

UNITED STATES OF AMERICA 129 FERC ¶ 62,201
FEDERAL ENERGY REGULATORY COMMISSION

Appalachian Power Company

Project No. 2210-169

ORDER ISSUING NEW LICENSE

(December 15, 2009)

Article 412. Aids to Navigation Management Plan. Upon the effective date of this license, the licensee shall implement the *Aids to Navigation Management Plan*, filed July 15, 2008, and shall include the following modifications.

- (a) The licensee shall install and maintain a lighted navigation system on Leesville Lake, subject to Virginia Department of Game and Inland Fisheries and U.S. Coast Guard approval, as appropriate.
- (b) Section 6.1.a, on page 5 of the proposed plan, is revised to read, "Upon Commission approval of the management plan, Appalachian, or its designee through a cooperative agreement, will obtain USCG approval for the new aids to navigation system on Smith Mountain Lake."
- (c) Section 6.2, on page 5 of the proposed plan, is revised to read, "Appalachian, or its designee through a cooperative agreement, will obtain approval from the USCG for the existing aids to navigation system for the defined waterway."
- (d) Section 6.2.a, on page 5 of the proposed plan, is revised to read, "Appalachian will ensure applications are submitted to the USCG."
- (e) Section 6.2.b, on page 5 of the proposed plan, is revised to read, "Appalachian will ensure modifications are implemented in accordance with USCG permits."
- (f) The removal of section 10.2, pertaining to marking on Smith Mountain Lake outside of the defined waterway from the proposed plan.
- (g) The licensee shall coordinate the implementation of the approved *Aids to Navigation Management Plan* with the approved *Aquatic Vegetation, Recreation, and Debris Management Plans*.

The approved *Aids to Navigation Management Plan* may not be amended without prior Commission approval.

**APPALACHIAN POWER COMPANY
SMITH MOUNTAIN PROJECT (P-2210)
AIDS TO NAVIGATION MANAGEMENT PLAN**

July - 2008

Preface

The Draft Aids to Navigation Management Plan (draft Plan) was filed with the Federal Energy Regulatory Commission (Commission) in March 2008 without review by the Tri-County Lake Administrative Commission (TLAC), who currently oversees the aids to navigation system on Smith Mountain Lake and maintains the lateral marks. The draft Plan was forwarded to the work group created in the development of the Aids to Navigation Study Plan and comments were received. These comments were reviewed at a meeting on June 4, 2008 with representatives from TLAC, the United States Coast Guard, the Virginia Department of Game and Inland Fisheries attending. The recommendations set forth in the Aids to Navigation Study Plan were further reviewed and discussed by the TLAC's Navigational Committee along with the U.S. Coast Guard on June 16, 2008 which was followed by an on-water inspection of several specific areas on June 17, 2008. As a result of these meetings, modifications have been made to the recommendations set forth in the Aids to Navigation Study Plan and this revised Aids to Navigation Management Plan incorporates those modifications.

Summary

The Smith Mountain Project (No. 2210), licensed to Appalachian Power Company (Appalachian), is a pumped storage hydroelectric project located on the Roanoke River in Bedford, Campbell, Franklin and Pittsylvania counties in Virginia. The upper reservoir of the pumped storage facility is the Smith Mountain development, while the lower reservoir is the Leesville development.

The purpose of the Aids to Navigation Management Plan (Plan) is to develop and implement a plan to provide mariners on Smith Mountain and Leesville lakes a reasonable marking of marine features. The plan includes a reference to the United States Coast Guard (USCG) standards for aids to navigation, a map of the existing system of lateral marks, the types of aids to be installed as well as other proposed changes, a description of the maintenance program, and a consultation process for coordinating with the USCG, the Tri County Lake Administrative Commission (TLAC), and the Virginia Department of Game and Inland Fisheries (VDGIF).

The Plan is being submitted to the Federal Energy Regulatory Commission (Commission) as part of the license application and reflects the measures that Appalachian will be responsible for as the licensee. However, there will be times when it makes sense to develop a cooperative agreement between Appalachian and other parties to manage issues in a mutually beneficial way. These types of agreements will be outside of project license and may reflect additional measures that are above those required by this Plan.

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1.0 INTRODUCTION

Smith Mountain Lake is the upper reservoir of a pumped storage project encompassing 20,260 acres and over 500 miles of shoreline. The lower reservoir, Leesville Lake, encompasses 3,260 acres and 100 miles of shoreline. The Smith Mountain Project is owned and operated by Appalachian Power Company (Appalachian). The Tri-County Lake Administrative Commission (TLAC), an administrative organization for the three counties surrounding Smith Mountain Lake, currently oversees the maintenance of the aids to navigation on Smith Mountain Lake, a system consisting of Private Aids to Navigation, owned and operated by an entity other than the Federal Government, according to the United States Coast Guard (USCG). The Leesville Lake Association (LLA), a 501(C) (3) corporation formed in 2003 to promote stewardship of Leesville Lake, currently oversees and maintains a series of mileage markers installed along the shoreline of Leesville Lake. These “mileage markers” are also considered Private Aids to Navigation.

Studies conducted for the relicensing of the Smith Mountain Pumped Storage Project (Project) have highlighted issues, responsibilities, potential improvements, and the need to outline responsibilities of various agencies to insure that the aids to navigation have been approved by the responsible parties and are maintained in such a manner as to enhance the navigation of mariners. As such, this Aids to Navigation Management Plan is intended to address the issues, outline responsibilities, and recommend potential changes to the existing systems. The plan includes a history of the management of the system, a description of the lakes and their watersheds, management goals and objectives for the navigational aid systems, a reference to the USCG standards for aids to navigation, a map of the existing system of lateral marks, the types of aids to be installed as well as other proposed changes, the maintenance program, and a consultation process for coordinating with the USCG, TLAC, the VDGIF and the LLA.

2.0 HISTORY

Although limited historical records exist, an oral interview was conducted with the contractor who installed the original lateral marks on Smith Mountain Lake. According to the contractor, the original lateral marks were installed in the 1970’s at the expense of the Leesville Reservoir Committee, comprised of representatives from Bedford, Campbell, Franklin and Pittsylvania counties and Appalachian Power Company (Appalachian). The Leesville Reservoir Committee was responsible for overseeing activities at both the Smith Mountain and the Leesville reservoirs. Following the installation of the lateral marks, Appalachian maintained 37 AC powered lights and 77 DC battery units changing the batteries every 30 days in the summer and every 45 days in the winter months.

In April of 1978, the United States Court of Appeals for the Fourth Circuit upheld the district court’s decision that Smith Mountain Lake was a navigable water of the United States.

In 1986 the Smith Mountain Lake Policy Advisory Board (PAB), predecessor to TLAC, was created and desiring to upgrade the lateral marks, sought funding from the Commonwealth of Virginia. In 1990, Appalachian and the PAB entered into an Agency Agreement regarding the maintenance of the system and in 1993, Appalachian converted its 37 AC powered lateral marks to solar powered units and conveyed them along with two bridge lights to the PAB along with the responsibility to maintain the units. In addition the 1990 Agency Agreement was made null and void, thus giving full maintenance responsibilities for the navigation system to the PAB.

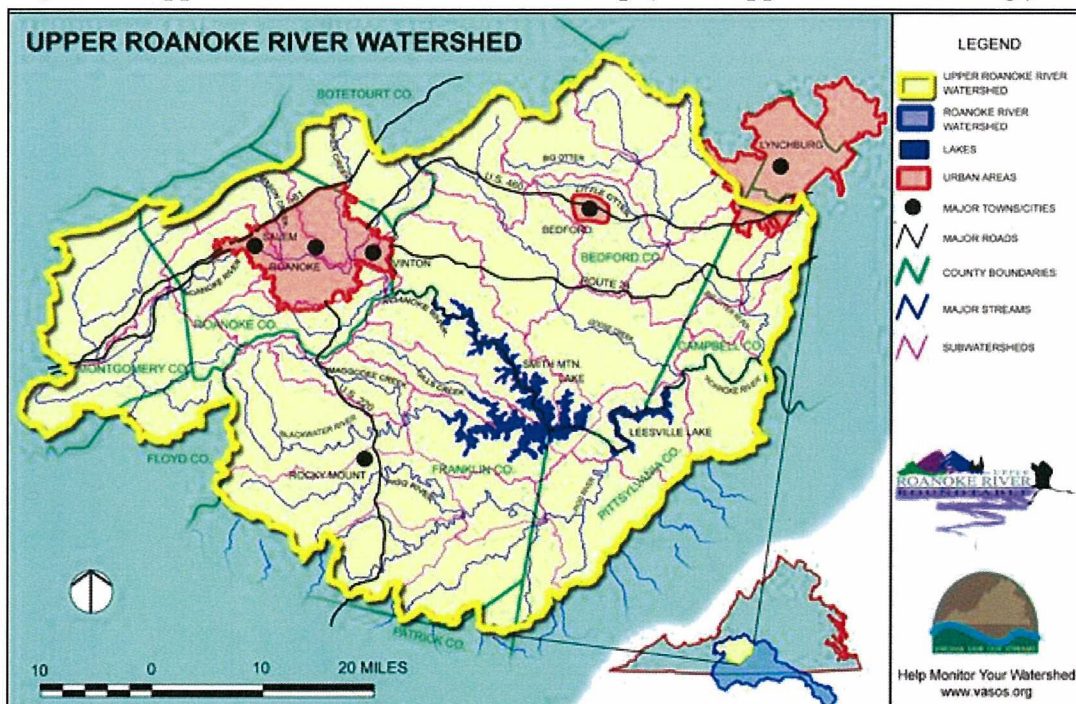
Since 1993, the PAB and its successor, TLAC have overseen the maintenance of the aids to navigation on Smith Mountain Lake. Although VDGIF approval was obtained, USCG's approval was not.

During the development of Leesville Lake, a series of mileage markers were installed. These were replaced in 2006 with improved markers funded, installed, and maintained by the LLA. Approval was not obtained for the installation of these markers.

3.0 LAKE AND WATERSHED CHARACTERISTICS

The Smith Mountain Project is located on the Roanoke River in the south-central portion of Virginia. The watershed to the Project is the upper Roanoke River which is designated as Hydrologic Unit Code 03010101 (Figure 1). The size of Smith Mountain Lake is approximately 20,260 acres at elevation 795 feet with 500 miles of shoreline. Shoreline development consists primarily of residential development with some multi-family and commercial development. In contrast, the size of Leesville Lake is approximately 3,260 acres at elevation 613 feet with 100 miles of shoreline. The majority of the shoreline is undeveloped, with development consisting of residential and two commercial areas.

Figure 1. Upper Roanoke River Watershed Map (www.upperroanokeriver.org)



The Smith Mountain reservoir has a drainage area of 1,029 square miles while the total drainage area for the Leesville development is 1,505 square miles. (Note: The Leesville drainage area contains the Smith Mountain drainage area.) Inflows originate primarily from the Roanoke River and secondarily from the Blackwater River. The project also receives inflow from several other tributaries including Beaver Dam Creek, Gills Creek, Craddock Creek, Witcher Creek, and Walton Creek. The primary inflow into Leesville Reservoir, other than the releases from Smith Mountain Dam, is from the Pigg River.

The Project was designed to utilize a two foot power pool thus the elevation at Smith Mountain can decrease 2 feet equating to a 13 foot increase at Leesville Lake. In addition to the power pool fluctuation, decreased inflows can affect the pool elevation at Smith Mountain. Full pond is considered the 795 foot contour elevation, National Geodetic Vertical Datum, 1929. However, according to historic records, the lowest pool elevation on record was 787.60 on January 23, 1970. Modifications to the minimum release protocol are being proposed with the new license and these modifications are expected to improve water levels at the Smith Mountain reservoir.

Leesville is not affected by decreased inflows but fluctuates between the 600 and the 613 foot contour elevations as electricity is generated and then pumped back to the upper reservoir for additional generation. Water is released from the Project through the Leesville development.

4.0 AIDS TO NAVIGATION SYSTEM ALTERNATIVES

According to the USCG, there are two approaches for developing a system for aids to navigation on bodies of water. A defined waterway navigable under the various water levels or safe routes can be identified with obstructions within this defined area identified or every obstruction on the body of water can be marked.

A survey of the existing aids revealed that the current system is a hybrid of both approaches. Further during the various study meetings, concerns were repeatedly expressed to mark shoals that may result from decreased water levels. Thus attempting to mark every obstruction on a fluctuating body of water is challenging, requiring constant assessment of water levels, exposed shoals, and monitoring of new shoals that may be created as result of sedimentation.

As licensee, Appalachian proposes to mark and maintain a defined waterway navigable under the various water levels on both Smith Mountain and Leesville lakes.

5.0 MANAGEMENT ACTION STRATEGY

Smith Mountain Lake is a public navigable body of water created by Appalachian with oversight responsibilities by federal, state, and local agencies. In an effort to echo this multi-faceted oversight, Appalachian proposes to assume responsibility for marking and maintaining the aids to navigation within a defined navigable channel. This defined waterway would encompass those areas currently marked by lateral marks and as expanded to include several non-lateral marks indicating shoals to be converted to lateral marks. Although the bridge lights at Hales Ford Bridge are not technically aids to navigation according to the USCG, Appalachian proposes to assume responsibility for these lights.

TLAC may wish to continue to mark obstructions outside of the defined waterway. If so then Appalachian will work with them, VDGIF and USCG on developing criteria for marking these obstructions. TLAC may also wish to continue being involved in overseeing the maintenance of the lateral marks. If so, then Appalachian will work with TLAC on developing a cooperative agreement that at a minimum addresses maintenance responsibilities, funding, and expectations.

Although Smith Mountain Lake is considered “navigable waters of the United States” and falls under the jurisdiction of the USCG, the aids to navigation have not received Coast Guard approval. However, TLAC is proposing to obtain such approval and bring the system into Coast Guard compliance over a six year period an estimated cost of \$100,000 - \$150,000. In an effort to have a consistent numbering system installed in a timely manner, Appalachian agrees to cover the cost of the signage required to obtain USCG approval so as to have a consistent and uniform numbering system. In addition, Appalachian is also proposing to install 26 new lateral marks at an estimated cost of \$ 32,500.

On Leesville Lake, Appalachian proposes to install and maintain 43 unlit lateral aids marking a navigable channel or defined waterway at an estimated cost of \$43,000. On Leesville Lake the defined waterway has been identified as those waters within the 595 foot contour elevation.

Lateral marks identify the edges of safe water areas; they are not intended to be street lights or residential direction markers.

6.0 MANAGEMENT GOALS AND OBJECTIVES

The management goals and objectives for implementing the Aids to Navigation Management Plan are:

1. Appalachian will seek approval of modifications to the aids to navigation system.

- a. Upon Commission approval of the management plan, Appalachian or its designee through a cooperative agreement will obtain USCG approval for the new aids to navigation on Smith Mountain Lake. These aids are in addition to the existing markers to be improved by TLAC to meet USCG Standards. USCG standards are identified in Appendix A.
 - b. Appalachian or its designee through a cooperative agreement will seek VDGIF approval for the new aids to navigation on Leesville Lake as well as the existing mile markers via the counties surrounding Leesville Lake.
 - c. Appalachian or its designee will install the approved lateral marks according to the permits granted by the USCG or its designee and in accordance with the approved time frame.
2. In accordance with its current plan of action, TLAC will continue to obtain approval from the USCG for the existing aids to navigation.
 - a. Appalachian will coordinate with TLAC to ensure applications are submitted to the USCG.
 - b. Appalachian will coordinate with TLAC to ensure modifications are implemented in accordance with USCG permits.
3. Appalachian will coordinate with the USCG, VDGIF, TLAC and the LLA to develop and implement a maintenance plan for the systems.
4. Appalachian or its designee will maintain the lateral marks that indicate the defined waterway and any aids identifying obstructions within that channel so that mariners are aware of safe travel routes under various water elevations.
5. Appalachian will coordinate with USCG, VDGIF, TLAC, and LLA to develop a program to remove unauthorized regulatory buoys.
6. Appalachian will coordinate with USCG, VDGIF, TLAC, and LLA to develop an educational program targeted for Smith Mountain and Leesville lakes.
7. Appalachian will coordinate with USCG, VDGIF, TLAC, and LLA to develop efforts to warn mariners of unusually heavy debris and high or low water.
8. Appalachian will enlist assistance from the National Ocean Service (NOS) to provide a chart of Smith Mountain Lake. The NOS prepares charts of navigable waterways. If NOS is unable to assist in the development of a chart for Smith Mountain Lake, at a minimum, Appalachian will provide details of lateral marks to interested lake cartographers.
9. Appalachian will coordinate with LLA to produce a map of Leesville Lake.
10. Appalachian will update its Shoreline Management Plan to address USCG amber lighting requirements on docks that extend out from peninsulas or that break the line of sight of two lateral marks. The Shoreline Management Plan for the Smith Mountain Pumped Storage Project sets forth regulations for docks on Smith Mountain and Leesville lakes.

7.0 EXISTING SYSTEM

Maps of the existing aids to navigation system at Smith Mountain Lake are included in Appendix B.

Maps of the existing aids to navigation system at Leesville Lake are included in Appendix C.

8.0 PROPOSED CHANGES TO THE SMITH MOUNTAIN SYSTEM

The proposed changes to the Smith Mountain system, developed in coordination with USCG, VDGIF, and TLAC, is included in Appendix D.

9.0 PROPOSED CHANGES TO THE LEESVILLE LAKE SYSTEM

The proposed changes, developed in coordination with the USCG, VDGIF and LLA, is included in Appendix E.

10.0 MONITORING AND MAINTENANCE

10.1 Lateral Marks at Smith Mountain

Appalachian or its designee will inspect Smith Mountain Lake at night every spring no later than March 15 to ensure that the lateral marks are functioning in addition to continuing to maintain the lateral marks in accordance with the policies established by TLAC. In addition, osprey nests built on lateral marks will be removed every fall. Specifically, Appalachian or its designee will coordinate with TLAC to utilize its established "Adopt a Marker Program", asking those who have adopted a mark to notify Appalachian or its designee of any outages. In addition, Appalachian agrees to coordinate with the USCG, VDGIF, and TLAC to develop an appropriate schedule for the replacement of lights. The possibility of TLAC receiving work orders for Appalachian could be addressed in a Cooperative Agreement.

10.2 Non-Lateral Marks at Smith Mountain Lake

Assuming that TLAC will continue to oversee the aids to navigation marking obstructions outside of the defined waterway and the USCG or its designee approves those aids, the cooperative agreement will require an annual spring inspection to ensure that the aids are located correctly and are legible and functioning as intended or other method agreed to among Appalachian, TLAC, and the USCG or its designee.

10.3 Lateral Marks At Leesville Lake

At Leesville Lake, Appalachian or its designee will inspect the reservoir every spring to ensure that the aids to navigation are undamaged, visible, and functioning as intended. Any osprey nests built on lateral marks shall be removed every fall. Further, Appalachian proposes to develop an agreement with the LLA so that any mariners witnessing a missing or damaged lateral mark can contact them. An LLA representative could verify the report and contact Appalachian.

10.4 Processes for Removing Navigational Hazards

Heavy inflow into the Project results in logs, full and empty barrels, dislodged floating docks, and dead animals e.g. deer and cows. If floating in the main channel, these items can become hazards to navigation. The removal of navigational hazards has been addressed in the Debris Management Study.

10.5 Plan to remove unauthorized buoys

This section shall be developed in conjunction with USCG, VDGIF, TLAC, and LLA.

10.6 Publicity Efforts

Efforts to warn mariners of unusually heavy debris and high or low water will be developed in conjunction with the USCG, VDGIF, TLAC, and LLA.

10.7 Coordination with other Plans

A copy of the 5-year Sediment Report will be provided to the Aids to Navigation Technical Review Committee for review. This report will provide information to the Committee regarding changes in water depths for the areas being monitored.

11.0 CONSULTATION

An Aids to Navigation Technical Review Committee will be formed to review the annual inspection and to provide input on recommendations and proposed solutions. The committee will include representatives from Appalachian, TLAC, VDGIF, USCG, the Smith Mountain Volunteer Marine Fire Department and the LLA. The Committee will convene at least annually and on an ad hoc basis. In addition, the committee could also review any updated bathymetric data and monitor the development or relocation of shoals.

Appendix A

United States Coast Guard Standards



U.S. AIDS TO NAVIGATION SYSTEM

on navigable waters except Western Rivers

LATERAL SYSTEM AS SEEN ENTERING FROM SEAWARD

<p>PORT SIDE ODD NUMBERED AIDS</p> <p>GREEN LIGHT ONLY FLASHING (2) FLASHING OCCULTING QUICK FLASHING ISO</p> <p>LIGHT LIGHTED BUOY CAN DAYBEACON</p>	<p>PREFERRED CHANNEL NO NUMBERS - MAY BE LETTERED</p> <p>PREFERRED CHANNEL TO STARBOARD TOPMOST BAND GREEN</p> <p>GREEN LIGHT ONLY</p> <p>COMPOSITE GROUP FLASHING (2+1)</p> <p>GR "A" FI (2+1) G 6s GR "U" GR "S"</p>	<p>PREFERRED CHANNEL NO NUMBERS - MAY BE LETTERED</p> <p>PREFERRED CHANNEL TO PORT TOPMOST BAND RED</p> <p>RED LIGHT ONLY</p> <p>COMPOSITE GROUP FLASHING (2+1)</p> <p>RG "B" FI (2+1) R 6s RG "C" RG "G"</p>	<p>STARBOARD SIDE EVEN NUMBERED AIDS</p> <p>RED LIGHT ONLY FLASHING (2) FLASHING OCCULTING QUICK FLASHING ISO</p> <p>LIGHT LIGHTED BUOY NUN DAYBEACON</p>
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AIDS TO NAVIGATION HAVING NO LATERAL SIGNIFICANCE

<p>ISOLATED DANGER NO NUMBERS - MAY BE LETTERED</p> <p>WHITE LIGHT ONLY</p> <p>FI (2) 5s</p> <p>BR "A" FI (2) 5s BR "C"</p> <p>LIGHTED UNLIGHTED</p>	<p>SAFE WATER NO NUMBERS - MAY BE LETTERED</p> <p>WHITE LIGHT ONLY MORSE CODE</p> <p>Mo (A) RW "N" Mo (A) MR RW "A" SPHERICAL RW "B" RW SP "B" UNLIGHTED AND/OR SOUND</p>
<p>DAYBOARDS - MAY BE LETTERED</p> <p>WHITE LIGHT ONLY</p> <p>RW Bn GW Bn BW Bn</p>	
<p>RANGE DAYBOARDS MAY BE LETTERED</p> <p>SPECIAL MARKS - MAY BE LETTERED</p> <p>YELLOW LIGHT ONLY FIXED FLASHING</p> <p>UNLIGHTED C "A" N "C" Y "A" Bn Y "B" FI</p> <p>SHAPE OPTIONAL—BUT SELECTED TO BE APPROPRIATE FOR THE POSITION OF THE MARK IN RELATION TO THE NAVIGABLE WATERWAY AND THE DIRECTION OF BUOYAGE.</p>	

Aids to Navigation marking the Intracoastal Waterway (ICW) display unique yellow symbols to distinguish them from aids marking other waters. Yellow triangles \triangle indicate aids should be passed by keeping them on the starboard (right) hand of the vessel. Yellow squares \square indicate aids should be passed by keeping them on the port (left) hand of the vessel. A yellow horizontal band — provides lateral information, but simply identifies aids as marking the ICW.

TYPICAL INFORMATION AND REGULATORY MARKS

INFORMATION AND REGULATORY MARKERS

WHEN LIGHTED, INFORMATION AND REGULATORY MARKS MAY DISPLAY ANY WHITE LIGHT RHYTHM EXCEPT QUICK FLASHING, Mo(A), AND FLASHING (2)

MOORING BUOY
WHITE WITH BLUE BAND
MAY SHOW WHITE REFLECTOR OR LIGHT

BOAT EXCLUSION AREA

ROCK
DANGER

SWIM AREA
EXPLANATION MAY BE PLACED OUTSIDE THE CROSSED DIAMOND SHAPE, SUCH AS DAM, RAPIDS, SWM AREA, ETC.

CONTROLLED AREA
TYPE OF CONTROL IS INDICATED IN THE CIRCLE, SUCH AS SLOW, NO WAKE, ANCHORING, ETC.

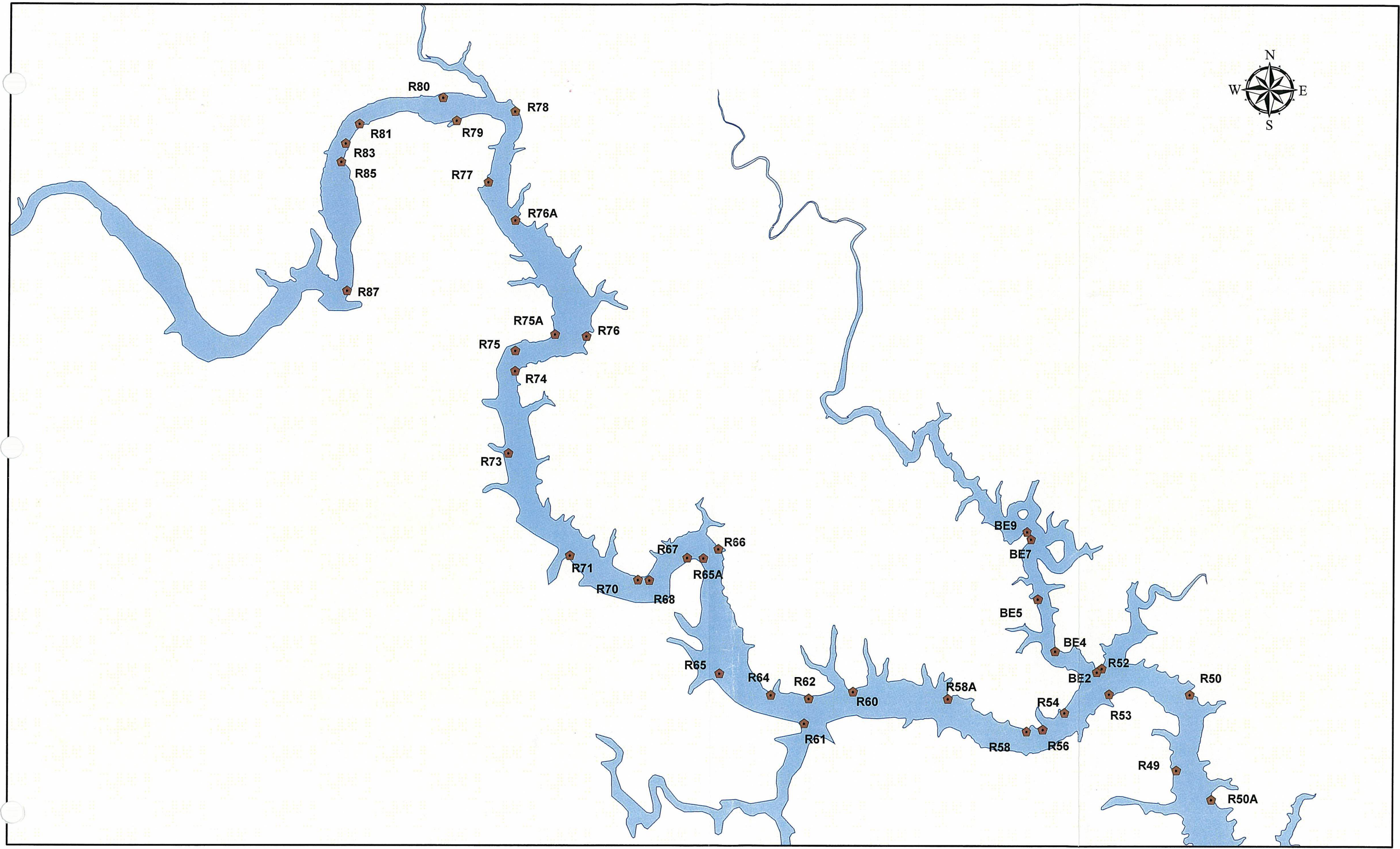
INFORMATION
MULLET LAKE
BLACK RIVER
FOR DISPLAYING INFORMATION SUCH AS DIRECTIONS, DISTANCES, LOCATIONS, ETC.

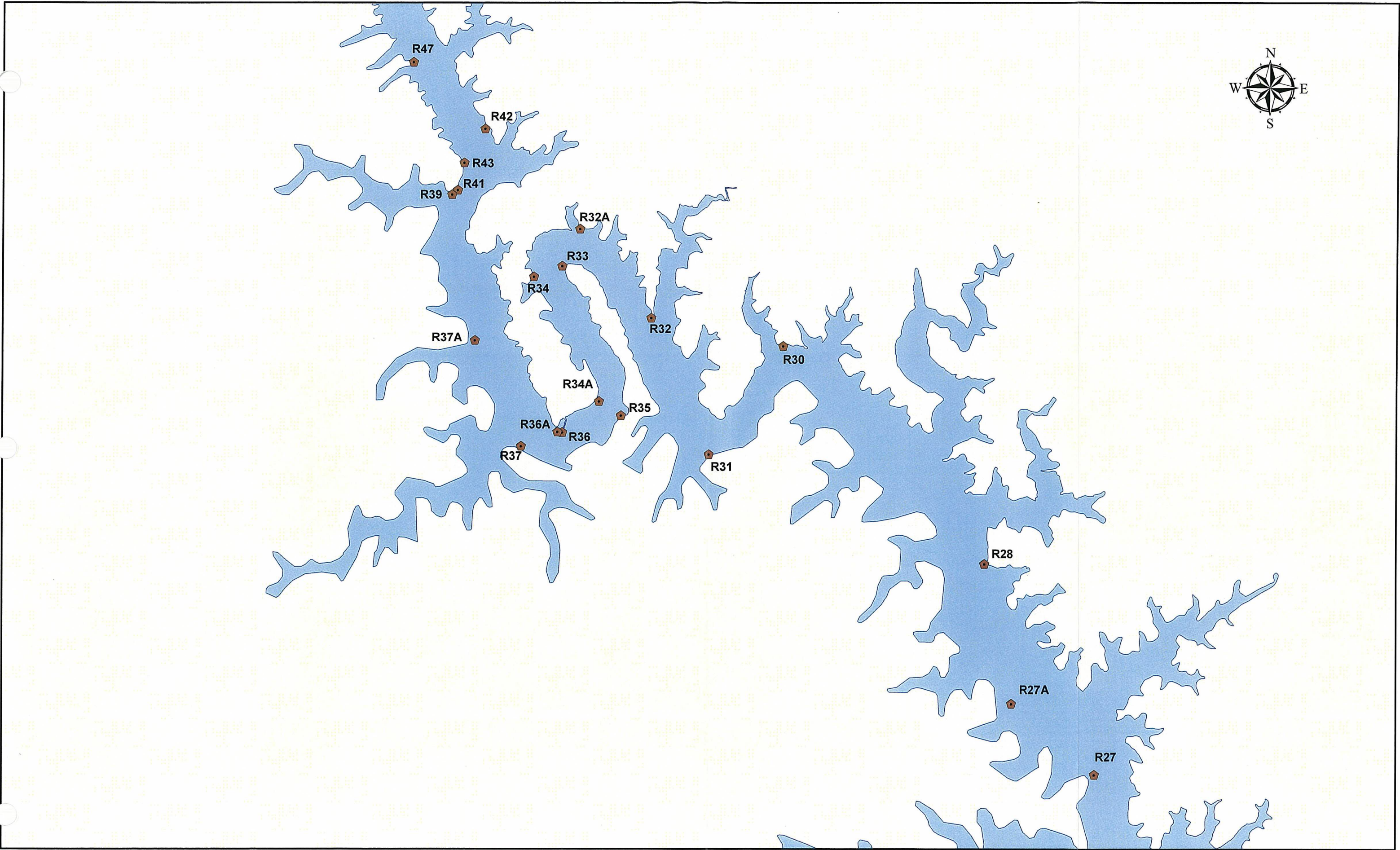
BUOY USED TO DISPLAY REGULATORY MARKERS
MAY SHOW WHITE LIGHT MAY BE LETTERED

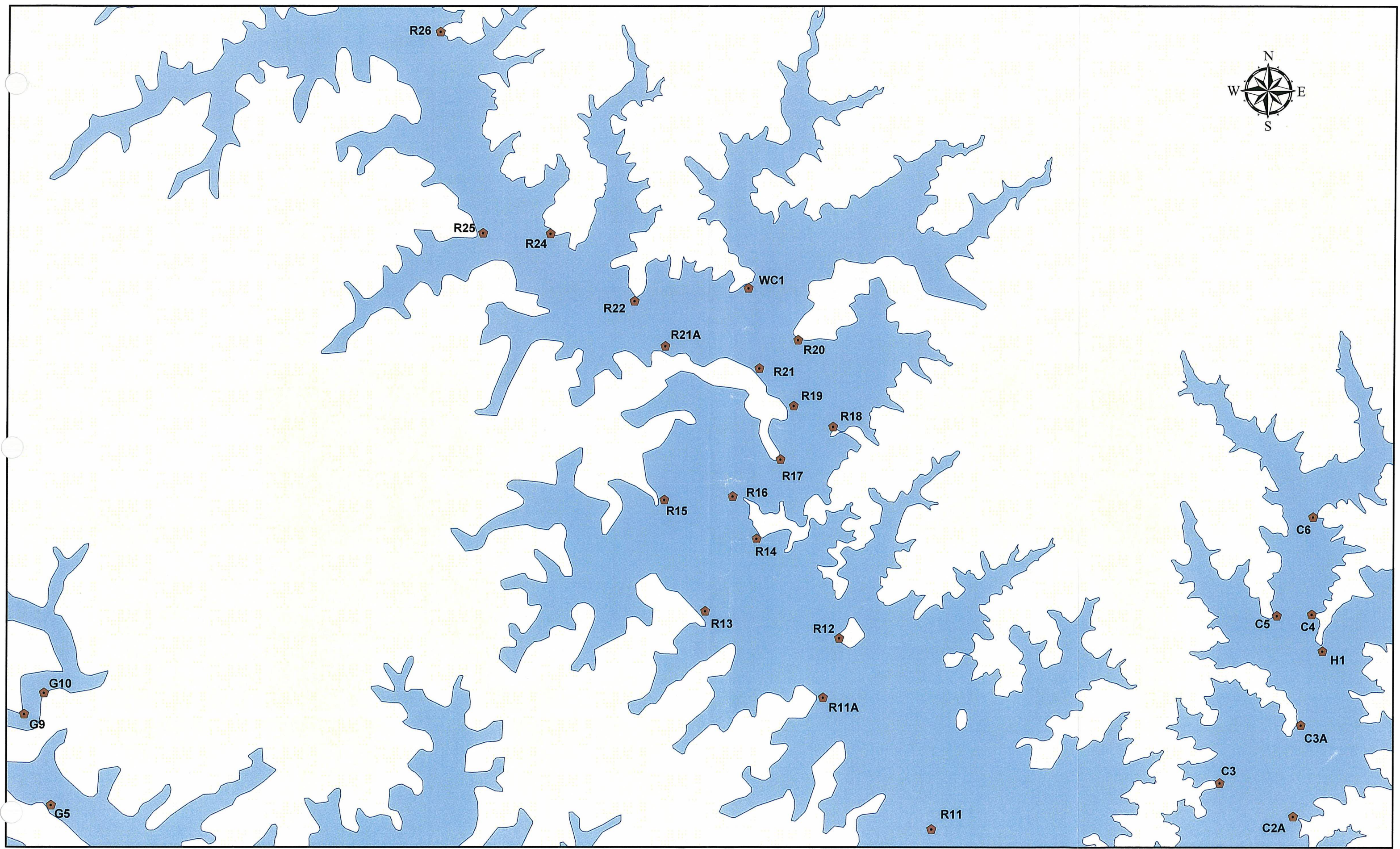
PLATE 1

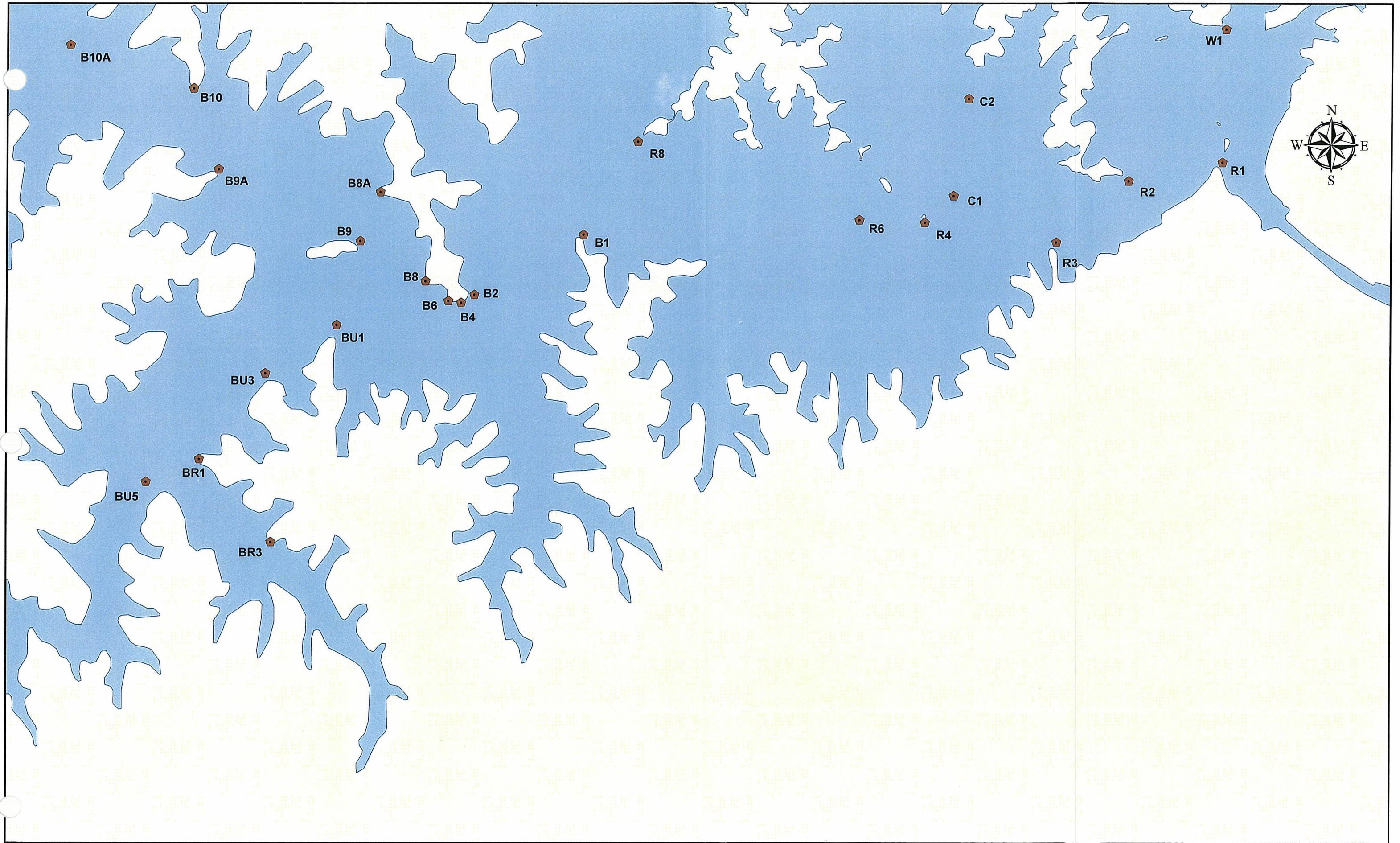
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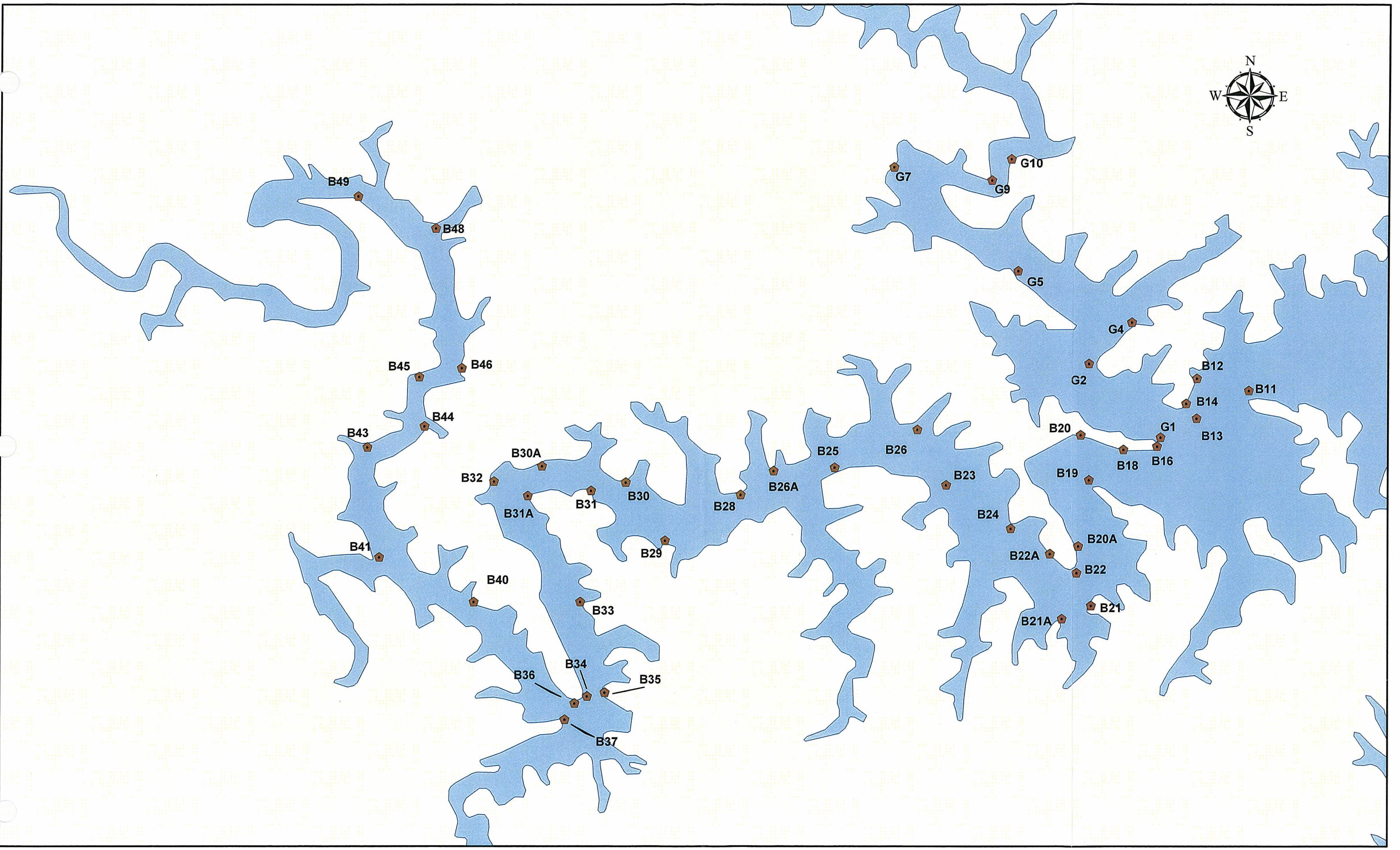
Map of Existing Aids to Navigation on Smith Mountain Lake





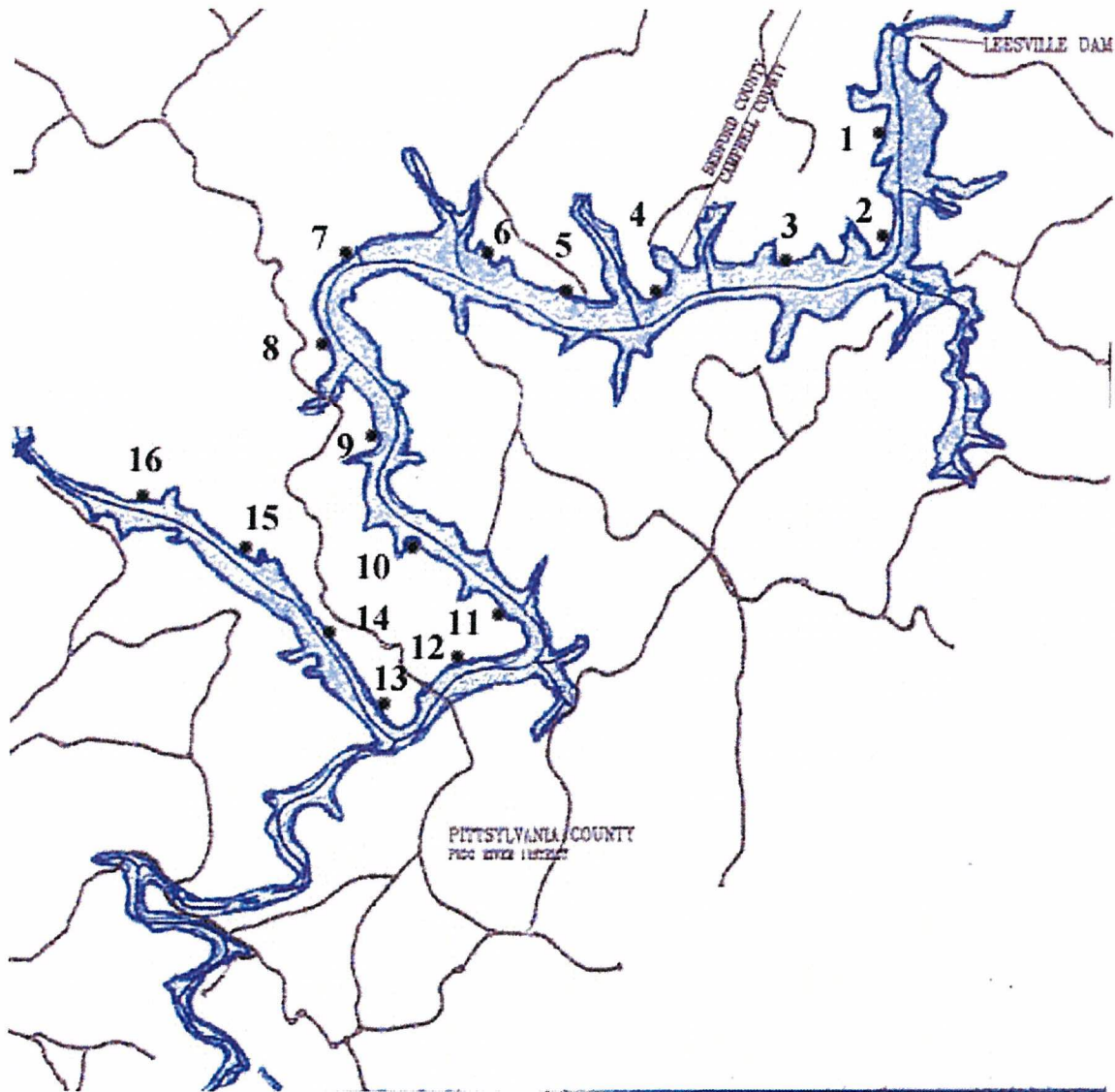






Appendix C

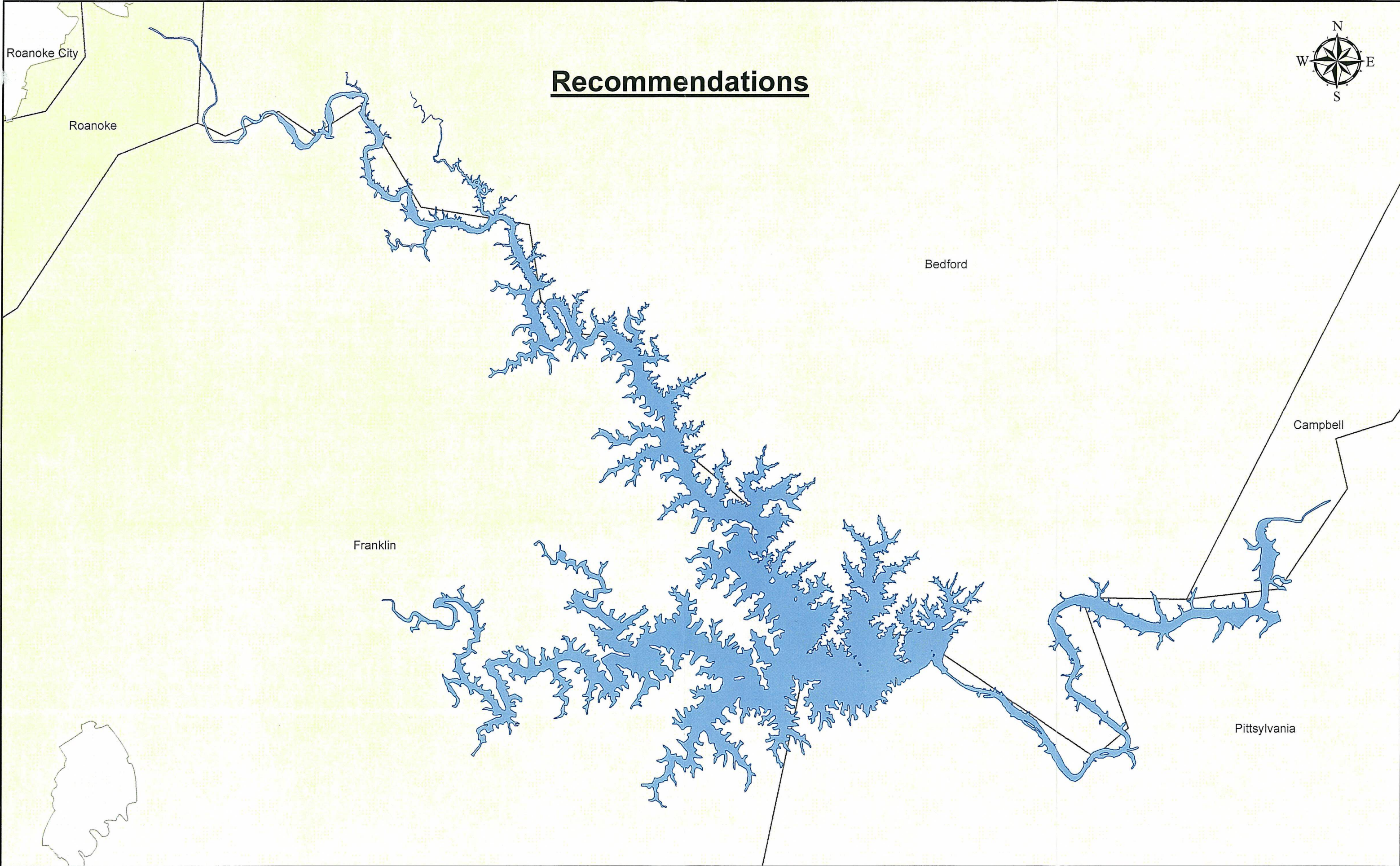
Map of Existing Aids to Navigation on Leesville Lake

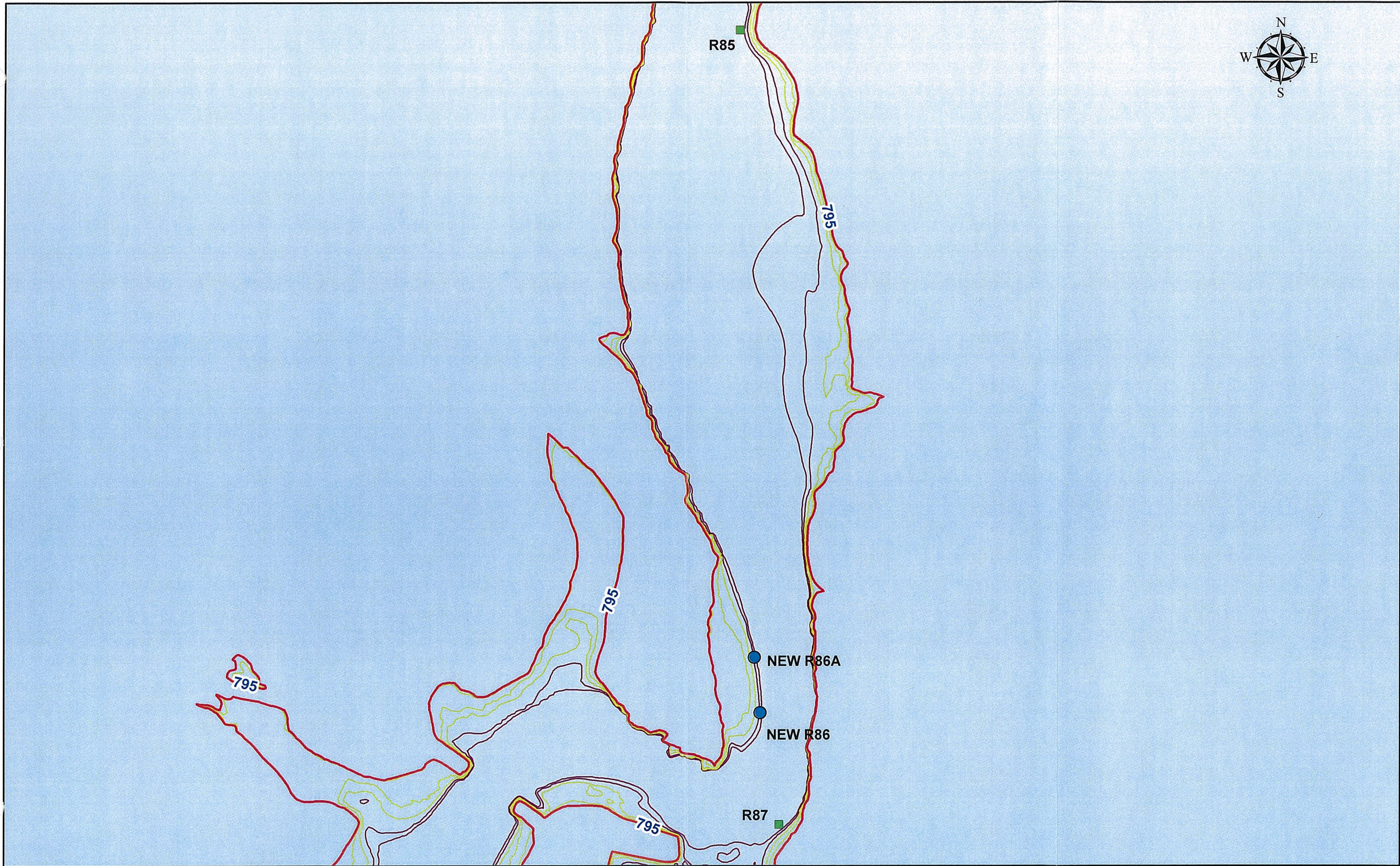


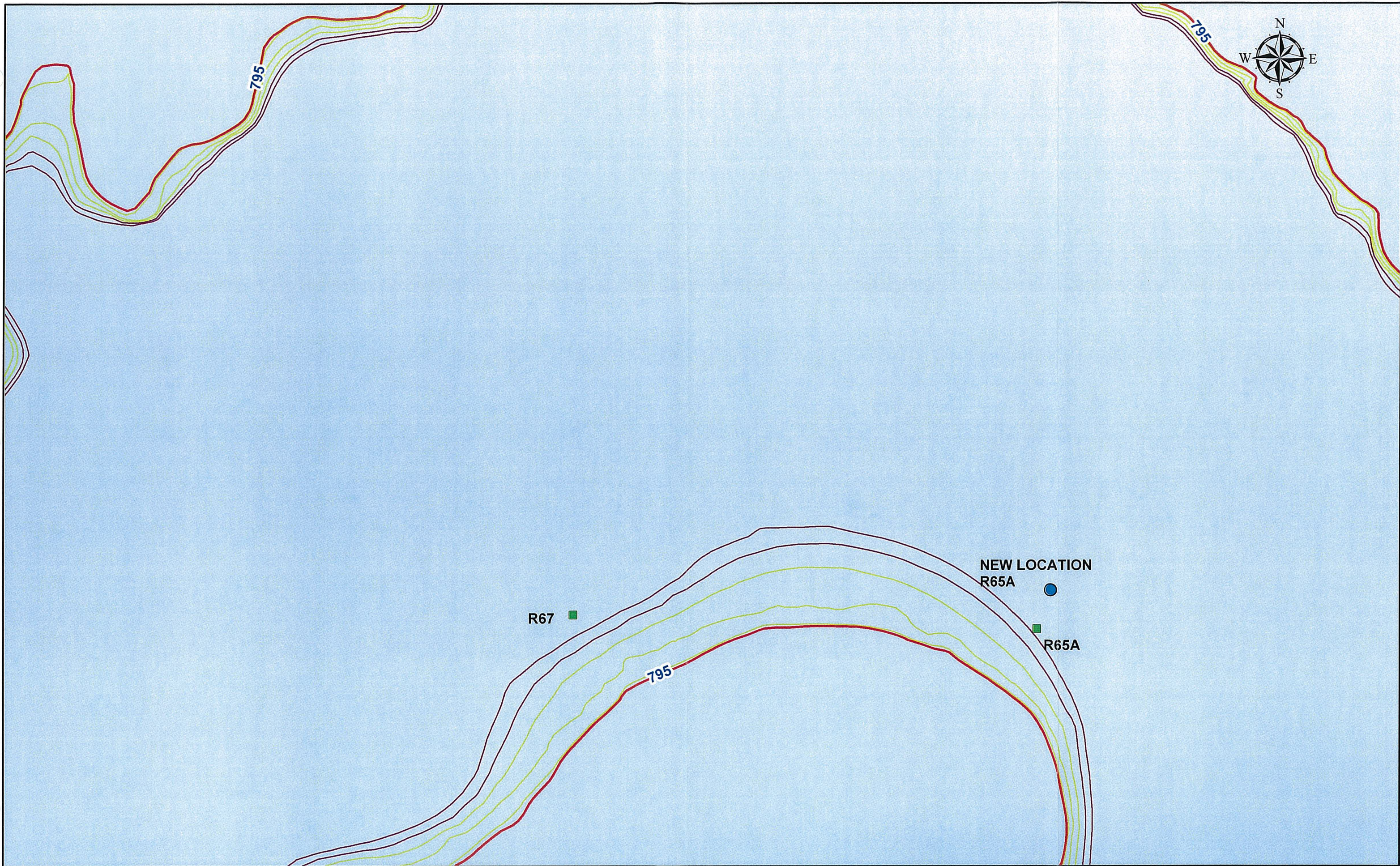
Leesville Lake
Existing Mile Markers

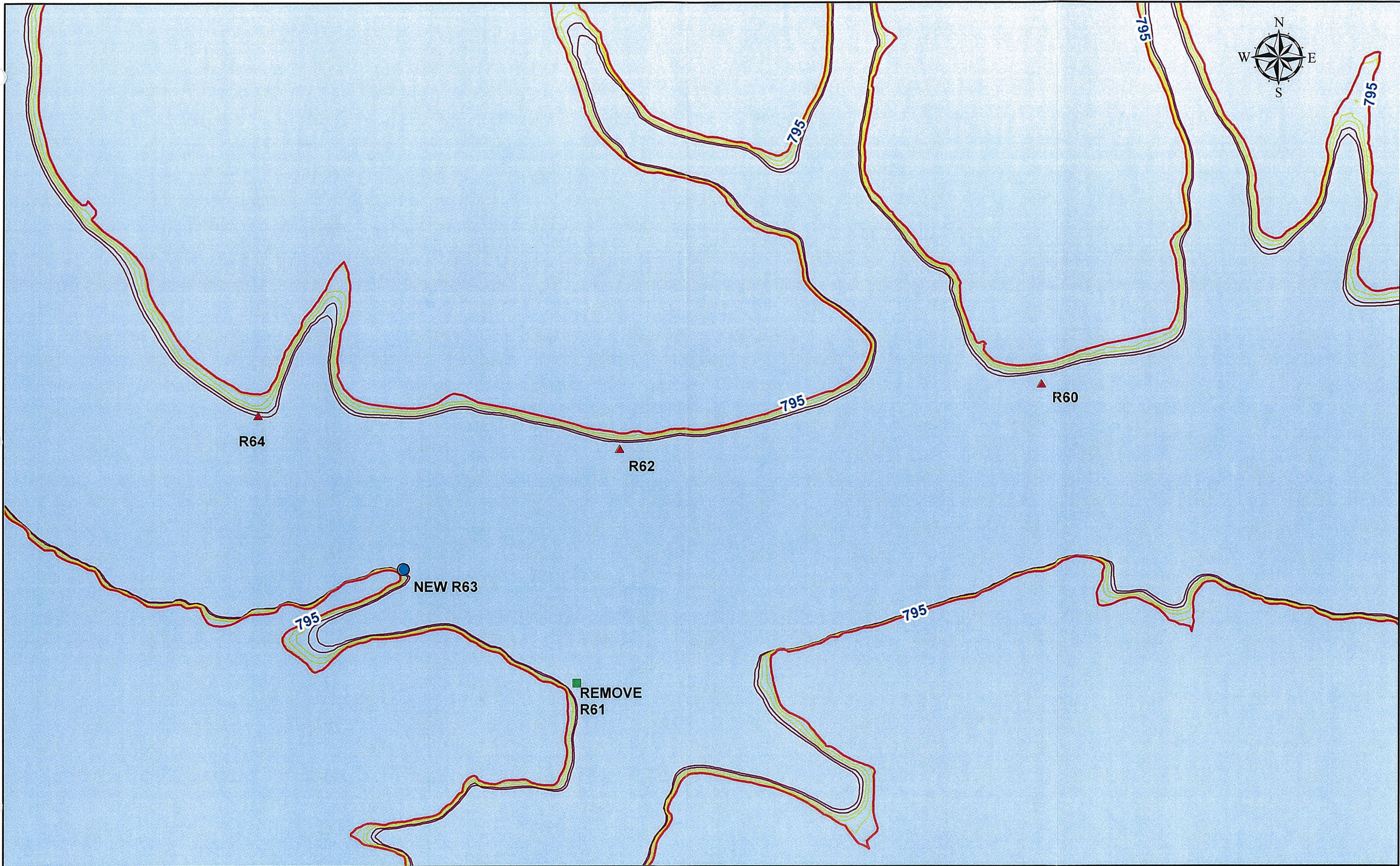
Appendix D

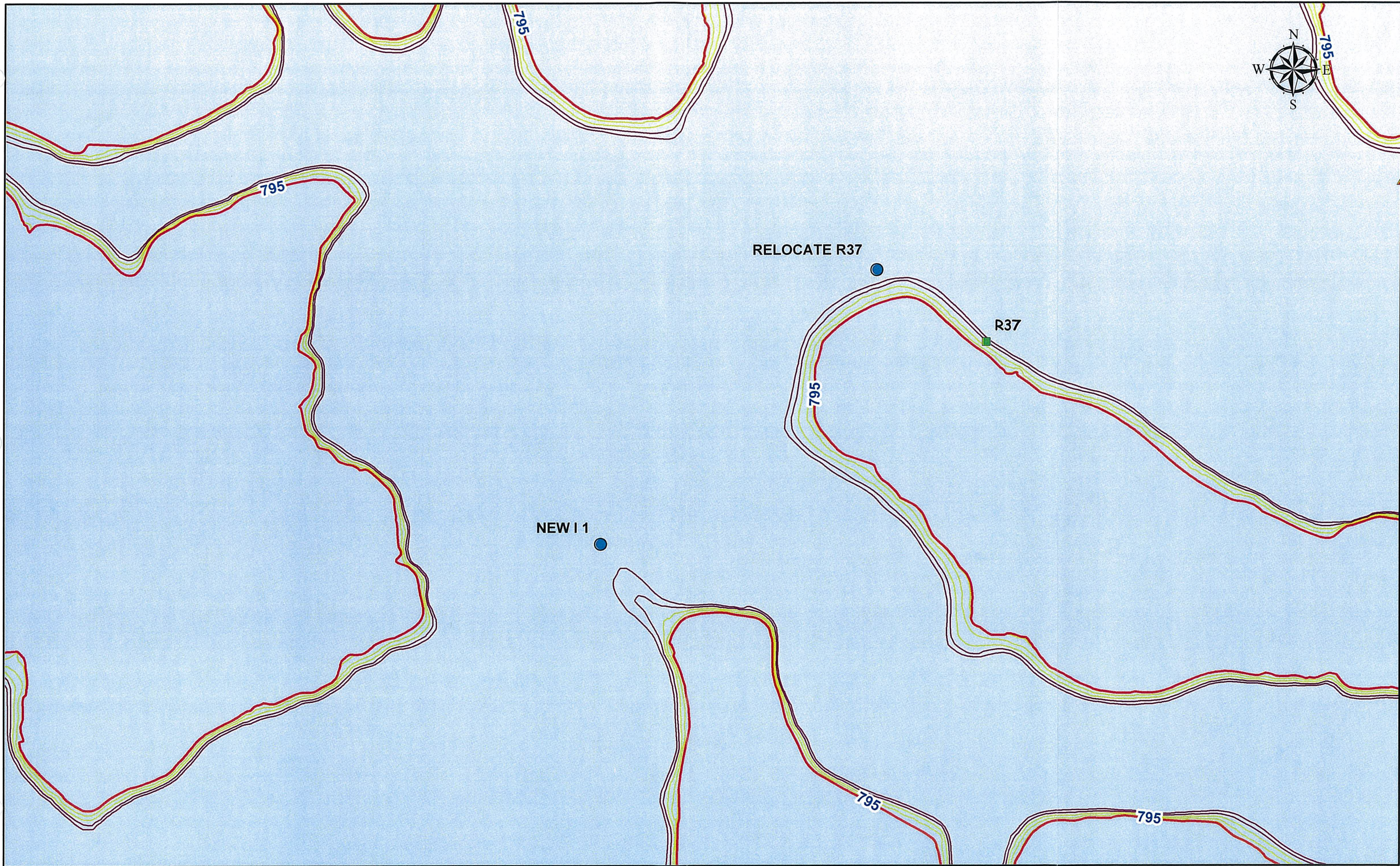
Map of Proposed Changes to Aids on Smith Mountain Lake

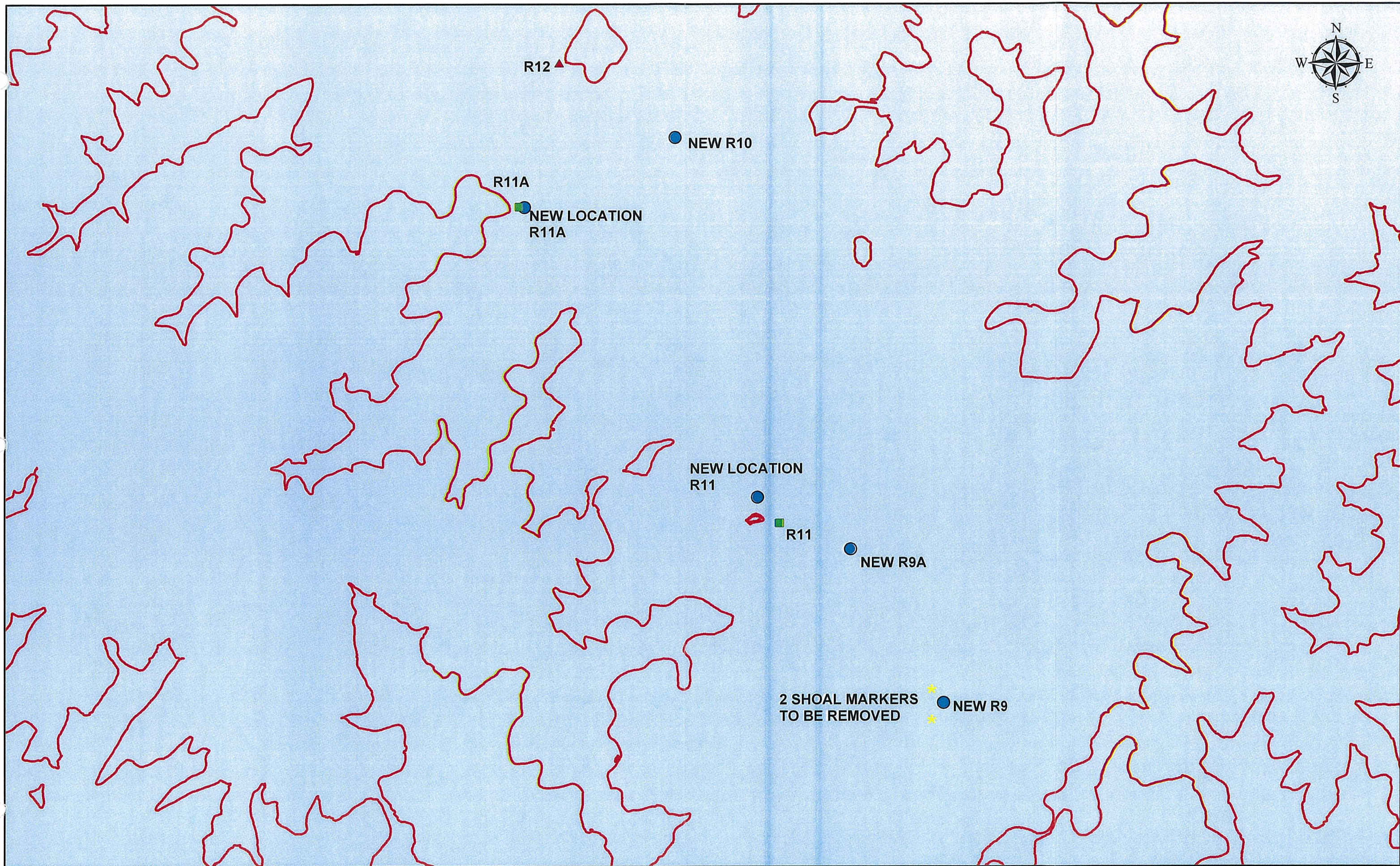


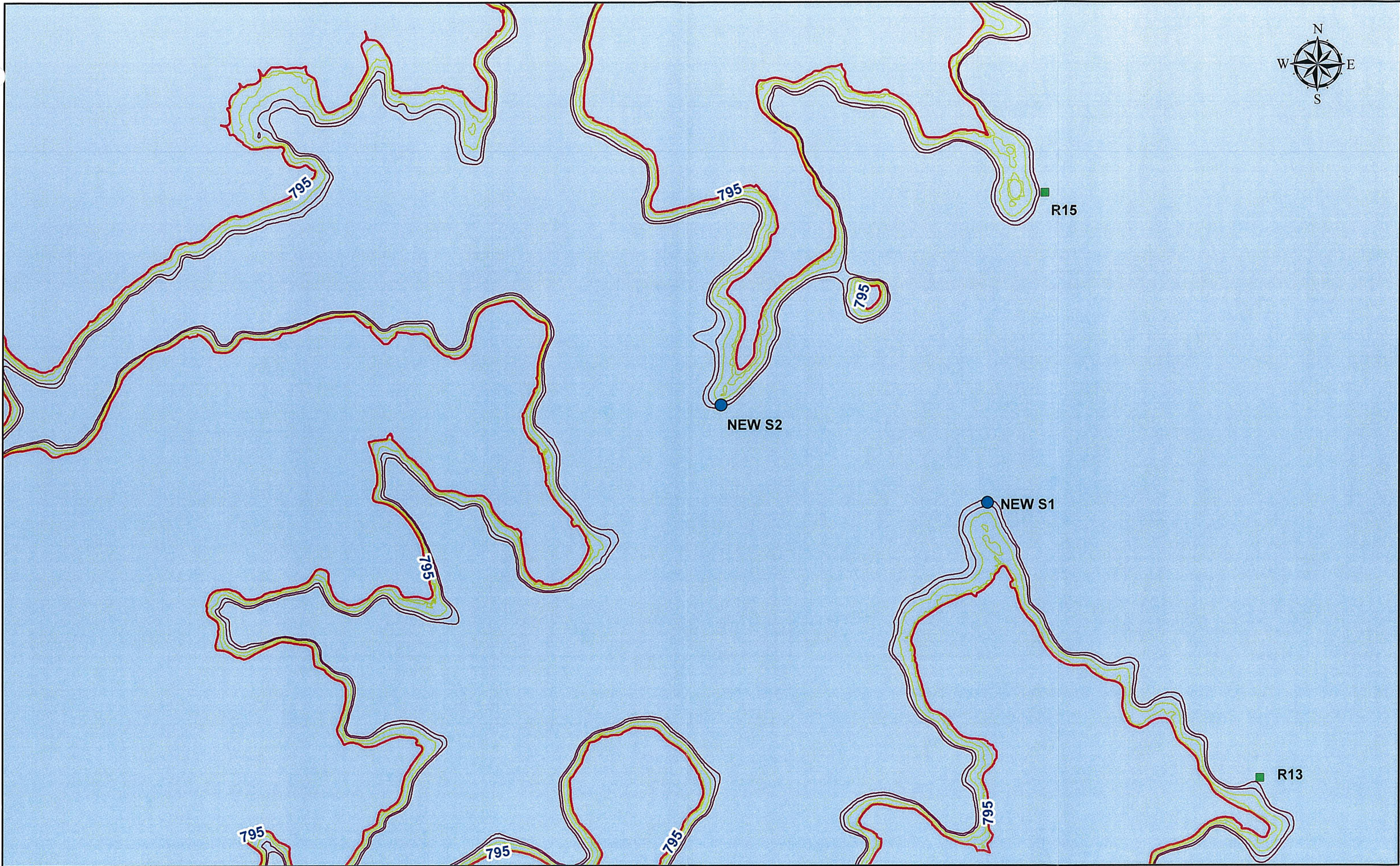


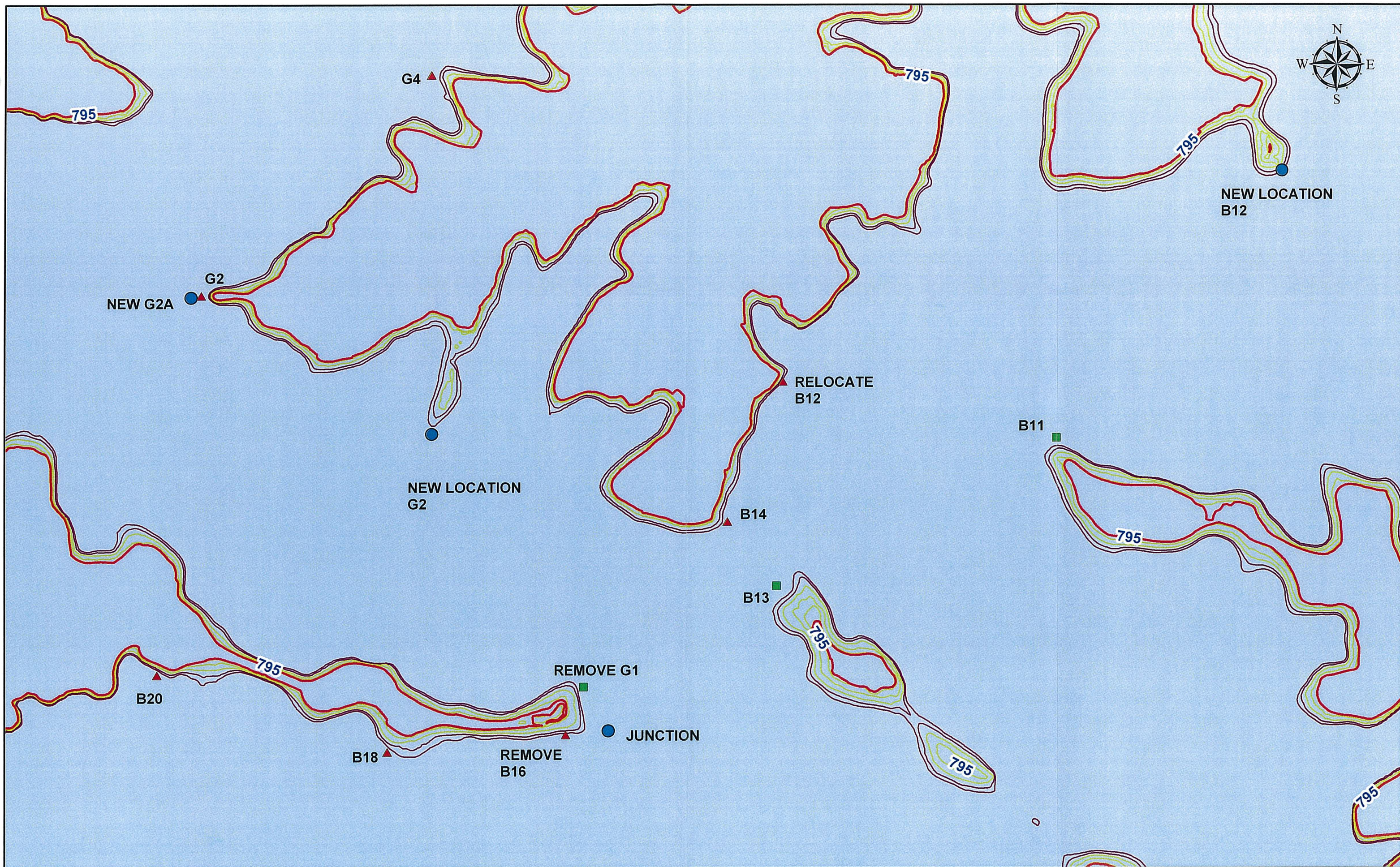


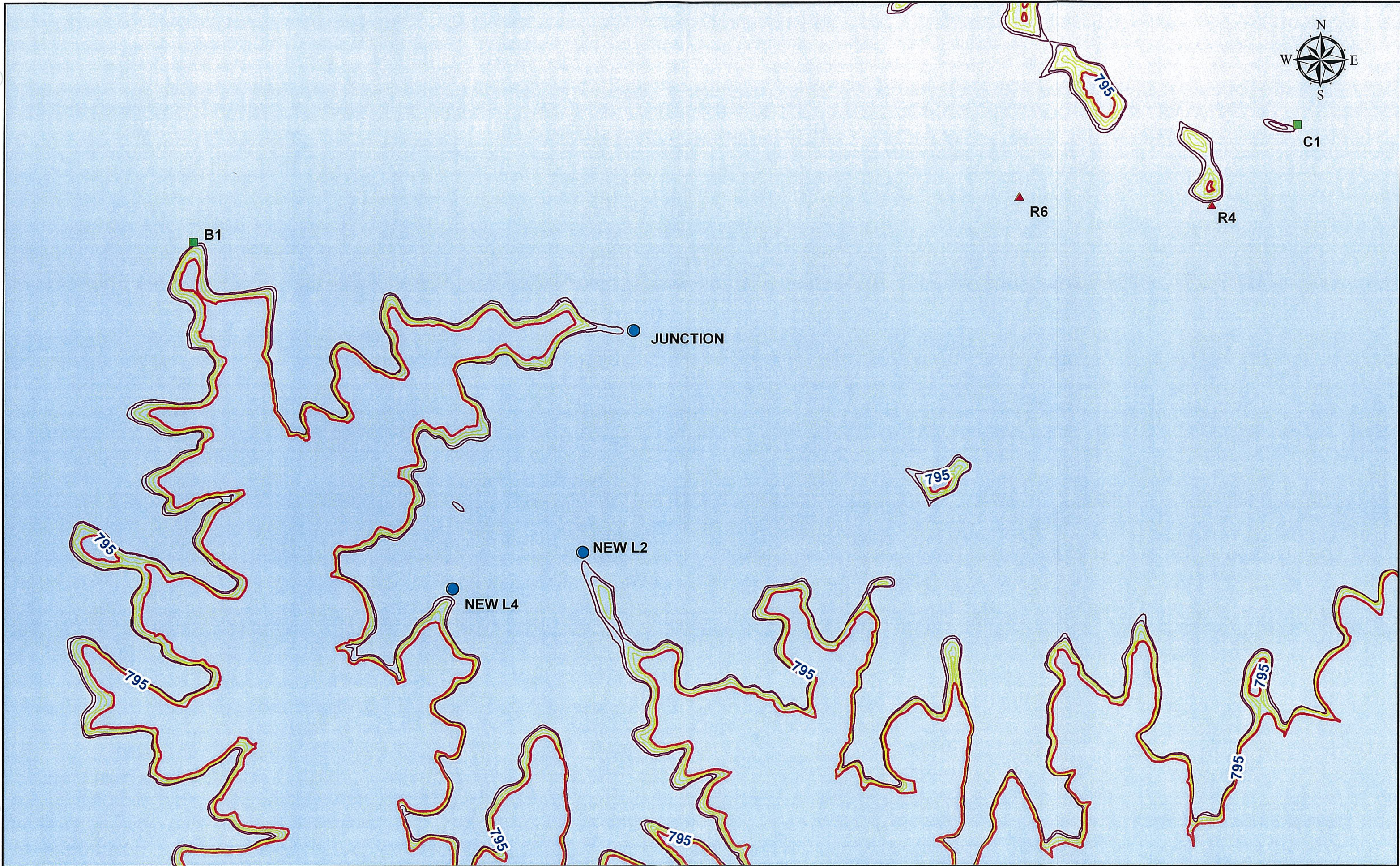


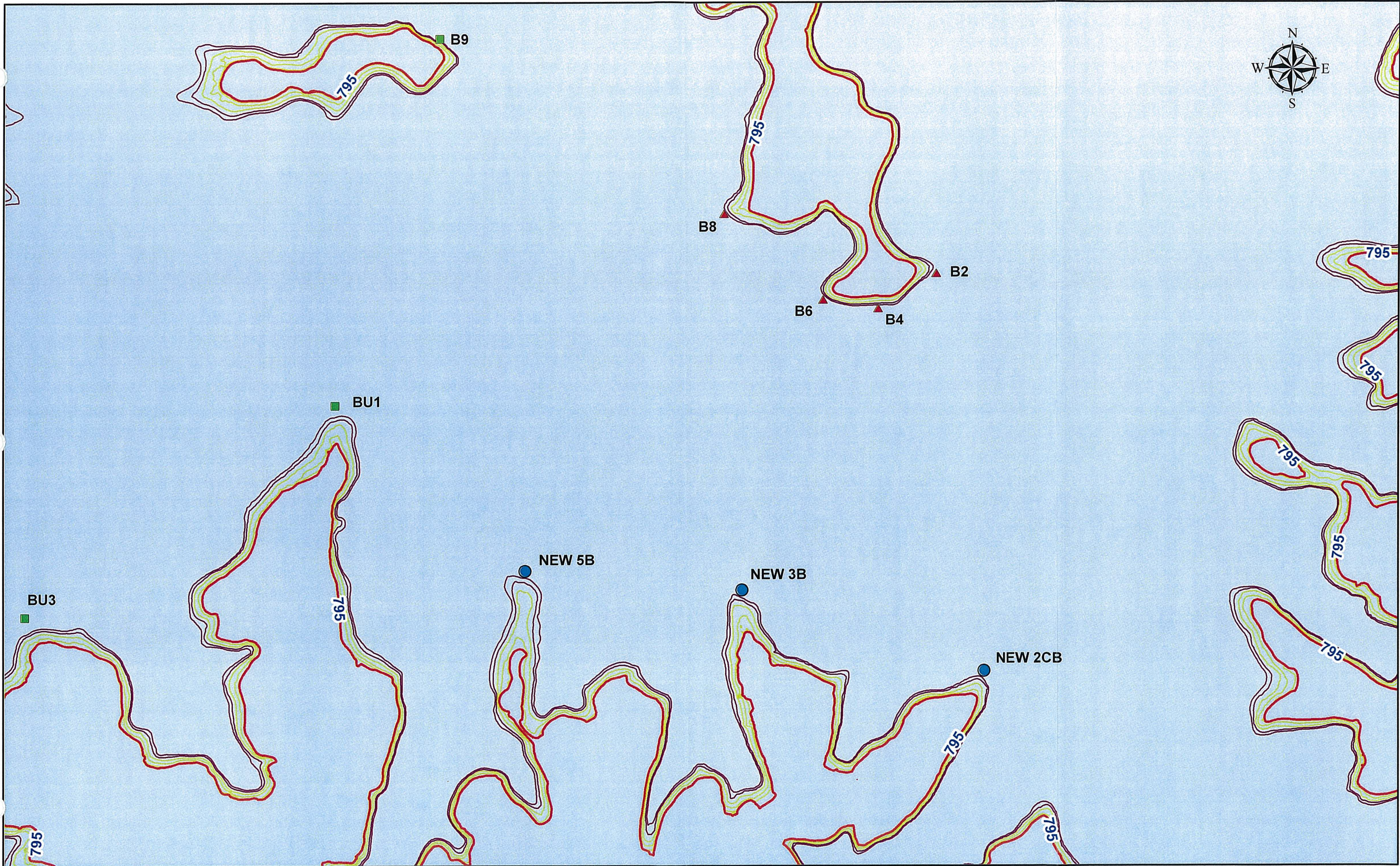


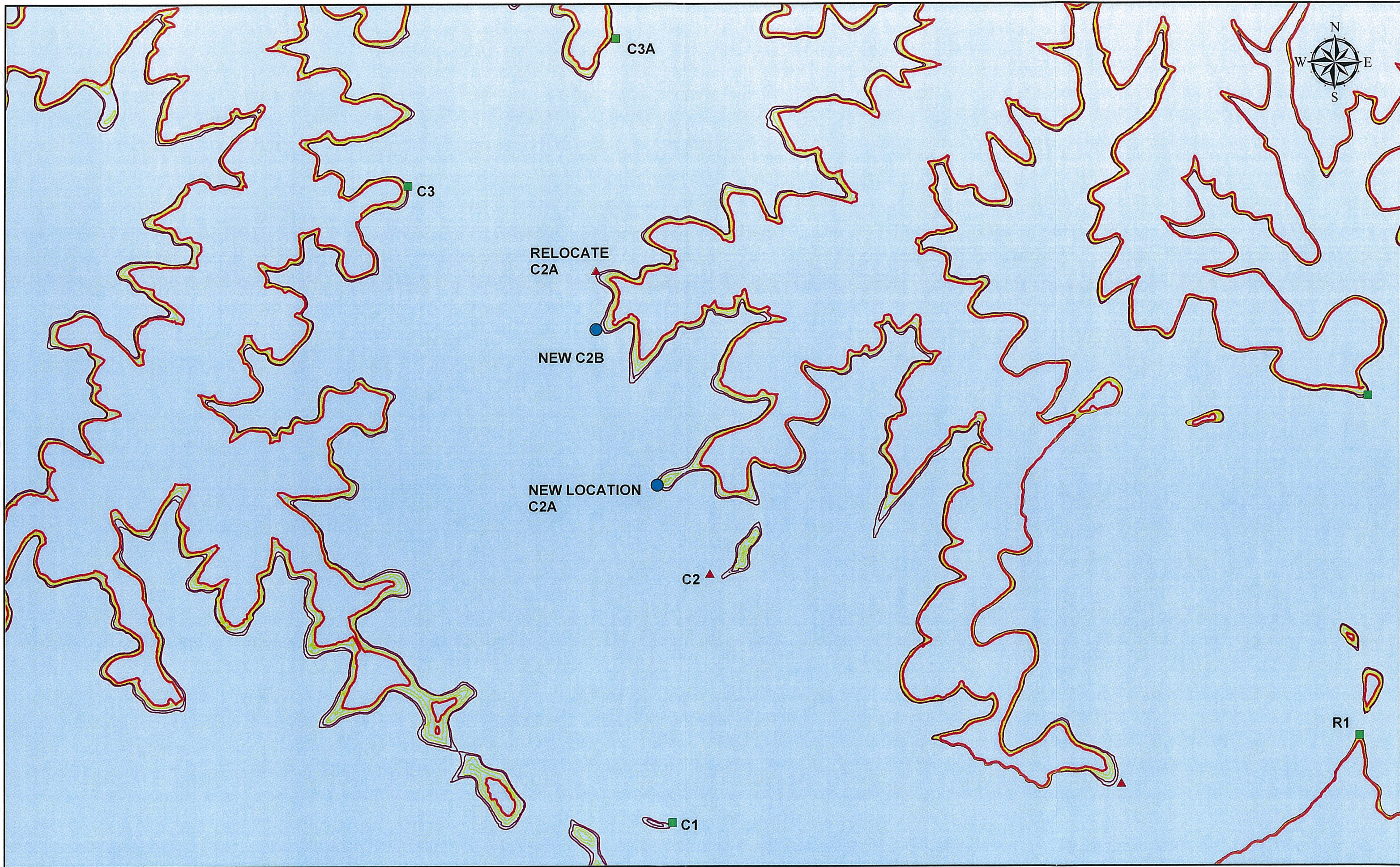


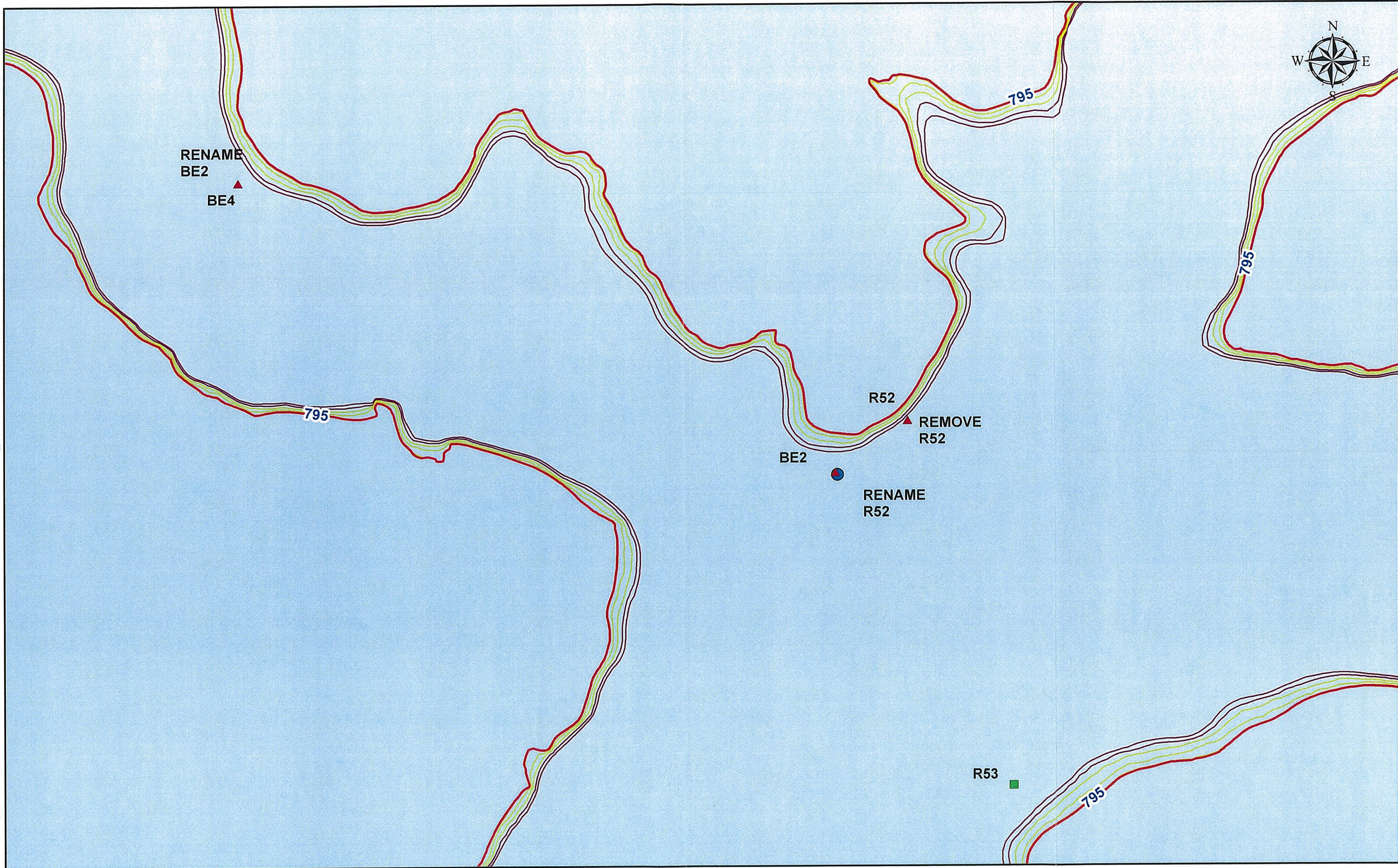








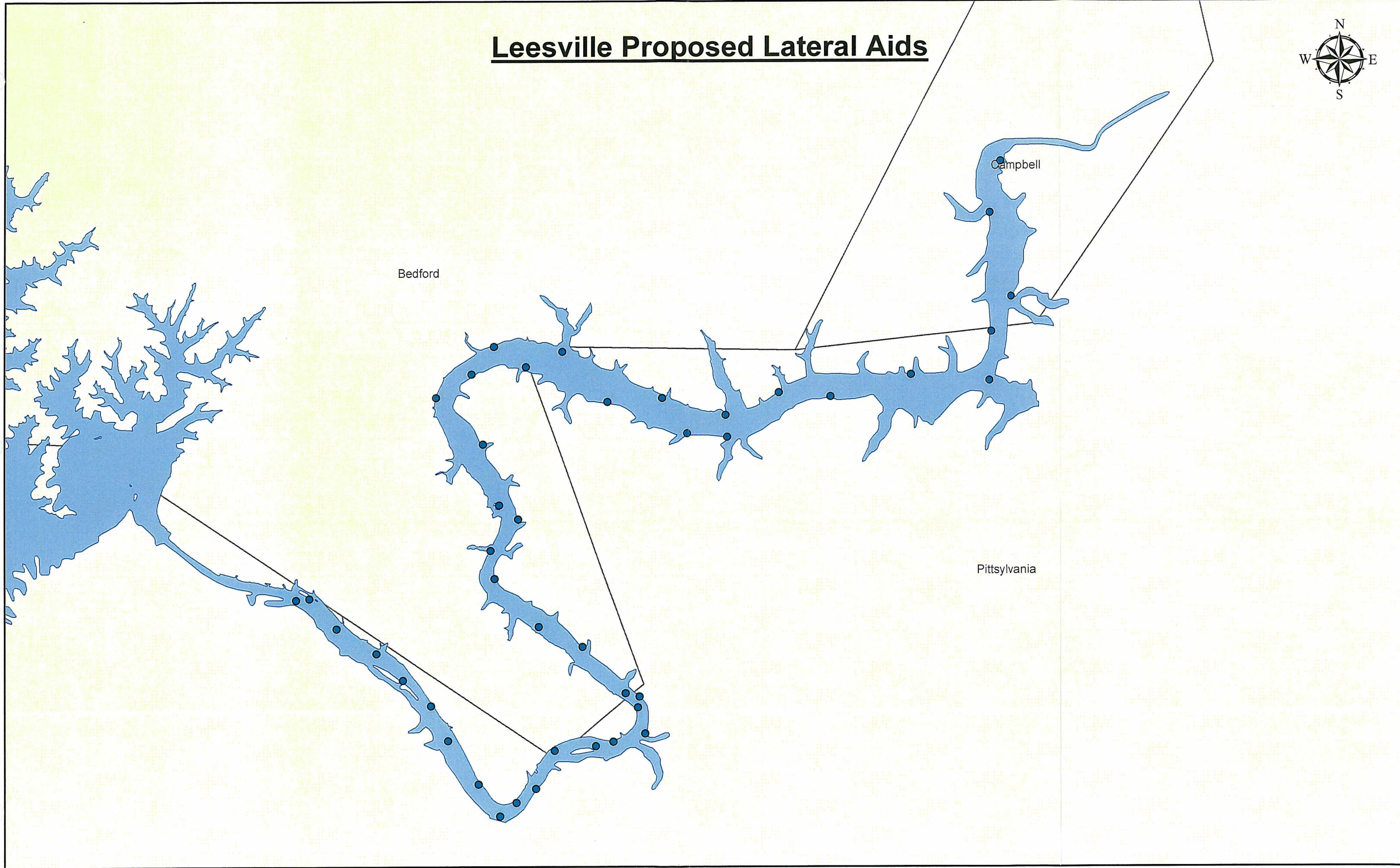




Appendix E

Map of Proposed Changes to Aids on Leesville Lake

Leesville Proposed Lateral Aids



Bedford

Campbell

Pittsylvania