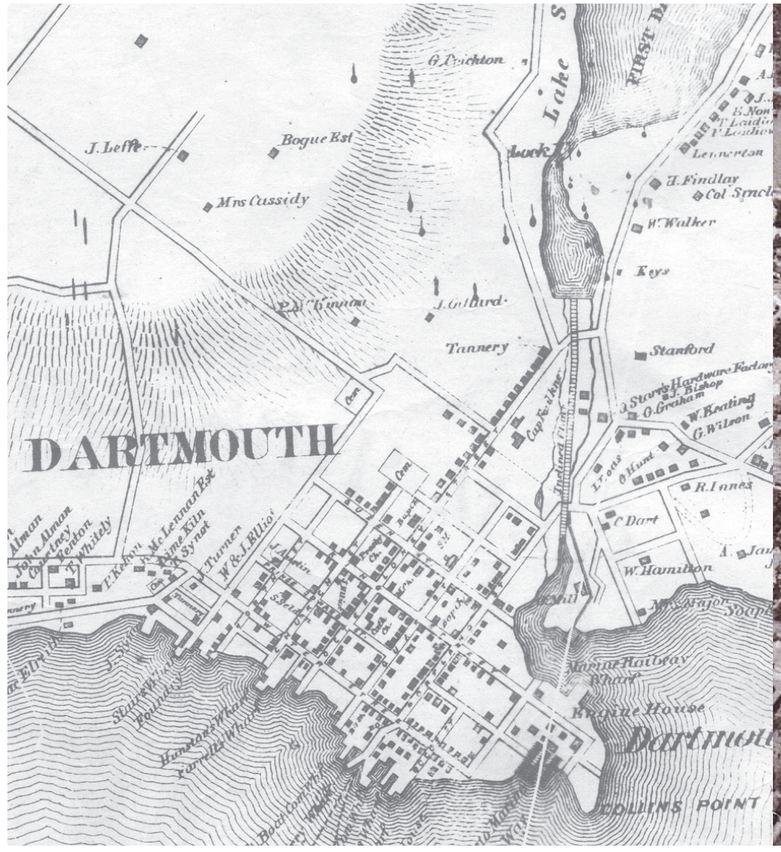
# SHUBENACADIE CANAL GREENWAY
## INTERPRETIVE MASTERPLAN

FINAL REPORT, January, 2017

Prepared For: Doug Conrad, General Manager
The Shubenacadie Canal Commission

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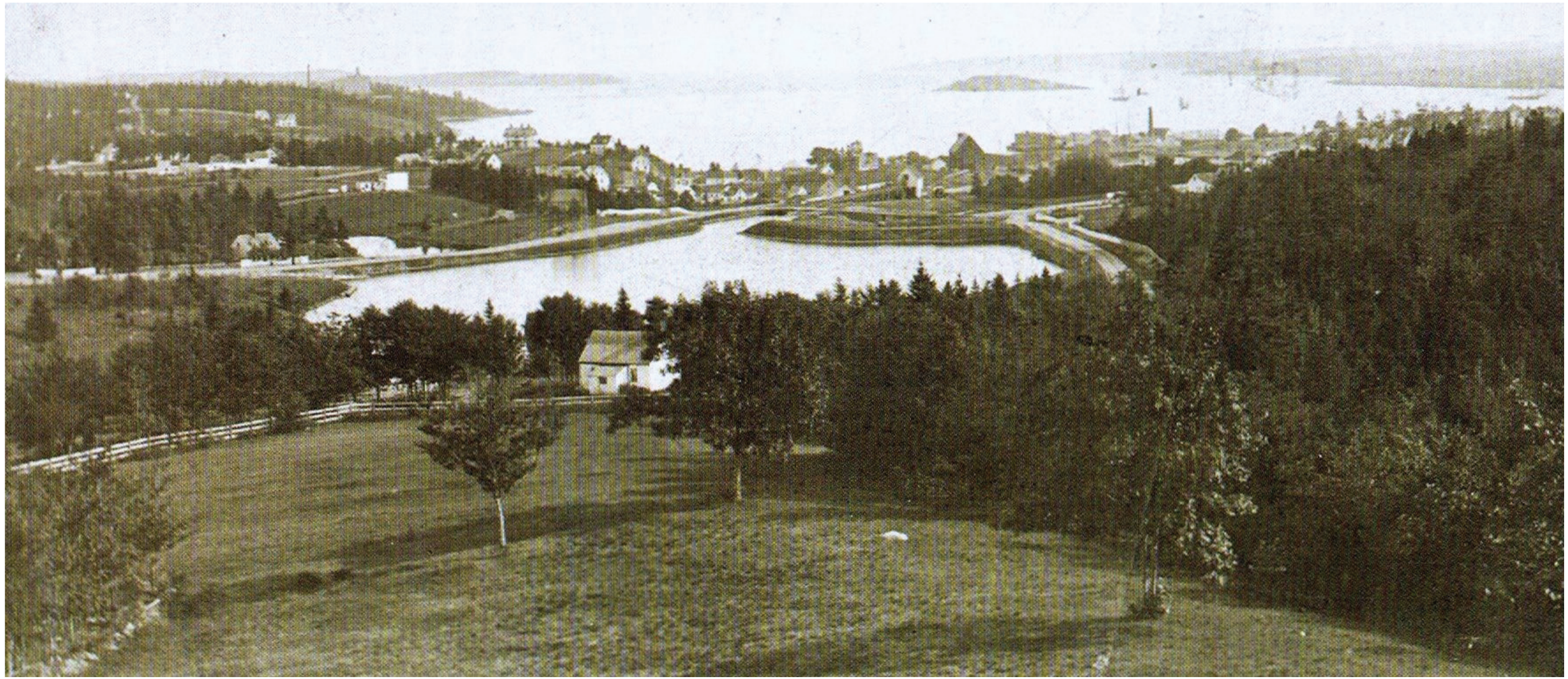


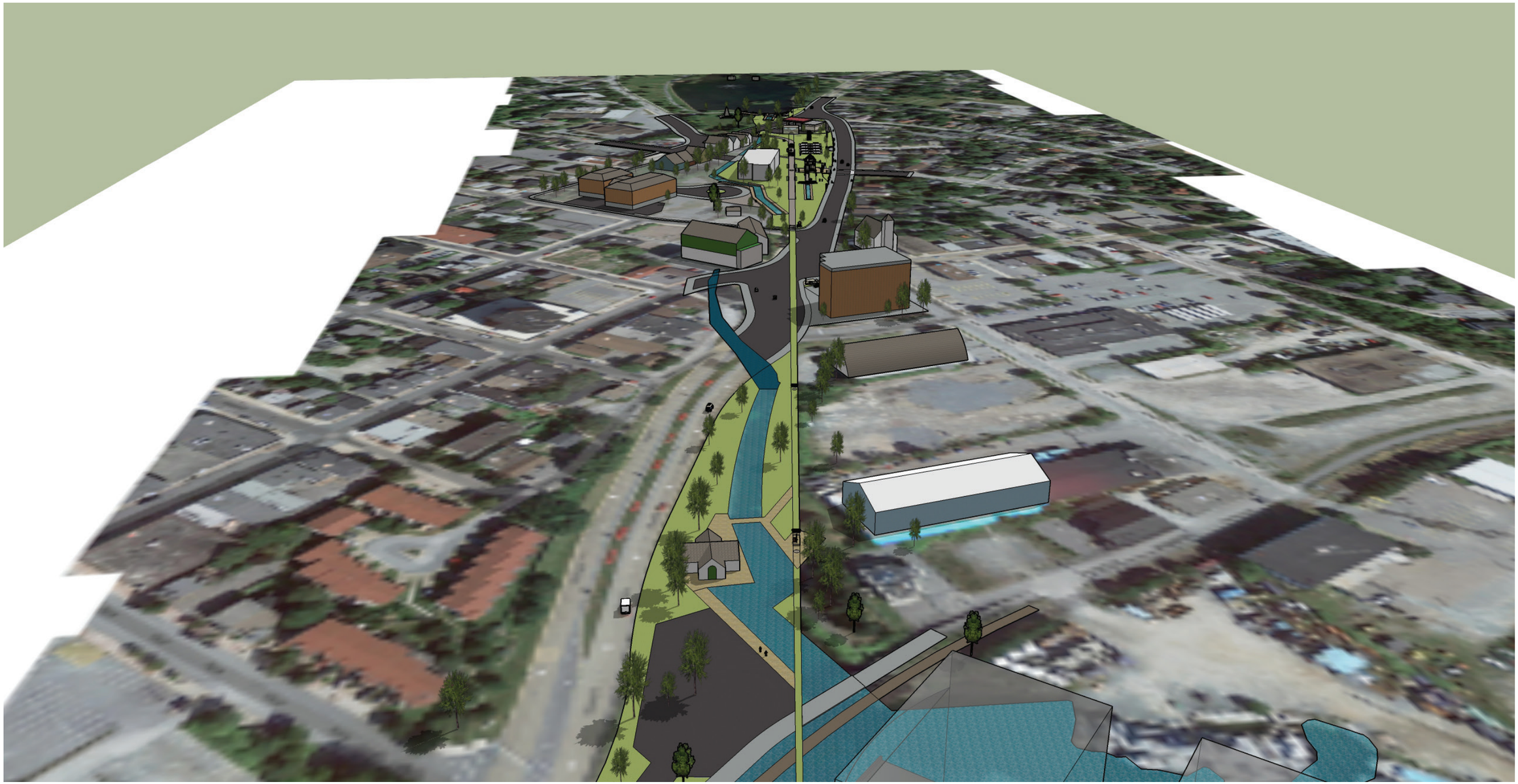
EARLY VIEW OF SULLIVANS POND C. 1870'S


**Establishing Shot**

**Establishing Shot**

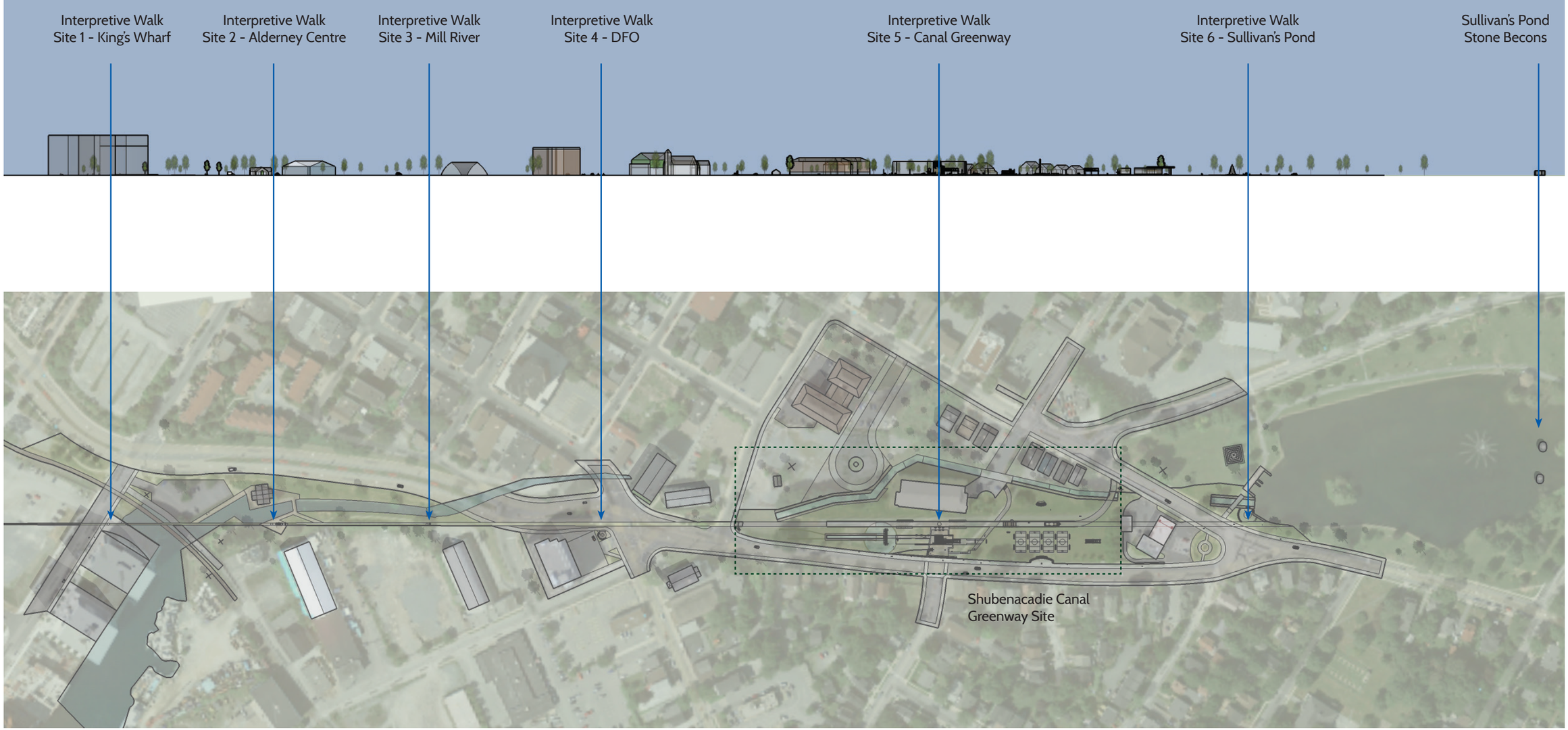

**Establishing Shot**

Establishing Shot - Looking South toward Harbour
Note the sightline along the Inclined Plane



**Establishing Shot - Looking North toward Sullivan's Pond**
**Note the sightline along the Inclined Plane**

**Side Elevation**
**showing the Shubenacadie Canal Greenway Park**
**and the Dartmouth Inclined Plane Interpretive Walking Tour**




**Plan View**
**showing the Shubenacadie Canal Greenway Park**
**and the Dartmouth Inclined Plane Interpretive Walking Tour**


**Front Elevation**
**The Flume House as seen from Pleasant Street**

As shown from Pleasant Street crosswalk


# 1. WELCOME TO THE DARTMOUTH INCLINED PLANE AT THE SHUBENACADIE CANAL GREENWAY

## INTERPRETIVE METHOD:

Large Main Entrance Sign with a branded sign component at the tpo section and a two interpretive panels on either side of the lower section of the structure (Side A and Side B). There will be 2 of these sign structures io total, located at:

- the Prince Albert Road Entrance to the Shubenacadie Canal Greenway site
- the Ochterloney Street Entrance to the Shubenacadie Canal Greenway site

## INTERPRETIVE THEME(S):

A "Welcome Message" (on Side A) and a "Site Overview" (on Side B).

## CONTENT OUTLINE:

**Side A**

Side A will convey the overall welcome message on large interpretive panels facing the road. The site upon which you are now standing is called the Dartmouth Inclined Plane. The Shubenacadie Canal Waterway and Marine Railway was an important and innovative section of the one of the largest and most ambitious feats of engineering ever undertaken in Nova Scotia, until the coming of the railway in the 1870s.

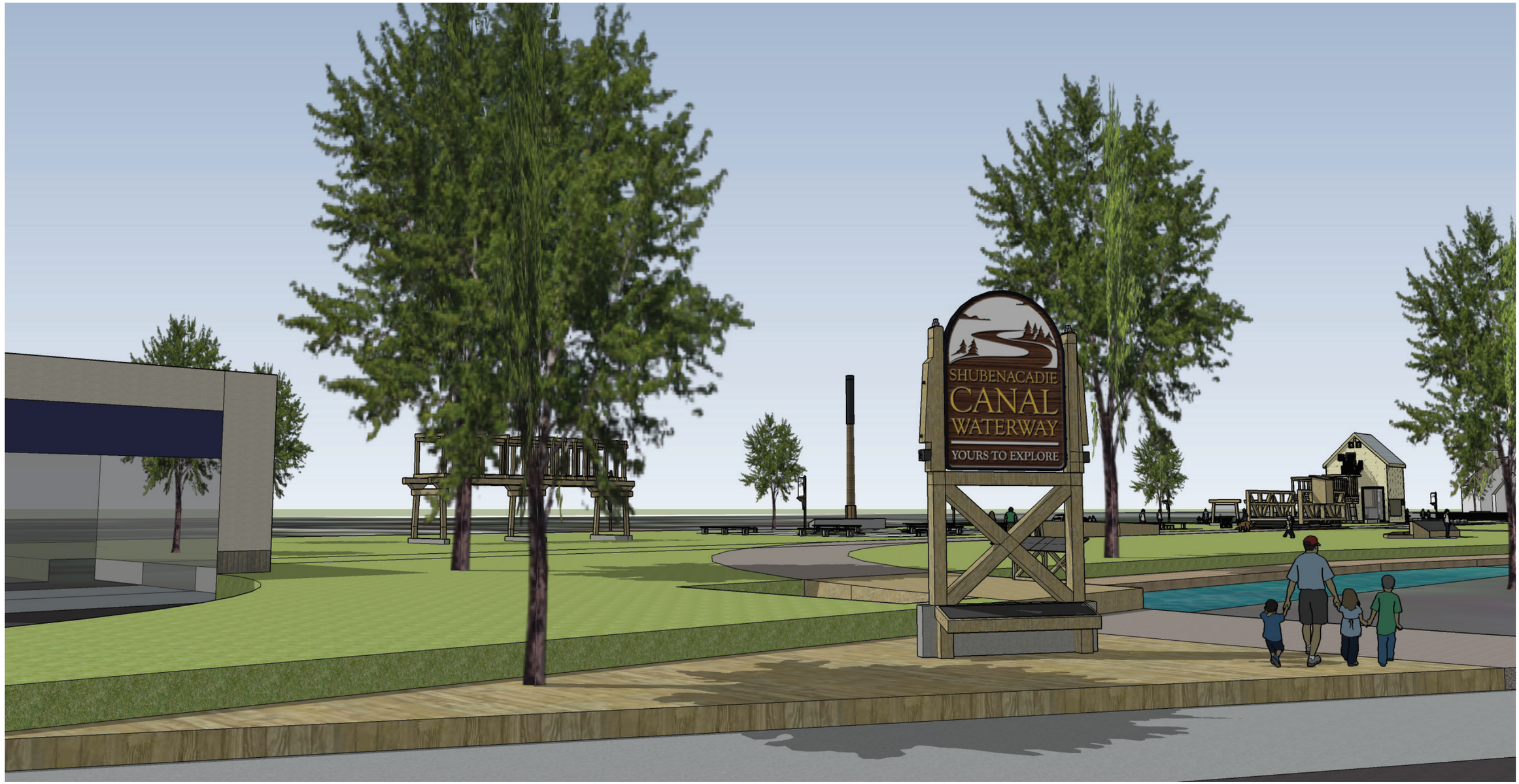
The Shubenacadie Canal Waterway stretched an impressive 114 km across Nova Scotia's interior and carried goods and people between Halifax Harbour / Downtown Dartmouth and the Bay of Fundy between 1856 and 1871. All movement on the waterway was powered by water and machinery working together.

Sadly, this engineering wonder became obsolete when the government built the new Railway. Although the Shubenacadie Canal and Marine Railway was a dream never fully realized, it changed the face of Dartmouth in terms of its people, culture, architecture, and the recreational opportunities we enjoy today.

**Side B**

Side B will also have an angled panel and will communicate that to visitors the Shubie basics i.e.: canal, lock, inclined plane, and marine railway and how they all worked. Icons, images and illustrations will accompany the text.

- What is a Canal?
  - *An artificial waterway that allows boats to sail between two points, often over hills and through valleys*
- What is a Lock and How does it work?
  - *A short, confined and watertight chamber / section of a canal*
  - *Water level can be changed by use of gates and sluices allowing vessels to be lowered and raised to travel uphill or downhill*
- What is an Inclined Plane?
  - *A sloping ramp or elevation on which heavy loads can be raised and lowered using a system of cables and pulleys*
- What is a Marine Railway?
  - *A transport or railway system that operated on top of the inclined plane and consisted of tracks, cables, pulley system, marine boat cradle cars and canal vessels etc.*
- Explore More! Visit the Fairbanks Centre




As shown from Ochterloney Street
near Esso

# 2. PEOPLE AND THE SHUBENACADIE WATERWAY

## INTERPETIVE METHOD:
One (1) angled free-standing interpretive panel. Supports reflect design of Flume Headrace.

## INTERPRETIVE THEME(S):
People used the waterway as a main water highway thousands of years before the canal, its locks, or inclined planes were built.

## CONTENT OUTLINE:
**The Ice Age**
The end of the last Ice Age over 12,000 years ago, and the retreat of a glacier that covered much of Nova Scotia, helped carve out the Shubenacadie watershed of river, streams and lakes that we know today.

**The Mi'kmaq**
The Mi'kmaq used the Shubenacadie Waterway as a main highway from summer camps along the shores and islands of Halifax to winter camps in Nova Scotia's wooded interior for at least four thousand years. They traveled in birch bark canoes.

**Early European Settlement**
- Early Europeans such as the French and Acadians settled along the river with the help of the Mi'kmaq
- Sainte-Anne Mission and Ville de Hébert

**British Founding of Halifax**
- British Founding of Halifax in 1749
- Growth of commerce and merchants
- Early interest in building a canal on the Shubenacadie River

# 3. THE FIRST SHUBENACADIE CANAL 1826-1831

## INTERPETIVE METHOD:

One (1) angled, free-standing interpretive panel. Supports reflect design of flume headrace. Text and diagrams encourages visitors to look toward the flume house and see low-lying stone walls that represent the wall of the original lock which was replaced by the marine railway. The flume house you see now is built on top of the original lock. It's stone walls became the footings / foundation for the building. Through the landscaping and illustrative interpretation, visitors will be able to visually trace the path of the original lock.

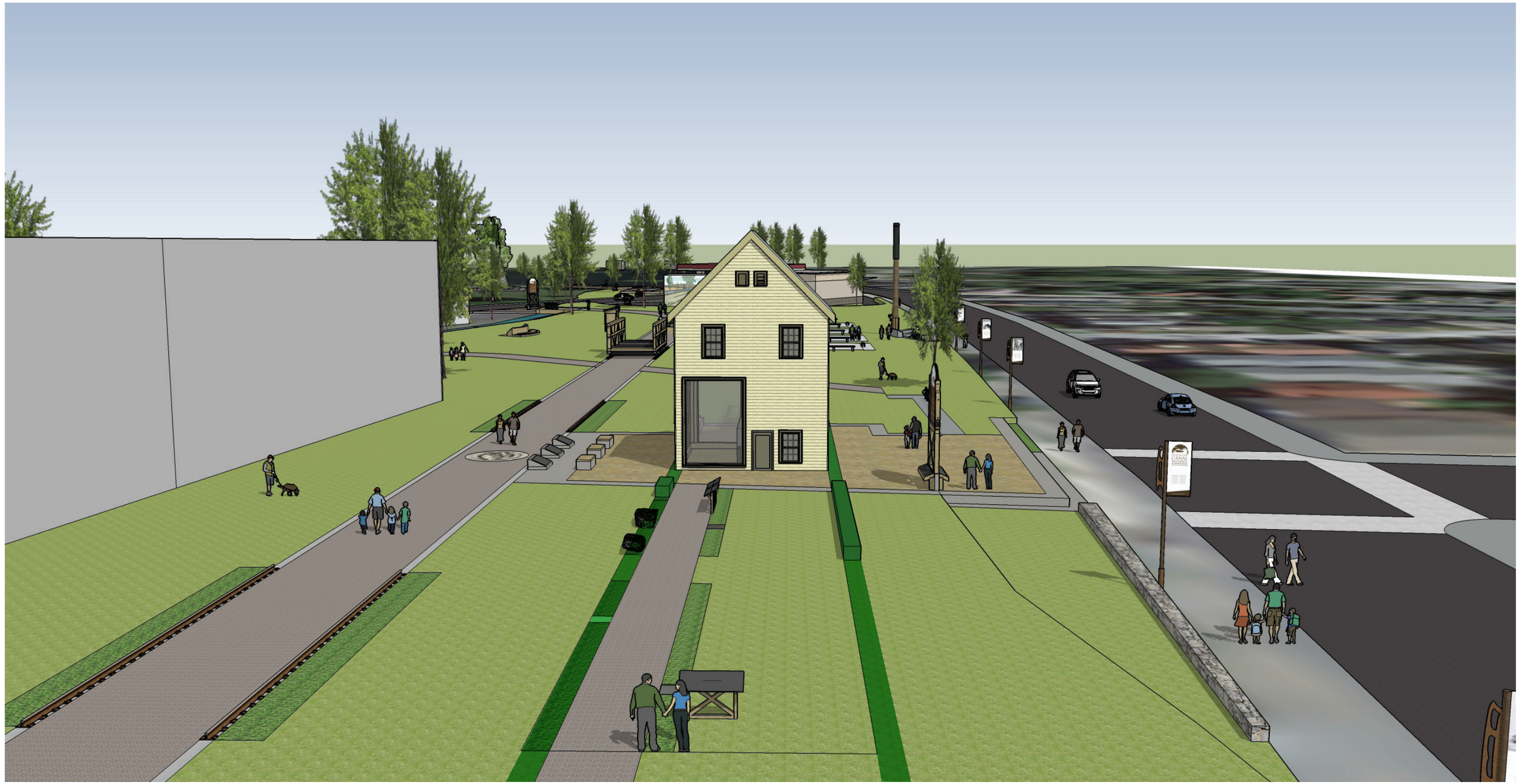
## INTERPRETIVE THEME(S):

The first attempt to build a canal through Nova Scotia's interior was supported largely by merchants of Halifax and the government. It was an ambitious undertaking that failed mainly due to lack of funds, but it was the seed that came to fruition on an even greater level in the late 1850s with the addition of the Inclined Planes here and at Portobello.

## CONTENT OUTLINE:

In the early 1800s, the government and merchants of Halifax were interested in building a Canal through Nova Scotia's interior. This waterway would connect Halifax Harbour with the Bay of Fundy and carry goods and people between the two points and encourage trade and settlement in Nova Scotia's interior.

- Early support for a canal cutting across NS interior
  - *The Shubenacadie Canal Company*
  - *Members and famous investors*
  - *Charles W. Fairbanks*
- Canal Workers / Construction
  - *Irish and Scottish stonecutters and their families*
  - *Stonecutters work and marks are still seen today (St. James United Church)*
  - *British style of canal/lock design and building techniques of locks*
  - *Canal Construction stops in 1831 as funds dry up*
  - *Cost of building the canal*
  - *In pounds sterling and current Canadian currency*
- What was accomplished?
  - *Eleven locks (five of which were granite) and two ponds between Halifax Harbour and Bay of Fundy, but canal was not operable*



Highlighted sightline of original lock walls

# 4. BUILDING A BETTER CANAL

## INTERPETIVE METHOD:

Three angled, low lying interpretive panels in a row. Adjacent to the panels are three seats that allow visitors to engage in the panels as they rest and absorb their surroundings.

## INTERPRETIVE THEME(S):

Since the closure of the fist canal attempt in 1831, there had been plans to continue on with the work of completing the canal. In the mid-nineteenth century, Charles W. Fairbanks took on this task to finish and improve upon his father's (Charles Rufus Fairbanks') engineering work during the first construction phase of 1826-1831.

## CONTENT OUTLINE:

(to be incorporated into the three panels)

- Inland Navigation Company 1854
  - *Members and roles*
  - *Charles W. Fairbanks*
  - *Family association and work to complete the canal*
- Inspiration from Morris Canal, New Jersey
  - *Fairbanks completes Shubenacadie Canal and adds Portobello and Dartmouth inclined planes*
  - *Portobello plane built first, then Dartmouth*
  - *Adoption of new style of canal building (American) and building materials, i.e. composite lock walls*
- Benefits of an inclined plane as part of the canal system.
- Comparison of old British building style with new American style in terms of cost, efficiency, quality, etc.
- Canal / Marine Railway officially completed in 1861
  - *Features – 9 locks, 8 dams, 2 inclined planes (marine railway)*
  - *Cost of building canal*
  - *In pounds sterling and Canadian currency of today*
- Stand on the Shubenacadie Canal Seal
  - *Look down towards the harbour, and up to Sullivan's Pond, and try to imagine this inclined plane or slope you are now standing on, covered in the same type of track going in both directions, complete with a cable running up the middle of the tracks or marine railway.*


SEAL OF THE SHUBENACADIE CANAL COMPANY
NOVA SCOTIA

# 5. THE DARTMOUTH INCLINED PLANE: AT-A-GLANCE

### INTERPETIVE METHOD:
One (1) large interpretive panel, mounted to exterior rear, west side the flume house.

### INTERPRETIVE THEME(S):
The basic structure of the Dartmouth Inclined Plane is pretty much a straight line running from Halifax Harbour and all the way to the head of Sullivan's Pond. This large graphic panel will show a plan view and cross section (from the harbor to Sullivan's) of the inclined plane as it would have been in the 1860s.

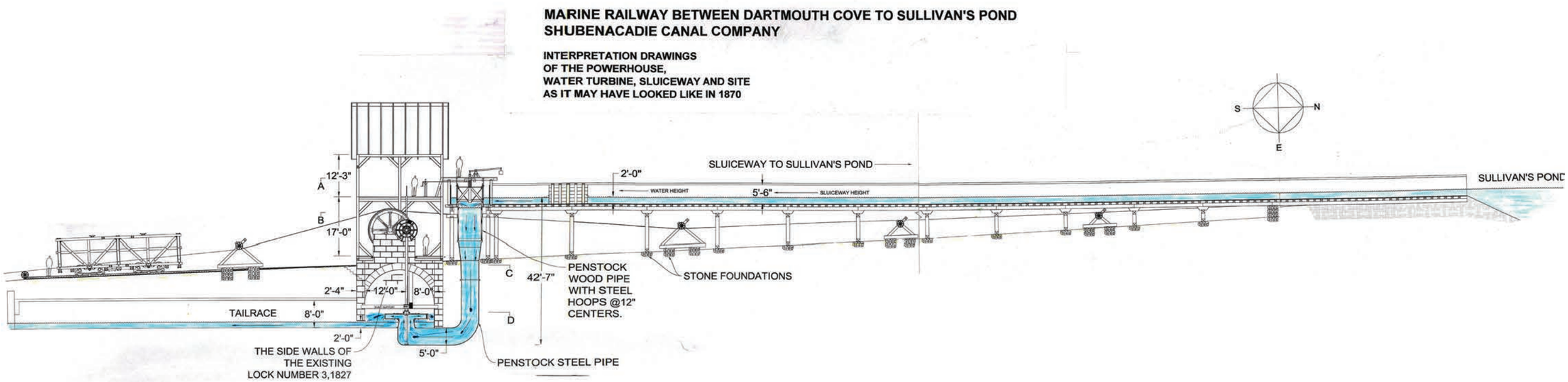
Visitors will clearly see the straight line of the incline plane from the harbor to Sullivan's Pond. The section view will reveal that the marine railway carried barges approximately 3000' from point A to point B. It will also be interesting to see that Sullivan's Pond is 55' above the Harbour. This panel will obviously introduce the flume house and the power it needed to generate.

Include distances, elevations, and fixed features or landmarks to give perspective of where they are in relation to the inclined plane, including a "you are here" icon. To provide a larger perspective of the inclined plane in relation to where it is on the 114 km Shubenacadie Canal Waterway, a smaller inset map will show a map of the rest of the canal waterway from Lake Banook, to Maitland area. Also the inclined plane at Portobello, near Waverley should be indicated. Explore More! Visit the Fairbanks Centre will also be presented as a call to action.

### CONTENT OUTLINE:
- The Dartmouth Inclined Plane is the starting point of the entire 114 km Shubenacadie Canal Waterway.
- It runs almost a straight line between Dartmouth Cove, where King's Wharf is today, and the entrance to Sullivan's Duck Pond.
- A "You are Here" Icon shows where you are situated along the inclined plane and how far are you from:
  - *Sullivan's Pond*
  - *King's Wharf*
  - *The Alderney Centre and Mill River*
- Look up and down the inclined plane. What can you see?


One (1) large interpretive panel, mounted to exterior rear, west side the flume house.


One (1) large interpretive panel, mounted to exterior rear, west side the flume house.
SHUBENACADIE
CANAL
WATERWAY
YOURS TO EXPLORE


MARINE RAILWAY BETWEEN DARTMOUTH COVE TO SULLIVAN'S POND
SHUBENACADIE CANAL COMPANY
INTERPRETATION DRAWINGS
OF THE POWERHOUSE,
WATER TURBINE, SLUICEWAY AND SITE
AS IT MAY HAVE LOOKED LIKE IN 1870
S
N
E
SLUICEWAY TO SULLIVAN'S POND
SULLIVAN'S POND
12'-3"
A
B
17'-0"
2'-0"
WATER HEIGHT
5'-6"
SLUICEWAY HEIGHT
C
42'-7"
PENSTOCK
WOOD PIPE
WITH STEEL
HOOPS @12"
CENTERS.
STONE FOUNDATIONS
2'-4"
12'-0"
8'-0"
TAILRACE
8'-0"
D
2'-0"
5'-0"
THE SIDE WALLS OF
THE EXISTING
LOCK NUMBER 3,1827
PENSTOCK STEEL PIPE

# 6. THE DARTMOUTH INCLINED PLANE IN DETAIL

## INTERPETIVE METHOD:

One (1) large, possibly 20 foot, panoramic interpretive view station. The panel will feature an illustration of the Dartmouth Inclined Plane, from Dartmouth Cove to Sullivan's Pond, as it would have looked in the 1860s. Buildings, structures and open water will be shown in the style of the Morris Canal full colour illustration. The artwork will be inspired from both the Morris Canal Drawings and Figure1: Inclined Plane Perspective from Doug Brownrigg. The huge drawing will really demonstrate the sheer scale of the project and how it worked. It must have been a sight to behold.

## INTERPRETIVE THEME(S):

The inclined plane was an amazing feat of engineering which made transportation on certain sections of the Shubenacadie Canal Waterway easier and faster, often doing the work of 3 to 4 locks. There were numerous parts that worked together to make the inclined plane work.

## CONTENT OUTLINE:

The illustrative panel will show how the length of the Dartmouth Inclined Plane would have looked c. 1866. You will see all the buildings, features, water and functions, and how they all worked together to power the inclined plane and move the marine cradle cars along the marine railway. The following items will be featured and explained in detail:

**Marine Boat Cradle**

- Built out of wood, the marine cradle was transported up and down the inclined plane on wheels riding on iron rails and hauled by a cable which it was attached
- In order to help with loading and unloading the boats, the rails extended down into the bottom of the canal at both ends of the plane.

**Cable and Pulley System**

- Think of a big clothesline that ran from Sullivan's Duck Pond, through the flume house, and all the way down into Halifax Harbour.
- The two-inch diameter wrought iron cable formed a loop traveling on idler pulleys from the cable winding drum in the flume house to sheave wheels located under and above water.
- Traverse pulleys got larger in size going up the inclined plane, and smaller in size as they went down the plane.
- As the cable drum turned, it pulled the cable and moved the marine cradle, hauling the canal boats up and down the inclined plane.

**Sheave Wheels**

- A 12-foot groove or sheave wheel was laid / anchored horizontally underwater to an anchor cable / pulley system at both ends of the inclined plane
- Interpretive reproductions are located at Alderney Centre and Sullivan's
- One of the horizontal pulleys is rumored to be buried in Shubie Park

**Flume House**

- An Archaeological dig uncovered the stone foundation of the flume house. Underneath, in the chamber, is the reaction turbine that powered the plane.

**Flume Headrace**

- An 8' x 5' wooden trough extended from the Flume House to Sullivan's Pond. It was supported by heavy timbers.

**Penstock Shaft**

- Water from flume headrace dropped into this metal and wooden valve which activated the turbine.

**Turbine (Reaction Turbine)**

- This huge turbine that once powered the plane, almost completely filled the chamber.
- The pressure created made water to surge out the four nozzles to activate a shaft that turned the large cable winding drum.
- There's supposedly only four reaction turbines in the world, and one of them is here, under the flume house in the turbine chamber below.

**Cable Winding Drum**

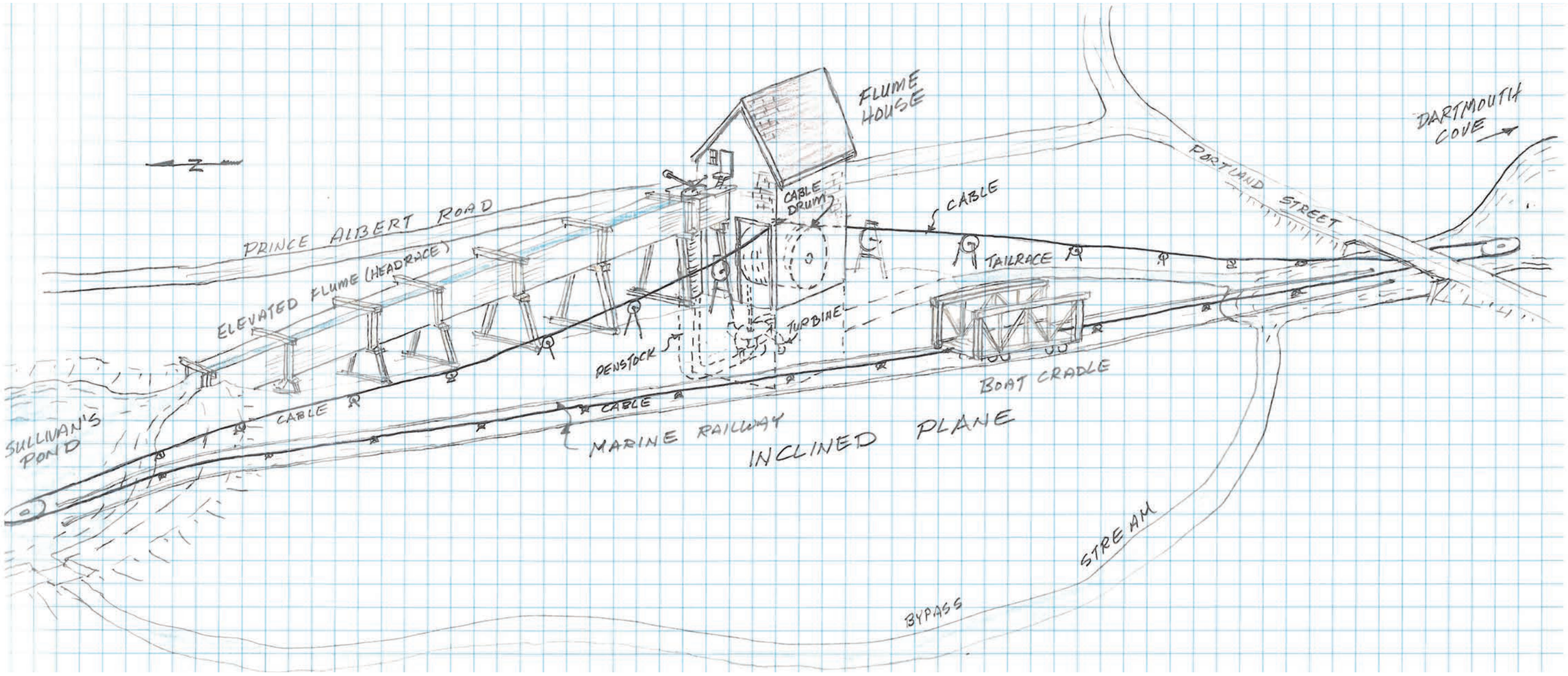
- This large drum was located in flume house on the ground floor. It turned the cable back and forth to haul vessels as heavy as 100 tons, up and down the inclined plane.

**Tub Valve**

- A worker, called a plane tender, pulled a lever from the second floor of the Flume House to let water from Sullivan's Pond surge into the flume house from the flume headrace.

**Tail Race and Wall**

- This is located directly down the hill from the flume house, the stone-lined tail race ran parallel with the inclined plane.
- It carried the water from turbine chamber returning it to the stream and subsequently, Halifax Harbour.

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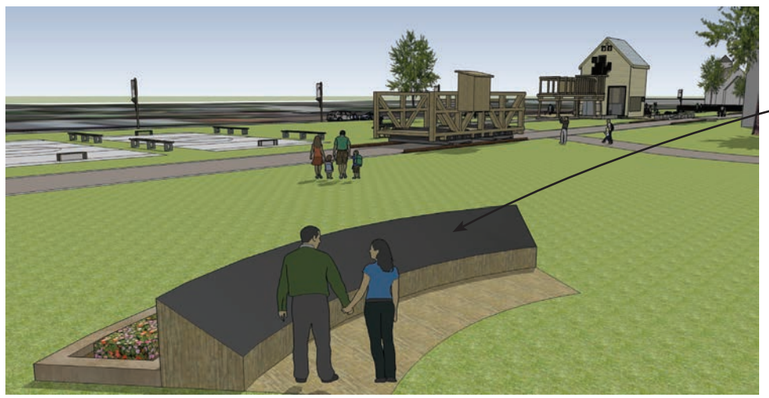
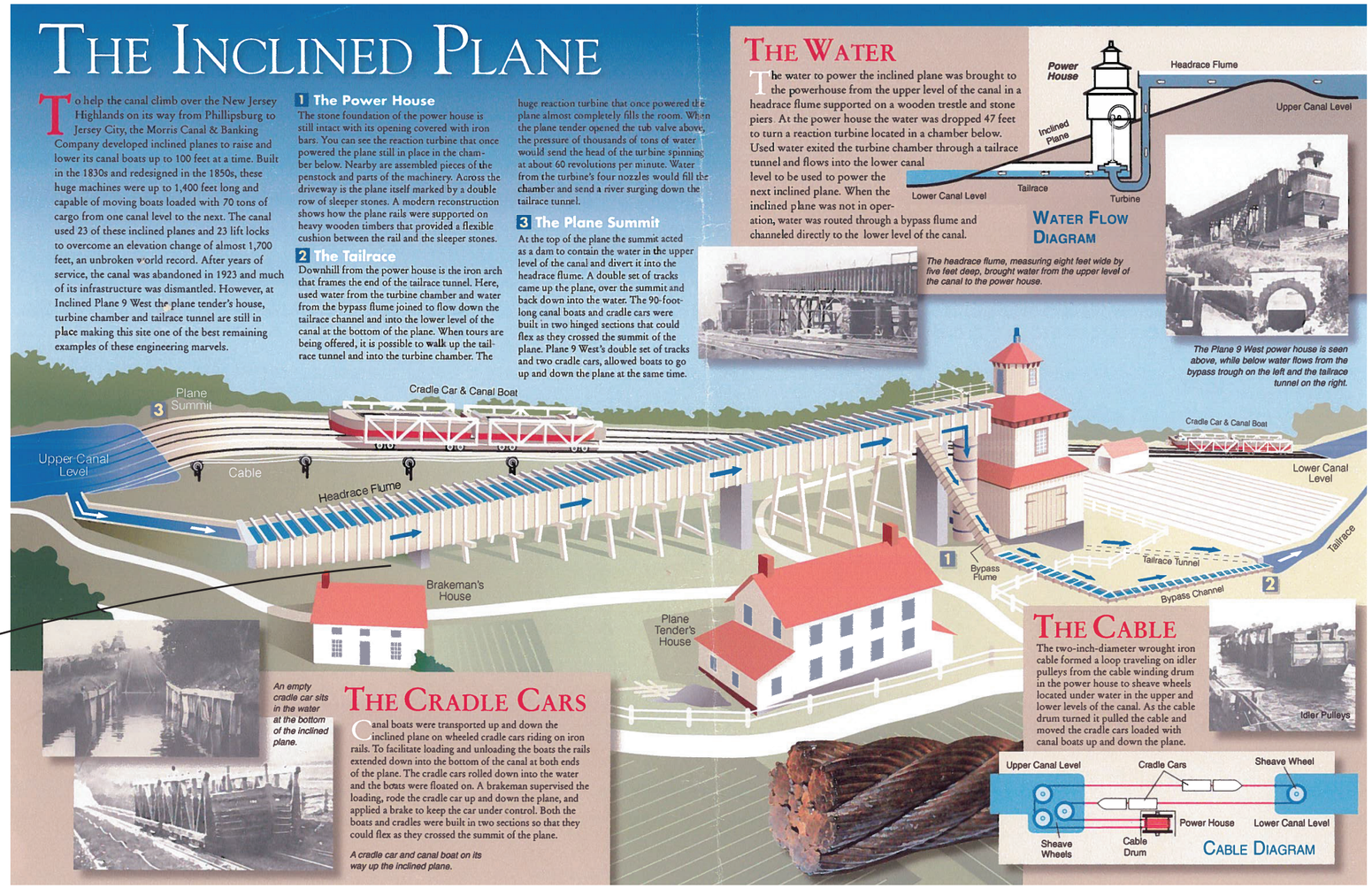




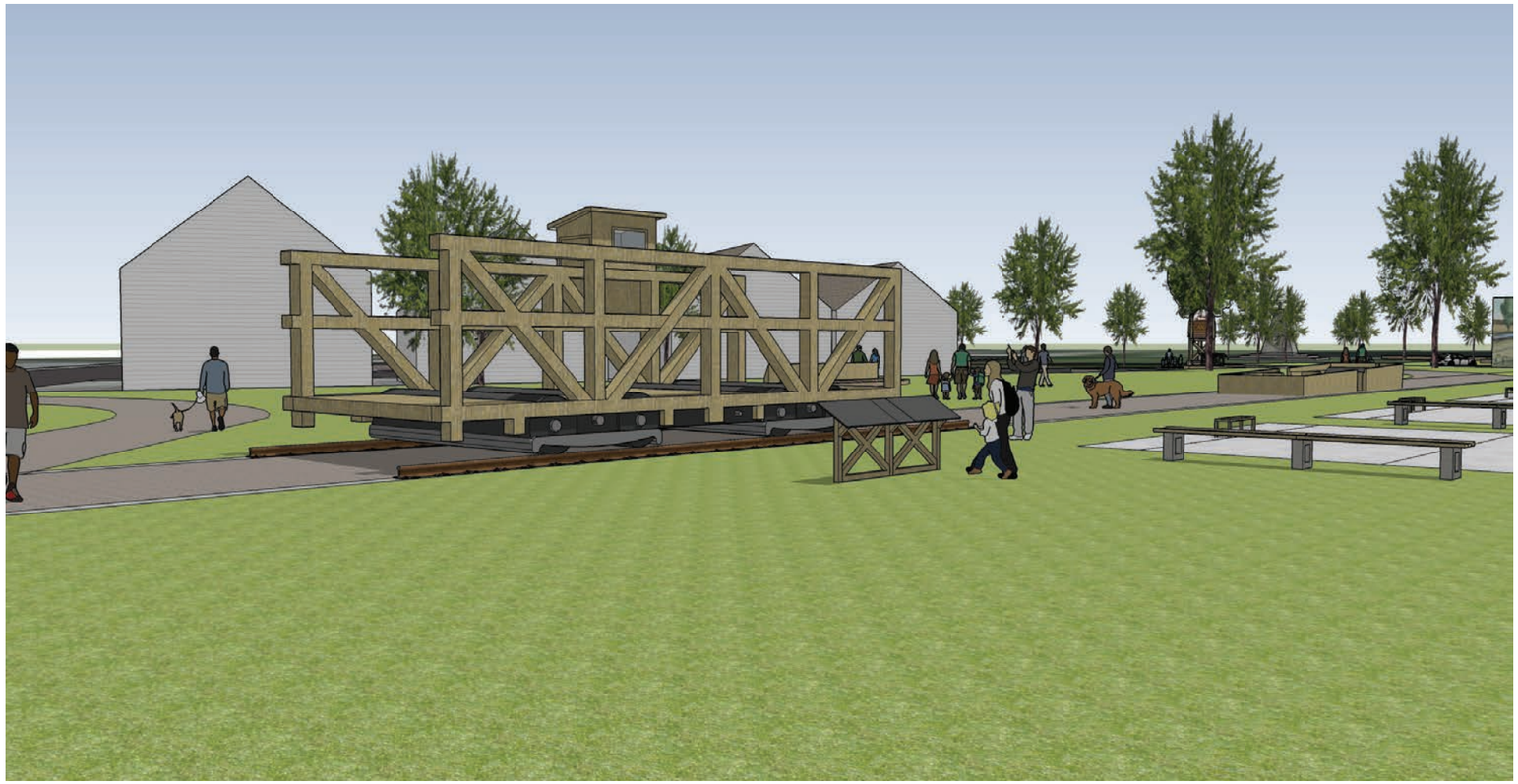
# 7. THE WORKHORSE - THE MARINE BOAT CRADLE

### INTERPETIVE METHOD:
Free-standing interpretive panel.

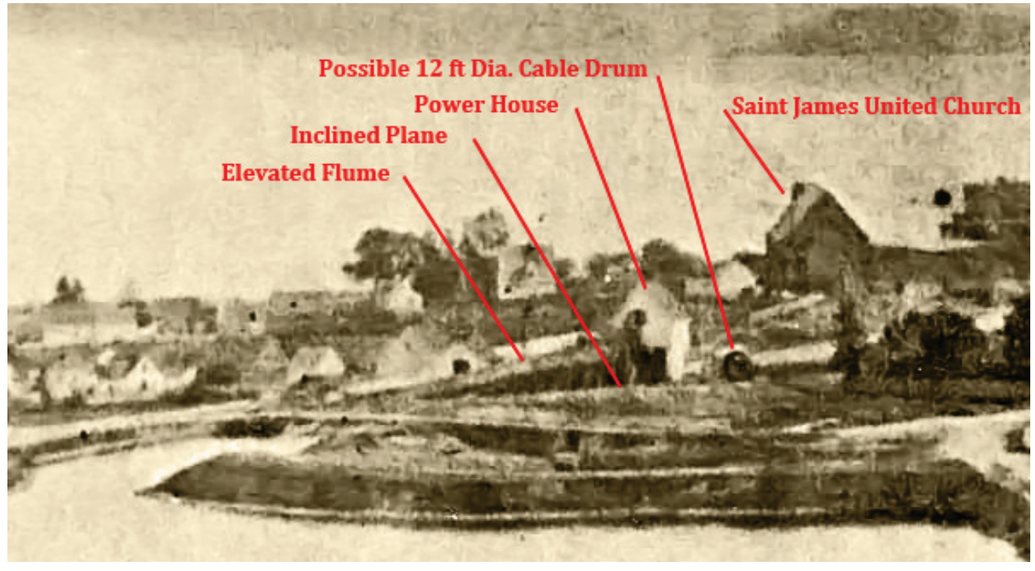
### INTERPRETIVE THEME(S):
The marine boat cradle carried boats and barges up and down the inclined plane, from Dartmouth Cove to Sullivan's Pond, and helped provide easier and quicker access to the Shubenacadie Canal.

### CONTENT OUTLINE:
Built out of wood, the marine cradle was transported up and down the inclined plane on wheels riding on iron rails and hauled by a cable which it was attached to. In order to help with loading and unloading the boats, the rails extended down into the bottom of the canal at both ends of the plane.

- The cradle cars rolled into the water and the boats were floated onto the cradles.
- A brakeman supervised the loading, and rode the cable car up and down the plane and applied a break to keep the car under control.
- Both the boats and cradles were built in two sections so that they could flex as they crossed the summit of the plane.
- A break system between the center of wheels had a gear that took up slack when cables expanded in summer
- Look up and down the tracks - imagine a loaded marine cradle car carrying a small vessel from Kings Wharf, past where you are standing and up to the Duck Pond.




Starr Manufacturing
and the Dartmouth
Inclined Plane


Possible 12 ft Dia. Cable Drum
Power House
Inclined Plane
Elevated Flume
Saint James United Church

# 8. RIDING THE INCLINED PLANE

## INTERPETIVE METHOD:

Life-size, interactive boat/barge model with 2 angled interpretive panels built into design, i.e. bow and stern. Visitors can walk inside the barge to read the panels as well as look up and down the inclined plane to reinforce the sense that they are actually standing in the same spot where boats were hauled up the plane to Sullivan's Pond.

## INTERPRETIVE THEME(S):

A day on the inclined plane – how vessels used the canal and the goods and services provided. If you look towards the harbour or what was known as Dartmouth Cove, this is where small vessels and goods were loaded and secured onto the marine cradle car. Only certain vessels could be used on the railway, such as small steam boats, barges and scows.

## CONTENT OUTLINE:

- Vessels, like this one you are standing in, were loaded onto the marine cradle car at Dartmouth Cove
- Marine Railway Wharf
- The loading and securing of goods
- Role of the Breakman
- Inland Navigation Company
  - *Control and operation of the inclined plane and canal waterway*
- Companies that used the canal
  - *Montague Gold Mine, Waverly*
  - *Grand Lake Company from Halifax to Grand Lake*
- Goods transported and other services
  - *Materials, i.e. sand, gypsum, coal and ore, lumber, bricks, granite, steel, food, pottery and steel*
- Passenger service / pleasure trips along the canal was extra income for the Navigation Company
- Vessels of the Shubenacadie Canal Waterway had to be a certain size to fit the narrow canal walls. Three types of vessels were used by the Inland Navigation Company:
  - *3 steam boats, 12 Scows and 1, 80-ton barge*
  - *Avery (steamboat), Mayflower and barge Lily*
  - *Avery's maiden voyage of 1861, Halifax Harbour to Maitland*
- The Lockkeepers
  - *Roles and responsibilities, location and years of service*
  - *Henry Findlay, William Mackenzie*

Facing the Esso car wash building
Note the large format wall graphic installation

View looking North along the Inclined Plane to the Esso car wash and Sullivan's Pond (beyond)

View looking South along the Inclined Plane to the the Flume House and the Dartmouth Cove

Historic images (below) of one of Morris Canal's Inclined Planes in New Jersey, USA

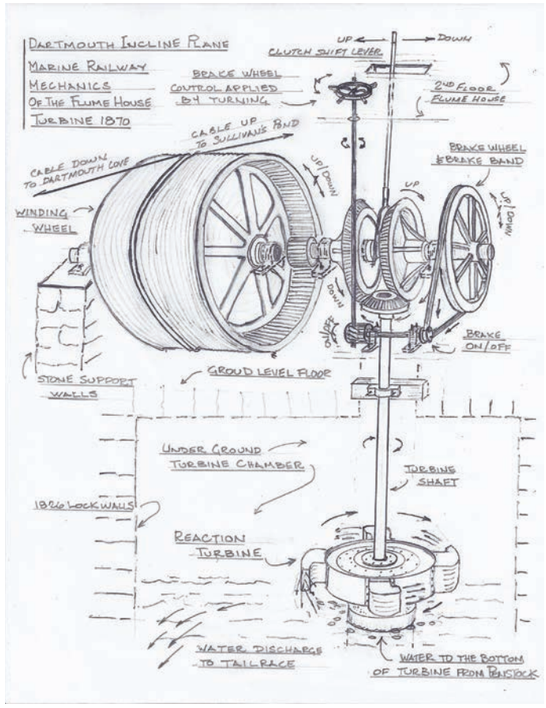
# 9. THE FLUME HOUSE

## INTERPETIVE METHOD:
Interpretive text and illustrations applied to the interior glass, large south window of the flume house and visible from the exterior.

## INTERPRETIVE THEME(S):
The flume house was the center of operations and power for the inclined plane. Our flume house is built directly on top of the turbine chamber and on top of the actual stone foundation of the original flume house that was here in the mid-nineteenth century. This flume house also sits directly on top of the original stone lock that was built here between 1826 and 1831. Look inside the flume house and you will see these stone walls.

## CONTENT OUTLINE:
Interpretive overview / walkthrough of the structure, gears and inner workings

- Turbine Chamber / Turbine / Power shaft
- Cable Drum and gears (First Floor)
- The plane tender worked on the second floor where upon the breakman's signal he opened a tub valve that brought water from Sullivan's Pond down a trough like structure called the headrace flume
- Feature an illustration of the second floor / workings of the Flume House





Interpretive text and illustrations applied to the interior glass


Interpretive text and illustrations applied
to the interior glass

# 10. WATERPOWER!: THE FLUME HEADRACE

## INTERPETIVE METHOD:

Interpretive text and illustrations applied to plexi-glass panels mounted to two free-standing flume headrace structures. Visitors stand in front of the structures and can see how water would rush overhead from Sullivan's Pond, towards the Flume House and down into the penstock.

## INTERPRETIVE THEME(S):

One of elements that makes the Dartmouth Inclined Plane, and Shubenacadie Canal Waterway, a true feat of engineering was the waterpower it was able to harness and create in order to haul vessels, as heavy as 100 tons, up and down the inclined plane. This power was created by pressure from fast flowing water and machinery working together. Imagine standing here with tons of water are rushing over your head. It was this rush of water from Sullivan's Pond that was essential in order to power the inclined plane. The rush of water started from a series of signals from the brakeman at Dartmouth Cove to the plane tender on the second floor of the flume house.

## CONTENT OUTLINE:

A wooden marine boat cradle was lowered down into Dartmouth Cove. The canal vessel was placed into the cradle and latched down and secured by the brakeman, who rode on the vessel in the boat cradle. The brakeman, at the harbour site, signaled to the plane tender, who worked on the second floor of the flume house, that the cradle was ready to move up the inclined plane. The plane tender raised and opened a lever for the tub valve, which drew water from Sullivan's Pond down the overhead trough, or flume headrace. This surge of water dropped an amazing 45 feet into a wood and iron shaft called a penstock where it filled the turbine chamber and activated the turbine. See the next panel to find out more about the turbine and the powerful force it created. Illustrated diagrams will assist with the interpretation.

Interpretive text and illustrations applied to plexi-glass panels

Interpretive text and illustrations applied
to plexi-glass panels

# 11. ROUND AND ROUND: THE TURBINE

## INTERPETIVE METHOD:

Interpretive text and illustrations applied to plexi-glass panels mounted to the flume headrace structure surrounding the Penstock (north elevation of Flume House). Visitors stand in front of the structure and can see how water would rush overhead from Sullivan's Pond, down into the penstock and flume house.

**Interactive Components**

Feature a detailed illustration of the penstock and the turbine in action. Another illustration will show visitors that the 45' drop down into the ground would be nearly the same height (in terms of drop) as the adjacent condo building (is tall).

A small, interactive working water model of the turbine could be located on site for showing how fast the turbine rotated and how the water came out of each nozzle. This would require a hose and water source. Refer to the short video of the model at the Morris Canal.

## INTERPRETIVE THEME(S):

After water from Sullivan's Pond rushed down the flume headrace and dropped 45 feet into the turbine chamber, the turbine went into action, creating forces great enough to haul marine the cradle car up and down the inclined plane. The turbine was also shared with the Starr Manufacturing Plant established in 1867. Look inside the flume house to see where the chamber and turbine are located.

## CONTENT OUTLINE:

This column of surging water and the 45 foot drop into the penstock shaft, had a great enough force to activate the reaction turbine housed in the chamber directly below the flume house.

Tons of fast moving water from the penstock flooded the chamber and filled the turbine. There were four nozzles or jets positioned around the circumference of the turbine and water sprayed out of these jets, and against the walls of the chamber creating a rotational spin of 60 revolutions per minute! Think of a spinning lawn sprinkler, only much more powerful and faster.

The force from this powerful spin cycle moved the gear that ran up to the surface into a clutch. The clutch turned the cable drum that had thick cable wrapped around it, in the appropriate direction to move the canal boat up or down the inclined plane through a pulley system.

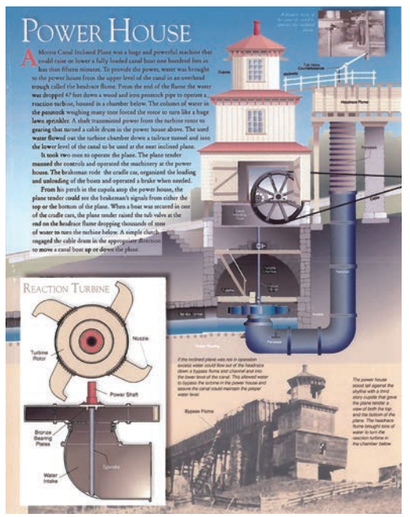
Tracks went into Sullivan's Pond, where the vessel was released from the cradle and sailed across the pond, and between two navigational beakers before approaching the lock at Lake Banook.

**Did you know?**

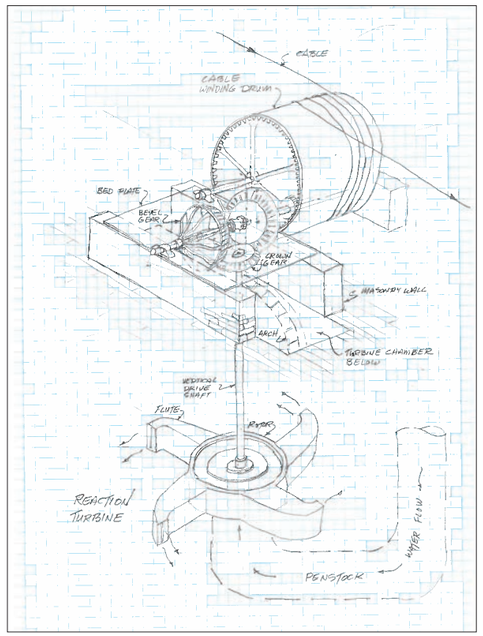
The turbine chamber was built inside an old lock from the incomplete canal construction of 1826. Two walls of this chamber are cut granite from the original canal system and lay directly under the flume house.

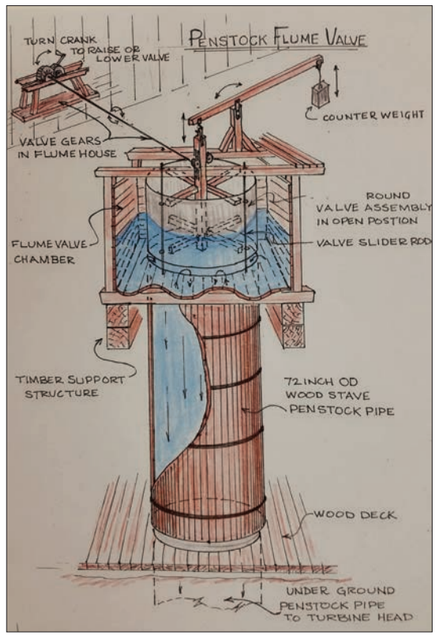
When the canal ceased operations in 1870, the Starr Manufacturing Plant (which had been on this site since 1867) expanded into the site and appropriated the inclined plane's turbine system to power the its machinery in its factory. Water power was converted through a series of gears and belts to the Starr factory on the surface.

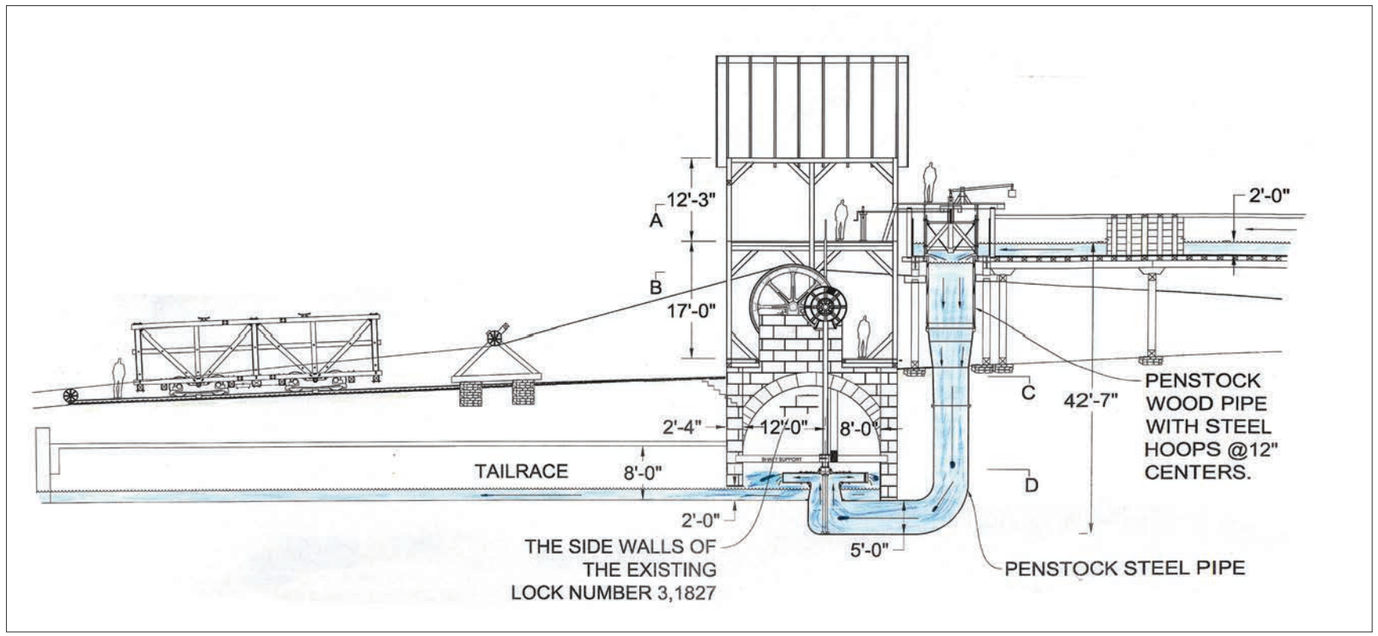
This turbine found in this chamber is actually one that the Starr plant installed, replacing the original turbine the Dartmouth Inland Navigational Company had put in for the inclined plane. The Starr Plant relied on this turbine to power its plant before it changed over to electricity. This is one of only four reaction turbines known to exist in the World!



Interpretive text and illustrations applied to plexi-glass panels mounted to the flume headrace structure surrounding the Penstock (north elevation of Flume House).



# 12. PULLING ITS WEIGHT: THE CABLE DRUM & PULLEY SYSTEM

## INTERPETIVE METHOD:
Interpretive text and illustrations applied to the interior large glass north window of the flume house and visible from the exterior. Visitors can see all the gears working including the large cable drum.

## INTERPRETIVE THEME(S):
Powered by water from Sullivan's Pond rushing over the flume headrace and filling the turbine which activated the cable drum to turn the cable pulley system, was vital to the inclined plane. It moved the marine cradle car between 80 and 100 tons up and down the inclined plane.

## CONTENT OUTLINE:
The two-inch diameter wrought iron cable formed a loop traveling on traverse pulleys from the cable winding drum in the flume house to the sheave wheels located under water in the lower and upper ends of the inclined plane. As the cable drum turned, it pulled the cable and moved the marine cradle car loaded with canal boats up and down the plane.

Note: Reference and use Cable Diagram from Morris Canal inset illustration.

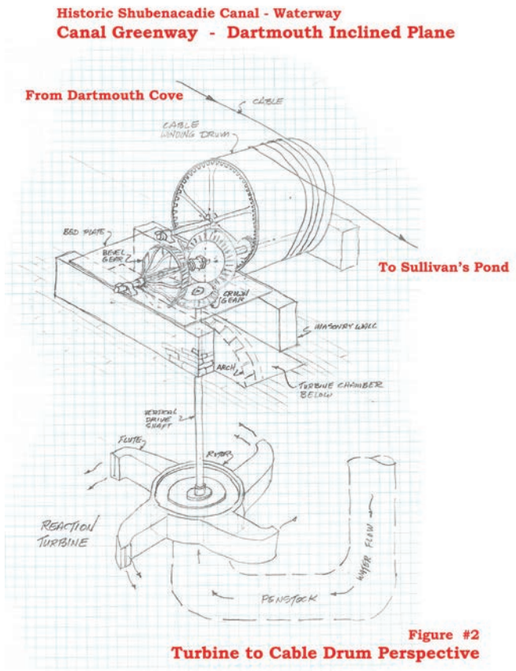
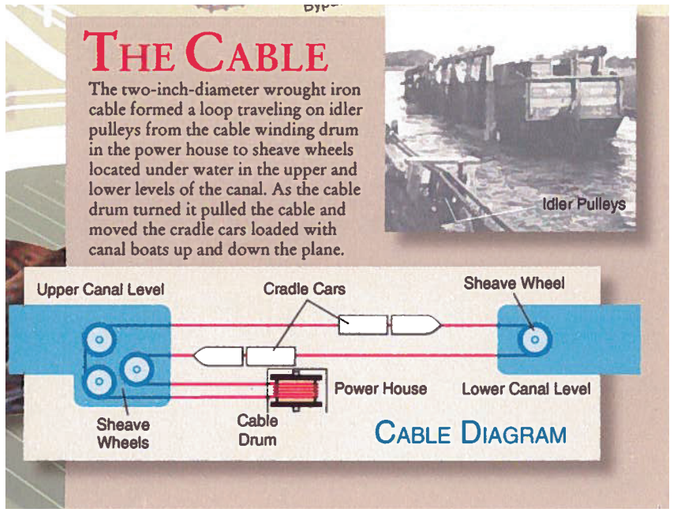


Figure #2
Turbine to Cable Drum Perspective

Interpretive text and illustrations applied to the interior large glass north window of the flume house and visible from the exterior



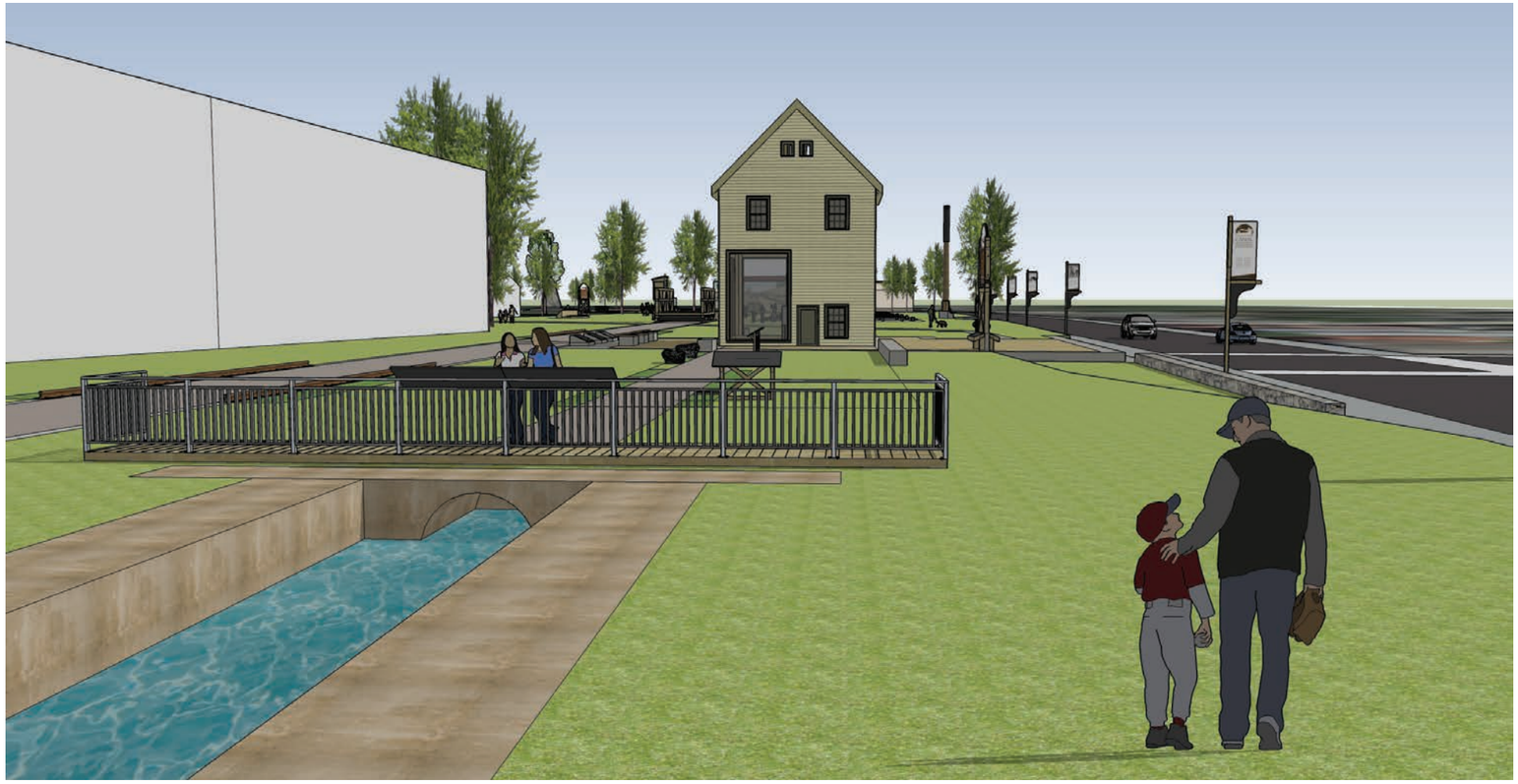
# 13. THE TAILRACE AND WALL

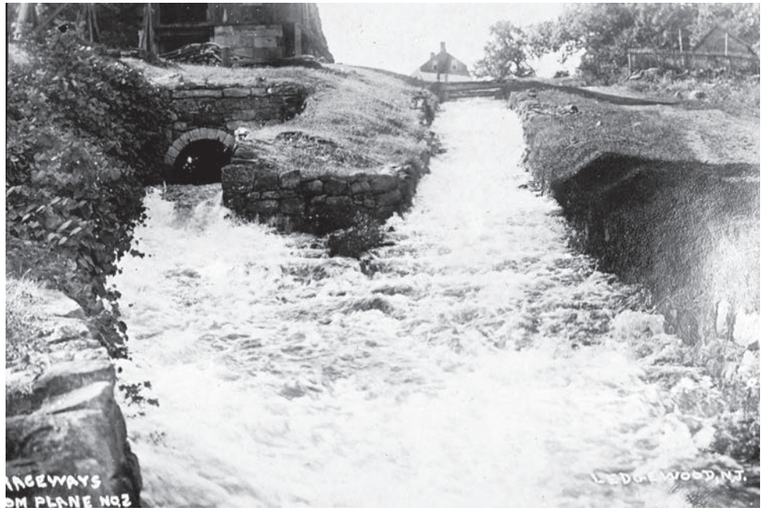
## INTERPRETIVE METHOD:
Interpretive panel located across the top of tailrace wall, looking down into it.

## INTERPRETIVE THEME(S)
The stone-lined tail race or channel ran parallel with the inclined plane and was an important part of the inclined plane and canal system as it carried excess water, from turbine chamber, and returned it to the stream and subsequently, Halifax Harbour.

## CONTENT OUTLINE
This tailrace was part of the first lock of the original 1826-1832 Shubanacadie Canal. The tailrace is also part of the foundation or cement floor of the Starr Manufacturing Plant. The cement slab runs from the tailrace, in the direction of Sullivan's Pond, under the location of the former Starr Factory, and ends somewhere near the Esso Station.

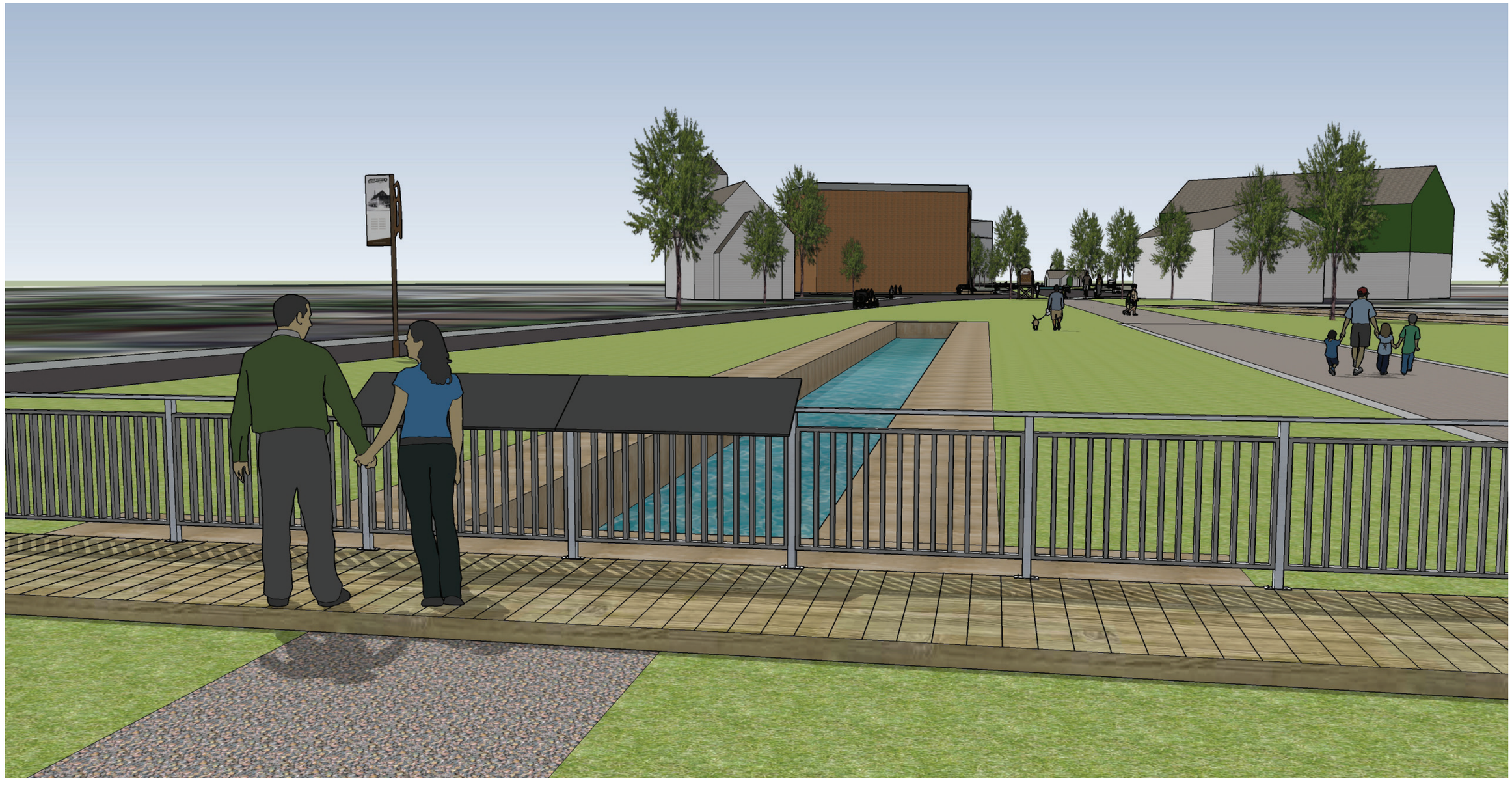
Just imagine the water surging from the tailrace as in this historic photo (taken after the canal closure in 1871).





Tailrace at the Shubenacadie Canal Greenway (far left)

Historic image (left) of one of Morris Canal's Tailraces in New Jersey, USA



# 14. UNCOVERING THE DARTMOUTH INCLINED PLANE (ARCHAEOLOGY)

## INTERPRETIVE METHOD:
2 Free standing interpretive panels.

## INTERPRETIVE THEME(S):
Many parts of the Shubenacadie Canal and Marine Railway are no longer visible and have been buried by over a century of human development such as the streets, sidewalks, homes, and businesses you can see in this part of Downtown Dartmouth today. Uncovering this section of the inclined plane shows us how great a feat of engineering the Dartmouth Inclined Plane truly was, and how important this water system continues to be today, in terms of recreation, history, and enhancing Downtown Dartmouth through initiatives such as daylighting.

## CONTENT OUTLINE:
**Panel 1**
Feature and interpret items discovered from the Shubenacadie Canal Commission Excavation and Canal Greenway Project:

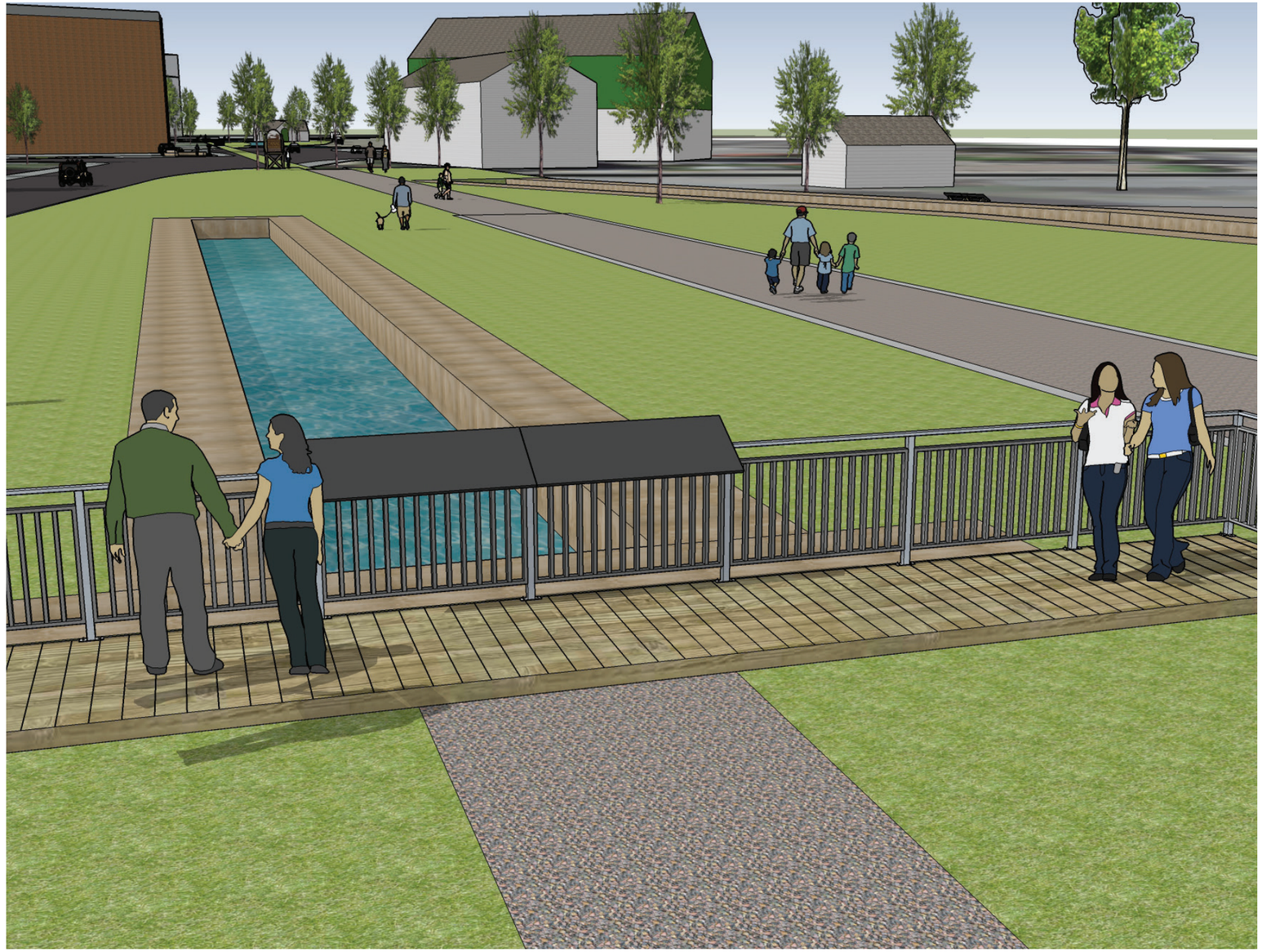
- Turbine chamber and turbine directly underneath where Flume House stood
- Stone foundation of flume house
- Original 1830s granite canal walls original lock from 1826-1831 canal construction period
- Inclined Plane
- Tailrace
- Other findings, i.e. skate blades, round stones from old Starr Manufacturing Plant

**Panel 2**
Interpret and present the construction of life-size replica components of inclined plane / marine railway

- Marine boat cradle
- Boat/barge
- Track sections
- Flume House and gears, cable drum

**Did you know?**

- The Portobello Inclined Plane, located further up the canal, between Lake Charles and Lake William was built before the Dartmouth Cove Marine Railway.
- That made Portobello, the first marine railway of its kind in British North American (Canada before Confederation, 1867).
- It replaced two locks and transferred vessels over a distance of approximately 600 feet, while it lowered and raised vessels approximately 33 feet.
- Today, all that remains of the Portobello Marine Railway is a stone culvert.
- Its turbine chamber has not been found.



# 15. DAYLIGHTING

## LOCATION:
Two daylighting interpretive spots have been selected. One near the Ochterloney Street entrance, located on the small footbridge running over the daylighted stream. The other will be located near the Prince Albert Rd and Irishtown Rd corner of the park.

## INTERPRETIVE METHOD:
A free-standing interpretive panel with text and graphics including a 1950's aerial view of the area showing open water, as it would have been during that time and when the inclined plane was in operation. The Starr Manufacturing Plant buildings are shown as well.

## INTERPRETIVE THEME(S):
Daylighting shines a new light on buried sections of the Shubenacadie Canal Waterway and also provides environmental benefits such as safe passage for various species of migrating fish. It is basically about bringing the canal waterway back to life.

## CONTENT OUTLINE:
Look down, and across, and you will see flowing water that has not seen the light of day for over 100 years. That's because it has only been recently uncovered or "day-lighted".

**The benefits of Daylighting the Canal?**
- Historical - brings the history of the inclined plane and Shubenacadie Canal Wateway to life
- Aesthetics - improvement and enhancement of Downtown Dartmouth
- Environmental - helps migrating fish move up the Shubenacadie Canal Waterway


Daylighting interpretive panel near Ochterloney Street

Daylighting interpretive panel near Ochterloney Street

Daylighting interpretive panel near Irishtown Road

Examples (below) of Daylighting in Yonkers NY


# 16. THE STARR MANUFACTUING PLANT

## INTERPRETIVE METHOD:

- A series of interpretive panels along Prince Albert Road
- A landmark monument in the form of a replica of one of the smoke stacks from the original Starr Manufacturing Plant
- Smoke stack will incorporate an historic plaque in its base ith possible life sized skates in relief
- A series of dedicated concrete ice surfaces for skating

## INTERPRETIVE THEME(S):

The Dartmouth Inclined Plane, shared its location and its power source (turbine) with the famous Starr Manufacturing Plant, famous maker of skates.

## CONTENT OUTLINE:

The Canal Greenway site is also significant for another reason. This site was also home to the World Famous Starr Manufacturing Plant. Its history, and even its mechanical operations were interwoven with those of the Dartmouth Inclined Plane.

- Establishment of Starr Manufacturing Plant on this site.
    - *Starr Manufacturing started out producing nuts, bolts and nails*
    - *Became the earliest maker of skates in Canada*
    - *Why its skates were a success*
    - *Used by amateur and professional hockey teams across Canada*
    - *The King of Spain owned a pair*
    - *"MicMac" Hockey Sticks were created by the Mi'kmaq sold by Starr*
    - *Made hockey popular in Dartmouth and Nova Scotia / winter sport culture*
    - *Starr stopped producing skates in 1939, but continued to build other pieces i.e. the Gates to Point Pleasant Park*
    - *The Starr factory was damaged by fire in 1998 and demolished in 2000.*
- The Starr buildings / complex and operations
- The Dartmouth inclined plane shared is waterpower (turbine) with the Starr Plant before the plant switched to electricity.
- The turbine powered the Starr Plant, including its many gears, and pulleys.
- The turbine excavated, in the chamber below the flume house, is actually a turbine Starr put in to replace the 1860s canal turbine.
- Although its buildings were demolished, some of Starr's foundations remain underneath this site.
- An exposed wall of the Starr Factory is located here on Prince Albert Road.
- Underground, from Tail Race to the Esso Station, lie sections of the concrete slab floor of the Starr Manufacturing Plant.
- Starr's major and lasting impact and contribution to recreational sports and leisure in Dartmouth, Nova Scotia, and Canada.

Starr Manufacturing Plant Influences



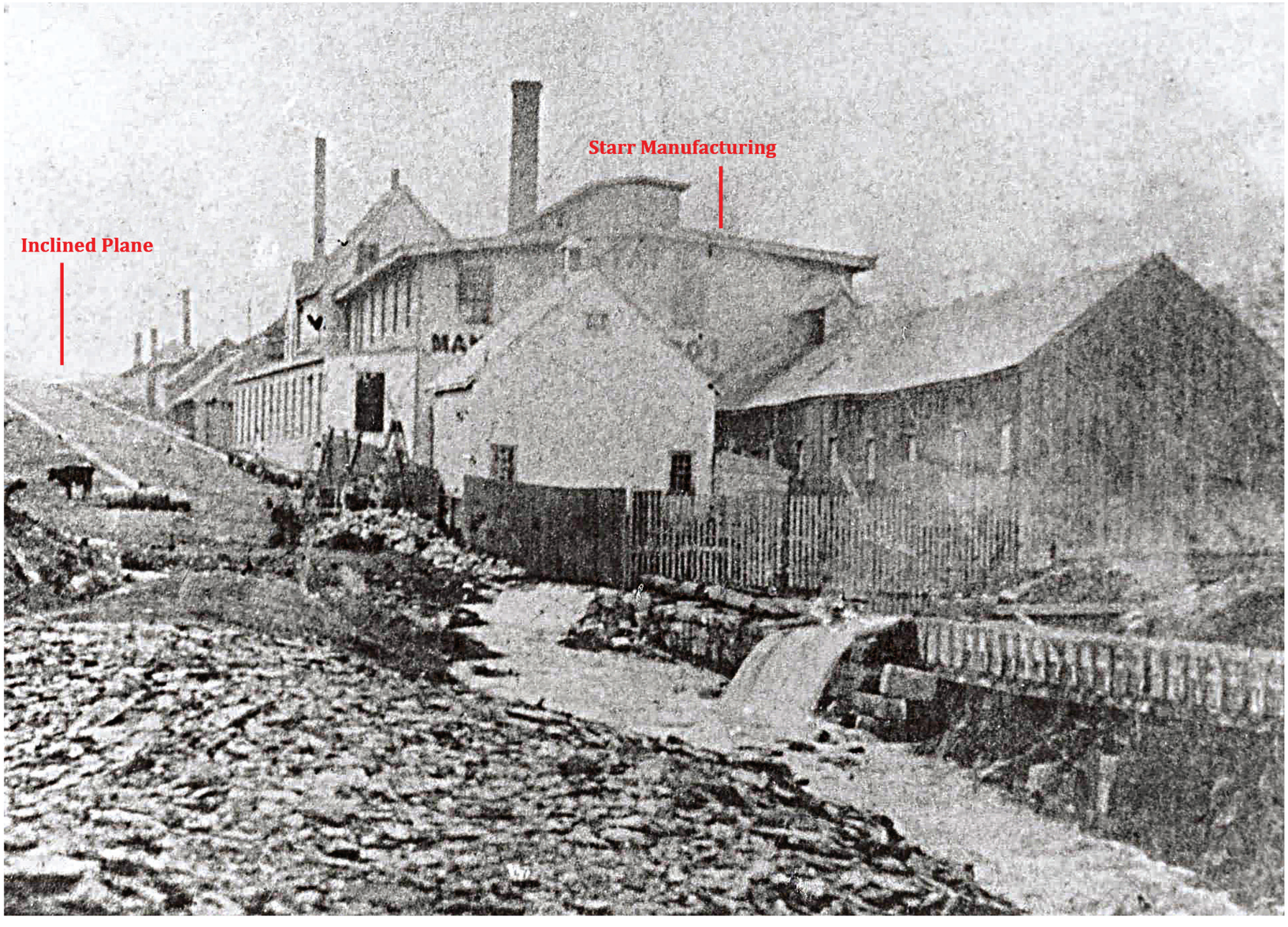
Arial photograph circa 1950's showing the Shubenacadie Canal Greeway Site and Starr Manufacturing. Note the smoke stack left of Pleasant Street on Prince Albert Road.


CANAL
WATERWAY

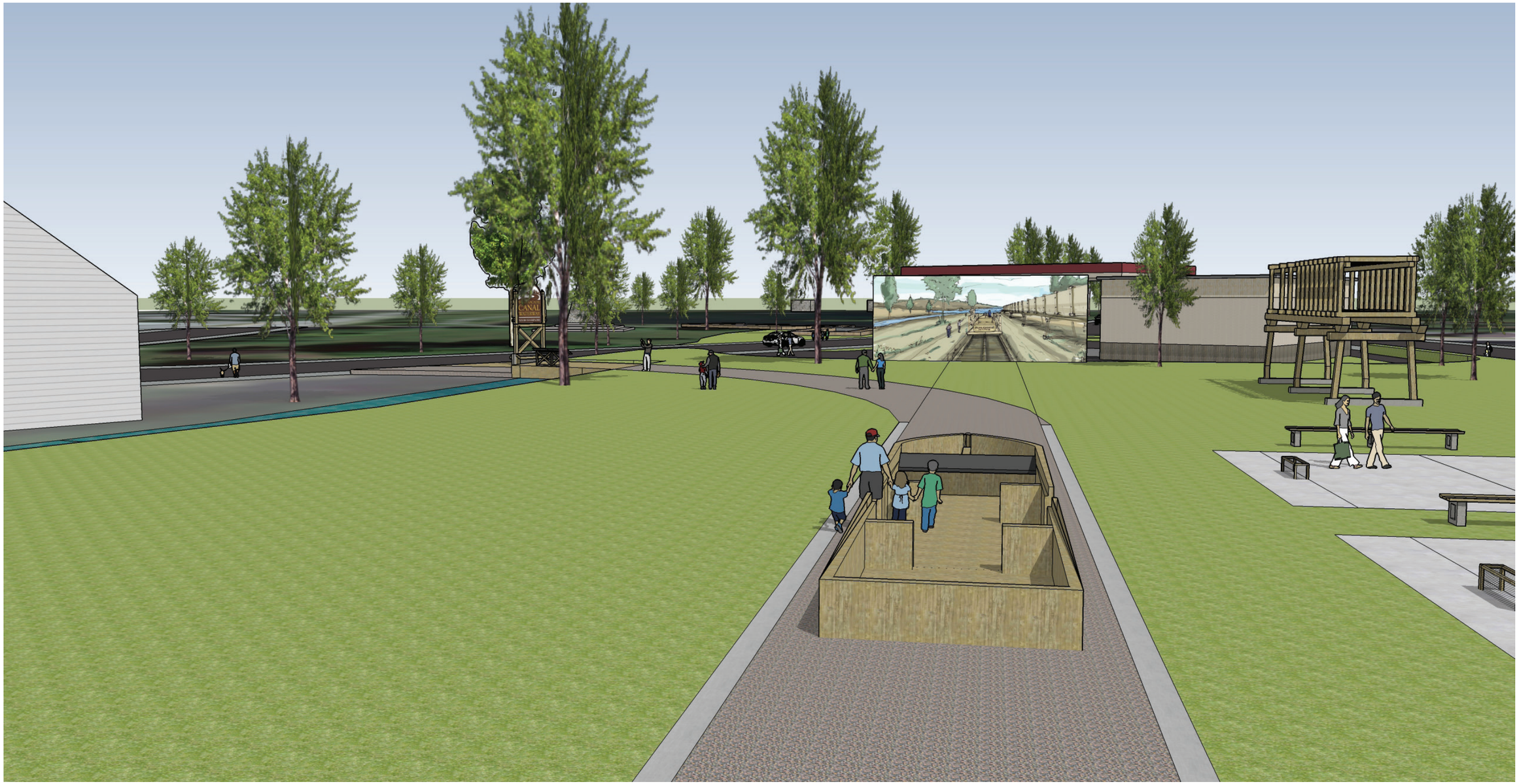
## 17. ESSO STATION (CAR WASH BUILDING)

### INTERPRETIVE METHOD:
A large format wall graphic installation

### INTERPRETIVE THEME(S):
The Dartmouth Inclined Plane, historically, would have ran straight through the side of this building,and emptied into Sullivan's Pond. Redevelop the viewplane and bring to life an historic, lifesized scene of the marine railway in action.


Starr Manufacturing
Inclined Plane


Concept Rendering illustrating the viewplane of the marine railway in action, heading toward Sullivan's Pond.




The Dartmouth Inclined Plane, historically, would have ran straight through the side of the Esso Car Wash Building,and emptied into Sullivan's Pond. Redevelop the viewplane and bring to life an historic, lifesized scene of the marine railway in action.

# 18. END OF THE CANAL ERA AND THE SHUBENACADIE CANAL LEGACY

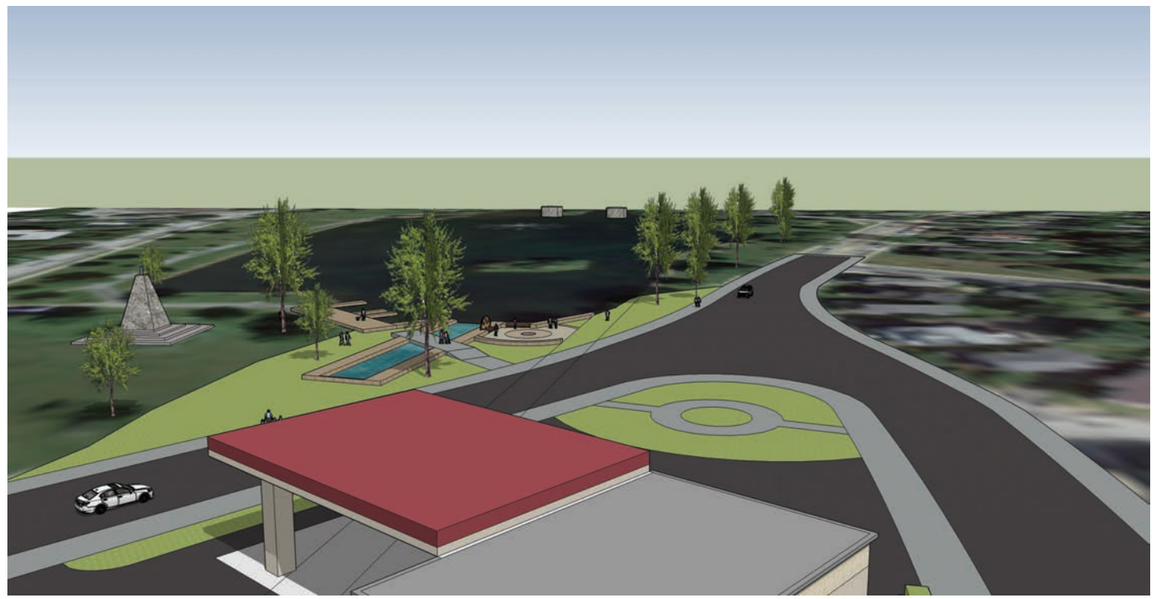
## INTERPRETIVE METHOD:
Interpretive panels at Sullivan's Pond

## INTERPRETIVE THEME(S):
The Dartmouth Inclined Plane and Shubenacadie Canal waterway came to an end with the building of the new railway which carried goods and people faster, and more cheaply.

## CONTENT OUTLINE:
- Government began to build the railway
- Benefits of the railway
- Canal became obsolete

**Did you know?**
- The Marine Railway actually transported the steel that would be used to lay a new railway, and brought about the closure of the Shubenacadie Canal and Dartmouth Inclined Plane
- The canal itself may have not fulfilled the dreams of many but it did leave a lasting legacy that we can see and experience today in many ways:
  - *Contributions of settled canal workers in Dartmouth/Halifax and lasting effects on population, culture, architecture and economy, i.e., Irishtown*
  - *Recreation - World class canoe racing and training - Paddling and other recreational activities etc.*
  - *Sullivan's Pond - First body of water in the Shubenacadie Canal system*
  - *Sullivan's Pond is artificial - dug during first canal building phase (1826-1831) as a water holder for the canal*
  - *Today, a community gathering place for the people Dartmouth and Halifax*
  - *Remaining two stone beacons to guide people to canal cut to Lake Banook*
- Things to See and Do (Shubenacadie Canal Waterway Map - You are Here)
  - *Recreation*
  - *History*
  - *Nature*
  - *Fairbanks Centre*

For more information visit www.yourstoexplore.ca
Or visit the Fairbanks Centre



View from above Esso looking at the Sullivan's Pond Interpretive Park
Note the Sullivan's Pond Stone Beacons in the distance

Sullivan's Pond Interpretive Park
Note the Sullivan's Pond Stone Beacons in the distance

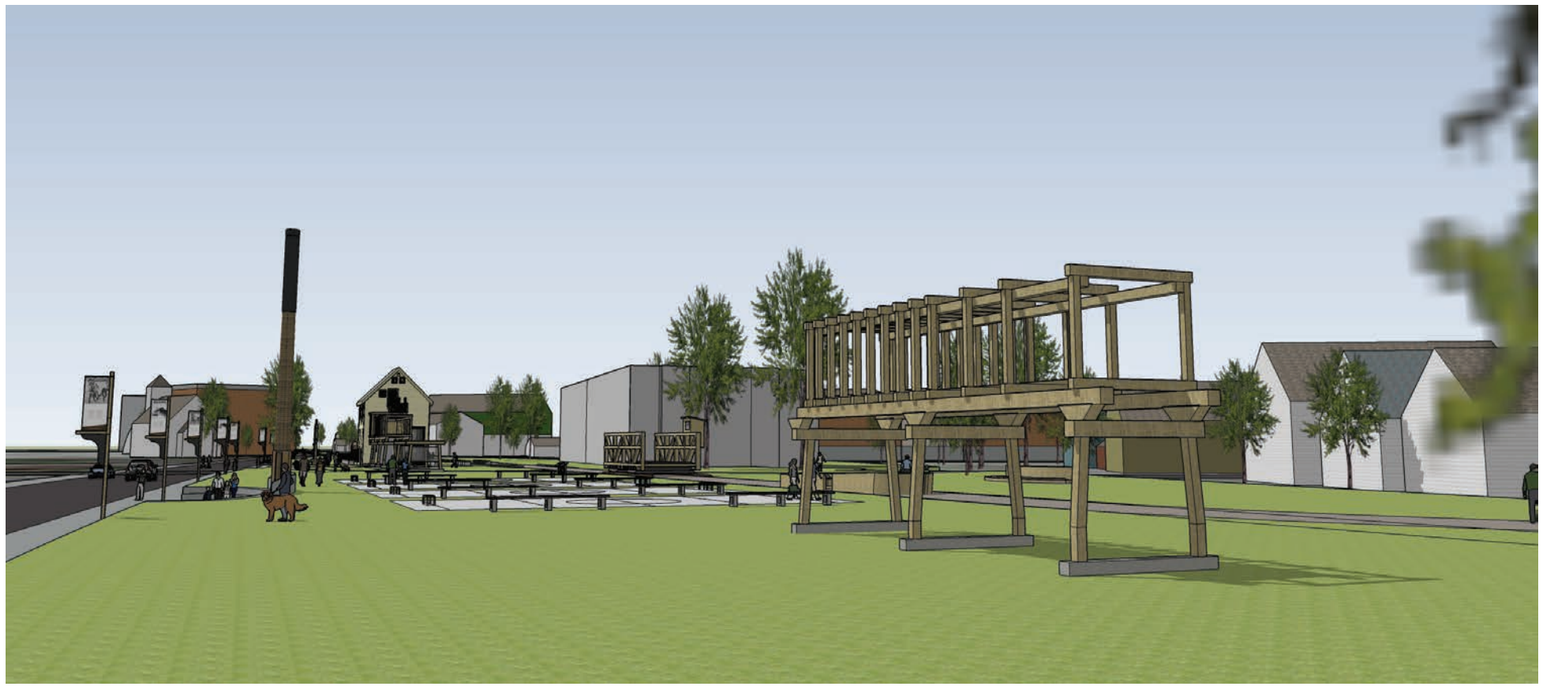
# 19. DONOR RECOGNITION PROGRAM / ADDITIONAL NORTH SECTION OF THE FLUME

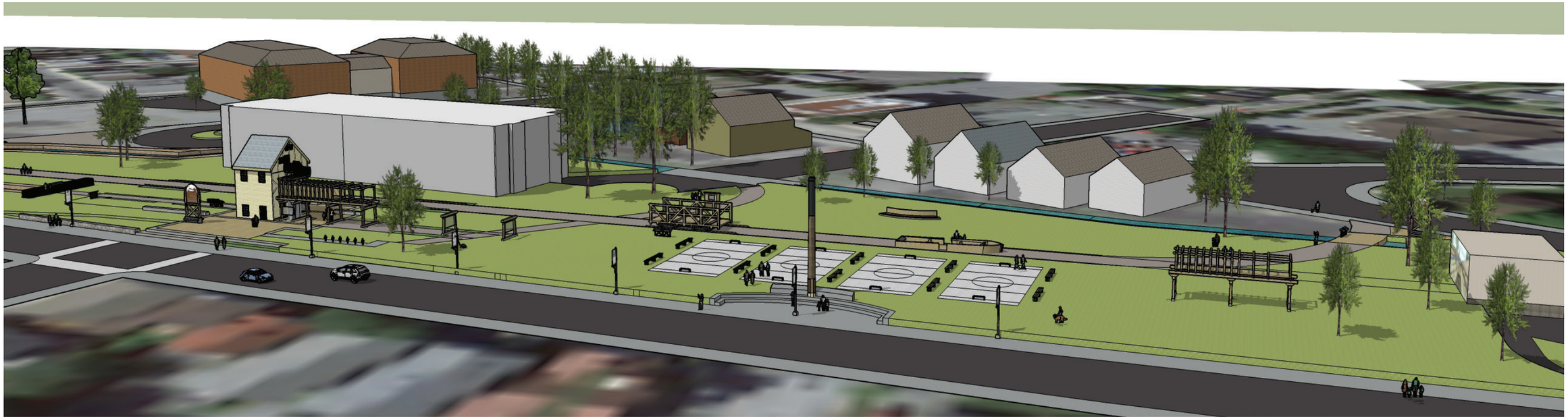
## OVERVIEW OF PROGRAM

Reconstructing a North Section of the Flume could be used as a physical and tangible manifestation of the Donor Recognition Program. The desire exists to reconstruct a north section. Rather than add another structure for the sake of adding another structure, using it for such a purpose will create a real way for people to connect to the site, and be part of its ongoing enhancement. Visitors can enjoy the Shubenacadie Canal Greenway site, and subsequently donate to the cause - literally help build it.

Initially, a small part of this North Section could be built to recognize donors to date. On going donations could help buy an additional stretch of flume section. In time, the program and ongoing gifts could add more sections. The money raised will literally help to connect this northern flume section with the one that is part of the flume house now, thus finishing the flume head race as it would have been in the 1860s. Simultaneously, the donor (wall) recognition program is realized.

By giving, visitors are contributing to the overall visitor experience and literally building / bankrolling new construction on the site for enhancement. Instead of a piecemeal approach to giving, this approach to the donor recognition program will be more purposeful and will deepen the interpretive experience.





## DARTMOUTH INCLINED PLANE - INTERPRETIVE WALKING TOUR

The interpretive objective and benefits of an interpretive walk experience
A cohesive and consistent 'family' of six (6) linked interpretive sites could comprise an 3,300 foot, or 1 kilometer interpretive walk for visitors and locals. The walking tour, with its various sites, runs along trace the very path of the Dartmouth Inclined Plane, from Halifax Harbour to the head of Sullivan's Pond, as it would have been between 1860 and 1871.

As mentioned, the route traces the path of the original Dartmouth Inclined Plane. Visitors can start the walk at Sullivan's Pond or at Kings Wharf. Each of the six sites are marked by a large circular seal of the Shubenacadie Canal Commission set into the ground.

Visitors can stand on each of the seals and will be prompted to look up or down the view plane to see and understand the actual route of the inclined plane and marine railway as it would have been in the 1860s. The idea of exploration for an interpretive walk is reflected in the Shubenacadie Canal Waterway brand and tagline "Yours to explore."

Each interpretive site will function independently as stand alones as some people will come across these sites unintentionally, or without knowledge of the Shubenacadie Canal Greenway site. All sites will inform the visitor of the entire walking tour and Canal Greenway Park.


**SEARCH FOR THE SEAL
OF THE SHUBENACADIE CANAL COMMISSION**

## INTERPRETIVE METHOD

Each site will have a circular seal in the ground that the visitor can stand on. These sites will specifically detail features or sites that no longer exist and help visitors to imagine what was at each specific site and how it may have looked during the canal and marine railway period.

Interpretive methods for these sites will be both interactive and static. Interpretive panels will provide information about that site and its significance to the inclined plane. For those who want more information and have iPhone or Android capabilities, an app for the Dartmouth Inclined Plane Interpretive Walk will be created. Visitors will be able to download the Dartmouth Inclined Plane Interpretive Walk app via QR code provided on each panel. The app will provide access to hand held online content about the inclined plane. Each site / or seal will have specific text, image and audio narrative content. Audio content will encourage users to look up and down the inclined plane and visit all sites along the 1 km stretch.

The audio information, and the panels would also feature brief text that relates to the where the visitor is on the trail with a simple map "You are Here". Other historical facts or points of interest that relate to the Shubenacadie Canal / inclined plane can also be included. The panels should also reference the Canal Greenway site, as well as the Fairbanks Centre. This app would be modeled after the Boston Freedom Trail Walk / app.

**Visitor Take-away / Benefits**

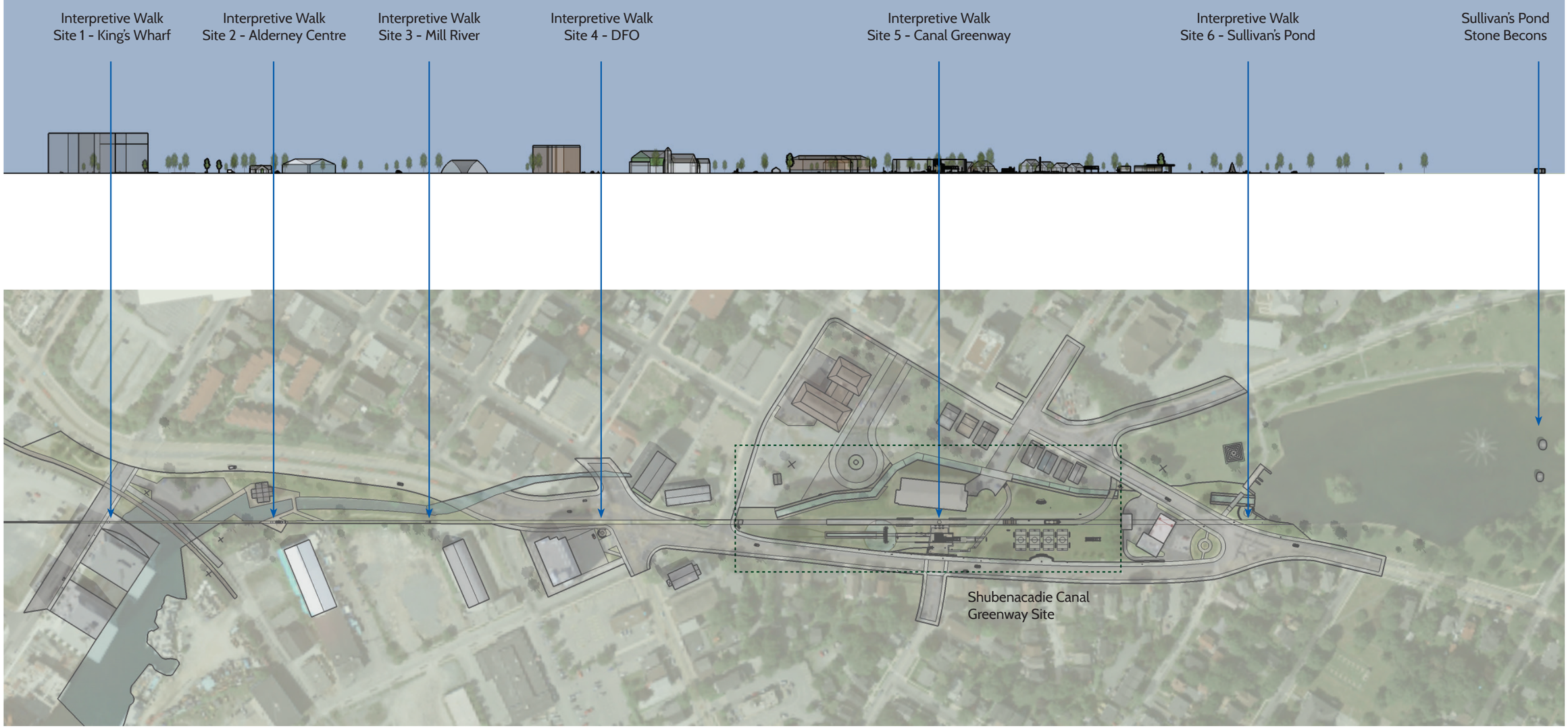
The Dartmouth Inclined Plane Interpretive walk will enhance and extend the visitor experience of people who are coming from the Shubenacadie Canal Greenway site, as well as the Shubenacadie Park and Fairbanks Centre. Visitors getting off the ferry or bridge from Halifax can also experience the walk, as the sites / seals will serve to encourage interest and lead those visitors to the Canal Greenway site, as well as the other canal waterway related sites as mentioned above.

An inclined plane interpretive walk will encourage people to look around, including up and down the inclined view plane. It also will motivate people to walk through, explore, and spend more time in Downtown Dartmouth, immersing themselves in the history of the Shubenacadie Canal and Marine Railway and how it shaped Dartmouth's landscape, culture and history. It will complement the outdoor interpretation at the Canal Greenway site, and will give people an idea how different Dartmouth looked during the canal and Dartmouth Inclined Plane period, as these features have been lost to time or lie buried underground.

An interpretive walk will also provide insight into Downtown Dartmouth and all it has to offer in terms of cultural experiences, e.g., attractions, restaurants, local businesses, as well as any other unique experiences and local gems that visitors may stumble upon. On a more general and community level, the Dartmouth Inclined Plane Interpretive Walk will benefit local businesses as well.

The Dartmouth Inclined Plane Interpretive Walk will promote a healthy life style as walking is good for the "heart and soul". Also the idea of health and recreation is strongly reflected as part of the Shubenacadie Canal Waterway's promotion of recreation and exploration in all its forms, such as hiking, paddling and cycling. The walk is linear and follows a logical path which will feel natural.

**Side Elevation**
**showing the Shubenacadie Canal Greenway Park**
**and the Dartmouth Inclined Plane Interpretive Walking Tour**




**Plan View**
**showing the Shubenacadie Canal Greenway Park**
**and the Dartmouth Inclined Plane Interpretive Walking Tour**

# INTERPRETIVE WALKING TOUR SITE 1

**LOCATION:**
King's Wharf / Dartmouth Cove

**INTERPRETIVE METHOD:**
Interpretive panel and seal.

**SEAL:**
Seal is synced with Dartmouth Inclined Plane Interpretive Walk App content.

**INTERPRETIVE THEME(S):**
This area, also known Dartmouth Cove, was the starting point of the Dartmouth Inclined Plane and Marine Railway. The Marine Railway was a transportation system that carried small vessels and goods such as building materials, coal and food, along the Shubenacadie Canal Waterway, from 1861 to 1871.

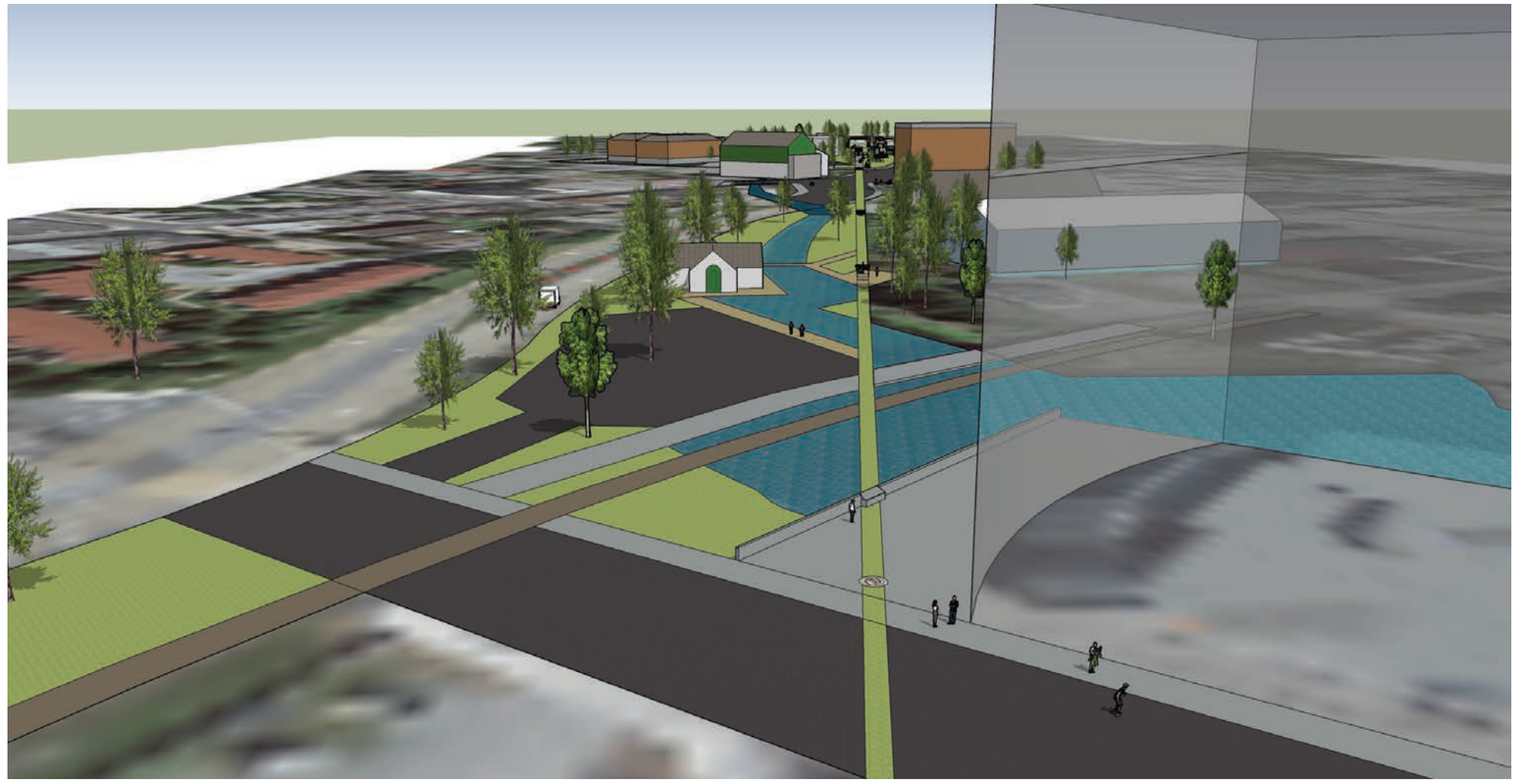
**CONTENT OUTLINE**
Look down towards the Halifax Harbour. Near this very site, small vessels such as barges or steamboats were loaded onto a marine cradle car that was hauled up the inclined plane, by a cable pulley system, so they could continue to make their way up the 114 km stretch of Shubenacadie Canal to the Bay of Fundy.

Look down to the harbour, then up towards Sullivan's Pond and try to imagine the marine cradle car making its 3000' journey (in 15-minutes) up to Sullivan's Pond. If you walk that distance today, it will take you the roughly same amount of time.

The cable pulley system was anchored by a large groove wheel that lay on its side under Halifax Harbour, while another was anchored the same way under Sullivan's Pond. Proceed to the next Seal at the Alderney Centre to learn more!

Other Points of Interest: If you look down towards the harbour, it is easy to imagine it as would have been in the mid-nineteenth century, a bustling port, choc-a-block with various types of vessels such as barges, steamboats and wooden sailing vessels.

Halifax Harbour was also the point of arrival for the Scottish and Irish canal workers that built the first Shubenacadie Canal between 1826 and 1831.They traveled on the brig, *Corsair* from Scotland, which entered this this harbour in September of 1826. Many of these workers were skilled stonemasons who brought their families with them and ended up settling in Dartmouth.



Looking North towards Sullivan's Pond along the Dartmouth Inclined Plane

# INTERPRETIVE WALKING TOUR SITE 2

## LOCATION:
Alderney Centre, along existing paved pathway

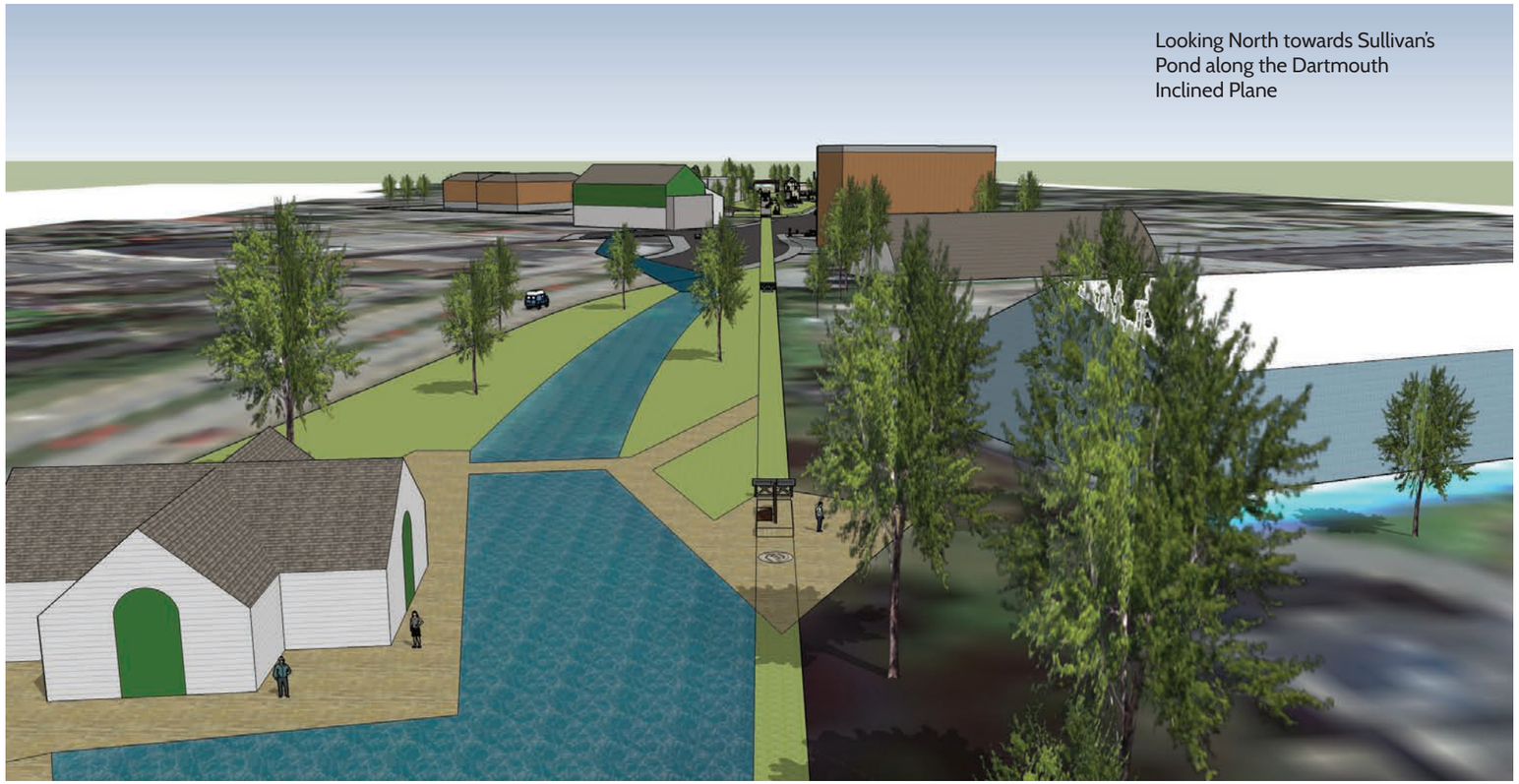
## INTERPRETIVE METHOD(S)
Interpretive panel(s) – 2 angled, free standing

Sheave Wheel replica (6' radius), approximately 6 feet in height, to appear as its other half is submerged under a platform or staging piece to reflect sheave wheels anchored in harbour as part of the Inclined Plane's pulley system. Although sheave wheels were anchored on their sides, the wheel will be presented in a vertical standing position for affect and appreciation of the size of this object as part of the inclined plane pulley system.

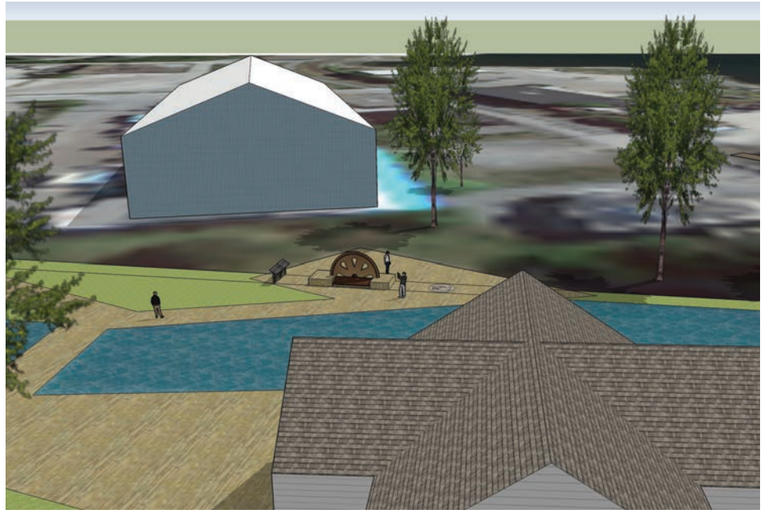
## SEAL:
Seal is synced with Dartmouth Inclined Plane Interpretive Walk App content.

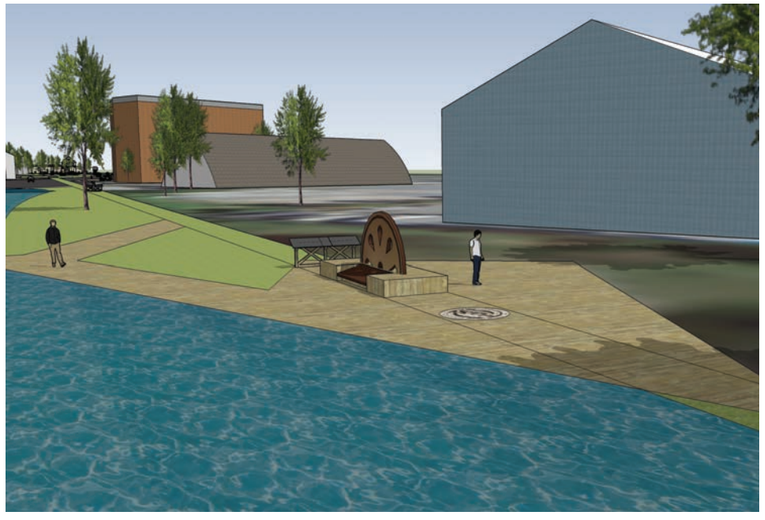
## INTERPRETIVE THEME(S):
This site where you are standing is roughly where Halifax Harbour and the mouth of the Shubenacadie River orignially met. New development has infilled much of the original cove. This includes King's Wharf. This was the ancient entrance used by the Mi'kmaq on their way to the upper sections of the Shubenacadie River, from their summering grounds along the shores and islands of Halifax Harbour - thousands of years before the first stone of the Shubenacadie Canal had been laid.

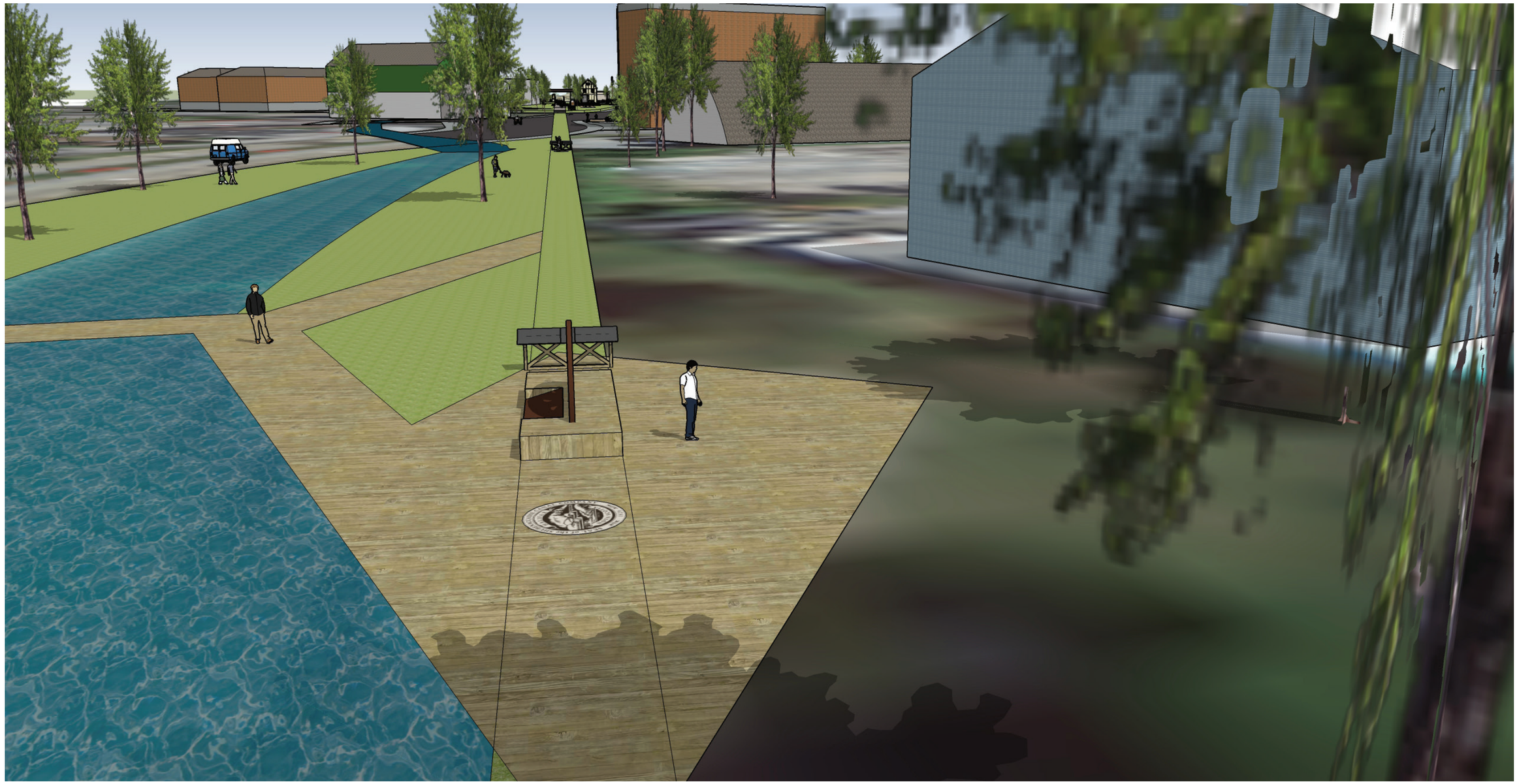
## CONTENT OUTLINE
Stand on this seal and look down towards the harbour, and up towards the flume house. Try to imagine the sight and the sound of a group of a Mi'kmaq family paddling in their birch bark canoe as they head upriver to their winter camping grounds in Nova Scotia's forested interior.



Looking North towards Sullivan's Pond along the Dartmouth Inclined Plane







Looking North (from Alderney Centre) towards Sullivan's Pond along the Dartmouth Inclined Plane

# INTERPRETIVE WALKING TOUR SITE 3

## LOCATION:
Sawmill River Outlet or "Mill River" near Curling Club and Dominion Diving

## INTERPRETIVE METHOD(S)
Interpretive panel(s) – 2 angled, free standing

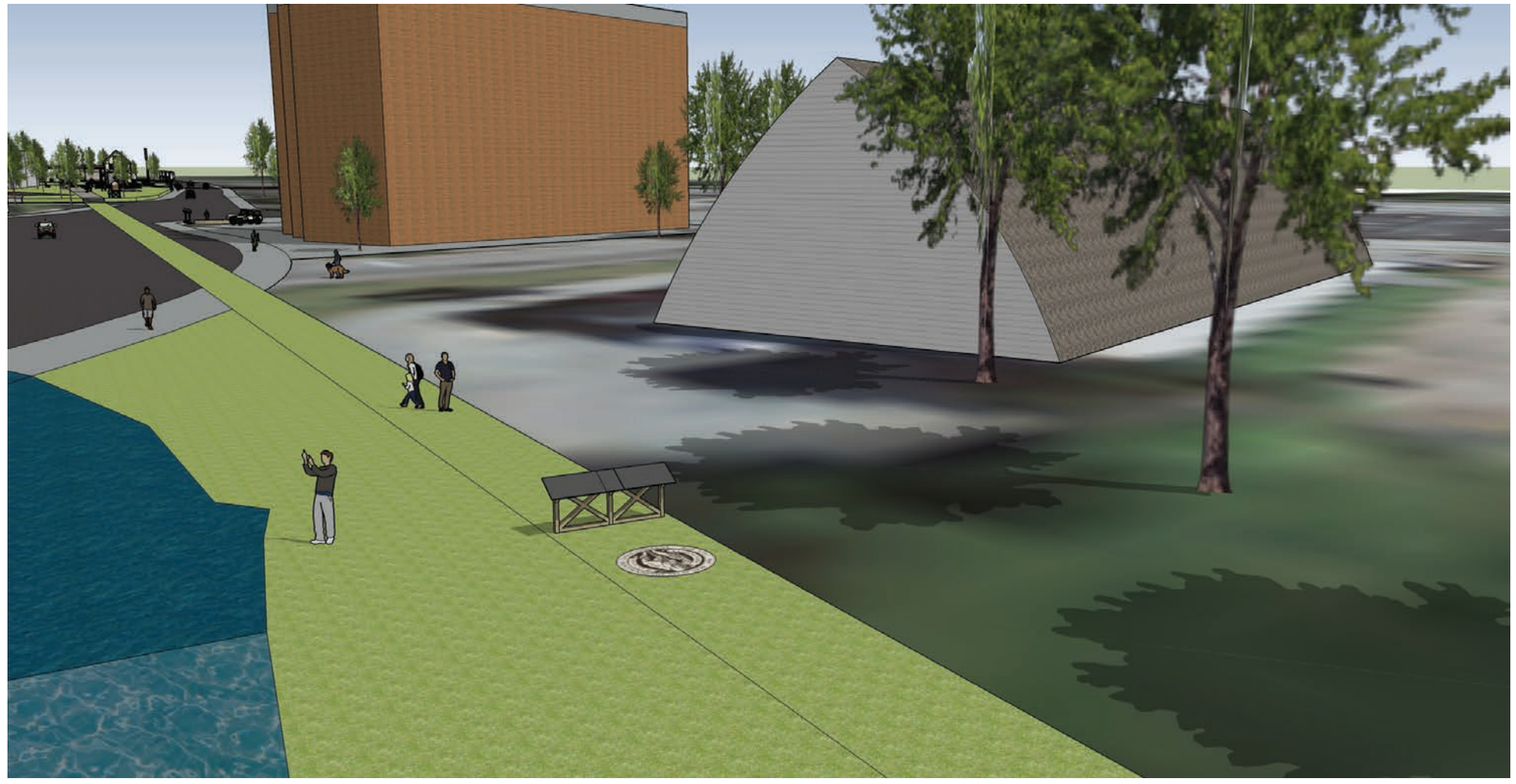
## SEAL:
Seal is synced with Dartmouth Inclined Plane Interpretive Walk App content.

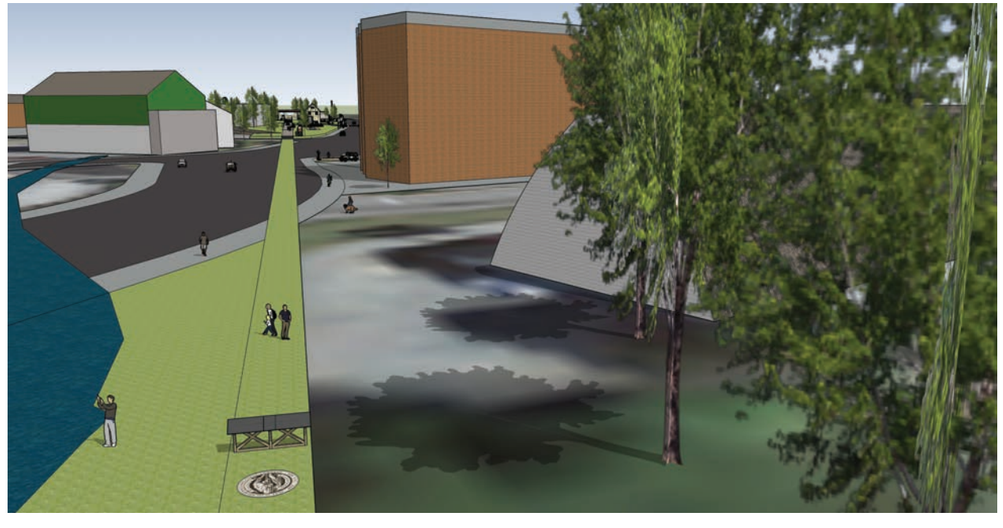
## INTERPRETIVE THEME(S):
This part of the canal system is known as "Mill River, and is likely named after a sawmill that was built on its banks in 1748, a year before Halifax was founded. This freshwater river was a source of water for the early setters of Dartmouth, and later, became part of the Shubenacadie Canal and Dartmouth Inclined Plane.

The river you see today, has been much altered from its original state and how it would have looked during the 1860s, as it is now very narrow and flows into an underground culvert, covered by the streets and buildings of Downtown Dartmouth.

This section of the Dartmouth Inclined Plane runs about half a kilometer, connecting Sullivan's Pond and Shubie lakes to Halifax Harbour.

## CONTENT OUTLINE:
In the 1860s, this was part of the canal system. In 1792, the Hartshorne-Tremain Grist Mill was built near at this site where Dominion Diving is today by Empire Loyalists Lawrence Hartshorne and Jonathon Tremain. The grist mill and bakehouse supplied His Majesty's forces in Nova Scotia, Newfoundland, Bermuda and the West Indies, as well as the general population of Dartmouth and Halifax. The building was destroyed by fire in 1878.





Looking North (from Mill River) towards Sullivan's Pond along the Dartmouth Inclined Plane

# INTERPRETIVE WALKING TOUR SITE 4

## LOCATION:
DFO Building / Corner of Portland and Canal Street, looking out to intersection; up Prince Albert Road and St. James Church.

## INTERPRETIVE THEME(S):
Theme: Can you imagine? The canal system / inclined plane, which once ran through this intersection of downtown Dartmouth, and this area in front of you, was all open with streams wooden bridges, and part of the canal. In fact, the Portland street wooden bridge was located in this very spot where you are standing.

## INTERPRETIVE METHOD:
The visitor looks through a lens on two freestanding viewfinders, that provide an historic sepia image of the area as it was in the nineteenth century when this whole area was open with running water as part of the inclined plane and canal system.

## SEAL:
Seal is synced with Dartmouth Inclined Plane Interpretive Walk App content.

## CONTENT OUTLINE
In the years following the canal closure (in 1871) this area of Downtown Dartmouth has been built up considerably. More streets, including this intersection were developed while homes and businesses were constructed on top of the canal. However, just below our feet, and these streets and buildings, the canal, inclined plane and water system continues to run underground.

In the 1860s this whole area was open as a part of the Dartmouth Inclined Plane and Shubenacadie Canal. Canal boats were hauled by a marine cradle car and went under a wooden bridge on Portland Street. The tracks and cable were located under the water which allowed the cradle cars to travel under the bridge.

**Did you know?**
Some of the stones in the granite stone, along the sidewalk in front of St. James Church, have chisel marks or stonecutter's marks? These were made by the stone masons that worked on the original Shubenacadie Canal between 1826 and 1831. When the canal closed in 1831, many of these stonemasons found work in other parts of the city, including Halifax. Many settled with and their families in Dartmouth in areas we know today such as Irish Town.

Looking North (from DFO) towards Sullivan's Pond along the Dartmouth Inclined Plane

Looking North (from DFO) towards Sullivan's Pond along the Dartmouth Inclined Plane

Looking South (from DFO) towards Dartmouth Cove along the Dartmouth Inclined Plane

The visitor looks through a lens on two freestanding viewfinders, that provide an historic sepia image of the area as it was in the nineteenth century when this whole area was open with running water as part of the inclined plane and canal system.



Looking South (from DFO) towards Dartmouth Cove along the Dartmouth Inclined Plane

Looking North (from DFO) towards Sullivan's Pond along the Dartmouth Inclined Plane

# INTERPRETIVE WALKING TOUR SITE 5

## LOCATION:
Shubenacadie Greenway Canal site, north end, paved inclined plane behind marine cradle car and adjacent to side of flume house (where panel is mounted).

## INTERPRETIVE METHOD
Two sets have rail tracks have been placed along either side of the inclined plane. The sets of tracks you see here are much like the original trackline that ran along the inclined plane (which you are standing on) between 1861 and 1871 when the marine railway was operational.

## SEAL:
Seal is synced with Dartmouth Inclined Plane Interpretive Walk App content.

## INTERPRETIVE THEME(S):
You are now standing at approximately 2/3 of the distance of the Dartmouth Inclined Plane from Alderney Centre to Sullivan's Pond. Look down towards Halifax Harbour and then up towards Sullivan's Pond to get an idea where you are. Try to imagine this inclined plane or slope you are now standing on, covered in the same type of track going in both directions, complete with a cable running up the middle of the tracks or marine railway. You can also refer to the panel across from you that's on the flume house.

## CONTENT OUTLINE
This inclined plane, that connected Sullivan's Pond and the Shubenacadie lakes to Halifax Harbour, was the largest of the two inclined planes built for the Shubenacadie Canal. It was completed in 1861. The first inclined plane was built in, 1858, by Charles W. Fairbanks at Portobello, near Waverley. It was located between Lake Charles and Lake William and was the first of its kind in British North America.

When both inclined planes were complete, in 1861 a vessel, a small side paddle steamship *Avery* was the first vessel to travel the entire distance from the Atlantic to the Bay of Fundy.

Looking North (from The Flume House) towards Sullivan's Pond along the Dartmouth Inclined Plane


Reverse View looking South (from the Cradle Car) towards the Harbour along the Dartmouth Inclined Plane

Looking North (from The Flume House) towards Sullivan's Pond along the Dartmouth Inclined Plane


Looking North (near the ESSO) towards Sullivan's Pond along the Dartmouth Inclined Plane

# INTERPRETIVE WALKING TOUR SITE 6

## LOCATION:
Sullivan's Pond, North of the Greenway site, past Esso Station, and at the head of Sullivan's Duck Pond where tracks of inclined plane would have gone down into the water.

## INTERPETIVE METHOD:
Interpretive park with seating, interpretive panels and a 6-foot (radius) sheave wheel.

## SEAL:
Seal is synced with Dartmouth Inclined Plane Interpretive Walk App content.

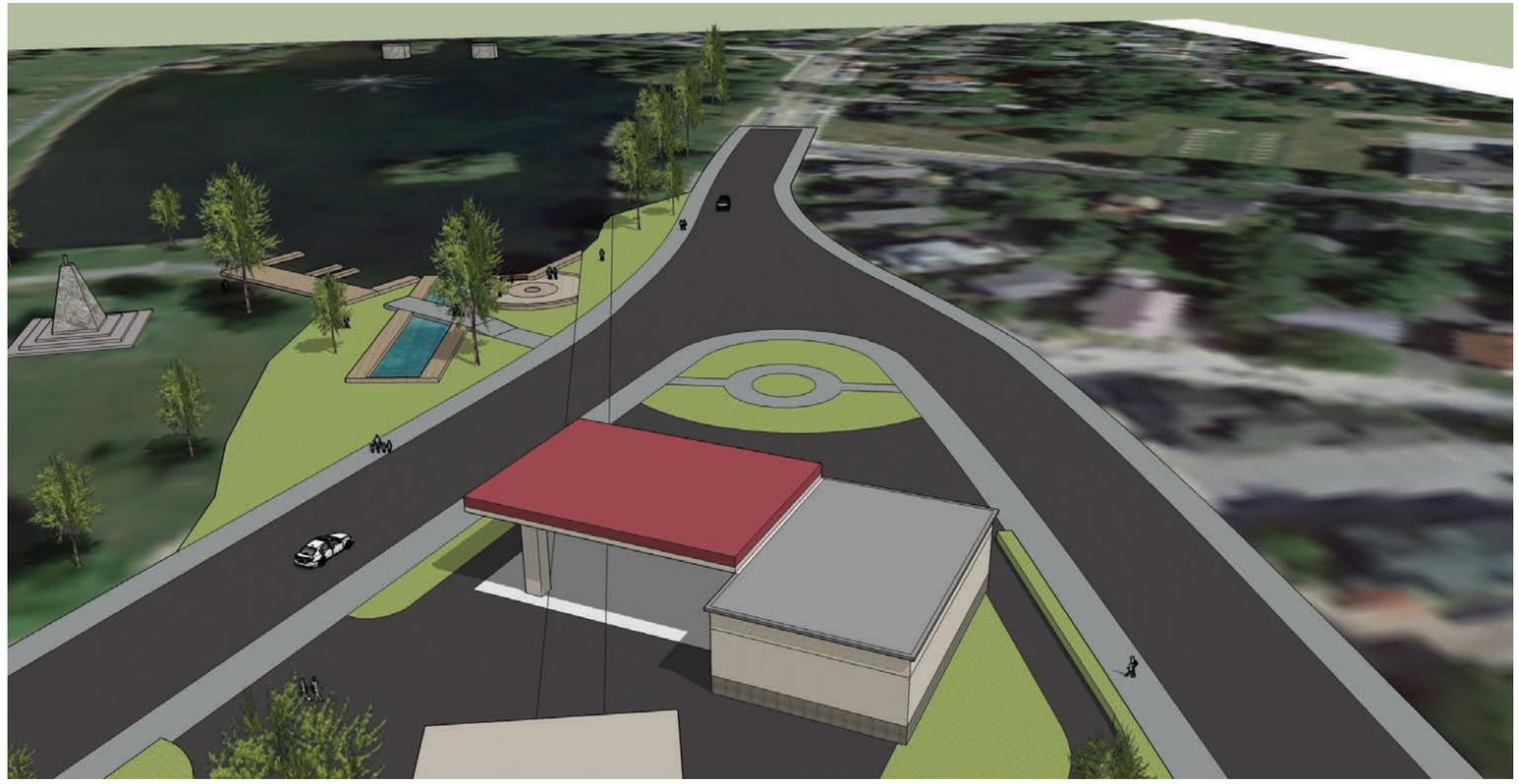
## INTERPRETIVE THEME(S):
Sullivan's Pond is not a natural pond, but human-made, dug by workers to serve as a holding pond for the Shubenacadie Canal system and guiding first gateway to the first lock at Lake Banook. It was an essential working part of the Dartmouth Inclined Plane and Shubenacadie Canal.

## CONTENT OUTLINE
Look down towards the flume house and the flume headrace. Sullivan's Pond was the main source of water that was used to power the inclined plane as it rushed down the flume headrace, into the flume house and reactivated turbine in the chamber below the flume house.

Look up the Pond and you will see two stone pillars on either side. These acted as guiding beacons that vessels would sail between as they headed towards the entrance of Lake Banook. Further up the canal system, the Marine Railway at Portobello, near Waverley, was completed before the one at Dartmouth Cove Railway on the Greenway site, and was first of its kind in British North America. Sullivan's Pond, or the "Duck Pond" has been, and remains, a vital part of the historic waterway and the community of Dartmouth today.

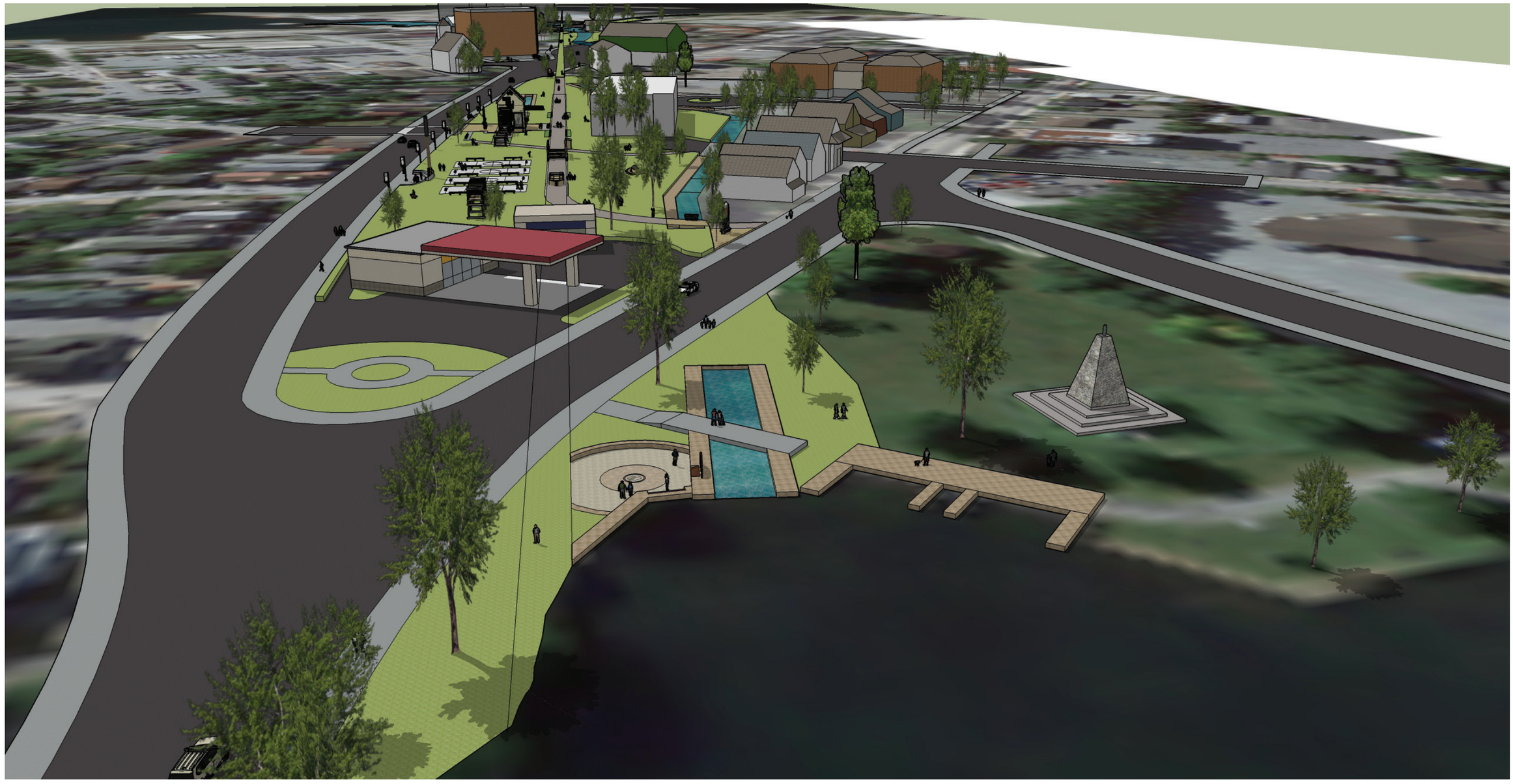
**Did you know**
The Elevation between Halifax Harbour and Sullivan's Pond is 55 feet.

This large wheel is a replica of a 12-foot (diameter) sheave wheel that was placed on its side in Sullivan's pond as an anchor for inclined plane pulley system. This wheel, like the one featured at the Alderney Centre, was part of a cable pulley system that hauled marine cradle cars up and down the inclined plane. This wheel is displayed in a vertical to give you a better idea of its size!

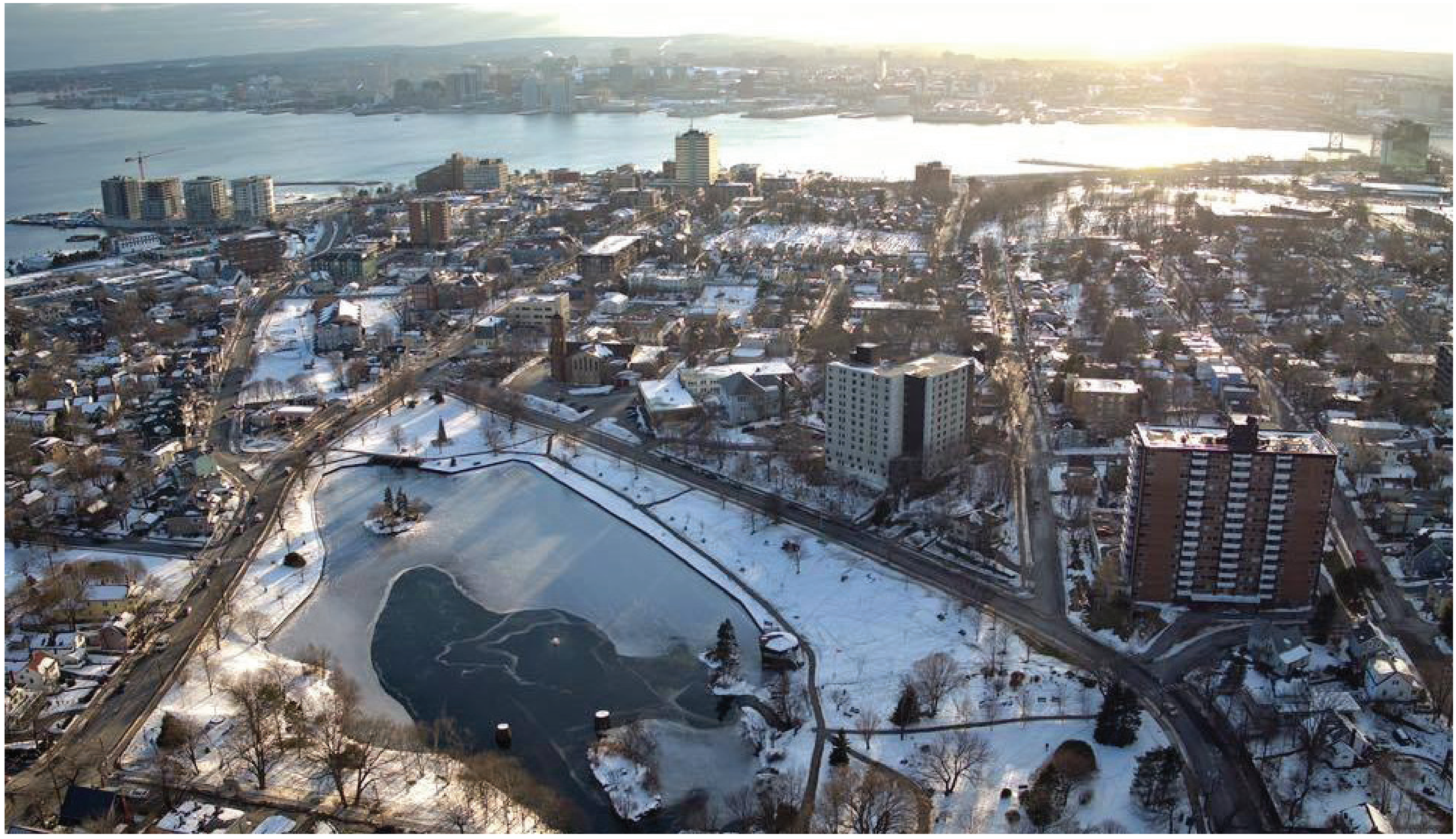


Looking North (from Above ESSO) towards Sullivan's Pond along the Dartmouth Inclined Plane

Looking North towards Sullivan's Pond near the end of the Dartmouth Inclined Plane



Reverse View lookingSouth (from Above Sullivan's Pond) towards the Harbour along the Dartmouth Inclined Plane



# ESTIMATES OF THE PROBABLE COST OF CONSTRUCTION

## THE INTERPRETIVE MASTERPLAN

Items such as the life sized Barge in Exhibit 8, The Smoke Stack and Ice Surfaces in Exhibit 16 as well as the Interpretive Viewpark at Sullivans Pond (Exhibit 18) will likely require their own detailed design phases, engineering, landscaping and tendering

| Exhibit # | Title | Components | QTY | Unit Estimate | Exhibit Total | |
|---|---|---|---|---|---|---|
| 1 | Welcome | Main Entrance Sign | 2 | $18,000.00 | $36,000.00 | |
| 2 | People & the Waterway | Double Interpretive Panel | 1 | $6,000.00 | $6,000.00 | |
| 3 | The First Canal | Single Interpretive Panel | 1 | $3,500.00 | $3,500.00 | |
| 4 | Building a Better Canal | Low Lying Interpretive Panels | 3 | $3,000.00 | $9,000.00 | |
| | | Benches | 3 | $2,750.00 | $8,250.00 | |
| 5 | Inclined Plane at-a-glance | Large Interpretive Panel | 1 | $4,500.00 | $4,500.00 | |
| 6 | Inclined Plane in Detail | Panoramic Interpretive View Station | 1 | $28,000.00 | $28,000.00 | |
| 7 | Marine Boat Crade | Double Interpretive Panel | 1 | $6,000.00 | $6,000.00 | |
| 8 | Riding the Inclined Plane | Life Sized Barge with 2 Interpretive Panels | 1 | $65,000.00 | $65,000.00 | |
| 9 | The Flume House | Interpretive Graphics Silk Screened on Glass | 1 | $1,400.00 | $1,400.00 | |
| 10 | The Headrace | Freestanding Headrace Structure with | 2 | $8,500.00 | $17,000.00 | |
| | | Interpretive Graphics Silk Screened on Plexi | | | | |
| 11 | The Turbine | Interpretive Graphics Silk Screened on Plexi | 2 | $3,200.00 | $6,400.00 | |
| 12 | The Cable Drum & Pully System | Interpretive Graphics Silk Screened on Glass | 1 | $1,400.00 | $1,400.00 | |
| 13 | The Tailrace | Single Interpretive Panel | 1 | $3,500.00 | $3,500.00 | |
| 14 | Archaeology | Single Interpretive Panel | 1 | $3,500.00 | $3,500.00 | |
| 15 | Daylighting | Double Interpretive Panel | 2 | $6,000.00 | $12,000.00 | |
| 16 | Starr Manufacturing | Rigid Interpretive Banners with Skate Detail | 8 | $5,000.00 | $40,000.00 | |
| | | Smoke Stack (TBD) | 1 | | | |
| | | Concrete Ice Surfaces | 4 | $15,000.00 | $60,000.00 | |
| 17 | Viewplane | Esso Wall Graphic | 1 | $8,000.00 | $8,000.00 | |
| 18 | End of an Era | Interpretive Viewpark at Sullivans Pond | 1 | $170,000.00 | $170,000.00 | |
| 19 | Donor Program | North Section of Flume | 1 | $85,000.00 | $85,000.00 | |
| | | | | | | |
| | **Estimate of the Probable Cost of Construction** | | | | **$574,450.00** | *plus applicable taxes* |
| | **Phase 2 Detailed Design - Research, Writing, Editing, Image Sourcing, Design, Working Drawings** | | | | **$175,000.00** | *plus applicable taxes* |

# ESTIMATES OF THE PROBABLE COST OF CONSTRUCTION

## DARTMOUTH INCLINED PLANE - INTERPRETIVE WALKING TOUR

The Interpretive Viewpark at the DFO site will likely require its own detailed design phase, engineering, landscaping and tender

| Walking Tour | Title | Component | Quantity | Unit Estimate | Exhibit Total | |
|---|---|---|---|---|---|---|
| Walking Tour | Inclined Plane Interpretive Walk | App / Audio Tour Design and Development | 1 | $40,000.00 | $40,000.00 | |
| Walking Tour | Site 1 - King's Wharf | Single Interpretive Panel | 1 | $3,500.00 | $3,500.00 | |
| | | Interpretive Seal | 1 | $4,500.00 | $4,500.00 | |
| Walking Tour | Site 2 - Alderney Centre | Single Interpretive Panel | 3 | $3,500.00 | $10,500.00 | |
| | | Sheave Wheel | 1 | $18,000.00 | $18,000.00 | |
| | | Interpretive Seal | 1 | $4,500.00 | $4,500.00 | |
| Walking Tour | Site 3 - Sawmill Rive | Double Interpretive Panel | 1 | $6,000.00 | $6,000.00 | |
| | | Interpretive Seal | 1 | $4,500.00 | $4,500.00 | |
| Walking Tour | Site 4 - DFO | Interpretive Viewpark (TBD) | 1 | | | |
| | | Viewfinders | 2 | $15,000.00 | $30,000.00 | |
| | | Interpretive Seal | 1 | $4,500.00 | $4,500.00 | |
| Walking Tour | Site 5 - Flume House (Rear) | Interpretive Seal | 1 | $4,500.00 | $4,500.00 | |
| Walking Tour | Site 6 - Viewpark at Sullivans Pond | Interpretive Seal | 1 | $4,500.00 | $4,500.00 | |
| | | | | | | |
| | **Estimate of the Probable Cost of Construction** | | | | **$135,000.00** | *plus applicable taxes* |
| | **Phase 2 Detailed Design - Research, Writing, Editing, Image Sourcing, Design, Working Drawings** | | | | **$45,000.00** | *plus applicable taxes* |

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