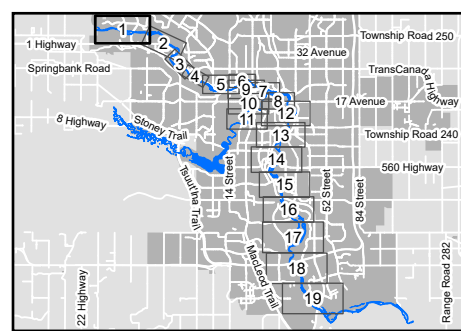
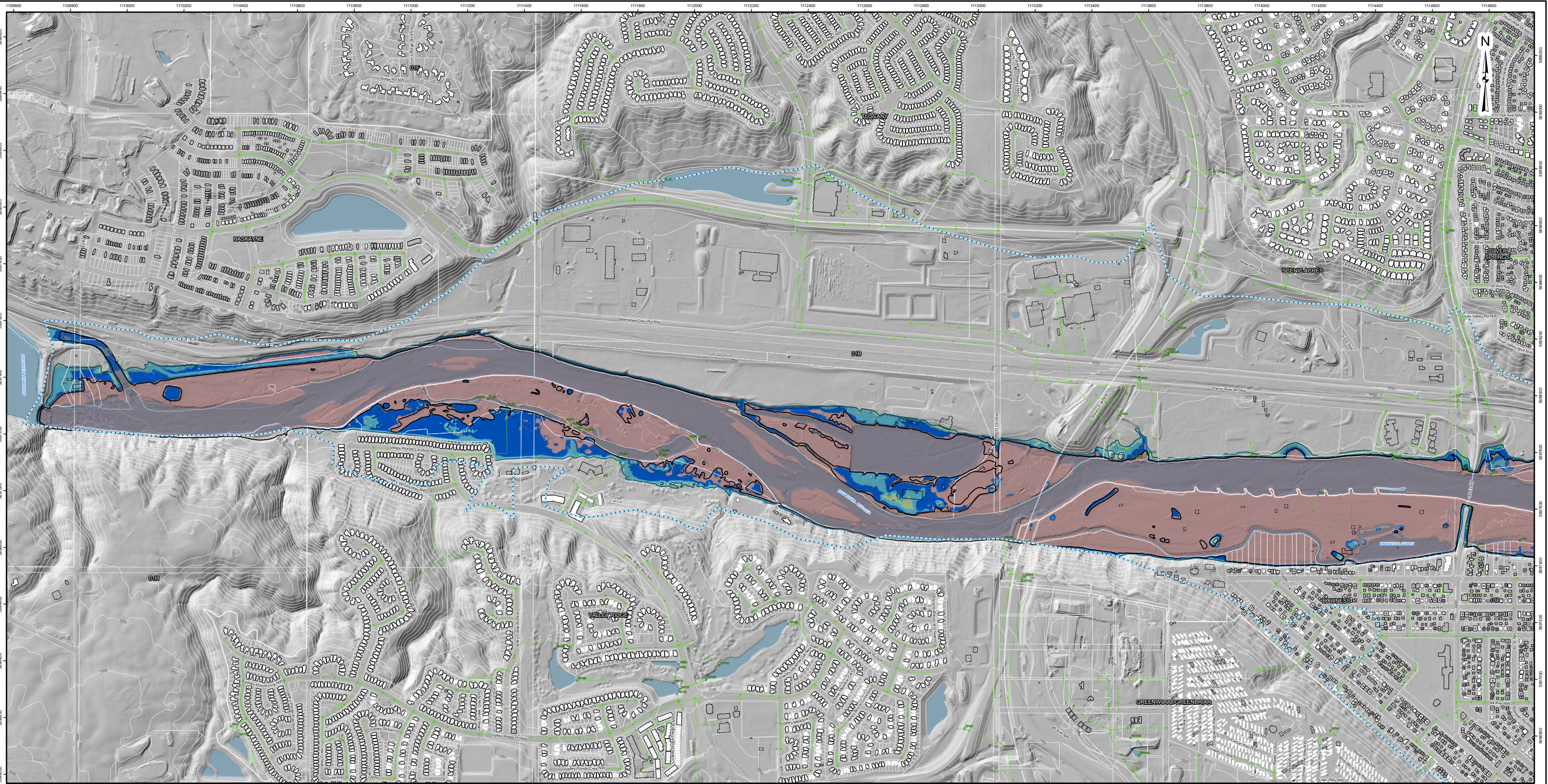


Groundwater Depth and Building Risk Factors (Calibrated Model)

1 in 50 Year Flood

- | | | | |
|-----|----------------------------|-----|------------------------|
| 1. | Valley Ridge | 11. | Lower Elbow |
| 2. | Bowness | 12. | Inglewood – Bonnybrook |
| 3. | Montgomery | 13. | Bonnybrook |
| 4. | Point McKay | 14. | Deerfoot Meadows |
| 5. | Hillhurst / West Hillhurst | 15. | Riverbend/Quarry Park |
| 6. | Sunnyside | 16. | Douglasdale |
| 7. | East Village / Bridgeland | 17. | Fish Creek |
| 8. | Inglewood | 18. | South Stoney Trail |
| 9. | Downtown | 19. | Pine Creek/Cranston |
| 10. | Beltline | | |



LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (50-Year)

- Directly Flooded

NOTES

1. Pre-1990 buildings are more susceptible to groundwater due to lack of reinforcement requirements before 1990. Implementation of reinforcement basement structures may vary since inception of code requirements.
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DATA SOURCES

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FIGURE 3.5

GROUNDWATER DEPTH & BUILDING RISK FACTORS (CALIBRATED) - 1 IN 50 YEAR FLOOD 1 - VALLEY RIDGE

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

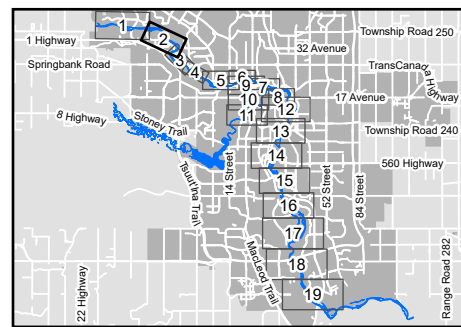
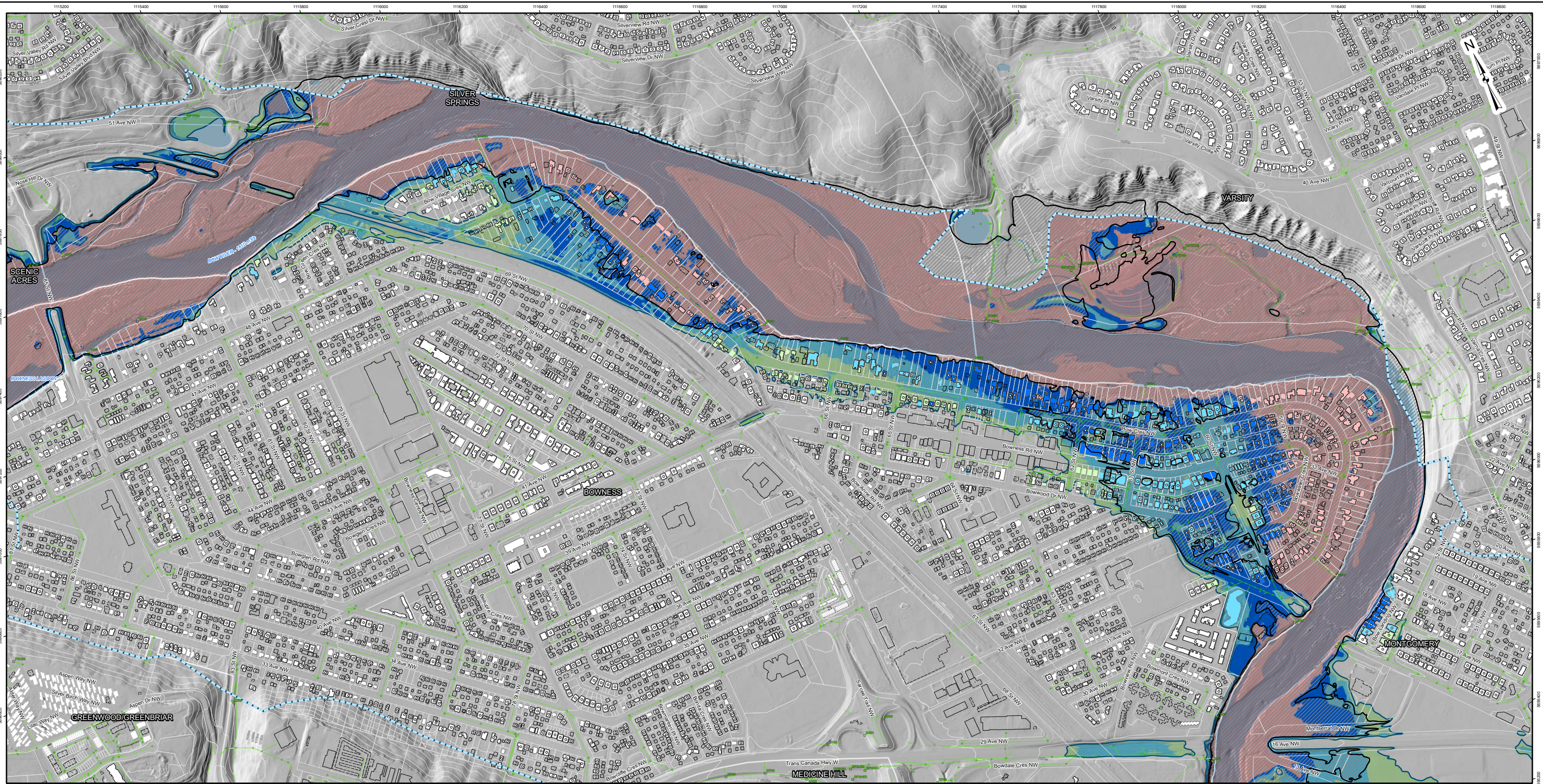
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Meters

SCALE 1:13,500

DATE 8/18/2026

AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface
- Flood Inundation Area (50-Year)
- Directly Flooded

NOTES

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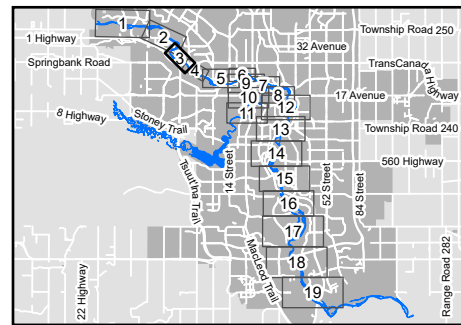
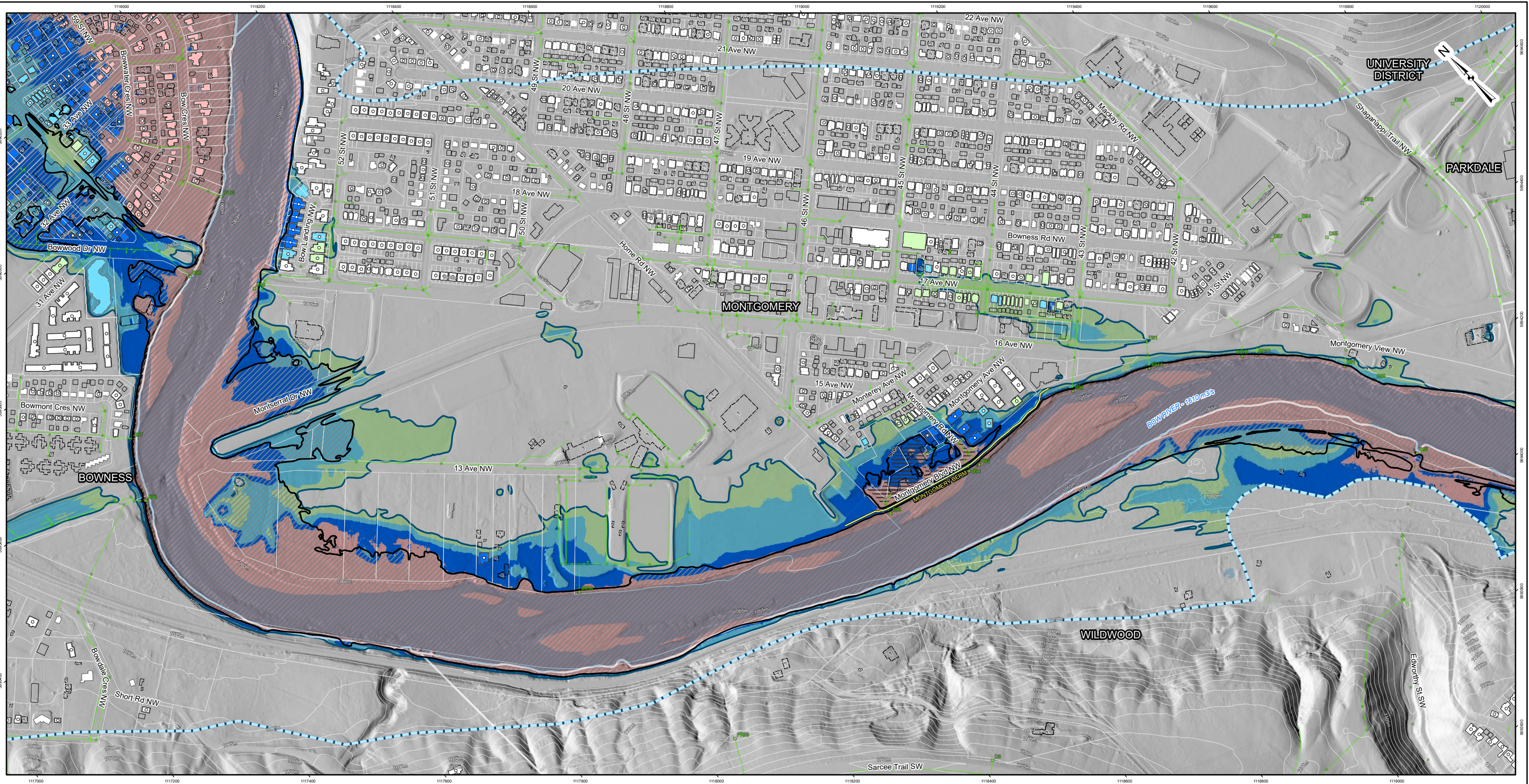
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FIGURE 3.5
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
2 - BOWNESS

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY
PROJECTION
NAD 1983 CSRS 3TM 114
SCALE 1:10,000
DATE 8/18/2026
AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (50-Year)

- Directly Flooded
- Protected by Flood Berm

NOTES

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DATA SOURCES

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FIGURE 3.5
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
3 - MONTGOMERY

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

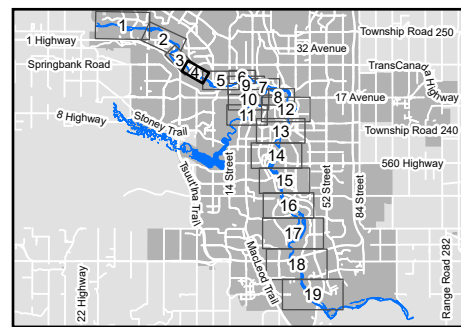
PROJECTION
NAD 1983 CSRS 3TM 114

SCALE 1:7,000

DATE 8/18/2026

AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface
- Flood Inundation Area (50-Year)
- Directly Flooded

NOTES

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DATA SOURCES

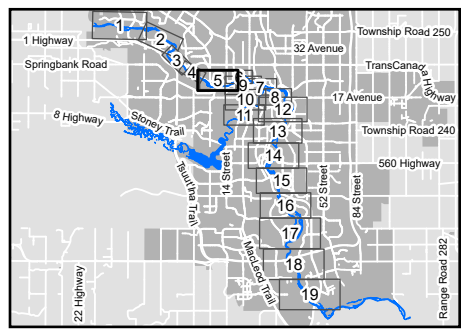
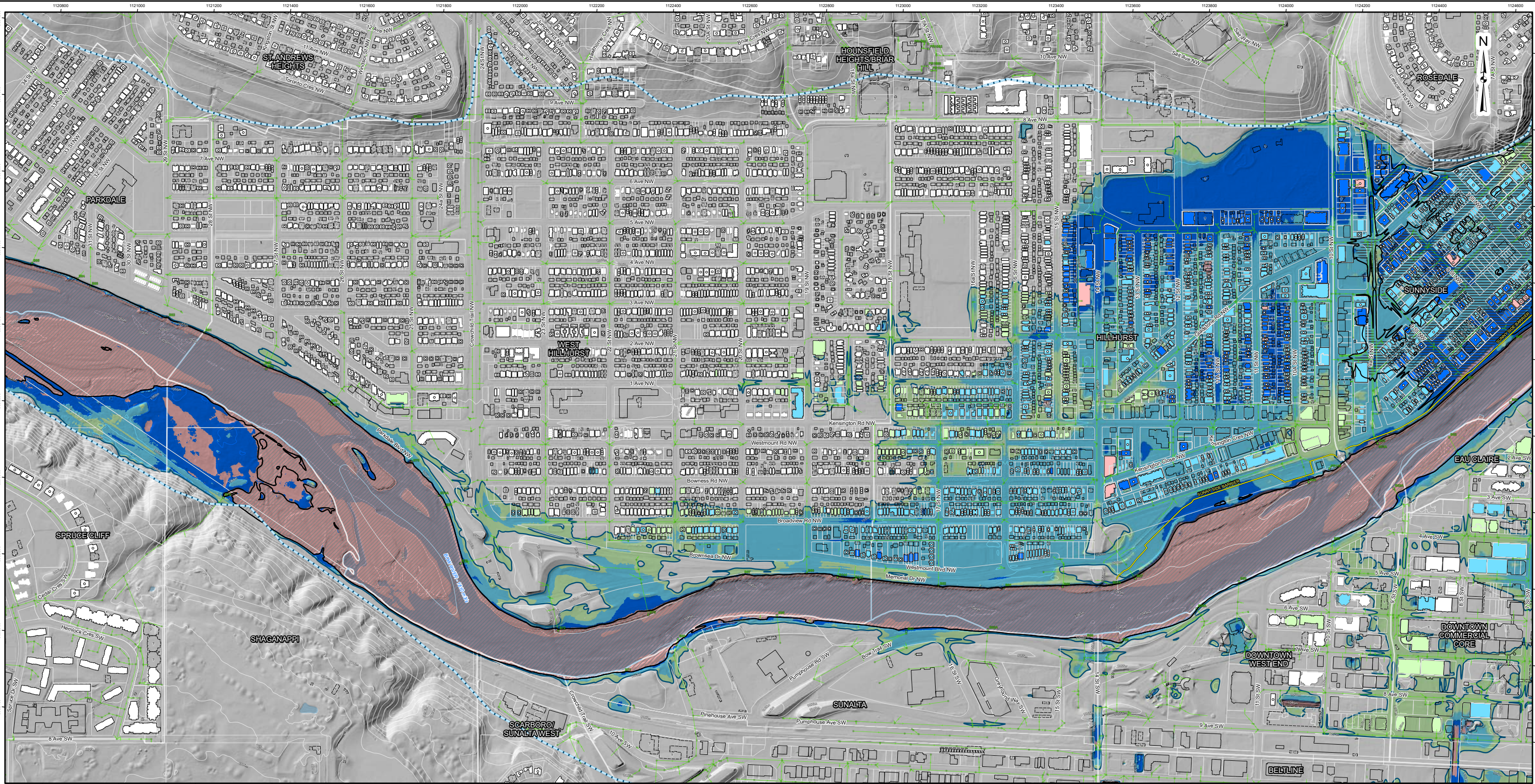
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FIGURE 3.5
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
4 - POINT MCKAY

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114
SCALE 1:6,000 DATE 8/18/2026 AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (50-Year)

- Directly Flooded
- Protected by Flood Berm

NOTES

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DATA SOURCES

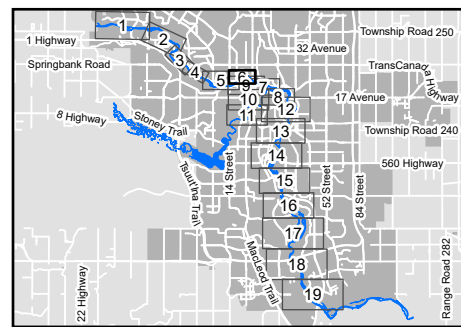
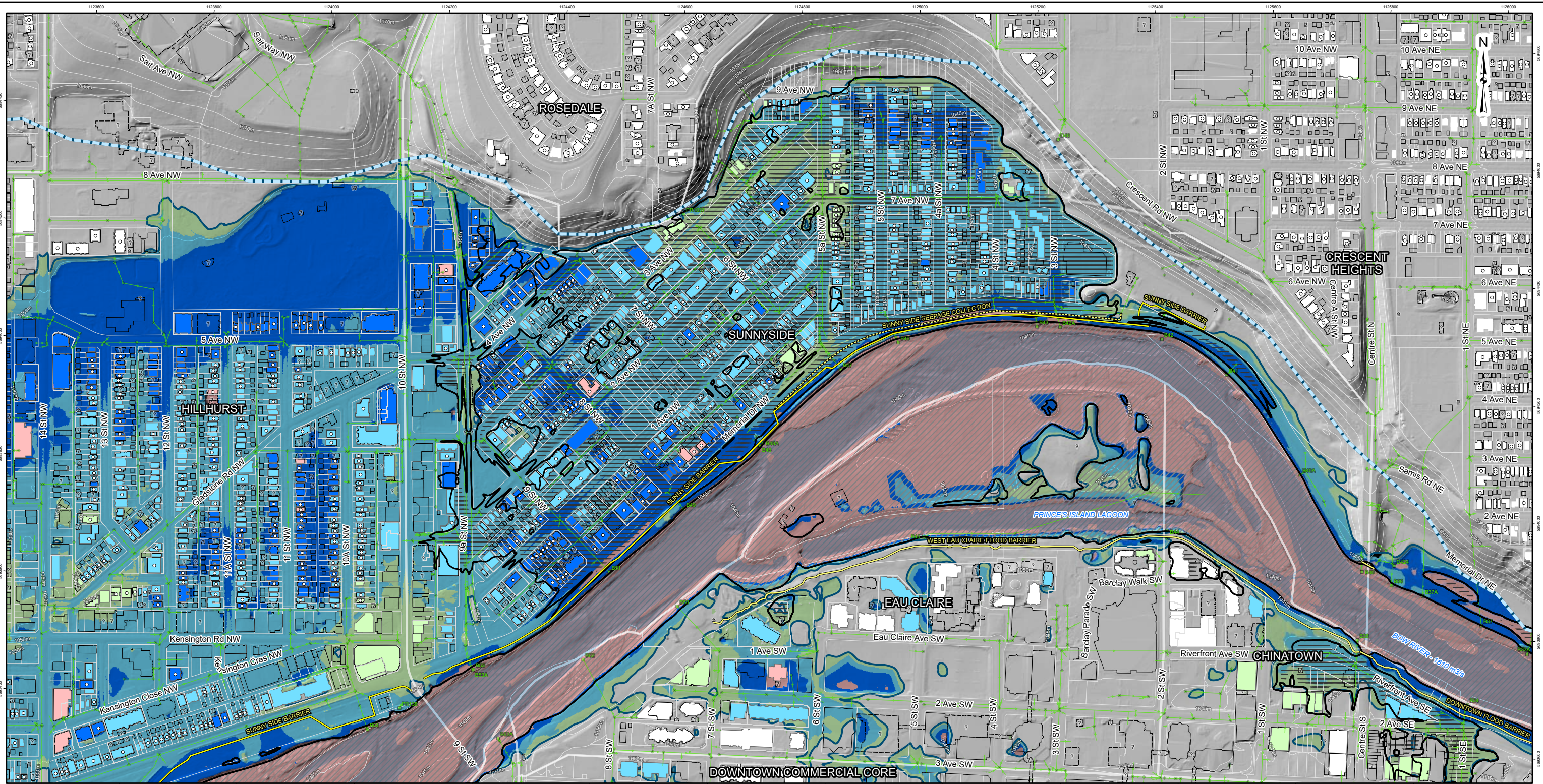
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FIGURE 3.5
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
5 - HILLHURST / WEST HILLHURST

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114
SCALE 1:10,000
DATE 8/18/2026
AUTHOR TDaSilva





LEGEND

- | | | | |
|--|---|--|------------------------------|
| | Building Footprint | | Manhole |
| | Pre-1990 Building Construction | | Outfall |
| | Below Grade Space | | Storm Network |
| | Building Information Missing | | 3m Depth Threshold |
| | Non-Residential Building / Building Outside Scope | | Flood Control Structure |
| | Parcel | | Sunnyside Seepage Collection |
| | Community District | | Contours - 5m |
| | Alluvial Aquifer / Model Domain | | |
| | Waterbody | | |
- | | |
|--|-------------------------|
| Estimated Depth to Groundwater | |
| | Below 3m |
| | 3m to 2.4m |
| | 2.4m to 1.2m |
| | 0m to 1.2m |
| | Above Ground Surface |
| Flood Inundation Area (50-Year) | |
| | Directly Flooded |
| | Protected by Flood Berm |

NOTES

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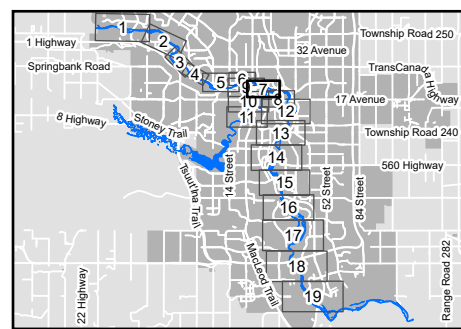
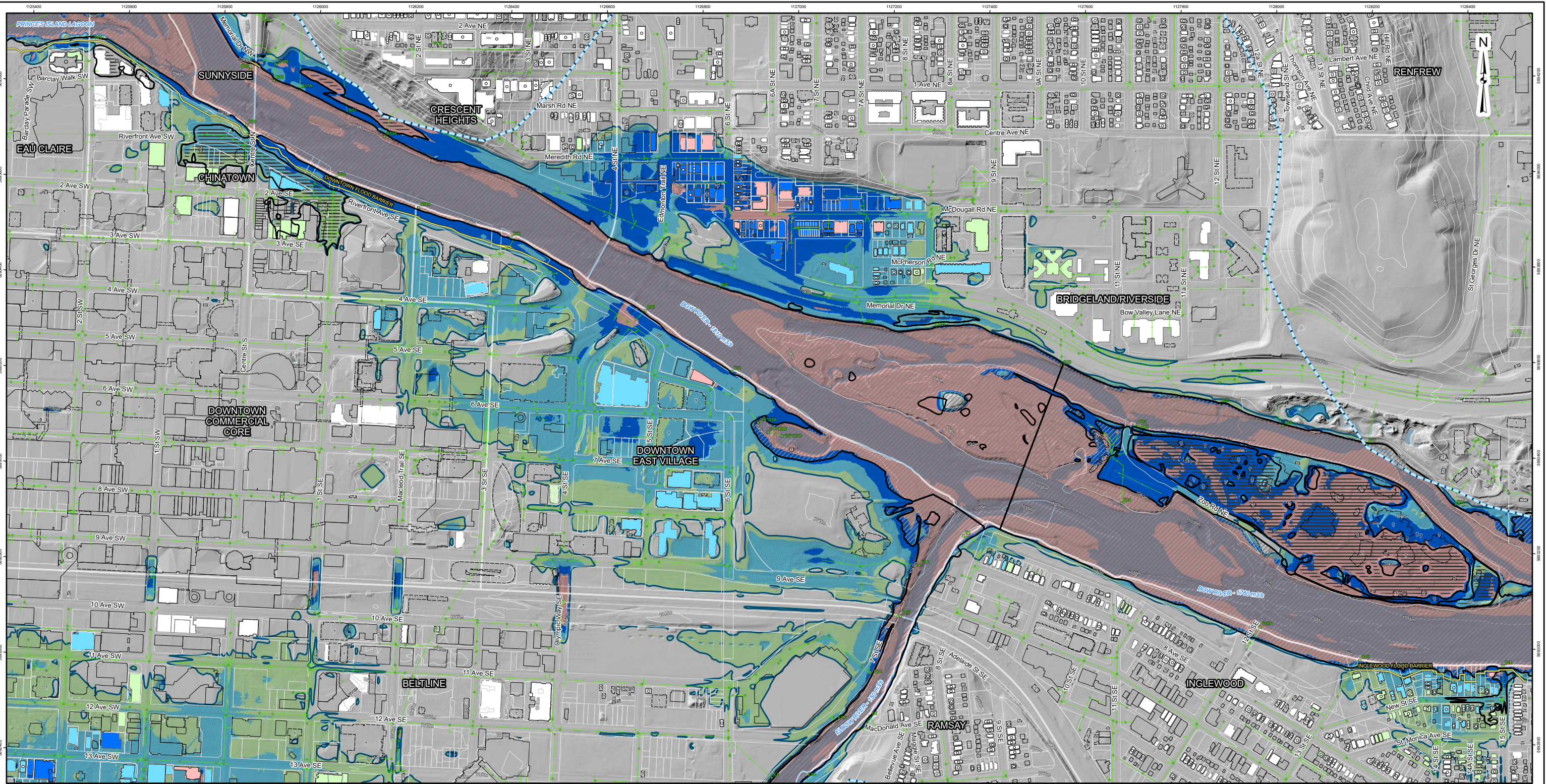
FIGURE 3.5
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
6 - SUNNYSIDE

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114

SCALE 1:6,500 DATE 8/18/2026 AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (50-Year)

- Directly Flooded
- Protected by Flood Berm

NOTES

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FIGURE 3.5

GROUNDWATER DEPTH & BUILDING RISK FACTORS (CALIBRATED) - 1 IN 50 YEAR FLOOD 7 - EAST VILLAGE / BRIDGELAND

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

SCALE 1:8,000

DATE 8/18/2026

AUTHOR TDaSilva

0 40 80
Meters





-  Building Footprint
-  Pre-1990 Building Construction
-  Below Grade Space
-  Building Information Missing
-  Non-Residential Building / Building Outside Scope
-  Parcel
-  Community District
-  Alluvial Aquifer / Model Domain
-  Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
3m to 2.4m
2.4m to 1.2m
0m to 1.2m
Above Ground Surface

Flood Inundation Area (50-Year)

-  Directly Flooded
 Protected by Flood Berm

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FIGURE 3.5
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
8 - INGLEWOOD

PROJECT

CANGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114

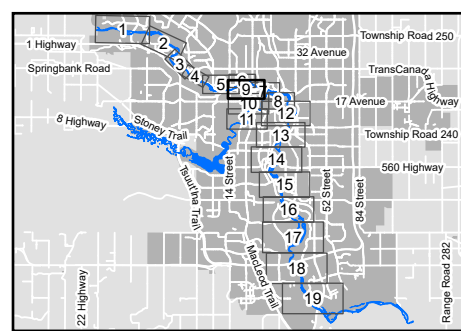
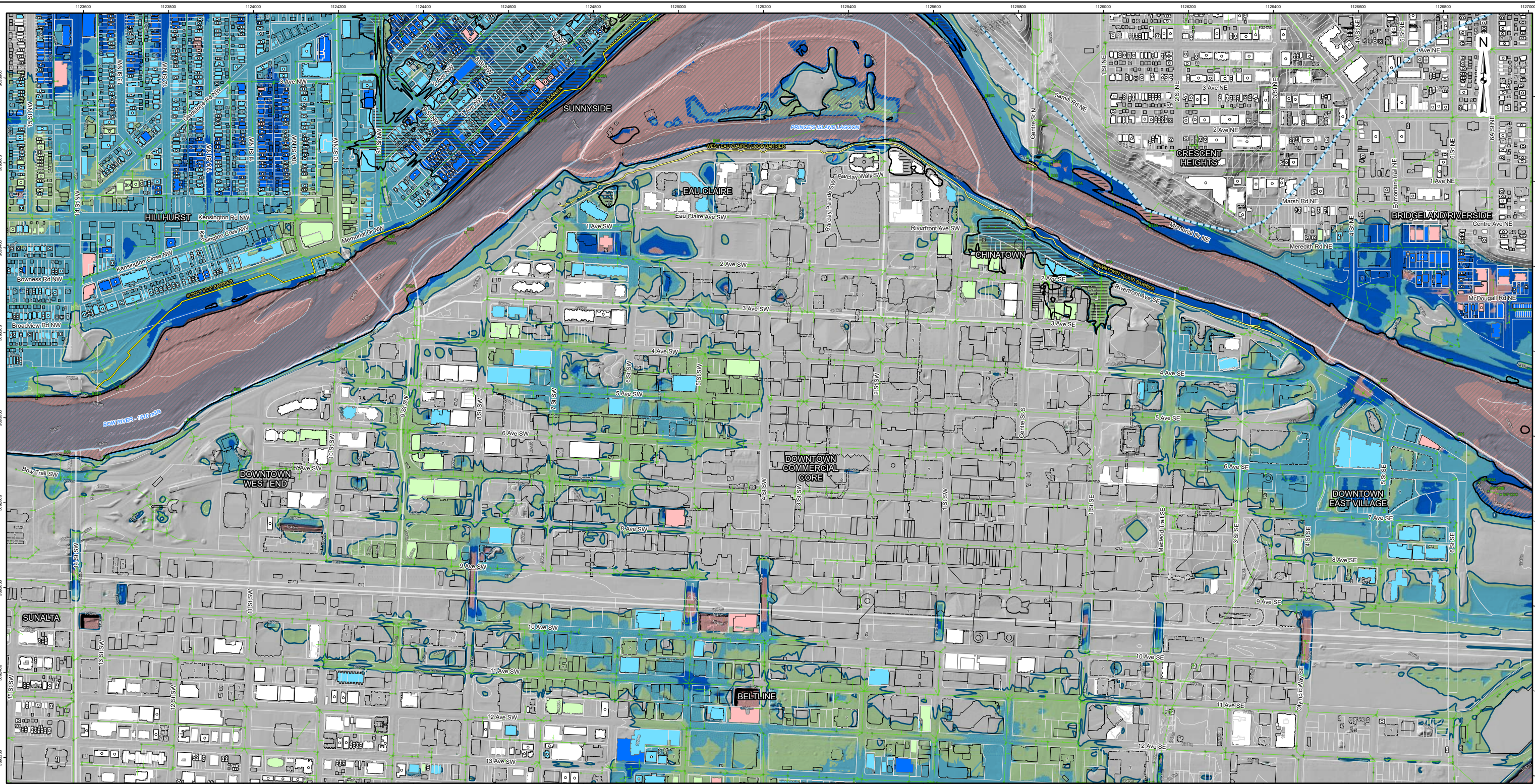
SCALE 1:8,000

DATE 8/18/2026

AUTHOR TDaSilva

0 40 80 Meters





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (50-Year)

- Directly Flooded
- Protected by Flood Berm

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FIGURE 3.5
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
9 - DOWNTOWN

PROJECT

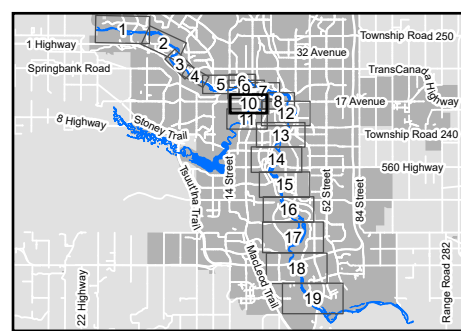
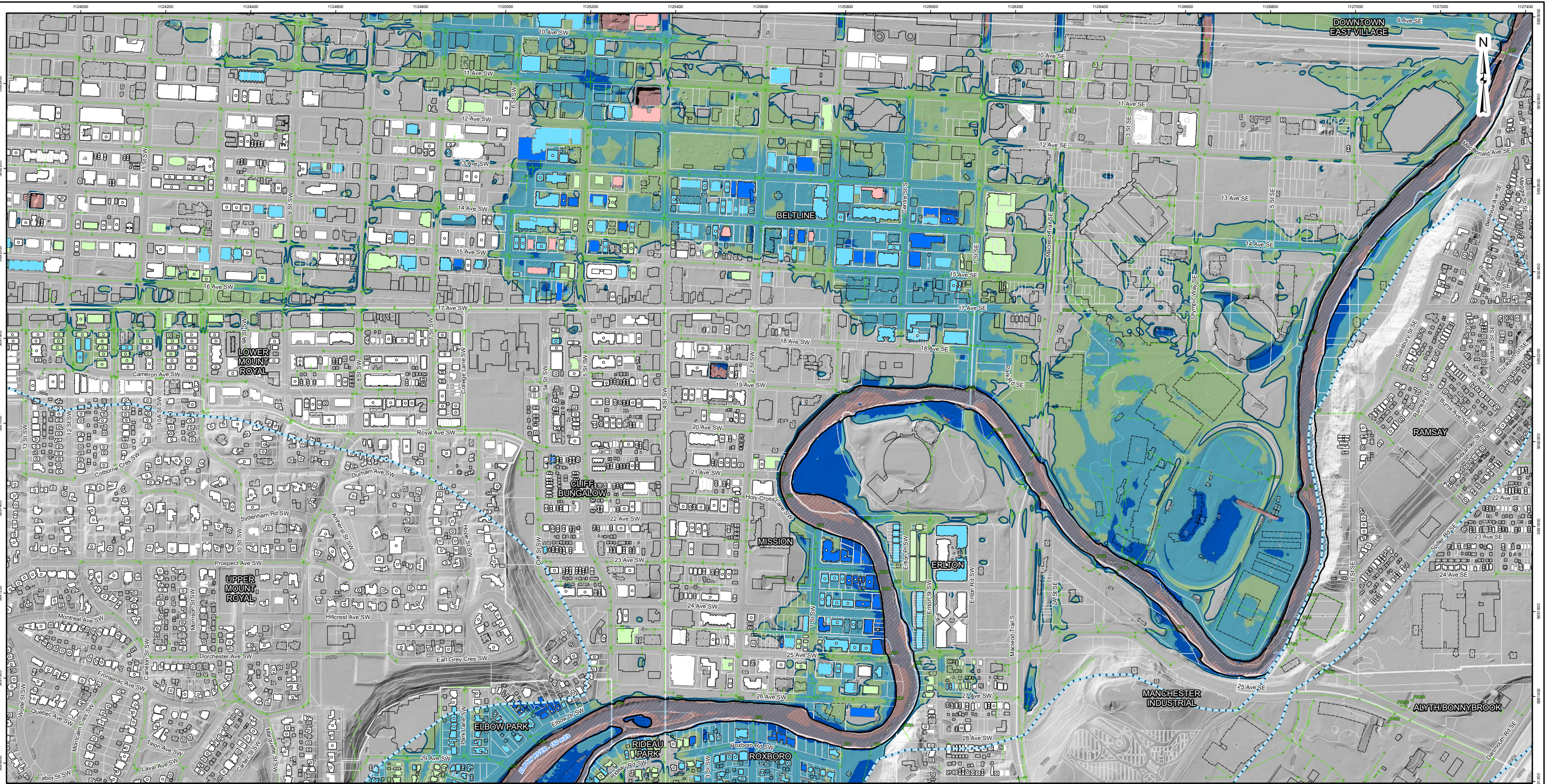
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114

0 50 100
Meters

SCALE 1:9,000 DATE 8/18/2026 AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (50-Year)

- Directly Flooded

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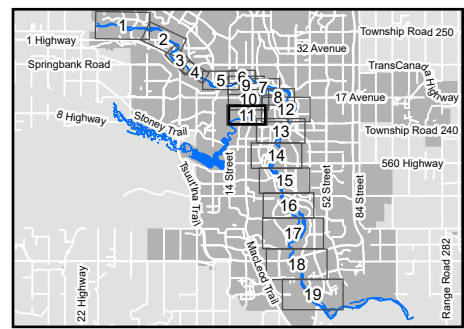
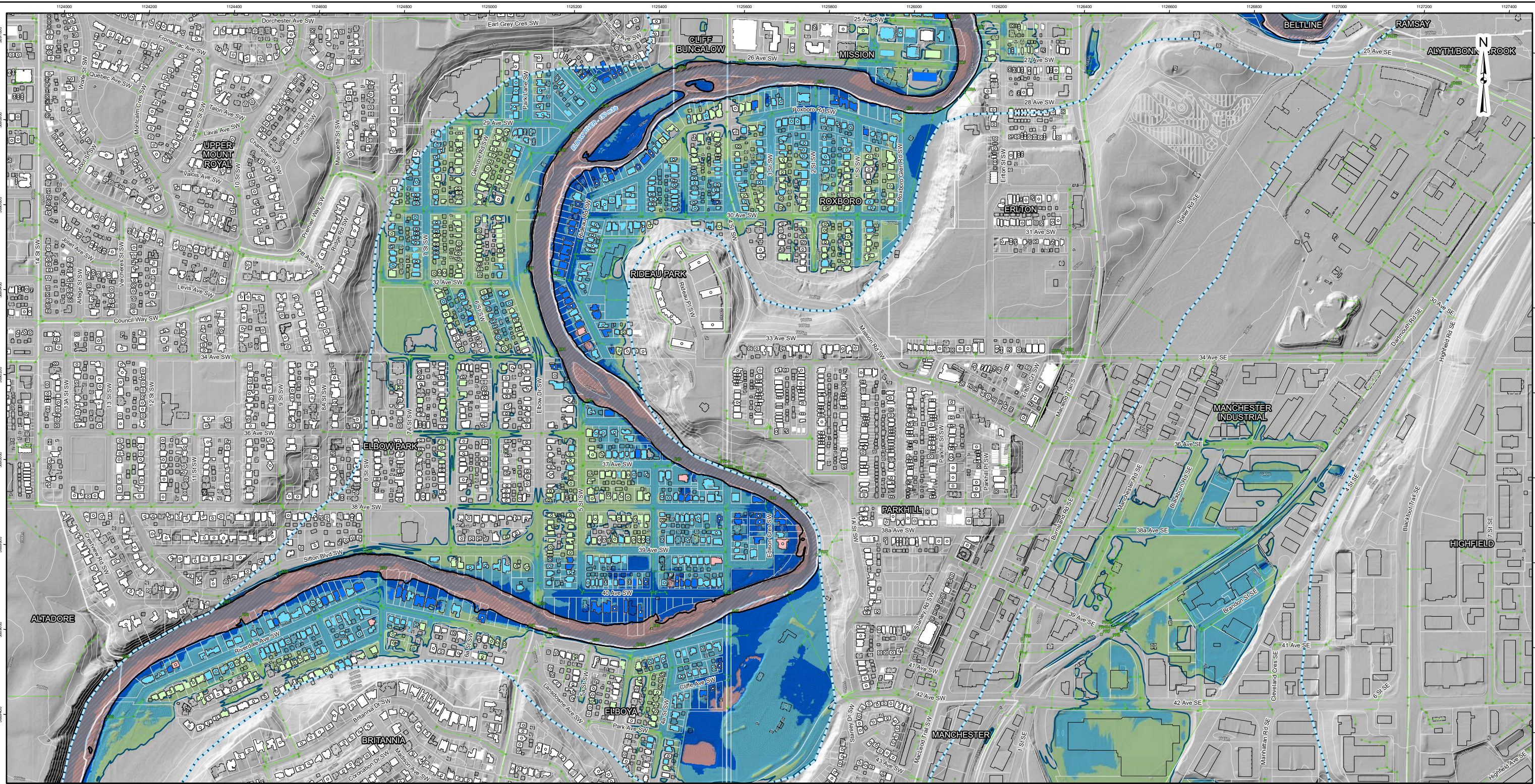
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FIGURE 3.5
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
10 - BELTLINE

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114
SCALE 1:9,000 DATE 8/18/2026 AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (50-Year)

- Directly Flooded

NOTES

1. Pre-1990 buildings are more susceptible to groundwater due to lack of reinforcement requirements before 1990. Implementation of reinforcement basement structures may vary since inception of code requirements.
2. Buildings with below grade space has been determined from the City of Calgary property assessment data records. ISL or the City make no claims to the accuracy or completeness of the data.
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4. Modelled flood conditions assume the flood conditions are modeled based on a flow rate of 1610 m³/s in the Bow River and 150 m³/s in the Elbow River. With a combined flow rate of 1760 m³/s.
5. Groundwater depth is compared between the modelled water elevations and the LiDAR data elevation.

DATA SOURCES

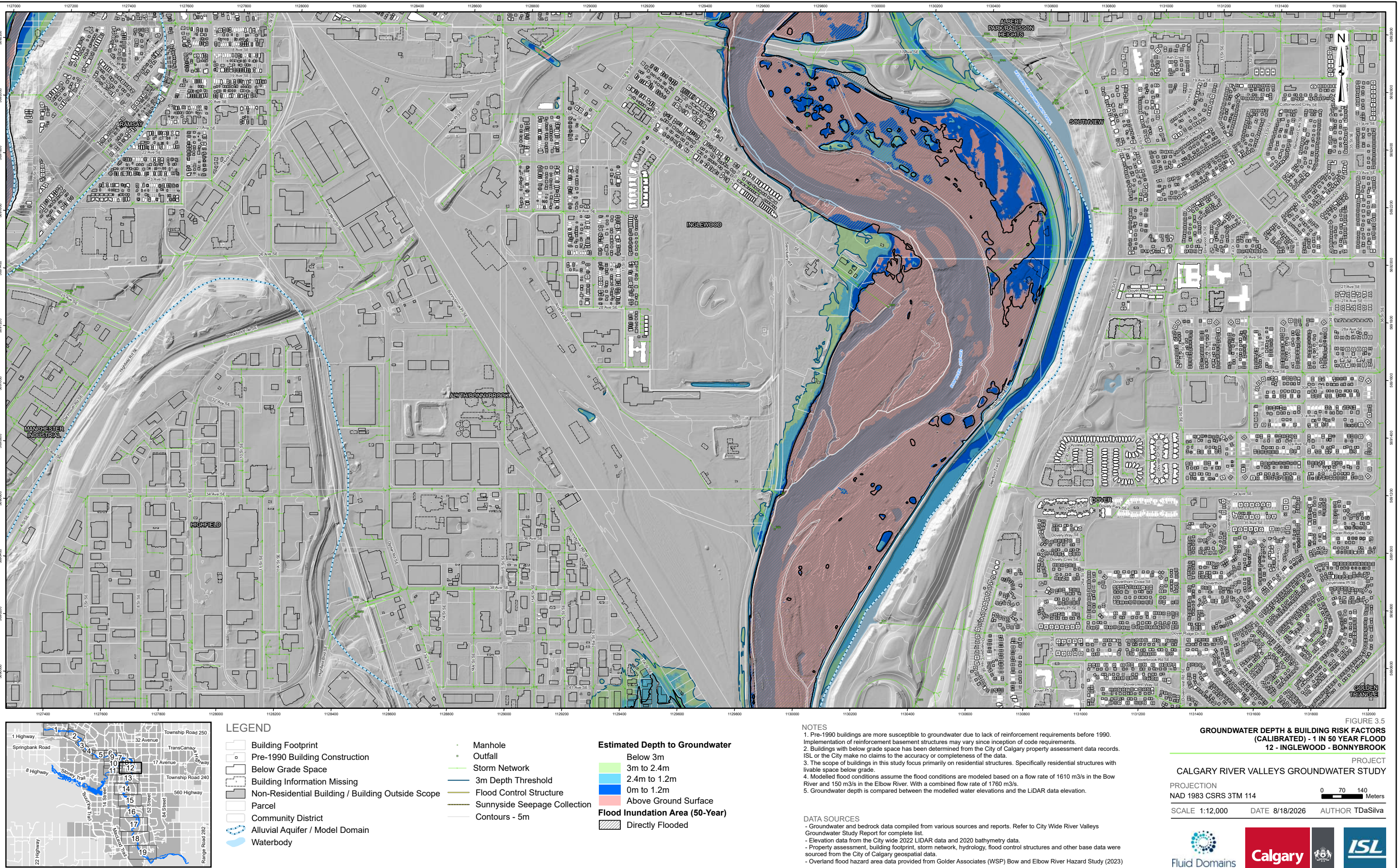
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- Overland flood hazard area data provided from Golder Associates (WSP) Bow and Elbow River Hazard Study (2023)

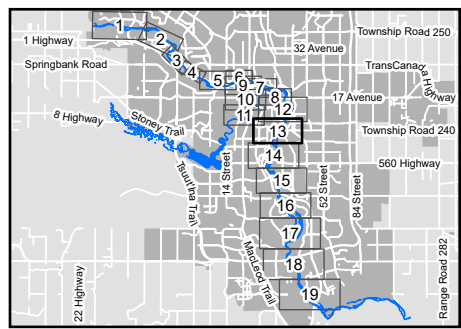
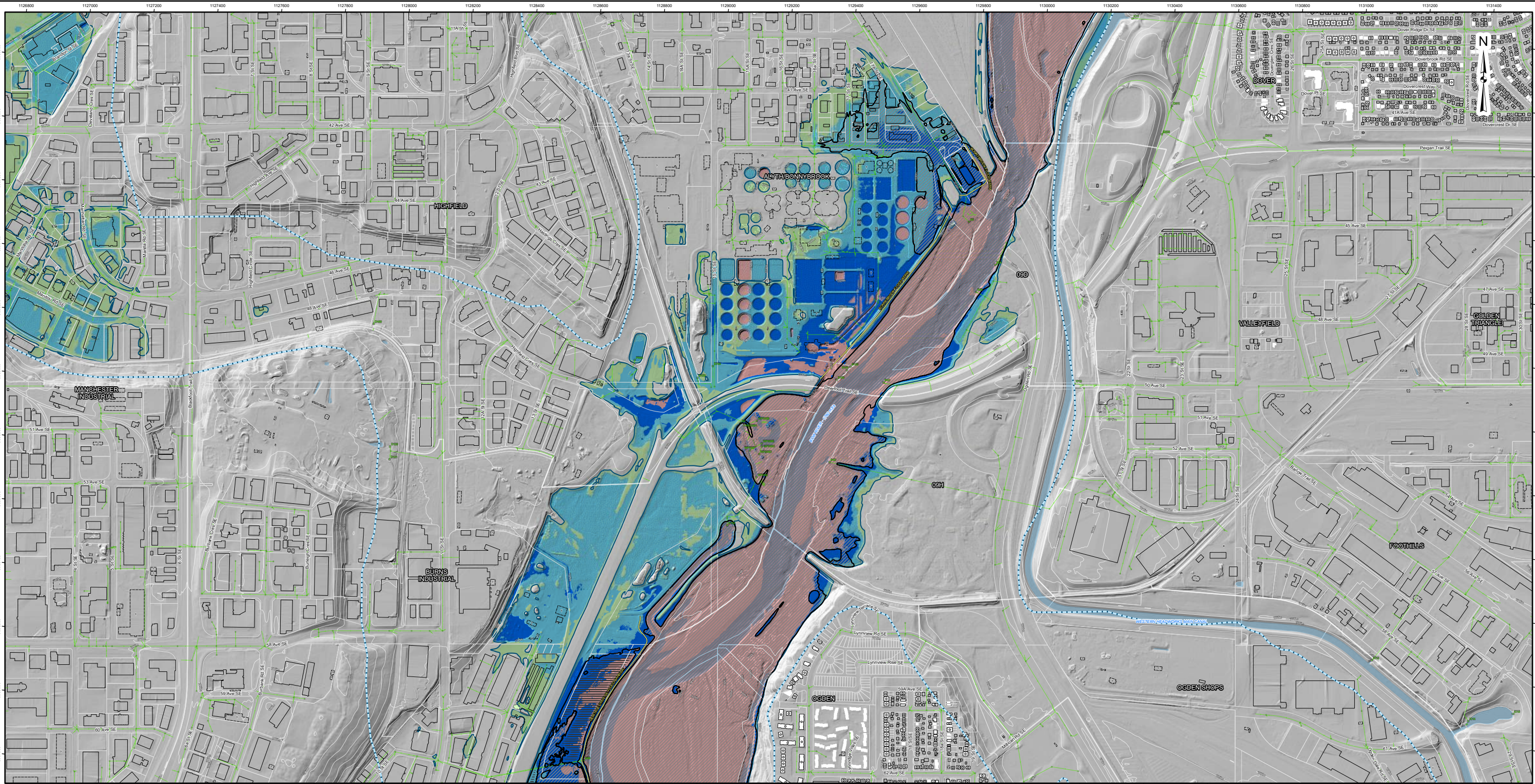
FIGURE 3.5
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
11 - LOWER ELBOW

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114
SCALE 1:9,000
DATE 8/18/2026
AUTHOR TDaSilva







LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (50-Year)

- Directly Flooded
- Protected by Flood Berm

NOTES

1. Pre-1990 buildings are more susceptible to groundwater due to lack of reinforcement requirements before 1990. Implementation of reinforcement basement structures may vary since inception of code requirements.
2. Buildings with below grade space has been determined from the City of Calgary property assessment data records. ISL or the City make no claims to the accuracy or completeness of the data.
3. The scope of buildings in this study focus primarily on residential structures. Specifically residential structures with livable space below grade.
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5. Groundwater depth is compared between the modelled water elevations and the LiDAR data elevation.

DATA SOURCES

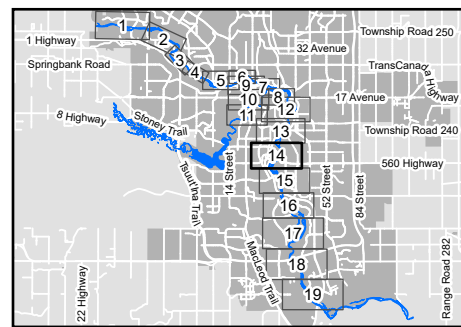
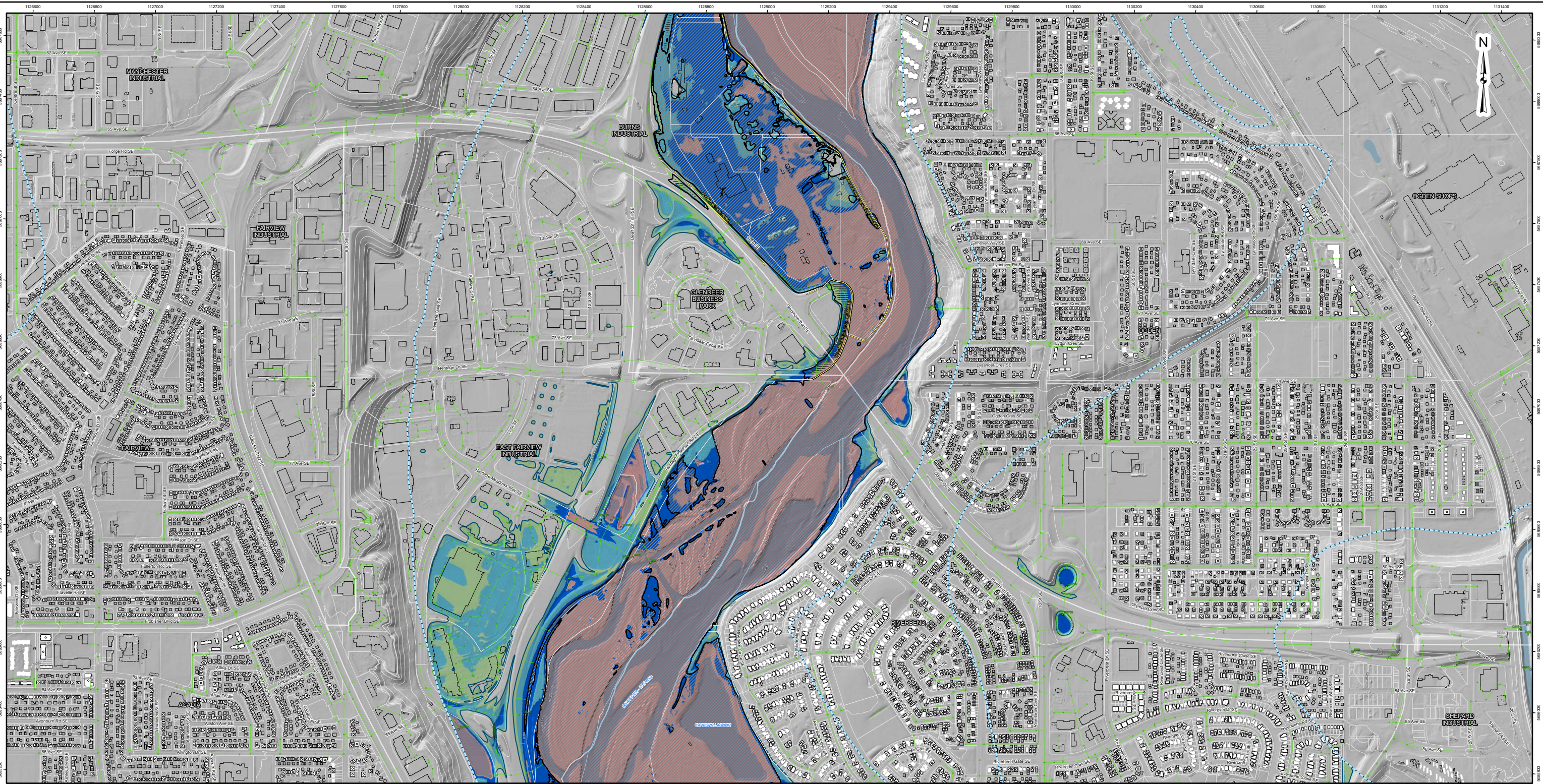
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- Elevation data from the City wide 2022 LiDAR data and 2020 bathymetry data.
- Property assessment, building footprint, storm network, hydrology, flood control structures and other base data were sourced from the City of Calgary geospatial data.
- Overland flood hazard area data provided from Golder Associates (WSP) Bow and Elbow River Hazard Study (2023)

FIGURE 3.5
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
13 - BONNYBROOK

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114
SCALE 1:12,000
DATE 8/18/2026
AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (50-Year)

- Directly Flooded
- Protected by Flood Berm

NOTES

- Pre-1990 buildings are more susceptible to groundwater due to lack of reinforcement requirements before 1990. Implementation of reinforcement basement structures may vary since inception of code requirements.
- Buildings with below grade space has been determined from the City of Calgary property assessment data records. ISL or the City make no claims to the accuracy or completeness of the data.
- The scope of buildings in this study focus primarily on residential structures. Specifically residential structures with livable space below grade.
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DATA SOURCES

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- Overland flood hazard area data provided from Golder Associates (WSP) Bow and Elbow River Hazard Study (2023)

FIGURE 3.5
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
14 - DEERFOOT MEADOWS

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

0 75 150
Meters

SCALE 1:12,500

DATE 8/18/2026

AUTHOR TDaSilva





-  Building Footprint
-  Pre-1990 Building Construction
-  Below Grade Space
-  Building Information Missing
-  Non-Residential Building / Building Outside Scope
-  Parcel
-  Community District
-  Alluvial Aquifer / Model Domain
-  Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
3m to 2.4m
2.4m to 1.2m
0m to 1.2m
Above Ground Surface

Flood Inundation Area (50-Year)

- 
- Directly Flooded

NOTES

1. Pre-1990 buildings are most susceptible to groundwater due to lack of reinforcement requirements before 1990. Implementation of reinforcement basement structures may vary since inception of code requirements.
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5. Groundwater depth is compared between the modelled water elevations and the LiDAR data elevation.

DATA SOURCES

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- Overland flood hazard area data provided from Golder Associates (WSP) Bow and Elbow River Hazard Study (2023)

FIGURE 3.5

**GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
15 - RIVERBEND / QUARRY PARK**

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

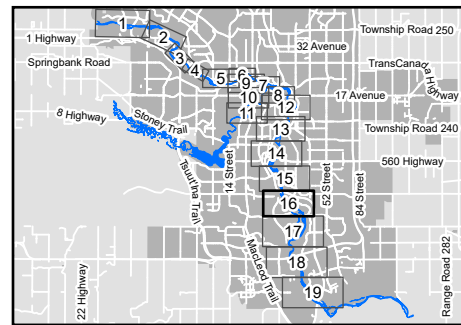
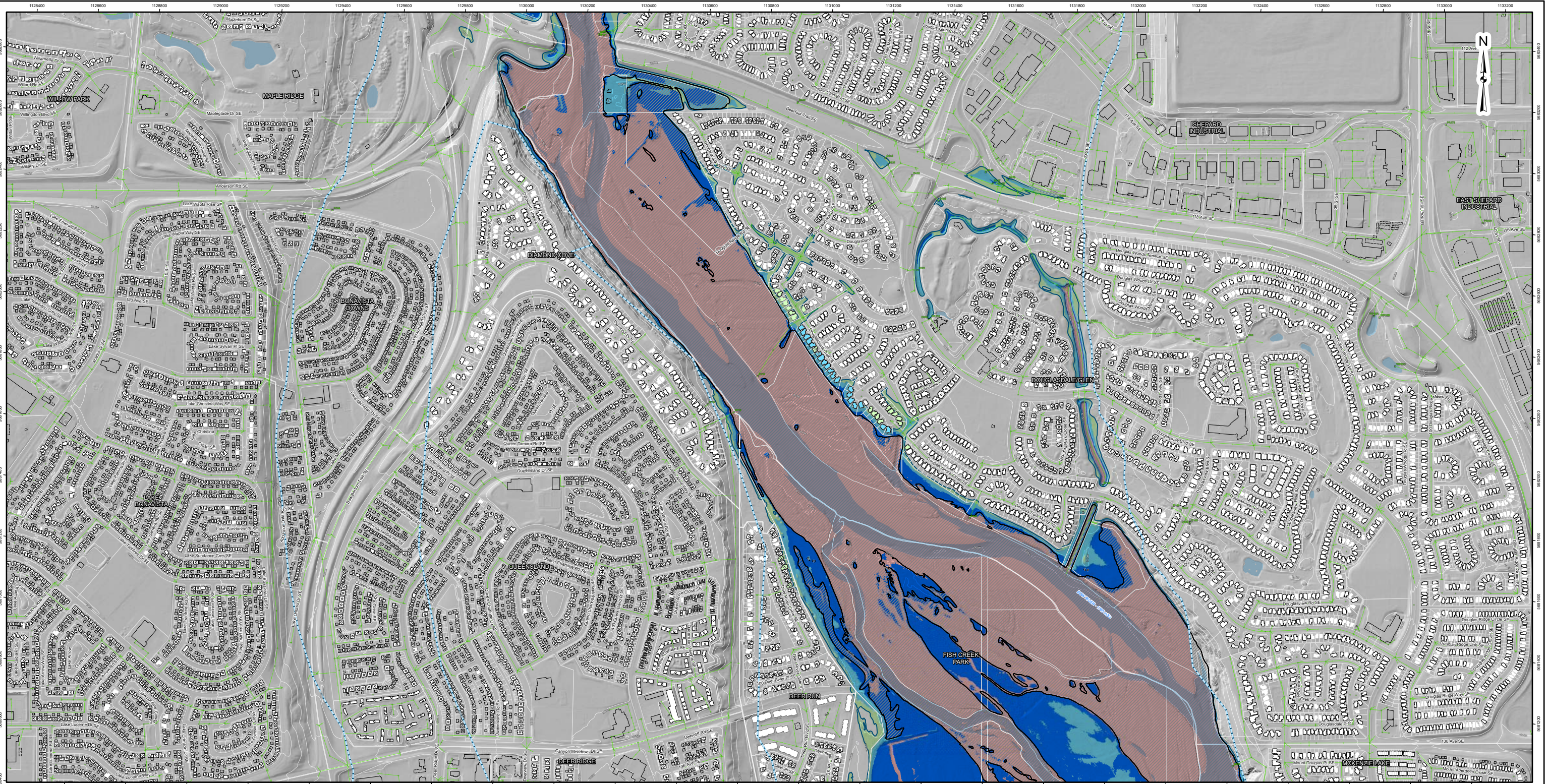
NAD 1983 CSRS 3TM 114

SCALE 1:12,500

DATE 8/18/2026

AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (50-Year)

- Directly Flooded

NOTES

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DATA SOURCES

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FIGURE 3.5
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
16 - DOUGLASDALE

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

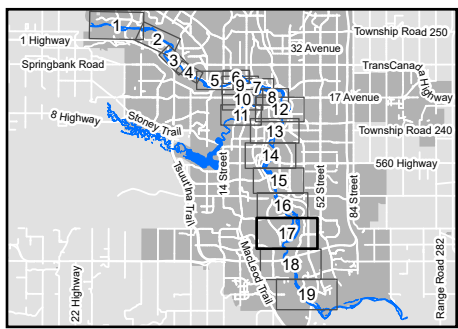
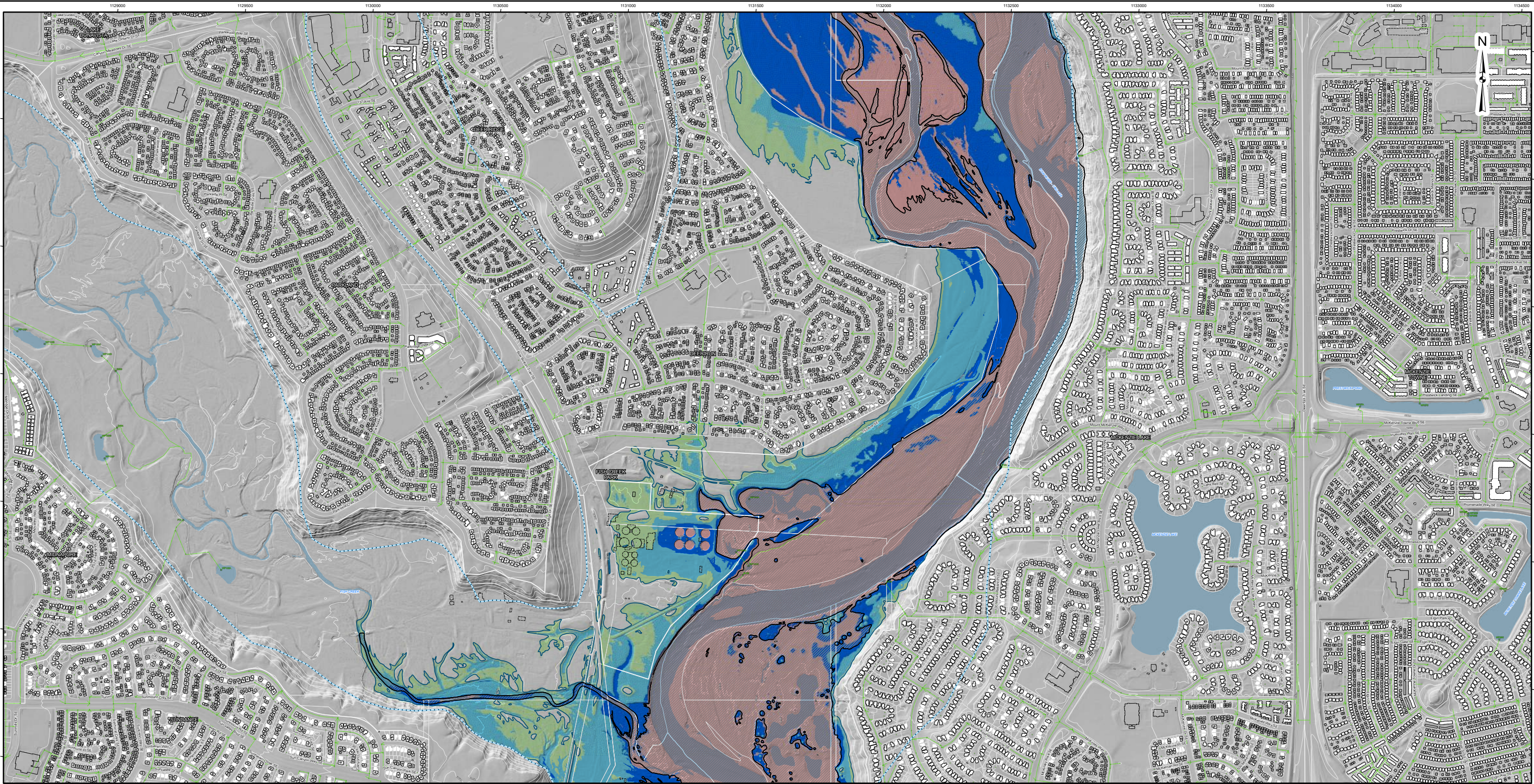
0 75 150
Meters

SCALE 1:12,500

DATE 8/18/2026

AUTHOR TDaSilva





LEGEND

Building Footprint

Pre-1990 Building Construction

Below Grade Space

Building Information Missing

Non-Residential Building / Building Outside Scope

Parcel

Community District

Alluvial Aquifer / Model Domain

Waterbody

Manhole

Outfall

Storm Network

3m Depth Threshold

Flood Control Structure

Sunnyside Seepage Collection

Contours - 5m

Estimated Depth to Groundwater

Below 3m

3m to 2.4m

2.4m to 1.2m

0m to 1.2m

Above Ground Surface

Flood Inundation Area (50-Year)

Directly Flooded

NOTES

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DATA SOURCES

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FIGURE 3.5

GROUNDWATER DEPTH & BUILDING RISK FACTORS

(CALIBRATED) - 1 IN 50 YEAR FLOOD

17 - FISH CREEK

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

SCALE

1:15,000

DATE

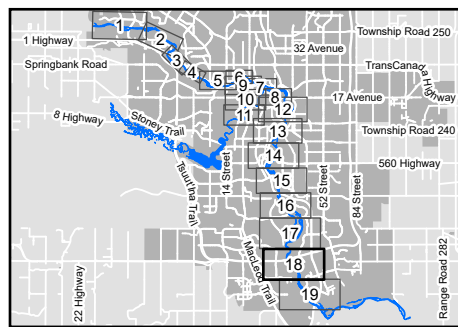
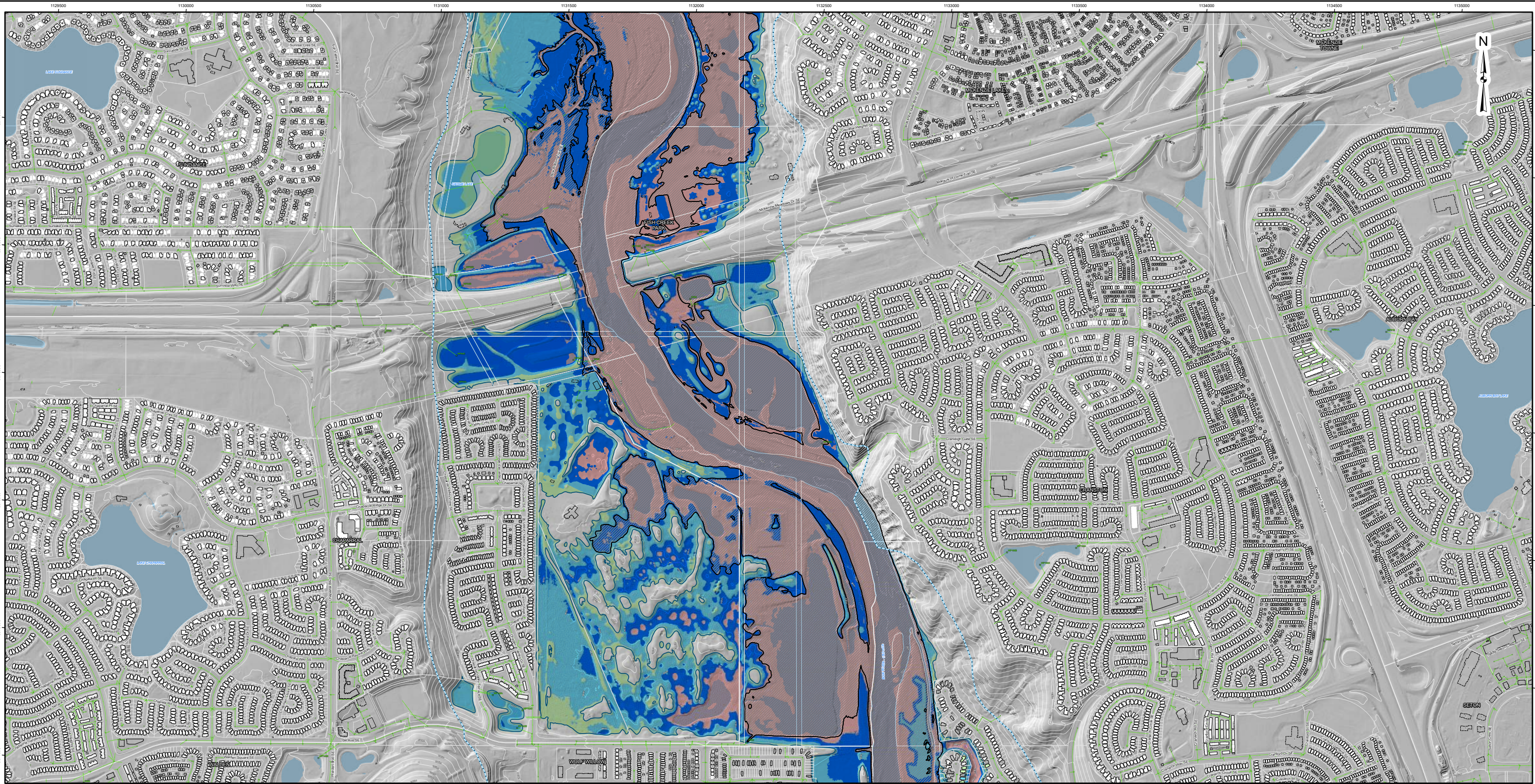
8/18/2026

AUTHOR

TDaSilva

0 90 180

Meters



LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (50-Year)

- Directly Flooded

NOTES

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FIGURE 3.5

GROUNDWATER DEPTH & BUILDING RISK FACTORS (CALIBRATED) - 1 IN 50 YEAR FLOOD 18 - SOUTH STONEY TRAIL

PROJECT

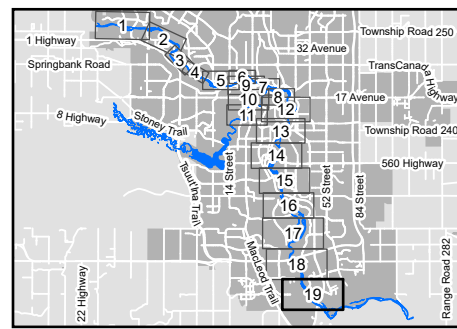
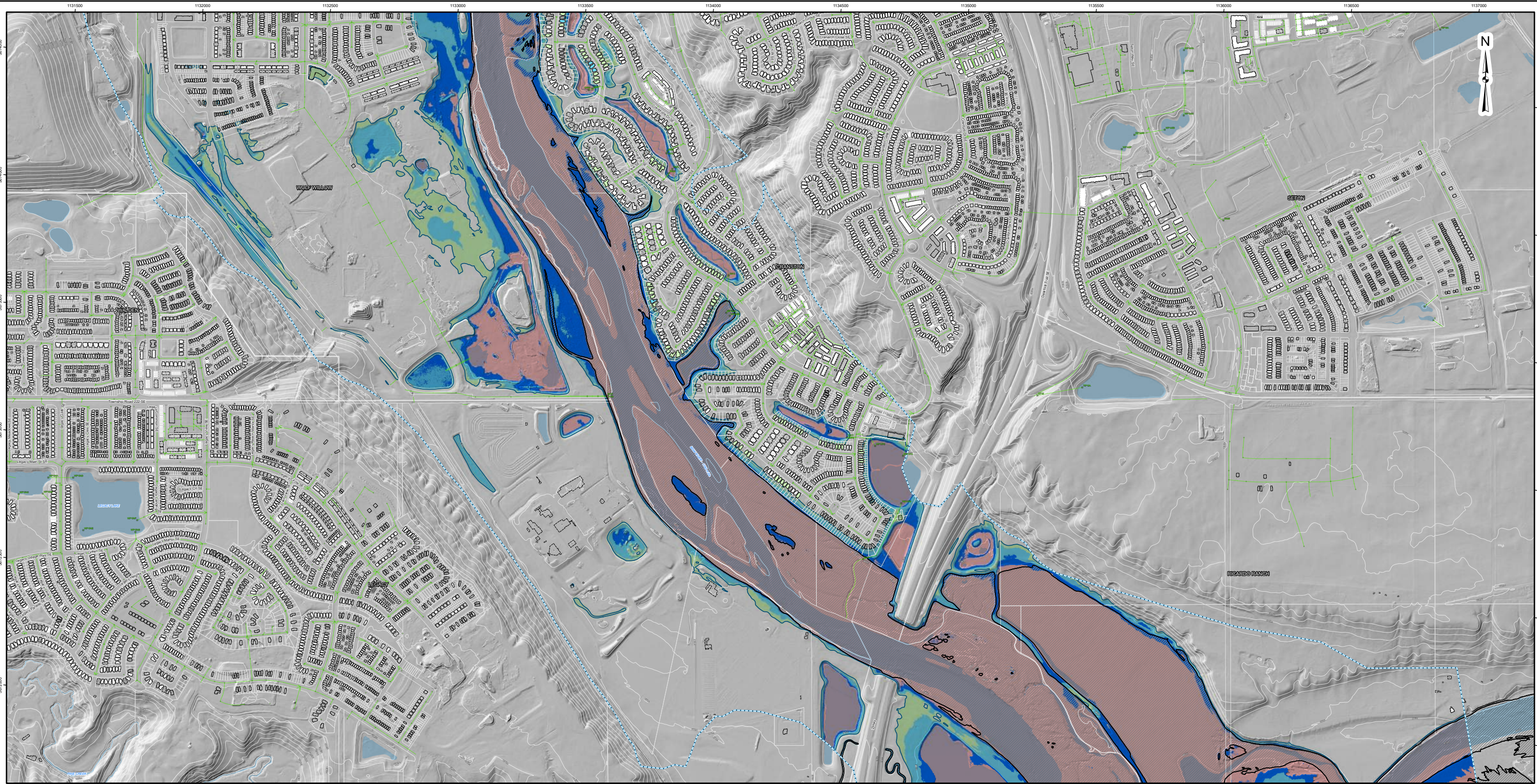
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114

0 90 180
Meters

SCALE 1:15,000 DATE 8/18/2026 AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

- Estimated Depth to Groundwater**
- Below 3m
 - 3m to 2.4m
 - 2.4m to 1.2m
 - 0m to 1.2m
 - Above Ground Surface
- Flood Inundation Area (50-Year)**
- Directly Flooded

NOTES

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FIGURE 3.5
**GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 50 YEAR FLOOD
19 - PINE CREEK / CRANSTON**

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114

SCALE 1:15,000 DATE 8/18/2026 AUTHOR TDaSilva

