




MPBMA Crystal Lake Restoration 2024-2025

Phase I – Source Water Protection and
Restoration





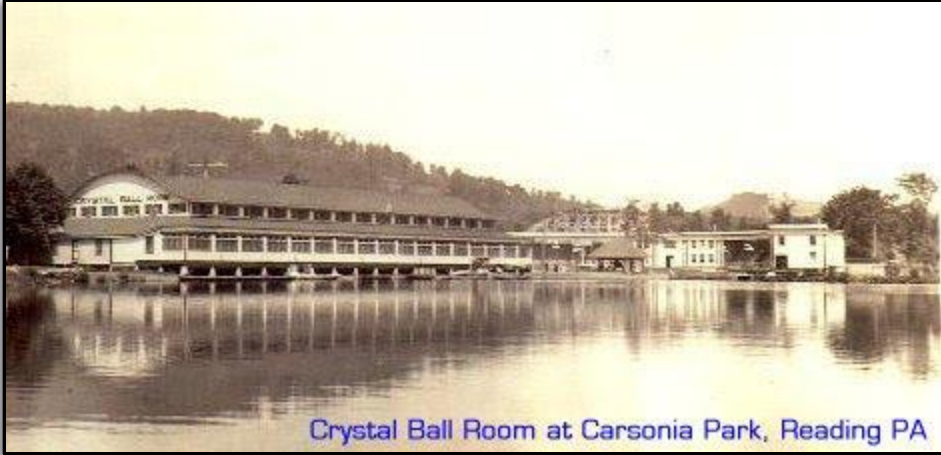
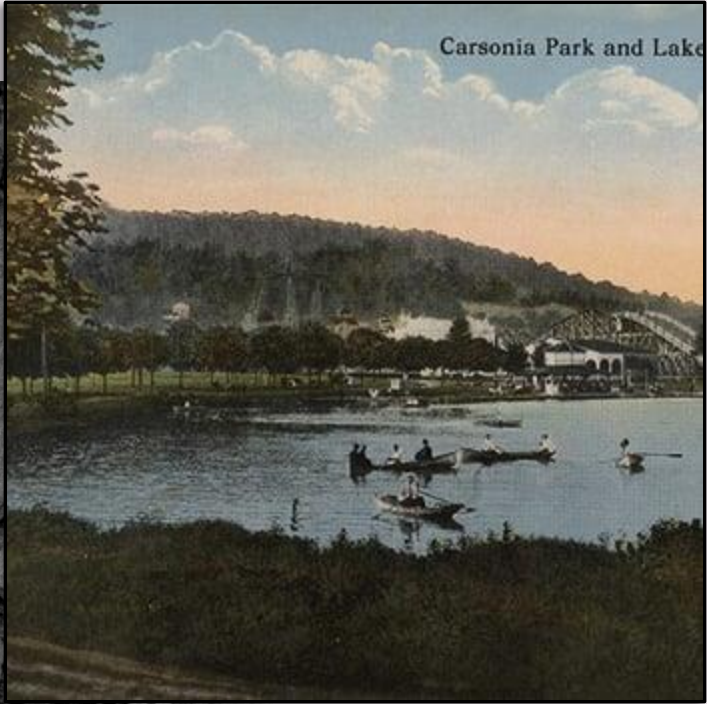
Project Summary

PHASE I: THE RESTORATION

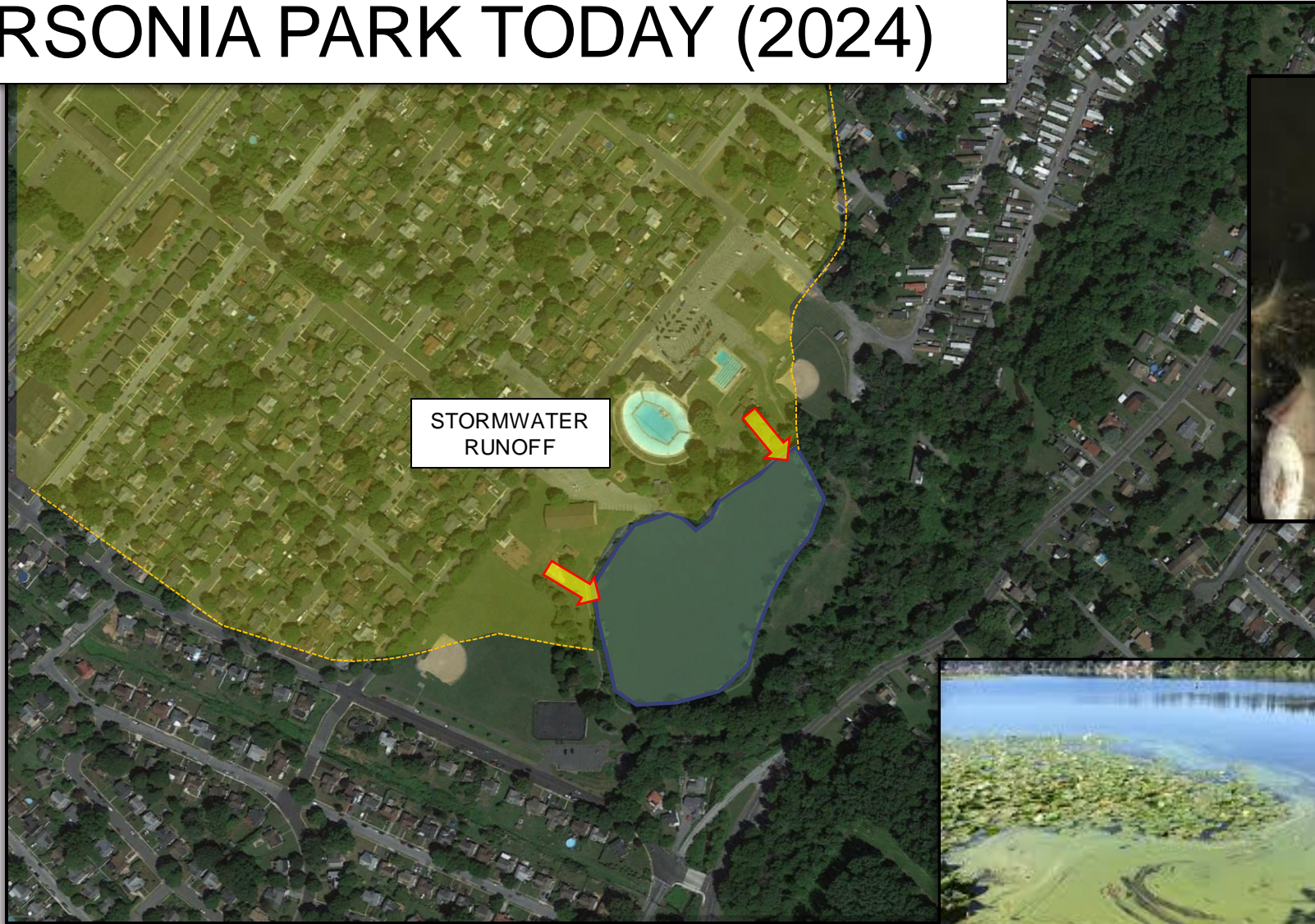
- 1. Protect water quality in the subsurface aquifer that supplies thousands to local residents with drinking water. Well-head/Source water protection.*

- 2. Improve downstream water quality and quantity in Antietam Creek and the Schuylkill River Watershed.*
- 3. Improve fish and aquatic habitat in Crystal Lake for ecological and recreational uses.*
- 4. Creating an "Outdoor Classroom" for community school districts incorporating PDE standards of STEELS (Science - Technology - Engineering - Environmental - Literacy & Sustainability)*

CARSONIA PARK, CIRCA 1937



CARSONIA PARK TODAY (2024)



Good afternoon,

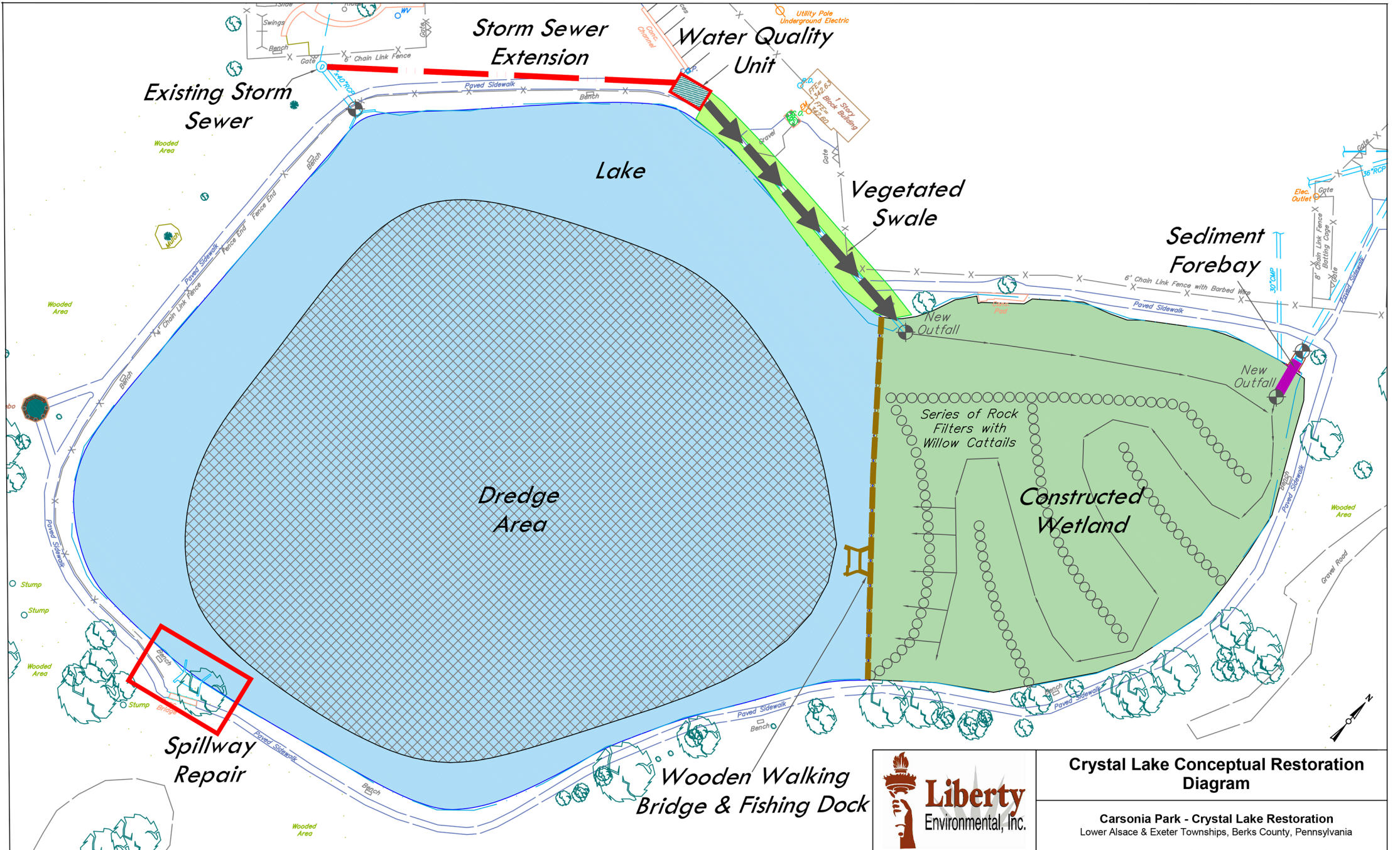


Data collection efforts on Crystal Lake and from the outlet of Crystal Lake conducted on July 18, 2024 indicate that concentrations of cyanobacteria range from 3,300 to 4,420 Natural Units/mL. These results exceed the 1,500 Natural Units/mL Avoid Contact threshold for primary contact (swimming). Based on these counts, additional toxin testing was conducted. The results indicate that the concentrations of Microcystins (14.7 ug/L) also exceed the Avoid Contact threshold for primary contact (swimming).

It doesn't appear that swimming is permitted at Crystal Lake. Subsequently, the recommendation from the HABs Task Force would be to post a Watch for this waterbody.

The Task Force has developed a Watch recommendation for the purposes of communicating to the public that conditions could lead to a HAB and that users should be attentive. A Watch recommendation is appropriate when:

- Visual observations indicate conditions are optimal for a HAB;
- Waterbodies without public swimming beaches experience colony counts or toxin concentrations that exceed response level thresholds;
- Waterbodies with public swimming beaches experience colony



NOTE: DRAWING INTENDED FOR ILLUSTRATIVE PURPOSES ONLY, NOT TO BE USED AS A BASIS FOR ENGINEERING OR DESIGN.



Crystal Lake Conceptual Restoration Diagram

Carsonia Park - Crystal Lake Restoration
Lower Alsace & Exeter Townships, Berks County, Pennsylvania

505 Penn St. Suite 400
Reading, PA 19601
Phone: 610-375-9301
www.libertyenviro.com

PROJECT NO.: 150324

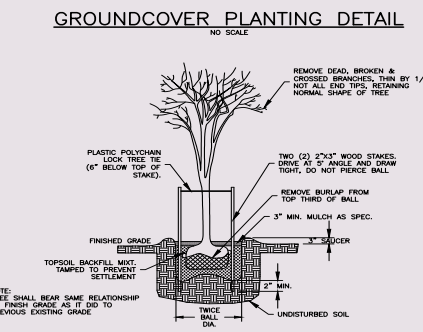
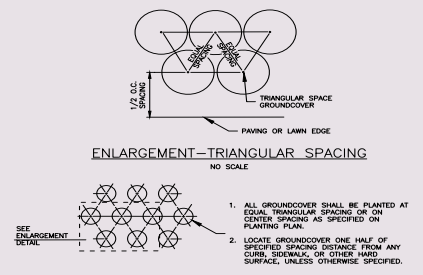
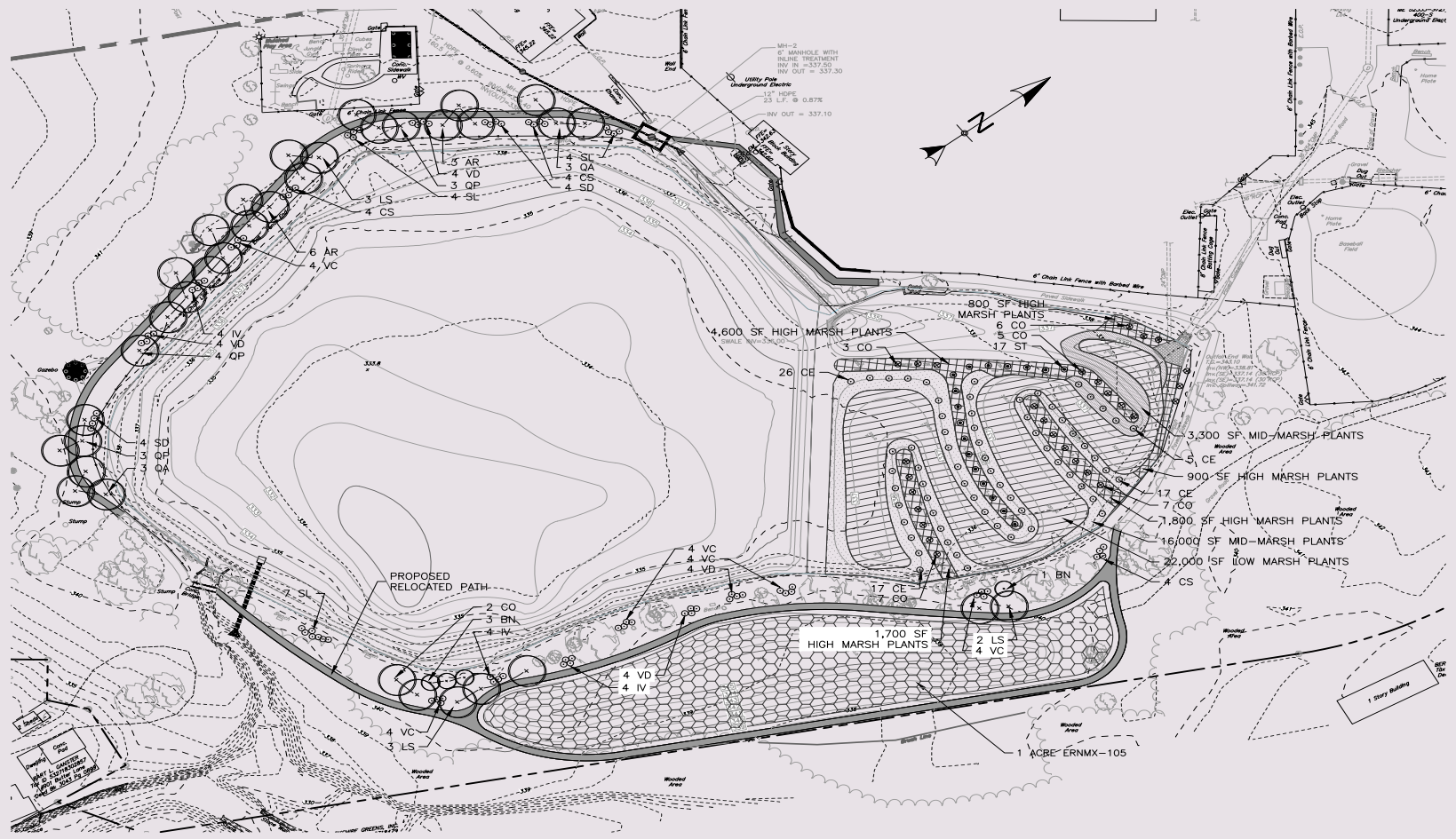
REV: 0

PREPARED BY: JRP

DATE: DECEMBER 13, 2017

SCALE: 1" = 60'

APPROVED BY: JPC



WETLAND PLANTING/ MEADOW MIX NOTES

LOW MARSH PLANTS (FLOATING & FORBS)
22,000 SF
ROOT MATERIAL: 1 FOOT INTERVALS
AMERICAN PENNYWORT
PICKEREL WEED
AMERICAN LOTUS
COMMON DUCKWEED

MID-MARSH PLANTS (FORBS)
19,300 SF
ROOT MATERIAL: 1 FOOT INTERVALS
LAMP RUSH
FRINGED SEDGE
CARDINAL FLOWER

SCRUB/ SHRUB: 15 FOOT INTERVALS
BUTTERNUT

HIGH MARSH PLANTS (FORBS)
9,800 SF
BROADCAST SEED
DARK GREEN BULLRUSH
AMERICAN BURR REED
LAMP RUSH
GREATER BLADDER SEDGE
SIMPLERS JOY

ERNMX-105 (MESC TO DRY NATIVE POLLINATOR MIX)
1 ACRE
BROADCAST SEED
LITTLE SILBESTEM PRAIRIE VIEW
INDANGRASS
VIRGINIA WILDRIE, MADISON
PURPLE CONFLOWER
(GO TO ERNSTSEED.COM FOR COMPLETE PLANT LIST)

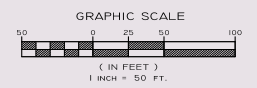
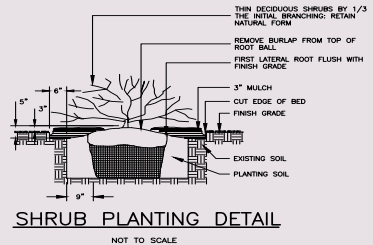
SCRUB/ SHRUB: 15 FOOT INTERVALS
SILKY DOGWOOD
STEEPLEBUSH

DECIDUOUS TREES

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
AR	9	ACER RUBRUM	RED MAPLE	2-2 1/2 CAL	AS SHOWN
BN	4	BETULA NIGRA	RIVER BIRCH	2-2 1/2 CAL	AS SHOWN
CO	2	CELTIS OCCIDENTALIS	COMMON HACKBERRY	2-2 1/2 CAL	AS SHOWN
LS	8	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	2-2 1/2 CAL	AS SHOWN
QA	6	QUERCUS ALBA	WHITE OAK	2-2 1/2 CAL	AS SHOWN
QP	10	QUERCUS PALUSTRIS	PIN OAK	2-2 1/2 CAL	AS SHOWN

SHRUBS

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
CA	28	CORNUS AMOMUM	SILKY DOGWOOD	24-30" HT.	15 FT.
CE	65	CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	24-30" HT.	AS SHOWN
CS	12	CORNUS SERICEA	RED-OSIER DOGWOOD	24-30" HT.	AS SHOWN
IV	12	ILEX VERTICILLATA	WINTERBERRY	24-30" HT.	AS SHOWN
SD	8	SALIX DISCOLOR	PUNY WILLOW	24-30" HT.	AS SHOWN
SL	15	SPIRAEA LATIFOLIA	BROADLEAF MEADOWSWEET	24-30" HT.	AS SHOWN
ST	17	SPIRAEA TOMENTOSA	STEEPLEBUSH	24-30" HT.	15 FT.
VC	20	VIBURNUM CASSINOIDES	WITHEROD VIBURNUM	24-30" HT.	AS SHOWN
VD	16	VIBURNUM DENTATUM	ARROWWOOD	24-30" HT.	AS SHOWN



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LIBERTY Environmental Inc.

DESIGN GROUP

CDC DESIGN GROUP
37 East Penn Avenue
Scranton, PA 18503
610.860.0500 www.cdcgpa.com

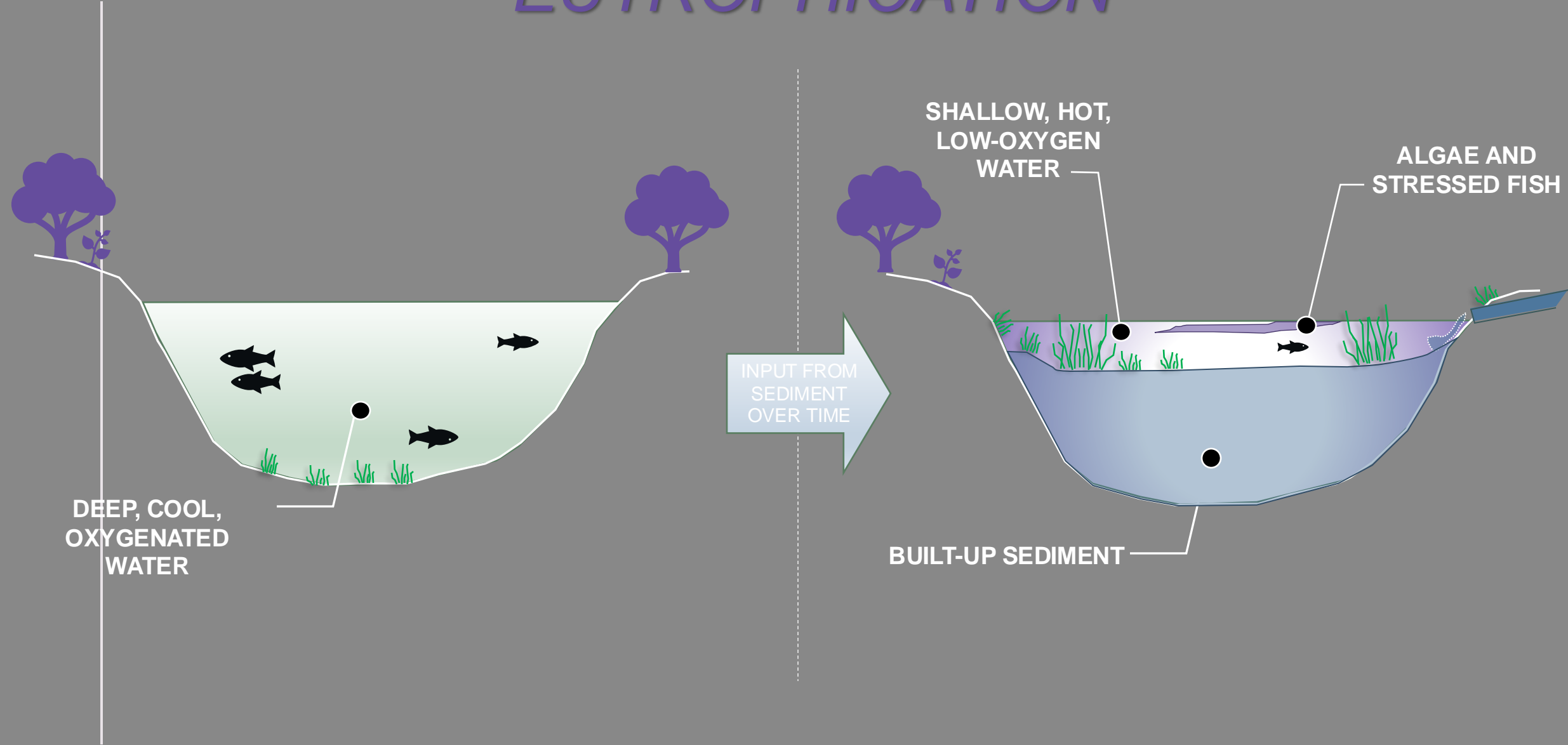
LANDSCAPE PLAN

CRYSTAL LAKE JOINT PERMIT APPLICATION

LOWER ALASKA/DETER: TMS.

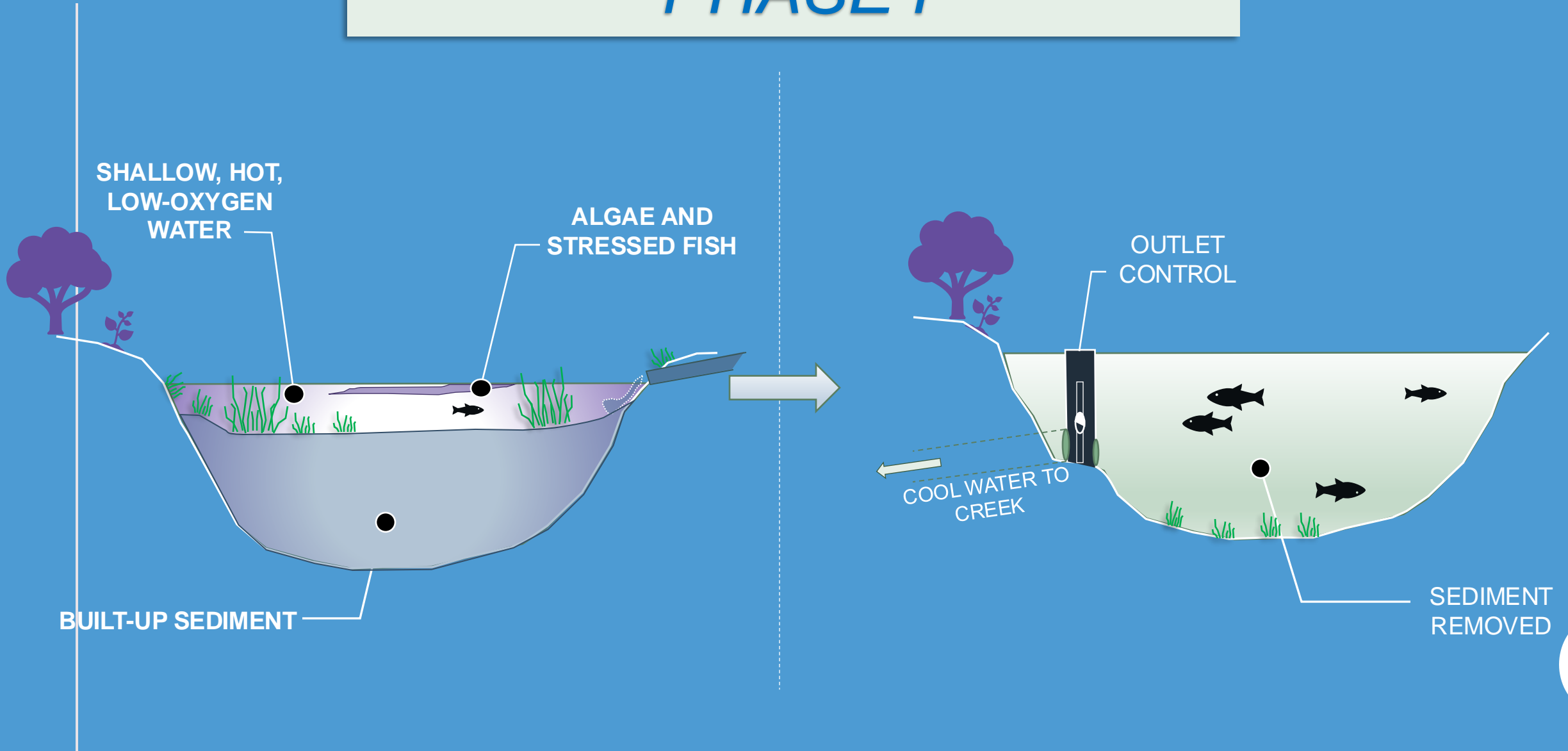
PROJECT #: LIB-LAS-01
SCALE: 1"=50'
DRAWN BY: DBB
CHECKED BY: DBB
DATE: 12/18/2020
DWG. NO.: 5 OF 7
SHEET NO.: JP-5

LAKE BUILD-UP AND *'EUTROPHICATION'*



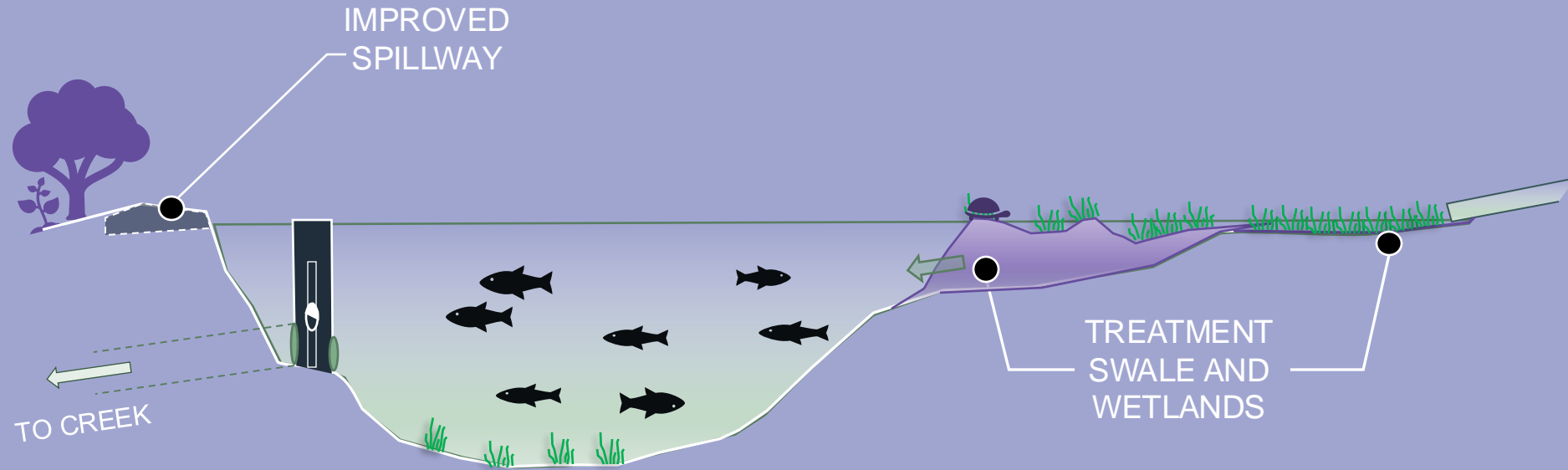
THE REHABILITATION PLAN

PHASE I



THE REHABILITATION PLAN

PHASE II



Fish and Aquatic Animals Relocation

CRYSTAL LAKE TASK FORCE:

- *PA Dept. of Environmental Protection Fish & Boat*
- *County of Berks Parks & Recreation*
- *Berks County Conservation District*
- *Berks Nature*
- *Liberty Environmental Engineering, Inc.*
- *Flyway Excavating, Inc.*
- *Mt. Penn Borough Municipal Authority*

*CRYSTAL LAKE
CLOSURE*

&

*SURROUNDING
PERIMETER*

*Includes walking pathway around lake &
bridge area access.*

**November 15,
2024 - April
15, 2025**