DRUMHELLER VALLEY

Drumheller Resiliency and Flood Mitigation Office

Community Information Session

December 1, 2021

Agenda

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

- Land Acknowledgement
- Overview of event and format
- Introduce the team
- Introduce the speakers
- Presentation
- Question and answer period – Virtual vs In Person

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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.

DRUMHELLER VALLEY

Please Be Considerate

- Please respect your fellow neighbours and today's speakers. Abuse will NOT be tolerated.
    - Virtual Questions will be managed through the Q&A tool.
    - In person questions will be managed at each of the tables around the room

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Today's Team

Deighen Blakely, P. Eng, Project Director

Tony Miglecz, Community Advisory Committee

Mark Brotherton, P. Eng, Parkland Geo

Ernie Webster, Landscape Architect, IBI Group

Robert Cheetham, P. Eng, Klohn Crippen Berger

Kurt Tomblin, P. Eng, Klohn Crippen Berger

Spencer Roberton, EIT, Flood Office

Cristal McLean, Principal, Landscape Architect, Ground Cubed

Darryl Drohomerski, CAO, Town of Drumheller

Jon Boyle, P. Ag, Rangeland Conservation Service

Kathryn Kolaczek, Communications Lead, Alchemy Communications

Robyn Betts, Communications Team, Alchemy Communications

Kate Chase, Communications Team, Alchemy Communications

Tracy Van Egmond, Admin Assistant, Flood Office

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Deighen Blakely, P. Eng, Project Director

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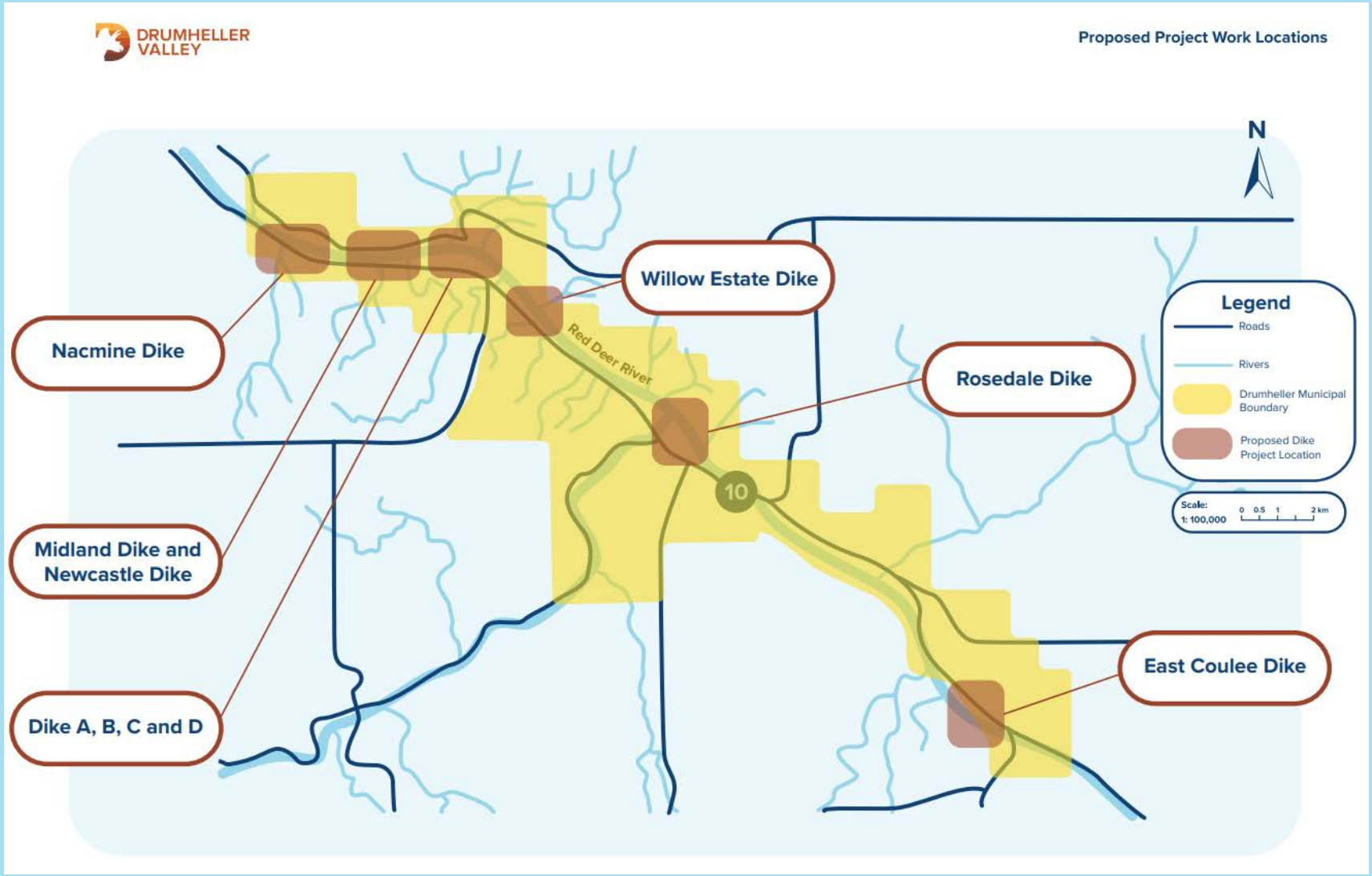
Project Locations



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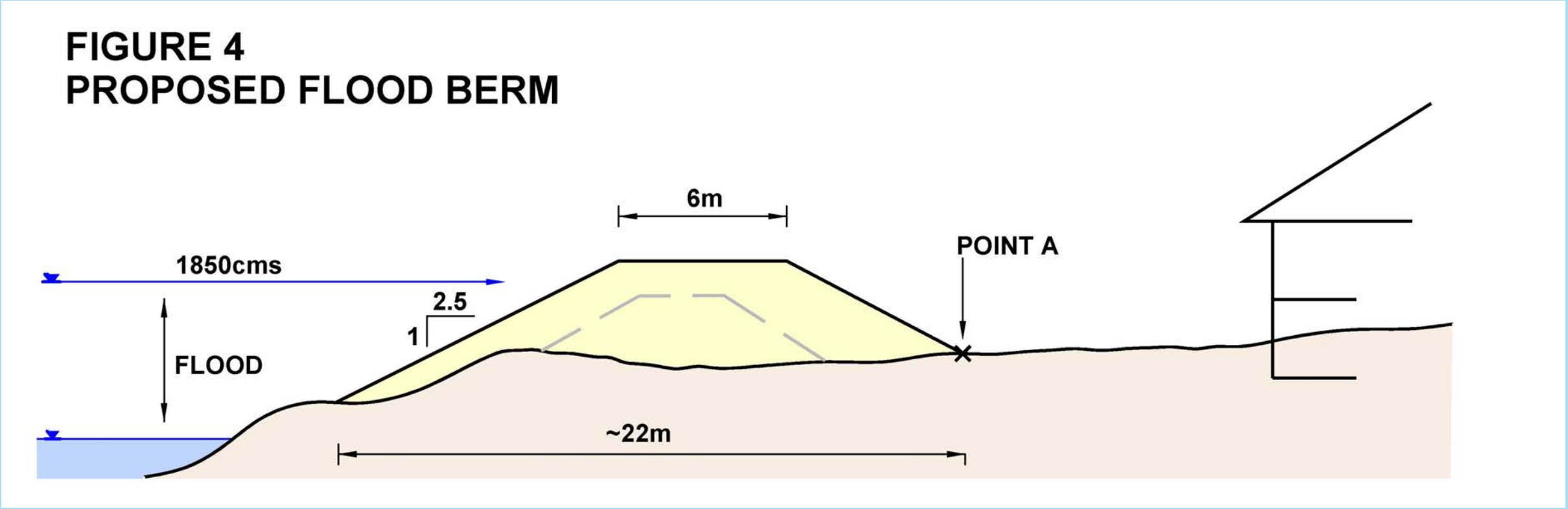
Flood Berm Design



DRUMHELLER VALLEY

Flood Mitigation Program Budget $55M

We are funded in part by:

- Government of Canada Disaster Mitigation and Adaptation Fund ($22 M, 40% funding)
- Government of Alberta Community Resiliency Program ($26.4 M, 50% funding)
- Town of Drumheller ($6.6 M, 10% funding)

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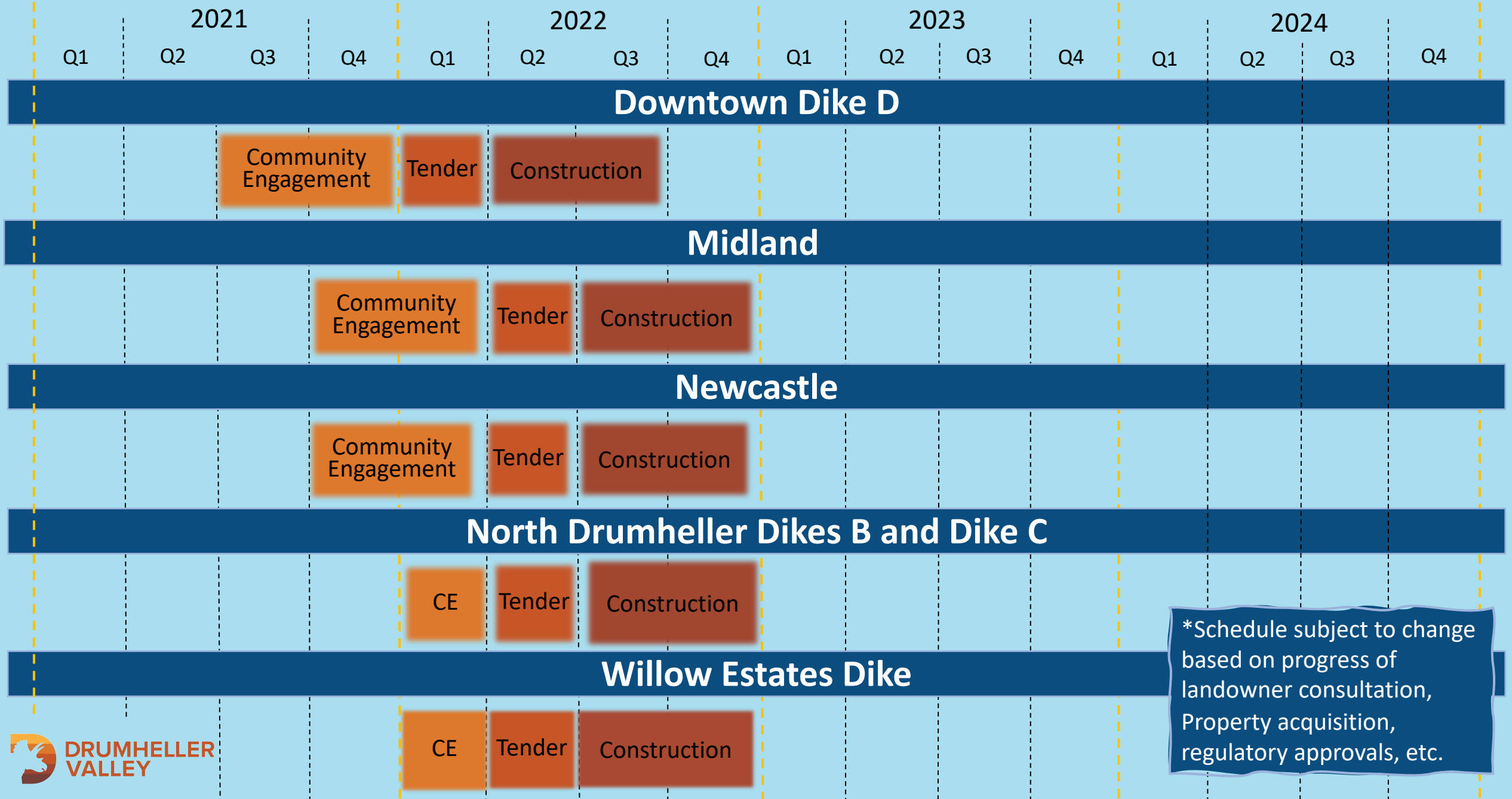
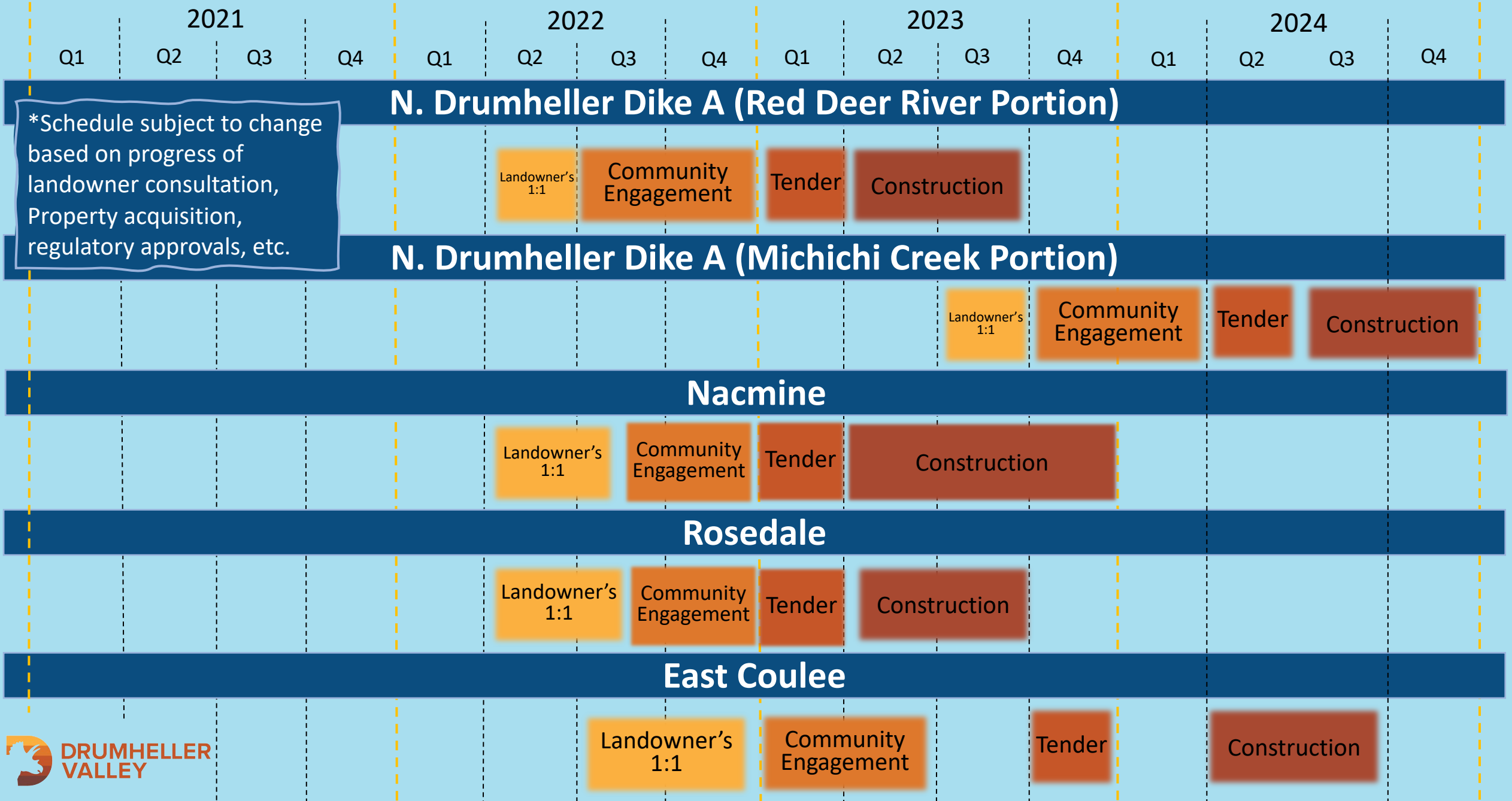
DRFM – Preliminary Program Schedule*



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

DRUMHELLER VALLEY

DRFM – Preliminary Program Schedule*



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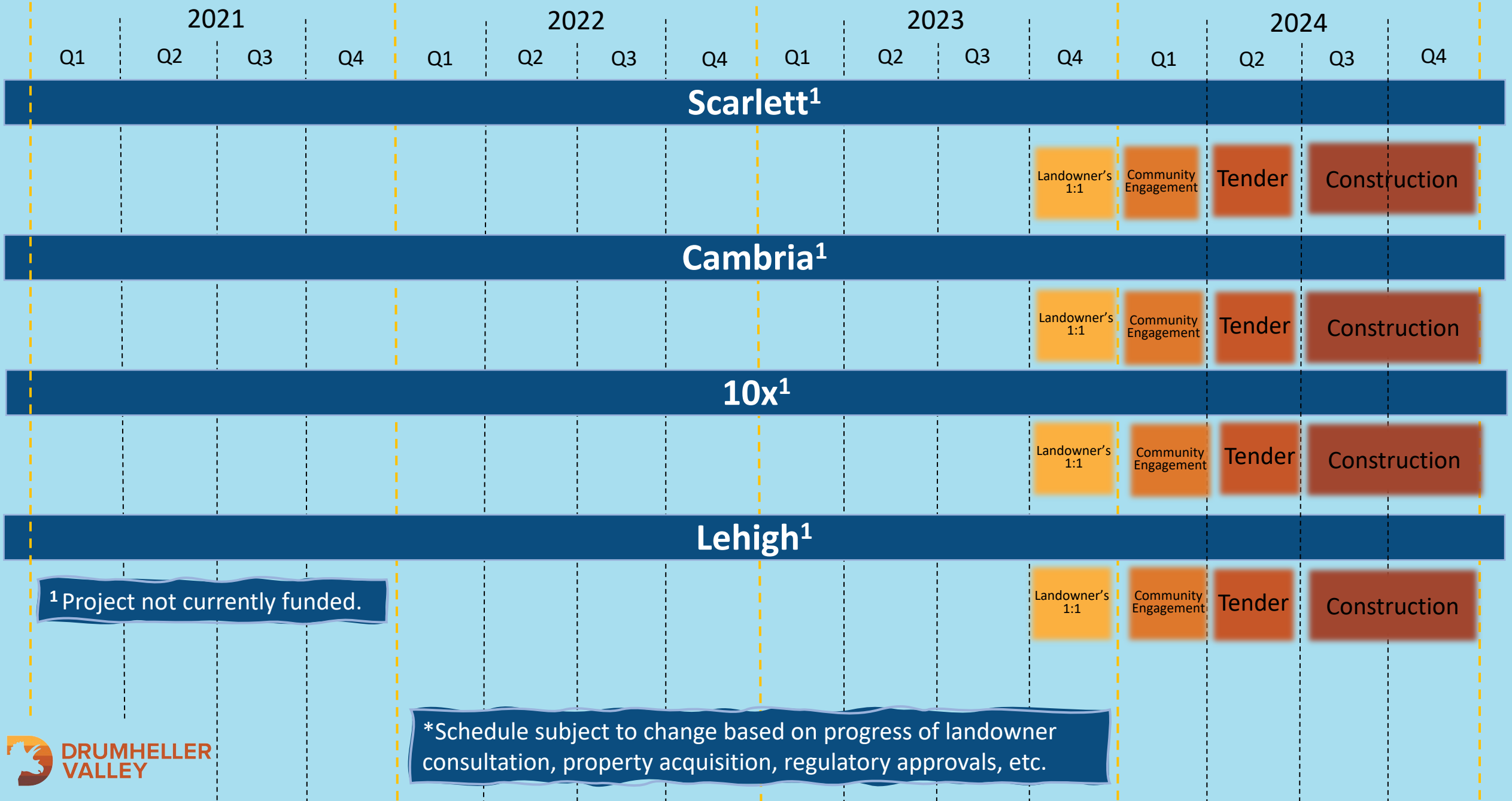
DRUMHELLER VALLEY

DRFM – Preliminary Program Schedule*



[1] Project not currently funded.

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

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Upcoming Regulatory Consultation Work

The project will require consultation with and/or approvals from the following:

- Alberta Environment and Parks (Water Act Approval or Amendments)
- Alberta Public Lands (TFA and/or DLO)
- Alberta Aboriginal Consultation Office (Indigenous Consultation)
- Alberta Culture, Multiculturalism and Status of Women (Historic Resources Impact Assessment)
- Fisheries and Oceans Canada (self-assessment/Request for Review)
- Transport Canada Navigable Waters (Minor Works)

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Tony Miglecz, Community Advisory Committee

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Introduction – Resiliency & Flood Mitigation Community Advisory Committee (CAC)

Committee Members:

- Cate Samuel
- Harvey Saltys
- Irv Gerling
- Keith Hodgson
- Tony Miglecz
- Wayne Powell

Mission:

To enhance communication among all parties on matters relating to the flood mitigation project.

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We are NOT:

- Elected, nor paid a remuneration
- Self-appointed spokespersons
- Decision makers
- Judges, Adjudicators or Appraisers
- Engineers or Construction Workers
- Created to erect a barrier, hindrance or buffer between affected parties

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We ARE:

- Caring and open-minded
- Volunteers and citizens of this community
- Facilitators, whose role is to actively engage all parties in this project, searching for common ground and possible solutions
- Supportive of a flood mitigation program that also addresses the concerns of the people and communities of Drumheller, protects our wildlife and habitat, and fosters economic growth and development
- Committed to a collaborative environment that promotes honest and fruitful discussion

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Function & Objectives

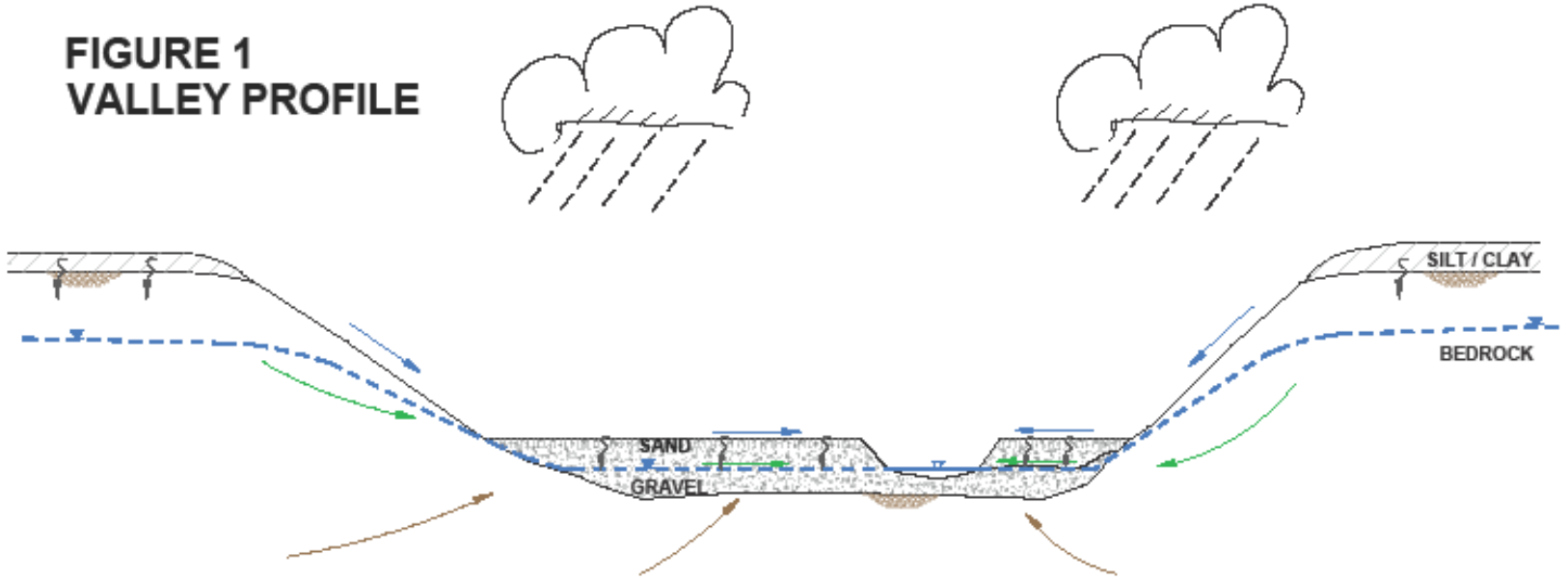
- To connect with the communities affected by the flood mitigation project
- To conduct interviews, investigations, surveys and meetings as the Committee deems appropriate, to ascertain the views of the community and to share answers and other knowledge about aspects of the project
- To submit timely reports of our findings summarizing the views and concerns of the community, to the Resiliency and Flood Mitigation Program Office, *(which will in turn post a summary online of the report of this Committee)*

DRUMHELLER VALLEY

Mark Brotherton, P. Eng, Parkland Geo

DRUMHELLER VALLEY

FIGURE 1
VALLEY PROFILE



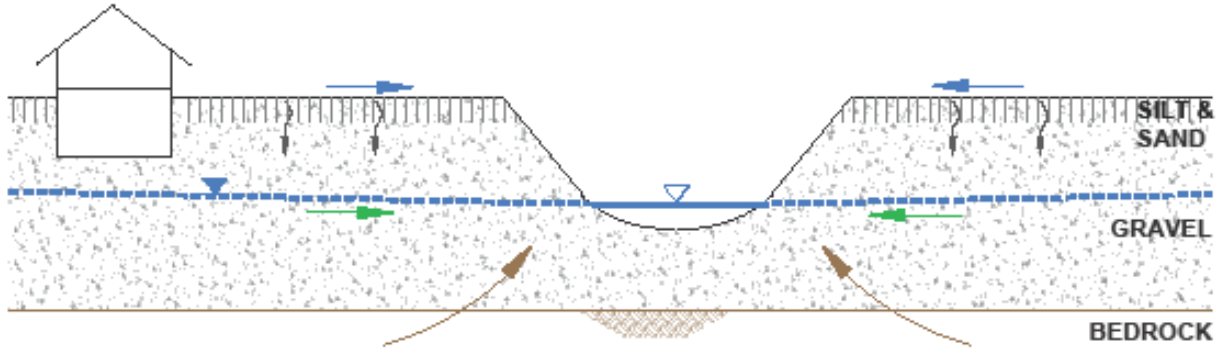
- Rainfall and snow-melt will infiltrate down to the water table; or run-off and drain into rivers.
- Infiltration is a slow, constant process which creates a static water table across the area.
- The Drumheller valley is deep enough to intercept and drain the water table into the valley.
- The base of the valley has filled with sediments laid down by the river on top of the bedrock. The typical sediments are sands & coarse gravels covered by fine silt & clay.
- The sands and gravels are very permeable so they fill with water across the valley.

LEGEND

- INFILTRATION
- SURFACE WATER AND RUNOFF
- GROUNDWATER MIGRATION
- GROUNDWATER RECHARGE

DRUMHELLER VALLEY

FIGURE 2
NORMAL FLOW



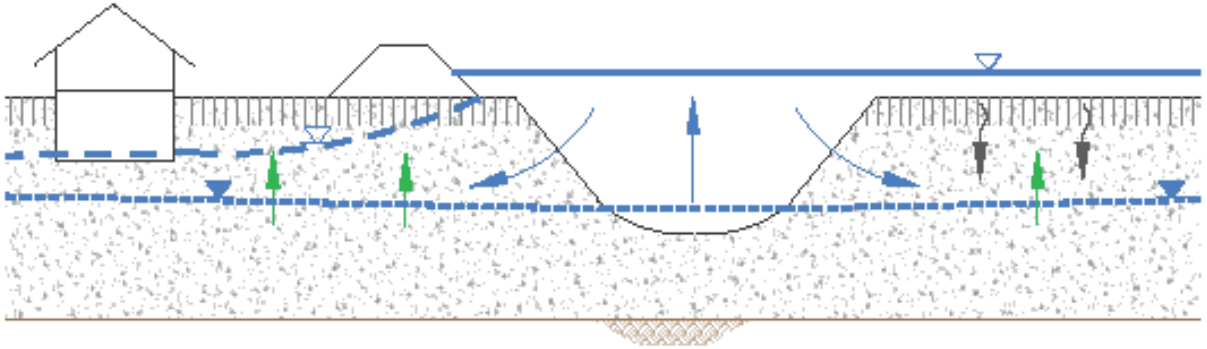
- Normally, river levels are governed by groundwater levels constantly flowing into the channel from the gravels.
- Houses with basements are present along the river in communities throughout Drumheller.
- Normally, a water table will be present below houses at a depth depending on yard grades relative to the river levels.
- During peak groundwater and flood events some local basements are prone to flooding.

LEGEND

INFILTRATION
SURFACE WATER AND RUNOFF
GROUNDWATER MIGRATION
GROUNDWATER RECHARGE

DRUMHELLER VALLEY

FIGURE 3
FLOOD WITH BERM



- During severe rainfall events over the Red Deer River basin, the river surface at Drumheller rises and may cause flooding. Floods occur over a 7-to-10-day period, peaking at 2 to 3 days.
- In flood areas, water will infiltrate into the ground through the overland surface and river banks.
- The Town is building dikes to protect communities along the river from overland flooding.
- In diked areas the elevated flood water will result in seepage pressures pushing water under the dikes, causing the water table inside the dikes to rise.
- Houses with basements in close proximity to dikes could be subject to flooding.
- The groundwater rise, response time and impact distance inside the dike is dependent on the flood elevation and subgrade type. The biggest impacts occur in sand and gravel subgrades.
- The Town flood mitigation program is not designed to protect against groundwater seepage.

LEGEND

INFILTRATION

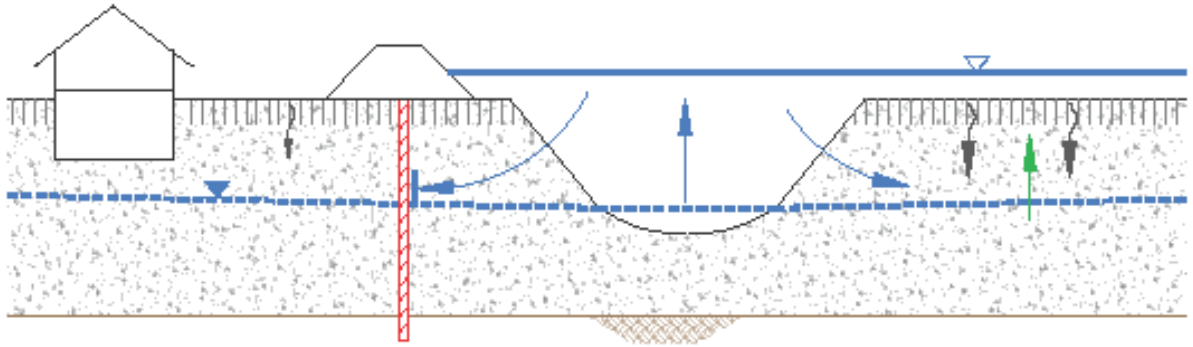
SURFACE WATER AND RUNOFF

GROUNDWATER MIGRATION

GROUNDWATER RECHARGE

DRUMHELLER VALLEY

FIGURE 4
FLOOD WITH BERM AND CUT-OFF WALL



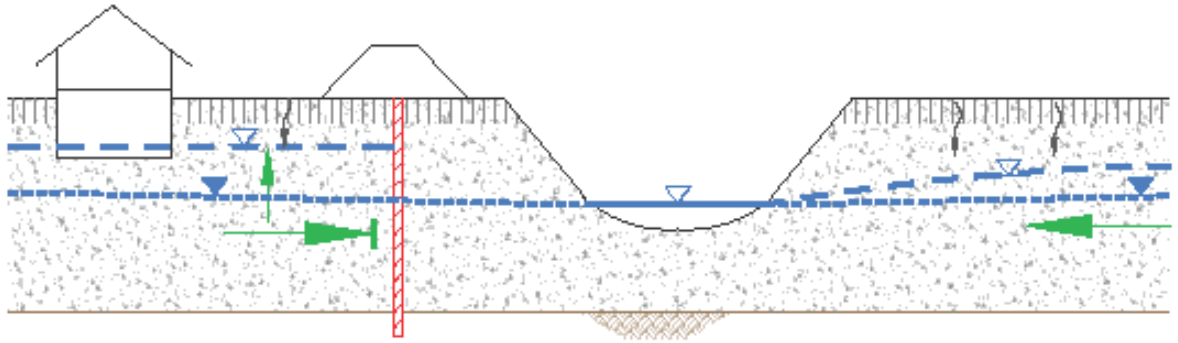
- The typical seepage protection option for large areas is to install a physical cut-off such as a clay trench or a sheet pile wall through the permeable zone.
- The flood water seepage would be blocked from moving under the dike so the water table inside the cut-off would not be impacted by the flood.
- A cut-off would need to encircle the entire floodway area needing protection.
- Cut-offs are expensive. A sheet pile cut-off wall for Drumheller communities would cost in the order of ±$10,000 per lineal meter.

LEGEND

- INFILTRATION
- SURFACE WATER AND RUNOFF
- GROUNDWATER MIGRATION
- GROUNDWATER RECHARGE

DRUMHELLER VALLEY

FIGURE 5
BERM, CUT-OFF WALL AND SEASONAL HIGH WATER TABLE



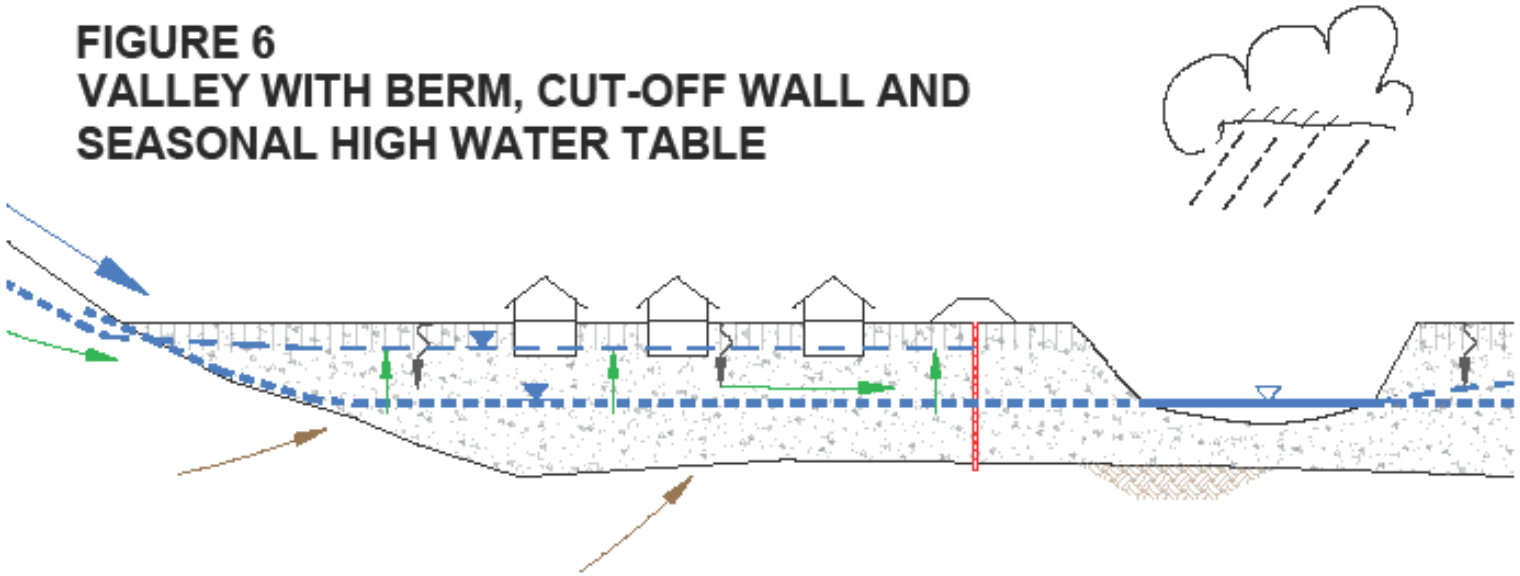
- The cut-off would protect areas during occasional the 7-to-10-day flood period.
- The cut-off would also block the continuous flow of groundwater trying to drain into the river from the deposits in the base of the valley.
- Seasonal groundwater flows are greatest during all major rainfall events and spring snow-melt.
- Since cut-offs work both ways, protecting against seepage from occasional floods would risk dealing with trapped seasonal groundwater inside the cut-off area several times every year.

LEGEND

- INFILTRATION
- SURFACE WATER AND RUNOFF
- GROUNDWATER MIGRATION
- GROUNDWATER RECHARGE

DRUMHELLER VALLEY

FIGURE 6
VALLEY WITH BERM, CUT-OFF WALL AND SEASONAL HIGH WATER TABLE



- The seasonal water table would not just back up near the cut-off and impact a few basements beside the dike. It would fill the permeable subgrade across the entire protected area and impact any deep basement intercepted by the water table.
- An expensive system of deep drains, collection pipes and pumping stations would be needed to get groundwater into the river and maintain a low water table inside the cut-off wall.
- It is more cost effective to provide basement seepage protection at each house using proper grading along with individual weeping tile, drainage mat and sump pump systems.

LEGEND

- INFILTRATION
- SURFACE WATER AND RUNOFF
- GROUNDWATER MIGRATION
- GROUNDWATER RECHARGE

DRUMHELLER VALLEY

Robert Cheetham, P. Eng, Klohn Crippen Berger

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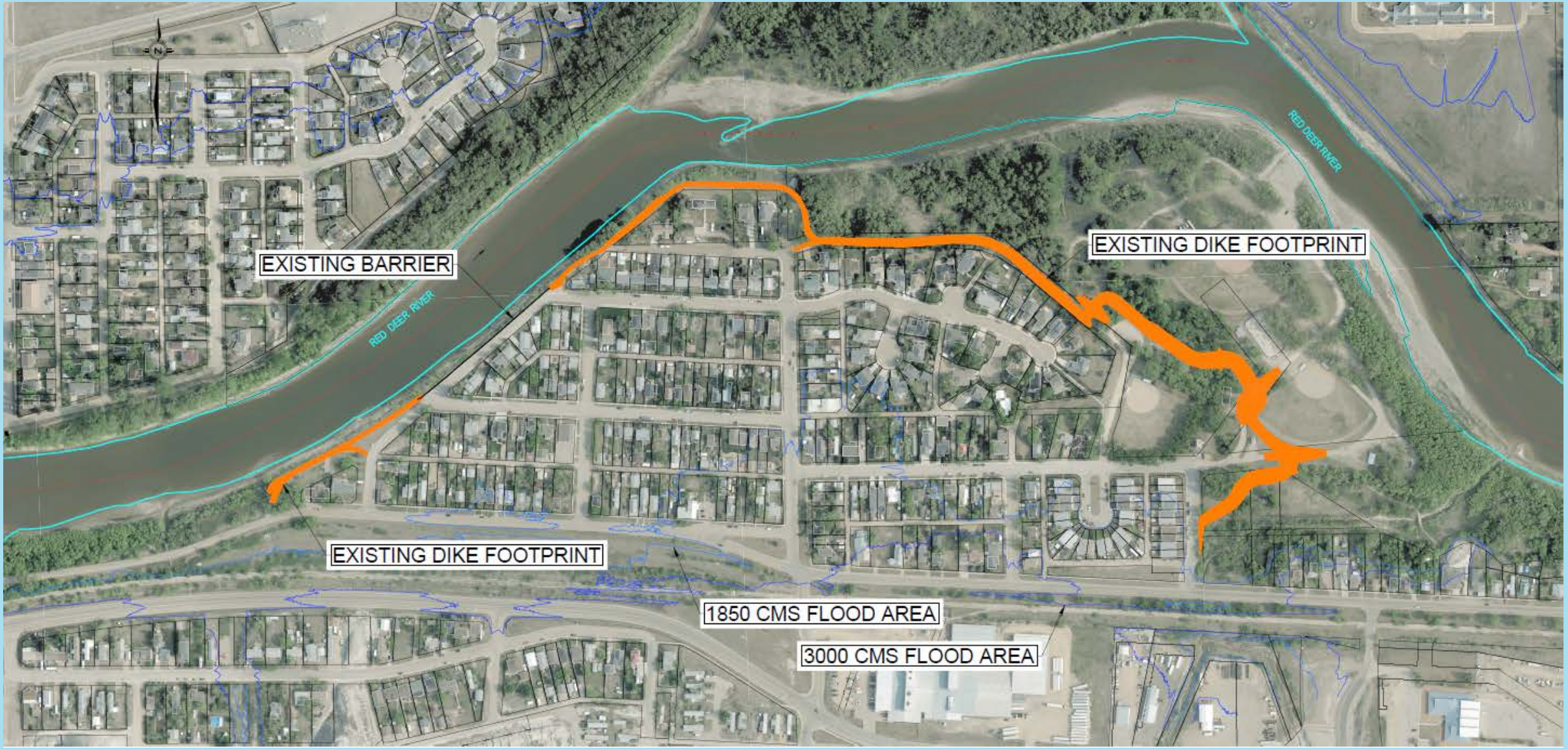
Newcastle Existing Dike Alignment

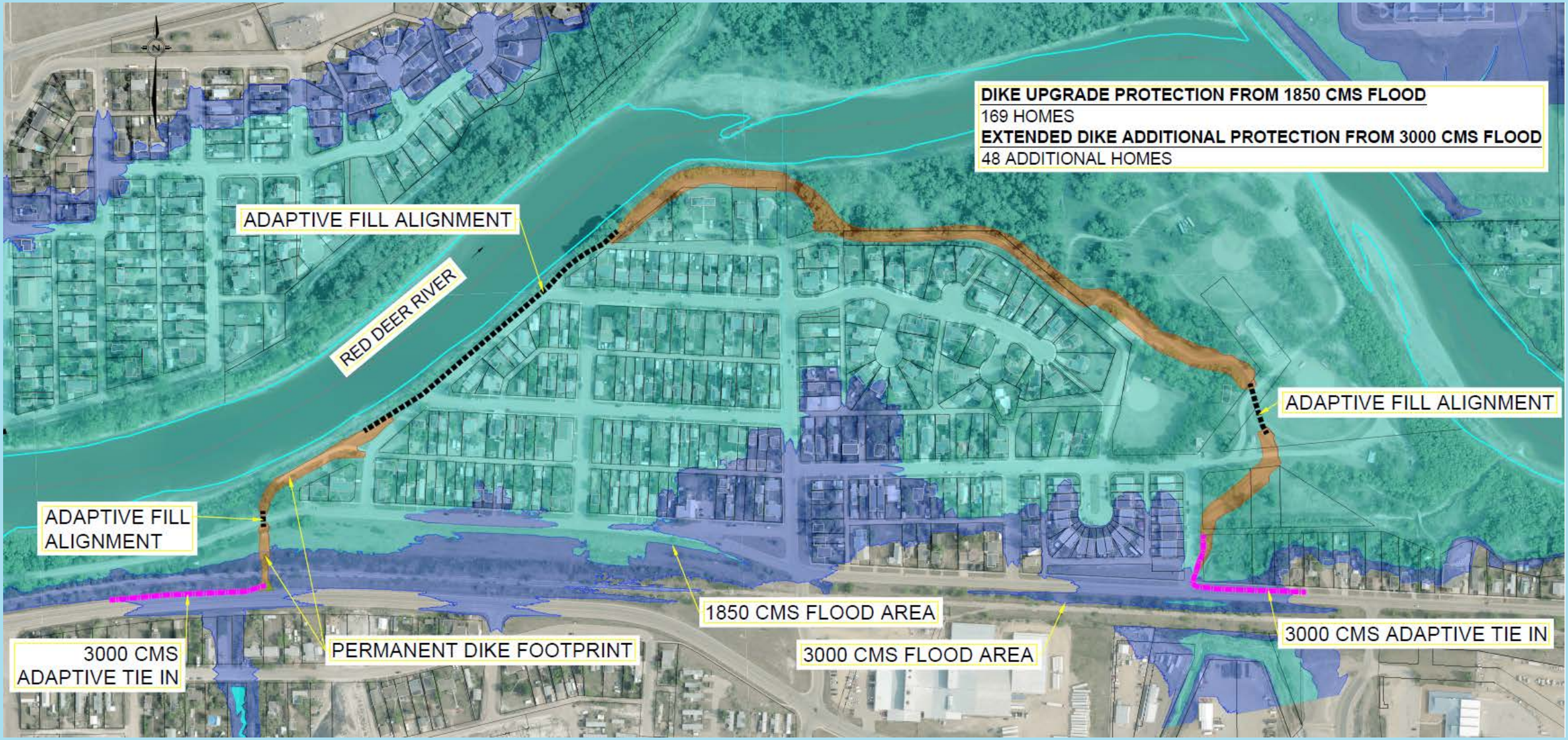


Newcastle- Design Process & Timeline

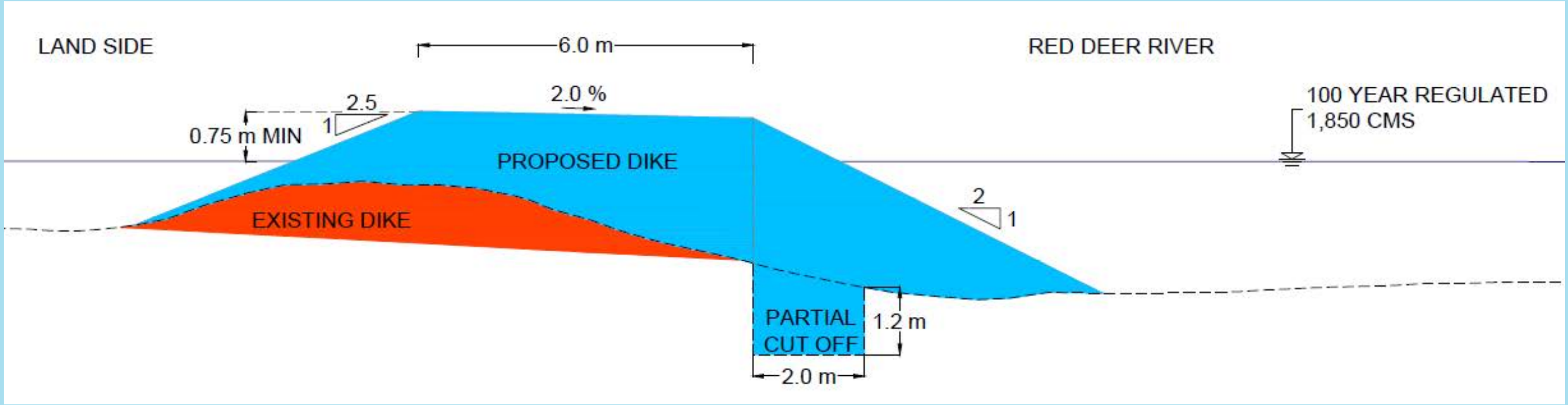
- Contract Award & Kick-off: February 2021
- Feasibility Study: February-April 2021
- Field Investigations, Lab Testing, and Assessment: March-April 2021
- Detailed Design: May 2021-ongoing
- Public Engagement: In progress
- Final Design of Preferred Alignment Options: Q4 2021 to Q1 2022
- Tendering/RFP: Q2 2022
- Targeted Construction: Q3/Q4 2022

DRUMHELLER VALLEY

Newcastle Proposed Dike Alignment

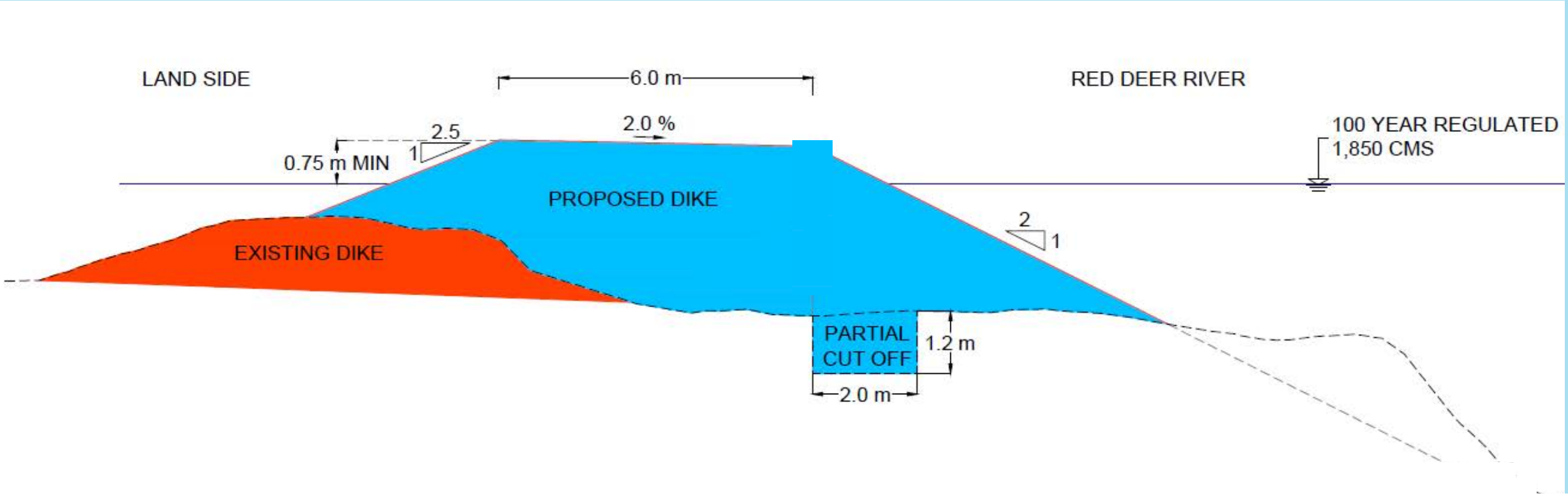


Typical Cross Section (Land Constrained)



DRUMHELLER VALLEY

Typical Cross Section (River Constrained)



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Darryl Drohomerski, CAO, Town of Drumheller

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MDP and LUB

- Municipal Development Plan and Land Use Bylaw are statutory documents, required by The Province.
- Municipalities need to update these plans on a regular basis. Previous major update was in 2008.
- The MDP and LUB were updated again in 2020. This work was initiated by The Town and led by the Flood Office on behalf of the Town, to include the latest available flood information from the Province.
- Public consultation was completed throughout 2020, and the updates were approved by Council in December 2020.

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Provincial Flood Hazard Maps

- Maps prepared by The Province, as a reference for municipalities to understand flood risk and to aid in regulating development
- Drumheller Flood Hazard Maps on-line are based on 2007 flood study, and naturalized 1/100 flood flow of 2,290 m^3/s
- Province is currently updating these maps based on recent flood inundation study work and determination of appropriate regulatory flow rate of 1,850 m^3/s
- Town of Drumheller will need to review updates and determine if adjustments to current LUB maps are warranted based on Provincial map updates
- Province acknowledges local municipalities may need to have flexibility in implementing land use regulations, especially in communities where there is existing flood hazard mapping

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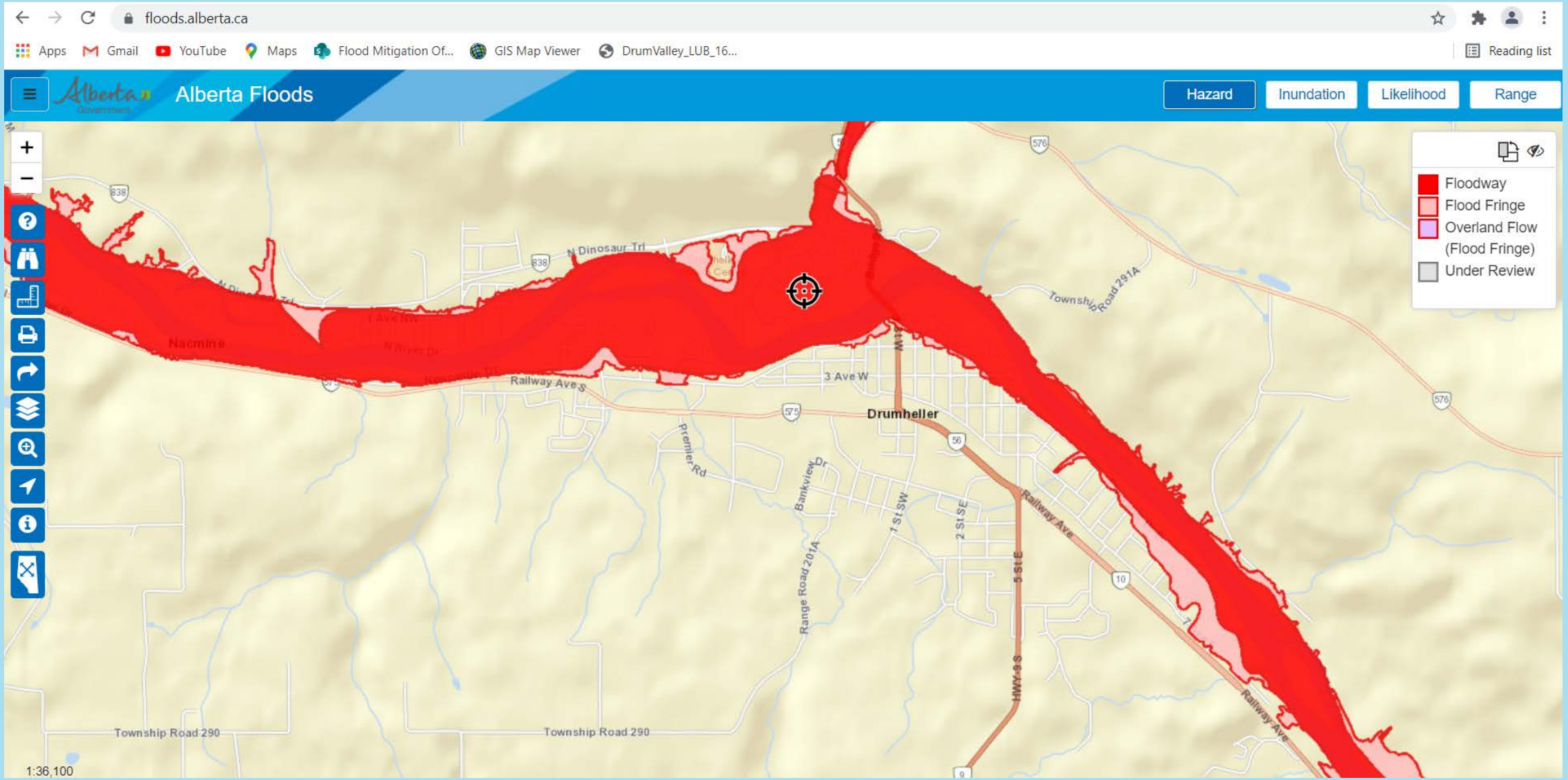
Provincial Flood Hazard Maps



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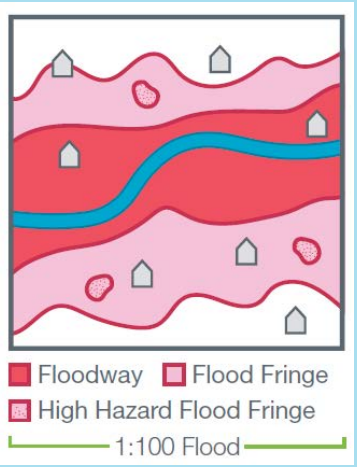
Mapping New Floodways

What if an area is being mapped for the first time?

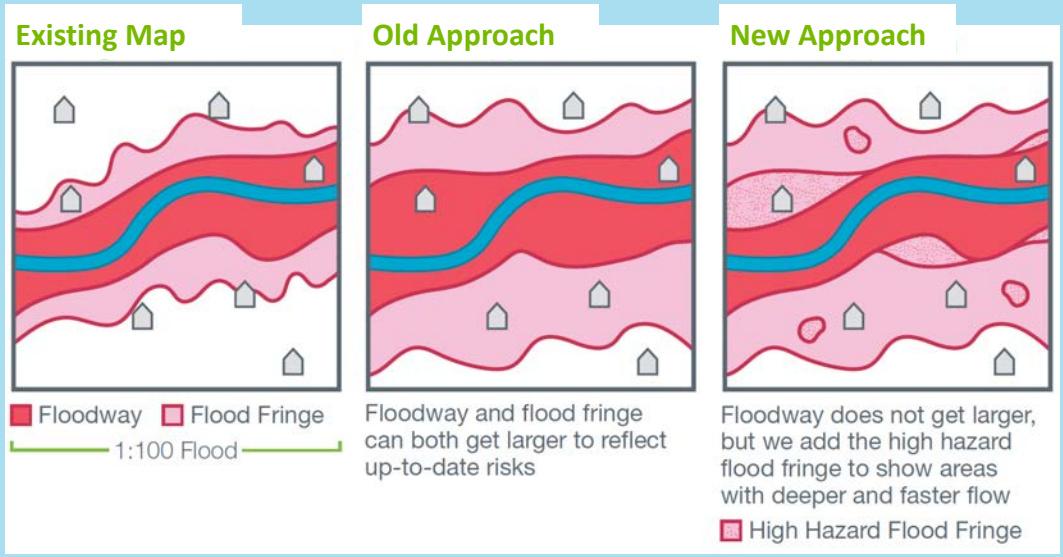


- Flood hazard maps divide the 1:100 design flood hazard area into floodway and flood fringe zones
- The floodway typically represents where flows are deepest, fastest, and most destructive
- The flood fringe is also flooded and can include “high hazard flood fringe” areas of deeper or faster moving water outside the floodway

Alberta

Updates to Existing Floodways

Existing floodways will not typically get larger when flood maps are updated for a community

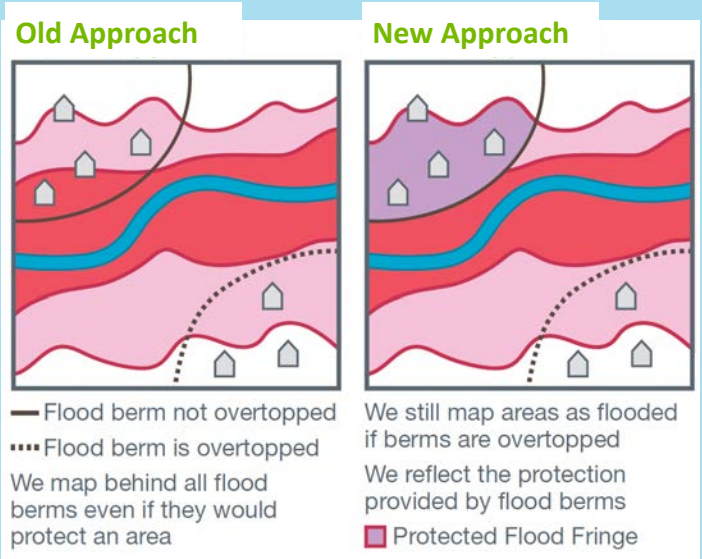


- "High hazard flood fringe" areas highlight parts of the flood fringe that have deeper or faster moving water
  - Not a part of the floodway
  - Local regulation flexibility

Alberta

Reflecting Flood Protection

New flood maps will reflect the protection provided by dedicated flood mitigation infrastructure



- Areas at risk behind flood berms that are not overtopped will be mapped as "protected flood fringe" areas
  - Areas behind flood berms will be mapped as flooded when overtopped
  - Local regulation flexibility

Land Use Bylaw

- Town of Drumheller Land Use Bylaw Flood Hazard Overlay identifies two zones – Conveyance Zone (red) and Protected Zone (yellow)
- General Flood Hazard Overlay regulations include:
  - Requirement to build habitable areas above the flood construction level and have electrical & mechanical above flood construction level
  - Outline of what not permitted – temporary dwelling units, cemeteries, hazardous materials storage

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Land Use Bylaw

DRUMHELLER VALLEY

Land Use Bylaw – Flood Hazard Area Regulations

- The land use regulations in each include:
  - Conveyance Zone:
    - Only new development allowed is permitted or discretionary use of agriculture and recreation if permitted in underlying Land Use; utilities; flood mitigation
    - Replacement of existing buildings permitted provided flood construction level is met
    - Renovation of existing buildings provided no increase in floor area below flood construction level
    - No new dwelling units
    - No new structures which obstruct floodwaters, runoff or riparian areas

DRUMHELLER VALLEY

Land Use Bylaw – Flood Hazard Area Regulations

- The land use regulations in each include:
  - Protected Zone:
    - Acknowledges the presence of berms to come in future, Town can consider permanent and temporary infrastructure in outlining protected zones
    - All buildings shall have the ground floor elevation at or above the flood construction level
    - Building height is measured from the flood construction level

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Land Use Bylaw – Future Scenario

- Conveyance zones – review versus updated Provincial mapping and adjust as necessary
- Protected zones:
  - Consideration given to main floor elevation requirements in protected areas – work to be completed in Q1 & Q2 of 2022
- Updates to LUB and Mapping will be on-going over the next few years as berm construction is completed, changes may be required based on Provincial mapping updates.
- Province has acknowledged Town may need flexibility in applying data from Provincial maps

DRUMHELLER VALLEY

Ernie Webster, Landscape Architect, IBI Group

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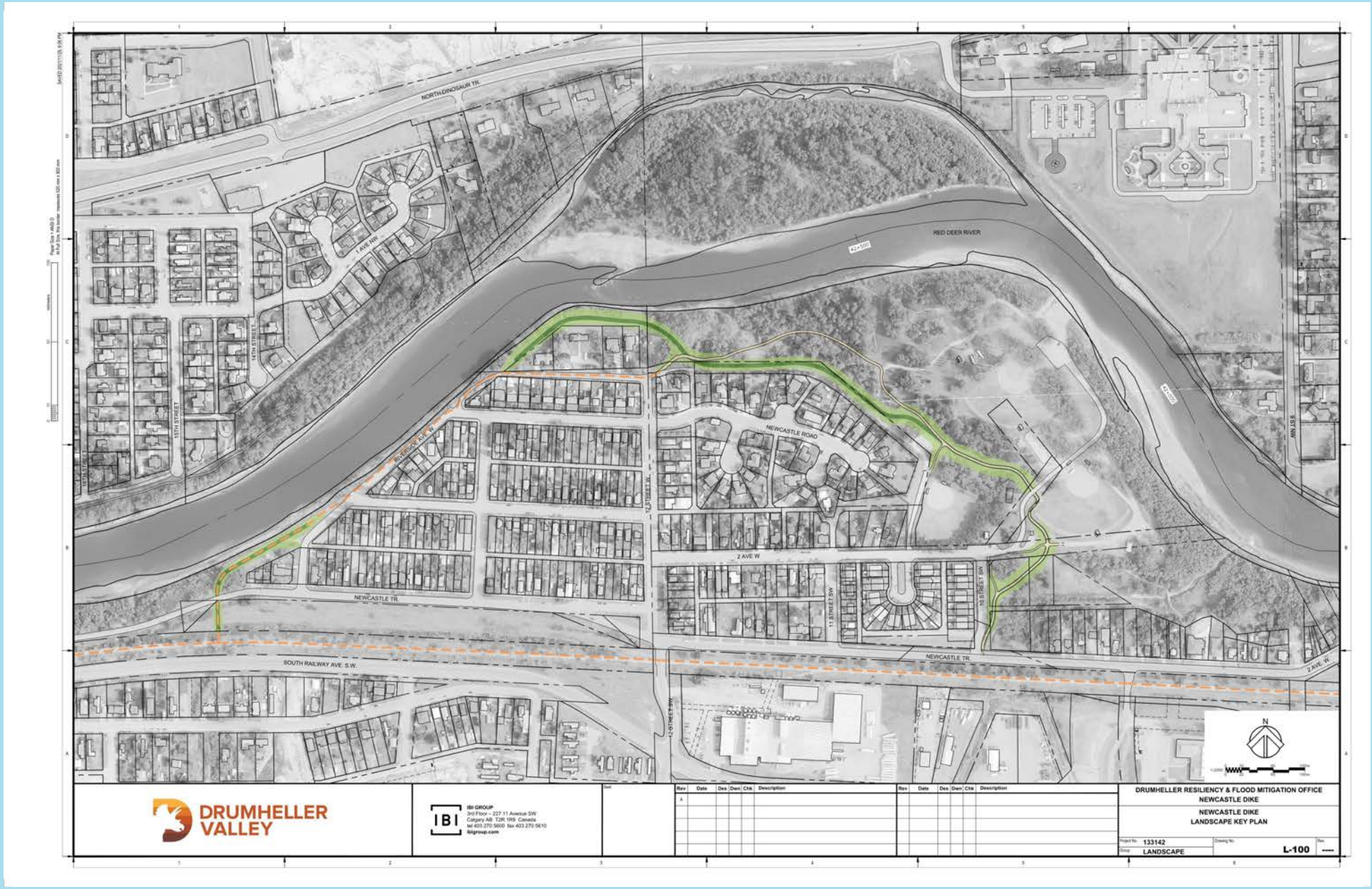
Landscape & Trails Plan



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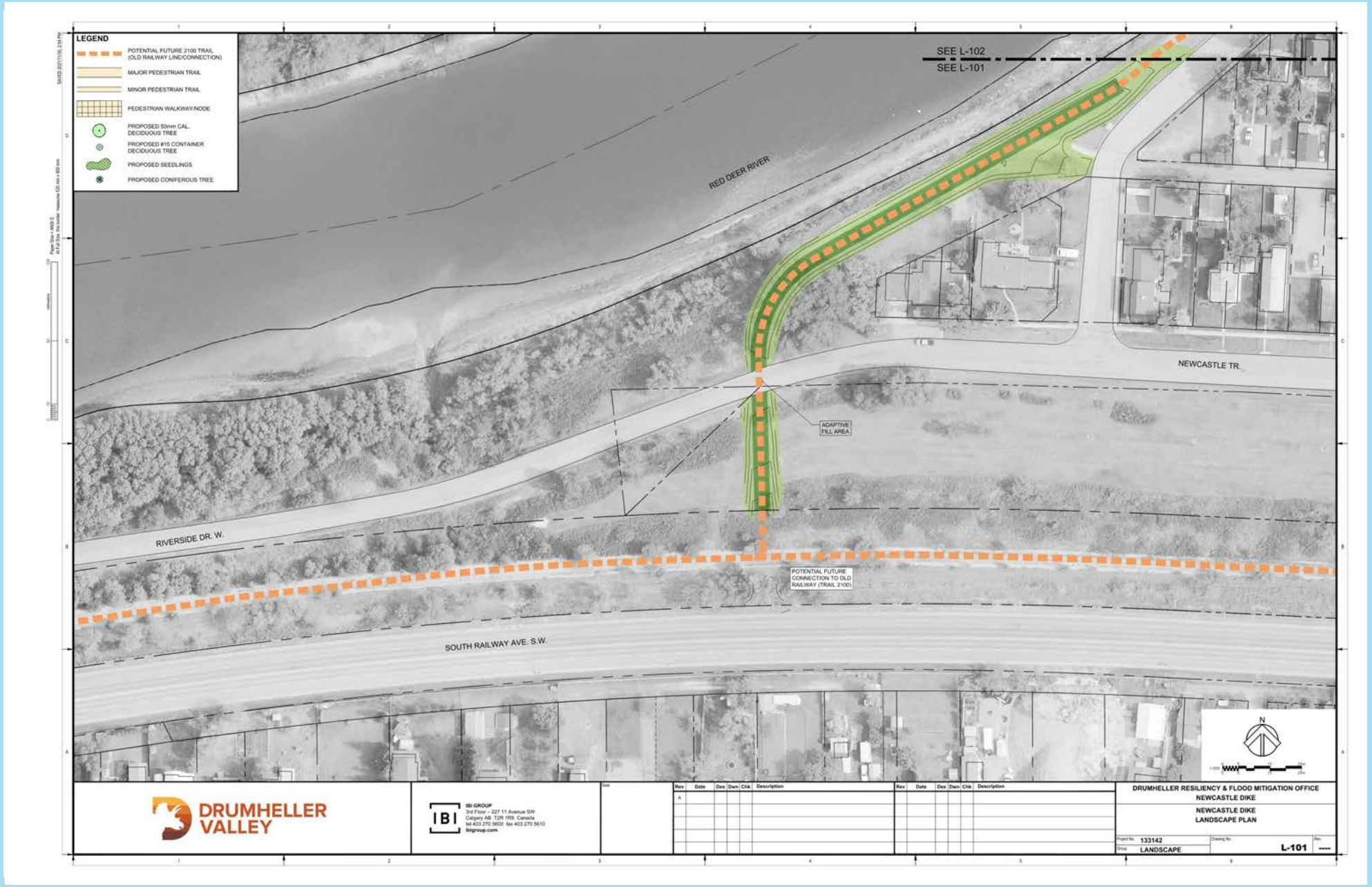

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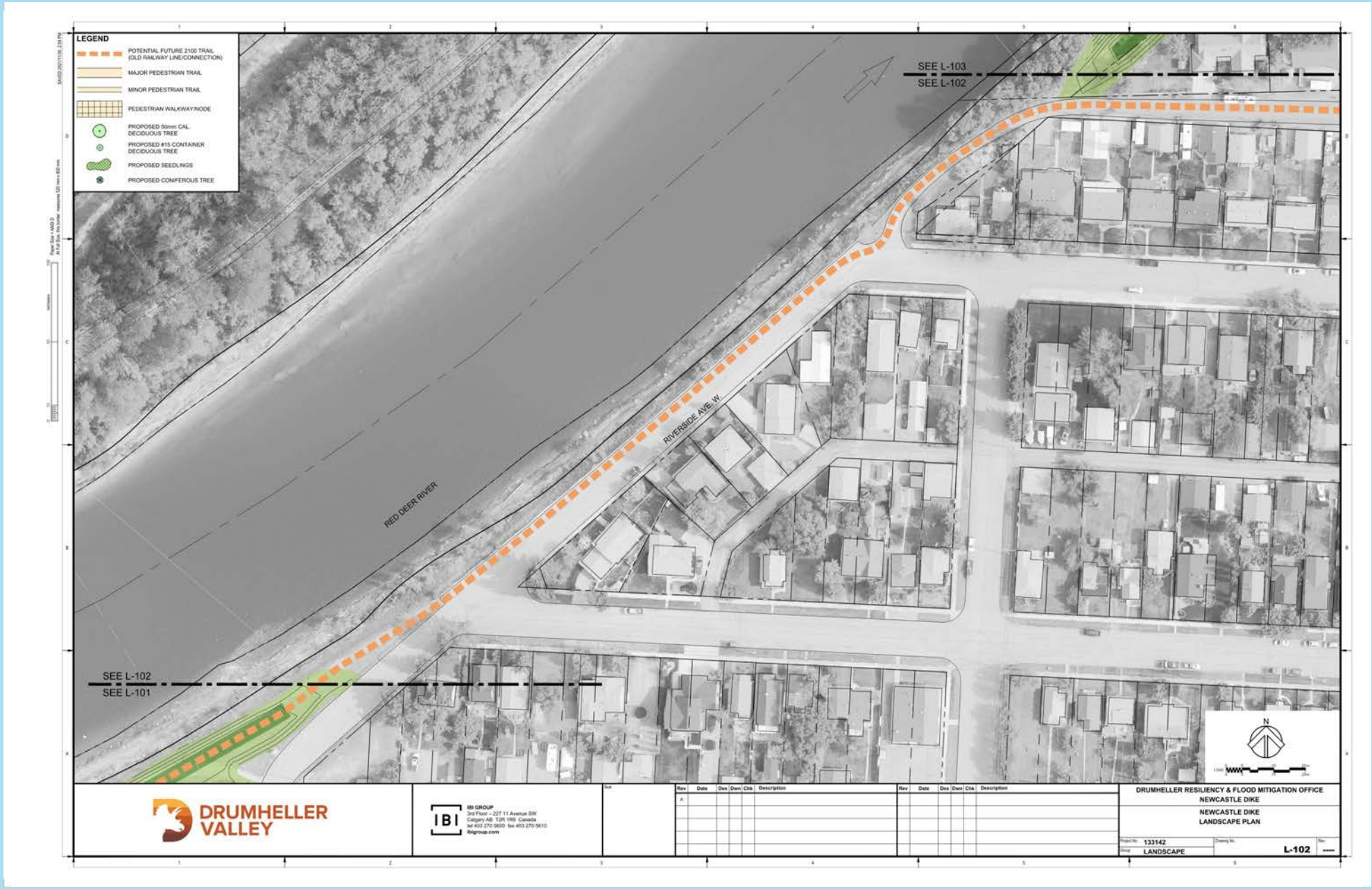

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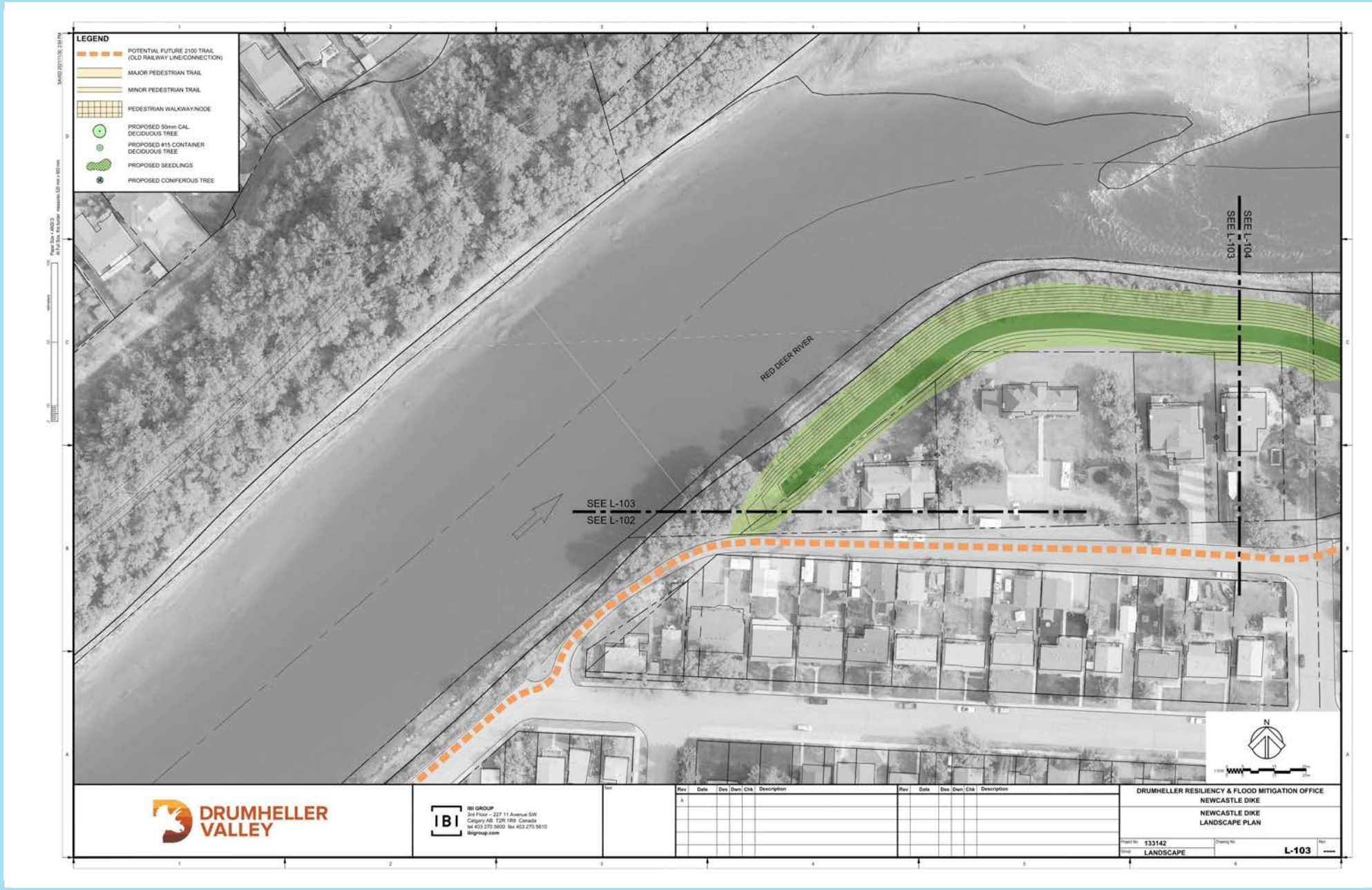

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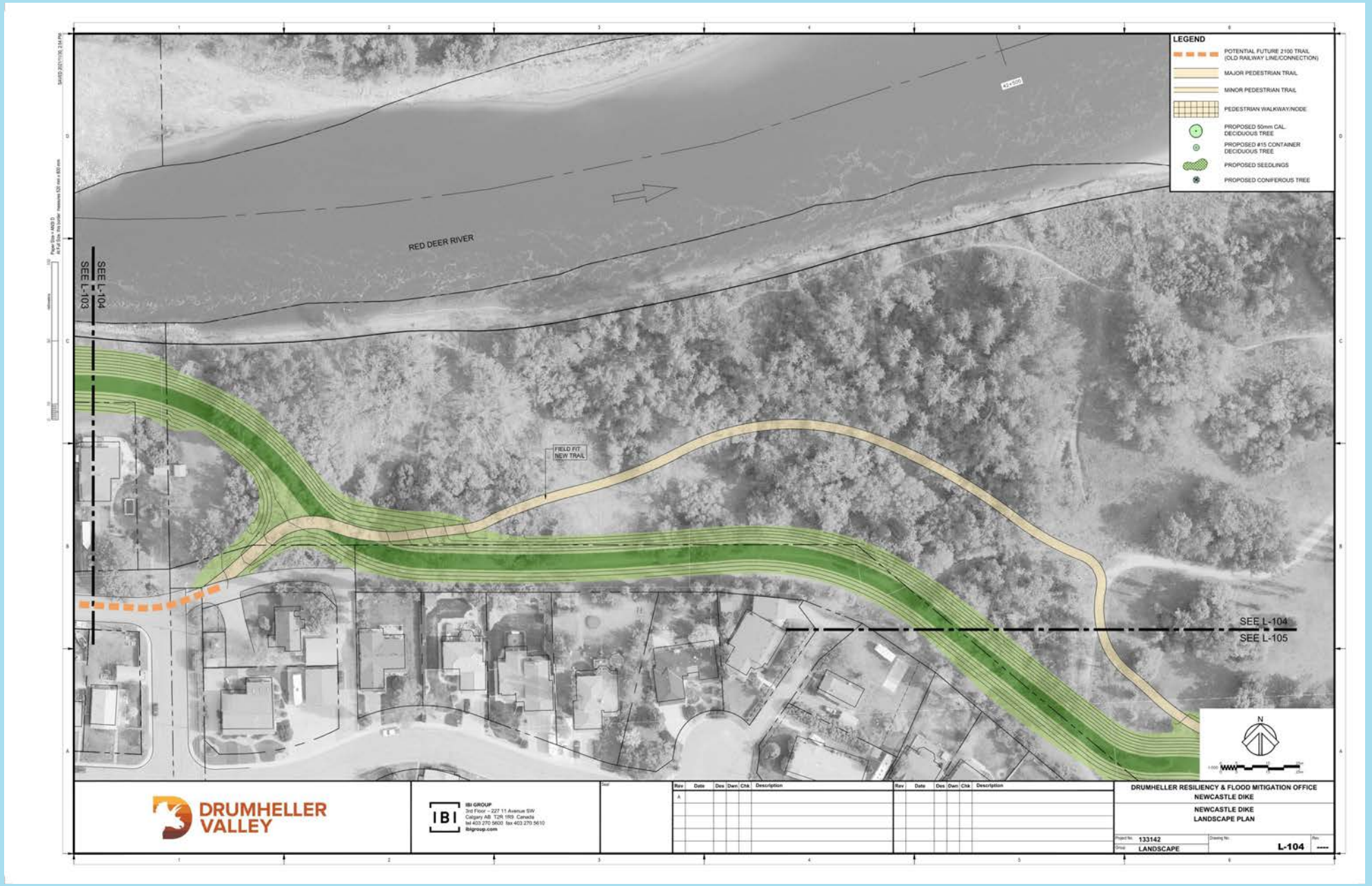

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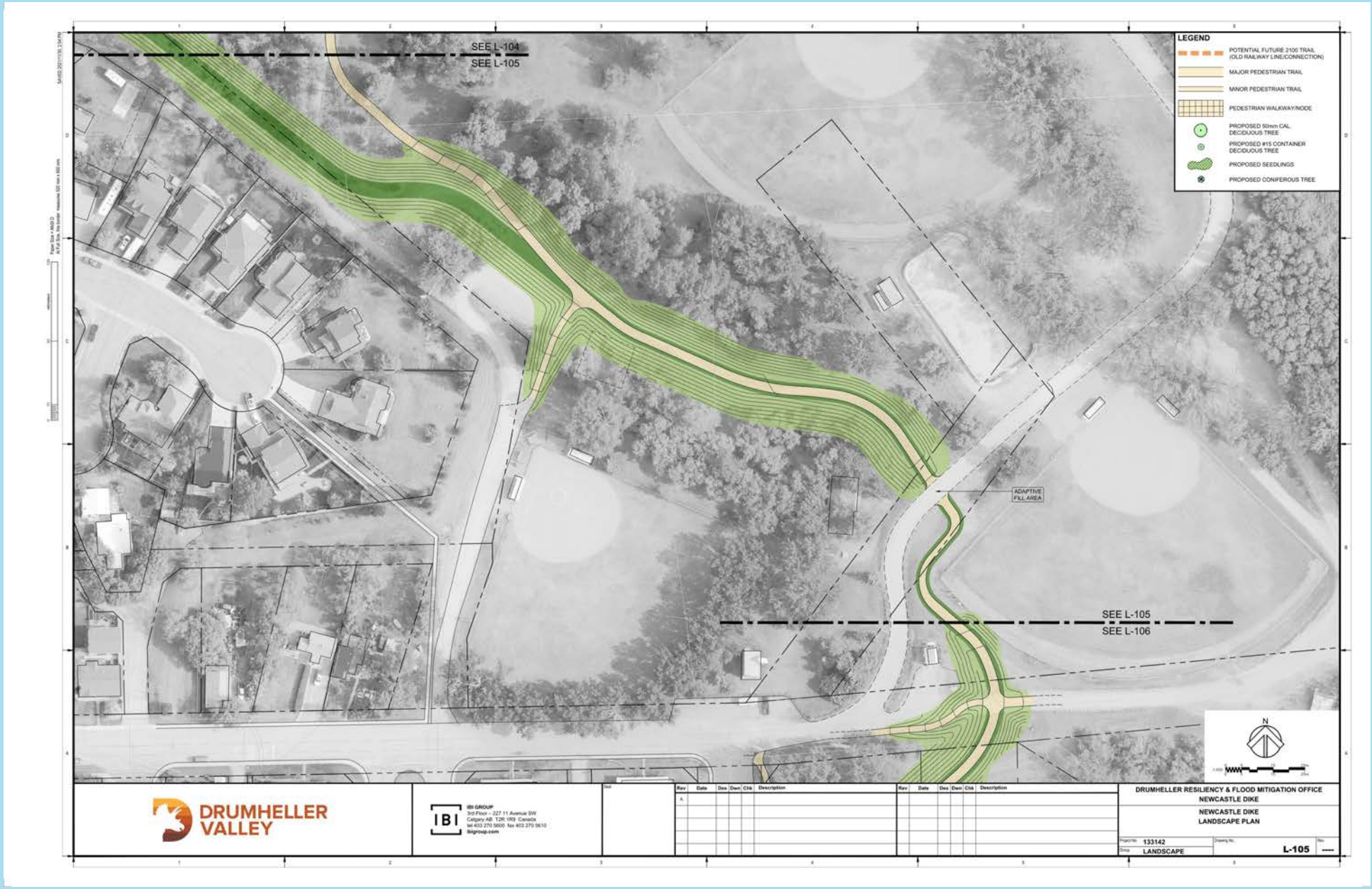

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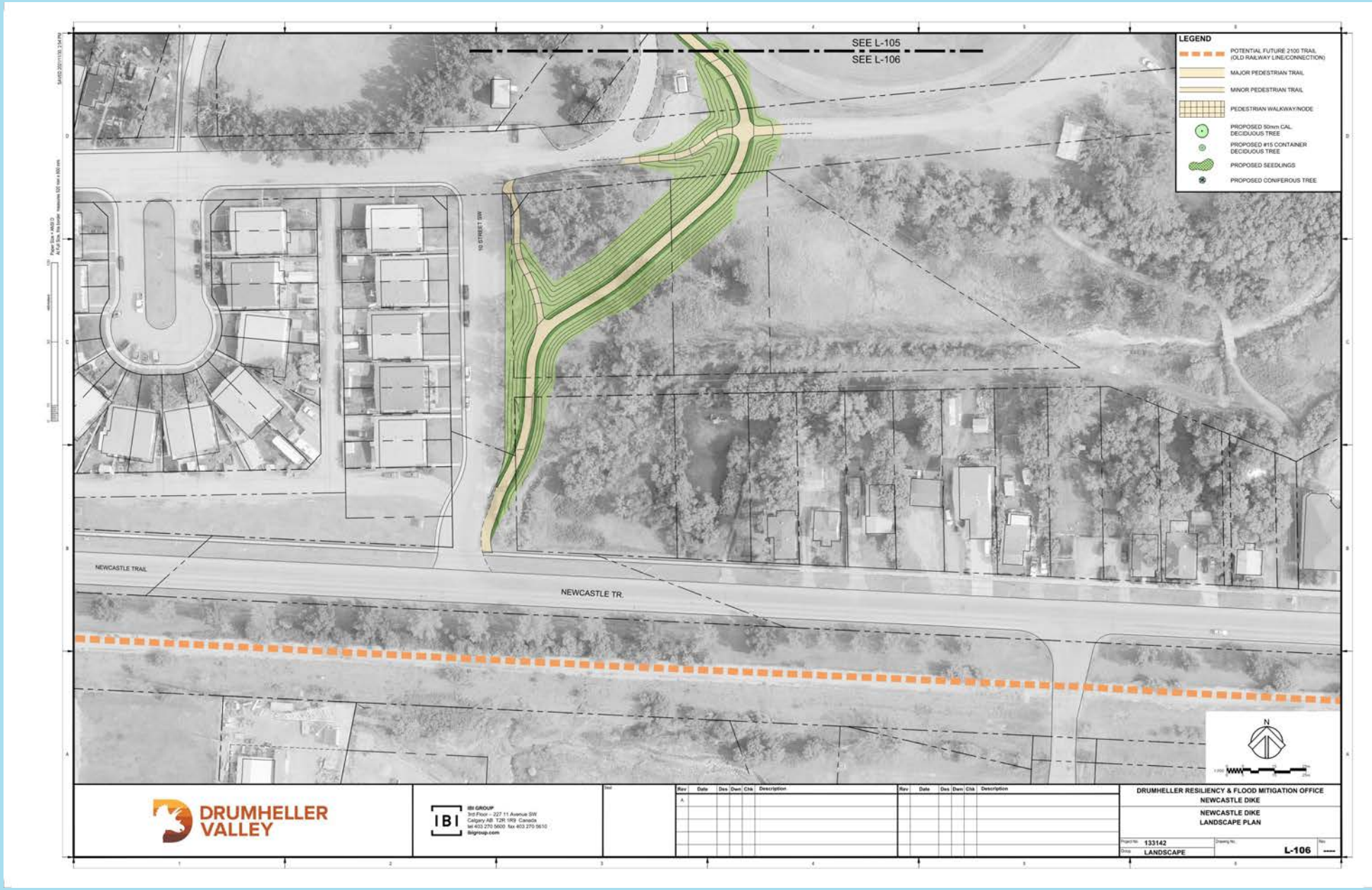

Tree Inventory Assessment (September 16, 2021)

- Rangeland Environmental Services completed a tree inventory assessment on September 16, 2021:
  - Tree genus and species
  - Estimated tree height
  - Measured diameter at chest height
  - Condition assessment (very good, good, fair, poor, very poor, dead/stump)
  - Core for 10 trees per height bracket for age

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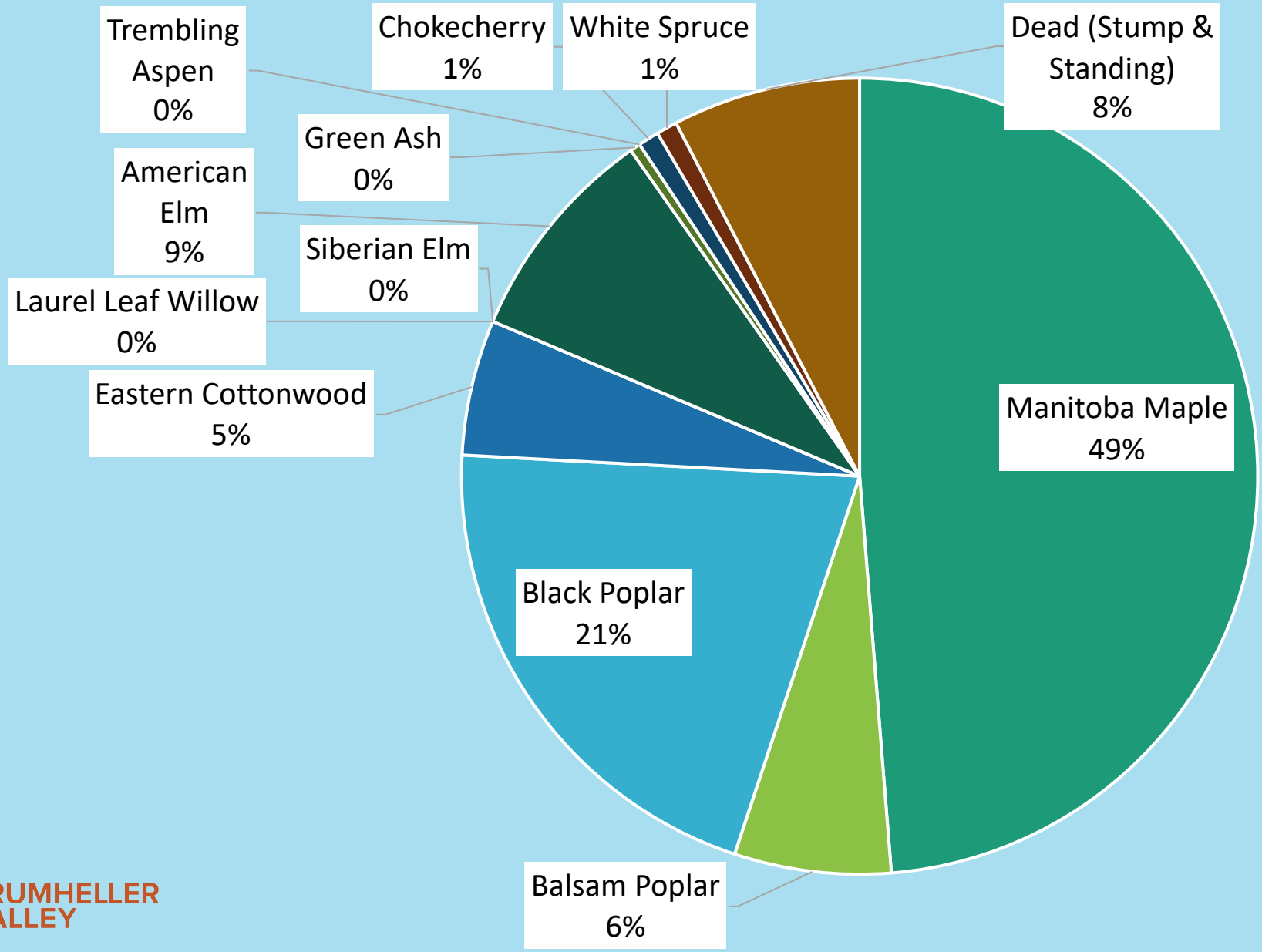
Tree Inventory Assessment - Species



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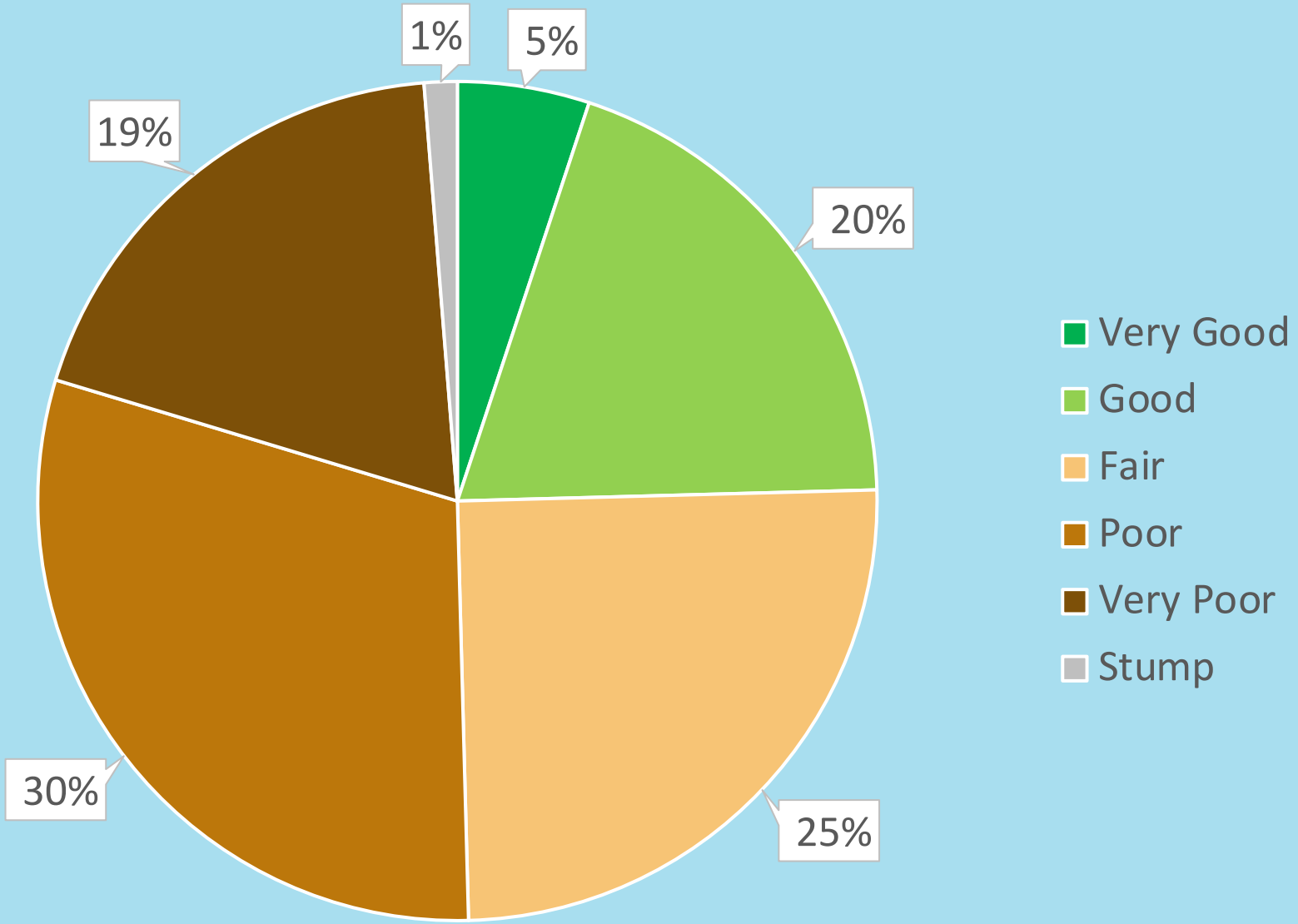
Tree Inventory Assessment - Health



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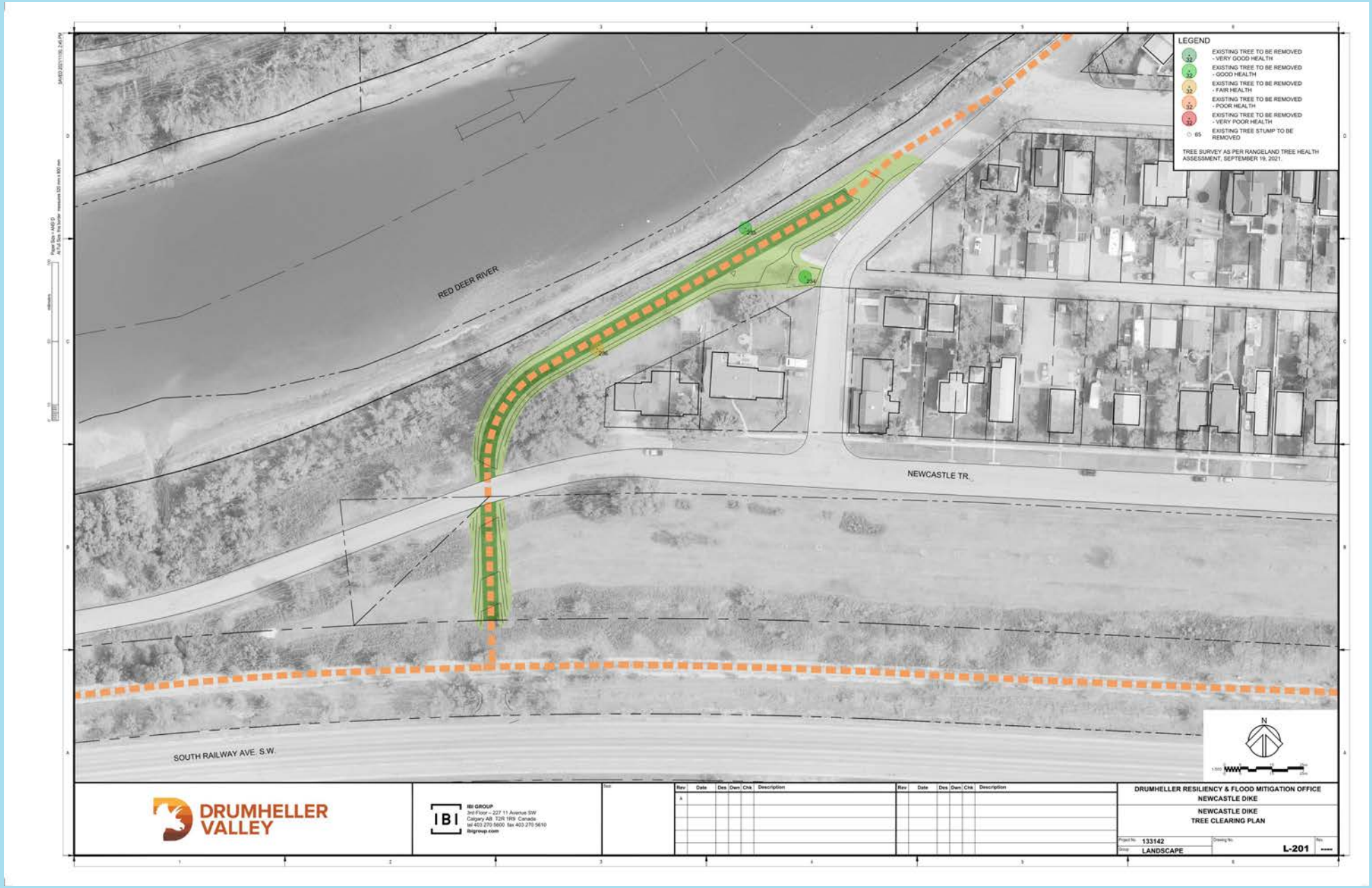
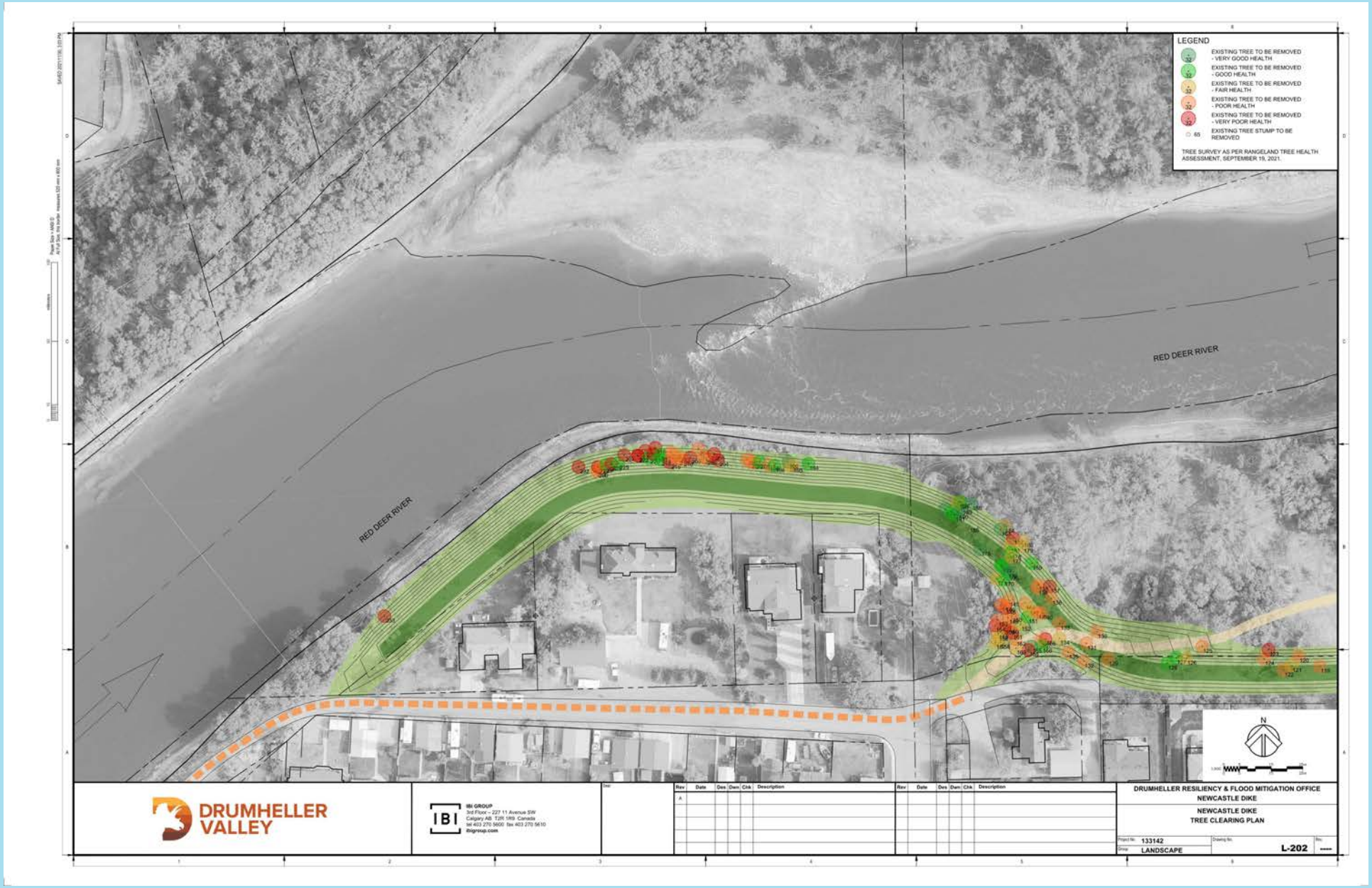
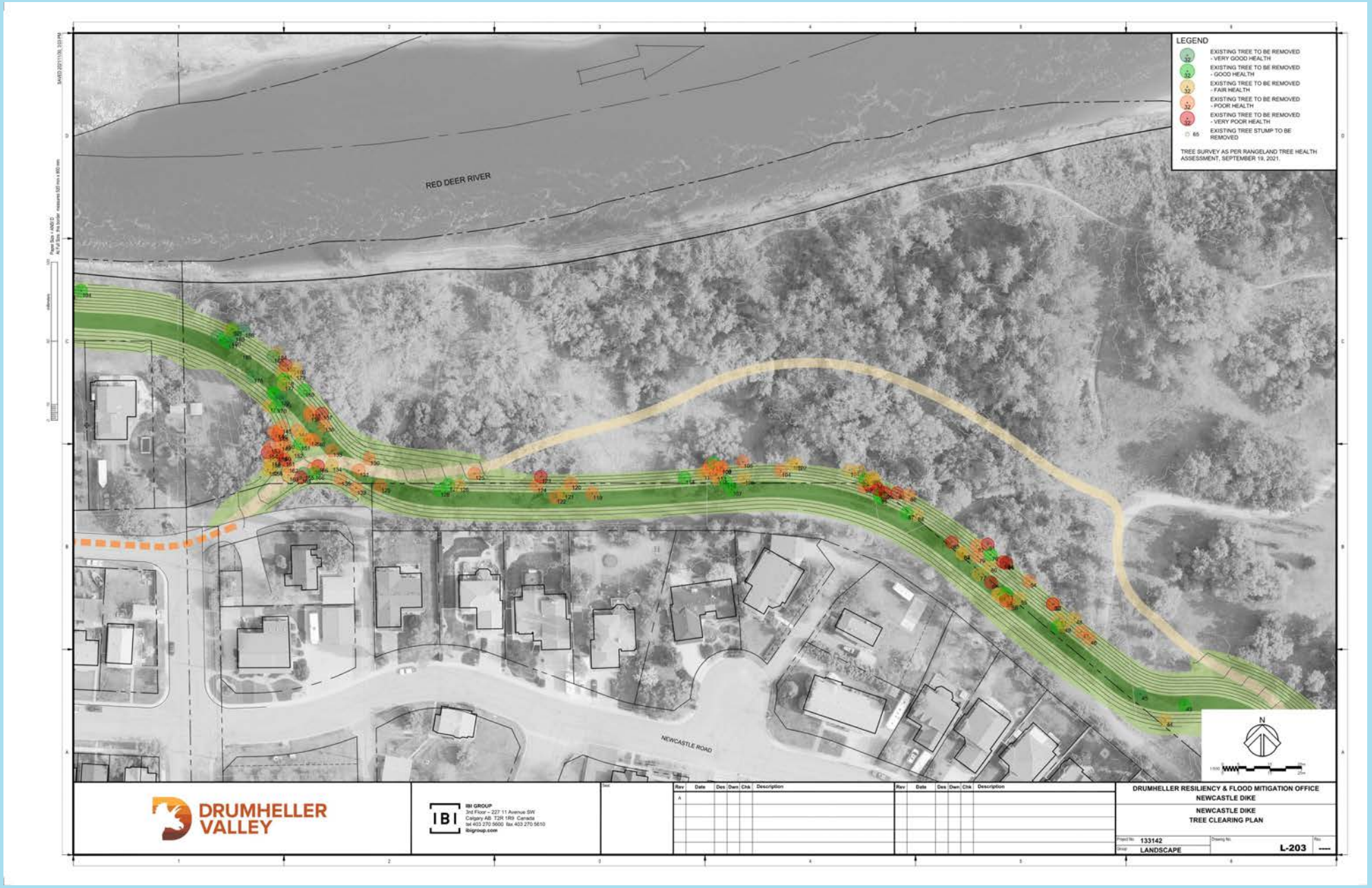
Landscape & Trails Plan



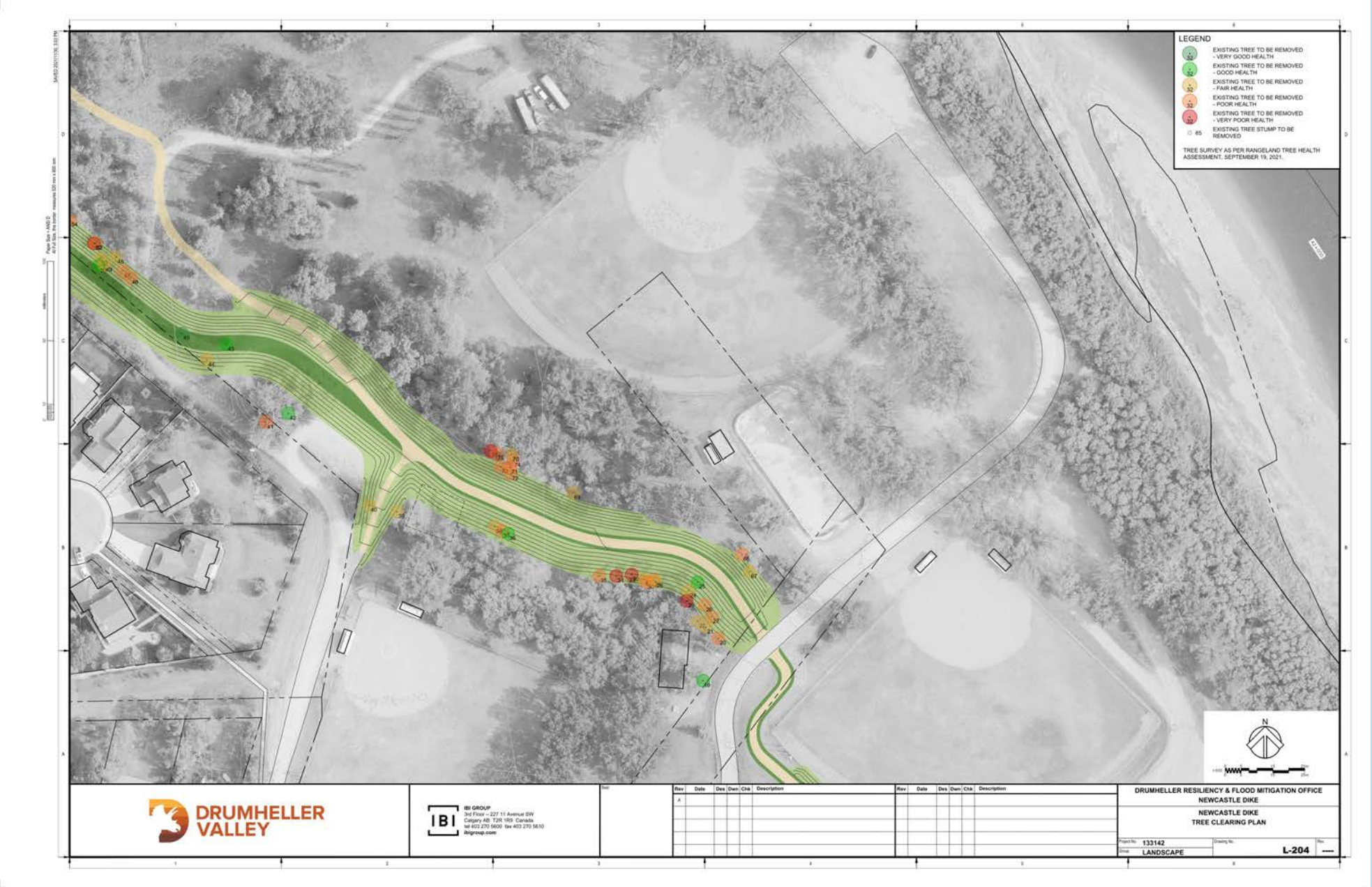
Tree Removals Plan



Tree Removals Plan



Tree Removals Plan



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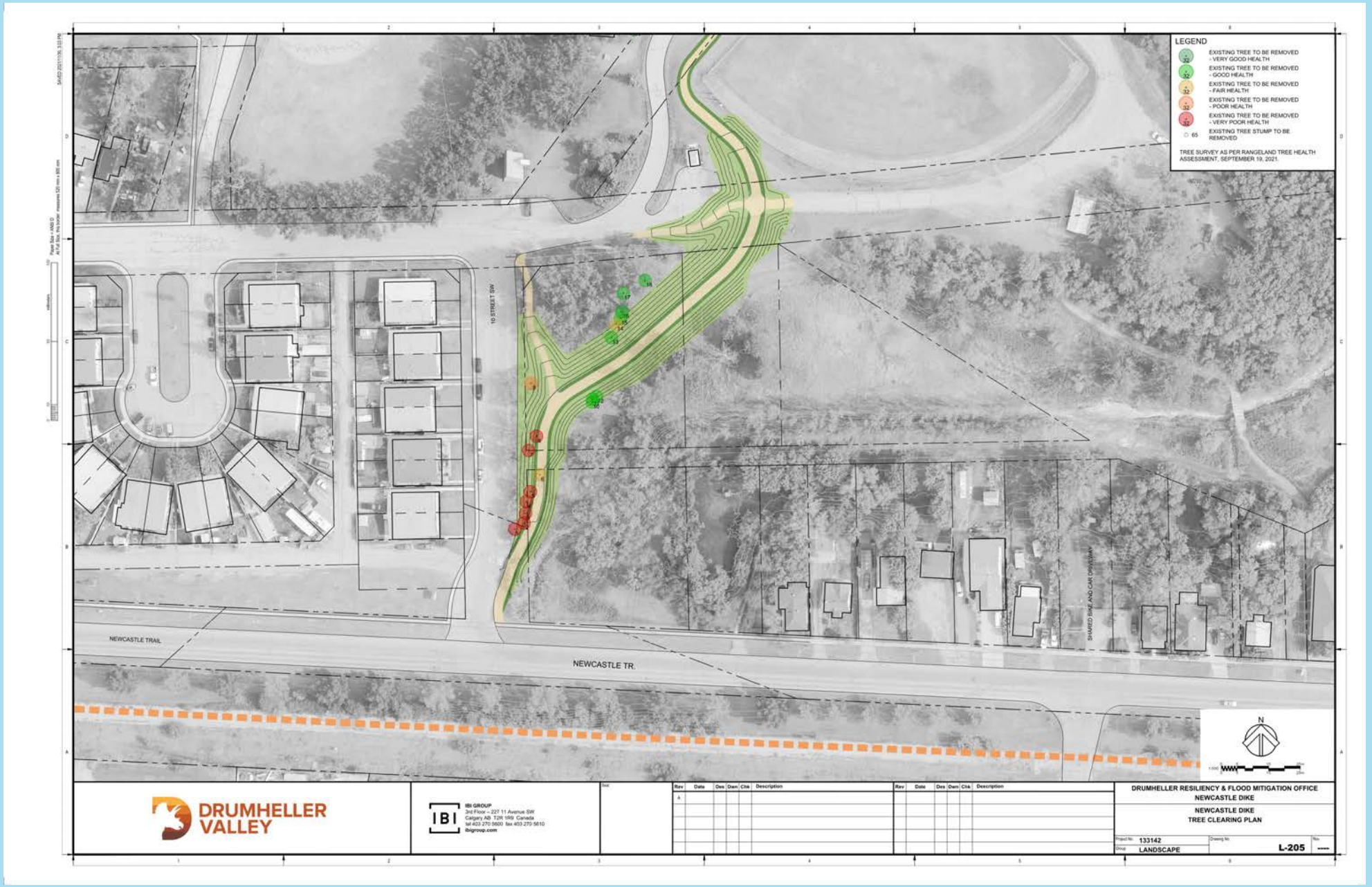
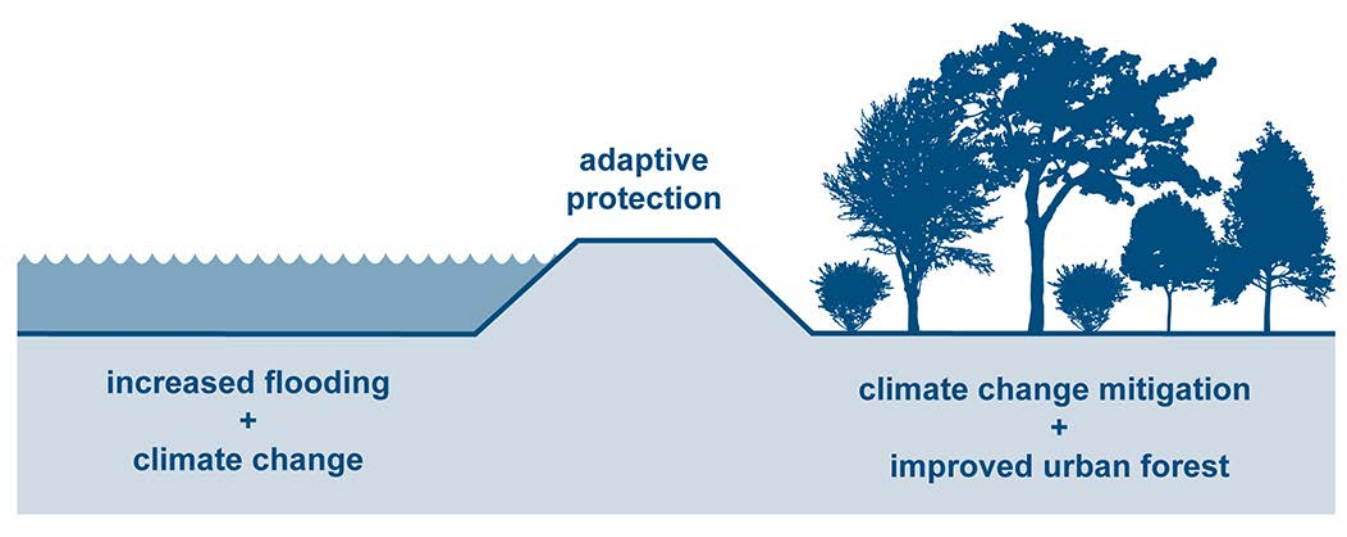


Cristal McLean, Principal, Landscape Architect, Ground Cubed

DRUMHELLER VALLEY

DRUMHELLER VALLEY
Preserving & Enhancing the Urban Forest: Standards & Techniques

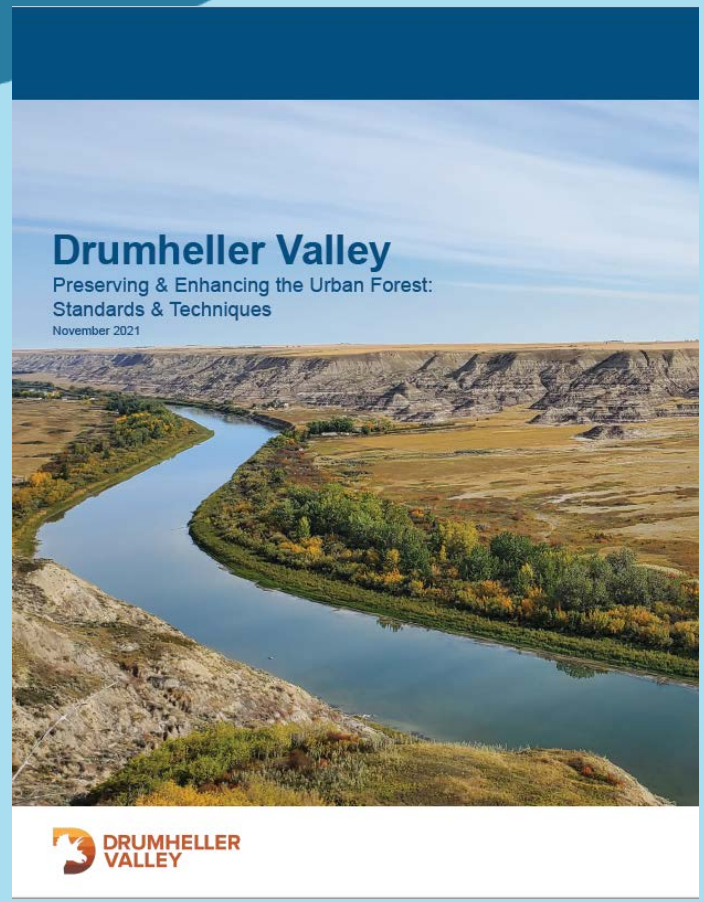
Urban Forestry is the planned and programmatic approach to the development and maintenance of the urban forest



DRUMHELLER VALLEY

DRUMHELLER VALLEY
Preserving & Enhancing the Urban Forest: Standards & Techniques
PROJECT TIMELINES

- The first internal draft of the **Urban Forest Strategy** was completed at the end of August 2021
- The draft was revised and circulated to Drumheller administration at the end of October 2021
- The final draft was approved in November 2021



DRUMHELLER VALLEY

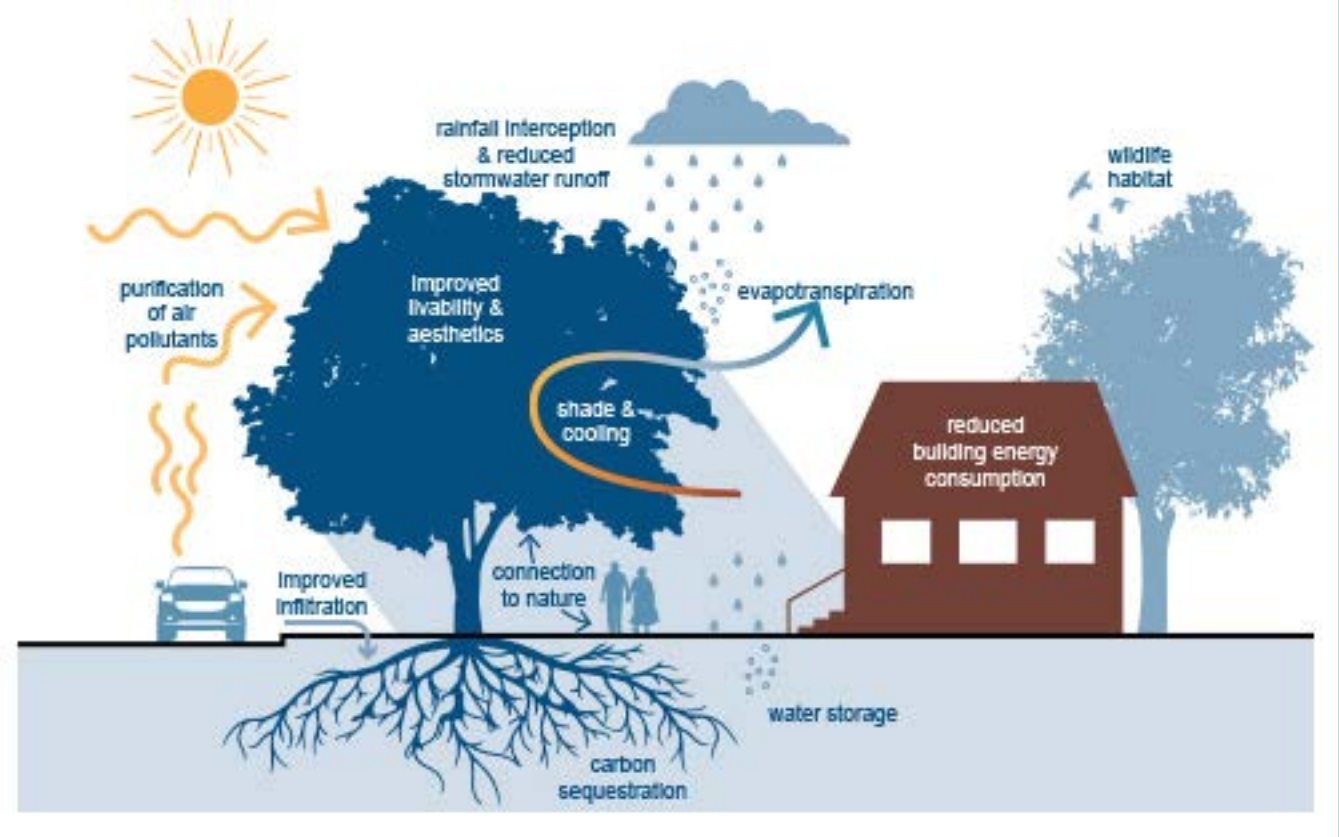
What is the Urban Forest?

The generation of the **Urban Forest Strategy** was done as part of the Drumheller Flood Mitigation Office project, but the goals and strategies outlined in the document are intended to serve the entire Drumheller Valley – **not just the areas associated with the flood mitigation project.**

- ecosystems composed of trees, shrubs and other vegetation that provide municipalities with environmental, economic and social benefits
- it includes street and yard trees, vegetation within parks and along public rights of way

DRUMHELLER VALLEY

What are the benefits of a healthy Urban Forest?



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What are the desired outcomes for our Urban Forest Strategy?

- that the urban forest is in good health
- that the urban forest is sustainable
- that the urban forest provides benefits to the community, is valued and respected
- that there is a collaborative approach to building the urban forest

DRUMHELLER VALLEY

What is this 5:1 ratio all about?

- for trees assessed at **fair, good or very good condition** that are removed from the existing urban forest, they will be replaced at a ratio of 5:1 – 5 replacements for every 1 removal
- the replacements may be trees or shrubs or a combination of trees or shrubs

Why the ratio? It is a 2-part answer:

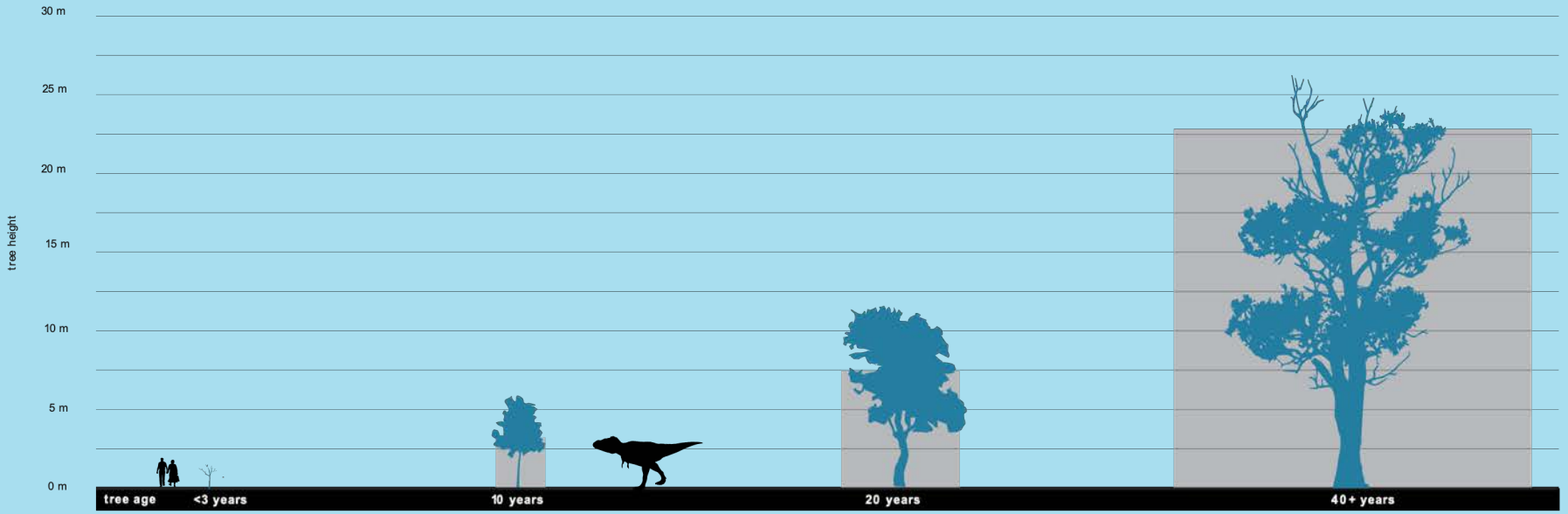
- by using a **carbon sequestration** evaluation method for calculating the CO2 replacement time frame we are provided with a reasonable assessment metric
- balancing the CO2 replacement time frame with the **management and maintenance realities** of the living asset of the Urban Forest

DRUMHELLER VALLEY

What is carbon sequestration all about?

- carbon sequestration is the process of capturing and storing atmospheric carbon dioxide (C02)
- the amount of CO2 sequestered by a tree will vary depending on its species, growth rate, density of its wood and stage of life
- to calculate the amount of CO2 sequestered by a tree we use a formula that considers the green weight of a tree, the dry weight of the tree, the weight of the carbon and then finally the weight of the CO2

assumed amount of CO_2 sequestered by a tree at various life stages



sapling

height: 1.2 m
trunk diameter: 10 mm
CO_2 sequestered: 0.1 kg (lifespan)
CO_2 sequestered: 0.05 kg (annual avg.)

*assumed age of 2 years

young tree

height: 6.0 m
trunk diameter: 170 mm
CO_2 sequestered: 159.6 kg (lifespan)
CO_2 sequestered: 16.0 kg (annual avg.)

*assumed age of 10 years

early mature tree

height: 12.0 m
trunk diameter: 370 mm
CO_2 sequestered: 907.3 kg (lifespan)
CO_2 sequestered: 45.4 kg (annual avg.)

*assumed age of 20 years

mature tree

height: 25.0 m
trunk diameter: 775 mm
CO_2 sequestered: 8291.7 kg (lifespan)
CO_2 sequestered: 207.3 kg (annual avg.)

*assumed age of 40 years

amount of CO_2 sequestered by tree over lifespan (1 mm^2 = 1 kg)

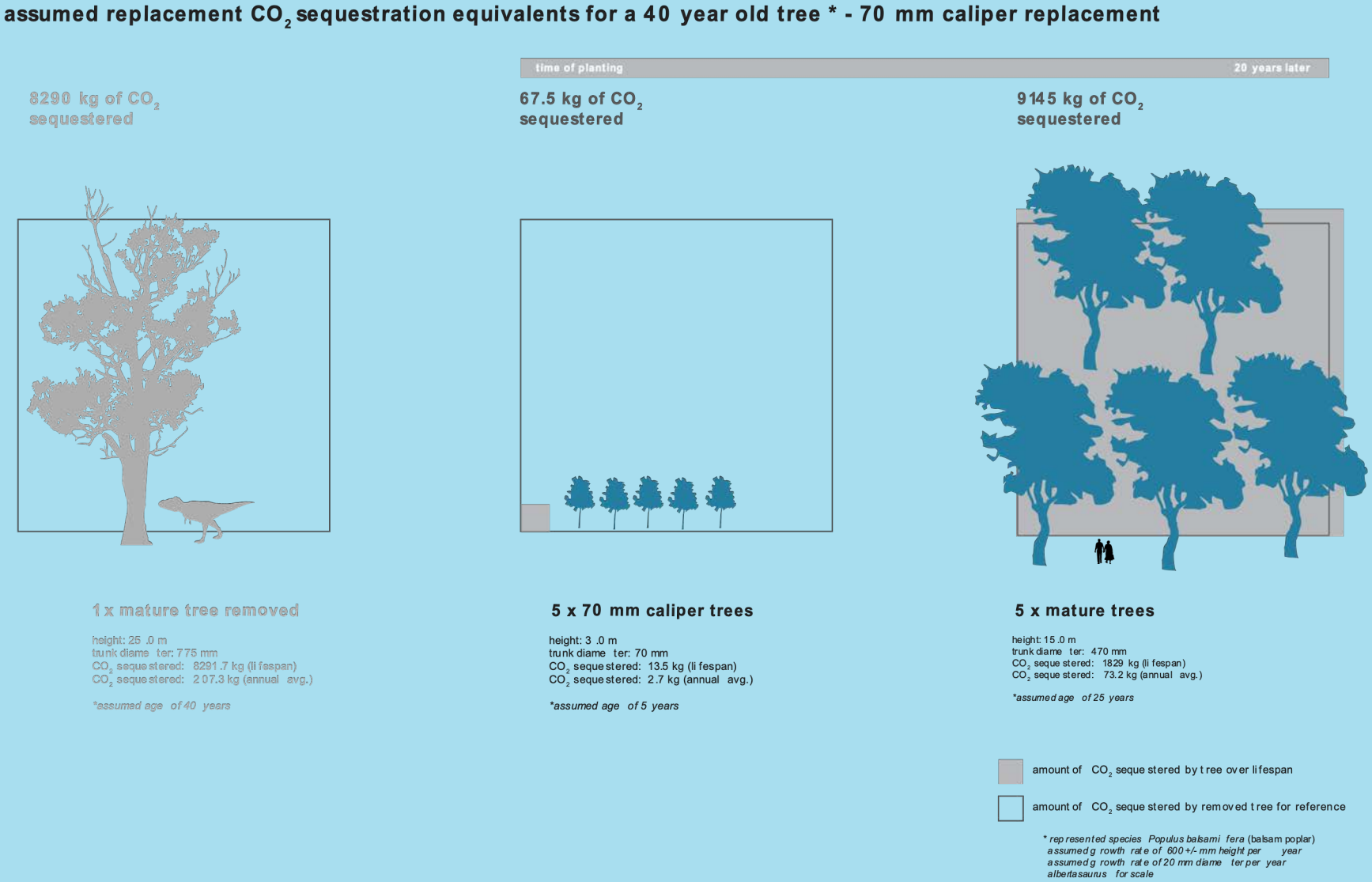
* represented species *Populus balsamifera* (balsam poplar)
* assumed growth rate of 600 +/- mm height per year
* assumed growth rate of 20 mm diameter per year
* albertasaurus for scale

DRUMHELLER VALLEY

Why is a carbon sequestration formula useful?

We are able to easily determine how quickly new tree and shrub plantings are able to capture similar amounts of CO2 previously sequestered by other trees

This graphic illustrates that within 20 years of planting 5 balsam poplars, the amount of CO2 sequestered is slightly higher than the amount of CO2 sequestered during the 40-year life span of an existing balsam poplar



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What are the considerations for the second part of the 5:1 ratio?

We must strive to balance the CO2 replacement time frame with the **management and maintenance realities** of the living asset of the Urban Forest

How do we achieve this balance?

- by designing for tree and shrub **population diversity**
- by designing tree and shrub planting sites to ensure **sufficient moisture**
- by designing for **maintenance**
- by designing for **winter**, snow and de-icers

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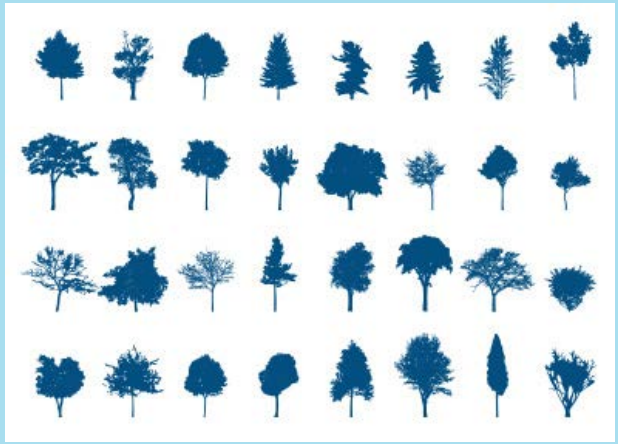
Designing for tree and shrub population diversity

The greater the population diversity of the urban forest the more able it is to respond to variation and change in the environment, such as **drought, fire and infestations.**



DESIGN GOALS:

- urban forest should contain both **long and short-lived** species
- when possible, choose trees that are **grown from seed** rather than clones
- choose **less common species** that perform similarly to more common species
- choose **multiple cultivars** within a single design

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Designing tree and shrub planting sites to ensure sufficient moisture

When trees and shrubs are getting sufficient moisture, they are healthier and less prone to insect infestations.

DESIGN GOALS:

- prioritize planting in areas where they have the **best chance of success**
- plant in **drained low areas** where water would naturally flow
- ensure water is **free of salts** and **contaminants**
- plant in **cultivated beds** and in **connected groups**
- use mulches to help **conserve water**

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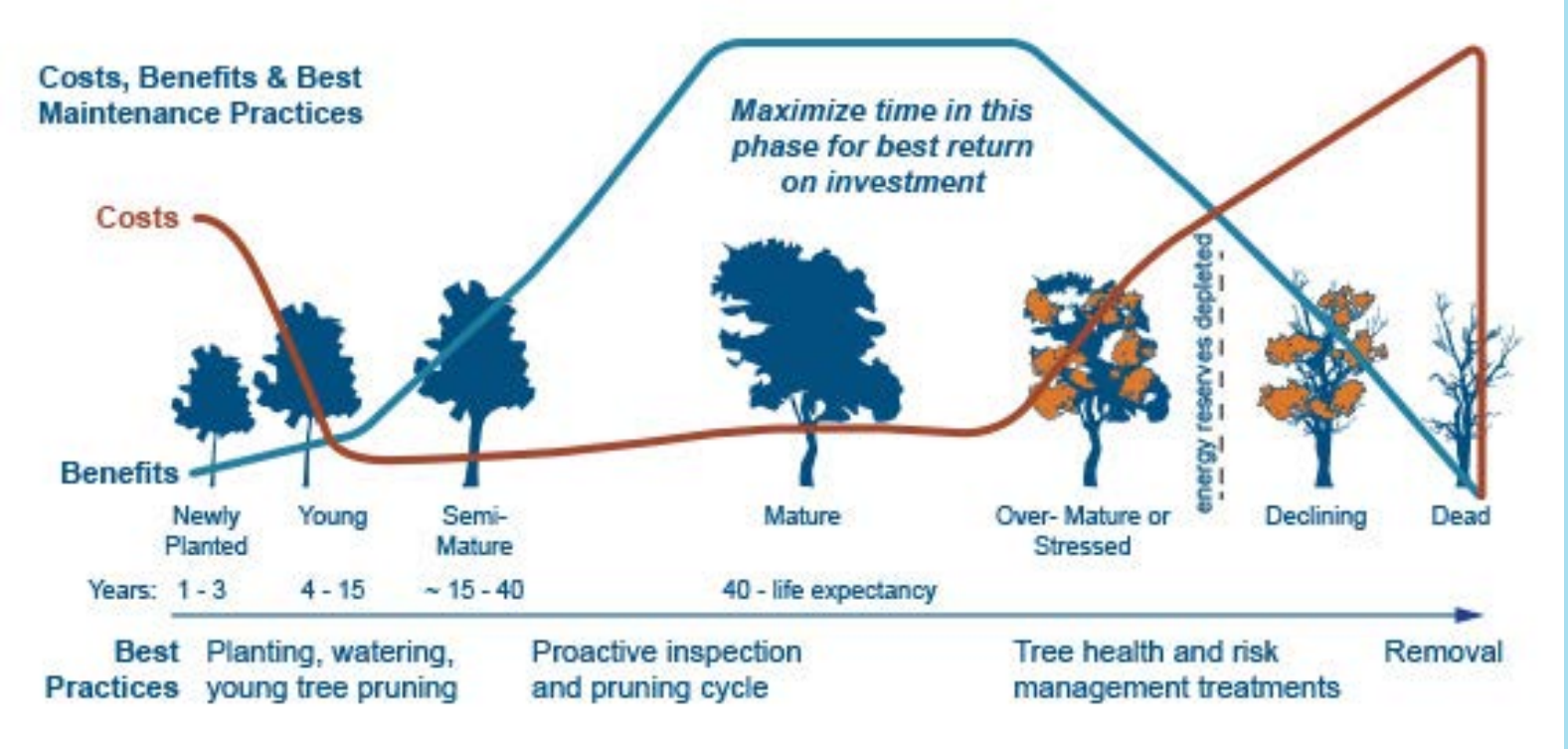
Designing for maintenance

Trees cost the most at the **start and end** of their lives and produce the **greatest benefits** in the middle when they are **healthy and mature.**



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Designing for maintenance

Best practice planning, selection and maintenance maximizes healthy lifespan and minimizes removal and replacement costs.

DESIGN GOALS:

- design for maintenance equipment **access** and for **accommodation** of removal
- **planting beds** are **preferred** over single tree wells
- use **high canopy trees** on roadways and medians where deemed appropriate
- **avoid discontinuous** planting medium and **small pockets** of organic soils
- plant where trees and shrubs would **naturally grow**
- understand **reproductive** and **growth habits** and choose the right plant for the right condition

DRUMHELLER VALLEY

Designing for winter, snow and de-icers

Understanding the effects of **prevailing winds**, **winter sun** and **snow clearing activities** help to minimize climactic damage.

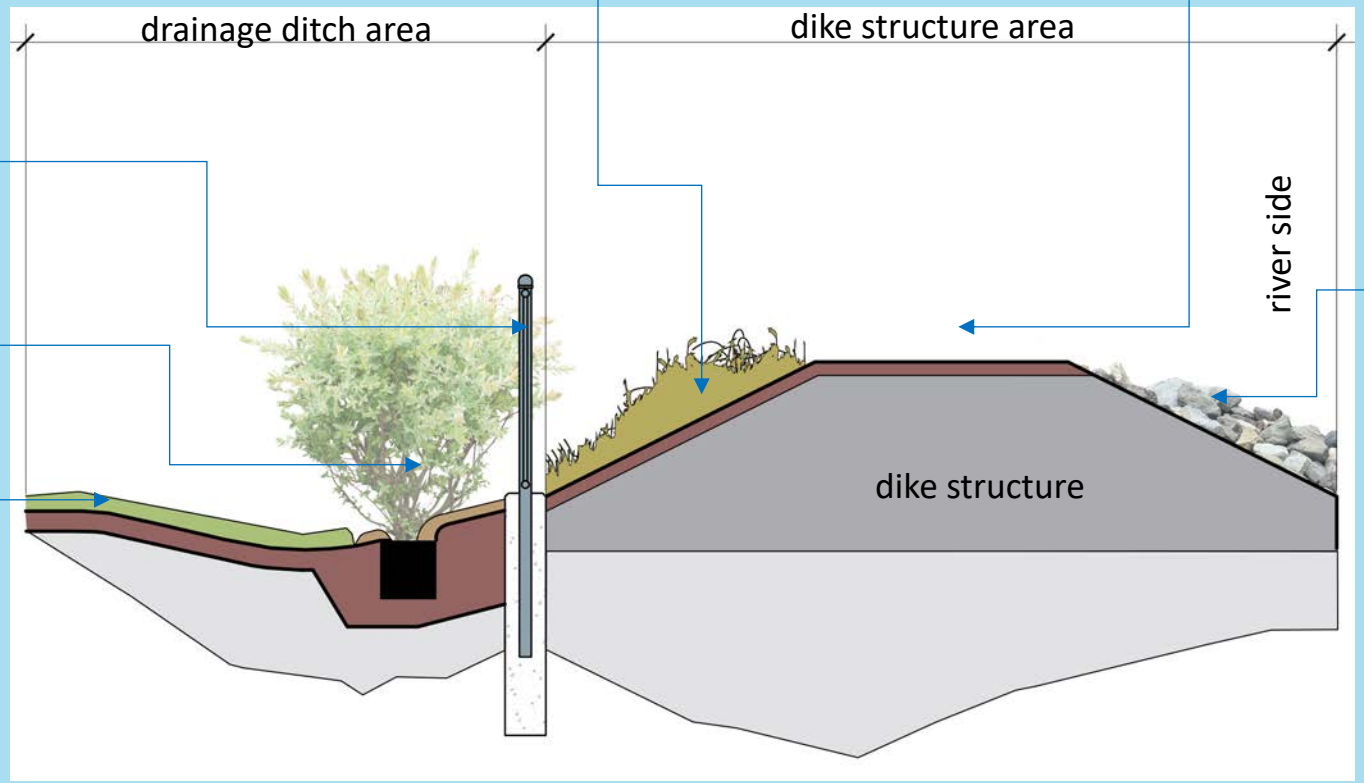
DESIGN GOALS:

- **hard landscaping is preferred** within areas **adjacent to roadways** subject to intensive ice and snow management activities – primarily at intersections, hills, school zones, bus routes and expressways
- ensure both trunk and root stock are **winter hardy** and **avoid thin-barked trees** in locations exposed to winter sun or winds
- utilize **vertical barriers or horizontal separation** to deflect salt splash and gravel throw away from tree planting
- provide **sufficient water** to **flush soil** of salts, and utilize **salt tolerant species**

DRUMHELLER VALLEY

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



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Management – Removals
Dutch Elm Disease

Fungus spread by 3 beetle species that clogs the elm tree's water conducting system – causing death

Under the Agricultural Pests Act all municipalities, counties and MDs have the responsibility and authority to prevent and control DED by implementing a **DED Response Plan**

Some key items of the DED Response Plan include:

- appointed inspectors for monitoring
- enforcement of pruning window bans
- designated elm wood disposal sites where wood may be burned or buried
- public information and education on bans and disposal site location

DRUMHELLER VALLEY

Management – Removals
Black Knot

Fungus effecting Prunus species – contagious and extreme cases can cause death

Black Knot Fungus is becoming widespread in Alberta, to the extent that some municipalities are discouraging the planting of Prunus species in an attempt to get ahead of the management and maintenance requirements.

Black Knot can be reduced by:

- increased regular monitoring
- removing sources of fungus through pruning from late fall to early spring
- disposing of diseased wood in designated disposal sites where wood may be burned or buried
- public information and education on bans and disposal site location

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What can happen with other plant material being removed for life cycle or construction?

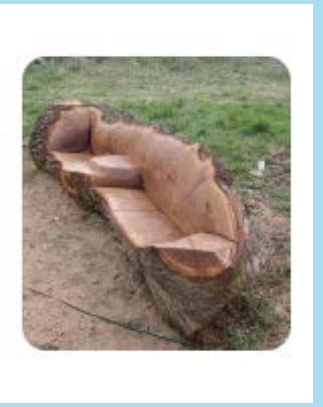
Removals of **poplar and maple** are not an environmental concern for disposal

Dead or removed trees can contribute to the landscape in new ways

This…

can become this…

This…



can become these…

We would like to start a dialog with local artists, carvers, furniture makers – to see what we can envision together

DRUMHELLER VALLEY

Introduction of Speaker's Tables for Questions

DRUMHELLER VALLEY

floodreadiness.drumheller.ca

drmfloodinfo@drmprogram.com

floodcommittee@drumheller.ca

Questions?

DRUMHELLER VALLEY

Questions?

Q: As the current berms in Drumheller do not meet the design flood elevation of 1850 m^3/s plus 0.75m freeboard, if someone intends to take out a development permit do they have to build the main floor to 1850 m^3/s plus 0.75 m freeboard?

A: Residents located within the flood hazard overlay in the Land Use Bylaw must construct the first floor of their houses to the flood construction level which is the water elevation of a 1850 m^3/s flow rate on the Red Deer River. Residents are not required to include a freeboard, however building above the flood construction level increases their resilience to future flood events. The flood construction level for protected areas will be re-evaluated in the Land Use Bylaws once the berms are built.

DRUMHELLER VALLEY

Questions?

Q: When the Town runs out of dollars building to 1850 m^3/s plus 0.75 m freeboard and there are remaining berms yet to construct, how will the Town be protected from possible high-water events? Would it not make more sense to build to a design flood elevation of 1640 m^3/s plus 0.75 freeboard to protect more areas of Drumheller?

A: There is no expectation that we will run out of money for the berms that have been funded. The province of Alberta has recommended that the Drumheller Valley build flood mitigation up to the 1850 m^3/s Red Deer River flow rate. If Drumheller only built the dikes to the 1640 m^3/s level, we would not be in accordance with that requirement and could impact future provincial funding.

DRUMHELLER VALLEY

Questions?

Q: An explanation is required on the "protected flood fringe" area and when does the Town intend to address this concept in the Town's Land Use Bylaw so that realtors and property owners have knowledge of future regulations?

A: Protected flood fringe areas will consist of areas that are currently located within the Flood Hazard overlay (1850 m^3/s) but are located behind dikes that provide the same level of protection. Until the berms are constructed to the proper elevation, these areas are not considered to be in the protected flood fringe. Work on future regulations for these areas will be on-going over the next few months, in parallel with the berm construction.

Questions?

Q: When do you intend to write letters advising those property owners that they are now located in the floodway?

A: Much of the Town of Drumheller currently is within the Provincially designated floodway, this has not changed since the Provincial Flood Hazard mapping was published in 2007 (https://floods.alberta.ca/). The Province has indicated that with the upcoming Flood Hazard Mapping update, there will be no new areas designated as floodway.

DRUMHELLER VALLEY

Questions?

Q: When will the Town address the residents' concerns regarding de-evaluation of property assessment, insurance and renewal of mortgages for those properties now in the floodway and for those properties that will not be protected by a berm because the Town will run out of dollars? Will the Town allow structures to be rebuilt in the floodway as they were originally built as stated in the exemption letter from the Province dated on June 1 2017?

A: Current Land Use Bylaw state that within the flood conveyance zone, residents are allowed to replace existing buildings or structures in the same location for the same use if they can overcome the flood hazard, subject to acceptance of the Town and a member of APEGA. Residents can also renovate existing buildings as long as they do not increase the floor area below the flood construction level.

*It is also important to note that many properties may increase in value as a result of the flood protection.

DRUMHELLER VALLEY

Questions?

Q: When will the Town address the conflicting information in the Municipal Development Plan with regards to building berms to 1640 m^3/s plus 0.75 m freeboard and 1850 m^3/s plus 0.75 m freeboard?

A: The current Municipal Development Plan, issued in December 2020, refers to the new Provincial 100-year regulatory design flow rate of 1850m^3/s. Of the 23 times the design flow rate is mentioned, there are 2 occurrences where the old, outdated flow rate inadvertently did not get updated. The Town is aware of this and plans to update the MDP for this and a few other typographical errors in spring 2022.
https://drumheller.civicweb.net/filepro/documents/40742

For detailed information on the MDP and LUB, contact Drumheller's Development Office at development@Drumheller.ca

DRUMHELLER VALLEY

Questions?

Q: Where is the berm material coming from if hill dirt is not being used? Is it true the Town is using bedrock to construct the berms as conveyed by the previous flood mitigation officer, Mark Steffler?

A: ParklandGEO Geotechnical Engineering is currently assessing source material.

DRUMHELLER VALLEY

Questions?

Q: When the berms are built in various neighborhoods, is it the Town's intention to have a drainage ditch between the properties and berms so that there is system in place for heavy rains and protection of the houses?

A: Yes. The berm designs will include design of overland conveyance route along the inside toe of the berms.

DRUMHELLER VALLEY

Questions?

Q: When the berms are being constructed and heavy compaction is carried out, who will be covering the damages to house foundations and cracked wallboard that may occur?

A: There will be provisions in the contract documents requiring contractors to undertake the work in a manner to mitigate impacts to adjacent structures in their use of heavy equipment. Pre-construction inspection of adjacent properties may be completed. If any damages occur, they will be reviewed on a case-by-case basis and responsibility assigned according to findings.

DRUMHELLER VALLEY

Questions?

Q: In the past, mine shafts that run under the river and throughout the Drumheller valley have been inundated by flood / storm water, what is being done to protect residential properties, i.e. from underground flooding?

A: Mine shafts are outside the scope of the current flood mitigation program.

DRUMHELLER VALLEY

Questions?

Q: Are you proposing to abandon one of the Newcastle Ball Diamonds for construction of a berm in this area?

A: No. There are no plans to abandon Newcastle Ball Diamonds for berm construction.

DRUMHELLER VALLEY

Questions?

Q: Why did the Town purchase "flood properties" when they are now being rented out?

A: Purchases of current properties were initiated by property owners. Houses are being rented to offset ongoing monthly maintenance cost until buildings can be removed in spring 2022 .

DRUMHELLER VALLEY

Questions?

Q: What measures are in place for protection of the greenbelt, in particular, the natural native poplar trees?

A: Unfortunately, some trees will need to be removed to facilitate construction. Tree inventories and assessment are completed during design and a 5:1 tree replacement strategy is being implemented.

DRUMHELLER VALLEY

Questions?

Q: It has most recently been stated that the tendering process for berms will commence in January 2022. Will this timeframe inflate the prices for potential bidding as there could potentially be 2-3 feet of snow on the ground? How will contractors view the job in its natural state?

A: No. It is very common to tender work over the winter. Experienced contractors are adept at bidding on projects in the winter. This allows them the ability to be ready to start construction early and have a longer construction season.

DRUMHELLER VALLEY

Questions?

Q: Who are the members on the Flood Mitigation Community Advisory Committee and what have they accomplished to date?

A: The CAC will be introduced at the Midland Town Hall (both virtual and in-person events). They have been undergoing training for the past several weeks.

floodreadiness.drumheller.ca

drmfloodinfo@drmprogram.com

floodcommittee@drumheller.ca

DRUMHELLER VALLEY

Community Advisory Committee

floodcommittee@drumheller.ca