Registration No. 45088
Ridgetop Engineering

Date

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 Excerpts

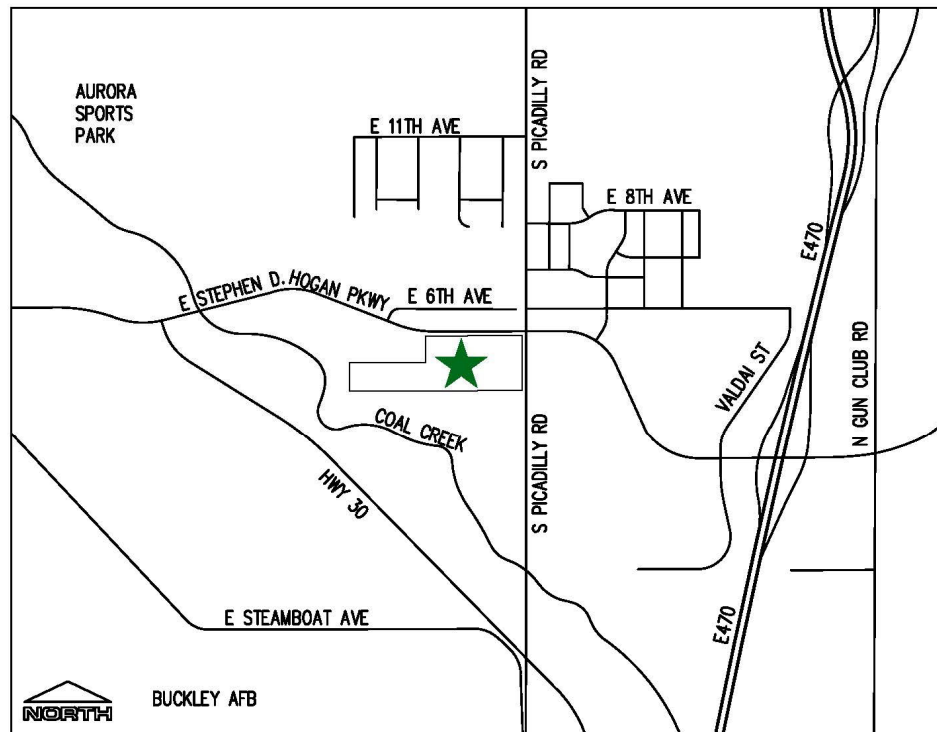
Project Narrative

I. GENERAL LOCATION AND DESCRIPTION

A. Site Location

The Eagle Ridge property is a 39.27 acre parcel bound by Stephen D. Hogan Parkway to the north, Picadilly Road to the east, and Coal Creek/vacant land to the south and west.

Northeast Quarter Section 11, Township 4 South, Range 66 West of the 6th P.M., City of Aurora, County of Arapahoe, State of Colorado.



VICINITY MAP

1" = 2000'

B. Description of Development

Eagle Ridge is planned to be a mixed use development consisting of commercial and multi-family residential uses. The development is divided into six planning areas that will be accessed by proposed internal private roadways. Water and sanitary sewer mains will be extended through the property via the internal private roads to provide service to each of the planning areas. Storm sewer infrastructure mains will be provided at each lot and will convey stormwater runoff to two proposed on-site detention areas. Planning area one will consist of all commercial development and planning area two will be multi-family. Planning areas three, four, and five are proposed to be all commercial use. Planning area six is dedicated to meet the open space

requirements and therefore no water or sewer improvements are planned for PA-6. Refer to the appendix for the Land Use Plan.

II. WATER

A. Existing Infrastructure

A 16" domestic water main is currently proposed to be constructed along the east side of the property located within Picadilly Road adjacent to the site. Water is also available northwest of the property within Stephen D. Hogan Parkway (SDH) approximately 700 feet to the northwest and will be extended east to the property. The property lies within the City of Aurora pressure Zone 3, which indicates a static pressure range from 77 psi to 92 psi. The water main in Picadilly Road is proposed to be a 16" main and has a static pressure of 90 psi. The existing water main in SDH provides an 8" stub to the south side of SDH and has a static pressure of 82.6 psi.

An existing water well is currently serving the existing home located on the eastern edge of the property. This home will be demolished with the development and the well will be abandoned.

B. Proposed Development

The Eagle Ridge development is proposing to extend 8" water mains from Picadilly Road to SDH Parkway to create a looped water main. This will be achieved by constructing the 8" main through the internal private road from the existing 16" main in Picadilly to the existing 8" stub in SDH. Within the site, planning area one will connect each commercial lot directly to the 8" water main proposed within the private road. Planning areas two and three will have multiple future internal mains extended through their respective boundaries to provide services to the phased developments. See appendix for a map of the proposed and existing water infrastructure.

C. Anticipated Demand and Design Criteria

The *Water, Sanitary Sewer and Storm Drainage Infrastructure Manual*, City of Aurora, CO, effective January 2022 Section 5.02 was referenced for all design criteria. Using Section 5.02.3 Domestic Water Demand per Zoning Classification, the proposed water demands have been calculated and a breakdown of the demands is shown in the appendix. The modeled scenarios include average day demand, maximum hourly demand, and maximum day plus fire flow.

Fire flow demands for the Multi-family residential areas were calculated at 2,500 gpm, as well as the Commercial areas, see table below for demand classifications. For purposes of this report, the combined fire flows for Planning area 4 has been modeled for the fire flow plus Max Day Demand analysis. Residual pressures and velocities conform to the requirements of Section 5.02 of the City of Aurora Standards and Specifications, with the minimum pressure achieved of 87.18 psi.

| Use Classification | Fire Flow Demand |
|------------------------|---------------------|
| Residential | 1,500 gpm for 2 hrs |
| Commercial/Multifamily | 2,500 gpm for 2 hrs |
| Industrial | 3,500 gpm for 2 hrs |

III. SANITARY SEWER

A. Existing Infrastructure

Sanitary Sewer infrastructure is currently existing within the Picadilly Road right of way and along the southern property boundary within a 30' wide Utility Easement. The Picadilly Road sanitary sewer is an existing 18" pvc main with an approximate depth of 28' from rim to invert. At the south property boundary, the existing sewer main is a 42" PVC with varying depths of 15' to 20' rim to invert. The existing sanitary sewer infrastructure has sufficient depth and capacity for the proposed development.

B. Proposed Infrastructure

It is proposed to extend an 8" PVC sanitary sewer main through the private road that will connect to the existing 42" along the southern property boundary. This new sewer main will provide sanitary services to all planning areas of the development, with the exception of Planning area 6 (open space). Calculations for peak hour flow of each planning area are provided in the appendix.

C. Design Standards

The *Water, Sanitary Sewer and Storm Drainage Infrastructure Manual*, City of Aurora, CO, Effective January 2022 Section 5.03 was referenced for all design criteria. Offsite flows from the approved Horizon Uptown City Center Master Utilities Report, as well as the Aurora One Master Utility Report were added to the downstream flows in order to accurately analyze the existing sewer infrastructure. Sanitary Average and Peak demands, design slopes, pipe sizes, and pipe capacities have been provided with the appendix.

IV. CONCLUSION

A. Conclusion

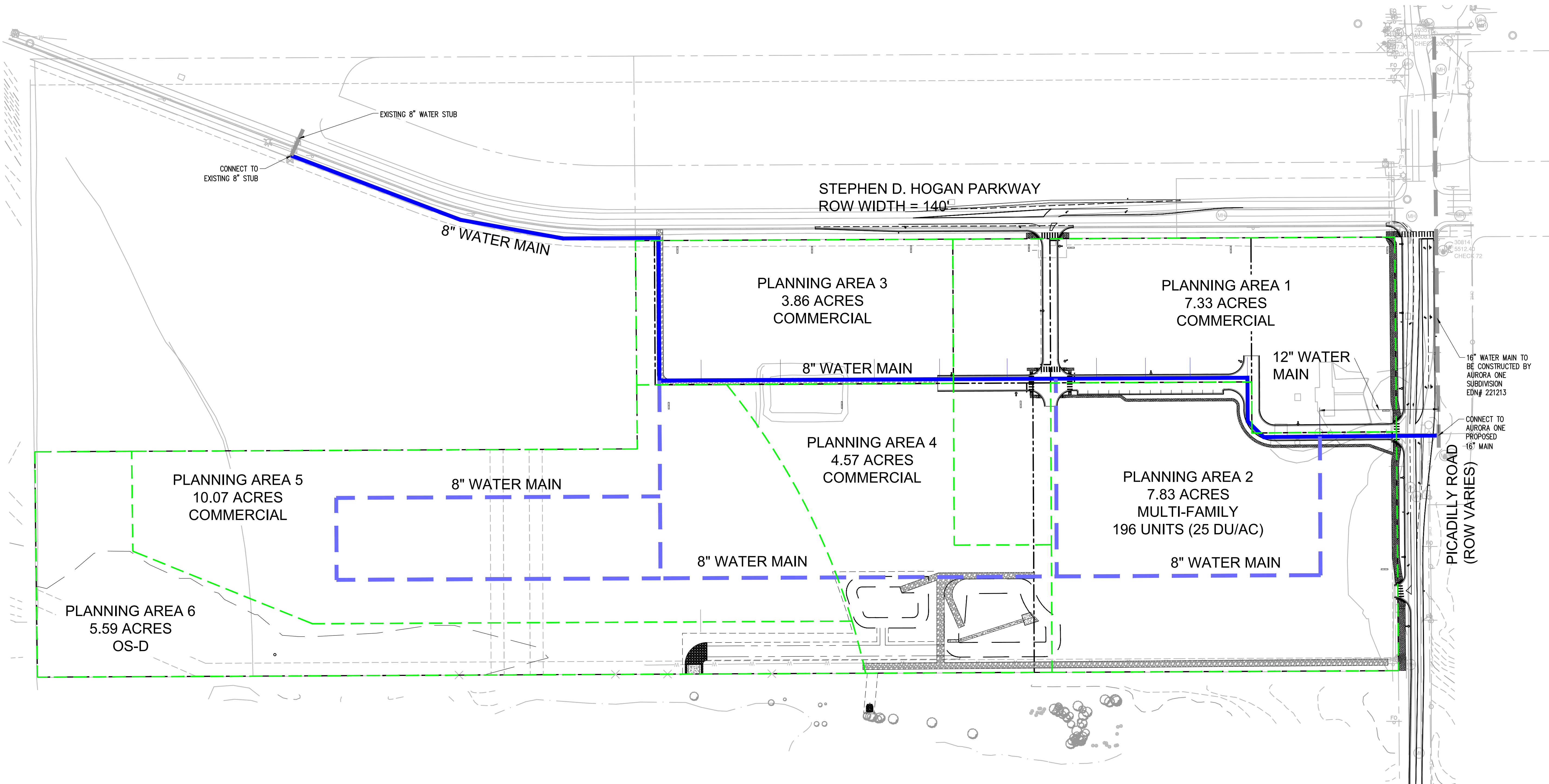
As described above, there is adequate existing water and sewer infrastructure to provide water and sewer service to the proposed development. The existing 16" water mains, as well as the existing 42" sewer main provide the necessary capacity for the required demands.

V. REFERENCES

- *Water, Sanitary Sewer and Storm Drainage Infrastructure Manual*, City of Aurora, CO, effective January 2022.
- *Aurora One Master Utility Report* – Ware Malcomb dated 2/18/2021

Appendix A

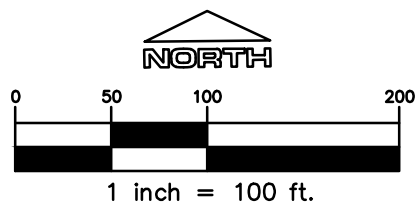
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LEGEND

- EX. CONTOUR
- PROPERTY LINE
- EAGLE BUFFER
- PLANNING AREA
- CONCEPTUAL 8/12" WATER MAIN
- CONCEPTUAL 8" WATER MAIN SPECIFIC TO PLANNING AREA
- WATER SERVICE

| | |
|--------------------------------------|------|
| APPROVED FOR ONE YEAR FROM THIS DATE | |
| | |
| FIRE DEPARTMENT | DATE |
| AURORA WATER – UTILITIES DIVISION | DATE |



LOGO

RIDGE TOP
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SEAL

PROJECT TITLE

EAGLE RIDGE

PREPARED FOR

SWC STEPHEN D. HOGAN PKWY AND PICADILLY RD
EVC-WDG
AURORA ONE, LLC
3501 SW FAIRLAWN ROAD, SUITE 200
TOPEKA, KS 66614

SUBMITTAL

MASTER PLAN

DRAWN BY: NGAR/RSB

CHECKED BY: MRB

PROJECT NO.: 22-064-023

REVISIONS

| | |
|-----------|----------|
| AMENDMENT | 05/27/24 |
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DATE

9/19/2023

SHEET TITLE

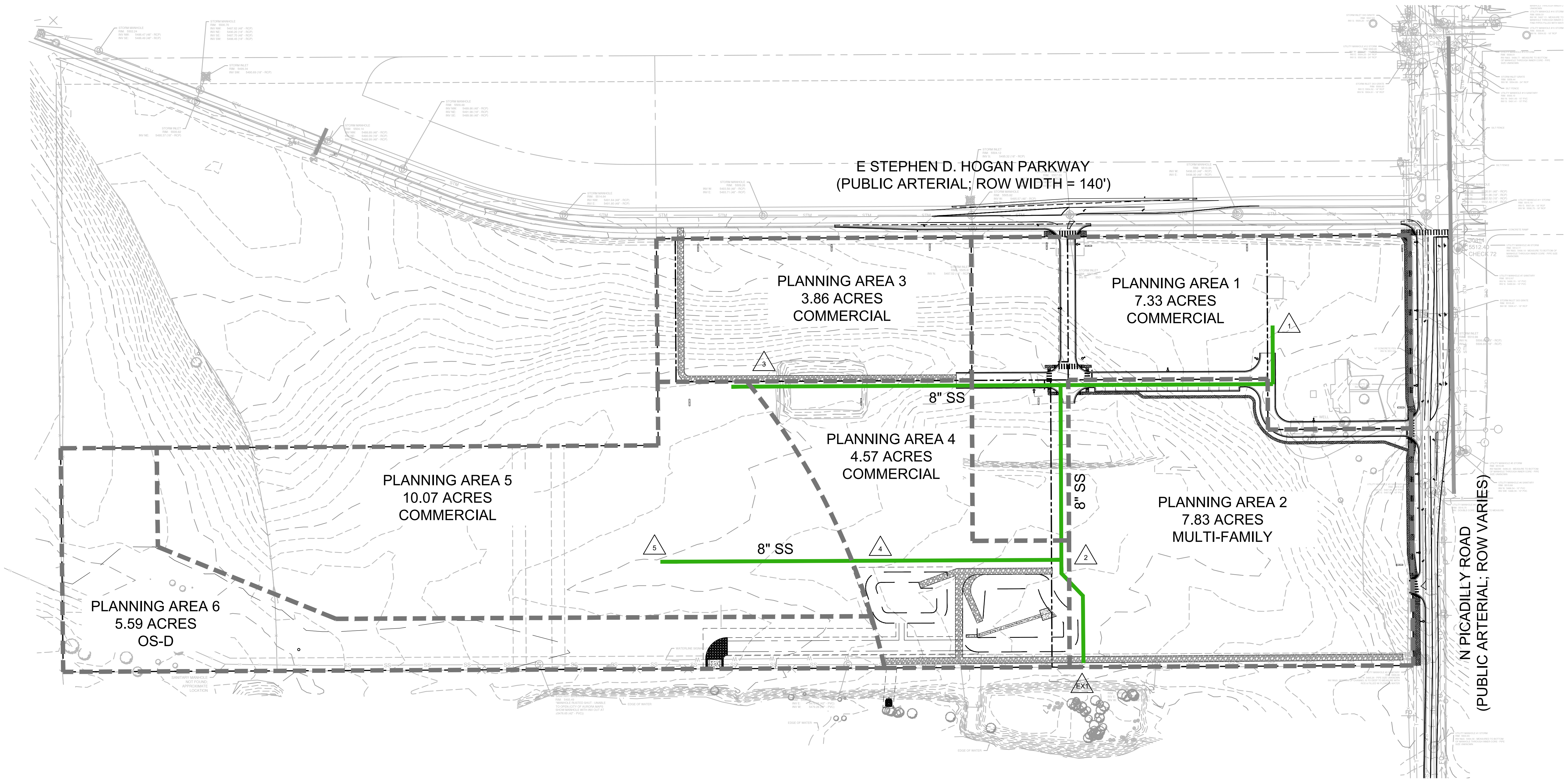
CONCEPTUAL WATER DESIGN

SHEET INFORMATION

WE-1

1 of 1

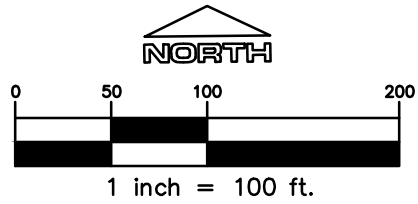
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LEGEND

| | |
|----------------------|--|
| EX. CONTOUR | |
| PROPERTY LINE | |
| EAGLE BUFFER | |
| PLANNING AREA LIMITS | |
| SANITARY MAIN | |
| DESIGN POINT | |

| | |
|--------------------------------------|------|
| APPROVED FOR ONE YEAR FROM THIS DATE | |
| <hr/> | |
| <hr/> | |
| AURORA WATER – UTILITIES DIVISION | DATE |



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SEAL

PROJECT TITLE

EAGLE RIDGE

SWC STEPHEN D. HOGAN PKWY AND PICADILLY RD

PREPARED FOR

EVC-WDG
AURORA ONE, LLC

3501 SW FAIRLAWN ROAD, SUITE 200
TOPEKA, KS 66614

SUBMITTAL

MASTER PLAN

DRAWN BY: NGA/RSB

CHECKED BY: MRB

PROJECT NO.: 22-064-023

REVISIONS

AMENDMENT 05/27/24

DATE

9/19/2023

SHEET TITLE

CONCEPTUAL
SEWER
DESIGN

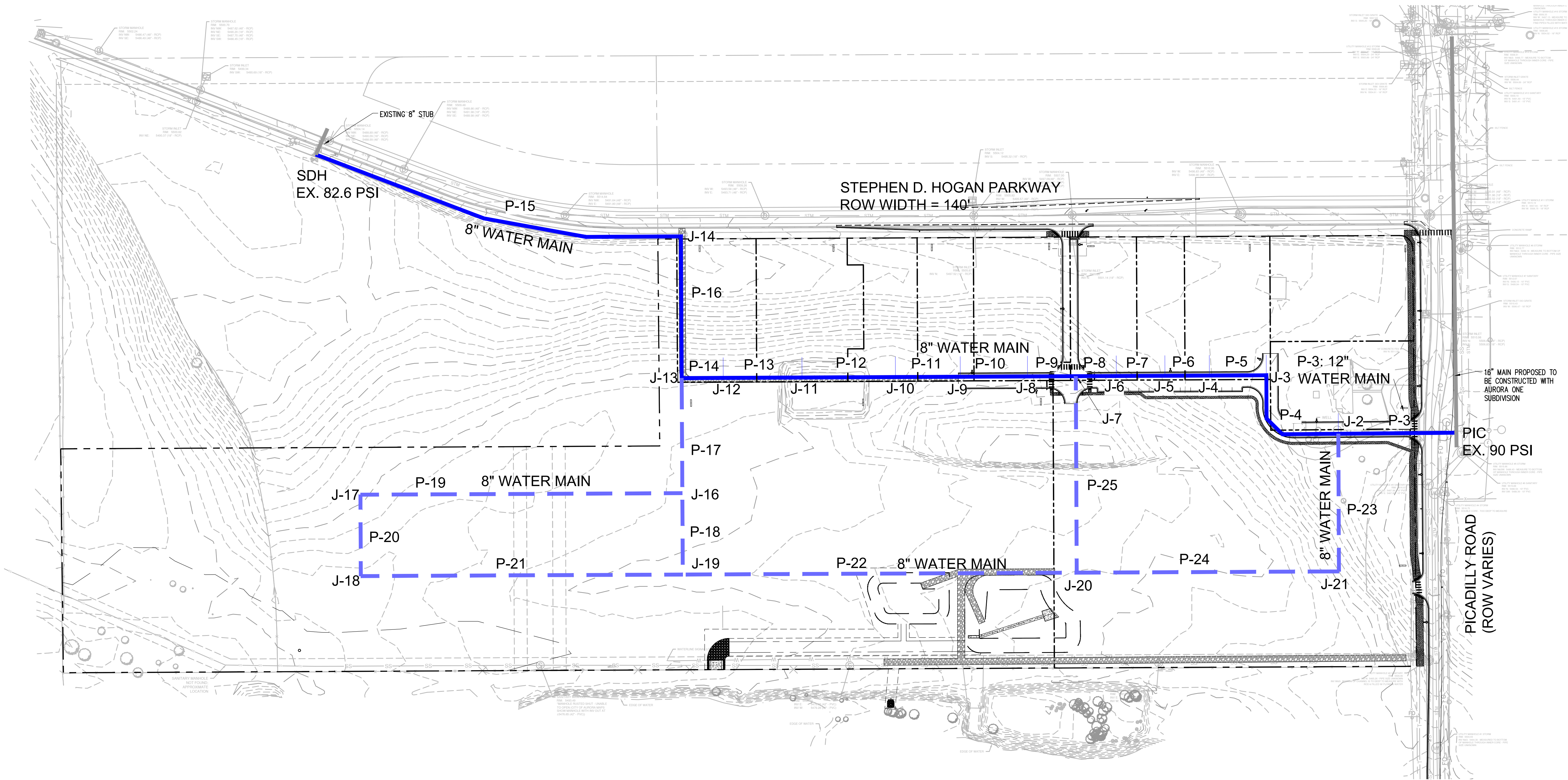
SHEET INFORMATION

SE-1

1 of 1

Appendix B

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LEGEND

| | |
|---|-----|
| EX. CONTOUR | |
| PROPERTY LINE | |
| EAGLE BUFFER | |
| CONCEPTUAL WATER MAIN | |
| CONCEPTUAL WATER MAIN SPECIFIC TO PLANNING AREA | |
| WATER SERVICE | |
| JUNCTION | J-1 |
| PIPE/LINK | P-9 |

LOGO



SEAL

PROJECT TITLE

EAGLE RIDGE

SWC STEPHEN D. HOGAN
PKWY AND PICADILLY RD

PREPARED FOR

EVC-WDG
AURORA ONE,
LLC

3501 SW FAIRLAWN
ROAD, SUITE 200
TOPEKA, KS 66614

SUBMITTAL

MASTER PLAN

DRAWN BY: NGA/RSB

CHECKED BY: MRB

PROJECT NO.: 22-064-023

REVISIONS

AMENDMENT 05/27/24

DATE

9/19/2023

SHEET TITLE

CONCEPTUAL
WATER
MODELING
LAYOUT

SHEET INFORMATION

WE-2

1 of 1

Eagle Ridge

| | | | |
|-------------------------------------|---|------|----------------------|
| Commercial Average Day Demand | = | 1500 | gpd/acre |
| Industrial Average Day Demand | = | 1200 | gpd/acre |
| Open Space Average Day Demand | = | 1800 | gpd/acre |
| Residential Average Day Demand | = | 101 | gpd/p |
| Persons/Unit | = | 2.77 | persons |
| Max Day Demand | = | 2.8 | x Average Day Demand |
| Max Hour Demand | = | 4.5 | x Average Day Demand |
| Commercial/Multi-family Fire Demand | = | 2500 | gpm |
| Industrial Fire Demand | = | 3500 | gpm |
| Residential Fire Demand | = | 1500 | gpm |

[illegible]

Junction Distribution

Eagle Ridge

[illegible]

Average Day Demand (gpm)

Eagle Ridge

| | Junction Node | | | | | | | | | | | | | | | | | | | |
|---------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| Planning Area | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| PA-1 | 1.1 | 1.3 | 1.1 | 0.6 | 0.8 | | 2.6 | | | | | | | | | | | | | |
| PA-2 | | | | | | | | | | | | | | | | | | | 19.0 | 19.0 |
| PA-3 | | | | | | | | 0.8 | 0.8 | 1.4 | 1.0 | | | | | | | | | |
| PA-4 | | | | | | | | | | | | | | | | | | | 4.8 | |
| PA-5 | | | | | | | | | | | | 1.0 | | | 3.1 | 3.1 | 2.1 | 1.0 | | |
| PA-6 | | | | | | | | | | | | | | | | | 7.0 | | | |
| Total | 1.1 | 1.3 | 1.1 | 0.6 | 0.8 | 0.0 | 2.6 | 0.8 | 0.8 | 1.4 | 1.0 | 1.0 | 0.0 | 0.0 | 3.1 | 3.1 | 9.1 | 1.0 | 23.8 | 19.0 |

Maximum Day Demand (gpm)

Eagle Ridge

| | Junction Node | | | | | | | | | | | | | | | | | | | |
|---------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|------|------|
| Planning Area | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| PA-1 | 3.2 | 3.8 | 3.1 | 1.7 | 2.4 | | 7.3 | | | | | | | | | | | | | |
| PA-2 | | | | | | | | | | | | | | | | | | | 53.2 | 53.2 |
| PA-3 | | | | | | | | 2.3 | 2.3 | 3.9 | 2.8 | | | | | | | | | |
| PA-4 | | | | | | | | | | | | | | | | | | | 13.3 | |
| PA-5 | | | | | | | | | | | | 2.9 | | | 8.8 | 8.8 | 5.9 | 2.9 | | |
| PA-6 | | | | | | | | | | | | | | | | | 19.6 | | | |
| Total | 3.2 | 3.8 | 3.1 | 1.7 | 2.4 | 0.0 | 7.3 | 2.3 | 2.3 | 3.9 | 2.8 | 2.9 | 0.0 | 0.0 | 8.8 | 8.8 | 25.4 | 2.9 | 66.6 | 53.2 |

Maximum Hourly Demand (gpm) Eagle Ridge

| | Junction Node | | | | | | | | | | | | | | | | | | | |
|---------------|---------------|-----|-----|-----|-----|---|------|-----|-----|-----|-----|-----|----|----|------|------|------|-----|-------|------|
| Planning Area | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| PA-1 | 5.1 | 6.0 | 4.9 | 2.7 | 3.8 | | 11.8 | | | | | | | | | | | | | |
| PA-2 | | | | | | | | | | | | | | | | | | | 85.6 | 85.6 |
| PA-3 | | | | | | | | 3.6 | 3.6 | 6.3 | 4.5 | | | | | | | | | |
| PA-4 | | | | | | | | | | | | | | | | | | | 21.4 | |
| PA-5 | | | | | | | | | | | | 4.7 | | | 14.2 | 14.2 | 9.4 | 4.7 | | |
| PA-6 | | | | | | | | | | | | | | | | | 31.4 | | | |
| Total | 5.1 | 6.0 | 4.9 | 2.7 | 3.8 | 0 | 11.8 | 3.6 | 3.6 | 6.3 | 4.5 | 4.7 | 0 | 0 | 14.2 | 14.2 | 40.9 | 4.7 | 107.0 | 85.6 |

Fire Flow + MDD (gpm) **Eagle Ridge**

| | Junction Node | | | | | | | | | | | | | | | | | | | | | |
|------------------|---------------|-----|--------|-----|-----|---|-----|-----|-----|--------|-----|-----|----|----|--------|--------|------|-----|--------|--------|------|-------|
| Planning Area | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | Fire | Total |
| PA-1 | 3.2 | 3.8 | 2503.1 | 1.7 | 2.4 | | 7.3 | | | | | | | | | | | | | | 2500 | 2521 |
| PA-2 | | | | | | | | | | | | | | | | | | | 1053.2 | 1553.2 | 2500 | 2606 |
| PA-3 | | | | | | | | 2.3 | 2.3 | 2503.9 | 2.8 | | | | | | | | | | 2500 | 2511 |
| PA-4 | | | | | | | | | | 1500.0 | | | | | | | | | 1013.3 | | 2500 | 2513 |
| PA-5 | | | | | | | | | | | | 2.9 | | | 1508.8 | 1008.8 | 5.9 | 2.9 | | | 2500 | 2529 |
| PA-6 | | | | | | | | | | | | | | | | | 19.6 | | | | - | 20 |
| Total MDD | 3.2 | 3.8 | 3.1 | 1.7 | 2.4 | 0 | 7.3 | 2.3 | 2.3 | 3.9 | 2.8 | 2.9 | 0 | 0 | 8.8 | 8.8 | 25.4 | 2.9 | 66.6 | 53.2 | | |

* Fire Flow + MDD has been analyzed by flowing the overall Max Daily Demand plus Planning area 4 fire flows for a total demand of 2,701.4 gpm.

Average Day Demand

Network Table - Nodes

| Node ID | Elevation ft | Base Demand GPM | Demand GPM | Head ft | Pressure psi |
|---------|-----------------|--------------------|---------------|------------|-----------------|
| Junc 2 | 5512 | 1.1 | 1.10 | 5722.65 | 91.27 |
| Junc 3 | 5509.75 | 1.3 | 1.30 | 5722.64 | 92.25 |
| Junc 4 | 5508 | 1.1 | 1.10 | 5722.64 | 93.00 |
| Junc 5 | 5505 | 0.6 | 0.60 | 5722.64 | 94.30 |
| Junc 6 | 5501 | 0.8 | 0.80 | 5722.64 | 96.04 |
| Junc 7 | 5500 | 0 | 0.00 | 5722.64 | 96.47 |
| Junc 8 | 5500 | 2.6 | 2.60 | 5722.64 | 96.47 |
| Junc 9 | 5498.75 | 0.8 | 0.80 | 5722.64 | 97.01 |
| Junc 10 | 5495.5 | 0.8 | 0.80 | 5722.64 | 98.42 |
| Junc 11 | 5492.25 | 1.4 | 1.40 | 5722.64 | 99.83 |
| Junc 12 | 5494.25 | 1.0 | 1.00 | 5722.64 | 98.96 |
| Junc 13 | 5494.5 | 1.0 | 1.00 | 5722.64 | 98.85 |
| Junc 14 | 5512 | 0 | 0.00 | 5722.64 | 91.27 |
| Junc 16 | 5494 | 3.1 | 3.10 | 5722.64 | 99.07 |
| Junc 17 | 5494.5 | 3.1 | 3.10 | 5722.64 | 98.85 |
| Junc 18 | 5492 | 9.1 | 9.10 | 5722.64 | 99.94 |
| Junc 19 | 5495 | 1.0 | 1.00 | 5722.64 | 98.64 |

Average Day Demand

| Node ID | Elevation ft | Base Demand GPM | Demand GPM | Head ft | Pressure psi |
|-----------|-----------------|--------------------|---------------|------------|-----------------|
| Junc 20 | 5499.25 | 23.8 | 23.80 | 5722.64 | 96.79 |
| Junc 21 | 5504.5 | 19 | 19.00 | 5722.64 | 94.52 |
| Junc SDH | 5504 | 0 | 0.00 | 5722.65 | 94.74 |
| Resvr PIC | 5722.65 | #N/A | -71.60 | 5722.65 | 0.00 |

Average Day Demand

Network Table - Links

| Link ID | Length ft | Diameter in | Roughness | Flow GPM | Velocity fps |
|---------|--------------|----------------|-----------|-------------|-----------------|
| Pipe 3 | 227.75 | 12 | 150 | 71.60 | 0.20 |
| Pipe 4 | 235.78 | 8 | 150 | 22.91 | 0.15 |
| Pipe 5 | 109.80 | 8 | 150 | 21.61 | 0.14 |
| Pipe 6 | 85.63 | 8 | 150 | 20.51 | 0.13 |
| Pipe 7 | 93.83 | 8 | 150 | 19.91 | 0.13 |
| Pipe 8 | 77.84 | 8 | 150 | 19.11 | 0.12 |
| Pipe 9 | 92.60 | 8 | 150 | 6.16 | 0.04 |
| Pipe 10 | 130.70 | 8 | 150 | 3.56 | 0.02 |
| Pipe 11 | 123.32 | 8 | 150 | 2.76 | 0.02 |
| Pipe 12 | 182.32 | 8 | 150 | 1.96 | 0.01 |
| Pipe 13 | 151.59 | 8 | 150 | 0.56 | 0.00 |
| Pipe 14 | 79.48 | 8 | 150 | -0.44 | 0.00 |
| Pipe 15 | 729.72 | 8 | 150 | 16.54 | 0.11 |
| Pipe 17 | 254.43 | 8 | 150 | 15.10 | 0.10 |
| Pipe 18 | 157.73 | 8 | 150 | 5.67 | 0.04 |
| Pipe 19 | 621.12 | 8 | 150 | 6.33 | 0.04 |
| Pipe 20 | 154.88 | 8 | 150 | 3.23 | 0.02 |

Average Day Demand

| Link ID | Length ft | Diameter in | Roughness | Flow GPM | Velocity fps |
|---------|--------------|----------------|-----------|-------------|-----------------|
| Pipe 21 | 619.47 | 8 | 150 | -5.87 | 0.04 |
| Pipe 22 | 760.01 | 8 | 150 | -1.20 | 0.01 |
| Pipe 24 | 506.4 | 8 | 150 | 12.04 | 0.08 |
| Pipe 25 | 411.34 | 8 | 150 | -12.95 | 0.08 |
| Pipe 23 | 297.04 | 8 | 150 | 31.04 | 0.20 |
| Pipe 16 | 273.68 | 8 | 150 | 16.54 | 0.11 |
| Valve 2 | #N/A | 8 | #N/A | 16.54 | 0.11 |

Max Day Demand

Network Table - Nodes

| Node ID | Elevation ft | Base Demand GPM | Demand GPM | Head ft | Pressure psi |
|---------|-----------------|--------------------|---------------|------------|-----------------|
| Junc 2 | 5512 | 3.2 | 3.20 | 5722.63 | 91.26 |
| Junc 3 | 5509.75 | 3.8 | 3.80 | 5722.61 | 92.23 |
| Junc 4 | 5508 | 3.1 | 3.10 | 5722.60 | 92.99 |
| Junc 5 | 5505 | 1.7 | 1.70 | 5722.59 | 94.28 |
| Junc 6 | 5501 | 2.4 | 2.40 | 5722.59 | 96.01 |
| Junc 7 | 5500 | 0 | 0.00 | 5722.58 | 96.44 |
| Junc 8 | 5500 | 7.3 | 7.30 | 5722.58 | 96.44 |
| Junc 9 | 5498.75 | 2.3 | 2.30 | 5722.58 | 96.99 |
| Junc 10 | 5495.5 | 2.3 | 2.30 | 5722.58 | 98.39 |
| Junc 11 | 5492.25 | 3.9 | 3.90 | 5722.58 | 99.80 |
| Junc 12 | 5494.25 | 2.8 | 2.80 | 5722.58 | 98.93 |
| Junc 13 | 5494.5 | 2.9 | 2.90 | 5722.58 | 98.83 |
| Junc 14 | 5512 | 0 | 0.00 | 5722.59 | 91.25 |
| Junc 16 | 5494 | 8.8 | 8.80 | 5722.57 | 99.04 |
| Junc 17 | 5494.5 | 8.8 | 8.80 | 5722.56 | 98.82 |
| Junc 18 | 5492 | 25.4 | 25.40 | 5722.56 | 99.90 |
| Junc 19 | 5495 | 2.9 | 2.90 | 5722.57 | 98.61 |

Max Day Demand

| Node ID | Elevation ft | Base Demand GPM | Demand GPM | Head ft | Pressure psi |
|-----------|-----------------|--------------------|---------------|------------|-----------------|
| Junc 20 | 5499.25 | 66.6 | 66.60 | 5722.57 | 96.76 |
| Junc 21 | 5504.5 | 53.2 | 53.20 | 5722.58 | 94.49 |
| Junc SDH | 5504 | 0 | 0.00 | 5722.63 | 94.73 |
| Resvr PIC | 5722.65 | #N/A | -201.40 | 5722.65 | 0.00 |

Max Day Demand

Network Table - Links

| Link ID | Length ft | Diameter in | Roughness | Flow GPM | Velocity fps |
|---------|--------------|----------------|-----------|-------------|-----------------|
| Pipe 3 | 227.41 | 12 | 150 | 201.40 | 0.57 |
| Pipe 4 | 235.78 | 8 | 150 | 64.55 | 0.41 |
| Pipe 5 | 109.80 | 8 | 150 | 60.75 | 0.39 |
| Pipe 6 | 85.63 | 8 | 150 | 57.65 | 0.37 |
| Pipe 7 | 93.83 | 8 | 150 | 55.95 | 0.36 |
| Pipe 8 | 77.84 | 8 | 150 | 53.55 | 0.34 |
| Pipe 9 | 92.60 | 8 | 150 | 17.32 | 0.11 |
| Pipe 10 | 130.70 | 8 | 150 | 10.02 | 0.06 |
| Pipe 11 | 123.32 | 8 | 150 | 7.72 | 0.05 |
| Pipe 12 | 182.32 | 8 | 150 | 5.42 | 0.03 |
| Pipe 13 | 151.59 | 8 | 150 | 1.52 | 0.01 |
| Pipe 14 | 79.48 | 8 | 150 | -1.28 | 0.01 |
| Pipe 15 | 729.72 | 8 | 150 | 46.52 | 0.30 |
| Pipe 16 | 273.68 | 8 | 150 | 46.52 | 0.30 |
| Pipe 17 | 254.43 | 8 | 150 | 42.34 | 0.27 |
| Pipe 18 | 157.73 | 8 | 150 | 15.78 | 0.10 |
| Pipe 19 | 621.12 | 8 | 150 | 17.75 | 0.11 |

Max Day Demand

| Link ID | Length ft | Diameter in | Roughness | Flow GPM | Velocity fps |
|---------|--------------|----------------|-----------|-------------|-----------------|
| Pipe 20 | 154.88 | 8 | 150 | 8.95 | 0.06 |
| Pipe 21 | 619.47 | 8 | 150 | -16.45 | 0.10 |
| Pipe 22 | 760.01 | 8 | 150 | -3.56 | 0.02 |
| Pipe 23 | 297.04 | 8 | 150 | 87.13 | 0.56 |
| Pipe 24 | 506.4 | 8 | 150 | 33.93 | 0.22 |
| Pipe 25 | 411.34 | 8 | 150 | -36.23 | 0.23 |
| Valve 1 | #N/A | 8 | #N/A | 46.52 | 0.30 |

Max Hour Demand

Network Table - Nodes

| Node ID | Elevation ft | Base Demand GPM | Demand GPM | Head ft | Pressure psi |
|---------|-----------------|--------------------|---------------|------------|-----------------|
| Junc 2 | 5512 | 5.1 | 5.10 | 5722.60 | 91.25 |
| Junc 3 | 5509.75 | 6.0 | 6.00 | 5722.55 | 92.20 |
| Junc 4 | 5508 | 4.9 | 4.90 | 5722.52 | 92.95 |
| Junc 5 | 5505 | 2.7 | 2.70 | 5722.51 | 94.25 |
| Junc 6 | 5501 | 3.8 | 3.80 | 5722.50 | 95.97 |
| Junc 7 | 5500 | 0 | 0.00 | 5722.48 | 96.40 |
| Junc 8 | 5500 | 11.8 | 11.80 | 5722.48 | 96.40 |
| Junc 9 | 5498.75 | 3.6 | 3.60 | 5722.48 | 96.94 |
| Junc 10 | 5495.5 | 3.6 | 3.60 | 5722.48 | 98.35 |
| Junc 11 | 5492.25 | 6.3 | 6.30 | 5722.48 | 99.76 |
| Junc 12 | 5494.25 | 4.5 | 4.50 | 5722.48 | 98.89 |
| Junc 13 | 5494.5 | 4.7 | 4.70 | 5722.48 | 98.78 |
| Junc 14 | 5512 | 0 | 0.00 | 5722.51 | 91.21 |
| Junc 16 | 5494 | 14.2 | 14.20 | 5722.46 | 98.99 |
| Junc 17 | 5494.5 | 14.2 | 14.20 | 5722.44 | 98.77 |
| Junc 18 | 5492 | 40.9 | 40.90 | 5722.44 | 99.85 |
| Junc 19 | 5495 | 4.7 | 4.70 | 5722.45 | 98.56 |

Max Hour Demand

| Node ID | Elevation ft | Base Demand GPM | Demand GPM | Head ft | Pressure psi |
|-----------|-----------------|--------------------|---------------|------------|-----------------|
| Junc 20 | 5499.25 | 107.0 | 107.00 | 5722.45 | 96.71 |
| Junc 21 | 5504.5 | 85.6 | 85.60 | 5722.49 | 94.45 |
| Junc SDH | 5504 | 0 | 0.00 | 5722.60 | 94.72 |
| Resvr PIC | 5722.65 | #N/A | -323.59 | 5722.65 | 0.00 |

Max Hour Demand

Network Table - Links

| Link ID | Length ft | Diameter in | Roughness | Flow GPM | Velocity fps |
|---------|--------------|----------------|-----------|-------------|-----------------|
| Pipe 3 | 227.41 | 12 | 150 | 323.59 | 0.92 |
| Pipe 4 | 235.78 | 8 | 150 | 103.62 | 0.66 |
| Pipe 5 | 109.80 | 8 | 150 | 97.62 | 0.62 |
| Pipe 6 | 85.63 | 8 | 150 | 92.72 | 0.59 |
| Pipe 7 | 93.83 | 8 | 150 | 90.02 | 0.57 |
| Pipe 8 | 77.84 | 8 | 150 | 86.22 | 0.55 |
| Pipe 9 | 92.60 | 8 | 150 | 27.89 | 0.18 |
| Pipe 10 | 130.70 | 8 | 150 | 16.09 | 0.10 |
| Pipe 11 | 123.32 | 8 | 150 | 12.49 | 0.08 |
| Pipe 12 | 182.32 | 8 | 150 | 8.89 | 0.06 |
| Pipe 13 | 151.59 | 8 | 150 | 2.59 | 0.02 |
| Pipe 14 | 79.48 | 8 | 150 | -1.91 | 0.01 |
| Pipe 15 | 729.72 | 8 | 150 | 74.77 | 0.48 |
| Pipe 16 | 273.68 | 8 | 150 | 74.77 | 0.48 |
| Pipe 17 | 254.43 | 8 | 150 | 68.17 | 0.44 |
| Pipe 18 | 157.73 | 8 | 150 | 25.37 | 0.16 |
| Pipe 19 | 621.12 | 8 | 150 | 28.60 | 0.18 |

Max Hour Demand

| Link ID | Length ft | Diameter in | Roughness | Flow GPM | Velocity fps |
|---------|--------------|----------------|-----------|-------------|-----------------|
| Pipe 20 | 154.88 | 8 | 150 | 14.40 | 0.09 |
| Pipe 21 | 619.47 | 8 | 150 | -26.50 | 0.17 |
| Pipe 22 | 760.01 | 8 | 150 | -5.83 | 0.04 |
| Pipe 23 | 297.04 | 8 | 150 | 140.11 | 0.89 |
| Pipe 24 | 506.4 | 8 | 150 | 54.51 | 0.35 |
| Pipe 25 | 411.34 | 8 | 150 | -58.33 | 0.37 |
| Valve 1 | #N/A | 8 | #N/A | 74.77 | 0.48 |

Fire Flow + MDD

Network Table - Nodes

| Node ID | Elevation ft | Base Demand GPM | Demand GPM | Head ft | Pressure psi |
|---------|-----------------|--------------------|---------------|------------|-----------------|
| Junc 2 | 5512 | 3.2 | 3.20 | 5719.86 | 90.07 |
| Junc 3 | 5509.75 | 3.8 | 3.80 | 5716.62 | 89.64 |
| Junc 4 | 5508 | 3.1 | 3.10 | 5715.12 | 89.75 |
| Junc 5 | 5505 | 1.7 | 1.70 | 5713.96 | 90.54 |
| Junc 6 | 5501 | 2.4 | 2.40 | 5712.69 | 91.72 |
| Junc 7 | 5500 | 0 | 0.00 | 5711.64 | 91.70 |
| Junc 8 | 5500 | 7.3 | 7.30 | 5711.04 | 91.44 |
| Junc 9 | 5498.75 | 2.3 | 2.30 | 5710.21 | 91.62 |
| Junc 10 | 5495.5 | 2.3 | 2.30 | 5709.43 | 92.69 |
| Junc 11 | 5492.25 | 1503.9 | 1503.90 | 5708.28 | 93.61 |
| Junc 12 | 5494.25 | 2.8 | 2.80 | 5709.87 | 93.43 |
| Junc 13 | 5494.5 | 2.9 | 2.90 | 5710.71 | 93.68 |
| Junc 14 | 5512 | 0 | 0.00 | 5713.21 | 87.18 |
| Junc 16 | 5494 | 8.8 | 8.80 | 5710.74 | 93.91 |
| Junc 17 | 5494.5 | 8.8 | 8.80 | 5710.74 | 93.69 |
| Junc 18 | 5492 | 25.4 | 25.40 | 5710.74 | 94.78 |
| Junc 19 | 5495 | 2.9 | 2.90 | 5710.75 | 93.49 |

Fire Flow + MDD

| Node ID | Elevation ft | Base Demand GPM | Demand GPM | Head ft | Pressure psi |
|-----------|-----------------|--------------------|---------------|------------|-----------------|
| Junc 20 | 5499.25 | 1066.6 | 1066.60 | 5710.95 | 91.73 |
| Junc 21 | 5504.5 | 53.2 | 53.20 | 5716.33 | 91.79 |
| Junc SDH | 5504 | 0 | 0.00 | 5719.86 | 93.53 |
| Resvr PIC | 5722.65 | #N/A | -2701.40 | 5722.65 | 0.00 |

Fire Flow + MDD

Network Table - Links

| Link ID | Length ft | Diameter in | Roughness | Flow GPM | Velocity fps |
|---------|--------------|----------------|-----------|-------------|-----------------|
| Pipe 3 | 227.41 | 12 | 150 | 2701.40 | 7.66 |
| Pipe 4 | 235.78 | 8 | 150 | 990.08 | 6.32 |
| Pipe 5 | 109.80 | 8 | 150 | 986.28 | 6.30 |
| Pipe 6 | 85.63 | 8 | 150 | 983.18 | 6.28 |
| Pipe 7 | 93.83 | 8 | 150 | 981.48 | 6.26 |
| Pipe 8 | 77.84 | 8 | 150 | 979.08 | 6.25 |
| Pipe 9 | 92.60 | 8 | 150 | 660.28 | 4.21 |
| Pipe 10 | 130.70 | 8 | 150 | 652.98 | 4.17 |
| Pipe 11 | 123.32 | 8 | 150 | 650.68 | 4.15 |
| Pipe 12 | 182.32 | 8 | 150 | 648.38 | 4.14 |
| Pipe 13 | 151.59 | 8 | 150 | -855.52 | 5.46 |
| Pipe 14 | 79.48 | 8 | 150 | -858.32 | 5.48 |
| Pipe 15 | 729.72 | 8 | 150 | 793.10 | 5.06 |
| Pipe 16 | 273.68 | 8 | 150 | 793.10 | 5.06 |
| Pipe 17 | 254.43 | 8 | 150 | -68.12 | 0.43 |
| Pipe 18 | 157.73 | 8 | 150 | -75.55 | 0.48 |
| Pipe 19 | 621.12 | 8 | 150 | -1.37 | 0.01 |

Fire Flow + MDD

| Link ID | Length ft | Diameter in | Roughness | Flow GPM | Velocity fps |
|---------|--------------|----------------|-----------|-------------|-----------------|
| Pipe 20 | 154.88 | 8 | 150 | -10.17 | 0.06 |
| Pipe 21 | 619.47 | 8 | 150 | -35.57 | 0.23 |
| Pipe 22 | 760.01 | 8 | 150 | -114.02 | 0.73 |
| Pipe 23 | 297.04 | 8 | 150 | 915.02 | 5.84 |
| Pipe 24 | 506.40 | 8 | 150 | 861.82 | 5.50 |
| Pipe 25 | 411.34 | 8 | 150 | -318.80 | 2.03 |
| Valve 1 | #N/A | 8 | #N/A | 793.10 | 5.06 |

Appendix C

Sewer Demand Calculations

Eagle Ridge

| | | | | |
|----------------------------------|---|-----------------|----------|-------------------------|
| Commercial Average Day Flow | = | 1500 | gpd/acre | |
| Residential Average Day Flow | = | 68 | gpd/p | |
| Industrial Average Day Flow | = | 1200 | gpd/acre | |
| Commercial Equivalent Population | = | 22 | per acre | |
| Industrial Equivalent Population | = | 18 | per acre | |
| Peaking Factor | = | $5/(P^{0.167})$ | PF | (Max. of 4, Min of 1.7) |
| I / I | = | AD * 0.1 | gpd | |

| Planning Area | Area (AC) | Zoning/Land Use | Design Point | Density (DU/AC) | Units | People/ Unit | Average Day Flow | Equivalent Population (P) | Average Day Flow (gpd) | Peak Factor | Peak Flow (gpd) | I/I (gpd) | Total Peak Flow (gpd) | Total Peak Flow (cfs) |
|---------------|-----------|-----------------|--------------|-----------------|-------|--------------|------------------|---------------------------|------------------------|-------------|-----------------|-----------|-----------------------|-----------------------|
| PA-1 | 7.33 | Commercial | 1 | | | | 1,500 | 161 | 10,995 | 4.0 | 43,980 | 1,100 | 45,080 | 0.070 |
| PA-2 | 7.83 | Multi-Family | 2 | 25 | 196 | 2.77 | 68 | 542 | 36,871 | 4.0 | 147,486 | 3,687 | 151,173 | 0.234 |
| PA-3 | 3.86 | Commercial | 3 | | | | 1,500 | 85 | 5,790 | 4.0 | 23,160 | 579 | 23,739 | 0.037 |
| PA-4 | 4.57 | Commercial | 4 | | | | 1,500 | 101 | 6,855 | 4.0 | 27,420 | 686 | 28,106 | 0.043 |
| PA-5 | 10.07 | Commercial | 5 | | | | 1,500 | 222 | 15,105 | 4.0 | 60,420 | 1,511 | 61,931 | 0.096 |
| PA-6 | 5.59 | Open Space | N/A | | | | | | | | | | | |
| Offsite 1* | | | EX1 | | | | 1,193,455 | 17,116 | 1,193,455 | 3.1 | 3,713,629 | 119,345 | 3,832,975 | 5.930 |

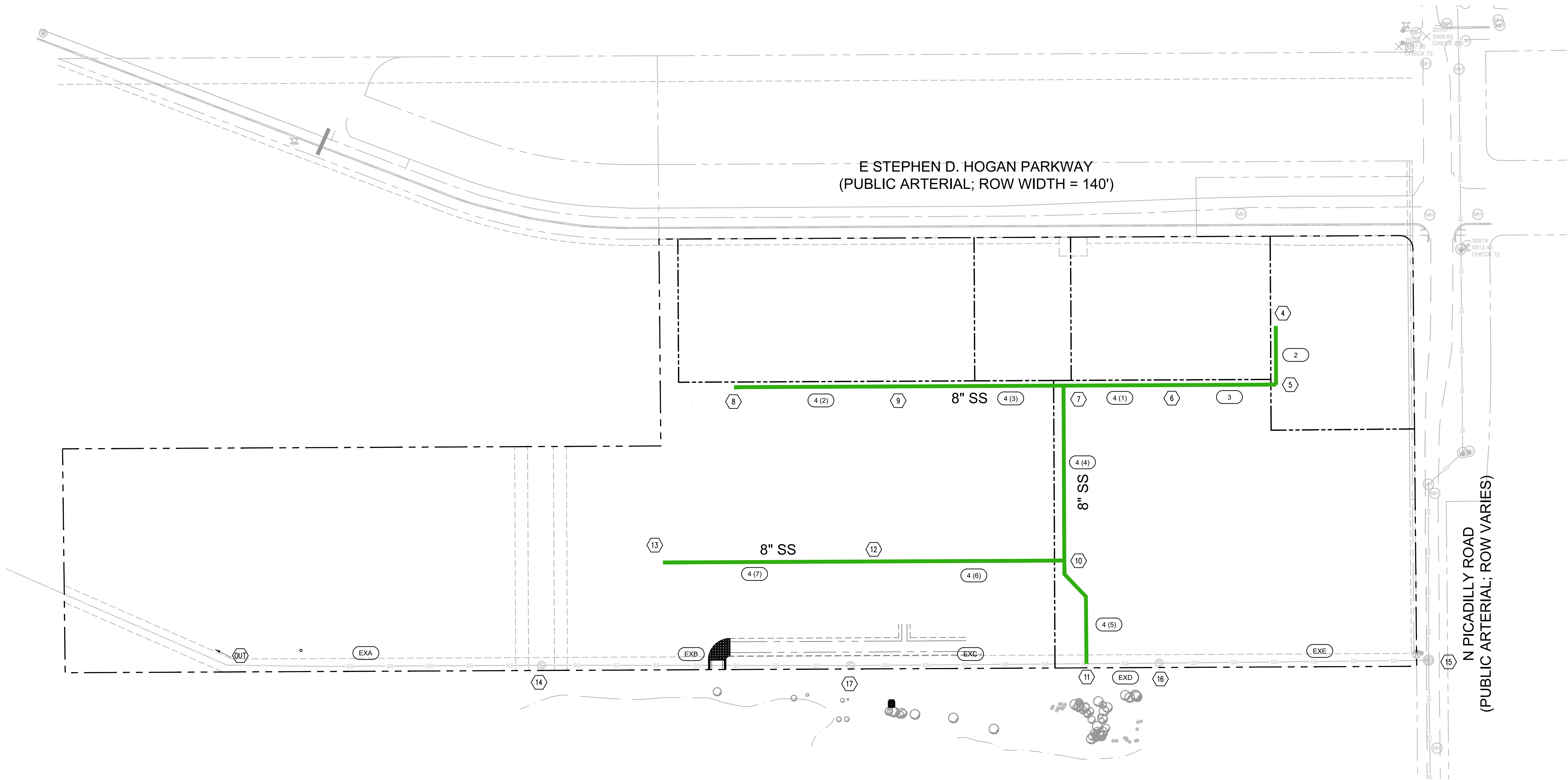
*Note: Offsite flows were obtained from the Aurora One Master Utility Report. See Appendix E for excerpts.

Design Point Distribution

Eagle Ridge

| Planning Area | Design Point | | | | | | Flows (cfs) |
|-------------------|--------------|-------|-------|-------|-------|-------|-------------|
| | 1 | 2 | 3 | 4 | 5 | EX1 | |
| PA-1 | 100% | 100% | | | | 100% | 0.070 |
| PA-2 | | 100% | | | | 100% | 0.234 |
| PA-3 | | 100% | 100% | | | 100% | 0.037 |
| PA-4 | | 100% | | 100% | | 100% | 0.043 |
| PA-5 | | 100% | | 100% | 100% | 100% | 0.096 |
| Offsite 1* | | | | | | 100% | 5.930 |
| Flow Accumulation | 0.070 | 0.480 | 0.037 | 0.139 | 0.096 | 6.410 | |

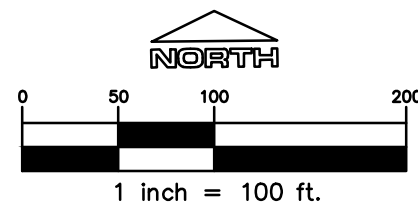
File: A:\HOMSP - Util Report SE2 Sewer Node Link.dwg Path: P:\Colorado\Aurora\Equity Ventures\22-064-023 Hogan & Picadilly Aurora One Master Plan\2 Drawings\ Plotted by: Ryn Date: 27-May-24 11:36:18am



LEGEND

| | |
|--------------------|-----|
| PROPERTY LINE | --- |
| SANITARY MAIN | — |
| SANITARY NODE | ⊕ |
| SANITARY LINK/PIPE | ⊕ |

| | |
|--------------------------------------|------|
| APPROVED FOR ONE YEAR FROM THIS DATE | |
| _____ | |
| _____ | |
| AURORA WATER – UTILITIES DIVISION | DATE |



LOGO

RIDGE TOP
ENGINEERING & SURVEYING
541 E. Garden Drive, Unit N Windsor, CO 80550
T (970) 663-4562
W ridgektopeng.com

SEAL

PROJECT TITLE

EAGLE RIDGE

SWC STEPHEN D. HOGAN PKWY AND PICADILLY RD

PREPARED FOR

EVC-WDG
AURORA ONE,
LLC

3501 SW FAIRLAWN ROAD, SUITE 200
TOPEKA, KS 66614

SUBMITTAL

MASTER PLAN

DRAWN BY: NGA/RSB

CHECKED BY: MRB

PROJECT NO.: 22-064-023

REVISIONS

| | |
|-----------|----------|
| AMENDMENT | 05/27/24 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

DATE

9/19/2023

SHEET TITLE

SEWER NODE AND LINK MAPPING

SHEET INFORMATION

SE-2

1 of 1

Sewer Summary Table

Eagle Ridge

| | Design Point | | | | | |
|------------------------|--------------|-------|-------|-------|-------|-------|
| | 1 | 2 | 3 | 4 | 5 | EX1 |
| Pipe Slope (%) | 1.00% | 1.00% | 1.00% | 0.75% | 0.75% | 0.43% |
| Ave. Day Loading (cfs) | 0.017 | 0.057 | 0.009 | 0.011 | 0.023 | 1.85 |
| Population | 161 | 542 | 85 | 101 | 222 | 17116 |
| Peak Factor | 4 | 4 | 4 | 4 | 4 | 3.1 |
| Peak Loading (cfs) | 0.070 | 0.234 | 0.037 | 0.043 | 0.096 | 6.41 |
| Percent full (%) | 14% | 42% | 12% | 25% | 20% | 20% |
| | | | | | | |
| | | | | | | |

Project Description

File Name SSA PEAK 052724.SPF

Analysis Options

Flow Units cfs

Link Routing Method Kinematic Wave

Storage Node Exfiltration.. None

Starting Date MAY-27-2024 00:00:00

Ending Date MAY-28-2024 00:00:00

Report Time Step 00:05:00

Element Count

Number of subbasins 0

Number of nodes 15

Number of links 14

Node Summary

| Node ID | Element Type | Invert Elevation ft | Maximum Elev. ft | Ponded Area ft ² | External Inflow |
|----------|--------------|------------------------|---------------------|--------------------------------|-----------------|
| 4 -DP1 | JUNCTION | 5495.11 | 5508.45 | 0.00 | Yes |
| 5 | JUNCTION | 5493.68 | 5510.51 | 0.00 | |
| 6 | JUNCTION | 5491.42 | 5506.25 | 0.00 | |
| 7 | JUNCTION | 5489.07 | 5498.95 | 0.00 | |
| 8 -DP3 | JUNCTION | 5495.93 | 5497.62 | 0.00 | Yes |
| 9 | JUNCTION | 5492.55 | 5496.01 | 0.00 | |
| 10 -DP2 | JUNCTION | 5484.72 | 5499.35 | 0.00 | Yes |
| 11 | JUNCTION | 5481.16 | 5499.19 | 0.00 | |
| 12 -DP4 | JUNCTION | 5487.75 | 5496.30 | 0.00 | Yes |
| 13 -DP5 | JUNCTION | 5490.94 | 5494.43 | 0.00 | Yes |
| 14 | JUNCTION | 5476.65 | 5493.09 | 0.00 | |
| 15 | JUNCTION | 5485.69 | 5509.96 | 0.00 | Yes |
| 16 | JUNCTION | 5481.95 | 5500.93 | 0.00 | |
| 17 | JUNCTION | 5479.28 | 5495.84 | 0.00 | |
| Out-1EXA | OUTFALL | 5473.92 | 5477.42 | 0.00 | |

Link Summary

| Link ID | From Node | To Node | Element Type | Length ft | Slope % | Manning's Roughness |
|------------|-----------|----------|--------------|--------------|------------|------------------------|
| 2 -DP1 | 4 | 5 | CONDUIT | 113.0 | 1.0000 | 0.0120 |
| 3 | 5 | 6 | CONDUIT | 205.3 | 1.0000 | 0.0120 |
| 4 (1) | 6 | 7 | CONDUIT | 205.3 | 1.0000 | 0.0120 |
| 4 (2) -DP3 | 8 | 9 | CONDUIT | 318.1 | 1.0000 | 0.0120 |
| 4 (3) | 9 | 7 | CONDUIT | 318.1 | 1.0000 | 0.0120 |
| 4 (4) | 7 | 10 | CONDUIT | 414.9 | 1.0000 | 0.0120 |
| 4 (5) -DP2 | 10 | 11 | CONDUIT | 122.3 | 1.0000 | 0.0120 |
| 4 (6) -DP4 | 12 | 10 | CONDUIT | 377.2 | 0.7500 | 0.0120 |
| 4 (7) -DP5 | 13 | 12 | CONDUIT | 397.8 | 0.7500 | 0.0120 |
| EXA | 14 | Out-1EXA | CONDUIT | 607.7 | 0.4500 | 0.0120 |
| EXB | 17 | 14 | CONDUIT | 596.8 | 0.4407 | 0.0120 |
| EXC | 11 | 17 | CONDUIT | 413.8 | 0.4314 | 0.0120 |
| EXD | 16 | 11 | CONDUIT | 182.1 | 0.4310 | 0.0120 |
| EXE | 15 | 16 | CONDUIT | 520.5 | 0.7089 | 0.0120 |

Cross Section Summary

| Link ID | Shape | Depth/ Diameter ft | Width ft | No. of Barrels | Cross Sectional Area ft ² | Full Flow Hydraulic Radius ft | Design Flow Capacity cfs |
|---------|----------|--------------------------|-------------|-------------------|---|--|-----------------------------------|
| 2 -DP1 | CIRCULAR | 0.67 | 0.67 | 1 | 0.35 | 0.17 | 1.31 |

| | | | | | | | |
|------------|----------|------|------|---|------|------|-------|
| 3 | CIRCULAR | 0.67 | 0.67 | 1 | 0.35 | 0.17 | 1.31 |
| 4 (1) | CIRCULAR | 0.67 | 0.67 | 1 | 0.35 | 0.17 | 1.31 |
| 4 (2) -DP3 | CIRCULAR | 0.67 | 0.67 | 1 | 0.35 | 0.17 | 1.31 |
| 4 (3) | CIRCULAR | 0.67 | 0.67 | 1 | 0.35 | 0.17 | 1.31 |
| 4 (4) | CIRCULAR | 0.67 | 0.67 | 1 | 0.35 | 0.17 | 1.31 |
| 4 (5) -DP2 | CIRCULAR | 0.67 | 0.67 | 1 | 0.35 | 0.17 | 1.31 |
| 4 (6) -DP4 | CIRCULAR | 0.67 | 0.67 | 1 | 0.35 | 0.17 | 1.13 |
| 4 (7) -DP5 | CIRCULAR | 0.67 | 0.67 | 1 | 0.35 | 0.17 | 1.13 |
| EXA | CIRCULAR | 3.50 | 3.50 | 1 | 9.62 | 0.88 | 73.12 |
| EXB | CIRCULAR | 3.50 | 3.50 | 1 | 9.62 | 0.88 | 72.35 |
| EXC | CIRCULAR | 3.50 | 3.50 | 1 | 9.62 | 0.88 | 71.59 |
| EXD | CIRCULAR | 3.50 | 3.50 | 1 | 9.62 | 0.88 | 71.55 |
| EXE | CIRCULAR | 3.50 | 3.50 | 1 | 9.62 | 0.88 | 91.77 |

| Flow Routing Continuity | Volume acre-ft | Volume Mgallons |
|----------------------------|-------------------|--------------------|
| External Inflow | 0.000 | 0.000 |
| External Outflow | 12.651 | 4.123 |
| Initial Stored Volume | 0.000 | 0.000 |
| Final Stored Volume | 0.073 | 0.024 |
| Continuity Error (%) | -0.001 | |

Node Depth Summary

| Node ID | Average Depth Attained ft | Maximum Depth Attained ft | Maximum HGL Attained ft | Time of Max Occurrence days hh:mm | Total Flooded Volume acre-in | Total Time Flooded minutes | Retention Time hh:mm:ss |
|----------|------------------------------|------------------------------|----------------------------|--------------------------------------|---------------------------------|-------------------------------|----------------------------|
| 4 -DP1 | 0.10 | 0.10 | 5495.21 | 0 00:00 | 0 | 0 | 0:00:00 |
| 5 | 0.40 | 0.40 | 5494.08 | 0 00:14 | 0 | 0 | 0:00:00 |
| 6 | 0.30 | 0.30 | 5491.73 | 0 00:28 | 0 | 0 | 0:00:00 |
| 7 | 0.40 | 0.40 | 5489.48 | 0 00:31 | 0 | 0 | 0:00:00 |
| 8 -DP3 | 0.08 | 0.08 | 5496.01 | 0 00:00 | 0 | 0 | 0:00:00 |
| 9 | 0.28 | 0.28 | 5492.83 | 0 00:49 | 0 | 0 | 0:00:00 |
| 10 -DP2 | 0.36 | 0.36 | 5485.08 | 0 00:56 | 0 | 0 | 0:00:00 |
| 11 | 2.61 | 2.61 | 5483.78 | 0 00:55 | 0 | 0 | 0:00:00 |
| 12 -DP4 | 0.33 | 0.33 | 5488.08 | 0 00:53 | 0 | 0 | 0:00:00 |
| 13 -DP5 | 0.13 | 0.13 | 5491.07 | 0 00:00 | 0 | 0 | 0:00:00 |
| 14 | 0.70 | 0.70 | 5477.35 | 0 00:58 | 0 | 0 | 0:00:00 |
| 15 | 0.61 | 0.61 | 5486.30 | 0 00:00 | 0 | 0 | 0:00:00 |
| 16 | 0.68 | 0.68 | 5482.63 | 0 00:26 | 0 | 0 | 0:00:00 |
| 17 | 0.81 | 0.81 | 5480.09 | 0 00:57 | 0 | 0 | 0:00:00 |
| Out-1EXA | 0.70 | 0.70 | 5474.62 | 0 00:58 | 0 | 0 | 0:00:00 |

Node Flow Summary

| Node ID | Element Type | Maximum Lateral Inflow cfs | Peak Inflow cfs | Time of Peak Inflow Occurrence days hh:mm | Maximum Flooding Overflow cfs | Time of Peak Flooding Occurrence days hh:mm |
|----------|--------------|-------------------------------|--------------------|--|----------------------------------|--|
| 4 -DP1 | JUNCTION | 0.07 | 0.07 | 0 00:00 | 0.00 | |
| 5 | JUNCTION | 0.00 | 0.07 | 0 00:15 | 0.00 | |
| 6 | JUNCTION | 0.00 | 0.07 | 0 00:28 | 0.00 | |
| 7 | JUNCTION | 0.00 | 0.11 | 0 00:54 | 0.00 | |
| 8 -DP3 | JUNCTION | 0.04 | 0.04 | 0 00:00 | 0.00 | |
| 9 | JUNCTION | 0.00 | 0.04 | 0 00:49 | 0.00 | |
| 10 -DP2 | JUNCTION | 0.23 | 0.48 | 0 00:57 | 0.00 | |
| 11 | JUNCTION | 0.00 | 6.41 | 0 00:57 | 0.00 | |
| 12 -DP4 | JUNCTION | 0.04 | 0.14 | 0 00:53 | 0.00 | |
| 13 -DP5 | JUNCTION | 0.10 | 0.10 | 0 00:00 | 0.00 | |
| 14 | JUNCTION | 0.00 | 6.41 | 0 00:58 | 0.00 | |
| 15 | JUNCTION | 5.93 | 5.93 | 0 00:00 | 0.00 | |
| 16 | JUNCTION | 0.00 | 5.93 | 0 00:26 | 0.00 | |
| 17 | JUNCTION | 0.00 | 6.41 | 0 00:57 | 0.00 | |
| Out-1EXA | OUTFALL | 0.00 | 6.41 | 0 00:59 | 0.00 | |

Outfall Loading Summary

| Outfall Node ID | Flow Frequency (%) | Average Flow cfs | Peak Inflow cfs |
|-----------------|--------------------------|------------------------|-----------------------|
| Out-1EXA | 99.69 | 6.40 | 6.41 |
| System | 99.69 | 6.40 | 6.41 |

Link Flow Summary

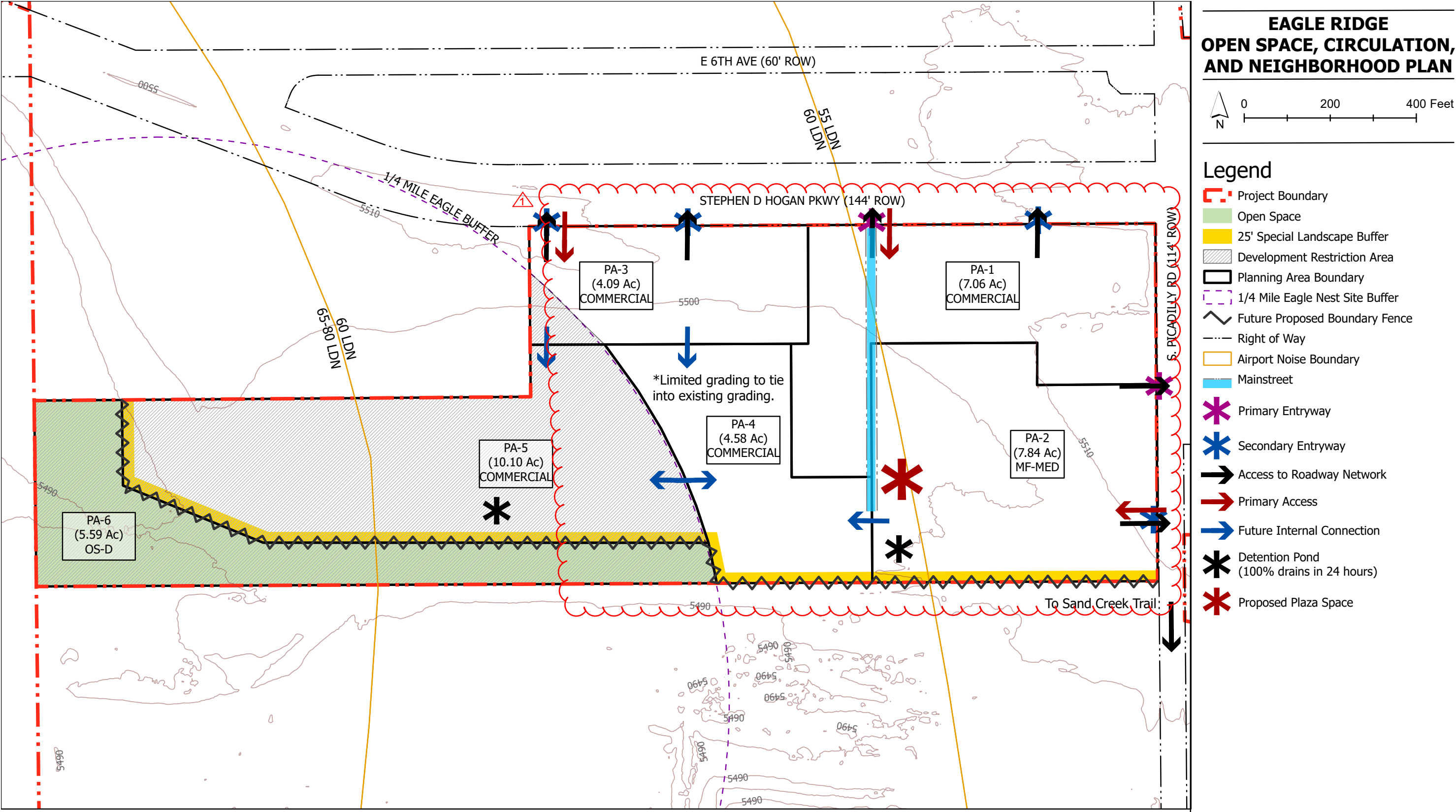
| Link ID Reported Condition | Element Type | Time of Peak Flow Occurrence days hh:mm | Maximum Velocity Attained ft/sec | Length Factor | Peak Flow during Analysis cfs | Design Flow Capacity cfs | Ratio of Maximum /Design Flow | Ratio of Maximum Flow Depth | Total Time Surcharged minutes |
|----------------------------------|-----------------|--|---|------------------|--|-----------------------------------|--|--------------------------------------|--|
| 2 -DP1 Calculated | CONDUIT | 0 00:15 | 1.99 | 1.00 | 0.07 | 1.31 | 0.05 | 0.16 | 0 |
| 3 Calculated | CONDUIT | 0 00:28 | 1.99 | 1.00 | 0.07 | 1.31 | 0.05 | 0.16 | 0 |
| 4 (1) Calculated | CONDUIT | 0 00:31 | 1.99 | 1.00 | 0.07 | 1.31 | 0.05 | 0.16 | 0 |
| 4 (2) -DP3 Calculated | CONDUIT | 0 00:49 | 1.65 | 1.00 | 0.04 | 1.31 | 0.03 | 0.12 | 0 |
| 4 (3) Calculated | CONDUIT | 0 00:54 | 1.65 | 1.00 | 0.04 | 1.31 | 0.03 | 0.12 | 0 |
| 4 (4) Calculated | CONDUIT | 0 00:57 | 2.26 | 1.00 | 0.11 | 1.31 | 0.08 | 0.19 | 0 |
| 4 (5) -DP2 Calculated | CONDUIT | 0 00:57 | 3.46 | 1.00 | 0.48 | 1.31 | 0.37 | 0.42 | 0 |
| 4 (6) -DP4 Calculated | CONDUIT | 0 00:56 | 2.20 | 1.00 | 0.14 | 1.13 | 0.12 | 0.24 | 0 |
| 4 (7) -DP5 Calculated | CONDUIT | 0 00:54 | 1.98 | 1.00 | 0.10 | 1.13 | 0.08 | 0.20 | 0 |
| EXA Calculated | CONDUIT | 0 00:59 | 4.68 | 1.00 | 6.41 | 73.12 | 0.09 | 0.20 | 0 |
| EXB Calculated | CONDUIT | 0 00:58 | 4.65 | 1.00 | 6.41 | 72.35 | 0.09 | 0.20 | 0 |
| EXC Calculated | CONDUIT | 0 00:57 | 4.61 | 1.00 | 6.41 | 71.59 | 0.09 | 0.20 | 0 |
| EXD Calculated | CONDUIT | 0 00:27 | 4.50 | 1.00 | 5.93 | 71.55 | 0.08 | 0.19 | 0 |
| EXE Calculated | CONDUIT | 0 00:26 | 5.34 | 1.00 | 5.93 | 91.77 | 0.06 | 0.17 | 0 |

Highest Flow Instability Indexes

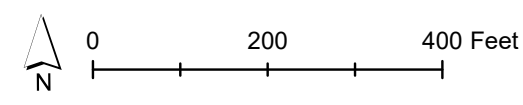
All links are stable.

Analysis began on: Mon May 27 12:49:45 2024
Analysis ended on: Mon May 27 12:49:46 2024
Total elapsed time: 00:00:01

Appendix D



**EAGLE RIDGE
OPEN SPACE, CIRCULATION,
AND NEIGHBORHOOD PLAN**



Legend

- Project Boundary
- Open Space
- 25' Special Landscape Buffer
- Development Restriction Area
- Planning Area Boundary
- 1/4 Mile Eagle Nest Site Buffer
- Future Proposed Boundary Fence
- Right of Way
- Airport Noise Boundary
- Mainstreet
- Primary Entryway
- Secondary Entryway
- Access to Roadway Network
- Primary Access
- Future Internal Connection
- Detention Pond (100% drains in 24 hours)
- Proposed Plaza Space

1. No transit stops are anticipated.
2. Active construction will be avoided during the breeding season for bald eagles (December 1 - July 31) within the identified development restriction zone. Laydown and staging areas will also be located outside of the development restriction zone.
3. Each developed PA will have two points of access. Final details will be provided at the time of the site plan.
4. The boundary fence shall be completed along PA-2 and PA-4 prior to the first CO for PA-2. The boundary fence along PA-5 shall be completed prior to the first CO of PA-5.
5. Per CPW letter dated 8/19/22, the detention basin with vegetation can be constructed within the 1/8 mile buffer of the eagle's nest. Once constructed, human activity in this area will be limited.
6. The Bald Eagle Guidelines published by Colorado Parks and Wildlife clearly note that no Surface Occupancy (NSO) may occur within a 1/4 mile radius of active nests. Additionally, no permitted authorized, or human encroachment activities within 1/2 mile radius of active nest sites from December 1 through July 31 (with the recommendation to extend it fledglings are still present in the nest).



Appendix E

Sanitary Sewer Flows for Aurora One

| SANITARY FLOW SUMMARY (LOCAL) | | | | | | | | |
|-------------------------------|--------|------------------------------------|--------------|---------------|---------|------------|---------------------------------|-----------------|
| PLANNING AREA | ZONING | ZONING TYPE | Design Point | AVG. DAY FLOW | DENSITY | TOTAL AREA | EQUIVALENT TOTAL POPULATION (P) | LOCAL AVG. FLOW |
| | | | | | DU/AC | ACRES | | GPD |
| BASIN A | | | | | | | | |
| 1 | PA-1 | Commercial | 1 | 1,500 | | 5.90 | 88 | 8,850 |
| Subtotal Basin A | | | | | | | 88 | 8,850 |
| | | | | | | | | |
| BASIN B | | | | | | | | |
| 11 | PA-11 | Commercial | 2 | 1,500 | | 6.93 | 103 | 10,395 |
| 13 - West | PA-13 | Single Family Attached Residential | 2 | 68 | 12 | 4.13 | 137 | 9,335 |
| Subtotal Basin B | | | | | | | 240 | 19,730 |
| | | | | | | | | |
| BASIN C | | | | | | | | |
| 13 - East | PA-13 | Single Family Attached Residential | 5 | 68 | 12 | 22.64 | 753 | 51,174 |
| 14 | PA-14 | Commercial | 5 | 1,500 | | 3.43 | 51 | 5,145 |
| Subtotal Basin C | | | | | | | 803 | 56,319 |
| | | | | | | | | |
| BASIN D | | | | | | | | |
| 2 | PA-2 | Commercial | 4 | 1,500 | | 6.36 | 94 | 9,540 |
| 3 | PA-3 | Neighborhood Park | 3 | 1,200 | | 6.20 | 74 | 7,440 |
| 4-West | PA-4 | Single-Family Attached Residential | 3 | 68 | 12 | 2.80 | 93 | 6,329 |
| 8-West | PA-8 | Commercial | 4 | 1,500 | | 6.61 | 98 | 9,915 |
| 9 | PA-9 | Commercial | 4 | 1,500 | | 8.19 | 122 | 12,285 |
| 10-South | PA-10 | MF Residential | 3 | 68 | 25 | 1.10 | 76 | 5,180 |
| Subtotal Basin D | | | | | | | 557 | 50,689 |
| | | | | | | | | |
| BASIN E | | | | | | | | |
| 7-South | PA-7 | Neighborhood Park | 3 | 1,200 | | 4.03 | 48 | 4,836 |
| 8-East | PA-8 | Commercial | 3 | 1,500 | | 3.54 | 53 | 5,310 |
| 10-North | PA-10 | MF Residential | 3 | 68 | 25 | 11.21 | 776 | 52,788 |
| Subtotal Basin E | | | | | | | 877 | 62,934 |

Sanitary Sewer Flows for Aurora One

| SANITARY FLOW SUMMARY (LOCAL) | | | | | | | | |
|-------------------------------|--------|------------------------------------|--------------|---------------|---------|------------|---------------------------------|-----------------|
| PLANNING AREA | ZONING | ZONING TYPE | Design Point | AVG. DAY FLOW | DENSITY | TOTAL AREA | EQUIVALENT TOTAL POPULATION (P) | LOCAL AVG. FLOW |
| | | | | | DU/AC | ACRES | | GPD |
| | | | | | | | | |
| BASIN F | | | | | | | | |
| 4-East | PA-4 | Single-Family Attached Residential | 3 | 68 | 12 | 19.89 | 661 | 44,958 |
| 5-R | PA-5 | MF Residential | 3 | 68 | 25 | 6.49 | 449 | 30,561 |
| 5-C | PA-5 | Commercial | 3 | 1,500 | | 6.49 | 96 | 9,735 |
| 7-North | PA-7 | Neighborhood Park | 3 | 1,200 | | 4.43 | 53 | 5,316 |
| Subtotal Basin F | | | | | | | 1,260 | 90,570 |
| | | | | | | | | |
| Offsite | | | | | | | | |
| Horizon Uptown* | | Retail/Commerical/Residential | 6 | | | | 13,291 | 904,363 |
| Subtotal Offsite | | | | | | | 13,291 | 904,363 |

$$Avg\ Flow = AREA\ (AC) \times AVG.\ DAY\ FLOW\ \left(\frac{GDP}{AC}\right) =$$

$$Peak\ Flow = Peak\ Factor \times Avg\ Flow =$$

$$I/I = Avg\ Flow \times 0.1 =$$

$$Peak\ Factor\ (PF) = \frac{5}{P^{0.167}} =$$

where P=Population in thousands

$$TOTAL\ AVERAGE\ FLOW = Avg\ Flow + (Avg\ Flow \times 0.1)$$

$$TOTAL\ PEAK\ FLOW = Peak\ Flow(Avg\ Flow \times 0.1) =$$

| Zoning | Average Day |
|-----------------|---------------|
| Commercial | 1500 gpd/acre |
| Residential | 68 gpd/pp |
| People per unit | 2.77 |

*Equivalent Total Population and Local Average Flow Derived from the approved Horizon Uptown City Center Draft Master Utilities Report prepared by Matrix Design Group, dated September 19, 2018. COA #218158

Flow and populations taken are the cumulative amounts at Horizon design point 7 less the assumed "Offsite South" amounts from the Horizon Report.

Sanitary Calculations for Aurora One

| City of Aurora Standards | | |
|-----------------------------|------|--------------------|
| City of Aurora Density | 2.77 | people / unit |
| Residential average demand: | 68 | gal / person / day |

| Design Point | Basins | Average Daily Flow (GPD) | Population | Used Peaking Factor | Peak Flow | I+I | Peak Flow + (I+I) (gpd) | Peak flow (q) (cfs) | Pipe Size (in) | Minimum Pipe Slope (%) | Q _{full} (cfs) | Full Flow Capacity ¹ (%) | Q _{cap.} (cfs) | q/Q _{full} (%) |
|--------------|---------------------------------|--------------------------|------------|---------------------|-----------|---------|-------------------------|---------------------|----------------|------------------------|-------------------------|-------------------------------------|-------------------------|-------------------------|
| 1 | A | 8,850 | 88 | 4.0 | 35,400 | 885 | 36,285 | 0.06 | 8 | 0.50% | 1.01 | 75% | 0.76 | 5.6% |
| 2 | B | 19,730 | 240 | 4.0 | 78,920 | 1,973 | 80,893 | 0.13 | 8 | 0.50% | 1.01 | 75% | 0.76 | 12.4% |
| 3 | E + F | 153,504 | 2136 | 4.0 | 614,016 | 15,350 | 629,367 | 0.97 | 10 | 0.50% | 1.83 | 75% | 1.37 | 53.2% |
| 4 | D + E + F | 204,193 | 2694 | 4.0 | 816,771 | 20,419 | 837,191 | 1.30 | 12 | 0.50% | 2.98 | 75% | 2.23 | 43.5% |
| 5 | C + D + E + F | 260,512 | 3497 | 4.0 | 1,042,046 | 26,051 | 1,068,097 | 1.65 | 12 | 0.50% | 2.98 | 75% | 2.23 | 55.5% |
| 6 | A + B + C + D + E + F + Offsite | 1,193,455 | 17116 | 3.1 | 3,713,629 | 119,345 | 3,832,975 | 5.93 | 18 | 0.40% | 7.85 | 80% | 6.28 | 75.5% |