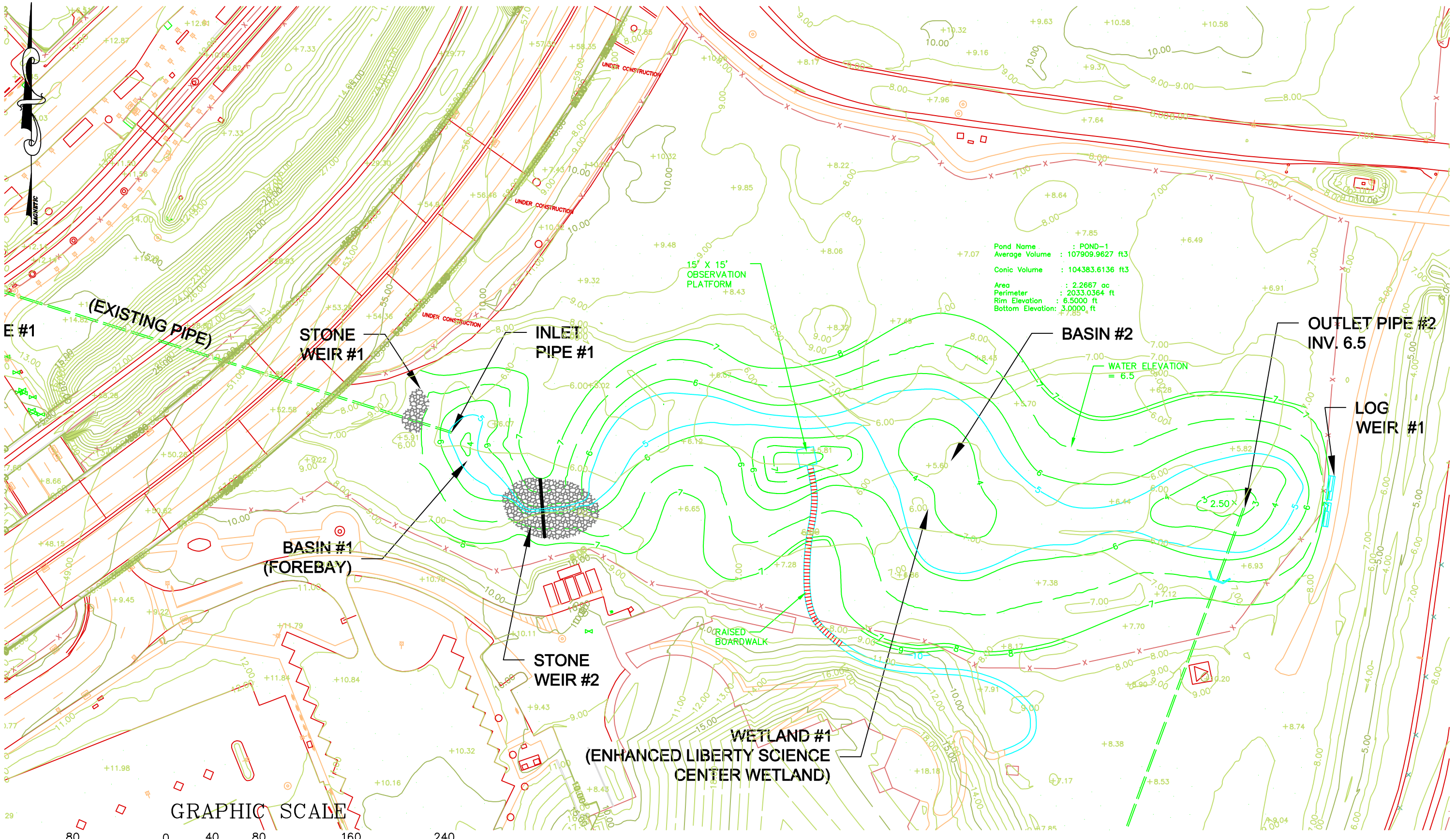
LIST OF APPENDICES



ENHANCED LIBERTY SCIENCE CENTER WETLANDS

FIGURE B-1

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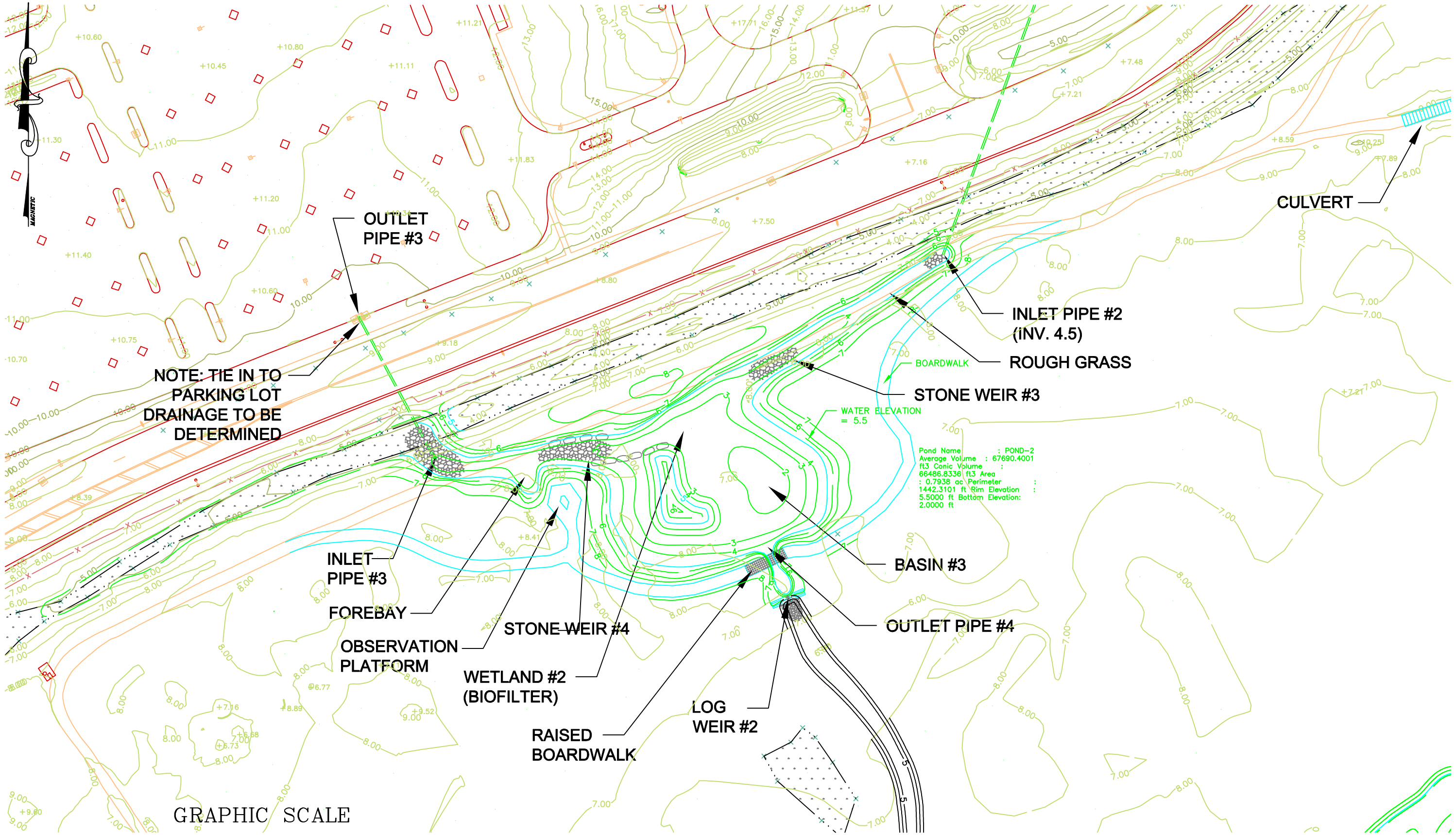

BIOFILTER

FIGURE B-2

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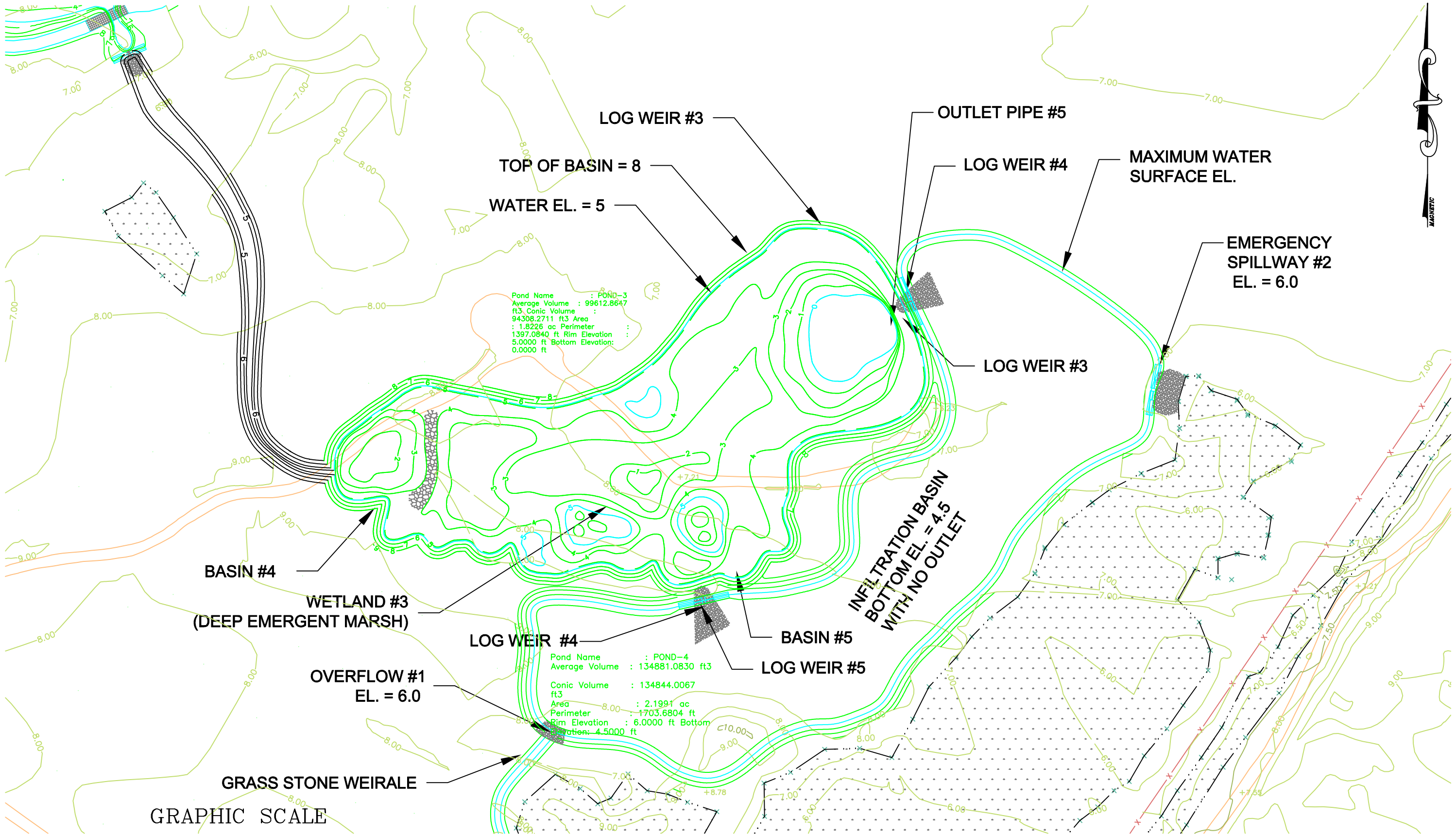

GRAPHIC SCALE

80 0 40 80 160 240

(IN FEET)
1 inch = 80 ft.

DEEP EMERGENT MARSH

FIGURE B-3

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Appendix C

Table C-1 Wetland Elevations

(note: all elevations are in feet NAVD, see legend at the bottom of the table)

Enhanced Liberty Science Center Wetland

Wetland #1 Areas	Basin #, Log Weir #	Surface Water Elevation	Invert Elevation	Elevation at Top of Weir	Estimated Groundwater Elevation
Forebay	B#1, IP#1***	5.6	6.5	7.5	3.25
	B#1, SW#1	6.5	6.5	7.5	3.25
LSC Wetland	B#2; OP#2	6.5	6.5	7.5	3.25
LSC Wetland	B#2; LW#1	6.5	6.5	7.5	3.25

Biofilter Wetland

Wetland #2 Areas	Basin #, Log Weir #	Surface Water Elevation	Invert Elevation	Elevation at Top of Weir	Estimated Groundwater Elevation
Forebay 1	B#3, IP #2****	4.4	5.5	6.5	3.0
Forebay 1	B#3, SW #2	5.5	5.5	6.5	3.0
Forebay 2	B#3, IP #3	5.57	5.5	6.5	3.0
Forebay 2	B#3, SW #3	5.5	5.5	6.5	3.0
BF Wetland	B#4; OP #4	5.5	5.5	6.5	3.0
BF Wetland	B#4; LW #2	5.5	5.5	6.5.	3.0

Deep Emergent Marsh Wetland

Wetland #3 Areas	Basin #, Log Weir #	Surface Water Elevation (mean)	Invert Elevation	Elevation at Top of Weir	Estimated Groundwater Elevation
Forebay	B#5, IP#5	5.0	5.0	6.0	3.5
Forebay	B#5, SW#5	5.0	5.0	6.0	3.5
DEM Wetland	B#6; LW#3	5.0	5.0	6.0	3.5
DEM Wetland	B#6; LW#4	5.0	5.0	6.0	3.5

Infiltration Basin

Infiltration Areas	Spill Way #	Ground Elevation	Invert Elevation	Elevation at Top of Weir	Estimated Groundwater Elevation
Infiltration Basin	B#5, IP#5	4.5	NA	6.5	3.5
	B#5, SW#5	4.5	NA	6.5	3.5

* mean surface elevation
** approximate groundwater elevation from geotech borings
*** the existing inlet from the NJ Transit lot is about 5.6. The USACE assumes this will remain unchanged.
**** the pipe from the LSC wetland will come under the road and enter the biofilter about 12 inches below the water elevation surface of the biofilter. Pipe invert is about 4.5 NAVD. Pipe may be two 9” dia. pipes.

Zone Designation:

LEGEND:

OP = Outlet Pipe
IP = Inlet Pipe
B = Basin
LW = Log Weir
SW = Stone Weir
ES = Emergency Spillway

Appendix C

Table C-2. Wetland Zones

Wetland Zones (Created Habitats)

ZONES	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
Plant Community	Deepwater Habitat	Shallow Marsh Habitat	Shoreline Fringe	Safety Bench Riparian Fringe	Scrub-shrub transitional	Upland
Depth of standing water	1.5 to 6 feet	0.0 to 1.5 feet	-0.5 to .5 feet	-1.0 to 1.5 feet	1.5.0 to 3.0 feet	>3.0

(1) Zone 1. Deep Water Pool: (Deepwater Habitat)

a. 1.0 to 6 feet deep
b. Submerged Aquatic Plants
    i. Wild celery
    ii. Sago pondweed
    iii. Redhead grass
c. Permanently Flooded - These are permanently flooded, although they may be exposed during extreme droughts. The deep emergent marsh is the only wetland were the depth exceeds 6 feet and is expected to be wet in all years. Open water bodies where the depth is less than 6.0 feet (e.g., areas in the deep emergent marsh wetlland and shallow portions of the Liberty Science Wetland and the biofilter) are included in this category.

(2) **Zone 2: Shallow Water Bench (Shallow Marsh Habitat)**

a. 0.5- 1.0 feet (6 inches to 12 inches) deep
b. Emergent Aquatic Plans
    a. Common three square
    b. Soft stem bulrush
    c. Lizard's tail.
c. Semi-permanently Flooded - Remains flooded throughout the growing season in most years. The surface of these wetlands become exposed to the air only during dry spells. Even then, the water table lies at or near the surface.

(3) **Zone 3. Shoreline Fringe (Wet Meadow Habitat)**

a. 0.0 to 0.5 feet (0 to 6 inches) deep
b. Emergent Aquatic Plants
    a. Sedges
    b. Switchgrass
    c. Buttonbush
c. Seasonally Flooded - Typically has standing water visible for more than one month, but usually by late summer, such water is absent. At this time, however, the water table remains within 1.5 feet of the surface.

(4) **Zone 4. Riparian Fringe (Shrub Scrub Habitat)**

a. 0.0 to 1.5 feet above mean water elevation.
b. Shrubs and trees
    a. Red osier dogwood
    b. Red maple
    c. Swamp oak
c. Temporarily Flooded - Flooding or ponding is brief (usually 2 weeks or less)

(5) Zone 5. Floodplain terrace

a. Moist Soils -
b. Shrub-scrub transitional Zone
    i. Silky dogwood

ii. Elderberry
iii. Red fescue grass
iv. Tulip tree
v. Willow oak

c. Infrequently inundated.

(6) Zone 6. Upland Slopes

a. Moist to dry soils
b. Shrubs, grasses and trees,
    i. Redtop
    ii. Tall fescue
    iii. Shadbush
    iv. Persimmons
    v. Chokecherry
    vi. American beech
c. Seldom or never inundated- Upland transitional zone, buffer to the wetland.