



**US Army Corps
of Engineers**
Philadelphia District

Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390
ATTN: CENAP-OP-R

Public Notice

Public Notice No. _____ Date _____

CENAP-OP-R-2015-0293

Application No. _____ File No. _____

In Reply Refer to:
REGULATORY BRANCH

This District has received an application for a Department of the Army permit pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344).

The purpose of this notice is to solicit comments and recommendations from the public concerning issuance of a Department of the Army permit for the work described below.

APPLICANT: Arrowhead Lake Community Association, Incorporated
961 Arrowhead Drive
Pocono Lake, Pennsylvania 18347

AGENT: F. X. Browne, Incorporated
1101 South Broad Street
Lansdale, Pennsylvania 19446

WATERWAY: Trout Creek, Lewis Creek, and Arrowhead Lake

LOCATION: The project is located within Arrowhead Lake and its tributaries within the Arrowhead Lake Residential Community in multiple locations in Coolbaugh and Tobyhanna Townships, Monroe County, Pennsylvania. Attachment 1 contains a plan set for the project.

ACTIVITY: The applicant proposes to complete a two-phased project over a two year period. The project will involve maintenance dredging, both hydraulic and mechanical. Hydraulic dredging will be performed using a cutterhead suction dredge which vacuums up silt and sediment and pumps the material through floating pipes. The material is deposited through the pipes into geotubes at the upland dewatering location. These dewatering areas are approved upland areas. Silt and sediment will be dewatered within the geotubes with 95% of solids remaining within the tubes. The geotubes will be surrounded an impervious curbing and water will be filtered from the curbing through a bag filter and pumped back to the lake. Mechanical dredging will be accomplished using backhoes, bulldozers and loaders and will involve redeposition of material when pushing and removing material. This material will be hauled to the approved upland disposal sites. Also included in the project is a stream bank stabilization project, a boardwalk across wetlands and open water to access uplands, the re-construction of 3 existing boat ramps, a pier and gazebo, and a new boat docking facility. Total area of work for the project is 31.6 acres which will include 6.72 acres of hydraulic dredging, 8.41 acres of dewatering which includes temporary coffer dams to facilitate mechanical dredging, 1.06 acres of temporary impact for mechanical dredging of open water areas, 0.02 acre of permanent

removal of wetlands and 0.001 acre of stream fill for streambank stabilization, and 0.04 acre of permanent fill and 0.5 acre of temporary dewatering and dredging for the replacement of the boat ramps, the remaining portion of the work area described above will be in uplands.

Phase 1 will include the hydraulic dredging of Eastern Cove and Trout Creek Island navigational channels. This activity is not a federally regulated activity under Section 404 of the Clean Water Act as it will not involve the discharge of dredged and/or fill material into waters of the United States. It is included here as part of the overall project. The Eastern Cove navigation channel will be approximately 15' wide, 4' deep and 4000' long and will cover approximately 1.38 acres of hydraulic dredging. The Trout Creek navigational channel will be approximately 75' wide, ranging from 3' to 5' deep and 3100' long and will cover approximately 5.34 acres of hydraulic dredging. Material dredged through the suction method will be piped through floating pipes to Geotubes located in uplands and will not involve the discharge of any dredged material into the lake or adjacent wetlands. Return water to the lake will be a federally regulated discharge of dredged material. Dewatered material will be spread on-site in the approved upland area shown on the attached plans.

Phase 2 will include drawing down the lake to dewater the Lewis Creek Cove navigational channel in order to facilitate the mechanical dredging of the navigational channel. The Lewis Creek Cove navigational channel will be approximately 10' to 15' wide, 4' deep and approximately 2500' long along the east side of the cove and 600' of the west side of the cove. The area of temporary dewatering to perform the mechanical dredging is 8.41 acres. The area of temporary impact to open waters for the navigational channel is 1.06 acres. Dredged material will be trucked to the approved upland disposal site shown on the attached plans.

The total proposed volume of dredge material is approximately 17,000 cubic yards, consisting of plant material and sediments from the inflow at the creeks.

All navigation channels will be marked using standard navigational buoys, each will have a concrete weight approximately 12 inches in diameter. There will be 74 buoys in all. The buoy anchors would impact 0.02 acre of the waterway bottom. These structures are not a federally regulated activity under Section 404 of the Clean Water Act (CWA).

A fish enhancement area consisting of 8 fish habitat structures constructed of stumps, logs and branches 1000 s.f. in size will also be placed at the Lewis Dredging area to provide cover for fish, to enhance spawning and to enhance habitat for juvenile fish creating shelter from predators. The placement of these structures is not a federally regulated activity under Section 404 of the CWA.

The applicant is proposing a Lewis Creek Stream stabilization project which will include 0.001 acre of permanent fill for stabilization of the creek banks placed below the ordinary high water mark (OHW) of the stream and 0.02 acre of permanent fill in wetlands along the stream banks to stabilize the channel. Streambank stabilization will be accomplished using stone below the OHWM and stone and soil fill along the banks stabilized using matting, live stakes and vegetative plantings.

Phase 2 will also include the re-construction of the existing boat ramps at Beach #2, Beach #3 and Trout Creek Island. The area of permanent fill for the installation of the concrete boat ramps

is 0.04 acre below the OHWM. There will be 0.5 acre of temporary dewatering, fill for coffer dams and mechanical dredging below the OHWM. Areas around the boat ramps will be mechanically dredged using an excavator which would not be a federally regulated activity under Section 404 of the CWA.

Phase 2 will also include the construction of a 160' long boardwalk over emergent wetlands and open water, and a pier and gazebo at the clubhouse which will extend 72' out into the lake. These structures will not involve the discharge of dredged and/or fill material. All posts will be driven into the ground and will not involve concrete footers. The posts will be placed at a distance of 10 feet apart and will not have the effect of fill to the lake bottom. The boardwalk, pier and gazebo will be constructed 18 inches above the ground/water surfaces and will not shade out vegetation or impede the growth of vegetation beneath them and the structures are not federally regulated under Section 404 of the CWA.

The new boat docking facility located at Beach #2 would be floating structure, and no fill will be associated with the facility. It will be teathered to steel pilings in uplands, as such would not be a federally regulated activity under Section 404 of the CWA.

PURPOSE: The stated purpose of the project is to increase accessibility of the lake for boating, to improve the boat launch/rental facilities and increase the recreation value of the residential community.

A preliminary review of this application indicates that the proposed work would not affect listed species or their critical habitat pursuant to Section 7 of the Endangered Species Act as amended. As the evaluation of this application continues, additional information may become available which could modify this preliminary determination.

The decision whether to issue a permit will be based on an evaluation of the activity's probable impact including its cumulative impacts on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the work must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the work will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs and welfare of the people. A Department of the Army permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act.

Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Comments on the proposed work should be submitted, in writing, within 30 days to the District Engineer, U.S. Army Corps of Engineers, Philadelphia District, Wanamaker Building, 100 Penn Square East, Philadelphia, Pennsylvania 19107-3390.

Review of the National Register of Historic Places indicates that no registered properties or properties listed as eligible for inclusion therein are located within the permit area of the work.

Avoidance, Minimization, Alternatives: The applicant has stated that they have avoided and minimized impacts to wetlands and aquatic vegetation by designing the navigational channels farthest from the banks of the lake while still providing the desired access within the lake and by constructing new boat ramps within the foot print of the existing boat ramps. All construction access areas are within existing access points to the lake and beach areas. Where necessary, temporary wood matting would be used over wetlands for construction access. The applicant states there are no preferred alternatives as the purpose of the reclamation project is to restore historical access to the lake. The boat ramps are located in the original footprints and the walkway and pier/gazebo are in the only locations available for their purpose.

Compensatory mitigation is not proposed for this project for the following reasons:

1. The proposed wetland impact is de minimus and limited to a single water dependent activity . This was accomplished after careful consideration during the design phase.
2. The project is referred to as a reclamation project, assuming that the goal is to 'restore' the habitat from previous years when the coves were open, accessible and unimpeded .
3. Although a long term increase of lake depth is expected, sediment is also expected to re-accumulate and aquatic plant growth will return over time, especially if maintenance dredging is not proposed.
4. Previous recreational activities will return to the project area, which has long been hindered by excess sediment buildup and lack of access.
5. Since the dredging activity is not anticipated to exceed a 4 ft. depth, the lake bottom will still be relatively shallow and nutrient rich for a resurgence of plants over time, although there may be some long term changes until the plant communities totally recover. Any aquatic plant loss is most likely a temporary loss.
6. Since there will be extensive, non-dredged portions of the lake, the overall impact of the dredging activity to the entire lake ecosystem should be minimized because non-dredged areas can serve as refuge and also provide the seed source needed for aquatic plant re-establishment.
7. The project has been intentionally designed to minimize impacts to both wetland and aquatic resource habitats.

8. There is de minimus placement of fill material proposed in jurisdictional areas for boat ramps and stream stabilization.

In accordance with Section 401 of the Clean Water Act, a Water Quality Certificate is necessary from the State government in which the work is located. The Pennsylvania Department of Environmental Protection is currently reviewing the application file E45-592. Any comments concerning the work described above which relate to Water Quality considerations should be sent to this office with a copy to the State.

The evaluation of the impact of the work described above on the public interest will include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act.

Any person may request, in writing, to the District Engineer, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state in writing, with particularity, the reasons for holding a public hearing.

Additional information concerning this permit application may be obtained by calling Elaine J. Moyer at 570-842-1044, via email at elaine.j.moyer@usace.army.mil, or writing this office at the above address.

Edward E. Bonner
Chief, Regulatory Branch

ARROWHEAD LAKE RECLAMATION PROJECT EROSION & SEDIMENTATION POLLUTION CONTROL PLAN

TOBYHANNA & COOLBAUGH TOWNSHIPS MONROE COUNTY, PA

UTILITY USERS LIST

PROPOSED PER PA ACT 201 OF 1974, AS AMENDED BY ACT 121 OF 2008

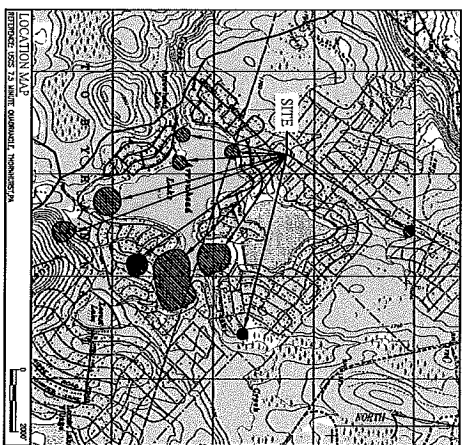
OWNER: ARROWHEAD PROJECT LP 1500 1500 1500 1500 1500	OWNER: TOBYHANNA AREA DEVELOPMENT 18 18 18 18 18
CONTACT: Michael@arrowheadproject.com	CONTACT: Michael@arrowheadproject.com
ADDRESS: 1500 1500 1500 1500 1500	ADDRESS: 18 18 18 18 18
CITY: TOBYHANNA, PA 18849	CITY: TOBYHANNA, PA 18849
STATE: PA	STATE: PA
COUNTRY: UNITED STATES OF AMERICA	COUNTRY: UNITED STATES OF AMERICA
PHONE: 717-342-1111	PHONE: 717-342-1111
FAX: 717-342-1111	FAX: 717-342-1111
EMAIL: Michael@arrowheadproject.com	EMAIL: Michael@arrowheadproject.com
WEBSITE: www.arrowheadproject.com	WEBSITE: www.arrowheadproject.com
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EMAIL: Michael@arrowheadproject.com	EMAIL: Michael@arrowheadproject.com
WEBSITE: www.arrowheadproject.com	WEBSITE: www.arrowheadproject.com

811 - CALL BEFORE YOU DIG!

CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. UTILITIES NOT SHOWN ON THIS PLAN ARE NOT TO BE CONSIDERED.

2014/22/91721
2014/22/91721
2014/22/91721
2014/22/91721

DESIGN: 03-COR-14
CONSTRUCTION:



DRAWING LIST*

SHEET NO.	DESCRIPTION	DRAWING TITLE
1 of 18	0300	CONTRACT
2 of 18	0310	NOTES
3 of 18	0320	LENS CREEK COVE - SHEET 1 OF 2
4 of 18	0330	LENS CREEK COVE - SHEET 2 OF 2
5 of 18	0340	EASTERN CREEK
6 of 18	0350	TURTLE CREEK ISLAND
7 of 18	0360	TRIPOLI WAGES
8 of 18	0370	TRIPOLI WAGES
9 of 18	0380	LENS CREEK
10 of 18	0390	LENS CREEK
11 of 18	0400	BRANCHES 2 & 3 EAST RAUPE
12 of 18	0410	BRANCHES 2 & 3 EAST RAUPE
13 of 18	0420	DETAILS - 1
14 of 18	0430	DETAILS - 2
15 of 18	0440	LENS CREEK STORM STABILIZATION DETAILS
16 of 18	0450	WORK SITE AND INLAND BOULE PLAN
17 of 18	0460	
18 of 18	0470	

OTHER PLANS

JOINT APPLICATION PERMIT PLANS (18 SHEETS)

* NOTE
FOR THIS PROJECT AND MAY NOT INCLUDE ALL DETAILS OR WORK OF OTHER PLANS. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. UTILITIES NOT SHOWN ON THIS PLAN ARE NOT TO BE CONSIDERED.

© 2016 F.X. Browne, Inc.
F. X. Browne, Inc. is a professional engineering firm providing engineering, architectural, and construction services. The firm is licensed in the state of Pennsylvania and is a member of the American Society of Civil Engineers (ASCE). The firm's services include the design and construction of bridges, dams, levees, and other water control structures. The firm also provides environmental engineering services, including water quality assessment and sedimentation control design. The firm's projects are located throughout Pennsylvania and other states in the United States.

PROJECT: ARROWHEAD LAKE RECLAMATION PROJECT
Erosion & Sedimentation Pollution Control Plan

DESIGNER: F. X. Browne, Inc.
1500
1500
1500
1500
1500

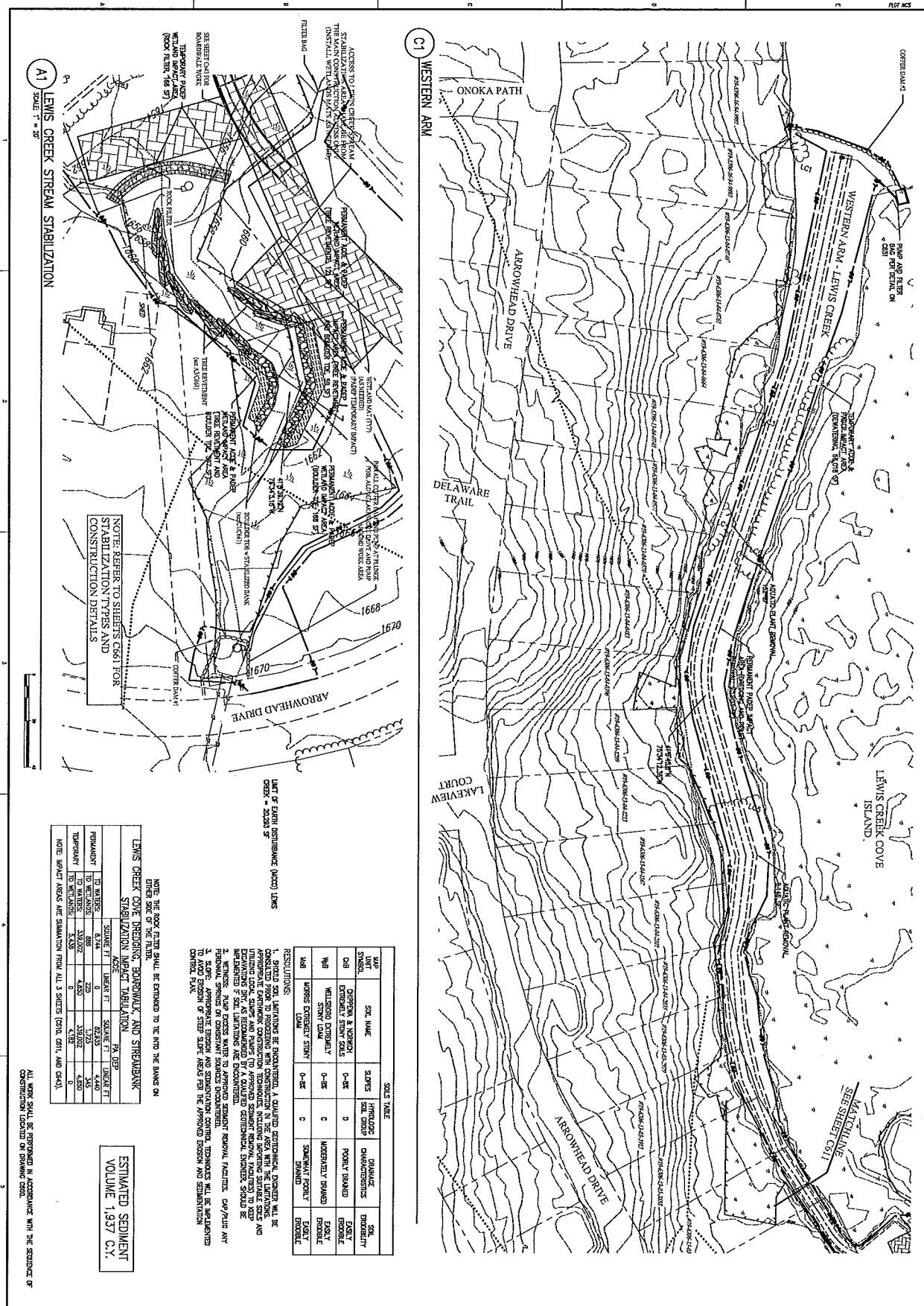
DATE: December 23, 2014
REVISION: December 1, 2016

SCALE: AS SHOWN

PROJECT NO.: PA1522-12

DATE: December 23, 2014

DESIGNER: F. X. Browne, Inc.
1500
1500
1500
1500
1500



A1 LEWIS CREEK STREAM STABILIZATION
SCALE: 1" = 50'

NOTE REFER TO SHEETS C081 FOR STABILIZATION TYPES AND CONSTRUCTION DETAILS

LEWIS CREEK COVE DREDGING, BORDWALL, AND STEINWALL STABILIZATION IMPACT TABULATION

PARAMETER	TO WATER	TO BANKS	TO CHANNEL	TO CHANNEL
AREA	3,744	229	4,880	4,880
VOLUME	1,937	229	4,880	4,880

NOTE: IMPACT AREAS ARE SUMMATION FROM ALL 3 SHEETS (C081, C081A, AND C081B)

ESTIMATED SEDIMENT VOLUME 1,937 C.Y.

NOTE: THE ROCK CATCH BASIN SHALL BE EXTENDED TO THE END OF THE BANKS ON EITHER SIDE OF THE FILLER.

LIMIT OF EARTH SETTLEMENT (AS PER) CROSS - 20.000 5'

SOILS TABLE

TYPE	SOIL NAME	SLOPES	HYDRAULIC SOIL GROUP	DRAINAGE CHARACTERISTICS	SOIL EXPOSURE
U1	CLAYEY SAND	0-5%	D	POORLY DRAINAGE	EROSIVE
U2	CLAYEY SAND	0-5%	D	POORLY DRAINAGE	EROSIVE
U3	CLAYEY SAND	0-5%	D	POORLY DRAINAGE	EROSIVE
U4	CLAYEY SAND	0-5%	D	POORLY DRAINAGE	EROSIVE
U5	CLAYEY SAND	0-5%	D	POORLY DRAINAGE	EROSIVE
U6	CLAYEY SAND	0-5%	D	POORLY DRAINAGE	EROSIVE

RESOLUTIONS:
1. BEFORE SOIL LIMITATIONS BE DETERMINED, A QUALIFIED GEOTECHNICAL ENGINEER WILL BE CONSULTED PRIOR TO PROCEEDING WITH CONSTRUCTION IN THE AREA WITH THE LIMITATIONS AND DRAINAGE CHARACTERISTICS AS SHOWN ON THIS PLAN. THE ENGINEER SHALL SUBMIT A REPORT TO THE OWNER AND PROVIDE RECOMMENDATIONS TO THE OWNER. THE ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ANY SOIL STABILIZATION STRUCTURES THAT MAY BE REQUIRED TO STABILIZE THE SOILS.
2. WHERE SOILS ARE FOUND TO BE UNSUITABLE FOR CONSTRUCTION, THE ENGINEER SHALL SUBMIT A REPORT TO THE OWNER AND PROVIDE RECOMMENDATIONS TO THE OWNER. THE ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ANY SOIL STABILIZATION STRUCTURES THAT MAY BE REQUIRED TO STABILIZE THE SOILS.
3. THE ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ANY SOIL STABILIZATION STRUCTURES THAT MAY BE REQUIRED TO STABILIZE THE SOILS.

F. X. Browne, Inc.
CORPORATE OFFICE: 1500 N. 10TH ST., SUITE 200, WILKES-BARRE, PA 18250
TELEPHONE: (717) 853-1111
FAX: (717) 853-1112

LEGEND

- 1" = 50'
- 2" = 100'
- 3" = 150'
- 4" = 200'
- 5" = 250'
- 6" = 300'
- 7" = 350'
- 8" = 400'
- 9" = 450'
- 10" = 500'
- 11" = 550'
- 12" = 600'
- 13" = 650'
- 14" = 700'
- 15" = 750'
- 16" = 800'
- 17" = 850'
- 18" = 900'
- 19" = 950'
- 20" = 1000'

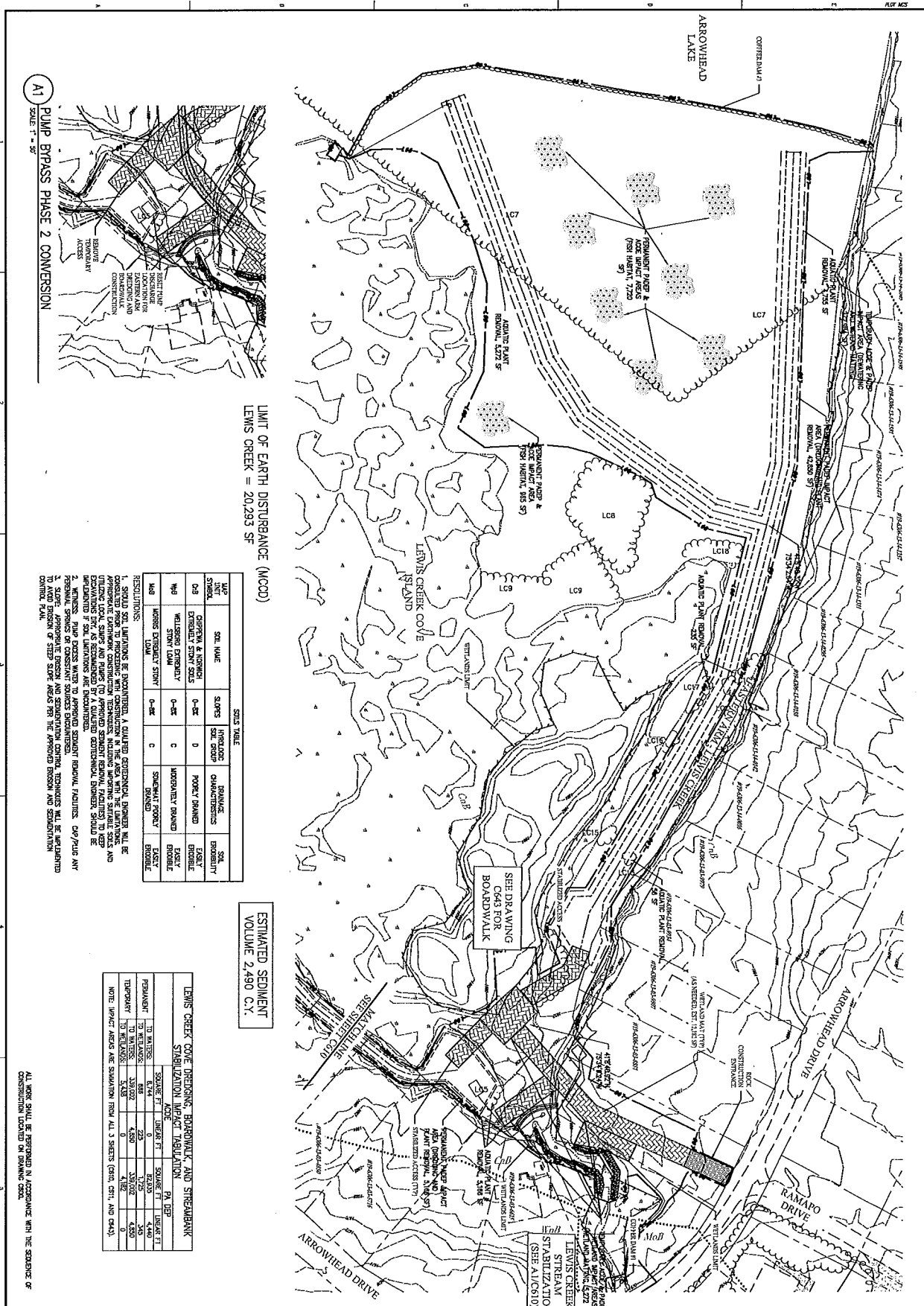
ARROWHEAD LAKE RECLAMATION PROJECT

OWNER: ARROWHEAD LAKE COMMUNITY ASSOCIATION, INC.
961 Arrowhead Drive
Pottsville, PA 17857

PROJECT NO: PA1523-12
DATE: December 23, 2014
DRAWN BY: MDT
CHECKED BY: MRB
SCALE: 1" = 50'

SHEET TITLE: LEWIS CREEK COVE - SHEET 1 OF 2

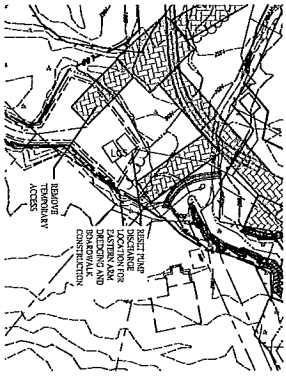
DRAWING NO: C610
SHEET NO: 3 of 16



LIMIT OF EARTH DISTURBANCE (MCCD)
LEWIS CREEK = 20,293 SF

ESTIMATED SEDIMENT
VOLUME 2,480 C.Y.

A1
SCALE: 1" = 30'
PIUMP BYPASS PHASE 2 CONVERSION



SOIL TYPE	SOIL NAME	SLOPE	APPROXIMATE PERCENTAGE	REMARKS	SOIL PRESERVATION
0-2	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-3	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-4	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-5	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-6	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-7	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-8	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-9	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-10	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-11	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-12	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-13	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-14	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
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0-48	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-49	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
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0-60	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
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0-67	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-68	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
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0-70	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-71	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-72	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-73	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-74	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-75	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-76	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-77	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-78	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-79	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-80	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-81	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-82	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-83	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-84	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-85	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-86	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-87	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-88	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-89	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-90	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-91	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-92	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-93	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-94	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-95	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-96	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-97	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-98	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-99	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE
0-100	CLAYEY SAND	0-2%	0	POORLY GRAINED	ERASE

RESOLUTIONS:
1. SHOULD SOIL LIMITATIONS BE DOCUMENTED, A QUALIFIED GEOLOGICAL ENGINEER WILL BE APPOINTED TO CONDUCT SOIL TESTING AND REPORT THE RESULTS TO THE ENGINEER. THE ENGINEER SHALL BE RESPONSIBLE FOR INTERPRETING THE RESULTS AND RECOMMENDING APPROPRIATE CONSTRUCTION TECHNIQUES, INCLUDING WHETHER SHIELD SOILS AND OTHER SPECIAL SOILS ARE PRESENT AND NECESSARY TO AVOID SOIL REMOVAL FACTORS TO BE APPLIED TO THE LIMITATIONS ARE DOCUMENTED.
2. WHETHER PUMP EXCESS WATER TO APPROVED SEWAGE REMOVAL FACILITIES. CIVIL/PLUM ANY OTHER SPECIAL SOILS OR OTHER SPECIAL SOILS ARE PRESENT WILL BE APPOINTED TO AVOID EXCESS OF STEEP SLOPE AREAS PER THE APPROVED DESIGN AND SEWAGE REMOVAL CONTROL PLAN.

LEWIS CREEK COVE OPENING, REPAIRWORK AND STRENGTHENING	STABILIZATION	PA DEP	PA DEP
TO WIDTHS	SCALE FT.	SCALE FT.	SCALE FT.
PERMANENT	8.74	0	4.80
TEMPORARY	13.02	4.80	4.80
TO WIDTHS	5.48	0	4.82
TO WIDTHS	5.48	0	4.82

NOTE: IMPACT AREAS ARE SHOWN FROM ALL 3 SHEETS (GRID, CH1, AND CH2).

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS, LATEST EDITION, AS APPLICABLE.

ARROWHEAD LAKE RECLAMATION PROJECT

ARROWHEAD LAKE COMMUNITY
961 Arrowhead Drive
Pocahontas, PA 18447

SCALE: 1" = 30'

PROJECT NO. PA1522-12 DATE: December 23, 2014
DRAWN BY: MDT CHECKED BY: MRM
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PROJECT TITLE:
BROWNE & SEBASTIAN POLLUTION CONTROL PLANS
LEWIS CREEK COVE - SHEET 2 OF 2

DRAWING NO.: C611
SHEET NO.: 4 of 16

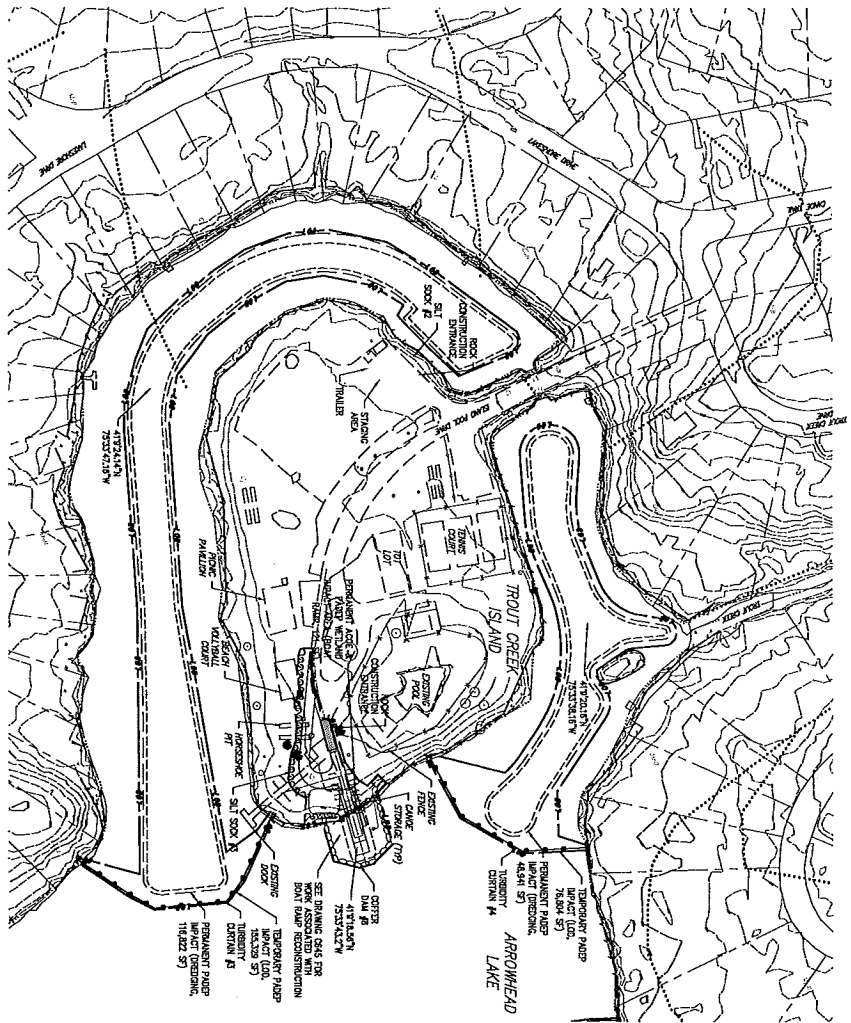
F. X. Browne, Inc.
ENGINEERS & ARCHITECTS

1000 MARKET STREET, SUITE 200
POCATAHOC, PA 18451
TEL: 717-353-1111 FAX: 717-353-1112
WWW.FXBROWNE.COM

PROJECT NO. PA1522-12
SHEET NO. C611 OF 16

DATE: December 23, 2014
DRAWN BY: MDT
CHECKED BY: MRM

PROJECT TITLE:
BROWNE & SEBASTIAN POLLUTION CONTROL PLANS
LEWIS CREEK COVE - SHEET 2 OF 2



ROUGH VOLUMES FOR TROUT CREEK WERE CALCULATED USING AVERAGE SURFACE DATA PROVIDED IN 2004, WITH PROPOSED DEPTHS AND THE AVERAGE MUD BED HEIGHTS.

ESTIMATED SEDIMENT VOLUME 5,861 C.Y.

TROUT CREEK ISLAND DRAINAGE AND BOAT RAMP IMPACT EVALUATION

SOIL TYPE	AREA (SQ. FT.)	PERCENT TO WATERS	PERCENT TO WATERS	PERCENT TO WATERS
PERMANENT	540	38	19,620	2,238
TEMPORARY	1,420	87	24,354	57
TOTAL	1,960	95	43,974	2,295

NOTE: IMPACT AREAS ARE SUMMATION FROM BOTH SHEETS (025) AND (026-01)

SOIL TABLE

MAP SHEET	SOIL NAME	SLOPE	IMPACTED SOIL GROUP	PERCENT CHANGES	SOIL EROSION
02	CUT AND FILL LAND	E-2&3	---	WELL DRAINED	---

- RESOLUTIONS:
1. SHOULD SOIL MAINTAINERS BE ENCOUNTERED, A QUALIFIED GEOTECHNICAL ENGINEER WILL BE APPROPRIATE FOR THE PROJECT. THE ENGINEER WILL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE SOIL MAINTAINERS AND UTILITIES LOCAL SIZES AND PLACES (TO APPROVED SEWERAGE REMOVAL FACILITIES) TO BE IMPLEMENTED. THE DESIGN SHALL BE APPROVED BY A REGISTERED GEOTECHNICAL ENGINEER. SHOULD BE APPROVED BY THE LOCAL HEALTH DEPARTMENT.
 2. WATERSHEDS, PIPE CROSS WATER TO APPROVED SEWERAGE REMOVAL FACILITIES, CAP/PUMP ANY FEASIBLE SPRINGS OR CONSTANT SOURCES ENCOUNTERED.
 3. ALL UTILITIES, SEWERAGE, SEWERAGE AND SEWERAGE CONTROL TRENCHES WILL BE UNDERGROUND TO AVOID AESTHETIC PROBLEMS AND SEWERAGE CONTROL TRENCHES WILL BE UNDERGROUND TO AVOID AESTHETIC PROBLEMS AND SEWERAGE CONTROL TRENCHES WILL BE UNDERGROUND TO AVOID AESTHETIC PROBLEMS.

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS OF CONSTRUCTION LOCATED ON DRAWING 002.

F. X. Browne, Inc.
 961 Arrowhead Drive
 Pottsville, PA 17854

FXB

PROJECT NO. PA15232.12
 SHEET NO. 6 of 16

LEGEND

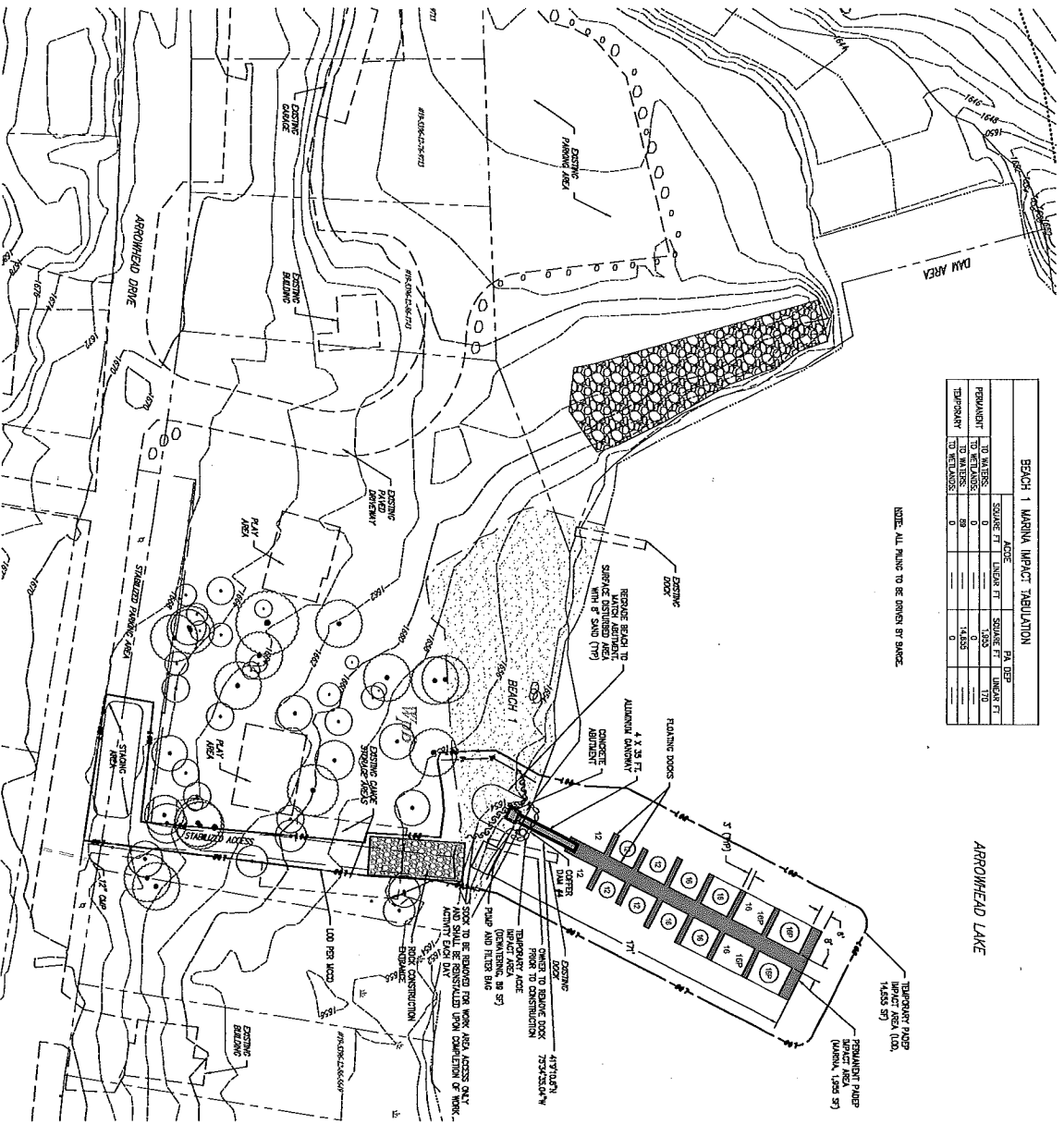
- 12" RIBBON CONCRETE RETENTION WALL
- 18" RIBBON CONCRETE RETENTION WALL
- 24" RIBBON CONCRETE RETENTION WALL
- 30" RIBBON CONCRETE RETENTION WALL
- 36" RIBBON CONCRETE RETENTION WALL
- 42" RIBBON CONCRETE RETENTION WALL
- 48" RIBBON CONCRETE RETENTION WALL
- 54" RIBBON CONCRETE RETENTION WALL
- 60" RIBBON CONCRETE RETENTION WALL
- 66" RIBBON CONCRETE RETENTION WALL
- 72" RIBBON CONCRETE RETENTION WALL
- 78" RIBBON CONCRETE RETENTION WALL
- 84" RIBBON CONCRETE RETENTION WALL
- 90" RIBBON CONCRETE RETENTION WALL
- 96" RIBBON CONCRETE RETENTION WALL
- 102" RIBBON CONCRETE RETENTION WALL
- 108" RIBBON CONCRETE RETENTION WALL
- 114" RIBBON CONCRETE RETENTION WALL
- 120" RIBBON CONCRETE RETENTION WALL
- 126" RIBBON CONCRETE RETENTION WALL
- 132" RIBBON CONCRETE RETENTION WALL
- 138" RIBBON CONCRETE RETENTION WALL
- 144" RIBBON CONCRETE RETENTION WALL
- 150" RIBBON CONCRETE RETENTION WALL
- 156" RIBBON CONCRETE RETENTION WALL
- 162" RIBBON CONCRETE RETENTION WALL
- 168" RIBBON CONCRETE RETENTION WALL
- 174" RIBBON CONCRETE RETENTION WALL
- 180" RIBBON CONCRETE RETENTION WALL
- 186" RIBBON CONCRETE RETENTION WALL
- 192" RIBBON CONCRETE RETENTION WALL
- 198" RIBBON CONCRETE RETENTION WALL
- 204" RIBBON CONCRETE RETENTION WALL
- 210" RIBBON CONCRETE RETENTION WALL
- 216" RIBBON CONCRETE RETENTION WALL
- 222" RIBBON CONCRETE RETENTION WALL
- 228" RIBBON CONCRETE RETENTION WALL
- 234" RIBBON CONCRETE RETENTION WALL
- 240" RIBBON CONCRETE RETENTION WALL
- 246" RIBBON CONCRETE RETENTION WALL
- 252" RIBBON CONCRETE RETENTION WALL
- 258" RIBBON CONCRETE RETENTION WALL
- 264" RIBBON CONCRETE RETENTION WALL
- 270" RIBBON CONCRETE RETENTION WALL
- 276" RIBBON CONCRETE RETENTION WALL
- 282" RIBBON CONCRETE RETENTION WALL
- 288" RIBBON CONCRETE RETENTION WALL
- 294" RIBBON CONCRETE RETENTION WALL
- 300" RIBBON CONCRETE RETENTION WALL

ARROWHEAD LAKE RECLAMATION PROJECT

OWNER: ARROWHEAD LAKE COMMUNITY
 961 Arrowhead Drive
 Pottsville, PA 17854

SCALE: 1"=100'
 PROJECT NO. PA15232.12
 SHEET NO. 6 of 16

A1
SCALE 1" = 30'
BENCH 1 MARINA PLAN



BENCH 1 MARINA IMPACT TABULATION

TO WATERS	TO WATERS	TO WATERS	TO WATERS	TO WATERS
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

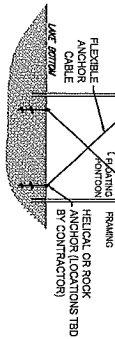
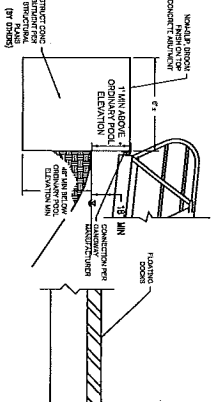
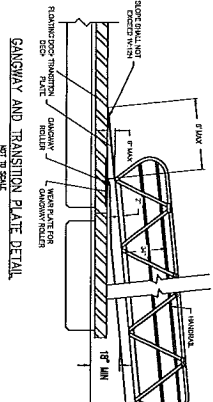
NOTE: ALL PILING TO BE GIVEN BY OWNER

ARCHITECTURAL

NO.	DESCRIPTION	DATE	BY	CHKD.
1	ISSUED FOR PERMITS	10/20/14	MS	MS
2	ISSUED FOR CONSTRUCTION	11/10/14	MS	MS
3	ISSUED FOR AS-BUILT	12/15/14	MS	MS

RESOLUTIONS:

1. SHOULD SOIL LIMITATIONS BE ENCOUNTERED, A QUALIFIED GEOTECHNICAL ENGINEER SHALL BE CONSULTED PRIOR TO PROCEEDING WITH CONSTRUCTION IN THE AREA WITH THE LIMITATIONS. UTILIZING LOCAL SWIMS AND PILES TO APPROVED SHOROT BENTON PILES, HAVING TO BE APPROVED BY A REGISTERED PROFESSIONAL ENGINEER, SHOULD BE USED.
2. WITHNESS PILE PRESSURE WATER TO APPROVED SHOROT BENTON PILES, CAP/PILE ANY PENETRATION OF THE GROUND SURFACE SHALL BE APPROVED BY A REGISTERED PROFESSIONAL ENGINEER.
3. SCORE APPROPRIATE EROSION AND SEDIMENTATION CONTROL TECHNIQUES WILL BE RECOMMENDED AND SHALL BE INSTALLED IN STEEP SLOPE AREAS FOR THE APPROVED DESIGN AND SEDIMENTATION CONTROL PLAN.



ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS FOR CONSTRUCTION LOCATED ON DRAWING 300.

F. X. Broviac, Inc.
1000 N. 14th St., Suite 100
P.O. Box 411448
Phoenix, AZ 85061-1448
PH: 602.998.2222
FAX: 602.998.2223

ARROWHEAD LAKE RECLAMATION PROJECT

CLIENT: ARROWHEAD LAKE COMMUNITY INC.
961 Arrowhead Drive
Phoenix, AZ, PA 18347

SCALE: 1" = 30'

PROJECT NO.: PA1523-12
DATE: December 23, 2014

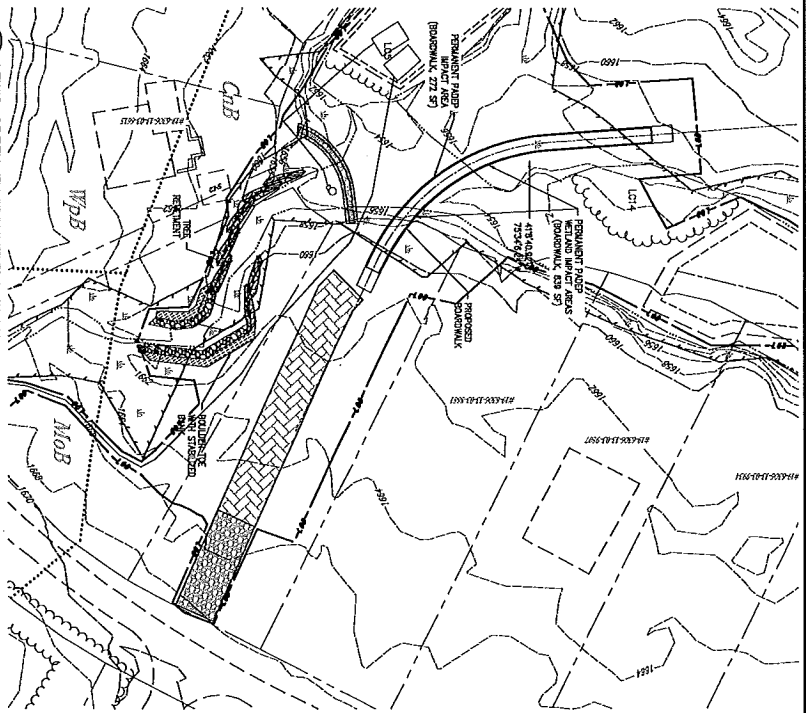
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CHECKED BY: MDM

SHEET TITLE: BENCH 1 MARINA

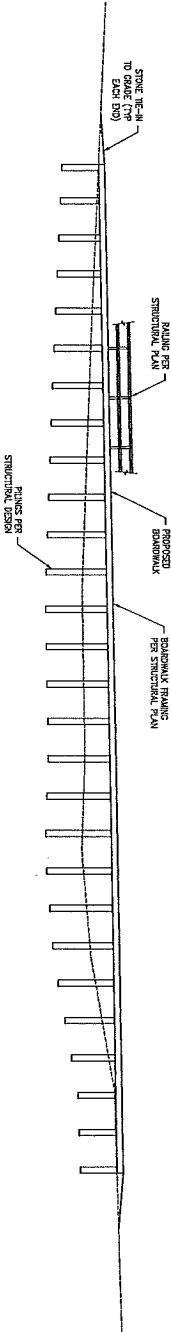
DESIGNER & REGISTERED POLLUTION CONTROL PLANS

DRAWING NO.: C641
SHEET NO.: 8 of 16

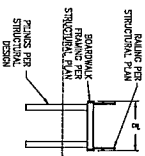
B1 LEWIS CREEK ENVIRONMENTAL WALK
SCALE: 1" = 30'



A2 BOARDWALK PROFILE
SCALE: 1" = 10'



A5 BOARDWALK SECTION
SCALE: 1" = 10'



LEWIS CREEK COVE DREDGING, BOARDWALK, AND STREAMBANK STABILIZATION IMPACT TABULATION

PARAMETER	TO WATERS	SCALE	TO WATERS	SCALE	PA 707
PERMANENT	8.144	0	223	12.215	4.66
TEMPORARY	0	0	0	22.802	4.50
TOTAL	8.144	0	223	35.017	9.16

NOTE: IMPACT AREAS ARE SUMMATION FROM ALL 3 SHEETS (01A, 01B, AND 01C).

SOIL TYPE	SOIL NAME	SLOPE	SOIL GROUP	HYDROLOGIC CHARACTERISTICS	EROSION PROBABILITY
U10	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U11	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U12	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U13	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U14	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U15	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U16	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U17	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U18	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U19	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U20	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U21	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U22	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U23	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U24	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U25	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U26	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U27	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U28	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U29	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U30	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U31	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U32	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U33	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U34	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U35	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U36	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U37	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U38	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U39	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U40	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U41	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U42	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U43	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U44	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U45	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U46	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U47	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U48	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U49	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U50	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U51	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U52	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U53	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U54	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U55	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U56	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U57	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U58	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U59	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U60	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U61	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U62	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U63	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U64	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U65	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U66	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U67	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U68	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U69	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U70	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U71	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U72	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U73	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U74	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U75	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U76	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U77	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U78	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U79	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U80	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U81	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U82	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U83	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U84	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U85	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U86	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U87	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U88	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U89	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U90	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U91	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U92	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U93	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U94	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U95	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U96	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U97	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U98	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U99	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE
U100	CLAYEY SILT	0-8%	D	POORLY BOUNDED	EROSIVE

1. SHOULD SOIL MAINTAIN BE ENCOUNTERED, A QUALIFIED GEOTECHNICAL ENGINEER WILL BE CONSULTED FOR THE DESIGN OF FOUNDATIONS AND RETENTION SYSTEMS IN THE AREA WITH THE UNDERLYING LOCAL SLOPES AND SHIPS TO APPROVED SHIPMENT FACILITIES TO KEEP THE SLOPES FROM BEING UNDERMINED BY UNDESIRABLE FOUNDATION BEHAVIOR. SHOULD BE

2. WEATHER, FLOOD CROSS WATER TO APPROVED SHIPMENT FACILITIES. CIVIL/PLUMB ANY

3. FURNISH SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

4. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

5. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

6. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

7. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

8. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

9. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

10. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

11. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

12. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

13. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

14. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

15. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

16. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

17. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

18. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

19. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

20. SLOPE, APPROVED SHIPMENT FACILITIES AND SHIPMENT CONTROL FACILITIES WILL BE UNDESIRABLE

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND CONDITIONS LOCATED ON DRAWING 000.

ARROWHEAD LAKE RECLAMATION PROJECT

OWNER: ARROWHEAD LAKE COMMUNITY
961 Arrowhead Drive
Pocahontas, PA 18347

PROJECT NO.: PA152512
DATE: December 23, 2014
DRAWN BY: MDT
CHECKED BY: MRM
© 2014 F.X. Browne, Inc.

SCALE: 1" = 30'

PROJECT: DRAINAGE & SEDIMENT POLLUTION CONTROL PLANS
LEWIS CREEK BOARDWALK

DRAWING NO.: C643
SHEET NO.: 10 of 16

F. X. Browne, Inc.
www.fxbrowne.com

DESIGNER: F. X. Browne, Inc.
270 Mt. Airy Road
P.O. Box 10448
Harrisburg, PA 17112-0448

DATE: 12/23/2014

PROJECT: ARROWHEAD LAKE RECLAMATION PROJECT

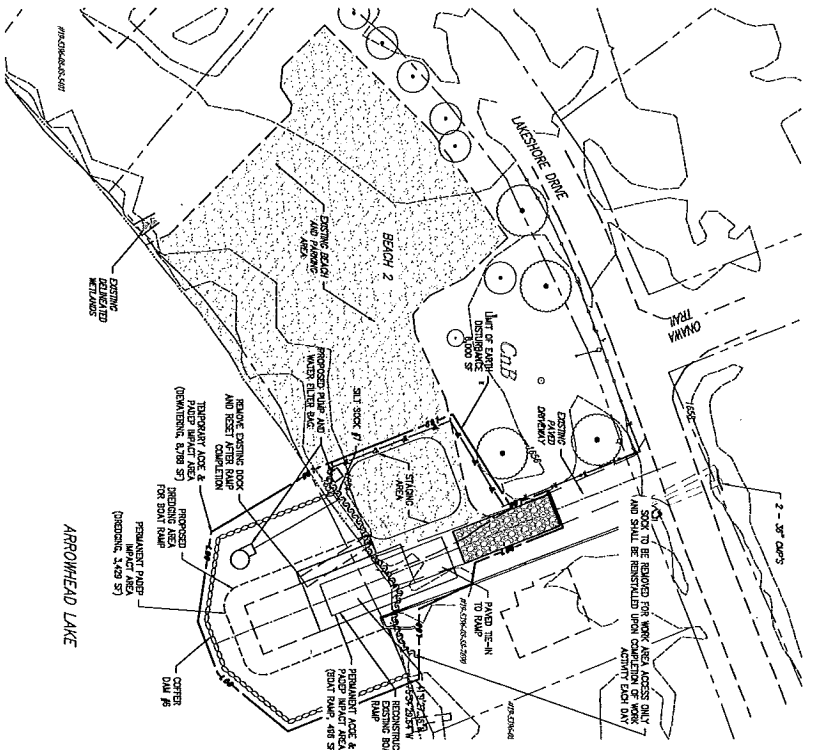
DRAWING NO.: C643
SHEET NO.: 10 of 16

B1 BEACH 2 BOAT RAMP PLAN
SCALE 1" = 30'

BEACH 2 BOAT RAMP IMPACT TABULATION

SOILS	TO WATERS	TO WETLANDS	TO WATERS	TO WETLANDS
45	45	0	0	0
0	0	0	0	0
0	0	0	0	0

ESTIMATED SEDIMENT VOLUME 254 C.Y.

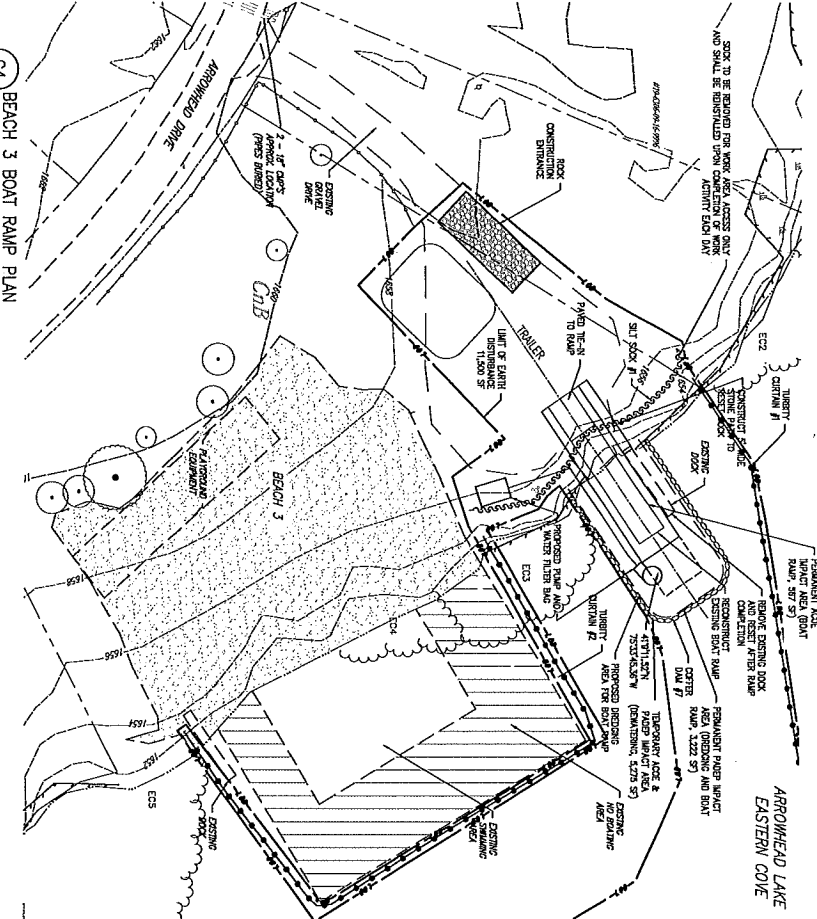


C4 BEACH 3 BOAT RAMP PLAN
SCALE 1" = 30'

BEACH 3 BOAT RAMP IMPACT TABULATION

SOILS	TO WATERS	TO WETLANDS	TO WATERS	TO WETLANDS
45	45	0	0	0
0	0	0	0	0
0	0	0	0	0

ESTIMATED SEDIMENT VOLUME 238 C.Y.



NOTE: SEE CONSTRUCTION DETAILS ON SHEET C6A5

EASTERN COVE DREDGING AND BEACH 3 BOAT RAMP IMPACT TABULATION

SOILS	TO WATERS	TO WETLANDS	TO WATERS	TO WETLANDS
45	45	0	0	0
0	0	0	0	0
0	0	0	0	0

SOILS TABLE

SOIL TYPE	SOIL NAME	SLOPE	PROPOSED SOIL GROUP	PROPOSED DRAINAGE CHARACTERISTICS	SOIL EROSION
OB	CLAYEY & SANDY SILT	0-4%	D	POORLY DRAINED	ERODIBLE

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION LOCATED ON DRAWING C6A5.

F. X. Browne, Inc.
1200 N. 4th St.
PO Box 401
Piquette, MI 48863
Tel: 517-791-1111
Fax: 517-791-1112

LEGEND

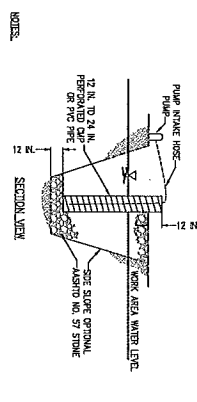
- 2" AGED CONCRETE EXTERIOR
- 4" AGED CONCRETE EXTERIOR
- 6" AGED CONCRETE EXTERIOR
- 8" AGED CONCRETE EXTERIOR
- 10" AGED CONCRETE EXTERIOR
- 12" AGED CONCRETE EXTERIOR
- 14" AGED CONCRETE EXTERIOR
- 16" AGED CONCRETE EXTERIOR
- 18" AGED CONCRETE EXTERIOR
- 20" AGED CONCRETE EXTERIOR
- 22" AGED CONCRETE EXTERIOR
- 24" AGED CONCRETE EXTERIOR
- 26" AGED CONCRETE EXTERIOR
- 28" AGED CONCRETE EXTERIOR
- 30" AGED CONCRETE EXTERIOR
- 32" AGED CONCRETE EXTERIOR
- 34" AGED CONCRETE EXTERIOR
- 36" AGED CONCRETE EXTERIOR
- 38" AGED CONCRETE EXTERIOR
- 40" AGED CONCRETE EXTERIOR
- 42" AGED CONCRETE EXTERIOR
- 44" AGED CONCRETE EXTERIOR
- 46" AGED CONCRETE EXTERIOR
- 48" AGED CONCRETE EXTERIOR
- 50" AGED CONCRETE EXTERIOR
- 52" AGED CONCRETE EXTERIOR
- 54" AGED CONCRETE EXTERIOR
- 56" AGED CONCRETE EXTERIOR
- 58" AGED CONCRETE EXTERIOR
- 60" AGED CONCRETE EXTERIOR
- 62" AGED CONCRETE EXTERIOR
- 64" AGED CONCRETE EXTERIOR
- 66" AGED CONCRETE EXTERIOR
- 68" AGED CONCRETE EXTERIOR
- 70" AGED CONCRETE EXTERIOR
- 72" AGED CONCRETE EXTERIOR
- 74" AGED CONCRETE EXTERIOR
- 76" AGED CONCRETE EXTERIOR
- 78" AGED CONCRETE EXTERIOR
- 80" AGED CONCRETE EXTERIOR
- 82" AGED CONCRETE EXTERIOR
- 84" AGED CONCRETE EXTERIOR
- 86" AGED CONCRETE EXTERIOR
- 88" AGED CONCRETE EXTERIOR
- 90" AGED CONCRETE EXTERIOR
- 92" AGED CONCRETE EXTERIOR
- 94" AGED CONCRETE EXTERIOR
- 96" AGED CONCRETE EXTERIOR
- 98" AGED CONCRETE EXTERIOR
- 100" AGED CONCRETE EXTERIOR

PROJECT NO. PA1522-12 DATE: December 23, 2014
DRAWN BY: MJP CHECKED BY: MAM
SCALE: 1" = 30'

ARROWHEAD LAKE RECLAMATION PROJECT
ARROWHEAD LAKE COMMUNITY INC.
961 Arrowhead Drive
Piquette, MI, PA 48867

DESIGN TITLE: BEACHES 2 & 3 BOAT RAMPS
DESIGNER: ARROWHEAD POLLUTION CONTROL PLANS

DRAWING NO: C644 SHEET NO: 11 of 16

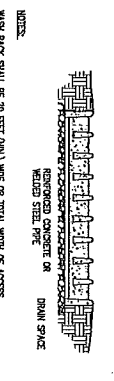
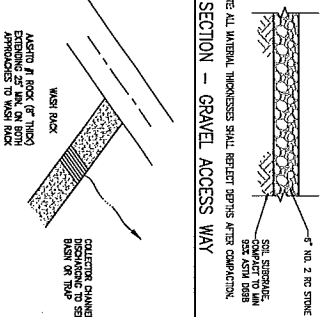


- NOTES:**
- 1. LOCATE PUMP AT LOW POINT IN WORK AREA AND DIRECTION OF CONSTRUCTION. LOCATE PUMP INTAKE FROM A WORK AREA FLOWING DIRECTLY TO THE SLUMP AREA. A FILTER BAG SHALL BE INSTALLED AT THE DISCHARGE POINT UNLESS PUMPING TO A SEPARATE BASIN OR SEPARATE TANK. THE FILTER BAG SHALL BE 24" BELOW WATER LEVEL IN WORK AREA INCLUDING THE ASHED 57 STONE. THE 24" PERFORATED CAP OR PVC PIPE SHALL BE SET ON 12" OF CLEAN ASHED 57 STONE. VOID SPACE AROUND PIPE SHALL BE FILLED WITH ASHED 57 STONE. PVC TO EXTEND 12" MIN. ABOVE TOP OF STONE AND/OR WATER BEING PUMPED FROM WORK AREA.
 - 2. DISCHARGE FROM PUMP SHALL SET TO A STABLE AREA BELOW OBSTRUCTIONS FROM THE WORK ZONE MAY BE USED IN CONJUNCTION WITH FILTER BAG WHERE ADDITIONAL FILTERING IS NEEDED.

C1 SLUMP PIT
NTS

ADAPTED FROM ARROWHEAD DAM STANDARD CONSTRUCTION DETAIL A-11-1

C3 TYPICAL SECTION - GRAVEL ACCESS WAY
NTS



A1 ROCK CONSTRUCTION ENTRANCE WITH WASH RACK
NTS

ADAPTED FROM ARROWHEAD DAM STANDARD CONSTRUCTION DETAIL A-1-7

NOTES:

WASH RACK SHALL BE 20 FEET (ONLY) WIDE OR TOTAL WIDTH OF ACCESS.

WASH RACK SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE ANTICIPATED CONSTRUCTION VEHICLES.

A WHEN SIMPLY SHALL BE MADE AVAILABLE TO WASH THE WHEELS OF ALL VEHICLES ENTERING THE SITE.

WARRANTY:

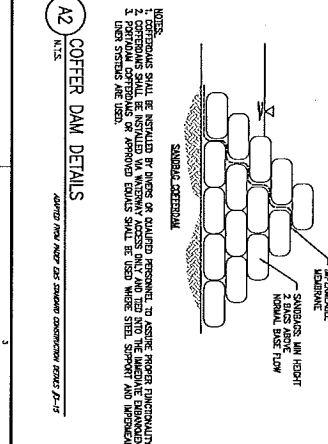
ROCK CONSTRUCTION ENTRANCE STRUCTURES SHALL BE CONSTRUCTED MAINTAINED TO THE SPECIFIED DESIGN AND FINISH. FROM A SPECIFIED FROM MATERIALS SHALL BE MAINTAINED ON THE 500 MS DRAIN SPACE UNDER WASH RACK SHALL BE KEPT OPEN AT ALL TIMES.

DAMAGE TO THE WASH RACK SHALL BE REPAIRED PRIOR TO RESUMPTION OF USE OF THE RACK.

ALL STRUCTURE CONSTRUCTION ON ROADWAYS SHALL BE DESIGNED AND RETURNED TO THE CONSTRUCTION SITE MAINTENANCE. THE ROADWAY OR STRUCTURE SHALL BE DESIGNED AND RETURNED TO THE CONSTRUCTION SITE MAINTENANCE. THE ROADWAY OR STRUCTURE SHALL BE DESIGNED AND RETURNED TO THE CONSTRUCTION SITE MAINTENANCE.

A2 COFFER DAM DETAILS
NTS

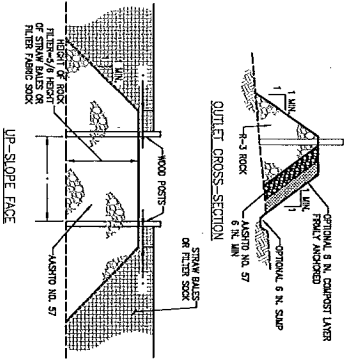
ADAPTED FROM ARROWHEAD DAM STANDARD CONSTRUCTION DETAIL A-1-4



LD	LENGTH	TOP BARREN	RECOMMENDED TYPE
1	148	1700	STAINLESS
2	148	1800	PERFORATED
3	407	1800	PERFORATED
4	33	1800	PERFORATED
5	224	1800	PERFORATED
6	224	1800	PERFORATED
7	224	1800	PERFORATED
8	224	1800	PERFORATED

C2 ROCK FILTER OUTLET
NTS

ADAPTED FROM ARROWHEAD DAM STANDARD CONSTRUCTION DETAIL A-1-4

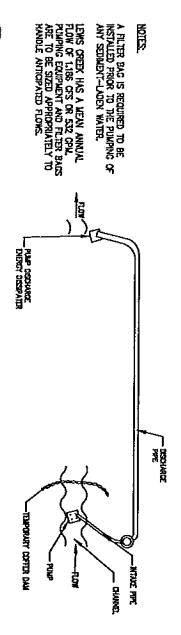


NOTES:

A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A SOFT SOCK OR CONDUIT FILTER SHALL BE LIKELY TO OCCUR. FILTER SHALL BE INSTALLED IN THE DOWNSTREAM DIRECTION OF FLOW. FILTER SHALL BE 1/2 THE HEIGHT OF THE SOCK.

B1 TEMPORARY BYPASS (PUMP-AROUND)
NTS

ADAPTED FROM ARROWHEAD DAM STANDARD CONSTRUCTION DETAIL A-1-4



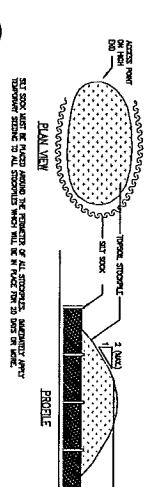
NOTES:

1. FILTER BAG IS REQUIRED TO BE INSTALLED PRIOR TO THE PUMPING OF ANY SEDIMENT-LADEN WATER.

2. FILTER BAG SHALL BE 24" BELOW WATER LEVEL IN WORK AREA INCLUDING THE ASHED 57 STONE. THE 24" PERFORATED CAP OR PVC PIPE SHALL BE SET ON 12" OF CLEAN ASHED 57 STONE. VOID SPACE AROUND PIPE SHALL BE FILLED WITH ASHED 57 STONE. PVC TO EXTEND 12" MIN. ABOVE TOP OF STONE AND/OR WATER BEING PUMPED FROM WORK AREA.

B2 TEMPORARY TOPSOIL STOCKPILE
NTS

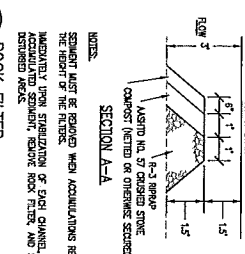
ADAPTED FROM ARROWHEAD DAM STANDARD CONSTRUCTION DETAIL A-1-4



SOCK SHALL BE 1/2 THE HEIGHT OF ALL CONDUITS. MAINTAINED AT ALL TIMES. FILTER BAG SHALL BE 24" BELOW WATER LEVEL IN WORK AREA INCLUDING THE ASHED 57 STONE. THE 24" PERFORATED CAP OR PVC PIPE SHALL BE SET ON 12" OF CLEAN ASHED 57 STONE. VOID SPACE AROUND PIPE SHALL BE FILLED WITH ASHED 57 STONE. PVC TO EXTEND 12" MIN. ABOVE TOP OF STONE AND/OR WATER BEING PUMPED FROM WORK AREA.

B3 ROCK FILTER
NTS

ADAPTED FROM ARROWHEAD DAM STANDARD CONSTRUCTION DETAIL A-1-4



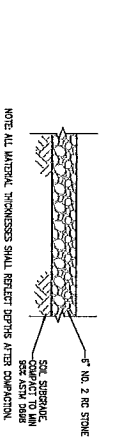
NOTES:

SEWAGE MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTER.

IMMEDIATELY UPON STABILIZATION OF SOIL CHANNEL, REMOVE ACCUMULATED SEDIMENT, REMOVE ROCK FILTER, AND STABILIZE ASSIGNED WORK.

B4 TYPICAL SECTION - GRAVEL ACCESS WAY
NTS

ADAPTED FROM ARROWHEAD DAM STANDARD CONSTRUCTION DETAIL A-1-4



NOTE: ALL MATERIAL THICKNESSES SHALL RELATE DEPTH AFTER COMPACTION.

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ARROWHEAD DAM.

ARROWHEAD LAKE COMMUNITY RECLAMATION PROJECT

DETAILS - 1

PROJECT NO. PA1522-12 DATE December 21, 2014

DRAWN BY: MDT CHECKED BY: MRM

SCALE: NTS

DATE: 12/21/14

PROJECT: ARROWHEAD LAKE COMMUNITY RECLAMATION PROJECT

DESIGNER: ARROWHEAD LAKE COMMUNITY RECLAMATION PROJECT

661 Arrowhead Drive

Peconic, N.Y. 11954

PROJECT NO. C650

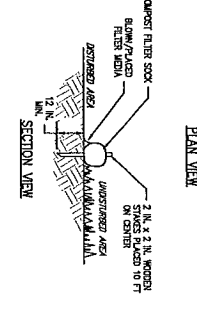
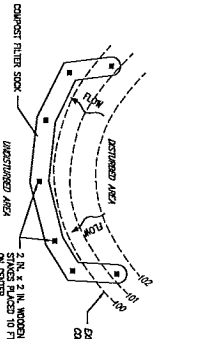
SHEET NO. 13 of 16

DATE: 12/21/2014

PROJECT: ARROWHEAD LAKE COMMUNITY RECLAMATION PROJECT

661 Arrowhead Drive

Peconic, N.Y. 11954



- NOTES:**
- SOCK FABRIC SHALL MEET STANDARDS OF TABLE 1 OF THE FLAT DESIGN CONTROL MANUAL. COMPOST SHALL MEET THE REQUIREMENTS OF SECTION 05000, PART 01, SUBPART 1, ITEM 1.
 - COMPOST FILTER SOCKS SHALL BE PLACED AT DOWNHILL SLOPE. BOTH ENDS OF THE BAGGERS SHALL BE OPENED AT LEAST 6 FEET OF SLOPE AT 45 DEGREES TO THE MAIN BAGGERS ALIGNMENT. MAXIMUM SLOPE DIRECTION SHALL BE INDICATED BY THE DRAWING CONTRACTOR FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRENCHING AREA.
 - SOCKS SHALL NOT BE PLACED TO CROSS COMPOST FILTER SOCKS.
 - ACCUMULATED DEBRIS SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BAGGERS AND DEBRIS IN THE DRAINAGE DESCRIBED OTHERWISE IN THE PLAN.
 - COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RAINFALL EVENT. COMPOST SOCKS SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR AS SOON AS THEY ARE FULL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF COMPOST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF COMPOST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF COMPOST.
 - REMOVAL OF COMPOST SHALL BE ACCORDING TO MAINTENANCE RECOMMENDATIONS.
 - UPON STABILIZATION OF THE AREA, TRENCHING TO THE SOCK STRIPS SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VERTICALLY OR HORIZONTALLY IN THE LATER OVER THE WEIR SHALL BE CUT OPEN AND THE WEIR SHOULD AS A SOIL APPENDIX.

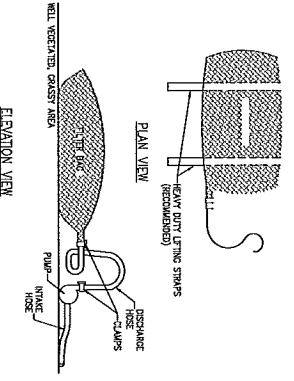
COMPOST SOCK MATERIAL SPECIFICATIONS (A2)

SOCK MATERIAL	SOCK QUANTITY	SOCK DIMENSIONS (L x W)	SOCK WEIGHT (LBS)	SOCK LENGTH (FT)	SOCK WIDTH (IN)	SOCK AREA (SQ FT)
1-1/2\"/>						

COMPOST SOCK MATERIAL SPECIFICATIONS (A2)

FABRIC TYPE	MATERIAL TYPE	CHARACTERISTICS	SOCK DIMENSIONS	SOCK WEIGHT (LBS)	SOCK LENGTH (FT)	SOCK WIDTH (IN)	SOCK AREA (SQ FT)	SOCK WEIGHT (LBS)	SOCK LENGTH (FT)	SOCK WIDTH (IN)	SOCK AREA (SQ FT)
TYPE I	3 in HOPE	NON-DECOMPOSABLE	12\"/>								

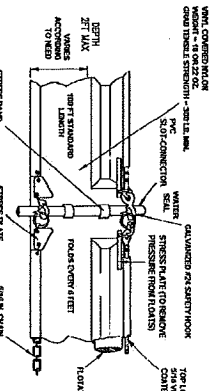
C1 COMPOST FILTER SOCK



C1 PUMPED WATER FILTER BAG

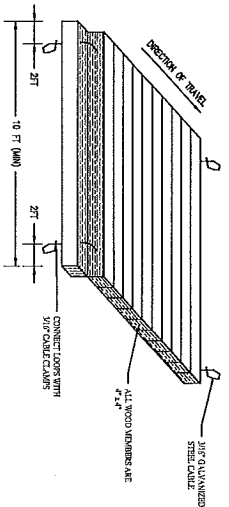
- NOTES:**
- USE WOOD LAMINATED FILTER BAGS SHALL BE MADE FROM NON-WOOD, RECYCLED MATERIAL. SOAK WITH 10% SOLUTION OF 10% BLEACH FOR 24 HOURS. THE BAGS SHALL BE PLACED ON STRIPS TO FACILITATE REMOVAL. UNLESS BAGS COME WITH LITING STRIPS, BAGS SHALL BE LOCATED IN WELL-VENTILATED (GROSS) AREA, AND DISINFECTED AND STABLE. EXPOSED RESISTANT BAGS WHERE THE IS NOT PRESSURE A GEOTECHNICAL ENHANCEMENT AND THE BAG SHALL NOT BE PLACED ON STRIPS OR OTHER SUPPORTS. THE BAGS SHALL BE PLACED ON STRIPS OR OTHER SUPPORTS. THE BAGS SHALL BE PLACED ON STRIPS OR OTHER SUPPORTS.
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C1 PUMPED WATER FILTER BAG



- NOTES:**
- USE WOOD MATS ON WETLAND SOILS OR OTHER ROAD BEDS. THE SURFACE SHOULD BE FLAT AND FREE OF HIGH SPOTS AND LARGE ROCKS. THE MATS SHOULD BE PLACED ON STRIPS TO FACILITATE REMOVAL. UNLESS MATS COME WITH LITING STRIPS, MATS SHOULD BE LOCATED IN WELL-VENTILATED (GROSS) AREA, AND DISINFECTED AND STABLE. EXPOSED RESISTANT MATS WHERE THE IS NOT PRESSURE A GEOTECHNICAL ENHANCEMENT AND THE MAT SHALL NOT BE PLACED ON STRIPS OR OTHER SUPPORTS. THE MATS SHALL BE PLACED ON STRIPS OR OTHER SUPPORTS.
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C3 TURBIDITY CURTAIN



- NOTES:**
- USE WOOD MATS ON WETLAND SOILS OR OTHER ROAD BEDS. THE SURFACE SHOULD BE FLAT AND FREE OF HIGH SPOTS AND LARGE ROCKS. THE MATS SHOULD BE PLACED ON STRIPS TO FACILITATE REMOVAL. UNLESS MATS COME WITH LITING STRIPS, MATS SHOULD BE LOCATED IN WELL-VENTILATED (GROSS) AREA, AND DISINFECTED AND STABLE. EXPOSED RESISTANT MATS WHERE THE IS NOT PRESSURE A GEOTECHNICAL ENHANCEMENT AND THE MAT SHALL NOT BE PLACED ON STRIPS OR OTHER SUPPORTS. THE MATS SHALL BE PLACED ON STRIPS OR OTHER SUPPORTS.
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A3 WETLAND MATS

A3 WETLAND MATS

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND CONDITIONS LISTED ON DRAWING SHEET.

ARROWHEAD LAKE RECLAMATION PROJECT

OWNER: ARROWHEAD LAKE COMMUNITY ASSOCIATION, INC.
961 Arrowhead Drive
Pocahontas, PA 18347

SCALE: NTS 1" = 10'

PROJECT NO.: PA1522-12

DATE: December 23, 2014

DRAWN BY: MDT

CHECKED BY: MDM

SHEET TITLE: EROSION & SEDIMENT POLLUTION CONTROL PLANS

DETAILS - 2

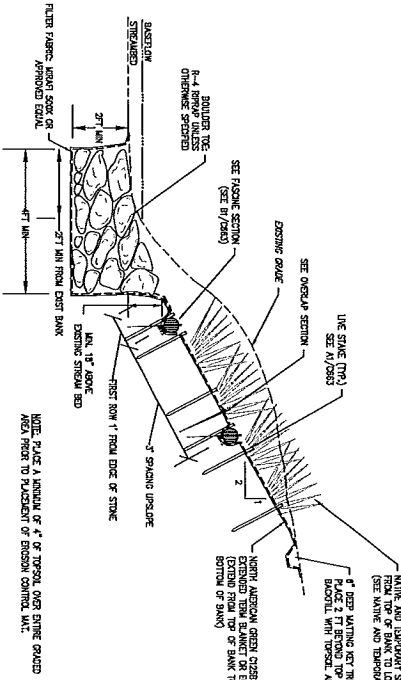
F. X. Browne, Inc.

ENGINEER - ARCHITECT - INTERIOR DESIGNER

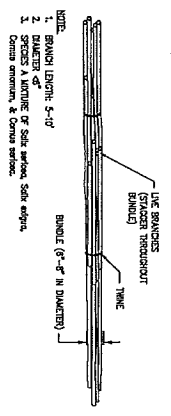
100 N. 4th St., Suite 200
Pocahontas, PA 18342

TEL: 717.233.8279
FAX: 717.233.8280
WWW.FXBROWNE.COM

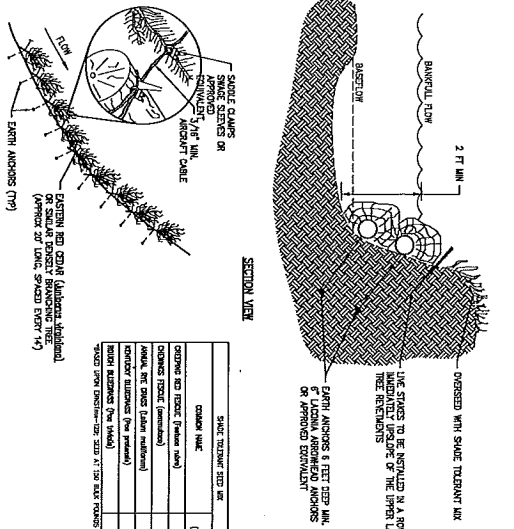
C1 BOULDER TOE W/ STABILIZED BANK



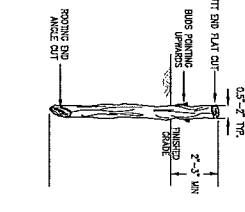
C2 LIVE FASCINE BUNDLE DETAIL



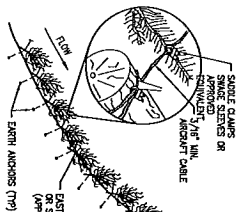
C3 TREE REVEINMENT



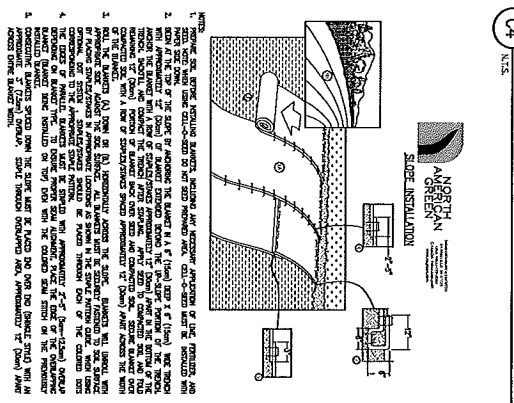
A1 LIVE STAKE SPACING DETAIL



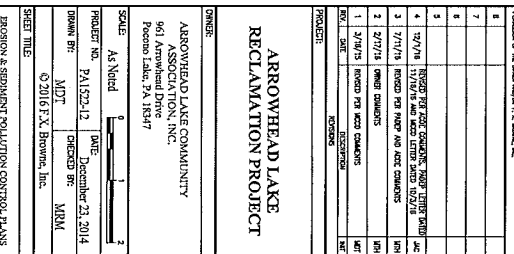
A2 LIVE STAKE SPACING DETAIL



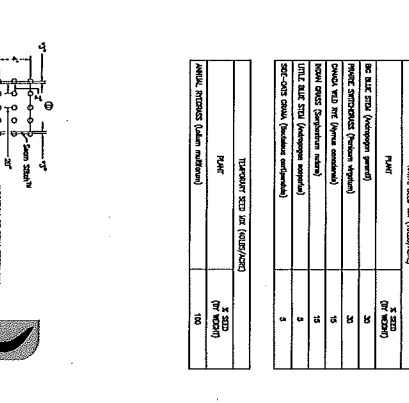
A3 EROSION CONTROL MATTING



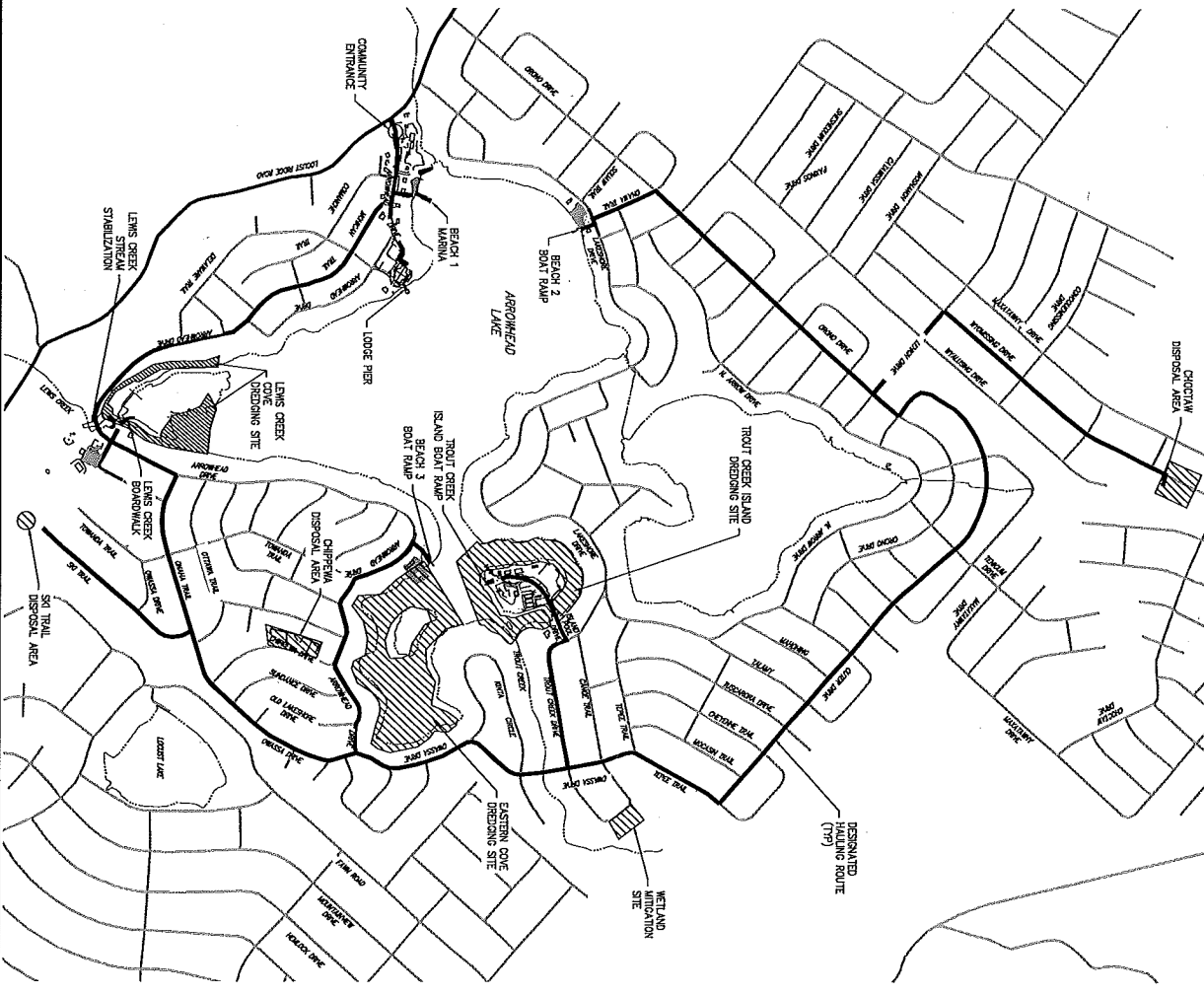
A4 EROSION CONTROL MATTING



C4 EROSION CONTROL MATTING STAPLE PATTERN




F. X. Browne Inc. Environmental Engineering & Construction 1000 W. 10th Street, Suite 100 Anchorage, Alaska 99503 Phone: (907) 562-1000 Fax: (907) 562-1001 www.fxbrowne.com	
PROJECT NO: PA1522-12 DRAWN BY: JMT CHECKED BY: MRM DATE: December 21, 2014 SCALE: AS SHOWN	OWNER: ARROWHEAD LAKE COMMUNITY 961 Arrowhead Drive Pecos, Idaho, PA 18447
ARROWHEAD LAKE STABILIZATION PROJECT	
SHEET NO: 15 of 16 DRAWING TITLE: LEWIS CREEK STREAM STABILIZATION DETAILS DESIGNER: C661	



- NOTES:**
1. DESIGN SITE REPRESENTS REMEDIATION AREAS UNDER URBAN PLAN GENERATED FROM HYDROLOGICAL MODEL AND ANALYSIS IN 2004. EXISTING TOPOGRAPHY WAS SUPERIMPOSED BY DESIGN SURVEY PERFORMED BY SPENCER IN FALL 2011. VERTICAL DATUM: NGVD 83. POINTS TO SHOW 2. ALL WETLANDS EXCEPT THE URBAN AREA ON LENS CREEK ISLAND WERE REVEALED AND FIELD LOCATED BY LISA SPENCER IN FALL 2011. WETLANDS WERE FIELD LOCATED BY LISA SPENCER IN FALL 2011. INFORMATION OF DESIGN TRAIL ENVIRONMENT FOR DESIGN INFORMATION. ALL WORK HAS BEEN DESIGNED TO OCCUR ON COMAUNTY OWNED PROPERTY.
 2. ALL WETLANDS EXCEPT THE URBAN AREA ON LENS CREEK ISLAND WERE REVEALED AND FIELD LOCATED BY LISA SPENCER IN FALL 2011. WETLANDS WERE FIELD LOCATED BY LISA SPENCER IN FALL 2011. INFORMATION OF DESIGN TRAIL ENVIRONMENT FOR DESIGN INFORMATION. ALL WORK HAS BEEN DESIGNED TO OCCUR ON COMAUNTY OWNED PROPERTY.
 3. POINTS LOCATIONS ARE BASED UPON PARCELS COUNTY GIS MAPS. INFORMATION OF DESIGN TRAIL ENVIRONMENT FOR DESIGN INFORMATION. ALL WORK HAS BEEN DESIGNED TO OCCUR ON COMAUNTY OWNED PROPERTY.
 4. THE LENS CREEK ISLAND RECLAMATION FOR DESIGN IS 162200 AND WAS REVEALED BY FIELD SURVEY IN FALL 2011.

NOTE:
 CONSTRUCTION REPORT SHALL BE ADDED TO THE DESIGNATED ROUTE AS SHOWN ON THIS PLAN.

 F. X. Browne, Inc. ENGINEERS • PLANNERS • SURVEYORS 1400 N. 20th Street York, PA 17404 P: 717.333.3333 F: 717.333.3333 www.fxbrwi.com		PROJECT NO. PA1522-12 SHEET NO. 16 of 16
		PROJECT TITLE ARROWHEAD LAKE RECLAMATION PROJECT
SCALE: 1" = 60' DRAWN BY: JMT CHECKED BY: MRM DATE: December 21, 2014 © 2014 F. X. Browne, Inc.		
PROJECT NO. PA1522-12 SHEET NO. 16 of 16		