

Presentation to the Ecological Greenway Fund
Standing Committee

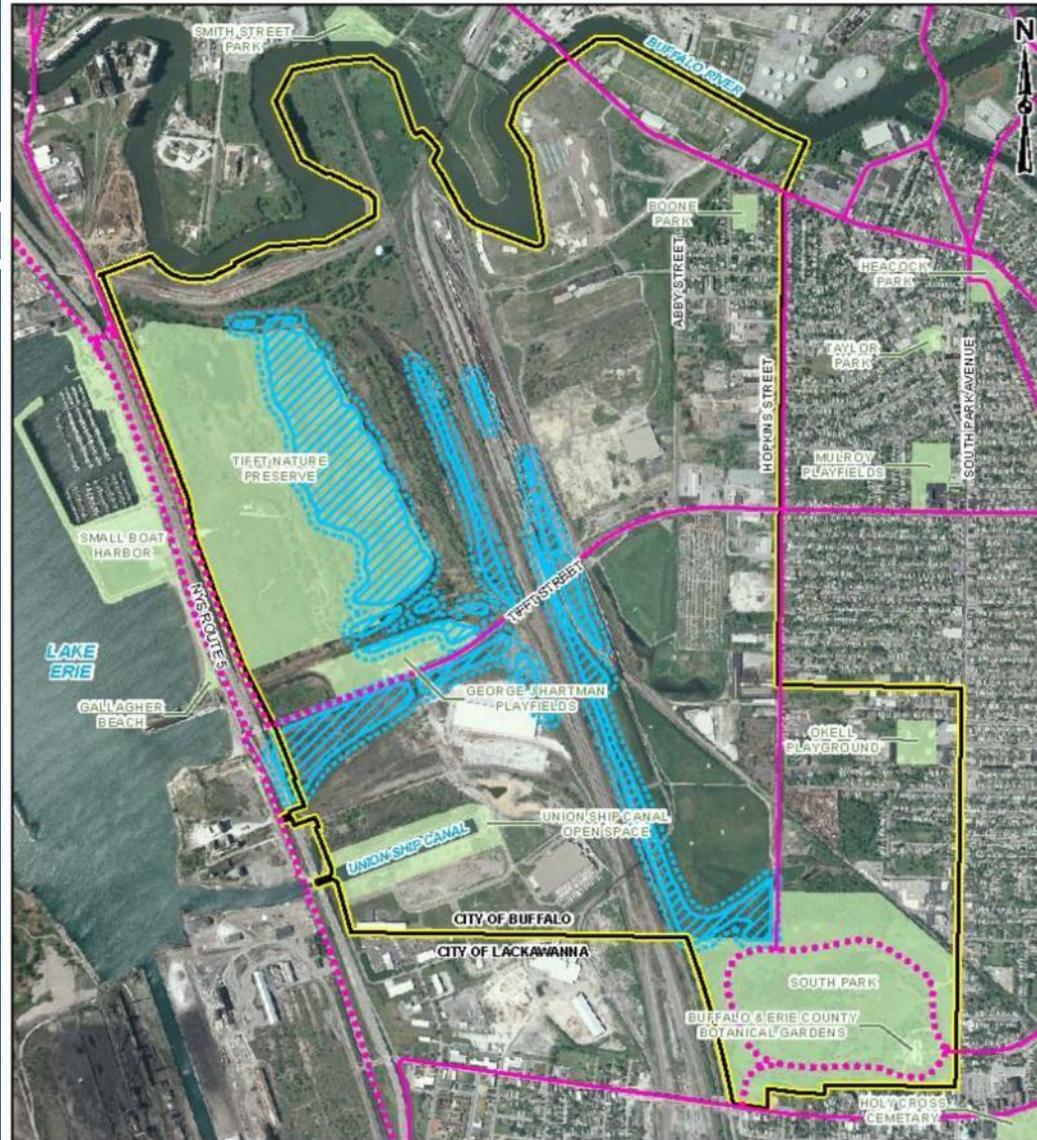
Tuesday, February 2, 2010

UNION SHIP CANAL PUBLIC OPEN SPACE



Site Context

Map 10 Parks and Open Spaces



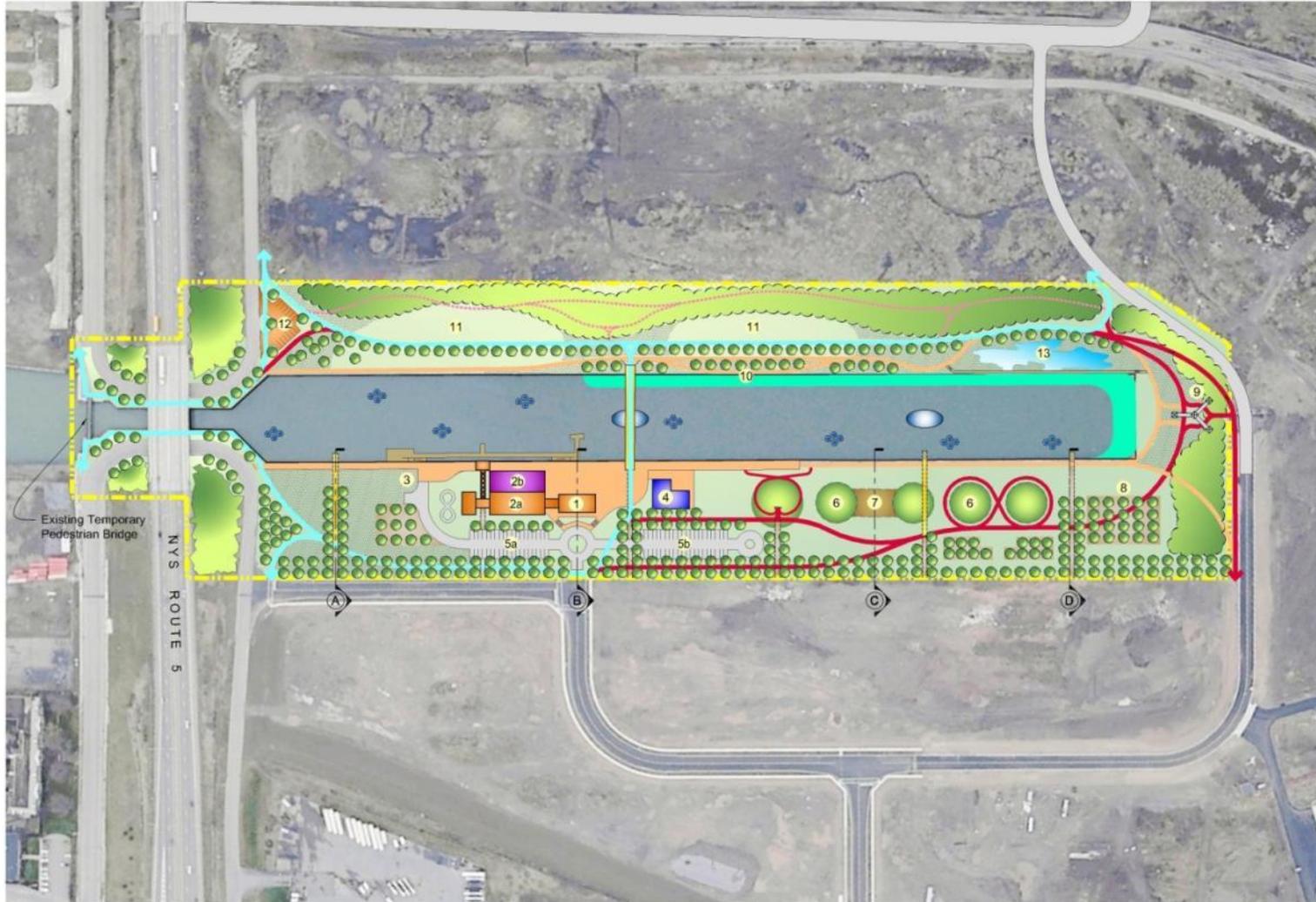
Source: NYS DEC Freshwater Wetlands, 2006; GRINCC Bicycle Route Guide, 2006

LEGEND

- MULTI-USE TRAIL
- ON-STREET BICYCLE NETWORK
- PROJECT BOUNDARY
- ▨ 100-FOOT STATE FRESHWATER WETLANDS BUFFER
- ▨ STATE FRESHWATER WETLANDS
- PARKS / OPEN SPACES

0 1,000 2,000 feet

Site Plan



LEGEND	
	PROJECT BOUNDARY
	MULTI-USE PATH
	RECREATIONAL TRAIL
	PEDESTRIAN CIRCULATION
	NATURE TRAIL
	PEDESTRIAN BRIDGE
	SHALLOW WATER FISH HABITAT
	SUBMERGED ISLAND
	EXPOSED CRIBBING
	ARTIFICIAL REEFS
	FLOATING DOCKS
	LAWN
	NATURALIZED GRASSY AREA
	STONE MULCH
	CROSS SECTION (SEE ATTACHED)
1	PARK BUILDING / PROMENADE - RESTROOMS - MAINTENANCE - STORAGE - CONCESSION
2	DEVELOPMENT SITE
2a	HOBBY CENTER - BOATS - TRAINS - AIRPLANES
2b	RESTAURANT
3	CAR TOP LAUNCH
4	INDUSTRIAL PLAYGROUND
5a	FACILITY PARKING - 40 Cars ±
5b	FACILITY PARKING - 40 Cars ±
6	ARCHITECTURAL LAND FORMS SIMULATING COAL PILES
7	ENTERTAINMENT VENUE
8	INDUSTRIAL ARTIFACTS BOSQUE
9	INDUSTRIAL ICON
10	WATER LEVEL VIEWING AREA
11	PASSIVE / PICNIC / OPEN PLAY AREA
12	TRAIL HEAD PARKING - 14 Cars ±
13	EMBAYMENT

Graphic Rendering



WENDEL DUCHESNEAU
ARCHITECTS

**MALCOLM
PIRNIE**

REVISIONS			
NO.	BY	DATE	REVISIONS

DES.	DLK
DWG.	WAL
CHEK.	

CITY OF BUFFALO
BUFFALO, NEW YORK
**UNION SHIP CANAL OPEN SPACE
PHASE 1**

UPLAND IMPROVEMENTS
GRAPHIC AERIAL IMAGES

SCALE: NTS

Prepared by: MALCOLM PIRNIE, INC.
DATE: February 2009
SHEET 1 OF 1
CAD REF. NO.: USC-1000

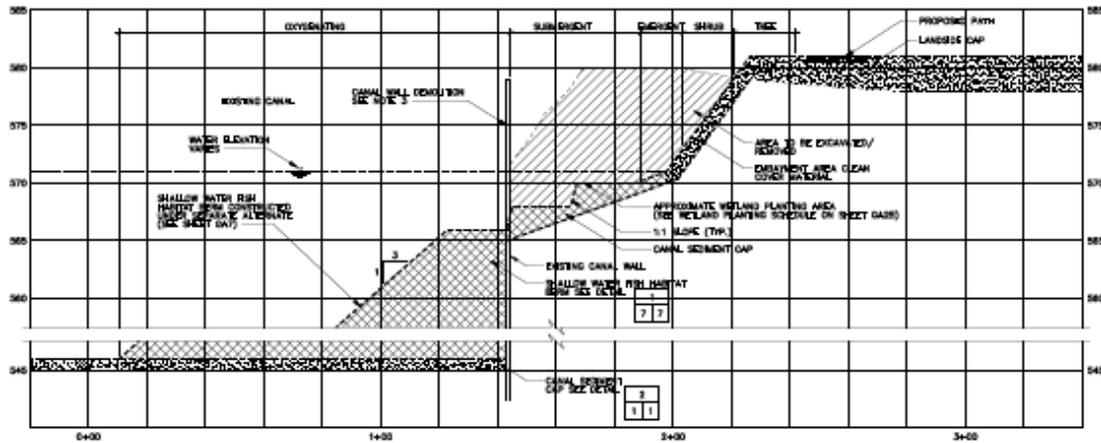
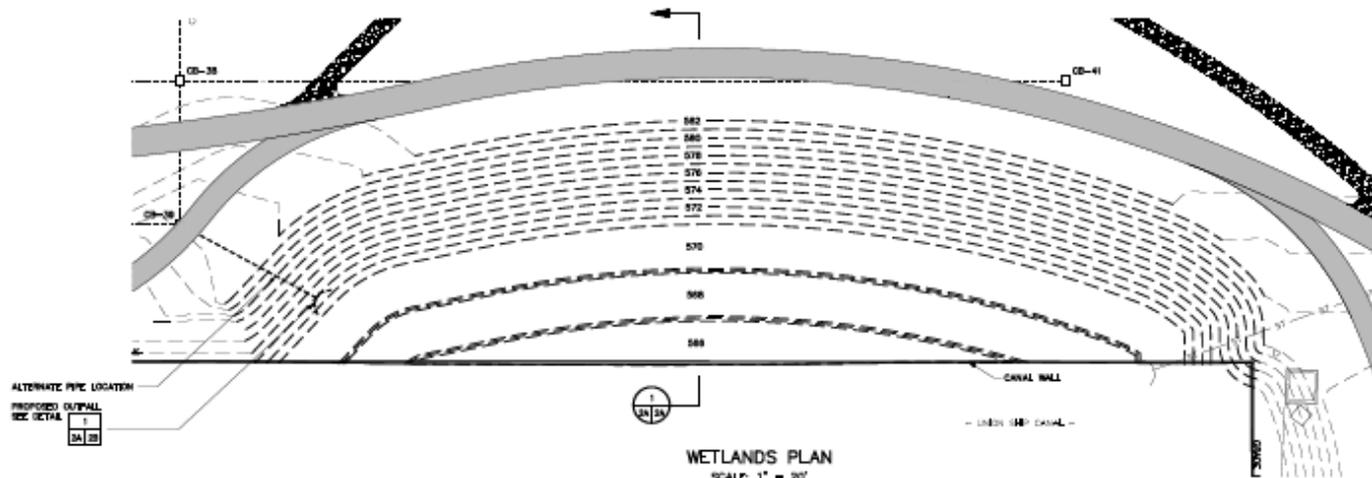
Questions from Ecological Committee

1. What changes have been made to the original proposal? Is the additional work already funded through DEC remediation work? What are the cost estimates based on?

Phased Budget Items

- Land-side Native Tree Planting Enhancements
 - ▣ Total Cost Approximately \$115,000
- Shallow Water Berm Expansion
 - ▣ Total Cost Approximately \$600,000
- Fish Habitat Structures & Substrate Enhancements
 - ▣ Total Cost Approximately \$118,750

Wetlands/Berm – Plan & Section



- NOTES**
1. VERTICAL SCALE IS ENLARGED FOR CLARITY.
 2. CATCH BASIN NO. 43 AND STORM PIPE RUN NO. 43 WILL BE SITED UNDER THE ALTERNATE, ACCIDENTALLY SITED, LOCATION FOR OUTFALL WILL BE AS SHOWN.
 3. CONTRACTOR SHALL PARTIALLY DEMOLISH EXISTING CONCRETE CANAL WALL TO FACILITATE WETLAND EXCAVATION. CANAL WALL REMAINS SHALL NOT BE OBTAINED AT ANY TIME DURING WETLAND EXCAVATION/PLANTING ACTIVITIES. DEMOLISHED CONCRETE SHALL BE CRUSHED TO A MAXIMUM OF NOMINAL QUARTER AND PLACED AT THE BOTTOM OF THE CANAL BELOW CANAL WALL STABILIZATION SOIL AND CANAL SEDIMENT CAP.
 4. PLANTING SCHEDULE SHOWN ON SHEET 28.



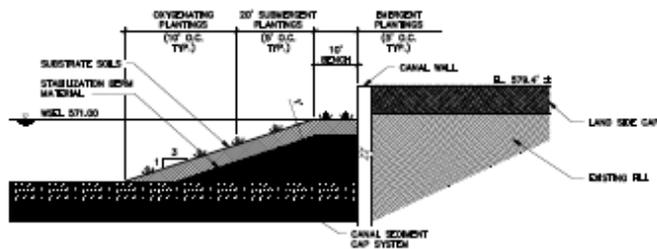
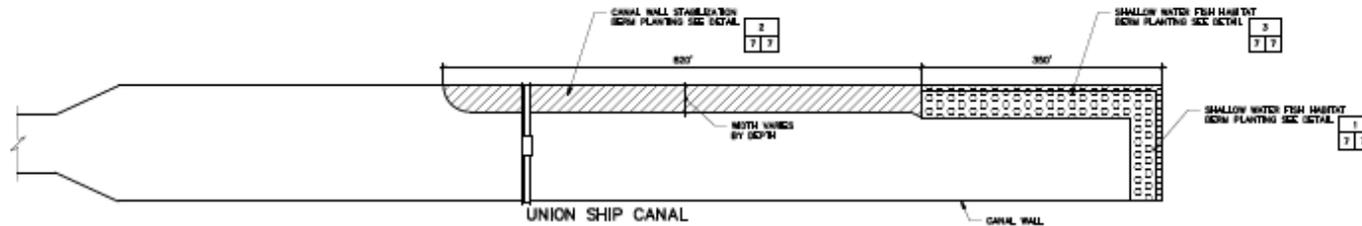
WENCK & MALCOLM PIRNIE, INC.
100 WEST 23RD AVENUE, SUITE 200
NEW YORK, NY 10011
TEL: 212-692-1000
WWW.WENCKMALCOLMPIRNIE.COM

 MALCOLM PIRNIE	NO. 01	DATE	BY
	NO. 02	DATE	BY
	NO. 03	DATE	BY
	NO. 04	DATE	BY

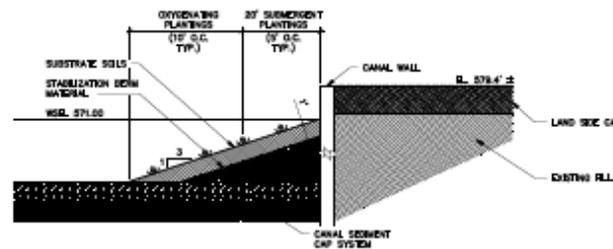
BUFFALO URBAN DEVELOPMENT CORPORATION
**UNION SHIP CANAL OPEN SPACE
PARCEL 3 DEVELOPMENT**
NYSOT P.I.N. 5757.98

WETLAND PLAN AND PROFILE SCALE: AS NOTED	DATE: AUGUST 2009 GA: SHEET 2A OF 8 CAD REF. NO. 4082CAL-1
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Underwater Berm/ Fish Habitat



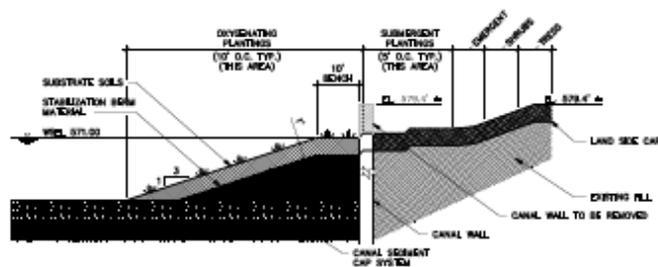
SHALLOW WATER FISH HABITAT
BERM AND PLANTING TYPICAL DETAIL 1
NOT TO SCALE



CANAL WALL STABILIZATION
BERM PLANTING TYPICAL DETAIL 2
NOT TO SCALE

NOTES:
1. CANAL WALL STABILIZATION BERM SHALL BE MODIFIED AS SHOWN FOR THIS ALTERNATIVE.

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SHALLOW WATER FISH HABITAT
BERM AND PLANTING TYPICAL DETAIL 3
NOT TO SCALE

NOTES:
1. CANAL WALL STABILIZATION BERM SHALL BE MODIFIED AS SHOWN FOR THIS ALTERNATIVE.

EMERGENT BERM PLANTING SCHEDULE		
SCIENTIFIC NAME	COMMON NAME	QUANTITY
<i>Scirpus americanus</i>	Swamp milkweed	30
<i>Artemisia biennis</i>	Common ragwort	30
<i>Chelone glabra</i>	Turtlehead	30
<i>Byrrhena pinnatifida</i>	Rattlesnake master	30
<i>Hibiscus moscheutos</i>	Okra	30
<i>Aster canadensis</i>	Canada aster	30
<i>Lobelia spicata</i>	Spotted lobelia	30
<i>Mirabilis jalapa</i>	Jordan's morning glory	30
<i>Rosa pratincola</i>	Swamp rose	30
<i>Rubus odoratus</i>	Blackberry	30
<i>Sagittaria arifolia</i>	Arrowhead	30
<i>Verbena hastata</i>	Blue verbena	30
<i>Veronica filiformis</i>	Common veronica	30
<i>Viburnum acerifolium</i>	American viburnum	30

SUBMERGENT BERM PLANTING SCHEDULE		
SCIENTIFIC NAME	COMMON NAME	QUANTITY
<i>Decodon verticillatus</i>	Swamp milkweed	300
<i>Najas lutea</i>	Lutea	300
<i>Hydrilla verticillata</i>	Yellow pondweed	100
<i>Hydrilla verticillata</i>	White water lily	300
<i>Potamogeton amplifolius</i>	Arrow weed	400
<i>Potamogeton amplifolius</i>	Potamogeton	300
<i>Potamogeton amplifolius</i>	Common pondweed	300
<i>Potamogeton amplifolius</i>	Sage pondweed	300
<i>Sagittaria arifolia</i>	American arrowhead	400

OXYGENATING BERM PLANTING SCHEDULE		
SCIENTIFIC NAME	COMMON NAME	QUANTITY
<i>Elodea canadensis</i>	Coontail	300
<i>Elodea canadensis</i>	American waterweed	300
<i>Valeriana spiralis</i>	Wild Celery	300



MALCOLM
PIRNIÉ

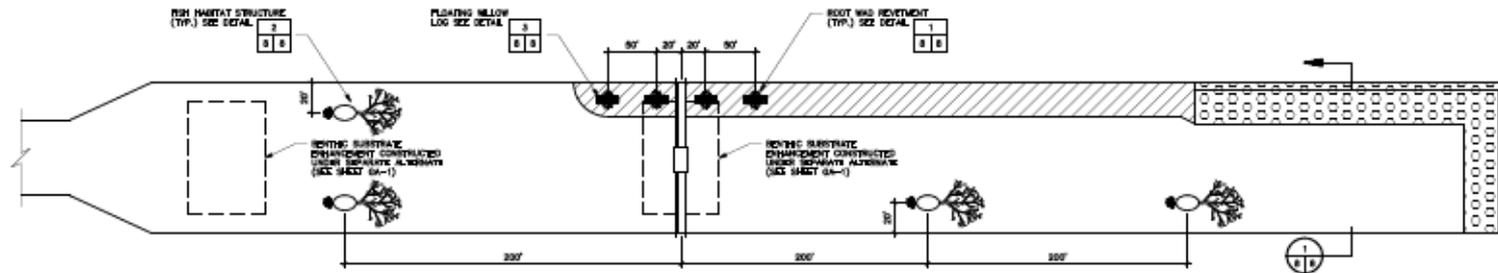
NO.	REV.	DATE	DESCRIPTION

BUFFALO URBAN DEVELOPMENT CORPORATION
UNION SHIP CANAL OPEN SPACE
PARCEL 3 DEVELOPMENT
NYS DOT P.I.N. 5757.98

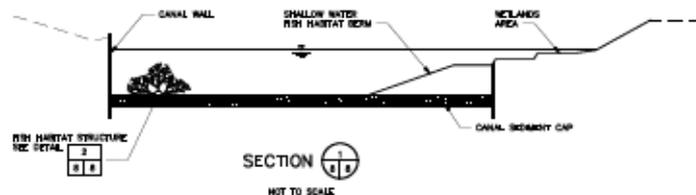
SHALLOW WATER FISH HABITAT
AND CANAL STABILIZATION
BERM PLANTING DETAILS
AS NOTED

DATE: AUGUST 2009
SHEET: 7 OF 8
DWG. NO.: 4080CAL-4

Aquatic Habitat Plan

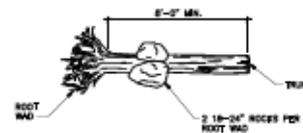


UNION SHIP CANAL
CANAL PLAN
NOT TO SCALE



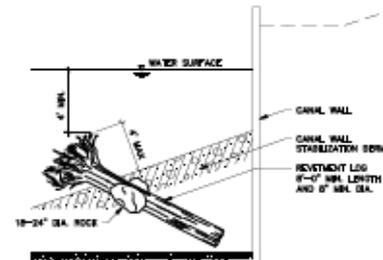
SECTION 1
NOT TO SCALE

NOTE:
1. ARTIFICIAL BASE MATERIAL SHALL BE PLACED OVER CANAL SEDIMENT CAP AND INDICATE CLUSTERED PADS (ARTIFICIAL/SEEP STRUCTURES)

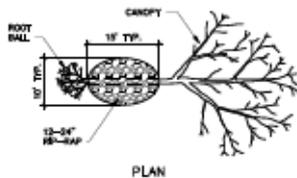


PLAN

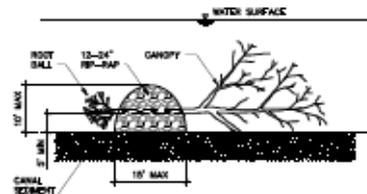
ROOT WAD REVETMENT DETAIL 1
NOT TO SCALE



SECTION

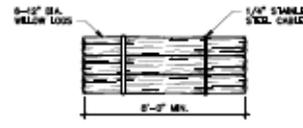


PLAN

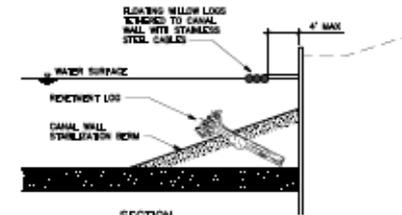


SECTION

FISH HABITAT STRUCTURE DETAIL 2
NOT TO SCALE



PLAN



SECTION

FLOATING WILLOW LOG DETAIL 3
NOT TO SCALE

REVISIONS



MALCOLM
PIRNIE

NO.	BY	DATE	REVISION

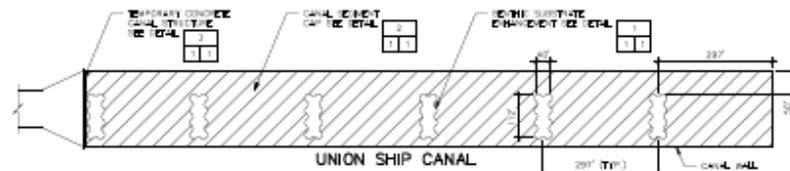
BY: [Signature]
DATE: [Signature]
DATE: [Signature]

BUFFALO URBAN DEVELOPMENT CORPORATION
UNION SHIP CANAL OPEN SPACE
PARCEL 3 DEVELOPMENT
NYS DOT P.I.N. 5757.98

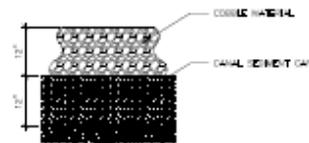
AQUATIC HABITAT
PLAN AND DETAILS
AS NOTED

DATE: AUGUST 2009
GA: SHEET 5 OF 5
CAD FILE NO. 4080CALT-3

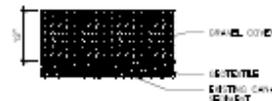
Canal Cap Details



BENTHIC SUBSTRATE ENHANCEMENT PLAN
 NOT TO SCALE

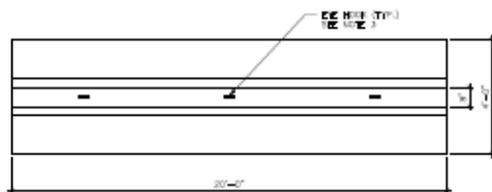


BENTHIC SUBSTRATE ENHANCEMENT DETAIL
 NOT TO SCALE

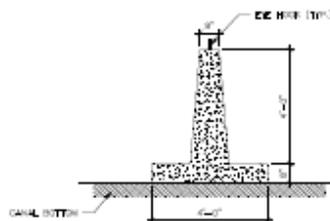


CANAL SEDIMENT CAP DETAIL
 NOT TO SCALE

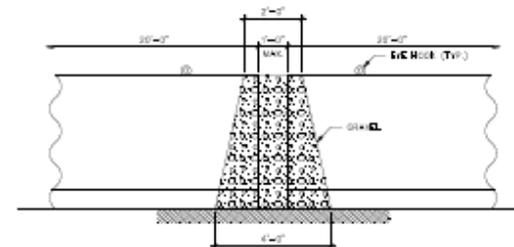
NOTE:
 1. GRAVEL COVER SHALL BE SUBSTITUTED WITH CORAL SAND (SEE BENTHIC SUBSTRATE ENHANCEMENT FOR BENTHIC STRUCTURES).



PLAN



ELEVATION



ELEVATION

TEMPORARY CONCRETE CANAL STRUCTURE DETAIL
 NOT TO SCALE

- NOTE:
1. PROVIDE (1) (2) CONCRETE STRUCTURE AS MANUFACTURED BY HITTORF CONCRETE OR EQUAL.
 2. 20'-0" POST-TESTED SHALL BE PLACED ACROSS CANAL WITH 2' BARRED SPACING 1'-0" BETWEEN BENTHIC PANELS. SHALL BE LAID AT 12'-0" SPACES AS SHOWN.
 3. SEE HERE SHALL BE DIMENSIONED AT 12'-0" SPACES TO SUPPORT FULL VERTICAL STRUCTURE.

REVISIONS

WENZEL CONSULTING ENGINEERS

MALCOLM PIRNIE

NO.	BY	DATE	REVISION
01	SSD		ISSUE FOR PERMIT
02	MAN		REVISED PER COMMENTS
03	SSD		REVISED PER COMMENTS

BUFFALO URBAN DEVELOPMENT CORPORATION
 UNION SHIP CANAL OPEN SPACE
 PARCEL 3 DEVELOPMENT
 NYS DOT P.L.N. 5757.98

CANAL SEDIMENT CAP DETAILS
 AS NOTED

NOT FOR CONSTRUCTION
 DATE: JANUARY 2009
 GA: 1 OF 6
 C:\P\5757.98\CONTRACT-5

Questions from Ecological Committee

2. Please summarize exclusion of less costly canal fill alternatives such as USACE BUD material, and please explain the possibility of phasing requested items.

Questions from Ecological Committee

3. Please provide full site development plan. What % of total BUDC project area is for ecological restoration? What % of land will be pervious vs. impervious?

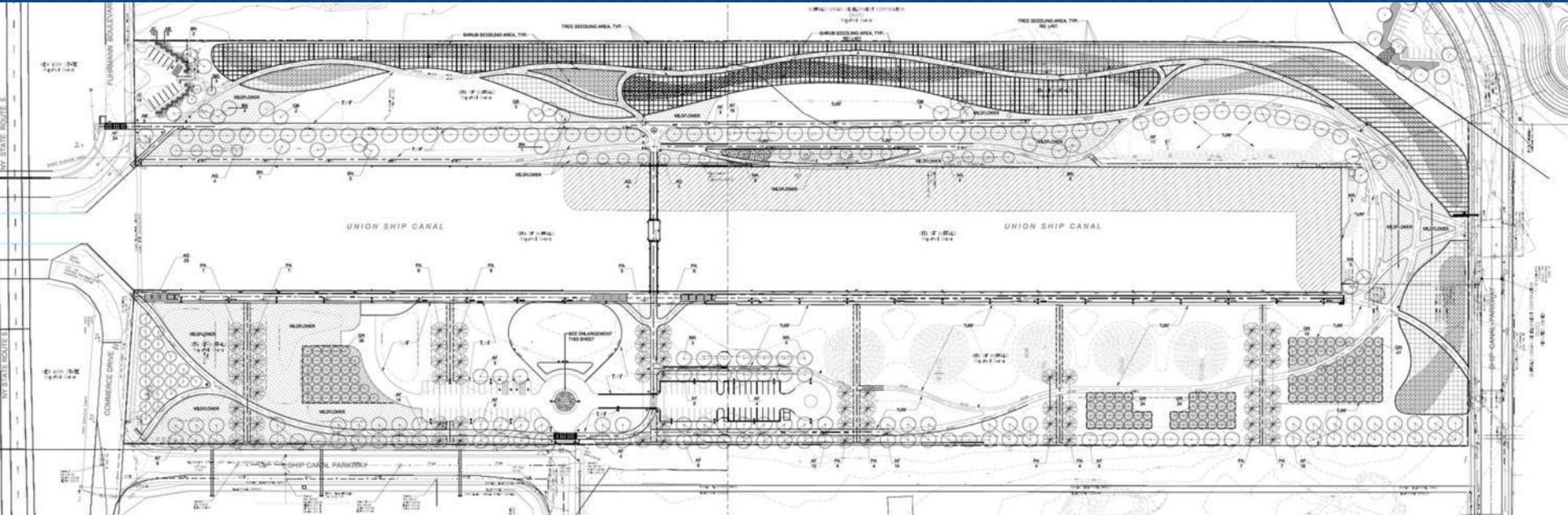
Buffalo Lakeside Commerce Park



Questions from Ecological Committee

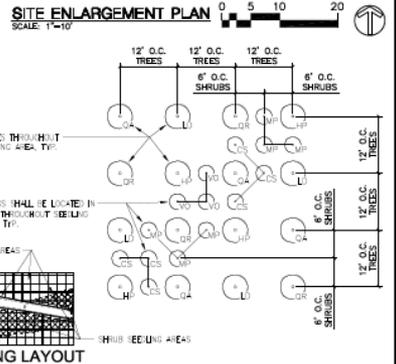
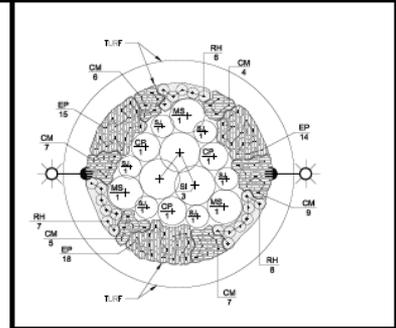
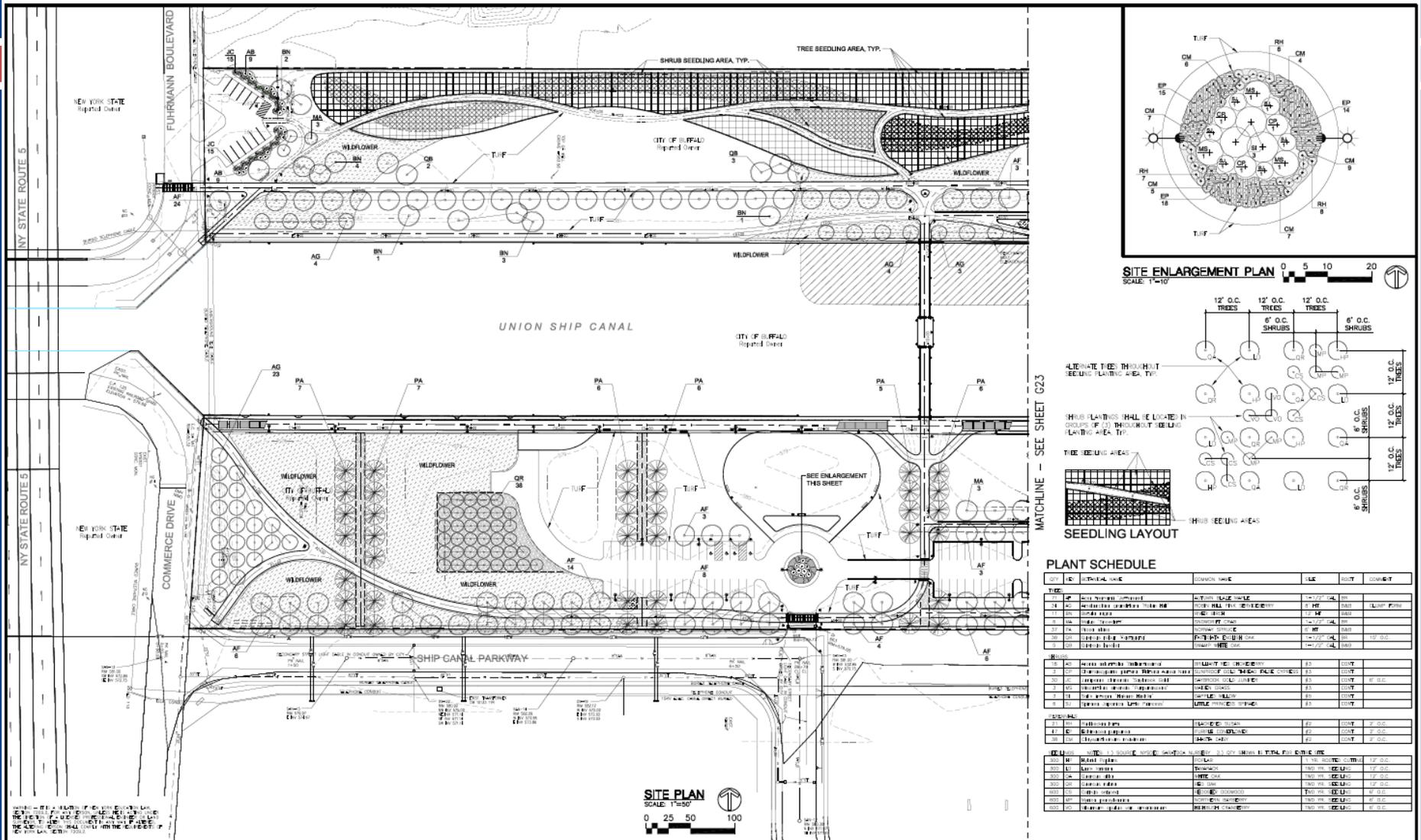
4. What plants will be planted and how many?
Native plants preferred.
5. How will the planting and management plan deal with invasive species like common reed and Japanese knotweed dominating the site as they do elsewhere in the vicinity?

Native Tree Planting Enhancements



Larix laricina, Tamarak , 7', balled and burlapped	150	Each	
Quercus rubra, Northern Red Oak , 2" bare root	150	Each	
Quercus alba, White Oak , 2", bare root	150	Each	
Hybrid Poplar, Poplar , 2" bare root	150	Each	
			Subtotal \$92,000
Contingency	15%		\$13,800
Engineering	10%		\$9,200
			Priority Total Cost \$115,000

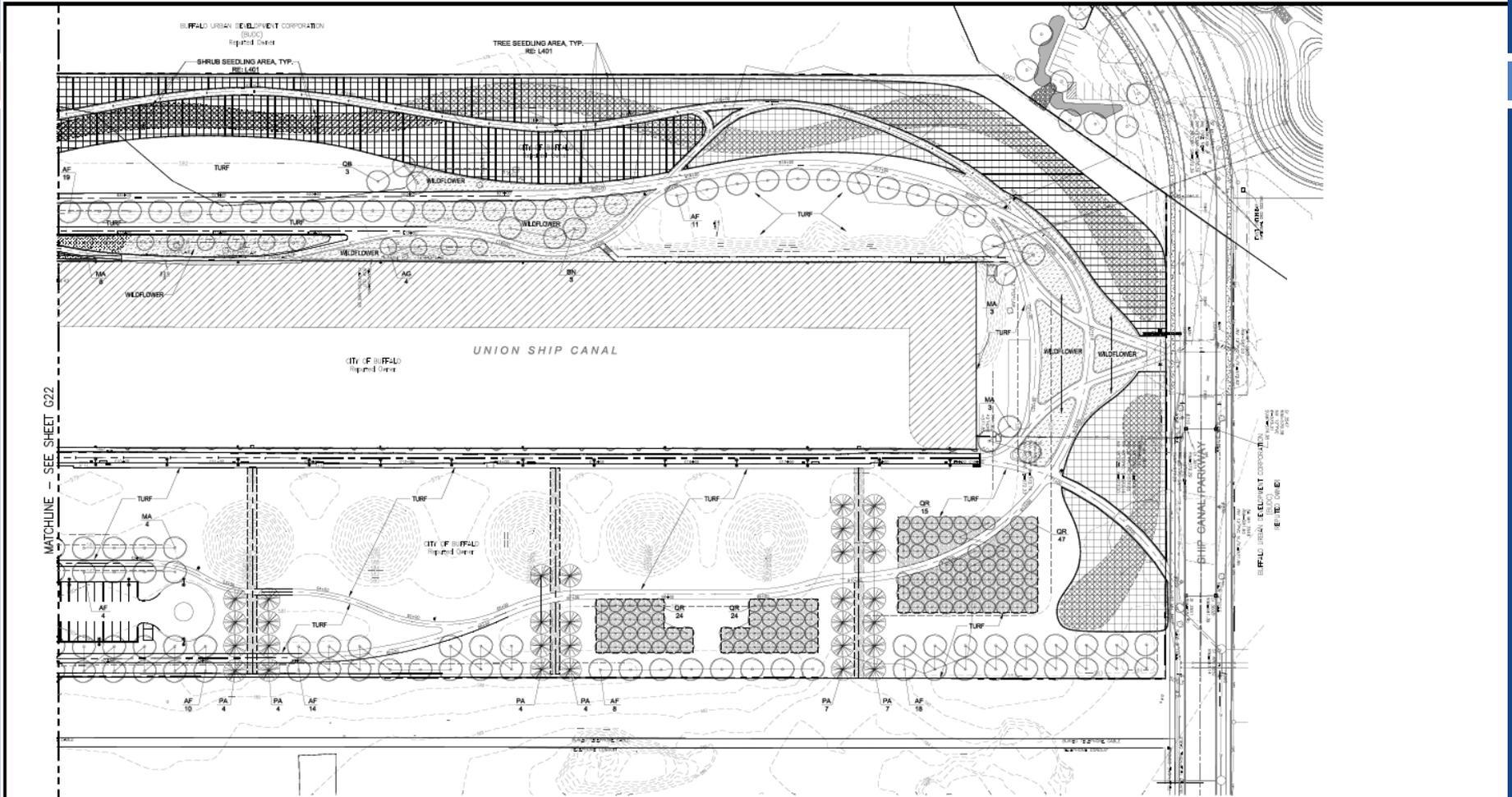
Native Tree Plantings - Expanded (West)



PLANT SCHEDULE

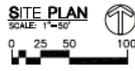
QTY	SYMBOL	COMMON NAME	COMMON NAME	SIZE	UNIT	COMMENTS
17	AF	White Birch	White Birch	1 1/2" CAL	DBH	
14	BN	White Birch	White Birch	1 1/2" CAL	DBH	ALTERNATE
1	GR	White Birch	White Birch	1 1/2" CAL	DBH	
3	MA	White Birch	White Birch	1 1/2" CAL	DBH	
12	PA	White Birch	White Birch	1 1/2" CAL	DBH	
3	AF	White Birch	White Birch	1 1/2" CAL	DBH	
3	BN	White Birch	White Birch	1 1/2" CAL	DBH	
1	GR	White Birch	White Birch	1 1/2" CAL	DBH	
1	MA	White Birch	White Birch	1 1/2" CAL	DBH	
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1	GR	White Birch	White Birch	1 1/2" CAL	DBH	
1	MA	White Birch	White Birch	1 1/2" CAL	DBH	
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1	MA	White Birch	White Birch	1 1/2" CAL	DBH	
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Native Tree Plantings - Expanded (East)



PLANT SCHEDULE

SYM	COMMON NAME	COMMON NAME	SIZE	NOTES	COMMENTS
AF	Aspen Shrub	Aspen Shrub	12" J.P. GAL	BR	
MA	Maple	Maple	12" J.P. GAL	BR	CLAY PEARL
OR	Ornamental	Ornamental	12" J.P. GAL	BR	
PA	Pine	Pine	12" J.P. GAL	BR	
OR	Ornamental	Ornamental	12" J.P. GAL	BR	
OR	Ornamental	Ornamental	12" J.P. GAL	BR	
OR	Ornamental	Ornamental	12" J.P. GAL	BR	
OR	Ornamental	Ornamental	12" J.P. GAL	BR	



NOTES: 1. ALL PLANTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF BUFFALO PLANTING SPECIFICATIONS. 2. THE CONTRACTOR SHALL VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO CONSTRUCTION.

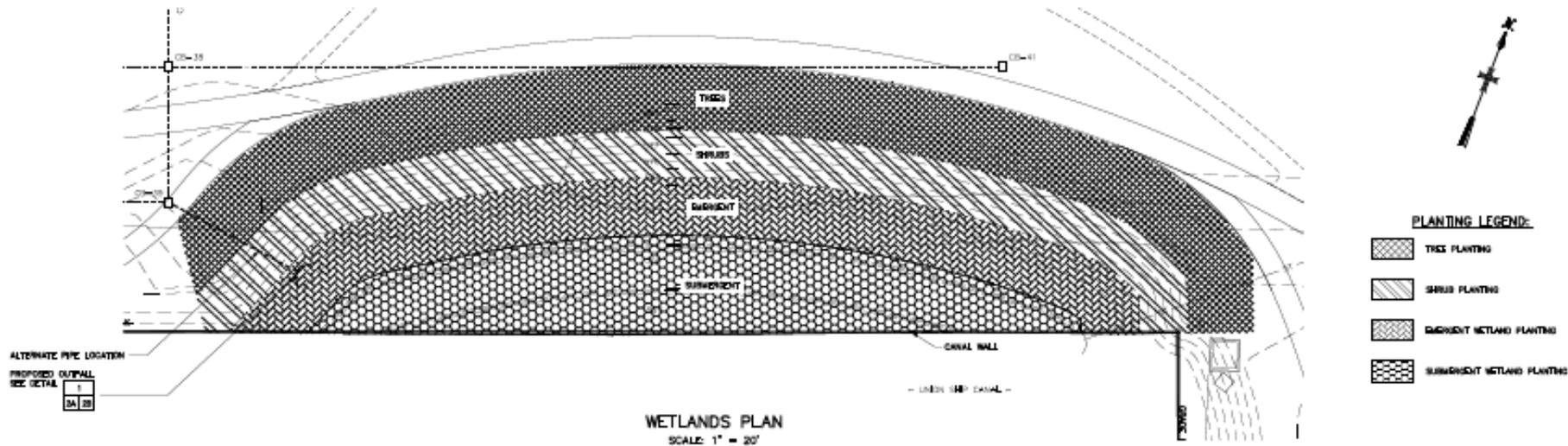
	REVISIONS			
	NO.	BY	DATE	REMARKS
DES	AVT			
DRN	AVT			
DD	MVM			

BUFFALO URBAN DEVELOPMENT CORPORATION
**UNION SHIP CANAL OPEN SPACE
 PARCEL 3 DEVELOPMENT**
 NYSOT P.I.N. 5757.98

UPLAND IMPROVEMENTS
**LANDSCAPING PLAN
 EAST**
 SCALE: 1"=50'

DATE: AUGUST 2009
 G SHEET 23 OF 27
 CAD REF. NO. USC-L402

Wetland Planting Schedule – Plan



Shrub Planting Schedule

<u>Scientific Name</u>	<u>Common Name</u>	<u>Quantity</u>
<i>Alnus incana</i>	Speckled Alder	40
<i>Hamamelis virginiana</i>	Witch Hazel	40
<i>Ilex verticillata</i>	Winterberry	40
<i>Lindera benzoin</i>	Spicebush	40
<i>Salix discolor</i>	Pussy Willow	40
<i>Sambucus Canadensis</i>	Elderberry	40
<i>Viburnum trilobum</i>	American Cranberry	40

Tree Planting Schedule

<u>Scientific Name</u>	<u>Common Name</u>	<u>Quantity</u>
<i>Acer rubrum</i>	Red Maple	40
<i>Alnus incana</i>	Speckled alder	40
<i>Cornus amomum</i>	Silky Dogwood	40
<i>Hamamelis viriniana</i>	Witch Hazel	40
<i>Lindera benzoin</i>	Spicebush	40
<i>Platanus accidentalis</i>	American Sycamore	40
<i>Quercus rubra</i>	Red Oak	40

Wetland Planting Schedule – Plan (cont.)

Submergent Wetland Planting Schedule

<u>Scientific Name</u>	<u>Common Name</u>	<u>Quantity</u>
Asclepias incarnate	Sawmp Milkweed	400
Hibiscus moscheutos	Crimsoneyed Rosemallow	400
Iris versicolor	Blue Flag	400
Juncus Canadensis	Canada Rush	400
Lobelia Siphilitica	Great Blue Lobelia	400
Nuphar Advena	Yellow Pond Lily	50
Nymphaea adorata	White Water Lily	150
Peltandra virginica	Arrow Arum	400
Pontederia cordata	Pickerel Weed	100
Sagittaria latifolia	Duck Potato (arrowhead)	400
Scirpus acutus	Hard Stemmed Bulrush	400

Emergent Wetland Planting Schedule

<u>Scientific Name</u>	<u>Common Name</u>	<u>Quantity</u>
Asclepias incarnate	Sawmp Milkweed	50
Aster novae – angliae	New England Aster	50
Chelone glabra	Turtlehead	50
Eryngium yuccifolium	Rattlesnake Master	50
Hibiscus moscheutos	Crimsoneyed rosemallow	50
Juncus Canadensis	Canada Rush	50
Lobelia siphilitica	Great Blue Lobelia	50
Mimulus ringens	Square Stemmed Monkey Flower	50
Rosa Palustris	Swamp Rose	50
Rudbeckia hirta	Black Eyed Susan	50
Scirpus acutus	Hard Stemed bulrush	50
Verbena hastate	Blue Vervain	50
Vernonia Fasciculata	Common Ironweed	50
Viburnum trilobum	American Cranberry	50

Questions from Ecological Committee

6. What is the total budget request? Please prioritize budget.

Phased Budget Items

- Land-side Native Tree Planting Enhancements
 - ▣ Total Cost Approximately \$115,000
- Shallow Water Berm Expansion
 - ▣ Total Cost Approximately \$600,000
- Fish Habitat Structures & Substrate Enhancements
 - ▣ Total Cost Approximately \$118,750