

# Drumheller Resiliency and Flood Mitigation Office

Willow Estates Community Information Session

March 31, 2022



# Agenda

Welcome everyone, I'm Kathryn Kolaczek the Communications Lead and event host. Today's agenda is as follows:

- Land Acknowledgement
- Introduction of the team
- Introduction of the presenters
- Presentation
- Question and answer period

# Please be Considerate

- Please respect your fellow neighbours and today's speakers. Abuse will NOT be tolerated. Any disrespectful behaviour will result in being removed from the meeting.
- The focus of today's meeting is Willow Estates. Out of respect for the residents attending today to hear about Willow Estates, we will not be covering questions or content on other projects. Stay tuned to our website for information on future community information sessions specific to other projects.
- The chat function has been disabled as all questions will be managed through the Q&A tool after the presentation.

# Land Acknowledgement

The Town of Drumheller respectfully acknowledges that we are on Treaty 7 territory, the ancestral and traditional territory of the Blackfoot Confederacy: Kainai, Piikani, and Siksika, as well as the Tsuut'ina First Nation, the Stoney Nakoda First Nation and Metis Nation Region 3. We recognize the land as an act of reconciliation and gratitude to those on whose territory we reside.

# Today's Panelists

Deighen Blakely, P. Eng, Project Director

Liv Hundal, M. Eng, P. Eng, Wood

Scott Wagner, P. Eng, Wood

Paul Lawson, Land Agent, Scott Land & Lease Ltd.

Darryl Drohomerski, CAO, Town of Drumheller

Kathryn Kolaczek, Communications Lead, Alchemy Communications

# Today's Team

In attendance at this evening's session is Mayor Colberg & Council

Mayor Heather Colberg

Councillor Patrick Kolafa

Councillor Lisa Hansen-Zacharuk

Councillor Crystal Sereda

Councillor Tony Lacher

Councillor Stephanie Price

Councillor Tom Zariski

# Today's Team

In attendance at this evening's session is the Community Advisory Committee

Cate Samuels

Tony Miglecz

Harvey Saltys

Wayne Powell

Keith Hodgson

Irv Gerling

# Today's Presenters

Deighen Blakely, P. Eng, Project Director

Liv Hundal, M. Eng, P. Eng, Wood



Deighen Blakely, P. Eng, Project Director

# Spring 2022 Flood Program Work

- Spring Tree Clearing
- Clay borrow material sourcing and preparation
- Regulatory Approvals

# Spring Tree Clearing

- Tree clearing for three of our projects will be starting March 14 and wrapping up by the end of April (Centennial Park, Midland, and Newcastle)
- This work is best done ahead of the migratory bird nesting season
- Elm trees need to be removed prior to March 31, to mitigate the spread of Dutch Elm Disease
- This will allow construction work to commence on schedule through the spring and summer

# Spring Tree Clearing Cont'd

- Biologists have completed a sweeps for owls' nests, animal dens, and other sensitive wildlife before tree removal, as the protection of the environment is of high importance to the DRFMO
- Trees in good or fair health will be replaced at a 5:1 ratio
- A group of residents have initiated a tree repurposing project – tree carvings, benches, artwork, handrails, and natural playground to honor the life and legacy of the trees
- For more information on the tree removal & repurposing see [floodreadiness.drumheller.ca](http://floodreadiness.drumheller.ca)

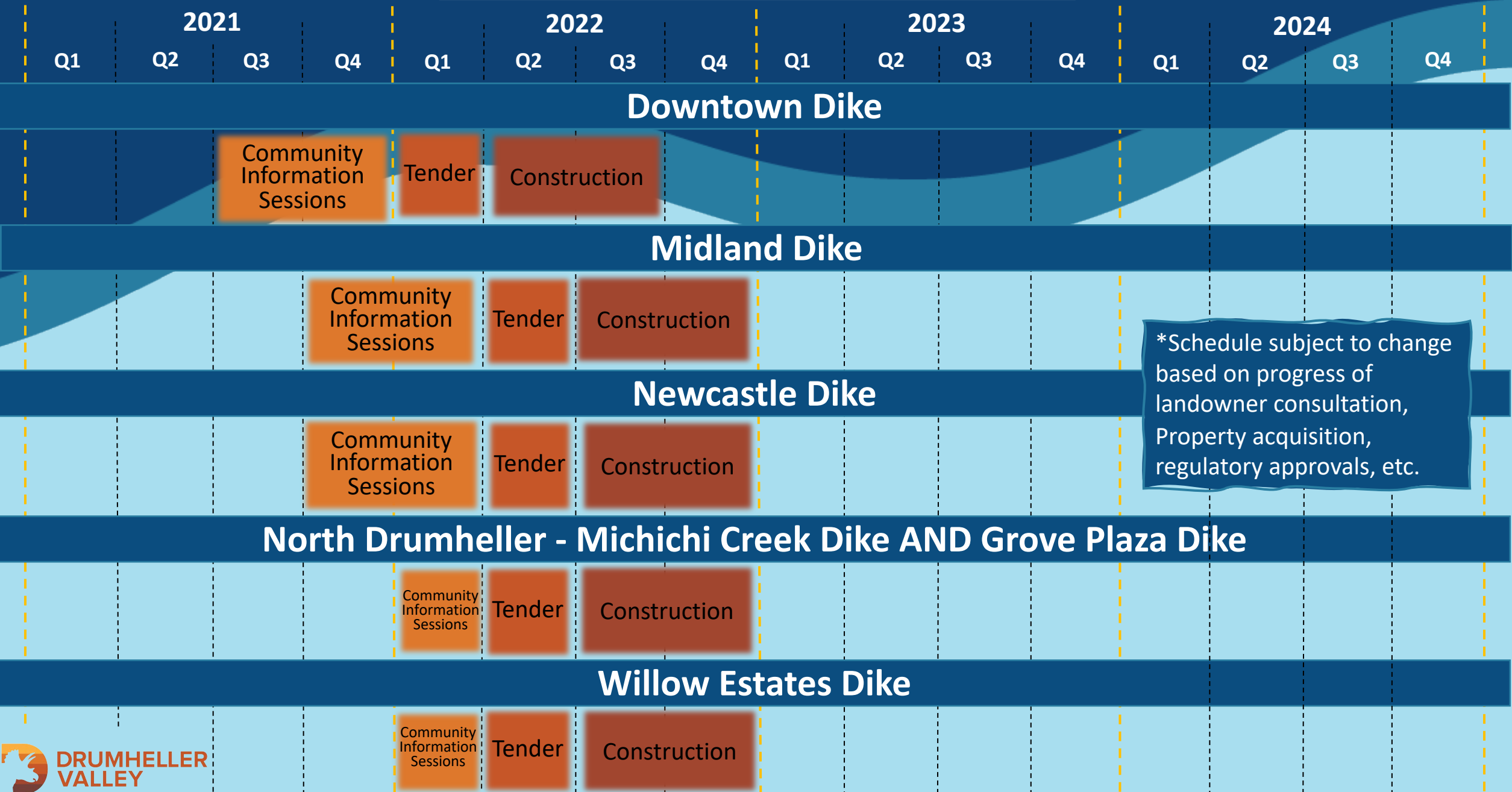
# Clay Borrow Material

- Overall program needs ~ 340,000m<sup>3</sup> of clay fill material (340,000 cubic meters would fill the Aquaplex pool 450 times)
- An Expression of Interest was issued via the Town website in early February to seek local sources of clay material, our geotechnical engineer will be following up with interested parties
- The Flood Office is also looking to use clay material from the Speedway/Motocross Site – geotechnical investigations on-going

# Regulatory Approvals

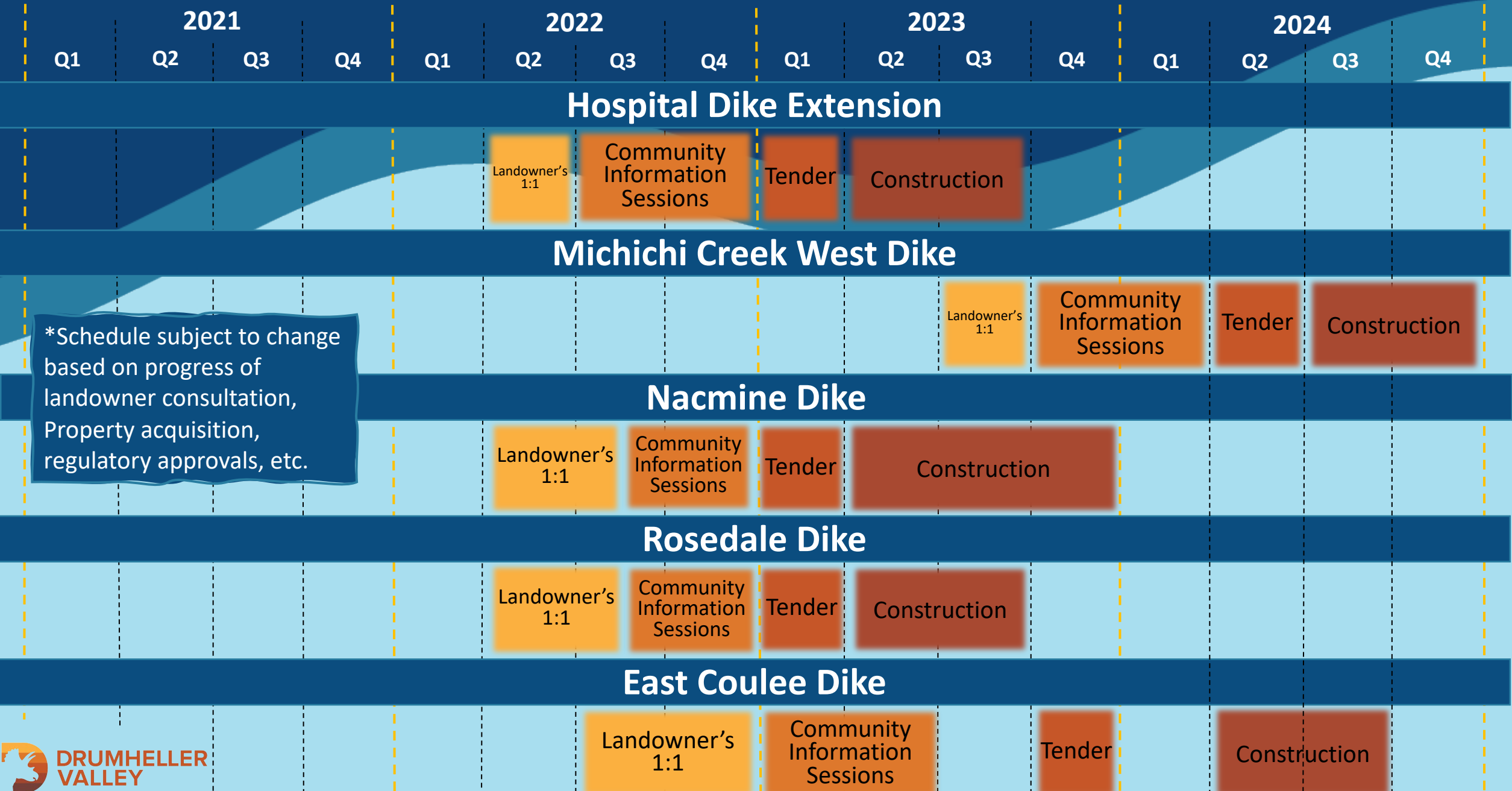
- An Environmental Management firm has been engaged to support regulatory approvals and construction oversight in the coming months
- Consultation with Federal Regulators – Fisheries and Oceans Canada and Transport Canada is on-going for in-stream work planned
- Alberta Environment and Parks – Water Act submissions
- Indigenous Consultations for in-stream construction – planning work on-going

# DRFM – Preliminary Program Schedule\*



\*Schedule subject to change based on progress of landowner consultation, Property acquisition, regulatory approvals, etc.

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\*Schedule subject to change based on progress of landowner consultation, Property acquisition, regulatory approvals, etc.



# DRFM – Preliminary Program Schedule\*

2021

2022

2023

2024

Q1

Q2

Q3

Q4

Q1

Q2

Q3

Q4

Q1

Q2

Q3

Q4

Q1

Q2

Q3

Q4

## West Rosedale Scarlett Dike<sup>1</sup>

Landowner's 1:1

Community Information Sessions

Tender

Construction

## North Cambria Dike<sup>1</sup>

Landowner's 1:1

Community Information Sessions

Tender

Construction

## Rosedale Highway 10x Dike<sup>1</sup>

Landowner's 1:1

Community Information Sessions

Tender

Construction

## Lehigh

Landowner's 1:1

Community Information Sessions

Buyouts

Reclamation

## Riverwood Close Dike<sup>1</sup>

Landowner's 1:1

Community Information Sessions

Tender

Construction

\*Schedule subject to change based on progress of landowner consultation, Property acquisition, regulatory approvals, etc.

<sup>1</sup>Project not currently funded

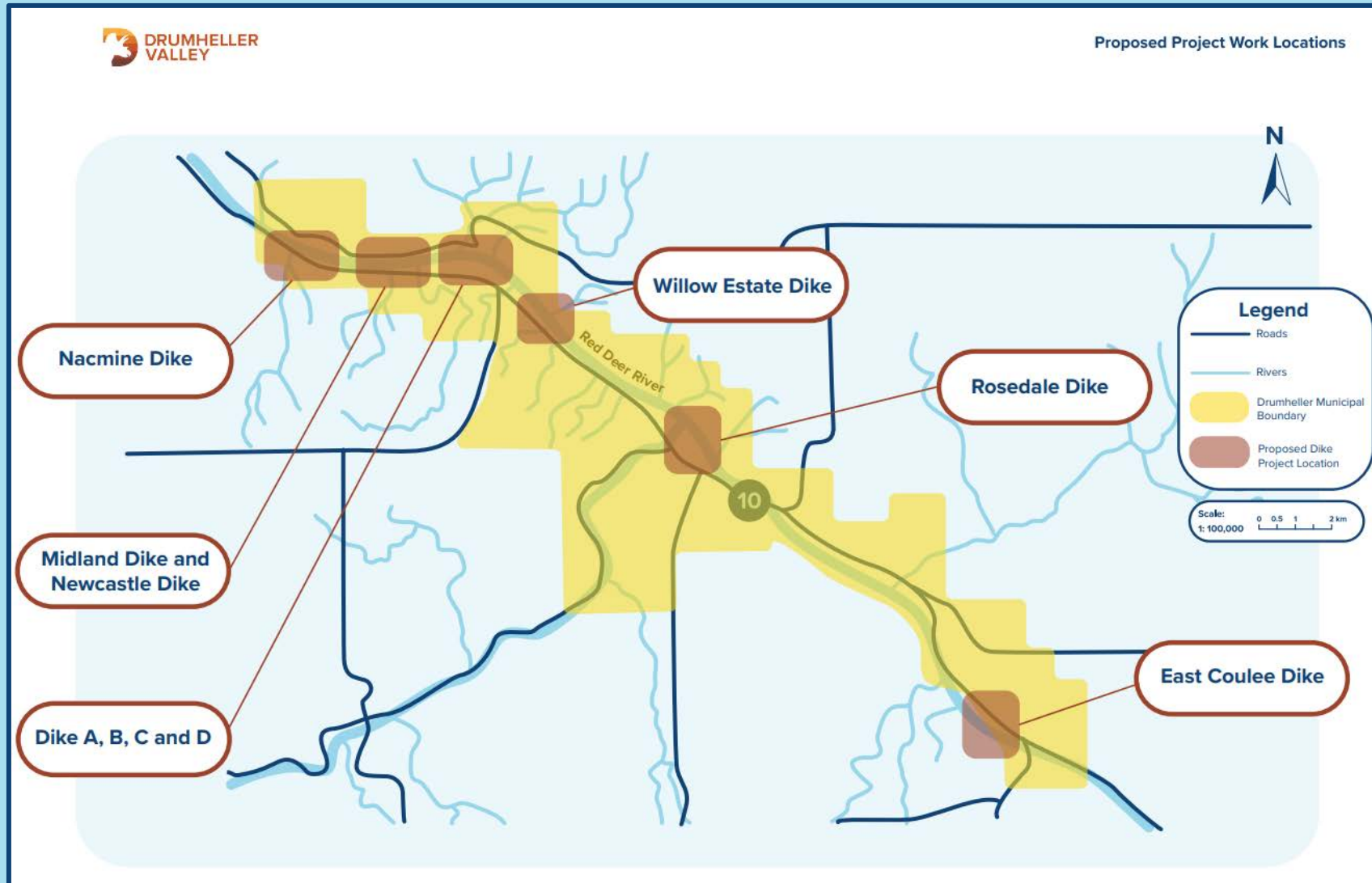
# Project Funding

- The overall program is funded by:
- Government of Canada: **Canada**
  - Disaster Mitigation and Adaptation Fund - \$22M
- Province of Alberta: *Alberta*
  - Alberta Community Resilience Program Funding ~ \$6.6M
  - 18GRSTR41 Grant - \$20M for land purchase
- Town of Drumheller ~ \$6.6M



Liv Hundal, M. Eng, P. Eng, Wood

# Project Locations



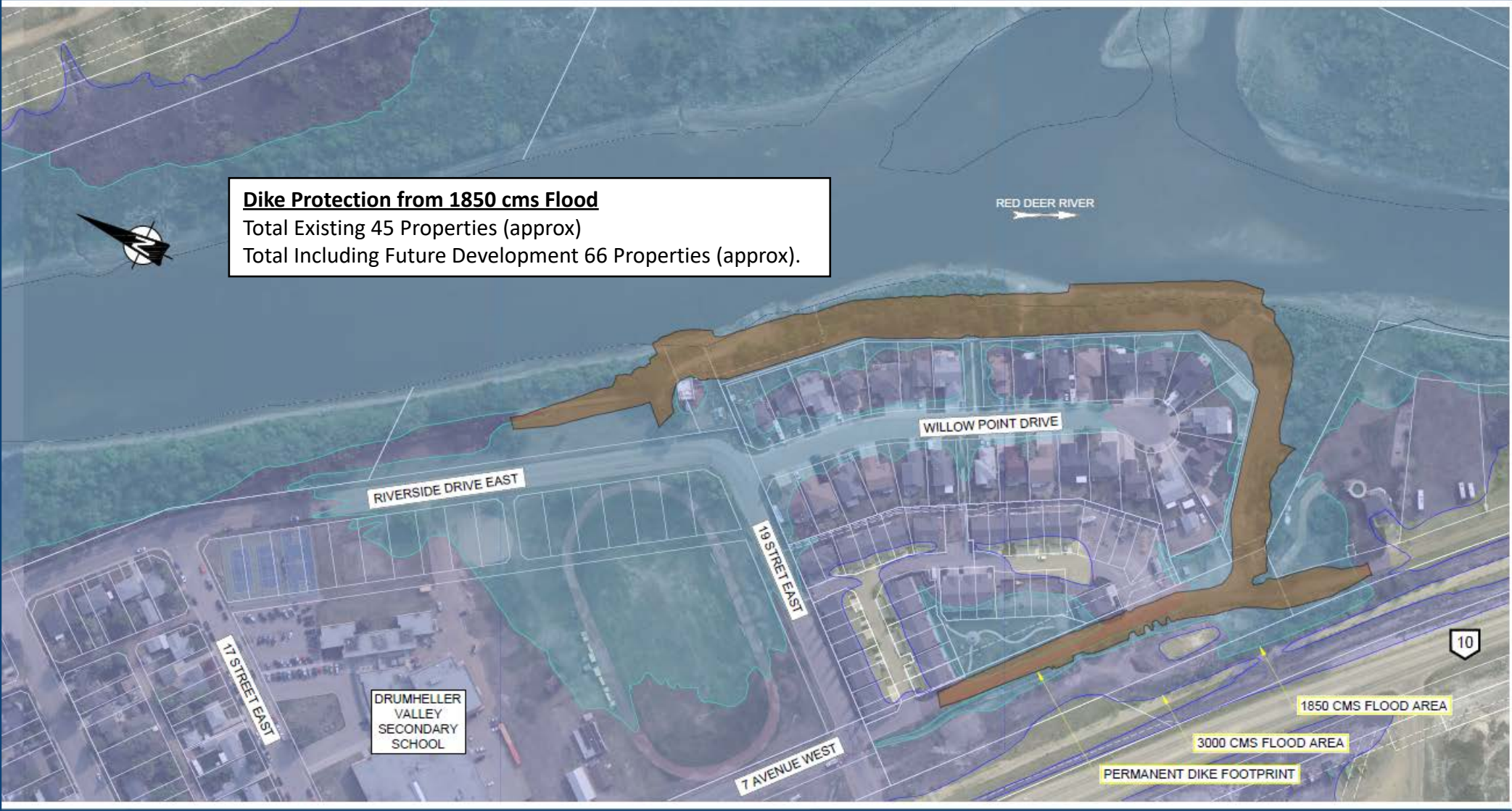
# Background & 2005 Flood Photos



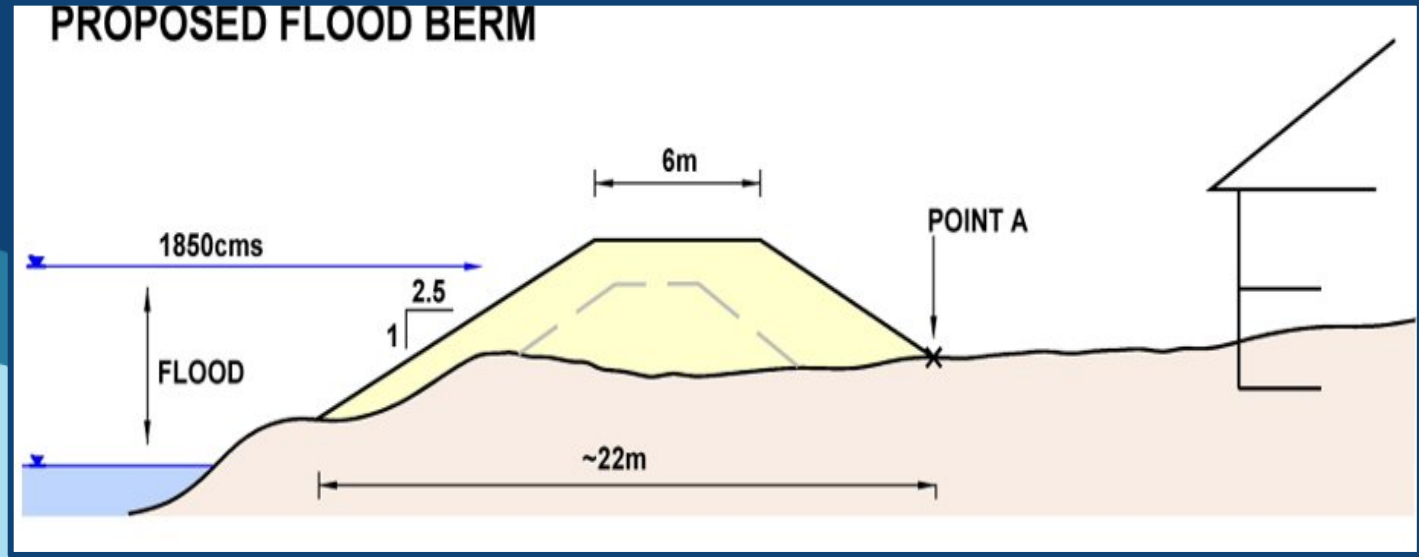
- Willow Estates community was subject to flooding in both 2005 and 2013. The infrastructure at risk from flooding includes residences and the main water supply lift station for Drumheller
- Willow Estates is a newer community, and the development design grade was set to the required design flood level at the time of construction
- Dike will not encroach onto private properties



# Proposed Dike Alignment

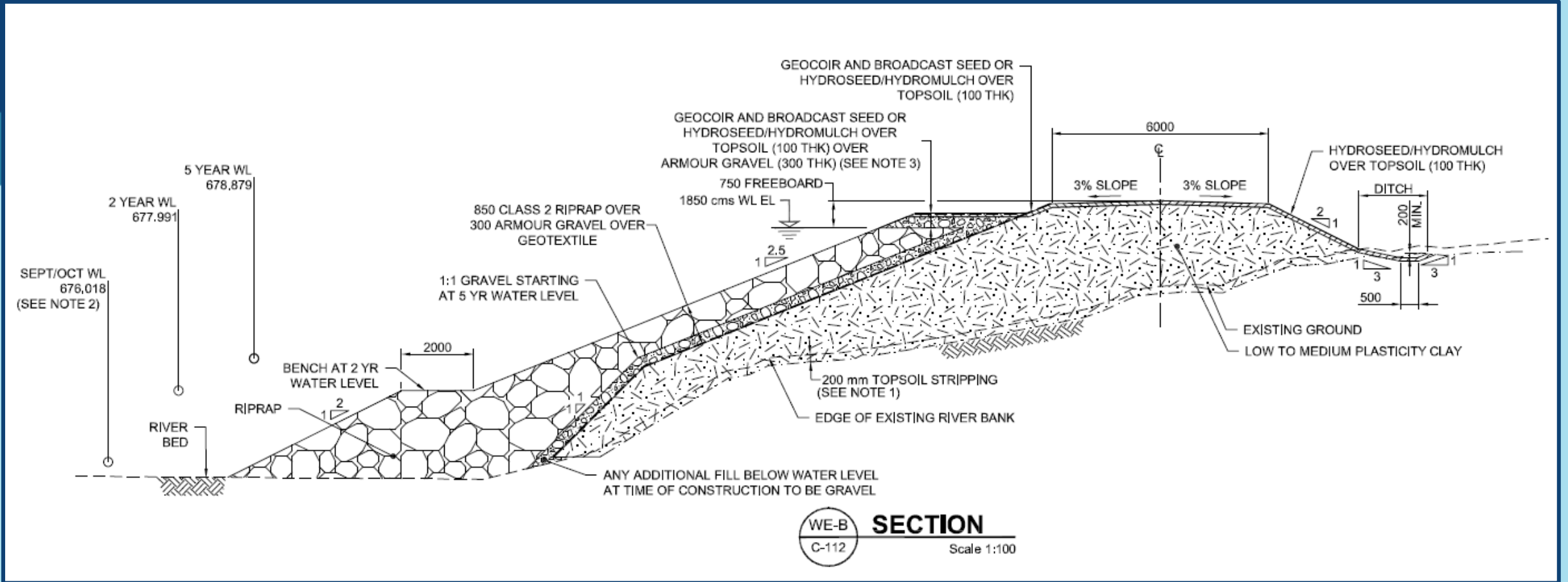


# Dike Design Summary



- Design elevation = 1850 cms flood level + 0.75 m freeboard
- Total Dike length = 710 m (including raising 7<sup>th</sup> Avenue)
- Dike Height (relative to the riverbank) = 1.5 m to 3.0 m
- Dike will not encroach onto private properties
- Two segments require riprap erosion protection of streambank protect the proposed dike and existing infrastructure
  - Upstream riprap segment = 50 m
  - Downstream riprap segment = 100 m

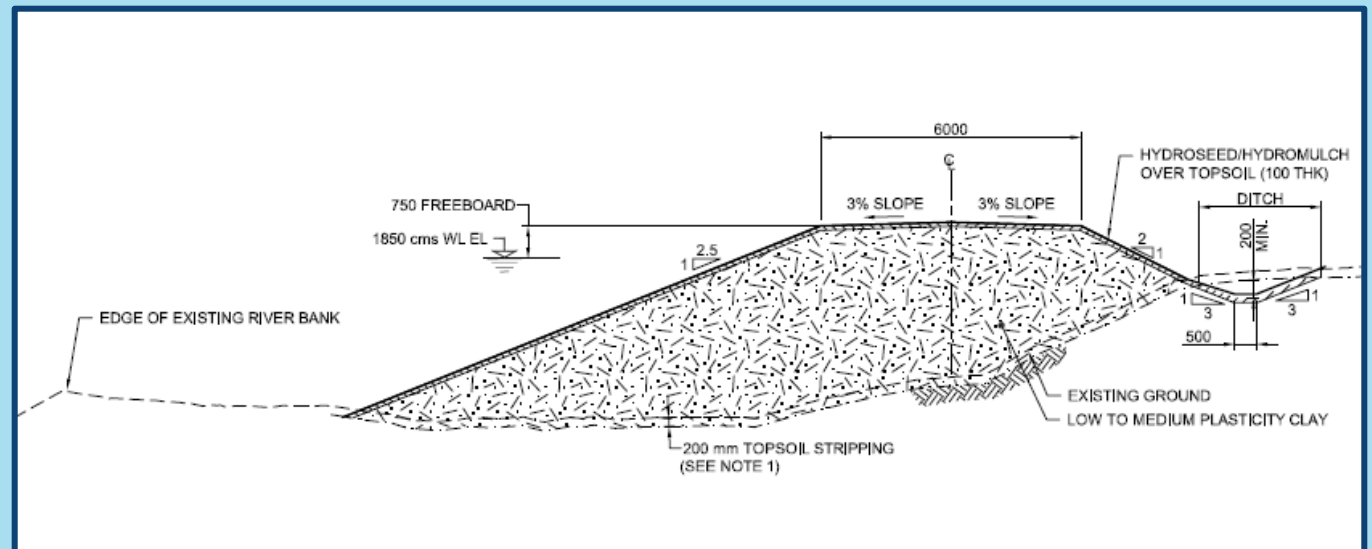
# Typical Cross Section Riprap Erosion Protection



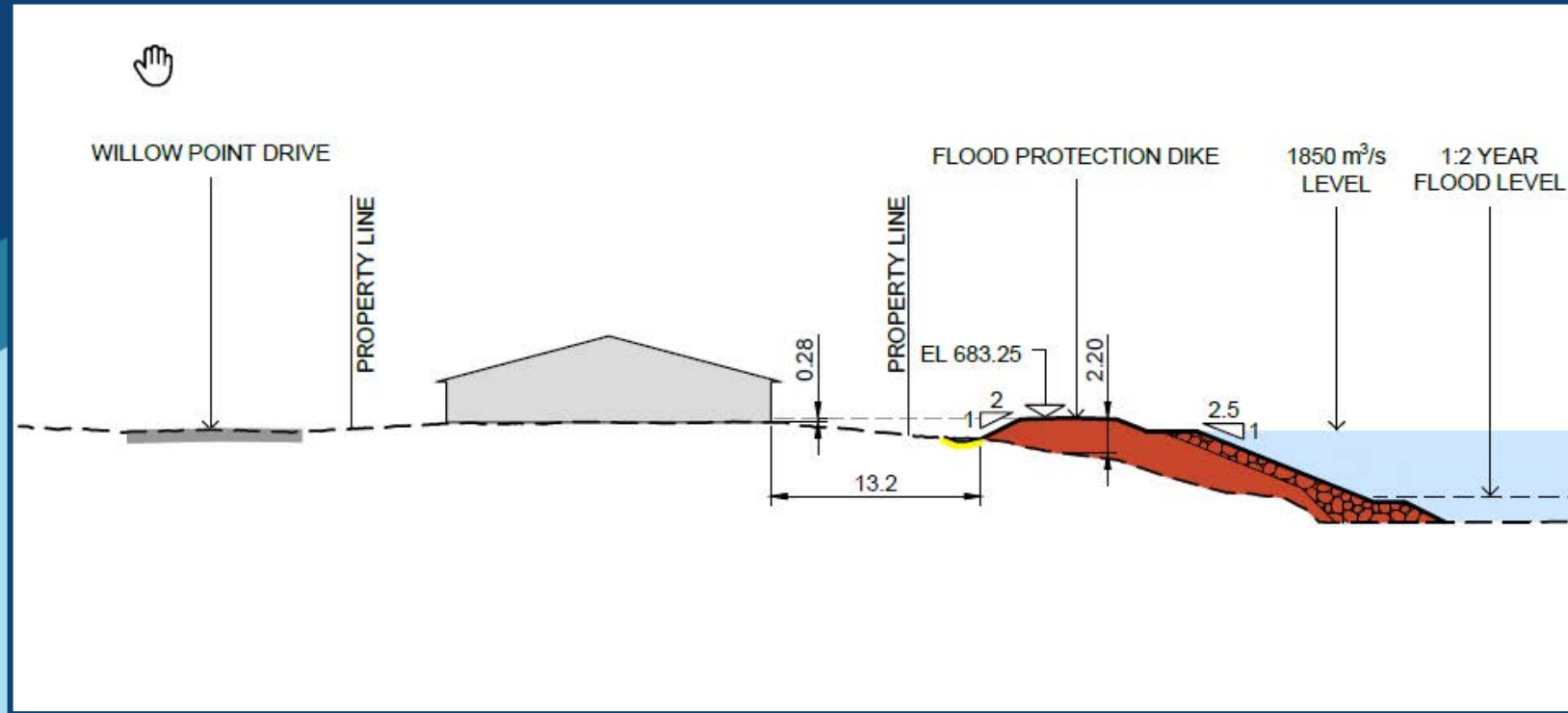


# Typical Set Back Cross Section

- Set back Dike subjected to river flows above 1:5 year
- Some removal of existing vegetation required
- Vegetated lower slope will be proposed as part of landscaping plan (potted willows, etc.) to replace vegetation removed and provide slope protection

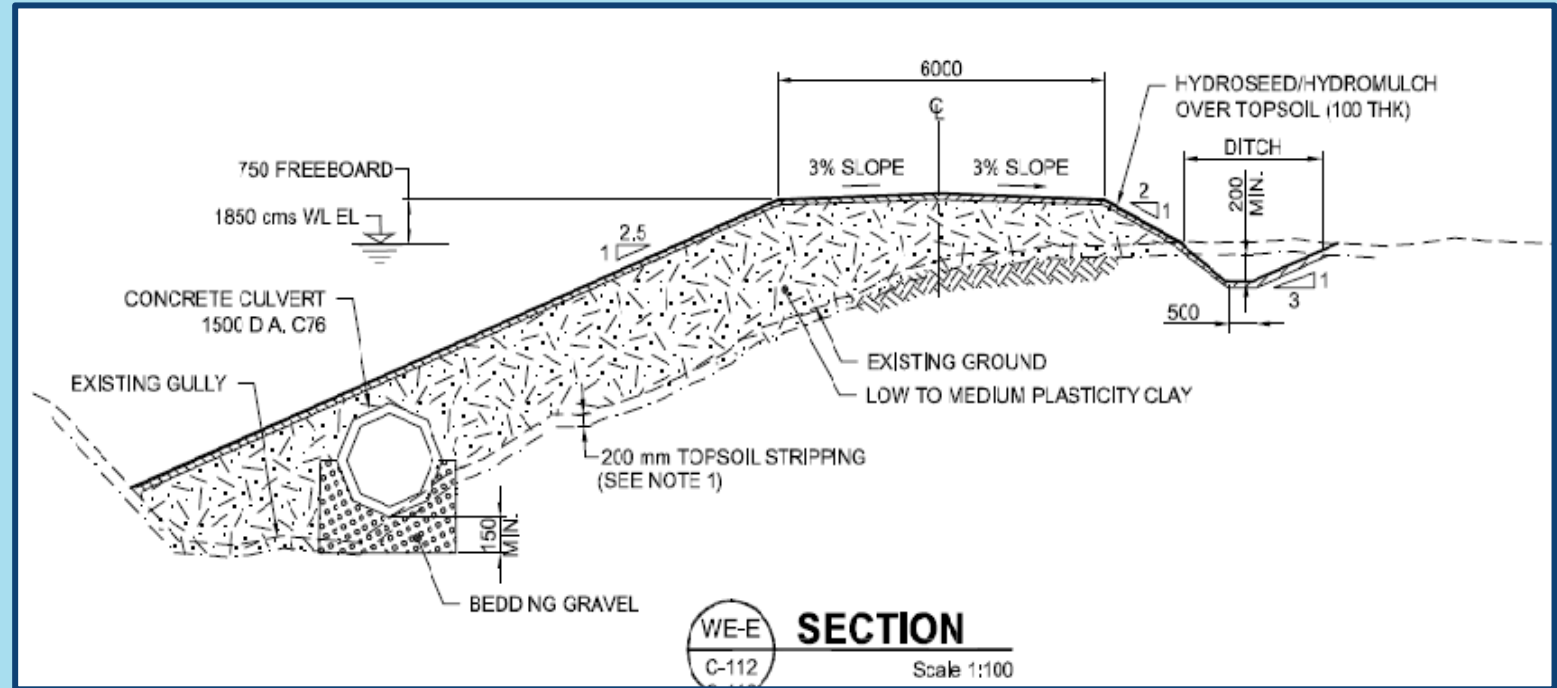


# Typical Setback From Houses

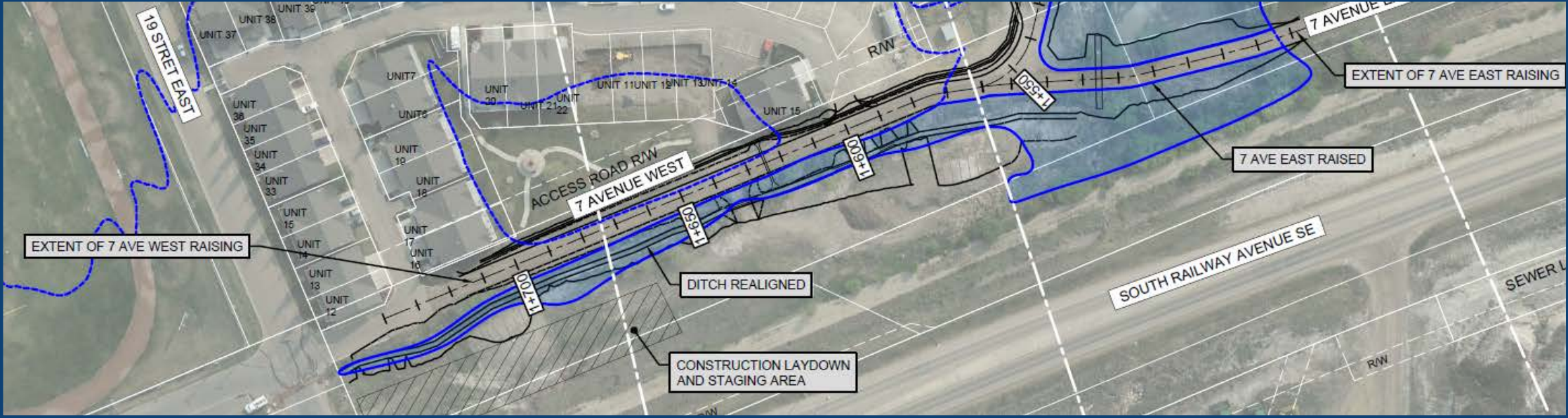


- The figure shows a cross section view similar to standing on the riverbank and looking upstream.
- Note there is no encroachment onto private property and the setback from the dike to the house is approximately 13 m
- The top of dike is typically 0.5 to 0.6 m higher than the elevation of the backyard.

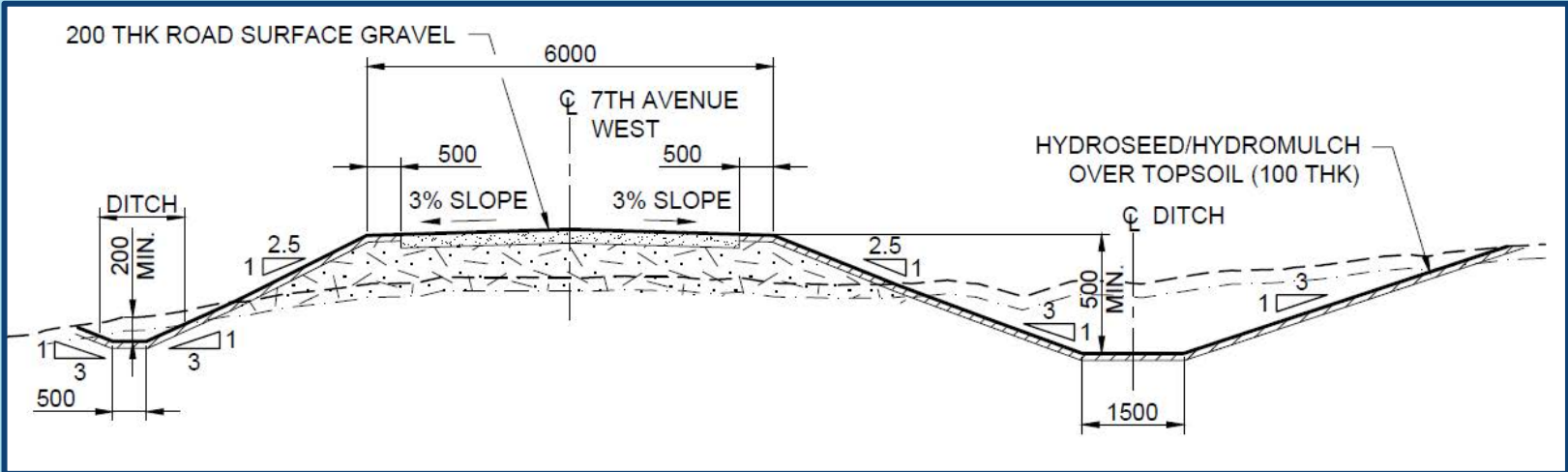
# Gully and 7th Avenue Culvert



# Raising 7th Avenue

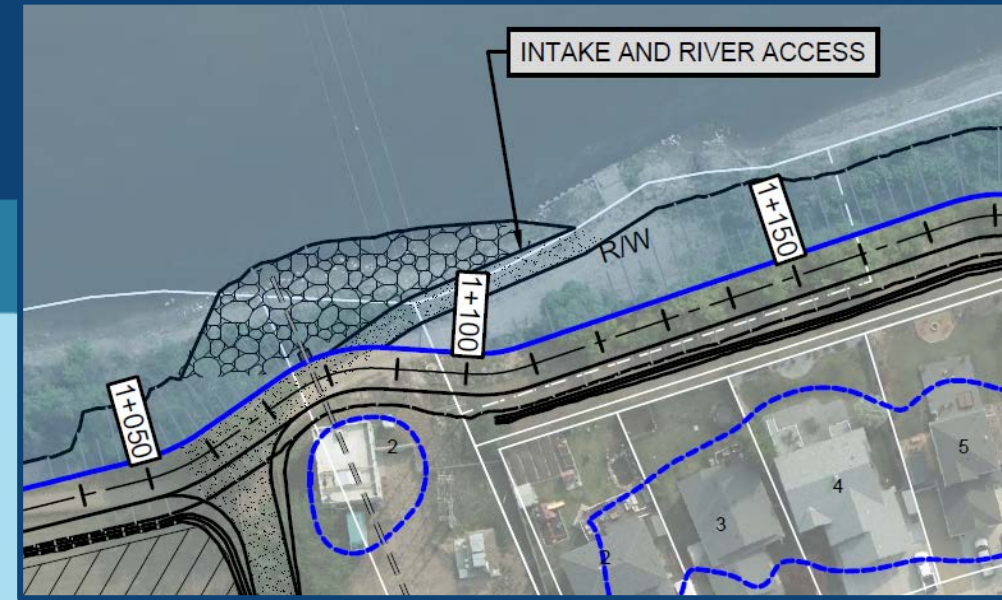


Looking East from 19th Street ----->

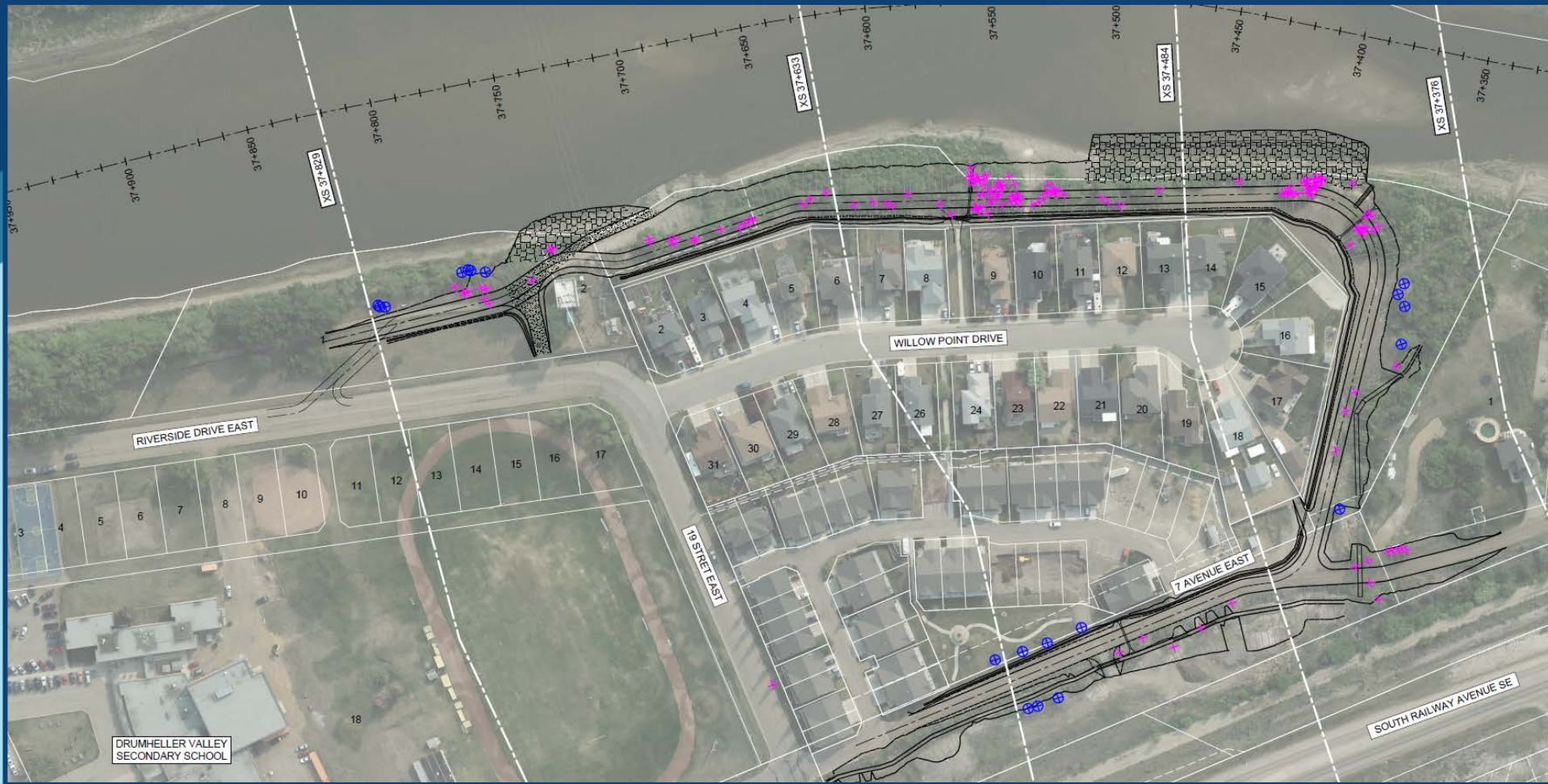


# Access to Dike and River

- Currently there is public access to the riverbank. Similarly, access will be available to the crest of the dike
- Swift water rescue access at pump house (top figure)
- River access through boulder staircase at east corner (bottom figure)



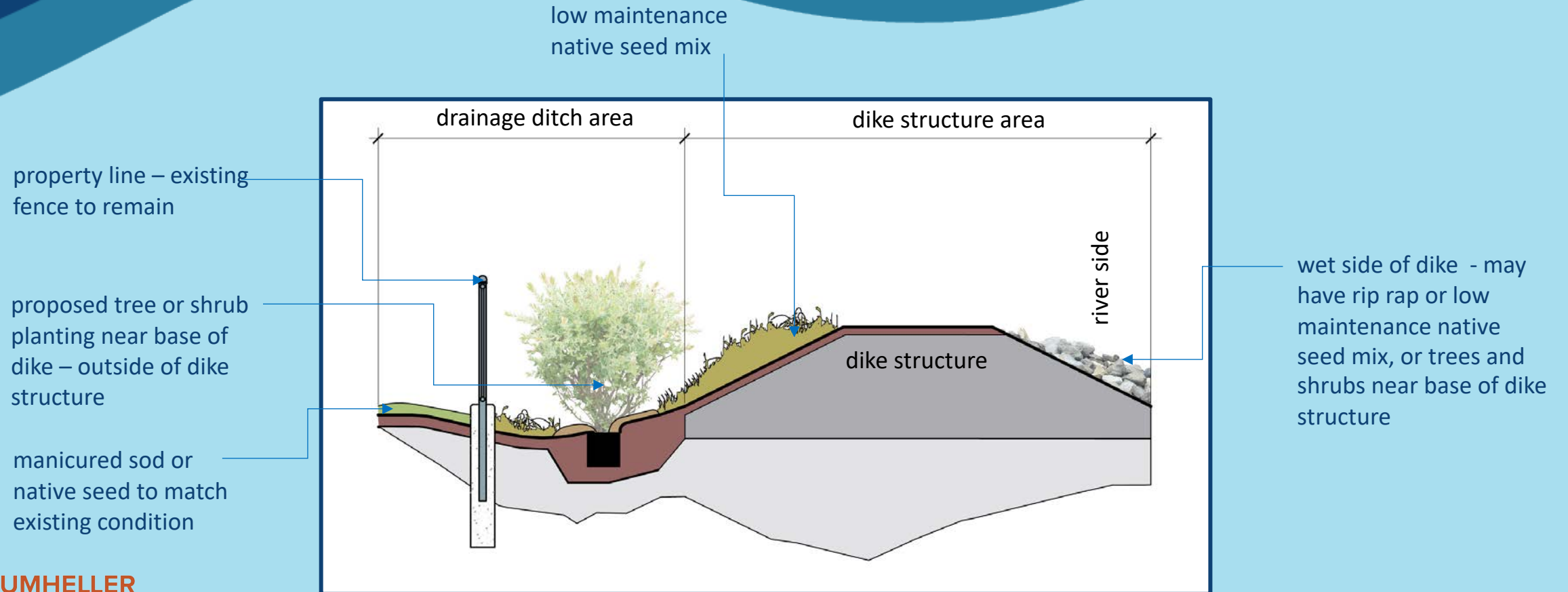
# Tree Removal



\* A tree assessment will be completed and all trees in good or fair health will be replaced at a 5:1 ratio. That is, 5 trees planted for every one tree in good or fair health removed.

## What might the landscaping look like around the dike?

To manage the dike asset, there will be no trees or shrubs planted on the dike structure



# Project Schedule 2022

- **Mar 31** – Public engagement
- **Late March/Early April** – Regulatory Submissions (AEP/DFO, etc.)
- **June-July** – Tendering
- **July** – Receive Regulatory Approvals (ideally require prior to tender close)
- **July/August** – Evaluate, Award and Execute Tender
- **September** – Mobilize and Begin Construction
- **October** – In-Stream Work Completion
- **November/December** – Construction Completion



# Emergency Response and Adaptive Management

- There is a potential for a flood event occurring which is greater than the design flood.
- The Town's Emergency Management Plan includes provision for temporary structural mitigation measures including raising dikes by placing earthfill, or other measures.
- The Dike design incorporates measures such as a 6 m wide top width and access ramps to allow construction of the above noted emergency measures.

# Upcoming Community Information Sessions

Upcoming virtual community information sessions:

- Late Summer 2022 – Hospital Dike
- Fall 2022 – Nacmine Dike and Rosedale Dike
- Early 2023 – East Coulee Dike

[floodreadiness.drumheller.ca](https://www.floodreadiness.drumheller.ca)

[floodreadiness@drumheller.ca](mailto:floodreadiness@drumheller.ca)

[floodcommittee@drumheller.ca](mailto:floodcommittee@drumheller.ca)



## Subscribe to the Flood Mitigation Emailing List!

The Drumheller Resiliency and Flood Mitigation Office sends email updates on the Flood Mitigation Project to our subscriber list. To stay informed, go to [floodreadiness.drumheller.ca](https://floodreadiness.drumheller.ca), scroll to the bottom of the page, and submit your name & email address.



# Questions?

## FAQs

# Questions?

**Q: Why can we drive on the 7th Ave portion dike in Willow Estates but not the Downtown dike?**

**A:** This roadway is a low volume thoroughfare. The existing roadway modification is relatively minor in Willow Estates. Traffic safety and geometric design are not significant issues, as they are for the Downtown Dike.

# Questions?

**Q: Can I still access the Red Deer River at Willow Estates once the dike is built?**

**A:** Currently there is public access to the riverbank. Similarly, access will be available to the crest of the dike and riverbank at select locations.

# Questions?

**Q: I live on 7<sup>th</sup> Ave E, to the east of the project area, how will I drive to my house during construction if the road is being worked on?**

**A: 7th Ave is the only access to the homes east of Willow Estates. A detailed Traffic Accommodation Strategy (TAS) will be a component of the Tendering phase of the project in order to minimize inconvenience to residents. Measures such as single lane closures and alternative access will be investigated.**



# Questions?

**Q: When and where will the replacement trees be planted?**

A: Where possible, replacement vegetation such as grass will be incorporated into the project. This includes plantings adjacent to the river toe of the setback dike and also shrub and other plantings adjacent to the drainage swale that is located on the land side of the dike. Additional trees will be planted at other suitable locations in Drumheller Valley.

# Questions?

**Q: Why doesn't the dike just run south to tie into the railway grade instead of raising 7th Ave?**

A: The above measure was reviewed but had drawbacks. These include: (1) 7 Ave would still have to be raised on either side of the dike to allow for a gradual transition; (2) requires larger and more complex cross drain/culvert structure to convey ditch flow across the dike; and (3) potential backup of ditch flow at cross drain/culvert would result in flooding of Willow Estates.

# Questions?

**Q: Is it permissible for the dike to encroach into the river? We thought that other dikes could not encroach into the river.**

A: We are placing riprap in the river rather than dirt (dike fill). Although we try to avoid encroaching into the river, sometimes it is necessary to place rock riprap to protect existing infrastructure (houses, pump station, river intake) and the dike against river erosion. This is only done after careful consideration of not causing adverse impacts on adjacent areas and fish habitat. Furthermore, the Downtown Dike would have encroached 10-20 meters into the river, which is significantly more than the Willow Estates Dike. Rip rap will be used in other locations, including the Downtown Dike.

# Questions?

**Q: Why does the dike not extend further west to protect the properties adjacent to Riverside Drive?**

**A: As shown in the Figure, Riverside Drive and the area to the east are higher than the 1850 m<sup>3</sup>/s flow.**



# Questions?

**Q: Since the Dike footprint does not encroach into landowner's backyards, how close will the Dike be to property owners fence lines?**

**A: Typically, there will be between 2 to 5 m between the toe of the dike and landowner's property lines.**

# Questions?

**Q: Will raising 7th Avenue affect access to the properties in Riverside Gardens?**

**A: No, Riverside Gardens roads were designed to accommodate flood mitigation elevation changes.**

# Questions?

**Q: Are regulatory approvals required for encroaching into the river?**

**A: Yes.** Regulatory approvals are required from Federal agencies (DFO, Transport Canada) and Provincial agencies (Alberta Environment & Parks, Alberta Public Lands).

# Questions?

**Q: There are benches by the sidewalk on River Point Drive along the way to the river. Will these be replaced?**

**A: Yes, pending easy removal in the event of an emergency.**



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