



# Salem Wind Port

## Site Plan Review – Salem Planning Board

July 20, 2023

67 Derby Street, Salem, MA

Salem Harbor

# Agenda

- EXISTING CONDITIONS (RECAP)
- OPERATIONS (RECAP)
- CIVIL IMPROVEMENTS
- LANDSCAPING IMPROVEMENTS
- DISCUSSION

# Existing Conditions (RECAP)

# Existing Site Conditions- Overview



- Land Area:  
42.3 Acres
- State Turning  
Basin: 18  
Acres, -32ft  
depth (MLLW)
- Existing DPA



- Improving the former coal power plant location
- Minor improvements to the existing parking lot
- Cat Cove will not be dredged

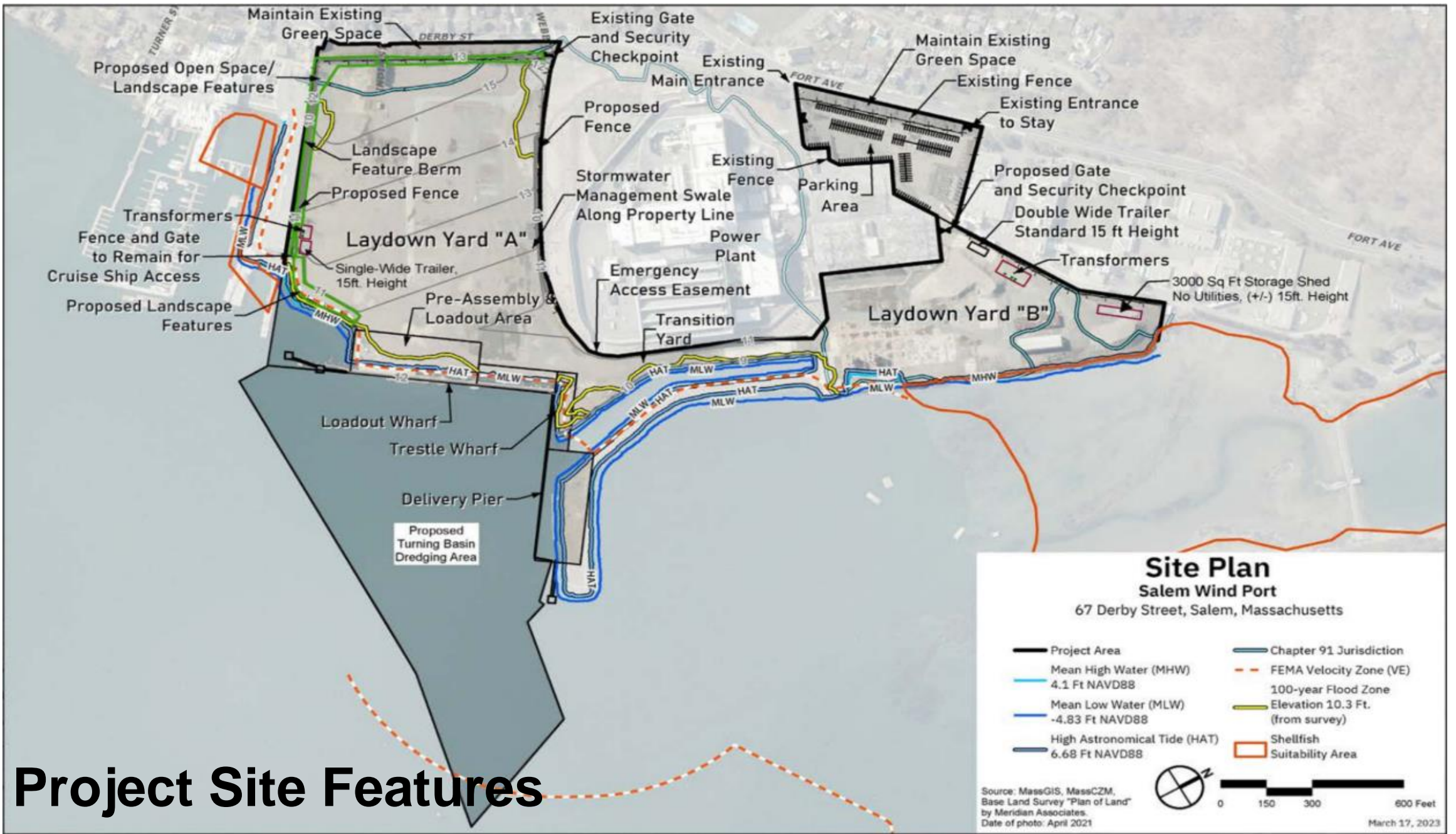
## Existing Site Conditions- Overview

# Existing Site Conditions- Overview

- Existing elevations are flat.
- Existing dense graded aggregate (DGA)
- No stormwater system in place
- Lacking existing utilities



# Operations (RECAP)



# Project Site Features





# Operations

- Staging and for the wind turbine components (blades, towers, nacelles)
- Components will be delivered to new wharf
- Transferred to the shore and either Laydown A or B
- Components will be stored until assembled for offshore installation
- Slow movement – expensive equipment & materials

# Salem Wind Port Operations



# Salem Wind Port Operations



# Salem Wind Port Operations

## BLADE RACKS:

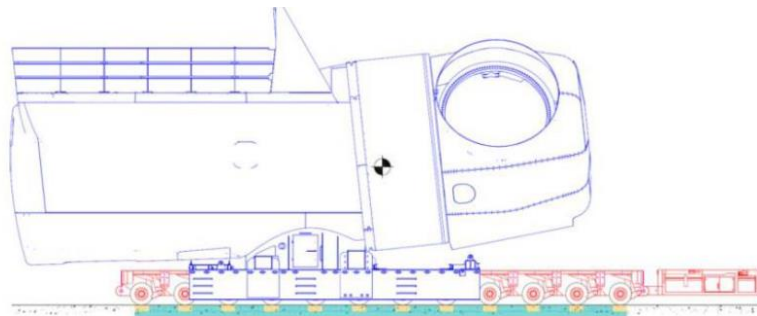
- Racks can be as high as 21m ~ 69ft
- A set of blades stack 3 high
- Blade lengths are over 300ft long (122m)



# Salem Wind Port Operations

## NACELLES:

- Heaviest Component
- Needs convenience power
- Built to be outside in the elements, but is handled with a lot of care
- Moved slowly throughout the site by an SPMT
- Example –
  - L = 22.3m
  - W = 11.2m
  - H = 12.4m



Pressure distribution under nacelle transport



# Civil Improvements

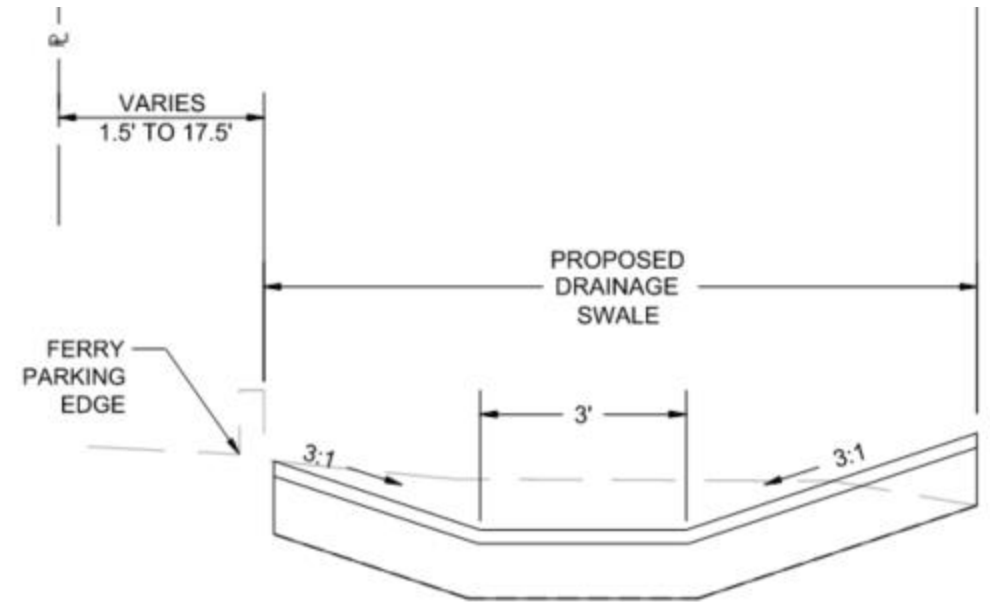
# Civil Improvements - Overview

- Land Area: 42.3 Acres
- State Turning Basin: 18 Acres, -32ft depth (MLLW)
- Water Access: Federal Navigation Channel, -32ft depth (MLLW)
- Staging and for the wind turbine components (blades, towers, nacelles)
- New 685 ft. long pile-supported Delivery Pier & 660 ft. long pile support Loadout Wharf
- Maintenance dredging of State Turning Basin – 80,000CY with offshore Disposal
- Upland Soil Improvements to increase loading capacities & raise grades
- New site stormwater system

# Civil Improvements:

## Stormwater Improvements:

- Creating swales along property edges in Laydown A
- Improved Water Quality Structures

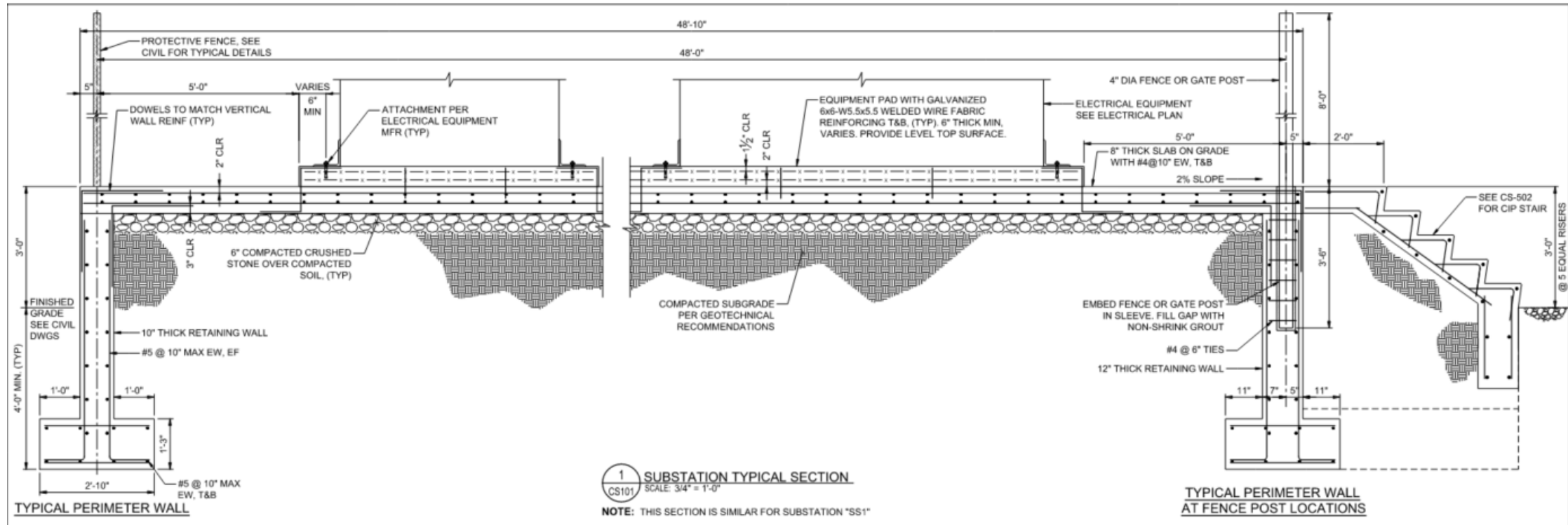




# Civil Improvements:

## Electrical Infrastructure:

- Transformer pads are 3ft above grade (FG)
- Min. 6" thick pads



# Civil Improvements:

## Modular Offices:

- 24'x60' modular office (double-wide 1 toilet)
- 12'x64' single-wide modular office (1-toilet)
- 30'x100' storage shed

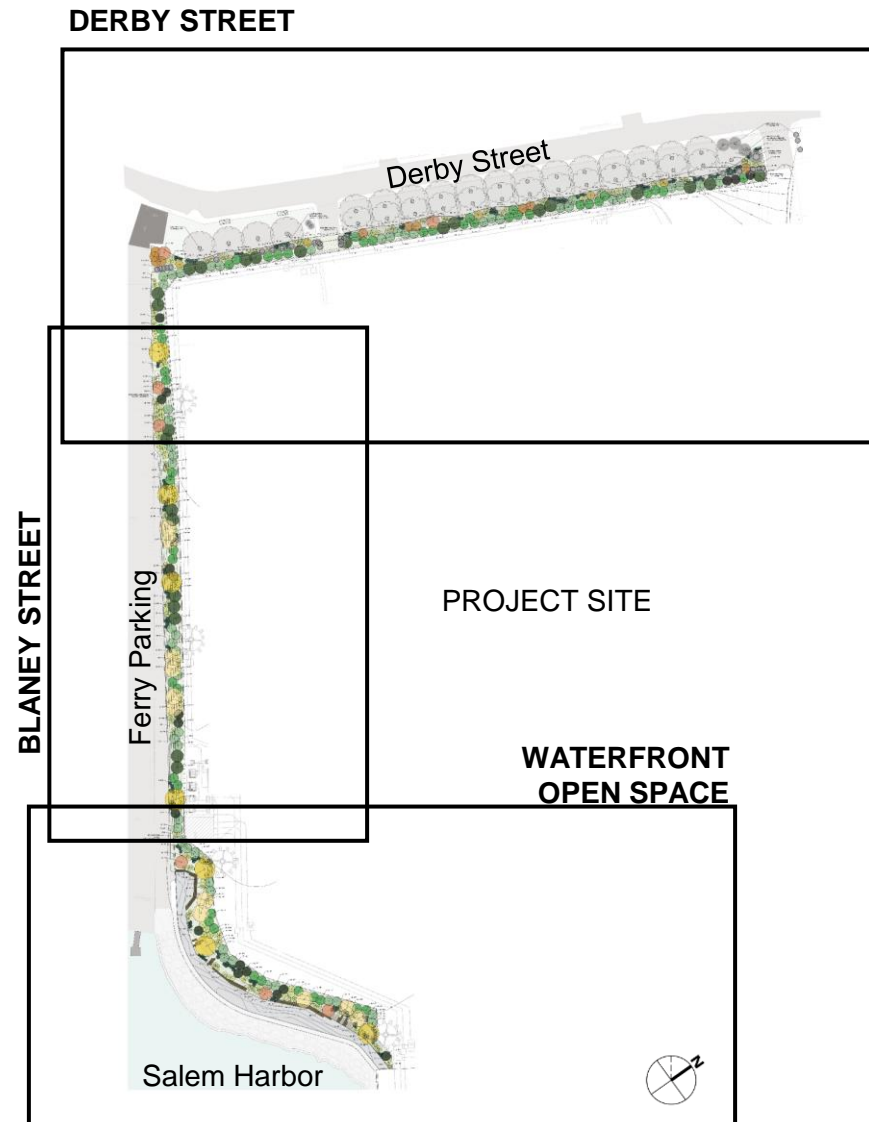


# Landscaping Improvements



# Salem Wind Port Landscape Improvements

# Salem Wind Port Landscape Improvements



## Planting Design Guidelines

### Derby Street

- Reflect the neighborhood and shaded, park-like landscape
- Protect and preserve existing shade trees
- Protect and preserve viable existing evergreen arborvitaes at existing fence line and replace and reinforce with evergreen trees where declining.
- Plant diverse mix of medium to fast-growing, evergreen trees along proposed fence line to strengthen quality of long-term visual screen

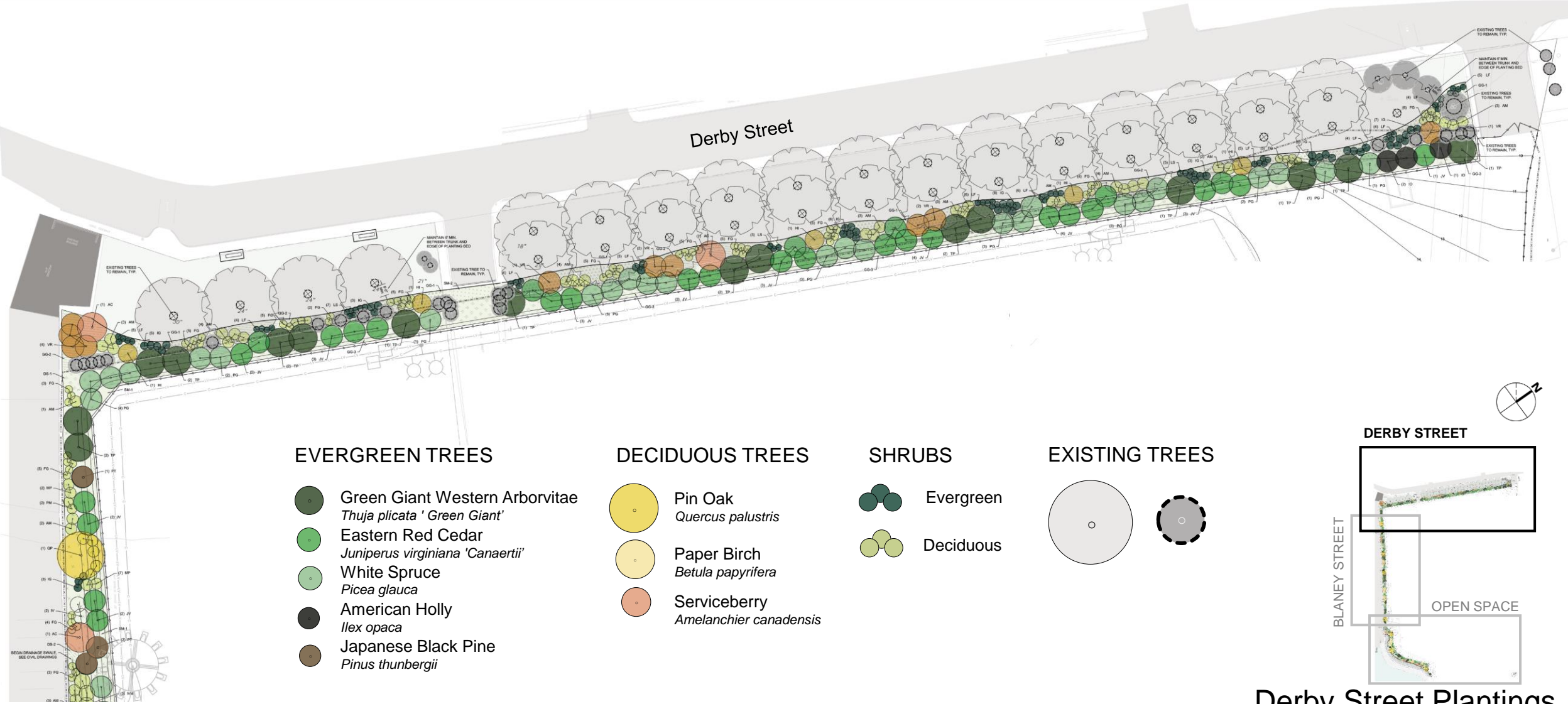
### Blaney Street

- Plant diverse mix of native, salt and drought tolerant plantings to provide a natural green buffer between Blaney Street and ferry parking lot and the terminal project site.
- Plantings to be adaptive to both south-facing slope and drainage swale conditions
- Plant varieties reflect the Power Plant selections to blend both landscapes

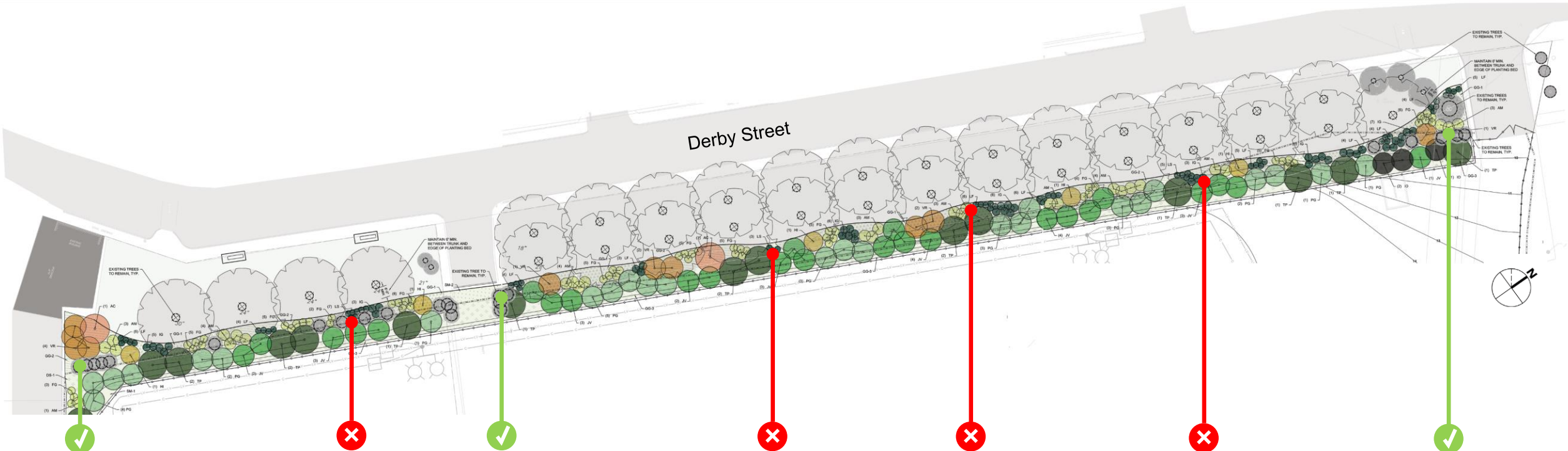
### Waterfront Open Space

- Reflect a coastal habitat landscape
- Plant diverse mix of native, salt, and drought tolerant plantings to provide a green buffer between walkway and terminal project site.
- Incorporate planting berms to accommodate planting base and add visual screen.

# Salem Wind Port Landscape Improvements



# Salem Wind Port Landscape Improvements



✓ Thriving arborvitae in sun at southern exposed corner



✗ Thin existing to encourage healthy growth



✓ Thriving arborvitae in sun at India St



✗ Fallen areas and brown patches (winter burn) indicate dying arborvitae



✗

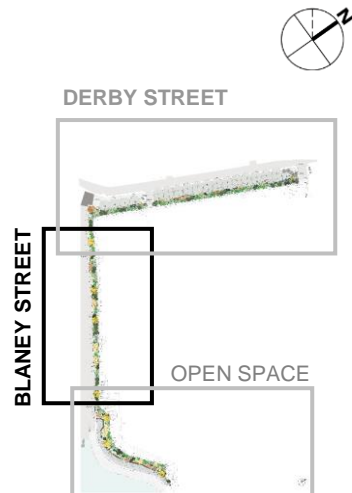
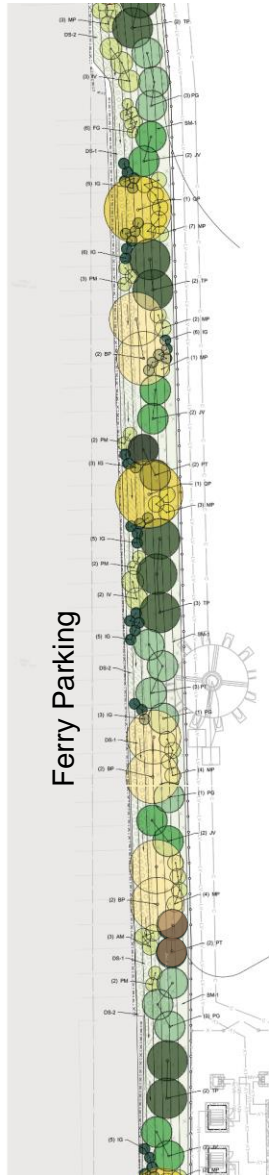


✓



✓ Select arborvitae show signs of healthy growth due to sunny location

# Salem Wind Port Landscape Improvements



Blaney Street Plantings



## EVERGREEN TREES

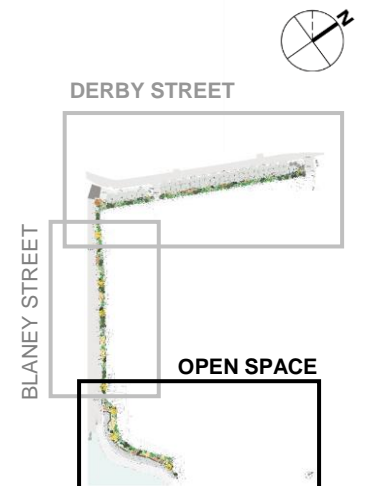
- Green Giant Western Arborvitae  
*Thuja plicata 'Green Giant'*
- Eastern Red Cedar  
*Juniperus virginiana 'Canaertii'*
- White Spruce  
*Picea glauca*
- American Holly  
*Ilex opaca*
- Japanese Black Pine  
*Pinus thunbergii*

## DECIDUOUS TREES

- Pin Oak  
*Quercus palustris*
- Paper Birch  
*Betula papyrifera*
- Serviceberry  
*Amelanchier canadensis*

## SHRUBS

- Evergreen
- Deciduous



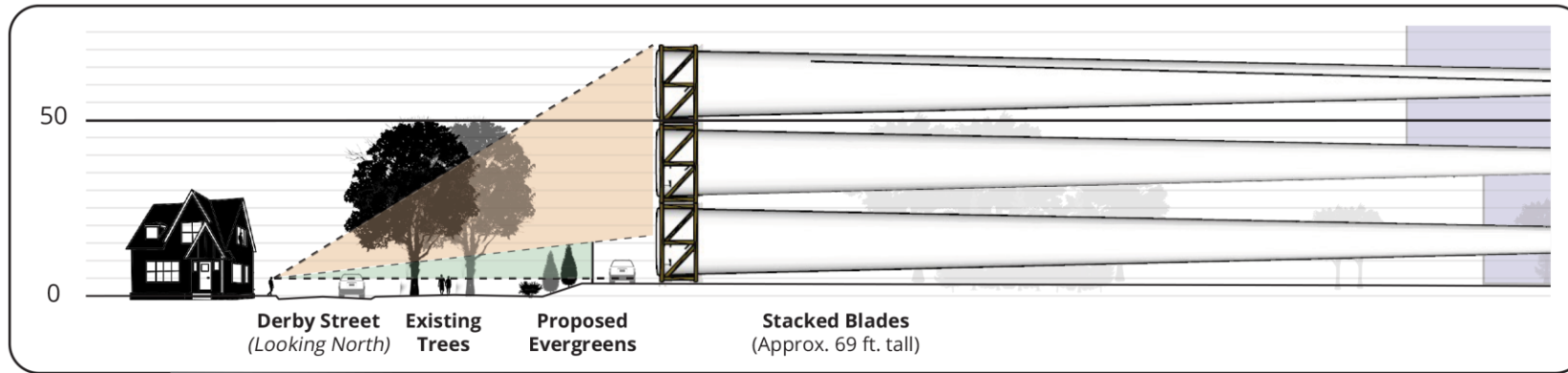
Waterfront Open Space Plantings



# Salem Wind Port Landscape Improvements

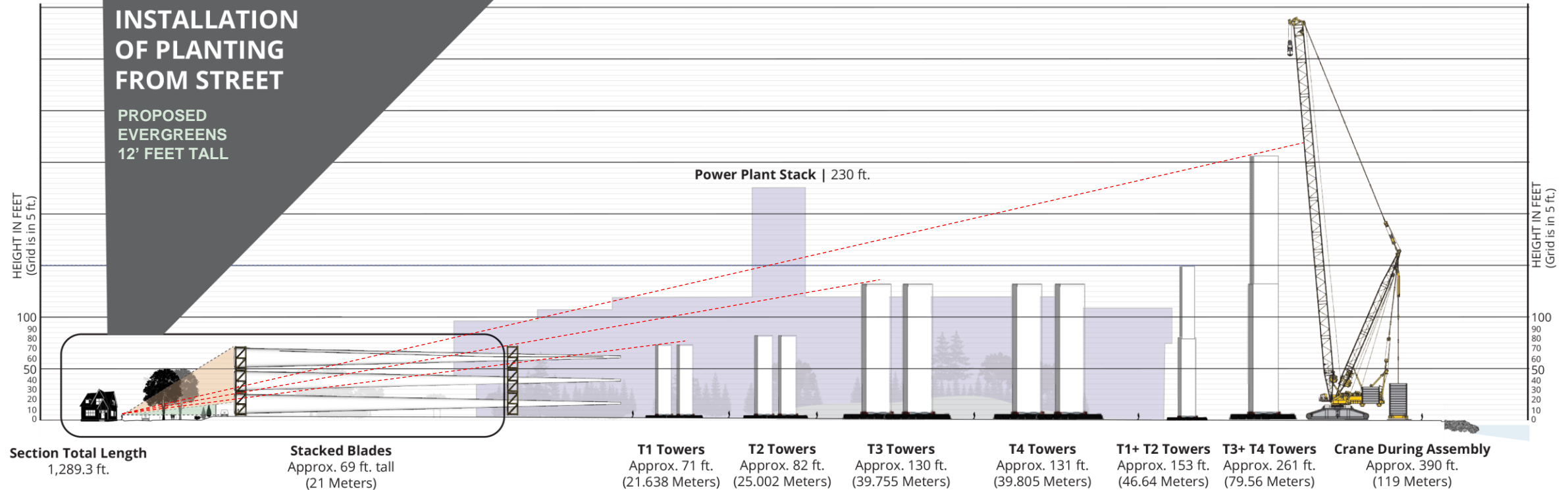
## Derby Street LINE-OF-SIGHT ANALYSIS

The line-of-sight analysis identifies locations that are visible from an observer point with a typical field-of-view



### VIEW AT INSTALLATION OF PLANTING FROM STREET

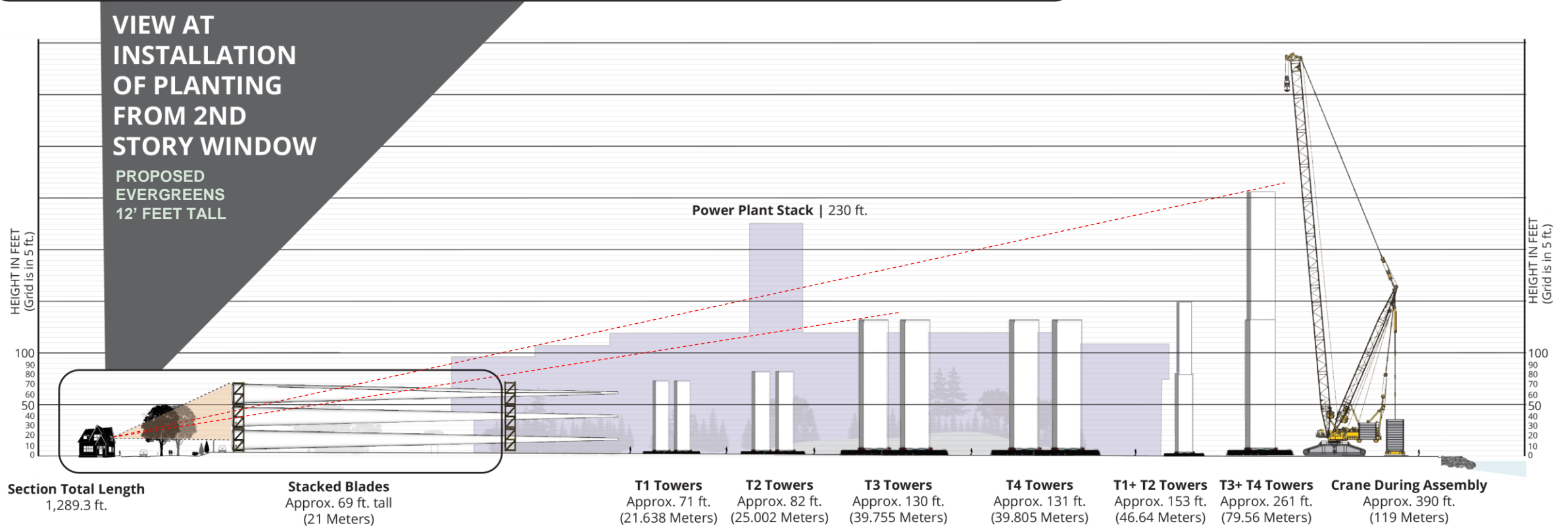
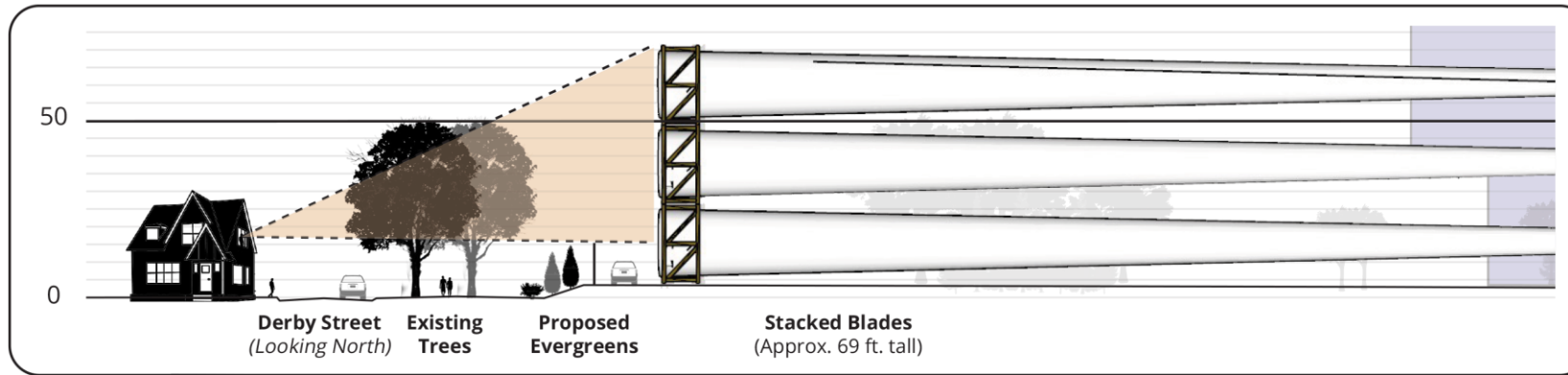
PROPOSED EVERGREENS 12' FEET TALL



# Salem Wind Port Landscape Improvements

## Derby Street LINE-OF-SIGHT ANALYSIS

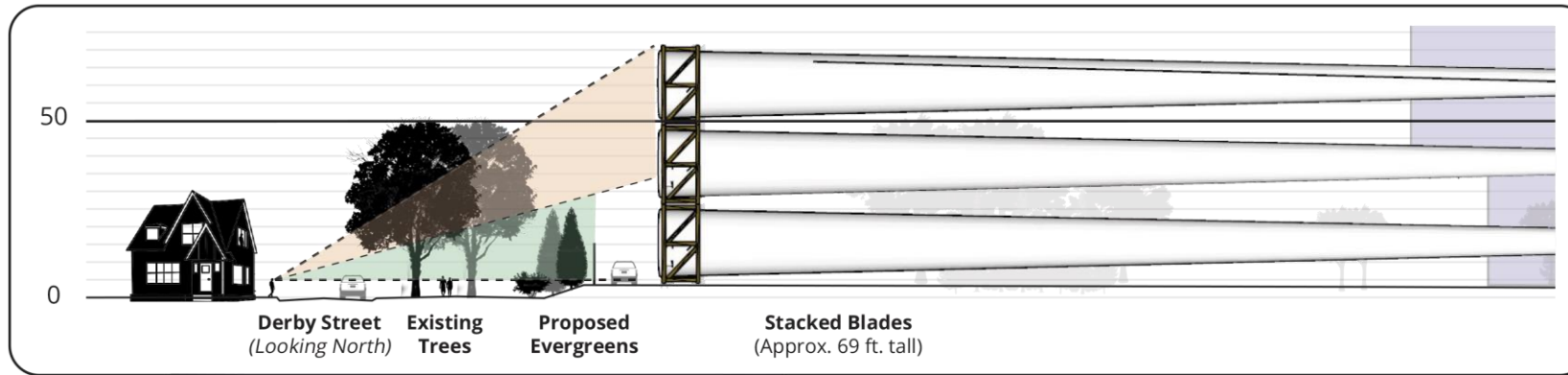
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# Salem Wind Port Landscape Improvements

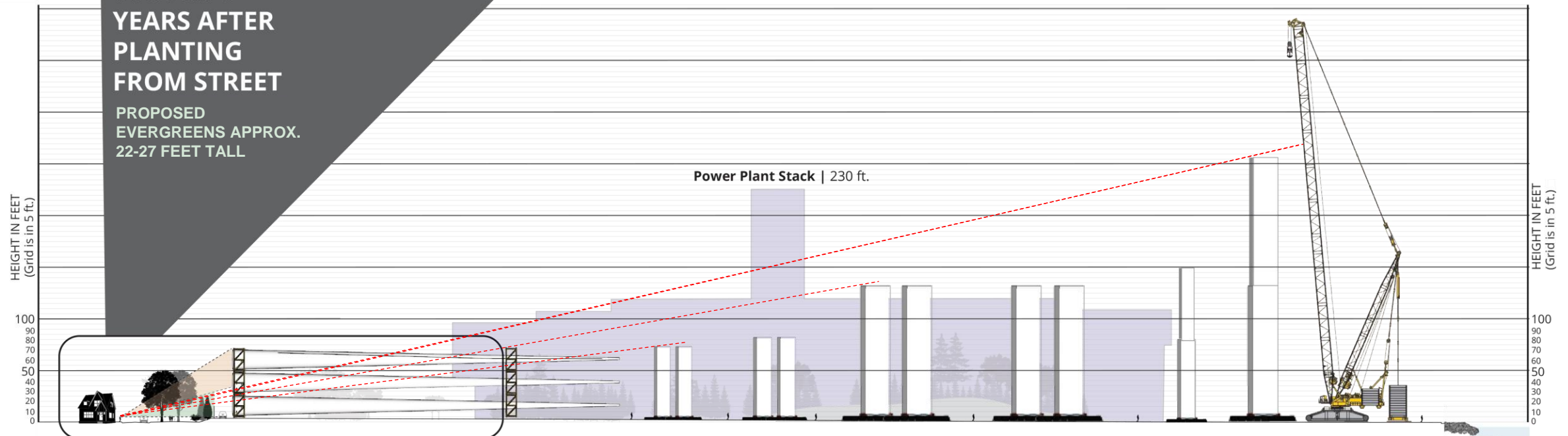
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### VIEW AT 5 YEARS AFTER PLANTING FROM STREET

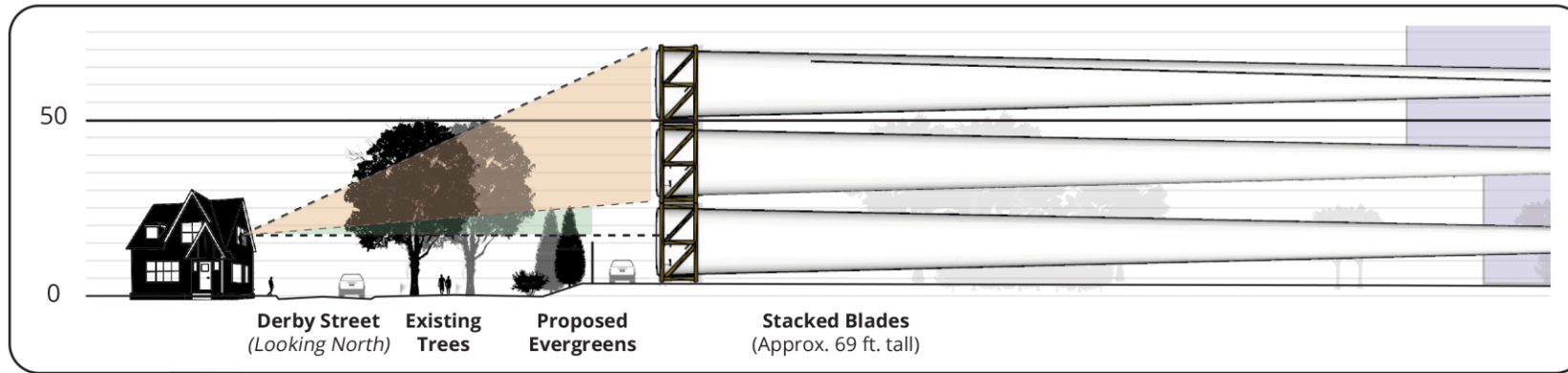
PROPOSED EVERGREENS APPROX. 22-27 FEET TALL



# Salem Wind Port Landscape Improvements

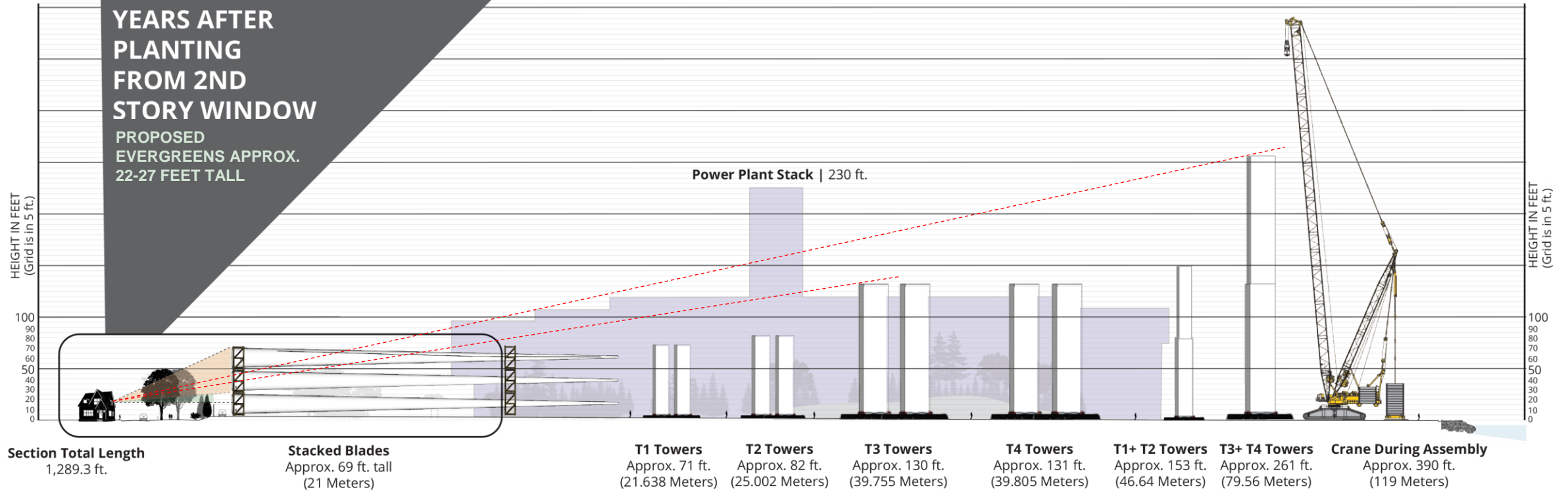
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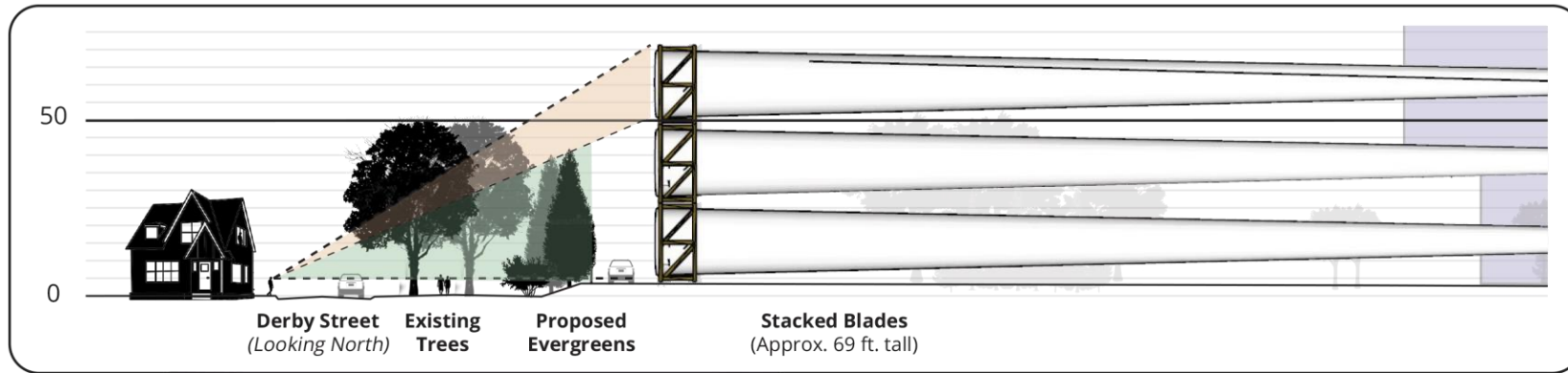


### VIEW AT 5 YEARS AFTER PLANTING FROM 2ND STORY WINDOW

PROPOSED EVERGREENS APPROX. 22-27 FEET TALL

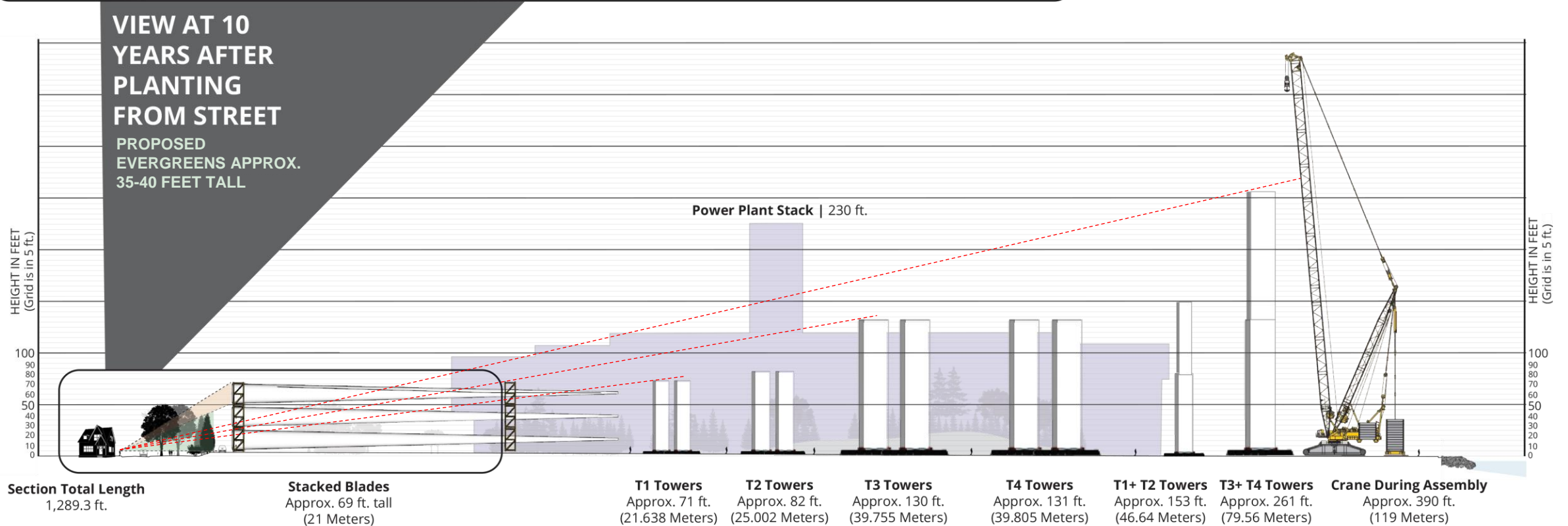


# Salem Wind Port Landscape Improvements



## Derby Street LINE-OF-SIGHT ANALYSIS

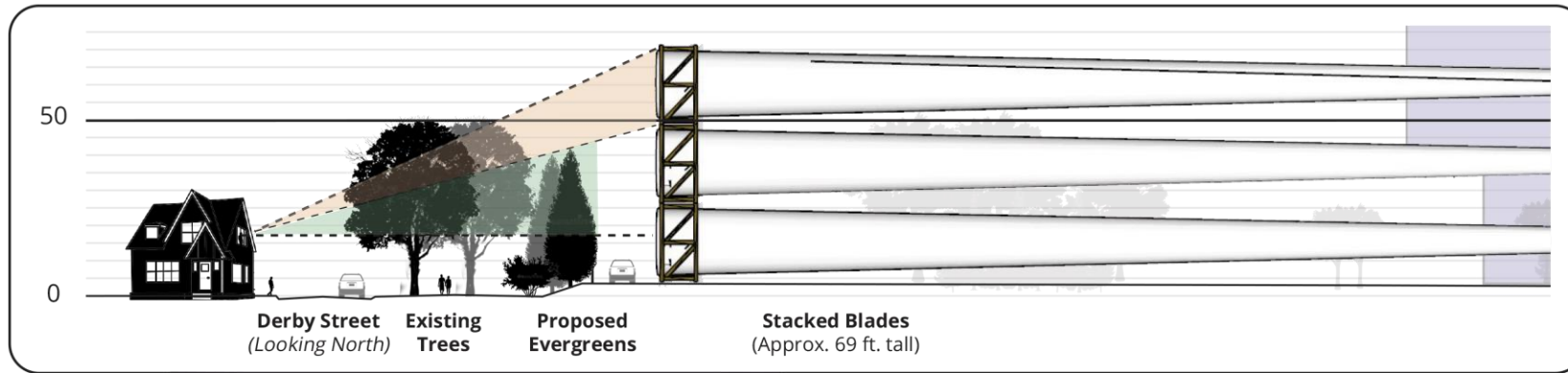
The line-of-sight analysis identifies locations that are visible from an observer point with a typical field-of-view



# Salem Wind Port Landscape Improvements

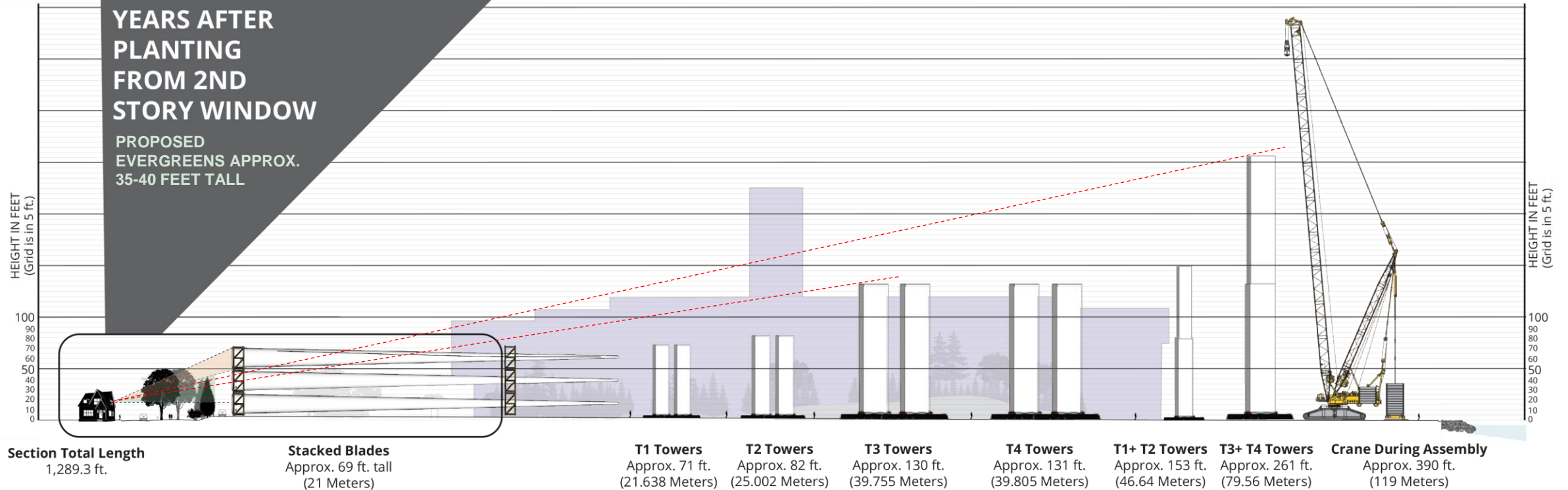
## Derby Street LINE-OF-SIGHT ANALYSIS

The line-of-sight analysis identifies locations that are visible from an observer point with a typical field-of-view



### VIEW AT 10 YEARS AFTER PLANTING FROM 2ND STORY WINDOW

PROPOSED EVERGREENS APPROX. 35-40 FEET TALL



# Salem Wind Port Landscape Improvements

## Derby Street Plantings



Native




Moderate-to-High Drought Tolerance



Moderate-to-High Salt Tolerance

### EVERGREEN TREES

- GREEN GIANT WESTERN ARBORVITAE 

H: 50' - 60' | S: 12' - 20' | GR: FAST (3/YR)
- EASTER RED CEDAR  

H: 40' - 50' | S: 8' - 20' | GR: MEDIUM (1-2/YR)
- WHITE SPRUCE  

H: 40' - 60' | S: 10' - 20' | GR: MEDIUM (1-2/YR)
- AMERICAN HOLLY  

H: 20' - 30' | S: 10' - 15' | GR: MEDIUM (1-2/YR)

### ACCENT TREES

- ARNOLD PROMISE WITCH HAZEL
 

H: 15' - 20' | S: 10' - 15' | GR: MEDIUM (1-2/YR)
- SERVICEBERRY  

H: 15' - 30' | S: 15' - 20' | GR: MEDIUM (1-2/YR)

### DECIDUOUS SHRUBS

- DWARF FOTHERGILLA  

H: 4'-5' | S: 4'-5' | GR: SLOW (<1/YR)
- BLACK CHOKEBERRY  

H: 8' - 10' | S: 6' - 10' | GR: MEDIUM (1-2/YR)

### EVERGREEN SHRUBS

- SHAMROCK INKBERRY  

H: 4'-5' | S: 4'-5' | GR: LOW (<1/YR)
- LEUCOTHOE SCARLETTA  

H: 12" - 24" | S: 3'-4' | GR: HIGH (3/YR)
- LEATHERLEAF VIBURNUM 

H: 12' - 16' | S: 10' - 12' | GR: MEDIUM

# Salem Wind Port Landscape Improvements

## Blaney Street Plantings



### EVERGREEN TREES

GREEN GIANT WESTERN ARBORVITAE  
H: 50' - 60' | S: 12' - 20' | GR: FAST (3/YR)

EASTER RED CEDAR     
H: 40' - 50' | S: 8' - 20' | GR: MEDIUM (1-2/YR)

WHITE SPRUCE     
H: 40' - 60' | S: 10' - 20' | GR: MEDIUM (1-2/YR)

JAPANESE BLACK PINE    
H: 30'-40' | S: 20'-30' | GR: MEDIUM (1-2/YR)

### DECIDUOUS TREES

PIN OAK     
H: 60'-70' | S: 25'-40' | GR: HIGH (+2/YR)

PAPER BIRCH     
H: 50'-70' | S: 20'-40' | GR: MEDIUM (1-2/YR)

SERVICEBERRY     
H: 15'-30' | S: 15'-20' | GR: MEDIUM (1-2/YR)

### DECIDUOUS SHRUBS

     
COMMON WINTERBERRY  
H: 8'-10' | S: 8'-10' | GR: MEDIUM (1-2/YR)

     
BEACH PLUM  
H: 5'-6' | S: 5'-6' | GR: HIGH (+2/YR)

     
NORTHERN BAYBERRY  
H: 6'-8' | S: 6'-8' | GR: MEDIUM (1-2/YR)

### EVERGREEN SHRUBS

   
DWARF FOTHERGILLA  
H: 4'-5' | S: 4'-5' | GR: SLOW (<1/YR)

     
BLACK CHOKEBERRY  
H: 8'-10' | S: 6'-8' | GR: MEDIUM (1-2/YR)

    
SHAMROCK INKBERRY  
H: 4'-5' | S: 4'-5' | GR: LOW (<1/YR)



Native



Moderate-to-High Drought Tolerance



Moderate-to-High Salt Tolerance



# Salem Wind Port Landscape Improvements



- View from Derby St. looking north
- Plant diverse evergreen mix plantings for green buffer
- Protect existing shade trees

Derby Street Plantings

# Salem Wind Port Landscape Improvements



- View from parking lot
- Plant diverse mix plantings
- Natural green buffer
- South-facing slope
- Drainage swale conditions
- Reflect the power plant landscape

Blaney Street Plantings

# Salem Wind Port Landscape Improvements



- Entering through the Gate into the Open Space Walkway

# Salem Wind Port Landscape Improvements



- Moving through the space along the Open Space Walkway.
- Seating incorporated on stone-filled gabion retaining structures.

# Salem Wind Port Landscape Improvements



- Open space area with native grasses and trees.
- View over Salem Harbor along walkway
- Varied Seating options

# Salem Wind Port Landscape Improvements



- Open space area
- View towards Cruise Ship port

# Salem Wind Port Landscape Improvements



- View towards Open Space from Salem Ferry boat dock

# Salem Wind Port Landscape Improvements



- View of Project Site and Open Space from Salem Harbor



# Discussion – Q&A



Contact us:

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